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**REPORT OF  
SPECIAL TASK FORCE  
ON  
FREEWAY SURVEILLANCE  
AND  
CONTROL SYSTEMS**

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**SEPTEMBER 1971**

R e p o r t   O f

SPECIAL TASK FORCE ON FREEWAY SURVEILLANCE AND CONTROL SYSTEMS

M e m b e r s :

W. E. Carmichael, District Engineer  
District 12 - Houston

R. W. Crook, District Engineer  
District 2 - Fort Worth

John G. Keller, District Engineer  
District 18 - Dallas

R. O. Lytton, District Engineer  
District 15 - San Antonio

J. M. Owens, District Engineer  
District 14 - Austin

Archie J. Sherrod, Chief Engineer  
Maintenance Operations - D-18

Hubert A. Henry, Engineer-Director  
Automation - D-19

Marcus L. Yancey, Administrative Engineer

C h a i r m a n :



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R. L. Lewis, Chief Engineer of Highway Design

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## I. Introduction

Building a new highway in a large urban area or even rebuilding an old highway on an existing location has become so complicated that many needed routes will be slow in developing. Recent federal requirements for route and design approval will greatly extend the time required and will increase the cost. Construction costs are also rising rapidly. New freeways will continue to be built, but at a slower pace than in the past and in some cases the design of the facility will be influenced by other than engineering disciplines to the extent that the road will not be as efficiently adapted to the need as might be desired.

New transportation modes will be appearing on the urban scene but will not begin to keep pace with the demand for automobile type mobility, which shows no signs of decreasing despite attacks by ecologists, environmentalists, and others. The automobile will be called upon to provide this mobility using whatever roads and streets are available. Getting every practical ounce of use out of the Urban Freeway System and supporting arterial streets is vital. To do this it will be necessary that the operation of these facilities be Managed for the maximum benefit of all concerned. These streets and highways represent millions of dollars in public funds and must be maintained and operated efficiently.

## II. Objectives

The objectives of the Task Force were to look into the technical aspects of urban freeway operation including surveillance and control methods and also to look into the political, jurisdictional and legal problems having to do with freeway control and operation. Having studied these problems the Task Force was to make recommendations concerning both the long range goals of the Highway Department and immediate needs in the area of freeway operation.

### III. Discussion

The task force, established by memorandum dated May 14, 1970, (supporting document No. 1) met shortly thereafter and began assembling and studying all available information on freeway operation and control. State laws covering this subject were also carefully studied. A second meeting was held on December 7, 1970, and the basis for this report was developed at that meeting.

It soon became evident that a multitude of functions and operations associated with traffic movement are involved. The laws of the State of Texas and particularly part of House Bill 179 (supporting document No. 3) clearly establish the responsibility of the Highway Commission in this area. Much of the authority specified here has been delegated to cities but in some cases no agency has assumed active responsibility and in no case has a single authority assumed overall responsibility for coordinating all of the activity involved. Individual functions can be a problem if not coordinated with other operations even though they may be handled efficiently.

The problems to be dealt with here are diverse and can be put in categories from several viewpoints. One category is the non-recurring incident which might be a stalled vehicle, an accident, or merely erratic behavior on the part of a vehicle. Each of these can cause congestion and hazardous operation on the freeway and the magnitude of the problem is directly related to the amount of time the problem incident is allowed to remain on the freeway. For example, a stalled vehicle continues to accumulate traffic and congestion behind it for each minute it remains on the freeway. The congestion will remain long after the cause has been removed but rapid removal of the cause keeps the problem from getting any bigger than necessary. By having an Emergency Patrol (supporting document No. 5) to keep the freeway free of obstructions and also to aid the stranded motorist the effect of these incidents could be greatly reduced.

The other major category involved is recurring congestion, which as the name implies, means the peak period congestion which occurs every day on most freeways. This type of congestion is due partly to a deficiency in capacity but in many cases can be reduced considerably through the application of ramp control and other measures which regulate flow and distribute movement over all of the facilities in the corridor. These measures do not usually increase capacity but do make it possible for traffic to make use of all of the capacity built into the facility. These measures also usually reduce accidents considerably by reducing the friction among vehicles.

In order to take advantage of all of the possible ways for improving freeway operation it will be desirable for (1) a single agency to assume the broad coordinating responsibility for the operation of the freeway system and (2) for that organization to have the responsibility, authority and capability of availing itself of all of the known means for improvement and to constantly search for new ways and means of improving freeway operation.

The title Traffic Management has been suggested as appropriate terminology for the function described here. Management in this sense means "the creation of an environment which allows effective and efficient use of the freeway system by minimizing delay, maximizing safety and providing the motorist with a general sense of well being." By providing for a Freeway or Traffic Operations Engineer at the District level, the Highway Commission would be able to assume the responsibility for all of the various functions and operations described here and could coordinate all of these activities for the general benefit of all concerned.

Enforcement of traffic laws on the State constructed freeway system, now the responsibility of local government, should necessarily be closely coordinated with Traffic Management. For this reason enforcement should probably become the responsibility of the Department of Public Safety in order that a better coordinated more consistent pattern of enforcement practices could be established. This has been discussed informally with the Department of Public Safety and with officials of the various cities. The Department of Public Safety is interested but would require additional manpower to undertake urban freeway enforcement. The situation in cities varies from one city to another but the officials contacted saw a definite need for Traffic Management and will work with the Department in any way possible to bring about improved operations. Many of the functions now handled by law enforcement agencies could become the responsibility of the Emergency Patrol (supporting document No. 5) arm of Traffic Management. It would deal with stranded motorists, accident and incident detection and clean-up and abandoned vehicles, leaving enforcement personnel free to concentrate on enforcement of the law and accident reporting.

The manner in which Traffic Management should be woven into the highway organization has been given careful consideration. The nature of the operation is such that it will ultimately require a rather large staff at the District level but this would develop gradually. A large staff should not be required at Headquarters level. Traffic Management should probably be set up as a separate division at the headquarters level to maintain the identity of the function throughout the organization. It could probably be appended to D-18 initially to ease the problems involved in setting up a new Division.

