Unusually Hazardous Transportation Plan

TRAFFIC ANALYSIS & DESIGN, INC.

PROVIDING TRAFFIC ENGINEERING SOLUTIONS

To: Phil Frei, SFO, Director of Business and Finance, Sun Prairie Area School District

cc: Rhonda Page, Business Services Manager, Sun Prairie Area School District

From: John Campbell, P.E., RSP_2, Christian R. Sternke, P.E., RSP_1, Amy Pomeroy, P.E., RSP_1

Subject: Sun Prairie Area School District – Unusually Hazardous Transportation Plan

Sun Prairie Area School District

Futures depend on us...every child, every day.

Sun Prairie Area School District
501 S Bird St, Sun Prairie, WI 53590

Sun Prairie Area School District
Board of Education

Approved on _____

TRANSPORTATION IN AREAS OF UNUSUAL HAZARDS

Transportation in areas of unusual hazards and pick-up points for District bused students require constant evaluation. Wisconsin statutes require transportation of children residing 2 miles or more from the school, except in cities where school boards choose not to transport children within the school boundaries.

Because of unusually hazardous conditions in certain areas, a school board may deem it necessary to provide transportation to some children residing less than 2 miles from the school. An unusual hazard is an existing condition which seriously jeopardizes the safety of students in their travel to and from school and is further defined below. It is recognized that all traffic situations through which students must travel present some degree of hazard. When such hazards reach a degree of danger that is unacceptable to the community, the school board may identify such hazards as unusual for the purpose of proposing a plan to remove or diminish them.

Section 121.54(9), Wis. Stats., permits a school board to provide transportation in areas of unusual hazards.

Procedures for the Development or Revision of an Unusually Hazardous Transportation (UHT) Plan as Delineated in State Statutes

1. The school board shall develop a plan which shall show by map and explanation the nature of the unusual hazards to pupil travel and propose a plan of transportation if such transportation is necessary, which will provide proper safeguards for the school attendance of such pupils.

2. Copies of the plan shall be filed with the sheriff of the county in which the principal office of the school district is located.

3. The sheriff shall review the plan and may make suggestions for revision deemed appropriate. The sheriff shall investigate the site and plan and make a determination as to whether unusual hazards exist which cannot be corrected by local government and shall report the findings in writing to the state superintendent and the school board concerned.

4. Within 60, but not less than 30, days from the day on which the state superintendent receives the sheriff's report, the state superintendent shall determine whether unusual hazards to pupil travel exist and whether the plan provides proper safeguards for such pupils.

5. If the state superintendent makes findings which support the plan and the determination that unusual hazards exist which seriously jeopardize the safety of the pupils in their travel to and from school, the school board shall put the plan into effect and state aid shall be paid under s.121.58(2)(c) for any transportation of pupils under this subsection.

The Appeal Process in State Statute

1. Any person aggrieved by the failure of the school board to file a UHT plan with the sheriff may notify the school board in writing that an area of unusual hazard exists.

2. The school board shall reply to the aggrieved person in writing within 30 days of receipt of the aggrieved person's notice.

3. The school board shall send a copy of the board's reply to the sheriff of the county in which the principal office of the school district is located and to the state superintendent.

4. Upon receipt of the school board's reply, the aggrieved person may request a hearing before the state superintendent for a determination that an area of unusual hazard exists.

5. If the state superintendent determines that an area of unusual hazard exists, the state superintendent shall direct the school board to proceed as stated in the development and revision procedures listed previously.

6. Within 30 days after the sheriff's report is received by the state superintendent, any aggrieved person may request a hearing before the state superintendent on the determination by the sheriff and on the plan. After such hearing, the state superintendent shall proceed as stated in the development and revision procedures listed previously.

Suggested Criteria to Use for Identifying UHT Areas

Width of the shoulder of the road
Lack of crossing guards
Ages of children
Temporary hazards (e.g. construction projects or street repairs)
Traffic count
Lack of law enforcement
Railroad crossing
Lack of sidewalks

DEFINITIONS OF "UNUSUAL HAZARD"

Chapter PI 7.01(2) of DPI Administrative Code defines an unusual hazard as an existing condition which constitutes more than an ordinary hazard and which seriously jeopardizes the safety of pupils in their travel to and from school. It is recognized that all traffic situations through which pupils must travel present some degree of hazard. That degree of hazard often depends on the age of the pupils concerned. When such hazards reach a degree of danger which is unacceptable to the community in which they exist, the school board, with its combined judgment reflecting the safety interests of the community, may identify such hazards as unusual for the purpose of proposing a plan to remove or diminish them.

UNUSUAL HAZARD CRITERIA DEVELOPMENT

TADI's team of Road Safety Professionals (RSP), as certified through the Transportation Professional Certification Board, reviewed unusual hazard criteria in both Wisconsin and national school districts and researched factors that impacted pedestrian safety. The team developed objective and science-based criteria based on amount of exposure to a potential hazard a student would be subjected to on a walking route to or from school.

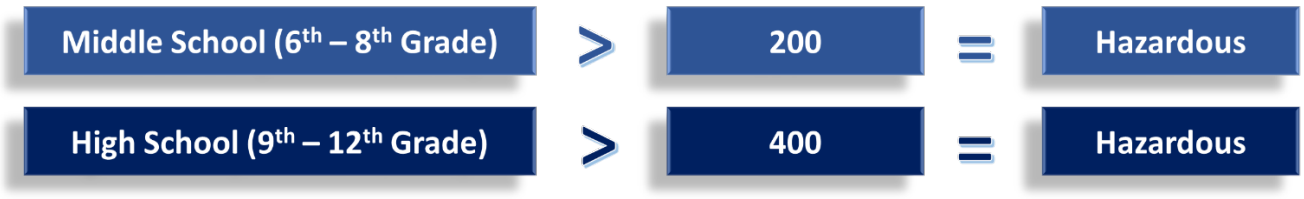
The criteria estimates the risk a student would be exposed to walking along roadways and crossing roadways. The resultant numerical values are based on fundamental criteria research of hazards which have been shown to impact risk to pedestrians.

