COMMONWEALTH OF MASSACHUSETTS

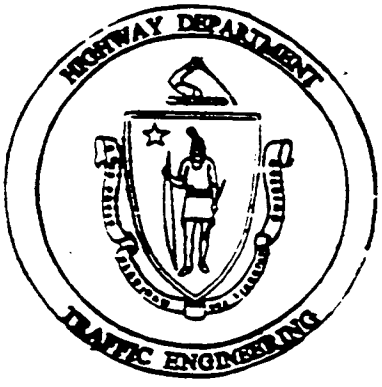
MASSACHUSETTS HIGHWAY DEPARTMENT

PROCEDURES FOR SPEED ZONING

ON

STATE AND MUNICIPAL ROADWAYS

1998



MASS HIGHWAY

Kevin J. Sullivan
Commissioner

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SPEED ZONING ON MASSACHUSETTS HIGHWAYS

Speed regulation is, and always has been, a subject of both interest and controversy to almost everyone. Whether we drive or not, most of us are directly affected by the speed of motor vehicles. There has always been a small segment of motorists who drive in a careless and reckless manner. This leads to demands from all sides that definite rules must be laid down regarding the operation of the motor vehicle and that a special effort be made to control those motorists who do not conform with the vast majority when governing their vehicular speeds.

It should be understood that it has been the consistent objective of the Massachusetts Highway Department (MassHighway) over the years to provide means to promote safe and efficient traffic flow in the Commonwealth. The goal of our Speed Limit Traffic Control Program has always been to provide appropriate and enforceable speed limits on all paved streets and highways within the Commonwealth in the best interest of the motoring public's right to use a roadway in a reasonable and proper manner.

Speed limits shall be established only after an engineering and traffic investigation has been conducted in compliance with established traffic engineering practices. The ideal speed limit is both acceptable to the prudent driver and enforceable by our police departments. Gravel and unpaved roadways are not typically speed zoned due to the fact that it is impossible to establish a consistent road surface and the conditions on such roads tend to change over a relatively short period of time.

MASSACHUSETTS SPEED LAW

Speed laws in Massachusetts are based on Chapter 90, Sections 17 and 18 of the Massachusetts General Laws. (Appendix 1)

Chapter 90, Section 17 governs the speed of motor vehicles on unposted roadways. The speed limits on roadways that fall into this category are often referred to as "prima facie" speed limits. The present prima facie speed limits according to Chapter 90, Section 17 are condensed below:

....it shall be prima facie evidence of a rate of speed greater than is reasonable and proper if a motor vehicle is operated in excess of:

1) 50 miles per hour on a divided highway outside of a thickly settled or business district for a distance of 1/4 of a mile.

2) 40 miles per hour on an undivided highway outside of a thickly settled or business district for a distance of 1/4 of a mile.

3) 30 miles per hour in a thickly settled or business district for a distance of 1/8 of a mile.

4) 20 miles per hour in a legally established school zone.

Note the distance requirements associated with the enforcement of Chapter 90, Section 17. Instantaneous radar or laser readings are not adequate. The motor vehicle must be shown to have been in excess of these speed limits for the entire distance associated with each respective speed limit. Also, prima facie speed limits

cannot be posted, with the exception of a legally established school zone.

The definition of a "thickly settled or business district" is as follows: "The territory contiguous to any way which is built up with structures devoted to business, or the territory contiguous to any way where dwelling houses are situated at such distances as will average less than two hundred feet between them for a distance of a quarter of a mile or over."

Chapter 90, Section 18 authorizes the posting of numerical speed limits on all roadways in Massachusetts. The foundation for the actual posting of a speed limit is a thorough traffic engineering study. After a study has been completed, a Special Speed Regulation is drafted and approved by the governing authority of the roadway, the Registry of Motor Vehicles and MassHighway. **All** posted regulatory speed limit signs must adhere to this approval process. If a speed limit is posted without this procedure, it is in violation of Chapter 90, Section 18, and is therefore considered illegal and unenforceable.

Chapter 90, Section 17 dictates the basic speed law, which is "No person operating a motor vehicle shall run it at a rate of speed greater than is reasonable and proper, having regard to traffic and the use of the way and the safety of the public." Note "reasonable and proper", for this is the fundamental speed law. No form of regulation, control, or restriction can supersede it.

No matter what speed is posted, "reasonable and proper" is always the fundamental rule. On a highway posted 55 miles per hour, reasonable and proper may mean five miles per hour depending on conditions.

ENGINEERING STUDIES AND SPEED ZONING

A prerequisite to establishing speed regulations and posting speed limits is a comprehensive engineering study at each location where speed control is contemplated. The purpose of the study is to establish a speed limit that is safe, reasonable and self-enforcing. The most important step is measuring the prevailing speeds of motorists on a particular section of a roadway under ideal conditions. The speed at or below which 85 percent of the motorists travel is the principle value used for establishing speed controls. This is commonly referred to as the **85th percentile speed**. This method is based on numerous studies which indicate that the majority of motorists are prudent and capable of selecting safe speeds. The 85th percentile speed is the national standard for establishing safe speed limits.

In Massachusetts, numerical limits are based on ideal conditions. More specifically, the posted speed limits represent the **maximum safe speed under ideal driving conditions**. It is the responsibility of each motorist to reduce his\her speed for unfavorable weather conditions, for poor visibility, for heavy traffic volume, for substandard vehicle conditions, and for his\her own driving deficiencies. Posted speed limits also serve as an invaluable guide to enforcement officers as to what is a reasonable maximum speed for ideal conditions.

The determination of the proper speed to post on any roadway depends on the results obtained in the engineering study, which for the purpose of this manual can be separated into A) the collection

of data, and B) the analysis of the data.

COLLECTION OF DATA

Investigations for this purpose should include:

I. Preliminary Study of Conditions

II. Speed Calculations on Curves

III. Speed Observations

IV. Studies of Accident Distribution

V. Trial Runs over the Location

The municipality requesting the establishment of a speed limit on a particular city/town way is responsible for submitting to their respective MassHighway District Office all of the necessary information listed above, with the exception of II, since most municipalities do not possess the proper equipment to accomplish this. MassHighway is responsible for collecting the above data on all State Highways and numbered routes(non-state highway).

