Amanda Sahin

From: David Cronin
Sent: Monday, March 05, 2018 8:06 AM
To: Amanda Sahin
Subject: FW: 3/5 Agend Item 7 - Schwegler Neigborhood Association Response to Staff Report

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From: Schwegler Community Group - Lawrence KS [mailto:schweglerna@gmail.com]
Sent: Sunday, March 4, 2018 11:57 AM
To: David Cronin <dcronin@lawrenceks.org>; hurt@ksdot.org; michele.dillon@gmail.com; Steve Evans <Scevans704@gmail.com>; earthpaden@hotmail.com; jjzieg@sunflower.com; rkmay@usd497.org; cbryan@ldchealth.org; dhultine@ku.edu; cottagecat@aol.com
Subject: 3/5 Agend Item 7 - Schwegler Neigborhood Association Response to Staff Report

Good morning Traffic Commissioners,

Schwegler Neighborhood Association has done its own evaluation of the sight lines at the three intersections in our initial request, linked below. We request that this presentation be included in the attachments on the agenda for tomorrow's meeting.

Here is the link to our brief Presentation. Please read the notes accompanying each slide, they offer more context and details.

We apologize for the short notice, but we've only had since Wednesday to formulate a response to the staff report attached to the agenda already. We will have an SNA member present our findings in person during public comment on Monday.

We referenced the American Association of State Highway and Transportation Officials (AASHTO) Geometric Design of Highways and Streets, and compared those standards for safe Stopping Sight Line distances at yield-controlled intersections to our own tape measurements of our neighborhood sight lines.

We found that even with a generous margin of error, these three intersections cannot be considered safe for sight lines, according to these national design standards. The final numbers are included in the linked report, each intersection is hundreds of feet off from safe design standards, short by as much as 315 feet.

Our main goal with this request is for our neighbors to feel safer at these intersections. We hope to see the Commission take action to improve the sight lines and mitigate the problems with them as much as possible.

We appreciate your consideration of this request for safer sight lines at these intersections along Ousdahl.

Thank you,

Schwegler Neighborhood Association

SNA Sight Line Analysis

19th Terr & Ousdahl
20th St & Ousdahl
20th Terr & Ousdahl

19th Terrace & Ousdahl

Saturday
March 3, 2018

20th Street & Ousdahl

Saturday
March 3, 2018

20th Terrace & Ousdahl

Saturday
March 3, 2018

Stopping Sight Distance

Sight distance is the length of the roadway ahead that is visible to the driver. The available sight distance on a roadway should be sufficiently long to enable a vehicle traveling at or near the design speed to stop before reaching a stationary object in its path. Although greater lengths of visible roadway are desirable, the sight distance at every point along a roadway should be at least that needed for a below-average driver or vehicle to stop.

Stopping sight distance is the sum of two distances: (1) the distance traversed by the vehicle from the instant the driver sights an object necessitating a stop to the instant the brakes are applied; and (2) the distance needed to stop the vehicle from the instant brake application begins. These are referred to as brake reaction distance and braking distance, respectively.

American Association of State Highway and Transportation Officials (AASHTO)
Geometric Design of Highways and Streets

Metric					US Customary				
			Stopping sight distance					Stopping sight distance	
Design speed (km/h)	Brake reaction distance (m)	Braking distance on level (m)	Calculated (m)	Design (m)	Design speed (mph)	Brake reaction distance (ft)	Braking distance on level (ft)	Calculated (ft)	Design (ft)
20	13.9	4.6	18.5	20	15	55.1	21.6	76.7	80
30	20.9	10.3	31.2	35	20	73.5	38.4	111.9	115
40	27.8	18.4	46.2	50	25	91.9	60.0	151.9	155
50	34.8	28.7	63.5	65	30	110.3	86.4	196.7	200
60	41.7	41.3	83.0	85	35	128.6	117.6	246.2	250
70	48.7	56.2	104.9	105	40	147.0	153.6	300.6	305
80	55.6	73.4	129.0	130	45	165.4	194.4	359.8	360
90	62.6	92.9	155.5	160	50	183.8	240.0	423.8	425
100	69.5	114.7	184.2	185	55	202.1	290.3	492.4	495
110	76.5	138.8	215.3	220	60	220.5	345.5	566.0	570
120	83.4	165.2	248.6	250	65	238.9	405.5	644.4	645
130	90.4	193.8	284.2	285	70	257.3	470.3	727.6	730
					75	275.6	539.9	815.5	820
					80	294.0	614.3	908.3	910

Note: Brake reaction distance predicated on a time of 2.5 s; deceleration rate of 3.4 m/s^2 [11.2 ft/s^2] used to determine calculated sight distance.