Walking Along Criteria	**Crossing Criteria**
Distance Walked	Crossing Width
Available Walking Path	Traffic Volume
Traffic Volume	Vehicle Speeds
Vehicle Speeds	Risk Adjustments
Parking Activity	Existing Safety Features

The total exposure score is calculated by summing the walking along exposure score and the crossing exposure score.

Hazardous Classification Thresholds

The hazardous classification thresholds used for categorizing routes as acceptable or hazardous are shown in the following graphic. The thresholds vary for school type and are decided upon by the school district and project team using principles based on research that shows crash risk varies by the age of the child and that younger children have less perceptual judgement and motor skills than older children[1].



[1] O'Neal, Elizabeth & Jiang, Yuanyuan & Franzen, Lucas & Rahimian, Pooya & Yon, Junghum & Kearney, Joseph & Plumert, Jodie. (2017). Changes in Perception-Action Tuning Over Long Time Scales: How Children and Adults Perceive and Act on Dynamic Affordances When Crossing Roads. Journal of Experimental Psychology: Human Perception and Performance. 44. 10.1037/xhp0000378.

WALKING ALONG EXPOSURE SCORE

The walking along exposure score is calculated by summing the score for each individual segment that pupils walk along from origin to school. Each segment score is calculated by multiplying the factors of each of the five *Walking Along* criteria.

$$Walking\ Along\ Exposure\ Score = \sum W_D * W_P * W_V * W_S * W_R$$

Where

W_D = distance walked (mi);
W_P = available walking path;
W_V = hourly traffic volume;
W_S = posted speed limit;
W_R = parking activity and sight distance restrictions.

Distance Walked (W_D)

The numerical value for walking distance, W_D, is the number of miles a student walks along the particular segment being analyzed.

*Available Walking Path (W_P)**

Numerical values for available walking path, W_P, are based on crash modification factors developed from research that showed sidewalks resulted in an 88% reduction in pedestrian crash risk[2] and that paved shoulders of at least 4 feet results in a 71% reduction in pedestrian crash risk[3]. The categories used in selecting W_P are shown in the following table.

Category	W_P
Walking Path ≥ 10 feet from Thru Lane	1
Sidewalk without Driveways	5
Sidewalk with Driveways	10
≥4 feet	25
<4 feet*	50
None	85

**Automatic hazard*: It is considered an automatic hazard if pupils would need to navigate an arterial roadway with a posted speed limit of 45 mph or above that does not have a sidewalk or multiuse path.

The values above were estimated based on the results of the referenced research. For example, the value of 10 used for the "*Sidewalk with Driveways*" category is 88 percent less than the value of 85 used for the "*None*" category [85 * (1 - 0.88) = 10].

Most sidewalk crashes occur at driveway conflict points, thus stretches of sidewalk that do not have conflicting driveways are expected to have lower crash risk. Roadways with no access points have

[2] McMahon, P., Zegeer, C., Duncan, C., Knoblauch, R., Stewart, R., and Khattak, A., "An Analysis of Factors Contributing to 'Walking Along Roadway' Crashes: Research Study and Guidelines for Sidewalks and Walkways," FHWA-RD-01-101, (March 2002).
[3] Gan, A., Shen, J., and Rodriguez, A., "Update of Florida Crash Reduction Factors and Countermeasures to improve the Development of District Safety Improvement Projects." Florida Department of Transportation, (2005).

been shown to have crash reductions of up to 44 percent for all crash types[4]. Thus, stretches of sidewalk that do not have conflicting driveways, "Sidewalks without Driveways", are expected to have a lower crash risk than sidewalks that cross driveways. The lower risk for sidewalks without driveways is reflected in the scoring criteria.

Lastly, when sidewalks or pathways do not have conflicting driveways, and have a large buffer zone from the travel lane, the risk to pedestrians is further reduced. To account for pathways with a large buffer, a category for pathways separated from the thru-lane of roadway travel by 10 feet or more was included and assigned a low risk exposure factor.

Hourly Traffic Volume (W_V)

Numerical values for hourly traffic volume, W_V, assumes a linear relationship that more traffic volume will lead to more risk exposure to a pedestrian. The categories used in selecting W_V are shown in the following table and represent the peak hour of traffic volumes. If peak hour volumes were not available but daily traffic counts were available, the peak hour volumes were estimated to be 10 percent of the daily traffic volumes. Any roadways with peak hour volumes exceeding 3,000 vehicles per hour are considered an automatic hazard for walking along.

Category	W_V	Category	W_V	Category	W_V
≤ 200	1	1,001-1,200	11	2,001-2,200	21
201-400	3	1,201-1,400	13	2,201-2,400	23
401-600	5	1,401-1,600	15	2,401-2,600	25
601-800	7	1,601-1,800	17	2,601-2,800	27
801-1,000	9	1,801-2,000	19	2,801-3,000	29

Posted Speed Limit (W_S)

Numerical values for posted speed limit, W_S, are based on a AAA research[5] regarding speed and pedestrian injury risk. The categories used in selecting W_S are shown in the following table.

Category	W_S	Category	W_S
≤25 or NP^	1.0	40	3.0
25	1.5	45	3.1
30	2.0	50	3.2
35	2.5	55	3.3

^NP = not posted

Parking Activity & Sight Distance Restrictions (W_R)

Limited research is available that specifically isolates the impact of parking on pedestrian crash risk with regard to walking along roadways, but it is known that limiting sight distance increases crash risk[6]. When a sidewalk is not available, parking activity is expected to increase the risk of pedestrian

[4] Lee, C., Xu, X., and Nguyen, V, "Non-intersection-related Crashes at Mid-block in an Urban Divided Arterial Road with High Truck Volume." Presented at the 90th Meeting of the Transportation Research Board, Washington, D.C., (2011).
[5] Tefft, B.C. (2011). Impact Speed and a Pedestrian's Risk of Severe Injury or Death. AAA Foundation for Traffic Safety.
[6] Elvik, R. and Vaa, T., "Handbook of Road Safety Measures." Oxford, United Kingdom, Elsevier, (2004)

crashes as students would need to navigate around parked vehicles. This activity would put students closer to the travel lanes and could create sight distance restrictions as they navigate around vehicles.

