



ST. CHARLES
SINCE 1834

AGENDA ITEM EXECUTIVE SUMMARY

Title:	Recommendation to not approve the installation of a four-way stop sign at the intersection of 7 th Street and State Street
Presenter:	Chief Lamkin June 2012

Please check appropriate box:

	Government Operations	X	Government Services 06.25.12
	Planning & Development		City Council
	Public Hearing		

Estimated Cost:		Budgeted:	YES		NO	X
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If NO, please explain how item will be funded:

Executive Summary:

Prompted by a resident request, a review of the necessity of a four-way stop sign at 7th Street and State Street was conducted. The Police Department found that this request did not meet warrants.

Attachments: *(please list)*

Traffic study memo, legal opinion letter, crash review memo

Recommendation / Suggested Action *(briefly explain):*

The Police Department does not recommend approval of a stop sign installation at this location due to the fact the study does not meet warrants.

For office use only:

Agenda Item Number: 4.a

LAW OFFICES OF
GORSKI & GOOD, LLP

GERALD M. GORSKI
THOMAS W. GOOD
ROBIN N. JONES

211 SOUTH WHEATON AVENUE
SUITE 305
P.O. BOX 611
WHEATON, ILLINOIS 60187-0611
(630) 665-7500
FAX (630) 665-8670

June 13, 2012

Chief James E. Lamkin
City of St. Charles
Police Department
211 N. Riverside Ave.
St. Charles, IL 60174

Re: Four Way Stop Signs – 7th and State St.

Dear Chief Lamkin:

This letter addresses the question posed in your email to Tom Good of June 11, 2012. Your communication specifically references Item #3 in City Administrator Townsend's email to you. For the purposes of this response, I'll also address Item #4.

The email forwarded to me poses a question as to whether erecting two more stop signs at the subject intersection "meet warrants". This is a commonly expressed way of saying that the installation isn't recommended. I have attached hereto a handout for a power point presentation made by Mr. Kyle Armstrong, P.E., Illinois Department of Transportation, Engineering & Standards Unit Chief, Bureau of Operations. His presentation was made at the Illinois Municipal Leagues' Annual Conference on September 15, 2011 (Exhibit #1).

Please look at the upper left hand panel on page 5. Mr. Armstrong notes that: *"Unlike traffic signals, there are no specific warrants that must be met before stop sign may be installed."* In a phone conversation with him this morning, Mr. Armstrong confirmed the correctness of this assertion. Mr. Armstrong advised that, unlike other elements of the Manual on Uniform Traffic Control Devices ("MUTCD"), there are **no specific requirements** which precondition the installation of stop signs; rather there are **recommendations**. To the end, he indicated that the posting of stop signs should be guided by an engineering study which considers the factors outlined in the MUTCD. These factors are listed at Section 2B.04 of the MUTCD (Exhibit #2).

While the erection of stop signs is not conditioned upon meeting "warrants", engineering judgment is recommended. Additionally, this subject has received considerable attention over the years in professional journals and related literature. Traffic engineers challenge the frequently expressed view that stop signs assist in controlling the speed of vehicles traveling along a given road way. These experts have documented studies which establish that "unwarranted stop signs" actually contribute to motorist speeding up between the signs in an effort to make up for the time lost by the stopping requirement. I've attached copies of two articles found on the internet which address the subject. One from Gross Point Woods, Michigan (Exhibit #3) and another from Spokane, Washington (Exhibit #4).

Chief James Lamkin
June 13, 2012
Page 2

So, although your email suggests that the proposed signage didn't meet warrants, I'll assume that what is meant is that it isn't recommended by reason of an engineering analysis considering the factors set forth on Exhibit #2.

Items #3 and #4 in Brian's email question the legal and liability ramifications of the installation of the subject stop signs. Stop signs are authorized by the passage of an ordinance and are incorporated into the City's Code (See Section 10.11.2100). Ordinances are the manner in which a city makes laws. Section 10/2-103 of the Local Governmental and Governmental Employees Tort Immunity Act (745 ILCS 10/1-101 *et seq.*) provides as follows:

"A local public entity is not liable for any injury caused by adopting or failing to adopt an enactment or by failing to enforce any law."

Further, Section 10/2-202 of the Tort Immunity Act provides as follows:

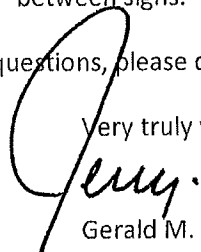
"A public employee is not liable for his act or omission in the execution or enforcement of any law unless such act or omission constitutes willful and wanton conduct."

The City is a local public entity and our officers are public employees. We are protected under the Tort Immunity Act.

In considering how our carrier would view an ordinance establishing these signs, I would return to Mr. Armstrong's conclusion that there are **no specific requirements** for stop sign installation; rather there are **recommendations**. While I can't answer the question definitively, only the carrier can do that, Armstrong's interpretation of the law implies legislative discretion which is a prerogative of the City Council.

Having said that, we consistently recommend to our municipal clients that they adhere to warrants or, in this case, the recommendations contained in the MUTCD. If not for legal reasons, for the reason that the studies demonstrate that "unwarranted stop signs" actually do not serve to reduce speed and actually may cause drivers to "jack rabbit" between signs.

If you or the Committee has any further questions, please don't hesitate to call.

Very truly yours,

Gerald M. Gorski

cc: Brian Townsend



**THE RULES OF THE ROAD
AND MUNICIPAL REGULATIONS: WHAT EVERY
ELECTED OFFICIAL NEEDS TO KNOW ABOUT
TRAFFIC CONTROL DEVICES**

Illinois Municipal League
98th Annual Conference
September 15, 2011



SPEAKERS

Kyle Armstrong, P.E., P.T.O.E
Engineering & Standards Unit Chief
IL DOT - Bureau of Operations
217/782-7414
kyle.armstrong@illinois.gov

Kevin Burke III, P.E.
Local Policy & Technology Engineer
IL DOT - Bureau of Local Roads & Streets
217/785-5048
Kevin.burkeiii@illinois.gov

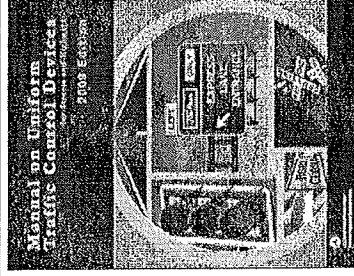


OUTLINE

- MUTCD
- Sign Size, Shape, and Color
- Children at Play
- Stop for Pedestrians
- No Cell Phones
- Unauthorized Signs
- Pedestrian Accessibility for Work Zones
- Stop Signs
- Speed Studies
- Street Name Signs
- School Zones
- Park Zones
- Low Speed Vehicles



MUTCD



- 625 ILCS 5/11-301 requires the department to adopt
- Traffic control devices include signs, signals, markings, and other devices
- Shall, Should, May

