Safe Routes to School
Marion Independent School District

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Table of Acronyms

ADA..... American's with Disabilities Act
APBP ..... Association of Pedestrian and Bicycle Professionals
DOT ..... Department of Transportation
FHWA..... Federal Highway Administration
FIP ..... Family Investment Program
FMI..... Francis Marion Intermediate School
HAWKS ..... High Intensity Activated Crosswalk
MHS..... Marion High School
MISD..... Marion Independent School District
MPH..... Miles Per Hour
MPO ..... Metropolitan Planning Organization
MUTCD ..... Manual on Uniform Traffic Control Devices
PE ..... Physical Education
RFB..... Rapid Flashing Beacon
SRTS..... Safe Routes to School
SUDAS ..... Statewide Urban Design and Specifications
VMS..... Vernon Middle School

Acknowledgments

Marion City Hall
Photo credit: City of Marion, 2017

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Introduction and Organization

The purpose of this plan is to provide MISD and the City of Marion a blueprint that summarizes community input, education, and MISD administrative staff experience, along with the latest techniques and strategies to support safe travel to and from school for students and staff. The plan is designed to layout policy and infrastructure improvements that can be made in the short and longterm best interest of the students and the district as a whole.

It is highly encouraged that this document be utilized when City and School budgets are being formulated and reviewed to identify opportunities to leverage grant funding for infrastructure improvements to achieve recommendations in this plan. However, many of the recommendations made can be accomplished for low to no cost. All of the changes presented in this document can act to help foster more healthful active, and safer, travel for all students regardless of mode choice.

The plan itself is designed with several divisions in place to aid the review process. Each of the divisions listed below are briefly summarized and can be accessed by clicking on the bookmarks section of your PDF viewer or by the physical dividers provided with the print version of this document.

Plan divisions:

- **Vision and Goals** - This section lays out a vision for MISD and specific goals to achieve this vision.
- **Existing Conditions** - This section discusses the current demographics of the citizens and students within the MISD. This section also provides an overview of the public engagement strategies and data gathered.
- **Objectives** - This section is organized by each individual school and for the district as a whole. Opportunities for improvement are presented with responsible parties and specific measurable targets for completion. Each school is presented in the following order:
  - Marion Independent School District
  - Francis Marion Intermediate
  - Longfellow Elementary
  - Marion High School and Starry Elementary
  - Marion High School
  - Starry Elementary
  - Vernon Middle School
- **Appendix** - This section contains all necessary and amplifying information relevant to the main document.

VMS and Starry Elementary are two of the five MISD schools serving students.
Photo credit: Corridor MPO, 2016

The Planning Process

All members of the community are very important in creating a safe and healthy environment.
Photo credit: City of Marion, 2016

In the Winter of 2015 discussion began between the City of Marion, Blue Zones, the Corridor MPO, and Marion Police Department staff to determine what strategies could be implemented to increase walking and biking rates amongst Marion youth.

From this discussion MISD was identified as a local leader in fighting childhood obesity, already heavily focused on the health of their students. MISD was collecting very detailed health data and actively seeking grants to improve the wellbeing of their students. Additionally, MISD is the smallest school district in the state of Iowa. This small campus feel gave staff confidence that a Safe Routes to School (SRTS) Plan would have a high rate of return, allowing staff to develop innovative plans to improve the safety and increase walking and biking amongst students. MPO Staff was and is confident that the planning work represented in this document will be implemented. Finally, we knew that we could expect a lot of support from MISD staff as they had demonstrated a high level dedication and focus to their students health for many years now.

This dedication has been evidenced through this planning process. One of the first and most important planning steps was the formation of the SRTS - MISD steering committee. This committee, comprising staff from MISD, Blue Zones, the City of Marion, the Corridor MPO, and Linn County Public Health, met regularly for the entirety of 2016, with a focus on brainstorming improvements, collecting data, and reaching out to the community and supportive partners.

One of the first efforts of the steering committee was the creation of the Vision Statement and the Plan Goals presented on the following pages. The steering committee spend several weeks reviewing other SRTS plans and discussing matters of local importance before reaching unanimous acceptance of this plan's vision and purpose.

Initial efforts were then spent laying out a planning framework, analyzing existing conditions, and collecting community input. Over 900 surveys were collected from students and parents. Additionally, primary data collection was completed to ascertain empirical walking and biking trips and motor vehicle speeds near MISD schools (see pages 47 and 42 respectively).

Public outreach was conducted by surveys sent directly to parents. Also surveys were conducted in class with students of all ages. Additionally, a public outreach event was held in May 2016, however attendance was very light. Survey data information can be found in the existing conditions section of this document (see page 51).

The Planning Process Continued

Partnerships were established with Linn County Public Health, the Iowa Bicycle Coalition, and the Blue Zones Project. An important outgrowth of these partnerships was a visit and audit of MISD schools by one of the nation's foremost experts in SRTS, Complete Streets, and active transportation planning. In April of 2016, Dan Burden on behalf of the Blue Zones project volunteered his time to the project. Mr. Burden's contributions to this plan are measured in quantity and quality throughout the document. Guiding planning and MISD staff through his observations of each MISD school, years of experience and an unparalleled depth of knowledge were added to the plan.

Dan Burden gave very importance guidance on how SRTS can help the children of MISD.
Photo credit: City of Marion, 2016

Moving into the summer of 2016, interviews were conducted with the Principles of each MISD school. This was an effort to access the unique knowledge that each administrator collects each day, year after year. This information helped guide many of the specific recommendations found in this plan.

From these meetings, observations from Dan Burden, and from analysis of the existing conditions, the steering committee began the brainstorming process that culminated in the objectives section of this document. Utilizing the previously discussed 5 E's of SRTS planning as a frame work, objectives where developed and recorded over the course of several meetings.

As the year drew to a close, review of the plan objectives was underway by various departments internal to the City of Marion and by MISD administrators. Reviews were provided by Marion Planning, Engineering, and Public Service Departments, as well as every MISD school Principle and the Superintendent. Discussions were had by all relevant responsible parties listed in this document and objective time frames agreed upon.

All opportunities for improvement, including responsible parties, and completion dates where reviewed and approved by MISD, City of Marion staff in the relevant departments, Marion Police Department, Linn County Public Health, and the Corridor MPO.

Finally, review was conducted by MISD School Board members and Marion City Council for adoption by both governing bodies.

It is our hope and expectation that the recommendations found in the plan will improve safety for all students, while encouraging healthy active transportation (walking and biking) to and from school.

Vision Statement

Children will utilize and benefit from more active transportation infrastructure.
Photo credit: Corridor MPO, 2015

MISD, in partnership with the City of Marion, is committed to ensuring that all students are comfortable with and a significant number of students are utilizing active transportation, such as walking and bicycling. This plan aims to address the issues that limit active transportation. Through a partnership with the City of Marion and MISD, this plan will act to identify and support immediate and long-term solutions to support safe trips to and from school.

SRTS is designed with children's safety and wellbeing in mind.
Photo credit: MISD, 2017

What is Safe Routes to School?

SRTS is a planning and policy approach designed to promote and establish safe walkable and bike-able communities. The focus of SRTS is split between active transportation for children and improvement of overall safety within MISD. SRTS incorporates all aspects of the local community to ensure the successful creation and completion of the plan. The plan is designed utilizing the guidance of the "Five E's" common to SRTS plans:

- **Engineering** - Utilizes the existing conditions of MISD to redesign and further design the local infrastructure to accommodate bicycles and pedestrians.
- **Education** - Raises awareness to the benefits of active transportation to the local community through active units in physical education (PE) classes, parent education, and driver's education programs.
- **Encouragement** - Reinforces active modes of transportation through incentives and active transportation events, like a Bike Rodeo.
- **Enforcement** - Brings attention and awareness to dangerous activities to reduce negative behaviors while driving. Focusing primarily within school zones and surrounding areas within MISD.
- **Evaluation** - A annual review will occur to ensure that the plan is on track; and to provide further guidance on successful completion of the plan.

The plan will encourage active modes of transportation for children, enabling a vision of a zero fatality and injury rate, and minimize motor vehicle hazards within MISD. The completion of SRTS will enable students and parents to feel safe, while using active forms of transportation to and from school.

The five E's of SRTS are the cornerstones of quality SRTS plans. Photo credit: Corridor MPO, 2013

Plan Goals

Children can have fun with bike safety.
Photo credit: Corridor MPO, 2008

The following planning goals were established early in the planning process to guide plan development and ultimately aide in the creation of the objectives and targets for implementation that follow.

These goals represent the desired impacts and aspirations for MISD; if all of these goals were achieved the planning vision would become a reality.

Goal 1: Make active transportation to and from school a safe and positive experience

A. Educate parents, students, and community members about safe driving, walking, and biking.
    i. Ensure at least once a year safe driving, walking, and biking skills have been taught to the majority of students.
    ii. Provide education to at least 50 percent of parents annually.
    iii. Student average test scores above 80 percent on annual safe driving, walking, and biking.

B. Reduce conflicts between motorists, pedestrians, and cyclists.
    i. Have zero crashes between motorists and pedestrians within a half mile of each school.
    ii. Have zero crashes between motorists and cyclists within a half mile of each school.

C. Identify safe and pleasant designated walking routes to and from school.
    i. Identify and establish safe routes to and from school that serve the majority of the population within a half-mile of the school.

D. Provide and maintain infrastructure to allow children to safely utilize active transportation to and from school.
    i. Eliminate sidewalk gaps along priority routes and within a half-mile of each school.
    ii. Mark intersection crossings along priority routes.
    iii. Ensure proper signage within school zones.
    iv. Ensure a fully connected bicycle and pedestrian network between schools and along all priority routes.

E. Ensure safe operating motor vehicle speeds.
    i. Use engineering, education, and enforcement techniques to lower average motor vehicle speeds to the posted speed limit or below.
    ii. Regularly measure vehicle speeds to ensure they do not exceed posted speed limits along identified routes.

Plan Goals Continued

Goal 2: Create and support a culture of active transportation in MISD

A. Increase the number of children walking and biking to and from school.
    i. Regularly record the number of students walking and biking to school.

B. Educate parents, students, and community members about the benefits of walking and biking to and from school.
    i. Once a year hold an event demonstrating positive reasons for walking and biking to and from school.
    ii. Present education materials to at least 50 percent of parents annually.

C. Make active transportation to and from school as convenient as possible.
    i. Decrease active travel times.
    ii. Establish a walking and biking program at each school.

D. Create a campus atmosphere across the district.
    i. Consistent messaging of the SRTS goals across the district.
    ii. Fully connected bicycle and pedestrian network between schools and along all priority routes.

E. Create events and participate in national active transportation holidays.
    i. Participate in National Walking Day (April 6th)
    ii. Celebrate Bike to School Week (first week of May)

F. Ensure each school has supportive walking and biking end of trip amenities for students and employees.
    i. Ensure there is enough bike parking for students and employees.
    ii. Place bicycle amenities in a visible location within 50 feet of school entrances.
    iii. Ensure all new bike parking, and the majority of existing bike parking, is Association of Pedestrian and Bicycle Professionals (APBP) compliant.

The City of Marion has a dedication to supporting cycling for everyone. Marion's Bicycle Boulevards are designed for cyclists of all ages to be able to ride safely. Photo credit: Corridor MPO, 2016

Plan Goals Continued

Getting staff, students, and parents involved in SRTS will help enable longterm success of the plan.
Photo credit: MISD, 2017

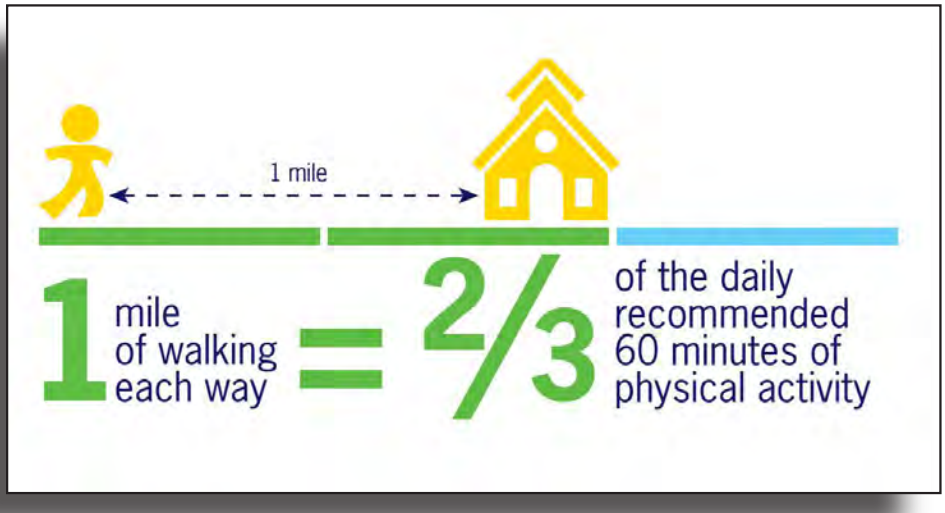
Goal 3: Ensure sustainability of the plan for long-term success

A. Adopt policies found within the MISD SRTS.
   i. MISD approval of the MISD SRTS Plan.
   ii. City of Marion City Council approval of the MISD SRTS Plan.

B. Ensure stewardship of plan improvements.
   i. Designate a responsible party for each plan improvement within the school or city who is the main point of contact for the improvement.

C. Follow an annual plan evaluation process.
   i. Hold annual meetings to evaluate plan success.
   ii. Document plan progress via an annual "report card" presented to MISD and the City of Marion.

Walking or biking to school can significantly improve health, simply by meeting national exercise recommendations alone.
Photo credit: SafeRoutesPartnership.org, 2016.



Existing Conditions - Demographics

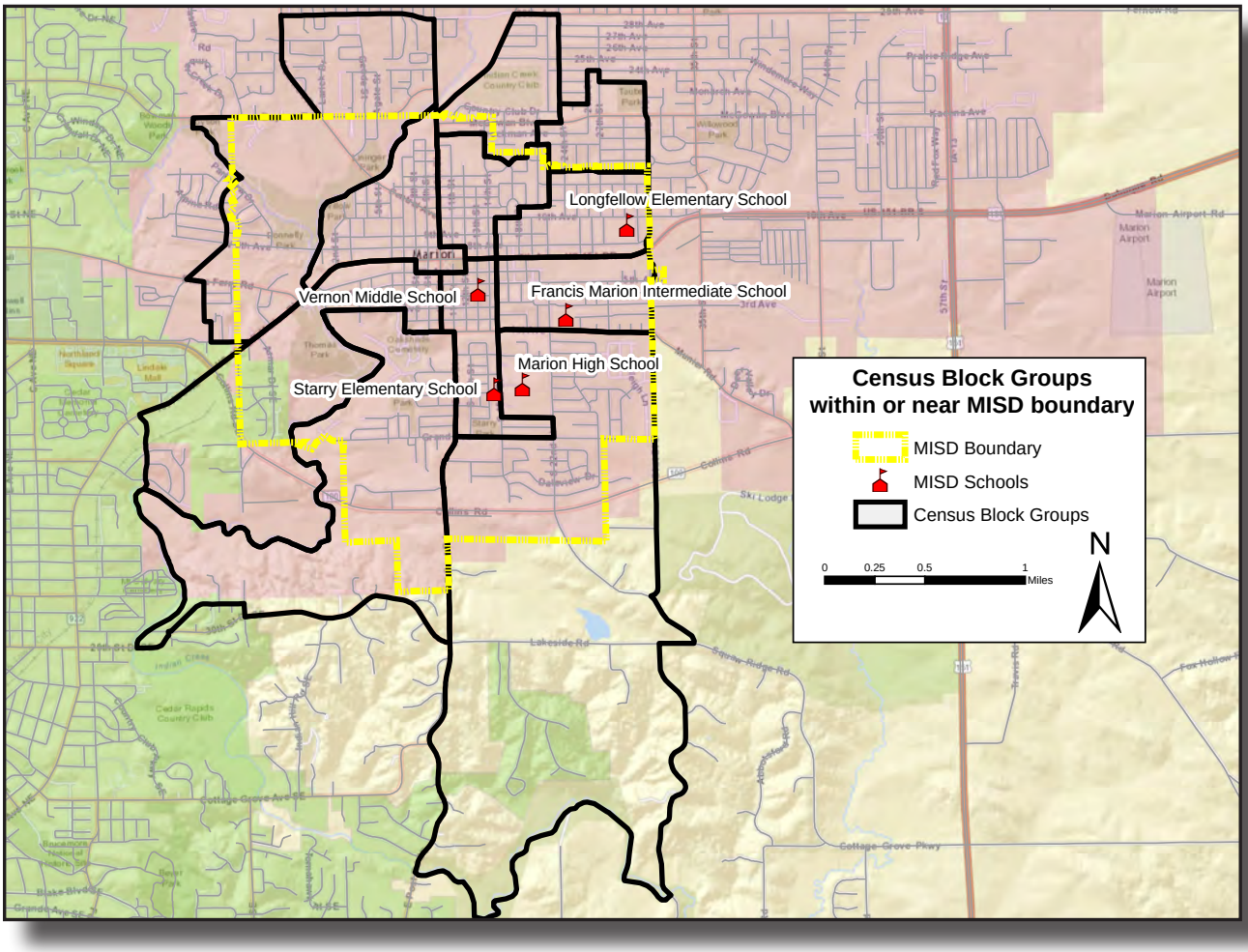
Age and Gender of Population

According to the 2014 American Community Survey, taken by the U.S. Census, the population in the Census Block Groups that contain all or some of MISD (Figure 1) is 17,805 persons, with 8,913 males and 8,892 females.[1] Sixty percent of the population in this area is between 5 and 54 years of age. Table 1, on the next page, depicts the population cohorts of the MISD.

School-aged children, those 5 to 19 years old, make up 18 percent of the total population. Male school-aged children account for 10 percent whereas female school-aged children are 8 percent of the total population.

Young adults, those aged between 20 to 34 years old, make up 21 percent of the total population. Of this 21 percent, young adult males make up 11 percent and females 10 percent of the total population.

Figure 1. Census Block Groups of Marion Independent School District



Existing Conditions - Demographics Continued

Table 1. Population Cohorts within the MISD

Young children (5 and younger)		
Male	445	2.5%
Female	436	2.4%
% of Total Pop		4.9%
School-aged children (5 to 19)		
Male	1,820	10.2%
Female	1,341	7.5%
% of Total Pop		17.8%
Young adult (20 to 34)		
Male	1,966	11.0%
Female	1,806	10.1%
% of Total Pop		21.2%
Working adult (35 to 54)		
Male	2,727	15.3%
Female	2,675	15.0%
% of Total Pop		30.3%
Pre-retirement (55 to 64)		
Male	832	4.7%
Female	1,038	5.8%
% of Total Pop		10.5%
Post-retirement (65 and over)		
Male	1,123	6.3%
Female	1,596	9.0%
% of Total Pop		15.3%

Working adults, those aged between 35 to 54 years old, are about 30 percent of the total population within this area. Both male and female working adults account for approximately 15 percent of the total population.

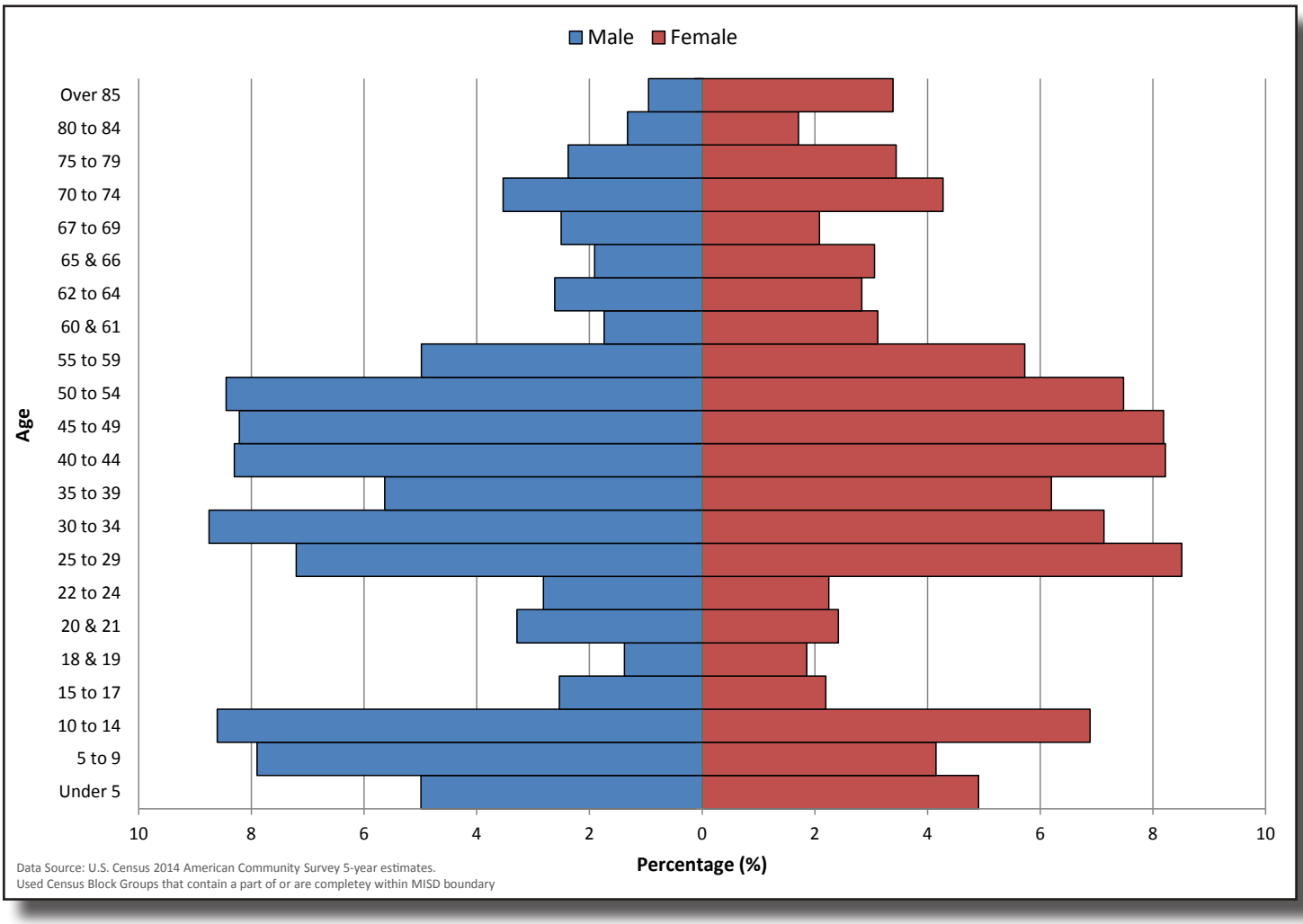
Pre-retirement adults, those between 55 and 64 years old, constitute approximately 11 percent of the total population within this area. Females aged between 55 to 64 represent 6 percent of the population whereas males of the same age represent 5 percent of the total population.

Adults aged 65 and over, those considered to be post-retirement adults, make up 15 percent of the total population within this area. Males aged 65 and over make up 6 percent of the total population; whereas females make up 9 percent.

The population pyramid shown in Figure 2, on the next page, demonstrates that most of the individuals who live in the district are children (10 years or younger) or are adults (25 to 59 years old). There are not a lot of young adults or older school-aged children between the ages of 15 to 24 living in this area. Additionally, there are few pre-retirement and post-retirement individuals in this area, and with those 60 and older, there are fewer men than women. Every age group for adults older than 62 shown in the pyramid have more females then males: approximately 1 percent of the population aged 85 and older are males, but females of the same age constitute about 4 percent of the population.

Existing Conditions - Demographics Continued

Figure 2. Population Pyramid of the Census Block Groups in the MISD



Young people under ten years old constitute a large portion of Marion's Population.
Photo credit: Corridor MPO, 2016

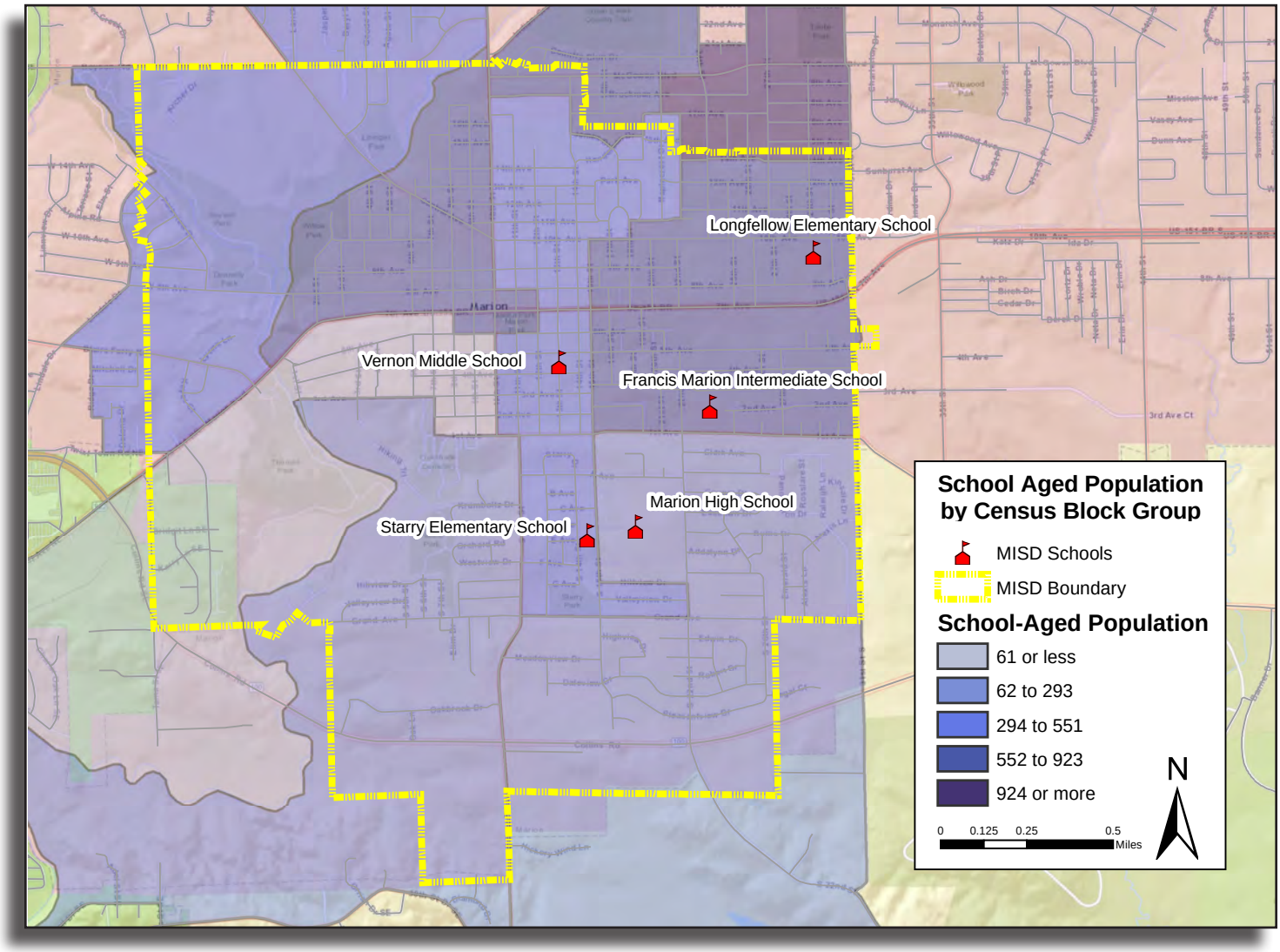
Existing Conditions - Demographics Continued

School-Aged Population

The areas within MISD where most school-aged children live are south of Indian Creek and west of Tenth Street and south of Twelfth Street to north of First Avenue between Fifteenth Street and Thirty-first Street. Many school-aged children live in the far northeast area of the district, as shown in dark purple by Figure 3; however, that Census Block Group has some of the school-aged children attending a different school district (Linn-Mar).

The southern portion of the district has the fewest number of school-aged students in the district. The western section of the school district south of Seventh Avenue and west of Indian Creek is where the fewest number of school-aged students live, this area contains a significant amount of parkland.

Figure 3. Distribution of the School-aged Population in the MISD

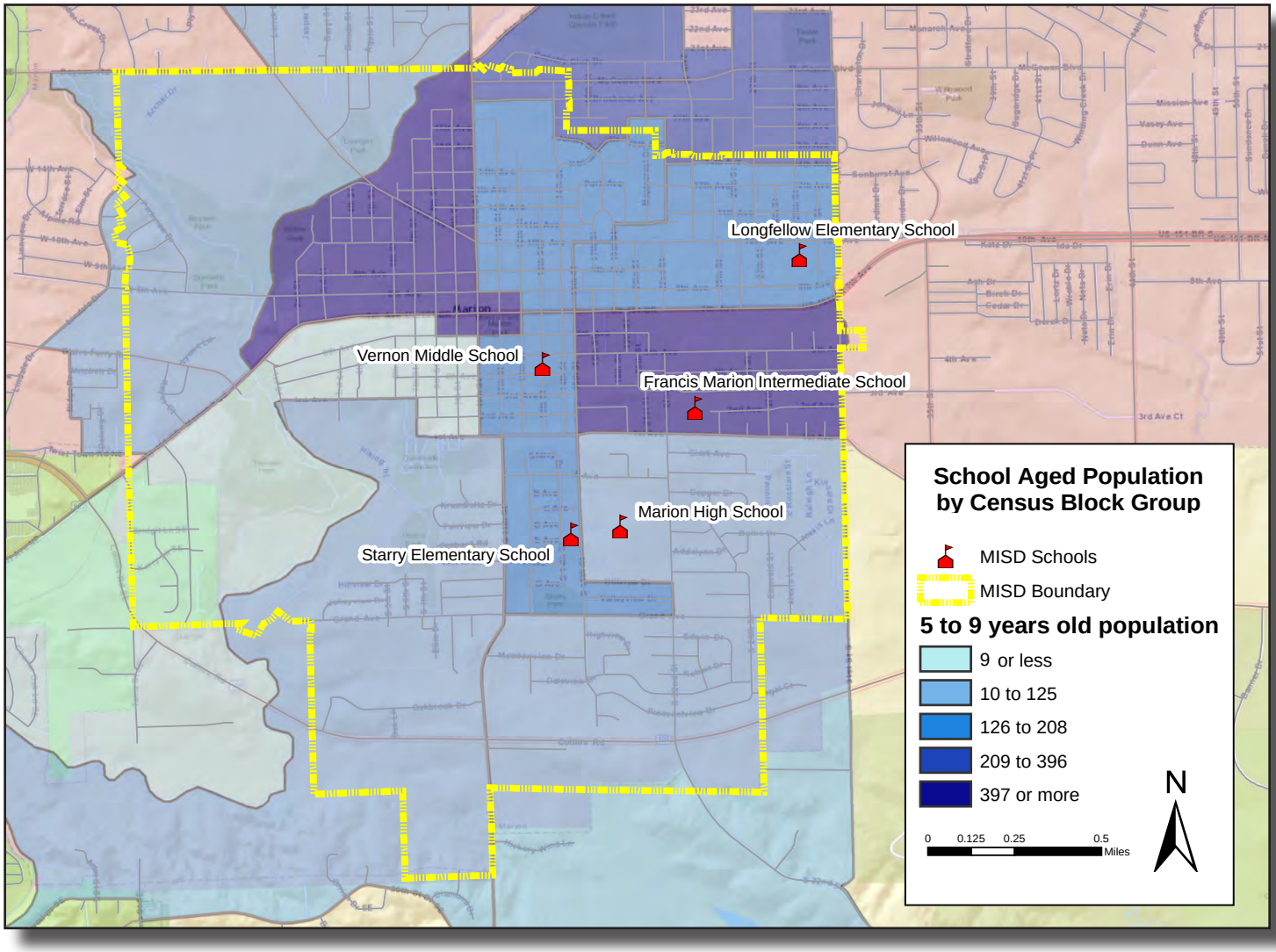


Existing Conditions - Demographics Continued

Young school-aged children, those between 5 to 9 years old, primarily live in the northeastern area of the school district. Most young school-aged children live in the area south of Indian Creek, north of Seventh Avenue, and west of Tenth Street, or near Francis Marion Intermediate (FMI) in the area south of Seventh Avenue and north of First Avenue between Fifteenth Street and Thirty-first Street. As shown in Figure 4, the fewest number of young school-aged students live in the northwest, west, and southern sections of the district.

Elementary students feel safer when they walk home with a friend. Photo credit: Corridor MPO, 2008

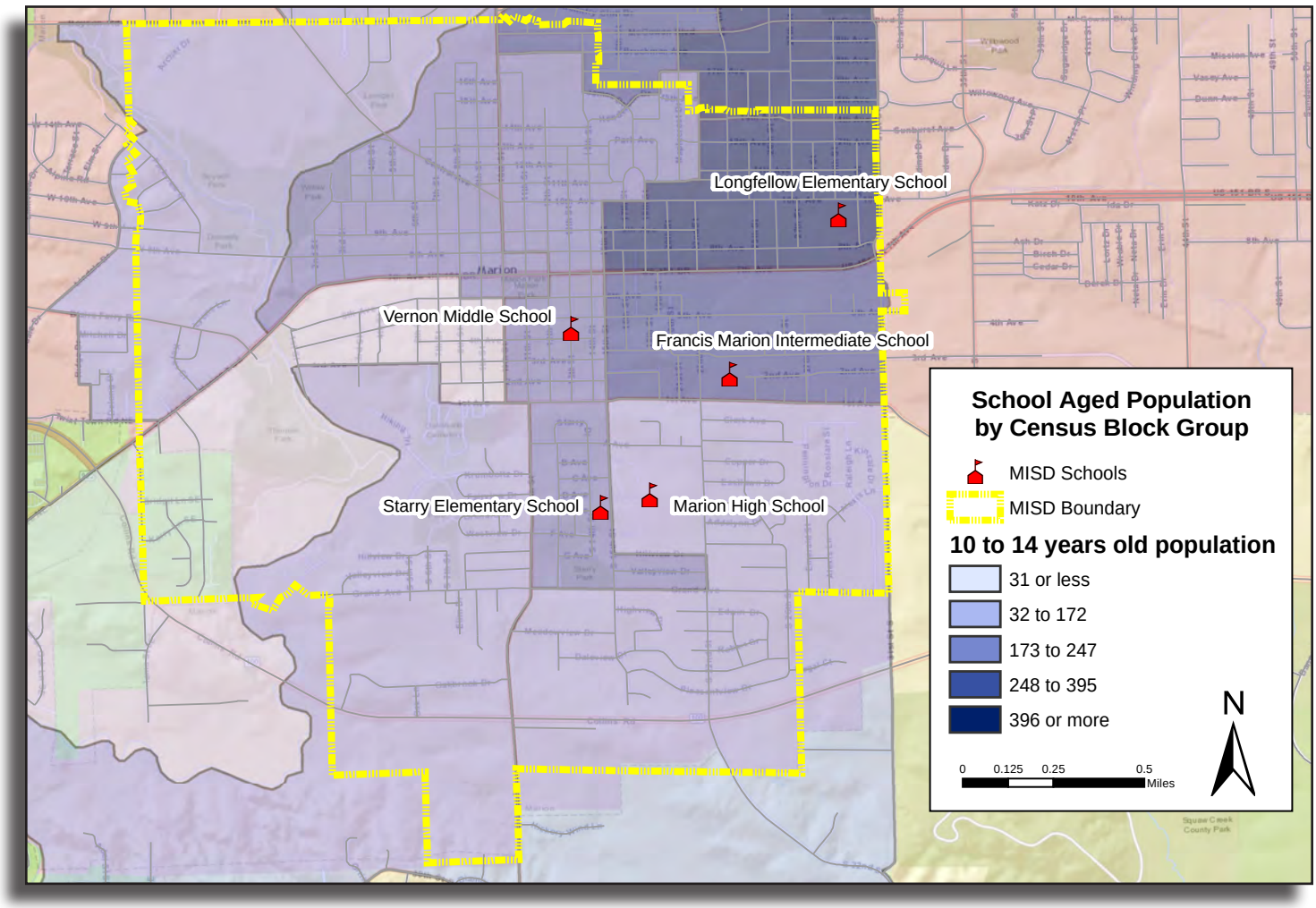
Figure 4. Population Distribution of the 5 to 9 Year Olds in the MISD



Existing Conditions - Demographics Continued

As shown in Figure 5, students between the ages of 10 to 14 live primarily in the far northeast section of the school district, near Longfellow Elementary and FMI. Students aged 10 to 14 tend to live in the northeastern area of the district and few students aged 10 to 14 live in the far northwest, western, and southern portions of the district boundary.

Figure 5. Population Distribution of the 10 to 14 Year Olds in the MISD

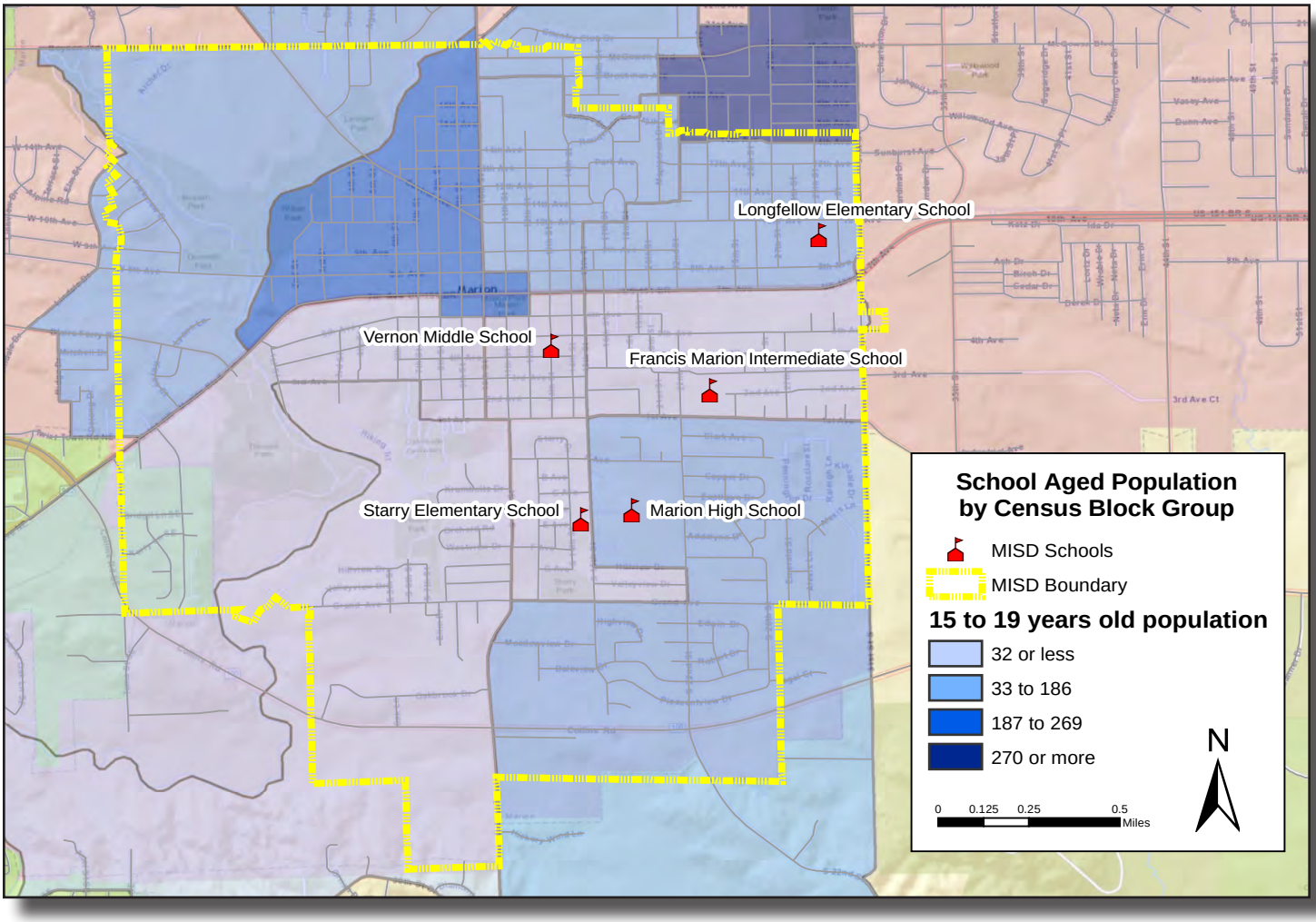


Existing Conditions - Demographics Continued

Figure 6 displays the number of students aged 15 to 19 years old. Unlike the 5 to 9 year olds and 10 to 14 year olds, this age group tends to be more concentrated at the northern part of the district. Similar to the other school-aged age groups, there tend to be fewer 15 to 19 year olds living in the southern portion of the district.

Middle schoolers are more comfortable participating in active transportation.
Photo credit: Corridor MPO, 2008

Figure 6. Population Distribution of the 15 to 19 Year Olds in the MISD



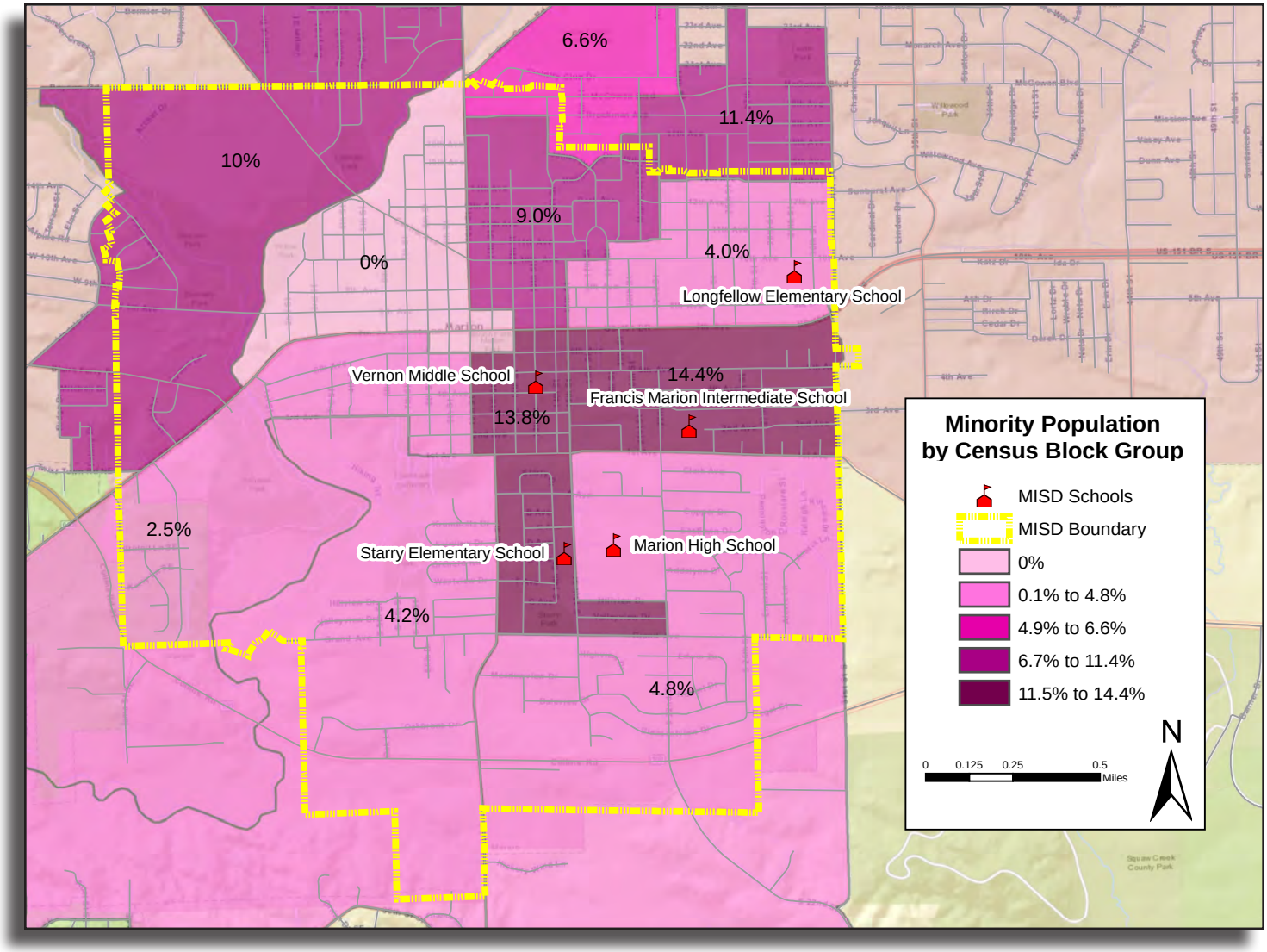
Existing Conditions - Demographics Continued

Minority Populations

Within the Census Block Groups that are a part of the MISD boundary, a vast majority of individuals are White; of the total population in this area, 93 percent are White.[2] Because the population within the MISD boundary is predominately White, Figure 7 only displays the population of minority populations within the area.

Minority population includes individuals who identify as Black, Native American, Asian, Pacific Islander or Native Hawaiian, "other" race, or two or more races. "Other" race refers to an individual who does not identify as white, black, Native American, Asian, Pacific Islander or Native Hawaiian, and is not of two or more of these races. Additionally, this "other" race category includes individuals who identified themselves as multiracial, mixed, interracial, or a

Figure 7. Distribution of Minority Populations in the MISD



Existing Conditions - Demographics Continued

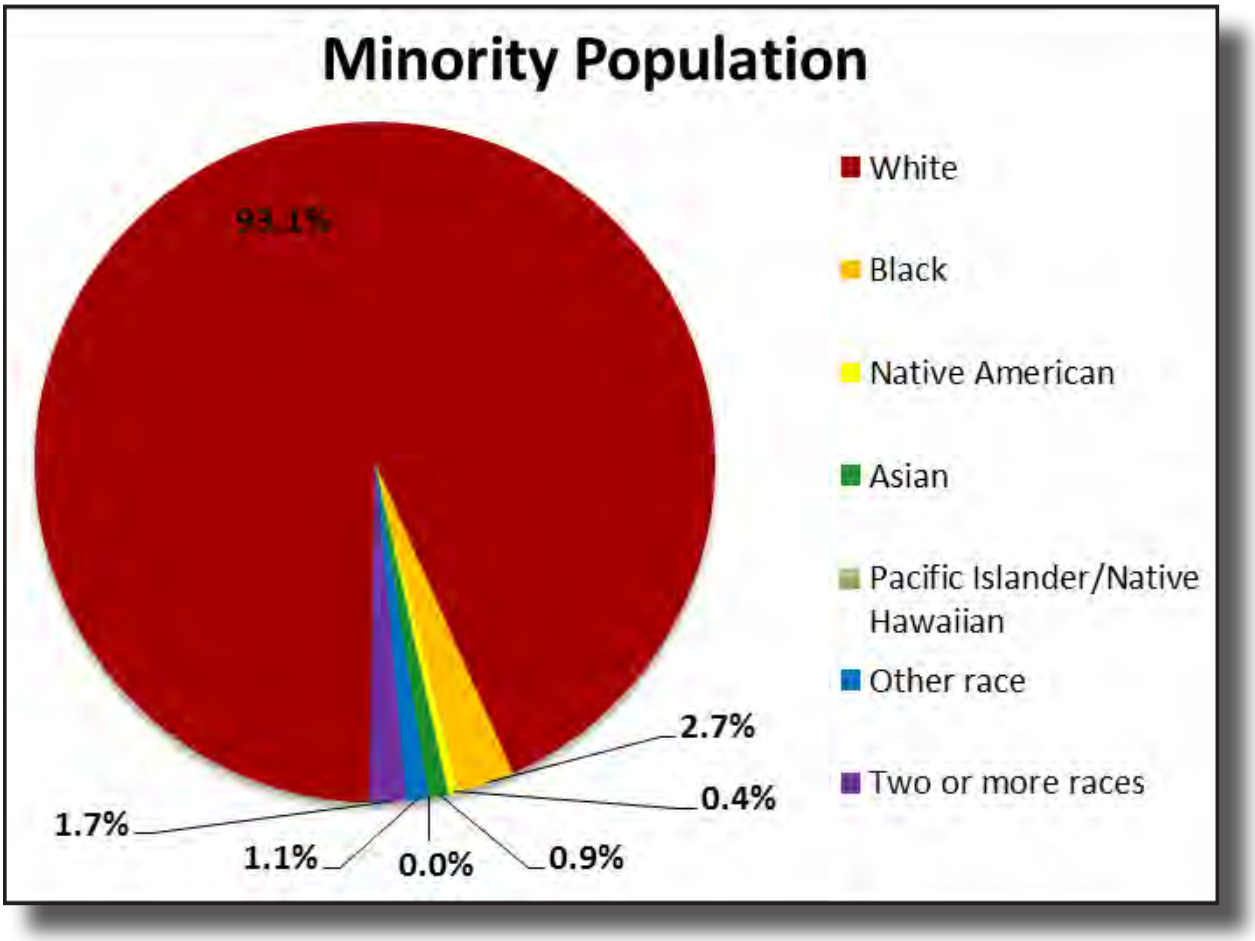
Hispanic, Latino, or Spanish group (for example, Mexican, Puerto Rican, Cuban, or Spanish) on the 2014 American Community Survey.

Of the approximately 7 percent minority population in the area, 2.7 percent are Black, 0.4 percent are Native American, 0.9 percent are Asian, 0 percent are Pacific Islander/Native Hawaiian, 1.1 percent are an "other" race, and 1.7 percent are two or more races. These findings are summarized in Figure 8.

The areas with the largest concentration of minority populations are generally located within the central part of the district. The areas with the highest percentages of minority populations are located in the central core of the district, between Seventh Avenue and Grand Avenue between South Eleventh Street and South Fifteenth Street, near Starry Elementary and Vernon Middle School (VMS). Another large concentration of minority populations is located just to east of that area, near FMI, between Fifteenth Street and Thirty First Street and First Avenue and Seventh Avenue.

Most of the minority populations in the district boundary live near VMS, FMI, and Starry Elementary. Photo credit: Corridor MPO, 2016

Figure 8. Racial Populations in the Census Block Groups that Represent the MISD



Existing Conditions - Demographics Continued

Students enjoy playing outside with their friends after school. Photo credit: Corridor MPO, 2016

Other areas with a significant minority population lie on the far northwest, north central, and northeast areas of the district boundary.

While most of the population in this area is White, certain areas have a larger percentage of minority groups than others. For instance, of the 484 people in the area who identify as Black, most live in the northwest, southeast, and central areas, at 6 percent, 4.6 percent, and 7.4 percent, respectively.

Thirteen percent of people who identify as a race within the "other" category tend to live in the far eastern region of the area, near FMI between Fifteen Street, Thirty first Street, Seventh Avenue, and First Avenue. The only other area to have a population of "other" races, at 4 percent, live just north of that area, near Longfellow Elementary, between Thirty first Street, Fifteenth Street, and Twelfth Avenue.

Most of the Census Block Groups that make up the MISD boundary have few Asian individuals in the area. The area with the highest percentage of Asian individuals is in the far northeast area at 5 percent.

The total number of Native American individuals in the area is only 80, however, five percent of the people who live near VMS and Starry Elementary are Native American. Sixty-four individuals live in that area whereas 16 individuals who identify as Native American live in the Census Block Group directly north of that, to the southwest, west, and north of Emerson Elementary.

Existing Conditions - Demographics Continued

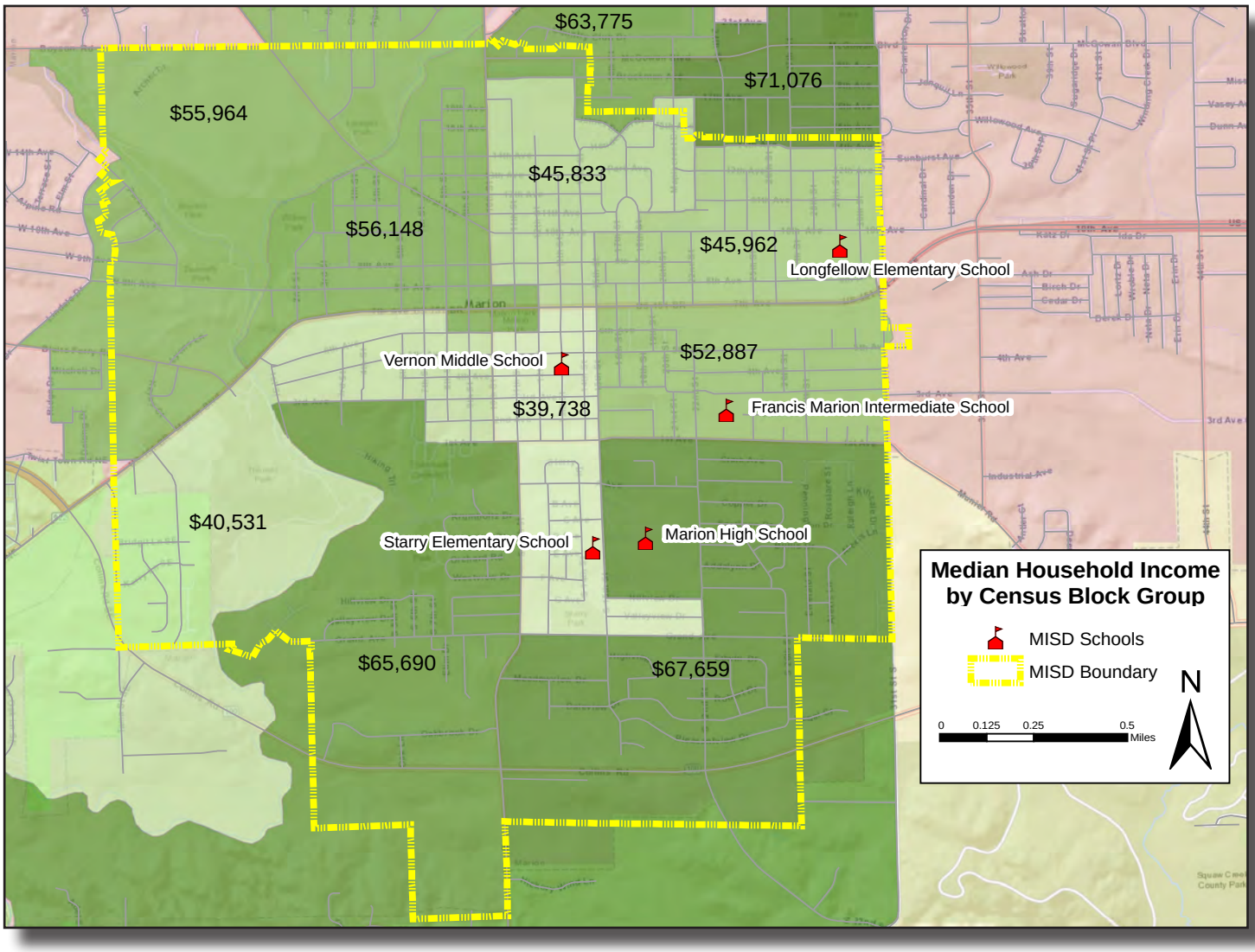
Median Household Income

Additional maps displaying each minority group are available in Appendix D.

