

APPENDICES – ACTION PLAN



Implementation Framework

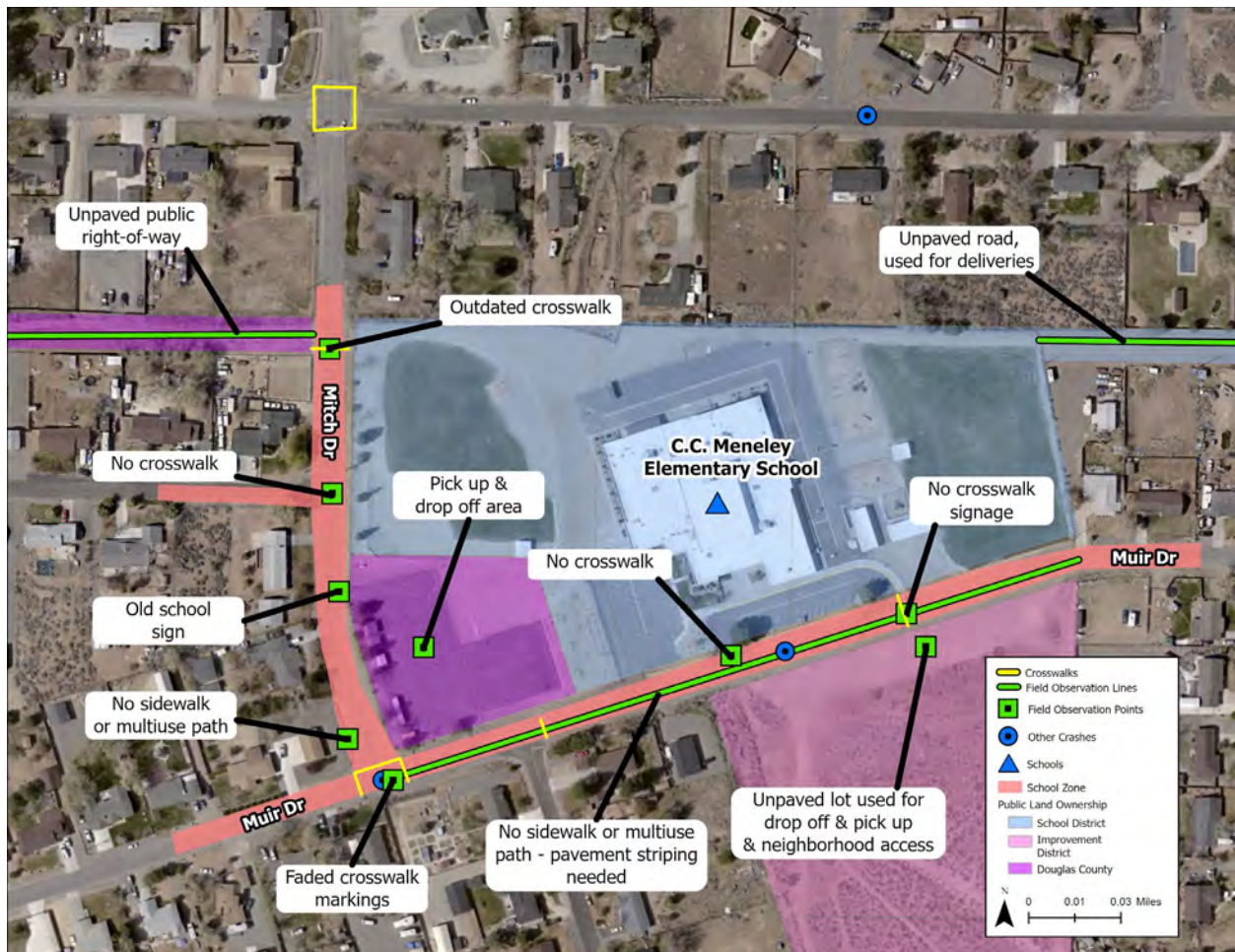
Appendices A through I provide a description of needs and recommended transportation investments at each school location. These recommendations reflect the community engagement and technical analysis that occurred throughout the 9-month study process. Recommendations include a project description and location. The proposed implementation timeline reflects the estimated complexity and cost of the project and is described as short (less than 2 years), mid (2–5 years) or long (over 5 years) term. The estimated rough order of magnitude cost is reflected in dollar signs, with one symbol representing a projected cost less than \$100,000, two symbols representing \$100,000–\$500,000, and three symbols representing project costs expected to be greater than \$500,000. The priority of the project is reflected as high, medium, or low, with the most urgent needs as assessed by the project team designated as high priority.

Appendix A – C.C. Meneley Elementary School

C.C. Meneley Elementary School is located in the Gardnerville Ranchos subdivision area, south of Minden-Gardnerville. Although the school is located in a residential community with many parks and families, the area surrounding the school lacks sidewalks. Despite the lack of facilities, many students continue to walk along the road or the dirt sections adjacent to the roads to reach the school. The Gardnerville Ranchos community has a relatively large school-aged population and could see higher levels of walking and bicycling with improved facilities.

Exhibit A-1 below provides a summary of the safety, intersection, access and circulation, and infrastructure condition issues surrounding C.C. Meneley Elementary School.

Exhibit A-1: C.C. Meneley Existing Conditions



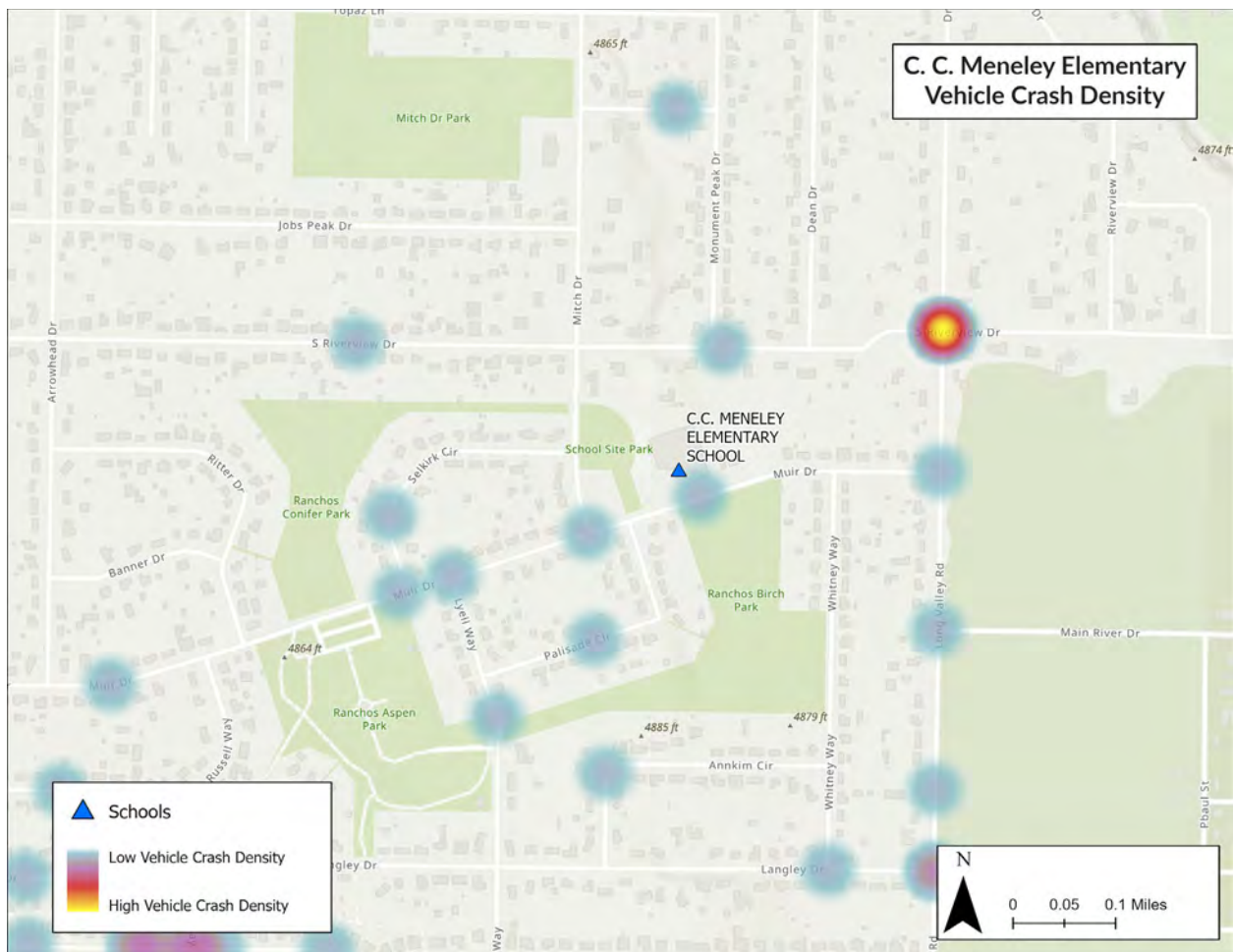
Safety Conditions

A number of safety issues were identified during the walking audit conducted on March 16, 2023, including:

- Missing crosswalks along Mitch Drive and Muir Drive adjacent to the school property.
- Missing sidewalk and/or path along Muir Drive just south of the school.

In addition to the walking audit, the study team also conducted a safety analysis of the two-mile area surrounding each school. The table and figure below summarize vehicle crash data for the 5-year period between 2016 and 2020.

Exhibit A-2: C.C. Meneley Area Crashes, 2016-2020



	Total Crashes	Fatal Crashes	Serious Injury Crashes	Non-Serious Injury Crashes	Property Damage Only
Number	279	3	8	70	198
Percentage	100.0%	1.1%	2.9%	25.1%	71.0%

Crash Type	Head-On	Angle	Backing	Rear-End	Sideswipe	Non-collision	Unknown
Number	12	93	14	71	41	42	6
Percentage	4.3%	33.3%	5.0%	25.4%	14.7%	15.1%	2.2%

A total of 279 crashes occurred within two miles of the school, including three fatal and eight serious injury crashes. About 4% of crashes resulted in fatal or serious injuries, the second highest proportion for all the schools in the planning area after the Pau-Wa-Lu Middle and Scarselli Elementary School area. Thirty-three percent of crashes were angle collisions and 25% were rear-end crashes. While the crashes nearest the schools resulted in property damage only, it is important to note the severity of crashes that have occurred on local streets in the Gardnerville Ranchos area, as shown previously in Exhibit 9. Wide streets such as the ones in this area can contribute to higher vehicle travel speeds and increased crash severity.

Intersection Needs

The following issues have been identified at intersections near C.C. Meneley Elementary School:

- The lack of safe connections for pedestrians at the intersection of Muir Drive and Mitch Drive. There is a need for paved walkways and high visibility crosswalks with ADA curb ramps, along with advance warning signs to alert drivers to pedestrian crossings near the school.
- The lack of safe and visible pedestrian crossings at the intersection of Selkirk Circle and Mitch Drive.
- Standard crosswalks at the intersection of Mitch Drive and Riverview Drive no longer meet best practices and should be updated to a high-visibility Zebra, Ladder, or Continental design, to improve visibility.
- The lack of designated loading zones and parking areas near the school frontage poses risks during busy drop-off and pick-up times, particularly at the intersection of Muir Drive and Mitch Drive.

School Access and Circulation

The following issues related to school access and circulation were identified during the walking audit conducted on March 16, 2023, including:

- The parent drop-off loop is currently inadequate to accommodate the number of vehicles observed during pick-up and drop-off times, leading to spillage onto Muir Drive.
- The bus loop and parking areas are also inadequate for the number of buses accessing the school, which can cause back-ups and delay.
- Illegal U-turns were observed along Muir Drive in front of the school.

Infrastructure Condition

The following issues related to infrastructure condition were identified during the walking audit conducted on March 16, 2023, including:

- Faded crosswalk markings near the intersection of Muir Drive and Mitch Drive.
- Missing or faded pavement striping along Muir Drive in front of the school.
- Standard crosswalk along Mitch Drive just west of the school no longer meets best practices, and should be updated to a high-visibility Zebra, Ladder, or Continental design, to improve visibility.
- Outdated school signage along Mitch Drive.

Crossing Guard Location(s)

During the March 16, 2023, field review, a crossing guard was observed at the main crosswalk near the eastern school loop entrance on Muir Drive.

Equity Considerations

In the 2-mile radius around the school, 23% of households with school-aged children are living in poverty, 25% of households do not speak English at home, 23% of the population is a minority, and 7% of households do not have a vehicle at home. The economic reality of poverty makes having a vehicle that is available to drop students off at school very difficult. Students in these households are more likely to walk or bicycle to school out of necessity, regardless of whether safe facilities are provided.

Due to adjacent residential areas, this school has substantial potential for generating walking and bicycling trips. Improving the safety and convenience of walking and bicycling to school would be especially beneficial for the area's socioeconomically disadvantaged residents.

Recommended Improvements

Improvements to help alleviate access, circulation, and infrastructure issues/deficiencies found at C.C. Meneley Elementary School are outlined in **Table A-1** and shown in **Exhibits A-2** and **A-3**.

The needs and concepts identified in this study are located on a combination of school, county, and state facilities. Implementation of these investments will involve continued coordination of multiple entities and integration with other regional and statewide transportation planning processes. A lack of funding may limit the ability of local and state agencies to implement recommended improvements. This plan includes a summary of potential funding sources, including competitive grants and formula funds that can be considered for project development.

A visualization of one of the proposed improvements in the vicinity of the school is provided below.



