



CITY COUNCIL AGENDA ITEM

Date: March 23, 2011

To: John Szerlag, City Manager

From: Gary Mayer, Chief of Police *GM*
 Steve Vandette, City Engineer *SV*
 David Livingston, Special Operations Lieutenant *DL*

Subject: Major Road Speed Limits
 Square Lake, Adams to Dequindre
 Wattles, Adams to Livernois
 Coolidge, South City Limits to South Boulevard
 Rochester Road, South City Limits to Stephenson

Background

At the request of the Troy Police Department, the Traffic Improvement Association conducted speed limit studies on several major streets in the City of Troy to determine what the legal speed limit should be for those streets. The studies were necessary to update the speed limit traffic control orders, some of which are dated back to the 1960's. For purposes of this report, only those City streets delineated on the attached map and described in detail on supporting documents were studied. The remainder of the City major streets will be studied in the spring of 2011.

These studies are necessary to ensure compliance with Public Act 85, enacted by the state legislature in 2006. Public Act 85 requires municipalities in Michigan to conduct speed limit studies in order to set proper speed limits.

These studies are only being done on streets under the jurisdiction of the City of Troy. Establishing speed limit studies on streets under the jurisdiction of the Road Commission for Oakland County or the Michigan Department of Transportation is the responsibility of each of those agencies and the Michigan State Police, with the City of Troy having no authority to establish speed limits on those roads.

It should be noted that, by law, a Michigan municipality **must set** speed limits by conducting a speed limit study. The result of the study establishes a proper speed limit. Arbitrarily setting the speed limit lower would result in a speed limit that is not enforceable under current Michigan law.



CITY COUNCIL AGENDA ITEM

The results of the studies conducted by the Traffic Improvement Association indicates that speed limits on the City of Troy roads studied need to be increased from their present limits, with the exception of two miles of roadway that would remain at its current posted speed limit.

The updated speed limits for the roads studied by the Traffic Improvement Association are:

			<u>Current Speed</u>
1. Coolidge Highway from South Boulevard to the South City Limit.			
a.	South Boulevard to Square Lake Road	-	45 MPH
b.	Square Lake to Long Lake Road	-	45 MPH
c.	Long Lake Road to Wattles Road	-	45 MPH
d.	Wattles Road to Big Beaver Road	-	45 MPH
e.	Big Beaver Road to Derby Street	-	40 MPH
f.	Derby Street to Maple Road (incl. Birmingham)	-	40 MPH
g.	Maple Road to the South City Limit	-	40 MPH
2. Rochester Road from Stephenson Highway to Elmwood/Badder.			
a.	Stephenson Highway to Maple Road	-	45 MPH
b.	Maple Road to Elmwood/Badder	-	45 MPH
3. Square Lake Road from Adams Road to Dequindre Road.			
a.	Adams Road to Coolidge Highway	-	45 MPH
b.	Coolidge Highway to Crooks Road	-	45 MPH
c.	Crooks Road to Livernois Road	-	45 MPH
d.	Livernois Road to Rochester Road	-	45 MPH
e.	Rochester Road to John R Road	-	45 MPH
f.	John R Road to Dequindre Road	-	45 MPH
4. Wattles Road from Adams Road to Livernois Road.			
a.	Adams Road to Coolidge Highway	-	45 MPH
b.	Coolidge Highway to Crooks Road	-	45 MPH
c.	Crooks Road to Livernois Road	-	45 MPH

The results of the Traffic Improvement Association studies were presented and discussed at the Troy Traffic Committee meeting on January 19, 2011, with the Committee members voting in support of the speed limit changes.

The cost associated with changing approximately sixty-seven (67) speed limit signs will be about \$ 3,700.00. The cost is \$ 55.00 per sign and can be done by the DPW.



CITY COUNCIL AGENDA ITEM

Recommendation

That the speed limits as represented in the study results be implemented in order for the City of Troy to be in compliance with Public Act 85, thereby updating our speed limit traffic control orders.

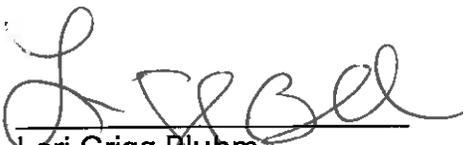
Fund Availability

The funds used for installing the updated signs are available and will come out of the **Major Road Sign Fund**.

City Attorney's Review as to Form and Legality

Public Act 85 requires municipalities in Michigan to conduct studies to set proper speed limits. The access point method, or engineering study, are both allowed under this law. The modified speed limits become effective when a Traffic Control Order (TCO) has been signed, a copy of the TCO has been filed with the City Clerk's Office, and the updated speed limit signs have been installed.

Approved as to Form and Legality:


Lori Grigg Bluhm

3/23/2011
Date

RESOLUTION:

WHEREAS, Public Act 85 of the State of Michigan, requires municipalities in Michigan to conduct studies to set proper speed limits; and

WHEREAS, The Traffic Improvement Association has conducted speed limit studies on City of Troy roads for purposes of establishing proper speed limits:

THEREFORE, BE IT RESOLVED, That Troy City Council hereby **APPROVES** the speed limits set forth in the following road segments:

1. Coolidge Highway from South Boulevard to the South City Limit.
 - a. South Boulevard to Square Lake Road - 45 MPH
 - b. Square Lake to Long Lake Road - 45 MPH
 - c. Long Lake Road to Wattles Road - 45 MPH
 - d. Wattles Road to Big Beaver Road - 45 MPH
 - e. Big Beaver Road to Derby Street - 40 MPH
 - f. Derby Street to Maple Road (incl.Birmingham) - 40 MPH
 - g. Maple Road to the South City Limit - 40 MPH

2. Rochester Road from Stephenson Highway to Elmwood/Badder.
 - a. Stephenson Highway to Maple Road - 45 MPH
 - b. Maple Road to Elmwood/Badder - 45 MPH

3. Square Lake Road from Adams Road to Dequindre Road.
 - a. Adams Road to Coolidge Highway - 45 MPH
 - b. Coolidge Highway to Crooks Road - 45 MPH
 - c. Crooks Road to Livernois Road - 45 MPH
 - d. Livernois Road to Rochester Road - 45 MPH
 - e. Rochester Road to John R Road - 45 MPH
 - f. John R Road to Dequindre Road - 45 MPH

4. Wattles Road from Adams Road to Livernois Road.
 - a. Adams Road to Coolidge Highway - 45 MPH
 - b. Coolidge Highway to Crooks Road - 45 MPH
 - c. Crooks Road to Livernois Road - 45 MPH

BE IT FURTHER RESOLVED, That Troy City Council hereby **AUTHORIZES** the City of Troy Traffic Engineer to establish updated Traffic Control Orders to reflect the speed limit changes in the road segments listed in this resolution.

YES:

NO:

A regular meeting of the Troy Traffic Committee was held Wednesday, January 19, 2011 in the Lower Level Conference Room at Troy City Hall. Pete Ziegenfelder called the meeting to order at 7:30 p.m.

1. Roll Call

PRESENT: Sarah Binkowski
John Diefenbaker
Ted Halsey
Richard Kilmer
Gordon Schepke
Pete Ziegenfelder

ABSENT: Jan Hubbell

Also present: Bill Huotari, Deputy City Engineer
Lt. David Livingston, Troy Police Dept.
Lt. Eric Caloia, Troy Fire Dept.

2. Minutes – August 18, 2010**RESOLUTION 2011-01-01**

Moved by Kilmer
Seconded by Schepke

To approve the August 18, 2010 minutes.

YES: All-6
NO: None
ABSENT: 1 (Hubbell)
MOTION CARRIED

REGULAR BUSINESS**3. Major Road Speed Limit Changes**

The Traffic Improvement Association (TIA) has performed studies to determine speed limits that should be updated on certain City roads, and recommends changes. See attached report.

- a. **RESOLUTION 2011-01-02**
Moved by Halsey
Seconded by Schepke

To recommend that the speed limit on Coolidge Road, from the south City limits to Big Beaver, be set at 40 mph, based on the results of an engineering study performed by TIA, using the 85th percentile speed.

YES: All-6
 NO: None
 ABSENT: 1 (Hubbell)
 MOTION CARRIED

b. RESOLUTION 2011-01-03

Moved by Halsey
 Seconded by Kilmer

To recommend that the speed limit on Coolidge Road, from Big Beaver to South Boulevard, be set at 45 mph, based on the results of an engineering study performed by TIA, using the 85th percentile speed.

YES: All-6
 NO: None
 ABSENT: 1 (Hubbell)
 MOTION CARRIED

c. RESOLUTION 2011-01-04

Moved by Diefenbaker
 Seconded by Binkowski

To recommend that the speed limit on Rochester Road, from Elmwood/Badder (south City limits) to Stephenson Highway, be set at 45 mph, based on the results of an engineering study performed by TIA, using the 85th percentile speed.

