Douglas County – Green Elementary
Baseline Data Evaluation Report

FINAL June 24, 2020

Introduction

This Case Study Evaluation measures the impacts of Oregon Safe Routes to School (SRTS) 2019-2020 Competitive Construction Grants in communities across the state. The evaluation will assess the effectiveness of individual SRTS projects, techniques, and programs designed to reduce barriers to biking and walking to and from school. Evaluation research questions include:

- What are the impacts for standalone construction grants, and combined outreach and education and construction grants?
- How do different combinations of interventions effectively address the barriers identified by communities and affect mode shift, safety and perceptions of safety, program lifespan, and equity?

The Baseline Data Evaluation Report represents the "pre-construction" data and provides an overview of existing travel conditions and school site attributes. The Baseline Data Evaluation Report is intended to contain the majority of the information needed to plan for the post-construction data collection. The baseline report summarizes the funded improvement project, demographics of affected schools, and data from Oregon Department of Transportation (ODOT) and local roadway authority crash records, parent surveys, and student travel hand tallies.

Plan for the Final Case Study Evaluation Report

The Final Case Study Evaluation Report will represent the "post-construction" data. A draft outline for this report is included in Appendix A. For data consistency, the post-construction data will be collected as soon as possible after construction is complete, likely starting in spring 2021. This will reduce weather-related impacts and also allow time during the school year for families to establish or change their travel habits. In addition to the standard parent surveys and student travel hand tallies, post-construction data collection methods for the evaluation report may also include: parent focus groups and surveys or interviews with school staff.

The Final Case Study Evaluation Report will measure shifts using the evaluation metrics laid out in this document to identify the successes of SRTS projects and provide insight on opportunities for further improvement. SRTS performance metrics measured during this evaluation process will include:

- **Mode split:** Are more students walking and biking to school after a project's completion than at the time of baseline data collection?
- **Access to safe infrastructure:** Do students have better access to sidewalks, bike lanes, or safe crossing locations on their route to school after the completion of the project?
- **Safety/perception of safety:** Do parents and students feel safer or more comfortable walking and biking to school after the project's completion?
- **Program lifespan/partnerships:** Is the SRTS program functioning efficiently and providing adequate support for partner jurisdictions, schools, and districts?

- **Equity:** Are students from a diversity of ethnic/racial and socioeconomic backgrounds benefiting from the investments being made?

In addition to reporting on grant effectiveness, data presented in the Baseline Data Evaluation Report and the Final Case Study Evaluation could be used for a variety of transportation and program planning purposes at the local level. Having a comprehensive set of quantitative data and qualitative feedback on transportation conditions and trends around these sites could help inform decisions on school/district policy, SRTS event and program planning by schools/districts/local jurisdictions, planning future infrastructure projects, as well as providing supporting documentation for future grant applications.

Baseline SRTS Snapshot: Green Elementary School

Summary

Green Elementary School is a public school enrolling 407 students from Kindergarten through 5th grade. The school serves populations in rural Douglas County. The majority of Green Elementary students are eligible for the Federal Free and Reduced-Price Lunch Program (62%). English is the primary language spoken by students.[1]

Green Elementary releases students primarily onto Carnes Rd, which has no bike or pedestrian facilities, many driveway crossings, high speeds, and large intersection crossings. These conditions create make the area around the school unsafe for students walking and biking.

The Oregon SRTS 2019-2020 Competitive Construction Grant funded continuous sidewalks and bike lanes on Carnes Rd, increased visibility at crossings on Carnes Rd, Del Mar Dr and Linnell Ave, management of vehicle access to the school, and the posting of school warning signs and street markings to alert motorists. This project will address a large known barrier for students who wish to bike and walk to school.

In addition to these infrastructure improvements, Green Elementary has conducted or will conduct non-infrastructure programs and activities such as Walk and Bike to School Days, Walking Wednesday, trainings, parent and student correspondence, and policy changes allowing early release for bicyclists and pedestrians.

Key information from Green Elementary School parent surveys:

- Approximately half of students take the school bus to and from school. About a third of students ride in a family vehicle to and from school. Many students walk to school: 11% in the morning and 11% after school.
- Parents report that traffic speed and amount are the most common barriers to walking/biking to school. Other barriers include:
    - presence of sidewalks/pathways,
    - safety of intersections and crossings,
    - violence or crime, and
    - distance between home and school.

[1] Unless otherwise noted below, demographic data are from the Oregon Department of Education 19-20 SY, collected October 1, 2019

- Most parents recognize the value of walking/biking to school—88% described it as healthy and 67% described it as fun for their student.

Contact Information

JURISDICTION:	**Douglas County**
CONTACT:	Josh Heacock, joheacoc@co.douglas.or.us
SCHOOL DISTRICT:	Douglas County School District 4
CONTACT:	None
OTHER CONTACTS:	None

Enrollment and Demographics

Green Elementary School is a Title 1 public school enrolling 407 students from Kindergarten through 5th grade. The school serves low income populations in the City of Roseburg and Douglas County, with 62% of students eligible for the Federal Free and Reduced-Price Lunch Program. English is the primary language spoken by students.[2]

ENROLLMENT: 285	GRADE LEVELS SERVED AND SCHOOL TYPE: K-5, Public
STUDENT ETHNIC/RACIAL DEMOGRAPHICS: American Indian/Alaska Native: 0.7% Asian: 0.0% Hispanic or Latino: 12.6% Native Hawaiian/Pacific Island: 0.0% Multiracial: 7.7% Black/African American: 1.1% White: 77.9%	PREDOMINANT LANGUAGES SPOKEN IN DOUGLAS COUNTY SCHOOL DISTRICT 4: English: 6,414 Spanish: 163 Chinese: 8 Punjabi: 6 Sign Languages: 6
STUDENTS LIVING WITHIN 1 MILE OF SCHOOL: Not available	TITLE 1 STATUS: Yes[3]
EVER ENGLISH LEARNERS: Fewer than 10 students or data not available4	FREE AND REDUCED-PRICE LUNCH ELIGIBILITY: 62%

[2] Unless otherwise noted below, demographic data are from the Oregon Department of Education 19-20 SY, collected October 1, 2019

[3] Title 1 schools are schools where 40% or more of students are enrolled in USDA's Free and Reduced-Price Meals Program.