Existing conditions along Muir Drive



Muir Drive with proposed improvements

Table A-1: C.C. Meneley Elementary School Recommended Improvements

ID	Implementation Timeline	Priority	Location	Draft Recommendations	Cost Estimate
CC1	Mid	Medium	S Riverview Drive (east of S Riverview Drive/ Mitch Drive intersection)	Pave the public right-of-way to create a connection to Ranchos Aspen Park.	\$\$\$
CC2	Mid	High	S Riverview Drive/Mitch Drive intersection	Install high visibility crosswalk with ADA curb ramps. Install advance warning signs in advance of this crosswalk.	\$\$
CC3	Mid	High	Selkirk Circle/ Mitch Drive intersection	Install high visibility crosswalk with ADA curb ramps. Install advance warning signs in advance of this crosswalk.	\$\$
CC4	Short	High	School zone	Install or upgrade fluorescent advanced warning signs for all crosswalks within the school zone.	\$
CC5	Mid	High	Muir Drive	Install paved walkway from bus loop entrance to Whitney Way.	\$\$\$
CC6	Short	High	Mitch Drive/Muir Drive intersection	Restripe crosswalk pavement markings for high visibility.	\$
CC7	Short	High	Muir Drive (at school frontage, parking lot entrance)	Remove crosswalk to dirt shoulder and modify gate for ADA access.	\$
CC8	Short	High	Muir Drive/ Palisade Circle	Install high visibility crosswalks along school frontage at entrance/exits of parking lots and at Palisade Circle.	\$
CC9	Long	Low	Mitch Drive/ Muir Drive to Ranchos Aspen Park	Install an additional sidewalk path connection from Mitch Drive/ Muir Drive to Ranchos Aspen Park. Evaluate a shared-use path or trail connection through county or school district right-of-way.	\$\$\$
CC10	Mid	High	Muir Drive, south side opposite school frontage	Install curb and gutter along south side of Muir Drive to prohibit pick-up and drop-off and prohibit parking in the dirt area south of Muir Drive.	\$\$

DOUGLAS COUNTY SAFE ROUTES TO SCHOOL • ACTION PLAN

ID	Implementation Timeline	Priority	Location	Draft Recommendations	Cost Estimate
CC11	Long	Medium	Muir Drive	Install sidewalk and loading zone on the school frontage. Reallocate the right-of-way along Muir Drive from south to north: 2' curb and gutter, 11' travel lanes, 9' parking/loading zone, 2' curb and gutter, 12' sidewalk. Install no loading signs along the south side of Muir Drive.	\$\$\$
CC12	Mid	Medium	Mitch Drive/ S Riverview Drive intersection to Mitch Park	Install paved shoulder on east side of Mitch Drive to Mitch Park.	\$\$
CC13	Short	Medium	East side of Mitch Drive, in pick-up and drop-off lot	Install pull forward signage.	\$
CC14	Long	Medium	East side of school on Muir Drive (at school frontage, parking lot entrance)	Extend bus loop into the field. Reconstruct sidewalks, curb ramps, fence, and gates for the reconstructed bus loop.	\$\$\$
CC15	Short	High	West of school between parent drop-off parking lot and school	Construct pedestrian walkway connection to student drop-off/pick-up.	\$
CC16	Short	High	Mitch Drive, northwest of school campus	Restripe outdated crosswalk to high visibility Continental style.	\$

Implementation Timeline: **Short** <2 years, **Mid** 2–5 Years, **Long** >5 Years

Cost Estimate: **\$** <\$100,000, **\$\$** \$100,00-\$500,000, **\$\$\$** >\$500,000

Exhibit A-2: C.C. Meneley Elementary School Recommended Improvements

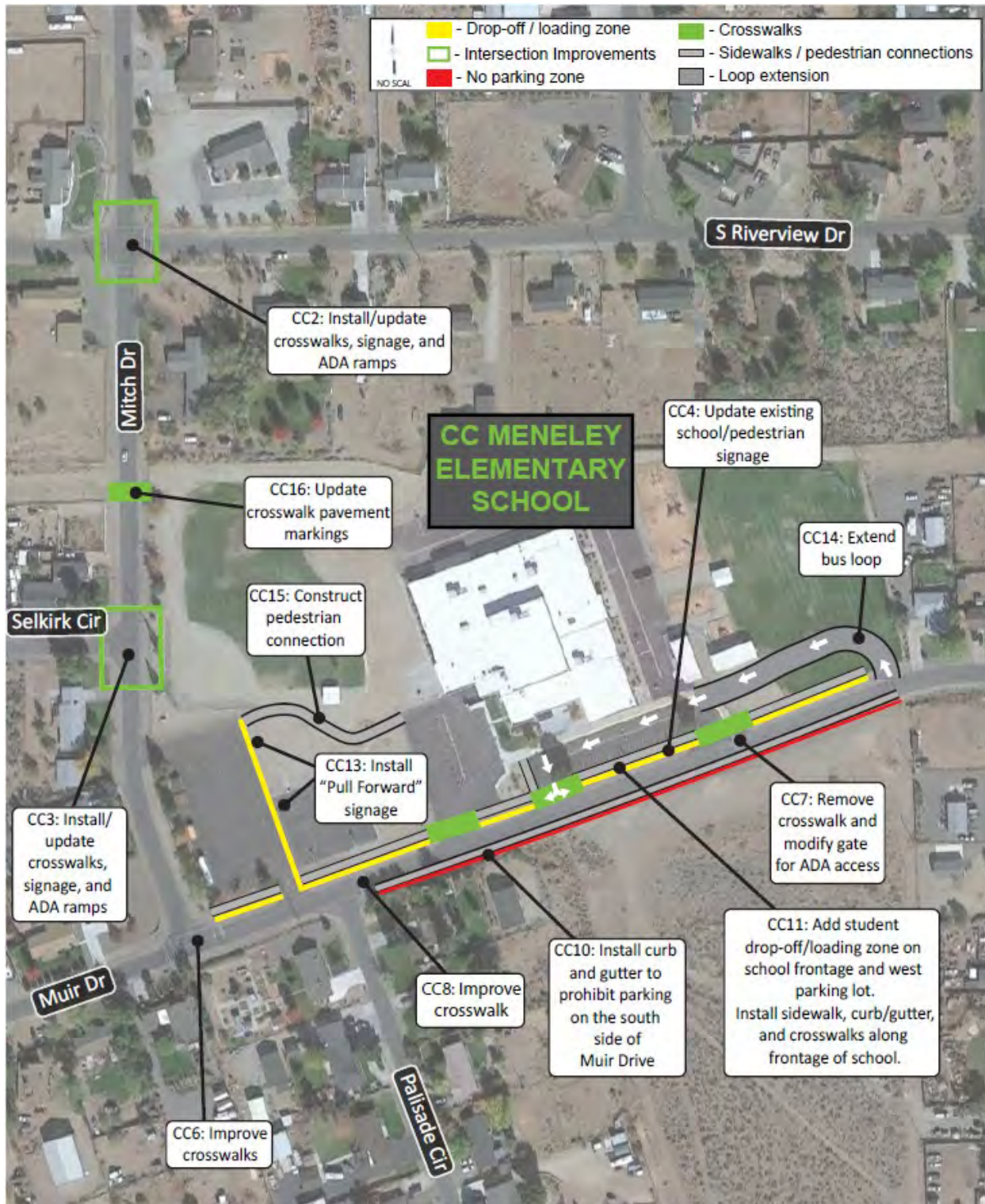


Exhibit A-3: C.C. Meneley Elementary School Recommended Improvements (Zoomed Out)



Appendix B – Carson Valley Middle School

Middle School

Carson Valley Middle School is located on US 395 in the heart of Minden-Gardnerville. The school is adjacent to both residential and commercial areas, in a relatively busy part of town. There is significant potential for students to commute to school by walking or bicycling, either from adjacent residential areas or nearby Heritage Park.

Exhibit B-1 below provides a summary of the safety, intersection, access and circulation, and infrastructure condition issues surrounding Carson Valley Middle School.

Exhibit B-1: Carson Valley Middle School Existing Conditions



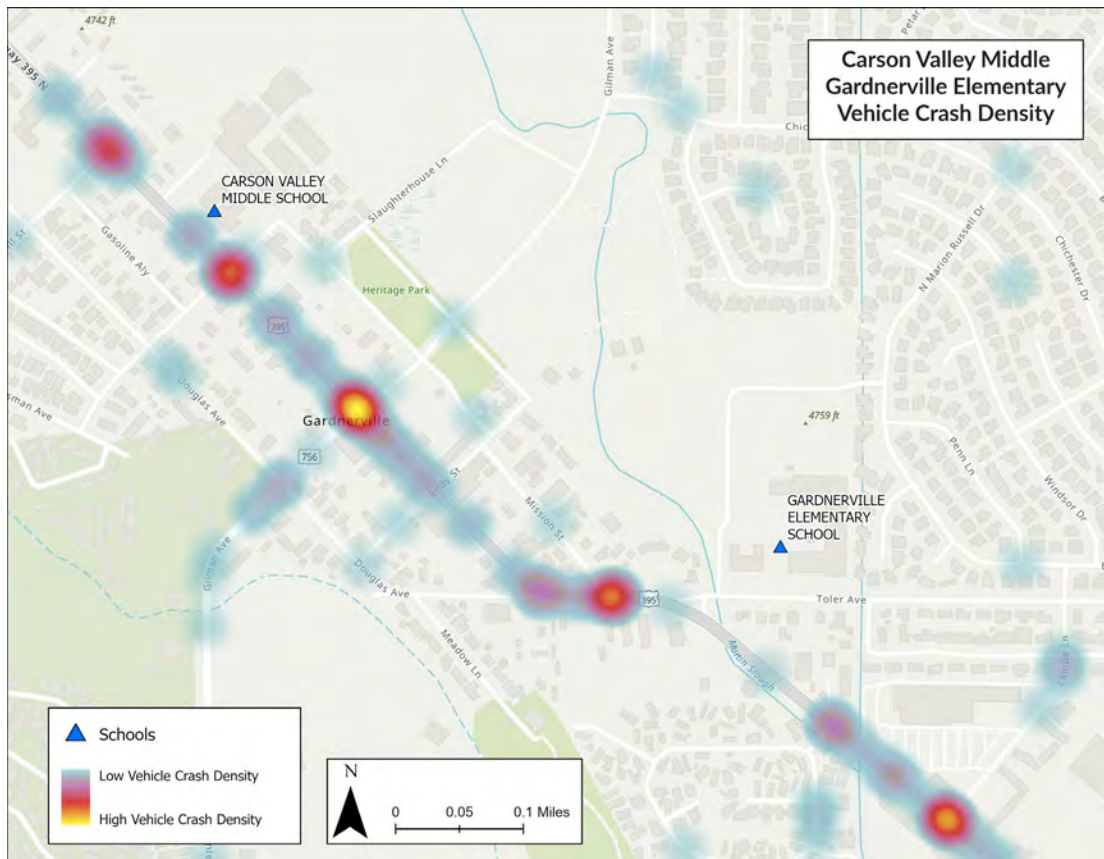
Safety Conditions

A number of safety issues were identified during the walking audit conducted on March 16, 2023, including:

- Gate to access multiuse path is not ADA compliant.
- Missing crosswalk at side access point.
- Angled crosswalk just east of school location is unsafe for pedestrians.
- High speeds along US 395 (in front of the school) are unsafe for pedestrians, especially children.
- RRFBs along US 395 do not meet multilane highway specifications.
- There is no school zone signage along High School Street and Courthouse Street.
- There is a sight line issue near Courthouse Street and Slaughterhouse Lane due to overgrown vegetation.

In addition to the walking audit, the study team also conducted a safety analysis of the two-mile area surrounding each school. The figure and table below summarize vehicle crash data for the 5-year period between 2016 and 2020.

Exhibit B-2: Carson Valley Middle School Area Crashes, 2016-2020



	Total Crashes	Fatal Crashes	Serious Injury Crashes	Non-Serious Injury Crashes	Property Damage Only
Number	453	2	4	120	326
Percentage	100.0%	0.4%	0.9%	26.5%	72.0%

Crash Type	Head-On	Angle	Backing	Rear-End	Sideswipe	Non-collision	Unknown
Number	15	116	11	158	83	63	6
Percentage	3.3%	25.6%	2.4%	34.9%	18.3%	13.9%	1.3%

The total number of crashes observed in the area is higher than that around some of the other schools in Douglas County due to its proximity to US 395. A total of 453 crashes occurred within two miles of the school, including two fatal and four serious injury crashes. Three crashes involving bicyclists or pedestrians occurred near the school. Thirty-five percent of crashes were rear-end collisions and 26% were angle crashes.

Intersection Needs

The following issues have been identified at intersections near Carson Valley Middle School:

- Faded crosswalk with low visibility at the intersection of US 395 and Mill Street.
- High truck volumes along US 395, creating potential safety issues for pedestrians at Mill Street and High School Street intersections.
- Angled pedestrian crossing at the Slaughterhouse Lane and Courthouse Street intersection is unsafe, especially for children.

School Access and Circulation

The following issues related to school access and circulation were identified during the walking audit conducted on March 16, 2023, including:

- High School Street is congested during school pick-up and drop-off times.
- Parents have been observed cutting through the NAPA Auto Parts parking lot to pick up/drop off students due to congestion on High School Street.
- Driveway radius out of school parking lot is too small to properly accommodate buses.
- There is some confusion among drivers at the intersection of Courthouse Street and the school entrance/exit.

Infrastructure Condition

The following issues related to infrastructure condition were identified during the walking audit conducted on March 16, 2023:

- Crosswalk markings along US 395 are faded.

Crossing Guard Location(s)

During the March 16, 2023, field review, a crossing guard was observed at the intersection of High School Street and Court House Street.

Equity Considerations

In the 2-mile radius around the school, 16% of households with children are living in poverty, 16% of households do not speak English at home, 19% of the population is a minority, and 7% of households do not have a vehicle at home.

Recommended Improvements

Improvements to help alleviate access, circulation, and infrastructure issues/deficiencies found at Carson Valley Middle School are outlined in **Table B-1** and shown in **Exhibit B-2**.

The needs and concepts identified in this study are located on a combination of school, county, and state facilities. Implementation of these investments will involve continued coordination of multiple entities and integration with other regional and statewide transportation planning processes. A lack of funding may limit the ability of local and state agencies to implement recommended improvements. This plan includes a summary of potential funding sources, including competitive grants and formula funds that can be considered for project development.

Table B-1: Carson Valley Middle School Recommended Improvements

ID	Implementation Timeline	Priority	Location	Draft Recommendations	Cost Estimate
CV1	Short	High	US 395/Mill Street intersection	Restripe crosswalk pavement markings for high visibility and upgrade crossing to an overhead mast arm RRFB per NDOT standards.	\$\$\$
CV2	Short	High	US 395 within school zone	Install school zone limits signage. Upgrade school flashers to overhead mast arm.	\$
CV3	Mid	High	Slaughterhouse Lane/Courthouse Street intersection	Install high visibility crosswalk perpendicular across Slaughterhouse Lane. Connect the existing sidewalk to the new landing point on the north corner. Install ADA curb ramp.	\$\$
CV4	Mid	High	East corner of the school by the	Pave a connection from the back of the school to the existing multiuse path.	\$-\$\$

DOUGLAS COUNTY SAFE ROUTES TO SCHOOL • ACTION PLAN

ID	Implementation Timeline	Priority	Location	Draft Recommendations	Cost Estimate
			playground to the multiuse path		
CV5	Mid	Medium	Courthouse Lane, from Slaughterhouse Lane to High School Street	Widen sidewalks.	\$\$
CV6	Short	High	Throughout the Heritage Park parking lot	Restripe crosswalk pavement markings for high visibility.	\$
CV7	Long	High	High School Street and Courthouse Street, northeast corner	Relocate utility pole that is located in the sidewalk and blocks access to the curb ramp.	\$\$\$
CV8	Mid	Medium	Main school entrance on US 395	Widen driveway for bus maneuvering.	\$\$
CV9	Mid	High	US 395/High School Street intersection	Upgrade crossing to an overhead mast arm RRFB per NDOT standards.	\$\$\$
CV10	Mid	Medium	High School Street east of Courthouse Street	Extend drop-off/loading zone to northeast corner of school. Create a turnaround area at the end of High School Street.	\$-\$\$
CV11	Short	Medium	West side of Slaughterhouse Lane and north side of Courthouse Street	Maintain vegetation along sidewalks.	\$
CV12	Long	Medium	End of pavement on High School Street (northeast corner of school)	Option 1: Connect High School Street to the intersection of High School Street and Gilman Ave. Option 2: Connect High School Street to the intersection of Slaughterhouse Lane/Ezell Street/High School Street.	\$\$\$
CV13	Short	Medium	West of the museum and cultural center	Restripe parking lot arrows to convert from one-way access to two-way access.	\$
CV14	Short	High	Northwest quadrant intersection of school	Convert intersection to three-way stop control.	\$

DOUGLAS COUNTY SAFE ROUTES TO SCHOOL • ACTION PLAN

ID	Implementation Timeline	Priority	Location	Draft Recommendations	Cost Estimate
CV15	Short	High	On High School Street and Courthouse Street	Establish school speed zones.	\$

Implementation Timeline: **Short** <2 years, **Mid** 2–5 Years, **Long** >5 Years

Cost Estimate: **\$** <\$100,000, **\$\$** \$100,00-\$500,000, **\$\$\$** >\$500,000

Exhibit B-2: Carson Valley Middle School Recommended Improvements



Appendix C – Douglas High School

Douglas High School is located in the northern section of Minden, adjacent to the US 395 and SR 88 intersection. The school is located in an area of Minden with many different land uses, including single- and multi-family housing and commercial businesses. The area surrounding the school sees relatively high traffic volumes during pick-up and drop-off times, especially given the substantial school-aged population that lives in the area.