SIGN SIZE, SHAPE, AND COLOR

Table 2B-1. Regulatory Sign and Plaque Sizes (Sheet 1 of 4)

Sign or Plaque	Division	Section	Size	Expressway	Revised	Section	Overhead
1-1	1-1	1-1	36x48	36x48	36x48	36x48	36x48
1-2	1-2	1-2	36x48	36x48	36x48	36x48	36x48
1-3	1-3	1-3	36x48	36x48	36x48	36x48	36x48
1-4	1-4	1-4	36x48	36x48	36x48	36x48	36x48
1-5	1-5	1-5	36x48	36x48	36x48	36x48	36x48
1-6	1-6	1-6	36x48	36x48	36x48	36x48	36x48
1-7	1-7	1-7	36x48	36x48	36x48	36x48	36x48
1-8	1-8	1-8	36x48	36x48	36x48	36x48	36x48
1-9	1-9	1-9	36x48	36x48	36x48	36x48	36x48
1-10	1-10	1-10	36x48	36x48	36x48	36x48	36x48
1-11	1-11	1-11	36x48	36x48	36x48	36x48	36x48
1-12	1-12	1-12	36x48	36x48	36x48	36x48	36x48
1-13	1-13	1-13	36x48	36x48	36x48	36x48	36x48
1-14	1-14	1-14	36x48	36x48	36x48	36x48	36x48
1-15	1-15	1-15	36x48	36x48	36x48	36x48	36x48
1-16	1-16	1-16	36x48	36x48	36x48	36x48	36x48
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1-97	1-97	1-97	36x48	36x48	36x48	36x48	36x48
1-98	1-98	1-98	36x48	36x48	36x48	36x48	36x48
1-99	1-99	1-99	36x48	36x48	36x48	36x48	36x48
1-100	1-100	1-100	36x48	36x48	36x48	36x48	36x48

Table 2A-1. Use of Sign Shapes

Sign Shape	Use
Octagon	Stop Sign
Equilateral Triangle	Yield
Circle	Grade Crossing Advance Warning
Pennant Shape	No Passing
Pentagon	School Advance Warning/County Route Sign
Crossback	Grade Crossing
Diamond	Warning
Rectangle	Regulatory/Guide/Warning
Trapezoid	Recreational/Cultural/National Forest


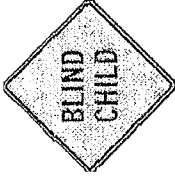
- SIGN SIZES**
- Conventional Road – highway other than low volume road, expressway, freeway.
 - Expressway – Divided highway with partial control of access.
 - Freeway – Divided highway with full control of access
 - Low Volume Road
 - a facility outside of cities, towns, and communities with traffic < 400 ADT
 - Shall not be a residential street in a neighborhood

- SIGN SHAPES**
- Octagon – Stop Sign
 - Equilateral Triangle – Yield
 - Circle – Grade Crossing Advance Warning
 - Pennant Shape – No Passing
 - Pentagon – School Advance Warning/County Route Sign
 - Crossback – Grade Crossing
 - Diamond - Warning
 - Rectangle – Regulatory/Guide/Warning
 - Trapezoid – Recreational/Cultural/National Forest

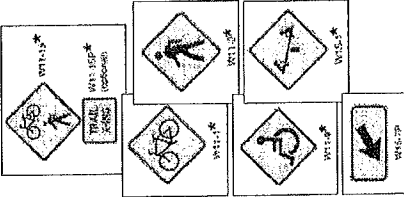
- SIGN COLORS**
- Black – Regulatory
 - Blue – Information/Interstate or County Route
 - Brown – Recreational/Forest Route
 - Green – Guide/Recreational
 - Orange – Temporary Traffic Control/Incident Management
 - Red – Regulatory/Interstate Route
 - White – Regulatory/US or State Route
 - Yellow – Warning
 - Purple – Toll
 - Fluorescent Yellow Green – School/Ped/Bike
 - Fluorescent Pink – Incident Management

CHILDREN AT PLAY

- Slow Children at Play Symbol sign does not comply with MUTCD
- Word Message Signs such as "Autistic Child", "Blind Child", "Deaf Child" or "Children at Play" not recommended
- These signs:
 - Do not describe where the child might be
 - Are ignored by motorists
 - Have no legal meaning
 - Provide parents with a false sense of security
 - Remain in place after the child has left
 - Lack standards for engineering study
 - Have proven ineffective



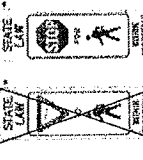
ALTERNATE FOR CHILDREN AT PLAY



- W11-1, W11-2, W11-9 or W11-15
 - May use where shared use of roadway or unexpected entry may occur
 - Use engineering judgment
 - Requires down arrow if used at crossings
- W15-1
 - May be used at playgrounds adjacent to the road
 - Should be considered if access requires roadway crossing
- Fluorescent Yellow Green Optional

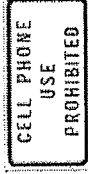
STOP FOR PEDESTRIANS

- 625 ILCS 5/11-1002 requires motorists to stop and yield to pedestrians in crosswalks
- 625 ILCS 5/11-1002.5 covers school zones
- State Law Border optional
- Fluorescent Yellow Green Optional

NO CELL PHONES

- 625 ILCS 5/12-610.1 Prohibits Cell Phones in School and Work Zones
- Does Not Require Sign to Be Posted
- If Used, Shall Be R2-1110
- Department Does not Use in Work Zones
- School Zone Use Discussed Later



UNAUTHORIZED SIGNS

- 625 ILCS 5/11-310
 - Unauthorized Signs Are Signs Imitating/Resembling Official Traffic Control Device upon Or in view of Any Highway
 - Considered a Public Nuisance
 - Highway Agency with Jurisdiction May Remove without Notice
 - Class A Misdemeanor

PEDESTRIAN ACCESSIBILITY

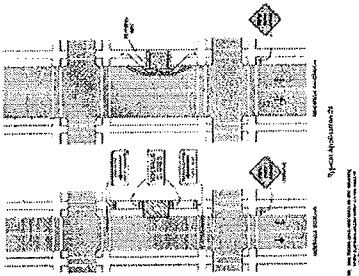
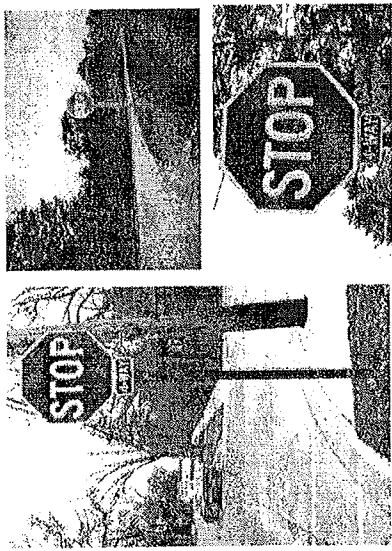


Figure 811-2. Standard Detail of Direction (DAB)
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- MUTCD and ADA requirement
- Shall make temporary facilities accessible
 - Advanced Warning
 - Audible messages
 - Temporary Curb Ramps
 - Detectable Barriers
- Public Rights-of-way Accessibility Guidelines (PROWAG)

STOP SIGN INSTALLATIONS



ILLINOIS STATUTES

- 625 ILCS 11-302 gives local agencies the authority to install stop signs at intersections under their jurisdiction.
- IDOT has authority to install stop signs for any approach to an intersection that includes a roadway under State jurisdiction.
- Stop signs must conform to the Illinois Supplement to the MUTCD.

