

(R-86-944)

RESOLUTION NUMBER R- 264586

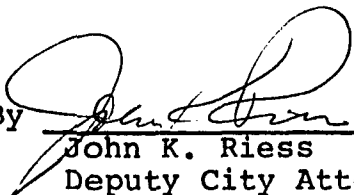
ADOPTED ON DEC 02 1985

RESOLUTION AMENDING COUNCIL POLICY NO. 200-6
REGARDING CRITERIA FOR INSTALLATION OF TRAFFIC
SIGNALS.

BE IT RESOLVED, by the Council of The City of San Diego, that
Council Policy No. 200-6 entitled, "Criteria for Installation of
Traffic Signals," be and it is hereby amended as set forth in the
Council Policy filed in the office of the City Clerk as Document
No. RR- 264586 .

BE IT FURTHER RESOLVED, that the City Clerk is hereby
instructed to add the aforesaid to the Council Policy Manual.

APPROVED: John W. Witt, City Attorney

By 
John K. Riess
Deputy City Attorney

JKR:mem
11/18/85
Or.Dept:E&D
R-86-944
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DEC 02 1985

Passed and adopted by the Council of The City of San Diego on
by the following vote:

Councilmen	Yeas	Nays	Not Present	Ineligible
Abbe Wolfsheimer	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bill Cleator	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gloria McColl	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
William Jones	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ed Struikma	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mike Gotch	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Judy McCarty	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Uvaldo Martinez	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mayor Roger Hedgecock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

AUTHENTICATED BY:

ROGER HEDGECOCK
Mayor of The City of San Diego, California.

CHARLES G. ABDELNOUR
City Clerk of The City of San Diego, California.

(Seal)

By *Charles G. Abdelnour*, Deputy.

Office of the City Clerk, San Diego, California

Resolution *R-264586* DEC 02 1985
 Number Adopted

COUNCIL POLICY

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BACKGROUND

Various types and levels of traffic control methods and devices are utilized by the City depending upon the unique problems presented by the situation.

It is the City's responsibility to provide for traffic control at a level which will result in the greatest degree of safety, and the most efficient flow of traffic with minimum delays within its financial ability to do so.

In the case of intersections, control methods applied range from basic rules of the road to complex traffic signal systems.

Many different traffic situations arise over a period of time at any given intersection. Each situation requires a traffic control response which is tailored to solve the traffic problem. Too much control for a given situation can be as unsafe as too little.

When the right control for the situation is not used, the results may include increased accidents, excessive delays, congestion and diversion of traffic to other routes which may be less desirable in terms of public safety and environmental quality.

Controls used include:

- a. Basic Rules of the Road
- b. Yield
- c. 2-Way Stop
- d. 3 or 4-Way Stop
- e. Signalization

In order to ensure that the most appropriate traffic control method is used and that they be as nearly uniform as possible, the U.S. Department of Transportation and the California Department of Transportation have developed criteria for the installation of traffic signals and other control measures.

PURPOSE

The purpose of this policy is to set forth the criteria to be used by the City of San Diego for the installation of traffic signals.

POLICY

It is the policy of the Council that the installation of traffic signals shall be in accordance with minimum criteria established herein, and that such measurements and computation as may be required in determining criteria qualification shall be the responsibility of the City Engineer.

DOCUMENT NO. RR-264586

FILED DEC 02 1985

OFFICE OF THE CITY CLERK
SAN DIEGO, CALIFORNIA

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GENERAL

Only those intersections meeting the minimum warrants should be considered for traffic signals. The minimum warrants listed herein are the criteria used by both the U.S. Department of Transportation and the California Department of Transportation and have general national acceptance. They are based on an analysis of data from a large number of signal installations coupled with the judgment of traffic engineers with long experience. The minimum criteria are satisfied when any one of the ten warrants is met.

The satisfaction of a warrant is not necessarily justification for signals. In special situations, a traffic signal should not be installed because of the adverse effect it could cause in the overall traffic circulation pattern of an area.

