The Traffic Committee Meeting was called to order at 7:33 PM in the Lower Level Conference Room of Troy City Hall on January 20, 1988 by Chairman Arthur Cotsonika.

ITEM: 1 ROLL CALL

PRESENT: Arthur Cotsonika
John Diefenbaker
Ted Halsey
Robert Hanna
Peggie Perry
William Rudell

ABSENT: Sam Coleman

Also present were the following:

4- Paul Lyons, 2840 Rochester
Suk C. Nies, 2940 Rochester
John Hentschel, 2940 Rochester

8,9,10- Richard Smith, 5105 Beach Road

Don Townson, 2127 Garry Drive

and Richard F. Beaubien, Transportation Engineer
Robert Matlick, Fire Inspector

ITEM: 2 MINUTES - DECEMBER 16, 1987

Moved by Diefenbaker
Supported by Perry

Recommend that the minutes of the December 16, 1987 Traffic Committee meeting be approved as printed.

YEAS: 6 Cotsonika, Diefenbaker, Halsey, Hanna, Perry, Rudell
NAYS: 0
ABSENT: 1 Coleman

MOTION PASSED

ITEM: 3 VISITOR'S TIME

No one was present to discuss items not on the Agenda.

ITEM: 4 REVIEW ACCIDENT PATTERNS ON ROCHESTER ROAD, NEAR HENRIETTA

At the July, September, October, and November Traffic Committee Meetings, the pattern of accidents on Rochester Road near Henrietta was discussed. During 1986 there were 30 accidents on Rochester Road at Henrietta involving a left turn movement. Two accidents involved a left turn movement out of Henrietta onto Rochester, and 28 accidents involved left turns into Henrietta from southbound Rochester. At these meetings, the Committee discussed the possibility of prohibiting left turn movements into and out of Henrietta at Rochester Road as a means of addressing this accident problem. The Committee also reviewed the possibility of installing a continuous median island which would occupy the same area now used by the center left turn lane to physically prevent left turn movements into and out of driveways on both sides of Rochester Road.

At the November Traffic Committee Meeting, this item was tabled for 60 days to allow the Transportation Engineer to explore the possibility of an access easement through existing parking areas. This would provide a connection between Big Beaver Road and Henrietta to be used to enhance access in the event that left turn movements into and out of Henrietta at Rochester were prohibited. The attached drawing shows the potential location of such an access easement.

Mr. Beaubien reported that Mr. Hagelstein had called to say that he could not attend the meeting and that his legal counsel had advised him not to grant an access easement.

Mr. Halsey offered his opinion that no change should be made to traffic controls in this area until something else can be done.

Mrs. Perry asked about the possibility of a median on Rochester Road, north and south of Big Beaver, because she feels that indirect left turns are the only solution.

Mr. Beaubien stated that a preliminary plan showing which buildings will be affected has not yet been reviewed and he does not know if it will be approved.

Mr. Diefenbaker suggested taking the item off of the board for now but leaving it open should circumstances change or an alternate proposal is received in order to bring it back. Mr. Beaubien mentioned that it can be brought back up whenever the Committee wishes.

Moved by Diefenbaker
Supported by Halsey

Recommend that no action be taken to change traffic regulations on Rochester Road at Henrietta.

YEAS:	6	Cotsonika, Diefenbaker, Halsey, Hanna, Perry, Rudell
NAYS:	0	
ABSENT:	1	Coleman

MOTION PASSED

ITEM: 5 INSTALL LEFT TURN PHASE AT LONG LAKE/LIVERNOIS INTERSECTION

Mr. Gene Christensen, 377 Lange, has requested the installation of a left hand arrow for westbound Long Lake traffic to execute a left hand turn to become southbound on Livernois.

Although there are no nationally established warrants for left turn phasing mandated by the Manual on Uniform Traffic Control Devices, many states and local agencies have developed their own guidelines for utilizing left turn phasing. Many of these warrants cite numerical values related to volume, delay, or accidents. Conditions at the Long Lake/Livernois intersection meet the requirements of several of these "warrants":

1. Left turn volume is greater than 100 vehicles during the peak hour.

2. Left turn volumes are greater than 50 vehicles per peak hour when through traffic speed exceeds 45 mph.

3. There are five or more reported left turn accidents within the last twelve month period.

One of the warrants not met for installation of left turn phases at Long Lake/Livernois is the product of the left turning vehicles and conflicting through vehicles during the peak hour. This product should be greater than 100,000 to warrant installation of left turn phases, but a highest product of left turn vehicles in conflicting through vehicles occurs during the morning peak hour when it reaches 87,000.

The fact that some of the warrants for installing left turn phases are met at Long Lake/Livernois does not necessarily mean that the left turn phases must be installed. Another factor to consider is the delay being experienced by through vehicles. Through traffic at the Long Lake/Livernois intersection currently experiences significant delay during the peak traffic periods. Through traffic vehicles in the peak direction currently experience delays averaging greater than 60 seconds, which is level of service "F" under the guidelines of the Highway Capacity Manual. When traffic signal time is taken away from through traffic to provide improved safety and convenience for left turn vehicles, the delay experienced by through traffic will increase.

No one appeared before the Committee on behalf of this item.

Mr. Beaubien explained that some guidelines are met but there are other places in the City that would probably warrant left turn phasing more. Left turn phasing penalizes through traffic.

Mr. Cotsonika inquired if left turns stack up at this intersection and Mr. Beaubien noted that he has not seen any. Also, Mr. Diefenbaker indicated that he has not noticed left turns stacking up but proposed that the shoulder on westbound Long Lake at Livernois be widened to create a right turn lane.

Item 5 Contd.

Moved by Diefenbaker
Supported by Hanna

Recommend that a right turn lane be created on the westbound Long Lake Road approach to Livernois and that no change be made to the traffic signal operation at Long Lake/Livernois.

YEAS: 6 Cotsonika, Diefenbaker, Halsey, Hanna, Perry, Rudell
NAYS: 0
ABSENT: 1 Coleman

MOTION PASSED

ITEM: 6 INSTALL LEFT TURN PHASE AT WATTLES/ROCHESTER INTERSECTION

During the past two years, the intersection of Rochester and Wattles Road has been among the top ten in accident frequency within the City of Troy. This is partly because of the relatively high traffic volume on Rochester Road. The accident rate at this intersection for 1986 was 2.48 accidents per million vehicles entering the intersection. Because the accident rate is below 3 per million vehicles, the number of accidents at the intersection is not considered unusually high, considering the relatively high traffic volume. However, we have examined the pattern of accidents at the intersection to determine if some measures can be taken to make the intersection safer. During 1986, 20 of the 64 accidents involved a left turn movement. Therefore, it is appropriate to consider whether a left turn phase should be installed to accommodate left turn movements at the intersection.

Although there are no nationally established warrants for left turn phasing mandated by the Manual on Uniform Traffic Control Devices, many states and local agencies have developed their own guidelines for utilizing left turn phasing. Many of these warrants cite numerical values related to volume, delay, or accidents. Conditions at the Wattles/Rochester intersection meet the requirements of several of these "warrants":

1. The product of the left turn vehicles and conflicting through vehicles during the peak hour exceeds 100,000.

2. Left turn volume is greater than 100 vehicles during the peak hour.

3. Left turn volumes are greater than 50 vehicles per hour when the through traffic speed exceeds 45 mph.

4. There are five or more reported left turn accidents within the last twelve month period.

The fact that the warrants for installing left turn phases are met at the Wattles/Rochester intersection does not necessarily mean that left turn phases must be installed. Another factor to consider is the delay being experienced by through vehicles. Through traffic at the Rochester/Wattlesintersection

Item 6 Contd.

currently experiences significant delay during peak traffic periods. Through traffic vehicles in the peak direction currently experience delays averaging greater than 60 seconds, which is level of service "F" under the guidelines of the Highway Capacity Manual. When traffic signal time is taken away from through traffic to provide improved safety and convenience for left turn vehicles, the delay experienced by through traffic will increase. When left turn phases were installed at the Rochester/Long Lake intersection, we found increased delay being experienced by through vehicles, particularly on Rochester Road.

Mr. Halsey asked if the left turn phases would be for all directions if installed and was told they would be. He then asked if lengthening the time of each signal cycle would help. Mr. Beaubien indicated it would and noted that Rochester Road signal cycles had recently been lengthened to 120 seconds during peak periods.

Mr. Beaubien remarked that the decision on a left turn phase requires a balancing of safety, efficiency, and convenience factors for Rochester Road motorists. There is the left turn accident problem which suggests the left turn phasing from a safety standpoint, but the result of the installation of left turn phases would be a backup traffic problem on Rochester Road. Mrs. Perry felt that the safety factor was more important.

Moved by Halsey
Supported by Perry

Recommend that left turn phases be installed at the Wattles/Rochester intersection.

Mr. Hanna led the discussion of the motion by suggesting improvement of the intersection. Mr. Beaubien noted that another through lane on Wattles would help. Mr. Hanna then suggested right turn lanes on Rochester at Wattles which Mr. Beaubien said was another possibility because the City has the right-of-way for southbound Rochester at Wattles. There is a 43 foot right-of-way for northbound Rochester at Wattles. By pushing the curb to the limits there could possibly be enough for a narrow right turn lane.

When asked if the left turn phases would be on at all times, Mr. Beaubien indicated that they can be set up with a controller to skip the left turn phase when no left turns are there. However, during peak periods, the left turn demand will trigger use of left phases for nearly every signal cycle. In answer to an inquiry about synchronization of the signals, Mr. Beaubien said that there is some progression. However, peak traffic takes away progression because motorists cannot always attain the best speed necessary for progression. The change to a 120 second cycle was for signal progression.

Mr. Hanna asked about the possibility for right turn lanes on Rochester at Troywood/Bishop. If left turn phases are installed without intersection improvements, he feels it will cause traffic to cut through subdivisions - give priority to intersection improvements first, then left turn phases.

The vote was taken on the motion with the following results:

Item 6 Contd.

YEAS:	5	Cotsonika, Diefenbaker, Halsey, Perry, Rudell
NAYS:	1	Hanna
ABSENT:	1	Coleman

MOTION PASSED

Mr. Hanna was opposed because of his feeling that the intersections should be improved first.

Moved by Hanna
Supported by Perry

Recommend that the intersections of Rochester/Wattles and Rochester/Troywood/Bishop be improved to provide right turn lanes on northbound and southbound Rochester Road at Wattles and at Troywood/Bishop and additional through lanes on Wattles at Rochester in conjunction with the installation of left turn phases at the Rochester/Wattles intersection.

YEAS:	5	Cotsonika, Diefenbaker, Hanna, Perry, Rudell
NAYS:	1	Halsey
ABSENT:	1	Coleman

MOTION PASSED

Mr. Halsey was opposed because he indicated that he did not want the installation of the left turn phases delayed until construction of the intersection improvements.

Mr. Hanna disagreed with Mr. Halsey because of his concern for too much traffic through the subdivisions. Mr. Cotsonika indicated that there are two separate resolutions and the motion can be modified.

Mr. Rudell agreed with Mr. Halsey about excluding "in conjunction with the installation of left turn phases at the Rochester/Wattles intersection" because he thought the improvements should be separate.

Moved by Rudell
Supported by Cotsonika

That the last motion be reconsidered.

YEAS:	6	Cotsonika, Diefenbaker, Halsey, Hanna, Perry, Rudell
NAYS:	0	
ABSENT:	1	Coleman

MOTION PASSED

Moved by Rudell
Supported by Cotsonika

That the motion be amended by deleting "in conjunction with the installation of left turn phases at the Rochester/Wattles intersection".

Item 6 Contd.

YEAS: 5 Cotsonika, Diefenbaker, Halsey, Perry, Rudell
NAYS: 1 Hanna
ABSENT: 1 Coleman

MOTION PASSED

Mr. Hanna was opposed because he wanted the "in conjunction with the installation of left turn phases at the Rochester/Wattles intersection" left in.

The vote was then taken on the amended motion:

Recommend that the intersections of Rochester/Wattles and Rochester/Troywood/Bishop be improved to provide right turn lanes on northbound and southbound Rochester Road at Wattles and at Troywood/Bishop and additional through lanes on Wattles at Rochester.

YEAS: 5
NAYS: 1 Hanna
ABSENT: 1 Coleman

MOTION PASSED

ITEM: 7 INSTALL "NO TURN ON RED" SIGNS ON WESTBOUND SQUARE LAKE AT COOLIDGE AND ON NORTHBOUND COOLIDGE AT SQUARE LAKE.

