

Delaney Elementary School and Arthur Intermediate School

Kennedale, TX

Safe Routes to School Plan



2018



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I. Project Background

Over the past generation, student travel to school by walking and bicycling has declined dramatically across the United States: in 1969, nearly 50 percent of all children walked or biked to school, compared to 13 percent in 2009. Simultaneously, childhood obesity has more than tripled. There is a growing body of research that has linked these trends with fundamental infrastructure changes in our communities that discourage people from walking, including suburban sprawl, increasing speed and volume of motor vehicle traffic, and roads designed without consideration of pedestrian safety or comfort.

Safe Routes to School (SRTS) is a nationwide initiative dedicated to reversing these trends and encouraging more children to walk and bicycle to school. SRTS employs the “five Es” to meet these goals:

Engineering: Engineering measures include the design, construction and maintenance of physical infrastructure that can improve the safety and comfort of students walking and bicycling in and around the school campus.

Education: Educational programs as part of SRTS efforts teach students bicycle, pedestrian, and traffic safety skills, and teach drivers how to drive safely around schools and share the road.

Enforcement: These are strategies to deter the unsafe behavior of drivers, bicyclists and pedestrians, and encourage all road users to obey traffic laws and share the road.

Encouragement: Encouragement programs serve to promote walking and biking as safe and healthy forms of transportation. Encouragement strategies are intended to be fun and generate excitement and enthusiasm about walking and bicycling.

Evaluation: Evaluation of the SRTS plan is important to understanding whether the plan is being implemented, the effectiveness of the recommended projects and activities, and to identify any needed adjustments. Evaluation could measure the number of infrastructure projects constructed, the before and after shift in travel mode share (number or percent of students walking and bicycling), and whether there was a change in attitudes toward walking and bicycling.

North Central Texas Council of Governments (NCTCOG) received a Transportation Infrastructure Generating Economic Recovery (TIGER) grant in 2014 to address a number of factors related to school siting and transportation to schools. As part of that effort, NCTCOG conducted walking safety audits and developed SRTS plans for four schools in North Texas, including James F. Delaney Elementary School and James A. Arthur Intermediate School in Kennedale, TX.

The purpose of this SRTS plan is to identify measures, including both infrastructure projects and programmatic activities that will make it safer and more enjoyable for students to walk and bicycle to school from nearby neighborhoods, and from the schools to the TownCenter area. These recommended measures will serve as an action plan which, when carried out by the local project stakeholders, will encourage and enable more students to walk and bicycle to school and to nearby destinations as part of school-related activities. The local stakeholders include the City of Kennedale, the Texas Department of Transportation (TxDOT) Fort Worth District, Kennedale Independent School District (ISD), and the Delaney and Arthur school communities. The SRTS project team and implementing agencies are summarized in **Exhibit 1**.

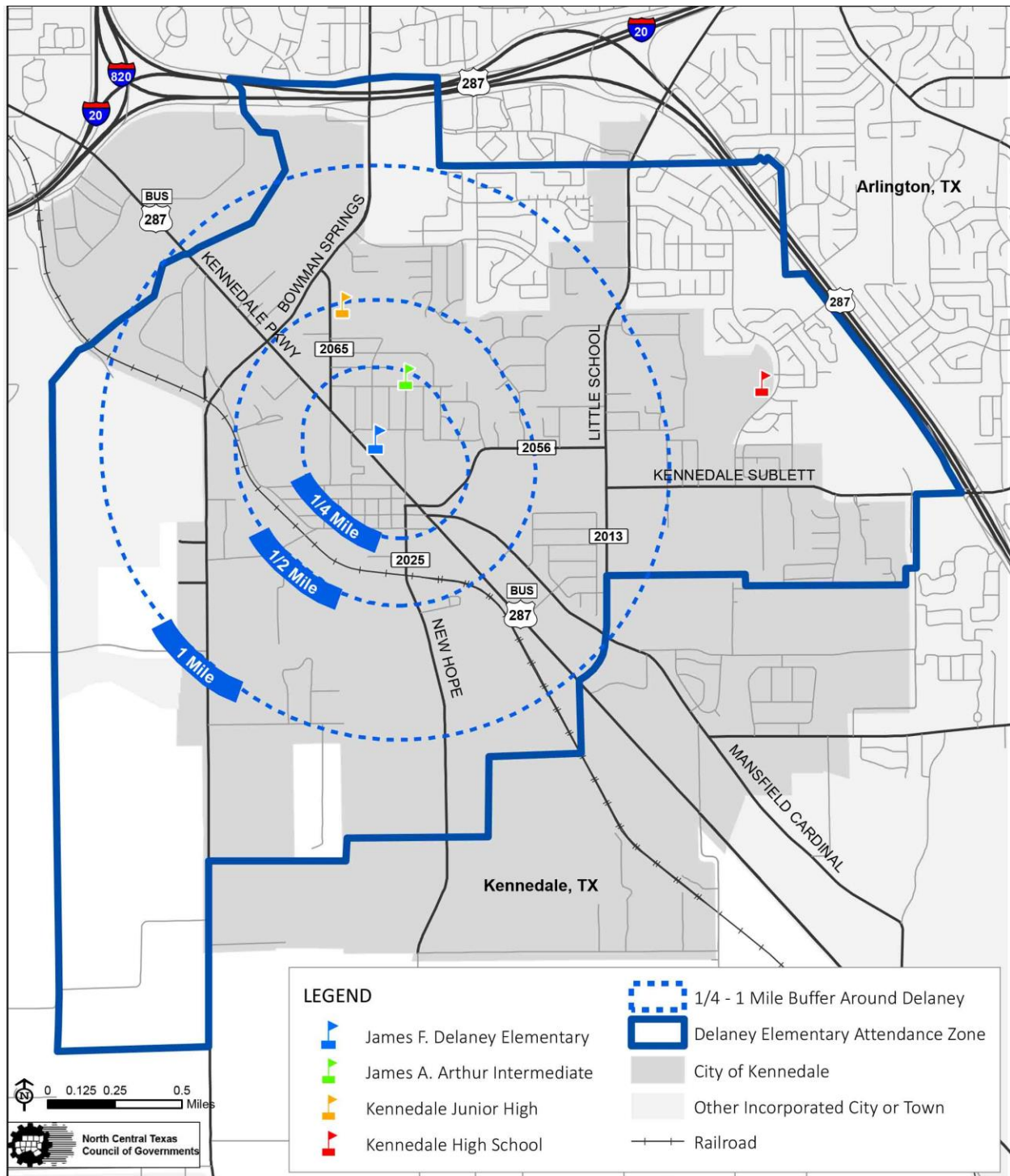
The project was initiated when staff at the City of Kennedale nominated Delaney Elementary and Arthur Intermediate for NCTCOG’s technical assistance opportunity because they had heard from neighbors on Crestview Drive about safety issues. Two meetings were held in the spring of 2017 at Delaney Elementary through which a project team was assembled, consisting of staff from the City of Kennedale Police Department and Planning Department, the Principal of Delaney Elementary, a representative from Arthur Intermediate, staff from Kennedale ISD, and the Delaney Elementary Parent Teacher Organization (PTO) President. During these meetings, the major routes that students use to walk and bicycle to school were confirmed, and existing barriers that limit walking and bicycling, as well as potential opportunities, were identified.

Subsequently, a walking safety audit was conducted by NCTCOG and City of Kennedale staff to evaluate these routes and existing barriers, and identify potential opportunities. A survey was also distributed to parents at Delaney Elementary and Arthur Intermediate to assess how students currently get to and from school, and what the greatest issues are affecting parents’ decision to allow their child to walk or bike. The result of these activities is a list of recommended projects and activities intended to make walking and bicycling to Delaney Elementary and Arthur Intermediate, and to destinations to the south of Kennedale Parkway (BUS 287), a safe and appealing alternative to driving. This SRTS Plan should be updated at regular intervals to reflect changes in priorities, leadership, and conditions.

EXHIBIT 1 - SRTS PROJECT TEAM AND IMPLEMENTING AGENCIES

Organization	Role/Responsibility	Contact
City of Kennedale	Engineering and Enforcement	Larry Hoover, Streets Superintendent E: lhoover@cityofkennedale.com P: 817-538-7375
		Tommy Williams, Police Chief, Kennedale Police Department E: twilliams@cityofkennedale.com
		Delvin Starling, School Resource Officer (SRO) E: starlingd@kisdtx.net , dstarling@cityofkennedale.com P: 817-422-8055
James F. Delaney Elementary School	Education and Encouragement	Katina Martinez, Principal E: martinezk@kisdtx.net P: 817-563-8401
		Julie Webb, PTO President
James A. Arthur Intermediate School	Education and Encouragement	Sandi Manning, Secretary E: mannings@kisdtx.net P: 817-563-8302
Texas Department of Transportation - Fort Worth District	Engineering	Korin Adkins, Transportation Engineer E: Korin.Adkins@txdot.gov
Kennedale Independent School District	Engineering, Education, and Encouragement	Erin Jamison, Public Relations Coordinator E: jamisone@kisdtx.net

II. School Profile



James F. Delaney Elementary and James A. Arthur Intermediate School are located in the City of Kennedale, TX and Kennedale Independent School District. Located 10 miles southeast of downtown Fort Worth, the community has been characterized as a mix of rural, small town, and suburban environments.

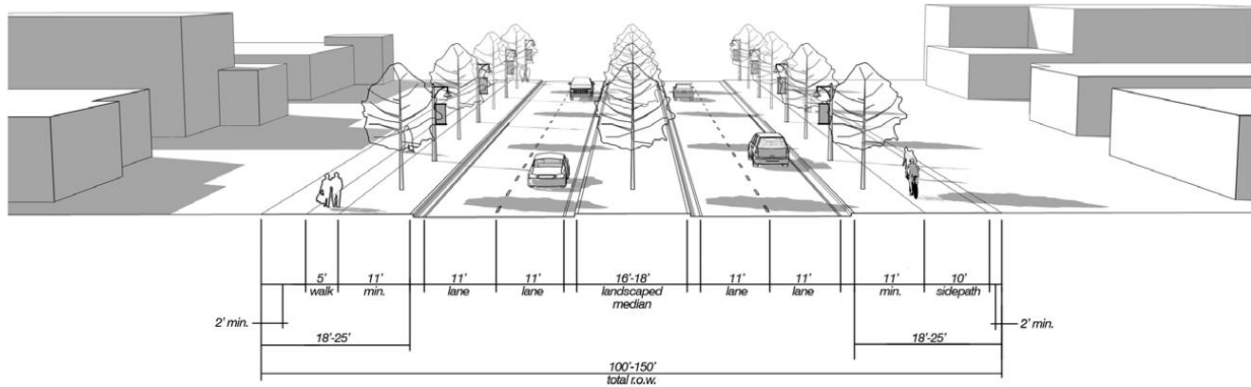
School Neighborhood

Kennedale was established in 1882 at the location of the present city park. The community had a public school by 1890 located on the site of the current administration building, next to the present-day Delaney Elementary. BUS 287 (formerly Highway 34) was constructed in 1934, following a line straight through the school district and bypassing the center of the original settlement along the railway (now Union Pacific). Most of the business activity gradually migrated away from the historic business district on Broadway Street to this roadway, now known as Kennedale Parkway.

Today, the vast majority of Kennedale’s traffic is funneled to and along Kennedale Parkway (BUS 287), a four-lane principal arterial with a center double left turn lane that runs adjacent to Delaney Elementary and the Kennedale ISD Administration Building. A series of mostly two-lane roads with a rural cross section distribute this traffic to the various areas of the city.¹

The TownCenter district identified in the Kennedale Comprehensive Plan encompasses Delaney Elementary and the Kennedale ISD offices, as well as the civic and commercial institutions on the south side of Kennedale Parkway. These include the City Hall, Library, Police Station, and TownCenter Park. The goal of this district is to provide a central place for civic activity in Kennedale. Buildings should be attached, forming a continuous street wall; be oriented toward the street; and have small or no setbacks. The Future Transportation Plan in the Comprehensive Plan identifies Kennedale Parkway as a “Parkway” classification. An example of the Parkway thoroughfare type provided in the Comprehensive Plan is shown in **Exhibit 2**.

EXHIBIT 2 - EXAMPLE OF PARKWAY THOROUGHFARE TYPE IN COMPREHENSIVE PLAN



School Demographics

Delaney Elementary School serves students in grades pre-kindergarten to fourth, while Arthur Intermediate School serves students in grades fifth and sixth. As of the 2015-2016 school year, Delaney Elementary had 713 students, and Arthur Intermediate had 431 students. The following exhibits show the percentage of students by grade, the percentage of students considered economically disadvantaged, and the ethnic distribution of students, according to the Texas Education Agency 2015-2016 School Report Cards and Texas Academic Performance Reports.

¹ Kennedale Comprehensive Plan Update. (2012, March).

EXHIBIT 3 - DELANEY ELEMENTARY STUDENT DEMOGRAPHICS (2015-2016)

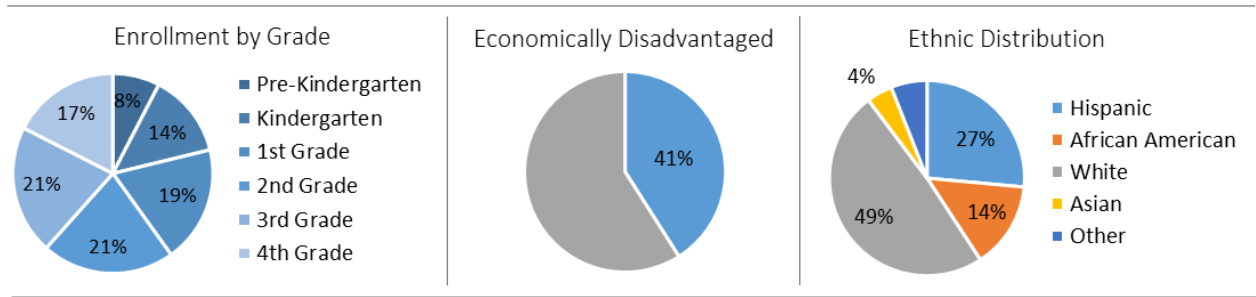
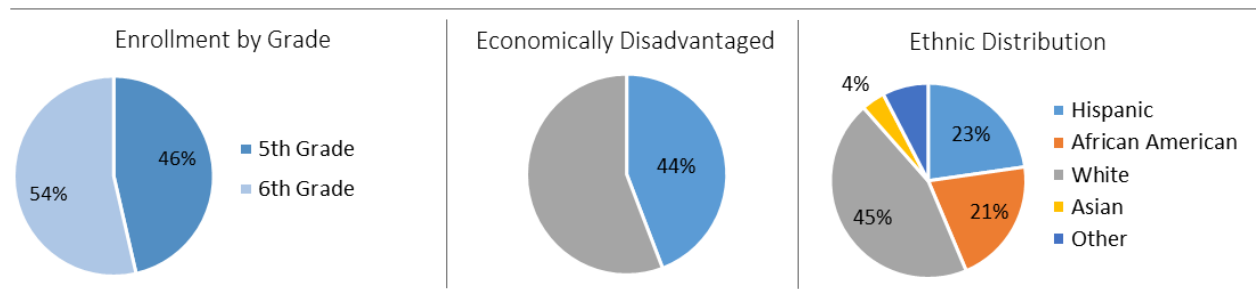


EXHIBIT 4 - ARTHUR INTERMEDIATE STUDENT DEMOGRAPHICS (2015-2016)



III. Current School Travel Environment

Student Travel Mode

As of the 2016-2017 school year, six school buses serve Delaney Elementary. The way in which students currently travel to and from school was determined through parent surveys, which were sent home with students at Delaney Elementary and Arthur Intermediate in the spring of 2017. Of those sent out, 220 surveys were returned to Delaney Elementary and 16 returned to Arthur Intermediate. In general, the vast majority of students arrive at and leave school in a school bus or private family vehicle. There is only a slight increase in walking and bicycling rates for students that live within one-quarter mile of school. The following exhibits display student mode share for both schools, as well as for Delaney students that were reported as living within one-quarter mile of school. Due to the limited sample size of Arthur Intermediate parent responses, the same analysis was not conducted for that school.