WARRANTS

	Number of Approach Lanes (Major St.) (Minor St.)	Urban	*Rural
1. <u>Minimum Vehicular Volume</u>			
a. The vehicular volume per hour entering the intersection from all approaches on the major street for any 8 hours of an average must be:	1 2 or more	500 600	350 420
**b. In addition, the vehicular volume per hour entering the intersection from the higher volume minor street approach for the same 8 hours must be:	1 2 or more	150 200	105 140
2. <u>Interruption of Continuous Traffic</u>			
a. The vehicular volume per hour entering the intersection from all approaches on the major street for any 8 hours of an average day must be:	1 2 or more	750 900	525 630
**b. In addition, the vehicular volume per hour entering the intersection from the higher-volume minor street approach for the same 8 hours must be:	1 2 or more	75 100	53 70

*,** See page 5

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WARRANTS (Continued)

	<u>Number of Approach Lanes</u>		<u>Urban</u>	<u>*Rural</u>
	<u>Major St.</u>	<u>Minor St.</u>		
3. <u>Minimum Pedestrian Volume</u>				
a. The pedestrian volume per hour crossing the major street in the highest-volume crosswalk for any 8 hours of an average day must be:			150 peds.	105 peds.
b. In addition, the vehicular traffic per hour entering the intersection from all approaches on the major street for the same 8 hours must be:			600 veh.	420 veh.
c. Or, the vehicular traffic per hour entering the intersection from all approaches on a major street where there is a raised median island 4 feet or more in width for the same 8 hours must be:			1000 veh.	700 veh.

4. Progressive Movement

A signal may be warranted where the existing adjacent signals do not provide the necessary degree of platooning of vehicles. This warrant is not applicable at locations that are within 1000 feet of any existing signal.

5. Accident Hazard

- a. A signal may be warranted where five (5) or more reported accidents of types susceptible to correction by a traffic signal have occurred within a recent 12 month period, and
- b. Where not less than eighty percent (80%) of the minimum vehicular and/or pedestrian volumes specified in Warrants 1, 2, or 3 are satisfied, and
- c. Where an adequate trial of less restrictive remedies with satisfactory observance and enforcement has failed to reduce the accident frequency.

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WARRANTS (Continued)

6. Systems

A signal may be warranted at the intersection of two (2) or more major streets and/or primary arterials where the total entering traffic volume is at least 800 during the peak hour of any average weekday, or for any five (5) hours of a Saturday and/or Sunday.

7. Combination

In exceptional cases, a signal may be warranted where no one warrant is satisfied but where any two (2) of Warrants 1, 2, or 3 are satisfied to the extent of eighty percent (80%) or more of the stated values.

8. Four Hour Volume Warrant

A signal may be warranted, when for each of any four hours of an average day, the plotted points representing the vehicles per hour entering the intersection from all approaches on the major street and the vehicles per hour entering the intersection from the higher-volume minor street approach for the same 4 hours all fall above the curve in figure 1A or figure 1B.

9. Peak Hour Volume Warrant

A signal may be warranted, when for one hour (any four consecutive 15-minute periods) of an average day, the plotted points representing the vehicles per hour entering the intersection from all approaches on the major street and the vehicles per hour entering the intersection from the higher-volume minor street approach for the same one hour falls above the curve in figure 2A or 2B.

10. Peak Hour Delay Warrant

A signal may be warranted when the conditions given below exist for one hour (any four consecutive 15-minute periods) of an average weekday.

- a. The total delay experienced by traffic on the minor street controlled by a stop sign equals or exceeds four vehicle-hours for a one-lane approach and five vehicle-hours for a two-lane approach, and
- b. The volume on the minor street approach equals or exceeds 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes, and

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WARRANTS (Continued)

- c. The vehicular volume per hour entering the intersection from all approaches during the same hour equals or exceeds 800 vehicles per hour for intersections with four or more approaches or 650 vehicles per hour for intersections with three approaches.

*Use at intersections when the 85-percentile speed on the major street exceeds 40 mph.

**Include the higher-volume left turn movement from the major street, if a separate left turn phase is to be provided. The major street volume should be reduced by this amount.

