HOV MARKETING MANUAL

?MARKETING FOR SUCCESS”

By
John W. Billheimer
J.B. Moore
Heidi Stamm

Submitted to

The Federal Highway Administration

By

SYSTAN, Inc.
343 Second Street
P.O. Box U
Los Altos, CA 94023
(415) 941-3311

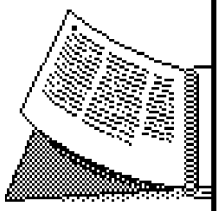
In Association With

The Roanoke Company
Pacific Rim Resources

D265
April, 1994

PREFACE AND ACKNOWLEDGEMENTS

PREFACE



This manual has been prepared by SYSTAN, Inc. for the Federal Highway Administration to provide marketing and HOV professionals with practical guidelines for improving the public awareness, understanding, acceptance and use of HOV lanes.

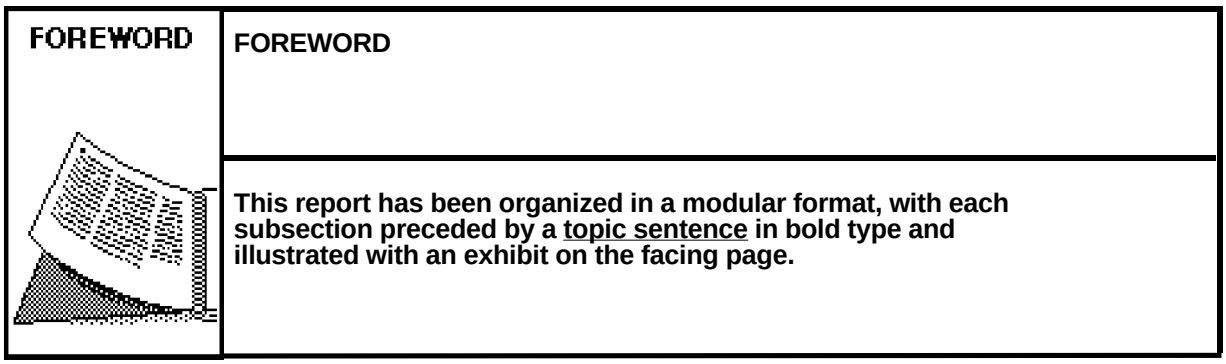
The manual has been prepared in the Los Altos, California offices of SYSTAN, Inc. under Contract No. DTFH61-93-C-00090 with the Federal Highway Administration (FHWA). Mr. Jerry Emerson of FHWA acted as the project's technical monitor.

SYSTAN's project manager and principal investigator was Dr. John W. Billheimer. Mr. J.B. Moore of The Roanoke Company provided public information insights and wrote major sections on Campaign Implementation, while Ms. Heidi Stamm of Pacific Rim Resources contributed her hands-on experience with HOV lane marketing and authored the subsection dealing with Constituency Building and the Case Study of Seattle's I-5 South HOV lanes. Ms. Juliet McNally of SYSTAN helped to organize the final report, and Ms. Fran Vella of Phrasemaker Word Processing prepared all project reports, including this Manual.

The manual has been prepared under the close scrutiny of the Transportation Research Board's Committee on HOV Lanes. Committee members and friends Charles Fuhs, Ron Klusza, Heidi Stamm, Katie Turnbull, and Carole Valentine liberally contributed their time in reviewing the manual outline and each of its drafts and made many helpful suggestions as the work progressed.

The authors received generous assistance from a number of individuals affiliated with various HOV projects throughout the U.S. Special acknowledgement is due to Al Pint and Judith Rockvam of MN DOT and Charleen Zimmer of Strgar-Roscoe-Fausch, Inc. for their assistance with Minneapolis I-394; to Lynda South Webster and Frank Dunn of VDOT for their help with both Hampton Roads Projects; to Ron Klusza and Bob Goodell of CALTRANS District 7 for dredging up their memories of Santa Monica Diamond Lanes; to M. Scott MacCalden Jr. of JHK Associates for unearthing the early technical reports on the San Francisco/Oakland Bay Bridge; to Mary Ann Reynolds and Carole Valentine of VDOT for reliving their experience with the Dulles Toll Road; and to Jerry Ayres, Melissa Loomis and Rob Fellows of WA DOT for sharing their insights into Washington State HOV policies and programs.

SYSTAN wishes to thank all of those who provided information and insights on the marketing of HOV lanes, and acknowledges full responsibility for the analysis, interpretation, and presentation of the information they provided.



This report has been organized in four major chapters.

1. Introduction

2. Planning the Campaign

3. Implementing the Campaign

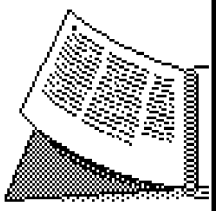
4. Monitoring and Evaluating

The four chapters are further divided into Sections (designated by letters) and Subsections (designated by numbers). Each Subsection has been designed as a self-contained, modular element, with a single page of text facing an exhibit illustrating the thesis of the Subsection. The layout of each modular Subsection is sketched in the illustration on the facing page.

For the convenience of the reader, the Chapter Number and Section and Subsection designation are prominently displayed at the top of each page. In addition, a topic sentence summarizing the Subsection thesis appears in bold type at the beginning of each modular element (See exhibit). The reader interested in a quick overview of the report can easily skim its contents by reading these topic sentences, pausing to explore subjects of particular interest.

FOREWORD

EXPLICAT: SUBSECTION LAYOUT



CONTENTS

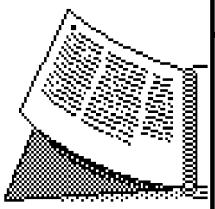


TABLE OF CONTENTS

INTRODUCTION

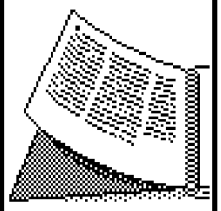
INTRODUCTION 1

SECTION I - INTRODUCTION **PAGE**

TABLE OF CONTENTS

CONTENTS

PLANNING THE CAMPAIGN



CONTENTS

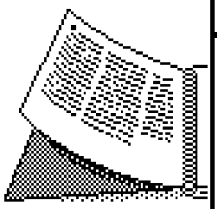
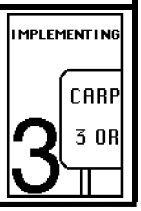


TABLE OF CONTENTS

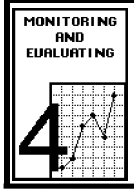
IMPLEMENTING THE CAMPAIGN



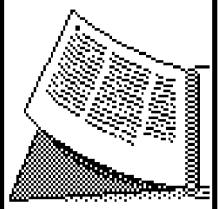
SECTION 3 - IMPLEMENTING THE CAMPAIGN **PAGE**

TABLE OF CONTENTS

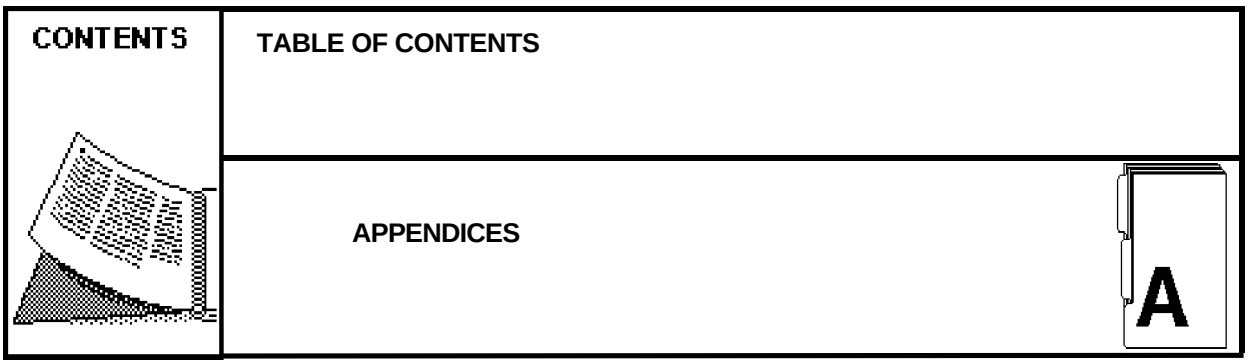
CONTENTS



MONITORING AND EVALUATING



SECTION 4 - MONITORING AND EVALUATING **PAGE**



APPENDIX **PAGE**

SECTION ONE
INTRODUCTION

1

INTRODUCTION 1	A. OVERVIEW
	This Marketing Manual is designed to provide marketing and HOV professionals with practical guidelines for improving the public awareness, understanding, acceptance, and use of HOV lanes and their support facilities.

Over the past 20 years, as congestion has increased on the nation's freeways and the funds and space for freeway expansion have become more and more constrained, jurisdictions throughout the U.S. have begun to implement facilities offering preferential treatment for high-occupancy vehicles (HOVs). These facilities are intended to help maximize the movement of people along roadways by providing HOVs – carpools, vanpools, and buses – with reduced and more predictable travel times.

Although High-Occupancy Vehicle (HOV) lanes save time for carpoolers, vanpoolers, and mass transit users and encourage more effective use of the nation's highways, the restrictions they impose on single-occupant vehicles (SOVs) have in some cases led to misunderstandings, criticisms, loss of public support, organized opposition, and even the cancellation of critical projects. It is essential that extensive marketing efforts to be undertaken before, during, and after the implementation of HOV projects to educate the public and develop a base of political and community support.

Marketing efforts represent a relatively recent addition to the transportation planning process and, in some areas, the inclusion of marketing in the process has been met with skepticism by traditional highway planners. Where it is no longer possible to build enough freeways to handle the demand for services by single occupant vehicles, however, something must be done to alter the shape of that demand. Marketing tries to do this by opening channels of communication with the driving public. In the case of HOV lanes, many different messages can be sent (and received) through these channels. A few of the marketing objectives cited in past HOV projects are listed below.

HOV Marketing can:

- Heighten public awareness of ridesharing as an option;
- Increase public confidence in HOV strategies;
- Develop accurate expectations for HOV facilities;
- Advertise the opening of HOV lanes;
- Educate drivers in the use of HOV lanes;
- Promote immediate use of HOV lanes;
- Create awareness of support facilities (i.e., park-and-ride lots, ridematching services); and
- Provide updated accounts of HOV lane time savings and usage.

This HOV Marketing Manual is designed to provide marketing and HOV professionals with practical guidelines for improving the public awareness, understanding, acceptance, and use of HOV facilities.

The organization of the manual is outlined in the accompanying exhibit. This organization features four main sections. The first section, this INTRODUCTION, contains highlights from case studies of HOV marketing experience and summarizes a few key principles of successful marketing gleaned from these studies. The next main section, PLANNING THE CAMPAIGN, addresses such key topics as market research, campaign strategy, marketing materials, and constituency building. The third main section, IMPLEMENTING THE CAMPAIGN, covers media relations, advertising placement, promotion, community relations, and ongoing marketing activities. The last major section, MONITORING AND EVALUATION, discusses the need to monitor and assess the marketing campaign, public response, and HOV lane performance. Finally, APPENDICES contain sample marketing materials from a variety of HOV projects, project data, the case studies themselves, and a list of contacts who have had experience marketing HOV lanes in various parts of the country.

A. OVERVIEW

EXHIBIT: MANUAL ORGANIZATION

INTRODUCTION

1

1. INTRODUCTION

- A. WHY MARKETING
- B. CASE STUDY HIGHLIGHTS
- C. MARKETING FOR SUCCESS

2. PLANNING THE CAMPAIGN

- A. MARKET RESEARCH
- B. CONSTITUENCY BUILDING
- C. CAMPAIGN OBJECTIVES AND STRATEGIES
- D. MARKETING MATERIALS

3. IMPLEMENTING THE CAMPAIGN

- A. MEDIA RELATIONS
- B. ADVERTISING PLACEMENTS
- C. PROMOTION
- D. COMMUNITY RELATIONS
- E. ONGOING MARKETING

4. MONITORING AND EVALUATING

- A. OVERVIEW
- B. EVALUATION PLAN
- C. MONITORING THE PROJECT
- D. MONITORING THE CAMPAIGN
- E. EVALUATING PITFALLS

A. APPENDICES

- * CASE STUDIES
- * SAMPLE MATERIALS
- * PROJECT DATA
- * SAMPLE SURVEY FORMS
- * MARKETING CONTRACTS
- * BIBLIOGRAPHY

INTRODUCTION 1	**B. CASE STUDY HIGHLIGHTS** **1. OVERVIEW** ***"It's easy to market a good project, but the best marketing campaign in the world won't save a badly flawed HOV Project."***

In preparing this manual, case studies were developed focusing on the marketing aspects of seven HOV projects. These case studies appear in Appendix A. Key findings from the Appendix A case studies are outlined in this section of the manual.

The seven projects for which case studies were developed are listed below.

Appendix	**Project**
A1	Minneapolis I-394
A2	Hampton Roads Route 44
A3	Hampton Roads I-64
A4	The Santa Monica Diamond Lanes
A5	The San Francisco/Oakland Bay Bridge
A6	The Dulles Toll Road
A7	Seattle I-5 South

These case studies were chosen to represent a range of successful and unsuccessful HOV projects. As shown in the illustration on the facing page, four of the projects, Minnesota I-394, Hampton Roads I-64, The San Francisco/Oakland Bay Bridge, and Seattle I-5 are generally recognized as successful examples of HOV lane implementation. The remaining three projects, Hampton Roads Route 44, The Santa Monica Diamond Lanes, and The Dulles Toll Road, generated such high levels of public hostility that they were shut down by political or judicial decrees.

