Carson City Safe Routes to School Master Plan

Prepared for:

Prepared by:

Approved: September 9, 2020
Administrative Update: August 15, 2022

Acknowledgements

The following key people/entities participated in the Carson City Safe Routes to School Master Plan. Their creativity, energy, and commitment were critical to the success of this effort.

Carson City Public Works

Lucia Maloney, PMP

Dirk Goering, AICP

Kelly Norman

Dan Anderson

Carson City School District

Ann Cyr

Daniel Davis

Daniel Sadler

Susan Squires

Dan Brown

Lee Conley

Paula Zona

Lisa Hutchinson

Ruthlee Caloiaro

Linda Hurzel

Sheri Fletcher

Consultant Team

Cole Peiffer, AICP	Headway Transportation
Loren Chilson, PE	Headway Transportation
Marissa Harned, PE	Headway Transportation
Dylan Axtell, EI	Headway Transportation
Sam Corbett, AICP	Alta Planning + Design
Courtney Banker	Alta Planning + Design
Chris Heliotes	CFA, Inc

Contents

List of Figures

List of Tables

Executive Summary

Study Elementary Schools

- Bordewich-Bray (BBES)
- Empire (EES)
- Fritsch (FrES)
- Fremont (FES)
- Mark Twain (MTES)
- Seeliger (SES)

Study Middle Schools

- Carson (CMS)
- Eagle Valley (EVMS)

The Carson City Safe Routes to School Master Plan (Plan) focuses on encouraging walking & biking to school and improving the safety of students within a 1-mile radius of the six elementary schools and two middle schools in Carson City, NV. The Plan was developed utilizing in-person site assessments including the use of an aerial drone to captured high quality video footage at each school during pick-up and drop-off periods. The Plan also analyzed existing travel patterns, crash data, and safety concerns from parents and staff to develop a prioritized list of infrastructure improvements and programmatic recommendations which focus on furthering the project goals. Recommendations included in this Plan are sensitive to the wide variety of neighborhood types (urban, suburban, and rural) and their associated roadway contexts.

Utilizing the six E's of Safe Routes to School (SRTS) planning, the Plan includes multi-disciplinary recommendations that build upon existing efforts of the school district (including teachers & parents) and Carson City Public Works staff to create a roadmap to increase safety for children walking and biking to school.

The Six E's of Safe Routes to School Planning

1. Engineering
2. Education
3. Encouragement
4. Engagement
5. Equity
6. Evaluation

Engineering Recommendations

Recommendations were developed based on task force committee meetings, site observations, and analysis of existing crash data and vehicle speed data. Input from school staff, parents, middle school students, and Carson City Public Works staff was also included to create a holistic set of recommendations. The study included an online survey of parents at all eight schools and of students from the two middle schools. Full survey results are included in **Appendix A**. The three major focus areas identified by parents & students are:

1. Improve safety of intersections & crossings
2. Improve sidewalks & pathways
3. Reduce traffic speeds along routes to school

Engineering projects, led by Carson City Public Works, aimed at addressing these focus areas and other safety concerns determined through crash type, severity and contributing factor analysis were divided into three project tiers based on planning level cost estimates, available funding, and timeframe of implementation. Recommended projects in Tiers 1 & 2 are shown in **Figure E**. Tier 3 projects are outlined in the Recommendations section (page **3-6** to **3-7**). The recommended projects can be easily enhanced or modified by incorporating bicycle and pedestrian facility concepts or traffic calming techniques provided in the Carson City Safe Routes to School Infrastructure Design Toolbox included in **Appendix B**. This Toolbox is intended to provide a range of options for implementation based on safety, operational, and maintenance considerations. Total estimated costs for each project tier are detailed in **Table E-1**.

Tier 1 – Quick Win Projects: This tier includes 26 projects with low costs which would provide an immediate benefit and can be implemented rapidly. Tier 1 projects are intended to be implemented as soon as possible with other City projects and programs. The total cost of all Tier 1 projects is estimated to be $204,000. The following elements are included in Tier 1:

- 15 Bus stop improvements
- 6 Traffic operations / safety improvements
- 5 Crosswalk enhancements
- 1 Rectangular Rapid Flashing Beacon (RRFB)

Tier 2 – SRTS Core Projects: Tier 2 consists of 54 projects focused on improving walking and biking to school which will be implementable over the next 20 years. The total cost of all Tier 2 projects is estimated to be $42.1 million. The following improvements are included in Tier 2:

- Intersection crossing enhancements at 52 intersections
- Sidewalk gap closure on 23 roadways
- Bicycle enhancements on 13 roadways
- 6 Rectangular Rapid Flashing Beacons (RRFBs)
- 6 New crosswalks

Tier 3 – Aspirational Projects: These 25 projects represent an ideal conceptual network of low-stress bicycle facilities across Carson City and do not have an associated timeline for implementation. The total cost of all projects in Tier 3 is estimated to be $17 million.

Table E-1. Engineering Recommendations Costs by Project Tier

Engineering Recommendation Tier	Priority Timeframe	Total Estimated Costs (2019)
Tier 1: Quick Win Projects		$204,000
Tier 2: SRTS Core Projects	Near-Term	$12.5 Million
	Medium-Term	$10.6 Million
	Long-Term	$19.0 Million
	Sub-Total:	$42.1 Million
Tier 3: Aspirational Projects		$17 Million

The Tier 2 projects were prioritized as Near-Term, Medium-Term, and Long-Term projects based on a composite score of the following eight prioritization criteria:

1. **Survey Results** - Addresses a specific location identified through parent and student surveys. Addressing this feedback is a priority of the Plan.
2. **Known Safety Issue** – Considers projects that address one or more of the three major focus areas (improve safety of intersections & crossings, improve sidewalks & pathways, reduce traffic speeds along routes to school).
3. **Equity** – Considers median household income to prioritize economically disadvantaged areas.
4. **School Proximity** – Emphasizes projects in close proximity to schools in order to benefit the greatest number of children first.
5. **Community Facility Proximity** – Prioritizes projects in areas of high demand that provide benefits to a greater number of people beyond just school-aged children.
6. **Population Density** – Considers areas of greater population density to provide a benefit to a greater number of people throughout the community.
7. **Cost Efficiency / Feasibility** – Prioritizes projects based on their overall feasibility and planning level cost estimates.
8. **Project Efficiencies** – This factor prioritizes recommended projects which may be incorporated into a planned project on Carson City's current Capital Improvement Program (CIP).

Near-term projects are shown in Tables **E-2 & E-3** with the full prioritized list of Tier 2 projects included on pages **3-3 to 3-4**. Tier 1 & 3 projects were not included in the prioritization process due to the ease of implementation of Tier 1 projects and that Tier 3 projects are beyond the 20 year timeframe. A condensed prioritization matrix is included on Page **3-2** and the full process detailed in **Appendix C**.

The result of this Plan is a prioritized list of projects which will improve pedestrian and bicyclist safety for school aged children, and all Carson City residents, for years to come.

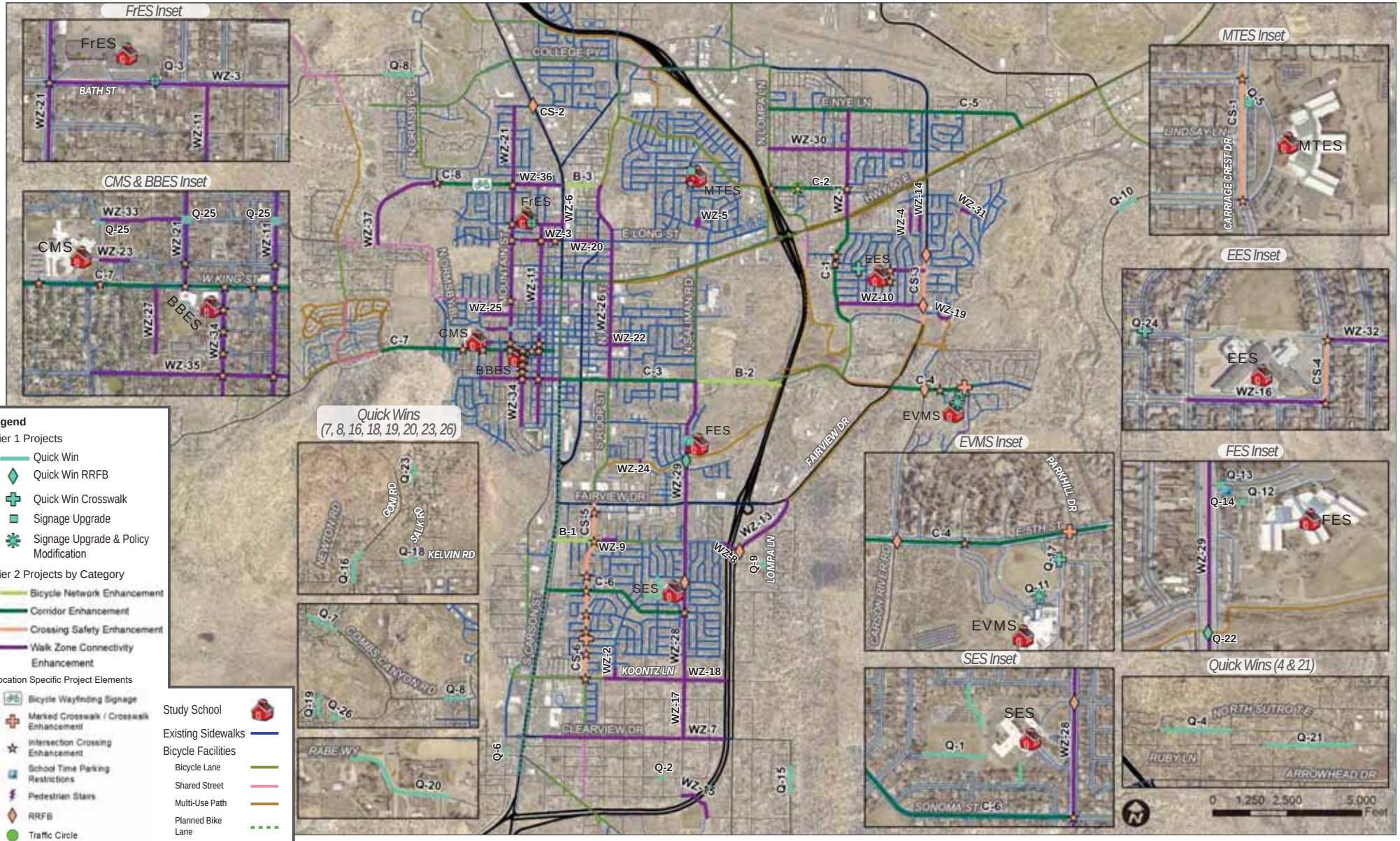


Figure E. Tier 1 & Tier 2 Recommendations at All Study Schools

Table E-2. Tier 2: SRTS Core Near-term Projects

Project Number	Street	Extent (Or Cross Street)	Description	Cost	Priority Score	Priority Timeframe
C-7	W. King Street	Thames Lane to Curry Street	**A.** Construct multi-use path from Thames Lane to Canyon Park Court **B.** Add physical buffer for bike lane at CMS & BBES **C.** Close sidewalk gaps between Curry Street and Ormsby Boulevard **D.** Install intersection crossing enhancements at Tacoma Avenue, Richmond Avenue, Mountain Street, Thompson Street, Minnesota Street, Division Street	$$$$	47	Near
WZ-33	Telegraph Street	Richmond Avenue to Mountain Street	Construct sidewalk on south side of roadway to eliminate sidewalk gaps and enhance existing sidewalks, as possible	$$	47	Near
CS-4	Monte Rosa Drive	Stanton Drive to Gordonia Avenue	Add intersection crossing enhancements to Stanton Drive & Gordonia Avenue intersections, including striping to prohibit parking close to existing crosswalks	$	45	Near
WZ-28	Saliman Road	Fairview Drive to Koontz Lane	**A.** Intersection crossing enhancements at Sonoma Street **B.** RRFB at Damon Road crosswalk **C.** Sidewalk east side Colorado Street to Fairview Drive **D.** Enhance existing sidewalk as possible	$$$	43	Near
WZ-29	Saliman Road	E. 5th Street to Fairview Drive	Enhance existing sidewalk as possible	$$	43	Near
WZ-21	Mountain Street	Nye Lane to King Street	**A.** Close sidewalk gaps & enhance existing sidewalk where possible **B.** Add intersection crossing enhancements at Winnie Lane, Bath Street, Long Street, Washington Street, Telegraph Street, Musser Street	$$$$$	42	Near
CS-1	Carriage Crest Drive	Slide Mountain Drive to Mountain Park Drive	**A.** Add intersection crossing enhancements at Mountain Park Drive, Slide Mountain Drive, Lindsay Lane intersections **B.** Add center median from 70' south of Slide Mountain Drive to Parent Drop-Off Loop entrance **C.** Consider parking restrictions or removal on Carriage Crest Drive during school pick-up and drop-off periods	$$	39	Near
WZ-16	Gordonia Avenue	Monte Rosa Drive to La Loma Drive	**A.** Widen existing sidewalks on the north side of the roadway **B.** Add center median from Monte Rosa Drive to La Loma Drive	$$	39	Near
WZ-32	Stanton Drive	Monte Rosa Drive to Fairview Drive	Widen existing sidewalk on south side and create center median	$$	39	Near
WZ-11	Division Street	Bath Street to W. 5th Street	**A.** Add intersection crossing enhancements at minor side streets **B.** Enhance & upgrade existing crosswalks through-out the corridor including Musser Street, Telegraph Street, and Long Street **C.** Close sidewalk gaps and widen sidewalks as possible	$$$$	38	Near
WZ-34	Thompson Street	King Street to 550 ft. S. of San Marcus Drive	**A.** Close sidewalk gaps on east side (King Street to 5th Street) **B.** Close sidewalk gaps on west side (5th Street to San Marcus Drive) **C.** Create intersection crossing enhancements at existing W. 2nd St, W. 3rd St, and W. 4th St crosswalks	$$	38	Near
C-6	Sonoma Street	Carson Street to Saliman Road	**A.** Construct bike lanes **B.** Add intersection crossing enhancement at Silver Sage Drive	$	36	Near

Table E-3. Tier 2: SRTS Core Near-term Projects (cont'd)

Project Number	Street	Extent (Or Cross Street)	Description	Cost	Priority Score	Priority Timeframe
CS-3	Fairview Drive	Desatoya Drive to Walker Drive	**A.** Install RRFB at Desatoya Drive **B.** Install RRFB with pedestrian refuge island (painted or hardscape) between Walker Drive and Stanton Drive **C.** Construct Sidewalk on the west side of Fairview Drive from Walker Drive to Edmonds Drive **D.** Enhance existing sidewalk on east side from Lepire Drive to multi-use path **E.** Enhance existing sidewalk on west side from Desatoya Drive to multi-use path south of Butti Way	$$	36	Near
WZ-35	W. 5th Street	Richmond Avenue to Carson Street	**A.** Close sidewalk gaps and enhance existing sidewalk where possible **B.** Add intersection crossing enhancements at Thompson Street & Division Street	$$$$$	36	Near
WZ-10	Desatoya Avenue	Airport Road to Fairview Drive	Widen sidewalks on south side of roadway	$$	35	Near
C-4	E. 5th Street	Fairview Drive to Mexican Ditch Trail	**A.** Construct bike lanes from Fairview Drive to Carson River Road **B.** Construct buffered bike lane from Carson River Road to Mexican Ditch Trail **C.** Add marked crosswalk with pedestrian refuge (painted or hardscape) at Parkhill Drive **D.** Construct pedestrian refuge at Regent Court (painted or hardscape) **E.** Relocate existing crosswalk at Carson River Road & Hells Bells Road approximately 15 feet to the east, add pedestrian refuge Island (painted or hardscape) and RRFB	$$	34	Near
WZ-3	Bath Street	Mountain Street to Carson Street	**A.** Close sidewalk gaps between Curry Street & Mountain Street **B.** Add intersection crossing enhancement (paint or hardscape) at existing mid-block crosswalk and Division Street crosswalks **C.** Add missing & repair damaged ADA Ramps **D.** Repair and enhance existing sidewalks as possible	$$$	34	Near
WZ-36	Winnie Lane	Carson Street to Mountain Street	Enhance existing sidewalks as possible	$$	34	Near

Project Category Key

	Tier 2: Bicycle Network Enhancements
	Tier 2: Crossing Safety Enhancements
	Tier 2: Walk Zone Connectivity Enhancements
	Tier 2: Corridor Enhancements (Combined elements from Bicycle Network, Walk Zone Connectivity, and Crossing Safety along specific corridor)

Programmatic Recommendations

The programmatic recommendations listed in the following tables were compiled based on key themes and concerns described by stakeholders, as well as industry best practices. These programs, paired with the Engineering project recommendations in the Plan, give the City a full suite of SRTS strategies and options, commonly referred to as the "6 E's".

Table E-4. Programmatic Engineering Recommendations

Theme	Project Number	Type	Description	Schools	Cost	Priority Timeframe
Engineering School Safety	ENG-1	School Speed Zone Standard	Develop standard for School Speed Zone signage, lane markings, and controls which will create a standard look and feel for School Speed Zones across Carson City. This may include installing flashers at all existing "School Zone When Flashing" signs (S5-1) and replacing existing School Zone Time Specific sign combinations (S4-3P, R2-1, S4-1P) with S5-1 signs. Additionally, a standard may include traffic calming strategies such as in-road message signs (R1-6), intersection bulb-outs, and speed feedback signs.	All	$	Near
	ENG-2	School Speed Zone Standard	Implement School Speed Zone standard at all eight study schools as funding is available.	All	$ - $$	Medium
	ENG-3	School Speed Zone Standard	Ensure that Speed Feedback Signs within a School Zone are programmed to reflect the school zone speed limits during the appropriate hours of the day.	All	$	Near
	ENG-4	School Bus Stop Awareness	Utilize temporary school bus stop signage and public messaging campaigns to increase driver awareness of bus stops during the school year. Initial efforts will focus on locations identified as "Quick Wins" and may expand to other locations following the first year of implementation.	All	$$	Near

Table E-5. Education Recommendations

Theme	Project Number	Type	Description	Schools	Cost	Priority Timeframe
Education	ED-1	Bicycle Safety Education	Develop TA-Set Aside grant application to bolster and expand upon the existing Bicycle Safety Education program at all six elementary schools. Items to include in grant application are new bicycles, easy to use bicycle helmets, funding for on-going maintenance and repairs, and updated curriculum materials	Elementary	$$	Near
	ED-2	Bicycle Safety Education	Work with CCSD to expand the total number of days of bicycle education instruction to provide 3rd, 4th, and 5th grade students with at least 2 class periods of experience on a bike each school year	Elementary	$$	Long
	ED-3	Student Pedestrian Education	Develop / obtain pedestrian safety education curriculum for elementary school students and incorporate these lessons into an expanded Bicycle Safety Education program	Elementary	$	Medium
	ED-4	Student Pedestrian Education	Develop / obtain pedestrian safety education curriculum for middle school students. Disseminate this information to students during the school year or as part of a Bicycle/Pedestrian Safety Program	Middle	$	Medium
	ED-5	Parent / Caregiver Safety Education	Develop and implement a public messaging campaign to make drivers aware of School Zone laws. This campaign can be reused at the beginning of each school year and following long breaks.	All	$$$	Near
	ED-6	Parent / Caregiver Safety Education	Develop and implement public messaging campaign focused on parents and the importance of teaching safe pedestrian habits to their children.	All	$$$	Medium

Table E-6. Encouragement Recommendations

Theme	Project Number	Type	Description	Schools	Cost	Priority Timeframe
Encouragement	E-1	Walking/Biking Encouragement	Start a Walking Wednesday program at each elementary school focused on encouraging students (and parents) to walk or bike to school every Wednesday in order to receive daily prizes and to compete for a bicycle or scooter at the end of the school year.	Elementary	$	Near
	E-2	Bicycle Equipment Program	Work with local non-profits and local businesses to create local bicycle donation and rehabilitation program. Program would obtain and repair older bicycles from the community and fix them up to provide them to Carson City students without a bicycle	All	$$$	Long
	E-3	Walking / Biking Encouragement	Increase number of School Safety Champions to one at each school	All	$	Near
	E-4	Walking / Biking Encouragement	Work with School Safety Champions and School administrations to create a network of parents who are willing and able to supervise Walking School Buses and/or Bike Trains at each of the six elementary schools. Leverage available funding for compensating volunteers.	Elementary	$	Near
	E-5	Active Transportation Challenges / Competitions	Work with schools to develop a Golden Sneaker Challenge between classrooms at each school during Walk to School Day. Expand the challenge to be community wide (between each school) within three years.	All	$	Near

Table E-7. Engagement Recommendations

Theme	Project Number	Type	Description	Schools	Cost	Priority Timeframe
School Zone Engagement	SZ-1	School Speed Zone Engagement	Increase SRO or police presence in school zones during morning and afternoon peak periods to increase enforcement of School Zone laws. Key areas of focus are MTES (prohibiting left-out turns), FES (prohibiting left-out turns & speeding), and ASES (Speeding)	All	$$	Near
	SZ-2	School Speed Zone Task Force	Collaborate with local law enforcement and CCSD to develop a School Speed Zone task force. The task force would conduct intermittent and Nearly visible School Speed Zone engagement programs at each study school throughout the school year.	All	$$$	Medium
	SZ-3	Mobile Speed Feedback Trailers	Work with Carson City Sheriff's Office to place mobile speed feedback trailers on school routes at the beginning of the school year and following extended holiday breaks.	All	$	Long

Table E-8. Equity Recommendations

Theme	Project Number	Type	Description	Schools	Cost	Priority Timeframe
Equity	N/A	Equitable Program of Projects	All engineering projects were evaluated through the prioritization process based on the benefit provided to economically disadvantaged areas. Projects providing direct benefits to these locations were assigned additional points during prioritization. It is recommended that projects be implemented based on priority ranking, as possible, in order to deliver an equitable program of projects.	All	-	-

Table E-9. Program Evaluation Recommendations

Theme	Project Number	Type	Description	Schools	Cost	Priority Timeframe
Program Evaluation	PE-1	Student Hand Tallies	Conduct hand tallies of how students arrived to and will depart from school during a two to three day period twice a year.	All	$	Near
	PE-2	Parent Surveys	Conduct surveys of parents regarding how their child got to and from school and basic demographic information. It is recommended that this be conducted periodically, potentially every three years.	All	$$	Long
	PE-3	Program Report Card	Develop Safe Routes to School Report Card which will be used to celebrate program successes and identify the impacts of program implementation as possible. This report card should be conducted every three years in order to assess benefits of implementation.	All	$	Medium

1. Introduction

The Carson City Safe Routes to School Master Plan provides recommendations to improve safety for students walking and biking to the six public elementary schools and two public middle schools in Carson City with a secondary goal of increasing bus ridership and safety to and from bus stops. This Plan lays out a clear vision for improving walking and biking to school for years to come while being adaptive to future school boundary changes. This Plan includes a prioritized list of infrastructure improvements around schools and programmatic recommendations for the City and Carson City School District that can help improve the safety of school-aged children and their families as they travel to and from school.

What is Safe Routes to School?

A Safe Routes to School (SRTS) Plan provides a variety of multi-disciplinary programs aimed at both **increasing the number of students walking and bicycling to school and reducing the number of vehicle trips** associated with school travel. The Plan is intended to improve traffic safety and air quality around school areas, and address childhood obesity and public health issues through education, encouragement, increased engagement, and engineering. SRTS efforts are led by partnerships among municipalities, school districts, community members, parent volunteers, and law enforcement agencies. As a result, the projects and programs are designed to make walking and bicycling for the school commute more desirable and safer transportation options.

The Six E's Approach

Comprehensive SRTS programs use five complementary strategies, referred to as the "Five E's." This Plan considers a sixth 'E', Equity, as an integral component:

- **Engineering** – Design, implementation, and maintenance of infrastructure that improves safety along school commute routes.
- **Education** – Outreach and lessons that teach students and parents traffic safety skills and the benefits of active travel modes.
- **Encouragement** – Events, clubs, and activities that encourage more walking, bicycling, or carpooling through fun activities and incentives.
- **Engagement** – Strategies to deter the unsafe behavior of drivers, bicyclists, and pedestrians, and encourage all road users to obey traffic laws and share the road.
- **Equity** – An assessment of the distribution of funding / implementation for bicycling and pedestrian programs, policies, and infrastructure improvements, and whether that distribution is appropriate.
- **Evaluation** – Surveys and hand tallies track progress toward program goals, assess successes, and identify ways to improve programs

Why is a SRTS Program Important?

Although most students in the United States walked or biked to school pre-1980's, the number of students walking or bicycling to school has seen a sharp decline. This is due to several factors, including urban growth patterns, school siting requirements that encourage school development in outlying areas, budget cuts that force expanded enrollment boundaries, increased traffic, and parental concerns about safety.

The situation is self-perpetuating. More parents driving their children to school increases traffic at the school site, resulting in concerns about traffic and more parents driving their children to school. A 2005 Centers for Disease Control and Prevention (CDC) survey cited distance and traffic-related danger as the biggest barriers for walking and biking to school, as shown in **Exhibit 4**.

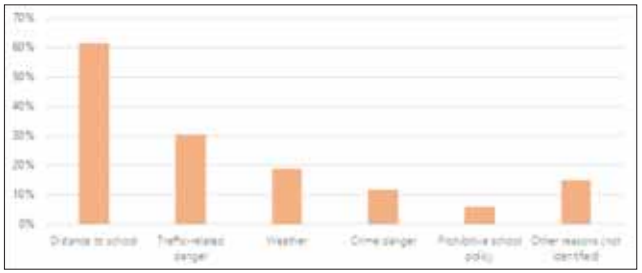


Exhibit 4. Parent reported barriers to school-aged children walking/biking to school (CDC, 2004)

(Source: Centers for Disease Control and Prevention. Barriers to Children Walking to or from School- United States, 2004. MMWR 2013; 54(38):949-952. Available at http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5438a2.htm)

Benefits of a SRTS Program

SRTS programs directly benefit school children, parents, and teachers by creating a **safer travel environment** near schools and **reducing motor vehicle congestion and related air pollution** at school drop-off and pick-up zones. SRTS programs have proven results. SRTS education and encouragement programs have been shown to result in a 25 percent **increase in walking and biking** in as little as five years.

Neighborhoods around schools can enjoy **calmer streets and improved infrastructure.** Students who choose to walk, bike, or ride a scooter are rewarded with the **health benefits** of a more active lifestyle and a **sense of independence.** Walking and bicycling at an early age can form life-long habits for improved health over the long term. People who walk or bike in groups, carpool, or take the bus can build **stronger social bonds** with fellow students and have options for traveling without their parents. Families learn that walking, biking, and ridesharing can be safe, enjoyable, and good for the environment.

SRTS programs help **integrate physical activity into the everyday routine** of school students. Since the mid-1970s the number of children who are overweight has roughly tripled from five percent to almost seventeen percent. Health concerns related to sedentary lifestyles have become the focus of statewide and national efforts to reduce health risks associated with being overweight. Children who walk or bike to school have an overall **higher activity** level than those who are driven to school, even though the journey to school makes only a small contribution to activity levels. Since SRTS efforts also tend to deepen relationships among community members and between parents and law enforcement officials, safety benefits can extend beyond school travel into issues such as greater public safety and neighborhood cohesiveness.

SRTS programs typically benefit the greater community as popular school routes are frequently shared with members of the general public. Like other vulnerable populations in our community, such as older adults, children often walk and bike at slower speeds, have lower visual acuity, and are less able to negotiate traffic conflicts. Thus, designing safer crossings, well-built sidewalks, and traffic calming strategies to help make walking and bicycling safer for students in turn **helps create facilities more accessible for people of all ages and abilities.**

Carson City & Safe Routes to School

This is the first comprehensive Safe Routes to School Master Plan developed for Carson City. As the first, this Plan builds on existing bicycle and pedestrian school safety initiatives and establishes the aspirational vision for increasing walking and biking to school among school-aged children and their parents across Carson City for years to come. The primary focus of this Plan is improving walking and biking within one mile of the six public elementary and two public middle schools in the City, however, many of the recommendations included in this Plan would benefit the larger community, particularly senior citizens, people with disabilities, and those unable to drive a car.

Developing the Plan

This Plan was developed following coordination with the Task Force Committee including staff from all study schools and the school district, principals, School Resource Officers, Crossing Guards, volunteers, parents, Carson City School District Risk Manager, and others along with Carson City Public Works representatives. The project team conducted in-person site assessments and met with school staff at each of the eight study schools in order to assess existing mode shares and travel patterns as well as identify any infrastructure or programmatic needs. Each site assessment included the use of an aerial drone which captured high-quality video footage of the peak pick-up and drop-off activities surrounding each school, as shown in **Exhibit 5**. Viewing pick-up and drop-off periods from this vantage point greatly assisted with identification of travel patterns, pinchpoints, and overall circulation.

The findings from site assessments and meetings with school staff are supplemented by results from surveys of parents and the public at all eight schools and middle school students at both study middle schools. Full survey results are included in **Appendix A**. Based on survey results, the largest issues affecting student commutes to and from school, other than weather and distance, are the safety of intersections and crossings, the speed of traffic along their route, and the presence & quality of sidewalks or paths along their route. Prioritized recommendations, included in the Recommendations chapter, focus on improving these three major factors.

Future School Boundary Considerations

As the population of Carson City changes, so too will the number of elementary and middle schools and their respective boundaries (shown in **Figures 1 & 2**). Two near-term projects that would affect the existing school boundaries include a planned expansion of Eagle Valley Middle School and a new elementary school on the south side of Carson City.

As school boundaries are redrawn, special attention should be placed on minimizing the number of students who would need to cross any corridors with high speeds, high volumes, and a history of high pedestrian and bicyclist crashes (see Table 1 on page 2-2). Parents are more likely to allow their child to walk or bike if they do not need to cross major roadways. Additionally, minimizing the geographic size of a school boundary to the extent possible should be given close consideration as school boundaries are adjusted.

The total geographic size of a school boundary has a unique impact on the proportion of students walking or biking to school. In the case of schools with small school boundaries (Mark Twain & Empire Elementary), the majority of students live within a 1-mile radius of the school and are therefore more likely to walk or bike to school. Additionally, small school boundaries are less likely to include major roadways that a student would need to cross. In contrast, schools with large school boundaries, such as Fremont Elementary, create situations where a majority of students live over 1-mile away from the school and must be either driven by a parent or use a school bus. By creating school zones that minimize the proportion of students living over 1-mile away, the Carson City School District may be able to reduce the total number of bus routes, bus stops, and operating costs.

