

TRAFFIC MANAGEMENT TEAMS: A DESCRIPTION
AND ACTION PLAN FOR VIRGINIA

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(The opinions, findings, and conclusions expressed in this report are those of the author and not necessarily those of the sponsoring agencies.)

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ABSTRACT

A traffic management team improves the overall traffic operations in an urban area, especially along urban corridors, through the communication, coordination, and cooperation of the transportation-related operational agencies in the area. Since various state, county, and city agencies are responsible for the ground transportation system in an urban area for optimal traffic management, it is essential that these agencies work together.

Traffic management teams have proven to be a very successful means of coordinating the activities of transportation-related operational agencies in urban areas in Texas. A team typically consists of representatives of city and state traffic engineering offices, city and state law enforcement agencies, and the local transit authority. Other agencies are included if they are significantly involved in the operation of the urban corridors. Although most advantageous in cities with populations above 300,000, traffic management teams are useful for any size city where major travel corridors cross jurisdictional boundaries and where there is a need to improve relationships between transportation operational agencies. The activities that are coordinated by a team include: (1) work zone traffic, (2) route improvements, (3) normal operations, (4) emergency planning, and (5) special event traffic handling.

Guidelines for a traffic management team based on what has been successful for existing teams are presented. The guidelines include organizational structure, conduct of team meetings, keys to success, and measures of effectiveness.

An action plan for implementation of traffic management teams in Virginia was developed. In the plan, urban areas where traffic management teams would be useful are identified, and steps to implement a traffic management team are identified.

It is recommended that traffic management teams be implemented in all urban areas in Virginia. These teams would be especially advantageous for the Northern Virginia, Richmond, and Tidewater areas.

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INTRODUCTION

Definition of a Traffic Management Team

The purpose of a traffic management team is to improve the overall traffic operations in an urban area by bringing together representatives from the various transportation-related operational agencies in the area (1). Team members work together to solve the area's traffic problems, especially along major travel corridors, through the communication, coordination, and cooperation achieved by working side-by-side on a team. Traffic management involves the efficient and effective utilization of the highway system. Since various state, city, and county agencies are responsible for different parts of the highway system in an urban area, communication, cooperation, and coordination are essential to optimize traffic management.

Areas with Traffic Management Teams

A district office of the Texas State Department of Highways and Public Transportation officially formed the first traffic management team in San Antonio in 1975; at that time it was called a corridor management team (2). By 1980 there were 5 teams, and as of 1987, there were 13 teams in Texas. The 13 teams cover the 7 largest metropolitan areas, the 9 largest cities, as well as other smaller areas. The 13 areas range in population from 15,000 to 3,000,000. The wide acceptance of the teams suggests that traffic management teams are beneficial. The Jacksonville, Florida, area has adopted a variation of the traffic management team, a freeway management team; the emphasis there is on incident management.

Definition of a Corridor

The Texas State Department of Highways and Public Transportation defines a corridor as

A system of roadways which interact and serve as alternate routes to each other. Corridors can consist of two or more parallel streets or a freeway with parallel streets [see Figure 1]. All cities have several different corridors serving different origins and destinations which intertwine and change in size depending on the time of day and day of week. Any change made to the capacity of one element of the corridor affects the others by shifting the demand from one roadway to another; therefore, alterations must be coordinated between the various