At the Traffic Committee Meeting of December 1987, a review of the need for "No Turn on Red" signs at the Square/Coolidge intersection was suggested. Because of the earth structure which supports I-75 as it passes over the south leg of this intersection, there are some restrictions to the motorist's line of sight on the southeast and southwest corners. As a consequence, motorists traveling westbound on Square Lake at Coolidge do not have a good view of traffic northbound on Coolidge. Because of the sight restriction on the southeast corner of the intersection, "No Turn on Red" signs should be installed on westbound Square Lake at Coolidge.

Similarly, motorists traveling northbound on Coolidge do not have a clear view of traffic traveling eastbound on Square Lake. Because of the earth structure at the southwest corner of this intersection, "No Turn on Red" signs should be installed on northbound Coolidge at Square Lake. Right turns on other approaches to this intersection do not have vision obstructions.

Mr. Halsey indicated that he had asked for the "No Turn on Red" signs because of the sight restrictions.

Mr. Rudell asked about accidents at this intersection because he cannot believe it is that bad. He cannot see the problem when driving in his van. Mr. Cotsonika said that his understanding of Mr. Halsey's request for the "No Turn on Red" signs was his concern for the potential for accidents. Mr. Diefenbaker expressed his opinion that "No Turn on Red" signs are needed in both places.

Item 7 Contd.

Moved by Halsey
Supported by Diefenbaker

Recommend that "No Turn on Red" signs be installed on westbound Square Lake at Coolidge and on northbound Coolidge at Square Lake.

YEAS: 6 Cotsonika, Diefenbaker, Halsey, Hanna, Perry, Rudell
NAYS: 0
ABSENT: 1 Coleman

MOTION PASSED

ITEMS: 8, 9 & 10 INSTALL 3-WAY STOP SIGNS AT BEACH/COLLINGTON
INSTALL 4-WAY STOP SIGNS AT BEACH/VALLEYVIEW
INSTALL 3-WAY STOP SIGNS AT BEACH/HIDDEN PINE

One of the Traffic Committee members suggested at the December meeting that stop signs be installed on Beach at Collington, Valleyview, and Hidden Pine as a means of reducing the speed of traffic on Beach. We have not found stop signs to be effective in controlling speeds. A copy of the article entitled "Stops Signs for Speed Control" is attached for information.

There were no reported accidents at the Beach/Collington intersection during 1985, 1986, or 1987. Daily traffic volume on Collington approaching Beach is 153. Therefore, neither the accident warrant nor the traffic volume warrant required for installation of a multi-way stop are met at this intersection.

Collision diagrams for Beach/Valleyview intersection for each of the last three years are attached. There were no accidents in 1985, 2 accidents in 1986, and only 1 accident during the first ten months of 1987. Daily traffic volumes for Valleyview approaching Beach Road are 174 for eastbound and 310 for westbound. Therefore, neither the accident warrant nor the traffic volume warrant required for installation of a multi-way stop are met at this intersection.

Collision diagrams for Beach/Hidden Pine intersection for each of the last three years are attached. There were no accidents in 1985, only 1 accident in 1986, and 3 accidents during the first ten months of 1987. Daily traffic volume on Hidden Pine is 525. Therefore, neither the accident warrant nor the traffic volume warrant required for installation of a multi-way stop are met at this intersection.

Mr. Cotsonika indicated that he had requested the stop signs on Beach on behalf of the residents on Beach from Valleyview to Long Lake because of the increase of volume and speed of traffic since Beach was paved. He mentioned that he had talked to his neighbors and all are concerned about the speed and all support that something should be done. He believes there have been a number of rear end accidents at Long Lake/Beach, property damage, and the intersection ices. Mr. Cotsonika continued by saying that he lives south of the cemetery at the crest of the hill. He had to move his driveway because he could not see cars at the intersection of Beach and Valleyview. His primary

Items 8, 9 & 10 Contd.

concern is the speed of vehicles because if a child should step into the street, there is no place for a vehicle to go because there are no shoulders, only embankments. He has complained to the Police Department who enforce for awhile but then speeds go back up when the Police leave. He remarked that he has listened to the problem of speeding and now he has the problem. He suggested experimenting by putting stop signs to see if they will help. If motorists have to stop, it would reduce speeding and/or might cause them to consider going to Adams rather than having to stop at a series of stop signs.

Richard Smith, 5105 Beach Road, spoke next. He said that he walks and from Wattles to Big Beaver the speed is not as bad because of the stop signs. There is less traffic but it goes slower. He is torn, however, because the stop signs will be by the side of his drive. It would be wonderful to slow down traffic but he is not sure that motorists will stop or slow down. There may be drag racing and squealing of tires.

Mr. Rudell commented that the road is very well maintained but motorists still hit each other. If the intersection ices, there must be a drainage problem. He suggested a sign to warn of the stop sign over the hill and/or possible icing.

Mr. Cotsonika said that the speeds just keep increasing. Mr. Halsey asked about speed studies and Mr. Beaubien indicated that there are no recent speed studies. Mr. Halsey mentioned that stop signs may increase the potential for rear end collisions. He is concerned that motorists will speed over the hill and run into someone stopped at the stop sign. Mr. Halsey asked that the speeds be checked three or four times in the next month. Mr. Cotsonika suggested 7:30-9:00 AM for southbound and 3:30-5:30 or 6:00 PM for northbound although cars/buses/everybody come through at high speeds (40-55 mph) all day.

Mr. Diefenbaker asked if a traffic light at Beach/Long Lake might help. Mr. Beaubien pointed out that he had received a call about this and it will be considered at the meeting next month. Mr. Smith felt that a light would help and noted that motorists now run the stop sign.

Mrs. Perry asked if there are sight restrictions on Beach. Mr. Beaubien stated that Valleyview is clear, Collington is more restricted but not bad, and there is a hill on Beach. He added that there are stop signs on the side streets. Mrs. Perry said that she would not feel right voting for stop signs for speed control. She wished there was another way to control speeds. Mr. Rudell remarked that input is needed from the Police Department.

Moved by Hanna
Supported by Diefenbaker

Recommend that Items 8, 9 and 10 be tabled to allow the Transportation Engineer to make speed studies on Beach Road and a signal warrant study for the Long Lake/Beach intersection.

YEAS:	6	Cotsonika, Diefenbaker, Halsey, Hanna, Perry, Rudell
NAYS:	0	
ABSENT:	1	Coleman

MOTION PASSED

ITEMS: 11 & 12 INSTALL TRAFFIC SIGNAL ON ROCHESTER ROAD AT TORPEY
INSTALL TRAFFIC SIGNAL ON LONG LAKE ROAD AT LARSON SCHOOL

Traffic Committee members suggested consideration of traffic signal installation on Rochester Road at Torpey during discussions at their meeting of December, 1987. We have attempted to conduct traffic volume studies at this intersection, but the weather has been too cold to allow proper functioning of the traffic counting hoses. Collision diagrams for this intersection for each of the past three years are attached for information.

Traffic Committee members suggested consideration of traffic signal installation on Long Lake Road at Larson School during discussions at their meeting of December, 1987. We have attempted to conduct traffic volume studies at this intersection, but the weather has been too cold to allow proper functioning of the traffic counting hoses. There are no reported accidents at this driveway in any of the the past three years.

Moved by Halsey
Supported by Perry

Recommend that Items 11 and 12 be tabled to complete studies.

YEAS: 6 Cotsonika, Diefenbaker, Halsey, Hanna, Perry, Rudell
NAYS: 0
ABSENT: 1 Coleman

MOTION PASSED

ITEM: 13 INSTALL "NO PARKING" SIGNS ON WATERFALL

"No Parking" signs are currently posted on the east side of Waterfall. At the Traffic Committee meeting of December 1987, there was some discussion about the legality of parking in the median area on Waterfall. Field observations conducted on January 7, 1988 indicated that no cars were parked on Waterfall at 11:30 AM.

No one appeared before the Committee on behalf of this item. However, the attached letter was received from Mr. & Mrs. LeSeure, 3027 Waterfall, who expressed being in favor of no parking on both sides of Waterfall but being able to park in the median. Also, a call was received from Mrs. Schoenrock, 3018 Waterfall, questioning why there should be any change because they like it as it is and have had no problems.

The Committee felt that parking cars which are for sale in the median seemed to be a weekend problem and could be enforced.

Moved by Hanna
Supported by Rudell

Recommend that no change be made to existing parking regulations on Waterfall.

YEAS: 6 Cotsonika, Diefenbaker, Halsey, Hanna, Perry, Rudell
NAYS: 0
ABSENT: 1 Coleman

MOTION PASSED

ITEM: 14 REVIEW ACCIDENT PATTERNS ON JOHN R, NORTH OF 14 MILE

One of the Traffic Committee members suggested the need to review accident patterns in the area of John R adjacent to Oakland Mall. This Committee member feels that there are inadequate gaps in John R traffic to permit motorists to enter John R safely. Copies of the most recent collision diagrams showing this area of John R are attached for information.

The Committee reviewed the diagrams and Mr. Hanna was surprised to see the significant improvement during 1987 in comparison to 1986. He noted that with so many curb cuts it is difficult to get out and the lights are of no advantage.

Mr. Beaubien noted that motorists can get across John R through the traffic signal at Elliott. The biggest concern is at the Sears drive north of 14 Mile. Mr. Hanna asked if there were any suggestions because it is so dangerous. Mr. Beaubien mentioned that the number of accidents is not high considering the volume, and closing a driveway to reroute traffic would only move the problem. A one-sided signal north of the Sears drive to stop southbound John R traffic may help. However, a one-sided signal for northbound traffic might stop traffic across 14 Mile Road. Mr. Hanna requested that the one-sided signal installation north of the Sears drive for southbound John R be placed on the agenda for next month.

ITEM: 15 OTHER BUSINESS

Mrs. Perry offered some information concerning the discussion of a previous item. She said that she found out that the parking fee at Athens High School is $10 per year. Therefore, she does not feel that the students are parking on residential streets just to avoid the parking fee.

Mr. Beaubien reminded the Committee that they will be electing officers at the February meeting and to be thinking about it.

ITEM: 16 ADJOURN

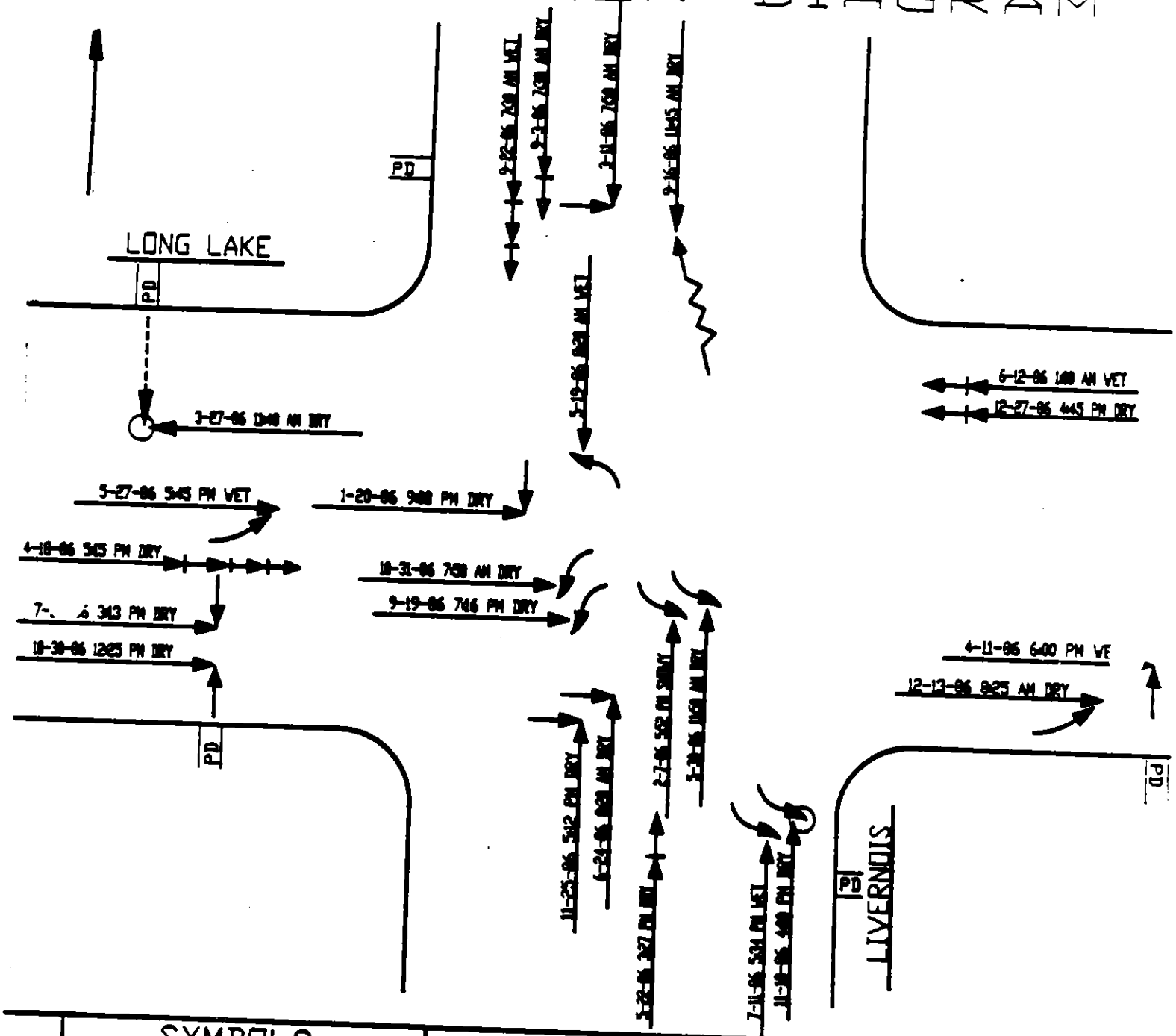
The Traffic Committee meeting of January 20, 1988 adjourned at 9:10 PM.