Exhibit 5. Capture of drone video from Eagle Valley Middle School afternoon pick-up shows circulation patterns for all modes near EVMS.

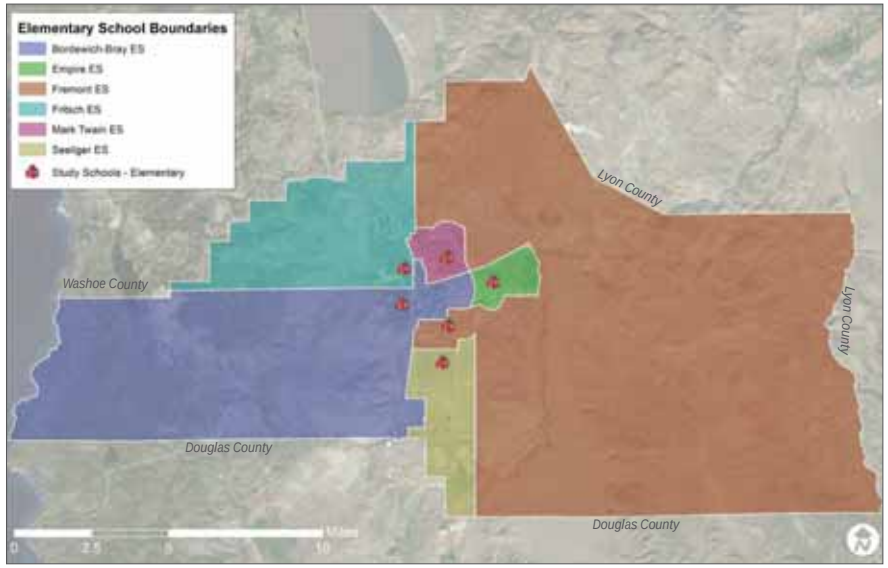


Figure 1. Study Elementary School Boundaries

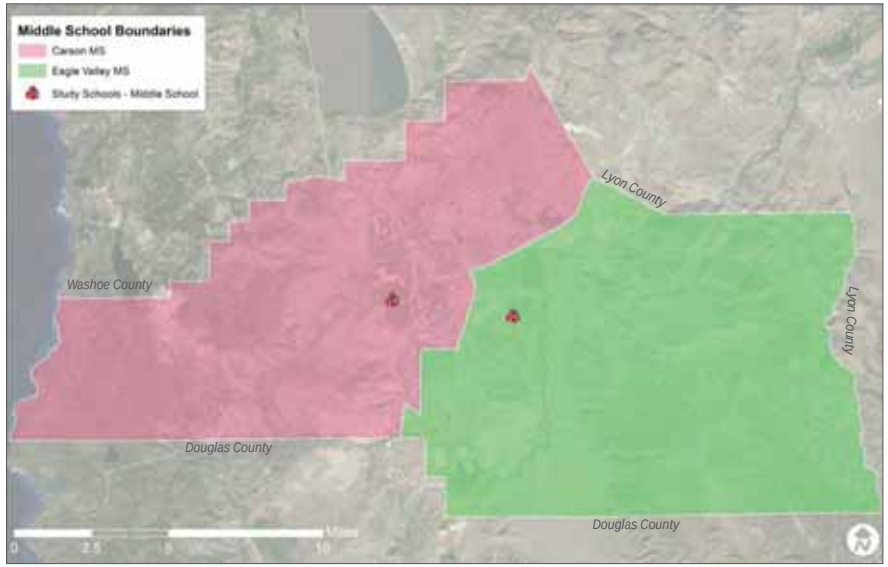


Figure 2. Study Middle School Boundaries

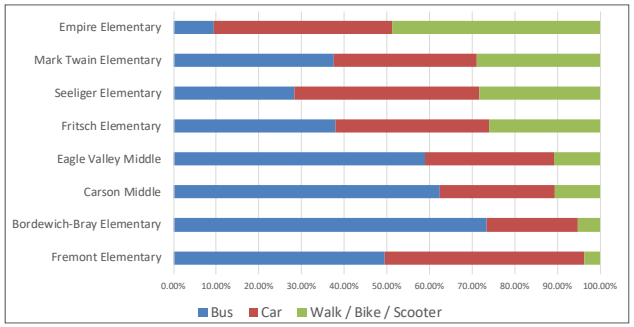
2. Existing Conditions

This chapter provides a summary of the existing conditions across all eight schools with more detailed information about each individual school in the subsequent school profiles.

Existing Walking & Biking Levels

Based on data collected from the aerial drones in conjunction with bus ridership data from the Carson City School District, the estimated percentage of students walking and biking to school at Empire, Fritsch, Seeliger, and Mark Twain Elementary Schools already exceeds the national average of 13 percent (**Figure 3**). Carson Middle School and Eagle Valley Middle School were both estimated to be just under the national average with 11 percent of students walking/biking to school. The total percentage of students walking/biking to school at Bordewich-Bray Elementary School is estimated at 5 percent. This low level of walking/biking compared to other schools in the area is likely due to the fragmented sidewalk network adjacent to the school. Fremont Elementary School was estimated to have the lowest level of walking and biking at 4 percent, which is due in large part to its expansive school boundary. As shown in **Figure 1**, the Fremont school boundary covers the largest portion of Carson City and includes major roadway barriers such as Highway 50 and Interstate 580.

Figure 3. Estimated Mode Shares of Study Schools



Sidewalk Connectivity

The condition of the sidewalk network varies among the study schools. The existing sidewalk networks surrounding Mark Twain and Empire Elementary Schools are largely built-out and fully connected. Sidewalks surrounding the other six study schools have gaps on major north-south and east-west roadways to varying degrees, with the sidewalk network surrounding Bordewich-Bray Elementary School having the largest number of sidewalk gaps (**Exhibit 6**).

Rural Connectivity & Bus Stops

Some portions of Carson City are quite rural which presents unique challenges to creating strong alternative transportation connections for students to access their schools. While school bus stops are provided for these far-flung areas, students often face difficulties in accessing these stops due to a lack of sidewalks and high vehicle speeds along their route to the bus stop. By improving access to and increasing driver awareness of school bus stops, students from these areas may feel safer when traveling to and from their bus stops. This could result in a higher percentage of students riding the bus instead of being driven by a parent or guardian, which is a secondary goal of SRTS.

Exhibit 6. Sidewalk gap on Thompson Street in the Bordewich-Bray School Speed Zone

Bicycle Network Connectivity

The existing bicycle network in Carson City lacks connectivity which often prevents school-aged children from having a safe and direct connection to their school using dedicated bicycle facilities. Approximately half of the study schools have dedicated bicycle facilities directly adjacent to their campus, but due to the vehicle speeds, traffic volumes, and lack of physical separation from vehicles, children often do not feel comfortable using these facilities and parents do not feel comfortable allowing their children to use these facilities. Additionally, at some schools, vehicles picking-up and dropping-off students often park in the bike lane (see **Exhibit 7**) which forces bicyclists out into the roadway creating an increased risk of a vehicle-bicycle crash.

Exhibit 7. Bordewich-Bray drop-off activities often obstruct the bike lane on W. King Street near S. Iris Street

Education

Exhibit 8. Bicycles parked at Seeliger Elementary School

Safety Education

One of the six E's, Education is a major component of keeping students safe on their way to and from school. Ensuring that all users of the transportation system, not just parents and students, understand their role in protecting themselves and helping keep others safe is an ever-present challenge across the country, and it is no different in Carson City. During site visits to all eight study schools, the project team observed unsafe driver, pedestrian, and bicyclist behaviors from riding a bike on the wrong side of the road to drivers exceeding 15 mph and making U-turns in school zones.

Bicycle Safety Program

All six Carson City elementary schools conduct an annual Bicycle Safety Program as part of their Physical Education curriculum. This program has been teaching Carson City children how to be safe bicyclists and how to repair their own bicycles since the mid-1990's. As part of this program, 3rd, 4th, and 5th grade students typically receive one class period of in-class instruction along with one class period of experience riding a bicycle each year. The fleet of bicycles used for this program is maintained by the Carson City School District and rotates to each school based on the scheduling of the Bicycle Safety Program in their overall curriculum.

Exhibit 9. Fremont Elementary School staff member reminding drivers of prohibited left-turn during school zone periods

School Zones

A school zone is defined by NRS 484B.063 as "those sections of streets which are adjacent to school property." School zones have a 15 mph speed limit during designated periods of the day while children are traveling to and from school. In addition to a reduced speed limit, vehicles are prohibited from making U-turns and overtaking vehicles while in designated school zones. Some schools also have

Exhibit 10. Existing School Zone Signage in Carson City, NV

additional restrictions, for example, at Mark Twain Elementary and Fremont Elementary drivers are prohibited from making left-turns out of the primary pick-up/drop-off area during school hours. Based on vehicle speed data (see **Appendix D**) and site observations, school zone restrictions are often not observed by drivers. A higher level of engagement may help increase rates of compliance with school zone laws and turning prohibitions.

School Zone Standard

School zone signage and lane striping in Carson City varies from school to school. For example, signage alerting drivers to the timing of school zones may include a description of the timeframes in text or with a flashing beacon to indicate school zone timing (See **Exhibit 10**). The differences between school zones may result in confusion among drivers regarding the existence of a school zone. Creating a consistent look and feel for school zones may help make drivers more aware of school zones across Carson City. Furthermore, speed feedback signs in school zones do not currently alert drivers when they exceed the 15 mph speed limit during designated school zone periods.

Major Barriers

School Area Congestion

Schools typically create a very short but intense period of congestion on roadways surrounding the school campus. While this short burst of activity may feel chaotic to drivers, it is a typical condition of school sites. While the roadway network currently handles the traffic volumes around a majority of schools with only minor issues, traffic circulation issues were identified surrounding Mark Twain Elementary (see page **2-11**).

Exhibit 11. Carriage Crest Drive (looking south) is congested during afternoon pick-up periods. Vehicles waiting to enter the pick-up loop queue on Carriage Crest Drive in both the northbound and southbound directions and on Mountain Park Drive in the eastbound direction.

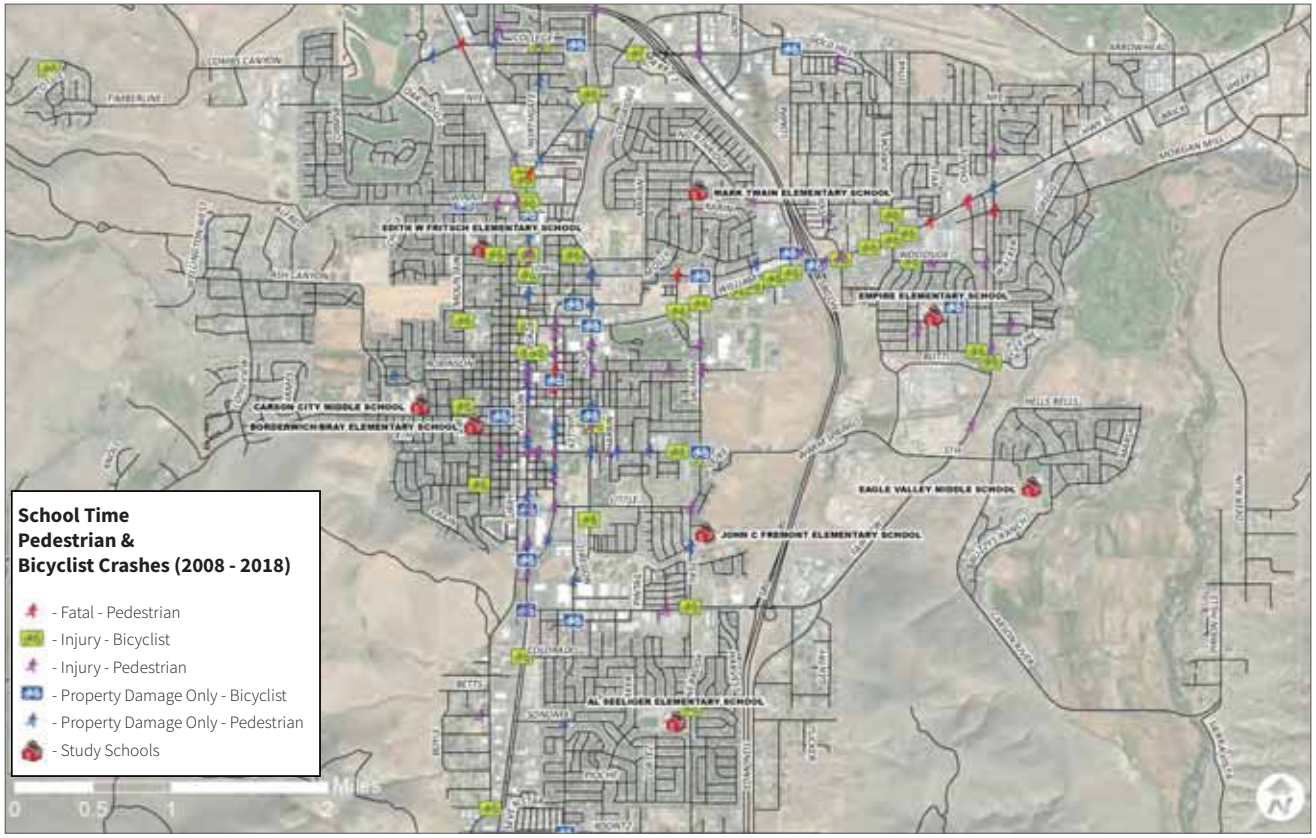


Figure 4. Pedestrian & Bicycle Crashes from 2008-2018 during School Zone Hours (7-9 am & 2-4 pm)

Corridor Crash History

It is typical for major roadways such as freeways and major arterials to act as barriers to pedestrian and bicycle travel due to grade separation, high traffic volumes, high speeds, and wider roadway widths for pedestrians and bicyclists to cross. Such roadways are not only daunting for many school-aged children, but often have a higher number of injury crashes than surrounding minor streets. Based on crash data collected from Nevada Department of Transportation (NDOT), a total of 213 crashes involving a pedestrian and/or bicyclist occured during school zone hours (7-9 am and 2-4 pm) from 2008-2018. The majority of crashes during this time frame occurred on ten streets shown in **Table 1**. Maps highlighting all crashes involving a pedestrian or bicyclist within a mile of each school are included in **Appendix E**.

Table 1. Top Ten Pedestrian/Bicyclist Crash Corridors During School Zones (2008 - 2018)*

Corridor	Crashes	Corridor	Crashes
1. Carson Street	45	6. W 5th St	10
2. William St/US50	25	7. Fairview Dr	9
3. S. Roop St	13	8. E. College Pkwy	6
4. S. Saliman Rd	12	9. SR 529	5
5. S. Stewart St	11	10. W. Robinson St	5

* See Appendix E for Contributing Factors, Severity and Crash Types associated with these corridors during school hours.

Existing Conditions:
School Profiles

Bordewich-Bray Elementary

School Information

Bordewich-Bray Elementary School (BBES) is located at the intersection of Thompson Street and W. King Street in an established residential neighborhood on the west side of Carson City. As of 2019, there are approximately 630 students enrolled at the school with an estimated 5 percent of the student population walking or biking (**Figure 5**). The school campus is generally surrounded by residential land uses (**Appendix F**).

Parent Survey Results

As shown in **Figure 6**, the top three issues affecting parent's decisions to allow their children to walk or bike to school are the safety of intersections & crossings, speed of traffic along the route, and quality of sidewalks & pathways. Full survey results are included in **Appendix A**.

Vehicles

Parents dropping-off and picking-up students at Bordewich-Bray ES typically do so from Thompson Street, S. Iris Street, and on the south side of W. King Street near the playground entrance, as shown in **Figure 7**. Observed driver behaviors include making U-turns, parking in red-curbed areas near the Thompson Street crosswalk, and parents/guardians jaywalking with students across W. King Street.

Walking

Typical pedestrian travel patterns include routes with a crossing guard immediately adjacent to the school as shown in **Figure 7**. The majority of pedestrians use the crosswalks with crossing guards and in-road pedestrian safety signs (across W. King Street at Mountain Street and across Thompson Street at W. 2nd Street). As sidewalks have largely been constructed retroactively in this neighborhood, the sidewalk network lacks connectivity adjacent to the school (see **Figure 8**). There is a substantial gap in sidewalk on W. King Street between Thames Lane and Canyon Park Court that is a major barrier for students from the Highlands neighborhood off of Longview Way. Additionally, the school boundary includes portions of Carson City on the east side of Carson Street, a major pedestrian barrier, within one-mile of the school campus.

Bicycling

The bicycle lanes on W. King Street provide direct access to the Bordewich-Bray campus (see **Figure 8**); however, vehicles dropping off and picking up students often block the eastbound bike lane (see **Exhibit 12**) which forces bicyclists into the roadway or onto the sidewalk. The W. King Street bicycle lanes do not connect to any dedicated north-south bicycle facility.

Exhibit 12: The existing eastbound bicycle lane on W. King Street is often obstructed near the Iris Street intersection by vehicles picking-up and dropping-off BBES students.

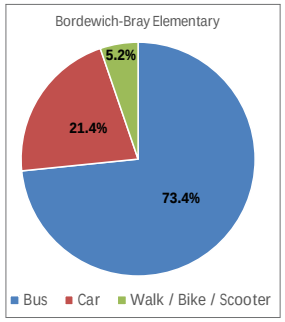


Figure 5. Mode Share (BBES)

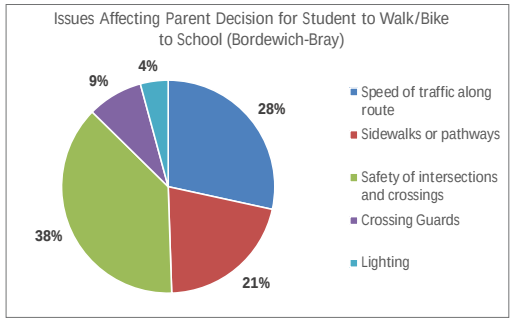


Figure 6. Main Walking / Biking Concerns from Parents (BBES)

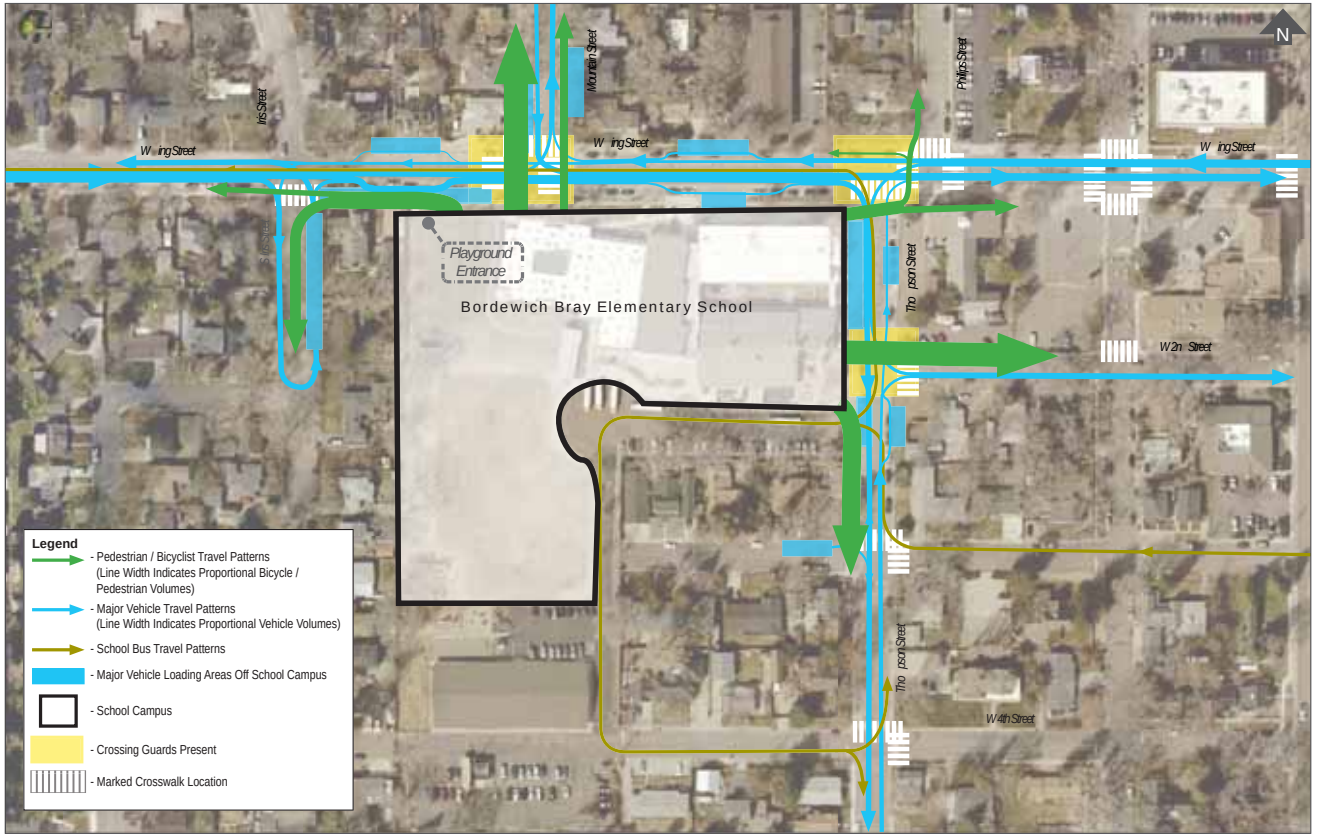


Figure 7. Primary Travel Patterns & School Circulation (BBES)

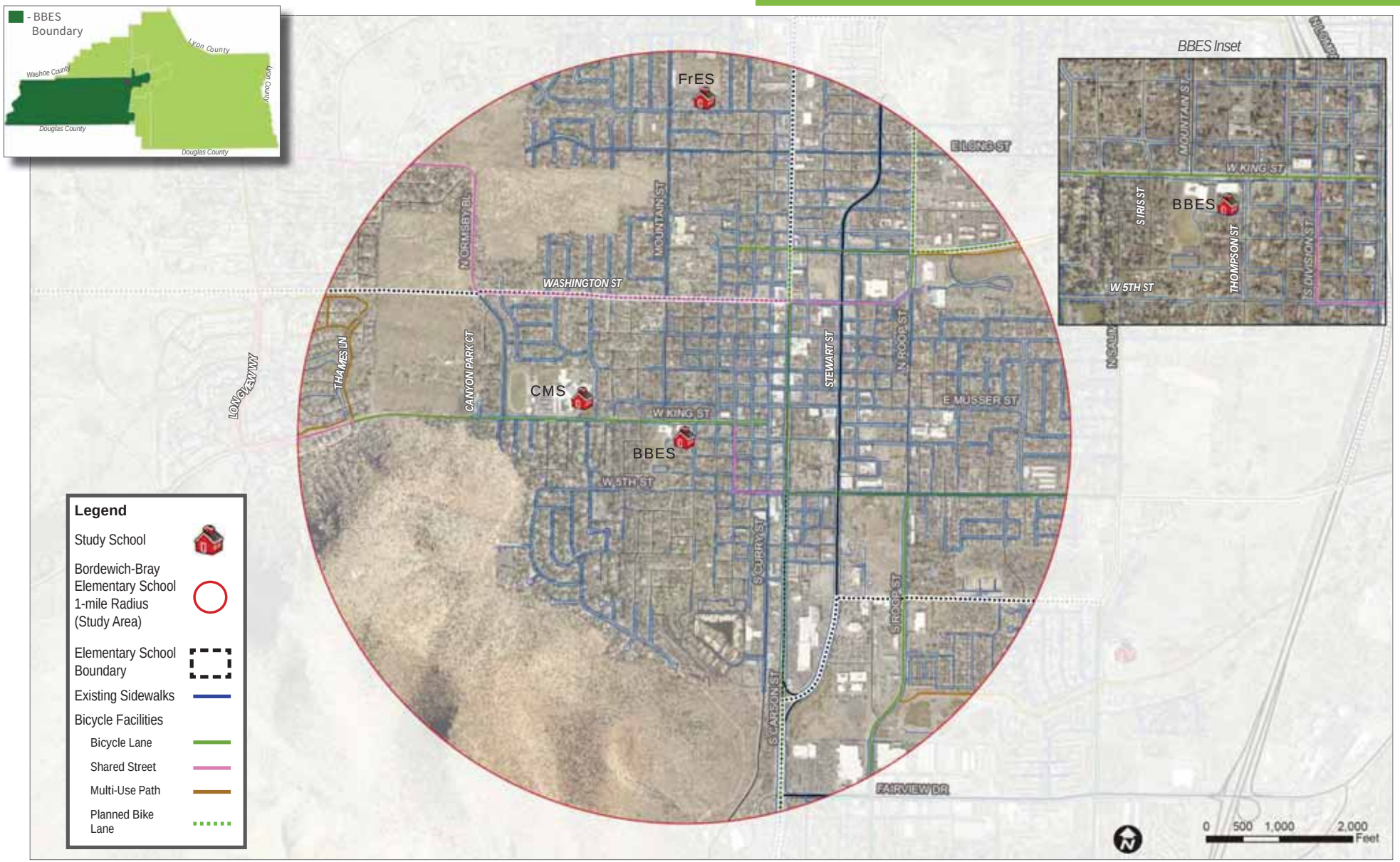


Figure 8. Existing Bicycle & Pedestrian Network (BBES)

Empire Elementary

School Information

Empire Elementary School (EES) is located between Gordonia Avenue, Stanton Drive, Monte Rosa Drive, and La Loma Drive in an established residential neighborhood on the east side of Carson City. Approximately 49 percent of the 660 students enrolled at the school walk or bike (**Figure 9**). The school campus is surrounded by residential land uses (**Appendix F**) and is adjacent to a local park to the north.

Parent Survey Results

As shown in **Figure 10**, the top two issues affecting parent's decision to allow their children to walk or bike to school are the speed of traffic along the route and safety of intersections and crossings. Full survey results are included in **Appendix A**.

Vehicles

Students are dropped off by parents from all sides of EES (**Figure 11**) with La Loma Drive, Monte Rosa Drive, and Gordonia Drive being the busiest areas. Observed driver behaviors include making U-turns, parking in crosswalks, and parents/guardians jaywalking with students across Gordonia Drive, La Loma Drive, and Monte Rosa Drive. Observed vehicle speeds on roadways adjacent to the school are generally not in excess of the 15 mph school zone speed limit with the exception of Fairview Drive. The 85th percentile speed of vehicles entering the school zone on Fairview Drive during the school zone period was found to be nearly 37 mph (**Appendix D**).

Walking

A significant portion of students currently walk or bike to and from EES due in large part to the high quality sidewalk network with minimal sidewalk gaps immediately surrounding the school. There are minor sidewalk gaps on Edmonds Drive, Brown Street, and in the neighborhood to the east of Fairview Drive (**Figure 12**). There is no marked crossing on Fairview Drive between Gordon Street and Pheasant Drive. Based on collected data, typical roadway speeds on Fairview Drive in this location are significantly above the posted 15 mph speed limit during school zone hours (**Appendix D**). Pedestrians and bicyclists enter and exit the school campus on all sides (**Figure 11**), with the northeastern access having the largest portion. The significant influx of pedestrians and bicyclists at the Monte Rosa Drive / Stanton Drive intersection is well-managed by the two crossing guards present at this location (see **Exhibit 13**).

Bicycling

There are no dedicated bicycle facilities providing direct access to the EES campus (**Figure 12**). Bicycle facilities on Airport Road and Lompa Lane are on the periphery of the school zone and do not provide connectivity from residential areas to the school campus, however, roadways in the area are typically low-volume with 25 mph speed limits.

Exhibit 13: Crossing guards at the intersection of Stanton Drive and Monte Rosa Drive handle a major influx of pedestrians following the school day. This intersection is the busiest intersection for pedestrian activity across all eight study schools.