Delaney Elementary

EXHIBIT 5 - TYPICAL MODE OF ARRIVAL AND DEPARTURE - ALL STUDENTS

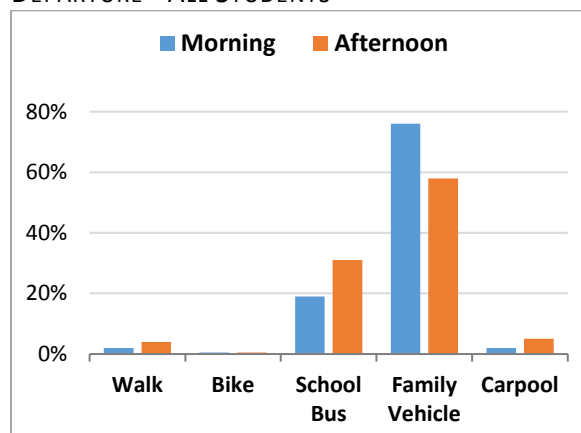
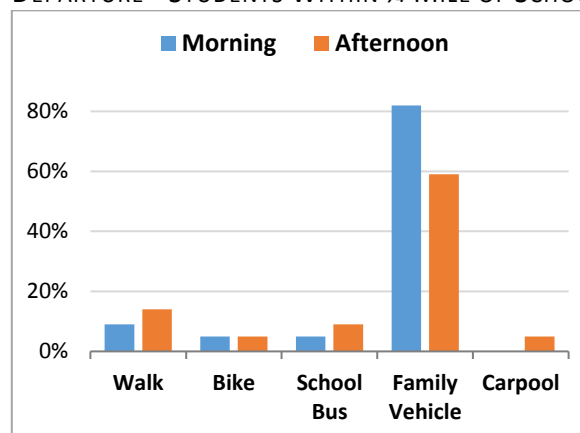
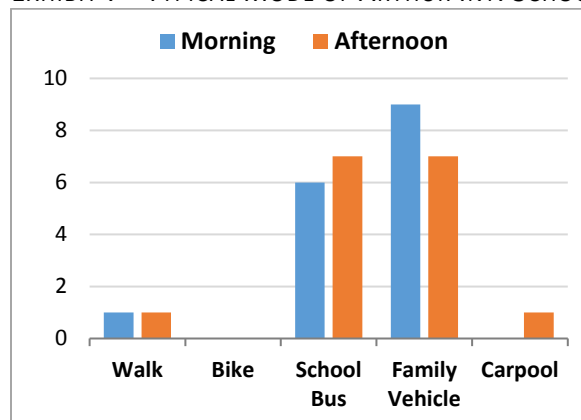


EXHIBIT 6 - TYPICAL MODE OF ARRIVAL AND DEPARTURE - STUDENTS WITHIN ¼ MILE OF SCHOOL



Arthur Intermediate

EXHIBIT 7 - TYPICAL MODE OF ARTHUR INT. SCHOOL ARRIVAL AND DEPARTURE



School Hours

Delaney Elementary

Delaney Elementary opens at 7:30 am, the first bell rings at 7:55 am and students must be in their classrooms by 8:10 am. Students are dismissed at 3:30 pm, and afternoon activities such as ACE and Chess Club end between 4:15 and 5:30 pm.

Pre-K Annex

The Pre-K Annex next to Delaney Elementary has two sessions: a morning session that goes from 8:00 to 11:30 am, and an afternoon session from 12:00 to 3:30 pm.

Arthur Intermediate School

The morning bell for Arthur Intermediate is at 8:15 am, but students may start arriving as early as 7:30 am for breakfast. Students are dismissed at 3:45 pm.

Drop-off and Pick-up Procedures

Delaney Elementary

The following drop-off and pick-up procedures were taken from the James F. Delaney 2016-2017 Procedural Manual, and may be subject to change.

Morning Drop-Off:

In the morning, all cars and buses entering the Delaney Elementary campus to drop off students must enter on the Kennedale Parkway side of the building. Buses are the only vehicles that are allowed to drop off students at the gym doors facing Kennedale Parkway. All other cars must drop off students at the following doors, depending on the time of arrival:

- Before 7:45 am: Door 4 (north door) only.
- From 7:45 - 8 am: Door 2 (west) or Door 4 (north), or parents have the option of parking in the lot on the south side of the school and walking up to Door 1 (south) with their child.
- After 8 am: Door 1 (south) only.

See **Exhibit 8** on page 9 for a map of the door locations.

Afternoon Pick-Up:

During afternoon dismissal time, the eastern “entrance only” school driveway on Kennedale Parkway is blocked off with cones and cars must enter through the western driveways located in front of the Kennedale ISD administration building. The purpose of the pick-up procedure is to get as many cars in the pick-up line off of Kennedale Parkway as possible. The afternoon dismissal and pick-up procedure is as follows:

- All third and fourth grade students, along with younger siblings, are to be picked up on the Door 2 (west) side of the building.
- All kindergarten, first and second grade students are to be picked up on the Door 4 (north) side of the building, which faces Cloverlane.
- Parents that wish to walk up to the school to collect students may use Door 5 (east) only, which faces the side parking lot and football field. Parents may park in the side parking lot or on Cloverlane Drive for walk-up dismissal.

- All students that walk home exit from Door 3, are escorted to the crosswalk on Cloverlane, and assisted with crossing by the school crossing guards.
- School buses pick up students on the east side of the school building, to the north of the pre-kindergarten annex.

Exhibit 8 provides a visualization of the pick-up procedure for Delaney Elementary.

Pre-Kindergarten Annex

Pre-kindergarten students may be dropped off at the pre-kindergarten annex door on the north side of the building.

Arthur Intermediate

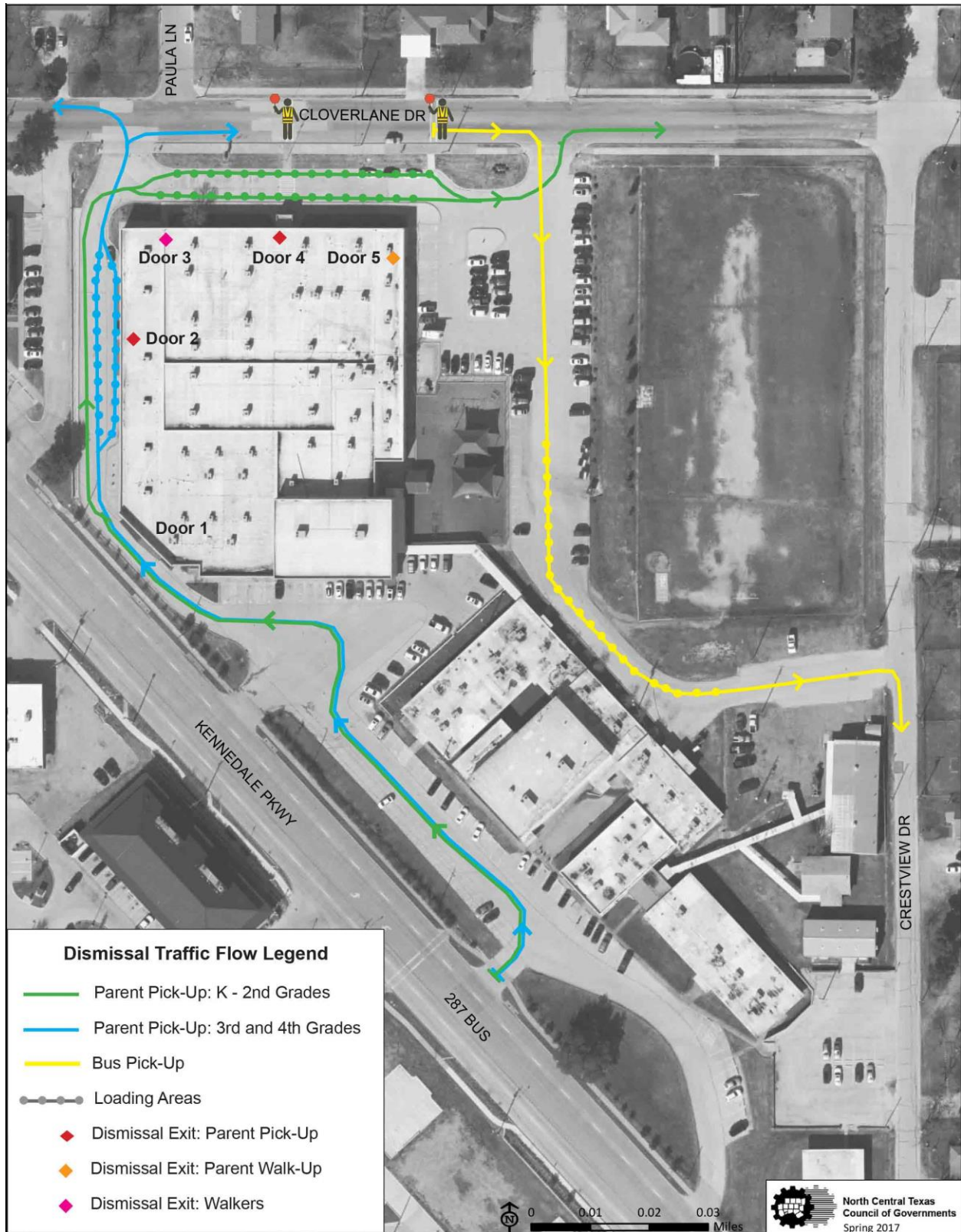
Mistletoe is one-way westbound during arrival and dismissal times (7:45 - 8:45 am and 3:15 - 4:15 pm). The entrance for students arriving at and leaving school is the front door facing Mistletoe. In the interest of student and faculty safety, the school parking lots are not to be used for parents or daily traffic patterns. The parking lot on the west side of the school is to be used for bus drop-off and pick-up only, and is one-way going north.

In the afternoon, cones are set out to prevent parents from parking adjacent to the front doors on Mistletoe, from using the parking lot/driveway on Mistletoe, and to improve visibility at the intersection of Mistletoe and Crestview.

Crossing Guards

For Delaney Elementary, two school custodians serve as the crossing guards at the two mid-block crosswalks on Cloverlane. For Arthur Intermediate, no crossing guards were observed in the morning, but two were observed on Mistletoe for the afternoon dismissal.

EXHIBIT 8 - DELANEY ELEMENTARY DISMISSAL TRAFFIC PROCEDURE



IV. Evaluating Issues and Opportunities

Existing issues and opportunities were identified through (1) a survey of parents at Delaney Elementary and Arthur Intermediate, (2) meetings with school and community stakeholders, (3) a questionnaire filled out by the principal of Delaney Elementary, (4) an analysis of crash data and traffic counts, and (5) a walking safety audit. The following sections detail the findings of each of these activities, and summarize the key issues and opportunities.

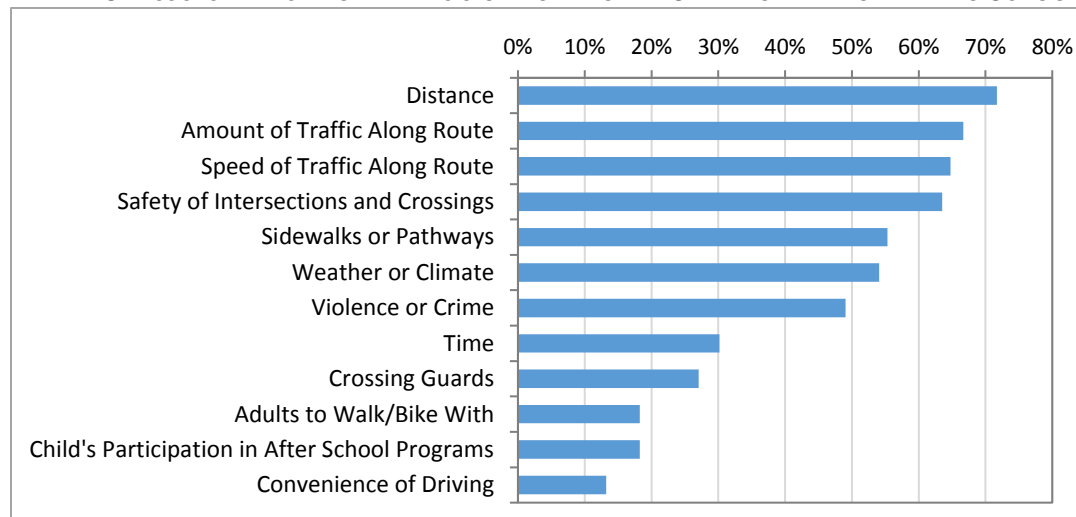
Parent Survey Results

In addition to identifying current student travel mode, another goal of the parent surveys was to identify the major issues that affect parents’ decision to allow their child to walk or bicycle to/from school. Due to the proximity of the two schools, and the limited number of parent surveys received from Arthur Intermediate, the issues for both schools were evaluated together. A summary of the percentage of respondents that selected an issue is shown in **Exhibit 9**.

The top issues affecting the decision of parents to allow their child to walk or bike to/from school were as follows (number of respondents, N=159; multiple choices were allowed):

1. Distance (72%)
2. Amount of Traffic along Route (67%)
3. Speed of Traffic along Route (65%)
4. Safety of Intersections and Crossings (64%)
5. Sidewalks or Pathways (55%)
6. Weather or Climate (54%)

EXHIBIT 9 - ISSUES AFFECTING THE DECISION TO ALLOW A CHILD TO WALK OR BIKE TO SCHOOL



Additional issues were identified or expanded upon in the comments section of the parent survey. A list of all of the comments can be found in **Appendix B**. Below is a sample of the most commonly expressed comments:

- *If we lived closer to the schools both our children would walk to and from school.*

- *There is way too much traffic in our neighborhood and even though we have asked for speed bumps nothing happens. People drive WAY too fast in surrounding neighborhood --> Hillside Dr.*
- *My children would walk if there were crossing guards at the major intersections.*
- *Intersections in the area are far too dangerous. Stop signs and speed limits are not enforced.*
- *My main concern is the lack of sidewalks near our neighborhood - if my child had a buddy to walk with - or enough sidewalk room for a stroller so I could walk with, then I would allow it.*
- *Kennedale needs sidewalks especially in school zones.*
- *Walkers should be released daily BEFORE car line. The kids should be allowed to reach a safe distance away from the school before all the cars in the first line are released. There are some days that I see the second line of car riders released before the walkers are even out the door. Major safety concern.*
- *The reasons my child doesn't walk home from school is safety. Drivers are not cautious. My #1 concern is abduction.*

Current Community Concerns

The school community's concerns related to walking and bicycling around Delaney Elementary and Arthur Intermediate were identified through a questionnaire given to the principal of Delaney Elementary, and during two meetings that were held at Delaney Elementary on February 10 and March 7, 2017. The school questionnaire asked school administrative staff to describe any traffic safety concerns in the school vicinity that are a concern for student walkers, the frequency that they hear of the concern and from whom.