YES: All-6
 NO: None
 ABSENT: 1 (Hubbell)
 MOTION CARRIED

d. RESOLUTION 2011-01-05

Moved by Halsey
 Seconded by Binkowski

To recommend that the speed limit on Square Lake Road, from Adams to Dequindre Road, be set at 45 mph, based on the results of an engineering study performed by TIA, using the 85th percentile speed.

YES: All-6
 NO: None
 ABSENT: 1 (Hubbell)
 MOTION CARRIED

e. RESOLUTION 2011-01-06

Moved by Binkowski
Seconded by Halsey

To recommend that the speed limit on Wattles Road, from Adams to Livernois Road, be set at 45 mph, based on the results of an engineering study performed by TIA, using the 85th percentile speed.

YES: All-6
NO: None
ABSENT: 1 (Hubbell)
MOTION CARRIED

4. Public Comment

No one wished to address the committee.

5. Other Business

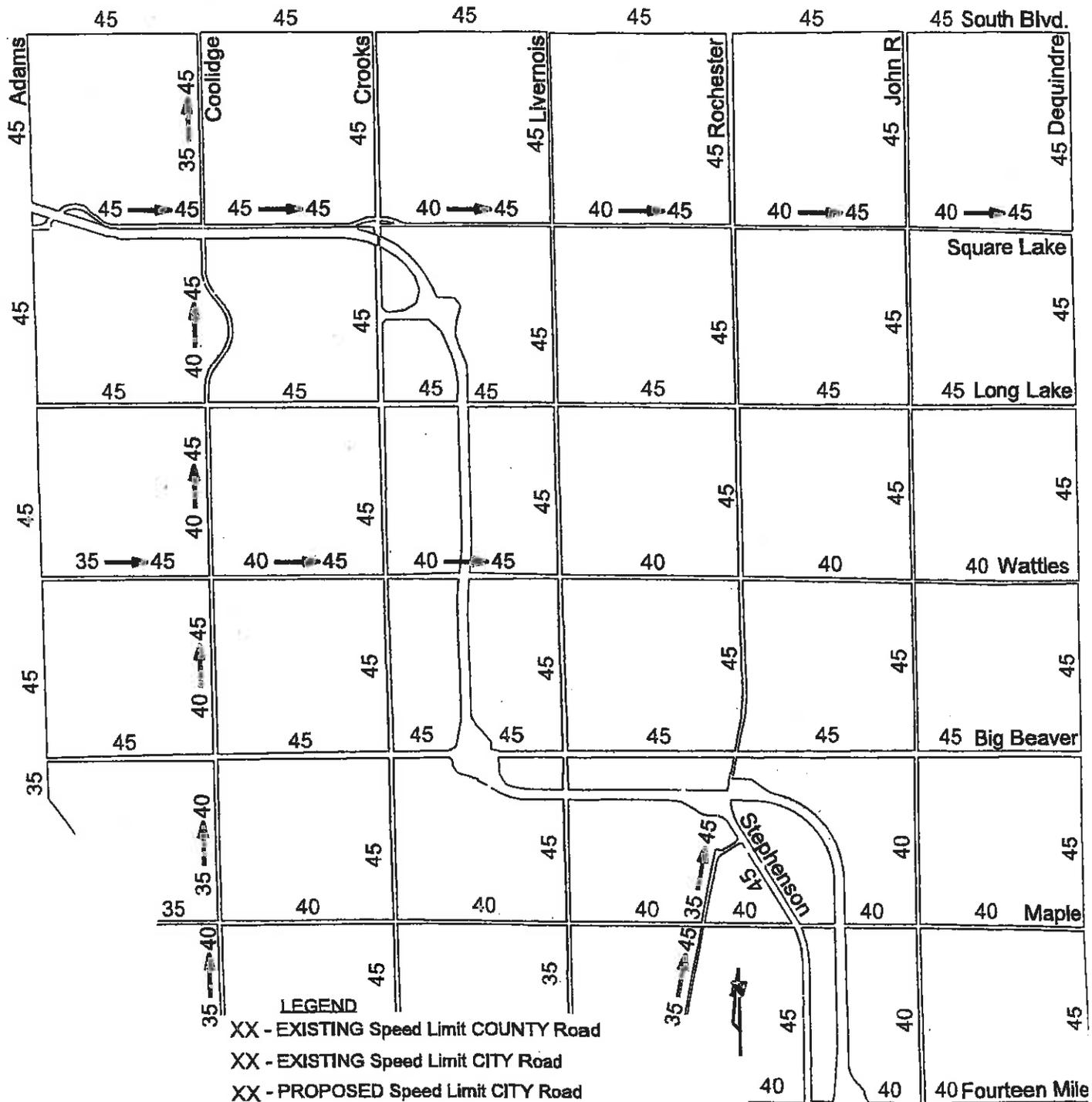
Mr. Halsey mentioned that there is a turnaround in the median directly opposite Tim Horton's on Rochester Road. He has observed traffic leaving Tim Horton's and dangerously driving straight across three lanes of traffic to get to the turnaround. Lt. Livingston will have officers investigate. There may be a need for "right turn only" signs to prevent crashes.

6. Adjourn

The meeting adjourned at 8:00 p.m.

Pete Ziegenfelder, Chairperson

Laurel Nottage, Recording Secretary



Act No. 85
Public Acts of 2006
Approved by the Governor
April 2, 2006
Filed with the Secretary of State
April 3, 2006
EFFECTIVE DATE: November 9, 2006

**STATE OF MICHIGAN
93RD LEGISLATURE
REGULAR SESSION OF 2006**

**Introduced by Reps. Palmer, Hoogendyk, Byrnes, Jones, Nofs, Hansen, Green, Vander Veen, Stahl, Drolet,
Gosselin, Taub, Walker and Casperson**

ENROLLED HOUSE BILL No. 5240

AN ACT to amend 1949 PA 300, entitled "An act to provide for the registration, titling, sale, transfer, and regulation of certain vehicles operated upon the public highways of this state or any other place open to the general public or generally accessible to motor vehicles and distressed vehicles; to provide for the licensing of dealers; to provide for the examination, licensing, and control of operators and chauffeurs; to provide for the giving of proof of financial responsibility and security by owners and operators of vehicles; to provide for the imposition, levy, and collection of specific taxes on vehicles, and the levy and collection of sales and use taxes, license fees, and permit fees; to provide for the regulation and use of streets and highways; to create certain funds; to provide penalties and sanctions for a violation of this act; to provide for civil liability of owners and operators of vehicles and service of process on residents and nonresidents; to provide for the levy of certain assessments; to provide for the enforcement of this act; to provide for the creation of and to prescribe the powers and duties of certain state and local agencies; to impose liability upon the state or local agencies; to provide appropriations for certain purposes; to repeal all other acts or parts of acts inconsistent with this act or contrary to this act; and to repeal certain parts of this act on a specific date," by amending sections 5, 627, 628, 629, and 629c (MCL 257.5, 257.627, 257.628, 257.629, and 257.629c), section 627 as amended by 2006 PA 19, section 628 as amended by 2003 PA 65, section 629 as amended by 1988 PA 368, and section 629c as amended by 1996 PA 320; and to repeal acts and parts of acts.

The People of the State of Michigan enact:

Sec. 5. (1) "Business district" means an area contiguous to a highway where the total widths of the adjacent buildings in use for commercial business open to the general public on both sides occupy 50% or more of the total frontage on both sides for a distance of 600 feet or more.

(2) As used in this section, "commercial business" does not include a home-based business conducted from a residence or domicile, but does include a multi-use building in which a commercial business open to the general public is operated on the ground floor and residential apartments exist on upper floors.

Sec. 627. (1) A person operating a vehicle on a highway shall operate that vehicle at a careful and prudent speed not greater than nor less than is reasonable and proper, having due regard to the traffic, surface, and width of the highway and of any other condition then existing. A person shall not operate a vehicle upon a highway at a speed greater than that which will permit a stop within the assured, clear distance ahead.

(2) Except in those instances where a lower speed is specified in this chapter or the speed is unsafe pursuant to subsection (1), it is prima facie lawful for the operator of a vehicle to operate that vehicle at a speed not exceeding the following, except when this speed would be unsafe:

(a) 25 miles per hour on all highways in a business district as that term is defined in section 5.

(b) 25 miles per hour in public parks unless a different speed is fixed and duly posted.

(c) 25 miles per hour on all highways or parts of highways within the boundaries of land platted under the land division act, 1967 PA 288, MCL 560.101 to 560.293, or the condominium act, 1978 PA 59, MCL 559.101 to 559.276, unless a different speed is fixed and posted.

(d) 25 miles per hour on a highway segment with 60 or more vehicular access points within 1/2 mile.

(e) 35 miles per hour on a highway segment with not less than 45 vehicular access points but no more than 59 vehicular access points within 1/2 mile.

(f) 45 miles per hour on a highway segment with not less than 30 vehicular access points but no more than 44 vehicular access points within 1/2 mile.

(3) It is prima facie unlawful for a person to exceed the speed limits prescribed in subsection (2), except as provided in section 629.