Arthur Cotsonika, Chairman

AC:ct

Att.

N COLLISION DIAGRAM



SYMBOLS

- MOVING VEHICLE
- BACKING VEHICLE
- PEDESTRIAN
- PARKED VEHICLE
- FIXED OBJECT
- FATAL ACCIDENT
- INJURY ACCIDENT

TYPES OF COLLISIONS

- REAR END
- HEAD ON
- SIDE SWIPE
- OUT OF CONTROL
- LEFT TURN
- RIGHT ANGLE

SHOWN FOR EACH ACCIDENT:

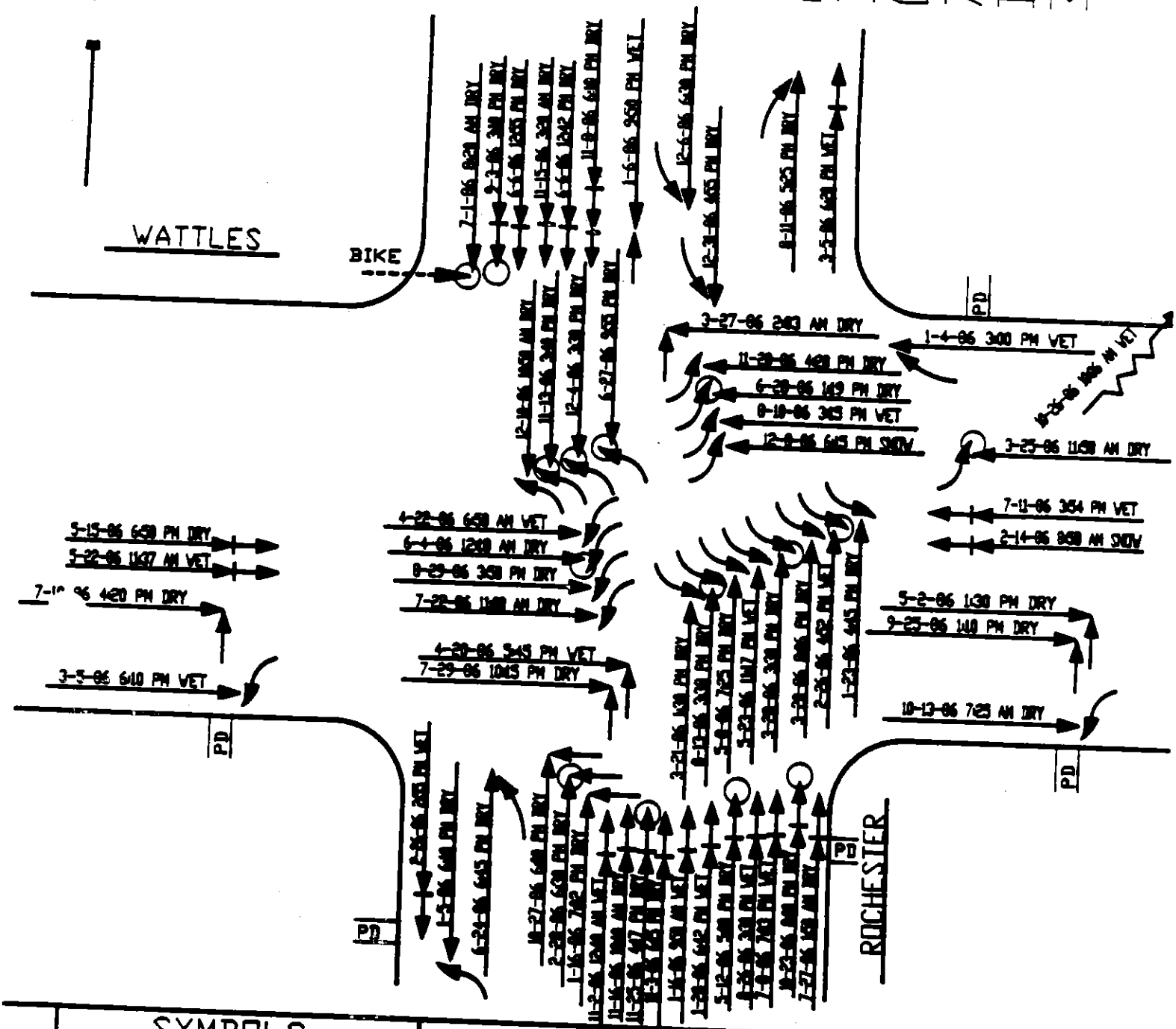
1. DATE AND TIME
2. WEATHER CONDITIONS

INTERSECTION LONG LAKE AND LIVERNOIS

PERIOD 1 YEAR FROM JAN. 1986 TO DEC. 1986

BY K. BERKSETH DATE 4-1-87

N COLLISION DIAGRAM



SYMBOLS

- MOVING VEHICLE
- BACKING VEHICLE
- PEDESTRIAN
- PARKED VEHICLE
- FIXED OBJECT
- FATAL ACCIDENT
- INJURY ACCIDENT

TYPES OF COLLISIONS

- REAR END
- HEAD ON
- SIDE SWIPE
- OUT OF CONTROL
- LEFT TURN
- RIGHT ANGLE

SHOWN FOR EACH ACCIDENT:

1. DATE AND TIME
2. WEATHER CONDITIONS

INTERSECTION WATTLES AND ROCHESTER

PERIOD 1 YEAR FROM JAN. 1986 TO DEC. 1986

BY K. BERKSETH DATE 4-2-87

INPUT WORKSHEET

Intersection: Wattles/Rochester Date: 5-12-87

Analyst: Time Period Analyzed: 7-8 AM Area Type: ☐ CBD ☐ Other

Project No.: City/State: Troy, Michigan

VOLUME AND GEOMETRICS

2670 SB TOTAL

121 2286 283

Rochester N/S STREET

53
672
254

979 WB TOTAL

IDENTIFY IN DIAGRAM:

1. Volumes
2. Lanes, lane widths
3. Movements by lane
4. Parking (PKG) locations
5. Bay storage lengths
6. Islands (physical or painted)
7. Bus stops

612 EB TOTAL

56
430
126

Wattles E/W STREET

44 734 75

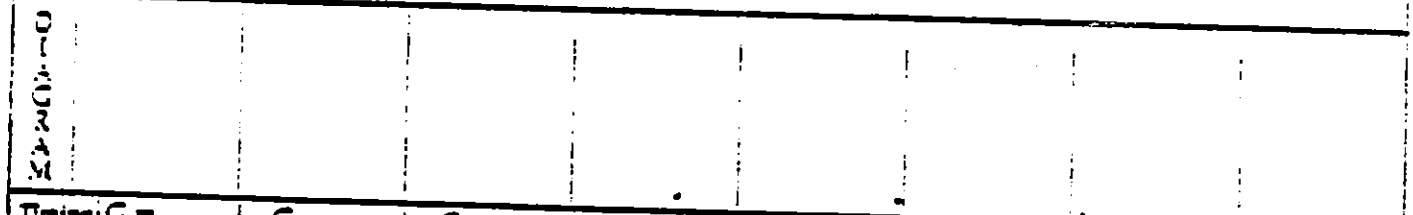
853 NB TOTAL

TRAFFIC AND ROADWAY CONDITIONS

Approach	Grade (%)	% HV	Adj. Flg. Lane Y or N	Adj. Flg. Lane N_a	Buses (N_b)	PHF	Conf. Peds. (peds./hr)	Pedestrian Button Y or N	Pedestrian Button Min. Timing	Arr. Type
EB										
WB										
NB										
SB										

Grade: + up, − down
HV: veh. with more than 4 wheels
N_a: adj. maneuvers/hr
N_b: buses stopping/hr
PHF: peak-hour factor
Conf. Peds: Conflicting peds./hr
Min. Timing: min. green for pedestrian crossing
Arr. Type: Type 1-6

PHASING



Timing	G = Y − R =	G = Y − R =	G = Y − R =	G = Y − R =	G = Y − R =	G = Y − R =	G = Y − R =	G = Y − R =
Protected or Actuated								

Protected turns | Permitted turns | Pedestrian | Cycle Length: Sec

INPUT WORKSHEET

Intersection: Wattles/Rochester Date: 5-12-87

Analyst: Time Period Analyzed: 5-6 PM Area Type: ☐ CBD ☐ Other

Project No.: City/State: Troy, Michigan

VOLUME AND GEOMETRICS

1286
SB TOTAL
120 — 1082 — 84

Rochester
N/S STREET

116
389 — 597
92
WB TOTAL

IDENTIFY IN DIAGRAM:

1. Volumes
2. Lanes, lane widths
3. Movements by lane
4. Parking (PKG) locations
5. Bay storage lengths
6. Islands (physical or painted)
7. Bus stops

743
EB TOTAL
126
516
101

Wattles E/W STREET
1719
121 — 346
2186
NB TOTAL

TRAFFIC AND ROADWAY CONDITIONS

Approach	Grade (%)	% HV	Adj. Pkg. Lane Y or N	Adj. Pkg. Lane N_m	Buses (N_b)	PHF	Conf. Peds. (peds./hr)	Pedestrian Button Y or N	Pedestrian Button Min. Timing	Act. Type
EB										
WB										
NB										
SB										

Grade: + up, − down
HV: veh. with more than 4 wheels
N_m: pkg. maneuvers/hr
N_b: buses stopping, hr
PHF: peak-hour factor
Conf. Peds: Conflicting peds./hr
Min. Timing: min. green for pedestrian crossing
Act. Type: Type 1-9

PHASING

Timing	G = Y + R =	G = Y + R =	G = Y + R =	G = Y + R =	G = Y + R =	G = Y + R =	G = Y + R =	G = Y + R =
Phasing or Actuation								

Protected turns | Permitted turns | Pedestrian | Cycle Length: Sec

INPUT WORKSHEET

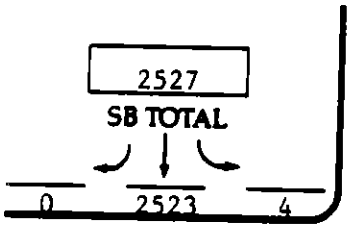
Intersection: Rochester/Troywood/Bishop Date: 10/13/87

Analyst: K.Berkseth/M. Lutfi Time Period Analyzed: 7-8AM Area Type: ☐ CBD ☐ Other

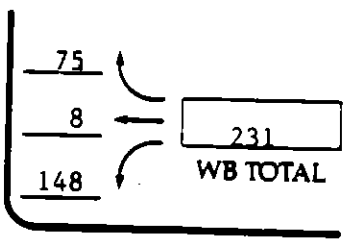
Project No.: City/State: Troy, Michigan

VOLUME AND GEOMETRICS

NORTH

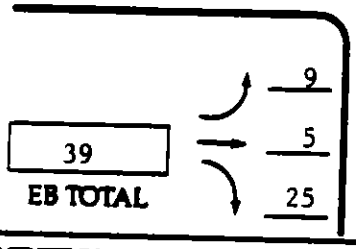


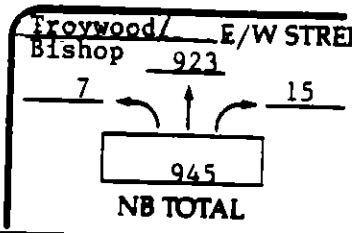
Rochester
N/S STREET



IDENTIFY IN DIAGRAM:

1. Volumes
2. Lanes, lane widths
3. Movements by lane
4. Parking (PKG) locations
5. Bay storage lengths
6. Islands (physical or painted)
7. Bus stops





TRAFFIC AND ROADWAY CONDITIONS

Approach	Grade (%)	% HV	Adj. Pkg. Lane		Buses (N_b)	PHF	Conf. Peds. (peds./hr)	Pedestrian Button		Arr. Type
			Y or N	N_m				Y or N	Min. Timing	
EB										
WB										
NB										
SB										