The numerical values for parking activity and sight distance restrictions, W_R, were estimated based on research[7] regarding sight distance for injury crashes of all crash types. The categories used in selecting W_R are shown in the following table and defined below.

Category	W_R	*Definitions*
N/A - Sidewalk	1.0	A sidewalk is present for pupils to walk on.
No Parking	1.0	Parking is not allowed or rarely used.
Light Parking	1.2	Sporadically parked vehicles during school arrival or departure hours.
Moderate Parking	1.5	Approximately half of available on-street parking spaces are parked in during school arrival or departure hours.
Heavy Parking **or** Other Sight Distance Restriction	2.0	Majority of the available parking spaces are parked in during school arrival or departure hours **or** another sight distance restriction, such as horizontal or vertical curvature exists that could impede the visibility of pedestrians.

[7] Elvik, R. and Vaa, T., "Handbook of Road Safety Measures." Oxford, United Kingdom, Elsevier, (2004)

CROSSING EXPOSURE SCORE

The crossing exposure score is calculated by summing the score for each individual crossing that students must cross from origin to school. Each crossing score is calculated by multiplying the factors of each of the five crossing criteria.

$$Crossing\ Exposure\ Score = \sum C_W * C_V * C_S * C_R * C_E$$

Where

- C_W = crossing width;
- C_V = hourly traffic volume;
- C_S = posted speed limit;
- C_R = risk adjustments;
- C_E = existing safety feature adjustment.

Crossing Width (C_W)

Numerical values for crossing width, C_W, are based on an assumed linear relationship that more distance to cross will lead to more risk exposure. The categories used in selecting C_W are shown in the following table.

Category	C_W	Category	C_W
≤ 10 ft	1	51-60 ft	6
11-20 ft	2	61-70 ft	7
21-30 ft	3	71-80 ft	8
31-40 ft	4	81-90 ft	9
41-50 ft	5	>90 ft	10

Hourly Traffic Volume (C_V)

Numerical values for hourly traffic volume, C_V, assumes a linear relationship that more traffic volume will lead to more risk exposure to a pedestrian. The categories used in selecting C_V are shown in the following table and represent the peak hour of traffic volumes. If peak hour volumes were not available but daily traffic counts were available, the peak hour volumes were estimated to be 10 percent of the daily traffic volumes. Any roadways with peak hour volumes exceeding 3,000 vehicles per hour are considered an automatic hazard for crossing.

Category	C_V	Category	C_V	Category	C_V
≤ 200	1	1,001-1,200	11	2,001-2,200	21
201-400	3	1,201-1,400	13	2,201-2,400	23
401-600	5	1,401-1,600	15	2,401-2,600	25
601-800	7	1,601-1,800	17	2,601-2,800	27
801-1,000	9	1,801-2,000	19	2,801-3,000	29

*Posted Speed Limit (C_S)**

Numerical values for posted speed limit, C_S, are based on a AAA research[8] regarding speed and pedestrian injury risk. The categories used in selecting C_S are shown in the following table and represent the posted speed of the roadway to be crossed.

Category	C_S	Category	C_S
≤25 or NP^	1.0	40	3.0
25	1.5	45	3.1
30	2.0	50	3.2
35	2.5	55	3.3

^NP = not posted

**Automatic hazard*: It is considered an automatic hazard if pupils would need to cross a roadway with a posted speed of 45 mph or greater.

*Risk Adjustments (C_R)**

Numerical values for risk adjustments, C_R, are based on *CMF Clearinghouse* data regarding the impact of all-way stop control[9], traffic signals with right-turn-on-red allowed[10] and sight distance restrictions[11]. Research has shown that these characteristics impact the likelihood of pedestrian related crashes. Intersections with all-way stop control, for instance, require all vehicles to stop thereby reducing vehicle speeds and reducing the risk to pedestrians. At signalized intersections, right-turn-on-reds (RTORs) can increase the risk to pedestrians as drivers can be focused on looking for approaching traffic to their left rather than looking for pedestrians in their path. Lastly, if the crossing has sight-distance restrictions, such as roadway curvature or nearby parking, applying the sight distance restrictions adjustment is suggested. The categories used in selecting C_R are shown in the following table and include combination categories if all-way stop control or traffic signals with RTORs are combined with a sight distance restriction.

Category	C_R
Sight Distance Restriction	2.0
All-Way Stop Control	0.6
All-Way Stop Control with Sight Distance Restriction	1.2
Traffic Signal with RTORs	1.7
Traffic Signal with RTORs and Sight Distance Restriction	3.4

**Automatic hazard*: It is considered an automatic hazard if pupils would need to cross an on- or off-ramp to a freeway.

Existing Safety Features (C_E)

At roadway and intersection crossings, there are several safety improvements that have been shown to reduce the risk of pedestrian crashes. Numeric values for safety treatment adjustment, C_E, are based on research showing certain treatments reduce the risk of pedestrian crashes. Note that only one treatment can be selected for this analysis and it is suggested that the most effective treatment be

[8] Tefft, B.C. (2011). Impact Speed and a Pedestrian's Risk of Severe Injury or Death. AAA Foundation for Traffic Safety.
[9] Lovell, J. and Hauer, E., "The Safety Effect of Conversion to All-Way Stop Control." Transportation Research Record 1068, Washington, D.C., Transportation Research Board, National Research Council, (1986) pp. 103-107.
[10] American Association of State Highway and Transportation Officials. Highway Safety Manual. Washington, DC, 2010.
[11] Elvik, R. and Vaa, T., "Handbook of Road Safety Measures." Oxford, United Kingdom, Elsevier, (2004)

chosen. For example, if the crossing has a high visibility crosswalk and a pedestrian countdown timer, the factor of 0.3 for pedestrian countdown timer is suggested. The categories used in selecting C_E are shown in the following table and are based on crash modification factors from either the Wisconsin DOT's Crash Modification Factor Spreadsheet[12] or the Crash Modification Factor Clearinghouse[13].