The average median household income is $55,024 for the Census Block Groups that are a part of the MISD boundary. [3] Generally, the median household income tends to increase the further away from the core area of the district boundary, as shown in Figure 9.

The central area of the district near VMS and Starry Elementary has the lowest median household income in the area at $39,700. The other areas with low median household incomes, relative to the average median, are the western, north central, and eastern areas of the district, at $40,500, $45,800, and $45,900, respectively.

Figure 9. Median Household Income in the MISD



Existing Conditions - Demographics Continued

Students come from all different economic backgrounds in MISD. Photo credit: MISD, 2017

The highest median household income in the area is the far northeastern part of the district at $71,000; this is also the only Census Block Group with a median household income over $70,000. Other areas with the high median household incomes, relative to the average median income, are the north central, south central, and southeastern areas of the district, at $63,800, $65,700, and $67,700, respectively.

The Census Block Group with the lowest median household income ($39,738) located around Starry Elementary has 611 households and none of these households have incomes greater than $150,000 per year. A portion of the households in this area, 111 or 18 percent, make between $100,000 to $124,000 per year. However, 66 percent of households in this Census Block Group make less than $50,000 per year, which is the most of any Census Block Group in the MISD boundary.

The Census Block Group with the second lowest median household income ($40,531) on the far west side of the district has a total of 1,025 households, and 60 percent of those households make less than $50,000 annually. Ninety-three percent of households in this area make less than $100,000 annually and 7 percent make more than $100,000 per year.

Interestingly, the Census Block Group with the highest median household income ($71,076), located in the northeast, is the only one where no households make over $99,999 per year. This area has a total of 391 households with incomes ranging from $15,000 to $99,999 annually. As shown in Table 2 below, 24 percent of the households in this area make less than $50,000 per year. Most households in this area, 154 households or 76 percent, make between $75,000 to $99,999 annually. It should be noted that only a small portion of this area attends MISD schools.

Table 2. Percentage of Households in Specific Income Ranges in the MISD

MEDIAN HOUSEHOLD INCOME IN EACH CENSUS BLOCK GROUP	HOUSEHOLD INCOME RANGES					TOTAL HOUSEHOLDS
	Less than $50,000	$50,000 to $100,000	$100,000 to $150,000	$150,000 to $200,000	More than $200,000	
$56,148	42%	39%	16%	0%	4%	534
$55,964	47%	34%	17%	1%	0%	1458
$63,775	25%	**53%**	17%	4%	0%	484
$71,076	24%	**76%**	0%	0%	0%	391
$45,833	**55%**	42%	3%	0%	0%	386
$45,962	54%	19%	21%	3%	3%	554
$52,887	49%	41%	6%	0%	4%	441
$39,738	**66%**	5%	29%	0%	0%	611
$67,659	41%	28%	20%	6%	6%	1483
$40,531	**60%**	33%	2%	4%	1%	1025
$65,690	28%	**54%**	12%	2%	5%	546
Average ***$55,024***	***45%***	***39%***	***13%***	***2%***	***2%***	*719*

Existing Conditions - Demographics Continued

At $67,659, the Census Block Group in the southeastern area of the district is the second highest median household income. This area has 1,483 households, of which 41 percent make less than $50,000 annually. Twenty-eight percent of households make between $50,000 to $100,000, 20 percent earn $100,000 to $150,000, 6 percent make between $150,000 to $200,000, and 6 percent earn more than $200,000 per year. This is the only Census Block Group in the area to have households with incomes in each Census income category.

Just to the west, the Census Block Group with a median household income of $65,690 is the third highest in the area. Of the 546 households in this Census Block Group, 54 percent earn $50,000 to $100,000 annually. Twenty-eight percent earn less than $50,000, 12 percent earn $100,000 to $150,000, 2 percent earn $150,000 to $200,000, and 5 percent make more than $200,000 annually.

Most residences in the MISD boundary are single family homes, however there are several duplexes and apartment buildings located within the district boundary. Photo credit: Google Earth, 2016

Existing Conditions - Travel Characteristics

Table 3. Work or School Commutes by Transportation Mode

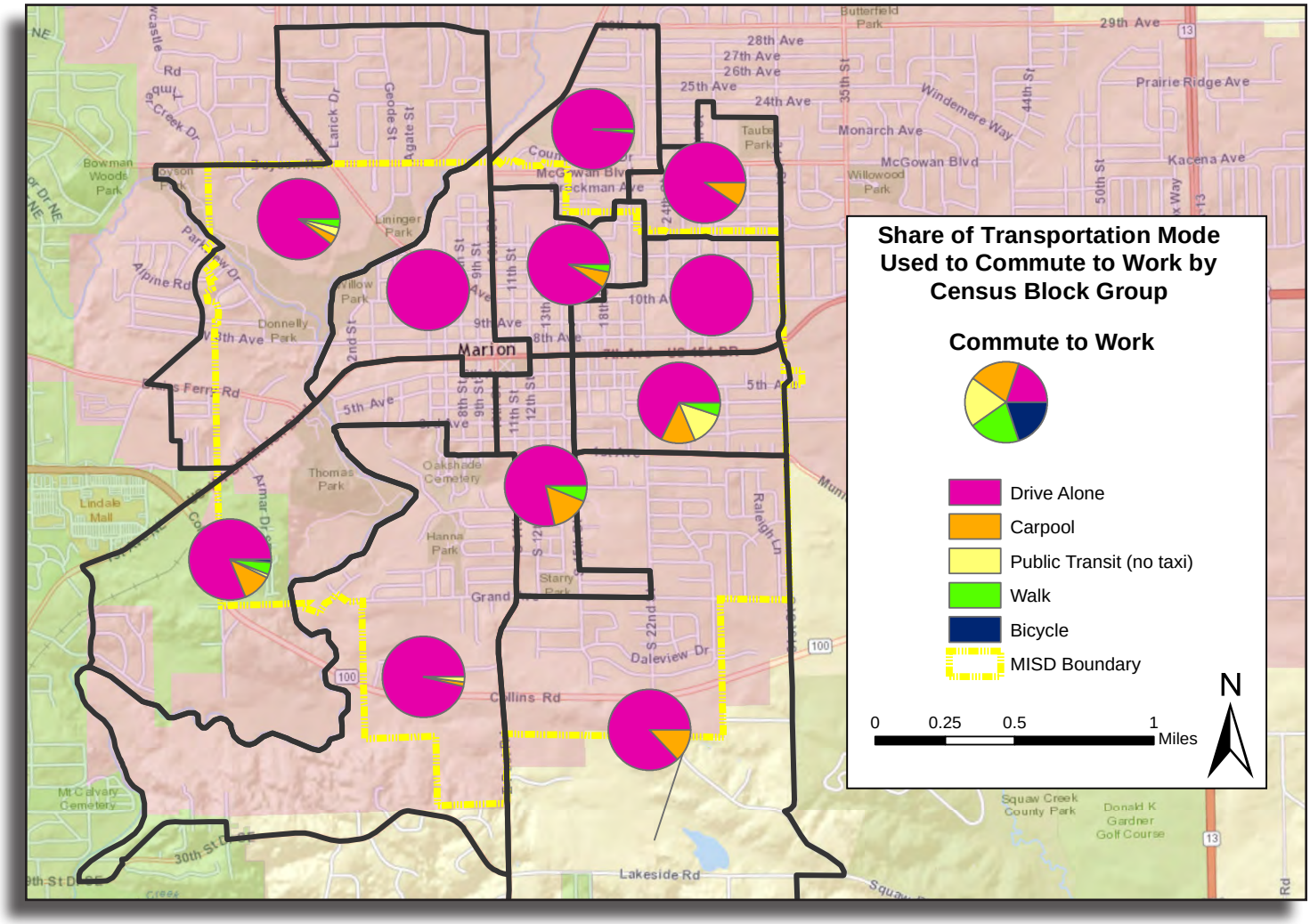
Mode	Total	Percent of Total
Vehicle, solo driver	8263	84.6%
Vehicle, carpool	682	7.0%
Public Transit	159	1.6%
Walking	199	2.0%
Bicycling	10	0.1%
Work from home	360	3.7%

Commuting to Work

As common with many mid-size, Midwestern cities, most citizens in the MISD boundary drive by themselves to work. A vast majority of households in the MISD boundary, 85 percent or approximately 8,300 individuals, commute to work by themselves in their personal vehicles.[4] See Table 3 for details.

As shown in Figure 10, anywhere between 68 to 97 percent of individuals commute to work by themselves in the Census Block Groups that are a part of the MISD boundary. The areas with the highest percentage of individual drivers are in the southwest, central northwest, and far north central Census Block Groups, each having at least 88 percent of individuals driving themselves to work. The far northwest and other northern Census Block Groups also have many individuals driving alone.

Figure 10. Share of Work Commutes by Transportation Mode in the MISD



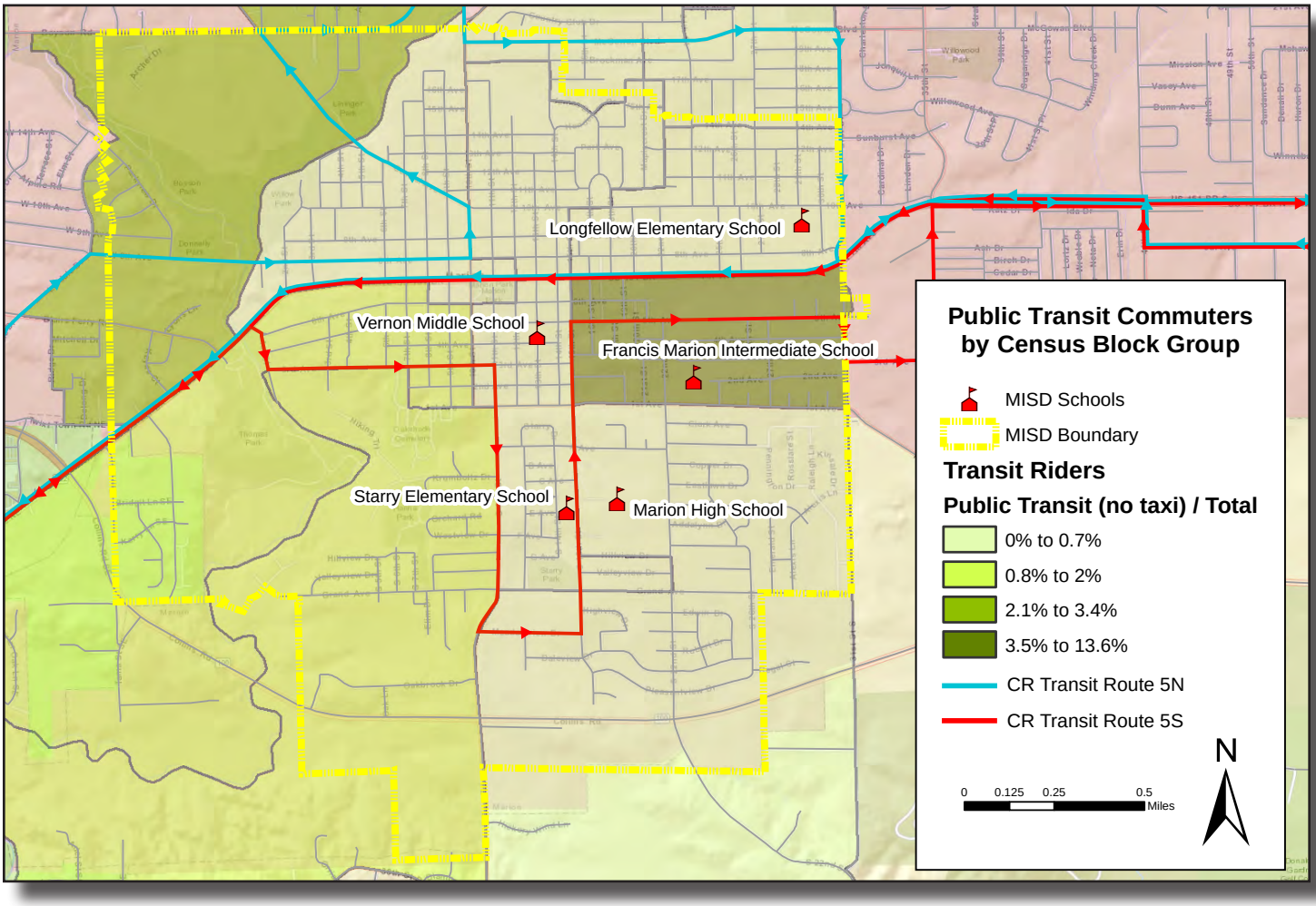
Existing Conditions - Travel Characteristics Continued

The far northwest and other northern Census Block Groups also have many individuals, over 82 percent, driving themselves to work. The far southwest, central, and eastern Census Block Groups tend to have fewer individuals commuting by themselves than the other Census Block Groups. The east central area, near FMI, has 68 percent of individuals driving alone to work, with nearby areas having between 68 to 82 percent of individuals driving alone to work.

About two percent of the population within the MISD area, or 159 people, use public transit to get to work, as shown in Table 3. Of the 470 people living in the Census Block Group containing FMI, 13 percent use public transit to get to work, the most of any Census Block Group in the MISD boundary. While the far northwestern Census Block Group has the same number of individuals who use public transit (64) this only accounts for about three percent of the population within that area. The rest of the MISD boundary has between zero to two percent of individuals commuting by public transit.

Two transit routes run through Marion Monday through Saturday. Photo credit: Corridor MPO, 2012.

Figure 11. Percent of Work Commutes by Public Transportation in the MISD

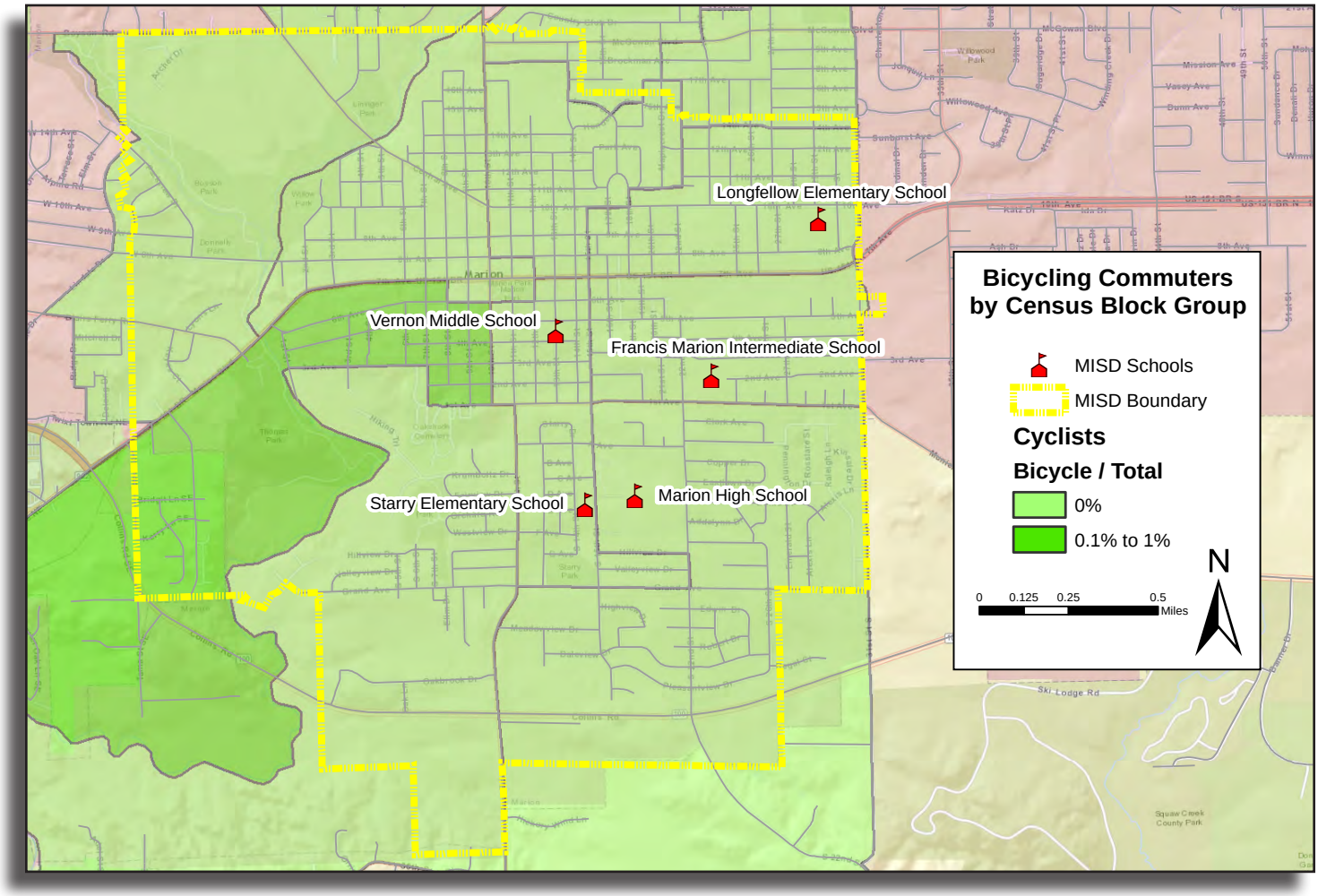


Existing Conditions - Travel Characteristics Continued

Figure 11, on the previous page, also displays the current Cedar Rapids Transit routes. A transit line runs through or along the border of the each Census Block Group in this area. The Census Block Group containing FMI has the largest number of households utilizing transit to commute to work. This Census Block Group is also one of the few that have a transit line going both directions (in-bound and out-bound) instead of being near a one-way loop in the transit line.

As shown in Figure 12, commuting to work using a bicycle is the least popular transportation mode used in the MISD boundary at 0.1 percent. When the American Community Survey was issued to households in this area, only 10 people in the far western Census Block Group said they rode their bicycle to work. [5] All other areas reported zero individuals riding their bicycles to work.

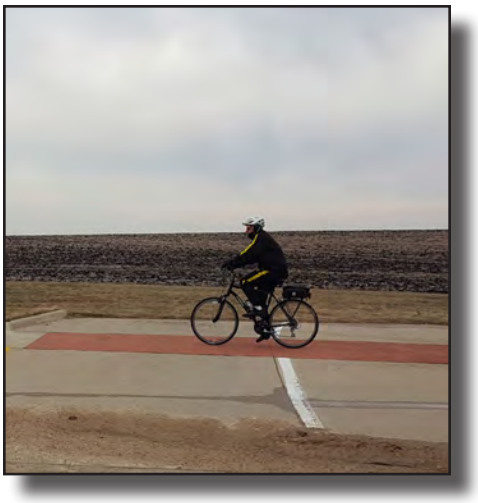
Figure 12. Percent of Work Commutes by Bicycle in the MISD



Existing Conditions - Travel Characteristics Continued

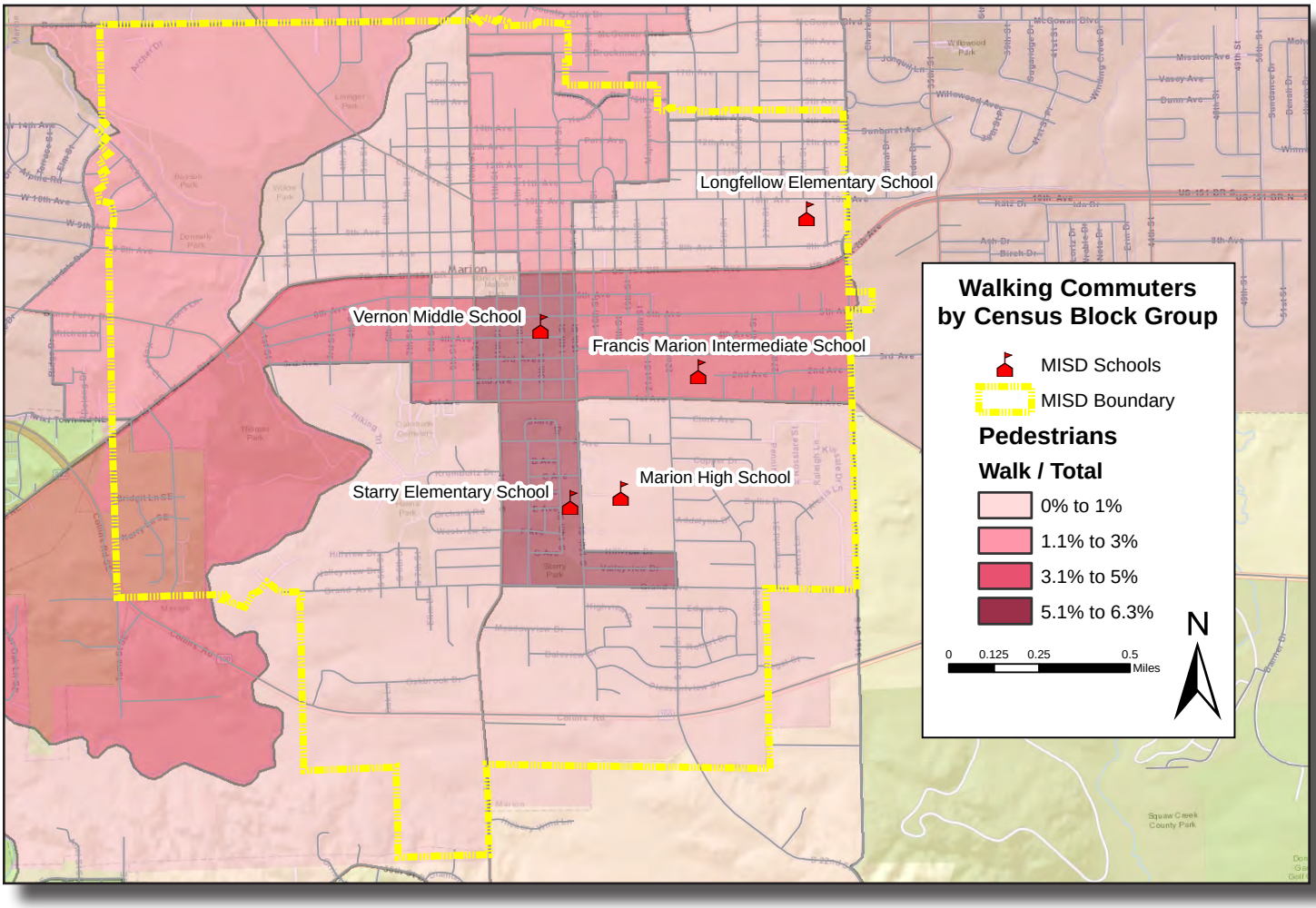
Walking is only slightly more utilized than public transit: two percent, or just under 200 individuals, in this entire area walk to work, compared to the 1.6 percent of public transit users. The area with the greatest number of walkers is located in the central part of the district, near VMS and Starry Elementary, at about 6 percent. This area correlates to the greatest percentage of households without a personal vehicle.

As shown in Figure 13 below, the Census Block Groups to the west and east, generally along Seventh Avenue, have 3 to 5 percent of individuals walking to work. Very few individuals in the southern and northern Census Block Groups walk to work; between 0 to 3 percent walk, which is equivalent to zero to 14 individuals in each Census Block Group.



Commuting by bicycle in Marion has room for growth.
Photo credit: Corridor MPO, 2017

Figure 13. Percent of Work Commutes by Walking in the MISD



Existing Conditions - Travel Characteristics Continued

Table 4. Vehicles per Household in the MISD Boundary

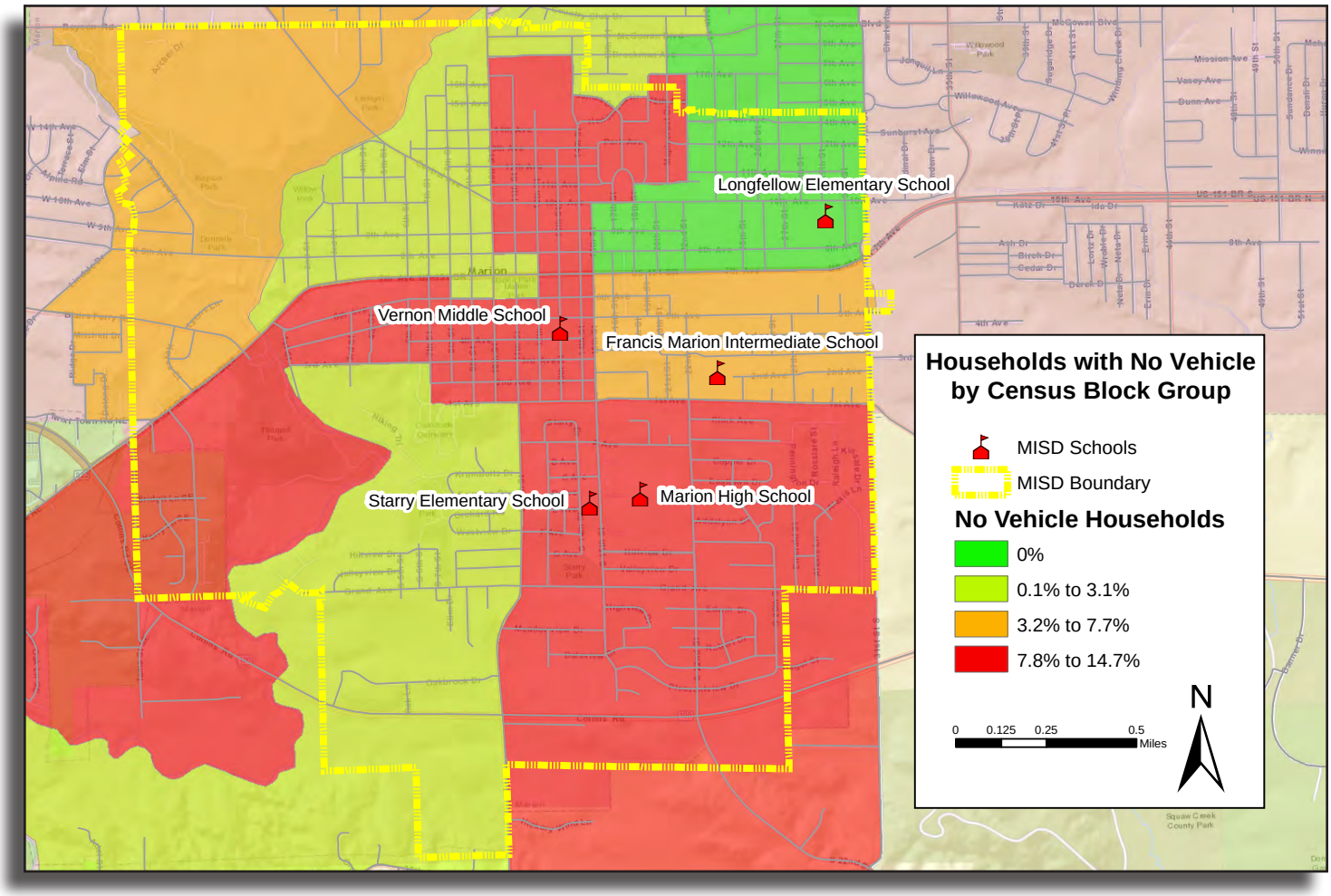
Vehicles Per Household	Number of Households	Percentage of All Households
Zero	631	8%
One	2554	32%
Two	3377	43%
Three or more	1351	17%

Vehicles Per Household

As shown in Table 4 to the left, most households in the MISD boundary have two vehicles per household, at 43 percent or 3,377 households. [5] Thirty-two percent of households in this area have one vehicle, 8 percent have no vehicle, and 17 percent, or 1,351 households, have three or more vehicles in their household.

The areas with the most no vehicle households are located in the far west, north central, central, and southeastern portions of the area, as shown in Figure 14. Approximately 8 percent to 15 percent of households in these areas of the district boundary do not have a vehicle. The only portion of the district where every household has at least one vehicle is the far northeastern area, near Longfellow Elementary, which is also the area with the highest median household income in the MISD boundary.

Figure 14. Percent of Households with no Vehicle in the MISD



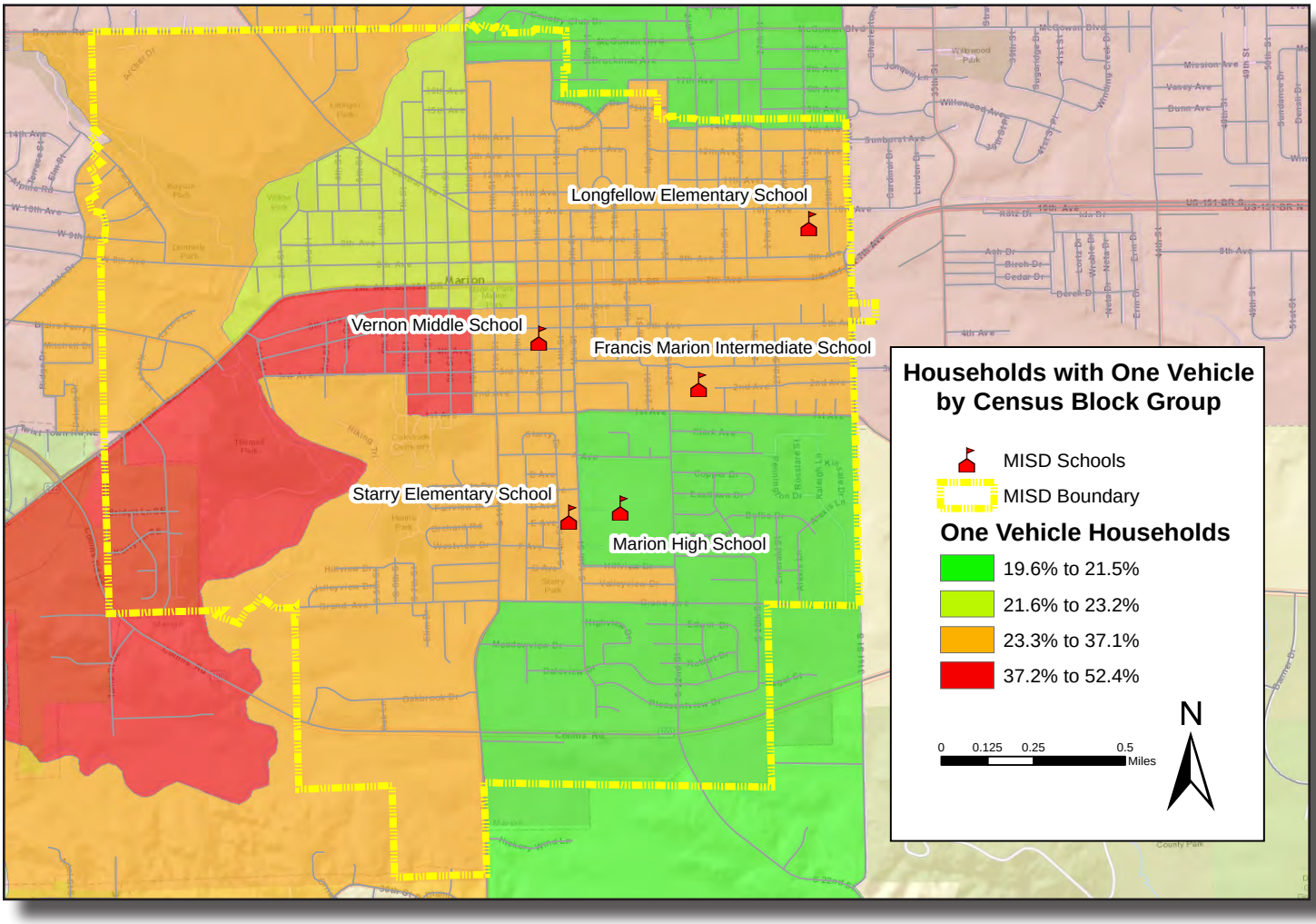
Existing Conditions - Travel Characteristics Continued

The central portion of the district, near VMS and Starry Elementary, and the far western part of the district have the lowest median household incomes, with two of these Census Block Groups having the lowest median household incomes in the area. Figure 14, on the previous page, appears to show a large number of households without vehicles; however, in reality 631 households, the equivalent of eight percent of all households in the area, do not have a vehicle. Households with no vehicles range from 0 percent to 15 percent in each Census Block Group.

Households in the far western portion of the district tend to have fewer vehicles per household than other areas. This Census Block Group has 82 percent of households either having one or two vehicles: 537 of these households have one vehicle, approximately 52 percent, and 307 of these households have two vehicles, approximately 30 percent. Thirteen percent of households in this far western Census Block Group have no vehicles, and 5 percent have three or more vehicles, the lowest of any Census Block Group.

Children whose families don't own a car will bike and walk more frequently.
Photo credit: Corridor MPO, 2017

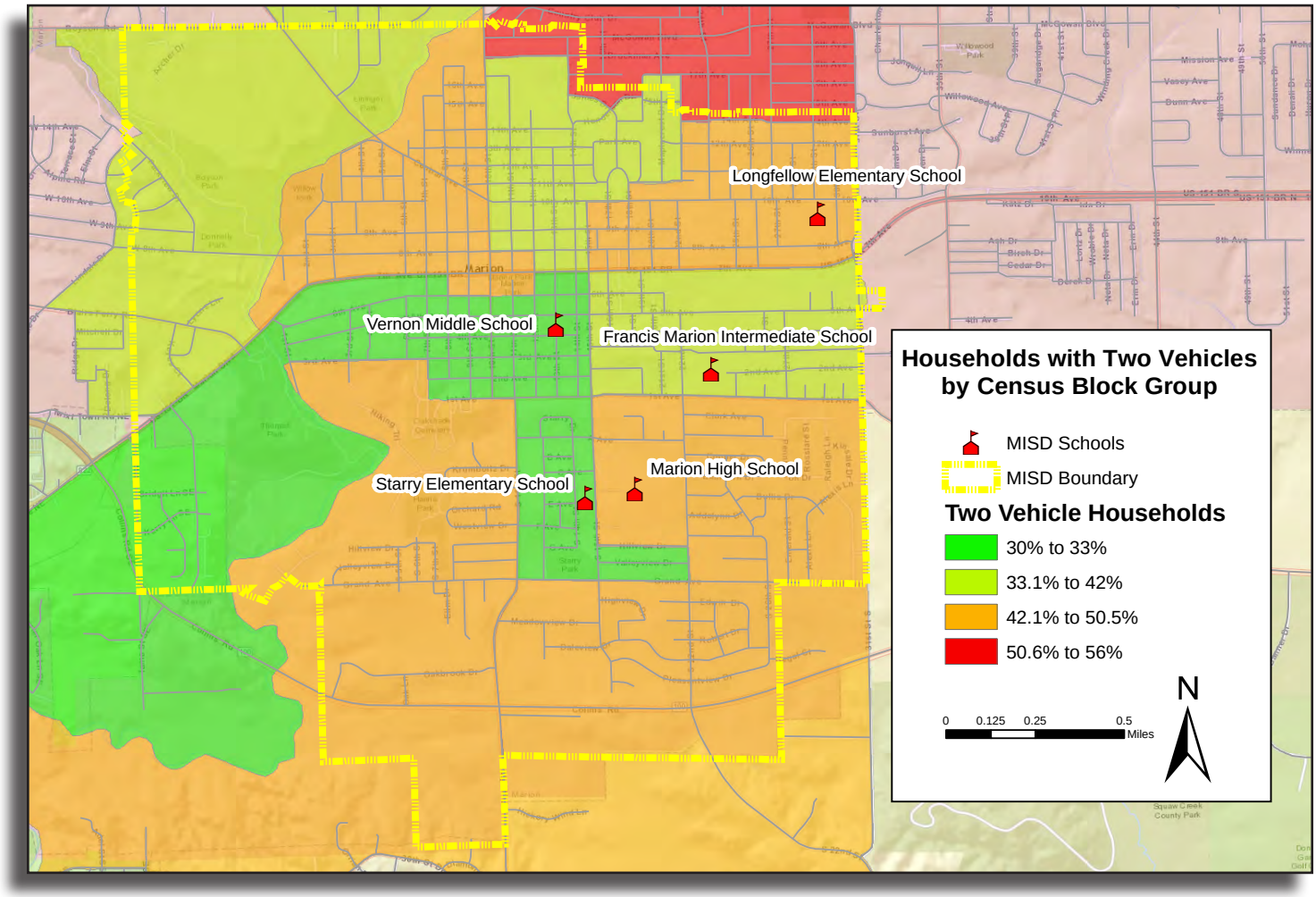
Figure 15. Percent of Households with One Vehicle in the MISD



Existing Conditions - Travel Characteristics Continued

Within each Census Block Group in this area, the percentage of households with one or two vehicles range from 66 to 82 percent. Grouped together, 75 percent of all households in these Census Block Groups have either one or two vehicles per household. Generally, the Census Block Groups with median household incomes in the middle tend to have the most households with one or two vehicles.

Figure 16. Percent of Households with Two Vehicles in the MISD

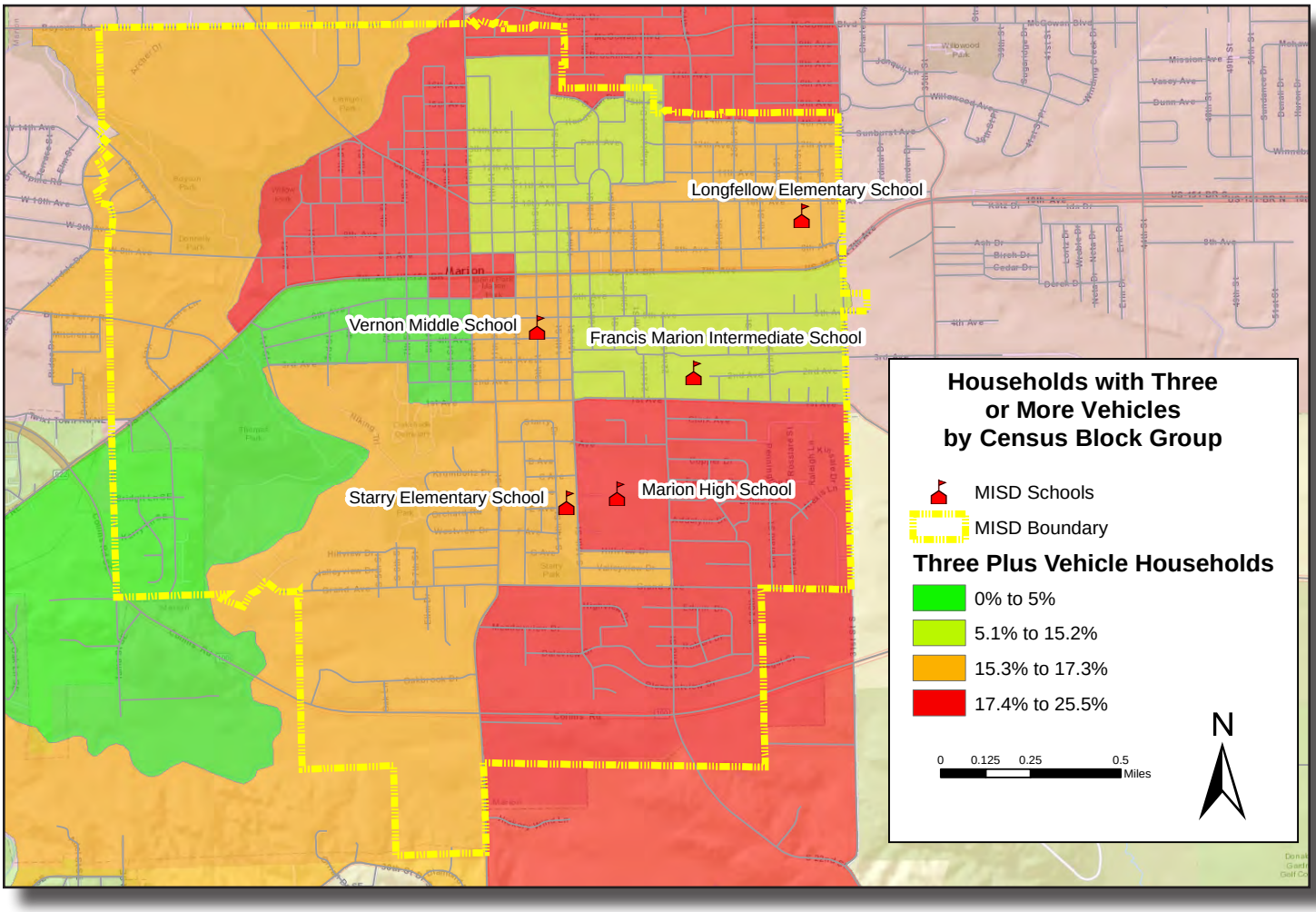


Existing Conditions - Travel Characteristics Continued

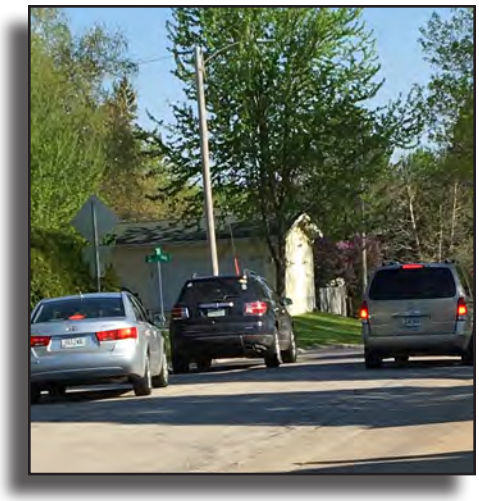
Households with three or more vehicles range from five percent to 25 percent in each Census Block Group; overall, 17 percent of households in the area have three or more vehicles. The Census Block Groups with the highest portion of three or more vehicles, between the range of 17 percent to 25.5 percent, are generally located in the Census Block Groups with the highest median household income.

Just under ⅕ of households in the MISD boundary own three or more vehicles.
Photo credit: Google Earth, 2016

Figure 17. Percent of Households with Three or More Vehicles in the MISD



Existing Conditions - Travel Characteristics Continued



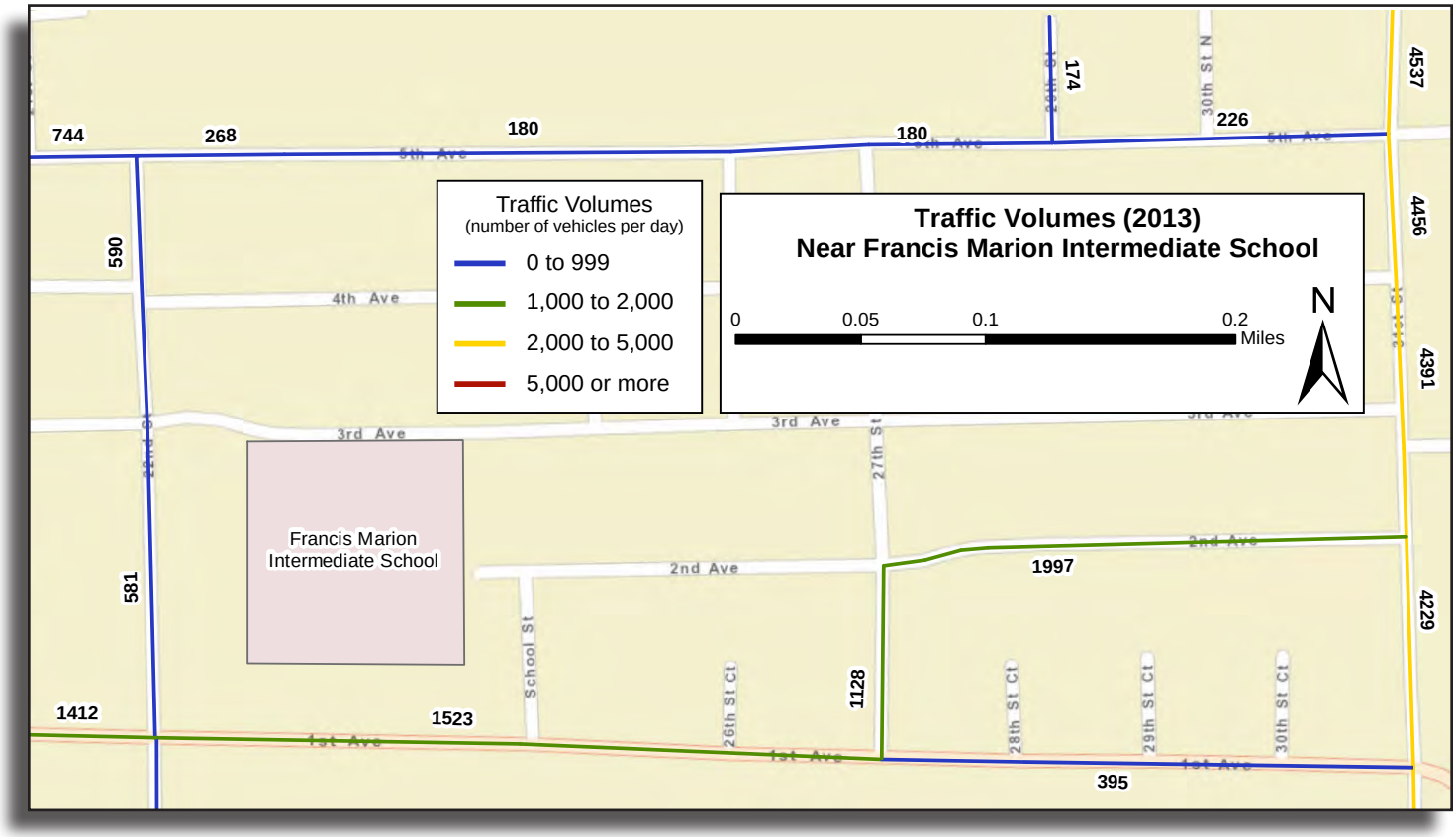
High traffic volumes around schools discourages pedestrian and bicycle travel.
Photo credit: Corridor MPO, 2012.

Traffic Volumes

As most members of the community commute to work via a personal vehicle, traffic volumes are important to monitor around MISD schools. Figures 18 to 21 display traffic volumes classified into four categories: blue (very low traffic volume), green (low traffic volume), yellow (medium traffic volume), and red (moderate to high traffic volume). If none of these colors are displayed on a section of roadway, that portion of the road is considered local and residential, therefore has limited influence on the main roadway network and its traffic volumes. These traffic volumes were estimated using the Corridor MPO's traffic demand model.

Traffic volumes are relatively low around FMI. As shown on Figure 18, most roads carry very low traffic. Areas of low traffic occur on Third Avenue and First Avenue (green). These roads have a traffic volume of approximately 2,000 and 1,500 vehicles per day, respectively. Thirty-first Street is the only road near FMI that has a significant traffic level with approximately 4,400 vehicles per day, still a low level of traffic. FMI has no roads directly adjacent to the school's property with moderate or high levels of traffic.

Figure 18. Traffic Volumes around Francis Marion Intermediate School

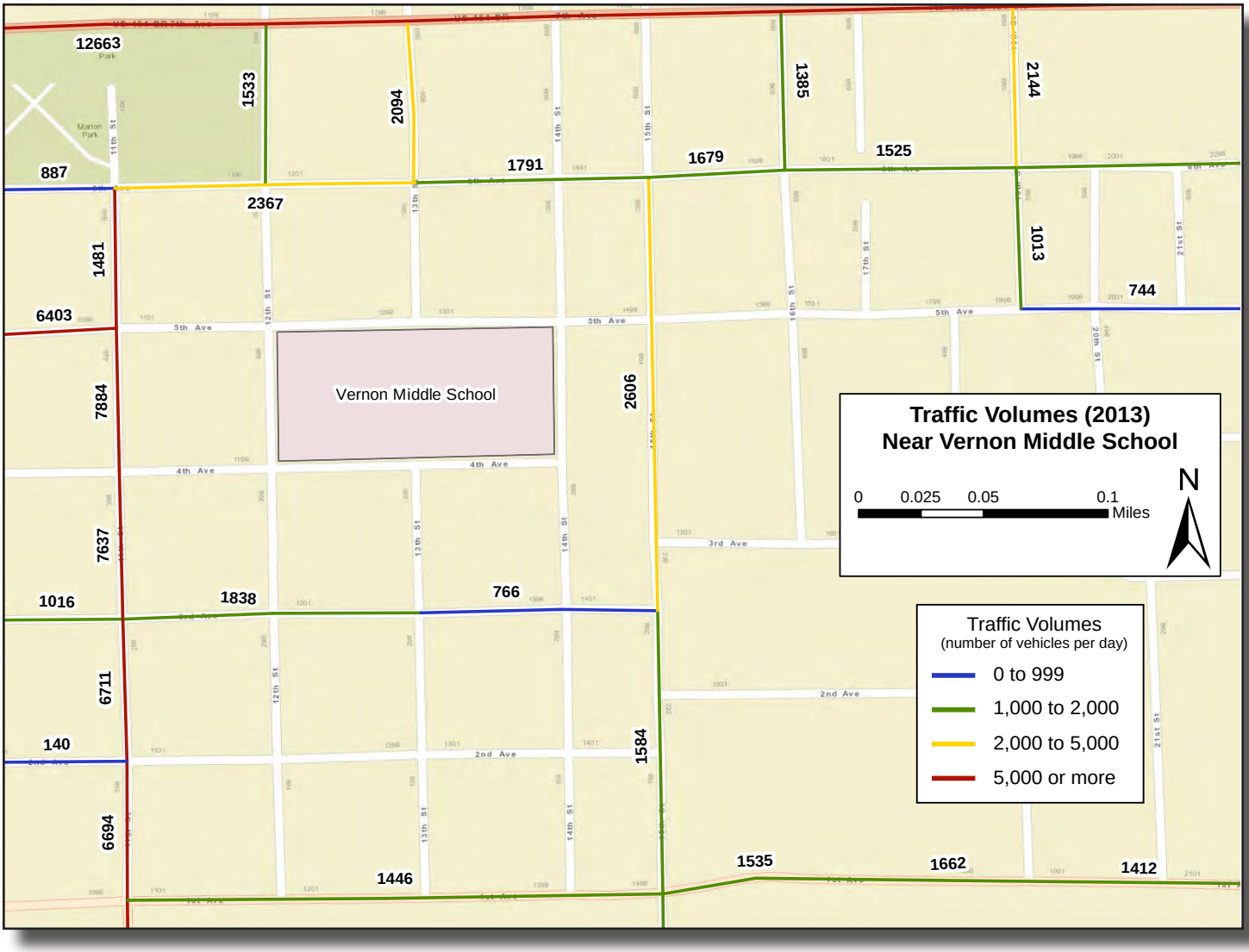


Existing Conditions - Travel Characteristics Continued

Traffic volumes around FMI property tend to be lower than the traffic volumes around Marion High School (MHS), VMS, Starry Elementary and Longfellow Elementary. This is likely due to the fact that FMI is located within a residential area and is further away from commercial areas and corridors than the other MISD schools.

As shown in Figure 19, the roadways around VMS have traffic volumes within each of the four categories. While not directly adjacent to VMS property, Seventh Avenue to the north has significant traffic volumes, well over 10,000, which is more challenging for students and pedestrians. Eleventh Street, to the west, also has high traffic volumes, these two roadways contain over 12,500 and 7,600 vehicles per day, respectively.