STOP SIGN APPLICATIONS

- Unlike traffic signals, there are no specific warrants that must be met before stop signs may be installed.
- Engineering judgment should be used to establish intersection control and should account for the following:
 - Traffic volumes
 - Speeds
 - Crash history
 - No. and angle of approaches
 - Sight Distance
- Stop Signs should not be used for speed control.

STOP SIGN APPLICATIONS (CONT.)


- Stop signs should be considered where engineering judgment indicates a stop is always required based on the following conditions:
 - Through street traffic is greater than 6000 vpd
 - Poor sight distance
 - 3 or more crashes in 1-year period or 5 or more crashes in 2-year period. Crashes must be of a type correctable by stop sign installation (right-angle collisions).

MULTI-WAY STOPS


- Used where traffic volumes on intersecting roads are approximately equal.
- The installation of multi-way stop control should be based on an engineering study which accounts for the following:
 - Prior to traffic signal installation
 - Crash history
 - Vehicular, pedestrian, and bicycle volumes
- Section 2B.07 of the MUTCD contains specific criteria for multi-way stop control.

SPEED STUDIES

The diagram illustrates three types of speed limit signs. On the left is a rectangular sign with 'SPEED LIMIT 65' in large numbers and 'MINIMUM 45' in smaller numbers below it. In the center is a rectangular sign with 'SCHOOL SPEED LIMIT 20' in large numbers and 'ON SCHOOL BUSES WHEN COLLISIONS ARE PRESENT' in smaller text below, followed by 'FINES HIGHER' in a separate box. On the right is a diamond-shaped sign with 'SPEED LIMIT 30' in the center and a black arrow pointing to the left.

 **SPEED ZONE REGULATIONS**


- Local Agencies are not required to obtain IDOT approval for speed zones on roads under their jurisdiction and are not required to follow IDOT procedures for setting speed limits.
- 625 ILCS 11-604
 - Local Agencies may establish absolute maximum speed limits on all streets which are within its corporate limits and not under State or County jurisdiction.
 - An engineering or traffic investigation is required to alter a statutory speed limit.

 **SPEED ZONE REGULATIONS**


Altered Speeds:

- cannot be less than 20 mph or greater than 55 mph in an urban district
- cannot be less than 35 mph outside of an urban district
- cannot be less than 25 mph in a residence district
- can make speed limits in effect only for certain hours
- no more than 6 alterations per mile
- cannot have more than 10 mph difference between adjacent altered speed zones


Signs stating 'Speed Limit XX on city streets unless otherwise posted' are not allowed on State-route entrances to cities. IDOT Chief Counsel determined that an altered speed limit is not in effect unless it is posted on that street.

 **IDOT SPEED POLICY PROCEDURES**

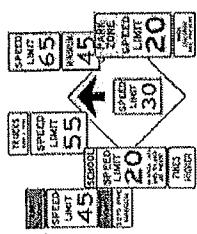
- Local Agencies may use IDOT speed study procedures to establish altered speed zones.
- An altered speed limit is primarily based on prevailing speed of free-flowing traffic. Nationally accepted premise that the majority of motorists will drive at a speed they judge to be safe and proper
- Prevailing speed is based on the average of:
 - 85th percentile speed
 - Upper limit of the 10 mph pace
 - Average test run speed


 **SUPPLEMENTARY INVESTIGATIONS**

- High-Crash Locations:
 - Reduction if the studied zone contains a high-crash location.
- Access Control:
 - Reduction based on the number of entrances/intersections within the studied zone.
- Pedestrian Activity:
 - Reduction with certain pedestrian volumes and if sidewalks are not present or directly behind curb.
- Parking:
 - Reduction where parking is allowed next to traffic lanes.








Details for speed study procedures may be found in Policy on Establishing and Posting Speed Limits on the State Highway System March 2011



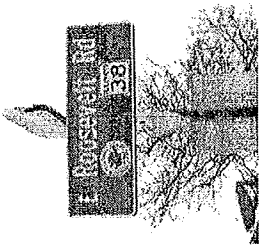
Policy on Establishing and Posting Speed Limits on the State Highway System
 March 2011
 Tennessee Department of Transportation


STREET NAME SIGNS


 **LETTERING**

- Any new street name sign installed must use mixed-case lettering.
- There is no compliance date for mixed case lettering. Existing signs with all upper-case lettering may remain until they need to be replaced due to maintenance or as part of retroreflectivity requirements.
- Research has shown that mixed-case lettering improves recognition distances of signs.





 **RETROREFLECTIVITY**

- Street name signs must be maintained to a minimum level of retroreflectivity.
- Existing street name signs that don't meet the minimum retroreflective levels based on management or assessment methods must be replaced by January 2018.
- If existing street name signs still meet the minimum levels they may remain in place.


 **COLORS**

- Only 4 acceptable colors
 - Green with white legend
 - Blue with white legend
 - Brown with white legend
 - White with black legend
- There is not a compliance date for the use of these colors. Existing signs not of these colors may remain in place until they need to be replaced due to maintenance or as part of retroreflectivity requirements.




 **LETTER HEIGHTS**

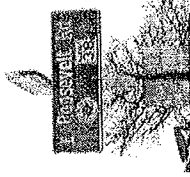
- Letter heights in MUTCD for street name signs are recommendations, but agencies should use engineering judgment and document reason for using letter heights smaller than recommended.
- Multilane roads greater than 40 mph:
 - 8" / 6" post mounted and 12" / 9" overhead. Agencies should decide whether to use these heights or use smaller heights through engineering judgment by December 2018.
- All other roads:
 - 6" / 4-5". There is an option to use 4" / 3" for roads 25 mph or less. Agencies should decide whether to use these heights or use smaller heights through engineering judgment by January 2012.
- These dates do not require that existing signs have these letter heights by these dates. It just requires an agency to decide whether to use these recommendations or not.

 **SIGN HEIGHTS**


- Street name signs on conventional roads should have 12" height.
- 8" height may be used for low-speed roadways and alleys and where physical conditions preclude the use of larger signs.
- Documented engineering judgment may be used to decrease the sign height but not to a height lower than 8".