The projects selected for case studies received varying amounts of marketing attention prior to opening. The amount of marketing did not necessarily correlate with a project's ultimate success or failure. Two of the projects studied, Hampton Roads Route 44 and the San Francisco/Oakland Bay Bridge, received negligible marketing attention prior to opening. While the Hampton Roads project suffered badly from the empty lane syndrome and was discontinued by a political maneuver temporarily exempting the area from HOV restrictions, the San Francisco/Oakland Bay Bridge has proven to be one of the most successful HOV projects in California. The best marketing tool for HOV lanes is a well conceived and well designed project.

A well-designed HOV project can succeed with a minimum of marketing, but no amount of marketing is likely to save a badly flawed project. The table below compares the marketing efforts devoted to two high profile HOV projects, Minnesota I-394 and the Santa Monica Diamond Lanes.

	Minnesota I-394	**Santa Monica Diamond Lanes**
Marketing Elements		
Marketing Plan?	Yes	Yes
Constituency Building?	Yes	Yes
Marketing Budget (1st Year)	$400K	$350K
Targeted Materials?	Yes	Yes

EXHIBIT: SUCCESSFUL AND UNSUCCESSFUL PROJECTS IN CASE STUDIES

SUCCESSFUL	**UNSUCCESSFUL**
MINNEAPOLIS I-394	HAMPTON ROADS ROUTE 44
HAMPTON ROADS I-64	THE SANTA MONICA DIAMOND LANES
SEATTLE I-5	THE DULLES TOLL ROAD
THE SAN FRANCISCO/ OAKLAND BAY BRIDGE	

Thus the marketing plans for the two projects were nearly identical in all respects, and more than ample by the standards of most HOV projects. Yet the express lanes on Minnesota I-394 are generally acknowledged as a successful HOV project, while the Diamond Lanes on the Santa Monica Freeway, which cost non-carpoolers far more time than carpoolers and caused the accident rate to more than double, were an early and widely publicized HOV failure. It is not likely that any marketing program could have made the Santa Monica Diamond Lanes, as designed and implemented, palatable to the Los Angeles public.

The case studies appearing in this manual were selected with an eye toward identifying projects that were unequivocal successes or failures. Most HOV lanes fall somewhere between these two extremes. These lanes require marketing programs to build constituencies, promote projects, and attract patrons. This manual has been developed to assist the designers, planners, and marketers of these lanes and HOV projects yet to come.

INTRODUCTION 1	B. CASE STUDY HIGHLIGHTS 2. MINNEAPOLIS I-394
	"Good media relations are more important than advertising in ensuring project success" **Al Pint, I-394 Project Manager**

PROJECT OVERVIEW

I-394, the last segment of the interstate system to be constructed in the Twin Cities Metropolitan Area, extends eleven miles to the west of downtown Minneapolis. A detailed case study of this project may be found in Appendix A-1. The design consists of eight miles of concurrent-flow, two-person HOV lanes, with three miles of barrier-separated, reversible HOV lanes entering Minneapolis. The lanes are supported by a variety of elements, including two major transit stations, seven park-and-ride lots, ramp metering, HOV bypass lanes at selected ramps, and three new directly accessible parking garages in downtown Minneapolis, which offer discounted rates to carpoolers.

The I-394 lanes afford a time savings ranging from five to seven minutes to buses and two-person carpools traveling the length of the project. Since the lanes opened to provide temporary construction relief in 1986, usage has nearly tripled. By the Spring of 1993, 4,606 people, or 48% of the inbound commuters during the peak hour, used the I-394 Express Lanes each morning.

MARKETING OVERVIEW

Elements. The Express Lanes on I-394 have been accompanied by a dedicated and extensive marketing program which has grown and evolved as the lanes proceeded from construction to completion. The marketing program includes:

- **Market Research Activities** which used telephone surveys, focus groups, and employer interviews to assess marketing potential, identify target audiences, test promising marketing approaches, and measure public reactions to the Express Lane.
- **Marketing Plan**. A unified marketing plan guided the production and dissemination of a wide variety of promotional materials, including a Commuter Guide, quarterly newsletters, construction bulletins, weekly press releases, press tours, press kits, radio spots, billboards, newspaper ads, bus-side advertising, posters, and a telephone hotline.
- **Constituency Building Programs** included the creation of a Corridor Management Team involving all affected public agencies and the maintenance of good community relationships with businesses and residents.
- **Marketing and Evaluation Programs** which enabled MN/DOT to report project impacts in a timely and accurate fashion.

Objectives. Marketing objectives evolved gradually from introducing the HOV concept as construction began to filling the HOV lanes when construction was completed. According to MN/DOT, marketing personnel concentrated on ?increasing carpooling and bus riding, establishing two-way communication with target audiences, and maintaining positive media relations...Strategies regularly focused on communicating the benefits of I-394, utilizing both paid and non-paid media to reach target audiences and tying all communication vehicles together with a similar look and a Highway 12/I-394 logo."

Budget. The marketing program was supported by an in-house marketing liaison, a contract with a public relations/advertising agency, and a dedicated budget that averaged $400,000 per year.

EXHIBIT: REASONS FOR PROJECT SUCCESS
Source: Phase 1 Report (Stragar-Roscoe-Fausch, 1987)

C **The lane worked the way it was intended to work.** Its benefit in bypassing congestion is clearly visible to people who use the highway.

C **The promises for time savings were kept.** People perceive greater time savings than were promised and say this is the main reason they use the HOV lane.

C The definition of a carpool as a passenger vehicle with **two or more people** easier to form carpools and put reasonable volumes in the lane immediately; thus, there was no "empty lane syndrome."

C **Occupancy requirements were rigorously enforced.** Patrols were highly visible during the first two weeks of operation and periodically thereafter.

C There was **top-down open support from within MN/DOT and strong interagency** support for the project. The public commitment of the Commissioner and the major decision-making role of the Corridor Management Team were very important in achieving this support.

C By designating **a Corridor Manager** with responsibility for the operation of the interim HOV lane as well as the construction of I-394, MN/DOT was able to respond immediately to any problems or criticism.

C A lot of attention was given to providing **time information** to people, to maintaining a positive image of I-394 construction and the HOV lane, and to marketing the benefits of carpooling and riding the bus. A variety of methods were used including a telephone "hotline", newsletter, billboards, media coverage and special events.

C **A system of supportive facilities and programs** was implemented to provide the best possible level of service, cost savings and time savings for people who carpool or ride the bus.

REASONS FOR SUCCESS

By almost any measure, the I-394 Express Lanes can be termed a success. They are widely accepted by the public, offer carpoolers and bus riders a consistent time savings, have minimal violation rates, carry 48% of the Corridor's commuters during the peak morning hour, and have led to the formation of a number of carpools. Many factors contributed to this success in the planning, design, construction and operation stages. The factors judged to be most important by the participants themselves are cited in the above exhibit in the project's Phase I Report (Stragar-Roscoe-Fausch, 1987):

The last four of the cited factors (interagency support, focused responsibility, timely information, and support facilities) fall under the traditional heading of marketing concerns. However, the first four factors, which address the design and operating decisions which ensured that the lanes would work the way they were intended to work, were just as important from a marketing standpoint. In the words of Corridor Manager Al Pint, "It's easy to market a good product."

INTRODUCTION 1	**B. CASE STUDY HIGHLIGHTS** **3. HAMPTON ROAD ROUTE 44**
	"I don't think people would have been so mad if they'd seen a car in there now and then." **State Senator opposing Route 44 HOV Lanes**

PROJECT OVERVIEW

The Virginia DOT (VDOT) planned HOV lanes on the Virginia Beach-Norfolk Expressway (Virginia Route 44) and I-64 at the crossroads linking Norfolk, Hampton Roads, and Virginia Beach. The segment on Route 44 consisted of five miles of concurrent-flow HOV lanes, while adjoining lanes on I-64 were designed as barrier-separated reversible flow lanes. The initial design of the lanes made no provision for express bus service or park-and-ride facilities.

The first leg of the HOV system was constructed on Route 44 and was scheduled to open in September 1986. When funding for the reversible lanes on I-64 proved to be slow in coming, VDOT had to decide whether to open the Route 44 lanes as concurrent-flow HOV lanes or open the new lanes to all traffic and restrict them to HOVs when the entire system was complete. Feeling it would be too difficult to reclaim the lanes for HOVs once they had been opened to all traffic, VDOT decided to restrict the new lanes to vehicles with three or more occupants from opening day onward.

Once operational, the lanes shaved five minutes from commuting times during rush hour. However, few motorists elected to take advantage of this time savings by forming three-person carpools. One month after opening, the lanes carried just 50 vehicles per hour, or about one percent of the total number of rush-hour vehicles. One year after opening, HOV lane traffic had grown to 250 vehicles per hour, including a number of violators. This was far too little traffic to overcome the empty lane syndrome, and the promise of more vehicles at some indefinite future date when I-64 opened did little to sway adverse public opinion. Politicians, recognizing that non-carpoolers far outnumbered carpoolers, capitalized on the public outrage and made the HOV lanes an election-year issue. The Virginia General Assembly passed a law rescinding the HOV concept in the Hampton Roads Area, and the lanes were opened to general traffic nineteen months after they had been designated as HOV lanes. In a compromise move undertaken to protect federal funding, it was agreed that the lanes would be reopened when the entire HOV system was completed on I-64. Accordingly, the HOV-3 signs were left standing, covered with a message saying that the carpool provisions were ?temporarily rescinded." (See Exhibit.)

MARKETING OVERVIEW

Because the decision to open the Route 44 lanes with a rather restrictive 3+ occupancy requirement was delayed until two months before the actual opening of the lanes, little pre-project marketing could be accomplished. Marketing activities budgeted $40,000 for a brochure entitled ?Want to Travel in Faster Company?", a two-page newspaper ad in the *Virginia Pilot*; and an instructional video.

Little research into public attitudes preceded the project, and the adverse public response to the HOV lanes was underestimated. The short set-up period also left no time to build coalitions with allied agencies or seek out potential supporters in the legislature. As a result, the lanes were largely unenforced, and the General Assembly had no trouble passing the bill that killed HOV lane operations.

B. CASE STUDY HIGHLIGHTS	INTRODUCTION 1
EXHIBIT: SIGN ANNOUNCING TEMPORARY END OF ROUTE 44 HOV LANES **(Source: *Virginia Pilot and Ledger-Star)***	

REASONS FOR FAILURE

When reversible HOV lanes on I-64 were completed, the Route 44 lanes were reopened as part of a broader system (See Appendix A-3). VDOT personnel reviewed the reasons the lanes had failed to gain a following during their initial incarnation. These reasons are listed below:

- Failure to gain support for HOV from those who could not use the lanes;
- Low usage. Volume never increased enough to overcome the empty lane syndrome;
- Commuters experienced little time savings in the HOV lane;
- The system was too incomplete to be a significant benefit to the public;
- The inconvenience of making rideshare accommodations;
- The high violation rate attributed to low enforcement levels.

Lynda South Webster, VDOT's Director of Public Affairs, noted that the "failure to realize material benefits in time savings, slow growth in overall use, and a poor understanding and 'buy in' of the long-range benefits" led to the rescinding of the Route 44 lanes. While she observed that reducing the carpool requirement to two or more occupants might have helped counter the empty lane syndrome, the project as staged was incomplete and unsupported by either a rideshare program or park-and-ride lots. "The product was simply not a good one," she concluded and "the best marketing program can't salvage a poor product."

INTRODUCTION 1	B. CASE STUDY HIGHLIGHTS 4. HAMPTON ROADS I-64 AND ROUTE 44
	"This time HOV goes the distance" **VDOT Marketing Slogan**

PROJECT OVERVIEW

To protect federal funding for the freeway improvements planned at the Norfolk/Hampton Crossroads, it was agreed that the HOV lanes on Route 44 (See Section 1-B-3) would be re-opened when the reversible lanes on I-64 were completed and the entire HOV system was in place. The completed project, which is described in detail in Appendix A-3, opened on September 15, 1992. In the four-and-a-half years between the legislatively-mandated lifting of restrictions on Route 44 and the opening of the completed system, VDOT took several measures to ensure the success of the new system. These included:

- **The formation of an HOV Steering Committee** composed of local municipalities, public utility districts, the Norfolk Naval Base, the Virginia State police, VDOT, the state public transportation department, and the regional transportation district;
- **The development of a long-range marketing program**, which included market research activities;
- **The design of several rideshare support facilities** including computer ridematching, employer outreach programs, park-and-ride lots, promotional signage, express bus service, and subsidized transit fares; and
- **The redefinition of occupancy requirements** from three persons to two persons.

With the installation of the full HOV project, speeds in conventional lanes improved dramatically, and HOVs were able to travel at 55 miles per hour. Eight months after installation, the freeways were carrying approximately the same number of people in 12% fewer vehicles during the morning peak, and the number of carpools with two or more people had more than doubled, increasing from 1,439 before the HOV lane opening to 3,043 after eight months.

MARKETING OVERVIEW

Five Year Plan. In view of the negative public reaction to the initial opening of HOV lanes on Route 44, the HOV Steering Committee felt it needed to ?...be more positive, set a stronger image, and promote a civic responsibility (to rideshare)." To accomplish this, the Committee developed a five-year, three-phase marketing plan designed to ?overcome past problems, create positive awareness, and induce ridesharing through the use of HOV lanes." The three phases were designed to pro mote the general concept of ridesharing up to one year before opening (Phase1); focus on HOV operating issues during the year before opening (Phase 2); and successfully open the lanes and ensure their continuing acceptance and use during the first two years of operation (Phase 3). The marketing plan was budgeted at $1.5 million over the five years.

Key Issues. To address key issues, VDOT developed a series of positioning statements that addressed the HOV system's key selling points and provided a solid, consistent base for discussing the HOV system with the news media, citizens, civic groups, and other audiences. The statements were divided into four key categories; (1) Benefits to commuters; (2) Benefits to the community; (3) The changing transportation network; and (4) The importance of I-64 and Route 44 to the new HOV system.