Figure 19. Traffic Volumes around Vernon Middle School

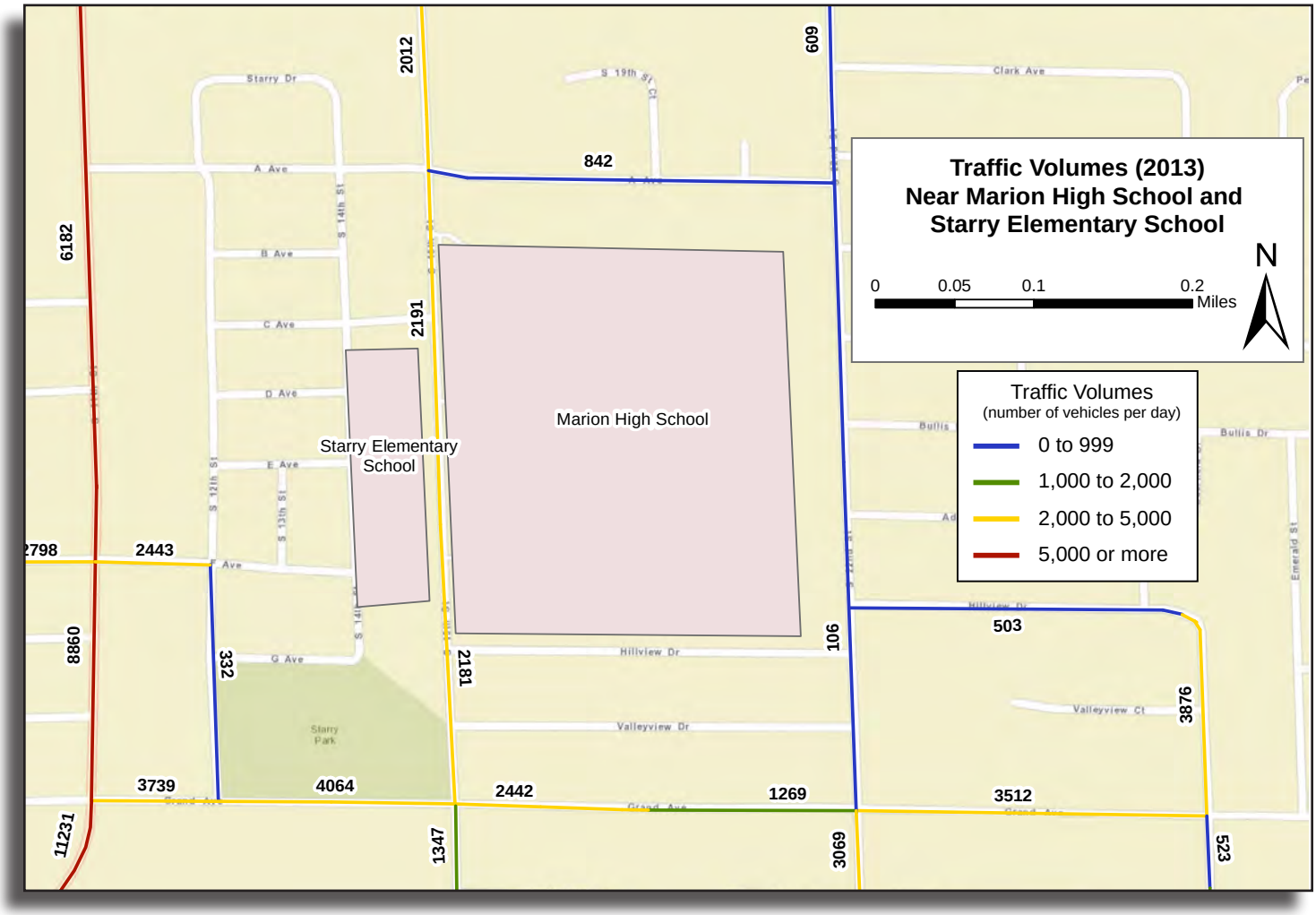


Existing Conditions - Travel Characteristics Continued

VMS also has a few segments of roadway that carry moderate traffic between 2,000 to 5,000 cars per day. These segments of roadway shown in yellow include South Fifteenth Street, between Third Avenue and Sixth Avenue, and Sixth Avenue, between Eleventh Street between Thirteenth Street. These segments of South Fifteenth Street and Sixth Avenue do not have traffic volumes exceeding 2,650 vehicles per day. The rest of the roadways near VMS do not exceed 1,850 vehicles per day.

In the area surrounding MHS and Starry Elementary, as shown in Figure 20, nearby roadways have varying levels of traffic volumes. South Eleventh Street shows higher traffic volumes of approximately 11,200 vehicles per day. The roadways near MHS and Starry Elementary do not exceed traffic volumes of 3,900 vehicles per day. The rest of the roadways have lower traffic levels not exceeding 1,600 vehicles per day.

Figure 20. Traffic Volumes around Marion High School and Starry Elementary

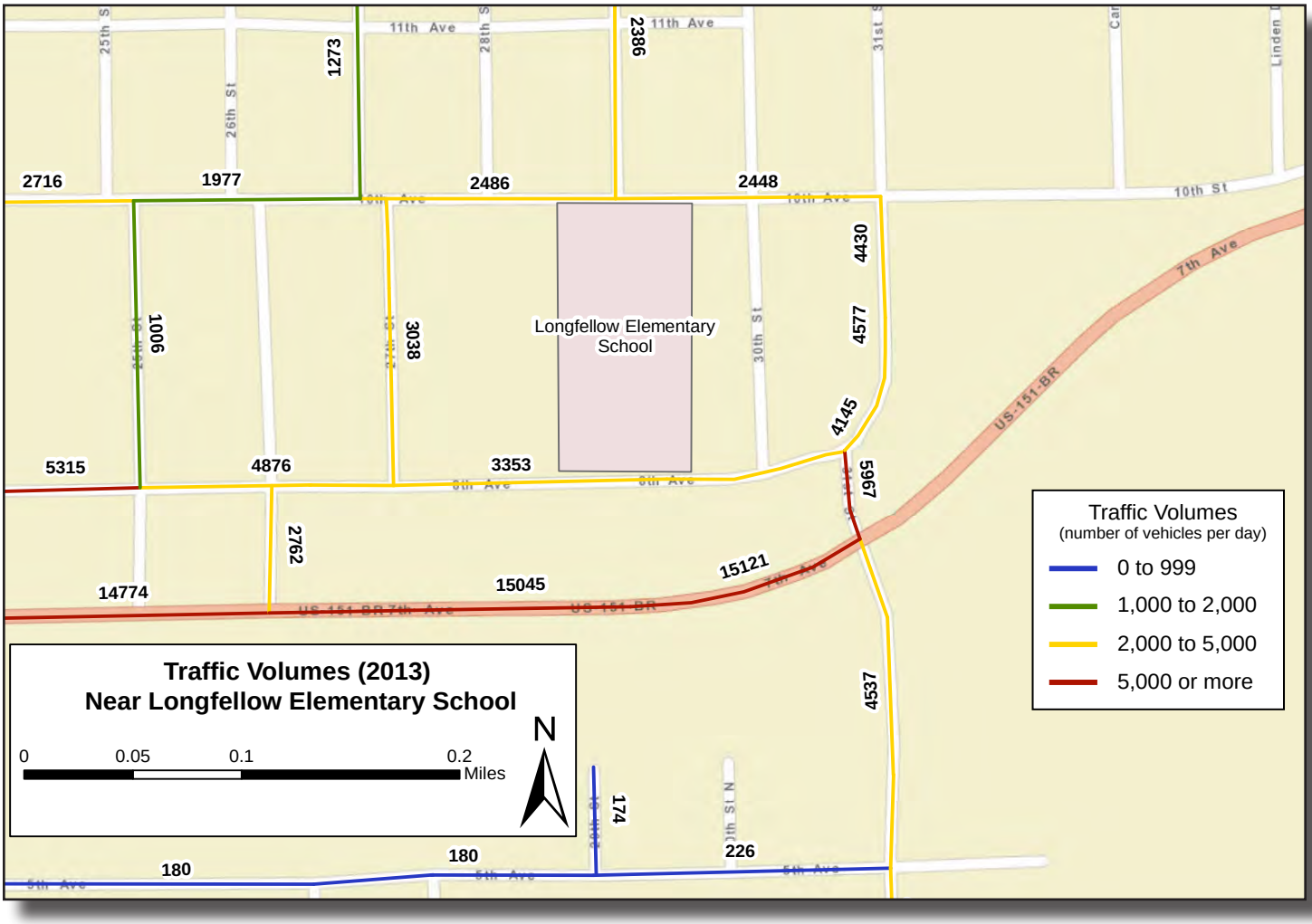


Existing Conditions - Travel Characteristics Continued

In the area surrounding Longfellow Elementary School, as shown in Figure 21, traffic volumes on roadways directly adjacent to school property are the highest of any MISD school. Seventh Avenue, a block south of Longfellow Elementary School property, is a roadway of high traffic volume (red) because vehicles per day exceed 15,000. All surrounding roadways of Longfellow Elementary School (yellow) have moderate traffic levels. Here the traffic volumes are between 2,400 to 4,500 vehicles per day. All other roadways are classified as low traffic facilities (blue).

Young children playing near busy roads can cause concern for both parents and community members. Photo credit: Corridor MPO, 2016

Figure 21. Traffic Volumes around Longfellow Elementary School



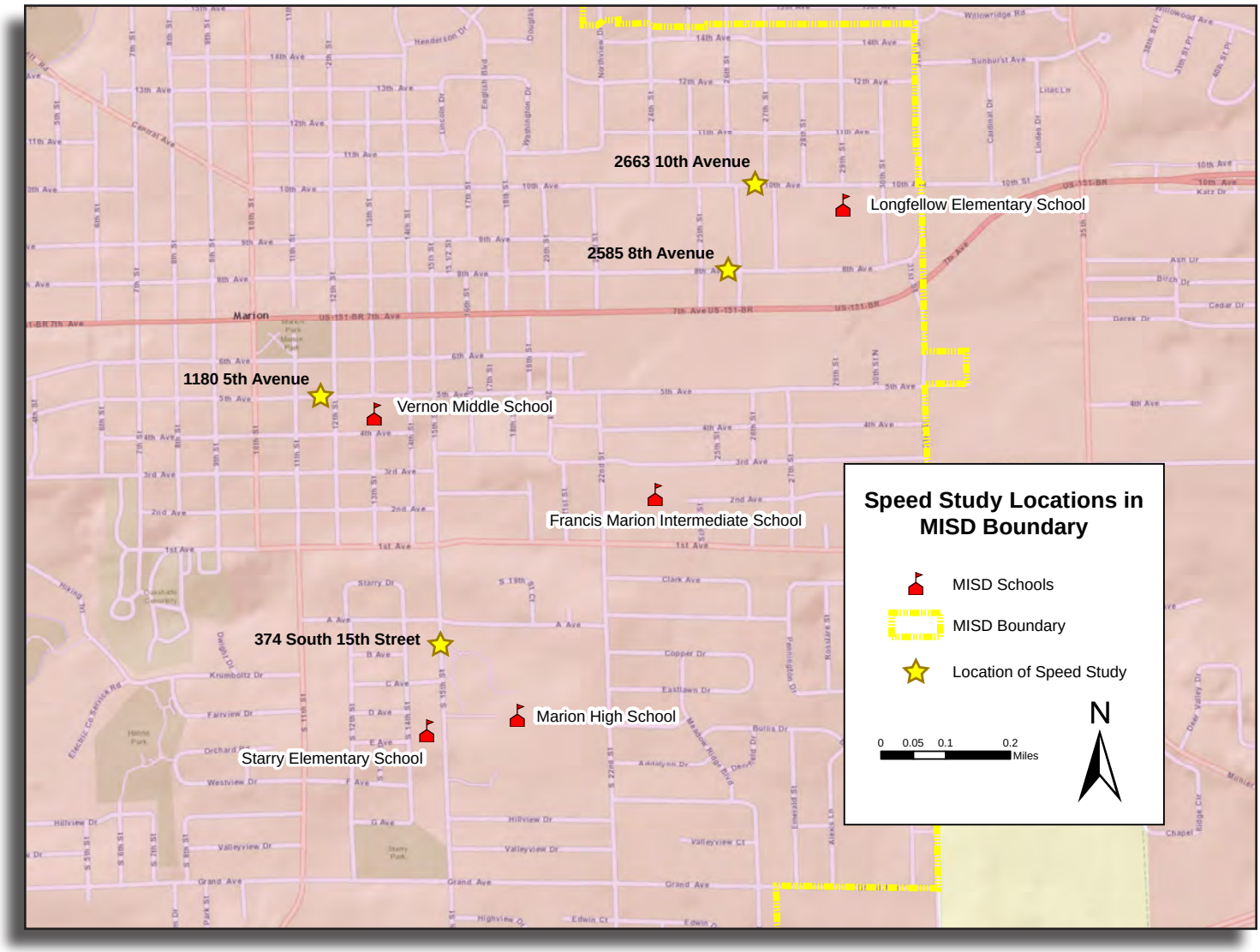
Existing Conditions - Travel Characteristics Continued

Speed Studies Conducted in MISD Boundary

Corridor MPO staff conducted four speed studies on December 1st, 2016 at: Tenth Avenue and Eighth Avenue, near Longfellow Elementary; South Fifteenth Street near MHS and Starry Elementary; and Fifth Avenue by VMS. These locations are shown in Figure 22 below. All locations have a posted speed limit of 25 miles per hour (mph). When studies were conducted, the conditions were good with no active precipitation or snow on the ground.

Data was collected using a radar gun 200 feet from the roadway, in concealed locations, so as not to affect the speed of the motor vehicle travel by the observed presence of the radar collection process. Only "free-flowing vehicles", those considered to be traveling alone or at the lead of a grouping, were counted in the speed studies. Additionally, this speed study required a sample size of at least 50 observations (radar readings), with 100 observations preferred, and

Figure 22. Locations of Speed Studies



Existing Conditions - Travel Characteristics Continued

counted cars going in both directions. Data collection was discontinued after approximately 100 observations or one hours time, whichever came first.

Speed limits are generally set to the 85th percentile speed traveled through the subject area. A speed limit set higher than the mean average, or 50th percentile speed, is desired to ensure that a significant number of motorists are not violating the law, encouraging drivers to obey the posted speed limit, and travel at a reasonable speed. Speed limits set at the 85th percentile help target limited enforcement resources at the occasional violator, who disproportionately contributes to crash risk.

On Eighth Avenue, the average speed of the 107 observed vehicles at this location was 28.7 mph, with 21 mph being the lowest recorded speed and 35 mph being the highest recorded speed. The 85th percentile speed on Eighth Avenue was 32 mph. See Table 5.

The speed study at Tenth Avenue was very similar to the one on Eighth Avenue. The Tenth Avenue speed study observed 100 vehicles and had an average speed of 29.4 mph. 22 mph was the lowest recorded speed and 36 mph was the highest recorded speed. The 85th percentile speed on Tenth Avenue was 33 mph. See Table 5.

On Fifth Avenue, the average speed of 100 vehicles was 24.1 mph, 0.9 mph under the posted speed limit of 25 mph, and the only speed study to have the average speed be under the posted speed limit. The lowest recorded speed on Fifth Avenue was 16 mph and the highest recorded speed was 29 mph. The 85th percentile speed on Fifth Avenue was 31 mph. The speed study at Fifth Avenue had the lowest average speed and 85th percentile speed of the four speed studies. See Table 5.

The average speed at the South Fifteenth Street location was 29.7 mph, with the lowest recorded speed observed at 22mph. The highest recorded speed on South Fifteenth Street was 51 mph, double the posted speed limit of 25 mph. The 85th percentile speed at this location was 33 mph. See Table 5.

33 mph in a school zone is dangerous for children. This was the observed 85th percentile tile on Tenth Ave.
Photo credit: Corridor MPO, 2017.

Speed Studies in MISD Boundary					
Location	Lowest Speed Recorded	Highest Speed Recorded	Number of Vehicles Observed	Average Speed	85th Percentile Speed
8th Avenue	21 mph	35 mph	107	28.7 mph	32 mph
10th Avenue	22 mph	36 mph	100	29.4 mph	33 mph
S. 15th Street	22 mph	51 mph	100	29.7 mph	33 mph
5th Avenue	16 mph	31 mph	100	24.1 mph	27 mph

Table 5. Results of Speed Studies Conducted in MISD Boundary

Existing Conditions - Travel Characteristics Continued

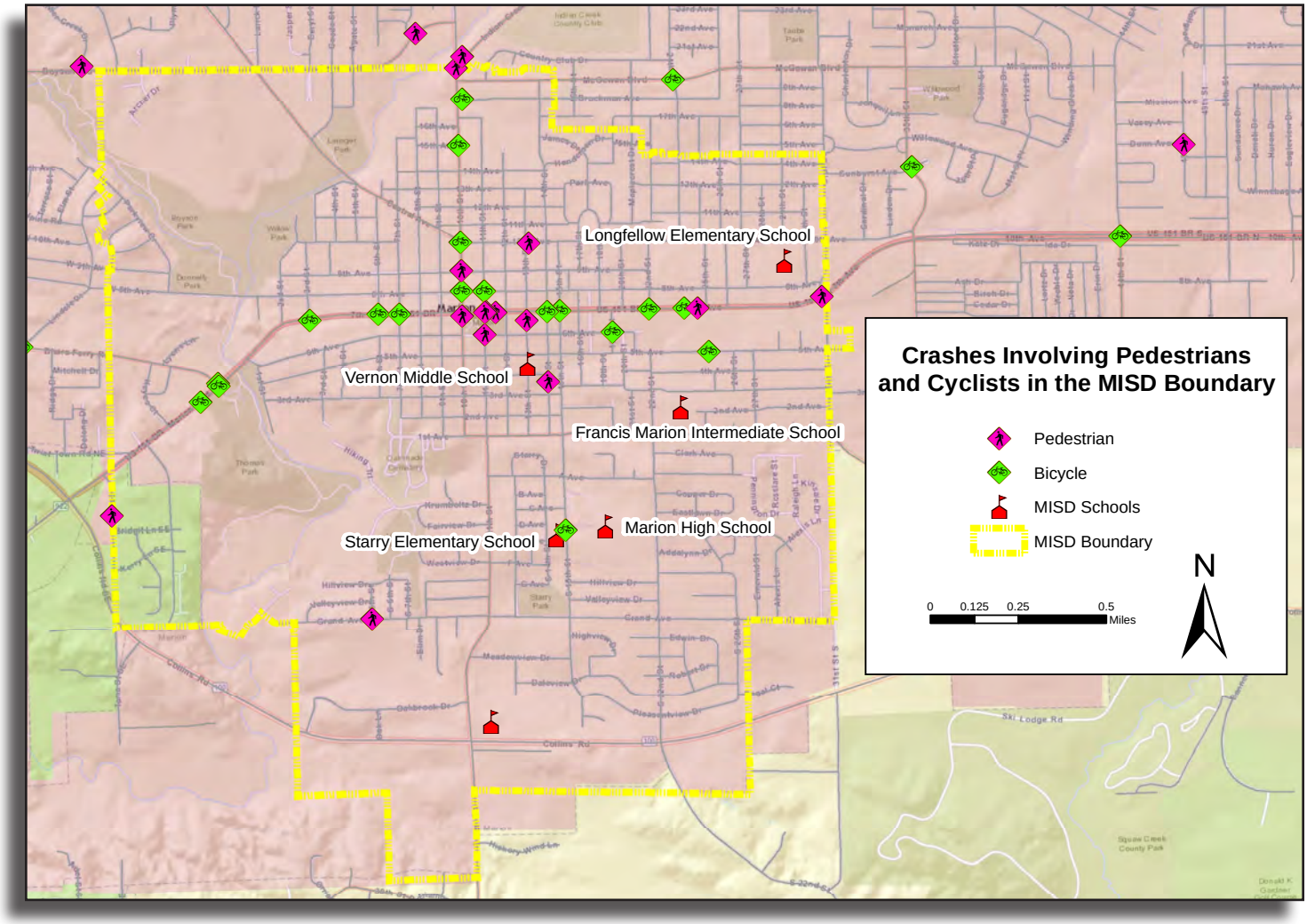
Crashes within MISD Boundary

Crashes reported to the Marion Police Department between motor vehicles and pedestrians or cyclists from 2012 to 2016 are depicted in Figure 23.

Overall, most crashes between motorists and pedestrians or cyclists tend to be clustered in the Uptown Commercial District in Central Marion, near Marion Square Park.

In the five year range, a total of 52 crashes, between a vehicle and pedestrian or cyclist, were reported to the Marion Police Department. Of the 52 crashes, 23 occurred between a motor vehicle and a pedestrian and twelve of those occurred within the MISD boundary. Most of these crashes resulted in possible/unknown or minor injury. Two of the crashes resulted in major

Figure 23. Map of Crashes Involving a Motor Vehicle and a Pedestrian or Cyclist



Existing Conditions - Travel Characteristics Continued

injury or death and one resulted in property damage only. All the pedestrian crashes within MISD boundary occurred where sidewalk infrastructure is in place (see Figure 56, on page 81 depicting existing sidewalks and sidewalk gaps). The two pedestrian crashes which resulted in a major injury or death were located at the intersection of Ninth Avenue and Tenth Street and on Seventh Avenue just west of Twenty-fifth Street.

Of the 52 total crashes reported to the Marion Police Department, 29 of them occurred between a motor vehicle and a cyclist. Eighteen of these crashes were located within the MISD boundary. A majority of these crashes were located along Seventh Avenue, which currently does not have any on-street bicycle facilities. Most of these crashes resulted in possible/unknown or minor injury. One crash between a cyclist and motor vehicle resulted in property damage only and one other crash resulted in a major injury or death. The cyclist crash which resulted in a major injury or death was on Brockman Avenue, near Tenth Street, in the far northern area of the MISD boundary.

Most students in the district arrive to school in a car, whether driven by a parent, friend, or themselves. Photo credit: Corridor MPO, 2016

Existing Conditions - MISD Student Body

Table 6. MISD Regular School Hours

Regular School Hours		
School	Start Time	Dismissal Time
FMI	8:30 AM	3:15 PM
MHS	8:05 AM	3:00 PM
Starry	8:40 AM	3:25 PM
VMS	7:55 AM	3:00 PM

Figure 24. Count Locations at FMI

Figure 25. Count Locations at MHS

Observed Student Behaviors

To better understand the current levels at which students are arriving and leaving school by walking or cycling, students were observed and tallied in May 2016 at FMI, MHS, Starry, and VMS. Emerson Elementary was omitted from this observation because of its closure after the 2017 school year. Counts were taken at each of the four schools with 30 minutes alloted for each observation period in both the morning and afternoon.

The locations for the counts at FMI were taken on the north and south sides of the school. On the north side, the observer stood on Third Avenue between two houses. On the south side, the observer stood on the far east side of the parking lot, near where parents drop their children off before school and the track. This location allowed the observer to note how many students passed between the two houses on First Avenue.

Few students arrived to FMI on foot or by bicycle, as most students were dropped off by parents, day care vans, or school buses; only one student rode their bike to FMI and only three students walked to school. Dismissal at FMI is vastly different: 28 students on the north side of the school walked home, whereas 40 students walked home on the south side, many walking between the two houses to get to the sidewalks on First Avenue. Just like in the morning at FMI, few students rode their bicycles home.

The counts for MHS were taken at the north and south ends of South Fifteenth Street and on the east side of the school near the practice fields. The two areas on South Fifteenth Street were selected because that road is the primary route to MHS. Counts were taken on the east side near the practice fields because MISD administrators had notified MPO staff that many students cut across the grass to get to South Twenty-second Street.

Students at MHS were more likely to walk or bicycle home rather than arrive to school that way. Only one student was observed walking across the practice fields to get to school. Most student that walked or cycled to school got to MHS along South Fifteenth Street. Most of the students approached the school from the south end of the street (12 students) as opposed to the north end of the street (9 students). Only one student rode their bike to MHS and they arrived coming from the south end of South Fifteenth Street. In the afternoon, there were more students walking and bicycling home than there were in the morning. The east practice fields had two pedestrians, the north end of South Fifteenth Street had 26 walkers and zero cyclists, and the south end of the street had 15 pedestrians and two cyclists.

Existing Conditions - MISD Student Body Continued

Table 7. Pedestrian and Cyclist Counts at FMI, MHS, Starry, and VMS

Francis Marion Intermediate School

Date counts were observed: Wednesday, May 4th & Thursday, May 5th, 2016

Time of Day Counts Were Taken	Weather and Temperature	Location Where Counts Were Taken	Total Ped Count	Ped Count Female	Ped Count Male	Total Bike Counts	Bike Count Female	Bike Count Male	Other Count
Morning 8:15 am to 8:45 am	Sunny 46 (°F)	3rd Ave (north side of school)	3	3	0	1	0	1	0
		Behind school by track field	0	0	0	0	0	0	0
Afternoon 3:10 pm to 3:45 pm	Sunny & windy 64 (°F)	3rd Ave (north side of school)	28	11	17	2	0	2	0
		Behind school by track field	40	25	15	0	0	0	0

Marion High School

Date counts were observed: Tuesday, May 3rd, 2016

Time of Day Counts Were Taken	Weather and Temperature	Location Where Counts Were Taken	Total Ped Count	Ped Count Female	Ped Count Male	Total Bike Counts	Bike Count Female	Bike Count Male	Other Count
Morning 7:10 am to 8:10 am	Sunny 47 (°F)	East practice fields	1	1	0	0	0	0	0
		North end of S. 15th St	9	4	5	0	0	0	2*
		South end of S. 15th St	12	6	6	1	1	0	0
Afternoon 2:45 pm to 3:10 pm	Partly cloudy 66 (°F)	East practice fields	2	2	0	0	0	0	0
		North end of S. 15th St	26	11	15	0	0	0	1**
		South end of S. 15th St	15	6	9	2	1	1	0

* Other counts were 1 skateboard and 1 moped; ** Other counts were 1 skateboard

Starry Elementary School

Date counts were observed: Tuesday, May 3rd, 2016

Time of Day Counts Were Taken	Weather and Temperature	Location Where Counts Were Taken	Total Ped Count	Ped Count Female	Ped Count Male	Total Bike Counts	Bike Count Female	Bike Count Male	Other Count
Morning 8:25 am to 8:55 am	Sunny 49 (°F)	S. 14th St (west side of school)	6	3	3	1	1	0	0
		North end of S. 15th St	1	1	0	0	0	0	0
		South end of S. 15th St	2	2	0	0	0	0	0
Afternoon 3:15 pm to 3:45 pm	Partly cloudy 66 (°F)	S. 14th St (west side of school)	6	2	4	1	1	0	0
		North end of S. 15th St	10	6	4	0	0	0	0
		South end of S. 15th St	10	7	3	0	0	0	1*

* Other counts were 1 skateboard

Vernon Middle School

Date counts were observed: Wednesday, May 18th, 2016

Time of Day Counts Were Taken	Weather and Temperature	Location Where Counts Were Taken	Total Ped Count	Ped Count Female	Ped Count Male	Total Bike Counts	Bike Count Female	Bike Count Male	Other Count
Morning 7:40 am to 8:10 am	Sunny 45 (°F)	Intersection at 5th Ave & N 13th St	17	9	8	5	2	3	0
		4th Ave (south side of school)	9	3	6	2	0	2	0
Afternoon 2:40 pm to 3:10 pm	Sunny 68 (°F)	Intersection at 5th Ave & N 13th St	88	41	47	11	1	10	2*
		4th Ave (south side of school)	129	61	68	9	3	6	0

* Other counts were 2 skateboards

Existing Conditions - MISD Student Body Continued

Figure 26. Count Locations at Starry

Figure 27. Count Locations at VMS

The counts taken at Starry Elementary were taken on the east side of the school, on South Fifteenth Street, and the west side of the school at the front entrance on South Fourteenth Street. There were two locations where counts were taken South Fifteenth Street. The location for counts on the north side of South Fifteenth Street were taken at the intersection of C Avenue. The location for counts on the south side of South Fifteenth Street were taken across from the south parking lot at MHS and near the southern portion of the Starry Elementary property.

The same number of students (6) at Starry Elementary walked to and from school in the morning and afternoon on South Fourteenth Street. Only one student rode her bicycle to and from school, using the South Fourteenth Street entrance at Starry. Only three students arrived to school on foot from South Fifteenth Street in the morning, whereas 20 students left Starry in the afternoon from the South Fifteenth Street doors on the east side of the school. Only one student was observed using a skateboard leaving school.

There were two locations where counts were taken at VMS. On the north side of the school, counts were taken at the intersection of Third Avenue and Thirteenth Street. On the south side of VMS, counts were taken at the intersection of Fourth Avenue and Thirteenth Street, near the entrance to the school.

Overall, most students at VMS walked or cycled from school rather than arriving to school by foot or bicycle. Twenty-six students walked to VMS in the morning, with 17 arriving to school on the north side and nine on the south side. Seven students bicycled to VMS in the morning: five arrived to the north entrance and two to the south entrance. In the afternoon, 217 students left school on foot; 88 left school via the north entrance and 129 left school via the south entrance on Fourth Avenue. Twenty students in the afternoon bicycled home, with 11 students leaving school from the north entrance and nine students leaving from the south entrance.

A summation of all counts can be found in Table 7 on the previous page.

Existing Conditions - MISD Student Body Continued

MISD Student Enrollment Information

Enrollment for the 2015-2016 school year at the MISD was 2,147 students. VMS had more students than any other school in the district, at 661. MHS was a close second, with 637 students enrolled. Starry Elementary had 378 students, FMI had 301, and Emerson Elementary had 170 students. Longfellow Elementary has not been included because the school will first be open for the 2017-2018 school year. However, all sections of this plan focus on Longfellow rather than Emerson. It is assumed enrollment will be simlar between the two schools.

MISD has many students open enroll into the district. Approximately 20 percent of all students in the district, 422 total, are open enrolled. Each individual MISD school has between 15 to 26 percent of students open enrolling. MHS has the highest number of open enrolled students in the district, with 26 percent of students living outside of the MISD boundary but attending MHS. Emerson Elementary had the second highest percentage of student open enrolling, at 22 percent. Starry Elementary, FMI, and VMS had 16 percent, 19 percent, and 15 percent of students open enrolling into these schools, respectively.

The MISD currently provides free or reduced price lunch to students, as part of the National School Lunch Program. Students are eligible for free meals if they are in a household that receives benefits from the Family Investment Program (FIP), are foster children under legal responsibility of foster care agency or court, participate in their school's Head Start program, or meet the definition of homeless, runaway, or migrant. Students are eligible for reduced price lunches if their household's income is between 130 percent and 185 percent of the poverty level. For a family of four, to be eligible for free or reduced lunch, their household income would have to be at or below $44,955 annually for the 2016-2017 school year.

Open enrollment creates a greater distance in which students travel to get to school.
Photo credit: Corridor MPO, 2008

Table 8. 2015-2106 School Year Enrollment Information for MISD

2015-2016 School Year Student Enrollment Information for Marion Independent School District									
	Total School/District Enrollment	Open Enroll		Reduced Lunch		Minority Population		Special Needs	
		Total Students	*Percentage*	*Total Students*	*Percentage*	*Total Students*	*Percentage*	*Total Students*	*Percentage*
Emerson Elementary School	170	38	22%	9	5%	24	14%	28	16%
Starry Elementary School	378	61	16%	68	18%	51	13%	28	7%
Francis Marion Intermediate	301	57	19%	33	11%	48	16%	37	12%
Vernon Middle School	661	102	15%	33	5%	74	11%	68	10%
Marion High School	637	164	26%	25	4%	58	9%	65	10%
Marion Independent School District	**2147**	**422**	**20%**	**168**	**8%**	**255**	**12%**	**226**	**11%**

Existing Conditions - MISD Student Body Continued

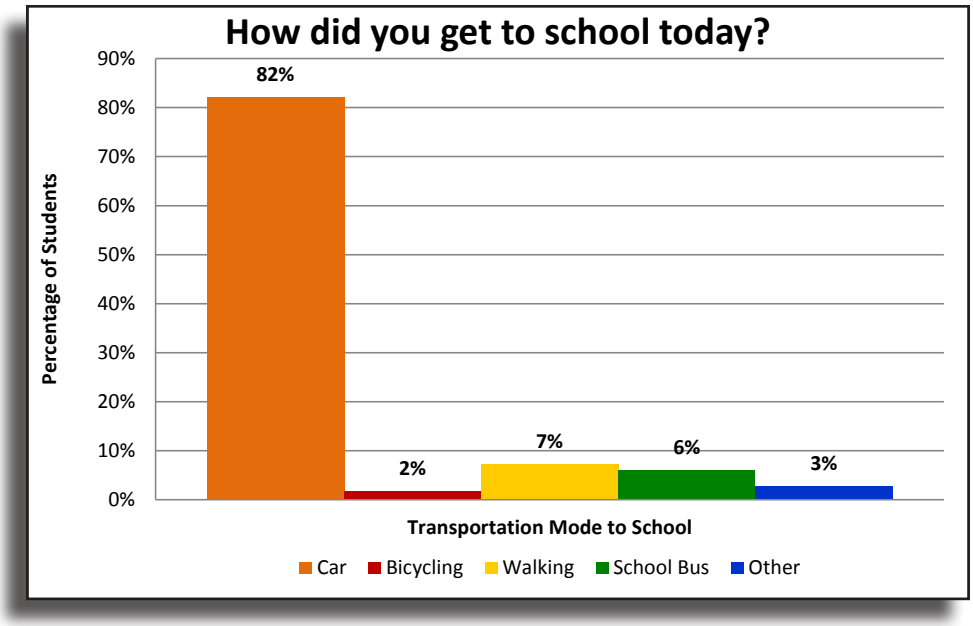
MISD has a small but significant minority population near VMS, FMI, and Starry Elementary.
Photo credit: Corridor MPO, 2016

Currently, 8 percent of the district, 168 students, receive reduced lunches. The percentage of students at each school which received reduced lunches ranges between 4 to 18 percent. Starry Elementary currently has the highest percentage of students receiving reduced lunches, at 18 percent or 68 students. FMI has the second highest percentage of students received reduced lunch, at 11 percent or 33 students. Emerson Elementary and VMS both have 5 percent of students receiving reduced lunch. MHS has 4 percent of students receiving reduced lunches. No information was provided regarding the number of students receiving free lunches or the number of students who are eligible for free or reduced lunch.

As is the case in many districts across the state of Iowa, MISD is predominately White. Twelve percent of students in the district identify as a minority race, or 255 students. The percentage of minority students at each MISD school ranges from 9 to 16 percent. FMI has the largest percentage of minority students, at 16 percent or 48 students. Starry Elementary has the second highest percentage of minority students, at 13 percent or 51 students. Emerson Elementary, VMS, and MHS had 14 percent, 11 percent, and 9 percent of students at those schools identifying as a minority race, respectively.

Special needs students make up about 11 percent of the total population in the MISD. Between 7 to 16 percent of students in each school in the district have special needs. Emerson Elementary had the highest percentage of special needs students, at 16 percent. FMI had the second highest percentage of special needs students, at 12 percent. Both MHS and VMS have 10 percent and Starry Elementary has 7 percent of students with special needs.

Figure 28. MISD Fifth to Twelfth Grader Self Reported Mode Choice



Existing Conditions - Student and Parent, Active Transportation Surveys

Student Surveys: Fifth to Twelfth Grade

Surveys were provided to individual students in the MISD in May 2016. The surveys were issued to students in the spring of 2016. There were 870 students between fifth grade to twelfth grade who completed surveys. Completed surveys by students and a summary of questions and all responses received by MISD students are available online at CorridorMPO.com

The first question posed to students was how they got to school that day, where 82 percent arrived to school in a car, either driven by themselves or with someone else. Seven percent walked to school, 2 percent rode their bicycle, and 6 percent rode a bus to school. Three percent selected "other" because they utilized two modes of transportation, with car and walking being the most common answer. However, some students noted they took mopeds or skateboards to school.

Students were also asked how many days in a typical week they walked or rode their bicycle to school. Most students typically do not walk or bicycle to school. However, more students reported walking than bicycling one or more days a week: 796 students said they did not bicycle to school during a typical week, whereas 545 students said they do not walk to school during a typical week. Few students ride their bikes to school one, two, three, four, or five days a week, whereas a handful of students ride their bikes to school one or more days a week. Importantly, 15 percent of students typically walk to school five days a week.

MISD does provided a bus service to its students throughout the school year. However, it is not a popular method of transportation with students.
Photo credit: Corridor MPO, 2017

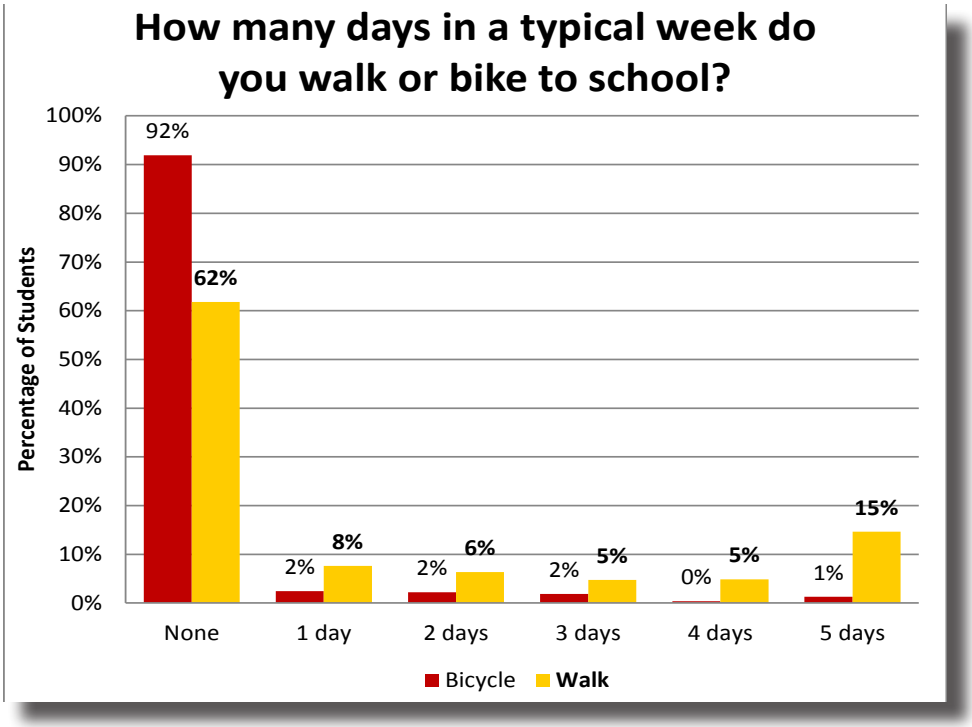


Figure 29. MISD Fifth to Twelfth Grader Self Reported Typical Active Transportation Frequency

Existing Conditions - Student and Parent, Active Transportation Surveys Continued

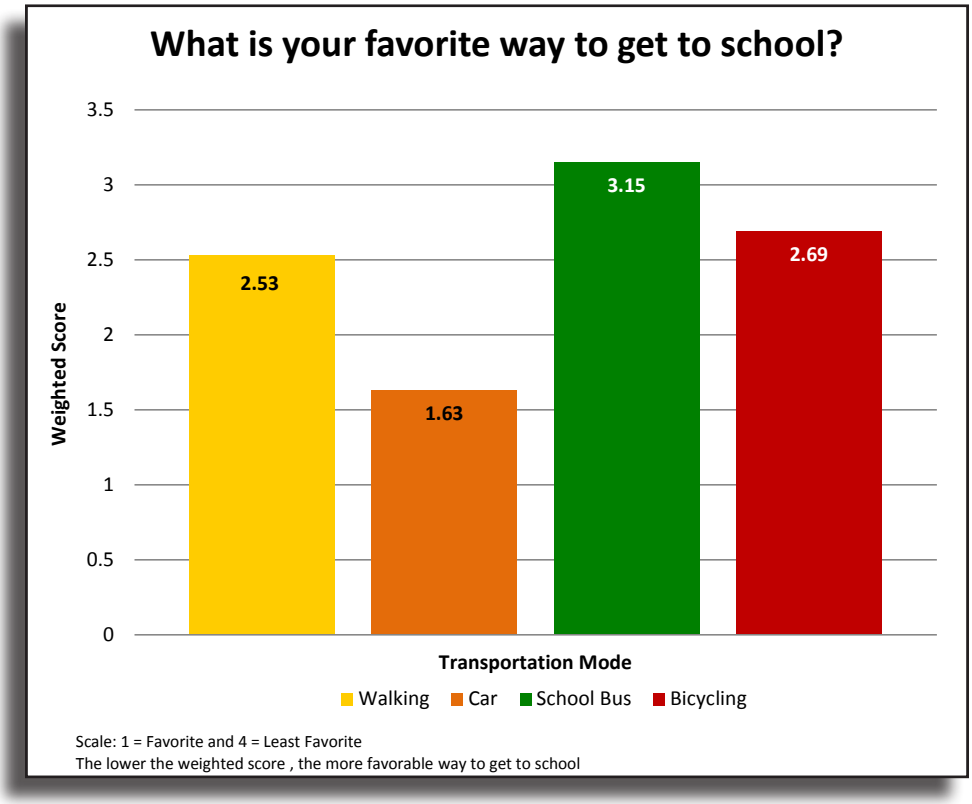
Figure 30. Reasons Students Did Not Walk or Bike to School Word Cloud

Students were also asked to rank their favorite way to get to school. The weighted average for students' favorite transportation mode is shown below in Figure 31. Students were asked to rate their favorite ways to get to school, with "1" being their favorite and "4" being their least favorite; therefore, the lower the weighted average the more favorable the transportation mode. Not surprisingly, cars were rated as the most favorable way to get to school, with a weighted average score of 1.63. Bicycling and walking were the second and third favorite ways to get to school, with their weighted averages 2.53 and 2.69, respectively. Riding the school bus was the least favorable way to get to school, with a weighted average of 3.15.

Most students (68 percent) listed getting to school in a car as their favorite way to get to school, 14 percent listed walking, 11 percent said bus, and 9 percent said bicycling was their favorite way to get to school.

A quarter of a mile has often been used as the generally-accepted standard that people are willing to walk from their origin to reach their destination. About two thirds of students surveyed live about a mile or less from school. 13 percent of students surveyed reported living less than a quarter mile from school and 16 percent of students surveyed live about a half mile from school. A majority of students, 32 percent, reported living about one mile away from school. Quite a few students, 23 percent, reported living more than two miles away from school. This data point should be questioned, as the most students

Figure 31. Students' Preferred School Travel Choice



Existing Conditions - Student and Parent, Active Transportation Surveys Continued

should live within two miles of their school because the MISD boundary is relatively small. However, many students open-enroll into the district from other parts of Marion and other cities including Cedar Rapids, Springville, Anamosa, and other nearby municipalities.

From question one, students were asked why they chose not to ride or bike that day. Students gave varying answers, as shown in Figure 30 (previous page): the larger the word, the more frequent the response.

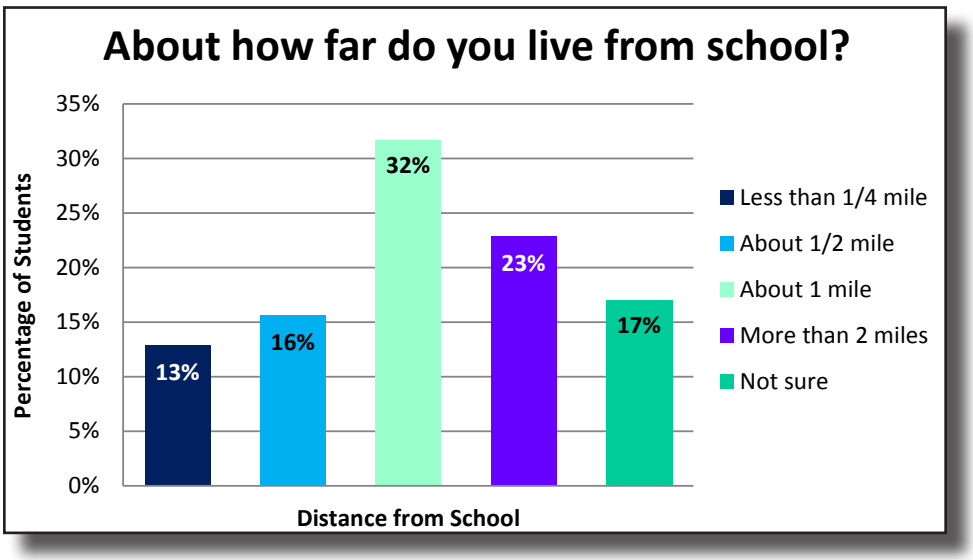
Students gave varying answers as to why they did not ride their bicycle or walk to school that day, but the most common answers were exactly or similar to the following:

- "I have a car"
- "I'm lazy"
- "Takes too long"
- "I got a ride from mom/dad/sibling/relative/grandparent/friend" or "dropped off by _"
- "Mom/dad/parent doesn't want me walking/bicycling to school" or "_ doesn't want me walking/bicycling without friends"
- "I live too far"

Students were also asked about their concerns walking or cycling to school. The word cloud shown in Figure 32, aggregates student responses. Most students did not have concerns with walking or bicycling to school, as shown in the word cloud: "no", "[not] really", "none", "nah", and "nope" were all common responses. While a majority of students had no or limited concerns, some students did have concerns. The primary concerns with walking or cycling to school were regarding safety. Students were concerned about their personal safety and being kidnapped, leered at, or mugged by

Figure 32. Student Concerns Regarding Walking or Biking to School Word Cloud

Figure 33. MISD Fifth to Twelfth Grader Self Reported Distance from School to home



Existing Conditions - Student and Parent, Active Transportation Surveys Continued

"creepy" people or neighbors. Students were also concerned with crossing busy highways and traffic. Students also had concerns not regarding their personal safety, like being late to school and the amount of things they had to carry being too much to walk or ride their bike with.

A question was posed to students to better understand what would encourage them to walk or bicycle to school, shown in Figure 34. Students were not limited to selecting only one answer; they could choose as many answers as they wanted.

Most students said that walking or cycling to school with friends would encourage them to utilize active transportation to school. Students also said more sidewalks and slower traffic was needed.

In the other category, the second most popular answer choice, the most common student answers were exactly or similar to the following:

- "Nothing"
- "I don't know"
- "Not having a car"
- "Live closer to school"
- "School start later"
- "Bike lanes"
- "If my parents let me"
- "Weather"

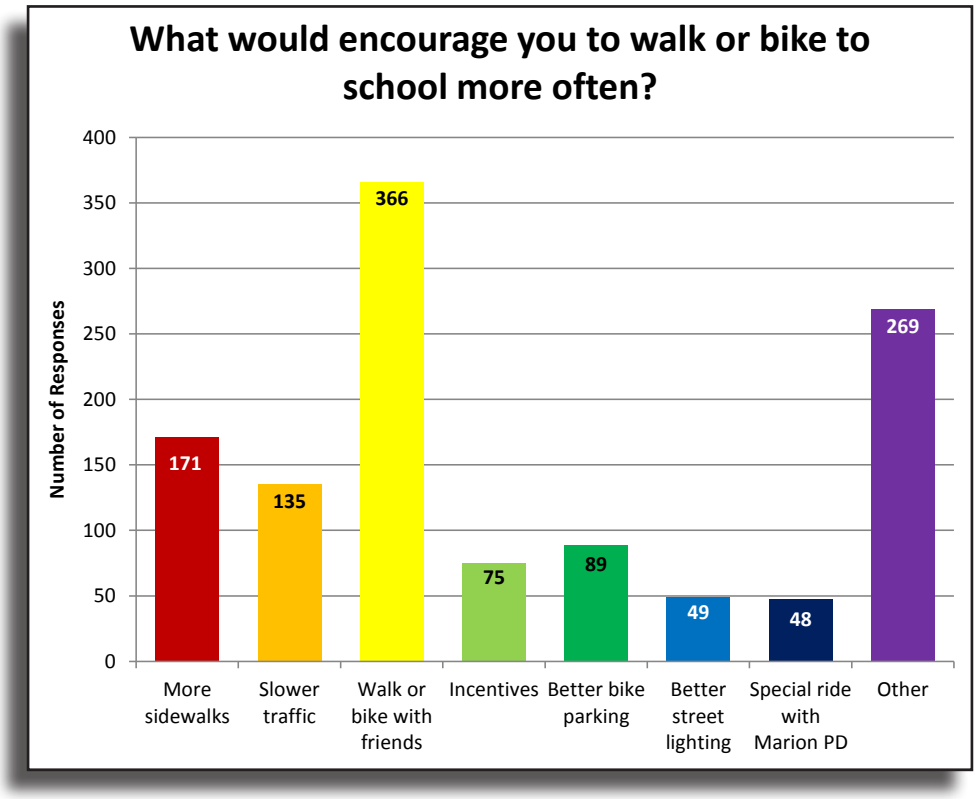


Figure 34. Student Responses on What Would Encourage Them to Walk or Bicycle to School

Existing Conditions - Student and Parent, Active Transportation Surveys Continued

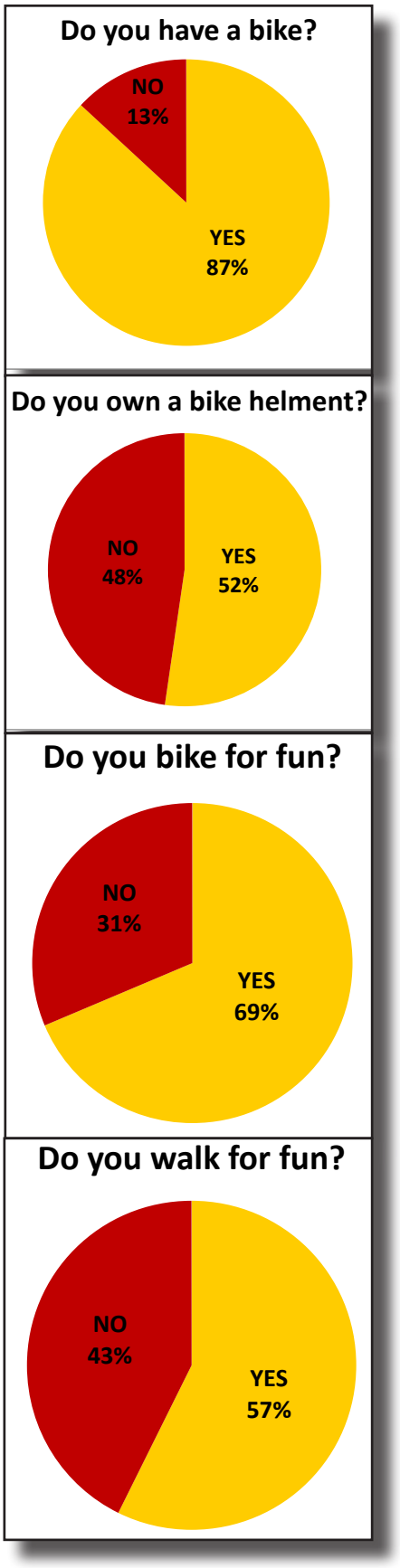
Students were asked whether they had bicycles, to gain a better understanding of why they may not choose to ride their bicycle to school. Do most students have bicycles and choose not to ride them to school, or do most students not even have a bicycle to ride? A vast majority of students, 87 percent of the 864 students who responded to the question, own a bicycle. A follow up question was asked about whether students had a bike helmet. Unfortunately, only about half of the respondents said they owned a bicycle helmet: 452 respondents own a bicycle (52 percent) and 412 do not own a bicycle (48 percent).

Students were asked whether they walk or bike for fun to try and gauge their current feelings toward active transportation. Most students said they walk or bike for fun: 69 percent of students said they bike for fun and 57 percent said they walk for fun. The outcome of these questions shows that students are already willing to walk or bicycle for enjoyment, and they may be more apt to consider the idea of utilizing active transportation to and from school. All of these results are illustrated in Figures 35 to 38.

The last couple questions asked demographic information about students. Most students that responded to the survey, 52 percent, were males and 48 percent were females.

The decision was made to only provide individual surveys to older students, as they can work independently more easily than younger students can. Only students in fifth grade or higher answered surveys individually, therefore the only two schools represented in these surveys are MHS and VMS. There was a pretty even split between the two schools, as 48 percent of respondents were from MHS and 52 percent were from VMS.

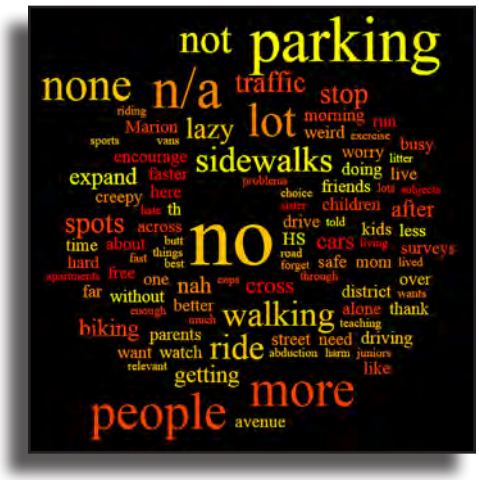
Students were asked what grades they were in. The top three grades represented in the survey were all middle school. The highest number of respondents was fifth grade, at 158 students representing 18 percent of the respondents. Sixth grade had the second highest representation in the survey at 133 students, or 15 percent (15.43 percent). Eighth grade had just barely the third highest grade representation at 128 students, or 15 percent (14.85 percent). Seventh grade was the least represented grade in the survey, with only 30 students or 4 percent. See Figure 40 on the next page.



Figures 35-38. Questions Regarding Walking and Bike Ownership and Recreational Interest

Existing Conditions - Student and Parent, Active Transportation Surveys Continued

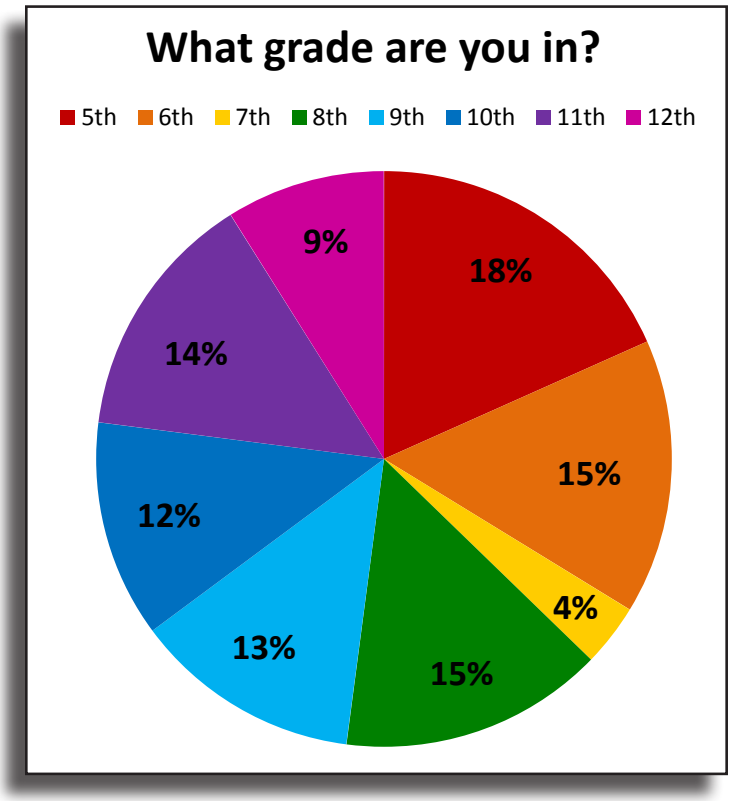
Figure 39. Concerns Students Did Not Walk or Bike to School Word Cloud



High school representation was relatively equal across all grades at MHS. Eleventh grade rounds out the top half of grades represented, being the fourth most represented in the survey at 14 percent or 121 students. 110 students were in the ninth grade, about 13 percent of respondents (12.76 percent). Tenth grade students made up 12 percent of respondents, with 105 students marking their grade as tenth. Twelfth graders were the second lowest grade represented in the survey at 9 percent, or 77 students.

