

Policy on Establishing and Posting Speed Limits on the State Highway System

May 2002



Illinois Department of Transportation
Division of Highways
Bureau of Operations

POLICY ON ESTABLISHING AND POSTING SPEED LIMITS ON THE STATE HIGHWAY SYSTEM

APPLICATION OF POLICY TO CITIES AND COUNTIES

The Illinois Vehicle Code no longer requires local agencies to obtain department approval for speed zones on roads under their respective jurisdictions. While the procedures contained in this policy may be used for altering speed limits on any public highway, use of such procedures by local agencies is not required by statute. If a city or county wishes to ask a district for review of a speed zone, the district may, of course, do so. However, when responding back to the city or county, a statement should be included indicating that the comments are not to be considered as either approval or disapproval.

GENERAL SPEED LIMITS

Speed limits on highways under the jurisdiction of the department shall be established on the basis of Article VI of the Illinois Vehicle Code (IVC), the Illinois Manual on Uniform Traffic Control Devices (IMUTCD) and this policy. Night speed limits shall not be used.

A. Statutory Speed Limits

Section 5/11-601 of the IVC spells out the statutory speed limits in effect in Illinois. These limits may be enforced without any signing.

Outside Urban Districts

Passenger cars and trucks with gross weights of 4 tons or less	65 mph
Buses on four-lane divided (nontraversable) highways	65
Buses on other highways (under the jurisdiction of the department)	60
<i>Note that this speed category is not to be used and buses are to have the same speed limit as passenger cars. In effect, it would allow the department to set a speed limit of 60 mph for buses only on those conventional state highways where a 55 mph statutory limit is in effect for all other vehicle types (see Altered Speed Limits below).</i>	
Vehicles towing trailers, housecars, and campers	55
Trucks with gross weights of over 4 tons	55

Inside Urban Districts (All vehicle types)

Streets and highways	30 mph
Alleys	15

"Urban District" is defined (Section 5/1-214) as "The territory contiguous to and including any street which is built up with structures devoted to business, industry or dwelling houses situated at intervals of less than 100 feet for a distance of a quarter or a mile or more." *Note that whether the street or highway in question is inside or outside of the corporate limits of a community is not included in this definition and therefore, is not applicable to the determination of where such statutory speed applies.*

B. Altered Speed Limits

State statutes allow the department to alter certain of the statutory speeds either up or down (statutory speeds of 55 and 65 miles per hour may only be altered downward). State statutes and the Illinois Manual on Uniform Traffic Control Devices require that such altered speed limits be based on "...an engineering and traffic investigation."

The following investigation and selection criteria shall be used to determine altered speed limits on streets and highways under the jurisdiction of the department. While it is not mandatory that local agencies use this format and criteria, it is recommended. Regardless of the form the engineering and traffic investigation takes, it should be based on valid traffic engineering principals and well documented.

Prevailing Speed

The determination of the prevailing speed of free-flowing traffic is the basic step in establishing an altered speed limit either lower or higher than the statutory limit (statutory speeds of 55 and 65 miles per hour may only be altered downward). This is based on the nationally accepted premise that a majority of the drivers will drive at a speed which they judge to be safe and proper. The prevailing speed is the computed average of the following three sets of data, measured during free-flowing traffic conditions:

1. **EIGHTY-FIFTH PERCENTILE SPEED:** The 85th percentile speed is defined as the speed at or below which 85 percent of the vehicles are traveling. This speed is determined on the basis of spot speed studies, normally made with a concealed radar or laser speed meter.

Spot speed studies should be made as close as practical to the center of the zone which is being studied. If the zone is in excess of one mile in length in rural areas or 1/2 mile in urban areas, studies should be made at two or more locations. Care must be exercised to be sure that the data are collected in such manner and at such times that they are a true indication of normal conditions. Such conditions normally prevail under good weather conditions, on dry pavement, during daylight hours, outside of rush periods, and on any day except weekends or holidays. Observations should not be made immediately following an crash, when traffic is influence by construction or maintenance operations, or during a period of greater than normal enforcement. Every effort should be made to conceal the fact that speeds are being recorded.