Grade: + up, − down
HV: veh. with more than 4 wheels
N_m: pkg. maneuvers/hr
N_b: buses stopping/hr
PHF: peak-hour factor
Conf. Peds: Conflicting peds./hr
Min. Timing: min. green for pedestrian crossing
Arr. Type: Type 1-5

PHASING

DIAGRAM								
Timing	G = Y + R =	G = Y + R =	G = Y + R =	G = Y + R =	G = Y + R =	G = Y + R =	G = Y + R =	G = Y + R =
Pretimed or Actuated								

Protected turns Permitted turns Pedestrian Cycle Length ____ Sec

INPUT WORKSHEET

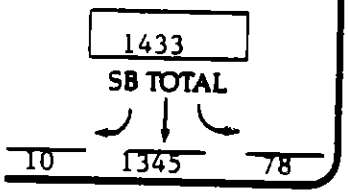
Intersection: Rochester/ Troywoood/Bishop Date: 10/13/87

Analyst: K.Berkseth/M. Lutfi Time Period Analyzed: 5-6PM Area Type: ☐ CBD ☐ Other

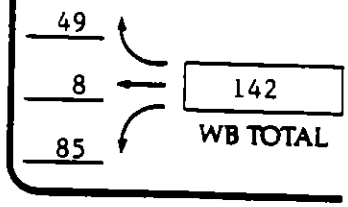
Project No.: City/State: Troy, Michigan

VOLUME AND GEOMETRICS

NORTH

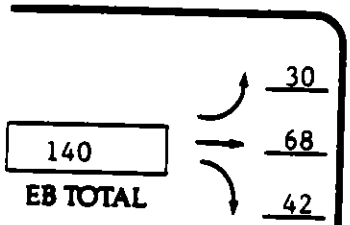


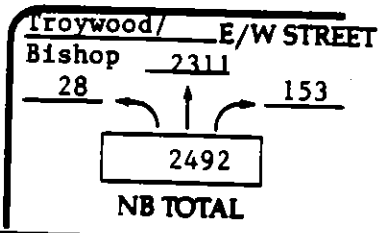
Rochester
N/S STREET



IDENTIFY IN DIAGRAM:

1. Volumes
2. Lanes, lane widths
3. Movements by lane
4. Parking (PKG) locations
5. Bay storage lengths
6. Islands (physical or painted)
7. Bus stops





TRAFFIC AND ROADWAY CONDITIONS

Approach	Grade (%)	% HV	Adj. Pkg. Lane		Buses (N_b)	PHF	Conf. Peds. (peds./hr)	Pedestrian Button		Arr. Type
			Y or N	N_m				Y or N	Min. Timing	
EB										
WB										
NB										
SB										

Grade: + up, − down
HV: veh. with more than 4 wheels
N_m: pkg. maneuvers/hr
N_b: buses stopping/hr
PHF: peak-hour factor
Conf. Peds: Conflicting peds./hr
Min. Timing: min. green for pedestrian crossing
Arr. Type: Type 1-5

PHASING

DIAGRAM								
Timing: G = / Y+R =	G = / Y+R =	G = / Y+R =	G = / Y+R =	G = / Y+R =	G = / Y+R =	G = / Y+R =	G = / Y+R =	G = / Y+R =
Pretimed or Actuated								

Protected turns | Permitted turns | Pedestrian | Cycle Length_____Sec

Stop Signs for Speed Control?

Though they are frequently suggested as appropriate traffic control devices for reducing vehicular speeds in residential areas, they are not only ineffective in this respect but also frequently ignored, as this study shows.

By Richard F. Beaubien, P.E.

City officials are frequently confronted by citizens demanding that stop signs be placed on residential streets to control speeding. These citizens are convinced that stop signs will reduce speeds on their streets, thereby enhancing the safety of children playing near or in the streets. City councils usually respond favorably to these requests in order to provide a tangible sign of their concern for public safety at a relatively low cost. Moreover, it seems obvious to them also that stop signs will reduce speeds and promote public safety.

The *Manual on Uniform Traffic Control Devices for Streets and Highways*[*] states that stop signs *should not* be installed for speed control. One argument for this is that misuse of this traffic control device promotes lack of respect for all traffic control devices, and nonobservance of such devices is potentially hazardous. Perhaps a more effective argument is that stop signs are *not* effective in reducing speeds. Recent studies in the City of Troy, Michigan suggest that placing stop signs for speed control tends to increase peak speeds. The studies also showed an alarmingly high disobedience rate for these signs. The speed and stop sign observance studies were made from an unmarked city car, the former with a radar unit before and after the installation of stop signs. The highest speed observed for each vehicle was the speed recorded. The results are as follows:

Anvil Drive. Anvil Drive is a collector street in a new residential area. The street is approximately 0.6 miles long and has a curved alignment to emphasize its residential character and discourage speeding. Residents felt that speeding was a problem, however, and spot speed studies were conducted to determine the extent of it.

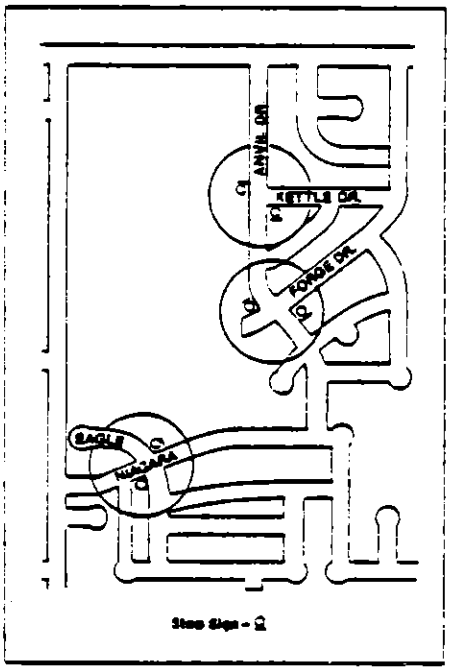


Figure 1.

Table 1. Anvil Drive.

Speed Studies		
Speed	Without Stop Signs mph	With Stop Signs mph
Low	15	15
Average	24.1	24.6
85th Percentile	28	28
High	38	35

Stop Sign Observance		
	Number	Percent
Full Stop	14	25
Roll Stop	35	64
No stop	6	11
Total	55	100

The average peak speed was 24.1 miles per hour—a typical result for residential streets in Troy. Residents petitioned City Council, and stop signs were placed on Anvil at Forge and Kettle Drives, two local streets, as a result of council action (Figure 1). Studies conducted on Anvil between these two streets 30 days after the stop signs were installed showed that the average peak speed was 24.6 mph—or no significant difference because of the signs.

Stop sign observance studies made at Anvil and Kettle at the same time showed that only 25 percent of the motorists came to a full stop, suggesting that drivers don't feel that a stop is required at this intersection. Study results are shown in Table 1.

Niagara Drive. Niagara Drive is a collector street in a new residential area. Approximately 0.4 miles long, Niagara, too, has a curved alignment to emphasize its residential character and discourage speeding. Residents in the area, concerned about speeding, petitioned City Council for installation of stop signs on Niagara and Eagle, a local street (Figure 1). Spot speed studies made to determine the extent of the speeding problem found average p speed to be 23.8 mph. Stop signs w installed, and speed studies were conducted again 30 days after installation. With the signs in place, average peak speed was 25.2 mph, indicating that the

[*] U.S. Department of Transportation, Federal Highway Administration, Washington, D.C., 1971.

stop signs were not effective in reducing speeds.

Stop sign observance studies, made at the same time, showed that 51 percent of the motorists came to a full stop at Eagle and Niagara, suggesting that about half of them don't feel that a stop sign is necessary at Eagle. Study results are shown in Table 2.

Robinwood Street. Robinwood is a collector street in an established residential area. It is about 0.5 miles long; its connection with other streets provides a continuous route between Livernois and Rochester, both arterials. In 1964, stop signs were placed on Robinwood at Van Courtland (Figure 2), creating a three-way intersection, in response to citizen requests after a child was killed near the intersection. The accident report indicates that the child was struck by a car going approximately 12 mph at a point some 150 feet east of the intersection. The driver was not considered to be at fault. Studies showed an average speed of 24.4 mph and that only 26 percent of the motorists came to a full stop. The latter indicates that over a period of more than 11 years, motorists have developed a habit of not stopping for the signs on Robinwood at Van Courtland. The signs were removed on a temporary basis and speed studies conducted 30 days later. The average peak speed was 23.4 mph, so there was no significant difference in speeds after the stop signs were removed. Study results are shown in Table 3.

Crimson Street. Crimson is a collector street in a new residential area; many homes are still under construction. It is about 0.6 miles long and has a curved alignment, like Anvil and Niagara. However, speeding seemed to be a problem and residents in the area asked that stop signs be installed on Crimson at Crestline and on Crimson at Lakewood to reduce speeds (Figure 3), but they

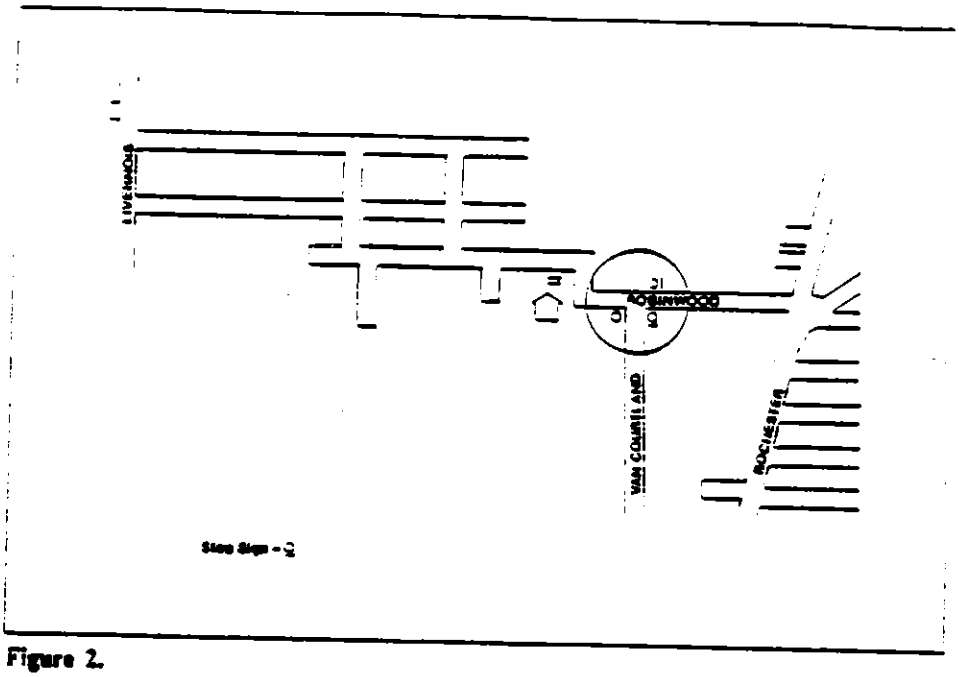


Figure 2.

Table 2. Niagara Drive.

Speed Studies		
Speed	Without Stop Signs mph	With Stop Signs mph
Low	15	15
Average	23.8	25.2
85th Percentile	26	29
High	34	34

Stop Sign Observance		
	Number	Percent
Full Stop	21	51
Roll Stop	14	34
No Stop	6	15
Total	41	100

Table 3. Robinwood Street.

Speed Studies		
Speed	Without Stop Signs mph	With Stop Signs mph
Low	10	13
Average	23.4	24.4
85th Percentile	30	30
High	38	38

Stop Sign Observance		
	Number	Percent
Full Stop	21	26
Roll Stop	39	48
No Stop	21	26
Total	81	100

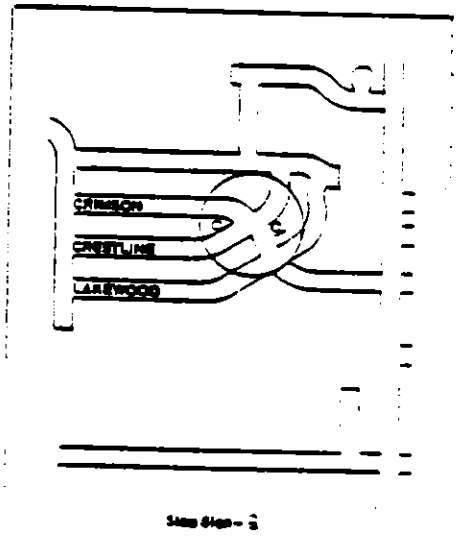


Figure 3.

Table 4. Crimson Street.