The final question in the survey for students was open-ended, and asked whether they had any general concerns or comments. Majority of students answered "no" or some variation of it ("nope", "[not] really", "none", "nah", "n/a"). These "no" words and responses showed up more than other words in this last question, as shown in the word cloud below. Students also lamented about parking at the high school and how they need more or better parking. Additionally, students mentioned the lack of sidewalks or crosswalks. Unfortunately, a couple students seemed to have dealt with uncomfortable situations while going to or leaving school. A couple students mentioned "creepy people" coming by VMS after school. Parents' concerns of their children's safety and worrying about them walking or biking to school was another comment made pretty frequently in this final question.

Figure 40. Survey Respondent Percentages by Grade Level



Existing Conditions - Student and Parent, Active Transportation Surveys Continued

Classroom Surveys: Kindergarten to Fourth Grade

Students younger than fifth grade participated in a classroom survey rather than an individual survey; because students in grades below fifth grade would likely have a harder time focusing and completing a survey. Additionally, the youngest students may not be able to read or write yet.

Every teacher at Emerson Elementary, Starry Elementary, and FMI were given a "tally sheet" where they filled out general information (date, time, day of week, temperature, teacher's name, grade, number of students enrolled in class, and school) and filled out information about how students arrived to school that day. An example of a student tally sheet is available in Appendix E.

A total of 687 students in grades junior kindergarten to fourth grade participated in classroom surveys. FMI reported their results differently than the elementary schools by combining all of their classroom responses into one tally sheet instead of individual tally sheets for each classroom. Summarized results are available in Table 9 below.

Table 9. In Classroom Survey Responses K-4 Students

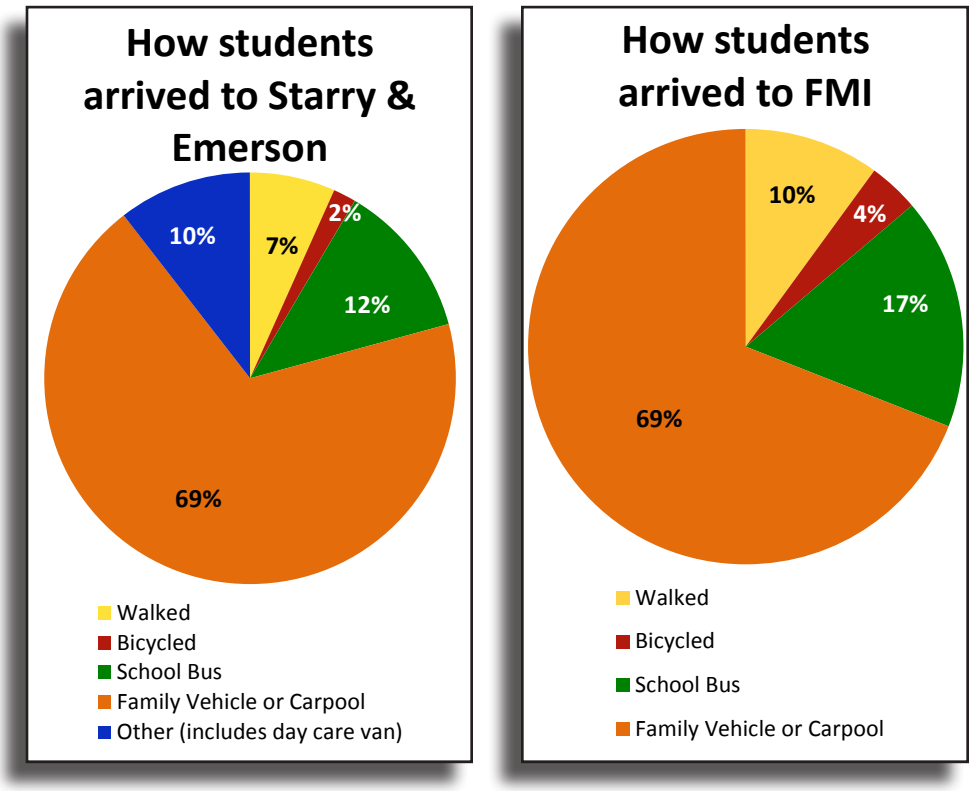
	Classroom			How students got to school				
Grade	*Student Responses*	*Students Enrolled*	*Average Response Rate*	*Walked*	*Bicycled*	*School Bus*	*Family Vehicle or Carpool*	*Other (includes day care van)*
Jr K	15	15	100%	1	0	4	10	0
K	139	151	92%	10	0	15	90	24
1st	160	173	93%	10	3	18	123	6
2nd	134	139	97%	9	5	18	85	17
3rd & 4th	239	301	79%	24	9	41	165	0

Existing Conditions - Student and Parent, Active Transportation Surveys Continued

Only five of the 21 elementary school classrooms surveyed had a 100 percent response rate. The elementary schools had a 94 percent response rate with only 30 of the 478 students enrolled at the MISD elementary schools not participating in their classroom's survey. 64 percent of students, 308 total, at the elementary schools arrived to school in an automobile, either dropped of by their parents or as a part of a carpool. Twelve percent of students, 55 total, arrived by school bus. Ten percent of students, 47 total, came to school by "another" way, mostly by day care vans. Two percent bicycled to school and 6 percent walked to school.

A total of 239 students at FMI took part in their classroom's survey, a response rate of 79 percent. The way students arrived at FMI is very similar to the way elementary students arrived at school. Most students at FMI arrived to school by having their parents or a carpool drop them off: 55 percent, or 165 students total. The second highest mode utilized by students to get to school was riding the school bus, which accounted for 14 percent of students surveyed at FMI that day. 8 percent of students at FMI walked and 3 percent rode their bicycles. Zero percent of students at FMI got to school "another" way; this could be due to the fact that these students are older and may no longer go to day care, or teachers did not separate out the "other" ways in which students could get to school (including day care van, scooter, or skateboard).

Figure 41. Mode Choice by K-4 MISD Students



Existing Conditions - Student and Parent, Active Transportation Surveys Continued

Parent Surveys

Parents of students at VMS and MHS were provided with an opportunity in April 2016 to take a survey regarding their children walking and bicycling to and from school. A total of 143 parents responded to the survey. Many of the same questions asked of students were asked of parents. The results of the parent survey are available online at CorridorMPO.com.

Parents were first asked how their children arrived to school that day, with an overwhelming majority (76 percent) saying their kids got to school in a car. 14 percent of parents said their children arrived to school on a bus, 6 percent said "other", and only two percent of parents said their children walked or biked to school that day. See Figure 42.

When asked about how many days in a typical week their children walked or biked to school, 75 percent of parents said their child does not regularly walk, and 93 percent of parents said their child does not regularly bike to school. More parents said that their children walk to school during a typical week than bicycling. Six percent of parents said their children walk at least one day or five days a week, and 4 percent said their children walk two, three, or four days a week. Three percent of parents stated their children bicycle to school 5 days a week, yet only 1 percent of parents responded that their children walk one, two, or three days per week, with 0 percent of parents saying their children bicycled four days per week. See Figure 43 on the next page.

Parents were asked to rank their favorite way in which their child gets to school, similar to what fifth to twelfth students did for their individual

Parents are more inclined to let their children walk to school if they have a buddy system.
Photo credit: Alpena, Michigan pedbikeimages.org
Dan Burden, 2006

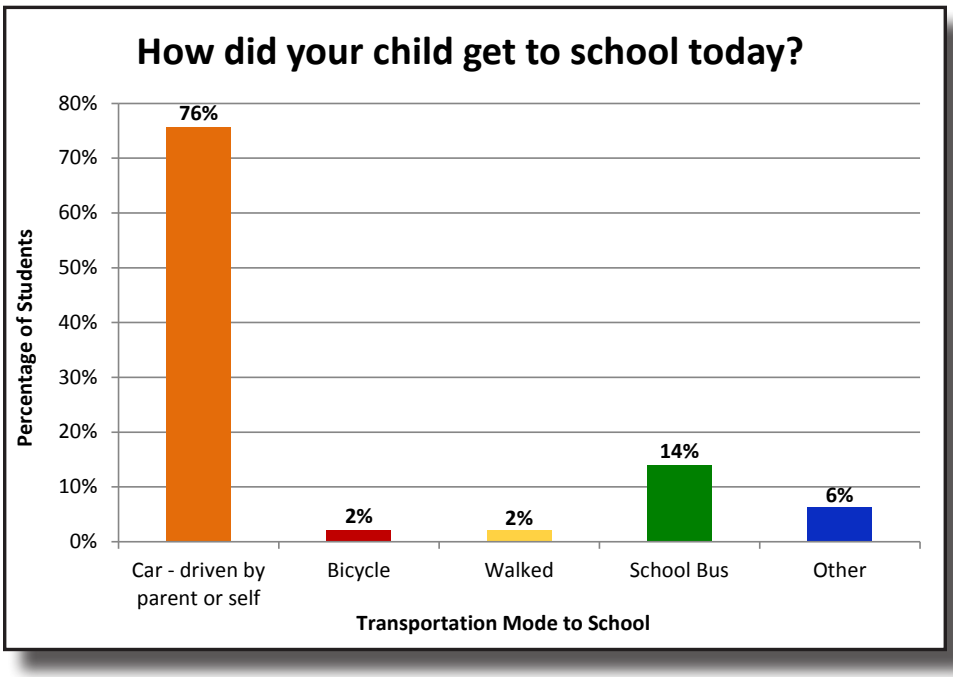


Figure 42. Mode Choice as Reported by Parents Participating in Survey

Existing Conditions - Student and Parent, Active Transportation Surveys Continued

surveys: the lower the weighted score, the more favorable parents view that mode of transportation as a way for their children to get to school. Like students, parents ranked "car" as their most preferred way to get their children to school. Walking was second, with bicycling and school bus being the third and fourth preferred transportation modes, respectively. See Figure 44.

Figure 43. Typical Modal Frequency as Reported by Parents

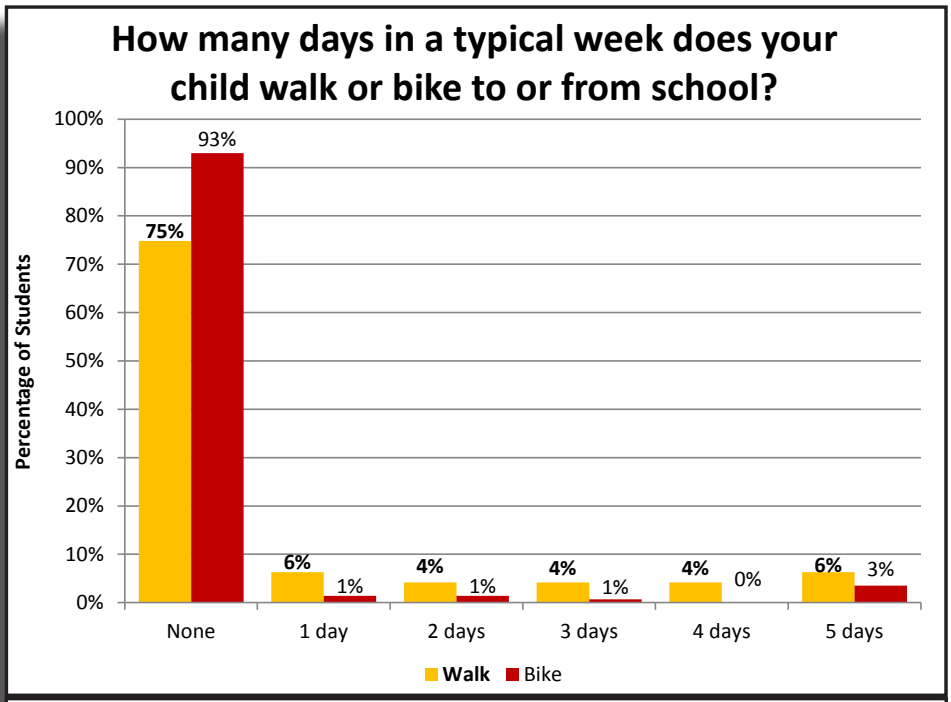
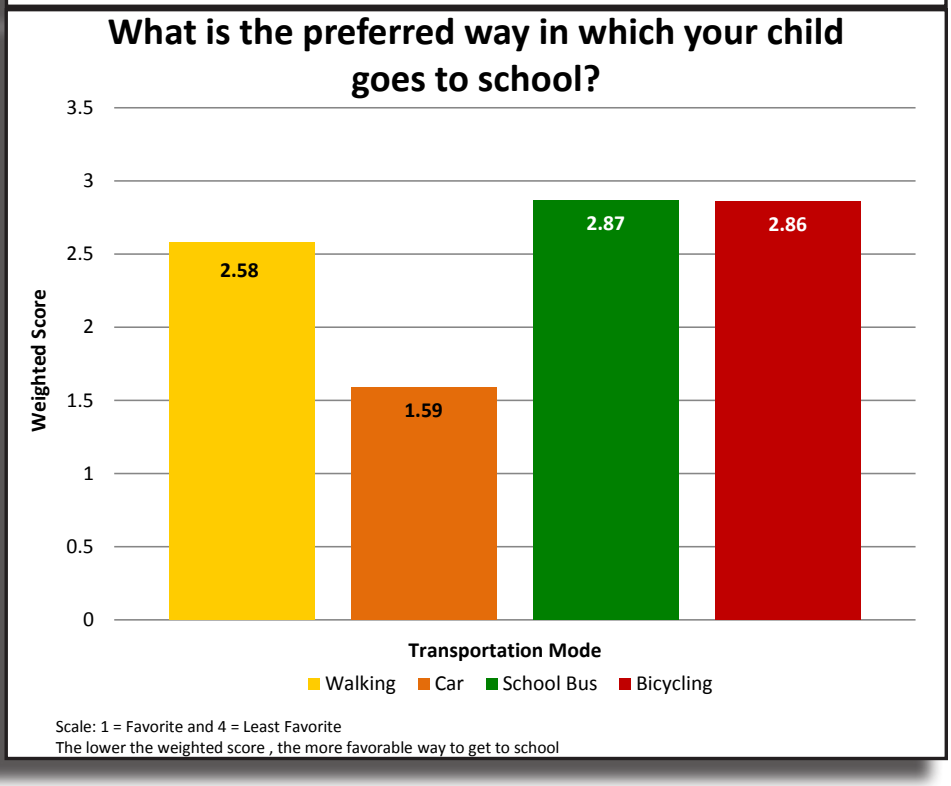


Figure 44. Parents' Preferred Mode Choice for Their Students



Existing Conditions - Student and Parent, Active Transportation Surveys Continued

Most students (45 percent) whose parents completed the parent survey live about one mile from school. 24 percent of parents said they lived more than two miles from school, 22 percent said about a half mile from school, and 6 percent said they live less than one-fourth mile from school. Three percent of parents were unsure how far their children lived from their school. See Figure 45.

When asked what would encourage parents to allow their children to walk or bicycle to school more often (See Figure 46), most parents said an opportunity for their children to walk or bike with friends would encourage them. Parents also rated slower traffic, more sidewalks, and an educational bike ride with Marion Police Department as things that would make them more likely to let their child walk or bike to school. Fewer parents felt that incentives,

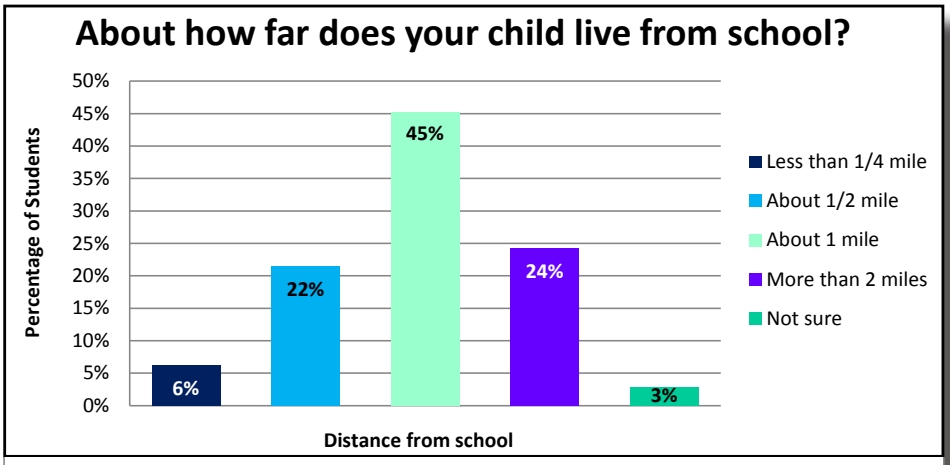


Figure 45. Distance to School from Home as Reported by Parents

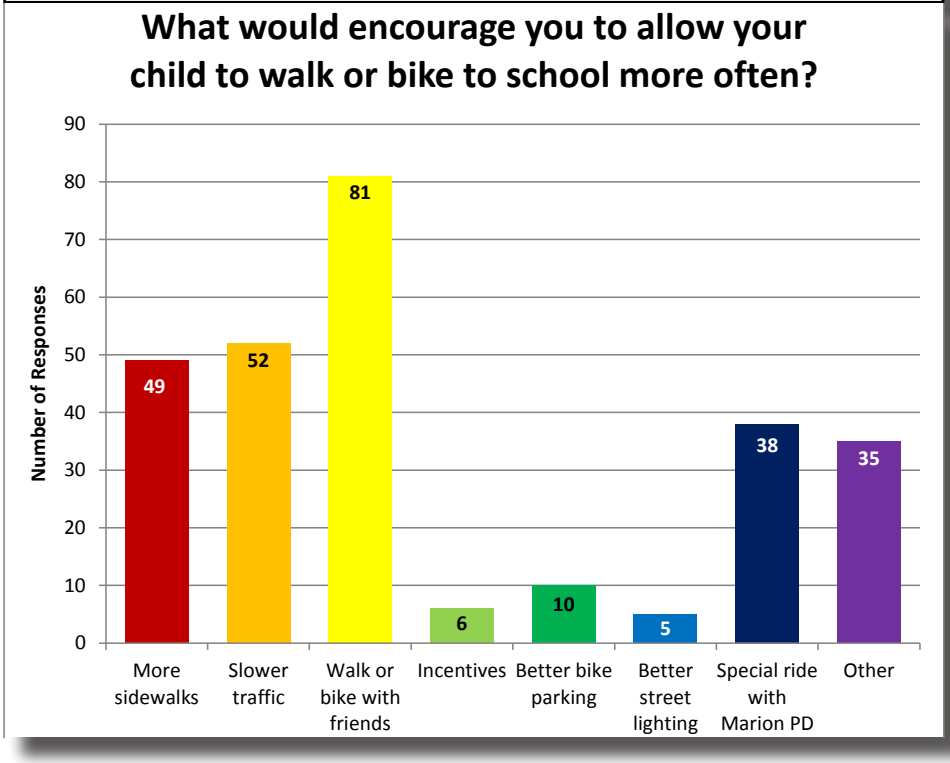


Figure 46. Parents' Preferred Active Travel Encouragement Strategy

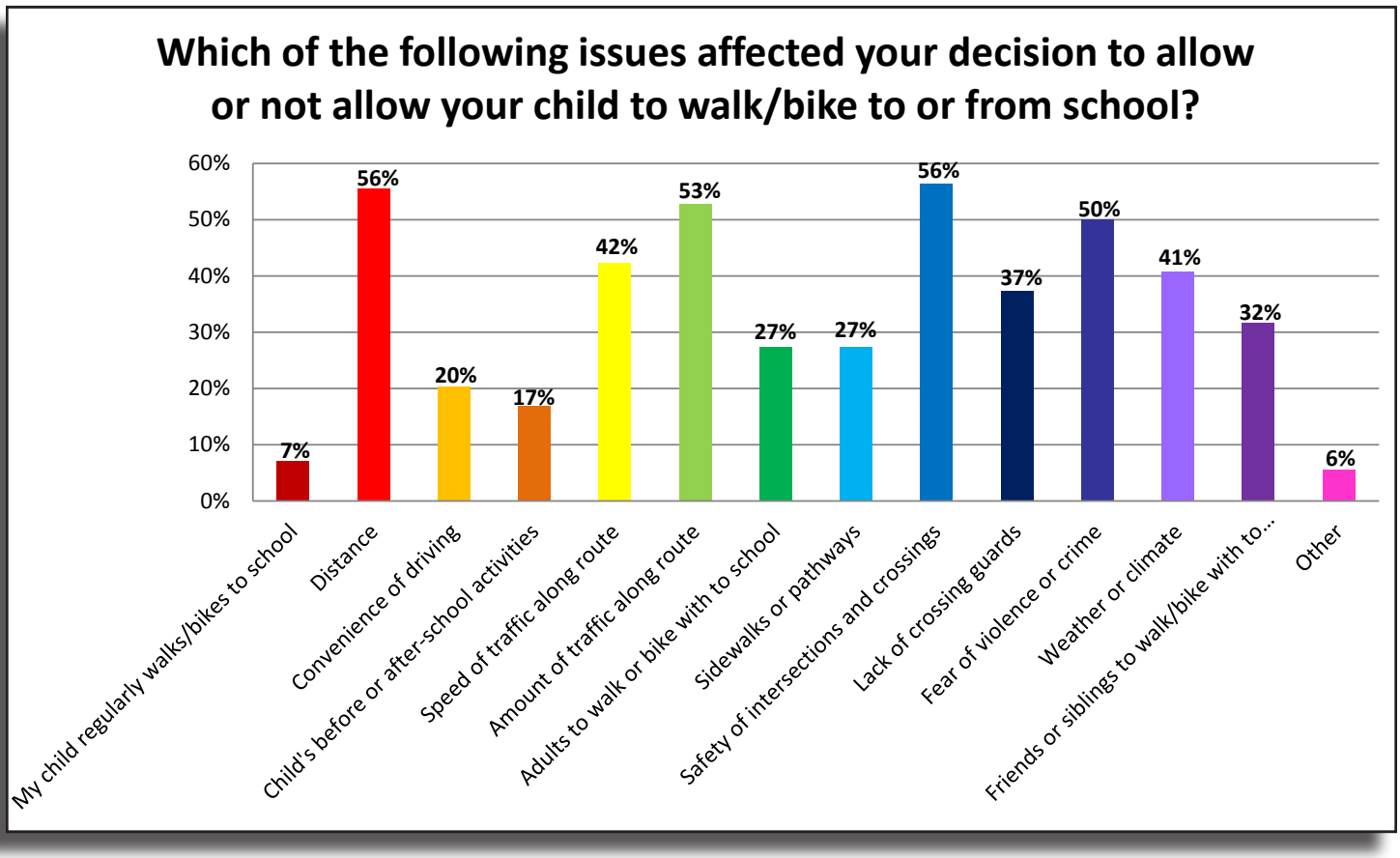
Existing Conditions - Student and Parent, Active Transportation Surveys Continued

better bicycle parking, and better street lighting would make them feel more comfortable allowing their children to walk or bike to school. There were 35, of the 143 parents who took the survey, that selected "other" as a reason they would allow their children to walk or bike to school. The most common answers being having crossing guards, or volunteers supervise routes, and having "safety in numbers."

A vast majority of parents surveyed (87 percent) stated their child has a bicycle. Most parents also said their child has a bicycle helmet: 85 percent said their child has a helmet, while 15 percent said their child does not have a helmet. When asked whether their child walks or bikes for fun, most parents said that they do. Eighty-nine percent of parents said their children bike for fun, and 79 percent of parents said their children walk for fun.

Parents were then asked what issues affected their decision to allow or not allow their child from walking or bicycling to school that day, with the option to select as many answers as they wanted (see Figure 47). Many parents selected distance, safety of intersections and crossings, amount of traffic along

Figure 47. Issues Affecting Parents' Decision to Allow their Child to Walk or Bike



Existing Conditions - Student and Parent, Active Transportation Surveys Continued

route, and fear of violence as the issues that affected their decision to allow or not allow their child to walk or bike to school. Parents also felt that speed of traffic along route, weather, lack of crossing guards, and friends/siblings to bike or walk with were other issues that were factors in their decision to allow their child to walk or bike to school. Some parents (27 percent) felt that their children could walk or bike to school if an adult was present and better sidewalks and pathways were provided. Few parents (20 and 17 percent, respectively) felt that convenience of driving and their child's before or after-school activities were issues affecting their decision. See Figure 47 on the previous page.

Studies have shown that students who use active transportation modes to get to school are able to concentrate better during the school day than their peers that do not.[7] Better concentration leads to higher academic achievement. Parents that participated in the survey were nearly split in their responses as to whether walking or bicycling to school improves student learning: 51 percent of parents said yes, walking and cycling to school does improve student learning, whereas 49 percent of parents said no, it does not improve student learning. See Figure 49.

Figure 48. Recreational Walking and Biking as Reported by Parents

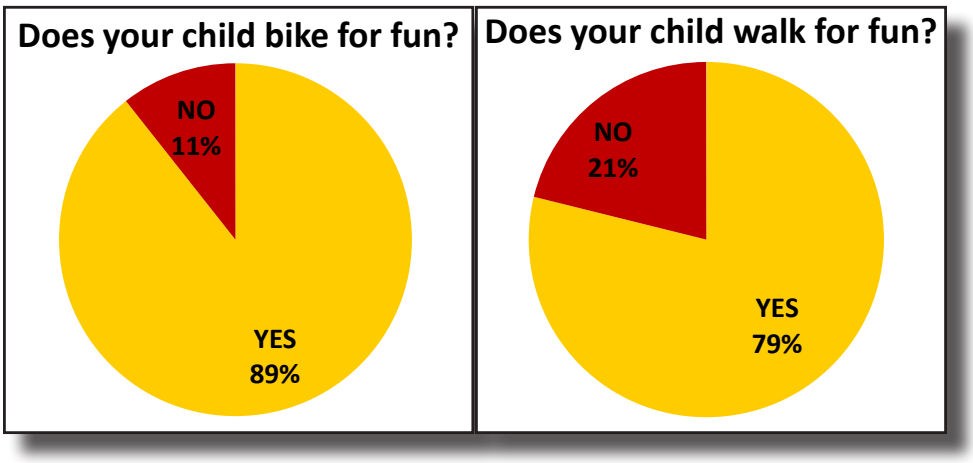
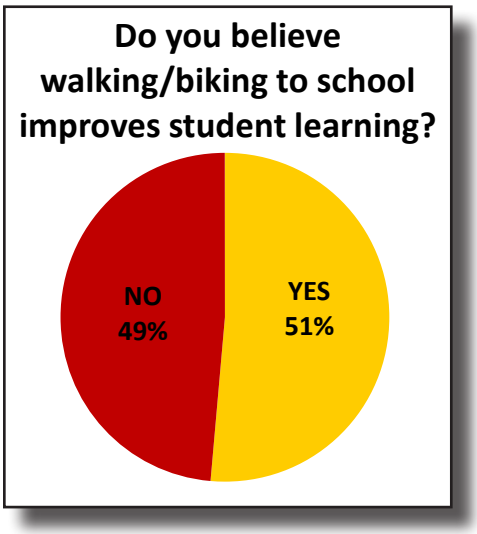


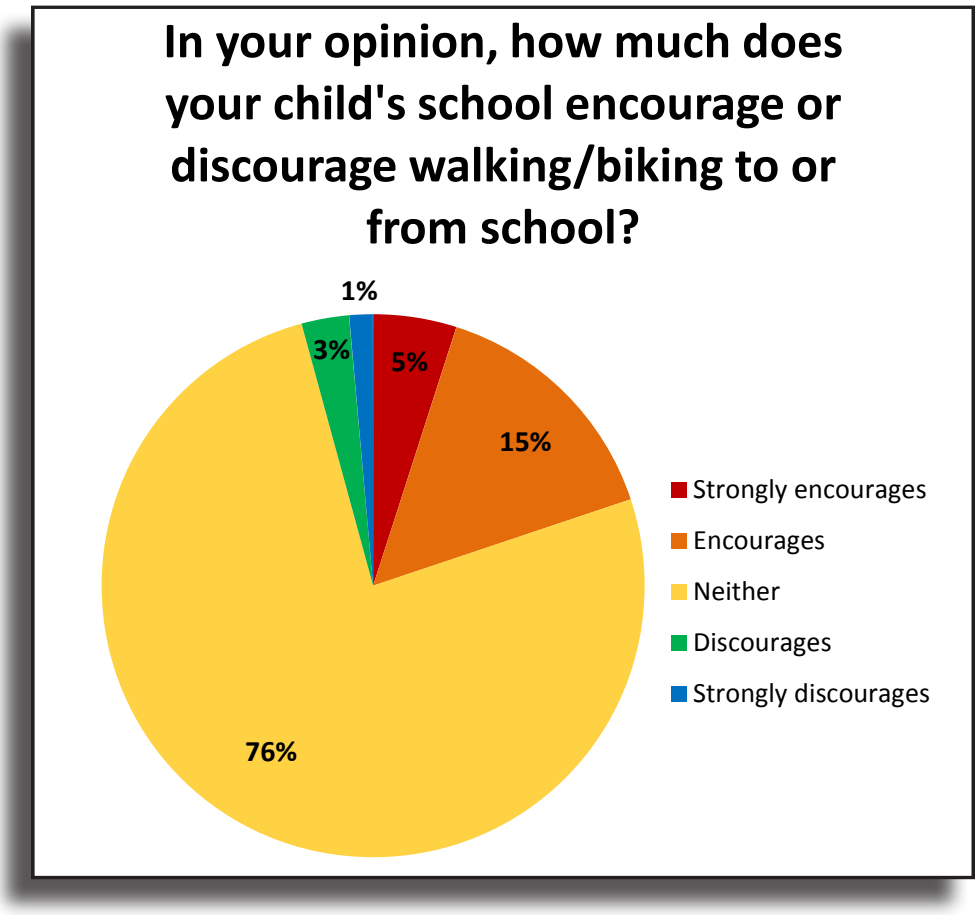
Figure 49. Parents' Perception of Active Travel and Student Learning



Existing Conditions - Student and Parent, Active Transportation Surveys Continued

Most parents surveyed were neutral about whether their child's school encourages or discourages walking and cycling to school (see Figure 50). Of parents 76 percent felt that their child's school does not encourage or discourage walking or bicycling to school. Twenty percent of parents felt their child's school supports walking and cycling, with 15 percent of parents believing their child's school encourages, while 5 percent felt their child's school strongly encourages walking and cycling. Four percent of parents felt their child's school does not support walking and cycling to school, with 3 percent saying their child's school discourages while 1 percent felt their child's school strongly discourages walking and cycling to school.

Figure 50. Parents' Perception of School Support for Active Travel

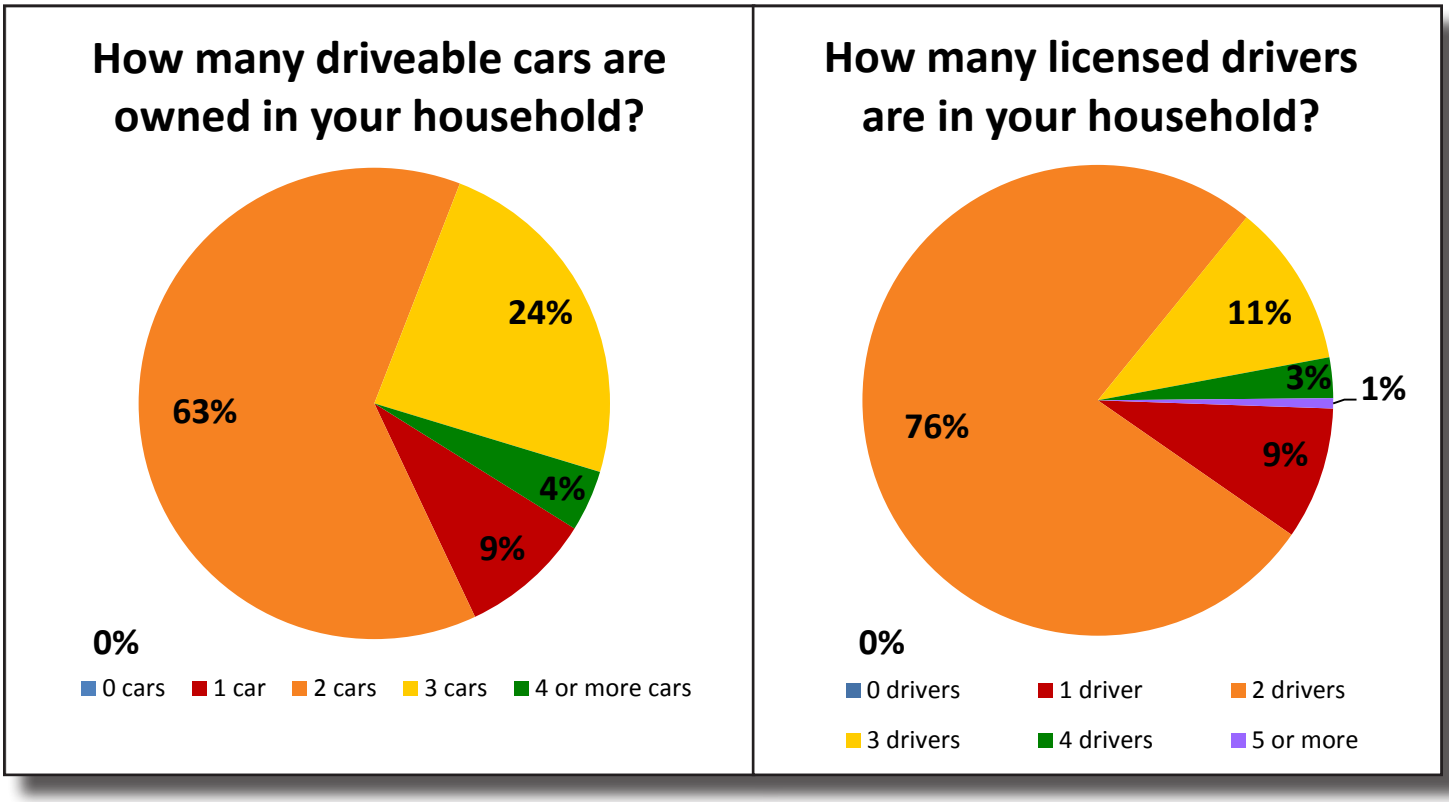


Existing Conditions - Student and Parent, Active Transportation Surveys Continued

One of the final questions asked of parents, in their survey (Figure 51), was regarding cars owned and licensed drivers in the household. Zero parents surveyed had no cars in their household. Nine percent of parents surveyed had one drivable car in their household and 63 percent of parents surveyed said they had two drivable cars in their household. Twenty-eight percent of parents surveyed had three or more cars in their household, with 24 percent having three cars and 4 percent having four or more cars in their household.

No parents that responded to the survey had zero licensed drivers in their households. Most parents (76 percent) surveyed had two licensed drivers in the household and only 9 percent had one licensed driver in the household. Eleven percent of parents stated there were three licensed drivers, 3 percent of parents have four licensed drivers in their household, and one percent of parents who took the survey stated they have five or more licensed drivers in their household.

Figure 51. Household Driving Characteristics as Reported by Parents



Marion Independent School District Education Objectives

Bike Rodeos allow for hands-on bicycle training and encouragement from knowledgeable experts.
Photo credit: City of Marion, 2014

The objectives of the plan focus on the five E's of SRTS planning: education, encouragement, engineering, enforcement, and evaluation. Each school will have opportunities for improvement analyzed with various solutions provide including objective time frames for completion, with responsible parities indicated. Initially, we will look at the five E's from the perspective of the district as a whole. Looking to answer the question; how can we make traveling to school safer for all students regardless of travel modes across all the schools of the MISD?

Opportunity for Improvement - Better utilize national walking and biking events

Every year national Walk to School and Bike to School days are held to better educate and promote healthy active transportation. The goal of these events are to get students and parents excited about the idea of walking or cycling to school.

Holding an event, or events, in the district that promote and demonstrate safe walking and biking skills are needed so parents will be comfortable with the idea of their child walking and biking to school. Many of these events are not currently celebrated in MISD schools.

Solutions for Improvement - Focus on events

Plan fun events, like a Bike Rodeo, where students can learn the skills and precautions to ride a bicycle safely. At the Bike Rodeo, include a demonstration and hands-on participation performing routine bicycle maintenance. Promote and participate in national active transportation holidays, including National Walking Day and Bike to School Week. Provide incentives, like a raffle for a bike helmet or gift certificate, to get students on their bikes or walking.

Walking School Buses can be used to promote the benefits of walking to school.
Photo credit: Alpena, Michigan pedbikeimages.org
Dan Burden, 2006

Objective Time Frame

Hold annual events on National Walking Day (April 6th) and Bike to School Week (first week of May) to promote walking and cycling to school. Hold a Bike Rodeo annually in late August or early-to-mid September to demonstrate safe cycling skills and basic bike maintenance. Distribute incentives to students for participating or attending events. Begin these programs by August of 2018.

Responsible Party

MISD school administrators shall be responsible for the annual events on National Walking Day and Bike to School Week; if requested, City of Marion, Corridor MPO, or Linn County Public Health staff may assist with promotion and organizing of the event. School administrators will also be responsible for coordinating with local businesses to supply incentives for these events; if requested, City of Marion staff and Corridor MPO staff may assist in obtaining incentives for events.

Marion Independent School District Education Objectives Continued

Opportunity for Improvement - Active transportation and physical education class

Currently only MHS provides safe bicycle or walking training provided as a component of PE classes in two elective classes. This type of training is not provided at FMI or VMS. PE is a perfect location to demonstrate the fun and positive health benefits of active transportation to these young potential cyclists.

Solution for Improvement - Active travel unit

Getting active transportation ingrained in the MISD's culture will require educating students about safe walking, cycling, and driving as soon as possible. Additionally, students, their parents, and community members must continually be reminded about the benefits of active transportation. A way to incorporate safe walking and cycling practices into the culture at MISD is to incorporate active transportation in PE. MHS has a fleet of bicycles that students can use for PE classes. In order for students to become comfortable walking or cycling to school, and realizing not everyone has access to a bicycle, these behaviors must be physically and practically demonstrated in an educational environment. In the active transportation unit, students will learn trail etiquette and become certified through a program on bicycle and walking safety.

A fleet of properly sized bicycles should be provided at VMS and FMI for their physical education programs.

Objective Time Frame

Incorporate one unit or class in PE at VMS and FMI that educates students on safe walking and cycling within to begin August of 2018. Grant support should be provided to help with the acquisition of educational bicycles. Have 30 percent of MISD 3-12 students certified through the League of American Cyclist's Bicycling Skills 123 Youth safety course by May 2021.

Responsible Party

MISD administrators shall be responsible for requiring active transportation units in PE classes and will evaluate its implementation. PE teachers shall be responsible for instructing students about bicycle and walking safety. PE teachers, City of Marion, or Corridor MPO staff shall also be responsible for certifying students on bicycle and walking safety through the chosen program.

Cycling training is offered at MHS and can be expanded to FMI and VMS as a component of PE classes. Photo credit: MISD, 2017

Marion Independent School District Education Objectives Continued

Tower Terrace and Alburnett Roads Roundabout are a proven traffic safety improvement.
Photo credit: Corridor MPO, 2015

Opportunity for Improvement - Roundabout safety and education

Roundabouts have many positives and few negatives, but generally the public are skeptical when a new roundabout is proposed in their community. Public awareness is needed on how roundabouts can have a positive impact on their community in terms of safety, efficiency, and health.

Solutions for Improvement - Public education

Continue to educate the public about how to navigate roundabouts as a driver, pedestrian, and cyclist through educational materials or events. Have the Marion Police and Engineering Department lead an educational event on roundabouts.

Provide educational materials on how to safely walk across a roundabout, also including the many traffic, environmental, and safety benefits to the community. Provide a small section on roundabouts with all relevant educational materials found throughout this plan.

Objective Time Frame

Distribute educational materials to 50 percent of parents in the MISD district on the benefits of roundabouts and how to navigate a roundabout at least once per year. As part of the bike rodeo discuss how to navigate roundabouts as a pedestrian and cyclist at least once per year. Begin this process in the Spring of 2018.

Responsible Party

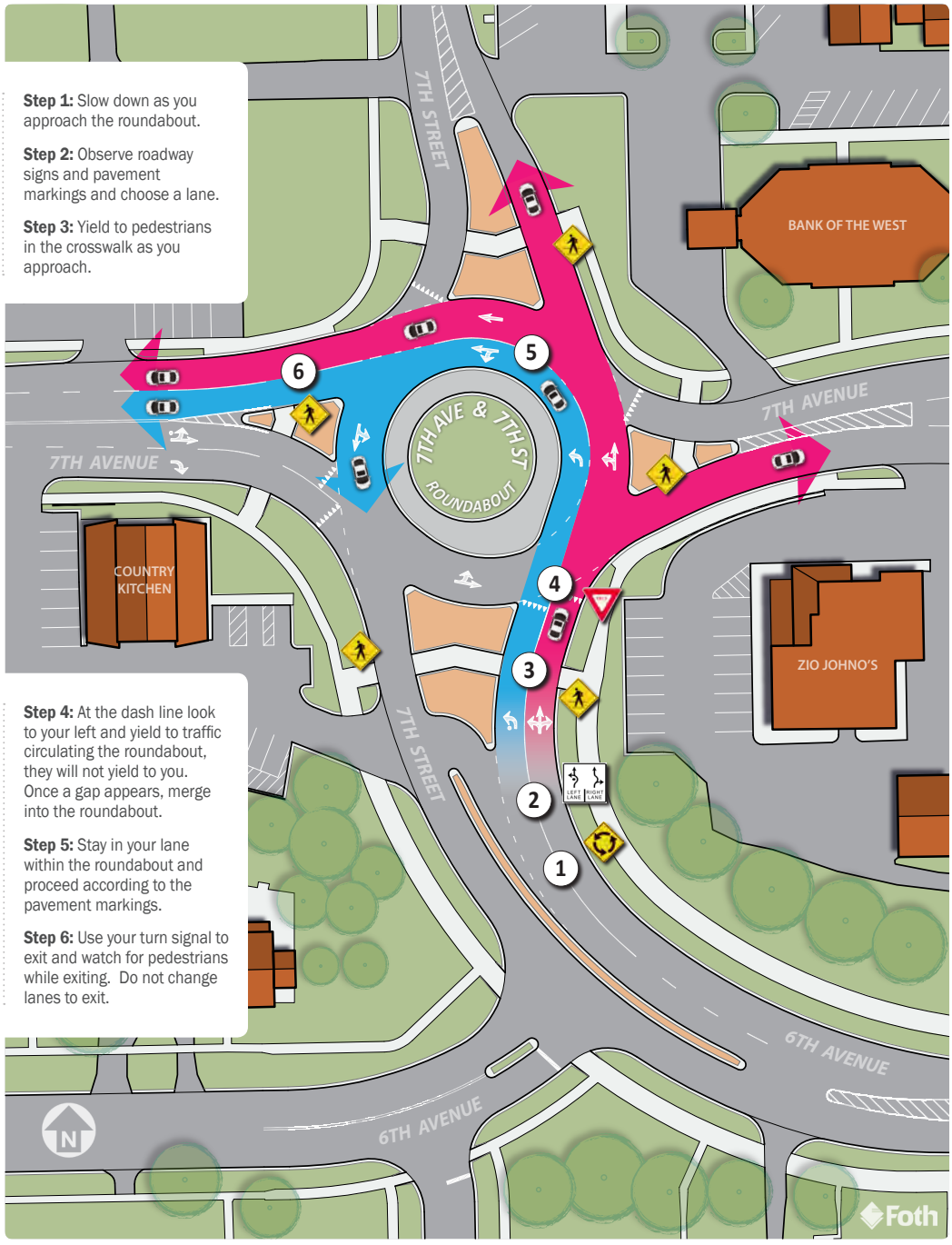
MISD administrators, school administrators, and school principals shall be responsible for organizing the educational event(s). School administrators and principals will be responsible for providing educational materials; if the school chooses, they may seek assistance from the City of Marion, Marion Police Department, or the Corridor MPO to create educational materials.

Tower Terrace Road and Thirty-fifth Street Roundabout contains decorative plants and artwork which can significantly enhance the community character.
Photo credit: Corridor MPO, 2015

Marion Independent School District Education Objectives Continued

Figure 52. City of Marion Educational Material on Roundabouts

How Do I Drive the 7th Avenue / 7th Street Roundabout?



Step 1: Slow down as you approach the roundabout.

Step 2: Observe roadway signs and pavement markings and choose a lane.

Step 3: Yield to pedestrians in the crosswalk as you approach.

Step 4: At the dash line look to your left and yield to traffic circulating the roundabout, they will not yield to you. Once a gap appears, merge into the roundabout.

Step 5: Stay in your lane within the roundabout and proceed according to the pavement markings.

Step 6: Use your turn signal to exit and watch for pedestrians while exiting. Do not change lanes to exit.

LEFT TURN & U-TURN ROUTES ONLY
LEFT TURN, STRAIGHT & RIGHT TURN ROUTES ONLY

City of Marion Iowa

For more information on Marion's Central Corridor Project, please visit:
www.cityofmarion.org

Always assume large trucks and semi-trailers need all available space within the roundabout — Give them space and don't pass them!

Clear the roundabout to allow emergency vehicles to pass — Do not stop within the roundabout!

Always be aware and drive slowly!

Marion Independent School District Education Objectives Continued

Sharing the benefits of healthy active travel with our young people encourages healthy living for a lifetime.
Photo credit: Corridor MPO, 2016

Opportunity for Improvement - Public eduction on safe driving, walking, and cycling

Everyone who drives a car in Iowa must meet the following in order to get their driver's license: every new driver under the age of 18 in Iowa must complete drivers education and everyone, no matter their age, is required to pass a vision, written, and driving exam. While cycling and walking generally do not endanger others, no test exists to ensure people know the laws that apply to them while cycling or walking. And while most everyone takes drivers education, many drivers on the road took their test decades ago, so their knowledge of driving laws may be out of date or forgotten. Continually educating parents, students, and community members about safe walking and cycling skills, in addition to safe driving practices, will help in making active transportation to and from school a safe and positive experience for children.

Solutions for Improvement - Community engagement

Invite students, parents, and community members to meetings or events about safe driving, walking, and bicycling skills. Educational materials about safe walking, cycling, and driving shall be distributed to parents. Test students annually on their knowledge of safe walking, driving, and cycling skills. Provide information to the public detailing ways in which drivers, pedestrians and cyclists alike can be safe and courteous to each other.

Begin by presenting or providing 50 percent of district parents with educational materials on safe walking, cycling, and driving skills. Have 50 percent of students (3rd - 12th grades) take an annual quiz on safe walking, driving, and cycling skills and aiming for an average student test score of 80 percent or higher; only high school students shall be tested on safe driving, all other students will be tested on safe driving as it relates to cycling and walking.

Objective Time Frame

Begin these education activities no later than August 2018.

Responsible Party

School administrators and principals will be responsible for providing educational materials; if the school chooses, they may seek assistance from the Marion Bicycle and Pedestrian Coordinator and Linn County Public Health and Corridor MPO staff to create educational materials. Teachers shall be responsible for conducting the written safety tests in their classrooms.

Marion Independent School District Encouragement Objectives

Opportunity for Improvement - Parents not comfortable with children traveling alone

A parent contacted a principal at a MISD school and asked if any walking groups have been established at the school. In this instance, the school did not have any walking groups established. This parent, like many others, did not feel comfortable with their child walking alone. The student instead was driven to and from school and is not using healthy active travel. There is a current "latent demand" for walking groups to school as other parents or students may have considered walking to school if they had a buddy, yet no groups have been established.

Solution for Improvement - Establish buddy groups at each school

This lack of organized groups is an impediment from walking or cycling to school. Establishing walking and cycling school buses and buddy groups will reinforce the perception of safety in numbers and will provide relief to concerned parents. Where possible (not required) older siblings or parents can provide support leading each group.

Establish buddy groups at each MISD school where a group of students can meet and walk or cycle together to school. A person at each school shall be responsible for promoting and registering students to each buddy group. This person may be a school administrator, teacher, classroom helper, or parent.

Objective Time Frame

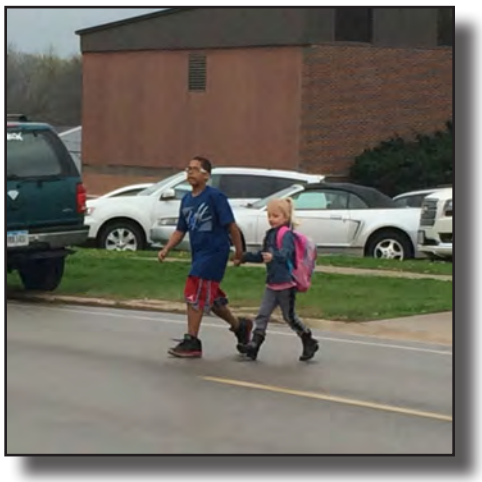
Within one year of the plan's adoption, in May of 2018, each school shall determine who the buddy group person of contact will be.

Responsible Party

School administrators and teachers shall appoint or elect an administrator, teacher, parent, or classroom assistant to run the buddy group program at their school.

Parental encouragement is important but not all parents are able to walk their children home. If "buddy groups" of students can be established, more parents may be comfortable with their children walking to school.
Photo credit: Corridor MPO, 2016

Older students can help younger children be safe getting home from school, while increasing confidence in parents.
Photo credit: Corridor MPO, 2016



Marion Independent School District Encouragement Objectives Continued

Bike Helmets can be provided as incentives for participation in school run encouragement programs. Photo credit: Corridor MPO, 2017

Opportunity for Improvement - Students not motivated to choose active travel

While some individuals may be motivated to change their behaviors based on newly-acquired information, many people still need an extra "push" to establish new behaviors. Some students may be motivated to utilize active transportation simply by learning the benefits, however some students may not be motivated that way, or may not have the same opportunities and resources as their peers.

Solution for Improvement - Provide incentives to students

Incentives should be provided to students to motivate them to ride cycle or walk to school; additionally, students may gain access to equipment and resources not otherwise available. Students will be provided incentives for participating in active transportation events (discussed in this plan) and utilizing active transportation to get to school. Incentives could include bike helmets, gift cards, tennis shoes, or anything else related to walking or cycling.

Objective Time Frame

Incentives will be identified and used within one year of this plan's adoption, at the beginning of the school year in August 2018.

Responsible Party

School administrators, teachers, or MISD administrators, whomever is responsible for organizing active transportation events, shall be responsible for obtaining incentives, unless this task is designated to another administrator, teacher, parent volunteer, or school staff member. Local bike shops, running stores, or even larger charities like Kohl's Cares will often provide incentives free of charge.

Marion Independent School District Enforcement Objectives

Opportunity for Improvement - Traffic Control and Community Awareness

MISD principals uniformly report that perceived motor vehicle speeds adjacent to school grounds are too high. This may be due in part to through traffic not being aware that they are traveling near a school. The difference between a motorist going 35 mph and 25 mph in a crash could be the difference between injury and death.[8] Police enforcement is needed around MISD schools to ensure motorists are driving at a reasonable, responsible speed, especially during school hours when children are present.

Community awareness is needed to alert all motorists that speed limits near schools need to be followed for the safety of students walking, biking, and driving to school.

Marion Police presence at MISD schools will create awareness and emphasize the need to drive slowly through school zones.
Photo credit: City of Marion, 2016

Solution for Improvement - Regular police presence

Police presence is crucial in the implementation of safe commutes for all students. Police presence should be provided as a media event focused on spreading the message of slowing down near schools. Citations or warnings covered by regional media will act to demonstrate and educate the community regarding the expectations of school zones, traffic routes, crosswalks, and crossing guards.

Police presence is specifically needed on Fifth Avenue, Eighth Avenue, Tenth Avenue, and South Fifteenth Street as these roads are ones which are highly traveled by students and parents going to and from school.

Objective Time Frame

Hold a media event once a year near MISD schools, be sure to maintain a presence specifically at Fifth, Eighth, and Tenth Avenues, during pickup and drop-off. MISD will communicate with the Marion Police Department and regional media prior to the start of the school year. This process shall begin by August 2018.

Police participating in active transportation events can help students feel comfortable and safe while going to and from school.
Photo credit: City of Marion, 2016

Responsible Party

School administrators shall be responsible for coordinating police presence at their individual schools. The City of Marion Communications Department will alert regional media outlets of the event. Marion Police Department shall be responsible for being visible at pickup and drop-off times during the event. Marion Police Department is responsible for enforcing speed limits and all traffic infractions either through citations or warnings.

Marion Independent School District Enforcement Objectives Continued

MUTCD signs used to establish and enforce higher fine zones. Above and on next page.
Photo credit: FHWA, 2009

Opportunity for Improvement - Motor vehicle speeds adjacent to schools

MISD principals uniformly report that perceived motor vehicle speeds adjacent to school grounds are higher than the posted speed limits of 25 mph. These higher than desirable speeds may be due in part to through traffic not being aware that they are traveling near a school.

Solution for Improvement - Higher fine school zones

Awareness is needed to alert motorists that speed limits near schools need to be followed for the safety of students walking, biking, and driving to school.

Marked school zones should be established in the shaded areas depicted in Figure 53. These areas are focused on for speed reduction as high levels of school related pedestrian activity have been observed or can be reasonably anticipated. These school zones maintain the existing speed limit of 25 mph, but double the fines should a motorist exceed the posted speed limit. Motorists are alerted of the higher fines school zones at least 200 feet in advance of the zone. These school zones are only located adjacent to the campus.

