Southwestern Pennsylvania Road Safety Audit

Lincoln High School and Hartman, Holy Redeemer & Northside Elementary Schools

Ellwood City Borough, Lawrence County, PA

SOUTHWESTERN PENNSYLVANIA COMMISSION
SPC

September 2014

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1. BACKGROUND

A Road Safety Audit (RSA) is the formal safety performance examination of an existing or future road or intersection by an independent, multidisciplinary team. It qualitatively estimates and reports on potential road safety issues and identifies opportunities for improvements in safety for all road users. The aim of an RSA is to answer the following questions:

- What elements of the road may present a safety concern: to what extent, to which road users, and under what circumstances?
- What opportunities exist to eliminate or mitigate identified safety concerns?

An RSA is a proactive process that provides recommendations which can be implemented in stages as time and resources permit. As a service to its Planning Partners, the Southwestern Pennsylvania Commission (SPC) has developed an RSA program as part of its Transportation Operations & Safety planning efforts. The methodology for this program is summarized below and is based on the 8-step RSA process developed by the Federal Highway Administration.

This document represents the final report for the Road Safety Audit conducted around Lincoln High School and Hartman, Holy Redeemer & Northside Elementary Schools in the Borough of Ellwood City, Lawrence County.

2. AUDIT PROCESS

The standard steps involved in a Road Safety Audit are:

Identify the Project

Candidates for Road Safety Audits are submitted to SPC by local municipalities, Counties, and PennDOT Districts. Candidates may include projects that are already in the design stage or may be in-service roads where safety is a concern. SPC reviews RSA candidate proposals and proceeds with setting up RSAs as manpower and budgetary constraints allow. Roadway owners must commit to documenting a formal response (see Step 7) prior to initiation of an RSA.

Select the RSA Team

SPC works with the roadway owner(s) to identify potential members for the independent, multi-disciplinary team. RSA teams typically consist of 3-5 members, with outside specialists consulted as needed. Team make-up typically includes 1-2 consultant members, 1 SPC staff person, and 1-2 PennDOT staff (from outside the District where the project is located).

Conduct a Start-up Meeting

The RSA team conducts a start-up meeting with the roadway owner(s) in order to identify the steps to be taken, review the schedule, and discuss any opportunities and/or constraints identified by the project owner(s). This is also the time for the

project owner(s) to share any background information with the RSA team. Desirable information to be provided to the RSA team includes anecdotal crash history such as first responder experiences, potential changes in land use or travel patterns in the project area, public sentiment regarding the study location, and any known constraints.

Perform Field Reviews

The RSA team reviews the information provided by the roadway owner(s) and conducts multiple field views of the site (typically during AM and PM peak hours, an off-peak hour, and at night in order to see the site under different conditions). The RSA team drives and walks the site in order to identify geometric, operational, roadway user/human factors, and environmental issues.

Conduct RSA Analysis

Based on its field views, the information provided, consultation with specialists (if needed), and research into applicable design guidelines, the RSA team identifies and prioritizes safety issues within the project area and develops suggestions for enhancing safety.

Present RSA Findings to Project Owner

Once the RSA team has completed its analysis, it presents the findings to the roadway owner(s) in two phases:

- Preliminary Presentation – The RSA team conducts a meeting with the roadway owner(s) and presents its findings. This meeting is an opportunity to constructively discuss the issues and suggestions identified, and for the roadway owner(s) to provide feedback.
- Written Report – Following the preliminary presentation, the RSA team prepares a written report, incorporating roadway owner feedback as appropriate.

Prepare Formal Response

Upon receipt and review of the written report, the roadway owner(s) prepare a formal response (to the project file) documenting plans to address identified issues and reasons for not addressing other issues.

Incorporate Findings

The roadway owner(s) implement improvements as outlined in the formal response.

The following pages provide information on the RSA participants for this study and summarize the findings of the RSA team.