B. CASE STUDY HIGHLIGHTS	INTRODUCTION 1
EXHIBIT: MARKETING CONCLUSIONS OF VDOT PERSONNEL	

1. The HOV concept is not easily accepted by the public.

2. Keep the business community, political leaders, and traffic reporters regularly briefed so they won't become critics in the media.

3. Build support for HOV lanes among major employers (Navy) and make them a part of your marketing team. A transient workforce such as the Navy necessitates constant education on "how to" use the HOV system and its benefits.

4. Continued acceptance of HOV requires continued education and promotion of the personal and social benefits of ridesharing to commuters, employers and political leaders.

5. Good enforcement is also key to positive perception of how well the HOV lanes work. Ease of enforcement must be a key component in designing future systems.

6. Convenience is a key factor. Convenient, safe park-and-ride lot locations, ridematching services, express bus service and employer support are essential elements in the success of the HOV system.

7. It appears that public acceptance is contingent on the perception of high lane use. *Success breeds success . . .* The strategy of starting with HOV-2 and moving up as congestion dedicated so consistent with this idea.

Marketing Materials. VDOT found the following marketing elements to be most effective.

- ?**Burma Shave" Signs**. Roadside jingles modeled after the old ?Burma-Shave" signs reached corridor commuters directly with memorable messages. One series of signs read: Savvy commuters/Soon can snore/Ten more minutes/Than before/Call 623-RIDE.
- **Traffic Report Spots**. VDOT sponsored live ?reads" by traffic reporters during the commute periods. These messages not only reached drivers during their commute (and sounded like reporting rather than public service messages) but also improved the reporters' views of th e HOV lanes.
- **Employer Outreach Kits** with a variety of information, ranging from computer ridematching programs to express bus service.
- **Heavy placement of articles and maps** on how to use HOV lanes in public and private sector employee newsletters. Camera-ready ?Questions and Answers" were highly effective an d customized maps were particularly well-received by the media--maps almost guaranteed widespread coverage.

General Marketing Conclusions. Commuter surveys conducted after the lanes opened indicated that 70% of those surveyed were in favor of the lanes. Reflecting on their experience with both the initial HOV lanes on Route 44 and the more complete network, the public relations personnel at VDOT set down the conclusions listed in the above exhibit.

INTRODUCTION 1	B. CASE STUDY HIGHLIGHTS 5. The Santa Monica Diamonds Lanes
	"DIAMOND IS ROUGH" ***Los Angeles Herald Examiner* headline on opening day of the Santa Monica Diamond Lanes**

PROJECT OVERVIEW

On March 15, 1976, the California Department of Transportation (CALTRANS) reserved the median lane in each direction of a 12-mile, eight-lane segment of the Santa Monica Freeway linking the city of Santa Monica with downtown Los Angeles for the exclusive use of buses and carpools carrying three or more occupants during the peak hours of traffic flow. Implementation of the Diamond Lanes was accompanied by the introduction of a variety of express bus services and the opening of three new Park-and-Ride lots in Western Los Angeles.

The Santa Monica Freeway project marked the first time preferential lanes had been created by taking busy freeway lanes out of existing service and dedicating them to the exclusive use of high-occupancy vehicles. Although the Diamond Lanes entailed no major physical modifications or construction on the freeway itself, they generated considerable emotional reaction among freeway drivers and other residents of Los Angeles. The first day of operations was disastrous, featuring bumper-to-bumper traffic, long queues at on-ramps, a malfunctioning ramp meter, many accidents, outraged drivers, poor press notices, and derisive news commentary. As the project progressed, freeway performance improved somewhat and both bus and carpool ridership increased, but accidents remained a serious problem and the climate of public opinion and media reaction grew more and more hostile. (A more detailed account of the project's impacts may be found in Appendix A-4.) The preferential lanes operated amid much controversy for 21 weeks until August 9, 1976, when the U.S. District Court in Los Angeles halted the project and ordered additional environmental studies prior to its continuation.

MARKETING OVERVIEW

The participating agencies had developed a conventional marketing plan (CALTRANS, August, 1975) designed primarily to introduce the public to the Diamond Lanes and induce ridesharing. From its disastrous opening day onward, the project was anything but conventional. It quickly became a media event, generating reams of newsprint, radio and television coverage, vocal public reactions, political debate, lawsuits, banners, slogans, badges, cartoons, and at least one song. As expressed in the official DOT evaluation (Billheimer, et al., 1977), "From their implementation to their dissolution, the Diamond Lanes were never far from public view and, when in view, they were treated as an eyesore."

Key Issues. From the start, CALTRANS and its allied agencies recognized that the key marketing issue was the problem of taking a lane away from one of the busiest freeways in the U.S. and restricting it to bus and carpool use. (Federal requirements at the time dictated carpool occupancy rates of three or more persons. Prior to opening day, an average of 500 cars per hour met this restriction, which placed projected operations on the threshold of the empty lane syndrome.) To counteract the anticipated adverse reaction during the early days of operations, the marketing team planned to stress the anticipated benefits of the project: economy, convenience, environmental improvement, energy conservation, better utilization of existing transit facilities, and increased ridesharing.

Budget. The marketing campaign was allocated a budget of $358,000 for the first year's activity. Prior to the project implementation, this appeared to be ample. As noted earlier (See Section 1-B-1), the marketing plan for the Santa Monica Diamond Lanes contained many of the same elements as that of a vastly more successful project, Minnesota I-394.

Constituency Building Attempts. Because of the fragmentation of public power and authority in Los Angeles, many government agencies and elected officials had some purview over the

B. CASE STUDY HIGHLIGHTS 5. THE SANTA MONICA DIAMOND LANES	INTRODUCTION 1
EXHIBIT: PLANNING AND IMPLEMENTING SUGGESTIONS FROM SANTA MONICA DIAMOND LANE DEMONSTRATION Source: Billheimer, et al., 1997	

EARLY PLANNING

- **C** Identify all potentially adverse effects in advance
- C Publicize both positive and negative impacts in advance
- C Include all affected public agencies and officials in the planning process
- C Involve the public agencies and officials in the planning process
- C Involve the planners int he public process

PRE-IMPLEMENTATION

- C Establish and communicate standards for project performance
- C Develop a detailed evaluation plan and follow it
- C Provide a call-in number as a lightning rod for public response

IMPLEMENTATION

- C Establish a focal point for information dissemination
- C Let the demonstration run its course

Diamond Lane Project. In an attempt to unify these diverse elements, CALTRANS formed a Joint Project Committee composed of representatives of key agencies with an interest in the project. Although there was broad agency participation in the Joint Project Committee, each decision-maker had his own concept of project goals, and the degree of involvement and commitment to the Diamond Lanes varied greatly from agency to agency. When the media spotlight turned on the project, the public saw not a united front but a number of public agencies and elected officials pointing accusing fingers at the lead agencies, while other officials remained prudently silent.

Community Reaction. Surveys, interviews, telephone calls, newspaper polls, public hearings, and letters to newspaper editors occurring during and after the project all revealed an overwhelmingly negative public response to the Diamond Lanes. In the most extensive survey undertaken, eighty-six percent of the corridor drivers surveyed--including the majority of carpoolers--felt the Diamond Lanes were either harmful or of no benefit whatsoever. Although newspaper, television, and radio coverage was overwhelmingly negative, attempts to lay the full blame for the hostile public response on the media both oversimplify and overstate the case. It is unlikely that the media reports alone could have generated such a hostile response if the reports were not reinforced by a daily negative impact on the lives of the commuting public.

Marketing Impact. To suggest that better marketing might have salvaged the Santa Monica Diamond Lanes is like saying that a better ad campaign might have saved the Titanic. The marketing approach, a well-planned public information program, could not withstand the media outcry which was fueled by the project's technical shortcomings. While the Diamond Lanes succeeded to some degree in attracting riders to carpools and transit, they brought about a significant increase in freeway accidents, non-carpoolers lost far more time than carpoolers gained, and the negative public reaction stalled the implementation of other preferential treatment projects in Southern California.

INTRODUCTION 1	B. CASE STUDY HIGHLIGHTS 6. SAN FRANCISCO-OAKLAND BAY BRIDGE
	An exceptional project can survive and thrive without much formal marketing

PROJECT OVERVIEW

The Bay Bridge between San Francisco and Oakland features one of the oldest and most successful preferential carpool lanes in the U.S. The bridge has two roadway decks, each of which carry five traffic lanes. Tolls are collected only in the westbound direction at a toll plaza located a half mile east of the bridge's upper deck. On December 8, 1971 two lanes of the seventeen toll lanes approaching the westbound bridge deck were taken from general use and reserved for carpools with three or more occupants. At the time of their opening, the toll-free HOV lanes saved carpoolers between four and five minutes of waiting time, as well as the 50¢ toll assessed of non-carpoolers.

Since the lanes were opened, a metering system has been installed beyond the toll booths. This system allows the bridge to carry the maximum number of vehicles and simplifies enforcement of the HOV lanes. The current bridge approach contains twenty-two lanes, three of which are dedicated to three-person HOVs between 5 a.m. and 10 a.m. and between 3 p.m. and 6 p.m. These lanes save carpoolers an estimated ten minutes of waiting time during the morning peak, as well as the $1.00 toll collected in other lanes. A more complete description of bridge operations may be found in Appendix A-5.

Prior to the opening of the Bay Bridge HOV lanes, counts showed only 1,100 carpools using the bridge during the morning peak. After the introduction of the HOV lanes, the number of carpools initially doubled, jumped to 4,400 during the 1974 AC Transit strike and rose to nearly 7,000 just prior to the Loma Prieta earthquake in October, 1989, which shut the bridge down for a month. In 1993, the bridge carried 5,360 carpools during the 3-hour morning peak. During the peak hour between 7 a.m. and 8 a.m., the HOV lanes carried 57% of the people crossing the bridge in only one-quarter of the vehicles.

MARKETING OVERVIEW

Although the San Francisco Bay Bridge HOV lanes are easily the most successful carpool lanes in California, the project has received very little marketing support. At the time the lanes were introduced, bridge handouts announced the project and advance signs warned drivers that the carpool lane began in the next 1,500 feet.

In subsequent years, the bridge lanes have been included in promotional materials prepared by RIDES for Bay Area Commuters, which provides referral services for Bay Area residents seeking ridesharing assistance, and in the *Year 2005 HOV Lane Master Plan* prepared by CALTRANS, the CHP, and the Metropolitan Transportation Commission (MTC). However, no marketing activities are dedicated to the promotion of the lanes themselves, which have thrived largely on word-of-mouth advertising.

B. CASE STUDY HIGHLIGHTS 6. SAN FRANCISCO-OAKLAND BAY BRIDGE	INTRODUCTION 1
EXHIBIT: BAY BRIDGE CARTOON FROM *SAN FRANCISCO CHRONICLE-EXAMINER*	

GENERAL CONCLUSIONS

With a minimal amount of marketing, the HOV lanes on the San Francisco Bay Bridge have become one of the most successful preferential lane projects in the country. The number of three-person carpools crossing the bridge has increased more than five-fold since the lanes were opened in December 1971. Even though the lanes were created by converting mixed-flow lanes, they have remained free of controversy and enjoy one of the lowest violation rates among California's preferential lane projects. The addition of metering in March 1974 made the lanes easy to enforce and ensured that the bridge would be used to its fullest capacity. Moreover, because the metering system controlled the rate of flow onto the bridge, the total delay for all vehicles remained the same, guaranteeing that the time lost by non-carpoolers would exactly equal the time saved by carpool vehicles.

The lesson of the San Francisco-Oakland Bay Bridge priority lanes would seem to be that if you've got a good project, one that is safe, easily enforced, allows the facility to operate at 100% capacity, and saves carpoolers significant amounts of time without costing non-carpoolers more time than carpoolers save, then you may not need much formal marketing. Since these conditions are rarely met, and may not be recognized in advance, it is best to assume that all HOV projects will need some level of advance marketing.

INTRODUCTION 1	B. CASE STUDY HIGHLIGHTS 7. THE DULLES TOLL ROAD
	"*A commuter's worst nightmare come true"* **U.S Representative Frank Wolf from Northern Virginia**

PROJECT OVERVIEW

Location. The Dulles Toll Road stretches twelve miles from the Dulles International Airport to Tysons Corner, Virginia, paralleling the Dulles Airport Access Road and providing Northern Virginia residents of Loudoun and Fairfax Counties access to the Washington, D.C. In 1989, the Virginia General Assembly approved the addition of one new lane in each direction to the two existing toll road lanes and mandated that the new lanes be HOV lanes. After a lengthy construction period, the lanes were scheduled to open for buses and carpools with three or more occupants on September 2, 1992, the day after Labor Day. Temporary park-and-ride lots were to support the new HOV lanes, with more extensive, permanent facilities planned for the future.

Premature Opening. A six-mile section of the new roadway was completed in October 1991, nearly one year in advance of the projected HOV-lane opening date. In the face of existing congestion, Virginia Department of Transportation (VDOT) officials decided to open the new six-mile stretch to all traffic during this interim period. A similar decision was made when the final six-mile section of toll road was completed the following July. The opening of 12 miles of new lanes to all traffic relieved congestion on the toll road and made commuters happy, but it left VDOT faced with the prospect of shoehorning three lanes of traffic back into two lanes when HOV restrictions were imposed following Labor Day.

Political Opposition. By early August, opposition to the opening of the Dulles Toll Road HOV lanes began to manifest itself. Opposition was led by U.S. Representative Frank Wolf, a Republican from Northern Virginia, who argued that closing one of the already-opened lanes to normal traffic would increase congestion, pollution and the risk of accidents. Wolf's arguments generated a heated debate in the local news media and led to the formation of an anti-HOV group, the Citizens Against Dulles HOV, as well as anti-HOV votes by the Supervising Boards of both Loudoun and Fairfax counties.

