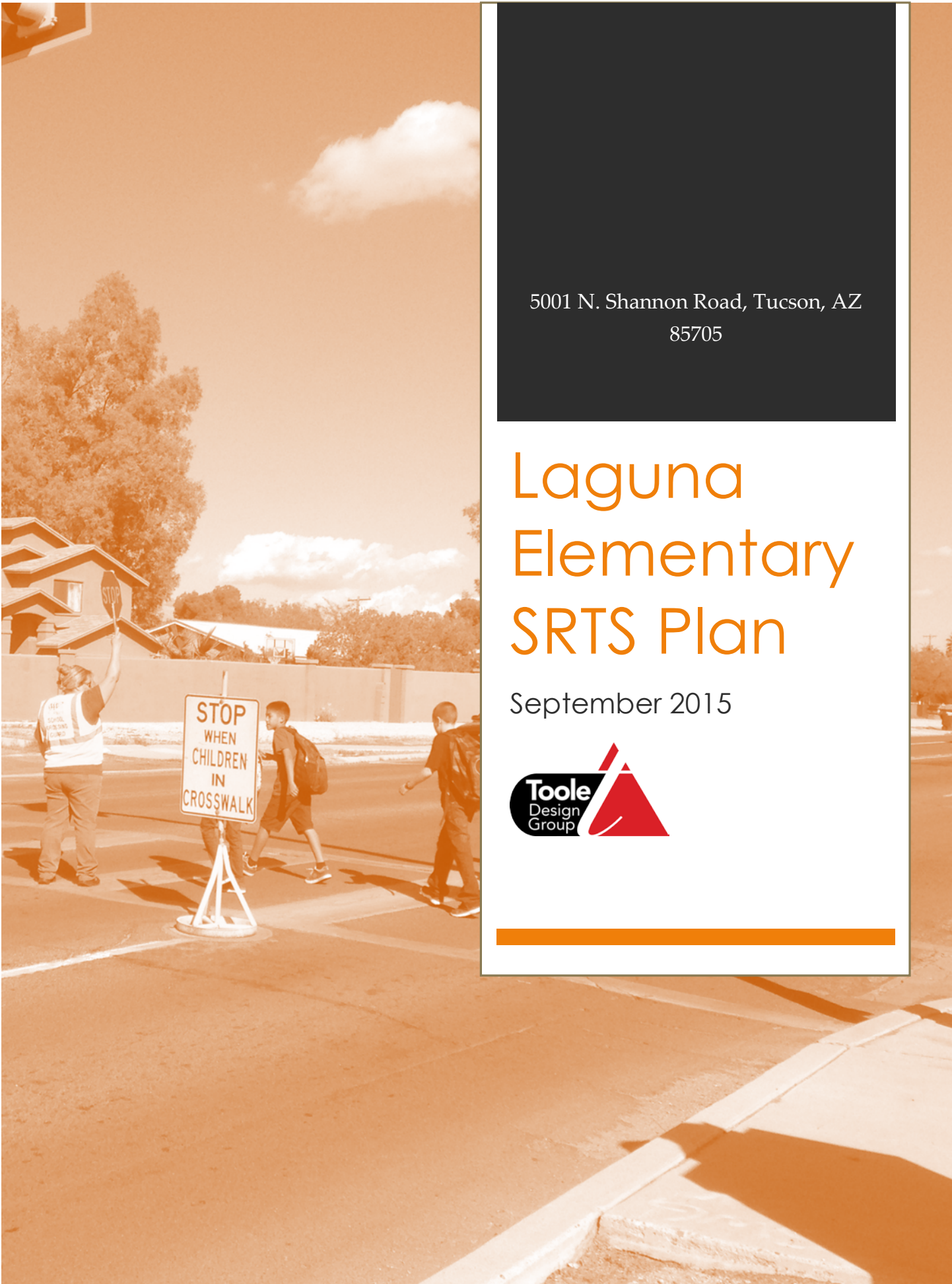


The background of the entire page is a photograph of a school crossing. A crossing guard in a high-visibility vest is standing on the left, holding a stop sign. Two children with backpacks are walking across the crosswalk. A sign on a tripod stands in the middle of the crosswalk. The scene is set on a residential street with houses and trees in the background. The entire image has a warm, orange-toned overlay.

5001 N. Shannon Road, Tucson, AZ
85705

Laguna Elementary SRTS Plan

September 2015



ACKNOWLEDGEMENTS

The Laguna Elementary School Safe Routes to School (SRTS) Plan was made possible by the City of Tucson with funding from a federal grant. The plan was developed by a team of consultants with input from the Laguna Elementary School SRTS Team and Tucson SRTS Program.

Members of the Laguna Elementary School SRTS Team

Maritza Rodriguez, Laguna Elementary
Jessica Assmar, Laguna Elementary
Jessica Hersh-Ballering, City of Tucson
Jacqueline Camacho, Laguna Elementary Principal
Viridiana Ortiz, Laguna Elementary
Bill Strickler, Pima County DOT/Traffic
Melanie Hurst, Laguna Elementary
Maria Arreola, Laguna Elementary
Kathy Bailey, Laguna Elementary
Scott Berkey, Victory Worship Center
Erica Pacheco, Laguna Elementary PTO
Viri Ortiz, Laguna Elementary PTO
Heath Johnson, Northwest Baptist Church
Rosa Arreola, Laguna Elementary
Brianda Vila Henninger, Council Aide to Council Member Karen Uhlich (Ward 3)

Tucson SRTS Program

Ann Chanecka, Bicycle and Pedestrian Program Manager, City of Tucson
Sarah Prasek, Safe Routes to School Program Manager, Living Streets Alliance
Emily Yetman, Executive Director, Living Streets Alliance

Consultant Team

Carol Kachadoorian, Toole Design Group
Anthony Pratt, Toole Design Group

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INTRODUCTION

Safe Routes to School (SRTS) programs encourage daily physical activity and the development of healthy habits in youth by promoting regular walking and biking to school. SRTS programs reduce traffic congestion and pollution around schools, improve safety in school zones, and provide families and friends an opportunity to share time with each other and build connections in their community.

The Tucson SRTS Program, run by Living Streets Alliance, elected Laguna Elementary School to receive Safe Routes to School (SRTS) program support during the 2014-2015 academic year. This support includes creation of a comprehensive SRTS Plan addressing the five E's of SRTS: Education, Encouragement, Enforcement, Evaluation, and Engineering.

The plan was developed over the course of three meetings, which are summarized in Table 1. The plan is an update to a SRTS plan developed in 2006.



Figure 1: The Laguna Elementary School SRTS team included several children and community members.

Table 1: Planning Process

Meeting Number and Date	Participants	Content & Outcomes
Meeting 1 <i>February 16, 2015</i>	• Laguna Elementary SRTS Team • Tucson SRTS Program Staff • Consultant Team Staff	• Discussed challenges and opportunities for walking and bicycling to school. • Observed student dismissal. • Discussed existing and potential programmatic strategies.
Meeting 2 <i>February 17, 2015 (morning)*</i>	• City of Tucson/Pima County Engineers • Tucson SRTS Program Staff • Consultant Team Staff	• Vetted preliminary engineering recommendations with City of Tucson and Pima Association of Governments engineers.
Meeting 3 <i>February 17, 2015 (afternoon)</i>	• Laguna Elementary SRTS Team • Tucson SRTS Program Staff • Consultant Team Staff	• Presented draft engineering and programmatic recommendations.

The Laguna Elementary School SRTS Team developed the following vision for this plan.

The Laguna Elementary School Safe Routes to School program is supported by a multi-modal network that serves the whole community and requires the whole community for its safe and effective operation.

EXISTING CONDITIONS

SCHOOL DEMOGRAPHICS

Category of Students	Number of students	Percentage of students
Total Student Enrollment	440	100%
Total Family Addresses	391	88%
Live within 1 mile	320	73%
Live within 2 miles	350	80%
Students using school bus service	200	45%
Enrolled in programs before school	Before school program not offered	
Enrolled in programs after school	180	41%
Eligible for Free or Reduced Lunch	422	96%
With Disabilities	65	15%

NEIGHBORHOOD CHARACTERISTICS

Laguna Elementary School is located in the Regina Manor and Gibson neighborhoods, medium-density residential neighborhoods in northern Tucson. It is part of the Flowing Wells School District of Pima County. The school campus is on the corner of W. Diamond Street and N. Shannon Road; its attendance boundary forms a triangle, consisting of the I-10 freeway, West River Road, N. Kain Avenue/driveway leading to the Flowing Wells District Park, and W. Ruthrauff Road. The street pattern within this area includes “super blocks,” with residential subdivisions. Super block streets within the school’s attendance boundary include W. Curtis Road, W. Diamond Street, N. Shannon Road, and N. Davis Avenue. Some of the streets within the super blocks are disconnected, while others connect to the larger streets. Due to the residential and low-density characteristics of this school, the key destinations near Laguna Elementary School primarily include parks and recreation spaces:

- Flowing Wells District Park, located approximately .5 miles northeast of the school.
- Dan Felix Recreation Area, located approximately 1 mile north of River Road.
- Curtis Park, located approximately 1 mile northeast along W. Curtis Road.
- The Green Fields Country Day School, approximately 1.5 miles north of Laguna Elementary along N. Camino De La Tierra.

See Figure 3 for the school location and student family addresses by distance from school

EXISTING TRANSPORTATION INFRASTRUCTURE

KEY ROADS

Table 2: Key Roads

Road	Road Width ¹	Sidewalk width and continuity ²	Bicycle Facilities	Speed limit	No. of lanes in each direction	Daily Traffic Volumes ³	Functional Class
N. Shannon Rd	27 feet	Intermittent	None	25 mph	1	Data not available	Neighborhood
N. Diamond St	22 feet	Intermittent	None	25 mph	1	Data not available	Neighborhood
N. Davis Rd	25 feet	None	None	25 mph	1	Data not available	Neighborhood
W. Curtis Rd	25 feet	None	None	35 mph	1	15,000	Major Collector
N. Kain Ave	26 feet	None	None	25 mph	1	3,000	Major Collector

1. Sidewalk widths are approximate.
2. Daily traffic volumes from 2012 *Traffic Volumes in Metropolitan Tucson and Eastern Pima County*. Available online at: <http://www.pagnet.org/documents/rdc/gis/maptrafficcoun2012.pdf>.
3. Functional classification from 2014 ADOT Functional Classification Map for Tucson. Available online at: <http://azdot.gov/docs/default-source/maps/tucson-fc-map.pdf?sfvrsn=6>.

Laguna Elementary School Family Addresses by Distance

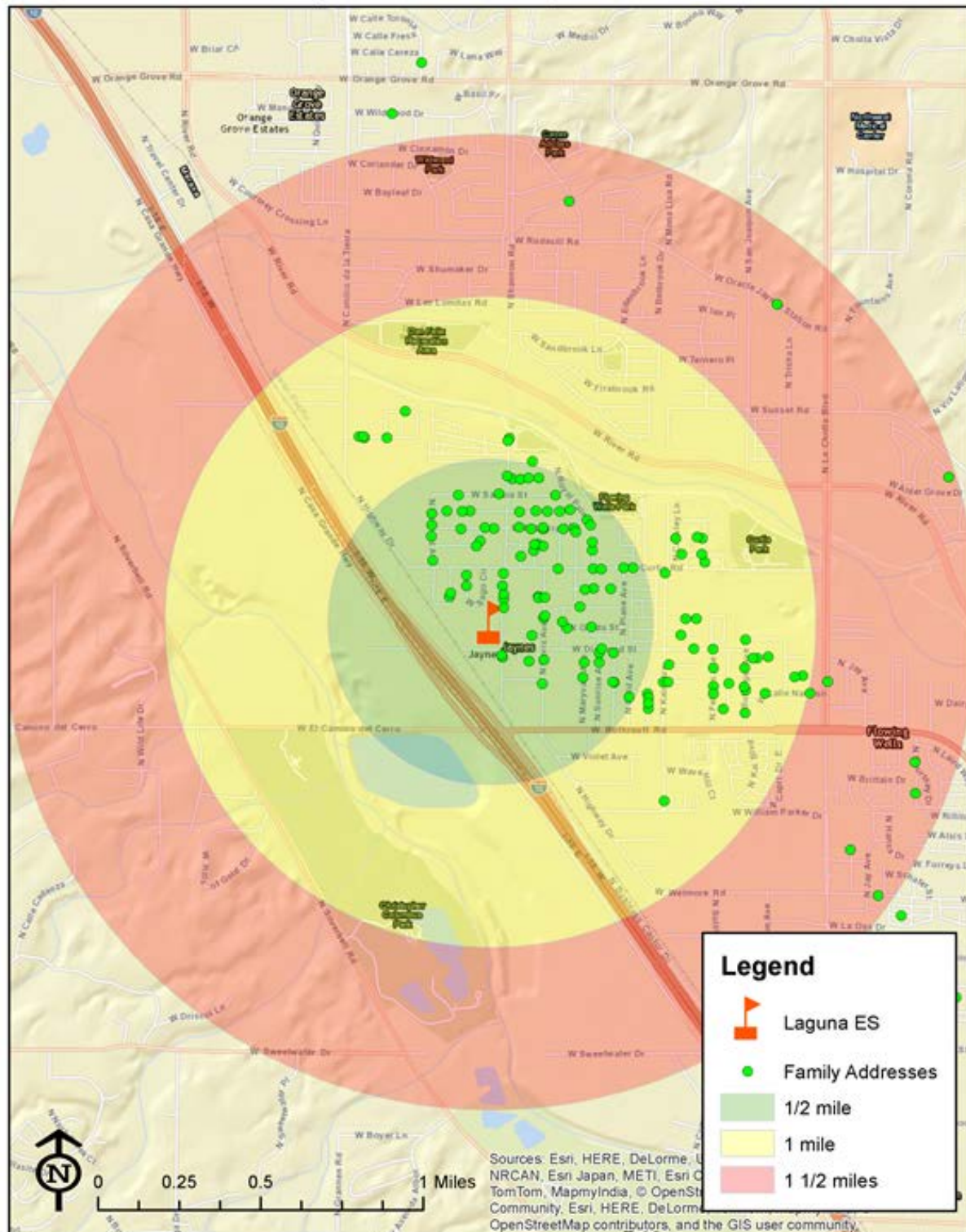


Figure 2. Laguna school location and family addresses.

PEDESTRIAN INFRASTRUCTURE WITHIN ½ MILE OF SCHOOL

Sidewalks are present on N. Shannon Road and on portions of Ruthrauff Rd. Other streets do not have sidewalks.

A few intersections along super block streets have some type of signal to control traffic and create time and space for pedestrians to cross the streets:

- N. Shannon Road includes a High-Intensity Activated crossWalK (HAWK) beacon for pedestrians crossing W. Curtis Road
- N. Davis Avenue and W. Ruthrauff Road includes a fully operational traffic signal and pedestrian signals

Neighborhood streets are stop-controlled where they intersect a superblock street, creating the need for pedestrians to wait for a gap in motor vehicle traffic before crossing.



Figure 3: HAWK Crossing at W. Curtis Road

Pedestrian infrastructure typically used at intersections are most likely present at key school crossings, but absent from others. Curb ramps are present where sidewalks are present.

Most intersections with curb ramps are fitted with a single diagonal ramp at each corner. Curb ramps are present at the northeast intersection of N. Davis Avenue and W. Ruthrauff Road, though the curb cut is not continued to the right-turn islands on the northeast and southwest corners. Along W. Shannon Rd, there are curb ramps to cross N. Diamond Road, though some of these curb ramps

do not meet current ADA guidelines because they lack truncated dome detectable warnings. With the exception of N. Shannon Road and W. Curtis Road, in cases where a corner connects to two crosswalks, a single diagonal curb ramp serves both crosswalks instead of the best practice of one ramp in each crossing direction.

Key school crossings, i.e., those designated as school crossings with yellow striping are present at two locations: N. Shannon Road and the school campus (just north of W. Diamond Street); and W. Curtis Avenue and N. Shannon Road, west leg. A crossing guard is present to assist students at these locations; an additional crossing guard is stationed at the crosswalk at W. Diamond Street and N. Davis Avenue, north leg.

Other marked crosswalks are provided at the following intersections and mid-block:

- N. Davis Avenue and W. Diamond Street (ladder crossing, all legs)
- N. Highway Drive and W. Ruthrauff Road (white parallel line striping, three legs)
- N. Davis Avenue and W. Ruthrauff Road (white parallel line striping, three legs)
- W. Curtis Avenue and N. Shannon Road (white ladder crossing, two legs; yellow ladder crossing across the west side leg)
- Seven marked mid-block crossings in a subdivision north of W. Diamond St on N. Sunrise Ave and N. Plane Ave.

Most of these marked crosswalks are faded, making them more difficult for drivers to see.

The Flowing Wells District Park includes a loop trail on the south side of the Rillito River, which can serve pedestrian travel. Trail access points include the north end of N. Shannon Road, streets in the Mountain View Mobil Home Park, and the Carden of Tucson Charter School. The Loop trail connects with N. Camino De La Tiera, traveling along the east side of the roadway to W. Curtis Road.

BICYCLE INFRASTRUCTURE WITHIN ½ MILE OF SCHOOL

In addition to the bikeway offered by The Loop, on-road bicycle facilities are on N. Highway Drive, W. Curtis Road, N. La Cholla Boulevard, and W. Ruthrauff Road. A designated 'bicycle-friendly road' route travels along N. Shannon Road (past the school campus), W. Diamond Street and N. Davis Avenue, connecting to W. Ruthrauff Road.

Shoulders along the I-10 Frontage Road are wide enough to provide space for bicyclists; however the speeds and volumes on this road suggest it would not be considered a viable route for elementary school student bicycling.

Bicycle racks are located in the school's courtyard. Observations of rack usage indicate that several students bicycle or skateboard to school. The rack is a typical school-style, but as the photo shows, this type of rack makes it difficult to lock a bike securely without using more than one space.



Figure 4. Students both bicycle and skateboard to school.

TRAFFIC CALMING WITHIN ½ MILE OF SCHOOL

There are no speed humps or other traffic calming measures within ½ mile of the school other than the portable signs used at designated crossing during arrival and dismissal.

ARRIVAL POLICIES AND PROCEDURES

School begins at 8:00 a.m.; students begin arriving as early as 7:30 a.m. for breakfast, which is served until 7:55 a.m. Students arrive at school by three main modes -- walking, riding the bus, and traveling in a family vehicle.

- Students who walk to school typically walk with an adult (presumably their parent), arriving on N. Shannon Road at the school crossing. Some who walk on the east side of N. Shannon Road cross just south of W. Curtis Road.
- Students arriving by one of the two school buses exit the bus on N. Shannon Road at the school entrance. Recent improvements to N. Shannon Road in front of the school have resulted in a separated bus lane. The bus lane is south of the designated school crossing; the crossing guard stationed at the school crossing helps buses re-enter the roadway.
- Students arriving in a family vehicle either exit the vehicle on N. Shannon Road or in the school parking lot. The established school procedure is to use the drop-off lane in the school parking lot. A staff person helps manage the flow of motor vehicles in and out of the lot and pedestrians (students, parents) walking in and out of school. Family vehicles that drop off students on N. Shannon Road in front of the school often interrupt the flow of students walking to school and the bus drop-off path of travel.

Regardless of travel mode, all students enter the school on N. Shannon Road through the main entrance. In addition, a pedestrian walkway is now present in the school parking lot.

Laguna Elementary School staff members serve as crossing guards and are stationed at the three locations cited above. Based on the school crossing agreement with Pima County Department of Transportation, crossing guards at the two designated school crossings are present 45 minutes before classes begin, (from 7:15 a.m. to 8:00 a.m.). The third crossing guard follows the same schedule. See Appendix C for the School Zone Pedestrian Crossing Agreements.



Figure 5. Bus lane on N. Shannon Road is used for arrival and dismissal.



Figure 6. Laguna Elementary School main entrance on N. Shannon Road.

ARRIVAL TIMES

Arrival Category	Time
Before Care Start Time	6:30 a.m.
Time When Most Students Not in Before Care Arrive	7:30 a.m. to 8:00 a.m.
School Start Time	8:00 a.m.



Figure 7. Laguna has an established drop-off and pick-up system with pedestrian walkway in the school parking lot.

DISMISSAL POLICIES AND PROCEDURES

When school ends at 2:10 p.m.,¹ students are dismissed from exits at the front entrance on N. Shannon Road and the parking lot entrance. Students who walk home meet their caregiver at the school entrance. Bus riders are picked up in the bus lane on N. Shannon Road. While the school procedure is for students traveling home by family vehicle to be picked up at the established loop in the parking lot, some students meet their family vehicle along N. Shannon Road between W. Diamond Street and W. Curtis Road. Other parents park on W. Diamond Street between N. Shannon Road and N. Davis Avenue to walk in to pick up their children after school.