[4] Number of students who have been served or were eligible for an English language development program during 2018-19 or at any time in the past. Oregon Department of Education 18-19 SY collected May 1, 2019.

Community Context and Place Type

Place type describes attributes of a built environment, including: access to destinations, density, walkability, mixing of uses, and presence of transit. The evaluation team compiled Oregon Department of Land Conservation and Development's (DLCD) measures of place type for each community studied.[5] Each attribute is rated as "**Very Low, Low, Medium, or High**" by block group. Place type characteristics provide important context for transportation opportunities and challenges in a community and influence the transportation decisions people make.

Green Elementary School is located in the unincorporated community of Green, adjacent to the City of Roseburg in Douglas County. The block group encompasses a small swath of unincorporated county jurisdiction. According to the Place Type Tool, the area surrounding Green Elementary School is categorized as Suburban/Town, meaning it contains low density development and the surrounding census block group generally contains more residential than commercial development, with 1,780 people residing and 114 people working within the census block group. The area has a low level of access to regional employment centers and destinations. The overall level of street connectivity in the area is characterized as "very low."

AREA TYPE describes the role of each neighborhood district compared to the rest of the region (regional center, close-in community, suburban/town, low density/rural)	Suburban/Town • Lower densities of jobs and/or housing • Lower accessibility to regional jobs • Lower densities decrease multi-modal access to jobs
DEVELOPMENT TYPE describes more detailed physical characteristics of each neighborhood (transit supportive development, mixed use, employment, residential, rural/ low density):	Residential • Land use is dominated by housing • Low diversity of land uses • Jobs/Housing balance: mostly housing • Missing either the density or street design required of mixed use
JURISDICTION POPULATION (ACS 5-YEAR ESTIMATES):	City of Roseburg 22,988 people
CENSUS BLOCK GROUP POPULATION (2010):	1,780 people
NUMBER OF JOBS IN CENSUS BLOCK GROUP (2010):	114 jobs
ACCESS TO DESTINATIONS describes the number of regional jobs within 5 miles:	Low
DENSITY LEVEL- jobs and households per acre within ¼ mile:	Low
DESIGN LEVEL- level of street connectivity, pedestrian-oriented street density:	Very Low

[5] More information about OLCD's Place Type Tool is available at: www.oregon.gov/lcd/CL/Pages/Place-Types.aspx

DIVERSITY LEVEL- Mix of housing and employment:	Low
TRANSIT LEVEL- Afternoon peak hourly transit service within ¼ mile:	Low

Project Description

A map of the project improvements from the Green Elementary School grant application is included in Appendix B.

PROBLEM STATEMENT:	Speeding cars, continuous driveway access, and a lack of accommodations on Carnes Rd prevent students from walking/biking to Green Elementary. Large intersection crossings and informal vehicle drop-off zones render streets unsafe.
DESCRIPTION OF BARRIERS TO WALKING AND BIKING:	Carnes Rd, Del Mar Ave, and Linnell Ave present barriers that are passible for most school-age users, but pose serious safety risks. Due to the lack of sidewalks and bike facilities, families must walk in the roadway to access the school. Students cross the roads without adequate crossing treatments, in locations with high numbers of speeding and/or turning vehicles. The present barriers are impassible for students with considerable mobility limitations (students who use wheelchairs and assisted mobility devices) who cannot access the school without sidewalks and curb ramps.
PROJECT DESCRIPTION:	Construct continuous sidewalks and bike lanes on Carnes Rd, increase visibility at crossings on Carnes Rd, Del Mar Dr and Linnell Ave, manage vehicle access to the school, and post school warning signs and street markings to alert motorists.
ESTIMATED PROJECT TIMELINE:	October, 2020 Completion
PRIORITY SAFETY CORRIDOR?[6]	Yes
OUTREACH AND EDUCATION:	Green Elementary has or will conduct the following Safe Routes to School activities: • Walk + Bike to School Day, May 9 • School leadership has expressed interest in Walking Wednesday (launched fall 2019) • Walk & Bike to School Day, Oct 10 • School policy change allows early release for walkers & bikers from school • Commute Options completed a PTO/PTA training Oct 9 about how to encourage more walking & biking, and leveraging the non-infrastructure network • Principal corresponds with parents of students about walking & biking, provides fliers about Walk & Bike to School Day, and connects parents with the Blue Zone Project • Park and walk from Ray's Market was included as part of Walk & Roll events

[6] A road where the posted speed or 85th percentile speed of traffic is 40 mph or greater OR if and two of the following apply: posted speed limit of 30 mph or greater, more than two lanes or a crossing distance greater than 30 feet, 12,000 AADT or greater, has a demonstrated history of crashes related to school traffic.

Access Analysis for Students Walking and Biking to School

The project team conducted an analysis to estimate the number of people who would gain walking and biking access to Green Elementary School when the project improvements are constructed, shown in Table 1 and Figure 1. First, the project improvements were evaluated to understand the geographic areas that would gain safe access to the school once the funded project was constructed. Next, American Community Survey (ACS) data was combined with zoning data to estimate the number of people and school-age children that live within the new access areas.

This analysis estimates that approximately 221 students, or 40% of the Green Elementary School student body that lives within a mile of the school, would gain safer walking or biking access to the school.