HOV Opening. On opening day, traffic tie-ups exceeded those experienced before the new lanes were constructed, commute trips that had taken only a half-hour before stretched to over an hour, the HOV lanes appeared empty in comparison to the bumper-to-bumper congestion in adjacent lanes, and the frustrations of thousands of non-carpoolers further fueled the controversy.

Closing. The initial month of operations was marked by public argument and political electioneering with VDOT adopting a ?wait-and-see" attitude as HOV lane usage increased. Near the end of September , Representative Wolf seized the initiative by attaching an amendment to a federal transportation appropriations bill banning HOV lanes on toll roads on federal lands--a proviso that applied only to the Dulles Toll Road. The measure passed but the Governor of Virginia preempted it with a decree that the lanes revert to general-purpose use pending further study. The lanes reverted to general use on Monday, October 5, roughly one month after their controversial implementation.

MARKETING OVERVIEW

Key Concerns. Because other HOV lanes had been operating successfully in Northern Virginia for some time, VDOT's initial marketing efforts focused on advertising the coming of the HOV lanes on the Dulles Toll Road. Planned marketing activities included the use of ?Burma Shave" signs singing the praises of carpooling, bus advertising brochures, and elaborate opening day ceremonies, including a barrel-bashing. (See Appendix A-6 for more details.) When the lanes were opened

EXHIBIT: MARKETING LESSONS LEARNED FROM THE DULLES HOV LANE EXPERIENCE

1. **Know the Market and Refine the Product.** Opening the Toll Road Lanes in advance seriously weakened the lanes' chances of success, but the lack of support facilitates such as permanent park-and-ride lots also contribute to the lanes' demise.

2. **Start Selling Early,** six months to a year in advance of opening day.

3. **Seek out natural allies.** Build constituency groups in advance, particularly among politicians, community leaders, and media representatives such as traffic reporters and columnists.

4. **Choose a Unifying Theme.** Marketing becomes easier when materials are unified through a consistent logo or slogan (i.e Sane Lanes or Smart Lanes).

5. **Time the Opening Carefully.** Open the lanes for traffic is relatively low.

6. **Avoid Election Years.** Opening just before an election tempts politicians to cater to single auto driver, who represent more votes then carpools.

7. **Stick with it.** A project whose life is constantly threatened isn't likely to attract many full time commitments to carpooling.

temporarily to unrestricted traffic, their concerns and problems expanded enormously. While under siege, they had to find ways to respond to critics, mollify politicians, and make non-carpoolers accept being shoehorned back into two lanes when HOV restrictions were imposed. These weren't easy tasks under the best circumstances, and they were undertaken under the worst of circumstances, in a short time frame while under attack from politicians, the press, and the public.

Constituency Building. One of the most critical shortcomings in VDOT's marketing efforts was the failure to build constituencies that could provide backing for the Toll Road HOV lanes during the month of controversy that preceded their opening. As the *Washington Post* noted ?*When Rep. Frank R. Wolf (R-VA) made his first nonpublic rumbles against HOV to the highway department, no official bothered to hold his hand in an attempt to ease his constituent-instigated apprehensions."*

Media Relations. One all-important constituency which VDOT failed to bring around to its point of view was the media. Newspaper editorials were overwhelmingly opposed to the HOV lanes, and feature pages were filled with tales of angry motorists who claimed to experience long delays, see many violators, narrowly avoid accidents, and who viewed the lanes as ?social engineering designed by bureaucrats for bureaucrats." Two local traffic reporters also joined the anti-HOV chorus, calling HOV lanes ?wishful thinking"and attacking VDOT's ?inflated statistics"during prime drive time.

Budget. Whereas a total of $52 million was spent to build the Dulles Toll Road HOV Lanes and related improvements, the *Washington Post* reported that ?...only $12,000 was spent on public-private efforts to get commuters to use the new lanes." In the words of the *Post* ?Everybody fell asleep on the Dulles Toll Road, including HOV's most ardent supporters." By the time they woke up, the best marketing campaign in the world couldn't have saved the project. As a Loudoun *Times-Mirror* editorial noted, ?All the high powered public relations in the world can't overcome terrible policy."

INTRODUCTION 1	**B. CASE STUDY HIGHLIGHTS** **8. SEATTLE I-5 SOUTH**
	"What would you do with 100 hour of free time" **Slogan from I-5 Marketing Campaign**

PROJECT OVERVIEW

The Interstate 5 (I-5) Corridor is the major north-south interstate running the entire length of Washington State. In the Puget Sound region it bisects Seattle and serves as the major roadway to and through the Metropolitan Seattle Area. The Washington State DOT (WSDOT) originally planned to open HOV lanes along the I-5 to the South of Seattle Corridor in the late 1990's. In response to public pressure, this schedule was moved up, and HOV lanes were opened to traffic between South Center and Federal Way in the summer of 1991. The HOV lanes run 4.5 miles in both directions and are temporarily squeezed into narrower lanes adjacent to the freeway general purpose lanes. When first opened, the HOV lanes were restricted to vehicles carrying three or more persons. This designation was changed to two or more persons in 1993. The lanes are supported by park-and-ride lots and easily accessible parking locations in downtown Seattle that offer discounted rates to carpoolers.

While the lanes were underutilized under the three-plus carpool definition, no evaluation of occupancy and operations under the two-plus definition had been undertaken at the time this manual was prepared.

MARKETING OVERVIEW

The marketing activities for the I-5 HOV Study were designed to stimulate awareness and comments from a variety of target markets associated with or having an interest in the study process and its outcome. These markets included elected officials, jurisdiction staff, employers, commuters, the media and the general public. A unique characteristic of the project was the early involvement of the general public in the process. A group of citizens, organized as SHOVE (Southend High Occupancy Vehicle Enthusiasts), gathered more than 2000 signatures from commuters who wanted HOV lanes in South King County and North Pierce County. Leaders of SHOVE also testified before members of the State Transportation Commission, and were instrumental in having the lanes implemented early.

Market Research. A telephone survey of 819 households and executive interviews with 22 political, neighborhood, and business leaders were used to guide the marketing plan development. The telephone survey showed that respondents were highly frustrated with the level of traffic on I-5, and the majority believed that HOV lanes were ?fairly"or ?very effective,"even though few had used HOV lanes in the past.

Campaign Strategy. An extensive education plan was developed to educate elected officials and key jurisdictions about the role HOV facilities play in providing mobility for the region. The education focus of the plan included: a bus tour; a kick off briefing; ongoing media relations and database management; the publication of a quarterly newsletter; and jurisdictional briefings. In addition, to promote the opening of this HOV segment a marketing plan was implemented that included: the development of a logo; transit advertising; displays; special event participation; and the development of promotional materials including posters, brochures, buttons, balloons and self-stick note pads all incorporating the logo for the project.

B. CASE STUDY HIGHLIGHTS 8. SEATTLE I-5 SOUTH	INTRODUCTION 1
EXHIBIT: MASTHEAD FROM I-5 PROJECT BULLETIN	

GENERAL MARKETING CONCLUSIONS

As with most HOV projects, it is difficult to separate the success of the marketing activities from the success of the project. Well-designed projects where there is demand will result in facility success, whereas poorly designed projects or projects implemented in areas where there is little demand may be termed as failures. In the case of the I-5 South HOV lanes, the facility did little to contribute to Washington State's goals for mobility and congestion management.

There were, however, two key elements which make the project a success from a marketing perspective:

- **Market research activities** established a baseline of depth and breadth regarding HOV understanding and support. This market research--both telephone survey and Executive Interviews--gave the WSDOT an understanding of the expectations their constituents had for HOV facilities. This information aided not only in the marketing messages used to promote the opening of the HOV lanes, but in the design of the facility as well.

- **The constituency-building process**, which was an integral part of the technical planning and implementation actions, established the WSDOT commitment to HOV facilities as part of the region's vision for mobility. This process of recognizing jurisdictions and community leaders as partners in the education and marketing process as well as the planning of the facility broadened the understanding and support for the specific HOV facility on I-5 in South King County.

INTRODUCTION 1	C. MARKETING FOR SUCCESS 1. START EARLY AND KEEP GOING
	HOV marketing activities should begin as early as possible in the project planning stages, peak at the time the project opens and continue over the life of the project

Marketing activities surrounding HOV facilities can be divided into three separate phases, covering (1) Project planning; (2) Project opening; and (3) Ongoing project operations.

ADVANCE MARKETING

Project Planning. The HOV marketing process should begin as early as possible in the project planning stages with constituency building activities and a review of the project's selling points and shortcomings from a public relations standpoint. Too often in the past, marketing personnel have been excluded from the inner circle of project planners until the facility is nearing completion and it's time to try to fill the lanes with rideshare rs. As a result, many opportunities for public participation in the planning process are lost, and these lost opportunities can turn into marketing problems when the project is implemented. Potential marketing problems can often be identified and headed off by including marketing personnel on planning and design teams.

Market Research. A variety of market research activities are needed throughout the planning and implementation stages of an HOV project. Early in the planning stages, market research can help to define the social and political atmosphere in which the project will be set, identify key stakeholding groups, and assemble information on other HOV projects with similar goals, objectives, or design characteristics. As the planning progresses, surveys and group discussions can be used to identify public concerns and expectations, test marketing concepts, and document the attitudes and awareness of various target groups. Opinion surveys taken during the project planning stages will provide baseline comparisons for ongoing evaluations once the HOV lanes are operating.

PROJECT OPENING

The concentration of marketing activities around the opening of an HOV project represents the best understood and usually the best executed portion of the HOV marketing process. This phase calls for the careful orchestration of materials and events designed to announce the opening, advertise the benefits of ridesharing, and entice commuters to try carpooling or transit riding. The marshalling of marketing activities about an identifiable event, the project opening, most closely resembles traditional advertising promotions and can include such familiar activities as calendar count-downs, media blitzes, ribbon-cuttings, press tours and public speeches.

ONGOING MARKETING

HOV marketing should not stop once a facility has opened. Marketing should be an ongoing part of project operations, tracking the advantages of lane use, announcing operational changes, advertising support services such as park-and-ride lots or ridematching programs, educating the changing commuter population, answering public criticism, and creating realistic expectations for the role of HOV facilities in the modern transportation network.

EXHIBIT: EXAMPLES OF ADVANCE, OPENING DAY, AND ONGOING MARKETING

Source: Connecticut Department of Transportation

OPENING DAY

ADVANCE MARKETING

ONGOING MARKETING

INTRODUCTION 1	C. MARKETING FOR SUCCESS 2. BUILD CONSTITUENCIES
	Partnerships offer citizens and organizations a formalized role in shaping their future and increase your ability to communicate with more people, more frequently, using fewer resources.

Moving individuals out of SOVs requires a significant behavior change. Significant for the individual, for business and for government. It takes a long term effort involving interagency coordination and involvement from a variety of public and private organizations.

Interagency Coordination. Certain agencies and jurisdictions must be involved from the start in planning and implementing HOV lanes. In addition to the local transportation agency, these include the state police or highway patrol; the planning, public works, and traffic departments of affected local jurisdictions; public transportation providers; ridesharing agencies; and regional transportation organizations. A management team composed of these agencies cannot only provide an integrated foundation for planning and designing HOV facilities, but also a broad base of experience for marketing these facilities.

Other Key Constituents. Other key constituents who must be both consulted and educated in developing HOV facilities include local political figures, the judiciary, community leaders, chamber of commerce, business representatives, and media personnel. This last group, media personnel, is of special importance. Talking to the people who talk to the public is one of the most important aspects of constituency building.

Marketing Partnerships. Aggressive solicitation of ?partnership" relationships with suitable organizations can leverage your limited financial and staff resources and significantly increase your marketing effectiveness. Partnership support can be provided in the form of direct financial support, in-kind support such as printing, advertising, materials distribution, providing staff hours, providing product, etc. Fundamental to the success of any partnership program is the willingness on the part of all public and private organizations active in this area to coordinate resources, messages and schedules. Many organizations, corporations and agencies promote parallel messages, so that you can expand upon this HOV ethic by unifying these separate efforts into a more cohesive marketing plan.

The following list of agencies and organizations is intended to help you generate a prioritized list of potential partners for aggressive recruitment.