Because Douglas High School is the principal high school for the Minden-Gardnerville area, students from a variety of areas attend and travel to the school. Driving and walking are both significant modes of travel, leading to the potential for modal conflicts.

Exhibit C-1 below provides a summary of the safety, intersection, access and circulation, and infrastructure condition issues surrounding Douglas High School.

Exhibit C-1: Douglas High School Existing Conditions



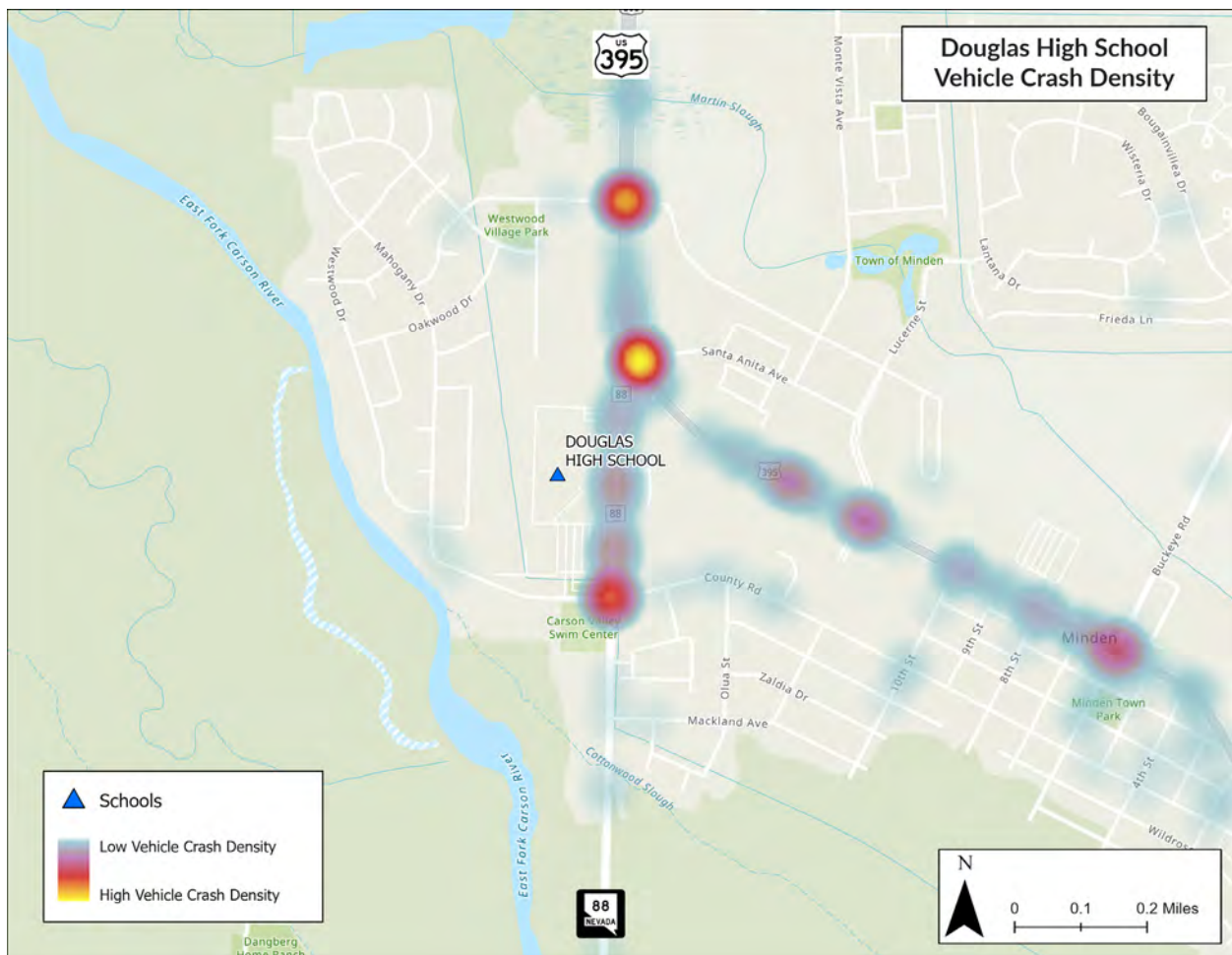
Safety Conditions

A number of safety issues were identified during the walking audit conducted on March 16, 2023, including:

- An incomplete crosswalk south of the school along SR 88.
- A missing segment of sidewalk along Mahogany Drive just south of the school.
- A pedestrian sign along SR 88 was facing the wrong direction.

In addition to the walking audit, the study team also conducted a safety analysis of the two-mile area surrounding each school. The figure and table below summarize vehicle crash data for the 5-year period between 2016 and 2020.

Exhibit C-2: Douglas High School Area Crashes, 2016-2020



	Total Crashes	Fatal Crashes	Serious Injury Crashes	Non-Serious Injury Crashes	Property Damage Only
Number	386	2	1	107	275
Percentage	100.0%	0.6%	25.0%	27.7%	71.2%

Crash Type	Head-On	Angle	Backing	Rear-End	Sideswipe	Non-collision	Unknown
Number	5	117	8	148	61	45	2
Percentage	1.3%	30.3%	2.1%	38.3%	15.8%	11.7%	0.5%

A total of 386 crashes occurred within two miles of the school, including one serious injury and two fatal crashes. Three crashes adjacent to the school involved bicyclists or pedestrians. Thirty-eight percent of crashes were rear-end collisions and 30% were angle crashes.

Intersection Analysis

The following issues have been identified at intersections near Douglas High School:

- Unsafe and long-distance pedestrian crossing at the SR 88/Maverik driveway intersection.
- Faded crosswalks and improperly oriented signage at the SR 88/Mahogany Drive/County Road roundabout.
- Unsafe left-turn movements to/from school parking, especially during pick-up and drop-off times.

School Access and Circulation

The following issues related to school access and circulation were identified during the walking audit conducted on March 16, 2023, including:

- It is difficult to make a left turn out of the school parking lot onto Mahogany Drive, especially during pick-up and drop-off times when traffic volumes are higher.

Infrastructure Condition

Several of the issues noted under Safety Conditions are also infrastructure related.

Crossing Guard Location(s)

During the March 16, 2023 field review, a crossing guard was observed along US 395 near the Maverik driveway.

Equity Considerations

In the 2-mile radius around the school, 16% of households with children are living in poverty, 16% of households do not speak English at home, 6% of the population is a minority, and 2% of households do not have a vehicle at home.

Recommended Improvements

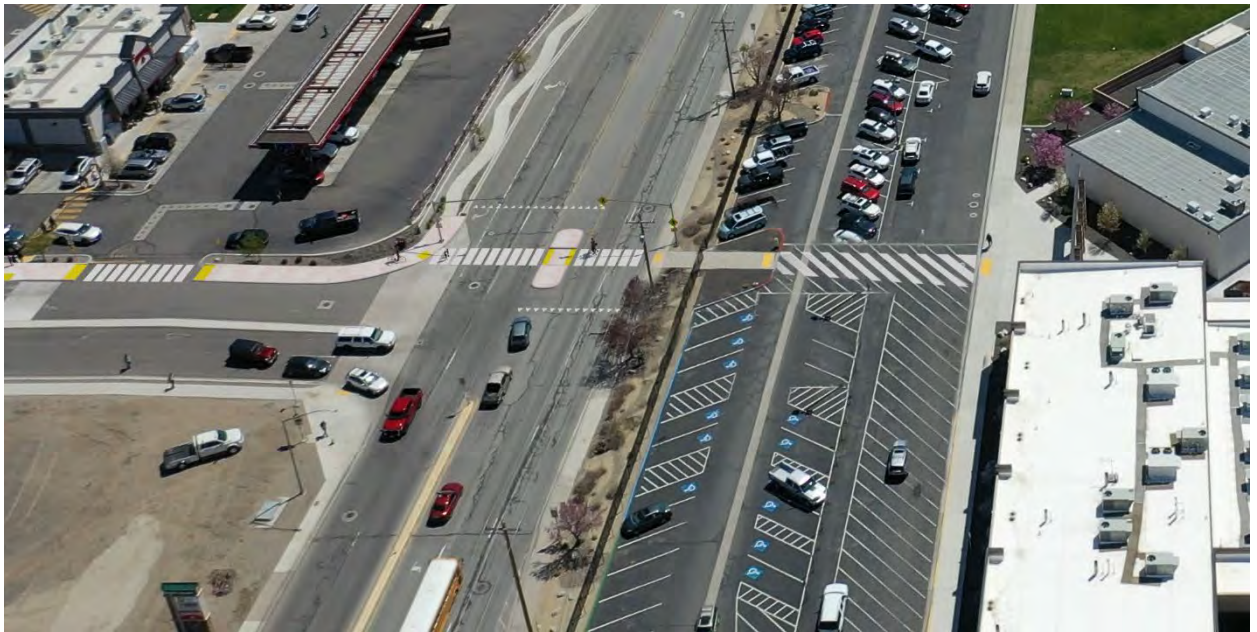
Improvements to help alleviate access, circulation, and infrastructure issues/deficiencies found at Douglas High School are outlined in **Table C-1** and shown in **Exhibit C-2**.

The needs and concepts identified in this study are located on a combination of school, county, and state facilities. Implementation of these investments will involve continued coordination of multiple entities and integration with other regional and statewide transportation planning processes. A lack of funding may limit the ability of local and state agencies to implement recommended improvements. This plan includes a summary of potential funding sources, including competitive grants and formula funds that can be considered for project development.

The crosswalk from Douglas High School to the Maverick driveway on SR 88 (visualized on the following page) was identified as a priority due to the high volume of students crossing at this location and the high truck volumes on SR 88. The current crosswalk location traverses the center left turn lane used to access the Maverick driveway. The current crossing provides a street-level pedestrian-activated RRFB. Concept DH2 in **Table C-1** of the Action Plan proposes relocating the crosswalk to the opposite side of the driveway. By moving the crosswalk out of the center turn lane, it provides room for a center island that functions as a pedestrian refuge and offers enhanced visibility for pedestrians. Overhead RRFBs are recommended due to high traffic and truck volumes at this location.



Existing crosswalk along SR 88 near Douglas High School



Proposed crosswalk improvements along SR 88 near Douglas High School

Table C-1: Douglas High School Recommended Improvements

ID	Implementation Timeline	Priority	Location	Draft Recommendations	Cost Estimate
DH1	Short	High	SR 88/Mahogany Drive/County Road Roundabout	Restripe all crosswalks. Reorient signage at the roundabout that was damaged during the snowstorm.	\$
DH2	Mid	High	SR 88/Maverik driveway intersection	Relocate existing crosswalk to the south side of the intersection. Install a pedestrian refuge island. Install an overhead mast arm RRFB.	\$\$
DH3	Mid	High	SR 88/Maverik driveway intersection	Continue sidewalk on the south side of the Maverik roadway to provide pedestrian access to Maverik.	\$\$
DH4	Long	Medium	SR 88 along school frontage from Marsha's Park (US 395/SR 88) to the relocated crossing by Maverik	Widen sidewalks.	\$\$\$
DH5	Mid	High	SR 88 along school frontage from Marsha's Park (US 395/SR 88) to the relocated crossing by Maverik	Install high visibility crosswalks with ADA ramps.	\$\$
DH6	Mid	Medium	SR 88 from US 395 to the Mahogany roundabout	Narrow travel lanes to 10.5-11' in collaboration with Nevada DOT. Paint a wide edge line to visually reduce travel way. Evaluate widening sidewalk if there is enough ROW.	\$\$-\$\$\$
DH7	Short	High	School zone	Replace existing school zone and pedestrian signage with fluorescent signage.	\$
DH8	Mid	Low	Porkchop island on the south side of the US 395/SR 88 intersection	Evaluate gateway treatment or low-height landscaping that still provides visibility.	\$\$-\$\$
DH9	Mid	Medium	Porkchop island on the south side of the US 395/SR 88 intersection	Install a through walkway with ADA ramps from the intersection crosswalks to the crosswalk across the slip lane.	\$\$

DOUGLAS COUNTY SAFE ROUTES TO SCHOOL • ACTION PLAN

ID	Implementation Timeline	Priority	Location	Draft Recommendations	Cost Estimate
DH10	Mid	Medium	Slip lane from southbound US 395 to southbound SR 88	Remove slip lane and add truck aprons to allow right turn from the intersection. Alternatively, reduce slip lane width and add truck aprons. Collaborate with NDOT.	\$\$\$
DH11	Short	High	Mahogany Drive/ County Road/SR 88	Install ADA detectable warning surfaces at the roundabout medians.	\$
DH12	Short	High	West of SR 88/ Mahogany Drive/ County Road Roundabout	Install school speed zone sign on Mahogany Drive approaching SR 88.	\$
DH13	Short	High	School parking lot	Install traffic control pavement markings: stop bars/signs and pedestrian crosswalks.	\$
DH14	Short	High	East of SR 88/ Mahogany Drive/ County Road Roundabout	Install school speed zone sign on County Road approaching SR 88.	\$
DH15	Mid	Medium	School driveway entrance: north of SR 88/Mahogany Drive/County Road roundabout	Prohibit left turns out of the school driveway using signage or a porkchop island.	\$-\$\$
DH16	Mid	Low	Northern Maverik approach	Install crosswalk on approach.	\$\$
DH17	Short	High	Along Mahogany Drive, south of the high school	Install RRFB at existing crosswalk along Mahogany Drive, connecting the school and aquatics center.	\$
DH18	Mid	High	SR 88 south of US 395 intersection	Extend school zone closer to US 395 and upgrade to overhead beacons.	\$\$

Implementation Timeline: **Short** <2 years, **Mid** 2–5 Years, **Long** >5 Years

Cost Estimate: **\$** <\$100,000, **\$\$** \$100,00-\$500,000, **\$\$\$** >\$500,000

Exhibit C-2: Douglas High School Recommended Improvements



Appendix D – Gardnerville

Elementary School

Gardnerville Elementary School is located near downtown Gardnerville adjacent to US 395. It is surrounded by residential housing areas and the commercial businesses along US 395. The school has the potential to see high levels of walking and bicycling due to the proximity of relatively dense nearby neighborhoods. However, the school also sees higher levels of student pick-up and drop-off by parents using personal vehicles, with the potential for congestion—especially near US 395.