Operational Problems have already begun to appear in Districts 12 and 18 to the extent that a considerable amount of freeway control is in progress. Eight ramps on the inbound Gulf Freeway have now been controlled during peak periods for several years with the result being a distinct improvement. The television system which provides full visual coverage of the six and a half miles of Gulf Freeway between I-610 and downtown Houston has provided an excellent means for evaluating the effects of ramp control and has also provided the means for viewing the operation of this section of freeway in perspective. Viewed from this vantage point many of the activities which take place on the freeway appear ridiculous to the viewer. Many of these are official actions by the police department, Highway Department, other city personnel and other official and semi-official people such as ambulance drivers, wrecker drivers, etc. By having the authority to manage these activities as well as the activities of the motorist from a vantage point such as a control or Management center, a great deal of improvement could be realized. Full visual coverage of all areas at all times would not be necessary. A combination of portable visual surveillance and fixed electronic surveillance would provide the Traffic Management organization with the capability needed.

Results achieved from the Emergency Call Box system on I-45 in Houston have not been impressive as indicated in Supporting Document No. 2. It is possible however that the devices could be used to advantage in conjunction with the Emergency Patrol and coordinated with all of the other activities under Traffic Management. Control systems are also being designed for portions of I-10, I-45 north and U.S. 59. The overall need for management of the freeway system in Houston however is obvious.

In Dallas the situation has not developed to as critical a stage as in the Houston area. Possibly the problems exist but have not been identified as precisely. The freeway control project on the U.S. 75 corridor is just now becoming operational. The results of the control operation have been impressive in both safety and efficiency and further improvements can be expected as the system is refined. With limited visual surveillance and with a series of geometric problems on this portion of freeway the results here cannot be expected to be as impressive as on the Gulf Freeway, but will be cost effective. Overall coordination here is also badly needed.

Austin, San Antonio, Fort Worth and El Paso are also at the stage where Traffic Management will prove beneficial. Problems are not as critical in these areas at the present time.

In order that the funding of traffic management be as flexible as possible so that the new organization can shape itself and adapt to the needs as they develop, it is probably preferable



to use state financing for the administration of Traffic Management. Federal aid can be used for specific projects such as the control center and various control and informational phases of the work.

Cost Estimates for Traffic Management have been submitted by the Districts. Cost data is in reasonable agreement among the Districts. Figures for Houston are higher than the other Districts, possibly reflecting more experience in Houston and a greater mileage of very high volume freeways.

Since no fully operating Traffic Management organization is now in existence in Texas or in any other state, it has not been possible to determine a benefit cost ratio for an entire operating system. Benefit Cost Data have however been accumulated on the ramp control work on the Gulf Freeway. This work proved to be highly cost effective as stated in Research Reports 22 and 24 of Research Project 2-8-61-24.

PART IV  
COST DATA

The following sheets contain tabulated cost data on traffic management submitted by the involved District. The figures are erratic because many of the activities covered here are new to the Highway Department, and the lack of experience makes accurate estimating difficult. Per mile costs in Houston are higher partly because of the greater mileage of very high volume freeways. Some variation is also the result of different approaches to the situation by the different Districts.

Costs are high but when compared with the cost of new freeway mileage and/or the cost per vehicle mile of travel, the figures do not appear to be excessive. The alternative to enlightened traffic management on our urban freeway and street system is ever increasing chaos which has already generated much anti-highway sentiment and will continue to do so if not checked.

The "value received" which can be expected from the dollars spent on traffic management activities will be in four major categories. (1) will be an improved level of service on both freeway and streets brought about by a more efficient distribution of traffic to available capacity both timewise and spacewise and a more evenly regulated flow of traffic on all facilities. Ramp control alone can be sufficiently cost effective to cover the entire cost of Traffic Management on some freeways. (2) will be the reduction in delay to freeway and street users where this delay is caused by accidents, incidents and disabled vehicles. Rapid detection and removal of all evidence of these happenings can reduce delay to a fraction of its present level. (3) the number of accidents, incidents and stalled vehicles will be reduced due to the less turbulent movement of traffic and (4) public confidence in the overall system will be enhanced both because the individual driver will feel more confident and better able to deal with the less hectic atmosphere surrounding the freeway and street system and also because the individual driver will know that in the event of an accident or other problem he can expect prompt and efficient assistance from the operating agency.

TRAFFIC MANAGEMENT COST ESTIMATES

TOTAL YEARLY COSTS INCLUDING

CAPITAL EXPENSES AND OPERATING COSTS

	Austin	Dallas	Fort Worth	Houston	San Antonio	Totals
Before 1975	\$1,261,875	\$3,507,245	\$1,686,000	\$12,060,520	\$2,999,300	\$21,514,940
1975-1980	2,716,000	4,444,800	3,755,280	12,575,900	3,628,400	27,120,380

TRAFFIC MANAGEMENT COST ESTIMATES

CAPITAL EXPENSE AND OPERATING COSTS

	Austin	Dallas	Fort Worth	Houston	San Antonio
Average Yearly Capital Expense*					
Before 1975	\$121,875	\$654,000	\$277,500	\$3,585,250	\$474,500
1975-1980	134,000	1,747,800	449,280	2,487,560	455,500
Yearly Operating Cost					
Before 1975	\$1,140,000	\$2,853,245	\$1,408,500	\$8,475,270	\$2,524,800
1975-1980	2,582,000	3,697,000	3,306,000	10,488,400	3,172,900

\*Can Probably be Financed by Federal Aid

TRAFFIC MANAGEMENT COST ESTIMATE

	Austin	Dallas	Fort Worth	Houston	San Antonio	Totals
<u>Total Yearly Costs</u>						
Before 1975	\$1,261,875	\$3,507,245	\$1,686,000	\$12,060,520	\$2,999,300	\$21,514,940
1975-1980	2,716,000	4,444,800	3,755,280	12,575,900	3,628,400	27,120,380
<u>Freeway Miles</u>						
1975	14.8	143.3	76.0	119.1	109.8	463.0
1980	29.8	143.3	76.0	135.1	109.8	494.0
<u>Total ADT</u>						
1975	87,500	1,602,480	523,100	1,801,804	134,593	4,149,477
1980	169,900	1,922,850	627,250	2,592,922	161,512	5,474,434
<u>Total Vehicle-Miles/Day</u>						
1975	1,295,000	8,961,950	3,910,050	11,862,560	3,100,700	29,130,260
1980	2,527,000	10,744,550	4,686,650	16,148,380	3,733,500	37,840,080

V.  
RECOMMENDATIONS  
SPECIAL TASK FORCE ON FREEWAY SURVEILLANCE  
AND CONTROL SYSTEMS

The following Recommendations are the result of a study by this group following its formation on May 14, 1970, the proceedings of the meeting on December 7, 1970, and subsequent meetings and correspondence.

