

Memorandum

Department of Public Works



TO: Michael O. Geisel, P.E.
City Administrator

FROM: James A. Eckrich, P.E. *JAE*
Public Works Director / City Engineer

DATE: April 19, 2024

RE: Schoettler Road Crosswalk near Logan Park

As you know the City of Chesterfield completed the construction of Logan Park in 2023. Additionally, the City has been working for years to create a continuous sidewalk on at least one side of Schoettler Road from Clayton Road to South Outer 40. Due to the award of two recent federal grants, the continuous sidewalk on Schoettler Road will come to fruition in 2027. In the interim pedestrians continue to use the existing sidewalks on Schoettler Road, and Logan Park attracts more and more people each day. The City of Chesterfield has received several requests for a crosswalk to allow residents to safely cross Schoettler Road in the vicinity of Logan Park. As the City Engineer I have been reluctant to install a mid-block crossing, which seems safer to many but can actually be more dangerous if the crossing is not warranted and will potentially be ignored by a percentage of motorists.

On December 4, 2023 the City Council approved an Engineering Services Contract with Horner and Shifrin to design the next phase of the Schoettler Road Sidewalk Project (Greenleaf Valley Drive to Winsor Valley Court). As part of these engineering services, I asked Horner and Shifrin to analyze the request for a crosswalk on Schoettler Road at Logan Park and determine whether traffic engineering warrants are met. The result of that request is attached within a Memorandum from Horner and Shifrin. In short, Horner and Shifrin finds that traffic engineering warrants are met for a crosswalk in this area due to the proximity of Logan Park. Further, they recommend that a crosswalk be located near the southern end of the park (to increase visibility) and that a Rectangular Rapid Flashing Beacon (RRFB) be considered due to this mid-block location. A sheet explaining RRFBs is attached for your review.

At my direction, Civil Engineer Steve Merk has designed a pedestrian crossing on Schoettler Road at Logan Park utilizing an RRFB. The crossing would be located toward the southern end of the park at a location which maximizes visibility on Schoettler Road. The crosswalk would tie-into existing sidewalk on the east side of

Schoettler Road and the existing walking path within Logan Park. The estimated cost (equipment and material only – assumes in-house labor) is \$17,600, which includes aggregate, concrete materials, painting, signage, and the RRFB.

While I recommend that the City of Chesterfield Planning and Public Works Committee approve this crosswalk and the RRFB, I have concerns that this will “open the door” for more requests for these RRFBs. **I want to be clear that these RRFBs must be used with discretion and only where truly warranted. Otherwise it will negate their impact and effect.** To help control the future use of RRFBs, I have directed that the engineering firm chosen to create the update for the Bikeable Walkable Plan include specific evaluation criteria for the City to consider regarding future RRFB requests. Prior to the Bikeable Walkable Plan update the Public Works Department will not consider any additional requests for RRFBs without an engineering analysis which ensures that all applicable warrants are met.

Action Recommended

The Planning and Public Works Committee should consider Staff's recommendation to install a crosswalk, including an RRFB, on Schoettler Road near Logan Park, at an estimated cost of \$17,600 (equipment and material only). If PPW supports this request it should direct the Director of Public Works to install the crosswalk. If PPW does not support this request it should provide alternative direction to the the Director of Public Works. If approved the crosswalk will be installed this summer using in-house staff. Please note that no additional funding allocation is necessary for this project. The estimated equipment and material cost of \$17,600 can be absorbed by the existing Public Works budget.

Should you have questions or require additional information, please let me know.

Please forward to PPW for their concurrence with your recommendation.

 2024-4-22

Memorandum

Department of Public Works



TO: Jim Eckrich, PE
Director of Public Works / City Engineer

FROM: Steve Merk, PE *Sm*
Civil Engineer

DATE: April 18, 2024

RE: Logan Park / Schoettler Road
Crosswalk Analysis

Executive Summary

Due to the development of Logan Park and numerous requests from residents for a crosswalk on Schoettler Road at Logan Park, the City contracted with Horner & Shifrin, Inc. to obtain a crosswalk warrant analysis and a recommendation on the merits of a mid-block crosswalk at that location. As indicated in the attached report from Horner & Shifrin, a crosswalk is warranted and recommended to serve pedestrian traffic on the east side of Schoettler Road desiring to access Logan Park. The design and installation of this crosswalk could be performed by in-house City staff for an approximate cost of \$17,600.