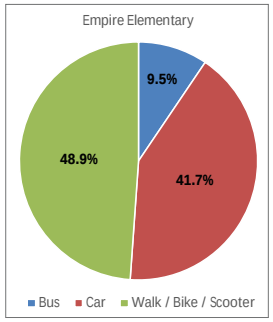


Figure 9. Mode Share (EES)

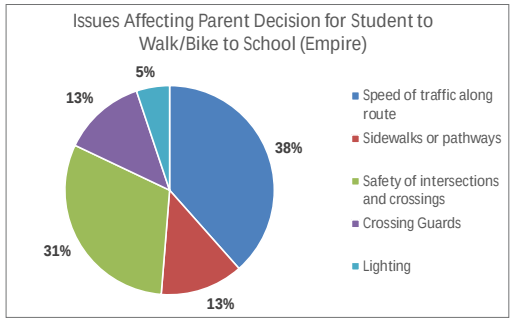


Figure 10. Main Walking / Biking Concerns from Parents (EES)

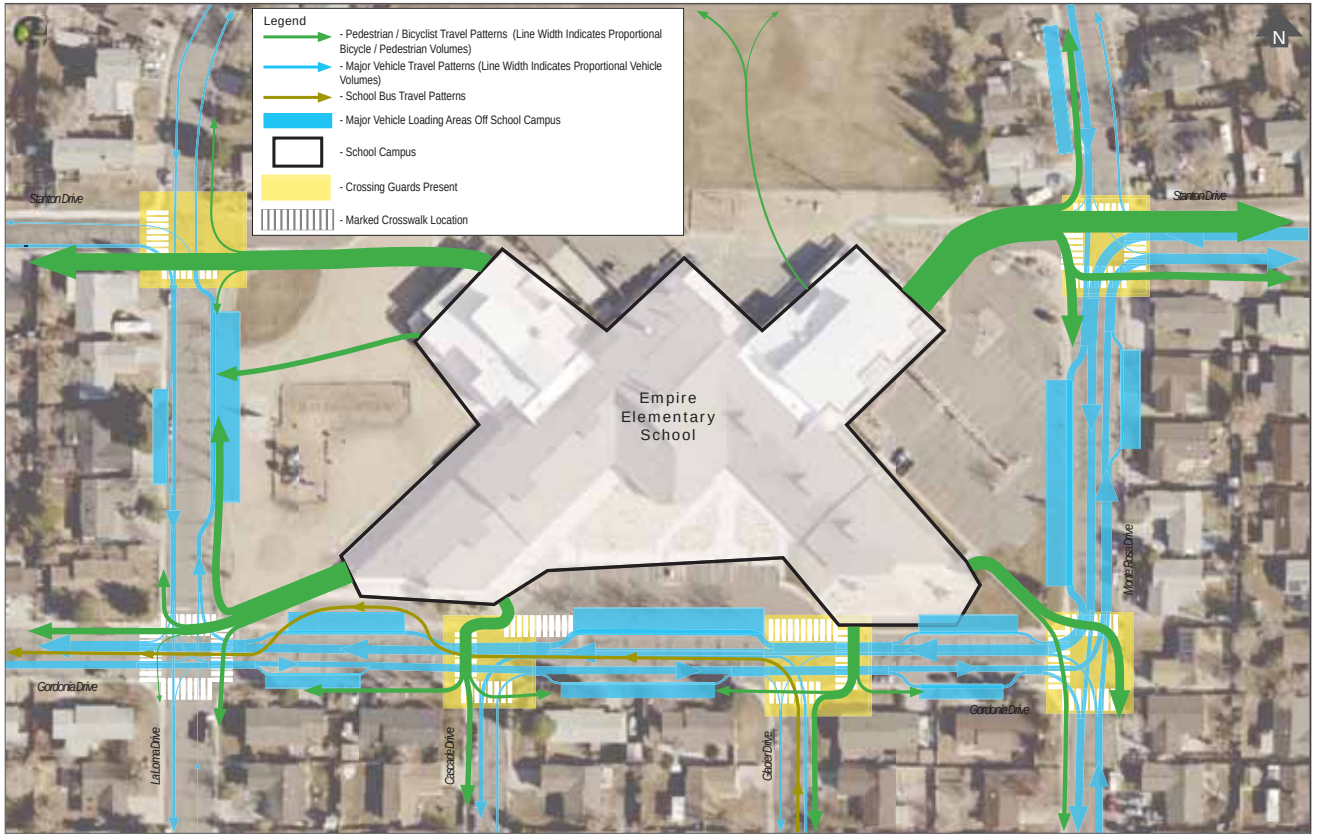


Figure 11. Primary Travel Patterns & School Circulation (EES)

Figure 12. Existing Bicycle & Pedestrian Network (EES)

Fremont Elementary

School Information

Fremont Elementary School (FES) is located on Saliman Road between Firebox Road and Railroad Drive. Approximately 4 percent of the 600 students enrolled in the school walk or bike (**Figure 13**). The school campus is surrounded primarily by residential land uses to the north, south, and west with open space to the east (**Appendix F**).

Parent Survey Results

As shown in **Figure 14**, the top two issues affecting parents' decisions to allow their children to walk or bike to school are the traffic speeds along routes to school and a lack of safe intersections and crossings with the quality of sidewalks / pathways a distant third. Full survey results are included in **Appendix A**.

Vehicles

Students are primarily picked up and dropped off in the designated traffic loop off of Firebox Road with a small portion of parents parking on Cardinal Way and using the marked crosswalk to the south of the school (**Figure 15**). Vehicles waiting to pick-up were observed spilling back onto Saliman Road during the afternoon peak period. Vehicles were observed making left-turns off of Firebox Road during school zone hours despite being prohibited. Parked vehicles obscure the crossing guard from view of westbound vehicles on Firebox Road.

Walking

The majority of students travel to / from school by private automobile or school bus due to the size of the Fremont school boundary which encompasses nearly half of Carson City County. The majority of the school boundary is outside the walk zone and essentially inaccessible to students via walking or biking. Additionally the students who ride the bus often encounter sidewalk gaps or other pedestrian obstacles while reaching their bus stop.

Bicycling

FES is located on Saliman Road which has four vehicle lanes, a striped bike lane in each direction, approximately 6,400 average daily traffic (ADT), and a speed limit of 35 mph. This dedicated bicycle facility provides access to Fremont Elementary, but due to the roadway characteristics this facility may be too stressful or perceived as too dangerous for a child to navigate. The separated multi-use trail (California Trail) located immediately south of the school provides a safe and comfortable bicycle facility for children to use, however this facility does not connect to some of the residential areas zoned for Fremont (see **Exhibit 14**).

Exhibit 14: The existing multi-use path south of FES is a great resource which could be better utilized with improved connectivity to proximate residential neighborhoods.

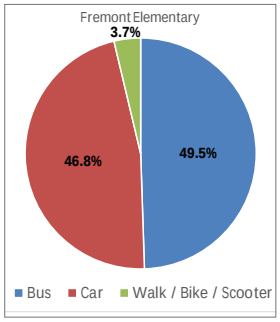


Figure 13. Mode Share (FES)

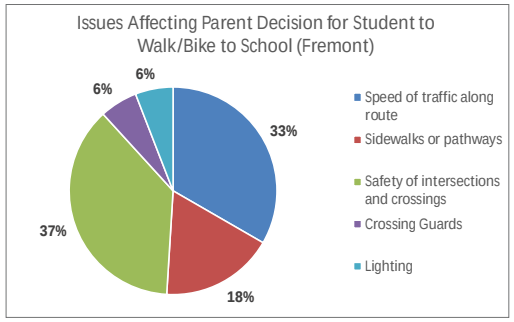


Figure 14. Main Walking / Biking Concerns from Parents (FES)

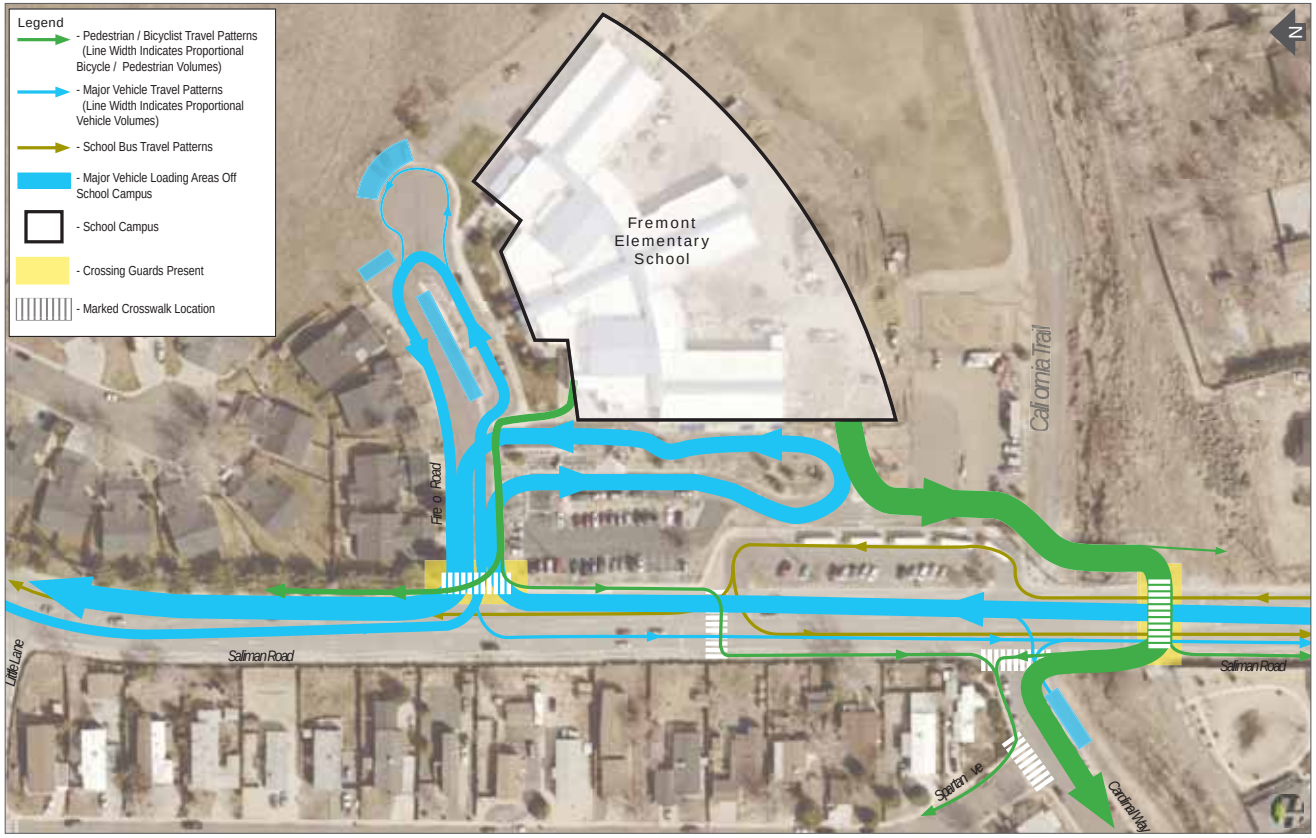


Figure 15. Primary Travel Patterns & School Circulation (FES)

Figure 16. Existing Bicycle & Pedestrian Network (FES)

Fritsch Elementary

School Information

Fritsch Elementary School (FrES) is located on Bath Street between Mountain Street and Division Street. Approximately 26 percent of the 610 enrolled students walk or bike to school (**Figure 17**). The school campus is surrounded by residential neighborhoods with Carson Street, a major commercial corridor, approximately 1,000 feet to the east (**Appendix F**).

Parent Survey Results

As shown in **Figure 18**, the top three issues affecting parents' decisions to allow their children to walk or bike to school are the safety of intersections and crossings, traffic speeds along routes to school, and the quality of sidewalks and pathways. Full survey results are included in **Appendix A**.

Vehicles

Based on collected data, drivers typically adhere to the 15 mph school zone speed on Bath Street with the average speed identified as 15 mph, however some drivers were observed exceeding this limit. Drivers making U-turns were observed throughout the FrES school zone during both morning and afternoon periods. The primary pick-up/drop-off location on the southeast side of the school also includes staff parking which may reduce the capacity of the pick-up/drop-off loop. Students are also picked-up/dropped-off on the south side of Bath Street (**Figure 19**) which results in a large number of parents/guardians jaywalking with their children. Sightlines from the primary pick-up/drop-off exit are obstructed by vehicles parked along Bath Street too close to the driveway.

Walking

A large portion of FrES students walk or bike to school each day. As shown in **Figure 19**, the majority of pedestrians travel east on Bath Street with a large portion of students using the marked crosswalk at Division Street to cross Bath Street. Crossing guards are present at the Bath Street / Mountain Street intersection and the Bath Street / Division Street intersection (see **Exhibit 15**). The sidewalk network in the school walk zone is fairly well connected, however there are sidewalk gaps on major east-west and north-south routes immediately surrounding the school, including on Bath Street, Division Street, Mountain Street, Long Street, Carson Street, and Winnie Lane (**Figure 20**). Curb ramps are missing at multiple crosswalk locations in the area including the crosswalk directly in-front of the FrES building.

Bicycling

FrES does not currently have dedicated bicycle facilities in the vicinity that provide direct access to the school campus (**Figure 20**). The closest dedicated bicycle facility to the school is located on William Street, approximately a half mile away.

Exhibit 15: A crossing guard assists children across Bath Street at Division Street, near Fritsch Elementary School.

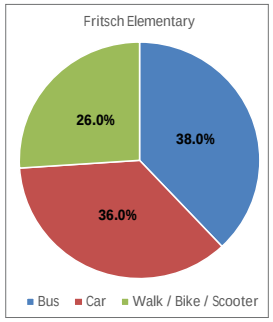


Figure 17. Mode Share (FrES)

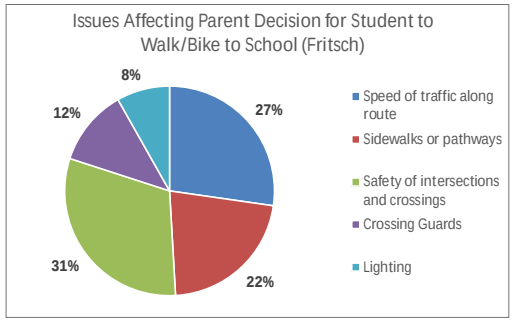


Figure 18. Main Walking / Biking Concerns from Parents (FrES)

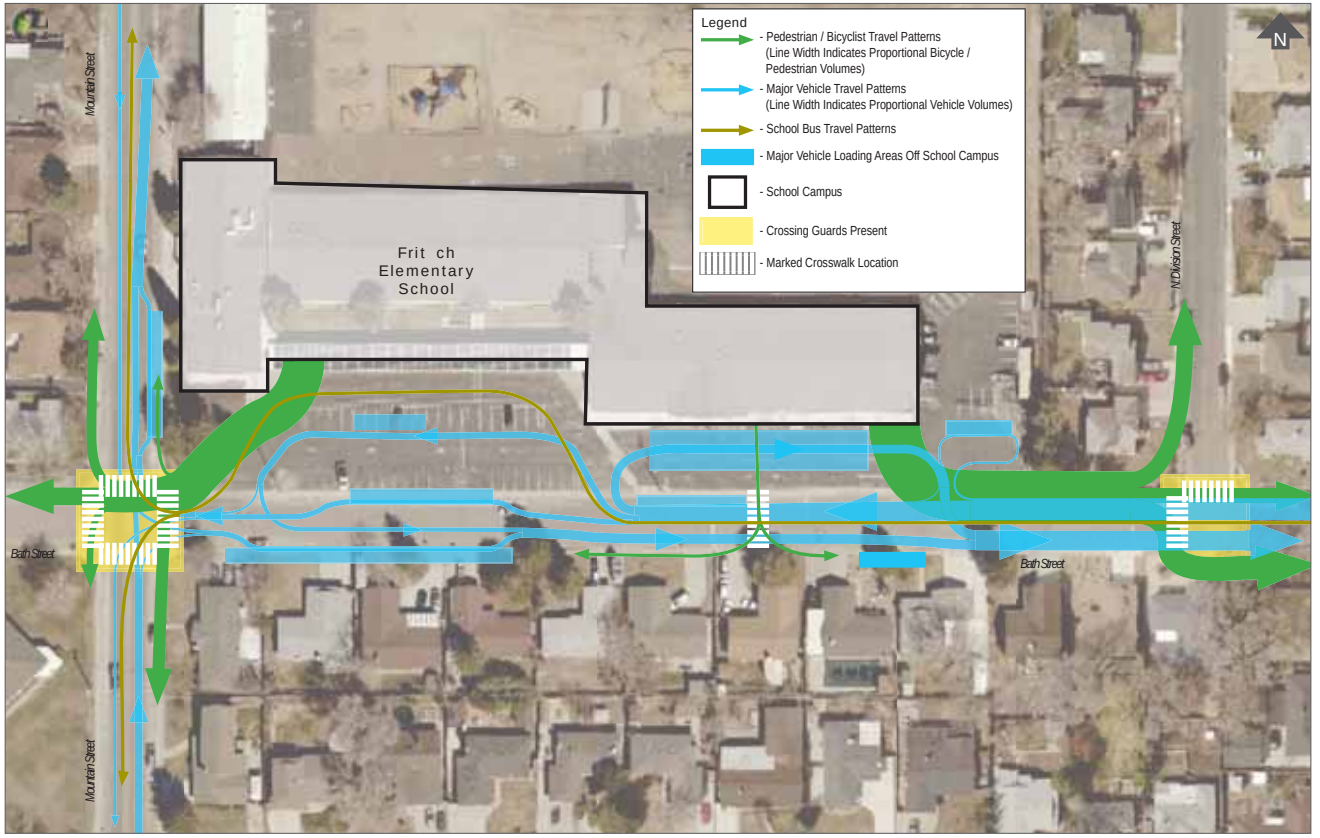


Figure 19. Primary Travel Patterns & School Circulation (FrES)

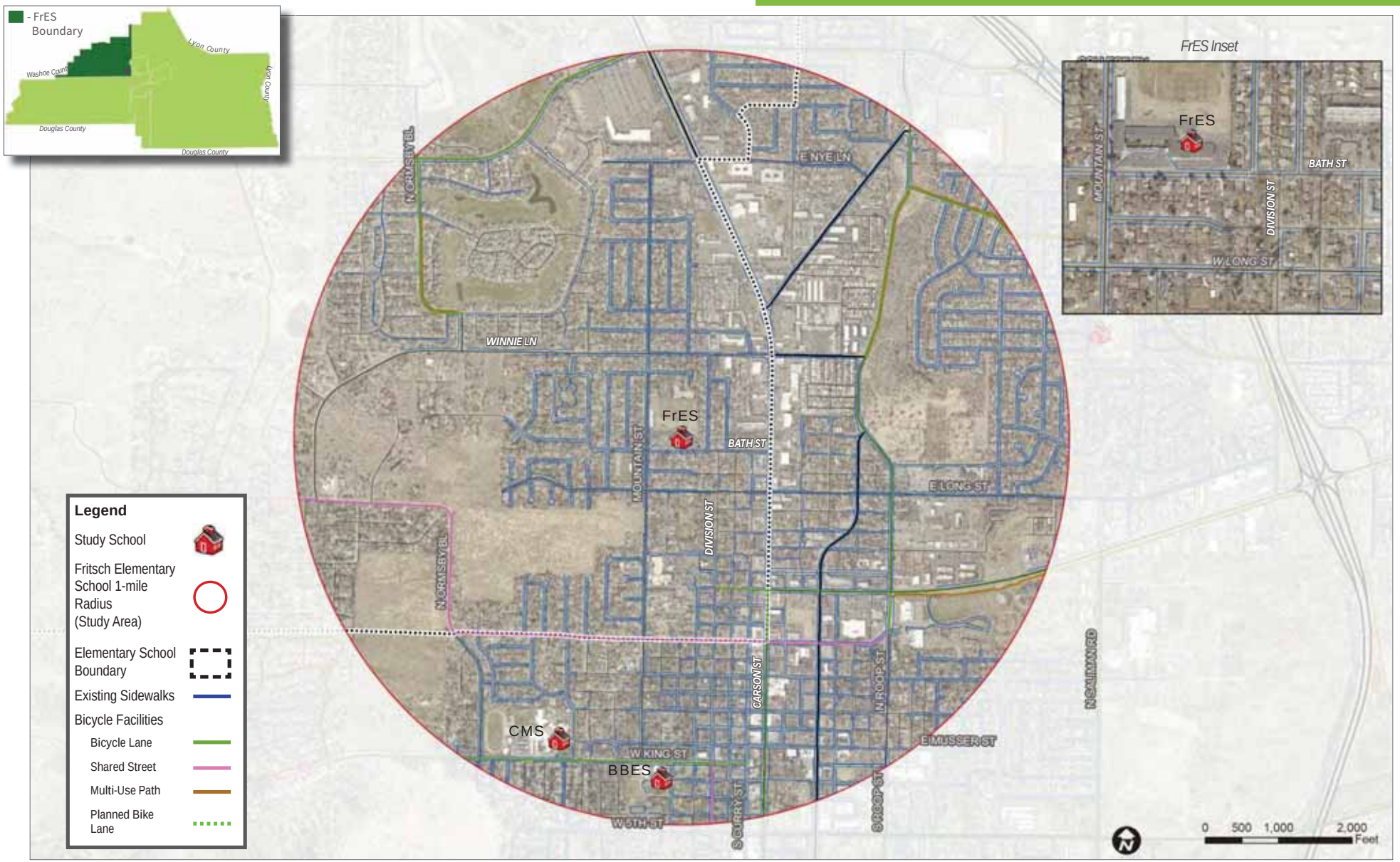


Figure 20. Existing Bicycle & Pedestrian Network (FrES)

Mark Twain Elementary

School Information

Mark Twain Elementary School (MTES) is located on Carriage Crest Drive between Spooner Drive and Hamilton Avenue. Approximately 29 percent of the enrolled 600 students walk or bike to school (**Figure 21**). The school campus is surrounded by a residential neighborhood with a commercial corridor along William Street (Highway 50) to the south (**Appendix F**).

Vehicles

Vehicle circulation surrounding the MTES campus is significantly affected by school traffic. During afternoon pick-up periods, vehicles queueing at the parent pick-up loop spill back into northbound and southbound traffic on Carriage Crest Drive as well as eastbound traffic on Mountain Park Drive. This creates a potentially dangerous condition for pedestrians crossing the street as vehicles traveling through the area have been observed weaving around stopped vehicles and into the opposing vehicle lane. Additionally, drivers were observed turning left out of the parent pick-up loop despite this movement being prohibited during school zone hours.

Parent Survey Results

As shown in **Figure 22**, the top issue overwhelmingly affecting parents' decisions to allow their children to walk or bike to school is the safety of intersections and crossings. The traffic speeds along routes to school were also a concern for over a quarter of respondents. Full survey results are included in **Appendix A**.

Walking

A large portion of MTES students walk or bike to school each day, due in part to the relatively small school boundary and well connected sidewalk network in the area. No major sidewalk gaps were identified in close proximity to the school, only minor sidewalk gaps were identified at the periphery of the school boundary. The crosswalk on Carriage Crest Drive at Mountain Park Drive is the most heavily utilized crosswalk in the area. The crosswalk on Carriage Crest Drive at Lindsay Lane appears to be the least utilized likely due to the lack of a crossing guard and faded markings.

Bicycling

MTES does not currently have dedicated bicycle facilities that provide direct access to the school (**Figure 24**). Bicycle lanes and a 8 foot wide sidewalk are located on Northridge Drive, just north of the school campus, which provides an east-west connection through the neighborhood.

Exhibit 16: MTES students on bicycles crossing Carriage Crest Drive at Slide Mountain Drive after school dismissal with the assistance of a dedicated crossing guard.

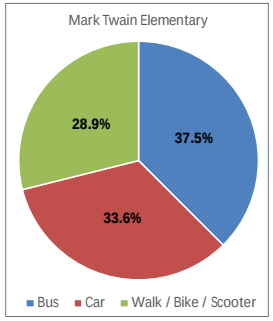


Figure 21. Mode Share (MTES)

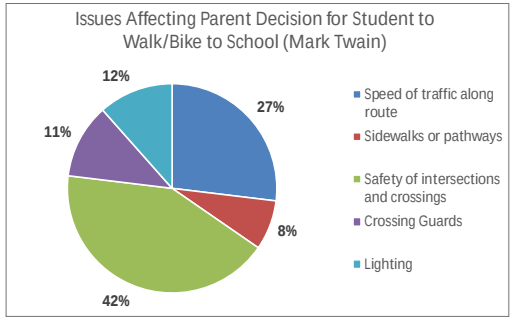


Figure 22. Main Walking / Biking Concerns from Parents (MTES)

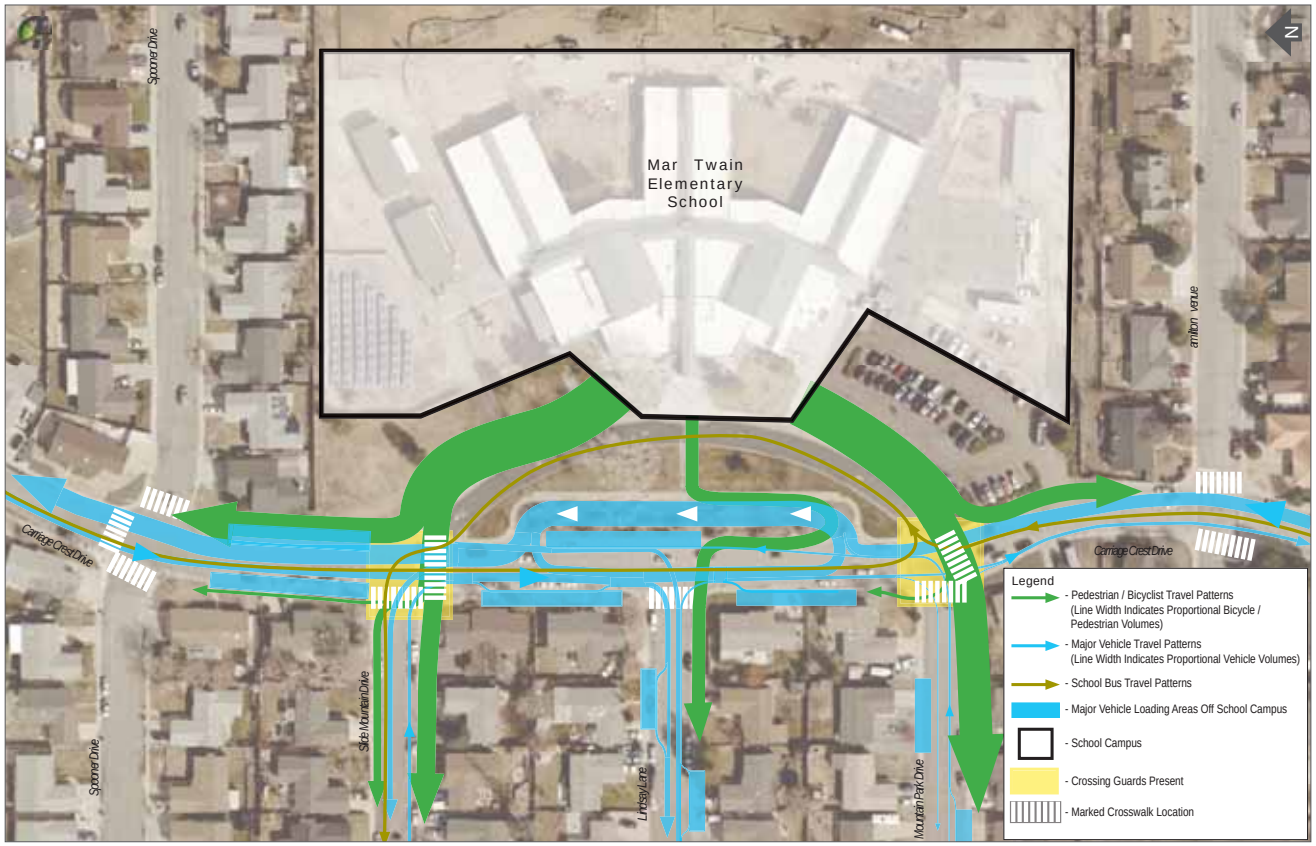


Figure 23. Primary Travel Patterns & School Circulation (MTES)

Figure 24. Existing Bicycle & Pedestrian Network (MTES)

Seeliger Elementary

School Information

Seeliger Elementary School (SES) is located on Saliman Road between Shady Oak Drive and Sonoma Street on the south side of Carson City. The school campus is surrounded by residential uses on all sides (**Appendix F**). Approximately 28 percent of the 550 enrolled students walk or bike to school each day (**Figure 25**).

Parent Survey Results

As shown in **Figure 26**, the top three issues affecting parents' decisions to allow their children to walk or bike to school are the lack of safe of intersections and crossings, traffic speeds along routes to school, and sidewalks and pathways. Full survey results are included in **Appendix A**.

Vehicles

Vehicle circulation on the SES campus generally works well with only minor issues. Pick-up and drop-off activities were observed in the bus loop on the northeastern side of the school, which is intended for buses only (**Figure 27**). The southern access loop has the greatest capacity and is the most well utilized. Southbound vehicles turning into the middle access loop were observed spilling back onto Saliman Road despite parking spaces being available. Students are also picked-up/dropped-off from Fremont Street and Cortez Street. Vehicles making U-turns and traveling in excess of the 15 mph school zone speed limit were observed on Saliman Road.

Walking

SES has pedestrian access points on the north, south, and west sides of the school, as well as the main school entrance on the east side. Multiple access points are beneficial for reducing walking distances for students, maintaining a high level of walking and bicycling, and dispersing bicycle and pedestrian traffic away from the vehicle pick-up / drop-off areas in front of the school. The busiest pedestrian crossing location is on Saliman Road at Damon Road. This crosswalk is currently staffed by a crossing guard during peak periods (**Figure 27**). The sidewalk network is fairly well connected in the neighborhoods surrounding the school with only minor gaps. Sidewalks are non-existent in the neighborhoods east of I-580 and south of Kingsley Lane. Additionally, there are only two bridges across I-580 with pedestrian facilities in the SES boundary (Fairview Drive & Clearview Drive), and, these crossings are approximately 0.9 miles and 1.3 miles away from the school building. This is a major barrier for students who live on the east side of I-580.

Bicycling

There are dedicated bicycle lanes on Saliman Road in-front of SES. Saliman Road in front of SES has a posted speed limit of 25 mph, with two northbound and two southbound lanes, and a center turn lane. Although traffic volumes on this section of road are relatively low (2,250 average vehicles per day in 2018 - NDOT), a bicycle lane with no physical separation from vehicles is typically not a comfortable facility for a school-aged child. The only east-west bicycle facility in the school boundary is on Koontz Lane, south of the school (**Figure 28**).

Exhibit 17: Pedestrians can access the SES campus from the main entrance on the east side or from any of the three pedestrian access points on the north (shown to left), south, and west sides of the school (Figure 27).

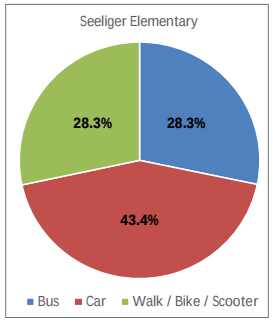


Figure 25. Mode Share (SES)

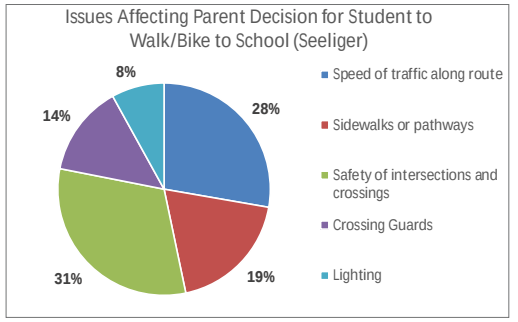


Figure 26. Main Walking / Biking Concerns from Parents (SES)

Figure 27. Primary Travel Patterns & School Circulation (SES)

Figure 28. Existing Bicycle & Pedestrian Network (SES)

Carson Middle

School Information

Carson Middle School (CMS) is located on W. King Street between Richmond Drive and Ormsby Boulevard on the west side of Carson City. The school campus is surrounded by residential uses on all sides (**Appendix F**). Approximately 11 percent of the 1,300 enrolled students walk or bike to school each day (**Figure 29**).