Through the questionnaire, two locations that parents and staff frequently express concern about to the school principal were identified: (1) anywhere on Kennedale Parkway, and (2) anywhere on Cloverlane Drive. Also in the questionnaire, the principal was asked to identify any destinations near the school that teachers are interested in taking students to. The principal identified the following destinations: TownCenter Park, library, and police station.

The following issues were determined during the two school meetings:

- City staff nominated the schools for the technical assistance because neighbors had complained about safety issues on Paula Street and traffic speeds in the neighborhood in general from Arthur to Hillside.
- On-street parking reduces visibility and contributes to congestion.
- There is a lack of sidewalks, especially on Kennedale Parkway (BUS 287) and across from Arthur Intermediate.
- Arthur has limited parking, so parent parking during pick-up time spills into residential areas.
- Last year a custodian performing crossing guard duties on Cloverlane was struck by a car. Crossing guards could use training and are currently asked to direct traffic in addition to regular crossing guard duties.
- Speeding on Kennedale Parkway, Cloverlane, Hilltop, and Mistletoe is a problem.
- Parent compliance with pickup/drop-off procedures is spotty.
- Cell phone use while driving occurs.
- Parents and some students do not use the crosswalks.
- The crossing of Kennedale Parkway is considered unsafe. Teachers take students on walking field trips across Kennedale Parkway to the library or park, and would also like to access the shops for lunch.
- There is a major safety issue where Reeves Lane turns into Hilltop Drive, and with speeding on Hilltop Drive.

Crash Data and Traffic Counts

Based on crash data from 2009 to 2014 provided by the Texas Department of Transportation, there were no bicycle or pedestrian crashes in the project area, and only four vehicular crashes: two on Reeves Lane at Cloverlane and Hilltop, one mid-block on Kennedale Parkway in front of Delaney Elementary, and one on Crestview to the north of Kennedale Parkway. In 2016 and 2017, the City of Kennedale conducted traffic counts on Kennedale Parkway, Cloverlane Drive, and Crestview Drive. All three roadways were found to have relatively low traffic volumes and ample capacity. These traffic counts, as well as the locations of the vehicular crashes and other existing traffic conditions can be found in **Exhibit 10**.

EXHIBIT 10 - EXISTING TRAFFIC CONDITIONS



Walking Safety Audit

Overview and Route

A walking safety audit was conducted by staff from NCTCOG and the City of Kennedale on April 12, 2017 during arrival and dismissal times, with the purpose of identifying barriers and opportunities for walking and bicycling to Delaney Elementary and Arthur Intermediate, and from the schools to Kennedale TownCenter. Maps of the safety audit walking routes and observation locations can be found in **Appendix C**, and the audit tool (checklist) in **Appendix D**.

Key Observations

Delaney Elementary:

- In the morning, 10 student pedestrians, one student bicyclist, and four other pedestrians were observed on Cloverlane. In the afternoon, 30 student pedestrians, one student bicyclist, and 29 other pedestrians were observed on Cloverlane. Additionally, two students and two other pedestrians were observed crossing mid-block on Kennedale Parkway toward Chicken Express.
- Parents park too close to crosswalks and intersections, thereby limiting pedestrian visibility. Turning movement conflicts cause safety issues on Cloverlane Drive in front of Delaney Elementary and at the intersection of Cloverlane, Timberline, and the school driveway.
- A crossing guard/custodian stood at the Cloverlane/Timberline/school driveway intersection to direct traffic and assist with crossing.
- The crossing guards/custodians left to go back inside before drop-off and pick-up had ended and when students were still crossing the street.
- Students were not observed using the eastern school crosswalk, only the one in front of the entrance. Most of the parents that walk up to pick up their kids did not cross at the eastern school crosswalk, and instead usually crossed at the Cloverlane/Timberline intersection.
- The curb on the south side of Cloverlane in front of the school driveway is painted red for No Parking, but parent loading still occurred there.
- There is a lack of pedestrian access to the school building from Kennedale Parkway, and many vehicular conflicts occur at the western school driveway on Kennedale Parkway.



Arthur Intermediate:

- The only sidewalks around Arthur Intermediate are adjacent to the school on Mistletoe.
- In the morning, very few students were observed using the crosswalk to cross Mistletoe, and instead most chose to cross Mistletoe at Crestview or Reeves. The same occurred in the afternoon.
- Many parents were observed parking on or very close to the school crosswalk and intersections, limiting visibility of students walking and other vehicles.
- Related to the one-way direction of traffic on Mistletoe during school arrival and dismissal times, it was unclear where the one-way direction started (particularly at Reeves and Mistletoe), some of the signs were obscured by overgrown vegetation, and some drivers were observed going against the one-way traffic.
- There is a lack of signage at the driveway entrances on the north side of the school to indicate exit only, bus only, etc. A crossing guard assisting with bus drop-off reported that some drivers speed through the bus loading area on the west side of the school going the wrong way, or try to pass the buses.

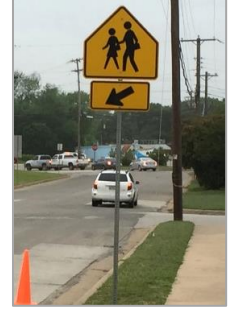


Other:

- In both the morning and afternoon, cones are set out on Cloverlane to prevent parents from parking on or too close to the crosswalks.
- Speeding was observed on Cloverlane and Mistletoe.
- There are no sidewalks on any of the streets between the two schools. Many of the driveways are blocked by parked vehicles, forcing pedestrians to walk out in the street. Observers saw several students—both pedestrians and bicyclists—nearly get hit by cars.
- To get from Delaney Elementary to TownCenter across Kennedale Parkway, students and staff would currently have to walk an additional 0.3 miles to cross at the nearest signalized intersection at Crestview/New Hope Road.
- The bicycle rack on the north side of Delaney Elementary, when occupied by a bicycle, partially obstructs the sidewalk.
- Many parents were observed talking on their cell phones while driving.
- Before the schools were dismissed, at least a half dozen high school students were dropped off by a school bus at the intersection of Cloverlane and Crestview, and were observed walking north on Crestview.
- Signage: All of the school crossing signs and most of the school speed limit signs have not been updated to the bright yellow-green standard in the current MUTCD, which has been shown to improve driver awareness and the safety of pedestrians crossing the street.



- At both school campuses, there is a need for improved ADA accessibility (curb ramps) between the school entrances and the crosswalks.
- Frequent high-speed turns at the intersection of Reeves and Cloverlane were observed.
- There is a significant vehicular safety issue where Reeves Lane curves east and becomes Hilltop Drive. This in turn impacts pedestrian safety: drivers take the turn too quickly, or make sharp turns into the other lane and oncoming traffic. Cars parked on Hilltop near the turn force drivers to go around them at an unsafe spot. Several near head-on collisions were observed.



Vehicle making a three-point U-turn nearly backs into a student bicycling in the street.



Key Issues and Opportunities

Based on the findings from the parent surveys, school questionnaire, project team meetings, crash data and traffic count assessment, and the walking safety audit, the following seven key issues were identified as impacting students' ability to safely and comfortably walk and bicycle to Delaney Elementary and Arthur Intermediate, and the community destinations around Delaney Elementary.

1. Amount and Speed of Traffic Around the Schools

- Amount of traffic along route and speed of traffic along route were identified as issues by 67 percent and 65 percent of parent survey respondents, respectively.
- City staff had nominated the schools for the technical assistance opportunity after receiving complaints from neighbors regarding safety issues on Paula Street and traffic speeds in the neighborhood in general from Arthur to Hillside.
- Speeding on Kennedale Parkway, Cloverlane, Hilltop, and Mistletoe was reported by the school community to be a problem.

2. Safety of Intersections and Crossings

2a. Intersection and Crossing Safety in General:

- Sixty-four percent of parents identified the Safety of Intersections and Crossings as an issue impacting their decision to allow their child to walk or bike to school.
- At meetings it was reported that on-street parking reduces visibility and contributes to congestion.
- During the safety audit, several issues and opportunities impacting crossing safety were identified, including vehicles parking too close to crosswalks and intersections, the lack of high visibility crosswalks, and crossing signs that could be updated to current MUTCD standards to improve motorist awareness.

2b. School Crosswalks on Cloverlane:

- Last year a crossing guard/custodian was struck by a car.
- The school puts out cones on Cloverlane to prevent parents from parking in No Parking areas and too close to crosswalks. Despite the cones and the curb painted red for No Parking, parent drop-off was still observed on the south side of Cloverlane.
- Students were not observed using the eastern school crosswalk, only the one in front of the school entrance. Most of the parents that walk up to pick up their kids did not cross at the eastern crosswalk, and instead usually crossed in the middle of the Cloverlane/Timberline intersection.
- In the afternoon, one of the crossing guards stands at the intersection of Cloverlane, Timberline, and the school driveway to assist with crossing and direct traffic.

2c. School Crosswalk on Mistletoe:

- Most students chose to cross Mistletoe at Crestview or Reeves, instead of at the crosswalk.
- The school puts out cones at the intersection of Mistletoe and Crestview to prevent parents from parking too close to the intersection and blocking visibility.

2d. Kennedale Parkway – Mid-Block Crossing Between Delaney Elementary and TownCenter:

- Crossing Kennedale Parkway near the entrance to Delaney Elementary was identified as unsafe during the school meetings. Teachers take students on walking field trips across Kennedale Parkway to the library, park, and police station, and would like to access the shops in TownCenter for lunch.
- Students and staff currently have to walk an additional 0.3 miles to cross at the nearest signalized intersection at Crestview/New Hope Road.

2e. Intersections of Reeves with Cloverlane and Hilltop:

- During the school meetings, a major safety issue was identified where Reeves Lane turns into Hilltop Drive. The principal requested that NCTCOG and City staff focus on this area during the safety audit.
- Between 2009 and 2014, there were two TxDOT-reportable vehicular crashes on Reeves Lane—one at Cloverlane Drive and the other at Hilltop Drive.
- Frequent high-speed turns were observed at the intersection of Reeves and Cloverlane.
- During the safety audit, a significant vehicular safety issue was identified where Reeves Lane curves east and becomes Hilltop Drive: drivers take the turn too quickly, or make sharp turns into the other lane/oncoming traffic. Cars parked near the turn on Hilltop force drivers to go around them at a dangerous spot. Several near head-on collisions were observed. These issues in turn impact the safety of pedestrians walking in this area.

3. Along the Route to School: Sidewalks and Weather

- Sidewalks or Pathways were identified as an issue by 55 percent of the parent survey respondents.
- Thirty-eight parents said that they would allow their child to walk or bike to school if there were sidewalks.
- Weather or Climate was identified as an issue by 54 percent of parent survey respondents.
- It was noted during the school meetings that there is a lack of sidewalks, especially on Kennedale Parkway and across from Arthur Intermediate.
- There are no sidewalks on the streets between the two schools except those adjacent to Arthur Intermediate on Mistletoe and on Cloverlane Drive between Paula Street and Crestview Drive.
- Many residential driveways are blocked by parked vehicles, forcing pedestrians to walk in the street.
- Safety audit observers saw several students nearly get hit by vehicles.

4. Campus Sidewalks and Drop-Off/Pick-Up Procedures

- A parent survey respondent reported that cars in the Delaney pick-up line are sometimes released before all students have been safely escorted to the crosswalk.
- School administrators reported that parent compliance with drop-off/pick-up procedures is not as high as they would like.
- There is a lack of pedestrian access to Delaney Elementary entrance from Kennedale Parkway.
- In the morning, many vehicular and pedestrian conflicts were observed at Delaney's western school driveway on Kennedale Parkway, including cars entering, exiting, parking, backing up, and parents walking students across the parking lot. This driveway is blocked off by cones in the afternoon.
- It is unclear where the one-way direction on Cloverlane starts (particularly at Reeves and Mistletoe), some of the One Way signs were obscured by overgrown vegetation, and some drivers were observed going against the one-way traffic.
- There is a lack of signage at the driveway entrances on the north side of the Arthur Intermediate campus to indicate exit only, bus only, etc.

5. Distance

Distance was identified as the greatest issue impacting parents' decision to allow their child to walk or bicycle to school.

6. Personal Safety and Crime

Forty-nine percent of parent survey respondents identified Violence or Crime as an issue impacting their decision to allow their child to walk or bike to school.

V. Recommendations

The following recommendations are divided into the five Es of SRTS—Engineering, Education, Enforcement, Encouragement, and Evaluation—and are intended to address the key issues identified in the previous section as the primary obstacles to enabling and encouraging more students to safely walk and bicycle to school.

Engineering

Engineering measures include the design, construction and maintenance of physical infrastructure that can improve the safety and comfort of students walking and bicycling in and around the school campus. Descriptions and images of these improvement types that are recommended in this plan can be found in **Appendix E**.

City of Kennedale:

1. **Sidewalks:** Construct sidewalks on Cloverlane, Mistletoe, Paula, Timberline, Crestview, and Reeves (see **Exhibit 11** on page 22 for specific locations). Sidewalks are only proposed for one side of the street on Paula, Timberline, Crestview, and Reeves due to the relatively low traffic volumes on the streets (which allows for more opportunities for pedestrians to cross the street to get to the sidewalk), the additional costs of installing sidewalks on both sides of the street, and the available right-of-way based on a preliminary assessment using county parcel data. More detailed design and engineering, as well as resident input, is needed to finalize this proposal.
2. **Crosswalks:** Stripe seven high visibility crosswalks and nine conventional “transverse” crosswalks on Cloverlane and Mistletoe to direct pedestrians to the appropriate location to cross the street, and improve motorist awareness that pedestrians may be crossing at those locations (see **Exhibit 11** on page 22 for specific locations).
3. **Curb Extensions:** Construct curb extensions (also known as “bulb-outs”) on Cloverlane and Mistletoe to reduce the distance for students and parents crossing the street, and prevent parents from parking too close to crosswalks and intersections. See **Exhibit 11** on page 22 for specific locations, and **Exhibit 12** for an illustration of what the improvements to Cloverlane would look like.
4. **NO PARKING Signs:** Install No Parking signs on Paula, Timberline, Crestview and Reeves to deter parents and other motorists from parking too close to the intersections of those streets with Cloverlane and Mistletoe, thereby improving the visibility of pedestrians crossing at these locations.²
5. **Stop Signs:** Install a stop sign for vehicles leaving the Delaney Elementary school driveway at Cloverlane and Timberline; all-way stop signs at Cloverlane and Reeves; and a stop sign for vehicles turning right onto Reeves from Hilltop.
 - a. *Stop sign at school driveway:* Currently, the only stop sign at Cloverlane and Timberline/the school driveway is for vehicles on Timberline; therefore, it is unclear whether vehicles on Cloverlane or in the school driveway have the right-of-way. Furthermore, most parents that walk to pick up their child cross at various locations in and around the Cloverlane/Timberline intersection. As a result, a crossing guard often moves from the eastern school crosswalk to this intersection to help with crossing and direct traffic. By installing a stop sign for the school driveway as well as marked

² This recommendation would also reinforce Texas Transportation Code - TRANSP § 545.302, which states that drivers may not stand or park their vehicle within 15 feet of a fire hydrant, within 20 feet of a crosswalk at an intersection, and within 30 feet on the approach to a flashing signal, stop sign, yield sign, or traffic control signal located at the side of the roadway.