(4) A person operating a vehicle in a mobile home park as defined in section 2 of the mobile home commission act, 1987 PA 96, MCL 125.2302, shall operate that vehicle at a careful and prudent speed, not greater than a speed that is reasonable and proper, having due regard for the traffic, surface, width of the roadway, and all other conditions existing, and not greater than a speed that permits a stop within the assured clear distance ahead. It is prima facie unlawful for the operator of a vehicle to operate that vehicle at a speed exceeding 15 miles an hour in a mobile home park as defined in section 2 of the mobile home commission act, 1987 PA 96, MCL 125.2302.

(5) A person operating a passenger vehicle drawing another vehicle or trailer shall not exceed the posted speed limit.

(6) Except as otherwise provided in this subsection, a person operating a truck with a gross weight of 10,000 pounds or more, a truck-tractor, a truck-tractor with a semi-trailer or trailer, or a combination of these vehicles shall not exceed a speed of 55 miles per hour on highways, streets, or freeways and shall not exceed a speed of 35 miles per hour during the period when reduced loadings are being enforced in accordance with this chapter. However, a person operating a school bus, a truck, a truck-tractor, or a truck-tractor with a semi-trailer or trailer described in this subsection shall not exceed a speed of 60 miles per hour on a freeway if the maximum speed limit on that freeway is 70 miles per hour.

(7) Except as otherwise provided in subsection (6), a person operating a school bus shall not exceed the speed of 55 miles per hour.

(8) The maximum rates of speeds allowed under this section are subject to the maximum rate established under section 629b.

(9) A person operating a vehicle on a highway, when entering and passing through a work zone described in section 79d(a) where a normal lane or part of the lane of traffic has been closed due to highway construction, maintenance, or surveying activities, shall not exceed a speed of 45 miles per hour unless a different speed limit is determined for that work zone by the state transportation department, a county road commission, or a local authority, based on accepted engineering practice. The state transportation department, a county road commission, or a local authority shall post speed limit signs in each work zone described in section 79d(a) that indicate the speed limit in that work zone and shall identify that work zone with any other traffic control devices necessary to conform to the Michigan manual of uniform traffic control devices. A person shall not exceed a speed limit established under this section or a speed limit established under section 628 or 629.

(10) Subject to subsections (1) and (2)(c), speed limits established pursuant to this section are not valid unless properly posted. In the absence of a properly posted sign, the speed limit in effect shall be the general speed limit pursuant to section 628(1).

(11) Nothing in this section prevents the establishment of an absolute speed limit pursuant to section 628. Subject to subsection (1), an absolute speed limit established pursuant to section 628 supersedes a prima facie speed limit established pursuant to this section.

(12) Nothing in this section shall be construed as justification to deny a traffic and engineering investigation.

(13) As used in this section, "vehicular access point" means a driveway or intersecting roadway.

(14) A person who violates this section is responsible for a civil infraction.

Sec. 628. (1) If the state transportation department and the department of state police jointly determine upon the basis of an engineering and traffic investigation that the speed of vehicular traffic on a state trunk line highway is greater or less than is reasonable or safe under the conditions found to exist at an intersection or other place or upon a part of the highway, the departments acting jointly may determine and declare a reasonable and safe maximum or minimum speed limit on that state trunk line highway or intersection that shall be effective at the times determined

when appropriate signs giving notice of the speed limit are erected at the intersection or other place or part of the highway. The maximum speed limit on all highways or parts of highways upon which a maximum speed limit is not otherwise fixed under this act is 55 miles per hour, which shall be known and may be referred to as the "general speed limit".

(2) If the county road commission, the township board, and the department of state police unanimously determine upon the basis of an engineering and traffic investigation that the speed of vehicular traffic on a county highway is greater or less than is reasonable or safe under the conditions found to exist upon any part of the highway, then acting unanimously they may establish a reasonable and safe maximum or minimum speed limit on that county highway that is effective at the times determined when appropriate signs giving notice of the speed limit are erected on the highway. A township board that does not wish to continue as part of the process provided by this subsection shall notify in writing the county road commission. As used in this subsection, "county road commission" means the board of county road commissioners elected or appointed under section 6 of chapter IV of 1909 PA 283, MCL 224.6, or, in the case of a charter county with a population of 2,000,000 or more with an elected county executive that does not have a board of county road commissioners, the county executive.

(3) If a superintendent of a school district determines that the speed of vehicular traffic on a state trunk line or county highway, which is within 1,000 feet of a school in the school district of which that person is the superintendent, is greater or less than is reasonable or safe, the officials identified in subsection (1) or (2), as appropriate, shall include the superintendent of the school district affected in acting jointly in determining and declaring a reasonable and safe maximum or minimum speed limit on that state trunk line or county highway.

(4) In the case of a county highway of not less than 1 mile with residential lots with road frontage of 300 feet or less along either side of the highway for the length of that part of the highway that is under review for a proposed change in the speed limit, the township board may petition the county road commission or in charter counties where there is no road commission, but there is a county board of commissioners, the township board may petition the county board of commissioners for a proposed change in the speed limit. The county road commission or in charter counties where there is no road commission, but there is a county board of commissioners, the township board may petition the county board of commissioners to approve the proposed change in the speed limit without the necessity of an engineering and traffic investigation.

(5) If upon investigation the state transportation department or county road commission and the department of state police find it in the interest of public safety, they may order the township board, or city or village officials to erect and maintain, take down, or regulate the speed control signs, signals, or devices as directed, and in default of an order the state transportation department or county road commission may cause the designated signs, signals, and devices to be erected and maintained, taken down, regulated, or controlled, in the manner previously directed, and pay for the erecting and maintenance, removal, regulation, or control of the sign, signal, or device out of the highway fund designated.

(6) A public record of all speed control signs, signals, or devices authorized under this section shall be filed in the office of the county clerk of the county in which the highway is located, and a certified copy shall be prima facie evidence in all courts of the issuance of the authorization. The public record with the county clerk shall not be required as prima facie evidence of authorization in the case of signs erected or placed temporarily for the control of speed or direction of traffic at points where construction, repairs, or maintenance of highways is in progress, or along a temporary alternate route established to avoid the construction, repair, or maintenance of a highway, if the signs are of uniform design approved by the state transportation department and the department of state police and clearly indicate a special control, when proved in court that the temporary traffic control sign was placed by the state transportation department or on the authority of the state transportation department and the department of state police or by the county road commission or on the authority of the county road commission, at a specified location.

(7) A person who fails to observe an authorized speed or traffic control sign, signal, or device is responsible for a civil infraction.

(8) Except as otherwise provided in this section, the maximum speed limit on all freeways shall be 70 miles per hour except that if the state transportation department and the department of state police jointly determine upon the basis of an engineering and traffic investigation that the speed of vehicular traffic on a freeway is greater or less than is reasonable or safe under the conditions found to exist upon a part of the freeway, the departments acting jointly may determine and declare a reasonable and safe maximum or minimum speed limit on that freeway that is not more than 70 miles per hour but not less than 55 miles per hour and that shall be effective when appropriate signs giving notice of the speed limit are erected. The minimum speed limit on all freeways is 55 miles per hour except if reduced speed is necessary for safe operation or in compliance with law or in compliance with a special permit issued by an appropriate authority.

(9) The maximum rates of speed allowed under this section are subject to the maximum rates established under section 629b, section 627(5) to (7) for certain vehicles and vehicle combinations, and section 629(4).

(10) Except for the general speed limit described in subsection (1), speed limits established pursuant to this section shall be known as absolute speed limits.

Sec. 629. (1) Local authorities may establish or increase the prima facie speed limits on highways under their jurisdiction subject to the following limitations:

(a) A highway within a business district on which the prima facie speed limit is increased shall be designated a through highway at the entrance to which vehicles shall be required to stop before entering, except that where 2 of these through highways intersect, local authorities may require traffic on only 1 highway to stop before entering the intersection.

(b) The local authorities shall place and maintain, upon all through highways in which the permissible speed is increased, adequate signs giving notice of the special regulations and shall also place and maintain upon each highway intersecting a through highway, appropriate signs which shall be reflectorized or illuminated at night.

(c) Local authorities may establish prima facie lawful speed limits on highways outside of business districts that are consistent with the limits established in section 627(2).

(2) The state transportation department shall establish the speed upon all trunk line highways located within cities and villages as follows:

(a) A written copy of the authorization or determination shall be filed in the office of the county clerk of the county or counties where the highway is located and a certified copy of the authorization or determination shall be prima facie evidence in all courts of the issuance of the authorization or determination.

(b) When the state transportation department increases the speed upon a trunk line highway as provided in this act, subject to section 627a, the state transportation department shall place and maintain upon these highways adequate signs giving notice of the permissible speed fixed by the state transportation commission.

(3) Local authorities are authorized to decrease the prima facie speed limits to not less than 15 miles per hour in public parks under their jurisdiction. A decrease in the prima facie speed limits is binding when adequate signs are duly posted giving notice of the reduced speeds.