Laguna Elementary School staff members are stationed in the parking lot and along the bus loop to assist with dismissal. Crossing guards are stationed at the same locations as for arrival. Based on the school crossing agreement with Pima County Department of Transportation, crossing guards at the two designated school crossings are present 30 minutes after classes end (2:10 to 2:40 p.m.). The third crossing guard follows the same schedule. See Appendix C for the School Zone Pedestrian Crossing Agreements.

¹ Unlike other area schools, Laguna Elementary School does not have a weekly early release day. School ends at noon on early release days.



Figure 8. Designated school crossing and head of bus lane with school crossing guard.

DISMISSAL TIMES

Dismissal Category	Time
School End Time	2:10 p.m. (M, T, W, TH, F)
Time Student Walkers and Bikers Not in Aftercare Dismissed	2:10 p.m. (M, T, W,TH, F)
Aftercare End Time	6:30 p.m. (M, T, W,TH, F)

OTHER POLICIES AND PROCEDURES IMPACTING WALKING AND BICYCLING TO SCHOOL

Other policies impacting walking and bicycling to school include:

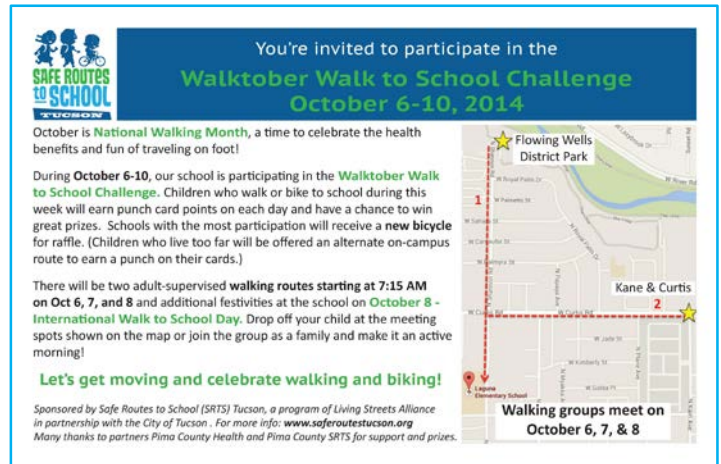
- Students living more than 1-½ miles from Laguna Elementary School are eligible for school bus service.
- Through the school’s registration process, parents indicate how their child travels to and from school each day.

EXISTING SRTS ACTIVITIES

Laguna Elementary School participated in the following SRTS activities during the 2014-2015 school year.

Fall 2014

- Walktober Walk to School Challenge – a weeklong event encouraging students to walk and bike to school, with special emphasis on walking. SRTS Tucson provided promotional materials, activity support, and incentive items.
- International Walk to School Day– a celebration of walking/biking to school. Laguna and SRTS Tucson staff walked with students along designated routes, distributed prizes, and engaged parents during a morning of activity.
- Bike Repair Clinic – free bike repair and maintenance training. Laguna Elementary and SRTS Tucson hosted an evening bike repair clinic to fix student bikes and teach kids basic bike maintenance skills.



Spring 2015

ApROLL Bike & Walk to School Challenge – this weeklong event encouraged students to walk and bike to school, with special emphasis on biking. SRTS Tucson provided promotional materials, activity support, and incentive items.

Laguna Bike Fest – a month long bike event challenging kids to ride to school during the month of April. SRTS Tucson provided promotional materials, punch cards for bikes, and prizes.

After School Bike Club – this club met after school once a week for five weeks to give students an opportunity to learn additional bike skills and practice riding on the campus track. SRTS Tucson



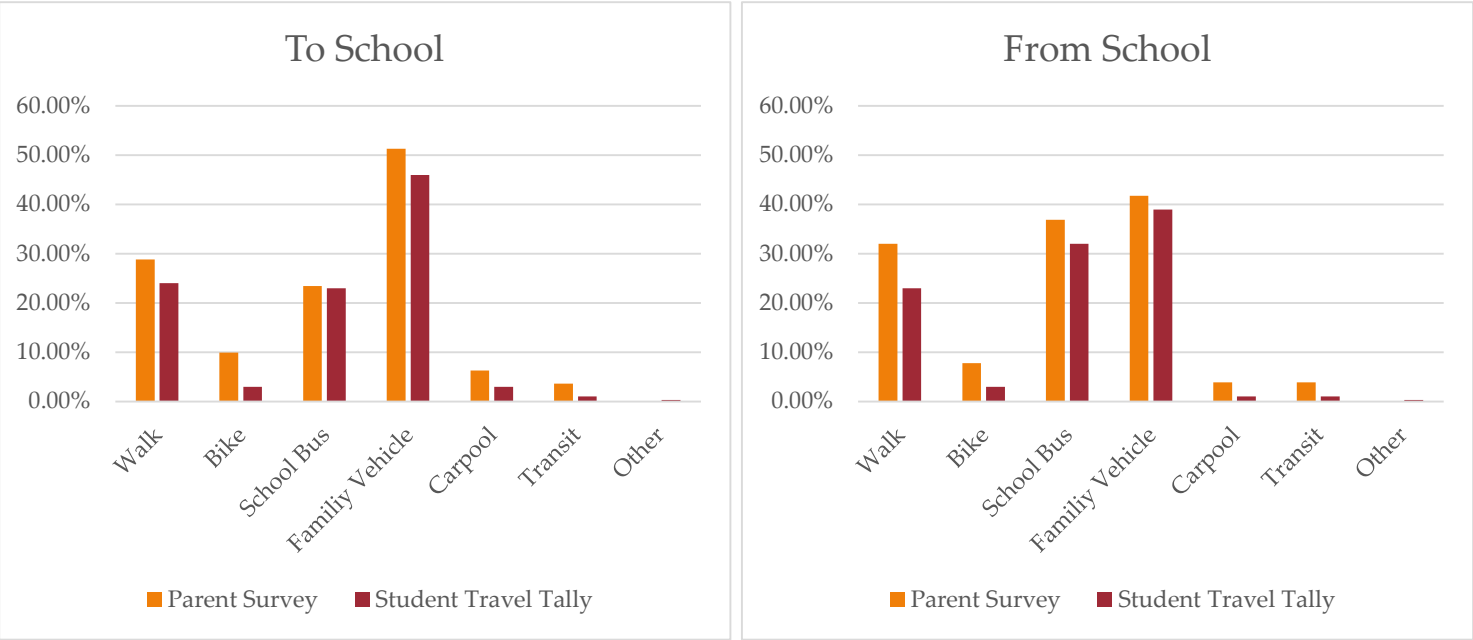
assisted with organization. Supervision was provided by Laguna Elementary and local bike shop staff.

EXISTING TRAVEL BEHAVIORS

CURRENT STUDENT TRAVEL MODES

The percentage of Laguna Elementary School students who travel to and from school by each mode are indicated in Figure 3 below.² The data for these figures is derived from a survey of parents (Parent Survey) and in-class survey of students (Student Travel Tally) conducted in August 2014. 111 parents responded to the Parent Survey, and the Student Travel Tally was conducted in eight classrooms. Complete summary results are provided in Appendix B.

Figure 9: Current Student Travel Modes



² Respondents to the parent survey were not given “Other” as an option, which is why this data is only available for the Student Travel Tally.

KEY LOCATIONS AND ISSUES

Key locations and issues were identified through:

- The meeting process described in Table 1.
- Field observations.
- Mapping Laguna Elementary School family addresses to understand where improved pedestrian and bicycle conditions might have the most benefit.
- Review of relevant background information, including survey results, crash data; and a review of the previous SRTS travel plan for Laguna Elementary School completed in 2006. (The 2006 Travel Plan is included as Appendix D.)

The locations and issues include:

Lack of sidewalks along walking routes

- a. W. Diamond Street between the school campus and N. Sullinger Avenue
- b. N. Davis Avenue between W. Diamond Street and W. Curtis Road
- c. W. Curtis Road between N. Highway Drive and N. Kain Avenue

Safety and comfort concerns

- d. E. Curtis Road and N. Shannon Road due to large trucks and motorists' speed
- e. Uncomfortable walking conditions due to dogs in front yards of homes especially along W. Diamond Street
- f. Confusing traffic operations at the intersection of N. Shannon Road and W. Curtis Drive—even with crossing guard and existing HAWK signal
- g. Inadequate school related markings and signs
- h. Ineffective streetscaping
- i. W. Curtis Road and N. Davis Avenue – uncomfortable crossing conditions

Limited connectivity

- j. Lack of bicycle routes along key student travel routes
- k. Lack of connection between school campus and Bel-Air neighborhood

A map of these locations is provided on the next page.

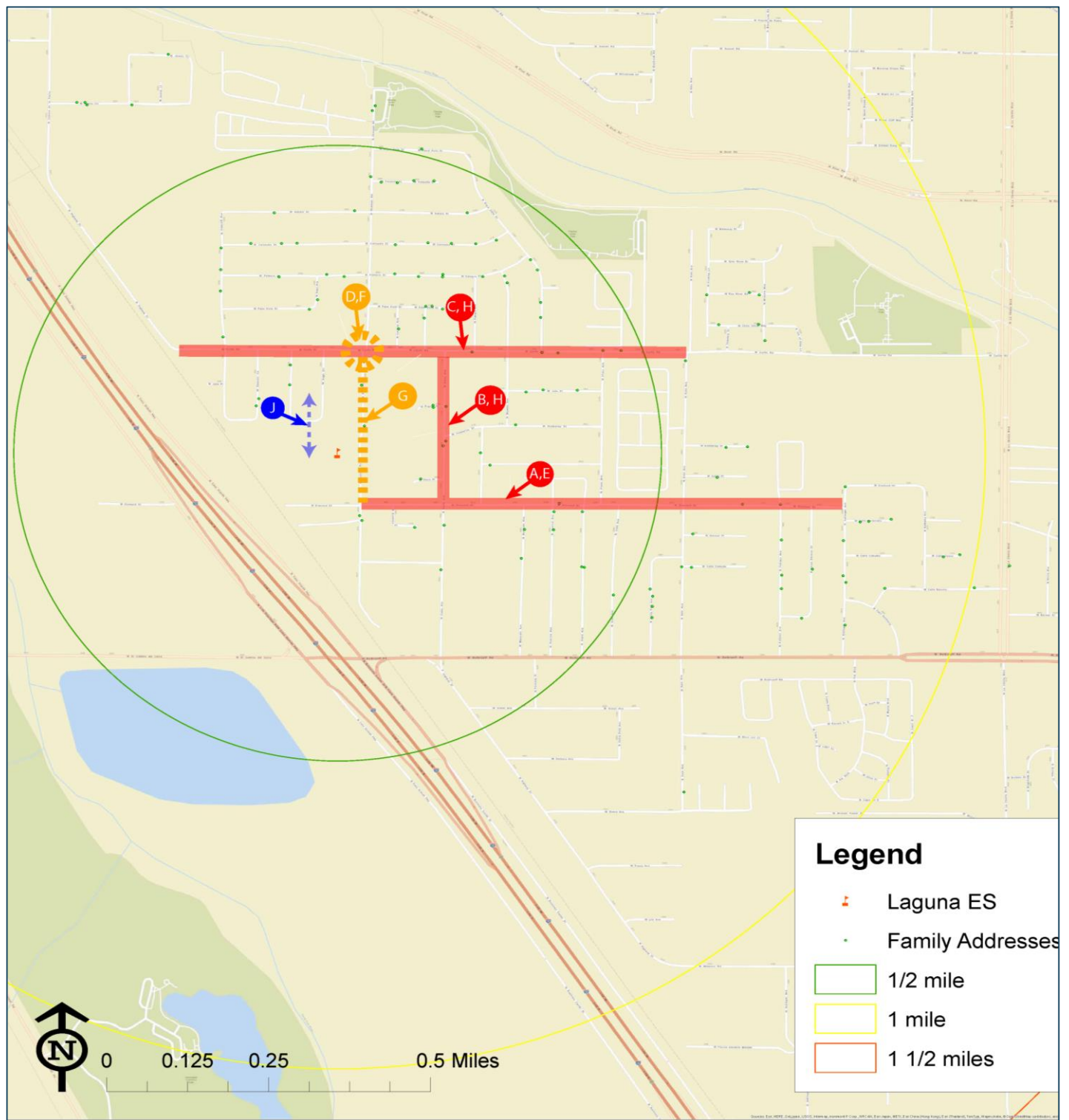


Figure 10. Locations and Issues Map.

LACK OF SIDEWALKS ALONG WALKING ROUTES

A. W. DIAMOND ROAD BETWEEN THE SCHOOL CAMPUS AND N. SULLINGER AVENUE

- Over 30 school families live either along or on roads north and south this portion of W. Diamond Road.
- The lack of sidewalks on either side of the street, parked cars, and overgrown vegetation cause pedestrians to walk along the gravel and dirt shoulder.
- W. Diamond Road is classified as a neighborhood street with a posted speed limit of 25 MPH. (See Table 2)
- There were no crashes involving pedestrians or bicyclists.³



Figure 11: Pedestrians traveling along W. Diamond Street must use the dirt and gravel shoulder.

³ Based on data provided by TDOT for November 2009 through January 2015.

B. N. DAVIS AVENUE BETWEEN W. DIAMOND STREET AND W. CURTIS ROAD

- About a half dozen school families live either along or on roads connecting to N. Davis Road.
- A crossing guard assists students walking and bicycling to school at the intersection with W. Diamond (north leg)
- W. Diamond Road is classified as a neighborhood street with a posted speed limit of 25 MPH. (See Table 2).
- N. Davis provides a continuous connection for motorists traveling between W. Curtis to the north and W. Ruthrauff Road/N. Highway Drive to the south, with only one stop sign at W. Diamond Street.
- The lack of sidewalks on either side of the street cause pedestrians to walk along the gravel and dirt shoulder.



12. Crossing guard assist students walking to and from school at N. Davis Avenue and W. Diamond Street.

C. W. CURTIS ROAD BETWEEN N. HIGHWAY DRIVE AND N. KAIN AVENUE

- There is a crossing guard stationed at the intersection of W. Curtis Road and N. Shannon Road (west leg; designated school crossing).
- About four dozen school families live along W. Curtis on roads to the north within the walk zone.
- The intersection of W. Curtis Road and N. Shannon Road includes a (High-Intensity Activated crossWalk (HAWK) beacon for pedestrians crossing on the west leg.
- W. Curtis is a major collector with posted speed limits of 35 MPH and average daily traffic volumes of 15,000 (See Table 2).
- There have been a number of crashes along this portion of W. Curtis and at the intersections with N. Davis Avenue and N. Shannon Road, although the majority of them have not involved pedestrians.⁴



13. W. Curtis Road looking west.

⁴ Based on data provided by TDOT for November 2009 through January 2015.

SAFETY AND COMFORT CONCERNS

D. E. CURTIS ROAD AND N. SHANNON ROAD

- These two streets are established walking routes to school and were the designated walking routes for the Walktober Walk to School Challenge.
- About 23% of school families live along N. Shannon Road within the walk zone.
- Fewer school families live along E. Curtis Road, but families living on neighborhood streets that intersect with E. Curtis Road use that road to travel to school.
- There are no sidewalks along E. Curtis Road.
- There are sidewalk gaps on the east side of N. Shannon Road (sidewalks are present on the west side).
- E. Curtis Road is classified as a major collector, with posted speed limits of 35 MPH and average daily traffic of 15,000 vehicles.
- The intersection of W. Curtis Road and N. Davis Avenue lacks crosswalks or traffic controls (such as stop signs) for motorists traveling along W. Curtis Road. The large parking lot at the market on the north side of the roadway generates traffic that crosses the pedestrian path of travel.
- N. Shannon Road is classified as a neighborhood street with a posted speed limit of 25 MPH.
- Responses on the August 2014 parent survey and from team members who met in February 2015 indicate a concern about motor vehicle speeds on these two streets, including the block of N. Shannon Road on which the school is located, and concern about large truck traffic.
- There were about 20 crashes on these two roads between November 2009 and January 2014. Four of these crashes involved a pedestrian or bicyclist; all but one occurred outside of the times students would normally be traveling to and from school.⁵



Figure 14. Walktober Walk to School Challenge Promotional Banner.

⁵ Based on data provided by TDOT for November 2009 through January 2015.

E. DOGS IN FRONT YARDS, ESPECIALLY ON W. DIAMOND STREET

- W. Diamond Street is a travel path for students living south of the school and south of W. Diamond Street. The street is on the southern border of the school campus.
- There are no sidewalks on either side of W. Diamond, causing students to walk in the gravel and dirt shoulders.
- Many of the homes along W. Diamond Street are fenced in to provide activity space for family dogs. The dogs often bark at students walking to and from school, creating a sense of discomfort and concern for the students.

F. CONFUSING TRAFFIC OPERATIONS AT THE INTERSECTION OF W. CURTIS ROAD AND N. SHANNON ROAD

- About 40% of school families live north of the school and travel through the intersection on the way to or from school.
- A crossing guard assists students traveling to and from school at this intersection.
- A recent intersection change added a HAWK signal in order to improve the safety and comfort of students walking and bicycling to school.
- Motorists traveling along W. Curtis Road must stop when the HAWK signal is activated. Motorists traveling on N. Shannon Road are subject to stops signs, which allows them to travel through the intersection after stopping, including turning left or right across the path of students crossing the west leg of W. Curtis Road at the designated school crossing.
- Motorists use the shoulder to travel around vehicles stopped at the HAWK signal.

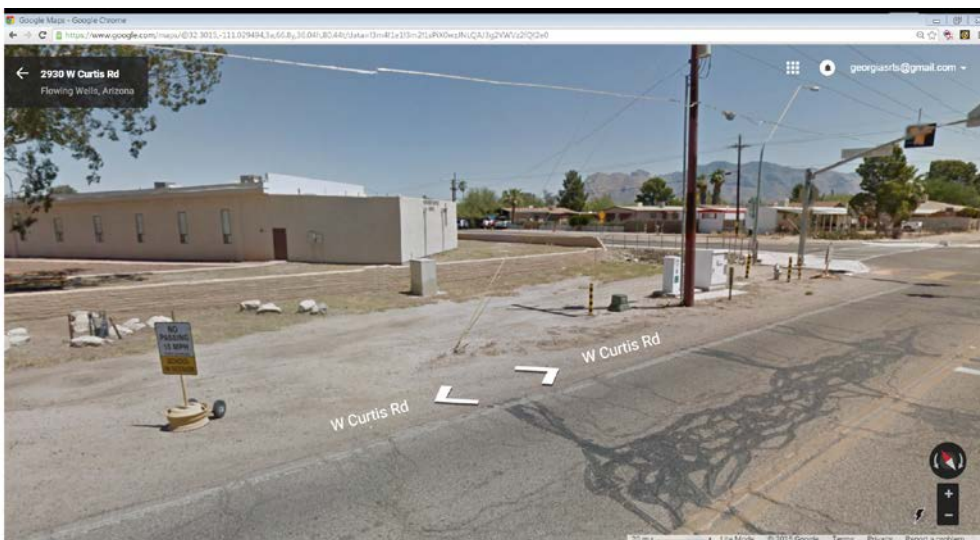


Figure 15. Sign in shoulder along W. Curtis Road prohibits its use for motor vehicles.

G. INADEQUATE SCHOOL RELATED MARKINGS AND SIGNS

- Approximately one-third of Laguna Elementary School families live within the school's walk zone.
- Existing pavement markings, especially edge lines, are faded.
- Signage along the blocks of N. Shannon Road, W. Diamond, and W. Curtis beyond the block on which the school is located is limited to wayfinding.



Figure 16. Faded edge lines diminish the separation between the roadway and shoulder.

H. INEFFECTIVE STREETSCAPING

- Most streets have little streetscape within the right-of-way.
- High temperatures during many months of the year can make walking to and from school uncomfortable.
- The presence of an attractive walking route that includes street trees, effective pedestrian

lighting, and benches and other street furniture, can increase interest in walking to school.



Figure 17. Wayfinding signage does not offer safety message.

- Streetscaping can help mitigate the erosive effects of flooding.



Figure 18. Most streets lack streetscaping.