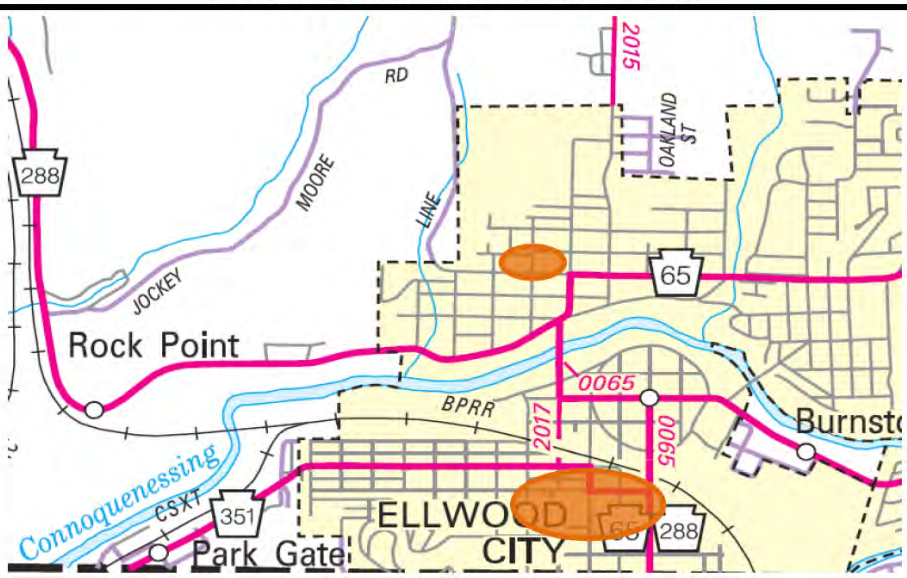
3. AUDIT FINDINGS

Southwestern Pennsylvania Road Safety Audit Program

Roadway Owner Agency(s)	Roadway Owner Representatives
Ellwood City Borough	Bob Villella, Borough Manager Lt. David Kingston, Police Department

RSA Team Members	Agency	Role
Bob Taylor, P.E.	Gannett Fleming	Transportation Engineer
Josh Spano	Southwestern Pennsylvania Commission	Transportation Planner
Millie French, P.E.	French Engineering	Transportation Engineer
Adam Marshall, P.E.	PennDOT District 10-0	Safety Engineer
Doug Smith, P.E.	Southwestern Pennsylvania Commission	Transportation Planner

Location:	Hartman, Lincoln, Holy Redeemer and North Side School Areas Ellwood City Borough, Lawrence County, PA



Schedule	Date & Time	Location
Start-up Meeting	Wednesday, Sept. 10, 2014, 10:00AM	Ellwood City Municipal Bldg
Preliminary Presentation	Thursday, Sept. 11, 2014, 10:00AM	Ellwood City Municipal Bldg

Key Person Interviews	Agency / Affiliation	E-mail
Kirk Lape	Lincoln High School Principal	klape@ellwood.k12.pa.us
Joanne Kokosinski	Holy Redeemer Catholic School	hrsprincipal@zoominternet.net
Christine Gibson	North Side Elementary Principal	cgibson@ellwood.k12.pa.us
Frank Keally	Hartman Elementary School Principal	fkeally@ellwood.k12.pa.us
Amy McKinney	Lawrence County Planning Dept.	amckinney@co.lawrence.pa.us

General

OBSERVATION: Yield to Pedestrian devices are located in some school zones but are used sporadically and not always placed in effective locations. Many unsignalized crosswalks do not have ped crossing signage.

SUGGESTIONS:

- Place Yield to Pedestrian devices along roadway centerlines or on the curb so as not to impede bus turning movements. (On 4th Street, if placed along the centerline near Park Avenue, the device should be placed at the south crosswalk in the AM and at the north crosswalk in the PM to minimize bus turning conflicts.)
- Provide pedestrian crossing signs at appropriate locations.

General

OBSERVATION: Crossing guards are not equipped with STOP paddles and do not always seem to command the attention and respect of drivers.

SUGGESTIONS:

- Provide crossing guards with STOP paddles in accordance with the MUTCD to effectively control traffic.
- Provide crossing guard training on an annual basis.
- Review crossing guard locations annually and make adjustments as needed based on pedestrian demand.
- Consider developing a “walking school bus” program in addition to (or in lieu of some) crossing guards.