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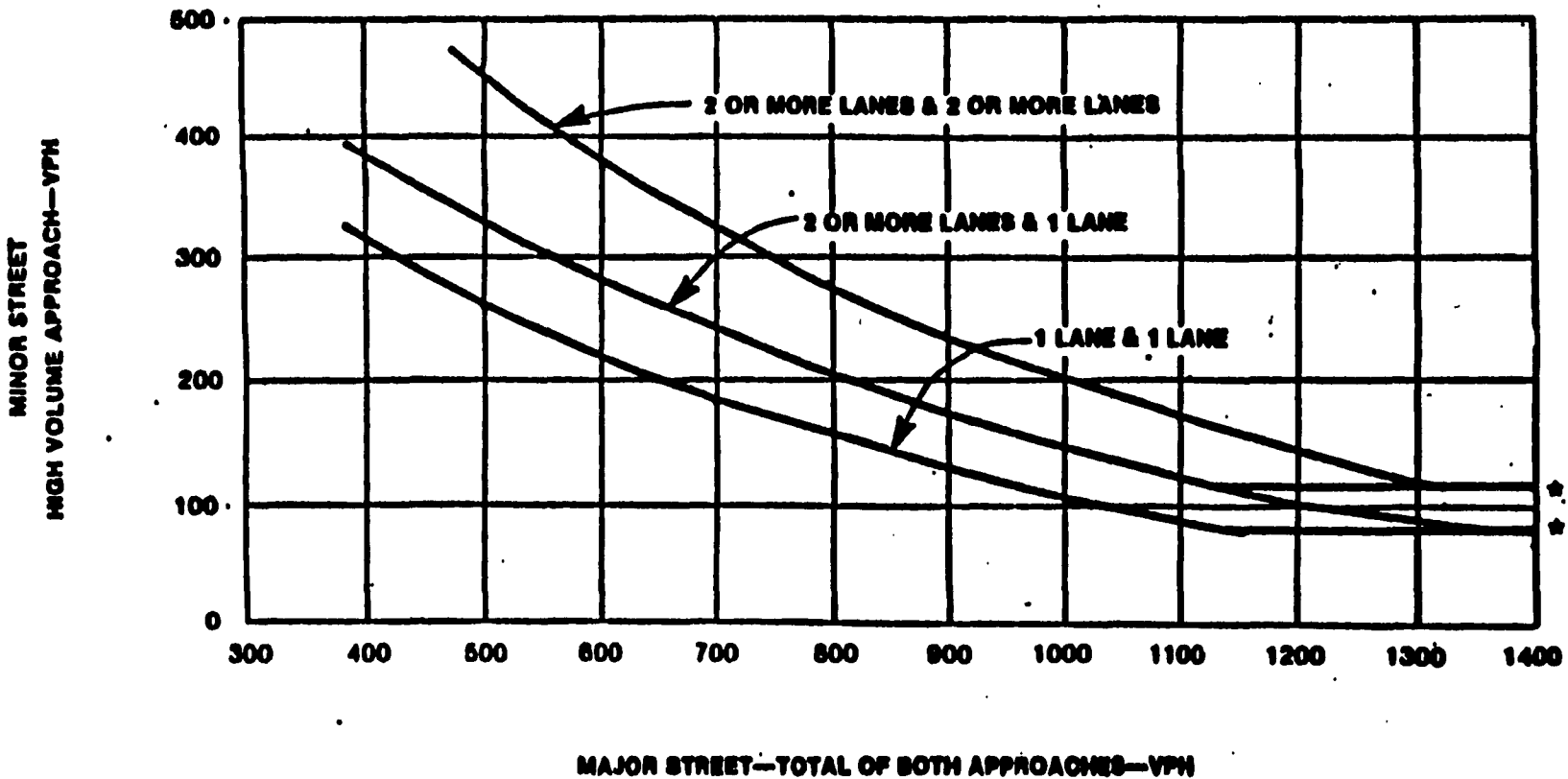
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**FIGURE 1A
 FOUR HOUR VOLUME WARRANT
 URBAN**