1. In order to be responsive to a pressing need to fully discharge the responsibility of the Department as established by House Bill 179 and other legislation, the Department should establish the activity of Traffic Management as a major segment of work.
2. Traffic Management should ultimately be responsible for all activity on freeways and should be broadly charged with the responsibility for getting the greatest benefit, in terms of efficient transportation from the tax dollar.
3. To accomplish this a "real-time" Management Center (eligible for TOPICS funds) for surveillance and control of the freeway system should be established as needed in each of the designated Districts. Activity under the jurisdiction of Traffic Management should include the development and operation of a "real-time" system which would permit the Traffic Manager to optimize traffic movement over the entire system.
4. At the Austin office level Traffic Management should ultimately be a new Division. It should be the responsibility of D-18 Maintenance Operations during the formative stage.
5. At the District level Traffic Management should have status equal to design, maintenance, etc., and should be headed by an Engineer V. (Organizations should be set up in Districts 2, 12, 14, 15 and 18 initially and in other Districts as the need develops).
6. The operation of the Traffic Management Section should be financed directly with state funds. Federal participation is available and should be sought for various specific construction projects and equipment.

7. The On-Freeway responsibilities of Traffic Management should include the regulation of traffic flow by ramp control and whatever other measures are necessary; driver communication; and the establishment of an emergency patrol which would assist in keeping the freeway clear of obstructions and distractions, by assisting stranded motorists, and assisting in the removal of accident aftermath and other debris. Traffic Management should also establish a surveillance system, either electronic or visual by way of which the management center can detect and react to conditions on the freeway.
8. Direct responsibility for traffic law enforcement on freeways in large urban areas should, in the opinion of the Task Force, ultimately be assumed by the Department of Public Safety working in close cooperation with the Traffic Management Engineer. Due to jurisdictional problems and the fact that the present enforcement arrangement is fulfilling the need in a satisfactory manner in some areas, no immediate change is recommended here but as problem situations arise the recommended ultimate arrangement should be kept in mind.
9. An immediate need exists in Districts 12 and 18. In District 12 freeway control systems are in the design stage for three freeways in addition to the Gulf Freeway system which is now operational. The need is further emphasized by current difficulties with the emergency call box system. In District 18 current work includes the U.S. Highway 75 corridor study. Hardware installation was by the Texas Highway Department. The research, which includes the computer which operates the system, was conducted by the Texas Transportation Institute and the system will be operated by the city of Dallas. Coordinated planning in this area is vital if this system is to provide the continuing benefits for which it was designed.
10. Cost estimates and a brief time schedule for needs have been prepared by the five concerned Districts. Traffic management will be a costly operation but will be cost effective in terms of useful benefits to the traveling public and the tax payers. Implementation, depending upon the Districts individual need should be initiated as soon as possible.
11. It is the feeling of the Task Force that the long range goals of the Department should be directed toward the provision of a safe and efficient transportation system. This report suggests several

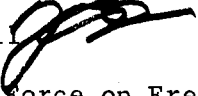
steps which could be taken by the Department and which would be directed toward this general goal. It is the recommendation of the Task Force that Administrative guidance be provided as to what course of action should be followed.



## VI. Supporting Documents

## INTEROFFICE MEMORANDUM

**TO:** Messrs. W. E. Carmichael, R. W. Crook, John G. Keller,  
R. O. Lytton, Thomas K. Wood, Archie J. Sherrod,  
H. A. Henry, Marcus L. Yancey and R. L. Lewis

**FROM:** J. C. Dingwall 

**SUBJECT:** Special Task Force on Freeway Surveillance  
and Control Systems

Date May 14, 1970

Responsible

Desk .....JCD.....

As you all know for the past 8 or 10 years the Department, in cooperation with the Texas Transportation Institute, has been researching and studying freeway surveillance and freeway control systems. Through several years of testing, the theory of freeway control has been proven. With traffic congestion increasing, it is now time to implement or apply this technology to the design and operation of freeways. This, of course, does not mean that there are not many unanswered questions regarding the extent to which freeway control can be effectively applied. Before we can go too far, I know that there are several questions aside from the technical problems that should be answered, such as, responsibility and jurisdictional problems, legal and enforcement considerations, projected needs and cost estimates and manpower or organizational requirements.

I am sure that there are no quick answers to the above questions; however, I am asking that each one of you serve as a member of a Special Committee to look into these problems. I am further designating Mr. R. L. Lewis to act as Chairman. Also, through our cooperative research program with T.T.I., help and assistance should be solicited from them as needed. In broad and general terms I am asking this committee to make recommendations concerning our long-range objectives in this area as well as our immediate needs for the next two or three years.

Your cooperation in this effort will be appreciated.



COMMISSION

DEWITT C. GREER, CHAIRMAN  
HERBERT C. PETRY, JR.  
GARRETT MORRIS

TEXAS HIGHWAY DEPARTMENT

AUSTIN, TEXAS 78701

September 22, 1970

CHIEF CLERK	
ASST. CHIEF CLERK	
STATE HIGHWAY ENGINEER	
J. C. DINGWALL	
IN REPLY REFER TO	
FILE NO.	

BLD

Mr. A. C. Kyser  
Engineer-Manager  
Houston Urban Project  
Houston, Texas 77001

Dear Mr. Kyser:

Your letter of September 17, 1970, concerning the Call Box Communication System on Interstate Highway 45 between Scott Street and Little York has been received in this office and carefully reviewed.