Table 1. Access Analysis Results[7]

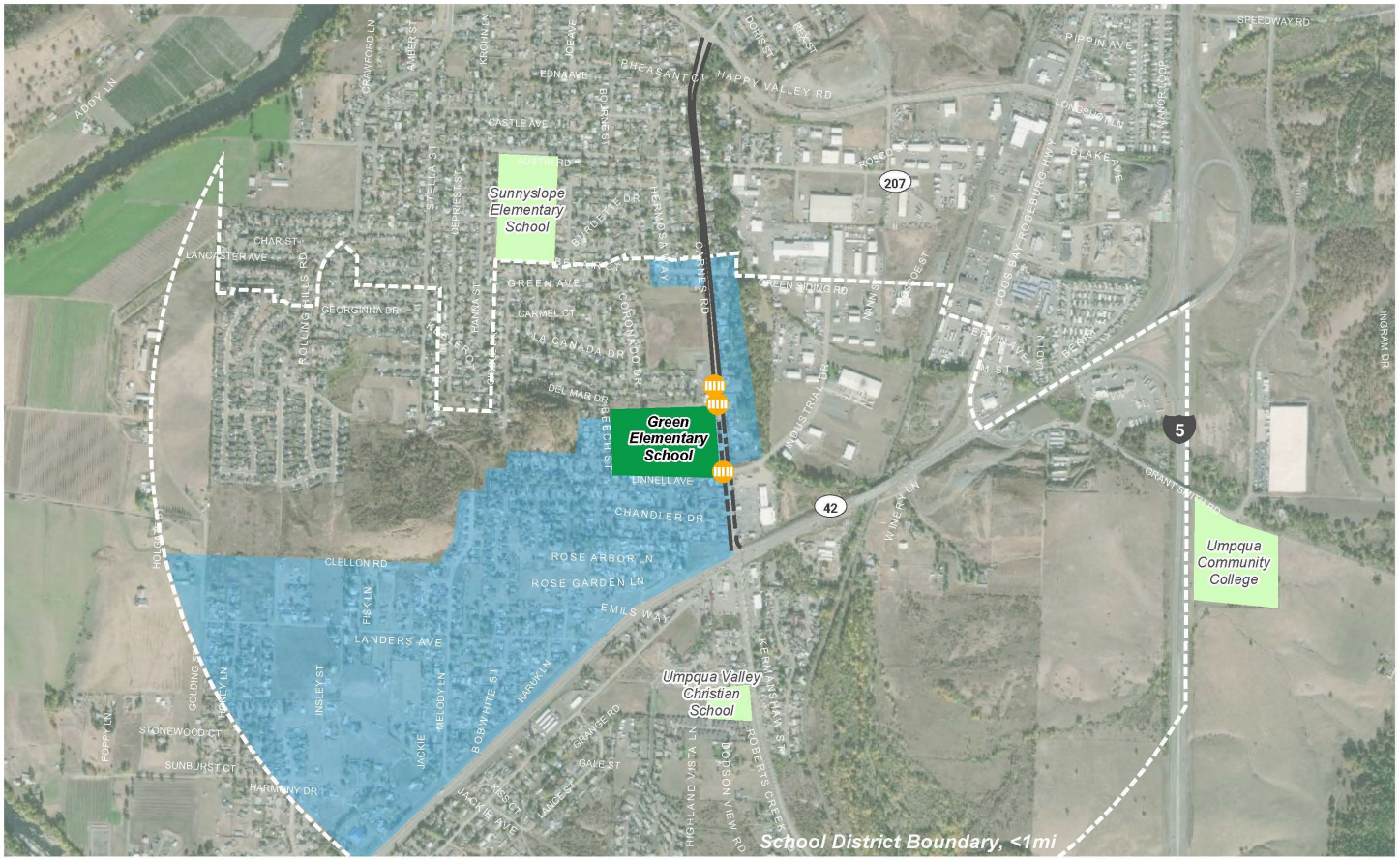
METRIC	VALUE
Total Population of New Access Areas	1,614
School Age Population of New Access Areas[8]	221
Percentage of Students within the School Areas Gaining Access[9]	40%

[7] New Access Area assumptions: Gated path at the north end of the school property gives access to all residents north of the school property.

[8] Calculated using the proportion of school-age children (5-17 years old) within the City of Roseburg.

[9] The School Area is defined as the area within the school enrollment area that is within one mile of the school.

Figure 1. Green Elementary New Access Area for Students Walking and Biking



Green Elementary School

Students with New Access to Walking and Biking

Estimated Number of Students: 221

Proportion of Students within 1 Mile: 40%

To view the methods for this analysis, please see Appendix

- Applicant School
- Other School
- New Access Area
- New Crossing Improvement
- New Sidewalks

Baseline Data

The following section presents pre-construction data, which will be compared against similar data collected after the project has been construction, in order to estimate the impact of the improvements.

Hand Tallies

DATE COLLECTED:	June, 2018
DATA COLLECTION PROCESS:	20 classrooms surveyed about their trip to and from school by Blue Zones Project staff.
NUMBER OF STUDENTS:	No information
TRIPS RECORDED	792 trips recorded by the hand tallies