EXHIBIT: POTENTIAL PARTNERS FROM PRIVATE INDUSTRY AND PUBLIC SERVICE ORGANIZATIONS

Government
Air Pollution Control Agency
Army Corps of Engineers
Attorney General
Board of Education
Bureau of Indian Affairs
Bureau of Land Management
County Government
Department of Community Development
Department of Ecology
Department of Fisheries
Department of Natural Resources
Department of Transportation
Department of Trade and Economic Development
Energy Office
Engineering Departments
Environmental Protection Agency
Federal Highway Administration
Federal Railroad Administration
Federal Transit Administration
Health Departments
Institute for Environmental Studies
Intergovernmental Resource Centers
Law Enforcement
Libraries
Local Governments
Military Facilities
National Highway Traffic Safety Administration
National Oceanic and Atmospheric Administration
Neighborhood Associations
Parks and Recreation Commission
Planning Departments
Port Authorities
Public and Private Schools
Public Works
Regional Authorities
Solid Waste Divisions
State Legislature
Superintendent of Public Instruction
Trade and Economic Development
Universities
Water Departments
Water Quality Authority

Transportation Associations
American Public Transit Association
American Associate of State Highway and Transportation Officials
American Automobile Manufacturers Association
American Trucking Association
Association of Commuter Transportation
Association of American Railroads
Automobile Clubs
Department of Transportation
Rail Services Providers
Regional Transportation Authorities
Road Divisions
Transit Advertising Company
Transportation Service Providers

Business
Car Washes
Dry Cleaners
Health Clubs
Major Employers
Malls
Media/Newspaper, Magazine, Radio, Television
Natural Gas Suppliers

Health Organization
American Cancer Society
American Heart Association
American Lung Association

Associations
American Forestry Association
Aquariums
Association of General Contractors
Association of Natural Gas Utilities
Association of Petroleum Re-Refiners
Bike Clubs
Chamber of Commerce
League of Women Voters
National Asphalt Pavement Association
National Gardening Association
National Landscape Association
Retail Association
Zoos

Environmental Groups
Acid Rain Foundation
Adopt A Stream
America the Beautiful Fund
American Society for Environmental Education
American Water Works Association
Association of Environmental Professionals
Association of Women Environmental Professionals
Center for Environmental Education
Citizens Clearinghouse for Hazardous Waste
Citizens for a Better Environment
Citizens for Recycling
Coalition for Recyclable Wastes
Conservation Commission
Conservation Corps
Earth Action
Ecological Commission
Education Commission of the States
Energy Extension Service
Environmental Action Coalition
Environmental Council
Environmental Defense Fund
Environmental Learning Center
Extension Office
Foundation for Global Community
Friends of Earth
Global Tomorrow Coalition/West
Golden Empire Health Planning Center
Greenpeace
Horticulture Society
Institute for Environmental Education
Kids Against Pollution
Mountaineers
National Abor Day Foundation
National Association of Fleet Administrators
National Audubon Society
National Wildlife Federation
National Resource Defense Council
Nature Conservancy
Recycling Associations
Science Centers
Sierra Club
Soil and Water Conservation Society
State Recycling Association
Union and Concerned Scientists
Voksmarchers
Water Pollution Control Federation

INTRODUCTION 1	C. MARKETING FOR SUCCESS 3. REFINE THE PRODUCT
	Good HOV design can overcome poor marketing, but the best marketing program in the world won't overcome poor design.

HOV projects are more likely to fail because of poor operating policies, faulty design, or bad timing than because of poor marketing. It is important to review potential pitfalls in the planning stages in the hope that they can be corrected before an HOV project becomes a public relations disaster or places an impossible burden on marketing personnel. Potentially fatal pitfalls in HOV design include:

- Insignificant time savings;
- The empty lane syndrome;
- Insufficient enforcement;
- Lack of support systems; and
- Disproportionate disadvantages for SOVs.

Insignificant Time Savings. HOV lanes should be considered only where sufficient congestion already exists so that the need for relief is recognized and an HOV lane can provide a significant and reliable travel time savings for buses and carpoolers. Fuhs (1990) notes that ?The single most important predictor of the success of an HOV lane is its ability to reduce travel time and to generate reliable travel times to users." He goes on to provide the following guidelines for mainline HOV lanes: ?Time savings realized by line-haul HOVs must be on the order of about one minute per mile over a typical trip from origin to destination. A five-minute time savings overall is considered a minimum, and a savings of eight minutes is considered desirable."

Empty Lane Syndrome. Nothing threatens the public acceptance of HOV lanes so much as the perception that they are underutilized. As one state senator opposed to Hampton Roads Route 44 said, ?I don't thin k people would have been so mad if they'd seen a car in there now and then." The HOV Planning, Operation, and Design Manual (Fuhs, 1990), identifies a minimum of 400 to 800 vehicles per hour during the peak period as the initial usage needed to avoid the empty lane syndrome. Lane occupancy restrictions are the key determinant of initial usage. In some special instances, metering can also help to solve the problem of apparent underutilization. The operations of the San Francisco/Oakland Bay Bridge HOV lanes were initially characterized by low utilization and high violation rates until meters were installed beyond the toll booths to regulate flow and improve lane utilization across the bridge.

Insufficient Enforcement. The wholehearted cooperation of law enforcement agencies in both planning and implementing HOV lanes is essential if the lanes are to succeed. Without sufficient enforcement, HOV lanes will soon become SOV lanes. The general public needs to understand what will happen if they do not comply with HOV lane requirements and believe that the risk of apprehension is high and that penalties will be enforced if they are caught violating HOV provisions.

Lack of Support Systems. Main-line HOV lanes should be accompanied by support systems that complement their operations and reinforce the rideshare message. Examples of such systems include park-and-ride lots, express bus service, HOV bypass lanes on metered ramps, ridematching services, and preferential parking for carpools in congested areas.

C. MARKETING FOR SUCCESS 3. REFINE THE PRODUCT	INTRODUCTION 1
EXHIBIT: EXAMPLE OF THE EMPTY LANE SYNDROME **Source: *Los Angeles Times* Coverage of the Santa Monica Diamond Lanes**	

Disproportionate Disadvantages for Non-Carpoolers. In the case of both the Santa Monica Diamond Lanes (Appendix A-4) and the Dulles Toll Road (Appendix A-6), non-carpoolers were significantly disadvantaged by the installation of HOV lanes. Their commute trips lengthened considerably and the total time lost by SOVs exceeded the time saved by HOVs. In both instances, this proved to be a recipe for disaster, as politicians and the media correctly perceived that the number of disadvantaged SOVs exceeded the number of carpoolers and took action to redress the ?wrong"done to the majority of their constituents.

INTRODUCTION 1	C. MARKETING FOR SUCCESS 4. RESPECT THE SINGLE OCCUPANT VEHICLE
	HOV lanes which leave non-carpoolers measurably worse off haven't fared well. Neither have marketing campaigns which attack the solo driver.

As noted in the previous section, HOV lane designs which leave non-carpoolers measurably worse off than they were before lane implementation have generally not fared well. This is particularly true when non-carpoolers lose far more than their carpoolers gain, either because of additional congestion in the mixed flow lanes or because the carpool lanes are under-utilized. In a similar fashion, marketing campaigns that attack the SOV as a menace to society have not been remarkably successful.

As an example, the Virginia DOT used a villainous cartoon character called ?The Lone Rider"to publicize new HOV lanes in the Hampton Roads area (see Appendix A-3). Through focus group discussions, it was learned that the *Lone Rider* generated little recognition and less credibility among area commuters. The accompanying exhibit depicts the cartoon image of the Lone Rider, a masked bandit driving his car all by himself. Typical ad copy reads: ?DONT BE A LONE RIDER! SHARE A RIDE TO WORK AND ENJOY THE BENEFITS!" This concept attempted to make ?bad guys"out of the majority of the drivers in the Hampton Roads area using the image of the Lone Ranger (who was, after all, a ?good guy.') Leaving aside the bad-guy/good-guy confusion, the concept failed for more basic reasons. In the first place, it was impossible to establish the identity of the character in the public's mind using the limited air time and print exposure available to donated public service messages.

Even if Virginia had spent the money to establish the Lone Rider's i dentity, focus groups showed that the image didn't register credibly with the general driving public because SOV drivers do not commonly characterize themselves as the bad guys. Most think of themselves and other drivers as hapless victims of population growth and traffic congestion. In developing HOV marketing campaigns, it's important to avoid themes that cast the SOV driver in a negative light. Rather, marketers should strive to develop imagery that reinforces the positive benefits of ridesharing. That's not to say that the negative aspects of SOV driving can't be stressed. But the SOV drivers themselves are the ones you are trying to reach with campaign messages, so it's a bad idea to start out by insulting them.

The most important group to be targeted by an HOV marketing campaign contains those individuals who currently drive alone in the HOV corridor but who are likely candidates for future carpools. It is essential to recognize that this group is likely to represent a relatively small proportion of current drivers. A survey conducted in advance of HOV lanes on the Long Island Expressway (Bloch, et al., 1994) found that only twenty percent of existing expressway users were willing to consider carpooling as an option. Market research conducted prior to the opening of I-394 in Minneapolis determined that only ten percent of existing corridor users would consider switching to carpooling or busing when the Express Lanes were complete. (Stragar-Roscoe-Fausch, Inc., 1986).

Market research can help to identify the population most likely to shift to carpooling and isolate he messages most likely to appeal to members of that population. The more information that marketers can obtain about their primary audience, the easier it is to target the media to reach that audience. Generally, the two most important audience characteristics for media purposes are age and gender. In the case of Minneapolis I-394, for example, female drive-alones under 35 represented the most likely target for a shift to ridesharing.

Market research can also isolate the barriers to ridesharing perceived by solo drivers. The accompanying exhibit documents the perceptions of ridesharing modes revealed by a survey of solo drivers in California's Santa Clara County (Crain & Associates, 1984).

C. MARKETING FOR SUCCESS
4. RESPECT THE SINGLE OCCUPANT VEHICLE

INTRODUCTION

1

EXHIBIT: PERCEPTIONS OF SOLO DRIVERS IN SANTA CLARA COUNTY, CALIFORNIA

Source: Crain & Associates, 1984

Perception	Percent of Solo Drivers Sharing Perception
1. Time is all important	79%
2. Might take the bus (if route and schedules fit)	68%
3. Carpooling doesn't work	57%
4. Want car available during the day	56%
5. Too many hassles with other carpoolers	55%
6. Might rideshare on some (but not all) days	50%
7. Need car as part of job	47%
8. Never think of ridesharing	37%
9. Situation (child care, education) precludes ridesharing	25%
10. Suburban transit won't work	23%
11. Commuter lanes don't work	17%
12. Buses are undependable	12%
13. Dislike caliber of bus riders	12%
14. Diehard car lover	10%
15. Afraid to use transit	9%

INTRODUCTION 1	C. MARKETING FOR SUCCESS 5. DEVELOP A MARKETING PLAN
	The question is not: **How do we reach the largest number of people with the same message?** ***The question is:*** **How, when, where, and with what message do we communicate to these non-carpoolers with the best likelihood of becoming ridesharers?**

CAMPAIGN OBJECTIVES AND STRATEGIES

Setting Campaign Objectives. The first step in undertaking an HOV marketing campaign is the setting of well-defined objectives. Objectives may be broad (?Increase regionwide acceptance of ridesharing") or narrow (?Cause carpooling on I-394 to increase by fifteen percent"). However, they should be defined explicitly, since the development of campaign strategies, from the definition of target audiences to the selection of media channels, will be tied to these objectives.

Identifying Key Issues. Key issues surrounding HOV lanes typically involve such topics as congestion, mobility, safety, equity, and ecology. It is important to identify these issues and develop positioning statements capable of focusing marketing activities and developing realistic project expectations. Stamm (1991) emphasizes the importance of developing realistic expectations.

?Unrealistic public expectations can be extremely damaging to the credibility and morale of the organization undertaking the HOV project. They can also erode public confidence in the organization's ability to carry out it's mission. On the other hand, when the public (and the public's designated decision makers, such as elected officials, local jurisdictions staff, etc.) has been included in the planning process, expectations are much more likely to accurately reflect the goals, objectives and expected benefits and outcomes of the project."

Defining Target Audiences. It is essential that the primary and secondary audiences for the marketing campaign be well defined and carefully targeted. As noted, the primary audience is likely to be composed of SOV drivers who are predisposed toward ridesharing.

MARKETING MATERIALS

Range and Content. The accompanying exhibit displays the range of potential HOV marketing materials, along with an indication of the appropriate content and the likely target audience. Printed materials include brochures, newsletters, flyers, newspaper and magazine ads, and posters. Electronic media channels include radio and television spots, while outdoor advertising formats include roadside signs and billboards. A wide variety of premiums such as key fobs, bumper strips, post-it notes, balloons, matchbooks, coffee mugs, and jam jars have also been used to encourage the use of HOV lanes.

Thematic and Graphic Consistency. The key to achieving consistency in developing marketing materials is to translate campaign objectives into an easily recognizable *theme* (both verbal and graphic) which will serve as a cornerstone for the media efforts. First, the project should be given a ?public"title. This title should be brief and accurate. Research has shown that few drivers refer to carpool lanes as HOV lanes. The public is much more likely to understand and identify with more descriptive titles such as the Sane Lane (the early title for Minneapolis I-394), Express Lanes (Minneapolis, San Diego, Seattle, and others), Diamond Lanes (Santa Monica and others), Carpool Lanes (Los Angeles, Orange, and Riverside Counties in California), or Transitways (Houston).

Use of Radio. Radio offers several advantages as a communications medium for an HOV marketing campaign. It is relatively inexpensive, is easily targeted, versatile, personal, and reaches a captive audience of drivers at a time when they are experiencing the congestion HOV lanes are designed to relieve. HOV marketers report that one of the most effective means of reaching the audience of drive-alone commuters is through live-on-the-air ?reads" by traffic reporters. These messages not only reach drivers during their commute (and sound like reporting rather than the public service messages) but also improve the reporters' views of HOV lanes.