General

OBSERVATION: Some signs are faded, damaged and/or are not retroreflective. Signage of a consistent type is not always used (ex. No Parking, One Way signs). Some crosswalks are painted yellow (should be white).

Not Retroreflective

SUGGESTIONS:

- Replace faded, damaged and missing signs and pavement markings.
- Ensure that all signs are retroreflective and that signs and pavement markings are compliant with the MUTCD.

Lincoln / Hartman/Holy Redeemer

OBSERVATION: There are a few locations with school-related pedestrian traffic where crosswalks are not painted or signed. Students from Holy Redeemer often cross Crescent Avenue at the steps near Cherry Way in order to go to Mass.

SUGGESTIONS:

- Install a crosswalk on 4th Street at Wolverine Avenue.
- Install a crosswalk and appropriate crossing signs (S1-1) on Crescent Avenue at Cherry Way.
- Consider textured crosswalks to raise the visibility of key crossings.

Lincoln / Hartman / Holy Redeemer

OBSERVATION: The traffic signal at the intersection of 4th Street and Crescent Avenue is outdated. It is pretimed (no vehicle detection), only has 1 signal head per approach, and does not have pedestrian crossing devices. Additional traffic will use this intersection during construction of the 2nd Street bridge. Inefficiencies at this intersection could result in detoured traffic using neighborhood streets to avoid this signal.

SUGGESTIONS:

- Upgrade the 4th & Crescent traffic signal to a modern installation with vehicle detection, countdown pedestrian signal heads and appropriate signage.
- Establish time-of-day signal timing plans to facilitate ingress and egress of buses during peak times.

Holy Redeemer

OBSERVATION: Traffic conflicts occur due to school drop offs around a blind curve on Lawrence Avenue and restricted travelway width due to on-street parking. These conflicts are likely to increase during construction of the 2nd Street bridge with an increase in cut-through traffic.

SUGGESTIONS:

- Make Lawrence Avenue one-way EB/SB from 4th Street around to Crescent Avenue during construction of the 2nd Street bridge. Consider making this permanent based on how it operates during construction.
- Resurface Lawrence Avenue between Cherry Way and Cedar Way (around the curve) and provide improved pavement markings to delineate on-street parking and school pick-up / drop off zones.
- Paint parking stalls on Lawrence Avenue and prohibit parking along the curve.

Lincoln / Hartman

OBSERVATION: The school zone signing located on 4th Street near the entrance to Hartman Elementary School is too far within the school zone to be very effective.

SUGGESTIONS:

- Move the SB sign closer to the intersection of 4th & Crescent and "bracket" the signs by installing another one on the other side of the street.
- Consider painting school zone markings on 4th Street near the intersection with Crescent Ave.

Lincoln / Hartman

OBSERVATION: Pedestrian scale lighting helps illuminate the sidewalks around parts of the schools. Additional intersection lighting could enhance the visibility of pedestrians at key intersections.

SUGGESTIONS:

- Consider providing an additional overhead street light at the intersection of 5th & Crescent.
- Consider providing intersection lighting at the intersection of Wolverine Avenue & Short Street.

Lincoln / Hartman

OBSERVATION: Wolverine Avenue provides access to the back entrances and parking lot for Lincoln and Hartman Schools, which results in heavy traffic during ingress and egress periods. There is a wide sidewalk along Wolverine Ave. which could facilitate pick-ups and drop-offs for the high school.

SUGGESTIONS:

- Make Wolverine Avenue one-way westbound from 4th Street to 6th Street and install a sidewalk on the north side of Wolverine Avenue between Short Street and 6th Street.
- Install a STOP sign and pedestrian channelizing device at the parking lot exit onto Wolverine Ave.
- Prohibit high school parent pick-ups / drop-offs in the parking lot and encourage the use of Wolverine Ave.
- Provide signage directing Hartman pick-ups / drop-off traffic to the alleyway between the schools and Lincoln pick-ups/drop-offs to Wolverine Ave.
- Repaint crosswalks white (not yellow).