Based on your report and other information I have received from other locations, it is evident that additional study and experience will be required to solve the freeway communication problem.

By copy of this letter I am referring your letter and attachments to Mr. R. L. Lewis, Chairman, Special Task Force on Freeway Surveillance and Control Systems, with the request the Task Force carefully study this problem and make recommendations for a satisfactory solution.

I agree that careful consideration should be given to providing a conduit longitudinally along the center of new urban freeways, especially on long elevated sections.

Sincerely yours

J. C. Dingwall  
State Highway Engineer

By: *B. L. DeBerry*

B. L. DeBerry  
Asst. State Highway Engineer

BLD: fbs

✓ cc: Mr. Lewis w/a - Blind Note to Mr. Lewis: Please include this matter as an item to be considered by the Special Task Force on Freeway Surveillance and Control Systems. *BLD*

1B. MODERNIZATION OF HIGHWAY FACILITIES; CONTROLLED ACCESS HIGHWAYS.

**Saved from Repeal**

*Acts 1967, 60th Leg., p. 730, ch. 306, which amended articles 1436 and 1436a in sections 1 and 2 of the act, provided in section 3 thereof that the act does not amend, repeal or alter Chapter 300, Acts of the 55th Legislature, Regular Session, 1957 (Article 6674w through Article 6674w—5, Vernon's Texas Civil Statutes). See note under article 1436a.*

**Cross References**

Construction of utility lines on and across roads and streets, see art. 1436a.  
Street improvements, see art. 1086 et seq.

**Art. 6674w. Purpose; Definitions**

**Purposes.** The Legislature finds, determines and declares that the purpose of this Act is to delegate certain additional authority to the State Highway Commission to promote the Public Safety, to facilitate the movement of traffic, to preserve the financial investment of the public in its highways and to promote the National Defense.

**Definitions.** Wherever used in this Act, "Controlled Access Highway" means any designated State Highway within or without the limits of any incorporated city, town or village, whether under the General Laws or by special charter, including Home Rule Charter Cities, to or from which access is denied or controlled, in whole or in part, from or to abutting land or intersecting streets, roads, highways, alleys or other public or private ways.

Wherever used in this Act, "Person" means any person, individual, individuals, corporation, association, and/or firm.

Acts 1957, 55th Leg., p. 724, ch. 300, § 1.

**Art. 6674w—1. Powers of Commission**

1. Authorization for Modernization of Highway Facilities. To effectuate the purposes of this Act, the State Highway Commission is empowered to lay out, construct, maintain, and operate a modern State Highway System, with emphasis on the construction of controlled access facilities and to convert, wherever necessary, existing streets, roads and highways into controlled access facilities to modern standards of speed and safety; and, to plan for future highways. The State Highway Commission is further empowered to lay out,

construct, maintain and operate any designated State Highway, now or hereafter constructed, with such control of access thereto as is necessary to facilitate the flow of traffic, and promote the Public Safety and Welfare, in any area of the State, whether in or outside of the limits of any incorporated city, town or village, including Home Rule Cities, and to exercise all of the powers and procedures to it granted by existing laws and this Act for the accomplishment of such purposes and the exercise of such powers and duties; provided, however, that in the case of any project involving the bypassing of or going through any county, city, town, or village, including Home Rule Cities, the State Highway Commission shall afford the opportunity for not less than one (1) public hearing in the locality before an authorized representative of the State Highway Commission, at which persons interested in the development of the project shall have the opportunity for attendance, discussion and inspection of the design and schematic layout presented and filed with the governing body of such county, city, town or village, including Home Rule Cities, at least seven (7) days before the public hearing, by the State Highway Department. Such hearing shall be held not less than three (3) days nor not more than ten (10) days after the publication in the locality of notice of such hearing.

2. Control of Access. The State Highway Commission, by proper order entered in its minutes, is hereby authorized and empowered:

(a). To designate any existing or proposed State Highway, of the Designated State Highway System, or any part thereof, as a Controlled Access Highway;

(b). To deny access to or from any State Highway, presently or hereafter designated as such, whether existing, presently being constructed, or hereafter constructed, which may be hereafter duly designated as a Controlled Access Highway, from or to any lands, public, or private, adjacent thereto, and from or to any streets, roads, alleys, highways or any other public or private ways intersecting any such Controlled Access Highway, except at specific points designated by the State Highway Commission; and to close any such public or private way at or near its point of intersection with any such Controlled Access Highway;

(c). To designate points upon any designated Controlled Access Highway, or any part of any such highway, at which access to or from such Controlled Access Highway shall be permitted, whether such Controlled Access Highway includes any existing State Highway or one hereafter constructed and so designated;

(d). To control, restrict, and determine the type and extent of access to be permitted at any such designated point of access;

(e). To erect appropriate protective devices to preserve the utility, integrity, and use of such designated Controlled Access Highway; and,

(f). To modify or repeal any order entered pursuant to the powers herein granted.

Provided, however, that nothing in the foregoing subparagraphs (a) through (f), inclusive, shall be construed to alter the existing rights of any person to compensation for damages suffered as a result of the exercise of such powers by the State Highway Commission under the Constitution and laws of the State of Texas.

## MINUTES

Meeting - Special Task Force on Freeway Surveillance and Control Systems  
"Freeway Management", December 7, 1970, 3:00 P.M., Little Hearing Room,  
Texas Highway Department Building, Austin

This meeting was opened at 3:00 P.M. by Chairman R. L. Lewis. The list of those attending is attached.

As the first item of business, Chairman Lewis reported briefly on a report by Dr. Cleven of the Federal Highway Administration: This report titled "Ten Year Forecast of Highway Transportation" presents an excellent review of prospects for the next ten years.

Prior to this meeting copies of the following questions and attached material were furnished to all of the Task Force members. These members were asked to study the material carefully and to arrive at a tentative answer to the questions asked, in order that these questions might be discussed fully at the meeting. The discussion of the questions is shown on the following pages.

---

Mr. Lewis stated that the product of this Committee meeting should be a recommendation to Mr. Dingwall, and that he believed the answers to the questions were fairly concise, possibly with some question about the timing, as to some of the answers.