I. Preliminary Study Of Conditions

Upon receipt of the necessary data from the municipality, a Speed Control Summary sheet should be prepared by MassHighway District Speed Zoning personnel for the roadway under consideration (see figure 1), showing all data on horizontal curves, hills, volumes if available, accident distributions, speeds by 85th percentile and by trial runs, and recommended speed zones. It is also desirable to include notes regarding other conditions contiguous to the area of interest such as intersecting streets/driveways, bridges, playgrounds, etc. or any other landmark

SHEET OF SHEETS

COMM. OF MASS. TRAFFIC ENGINEERING SECTION MASSACHUSETTS HIGHWAY DEPARTMENT

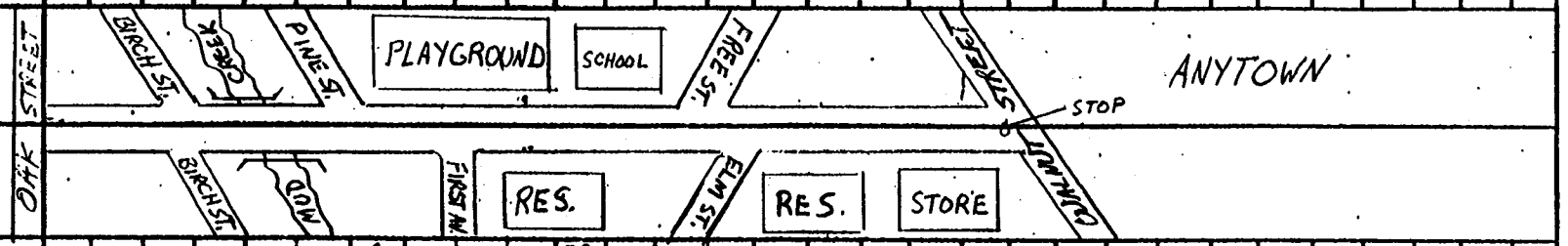
SPEED CONTROL SUMMARY SHEET

LOCATION ANYTOWN FROM OAK STREET TO WALNUT STREET REFERENCE MATERIAL MAPS AND FIELD DATA

(RTE. NO. & ST. NAME) MAIN

HORIZONTAL CURVE	LENGTH / RADIUS / SIGHT DISTANCE			
GRADIENT				
VERTICAL CURVE (CREST ONLY) N/A	LENGTH / SIGHT DISTANCE			
VOLUME (AVERAGE DAILY TRAFFIC)		5000+		
ACCIDENTS TOTAL (2 YRS.) = 7		① ② ③ ④ ⑤ ⑥ ⑦		

SCALE OF MILES: 1" = 0.1 mi



SPEED BY BALL BANK INDICATOR					10° @ 35			8° @ 35						> 40	
SPEED BY TRIAL RUNS		32				35			34				35		
SPEED BY 85%											EB →	35	36	← WB	
SPEED BY 50%											→	32	34	←	
MODE											→	32	33	←	

⇦ WEST BOUND
EXISTING SPEED ZONES
⇨ EAST BOUND

⇦ WEST BOUND
RECOMMENDED SPEED ZONES
⇨ EAST BOUND

← 0.52 at 35 mph →

FIELD DATA BY R.F.W. GEOMETRIC POSTING BY H.H. SPEED ANALYSIS BY R.F.W. APPROVED BY B.B. DATE 11/13/96

REGISTRY OF MOTOR VEHICLES APPROVAL BY DATE

HED-730

7.

Fig. 1

that may help to provide an accurate description of the area. All observations, tabulations or calculations are to be made separately for each of the two directions of traffic and should be recorded on the Summary sheet. All zones are to be computed to the nearest tenth of a mile. With a few exceptions, zones ideally should be at least 0.5 miles in length.

However, exceptions to this guide do exist. For example, on an approach to a section of roadway where it is determined that it is necessary to reduce the speed limit due to an adverse or dangerous situation, a minimum zone length of 0.5 miles is not needed to adequately advise motorists of the proper operating speed through such a condition.

II. Speed Calculations on Curves

The Ball Bank Indicator is the simplest and most widely used device to measure safe, comfortable speeds on horizontal curves (see figure 2). The Ball Bank Indicator is a curved level that measures the combined effect of the body roll angle, the centrifugal force, and the superelevation angle as a vehicle negotiates a horizontal curve at various speeds. A ball bank indicator reading of ten degrees is the usual value used to establish the safe speed. This is a national standard.

BALL BANK INDICATOR

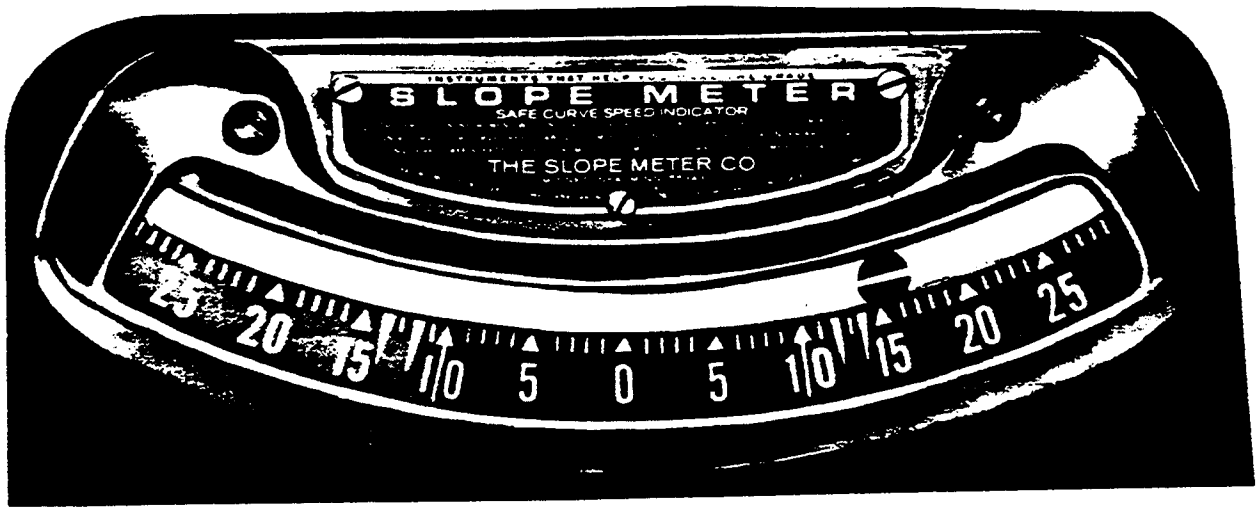


Fig.2

To obtain the driver's respect of the posted speed(regulatory or advisory), the following maximum ball bank angles are recommended:

Speed	Ball Bank Reading
20mph	14 degrees
25mph	12 "
30mph	12 "
35mph and up	10 "

It is desirable to have these speeds as close to 85th percentile values as possible. However, with the increased performance of late model passenger cars(i.e. ABS brakes,improved power steering, better traction on tires, etc.), this is often not the case. With this in mind, it is the policy of MassHighway that we should assume the safest scenario and, therefore, the guide shown above shall always be used so that consistency is maintained throughout the Commonwealth.

Trial runs should be made with the ball bank indicator on all horizontal curves having a safe operating speed of 60 mph or less, in accordance with the procedure outlined in Section V.

III. Speed Observations

Spot speed checks are of prime importance since they represent the opinion of the drivers using the roadway as to what the safe speed is at a given location. This is the basic data on which all speed zones are based.

The location of the speed check stations is singularly important because it determines whether or not a complete picture

of the speeds in the area is being obtained. It would be ideal to have speed checks at an infinite number of locations so that the 85th percentile speed could be computed at all points. Since this is not practical, the speed check stations must be strategically located to show all the important changes in the 85th percentile speeds. In urban districts and on approaches to municipalities, speed check stations should generally be located at intervals not to exceed 0.25 miles, depending upon the locality and the uniformity of physical and traffic conditions. Much closer spacing than this may be necessary to obtain an accurate picture of the speed pattern. In rural areas, the spacing of speed check stations may be at much greater intervals provided they properly reflect the general speed pattern. There should be at least one observation for each direction of travel in each zone of a different numerical limit.

Trial runs(see Section V) through the area may be of help in locating the appropriate speed check stations. After the locations of the speed check stations have been determined and the speed checks made, the 85th percentile speeds should be calculated immediately in the field. By doing so, it is possible to get an idea of what the speed pattern will look like and to determine if more speed check stations are warranted. When the data appears incomplete because of a large differential in the 85th percentile speed between speed check stations or an unusually high or low 85th percentile speed at a particular point, additional speed checks should be made, and possibly additional speed check stations added,

to clarify the speed picture.

Speed checks should be made on **average weekdays at off-peak hours and under ideal weather conditions.**

The speeds of 100 or more vehicles in each direction should be checked at each station. On highways carrying low traffic volumes, the checks at any one station may be discontinued after two hours although a minimum of 100 vehicles have not been timed. Vehicles should be checked as quickly as possible, but it is not necessary to check the speed of every vehicle. The vehicles checked, insofar as possible, should be the ones in which the driver is **choosing his/her own speed.** When a line of vehicles closely spaced passes a speed check station, only the speed of the first vehicle should be recorded since the other drivers may not be selecting their own speeds. Vehicles involved in short passing or turning maneuvers should not be recorded since they are usually travelling at an abnormal rate of speed. Speeds of vehicles other than passenger cars, such as trucks and buses, shall be recorded as: T, B, S, etc. (see Speed Distribution Sheet, Fig. 3)

Speeds are measured by a radar gun or a laser gun. Both instruments are extremely accurate and provide the engineer with invaluable data when used properly. Caution should be taken that the manufacturer's instructions are followed stringently in order to insure that collected data is correct and accurate for speed zoning purposes. In most cases, speed data collection is typically conducted in a passenger car or light truck. It is important that