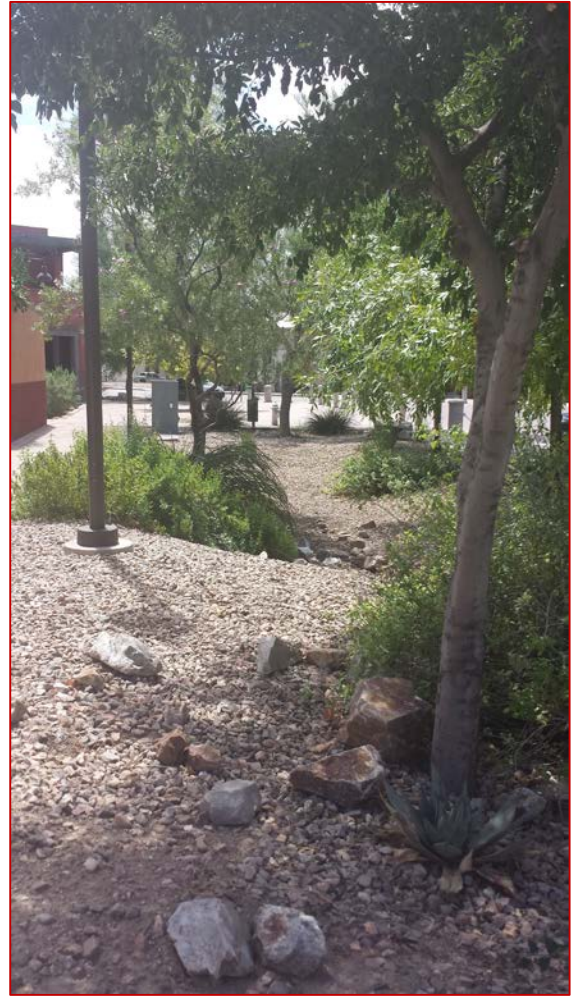


Figure 19. Streetscaping example from Tucson.

LIMITED CONNECTIVITY

H. LACK OF BICYCLE ROUTES ALONG KEY STUDENT TRAVEL ROUTES

- Older students bike in the roadway along W. Diamond Street, creating a desire to ride among their younger siblings. A bike lane or wide sidewalk would be an appropriate facility for these students.
- On-road bicycle facilities are on N. Highway Drive, W. Curtis Road, N. La Cholla Boulevard, and W. Ruthrauff Road.
- A designated 'bicycle-friendly road' route travels along N. Shannon Road (past the school campus), W. Diamond Street and N. Davis Avenue, connecting to W. Ruthrauff Road.
- Shoulders along the I-10 Frontage Road are wide enough to provide space for bicyclists; however the speeds and volumes on this road suggest it would not be considered a viable route for elementary school student bicycling.

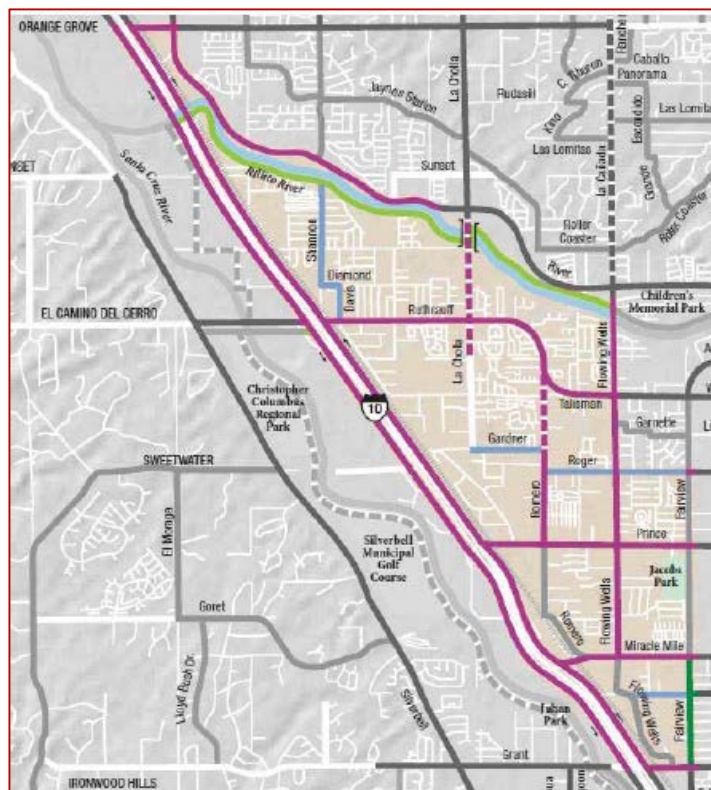


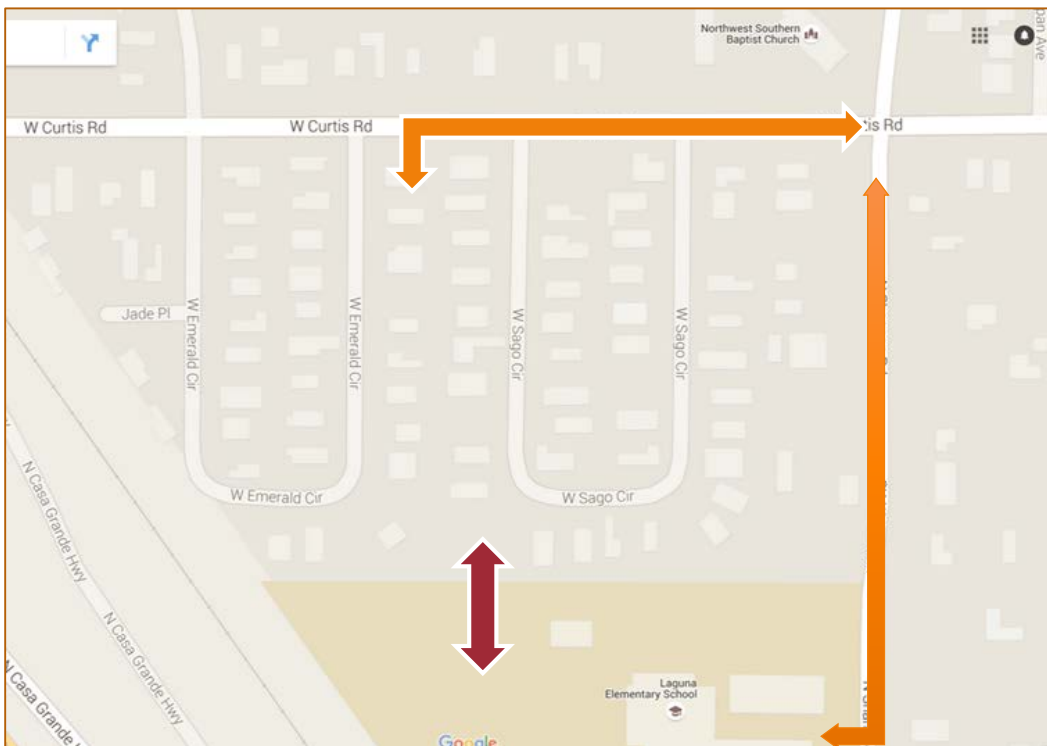
Figure 20. Bikeways near Laguna Elementary.

I. LACK OF CONNECTION BETWEEN SCHOOL CAMPUS AND BEL-AIR NEIGHBORHOOD

- A handful of school family addresses are in the Bel-Air neighborhood.
- Direct access between the Bel-Air neighborhood just north of the school campus and the school is limited by a fence. The gate in the fence is not always open, causing students to travel home a longer route.



Figure 21. Fence between school campus and Bel-Air neighborhood begins at the street and runs the length of the school campus. The diagram below shows the route students could take if the gate were open (red arrow) and the longer route student must take (orange arrows)



RECOMMENDATIONS

LOCATION-SPECIFIC RECOMMENDATIONS

The following engineering recommendations that can be addressed in the short term. The recommendations are aimed at establishing a safe and comfortable walking network in close proximity to the school and along priority walking routes. Some of the issues described above are addressed in the programmatic recommendations section of this Plan. The following table shows how each of the locations and issues can be addressed.

		Infrastructure recommendation included here	Other (see Notes column)	Programmatic recommendation included here	Notes
	Lack of sidewalks along walking routes				
A	W. Diamond Street between the school campus and N. Sullinger Avenue				Two segments: A.1 - East of N. Davis Avenue A.2 - West of N. Davis Avenue
B	N. Davis Avenue between W. Diamond Street and W. Curtis Road				
C	W. Curtis Road between N. Highway Drive and N. Kain Avenue				
	Safety and comfort concerns				
D	E. Curtis Road and N. Shannon Road due to large trucks and motorists' speed				Support Pima County traffic calming project on E. Curtis Road; work with County police department for additional enforcement.
E	Uncomfortable walking conditions due to dogs in front yards of homes especially along W. Diamond Street				Work with community on other SRTS activities.
F	Confusing traffic operations at the intersection of N. Shannon Road and W. Curtis Drive—even with crossing guard and existing HAWK signal				Support Pima County traffic calming project on E. Curtis Road.
G	Inadequate school related markings and signs				
H	Ineffective streetscaping W. Curtis Road and N. Davis Avenue – Uncomfortable crossing conditions				Work with Pima County Flood Control District , especially the Watershed Management Group, which works with neighborhoods.

		Infrastructure recommendation included here	Other (see Notes column)	Programmatic recommendation included here	Notes
	Limited connectivity				
I	Lack of bicycle routes along key student travel routes				
J	Lack of connection between school campus and Bel-Air neighborhood				

A map showing the following short-term location-specific and general pedestrian network engineering recommendations is provided on the next page.

A	Multi-Use Path along W. Diamond Street
A.1	West of N. Davis Avenue
A.2	East of N. Davis Avenue
B	Sidewalk along N. Davis Avenue
C	Sidewalk along W. Curtis Road
G	Signs and markings throughout the district (edge lines on roadways and additional school zone signs, especially along priority for walking routes.
H	Streetscape improvements throughout the district. Priority for walking routes.

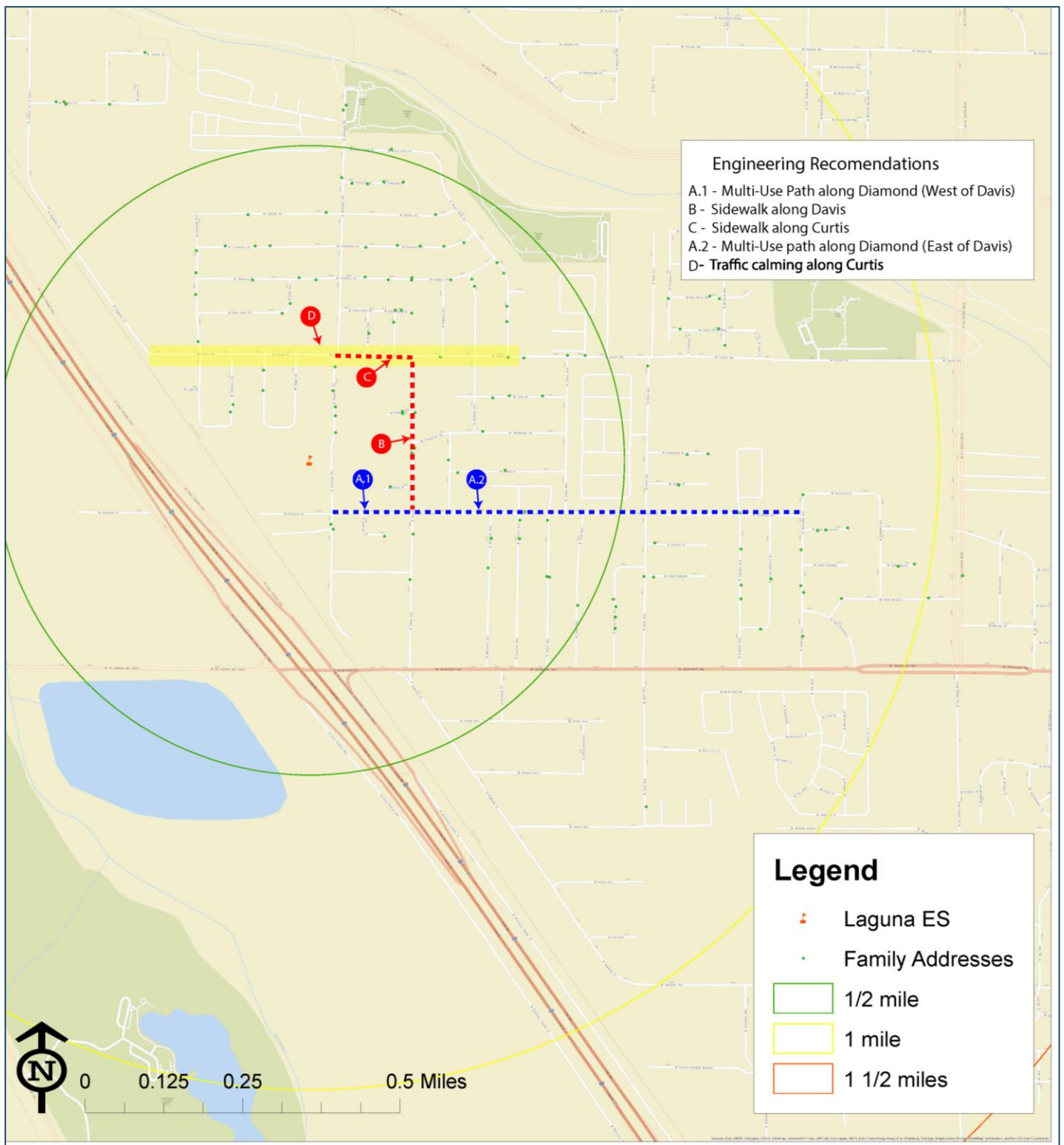


Figure 22. Recommended engineering improvements.

INSTALL A MULTI-USE PATH ALONG W. DIAMOND STREET BETWEEN SCHOOL CAMPUS AND N. SULLINGER AVENUE

A.1 INSTALL A MULTI-USE PATH ALONG W. DIAMOND STREET (EAST OF N. DAVIS AVENUE)

- Install a multi-use path along the north side of the street. This path is the southern leg of a walking loop; other legs are portions of W. Curtis Road, N. Davis Avenue, and N. Shannon Road.
- Create sufficient width for the multi-use trail by narrowing existing travel lanes from 12 feet to 11 feet.
- The multi-use trail should be a minimum of 8 feet wide; wider where the reallocation of travel lane space and right-of-way allows.
- Install streetscaping along this portion of W. Diamond Street as part of the multi-use trail installation project.
- Use permeable materials for the multi-use trail to help manage rain water flow.

A.2 INSTALL A MULTI-USE PATH ALONG W. DIAMOND STREET (WEST OF N. DAVIS AVENUE)

- Install a multi-use trail along the north side of the street. This path is the southern leg of a walking loop; other legs are portions of W. Diamond Street, N. Davis Avenue, and N. Shannon Road.
- The multi-use trail should be a minimum of 6' wide; wider where right-of-way allows.
- Establish edges of the trail where alleys cross the path of travel.
- Install streetscaping along this portion of W. Diamond Street as part of the multi-use trail installation project that includes lighting and seating.
- Use permeable materials for the multi-use trail to help manage rain water flow.

B. INSTALL A SIDEWALK ALONG N. DAVIS AVENUE BETWEEN W. CURTIS ROAD AND W. DIAMOND STREET

- Install a sidewalk along the west side of N. Davis Avenue. This path is the eastern leg of a walking loop; other legs are portions of W. Diamond Street, N. Davis Avenue, and N. Shannon Road.
- The sidewalk should be a minimum of 5' wide, with a 2' to 3' buffer between the sidewalk and the roadway, depending upon available right-of-way.
- Install streetscaping along this portion of N. Davis Avenue as part of the sidewalk installation project that includes lighting and seating.
- Consider using permeable materials for the sidewalk to help manage rain water flow.

C. INSTALL A SIDEWALK ALONG W. CURTIS ROAD BETWEEN N. SHANNON ROAD AND N. DAVIS AVENUE

- Install a sidewalk along the south side of W. Curtis Road.
- The sidewalk should be a minimum of 5' wide, with a 2' to 3' buffer between the sidewalk and the roadway, depending upon available right-of-way.
- Install streetscaping along this portion of W. Curtis Road as part of the sidewalk installation project that includes lighting and seating.
- Consider using permeable materials for the sidewalk to help manage rain water flow.

A. REFRESH EXISTING PAVEMENTS MARKINGS AND SIGNAGE

- Stripe edge lines along priority pedestrian walking routes.
- Add signage to existing school way-finding signage to alert motorists of the presence of child pedestrians. The School Advance Crossing Assembly S1-1 with subplate W16-9P is recommended.⁶



Figure 23. Edge and center lines graphically added.

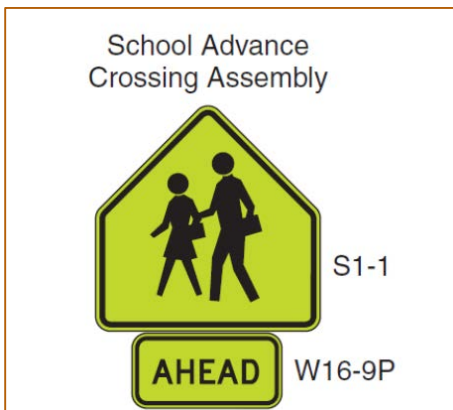


Figure 24. Recommended signage adds safety message to way-finding message sign.

⁶ Per the 2009 MUTCD, Part 7; see Figure 7B-1. School Area Signs.

B. DEVELOP AND IMPLEMENT A STREETSCAPING PLAN

- Work with the Pima County Flood Control District and Watershed Management Group to develop the plan.⁷
- The streetscaping plan should begin with streets students use to walk and bicycle to school, especially N. Shannon Road, W. Diamond Street, N. Davis Avenue, and W. Curtis Road.
- Coordinate implementation with new sidewalk or multi-use trail installation.
- The sidewalk should be a minimum of 5' wide, with a 2' to 3' buffer between the sidewalk and the roadway, depending upon available right-of-way.
- Elements should include shade, lighting, and seating.
- Install streetscaping along this portion of W. Curtis Road as part of the sidewalk installation project.
- Consider incorporating rain garden techniques to help manage rain water flow.

⁷ Details on assistance provided to neighborhoods is available at [this link](#).

- Pima County is developing a traffic calming project along E. Curtis Road in the vicinity of Laguna Elementary School.
- Preliminary plans for safety improvements include the intersection at N. Shannon Road and N. Davis Avenue.



EDUCATION

PEDESTRIAN SAFETY EDUCATION

- Integrate pedestrian safety education into the school curriculum. Pedestrian safety education should occur in advance of major walk to school activities, such as Walktober, so that students are adequately prepared and have an opportunity to practice the skills they have learned. Two pedestrian safety resources are listed below. Both are free.
 - The *Child Pedestrian Safety Curriculum* was developed by the National High Traffic Safety Administration. The curriculum emphasizes skills practice and includes take home tip sheets for parents in English and Spanish.
<http://www.nhtsa.gov/ChildPedestrianSafetyCurriculum>
 - The *Pedestrian Safer Journey* curriculum was developed by the Federal Highway Administration and features videos, quizzes and additional resources for educators teaching pedestrian safety. http://www.pedbikeinfo.org/pedsaferjourney/el_en.html

BICYCLE SAFETY AND MAINTENANCE EDUCATION

- Continue participating in Bike Rodeo events. Bicycle safety education is particularly important in advance of activities that encourage biking to school, such as Kidical Mass or National Bike to School Day.
- Continue participating in Bike Repair Clinic events.
- Educate students and parents on how to properly lock a bicycle. This could be done in conjunction with the bicycle rodeo and/or bike repair clinic. Consider providing locks to students who do not already have them.
- Educate students regarding helmet use. Continue to provide helmets to students who do not already have them.



Figure 26: Bike Repair Clinic at Laguna.

- Take advantage of safety education classes and programs offered by the Pima County Bicycle and Pedestrian Program.⁸

PARENT EDUCATION

- Launch a parent education campaign coordinated with the start of the school year. The parent education campaign will ideally consist of multiple outreach efforts (e.g., package of materials mailed home to parents, information provided at parent meet and greet, information provided at Back to School night, etc.) and include:
 - Information on arrival and dismissal procedures and safety for users of all travel modes.
 - A map of bicycle and pedestrian infrastructure near the school along with suggested walking and bicycling routes.
 - Outreach related to walking school buses.

COMMUNITY EDUCATION AND ENGAGEMENT

- Deliver a presentation on the Laguna Elementary SRTS Plan and the Tucson SRTS Program at a Neighborhood Association meeting.
- Work to build ties between the school and the community as well as among members of the community (e.g., by opening up the school for more community-oriented events).
- Consider hosting a meeting for parents and community members aimed at addressing concerns about personal security and crime in the neighborhood.

⁸ <http://webcms.pima.gov/cms/one.aspx?portalId=169&pageId=54575>

ENCOURAGEMENT

- Continue participating in Walktober and International Walk to School Day.
- Continue participating in the ApROLL Bike & Walk to School Challenge.
- Participate in National Bike to School Day.
- Establish a Park and Walk Program to encourage more students to walk and to better organize parent drop-off and pick-up in locations other than the school parking lot. The Northwest Baptist Church on the corner of W. Curtis Road and N. Shannon Road is a possible location, given the church's connection with the school.⁹
- Work to generate additional interest in walking school buses. Walking school buses currently operate along two routes during Walktober. A potential near-term strategy might be to operate walking school buses along these routes in conjunction with a regular Walking Wednesdays program throughout the school year.
- Develop a frequent walker and biker program to recognize students who walk and bicycle to school. Include students participating in the Park and Walk Program.