Research is limited on the specific safety benefit of crossing guards – which are difficult to isolate in studies. It is reasonable to conclude, however, that the safety benefits of crossing guards are expected to exceed that of engineering countermeasures. In a 2009 study of school zones in Florida[14], it was stated "perhaps the clearest observation from the site visits and data analysis conducted for the 14 school sites throughout Florida was the great beneficial value of school crossing guards". It is suggested that sites with a crossing guard or guards be provided with a high-visibility crosswalk to help users of the crosswalk and the roadway recognize the importance of the crossing.

Category	C_E	Category	C_E
Multiple Crossing Guards	0.1	Rectangular Rapid Flash Beacon	0.5
Single Crossing Guard	0.2	High-Visibility Crosswalk	0.6
Pedestrian Hybrid Beacon	0.25	Median Refuge	0.7
Pedestrian Countdown Timer	0.3	Standard Crosswalk	1.0

[12] https://wisconsindot.gov/Pages/doing-bus/local-gov/traffic-ops/manuals-and-standards/teops/ch12.aspx

[13] www.cmfclearinghouse.org/

[14] Study of school zones with traffic signals : final report, June 2009. M3 - Tech Report M1 - Report No. 7762-110 UR - https://rosap.ntl.bts.gov/view/dot/17495/dot_17495_DS1.pdf?

RECOMMENDATIONS

The areas recommended to be classified as unusually hazardous are displayed on Exhibits 1 – 5. Also included in the exhibits are the proposed walk zones and recommendations for safety improvements to potentially expand the walk zones and/or reduce crash risk.

Exhibit 1 – Patrick Marsh MS
Exhibit 2 – Central Heights MS
Exhibit 3 – Prairie View MS
Exhibit 4 – East HS
Exhibit 5 – West HS

For the convenience of the reader, safety improvement recommendations are summarized below. Certain recommendations are suggested to enable some areas identified as "unusually hazardous" to become sections of the walk zone. Other recommendations also provided to potentially reduce crash risk in the community but do not specifically impact the proposed limits of the walk zones.

Exhibit 1 – Patrick Marsh MS

CTH N/Bristol Street Intersection with Tower Drive/Wilburn Road

The following recommendations are intended to improve the walking conditions to make area "A" west of CTH N/Bristol Street score below the threshold of 200 for middle school students as described in *Exhibit 1*:

1. Add pedestrian countdown timers to all crosswalks.

CTH N/Bristol Street Intersection with Stonehaven Drive/Business Park Drive

The following recommendations are intended to improve the walking conditions to make area "B" west of CTH N/Bristol Street score below the threshold of 200 for middle school students as described in *Exhibit 1*:

2. Add high-visibility crosswalk.

Exhibit 2 – Central Heights MS

CTH N/Grove Street Intersection with Park Street

The following recommendations are intended to reduce crash risk for pedestrians crossing CTH N/Grove Street, as described in *Exhibit 2*, but will not change the limits of the walk zone:

1. Add median refuge to reduce crossing distance.

CTH N/Grove Street Intersection with Wood Violet Lane

The following recommendations are intended to reduce crash risk for pedestrians crossing CTH N/Grove Street, as described in *Exhibit 2*, but will not change the limits of the walk zone:

2. Add advanced yield lines to the crosswalk to provide additional buffer space between vehicles and crossing non-motorists.

Exhibit 3 – Prairie View MS

CTH C/Grand Avenue Intersection with Blue Heron Blvd (shown on both Exhibits 3 & 5)

It is assumed that a traffic signal will be installed at this intersection before the opening of Sun Prairie West High School. The following recommendations are intended to improve the walking conditions to make area "A" west of CTH C/Grand Avenue score below the threshold of 200 for middle school students as described in *Exhibit 3* and will also reduce crash risk for high school students as described in *Exhibit 5*:

1. Add "no turn on red when pedestrians are present" signs for all vehicular right-turn movements and a leading pedestrian interval for pedestrian phases crossing CTH C/Grand Avenue.

* An additional improvement to further reduce crash risk would be to consider adding two crossing guards to the intersection of CTH C/Grand Avenue and Blue Heron Blvd due to its proximity to schools.

CTH C/Grand Avenue Between Main Street and City Station Drive

The following recommendations are intended to improve the walking conditions to make area "B" south of City Station Drive score below the threshold of 200 for middle school students as described in *Exhibit 3*:

2. Modify sidewalk along the east side of CTH C so sidewalk walk is not immediately adjacent to travel lanes and has buffer space.

Thompson Road South of Main Street

The following recommendations are intended to improve the walking conditions to make area "C" south of Main Street score below the threshold of 200 for middle school students as described in *Exhibit 3*:

3. Add sidewalk along Thompson Road south of Main Street so sidewalk runs the entire length between Main Street and Spring Street.

Intersection of Thompson Road and STH 19

The following recommendations are intended to improve the walking conditions to/from the neighborhood north of STH 19.

4. Add two crossing guards at the intersection of Thompson Road and STH 19.

Exhibit 4 – East HS

STH 19/Main Street Intersection with CTH N/Grove Street

The following recommendations are intended to reduce crash risk for pedestrians crossing STH 19/Main Street and CTH N/Grove Street, as described in *Exhibit 4*, but will not change the limits of the walk zone:

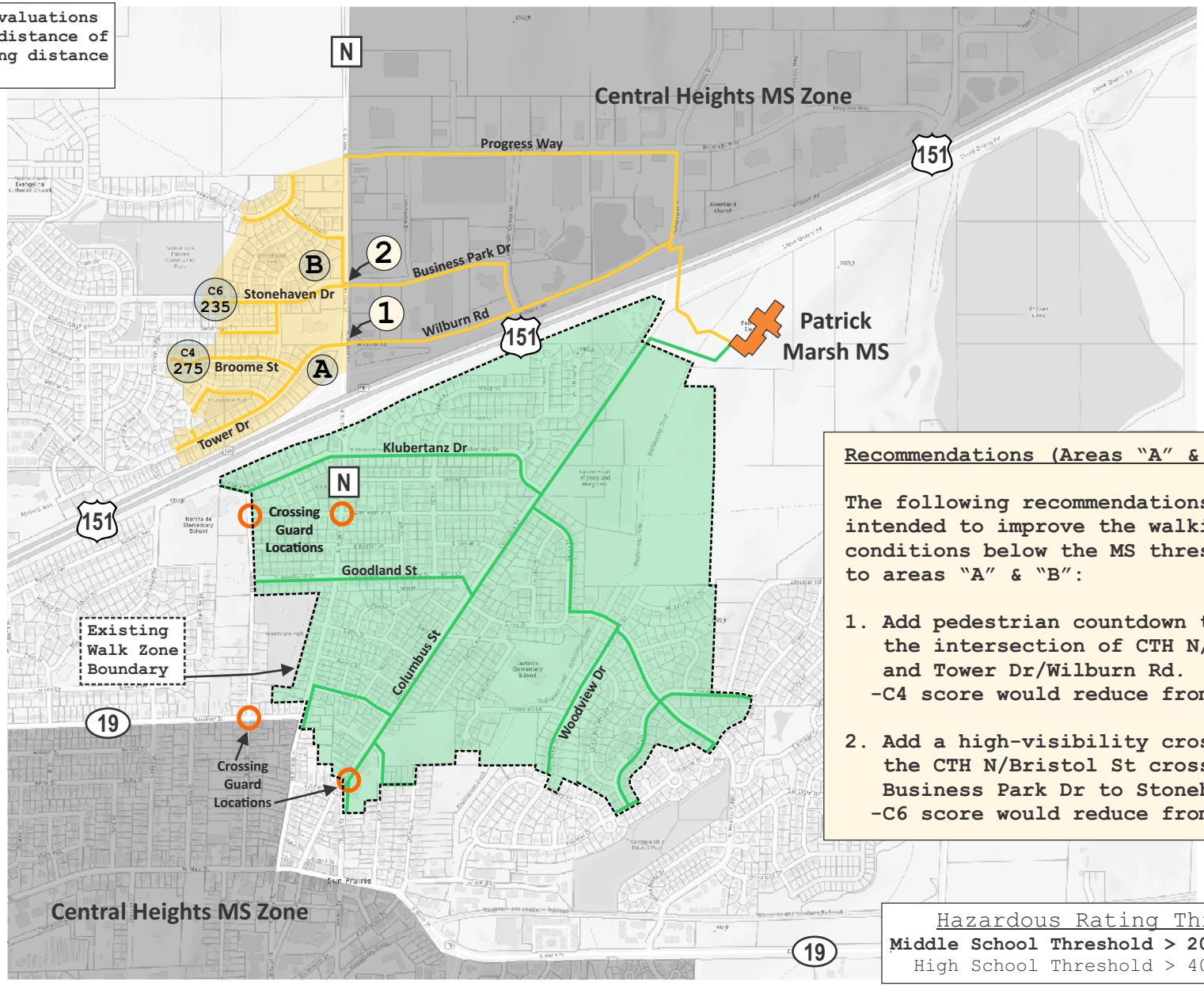
1. Add "no turn on red when pedestrians are present" signs for all vehicular right-turn movements and add a leading pedestrian interval for pedestrian phases crossing all legs.

Exhibit 5 – West HS

See CTH C/Grand Avenue Intersection recommendations listed previously in Exhibit 3.

UHT Exhibits

Walking route evaluations completed to a distance of 1.5 miles walking distance from school.



Recommendations (Areas "A" & "B")

The following recommendations are intended to improve the walking conditions below the MS threshold of 200 to areas "A" & "B":

1. Add pedestrian countdown timers to the intersection of CTH N/Bristol St and Tower Dr/Wilburn Rd.
   -C4 score would reduce from 275 to 186

2. Add a high-visibility crosswalk to the CTH N/Bristol St crossing from Business Park Dr to Stonehaven Dr.
   -C6 score would reduce from 235 to 173

Hazardous Rating Thresholds
Middle School Threshold > 200 = Hazardous
High School Threshold > 400 = Hazardous

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N
NOT TO SCALE

LEGEND
- Acceptable ----Existing Walk Zone Boundary
- Acceptable if improvements are implemented
- Unusually hazardous area
- xx ### Hazardous evaluation label & score