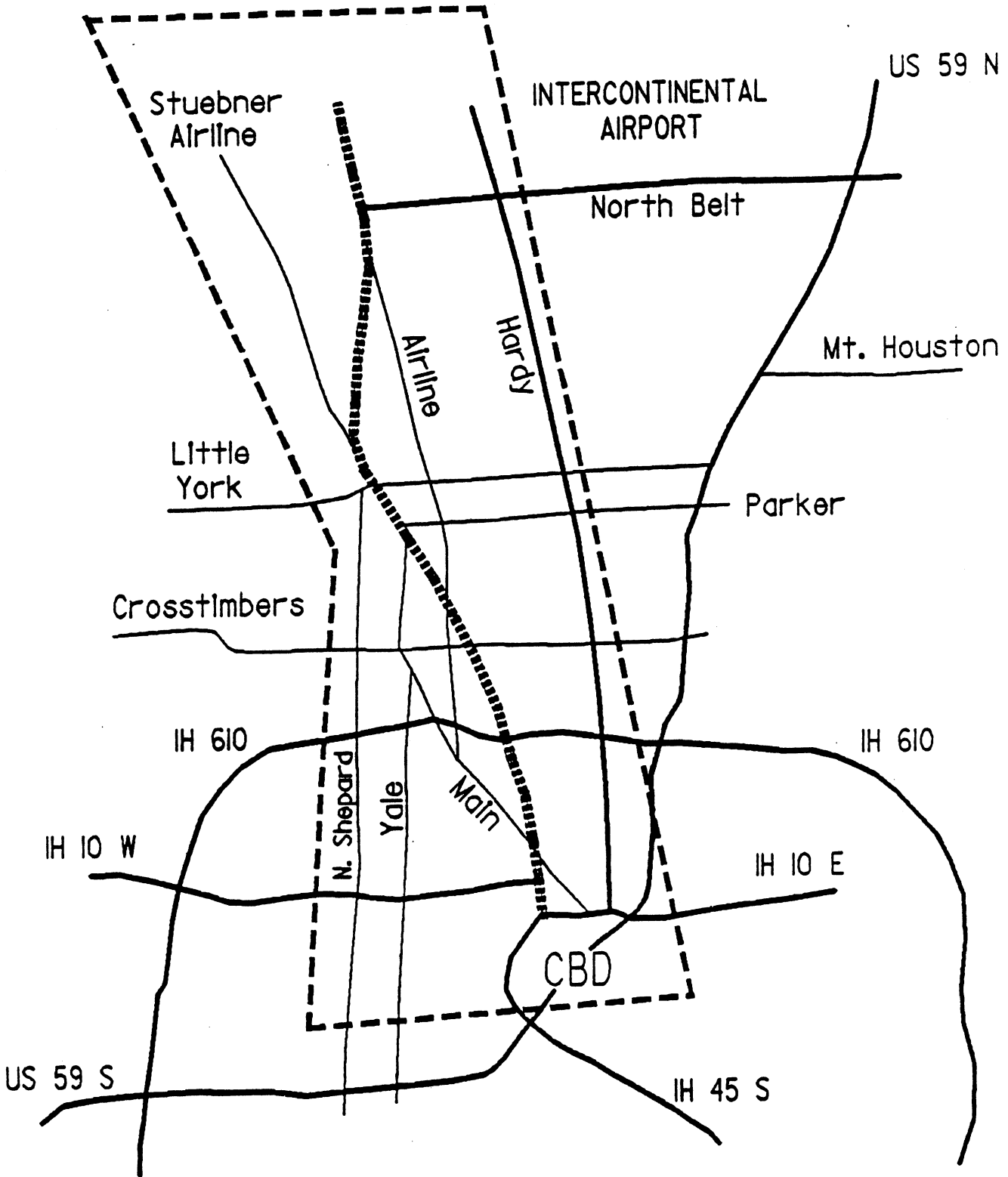


Figure 1. Illustration of a corridor--I-45 North Freeway Corridor in Houston.

Source: "Application of Traffic Management Teams to Freeway Corridors in Texas."

elements for the traffic to move in an efficient manner. The different elements of the corridor, though, are quite often controlled by different agencies and communication and coordination between them is sometimes weak (1).

Objectives

The objectives of this report are (1) to describe traffic management teams and (2) to propose an action plan for the implementation of traffic management teams in Virginia. The report is based primarily on information from traffic management teams in Texas (1, 2, 3) and a freeway management team in Jacksonville, Florida (4, 5).

THE USEFULNESS AND MEMBERSHIP OF A TRAFFIC MANAGEMENT TEAM

In this section, urban areas where traffic management teams are useful and agencies to be represented on the team are discussed.

Usefulness of Traffic Management Teams

Traffic management teams are useful where the successful operations of existing transportation facilities, especially major travel corridors, cross jurisdictional boundaries. Experiences in Texas show that the teams are especially advantageous for cities with populations over 300,000. In Texas, smaller cities often do not have a traffic engineering staff, which is a valuable contact for the team. The teams have helped considerably in improving relations between the various agencies and in uniting the agencies in their common goal of improving traffic conditions. Traffic management teams are also useful where there is a need to improve relations between various transportation-related agencies. Based on the Texas experience, traffic management teams are advantageous in all urban areas.