MED739 REV4/76

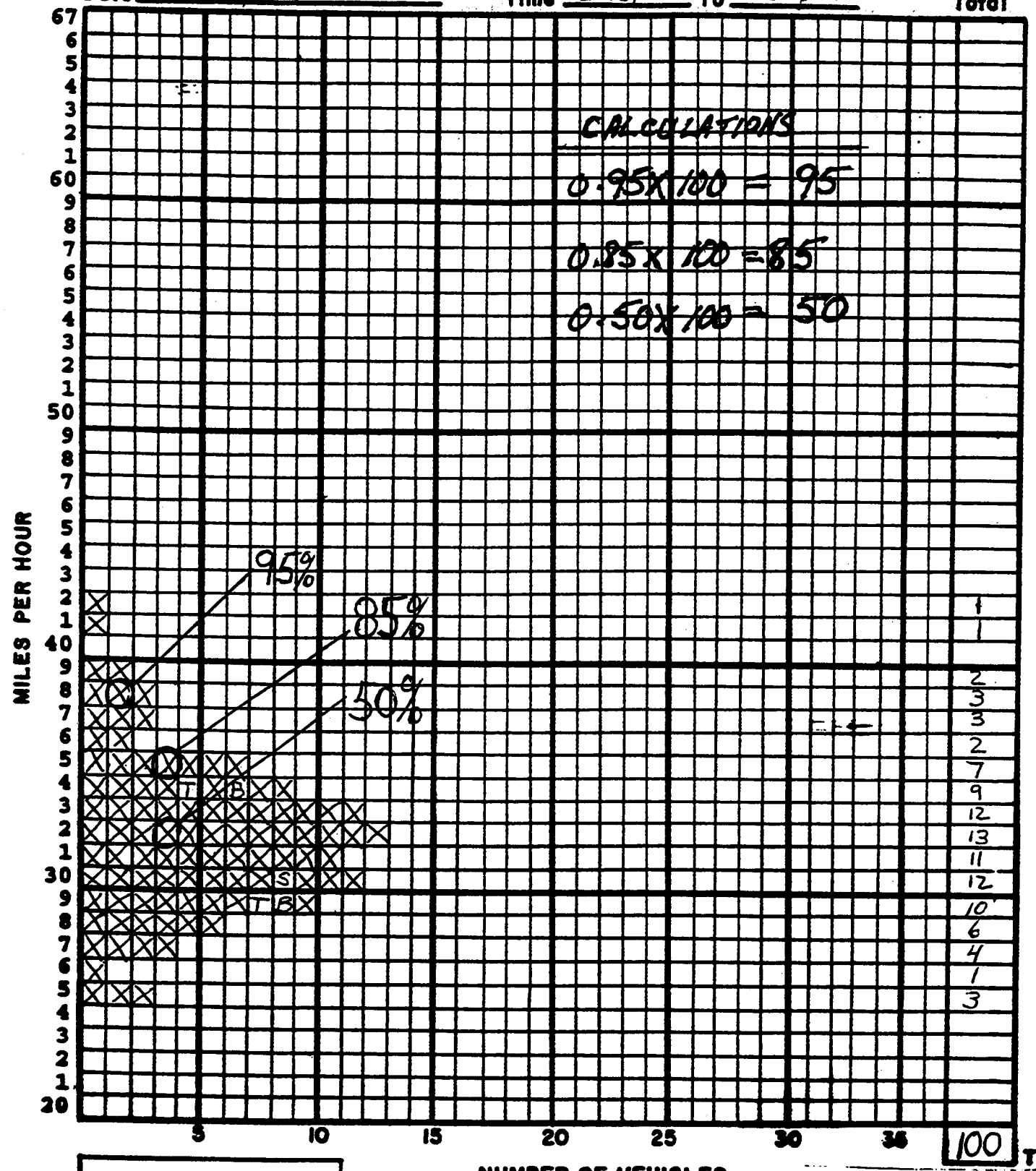
Massachusetts Highway Department

SPEED DISTRIBUTION

Location: Route MAIN STREET Town ANYTOWN

Direction of Travel EASTBOUND Station AT ELM STREET

Date 11/13/96 Time 12:15p.m. To 1:30p.m.



CALCULATIONS

0.95 X 100 = 95

0.85 X 100 = 85

0.50 X 100 = 50

LEGEND: X=Pass.Car, T=Truck, S=Semi Trailer, B=Bus

NUMBER OF VEHICLES

Surface Type BIT. CONC.

Weather CLEAR

Existing Posted Speed 35 M.P.H.

95% Speed 38 M.P.H.

85% Speed 35 M.P.H.

50% Speed 32 M.P.H.

Mode 32 M.P.H.

OBSERVER J. SMITH

Fig. 3

the aforementioned vehicles are **unmarked** so that motorists do not perceive the recorder's presence as an enforcement activity and adjust their speeds accordingly. Also, the recording vehicle should be parked in such a way that it does not affect the speed of vehicles using the roadway, preferably being positioned off the travelled way out of plain view.

The **85th percentile speed** of vehicles passing a given point is the speed at or below which 85 percent of the vehicles passing the point are travelling. This is the principle value used for establishing speed controls. This method assumes that the majority of motorists are prudent and capable of selecting safe speeds; therefore, speeds established in this manner meet the legal requirement that they be "reasonable and proper."

Calculating the 85th percentile speed from the data collected on the Speed Distribution Sheet(fig. 3) is simply a matter of determining what 85% of the total number of vehicles recorded is. For example, if 100 vehicles are recorded, 85 percent of 100 equals:(0.85 x 100 = 85). One could also determine the 85th percentile speed by taking the highest 15 percent of the vehicles recorded and eliminating them from consideration(counting down from the highest speeds, right to left): and the next tally mark on the sheet represents the 85th percentile speed. The tally mark which represents the 85th percentile speed is circled on the Speed Distribution Sheet along with the 95th and 50th percentile speeds.

The Mode is simply the speed at which the largest number of vehicles is travelling and is also recorded(fig. 3). Any other information regarding the conditions present during the time of the recording should also be included. The speed check information should then be recorded on the Speed Control Summary Sheet(fig. 1).

In some unique cases, the 85th percentile speeds will differ considerably by direction at a particular location. In such cases, the zone speeds should conform to the 85th percentile speed even though this means zoning for different speeds in opposite directions. Such a condition may be caused by relatively heavy development on one side of the road. Within the proximity of the development, motorists will tend to be more prudent due to the increased possibility of conflict caused by traffic into and out of the development.

Conditions which might justify varying from the 85th percentile speed are:

a. If the 85th percentile speeds for adjacent speed check stations are approximately the same, they may be statistically averaged to determine one speed zone. No 85th percentile speed should be included in such averages, however, if it varies more than 7 miles per hour from the speed derived from the average. Posted limits are rounded off to the nearest 5 mile per hour increment.

b. On sections of highways having a high accident experience, the zone speed may be lower than the 85th percentile speed, but in

no case more than 7 miles per hour lower. This should be considered more as an exception than as a rule, and should be done only where enforcement agencies will ensure consistent enforcement which will increase the effectiveness of the zone to an acceptable level of conformance.

c. At locations where traffic volumes are low and one hundred cars cannot be recorded in the two hours that the speed check station is operated, the 85th percentile speed may not be reliable. In many cases such as this, speed zoning will probably not be required. However, if conditions such as roadside development and high accident experience indicate that speeds lower than the prima facie limits are required, it would be beneficial to make a number of trial runs through the area. From the data obtained from the trial runs and from the speed check data, it should be possible to arrive at a reasonable and proper speed zone.

For each speed observation location, the following information should be recorded on the Speed Distribution Sheet:

1. 95th percentile speed
2. 85th percentile speed
3. 50th percentile speed
4. Mode (the speed at which the greatest number of vehicles are travelling)
5. Pace (the ten m.p.h. speed range containing the greatest number of vehicles)

IV. Studies of Accident Distribution

Indicate on the strip map, the locations of all accidents reported during the previous two years. Use distinctive marks to represent fatal, personal injury and property damage accidents.