Mr. Mark Yancey commented generally on the Mass Transit Commission. The possibility of parking areas at outlying areas to be served by buses which would have preferential treatment.

Mr. Carmichael mentioned the problem of bus useage during peak hour period and off peak periods. Mr. Carmichael suggested that our recommendations to Mr. Dingwall be that we take over the complete management of the Freeway System including enforcement, with the expectation that this might be tempered somewhat by the Administration, particularly as to the timing of some phases of this activity.

Mr. Yancey indicated that this would be in keeping with a general policy that we service what we build. A general discussion of subjects relating to, but not necessarily directly pertinent to the subject of the meeting followed and the meeting was adjourned at 5:15 by Chairman Lewis.

## ATTENDANCE

MEETING - SPECIAL TASK FORCE ON FREEWAY SURVEILLANCE AND CONTROL SYSTEMS "FREEWAY MANAGEMENT" - December 7, 1970 - 3:00 p.m. - Little Hearing Room - Texas Highway Department Building

1. R. L. Lewis - D-8
2. Mark Yancey - Administration
3. Bob Crook - District 2
4. W. E. Carmichael
5. Bob Lytton - District 15
6. John Keller - District 18
7. J. M. Owens - District 14
8. Hubert Henry - D-19
9. Archie Sherrod - D-18
  
10. Bill Schnerr - District 14
11. Lawrence Schulz - District 14
12. Al Castello - D-19
13. M. V. Greer - D-18
14. Herman Haenel - D-18
15. P. R. Tutt - D-8

SPECIAL TASK FORCE ON FREEWAY SURVEILLANCE AND CONTROL SYSTEMS

QUESTIONS:

1. Do you agree that the laws and statutes of the State of Texas provides the Texas Highway Department with the authority and responsibility to take whatever action is necessary to operate highway facilities both urban and rural?

SUPPLEMENTAL STATEMENT

House Bill 179 reads as follows: "Art. 6674w-1, Sec. 1. AUTHORIZATION FOR MODERNIZATION OF HIGHWAY FACILITIES Section 1. To effectuate the purposes of this Act, the State Highway Commission is empowered to lay out, construct, maintain, and operate a modern State Highway System, with emphasis on the construction of controlled access facilities and to convert, wherever necessary, existing streets, roads and highways into controlled access facilities to modern standards of speed and safety; and, to plan for future highways. The State Highway Commission is further empowered to lay out, construct maintain and operate any designated State Highway, now or hereafter constructed, with such control of access thereto as is necessary to facilitate the flow of traffic, and promote the Public Safety and Welfare, in any area of the State, whether in or outside of the limits of any incorporated city, town or village, including Home Rule Cities, and to exercise all of the powers and procedures to it granted by existing laws and this Act for the accomplishment of such purposes and the exercise of such powers and duties; provided, however, that in the case of any project involving the bypassing of or going through any county, city, town or village, including Home Rule Cities, the State Highway Commission shall afford the opportunity for not less than one (1) public hearing in the locality before an authorized representative of the State Highway Commission, at which persons interested in the development of the project shall have the opportunity for attendance, discussion and inspection of the design and schematic layout presented and filed with the governing body of such county, city or village, including Home Rule Cities, at least seven (7) days before the public hearing, by the State Highway Department."

Other Legislation will also have an influence on this answer.

December 7 Comments on No. 1

Mr. Crook - The DPS is already involved in some enforcement in urban areas, probably not traffic enforcement except under special circumstances but they do work with the cities on other types of crime and demonstration work.

The extent of coverage of House Bill 179 was questioned and it was brought out that an Attorney General's opinion indicated that it covered almost all highway mileage because in using the term "control of access" it had been determined that centerline markings and driveway control amounted to access control; therefore, all highways are covered by House Bill 179.

Mr. Henry asked if enforcement is really a major problem. He had response from Lytton, Keller and Crook that it was and that the lack of uniformity was quite a problem.

Mr. Sherrod brought out that enforcement handling by the Courts is also a serious problem and that something needs to be done about this.

It was brought out that the Department of Public Safety controls the Turnpike System in Dallas and also the Turnpike between Dallas and Fort Worth and that they do an excellent job here.



Mr. Carmichael asked what we want to undertake here and he mentioned law enforcement, fire protection, ambulances, disabled vehicles and brought out the possibility of construction of maintenance activities that need to be coordinated. Mr. Carmichael also pointed out that city law enforcement people are heavily burdened by other than traffic activities and that they would probably be pleased to get rid of some of this work.

It was also brought out that Legislation other than House Bill 179 has an important bearing on many of these activities, existing Legislation that is.

QUESTION

2. If existing statutes do not invest the Highway Department with this authority and responsibility, should we seek such empowering legislation?

December 7, 1970 Comments on No. 2

The concensus here was that this is what we are trying to decide now.

QUESTION

3. If the answers to either Proposition Nos. 1 or 2 are "Yes", should the Highway Department be responsible for the development and continuation of an effective Urban Freeway and Arterial Traffic Management System?

SUPPLEMENTAL STATEMENT

Large amounts of money have been spent by the Highway Department for the construction of roadway facilities. In some cases these facilities are not operating as efficiently as they could because of operational problems. The attached material from the California Division of Highways deals with the Urban Transportation Management Concept as it is developing in the Los Angeles area. A careful review of this material should be helpful in answering this question and also some of the following questions.

Some of the particular items to be considered here are:

- I. Peak period control to improve safety and efficiency.
  - a. Ramp Control
  - b. Main Lane Control
  
- II. Driver Communication  
Variable Message Signs, etc.
  