Speeds should be observed for at least 100 passenger cars/vans and pickup trucks in each lane in each direction. Speeds of vehicles over four tons in size should not be used in determining altered speed zones. On lower-volume roads where it would be difficult to sample 100 vehicles in each direction, the study may be terminated after three hours. When traffic is travelling in platoons, the speed of the lead vehicle(s) should be used. Following vehicles tend to base their speeds on the lead vehicle. Use of following vehicles will tend to bias the recorded speeds downward. Care should also be taken to avoid recording the speeds of a disproportionate number of high speed vehicles to avoid an upward speed bias.

2. **UPPER LIMIT OF THE 10 MILES PER HOUR PACE:** The 10 miles per hour pace is defined as the 10 miles per hour range containing the most vehicles. This is determined on the basis of the spot speed studies discussed above.

3. **AVERAGE TEST RUN SPEED:** Average test run speeds are determined on the basis of five vehicle runs in each direction over the length of the proposed zone. It is not necessary to use an unmarked vehicle, however, the use of any vehicle which might be mistaken for a law enforcement vehicle should be avoided. Observations should be made under the same general conditions noted above for spot speed studies. The prime consideration in use of test runs is to approximate the median speed. To accomplish this, the driver should try to "float" in the traffic stream. On multi-lane roads, the driver should pass as many vehicles as pass the test car. Use of test run speed is optional on lower-volume roads and should not be included when determining the prevailing speed for very short zones or for any specific type of vehicle other than passenger cars/vans.

The prevailing speed, to the nearest 5 miles per hour, may be used directly as the Altered Speed Limit, subject to any further adjustment resulting from reviewing the Anticipated Violation Rate as set forth below. However, in certain cases, a lower altered speed limit may be justified on the basis of supplementary investigations.

Optional Supplementary Investigations

The selected Altered Speed Limit may differ from the established prevailing speed (not the proposed posted speed) by up to 9 miles per hour when justified by further investigation. Such investigations shall be limited to studying any or all of the following four conditions:

1. **CRASH RATE:** If the crash rate, based on all reportable crashes (both intersection and nonintersection), within the proposed zone is 50 percent higher than the Statewide average crash rate for the same classification of highway, the prevailing speed may be reduced by 5 percent. If the crash rate is more than twice the Statewide rate for the same classification of highway, the prevailing speed may be reduced by 10 percent. A reduction in speed may reduce the severity of those crashes that occur, but normally will not significantly reduce the number of crashes. Crash rates are available from the Division of Traffic Safety.

2. **ACCESS CONTROL:** The effect of driveways and other entrances is determined by using an "access conflict number." For this purpose, field entrances or driveways to single-family dwellings shall have a conflict number of 1. Minor commercial entrances and driveways serving multi-family residential units and minor street intersections shall have a conflict number of 5. Major commercial entrances, driveways serving large multi-family developments and major street intersections shall have a conflict number of 10. If the total access conflict number within a proposed zone exceeds those shown in the following table, the prevailing speed may be reduced by the percentages indicated.

<u>Access Conflicts per Mile</u>	<u>Percent Reduction in Speed</u>
40 or less	0
41 - 60	5
61 or more	10

3. **PEDESTRIAN ACTIVITY:** Where no sidewalks are provided or where sidewalks are located immediately behind the curb and the total pedestrian traffic exceeds ten per hour for any tree hours within any eight-hour period, the prevailing speed may be reduced by 5 percent. Pedestrians crossing the route at intersections or established crossing points may be included if

the point of crossing is not controlled by a STOP or YIELD sign on the route in question, or does not have traffic signals.

4. **PARKING:** The prevailing speed may be reduced by 5 percent where parking is permitted adjacent to the traffic lanes.

5. **MISCELLANEOUS:** Normally isolated curves and turns, areas of restricted sight distance, no-passing zones, etc., are not to be considered as the basis for alteration of speed limits.

