

Philomath School Circulation and Safety Report



Prepared By:

Corvallis Area Metropolitan Planning Organization

Kittelson & Associates, Inc.

March 6, 2023

Acknowledgements

The project team worked closely with the Philomath City Council, Philomath School Board, and city and school district staff to identify issues and solutions related to circulation around the school campuses within Philomath. We are thankful for their input, as well as the members of the community that participated in the survey and shared comments.

Philomath City Council

Mayor Chas Jones
Councilor Jessica Andrade
Councilor Catherine Biscoe
Councilor Ruth Causey
Councilor Matt Lehman
Councilor David Low
Councilor Teresa Nielson

Philomath School Board

Rick Wells
Christopher McMorran
Joe Dealy
Erin Gudge
Karen Skinkis

Philomath City, School, Fire & Bus Staff

Kevin Fear, Public Works Director
Ken Rueben, Police Chief
Pat Depa, Benton County Planner
Steve Bell, Middle School Principal
Bryan Traylor, Elementary School Principal
Mark Henderson, High School Principal
Jill Chambers, School Crossing Guard
Rich Saalsaa, Philomath Fire & Recue
Denise Conner, Mid Columbia Bus Company

Project Team

Chris Workman, Philomath City Manager
Susan Halliday, Superintendent
Nick Meltzer, Corvallis Area MPO
Stephen Dobrinich, Corvallis Area MPO
Camilla Dartnell, PE, Kittelson & Associates
Phill Worth, Kittelson & Associates

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Introduction and Background

During development of the 2018 Transportation System Plan (TSP) in Philomath, numerous concerns arose regarding the circulation of people, school buses and vehicles around the Philomath schools. While the schools do not physically sit on the same property, their close proximity to each other (1 -2 blocks) results in their function more as a single campus than individual sites. This collective school “campus” is integrated into the local street network and neighborhood, as well as popular through routes for freight and vehicular traffic traveling south in Benton County. An overview map is shown in Figure 1.