Figure 27: Cyclovia Tucson

ENFORCEMENT

- Work with the police department for increased, regular enforcement of traffic laws.
- Establish an adult crossing guard program to assist students traveling home after after-school programs.

EVALUATION

- Conduct student travel tallies and parent surveys yearly.
- Track participation in SRTS events.
- Conduct yearly observation of arrival and dismissal and walkabout.

⁹ Heath Johnson, Senior Pastor and Youth Direction at the church attended the February 2015 SRTS team meetings.

NEXT STEPS

- Establish a school-based SRTS team to oversee plan implementation.
- Develop a calendar specifying when SRTS programmatic strategies will be implemented over a 12-month period. Update annually.
- Build community support and pursue funding for infrastructure improvements. For high-priority infrastructure strategies, identify a member of the Laguna SRTS Team to lead efforts.
- Work with the Pima County Transportation Office to help inform the community about the benefits of the planned safety improvements along W. Curtis Road.¹⁰
- Work with TDOT and Pima County Transportation Office to identify infrastructure recommendations that could be easily implemented through existing programs or planned roadway improvements (low hanging fruit).
- Work with the Pima County Flood Control District and Watershed Management Group to develop and fund a streetscaping plan.
- Prioritize infrastructure recommendations that do not fall into this low-hanging fruit category.
- Conduct an annual observation of school arrival and/or dismissal.
- Evaluate plan implementation annually and update the plan as necessary.

¹⁰ Bill Strickler, Pima County DOT/Traffic, can provide more information about this project.

Crosswalks

Marked crosswalks highlight the portion of the right-of-way where motorists can expect pedestrians to cross and designate a stopping or yielding location. They also indicate to pedestrians the optimal or preferred locations to cross the street. At midblock or other uncontrolled locations, crosswalks should use a high-visibility pavement marking pattern and be accompanied with pedestrian crossing signs that meet current Manual on Uniform Traffic Control Devices (MUTCD) standards.

Crossing Islands

Crossing islands are raised median islands placed in the center of the street at intersection approaches or midblock. They allow pedestrians to cross one direction of traffic at a time by enabling them to stop partway across the street and wait for an adequate gap in traffic before crossing the second half of the street. They can reduce crashes between vehicles and pedestrians at uncontrolled crossing locations on higher volume multi-lane roadways where gaps are difficult to find, particularly for slower pedestrians, e.g. disabled, older pedestrians, and children.

Curb Extensions

Curb extensions extend the curb line into the roadway. Curb extensions can improve the ability of pedestrians and motorists to see each other, reduce crossing distances (and thus exposure to traffic), provide additional pedestrian queuing space, and slow motor vehicle turning speeds.



Figure 28: Example of a crossing island



Figure 29: Example of curb extensions

Curb Ramps

Curb ramps provide access between the sidewalk and roadway for people using wheelchairs, strollers, and bicycles. Curb ramps must be installed at all intersections and midblock locations where pedestrian crossings exist, as mandated by the 1990 Americans with Disabilities Act. In most cases, a separate curb ramp for each crosswalk at an intersection should be provided rather than a single ramp at the corner for both crosswalks. Current guidelines for curb ramp designs are included in the Public Right-of-Way Accessibility Guidelines, Chapter R3: Technical Requirements.

(<http://www.access-board.gov/guidelines-and-standards/streets-sidewalks/public-rights-of-way/proposed-rights-of-way-guidelines/chapter-r3-technical-requirements>)

HAWK Pedestrian Flasher

The High Intensity Activated Cross Walk (HAWK) is one of the newest crossing systems in use. It is based on a European design and resembles the American school bus “children present” warning. The HAWK consists of a Red-Yellow-Red signal format for motorists. The signals remain off until a pedestrian activates the system by pressing a button. First, a FLASHING YELLOW light warns motorists that a pedestrian is present. The signal then changes to SOLID YELLOW, alerting drivers to prepare to stop. The signal then turns SOLID RED and shows the pedestrian a “WALK” symbol. The signal then begins ALTERNATING FLASHING RED and the pedestrian is shown a flashing “DON’T WALK” with a countdown timer. Drivers are allowed to proceed during the flashing red after coming to a full stop and making sure there is no danger to pedestrians. In school zones, drivers must wait until the children and crossing guard are completely out of the crossing before proceeding. Bicyclists are advised to yield to pedestrians and dismount if necessary.¹¹



Figure 30: Example of a HAWK signal in Tucson

¹¹ Text quoted from City of Tucson Pedestrian Signal Operation page. Available online at: <http://www.tucsonaz.gov/tdot/pedestrian-traffic-signal-operation>.

Leading Pedestrian Intervals (LPI):

At signalized intersections, Leading Pedestrian Intervals (LPIs) allow the crosswalk/pedestrian movement to begin crossing 3-7 seconds before the green light is given to motor vehicle traffic in the same direction, enhancing pedestrian visibility in the intersection and helping to establish pedestrian priority over turning vehicles. LPIs are appropriate at signalized intersections where there is relatively heavy pedestrian volume or significant conflicts with turning vehicles.

Pedestrian Lighting

Lighting should be provided near transit stops, commercial areas, or other locations where night-time or pre-dawn pedestrian activity is likely. Pedestrian-scale lighting such as street lamps helps illuminate the sidewalk and improves pedestrian safety and security.

Pedestrian Signals

Pedestrian signal heads indicate to pedestrians when they should cross a street. The use of WALK/DON'T WALK pedestrian indications at signal locations is particularly important when signal timing is complex (e.g., there is a dedicated left- or right-turn signal for motorists) and at established school zone crossings. For wide streets, countdown signals that indicate the remaining amount of time pedestrians have to cross the street should be installed.



Figure 31: LPIs allow pedestrians to occupy crosswalks before cars can move.

Right Turn on Red (RTOR) Restrictions

Restricting right turns on the “red” interval of a signal phase at signalized intersections can reduce crashes between pedestrians and turning vehicles. These restrictions can provide further protection for pedestrians during a leading pedestrian interval of a signal phase, if used. The RTOR restrictions can be limited to certain times of the day or can apply to all hours, prohibiting motorists from turning right without a green signal.



Figure 32: NO TURN ON RED SIGNS can reduce conflicts between turning vehicles and pedestrians.

School Crossings

School Crossings are crosswalks that are associated with schools, marked in yellow, and accompanied by NO PASSING 15 MPH SCHOOL IN SESSION and STOP WHEN CHILDREN IN CROSSWALK portable signs.

Shared Use Paths

Shared use paths are a valuable tool for building a comprehensive pedestrian and bicycling network. These paths are low-stress routes off of the street so pedestrians and bicyclists do not have to compete for space with motor vehicles. The paths and trails should have adequate lighting to support year-round use.

Sidewalks

Sidewalks provide pedestrians and younger bicyclists a safe place to travel that is separate from motor vehicles. It is important to provide a continuous sidewalk route, connected with high-visibility crosswalks so that pedestrians are not forced to share travel space with motor vehicles. All sidewalks should meet ADA guidelines for width and cross-slope, and include curb ramps that meet ADA guidelines at street crossings.

TOUCAN Traffic Signal

The Two GroUps CAN cross (TOUCAN) system was designed to provide a safe crossing for two groups - pedestrians and bicyclists. TOUCAN systems are placed at locations of heavy bicycle and pedestrian crossing activity and along roadways that are prioritized for non-motorized uses, sometimes known as “Bike Boulevards.” An added benefit to the TOUCAN signal system is that motorized traffic is not allowed to proceed through these signals, decreasing the number of cars on neighborhood streets, and enhancing the neighborhood’s quality of life. A TOUCAN can be activated only by bicyclists or by pedestrians. Both use a push button to activate the signal. Bicyclists respond to an innovative bicycle signal and use a special lane when crossing. Pedestrians get a standard WALK indication and have a separate, adjacent crosswalk. The system uses a standard signal for motorists.¹²



Figure 33: Example of a TOUCAN signal in Tucson

¹² Text and photo from City of Tucson Pedestrian Signal Operation page. Available online at: <http://www.tucsonaz.gov/tdot/pedestrian-traffic-signal-operation>.

Student Travel Tally Report: One School in One Data Collection Period

School Name: Laguna Elementary School

Set ID: 15723

School Group: SRTS Tucson

Month and Year Collected: September 2014

School Enrollment: 440

Date Report Generated: 09/30/2014

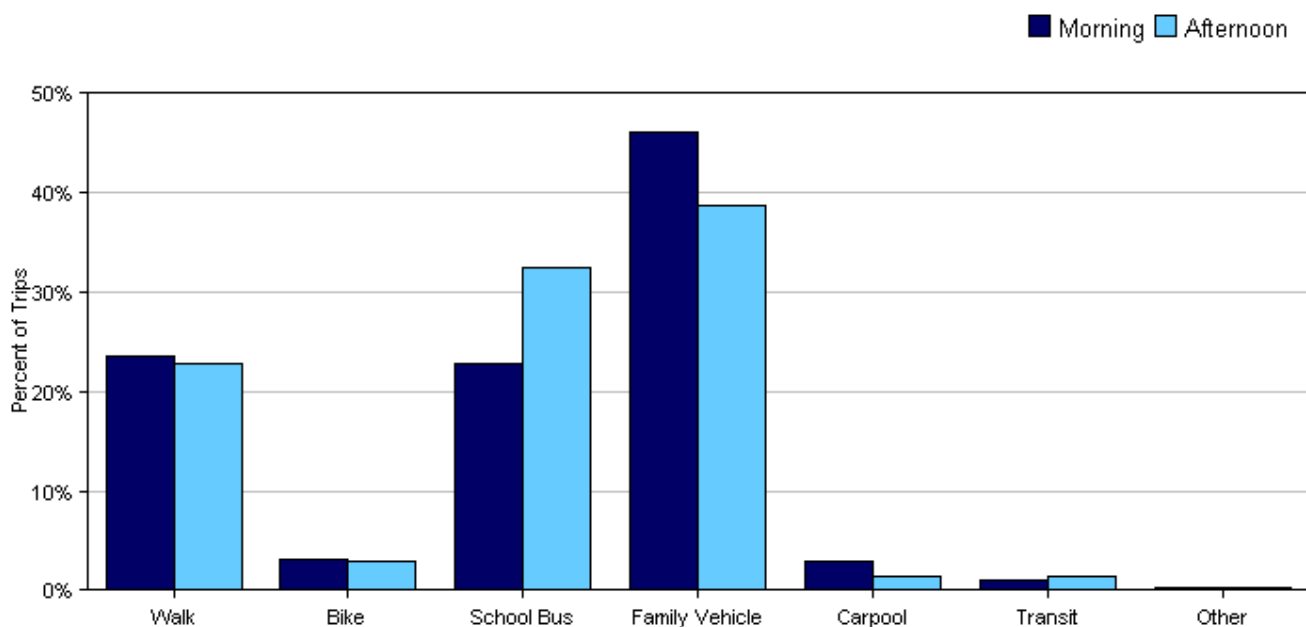
% of Students reached by SRTS activities: 76-100%

Tags:

**Number of Classrooms
Included in Report:** 16

This report contains information from your school's classrooms about students' trip to and from school. The data used in this report were collected using the in-class Student Travel Tally questionnaire from the National Center for Safe Routes to School.

Morning and Afternoon Travel Mode Comparison

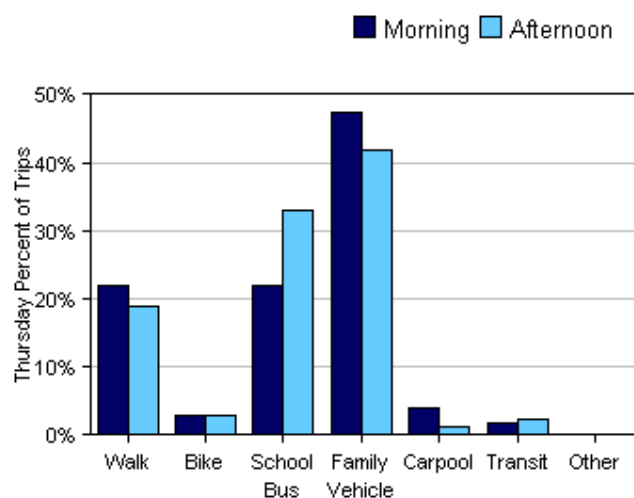
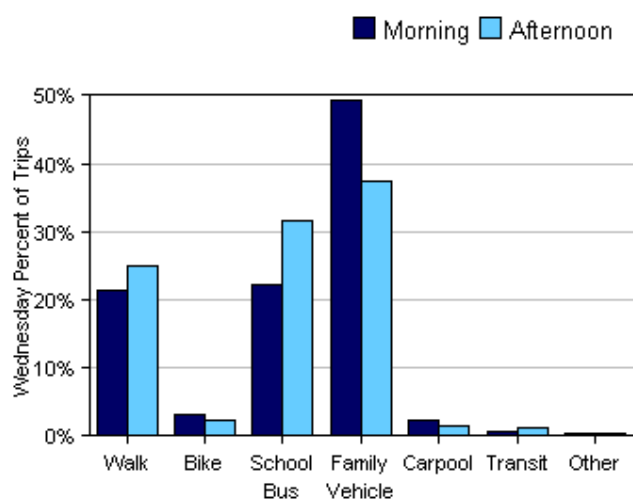
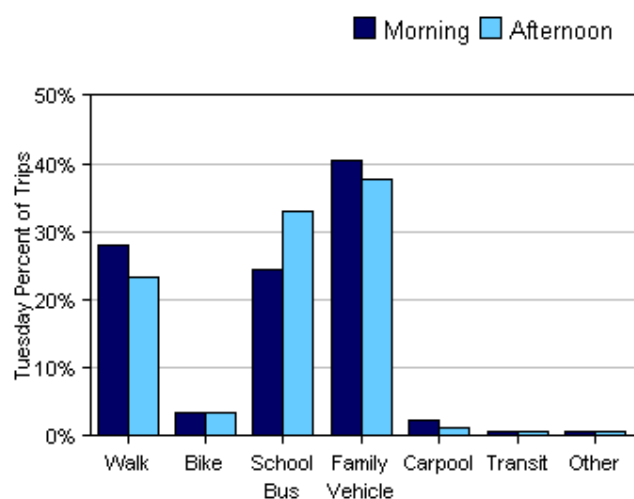


Morning and Afternoon Travel Mode Comparison

	Number of Trips	Walk	Bike	School Bus	Family Vehicle	Carpool	Transit	Other
Morning	594	24%	3%	23%	46%	3%	1%	0.3%
Afternoon	585	23%	3%	32%	39%	1%	1%	0.3%

Percentages may not total 100% due to rounding.

Morning and Afternoon Travel Mode Comparison by Day

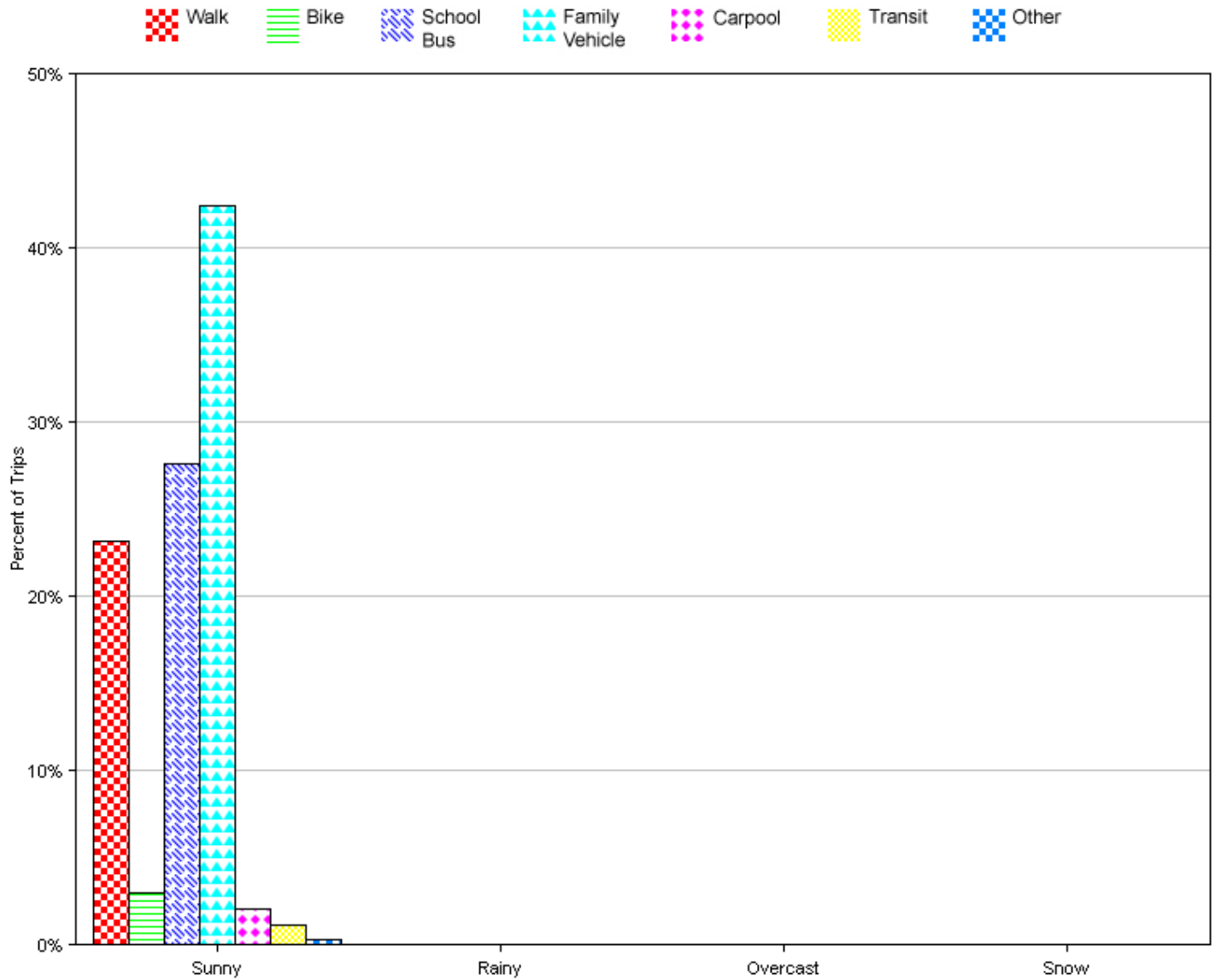


Morning and Afternoon Travel Mode Comparison by Day

	Number of Trips	Walk	Bike	School Bus	Family Vehicle	Carpool	Transit	Other
Tuesday AM	175	28%	3%	25%	41%	2%	0.6%	0.6%
Tuesday PM	172	23%	3%	33%	38%	1%	0.6%	0.6%
Wednesday AM	246	22%	3%	22%	49%	2%	0.8%	0.4%
Wednesday PM	243	25%	2%	32%	37%	2%	1%	0.4%
Thursday AM	173	22%	3%	22%	47%	4%	2%	0%
Thursday PM	170	19%	3%	33%	42%	1%	2%	0%

Percentages may not total 100% due to rounding.

Travel Mode by Weather Conditions



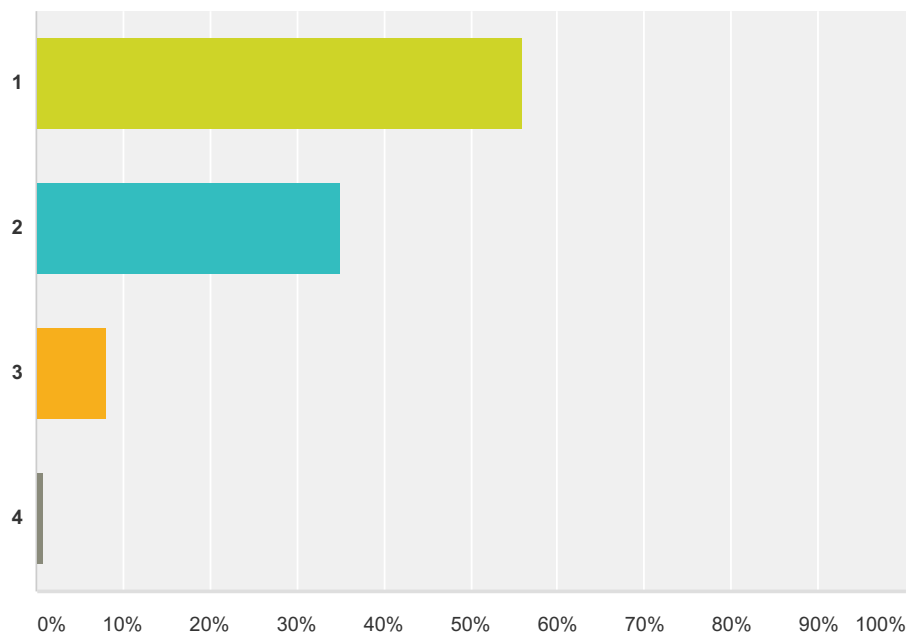
Travel Mode by Weather Condition

Weather Condition	Number of Trips	Walk	Bike	School Bus	Family Vehicle	Carpool	Transit	Other
Sunny	1179	23%	3%	28%	42%	2%	1%	0.3%
Rainy	0	0%	0%	0%	0%	0%	0%	0%
Overcast	0	0%	0%	0%	0%	0%	0%	0%
Snow	0	0%	0%	0%	0%	0%	0%	0%

Percentages may not total 100% due to rounding.