Membership of a Traffic Management Team

The membership of the team should be tailored to the specific urban area because different areas have different needs. Typically, team members include city and state traffic engineering offices, county engineers, city and state law enforcement agencies, and the local transit authority. Other agencies or divisions should be included if they are significantly involved in the operation of the corridors, for example, maintenance, design, and public works sections, the fire department, railroads, and the port authority. On the other hand, it is important to keep the team as small as possible to minimize red tape. Table 1 shows the agencies represented on teams in six Texas cities of various sizes. The team sizes range from 5 to 11 members. The mean size of these six teams are 7.33 members with a standard deviation of 1.9. Table 1 shows permanent team members. Representatives of other agencies should participate on an as-needed basis, that is, when an agenda topic affects an agency that is not represented on the team.

Table 1

List of Agencies Represented on
Traffic Management Teams in Texas

	Houston	San Antonio	Fort Worth	Corpus Christi	Midland Odessa	Beaumont
City Population	(1,600,000)	(800,000)	(400,000)	(230,000)	(160,000)	(120,000)
Metropolitan Area	(2,700,000)	(1,000,000)	(900,000)	(360,000)	(225,000)	(380,000)
State						
Traffic Maintenance	x	x	x	x	x	x
Design		x				
Traffic Safety					x	
Police	x			x	x	
City						
Traffic	x	x	x	x	x	x
Police	x	x	x	x	x	x
Transit	x	x	x			
Public Works	x	x		x		
Fire	x					x
County						
Engineer	x	x	x	x	x	
Sheriff/Police	x	x				
Other						
Railroad Assoc.	x			x		
Utility Co.	x					
Total	11	7	7	8	6	5

ACTIVITIES OF TRAFFIC MANAGEMENT TEAMS

The activities of traffic management teams are presented in three sections: (1) ways to improve operations, (2) activities to coordinate, and (3) examples of improvements achieved through team activities. The emphasis of the discussion is on corridor operations.

Ways to Improve Operations

The three basic ways to improve the operation of a corridor are to make the corridor safer, increase the people-moving capacity, and decrease the vehicular demand.

Improving Corridor Safety

Much of the work done by the teams in Texas is directly related to safety and it is always a consideration in any other action. Some common safety improvements are adjusting the clearance intervals at signals, restriping faded lane lines, increasing enforcement of speed limits and improving confusing signing (1).

Increasing the People-Moving Capacity

Ways to increase the people-moving capacity of a corridor include adding lanes, providing good signal progression, eliminating geometric bottlenecks and providing mass transit facilities.

Without good coordination, each agency will build those improvements specific to their needs, but may find that the new facility doesn't work as well as it could. For example, the state highway department and the local transit authority must work together closely in designing a separate priority entry ramp onto a freeway for high-occupancy vehicles. Other agencies can also, however, contribute to the design. The police department can suggest ways to make the ramp restrictions easier to enforce and less likely to be violated. The city traffic department can alter the geometry or signal operation of nearby intersections to make the ramp easier to access.

Recently a very busy urban arterial highway in Houston, Texas, with an average daily traffic of 80,000 vehicles, was converted from three 12-foot lanes to four 9-foot lanes in each direction. This was a temporary modification until the right-of-way could be obtained for additional lanes. In this case, the capacity of the corridor was increased at the risk of decreasing safety. The team was, of course, very concerned about the safety and discussed the project thoroughly while it was still in the early design stage. Because of this, all of the agencies involved knew exactly what was planned and a positive, cohesive front was presented to the media and the public. To date, there has not been a significant increase in accidents and the public has accepted the narrow lanes very well (1).

Decreasing Vehicular Demand

Decreasing the vehicular demand is more difficult to do since it requires convincing drivers to change their normal travel behavior.

Some suggestions are to encourage use of mass transit, less traveled alternate routes and variable work hours. A temporary decrease can be obtained by the use of media releases explaining the need for diversion. Installing entrance ramp meter control may cause a more permanent shift in driver behavior (1).

Activities for Coordination

"Virtually all work done in the corridor can be coordinated between the agencies of the team to the benefit of traffic operations and safety" (1). Listed below are a few common examples for work zones, route improvements, normal operations, emergency planning, and special events.