V. Trial Runs Over the Location

Trial runs should be made over the entire roadway by engineers, enforcement officers and municipal officials using at least three different drivers. An observer seated directly behind the driver should take and record readings of the speedometer and odometer for every tenth of a mile. (see Trial Run sheet, fig.4) The drivers should operate at the safe maximum comfortable speed. The actual speed is observed for each point and plotted on the Trial Run Sheet. (Note: Use a different color pencil for each driver.) The high and low speeds are discounted and the remaining speeds are averaged, thereby developing a speed curve. The speeds at each tenth of a mile are then recorded on the Speed Control Summary Sheet. (fig.1)

COMMONWEALTH OF MASSACHUSETTS

ANYTOWN

SPEED ZONING
SPEED CONTROL
TRIAL RUNS

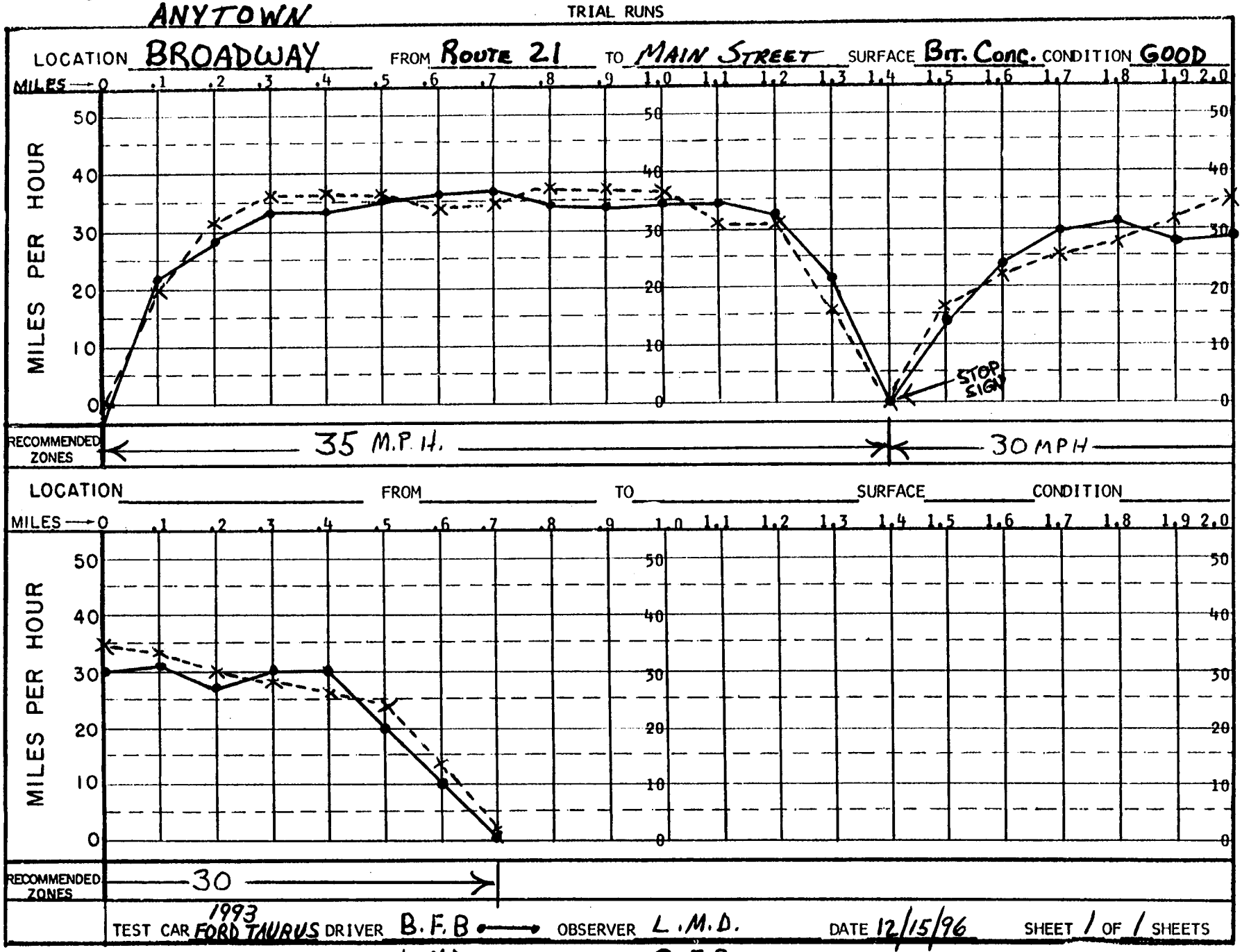


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Fig. 4

ANALYSIS OF DATA

The requirements for analyzing the collected data are as follows:

I. Safe Speed Range

II. Selecting Speed Limits and Lengths of Each Zone

III. Advisory Speeds

IV. Rechecks with Trial Runs

I. SAFE SPEED RANGE

The safe speed range for each location is determined after the data collected for the location is analyzed.

The following criteria is used to determine safe speed values for each location:

a. The proposed speed limit for any location should not be higher than the critical approach speed for that location, which in part is determined by horizontal and vertical safe sight distance. Also, for the purpose of establishing speed limits, the critical approach speed can be considered equal to the 95th percentile speed in the absence of geometric restrictions.

b. At speed observation locations, the estimated safe speed shall not be more than 7 m.p.h. below the 85th percentile speed, and it should not be higher than the 95th percentile speed. The relative position within this range will depend on several other considerations, as outlined in **c**, below.

c. Consideration should be given to the following in selecting

a value for the estimated speed within the previously mentioned range for each speed observation location:

1. Accident Rating - When the accident rate for a section is much higher than the average for other highways of similar classification, the estimated maximum safe speed should approach the lower limit of this speed range. When the accident rating is average or below, the estimated safe speed should be closer to the upper limit of the speed range.

2. Probable value of the speed limit - When the speed limit is likely to be 40 m.p.h. or above, the value of the estimated speed limit should generally approach the upper limit of the speed range.