Sign assemblies that will be included in the school zones can be seen in Appendix A. These assemblies are in compliance with the Manual on Uniform Traffic Control Devices (MUTCD) and will alert motorists when they are nearing, entering, and leaving a higher fines school zone.[6] For exact sign assemblies used and approximate sign locations see Appendix A.

Additionally, school crossing signs will be used at major crossing points into the campus. These signs should be installed on both sides of the installed sign post to increase awareness for motorists traveling in both directions.

Objective Time Frame

New higher fine school zones should be established district wide in July of 2018.

Marion Independent School District Enforcement Objectives Continued

Responsible Party

Consultation with City of Marion Engineering and legal services shall be sought prior to installation. Assistance with completion and coordination with all Departments shall be provided by the Marion Bicycle and Pedestrian Coordinator. Enforcement will be the responsibility of the City of Marion Police Department.

Figure 53. Higher Fine School Zones

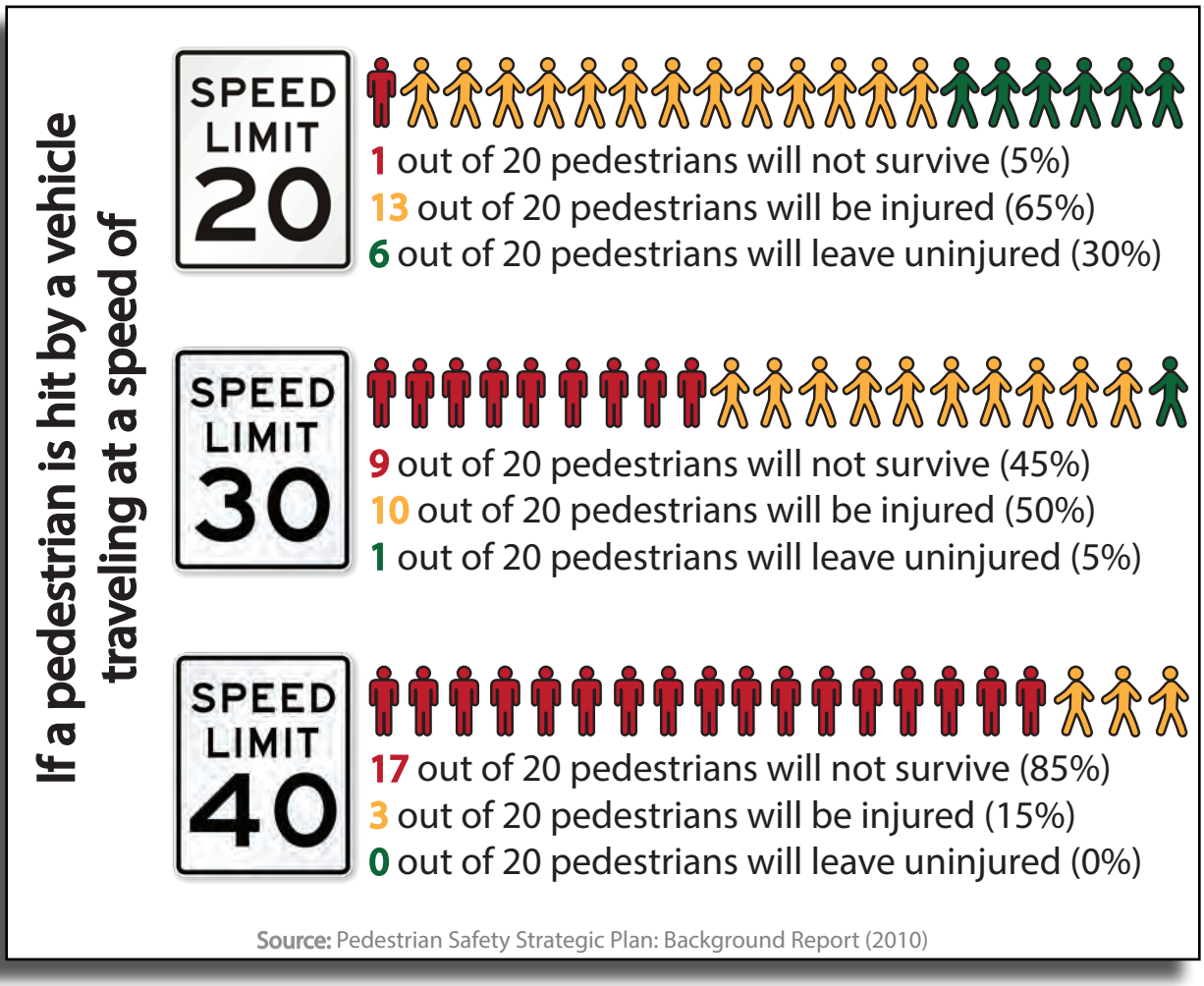
Marion Independent School District Enforcement Objectives Continued

Lower crash severity goes hand-in-hand with traffic speeds; lower travel speeds improve pedestrian safety. Photo credit: Dan Burden, 2016

Opportunity for Improvement - High speed motor vehicle traffic around schools

Many of the principals within MISD have reported perceived motor vehicle speeds that are significantly higher than the posted speed limit of 25 mph around MISD schools. Average speeds observed near Longfellow and Starry/MHS, are all higher than the posted limit; Corridor MPO staff recorded 50th percentile speeds at 29.4 mph and 29.7 mph respectively (see Table 5 on page 43). The difference between a motorist going 30 mph and 20 mph in a crash could be the difference between injury and death. Of crashes occurring at 20 mph 1 in 20 pedestrians will die; where crashes occur at 30 mph 9 in 20 pedestrians will die, see Figure 54.[8] Slowing ten miles per hour could mean the difference between life and death.

Figure 54. Vehicle Impact Speed and Pedestrian Injury Severity



Source: Pedestrian Safety Strategic Plan: Background Report (2010)

Marion Independent School District Enforcement Objectives Continued

Solutions for Improvement - 20 mph School Zones

Reduce traffic speeds to 20 mph near all schools within the district, after other methods have been applied. Currently in the state of Iowa, roads in residential areas or school districts are set at a statutory speed (a baseline) of 25 mph, as stated in Section 321.285 of the Code of Iowa.[9] Marion currently has "special speed restrictions" as listed in Chapter 67 of Marion local code.[10] Currently the posted speed limit through Marion's Uptown along Seventh Avenue is 20 mph. This speed reduction is appropriate in an area of increased pedestrian activity in Uptown; a need for increased reaction time, slower potential collision speeds, and generally less severe injuries if conflict occurs. Reducing the speed of cars from 25 mph to 20 mph when children are present would significantly reduce the severity of a crash between a pedestrian and a motorist, increasing the chances for survival.

MUTCD sign example of a school zone sign assembly.
Photo credit: FHWA, 2009

Consideration of lower posted speed limits through school zones should be a low priority change. Many of the treatments and policies discussed in this document should act to lower motorist travel speeds without the need to lower the posted speed limit. Federal Highway Administration (FHWA) indicates that the expected decrease in operating speeds from a 5 mph speed limit reduction is only 1.25 mph.[11] The other speed reduction improvements presented in this document are likely to result in speeds operating near the existing posted speed limit.

If implemented, extra law enforcement support is required during the first two weeks of school, as well as proper media communications to the community.

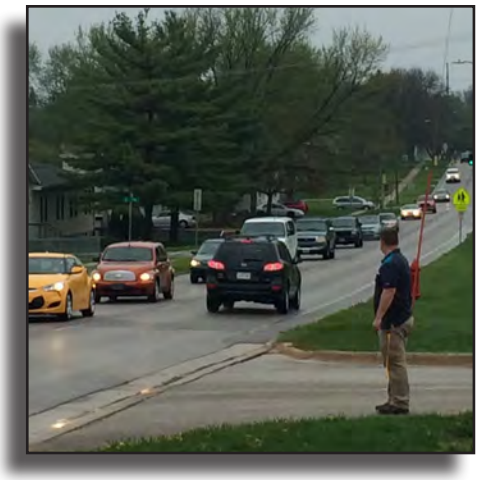
Objective Time Frame

Reduce speeds to 20 mph in designated school zones shown in Figure 53 (page 75) by August 2019, should the other treatments provided in this document not result in the desired travel speed reductions. Utilize police presence on Tenth and Eighth Avenues, and South Fifteenth Street the first two weeks of school to enforce the reduced speeds.

Responsible Party

City of Marion Engineering Department shall be responsible for the provision of regulatory signs in the public right-of-way.

Marion Independent School District
Enforcement Objectives Continued



South Fifteenth Street morning and afternoon motor vehicle traffic can be heavy with few breaks. While pedestrian crossings at this time are numerous and often unpredictable. Crossing guards can help ensure safe and controlled crossings. Photo credit: Dan Burden, 2016

Opportunity for Improvement - Crossing Guards

MISD utilizes a limited number of crossing guards, with one in normal operation between MHS and Starry Elementary School and another to the south at Hillview Drive and South Fifteenth Street, see Figure 55 (next page). Additionally, informal but effective crossing guards are utilized at FMI to great success. Administrative staff at FMI monitors motorist and pedestrian traffic during pick-up and dismissal to ensure an orderly and safe environment. They do this with out the use of traditional crossing guard equipment or procedure.

Interviews with administrative staff at VMS and Longfellow Elementary indicate the potential need for the increased use of crossing guards.

Solution for Improvement - Increase and reallocate crossing guards across the district

Crossing guard location and usage is a different for each MISD school. Each change to the current utilization of guards is depicted in Figure 55.

Currently Starry and MHS share crossing guards. A relatively new crossing guard assignment has been made at the crossing between MHS and Starry parking lots on South Fifteenth Street. This is a high pedestrian traffic crossing of both parents and students. The crossing guard to the south at Hillview Drive is likely less important now with the addition of this new guard. Reallocate the crossing guard at Hillview drive to either VMS or Longfellow Elementary.

VMS indicates a need for crossing guards at the intersection of Third Avenue at South Fifteenth Street and Thirteenth Street at Fifth Avenue. There are a larger number of pedestrian crossings occurring at Third Avenue and Fifteenth Street as students walk to FMI, MHS, and Starry Elementary. Motor vehicle traffic is higher along Fifteenth Street and at a higher rate of speed than other roadways. The pedestrian and motor vehicle traffic at the intersection of Fifth Avenue and Third Street is extremely high during drop off and pick-up. While this intersection is a stop controlled T-shaped intersection, children have been observed to run and cross unpredictably through the intersection presenting a risk to themselves and motorists. Greater supervision is needed at this intersection. An additional crossing guard may be one solution, however, increased staff supervision, similar to that occurring at FMI may be a better, lower cost solution.

Lastly, the newly constructed Longfellow Elementary may need a crossing guard to ensure safe crossings. Currently, as depicted in Figure 55, a crossing guard is stationed at the mid-block crossing near Twenty-ninth Street. This crossing is expected to see an increase in pedestrian volume. However, reallocation or no allocation of a crossing guard may be necessary as new pedestrian travel patterns develop.

Marion Independent School District Enforcement Objectives Continued

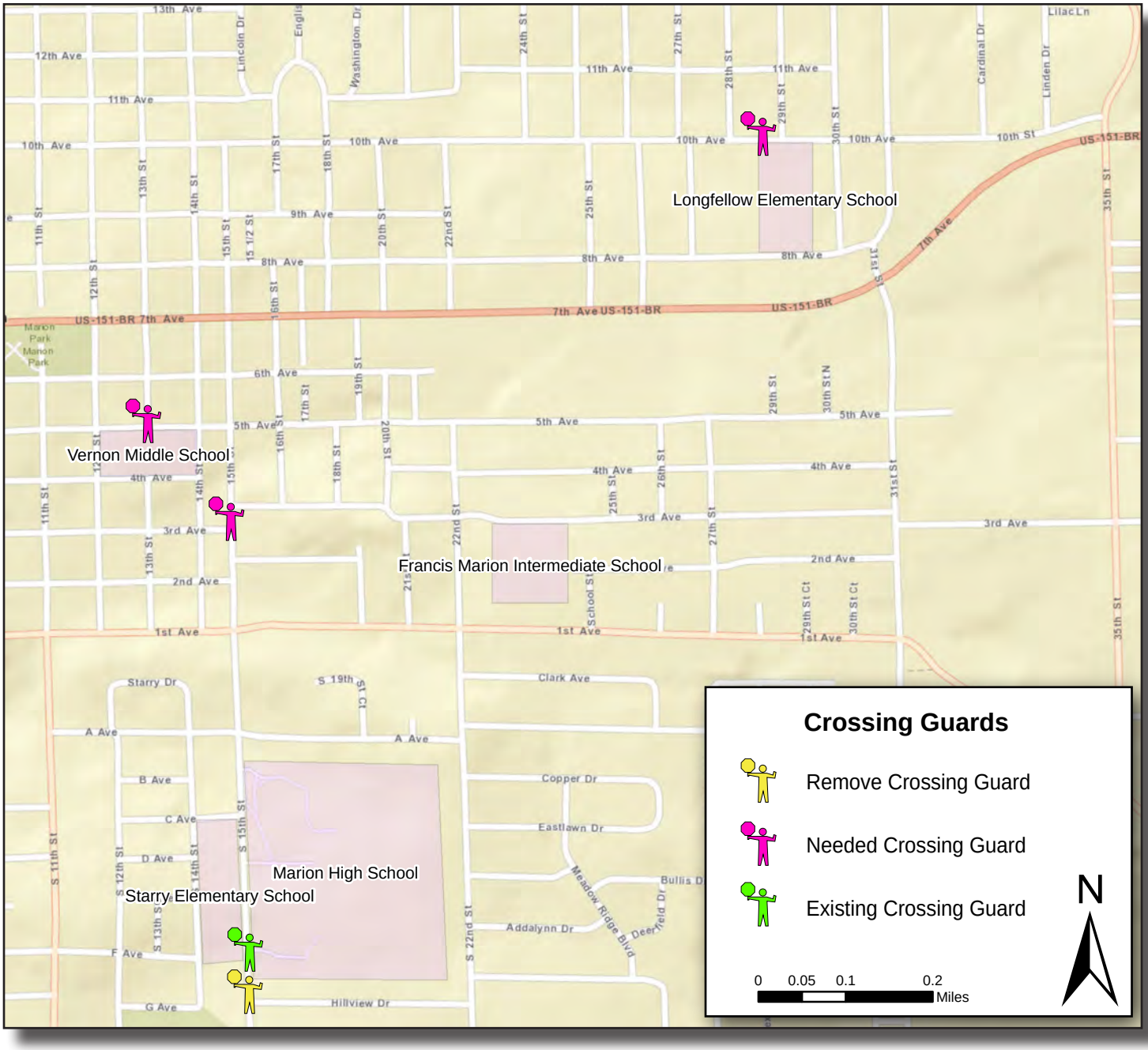
Objective Time Frame

Crossing guards should be in place by August of 2017. Annual review for appropriate placement and need should be conducted.

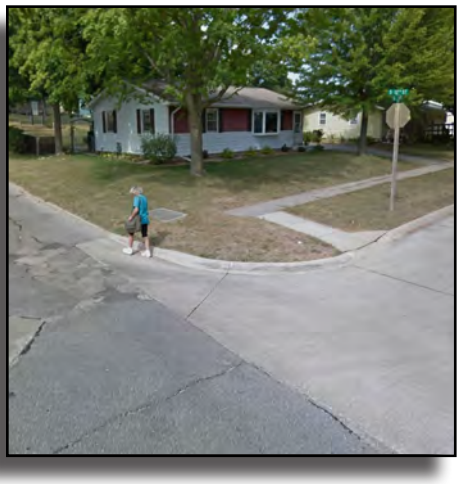
Responsible Party

MISD is responsible for funding, training, and assignment of crossing guards.

Figure 55. Crossing Guard Locations



Marion Independent School District Engineering Objectives



South Twelfth Street at G Avenue does not have continuous sidewalk. Pedestrians often walk in the street, presenting a traffic hazard.
Photo credit: Google Earth, 2012

Opportunity for Improvement - Lack of a consistent sidewalk network

The sidewalk network within MISD has many gaps and disconnected neighborhoods. This is a common problem affecting many communities regionally and nationally. It is very difficult for most students to walk or bike to school without a connected sidewalk network. This is especially true during the winter months and for persons with disabilities.

Solution for Improvement - Sidewalk infill and priority

Understanding that City of Marion budgets are constrained, a list of priority walking routes was generated to better assign limited funds to sidewalk improvements. Missing sidewalk connections along these priority routes make up our Priority One sidewalk connections for improvement. Priority routes are displayed in Figure 56 (next page) in black. Priority routes are generated from observed pedestrian travel patterns and known use. They act to connect MISD schools, Marion Uptown, and the MHS football field. All Priority One gaps are listed in Appendix H.

Priority Two improvements are any sidewalk gaps not on a priority route, but within a quarter mile of any MISD school. A quarter mile is the average walking distance that a student might cover in five minutes. These gaps should be addressed once all Priority One gaps have been completed, as pedestrian travel is quite likely to occur here but at lower concentration than Priority One segments. Priority Two gaps are listed in Appendix I.

Priority Three sidewalk infill is all remaining gaps within the MISD boundaries.

Lastly, it may be desirable to increase the available funding for sidewalk improvements in coming budgetary cycles where possible.

At West Thirty-third Avenue and Alburnett Road the sidewalk connections to the street are critical to all citizens and especially for persons with disabilities.
Photo credit: Corridor MPO, 2015

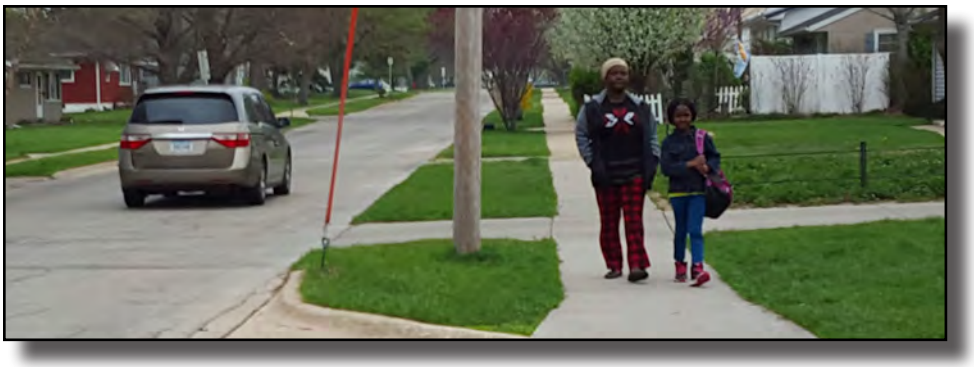
Objective Time Frame

Sidewalk infill may have some of the highest potential for walking and biking increases to and from school. As such, infill projects should be advanced as soon as possible. Understanding that funding is limited, this will be an on-going and long-term project.

Responsible Party

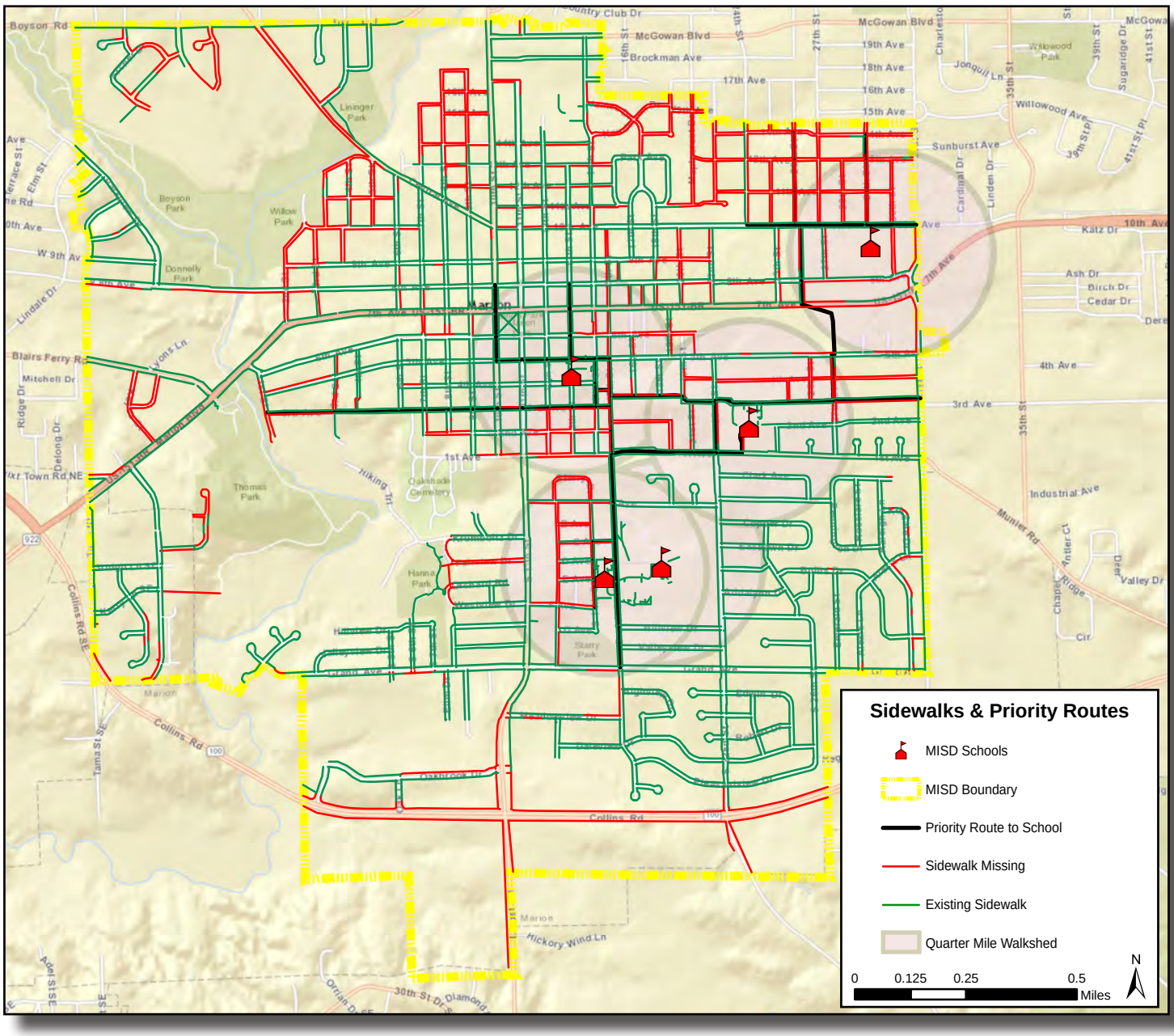
City of Marion Engineering Department shall be responsible for sidewalk provision.

Marion Independent School District Engineering Objectives Continued



Sidewalks provide protection from automobile traffic and encourage walking to school.
Photo credit: Dan Burden, 2016

Figure 56. Priority Routes and Sidewalk Gaps



Marion Independent School District
Engineering Objectives Continued

Seventh and Sixth Avenues have high quality curb extensions creating a sense of place while supporting pedestrian safety. Photo credit: Corridor MPO, 2015

Opportunity for Improvement - Long crossing distances at school crossings

Many crossing locations near MISD schools are longer than they need to be. Shorter crossing locations decrease the likelihood for a pedestrian and motor vehicle related crash while acting to slow motor vehicle speeds.

Solution for Improvement - Curb extensions

The provision of curb extensions at the indicated locations in Appendix B will shorten the crossing distance for pedestrian travel and likely act to decrease motor vehicle travel speeds. Extension of the curb near the intersection to the boundaries of the normal travel lanes (20 to 24 feet) will not impede snow removal while maintaining the normal travel lanes for regular traffic flow. The area used to extend the curbs is normally utilized by parked vehicles, but as parking is prohibited near intersections, no parking is lost. This underutilized portion of roadway is re-purposed to decrease crossing distance for pedestrians.

Additionally, a more narrow feel to the roadway, or "side friction", is created by the use of curb extensions. While this side friction is not the primary purpose of curb extensions, some traffic slowing effects may be generated.

Pedestrian snow clearance provided by local property owners is no different than existing sidewalks. Snow should be removed in the traditional five foot sidewalk area of each extension but does not need to be cleared on the non-walkway portions of each extension, see Figure 57 on the next page.

Marion Independent School District Engineering Objectives Continued

Objective Time Frame

Curb extensions are best accomplished during the normal roadway maintenance cycle and should be done with any rehabilitation project. However, there may be desire to move some project up and accomplished independently of other roadway improvements. A specific project for advanced construction would be along Tenth Avenue before the opening of Longfellow.

Responsible Party

Marion Engineering or Public Service Departments shall be responsible for installing roadway improvements.

Curb extensions improve safety by significantly shortening the crossing distance for pedestrians.
Photo credit: Easton, New Jersey
pedbikeimages.org,
Dan Burden, 2006

Figure 57. Snow Removal and Curb Extensions

Marion Independent School District
Engineering Objectives Continued

South Fifteenth Street lacks street trees, providing a sense of an open road, leading to higher travel speeds.
Photo credit: Corridor MPO, 2017

Opportunity for Improvement - Motor vehicle speeds adjacent to schools

MISD principals uniformly report that perceived motor vehicle speeds adjacent to school grounds are higher than the posted speed limits of 25 mph. These higher than desirable speeds may be due in part to a lack of perceived "side friction". When motorist feel that a roadway travel area is wide and clear their travel speeds tend to rise.

Solution for Improvement - Street trees

In order to provide increased side friction, or to increase the perception of narrowness in a travel way, the inclusion of street trees along the roadway edge is recommended. The areas depicted in green in Figure 58 (next page) are lacking in street tree density. Street trees are a low cost, high return investment that should act to lower motor vehicle travel speeds without the need for increased enforcement.

Community support should be sought from non-profit groups as well as the City of Marion, and MISD for capital costs and installation support. Student planting of trees could make for a positive educational and community service event.

Objective Time Frame

Street trees have increased traffic calming effects as they mature. As such, new street trees should be planted as soon as possible.

Responsible Party

City of Marion Parks Department shall be responsible for street tree planting and maintenance were possible. Assistance from Trees Forever may be sought for guidance and possible monetary support.

One Day in May event and events like it can be organized to plant street trees as an educational experience for MISD students.
Photo credit: MISD, 2012

Marion Independent School District Engineering Objectives Continued

Street trees slow motor vehicle traffic by enclosing the roadway thereby, lessening the need for additional enforcement.
Photo credit: Charlotte DOT, 2013

Figure 58. Street Trees Improvement Areas

Marion Independent School District Engineering Objectives Continued

Safety in numbers; children are more likely to ride to school if riding with friends or siblings.
Photo credit: Corridor MPO, 2014

Trails between Echo Hill Elementary and Oak Ridge Middle School represent school specific trails facilitating connections between schools in the Linn-Mar School District.
Photo credit: Corridor MPO, 2015

Opportunity for Improvement - Lack of trail infrastructure

Parents and students tend to be more comfortable cycling on proper trail width (eight to ten foot) side-paths. There is likely a latent demand for cycling trips present that would be better fostered by a fully connected off-street trail facility.

Solution for Improvement - MISD Trail

The creation of a MISD Trail would allow for safer off-street student trail to and from school and between campuses. This inter-campus connection is very important to help generate intergenerational walking and cycling groups as discussed in other portions of this plan.

A trail connection, as shown in Figure 59 on the next page, is not only for cycling usage. Proper trail width accommodations will allow for both cycling and pedestrian travel. The available right-of-way from the edge of the existing sidewalk to the back of curb is 16 feet minimum throughout, with much of the project area requiring a wider cross-section. A six foot public frontage (space between the sidewalk and back of curb) paired with a ten foot trail is possible. However, the block between Fifteenth and Fourteenth Streets on Third Avenue would require a road narrowing and parking restriction or right-of-way acquisition. This single block currently provides a three foot sidewalk and a six foot public frontage with approximately 36 feet curb-to-curb. Narrowing Third Avenue to 26 feet would allow for a trail width along the northern section and a sidewalk along the south where there currently is none.

This multi-use path functionality will also open up different funding sources for trail construction, State and Federal Recreational Trails grant funding should be sought for trail construction in addition to local funding.

Adoption of the MISD Trail into the Marion Master Trails Plan should be considered.

Objective Time Frame

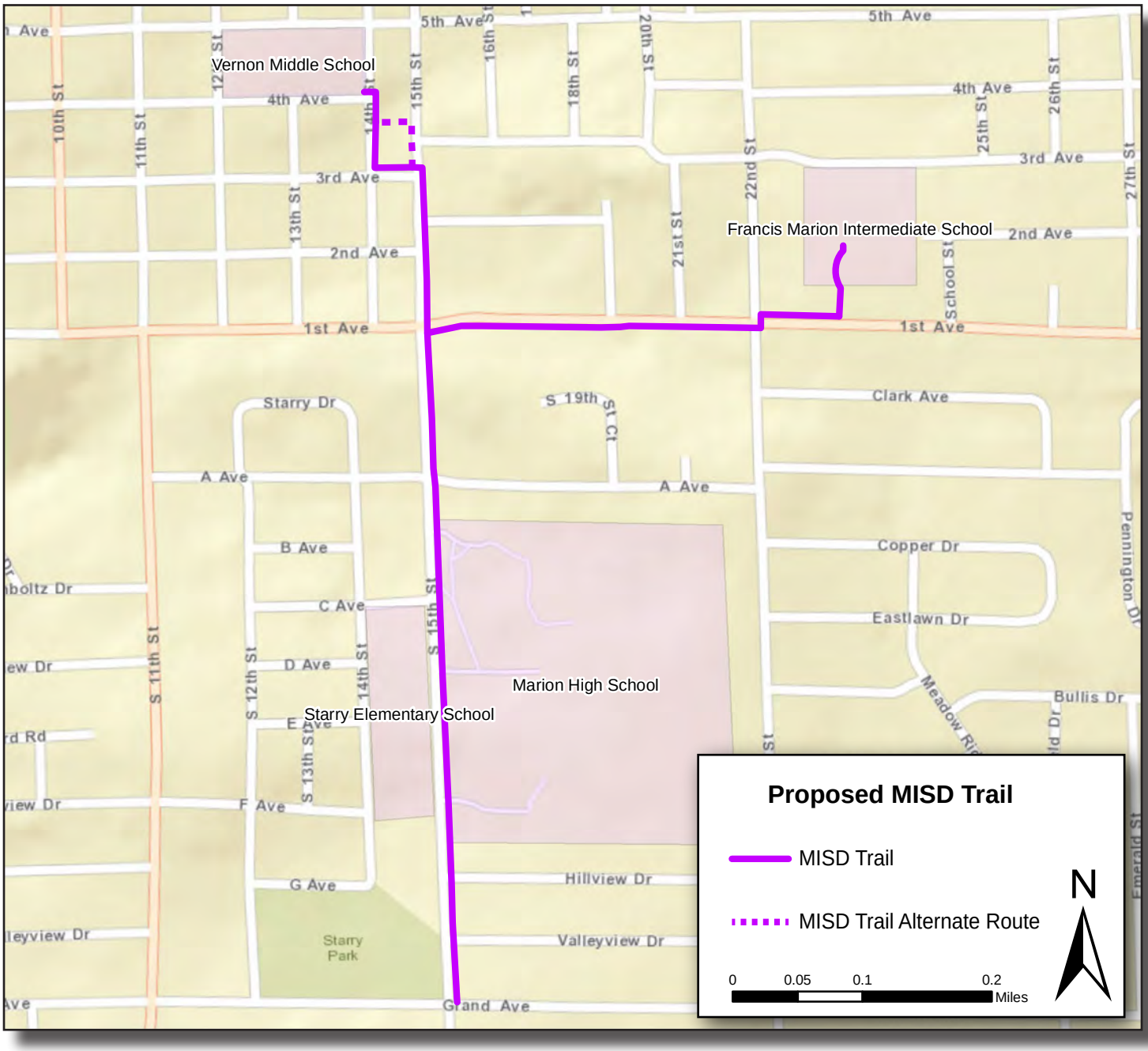
Trail funding support should be sought with the next state wide deadline for State and Federal Recreational Trails Grants generally October 1st, of each year. Construction could begin as soon as grant funding is secured. Actual trail construction (with or without grant funding) should occur within the next three to eight years.

Marion Independent School District Engineering Objectives Continued

Responsible Party

Marion's Bicycle and Pedestrian Coordinator shall work with the Marion Bicycle and Pedestrian Advisory Committee and Engineering Department.

Figure 59. Marion Independent School District Trail



Marion Independent School District Engineering Objectives Continued

Connections between schools of different grade levels facilitate children of different ages walking to school together.
Photo credit:
Blue Zones Project, 2016

Opportunity for Improvement - Lack of a pedestrian travel connection to Longfellow Elementary

Currently, there is no pedestrian friendly crossing point within a reasonable distance connecting the future site of Longfellow Elementary and the rest of MISD. This lack of connection makes it difficult for sibling travel between schools and larger walking or cycling groups to form.

Solution for Improvement - Pedestrian connection with future Twenty-six and Twenty-seventh expansion

Twenty-sixth Street from Eighth to Seventh Avenues was recently vacated for future private development. It is important to ensure that a long-term bicycle and pedestrian trail connection is included with future site plan review and development. This is necessary to provide the pedestrian crossing points that can link Longfellow Elementary to the remainder of MISD.

Connection points more than a quarter mile from the Longfellow campus are less than desirable. As walking distance between FMI and Longfellow begin to become prohibitive.

Care should be given in future plans to ensure all proper consideration is provided to pedestrian and bicycle traffic, with potential trail connections provided if possible.

Objective Time Frame

This is a longterm project that should be reviewed with any future site plan review of future developments.

Responsible Party

The City of Marion shall be responsible for site plan reviews and their pedestrian and bicycle infrastructure.

Marion Independent School District Evaluation Objectives

Opportunity for Improvement - High speed motor vehicle traffic around schools

Many of the principals within MISD have reported perceived motor vehicle speeds that are significantly higher than the posted speed limit of 25 mph around MISD schools. Average speeds observed near Longfellow and Starry/MHS, are all higher than the posted limit; Corridor MPO staff recorded 50th percentile speeds at 29.4 mph and 29.7 mph respectively (see Table 5 on page 43). The difference between a motorist going 30 mph and 20 mph in a crash could be the difference between injury and death. Of crashes occurring at 20 mph 1 in 20 pedestrians will die; where crashes occur at 30 mph 9 in 20 pedestrians will die, see Figure 54 (on page 76) for details. Slowing ten miles per hour could mean the difference between life and death. [8]

South Fifteenth Street motor vehicle travel speeds near Starry and MHS are higher than desired. It is important to regularly monitor actual travel speeds.
Photo credit: Corridor MPO, 2017

Solutions for Improvement - Regularly perform a speed study for MISD Schools

Perception of travel speeds and actual average travels speeds can vary significantly. It is not uncommon for observed high speed motorists to be considered the norm, where in fact they are outliers. As such, it is important to collect actual data regarding motor vehicle travel speeds. Speed studies should be performed at similar locations near VMS, MHS, and Longfellow each year. Speed studies should be considered near FMI and Starry Elementary along Fourteenth Street only if requested or if issues arise that require data collection. Currently, speeds are believed to be slow enough at FMI and along Fourteenth Street, near Starry, to not warrant the need for speed studies.

Data from these studies should be provided for review at the annual meeting and provided to each principle representing the schools were data was collected.

Objective Time Frame

It is important for data collection to occur at the same time approximate time each year. Data needs to be collected only on a Tuesday, Wednesday, or Thursday; snow should not be on the ground nor should precipitation be occurring. For details on exact collection measures see state and federal procedures. Begin data collection in April of 2017.

Responsible Party

Corridor MPO has trained staff able to collect this data at no charge to the City of Marion or MISD. Corridor MPO shall be responsible for conducting speed studies annually and providing data to City of Marion and MISD staff.

Marion Independent School District Evaluation Objectives Continued

Annual review of student travel patterns via in class surveys will provide feedback to this plan and help guide future efforts.
Photo credit: MISD, 2017

Opportunity for Improvement - Low active transportation mode share

Currently, most students in all grades are driving themselves or getting a ride in a car to school. Encouraging students to walk or bicycle to school would help them practice and increase their knowledge of healthy behaviors.

Solution for Improvement - Survey active transportation mode share shifts

Determine the number of students currently walking and bicycling to school through the use of a survey. Annually compare the total number of students walking and bicycling to prior years and see whether more or less students are using active transportation to get to school and school activities. In this way, evaluation of the plan and the efforts used can be analyzed providing valuable feedback for current plan implementation and future planning.

With an annual survey, identify how many students are walking and bicycling to school. For grades 5-12 a paper survey should be provided and classroom tallies conducted by teachers for grades K-4. If possible, conduct two student surveys in the school year: the first in the fall September and the second in the April. If a fall and spring survey cannot be completed, then conduct survey in the spring.

Objective Time Frame

The annual survey has begun as part of this planning process. Continue surveying with the next school year in September of 2017.

Responsible Party

Individual teachers at each MISD school will be responsible for conducting their classroom surveys and getting those surveys to their individual school's administration. Administrative staff shall give the completed surveys to the Corridor MPO or Linn County Public Health staff to input and analyze any trends in students walking and cycling to school. The data shall ultimately be provided to MISD administrators and Corridor MPO or Linn County Public Health staff for storage.

Marion Independent School District Evaluation Objectives Continued

Opportunity for Improvement - Crashes between students and motorists

Thankfully MISD has had fewer than five incidents occur in the last several years where students were crossing the street within the district boundary and struck by a moving vehicle. Although that is a relatively low number of incidents, one crash between a student and a motorist is one too many (see Figure 23 on page 44).

Solutions for Improvement - Vision zero

This plan envisions having zero crashes between students and motorists occur due to the Engineering and Education Opportunities identified in this plan.

In order to verify and observe the plan's progress, crash data will be collected and analyzed to determine when and where crashes between pedestrians and motorists occur. If a certain area has a high crash frequency, then that area should be prioritized for infrastructure or other improvements, like adding a crossing guard, signs, or a refuge pedestrian island.

Objective Time Frame

Reduce the number of conflicts to zero between motorists and pedestrians or cyclists within a half mile of each school by May 2019, two years after this plan is adopted.

Responsible Party

The Marion Police Department shall be responsible for recording crash data between pedestrians, motorists, and cyclists. The Corridor MPO staff or Linn County Public Health Staff, who will then analyze the data for any trends or areas with high crash frequency during their annual plan review.

Cities and States are focused on Vision Zero. The need to lower fatalities to zero is an accepted national and state goal.
Photo credit: North Carolina, 2017
City of Fort Lauderdale, 2017

Marion Independent School District Evaluation Objectives Continued

For successful Safe Routes to School Plan implementation it is important to ensure a long-term commitment with an annual evaluation and progress review. Photo credit: Corridor MPO, 2017

Opportunity for Improvement - Ensure long-term relevance and success of plan

In order to assure this SRTS Plan is always up-to-date and accurate, an evaluation process needs to be established so the policies and outcomes from this plan are based on current information.

Solution for Improvement - Annual review process

Establish a process to assess the accuracy of MISD's SRTS Plan utilizing a "report card" for the goals of the plan (see Appendix F). In addition, each objective will be checked and recorded for completion. Also at the annual meeting an evaluation matrix will be developed (Appendix G) that will indicate what if any portion of the plan needs updating. Any updates will be brought to the MISD School Board and Marion City Council for adoption.

Additionally, the annual meeting shall be used to direct efforts for the coming year and discuss any lessons learned from the previous year.

The annual meeting shall take place outside of the school year to allow MISD administrators ample time to meet with Corridor MPO staff to conduct the evaluation process.

Marion Independent School District Evaluation Objectives Continued

Objective Time Frame

An annual meeting should be held in approximately the second week of July each year beginning in July of 2017.

Responsible Party

Representatives from MISD staff, the MISD parent teacher association, the City of Marion, Linn County Public Health, the Corridor MPO, and Marion Police Department shall comprise the minimum membership of the review team.

Linn County Public Health staff shall be responsible for organizing the annual meeting. Corridor MPO shall be responsible for taking information from that meeting and updating the plan accordingly. MISD administrators shall be responsible for providing Corridor MPO or Linn County Public Health staff information on what sections of the plan may be affected by changing policies, priorities, or infrastructure at the district or school-level.

Long-term success requires a long-term commitment. All of the above organizations are committed to annual meetings reviewing plan progress and implementation.

Figure 60. Evaluation Matrix

EVALUATION MATRIX (EXAMPLE)		
Plan section	Any major changes that would affect this section of the plan?	What needs to be updated or added to the plan?
5E opportunities for Longfellow	The school has finished being constructed.	Evaluation, encouragement, engineering, education, and enforcement (5E) opportunities need to be identified for Longfellow Elementary School.

Francis Marion Intermediate School Engineering Objectives

City Square Recently installed APBP approved bike racks that have two points of contact to better support parked bicycles, preventing bent wheels and facilitating easy locking of the bicycle frame.
Photo credit: City of Marion, 2015

Turning our focus to specific schools we will now analyze the objectives developed for Francis Marion Intermediate (FMI). All solutions for improvement take an engineering perspective, looking for a lasting improvement on the built environment.

Opportunity for Improvement - Bike Parking

FMI has a moderately utilized bike parking area on the western portion of the campus located away from the roadway and a reasonable distance from the main campus entrances. Additional bike parking is needed and in a location that can act to promote cycling to school.

Solution for Improvement - Provide bike parking near north entrance

Providing more visible and easily accessible bike parking on campus will act to encourage more cycling trips to school. Well placed and quality bike parking facilities increase security of bicycles when not in use, while encouraging bicycle travel.

Placement of bike parking within 50 feet of the main entrance will remind students that cycling is a viable way to travel. Additionally, placement in a prominent location with ease of access to the building promotes cycling as a travel option by lowering the perceived barriers imposed by a bike parking location that is less visible and more distant from the main entrance.

Francis Marion Intermediate existing bike racks, while not APBP compliant, still provide usable bike parking and should be maintained along with new parking improvements.
Photo credit: Corridor MPO, 2016

Francis Marion Intermediate School Engineering Objectives Continued

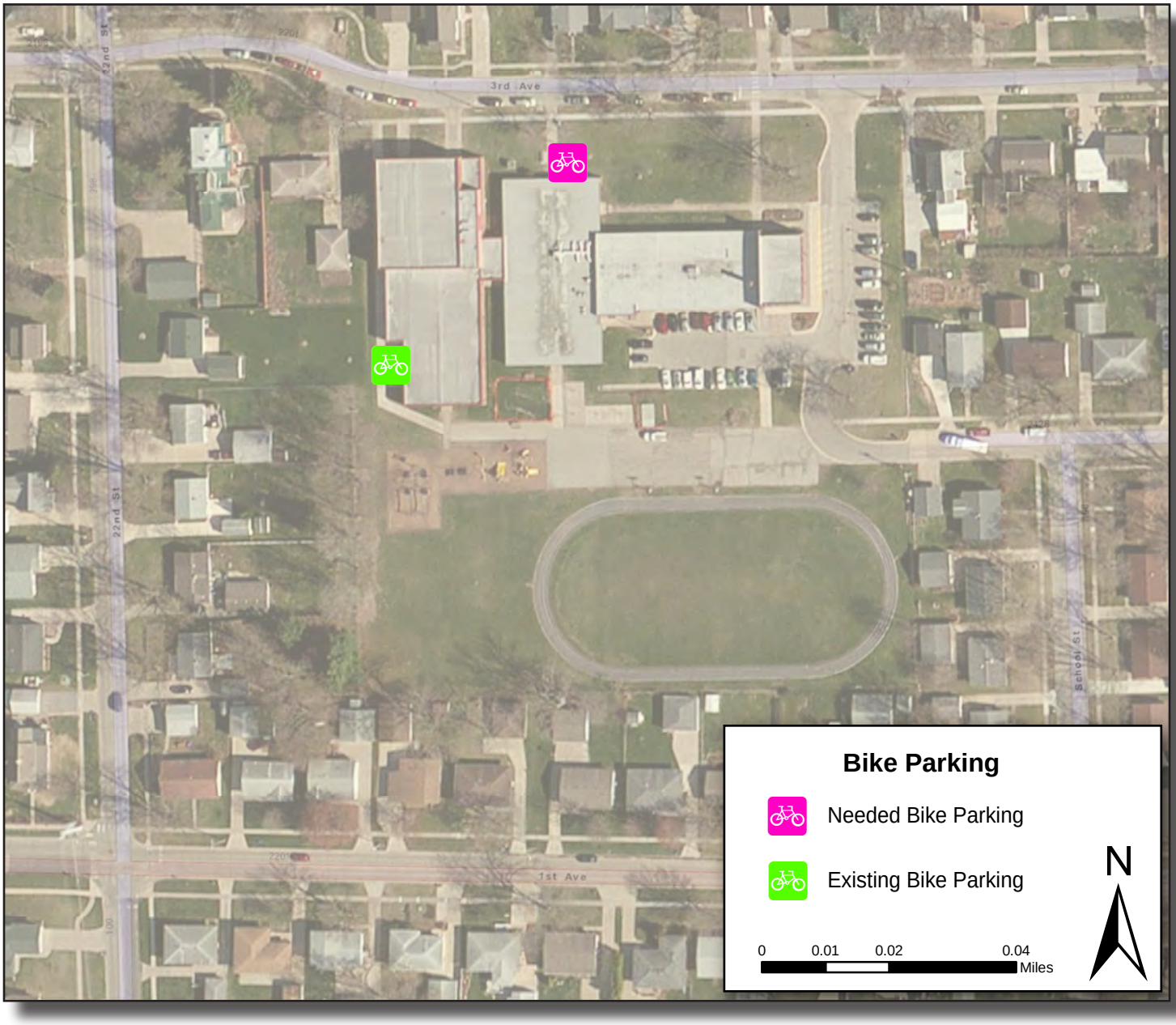
Objective Time Frame

Purchase additional APBP approved racks to be installed within 50 feet from the main entrance on the northern side of the building. [15] See Figure 61 for general bike rack placement. Complete before August of 2018.

Responsible Party

Ultimate responsibility for completion shall be with administrative staff at FMI. However, grant and technical support should be sought from City of Marion and Corridor MPO staff.

Figure 61. Francis Marion Intermediate School Bike Parking



Francis Marion Intermediate School Engineering Objectives Continued

Opportunity for Improvement - Unmarked Crossings

Several of the main pedestrian crossing points on or near FMI are not marked. Unmarked high traffic crossing areas can lead to conflicts between motorists and pedestrians, risking possible injury.

Solution for Improvement - Mark indicated crossing locations

At the high traffic pedestrian crossing points indicated on Figure 62 a proper "zebra" style crossing pattern should be provided to raise awareness of potential and likely pedestrian crossings.

Objective Time Frame

MUTCD approved pedestrian crossings should be installed at the locations depicted in Figure 62 by August of 2018.

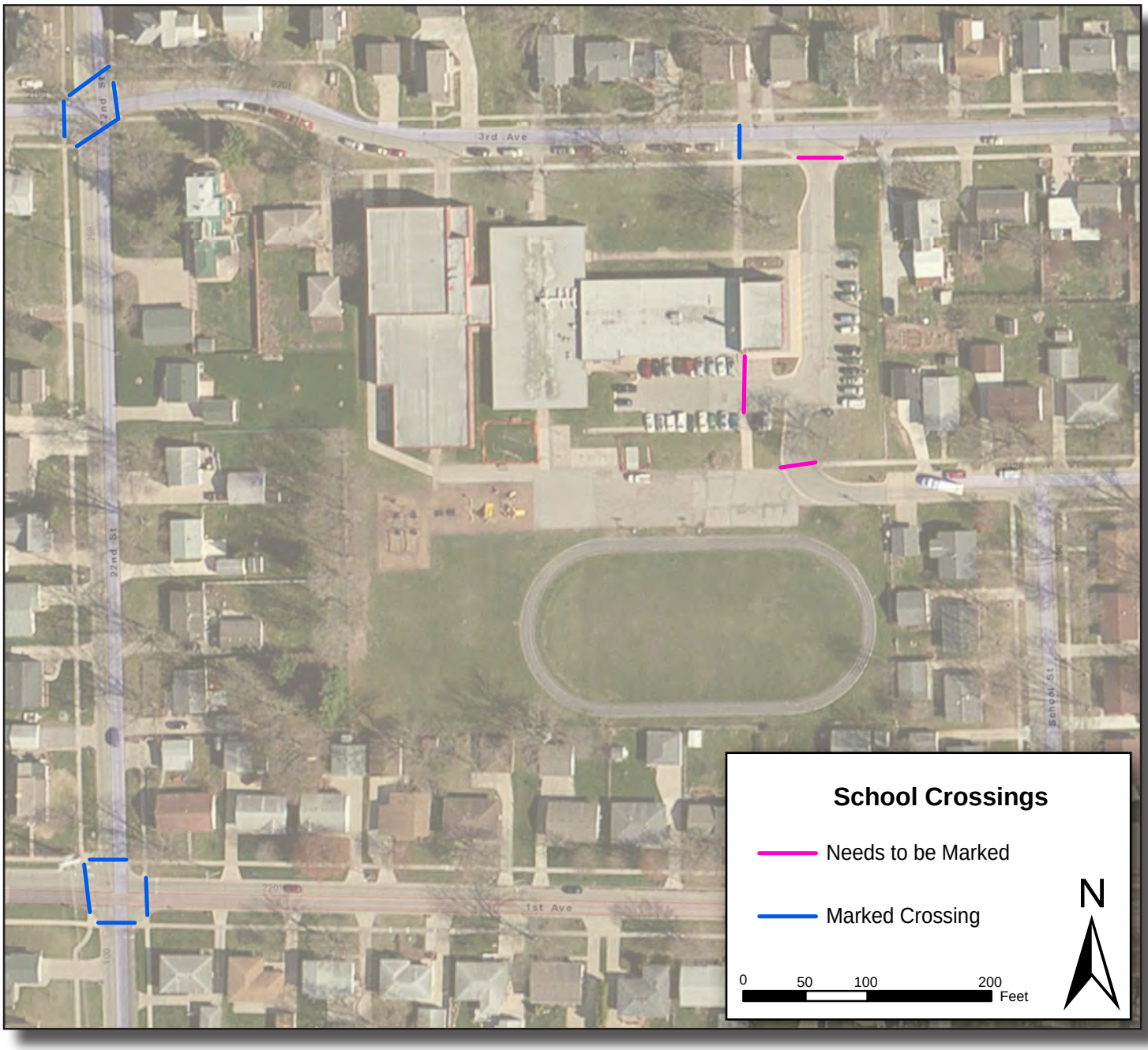
Francis Marion Intermediate, is an example of orderly drop-off and dismissal, however, many crossings could be better protected by utilizing marked crosswalks.
Photo credit: Corridor MPO, 2016

Francis Marion Intermediate School Engineering Objectives Continued

Responsible Party

As all of these painting locations are located on the FMI campus. Responsibility for this objective shall be with administrative staff at FMI. Compliance with all appropriate Americans with Disabilities Act (ADA) accommodations needs to be ensured. [12] Approval with Marion's Traffic Advisory Committee should be granted prior to installation.

Figure 62. Francis Marion Intermediate School Crossings



Francis Marion Intermediate School Engineering Objectives Continued

Francis Marion Intermediate sees a significant number of cars and pedestrians entering the school from Third Avenue. A shorter crossing distance along the northern driveway entrance from Third Avenue will lower the risk of conflict and injury.
Photo credit: Corridor MPO, 2016

Opportunity for Improvement - Long pedestrian crossing distance at Third Avenue entrance

The crossing distance at the northern entrance to FMI currently is approximately 40 feet across. This large distance increases the potential for pedestrian and motorist conflict. This entrance is used by all motor vehicle traffic entering the school. Currently one-way traffic exists from the north to the south during student drop-off and dismissal.

Solution for Improvement - Extend the western curb-face

Extending the curb-face on the western portion of the entrance to be in line with the southern portion of the driveway entrance will shrink the crossing distance to 24 feet (see Figure 63 on the next page). This will decrease the likelihood for pedestrian conflicts at this crossing point. The large turning radii currently provided are designed to support bus travel. FMI leadership indicates that bus turning movements into FMI can be directed to come only from the eastern portion of Third Avenue. This traffic pattern for buses will allow for a smaller turning radius on the western portion of the driveway.

Objective Time Frame

Extend the curb to shrink the crossing distance to 24 feet. Additionally, direct bus traffic to enter only from the eastern portion of Third Avenue. These changes should be made prior to August 2019.

Francis Marion Intermediate School Engineering Objectives Continued

Responsible Party

City of Marion Engineering Department shall be responsible for the public right-of-way that encompasses the project area. Project cost and implementation shall be provided by MISD. Additionally, MISD and FMI administrative staff shall be responsible for working with bus drivers to adjust traffic patterns once the project is complete.