Background

Since the ownership and maintenance of Schoettler Road was transferred to the City of Chesterfield from St. Louis County in 2010, the City has worked toward improving the pedestrian accommodations on Schoettler Road. The goal has been to provide a continuous pedestrian route from Clayton Road to Chesterfield Parkway.

In 2018 and in 2020, the City filled sidewalk gaps at Creve Coeur Creek and at 2290 Schoettler Road. These sidewalk infill projects were part of the Creve Coeur Creek bridge replacement and Clayton Road intersection improvement projects, respectively. In 2023, the City was awarded a federal grant to partially fund the Schoettler Sidewalk Gap project (2023-PW-05). This project will construct a 5' wide sidewalk on Schoettler Road between Greenleaf Valley Drive and Windsor Valley Court. It is scheduled for construction in 2026. In 2024, the City was awarded another federal grant to partially fund the Pathway on the Parkway project (2024-PW-09). This project will construct 5' wide sidewalk on Schoettler Road between Chesterfield Pines Lane and Schoettler Spur Road. It is scheduled for construction in 2027. Together, these projects will fill the last remaining sidewalk gaps on Schoettler

Road and achieve the goal of providing a continuous pedestrian route on at least one side of Schoettler Road from Clayton Road to Chesterfield Parkway East.

With the addition of the pedestrian accommodations detailed above, the City expects there to be increased pedestrian traffic on Schoettler Road, mostly on the east side of the road where there is continuous sidewalk. With the opening of Logan Park in 2023, the City has received numerous requests from residents for a crosswalk on Schoettler Road to allow for safe pedestrian access to the park.

Currently, there are approximately 550 residences in subdivisions that connect directly to sidewalk on the east side of Schoettler Road between Windsor Valley Court and Clayton Road. Therefore, there is a large volume of pedestrians who may want to walk to Logan Park, but they do not have a safe means of access across Schoettler Road to the park. The only options for those residents currently are: to drive to the park, or to cross Schoettler Road at an unmarked location. After the Schoettler Road Sidewalk Gap project (2023-PW-05) is constructed in 2026, the continuous pedestrian route to Logan Park will be extended to the north end of Schoettler Road which will increase pedestrian demand further.

Warrant Analysis and Recommendation

City Staff requested that Horner & Shifrin (H&S) provide a crosswalk warrant analysis report for a mid-block crosswalk to serve Logan Park. H&S was chosen due to their traffic engineering expertise and because they are the consultant currently designing the adjacent Schoettler Road Sidewalk Gap project. Given their familiarity with the area, and the relationship between the sidewalk gap project and the park access, H&S was the best choice to provide this service.

In the enclosed report provided by H&S, a mid-block crosswalk is warranted and recommended on Schoettler Road in accordance with the *Urban Street Design Guide* since the crosswalk would directly serve a park. The proposed location for the crosswalk is approximately 500 feet south of the southern Logan University access drive connection at a high point in Schoettler Road. This location will maximize site distance between drivers and pedestrians in the crosswalk, and the cross slope in the crosswalk would be less than 2% at that location, in accordance with ADA guidelines. No pavement modifications to Schoettler Road are necessary.

To improve safety and visibility, H&S recommended high-visibility crosswalk markings with warning signs and a pedestrian-activated Rectangular Rapid-Flashing Beacon (RRFB). These are typical measures that are used at similar crossings in the greater St. Louis region, so drivers should be familiar with the measures.

An RRFB consists of two rectangular-shaped yellow indications attached to a crosswalk warning sign, each with an LED-array-based light source. The RRFB flashes with an alternating high frequency to enhance conspicuity to drivers of pedestrians in the crosswalk. The RRFB is push-button activated, so it begins flashing when a pedestrian is present and stops flashing after a pre-programmed length of time in accordance with crosswalk design standards. In addition, it can be solar powered, so no additional electric service is required.

This installation is out of the ordinary for the City. Mid-block crosswalks are generally discouraged since drivers are not expecting to see pedestrians crossing at non-stop-controlled intersections. Also, the City does not currently have any lighted traffic warning lights on a City street. However, the unique site conditions for this location warrant the solution proposed above.