 **OTHER INFORMATION**


- Pictographs
 - May be used on street name signs that do not contain a route shield. Must be positioned to the left of the street name and cannot be larger than the height of the upper case letter
- Stop Signs
 - Street name signs may be mounted directly above stop signs.




SCHOOL ZONES AND PARK ZONES



SCHOOL ZONE SPEED LIMIT 20
ON SCHOOL DAYS
FROM 7:00 AM TO 4:00 PM
FINES HIGHER



PARK ZONE SPEED LIMIT 20
WHEN CHILDREN ARE PRESENT




ILLINOIS STATUTES AND REGULATIONS – SCHOOL ZONES

- 625 ILCS 11-605 applies to:
 - (1) A public or private primary or secondary school.
 - (2) A religious primary or secondary school.
 - (3) A public, private, or religious nursery school.
- May be established adjacent to school grounds or where children cross to and from school as part of an established school route.
- The 20 mph school zone speed limit is in effect on school days between 7 am and 4 pm only when school children are present and so close to the road that they are a potential hazard to traffic.
- Does not apply to areas of school property devoted to athletic or extracurricular activities.

SCHOOL ZONE LOCATIONS

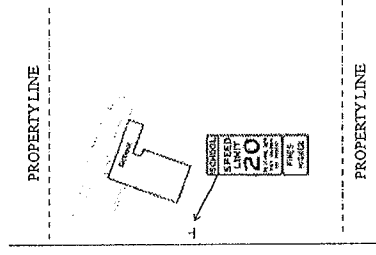
- Location of school zones should be established using engineering judgment based on where children are present.
- School zones should not be established based solely on the school property line.

SCHOOL ZONE LOCATIONS (CONT.)



SCHOOL ZONE SPEED LIMIT 20
WHEN CHILDREN ARE PRESENT

There are situations, primarily in rural areas, where the school-owned property is some distance from the actual portion of the property occupied by the school and there are no children walking or present along that portion of the property. Establishing a 20 mph school speed limit based on the property line would be inappropriate in this case.



PROPERTY LINE

SCHOOL ZONE LOCATIONS (CONT.)

It might be appropriate to impose a 20 mph school speed limit some distance ahead of the property line where children walk close to the highway on their way to and from school and such path is part of a planned school walk route.

SCHOOL ZONE LOCATIONS (CONT.)

School Zone on a side road

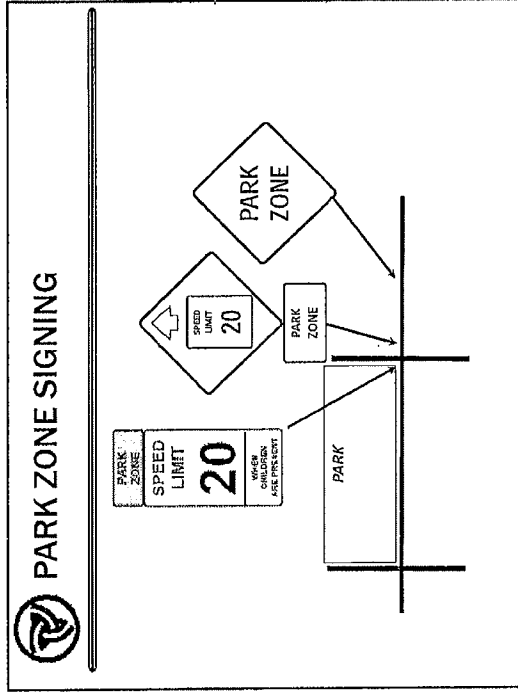
NEW MUTCD REQUIREMENTS

- S1-1 School sign is required in advance of a reduced school speed zone.
- A Fines Higher plaque is required to be installed under the first school speed limit 20 mph sign.
- An End School Zone sign and standard speed limit sign are required at the end of the school zone.
- No compliance dates for these requirements.

TYPICAL SCHOOL SIGNAGE

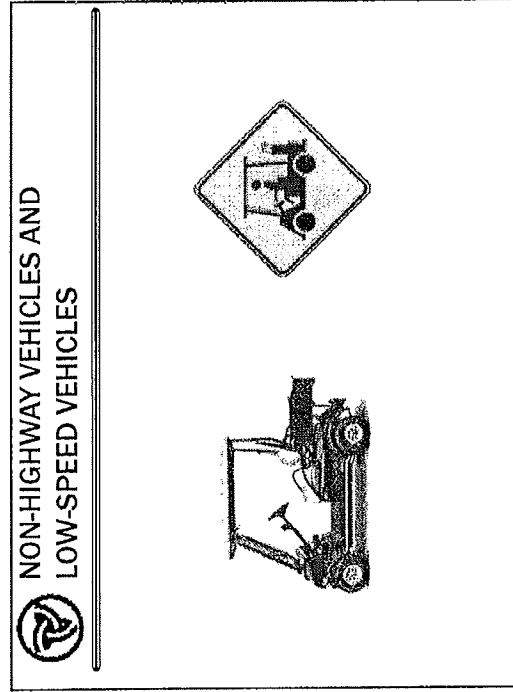
ILLINOIS STATUTES AND REGULATIONS - PARK ZONES

- 625 ILCS 1-605.3 allows local agencies through ordinance or resolution to establish 20 mph park zone speed limits along streets under their jurisdiction adjacent to a park zone.
- Park Zone speed limits may not be established on streets under IDOT jurisdiction.
- 20 mph park zone speed limit in effect when signed and any day when children are present and within 50 feet of motorized traffic.



PARK ZONE SIGNING (CONT.)

- Local Agencies may establish and sign a Park Zone without establishing a park zone speed limit.
- Park Zone warning signs may be installed on State routes, but not park zone speed limits.
- IDOT may perform a speed study where a park zone is established to determine if a reduction in speed is necessary. This would establish a regulatory speed limit and not a park zone speed limit.
- Ordinance or resolution may establish hours the park zone speed limit is in effect. These hours may be displayed on the park zone speed limit signs.



NON-HIGHWAY VEHICLES

- 625 ILCS 11-1426.1 contains allowances for non-highway vehicles:
 - (1) All-Terrain Vehicles
 - (2) Golf Carts
 - (3) Off-Highway Motorcycles
 - (4) Recreational Off-Highway Vehicles
- Neighborhood vehicles are no longer a classification. Taken out in SB1641 July 14, 2011
- Non-Highway Vehicles are not allowed on public roads unless authorized by ordinance or resolution after determining that public safety is not jeopardized.

NON-HIGHWAY VEHICLES (CONT.)

