

**SUMMARY OF ENFORCEMENT GUIDELINES
FOR TSM OPERATIONS
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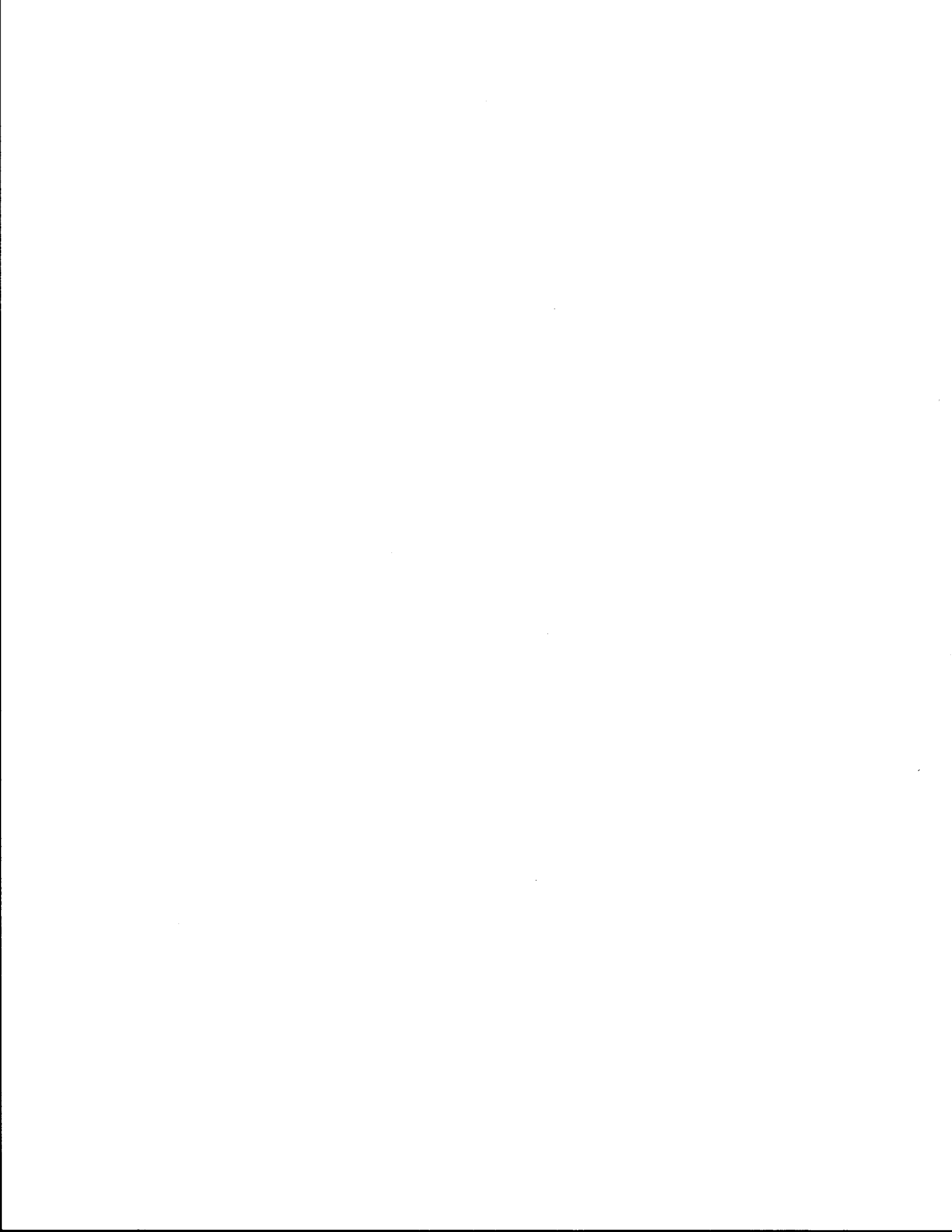
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SUMMARY OF ENFORCEMENT GUIDELINES FOR TSM OPERATIONS

by

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Increasing traffic demands are being imposed on urban freeway systems which are limited by both space and capacity. Transportation System Management (TSM) improvements concentrate on operational problems to improve the efficiency of the urban freeways. Enforcement of special regulations associated with TSM projects is essential for successful operations.

Several types of TSM operations that require strict enforcement are:

1. Ramp Meter Control. Technique of restraining the flow of freeway traffic at certain points to prevent congestion at more crucial locations. Accomplished by signalized metering of selective entrance ramp volumes.