Selection of Altered Speed Limit

To determine the proposed altered speed limit, either use the calculated prevailing speed, or apply the percentage corrections resulting from any or all of the above optional factors to the prevailing speed, and select the closest 5 mile per hour increment. In no case, however, shall the proposed altered limit differ either upward or downward from the prevailing speed by more than 9 miles per hour or by more than 20 percent, whichever is less. Next, compare the proposed altered speed limit to the 85th percentile speed and determine the anticipated violation rate. If the anticipated violation rate exceeds 50 percent, the proposed altered speed limit should be revised in 5 mile per hour increments until the anticipated violation rate is equal or less than 50 percent. If this results in a proposed altered speed limit which exceeds a 30 mph statutory speed for the highway in question, either the statutory speed or the proposed altered speed may be used to set the speed limits. Where the decision to use the statutory speed would result in a violation rate greater than 50 percent, the appropriate police agency(ies) should be notified that extra enforcement efforts may be necessary.

Differences in posted speeds between adjacent altered speed zones shall not be more than 10 miles per hour.

Buses

The statutory speed limit of 60 miles per hour for buses has been altered on a State-wide basis to match the statutory speed limit for all other classes of vehicles on conventional highways.

C. Posting of General Speed Limits

Speed Zone Ahead Signs

Except as noted, the SPEED ZONE AHEAD (R2-5) sign, together with a corresponding advance speed plate (R2-50), should be erected in advance of any altered or statutory speed zone that is 10 miles per hour or more under the passenger car limit in a preceding zone. It shall be placed approximately 500 to 600 feet in advance of the lower speed zone and shall always be followed by a basic speed limit sign erected at the beginning of the zone.

On divided and one-way facilities having two or more lanes in one direction, the SPEED ZONE AHEAD signs with appropriate speed plates, where used, and the first basic speed limit sign for the altered speed zone, shall be installed on both sides of the roadway except in situations where insufficient room exists in a median. Red 18-inch metal reflectorized "flags" shall be installed on the SPEED ZONE AHEAD signs preceding any transition from a 60 or 65 miles per hour zone to a lower speed zone.

When speed zones on rural highways extend only through signalized intersections, speed limit signs for the altered zones shall be erected in pairs at least 1,000 feet prior to the intersections. Normally, such altered zones shall be terminated approximately 500 feet beyond the intersection.

Speed Limit Signs

Speed limit signs shall be posted at points of entry to the state even where the preceding speed limit in the adjacent state is the same. The signs should be placed as close to the state line as possible. On conventional rural highways, speed limit signs should also be posted after major highway intersections, and at such other locations as necessary to ensure that there is at least one sign every 10 miles. On Interstate highways and other full freeways, speed limit signs should be placed following the entrance ramps from all except very closely spaced interchanges, and at such other locations as necessary to ensure that there is at least one sign every 10 miles.

The following spacings for speed limit signs are recommended in altered speed zones and for 30 mph zones in urban areas. All speed zones, either altered or statutory, shall be posted on state highways.

Posted Speed	Recommended Sign Spacing
30 mph or less	660 ft to 1,320 ft (2 to 4 blocks)
35 or 40 mph	990 ft to 1,980 ft (3 to 6 blocks)
45 mph	1,320 ft to 2,640 ft (4 to 8 blocks)
55 or 60	2 to 10 miles

A 60 or 65 miles per hour zone shall only apply to cars, buses, vans, motorcycles, and trucks under 4 tons. Therefore, in all such zones, a SPEED LIMIT 55/TRUCKS OVER 4 TONS/MOTOR HOMES/CAMPERS/TRAILERS (R2-1104a) sign shall be placed just beyond each SPEED LIMIT/65 (or 60) sign.

Minimum Speed Limit Signs

A MINIMUM 45 mph speed plate (R2-1101) shall be placed under each basic 60 or 65 mph speed limit sign (R2-1). It may be omitted where closely spaced interchanges or volume/capacity restraints make compliance with a 45 mph minimum speed limit impractical. A minimum speed shall not be used with 55 mph or lower speed limits.