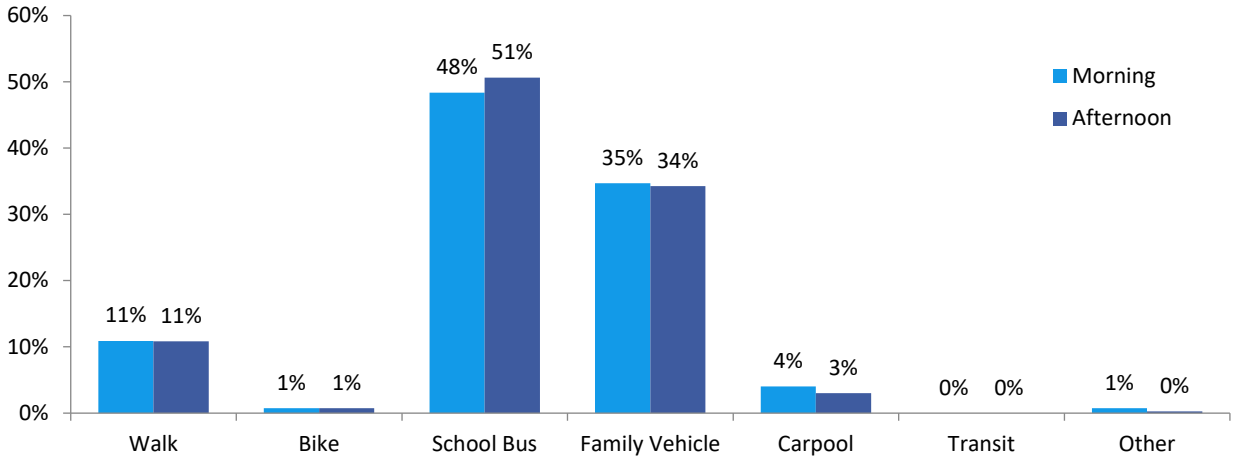
SUMMARY OF DATA COLLECTION AND METHODOLOGY

The June 2018 baseline hand tally data from Green Elementary includes 792 recorded trips collected from students in 20 classrooms. The Blue Zones Project surveyed all students in each classroom on which transportation mode(s) they had used to get to and from school the day of the survey and the day prior to the survey. The National Center for SRTS's standard hand tally data collection forms and process were used. This data provides a snapshot of student travel behavior trends.

SUMMARY OF RESULTS:

Green Elementary hand tally data from 2018 indicates that a majority of students surveyed ride the school bus in the morning and afternoon (see Figure 2 and Table 2). Riding in a family vehicle was the second most common student travel mode. 11% of students walk in the morning, and the same number walk home in the afternoon. Three students reported biking to school.

Figure 2. Student Mode Split by Time of Day, 2018 Hand Tally Data



Note: Percentages may not total 100% due to rounding.

Table 2. Count of Student Mode Split to and From School, 2018 Hand Tally Data

TIME OF DAY	WALK	BIKE	SCHOOL BUS	FAMILY VEHICLE	CARPOOL	TRANSIT	OTHER
Morning	43	3	191	137	16	0	3
Afternoon	43	3	201	136	12	0	1

Parent/Caregiver Surveys

DATE COLLECTED:	Spring 2018
DATA COLLECTION PROCESS:	The Blue Zones Project distributed National Center for SRTS's parent/caregiver survey to parents at Green Elementary School to assess family perceptions about school travel options and behavior. The survey was available in English and Spanish.
NUMBER OF SURVEYS:	25; 9% response rate

SUMMARY OF DATA COLLECTION AND METHODOLOGY

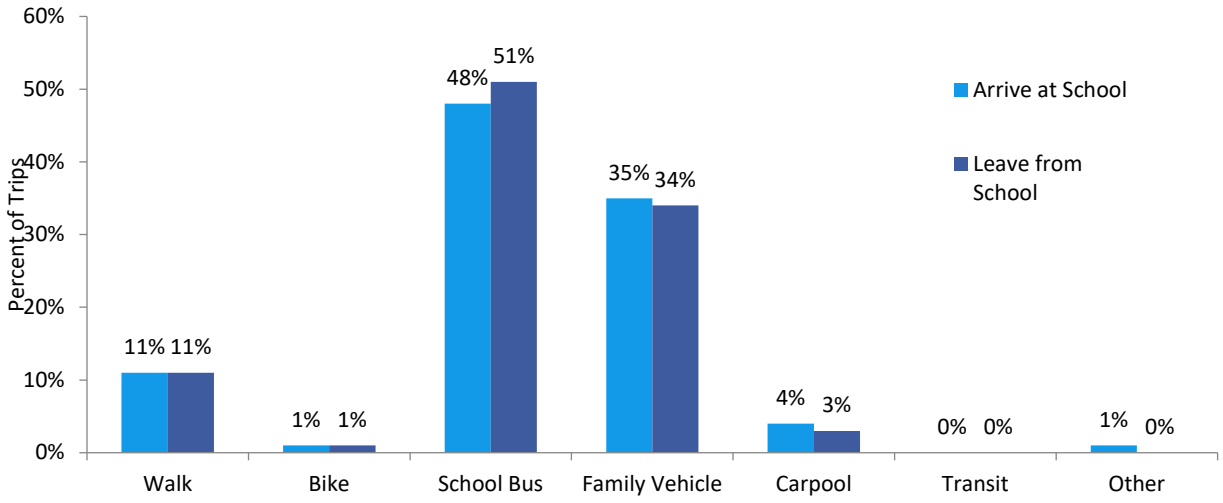
The parent/caregiver survey data included in this report was collected from 25 participants with students attending Green Elementary.

SUMMARY OF RESULTS:

Parent/caregiver survey analysis revealed that the school bus as the most commonly used transportation option for Green Elementary school students (see Figure 3). The second most common mode was family

vehicles (35% in the morning and 34% in the afternoon). 11% of Green Elementary students walk to and from school, while 1% bike. Another 4% reported commuting by carpool.