Exhibit 3-1. Stopping Sight Distance

AASHTO Geometric Design of Highways and Streets

Left Turn From Yield: 355 ft design sight distance

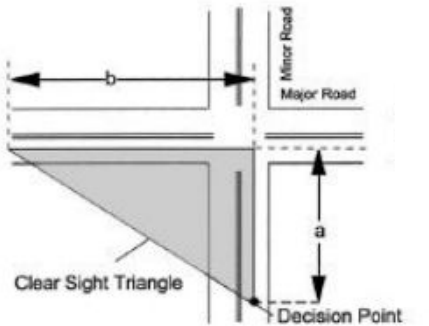
Metric				US Customary			
		Length of leg				Length of leg	
		Passenger cars				Passenger cars	
Design speed (km/h)	Stopping sight distance (m)	Calculated (m)	Design (m)	Design speed (mph)	Stopping sight distance (ft)	Calculated (ft)	Design (ft)
20	20	44.5	45	15	80	176.4	180
30	35	66.7	70	20	115	235.2	240
40	50	89.0	90	25	155	294.0	295
50	65	111.2	115	30	200	352.8	355
60	85	133.4	135	35	250	411.6	415
70	105	155.7	160	40	305	470.4	475
80	130	177.9	180	45	360	529.2	530
90	160	200.2	205	50	425	588.0	590
100	185	222.4	225	55	495	646.8	650
110	220	244.6	245	60	570	705.6	710
120	250	266.9	270	65	645	764.4	765
130	285	289.1	290	70	730	823.2	825
				75	820	882.0	885
				80	910	940.8	945

Note: Intersection sight distance shown is for a passenger car making a right or left turn without stopping onto a two-lane road.

Exhibit 9-64. Design Intersection Sight Distance—Case C2—Left or Right Turn at Yield Controlled Intersections

AASHTO Geometric Design of Highways and Streets

Intersection Sight Triangles: Yield-Controlled Approach Sight Triangle



Clear Sight Triangle for Viewing Traffic Approaching from the Left

A – Approach Sight Triangles

Exhibit 9-50. Intersection Sight Triangles

Case C2—Left- and Right-Turn Maneuvers

The length of the leg of the approach sight triangle along the minor road to accommodate left and right turns without stopping (distance a in Exhibit 9-50A should be 25 m [82 ft]). This distance is based on the assumption that drivers making left and right turns without stopping will slow to a turning speed of 16 km/h [10 mph].

a = 82 ft (design standard)
b = 355 ft (design standard)
Not drawn to scale

AASHTO Geometric Design of Highways and Streets

Left Turn From Stop: 335 ft design sight distance

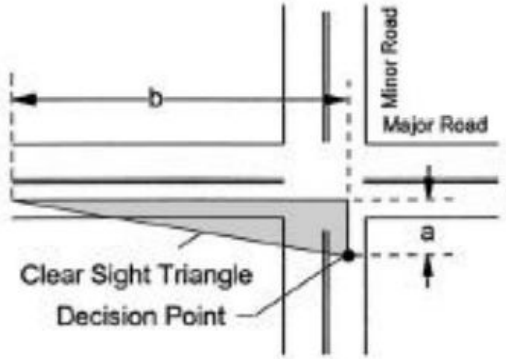
Metric				US Customary			
		Intersection sight distance for passenger cars				Intersection sight distance for passenger cars	
Design speed (km/h)	Stopping sight distance (m)	Calculated (m)	Design (m)	Design speed (mph)	Stopping sight distance (ft)	Calculated (ft)	Design (ft)
20	20	41.7	45	15	80	165.4	170
30	35	62.6	65	20	115	220.5	225
40	50	83.4	85	25	155	275.6	280
50	65	104.3	105	30	200	330.8	335
60	85	125.1	130	35	250	385.9	390
70	105	146.0	150	40	305	441.0	445
80	130	166.8	170	45	360	496.1	500
90	160	187.7	190	50	425	551.3	555
100	185	208.5	210	55	495	606.4	610
110	220	229.4	230	60	570	661.5	665
120	250	250.2	255	65	645	716.6	720
130	285	271.1	275	70	730	771.8	775
				75	820	826.9	830
				80	910	882.0	885

Note: Intersection sight distance shown is for a stopped passenger car to turn left onto a two-lane highway with no median and grades 3 percent or less. For other conditions, the time gap must be adjusted and required sight distance recalculated.

Exhibit 9-55. Design Intersection Sight Distance—Case B1—Left Turn From Stop

AASHTO Geometric Design of Highways and Streets

Intersection Sight Triangles: Yield-Controlled Departure Sight Triangle



Clear Sight Triangle for Viewing Traffic Approaching from the Left

a = 28 ft (hand-measured distance)
b = 335 ft (design standard)
Not drawn to scale