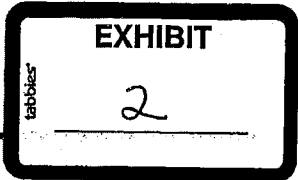
- If allowed, may only travel on roads with speed limits of 35 mph or less.
- Non-Highway Vehicles may only cross a State-jurisdiction road if its speed limit is 35 mph or less and only at an intersection controlled by a traffic signal or all-way stop.
- Warning signs may be installed but are not required at locations where non-highway vehicles are allowed to operate.

LOW-SPEED VEHICLES

- 625 ILCS 11-1426.2 contains allowances for low-speed vehicles.
- Low-Speed Vehicles have max speed between 20 and 25 mph meeting certain safety requirements and licensed by Sec. of State.
- Low-Speed Vehicles by law are allowed on public roads with speed limit of 30 mph or less. Ordinance or resolution is required to prohibit low-speed vehicles.

LOW-SPEED VEHICLES (CONT.)

- Municipalities may allow on 35 mph roads by ordinance or resolution. (Added in SB1641)
- Low-Speed Vehicles may cross any street at an intersection where the street has a speed of 45 mph or less.
- Low-Speed Vehicles may only cross a street over 45 mph at an intersection controlled by a traffic signal or all-way stop.
- USE PROHIBITED BY regulatory signs may be installed at locations where low-speed vehicles are prohibited. Low-Speed Vehicle warning signs may be installed as determined by engineering judgment.



Gerry Gorski

From: Armstrong, Kyle D [Kyle.Armstrong@illinois.gov]
Sent: Tuesday, June 12, 2012 9:29 AM
To: Gerry Gorski
Subject: all-way stop control

Mr. Gorski,

Below is text directly from the latest Manual on Uniform Traffic Control Devices regarding stop sign applications. I mentioned Section 2B.07, but I'm giving you some other sections as well that contain basic information about stop signs. Text that is in bold is a standard and would be considered a requirement. Text that is italicized is guidance and would be considered recommendations. The MUTCD can be found at the website http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/pdf_index.htm. Let me know if you have any further questions.

Thank you.

Section 2B.04 Right-of-Way at Intersections

Support:

01 State or local laws written in accordance with the "Uniform Vehicle Code" (see Section 1A.11) establish the right-of-way rule at intersections having no regulatory traffic control signs such that the driver of a vehicle approaching an intersection must yield the right-of-way to any vehicle or pedestrian already in the intersection. When two vehicles approach an intersection from different streets or highways at approximately the same time, the right-of-way rule requires the driver of the vehicle on the left to yield the right-of-way to the vehicle on the right. The right-of-way can be modified at through streets or highways by placing YIELD (R1-2) signs (see Sections 2B.08 and 2B.09) or STOP (R1-1) signs (see Sections 2B.05 through 2B.07) on one or more approaches.

Guidance:

02 Engineering judgment should be used to establish intersection control. The following factors should be considered:

- A. Vehicular, bicycle, and pedestrian traffic volumes on all approaches;
B. Number and angle of approaches;
C. Approach speeds;
D. Sight distance available on each approach; and
E. Reported crash experience.

03 YIELD or STOP signs should be used at an intersection if one or more of the following conditions exist:

- A. An intersection of a less important road with a main road where application of the normal right-of-way rule would not be expected to provide reasonable compliance with the law;
B. A street entering a designated through highway or street; and/or
C. An unsignalized intersection in a signalized area.

04 In addition, the use of YIELD or STOP signs should be considered at the intersection of two minor streets or local roads where the intersection has more than three approaches and where one or more of the following conditions exist:

- A. The combined vehicular, bicycle, and pedestrian volume entering the intersection from all approaches averages more than 2,000 units per day;
B. The ability to see conflicting traffic on an approach is not sufficient to allow a road user to stop or yield in compliance with the normal right-of-way rule if such stopping or yielding is necessary; and/or
C. Crash records indicate that five or more crashes that involve the failure to yield the right-of-way at the intersection under the normal right-of-way rule have been reported within a 3-year period, or that three or more such crashes have been reported within a 2-year period.

05 YIELD or STOP signs should not be used for speed control.

Support:

06 Section 2B.07 contains provisions regarding the application of multi-way STOP control at an intersection.

Guidance:

07 Once the decision has been made to control an intersection, the decision regarding the appropriate roadway

to control should be based on engineering judgment. In most cases, the roadway carrying the lowest volume of traffic should be controlled.

08 A YIELD or STOP sign should not be installed on the higher volume roadway unless justified by an engineering study.

Support:

09 The following are considerations that might influence the decision regarding the appropriate roadway upon which to install a YIELD or STOP sign where two roadways with relatively equal volumes and/or characteristics intersect:

A. Controlling the direction that conflicts the most with established pedestrian crossing activity or school walking routes;

B. Controlling the direction that has obscured vision, dips, or bumps that already require drivers to use lower operating speeds; and

C. Controlling the direction that has the best sight distance from a controlled position to observe conflicting traffic.

Standard:

10 **Because the potential for conflicting commands could create driver confusion, YIELD or STOP signs shall not be used in conjunction with any traffic control signal operation, except in the following cases:**

A. If the signal indication for an approach is a flashing red at all times;

B. If a minor street or driveway is located within or adjacent to the area controlled by the traffic control signal, but does not require separate traffic signal control because an extremely low potential for conflict exists; or

C. If a channelized turn lane is separated from the adjacent travel lanes by an island and the channelized turn lane is not controlled by a traffic control signal.

11 **Except as provided in Section 2B.09, STOP signs and YIELD signs shall not be installed on different approaches to the same unsignalized intersection if those approaches conflict with or oppose each other.**

12 **Portable or part-time STOP or YIELD signs shall not be used except for emergency and temporary traffic control zone purposes.**

13 **A portable or part-time (folding) STOP sign that is manually placed into view and manually removed from view shall not be used during a power outage to control a signalized approach unless the maintaining agency establishes that the signal indication that will first be displayed to that approach upon restoration of power is a flashing red signal indication and that the portable STOP sign will be manually removed from view prior to stop-and-go operation of the traffic control signal.**

Option:

14 **A portable or part-time (folding) STOP sign that is electrically or mechanically operated such that it only displays the STOP message during a power outage and ceases to display the STOP message upon restoration of power may be used during a power outage to control a signalized approach.**

Support:

15 **Section 9B.03 contains provisions regarding the assignment of priority at a shared-use path/roadway intersection.**

Section 2B.05 STOP Sign (R1-1) and ALL WAY Plaque (R1-3P)

Standard:

01 **When it is determined that a full stop is always required on an approach to an intersection, a STOP (R1-1) sign (see Figure 2B-1) shall be used.**

02 **The STOP sign shall be an octagon with a white legend and border on a red background.**

03 **Secondary legends shall not be used on STOP sign faces.**

04 **At intersections where all approaches are controlled by STOP signs (see Section 2B.07), an ALL WAY supplemental plaque (R1-3P) shall be mounted below each STOP sign. The ALL WAY plaque (see Figure 2B-1) shall have a white legend and border on a red background.**

05 **The ALL WAY plaque shall only be used if all intersection approaches are controlled by STOP signs.**

06 **Supplemental plaques with legends such as 2-WAY, 3-WAY, 4-WAY, or other numbers of ways shall not be used with STOP signs.**

Support:

07 **The use of the CROSS TRAFFIC DOES NOT STOP (W4-4P) plaque (and other plaques with variations of this word message) is described in Section 2C.59.**

Guidance:

08 Plaques with the appropriate alternative messages of *TRAFFIC FROM LEFT (RIGHT) DOES NOT STOP (W4-4aP)* or *ONCOMING TRAFFIC DOES NOT STOP (W4-4bP)* should be used at intersections where *STOP* signs control all but one approach to the intersection, unless the only non-stopped approach is from a one-way street.