Lincoln

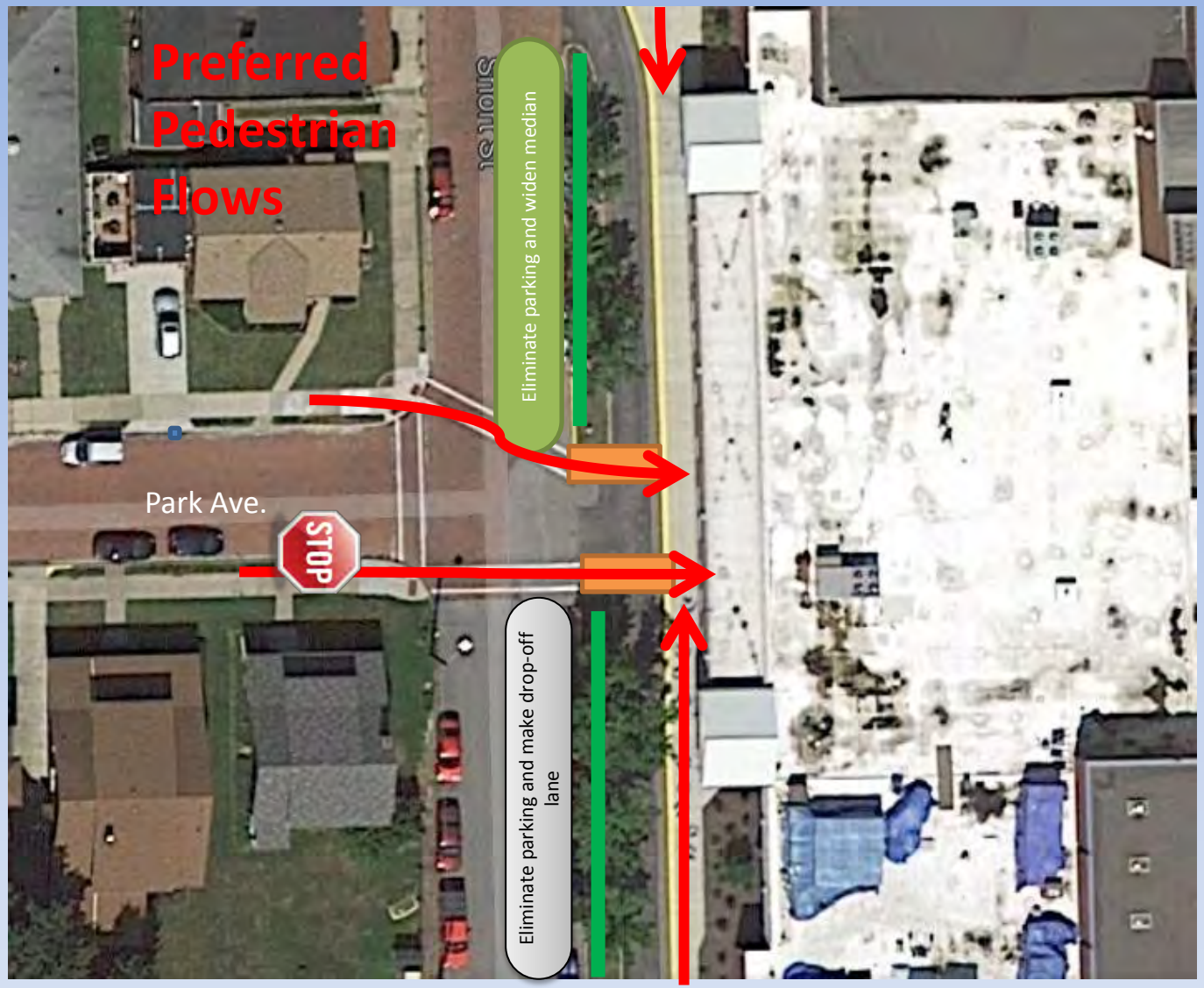
OBSERVATION: There are pedestrian and vehicle conflicts on Short Street due to uncontrolled pedestrian crossing areas and inconsistencies in student pick-up and drop-offs. Bus-pedestrian conflicts were particularly evident at the north end of the school driveway. There is no EB STOP sign on Park Avenue at this location.