(4) Local authorities are authorized to decrease the prima facie speed limits to not less than 25 miles an hour on each street or highway under their jurisdiction that is adjacent to a publicly owned park or playground. A decrease in the prima facie speed limits is binding when adequate signs are duly posted giving notice of the reduced speeds. As used in this subsection, "local authority" includes the county road commission with the concurrence of the township board of a township for a street or highway within the boundaries of the township.

(5) The maximum rates of speed allowed under this section are subject to the maximum rate established under section 629b.

(6) A person who exceeds a lawful speed limit established under this section is responsible for a civil infraction.

(7) As used in this section, "local authority" means the governing body of a city or village, except as provided in subsection (4).

Sec. 629c. (1) Notwithstanding sections 320a and 907, a person who is determined responsible or responsible "with explanation" for a civil infraction for violating the maximum speed limit on a limited access freeway or part of a limited access freeway upon which the maximum speed limit is 55 miles per hour or more shall be ordered by the court to pay a minimum fine and shall have points entered on his or her driving record by the secretary of state only according to the following schedule, except as otherwise provided in subsections (2) and (3):

<u>Number of miles per hour that the vehicle exceeded the applicable speed limit at the time of the violation</u>	<u>Points</u>	<u>Minimum Fine</u>
1 to 5	0	\$10.00
6 to 10	1	\$20.00
11 to 15	2	\$30.00
16 to 25	3	\$40.00
26 or over	4	\$50.00

(2) Subsection (1) does not apply to a person operating a vehicle or vehicle combination for which the maximum rate of speed is established pursuant to section 627(5) to (7).

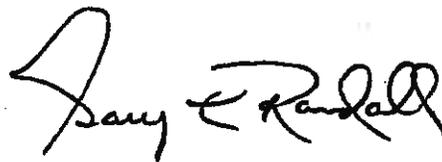
(3) For a violation of a maximum speed limit on a limited access freeway by a person operating a vehicle or vehicle combination described in subsection (2), points shall be assessed under section 320a and fines shall be assessed under section 907.

Enacting section 1. Sections 51 and 627b of the Michigan vehicle code, 1949 PA 300, MCL 257.51 and 257.627b, are repealed.

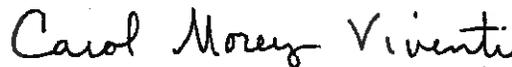
Enacting section 2. This amendatory act takes effect November 9, 2006.

Enacting section 3. This amendatory act does not take effect unless House Bill No. 5241 of the 93rd Legislature is enacted into law.

This act is ordered to take immediate effect.



Clerk of the House of Representatives



Secretary of the Senate

Approved _____

Governor



TRAFFIC IMPROVEMENT ASSOCIATION

261 E. MAPLE ROAD • BIRMINGHAM, MICHIGAN 48009

PHONE: (248) 334-4971 • FAX: (248) 530-0006

www.tiami.us

"QUALITY TRAFFIC SAFETY SERVICES SINCE 1967"

January 4, 2011

David Livingston
Lieutenant
Troy Police Department
500 W. Big Beaver Road
Troy Michigan 48084

Dear Lt. Livingston:

At your request the Traffic Improvement Association (TIA) studied several streets in the City of Troy to determine, by engineering study, what the speed limit should be on these streets. The need for the speed limit studies is to update the speed limit traffic control orders that the city enacted on various city streets in the 1960's through the 1980's, when Troy was still a developing city. In 2006 the state legislature enacted Public Act 85 of 2006 in which the law governing the establishment of speed limits was changed. PA 85 of 2006 revised the language on business district, removed the language on residence district and added the use of access points as an alternative method to conducting an engineering study to establish speed limits. The speed limit studies being conducted for the city are a result of the revised law based on PA 85 of 2006. It should also be noted that speed limits are being reviewed on only city streets as part of this study. Establishing speed limits on roads under the jurisdiction of either the Road Commission for Oakland County (RCOC) or the Michigan Department of Transportation (MDOT) is the responsibility of each of those agencies and the Michigan State Police with the city having no authority to establish speed limits on those roads.

Local Authorities/Cities receive their authority for establishing speed limits from the "Uniform Traffic Code for Cities, Townships and Villages" dated November, 2003. The section specified for this by the Michigan State Police is section "R 28.1153 Rule 153. Traffic-control orders." This section gives the traffic engineer/chief of police the right to exercise the authority in the Act and this code to regulate traffic by the issuance of traffic-control orders that shall specify the rules and regulations adopted or established by him or her. It also states that all traffic control orders issued by the traffic engineer, whether temporary or permanent, shall be in accordance with standard and accepted engineering practices as adopted in "R 28.1126. Duties of traffic engineer." R 28.1126 also states that all duties carried out by the traffic engineer shall be in accordance with standard and accepted engineering practices as found in the Traffic Engineering Handbook, Fifth Edition, which is adopted by reference in these rules.

The Traffic Engineering Handbook 5th Edition was developed by the Institute of Transportation Engineers (ITE). In the handbook it states that the following items are part of the process to develop speed zones:

- Prevailing vehicles speeds,
- Physical features of the roadway,

- Traffic control characteristics
- Crash experience, and
- Conditions not readily apparent to the driver.

The Traffic Engineering Handbook also states: "Typically, prevailing speeds are the primary determinant of the speed zone, with adjustments applied as judged appropriate for the remaining factors." The handbook also states that the MUTCD (Manual of Uniform Traffic Control Devices) indicates that the traffic and engineering investigation for a speed zone should consider the following:

- Road surface characteristics, shoulder condition, grade, alignment and sight distance;
- The 85th percentile speed and pace speed;
- Roadside development and culture as well as roadside friction;
- Safe speed for curve or hazardous locations within the zone;
- Parking practices and pedestrian activity; and
- Reported crash experience for a recent 12-mo period.

The primary measure computed from spot speed data for establishing speed zones is the 85th percentile speed of free-flowing traffic. The 85th percentile speed is that speed at which 85 percent of free-flowing vehicles are traveling at or below. Use of the 85th percentile speed is based on the theory that the large majority of drivers are reasonable and prudent, do not want to have a crash, and desire to reach their destination in the shortest time possible. The speed limit is then generally set at the nearest 5-mph increment at or below the 85th percentile speed. Another part of the speed study that is looked at is the pace, which is the 10-mph speed range representing the speeds of the largest percentage of vehicles. The upper limit of this pace is also a good indicator of an appropriate maximum speed limit. The following traffic control features should be identified as part of the speed zoning procedure. Control Features include:

- Crosswalks,
- Traffic signals,
- Parking characteristics/restrictions, and
- Turning restrictions.

The engineering studies done in regard to establishing speed limits on the requested streets included a speed study, a field review of each street and a review of the crashes on each street. Attached to this letter are the results of the studies of each street with the speed limit that should be considered to be posted on each street based on the engineering study. The basis for each of the suggested speed limits is the 85th percentile speed. The following are the streets that were studied and the suggested speed limits that should be considered to be implemented through the Traffic Control Order process:

1. Coolidge Highway from South Boulevard to South City Limit.
 - a. South Boulevard to Square Lake Road—45 MPH.
 - b. Square Lake Road to Long Lake Road—45 MPH.
 - c. Long Lake Road to Wattles—45 MPH.
 - d. Wattles to Big Beaver—45 MPH.

- e. Big Beaver to Derby—40 MPH.
- f. Derby to Maple Road—40 MPH. On this section of Coolidge Highway southbound Coolidge Highway is under jurisdiction of Birmingham and the establishment of the speed limit will need to be coordinated with the City of Birmingham.
- g. Maple Road to South City Limit—40 MPH.
- 2. Rochester Road from Stephenson Highway to Elmwood/Badder.
 - a. Stephenson Highway to Maple Road—45 MPH.
 - b. Maple Road to Elmwood/Badder—45 MPH.
- 3. Square Lake Road from Adams Road to Dequindre Road.
 - a. Adams Road to Coolidge Highway—45 MPH.
 - b. Coolidge Highway to Crooks Road—45 MPH.
 - c. Crooks Road to Livernois Road—45 MPH.
 - d. Livernois Road to Rochester Road—45 MPH.
 - e. Rochester Road to John R Road—45 MPH.
 - f. John R Road to Dequindre Road—45 MPH.
- 4. Wattles Road from Adams Road to Livernois Road.
 - a. Adams Road to Coolidge Highway—45 MPH.
 - b. Coolidge Highway to Crooks Road—45 MPH.
 - c. Crooks Road to Livernois Road—45 MPH.