- crosswalks at this intersection, the crossing guard should no longer need to direct traffic, and the safety of parents and students already crossing at this location would be improved.
- b. *All-way stop signs at Cloverlane and Reeves:* Currently, only the vehicles on Cloverlane are required to stop. The intent of installing all-way stop signs here is to slow traffic on Reeves, and slow the speed at which vehicles make turns at this intersection.
 - c. *Stop sign for Hilltop at Reeves:* The intent of this recommendation is to slow traffic on Hilltop and the rate at which vehicles make right turns onto Reeves, thereby calming traffic and helping to prevent head-on collisions.
6. Reeves and Hilltop Curve Safety Improvements: In addition to a stop sign, it is recommended that centerline striping be installed at the blind curve where Reeves turns into Hilltop, as well as a blind curve warning sign on Reeves, and a No Parking sign on Hilltop. These improvements are intended to discourage high-speed turns, and help prevent potential head-on collisions caused by vehicles encroaching into the oncoming traffic lane as they make the turn.
7. School Crossing and Speed Limit Signs:
- a. Update school crossing signs and school speed limits sign to be MUTCD compliant (bright yellow/green).
 - b. Reverse the direction that the existing school crossing sign located on the south side of Mistletoe between Reeves and Crestview faces (currently faces west), so that the school crossing signs on both sides of the street are facing the direction of one-way traffic.
 - c. When the new high-visibility crosswalk is installed at the intersection of Cloverlane and Timberline, move the existing crossing signs at the eastern mid-block crosswalk to that location.
8. One Way Signs Along Mistletoe:
- a. To improve visibility of the signs and compliance with the one way traffic during school arrival and dismissal, relocate the existing One Way, No Left Turn, and No Right Turn signs at the intersections of Mistletoe and Paula, Timberline, and Crestview to the near right corner of the intersection facing traffic, next to the stop sign, per Section 2B.40 of the Texas MUTCD (2012). If sufficient funds should be made available in the future, install secondary signs on the far left side of the intersection.
 - b. Install a new One Way sign next to the stop sign at the intersection of Mistletoe and Reeves.
 - c. Move the existing Do Not Enter signs on Mistletoe east of the intersection with Paula closer to that intersection to improve visibility.

City of Kennedale and TxDOT:

9. Conduct a study for the installation of a mid-block crosswalk and pedestrian hybrid beacon on Kennedale Parkway between Cloverlane Drive and Crestview Drive/New Hope Road.
10. If found to be warranted, install a pedestrian hybrid beacon with a high-visibility crosswalk and pedestrian refuge island mid-block on Kennedale Parkway (see **Exhibit 11** on page 22 for a possible location).

TxDOT:

11. Install temporary speed feedback displays next to the school speed limit signs on Kennedale Parkway, programmed to be active only during the school zone hours.
12. Conduct a feasibility study to replace the two-way left-turn lane on Kennedale Parkway between Cloverlane Drive and Crestview Drive/New Hope Road with a raised median. The raised median would provide a refuge for pedestrians crossing the street, as well as prevent vehicles from turning left at undesirable locations.

Kennedale ISD:

13. Traffic Control Signage:
 - a. Install a Do Not Enter sign at the most north/western driveway to Delaney Elementary on Kennedale Parkway to help reduce vehicular-vehicular and vehicular-pedestrian conflicts in the parking lot on the south side of Delaney Elementary.
 - b. Install a Do Not Enter sign at the northwestern school driveway to Arthur Intermediate off of Arthur Drive to reduce conflicts in the bus loading zone and make it clearer that the parking lot on the west side of the school is one way going north.
14. Install ADA curb ramps at the existing crosswalks on the Delaney Elementary School campus, parallel to Cloverlane.
15. Construct a sidewalk on the south side of Delaney Elementary to connect the school entrance to the existing sidewalks on Kennedale Parkway.

City of Kennedale, Kennedale ISD, and Delaney Elementary:

16. Plant trees on or adjacent to school property on Cloverlane and Crestview to calm traffic, remind parents and other motorists that this is a residential/elementary school setting, improve air quality, and reduce the heating effect caused by impermeable surfaces around the school. The planting of trees would help to address the issue of "Weather or Climate" that was identified as a deterrent to walking and bicycling to school by 54 percent of the parent survey respondents.

EXHIBIT 11 - RECOMMENDED IMPROVEMENTS

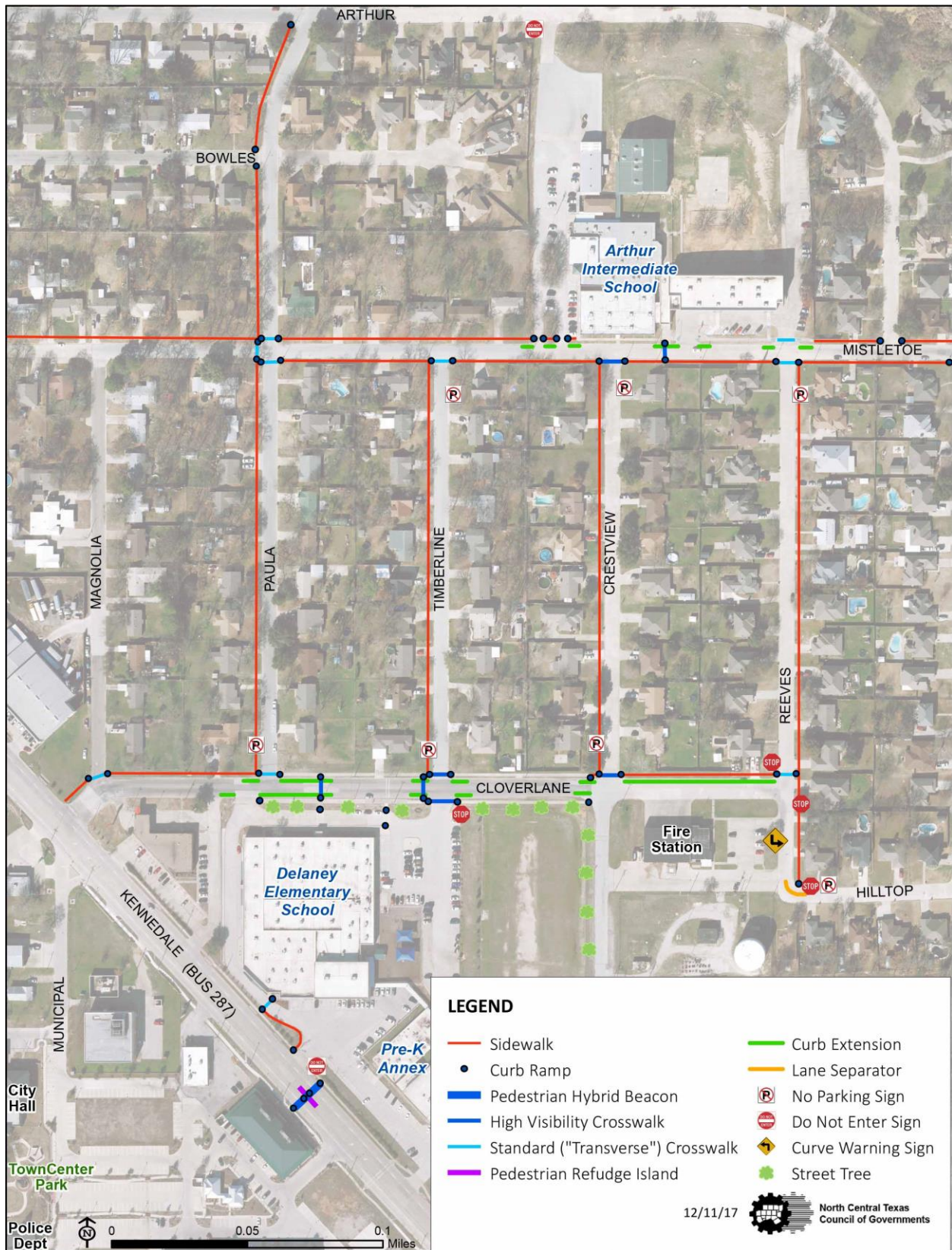


EXHIBIT 12 - VISUALIZING THE RECOMMENDATIONS FOR CLOVERLANE DRIVE

EXISTING:



PROPOSED IMPROVEMENTS:



EXHIBIT 13 - RECOMMENDED INFRASTRUCTURE IMPROVEMENTS BY RESPONSIBLE ENTITY

Implementation Timeframe:
Short Term (0-2 years)
Medium Term (2-5 years)
Long Term (5+ years)

Responsible Entity	Improvement Type	Quantity	Approx. Length (linear feet)	Location(s)	Issue(s) (p. 17)
City of Kennedale	High Visibility Crosswalk	1	24	Mid-block on Mistletoe between Crestview and Reeves	2C
City of Kennedale	High Visibility Crosswalk	1	30	South side of the Mistletoe/Crestview intersection	2A
City of Kennedale	High Visibility Crosswalk	1	24	Mid-block on Cloverlane between Paula and Timberline	2B
City of Kennedale	High Visibility Crosswalk	3	24, 40, and 24	North, south, and west sides of the Cloverlane/Timberline intersection	2B
City of Kennedale	High Visibility Crosswalk	1	30	North side of the Cloverlane/Crestview intersection	2A

Kennedale Safe Routes to School Plan

Responsible Entity	Improvement Type	Quantity	Approx. Length (linear feet)	Location(s)	Issue(s) (p. 17)
City of Kennedale	Standard ("Transverse") Crosswalk	9	30 (each)	At the intersections of Mistletoe and Paula (3), Mistletoe and Timberline (1), Mistletoe and Reeves (2), Cloverlane and Magnolia (1), Cloverlane and Paula (1), and Cloverlane and Reeves (1)	2A, 2E
City of Kennedale	Centerline Striping	1	TBD	Where Reeves Lane and Hilltop Drive curve to meet	2E
City of Kennedale	BLIND CURVE AHEAD Sign	2	N/A	On Reeves Lane as it approaches Hilltop Drive	2E
City of Kennedale	STOP Signs	4	N/A	A stop sign for the school driveway at Cloverlane and Timberline, a stop sign for Hilltop where it meets Reeves, and all-way stop signs at Cloverlane and Reeves	1, 2B, 2C
City of Kennedale	NO PARKING Signs	7	N/A	Near intersections or curves on Paula, Timberline, Crestview, Reeves, and Hilltop	2A
City of Kennedale	Move Existing ONE WAY and NO TURN Signs	4	N/A	Existing signs at the intersections of Mistletoe with Paula, Timberline, and Crestview—move to the near right side of the intersection	4
City of Kennedale	Move Existing DO NOT ENTER Signs	2	N/A	Existing signs on Mistletoe east of Paula—move so that they are nearer to, or at the intersection with Paula	4
City of Kennedale	New ONE WAY Sign	1	N/A	Next to the stop sign at the intersection of Mistletoe and Reeves	4
City of Kennedale	Updated School Crossing Signs	11	N/A	Existing school crossing signs around Delaney Elementary and Arthur Intermediate	2A
City of Kennedale	Updated School Speed Limit Signs	5	N/A	All school zone speed limit signs for Delaney Elementary and Arthur Intermediate that have not already been updated	1
City of Kennedale	Sidewalks (5 ft. min)	N/A	1,400	West side of Paula Street between Arthur Drive and Cloverlane Drive	3
City of Kennedale	Sidewalks (5 ft. min)	N/A	800	West side of Timberline Drive	3
City of Kennedale	Sidewalks (5 ft. min)	N/A	800	West side of Crestview Drive between Mistletoe Drive and Cloverlane Drive	3
City of Kennedale	Sidewalks (5 ft. min)	N/A	1,010	East side of Reeves Lane	3
City of Kennedale	Sidewalks (5 ft. min)	N/A	1,660	North side of Mistletoe Drive from Corry A Edwards Drive to the existing sidewalks on the school campus, and from the school campus to Ruth Drive	3
City of Kennedale	Sidewalks (5 ft. min)	N/A	870	South side of Mistletoe Drive from Paula Street to Crestview Drive, and from Reeves Lane to Ruth Drive	3
City of Kennedale	Sidewalks (7 ft. min)	N/A	290	South side of Mistletoe Drive from Crestview Drive to Reeves Lane	3

Kennedale Safe Routes to School Plan

Responsible Entity	Improvement Type	Quantity	Approx. Length (linear feet)	Location(s)	Issue(s) (p. 17)
City of Kennedale	Sidewalks (5 ft. min)	N/A	660	North side of Cloverlane Drive from Kennedale Parkway to Paula Street, and from Crestview Drive to Reeves Lane	3
City of Kennedale	Curb Extensions	18	960	Various locations along Mistletoe Drive and Cloverlane Drive	1, 2A, 2B, 2C
City of Kennedale	Curb Installation	1	120	South side of Cloverlane Drive between Timberline and Crestview	3
City of Kennedale	New ADA Curb Ramps	37	N/A	Various locations on Paula, Mistletoe, Cloverlane, and Reeves	2, 3
City of Kennedale	Upgraded ADA Curb Ramps	7	N/A	Various locations on Cloverlane Drive.	2, 3
TxDOT	Speed Feedback Display	2	N/A	Along Kennedale Parkway to accompany the existing school zone speed limit signs	1
City and TxDOT	Pedestrian Hybrid Beacon	1	N/A	Mid-block on Kennedale Parkway (BUS 287) adjacent to Delaney Elementary	2D
City and TxDOT	High Visibility Crosswalk	1	50	Mid-block on Kennedale Parkway at the proposed pedestrian hybrid beacon	2D
City and TxDOT	Pedestrian Refuge Island	1	TBD	Mid-block on Kennedale Parkway at the proposed pedestrian hybrid beacon	2D
City and TxDOT	New ADA Curb Ramps	4	N/A	Mid-block on Kennedale Parkway at the proposed pedestrian hybrid beacon	2D
City and TxDOT	Upgraded ADA Curb Ramps	2	N/A	Kennedale Parkway (BUS 287) at the north/western school driveway	2D, 3
Kennedale ISD	DO NOT ENTER Signs	2	N/A	At two driveway entrances for Delaney Elementary and Arthur Intermediate	4
Kennedale ISD	Sidewalks (5 ft. min)	N/A	120	From Kennedale Parkway to the Delaney administrative office entrance	4
Kennedale ISD	Standard ("Transverse") Crosswalk	1	25	Connecting the proposed sidewalk off of Kennedale Parkway to Delaney's administrative office entrance	4
Kennedale ISD	New ADA Curb Ramps	5	N/A	Various locations on the north and south side of Delaney Elementary	4
City, ISD, and Delaney EL	Street Trees	10-15	N/A	Along Cloverlane Drive and Crestview Drive, on or adjacent to school property	1, 3