Q1 How many of your children attend Laguna Elementary?

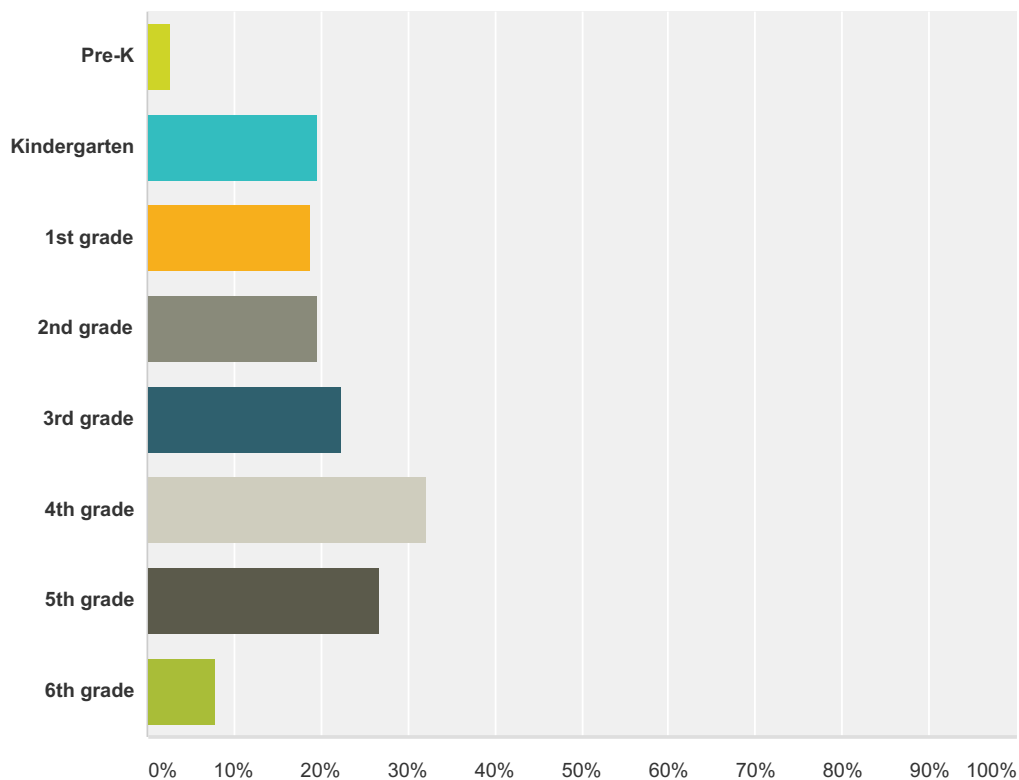
Answered: 111 Skipped: 2



Answer Choices	Responses	
1	55.86%	62
2	35.14%	39
3	8.11%	9
4	0.90%	1
Total		111

Q2 What grade(s) is your child(ren) in?

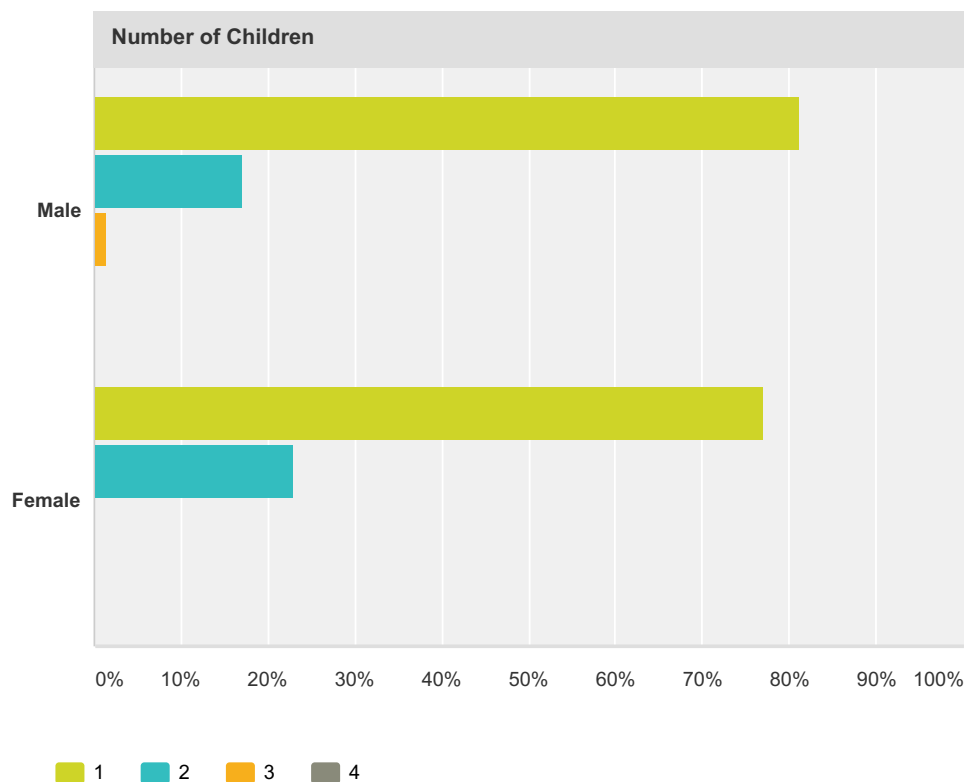
Answered: 112 Skipped: 1



Answer Choices	Responses
Pre-K	2.68% 3
Kindergarten	19.64% 22
1st grade	18.75% 21
2nd grade	19.64% 22
3rd grade	22.32% 25
4th grade	32.14% 36
5th grade	26.79% 30
6th grade	8.04% 9
Total Respondents: 112	

Q3 What is the gender of your child(ren)?

Answered: 96 Skipped: 17



Number of Children					
	1	2	3	4	Total
Male	81.25% 52	17.19% 11	1.56% 1	0.00% 0	64
Female	77.05% 47	22.95% 14	0.00% 0	0.00% 0	61

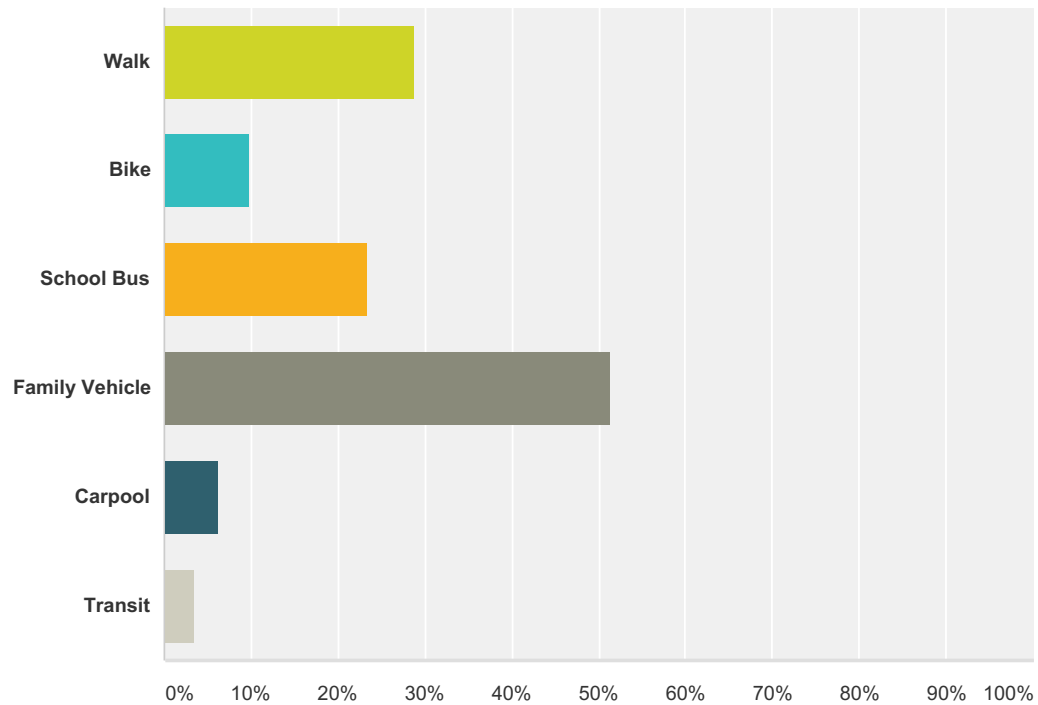
Q4 What is the street intersection closest to your home?

Answered: 105 Skipped: 8

Answer Choices	Responses	
Intersecting street 1	100.00%	105
Intersecting street 2	93.33%	98

**Q5 How does your child(ren) usually travel
TO school in the morning?Check all that
apply.**

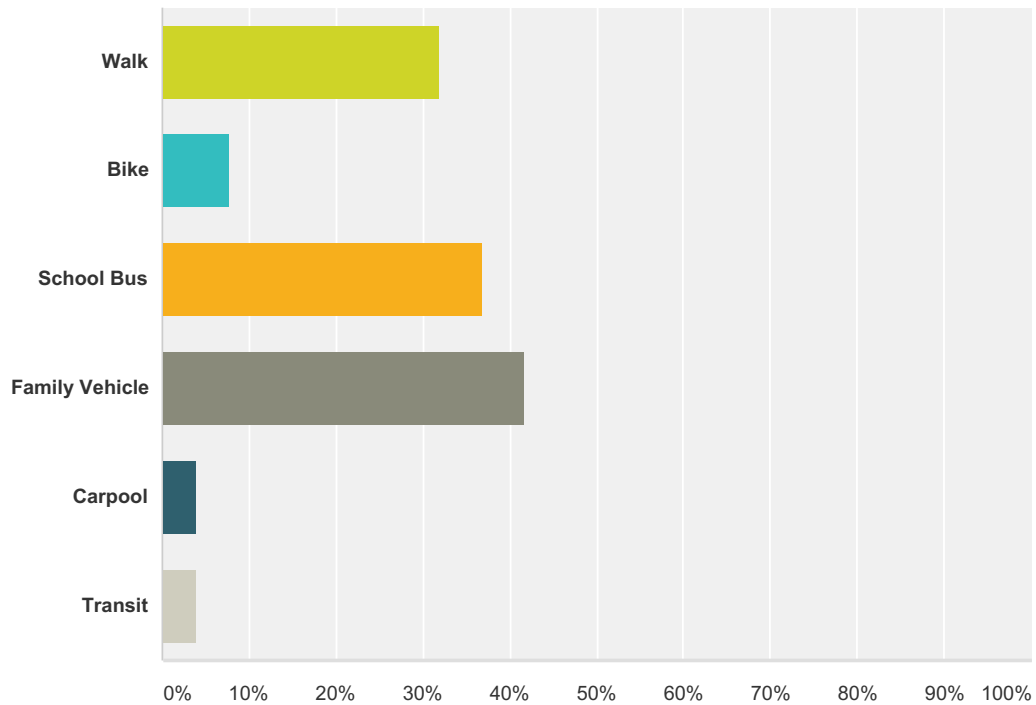
Answered: 111 Skipped: 2



Answer Choices	Responses	
Walk	28.83%	32
Bike	9.91%	11
School Bus	23.42%	26
Family Vehicle	51.35%	57
Carpool	6.31%	7
Transit	3.60%	4
Total Respondents: 111		

**Q6 How does your child(ren) usually travel
FROM school in the afternoon?Check all
that apply.**

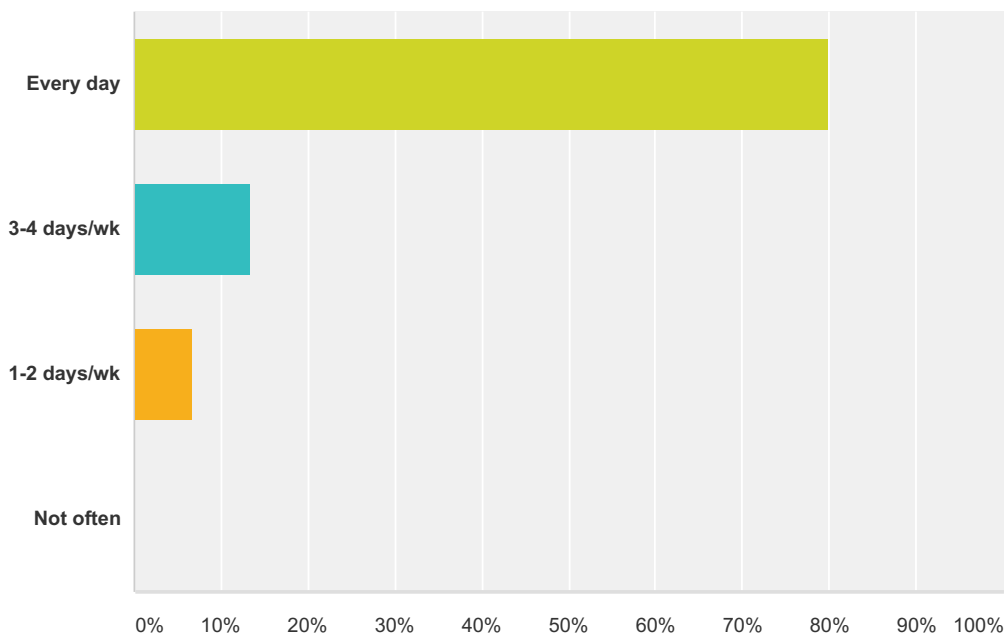
Answered: 103 Skipped: 10



Answer Choices	Responses	
Walk	32.04%	33
Bike	7.77%	8
School Bus	36.89%	38
Family Vehicle	41.75%	43
Carpool	3.88%	4
Transit	3.88%	4
Total Respondents: 103		

Q7 My child(ren) WALKS to school...

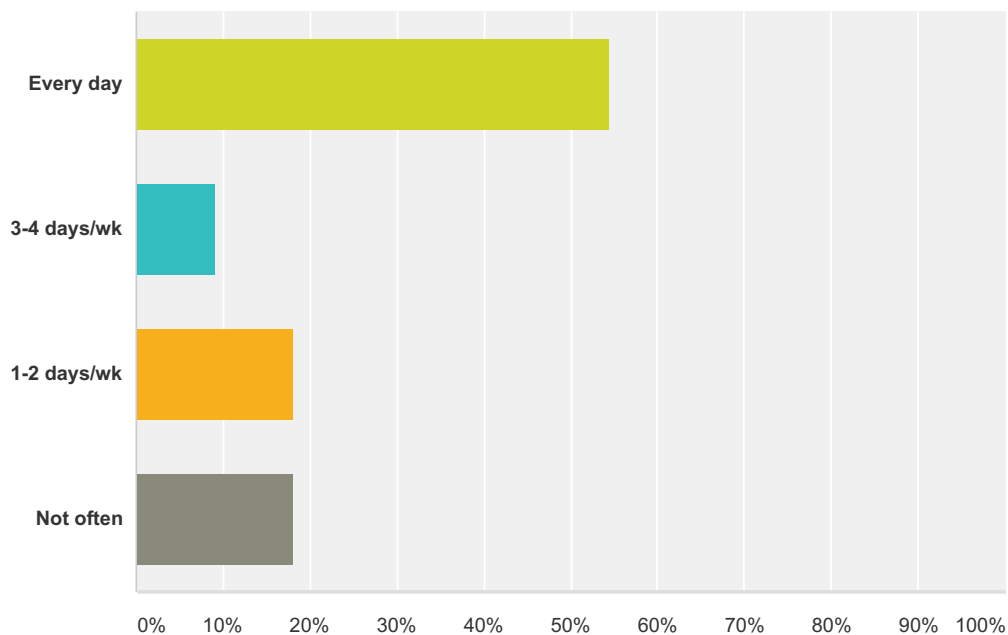
Answered: 30 Skipped: 83



Answer Choices	Responses	
Every day	80.00%	24
3-4 days/wk	13.33%	4
1-2 days/wk	6.67%	2
Not often	0.00%	0
Total		30

Q8 My child(ren) BIKES to school...

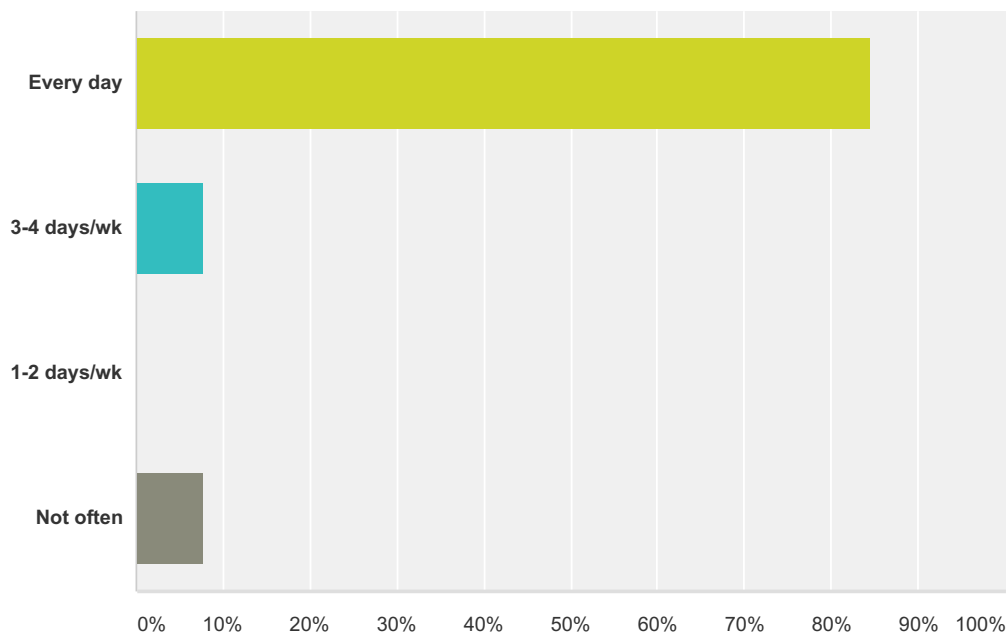
Answered: 11 Skipped: 102



Answer Choices	Responses	
Every day	54.55%	6
3-4 days/wk	9.09%	1
1-2 days/wk	18.18%	2
Not often	18.18%	2
Total		11

Q9 My child(ren) RIDES THE BUS to school...

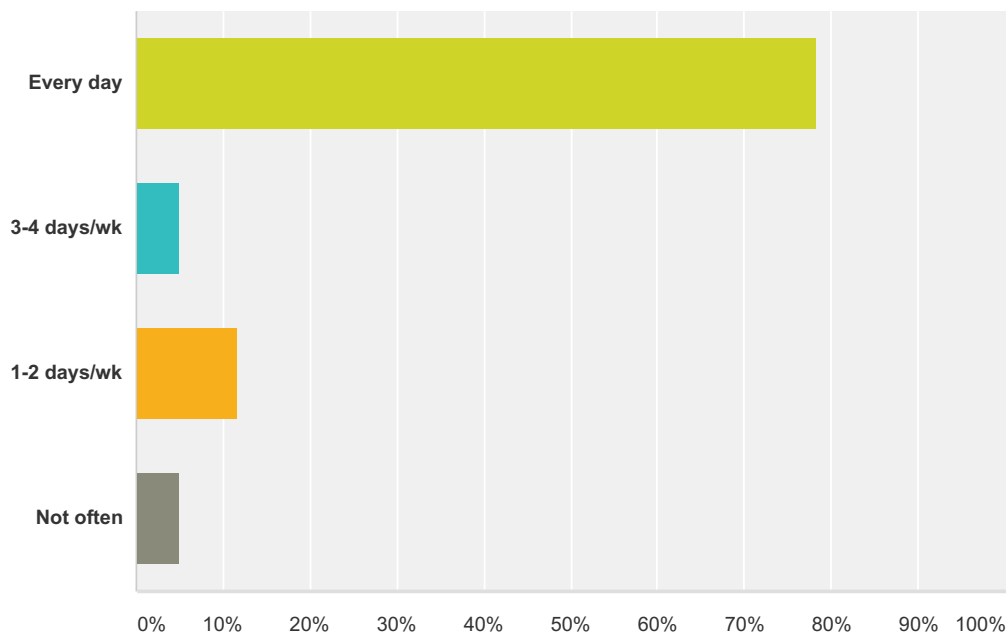
Answered: 26 Skipped: 87



Answer Choices	Responses	
Every day	84.62%	22
3-4 days/wk	7.69%	2
1-2 days/wk	0.00%	0
Not often	7.69%	2
Total		26

Q10 My child(ren) travels in FAMILY VEHICLE to school...