Given the direct crosswalk access to Logan Park, the pedestrian demand enumerated above, the high vehicle traffic volumes on Schoettler Road, and the high posted speed limit, the mid-block crossing is a reasonable accommodation. Although the City does not currently use lighted warning signs anywhere else in the City, this location demands consideration since the RRFB would improve the safety of pedestrians in the mid-block crosswalk. The Federal Highway Administration recommends that the use of RRFBs be reserved “for locations with significant pedestrian safety issues, as over-use of RRFB treatments may diminish their effectiveness.”

The City is currently in the process of updating its Bikeable-Walkable Community Plan, which was last adopted in 2010. The updated Plan will include evaluation criteria for City Staff when an RRFB is requested or considered at future locations.

Proposed Design

As shown on the enclosed preliminary site plan, the construction of the recommended crosswalk would include the following:

- A new ADA curb ramp and extension to the existing sidewalk on the east side of Schoettler Road
- High visibility crosswalk striping on Schoettler Road
- Crosswalk signage and two (2) RRFB warning systems, one in each direction of travel
- A sidewalk extension on the west side of Schoettler Road that will connect to the Logan Park trail

The crosswalk, ramp, and sidewalk connections will be designed and constructed to be compliant with current Americans with Disabilities Act (ADA) design requirements. Enclosed is a sketch which shows the proposed layout of the crosswalk and east side connection, and there is a separate sketch which shows the proposed sidewalk extension layout from the west side of Schoettler Road to the Logan Park trail.

Conclusion

I concur with the professional recommendation provided by Horner & Shifrin, and I recommend that the City install a mid-block crosswalk on Schoettler Road to serve Logan Park.

If the project is approved, I recommend that it be designed in-house by one of the City’s Civil Engineers. I also recommend that City Public Works staff install the concrete sidewalk extensions as well as the signage and striping for the crosswalk. As detailed on the attached cost estimate, the material costs to install the crosswalk and associated items is \$17,600. This cost does not account for in-house labor.

▪ **MEMORANDUM** ▪

TO: Steve Merk, City of Chesterfield
FROM: Jon Loos, Horner & Shifrin
SUBJECT: Schoettler Road Crosswalk Evaluation at Logan Park
DATE: March 1, 2024
H&S JOB NO.: P230446
CC: Jarrett Jasper, Horner & Shifrin
Jervis Atagana, Horner & Shifrin



Mr. Merk,

Based on a number of conversations between the City of Chesterfield and Horner & Shifrin (H&S), we understand the City's interest in constructing a crosswalk to provide access for pedestrians crossing Schoettler Road to visit the newly constructed Logan Park. This memo serves to provide a summary of our research and the recommendations of national agencies regarding potential mid-block crossings such as this.

The National Association of City Transportation Officials (NACTO) has issued the *Urban Street Design Guide* and in it, they recommend installing a mid-block crosswalk "where there is a significant pedestrian desire line." Parks are among the examples they list that would warrant a crosswalk. Additionally, industry standard practice is to separate a mid-block crossing from an entrance or intersection by at least 200'. The entrance to Logan College should be considered when selecting a potential location for the crossing.

The Federal Highway Administration (FHWA) has developed a Safe Transportation for Every Pedestrian (STEP) initiative to guide the evaluation of crosswalks and the application of pedestrian crash countermeasures. Schoettler Road, at the Logan Park entrance, is a two lane (one lane in each direction) configuration with a posted speed of 40 MPH and a vehicle AADT of less than 9,000, according to available AADT data. For these conditions, STEP guidance gives five pedestrian crash countermeasures to consider for use.

Based on this guidance, **a crossing of Schoettler Road to Logan Park is both warranted and recommended.** A potential crosswalk should be located closer to the southern edge of Logan Park than the northern, and in a location that supports the greatest visibility of users. To promote safety, recognition, and familiarity, applicable countermeasures that are used at similar types of crossings in the greater St. Louis region should be utilized, including high-visibility crosswalk markings with warning signs and a Rectangular Rapid-Flashing Beacon (RRFB). I've included the FHWA literature on RRFBs with this memo for your information.

Please feel free to reach out to me with any questions at (636)439-2398 or jrloos@hornershifrin.com.

Thank you,


Jon Loos, PE
Assistant Regional Manager
Horner & Shifrin



Safety Benefits:

RRFBs can reduce crashes up to:

47%

for pedestrian crashes.⁴

RRFBs can increase motorist yielding rates up to:

98%

(varies by speed limit, number of lanes, crossing distance, and time of day).³



RRFBs used at a trail crossing.
Source: LJB

For more information on this and other FHWA Proven Safety Countermeasures, please visit

<https://highways.dot.gov/safety/proven-safety-countermeasures> and https://highways.dot.gov/sites/fhwa.dot.gov/files/2022-06/techSheet_RRFB_2018.pdf.