Another method of determining speed limits in the State of Michigan is using the access point method found in Section 257.627 Speed Limits in the Michigan Vehicle Code. This section of the Michigan Vehicle Code allows the alternate method of access points to determine a speed limit on a road. The access point method for determining speed limits is:

- (c) 25 miles per hour on all highways or parts of highways within the boundaries of land platted under the land division act, 1967 PA 288, MCL 560.101 to 560.293, or the condominium act, 1978 PA 59, MCL 559.101 to 559.276, unless a different speed is fixed and posted.
- (d) 25 miles per hour on a highway segment with 60 or more vehicular access points within 1/2 mile.
- (e) 35 miles per hour on a highway segment with not less than 45 vehicular access points but no more than 59 vehicular access points within 1/2 mile.
- (f) 45 miles per hour on a highway segment with not less than 30 vehicular access points but no more than 44 vehicular access points within 1/2 mile.

Although this is an acceptable method to establish speed limits, the use of this method would result in the speed limit being 55 MPH on 14 sections of streets and 45 MPH on 4 sections of streets. This method, therefore, is not suggested to be used to establish the speed limits on streets in Troy.

Other issues were addressed as part of this review: reviewing horizontal curves for advisory speeds (see attached) in accordance with the Michigan MUTCD (MMUTCD) and determining if there is a need to change the School Speed Limits (see attached) on applicable sections of streets

where school speed limits exist.

1. As part of the study the horizontal curves on the various roads were reviewed in regard to the need for the addition/revision of advisory speeds. This review is done because changes in conditions, such as roadway geometrics (horizontal curve versus a straight section of road), might affect the speed at which that section of road can be driven versus a straight section of road. The method to advise the driver of this advisory speed is the posting of an Advisory Speed Panel sign under the curve/turn sign. The traditional method of determining an advisory speed for a horizontal curve is the use of the ball-bank indicator. The 2009 MUTCD (language will be adopted in the 2011 MMUTCD) has the following criteria for this method:

1. 16 degrees of ball-bank for speeds of 20 mph or less
2. 14 degrees of ball-bank for speeds of 25 to 30 mph
3. 12 degrees of ball-bank for speeds of 35 mph and higher

The 16, 14, and 12 degrees of ball-bank criteria are comparable to the current AASHTO horizontal curve design guidance. The review for advisory speeds on the various sections of road showed that, based on the ball-bank indicator readings, the following should be done:

- The advisory speed on the curve/turn on southbound Rochester Road at Stephenson Highway should be changed from 25 MPH to 20 MPH.
 - The advisory speed on the curve/turn on Rochester Road west of Stephenson Highway should be changed to 40 MPH when the speed limit is raised to 45 MPH.
 - The advisory speed of 40 MPH should be added for the curves on Square Lake Road east and west of Crooks Road when the speed limit is raised to 45 MPH.
2. In regard to school speed limits the only location on the streets being studied that has a school speed limit is on Square Lake Road east of Rochester Road at Troy Union Elementary School. Although the school speed limit should remain at 25 MPH due to no sidewalks east of the school, the electronic school speed limit signs will need to be changed to reflect the new 45 MPH speed limit. The estimated cost to change the signs is \$8,000, although a more detailed cost estimate should be obtained from RCOC.

If you have any questions, please feel free to contact me.

Sincerely,



David F. Allyn, P.E.
Traffic Engineer

Attachments

C: William Huotari

Coolidge Highway Speed Limit Study
South Boulevard to Square Lake
September 23, 2010

Road Name: Coolidge Highway
From: South Boulevard To: Square Lake Road
Length of Road Under Study: 1.1 miles
Roadway Width: 24 feet to 36 feet
Number of Lanes: 2-north end; 3-CLFLTO south end (Wyngate Dr.)
Surface Material: Asphalt
Shoulder Width and Materials: Asphalt and gravel/grass
Alignment: Straight
Stop Signs On Road: None
Advisory Signs: Deer signs
Development: residential and some commercial
Sidewalks: west side on north end; east side on south end
Private Drives: 12 Commercial Drives: 3
Intersections: 10 Signalized Intersections: 2
Bridges, RR X-ings, other: None
Date of Field Review: 8/5/2010
Existing TCO's: (Posted 35 MPH)
Volume Count/Date: 5,191 vpd ADT/May 17-19, 2010

Prima Facie-Access Point Method: 28 access points in 1.1 miles=12.7 per ½ mile. 55 MPH.

Speed Study: Location: 0.5 miles north of Square Lake Road
10 MPH Pace: 36-45 50th#: 41 85th#: 47 # of Vehs Counted: 9,793
Percent of vehicles > 35 MPH: 88.8%
Traffic Crash Data: 2007-2009: A-1, C-1, PDO-3; No Speeding Hazardous Action

Based on the data a speed limit of forty-five (45) miles per hour is suggested on Coolidge Highway from South Boulevard Road to Square Lake Road.

Coolidge Highway Speed Limit Study
Square Lake Road to Long Lake Road
September 23, 2010

Road Name: Coolidge Highway

From: Square Lake Road To: Long Lake Road

Length of Road Under Study: 1.1 miles

Roadway Width: 48 feet (includes integral gutter) except for 2-lane section at north end.

Number of Lanes: 4-lane boulevard except for 2-lane section at north end.

Surface Material: concrete

Shoulder Width and Materials: curb and gutter (integral gutter)

Alignment: Winding-3 long horizontal curves

Stop Signs On Road: None

Advisory Signs: Fire Truck; Divided Hwy Begins; Pedestrian; Divided Hwy Ends; Signal Ahead; Prepare to Stop When Flashing

Development: Residential & Fire Station

Sidewalks: Yes

Private Drives: 0 Commercial Drives: 5

Intersections: 5 Signalized Intersections: 2

Bridges, RR X-ings, other: I-75 Bridge over Coolidge; 1 bridge over stream

Date of Field Review: 8/5/2010

Existing TCO's: (Posted 40 MPH)

Volume Count/Date: 8,012 vpd ADT/May 24-26, 2010

Prima Facie-Access Point Method: 12 access points in 1.1 miles=6 per ½ mile. 55 MPH.

Speed Study: Location: 250 feet south of Northfield Parkway

10 MPH Pace: 38-47 50th%; 42 85th%; 47 # of Vehs Counted: 11,400

Percent of vehicles > 40 MPH: 60.3%

Traffic Crash Data: 2007-2009: A-1, C-2, PDO-13; 4 Speeding as Hazardous Action (3-loss of control; 1 hit animal; all were on icy roads)

Based on the data a speed limit of forty-five (45) miles per hour is suggested on Coolidge Highway from Square Lake Road to Long Lake Road.

Coolidge Highway Speed Limit Study
Long Lake to Wattles
September 23, 2010

Road Name: Coolidge Highway
From: Long Lake Road To: Wattles Road
Length of Road Under Study: 1.0 miles
Roadway Width: 44-48 feet
Number of Lanes: 4-lane boulevard
Surface Material: Concrete
Shoulder Width and Materials: curb & gutter (integral curb)
Alignment: Straight and rolling
Stop Signs On Road: None
Advisory Signs: None
Development: Residential but no frontage
Sidewalks: Yes
Private Drives: 11 Commercial Drives: 2
Intersections: 8 Signalized Intersections: 2
Bridges, RR X-ings, other: None
Date of Field Review: 8/5/2010
Existing TCO's: (Posted 40 MPH)
Volume Count/Date: 15,419 vpd ADT/May 24-26-2010

Prima Facie-Access Point Method: 23 access points in 1.0 miles=11.5 per ½ mile. 55 MPH.

Speed Study: Location: 0.5 miles south of Long Lake Road
10 MPH Pace: 39-48 50th%; 44 85th%; 48 # of Vehs Counted: 32,301
Percent of vehicles > 40 MPH: 77.8%

Traffic Crash Data: 2007-2009: 2-C, 11 PDO; 3 Speeding Hazardous Action (2 on snowy roads)

Based on the data a speed limit of forty-five (45) miles per hour is suggested on Coolidge Highway from Long Lake Road to Wattles Road.

Coolidge Highway Speed Limit Study
Wattles Road to Big Beaver Road
September 23, 2010

Road Name: Coolidge Highway
From: Wattles Road To: Big Beaver Road
Length of Road Under Study: 1.0 miles
Roadway Width: 44-48 feet
Number of Lanes: 4-lane boulevard
Surface Material: Concrete
Shoulder Width and Materials: C&G (integral gutter & some regular)
Alignment: Straight
Stop Signs On Road: None
Advisory Signs: None
Development: residential & commercial
Sidewalks: Yes
Private Drives: 12 Commercial Drives: 5
Intersections: 12 Signalized Intersections: 2
Bridges, RR X-ings, other: None
Date of Field Review: 8/5/2010
Existing TCO's: (Posted 40 MPH)
Volume Count/Date: 20,106 vpd ADT/May 24-26, 2010

Prima Facie-Access Point Method: 33 access points in 1 mile=16.5 per 1/2 mile. 55 MPH.

Speed Study: Location: 0.4 miles south of Wattles Road
10 MPH Pace: 38-47 50th %: 43 85th %: 47 # of Vehs Counted: 26,865
Percent of vehicles > 40 MPH: 70.1%

Traffic Crash Data: 2007-2009: 3-B, 4-C, 39 PDO; 10 angle, 18 rear-end, 12 sideswipe;
3 Speeding Hazardous Action (1-icy road, 1-snowy road)

Based on the data a speed limit of forty-five (45) miles per hour is suggested on Coolidge Highway from Wattles Road to Big Beaver Road.