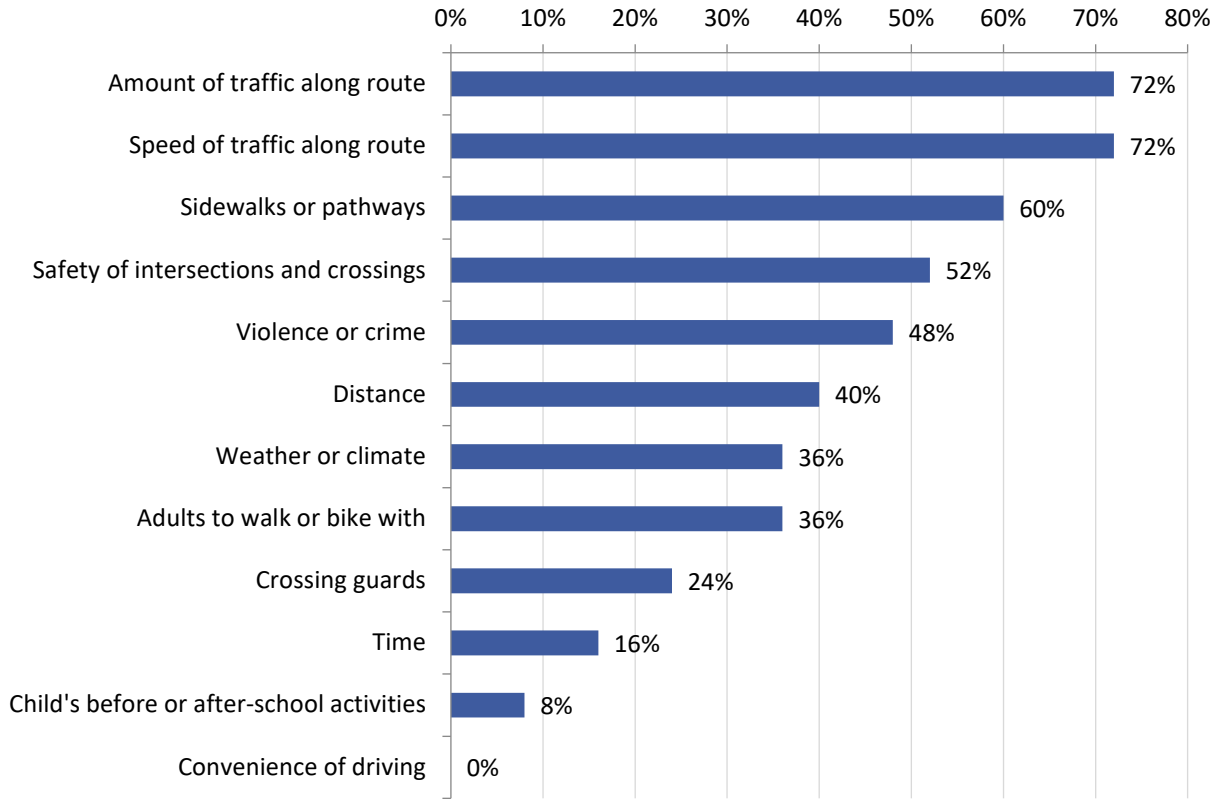
Figure 3 Mode Split by Distance from School, 2018 Parent/Caregiver Survey



The survey also shows that 68% of students had asked their parents and caregivers for permission to walk or bike to school. As Figure 4 illustrates, while parents and caregivers reported varying concerns that limit their student's ability to walk or bike to school, some were more commonly expressed than others (see Figure 4). Over half of surveyed parents faced the following barriers:

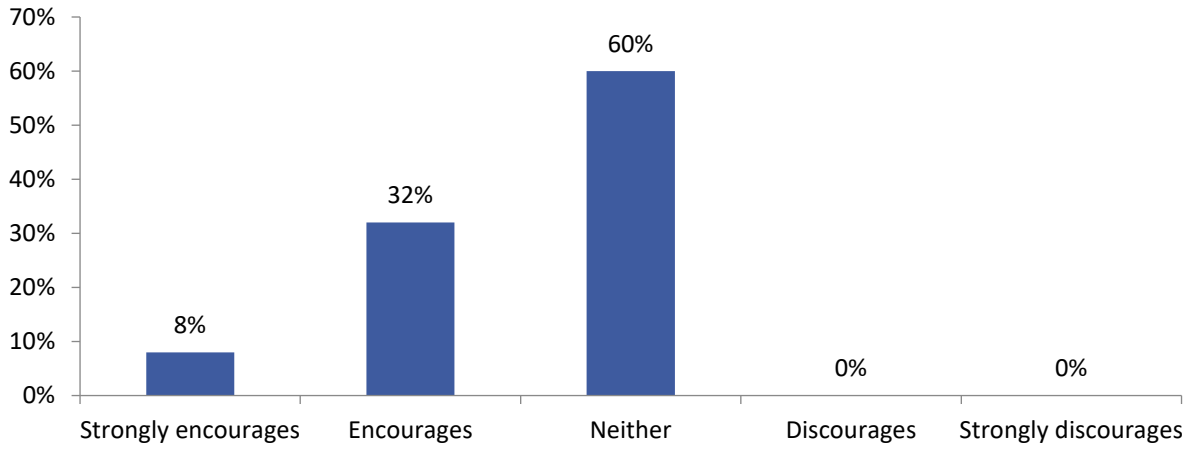
- Traffic volumes along their student's prospective route to school
- Traffic speeds along their student's prospective route to school
- Sidewalks and pathways
- The safety of existing intersections and crossings

Figure 4. What Issues Affect the Decision to Walk or Bike to School?, 2018 Parent/Caregiver Survey