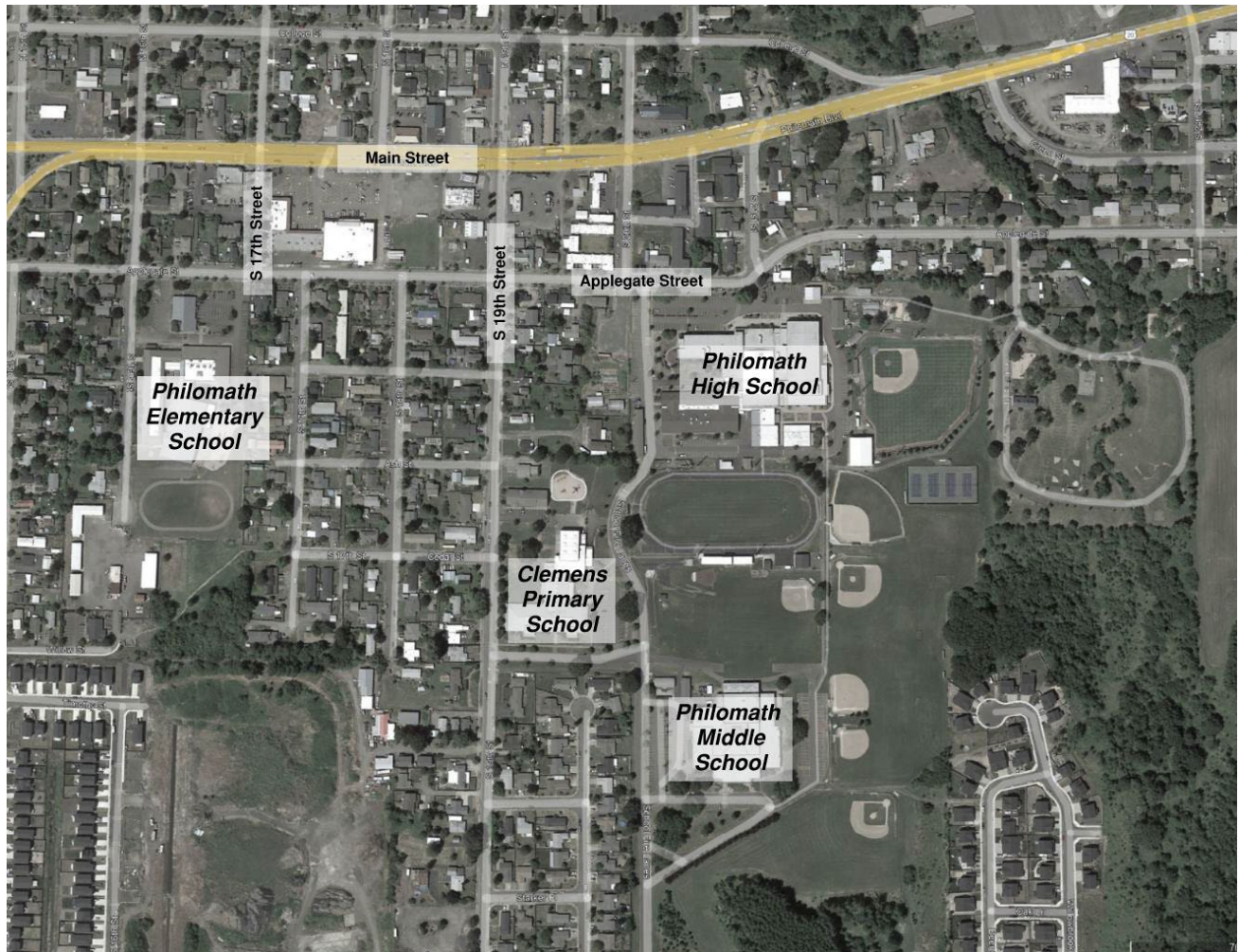


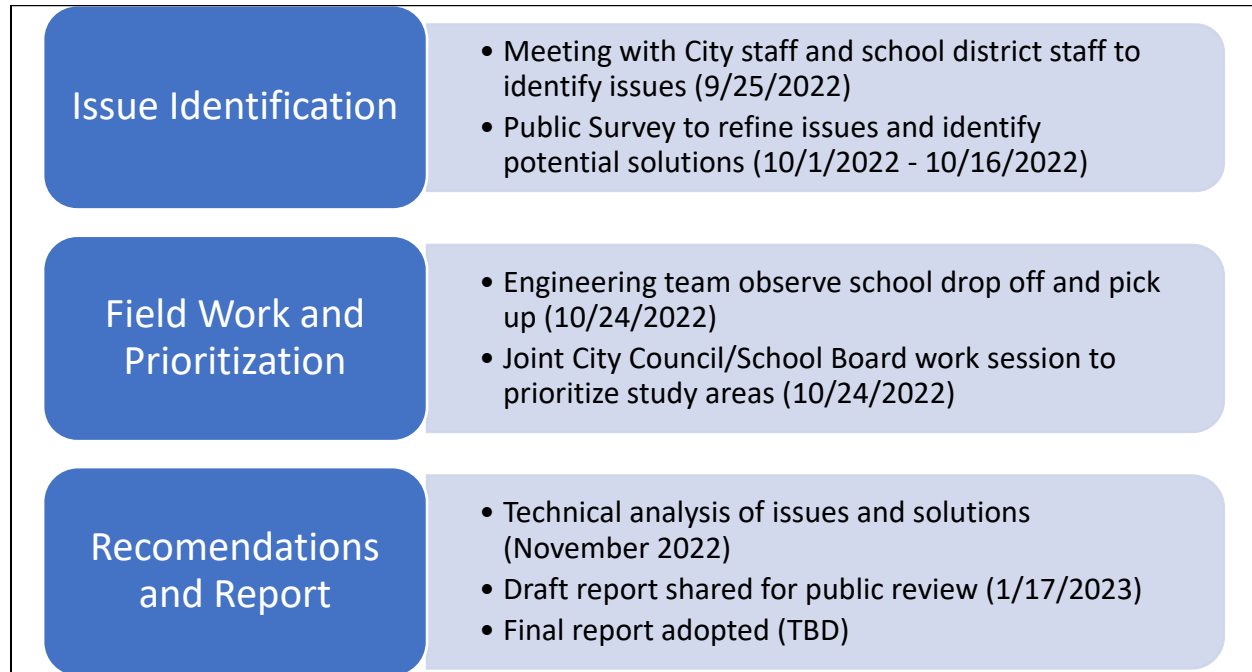
Figure 1. Study Area

A project to further study school circulation was added to the Financially Constrained Project List of the TSP, demonstrating the priority of the issues identified by the community. In 2019, the City of Philomath submitted a request to the Corvallis Area Metropolitan Planning Organization (CAMPO) to fund Ts-1, the School Circulation and Safety Study. The project was funded, and CAMPO staff agreed to work with the city in collaboration with a technical consultant to complete the study.

While the project initially received funding in 2020, staffing transitions at the school district and CAMPO and a lack of school-related traffic present during the COVID-19 pandemic delayed the actual project

kickoff until 2022. With the beginning of the 2022-2023 school year came a renewed focus on conflicts between vehicles, pedestrians and school buses.

The project team used a combination of public engagement, field observations and technical analysis to develop recommendations for the area. The graphic below outlines the overall schedule and process.



Data Collection

The following section provides a summary of the data collected during the study process.

Kick Off Meeting

City, school district and CAMPO staff held a kick off meeting in September to document the known issues, brainstorm potential solutions, and prepare for the public survey. A summary of the discussion is below, while the full meeting notes can be found in the Appendix.

Problem Areas

The following areas were discussed as problem areas within the broader school campus area: 19th and Applegate, Middle School Afternoon Pick Up Location, 17th and Main, 16th and Applegate, Clemens Drop Off and Pick Up, and 19th and Main Street. With the exception of some site specific issues, the broad concerns are:

- Peak vehicle congestion during morning drop off and afternoon pick up.
- Congestion is amplified if dropping multiple students off or ride sharing among families.
- Buses further complicate matters, as well as heavy freight using 19th.
- The high number of students walking and biking conflict with the increase in vehicles during the isolated morning and afternoon times.

- Inadequate sight distance and higher vehicle speeds lead to many “near misses.”
- Crossing guards must step into traffic to allow for safe student crossings.
- The crossings do not have the latest technology for enhanced safety

Potential Solutions

In general the conversation centered around improving crossings in line with newer technology, improving intersection safety, thinking about safer walking and biking routes, and improving circulation via connecting 17th Street to 16th Street. A circle or roundabout was mentioned for 19th and Applegate as possible solution too. Multiple mentions of using demonstration projects to test larger capital investments were also brought up.

Online Public Survey

Philomath city staff conducted an online survey to request input from residents, students, and parents that travel through the area. The survey was posted online and shared via social media and word of mouth. It was open for two and half weeks and received 209 responses. The survey asked respondents to identify areas of concern in traveling around the school campus area, rank those concerns, discuss the level of comfort and safety in specific areas, and rank support for possible solutions.

The full results are available in an Appendix. Overall, the following finds could be drawn from the survey:

- 19th and Applegate was ranked as the highest safety concern, with 19th and Clemons Primary as second, and 17th and Main as third.
- The high school entrance, parents pickup at Clemens and the elementary school entrance were roughly equivalent in concern after 19th and Applegate.
- When ranked in terms of concern about safety and traffic congestion for morning drop off the top three selections were Elementary School Parent Drop off, High School Parent Drop Off, and Primary School Parent Drop Off.
- When ranked in terms of concern about safety and traffic congestion for afternoon pick up, the top three selections were Elementary School Parent Pick Up, Primary School Parent Pick Up, and High School Parent Pick Up.
- In terms of support for potential solutions, the top three responses were installing yellow flashing LEDs at pedestrian crossings, extending 16th Street to connect to 17th, and closing 19th Street to truck traffic.