EXHIBIT 14 - RECOMMENDED INFRASTRUCTURE IMPROVEMENTS BY TYPE, BY LOCATION

Sidewalks

Improvement Type	Location(s)	Approx. Length (linear feet)	Responsible Entity	Issue(s) (p. 17)
Sidewalks (5 ft. min)	From Kennedale Parkway to the Delaney office entrance	120	Kennedale ISD	4
Sidewalks (5 ft. min)	West side of Paula Street between Arthur Drive and Cloverlane Drive	1,400	City of Kennedale	3

Kennedale Safe Routes to School Plan

Sidewalks (5 ft. min)	West side of Timberline Drive	800	City of Kennedale	3
Sidewalks (5 ft. min)	West side of Crestview Drive between Mistletoe Drive and Cloverlane Drive	800	City of Kennedale	3
Sidewalks (5 ft. min)	East side of Reeves Lane	1,010	City of Kennedale	3
Sidewalks (5 ft. min)	North side of Cloverlane Drive from Kennedale Parkway to Paula Street, and from Crestview Drive to Reeves Lane	660	City of Kennedale	3
Sidewalks (5 ft. min)	North side of Mistletoe Drive from Corry A Edwards Drive to the existing sidewalks on the school campus, and from the school campus to Ruth Drive	1,660	City of Kennedale	3
Sidewalks (5 ft. min)	South side of Mistletoe Drive from Paula Street to Crestview Drive, and from Reeves Lane to Ruth Drive	870	City of Kennedale	3
Sidewalks (7 ft. min)	South side of Mistletoe Drive from Crestview Drive to Reeves Lane	290	City of Kennedale	3
Curb Installation	South side of Cloverlane Drive between Timberline and Crestview	120	City of Kennedale	3

Typical Unit Costs:³

- New Sidewalk: \$55 (SY)
- Curb: \$20 (LF)

Crossing Improvements

Improvement Type and Quantity	Location(s)	Approx. Length (linear feet)	Responsible Entity	Issue(s) (p. 17)
Pedestrian Hybrid Beacon (1), Refuge Island (1), High Visibility Crosswalk (1), and Curb Ramps (4)	Mid-block on Kennedale Parkway (BUS 287) adjacent to Delaney Elementary	N/A	City of Kennedale and TxDOT	2D
High Visibility Crosswalk (1)	Mid-block on Mistletoe between Crestview and Reeves	24	City of Kennedale	2C
High Visibility Crosswalk (1)	South side of the Mistletoe/Crestview intersection	30	City of Kennedale	2A
High Visibility Crosswalk (1)	Mid-block on Cloverlane between Paula and Timberline	24	City of Kennedale	2B
High Visibility Crosswalk (3)	North, south, and west sides of the Cloverlane/Timberline intersection	24, 30 and 50	City of Kennedale	2B
High Visibility Crosswalk (1)	North side of the Cloverlane/Crestview intersection	30	City of Kennedale	2A
Standard ("Transverse") Crosswalk (9)	At the intersections of Mistletoe and Paula (3), Mistletoe and Timberline (1), Mistletoe and Reeves (2), Cloverlane and Magnolia (1), Cloverlane and Paula (1), and Cloverlane and Reeves (1)	30 (each)	City of Kennedale	2A, 2E

³ Typical unit costs are the 3-month (May 2017 - July 2017) statewide item average prices taken from the Texas Department of Transportation's Average Low Bid Unit Prices website: <http://www.txdot.gov/business/letting-bids/average-low-bid-unit-prices.html>

Kennedale Safe Routes to School Plan

Standard ("Transverse") Crosswalk (1)	Connecting the proposed sidewalk off of Kennedale Parkway to Delaney's administrative office entrance	25	Kennedale ISD	4
Curb Extensions (18)	Various locations along Mistletoe Drive and Cloverlane Drive	960	City of Kennedale	1, 2A, 2B, 2B
New ADA Curb Ramps (37)	Various locations on Paula, Mistletoe, Cloverlane, and Reeves	N/A	City of Kennedale	2, 3
Upgraded ADA Curb Ramps (7)	Various locations on Cloverlane Drive.	N/A	City of Kennedale	2, 3
Upgraded ADA Curb Ramps (2)	Along Kennedale Parkway at the north/western school driveway, connecting the proposed school sidewalk to the proposed pedestrian hybrid beacon	N/A	City of Kennedale and TxDOT	2D, 3
New ADA Curb Ramps (5)	Various locations on the north and south side of Delaney Elementary	N/A	Kennedale ISD	4

Typical Unit Costs:

- Pedestrian Hybrid Beacon/HAWK: \$125,000 (location)
- High Visibility Crosswalk: \$1,200 (crossing)
- Standard Transverse Crosswalk: \$12 (LF)
- New ADA Curb Ramp: \$2,000 (EA)
- Pedestrian Refuge Island: \$65 (SY)
- Curb: \$20 (LF)
- Remove Curb: \$4 (LF)
- Sod: \$4 (SY)

Cost Estimate to Perform a Midblock Pedestrian Crossing Warrant Study:⁴

- Fee (Including Data Collection): \$3,500 - \$4,500
- Fee (Data Collection Done by Others): \$2,500 - \$3,500

Traffic Control Measures

Improvement Type and Quantity	Location(s)	Approx. Length (linear feet)	Responsible Entity	Issue(s) (p. 17)
STOP Signs (4)	At the school driveway at Cloverlane and Timberline (1), at Hilltop where it meets Reeves (1), and all-way stop signs at Cloverlane and Reeves (2)	N/A	City of Kennedale	1, 2B, 2E
NO PARKING Signs (13)	Near intersections or curves on Paula, Timberline, Crestview, Reeves, Hilltop	N/A	City of Kennedale	2A
School Crossing Signs (11)	Existing school crossing signs around Delaney Elementary and Arthur Intermediate should be upgraded to current MUTCD standards	N/A	City of Kennedale	2A
DO NOT ENTER Signs (2)	At two driveway entrances for Delaney and Arthur	N/A	Kennedale ISD	4
Blind Curve Ahead Sign (1)	On Reeves Lane as it approaches Hilltop Drive	N/A	City of Kennedale	2E
Centerline Striping	Where Reeves Lane and Hilltop Drive curve to meet	TBD	City of Kennedale	2E

Typical Unit Costs:

- Signs: \$1,000 (EA)

⁴ Estimates provided by a consultant that performs warrant analyses for NCTCOG's Regional Traffic Signal Retiming Program.

Traffic Calming Measures

Improvement Type and Quantity	Location(s)	Approx. Length (linear feet)	Responsible Entity	Issue(s) (p. 17)
School Zone Speed Limit Signs (5)	All school zone speed limit signs for Delaney Elementary and Arthur Intermediate that have not already been updated	N/A	City of Kennedale	1
Speed Feedback Display (2)	Along Kennedale Parkway to accompany the existing school zone speed limit signs	N/A	TxDOT	1
Street Trees (15)	Along Cloverlane Drive and Crestview Drive, on or adjacent to school property	N/A	City of Kennedale and Kennedale ISD	1, 3

Typical Unit Costs:

- Speed Humps: \$2,500 (EA)
- Signs: \$1,000 (EA)
- Flashing Beacon: \$5,000 (EA)
- Tree (30 Gal): \$330 (EA)

Future Engineering Studies

As opportunities become available, the City should evaluate ways to shorten distances between homes and the schools (Issue 5), such as by installing a walking path between Arthur Drive and Oak Forest Court and/or Oak Ridge Trail.

Education, Enforcement, Encouragement, and Evaluation

Not all of the barriers identified for enabling and encouraging more students to walk and bicycle to school can be addressed through engineering measures alone. The following are steps that can be taken to implement Safe Routes to School through education, enforcement, encouragement, and evaluation. They are summarized in **Exhibit 15**.

Education

Educational programs as part of SRTS efforts teach students bicycle, pedestrian, and traffic safety skills, and teach drivers how to drive safely around schools and share the road.

Educating Students:

It is recommended that curriculum programs be implemented in school to teach children the basics regarding pedestrian and bicycle safety. This information may also help them to eventually become better drivers. Available curriculums that schools can use include the Look Out Texans School Kits (www.lookouttexans.org/school-resources), which includes lesson plans for grades third through fifth, and sixth through eighth, and reflects Texas Essential Knowledge and Skills (TEKS) standards for physical and health education. A resource with a bicycling focus is BikeTexas SafeCyclist curriculum (www.biketexas.org/education).



Educating Parents:

One of the key issues identified was unsafe parent and driver behavior. Educational materials should also be provided to parents on leading by example (e.g., walking to the crosswalk before crossing), avoiding unsafe behaviors near schools (e.g., making U-turns, speeding), and yielding to pedestrians and bicyclists. An example of this type of educational material is NCTCOG's *School Zone Safety Tips* flyer, which is available for download at www.lookouttexans.org/school-resources.

Educating Teachers:

Another issue identified in the parent survey is that cars in the dismissal queue line at Delaney Elementary are sometimes dismissed before student walkers have finished crossing the street (Cloverlane). All teachers and school staff that assist with school dismissal should be educated to always hold the line of cars until all of the students have finished crossing the street.

Enforcement

Enforcement includes strategies to deter the unsafe behavior of drivers, bicyclists and pedestrians, and encourage all road users to obey traffic laws and share the road.

Recognizing that the City of Kennedale Police Department has limited resources that must be used efficiently, it is recommended that a police officer or a Senior Resource Officer be present during arrival and dismissal at the start of the school year, and on a few days throughout the year, to promote and enforce good traffic behaviors (e.g., obeying the speed limits, no texting or talking on the phone while the vehicle is moving, yield to pedestrians in crosswalks, not stopping or parking on or close to intersections or crosswalks, etc.). The use of personnel should be coordinated between the City and ISD. It may be beneficial for police officers on these days to assist the school custodians with crossing guard duty and conduct training.

Finally, it was observed during the walking audit that the custodians/crossing guards at Delaney Elementary would go back into the school even when there were still students that needed to cross the street during school arrival and dismissal. It is recommended that they continue to assist students with crossing until 8:10 am, and in the afternoon until at least 3:50 pm.

Encouragement

Encouragement programs serve to generate excitement and promote walking and biking as fun, safe, and healthy forms of transportation.

In the short term, the schools should encourage parents to carpool to lessen traffic congestion around the schools. Once more sidewalks have been installed in the surrounding neighborhoods, the schools' promotion of walking and biking would help mitigate the stigma that can sometimes be associated with this activity.

One of the most successful ways of generating enthusiasm for walking and biking is to designate specific days or weeks during the year as special encouragement days, such as the National Walk and Bike to School days held in early October and May of each year (www.walkbiketoschool.org). As part of these events, mileage clubs and contests can be established to encourage children to increase their levels of activity in general, and to walk and bike to school specifically. These events should also be accompanied by educational activities such as bicycle rodeos, which are events that teach bicycle safety skills.



Students and parents participate in a Walking School Bus as part of Walk to School Day 2016 at Timberview Middle School in Fort Worth. (Source: Facebook)

Fear of violence and other threats to personal safety, as well as a desire for there to be someone their child could walk with, were identified in the parent survey as issues and opportunities to allowing their child to walk and bicycle to school. Ongoing programs such as “walking school buses” or “bicycle trains”—in which alternating students and alternating parent volunteers meet at a central location and walk or bicycle to school—have been shown to improve safety by walking or biking in organized groups under adult supervision. The SRTS National Partnership has an easy to follow guide to getting started called [Step by Step: How to Start a Walking School Bus Program at Your School](http://www.saferoutespartnership.org/resources/toolkit/step-step).⁵

⁵ <http://www.saferoutespartnership.org/resources/toolkit/step-step>

Another technique to address the concern about crime is corner captains, in which adult volunteers are stationed on key street corners to increase the presence of responsible adults and watch over children as they walk and bicycle to school. The school’s administrative staff or Parent Teacher Association (PTA) can be instrumental in connecting parents and recruiting volunteers.

Evaluation

Evaluation of the SRTS program is important to understand the effectiveness of the program, identify improvements that are needed, and ensure the program can continue in the long term. Evaluation activities include measuring the number of infrastructure projects that have been constructed or programs that have been implemented. Evaluation activities can also measure the change in mode shares (the percentage that drive, bike, walk, bus) and attitudes towards walking and bicycling after the implementation of the SRTS plan. Specific evaluation metrics might include the following:

- Number and percentage of students walking and bicycling to school
- Number of students that receive walking and bicycling education
- Number of encouragement events that have been held throughout the year
- Dollar amount of grants received and/or City general funds dedicated
- Number of infrastructure projects that have been implemented

It is recommended that the City of Kennedale, Delaney Elementary, and Arthur Intermediate track the implementation of the projects and programs that are recommended in this plan in a five-year follow-up report.

EXHIBIT 15 - RECOMMENDED NON-INFRASTRUCTURE PROGRAMS AND ACTIVITIES

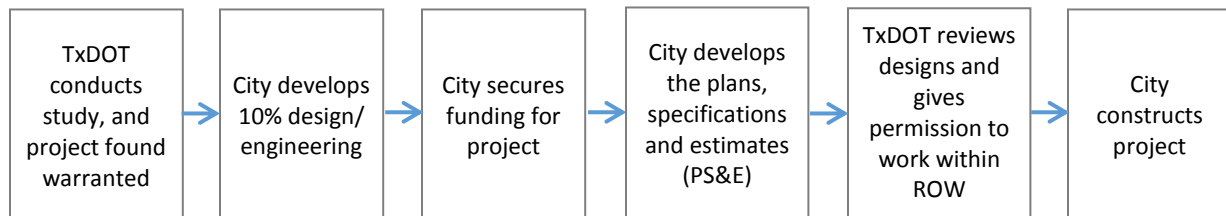
E	Program or Activity	Responsible Entity	Timeframe	Issue Addressed (if applicable) (p. 17)
Education	Educating Students	Delaney EL and Arthur INT	Ongoing	N/A
Education	Educating Parents	Delaney EL, Arthur INT, and City Police Dept.	Ongoing	1, 2, 4
Education	Educating Teachers	Delaney EL	Ongoing	4
Enforcement	Enforcing Safe Traffic Behaviors Around Schools	City Police Dept. and Kennedale ISD	Ongoing	1, 2, 4
Enforcement	Adjusting Custodian/ Crossing Guard Times	Delaney EL	Short-Term	2B, 2C, 4
Encouragement	Encourage Carpooling	Delaney EL	Short-Term	1
Encouragement	Establish a Walking School Bus or Bike Train	Delaney EL and Arthur INT	Medium- to Long-Term	1, 6
Encouragement	Host Walk and Bike to School Events	Delaney EL and Arthur INT	Medium- to Long-Term	1, 6
Evaluation	Track Implementation of Projects and Programs	Delaney EL, Arthur INT, and City of Kennedale	Long-Term	N/A

VI. Next Steps

Project Implementation and Prioritization

Based on feedback from the City of Kennedale and TxDOT staff, the priority for implementation should first be the crossing improvements on Kennedale Parkway; however, this does not preclude other recommendations in this plan from being implemented as well should funding become available. Kennedale Parkway (BUS 287) is a state-owned facility; therefore, the implementation of these crossing improvements will require a collaborative approach. The crosswalk and pedestrian hybrid beacon will require a warrant study to be conducted to demonstrate the need. As the school was built before the roadway, it is recommended that TxDOT take the lead in conducting the study. Assuming that a pedestrian hybrid beacon is found warranted, an example process for installing the project is as follows:

EXHIBIT 16 - EXAMPLE PROCESS FOR IMPLEMENTING CROSSING IMPROVEMENTS ON KENNEDALE PARKWAY



It is also recommended that the City conduct a resident survey and/or public meeting on the recommended sidewalks on Paula, Timberline, Crestview, and Reeves.