- III. Scheduleable Unusual Events
  - a. Maintenance Operations
  - b. Adjacent Construction
  - c. Funeral Processions
  - d. Mass Transit Vehicles
  
- IV. Non-scheduleable Unusual Events
  - a. Accidents
  - b. Disabled Vehicles
  - c. Abandoned Vehicles
  - d. Slow Vehicles
  - e. Stopped Vehicles (illness, map reading, etc.)
  - f. Debris on Facility (dropped, thrown)
  - g. Adverse Weather (fog, rain, etc.)
  - h. Fire (smoke, water)
  - i. Moving Sight Restrictions (large vehicles, etc.)
  - j. Facility Failure (blowup)
  - k. Distractions (gaper incidents)
  - l. Civil Disorders
  - m. Police Activity
  - n. Dangerous Cargo
  - o. Freak Vehicles (oversize loads, bicycles, etc.)
  - p. Pedestrians (hitch-hikers)
  - q. Stray Animals
  - r. Faulty Traffic Control Devices
  - s. Emergency Vehicles
  - t. Wront-Way Driving
  - u. Individual Erratic Driver Behavior
  - v. Shock Waves
  - w. Traffic Friction (inter-lane)
  - x. Other

December 7 Comments on No. 3

Mr. Carmichael stated that he thought we should undertake the freeway management first and leave the city streets to the city, at least for the time being.

For items I, II, and III the consensus was that the answer was yes and here mass transit was discussed at some lengths with a discussion of bus lanes and other ways of giving buses preferential treatment.

The consensus for Item IV was also yes, but some of the items were discussed at some length. I believe the intent here was that some of the items might be eliminated altogether but that if they couldn't they would have to come under the control of the agency involved.

QUESTION

4. Should the Highway Department establish a general statewide policy for the operation of freeways?

SUPPLEMENTAL STATEMENT

The problem here appears to vary considerably from one city to another and could possibly be dealt with differently in different cities. It might be advisable to learn as much as possible about the attitude of the city or cities in your District on this question without suggesting that the Highway Department is considering any change in current practice.

December 7 Comments on No. 4

The concensus here was yes.

QUESTION

5. Since traffic does not respect jurisdictional boundaries and considering that a freeway often traverses several incorporated cities, should decisions relative to operation of a freeway rest with:

- a. The major city:      Yes \_\_\_\_\_      No \_\_\_\_\_
- b. A cooperative operating organization organization consisting of representatives of all cities involved?      Yes \_\_\_\_\_      No \_\_\_\_\_
- c. The County:      Yes \_\_\_\_\_      No \_\_\_\_\_
- d. The Highway Department:      Yes \_\_\_\_\_      No \_\_\_\_\_
- e. Other:      Yes \_\_\_\_\_      No \_\_\_\_\_

December 7 Comments on No. 5

The concensus here was that the responsibility should rest with the Highway Department as the basic control agency but that this should be established under a broad Commission policy which would permit a considerable amount of variation to suit the situation, particularly with respect to the manner in which we deal with local jusidictions.

Mr. Yancey brought out that the Attorney General had been looking at House Bill 179 in connection with other matters and that he had determined that the Department had very broad authority under this Law, but that it also suggested the possibility of public hearings for a great many activities. Mr. Yancey mentioned the development of an inter-agency transportation council involving other state agencies and he mentioned the strength of the trucking industry with certain other agencies.

QUESTION

6. Should each District have authority to delegate primary and/or secondary responsibility for freeway operations to cities within their Districts?

December 7 Comments on No. 6

The concensus here was that the authority should be at the Administration level and based on Commission action.

QUESTION

7. Do you believe that cities in your District would have the technical capability to efficiently provide all phases of freeway operation?

December 7 Comments on No. 7

The concensus here was that the larger cities have the technical capability to undertake this work but probably not the necessary financing.



QUESTION

8. Do you believe that most cities would prefer to operate freeways within their jurisdictional boundaries or would they prefer that the Highway Department handle this responsibility?

December 7 Comments on No. 8

Mr. Carmichael stated that the Houston Police Department is heavily burdened with activity other than traffic and that they would probably like to be relieved of any responsibility that they could give up gracefully.

Mr. Lewis mentioned freeway patrols used in other states and the general consensus here seemed to be that cities would probably not strongly oppose this.

QUESTION

9. Since freeway operation is a unique function involving nearly all the operating units of the Department, how should the responsibility at the District level be assigned in order to assure coordination of all functions?

- a. to the Asst. District Engineer \_\_\_\_\_
- b. to the Administrative Engineer \_\_\_\_\_
- c. to the District Design Engineer \_\_\_\_\_
- d. to the District Planning Engineer \_\_\_\_\_
- e. to the District Maintenance Engineer \_\_\_\_\_
- f. to the District Traffic Engineer \_\_\_\_\_
- g. to Freeway Operations Engineer (New Title) \_\_\_\_\_
- h. Other \_\_\_\_\_

December 7 Comments on No. 9

Mr. Carmichael and Mr. Lytton both stated that this should be a separate organization under the District Engineer and there appeared to be general agreement on this point.

Mr. Lytton stated that the Traffic Management Engineer should probably be an Engineer VI.

QUESTION

10. Since freeway operation transcends several functions at the Austin Office level; i.e. design, planning, automation, maintenance, construction, programming, public information, etc.:

- a. Can all of the involved Divisions under presently assigned authority coordinate effectively to provide leadership policy and other functions?
- b. Should one of the existing Divisions be assigned the responsibility for coordinating these activities?
- c. Should a new Division be created to perform this function?
- d. Can a functional task force accomplish this end?
- e. Should an existing Division be assigned interim responsibility with a longer range objective towards creating a new Division?

December 7 Comments on No. 10

A Freeway Management Section should be set up initially within D-18 with the possibility that it be made into a separate Division later, as the work load and the need demands.

QUESTION

11. In order to assist the Districts in preparing necessary feasibility studies, should the Department initiate training programs on freeway operations?

December 7 Comments on No. 11

The concensus here was that this should be done.

QUESTION

12. Considering that the accommodation of public transit will be necessary, should the District Engineer have the authority to determine how the freeway will be operated with respect to these vehicles?

December 7 Comments on No. 12

This should be a Commission policy.

QUESTION

13. Should we include in our traffic operations functions, the responsibility for traffic signal systems:

- a. at freeway interchanges only?
- b. at freeway interchanges and parallel city arterials within the corridor?
- c. on selected highway routes in cities if they are not freeway type?
- d. None of the above?

December 7 Comments on No. 13

The concensus was that "a." would be yes, "b." a qualified yes, and "c." this would mostly be handled by the city.