The full survey results can be found in the Appendix.

Field Visit

The project team performed site visits on Monday, October 24th, 2022 to observe conditions during the AM and PM school peak periods. Members of the project team were stationed at different locations throughout the study area to be able to observe the conditions at multiple schools and intersections during the school arrival and departure periods. Weather conditions during the morning site visit were rainy, while afternoon site visit conditions were partly cloudy.

In the morning, the project team arrived approximately 20 minutes before the beginning of the school day and made observations until after the school arrival traffic visibly ended and all school days had

begun. The four schools vary in start time on Mondays from 8:00 AM (Philomath High School) to 8:15 AM (Clemens Primary School). In the afternoon, the project team arrived approximately 20 minutes before the first release bell and made observations until after the school departure traffic visibly ended. The four schools vary in release time from 2:45 PM (Clemens Primary School) to 3:10 PM (Philomath High School). In the afternoon, the team noted that school traffic was most active from approximately 2:40 PM until 3:30 PM.

After the field visit, the team members shared observations and notes.

Issues and Opportunities for Priority Sites

During the joint City Council and School Board meeting on October 24th, 2022, after hearing the results of the public survey and discussing challenges at the schools, the group identified their top priority locations. Those included the intersection of S **19th Street and Applegate Street**, the intersection of S **19th Street and Main Street** (US-20/OR-34), the intersection of S **17th Street and Main Street** (US-20/OR-34), and afternoon pick-up conditions on S 19th Street for **Clemens Primary School**. The existing conditions, key issues or needs, and potential solutions for these locations are provided in the following sections. The project team developed the following solutions through a planning level approach. The following solutions may require further analysis, public involvement, and/or design before implementation.

I. 19th and Applegate

Existing Conditions and Needs

The intersection of S 19th Street and Applegate Street is key in providing safe and comfortable access to each of the four nearby schools, with Philomath High School and Philomath Elementary School being on Applegate Street and Clemens Primary School being located on S 19th Street. Those accessing Philomath Middle School from the north are also likely to travel through this intersection.

At the intersect, S 19th Street is uncontrolled, while Applegate Street is stop controlled. Both northbound and southbound, S 19th Street has a shared through and right turn lane and an exclusive left turn lane, as shown in Figure 2. Applegate Street is one lane in each direction, with no exclusive right or left turn lanes. There are standard bicycle lanes on S 19th Street and no bicycle lanes on Applegate Street. As a result, most bicyclists in the vicinity were observed biking on the sidewalks along Applegate Street.

Pedestrian, bicycle, school bus, and all other motor vehicle demands that occur at this intersection each school day creates congestion, delay, and heightened concerns for safety. Vehicular demands on S 19th Street are frequent enough during these periods that other travelers along Applegate Street find it difficult to cross or turn left onto S 19th Street. More than 100 pedestrians were observed crossing S 19th along Applegate Street during the PM site visit. The presence of a school crossing guard provided opportunities to interrupt motor vehicle flows on S 19th Street and allow east-west pedestrians and motor vehicles.

School buses also all t travel through this intersection, especially when travelling between the elementary and high schools. The project team observed and heard from bus representatives that the buses often experience delay when waiting for a gap to travel through the intersection.

Sometimes the crossing guard stops traffic on S 19th Street to allow the buses to cross. Regardless, when one crosses, all others take advantage of the same gap and platoon behind the first bus to cross S 19th Street.

Queuing was observed on Applegate Street in the PM period (approximately 3:12 PM) eastbound on Applegate Street to the high school's west entrance. Those waiting for a gap from S 19th Street seem to have several challenges. The sight distance on the east leg of the intersection restricted sight lines both north and south from the westbound approach causing westbound vehicles to enter and remain in the crosswalk while waiting for a gap. S 19th Street is also used by others, including freight traffic. Several dump trucks, a log truck, and a semi-truck were observed travelling through the intersection during the approximately peak period, which occurs between 2:50 PM and 3:30 PM. S 19th Street used to be a designated freight route, but the County officially switched to designating S 13th Avenue as the north-south freight route as shown in the TSP.