EXHIBIT 1
PATRICK MARSH MIDDLE SCHOOL UHT EVALUATION

SUN PRAIRIE, WISCONSIN

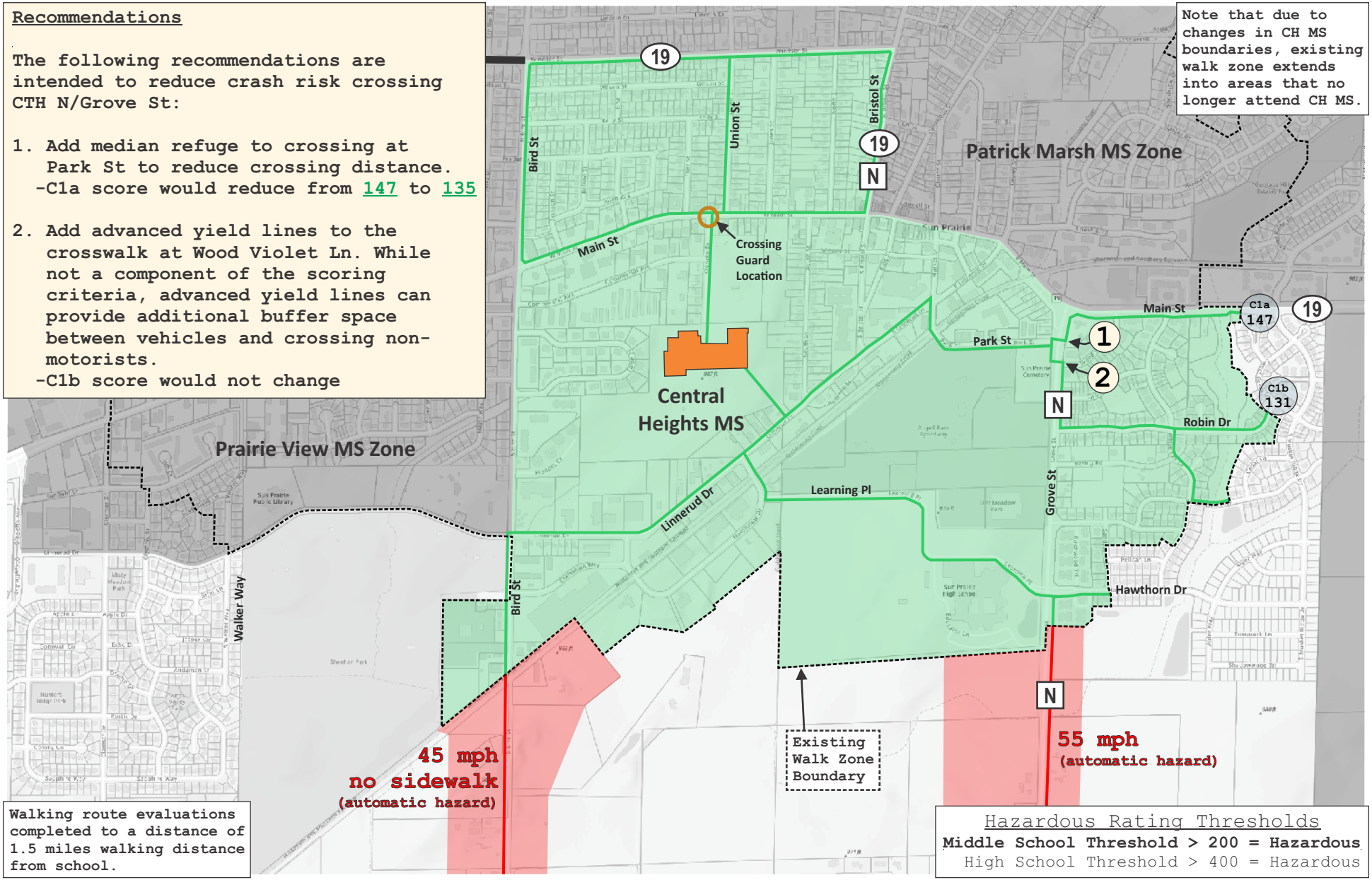
Recommendations

The following recommendations are intended to reduce crash risk crossing CTH N/Grove St:

1. Add median refuge to crossing at Park St to reduce crossing distance.
   -C1a score would reduce from 147 to 135

2. Add advanced yield lines to the crosswalk at Wood Violet Ln. While not a component of the scoring criteria, advanced yield lines can provide additional buffer space between vehicles and crossing non-motorists.
   -C1b score would not change

Note that due to changes in CH MS boundaries, existing walk zone extends into areas that no longer attend CH MS.



Walking route evaluations completed to a distance of 1.5 miles walking distance from school.

Hazardous Rating Thresholds
Middle School Threshold > 200 = Hazardous
High School Threshold > 400 = Hazardous

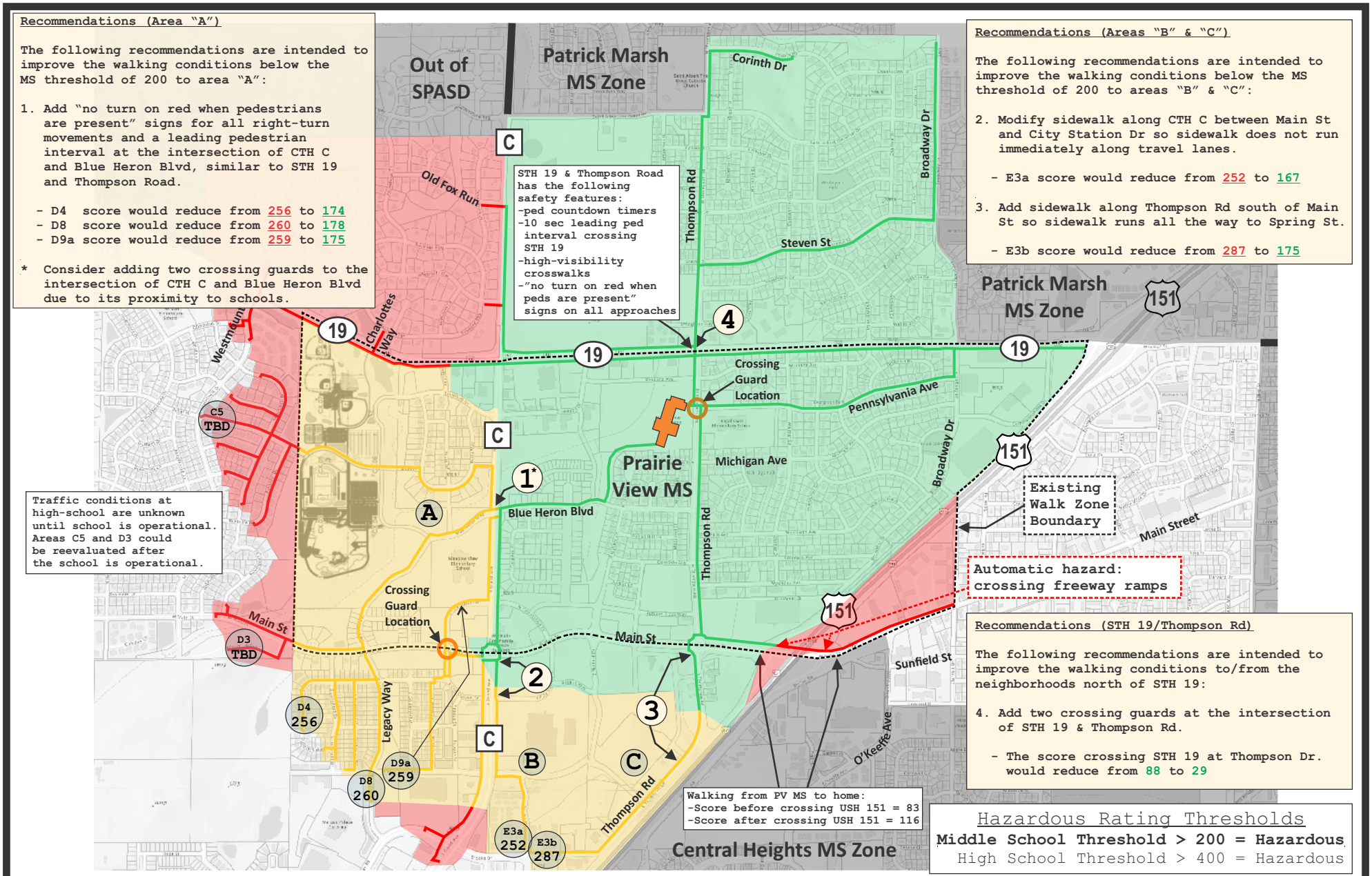
TADI TRAFFIC ANALYSIS & DESIGN, INC.