Rectangular Rapid Flashing Beacons (RRFB)

A marked crosswalk or pedestrian warning sign can improve safety for pedestrians crossing the road, but at times may not be sufficient for drivers to visibly locate crossing locations and yield to pedestrians. To enhance pedestrian conspicuity and increase driver awareness at uncontrolled, marked crosswalks, transportation agencies can install a pedestrian actuated Rectangular Rapid Flashing Beacon (RRFB) to accompany a pedestrian warning sign. RRFBs consist of two, rectangular-shaped yellow indications, each with a light-emitting diode (LED)-array-based light source.¹ RRFBs flash with an alternating high frequency when activated to enhance conspicuity of pedestrians at the crossing to drivers.

For more information on using RRFBs, see the Interim Approval in the *Manual on Uniform Traffic Control Devices (MUTCD)*.¹

Applications

The RRFB is applicable to many types of pedestrian crossings but is particularly effective at multilane crossings with speed limits less than 40 miles per hour.² Research suggests RRFBs can result in motorist yielding rates as high as 98 percent at marked crosswalks, but varies depending on the location, posted speed limit, pedestrian crossing distance, one- versus two-way road, and the number of travel lanes.³ RRFBs can also accompany school or trail crossing warning signs.

RRFBs are placed on both sides of a crosswalk below the pedestrian crossing sign and above the diagonal downward arrow plaque pointing at the crossing.¹ The flashing pattern can be activated with pushbuttons or passive (e.g., video or infrared) pedestrian detection, and should be unlit when not activated.

Considerations

Agencies should:²

- Install RRFBs in the median rather than the far-side of the roadway if there is a pedestrian refuge or other type of median.
- Use solar-power panels to eliminate the need for a power source.
- Reserve the use of RRFBs for locations with significant pedestrian safety issues, as over-use of RRFB treatments may diminish their effectiveness.

Agencies shall not:²

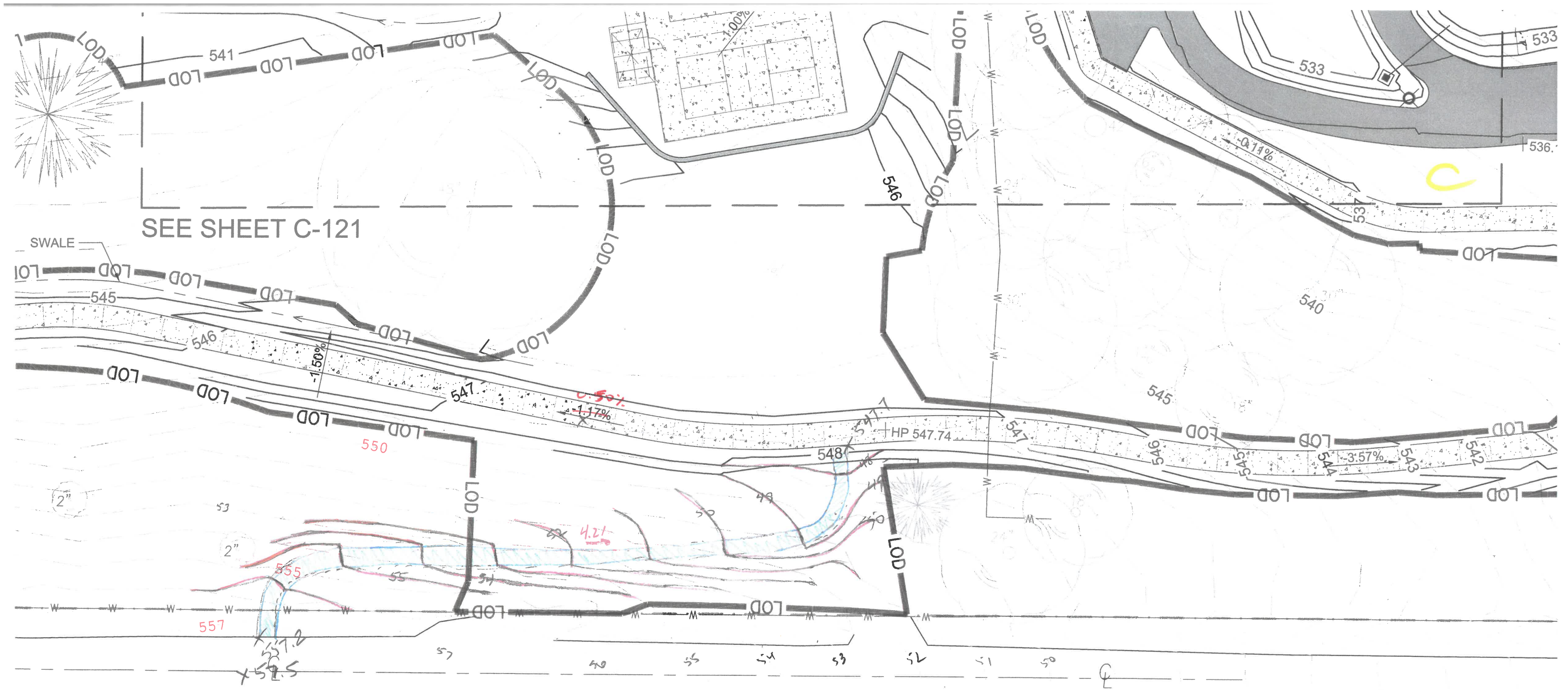
- Use RRFBs without the presence of a pedestrian, school or trail crossing warning sign.
- Use RRFBs for crosswalks across approaches controlled by YIELD signs, STOP signs, traffic control signals, or pedestrian hybrid beacons, except for the approach or egress from a roundabout.