Option:

09 An *EXCEPT RIGHT TURN (R1-10P)* plaque (see Figure 2B-1) may be mounted below the *STOP* sign if an engineering study determines that a special combination of geometry and traffic volumes is present that makes it possible for right-turning traffic on the approach to be permitted to enter the intersection without stopping.

Support:

10 The design and application of Stop Beacons are described in Section 4L.05.

Section 2B.06 STOP Sign Applications

Guidance:

01 At intersections where a full stop is not necessary at all times, consideration should first be given to using less restrictive measures such as *YIELD* signs (see Sections 2B.08 and 2B.09).

02 The use of *STOP* signs on the minor-street approaches should be considered if engineering judgment indicates that a stop is always required because of one or more of the following conditions:

A. The vehicular traffic volumes on the through street or highway exceed 6,000 vehicles per day;

B. A restricted view exists that requires road users to stop in order to adequately observe conflicting traffic on the through street or highway; and/or

C. Crash records indicate that three or more crashes that are susceptible to correction by the installation of a *STOP* sign have been reported within a 12-month period, or that five or more such crashes have been reported within a 2-year period. Such crashes include right-angle collisions involving road users on the minor-street approach failing to yield the right-of-way to traffic on the through street or highway.

Support:

03 The use of *STOP* signs at grade crossings is described in Sections 8B.04 and 8B.05.

Section 2B.07 Multi-Way Stop Applications

Support:

01 Multi-way stop control can be useful as a safety measure at intersections if certain traffic conditions exist. Safety concerns associated with multi-way stops include pedestrians, bicyclists, and all road users expecting other road users to stop. Multi-way stop control is used where the volume of traffic on the intersecting roads is approximately equal.

02 The restrictions on the use of *STOP* signs described in Section 2B.04 also apply to multi-way stop applications.

Guidance:

03 The decision to install multi-way stop control should be based on an engineering study.

04 The following criteria should be considered in the engineering study for a multi-way *STOP* sign installation:

A. Where traffic control signals are justified, the multi-way stop is an interim measure that can be installed quickly to control traffic while arrangements are being made for the installation of the traffic control signal.

B. Five or more reported crashes in a 12-month period that are susceptible to correction by a multi-way stop installation. Such crashes include right-turn and left-turn collisions as well as right-angle collisions.

C. Minimum volumes:

1. The vehicular volume entering the intersection from the major street approaches (total of both approaches) averages at least 300 vehicles per hour for any 8 hours of an average day; and

2. The combined vehicular, pedestrian, and bicycle volume entering the intersection from the minor street approaches (total of both approaches) averages at least 200 units per hour for the same 8 hours, with an average delay to minor-street vehicular traffic of at least 30 seconds per vehicle during the highest hour; but

3. If the 85th-percentile approach speed of the major-street traffic exceeds 40 mph, the minimum vehicular volume warrants are 70 percent of the values provided in Items 1 and 2.

D. Where no single criterion is satisfied, but where Criteria B, C.1, and C.2 are all satisfied to 80 percent of the minimum values. Criterion C.3 is excluded from this condition.

Option:

05 Other criteria that may be considered in an engineering study include:

- A. The need to control left-turn conflicts;
- B. The need to control vehicle/pedestrian conflicts near locations that generate high pedestrian volumes;
- C. Locations where a road user, after stopping, cannot see conflicting traffic and is not able to negotiate the intersection unless conflicting cross traffic is also required to stop; and
- D. An intersection of two residential neighborhood collector (through) streets of similar design and operating characteristics where multi-way stop control would improve traffic operational characteristics of the intersection.

Kyle D. Armstrong, P.E., P.T.O.E.

Engineering and Standards Unit Chief

Bureau of Operations

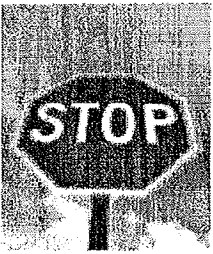
2300 S. Dirksen Parkway

Springfield, IL 62764

Phone: 217/782-7414

E-Mail: Kyle.Armstrong@illinois.gov

 Please consider the environment before printing this email



Following a comprehensive traffic study that reviewed 400 stop signs in GPW, it was determined that 38 of these signs located at 23 intersections do *not* meet the warrants and criteria in the Michigan Manual of Uniform Traffic Control Devices (MMUTCD). As a result of this study, a follow-up program has been developed to systematically remove stop signs, particularly multi-way stop signs, that are not compliant with the MMUTCD mandates.

F.A.Q. ABOUT STOP SIGNS

What is the “Michigan Manual of Uniform Traffic Control Devices”?

The *Michigan Manual* is an adaptation of a *Federal Manual* which regulates all traffic control devices in each state. The purpose for this is to ensure that every such device in Michigan has standardized designs, sizes, color schemes, verbiage and lettering throughout the state. The *Manual* defines a traffic control device as:

“...all signs, signals, pavement markings and other devices used to regulate, warn or guide traffic, placed on, over, or adjacent to a street, highway pedestrian facility or bikeway by authority of a public agency having jurisdiction”

Michigan adopted the Federal Manual in 2005, along with the *Michigan Supplement* which addresses items in our Michigan Motor Vehicle Code that conflict with the 2003 Federal MUTCD, as well as special items that are unique to Michigan.

Why is Grosse Pointe Woods and other cities removing stop signs?

A 2005 Michigan Department of Transportation directive is requiring that all traffic control devices in Michigan must be brought into compliance with the “*Michigan Manual of Uniform Traffic Control Devices*” (MMUTCD). The D.O.T. mandate reads in part:

“...Unless a particular traffic control device is damaged, non-compliant devices on existing highways and bikeways shall be brought into compliance with the current edition of the MMUTCD as part of the systematic upgrading of substandard traffic control devices (and installation of new required traffic control devices) required pursuant to the Highway Safety Program, 23 U.S.C. § 402(a)....”

Without a stop sign, won't drivers be more likely to speed?