N
NOT TO SCALE

LEGEND
- Acceptable ----Existing Walk Zone Boundary
- Acceptable if improvements are implemented
- Unusually hazardous area
- xx ### Hazardous evaluation label & score

EXHIBIT 2
CENTRAL HEIGHTS MIDDLE SCHOOL
UHT EVALUATION

SUN PRAIRIE, WISCONSIN



TADI TRAFFIC ANALYSIS & DESIGN, INC.

N

NOT TO SCALE

LEGEND

- Acceptable ----Existing Walk Zone Boundary
- Acceptable if improvements are implemented
- Unusually hazardous area
- xx ### Hazardous evaluation label & score

EXHIBIT 3
PRAIRIE VIEW MIDDLE SCHOOL UHT EVALUATION

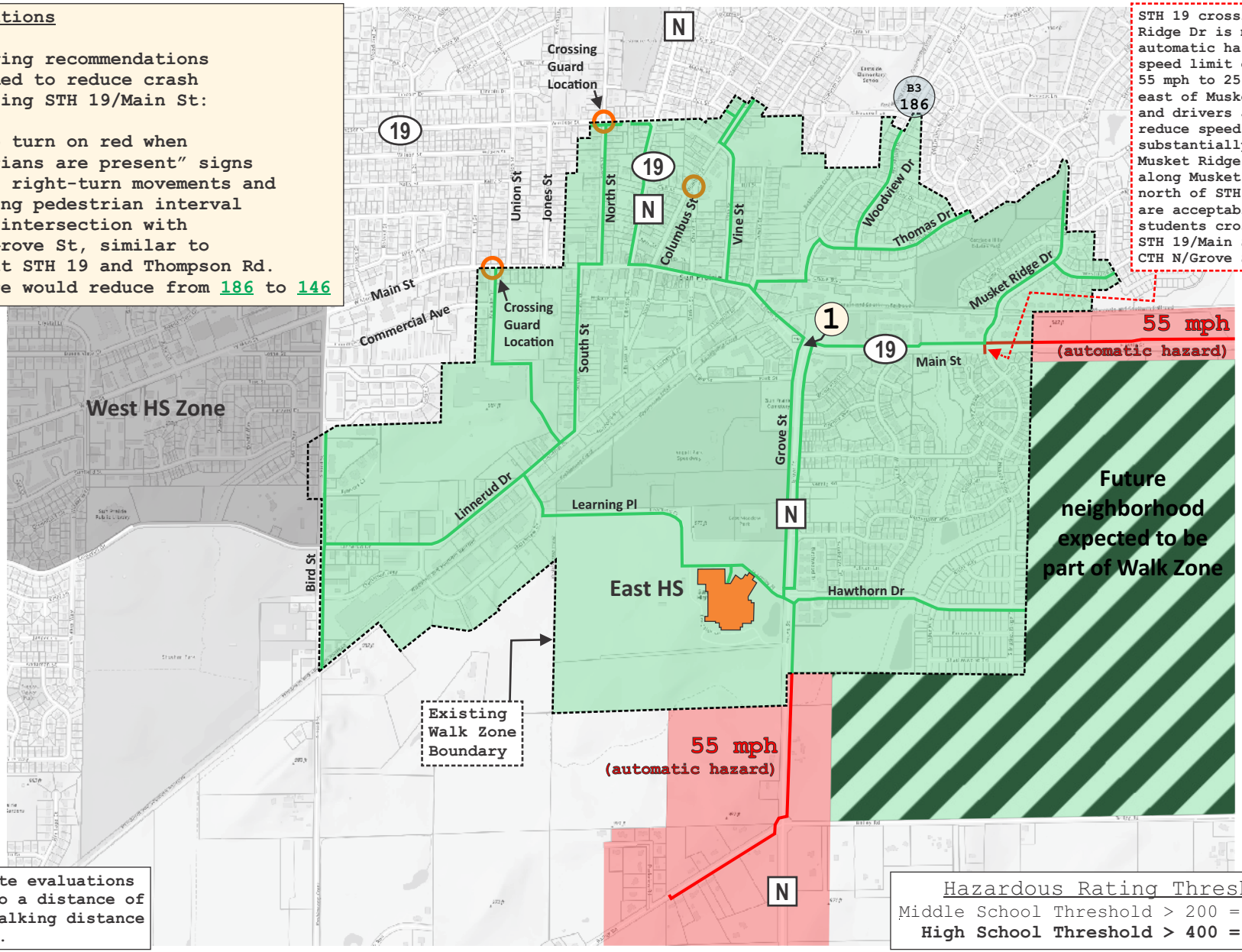
SUN PRAIRIE, WISCONSIN

Recommendations

The following recommendations are intended to reduce crash risk crossing STH 19/Main St:

1. Add "no turn on red when pedestrians are present" signs for all right-turn movements and a leading pedestrian interval at the intersection with CTH N/Grove St, similar to signs at STH 19 and Thompson Rd.
   -B3 score would reduce from 186 to 146

STH 19 crossing at Musket Ridge Dr is marked as automatic hazard. The speed limit drops from 55 mph to 25 mph just east of Musket Ridge Dr and drivers appear to not reduce speed until substantially after Musket Ridge Dr. Parcels along Musket Ridge Drive north of STH 19/Main St are acceptable if students cross STH 19/Main St at CTH N/Grove St.