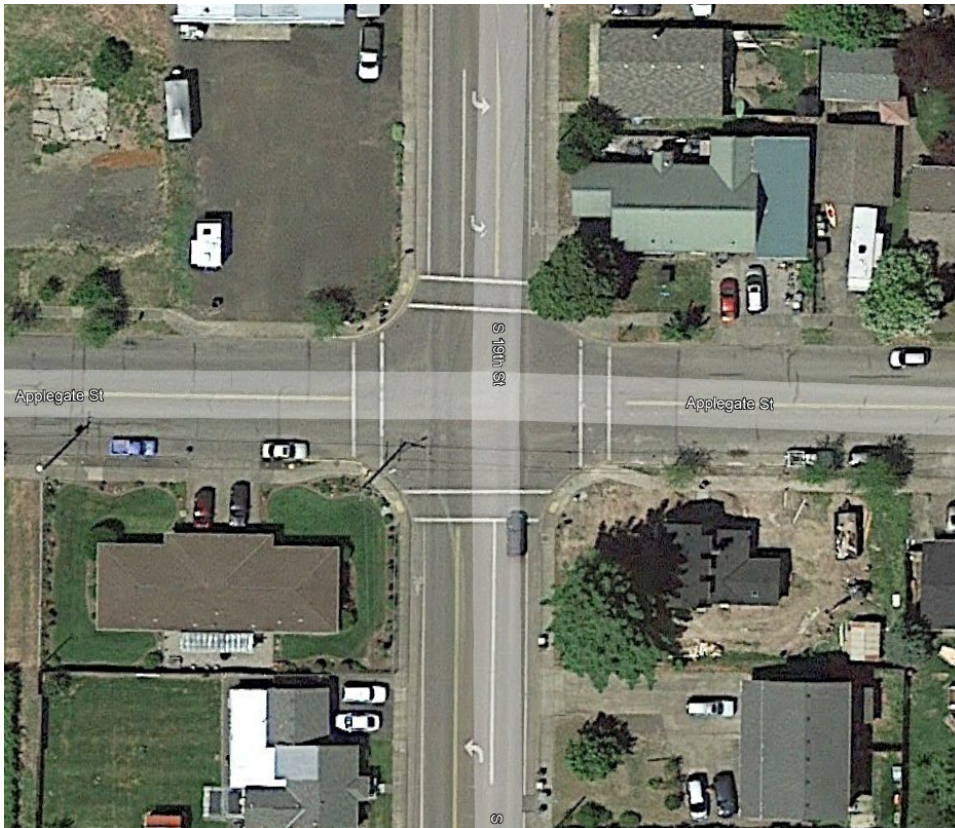


Figure 2. Existing Intersection Configuration for S 19th and Applegate

Proposed Solutions

The team identified several solutions to the challenges at S 19th Street and Applegate Street. The key solution identified is to add a mini-roundabout with pedestrian refuge islands at the intersection. This, and several supporting solutions, are identified in the following sections.

Mini-Roundabout

There are several reasons why the team recommends construction of a mini-roundabout at S 19th Street and Applegate Street. The mini-roundabout should improve the key challenges occurring at this intersection including queueing on Applegate Street during peak school periods, challenges for crossing pedestrians, especially students, and safety concerns for left-turning or through-vehicles on Applegate waiting for a gap in traffic. While the volumes of traffic on Applegate Street are generally low and therefore stop control may be appropriate for most of the day, the reliance on this intersection by many modes accessing the school increases the priority for east/west movements during the school peak. Providing a roundabout would allow for those on Applegate to more easily find a gap in traffic, improving operations on Applegate Street and improving safety for those making that movement.

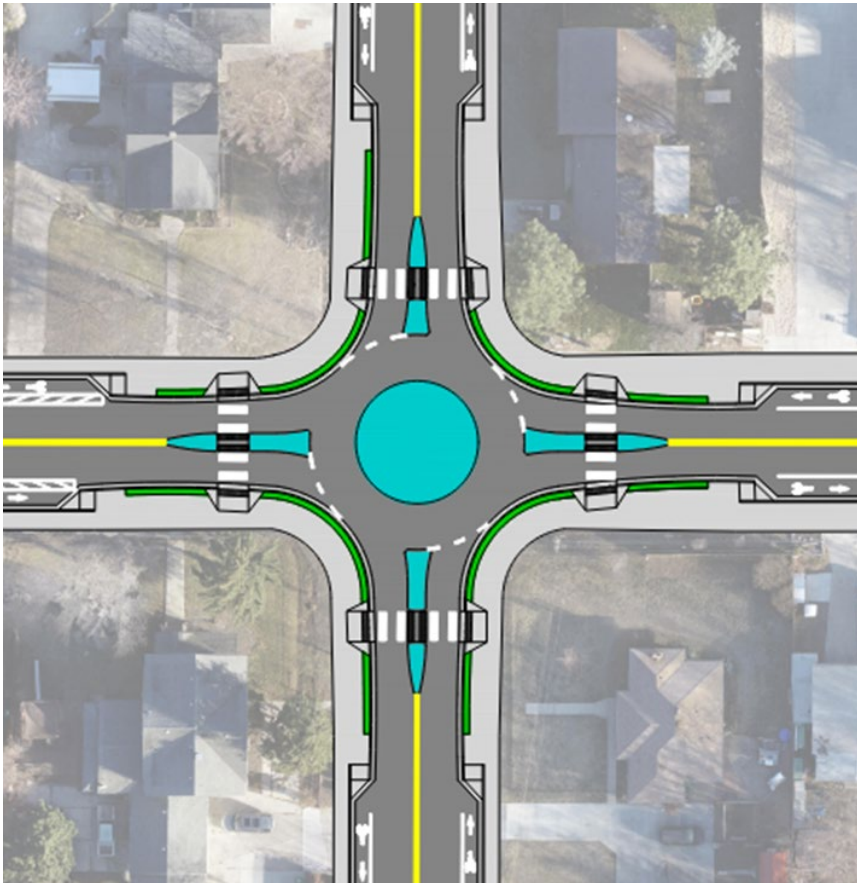


Figure 3. Example of Mini-Roundabout Concept in a Neighborhood Setting

The roundabout would also improve conditions for people crossing by slowing motor vehicle speeds and reducing crossing distance and therefore reducing pedestrian exposure. Because of the current left turn lanes on S 19th Street, pedestrians must cross three lanes of motor vehicle traffic. Because the left turn lanes will not be needed with the addition of a roundabout, that space can easily be converted to a pedestrian refuge island, allowing pedestrians to cross one lane of traffic at a time and reducing pedestrian exposure and risk.

When adding the mini-roundabout, the center island should be mountable to better accommodate bus and freight movements. Feedback from the community on whether they

would like to see a roundabout at this location was mixed, with some very supportive and some very unsupportive or concerned. Before adding the roundabout, a pilot using temporary materials can help answer questions that the community may have and help support final design decisions, like whether rapid rectangular flashing beacons should be added at the pedestrian crossings.