Exhibit D-1 below provides a summary of the safety, intersection, access and circulation, and infrastructure condition issues surrounding Gardnerville Elementary School.

Exhibit D-1: Gardnerville Elementary School Existing Conditions



Safety Conditions

A number of safety issues were identified during the walking audit conducted on March 16, 2023, including:

- Missing crosswalk at US 395 and Mission Street.
- Missing sidewalk on the north side of US 395 just south of Mission Street.
- Pedestrian warning sign near US 395 and Mission Street was always flashing, which could eventually cause drivers to begin ignoring the warning. This sign could potentially be replaced with enhanced LEDs.
- Sidewalks along Toler Avenue south of the school are too narrow.
- Bike lane along Toler Avenue south of the school is not continuous.
- The bike lane along Toler Avenue is cut off by a bulb-out designed to shorten the crossing distance for students, just east of the school.

In addition to the walking audit, the study team also conducted a safety analysis of the two-mile area surrounding each school. The figure and table below summarize vehicle crash data for the 5-year period between 2016 and 2020.

Exhibit D-2: Gardnerville Elementary School Area Crashes, 2016-2020



	Total Crashes	Fatal Crashes	Serious Injury Crashes	Non-Serious Injury Crashes	Property Damage Only
Number	447	3	3	120	320
Percentage	100.0%	0.7%	0.7%	26.8%	71.6%

Crash Type	Head-On	Angle	Backing	Rear-End	Sideswipe	Non-collision	Unknown
Number	16	121	8	152	85	58	6
Percentage	3.6%	27.1%	1.8%	34.0%	19.0%	13.0%	1.3%

The total number of crashes observed in the area is higher than around some of the other schools in Douglas County due to its proximity to US 395. A total of 447 crashes occurred within two miles of the school, including three fatal and three serious injury crashes. Thirty-four percent of crashes were rear-end collisions and 27% were angle crashes.

Intersection Needs

The following issues have been identified at intersections near Gardnerville Elementary School:

- The intersection of Toler Avenue, Waterloo Lane, and Harvest Avenue is challenging to navigate due to its configuration.
- The intersection of Toler Avenue and US 395 is very busy and located immediately adjacent to the school property. The left-turn movement from southbound US 395 to Toler Avenue needs assessment to ensure safe and efficient traffic flow in the vicinity of the school.
- Outdated continuously flashing crosswalk beacon and sidewalk gaps at the intersection of US 395 and Mission Street.
- Unsafe and outdated crosswalk at the intersection of US 395 and Kingslane Court.
- High truck volumes at intersections along US 395.

School Access and Circulation

The following issues related to school access and circulation were identified during the walking audit conducted on March 16, 2023, including:

- Many left turns were observed at the intersection of US 395 and Toler Avenue. These unprotected lefts are one of the riskier types of turning maneuvers.
- Parents have been observed picking up and dropping off students behind the school, off N Marion Russell Drive, with the potential for pedestrian-vehicle conflicts.
- Conflicts and potential conflicts were observed in the informal parking area behind the school, off Giles Lane.

Infrastructure Condition

Several of the issues noted under Safety Conditions are also infrastructure related.

Crossing Guard Location(s)

During the March 16, 2023, field review, crossing guards were observed at the following locations:

- At the intersection of Toler Avenue and Toiyabe Avenue
- At the intersection of US 395 and Mission Street (near Jerry's Grill)

Equity Considerations

In the 2-mile radius around the school, 16% of households with children are living in poverty, 16% of households do not speak English at home, 5% of the population is a minority, and 7% of households do not have a vehicle at home. Due to adjacent residential areas, this school has substantial potential for generating walking and bicycling trips. Improving the safety and convenience of walking and bicycling to school would be especially beneficial for the area's socioeconomically disadvantaged residents.

Recommended Improvements

Improvements to help alleviate access, circulation, and infrastructure issues/deficiencies found at Gardenville Elementary School are outlined in **Table D-1** and shown in **Exhibits D-2** and **D-3**.

The needs and concepts identified in this study are located on a combination of school, county, and state facilities. Implementation of these investments will involve continued coordination of multiple entities and integration with other regional and statewide transportation planning processes. A lack of funding may limit the ability of local and state agencies to implement recommended improvements. This plan includes a summary of potential funding sources, including competitive grants and formula funds that can be considered for project development. A visualization of one of the proposed improvements in the vicinity of the school is provided below.



Existing conditions along US 395



US 395 with proposed improvements

Table D-1: Gardnerville Elementary School Recommended Improvements

ID	Implementation Timeline	Priority	Location	Draft Recommendations	Cost Estimate
GN1	Short	Low	Village Motel parking lot	Prohibit pick-up/drop-off through increased signage and communication with students' families.	\$
GN2	Short	High	US 395/ Mission Street intersection	Install high visibility crosswalk with ADA ramps across Mission Street.	\$\$
GN3	Mid	High	West of US 395/ Mission Street intersection	Install continuous sidewalk with ADA ramps along US 395, where there are currently gaps in the sidewalk network.	\$\$
GN4	Mid	Low	Toler Avenue along school frontage	Widen sidewalk and consider installing a landscape buffer between the travel lanes and sidewalk.	\$\$-\$\$\$
GN5	Mid	Medium	West of Toiyabe Avenue/Toler Avenue intersection	Install bike ramp on the curb extension at the existing crosswalk for the bike lane along Toler Avenue. Consider delineation of pedestrian and bicycle facilities through materials and linear detectable warning surfaces.	\$\$
GN6	Mid	Medium	US 395 from Kingslane Court to Mission Street	Consider lane narrowing and wide edge lines to speed management in areas adjacent to schools.	\$\$-\$\$\$
GN7	Short	High	North side of Toler Ave from US 395 to Harvest Avenue	Remove "No Parking Except 8–10am, 2–4pm" signs since the approximately 5' bike lane is not wide enough for parking and the times posted conflict with school pick-up and drop-off for students who bike to school.	\$
GN8	Mid	Medium	Toler/Harvest/ Waterloo intersection	Widen center median on Harvest Ave to be ADA compliant (minimum 6' pedestrian refuge). Widen opening through median to allow enough space for pedestrians and bicyclists (approximately 10'). Add detectable warning surfaces for ADA compliance. Extend the center median about 100' north of where it currently ends to deter drivers from making illegal U-turns.	\$\$

DOUGLAS COUNTY SAFE ROUTES TO SCHOOL • ACTION PLAN

ID	Implementation Timeline	Priority	Location	Draft Recommendations	Cost Estimate
GN9	Mid	Medium	Porkchop island between Toler Ave and Harvest Ave at the Harvest/Toler/Waterloo intersection	Perform an intersection evaluation for overall safety of all users.	\$\$
GN10	Long	Medium	Harvest/Toler/Waterloo intersection	Install high visibility crossing across Waterloo/Toler on the east side of the Harvest/Toler/Waterloo intersection. Install pedestrian refuge island. Install sidewalk connection to existing sidewalk and crosswalk. Install ADA curb ramps.	\$\$\$
GN11	Mid	High	Unpaved gravel lot directly north of the school parking lot	Pave and stripe the unpaved gravel lot parking area to reduce multimodal conflicts.	\$\$
GN12	Mid	High	US 395 from Kingslane Court to Toler Ave	Install continuous sidewalk with ADA ramps along US 395, where there are currently gaps in the sidewalk network.	\$\$-\$\$\$
GN13	Short	Medium	School front door entrance	Install additional bike rack in central courtyard.	\$
GN14	Mid	High	US 395/ Kingslane Court intersection	Install RRFB above high visibility crosswalk. Install advance warning signs in advance of this crosswalk.	\$\$
GN15	Mid	High	Giles Lane/ N Marion Russell Drive intersection	Install high visibility crosswalk with ADA curb ramps. Install advance warning signs in advance of this crosswalk.	\$\$

DOUGLAS COUNTY SAFE ROUTES TO SCHOOL • ACTION PLAN

ID	Implementation Timeline	Priority	Location	Draft Recommendations	Cost Estimate
GN16	Long	High	US 395 and Mission Street to US 395 and Toler Lane	Move the existing crosswalk from the east side of US 395/Mission Street to the south/east side of US 395/Toler Lane. Upgrade to an overhead mast arm RRFB per NDOT standards. Alternatively, add a crossing at US 395/Toler Lane in addition to the existing crossing at US 395/Mission Street.	\$\$
GN17	Short	Medium	Intersection of Toler Ave/ US 395	Consider allowing the SB US 395 left-turn movement to Toler Ave.	\$

Implementation Timeline: **Short** <2 years, **Mid** 2–5 Years, **Long** >5 Years

Cost Estimate: **\$** <\$100,000, **\$\$** \$100,00-\$500,000, **\$\$\$** >\$500,000

Exhibit D-2: Gardnerville Elementary School Recommended Improvements



Exhibit D-3: Gardnerville Elementary School Recommended Improvements (Zoomed Out)

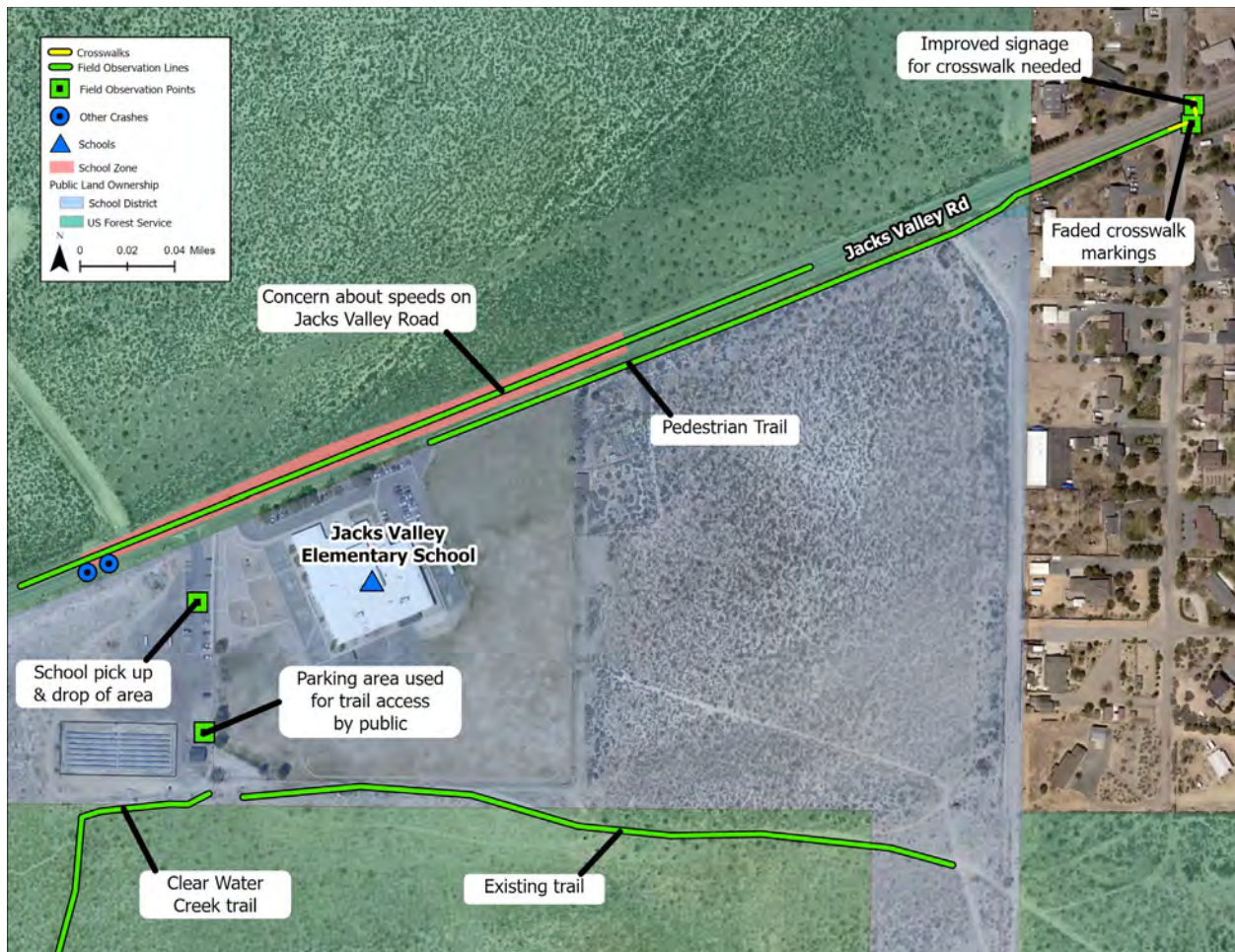


Appendix E – Jacks Valley Elementary School

Although Jacks Valley Elementary is located on an isolated stretch of Jacks Valley Road, there is a residential area within 2 miles of the school that has the potential to generate bicycling trips by students. Although the 2-mile distance is likely too far for elementary school students to walk, the school could be a candidate for a [park and walk](#) type program. In particular, the section of the Indian Hills subdivision near the school has a high density of school-aged children (ages 5–18).

Exhibit E-1 below provides a summary of the safety, intersection, access and circulation, and infrastructure condition issues surrounding Jacks Valley Elementary School.