Work Zone Traffic

Severe congestion often accompanies maintenance operations and new construction causing traffic to divert to alternate routes. If maintenance is also being performed on that alternate route, the entire corridor can break down. Therefore, traffic control which affects the capacity of a route should be brought to the attention of the team to prevent any conflicts. In severe cases, such as where an entire freeway is closed, the entire team should be involved in planning and implementing the closure. The police department can direct traffic and enforce special signing while the city traffic office adjusts the coordination of the signals on the alternate route to provide an efficient operation. The highway department and city can provide signs warning of the closure and identifying the alternative route while the transit authority modifies its routes, if possible. The team as a whole can prepare media releases to warn drivers of the closure and recommend an alternate route. By coordinating the plan within the team, most problems can be jointly carried out to provide a safe and efficient operation (1).

Route Improvements

Permanent modifications to any roadway in the corridor will affect the other elements, and for maximum efficiency, the corridor should be analyzed to prevent a bottleneck. Controlling entrance ramp volumes through a ramp meter, for example, can improve freeway operation in terms of total volume, but it can also cause congestion on city streets which must be taken into account. The team is well equipped to analyze the effects of new construction and to prepare for the changes in traffic flow (1).

Normal Operations

In their day-to-day work, police officers often notice locations where there is a violation or accident problem. The team provides a ready line of communications to the traffic engineering agencies who can act to correct the problem.

A change in operation can also be important to the team because of the interaction between the elements of the corridor. For example, banning left turns at an intersection during peak hours will force traffic to use another cross street. This information is vital to the transit authority which might need to alter its routes. The traffic

might also start using a different on-ramp to the freeway causing a weaving problem or a need to change ramp meter timings (1).

Emergency Planning

In case of severe weather such as flooding or freezing, it is very helpful to have a plan delineating each agency's responsibilities to prevent delay and possible omission of those jobs which must be done to insure the safety of the driving public. The same type planning can also be used for major incidents, such as truck accidents which close an entire freeway. Once again, the advance planning fosters quick response and action (1).

Special Event Traffic Handling

The team can often quickly and efficiently design, analyze and operate a traffic routing plan for a special event such as a parade or fair. The transit authority can provide express bus service to the event while the highway department and city provide signs telling the driver how to get to the bus service and the event. The police department can direct the traffic around the event (1).

Examples of Improvements Achieved Through Team Activities

Table 2 provides examples of improvements achieved through traffic management activities in Texas. The improvements given are average values based on studies within Texas and other states. The examples include improvements in freeways, city corridor streets, and major highway facilities.

GUIDELINES FOR TRAFFIC MANAGEMENT TEAMS

General guidelines for organizing the team and conducting meetings have been found to be helpful in Texas. Since each team is different, these differences are likely to be reflected (and should be) in how the team operates. In addition to the Texas guidelines, some keys to success and observations are noted from the Jacksonville, Florida, experience. Some measures of effectiveness of team activities are also discussed.

Organizational Guidelines

Ten organizational guidelines are listed below.

1. The team members should have the authority at the operations level to speak for their agency and not be an administrative head: "Team members must be able to make decisions about committing their agency's resources to a team project and also be close enough to the operation to be able to effectively discuss the issues" (1).

2. The team should meet the same time each month. Everyone should agree to a day of the month and time of day and then place it on his/her calendar. Some teams meet every other month. For some teams, meetings may take place on an as-needed basis for emergency or special situations.
3. The same people should attend the meetings each time: "This helps to create a spirit of cooperation and respect among the team members, and also helps to create a more comfortable situation as time goes by since everyone will know each other having worked with them before" (1).
4. Generally, the teams have not had dedicated funding sources. Rather, each agency funds its own improvements with its normal budget.
5. The chairperson and team members must be responsible and should carry out what they agree to do. The chairperson must follow through to assure that the decisions made by the team are carried out.
6. When discussing a topic that affects an agency not represented on the team, that agency's representative should be invited to attend.
7. The tasks undertaken by the team members should not significantly interfere with their present workload. Team members should avoid overcommitting themselves and should establish priorities for their tasks.
8. Press releases of the committee's activities, if needed, should be handled by the chairperson or his designate.
9. Interagency technical teams, subcommittees of the traffic management team, should be established for issues that require an ongoing or extensive effort. Such issues may include incident management, joint review of major accident locations, review of freeway access violations, and joint application of recognized computer models to freeways and major thoroughfares. For large urban areas, it is suggested that incident management be addressed independently of this team.
10. Team members should become acquainted with each other. Some teams accomplish this through social activities that include their supervisors and spouses.