3. Physical Conditions - When the strip map on the Speed Control Summary Sheet reveals narrow shoulders and lack of sufficient space for maneuvering in the event of emergency, or any other conditions or traffic impediments present that may require additional caution on the part of motorists using the roadway, it may be desirable to use slightly lower values to provide some additional margin of safety (such as the presence of schools, elderly housing, etc.). However, the proposed speed limit should never be lower than the lower limit of the safe speed range.

II. SELECTING SPEED LIMITS AND LENGTHS OF EACH ZONE

Each speed zone should be as long as possible, while always taking into consideration the speed limitations at curves, hills

and intersections.(see Section III., below)

In rural areas, the length of a zone generally should be at least one-half mile when possible. Each zone in a series of graduated speed zones should be at least two tenths of a mile in length, and, if the speed limit is reduced from one zone to the next by 15 mph or greater, a "REDUCED SPEED AHEAD" sign shall be erected in advance of the lower limit in order to inform motorists to adjust their speeds accordingly.

The point where the highway enters or leaves a residential district should be used, when feasible, as points of change in numerical limits for a graduated speed zone. This encourages uniformity and provides a reason to the motorist as to why the speed limit has increased or decreased at a particular point.

The value of the speed limit for each zone should generally be equal to or slightly less than the average of the values of the safe speeds for speed observation locations within the zone.

III. ADVISORY SPEEDS

Special consideration should always be given to the safe speeds for curves, hills and other locations located within that portion of the section. If the safe speed determined by a Ball-Bank Indicator through a particular curved section of a roadway differs from the preceding speed zone by 10 miles per hour or less, and the curved section of roadway is less than 0.20 miles, or if engineering judgment determines that it is appropriate, a warning

sign used in conjunction with an advisory speed plate indicating the safe speed can be used in lieu of establishing a separate speed zone for an isolated condition.

Section 2C-35 of the Manual on Uniform Traffic Control Devices (M.U.T.C.D.) states:

> **" The Advisory Speed plate is intended for use to supplement warning signs. The standard size of the Advisory Speed plate shall be 18 x 18 inches. Advisory Speed plates used with 36-inch and larger warning signs shall be 24 x 24 inches.**
>
> **The plate shall carry the message (XX) MPH in black on a yellow background except for construction and maintenance signs (sec. 6B-34). The speed shown shall be a multiple of 5 miles per hour. The plate may be used in conjunction with any standard yellow warning sign to indicate the maximum recommended speed around a curve or through a hazardous location. It shall not be used in conjunction with any sign other than a warning sign, nor shall it be used alone. When used, it shall be mounted on the same assembly and normally below the standard warning sign (see figure 5).**
>
> **Except in emergencies, or at construction or maintenance sites, where the situation calling for an advisory speed is temporary, an Advisory Speed plate shall not be erected until the recommended speed has been determined by accepted traffic engineering procedures. Because changes in surface characteristics, sight distance, etc., may alter the recommended speed, each location should be periodically checked and the speed plate corrected if necessary."**

Unlike regulatory speed signs, advisory speed signs can be erected by municipalities without any further approval provided they comply with the M.U.T.C.D.. Also, advisory speeds are **not** enforceable, since their intent is to advise motorists of an appropriate speed through a particular condition, not regulate it.

IV. RECHECKS WITH TRIAL RUNS

After the proposed speed limits and zone lengths have been determined, repeat the trial speed runs, driving in each direction over each part of the zone at the recommended speed for that

WARNING SIGN
WITH ADVISORY
SPEED PLATE
RURAL DISTRICT

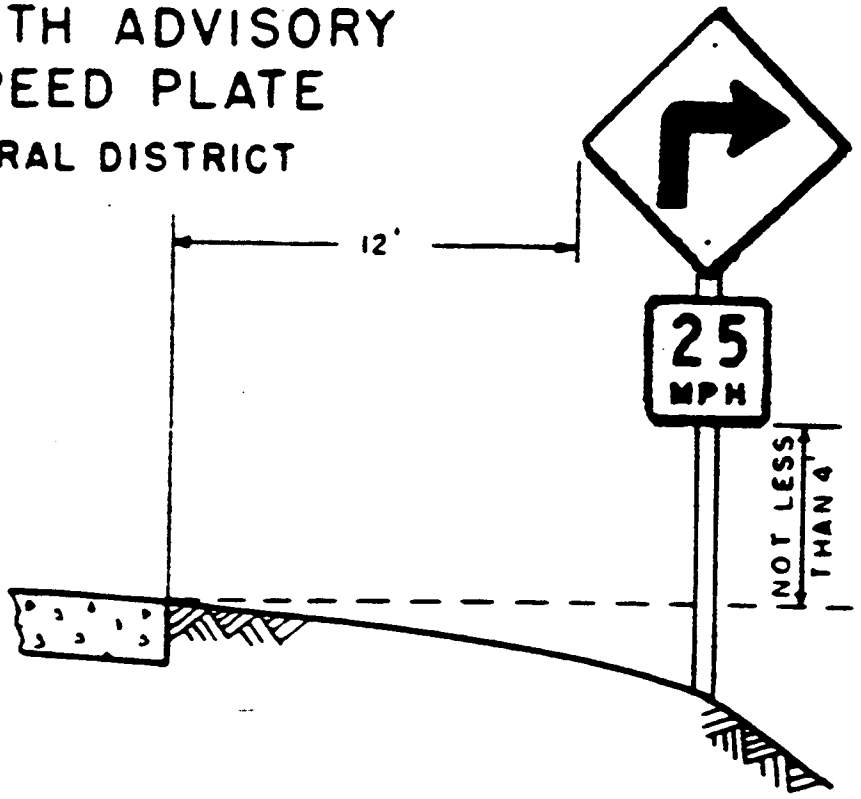

FIG. 5

direction. Make notes on whether the limits and the lengths of the separate zones appear to be satisfactory. Note also the readings of the ball bank indicator when negotiating horizontal curves. If some revision in the zone appears to be necessary, make the required adjustments and recheck with test runs accordingly.