SUGGESTIONS:

- Install a STOP sign on Park Avenue.
- Prohibit parking on Park Avenue near the intersection with Short Street in order to increase the visibility of pedestrians.

Additional illustrations and suggestions for this area are on the following pages.

Lincoln



SUGGESTIONS:

- Enforce a no pick-up / drop-off zone near the bus merge area at the northern end of the driveway.
- Eliminate parking on the east side of the street and create a pick-up / drop-off zone at the southern end.
- Channelize pedestrians to designated crossing points using vegetation or ornamental fencing.

Lincoln

Existing

Lincoln

Northside

OBSERVATION: Orchard Avenue is a narrow street with on-street parking. Parents sometimes ignore the school policy and pick up / drop off kids in front of the school while buses and school vehicles are loading / unloading.

SUGGESTIONS:

- Make Orchard Avenue one-way eastbound between College Street and North Street.
- Keep on-street parking on the north side of Orchard Avenue (cars would face the other direction).
- Provide additional signage at Lee Way & North Street to direct parents for pick-ups and drop-offs.

Northside

OBSERVATION: There are potential conflict points and sight distance restrictions created along College Street and Orchard Avenue due to on-street parking and a missing STOP sign.

SUGGESTIONS:

- Add a westbound STOP sign at the intersection of Lee Way and College Street.
- Restrict parking (through signage, curb painting, outreach to property owners and enforcement) on the east side of College Street between Lee Way and Hazel Avenue and on the north side of Orchard Avenue near the intersection of College Street to ensure that buses can make the right turn onto Orchard.

4. CONCLUSION

The road safety audit program is conducted to identify opportunities for improvements in safety for transportation system users. The safety issues identified during this audit and documented in this report, along with the outlined improvement strategies, should enhance the overall safety of the study area. The full impact of the improvement strategies will be realized when they are combined, but time and budget constraints may dictate when remedial strategies are implemented.

The school district and the municipalities have already deployed various safety enhancements in the areas around the schools including school zone signage, crosswalks, the use of school crossing guards, and policies to designate student pick-up and drop-off areas. As part of the audit, the following strategies were identified as ways to further enhance safety:

Short-Range

- Replace faded, damaged and missing signs and pavement markings with MUTCD compliant signs and markings. (ECB)
- Repaint yellow crosswalks white. (ECB)
- Utilize Yield to Pedestrian devices consistently and ensure that they are placed in prominent locations at key unsignalized intersections. (ECB)
- Equip crossing guards with STOP paddles in accordance with the MUTCD and ensure they are trained regularly on traffic control procedures. (ECB)
- Install a crosswalk on 4th Street at Wolverine Avenue. (ECB)
- Install a crosswalk on Crescent Avenue at Cherry Way. (ECB)
- Upgrade the traffic signal at 4th & Crescent to a modern installation with 12" lenses, backplates, vehicle detection, countdown pedestrian heads, lead pedestrian intervals, and appropriate signage. Establish time-of-day signal timing plans to facilitate ingress and egress of buses during peak times. (ECB)
- Make Lawrence Avenue a one-way street EB/SB from 4th Street around to Crescent Avenue during construction of the 2nd Street Bridge in order to deter cut through traffic. (ECB)
- Resurface Lawrence Avenue between Cherry Way and Cedar Way and provide improved pavement markings to delineate on-street parking spaces and school pick-up / drop-off zones. (ECB)
- Move the school zone signage on SB 4th Street closer to the intersection with Crescent Avenue and bracket the signs on both sides of the roadway. (ECB)
- Consider painting school zone pavement markings on 4th Street near Crescent Avenue. (ECB)
- Make Wolverine Avenue one-way westbound between 4th Street and 6th Street. (ECB)
- Install a STOP sign and pedestrian channelizing device at the rear (parking lot) entrance to Lincoln/Hartman. (ECB)