Team Meeting Guidelines

The following six guidelines are suggested for team meetings.

1. "The meetings should be informal. A chairperson helps in coordinating the discussion but with such a small body, formal rules are not needed and tend to stifle the interaction of the team" (1). A 2- to 3-hour meeting is suggested as reasonable.

Table 2

Improvements That Can be Achieved Through
Traffic Management Activities (Average Values)*

A. Freeway		
1.	Increase in Total Main Lane and Frontage Road Flow	25%
2.	Increase in Main Lane Speed	9 mph
3.	Reduction in Main Lane Accidents	31%
4.	Reduction in Congested Travel	68%
5.	Benefit to Cost Ratio	15 to 1
B. High Occupancy Vehicle Freeway Median Lane Passenger Movement Along IH 10 West (Katy) Freeway and IH 45 North Freeway in Houston		
		3800 passengers during each a.m. and p.m. peak hour along each freeway
(Equivalent of two lanes of freeway in one direction)**		
C. City Corridor Streets		
1.	Increase in Speed with Computer Control	20%
2.	Street Widening (or Elimination of Parking During Peak Periods)	
	a. Increase in Speeds	30%
	b. Reduced Vehicle Delay	40%
3.	One-Way Network	
	a. Increase in Speed	22%
	b. Reduced Vehicle Delay	30%
4.	Bus Travel Time Saved by Transit Priority Signal Techniques	40 sec/mile
D. Major Highway Facility		
1.	Improvements with Computer Control	
	a. Increase in Speed	22%
	b. Reduction in Number of Stops	43%
	c. Reduced Vehicle Delay	27%
	d. Benefit to Cost Ratio	15 to 1

* Average values based on traffic studies within Texas and other states.

** For an 8-lane freeway, the addition of a HOV lane permits the equivalent vehicle traffic flow of a 12-lane freeway (based on 1.25 occupants per vehicle)

Source: "Diary of a Traffic Management Team: The Houston Experience"

2. "Most teams use a short prepared agenda of three or four items submitted by the team members and leave time for impromptu items" (1). Teams should focus on issues for resolution but also discuss results of implementation of previous decisions. Time should also be provided for announcements by members to explain what their agency is doing or plans to do during the next month that may affect other agencies. Operational problems encountered by law enforcement officers should be a regular agenda item. A typical agenda is shown in Figure 2.
3. One type of problem should not be allowed to dominate the meeting; rather, a variety of subjects keeps everyone interested and involved.
4. "Each member must feel free to voice his/her views and each member's views must be respected and considered" (3).
5. After discussion, the team reaches a verbal consensus (not by vote) on the solution to a problem. The responsible agency or agencies will then take steps to implement the plan.
6. The chairperson, or possibly a secretary, should be responsible for maintaining an accurate written record of team activities.

- | |
|--|
| <ol style="list-style-type: none"> A. Introduction B. Status of Previous Recommendations C. Discussion Topics <ol style="list-style-type: none"> 1. 2. 3. D. Identification of Operational Problems E. Announcements F. Closure <ol style="list-style-type: none"> 1. Summary of Team Decisions 2. Actions Expected Before Next Meeting 3. Other |
|--|

Figure 2. Typical agenda for a team meeting.

Keys to Success and Observations from Jacksonville

Some additional insight into the successful operation of team activities are provided by the Jacksonville Freeway Management Team (4).

Keys to Success

Eight keys to success were identified by the Jacksonville Freeway Management Team:

1. definition and pursuit of team purpose and objectives
2. clear identification of problems and issues
3. attitude of leadership and team
4. persistence and follow-through of leadership and team
5. action-oriented approach: procedures, equipment, personnel
6. written records of team activities
7. team philosophy
8. backing of top management

Observations

These seven observations from the Jacksonville experience should aid other teams:

1. Be patient--progress comes in small steps.
2. Keep an open ear and mind to the legitimate needs and concerns of other agencies.
3. Don't be afraid to recommend change.
4. Exercise diplomacy and persuasion.
5. Expect turnover to occur and attendance to vary.
6. Include individual contacts and letters as a necessary part of the followup.
7. Expect accomplishments to be proportional to commitment of time.

Measures of Effectiveness

Measures of effectiveness (MOEs) of team activities may be considered in two areas: (1) the operations of the team and (2) the impact of actions implemented as a result of the team's decisions.