After all of the necessary field data has been collected and analyzed, it should be forwarded to the appropriate MassHighway District Office so that the results of the study can be discussed. A tentative agreement should be reached as to what speed limits will be established. This must be a tentative agreement because the speed zones must be reviewed by both the MassHighway District Traffic Engineering Section and the Boston Office Speed Zoning Section for final approval.

SPECIAL SPEED REGULATIONS

Following the determination of the appropriate speed zones and the subsequent approval by the Boston Office, a Special Speed Regulation will be drafted by the Boston Office Speed Zoning Section to be signed by the Chief Deputy Registrar for the Registry of Motor Vehicles and the State Traffic Engineer for MassHighway. In the case of a City or Town regulation, the Special Speed Regulation must first be adopted by the appropriate City or Town officials before being approved by Registry and Department officials. (see Speed Control Flow Charts, fig. 6a & 6b) After the regulation is adopted by all of the previously mentioned agencies, the authority in control of the subject roadway may then proceed

SPEED LIMIT PROCEDURE ON MUNICIPAL ROADWAYS

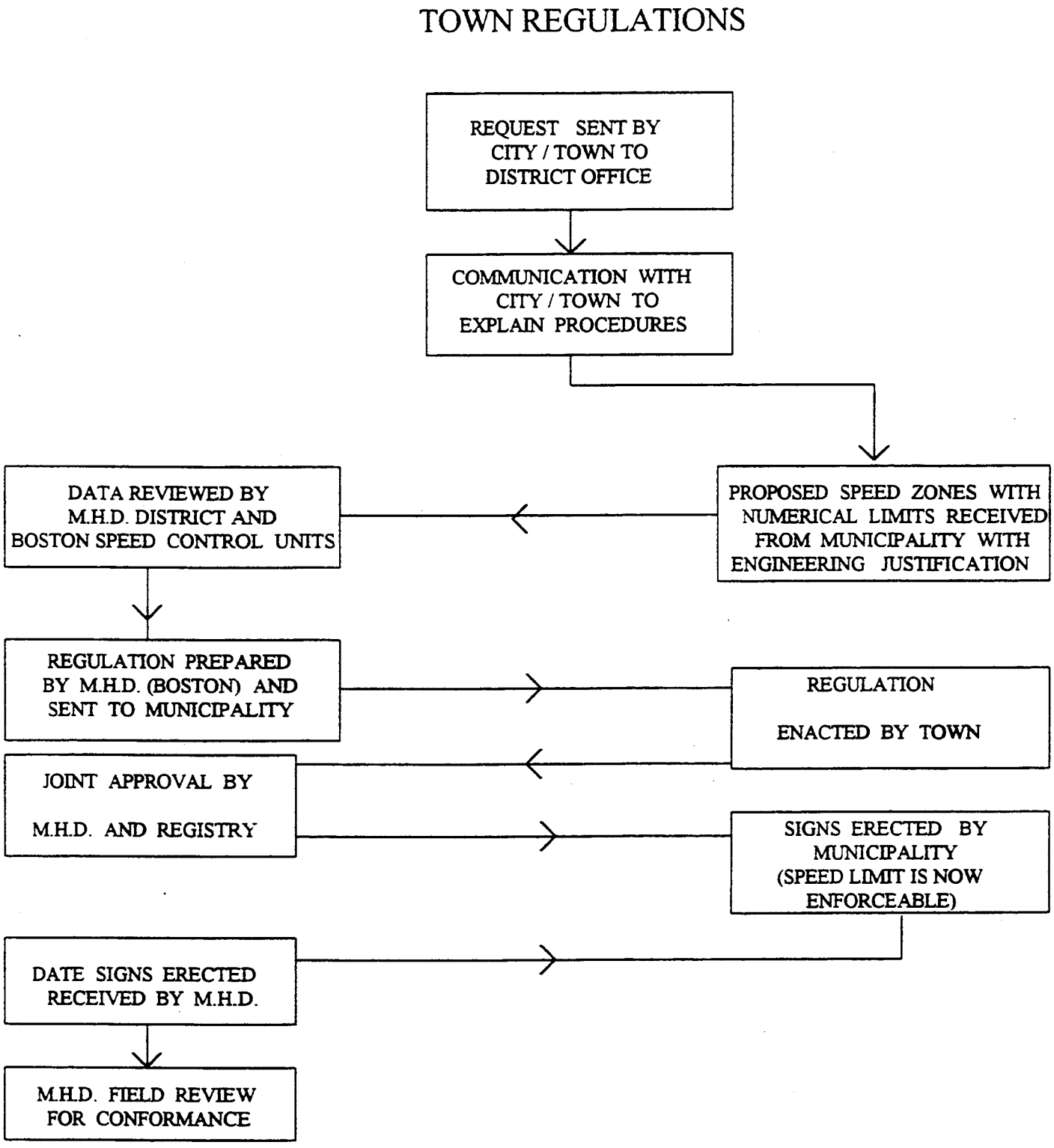

FIG. 6a

SPEED LIMIT PROCEDURE ON STATE HIGHWAYS AND NUMBERED ROUTES

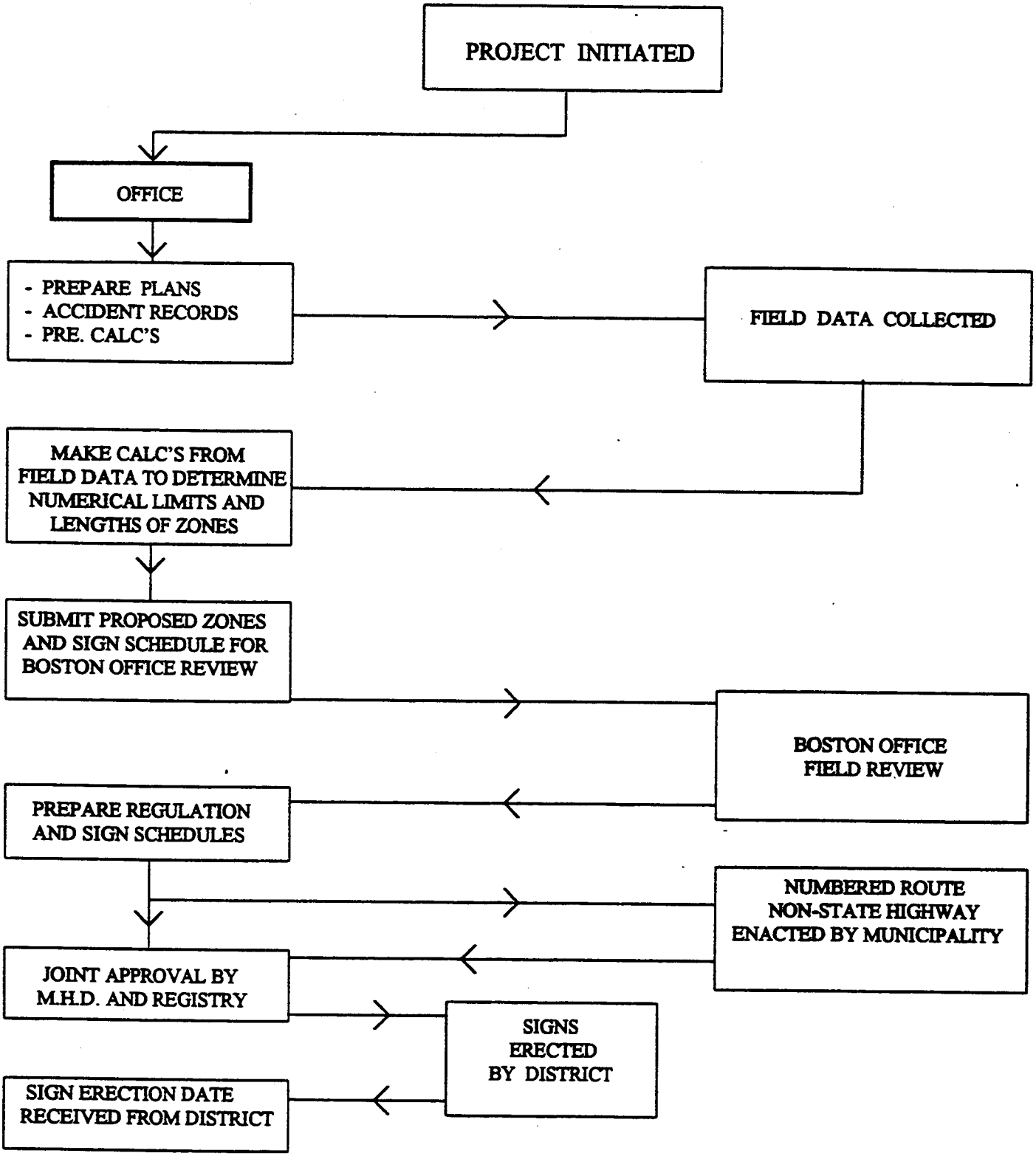

FIG. 6b

with the erection of the appropriate speed limit signs at which point the regulation then becomes legal and enforceable.

SPEED LIMIT SIGNS

Speed Limit signs are rectangular in shape, with black numerals on a white reflectorized background. (see fig. 7).

Typical sizes of standard signs and numerals are as follows;

	Numerals	**Sign**
Town or State Highway*	12"	24" x 30"
Limited Access Expressways	16"	48" x 60"
Interstate	16"	48" x 60"

* a 36" x 48" sign with 14" numerals can also be used.

(NOTE: The regulation does not become effective until all of the appropriate signs are actually erected.)

A sign must be placed at each location where a change in the numerical limit occurs. In unusually long zones, confirmatory speed signs should also be erected at strategic locations to remind the driver of the legal speed limit. On Interstates and Limited Access Expressways, confirmatory signs are usually erected at all points of access.

FOLLOW UP STUDIES