EXHIBIT: CONTENT AND TARGET AUDIENCE FOR COMMON HOV MARKETING MATERIALS

MARKETING MATERIALS	TYPICAL CONTENT	TYPICAL TARGET
BROCHURES	HOV Rules Project Map Common Qs and As Ridesharing Advantages Park-and-Ride Lot Locations	Targeted corridor/residents area Area businesses Community groups Media Representatives
NEWSLETTERS	Project Map Survey Findings Common Qs and As Construction Information Legislative Information Performance Data Ridesharing Advantages Park-and-Ride Lot Locations	Corridor residents Corridor businesses Corridor drivers Community groups Media representatives
FLYERS	Project Map Construction Information Ridesharing Advantages Project Schedule Opening Ceremonies Park-and-ride Lot Locations	Targeted corridor residents Corridor businesses Community groups Transit riders Corridor drivers
PRINT ADS	Ridesharing Advantages Slogans Key Phone Numbers Project Schedule	Targeted area residents
POSTERS	Slogans Key Phone Numbers	Downtown businesses Park-and-ride lots
RADIO SPOTS	Ridesharing Advantages Project Schedule	Auto drivers and passengers Targeted area residents
TELEVISION SPOTS	Ridesharing Advantages Project Schedule	Targeted area residents
ROADSIDE SIGNS	Start-Up Date Occupancy Requirements Short Jingles Key Phone Numbers	Corridor users
BILLBOARDS	Start-Up Date Occupancy Requirements Key Phone Numbers	Corridor users
PREMIUMS -Bumper strips -Post-It Notes -Mugs -Jam Jars	Slogans Key Phone Numbers Project Logo	Targeted employees

INTRODUCTION 1	C. MARKETING FOR SUCCESS 6. MONITOR AND EVALUATE
	HOV projects should undergo thorough evaluations which can both guide and feed the marketing campaign

The evaluation of an HOV marketing program must inevitably be tied to the evaluation of the HOV project itself. The information collected in evaluating the project can be used to guide marketing efforts and help direct operating decisions regarding enforcement, operating hours, occupancy requirements, and access/egress points. This information can also be incorporated in the marketing campaign through press releases and articles advertising travel time savings and HOV lane use.

MONITORING THE PROJECT

The HOV project itself needs to be monitored on a regular basis to provide timely information on project progress and assemble data on the wide range of potential project impacts. In the past, several HOV lane evaluations have focused on narrow objectives (i.e., counting the vehicles in the carpool lane). However, the range of potential impacts for any HOV project is too broad to be covered by simple vehicle counts and requires a wide range of measurements that includes travel time runs, vehicle and occupancy-counts, accident statistics, enforcement data, transit performance data, user and non-user surveys, and air quality measurements. Key information should be monitored quarterly (but no less than annually--see Exhibit) before and after project implementation in accordance with a formal evaluation plan that relates measurement processes and analytic activities to project objectives.

MONITORING THE CAMPAIGN

HOV marketing campaigns should be evaluated at three different levels:

1. **EXPOSURE: WHO was reached by the campaign?**

   This first level of evaluation documents promotional approaches, tabulates the size of the audience reached by each approach and gauges the success of the campaign in reaching members of the target population.

2. **REACTION: DID the public understand and remember the message?**

   This second level of evaluation investigates public reaction to the campaign. Typically, group discussions and surveys might be used to determine how many people remembered the campaign, liked it, understood its message, and followed its suggestions.

3. **IMPACT: WHAT was the campaign's effect on the project objectives?**

   This third level of evaluation documents the effect of the campaign on project objectives. It is at this point that the evaluation of the campaign directly intersects the evaluation of the HOV project itself, as changing travel patterns are documented and the influence of the marketing campaign on these changes is evaluated.

Each successive level of evaluation is progressively more difficult and more complex than the preceding level, and each level depends on the successful accomplishment of the earlier steps. Without some knowledge of whether the public has heard and understood a campaign message, it makes little sense to try to attribute changes in HOV carpooling levels to that message.

DEFENDING YOUR DATA

Even the most successful of HOV projects can attract a wide spectrum of public criticism. Critics from the right of the spectrum, seeing HOV lanes as half empty, will argue that public funds have been misused creating a facility that does not operate at peak efficiency and whose use is denied to most of the

EXHIBIT: SUGGESTED MINIMUM FREQUENCIES OF DATA COLLECTION
Source: Turnbill, et al., 1991

DATA COLLECTED	FACILITIES	FREQUENCY	
		Desirable	Minimum
Vehicle and Occupancy	HOV facility, freeway, alternate parallel routes, control freeways, and park-and-ride lots	Quarterly/ Monthly for HOV lane	Annually (1)
Travel Time Runs	HOV facility and freeway	Quarterly	Annually (1)
Surveys	HOV facility and freeway	Annually	2-3 Years
Accident Information	HOV facility and freeway	Quarterly	Annually (1)
Violation Rates	HOV facility	Monthly	Annually (1)

(1) If appropriate, every 18 to 24 months for HOV facilities that have reached stable operations.

taxpaying public. Critics from the left of the spectrum, seeing HOV lanes as half full, will argue that they are just another ruse to encourage additional auto travel, increase urban sprawl, and worsen air pollution.

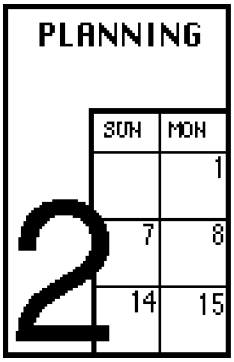
When critics attack an HOV project, they almost inevitably attack the data developed by the project's sponsors as well. The best defense against such attacks is to develop a detailed evaluation plan, get multi-agency "buy-in" for the plan, and follow it. It is often helpful to empower or employ a locally respected, unbiased, third party (such as a university, expert panel, or consulting firm) to develop and implement the evaluation plan. While a detailed evaluation strategy will not stop critics from attacking project data, it lowers the probability that they will find embarrassing inconsistencies or errors in that data, or that they can claim that reported findings are biased.

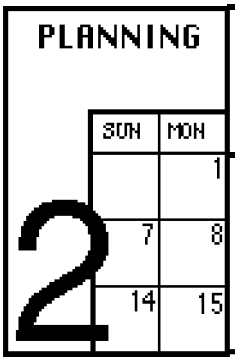
To discourage attacks on data credibility, a single outlet should be established for data dissemination. Project information should be released through the outlet on a schedule set by the sponsoring agencies that allows data to be assimilated, checked for consistency and accuracy, and thoroughly evaluated before it is released. Project personnel should not attempt to hide or gloss over negative findings (i.e. accidents, violations, or low HOV lane use), but should report the findings along with positive results. The use of an independent evaluator to assess HOV lane impacts can sometimes help to establish the credibility of performance data and project findings, as can the establishment of a multi-agency group with oversight responsibility for reviewing evaluation results.

SECTION TWO

PLANNING

THE CAMPAIGN





A.MARKET RESEARCH

1.OVERVIEW

Market research is needed before and during HOV projects to define the social and political atmosphere, identify stakeholders, document travel behavior, test marketing concepts, and measure the attitudes and awareness of various target groups.

A variety of market research activities are needed throughout the planning and implementation stages of an HOV project. Early in the planning stages, market research can help to define the social and political atmosphere in which the project will be set, identify key stakeholding groups, and assemble information on other HOV projects with similar goals, objectives, or design characteristics. As the planning progresses, surveys and group discussions can be used to identify public concerns and expectations, test marketing concepts, and document the attitudes and awareness of various target groups. Opinion surveys taken during the project planning stages will provide baseline comparisons for ongoing evaluations once the HOV lanes are operating.

Several research tools are available for developing market information. The tools most used in planning and evaluating HOV lanes are listed below and summarized in the accompanying exhibit.

- **Focus Groups**. A focus group discussion is a flexible research technique used to gather qualitative or exporatory information regarding individual perceptions of an idea or product. Small groups (usually eight to twelve people) freely discuss a set of predetermined topics under the guidance of a trained moderator. Focus groups are useful for sampling driver opinion and attitudes regarding HOV lanes, testing marketing concepts and exploring public concerns and expectatoins in some depth.

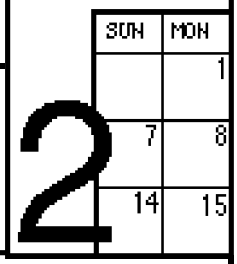
- **Telephone Surveys**. Telephone surveys are accomplished by trained interviewers following a predetermined script with a statistically sampled population of residents or drivers. Telephone surveys can be used to gather travel information and data, measure public opinions and attitudes, document awareness regarding HOV projects and marketing campaigns; record mode shifts; and track project acceptance over time.

- **Mail-Back Driver Surveys**. Short questionnaires are either distributed to drivers at sampling stations such as freeway on-ramps or mailed to the registered owners of vehicles whose license plates were recorded using the project corridor. Mail-back surveys can be used to document attitudes, develop origin/destination data, and document mode and route shifts.

- **On-Board Surveys**. Questionnaires are distributed to transit riders as they board the vehicle and either collected when they leave or returned by mail. These surveys serve the same purpose for transit riders that mail-back surveys do for corridor drivers.

- **Executive Interviews**. Face-to-face interviews with opinion leaders and decision makers are conducted to gauge the perceptions of key groups regarding HOV projects and identify institutional issues. These interviews, which last approximately one hour, are also useful for establishing liaisons with business and political leaders as part of the constituency building process.

The accompanying exhibit lists the primary advantages and disadvantages of each of these approaches and provides some order-of-magnitude information on cost ranges and likely survey response rates. Each of these market research tools has its particular uses, and all can be employed to advantage in marketing and evaluating a particular HOV project. Subsequent subsections discuss these tools in more detail.



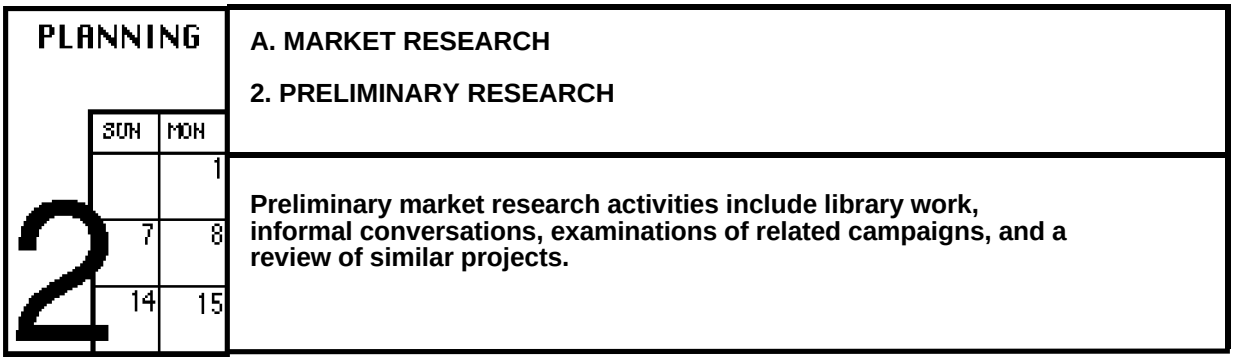
A.MARKET RESEARCH

1.OVERVIEW

EXHIBIT:ADVANTAGES AND DISADVANTAGES OF MARKET RESEARCH TOOLS

RESEARCH TOOL Cost Range*	ADVANTAGES	DISADVANTAGES	HOV USE
FOCUS GROUPS $2500-$5000/group	Flexible; easy to assemble; permits in-depth exploration of key issues; allows direct presentation of marketing concepts; allows freedom of interaction between interviewer and group	Not statistically precise; group may defer to loudest voice	In-depth sampling of driver opinions and attitudes; testing marketing concepts; identifying public concerns and expectations
TELEPHONE SURVEYS $10-$20/completed survey	Structured; relatively high response rates (40% to 60%) encourages frankness; easy to screen for desired subpopulations; immediate responses	Unlisted numbers may add sampling bias; unable to use visual aids; necessarily short; unable to interact freely with subject	Recording public opinions and attitudes as project progresses; measuring awareness of marketing campaigns; documenting modal shifts
MAIL-BACK DRIVER SURVEYS $6-$12/completed survey	Automobile user population clearly defined; relatively low cost; can be statistically valid	Distribution may disrupt traffic; relatively low response rate (20% to 40%) can introduce non-respondent bias; privacy issues if license plates are used to generate sample; limited number of questions; difficult to measure awareness; can't control identity of respondent; response time drawn out	Documenting driver attitudes; origin/ destination data; documenting shifts in route and mode
ON-BOARD TRANSIT SURVEYS $6-$12/completed survey	Transit user population clearly defined; relatively low cost; can be statistically valid	Population limited to transit users and biased toward frequent users; limited number of questions	Documenting transit user awareness and attitudes origin/destination data; documenting modal shifts
EXECUTIVE INTERVIEWS $250-$500/interview	Flexible; permits in-depth exploration of key issues with decision makers; allows freedom of interaction between interviewer and subjects; supports exploration of institutional issues	Not statistically valid; not representative of public at large	In-depth exploration of decision-maker perceptions regarding traffic problems and HOV solutions; identification of institutional challenges; establishment of business/political liaisons

*Cost ranges are approximate and based on 1994 dollars



"*If you steal from one author, it's plagiarism; if you steal from many, it's research."*

Wilson Mizner

This handbook is designed to help individual practitioners start their own market research activities by reviewing relevant literature, contacting experts in the field, examining related campaign materials, and studying similar HOV projects throughout the U.S.

Literature Review. A thorough literature search should be the first market research activity undertaken on any project. The bibliography of Appendix E contains references to reports on relevant HOV marketing activities, as well as selected HOV project evaluations and studies of a variety of HOV issues. In addition to formal reports, local news clippings, transportation plans, clean air ordinances, speeches, and voting records should also be reviewed.

Expert Advice. Conversations with individuals experienced in HOV planning and marketing may help to clarify specific concerns. Appendix E contains the names of several such individuals, including marketing consultants with HOV experience, planners in charge of overseeing HOV projects, and public information specialists responsible for marketing HOV lanes at the state and local levels.

Related Campaign Materials. Sample materials from past and ongoing ridesharing campaigns and HOV marketing efforts are used as illustrations throughout this manual. (The accompanying exhibit shows a ridesharing poster that preceded HOV marketing efforts in the U.S.) Appendix B contains additional examples of marketing materials, while Appendix D presents sample survey forms and formats for executive interviews and focus group discussions.

Project Data. Appendix C contains data describing current HOV projects in North America, as assembled by the Transportation Research Board's Committee on HOV Lanes.