Parent & Student Survey Results

As shown in **Figure 30**, the top three issues affecting Carson Middle School parents' decisions to allow their children to walk or bike to school are the safety of intersection crossings, speed of traffic along the route, and sidewalks/pathways. Student survey results indicate that improving the safety of intersections and crossings, and improving the quality of sidewalks and pathways would have the greatest impacts on walking and bicycling (**Figure 31**). Full survey results are included in **Appendix A**.

Vehicles

The majority of students accessing CMS by vehicle do so from the pick-up / drop-off loop, Richmond Avenue, or the north side of W. King Street near the main student entrance (**Figure 32**). Students are also dropped-off on Richmond Avenue and Tacoma Avenue south of W. King Street and use the marked crosswalks at these locations to cross W. King Street. Drivers on W. King Street were found to largely adhere to the 15 mph speed limit and the number of observed U-turns in the area was minimal.

Walking

The pedestrian network in the immediate CMS vicinity is incomplete with sidewalk gaps on major east-west and north-south roadways including W. King Street, Telegraph Street, Mountain Street, and Musser Street. Beyond the area immediately surrounding the school, there are sidewalk gaps on both major and minor roadways as well. The crosswalks on W. King Street have in-road message signs and are well utilized, especially by students who are dropped off on Richmond Avenue and Tacoma Avenue south of W. King Street. The majority of pedestrians observed leaving the school traveled east on W. King Street, Musser Street, or Telegraph Street (**Figure 32**). Students commuting to school from the neighborhood between I-580, William Street, Colorado Street, and Carson Street do not have access to school bus routes and must cross Carson Street to access the school campus on foot. Students using the school bus also encounter sidewalk connectivitiy issues and high vehicle speeds when accessing their bus stops.

Bicycling

There are dedicated bicycle lanes on W. King Street in front of the school campus (**Figure 33**). Vehicles dropping-off/picking-up students frequently impede the westbound bicycle lane during school hours. The W. King Street bike lanes connect with the multi-use path system in the Highlands neighborhood west of Thames Lane, however, the roadway context and bike lane widths west of Canyon Park Court make this route daunting for most middle school students.

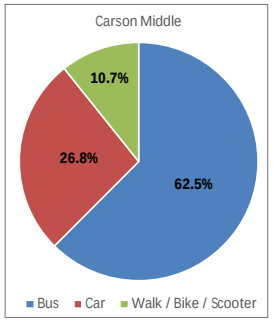


Figure 29. Mode Share (CMS)

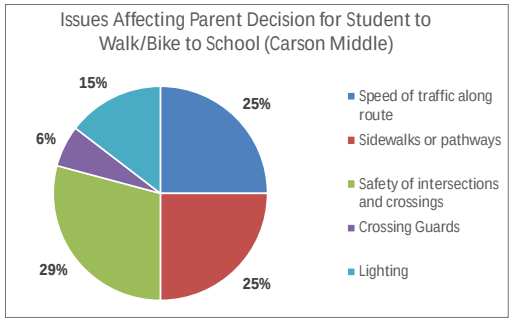


Figure 30. Main Walking / Biking Concerns from Parents (CMS)

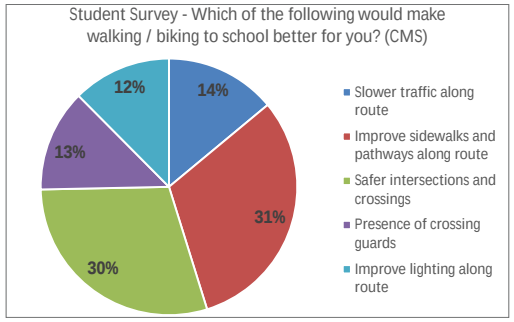


Figure 31. Main Walking / Biking Concerns from Students (CMS)

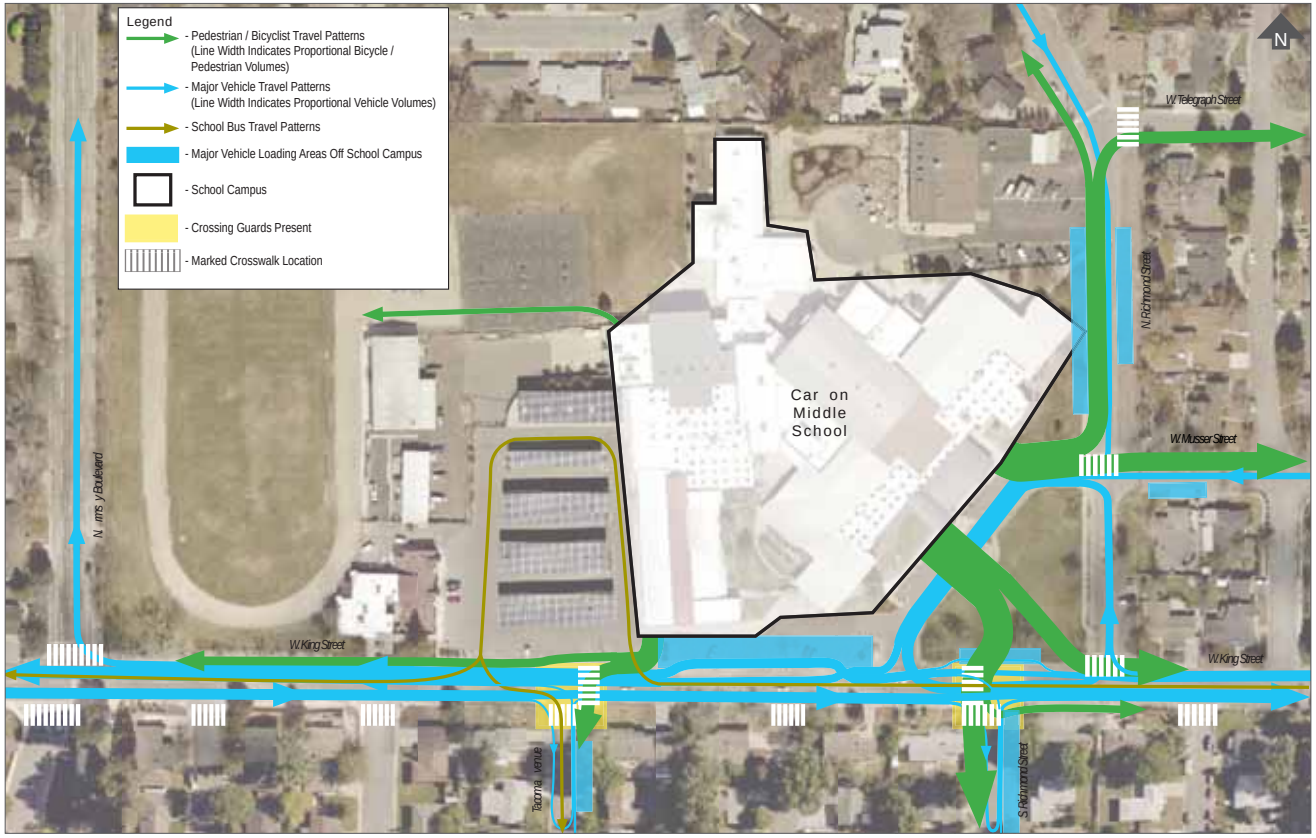


Figure 32. Primary Travel Patterns & School Circulation (CMS)

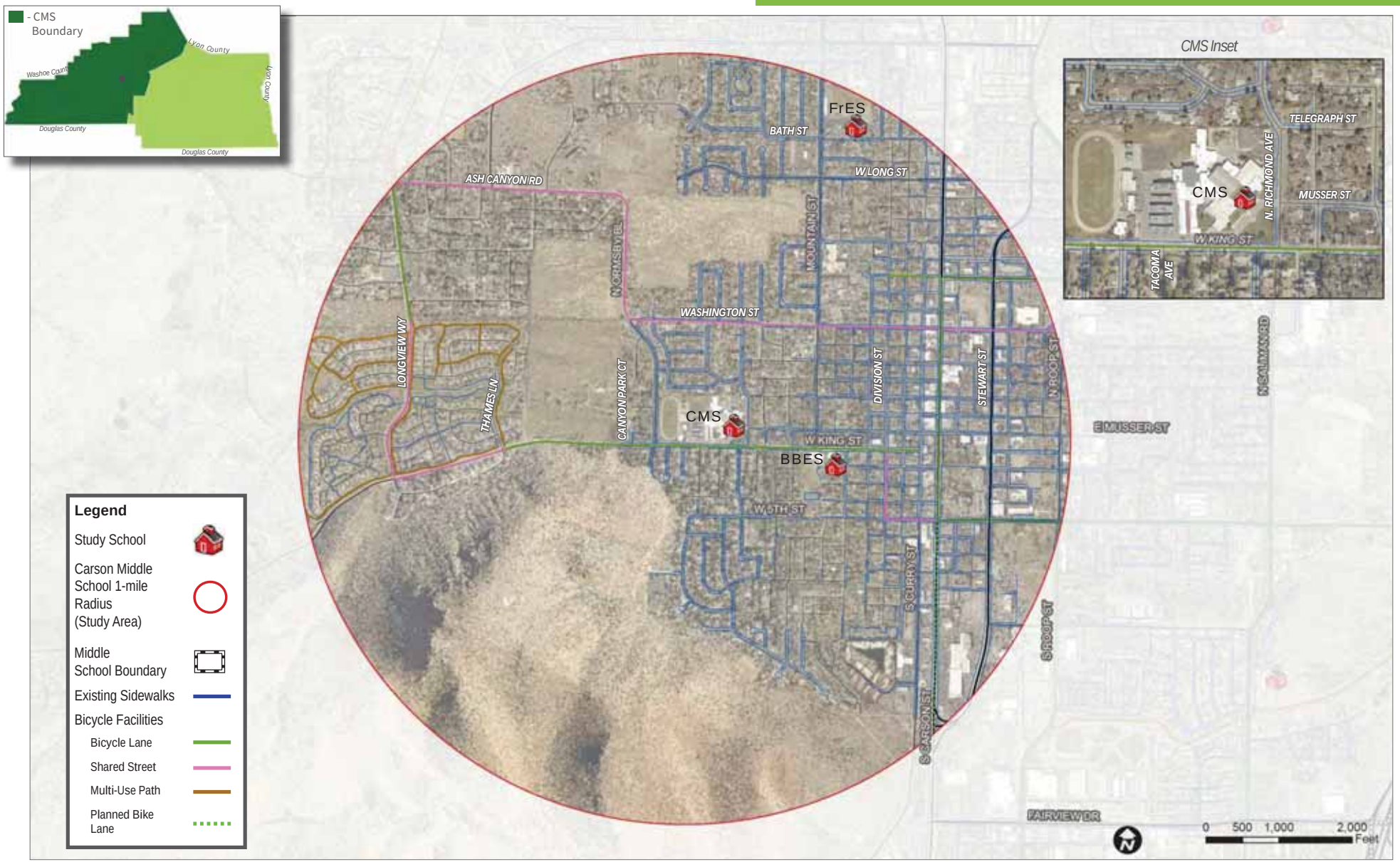


Figure 33. Existing Bicycle & Pedestrian Network (CMS)

Eagle Valley Middle

School Information

Eagle Valley Middle School (EVMS) is located on E. 5th Street between Regent Court and Hidden Meadow Drive on the east side of Carson City. The school campus is surrounded by residential neighborhoods and open space (**Appendix F**). Approximately 11 percent of the 660 enrolled students walk or bike to school each day (**Figure 34**).

Parent & Student Survey Results

As shown in **Figure 35**, the top three issues affecting parents' decisions to allow their children to walk or bike to school are the lack of safe intersections and crossings, traffic speeds along routes to school, and the quality of sidewalks and pathways. Survey results from EVMS students indicate the two factors that would have the largest impact on their commute would be improved sidewalks & pathways and safer intersections & crossings (**Figure 36**). Full results for the parent and student surveys are included in **Appendix A**.

Vehicles

The two pick-up/drop-off loops appear to work well during peak periods with minor queues (**Figure 37**). The drop-off loop immediately in front of the school sometimes creates a bottleneck as parents leaving the campus must wait for parked vehicles to back out of their parking spaces. Vehicles were observed making U-turns at breaks in the center median along E. 5th St.

Walking

Students walking to and from EVMS typically do so from the residential neighborhood to the north, near Empire Elementary School. Children leaving the school typically cross E. 5th Street at Regent Court (where there is a crossing guard present) to reach Hells Bells Road and utilize the multi-use paths on Fairview Drive and the Snake Hill Trail (trail connecting Hells Bells Road and Lepire Drive). Students walking north typically cross Fairview Drive at two marked crosswalks at Desatoya Drive (where two crossing guards are typically present) or at the pedestrian activated flasher approximately halfway between Desatoya Drive and E. 5th Street (at the multi-use path crossing). Some students cross Hidden Meadow Drive and E. 5th Street at Parkhill Drive to access the multi-use paths to the north. There are currently no marked crosswalks at either crossing location and Parkhill Drive does not have any sidewalks.

Bicycling

There are currently no bicycle facilities that provide direct access to the EVMS campus (**Figure 38**). There is a high quality north-south multi-use path on Fairview Drive to the west and a high quality east-west multi-use path from E. 5th Street west of the school however these paths lack connectivity to many surrounding neighborhoods and high traffic areas. The school has two bike racks on campus with another located in the Xeriscape Park to the northeast of the school.

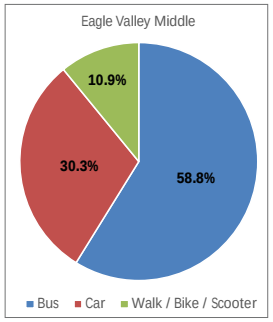


Figure 34. Mode Share (EVMS)

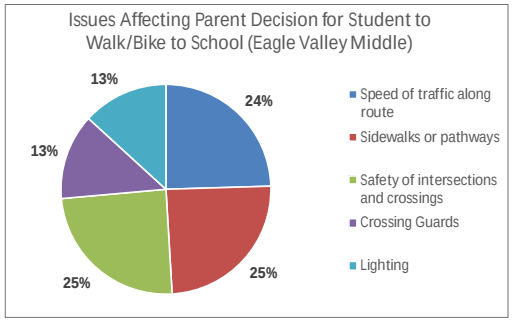


Figure 35. Main Walking / Biking Concerns from Parents (EVMS)

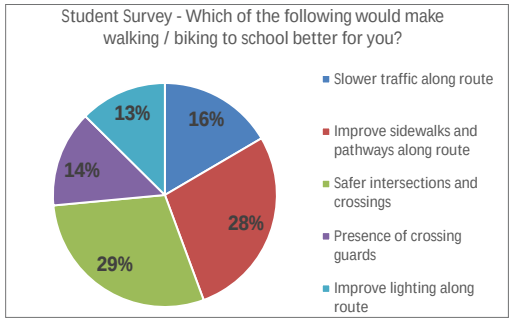


Figure 36. Main Walking / Biking Concerns from Students (EVMS)

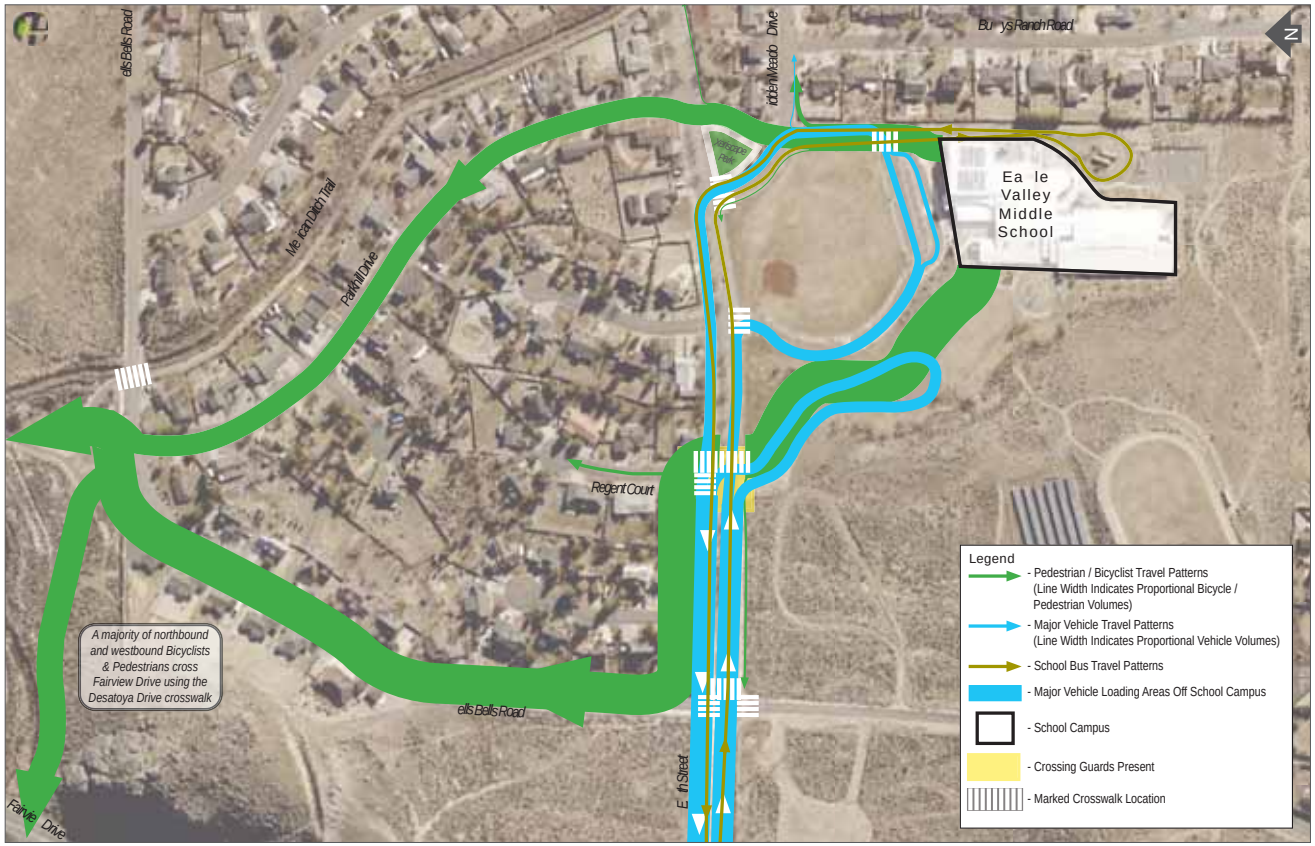


Figure 37. Primary Travel Patterns & School Circulation (EVMS)

Figure 38. Existing Bicycle & Pedestrian Network (EVMS)

3. Engineering Recommendations

Recommendation Development

The project team conducted engineering and programmatic reviews of each of the eight study schools. The engineering review included evaluation of site conditions and circulation patterns, as well as a review of relevant data including recent crash history, crash severity, contributing factors and the location and condition of bicycle and pedestrian facilities. The programmatic review consisted of in-person interviews with staff, including the physical education teachers from each school. This review focused on the current efforts of each school to support their students walking or biking, as well as identifying known safety concerns, such as speeding which is a contributing factor to many crashes. The findings from these reviews were used in conjunction with results of the parent and student surveys, which identified three major areas of focus:

1. Improve safety of intersections & crossings
2. Improve sidewalks & pathways
3. Reduce traffic speeds along routes to school

These areas of focus, along with specific safety concerns identified for each school form the basis of the recommendations included in this Plan.

The recommended projects are divided into three Tiers:

Tier 1 – Quick Wins

There are a total of 26 Tier 1 projects. Tier 1 projects involve minimal capital and infrastructure improvements, such as changes to signage or red curb. It is anticipated that the City would implement these projects as soon as possible to provide immediate benefits for students walking, biking, and riding buses to school.

Tier 2 – SRTS Core Projects

Tier 2 projects are intended to be implemented over the next 20 years, Tier 2 projects were further prioritized using the criteria in **Table 2** in order to provide guidance on allocating funding to the most impactful projects first. These projects are divided into four categories based on the primary safety issue addressed.

Bicycle Network Enhancements - Projects focused on enhancing and expanding the existing bicycle network to improve safety and connectivity for children bicycling to school

Crossing Safety Enhancements - Projects focused on improving roadway crossings

Walk Zone Connectivity Enhancements - Projects focused on improving pedestrian connectivity within the school walk zone (1-mile surrounding the study school)

With a major focus on improving pedestrian connections within walk zones, the Walk Zone Connectivity category has the largest number of projects of any category.

Corridor Enhancements - Projects focused on elements from multiple project categories on a specific corridor

Tier 3 – Aspirational Projects

A total of 25 projects which represent an ideal conceptual network of low-stress bicycle facilities across Carson City. Projects focus on providing children with a safe and comfortable bicycling experience on their journey to school. These projects are conceptual and require further analysis before being programmed.

Tier 1 & Tier 2 projects are shown spatially in **Figure 39** with Tier 1 projects defined in **Table 5** and Tier 2 projects defined in **Tables 6-1** to **6-3**. Tier 3 projects are highlighted in **Table 7** and shown in **Figure 40.** These tables represent the Master list of SRTS projects for Carson City.

School Profiles

School profiles include recommended projects within a mile of each school which provide a direct benefit to the profiled school. Some projects are listed on multiple school profiles because they are within one mile of and provide direct benefits to multiple schools. It is important to note that "Key Projects" identified in each school profile represent a "front-door first" approach to implementation. Focusing initial efforts on projects closest to each schools' front door would benefit the greatest number of students first and would increase the effectiveness of projects further from the schools' front-door. "Highlighted Projects" shown in school profiles are projects which are unique in nature and require further explanation.

Prioritization Process

To guide implementation of the proposed SRTS projects, a prioritization framework was developed. This enables the City to identify the most critical projects and phase the implementation of projects over time. Tier 2 projects, which involve more significant capital and infrastructure improvements than Tier 1 projects, were evaluated using the prioritization criteria in **Table 2**. These criteria include findings from the community survey, ability to address key safety issues, connections to schools and other community facilities, demographic data, cost efficiency and

Table 2. Prioritization Criteria Summary

Prioritization Criteria	Rationale	Range of Points
Survey	School administrators, parents, middle school students, and community members noted specific locations needing improvements in the community survey.	0 - 10
Addresses Known Safety Issue	Community members shared that vehicle speeds, crash severity, intersection crossing, contributing factors, and connecting sidewalks/pathways are the most important improvements needed.	0 - 9
Equity	Lower-income households are disproportionaletly represented in severe and fatal injury crashes.	0 - 6
Proximity to Study Schools	Improving access to schools in this study is a primary purpose of this Plan.	0 - 16
Proximity to Community Facilities	Projects in areas of high demand provide benefit to a greater number of people.	0 - 6
Population Density	Projects in areas of high population density provide a benefit to a greater number of people.	0 - 4
Cost Efficiency / Feasibility	Lower cost projects can generally be implemented more rapidly and allow limited resources to be distributed more widely.	0 - 8
In CIP	This Plan aims to support the City's Capital Improvement Plan (CIP) and prioritizes recommendations that are consistent with or complement projects within the CIP.	0 - 8
	Total Points Possible:	67

feasibility, and consistency with the City's planned capital improvements (the full prioritization matrix and scoring is included in **Appendix C**). Projects received an individual score for each criterion as well as a combined score based on the sum of all nine factors evaluated. Total scores falling within the top third are considered near-term projects; total scores falling in the middle third are considered medium-term; and scores falling in the lower third are considered long-term projects.

Implementation Plan

The results of the prioritization process are meant to be a starting point for assisting the City with implementation. Some projects may be implemented as part of routine roadway maintenance programs; in fact, projects received points if they overlap with the City's current Capital Improvement Program (CIP). As funding sources become available and the CIP is updated, the City should consider all available opportunities to implement the proposed projects as quickly as possible. Should opportunities arise to complete lower priority projects, in conjunction with CIP projects those should be considered as well.

Near-Term Projects listed in **Tables 6-1** to **6-3**, reflect the proposed improvements that scored the highest through the prioritization process. It is recommended that the City allocate funding and dedicate resources to planning, designing, and constructing these projects first. These projects may require significant planning efforts including community engagement and dedicated funding sources to be considered by the City. The near-term projects that are less infrastructure-intensive and lower in cost should be considered for immediate implementation in the coming fiscal years.

Medium-Term Projects scored in the middle third of projects and are recommended for implementation after the near-term projects have been completed. As appropriate, these projects may be combined with near-term projects to strengthen the network, address gap closures, and to complement other projects.

Long-Term Projects are projects scoring in the lowest third of the prioritization process. Many of these projects did not receive any public comments through the community survey and do not overlap with projects in the City's CIP. However, all projects have been developed to close network gaps and improve walking/biking, and improve bus access for students, and should therefore be implemented where possible.

Cost Estimates

Planning level cost estimates were developed for each recommended engineering project based on planning level project concepts, including programmatic engineering recommendations listed in **Table 25-1** in Chapter 4. These cost estimates include curb ramps and minor modifications to drainage but do not include costs for rights-of-way or major stormwater enhancements. Cost estimates for Tier 3 projects represent permanent installations, such as concrete medians.

Table 3 Planning Level Cost Estimate Order of Magnitude Cost Ranges

Cost Estimate Symbol	Cost Estimate Range
$	Less than $99,000
$$	$100,000 - $499,000
$$$	$500,000 - $999,000
$$$$	$1,000,000 - $1,999,999
$$$$$	$2,000,000 - $2,999,999
$$$$$$	$3,000,000 - $6,000,000

Temporary installations or low-cost materials such as paint and removable bollards would significantly reduce costs for such projects. **Table 3** shows the estimated range of costs for each engineering project.

Intersection Crossing Enhancements

No two intersections are exactly alike and the solutions for improving crossing safety at intersections should be applied based on the roadway context and local travel travel patterns. In order to avoid being overly prescriptive in the type and design of enhancements to crossing safety at intersections, this Plan uses the term "Intersection Crossing Enhancements" as a catch-all term. This term is intended to encompass a wide range of crossing enhancements including curb extensions (highlighted below), pedestrian signalization improvements, pedestrian refuge islands, and enhanced marked crosswalks (see the **Carson City Safe Routes to School Design Toolbox** in **Appendix B** for more detail). It is important to note that concrete curb extensions were assumed in the cost estimates in order to provide a higher level of potential cost. Costs may be reduced by using different materials in the application of a curb extension or a different intersection crossing enhancement that is less intensive. Materials such as paint or removable bollards would be significantly less costly than concrete and would allow Carson City to pilot projects in order to assess their impacts and safety benefits.

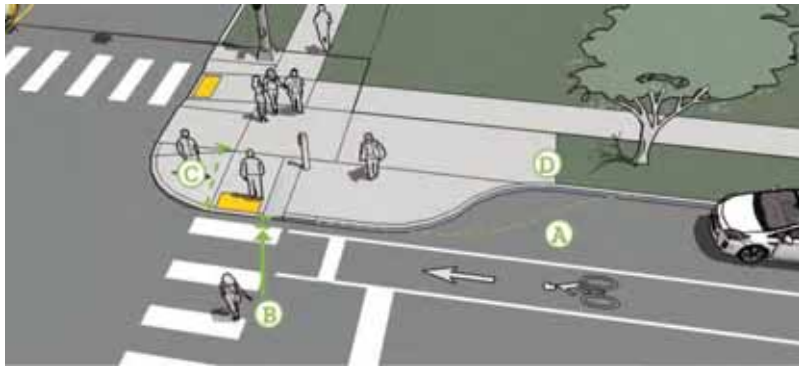
Walk Zone Sidewalk Gap Closure

The sidewalk network in some portions of Carson City is incomplete, especially on minor roadways. With a major focus on improving the quality, condition, and overall network of sidewalks within school walk zones, closing sidewalk gaps on all streets within each school walk zone would be ideal. The planning level cost of constructing sidewalks within walk zones on all roads not addressed by a Tier 1-3 project was developed based on existing sidewalk data in 1/3 mile increments, as shown in **Table 4**. The estimates assume a 6-foot wide sidewalk with minimal stormwater enhancements, curb ramps, and no right-of-way needs.

It may not be feasible to construct sidewalks in all locations or on both sides of the roadway due to low benefits, high construction costs, or neighborhood preferences.

Table 4. Planning Level Cost Estimate for minor street sidewalk gap closure

Planning Level Cost Estimate Walk Zone Connectivity (Increments of 1/3 Mile)	Study Schools to 1/3 Mile	1/3 Mile to 2/3 Mile	2/3 Mile to 1 Mile
	$18.4 Million	$39.8 Million	$44.2 Million



SRTS Infrastructure Design Toolbox (Appendix B)
Highlight: Curb Extension Design Features

- (A) For purposes of efficient street sweeping, the minimum radius for the reverse curves of the transition is 10 ft and the two radii should be balanced to be nearly equal.
- (B) When a bike lane is present, the curb extensions should terminate one foot short of the parking lane to enhance bicyclist access.
- (C) Reduces pedestrian crossing distance by 6-8 ft.
- (D) Planted curb extensions may be designed as a bioswale for stormwater management.