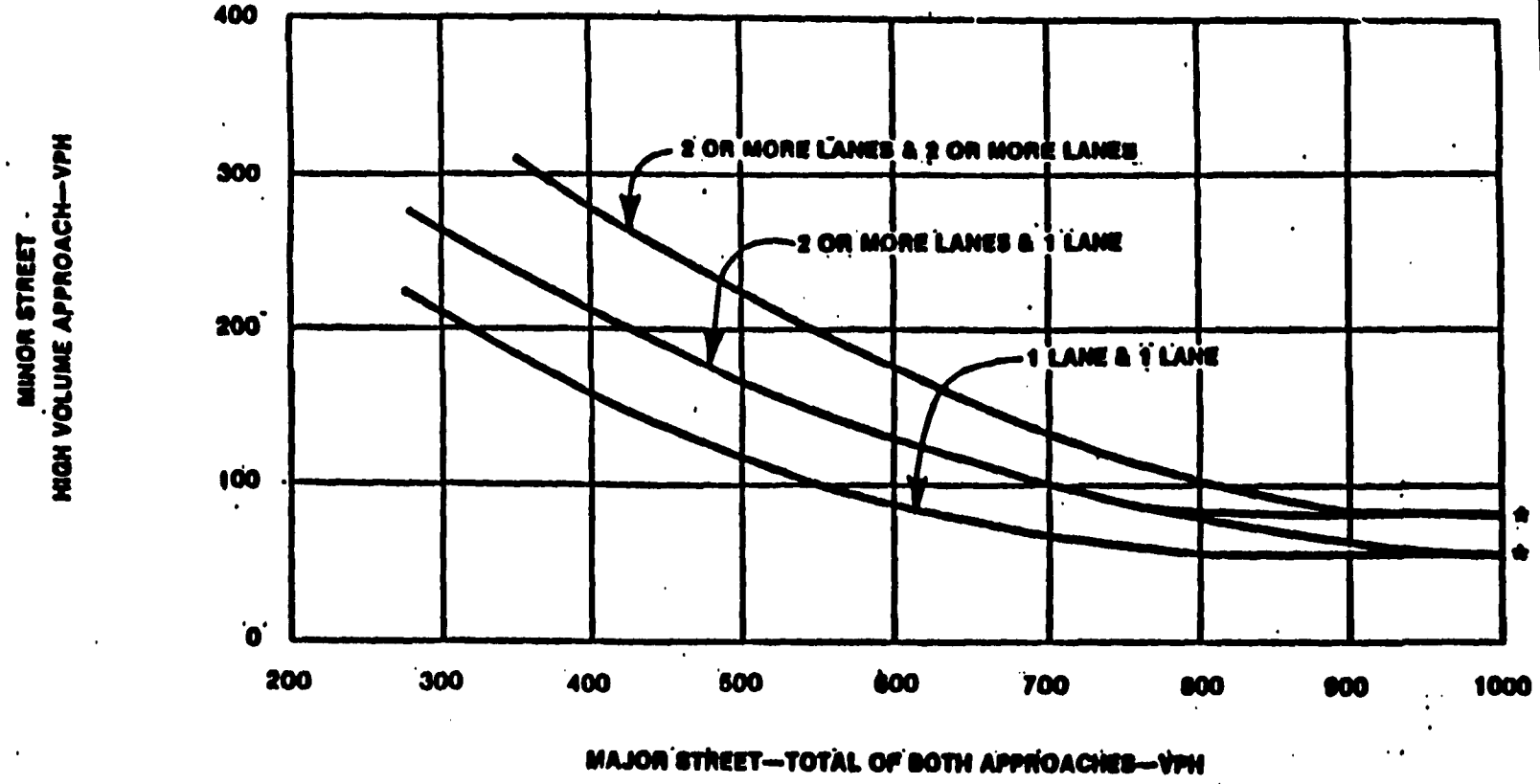


★ NOTE: 115 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 80 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

**FIGURE 1 B
FOUR HOUR VOLUME WARRANT
** RURAL**

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* NOTE: 60 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 60 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