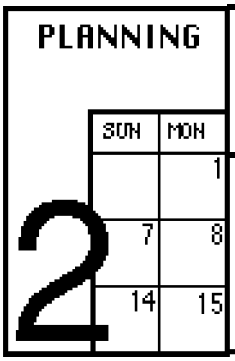
A. MARKET RESEARCH

2. PRELIMINARY RESEARCH

PLANNING

EXHIBIT: CLASSIC RIDESHARING POSTER TO ENCOURAGE FUEL SAVINGS DURING WORLD WAR II

Source: Smithsonian Collection/1942 Weimer Pursell



A. MARKET RESEARCH

3. FOCUS GROUPS

Focus group discussions can provide rich in-depth insights into public concerns regarding design issues, highlight driver attitudes and convictions, and flag promising and unpromising marketing approaches.

A focus group discussion is a flexible research technique used to gather rich, in-depth data in a relatively unstructured manner. Discussion groups of eight to twelve people are allowed to interact freely on a set of predetermined topics under the direction of a trained group leader. The resulting interpersonal interactions can be quite informative, particularly when the topics address issues, such as HOV lane operation, which inherently contain a high degree of public interest.

Because focus groups are relatively small, they are not designed to provide precise statistical quantification of the issues under discussion. Rather, they are designed to explore key issues in greater depth and highlight related attitudes and convictions. In-depth insights are obtained at the expense of the precise quantification available through the larger sample sizes of survey research. The insights obtained through focus group discussions can, however, be applied in the development of formal surveys designed to permit more precise statistical quantification of key issues.

Uses. In marketing HOV lanes, focus groups can be used effectively to pre-test marketing materials, probe awareness of past campaigns, sample driver opinions and attitudes regarding HOV lanes, and explore public concerns and convictions in some depth. For these purposes, focus group participants could be composed of corridor drivers, employee organizations, carpoolers, community leaders, survey respondents, or other targeted groups.

Abuses. While focus groups are relatively easy to manage, they yield subjective information and should not be used to support quantitative estimates or rank alternatives. They are most effective in exploring the direct experience and reactions of participants, and less effective in addressing in addressing hypothetical issues with which the participants have no direct experience. "Would you buy a dog that flies?" is an example of a question which isn't likely to produce fruitful focus group results. "How would you react if we took a lane away from one of your busy freeways and dedicated it to carpools?" is another question which is more likely to generate polarized responses, but little insight, unless the participants have direct experience with a lane conversion project.

Examples. Several state DOTs, including those in Virginia and Washington, have used focus groups effectively to test HOV marketing materials. The Appendix A case studies of Hampton Roads I-64 and Seattle I-5 contain examples of this use. CALTRANS has used focus groups to explore public attitudes toward HOV lane conversion (Gard, et al., 1993) and HOV lane enforcement (Billheimer, 1990).

An example of a focus group protocol used in exploring driver attitudes toward HOV lane operation and enforcement appears in Appendix D. The protocol was designed to provide first-hand, in-depth responses to key issues regarding public perceptions of HOV use, enforcement activities, and violations on two Southern California freeways (State Route 91 and Orange County Route 55), and two Northern California Freeways (Marin Route 101 and Santa Clara Route 101). At one point in each of these focus groups, participants were asked to list a series of adjectives describing their carpool lane. The accompanying exhibit lists the results of this exercise.

Drivers in Southern California had a more negative view of their lanes than Northern California drivers. The words "scary" and "dangerous" recurred when drivers described the two Southern California lanes (Orange County Route 55 and State Route 91), but were not mentioned at all by Northern California drivers using Santa Clara 101 and Marin 101. The features mentioned by drivers finding the Southern California lanes "scary" were (1) the speed differential, (2) the threat of people pulling into the lane unsafely, and (3) the nearby Jersey barrier, which was right next to the two Southern California carpool lanes.

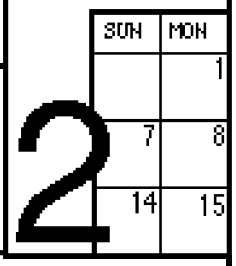


EXHIBIT: POSITIVE AND NEGATIVE ADJECTIVES USED BY FOCUS GROUP PARTICIPANTS TO DESCRIBE FOUR CALIFORNIA HOV LANES

	SOUTHERN CALIFORNIA		NORTHERN CALIFORNIA	
Freeway	State Route 91 **Orange County 55**		**MARIN 101** **Santa Clara 101**	
Descriptive Words				
POSITIVE				
Great	X			
Fast	X			
Rewarding	X	X		
Progressive	X			
Convenient	X	X		
Fair			X	X
Efficient				X
Well Used				X
NEGATIVE				
Scary	X	X		
Dangerous	X	X		
Waste of Space	X			
Mickey Mouse	X			
Nerve-Wracking	X			
Aggravating	X			
Tense	X			
Fearful				
Risky		X		
Frustrating		X		
Rough		X		
Empty		X		
Non-Functioning			X	
Insulting			X	
Unfair			X	
Inefficient				X
Unused				X
				X

One State Route 91 driver noted:

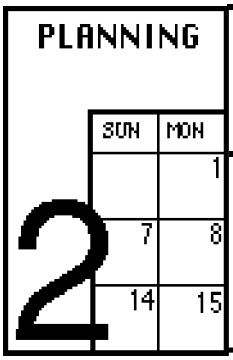
> "*It's nervous driving (on State Route 91) when you have cars virtually standing still and you're driving at 60 mph. The differential speed makes for very nervous driving. And the ever-present threat of people pulling in...that's scary."*

A carpooler on Orange County Route 55 found the lane so nerve-wracking that he didn't use it, even though he was qualified to do so.

> "*In the carpool lane you have on one side of you the fast lane, which is not really fast...and in the other direction you have a block wall. When somebody cuts in front of a person in the carpool lane, they've really only got one way to go and that's either to crash into the person, or go into somebody else's lane, or go into a block wall."*

On Santa Clara Route 101, where a 10-foot median lane separates carpoolers from the Jersey barrier, none of the participating drivers volunteered the words "scary" or "dangerous" in describing the carpool lane. Although Marin 101 has no median lane, the speed differential separating the carpool lane from general traffic was not nearly so great as on the other three study lanes. Marin drivers were more concerned with under-utilization of their HOV lane.

> "*Empty. That's the perfect word. You're sitting there and you're mad because you see a car go by every two minutes, at 60 mph, and you're doing 25."*



A. MARKET RESEARCH

4. TELEPHONE SURVEYS

Telephone surveys allow a more precise quantification of key questions than focus group research. They can be used to gather travel data, measure public opinions, document campaign awareness, record modal shifts, and track project acceptance over time.

A well-designed and carefully executed telephone survey can document public reaction to HOV lanes and marketing campaigns with statistical precision and provide insights into the relative effectiveness of different campaign messages and media channels. Telephone surveys can be used to gather travel information and data, measure pubilc opinions and attitudes, document awareness regarding HOV projects and marketing campaigns, record modal shifts, and track project acceptance over time.

Sample Sizes. A minimum of 400 surveys is generally necessary to guarantee that measured responses are within five percent of the true state of affairs. If the survey sample is to be subdivided significantly during the analysis, larger sample sizes may be necessary. Uncertainties regarding appropriate sample sizes should be resolved by consulting a statistician.

Population Definitions. If the population to be polled resides in a particular geographic area, a straightforward means of sampling is to draw telephone numbers at random from all the phone books covering that area. To ensure that unlisted numbers have the same chance of being reached as listed numbers, add a "1" to the last digit of the number drawn from the phone book sample. (Lists of randomly generated phone numbers for specific areas can also be purchased from firms specializing in providing this information.) It will usually be necessary to screen persons answering the phone to ensure that only licensed drivers are interviewed, and that a representative sampling of males and females is obtained.

If the population to be sampled consists of drivers using a particular corridor (or, more specifically, carpoolers in a particular HOV lane), it can be inefficient to phone residents at random trying to find drivers meeting the criteria. A more direct means of reaching such narrowly defined populations is to sample license plates along the route in question, use Department of Motor Vehicles (DMV) records to identify the registered owners of the observed vehicles, and look up the phone numbers of these owners. While this approach has been used effectively in some studies, it is not without problems. Barriers to this approach can include DMV privacy laws, unlisted phone numbers, leased vehicles, and ambiguous phone listings. In a recent polling of HOV lane users in the San Francisco Bay Area (Billheimer, 1990), it was necessary to videotape four license plates for every usable phone number generated.

Survey Content. Copies of sample questionnaires from a sampling of HOV lane surveys may be found in Appendix D. Typically, these surveys consist of the following major elements.

1. **Introduction and Freeway Use**. Introductory remarks designed to screen for licensed drivers who use the particular freeway and document the current extent of that use (i.e., How long have they used Marin 101? How often? As carpooler or lone driver?).

2. **Perceptions**. Questions designed to explore drivers' perceptions of such key issues as fairness, travel times, and HOV lane enforcement. The accompanying exhibit charts the response of Southern California drivers asked whether they agreed or disagreed with the statement "It is unfair to have special freeway lanes set aside for buses and carpools." Over eighty percent of the respondents (carpoolers and non-carpoolers alike) disagreed with this statement.

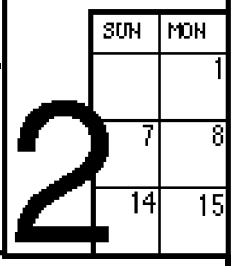


EXHIBIT:SAMPLE RESPONSE TO TELEPHONE SURVEY QUESTION SHOWING AGREEMENT AND DISAGREEMENT WITH STATEMENT "It is unfair to have special freeway lanes set aside for buses and carpools."

Source: Gard, et al. 1993

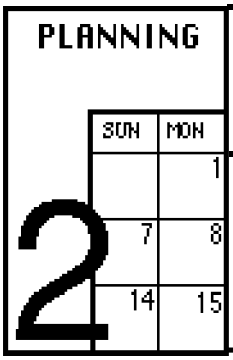
3. **Campaign Awareness (Unaided Recall)**. Questions designed to probe, with no prompting, respondents' general awareness of recent HOV marketing campaigns.

4. **Specific Awareness (Aided Recall)**. Questions designed to probe, through prompting, respondent awareness and understanding of HOV campaign materials and lane operations. Awareness of such specific issues as enforcement, violations, and fines can also be tested.

5. **Personal History vis-a-vis Carpool Lanes**. Specific questions designed to document any changes in travel time, route, trip timing, or carpool formation resulting from the introduction of HOV lanes or associated marketing campaigns. This may include questions regarding illegal use of the lane and personal citations for illegal use.

6. **Opinions and Attitudes**. Questions designed to document drivers' opinions of the HOV lanes themselves and explore pubic attitudes toward any contemplated changes in lane operations (i.e., carpool definition, operating hours, etc.).

7. **Demographics**. Questions designed to document the age, sex, and auto ownership status of the respondents.



A. MARKET RESEARCH

5. MAIL-BACK SURVEYS

Mail-back surveys can be distributed directly to corridor drivers to sample awareness and attitudes, develop origin/ destination data, and document route and mode shifts.

Mail-back surveys consist of questionnaires which are either distributed to drivers at sampling stations such as freeway on-ramps or mailed to the registered owners of vehicles whose license plates were recorded using the project corridor. Samples of such surveys appear in Appendix D. Mail-back surveys have been used effectively to sample awareness and attitudes, develop origin/destination data, and document route and mode shifts.

Mail-back surveys can range from simple post-cards designed to capture origin/destination data (see Exhibit) to more elaborate two-page questionnaires documenting awareness, attitudes, commute choices, and demographic characteristics. Typically, the longer the questionnaire, the lower the response rate. Reported response rates for mail-back questionnaires used to monitor HOV projects range from 20% to 40%.

The advantage of mail-back questionnaires is that they can be distributed directly to the driving population in the corridors affected by proposed or existing HOV projects. While it is more difficult to track campaign awareness through mail-back surveys than through telephone surveys (unaided recall cannot easily be tested through mail-back surveys, for instance), issues regarding perceptions, attitudes, and mode choice can be pursued equally well by mail or by phone. Beginning in 1985, Houston has regularly used mail-back surveys to track motorist attitudes regarding their system of HOV transitways, opinions regarding transitory effectiveness, perceptions of time savings, and self-reported impacts of the transitways on mode choice (Bullard, 1991). Both Seattle and Orange County, California have used mail-back surveys to record HOV lane acceptance among carpoolers and non-carpoolers. CALTRANS and the California Highway Patrol have used mail-back surveys to track driver awareness of enforcement and violations before and after waves of HOV lane enforcement (Billheimer, 1990).

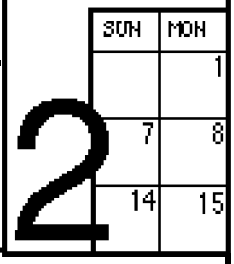
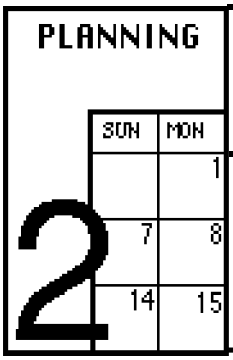


EXHIBIT: SAMPLE POSTCARD SURVEY FORM

Source: Orange County Transit District, 1988



A. MARKET RESEARCH

6. EXECUTIVE INTERVIEWS

Executive interviews can help to gauge transit market interest, identify institutional issues, establish community expectations, predict political reactions, and lay the groundwork for future liaison with opinion leaders and decision makers.

Face-to-face interviews with opinion leaders and decision makers regarding planned HOV projects can be useful in gauging target market interest, group perceptions, community expectations, and likely political reaction. These interviews can also help to establish liaisons with business and political leaders as part of the important process of constituency building.