Tier 1 – Quick Wins

Table 5. Tier 1 Recommendations

Project Number	Street	Extent (Or Cross Street)	Description	Cost
Q-1	Seeliger Paths	Footpaths to Seeliger Elementary School from: Cortez Street, Schell Avenue, and off Shady Oak Drive	Repave paths and extend pavement to school grounds	$
Q-2	Appion Way	150 ft East & West of Muldoon Street	Utilize temporary signage to increase awareness of bus stop locations (**ENG-4**)	$
Q-3	Bath Street	At FrES Parent Drop-Off Loop Exit	Extend existing red curb by 20 feet to the east	$
Q-4	Bonanza Drive	W. Sutro Terrace to Manzanita Terrace	Utilize temporary signage to increase awareness of bus stop locations (**ENG-4**)	$
Q-5	Carriage Crest Drive	At MTES Parent Drop Off Exit	Relocate existing "No Left-Out" signage to more visible location	$
Q-6	Cochise Street	150 ft North & South of Overland Street / Cochise Street intersection	Utilize temporary signage to increase awareness of bus stop locations (**ENG-4**)	$
Q-7	Combs Canyon Road	Lakeview Road to Meadowood Road	Utilize temporary signage to increase awareness of bus stop locations (**ENG-4**)	$
Q-8	Combs Canyon Road	Harvard Drive to Dartmouth Drive	Utilize temporary signage to increase awareness of bus stop locations (**ENG-4**)	$
Q-9	De Ann Drive / Lompa Lane	150 ft on all sides of De Ann Drive / Lompa Lane Intersection	Utilize temporary signage to increase awareness of bus stop locations (**ENG-4**)	$
Q-10	Deer Run Road	150 feet on either side of Deer Run Road / BLM Access (located 2,150 feet south of Brunswick Canyon Road)	Utilize temporary signage to increase awareness of bus stop locations (**ENG-4**)	$
Q-11	EVMS Drop Off Loop	Parking Area in Drop Off Loop	Restrict parking to staff & deliveries only in front of school (reroute traffic around parking lot immediately in front of school)	$
Q-12	FES Drop Off Loop	At existing temporary "Single Lane Pick-Up" Sign	Install permanent sign	$
Q-13	Firebox Road	At Saliman Road	Install in-road message sign stating No Left-Out	$
Q-14	Firebox Road	At Saliman Road	Update existing red curb along Firebox Road to be more visible	$
Q-15	Gentry Lane	200 ft South of Heidi Circle	Utilize temporary signage to increase awareness of bus stop locations (**ENG-4**)	$
Q-16	Goni Road	Jefferson Dr to Franklin Rd	Utilize temporary signage to increase awareness of bus stop locations (**ENG-4**)	$
Q-17	Hidden Meadows Drive	Eagle Valley MS Bus Entrance	Install marked crosswalk	$
Q-18	Kelvin Road	200 Ft East and West of Kelvin Road / Salk Road intersection	Utilize temporary signage to increase awareness of bus stop locations (**ENG-4**)	$
Q-19	Prospect Drive	Timberline Drive to Lotus Circle	Utilize temporary signage to increase awareness of bus stop locations (**ENG-4**)	$
Q-20	Rabe Way	400 ft West of Coffey Drive & 150 ft. East of Parker Drive	Utilize temporary signage to increase awareness of bus stop locations (**ENG-4**)	$
Q-21	S. Sutro Terrace	Bryce Drive to Emerson Drive	Utilize temporary signage to increase awareness of bus stop locations (**ENG-4**)	$
Q-22	Saliman Road	At Cardinal Way	Install RRFB at existing crosswalk south of Cardinal Way	$
Q-23	Salk Road	150 ft North & South of Avery Road	Utilize temporary signage to increase awareness of bus stop locations (**ENG-4**)	$
Q-24	Siskiyou Drive	Stanton Drive	Install marked crosswalk	$
Q-25	Telegraph Street	3 Intersections: Telegraph Street & Mountain Street Telegraph Street & Division Street Telegraph Street & Richmond Avenue	Install marked crosswalk	$
Q-26	Timberline Drive	Prospect Drive to 100 ft East of Westwood Drive	Utilize temporary signage to increase awareness of bus stop locations (**ENG-4**)	$

Tier 2 – SRTS Core Projects

Table 6-1. Tier 2 Recommendations (Part 1)

Project Number	Street	Extent (Or Cross Street)	Description	Cost	Priority Score	Priority Timeframe
B-1	Colorado Street	Carson Street to Roop Street	Construct buffered bike lanes from Carson Street to existing bike lanes or similar multi-modal improvement	$	23	Medium
B-2	E. 5th Street	Saliman Road to I-580	Construct multi-use path or separated facility with connection to existing multi-use path on either side of I-580	$$$	19	Long
B-3	Winnie Lane	Carson Street to Roop Street	Construct buffered bike lanes from Carson Street to Roop Street or similar multi-modal improvement	$	29	Medium
C-1	Airport Road	Butti Way to E. 5th Street	A. Construct bike lane from Butti Way to Highway 50 or similar multi-modal improvement B. Add intersection crossing enhancements at Airport Road / Douglas Drive and Airport Road / Menlo Drive	$$	31	Medium
C-2	Carmine Street	Airport Road to Lompa Lane	**A**. Traffic Circle at Dori Way & Carmine Street **B**. Close sidewalk gaps between Airport Road & Dori Way **C**. Intersection crossing enhancements at Dori Way, Lompa Lane, and Airport Road	$$$	25	Medium
C-3	E. 5th Street	Saliman Road to Carson Street	**A.** Enhance existing sidewalks **B.** Widen existing bike lane to 5'	$$$	27	Medium
C-4	E. 5th Street	Fairview Drive to Mexican Ditch Trail	**A.** Construct bike lanes from Fairview Drive to Carson River Road or similar multi-modal improvement **B.** Construct buffered bike lane from Carson River Road to Mexican Ditch Trail or similar multi-modal improvement **C.** Add marked crosswalk with pedestrian refuge (painted or hardscape) at Parkhill Drive **D.** Construct pedestrian refuge at Regent Court (painted or hardscape) **E.** Relocate existing crosswalk at Carson River Road & Hells Bells Road approximately 15 feet to the east, add pedestrian refuge Island (painted or hardscape) and RRFB	$$	34	**Near**
C-5	Nye Lane	Lompa Lane to Highway 50	Construct bike lanes & close sidewalk gaps	$$$$$$	21	Long
C-6	Sonoma Street	Carson Street to Saliman Road	**A.** Construct bike lanes or similar multi-modal improvement **B.** Add intersection crossing enhancement at Silver Sage Drive	$	36	**Near**
C-7	W. King Street	Thames Lane to Curry Street	**A**. Construct multi-use path from Thames Lane to Canyon Park Court or similar multi-modal improvement **B**. Add physical buffer for bike lane at CMS & BBES **C**. Close sidewalk gaps between Curry Street and Ormsby Boulevard **D**. Install intersection crossing enhancements at Tacoma Avenue, Richmond Avenue, Mountain Street, Thompson Street, Minnesota Street, Division Street	$$$$	47	**Near**
C-8	Winnie Lane	Mountain Street to Ormsby Blvd	**A.** Enhance existing sidewalks where possible **B.** Add bike lanes from Mountain Street to Ormsby Boulevard **C.** Add wayfinding signage at Victoria Avenue directing bicyclists towards the multi-use path on north side **D.** Enhance crosswalks at Ormsby Boulevard, Mountain Street, and Victoria Avenue **E.** Enhance street lighting at Mountain Street and Winnie Lane **F.** Remove overgrown vegetation to improve visibility	$$	33	Medium

Project Category Key

	Tier 1: Quick Win Projects
	Tier 2: Bicycle Network Enhancements
	Tier 2: Crossing Safety Enhancements
	Tier 2: Walk Zone Connectivity Enhancements
	Tier 2: Corridor Enhancements (Combined elements from Bicycle Network, Walk Zone Connectivity, and Crossing Safety along specific corridor)

Table 6-2. Tier 2 Recommendations (Part 2)

Project Number	Street	Extent (Or Cross Street)	Description	Cost	Priority Score	Priority Timeframe
CS-1	Carriage Crest Drive	Slide Mountain Drive to Mountain Park Drive	**A.** Add intersection crossing enhancements at Mountain Park Drive, and Slide Mountain Drive intersections **B.** Add center median from 70' south of Slide Mountain Drive to Parent Drop-Off Loop entrance **C.** Consider parking restrictions or removal on Carriage Crest Drive during school pick-up and drop-off periods	$$	39	**Near**
CS-2	Carson Street	Nye Lane	Construct RRFB and associated crossing enhancements or alternatively a traffic signal	$$	23	Medium
CS-3	Fairview Drive	Desatoya Drive to Walker Drive	**A.** Install RRFB at Desatoya Drive **B.** Install RRFB with pedestrian refuge island (painted or hardscape) between Walker Drive and Stanton Drive **C.** Construct Sidewalk on the west side of Fairview Drive from Walker Drive to Edmonds Drive **D.** Enhance existing sidewalk on east side from Lepire Drive to multi-use path **E.** Enhance existing sidewalk on west side from Desatoya Drive to multi-use path south of Butti Way	$$	36	**Near**
CS-4	Monte Rosa Drive	Stanton Drive to Gordonia Avenue	Add intersection crossing enhancements to Stanton Drive & Gordonia Avenue intersections, including striping to prohibit parking close to existing crosswalks	$	45	**Near**
CS-5	Roop Street/Silver Sage Drive	Fairview Drive to Sonoma Avenue	Add intersection crossing enhancements at minor side-street approaches south of Fairview Drive	$$	17	Long
CS-6	Silver Sage Drive	Sonoma Avenue to Koontz Lane	**A.** Add crosswalk at Pioche Street **B.** Add intersection crossing enhancements at Koontz Lane intersection and minor side-street approaches between Koontz Lane & Sonoma Avenue	$$$	11	Long
WZ-1	Airport Road	Nye Lane to Highway 50	**A.** Close sidewalk gaps **B.** Enhance existing sidewalk as possible	$$$$	23	Medium
WZ-2	Baker Drive	Koontz Lane to 175 ft. S. of Kerinne Circle	Construct sidewalk	$$	9	Long
WZ-3	Bath Street	Mountain Street to Carson Street	**A.** Close sidewalk gaps between Curry Street & Mountain Street **B.** Add intersection crossing enhancement (paint or hardscape) at existing mid-block crosswalk and Division Street crosswalks **C.** Add missing & repair damaged ADA Ramps **D.** Repair and enhance existing sidewalks as possible	$$$	34	**Near**
WZ-4	Brown Street	420 ft. N. of Reeves Street to 170 ft. S. of Reeves Street	Construct sidewalk	$$	17	Long
WZ-5	Camille Drive	Sunland Drive	Install staircase and ramp for multi-use connectivity	$$	18	Long
WZ-6	Carson Street	Bath Street to 420 ft. N. of Bath Street	Construct sidewalk	$	30	Medium
WZ-7	Clearview Drive	Oak Street to I-580	Construct paved shoulder for bikes/pedestrians/bus stop accessibility	$$	16	Long
WZ-8	Colorado Street	Colorado Terminus to Edmonds Drive	**A.** Construct multi-use bridge over I-580 from the Colorado Street terminus to Edmonds Drive **B.** Marked crosswalk with RRFB at Colorado Street & Edmonds Drive intersection (Due to funding constraints, the City may select one pedestrian bridge project to pursue, either **WZ-15** or **WZ-8**)	$$$$$$	20	Long
WZ-9	Colorado Street	Birch Street to 125 ft W. of Utah Street	Construct sidewalk on north side of roadway	$$	15	Long
WZ-10	Desatoya Avenue	Airport Road to Fairview Drive	Widen sidewalks on south side of roadway	$$	35	**Near**
WZ-11	Division Street	Bath Street to W. 5th Street	**A.** Add intersection crossing enhancements at minor side streets **B.** Enhance & upgrade existing crosswalks through-out the corridor including Musser Street, Telegraph Street, and Long Street **C.** Close sidewalk gaps and widen sidewalks as possible	$$$$	38	**Near**
WZ-12	Division Street	5th Street to southern terminus of Division Street	Close sidewalk gaps	$$	31	Medium
WZ-13	S. Edmonds Drive	Fairview Drive to Colorado Street Bridge	Construct multi-use path on west/north side to connect to existing path	$$	22	Medium

Table 6-3. Tier 2 Recommendations (Part 3)

Project Number	Street	Extent (Or Cross Street)	Description	Cost	Priority Score	Priority Timeframe
WZ-14	N. Edmonds Drive	320 ft N. of Reeves Street to 100 ft N. Brown Street	Construct sidewalk on west side of roadway	$$	18	Long
WZ-15	Edmonds Sports Complex	Between Edmonds Sports Complex and Appion Way / Hillview Drive intersection	**A.** Construct multi-use bridge over I-580 from the southeastern corner of Appion Way / Hillview Drive intersection to the Edmonds Sports Complex (Due to funding constraints, the City may select one pedestrian bridge project to pursue, either **WZ-15** or **WZ-8**)	$$$$$$	12	Long
WZ-16	Gordonia Avenue	Monte Rosa Drive to La Loma Drive	**A.** Widen existing sidewalks on the north side of the roadway **B.** Add center median from Monte Rosa Drive to La Loma Drive	$$	39	**Near**
WZ-17	Hillview Drive	Kingsley Lane to Clearview Drive	Construct paved shoulder or multi-use path to connect with existing multi-use path on Saliman Road at Kingsley Lane	$$	21	Long
WZ-18	Koontz Lane	Center Drive to I-580	Construct paved shoulder for bikes/pedestrians/bus stop accessibility	$$$	15	Long
WZ-19	Lepire Drive	Snake Mountain Multi-use path to Cassidy Court	Construct sidewalk from Snake Mountain multi-use path to the existing sidewalk on the north side of Lepire Drive	$$	26	Medium
WZ-20	Long Street	Curry Street to Sierra Circle & Fall Street to Stewart Street	**A.** Close sidewalk gaps (Curry Street to Sierra Circle & Fall Street to Stewart Street) **B.** Crosswalks and intersection enhancements at Division Street, Curry Street, and Marian Avenue	$$$	30	Medium
WZ-21	Mountain Street	Nye Lane to King Street	**A.** Close sidewalk gaps & enhance existing sidewalk where possible **B.** Add intersection crossing enhancements at Winnie Lane, Bath Street, Long Street, Washington Street, Telegraph Street, Musser Street	$$$$$	42	**Near**
WZ-22	Musser Street	Harbin Avenue to Anderson Street	**A.** Close sidewalk gaps **B.** Enhance sidewalk where possible	$$	17	Long
WZ-23	Musser Street	Richmond Avenue to Winters Drive	Construct sidewalk	$	26	Medium
WZ-24	Reavis Lane	Create Pedestrian Connection to Multi-Use Path	Construct multi-use bridge between existing multi-use trail and sidewalk on south side of Reavis Lane	$$	18	Long
WZ-25	Robinson Street	Richmond Avenue to Mountain Street	Construct sidewalk	$$	21	Long
WZ-26	Roop Street	Winnie Lane to E. 5th Street	**A.** Close sidewalk gaps (Telegraph Street to E. 5th Street) **B.** Enhance existing sidewalks as possible	$$$	29	Medium
WZ-27	S. Iris Street	4th Street to King Street	Construct sidewalk	$$$	27	Medium
WZ-28	Saliman Road	Fairview Drive to Koontz Lane	**A.** Intersection crossing enhancements at Sonoma Street **B.** RRFB at Damon Road crosswalk **C.** Sidewalk east side Colorado Street to Fairview Drive **D.** Enhance existing sidewalk as possible	$$$	43	**Near**
WZ-29	Saliman Road	E. 5th Street to Fairview Drive	Enhance existing sidewalk as possible	$$	43	**Near**
WZ-30	Sherman Lane	Lompa Lane to Chanel Lane	Construct sidewalk	$$$$$	17	Long
WZ-31	Stampede Drive	Gregg Street East to Existing Sidewalk	Construct sidewalk on south side corner to existing sidewalk	$$	14	Long
WZ-32	Stanton Drive	Monte Rosa Drive to Fairview Drive	Widen existing sidewalk on south side and create center median	$$	39	**Near**
WZ-33	Telegraph Street	Richmond Avenue to Mountain Street	Construct sidewalk on south side of roadway to eliminate sidewalk gaps and enhance existing sidewalks, as possible	$$	47	**Near**
WZ-34	Thompson Street	King Street to 550 ft. S. of San Marcus Drive	**A.** Close sidewalk gaps on east side (King Street to 5th Street) **B.** Close sidewalk gaps on west side (5th Street to San Marcus Drive) **C.** Create intersection crossing enhancements at existing W. 2nd St, W. 3rd St, and W. 4th St crosswalks	$$	38	**Near**
WZ-35	W. 5th Street	Richmond Avenue to Carson Street	**A.** Close sidewalk gaps and enhance existing sidewalk where possible **B.** Add intersection crossing enhancements at Thompson Street & Division Street	$$$$$	36	**Near**
WZ-36	Winnie Lane	Carson Street to Mountain Street	Enhance existing sidewalks as possible	$$	34	**Near**
WZ-37	Winnie Lane	Ash Canyon Road to Ormsby Blvd	Extend multi-use path on north side to Ash Canyon Road	$$	21	Medium

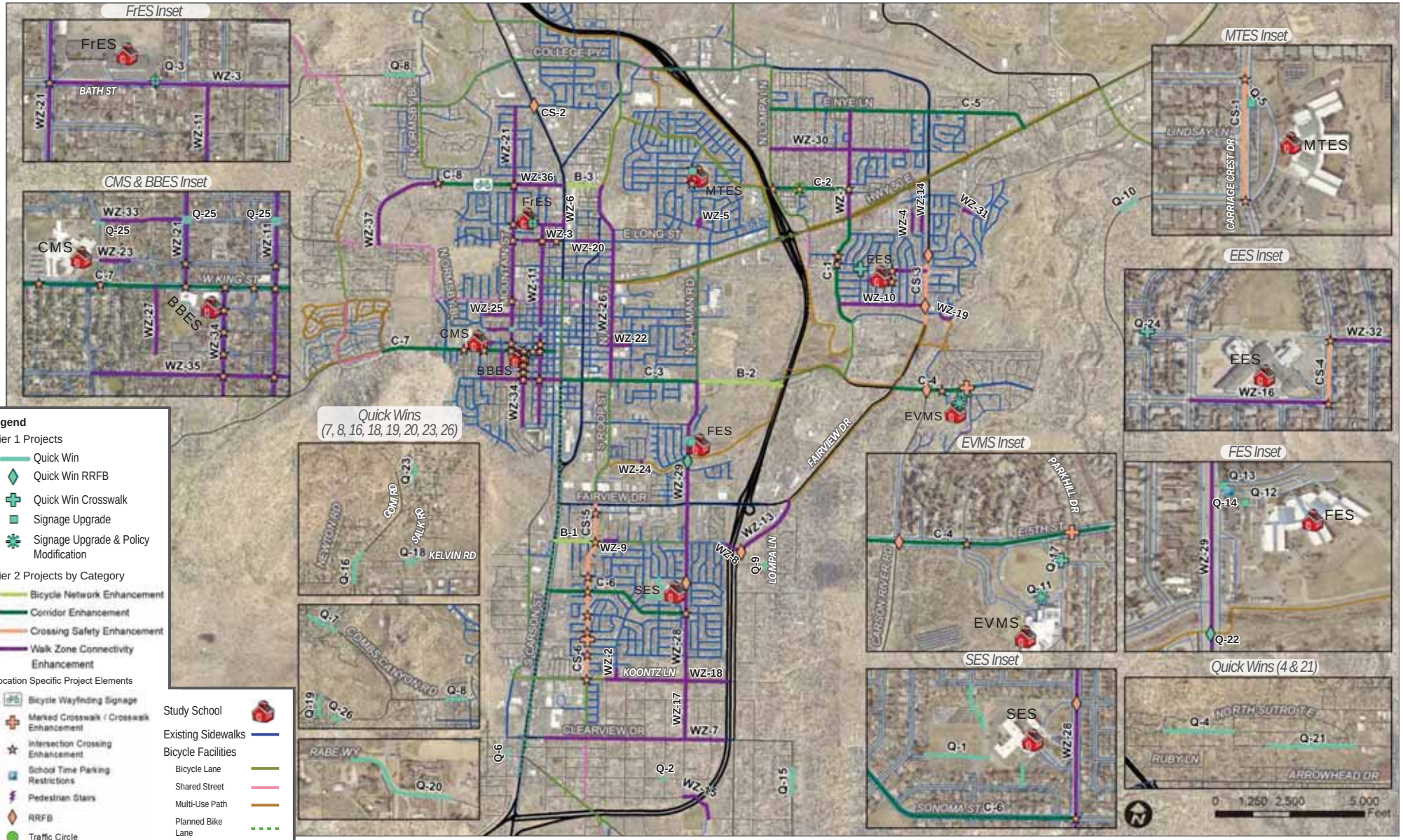


Figure 39. Tier 1 & Tier 2 Recommendations at All Study Schools

Tier 3 – Aspirational Projects

The Aspirational projects are intended to be implemented by Carson City Public Works when and if they are deemed to be operationally and fiscally feasible. However, many of the facility types which include additional separation between vehicles and bicyclists may be piloted or implemented in combination with a Tier 2 project or on its own in the near-term with low-cost materials including paint and removable bollards as seen in the examples of protected intersections below.

In Carson City, designing for **"all ages and abilities"** would provide students and the large senior population with a safe and comfortable way to travel without a vehicle. Guidance from the National City Transportation Officials (NACTO) on designing for "all ages and abilities" (see **Appendix B**) identifies numerous facility types based on the speed and traffic volumes of the roadway which anyone from the age of 8 to 80 would feel comfortable riding. Common "all ages and abilities" bicycle facility types include multi-use paths, protected cycle tracks, buffered bike lanes, and bike boulevards of which only multi-use paths are currently present in the Carson City context.

Tier 3 projects represent steps to create an ideal bicycle network which would provide safe & comfortable bicycle access to all study schools. However, these projects require further consideration to roadway capacity, long-range transportation planning, budget constraints, and local context. Aspirational projects include facility types which are suitable for **"all ages and abilities",** however, alternative facilities types included in the Design Toolbox **(Appendix B)** may replace the facility types identified in **Table 7.** This Design Toolbox is intended to provide a wide variety of potential "all ages and abilities" design solutions to select from during project design.

Exhibit 18. Bicycle Design Toolbox Examples
Top: Bicycle Boulevard with Median Islands Example (**Appendix B**)
Middle: Buffered Bike Lanes Example (**Appendix B**)
Bottom: One-way Protected Cycle Track Example (**Appendix B**)

Exhibit 19. Protected Intersection Design Concept (see **Appendix B**) with Example from Memphis, TN of using low-cost and removable materials (Right)

Table 7. Tier 3 Recommendations (Aspirational Projects)

Project Number	Street	Extent (Or Cross Street)	Description	Cost
A-1	Airport Road	Nye Lane to Highway 50	**A.** Construct buffered bike lanes or similar multi-modal improvement **B.** Protected intersection at Airport Road / Highway 50 or similar multi-modal improvement	$$$$
A-2	Ash Canyon Road / Ormsby Boulevard	Longview Way to Washington Street	Construct multi-use path from Longview Way to Washington Street or similar multi-modal improvement	$$$
A-3	Carmine Street	Airport Road to Lompa Lane	Construct bike boulevard or similar multi-modal improvement	$$
A-4	Carriage Crest Drive	Northridge Drive to Sunland Ave	Construct bike boulevard or similar multi-modal improvement	$
A-5	Division Street	Bath Street to W. 5th Street	Construct bike boulevard or similar multi-modal improvement	$$$$
A-6	Fairview Drive	Nye Lane to Butti Way	Construct protected cycle track with protected intersection at Highway 50 or similar multi-modal improvement	$$$$
A-7	Fairview Drive	Edmonds Drive to Saliman Road	Construct protected cycle track / multi-use path or similar multi-modal improvement	$$$
A-8	Little Lane	Saliman Road to Roop Street	Construct buffered bike lanes or similar multi-modal improvement	$
A-9	Long Street	Mountain Street to Russell Way	**A**. Buffered bike lane from Mountain Street to Saliman Road or similar multi-modal improvement **B**. Bike lane from Saliman Road to Russell Way or similar multi-modal improvement	$$
A-10	Mountain Street	Nye Lane to King Street	Construct buffered bike lanes or similar multi-modal improvement	$$$$$
A-11	Northgate Lane	Arrowhead Drive to Nye Lane	Construct protected cycle track or similar multi-modal improvement	$$
A-12	Ormsby Boulevard	Oak Ridge Drive to Winnie Lane	Construct bike lanes or similar multi-modal improvement	$
A-13	Robinson Street	Roop Street to Saliman Road	Construct bike lanes or similar multi-modal improvement	$
A-14	Roop Street	Winnie Lane to E. 5th Street	Construction protected cycle track or similar multi-modal improvement	$$$$
A-15	Roop Street	5th Street to Fairview Street	Enhance existing facility to buffered bike lanes or similar multi-modal improvement	$$
A-16	Roop Street	5th Street to Sonoma Avenue	Enhance existing facility to buffered bike lanes or similar multi-modal improvement	$$
A-17	Roop Street	College Parkway to Bernhard Way	Construct protected cycle track or similar multi-modal improvement	$$
A-18	Saliman Road	Fairview Drive to Koontz Lane	Buffered bike lane with potential lane reduction or similar multi-modal improvement	$$
A-19	Saliman Road	E. 5th Street to Fairview Drive	Upgrade bike lane to cycle track with protected intersection at Fairview Drive or similar multi-modal improvement	$$$$
A-20	Silver Sage Drive	Sonoma Avenue to Koontz Lane	Enhance existing facility to buffered bike lanes or similar multi-modal improvement	$$
A-21	Telegraph Street	Richmond Avenue to Roop Street	Bike Boulevard (consider diverters at Mountain Street, Division Street, Stewart Street & Roop Street) or similar improvement	$$$
A-22	Thompson Street	King Street to 550 ft. S. of San Marcus Drive	Construct bike boulevard or similar multi-modal improvement	$$
A-23	W. 5th Street	Richmond Avenue to Carson Street	**A**. Bike lanes Richmond Avenue to Minnesota Street or similar multi-modal improvement **B**. Buffered bike lane Minnesota Street to Carson Street or similar multi-modal improvement	$$
A-24	W. Nye Lane	Hot Springs Road to Mountain Street	**A.** Construct bike boulevard or similar multi-modal improvement **B.** Intersection crossing enhancements **C.** Median islands **D.** Speed cushions (as appropriate)	$$
A-25	Washington Street	Phillips Street to Roop Street	**A.** Buffered bike lane Philips Street to Minnesota Street or similar multi-modal improvement **B.** Bike lane Minnesota Street to terminus or similar multi-modal improvement	$

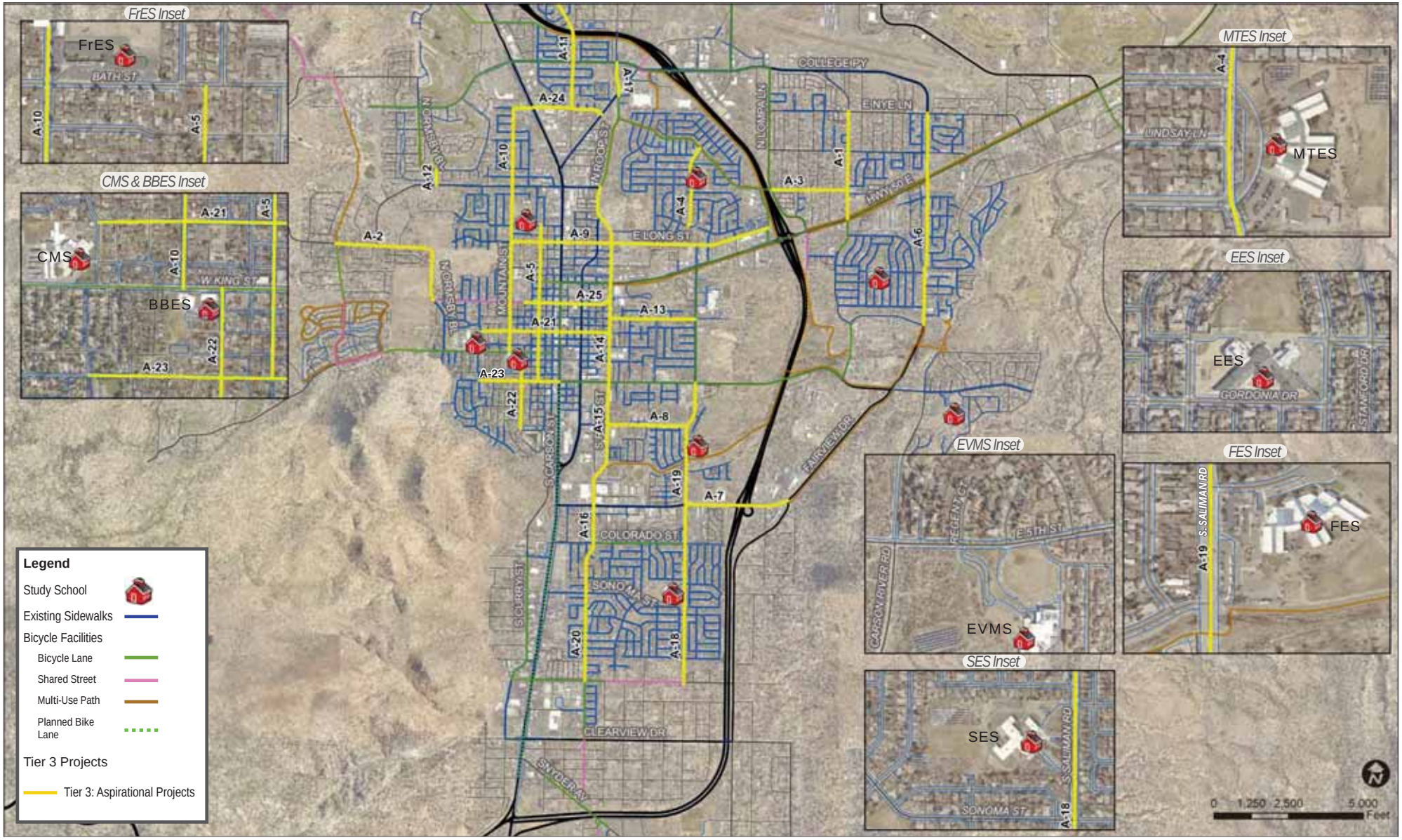


Figure 40. Tier 3 Recommendations at All Study Schools

Recommendations:
School Profiles

Bordewich-Bray Elementary

Focus Areas

The number of students walking and biking to school at Bordewich-Bray Elementary is relatively low compared to other schools around Carson City despite survey responses indicating that BBES staff provide the most encouragement for their students walking and biking than any other school (**Appendix A**). The results of the parent survey and field observations indicate that improving the safety of intersections and crossings and improving the quality and presence of sidewalks are key focus areas for BBES. The two recommendations highlighted below represent the highest priority projects to improve pedestrian and bicyclist safety immediately in front of the school. Together, these two projects would enhance intersection crossings at seven intersections surrounding BBES and close numerous sidewalk gaps.

Exhibit 20. Project **C-7** would improve pedestrian visibility at crosswalks (W. King Street & Mountain Street)

Key Projects

W. King Street (**C-7**)

This near-term project includes enhancements to intersection crossings at four of the busiest intersections for pedestrian activity along W. King Street (Mountain Street, Thompson Street, Minnesota Street, and Division Street). These enhancements would reduce crossing distances for pedestrians and make crosswalks more visible to drivers. This project would also close multiple sidewalk gaps in front of Bordewich-Bray on W. King Street between Curry Street and Ormsby Boulevard. It is recommended that parking on the north side of W. King Street be prohibited between Phillips Street and Iris Street and a buffer between the westbound bike lane and vehicle lane would be striped. As part of this project, it is also recommended that the eastbound bike lane be protected by the parking lane on the south side of the street (similar to **Exhibit 21**). This configuration would ensure that the existing bike lane is free from obstructions during pick-up and drop-off periods, eliminate jaywalking from vehicles parked on the north side of W. King Street, improve pedestrian crossings at Mountain Street, and reduce vehicle speeds throughout the day.