Speed Studies

Speed	Without Stop Signs mph	With Stop Signs mph
Westbound Crimson East of Crestline		
Low	12	15
Average	21.6	23.7
85th Percentile	25	26
High	32	30
Westbound Crimson West of Crestline		
Low	7	15
Average	24.0	23.7
85th Percentile	29	27
High	40	32
Eastbound Crimson East of Crestline		
Low	10	10
Average	23.5	24.8
85th Percentile	27	27
High	32	34
Eastbound Crimson West of Crestline		
Low	8	15
Average	24.5	26.6
85th Percentile	31	32
High	39	36

Stop Sign Observance

	Number	Percent
Eastbound		
Full Stop	2	6
Roll Stop	19	54
No Stop	14	40
Total	35	100
Westbound		
Full Stop	10	10
Roll Stop	42	43
No Stop	46	47
Total	98	100

agreed to await the results of an evaluation of a temporary stop sign on Crimson at Crestline before pressing their request for permanent signs. Before and after speed studies were made at locations chosen with the cooperation of the residents. The speed studies were made on both sides of the signs, the results separated by direction of travel. The after studies were made 30 days following installation of the temporary signs.

Sign observance studies were made at the same time. These showed that only 9 percent of the motorists came to a full stop, revealing that the other 91 percent did not consider a full stop necessary. Results of the studies are shown in Table 4. After seeing the results, residents agreed that stop signs were not effective in reducing speeds in their area. The temporary signs have been removed.

Conclusions. The studies conducted in Troy show that stop signs are not effective in controlling speeds in residential areas. The difference in average speeds is not significant after installation of stop signs but the tendency is for a slight increase in speeds, possibly because motorists are trying to make up for lost time after passing the sign. The same tendency occurs in reverse when stop signs which have been in place for many years are removed. After removal, there was no significant change in speeds, but speeds were slightly lower without the stop signs.

The stop sign observance studies showed that stop signs placed for speed control are generally disregarded. Approximately half of the motorists made a rolling stop; one quarter came to a full stop; one quarter did not stop at all.

Mr. Beaubien (M) is transportation engineer for the City of Troy, a suburban community in the metropolitan area of Detroit. Before entering this position in 1975, he was chief engineer with the firm of Reid, Cool & Michalski, Detroit. From 1968 to 1973 he served with the Federal Highway Administration in various parts of the country.

City of Troy

Section 18

HOURLY TRAFFIC VOLUMES

LOCATION N-S Beach
South of Long Lake

DATE 12/21-23/87

DATE	MON 87/12/21	TUE 22	WED 23	THU 24	FRI 25	SAT 26	SUN 27
START HOUR							
0	-	21	19	-	-	-	-
1	-	9	17	-	-	-	-
2	-	11	7	-	-	-	-
3	-	5	2	-	-	-	-
4	-	1	0	-	-	-	-
5	-	7	10	-	-	-	-
6	-	15	15	-	-	-	-
7	-	55	39	-	-	-	-
8	-	60	53	-	-	-	-
9	-	48	66	-	-	-	-
10	-	55	62	-	-	-	-
11	-	69	72	-	-	-	-
12	-	79	67	-	-	-	-
13	-	82	92	-	-	-	-
14	-	68	67	-	-	-	-
15	-	66	-	-	-	-	-
16	80	87	-	-	-	-	-
17	125	109	-	-	-	-	-
18	80	91	-	-	-	-	-
19	63	69	-	-	-	-	-
20	33	62	-	-	-	-	-
21	38	54	-	-	-	-	-
22	40	54	-	-	-	-	-
23	23	44	-	-	-	-	-
TOTALS							
12HR 7-19	-	869	-	-	-	-	-
16HR 6-22	-	1069	-	-	-	-	-
18HR 6-24	-	1167	-	-	-	-	-
24HR 0-24	-	1221	-	-	-	-	-

Station No. 28

HOURLY TRAFFIC VOLUMES

LOCATION N-S Beach
North of Long Lake

DATE 12/21-23/87

DATE	MON 87/12/21	TUE 22	WED 23	THU 24	FRI 25	SAT 26	SUN 27
START HOUR							
0	-	38	43	-	-	-	-
1	-	11	45	-	-	-	-
2	-	9	20	-	-	-	-
3	-	3	3	-	-	-	-
4	-	5	7	-	-	-	-
5	-	9	13	-	-	-	-
6	-	35	31	-	-	-	-
7	-	58	66	-	-	-	-
8	-	71	80	-	-	-	-
9	-	73	89	-	-	-	-
10	-	121	87	-	-	-	-
11	-	145	139	-	-	-	-
12	-	126	135	-	-	-	-
13	-	125	148	-	-	-	-
14	-	165	152	-	-	-	-
15	-	121	-	-	-	-	-
16	167	177	-	-	-	-	-
17	226	182	-	-	-	-	-
18	138	162	-	-	-	-	-
19	129	121	-	-	-	-	-
20	89	104	-	-	-	-	-
21	81	95	-	-	-	-	-
22	67	102	-	-	-	-	-
23	36	71	-	-	-	-	-
TOTALS							
12HR 7-19	-	1526	-	-	-	-	-
16HR 6-22	-	1881	-	-	-	-	-
18HR 6-24	-	2054	-	-	-	-	-
24HR 0-24	-	2129	-	-	-	-	-

Station No. 22

City of Troy

ITEM 8
Section

HOURLY TRAFFIC VOLUMES

LOCATION WB Collington
East of Beach
DATE 12/21-23/87

DATE	MON 87/12/21	TUE 22	WED 23	THU 24	FRI 25	SAT 26	SUN 27
START HOUR							
0	-	1	1	-	-	-	-
1	-	2	3	-	-	-	-
2	-	0	1	-	-	-	-
3	-	0	0	-	-	-	-
4	-	0	1	-	-	-	-
5	-	1	3	-	-	-	-
6	-	1	2	-	-	-	-
7	-	0	2	-	-	-	-
8	-	0	5	-	-	-	-
9	-	3	5	-	-	-	-
10	-	8	9	-	-	-	-
11	-	11	4	-	-	-	-
12	-	10	13	-	-	-	-
13	-	9	9	-	-	-	-
14	-	9	18	-	-	-	-
15	-	10	-	-	-	-	-
16	8	17	-	-	-	-	-
17	21	18	-	-	-	-	-
18	9	13	-	-	-	-	-
19	7	7	-	-	-	-	-
20	5	8	-	-	-	-	-
21	0	10	-	-	-	-	-
22	0	8	-	-	-	-	-
23	3	7	-	-	-	-	-
TOTALS							
12HR 7-19	-	108	-	-	-	-	-
16HR 6-22	-	134	-	-	-	-	-
18HR 6-24	-	149	-	-	-	-	-
24HR 0-24	-	153	-	-	-	-	-

Station No. 29

City of Troy

Section

HOURLY TRAFFIC VOLUMES

LOCATION WB Valleyview
East of Beach
DATE 12/21-23/87

DATE	MON 87/12/21	TUE 22	WED 23	THU 24	FRI 25	SAT 26	SUN 27
START HOUR							
0	-	11	10	-	-	-	-
1	-	3	5	-	-	-	-
2	-	1	1	-	-	-	-
3	-	0	2	-	-	-	-
4	-	3	4	-	-	-	-
5	-	4	6	-	-	-	-
6	-	3	5	-	-	-	-
7	-	5	8	-	-	-	-
8	-	6	6	-	-	-	-
9	-	9	5	-	-	-	-
10	-	7	1	-	-	-	-
11	-	18	12	-	-	-	-
12	-	21	22	-	-	-	-
13	-	17	18	-	-	-	-
14	-	18	26	-	-	-	-
15	-	22	-	-	-	-	-
16	16	25	-	-	-	-	-
17	28	21	-	-	-	-	-
18	9	23	-	-	-	-	-
19	18	23	-	-	-	-	-
20	14	29	-	-	-	-	-
21	20	8	-	-	-	-	-
22	15	19	-	-	-	-	-
23	8	14	-	-	-	-	-
TOTALS							
12HR 7-19	-	192	-	-	-	-	-
16HR 6-22	-	255	-	-	-	-	-
18HR 6-24	-	288	-	-	-	-	-
24HR 0-24	-	310	-	-	-	-	-