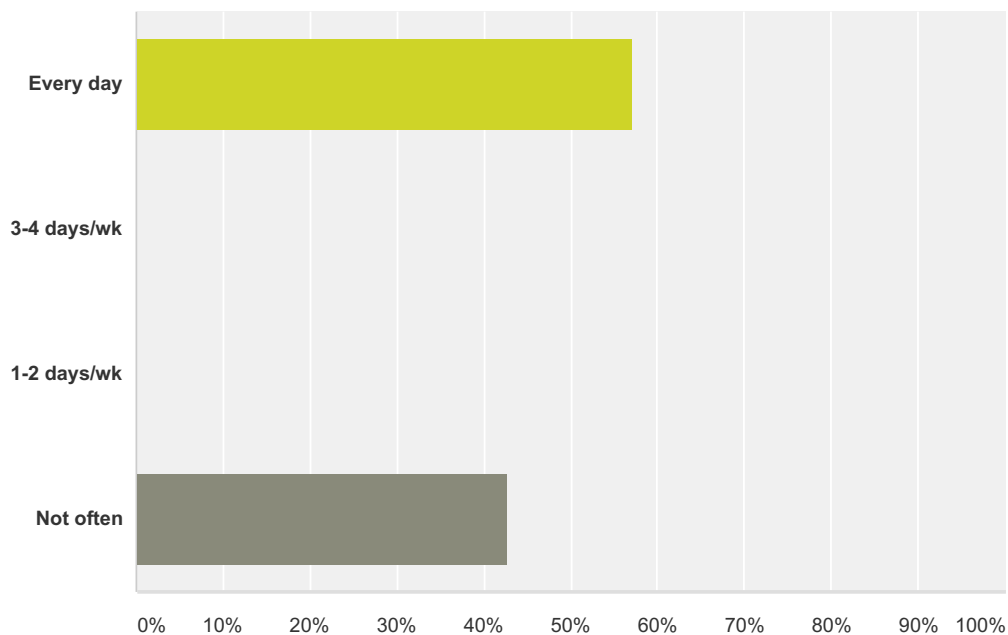
Answered: 60 Skipped: 53



Answer Choices	Responses
Every day	78.33% 47
3-4 days/wk	5.00% 3
1-2 days/wk	11.67% 7
Not often	5.00% 3
Total	60

Q11 My child(ren) CARPOOLS to school...

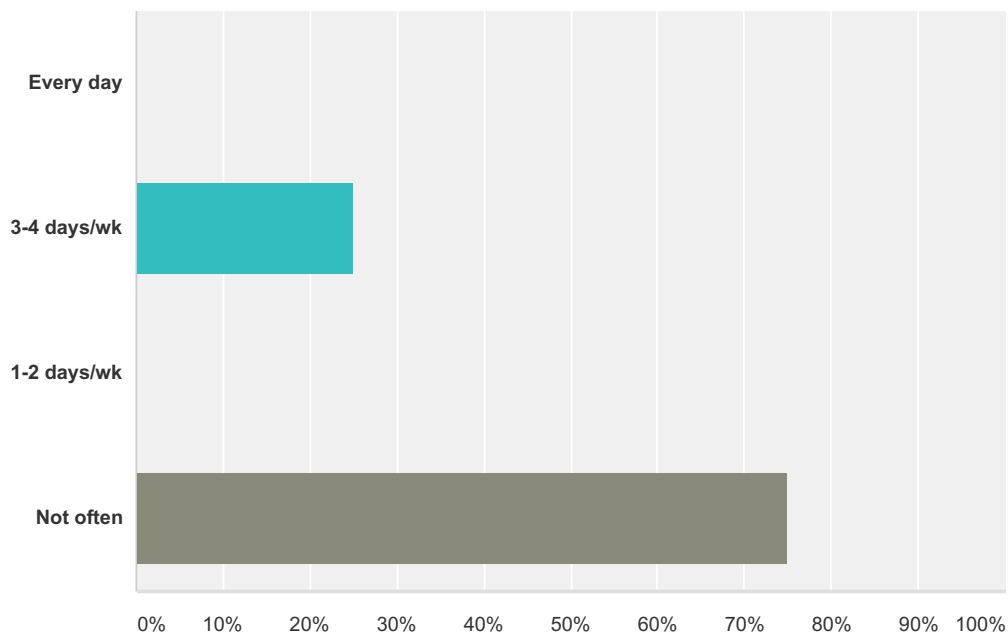
Answered: 7 Skipped: 106



Answer Choices	Responses	
Every day	57.14%	4
3-4 days/wk	0.00%	0
1-2 days/wk	0.00%	0
Not often	42.86%	3
Total		7

Q12 My child(ren) takes TRANSIT to school...

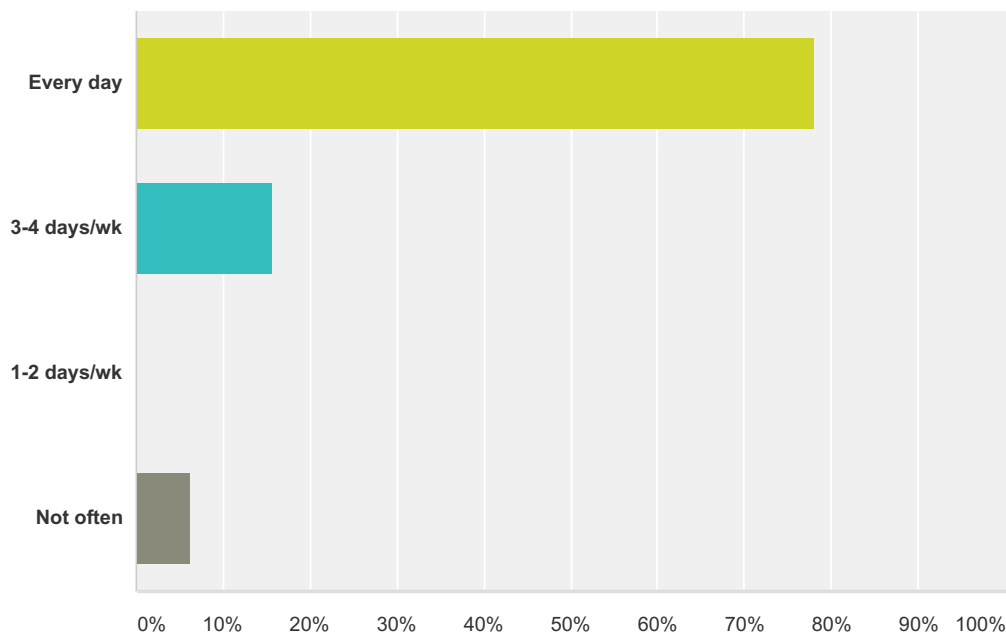
Answered: 4 Skipped: 109



Answer Choices	Responses
Every day	0.00% 0
3-4 days/wk	25.00% 1
1-2 days/wk	0.00% 0
Not often	75.00% 3
Total	4

Q13 My child(ren) WALKS home from school...

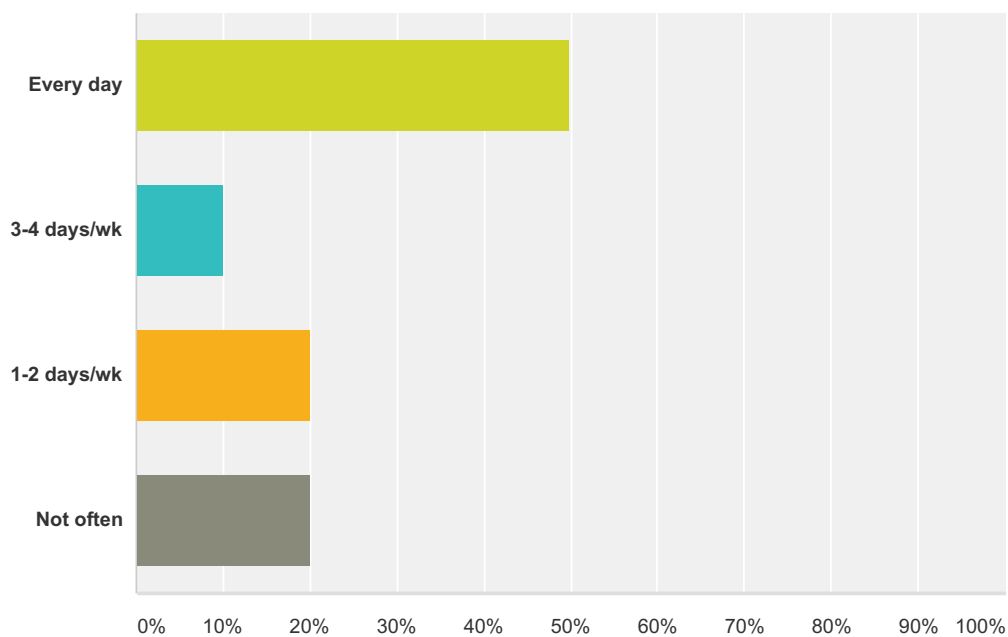
Answered: 32 Skipped: 81



Answer Choices	Responses
Every day	78.13% 25
3-4 days/wk	15.63% 5
1-2 days/wk	0.00% 0
Not often	6.25% 2
Total	32

Q14 My child(ren) BIKES home from school...

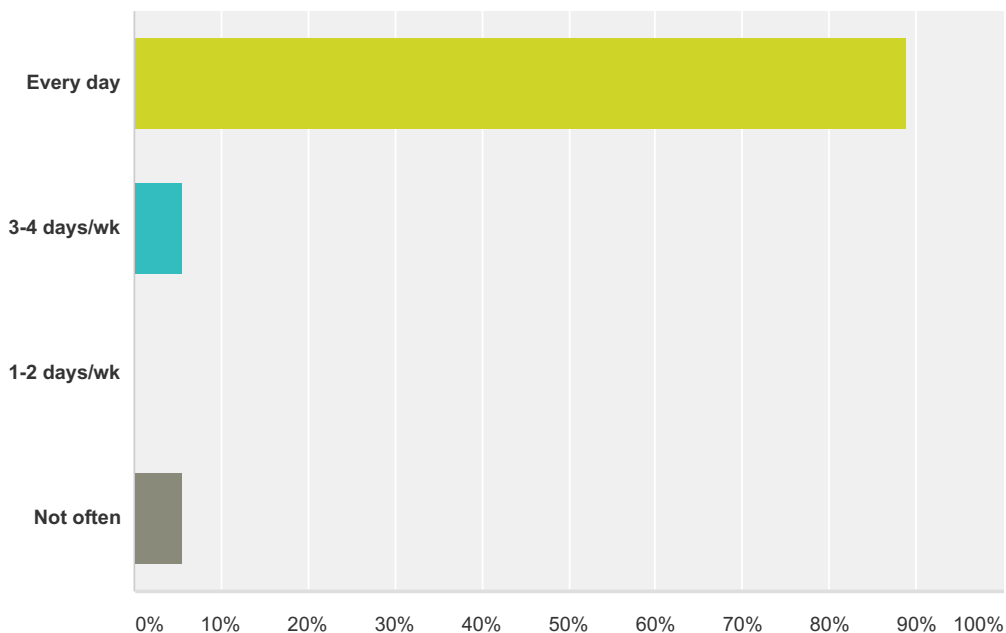
Answered: 10 Skipped: 103



Answer Choices	Responses
Every day	50.00% 5
3-4 days/wk	10.00% 1
1-2 days/wk	20.00% 2
Not often	20.00% 2
Total	10

Q15 My child(ren) RIDES THE BUS home from school...

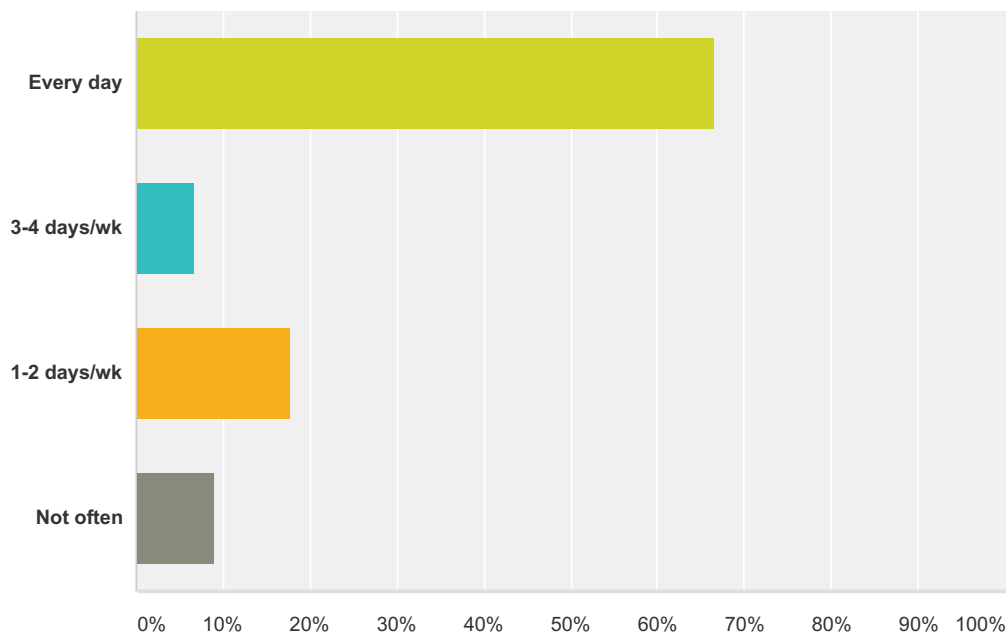
Answered: 36 Skipped: 77



Answer Choices	Responses	
Every day	88.89%	32
3-4 days/wk	5.56%	2
1-2 days/wk	0.00%	0
Not often	5.56%	2
Total		36

Q16 My child(ren) travels in FAMILY VEHICLE home from school...

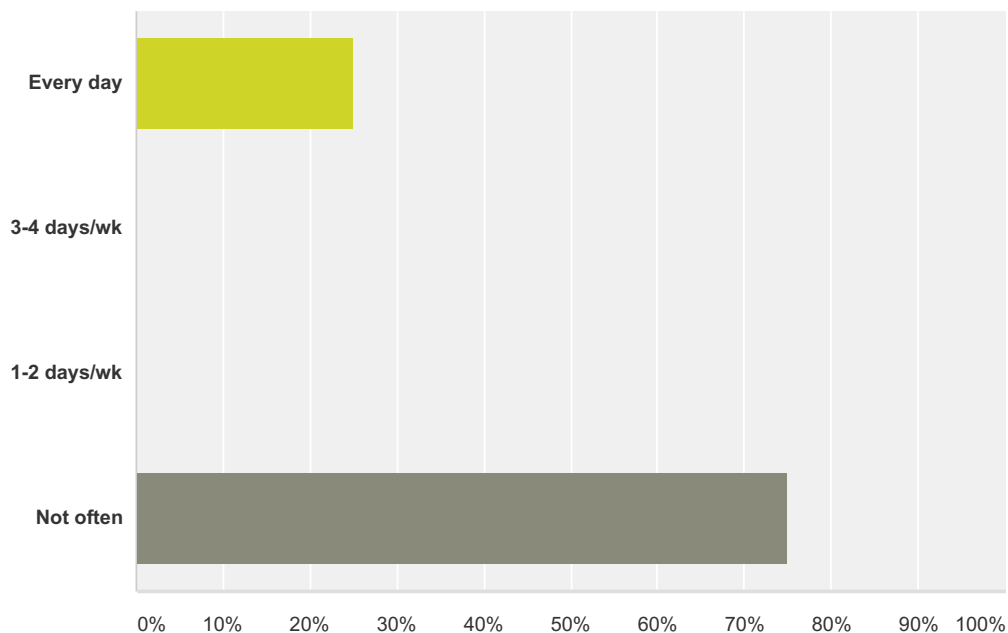
Answered: 45 Skipped: 68



Answer Choices	Responses
Every day	66.67% 30
3-4 days/wk	6.67% 3
1-2 days/wk	17.78% 8
Not often	8.89% 4
Total	45

Q17 My child(ren) CARPOOLS home from school...

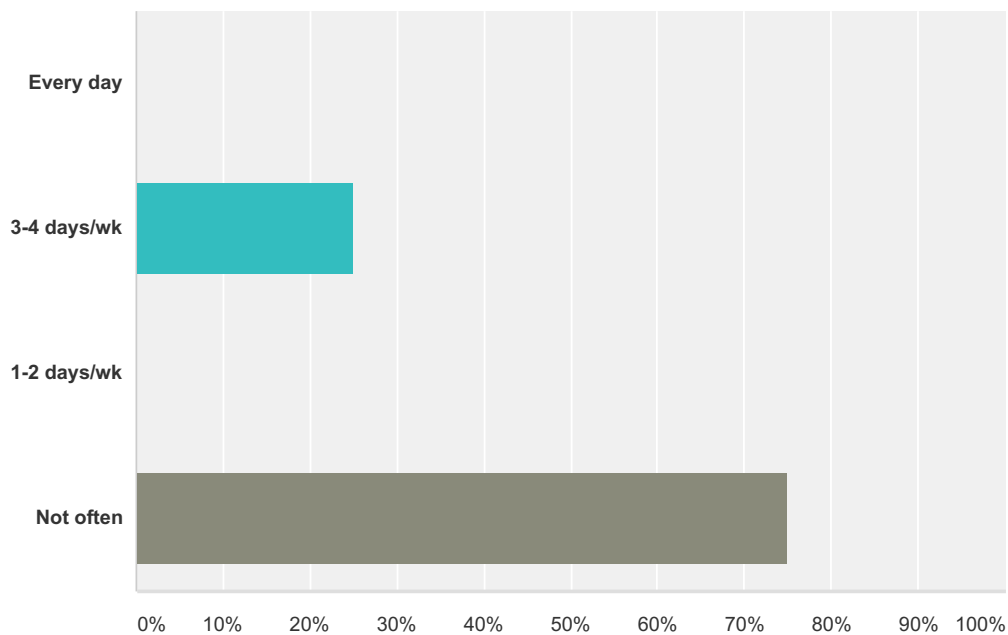
Answered: 4 Skipped: 109



Answer Choices	Responses
Every day	25.00% 1
3-4 days/wk	0.00% 0
1-2 days/wk	0.00% 0
Not often	75.00% 3
Total	4

Q18 My child(ren) takes TRANSIT home from school...