- Discourage/prohibit high school parent pick-ups / drop-offs in the school parking lot and encourage the use of the curb lane and wide sidewalk on Wolverine Avenue for this purpose. (ECASD)
- Provide signage directing Hartman pick-up / drop-off traffic to the alleyway between the schools and Lincoln pick-ups / drop-offs to Wolverine Avenue. (ECASD)
- Install a STOP sign on eastbound Park Avenue at Short Street. (ECB)
- Prohibit parking on Park Avenue near the intersection with Short Street to increase pedestrian visibility. (ECB)
- Enforce a no pick-up / drop-off zone near the bus merge area at the northern end of the Lincoln High School driveway adjacent to Short Street. (ECB)
- Eliminate parking on the east side of Short Street and create a pick-up/drop-off zone at the southern end of Short Street near Wolverine Avenue. (ECB)
- Channelize pedestrians to designated crossing points by providing enhanced median treatments. (ECB/ECASD)
- Make Orchard Avenue one-way eastbound between College Street and North Street (flip the direction of on-street parking). (ECB)
- Provide additional signage at Lee Way and North Street to direct parents to the designated pick-up / drop-off area. (ECASD)
- Add a STOP sign on westbound Lee Way at College Street. (ECB)
- Restrict parking (through signage, curb painting, outreach to property owners, and enforcement) on the east side of College Street between Lee Way and Hazel Avenue and on the north side of Orchard Avenue near the intersection with College Street. (ECB)

Mid-Range

- Review crossing guard locations on an annual basis and make adjustments as needed based on pedestrian demand. (ECB)
- Consider keeping Lawrence Avenue a one-way street EB/SB from 4th Street around to Crescent Avenue after the new bridge is open on 2nd Street. (ECB)
- Consider providing additional overhead lighting at the intersection of 5th & Crescent. (ECB)
- Consider providing additional overhead lighting at the intersection of Wolverine Avenue & Short Street. (ECB)
- Install a sidewalk on the north side of Wolverine Avenue between Short Street and 6th Street. (ECB)

Key: (ECB) – Ellwood City Borough implementation item
(ECASD) – Ellwood City Area School District implementation item

APPENDIX A. ADDITIONAL INFORMATION RELATED TO PEDESTRIAN INFRASTRUCTURE

§ 212.501. School zone speed limits.

(a) Establishment. A 15 miles per hour school zone speed limit may be established in a school zone during the normal hours that walking students are arriving at or leaving school, under 75 Pa.C.S. § 3365(b) (relating to special speed limitations).

(1) To establish a school zone, local authorities shall be responsible to prepare and submit a drawing showing the locations where students walk along or across roadways that are adjacent to school property, the hours that students are going to or from school and the proposed limits for the school zone to the Department for approval.

(2) The Department is responsible for approving the establishment of all school zones, including the locations and hours of operation, except local authorities shall be responsible for approving school zones at the following locations:

(i) On local highways when the municipality has received municipal traffic engineering certification under Chapter 205 (relating to municipal traffic engineering certification).

(ii) On State-designated highways when the municipality has entered into an agreement with the Department thereby transferring to the local authorities the authority to install traffic-control devices without specific Department approval.

(iii) On highways in cities of the first and second class, except not on expressways.

(3) The duration of a 15 miles per hour school zone speed limit should be only long enough to include the time that walking students routinely arrive at or leave school.

(b) Posting. A school zone speed limit shall be posted on official traffic-control devices as follows:

(1) At the beginning of the school zone speed limit, one of the following signs or groups of signs shall be posted either on the right side of the roadway or over the roadway:

(i) A Speed Limit Sign (R2-1) with the appropriate school zone speed limit, with a School Panel (S4-3) mounted above the Speed Limit Sign (R2-1) and a When Flashing Sign (S4-4) mounted below the Speed Limit Sign (R2-1), with two flashing speed limit sign beacons.

(ii) A Speed Limit Sign (R2-1) with the appropriate school zone speed limit, with a School Panel (S4-3) mounted above the Speed Limit Sign (R2-1) and a Restricted Hours Panel (R10-20A) mounted below the Speed Limit Sign (R2-1).

(iii) A School Speed Limit When Flashing Sign with a blank-out ‘‘15’’ and flashers as illustrated in the Traffic Signal Design Handbook (Department Publication 149M).