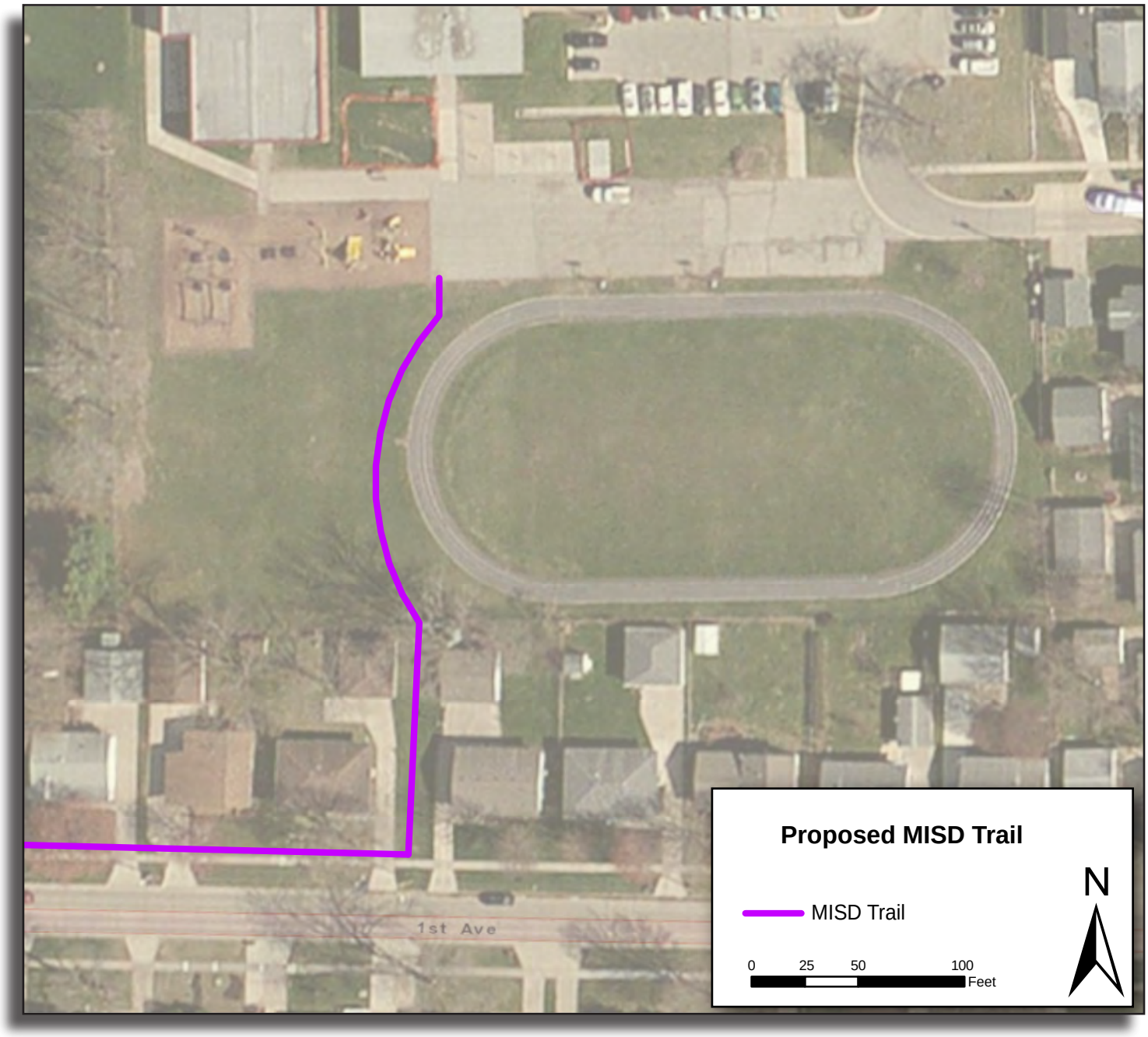
Figure 63. Francis Marion Intermediate School Curb Extension

Francis Marion Intermediate School Engineering Objectives Continued

Opportunity for Improvement - Southern pedestrian access

Observed pedestrian travel patterns indicate that a large amount of all pedestrian travel to and from FMI is occurring along the path indicated in Figure 64. This informal walking path has been developed and supported by the City of Marion and the existing home owners. An eight foot easement has been established to maintain this access point for future use.

Figure 64. Francis Marion Intermediate School Trail Connection



Francis Marion Intermediate School Engineering Objectives Continued

Solution for Improvement - Provide a trail connection to this southern access point

Make this access point more formal and accessible to persons with disabilities and bicycle travel by paving a trail width path connecting to FMI. This width should be consistent with the proposed MISD Trail at ten feet standard or eight feet with right-of-way constrictions. As the total existing easement is eight feet wide the path will likely be constrained to that width unless a new easement can be established.

When paving this section of the MISD Trail, ensure width of one lawnmower pass is provided between the trail and existing track for proper maintenance.

The final portion of the MISD trail would connect near the existing track facility at FMI. Ensure enough space between the track and trail so as to not interfere with track events and allow for proper field maintenance.
Photo credit: Corridor MPO, 2016

Objective Time Frame

Pave this access point in part or along with the greater proposed MISD Trail. Paving should occur as soon as possible but likely between 2019 and 2021. Inclusions of the MISD Trail into the Marion Master Trails Plan should occur soon after this plans adoption.

Responsible Party

The City of Marion Bicycle and Pedestrian Coordinator shall be responsible for ensuring the proper provision of local or grant allocated funds to accomplish the MISD Trail. Additional support may be provided by Corridor MPO staff. Possible grant sources include the State and Federal Recreational Trails Programs. City of Marion staff shall be responsible for including the MISD trail into the Marion Master Trails Plan.

Longfellow Elementary School Engineering Objectives

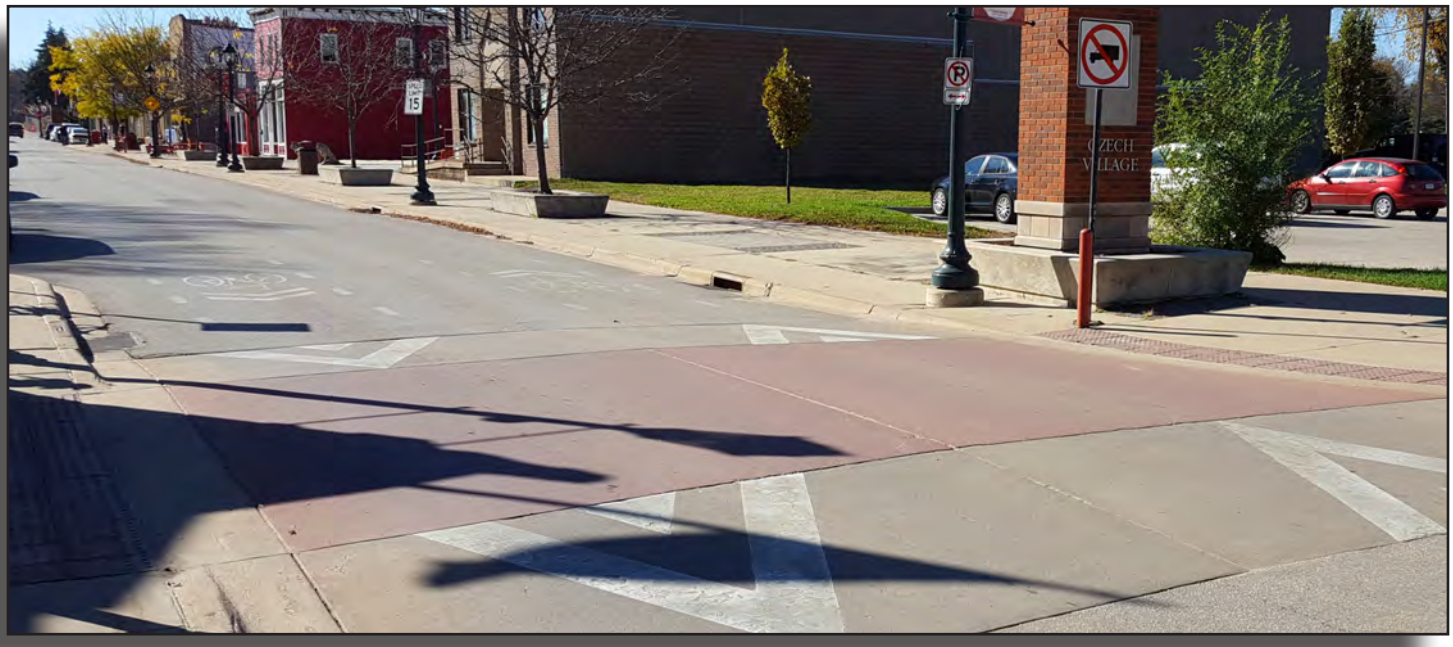
While Longfellow Elementary School is not yet built, it is still very important to consider what solutions can be applied in advance of construction, perhaps alleviating potential problems before they occur. All solutions for improvement take an engineering perspective.

Opportunity for Improvement - Tenth Avenue pedestrian crossing

Most pedestrian trips to Longfellow are expected from the northern portions of MISD. Given the barrier to student pedestrian travel presented by the Seventh Avenue corridor, and the traffic speeds found there and on Eighth Avenue, most children walking to school are expected to utilize Tenth Avenue and cross directly onto campus. Current Longfellow site plans (see Appendix C) show a marked pedestrian crossing just west of the intersection of Twenty-ninth Street and Tenth Avenue.

Motor vehicle speeds average 29.4 mph; 4.4 mph higher than the posted speed limit of 25 mph (see Table 5 on page 43). Traffic volumes are higher than desired for a school zone, at approximately 2,500 cars per day (see Figure 21 on page 41).

Speed Tables are raised pedestrian crossings that physically slow traffic while simultaneously creating a visual prominence supporting safe pedestrian crossings.
Photo credit: Corridor MPO, 2015



Longfellow Elementary School Engineering Objectives Continued

Solution for Improvement - Speed table

Traffic needs to be slowed while at the same time pedestrians need to have clearly defined crossing points, rather than the unpredictable and scattered crossing patterns that can arise without proper marking. The use of marked speed tables at what is expected to be heavily used crossings should act to concentrate most pedestrian crossings while simultaneously slowing motor vehicle travel speeds without the need for enforcement.

Install speed tables with an appropriately marked top, preferably dyed concrete at the location indicated on Figure 65. Use slopes from the road surface to the table-top of 60 degrees so as to not interfere with snow removable.

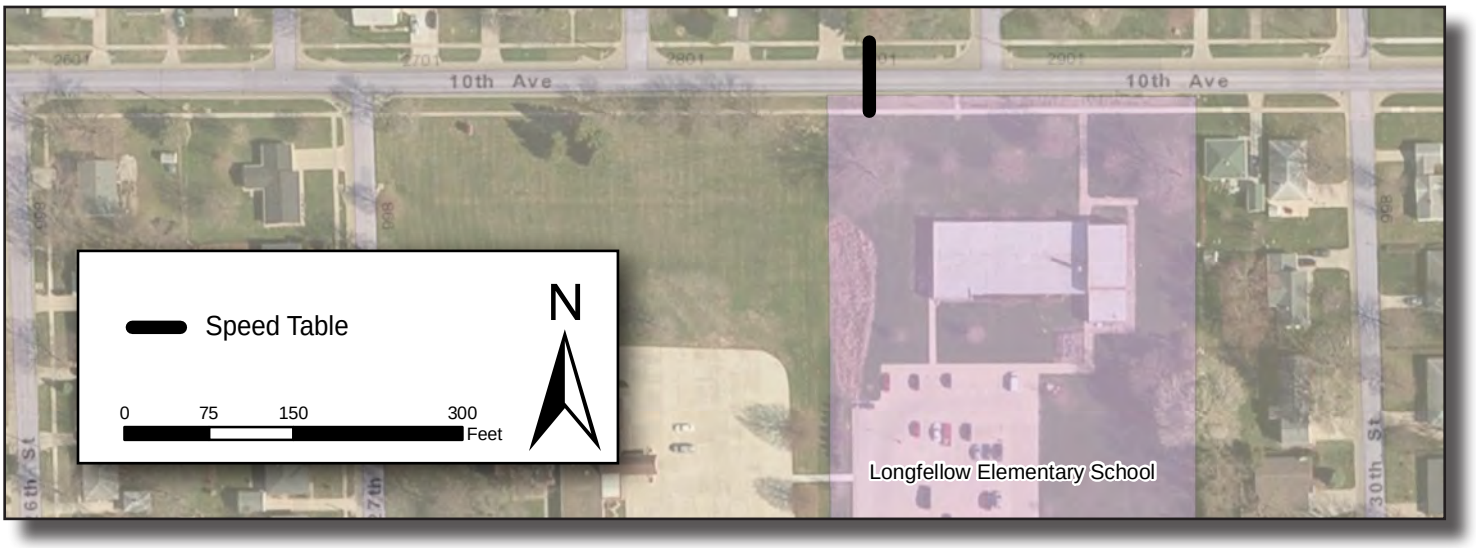
Objective Time Frame

Completion of this speed table should be a low priority and considered when other methods have not successfully slowed traffic speeds. Consideration should occur prior to August 2019.

Responsible Party

MISD shall be responsible for costs associated with installation. City of Marion Public Service Department shall be responsible for compliance with all appropriate ADA accommodations. Approval with Marion's Traffic Advisory Committee should be granted prior to installation.

Figure 65. Longfellow Elementary School Speed Table



Longfellow Elementary School Engineering Objectives Continued

Lindale Drive Trail Crossing utilizes RFBs at crossings with high bicycle and pedestrian traffic. RFBs require motorists to stop only while the more venerable road users need to cross. Activated by push button, flashing lights alert motorists to stop. Once crossings are completed motorists may continue; they do not need to wait for the lights to stop. Photo credit: City of Marion, 2016

Opportunity for Improvement - Tenth Avenue pedestrian crossing

Most pedestrian trips to Longfellow are expected from the northern portions of MISD. Given the barrier to student pedestrian travel presented by the Seventh Avenue corridor and the traffic speeds found there and on Eighth Avenue most children walking to school are expected to utilize Tenth Avenue and cross directly onto campus. Current Longfellow site plans (see Appendix C) show a marked pedestrian crossing just west of the intersection of Twenty-ninth Street and Tenth Avenue.

Solution for Improvement - RFB

The need to increase the visibility of pedestrian crossings at this location should be a primary priority of this plan. The use of push button operated illuminated flashing beacon pedestrian warning signs will greatly increase visibility of pedestrians crossing the street and should increase the likelihood that motorists will stop, According to FHWA data, Rapid Flashing Beacon (RFB)s have demonstrated high compliance rates within the 80 to 90 percent range. [11]

Motor vehicle traffic will only have to stop once the RFB has been activated and may begin traveling again once the pedestrian has crossed.

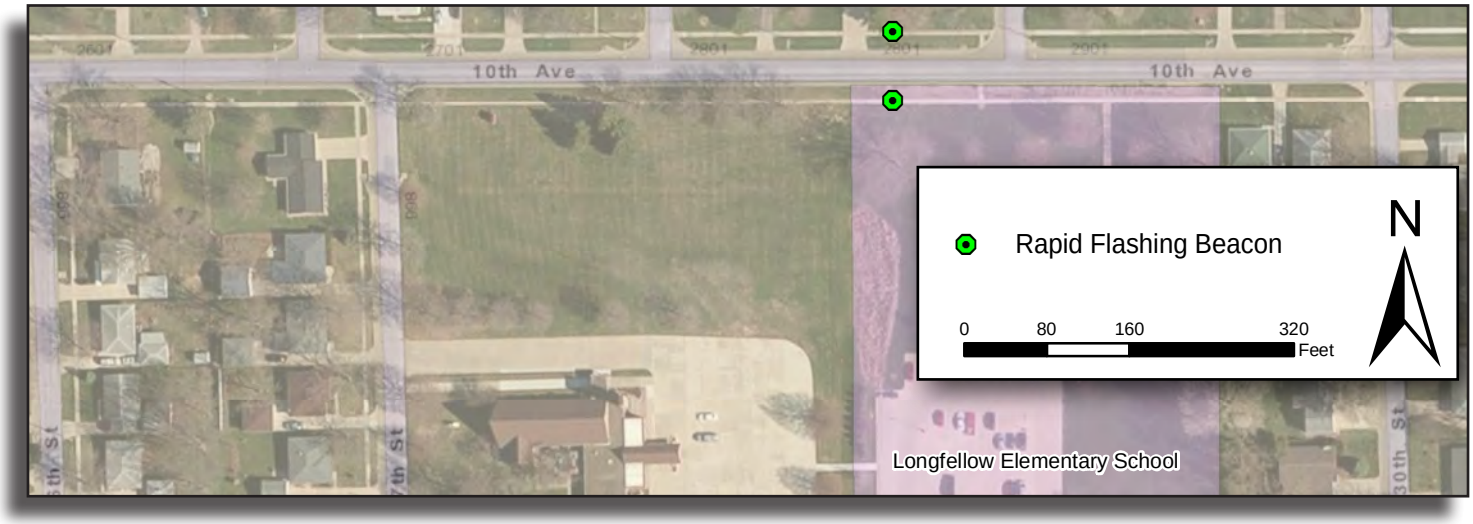
Objective Time Frame

MUTCD approved RFBs should be installed at the locations depicted in Figure 66 by August of 2017.

Responsible Party

MISD is responsible for costs of RFBs. Marion Engineering Department is responsible to ensure the proper review and approval process is utilized.

Figure 66. Longfellow Elementary School Rapid Flashing Beacon



Longfellow Elementary School Engineering Objectives Continued

Opportunity for Improvement - Bike Parking

Currently Longfellow Elementary is being constructed with completion scheduled for August of 2017. As such, existing bike parking does not exist, and is needed.

Solution for Improvement - Provide bike parking near north entrance

With no known usage rates for Longfellow it is recommended to purchase APBP approved racks with growth in mind. Site selection should allow for more racks to be added in the future. A minimum of eight racks providing capacity for at least 16 bikes should be provided now and located no less than 50 feet from the main entrance on the northern side of campus. See Figure 67 for general bike rack placement.

Objective Time Frame

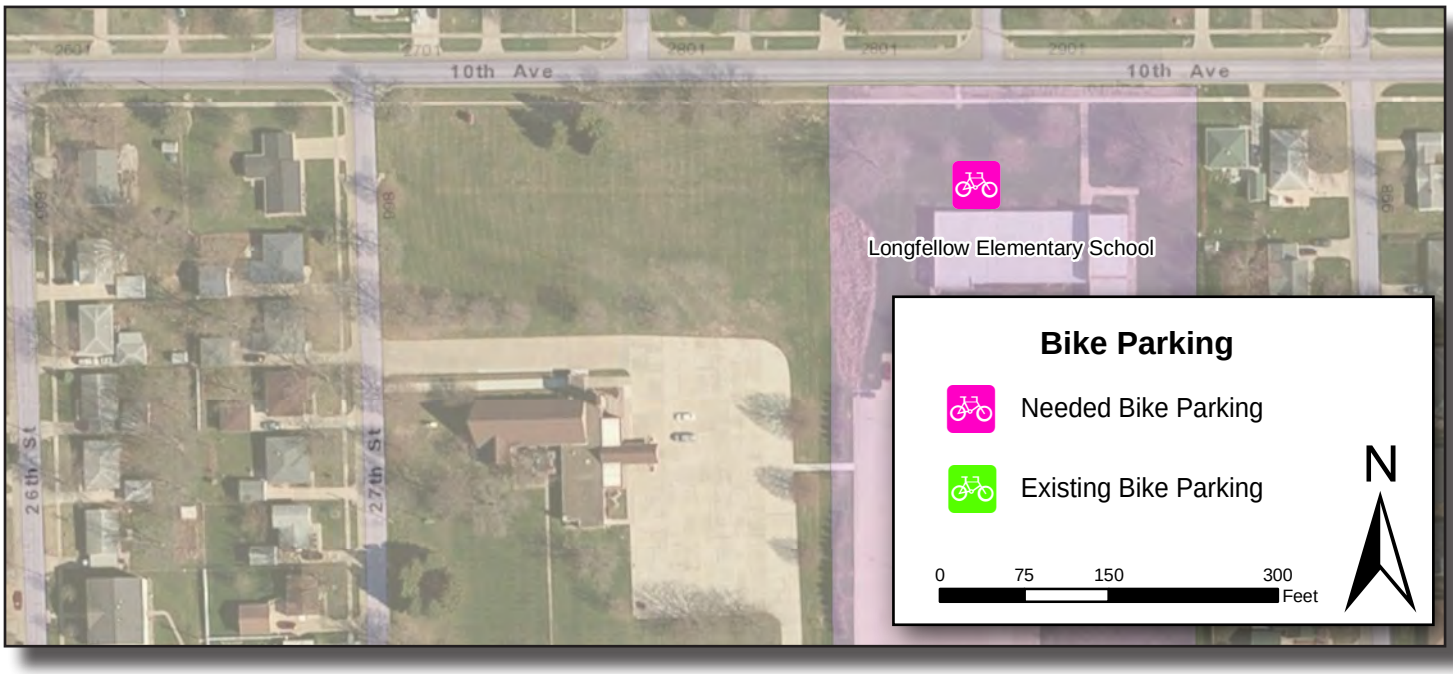
Installation of these first racks should occur prior to Longfellow's opening in August of 2017.

Responsible Party

Ultimate responsibility for completion shall be with administrative staff at Longfellow. However, grant and technical support should be sought from City of Marion and Corridor MPO staff.

Conventional "U-rack" designed bike racks are APBP approved, affordable, modular, and simple to use supporting the bike in two places and preventing damage. Photo credit: Corridor MPO, 2013

Figure 67. Longfellow Elementary School Bike Parking

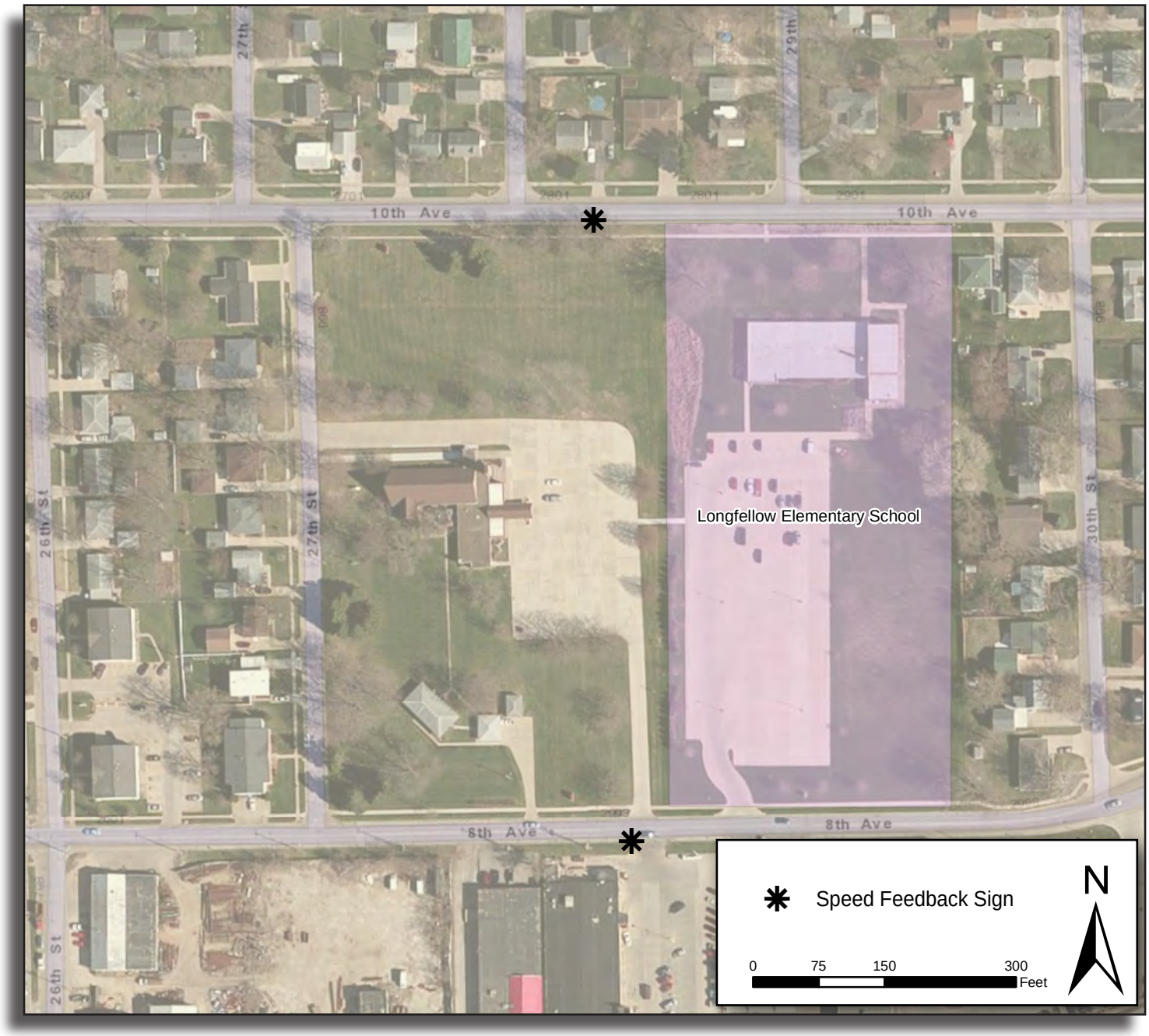


Longfellow Elementary School Engineering Objectives Continued

Opportunity for Improvement - Motor vehicle speeds adjacent on Eighth and Tenth Avenue

Motor vehicle speeds along Eighth and Tenth Avenue are 3.8 and 4.4 mph higher respectively than the posted speed limit of 25 mph (see Table 5 on page 43). With lower travel speeds the severity and likelihood of crashes decreases along with the perception of safety concerns leading to potentially more walking and biking school trips.

Figure 68. Longfellow Elementary School Speed Feedback Sign



Longfellow Elementary School Engineering Objectives Continued

Solution for Improvement - Speed feedback signs

Reducing motorist travel speeds may be an issue of awareness. Potentially through traveling motorists are not aware that they are traveling near a school, and that the speed limit is 25 mph. Installation of radar feedback signs prior to entering the newly created school zone along Eighth and Tenth Avenue should act to increase awareness and lower average travel speeds.

Objective Time Frame

Install radar speed feedback signs prior to the school zones on Eighth and Tenth Avenues. Install signs below the existing speed limits signs. Additional signs may be necessary. See Figure 68 (previous page) for details. Installation of these signs should occur prior to Longfellow's opening in August of 2017.

Responsible Party

MISD shall be responsible for costs associated with installation. The City of Marion shall be responsible for all proper review and approval processes.

Speed feedback signs, alert motorist of their actual travel speeds and when paired with school zones signs, the need to slow down due to the presence of children.
Photo credit above and below: Corridor MPO, 2017

Longfellow Elementary School Engineering Objectives Continued

Pedestrian travel at Starry Elementary may resemble future pedestrian travel patterns at the future location of Longfellow Elementary. Frequent pedestrian travel can be expected from the campus to the surrounding neighborhood. Marked crosswalks are needed.
Photo credit: Dan Burden, 2016

Opportunity for Improvement - Unmarked Crossings

Expected pedestrian travel patterns based on land-use evaluations suggest that students will reach Longfellow generally from the north along Tenth Avenue. There currently are no marked crosswalk near Longfellow, and very few actual crosswalks across Tenth Avenue (unmarked).

Existing unmarked crossings are located near Twenty-eighth Street at mid-block, the eastern side of Thirty-first Street, and Twenty-fifth Street to the west. The Twenty-ninth Street crossing will be the primary crossing route and will be discussed later in this plan.

Existing crossing locations at Twenty-fifth and Thirty-first Streets are a significant distance from the future Longfellow campus, and in the case of Thirty-first street, located at a very busy intersection.

Solution for Improvement - Mark indicated crossing locations

At the pedestrian crossing points indicated on Figure 69 on the next page, a proper "zebra" style crossing pattern should be provided to raise awareness of potential and likely pedestrian crossings. Further, sidewalk connections will need to be established at Twenty-sixth and Thirtieth Streets to form actual crosswalks.

Marked and functional crosswalks need to be established closer to Longfellow's campus as pedestrian crossings are likely to occur even if they are not marked. Existing crossings are very infrequent across Tenth Avenue making crossings occurring at unofficial and unmarked locations likely to occur if no improvements are made.

Objective Time Frame

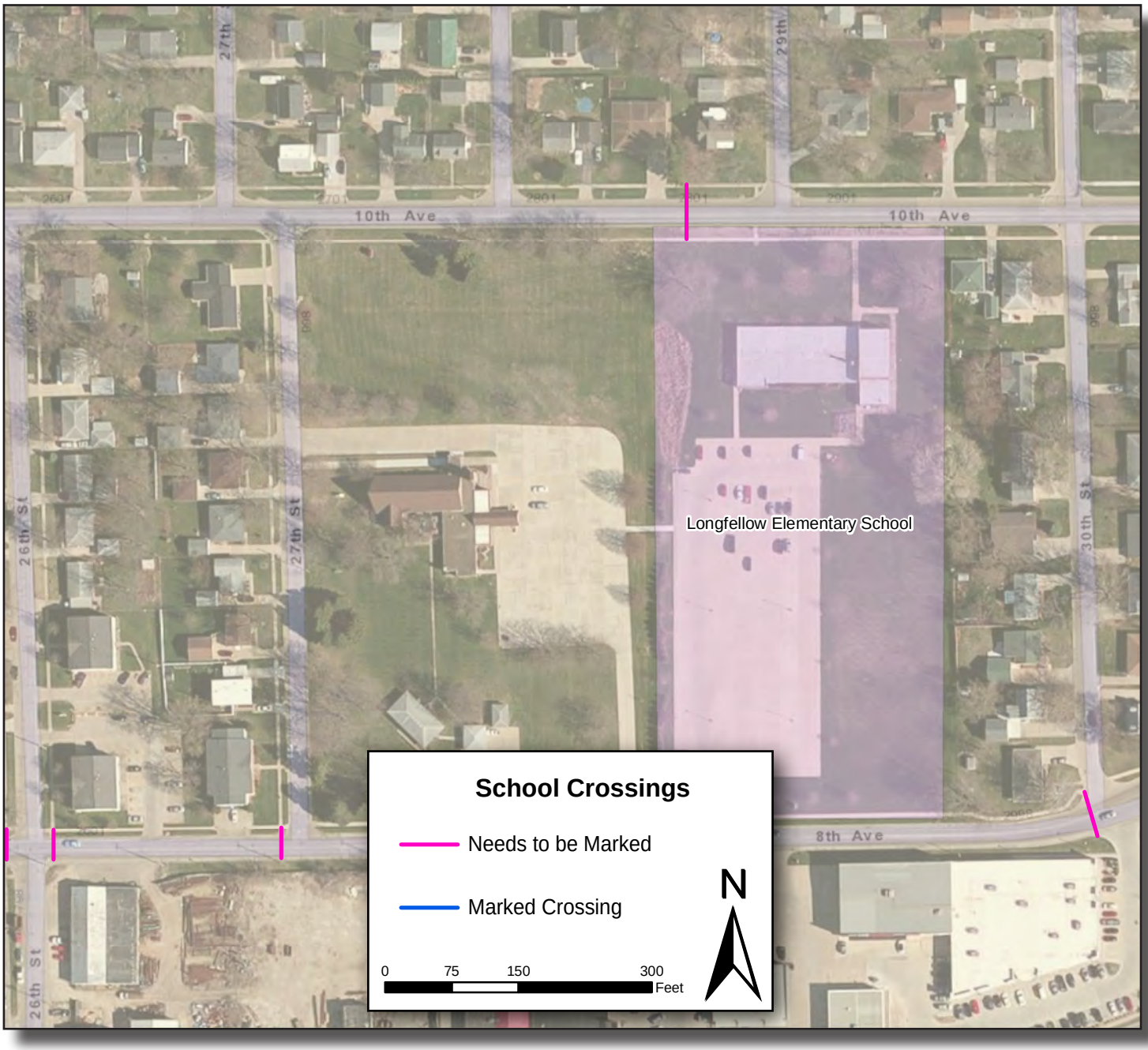
MUTCD approved pedestrian crossings should be installed at the locations depicted in Figure 69 before Longfellow's opening in August of 2017.

Longfellow Elementary School Engineering Objectives Continued

Responsible Party

City of Marion Public Service Department shall be responsible for proper markings of the appropriate crossing locations. City of Marion Engineering Department shall be responsible for creating crosswalks at the indicated locations. Compliance with all appropriate ADA accommodations needs to be ensured. Approval from Marion's Traffic Advisory Committee should be granted prior to installation.

Figure 69. Longfellow Elementary School Crossings



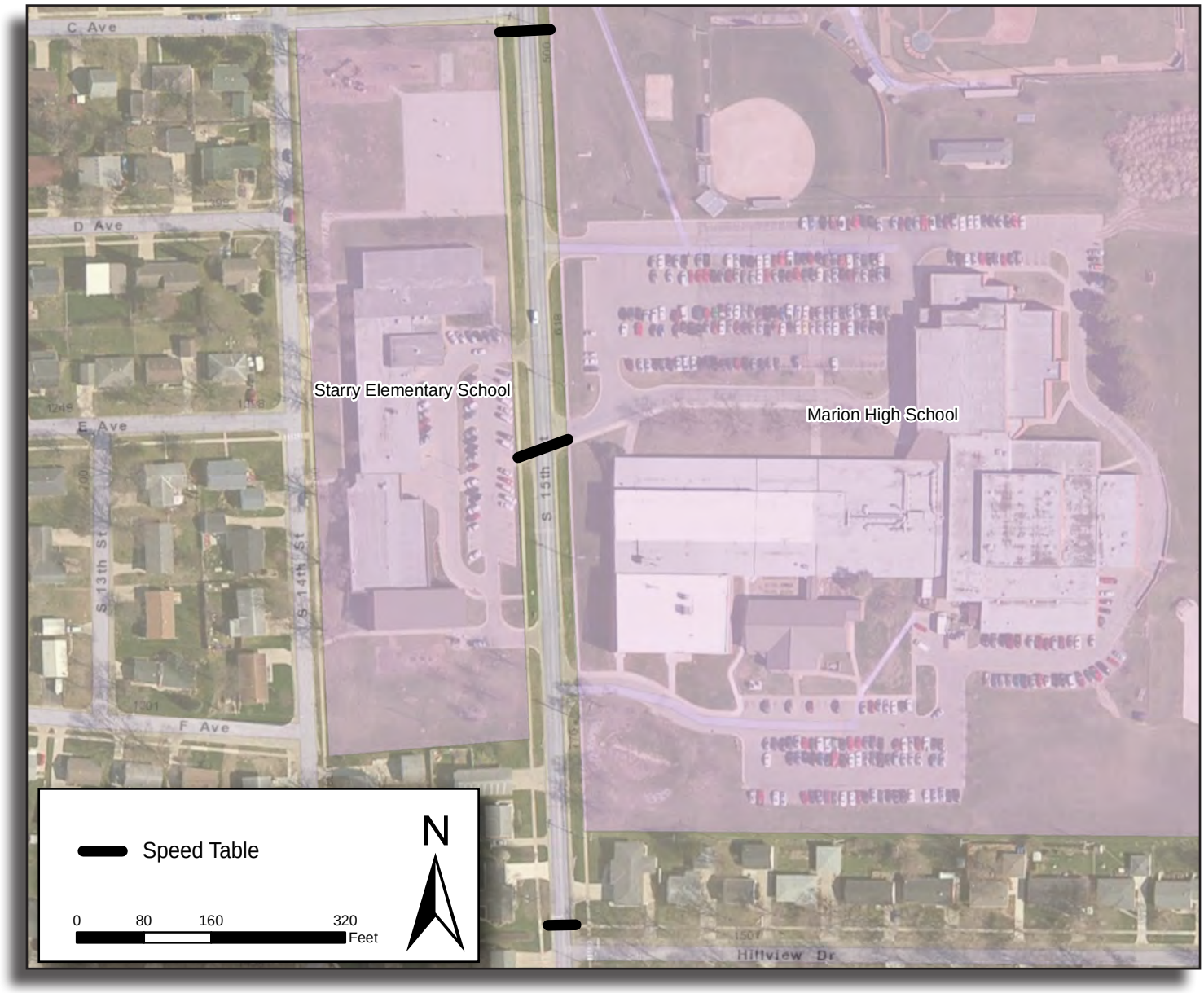
Starry and Marion High Schools Engineering Objectives

Many opportunities for improvement at MHS and Starry are shared given the close proximity of the two schools. The following solutions will look at engineering improvements that will serve both schools.

Opportunity for Improvement - South Fifteenth Street pedestrian crossings

There is currently a high level of parent and student foot traffic across South Fifteenth Street between Starry and MHS. Motor vehicle speeds are 4.7 mph higher than the posted speed limit of 25 mph and traffic volumes are higher than desired at approximately 2,200 cars per day (see Figure 20 on page 40). Most of these pedestrian crossings are not occurring at a designated crosswalk.

Figure 70. Starry and Marion High Schools Speed Tables



Starry and Marion High Schools Engineering Objectives Continued

Solution for Improvement - Speed tables

From an engineering perspective, traffic needs to be slowed while at the same time pedestrians need to have clearly defined crossing points, rather than the unpredictable and scattered crossing patterns that currently exist. The use of marked speed tables at three heavily used crossing locations should act to concentrate most pedestrian crossings while simultaneously slowing motor vehicle travel speeds without the need for enforcement.

Speed Tables can add to the aesthetic of the community while increasing safety and walkability.
Photo credit: Corridor MPO 2015

Objective Time Frame

Install speed tables with an appropriately marked, dyed concrete top at the three locations indicated on Figure 70. Use slopes from the road surface to the table-top of 60 degrees so as to not interfere with snow removable. Priority concern should be given to the middle speed table just south of the entrance of MHS. Completion of this crossing point should occur prior to August 2019. The crossings near C Avenue and Hillview Drive should be considered low priorities and considered once other efforts have been tried.

Responsible Party

City of Marion Public Service Department shall be responsible for proper construction and markings of the appropriate crossing locations. Compliance with all appropriate ADA accommodations needs to be ensured. Approval from Marion's Traffic Advisory Committee should be granted prior to installation.

Starry Elementary and MHS see large amounts of pedestrian travel between schools with no marked crossing and higher than desired motor vehicle travel speeds.
Photo credit: Dan Burden, 2016

Starry and Marion High Schools Engineering Objectives Continued

Cars stopped for pedestrian at Lindale Trail Crossing. Rapid Flashing Beacons on the bike and pedestrian sign flash requiring motorists to stop and allow pedestrians to cross.
Photo credit: City of Marion, 2017

Lindale Trail Crossing RFBs are engaged only when a pedestrian engages the button, allowing traffic to flow at all other times.
Photo credit: City of Marion, 2016

Opportunity for Improvement - Fifteenth Street Pedestrian crossings

The largest level of pedestrian crossings of South Fifteenth Street is occurring just south of the middle entrance to MHS. This crossing location is busy with parents picking up and dropping off students as well as student travel between Starry Elementary and MHS. Additionally, the topography of this location, at the crest of a hill, hinders drivers ability to identify when a pedestrian is crossing Fifteenth Street.

Additionally, many pedestrians are currently crossing at the half-signalized intersection at A Avenue. A half-signal is an older crossing method that when a pedestrian pushbutton is activated changes the light from green to red to allow for pedestrian crossing. This type of treatment completely stops traffic until the light has turned from red back to green. Half-signal design is not current practice and Marion Streets Department report higher than desirable maintenance costs.

Solution for Improvement - RFB

The need to increase the visibility of pedestrian crossings at these locations should be a primary priority of this plan. The use of push button operated RFB pedestrian warning signs will greatly increase visibility of pedestrians crossing the street and should increase the likelihood that motorists will stop to allow pedestrians to cross. FHWA indicates RFBs have demonstrated high compliance rates within the 80 to 90 percent range. [13]

Motor vehicle traffic will only have to stop once the RFB has been activated and may begin traveling again once the pedestrian has crossed; they do not have to wait until the light has stopped flashing.

RFBs are lower cost than other potential treatments such as High Intensity Activated Crosswalk (HAWK)s and half-signals. They can be solar powered where possible and allow for a very simple wire free installation through the use of Bluetooth technology.

Objective Time Frame

MUTCD approved RFBs should be installed at the locations depicted in Figure 71 (next page) by August of 2018.

Responsible Party

MISD shall coordinate with the City of Marion for the costs of RFBs. City of Marion Engineering Department is responsible to ensure the proper review and approval process is utilized.

Starry and Marion High Schools Engineering Objectives Continued

The Lindale Drive Trail Crossing utilizes RFBs. Drivers are much more likely to stop and allow pedestrians to cross when an RFB is in use. Photo credit: City of Marion, 2016

Figure 71. Starry and Marion High Schools Rapid Flashing Beacon

Starry and Marion High Schools Engineering Objectives Continued

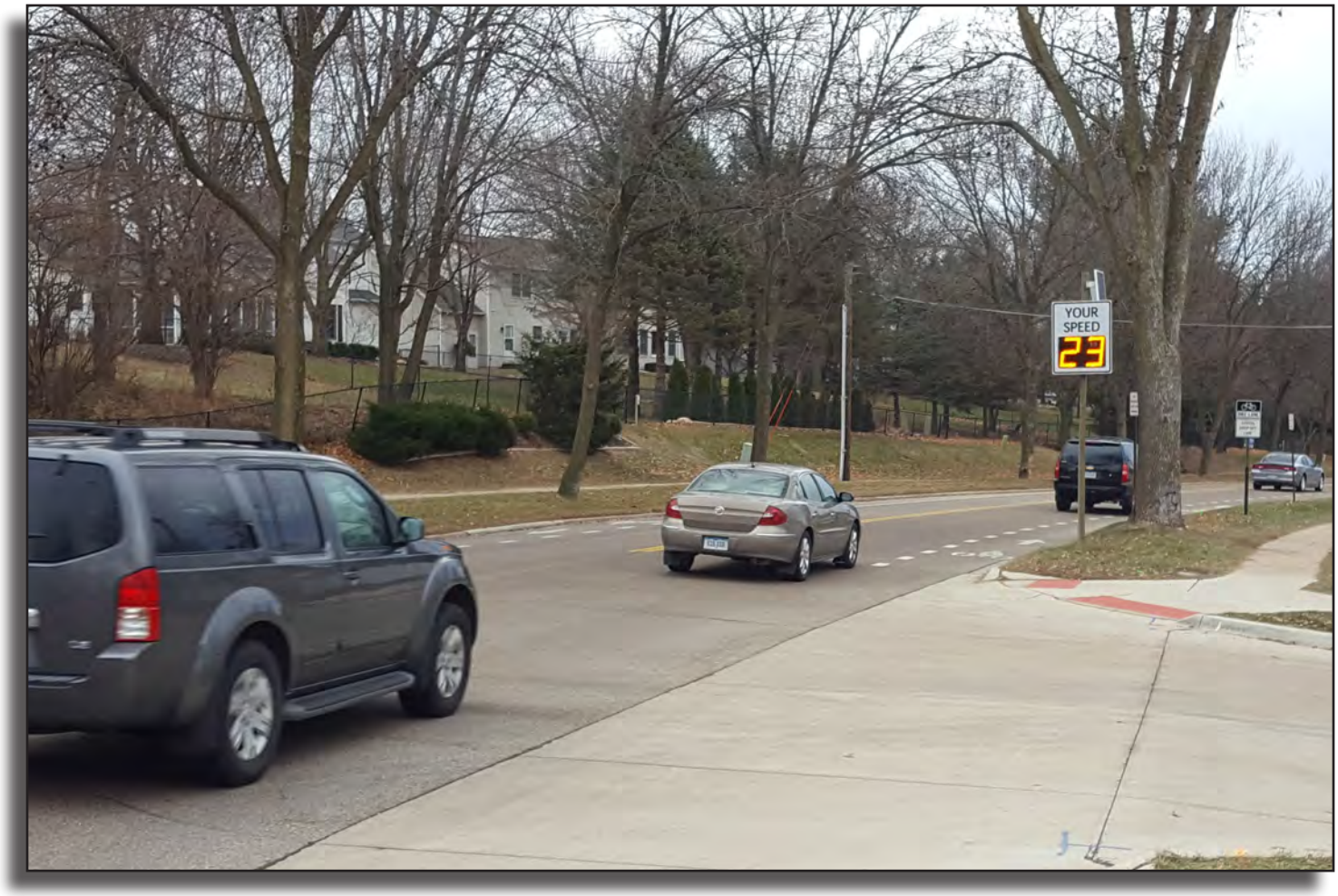
Opportunity for Improvement - High motor vehicle travel speeds on Fifteenth Street

Motor vehicle speeds along South Fifteenth Street are higher than the posted speed limit of 25 mph (see Table 5 on page 43). With lower travel speeds the severity and likelihood of crashes decreases along with the perception of safety concerns leading to potentially more walking and biking school trips.

Solution for Improvement - Speed feedback signs

Reducing motorist travel speeds may be an issue of awareness. Potentially through traveling motorists are not aware that they are traveling near a school and that the speed limit is 25 mph. Installation of radar feedback signs prior to entering the newly created school zone along South Fifteenth Street should act to increase awareness and lower average travel speeds.

Speed feedback signs have a slowing effect that can act to slow down not just the lead car, but traffic as a whole. Once one car slows down all following vehicles must slow as well.
Photo credit: Corridor MPO, 2017



Starry and Marion High Schools Engineering Objectives Continued

Objective Time Frame

Install radar speed feedback signs prior to the school zone on South Fifteenth Street. Install signs below the existing speed limits on South Fifteenth, see Figure 72 for details. Installation of these signs should occur prior to August 2018.

Responsible Party

MISD shall be responsible for costs. City of Marion Engineering Department is responsible to ensure the proper review and approval process is utilized.

Figure 72. Starry and Marion High Schools Speed Feedback Signs

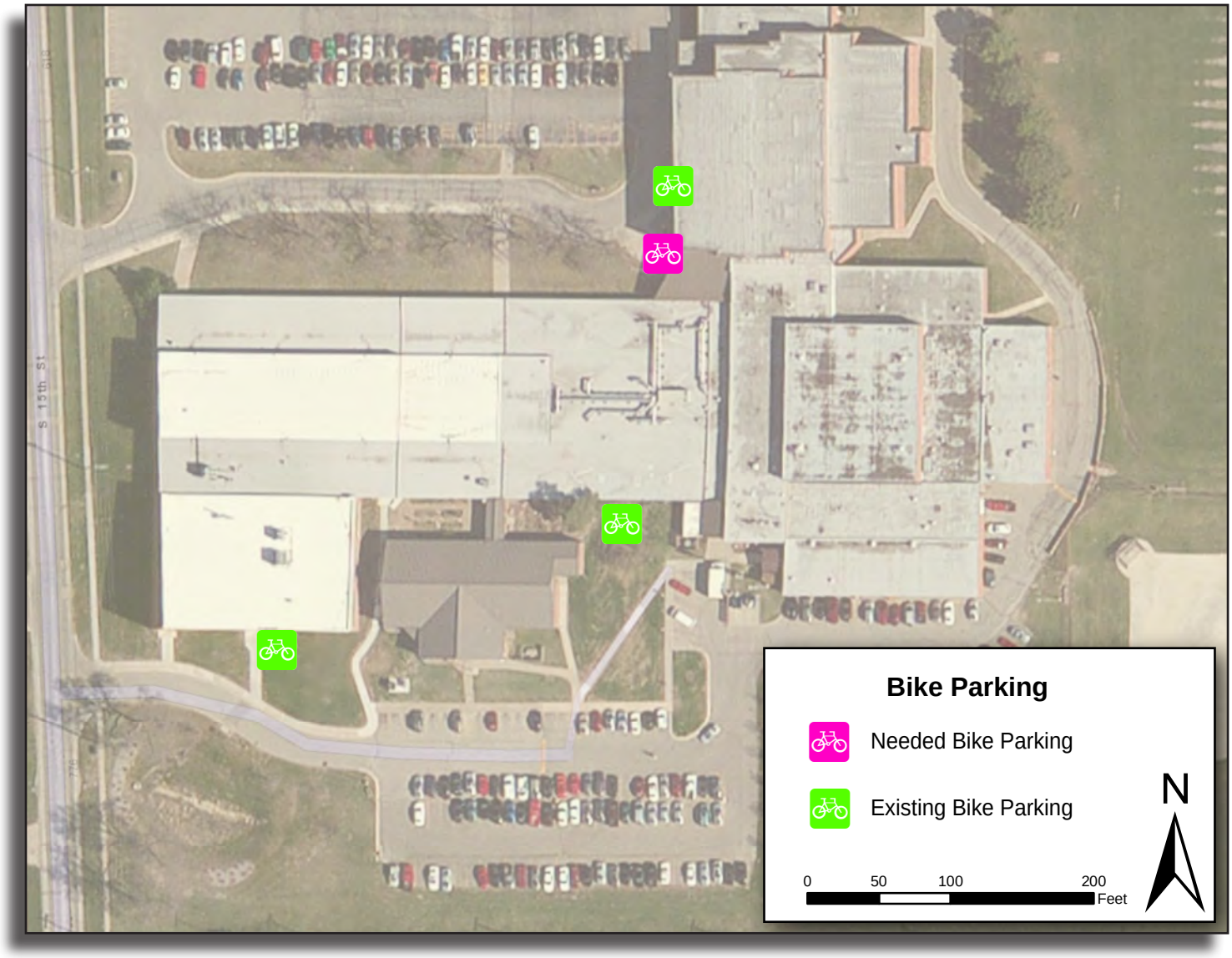
Marion High School Engineering Objectives

Starry Elementary and MHS are both individual schools each with individuals opportunities to pursue. The next two sections will look at each school individually; looking at MHS from an engineering perspective and at Starry for both engineering and enforcement improvements.

Opportunity for Improvement - Bike Parking

Existing bike parking at MHS is moderately used at three locations across campus. While current levels of cycling are adequately supported, any growth in cycling trips will require additional bicycle parking.

Figure 73. Marion High School Bike Parking



Marion High School Engineering Objectives Continued

Solution for Improvement - Increase bike parking capacity at existing facilities

With an already moderate general usage of bike racks across the campus, it is recommended to add more racks where existing facilities have reached capacity. As such purchase additional APBP approved racks to be installed to supplement the existing at capacity racks. See Figure 73 (previous page) for general bike rack placement.

Objective Time Frame

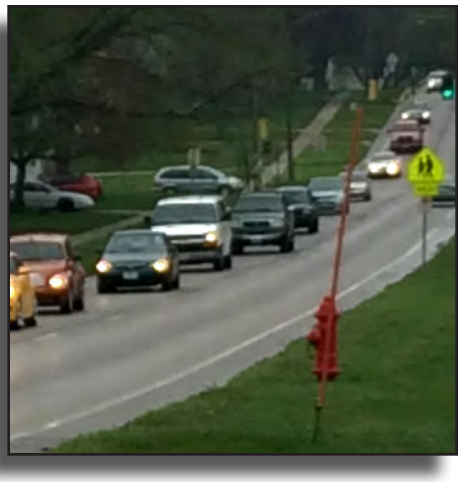
Additional bike racks should be installed before August of 2019.

Responsible Party

Ultimate responsibility for the installation of additional bike racks shall be with administrative staff at MHS. However, grant and technical support should be sought from City of Marion and Corridor MPO staff.

Bike Parking at MHS has room for growth already planned near the front entrance of the school. Care should be used to select APBP approved bike racks.
Photo credit: MISD, 2017

Starry Elementary School Education and Enforcement Objectives



Starry Elementary and MHS see a lot of morning and afternoon motor vehicle traffic.
Photo credit: Dan Burden, 2016

Opportunity for Improvement - Parent motor vehicle traffic on South Fifteenth Street

Currently most pick-up and drop-off of students is occurring on the eastern side of campus along South Fifteenth Street. Both active travel trips and motor vehicle trips are occurring from this eastern side. This high level of traffic is precipitating a large number of pedestrian crossings from the MHS parking lot. Many of these crossings are not at clearly marked crosswalks, allowing for potentially dangerous conflicts between pedestrians and cars.

Additionally, motor vehicle traffic is backing up on South Fifteenth Street as parents are parking in the bike lane and partially into the motor vehicle travel lane. This illegal parking may lead to a crash as through traffic moves around the stopped vehicle into the on-coming travel lane, all while approaching on an uphill with limited visibility.

Solution for Improvement - Move parent pickup and drop-off to western side of campus

Coupled with other engineering adjustments, it is highly recommended that parent pick-up and drop-off occur from the western side of campus along South Fourteenth Street. A parent drop-off and pickup driving policy has been enacted at FMI with great success. Strong enforcement for the first two weeks of the school year is recommended. Additionally, education in advance of the school year is highly recommended.

It is also highly recommended to prohibit all drop-off and pickup traffic on the eastern side of campus. This will act to support the new traffic pattern, as depicted in Figure 74 on the next page.