Other Solutions and Considerations

In addition to the roundabout, several other solutions should be implemented to improve conditions at the intersection of S 19th Street and Applegate Street. Implementing truck route signage pointing trucks to the new truck route on S 13th Street can reduce the amount of large trucks using the intersection during school peak hours. Additionally, many community members shared that a delivery truck parks illegally on S 19th Street to make deliveries every morning and that it causes safety concerns. The no parking on S 19th Street between Applegate Street and US-20/OR-34 should be enforced to remove these safety concerns. The sight distance challenges on the east leg of the intersection should be addressed, which may involve trimming or maintaining the tree on the northeast corner of the intersection. Finally, bicycle lanes should be considered on Applegate Street. Currently, students biking to school generally bike on the sidewalks, indicating that it is uncomfortable to bike on Applegate Street and creates conflicts with pedestrians.

The addition of more comfortable bicycle facilities connecting to Applegate Street during the future Philomath Streetscape Project will make Applegate Street an infrastructure gap for those biking to school or to the existing bicycle lanes east of the intersection of Applegate Street and S 21st Street. Furthermore, Applegate Street acts as a direct parallel route to the highway, which does not have comfortable bicycle facilities, creating greater bicycle demand on Applegate Street. Finally, adding bicycle lanes will reduce traffic and improve circulation for those traveling to and from school, as it can allow for some mode shift from students and parents driving to biking, which takes less space and causes less congestion.

Because Applegate Street currently accommodates public street parking, which is most used when Elementary School parents are waiting to pick up their children, the project team recommends better accommodating Elementary School pick-up and drop-off by implementing the S 16th Street improvements, including the connection to S 17th Street, listed as projects NR-9/UP-11 in the City's Transportation System Plan. This will allow for pick-up and drop-off to be accommodated more smoothly on S 16th Street, utilizing the new loop pattern that would be created with the connection. Providing this circulation pattern should reduce congestion and allow for parents to move through the pick-up/drop-off zone instead of parking on Applegate Street and waiting for their student to find them during school release.

The City should also consider providing a two-way bicycle facility on one side of the street to allow for parking on one side of the street. The street parking may be provided on the opposite side of the street from the bicycle lane or be used as bicycle lane protection between the two-way bicycle facility and motor vehicle traffic. The curb-to-curb width of Applegate Street fluctuates between 40 ft- 45 ft between US-20 to the west, which is anticipated to include a bicycle lane connection in the future, and the existing bicycle lane to the east of the high school. Several different lane configuration concepts could be used to accommodate parking

(approximately 8 ft), bicycle facilities (minimum 10 ft recommended), and two- lanes of traffic (approximately 11 feet each) along this stretch. An example of a parking protected two-way bicycle lane is presented in Figure 4.



Figure 4. Parking Protected Two-Way Bicycle Lane

II. 19th and Main

Existing Conditions and Needs

The intersection of 19th Street and Main Street (also known as Philomath Boulevard or US-20/OR-34) is located just over 300 feet north of the S 19th Street and Applegate Street intersection. This signalized intersection provides key north-south connectivity for those accessing the schools from neighborhoods north of Main Street using all modes. The adjacent intersections are not signalized and do not have enhanced pedestrian crossings, which makes Main Street challenging to cross as it has higher motor vehicle speeds and volumes than other streets in Philomath and a wider cross section (four to five lanes). There are standard bicycle lanes and sidewalks on all four intersection approaches, and there is a shared right turn and through lane as well as a dedicated left turn lane from S 19th Street onto Main Street.

The left turn from 19th onto Main Street is permitted, so left turning vehicles must wait for a gap in through and right turning motor vehicle traffic and crossing pedestrians before making a left turn. The project team heard feedback from the community that it can be challenging to make this movement within the allotted green time at the signal and that the pressure to find a gap in traffic to make the left turn can make it challenging to also watch for crossing pedestrians, creating conflicts between motor vehicles and pedestrians. Many students cross at this intersection while traveling to and from school each day. Many high school students also leave campus and cross at this intersection to access restaurants on the north side of Main Street during lunch. The community shared that it feels like there is not adequate time to cross Main Street as a pedestrian during the allotted green time.

Main Street is raised in comparison to 19th Street south of Main Street at this intersection, further complicating movements here. The project team heard from the community that those making a northbound right turn from 19th Street onto Main Street pull closer to the intersection to create better sight lines to watch for motor vehicles on Main Street, which means that pedestrians waiting on the southeast corner of the intersection are in the blind spot of those turning vehicles. The wide

curb return radii at this corner can also allow those driving to drive quickly around the corner, which can reduce their awareness of crossing pedestrians and cause higher injury crashes, should a conflict occur.

Proposed Solutions

Several potential solutions could be implemented at this intersection to support safety for those accessing the schools as well as general transportation safety at the intersection. The order in which they are provided corresponds with the difficulty and cost to implement, with those that are lower cost and easier to implement being listed first while those that are more costly or challenging to implement are listed later. ODOT owns and operates Main Street as US-20/OR-34, so ODOT will need to be a key player in implementing these solutions.

Near Term Solutions

In the near term, several key changes can be made to improve safety and comfort at the intersection. First, providing a leading pedestrian interval will allow pedestrians to enter the intersection early, creating more visibility of crossing pedestrians and reducing potential conflicts between people walking and people driving. Providing longer green time for 19th Street will allow people walking across the intersection to do so with time to finish crossing before the light changes, reducing potential conflicts with motor vehicles. This will also allow more time for people driving on 19th Street to make it through the intersection, potentially reducing conflicts between all modes.

The team also recommends striping and paint changes to improve conditions for those walking and biking across the intersection. Higher visibility crosswalk striping like continental or ladder striping as shown in Figure 5, creates of an understanding that pedestrians may be walking across the intersection.