Mr. Carmichael stated that probably the population range of incorporated cities in which we operate and maintain traffic signals may be too low and that it should be increased to as much as 50,000 people in some cases. This to be a permissive Commission policy.

QUESTION

14. Should freeway operations be financed from a special fund set up for this purpose?

December 7 Comments on No. 14

The concensus here was that a Special Fund should be set up.

C O R R E S P O N D E N C E





COMMISSION

DEWITT C. GREER, CHAIRMAN  
HERBERT C. PETRY, JR.  
GARRETT MORRIS

TEXAS HIGHWAY DEPARTMENT  
P. O. Box 1386  
Houston, Texas 77001  
February 10, 1971

CHIEF ENGR.	<input checked="" type="checkbox"/>
ADMIN. DESIGN	<input type="checkbox"/>
PROG. PLAN	<input type="checkbox"/>
GEO. DESIGN	<input type="checkbox"/>
PAV. DESIGN	<input type="checkbox"/>
URBAN	<input type="checkbox"/>
R. & D.	<input type="checkbox"/>
FIELD	<input type="checkbox"/>
D-8 FILE	<input checked="" type="checkbox"/>

STATE HIGHWAY ENGINEER  
J. C. DINGWALL → *[Signature]*

IN REPLY REFER TO  
FILE NO.

Mr. J. C. Dingwall  
State Highway Engineer  
Austin, Texas 78701

Attention: File D-8

Dear Sir:

Reference is made to your proposed recommendations relative to freeway operation <sup>and</sup> control in urban areas based on information derived from Special Task Force meetings on this subject. I think these are presented in a way to adequately represent the majority view of Committee members and with sufficient latitude to encompass many specific details as they are uncovered in pursuance of the committee goal.

I think that after we get approval to press forward on this proposition, the first order of business would be to begin discussions of this subject with some of the major cities. This could be started by a committee of Highway Department people and city people (Police Chief preferably) to Study Freeway Operation and Control in Cities with limited goal to report on the problems involved. This could be expanded later to include the preparation of recommendations for solutions of the problems.

We have discussed this general subject with Chief Herman Short of Houston and he told us that he would be pleased to join in a study of this nature. Incidentally, he seemed to agree that one agency should be responsible for all Freeway Operation and Control and that it should not be the City.

Very truly yours,

*[Signature]*  
W. E. Carmichael  
District Engineer  
District No. 12

WEC/js

2-11.13



COMMISSION

DEWITT C. GREER, CHAIRMAN  
HERBERT C. PETRY, JR.  
GARRETT MORRIS

TEXAS HIGHWAY DEPARTMENT

P. O. Box 6868  
Fort Worth, Texas 76115  
January 25, 1971

CHIEF ENGR.	<input checked="" type="checkbox"/>
ADM. DESIGN	<input type="checkbox"/>
PROJ. PLAN	<input type="checkbox"/>
GEO. DES.	<input checked="" type="checkbox"/>
URBAN	<input type="checkbox"/>
R. & D.	<input checked="" type="checkbox"/>
FIELD	<input type="checkbox"/>
STATE HIGHWAY ENGINEER	<input type="checkbox"/>
J. C. DINGWALL	<input type="checkbox"/>
D-8 FILE	<input checked="" type="checkbox"/>
LIBRARY	<input type="checkbox"/>

IN REPLY REFER TO  
FILE NO.

D-8

Subject: Special Task Force on Freeway Surveillance and Control Systems

Mr. J. C. Dingwall  
State Highway Engineer  
Austin, Texas 78701

Dear Sir:

With reference to your letter of January 12, 1971 and attachments, I believe the Minutes generally covered all that we discussed at our meeting on December 7, 1970. As to your request for our thoughts on the attached Item 3, the following is a brief discussion of our present procedures and our recommendations regarding this matter.

At the present time, we have in the metropolitan Fort Worth area what we call (for lack of a better term) freeway patrol vehicles which are pickups equipped with two-way radios tuned to our highway frequency and wire cages for trash hauling. These vehicles constantly patrol the heavy traffic freeways, picking up objects on the pavement and adjacent to the pavement as observed or when notified from our base stations or other vehicles, assisting motorists who are in difficulty by flagging traffic, changing tires and in several instances have extinguished fires in vehicles. They do not furnish gasoline to vehicles out of fuel but will, either through direct notification or by radio or telephone, notify filling stations of the motorists plight. These vehicles normally operate during our regular working hours from 7:45 a.m. until 5:15 p.m. and on Saturdays and holidays as well as on emergency calls at other times.

It is our recommendation that where deemed necessary by the districts, these patrols be expanded both in number and length of operating time to provide a full patrol of the high traffic freeways prior to the rush hour traffic in the mornings and continue throughout the day and into the early hours of the night; i.e., a patrol from approximately 6:00 a.m. until 10:00 p.m., and these patrols be authorized to furnish vehicles that are out of fuel with one to one and one-half gallons of gasoline in order for them to proceed to a refueling station; that our vehicles be equipped with possibly better tools and other equipment to allow faster assistance in changing tires, etc., and also be allowed upon request by the disabled motorist to tow the vehicle off the freeway onto the next adjacent frontage road or cross street.

1-26 83

Mr. J. C. Dingwall  
January 25, 1971  
Page 2

At the present time, I do not feel that our patrol should be authorized to interfere in any way at the scene of vehicular accidents by towing disabled vehicles off the freeway unless directed to do so by the investigating officer, but feel that they should be authorized to provide flagging services and signs in coordination with law enforcement officers. These vehicles probably should also be provided with radio monitoring units in order to be able to monitor police calls relative to accidents or other disturbances occurring on the Freeway System.

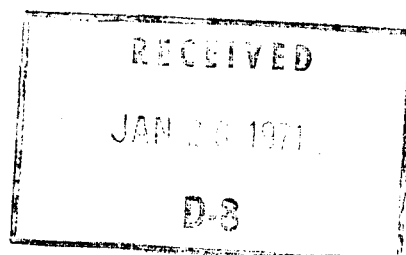
We trust that this is the type of information you were seeking.