Station No. 26

City of Troy

Section

LOCATION EB Valleyview
West of Beach

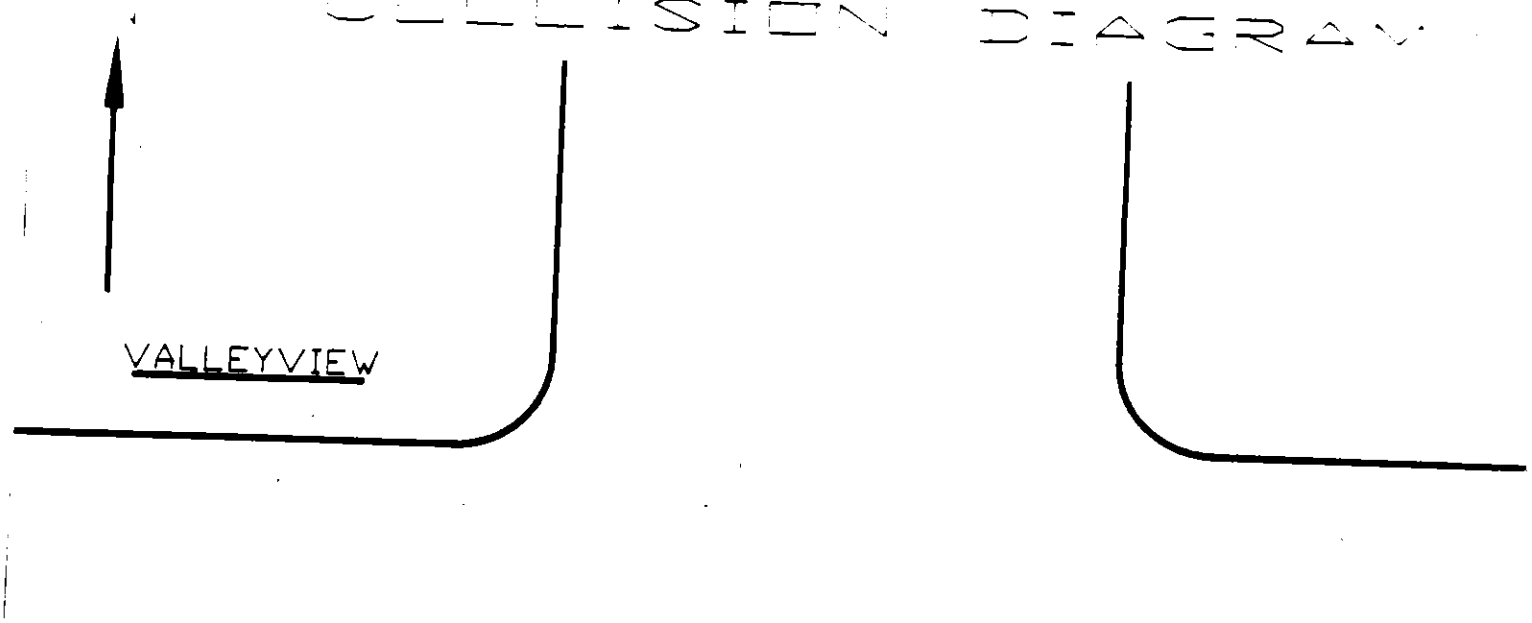
HOURLY TRAFFIC VOLUMES

DATE 12/21-23/87

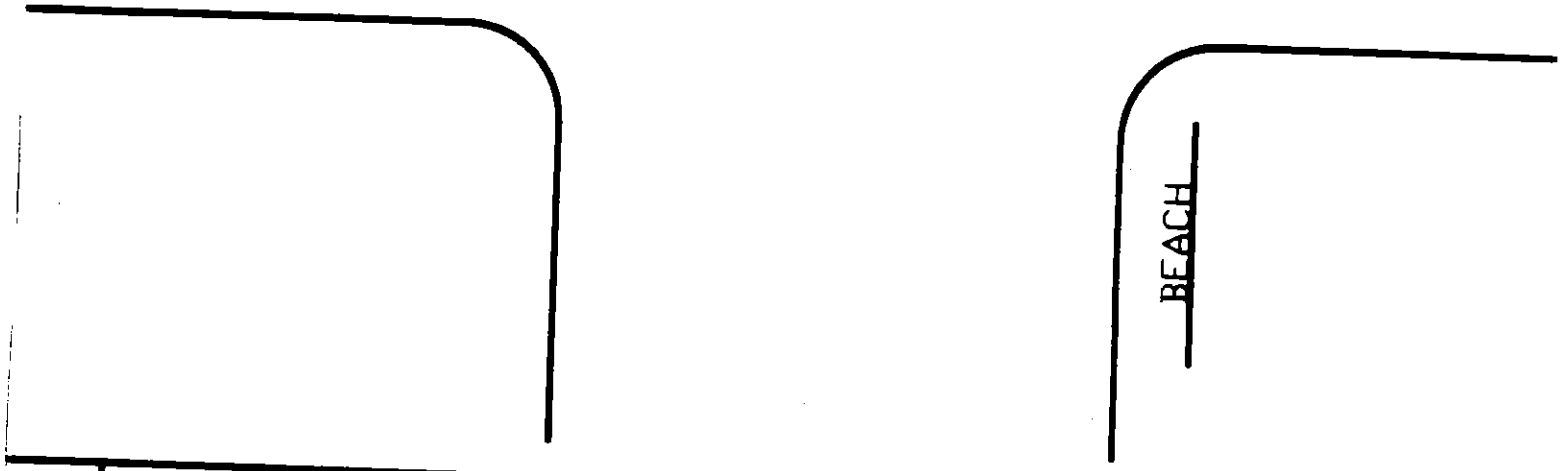
DATE	MON 87/12/21	TUE 22	WED 23	THU 24	FRI 25	SAT 26	SUN 27
START HOUR							
0	-	3	6	-	-	-	-
1	-	1	2	-	-	-	-
2	-	0	0	-	-	-	-
3	-	2	1	-	-	-	-
4	-	0	1	-	-	-	-
5	-	3	2	-	-	-	-
6	-	5	3	-	-	-	-
7	-	1	5	-	-	-	-
8	-	7	3	-	-	-	-
9	-	2	6	-	-	-	-
10	-	13	9	-	-	-	-
11	-	13	13	-	-	-	-
12	-	12	15	-	-	-	-
13	-	12	10	-	-	-	-
14	-	13	18	-	-	-	-
15	-	10	-	-	-	-	-
16	14	11	-	-	-	-	-
17	21	15	-	-	-	-	-
18	13	15	-	-	-	-	-
19	10	12	-	-	-	-	-
20	3	9	-	-	-	-	-
21	16	7	-	-	-	-	-
22	11	5	-	-	-	-	-
23	3	3	-	-	-	-	-
TOTALS							
12HR 7-19	-	124	-	-	-	-	-
16HR 6-22	-	157	-	-	-	-	-
18HR 6-24	-	165	-	-	-	-	-
24HR 0-24	-	174	-	-	-	-	-

Station No. 21

COLLISION DIAGRAM



NO 1985 ACCIDENTS



SYMBOLS	TYPES OF COLLISIONS
MOVING VEHICLE	REAR END
BACKING VEHICLE	HEAD ON
PEDESTRIAN	SIDE SWIPE
PARKED VEHICLE	OUT OF CONTROL
FIXED OBJECT	LEFT TURN
FATAL ACCIDENT	RIGHT ANGLE
INJURY ACCIDENT	

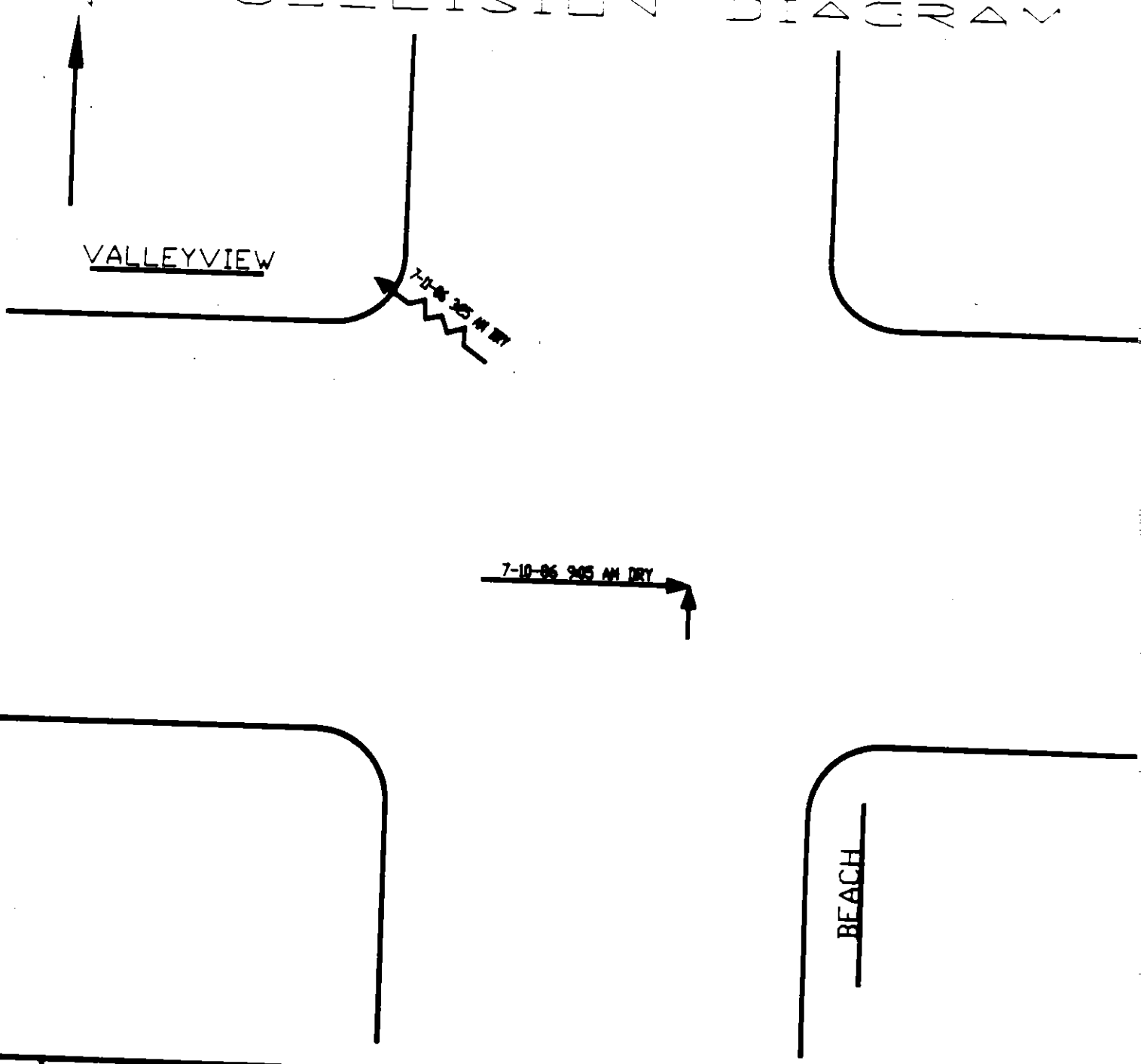
SHOWN FOR EACH ACCIDENT:

1. DATE AND TIME
2. WEATHER CONDITIONS

INTERSECTION BEACH AND VALLEYVIEW

PERIOD 1 YEAR FROM JAN. 1985 TO DEC. 1985

BY C. SMITH DATE 1-4-88



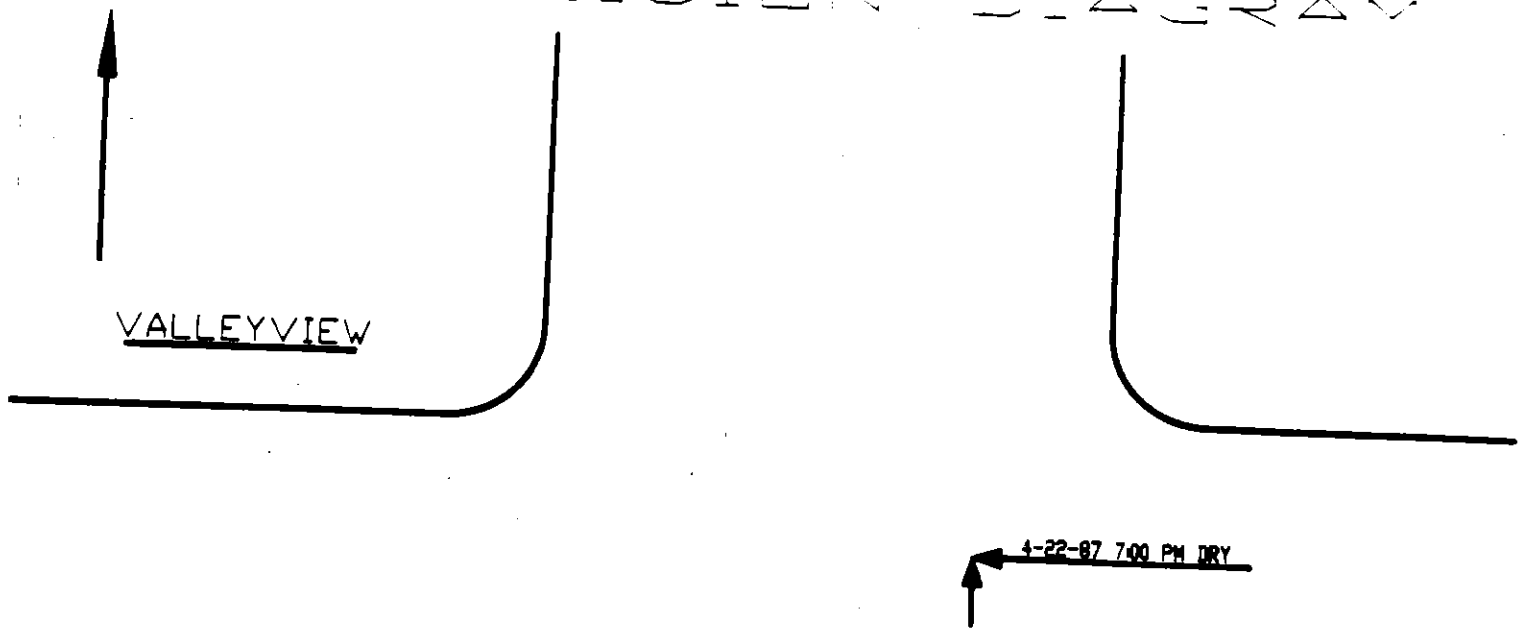
SYMBOLS		TYPES OF COLLISIONS	
MOVING VEHICLE	REAR END	RIGHT ANGLE	
BACKING VEHICLE	HEAD ON		
PEDESTRIAN	SIDE SWIPE	SHOWN FOR EACH ACCIDENT:	
PARKED VEHICLE	OUT OF CONTROL	1. DATE AND TIME	
FIXED OBJECT	LEFT TURN	2. WEATHER CONDITIONS	
FATAL ACCIDENT			
INJURY ACCIDENT			

INTERSECTION BEACH AND VALLEYVIEW

PERIOD 1 YEAR FROM JAN. 1986 TO DEC. 1986

BY C. SMITH DATE 1-4-88

COLLISION DIAGRAM



4-22-87 7:00 PM DRY

SYMBOLS

- MOVING VEHICLE
- BACKING VEHICLE
- PEDESTRIAN
- PARKED VEHICLE
- FIXED OBJECT
- FATAL ACCIDENT
- INJURY ACCIDENT

TYPES OF COLLISIONS

- REAR END
- HEAD ON
- SIDE SWIPE
- OUT OF CONTROL
- LEFT TURN
- RIGHT ANGLE

SHOWN FOR EACH ACCIDENT:

1. DATE AND TIME
2. WEATHER CONDITIONS

INTERSECTION BEACH AND VALLEYVIEW

PERIOD 10 MONTHS FROM JAN. 1987 TO DEC. 1987

BY C. SMITH DATE 1-4-88

City of Troy

Sec. 18 ITEM

HOURLY TRAFFIC VOLUMES

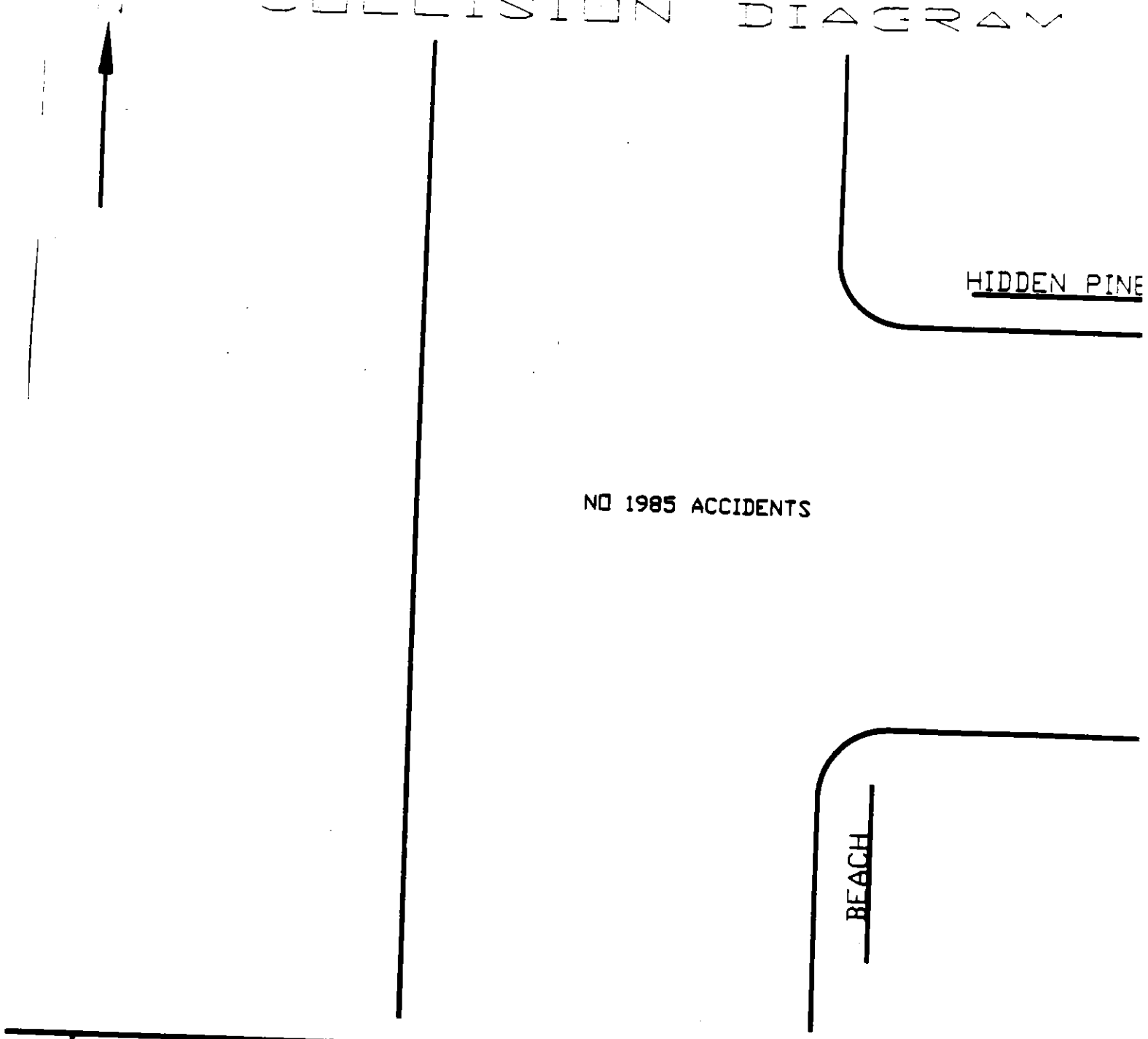
LOCATION E-W Hidden Pine
East of Beach

DATE 6/30/87 - 7/2/87

DATE	MON 87/06/29	TUE 30	WED 01	THU 02	FRI 03	SAT 04	SUN 05
START HOUR							
0	-	-	3	3	-	-	-
1	-	-	1	1	-	-	-
2	-	-	0	0	-	-	-
3	-	-	0	0	-	-	-
4	-	-	0	3	-	-	-
5	-	-	6	3	-	-	-
6	-	-	6	7	-	-	-
7	-	-	30	27	-	-	-
8	-	-	24	32	-	-	-
9	-	-	22	41	-	-	-
10	-	-	18	-	-	-	-
11	-	20	36	-	-	-	-
12	-	23	42	-	-	-	-
13	-	22	56	-	-	-	-
14	-	19	48	-	-	-	-
15	-	46	37	-	-	-	-
16	-	46	28	-	-	-	-
17	-	37	31	-	-	-	-
18	-	31	38	-	-	-	-
19	-	22	31	-	-	-	-
20	-	25	31	-	-	-	-
21	-	38	27	-	-	-	-
22	-	10	14	-	-	-	-
23	-	7	6	-	-	-	-
TOTALS							
12HR 7-19	-	-	410	-	-	-	-
16HR 6-22	-	-	505	-	-	-	-
18HR 6-24	-	-	525	-	-	-	-
24HR 0-24	-	-	535	-	-	-	-

Station No. 20

COLLISION DIAGRAM



SYMBOLS	TYPES OF COLLISIONS
MOVING VEHICLE	REAR END
BACKING VEHICLE	HEAD ON
PEDESTRIAN	SIDE SWIPE
PARKED VEHICLE	OUT OF CONTROL
FIXED OBJECT	LEFT TURN
FATAL ACCIDENT	RIGHT ANGLE
INJURY ACCIDENT	

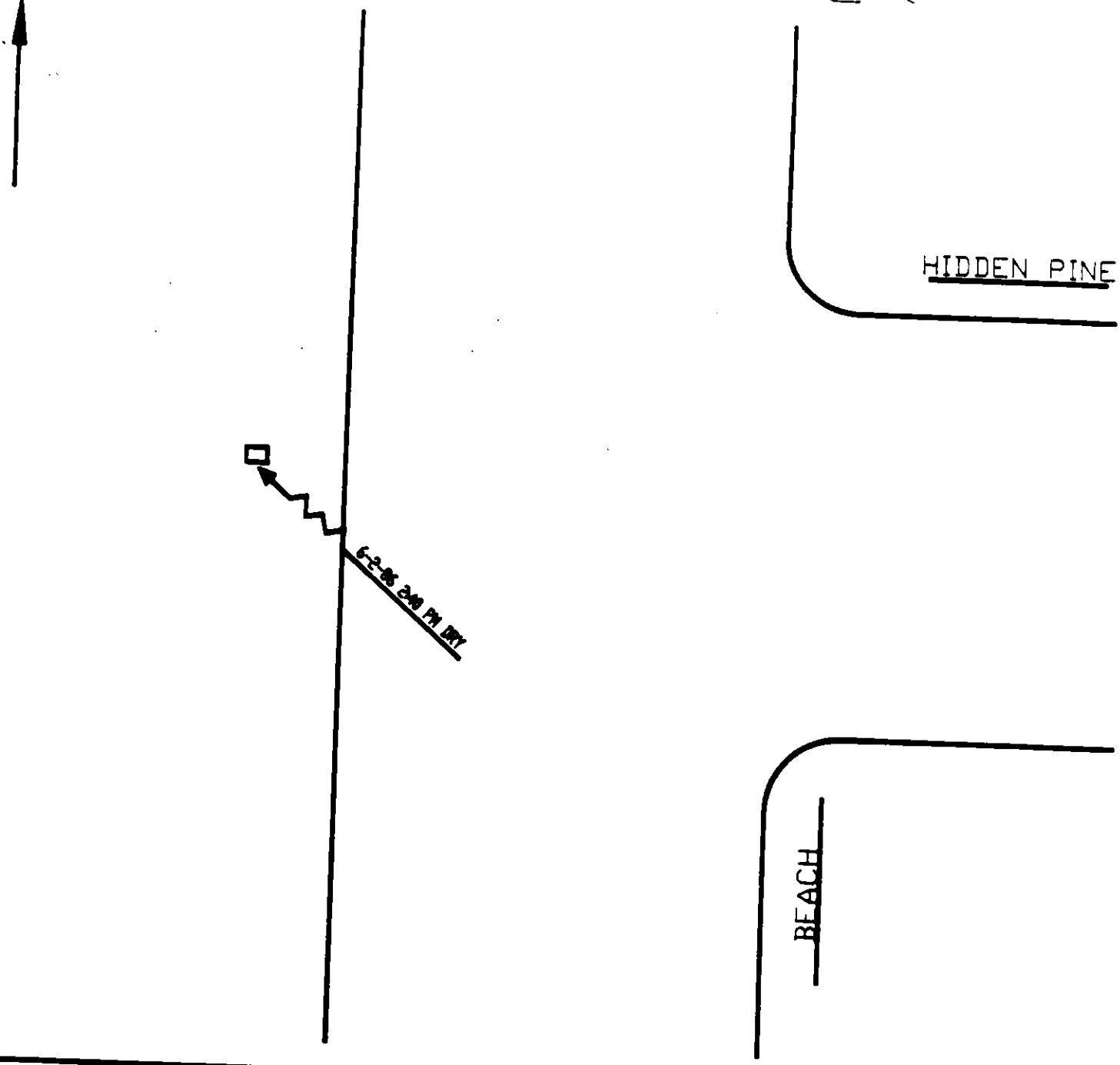
SHOWN FOR EACH ACCIDENT:
1. DATE AND TIME
2. WEATHER CONDITIONS

INTERSECTION BEACH AND HIDDEN PINE

PERIOD 1 YEAR FROM JAN. 1985 TO DEC. 1985

BY KDB DATE 1-4-88

COLLISION DIAGRAM



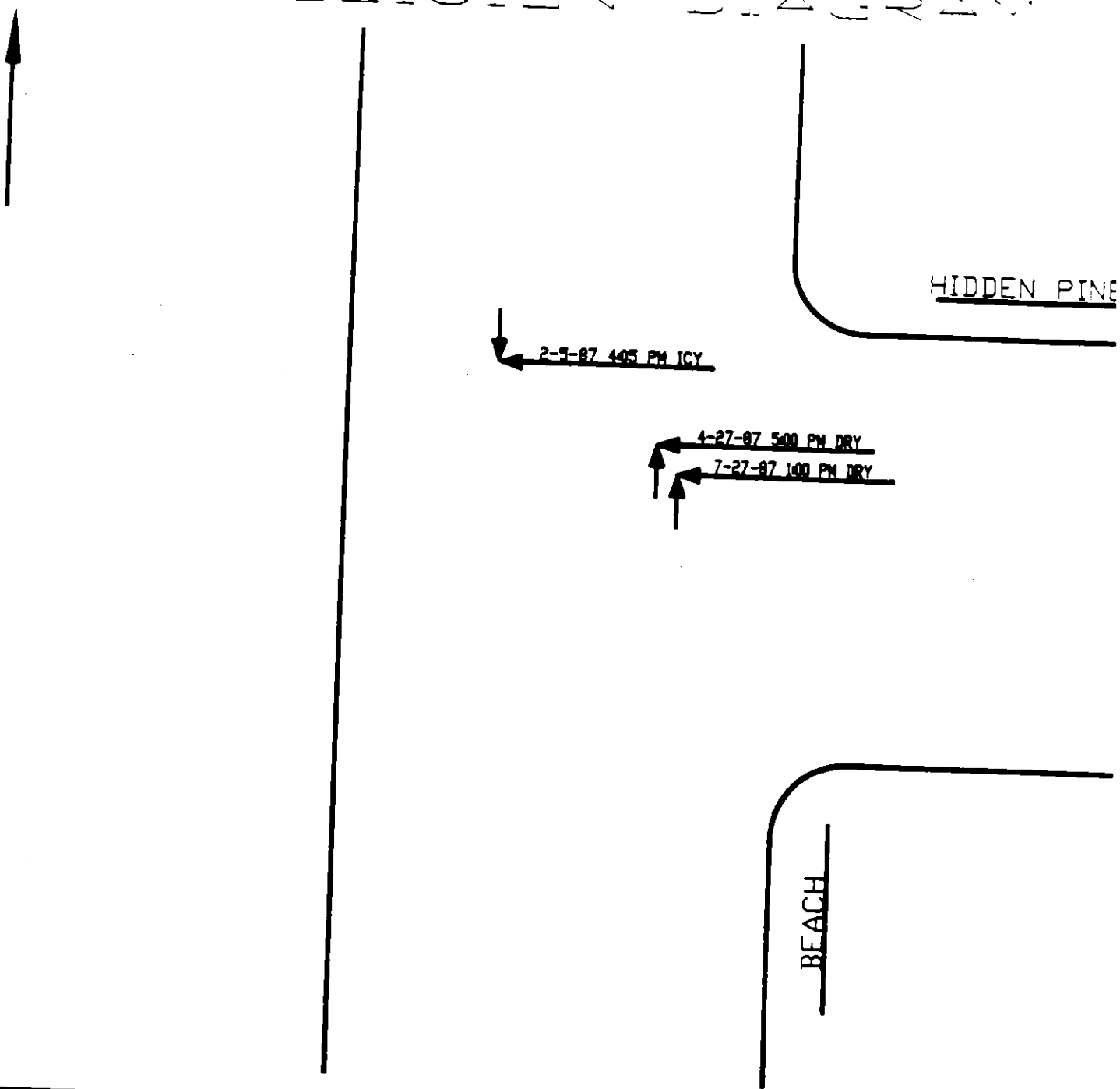
SYMBOLS	TYPES OF COLLISIONS	
MOVING VEHICLE	REAR END	RIGHT ANGLE
BACKING VEHICLE	HEAD ON	
PEDESTRIAN	SIDE SWIPE	SHOWN FOR EACH ACCIDENT:
PARKED VEHICLE	OUT OF CONTROL	1. DATE AND TIME
FIXED OBJECT	LEFT TURN	2. WEATHER CONDITIONS
FATAL ACCIDENT		
INJURY ACCIDENT		