Funding Strategies

Funding is needed to plan and implement physical improvements, hold events, purchase incentives, and develop and implement educational programs and materials. Possible funding sources include, but are not limited to:

Federal Funds

Federal transportation funds are available through the Transportation Alternatives programs and Congestion Mitigation and Air Quality Improvement Program (CMAQ), administered by NCTCOG for urbanized areas in North Texas with populations over 200,000. That includes the portion of Kennedale in which improvements are being recommended as part of this plan. The Transportation Alternatives program is a reimbursement and local match program, whereby the community pays 100 percent of the costs of the project that is selected for funding, and is reimbursed for 80 percent of those costs. The last Transportation Alternatives Call for Projects was in 2017, during which the Regional Transportation Council allocated \$12.2 million to 22 SRTS projects. The next Call for Projects is not anticipated until 2019 or 2020; however, it would benefit the community to begin preparing now, as applications typically score higher if they demonstrate public involvement and support, have adopted SRTS plans, and have some amount of engineering and design completed. For more information on available funding and future Calls for Projects, go to www.nctcog.org/tap.

State Funding Sources

The Highway Safety Improvement Program (HSIP) is for highway safety projects that eliminate or reduce the number of fatalities and serious injuries on all public roads. Submitted project proposals are evaluated within several categories of work, including Intersections and Pedestrians. Improvements to prevent pedestrian crashes, such as pedestrian signals, pedestrian hybrid beacon, pedestrian crosswalk, and sidewalks are eligible under the Pedestrian category. Projects are evaluated using a Safety Improvement Index (SII), and are selected and managed by TxDOT's Traffic Operations Division. For more information, go to <http://www.txdot.gov/inside-txdot/forms-publications/publications/highway-safety.html>.

Local Funding Sources

Locally, infrastructure is paid for through the City's yearly budget for maintenance and capital projects. For FY 2017-2018, the City had \$65,000 programmed for street maintenance, and \$22,000 for signs, fences, and sidewalk maintenance-- \$7,000 of which was programmed to replace street signs that do not meet state standards.

Texas Trees Foundation

The motto of the Texas Trees Foundation is "The Greening of North Central Texas". The Foundation sustains a tree planting initiative for neighborhood parkways and medians, schools and other public open spaces. Their website encourages members of neighborhood associations, church, schools, non-profit organizations, or municipalities to contact them with inquiries about getting trees. For more information, visit <http://www.texastrees.org/>.

Health Organizations

Tarrant County Public Health

One of the goals of the Tarrant County Voices for Health program is to improve walkability surrounding Tarrant County elementary school neighborhoods. One of the ways they have worked to meet that goal is by engaging multiple partners in a Safe Routes to School effort for Christine C. Moss Elementary School. For more information: <http://access.tarrantcounty.com/en/public-health/tarrant-county-voices-for-health.html>.

Cook Children's

Safe Kids Tarrant County (SKTC) is a local coalition and nationally-recognized community partnership led by Cook Children's Community Health Outreach department. SKTC is dedicated to preventing unintentional childhood injury which is the number one killer of children ages 14 and under. For more information: <https://www.cookchildrens.org/health-resources/safety/Pages/default.aspx>.

Corporations and Businesses

Local corporations and businesses may be able to provide cash, prizes, and/or donations, such as printing services, through community giving or other donation programs. Parents or other members of stakeholder teams may be a good personal source for contacting companies.

Parents and Individuals

Statistically, individuals give more money than corporations and foundations combined. A local fund drive can quickly reach a large number of people if outreach is conducted by stakeholder team members. Many SRTS programs have also raised funds by holding special events, often using a related themed event such as a

walkathon, bicycling event, or health fair. These funds could be used for rewards or incentives to encourage walking and bicycling to school, or for smaller-scale projects like tree plantings.

VII. Appendices

- A. Meeting Minutes
- B. Parent Survey - Additional Findings
- C. Walking Audit Map
- D. Audit Tool (Checklist)
- E. Engineering Improvements – Glossary

A. Meeting Minutes

Meeting Minutes

Subject	Kennedale Delaney Elementary Safe Routes to School Kick-Off Meeting	Date	Friday – February 10, 2017
Facilitator	NCTCOG	Time	2:30 pm – 3:30 pm
Location	James F. Delaney Elementary School	Recorded by	Kathryn Rush
Attendees	Katina Martinez (Principal, Delaney Elementary), Rachel Roberts (City of Kennedale), Shawn Conrad (NCTCOG), and Kathryn Rush (NCTCOG).		

Meeting Purpose	The purpose of this meeting was to provide an introduction to the Safe Routes to School technical assistance that NCTCOG staff would be providing to the Delaney Elementary School in Kennedale, as well as bring together the major stakeholders.
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Discussion Items	
<p>Kathryn Rush gave an introduction to the Safe Routes to School technical assistance project, including the purpose, scope of work and timeline. Below is a summary of the topics discussed.</p> <p>Existing Transportation Information and Issues:</p> <ul style="list-style-type: none"> • Rachel Roberts with the City of Kennedale nominated Delaney Elementary and Arthur Intermediate for the technical assistance because they had heard from neighbors on Crestview Dr. about safety issues. • The school’s custodians perform crosswalk duty on Cloverlane Dr. Last year a crossing guard/custodian was struck by a car. There are no crossing guards on Kennedale Pkwy. • According to Principal Martinez, approximately 60 percent of students are transported to and from school by private vehicle, and 40 percent by school bus. NCTCOG staff observed three bicycles in the bicycle parking corral on the north side of the school when they arrived for the meeting. • Principal Martinez was unsure of how many students, if any, cross Kennedale Pkwy on their way to or from school, but said that each year teachers take students on walking field trips across Kennedale Pkwy to the library or park. • Principal Martinez mentioned that there are issues with vehicles speeding on Kennedale Pkwy and Cloverlane Dr. • Rachel Roberts noticed the traffic counts for Kennedale Pkwy on one of the maps provided by NCTCOG, and said that police have done recent traffic counts on Kennedale Pkwy that she could provide to NCTCOG. • The following additional issues were observed by Principal Martinez: <ul style="list-style-type: none"> ○ Need for flashing yellow lights on Cloverlane Dr. (already present on Kennedale Pkwy) ○ Issues with parents on their cell phones in the school zone ○ Adequately training crossing guards ○ Need to educate parents. Crime is not as much of an issue as traffic. <p>Other People That Should Be Included in the SRTS Team:</p> <p>Principal Martinez recommended that the Principal for Arthur Intermediate and the PTO President should also be included in the effort. She said that she would reach out to the Arthur Intermediate Principal. NCTCOG requested that she provide the contact information for any relevant stakeholders, as well as information on current school operations and transportation, in the school questionnaire provided by NCTCOG staff.</p>	

Should NCTCOG Staff Give a Presentation to the School Board at the End of the Project?

Principal Martinez thought it may be good to present to the school board. Rachel Roberts also thought it would be beneficial to present to the City Council, to make it more of a priority for them.

Would it be Possible to Survey Students or Parents?

As part of Safe Routes to School planning, it is beneficial to survey students or parents about how students currently get to school and what the major barriers to walking and bicycling are. This can be done by either surveying students in class through a hand-raising tally, or by sending a survey home with students for parents to fill out—this could either be a print survey or a link could be made available to parents online. Principal Martinez said that parents aren't great at online, so it would be best to send it home with students. She also remarked that teachers typically know how their students get to school. NCTCOG staff said they would send her the link to the parent survey created by the National Center for Safe Routes to School.

NCTCOG staff went over potential dates for the next Safe Routes to School meeting—which would include a more in-depth discussion of existing conditions—and requested that Principal Martinez and Rachel Roberts send their preferred dates in the next couple of days.

Action Item(s)			
	Item	Responsibility	Target Completion Date
1	Schedule date of next Safe Routes to School Team Meeting	Kathryn Rush	
2	Return completed school questionnaire to Kathryn Rush	Principal Martinez	By next team meeting
3	Check on traffic counts for Kennedale Pkwy. documented by Kennedale police	Rachel Roberts	By next team meeting
4	Send Principal Martinez links to Safe Routes to School student travel tally and parent survey forms	Kathryn Rush	
5	Send home parent survey forms with students	Principal Martinez	By next team meeting
6	Contact principal of Arthur Intermediate to invite to participate in initiative	Principal Martinez	By next team meeting

Next Meeting

Date: March 7, 2017

Time: 2:30 – 3:30 pm

Location: James F. Delaney Elementary School

Meeting Minutes

Subject	Kennedale Delaney Elementary Safe Routes to School Kick-Off Meeting	Date	Tuesday – March 7, 2017
Facilitator	NCTCOG	Time	2:30 pm – 3:30 pm
Location	James F. Delaney Elementary School	Recorded by	Shawn Conrad
Attendees	Rachel Roberts (City of Kennedale), Erin Jamison (Kennedale ISD), Rufus Clark (Kennedale Police Department), Delvin Starling (Kennedale Police Department), Katina Martinez (Delaney Elementary), Tommy Williams (Kennedale Police Department), Sandy Wesch (NCTCOG), Sandi Manning (Arthur Intermediate), Julie Webb (Delaney PTO), Shawn Conrad (NCTCOG), Kathryn Rush (NCTCOG).		

Meeting Purpose	The purpose of this meeting was to review existing conditions that impact the safety and comfort of walking and bicycling to and from Delaney Elementary and Arthur Intermediate, in order to prioritize the areas to observe as part of the safety audit.
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Discussion Items
<p>Shawn Conrad gave an introduction to NCTCOG and the Safe Routes to School technical assistance project.</p> <p>Kathryn Rush and Shawn Conrad facilitated a discussion about current issues around the schools affecting students’ ability to bicycle and walk to school. The group discussed how pickup and drop-off occurs at both schools and illustrated traffic flows on maps.</p> <p>Identified issues included:</p> <ul style="list-style-type: none"> • Cut-through traffic speeding through the school zone, especially from BUS 287. • On-street parking reducing visibility and contributing to congestion • Lack of sidewalks, especially on Kennedale Parkway and directly across from Arthur Intermediate • Truck traffic from I 20 taking BUS 287 to Kennedale Parkway • Congestion around the schools • Arthur has limited parking, so parent parking during pick-up spills over into the residential areas. • Drop-off occurring at the high school at the same time affects drop-off at Delaney Elementary and Arthur Intermediate • Crossing guards could use training and are currently asked to direct traffic in addition to regular crossing guard duties • Crossing BUS 287 is unsafe • Speeding on Kennedale Parkway, Cloverlane, Hilltop, and Mistletoe • Parent compliance with pickup/drop-off procedures • Cell phone use while driving • Parents and students not using crosswalks <p>Identified opportunities/ideas included:</p> <ul style="list-style-type: none"> • Technological solutions • Reduce school zone speed limit to 20 • Longer school zone • Traffic signal or mid-block pedestrian signal on BUS 287 <p>Mr. Williams stated that he would be able to have one or two police officers attend the safety audit.</p>

Action Item(s)			
	Item	Responsibility	Target Completion Date
1	Send out invitation to participate in the safety audit.	Kathryn Rush	
2	Conduct safety audit on April 12 th	Safe Routes to School Team	

Next Meeting

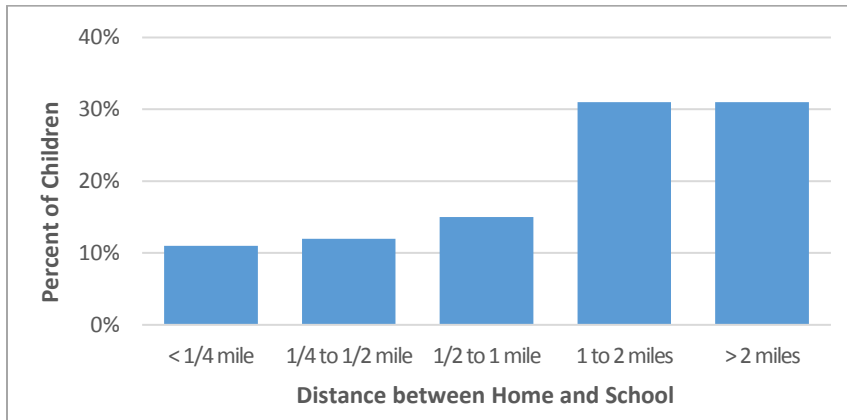
Date: April 12, 2017

Time: 2:30 – 5:00 pm

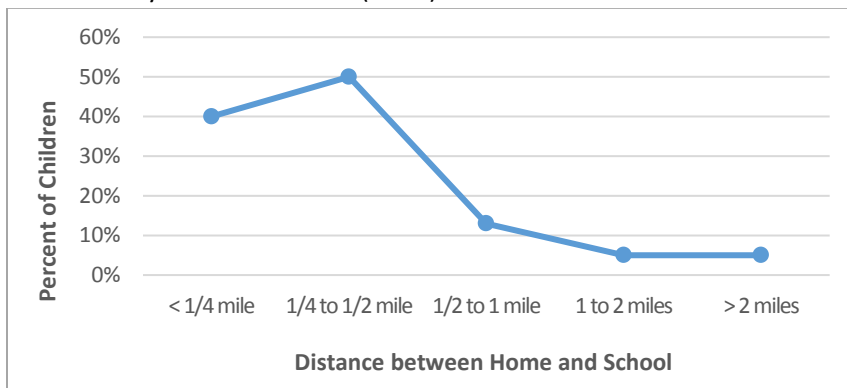
Location: James F. Delaney Elementary School

B. Parent Survey - Additional Findings

Delaney Elementary: Parent estimate of distance from child's home to school: (N=204)



Delaney Elementary: Percent of children who have asked for permission to walk or bike to/from school by distance they live from school: (N=29)