B -- Departure Sight Triangles

Exhibit 9-50. Intersection Sight Triangles

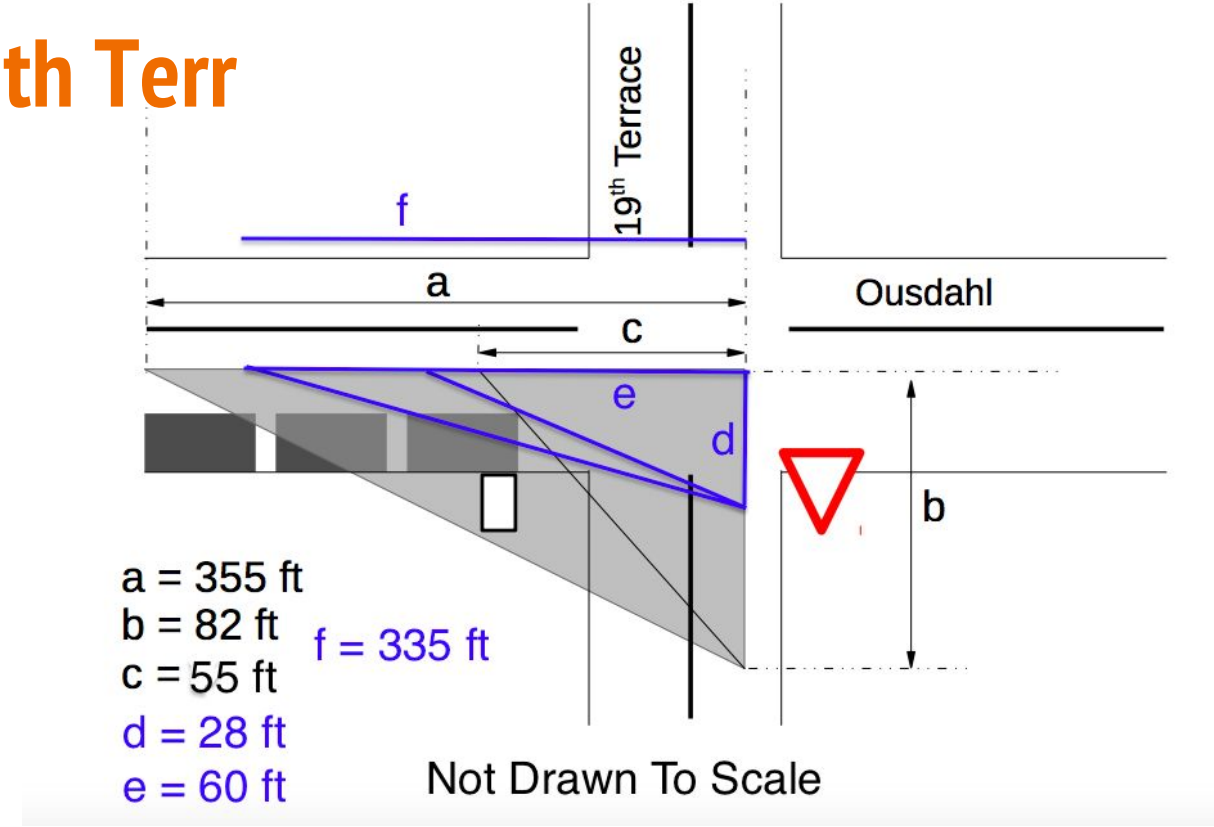
AASHTO Geometric Design of Highways and Streets

Measurements 19th Terr

SNA hand-measured distances:

- Yield sign to the center of northbound Ousdahl (d)
- 5 ft from the end of parking zone to center of the westbound 19th Terr (c)
- 10 ft from the end of parking zone to center of westbound 19th Terr (e)

(a), (b), and (f) are from AASHTO handbook



Conclusion: 19th Terrace & Ousdahl

Current Approach Stopping Sight Distance

c = 55 ft

300 ft short of AASHTO design standards

145 ft short of actual stopping sight distance

Current Departure Stopping Sight Distance

e = 60 ft

275 ft short of design standards

140 ft short of actual stopping sight distance

Conclusion: 20th Street & Ousdahl

Current Approach Stopping Sight Distance

c = 40 ft

315 ft short of design standards

160 ft short of actual stopping sight distance

Current Departure Stopping Sight Distance

e = 45 ft

290 ft short of design standards

155 ft short of actual stopping sight distance

Conclusion: 20th Terrace & Ousdahl

Current Approach Stopping Sight Distance

c = 45 ft

310 ft short of design standards

155 ft short of actual stopping sight distance

Current Departure Stopping Sight Distance

e = 50 ft

285 ft short of design standards

150 ft short of actual stopping sight distance

Even with a generous margin of error for our own measurements, these three intersections cannot be considered safe according to these national standards.

AASHTO Recommendations for Yield-Controlled Intersections with insufficient sight distance

Yield-controlled approaches generally need greater sight distance than stop-controlled approaches, especially at four-leg yield-controlled intersections where the sight distance needs of the crossing maneuver should be considered. If sight distance sufficient for yield control is not available, use of a stop sign instead of a yield sign should be considered. In addition, at locations where the recommended sight distance cannot be provided, consideration should be given to installing regulatory speed signing or other traffic control devices at the intersection on the major road to reduce the speeds of approaching vehicles.

Board of Directors