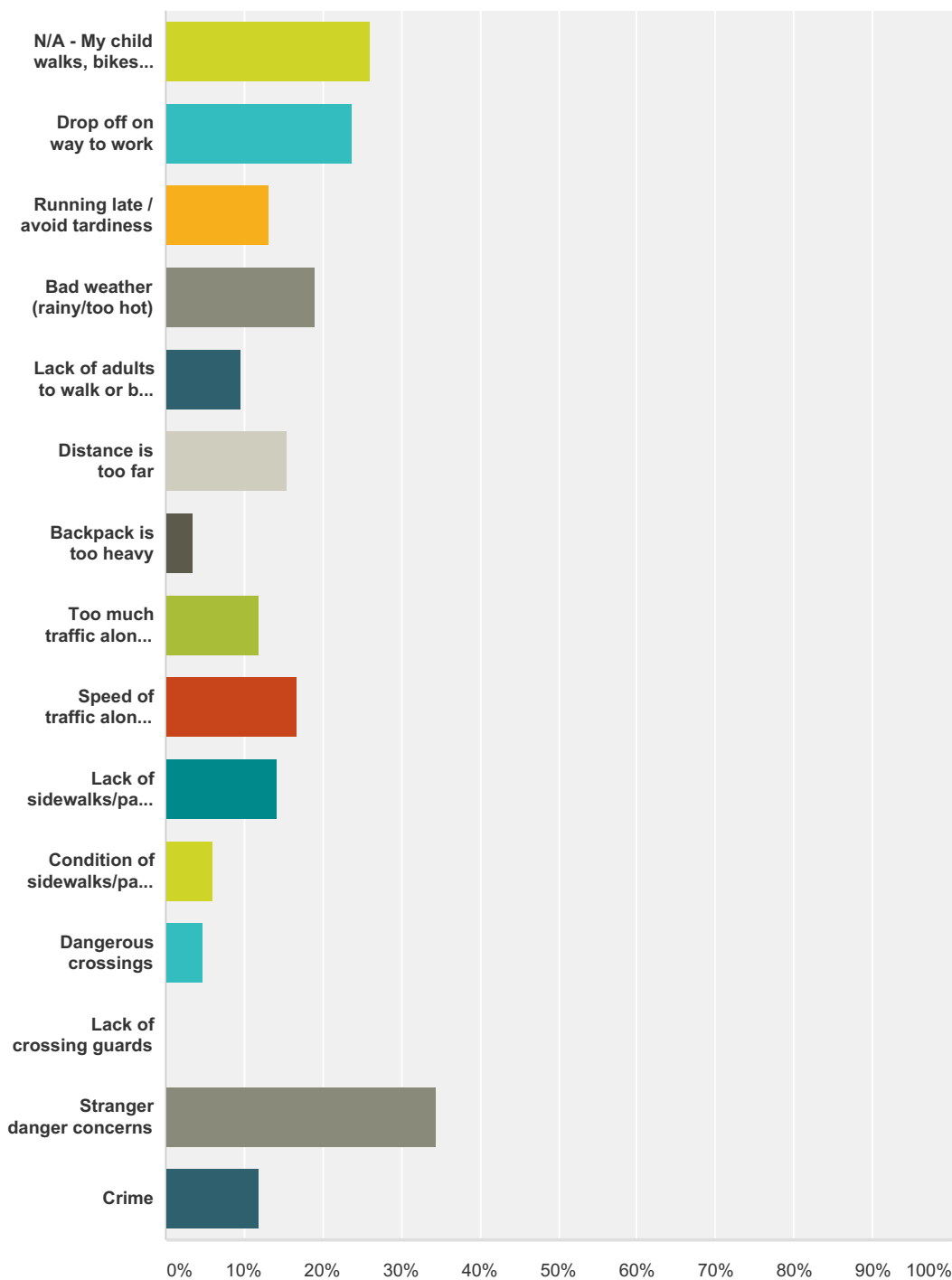
Answered: 4 Skipped: 109



Answer Choices	Responses
Every day	0.00% 0
3-4 days/wk	25.00% 1
1-2 days/wk	0.00% 0
Not often	75.00% 3
Total	4

**Q19 If you regularly drive your child(ren)
to/from school, please check all the reasons
for that choice:**

Answered: 84 Skipped: 29

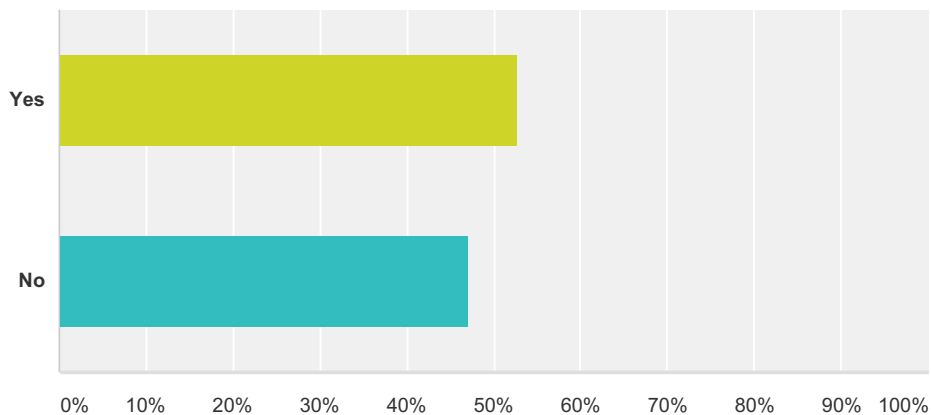


Answer Choices	Responses
N/A - My child walks, bikes, or buses	26.19% 22

Drop off on way to work	23.81%	20
Running late / avoid tardiness	13.10%	11
Bad weather (rainy/too hot)	19.05%	16
Lack of adults to walk or bike with	9.52%	8
Distance is too far	15.48%	13
Backpack is too heavy	3.57%	3
Too much traffic along walking/biking route	11.90%	10
Speed of traffic along walking/biking route	16.67%	14
Lack of sidewalks/pathways	14.29%	12
Condition of sidewalks/pathways	5.95%	5
Dangerous crossings	4.76%	4
Lack of crossing guards	0.00%	0
Stranger danger concerns	34.52%	29
Crime	11.90%	10
Total Respondents: 84		

Q20 Has your child(ren) asked for permission to walk or bike to/from school in the last year?

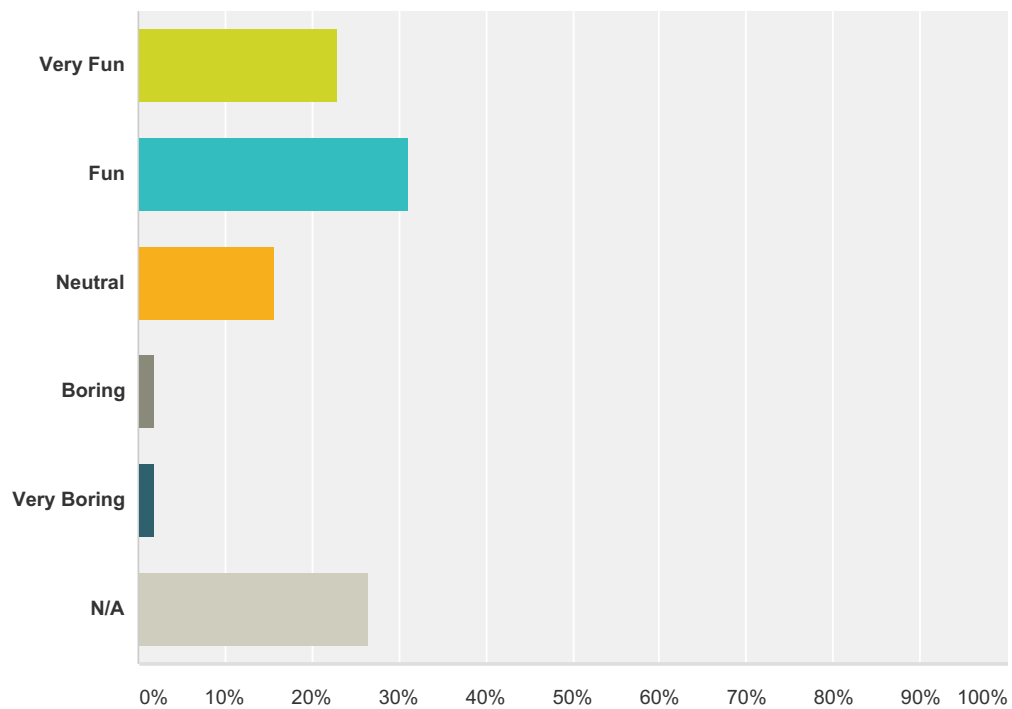
Answered: 108 Skipped: 5



Answer Choices	Responses	
Yes	52.78%	57
No	47.22%	51
Total		108

Q21 How much fun is walking or biking to/from school for your child(ren)?

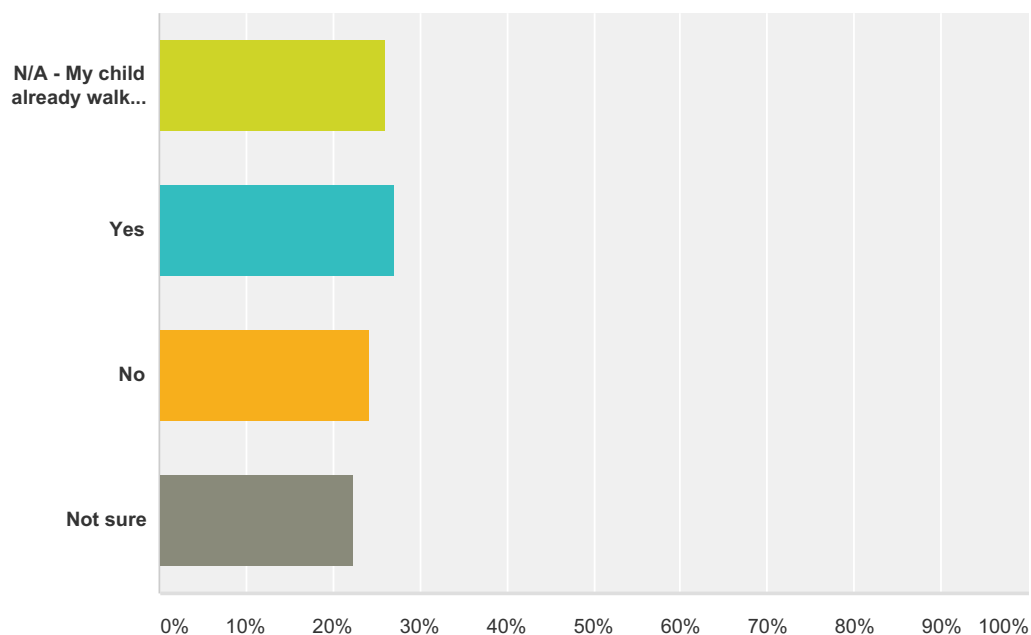
Answered: 109 Skipped: 4



Answer Choices	Responses	
Very Fun	22.94%	25
Fun	31.19%	34
Neutral	15.60%	17
Boring	1.83%	2
Very Boring	1.83%	2
N/A	26.61%	29
Total		109

Q22 Would you like your child(ren) to have an opportunity to walk or bike to school?

Answered: 107 Skipped: 6



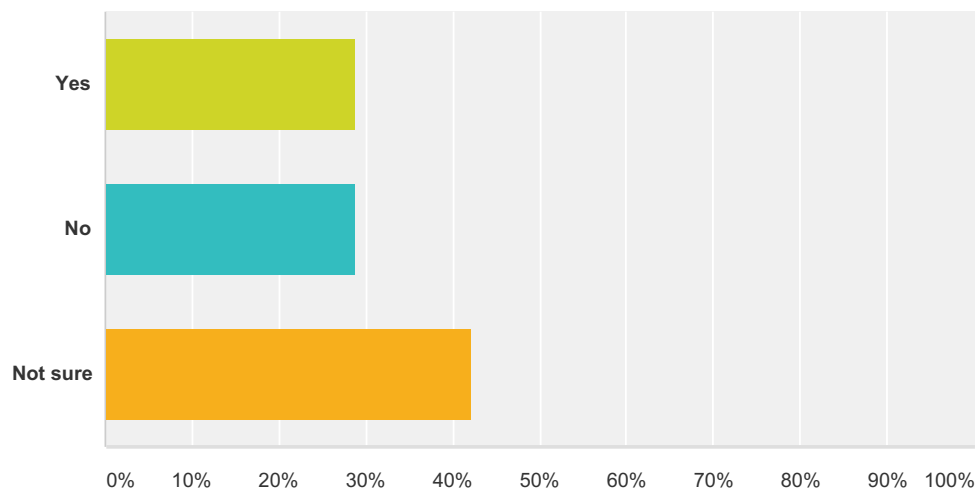
Answer Choices	Responses	
N/A - My child already walks or bikes	26.17%	28
Yes	27.10%	29
No	24.30%	26
Not sure	22.43%	24
Total		107

Q23 Do you have specific concerns along your walking/biking route to school? (i.e. condition of sidewalks, specific intersection issues, dogs, other hazards). Please describe and give location.

Answered: 72 Skipped: 41

Q24 Would you like to participate in a Walking School Bus or Bicycle Train program?

Answered: 97 Skipped: 16



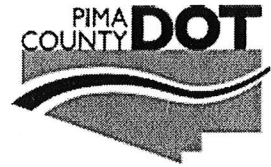
Answer Choices	Responses	
Yes	28.87%	28
No	28.87%	28
Not sure	42.27%	41
Total		97

Q25 Please provide any additional comments below.

Answered: 37 Skipped: 76



Department of Transportation



APPLICATION AND OPERATION AGREEMENT FOR SCHOOL CROSSING

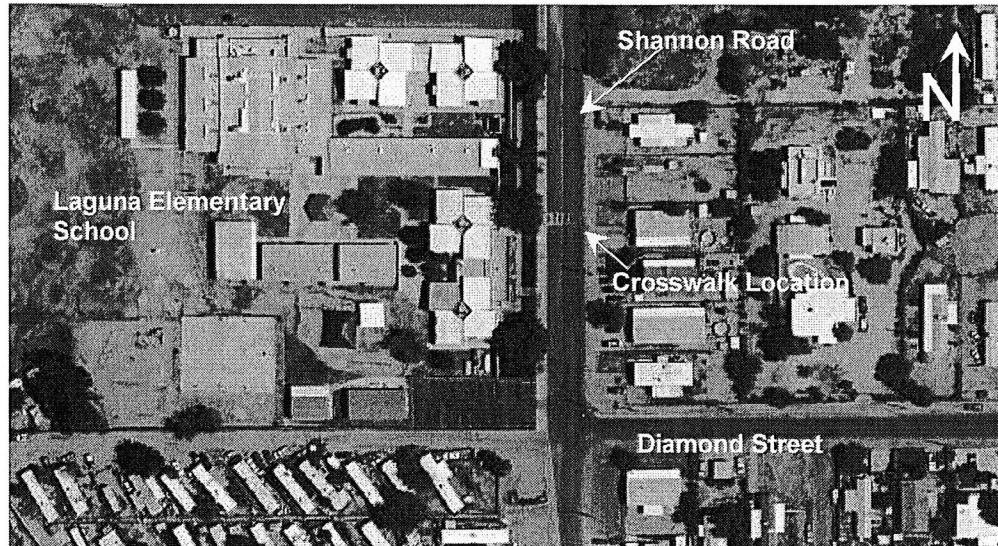
Application is hereby made for a school crossing at the location indicated on the diagram below. This is in accordance with the provisions of Section 28-797 of the Arizona Revised Statutes.

School Name: Laguna Elementary School

School District: Flowing Wells School District

ABUTTING CROSSWALK ☒

NON-ABUTTING CROSSWALK ☐



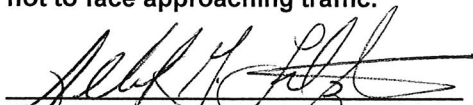
In the event of approval by the Pima County Department of Transportation, Traffic Engineering Division, and subsequent establishment of appropriate markings and signs, the undersigned school authority agrees to administer all duties as prescribed in Section 28-797 of the Arizona Revised Statutes, and to operate the crossing in conformance with the Arizona Department of Transportation's Traffic Safety for School Area Guidelines. The school authority will provide for portable signs and an adult guard at the crossing during all periods said signs are placed in the roadway.

Portable signs shall be placed within the roadway, accompanied by a school-approved adult crossing guard, for the periods of student usage as noted below, and promptly removed at the end of the each period.

- a. Morning arrival: 45 minutes before classes begin
- b. Afternoon dismissal: 30 minutes after classes end

The portable signs shall not be left in the roadway beyond the prescribed crossing times unless authorized by Pima County Department of Transportation Traffic Engineering Division.

When not in use, the portable signs shall be positioned a safe distance from the side of the roadway so as not to face approaching traffic.


Pima County Traffic Engineering Division

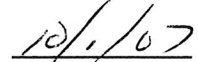
Signature of School District Authority

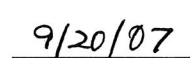

Signature of School Authority

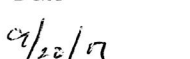

Title


Title


Title


Date

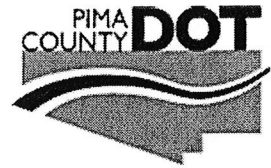

Date


Date

This agreement may be terminated by either party upon determination that the crosswalk is no longer needed and upon receipt of a written letter of "intent to terminate this agreement" is sent to the other party.



Department of Transportation



APPLICATION AND OPERATION AGREEMENT FOR SCHOOL CROSSING

Application is hereby made for a school crossing at the location indicated on the diagram below. This is in accordance with the provisions of Section 28-797 of the Arizona Revised Statutes.

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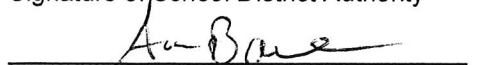
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Pima County Traffic Engineering Division

Signature of School District Authority

Signature of School Authority


County Traffic Engineer
Title

Superintendent
Title

Principal
Title
10/1/07
Date
9/20/07
Date
7/20/07
Date

This agreement may be terminated by either party upon determination that the crosswalk is no longer needed and upon receipt of a written letter of "intent to terminate this agreement" is sent to the other party.



Pima County – City of Tucson Safe Routes to Schools Program

Laguna Elementary School

Project Update
December 2006

Prepared by:



Kimley-Horn
and Associates, Inc.

In association with:
Gordley Design Group
Parisi Associates

December 28, 2006



1. INTRODUCTION

Pima County and the City of Tucson have launched a pilot program at seven local elementary schools to develop safe routes for children to walk or bicycle to school, and to educate them about walking and bicycling safely. This pilot program is funded by a federal grant, with matching funds from the county and city. It aims to encourage children to engage in more physical activity, and to reduce traffic collisions involving children.

The Safe Routes to School program is modeled after other successful programs in the country, including a nationally recognized program in Marin County, Calif. Second-grade students at the pilot schools will be learning about pedestrian safety, while fourth-graders will be learning about bicycle safety.

In addition to educating children, the program engages parents, teachers, school staffers, transportation officials, law-enforcement officers and school district officials to identify the travel habits of students and develop safe routes for students to use while walking or bicycling to school. Needed facility improvements, such as the addition of bicycle racks or sidewalk ramps, will be identified along with enhanced police enforcement measures. Educational and promotional materials will reinforce the message of pedestrian and bicycle safety.

Pilot Elementary Schools

The seven schools participating in the pilot study represent four local school districts, including the Flowing Wells Unified School District, the Marana Unified School District, the Tanque Verde Unified School District and the Tucson Unified School District.

Agua Caliente Elementary, 11420 E. Limberlost Road

Brichta Elementary, 2110 W. Brichta Drive

Butterfield Elementary, 3400 W. Massingale Road

Homer Davis Elementary, 4250 N. Romero Road

Howell Elementary, 401 N. Irving Avenue

Hughes Elementary, 700 N. Wilson Avenue

Laguna Elementary, 5001 N. Shannon Road



Program Schedule

The Safe Routes to School program began in the fall of 2005, and will last for two years. The program's first phase focuses on the educational component, along with the identification of both minor and major infrastructure improvements needed to enhance pedestrian and bicyclist safety. The second phase will include the complete design of a limited number of small improvement projects at the schools, and the preliminary design for larger improvement projects. Additional funding will be needed to construct the infrastructure improvements.

Pima County and City of Tucson officials believe the Safe Routes to School program will offer many benefits to the schools and the community. They hope to extend the program to other schools in the future.



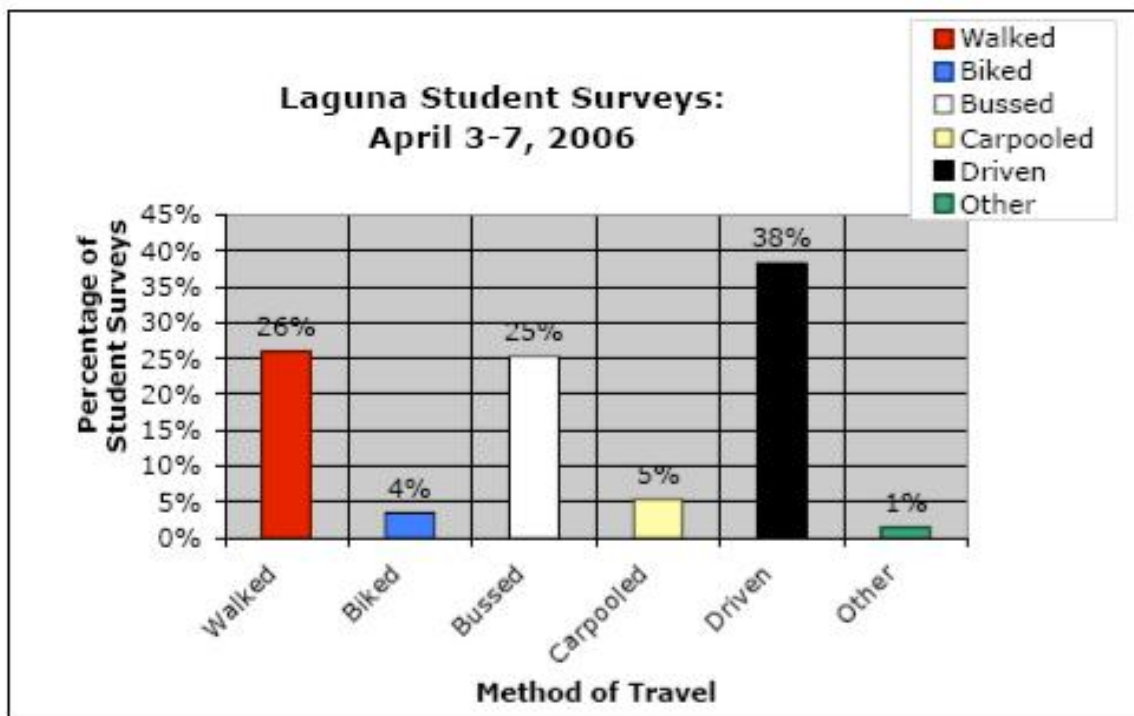
2. SUMMARY OF SAFE ROUTES TO SCHOOL ACTIVITIES AT LAGUNA ELEMENTARY SCHOOL

What we Saw – Data Collection

The number of students walking, biking, and being driven to Laguna Elementary School were counted on October 19, 2005. The results of this data collection are that:

- 117 students walked to school;
- 131 vehicles drove students to school;
- 16 students rode their bicycle to school.