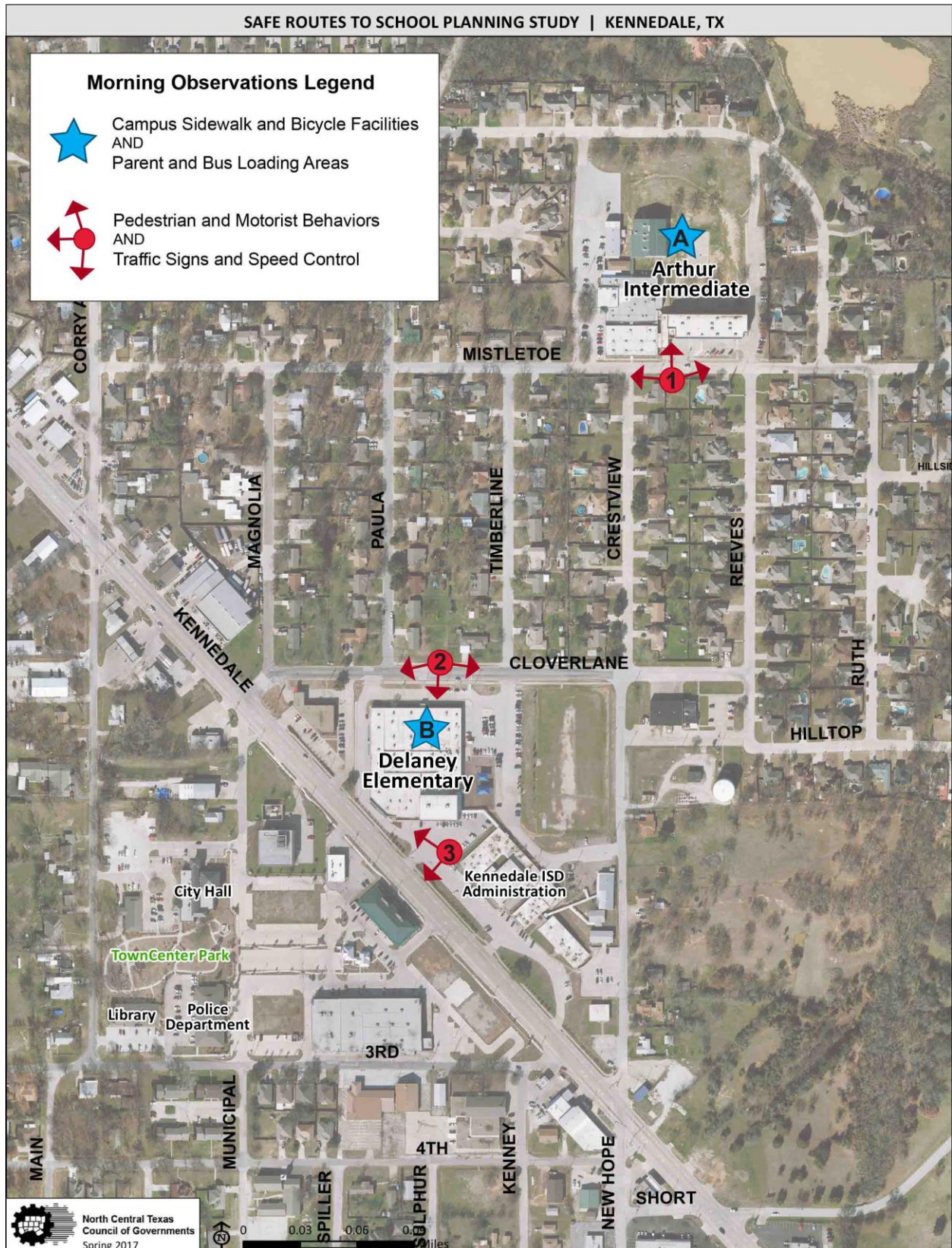
Comments:

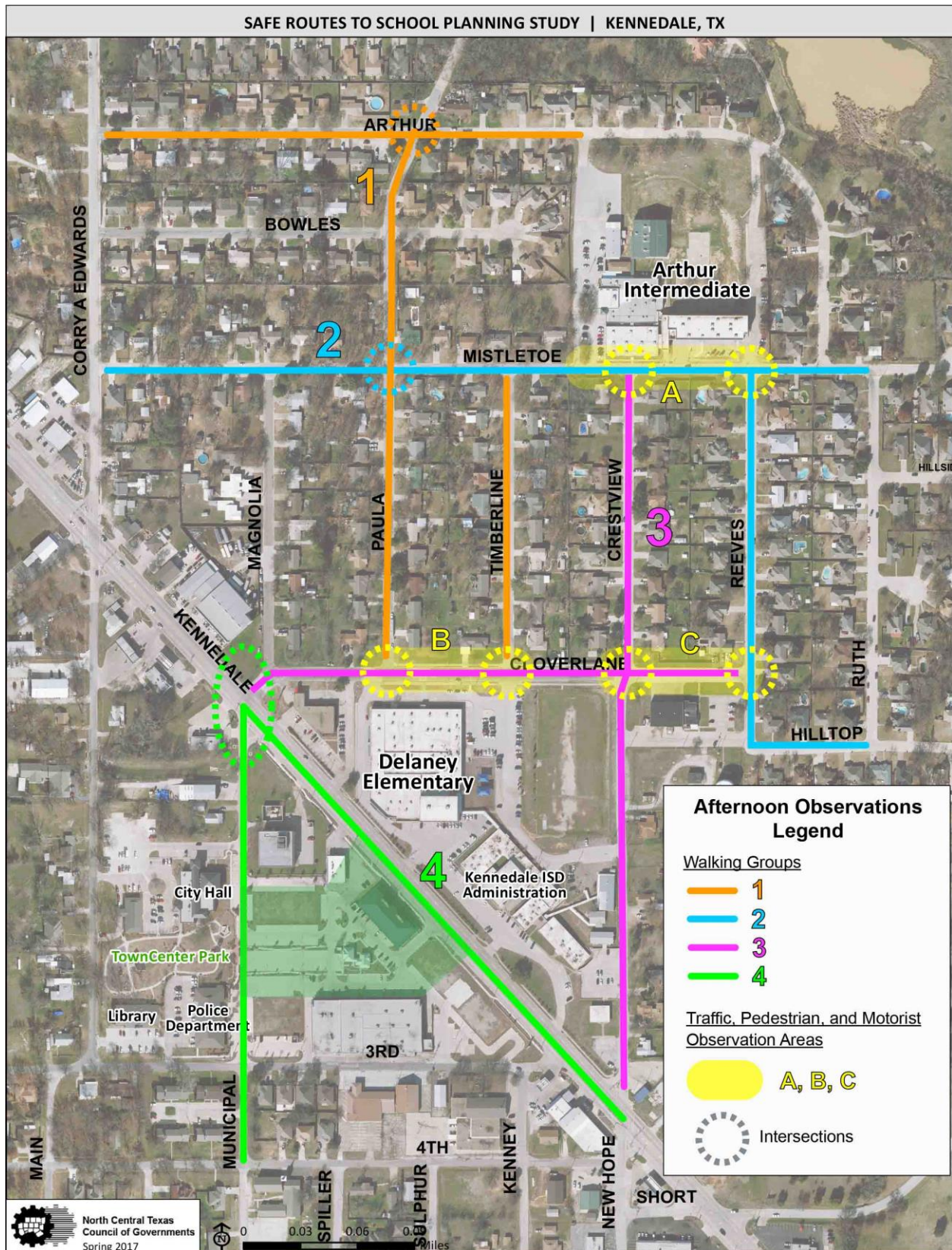
- My only concern with her walking home is the light at Kennedale Pkwy and New Hope Rd. There is no crossing guard to help her across the intersection. And train tracks by our house
- My son enjoys riding a bike and he walks and plays soccer which is healthy for him
- My children are 7 and 10 year old girls. I would not feel safe with them walking anywhere alone or with an adult. They also do not stay at home alone at all.
- There is way too much traffic in our neighborhood and even though we have asked for speed bumps nothing happens. People drive WAY too fast in surrounding neighborhood --> Hillside Dr
- (Note next to "Very Healthy": Except for safety factor). I do not feel that it is safe for children to walk to school by themselves.
- (Note next to "School Bus": Daycare).
- My children would walk if there were crossing guards at the major intersections.
- It is a good idea that you all are encouraging walking and biking.
- My child has no sidewalks and her path would be along business 287. She will not walk/bike.

- My main concern is the lack of sidewalks near our neighborhood - if my child had a buddy to walk with - or enough sidewalk room for a stroller so I could walk with, then I would allow it.
 - NO SIDEWALKS!!!
 - es un poco peligroso para los niños por el tráfico. (It is a bit dangerous for children due to the traffic.)
 - When I am off work and weather is nice I usually walk my child to school - at this age now I do not allow him to go alone
 - Walks to and from grandma's with her, which is down the street from the school.
 - (Note next to Walk (Leave from school): They walk to the middle school). (Note next to "I would not feel comfortable at any grade": Not all the way home).
 - Intersections in the area are far too dangerous. Stop signs and speed limits are not enforced.
 - My child goes to daycare before and after school since there is nobody to be at home with him during that time.
 - My child is bullied on the bus and at school, why would I want him walking alone.
 - Walkers should be released daily BEFORE care line. The kids should be allowed to reach a safe distance away from the school before all the cars in the first line are released. There are some days that I see the 2nd line of car riders released before the walkers are even out the door. Major safety concern
 - (Note under "How does child leave school": Daycare). (Note next to "Healthy": But not safe - He already gets enough activity daily; I'm not concerned about walking home being healthy).
 - (Note next to "I would not feel comfortable at any grade": Not enough sidewalks on the route).
 - If we lived closer I would let my child ride her bike next year. (4th grade)
 - Overall reason is distance. If we were closer to the school I would feel comfortable. (The technology now allows me to watch until my kids reach their destination)
 - A child should never be allowed to walk or bike with all the crime nowadays.
 - When child reaches 12, may ride or walk. Before then she won't
 - If we lived closer to the schools both our children would walk to and from school.
 - I wouldn't allow my kids at any time to walk to or from school.
 - Solo por seguridad no puedo permitir que mis hijos carminen o vallan en vicileta. (For safety reasons I cannot allow my children to bike or walk.)
 - My child has walked to school since Kinder. We feel so lucky to live right near the school so that he gets this luxury.
 - (Note next to "More than 20 minutes": An HR!).
 - (Note next to Q. 11: he is only 4 yr).
 - I wouldn't let my kids walk to or from school ever.
 - My child is "healthy" and gets exercise other ways than walking home from school. The route is not safe for a 5 year old to walk unsupervised.
 - (Note next to "Unhealthy": In the Texas heat walking nearly an hour home could be a health hazard.)
- In order to change or improve many of the topics listed above we would need to add another elementary school in Kennedale between Patterson and Delaney. If my children and I lived in the same neighborhood as the school I would certainly be more inclined to allow them to walk or ride their bikes weather permitting. At this time we live 2 miles away which is roughly a 40 minute walk to school. My children would need to take parts of Kennedale Sublett Rd. that do not have sidewalks. The most dangerous area being the portion of Kennedale Sublett Rd that runs along Emerald Hills Memorial Park Cemetery.

- The reasons my child doesn't walk home from school is safety. Drivers are not cautious. My #1 concern is abduction.
- Too far, no sidewalk, lots of traffic.
- (Note next to "Very Unhealthy": wrote in and checked a box that read "Could be deadly").
- (Note next to "Transit": Daycare bus).
- Kennedale needs sidewalks especially in school zones
- Would have to have a crossing guard at Treepoint and Pennsylvania to consider walking/riding to school.

C. Walking Audit Map





D. Audit Tool (Checklist)

WALKING AND BICYCLING SCHOOL SAFETY AUDIT

Name: _____ Date: _____ Time: _____

Traffic Signs & Speed Control	Yes	No	N/A	Comment
a. Is there a designated school speed zone? <i>(Identify the locations of the school zone signs on your map)</i>				If Yes, what is the speed limit? _____
b. Are there any issues with the school zone signs? <input type="checkbox"/> Too close to school <input type="checkbox"/> Too far from school <input type="checkbox"/> Sign is faded or broken <input type="checkbox"/> Sign is obstructed by vegetation <input type="checkbox"/> Other (please explain)				
c. Are there School Crossing signs, flashing beacons, or 'No Parking' signs or pavement markings around the school? <i>(Identify on your map)</i>				
d. Are there currently other speed/traffic control measures used around the school (e.g., different pavement surfaces, speed bumps, or speed tables)?				
e. Are the traffic signs and speed control measures around the school adequate and effective?				

OTHER OBSERVATIONS:

WALKING AND BICYCLING SCHOOL SAFETY AUDIT

Name: _____ Date: _____ Time: _____

Identify on your map the flow of vehicular and bus drop-off/pick-up traffic.

Parent & Bus Loading Areas	Yes	No	N/A	Comment
a. Are there signs indicating parent pick-up/drop-off areas?				
b. Are bus driveways physically separated from parent pick-up/drop-off areas?				
c. Is there a continuous sidewalk adjacent to the loading area(s) leading to the school entrance?				
d. Are sidewalks acceptable (e.g., are they wide enough to accommodate peak periods of pedestrian traffic, is the surface smooth, etc.)?				
e. Are there accessible ramps for wheelchairs, with a detectable warning surface?				
f. Do students have to cross parking lots or traffic lanes to get to the school from the loading area(s)?				
g. Do teachers or a safety patrol assist with the drop-off/pick-up process? Is this effective?				
h. Are loading areas well lit?				
i. Is parent loading occurring only in designated areas? If not, note the non-designated areas.				
j. *Does the designated parent loading area have an organized/moving queue? Or do parents seem to be stuck until the entire line moves?				
k. Does the parent loading/pick-up queue wrap out of the designated area, and impact adjacent streets?				
l. Are school buses staged single-file?				
m. If buses are "double-stacked" for loading areas, are measures taken for the safety of students needing to cross in front of or behind buses?				

**Questions as part of NCTCOG's Idle-Free School Zone Program.*

OTHER OBSERVATIONS:

WALKING AND BICYCLING SCHOOL SAFETY AUDIT

Name: _____ Date: _____ Time: _____

From sidewalks in the public right-of-way, how do students walking and bicycling get to the school entrance from all directions? (Only evaluate those pedestrian and bicycle facilities on school property.)

Campus Sidewalks & Bicycle Facilities	Yes	No	N/A	Comment
a. Are school gates or fences appropriately located to provide direct and convenient access for pedestrians to and from the school grounds?				
b. Are pedestrians clearly directed to crossing points?				
c. Are crossing points for pedestrians properly signed and/or marked?				
d. Where it's necessary for students to cross the path of motor vehicles on the school grounds, are they assisted by such safety measures as crossing guards, safety patrols, raised or striped pedestrian walkways, etc?				
e. Are sidewalks acceptable (are they wide enough to accommodate peak periods of student traffic, is the surface smooth, etc.)?				
f. Are there any formal or informal off-street paths or cut-throughs ("goat trails") on the school grounds?				
g. Is there bicycle parking on the school site?				If Yes, how many spaces are there? _____ Does the bicycle parking appear to be in good condition? _____
h. Is the location of bicycle parking in reasonable proximity to the school entrance and along a sidewalk or bike path to the school?				
i. Is the bicycle parking area well-lit and in an area of good visibility?				

OTHER OBSERVATIONS:

WALKING AND BICYCLING SCHOOL SAFETY AUDIT

Name: _____ Date: _____ Time: _____

Intersections

Intersection Cross Streets: _____

Issue	Yes	No	N/A	Comment
a. What is the traffic control device? (2-way stop, 4-way stop, traffic light, etc.)				
b. Are there pedestrian walk signals for all crossing directions?				
c. Does the push button work and is it reachable by a person in a wheelchair?				
d. Is there sufficient crossing time, and a countdown feature?				
e. Is there a crossing guard present to assist students with crossing the street?				
f. Are there accessible curb ramps for wheelchair access on all corners?				Number of curb ramps per corner: _____
g. Do the ramps have detectable warning strips?				
h. Presence and condition of the pedestrian landing area (5x5-ft. flat section at the top of the ramp).				
i. Are there painted crosswalks for all crossing directions?				
j. Are the curb ramps contained within the crosswalk markings?				
k. Are crosswalks wide enough to accommodate peak pedestrian traffic?				
l. Is the visibility of the crosswalks adequate during the day and night?				
m. Are there barriers present that could prevent a driver from seeing a child preparing to cross the street (e.g., utility boxes, vegetation, parked vehicles, signage, or fences)?				
n. Do cars park or wait, blocking the vision of other motorists, bicyclists, and pedestrians?				
o. Is the pedestrian crossing adequately lit?				
p. Do wide curb radii lengthen pedestrian crossing distances and encourage high-speed right turns?				
q. Do turning vehicles pose a hazard to pedestrians crossing the street?				