Exhibit E-1: Jacks Valley Elementary School Existing Conditions



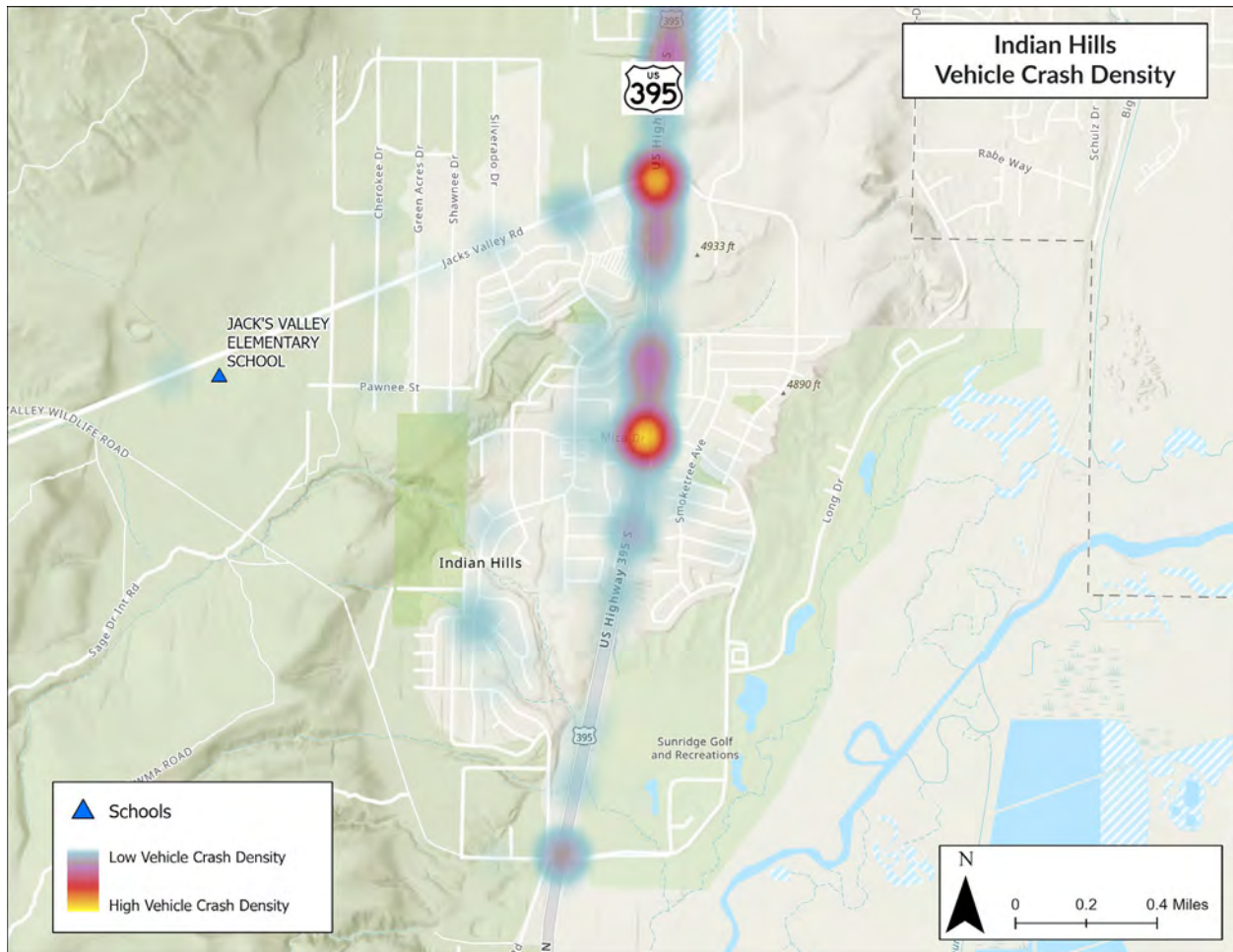
Safety Conditions

The following safety issues were identified during the walking audit conducted on March 16, 2023, including:

- Vehicles speeding along Jacks Valley Road.

In addition to the walking audit, the study team also conducted a safety analysis of the two-mile area surrounding each school. The figure and table below summarize vehicle crash data for the 5-year period between 2016 and 2020.

Exhibit E-2: Jacks Valley Elementary School Area Crashes, 2016-2020



	Total Crashes	Fatal Crashes	Serious Injury Crashes	Non-Serious Injury Crashes	Property Damage Only
Number	490	0	6	130	353
Percentage	100.0%	0.0%	1.2%	26.5%	72.0%

Crash Type	Head-On	Angle	Backing	Rear-End	Sideswipe	Non-collision	Unknown
Number	5	75	9	268	43	84	3
Percentage	1.0%	15.3%	1.8%	54.6%	8.8%	17.1%	0.6%

The total number of crashes observed in this area is higher than around some of the other schools in Douglas County due to its proximity to US 395. A total of 490 crashes occurred within two miles of the school, including six serious injury crashes. Fifty-four percent of crashes were rear-end collisions. Rear-end crashes are more common in areas with a higher number of turning movements and stop-and-go traffic, especially when combined with higher travel speeds and/or distracted driving.

Intersection Needs

The following issues have been identified at intersections near Jacks Valley Elementary School:

- Crosswalk markings were faded at the intersection of Jacks Valley Road and Arcadia Drive. Improved crosswalk signage is also needed at this location.
- The lack of an accessible walkway or curb ramps on the northeast and southeast corners of the intersection of Jacks Valley Road and Arcadia Drive.

School Access and Circulation

The following issues related to school access and circulation were identified during the walking audit conducted on March 16, 2023, including:

- The bus loop in front of Jacks Valley Elementary is inadequate to contain buses during pick-up and drop-off times, resulting in spill-out onto Jacks Valley Road.
- Shoulder parking has also been observed along Jacks Valley Road, presumably due to inadequate parking and/or loading/unloading zones for pick-up and drop-off times.
- Illegal U-turns have been observed in front of the school.

Infrastructure Condition

The following issues related to infrastructure condition were identified during the walking audit conducted on March 16, 2023, including:

- Silt and sand were observed on the pathway in front of the school along Jacks Valley Road, which poses a safety hazard for bicyclists, scooters, and wheelchair users.
- Sidewalk repairs are needed along Jacks Valley Road to the west of the school.
- ADA parking markings in front of the school did not meet current standards.
- There was no ADA accessible ramp/curb cut leading into the school building.

Crossing Guard Location(s)

No crossing guards were seen during the March 16, 2023, field review.

Equity Considerations

In the area surrounding Jacks Valley Elementary school, 14% of families with children under the age of 18 are living in poverty. In the 2-mile radius around the school, 4% of homes do not have a vehicle, 18% do not speak English in their home, and 8% of the population is a minority.

Recommended Improvements

Improvements to help alleviate access, circulation, and infrastructure issues/deficiencies found at/near Jacks Valley Elementary School are outlined in **Table E-1**. The improvements can be seen in **Exhibit E-2** and **Exhibit E-3**.

The needs and concepts identified in this study are located on a combination of school, county, and state facilities. Implementation of these investments will involve continued coordination of multiple entities and integration with other regional and statewide transportation planning processes. A lack of funding may limit the ability of local and state agencies to implement recommended improvements. This plan includes a summary of potential funding sources, including competitive grants and formula funds that can be considered for project development.

The multiuse path crossing at the intersection of Jacks Valley Road and Arcadia Drive was identified as a significant safety concern by Jacks Valley Elementary School. The current crosswalk is difficult to see and does not contain ADA accessible curb ramps. High travel speeds on Jacks Valley Road were cited as a major concern for parents in considering allowing their students to walk or bike to school. In addition, the current crosswalk is located on the side of the intersection that experiences the dominant travel demand pattern of vehicles travelling from Arcadia to US 395. A recommended improvement would relocate the crosswalk to the other side of the intersection, install overhead pedestrian activated RRFB, and construct ADA compliant curb ramps. A visualization is provided on the following page.



Existing conditions at Jacks Valley Road and Arcadia Drive



Proposed improvements along Jacks Valley Road and Arcadia Drive

Table E-1: Jacks Valley Elementary School Recommended Improvements

ID	Implementation Timeline	Priority	Location	Draft Recommendations	Cost Estimate
JV1	Mid	High	Arcadia Drive/ Jacks Valley Road intersection	Relocate crosswalk to the west side of the intersection and restripe the existing southern crosswalk for high visibility. Install crosswalk and solar RRFB across Jacks Valley Road. Install accessible walkway or curb ramps on the northeast and southeast corners of the intersection. Install fluorescent advance warning signs/students crossing signs in both directions for crossing.	\$\$
JV2	Mid	Medium	Jacks Valley Road, from Arcadia Drive to Bavarian Drive	Consider lane narrowing and wide edge lines to reduce speeds in areas adjacent to schools.	\$\$
JV3	Mid	Low	School frontage on Jacks Valley Road and Clear Water Creek Trail parking lot, west of school	Update school area and parking lot signage. Add designated trailhead parking signage south of the parking lot.	\$\$-
JV4	Mid	High	Shared-use path and east school driveway	Continue the shared-use path from where it currently ends at the east school driveway to the center driveway. Install a sidewalk with ADA ramps from the center driveway to the front of the school. Stripe a high visibility crosswalk across the bus lane.	\$\$
JV5	Short	High	Center school driveway off of Jacks Valley Road	Convert the center driveway to be enter/exit rather than exit only.	\$
JV6	Short	High	Parking lot west of school	Fill gap in sidewalk next to the gate.	\$
JV7	Short	High	Jacks Valley Road school zone	Coordinate with Douglas County regarding operating times for 15 miles per hour (MPH) zone flashers.	\$

DOUGLAS COUNTY SAFE ROUTES TO SCHOOL • ACTION PLAN

ID	Implementation Timeline	Priority	Location	Draft Recommendations	Cost Estimate
JV8	Short	High	Jacks Valley Road school zone	Move existing 35 MPH posted speed limit sign further away from the 15 MPH posted speed limit signs and evaluate adding new 25 MPH posted speed limit signs to stage the deceleration in front of the school.	\$
JV9	Mid	High	Jacks Valley Road school zone	Install lateral rumble strips at the 25 MPH posted speed limit signs to increase driver attentiveness, in coordination with JV8.	\$
JV10	Mid	Medium	Front parking lot of school, off Jacks Valley Road	Extend bus loading zone to utilize the full curb length.	\$\$
JV11	Mid	Medium	Jacks Valley Road school zone	Install curb and gutter along frontage of school and prohibit parking along frontage using signage.	\$\$
JV12	Short	Medium	Parking lot east of school	Update ADA parking signs/markings.	\$
JV13	Short	Medium	Shared-use path and east school driveway	Encourage shared-use path maintenance by Douglas County.	\$

Implementation Timeline: **Short** <2 years, **Mid** 2–5 Years, **Long** >5 Years

Cost Estimate: **\$** <\$100,000, **\$\$** \$100,00-\$500,000, **\$\$\$** >\$500,000

Exhibit E-2: Jacks Valley Elementary School Recommended Improvements



Exhibit E-3: Jacks Valley Elementary School Recommended Improvements (Zoomed Out)



Appendix F – Minden Elementary School

Minden Elementary School is located northeast of downtown Minden-Gardnerville. The school is surrounded by several newly completed housing developments, with additional housing construction planned in the future. The area surrounding the school has wide sidewalks separated from the road and low speed requirements near the school. These conditions support walking and bicycling to school for the large school aged population in these residential areas. However, the catchment area for the school is large, which leads to a combination of walking, bicycling, and vehicular pick-up/drop-off, and the potential for modal conflicts.

Exhibit F-1 below provides a summary of the safety, intersection, access and circulation, and infrastructure condition issues surrounding Minden Elementary School.

Exhibit F-1: Minden Elementary School Existing Conditions



Safety Conditions

A number of safety issues were identified during the walking audit conducted on March 16, 2023, including:

- Missing crosswalks in two locations along Heybourne Road (at Chantel Drive and Monterra Drive).
- An ADA-accessible curb ramp is needed along Baler Street just south of the school.
- There was inadequate advance pedestrian signage along Buckeye Road.

In addition to the walking audit, the study team also conducted a safety analysis of the two-mile area surrounding each school. The figure and table below summarize vehicle crash data for the 5-year period between 2016 and 2020.

Exhibit F-2: Minden Elementary School Area Crashes, 2016-2020



	Total Crashes	Fatal Crashes	Serious Injury Crashes	Non-Serious Injury Crashes	Property Damage Only
Number	462	2	1	130	328
Percentage	100.0%	0.4%	0.2%	28.1%	71.0%

Crash Type	Head-On	Angle	Backing	Rear-End	Sideswipe	Non-collision	Unknown
Number	11	127	9	182	79	50	4
Percentage	2.4%	27.5%	1.9%	39.4%	17.1%	10.8%	0.9%

The total number of crashes observed in the area is higher than around some of the other schools in Douglas County due to its proximity to US 395. A total of 462 crashes occurred within two miles of the school, including one serious injury and two fatal crashes. Thirty-nine percent of crashes were rear-end collisions. Rear-end crashes are more common in areas with a higher number of turning movements and stop-and-go traffic, especially when combined with higher travel speeds and/or distracted driving. The two crashes in closest proximity to the school resulted in property damage only. The neighborhood surrounding the school has narrower streets and sidewalks, which tends to slow vehicle speeds and improve safety.

Intersection Needs

The following issues have been identified at intersections near Minden Elementary School:

- Lack of ADA ramps at the Heybourne Road/Monterra Drive intersection, Heybourne Road/Chantel Drive intersection, and Buckeye Road/Sanford Way intersection.
- Low visibility and faded crosswalks at the Heybourne Road/Monterra Drive intersection, Heybourne Road/Chantel Drive intersection, and Buckeye Road/Sanford Way intersection.
- Long pedestrian crossing distance across Buckeye Road at its intersections with Buckeye Road and Sanford Way.

School Access and Circulation

The following issues related to school access and circulation were identified during the walking audit conducted on March 16, 2023, including:

- Pick-up and drop-off area is too small to accommodate daily school traffic and overflows/becomes congested.
- Traffic congestion is typical along Baler Street just south of the school.
- Illegal U-turns have also been observed in this location.

Infrastructure Condition

The following issues related to infrastructure condition were identified during the walking audit conducted on March 16, 2023, including:

- Crosswalk markings were faded at the intersection of Buckeye Road and Sanford Way, and signage was inadequate.
- School zone signage in the neighborhood behind the school (e.g., along Montecito Drive) is outdated.

Crossing Guard Location(s)

During the March 16, 2023, field review, crossing guards were observed at the following locations:

- At the intersection of Sanford Way and Baller Street
- Along Baller Street, at the main crosswalk
- At the intersection of Sanford Way and Buckeye Road
- At the western parking lot crosswalk near the school entrance

Equity Considerations

In the 2-mile radius surrounding the school, 16% of households with children are living in poverty, 16% of households do not speak English at home, 6% of the population is a minority, and 1% of households do not have a vehicle at home.

Recommended Improvements

Improvements to help alleviate access, circulation, and infrastructure issues/deficiencies found at Minden Elementary School are outlined in **Table F-1** and shown in **Exhibits F-2** and **F-3**.

The needs and concepts identified in this study are located on a combination of school, county, and state facilities. Implementation of these investments will involve continued coordination of multiple entities and integration with other regional and statewide transportation planning processes. A lack of funding may limit the ability of local and state agencies to implement recommended improvements. This plan includes a summary of potential funding sources, including competitive grants and formula funds that can be considered for project development.