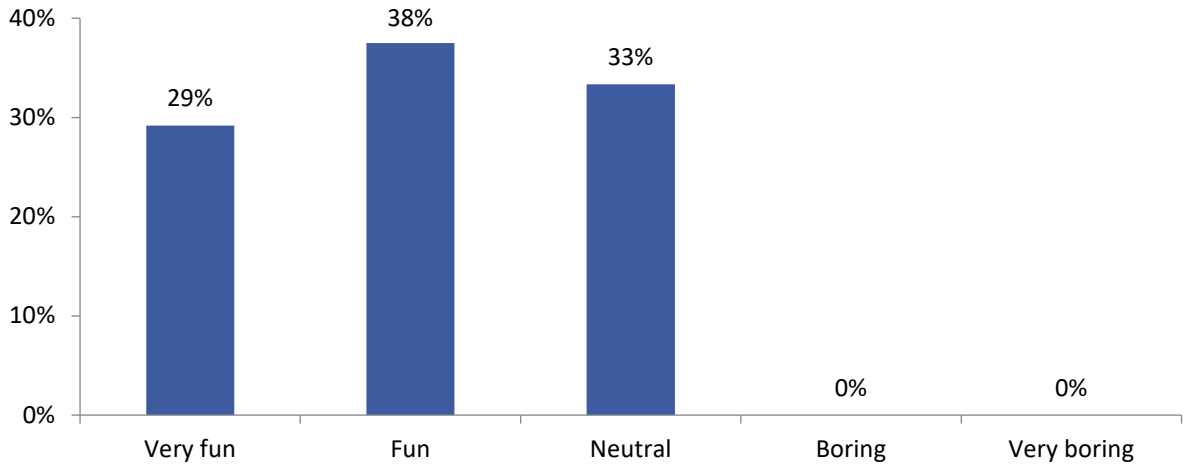
A majority of parent and caregiver respondents felt that Green Elementary neither encouraged or discouraged students from walking and biking to school at the time of the survey. An additional 32% felt the school encouraged active transportation, while 8% characterized the school as strongly encouraging walking and biking (see Figure 5).

Figure 5. Does your School Encourage Walking or Biking to/from School?, 2018 Parent/Caregiver Survey



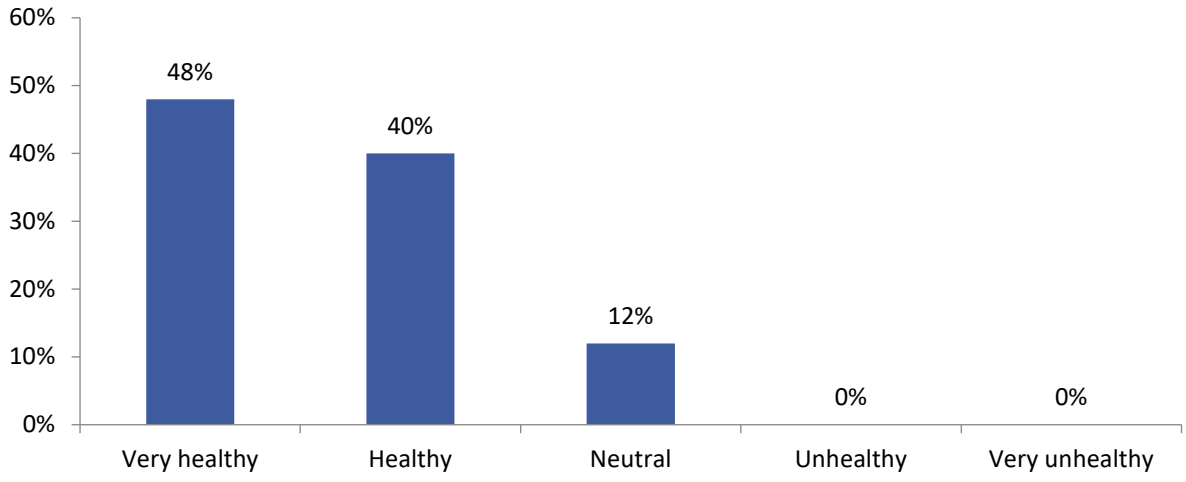
At the time of the survey, over half (67%) of parents and caregivers reported walking or biking to school would be a fun or very fun activity for their students, while 33% were neutral or unsure on whether their student would enjoy walking and biking to school (Figure 6).

Figure 6. How Fun is Walking and Biking to School?, Parent/Caregiver Survey



A large majority of parents and caregivers recognized the health benefits of active transportation, with 88% reporting that walking or biking to school would be healthy or very healthy for their student. An additional 12% were neutral regarding the health benefits of walking and biking (see Figure 7).

Figure 7. How Healthy is Walking or Biking to School?, 2018 Parent/Caregiver Survey