(2) An End School Zone Sign (S5-2) shall be posted on the right side of the roadway to define the end of the school zone speed limit.

(3) The limits of a school zone may extend beyond the school property lines to improve the sight distance or to encompass a school crosswalk, except that the length of the zone may not be greater than 1,600 feet.

Source: http://www.pacode.com/secure/data/067/chapter212/s212.501.html

Note: The distance from the Charter School property to the corner of South Braddock and Henrietta Street is approximately 150’. The distance from Henrietta Street to Biddle Street (middle of intersection to middle of intersection) is approximately 405’, and from Biddle to Guthrie is an additional 550’. The distance from Henrietta Street to Overton Street (middle of intersection to middle of intersection) is approximately 660’.

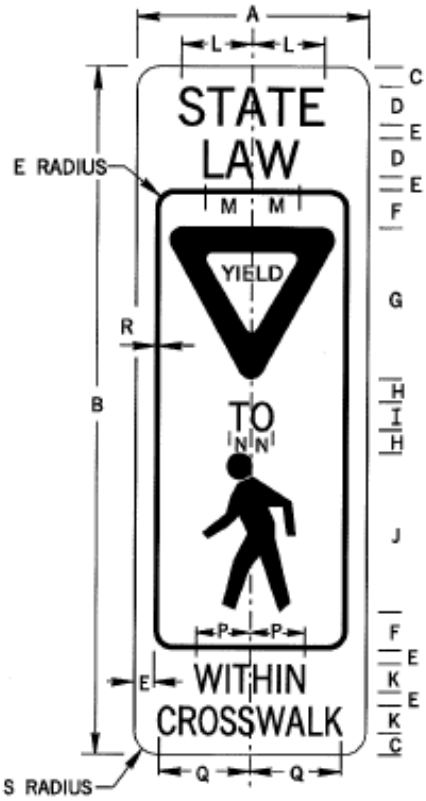
From PennDOT Publication 236:

R1–6

IN–STREET PEDESTRIAN CROSSING SIGN

(a) Justification. The In–Street Pedestrian Crossing Sign (R1–6) is authorized for use on the face of a Yield to Pedestrian Channelizing Device which may be positioned on the centerline of low–speed roadways in a marked unsignalized crosswalk to remind drivers that they must legally yield the right of way to pedestrians in the crosswalk. The Yield to Pedestrian Device shall satisfy national breakaway requirements and the Department's specification, and be of a type approved by the Department and listed in Bulletin 15.

(b) Placement. When used, the R1–6 sign /Yield to Pedestrian Device shall be placed in the roadway at the crosswalk location on the center line, on a lane line, or on a median island. It should not be positioned on roadways with a speed limit greater than 35 mph or with a clear roadway width of less than 20 feet. In addition, it should not be used at locations where it will adversely affect the turning radius of motor vehicles.