INTERSECTION BEACH AND HIDDEN PINE

PERIOD 1 YEAR FROM JAN. 1986 TO DEC. 1986

BY KDB DATE 1-4-88

COLLISION DIAGRAM



SYMBOLS	TYPES OF COLLISIONS
MOVING VEHICLE	REAR END
BACKING VEHICLE	HEAD ON
PEDESTRIAN	SIDE SWIPE
PARKED VEHICLE	OUT OF CONTROL
FIXED OBJECT	LEFT TURN
FATAL ACCIDENT	RIGHT ANGLE
INJURY ACCIDENT	

SHOWN FOR EACH ACCIDENT:

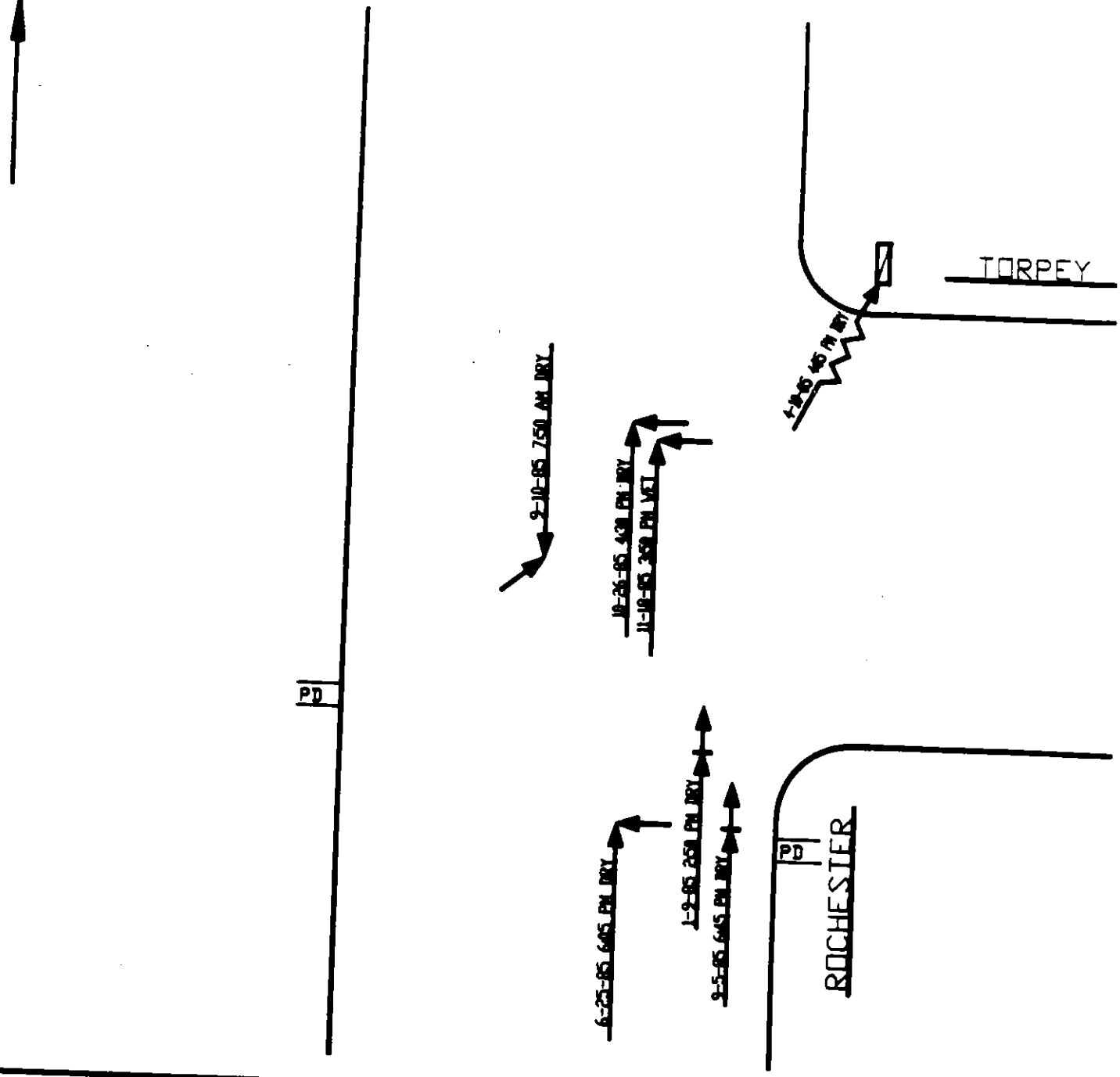
1. DATE AND TIME
2. WEATHER CONDITIONS

INTERSECTION BEACH AND HIDDEN PINE

PERIOD 10 MONTHS FROM JAN. 1987 TO OCT. 1987

BY C. SMITH DATE 1-4-88

COLLISION DIAGRAM



SYMBOLS	TYPES OF COLLISIONS
MOVING VEHICLE	REAR END
BACKING VEHICLE	HEAD ON
PEDESTRIAN	SIDE SWIPE
PARKED VEHICLE	OUT OF CONTROL
FIXED OBJECT	LEFT TURN
FATAL ACCIDENT	RIGHT ANGLE
INJURY ACCIDENT	

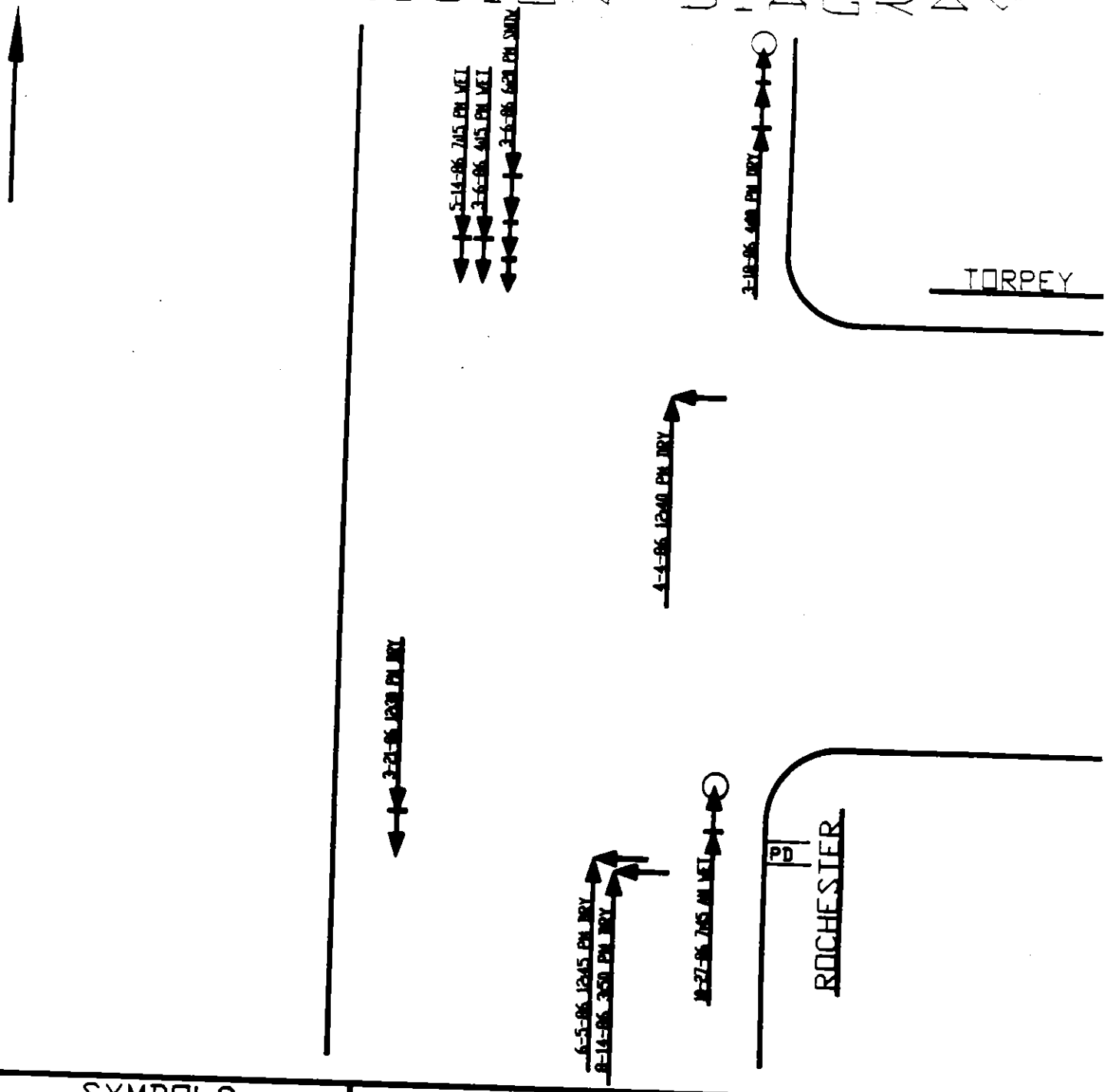
SHOWN FOR EACH ACCIDENT:
1. DATE AND TIME
2. WEATHER CONDITIONS

INTERSECTION ROCHESTER AND TORPEY

PERIOD 1 YEAR FROM JAN. 1985 TO DEC. 1985

BY KDB DATE 1-5-88

COLLISION DIAGRAM



SYMBOLS

- MOVING VEHICLE
- BACKING VEHICLE
- PEDESTRIAN
- PARKED VEHICLE
- FIXED OBJECT
- FATAL ACCIDENT
- INJURY ACCIDENT

TYPES OF COLLISIONS

- REAR END
- HEAD ON
- SIDE SWIPE
- OUT OF CONTROL
- LEFT TURN
- RIGHT ANGLE

SHOWN FOR EACH ACCIDENT:

1. DATE AND TIME
2. WEATHER CONDITIONS

INTERSECTION ROCHESTER AND TORPEY

PERIOD 1 YEAR FROM JAN 1986 TO DEC 1986

BY KDB DATE 1-5-88

COLLISION DIAGRAM

SYMBOLS	TYPES OF COLLISIONS	
MOVING VEHICLE	REAR END	RIGHT ANGLE
BACKING VEHICLE	HEAD ON	
PEDESTRIAN	SIDE SWIPE	SHOWN FOR EACH ACCIDENT:
PARKED VEHICLE	OUT OF CONTROL	1. DATE AND TIME
FIXED OBJECT	LEFT TURN	2. WEATHER CONDITIONS
FATAL ACCIDENT		
INJURY ACCIDENT		

INTERSECTION ROCHESTER AND TORPEY

PERIOD 5 MONTHS FROM JAN. 1987 TO MAY 1987

BY KDB DATE 1-5-88


RAINBOW

City of Troy

January 19, 1988

Mr. and Mrs. Vic LeSeure
3027 Waterfall
Troy, Michigan 48083

Dear Mr. and Mrs. LeSeure:

Your letter of January 16 regarding parking regulations on Waterfall has been referred to Mr. Richard F. Beaubien, Traffic and Transportation Engineer.

He will be present when the citizens Traffic Committee addresses this question at 7:30 p.m., Wednesday, January 20 here in the lower level conference room of Troy City Hall.

You are, of course, welcome to attend the meeting and make such remarks as you feel important. Thanks for taking the time to send along your comments.

Yours very truly,

Frank Gerstenecker
City Manager

FG/cs
c.c. Richard Beaubien

500 W. BIG BEAVER ROAD TROY, MICHIGAN 48084

Bldg. Inspections	524-3344	Dept. of Public Works	524-3370	Library	524-3538	Purchasing	524-3338
City Assessor	524-3311	Engineering	524-3383	Museum	524-3570	Recreation (Parks)	524-3484
City Attorney	524-3320	Finance	524-3411	Personnel	524-3339	Traffic Engineer	524-3379
City Clerk	524-3316	Fire	524-3419	Planning	524-3364	Treasurer	524-3334
City Manager	524-3330	Information	524-3900	Police Dept.	524-3443		

CITY MANAGER-

18 JAN 88 2:07

January 16, 1988

Dear Mr. Geratenecker,

We favor resolution (A). No parking on both sides of Waterfall.

We would like to see parking in the median as it is now.

When someone breaks down on Big Beaver they have a place to park until they can get help.

Parking in the median would not block all the traffic that comes & goes on Waterfall as curb parking would do. Also parking in the median gives our visitors a safe place to park.

Parking in the median has never been abused in the 10 years we've lived here. The only time the median has been filled with cars is when there has been a party at one of the homes on Waterfall.

It does not interfere with turn

around traffic as the street is short & a car could go the corner to turn around.

Hope our suggestions will help.

Sincerely,

Barbara & Vic LeSueur
3027 Waterfall
Troy, Mi - 48083
689-3461