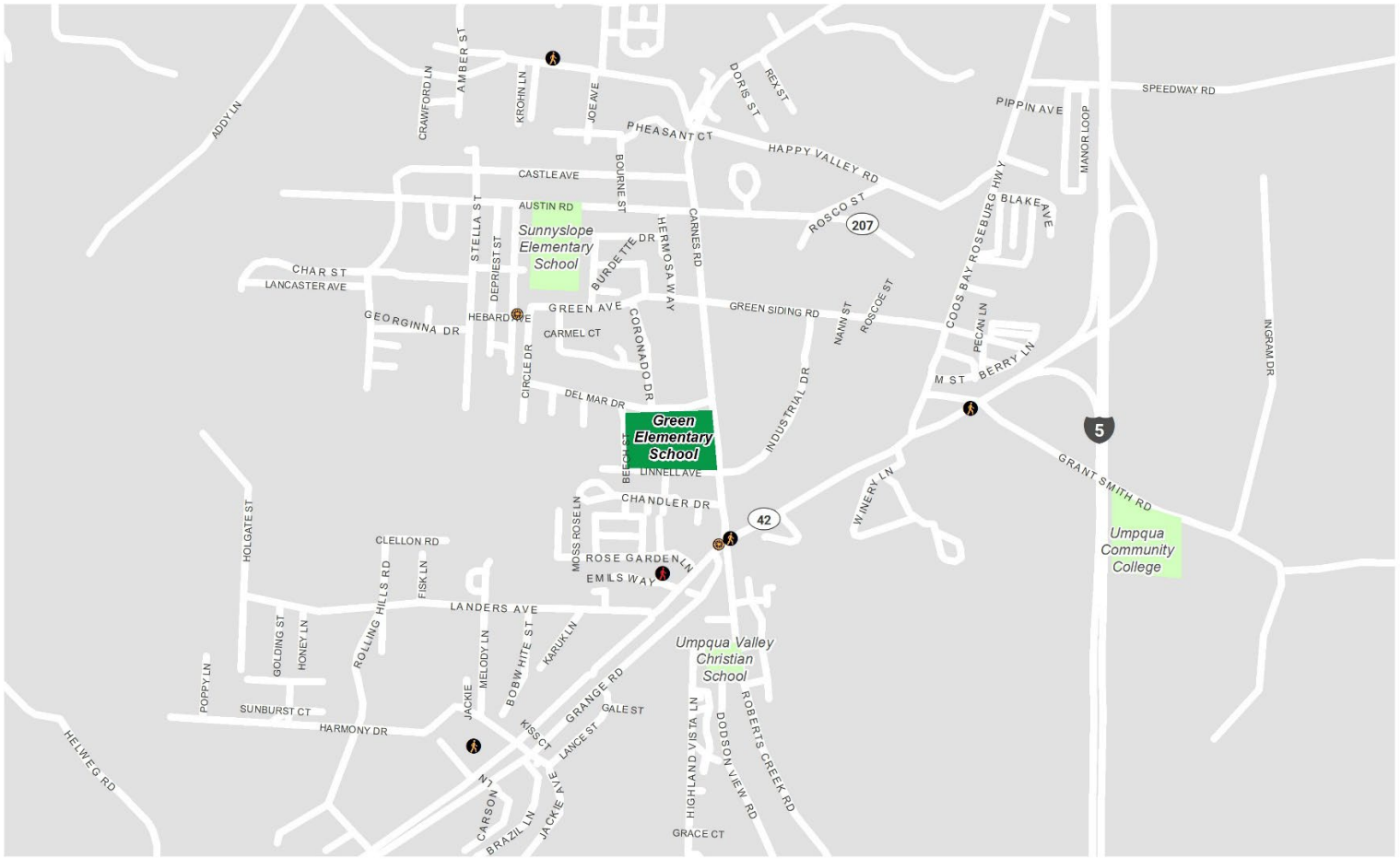
Crash Data

DATE COLLECTED:	2012-2016
DATA COLLECTION PROCESS:	Crash Data included in this report originates from the ODOT SRTS Web Map Application. This analysis does not determine whether the grant intervention *caused* any change in the occurrence of crashes, due to small sample size. Additionally, due to insufficient mode split data to calculate crash *rates*, this report offers a count and description of reported incidents.
NUMBER OF REPORTED CRASHES INVOLVING BIKES AND PEDESTRIANS WITHIN 1 MILE OF SCHOOL:	Between 2012 and 2016, 7 crashes involving a bicyclist or pedestrian were reported within one mile of the school.
TIME OF REPORTED CRASHES INVOLVING BIKES AND PEDESTRIANS WITHIN 1 MILE OF SCHOOL*:	Six of these reported crashes occurred during school commuting hours; the majority occurred during PM commuting hours. * For these purposes school commuting hours were defined as 6 AM to 9 PM.
NUMBER OF REPORTED INJURIES BY SEVERITY WITHIN 1 MILE OF THE SCHOOL:	All six of these reported crashes involved an injury to a bicyclist or pedestrian. All two of the reported crashes involving a bicyclist were non-fatal. Of the five reported crashes involving a pedestrian, four were non-fatal and one was fatal. Figure 8 illustrates the location of the crashes by type and injury severity.
ADDITIONAL CRASH DATA CONSIDERATIONS:	Protected bike lanes, sidewalk and crossing improvements are planned along Carnes Rd, where one bicyclist and one pedestrian crash at the intersection with Highway 99/42 have been recorded between 2012-2016. Traffic calming and crossing improvements are also planned for Del Mar Dr and Linnell Ave adjacent to the school. In its application, Douglas County cited six crashes on Del Mar Dr and Linnell Ave in the project area since 1996. Notably, on 7/16/1998 a child on a bicycle was hit by a car on Del Mar Dr. The child was treated for non-life-threatening injuries and no citations were issued.

Notes on Community Context or other Relevant Information:

None.

Figure 8: Green Elementary School Bicycle & Pedestrian Collisions (2012-2016)



Green Elementary School

Bicycle and Pedestrian Collisions (2012-2016)

- Bicycle: Fatal Injury
- Bicycle: Non-Fatal Injury
- Bicycle: No Injury
- Pedestrian: Fatal Injury
- Pedestrian: Non-Fatal Injury
- Pedestrian: No Injury
- Primary Affected School
- Other School

0 0.25 0.5 Miles

N

Map displays bike and pedestrian crashes at all times of day.

SafeRoutes Oregon Safe Routes To School

alta PLANNING + DESIGN

Source: Crash Analysis and Reporting Unit, ODOT (2012-2016)

Follow-Up Data Collection Plan

Timeline

Post-grant field visits to collect follow-up data will be scheduled to take place the spring following the completion of each grant intervention. Douglas County estimates project completion in October 2020.

Follow-up Data Collection Process

METHOD	PLANNED AT THIS SITE?	TARGET SAMPLE SIZE	TARGET FIELD WORK DATE
STUDENT HAND TALLIES:	Yes	At least 2 classrooms per grade per school	Late spring 2021 (assuming project completion)
PARENT SURVEYS:	Yes	At least 30 parents per school	Late spring 2021 (assuming project completion)
PARENT FOCUS GROUPS:	Yes	4-10 parents	Late spring 2021 (assuming project completion)
STAFF SURVEYS:	Yes	1-3 school staff and administration	Late spring 2021 (assuming project completion)
CRASH DATA:	Yes	N/A	N/A
OTHER:	None	N/A	N/A

Appendix A. Final Report DRAFT Outline

Note: The following Final Report outline is subject to change.