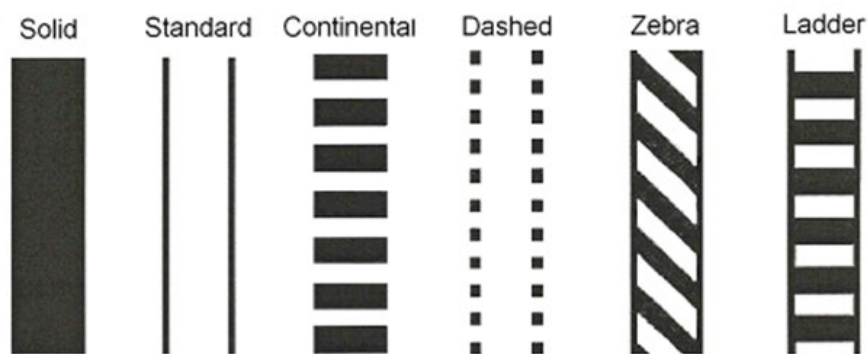


Figure 5: Common Crosswalk Types (Source: FHWA)

Green skip striping can also create the expectation that people may be biking across the intersection, and bike boxes can provide a waiting location for bicyclists, creating more visibility for bicyclists, and support two-stage left turning movements for bicyclists at the intersection.

Medium Term Solutions

Providing protected left turns, tightening curb return radii, providing dual ADA ramps on each corner, and adding traffic calming on Main Street are also solutions that can improve the safety

of those at the intersection. Providing protected left turns from 19th Street will separate pedestrians crossing from left-turning vehicles, as well as separate those turning left from oncoming through and right turning vehicles, reducing conflicts. This will require changing the traffic signal heads.

Tightening curb return radii can slow turning motor vehicles, reducing the frequency and severity of conflicts, and reduce pedestrian crossing distance. If a wider turning radius is necessary for freight traffic, providing a truck apron at those corners can reduce speeds for standard passenger vehicles while still accommodating truck turns. When these curbs are reconstructed, they will also need to be brought up to ADA standards, including providing one ramp per pedestrian crossing instead of one ramp per intersection corner. This can also reduce pedestrian crossing distance by providing more direct crossing opportunities. Finally, traffic calming on Main Street can slow speeds, improving intersection safety at Main Street and 19th Street. Implementing speed feedback signs and requiring a buffer between the sidewalk and street during redevelopment are several potential traffic calming opportunities.

Long Term Solutions

Although it has higher associated costs and may be less feasible for near-term implementation, a protected intersection at Main Street and 19th Street provides the highest visibility and protection for those walking and biking at an intersection. A protected intersection provides physical curb separation, high visibility striping, and signal phasing protection for those walking and biking. Figure 6 provides an example of a protected intersection.



Figure 6: Protected Intersection Example (Davis, California)

III. 17th and Main

Existing Conditions and Needs

Two blocks west of 19th Street and Main Street is the intersection of 17th Street and Main Street. Main Street is a four-lane divided roadway at this location, with a raised, channelized median in the middle. This intersection is stop controlled for 17th Street, while Main Street is uncontrolled. At this intersection there is a median that does not allow through movements on 17th Street. Northbound on 17th Street motor vehicles can travel left or right, and southbound on 17th Street motor vehicles can only travel right. At this intersection there is an actuated crossing on the west side of the intersection that causes yellow lights to flash on mast arms overhead. This actuated pedestrian crossing design does not provide as high a visibility crossing as a standard rectangular rapid flashing beacon, which is a different type of crossing enhancement.

During school arrival and departure periods, a crossing guard stands on the south side of the intersection to support students walking to school. This intersection provides the most direct pedestrian access to Philomath Elementary School from the neighborhoods north of Main Street.

The community shared safety concerns of people crossing Main Street at this intersection. They identified that as a person crossing, it does not feel safe, as it is unclear whether those driving are slowing and stopping to allow a safe crossing. They also identified that it feels like drivers travel faster than the speed limit, which is 25 mph during non-school zone periods and 20 mph during school zone periods, as posted by “Speed Limit 20 When Children Are Present” signs. The community also identified that as a driver, it is challenging to see the flashing lights as they are not very visible and they require a driver to look up to see them, as there are no side mounted actuated flashing beacons.

Data shared by ODOT on TransGIS shows that average annual daily traffic on Main Street at 17th Street was between 15,000 – 20,000 vehicles in 2021.

Proposed Solutions

Several potential solutions could be implemented at this intersection to support safety for those accessing the schools as well as general transportation safety at the intersection. ODOT owns and operates Main Street as US-20/OR-34, so ODOT will need to be a key player in implementing these solutions. Project CR-1 in the City of Philomath Transportation System Plan identifies changes to this crossing, and the following solutions should be considered during the development of that project.

Programmatic Solutions

One recommendation for this intersection is to have the crossing guard, who currently stands at the southern side of the actuated pedestrian crossing at the intersection in both the morning and afternoon school periods relocate to be stationed on the north side of the intersection in the morning school arrival period. Students are most likely travelling from neighborhoods north of Main Street to the school south of the intersection during this period, so being stationed on the northern corner will allow the crossing guard to meet the students and walk with them across the intersection. This programmatic solution is recommended to be implemented immediately.

Infrastructure Solutions

The team also identified several infrastructure-based solutions. The primary recommendation is to change or replace the existing crossing. If the current wiring and set-up allows it, side-mounted and median mounted RRFBs that actuate when the current flashers are actuated can bring additional visibility to the existing crossing. The other option is to replace the current crossing with either an RRFB or pedestrian hybrid beacon (PHB). The FHWA Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations (2018) recommends considering RRFBs or PHBs at intersections with these speed and volume conditions. PHBs generally provide a higher level of protection for people walking, as it is a red beacon at which motor vehicles must stop, and because of the proximity to the elementary school, the project team most strongly recommends ODOT consider adding a PHB at this location. If the addition of a PHB at this location is not possible, the project team recommends adding RRFBs at this location, including overhead and side-mounted RRFBs to provide the most visibility for those crossing.