Operations of the Team

There are three MOEs for operations of the team:

1. Levels of team attendance, participation, and interest. High attendance rates, high participation through submissions of problems for solution, and implementation and comments on topics reflect effectiveness in team meetings through the rapport between members and "the roll-up sleeve" atmosphere of the meetings.
2. Improvements in interagency coordination. "The foundation of interagency cooperation created by the team should cut through the normal red tape typically involved in handling issues that involve more than one agency" (4).
3. Development of communication among the team members. Communication among team members should lead to increased awareness of ongoing and proposed projects sponsored by each agency.

These MOEs can be measured quantitatively and/or subjectively.

Impact of Implemented Actions

There are three MOEs for the impact of actions implemented as a result of team decisions.

1. Quantifiable MOEs of the improvements achieved through before-after evaluations. This is the recommended evaluation for any action to improve traffic operations or safety. Table 2 lists the MOEs that may be used, such as a benefit to cost ratio, reductions in delay, travel time, and accidents. Additionally, other MOEs that are specific to the improvement should be obtained.

In the implementation of an action that an agency is committed to before team review, the team's involvement is of incremental benefit based on how the team's action improved the proposal. Consequently, in such cases, it is important to acknowledge, and when possible, determine the incremental benefit in terms of the quantifiable MOEs or qualitatively.

2. Team members' satisfaction with results. This is an important qualitative measure that should be obtained regularly for internal team evaluations.
3. The satisfaction of the supervisors of team members with the results. Supervisors support of participation on the team is important. One way to measure this is the elimination of complaints to the supervisor about a problem. A qualitative measure is also acceptable.

ACTION PLAN FOR VIRGINIA

The action plan identifies the urban areas where traffic management teams would be useful, the steps suggested to facilitate implementation of traffic management teams in Virginia, and a proposed agenda for the initial meeting. The Research Council staff is available for assistance in the implementation.

Suitable Urban Areas

Since traffic management teams are very advantageous in larger urban areas, the implementation of traffic management teams in the Northern Virginia, Tidewater, and Richmond areas is strongly recommended. Traffic management teams are also recommended for all other urban areas to foster coordination and cooperation among transportation-related agencies and/or to improve traffic operations on corridors crossing jurisdictional boundaries.

Steps to Implement Traffic Management Teams

There are seven steps for implementing traffic management teams.

1. The district traffic engineer or his designated staff person, the recommended team chairperson, should carefully read this report to thoroughly understand the traffic management team concept.

2. The team chairperson should identify the urban area and corridors that the traffic management team will address. All transportation-related agencies within the urban area and staff persons of these agencies that are proposed team members should be identified. Also, a list should be prepared of agencies and their contact persons who should be contacted to participate when the team addresses issues that affect that agency. Other team members should help to expand this list later.
3. Based on this report, draft guidelines should be developed. The guidelines should also take into account conditions and issues that are unique to the urban area and team leadership (for example, chairperson only or chairperson and secretary). As an option, guidelines may be developed by the team during the first 6 months of the team's operation.
4. Potential team members should be contacted by phone to request their participation on the team and to schedule the initial meeting. Subsequent to the phone contact, a cover letter, this report, draft guidelines, and the initial meeting agenda should be mailed to team members.
5. A typical initial team meeting agenda is given below.
 - I. Introduction
(All members should introduce themselves and discuss their job responsibilities.)
 - II. Orientation on Traffic Management Teams
 - A. Traffic Management Teams: A Summary Review (based on this report)
 - B. The urban area and corridors
 - C. Adoption of Team Guidelines (Includes establishing permanent meeting date. Other guidelines may be optional.)
 - III. Typical Agenda Items (shortened version of Table 3)

CONCLUSION

A traffic management team fosters and facilitates communication, cooperation, and coordination between all transportation-related agencies in an urban area to effectively, efficiently, and safely manage traffic operations, especially along urban corridors. The experiences in Texas with traffic management teams have demonstrated that the teams are very successful in improving traffic operations in urban areas, especially along corridors.

RECOMMENDATIONS

It is recommended that the Virginia Department of Transportation implement traffic management teams in Virginia using the findings of this report. Implementation of traffic management teams are strongly recommended in the Northern Virginia, Richmond, and Tidewater urban areas. Traffic management teams are also recommended in other urban areas as needed.

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