Chapter 1. Introduction

- Description of SRTS IN Grant Program
- Description of Final Report purpose and contents

SUMMARY OF FUNDED INFRASTRUCTURE IMPROVEMENTS

- Project description
- Map of improvements
- Project timeline

BACKGROUND

- School demographics
- Summary of Non-Infrastructure SRTS Work
- Place Type

Chapter 2. Data Collection and Results

HAND TALLY DATA

- Data Collection Methods
- Change in walking and biking rates

PARENT SURVEY DATA

- Data Collection Methods
- Change in mode split by distance from school
- Change in barriers to walking and biking
- Change in perceptions of walking and biking
- Other observations

FOCUS GROUPS

- Data Collection Methods
- Change in barriers to walking and biking
- Change in perceptions of walking and biking

CRASH DATA

- Data included in analysis
- Change in crash data (*If available, otherwise this will provide updated baseline crash data from ODOT)*

Chapter 3. Findings

- Impact of Infrastructure improvements on mode split
- Impact of Infrastructure Improvements on Access to Safe Infrastructure

- impact of infratructure improvements on safety/perception of safety
- Impact of Infrastructure Improvements on Program lifespan/partnerships
- impact of infrastructure improvements on equity
- Other Findings
- Next Steps and Recommendations

Appendix B. Competitive SRTS IN Grant Funded Project Map

Figure 4. Green Elementary Competitive SRTS IN Grant Funded Project Map

Appendix C. Access to SRTS Detailed Methodology

Purpose

The access map analysis was designed to estimate the number of students with new or significantly improved access to school upon the implementation of a proposed walking or biking facility. While determining the number of students who benefit from a proposed project is not an exact science, this analysis provides a common approach that utilizes school district boundaries, census population data and local zoning codes to generate rough estimates. These estimates lend greater insight into the impact of a particular Safe Routes to School project, allowing facility improvements to be compared and thus aid in prioritizing investments. This memo outlines the data sources, methods, and assumptions that inform the access map analysis described in this report.

Data Sources

Three primary data sources were used in this analysis in conjunction with the information provided in each project application:

Name	Source
American Community Survey (ACS) Population Estimates	US Census Bureau
Oregon School District Boundaries	Oregon Department of Education
2017 Oregon Statewide Zoning Map	Oregon Department of Land Conservation and Development

Methods

The analysis establishes two geographical areas in which census block population data are apportioned to: 1) the school area and 2) the access area. The school area is defined as the area that is within a 1-mile radius of the applicant school or within the enrollment boundary, whichever is closer. This area covers residents within reasonable walking or biking distance of the to school. The access area is the area that covers all residents who would experience new or significantly improved access to school upon the implementation of the proposed walking or biking facility.

Once both of these areas have been established, the consultant team identified the census blocks that intersect each. We then apportioned the population data from the census blocks to the school area and the access area, based on the relative coverage of each census block. To account for varying residential densities in each census block, we used residential zoning data to determine the proportion of the population that should be attributed to the school area and access area.

After the estimated populations of both the school area and the access area are calculated, the local jurisdiction's youth rate is applied to each to get the number of people ages 5-17 in those areas, which we refer to as the 'school age population'. Finally, the school age populations of the access area and the school area are compared. The percentage of school age students with new or improved access to school represents the proportion of students impacted by the project out of all the students in the school area who could reasonably walk or bike to school.

Defining the Access Area

The boundary of the school area is readily calculable using GIS and the rules described above. By contrast, the access area boundary was determined manually based on the project description and professional judgement of impact. While this method inherently includes subjective judgement, the high variability and nuance in the transportation context surrounding the proposed project makes this method more suitable for determining the residential areas would benefit from its implementation than a purely GIS-based workflow. The following assumptions and rules of thumb were adopted in order to make the assessment of the access areas as uniform as possible:

1. The analysis assumes people are willing to "walk around the block" half the distance of their street in the opposite direction of school in order to utilize a safe path to school.
2. The analysis assumes that Google Earth street view imagery is up to date, as this was used to determine sidewalk connectivity and condition, which informed the access areas.
3. Places without sidewalks, particularly in small towns, are considered walkable if the street is narrow, residential, and designed for a low volume of traffic (i.e., lacks a centerline)
4. The access areas consider ADA accessibility and account for those in wheelchairs or other mobility devices.
5. The access areas may include residents who have to walk more than one mile to school, based on the available street network.
6. Even if some residents may have already had access to school, they might be included in the access area if the proposed project would significantly improve their access to school.

Apportioning Census Population Data

As described above, census population data was apportioned to both the school area and the access area based on how much a census block covered them. However, to account for varying population densities across census blocks, residential zones in the census blocks were identified.

The statewide zoning data provided by the Oregon Department of Land Conservation and Development groups residential zones across all jurisdictions in the state into 13 categories of increasing density. Our team further consolidated these categories into just 4: Low Density, Medium-Low Density, Medium-High Density, and High Density. We then weighted these categories by their relative density compared to Low Density:

Residential Zone Group	Population Density Factor
Low Density	1
Medium-Low Density	2
Medium-High Density	5
High Density	15

These factors serve to more accurately distribute the population data across the residential zones within the census block. In other words, if the census block contained only Low Density residential zones, then the population of any given area within that census block is equal to the proportion of the census block that that area covers. By contrast, if a census block contains Low Density residential zones and High Density zones, we attribute 15 times the population of the census block to the High Density zones than the Low Density zones. The density factors were determined using the typical number of dwellings per acre in in each zone.

The analysis uses these four zoning categories to identify the spatial distribution of the population of the census block and apportion it to the overlaying school area and access areas based on how much those areas cover the residential zones of the census block.

General Assumptions

- This analysis assumes that the Oregon Statewide Zoning code reflects the actual residential densities of the current built environment.
- Areas that were zoned for housing that had no development on them according to the latest satellite imagery (and significantly impacted the output) were removed from the analysis in order to improve the accuracy of the estimates. This was only utilized in a few low-population jurisdictions.
- This analysis assumes that families are evenly distributed between each of the four residential zone groups.
- The reported number of school-age students includes all students ages 5-17, not just elementary or middle school students. Thus, the number of students who actually attend the applicant school is likely much lower than the reported figure.