¹ *MUTCD Interim Approval 21 - RRFBs at Crosswalks*.

² "Rectangular Rapid Flash Beacon" in PEDSAFE: Pedestrian Safety Guide and Countermeasure Selection System. FHWA, (2013).

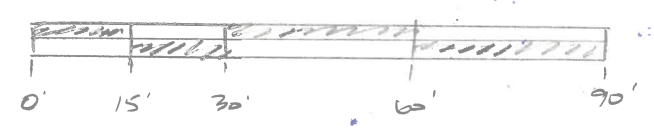
³ Fitzpatrick et al. "Will You Stop for Me? Roadway Design and Traffic Control Device Influences on Drivers Yielding to Pedestrians in a Crosswalk with a Rectangular Rapid-Flashing Beacon." Report No. TTI-CTS-0010, Texas A&M Transportation Institute, (2016).

⁴ (CMF ID: 9024) NCHRP Research Report 841 Development of Crash Modification Factors for Uncontrolled Pedestrian Crossing Treatments, (2017).



ETTLER (VARIABLE WIDTH) ROAD
(PUBLIC STREET)

$$(557.2 - 547.7) / 220 = 4.3\%$$



SCALE
1" = 30'

Project Name:
 Location:
 Date:
 Engineer:

Schoettler Road / Logan Park Crosswalk
 500' South of Southern Logan U. Driveway
 4/18/2024
 Steve Merk

CONCEPTUAL COST ESTIMATE

Items	Quantity	Unit	Unit Price	Amount
Silt Fence / straw wattles	1	LS	\$ 1,000.00	\$ 1,000.00
Net Earthwork - Export	140	CY	\$ 5.00	\$ 700.00
<i>Excavation</i>	165	CY		
<i>Embankment</i>	25	CY		
Seed/Mulch	550	SY	\$ 2.00	\$ 1,100.00
Rectangular Rapid-Flashing Beacons (RRFB) System (one in each direction)	2	LS	\$ 4,500.00	\$ 9,000.00
Crosswalk Signage / Markings	1	LS	\$ 1,000.00	\$ 1,000.00
High-Visibility Crosswalk Striping				
Crosswalk Warning Signage				
West Side of Schoettler Road				
4" Type 5 Aggregate Base	18.3	TON	\$ 7.05	\$ 129.12
5' Wide, 4" Concrete Sidewalk	13.6	CY	\$ 155.00	\$ 2,102.83
East Side of Schoettler Road				
4" Type 5 Aggregate Base	2.5	TON	\$ 7.05	\$ 17.61
5' Wide, 4" Concrete Sidewalk	1.9	CY	\$ 155.00	\$ 286.75

ROUNDED SUBTOTAL = \$ 15,300.00
 15% Contingency = \$ 2,295.00

TOTAL COST ESTIMATE = \$ 17,595.00