Table F-1: Minden Elementary School Recommended Improvements

ID	Implementation Timeline	Priority	Location	Draft Recommendations	Cost Estimate
MN1	Mid	Medium	Heybourne Road/ Monterra Drive intersection	Install high visibility crosswalk with ADA ramps on the south side of the intersection, with a pedestrian refuge island.	\$\$
MN2	Mid	Medium	Heybourne Road/ Chantel Drive intersection	Install high visibility crosswalk with ADA ramps on the south side of the intersection, with a pedestrian refuge island.	\$\$
MN3	Short	High	Buckeye Road/ Sanford Way intersection	Restripe crosswalk pavement markings for high visibility and install ADA curb ramps. Install advance warning signs with flashers. Update existing RRFB.	\$\$
MN4	Mid	High	Buckeye Road/ Sanford Way intersection	Install curb extensions/bulb-outs on all corners to reduce the pedestrian crossing distance across Buckeye Road.	\$\$
MN5	Short	Medium	Azure Drive at Monterra Drive and Chantel Drive	Install east-west high visibility crosswalks with ADA ramps.	\$\$
MN6	Short	High	Baler Street/ Sanford Way intersection	Install advance warning signs for pedestrian crossing/school zone prior to this intersection.	\$
MN7	Short	High	Baler Street, between the school parking lots	Restripe crosswalk for high visibility. Install ADA curb ramps.	\$\$
MN8	Short	High	School zone	Upgrade all school zone signs to fluorescent yellow/green.	\$
MN9	Mid	Medium	Buckeye Road east of Sanford Way	Install a transitional ramp between the shared-use path on the north side of Buckeye to the westbound shoulder bike lane on Buckeye Road.	\$
MN10	Short	High	Montecito Drive, east of Sanford Way	Update school speed zone signage.	\$

DOUGLAS COUNTY SAFE ROUTES TO SCHOOL • ACTION PLAN

ID	Implementation Timeline	Priority	Location	Draft Recommendations	Cost Estimate
MN11	Short	Medium	East side of existing parking lot, in front of school	Install pull forward signage.	\$
MN12	Long	Medium	North side of existing parking lot, with new opening along Sanford Way	Install new egress road. Alternative 1: Install new road just north of existing parking lot. Alternative 2: Install new egress driveway on north side of existing parking lot, with new opening to Sanford Way.	\$\$\$

Implementation Timeline: **Short** <2 years, **Mid** 2–5 Years, **Long** >5 Years

Cost Estimate: **\$** <\$100,000, **\$\$** \$100,00-\$500,000, **\$\$\$** >\$500,000

Exhibit F-2: Minden Elementary School Recommended Improvements

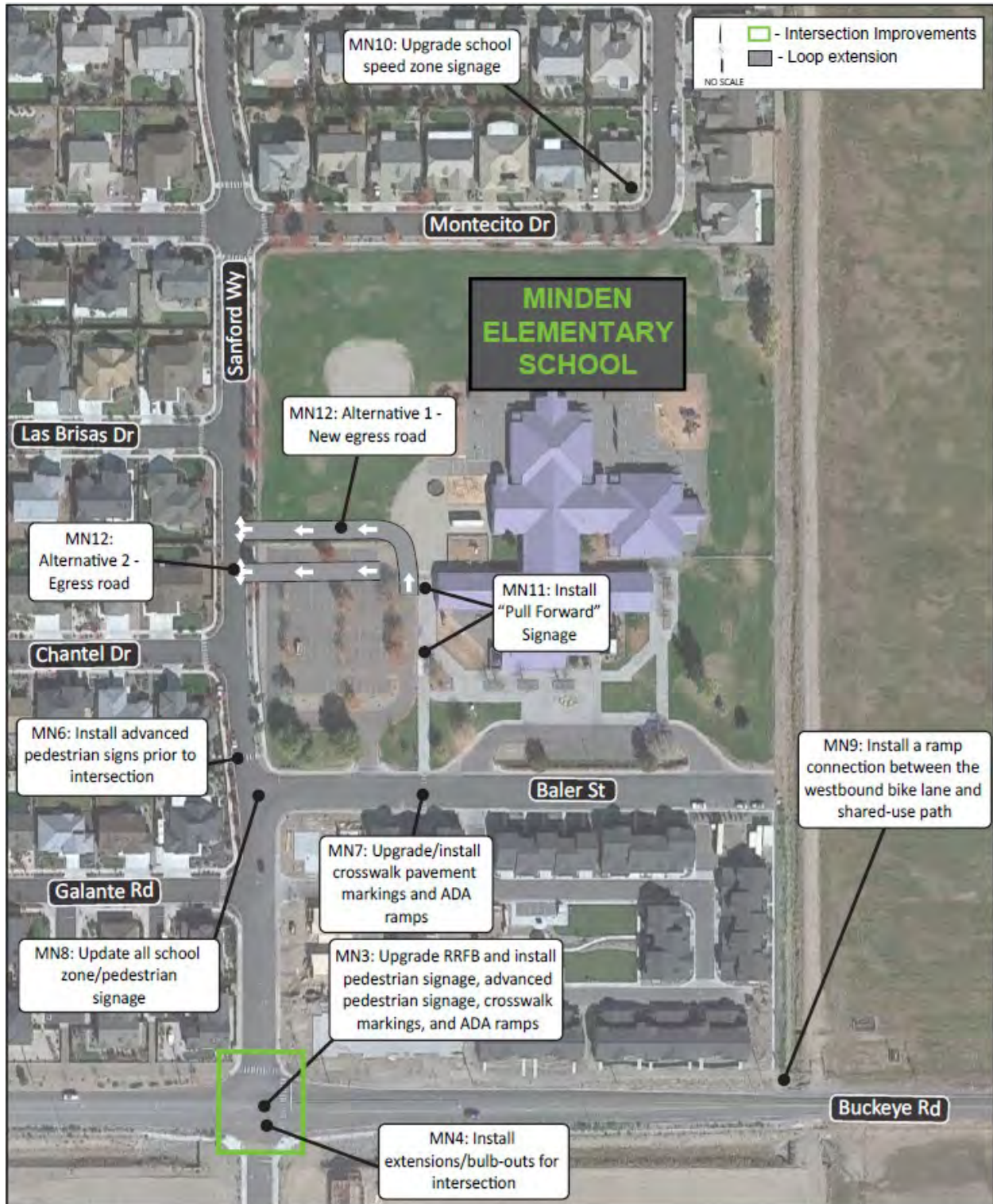


Exhibit F-3: Minden Elementary School Recommended Improvements (Zoomed Out)



Appendix G – Pau-Wa-Lu Middle School and Scarselli Elementary School

Pau-Wa-Lu Middle School and Scarselli Elementary School are located next to each other in the southern section of Gardnerville Ranchos. Gardnerville Ranchos is a residential community with a large school aged population. Although there are sidewalks and crosswalks in many locations adjacent to the school, there are also gaps in connectivity and opportunities to improve accessibility. These improvements could encourage higher levels of walking and bicycling by students living nearby.

Exhibit G-1 below provides a summary of the safety, intersection, access and circulation, and infrastructure condition issues surrounding Pau-Wa-Lu Middle School.

Exhibit G-1: Pau-Wa-Lu Middle School and Scarselli Elementary Existing Conditions



Safety Conditions

A number of safety issues were identified during the walking audit conducted on March 16, 2023, including:

- Lack of stop signs or crosswalk markings at the four-way intersection just south of the school (Kathy Way and Jill Drive).
- Sidewalk in front of the school along Long Valley Road is not ADA compliant.
- The Standard style crosswalk at the intersection of Ann Way and Long Valley Road is outdated, and should be replaced with a high-visibility Zebra, Ladder, or Continental design, to improve visibility.
- There is a bike lane on only one side of Long Valley Road.

In addition to the walking audit, the study team also conducted a safety analysis of the two-mile area surrounding each school. The figure and table below summarize vehicle crash data for the 5-year period between 2016 and 2020.

Exhibit G-1: Pau-Wa-Lu Middle School and Scarselli Elementary Area Crashes, 2016-2020



	Total Crashes	Fatal Crashes	Serious Injury Crashes	Non-Serious Injury Crashes	Property Damage Only
Number	167	2	5	44	116
Percentage	100.0%	1.2%	3.0%	26.3%	69.5%

Crash Type	Head-On	Angle	Backing	Rear-End	Sideswipe	Non-collision	Unknown
Number	11	48	14	37	24	28	4
Percentage	6.6%	28.7%	8.4%	22.2%	14.4%	16.8%	2.4%

A total of 167 crashes occurred within two miles of the school, including five serious injury and two fatal crashes. About 4.2% of crashes resulted in fatal or serious injuries, the highest proportion of all the schools in the planning area. Twenty-eight percent of crashes were angle collisions. While the crashes nearest the schools resulted in property damage only, it is important to note the severity of crashes that have occurred on local streets in the Gardnerville Ranchos area, as shown previously in Exhibit 9. Wide streets such as the ones in this area can contribute to higher vehicle travel speeds and increased crash severity.

Intersection Needs

The following issues have been identified at intersections near the schools:

- Outdated and faded crosswalks and a lack of ADA ramps at the intersections of Long Valley Road with Angora Drive and Ann Way.
- Missing crosswalk, ADA ramps, and stop sign at the intersection of Lassen Way and Angora Drive.
- There are no crosswalks or ADA ramps at the intersection of Kathy Way and Jill Drive.

School Access and Circulation

The following issues related to school access and circulation were identified during the walking audit and pick-up/drop-off observation, including:

- Vehicle queueing can often be observed along Long Valley Road during pick-up and drop-off times due to inadequate capacity in the student drop-off loop.
- Illegal U-turns have been observed at the intersection of Long Valley Road and Angora Drive.
- Sidewalks leading from the parking area to the Scarselli Elementary School building are too narrow for the volume of students.

Infrastructure Condition

The following issues related to infrastructure condition were identified during the walking audit conducted on March 16, 2023:

- Crosswalk markings need to be updated at the intersections of Long Valley Road and Angora Drive, and Long Valley Road and Ann Way, from a Standard crosswalk to a high-visibility Zebra, Ladder, or Continental design, to improve visibility.
- Sidewalks in front of the school do not meet ADA standards for clearance due to the location of fencing/gates.

Crossing Guard Location(s)

During the March 16, 2023, field review, crossing guards were observed at the following locations:

- At the intersection of Long Valley Road and Ann Way
- At the intersection of Long Valley Road and Angora Drive

Equity Considerations

In the 2-mile radius around the school, 23% of households with children are in poverty, 30% of households do not speak English at home, 23% of the population is a minority, and 7% of households do not have a vehicle at home. Improving the safety and convenience of walking and bicycling to school would be especially beneficial for the area's socioeconomically disadvantaged residents.

Recommended Improvements

Improvements to help alleviate access, circulation, and infrastructure issues/deficiencies found at Pau-Wa-Lu Middle School and Scarselli Elementary School are outlined in **Table G-1** and shown in **Exhibits G-2** and **G-3**.

The needs and concepts identified in this study are located on a combination of school, county, and state facilities. Implementation of these investments will involve continued coordination of multiple entities and integration with other regional and statewide transportation planning processes. A lack of funding may limit the ability of local and state agencies to implement recommended improvements. This plan includes a summary of potential funding sources, including competitive grants and formula funds that can be considered for project development.

A visualization of one of the proposed improvements in the vicinity of the school is provided on the following page. Long Valley Road in front of Pau-Wa-Lue Middle School and Scarselli Elementary School is a wide two-lane road with bicycle lanes on one side of the street, narrow sidewalks, and on-street parking. Students and other members of the public noted high travel speeds and the lack of pedestrian and bicycle amenities in this area. Existing crosswalk markings are faded and do not provide high levels of visibility.

Project SC1 proposes restriping the existing roadway to include two 11-foot-wide travel lanes, 6.5-foot-wide bicycle lanes next to the curb, and parking lanes to provide a buffer between the bicycle lane and automobile travel lanes. Project SC5 proposes widening the sidewalks along the school frontage, removing barriers to the path of travel currently located in the sidewalk, and providing ADA accessible curb ramps.



Existing conditions along Long Valley Road



Visualization of proposed improvements along Long Valley Road

Table G-1: Pau-Wa-Lu Middle School and Scarselli Elementary School Recommended Improvements

ID	Implementation Timeline	Priority	Location	Draft Recommendations	Cost Estimate
PWL1	Short	Medium	Long Valley Road at the Pau-Wa-Lu bus lane driveway	Install a high visibility crosswalk with ADA ramps and an RRFB across Long Valley Road to provide an alternative walking route to school that avoids the vehicular traffic at the Long Valley Road/Angora Drive intersection.	\$\$
PWL2	Mid	High	Pau-Wa-Lu drop-off loop	Extend student drop-off loop to bus driveway and add sidewalk.	\$\$\$
PWL3	Short	Medium	North side of Pau-Wa-Lu, near the bus driveway	Relocate existing bike racks on the north side of Pau-Wa-Lu so they are closer to the main entrance.	\$
SC1	Mid	High	Long Valley Road from Main River Road to Bluerock Road	Restripe the roadway so the bike lanes are parking protected (i.e., the bike lanes are next to the curb and the parking is in between the bike lanes and the travel lane). The curb-to-curb width is about 60' throughout the corridor. Consider the following rechannelization: 6.5' bike lanes with 3' painted buffer between bike lane and parking (on both sides), 7' parking lanes (on both sides), and 11' travel lanes. This configuration still leaves additional room that could either be allocated to the parking lane, buffer, or bike lane.	\$\$-\$\$\$
SC2	Long	Medium	Angora Drive from Long Valley Road to Jill Drive	Install sidewalk on the west side of Angora Drive that ties into the existing sidewalk on Long Valley Road and Jill Drive including ADA curb ramps. Sidewalk would extend across the east side of the Scarselli parking lot, with high visibility crosswalks where vehicles enter/exit the lot.	\$\$-\$\$\$
SC3	Short	High	Long Valley Road/Ann Way intersection	Restripe crosswalks for high visibility and install ADA curb ramps.	\$\$

DOUGLAS COUNTY SAFE ROUTES TO SCHOOL • ACTION PLAN

ID	Implementation Timeline	Priority	Location	Draft Recommendations	Cost Estimate
SC4	Short	High	Kathy Way/Jill Drive intersection	Install high visibility crosswalks with ADA ramps on each leg.	\$\$
SC5	Mid	Medium	Long Valley Road at the pick-up and drop-off lot at Scarselli (across from Irene Court)	Widen sidewalks and upgrade curb ramps at the Scarselli driveways so they are ADA compatible. Currently, the gates at the driveways block access to the curb ramps and do not meet ADA standards. Curb ramp users must enter the street to access the paired curb ramp.	\$\$
SC6	Short	High	Long Valley Road/Angora Drive intersection	Restripe crosswalks for high visibility and install ADA curb ramps.	\$\$
SC7	Short	High	School zone	Install fluorescent advanced warning signs for all crosswalks within the school zone.	\$
SC8	Long	Medium	Long Valley Road and connecting to the east parking lot	Add new entrance lane and pick-up and drop-off lane. Install new sidewalks along new entrance and extended student drop-off loop. Install and refresh arrows for better traffic control.	\$\$
SC9	Short	High	Sidewalk at east end of bus loop of Scarselli	Modify sidewalk for ADA compliance.	\$
SC10	Short	Medium	East side of Gene Scarselli	Relocate bike rack to main entrance.	\$