Coolidge Highway Speed Limit Study
Big Beaver Road to Derby St.
September 23, 2010

Road Name: Coolidge Highway
From: Big Beaver Road To: Derby St.
Length of Road Under Study: 0.5 miles
Roadway Width: 24 Each Direction
Number of Lanes: 4 Lanes, Divided (2 Lanes Each Direction)
Surface Material: Asphalt
Shoulder Width and Materials: None, Curb
Alignment: Straight, and Flat
Stop Signs On Road: None
Advisory Signs: None
Development: Mixed
Sidewalks: Yes
Private Drives: 5 Commercial Drives: 5
Intersections: 4 Signalized Intersections: 2
Bridges, RR X-ings, other: None
Date of Field Review: August 24, 2010
Existing TCO's: (Posted 35 MPH)
Volume Count/Date: 29,826 vpd ADT/May 26-28, 2010

Prima Facie-Access Point Method: 15 access points in 0.5 miles. 55 MPH.

Speed Study: Location: 0.35 miles south of Big Beaver
10 MPH Pace: 35-44 50th%; 39 85th%; 43 # of Vehs Counted: 51,022
Percent of vehicles > 35 MPH: 78.8%
Traffic Crash Data: 2007-2009: 1-A, 6-C, 24 PDO; 0 Speeding Hazardous Action; 10 angle, 14
rear-end, 4 sideswipe

Based on the data a speed limit of forty (40) miles per hour is suggested on Coolidge Highway from Big Beaver Road to Derby St.

Coolidge Highway Speed Limit Study
Derby St. to Maple Road
September 23, 2010

Road Name: Coolidge Highway
From: Derby St. To: Maple Road
Length of Road Under Study: 0.5
Roadway Width: 24 Each Direction
Number of Lanes: 4, 2 Each Direction
Surface Material: Asphalt
Shoulder Width and Materials: None, Curb
Alignment: Straight, and Flat
Stop Signs On Road: None
Advisory Signs:
Development: None
Sidewalks: Yes
Private Drives: 21 Commercial Drives: 1
Intersections: 8 Signalized Intersections: 1
Bridges, RR X-ings, other: None
Date of Field Review: August 24, 2010
Existing TCO's: (Posted 35 MPH)
Volume Count/Date: 28,415 vpd ADT/May 26-28, 2010

Prima Facie-Access Point Method: 33 access points in 0.5 miles. 45 MPH.

Speed Study: Location: 150 feet north of Somerset Blvd.
10 MPH Pace: 33-42 50tho: 38 85tho: 43 # of Vehs Counted: 69,160
Percent of vehicles > 35 MPH: 69.7%
Traffic Crash Data: 2007-2009: 1-B, 6-C, 21 PDO; 0 Speeding Hazardous Action; 7 angle, 15 rear-end, 3 sideswipe

Based on the data a speed limit of forty (40) miles per hour is suggested on Coolidge Highway from Derby St. to Maple Road.

Coolidge Highway Speed Limit Study
Maple Road to Troy South City Limit
September 23, 2010

Road Name: Coolidge Highway
From: Maple Road To: Troy South City Limit
Length of Road Under Study: 0.5 miles
Roadway Width: 48, and 60 at Multiple Intersections
Number of Lanes: 4, 5 at Multiple Intersections
Surface Material: Asphalt
Shoulder Width and Materials: None, Curb
Alignment: Straight, Flat
Stop Signs On Road: None
Advisory Signs: NB: None SB: 1 End of Blvd, 2 Curve Arrows
Development: Mixed
Sidewalks: Yes
Private Drives: 0 Commercial Drives: 13
Intersections: 3 Signalized Intersections: 3
Bridges, RR X-ings, other: None
Date of Field Review: August 24, 2010
Existing TCO's: (Posted 35 MPH)
Volume Count/Date: 30,570 vpd ADT/May 26-28, 2010

Prima Facie-Access Point Method: 18 access points in 0.5 miles. 55 MPH.

Speed Study: Location: 0.27 miles south of Maple Road
10 MPH Pace: 35-44 50th%; 39 85th%; 44 # of Vehs Counted: 72,054
Percent of vehicles > 25 MPH:
Traffic Crash Data: 2007-2009: 1-B, 5-C, 44 PDO; 0 Speeding Hazardous Action; 12 angle, 19
rear-end, 11 sideswipe

Based on the data a speed limit of forty (40) miles per hour is suggested on Coolidge Highway from Maple Road to the Troy South City Limits.

Rochester Road Speed Limit Study
Stephenson Highway to Maple Road
September 23, 2010

Road Name: Rochester Road
From: Stephenson Highway To: Maple Road
Length of Road Under Study: 0.6 miles
Roadway Width: 48
Number of Lanes: 4
Surface Material: Concrete
Shoulder Width and Materials: No shoulder/Has curb
Alignment: Winding at Livernois, then Straight, and Flat
Stop Signs On Road: None
Advisory Signs: SB: 1 Curve Sign, 1 35, 6 Arrows
NB: 1 Curve Sign, 1 35, 1 Signal, 6 Arrows, All Traffic Must Turn Right
Development: Mixed
Sidewalks: Partial
Private Drives: 6 Commercial Drives: 16
Intersections: 9 Signalized Intersections: 2
Bridges, RR X-ings, other:
Date of Field Review: August 24, 2010
Existing TCO's: (35 Posted Speed)
Volume Count/Date: 10,187 vpd ADT/May 26-28, 2010

Prima Facie-Access Point Method: 33 access points in 0.6 miles=27.5 per ½ mile. 55 MPH.

Speed Study: Location: 0.25 miles north of Maple Road
10 MPH Pace: 36-45 50th#: 42 85th#: 47 # of Vehs Counted: 26,238
Percent of vehicles > 35 MPH: 87.8%

Traffic Crash Data: 2007-2009: 4-C, 9-PDO; 0 Speeding Hazardous Action; 3 angle, 3 rear-end,
6 sideswipe

Based on the data a speed limit of forty-five (45) miles per hour is suggested on Rochester Road from Stephenson Highway to Maple Road.

Rochester Road Speed Limit Study
Maple Road to Elmwood/Badder Roads
September 23, 2010

Road Name: Rochester Road
From: Maple Road To: Elmwood/Badder Roads
Length of Road Under Study: 0.5 miles
Roadway Width: 48/60 at Maple Intersection
Number of Lanes: 4, 5 at Maple Intersection
Surface Material: Asphalt
Shoulder Width and Materials: None, Has Curb
Alignment: Straight, and Flat
Stop Signs On Road: None
Advisory Signs: None
Development: Mixed
Sidewalks: Both Sides
Private Drives: 4 Commercial Drives: 28
Intersections: 7 Signalized Intersections: 2
Bridges, RR X-ings, other: None
Date of Field Review: August 24, 2010
Existing TCO's: (Posted 35 MPH)
Volume Count/Date: 14,273 vpd ADT/May 24-26, 2010

Prima Facie-Access Point Method: 39 access points in 0.5 miles. 45 MPH

Speed Study: Location: 0.2 miles south of Maple Road
10 MPH Pace: 38-47 50th%; 41 85th%; 47 # of Vehs Counted: 16,926
Percent of vehicles > 35 MPH: 89.8%
Traffic Crash Data: 2007-2009: 1-A, 2-C, 8-PDO; 0 Speeding Hazardous Action; 2 angle, 6
rear-end

Based on the data a speed limit of forty-five (45) miles per hour is suggested on Rochester Road from Maple Road to Elmwood/Badder Roads.

Square Lake Road Speed Limit Study
Adams Road to Coolidge Highway
December 14, 2010

Road Name: Square Lake Road
From: Adams Road To: Coolidge Highway
Length of Road Under Study: 1.1 miles
Roadway Width: 24, Except at 2 Intersections of 36
Number of Lanes: 2, 3 at Major Intersections
Surface Material: Asphalt
Shoulder Width and Materials: 1-3, Asphalt and Gravel
Alignment: Straight, Curve, Hill, Flat
Stop Signs On Road: No
Advisory Signs: EB: 1 Curve Left, 1 Curve Right, 1 14 Ft Overpass, 1 Deer, 1 Curve Right, 1 Curve Right, 1 Curve Left, 1 Curve Left, WB: 1 Curve Right, 1 Curve Right, 1 No Shoulder, 1 Deer, 1 Curve Left, 1 Curve Left, 1 14 Ft Overpass
Development: Mixed
Sidewalks: Yes
Private Drives: 7 Commercial Drives: 1
Intersections: 6 Signalized Intersections: 2, One at Each End
Bridges, RR X-ings, other: Overpass
Date of Field Review: August 24, 2010
Existing TCO's: (Posted 45 MPH)
Volume Count/Date: 6,669 vpd ADT/May 17-19, 2010

Prima Facie-Access Point Method: 16 access points in 1.1 miles=7.3 per ½ mile. 55 MPH.