After the speed signs have been in place for sometime, it is often beneficial to conduct a follow-up study to determine the zone's effectiveness and to evaluate any changes in speed patterns. The comparison of the speed observations made before and after the zoning should be recorded. Consideration should be given to revising numerical limits which vary by 7 m.p.h. from the 85th

SIGN SIZE	DIMENSIONS (mm)							MAR-GIN	BOR-DER	R
	A	B	C		E	F	G			
MIN.	450	600	75E		200E	75	50	10	15	40
STD.	600	750	100E		250E	100	50	10	15	40
EXPWY.	900	1200	150E		350E	150	125	15	20	55
FWY.	1200	1500	200E		400E	200	150	20	30	75

c:\stdsigns\r2-1.dwg

STANDARD SIGNS

SPEED LIMIT

DATE: 2/1/95

SIGN CODE: R2-1

Fig 7

percentile speed.

After the zones have been in effect for a year or more, it is often beneficial to make a comparison of the accident experience for one year before and after the establishment of the zone. This accident experience should be compared and summarized on before and after summary tables. Such a comparison will show whether the zone has been effective in reducing the number and severity of accidents and will also show the types of accidents which have been affected by the speed limit signing.

EFFECT OF SPEED ZONES

Studies have shown that speed zoning has very little permanent effect on average vehicular speeds. There are indications, however, that it does have a tendency to group more of the drivers within the Pace since some of the slower drivers speed up and some of the faster drivers slow down after the speed limits are posted.

In some cases, it has been noted that speed zoning has had a marked effect in lowering the accident rate.

The principal benefit of properly established speed zoning is to provide a means for police officers to apply enforcement to those who do not conform to speeds considered reasonable and proper by the majority of the motoring public. Public opinion will be on the side of the police who are enforcing a reasonable maximum speed. The former fedrally mandated 55 mile per hour national speed limit on the Interstate System clearly shows that an unreasonably

low speed limit is neither enforcable nor has the long term support of the general public.

Conclusion

Successful speed zoning is a cooperative project which includes the traffic engineer, the enforcement agencies and the judiciary. It requires careful engineering, conformance to recognized standards, state-wide uniformity, and development of public understanding and support. Under this approach, speed zoning is a valuable aid to the conscientious motorist and to enforcement officials.