OTHER OBSERVATIONS:

RECOMMENDATIONS:

WALKING AND BICYCLING SCHOOL SAFETY AUDIT

Name: _____ Date: _____ Time: _____

Intersections and Crossings

Intersection Cross Streets: _____

Does the intersection or crossing present challenges for students walking to and from school, and why?

- Width of road
- Too many lanes
- Large number of cars
- Large number of turning vehicles
- Wide curb radii that lengthens crossing distances and encourages high-speed right turns
- High posted speed limit
- No crosswalk markings
Identify on map which crossing directions should have crosswalks to improve safety and identify a route to school
- Faded crosswalk marking
- Crosswalks are not wide enough to accommodate peak pedestrian traffic
- No curb ramp for wheelchair users
Identify on map which corners do not have curb ramps
- No tactile strip for vision-impaired pedestrians
Identify on map which corners do not have curb ramps with tactile strips
- No stop sign
- No traffic light
- No pedestrian signal on traffic light
- No pedestrian countdown on traffic light
- "Walk phase" of traffic light not long enough
- Crossing is not adequately lit
- Drivers exceed the posted speed limit
- Drivers do not yield to pedestrians
- Drivers don't come to a complete stop
- Drivers cannot see pedestrians at corners
What barriers are preventing them from seeing pedestrians (e.g., utility boxes, vegetation, parked cars, signage, or fences)?
- Other (please describe)

WALKING AND BICYCLING SCHOOL SAFETY AUDIT

Name: _____ Date: _____ Time: _____

Streets

Street Name: _____

Posted Speed Limit: _____ School Zone Speed Limit (if applicable): _____ Number of Travel Lanes: _____

Relative Traffic Volume Level (*High, Medium, or Low): _____

**High would refer to busy arterials, Medium to collectors or high volume residential streets, Low to quiet residential streets.*

Issue	Yes	No	N/A	Comment
a. Are sidewalks present and continuous without gaps? <i>(If no, identify on map where sidewalks are missing)</i>				
b. Are sidewalks well maintained (free of cracks and holes, standing water, debris)?				
c. Are sidewalks obstructed (poles, vegetation, etc.)?				
d. Are sidewalks wide enough to accommodate peak periods of pedestrian traffic?				Sidewalk width: _____
e. Are there accessible ramps for wheelchairs?				
f. Are there any conflicts between bicycles and pedestrians on the sidewalks?				
g. Are the sidewalks adequately lit for pedestrians to see, be seen, and feel safe?				
h. Does the number of driveways intersecting sidewalks make the route dangerous or undesirable for pedestrian travel?				
i. Is there a buffer between the sidewalk and adjacent travel lane?				
j. What is the landscaping like? Is it conducive to promoting walking and biking? Does it block sidewalks or ability to see traffic?				
k. Is traffic speed or volume a problem for pedestrians? Please describe.				
l. Are there abandoned buildings or cars along the route to school?				
m. Does (actual or suspected) crime take place in the area?				
n. Do any homes have scary or loose dogs?				

OTHER OBSERVATIONS:

RECOMMENDATIONS:

WALKING AND BICYCLING SCHOOL SAFETY AUDIT

Name: _____ Date: _____ Time: _____

Pedestrian and Motorist Observed Behaviors

Location of Observation: _____

Number of Pedestrians Observed:

Number of Bicyclists Observed:

Students:

Students:

Other:

Other:

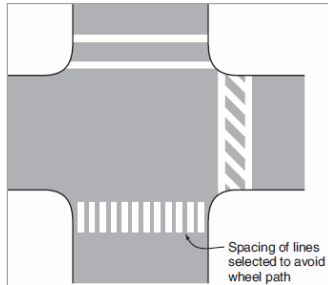
Issue	Yes	Location / Comment
Pedestrians walking in the street	<input type="checkbox"/>	
Students running across the street	<input type="checkbox"/>	
Children or adults not obeying crossing guards (if available)	<input type="checkbox"/>	
Children entering the street or travel lanes from between parked cars, unaccompanied by adult	<input type="checkbox"/>	
Students or other pedestrians cross the street at places other than marked crosswalks.	<input type="checkbox"/>	If so, where?
Bicyclists do not follow proper traffic laws (e.g., stopping at traffic signals and stop signs)	<input type="checkbox"/>	
Crossing guards promoting unsafe behaviors	<input type="checkbox"/>	
Parent loading or unloading occurs in undesignated areas	<input type="checkbox"/>	If so, where?
Parents park in areas designated as "No Parking"	<input type="checkbox"/>	
Drivers stop or park, blocking crosswalks	<input type="checkbox"/>	
Drivers not yielding to pedestrians in crosswalks?	<input type="checkbox"/>	
Drivers not obeying crossing guards (if available)?	<input type="checkbox"/>	
Speeding in the school zone	<input type="checkbox"/>	
Distracted driving (e.g., talking on the phone or texting)	<input type="checkbox"/>	
Did you witness any conflicts, collisions or near-collisions between motorists and pedestrians?	<input type="checkbox"/>	
Are there any informal off-street paths or cut-throughs (i.e., "goat trails")?	<input type="checkbox"/>	

OTHER OBSERVATIONS:

E. Engineering Improvements - Glossary

Crosswalks

Marked crosswalks alert drivers approaching and traveling through the intersection of the potential presence of pedestrians. Marked crosswalks also direct legal pedestrian movements to desirable crossing points (Texas MUTCD, Section 3B.18). Shown below clockwise from the top are the three primary types of crosswalk markings: transverse, diagonal, and longitudinal (also known as continental or ladder).

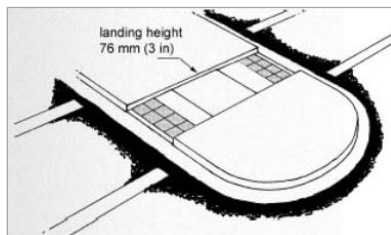


Source: Texas MUTCD

The types of crosswalk markings can be classified as basic or high visibility. Basic crosswalks consist of two transverse lines. High visibility markings consist of diagonal or longitudinal lines parallel to traffic flow with or without transverse lines. An FHWA study found that continental markings were detected at about twice the distance upstream as transverse markings during daytime conditions, which meant that drivers traveling at 30 mph had eight additional seconds of awareness of crossing pedestrians.⁶ High-visibility crosswalk markings (such as longitudinal or continental markings) should be installed for all crosswalks at non-intersection locations, areas with lots of pedestrian traffic, and intersections with conflicts between vehicular and pedestrian movements.

Median Pedestrian Refuge Island

Refuge Islands provide pedestrians and bicyclists a refuge area within intersection and midblock crossings, and on wide thoroughfares, provide a location for pedestrians or bicyclists to wait partially through their crossing. They also break up crosswalks at complex multilane intersections into shorter and easier sections for pedestrians to cross. By reducing the crosswalk distance, refuge islands reduce pedestrian exposure to vehicle traffic, thereby improving safety and comfort (ITE, 2010, *Designing Walkable Urban Thoroughfares*).



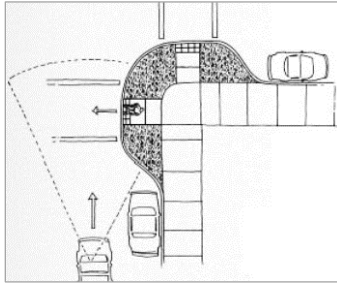
Source: FHWA, 2017

Curb Extensions

Also known as “bulb-outs”, curb extensions extend the line of the curb into the traveled way, reducing the width of the street. Curb extensions not only shorten crossing distance and improve driver and pedestrian visibility, they

⁶ Fitzpatrick, Kay; Chrysler, Susan T.; Iragavarapu, Vichika; & Sug Park, Eun. (2010). Crosswalk marking field visibility study. FHWA-HRT-10-068. Federal Highway Administration, McLean, VA.

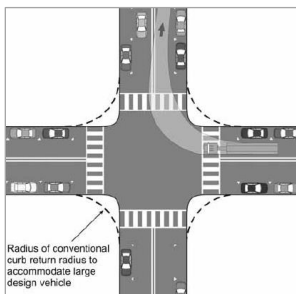
also prevent parking at intersection corners and near mid-block crosswalks (ITE, 2010, *Designing Walkable Urban Thoroughfares*).



Source: FHWA, 2017

Curb Return Radii

The curb return is the curved connection where the curbs of two streets intersect. The radius of the curve varies, with larger radii used to facilitate the turning of large trucks and buses. Larger radius corners increase the length of pedestrian crosswalks, and increase vehicular turning speeds. In designing the curb extensions at street and driveway intersections, the smallest practical curb-return radii should be used to increase motorist visibility of pedestrians waiting to cross the street, reduce pedestrian crossing distance, and reduce the speed of turning vehicles and severity of crashes if they occur. With smaller curb radii, the occasional turn made by large trucks can be accommodated with slower speeds and some encroachment into the opposing traffic lanes (ITE, 2010, *Designing Walkable Urban Thoroughfares*). The selection of curb radii ranging from 15 to 25 feet is preferable.



Source: Kimley-Horn and Associates, Inc.

ADA Curb Ramp

Two curb ramps should be installed at intersection corners whenever possible. Best practices for curb ramp design are as follows:⁷

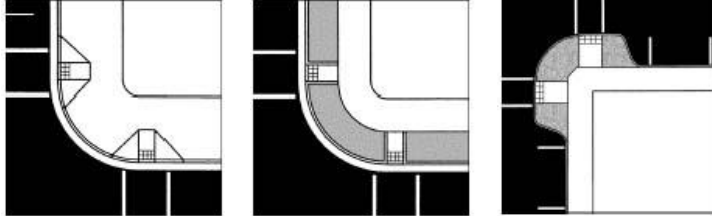
- The ramp, or ramp run, must be at least 36 inches wide, not including flared sides.
- Ramp runs shall have a running slope not steeper than 1:12.
- There must be landings provided at the top of curb ramps. The length of the landing area must be 36 inches minimum, and the width at least as wide as the curb ramp, excluding flared sides.
- The ramp run must have detectable warnings (i.e., dome-shaped bumps) that extend the full width of the ramp and a minimum depth of 24 inches.
- Ramps must have flared sides if people are required to walk across them. Curb ramp flares shall not be steeper than 1:10.
- The curb ramp should be placed within the marked crosswalk.

⁷ Texas Department of Licensing and Regulation. (2012, March 15). 2012 TAS (Texas Accessibility Standards). Texas Government Code, Chapter 469.

Civil Rights Division of the United States Department of Justice. (2007). The ADA Best Practices Tool Kit for State and Local Governments: Chapter 6, Curb Ramps and Pedestrian Crossings Under Title II of the ADA.

- The curb ramp should be aligned with the crosswalk, so there is a straight path of travel from the top of the ramp to the center of the roadway to the curb ramp on the other side.

The following images from FHWA are examples of good design for perpendicular curb ramps—ramps that are generally perpendicular to the curb.



Source: FHWA (2001), Designing Sidewalks and Trails for Access.

Lane Separators and Channelizing Devices

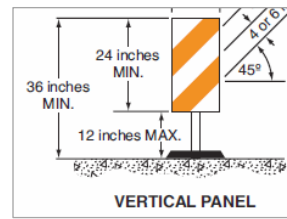
Lane separators are used to channelize road users (e.g., to divide opposing vehicular traffic lanes) (Texas MUTCD). For the purposes of this plan, the lane separator might consist of centerline striping, retroreflective raised pavement markers, and a Turn sign (W1-1) with an advisory speed plaque (W13-1P) of 15 mph or less (or other speed as determined by an engineering study). Additional signs may be needed upon further study (e.g., Chevron Alignment signs (W1-8) or Stay in Lane sign (R4-9)). If, upon further evaluation, it is found that there is still a high risk of head-on collisions, additional lane separation measures may be considered, such as retroreflective vertical panels.



Source: FHWA (2014)



Source: Texas MUTCD



Source: Texas MUTCD

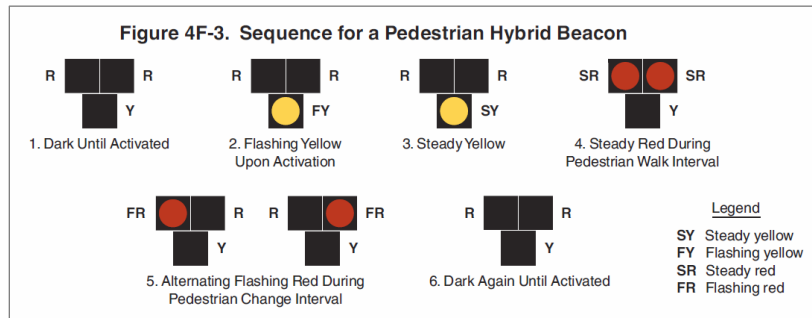
Pedestrian Hybrid Beacon

The pedestrian hybrid beacon (also known as the High intensity Activated crossWalk (or HAWK)) is a pedestrian-activated warning device located on the roadside or on mast arms over midblock pedestrian crossings. The pedestrian hybrid beacon is an intermediate option between the operational requirements and effects of a rectangular rapid flash beacon and a full pedestrian signal because it provides a positive stop control in areas without the high pedestrian traffic volumes that typically warrant the installation of a signal. The installation of a pedestrian hybrid beacon has been shown to reduce pedestrian crashes by 69 percent, and total roadway crashes by up to 29 percent.⁸



⁸ Federal Highway Administration. (2017). Pedestrian hybrid beacon. FHWA-SA-12-012. Retrieved from https://safety.fhwa.dot.gov/provencountermeasures/fhwa_sa_12_012.cfm

Source: City of Chula Vista, CA



Source: Texas MUTCD

School Signs that Meet Current MUTCD Standards (bright yellow-green)

Under the 2011 Texas Manual on Uniform Traffic Control Devices (MUTCD) all school warning signs, including any supplemental plaques, shall have a fluorescent yellow-green background with a black legend and border.

Existing Signs:



Fluorescent Yellow-Green Signs:



Fluorescent yellow-green signs are more conspicuous than standard yellow signs. As a result, drivers detect them from greater distances than standard yellow signs, enabling them to respond to situations earlier (i.e., slowing down or yielding to pedestrians). By alerting drivers sooner that special caution is needed, fluorescent yellow-green signs significantly improve the safety of students who walk and bicycle to school.⁹

No Parking Signs

Under Texas law, drivers may not park within 20 feet of a crosswalk at an intersection or within 30 feet on the approach to a stop sign or traffic control signal (Texas MUTCD). For the purposes of this plan, No Parking signs should be placed 20-30 feet from intersections, where indicated in the maps to do so. As an alternate to the use of arrows to show designated restriction zones, the Texas MUTCD gives the option that word messages such as HERE TO CORNER, THIS SIDE OF SIGN, or BETWEEN SIGNS may be used.

⁹ American Traffic Safety Services Association. (2006). Putting safety in the Safe Routes to School Program: A school administrator's guide. Fredericksburg, VA.



Source: Texas MUTCD