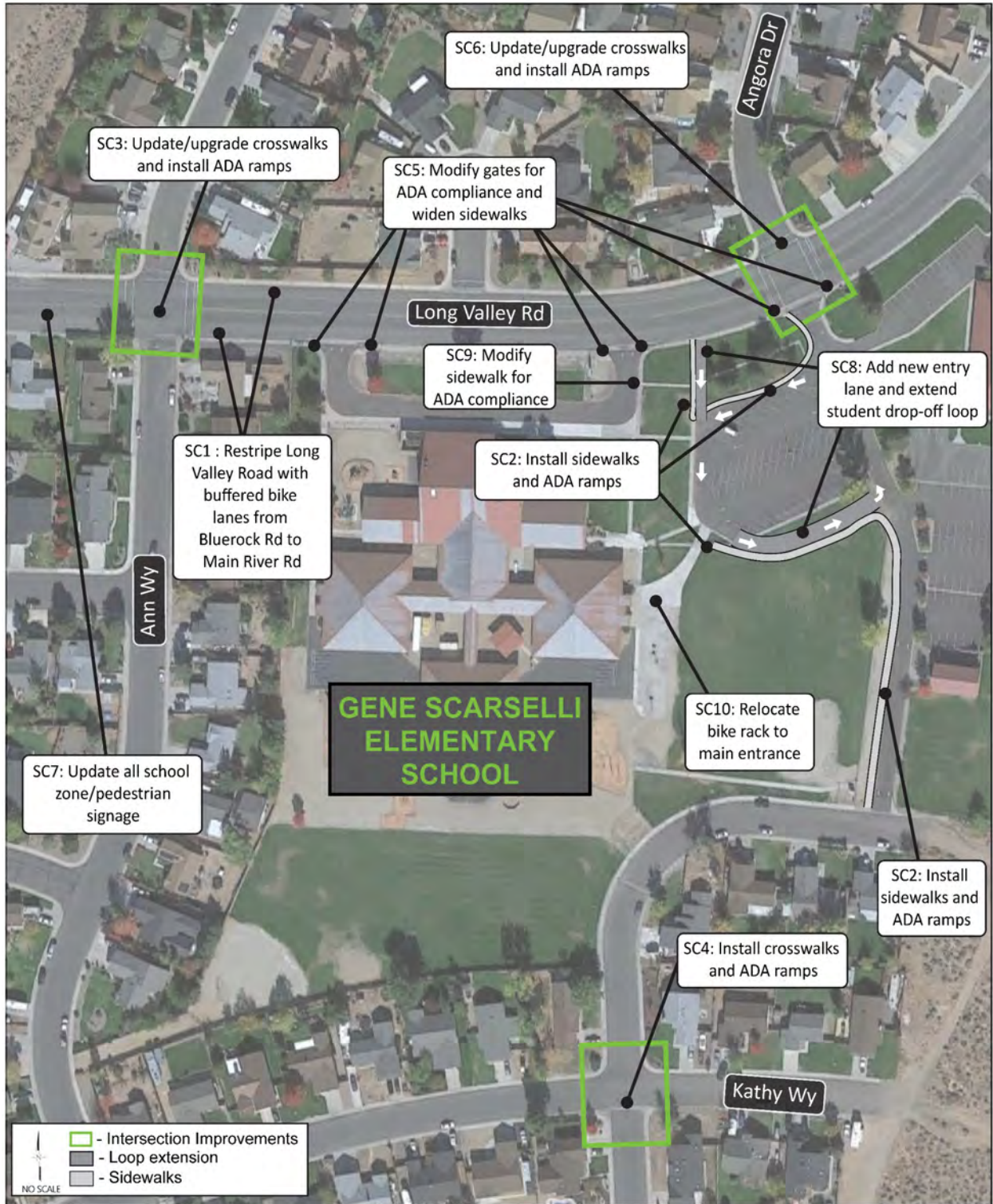
Implementation Timeline: **Short** <2 years, **Mid** 2–5 Years, **Long** >5 Years

Cost Estimate: **\$** <\$100,000, **\$\$** \$100,00-\$500,000, **\$\$\$** >\$500,000

Exhibit G-2: Pau-Wa-Lu Middle School- Recommended Improvements



Exhibit G-3: Scarselli Elementary School Recommended Improvements

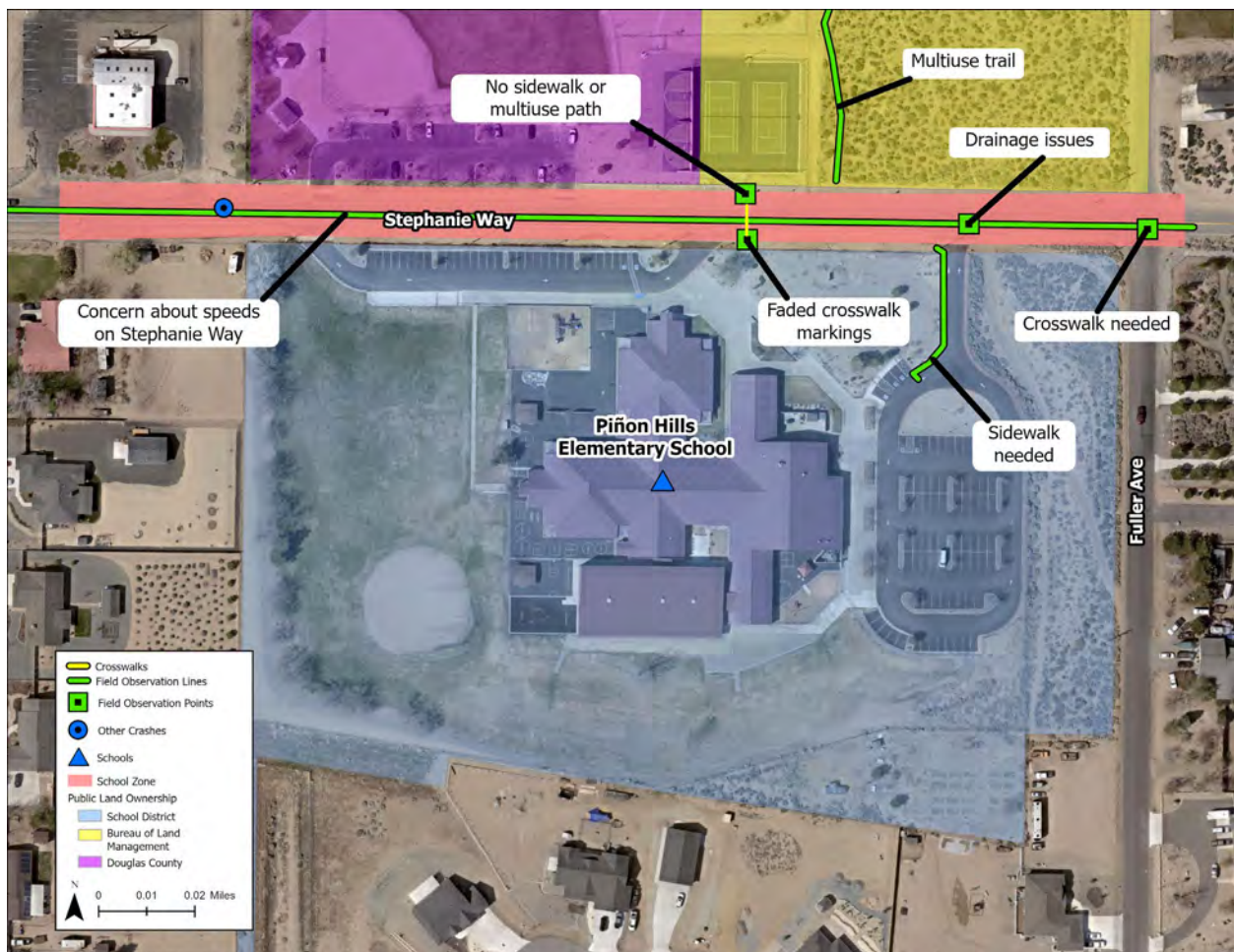


Appendix H – Piñon Hills Elementary School

Piñon Hills Elementary School is located in the Johnson Lane subdivision, in the northern section of Douglas County. Johnson Lane is a residential area, with the school located in the center of the community. Although the area has a relatively large school-aged population with the potential to walk and bicycle to the centrally located school, the community is lacking sidewalks in many locations.

Exhibit H-1 below provides a summary of the safety, intersection, access and circulation, and infrastructure condition issues surrounding Piñon Hills Elementary School.

Exhibit H-1: Piñon Hills Elementary School Existing Conditions



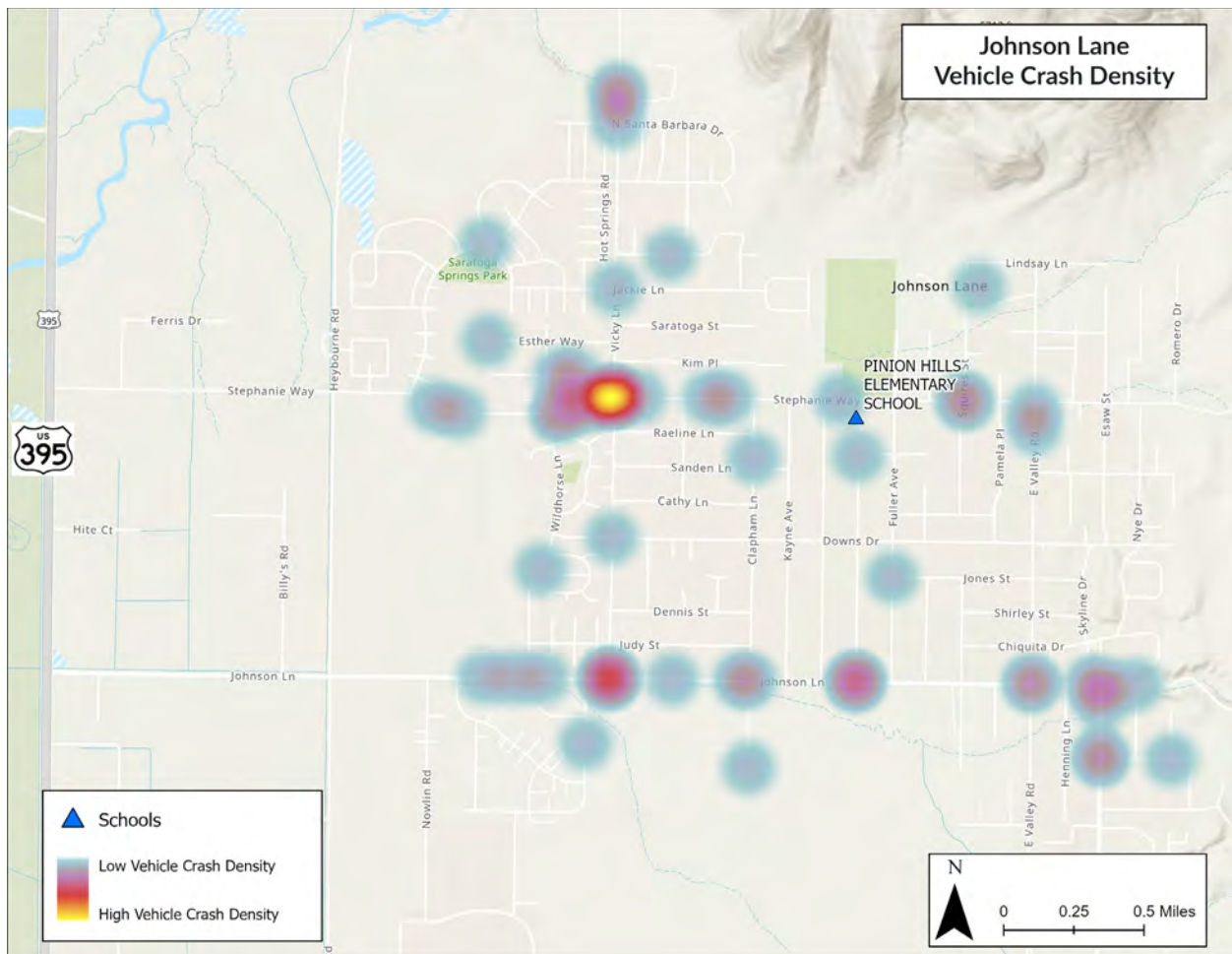
Safety Conditions

A number of safety issues were identified during the walking audit conducted on March 16, 2023, including:

- Missing crosswalk at Stephanie Way and Fuller Avenue.
- Missing sidewalks on the north side of Stephanie way in front of the school building. This section of roadway is also lacking bicycle facilities (e.g., bike lanes).
- Concerns about vehicular speeds along Stephanie Way.
- Missing sidewalk along the parking access road northeast of the school.

In addition to the walking audit, the study team also conducted a safety analysis of the two-mile area surrounding each school. The figure and table below summarize vehicle crash data for the 5-year period between 2016 and 2020.

Exhibit H-2: Piñon Hills Elementary School Area Crashes, 2016-2020



	Total Crashes	Fatal Crashes	Serious Injury Crashes	Non-Serious Injury Crashes	Property Damage Only
Number	72	1	0	21	50
Percentage	100.0%	1.4%	0.0%	29.2%	69.4%

Crash Type	Head-On	Angle	Backing	Rear-End	Sideswipe	Non-collision	Unknown
Number	6	25	4	6	18	12	0
Percentage	8.3%	34.7%	5.6%	8.3%	25.0%	16.7%	0.0%

A total of 72 crashes occurred within two miles of the school, including one fatal crash. Thirty-five percent of crashes were angle collisions. Many of the crashes in the area occurred at intersections on Stephanie Way and Johnson Lane.

Intersection Needs

The following issues have been identified at intersections near Piñon Hills Elementary School:

- Lack of safe connections for pedestrians at the intersections of Stephanie Way with Gordon Avenue and Fuller Avenue. There is a need for paved walkways and high visibility crosswalks with ADA curb ramps at intersections and driveways, along with advance warning signs to reduce speeds and alert drivers of pedestrian crossings near the school.
- The lack of safe and visible pedestrian crossings at the intersection of Stephanie Way and Fuller Avenue.

School Access and Circulation

The following issues related to school access and circulation were identified during the walking audit conducted on March 16, 2023, including:

- Minor spill-out has been observed onto Stephanie Way during pick-up and drop-off times due to inadequate queueing space.

Infrastructure Condition

The following issues related to infrastructure condition were identified during the walking audit conducted on March 16, 2023, including:

- Faded crosswalk markings along Stephanie Way immediately in front of the school.
- Drainage issues along Stephanie Way northeast of the school.

Crossing Guard Location(s)

During the March 16, 2023, field review, a crossing guard was observed at the main crosswalk in front of the school on Stephanie Way.

Equity Considerations

In the 2-mile radius surrounding the school, 5% of families with children under the age of 18 are living in poverty, 17% do not speak English at home, 1% of households do not have a vehicle, and 3% of the population is a minority.