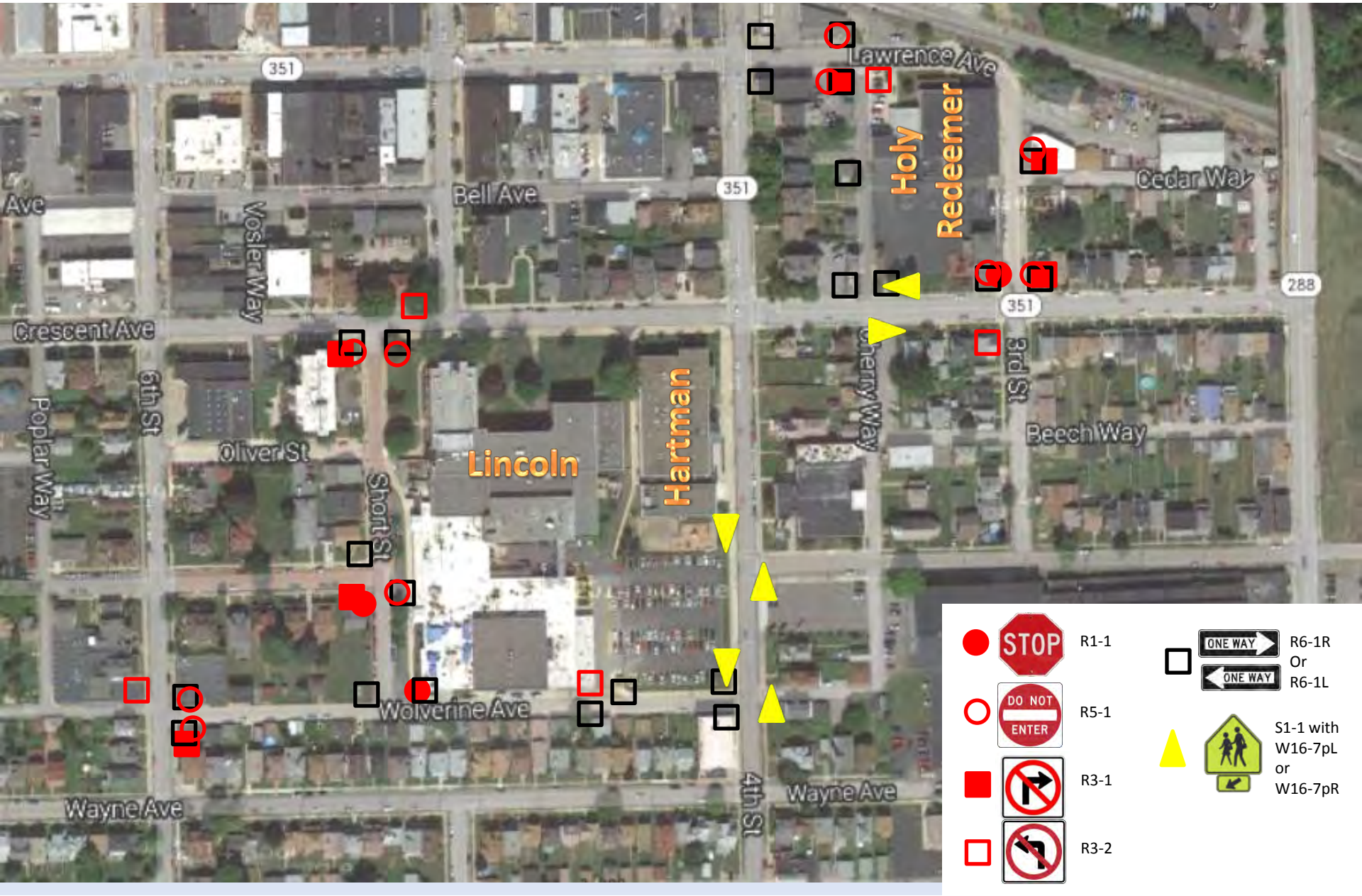
DIMENSIONS – IN																
SIGN SIZE A x B	C	D	E	F	G	H	I	J	K	L	M	N	P	Q	R	S
12" x 36"	1	2D	0.75	2	7.8	1.2	1.5D	8.2	1.5C	3.7	2.5	1.1	2.8	4.7	0.25	1.5

COLOR:
YIELD SYMBOL AND THE YIELD LEGEND:
RED (REFLECTORIZED)
OTHER LEGEND, SYMBOL AND INTERNAL BORDER:
BLACK (NON–REFLECTORIZED)
BACKGROUND:
OUTSIDE OF BORDER:
FLUORESCENT YELLOW–GREEN (REFLECTORIZED)
INSIDE OF BORDER:
WHITE (REFLECTORIZED)

APPROVED FOR THE SECRETARY OF TRANSPORTATION

By : Glen C Rowe Date : 02–29–12
Chief, Traffic Engineering and Permits Section
Bureau of Maintenance and Operations

Appendix B. Potential Signing Enhancements



Note: This diagram is not intended to serve as a comprehensive signing plan. All signs and pavement markings should be placed in accordance with the Manual on Uniform Traffic Control Devices (MUTCD).

Appendix B. Potential Signing Enhancements

Note: This diagram is not intended to serve as a comprehensive signing plan. All signs and pavement markings should be placed in accordance with the Manual on Uniform Traffic Control Devices (MUTCD).