Exhibit 21. Parking protected bike lanes would improve existing crosswalks and bike lanes in front of BBES on W. King Street

Exhibit 22. The Thompson Street & 2nd Street intersection would benefit from reduced crossing distances and slower vehicle speeds through the intersection (**WZ-34**)

Thompson Street (**WZ-34**)

There are multiple pedestrian crossings on Thompson Street, particularly between W. King Street and W. 5th Street. It is recommended that intersection crossing enhancements be installed to help reduce vehicle speeds entering the intersection, make pedestrians more visible to vehicles, and reduce crossing distances. To improve the pedestrian environment along the corridor, this project also includes the closure of numerous existing sidewalk gaps between W. King Street and San Marcus Drive.

Table 8. Tier 1 Recommendations (BBES)

Project Number	Street	Extent (Or Cross Street)	Description	Cost Estimate
Q-6	Cochise Street	150 ft North & South of Overland Street / Cochise Street intersection	Utilize temporary signage to increase awareness of bus stop locations (**ENG-4**)	$
Q-25	Telegraph Street	3 Intersections: Telegraph Street & Mountain Street Telegraph Street & Division Street Telegraph Street & Richmond Avenue	Install marked crosswalk	$

Table 9. Tier 2 Recommendations (BBES)

Project Number	Street	Extent (Or Cross Street)	Description	Cost	Priority Score	Priority Timeframe
C-7	W. King Street	Thames Lane to Curry Street	**A**. Construct multi-use path from Thames Lane to Canyon Park Court or similar multi-modal improvement **B**. Add physical buffer for bike lane at CMS & BBES **C**. Close sidewalk gaps between Curry Street and Ormsby Boulevard **D**. Install intersection crossing enhancements at Tacoma Avenue, Richmond Avenue, Mountain Street, Thompson Street, Minnesota Street, Division Street	$$$$	47	**Near**
WZ-33	Telegraph Street	Richmond Avenue to Mountain Street	Construct sidewalk on south side of roadway to eliminate sidewalk gaps and enhance existing sidewalks, as possible	$$	47	**Near**
WZ-21	Mountain Street	Nye Lane to King Street	**A**. Close sidewalk gaps & enhance existing sidewalk where possible **B**. Add intersection crossing enhancements at Winnie Lane, Bath Street, Long Street, Washington Street, Telegraph Street, Musser Street	$$$$$	42	**Near**
WZ-11	Division Street	Bath Street to W. 5th Street	**A**. Add intersection crossing enhancements at minor side streets **B**. Enhance & upgrade existing crosswalks through-out the corridor including Musser Street, Telegraph Street, and Long Street **C**. Close sidewalk gaps and widen sidewalks as possible	$$$$	38	**Near**
WZ-34	Thompson Street	King Street to 550 ft. S. of San Marcus Drive	**A**. Close sidewalk gaps on east side (King Street to 5th Street) **B**. Close sidewalk gaps on west side (5th Street to San Marcus Drive) **C**. Create intersection crossing enhancements at existing W. 2nd St, W. 3rd St, and W. 4th St crosswalks	$$	38	**Near**
WZ-35	W. 5th Street	Richmond Avenue to Carson Street	**A**. Close sidewalk gaps and enhance existing sidewalk where possible **B**. Add intersection crossing enhancements at Thompson Street & Division Street	$$$$$	36	**Near**
WZ-3	Bath Street	Mountain Street to Carson Street	**A**. Close sidewalk gaps between Curry Street & Mountain Street **B**. Add intersection crossing enhancement (paint or hardscape) at existing mid-block crosswalk and Division Street crosswalks **C**. Add missing & repair damaged ADA Ramps **D**. Repair and enhance existing sidewalks as possible	$$$	34	**Near**
WZ-12	Division Street	5th Street to southern terminus of Division Street	Close sidewalk gaps	$$	31	Medium
WZ-6	Carson Street	Bath Street to 420 ft. N. of Bath Street	Construct sidewalk	$	30	Medium
WZ-20	Long Street	Curry Street to Sierra Circle & Fall Street to Stewart Street	**A**. Close sidewalk gaps (Curry Street to Sierra Circle & Fall Street to Stewart Street) **B**. Crosswalks and intersection enhancements at Division Street, Curry Street, and Marian Avenue	$$$	30	Medium
WZ-26	Roop Street	Winnie Lane to E. 5th Street	**A**. Close sidewalk gaps (Telegraph Street to E. 5th Street) **B**. Enhance existing sidewalks as possible	$$$	29	Medium
C-3	E. 5th Street	Saliman Road to Carson Street	**A**. Enhance existing sidewalks **B**. Widen existing bike lane to 5'	$$$	27	Medium
WZ-27	S. Iris Street	4th Street to King Street	Construct sidewalk	$$$	27	Medium
WZ-23	Musser Street	Richmond Avenue to Winters Drive	Construct sidewalk	$	26	Medium
WZ-25	Robinson Street	Richmond Avenue to Mountain Street	Construct sidewalk	$$	21	Long
WZ-22	Musser Street	Harbin Avenue to Anderson Street	**A**. Close sidewalk gaps **B**. Enhance sidewalk where possible	$$	17	Long

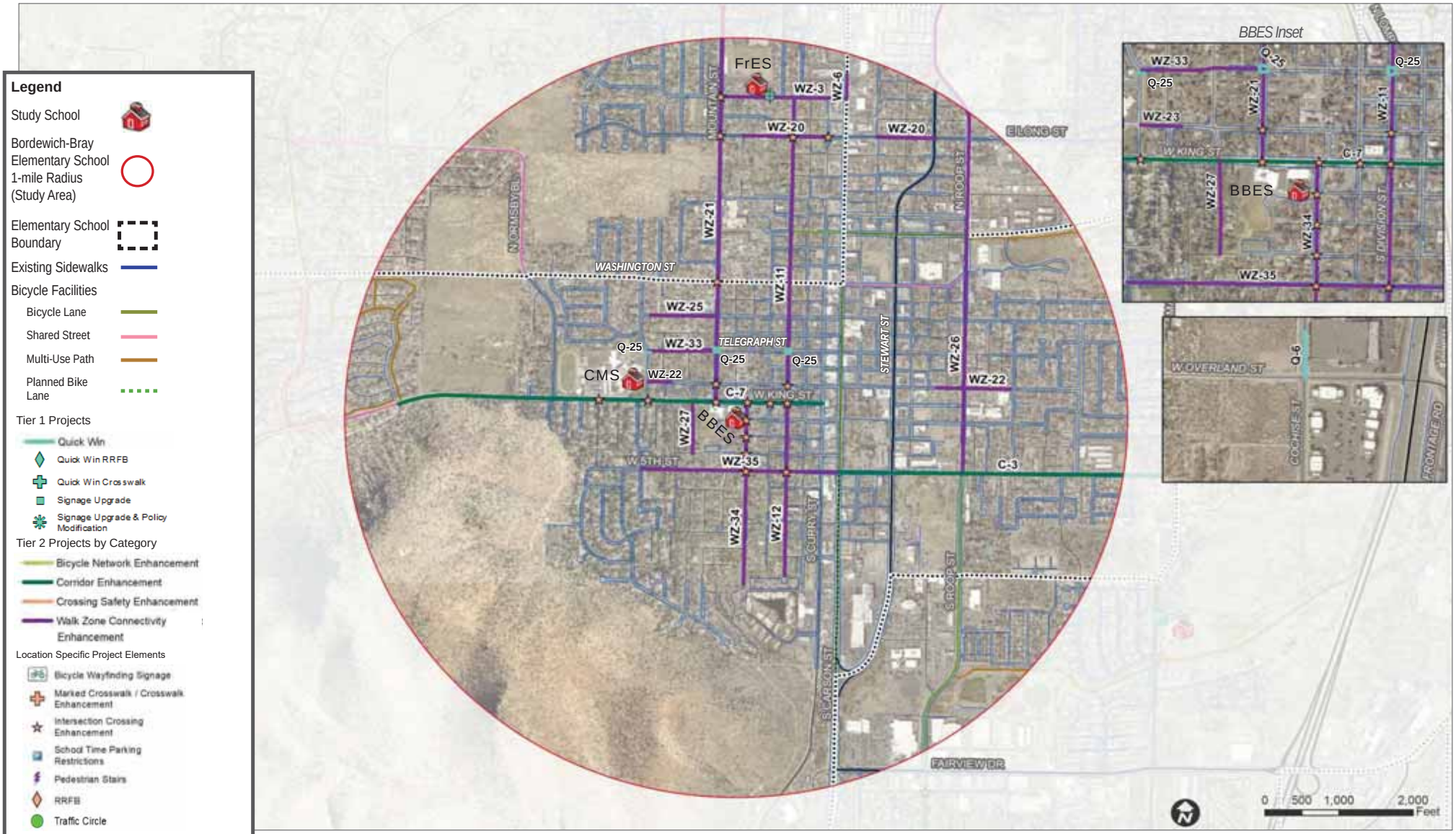


Figure 41. Tier 1 & Tier 2 Recommendations (BBES)

Empire Elementary

Focus Areas

Empire Elementary School (EES) currently has the highest rate of students walking and biking to school of any elementary school included in this study. The existing sidewalk network in the area is nearly completely connected with only a small number of sidewalk gaps throughout the school boundary. The survey results indicate that the two largest concerns for parents letting their child walk or bike to school are the speed of traffic along their route to school and the safety of intersections and crossings. The recommended projects shown in **Table 11** are geared toward addressing these concerns through traffic calming techniques, new Rectangular Rapid Falshing Beacons (RRFBs), and enhancements to existing crosswalks.

Key Projects

Gordonia Avenue (**WZ-16**), Stanton Drive (**WZ-32**), Monte Rosa Drive (**CS-4**)

These three projects work hand in hand to help reduce vehicle speeds and create a safer and more inviting pedestrian environment around the school. Removing vehicle parking on the north side of Gordonia Avenue between Monte Rosa Drive and La Loma Drive would allow for a wide sidewalk to accommodate the large influx of pedestrians during school pick-up and drop-off times. This would also reduce the crossing distance for pedestrians and create a more accommodating pedestrian environment. The addition of a center median on Gordonia Avenue (from Monte Rosa Drive to La Loma Drive) and Stanton Drive (from Monte Rosa Drive to Fairview Drive) would reduce speeds and prevent illegal U-turns within the school zone. Widening the sidewalk on the north side of Stanton Drive would provide additional space for pedestrians and may be utilized by students on bicycles as well. Intersection enhancements on Monte Rosa Drive at the Stanton Drive and Gordonia Avenue intersections would reduce crossing distances for pedestrians and prevent vehicles parking too close to crosswalks and impairing pedestrian visibility.

Exhibit 23. Widening sidewalks on Gordonia Avenue would provide additional space for pedestrians to walk side by side (**WZ-16**)

Fairview Drive (**CS-3**)

This near-term project intends to improve intersection crossing safety at three intersections along Fairview Drive. The intersection enhancement most impactful to EES students includes constructing an RRFB with a marked crosswalk across Fairview Drive south of Walker Drive, and creating a sidewalk connection on the west side of the street from the new RRFB crossing location to the existing sidewalk at the intersection of Fairview Drive and N. Edmonds Drive. Currently, there is no marked crosswalk across Fairview Drive between Gordon Street and Pheasant Drive which are over half a mile apart. Creating a high quality crossing location between these two roadways would reduce the distance a pedestrian must walk to safely cross Fairview Drive from the residential neighborhood located on the east side of Fairview Drive between Quinn Drive and Sweetwater Drive.

Exhibit 24. Fairview Drive at Walker Drive, looking south (**CS-3**)

Table 10. Tier 1 Recommendations (EES)

Project Number	Street	Extent (Or Cross Street)	Description	Cost
Q-24	Siskiyou Drive	Stanton Drive	Install marked crosswalk	$

Table 11. Tier 2 Recommendations (EES)

Project Number	Street	Extent (Or Cross Street)	Description	Cost	Priority Score	Priority Timeframe
CS-4	Monte Rosa Drive	Stanton Drive to Gordonia Avenue	Add intersection crossing enhancements to Stanton Drive & Gordonia Avenue intersections, including striping to prohibit parking close to existing crosswalks	$	45	Near
WZ-16	Gordonia Avenue	Monte Rosa Drive to La Loma Drive	**A.** Widen existing sidewalks on the north side of the roadway **B.** Add center median from Monte Rosa Drive to La Loma Drive	$$	39	Near
WZ-32	Stanton Drive	Monte Rosa Drive to Fairview Drive	Widen existing sidewalk on south side and create center median	$$	39	Near
CS-3	Fairview Drive	Desatoya Drive to Walker Drive	**A.** Install RRFB at Desatoya Drive **B.** Install RRFB with pedestrian refuge island (painted or hardscape) between Walker Drive and Stanton Drive **C.** Construct Sidewalk on the west side of Fairview Drive from Walker Drive to Edmonds Drive **D.** Enhance existing sidewalk on east side from Lepire Drive to multi-use path **E.** Enhance existing sidewalk on west side from Desatoya Drive to multi-use path south of Butti Way	$$	36	Near
WZ-10	Desatoya Avenue	Airport Road to Fairview Drive	Widen sidewalks on south side of roadway	$$	35	Near
C-4	E. 5th Street	Fairview Drive to Mexican Ditch Trail	**A.** Construct bike lanes from Fairview Drive to Carson River Road **B.** Construct buffered bike lane from Carson River Road to Mexican Ditch Trail or similar multi-modal improvement **C.** Add marked crosswalk with pedestrian refuge (painted or hardscape) at Parkhill Drive **D.** Construct pedestrian refuge at Regent Court (painted or hardscape) **E.** Relocate existing crosswalk at Carson River Road & Hells Bells Road approximately 15 feet to the east, add pedestrian refuge Island (painted or hardscape) and RRFB	$$	34	Near
C-1	Airport Road	Butti Way to E. 5th Street	A. Construct bike lane from Butti Way to Highway 50 B. Add intersection crossing enhancements at Airport Road / Douglas Drive and Airport Road / Menlo Drive	$$	31	Medium
WZ-19	Lepire Drive	Snake Mountain Multi-use path to Cassidy Court	Construct sidewalk from Snake Mountain multi-use path to the existing sidewalk on the north side of Lepire Drive	$$	26	Medium
C-2	Carmine Street	Airport Road to Lompa Lane	**A**. Traffic Circle at Dori Way & Carmine Street **B**. Close sidewalk gaps between Airport Road & Dori Way **C**. Intersection crossing enhancements at Dori Way, Lompa Lane, and Airport Road	$$$	25	Medium
WZ-1	Airport Road	Nye Lane to Highway 50	**A**. Close sidewalk gaps **B**. Enhance existing sidewalk as possible	$$$$	23	Medium
B-2	E. 5th Street	Saliman Road to I-580	Construct multi-use path or separated facility with connection to existing multi-use path on either side of I-580	$$$	19	Long
WZ-14	N. Edmonds Drive	320 ft N. of Reeves Street to 100 ft N. Brown Street	Construct sidewalk on west side of roadway	$$	18	Long
WZ-4	Brown Street	420 ft. N. of Reeves Street to 170 ft. S. of Reeves Street	Construct sidewalk	$$	17	Long
WZ-30	Sherman Lane	Lompa Lane to Chanel Lane	Construct sidewalk	$$$$$	17	Long
WZ-31	Stampede Drive	Gregg Street East to Existing Sidewalk	Construct sidewalk on south side corner to existing sidewalk	$$	14	Long

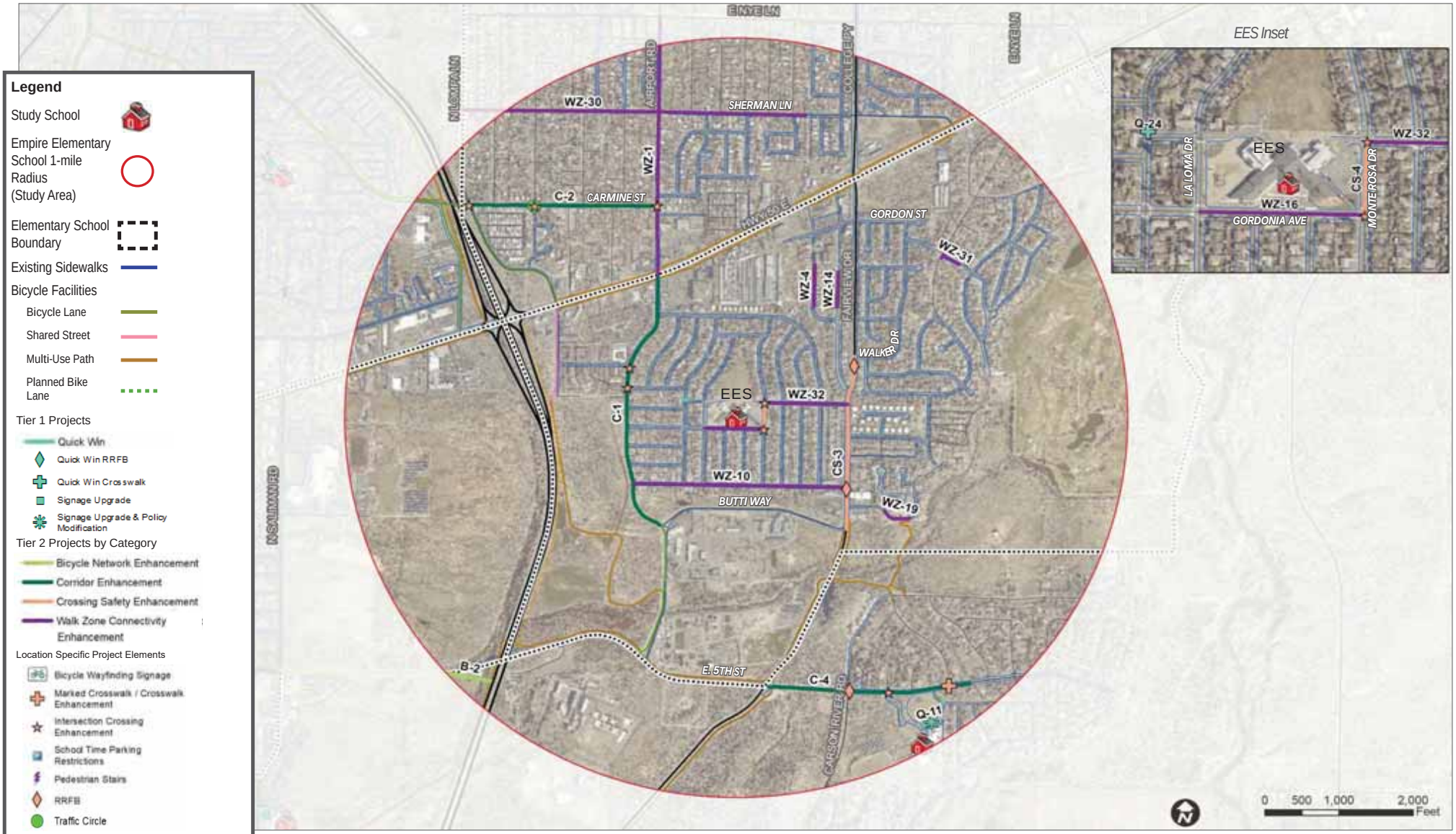


Figure 42. Tier 1 & Tier 2 Recommendations (EES)

Fremont Elementary

Focus Areas

Due to the current Fremont Elementary School (FES) boundary, the proportion of Fremont students who are within a walkable or bikeable distance is low. With a majority of students being driven by a parent or using the school bus, a special emphasis was placed on improving safe access to bus stops for FES students. These projects (**Q-16**, **Q-18**, **Q-21**, **Q-23**, and **C-5**) would help enhance driver awareness of students and improve access at up to 15 current Fremont bus stops. With a large number of students being driven by a parent, the single vehicle access to FES from Firebox Road is frequently congested. This is due in large part to vehicles turning left out of Firebox Road despite efforts from staff and the existing signage prohibiting this movement. A combination of "No Left Out" in-road signage (**Q-22**) and increased engagement (**ENG-1**) may help reduce this issue. Parents wanting to travel south on Saliman Road following pick-up or drop-off of students would need to take an alternative route or may park on Cardinal Way and walk to the school via the two crosswalks on Saliman Road.

Key Projects

Saliman Road (**Q-22**)

The existing crosswalk that connects the California Trail on either side of Saliman Road experiences a large number of pedestrian crossings throughout the day, particularly around the pick-up and drop-off times at FES. A high quality crossing enhancement, such as an RRFB, would improve crossing safety for students and local residents alike. Due to the location and low cost of this project, this RRFB could be installed in a relatively short period of time and is designated as a Tier 1 Project.

Exhibit 25. Saliman Road at the existing crosswalk south of Cardinal Way (**Q-22**)

Saliman Road (**WZ-29**)

Although the current number of students walking and biking to FES is low, this near-term project anticipates the impact of future development in the area and the need to accommodate a large number of students walking and biking to school. Constructing a wider sidewalk throughout the corridor would make the pedestrian environment more inviting by increasing the distance between vehicles and pedestrians traveling along Saliman Road.

Exhibit 26. Existing stormwater spillway to be traversed by recommended pedestrian bridge (**WZ-24**)

Highlighted Project

Reavis Lane (**WZ-24**)

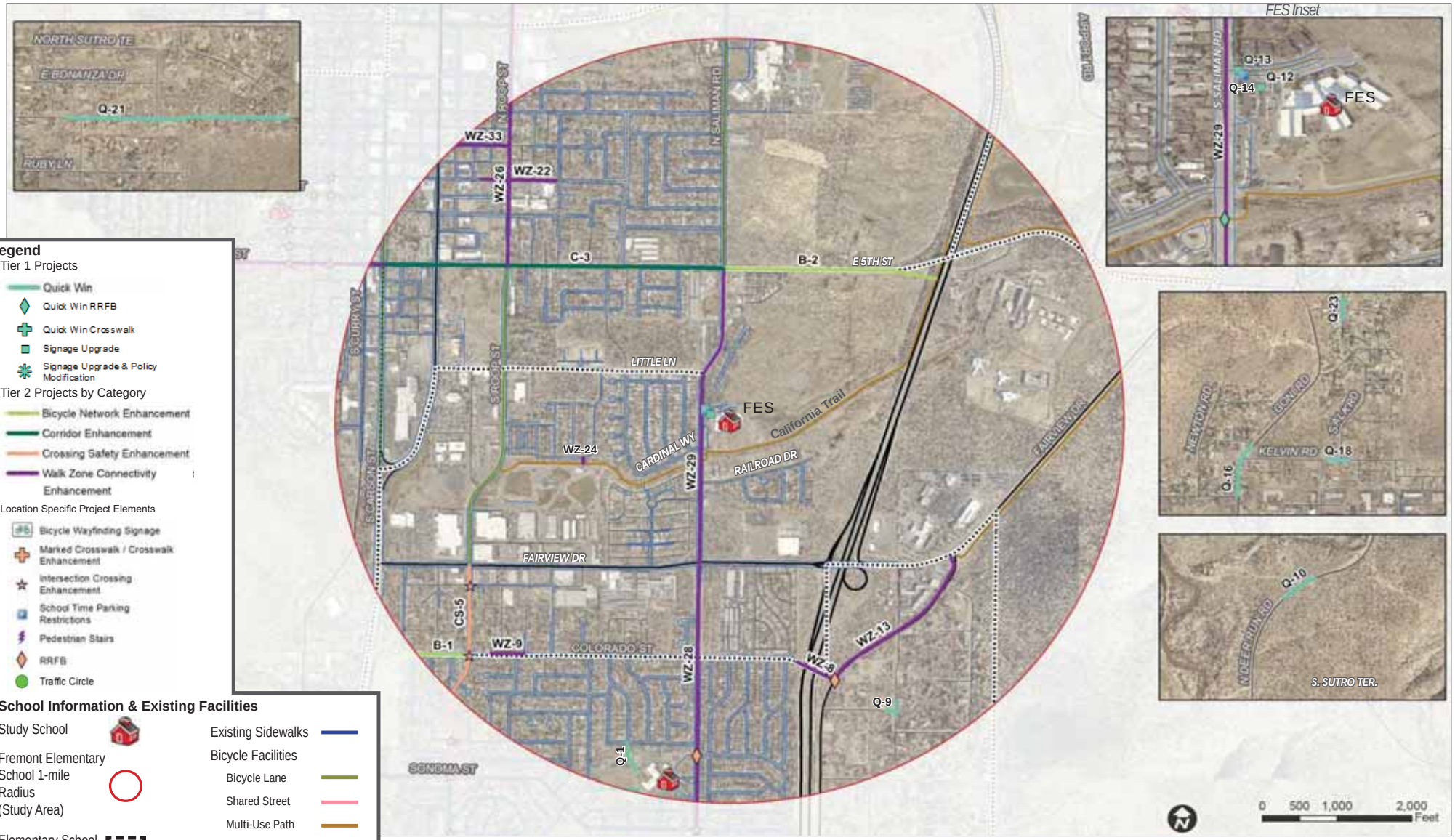
The existing multi-use path (California Trail) connecting Roop Street to Saliman Road is located on the south side of an existing stormwater spillway. Residents on the north side of the spillway do not have an easy way to access the California Trail or FES without significant out of direction travel. A multi-use bridge over the spillway would create a more connected pedestrian network in the Fremont area and would reduce walking distances for students.

Table 12. Tier 1 Recommendations (FES)

Project Number	Street	Extent (Or Cross Street)	Description	Cost
Q-10	Deer Run Road	150 feet on either side of Deer Run Road / BLM Access (located 2,150 feet south of Brunswick Canyon Road)	Utilize temporary signage to increase awareness of bus stop locations (**ENG-4**)	$
Q-12	FES Drop Off Loop	At existing temporary "Single Lane Pick-Up" sign	Install permanent sign	$
Q-13	Firebox Road	At Saliman Road	Install in-road message sign stating "No Left-Out"	$
Q-14	Firebox Road	At Saliman Road	Update existing red curb along Firebox Road to be more visible	$
Q-16	Goni Road	Jefferson Dr to Franklin Rd	Utilize temporary signage to increase awareness of bus stop locations (**ENG-4**)	$
Q-18	Kelvin Road	200 Ft east and west of Kelvin Road / Salk Road intersection	Utilize temporary signage to increase awareness of bus stop locations (**ENG-4**)	$
Q-21	S. Sutro Street	Bryce Drive to Emerson Drive	Utilize temporary signage to increase awareness of bus stop locations (**ENG-4**)	$
Q-22	Saliman Road	Cardinal Way to Firebox Road	Install RRFB at existing crosswalk south of Cardinal Way	$
Q-23	Salk Rd	150 ft North & South of Avery Rd	Utilize temporary signage to increase awareness of bus stop locations (**ENG-4**)	$

Table 13. Tier 2 Recommendations (FES)

Project Number	Street	Extent (Or Cross Street)	Description	Cost	Priority Score	Priority Timeframe
WZ-33	Telegraph Street	Richmond Avenue to Mountain Street	Construct sidewalk on south side of roadway to eliminate sidewalk gaps and enhance existing sidewalks, as possible	$$	47	**Near**
WZ-28	Saliman Road	Fairview Drive to Koontz Lane	**A.** Intersection crossing enhancements at Sonoma Street **B.** RRFB at Damon Road crosswalk **C.** Sidewalk east side Colorado Street to Fairview Drive **D.** Enhance existing sidewalk as possible	$$$	43	**Near**
WZ-29	Saliman Road	E. 5th Street to Fairview Drive	Enhance existing sidewalk as possible	$$	43	**Near**
WZ-26	Roop Street	Winnie Lane to E. 5th Street	**A.** Close sidewalk gaps (Telegraph Street to E. 5th Street) **B.** Enhance existing sidewalks as possible	$$$	29	Medium
C-3	E. 5th Street	Saliman Road to Carson Street	**A.** Enhance existing sidewalks **B.** Widen existing bike lane to 5'	$$$	27	Medium
B-1	Colorado Street	Carson Street to Roop Street	Construct buffered bike lanes from Carson Street to existing bike lanes or similar multi-modal improvement	$	23	Medium
WZ-13	S. Edmonds Drive	Fairview Drive to Colorado Street Bridge	Construct multi-use path on west/north side to connect to existing path	$$	22	Medium
WZ-8	Colorado Street	Colorado Terminus to Edmonds Drive	**A.** Construct multi-use bridge over I-580 from the Colorado Street terminus to Edmonds Drive **B.** Marked crosswalk with RRFB at Colorado Street & Edmonds Drive intersection	$$$$$$	20	Long
B-2	E. 5th Street	Saliman Road to I-580	Construct multi-use path or separated facility with connection to existing multi-use path on either side of I-580	$$$	19	Long
WZ-24	Reavis Lane	Create Pedestrian Connection to Multi-Use Path	Construct multi-use bridge between existing multi-use trail and sidewalk on south side of Reavis Lane	$$	18	Long
CS-5	Roop Street/Silver Sage Drive	Fairview Drive to Sonoma Avenue	Add intersection crossing enhancements at minor side-street approaches south of Fairview Drive	$$	17	Long
WZ-22	Musser Street	Harbin Avenue to Anderson Street	**A.** Close sidewalk gaps **B.** Enhance sidewalk where possible	$$	17	Long
WZ-9	Colorado Street	Birch Street to 125 ft W. of Utah Street	Construct sidewalk on north side of roadway	$$	15	Long



Legend

Tier 1 Projects
- Quick Win
- Quick Win RRFB
- Quick Win Crosswalk
- Signage Upgrade
- Signage Upgrade & Policy Modification

Tier 2 Projects by Category
- Bicycle Network Enhancement
- Corridor Enhancement
- Crossing Safety Enhancement
- Walk Zone Connectivity Enhancement

Location Specific Project Elements
- Bicycle Wayfinding Signage
- Marked Crosswalk / Crosswalk Enhancement
- Intersection Crossing Enhancement
- School Time Parking Restrictions
- Pedestrian Stairs
- RRFB
- Traffic Circle

School Information & Existing Facilities
- Study School
- Fremont Elementary School 1-mile Radius (Study Area)
- Elementary School Boundary
- Existing Sidewalks
- Bicycle Facilities
  - Bicycle Lane
  - Shared Street
  - Multi-Use Path
  - Planned Bike Lane

Figure 43. Tier 1 & Tier 2 Recommendations (FES)

Fritsch Elementary

Focus Areas

The three most common factors Fritsch ES (FrES) parents identified in the survey which would improve walking & biking to school are improving the safety of intersections & crossings (30%), reducing traffic speeds along routes to school (27%), and improving sidewalks & pathways (22%). These three focus areas comprise nearly 80 percent of the responses from FrES and are therefore the focus of a majority of the recommendations benefiting the school. The key projects highlighted below are all near-term projects that would provide a significant improvement to the pedestrian network in the FrES boundary. Additionally, multiple Quick Win projects have been identified that could improve safety for pedestrians through increased driver awareness at bus stops (**Table 14**).