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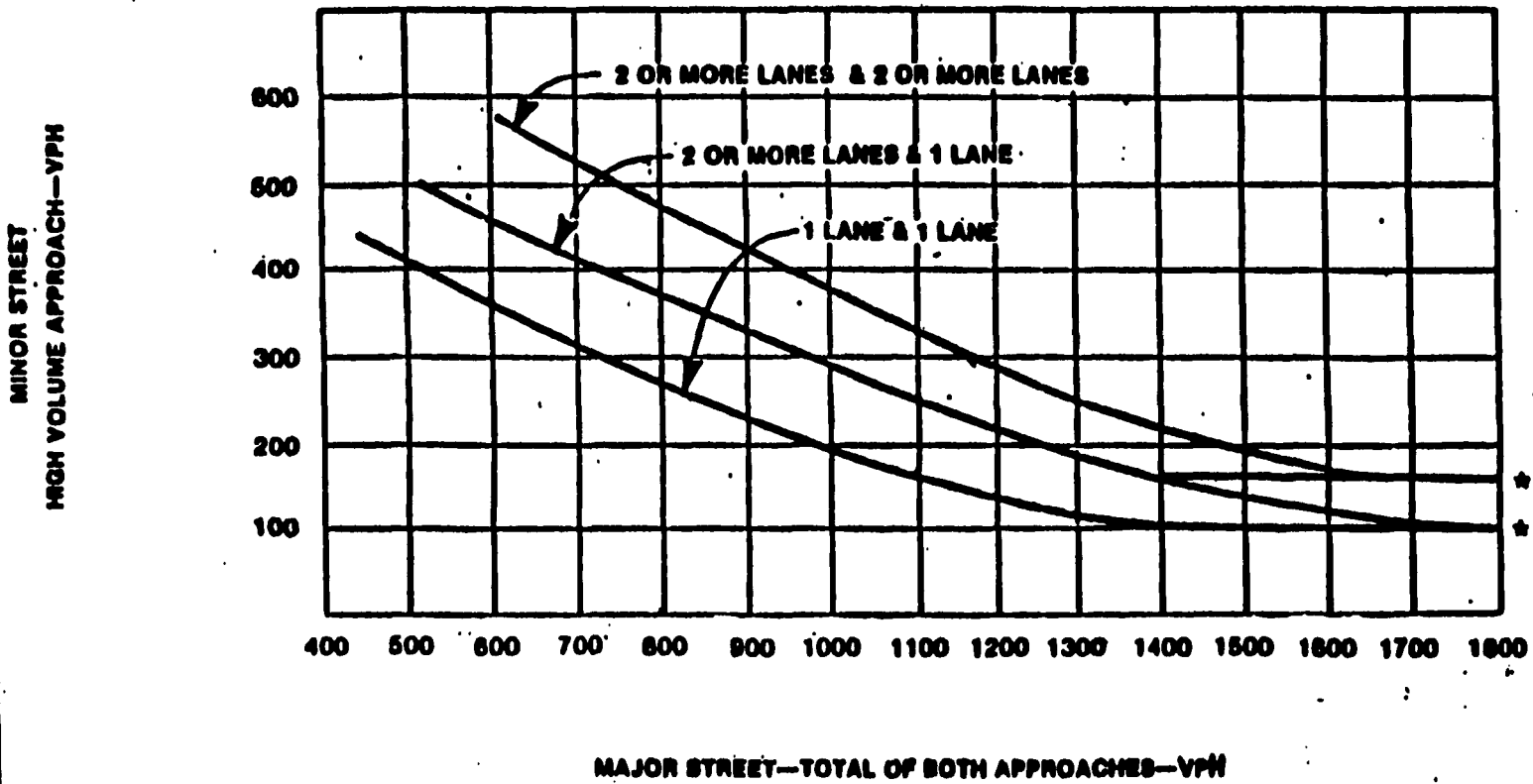
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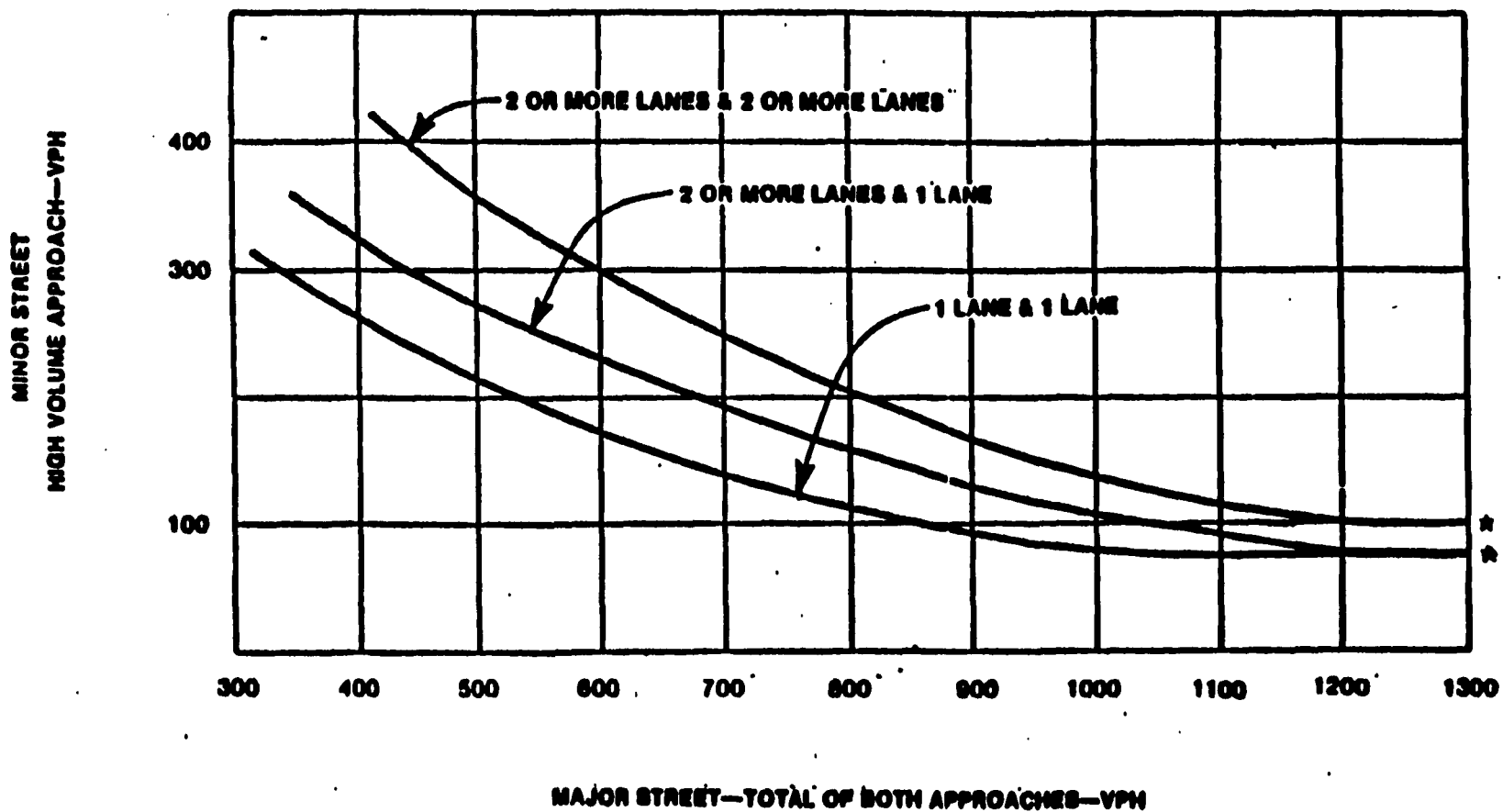
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**FIGURE 2A
 PEAK HOUR VOLUME WARRANT
 URBAN**