Regardless of the type of crossing that is added, the project team recommends several supporting treatments. These can be added before additional actuated flashers are added to the crossing. The first is to stripe double white lines approaching the crossing from either direction on Main Street. These are intended to prevent vehicles from changing lanes to pass cars stopping for pedestrians at the crossing. Additionally, lighting should be added and/or modified at the crossing. Currently, there is one streetlight at the crossing on the south side of the street, lighting the crossing from just east of the crossing. Lights should be added to the near-side of the pedestrian crossing to light the pedestrians crossing from the side that motorists will be approaching, as shown in Figure 7.

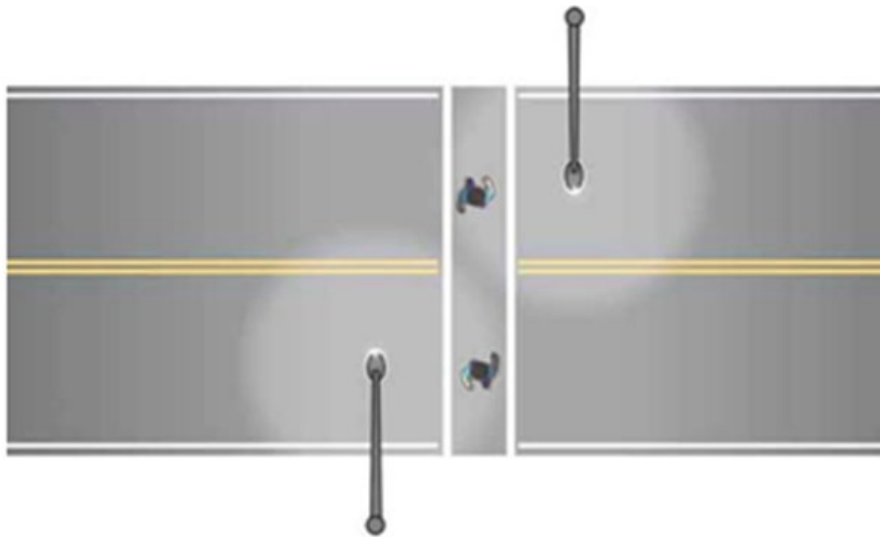


Figure 5. Illustration of Illumination located in advance of pedestrian crossing (Source: FHWA - <https://www.fhwa.dot.gov/publications/research/safety/08053/>)

Also, when the new crossing is being designed, the team recommends using pedestrian and bicycle patterns as well as traffic counts to identify whether the crossing should be located on the east or west leg of the intersection. A median cut-through for bikes and green skip striping should also be considered through the intersection.

Finally, speed feedback signs should be provided on Main Street to encourage drivers to travel the speed limit, reducing the likelihood and severity of crashes.

IV. Clemens Primary School Pick Up: S 19th Street

Existing Conditions and Needs

Clemens Primary School is located on S 19th Street, about 1,000 feet south of Applegate Street. Clemens has several pick-up/drop-off areas on the site. The first is on the east side of the school, which in the afternoon is used for pick-up for kindergarten students. The second is on the west side of the school, along S 19th Street, which in the afternoon is used for pick-up for first grade students. This west side pick-up along S 19th Street is the location that the Philomath City Council and Philomath School Board identified as feeling unsafe and therefore a priority for identifying safety improvements.

The key community concern with this location is the proximity of motorists, including freight traffic, on S 19th Street to students being picked up. While students are supposed to enter the vehicles on the passenger side of the vehicle directly from the curb, teachers and volunteers shared that sometimes students walk around the vehicles and enter from the driver's side, increasing the proximity of the young students to traffic.

During school pick-up and drop-off, this section of S 19th Street is a school zone and the speed limit is 20 mph. There are signs identifying the school zone speed limit and speed feedback signs prior to Clemens Primary School from both approaches on S 19th Street.

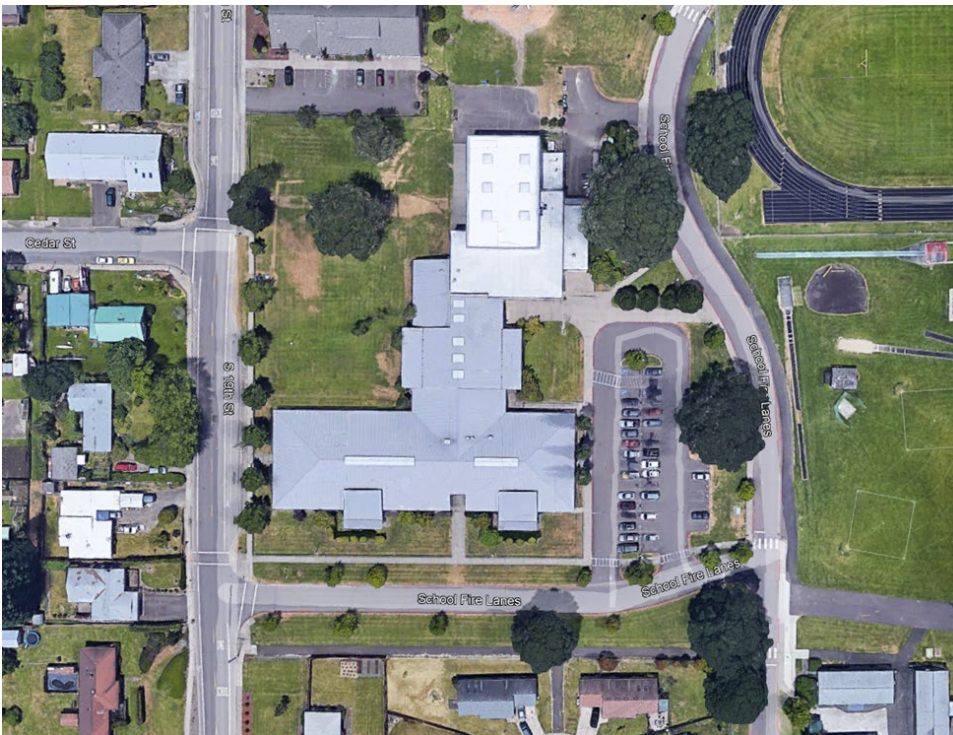


Figure 8: Clemens Primary School

Proposed Solutions

The project team identified solutions to help address these safety concerns. Several of these solutions are infrastructure based while the others are programmatic.