Speed Study: Location: 0.35 miles west of Coolidge Highway
10 MPH Pace: 41-50 50th#: 45 85th#: 50 # of Vehs Counted: 12,042
Percent of vehicles > 45 MPH: 42.5%
Traffic Crash Data: 2007-2009: 1-C, 11-PDO; 3 Speeding Hazardous Action (1 on snowy road); 7 single vehicle

Based on the data a speed limit of forty-five (45) miles per hour is suggested on Square Lake Road from Adams Road to Coolidge Highway.

Square Lake Road Speed Limit Study
Coolidge Highway to Crooks Road
September 23, 2010

Road Name: Square Lake Road
From: Coolidge Highway To: Crooks Road
Length of Road Under Study: 1.0 miles
Roadway Width: 24-48
Number of Lanes: 2-4
Surface Material: Concrete
Shoulder Width and Materials: Partial Curb, 1-2 Feet Concrete
Alignment: Curve, Straight, Flat
Stop Signs On Road: None
Advisory Signs: WB: 1 Blvd, 1 Merge Left, 1 Bridge May Be Icy, 2 Guardrail EB: 1 Bridge
May Be Icy, 2 Guardrail, 1 Blvd
Development: Mixed
Sidewalks: Yes
Private Drives: 0 Commercial Drives: 3
Intersections: 5 Signalized Intersections: 2
Bridges, RR X-ings, other: None
Date of Field Review: August 24, 2010
Existing TCO's: (Posted 45 MPH)
Volume Count/Date: 12,201 vpd ADT/May 17-19, 2010

Prima Facie-Access Point Method: 10 access points in 1.0 miles=5 per ½ mile. 55 MPH.

Speed Study: Location: 0.46 miles east of Coolidge Highway
10 MPH Pace: 38-47 50th#: 42 85th#: 47 # of Vehs Counted: 22,632
Percent of vehicles > 45 MPH: 25.0%
Traffic Crash Data: 2007-2009: 1-A, 4-PDO; 0 Speeding Hazardous Action; 2 single vehicle, 1
angle, 2 rear-end

**Based on the data a speed limit of forty-five (45) miles per hour is suggested on Square
Lake Road from Coolidge Highway to Crooks Road.**

Square Lake Road Speed Limit Study
Crooks Road to Livernois Road
September 23, 2010

Road Name: Square Lake Road
From: Crooks Road To: Livernois Road
Length of Road Under Study: 1.0 miles
Roadway Width: 24 to 49
Number of Lanes: 2 on half, then 4
Surface Material: Concrete
Shoulder Width and Materials: 0-1, part curb
Alignment: Straight, Flat
Stop Signs On Road: No
Advisory Signs: WB: 1 Blvd Sign EB: 1 Lane End Merge Left, 2 Blvd Sign, 1 Merge Left, 3 Curve Arrow
Development: Mixed
Sidewalks: Yes
Private Drives: 27 Commercial Drives: 8
Intersections: 9 Signalized Intersections: 3
Bridges, RR X-ings, other: No
Date of Field Review: August 24, 2010
Existing TCO's: (Posted 40 MPH)
Volume Count/Date: 12,101 vpd ADT/May 17-19, 2010

Prima Facie-Access Point Method: 46 access points in 1.0 miles=23 per ½ mile. 55 MPH.

Speed Study: Location: 0.6 miles east of Crooks Road
10 MPH Pace: 38-47 50th#: 42 85th#: 47 # of Vehs Counted: 22,632
Percent of vehicles > 40 MPH: 63.4%
Traffic Crash Data: 2007-2009: 1-B, 1-C, 24 PDO; 2 Speeding Hazardous Action (both right turn vehicles); 6 single, 4 angle, 8 rear-end, 7 sideswipe

Based on the data a speed limit of forty-five (45) miles per hour is suggested on Square Lake Road from Crooks Road to Livernois Road.

Square Lake Road Speed Limit Study
Livernois Road to Rochester Road
September 23, 2010

Road Name: Square Lake Road
From: Livernois Road To: Rochester Road
Length of Road Under Study: 1.0 miles
Roadway Width: 24, with Occasional Flare Lane
Number of Lanes: 2
Surface Material: Asphalt
Shoulder Width and Materials: 0-1, Asphalt
Alignment: Straight, Flat
Stop Signs On Road: No
Advisory Signs: WB: 1 School EB: 1 School
Development: Mixed
Sidewalks: Yes
Private Drives: 51 Commercial Drives: 5
Intersections: 3 Signalized Intersections: 2, One at Each End
Bridges, RR X-ings, other: No
Date of Field Review: August 24, 2010
Existing TCO's: (Posted 40 MPH)
Volume Count/Date: 13,700 vpd ADT/May 19-21, 2010

Prima Facie-Access Point Method: 61 access points in 1.0 miles=30.5 per ½ mile. 45 MPH.

Speed Study: Location: 0.4 miles east of Livernois Road
10 MPH Pace: 39-48 50th#: 43 85th#: 49 # of Vehs Counted: 26,094
Percent of vehicles > 40 MPH: 69%
Traffic Crash Data: 2007-2009: 4-C, 20-PDO; 0 Speeding Hazardous Action; 7 single, 2 angle,
12 rear-end, 2 sideswipe

Based on the data a speed limit of forty-five (45) miles per hour is suggested on Square Lake Road from Livernois Road to Rochester Road.

Square Lake Road Speed Limit Study
Rochester Road to John R Road
September 23, 2010

Road Name: Square Lake Road
From: Rochester Road To: John R Road
Length of Road Under Study: 1.0 miles
Roadway Width: 24, 36 at Each Major Intersection
Number of Lanes: 2, 3 at Major Intersections
Surface Material: Asphalt
Shoulder Width and Materials: 0-1 foot, Asphalt
Alignment: Straight, Flat
Stop Signs On Road: No
Advisory Signs: WB: 1 Deer, 1 No Shoulder, 1 School, 1 Pedestrian EB: WB: 1 Deer, 1 No
Shoulder, 1 School, 1 Pedestrian
Development: Mixed
Sidewalks: Yes
Private Drives: 9 Commercial Drives: 12
Intersections: 7 Signalized Intersections: 2
Bridges, RR X-ings, other: No
Date of Field Review: August 24, 2010
Existing TCO's: (Posted 40 MPH)
Volume Count/Date: 11,805 vpd ADT/May 19-21, 2010

Prima Facie-Access Point Method: 28 access points in 1.0 mile=14 per ½ mile. 55 MPH.

Speed Study: Location: 0.6 miles east of Rochester Road
10 MPH Pace: 38-47 50th‰: 43 85th‰: 47 # of Vehs Counted: 22,538
Percent of vehicles > 40 MPH: 70.0%
Traffic Crash Data: 2007-2009: 1-B, 5-C, 22-PDO; 1 Speeding Hazardous Action (snowy
road); 7 single, 4 angle, 13 rear-end, 2 sideswipe

Based on the data a speed limit of forty-five (45) miles per hour is suggested on Square Lake Road from Rochester Road to John R Road.

Square Lake Road Speed Limit Study
John R Road to Dequindre Road
September 23, 2010

Road Name: Square Lake Road
From: John R Road To: Dequindre Road
Length of Road Under Study: 1.0 mile
Roadway Width: 24, with occasional flare lane
Number of Lanes: 2, except Dequindre and John R. Intersection (Have Turn Lanes)
Surface Material: Asphalt
Shoulder Width and Materials: 1-3 Feet, Asphalt
Alignment: Straight, and Flat
Stop Signs On Road: None
Advisory Signs: None
Development: Mixed
Sidewalks: Yes
Private Drives: 19 Commercial Drives: 5
Intersections: 9 Signalized Intersections: 2
Bridges, RR X-ings, other: None
Date of Field Review: August 24, 2010
Existing TCO's: (Posted 40 MPH)
Volume Count/Date: 10,255 vpd ADT/May 19-21, 2010

Prima Facie-Access Point Method: 35 access points in 1.0 miles=17.5 per ½ mile. 55 MPH.

Speed Study: Location: 0.4 miles east of John R Road
10 MPH Pace: 39-48 50tho: 43 85tho: 47 # of Vehs Counted: 20,507
Percent of vehicles > 40 MPH: 69.1%
Traffic Crash Data: 2007-2009: 1-B, 3-C, 2-PDO; 0 Speeding Hazardous Action; 4 single, 2
angle

Based on the data a speed limit of forty-five (45) miles per hour is suggested on Square Lake Road from John R Road to Dequindre Road.