★ NOTE: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

**FIGURE 2B
PEAK HOUR VOLUME WARRANT
** RURAL**



★ NOTE: 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

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PRIORITY SYSTEM

The purpose of the priority rating system is to impartially rank all intersections so qualifying. This rating is used by the City Engineer to make recommendations for the installation of signals under various City improvement programs. It also provides a running inventory of intersections to be resurveyed periodically for significant changes in operating conditions. Points are assigned to six priority factors which are based on the warrants for traffic signals as listed above. The points are totaled and the intersections are arranged by descending number of points to form a priority list.

Factor No. 1--Total Vehicular Volume--Maximum points 15

Points are dependent upon the major and minor street volumes entering the intersection. Points are also dependent upon the intersection capacity. Volumes are based on 4-hour counts, taken usually between 2 and 6 P.M.

Factor No. 2--Interruption of Continuous Traffic--Maximum points 10

Vehicles on through streets, if uncontrolled tend to travel through minor street intersections at speeds that make it difficult and hazardous for vehicles from the side street to cross or enter the principal traffic stream.

Factor No. 3--Pedestrian Volume--Maximum Points 10

A traffic signal may be needed where many pedestrians cross a major street.

Factor No. 4--Progressive Movement--Maximum Points 5

This factor depends upon engineering studies and must include the present and future traffic demands of the area. A signal may be justified when it forms a part of an interconnected or coordinated system.

Factor No. 5--Accident Hazard--Maximum Points 15

Only those accidents susceptible to correction by traffic signals are considered and then only if less restrictive measures such as warning signs, proper lighting, painted markings, etc. have failed.

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PRIORITY SYSTEM (Continued)Factor No. 6--Special Conditions--Maximum Points 15

This factor gives consideration to extenuating circumstances that are not covered in the previous five priority factors. They may include: the proximity of schools, churches, public buildings and other traffic and pedestrian generators; an abrupt change from a rural to an urban area; the need for police control during portions of the day; a steep hill; a horizontal curve; restricted sight distance. This requires engineering judgment based on physical inspection of the site.

Adopted by Resolution No. 171009 Dated 05/24/62
 Amended by Resolution No. 194909 Dated 10/01/68
 Amended by Resolution No. 255149 Dated 10/06/81