Recommended Improvements

Improvements to help alleviate access, circulation, and infrastructure issues/deficiencies found at Piñon Hills Elementary School are outlined in **Table H-1** and shown in **Exhibits H-2 and H-3**.

The needs and concepts identified in this study are located on a combination of school, county, and state facilities. Implementation of these investments will involve continued coordination of multiple entities and integration with other regional and statewide transportation planning processes. A lack of funding may limit the ability of local and state agencies to implement recommended improvements. This plan includes a summary of potential funding sources, including competitive grants and formula funds that can be considered for project development.

Table H-1: Piñon Hills Elementary School Recommended Improvements

ID	Implementation Timeline	Priority	Location	Draft Recommendations	Cost Estimate
PH1	Mid	Medium	Stephanie Way from Gordon Avenue to Fuller Avenue	Narrow the travel lanes to 10.5-11' with a wide painted edge line to visually narrow the roadway.	\$\$
PH2	Mid	High	Stephanie Way from Gordon Avenue to Fuller Avenue	Install a sidewalk or paved shoulder on the south side of Stephanie Way along the entire school frontage, at least from Gordon Avenue to Fuller Avenue.	\$\$\$
PH3	Long	Low	Stephanie Way from Gordon Avenue to Fuller Avenue	Evaluate a walking path on the north side of Stephanie Way that provides paved access to Johnson Lane Park. Consider a shared-use path or wide paved shoulder.	\$\$-\$\$\$
PH4	Short	High	Stephanie Way at the school's main entrance to the park across the street	Restripe crosswalk for high visibility.	\$
PH5	Mid	High	North side of Stephanie Way at the school's main entrance	Repair the sidewalk connection across the ditch that connects the school main entrance to Johnson Lane Park.	\$
PH6	Mid	Medium	Stephanie Way at the main parking lot driveway	Install a sidewalk from Stephanie Way along the west side of the driveway and tie into the existing sidewalk near the ADA parking spaces.	\$\$
PH7	Short	High	Stephanie Way/ Fuller Avenue intersection	Install high visibility crosswalk across Fuller Avenue on the south side of the intersection.	\$

DOUGLAS COUNTY SAFE ROUTES TO SCHOOL • ACTION PLAN

ID	Implementation Timeline	Priority	Location	Draft Recommendations	Cost Estimate
PH8	Long	Low	Fuller Avenue to south side of parking lot	Install a new sidewalk from Fuller Avenue to the south side of the parking lot and tie into the existing sidewalk on the west side of the parking lot. Alternatively, consider paving a shared-use path along the desire line between Fuller Avenue and the parking lot.	\$\$-\$\$\$
PH9	Short	Medium	School entrance, west of the existing parking lot	Install "Pull Forward" signage at the school drop-off area (east parking lot).	\$
PH10	Long	Medium	Saratoga Springs neighborhood to Johnson Lane Park	Consider installing a path connecting Saratoga Springs to Piñon Hills Elementary. Subject to landowner agreements.	\$\$

Implementation Timeline: **Short** <2 years, **Mid** 2–5 Years, **Long** >5 Years

Cost Estimate: **\$** <\$100,000, **\$\$** \$100,00-\$500,000, **\$\$\$** >\$500,000

Exhibit H-2: Piñon Hills Elementary School Recommended Improvements



Exhibit H-3: Piñon Hills Elementary School Recommended Improvements (Detail)

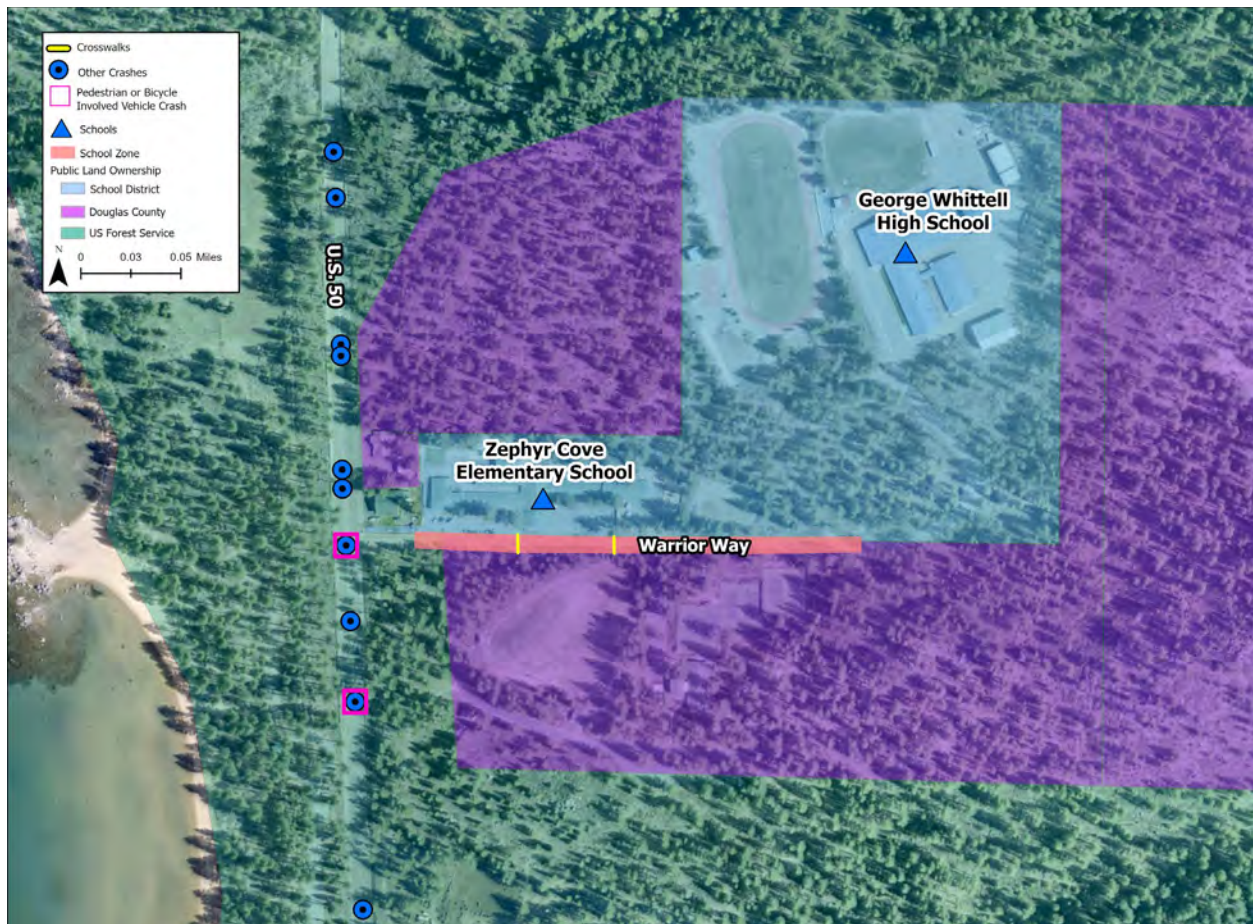


Appendix I – Zephyr Cove Elementary School and George Whittell High School

Zephyr Cove Elementary School and George Whittell High School are located off US 50 near Stateline, Nevada. They are located next to Zephyr Cove Park and across the highway from Zephyr Cove beach. Because there are no residential communities nearby and US 50 does not have sidewalks, all students commute to these schools by vehicle (there is no school bus provided). Thus, a detailed walking audit was not conducted at this school location.

Exhibit I-1 below provides a summary of the safety, intersection, access and circulation, and infrastructure condition issues surrounding these two schools.

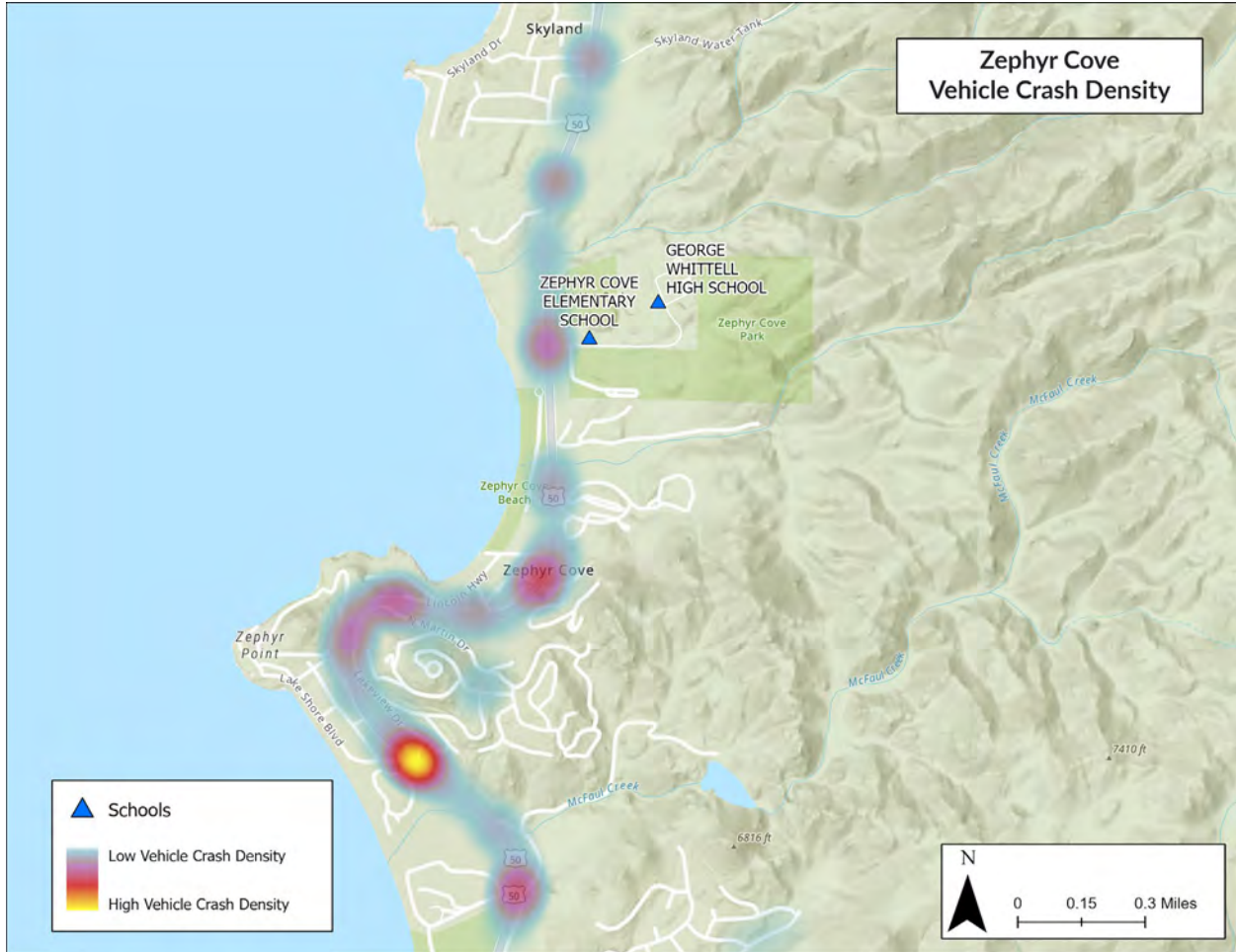
Exhibit I-1: Zephyr Cove Elementary and George Whittell High School Existing Conditions



Safety Conditions

Although a walking audit was not conducted at this location, a safety analysis showed a high number of crashes along US 50 west of the school campus. There were nine crashes reported between 2016 and 2020 in the quarter mile stretch adjacent to the school. The figure and table below summarize vehicle crash data for the 5-year period between 2016 and 2020.

Exhibit I-2: Zephyr Cove Elementary and George Whittell High School Area Crashes, 2016-2020



	Total Crashes	Fatal Crashes	Serious Injury Crashes	Non-Serious Injury Crashes	Property Damage Only
Number	233	4	4	68	156
Percentage	100.0%	1.7%	1.7%	29.2%	67.0%

Crash Type	Head-On	Angle	Backing	Rear-End	Sideswipe	Non-collision	Unknown
Number	10	67	5	48	40	61	2
Percentage	4.3%	29.8%	2.1%	20.6%	17.2%	26.2%	0.9%

A total of 233 crashes occurred within two miles of the school, including four fatal and four serious injury crashes. About 3.4 percent of crashes resulted in fatalities or serious injuries, the highest proportion in the planning area outside of the Gardnerville Ranchos. Thirty percent of crashes were angle collisions. The crashes occurred primarily on US 50, which is a high-speed four-lane corridor lacking bicycle and pedestrian facilities.

Intersection Needs

The main intersection in the vicinity of the school is US 50 and Warrior Way. The above-mentioned safety issues at this intersection necessitate coordination with NDOT regarding potential improvements to improve safety and pedestrian mobility.

Equity Considerations

In the 2-mile radius around the school, 7% of households with children are in poverty, 22% of households do not speak English at home, 7% of the population is a minority, and 5% of households do not have a vehicle at home.

Recommended Improvements

A summary of recommended improvements is provided in **Table I-1** and shown in **Exhibit I-2**.

The needs and concepts identified in this study are located on a combination of school, county, and state facilities. Implementation of these investments will involve continued coordination of multiple entities and integration with other regional and statewide transportation planning processes. A lack of funding may limit the ability of local and state agencies to implement recommended improvements. This plan includes a summary of potential funding sources, including competitive grants and formula funds that can be considered for project development. NDOT and the Tahoe Transportation District are continuing to develop plan for the Stateline to Stateline Bikeway, which would provide safer walking and biking facilities along US 50 in the study area.

Table I-1: Zephyr Cove Elementary and George Whittell High School Recommended Improvements

ID	Implementation Timeline	Priority	Location	Draft Recommendations	Cost Estimate
ZC1	Long	Medium	US 50	Coordinate with NDOT regarding potential bicycle and pedestrian facilities on US 50.	\$-\$\$\$
ZC2	Long	Medium	Warrior Way	Evaluate a shared-use path along Warrior Way that provides access to the elementary and high schools, library, and parks. Coordinate with ZC1.	\$-\$\$\$
ZC3	Short	High	Warrior Way	Restripe/update existing crosswalks for high visibility and install ADA curb ramps.	\$\$
ZC4	Short	High	Warrior Way	Install lateral rumble strips where the existing school zone speed feedback signs are located to increase attentiveness.	\$
ZC5	Mid	Medium	US 50/Warrior Way intersection	Installation of signal by others/NDOT.	\$\$\$
ZC6	Short	Medium	US 50	NDOT to prohibit shoulder parking on US 50.	\$

Implementation Timeline: **Short** <2 years, **Mid** 2–5 Years, **Long** >5 Years

Cost Estimate: **\$** <\$100,000, **\$\$** \$100,00-\$500,000, **\$\$\$** >\$500,000

Exhibit I-2: Zephyr Cove Elementary and George Whittell High School Recommended Improvements