Parents will block traffic at Starry Elementary by parking on the grassy public frontage. This is a significant traffic hazard with car doors open into traffic, kids exiting and entering vehicles, and through traffic forced to merge into oncoming lanes, sometimes uphill.
Photo credit: Dan Burden, 2016

Starry Elementary School Education and Enforcement Objectives Continued

Objective Time Frame

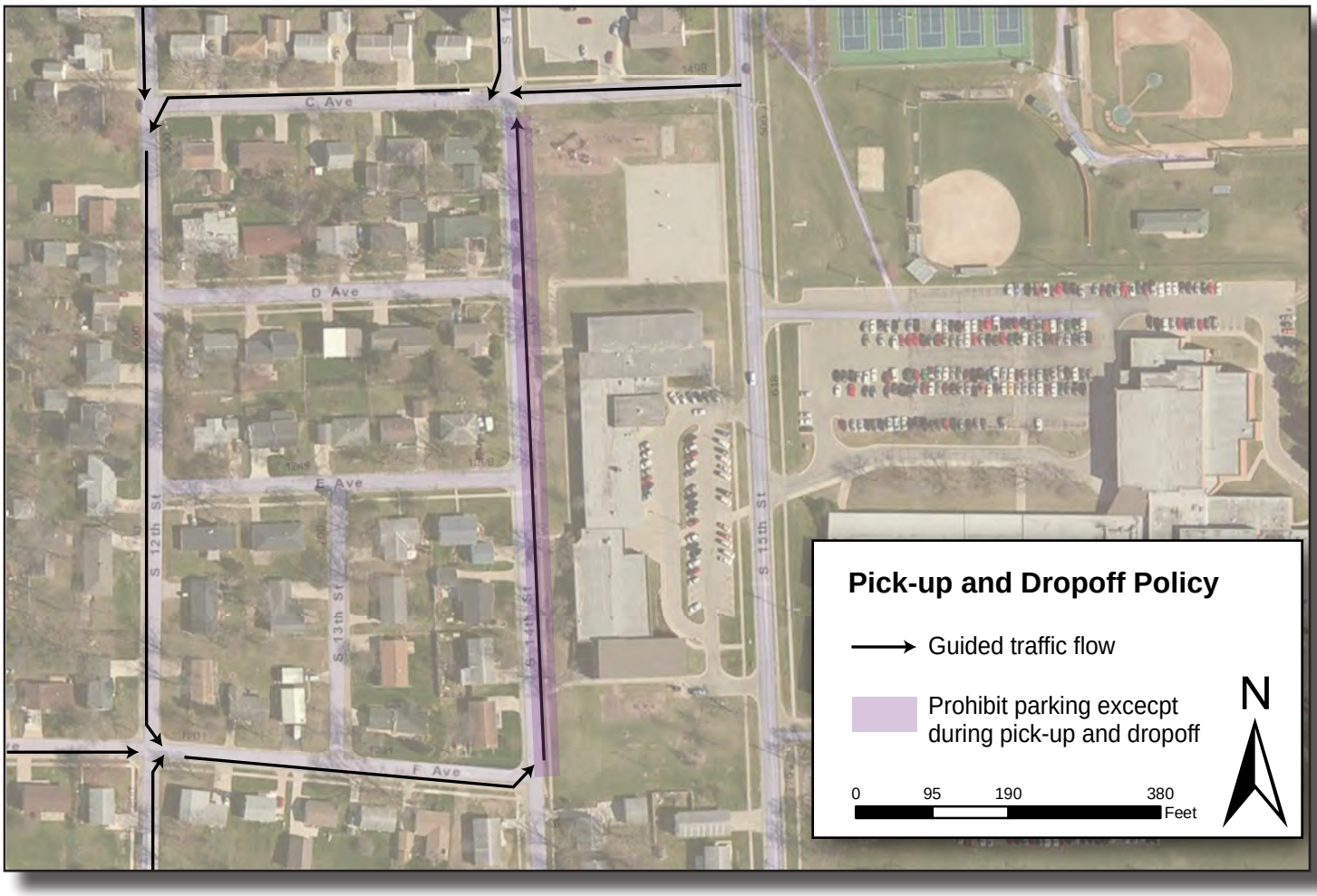
Prepare and hold training sessions with parents in advance of the school year to train the new drop-off and pickup policy on the western side of campus. Ensure proper adult and law enforcement support for the first two weeks of the school year. Ensure some level of adult support throughout the entire school year. Prohibit drop-off and pickup on the eastern side of campus. Seek guidance from administrative staff at FMI as needed. Policy should be functioning in August of 2017.

Responsible Party

Starry Elementary administrative staff shall be responsible for implementing this policy change. It is strongly suggested that staff seek support from local law enforcement and FMI, as FMI has a similar and highly successful policy.

South Fourteenth Street is much quieter with lower levels of traffic at slower speeds, and with space to pickup and drop-off students. Photo credit: Dan Burden, 2016

Figure 74. Starry Elementary School Traffic Flow

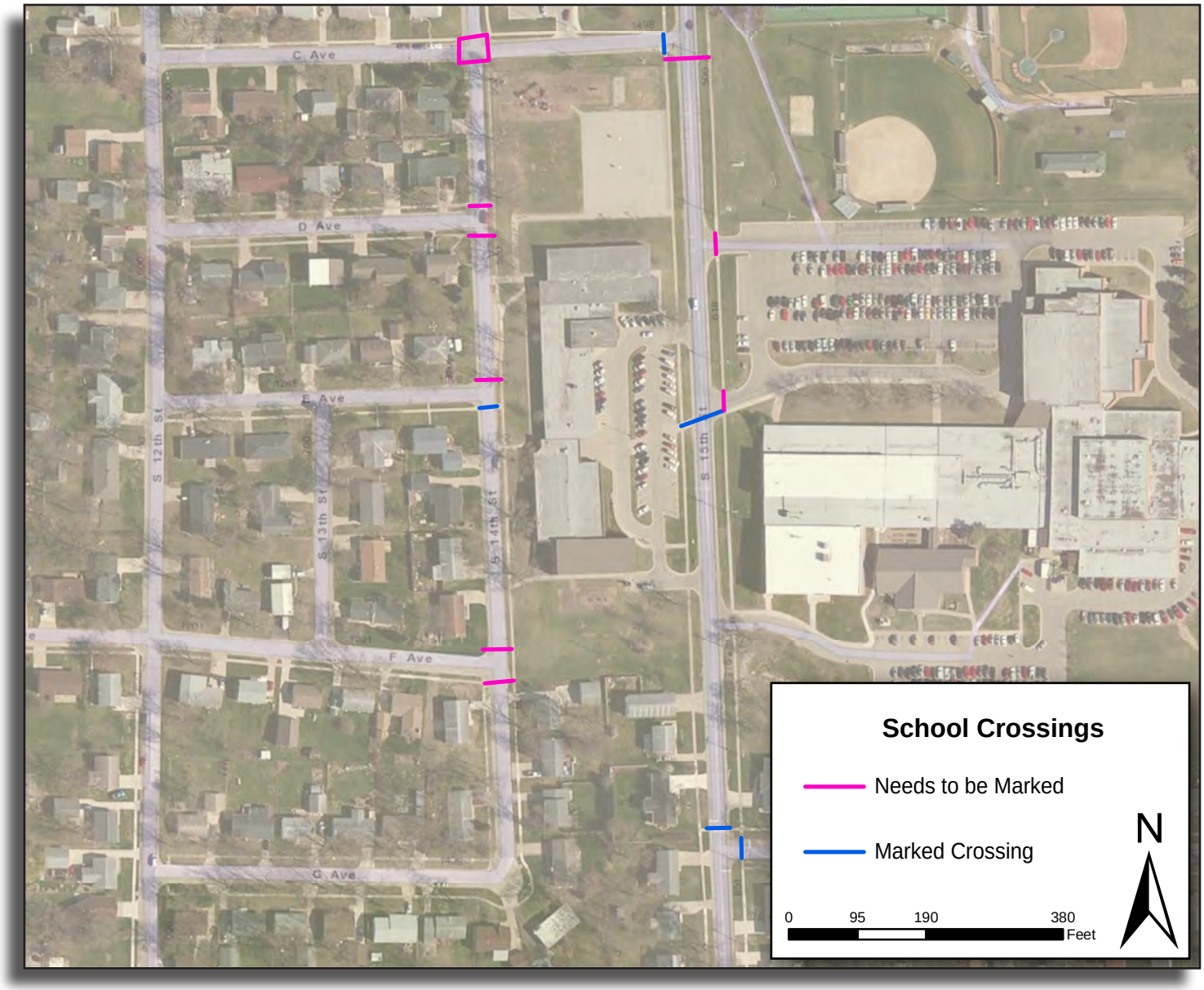


Starry Elementary School Engineering Objectives

Opportunity for Improvement - Unmarked Crossings

Observed pedestrian travel patterns indicate that students are reaching Starry Elementary from many different directions. With morning outdoor activity encouraged in the northern playground area, many students are crossing into the campus via northern crossings. Still, many students enter the main building directly utilizing the center crossing points. Additionally, many older students are crossing Starry Elementary to reach MHS using the southern crossing points. Crossing traffic is not localized to any single crossing point and most of these crossings are not marked.

Figure 75. Starry Elementary School Crossings



Starry Elementary School Engineering Objectives Continued

Solution for Improvement - Mark indicated crossing locations

At the pedestrian crossing points indicated on Figure 75 (on the previous page) a proper "zebra" style crossing pattern should be provided to raise awareness of potential and likely pedestrian crossings.

Further, marking these crossing points will aid in traffic calming South Fourteenth Street for the increased motor vehicle traffic generated by transferring this drop-off and pick-up traffic from South Fifteenth Street.

Objective Time Frame

MUTCD approved pedestrian crossings should be installed at the locations depicted in Figure 75 by August of 2018.

Responsible Party

Marion Engineering Department shall be responsible for all roadway improvements. Cost participation should be considered from MISD. Compliance with all appropriate ADA accommodations needs to be ensured. Approval from Marion's Traffic Advisory Committee shall be required prior to installation.

Starry Elementary and MHS have no formal crossing point leading to unsafe, unexpected, and unclear crossings by students.
Photo credit: Dan Burden, 2016

Starry Elementary and MHS see large amounts of pedestrian and motor vehicle travel between the schools. Dismissal time is difficult with cars turning into MHS, driving through, or parking on the grass and partially blocking the roadway.
Photo credit: Dan Burden, 2016

Starry Elementary School Engineering Objectives Continued

Traffic will back up at Starry Elementary School during pickup and drop-off.
Photo credit: Dan Burden 2016

Opportunity for Improvement - Parent motor vehicle traffic on South Fifteenth Street

Currently most pickup and drop-off of students is occurring on the eastern side of campus along South Fifteenth Street. Both active travel trips and motor vehicle trips are occurring from this eastern side. This high level of traffic is precipitating a large number of pedestrian crossings from the MHS parking lot. Many of these crossings are not at clearly marked crosswalks, allowing for potentially dangerous conflicts between pedestrians and cars.

Additionally motor vehicle traffic is backing up on South Fifteenth Street as parents are parking in the bike lane and partially into the motor vehicle travel lane. This illegal parking may lead to a crash as through traffic moves around the stopped vehicle into the on-coming travel lane, all while approaching on an uphill with limited visibility.

Solution for Improvement - Modify eastern parking lot to support bus traffic

A part of moving parent pickup and drop-off traffic from the eastern side of Starry to the western side along South Fourteenth Avenue is the need to move the existing bus traffic over to the eastern side where current day parent pickup and drop-off is occurring.

In order to accommodate bus traffic and their need for wider turns some minor changes to the parking lot may be necessary. It is recommended to remove the grassy area as depicted in Figure 76 (next page) and replace it with driving space. Doing so will allow for the wider turning radii required by most buses.

Starry Elementary may need improvements on the east side of campus to accommodate bus travel through this narrow portion of the parking lot.
Photo credit: Corridor MPO, 2017

Starry Elementary School Engineering Objectives Continued

Objective Time Frame

Proper turning radii should be provided for bus travel on the eastern side of Starry at the location shown in Figure 76 by August of 2017.

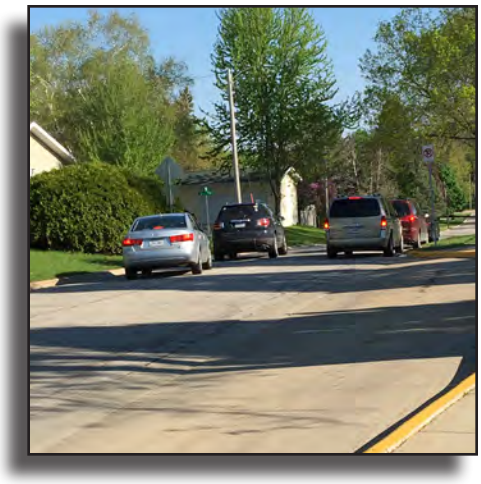
Responsible Party

Starry administrative staff shall have the responsibility for making infrastructure changes on campus.

MISD buses may need more space to turn through the eastern parking lot of Starry Elementary.
Photo credit: MISD, 2017

Figure 76. Starry Elementary School Parking Lot

Starry Elementary School Engineering Objectives Continued



South Fourteenth Street sees little traffic or parking usage outside of school pickup and dismissal.
Photo credit: Corridor MPO, 2016

Opportunity for Improvement - Parent motor vehicle traffic on South Fifteenth Street

Currently most pickup and drop-off of students is occurring on the eastern side of campus along Fifteenth Street. Both active travel trips and motor vehicle trips are occurring from this eastern side. This high level of traffic is precipitating a large number of pedestrian crossings from the MHS parking lot. Many of these crossings are not at clearly marked crosswalks, allowing for potentially dangerous conflicts between pedestrians and cars.

Additionally, motor vehicle traffic is backing up on South Fifteenth Street as parents are parking in the bike lane and partially into the motor vehicle travel lane. This illegal parking may lead to a crash as through traffic moves around the stopped vehicle into the on-coming travel lane, all while approaching on an uphill with limited visibility.

Solution for Improvement - Prohibit Parking on the Eastern Side of Fourteenth Street

In order to support the increased traffic level along South Fourteenth Street while still providing through lanes of travel, it will be necessary for parking on the eastern side of Fourteenth Street to be prohibited except during school pickup and drop-off.

Preventing parking along South Fourteenth Street during the majority of the day will allow for parents to queue along the western edge of the Starry Elementary campus thereby lowering the need for pedestrians crossings or potentially dangerous interactions with motor vehicle traffic.

Objective Time Frame

MUTCD approved timed no parking signs should be installed along the shaded area in Figure 74 (page 119) by August of 2017.

Responsible Party

Marion Engineering Department shall be responsible for all regulatory street signs. This process needs to be requested by MISD at such a time that the pickup and drop-off of students is shifted to the western side of Starry.

MUTCD signs used to establish timed no parking restrictions.
Photo credit: FHWA, 2009

Vernon Middle School Education and Enforcement Objectives

Finally, our remaining school in the MISD, Vernon Middle School will be analyzed for improvements from an education, enforcement, and engineering perspective.

Opportunity for Improvement - Parent motor vehicle traffic on Fourth Avenue

A high level of student pickup and drop-off is occurring on the southern side of campus along Fourth Avenue. Currently motor vehicle traffic patterns are disorganized with a lot of pedestrian activity occurring through two-way traffic, which at times can be unpredictable. Additionally, morning visibility for vehicles traveling east is often hampered by the location of the sun blinding drivers and increasing the likelihood of crashes.

Fourth Avenue currently sees a significant amount of pickup and drop-off motor vehicle traffic. Photo credit: Corridor MPO, 2016

Solution for Improvement - Timed one-way traffic

Administrative staff at VMS would like to streamline parent pickup and drop-off by creating a temporarily timed one-way travel pattern with traffic flowing west bound from Fourteenth to Twelfth Street along Fourth Avenue.

A parent drop-off and pickup driving policy has been enacted at FMI with great success. Strong enforcement for the first two weeks of the school year is recommended. Additionally, education via informational packets and email in advance of the school year is highly recommended.

Traffic flow should be blocked off using temporary barricades during drop-off and pickup. Signage will need to be installed that indicates when the temporary one-way traffic will be operating.

Objective Time Frame

Prepare and hold training sessions with parents in advance of the school year to train the new drop-off and pickup timed one-way policy on Fourth Avenue. Ensure proper adult and law enforcement support for the first two weeks of the school year. Ensure some level of adult support throughout the entire school year. Seek guidance from administrative staff at FMI as needed. Policy should be functioning in August of 2017.

Responsible Party

VMS administrative staff shall be responsible for this policy change. FMI has a similar and highly successful policy. It is strongly suggested that staff seek support from FMI, local law enforcement, and Marion Public Service Department. Proper signage needs shall be installed with assistance and review from the Marion City Engineer.

Vernon Middle School Engineering Objectives

Opportunity for Improvement - Unmarked Crossings

Observed pedestrian travel patterns indicate that students are reaching VMS from many different directions. With many trips completing near the intersections of Thirteenth Street at Fifth Avenue and Fourteenth Street at Fourth Avenue. However given the age group attending VMS walking and bicycle trips are more frequent than at other schools. Many of the often used crossing are currently unmarked (see Figure 77 on the next page).

Additionally, several highly used crossing points exist along Fifteenth Street connecting VMS to MHS. This stretch of roadway generates a lot of foot traffic from students walking to meet siblings attending Starry and MHS to the VMS football team jogging to practice at the High School.

Solution for Improvement - Mark indicated crossing locations.

At the pedestrian crossing points indicated on Figure 77 a proper "zebra" style crossing pattern should be provided to raise awareness of potential and likely pedestrian crossings.

Objective Time Frame

MUTCD approved pedestrian crossings should be installed at the locations depicted in Figure 77 by August of 2018.

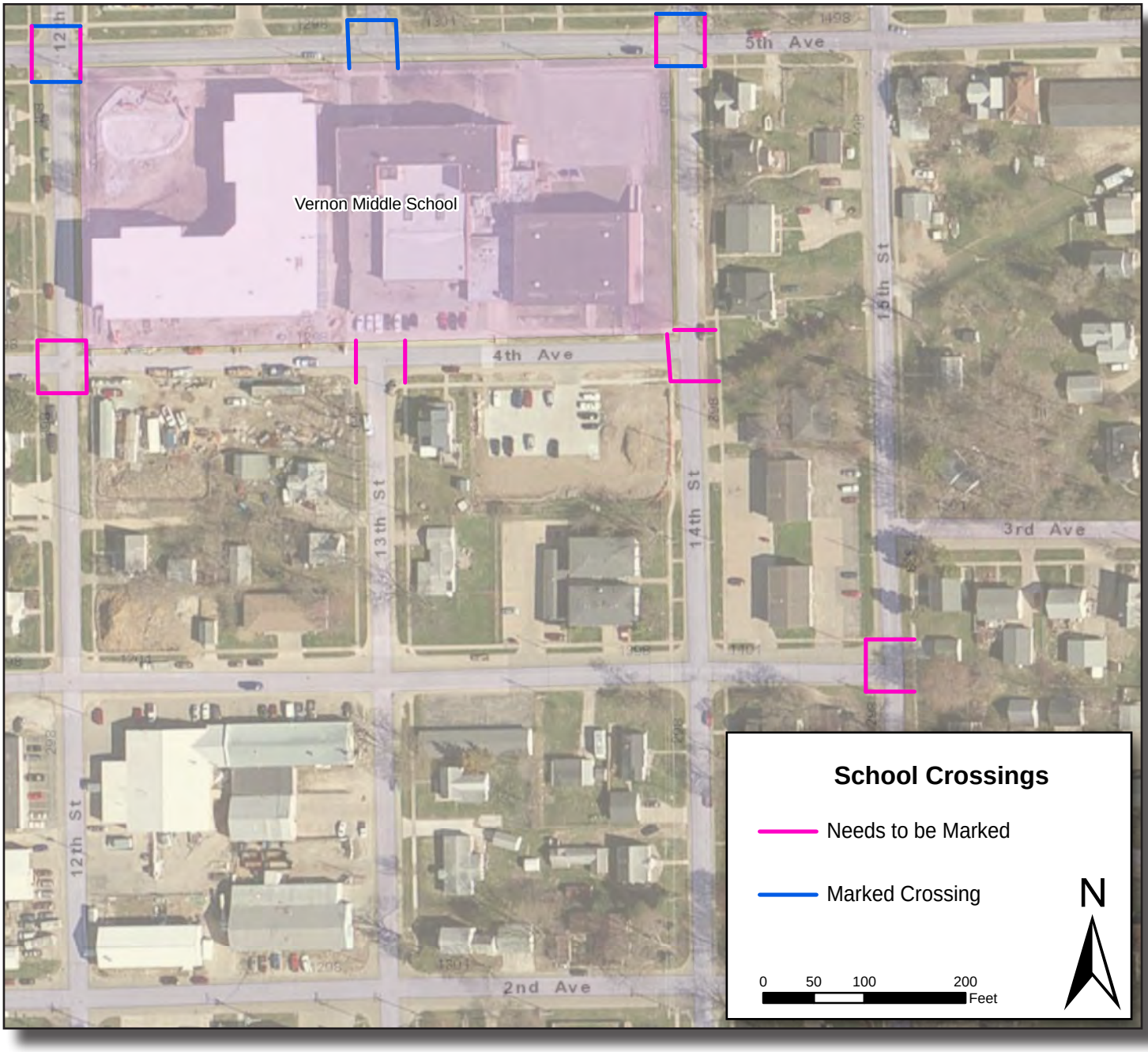
Vernon Middle School sees a lot of students walking and biking near campus. Marked crosswalks will make their crossings safer.
Photo credit: Corridor MPO, 2016

Vernon Middle School Engineering Objectives Continued

Responsible Party

City of Marion Public Service Department shall be responsible for proper markings of the appropriate crossing locations. Compliance with all appropriate ADA accommodations needs to be ensured. Approval from Marion's Traffic Advisory Committee should be granted prior to installation.

Figure 77. Vernon Middle School Crossings



Vernon Middle School Engineering Objectives Continued

Opportunity for Improvement - Bike Parking

Existing bike parking at VMS is heavily used at all locations on campus. However, usage appears to be overflowing at times at the racks located near the intersection of Thirteenth Street and Fifth Avenue.

Solution for Improvement - Increase Bike Parking Capacity at Existing Facilities

With an already high general usage of bike racks across the campus it is recommended to add more racks where existing facilities have reached capacity.

Bike Parking at Vernon Middle School in Marion is regularly utilized on the north and south sides of campus.
Photo credit: Corridor MPO, 2016

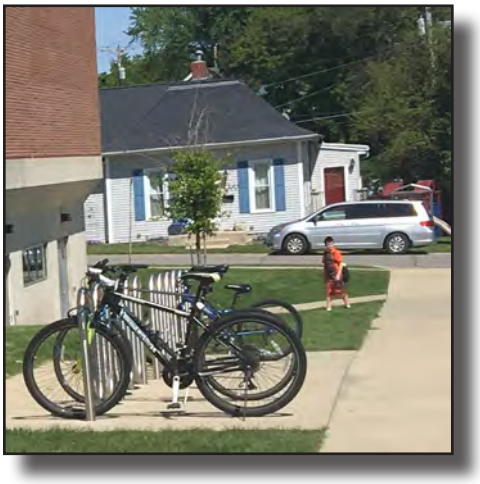
Vernon Middle School Engineering Objectives Continued

Objective Time Frame

Purchase additional APBP approved racks to be installed to supplement the existing at capacity racks. See Figure 78 for general bike rack placement. Completion before August of 2018.

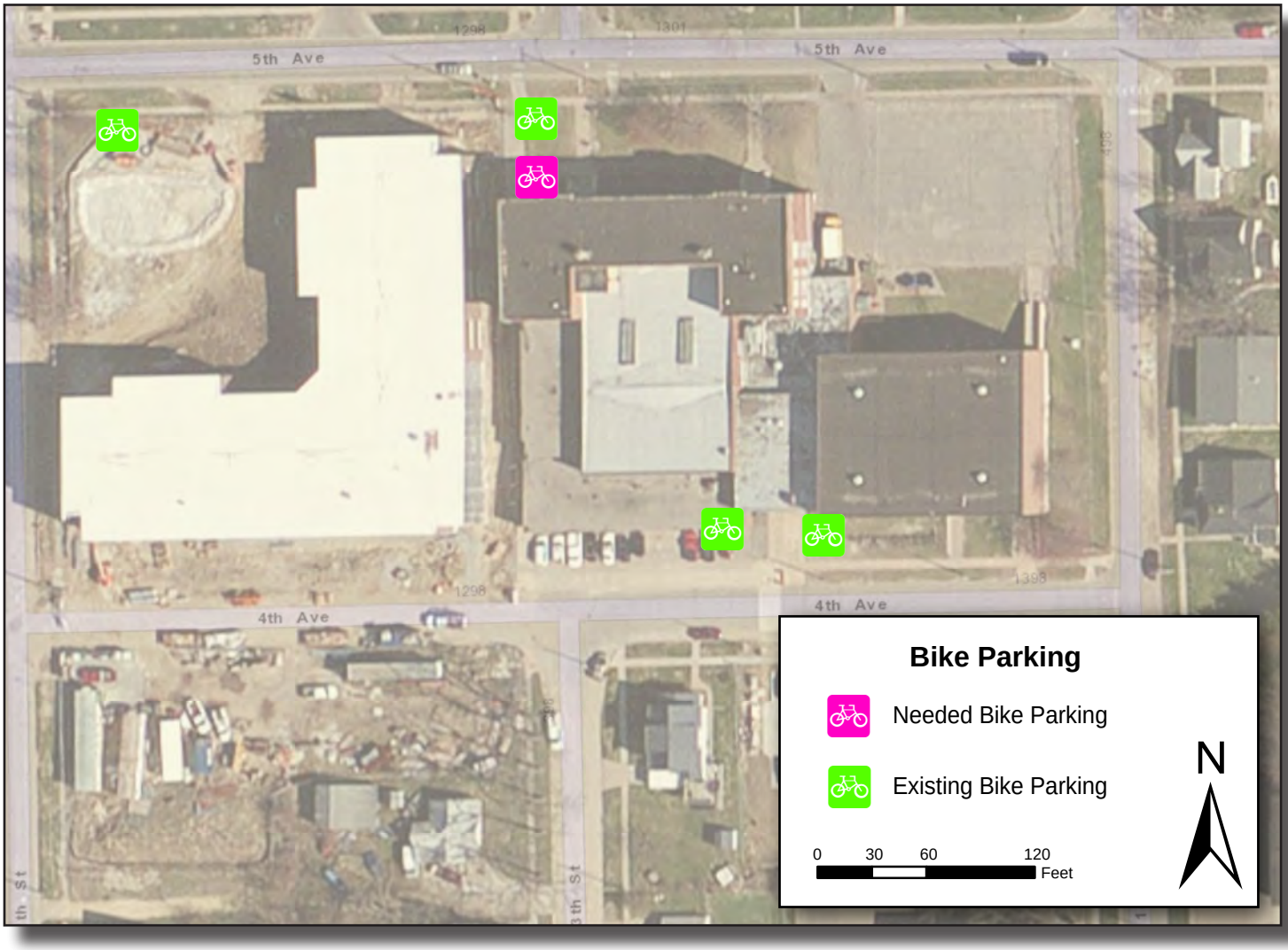
Responsible Party

Ultimate responsibility for completion shall be with administrative staff at Vernon. However, grant and technical support should be sought from City of Marion and Corridor MPO staff.



Vernon Middle School bike parking is ample and new on the south side of campus.
Photo credit: Corridor MPO, 2016

Figure 78. Vernon Middle School Bike Parking



Vernon Middle School Engineering Objectives Continued

Students cut through apartments near Vernon Middle School.
Informal crossings through private property should be prevented or formalized between the property owners and the City.
Photo credit: Corridor MPO, 2016

Opportunity for Improvement - South Eastern Pedestrian Access

Observed pedestrian travel patterns indicate that students traveling through the privately owned apartment complex located on the corner of Third Avenue and Fifteenth Street. A worn path has been developed at the northern most building and the garage fronting Fourteenth Street.

Solution for Improvement - Formalize Existing Pedestrian Travel Patterns

Several strategies are available to consider. If an easement or right-of-way purchase can be negotiated establishing a formal sidewalk or trail width connection between the northern apartment building and garage this would act to legitimatize and provide an accessible pedestrian and bicycle connection. However this may prove difficult to accomplish. If arrangements cannot be made a fence should be considered to direct pedestrian traffic to the south.

If a southern route is more achievable, a trail width path along the north side of Third Avenue should be provided. This will likely require a narrowing of the existing roadway from 36 feet to 26 feet. This added space will allow for a trail width facility when the existing three foot sidewalk and seven foot public frontage areas are also considered.

Narrowing the roadway will require a parking ban but is otherwise allowed per Statewide Urban Design and Specifications (SUDAS) guidelines. [14] Additionally, this added space will add the much needed provision of sidewalk along the southern portion of Third Avenue easier to achieve.

Objective Time Frame

Discussions should begin with the property owner to consider an easement or right-of-way acquisition to install a trail width connection along between the northern apartment building and the garage.

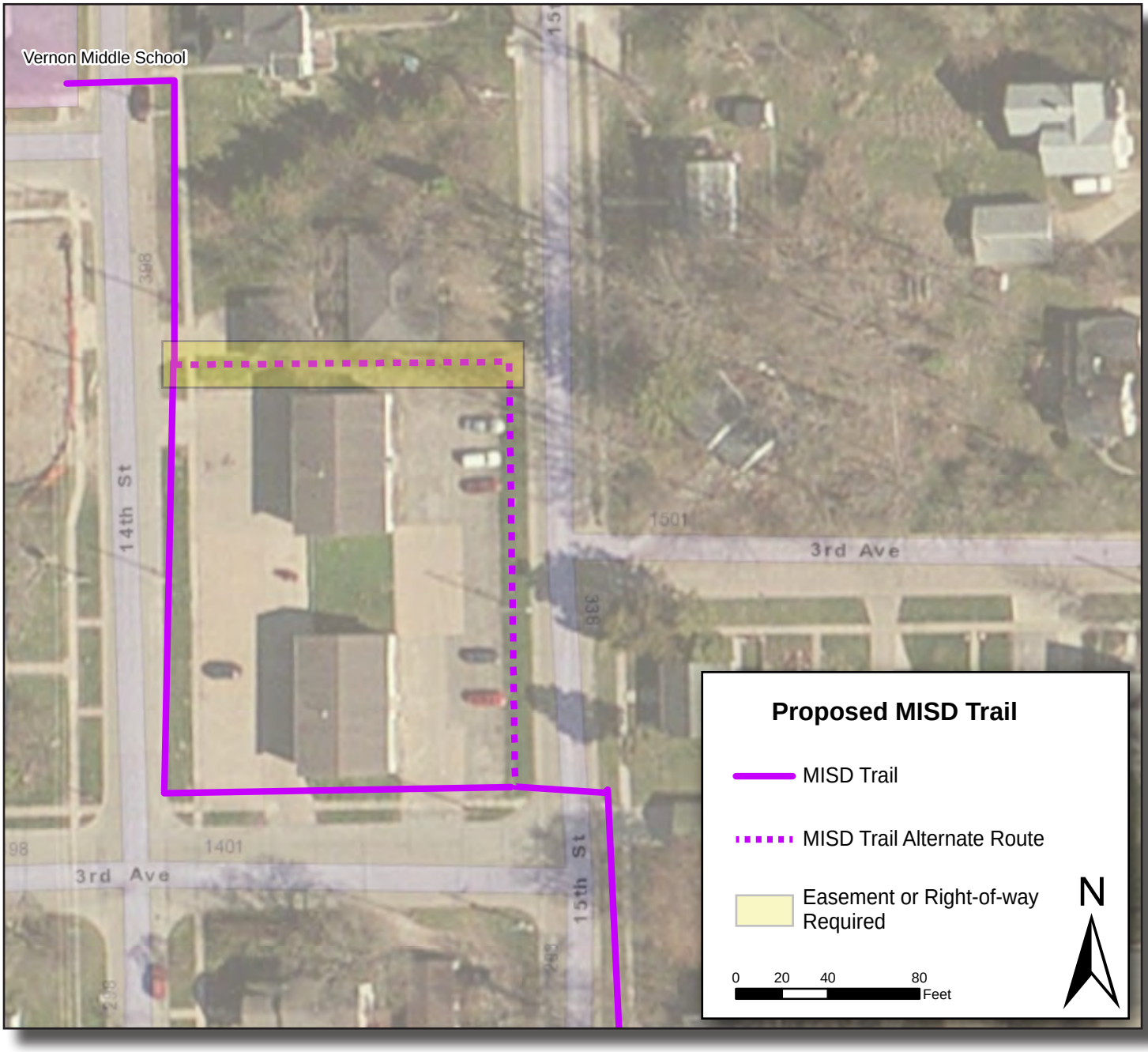
If arrangements cannot be made the narrowing of at least this section of Third Avenue from Fourteenth to Fifteenth Avenue should be included with the larger MISD Trail project. Completion occurring in the next three to five years.

Vernon Middle School Engineering Objectives Continued

Responsible Party

City of Marion Bicycle and Pedestrian Coordinator shall work to establish the easement. Possible funding support should be sought through State and Federal Recreational Trails grants.

Figure 79. Vernon Middle School Trail Connection



Appendix A - Higher fine school zones

The figures provided are for each school at a small scale. Sign locations are suggested and approximate. Please reference the MUTCD Chapter 7 for exact details prior to sign purchase or installation.

Sign assemblies were assigned a number and are depicted below. The sign assembly number is used on the following maps rather than the sign numbers for simplicity.

Assembly 1

R2-10

Assembly 2

R2-11

Assembly 3

S1-1

S4-3P

R2-6P

Assembly 4

S1-1

S4-3P

W16-6P

R2-6P

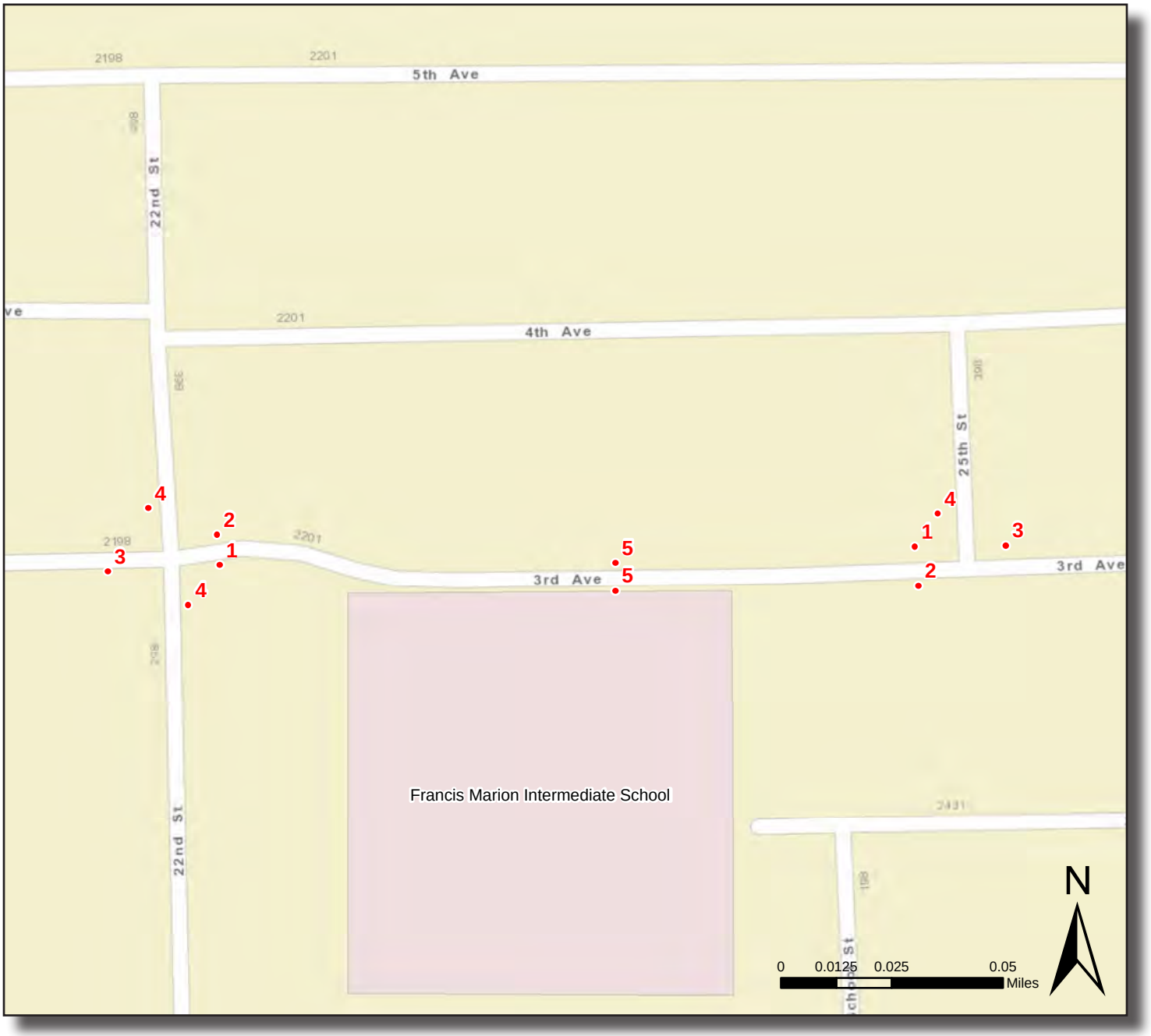
Assembly 5 (Two-sided)

S1-1

W16-7P

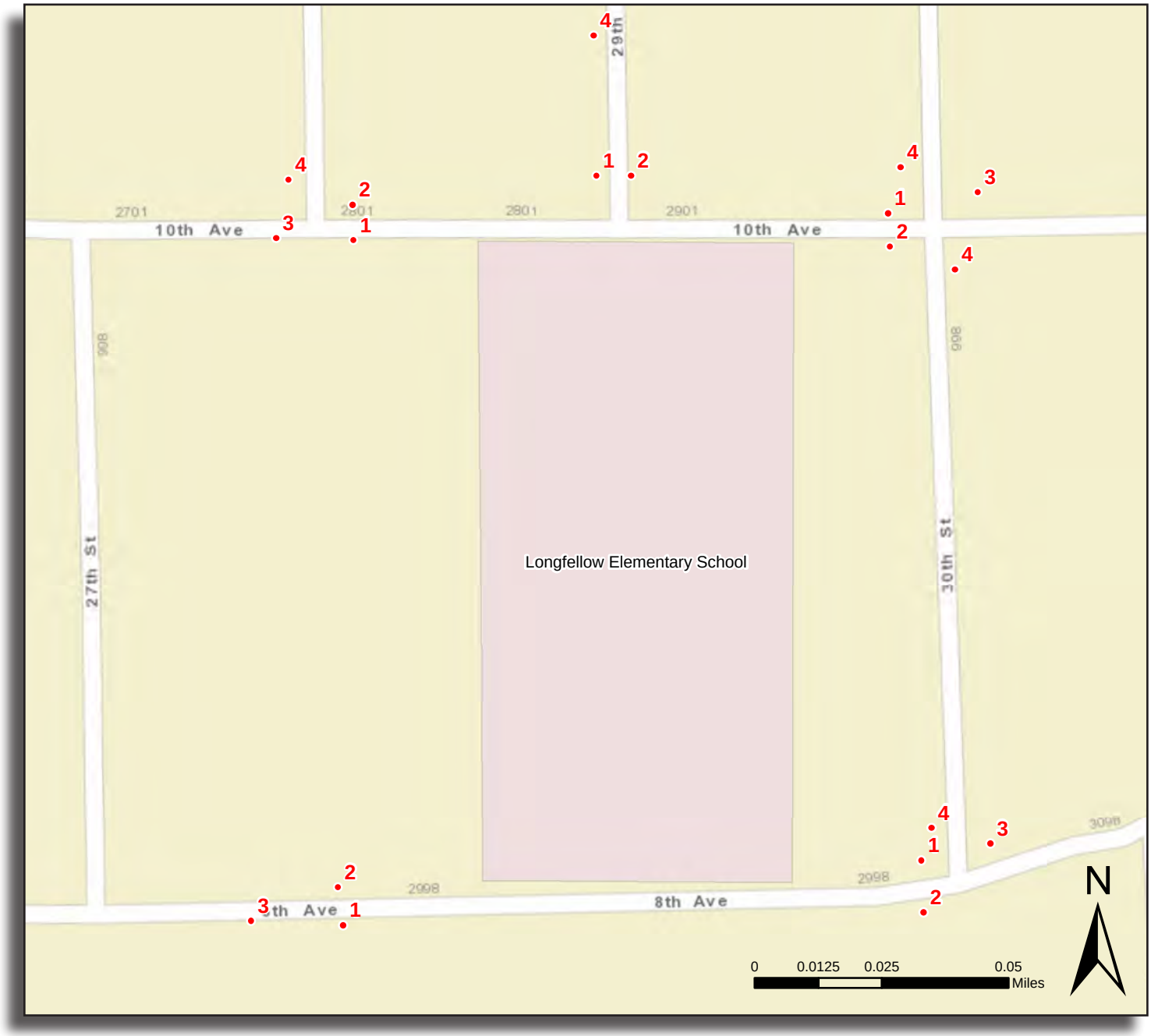
Appendix A - Higher fine school zones

Francis Marion Intermediate School



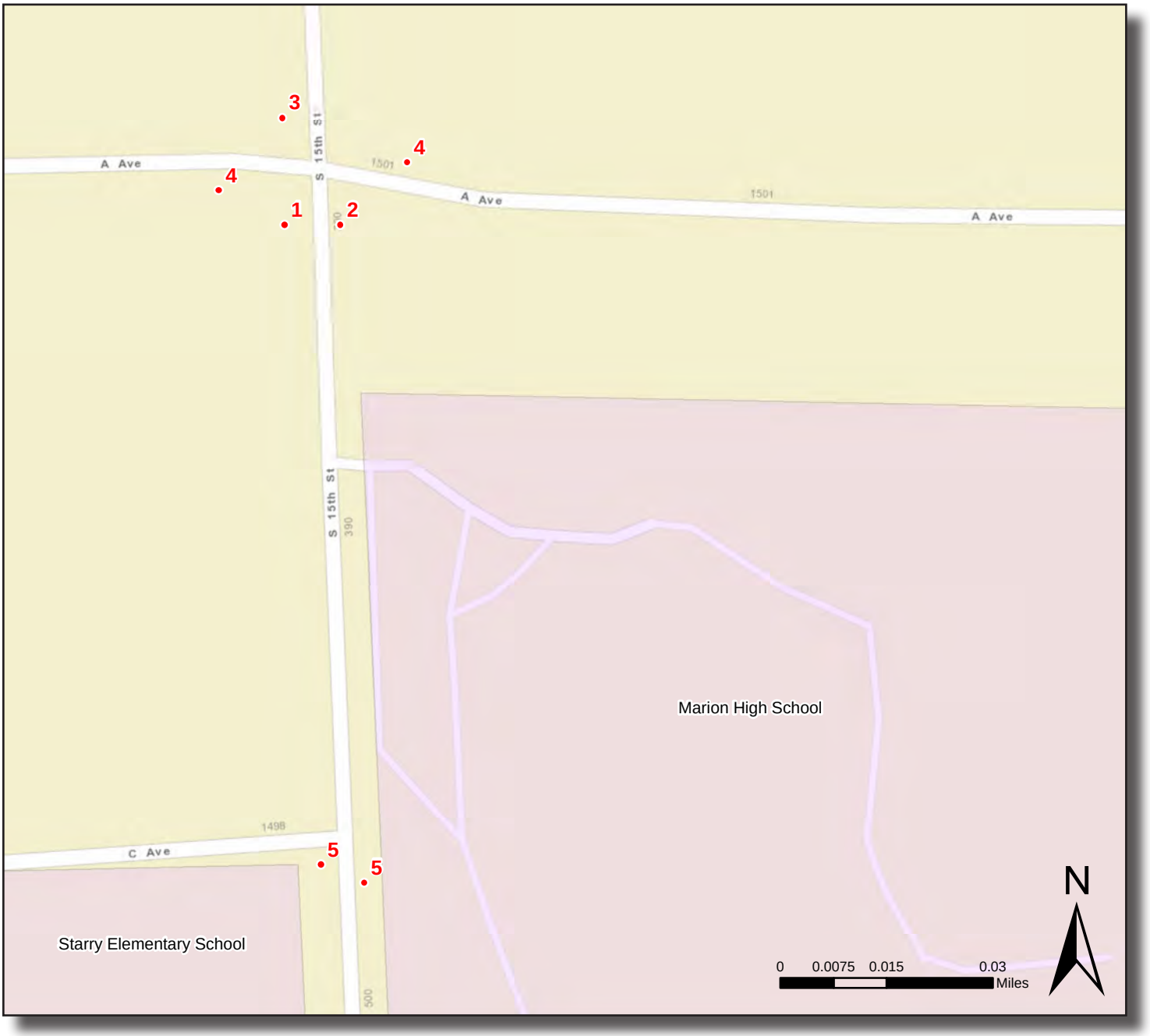
Appendix A - Higher fine school zones

Longfellow Elementary School



Appendix A - Higher fine school zones

Marion High School A and C Avenues

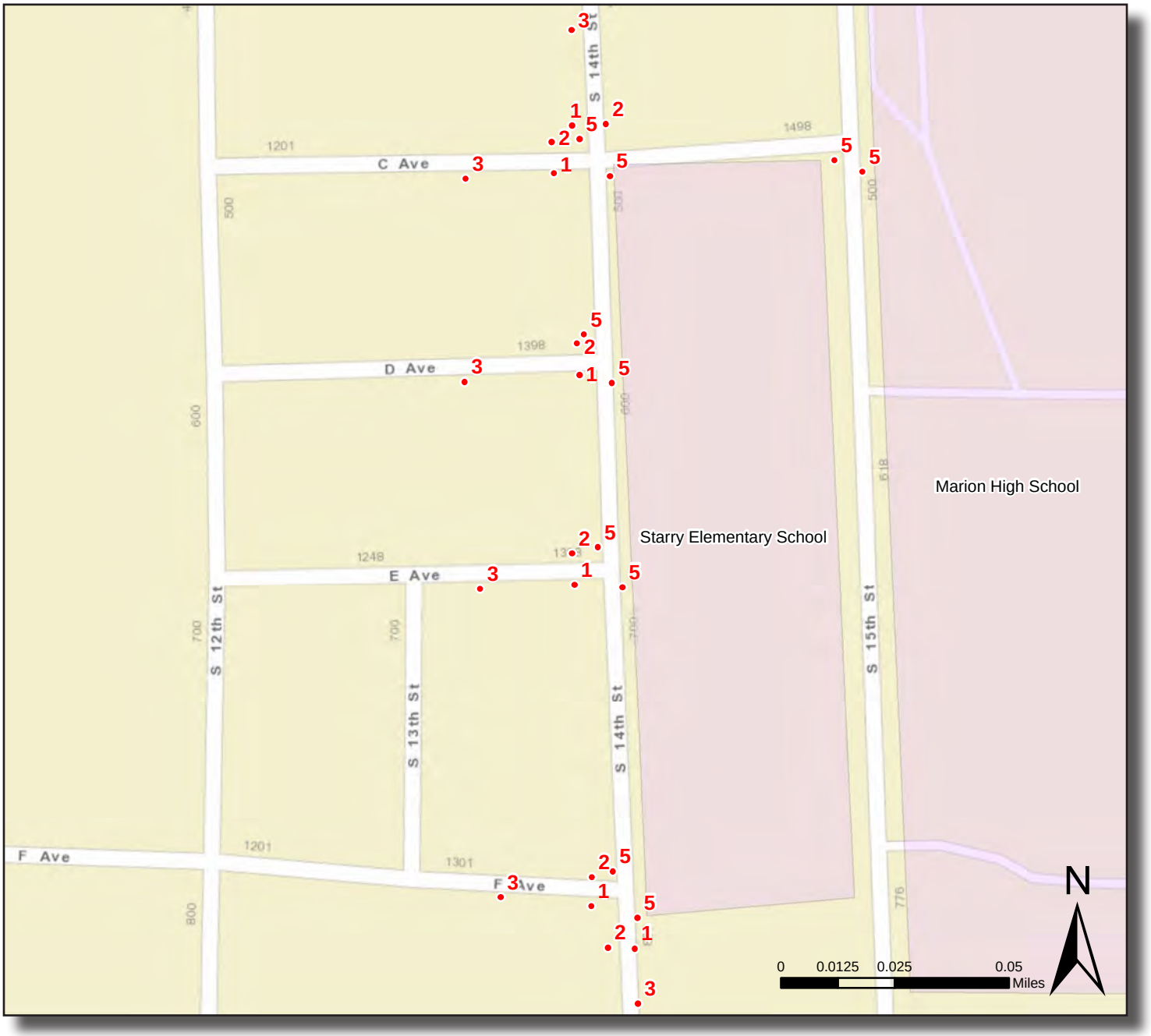


Appendix A - Higher fine school zones

Marion High School Hillview Drive

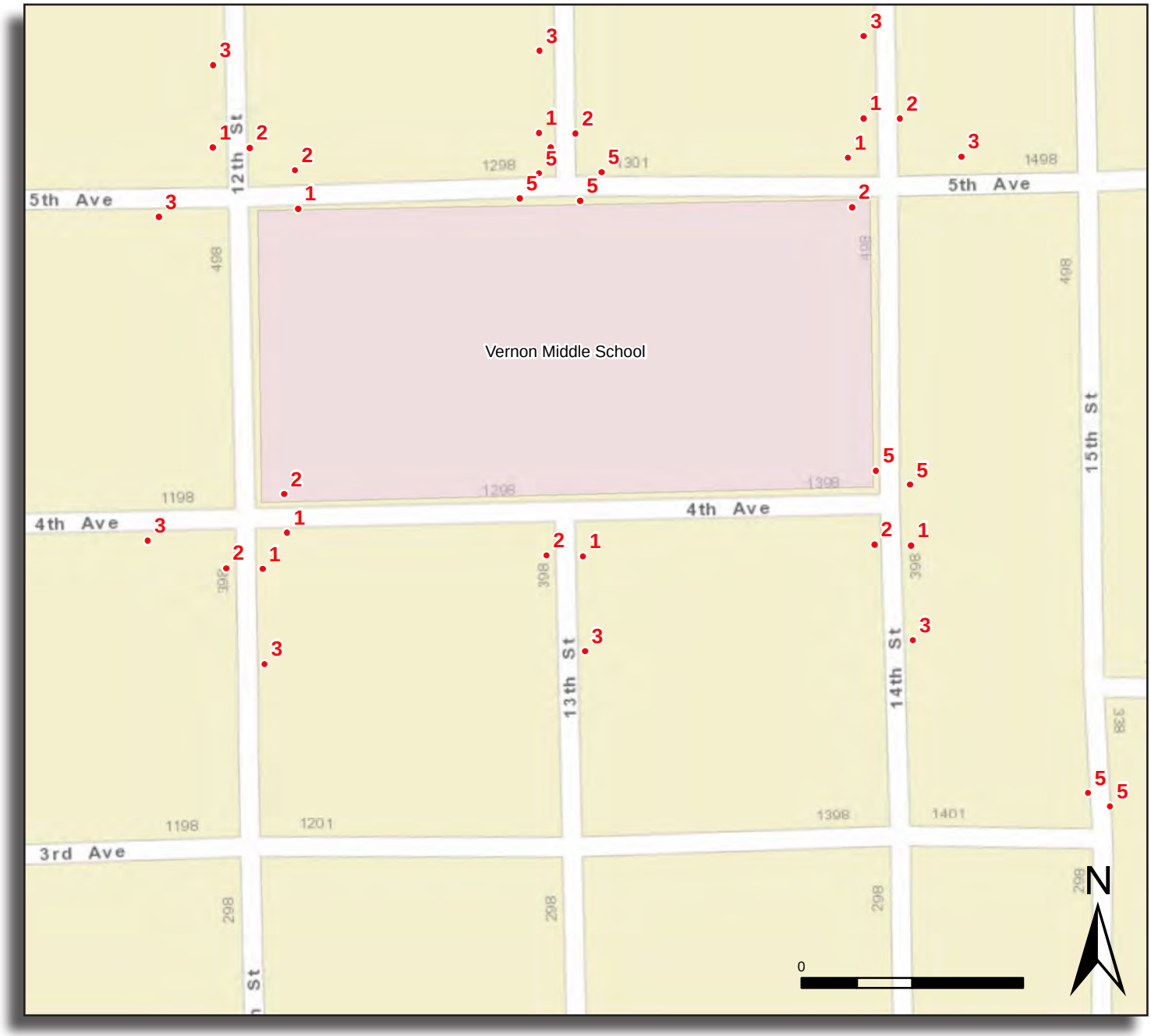
Appendix A - Higher fine school zones

Starry Elementary School



Appendix A - Higher fine school zones

Vernon Middle School



Appendix B - Curb Extensions

The figures provided are for each school at a small scale. Curb extension are suggested and approximate. Good engineering judgment should be used to establish the proper clearance (20 to 24 feet) and turning radii. Design guidance can be found in the Institute of Transportation Engineers' Designing Walkable Urban Thoroughfares, chapter ten.