SCHOOL SPEED LIMITS

School speed limits on highways under the jurisdiction of the department shall be established on the basis of Article VI of the Illinois Vehicle Code (IVC), the Illinois Manual on Uniform Traffic Control Devices (IMUTCD) and this policy.

Section 5/11-605 of the IVC allows establishment of 20 miles-per-hour speed limits on streets and highways passing schools or upon any street or highway where children pass going to and from school. Such established limit is to be in effect "On a school day when school children are present and so close thereto that a potential hazard exists because of the close proximity of the motorized traffic..." It further defines school days as beginning at 7 a.m. and ending at 4 p.m. Such a zone may be established for public, private and religious nursery, primary or secondary schools.

An engineering and traffic investigation shall be conducted to determine whether or not a school speed zone is warranted. The investigation shall consider such factors as the existing traffic control, whether school crosswalks are present or not, the type, character and volume of vehicular traffic, and the ages and numbers of schoolchildren likely to be present. It shall also consider where the children would be located in relation to the traffic.

Speed zones should be limited to those locations where school buildings or grounds devoted primarily to normal school day activities are adjacent to the highway or where groups of children cross the highway on their way to and from a school. Areas devoted primarily to athletic or other extracurricular activities should not be zoned.

Speed zones should not be established when the school or school grounds are completely isolated from the highway by means of a fence or other barrier, and no access to the highway is provided. They should also not be established for crossing where an underpass or overpass is provided or for school entrances used for buses or private vehicles carrying children to and from school.

WORK ZONE SPEED LIMITS

A. Altered Speed Limits

Freeways

- No Speed Limit Reduction
 - 1) The existing speed limit shall not be lowered when there is no lane reduction or apparent hazard.
- 10 MPH Speed Limit Reduction
 - 1) Multi-lane Work Zone Speed Signs ((see Art. 702.05(d)(1) of the Standard Specifications for Road and Bridge Construction)) shall be used only to reduce posted speed limits from 65 mph to 55 mph in construction work zones with lane closures or crossovers as shown on the Design Standards or as noted in the traffic control plans. For this requirement to be added to an ongoing contract, it must be approved by the District Operations Engineer.
 - 2) Multi-lane Work Zone Speed Signs may also be used to reduce the existing speed limit by 10 mph if an engineering study indicates the reduced speeds are necessary. For this requirement to be added to an ongoing contract, it must be approved by the District Operations Engineer.
- 20 MPH Speed Limit Reduction

- 1) Construction Speed Limit Signs ((see Art. 702.05(d)(2) of the Standard Specifications for Road and Bridge Construction)) shall be used only when workers are close to traffic and are not protected by temporary concrete barrier. This sign may be used in conjunction with a Multi-lane Work Zone Speed Sign to drop an existing 65 mph speed limit to 45 mph. If conditions that warrant these signs develop during construction, the signs may be added to the contract upon approval of the District Operations Engineer.

These signs shall be utilized as indicated in the Design Standards or as noted by the designer in the traffic control plans. The flashing lights on these signs shall be activated only when workers are present. The signs shall be covered, turned or removed when workers are no longer present.

- 2) Speed limits on multi-lane roadways may be reduced to 45 mph if an engineering speed study indicates that these reductions are necessary. Approval of the District Operations Engineer is required.

Non-Freeways

- No Speed Limit Reduction

The existing speed limit shall not be lowered when work is not on the pavement and there is no apparent hazard.

- 10 MPH Speed Limit Reduction

The Construction Speed Limit Sign may be used to reduce the existing speed limit by 10 mph if workers are close to traffic and are not protected by temporary concrete barrier. The need for this sign should be determined by an engineering investigation and its use should be approved by the District Operations Engineer. The following may be reasons for utilizing the Construction Speed Limit Signs:

- 1) Narrow pavement lane width.
- 2) High traffic volumes.
- 3) Inadequate sight distance.
- 4) Workers are on the shoulder or in a closed lane adjacent to an open lane.