The primary purpose for stop signs is to assign the right-of-way to vehicles at intersections in order to reduce conflicts and crashes. Dozens of studies reveal that stop signs are largely ineffective in slowing down drivers or reducing traffic. In fact, the *MMUTCD* clearly states that: “Stop signs SHALL NOT be used for speed control!”

In many cases, speeds are actually *higher* between so-called “nuisance” stop signs and once the signs are removed, average speeds may decrease. If you were to actually sit and observe several driver’s actions at a particular stop sign, you’ll notice that once a vehicle stops (or at least slows down) the

driver will accelerate and continue down the street at whatever speed they select. Simply stated; The only area where stop signs actually slow down traffic is the area within about 150 feet of the stop sign, which does not benefit entire blocks or neighborhoods.

For more comprehensive information about these studies, please read W. Martin Brethertons's traffic study titled: "Multi-way Stops—"The Research Shows the MUTCD is Correct!" at <http://www.ite.org/traffic/documents/aha99b49.pdf>

What are the state and federal requirements for a stop sign?

According to the MMUTCD, stop signs should be used if engineering judgment indicates one or more of the following conditions exist:

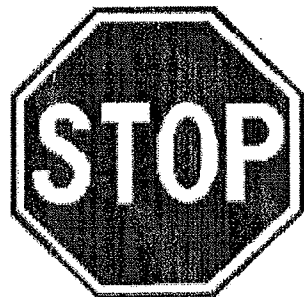
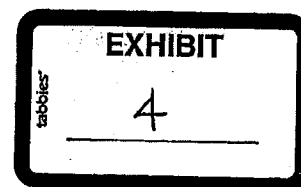
- A. Intersection of a less important road with a main road where application of the normal right-of-way rule would not be expected to provide reasonable compliance with the law;
- B. Street entering a through highway or street;
- C. Un-signalized intersection in a signalized area; and/or
- D. High speeds, restricted view, or crash records indicate a need for control by the stop sign.

What are the advantages to removing unwarranted stop signs?

Unnecessary stop signs have a negative impact on roadways, intersections, and neighborhoods. There are several advantages to removing unwarranted stop signs:

1. Reduced automobile emissions and pollution from stopping and idling;
2. Decreased fuel consumption;
3. Frequently reduces the 85th percentile speeds (average speeds of 85% of drivers);
4. Reduction of noise from brakes and accelerating vehicles;
5. Increased pedestrian & bicycle safety (eliminates the false sense of security);
6. Reduced angle and rear end crashes;
7. In many cases, traffic flows may improve;
8. Reduced driver frustration;
9. Reduced citizen complaints about drivers who frequently disregard stop signs;
10. Reduced potential for municipal liability at non-compliant intersections.

If you have any questions, concerns, or suggestions, please contact Officer Beghin at the Grosse Pointe Woods Traffic Safety Division at 313-343-2416 or sbeghin@gpwmi.us.



STOP SIGNS

Why can't we have a STOP sign or a 4-way STOP to reduce Collisions & Speeds?

Many people believe that installing STOP signs on all approaches to an intersection will result in fewer collisions. This is not always the case however. Although the crash severity may be lessened, drivers are penalized by the additional delay and higher vehicle operating costs (fuel, brakes, etc.) There is no real evidence to indicate that STOP signs decrease the speed of traffic. Impatient drivers view the additional delay caused by unwarranted STOP signs as "lost time" to be made up by driving at higher speeds between STOP signs. Unwarranted STOP signs breed disrespect by motorists who tend to ignore them or slow down without stopping. This can sometimes lead to tragic consequences.

What are the official guidelines?

The Revised Code of Washington (RCW or Washington State Law) requires us to follow the national guidelines outlined in the "Manual on Uniform Traffic Control Devices" (MUTCD) in determining the use of traffic control devices. This includes the use of a STOP sign or the use of an all-way (4-way) stop control at an intersection.

When are STOP signs used?

The literal message of a STOP sign is clear and uncomplicated. The intent behind a STOP sign is to assign and control right-of-way. STOP signs are considered at locations where the prevailing traffic volumes and reported collision history make assignment of right-of-way desirable. As simple as that may appear on the surface, the decision to install these signs requires careful consideration of engineering criteria.

What are the specific criteria for installing STOP signs?

To determine whether or not a STOP sign would be the best and most appropriate measure of traffic control, traffic engineers analyze the various characteristics of an intersection. Some of the questions they ask themselves include:

Is this an intersection of minor road with a main road where application of the normal right-of-way rule (e.g. yield to the right) is unduly hazardous?

Is this an intersection where a street enters an arterial (major) street?

Is this an intersection where a combination of speed, restricted view and reported collision history indicates a need for control by the stop sign?

What are the specific criteria for installing all-way stops?

In order to consider the installation of a all-way stop, the MUTCD requires that the following should be satisfied:

- ? There must be five or more reported collisions of a type correctable by an all-way stop within the latest 12 month period, or
- ? The combined vehicular, pedestrian, and bicycle volumes for the major street must average 300 units per hour and the minor street must average 200 units per hour for the same 8 hours.
- ? All-way stop control should not to be used for speed control.

What are the drawbacks to these signs?

National and State guidelines dictate that STOP signs should not be used to reduce speeding problems. When misused, the stop sign can create an inconvenient, and even dangerous, situation for motorists and pedestrians. Drivers are more likely to intentionally violate unwarranted signs.

Research has shown that unwarranted STOP signs and STOP signs that have been used for speed control, do not have the effect desired. Speeds between the STOP signs increase as drivers try to make up for lost time. Drivers tend to roll through the unwarranted STOP signs with higher frequency (over 50%). Traffic collisions at unwarranted STOP controlled intersection are often higher than when the intersection was uncontrolled or two-way STOP controlled. There is also an increase in noise and air pollution levels to nearby residents as the result of vehicles braking and accelerating.

STOP signs cannot be viewed as a cure-all for solving all safety problems, but, when properly located, they can be useful traffic control devices to enhance safety for all roadway users.

What other measures could be available?

When a request for a STOP sign is received, many times the resulting review shows that there are other traffic control measures which may be available to address the concerns. Improving intersection visibility and sight distance or using less restrictive signing can make installation of STOP signs unnecessary.

The MUTCD outlines a set of warrants or standards against which all intersections can be evaluated. By applying consistent criteria to all intersections, we are able to insure uniformity of sign placement. Maintaining uniformity helps to preserve the expectation of drivers that all STOP signs are important and should command their attention and respect.

If you have any questions about Stop Signs, please contact the City of Spokane, Traffic Operations Division at (509) 232-8800.



HOME

This site will be updated as further information is developed and formatted for online access.

The information contained on these pages is compiled from various sources and is subject to constant revision. □ This material should be used for informational purposes only. □ Please refer to the Citizens Reference Guide or contact the street department directly for further information.