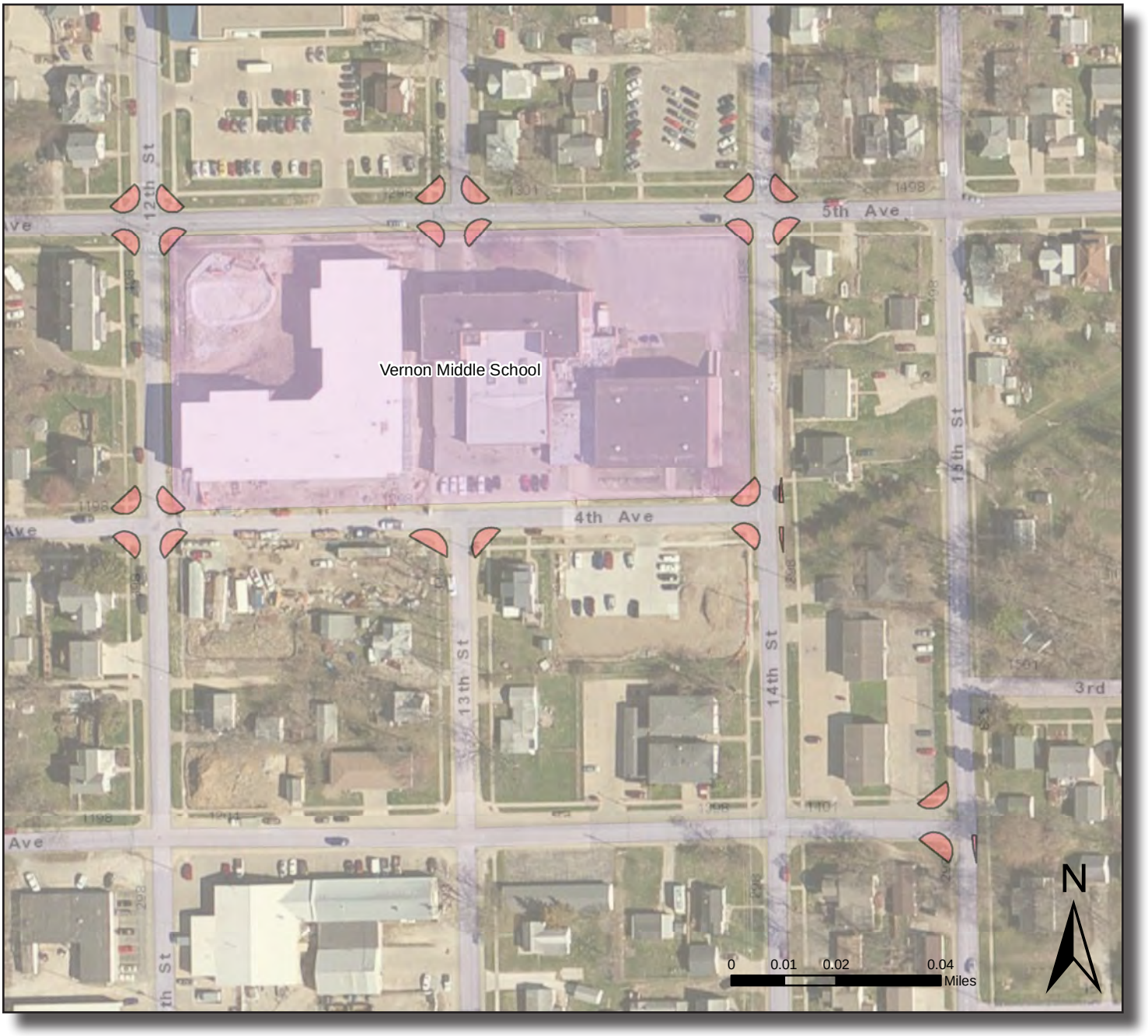
Longfellow Elementary School

Appendix B - Curb Extensions

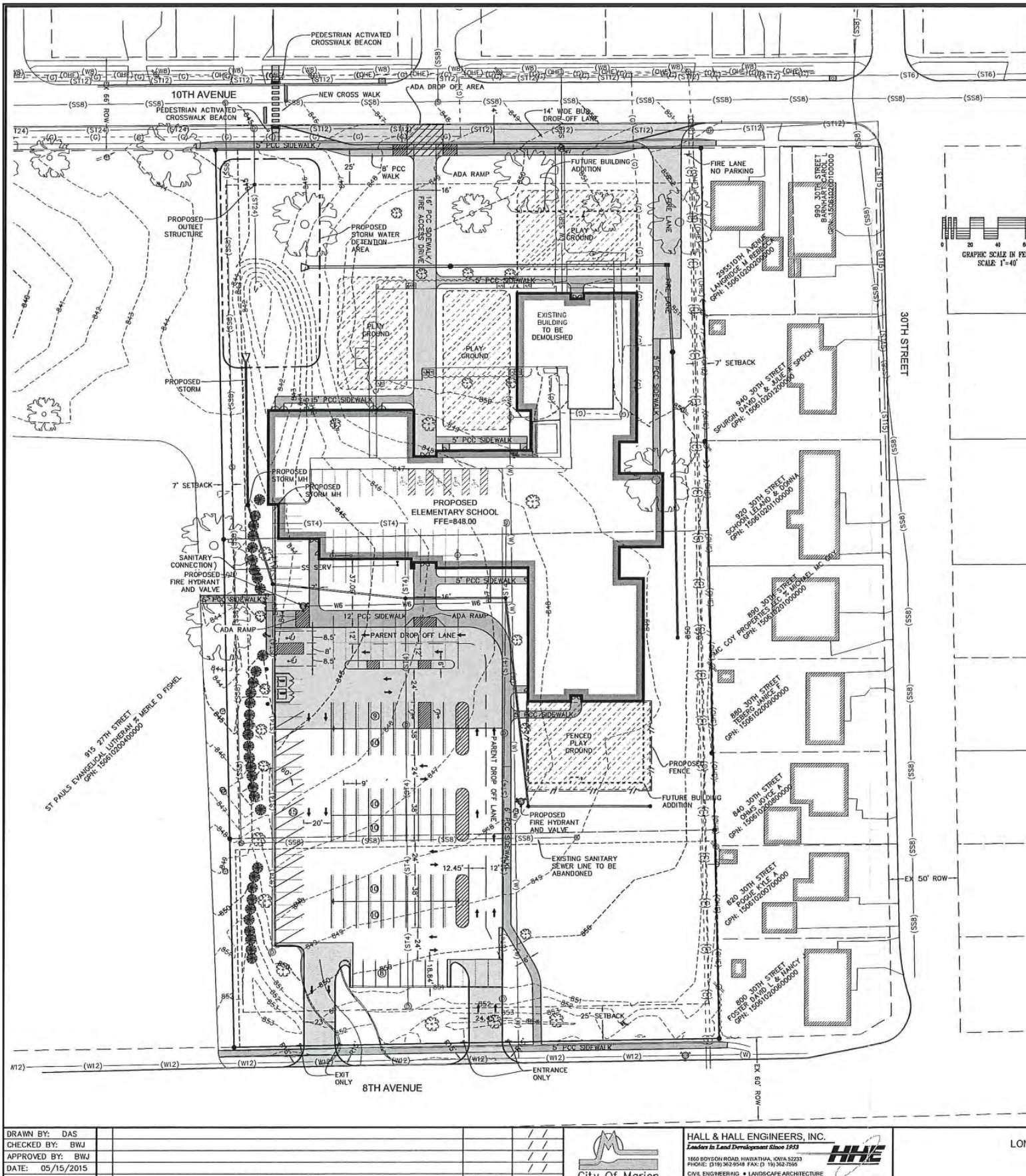
Starry and Marion High Schools

Appendix B - Curb Extensions

Vernon Middle Schools



Appendix C - Longfellow Construction Plans



DRAWN BY: DAS				/ /	City Of Marion
CHECKED BY: BWJ				/ /	HALL & HALL ENGINEERS, INC. Leaders in Land Development Since 1953
APPROVED BY: BWJ				/ /	1860 BOYSON ROAD, HIAWATHA, IOWA 52233 PHONE: (319) 362-9548 FAX: (319) 362-7569
DATE: 05/15/2015				/ /	CIVIL ENGINEERING • LANDSCAPE ARCHITECTURE LAND SURVEYING • LAND DEVELOPMENT PLANNING www.halleng.com
FIELD BOOK: XXX	NO.	REVISION DESCRIPTION	APPROVED	DATE	

DRAWINGS OF PROPOSED IMPROVEMENTS
FOR

LONGFELLOW ELEMENTARY SCHOOL

IN THE CITY OF MARION, LINN COUNTY, IOWA

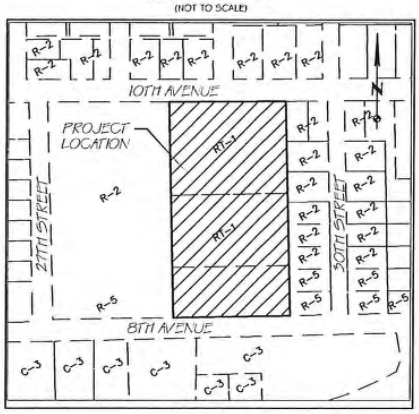
UTILITY AND EMERGENCY TELEPHONE NUMBERS

CITY OF MARION, IOWA

ENGINEERING DEPARTMENT	(319)-743-6340
POLICE DEPARTMENT	(319)-377-1511
EMERGENCY	911
FIRE DEPARTMENT	(319)-377-8237
EMERGENCY	911
WATER DEPARTMENT	(319)-743-6310
SEWER MAINTENANCE DEPARTMENT	(319)-377-6367
IOWA ONE CALL (UTILITIES)	(800)-292-8989
MID-AMERICAN ENERGY	(319)-298-5162
CENTURY LINK COMMUNICATIONS (TELEPHONE)	
ENGINEER, WEST SIDE	(319)-399-7600
ENGINEER, EAST SIDE	(319)-399-7487
ALLIANT/I.E.S. INDUSTRIES (ELECTRIC, STEAM)	
INFORMATION	(319)-786-1912
	(319)-786-1959
MEDIACOM (CABLE TV)	
BUSINESS	(319)-395-9699
LOCATIONS	(800)-292-8989
WINDSTREAM (TELEPHONE / CABLE TV)	
BUSINESS	(319)-790-7114
LOCATIONS	(800)-292-8989
IMON (TELEPHONE / CABLE TV)	(319)-261-4670
SOUTHSLOPE (TELEPHONE / CABLE TV)	(319)-665-5312
LINN COUNTY REC	(319)-377-1587
CEDAR RAPIDS AND IOWA CITY RAILWAY COMPANY	(800)-283-1540
IOWA DEPARTMENT OF TRANSPORTATION	
DISTRICT ENGINEER	(319)-364-0235
MAINTENANCE GARAGES	(319)-364-8189
LINN COUNTY ENGINEER	(319)-892-6400
LINN COUNTY MAINTENANCE	(319)-892-6420

LOCATION MAP

(NOT TO SCALE)



NOTE

THE PROPOSED IMPROVEMENTS INCLUDED IN THESE DRAWINGS HAVE BEEN DESIGNED IN ACCORDANCE WITH THE CEDAR RAPIDS METROPOLITAN AREA DESIGN STANDARDS MANUAL.

BENCHMARKS:

BM # 1: IDOT IOWA NORTH 6-09 CHECK INTO GPS A17-1
N: 3487410.406 E: 5444247.258 ELEV: 854.493

CP # 3 : SET ⅝" REBAR @ SOUTHEAST CORNER OF PROPERTY
N: 3481434.54 E: 5442527.31 ELEV: 854.06

CP # 4 : SET ⅝" REBAR @ WESTSIDE PROPERTY LINE 24' SOUTH OF SIDEWALK CONNECTING CHURCH PARKING LOT TO KIRKWOOD SCHOOL PARKING LOT
N: 3481713.64 E: 5442208.20 ELEV: 844.99

OWNER/APPLICANT

MARION INDEPENDENT SCHOOL DISTRICT
777 S. 15TH STREET, MARION IOWA 52302
DISTRICT OFFICE: (319)-377-4691

PROJECT ADDRESS

MARION INDEPENDENT SCHOOL DISTRICT
2900 10TH AVENUE
MARION, IOWA 52302
DISTRICT OFFICE: (319)-377-4691

PURPOSE

1. CONDITIONAL USE - SCHOOL

USE

ELEMENTARY SCHOOL

PARKING REQUIREMENTS

2/CLASSROOM: 19 CLASSROOMS = 38 STALLS REQUIRED
2 ADA STALLS REQUIRED BY REQUIRED PARKING

PARKING PROVIDED:
84 STALLS PROVIDED (INCLUDES 4 ADA STALLS)

SETBACKS (RT-1)

FRONT YARD: 25 FEET
SIDE YARD: 7 FEET
CORNER SIDE YARD: 12 FEET
REAR YARD: 25 FEET

ZONING

EXISTING: RT-1
PROPOSED: RT-1 NO CHANGE

EXISTING SITE AREAS

- 224,540 SQUARE FEET= 5.15 ACRES
- 10,922 SQUARE FEET BUILDINGS= 0.25 ACRES
- 66,348 SQUARE FEET PAVED= 1.52 ACRES
- 147,270 SQUARE FEET= 3.38 ACRES

PROPOSED AREAS

- SITE 224,540 SQUARE FEET= 5.15 ACRES
- BLDG AREA: 41,681 SQUARE FEET= 0.96 AC
- PAVED AREA: 58,626 SQUARE FEET= 1.34 AC
- OPEN AREA: 124,233 SQUARE FEET= 2.85 AC

Contact Person	BRENT W. JACKMAN
Telephone Number	(319) 362-9548
Fax Number	(319) 362-7595
Mailing Address	1860 Boyson Road
	Hiawatha, Iowa 52233
E-Mail Address	brent@halleng.com
Date Submitted	05/15/2015
Date Revised	05/28/2015
Date Revised	

LEGEND

UTILITIES

EXISTING		PROPOSED
(SS8)	SANITARY SEWER W/SIZE	SS8
(ST15)	STORM SEWER W/SIZE	ST18
	SUBDRAIN	
(FM6)	FORCE MAIN W/SIZE	FM6
(W8)	WATER MAIN W/SIZE	W12
(G)	GAS	G
(S)	STEAM	S
(OHE)	ELECTRIC-OVERHEAD	OHE
(E)	ELECTRIC-UNDERGROUND	E
(C)	CABLE TV-UNDERGROUND	C
(OHC)	CABLE TV-OVERHEAD	OHC
(OHT)	TELEPHONE-OVERHEAD	OHT
(F)	FIBER OPTIC-UNDERGROUND	F
(OHF)	FIBER OPTIC-OVERHEAD	OHF
(T)	TELEPHONE-UNDERGROUND	T
	FENCE LINE	
	SILT FENCE	
(FP)	FLOODPLAIN LIMITS	FP
(FW)	FLOODWAY LIMITS	FW
	CITY CORPORATION LIMITS	
800	CONTOUR LINE	800
	LIGHT POLE W/O MAST	
	LIGHT POLE W/MAST	
	TELEPHONE POLE	
	POWER POLE	
	GUY ANCHOR	
	GUY POLE	
	TELEPHONE PEDESTAL	
	TELEPHONE MANHOLE	
	CABLE TV PEDESTAL	
	UTILITY/CONTROL CABINET	
	SANITARY MANHOLE	
	STORM MANHOLE	
	GRATE INTAKE	
	RA-3 INTAKE	
	RA-5 INTAKE	
	RA-6 INTAKE	
	RA-8 INTAKE	
	HORSESHOE CATCH BASIN W/O FLUME	
	HORSESHOE CATCH BASIN W/FLUME	
	GAS VALVE	
	FLARED END SECTION	
	CLEANOUT, STORM OR SANITARY	
	TRAFFIC SIGNAL W/MAST	
	BOLLARD	
BM	BENCHMARK	
	STREET SIGN	
	WELL	
SB	SOIL BORING	
	FIRE HYDRANT	
WV	WATER VALVE	
	WATER SHUTOFF	
	WATER BLOWOFF	
CM	CONTROL MONUMENT	

NOTE: THIS IS A STANDARD LEGEND. SOME ITEMS MAY NOT APPEAR ON DRAWINGS.

SURVEY

- EASEMENT LINE
- PLAT OR SURVEY BOUNDARY
- PLAT LOT LINE
- CENTERLINE
- BUILDING SETBACK LINE

PLANTS

EXISTING

- DECIDUOUS TREE
- CONIFEROUS TREE
- DECIDUOUS SHRUB
- CONIFEROUS SHRUB
- TREE STUMP

RECEIVED
MAY 28 2015

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www.iowaonecall.com
811

CAD File: I:\projects\10000\10064 - MISD\DWG\10064-B02.dwg Date Plotted : May 28, 2015 - 2:42pm Plotted By : BRENT.JACKMAN

NGFELLOW ELEMENTARY SCHOOL
IN THE CITY OF MARION,
LINN COUNTY, IOWA

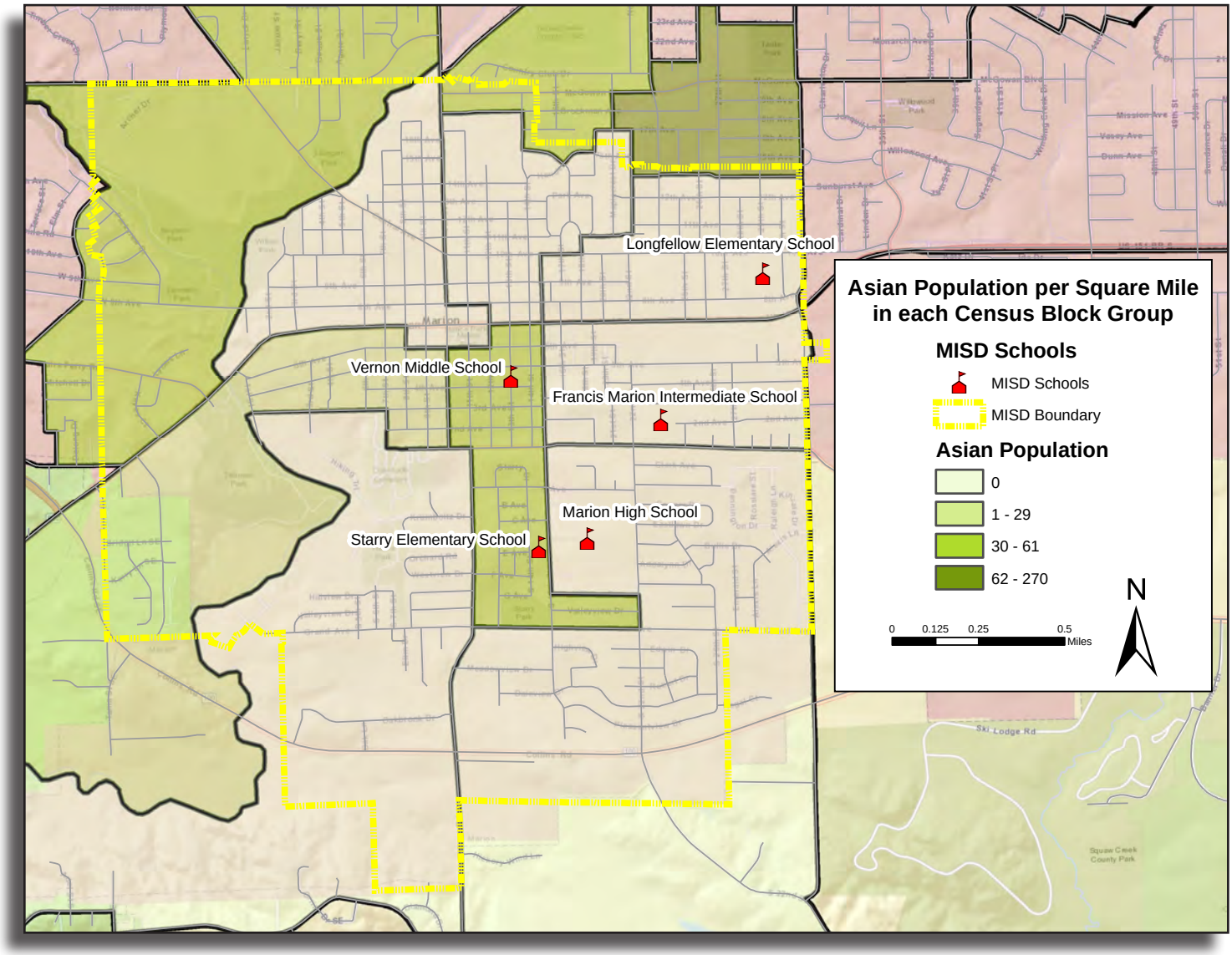
SITE DEVELOPMENT PLAN

PROJECT NO: 10064

SHEET 1 OF 1

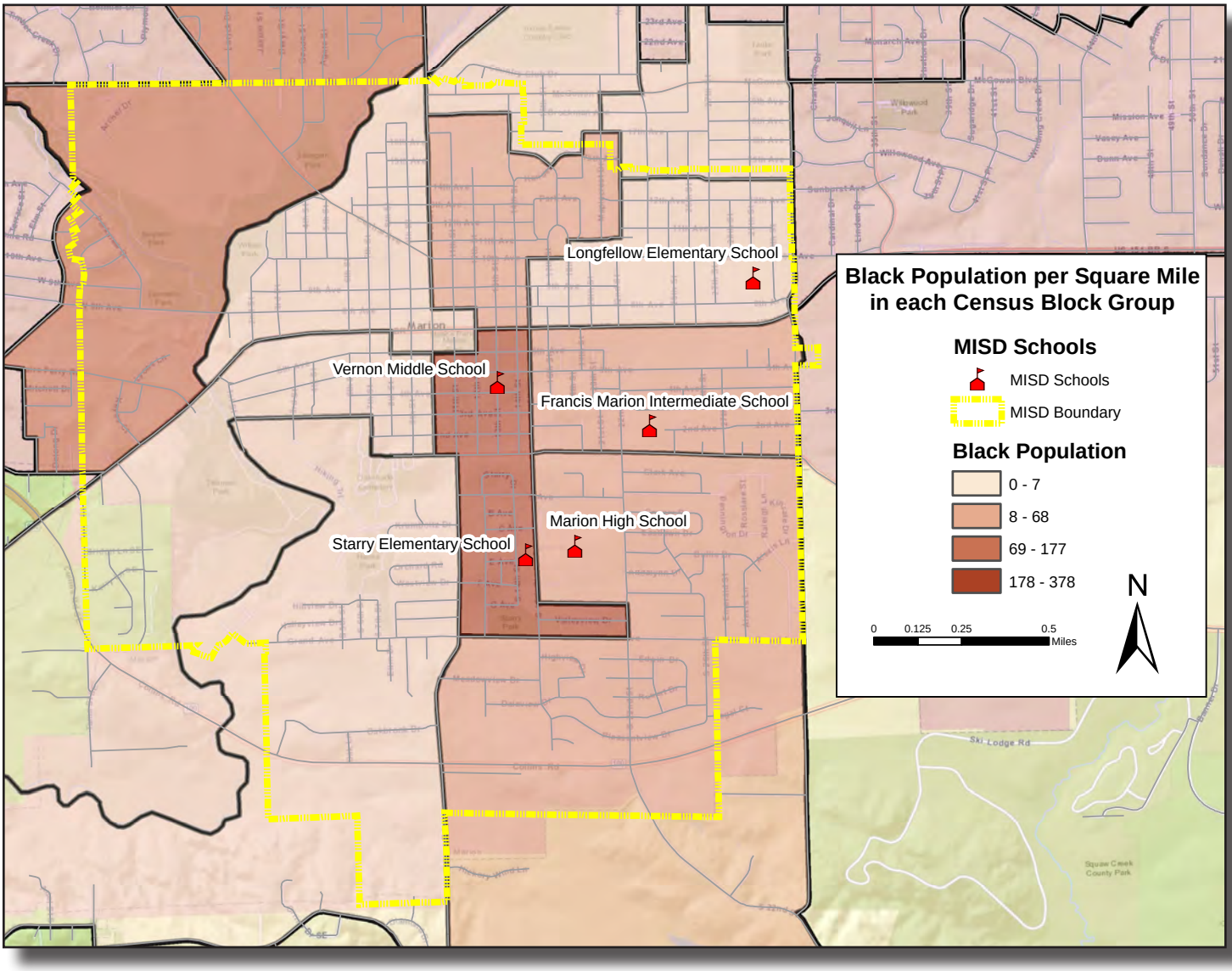
Appendix D - Additional Minority Group Maps

MISD Asian Population per Square Mile



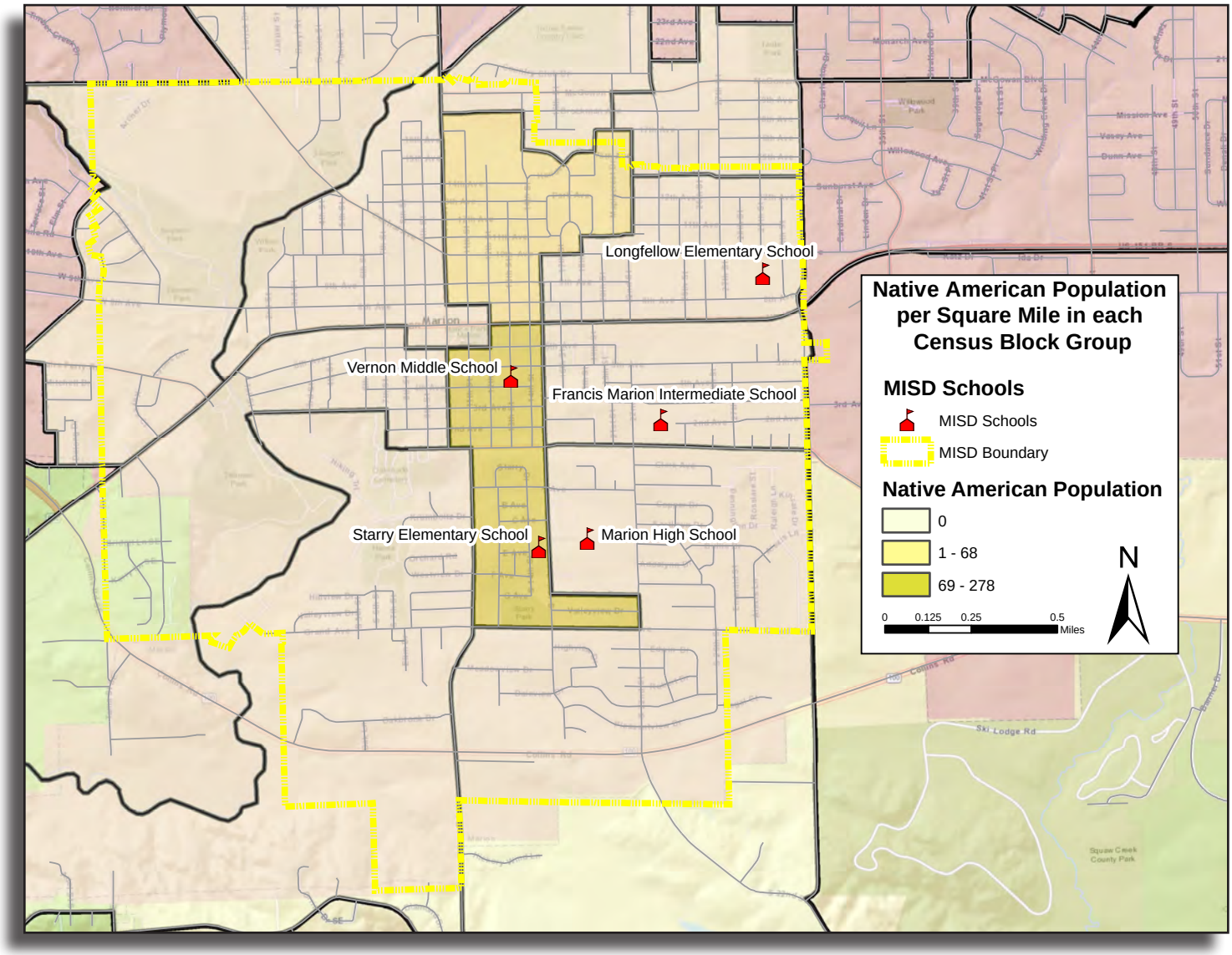
Appendix D - Additional Minority Group Maps

MISD Black Population per Square Mile



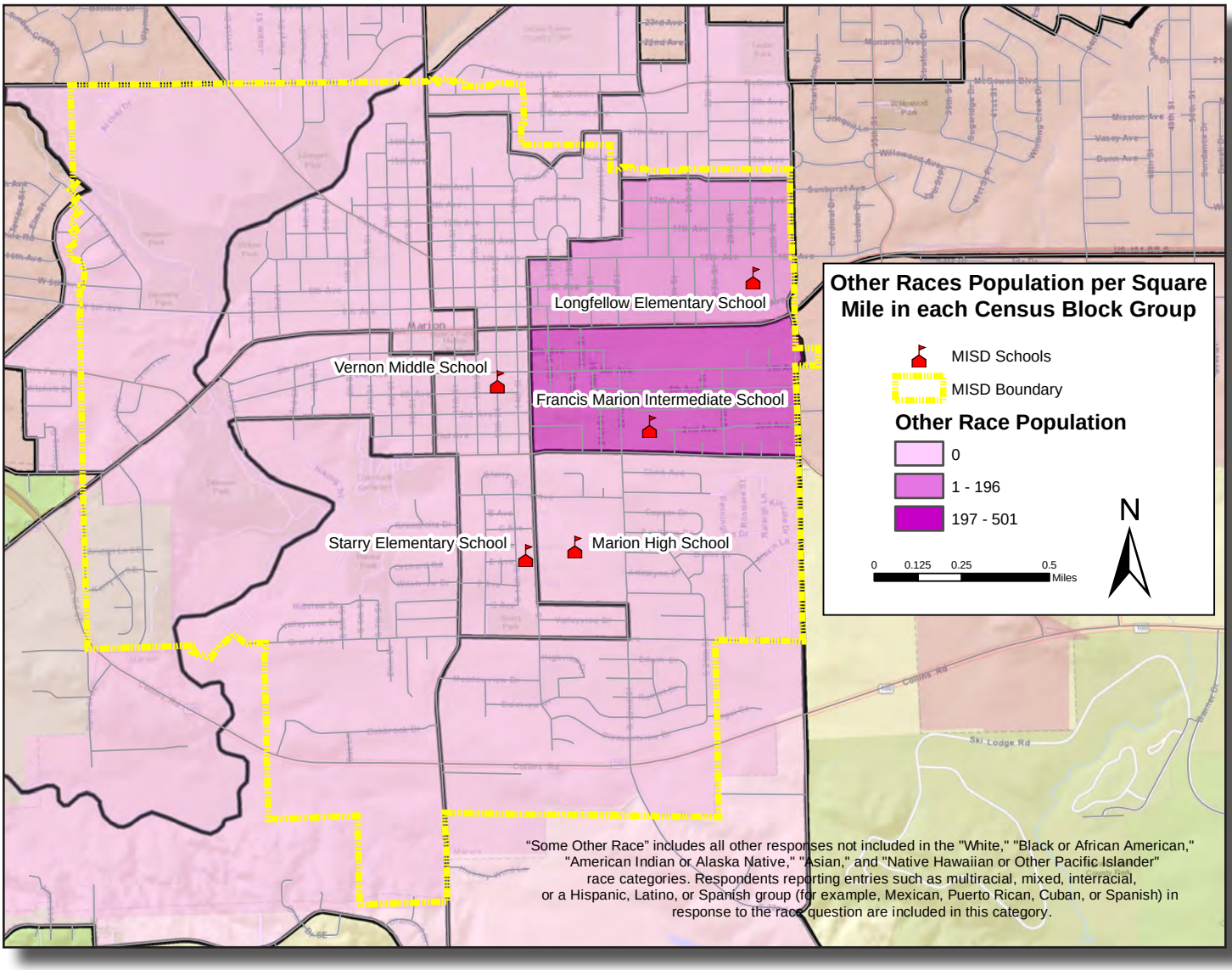
Appendix D - Additional Minority Group Maps

MISD Native American Population per Square Mile



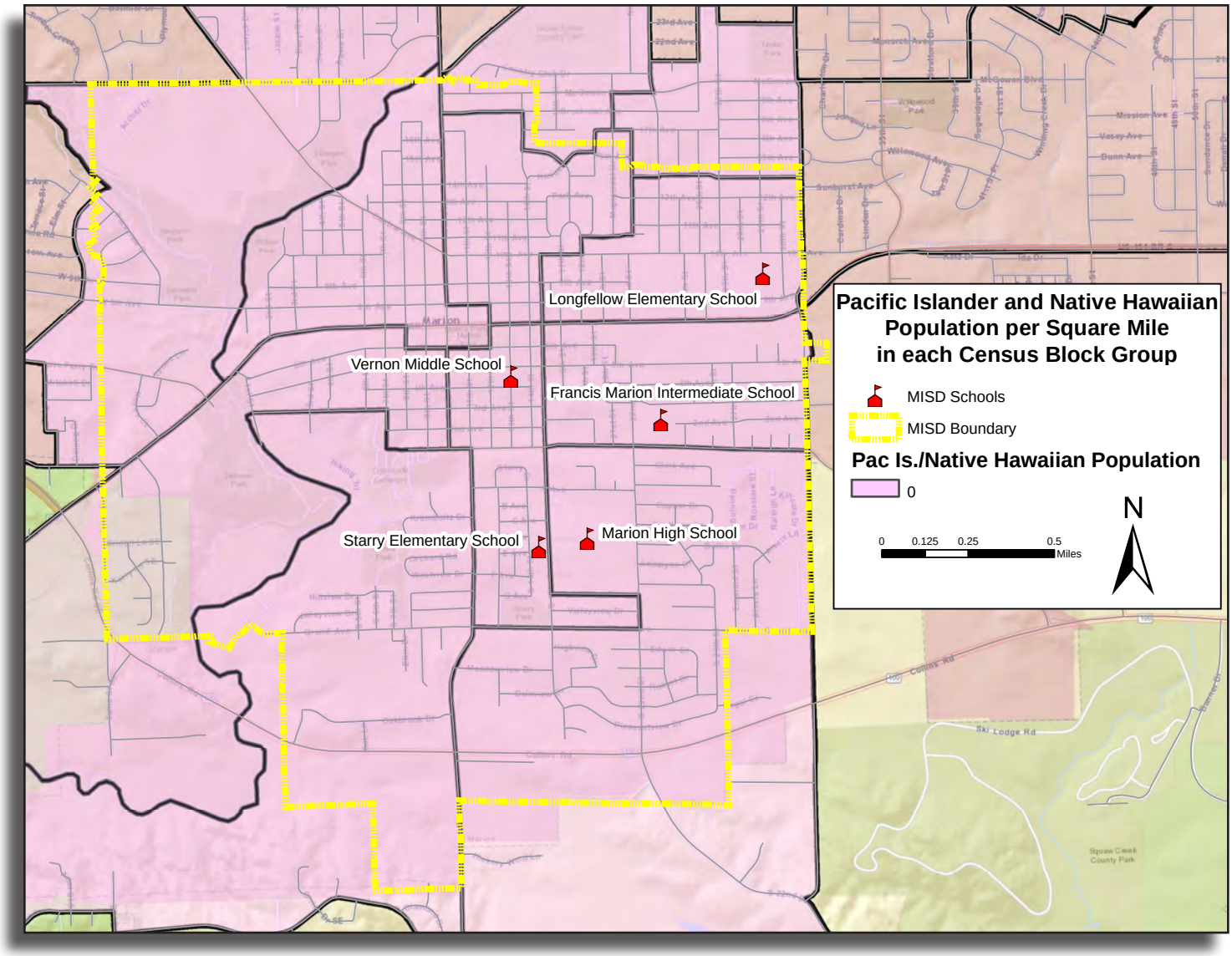
Appendix D - Additional Minority Group Maps

MISD Other Races per Square Mile



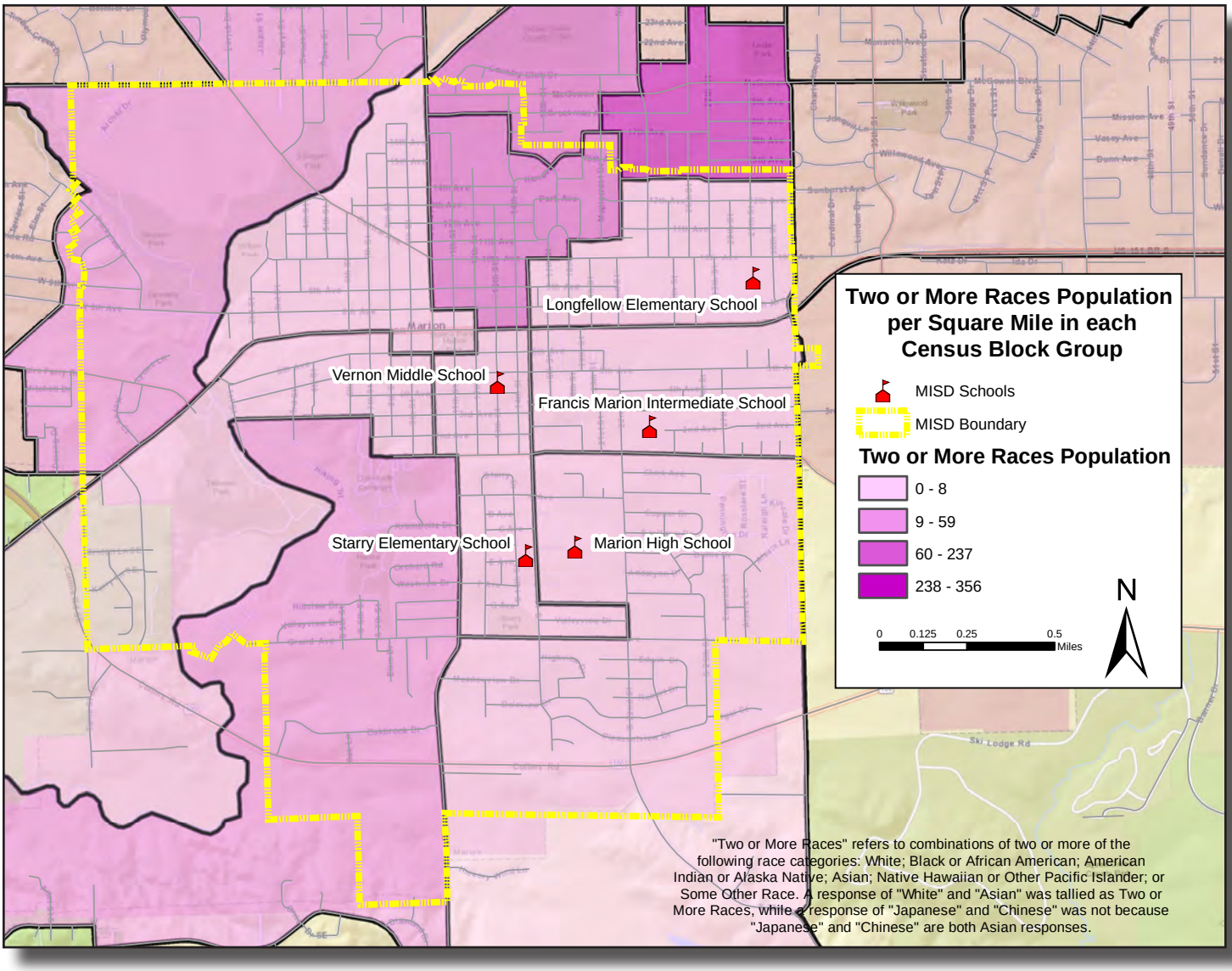
Appendix D - Additional Minority Group Maps

MISD Pacific Islander Population per Square Mile



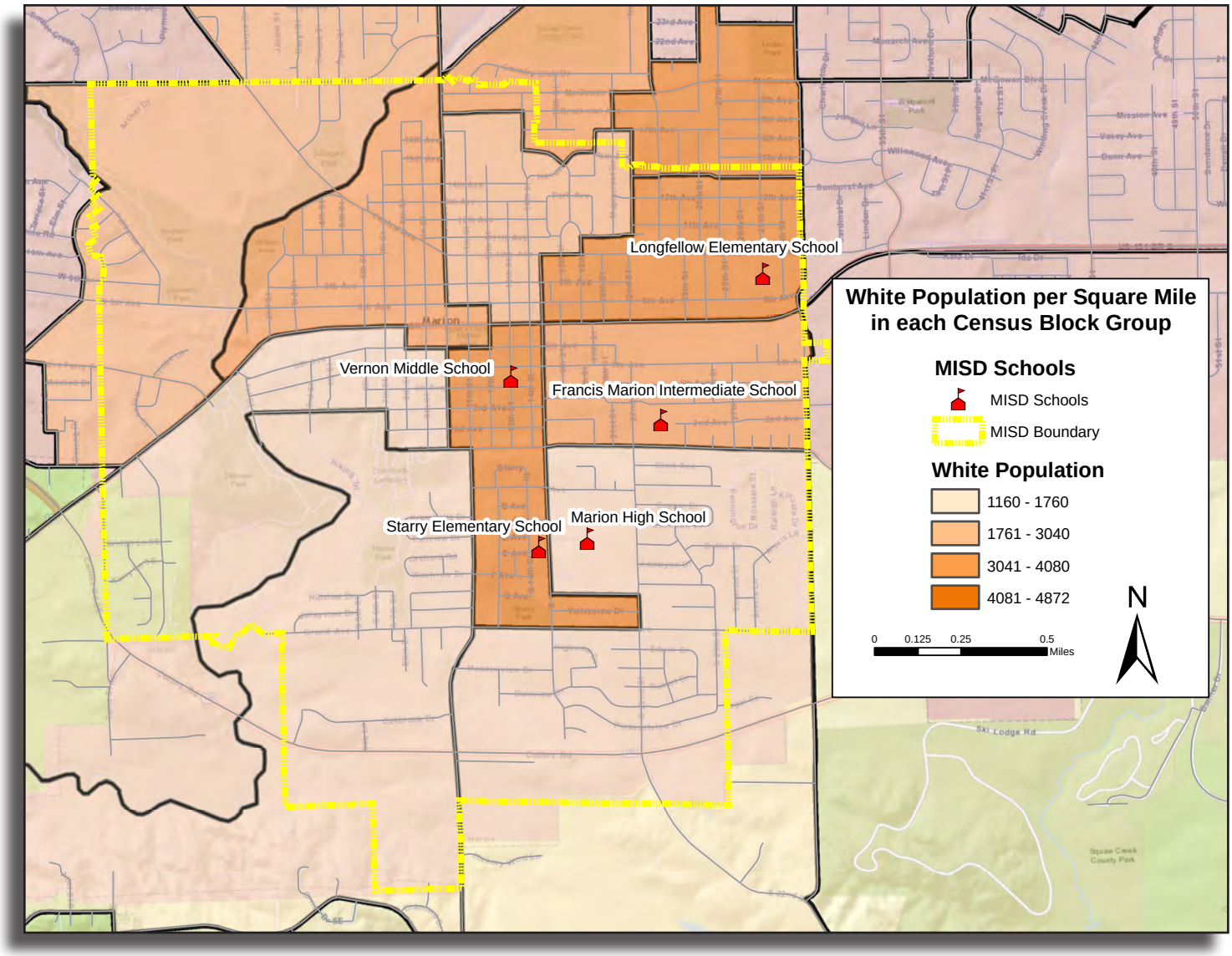
Appendix D - Additional Minority Group Maps

MISD Two or More Population per Square Mile



Appendix D - Additional Minority Group Maps

MISD White Population per Square Mile



Appendix E - Example of in Class Student Survey Tally Sheet

SAFE ROUTES TO SCHOOL
Teacher Data Collection Form
Student Arrival Tally Sheet

General Information:

Date: _____ (MM/DD/YYYY)

Time: _____ AM or PM (circle one)

Day of Week: Tu W Th (circle one)

Weather: _____

Temperature: _____ °F

Teacher's First Name: _____

Teacher's Last Name: _____

Grade: _____

Number of Students Enrolled in Class: ____

School Name (circle one):

Emerson Elementary Francis Marion Intermediate

Marion High School Starry Elementary Vernon Middle School

Tally Sheet Instructions:

- Before asking your students to raise their hands, please read through all possible answer choices so they will know their choices. Each student may only answer once.
- Ask your students as a group **"How did you arrive at school today?"**
- Then, reread each answer choice and record the number of students that raised their hands for each. **Place just one character or number in each box.**
- Please conduct this count regardless of weather conditions (i.e., ask this question on rainy days, too)

Step 1
Fill in the weather conditions and number of students in each class.

Step 2
Ask "How did you arrive to school today?"
Record the number of hands for each answer.

	Weather	*Student Tally*	*Walk*	*Bike*	*School Bus*	*Family Vehicle or Carpool*	*Other*
KEY	**S = Sunny R = Rainy O = Overcast SN = Snow**	**Number in class when count made**	-	-	-	**Only with children from your family or riding with other children from other families**	**(city bus, skateboard, scooter, etc.)**
SAMPLE	SN	20	2	3	8	3	4
CLASS TALLY							

Please list any disruptions to these counts or any unusual travel conditions to the school on days of the tally.

Appendix F - SRTS Plan Report Card

Report Card

Year: XXXX
School: XXXX

First Unit: Active Transportation To and From School a Safe and Positive Experience	X

Educated parents, students, and community members about safe driving, walking, and biking
Reduced conflicts between motorists, pedestrians, and cyclists
Identify safe and pleasant designated walking routes to and from school
Provided and maintained infrastructure to allow children to safely utilize active transportation to and from school
Ensured safe operating motor vehicle speeds

Second Unit: Create and Support Culture of Active Transportation in MISD	X

Increased the number of children walking and biking to and from school
Educated parents, students, and community members about the benefits of walking and biking to and from school
Made active transportation to and from school as convenient as possible
Created a campus atmosphere across the district
Created events and participated in national active transportation holidays
Ensured each school has supportive walking and biking end of trip amenities for students and employees

Third Unit: Ensure Sustainability of the Plan for Long-term Success	X

Adopted policies found within the MISD Safe Routes to School Plan
Ensured stewardship of plan improvements
Followed an annual plan evaluation process

MISD Marion Independent School District

Final Grade: X

Corridor MPO

Appendix F - SRTS Plan Report Card

Grading Scale Key

A	Excellent	All objectives were met to ideal standards
B	Above Average	All objectives were met, there is still room for improvement
C	Satisfactory	All objectives were met at a bare minimum, room for improvement
D	Below Average	Objectives have been improved by not met, substantial room for improvement
F	Failing	Little to no improvements on any objectives

* This is the suggested grading scale in which each school will be evaluated on each year. Only the goal itself will be rewarded a grade based on the scoring of the subset objectives.

Appendix G - Evaluation Matrix

Evaluation Matrix					
Plan Section	**Page Number**	**Was the objective met?**	**Any major changes that would affect this section of the plan?**	**What needs to be updated, omitted, or added to the plan?**	**When does this change need to be made to the plan?**
Marion Independent School District					
Education Objectives					
Active travel unit					
Focus on events					
Public education					
Community engagement					
Encouragement Objectives					
Establish buddy groups at each school					
Provide incentives to students					
Enforcement Objectives					
Regular police presence					
Higher fine school zones					
20mph School Zones					
Increase and reallocate crossing guards across the district					
Engineering Objectives					
Sidewalk infill and priority					
Curb extensions					
Street trees					
MISD Trail					
Pedestrian connection with future expansion					
Evaluation Objectives					
Regularly perform a speed study for MISD Schools					
Survey active transportation mode share shifts					

Appendix G - Evaluation Matrix

Vision zero					
Annual review process					
Francis Marion Intermediate School					
Engineering Objectives					
Provide bike parking near north entrance					
Mark indicated crossing locations					
Extend the western curb-face					
Provide a trail connection to the south access point					
Longfellow Elementary School					
Engineering Objectives					
Speed Table					
RFB					
Provide bike parking near north entrance					
Speed feedback signs					
Mark indicated crossing locations					
Starry and Marion High Schools					
Engineering Objectives					
Speed tables					
RBF					
Speed feedback signs					
Marion High School					
Engineering Objectives					
Increased bike parking capacity at existing facilities					
Starry Elementary School					
Education and Enforcement Objectives					
Move parent pickup and drop-off to western side of campus					
Mark indicated crossing locations					
Modify eastern					

Appendix G - Evaluation Matrix

parking lot to support bus traffic					
Prohibit parking on the eastern side of Fourteenth Street					
Vernon Middle School					
Education and Enforcement Objectives					
Timed one-way traffic					
Mark Indicated Crossing Locations					
Increase Bike Parking Capacity at Existing Facilities					
Formalize Existing Pedestrian Travel Patterns					
Modify Eastern Parking Lot					

Appendix H - Priority One Sidewalks

Road	Details	Orientation	Distance (feet)
3rd Ave	1st Street through 3rd Steet	South side	841
3rd Ave	11th Street through 12th Street	Partial south sid	164
3rd Ave	10th Street through 11th Street	North side	262
15th St	2nd Avenue through 1st Avenue	West side	260
15th St	3rd Avenue through 2nd Avenue	West side	276
3rd Ave	13th Street through 14th Street	South side	274
15th St	5th Avenue through 3rd Avenue	West side	569
C Ave	S 14th Street through S 15th Street	South side	258
S. 14th St	C Avenue through D Avenue	West side	201
S. 14th St	E Avenue through F Avenue	West side	337
22nd St	3rd Avenue through 1st Avenue	Partial east side	545
27th St	5th Avenue through 4th Avenue	West side	267
27th St	4th Avenue through 3rd Avenue	East side	250
Yard walkway	Francis Marion Intermediate School through 1st Avenue	Pathway	177
3rd Ave	16th Street through 18th Street (will continue into another	North side	255
3rd Ave	18th Street through 20th Street	North side	547
26th St	10th Avenue through 8th Avenue	Partial west side	389
29th St	11th Avenue through 10th Avenue	East side	383
29th St	12th Avenue through 11th Avenue	West side	74
29th St	14th Avenue through 12th Avenue	Partial west side	388
26th St	11th Avenue through 10th Avenue (partially located withi	East side	381
26th St	12th Avenue through 11th Avenue	East side	1076
3rd Ave	27th Street through 31st Street (will extend past buffer zor	South side	271
3rd Ave	15th Street through 16th Street	North side	274
3rd Ave	12th Street through 12th Street	South side	271
26th St	8th Avenue through US 151 BR 7th Avenue	East side	264
Parking Lot Trail	14th Street through 15th Street	Pathway	146
S. 14th St	D Avenue through E Avenue	West side	202
27th St	4th Avenue through 3rd Avenue	West side	261
29th St	11th Avenue through 10th Avenue	West side	387
11th Ave	28th Street throught 29th Street	North side	280
29th St	12th Avenue through 11th Avenue	East side	380
3rd Ave	14th Street thought 15th Street	South side	151
27th St	5th Avenue through 4th Avenue	Partial east side	142
5th Ave	27th Street through trail connection of 27th St through 26th	Trail	62
26th St	11th Avenue through 10th Avenue	West side	389
26th St	12th Avenue through 11th Avenue	West side	383
26th St	14th Avenue through 12th Avenue	East side	326
26th St	14th Avenue through 12th Avenue	West side	324
29th St	14th Avenue through 12th Avenue (partially located withir	East side	289

Appendix I - Priority Two Sidewalks

Road	Details	Orientation	Distance (feet)
Grand Ave	Buffer limit through S. 15th St	Partial South	553
S 12th St	Grand Ave through Starry Dr	East side	2643
S 12th St	F Ave through Starry Dr	West side	1296
F Ave	S 11th St through S 14th St	North side	798
E Ave	S 12th St through S 14th St	North side	428
D Ave	S 12th St through S 14th St	Partial South side	53
C Ave	S 12th St through S 14th St	South side	416
B Ave	S 12th St through S 14th St	North side	406
B Ave	S 12th St through S 14th St	South side	415
A Ave	S 11th St through S 15th St	South side	409
S 14th St	Starry Dr through C Ave	West side	765
Starry Dr	S. 12th St through S 14th St	North side	1023
Starry Dr	S. 12th St through S 14th St	South side	918
Fairview Dr	Buffer limit throught S. 11th St	North side	271
Fairview Dr	Buffer limit through S. 11th St	South side	276
2nd Ave	15th St through 19th St	North side	748
2nd Ave	15th St through 19th St	South side	705
19th St	2nd Ave through 1st Ave	East side	406
19th St	2nd Ave through 1st Ave	West side	378
21st St	3rd Ave through 1st Ave	Partial East side	478
21st St	3rd Ave through 1st Ave	Partial West side	145
21st St	5th Ave through 6th Ave	West side	261
27th St	2nd Ave through 3rd Ave	East side	280
27th St	2nd Ave through 3rd Ave	West side	259
20th St	3rd Ave through 4th Ave	East side	241
20th St	4th Ave through 5th Ave	Partial East side	125
4th Ave	20th St through Buffer limit	North side	1909
4th Ave	20th St through Buffer limit	South side	1895
25th St	3rd Ave through 4th Ave	East side	259
25th St	3rd Ave through 4th Ave	West side	264
26th St	3rd Ave through 5th Ave	East side	528
26th St	3rd Ave through 5th Ave	West side	524
5th Ave	21st St through Buffer limit	Partial North side	563
5th Ave	Buffer limit through 31st St	North side	646
US 151-BR / 7th Ave	Buffer limit through 31st St	South side	1377
US 151-BR / 7th Ave	Buffer limit through 31st St	Partial North side	532
8th Ave	26th St through 31st St	South side	1330
11th Ave	Buffer limit through 30th St	North side	1129
11th Ave	Buffer limit through 30th St	South side	1129
12th Ave	Buffer limit through 31st St	South side	858
12th Ave	Buffer limit through 30th St	North side	502
12th Ave	30th St through 31st St	Partial North side	191

Appendix I - Priority Two Sidewalks

Road	Details	Orientation	Distance (feet)
27th St	Buffer limit through 10th Ave	East side	517
27th St	Buffer limit through 10th Ave	West side	494
27th St	10th Ave through 8th Ave	East side	654
28th St	Buffer limit through 10th Ave	East side	763
28th St	Buffer limit through 10th Ave	West side	773
30th St	12th Ave. through 8th Ave.	East side	1411
30th St	12th Ave. through 8th Ave.	West side	1389
31st St	Buffer limit through 5th Ave.	West side	2900
16th St	3rd Ave through 5th Ave.	Partial West side	221
16th St	5th Ave. through 6th Ave.	East side	253
19th St	5th Ave. through Buffer limit	East side	90
6th Ave	13th St. through 19th St.	North side	1108
14th St	16th St. through 19th St.	Partial South side	361
14th St	7th Ave/US 151 BR through 6th Ave.	East side	299
14th St	6th Ave. through Buffer limit	West side	172
14th St	2nd Ave. through 3rd Ave.	West side	269
15th St	5th Ave. through 7th Ave.	West side	269
1st Ave	Buffer limit through 13th St.	North side	743
2st Ave	15th St. through 11th St.	Partial South side	939
2nd Ave	11st St through 15th St.	North side	974
2nd Ave	11st St through 15th St.	South side	955
12th St	1st Ave. through 3rd Ave.	East side	527
12th St	1st Ave. through 3rd Ave.	West side	529
13th St	1st Ave. through 3rd Ave.	West side	577

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1. United States Census Bureau / American FactFinder. “B01001 : Sex By Age.” 2011 – 2015 American Community Survey. U.S. Census Bureau’s American Community Survey Office, 2015. Web. 21 Febuary 2017 < https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_15_5YR_B01001&prodType=table>.

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3. United States Census Bureau / American FactFinder. “B19001 : Household Income in the Past 12 Months (In 2015 Inflation-Adjusted Dollars).” 2011 – 2015 American Community Survey. U.S. Census Bureau’s American Community Survey Office, 2015. Web. 21 Febuary 2017 < https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_15_5YR_B19001&prodType=table>.

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5. United States Census Bureau / American FactFinder. “B25044 : Tenure By Vehicles Available.” 2011 – 2015 American Community Survey. U.S. Census Bureau’s American Community Survey Office, 2015. Web. 21 Febuary 2017 < https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_15_5YR_B25044&prodType=table >.

6. United States Association of Pedestrian and Bicycle Professionals. Essentials of Bike Parking: Selecting and installing bicycle parking that works. By Nathan Broom, Eric Anderson, Vince Caristo, Ryan Dodge, Jennifer Donlon-Wyant, Sarah Figliozzi, Elco Gauw, Dan Jatres, David Loutzenheiser, Heath Maddox, Brian Patterson, and Sara Seiderman. 2015.

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