The flashing lights on these signs shall be activated only when workers are present. The signs shall be covered, turned or removed when workers are no longer present.

- 20 MPH Speed Limit Reduction

For speed limits to be reduced more than 10 mph lower than the permanent posted speed for reasons other than those listed above for a 10 mph speed limit reduction, an engineering study is required and it must be approved by the District Operations Engineer.

B. Double Fines

For the minimum \$150 fine (Sec. 5/11-605 of the Illinois Vehicle Code) to be applicable for construction or maintenance work zones, workers must be present and so close to moving traffic that an undue hazard exists. The work zone must be posted according to the requirements for Construction Speed Limit Signs.

C. Posting of Speed Limit Signs

Multi-lane Work Zone Speed Limit Signs

- a) Multi-lane Work Zone Speed Limit Signs shall be placed on each shoulder 500 feet prior to lane taper.
- b) Two signs shall be placed 500 feet beyond the last entrance ramp for each interchange.
- c) Sign trailers may be used for moving operations, and portable sign supports may be used on projects where work operations will last 3 days or less. For all other projects, signs shall be post mounted on wood or metal posts.
- d) All existing speed limit signs shall be covered or removed.
- e) An END WORK ZONE SPEED LIMIT (G20-I103) sign shall be located at the end of the lane closure. If the lane closure terminates at the end of the project, then this sign replaces the END CONSTRUCTION (G20-2) sign, if it is required.
- f) Multi-lane Work Zone Speed Limit Signs shall be promptly removed or covered when lane closure is removed and the posted speed shall be promptly reinstated.

Construction Speed Limit Signs

- a) Construction Speed Limit Sign assemblies shall be placed on each shoulder of multi-lane roadways where the median is at least 10 feet wide, and one shall be placed on the right shoulder for all other roadways.
- b) Additional assemblies shall be placed 500 feet beyond the last entrance ramp for each interchange and at each side road.
- c) One assembly shall be placed adjacent to the closed lane at a distance of 500 feet to 2500 feet in advance of workers throughout the lane closure and as directed by the Engineer for multi-lane roadways. If used on two-lane roadways, the signs shall be placed 500 feet to 1,500 feet before the area where the speed is to be lowered.
- d) Construction Speed Limit Signs shall not be used when workers are behind a temporary concrete barrier.
- e) Construction Speed Limit Signs shall be spaced 500 feet from other signs.
- f) The flashing lights shall be activated only when workers are present in a closed lane or adjacent to one open to traffic and as directed by the Engineer.

Speed Zone Ahead Signs

Speed Zone Ahead Signs are not required to be used in advance of construction zone speed limits within signed construction or maintenance work areas.

MISCELLANEOUS SPEED POLICIES

A. Blanket Speed Limit Signs

Posting of signs indicating general municipal speed limits, such as "SPEED LIMIT 25 ON VILLAGE STREETS," shall not be used on state highways. Section 11-604 of the Illinois Vehicle Code requires that speed limit signs be placed "...at the proper place or along the proper part or zone of the highway or street." The Office of Chief Counsel has determined that this requires each individual altered speed zone be signed.

B. Radar Warning Signs

SPEED RADAR TIMED, or other similar signs, shall not be used on state highways. An Illinois Attorney General's Opinion (1966-196) stated that such signs were not necessary for enforcement.

C. Aerial Speed Check Markings

Aerial speed check markings on state highways shall be placed in accordance with the guidelines contained in Section 7-401.21 of this manual (Bureau of Operations Traffic Policies and Procedures Manual).

D. Design vs. Operating Speeds

Curbed Sections

Sections with continuous curbs at or near the edge of pavement should be avoided in areas where operating speeds can be expected to be greater than 45 mph. However, where a speed study justifies a speed limit of 50 mph or greater, the posted limit may be reduced to 45 mph upon the written approval of the District Engineer. If the curbed section is short, such as with channelizing in conjunction with a freeway interchange, the operating speed should be used.