2. Commercial Vehicle Routing. Technique of route direction for through trucks such that areas of intense congestion are bypassed. Also applicable for hazardous material movements for safety considerations.

3. Speed Zoning. Technique involving reduction in posted speed for all vehicles on urban freeways and additional reduction in speed limits (differential) for large vehicles. Strict enforcement is essential to either.

4. Lane Restrictions. Technique designating a specific lane (extreme right or left) to be utilized by trucks to enhance both freeway safety and operations. Preliminary results as to effectiveness are inconclusive.

5. Shoulder Usage. Technique to increase freeway capacity by modifying the surface geometrics (reduction in mainlane widths and use of shoulder for

additional travel lanes). May be operated either continuously (24-hour) or on a permissive (peak periods only) basis.

The type of enforcement required on TSM projects is more "traditional", although the nature of the violations is somewhat unique. In most cases, active patrol and arrest activity are required to insure acceptable compliance with special TSM regulations necessary for successful operation. The lack of enforcement has been the overriding reason for the failure of many TSM efforts.

GENERAL STRATEGIES

The following three strategies may be employed for enforcement on TSM projects:

1. Routine Enforcement conducted in concert with normal police officer's patrol duties;

2. Special Enforcement characterized by continuing, systematic manpower allocations and enforcement tactics specifically dedicated to enforce TSM operations. Involves reallocation of existing forces to the TSM effort or assigning additional manpower and equipment during TSM project operating hours (using existing police personnel on overtime basis or hiring additional patrol personnel);

3. Selective Enforcement applied periodically to specific problem areas where violations of the TSM improvement have been observed. The application of selective enforcement can vary in terms of time, location and level of effort. Police personnel are generally made available by a reassignment of manpower from other duties.

Due to the special regulations necessary for TSM operations, increased enforcement manpower many times is required following initial implementation. This would be the case for ramp metering, truck routing, or various types of speed zoning. Over a period of time enforcement may be reduced to more

routine levels. The amount of enforcement applied after the period of increased enforcement is dependent on the number of observed violations.

Other types of TSM projects, such as a special lane or shoulder usage, may require a continuing level of selective enforcement to adequately control violations. This may involve assignment of patrol manpower for certain times or locations; or randomly to extend the enforcement effect.

The selection of a particular strategy to be applied on a TSM project should be made by the supervising officer of the enforcement agency.

GENERAL GUIDELINES

There are several alternate procedures available for conducting TSM enforcement activities. These procedures cover various aspects of surveillance, detection, apprehension and citation of violators. With respect to surveillance and detection, a TSM enforcement program may include one or a combination of the following types of patrol:

1. Line patrol. Enforcement personnel travel by motor vehicles over a particular freeway section.
2. Zone patrol. Enforcement personnel travel by motor vehicles over a zone in a particular area (not limited to a roadway section).
3. Stationary patrol. Enforcement personnel and motor vehicles are deployed in a fixed position at specific locations.

The TSM enforcement process may also include one or more of the following apprehension and citation procedures:

1. Standard. Involves the pursuit of a TSM violator followed by apprehension and issuance of a citation by a single patrol unit.
2. Stationary. Does not involve pursuit of the violator; involves directing the TSM violator to a refuge area for citation.

3. Signaling. Involves using appropriate physical gestures by the officer to the motorist in violation of the TSM regulation so that he is aware of infraction; may or may not involve apprehension or issuance of a citation.

Line and stationary patrols with standard or stationary apprehension and citation methods are the most commonly used enforcement procedures associated with TSM improvement projects.

The effectiveness of enforcement applied to transportation system management operations may be evaluated in terms of compliance levels with posted restrictions and regulations. Studies indicate that even low levels (i.e., one officer per week per month) of special enforcement will significantly reduce violations on most TSM projects. Moreover, the residual effects of active enforcement on TSM facilities have controlled the violation rates for 4-8 weeks after cessation of the special enforcement program.

At ramp meter locations, enforcement appears to be most effective where violation rates were previously high. On ramps where violation rates were already low (less than 4%), special enforcement seems to have less impact on reducing violations further, and violation rates return to pre-enforcement conditions much faster. In the absence of enforcement, ramp violation rates can be expected to increase over time to the point where meter effectiveness is reduced.

For TSM projects involving special speed zoning, several studies have shown the effectiveness of visible and active officer presence as measured by in-view hours and total stops. Speeding violations may be reduced by as much as 50% or more; and reductions in overall average speed and speed variability may be expected with enforcement presence. However, there is no consensus as to optimal or desired level of enforcement.