Near Term Infrastructure Recommendations

The infrastructure solutions recommended by the project team focus on using physical infrastructure to slow motor vehicles along the stretch of S 19th Street where students are being picked-up and restriping the street to create more buffer between people driving and student pick-up. To slow speeds, create awareness of the pick-up zone, and create awareness of students that may be crossing to/from the school, the project team recommends adding a raised crosswalk at the existing striped crosswalk on the north leg of the Cedar Street and S 19th Street intersection. These raised crosswalks can be designed in conjunction with the Philomath Fire Department to address any concerns about emergency vehicle access along the street.

Additionally, the project team recommends restriping S 19th Street to narrow the travel lanes, which are currently striped at 12 feet each, to 11 feet, and to stripe a 1-foot buffer between the travel lanes and bike lanes. This will provide additional buffer between the student pick-up area and drivers on S 19th Street and narrowing travel lanes provides a positive correlation with slowing driver speeds, which can provide more reaction time for drivers and reduce the severity of crashes, should a conflict occur.

Finally, the project team recommends adding physical separation in the buffer of the bicycle lane for the pick-up and drop-off zone. This will force parents to enter the pick-up zone from the south and drive through the entire zone until they exit at the north of the pick-up zone, and it should be implemented with step-wise cones or other temporary barriers first to help understand how it affects pick-up operations, then with permanent barriers if successful with cones. Figure 9 provides an example of a low-profile traffic post separator curb that can be used to provide that physical separation.



Figure 9: Low Profile Traffic Post Separator Curb

Near Term Programmatic Recommendations

In addition to the infrastructure recommendations identified above, the team identified a number of programmatic recommendations, as well. These should be explored further within the current school operations to understand whether and how they can be implemented.

One programmatic solution is to provide school pick-up at the east side turnaround for all students, where it is currently provided for just kindergarten students. Further study should be done to better understand the operational effects of this change and to identify whether school release should be staggered for kindergarten and first grade students to accommodate this recommendation.

A second programmatic solution is to provide further education and regular reminders to parents and families that first graders should enter the passenger side vehicle from the curb during pick-up. This education can decrease the number of students walking around the vehicle near drivers on S 19th Street. This recommendation is independent of the infrastructure recommendations provided above.

Long Term Infrastructure Recommendation

An opportunity exists to relocate the S 19th Street drop-off/pick-up area to the fire lane on the south side of the school. The fire lane, combined with the planter strips on each side of the fire lane, could be sufficient to allow fire lane operations, while also providing for a separate, westbound only, drop-off/pick-up area. This would require a turnaround where the two fire lanes intersect at the southeast corner of the school property. This area along the south side of the school could be reconfigured to provide a 10-foot-wide loading zone along the face of the existing sidewalk (widened to 8 feet), along with a 4-foot striped buffer and the 23+-foot fire lane. There would be approximately 180 feet of sidewalk frontage available for active pick-up and drop-off. Further study, including an operational analysis, will be necessary to affirm the feasibility of this option.

Implementation

This report outlines both programmatic and capital improvements that can be implemented to improve safety and circulation surrounding the school campuses. Many of the physical infrastructure improvements will require more detailed design and analysis by engineering staff, however some suggestions on more immediate opportunities are discussed below. The project team is happy to support the City of Philomath on funding and tactical urbanism efforts.

Funding

Identifying improvements to include in the City of Philomath's Capital Improvement Plan is the first logical step for funding projects identified in this report. Often there are opportunities to combine smaller walking and biking improvements to larger reconstruction or intersection projects. This approach provides benefits to multiple stakeholders in the community.

If external funding is required or desired, the Oregon Safe Routes to School Program identifies a number of funding opportunities on their website: <https://www.oregonsaferoutes.org/find-funding/>. City and School District staff are also encouraged to work with their regional Oregon Department of Transportation staff to explore opportunities for improving the crossings on state highways.

Tactical Urbanism

To bridge the gap between identified need and funding, cities across the United States are using tactical urbanism as a means to improve streets using flexible, low cost materials. These “pop up projects” allow for more immediate iteration on design, provide a means for public comment on proposed improvements, and rapidly transform streets while larger design and construction processes occur. A complete, free guide on tactical urbanism is available online: <http://tacticalurbanismguide.com/about/>

Within the context of this report, a mini-roundabout at 19th and Applegate would be an excellent use of tactical urbanism. As it would be a significant change for people walking, biking and driving, the opportunity to “pilot” it for a couple weeks or months, observe changes, and receive comments could quickly solidify the practicality of the improvement while influencing a more permanent project.

Additional Considerations

As noted, the project team developed the solutions presented above through an abbreviated planning level process, focused primarily on the four priority sites identified by the School Board and City Council. Further analysis, public outreach, partner agency outreach, and design may be needed before implementing these solutions. The project team and community identified other safety or circulation challenges and solutions during the course of the project, but because of the focused scope for this project, the project team did not further explore those challenges or solutions. Further study will allow for a more detailed look at area circulation and additional safety locations to support identification of future improvements.