Wattles Road Speed Limit Study
Adams Road to Coolidge Highway
September 23, 2010

Road Name: Wattles Road
From: Adams Road To: Coolidge Highway
Length of Road Under Study: 1.0 mile
Roadway Width: 24-36 feet
Number of Lanes: 2-3 lanes
Surface Material: Asphalt
Shoulder Width and Materials: paved, gravel/grass, curb & gutter
Alignment: Straight and rolling
Stop Signs On Road: None
Advisory Signs: Cross Road
Development: Residential
Sidewalks: Yes
Private Drives: 56 Commercial Drives: 0
Intersections: 10 Signalized Intersections: 2
Bridges, RR X-ings, other:
Date of Field Review: 8/5/10
Existing TCO's: (Posted 35 MPH)
Volume Count/Date: 8,000 vpd ADT/May 18-20, 2010

Prima Facie-Access Point Method: 70 access points in 1.0 miles=35 per ½ mile. 45 MPH

Speed Study: Location: 0.4 miles west of Coolidge Highway
10 MPH Pace: 38-47 50th%; 41 85th%; 46 # of Vehs Counted: 15,351
Percent of vehicles > 35 MPH: 88.8%

Traffic Crash Data: 2007-2009: 2-B, 1-C, 4-PDO; 0 Speeding Hazardous Action; 4 single, 1 angle, 1 rear-end; 1-sideswipe

Based on the data a speed limit of forty-five (45) miles per hour is suggested on Wattles Road from Adams Road to Coolidge Highway.

Wattles Road Speed Limit Study
Coolidge Highway to Crooks Road
September 23, 2010

Road Name: Wattles Road
From: Coolidge Highway To: Crooks Road
Length of Road Under Study: 1.0 mile
Roadway Width: 24-36 feet
Number of Lanes: 2-3 lanes
Surface Material: Asphalt
Shoulder Width and Materials: 5 feet; paved and gravel/grass; curb & gutter
Alignment: Straight and rolling
Stop Signs On Road: None
Advisory Signs: None
Development: Residential
Sidewalks: Yes
Private Drives: 17 Commercial Drives: 2
Intersections: 7 Signalized Intersections: 3
Bridges, RR X-ings, other: None
Date of Field Review: 8/5/2010
Existing TCO's: (Posted 40 MPH)
Volume Count/Date: 9,538 vpd ADT/May 19-21, 2010

Prima Facie-Access Point Method: 31 access points in 1.0 miles=15.5 per ½ mile. 55 MPH.

Speed Study: Location: 0.25 miles east of Coolidge Highway
10 MPH Pace: 41-50 50th#: 45 85th#: 49 # of Vehs Counted: 18,321
Percent of vehicles > 40 MPH: 82.4%
Traffic Crash Data: 2007-2009: 1-B, 1-C, 11 PDO; 1 Speeding Hazardous Action (icy road); 3
single, 4 angle, 6 rear-end

Based on the data a speed limit of forty-five (45) miles per hour is suggested on Wattles Road from Coolidge Highway to Crooks Road.

Wattles Road Speed Limit Study
Crooks Road to Livernois Road
September 23, 2010

Road Name: Wattles Road
From: Crooks Road To: Livernois Road
Length of Road Under Study: 1.0 mile
Roadway Width: 24-60 feet
Number of Lanes: 2-5 lanes
Surface Material: Asphalt
Shoulder Width and Materials: 5-6 feet mostly; 2' over bridge; 3' paved & gravel/grass;
Alignment: Straight and rolling
Stop Signs On Road: None
Advisory Signs: Lane Drop
Development: Residential and some churches
Sidewalks: Yes
Private Drives: 23 Commercial Drives: 5
Intersections: 7 Signalized Intersections: 2
Bridges, RR X-ings, other: 1 bridge
Date of Field Review: 8/5/2010
Existing TCO's: (Posted 40 MPH)
Volume Count/Date: 12,800 vpd ADT/May 24-26, 2010

Prima Facie-Access Point Method: 38 access points in 1.0 miles=19 per ½ mile. 55 MPH.

Speed Study: Location: 0.35 miles west of Livernois
10 MPH Pace: 39-48 50th#: 43 85th#: 47 # of Vehs Counted: 15,681
Percent of vehicles > 40 MPH: 65.6%
Traffic Crash Data: 2007-2009: 3-C, 19-PDO; 0 Speeding Hazardous Action; 4 single, 1 head-on/left, 16 rear-end

Based on the data a speed limit of forty-five (45) miles per hour is suggested on Wattles Road from Crooks Road to Livernois Road.

COOLIDGE HIGHWAY--ADVISORY SPEED STUDY

Coolidge N of Meijer Dr. (40 MPH)

Direction/ Curve #	Drive #	Ball Bank Reading
NB	1	7
NB	2	7.5
NB	3	10
SB	1	9.5
SB	2	10
SB	3	10

RESULT: NO ADVISORY SPEED NEEDED

Coolidge N of Long Lake (45 MPH)--South to North

Direction/ Curve #	Drive #	Ball Bank Reading			
NB1	1	7	SB1	1	10
NB1	2	10	SB1	2	9.5
NB1	3	9	SB1	3	9
NB2	1	7	SB2	1	7
NB2	2	7	SB2	2	7
NB2	3	7	SB2	3	7
NB3	1	8	SB3	1	8
NB3	2	9	SB3	2	9
NB3	3	10	SB3	3	8

RESULT: NO ADVISORY SPEEDS ARE NEEDED

Study done on October 19, 2010. Weather dry and in 60's.

ROCHESTER ROAD—ADVISORY SPEED STUDY

Rochester west of Stephenson (Currently posted with 35 MPH Advisory Speed)

Direction/ Curve #	Drive #	Ball Bank Reading 10/19/2010 45 MPH	Ball Bank Reading 12/20/2010 40 MPH
NB	1	12	10
NB	2	13.5	10
NB	3	11	10
NB	4	14	
WB	1	15	11.5
WB	2	15	11.5
WB	3	15	11.5

RESULT: ADVISORY SPEED OF 40 MPH SUGGESTED BASED ON BALL BANK READINGS WHEN SPEED LIMIT IS RAISED TO 45 MPH.

Study done on October 19, 2010 and December 20, 2010.

Rochester(SB to WB) at Stephenson (Currently posted with 25 MPH Advisory Speed)

Direction/ Curve #	Drive #	Ball Bank Reading 10/19/2010 25 MPH	Ball Bank Reading 12/20/2010 20 MPH
SB	1	16	10
SB	2	15	11
SB	3	17.5	11

RESULT: ADVISORY SPEED OF 20 MPH SUGGESTED BASED ON BALL BANK READINGS.

Study done on October 19, 2010 and December 20, 2010.

SQUARE LAKE ROAD--ADVISORY SPEED STUDY

Square Lake from Beach to Adams (No Advisory Speed Currently Posted)

Direction/ Curve #	Drive #	Ball Bank Reading 10/19/2010 45 MPH	Ball Bank Reading 12/20/2010 45 MPH	Direction/ Curve #	Drive #	Ball Bank Reading 10/19/2010 45 MPH	Ball Bank Reading 12/20/2010 45 MPH
EB1	1	9	12	WB1	1	9	9
EB1	2	9.5	11	WB1	2	8	10
EB1	3	9.5	12	WB1	3	8	10
EB2	1	11	9	WB2	1	11.5	12
EB2	2	10	9	WB2	2	12	11
EB2	3	10	10	WB2	3	12	11
EB3	1	14	9	WB3	1		6
EB3	2	13.5	9	WB3	2	12	6
EB3	3	14	9	WB3	3	10	7
EB3	4	12					

RESULT: NO ADVISORY SPEEDS ARE NEEDED

*Curves numbered east to west

Study done on October 19, 2010 and December 20, 2010.

Square Lake west of Crooks to east of Crooks (No Advisory Speed Currently Posted)

Direction/ Curve #	Drive #	Ball Bank Reading 10/19/2010 45 MPH	Ball Bank Reading 12/20/2010 45 MPH	Ball Bank Reading 12/20/2010 40 MPH	Ball Bank Reading 12/20/2010 40 MPH
EB1	1	10	10	9	
EB1	2	10	10		5
EB2	1	5	5	4	
EB2	2	5	5		4
EB3	1	10	12	9	
EB3	2	11	10	12	10
EB4	1	12	15	12	
EB4	2	12	14	8	8

Square Lake west of Crooks to east of Crooks (No Advisory Speed Currently Posted)

Direction/		Ball Bank Reading 10/19/2010	Ball Bank Reading 12/20/2010	Ball Bank Reading 12/20/2010	Ball Bank Reading 12/20/2010
Curve # Drive #		45 MPH	45 MPH Outside Ln	40 MPH Outside Ln	40 MPH Inner Ln
WB1	1	10	11.5	8.5	7
WB1	2	10		9	8
WB2	1	10	12	10	8
WB2	2	10		9.5	10
WB3	1	10	14	12	10
WB3	2	10		11.5	9
WB4	1	10	5	5	8
WB4	2	10		4.5	7

RESULT: ADVISORY SPEED OF 40 MPH SUGGESTED BASED ON NUMBERS.

*Curves numbered west to east

Study done on October 19, 2010 and December 20, 2010.