Walking route evaluations completed to a distance of 1.5 miles walking distance from school.

Hazardous Rating Thresholds
Middle School Threshold > 200 = Hazardous
High School Threshold > 400 = Hazardous

TADI TRAFFIC ANALYSIS & DESIGN, INC.

N
NOT TO SCALE

LEGEND
- Acceptable ----Existing Walk Zone Boundary
- Acceptable if improvements are implemented
- Unusually hazardous area
- xx ### Hazardous evaluation label & score

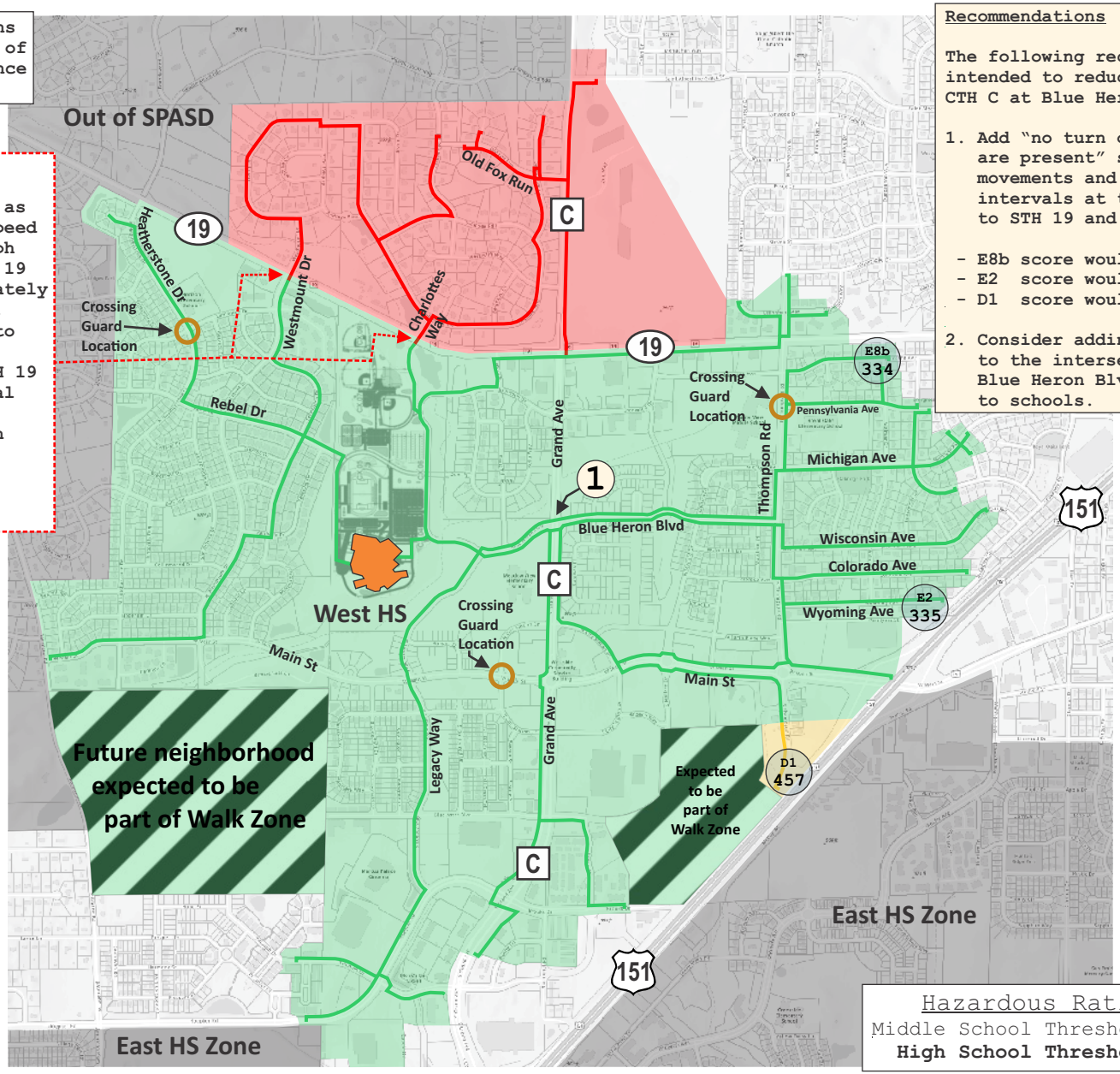
EXHIBIT 4
EAST HIGH SCHOOL
UHT EVALUATION

SUN PRAIRIE, WISCONSIN

Walking route evaluations completed to a distance of 1.5 miles walking distance from school.

STH 19 crossings at Charlottes Way and Westmound Dr are marked as automatic hazard. The speed limit is posted at 45 mph and this section of STH 19 has volumes of approximately 14,400 vehicles per day. Improvements necessary to reduce crash risk for pedestrians crossing STH 19 would require substantial investment and options should be discussed with the City of Sun Prairie and the Wisconsin Department of Transportation.

No existing walk zone boundary as West HS is currently under construction.



Recommendations

The following recommendations are intended to reduce crash risk crossing CTH C at Blue Heron Blvd:

1. Add "no turn on red when pedestrians are present" signs for all right-turn movements and leading pedestrian intervals at the intersection, similar to STH 19 and Thompson Road.

   - E8b score would reduce from 334 to 252
   - E2 score would reduce from 335 to 253
   - D1 score would reduce from 457 to 375

2. Consider adding two crossing guards to the intersection of CTH C and Blue Heron Blvd due to its proximity to schools.

Hazardous Rating Thresholds

Middle School Threshold > 200 = Hazardous
High School Threshold > 400 = Hazardous

TADI TRAFFIC ANALYSIS & DESIGN, INC.

N

NOT TO SCALE

LEGEND

- Acceptable
- Acceptable if improvements are implemented
- Unusually hazardous area
- xx ### Hazardous evaluation label & score

EXHIBIT 5
WEST HIGH SCHOOL
UHT EVALUATION

SUN PRAIRIE, WISCONSIN