Sincerely yours,



R. W. Crook  
District Engineer

RWC:11



*OK*

**TEXAS HIGHWAY DEPARTMENT**  
P. O. Box 3067 Dallas, Texas 75221  
January 21, 1971

REFER TO FILE NO.

D

✓ (PRT)

Special Task Force

✓

Austin Office  
File D-8

We have reviewed the minutes of the meeting of the Special Task Force held December 7, 1970, included in your letter of January 12, 1971, and have no additions or deletions to make.

In accordance with the last paragraph of your letter of January 12, 1971, we would like to make the following comments:

Inside the outer loop (I.H. 635) of the urban area, we would advocate the use of special emergency patrols operating on the freeways from 6:00 a.m. to 12:00 midnight. These patrols would function to keep all the debris from the pavement, notifying the proper authorities of accidents and of disabled vehicles. These patrols could render first aid, place barricades, signs, lights, and remove accident debris from the roadway. They could report damaged signs, inoperative luminaires, locations needing fence or guard rail repair, pavement defects and drainage problems. Patrols could assist motorists by providing gasoline, tire changing aid, water for over heated radiators, calling for repair service and lending tools for minor repairs.

Each emergency patrol would be equiped with a radio and could coordinate their efforts with other state and governmental agencies.

We believe that such an operation would be beneficial to better operation of the freeways in the urban area.

If additional information is desired, please advise.

Sincerely,

*John G. Keller*  
John G. Keller  
District Engineer



Call Box

*[Handwritten initials]*

COMMISSION

DEWITT C. GREER, CHAIRMAN  
HERBERT C. PETRY, JR.  
GARRETT MORRIS

TEXAS HIGHWAY DEPARTMENT

STATE HIGHWAY ENGINEER  
J. C. BINGWALL

*[Handwritten signature]*

Austin, Texas 78767

January 22, 1971

✓

IN REPLY REFER TO  
FILE NO.

Subject: Task Force Meeting of December 7, 1970 and  
Related Matters

Austin Office, File D-8R

Attention: Mr. Paul Tutt

Reference is made to your letter of January 12, 1971 to which  
was attached the Minutes of the above meeting together with the  
conclusions reached by those participating.

As discussed with Mr. Tutt, we feel that these Minutes cover the  
subject matter satisfactorily and have no further comments to make  
at this time. We are vitally interested in some sort of emergency  
call box system for the upper level of our expressway between  
Airport Blvd. and 15th Street, but apparently the experimental  
system in Houston has not worked too satisfactorily. We feel  
that we should continue to investigate all possible systems  
and hopefully we can find the correct one before it is needed  
on our project.

*[Handwritten squiggle]*

*[Handwritten note: } all as you = ]*

Very truly yours,

T. K. Wood  
District Engineer

By

*[Handwritten signature of J. M. Owens]*

J. M. Owens  
Assistant District Engineer

JMO:ljb

*[Handwritten mark]*

INTEROFFICE MEMORANDUM

TO: Mr. R. L. Lewis

FROM: H. A. Henry

SUBJECT: Special Task Force on Freeway Surveillance  
and Control Systems

Date ✓ March 15, 1971

Responsible

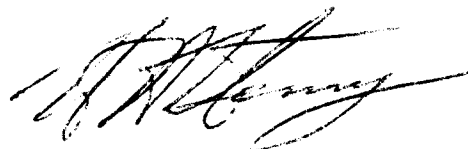
Desk ✓ D-19

Reference is made to your letter of February 19, 1971, transmitting a report on the activities of the subject Task Force and requesting comments from the members.

The report has been studied and I concur in the title "Traffic Management" as the appropriate terminology for the function described. I am in agreement with the statement that the manner in which Traffic Management is woven into the highway organization should be given careful consideration. To organize a separate Division could cause considerable duplication of activities in D-8, D-18, and D-19 - duplication of activities which cannot logically be separated from the parent Division. Coordination of efforts directed to Traffic Management in the separate Divisions could be accomplished through a definition of the specific areas of responsibilities for each. District level Traffic Management would be the responsibility of the District Engineer to handle as he sees fit.

All other sections of the report are concurred in as presented.

HH:hh



*File*  
**INTEROFFICE MEMORANDUM**

TO: Mr. R. L. Lewis

Date March 17, 1971

FROM: Marcus L. Yancey, Jr.

Responsible

SUBJECT: Special Task Force on Freeway  
Surveillance and Control Systems

✓ Desk ..... BLD

I have reviewed the report attached to your memorandum dated February 19, 1971, regarding the recommendations of the Special Task Force on Freeway Surveillance and Control Systems. While I participated in the discussion in each of these recommendations, I have given careful thought to each of them and have reached several different conclusions.

Mr. Dingwall's original charge indicated that we should consider not only organizational changes and legal enforcement problems, but also projected needs and cost estimates. Our recommendations in the report are aimed chiefly at the legal, jurisdictional and organizational aspects. However, it is apparent to me that we have failed to investigate with the Department of Public Safety and the various cities - with the exception of Houston - their attitudes regarding a cooperative effort in Traffic Management.

In addition, we have failed to give any idea of the probable initial or ultimate needs and cost estimates. I am confident that the Commission will demand that this information be made available prior to any actions necessary on their part.

Regarding the recommendations on organization outlined, my only comment would be that we should not move in the organization stage too rapidly. Thus, I concur that Traffic Management should remain in D-18 essentially because urban traffic is not the only traffic operations problem causing difficulty in the State. I would hope that we would not make any judgments regarding organization based on personalities rather than the necessary minimum structure to begin a demonstration project in the Districts where the need is the greatest. Further, I believe that the District level organization should remain the prerogative of the District Engineer in order to be flexible enough to meet each circumstance which might be common only to a particular District.

I note with interest that several of the District Engineers propose the "patrol concept." I concur in this concept, but would suggest that we begin on a pilot basis and learn from the experience generated by these early organizations.

I would like to stress again my personal view that other organizational changes now pending could have some bearing upon the efforts that we make, and that we should not be too hasty in establishing set patterns at this time.

*Marcus L. Yancey Jr.*

MLY:lt