Key Projects

Bath Street (**WZ-3**)

Bath Street provides access to the front door of the Fritsch Elementary School building. The existing sidewalk along Bath Street is in poor condition with gaps in many locations. A significant portion of students walk along Bath Street to access FrES (even those in private vehicles), therefore focusing improvements on this roadway would benefit a large number of students. This near-term project includes intersection crossing enhancements at the existing mid-block crosswalk in front of the school and at the Division Street intersection. The Bath Street / Moutain Street intersection is addressed by the Mountain Street project (**WZ-21**). The existing sidewalk width along Bath Street does not allow for multiple pedestrians to pass each other easily. During student pick-up and drop-off periods the influx of pedestrians in the area can create sidewalk congestion. It is recommended that the existing sidewalks be widened to the extent possible and new sidewalks be constructed to the maximum possible width to fill existing gaps.

Division Street (**WZ-11**)

Division Street is a primary north-south connection for students south of Bath Street and east of Mountain Street. This near-term project addresses the existing sidewalk gaps along Division Street, while also enhancing crosswalks at Musser Street, Telegraph Street, Long Street, and all other minor side streets and at Musser Street, Telegraph Street, and Long Street. This project also recommends widening the existing sidewalk to the extent possible throughout the corridor in order to improve the existing pedestrian environment and allow for pedestrian passing zones throughout the corridor.

Exhibit 27. Existing sidewalk gaps on Division Street south of Bath Street would be address by project **WZ-11**

Mountain Street (**WZ-21**)

Mountain Street is the primary north-south corridor through the FrES boundary. This near-term project addresses existing intersection safety and sidewalk gap concerns throughout the corridor. The intersections of six well utilized east-west corridors (Winnie Lane, Bath Street, Long Street, Washington Street, Telegraph Street, and Musser Street) would be enhanced with intersection crossing treatments intended to increase pedestrian visibility, reduce crossing distances, and reduce vehicle speeds entering and exiting the intersection.

Exhibit 28. School crossing-guard assisting children to cross at the intersection of Bath Street & Mountain Street (**WZ-21**)

Table 14. Tier 1 Recommendations (FrES)

Project Number	Street	Extent (Or Cross Street)	Description	Cost
Q-3	Bath Street	At FrES Parent Drop-Off Loop Exit	Extend existing red curb by 20 feet to the east	$
Q-4	Bonanza Drive	W. Sutro Terrace to Manzanita Terrace	Utilize temporary signage to increase awareness of bus stop locations (**ENG-4**)	$
Q-7	Combs Canyon Road	Lakeview Road to Meadowood Road	Utilize temporary signage to increase awareness of bus stop locations (**ENG-4**)	$
Q-8	Combs Canyon Road	Harvard Drive to Dartmouth Drive	Utilize temporary signage to increase awareness of bus stop locations (**ENG-4**)	$
Q-19	Prospect Drive	Timberline Drive to Lotus Circle	Utilize temporary signage to increase awareness of bus stop locations (**ENG-4**)	$
Q-26	Timberline Drive	Prospect Drive to 100 ft East of Westwood Drive	Utilize temporary signage to increase awareness of bus stop locations (**ENG-4**)	$

Table 15. Tier 2 Recommendations (FrES)

Project Number	Street	Extent (Or Cross Street)	Description	Cost	Priority Score	Priority Timeframe
WZ-33	Telegraph Street	Richmond Avenue to Mountain Street	Construct sidewalk on south side of roadway to eliminate sidewalk gaps and enhance existing sidewalks, as possible	$$	47	Near
WZ-21	Mountain Street	Nye Lane to King Street	**A**. Close sidewalk gaps & enhance existing sidewalk where possible **B**. Add intersection crossing enhancements at Winnie Lane, Bath Street, Long Street, Washington Street, Telegraph Street, Musser Street	$$$$$	42	Near
WZ-11	Division Street	Bath Street to W. 5th Street	**A**. Add intersection crossing enhancements at minor side streets **B**. Enhance & upgrade existing crosswalks through-out the corridor including Musser Street, Telegraph Street, and Long Street **C**. Close sidewalk gaps and widen sidewalks as possible	$$$$	38	Near
WZ-3	Bath Street	Mountain Street to Carson Street	**A**. Close sidewalk gaps between Curry Street & Mountain Street **B**. Add intersection crossing enhancement (paint or hardscape) at existing mid-block crosswalk and Division Street crosswalks **C**. Add missing & repair damaged ADA Ramps **D**. Repair and enhance existing sidewalks as possible	$$$	34	Near
WZ-36	Winnie Lane	Carson Street to Mountain Street	Enhance existing sidewalks as possible	$$	34	Near
C-8	Winnie Lane	Mountain Street to Ormsby Blvd	**A.** Enhance existing sidewalks where possible **B.** Add bike lanes from Mountain Street to Ormsby Boulvard **C.** Add wayfinding signage at Victoria Avenue directing bicyclists towards the multi-use path on north side **D.** Enhance crosswalks at Ormsby Boulevard, Mountain Street, and Victoria Avenue **E.** Enhance street lighting at Mountain Street and Winnie Lane **F.** Remove overgrown vegetation to improve visibility	$$	33	Medium
WZ-6	Carson Street	Bath Street to 420 ft. N. of Bath Street	Construct sidewalk	$	30	Medium
WZ-20	Long Street	Curry Street to Sierra Circle & Fall Street to Stewart Street	**A**. Close sidewalk gaps (Curry Street to Sierra Circle & Fall Street to Stewart Street) **B**. Crosswalks and intersection enhancements at Division Street, Curry Street, and Marian Avenue	$$$	30	Medium
B-3	Winnie Lane	Carson Street to Roop Street	Construct buffered bike lanes from Carson Street to Roop Street or similar multi-modal improvement	$	29	Medium
WZ-26	Roop Street	Winnie Lane to E. 5th Street	**A**. Close sidewalk gaps (Telegraph Street to E. 5th Street) **B**. Enhance existing sidewalks as possible	$$$	29	Medium
WZ-23	Musser Street	Richmond Avenue to Winters Drive	Construct sidewalk	$	26	Medium
CS-2	Carson Street	Nye Lane	Construct RRFB and associated crossing enhancements or alternatively a traffic signal	$$	23	Medium
WZ-37	Winnie Lane	Ash Canyon Road to Ormsby Blvd	Extend multi-use path on north side to Ash Canyon Road	$$	21	Medium
WZ-25	Robinson Street	Richmond Avenue to Mountain Street	Construct sidewalk	$$	21	Long
WZ-22	Musser Street	Harbin Avenue to Anderson Street	**A**. Close sidewalk gaps **B**. Enhance sidewalk where possible	$$	17	Long

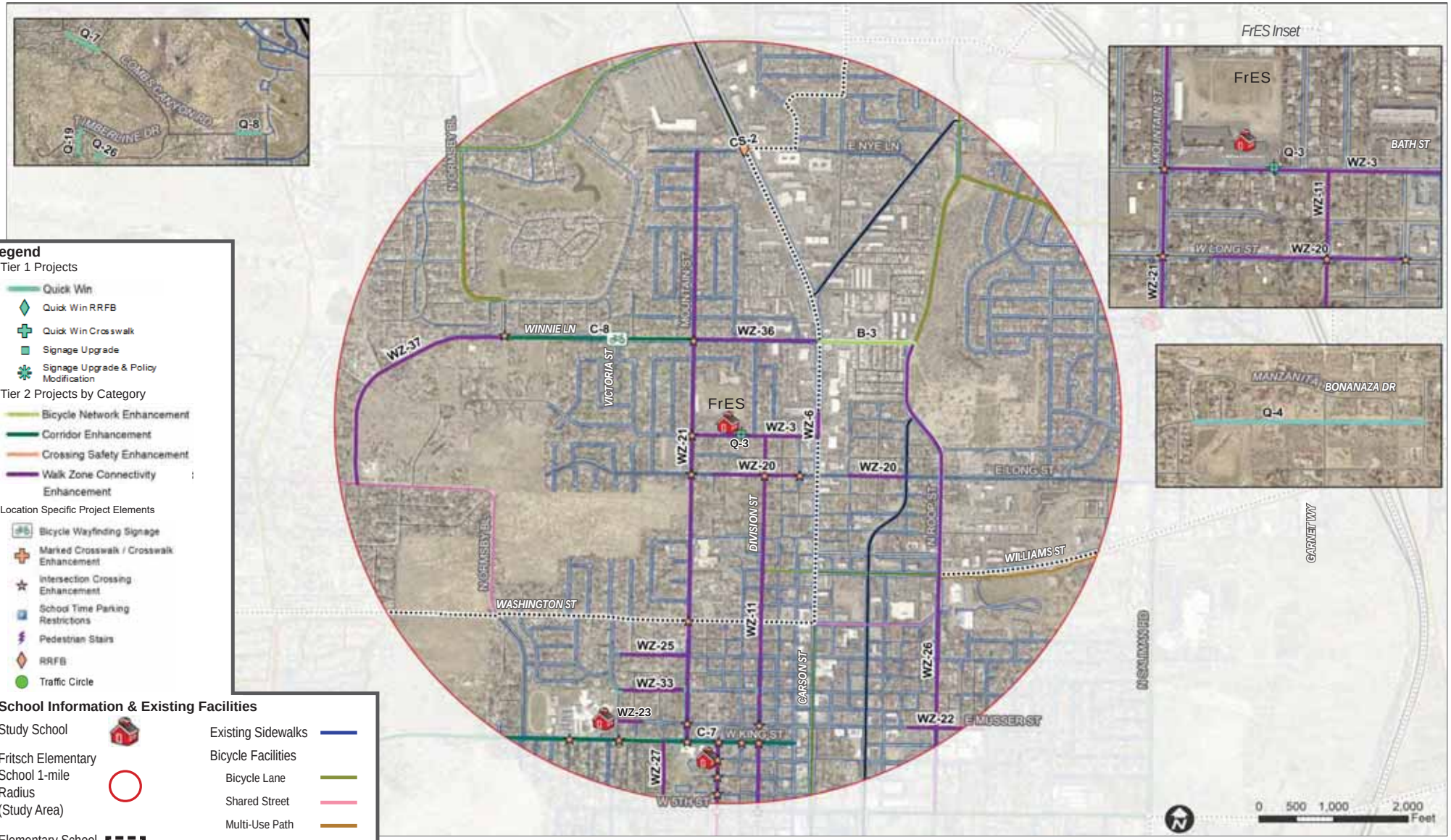


Figure 44. Tier 1 & Tier 2 Recommendations (FrES)

Mark Twain Elementary

Focus Areas

Mark Twain Elementary School (MTES) currently has a high level of students walking and biking to school (approximately 39%). This is due to the high-quality pedestrian network and low speed residential streets throughout the majority of the boundary. The survey results indicate that the primary concerns for parents are the safety of intersections & crossings (42%) and the speed of vehicles along routes to school (27%). Based on this data and site observations, recommendations were primarily focused on addressing these two concerns with an emphasis on Carriage Crest Drive.

Key Project

Carriage Crest Drive (**CS-1**)

Carriage Crest Drive is typically congested with vehicles during normal pick-up and drop-off periods. Parents waiting to pull into the pick-up area in front of the school queue in both directions on Carriage Crest Drive and also on eastbound Mountain Park Drive. This is due in part to drivers making left-turns out of the pick-up area despite existing signage prohibiting that movement. Relocating the existing signage (**Q-5**) and adding a center median island on Carriage Crest Drive would discourage vehicles from turning left out of the pick-up area and making U-turns on Carriage Crest Drive in the school zone. Additionally, a center median island may help reduce vehicle speeds through the area during all hours of the day. Intersection enhancements that reduce pedestrian crossing distances, increase pedestrian visibility, and reduce vehicle speeds would be constructed at the Mountain Park Drive and Slide Mountain Drive intersections as part of this project. Restricting parking on the east side of Carriage Crest Drive during school pick-up times or throughout the day would reduce the potential for collisions between northbound traffic and vehicles leaving a parking space. The combination of this near-term project with the proposed Engineering School Safety (**ENG-1** in Programmatic Projects) would provide a significant benefit to pedestrian safety and speed reduction in this school speed zone.

Exhibit 29. Carriage Crest Drive congestion at the entrance of the school during pick-up and drop-off creates an increased potential for crashes throughout the school zone (**CS-1**)

Exhibit 30. Intersection crossing enhancements (**CS-1**) would improve pedestrian visibility at two intersections immediately in front of MTES, including at Slide Mountain Drive (shown here)

Project Number	Street	Extent (Or Cross Street)	Description	Cost
Q-5	Carriage Crest Drive	At MTES Parent Drop Off Exit	Relocate existing "No Left-Out" signage to more visible location	$

Table 16. Tier 1 Recommendations (MTES)

Highlighted Project

Camille Drive (**WZ-5**)

The pedestrian network surrounding Mark Twain Elementary is generally well connected, however, it follows the roadway network with no exclusive pedestrian routes. An exclusive pedestrian connection between the Camille Drive cul-de-sac and Sunland Drive would improve the pedestrian experience and create additional pedestrian connections and access to Sunland Vista Park, a great community resource.

Exhibit 31. (Left) Map of project location; (Right) the current pedestrian access connection Camille Drive / Sunland Drive to the Camille Drive cul-de-sac

Table 17. Tier 2 Recommendations (MTES)

Project Number	Street	Extent (Or Cross Street)	Description	Cost	Priority Score	Priority Timeframe
CS-1	Carriage Crest Drive	Slide Mountain Drive to Mountain Park Drive	**A.** Add intersection crossing enhancements at Mountain Park Drive and Slide Mountain Drive intersections **B.** Add center median from 70' south of Slide Mountain Drive to Parent Drop-Off Loop entrance **C.** Consider parking restrictions or removal on Carriage Crest Drive during school pick-up and drop-off periods	$$	39	**Near**
WZ-3	Bath Street	Mountain Street to Carson Street	**A.** Close sidewalk gaps between Curry Street & Mountain Street **B.** Add intersection crossing enhancement (paint or hardscape) at existing mid-block crosswalk and Division Street crosswalks **C.** Add missing & repair damaged ADA Ramps **D.** Repair and enhance existing sidewalks as possible	$$$	34	**Near**
WZ-36	Winnie Lane	Carson Street to Mountain Street	Enhance existing sidewalks as possible	$$	34	**Near**
C-1	Airport Road	Butti Way to E. 5th Street	**A.** Construct bike lane from Butti Way to Highway 50 **B.** Add intersection crossing enhancements at Airport Road / Douglas Drive and Airport Road / Menlo Drive	$$	31	Medium
WZ-6	Carson Street	Bath Street to 420 ft. N. of Bath Street	Construct sidewalk	$	30	Medium
WZ-20	Long Street	Curry Street to Sierra Circle & Fall Street to Stewart Street	**A.** Close sidewalk gaps (Curry Street to Sierra Circle & Fall Street to Stewart Street) **B.** Crosswalks and intersection enhancements at Division Street, Curry Street, and Marian Avenue	$$$	30	Medium
B-3	Winnie Lane	Carson Street to Roop Street	Construct buffered bike lanes from Carson Street to Roop Street or similar multi-modal improvement	$	29	Medium
WZ-26	Roop Street	Winnie Lane to E. 5th Street	**A.** Close sidewalk gaps (Telegraph Street to E. 5th Street) **B.** Enhance existing sidewalks as possible	$$$	29	Medium
C-2	Carmine Street	Airport Road to Lompa Lane	**A.** Traffic Circle at Dori Way & Carmine Street **B.** Close sidewalk gaps between Airport Road & Dori Way **C.** Intersection crossing enhancements at Dori Way, Lompa Lane, and Airport Road	$$$	25	Medium
WZ-1	Airport Road	Nye Lane to Highway 50	**A.** Close sidewalk gaps **B.** Enhance existing sidewalk as possible	$$$$	23	Medium
C-5	Nye Lane	Lompa Lane to Highway 50	Construct bike lanes & close sidewalk gaps	$$$$$$	21	Long
WZ-5	Camille Drive	Sunland Drive	Install staircase and ramp for multi-use connectivity	$$	18	Long
WZ-30	Sherman Lane	Lompa Lane to Chanel Lane	Construct sidewalk	$$$$$	17	Long

Figure 45. Tier 1 & Tier 2 Recommendations (MTES)

Seeliger Elementary

Focus Areas

The Seeliger Elementary School (SES) boundary comprises two distinct residential neighborhood types which vary not only in aesthetic qualities but in pedestrian & bicycle amenities. The neighborhood south of Kingsley Lane and east of Silver Sage Drive, as well as the neighborhood east of I-580 generally lack sidewalks and are more rural in nature. Recommendations for this portion of the SES walk zone strive to provide safe and comfortable facilities to accommodate pedestrian traffic while reducing costs and maintaining a rural aesthetic. Parent survey results indicate that the safety of intersections and crossings (31%) and traffic speeds along routes to school (24%) were the highest-ranking safety concerns for walking and biking to school. Recommendations are focused on these specific concerns and include pedestrian activated flashers and intersection crossing enhancements that are intended to reduce vehicle speeds along the corridor and through intersections while improving pedestrian visibility and safety.

Key Projects

Saliman Road (**WZ-28**)

As shown in the existing conditions chapter (**Figure 27**), a significant portion of pedestrians and bicyclists utilize the Damon Road crosswalk during school pick-up and drop-off periods. Outside of these periods, this is also a major pedestrian crossing for residents between Colorado Street and Sonoma Street. The addition of a Rectangular Rapid Flashing Beacon (RRFB) would help increase pedestrian visibility throughout the day at this well utilized crosswalk. This project also includes intersection crossing enhancements at the Saliman Road / Sonoma Street intersection that would reduce pedestrian crossing distances, increase pedestrian visibility, and reduce vehicle speeds at the intersection. Increasing sidewalk widths throughout the corridor would provide additional space for pedestrians to comfortably walk side by side and create a more welcoming pedestrian environment (**Exhibit 32**).

Exhibit 32. It is recommended that sidewalks on Saliman Road (**WZ-28**) be widen.

Sonoma Avenue (**C-6**)

This project includes the addition of standard bike lanes on Sonoma Street to provide a dedicated space for bicyclists on the roadway. This would enhance the existing bicycle network and improve the safety for bicyclists. Intersection crossing enhancements are also recommended to reduce crossing distances, improve pedestrian visibility, and reduce vehicle speeds at the Sonoma Street / Silver Sage Drive intersection.

Highlighted Project

Silver Sage Drive (**CS-6**)

Silver Sage Drive is a major north-south roadway through the SES school boundary. Currently the nearest marked crosswalks across Silver Sage Drive are located at the intersections of Sonoma Street and Koontz Lane, which are just over half a mile apart. The addition of a marked crosswalk at Pioche Street is recommended to reduce the distance between crosswalks to just over one quarter mile. Intersection crossing enhancements are also recommended to reduce crossing distances and vehicle speeds through minor street intersections along Silver Sage Drive.

Table 18. Tier 1 Recommendations (ASES)

Project Number	Street	Extent (Or Cross Street)	Description	Cost
Q-1	Seeliger Paths	Footpaths to Seeliger Elementary School from: Cortez Street, Schell Avenue, and off Shady Oak Drive	Repave paths and extend pavement to school grounds	$
Q-2	Appion Way	150 ft East & West of Muldoon Street	Utilize temporary signage to increase awareness of bus stop locations (**ENG-4**)	$
Q-9	De Ann Drive / Lompa Lane	150 ft on all sides of De Ann Drive / Lompa Lane Intersection	Utilize temporary signage to increase awareness of bus stop locations (**ENG-4**)	$
Q-15	Gentry Lane	200 ft South of Heidi Circle	Utilize temporary signage to increase awareness of bus stop locations (**ENG-4**)	$
Q-20	Rabe Way	400 ft West of Coffey Drive & 150 ft. East of Parker Drive	Utilize temporary signage to increase awareness of bus stop locations (**ENG-4**)	$

Table 19. Tier 2 Recommendations (ASES)

Project Number	Street	Extent (Or Cross Street)	Description	Cost	Priority Score	Priority Timeframe
WZ-28	Saliman Road	Fairview Drive to Koontz Lane	**A**. Intersection crossing enhancements at Sonoma Street **B**. RRFB at Damon Road crosswalk **C**. Sidewalk east side Colorado Street to Fairview Drive **D**. Enhance existing sidewalk as possible	$$$	43	**Near**
WZ-29	Saliman Road	E. 5th Street to Fairview Drive	Enhance existing sidewalk as possible	$$	43	**Near**
C-6	Sonoma Street	Carson Street to Saliman Road	**A.** Construct bike lanes or similar multi-modal improvement **B.** Add intersection crossing enhancement at Silver Sage Drive	$	36	**Near**
B-1	Colorado Street	Carson Street to Roop Street	Construct buffered bike lanes from Carson Street to existing bike lanes or similar multi-modal improvement	$	23	Medium
WZ-13	S. Edmonds Drive	Fairview Drive to Colorado Street Bridge	Construct multi-use path on west/north side to connect to existing path	$$	22	Medium
WZ-17	Hillview Drive	Kingsley Lane to Clearview Drive	Construct paved shoulder or multi-use path to connect with existing multi-use path on Saliman Road at Kingsley Lane	$$	21	Long
WZ-8	Colorado Street	Colorado Terminus to Edmonds Drive	**A.** Construct multi-use bridge over I-580 from the Colorado Street terminus to Edmonds Drive **B.** Marked crosswalk with RRFB at Colorado Street & Edmonds Drive intersection	$$$$$$	20	Long
WZ-24	Reavis Lane	Create Pedestrian Connection to Multi-Use Path	Construct multi-use bridge between existing multi-use trail and sidewalk on south side of Reavis Lane	$$	18	Long
CS-5	Roop Street/Silver Sage Drive	Fairview Drive to Sonoma Avenue	Add intersection crossing enhancements at minor side-street approaches south of Fairview Drive	$$	17	Long
WZ-7	Clearview Drive	Oak Street to I-580	Construct paved shoulder for bikes/pedestrians/bus stop accessibility	$$	16	Long
WZ-9	Colorado Street	Birch Street to 125 ft W. of Utah Street	Construct sidewalk on north side of roadway	$$	15	Long
WZ-18	Koontz Lane	Center Drive to I-580	Construct paved shoulder for bikes/pedestrians/bus stop accessibility	$$$	15	Long
CS-6	Silver Sage Drive	Sonoma Avenue to Koontz Lane	**A**. Add crosswalk at Pioche Street **B.** Add intersection crossing enhancements at Koontz Lane intersection and minor side-street approaches between Koontz Lane & Sonoma Avenue	$$$	11	Long
WZ-2	Baker Drive	Koontz Lane to 175 ft. S. of Kerinne Circle	Construct sidewalk	$$	9	Long

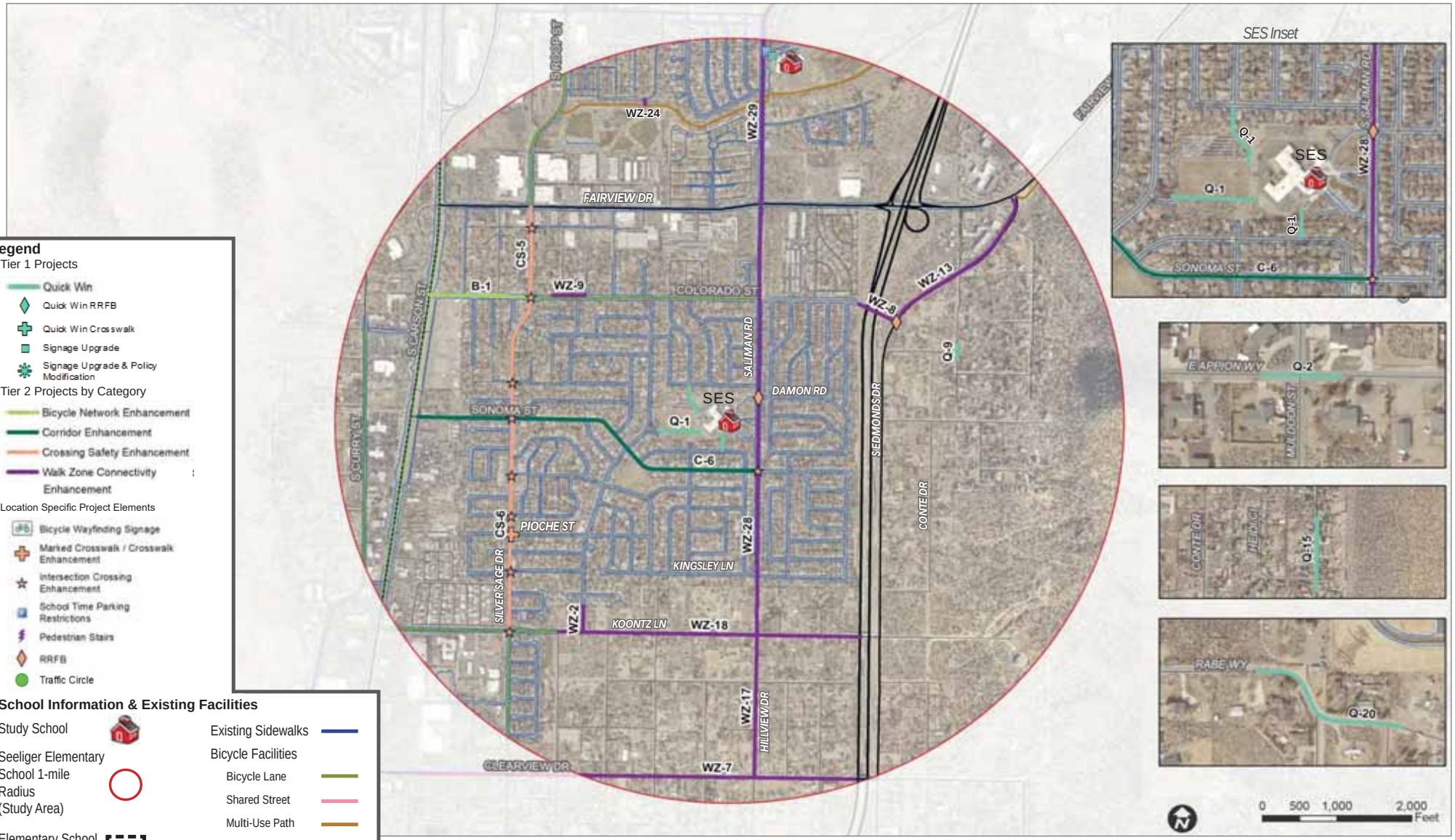


Figure 46. Tier 1 & Tier 2 Recommendations (SES)

Carson Middle

Focus Areas

Recommendations for Carson Middle School are focused on improving sidewalks and pathways and improving the safety of intersections and crossings. Additionally, concerns regarding access to school bus stop locations expressed by school staff resulted in a number of Quick Win projects which are focused on increasing driver awareness of school children at ten current Carson Middle School bus stop locations.

The number of recommendations reflect the fact that Carson Middle School has the largest student body and its' school boundary covers the largest portion of the Carson City urban area. As middle school boundaries change with the anticipated expansion of Eagle Valley Middle School, projects identified under Carson Middle School may fall under the updated Eagle Valley Middle School boundary.

Key Project

W. King Street (**C-7**)

This project would benefit students at Carson Middle School and Bordewich-Bray Elementary School simultaneously. This project includes adding a multi-use path on the north side of W. King Street (Kings Canyon Road) to create a connection between the neighborhood west of Thames Lane (Highlands) and both Carson MS and Bordewich-Bray ES. Intersection crossing enhancements are also recommended at the Tacoma Avenue, N. Richmond Avenue, and S. Richmond Avenue intersections to reduce crossing distances, improve pedestrian visibility, and reduce vehicle speeds through these intersections. Physical separation between the westbound bike lane and westbound vehicle traffic in front of Carson Middle School could also be created by removing parking on the north side of the road. Due to the high parking utilization on this portion of W. King Street during pick-up and drop-off periods, this project element may be best implemented in conjunction with the proposed expansion of Eagle Valley Middle School and corresponding reduction in the number of Carson Middle School students.