Please send any questions or concerns for the street department to:



Spokane Streets

To contact the Street Department, call (509) 232-8800 during normal working hours.

If you are in need of after hour assistance please contact us at (509) 625-7733.

or send correspondence to:
City of Spokane Street Department
901 N Nelson St.
Spokane WA 99202-3769

Any Questions or Suggestions on this web page please email us at: info@spokanestreets.org

Memo

Date: 6/13/2012
To: Chief Lamkin
From: Officer R. Clark #321
CC: Cmdr. E. Mahan, D.C. Kintz, Traffic file
Re: State St. at 7th St., All way stop request

I was requested to review warrants for possible placement of a 4-way stop at the intersection of State Street and North 7th Street. Currently, there is a two-way stop, where both northbound and southbound 7th Street are required to stop at State Street. The following is the results and recommendations based upon warrants as set forth by the Manual of Uniform Traffic Control Devices. The "MUTCD" is the US Department of Transportations' standards that we have adopted as a city.

Warrant Overview:

A. Where traffic control signals are justified, the multi-way stop is an interim measure that can be installed quickly to control traffic while arrangements are being made for the installation of the traffic control signal.

B. A crash problem, as indicated by 5 or more reported crashes in a 12-month period that are susceptible to correction by a multi-way stop installation. Such crashes include right- and left-turn collisions as well as right-angle collisions.

C. Minimum volumes:

1. The vehicular volume entering the intersection from the major street approaches (total of both approaches) averages at least 300 vehicles per hour for any 8 hours on an average day and
2. The combined vehicular, pedestrian, and bicycle volume entering the intersection from the minor street approach (total of both approaches) averages at least 200 units per hour for the same 8 hours, with an average delay to minor-street vehicular traffic of at least 30 seconds per vehicle during the highest hour, but
3. If the 85th-percentile approach speed of the major-street traffic exceeds 40mph, the minimum vehicular volume warrants are 70 percent of the above values.

D. Where no single criterion is satisfied, but where criteria B, C.1, and C.2 are all satisfied to 80 percent of the minimum values. Criterion C.3 is excluded from this condition.

Option:

Other criteria that may be considered in an engineering study include:

- A. The need to control left-turn conflicts;
- B. The need to control vehicle/pedestrian conflicts near locations that generate high pedestrian volumes;
- C. Locations where a road user, after stopping, cannot see conflicting traffic and is not able to reasonably safely negotiate the intersection unless conflicting cross traffic is also required to stop; and
- D. An intersection of two residential neighborhood collector (through) streets of similar design and operating characteristics where multi-way stop control would improve traffic operational characteristics of the intersection.

State Street at North 7th Street

- E. Warrant A- **Warrant not met.** There are no plans for a traffic control signals along this roadway.
- F. Warrant B- **Warrant not met.** In the previous three (3) years, there was not one crash in the intersection. There have been four (4) near the intersection, but they were all a result of vehicle widths and turning; ie- school buses. None of the four in three years were a result of or within the intersection.
- G. Warrant C, 1 through 3 – **Warrants not met.** There was an average of 823 vehicles per lane, per day, on State Street. For a 1 week period, the 600 and 700 blocks of State Street averaged 1,647 vehicles for both eastbound and westbound combined. Pedestrian volume is not high enough to warrant a multi-way stop. The 85th percentile speeds were 31.50 mph for eastbound traffic. For westbound, the 85th percentile speed was 30.22 mph.
- H. Warrant D- **Warrant not met.** None of the above stated options of this warrant are met.

Recommendation – Keep the roadway as it currently is. None of the warrants for an all way stop are met for the intersection. It should be noted, a new study will be required if the proposed development of Lexington Club gets built.

Respectfully,

TSO Rich Clark #321

Memo

Date: 6/13/2012

To: Chief Lamkin

From: Officer R. Clark #321

CC: Cmdr. E. Mahan, D.C. Kintz, Traffic file

Re: 6th St. and State St. crash in relation to 7th St. and State St. warrant study

On June 8th 2012, at 1220Hrs., our Officers responded to the intersection of North 6th Street and State Street for a report of a crash involving two vehicles. One of the vehicles was lying on its passenger side. I responded to the scene to assist with the investigation. The following is a summary of the investigation and my conclusion in how this crash relates to the previous warrant study that was conducted for the intersection on North 7th Street and State Street.

The "at fault" driver of Unit 1 was traveling westbound on State St. approaching N. 6th St. There is a two way stop at this intersection. State Street must stop while N. 6th Street does not have any traffic controls. Unit 1 is a blue 2006 Hummer H3 driven by a female born in 1958.

Unit 2 is traveling southbound on N. 6th Street, approaching the intersection with State Street. Unit 2 does not have any traffic controls. Unit 2 is a white 2011 Ford Ranger. Unit 2 is owned by "Napa Auto" in St. Charles, and being operated by a male driver born in 1955. This vehicle is equipped with a large decorative baseball style hat that is located on top of the drivers cab.

The driver of Unit 1 stated she came up to the intersection and stopped. She stated she looked to the right, then the left, and proceeded into the intersection. At that time she struck the driver's side door of unit 2 and pushed it westbound through the intersection. The force of the collision caused unit 2 to be pushed over onto the passenger side. Unit 2 was then pinned against a pole located at the southwest corner of the intersection. The front bumper and passenger side wheel well of unit 1 was lodged within the undercarriage of unit 2. The towing company was able to manually drive unit 1 out of the undercarriage of unit 2. Unit 2 was then overturned back onto the road. Neither party involved sustained any serious injuries. The driver of unit 2 was checked out by St. Charles Paramedics but signed a release at the scene. The driver of Unit 1 was cited for 11-901, or Failure to Yield-Intersection.

Through conversation I learned the driver of unit 1 had recently moved to California. She recently had lived in St. Charles and was familiar with this intersection and had traveled it before. The driver regretted not looking twice before pulling into the intersection and stated she usually does. I personally checked potential sight line issues prior to leaving the scene. This was the Friday of the annual "River Fest", and there were more parked cars than usual near this intersection. On the east side of N. 6th Street and north of State Street all on street parking was full. All vehicles were legally parked. However; it is my assessment that if the driver of unit 1 had come to a complete stop and looked both ways before *slowly* proceeding into the intersection, she would have seen unit 2 approaching. I also conclude that the driver of Unit 1 was traveling at a high enough speed from the stop sign to force unit 2 to be pushed over and into the pole on the southwest side of the intersection.

This crash is in no way associated with the intersection of State Street and N. 7th Street. Unit 1 was traveling westbound from the 500 block of State Street, and unit 2 was traveling southbound on N. 6th Street from the 300 block. I also reviewed data from 2009 through 2011. I am unable to locate any other crashes that have occurred within this intersection.

Respectfully,

TSO Rich Clark #321