E. Two-Way Left Turn Lanes

Two-way left turn lanes should be avoided in areas where operating speed can be expected to be greater than 45 mph. However, where a speed study justifies a speed limit of 50 mph or greater, the posted limit may be reduced to 45 mph upon the written approval of the District Engineer.

SPOT SPEED STUDY

DIST: _____ CITY/LOCATION: _____ ROUTE: _____ DATE: _____ DAY: _____

CHECK NO.	RECORDER	HOURS FM: _____ M TO: _____ M	WEATHER	SURFACE WET DAMP DRY	FT. MI. E W N S OF E W N S OF	METER ON E W N S SIDE	TRAFFIC CHECKED: EB WB NB SB	85TH PERCNTLE	UPPER LIMIT 10 MPH PACE	POSTED LIMIT MPH	VIOLATION RATE
-----------	----------	-------------------------------------	---------	-------------------------------	-------------------------------------	-----------------------------	---------------------------------------	------------------	----------------------------	---------------------	-------------------

MPH	5	10	15	20	25	30	35	40	45
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									
31									
32									
33									
34									
35									
36									
37									
38									
39									
40									
41									
42									
43									
44									
45									
46									
47									
48									
49									
50									
51									
52									
53									
54									
55									
56									
57									
58									
59									
60									
61									
62									
63									
64									
65									
66									
67									
68									
69									
70									
71									
72									
73									
74									
75									
76									
77									
78									
79									
80									
81									
82									
83									
84									
85									

ABOVE 85 MPH, LIST INDIVIDUALLY: _____

**ESTABLISHMENT OF SPEED ZONE
DISTRICT _____**

ROUTE: _____ FROM: _____

TO: _____ LENGTH: _____

CITY: _____ COUNTY: _____

I SPOT SPEED STUDIES (Attached)

CHECK NO.	85TH %	UPPER LIMIT 10 MPH PACE

V ACCESS CONFLICTS

RESIDENTIAL DRIVES: _____ x 1 = _____
 SMALL BUSINESS DRIVES: _____ x 5 = _____
 LARGE BUSINESS DRIVES: _____ x 10 = _____
 ACCESS CONFLICT NO. TOTAL:
 _____ (DCN) = _____
 MILES . CONFLICT NO./MILE