Table 20. Tier 1 Recommendations (CMS)

Project Number	Street	Extent (Or Cross Street)	Description	Cost
Q-3	Bath Street	At FrES Parent Drop-Off Loop Exit	Extend existing red curb by 20 feet to the east	$
Q-4	Bonanza Drive	W. Sutro Terrace to Manzanita Terrace	Utilize temporary signage to increase awareness of bus stop locations (**ENG-4**)	$
Q-6	Cochise Street	150 ft North & South of Overland Street / Cochise Street intersection	Utilize temporary signage to increase awareness of bus stop locations (**ENG-4**)	$
Q-7	Combs Canyon Road	Lakeview Road to Meadowood Road	Utilize temporary signage to increase awareness of bus stop locations (**ENG-4**)	$
Q-8	Combs Canyon Road	Harvard Drive to Dartmouth Drive	Utilize temporary signage to increase awareness of bus stop locations (**ENG-4**)	$
Q-16	Goni Road	Jefferson Dr to Franklin Rd	Utilize temporary signage to increase awareness of bus stop locations (**ENG-4**)	$
Q-18	Kelvin Road	200 Ft East and West of Kelvin Road / Salk Road intersection	Utilize temporary signage to increase awareness of bus stop locations (**ENG-4**)	$
Q-19	Prospect Drive	Timberline Drive to Lotus Circle	Utilize temporary signage to increase awareness of bus stop locations (**ENG-4**)	$
Q-21	S. Sutro Terrace	Bryce Drive to Emerson Drive	Utilize temporary signage to increase awareness of bus stop locations (**ENG-4**)	$
Q-23	Salk Road	150 ft North & South of Avery Road	Utilize temporary signage to increase awareness of bus stop locations (**ENG-4**)	$
Q-25	Telegraph Street	3 Intersections: Telegraph Street & Mountain Street Telegraph Street & Division Street Telegraph Street & Richmond Avenue	Install marked crosswalk	$
Q-26	Timberline Drive	Prospect Drive to 100 ft East of Westwood Drive	Utilize temporary signage to increase awareness of bus stop locations (**ENG-4**)	$

Table 21. Tier 2 Recommendations (CMS)

Project Number	Street	Extent (Or Cross Street)	Description	Cost	Priority Score	Priority Timeframe
C-7	W. King Street	Thames Lane to Curry Street	**A**. Construct multi-use path from Thames Lane to Canyon Park Court or similar multi-modal improvement **B**. Add physical buffer for bike lane at CMS & BBES **C**. Close sidewalk gaps between Curry Street and Ormsby Boulevard **D**. Install intersection crossing enhancements at Tacoma Avenue, Richmond Avenue, Mountain Street, Thompson Street, Minnesota Street, Division Street	$$$$	47	**Near**
WZ-33	Telegraph Street	Richmond Avenue to Mountain Street	Construct sidewalk on south side of roadway to eliminate sidewalk gaps and enhance existing sidewalks, as possible	$$	47	**Near**
WZ-21	Mountain Street	Nye Lane to King Street	**A**. Close sidewalk gaps & enhance existing sidewalk where possible **B**. Add intersection crossing enhancements at Winnie Lane, Bath Street, Long Street, Washington Street, Telegraph Street, Musser Street	$$$$$	42	**Near**
WZ-11	Division Street	Bath Street to W. 5th Street	**A**. Add intersection crossing enhancements at minor side streets **B**. Enhance & upgrade existing crosswalks through-out the corridor including Musser Street, Telegraph Street, and Long Street **C**. Close sidewalk gaps and widen sidewalks as possible	$$$$	38	**Near**
WZ-34	Thompson Street	King Street to 550 ft. S. of San Marcus Drive	**A.** Close sidewalk gaps on east side (King Street to 5th Street) **B**. Close sidewalk gaps on west side (5th Street to San Marcus Drive) **C**. Create intersection crossing enhancements at existing W. 2nd St, W. 3rd St, and W. 4th St crosswalks	$$	38	**Near**
WZ-35	W. 5th Street	Richmond Avenue to Carson Street	**A**. Close sidewalk gaps and enhance existing sidewalk where possible **B**. Add intersection crossing enhancements at Thompson Street & Division Street	$$$$$	36	**Near**
WZ-3	Bath Street	Mountain Street to Carson Street	**A**. Close sidewalk gaps between Curry Street & Mountain Street **B**. Add intersection crossing enhancement (paint or hardscape) at existing mid-block crosswalk and Division Street crosswalks **C**. Add missing & repair damaged ADA Ramps **D**. Repair and enhance existing sidewalks as possible	$$$	34	**Near**
WZ-12	Division Street	5th Street to southern terminus of Division Street	Close sidewalk gaps	$$	31	Medium
WZ-20	Long Street	Curry Street to Sierra Circle & Fall Street to Stewart Street	**A**. Close sidewalk gaps (Curry Street to Sierra Circle & Fall Street to Stewart Street) **B**. Crosswalks and intersection enhancements at Division Street, Curry Street, and Marian Avenue	$$$	30	Medium
WZ-26	Roop Street	Winnie Lane to E. 5th Street	**A**. Close sidewalk gaps (Telegraph Street to E. 5th Street) **B**. Enhance existing sidewalks as possible	$$$	29	Medium
C-3	E. 5th Street	Saliman Road to Carson Street	**A.** Enhance existing sidewalks **B.** Widen existing bike lane to 5'	$$$	27	Medium
WZ-27	S. Iris Street	4th Street to King Street	Construct sidewalk	$$$	27	Medium
WZ-23	Musser Street	Richmond Avenue to Winters Drive	Construct sidewalk	$	26	Medium
WZ-37	Winnie Lane	Ash Canyon Road to Ormsby Blvd	Extend multi-use path on north side to Ash Canyon Road	$$	21	Medium
WZ-25	Robinson Street	Richmond Avenue to Mountain Street	Construct sidewalk	$$	21	Long
WZ-22	Musser Street	Harbin Avenue to Anderson Street	**A**. Close sidewalk gaps **B**. Enhance sidewalk where possible	$$	17	Long

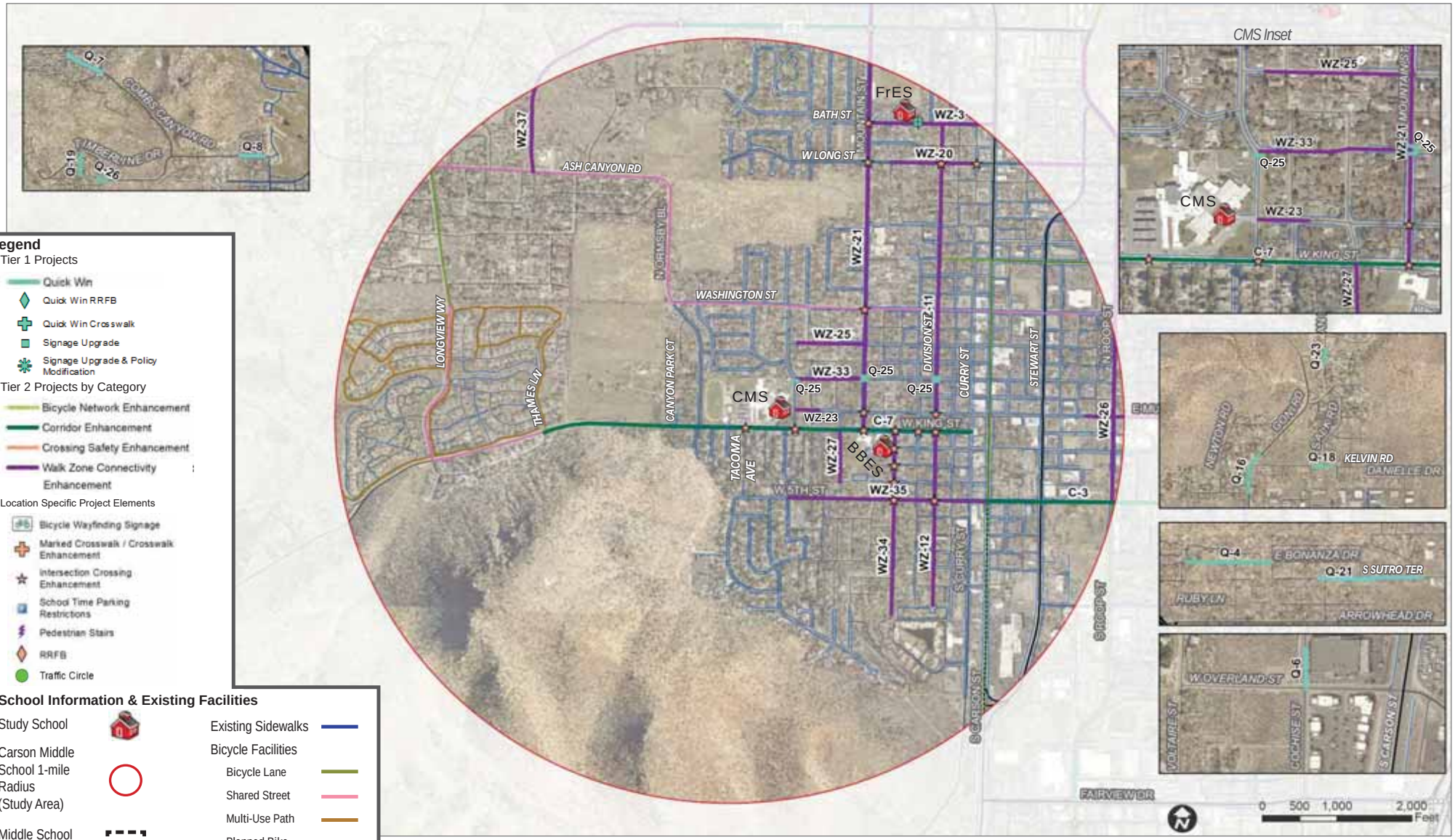


Figure 47. Tier 1 & Tier 2 Recommendations (CMS)

Eagle Valley Middle

Focus Areas

The majority of students walking and biking to Eagle Valley Middle School do so from the Empire Elementary School neighborhood. Recommendations focused on improving safety for Empire ES students also provide a direct benefit to many Eagle Valley MS students walking and biking from that area. Programming of projects that provide benefits to students from both schools would provide a substantial benefit. The survey results of the Eagle Valley Middle School students indicates that their primary safety concerns centered around improving the safety of intersections and crossings and improving sidewalks and pathways in the area; these safety concerns are mirrored by Eagle Valley Middle School parents. These two major focus areas helped to guide the development of the recommendations listed below.

It is important to note that if the EVMS school boundary changes following the planned expansion of the school, some projects which are identified under the Carson Middle School section of this report would apply instead to Eagle Valley Middle School.

Key Projects

E. 5th Street (**C-4**)

This project would improve pedestrian crossing safety at three well utilized locations along E. 5th Street immediately in-front of EVMS. Relocating the existing crosswalk at Hells Bells Road and adding a pedestrian refuge and a Rectangular Rapid Flashing Beacon (RRFB) is expected to improve vehicle yielding rates and allow pedestrians to cross safely throughout all hours of the day. The existing Regent Court crosswalk would be enhanced with the addition of a pedestrian refuge to improve crossing safety, particularly during hours when a crossing-guard is not present. During site visits, students were observed using Parkhill Drive to access the multi-use trail system to the north of EVMS. To access Parkhill Drive, students must cross Hidden Meadows Drive (**Q-17**) and E. 5th Street. A marked crosswalk with a pedestrian refuge island is recommended on the west leg of the Parkhill Drive / E. 5th Street intersection. This would allow students to travel along their desired route through the Hidden Meadows Xeriscape Park and on to Parkhill Drive.

Buffered bike lanes are recommended on E. 5th Street from Carson River Road to the Mexican Ditch Trail. It is important to note that due to vehicles parking along E. 5th Street during school pick-up and drop-off periods (**Exhibit 34**), increased engagement may be necessary to ensure the buffered bicycle lanes are not utilized for parking during these periods.

Exhibit 33. Looking south across E. 5th Street from Parkhill Drive (**C-4**)

Exhibit 34. Vehicles currently park on the south side of E. 5th Street (shown above). Buffered bike lanes (**C-4**) may require additional parking enforcement

Fairview Drive (**CS-3**)

This near-term project would enhance the existing sidewalks along Fairview Drive from the end of the multi-use path to Desatoya Avenue. This segment of Fairview Drive is well utilized by Eagle Valley Middle school students during morning and afternoon periods. Widening the sidewalk would provide additional space for passing and create a more welcoming pedestrian environment. Furthermore, a RRFB is recommended at the Fairview Drive / Desatoya Avenue intersection to improve the safety and increase driver awareness throughout the day. Based on data collected at this location, vehicle speeds are significantly above the posted 15 mph during school speed zone periods (**Appendix D**).

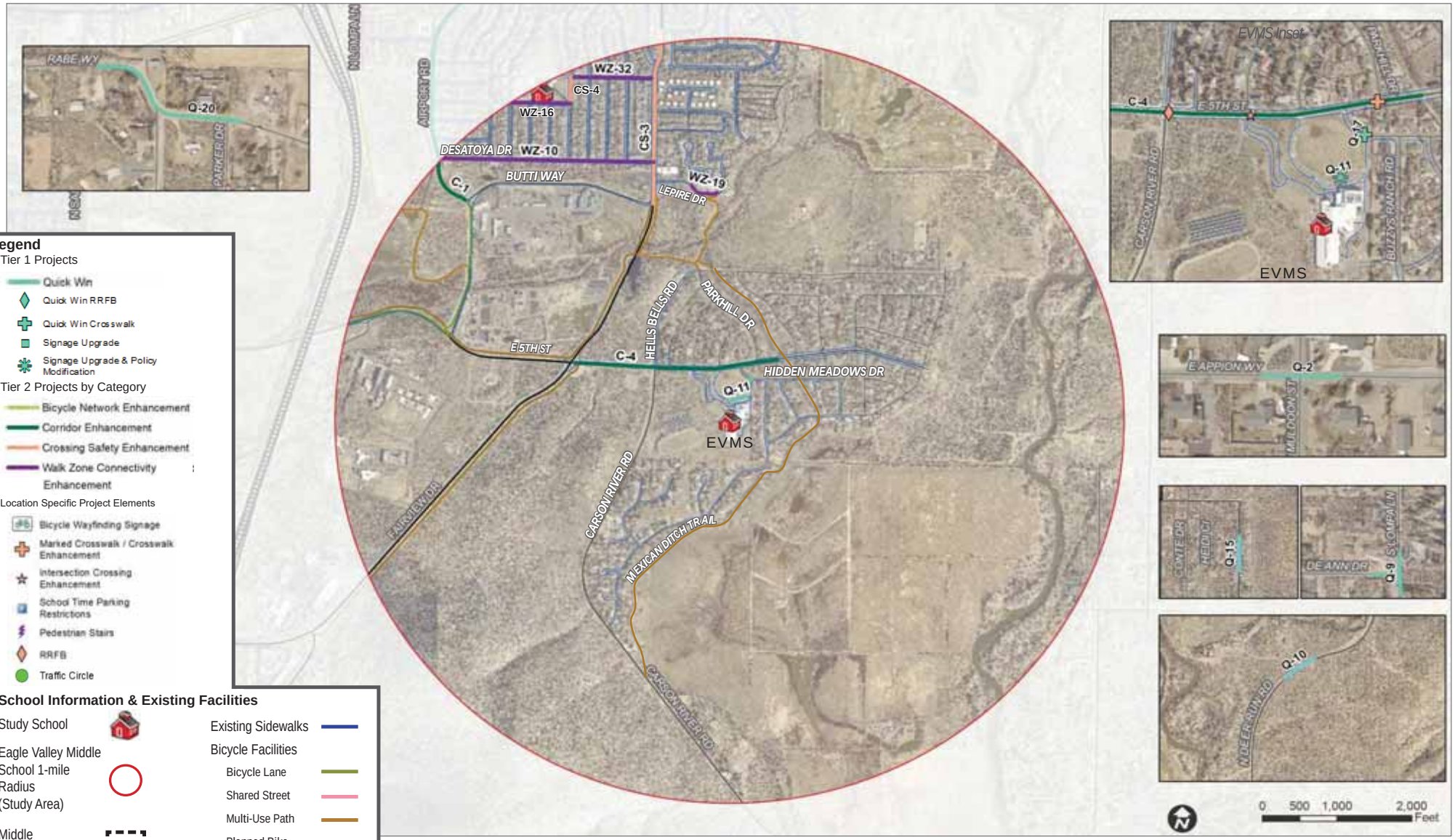
Exhibit 35. (Top) Existing crosswalk on Fairview Drive at Desatoya Avenue (Right) Crossing guard assisting students across Fairview Drive at Desatoya Avenue

Table 22. Tier 1 Recommendations (EVMS)

Project Number	Street	Extent (Or Cross Street)	Description	Cost
Q-2	Appion Way	150 ft East & West of Muldoon Street	Utilize temporary signage to increase awareness of bus stop locations (**ENG-4**)	$
Q-9	De Ann Drive / Lompa Lane	150 ft on all sides of De Ann Drive / Lompa Lane Intersection	Utilize temporary signage to increase awareness of bus stop locations (**ENG-4**)	$
Q-10	Deer Run Road	150 feet on either side of Deer Run Road / BLM Access (located 2,150 feet south of Brunswick Canyon Road)	Utilize temporary signage to increase awareness of bus stop locations (**ENG-4**)	$
Q-11	EVMS Drop Off Loop	Parking Area in Drop Off Loop	Restrict parking to staff & deliveries only in front of school (reroute traffic around parking lot immediately in front of school)	$
Q-15	Gentry Lane	200 ft South of Heidi Circle	Utilize temporary signage to increase awareness of bus stop locations (**ENG-4**)	$
Q-17	Hidden Meadows Drive	Eagle Valley MS Bus Entrance	Install marked crosswalk	$
Q-20	Rabe Way	400 ft West of Coffey Drive & 150 ft. East of Parker Drive	Utilize temporary signage to increase awareness of bus stop locations (**ENG-4**)	$
Q-24	Siskiyou Drive	Stanton Drive	Install marked crosswalk	$

Table 23. Tier 2 Recommendations (EVMS)

Project Number	Street	Extent (Or Cross Street)	Description	Cost	Priority Score
CS-4	Monte Rosa Drive	Stanton Drive to Gordonia Avenue	Add intersection crossing enhancements to Stanton Drive & Gordonia Avenue intersections, including striping to prohibit parking close to existing crosswalks	$	45
WZ-16	Gordonia Avenue	Monte Rosa Drive to La Loma Drive	**A.** Widen existing sidewalks on the north side of the roadway **B.** Add center median from Monte Rosa Drive to La Loma Drive	$$	39
WZ-32	Stanton Drive	Monte Rosa Drive to Fairview Drive	Widen existing sidewalk on south side and create center median	$$	39
CS-3	Fairview Drive	Desatoya Drive to Walker Drive	**A.** Install RRFB at Desatoya Drive **B.** Install RRFB with pedestrian refuge island (painted or hardscape) between Walker Drive and Stanton Drive **C.** Construct Sidewalk on the west side of Fairview Drive from Walker Drive to Edmonds Drive **D.** Enhance existing sidewalk on east side from Lepire Drive to multi-use path **E.** Enhance existing sidewalk on west side from Desatoya Drive to multi-use path south of Butti Way	$$	36
WZ-10	Desatoya Avenue	Airport Road to Fairview Drive	Widen sidewalks on south side of roadway	$$	35
C-4	E. 5th Street	Fairview Drive to Mexican Ditch Trail	**A.** Construct bike lanes from Fairview Drive to Carson River Road or similar multi-modal improvement **B.** Construct buffered bike lane from Carson River Road to Mexican Ditch Trail or similar multi-modal improvement **C.** Add marked crosswalk with pedestrian refuge (painted or hardscape) at Parkhill Drive **D.** Construct pedestrian refuge at Regent Court (painted or hardscape) **E.** Relocate existing crosswalk at Carson River Road & Hells Bells Road approximately 15 feet to the east, add pedestrian refuge Island (painted or hardscape) and RRFB	$$	34
C-1	Airport Road	Butti Way to E. 5th Street	A. Construct bike lane from Butti Way to Highway 50 or similar multi-modal improvement B. Add intersection crossing enhancements at Airport Road / Douglas Drive and Airport Road / Menlo Drive	$$	31
WZ-19	Lepire Drive	Snake Hill Trail (Multi-use path) to Cassidy Court	Construct sidewalk from Snake Mountain multi-use path to the existing sidewalk on the north side of Lepire Drive	$$	26



Legend

Tier 1 Projects
- Quick Win
- Quick Win RRFB
- Quick Win Crosswalk
- Signage Upgrade
- Signage Upgrade & Policy Modification

Tier 2 Projects by Category
- Bicycle Network Enhancement
- Corridor Enhancement
- Crossing Safety Enhancement
- Walk Zone Connectivity Enhancement

Location Specific Project Elements
- Bicycle Wayfinding Signage
- Marked Crosswalk / Crosswalk Enhancement
- Intersection Crossing Enhancement
- School Time Parking Restrictions
- Pedestrian Stairs
- RRFB
- Traffic Circle

School Information & Existing Facilities
- Study School
- Eagle Valley Middle School 1-mile Radius (Study Area)
- Middle School Boundary
- Existing Sidewalks
- Bicycle Facilities
  - Bicycle Lane
  - Shared Street
  - Multi-Use Path
  - Planned Bike Lane

Figure 48. Tier 1 & Tier 2 Recommendations (EVMS)

4. Programmatic Recommendations

Non-infrastructure programs can complement the physical improvements recommended in this Plan by encouraging more students to walk and bike, educating students and parents about active transportation to enhance safety, and addressing both perceived and real personal safety issues. Safe Routes to School (SRTS) programs are also a way for the City to engage directly with school staff, students, and parents to understand other issues that may hinder their ability to walk, bike, and roll to school. The primary goals of SRTS programs have many other secondary goals, including:

- Teaching children the rules of the road, so they are more prepared to navigate their community on foot and bike, and eventually become safe drivers;
- Encouraging active modes of getting to school, which will help students arrive at school more alert and ready to learn; and
- Reducing traffic congestion around schools and cut-through traffic on residential streets due to school drop-off/pick-up.

The programmatic recommendations listed in **Tables 25-1 & 25-2** were compiled based on key themes and concerns described by stakeholders, as well as industry best practices. While every effort has been made to make the programs & recommendations of the Carson City SRTS Master Plan comprehensive, the list is not exhaustive, but rather intended to provide options that can be selected for implementation or further development. These programs, paired with the infrastructure ("Engineering") recommendations in the Plan, give the City a full suite of SRTS strategies, commonly referred to as the "6 Es" (Engineering, Education, Encouragement, Engagement, Equity, and Evaluation.

Programmatic recommendations are shown based on the which of the "6 Es" they fall under. As recommendations for elementary and middle school students vary, it is important to note that not all recommendations apply to each school. The type of school that each recommendation applies to is shown in the "Schools" column. Specific programmatic recommendations that require further explanation are highlighted in this Chapter.

The cost estimate ranges for "Engineering" recommendations, described in **Table 3** on page **3-2**, apply to the Engineering School Safety recommendations shown in **Table 25-1**. Cost estimates for all other programmatic recommendations represent an order of magnitude cost that includes estimated capital costs and staffing costs required to accomplish each recommendation. Programmatic cost estimate ranges are shown in **Table 24**. Prioritization of these projects is based on the overall feasibility of the project, existing efforts from Carson City Public Works staff, available resources, and potential benefit. It is assumed that these projects would be implemented across Carson City as they become feasible. If the City has an opportunity to implement a lower priority project ahead of a project with a higher priority, the City should take advantage of the opportunity to implement any of the recommendations.

Table 25-1. Programmatic Recommendations (Part 1)

Theme	Project Number	Type	Description	Schools	Cost	Priority
Engineering School Safety	ENG-1	School Speed Zone Standard	Develop standard for School Speed Zone signage, lane markings, and controls which will create a standard look and feel for School Speed Zones across Carson City. This may include installing flashers at all existing "School Zone When Flashing" signs (S5-1) and replacing existing School Zone Time Specific sign combinations (S4-3P, R2-1, S4-1P) with S5-1 signs. Additionally, a standard may include traffic calming strategies such as in-road message signs (R1-6), intersection bulb-outs, and speed feedback signs.	All	$	Near
	ENG-2	School Speed Zone Standard	Implement School Speed Zone standard at all eight study schools as funding is available.	All	$ - $$	Medium
	ENG-3	School Speed Zone Standard	Ensure that Speed Feedback Signs within a School Zone are programmed to reflect the school zone speed limits during the appropriate hours of the day.	All	$	Near
	ENG-4	School Bus Stop Awareness	Utilize temporary school bus stop signage and public messaging campaigns to increase driver awareness of bus stops during the school year. Initial efforts will focus on locations identified as "Quick Wins" and may expand to other locations following the first year of implementation.	All	$$	Near
Education	ED-1	Bicycle Safety Education	Develop TA-Set Aside grant application to bolster and expand upon the existing Bicycle Safety Education program at all six elementary schools. Items to include in grant application are new bicycles, easy to use bicycle helmets, funding for on-going maintenance and repairs, and updated curriculum materials	Elementary	$$	Near
	ED-2	Bicycle Safety Education	Work with CCSD to expand the total number of days of bicycle education instruction to provide 3rd, 4th, and 5th grade students with at least 2 class periods of experience on a bike each school year	Elementary	$$	Long
	ED-3	Student Pedestrian Education	Develop / obtain pedestrian safety education curriculum for elementary school students and incorporate these lessons into an expanded Bicycle Safety Education program	Elementary	$	Medium
	ED-4	Student Pedestrian Education	Develop / obtain pedestrian safety education curriculum for middle school students. Disseminate this information to students during the school year or as part of a Bicycle/Pedestrian Safety Program	Middle	$	Medium
	ED-5	Parent / Caregiver Safety Education	Develop and implement a public messaging campaign to make drivers aware of School Zone laws. This campaign can be reused at the beginning of each school year and following long breaks.	All	$$$	Near
	ED-6	Parent / Caregiver Safety Education	Develop and implement public messaging campaign focused on parents and the importance of teaching safe pedestrian habits to their children.	All	$$$	Medium

Table 24. Programmatic Recommendations Order of Magnitude Cost Estimate Ranges

Cost Estimate Symbol	Cost Estimate Range
$	Less than $19,999
$$	$20,000 - $49,999
$$$	$50,000 - $100,000

Parent/Caregiver Safety Education

Parent/caregiver SRTS education can take the form of social media posts, email blasts, automated calls, backpack flyers, or any other channel schools use to reach out to parents. Some of the key messages to include when communicating SRTS to parents include: reminding them to obey seatbelt laws, cell phone laws, and speed limits; outlining drop-off/pick-up procedures; encouraging them to choose active modes of travel; and practicing safe behaviors while walking, biking, and driving. The National Center for Safe Routes to School includes resources for such efforts.

Table 25-2. Programmatic Recommendations (Part 2)

Theme	Project Number	Type	Description	Schools	Cost	Priority
Encouragement	E-1	Walking/Biking Encouragement	Start a Walking Wednesday program at each elementary school focused on encouraging students (and parents) to walk or bike to school every Wednesday in order to receive daily prizes and to compete for a bicycle or scooter at the end of the school year.	Elementary	$	Near
	E-2	Bicycle Equipment Program	Work with local non-profits and local businesses to create local bicycle donation and rehabilitation program. Program would obtain and repair older bicycles from the community and fix them up to provide them to Carson City students without a bicycle	All	$$$	Long
	E-3	Walking / Biking Encouragement	Increase number of School Safety Champions to one at each school	All	$	Near
	E-4	Walking / Biking Encouragement	Work with School Safety Champions and School administrations to create a network of parents who are willing and able to supervise Walking School Buses and/or Bike Trains at each of the six elementary schools. Leverage available funding for compensating volunteers.	Elementary	$	Near
	E-5	Active Transportation Challenges / Competitions	Work with schools to develop a Golden Sneaker Challenge between classrooms at each school during Walk to School Day. Expand the challenge to be community wide (between each school) within three years.	All	$	Near
School Zone Engagement	SZ-1	School Speed Zone Engagement	Increase SRO or police presence in school zones (as possible) during morning and afternoon peak periods to increase enforcement of School Zone laws. Key areas of focus are MTES (prohibiting left-out turns), FES (prohibiting left-out turns & speeding), and ASES (Speeding)	All	$$	Near
	SZ-2	School Speed Zone Task Force	Collaborate with local law enforcement and CCSD to develop a School Speed Zone task force. The task force would conduct intermittent and Nearly visible School Speed Zone engagement programs at each study school throughout the school year.	All	$$$	Medium
	SZ-3	Mobile Speed Feedback Trailers	Work with Carson City Sheriff's Office to place mobile speed feedback trailers on school routes at the beginning of the school year and following extended holiday breaks.	All	$	Long
Equity	N/A	Equitable Program of Projects	All engineering projects were evaluated through the prioritization process based on the benefit provided to economically disadvantaged areas. Projects providing direct benefits to these locations were assigned additional points during prioritization. It is recommended that projects be implemented based on priority ranking, as possible, in order to deliver an equitable program of projects.	All	-	-
Program Evaluation	PE-1	Student Hand Tallies	Conduct hand tallies of how students arrived to and will depart from school during a two to three day period at each school once per year.	All	$	Near
	PE-2	Parent Surveys	Conduct surveys of parents regarding how their child got to and from school and basic demographic information. It is recommended that this be conducted periodically, potentially every three years.	All	$$	Long
	PE-3	Program Report Card	Develop Safe Routes to School Report Card which will be used to celebrate program successes and identify the impacts of program implementation as possible. This report card should be conducted every three years in order to assess benefits of implementation.	All	$	Medium

Pedestrian & Bike Safety Education Programs for Students

Pedestrian and bicycle safety skills can be taught in the classroom or during PE using lesson plans that provide pedestrian and bike education for students, including rules of the road and how to be safe while walking and biking. The curriculum can be structured for appropriate grade and age levels, which can be implemented as part of school-wide, communitywide, or statewide programs. The existing Bicycle Safety Education Program at Carson City elementary schools is in need of updated materials, new bicycles, and funding to maintain the fleet.

Walking School Bus

Exhibit 36. Walking School Bus

A walking school bus is a group of students walking to school with one or more adults (Exhibit 36). It is a great way to get students excited about walking to school because they get to spend the morning school trip with family and friends. A walking school bus can be an informal arrangement between neighboring families or more formal with established "bus routes," designated "bus stops," and led by a "bus driver" who walks participants into school. A similar concept for bicyclists is called a "Bike Train" and may be implemented in a similar fashion.

School Safety Champion

A School Safety Champion is typically a school parent or staff member who is engaged and highly motivated to help improve pedestrian and bicyclist safety surrounding their childs' school. These individuals can help maximize the benefits of SRTS programs by being a liason between the school and the Safe Routes to School Coordinator while coordinating walk to school days, student hand tallies, Walking School Buses, and Golden Sneaker Challenges. The existing Safety Champion program, operated by CCPW, may be expanded upon to increase influence and reach of the existing program.

Golden Sneaker Challenge

Exhibit 37. Golden Sneaker Award Example

A golden sneaker challenge is a fun way to get kids to walk and bike to school while competing against other classrooms or other schools. The challenge typically lasts two weeks and is focused on having the largest number of students who travel to and from school by alternative transportation modes. This typically includes walking, biking, skateboarding, and any other human powered motor, but the challenge may be expanded to include other modes. At the end of the challenge, the classroom with the largest percentage of students who took an alternative form of transportation over the time period in question receives a Golden Sneaker Award and some form of prize, often a pizza party. This type of challenge can be implemented at a single school and expanded to include all schools over time.