During the week of April 3-7, 2006, teachers at Laguna Elementary School asked students to show, by a raise of hands, how they arrived at school on a particular day. The classroom poll showed (see graph) that 26% of the children's trips to school during the week were made by walking; and 4% were made by bicycling to school. 38% of students were driven to or from school. Approximately 490 students attend Laguna Elementary School.





What we Heard – Student and Parent Survey

A Safe Routes to School survey was sent home with each Laguna Elementary School student. The survey, which was to be completed by parents of Laguna Elementary School students, asked four brief questions relating to walking and biking to school:

What is the approximate distance from your home to the school

How does your child usually travel to and from school

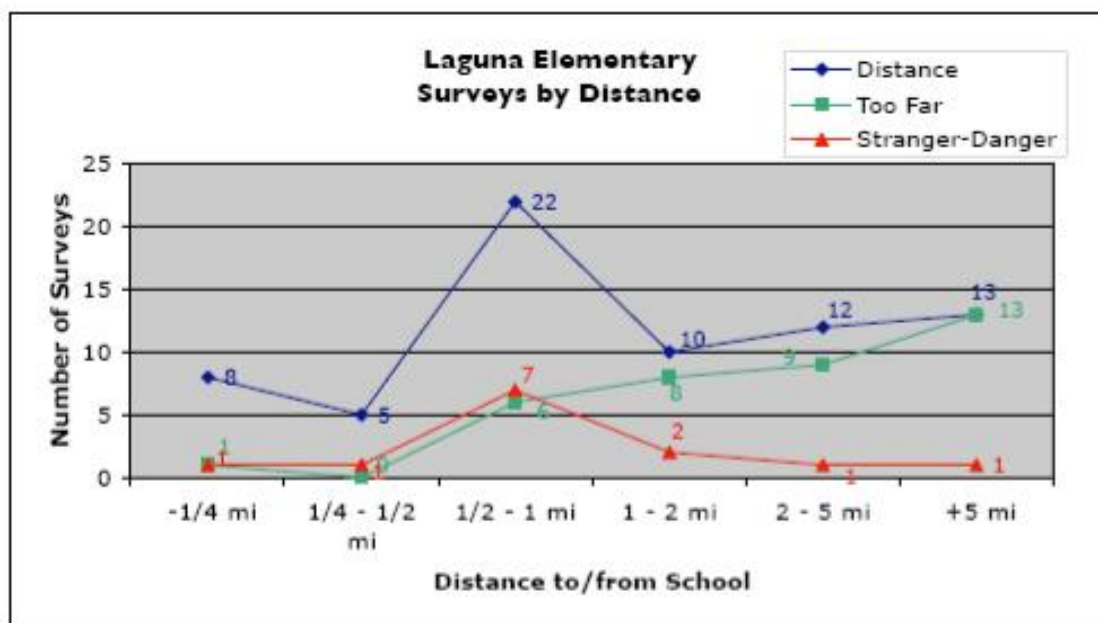
When you drive your child to/from school, why do you make that choice

What things can be done so that you would feel comfortable allowing your child to walk or bike to school

65 surveys were completed and returned by parents of Laguna Elementary School students. Follows is a summary of responses for each of the above listed questions.

Question #1: What is the approximate distance from your home to the school?

Most elementary school students are capable of walking distances up to between $\frac{1}{2}$ mile and 1 mile. A typical student could walk this distance in 10 to 15 minutes. As shown in the following figure, 8 survey respondents live less than $\frac{1}{4}$ miles from Laguna Elementary School. 5 respondents live between $\frac{1}{4}$ and $\frac{1}{2}$ mile from the school, 22 respondents live between $\frac{1}{2}$ mile and 1 mile away from school, and the remainder of survey respondents live more than 1 mile away from Laguna Elementary School. The survey results show that both distance and stranger-danger are of concern to parents who drive their children to or from school.

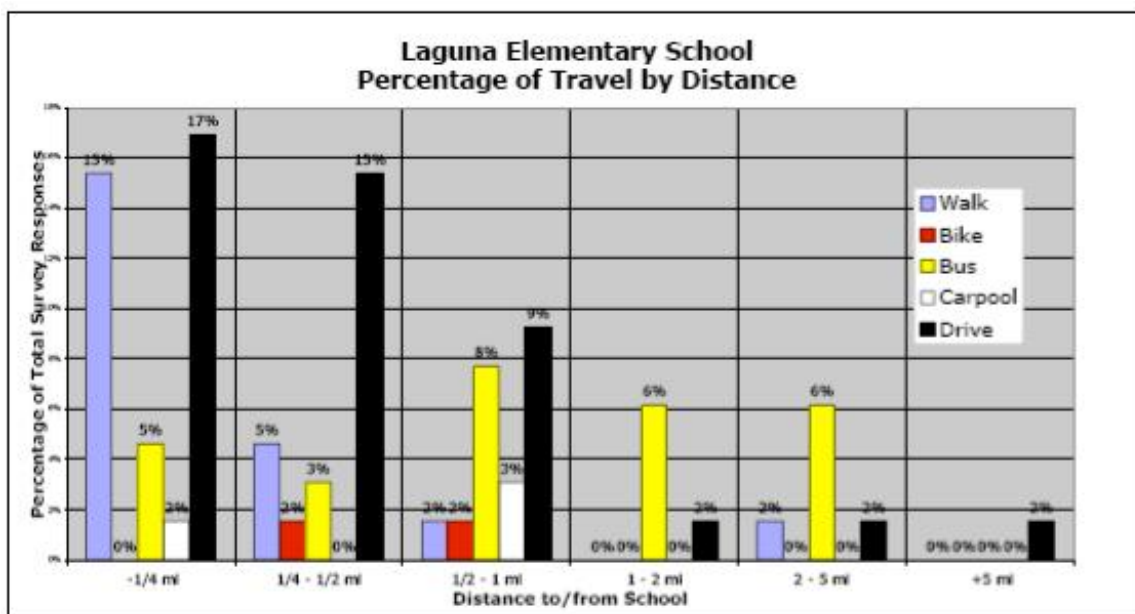




Question # 2: How does your child usually travel to and from school?

A significant percentage of students currently walk to or from Laguna Elementary School. Approximately 24% of students indicated that they currently walk or bicycle to or from school.

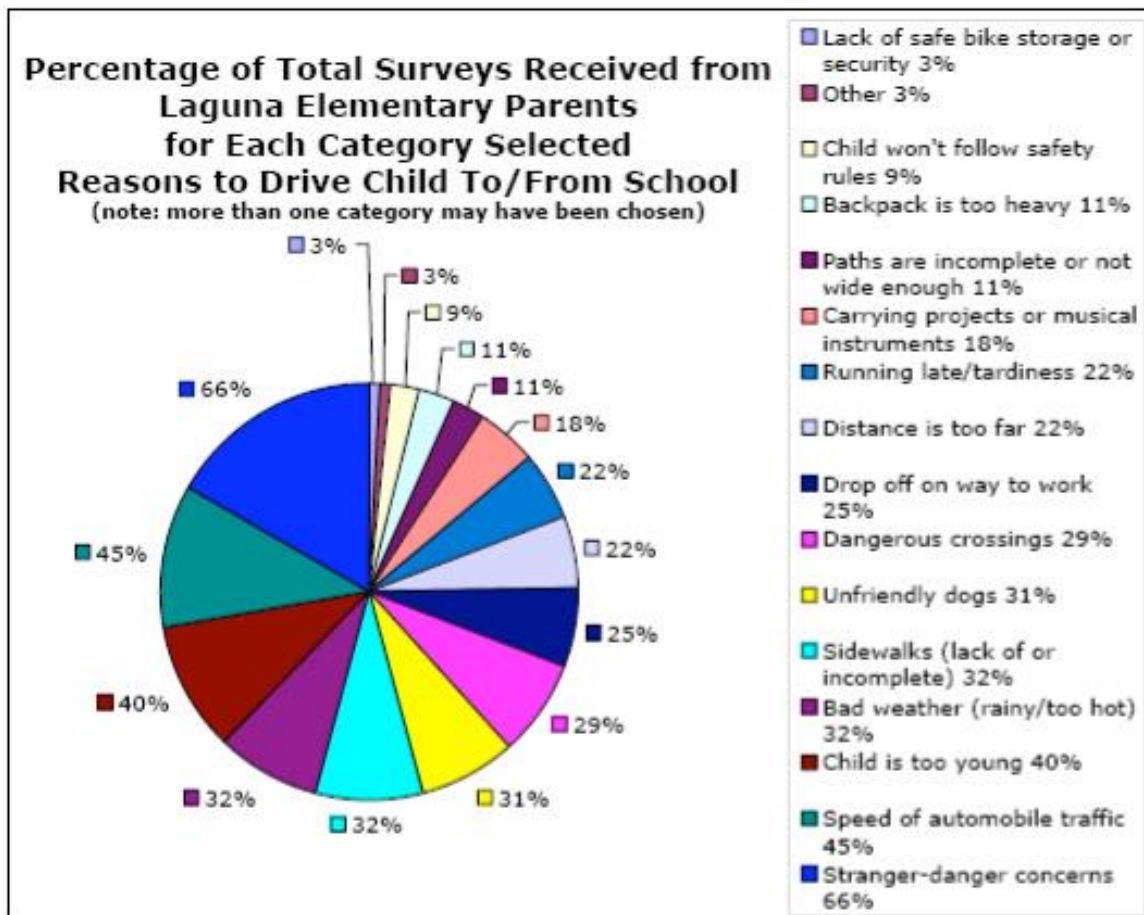
The percentage of students who currently walk to and from school decreases as the distance that they live from the school increases. The survey results show that 47% of students are driven to or from school.





Question # 3: When you drive your child to/from school, why do you make that choice?

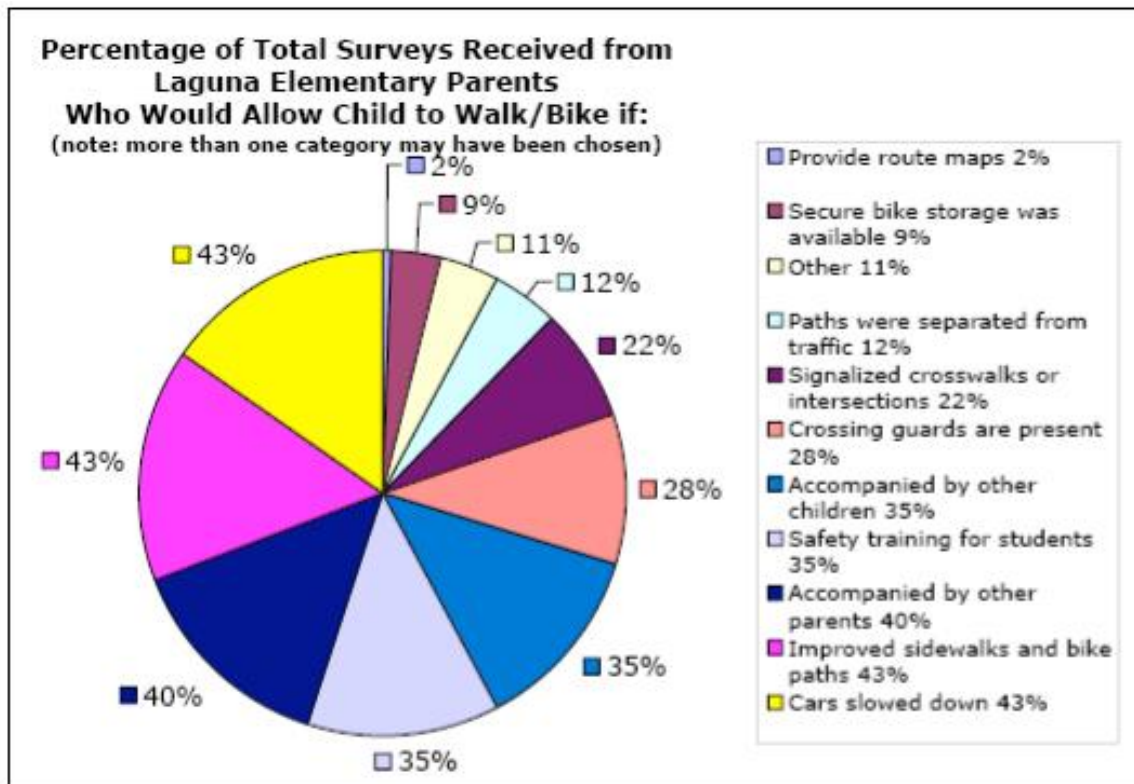
The survey results show that the largest reason cited why parents drive their children to school is stranger-danger concern. A second major concern is the speed of traffic along walking and bicycling routes. Other significant concerns included feeling that children are too young, lack of or incomplete sidewalks, unfriendly dogs, and dangerous crossings.





Question # 4: What things can be done so that you would feel comfortable allowing your child to walk or bicycle to school.

A large percentage (43%) of survey respondents stated that they would feel more comfortable allowing their child to walk or bike to school if there were improved sidewalks and bicycle paths, vehicles slowed down, and if their children were accompanied by other parents.





What we Heard – Walkabout Workshop

A Safe Routes to Schools walk-about workshop was held on January 24, 2006. The purpose of the workshop was two-fold – first, to introduce and explain the Safe Routes to Schools Program to workshop attendees and second, to identify the issues and barriers that prevent students from walking and biking to school. Follows is a list of some of the key issues that workshop participants identified as barriers to walking and bicycling to school:

Safety

- Speeding vehicles
- Parents parking and dropping children off in unsafe and unauthorized areas. Regulation signs (e.g. No Parking) are ignored. For example, Parents tend to drop their children off in no stopping zones or at Diamond / Shannon. Children often exit the vehicles on the street side of the vehicle.
- Cross walks are not located on convenient places. As a result, children do not cross the street at safe places, but rather cross at ‘convenient’ locations. For example, children often cross the road at the intersection of Diamond and Shannon, or north of the school rather than using the existing cross walk that is located directly in front of the school.
- Many children enter the school via the north parking lot, which is very dangerous.
- It was suggested to have a sheriff’s auxiliary officer present during the morning and afternoon pick-up and drop-off periods. Their presence may discourage speed and ignoring of regulation signs.
- It was noted that many of the issues will be addressed through the Laguna Elementary School Transportation Enhancement Grant.

Follows is a list of some of some potential solutions to improving conditions for children walking and bicycling to school at Laguna Elementary School. Note that Pima County has received a Transportation Enhancement Grant for improvements at Laguna Elementary School.

Install traffic calming on Shannon Road.

Remove ‘mountable curb’ and install vertical curb and gutter to keep vehicles from driving and parking in unauthorized locations.



Install drainage improvements to prevent flooding of the roadway.

Close the south gate to the school to encourage parents to use the north gate and crosswalk.

Replace the existing cross walk and school zone that is located centrally in front of the school and replace it with two separate cross walks located north and south of the school. A minimum distance of 600 feet is required between school zones. Install red curb (no parking) for 30 feet on both sides of the cross walk.

Replace the faded school signs with new fluorescent school signs.

Replace the existing fixed pylons located at the north entrance to the school with a bulb-out and curb extensions.

Stripe Shannon Road to include a painted right-turn lane and gore area for the north entrance to the school.

Consider replacing regulation signs that are currently placed parallel to the road with signs that are perpendicular so that they can be read.

Install school advance warning sign near the 'historic' wall located just before the north entrance to the school.

Relocate existing cross walk and school zone from east leg of the intersection at Shannon / Curtis to the west leg. Tighten the corner radius by installing vertical curb and gutter.

Replace existing portable school zones signs with new high-reflectivity fluorescent yellow / green school zone signs.

Relocate the existing "No Stopping, Standing, or Parking" sign at the corner of Shannon and Diamond out of turn radius area.

Install sidewalk and curb (or just curb) on Diamond.

Increase enforcement of "No Stopping, Standing, or Parking" signs

Distribute fliers to parents that state "you are violating this law...and the fine is" Fliers could remind parents that it is unlawful and unsafe to drop children off on the opposite side of the street from a school.

Increase the number of 'eyes on the street' that can monitor for stranger-danger concerns.



3. SUMMARY OF PROPOSED IMPROVEMENTS AND SAFE ROUTES EVENTS AT LAGUNA ELEMENTARY SCHOOL

Elements of Pima County – City of Tucson Safe Routes to School are educating students, providing encouragement events for walking and bicycling to school (bicycle fairs, incentive programs) and constructing physical improvements (e.g. sidewalks, cross-walks, etc.) that will make bicycling and walking to school safer and more comfortable. The Brichta Safe Routes to School Program will contain each of these elements.

Educating Students

Pima County will develop a pedestrian safety curriculum for 2nd graders, and a bicycle safety curriculum for 4th graders.

Encouragement Events

As demonstrated by the survey results, a significant concern that must be overcome is stranger-danger concerns of both parents and students. One way to address stranger-danger concerns is to implement programs that help children to walk to school together, accompanied by an adult. Such programs could include:

‘Walking school buses’

Work with neighborhood associations, senior citizen groups, or others to designate ‘safety houses’ on the school routes or to solicit volunteers to walk the school routes during the morning hours thereby placing more individuals on the street during walking hours.

Other programs that can be implemented include:

Educate children of safety practices;

Walking and biking prizes (e.g., stickers, wristbands, pedometers);

Walk n’ Roll to School Day

Physical Improvements

A set of physical improvements that will improve the safety and comfort of children as they bicycle and walk to school have been identified. The draft set of improvements are presented in the following pages.

Laguna Elementary School Safe Routes to Schools Improvement Plan-Overview

DRAFT FOR DISCUSSION PURPOSES



A. Relocate existing school zone and crosswalk from east leg of intersection to west leg of intersection; tighten corner radius by installing curb and gutter.

B. Install school advance warning sign; replace existing portable school zones signs with new high-reflectivity fluorescent yellow / green school zone signs with flags.

C. Replace the existing fixed pylons with a permanent bulb-out / curb extension.

D. Remove existing school zone that is approximately centered with the school, and replace with two separate school zones to the north and south of school; construct new sidewalk on Shannon between Curtis and school.

E. Remove mountable curbs and replace with curb and gutter to keep vehicles in roadway; move the existing "No Stopping, Standing, or Parking" signs that are located at the corner of Shannon / Diamond out of turn radius area so that they are more visible.

This diagram is for planning purposes only. All project information presented is subject to change pending further design development.
Diagram prepared:
December 28, 2006



Laguna Elementary School

Safe Routes to School Improvement Plan

Detail Sheet

A



Issues: The existing crosswalk at the intersection of **Shannon** and **Curtis** is located on the east leg of intersection. This forces children utilizing this cross walk to Cross Shannon.

Improvements: Relocate existing school zone and crosswalk from east leg of intersection to west leg of intersection; tighten corner radius by installing curb and gutter.

B



Issues: High speeds on **Shannon Road**, drivers not slowing down in school zone.

Improvements: Install school advance warning sign; replace portable school zone signs with new high-reflectivity fluorescent yellow / green school zone signs with flags.

C



Issues: The existing fixed pylons are repeatedly damaged and run over by turning vehicles.

Improvements: Replace the existing fixed pylons with a permanent bulb-out / curb extension.

Laguna Elementary School

Safe Routes to School Improvement Plan

Detail Sheet

D



Issues: There are not any sidewalks on Shannon Road; the existing cross walk on Shannon leading to the school is not located in an area where children have a natural tendency to cross the street.

Improvements: Remove existing school zone that is approximately centered with the school, and replace with two separate school zones to the north and south of school; construct a new sidewalk on **Shannon Road**.

E



Issues: Parents dropping children off in unauthorized areas.

Improvements: Remove mountable curbs and replace with curb and gutter to keep vehicles in roadway; move the existing "No Stopping, Standing, or Parking" signs that are located at the corner of **Shannon / Diamond** out of turn radius area so that they are more visible.