II TEST RUNS

RUN NO.	AVERAGE SPEED MPH	
	NB or WB	SB or EB
1		
2		
3		
4		
5		

VI MISCL. FACTORS

PEDESTRIAN VOLUME: _____
 CRASH RATE RATIO:
 STATEWIDE AVG. = _____
 ROUTE
 PARKING PERMITTED: ___ YES ___ NO

III PREVAILING SPEED

85TH % AVG.: _____ MPH
 UPPER LIMIT OF
 10 MPH PACE: _____ MPH
 TEST RUN AVG.: _____ MPH
 PREVAILING SPD: _____ MPH

VII PREVAILING SPEED ADJUSTMENT

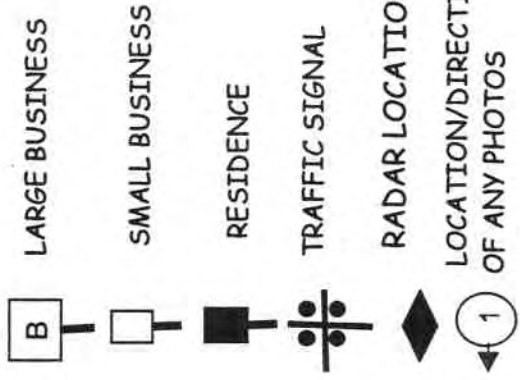
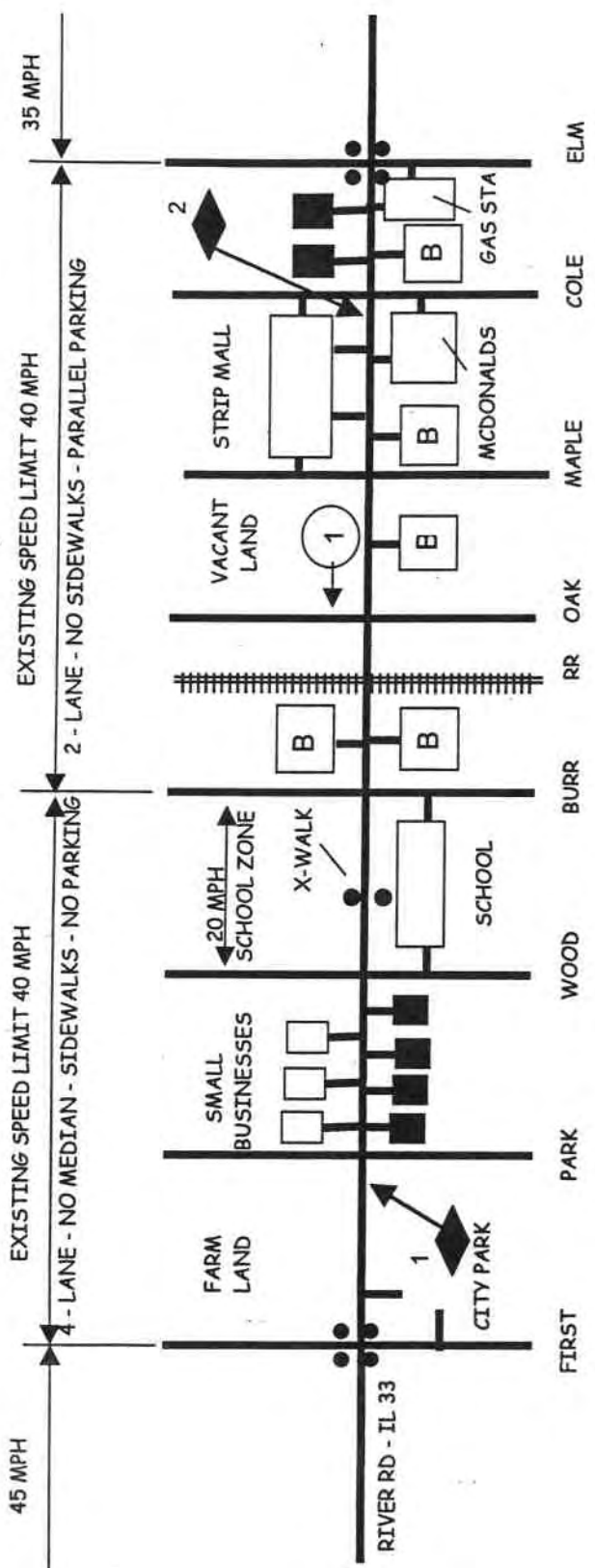
DRIVEWAY ADJUSTMENT: _____ %
 PEDESTRIAN ADJUSTMENT: _____
 CRASH ADJUSTMENT:
 TOTAL (Max. 20%): _____ %
 _____ MPH x _____ % = _____
 (Prevailing Spd) (Adjust.) (Max. 9 MPH)
 ADJUSTED PREVAILING SPEED: _____

IV EXISTING SPEED LIMIT

ZONE BEING STUDIED: _____ MPH
 VIOLATION RATE: _____ %
 ADJACENT ZONE N or W: _____ MPH
 LENGTH: _____ MILES
 ADJACENT ZONE S or E: _____ MPH
 LENGTH: _____ MILES

VIII REVISED SPEED LIMIT

RECOMMENDED SPEED LIMIT: _____ MPH
 ANTICIPATED VIOLATION RATE: _____ %
 RECOMMENDED BY: _____
 DATE: _____
 APPROVED BY: _____
 DATE: _____



CONDITION DIAGRAM

District 7
 Illinois 33 River Road
 First Ave to Elm Road
 Frostville, Damon County