Participants in executive interviews "...should be selected based on their roles in the community, interest in the subject, and potential impact they could have on the study's outcome." (Stamm, 1991). The list of potential candidates for executive interviewers includes:

- elected officials
- business leaders
- community activists
- newspaper editors
- radio and television news directors
- chamber of commerce representatives
- tracking respresentatives

Once candidates have been selected, they are contacted by mail to request their participation in the interview process. Interviews should be carefully scripted, held to approximately one hour, and conducted in person at the participant's office or location of the participant's choice.

A sample Executive Interview script, drawn from the work of Pacific Rim Resources in studying Arterial HOV Alternatives in Snohomish County, Washington appears in Appendix D.

The interview requests feedback on HOV system components and design issues; elicits perceptions of HOV market potential, attempts to identify major public, institutional, and media challenges, and concludes asking interviewees whether they would be interested in participating in the project by reviewing and/or communicating study fundings.

As in the case of focus groups, executive interviews provide in-depth insights, but have no statistical validity. As with focus groups, however, they can be used effectively in conjunction with more rigorous statistical sampling approaches such as telephone surveys. In a study of HOV facility design for Pierce County, Washington, telephone interviews suggested that the general public was likely to be more accepting of ramp metering and HOV treatments than community leaders expected (SR-16, SR-512/SR-167 HOV Facility Design Study Memorandum #6: Public Involvement).

A. MARKET RESEARCH

6. EXECUTIVE INTERVIEWS

PLANNING

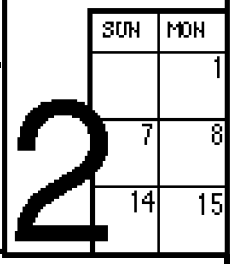


EXHIBIT: PURPOSE OF EXECUTIVE INTERVIEWS CONCERNING HOV LANES

HEIGHTEN VISIBILITY AND VIABILITY **of HOV treatments as an effective traffic congestion management technique.**

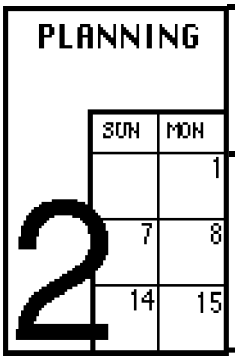
ASSESS ATTITUDES **regarding a variety of HOV treatments: where is there the greatest consensus and where are there the greatest differences?**

IDENTIFIY OPPORTUNITIES **for regional partnership in building community awareness and support for this study, as well as HOV treatments in general.**

IDENTIFY ANY SPECIFIC INSTITUTIONAL/ORGANIZATIONAL CONCERNS **regarding the study, as well as HOV treatments in general.**

OBTAIN INFORMATION **about the communications challenges foreseen by the community/institutional leaders and solicit their assistance facilitating broader communication of the study process and ultimate outcomes.**

Source: I-80/I-287 Feasibility Study, NJDOT



A.MARKET RESEARCH

7. TRAFFIC MEASUREMENTS

Counts of the current number of carpools in a corridor targeted for HOV treatment give the most reliable basis for estimating early HOV lane usage, provide baseline measures for future elevations, and can alert marketers to potential pitfalls.

As soon as a corridor has been singled out as a promising location for future HOV treatment, existing corridor traffic should be monitored to determine whether such treatments are likely to succeed, and if so, to identify the potential design, operating, and marketing problems presented by HOV lanes. Chapter 4, conveying project evaluation covers traffic monitoring issues in some detail (See Section 4-C, "Monitoring the Project.") At a minimum, the initial measurement process should ascertain:

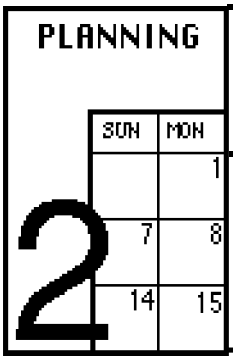
- **Traffic volumes and speeds** at points along the corridor (including both primary and parallel routes) during peak hours and peak periods
- **Vehicle occupancy rates**, reflecting the number of 2+ and 3+ vehicles in the traffic stream during the peak operating periods. Again, counts should include both primary and parallel routes.
- **Typical origin-destination patterns**, including average trip lengths and trip times.
- **Congestion measurements**, including the location and deviation of congestion and the identification of bottlenecks.
- **Transit and rideshare patronage**, particularly those existing operations which could benefit from an HOV facility.
- **Future demand projections**, including growth factors for the corridor and parallel routes.
- **Design limitations** of the existing freeway facility.

The above measurements have been adapted from "High-Occupancy Vehicle Facilities, A Planning, Design, and Operation Manual" (Fuhs, 1990) which cautions that "candidate corridors should have enough congestion, offer adequate travel time savings, exhibit sufficient demand, and have reasonable potential for successful implementation and operation."

Counts of the current number of carpools in a corridor targeted for HOV treatment give the most reliable basis for estimating preferential lane usage during the start-up phase and provide a baseline measure for future evaluations. Techniques for translating the existing carpool population into future HOV lane use may be found in the "Planning, Design, and Operation Manual" cited above. Projections of future HOV lane use are just as important for marketing personnel as they are for planners. If, for example, initial usage projections suggest that fewer than 400 vehicles will be using the lane during the peak hour, marketing personnel will have to contend with the "empty lane syndrome" while demand builds. If initial design projections suggest that non-carpoolers will lose far more time than carpoolers gain, marketing personnel can expect to be faced with a serious outcry from drivers of single-occupant vehicles, followed shortly by howls from their elected representatives. Few HOV projects have managed to survive the onslaught that results if single auto drivers are disproportionately inconvenienced or fail to see a substantative improvement as a result of the HOV lanes.

EXHIBIT: DATA COLLECTION SCHEDULE FOR I-394 IN MINNEAPOLIS

Source: Transportation System Management Plan, Interstate 394 (Strgar-Roscoe-Fausch, 1986)



B. CONSTITUENCY BUILDING

1. OVERVIEW

To build constituencies successfully, you must address the specific needs of targeted audiences.

The goal of this section is to help develop a constituency building program as part of an overall public information plan. The following pages will provide a framework to secure broad-based support for HOV systems. The section is also designed to help gather information and solicit support of media, environmental groups, other agencies and potential users.

A well-executed constituency building program can:

- Ensure that the concept and design of the facility is compatible with the physical, social and aesthetic character of the impacted communities;
- Provide a basis for citizen support of changes in zoning, conditional use, and other matters affecting development and implementation;
- Help avoid costly delays that result from protracted or unresolved conflicts;
- Accommodate the opinions and viewpoints of dissimilar constituencies;
- Instill a spirit of cooperation and trust;
- Establish a reservoir of goodwill and cooperation that carries over into future activities.

Gather Information and Analyze the Situation

In planning communication strategies it is first necessary to establish several truths about your audience(s). You will be targeting an extremely diverse audience. Questions that need to be answered include: Who (specifically) is the audience? What do they know about HOVs and how do they feel about them? What other circumstances could impact their decisions? What do they know about you and how do they feel about you? What specifically do you want from them--increased knowledge, legislation or commitment to change behavior? What form of communication should be used that is most effective and efficient in reaching that audience?

Preliminary briefings are recommended to ensure that everyone who should be involved and informed is updated. Key staff and elected official briefings will provide essential guidance and coordination in developing a constituency building process.

Deliver the Right Message, to the Right Person, in the Right Place, at the Right Time, in the Right Way!

After you have analyzed the information you have gathered, you must develop a public information plan.

1. Segment your audiences by common interests and priority to the success of the project
2. Determine the results (action you want from them, knowledge you want them to have) you want from your communications efforts
3. Provide the information that will be of most interest to that audience
4. Identify the most effective location to provide information to them; work, home, public facility
5. Determine the most effective communications tool for those individuals and that location
6. Identify the most important intervals in the process to communicate with them
7. Communication programs should be coordinated, consistent and interesting to your audiences.

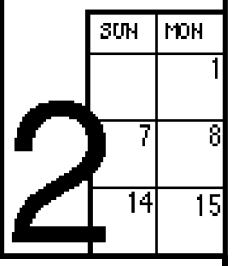


EXHIBIT: INFORMATION GATHERING AND DISTRIBUTION TOOLS

INFORMATION GATHERING

- Public Hearings
- Public Meetings
- Questionnaires
- Community Meetings
- Focus Groups
- Executive Interviews
- Project Reviews
- Surveys
- Referenda

WHO is the audience?

WHAT do they know?

HOW do they feel?

WHAT do you want them to do?

DELIVER the

RIGHT message

to the

RIGHT person

in the

RIGHT place

at the

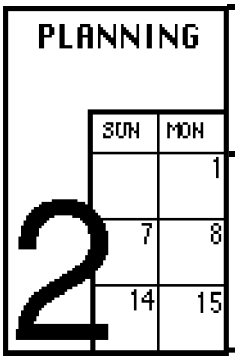
RIGHT time

in the

RIGHT way

INFORMATION DISTRIBUTION

- Open meetings
- Paid Advertising
- News Releases
- Legal Notices
- Direct Mail
- Public Displays
- Posters, Signs
- Newsletters
- Guidebooks
- Speakers Bureaus
- Employee Meetings
- Videos, Slide Shows
- Open Houses
- Neighborhood Meetings
- Tabloids
- Hotlines
- Bus Tours
- Brochures, Fact Sheets
- Kids' Projects



B. CONSTITUENCY BUILDING

2. DATABASE DEVELOPMENT

Knowing your audience has always been vital. Keeping track of them has always been difficult. Communicating with them individually has always been next to impossible, until now.

Each individual and each organization will have strong opinions about your project, each will also have a different level of understanding. You can't treat each group or each individual the same. Mass communication methods are no longer adequate to communicate to an ever increasing and diverse audience.

Keeping Track

Computers have made it possible to understand and communicate with each of these individuals and organizations on a one-to-one basis. But to understand your audience, provide them adequate information and enjoy the maximum benefit of their support, you must keep track of them.

Create and maintain a database of individuals and organizations with whom you need to keep contact. Update the list frequently to make sure that you are reflecting the changing segments of the community. The database is not just for printing labels. You will want to understand the reasons for each individual's interest and be able to separate individuals with common interests. You will want to know whether an individual represents themselves or a large organization. You will want to be able to recall what materials, meetings and other communications have transpired with each individual and group.

We all expect that our government is listening to us, that our opinions are being heard and considered. Now more than ever, we have the opportunity to honor that expectation and communicate with our constituents on a one-to-one level.

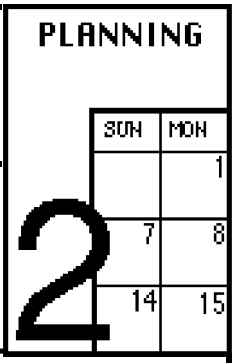
It will also be useful to develop an inventory of local public involvement coordination opportunities. Throughout the project corridor, activities related to local transportation efforts are being planned. A central inventory will help identify opportunities to share and coordinate common efforts. These should include planning and public works departments as well as recreational and cultural activities such as annual fairs and festivals.

Suggestions for fields you may want to create in your database appear in the accompanying exhibit.

B. CONSTITUENCY BUILDING

2. DATABASE DEVELOPMENT

EXHIBIT: SUGGESTED DATABASE FIELDS



INDIVIDUALS

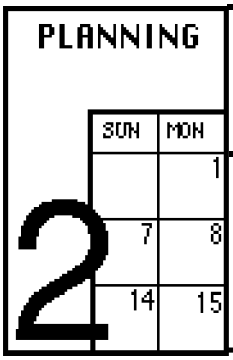
Name
Address
Phone Number
Fax Number
Areas of Interest
Committee Work
Type of Info Needed
Correspondence Notes

ORGANIZATIONS

Name
Address
Phone Number
Fax Number
Membership Info
Size
Key Individuals
Areas of Interest
Types of Info Needed
Quantities of Info Needed
Meeting Data
Times
Locations
Correspondence Notes

MEDIA

Name
Address
Phone Number
Fax Number
Key Individuals
Transp. Reporter
Envrn. Reporter
Editorial Writers
Columnists
Talk Show Prod.
Program/Publication Format
Lead Time
Circulation
Coverage Records
Correspondence



B. CONSTITUENCY BUILDING

3. EDUCATIONAL WORKSHOPS

It is necessary to share information and obtain input from key individuals and groups. Hosting educational workshops or charrettes will facilitate these objectives.

Tell me and I will forget.
Show me and I will remember.
Teach me and I will understand.
Proverb

Once you have "qualified your leads" (identified those individuals, groups and agencies that have expressed interest in hands-on involvement) educational workshops should be considered.

Timing

These workshops should be held early in the planning process to help identify potential opportunities, critical issues, and potentially fatal flaws. Depending on the size of the project it may be necessary to hold several workshops, each focusing on different constituent segments.

Participation

Participation in the workshops should be by invitation and include individuals such as community and business leaders, elected officials, state, federal and regional agencies and transportation planners, special interest groups, environmental groups, tribes, etc.

Objectives of the Educational Workshop

1. Disseminate information
2. Invite the early participation by the affected public, governments, agencies, organizations
3. Identify significant issues and strategies to address them
4. Seek commitment for partnership activities
5. Identify other potential constituents

Planning

Workshop planning should include develoment of a theme, objectives, agenda (see Exhibit), workshop design, publicity, advance questionnaires, participant packets, and visual support materials, and an invitation list. Other preliminary activities include the selection of locations, the recruitment of speakers and facilitators, and the development of education criteria.

In many cases one workshop with ongoing communication with participants will be adequate. However, if there are too many issues to be addressed in the time available or if situations arise unexpectedly during the project so that it becomes necessary to alter the course of actions, it may be wise to assemble these groups again.

Speakers and workshop facilitators should be recruited to represent a cross section of constituents. Transportation organization leaders, elected officials, community leaders, Department of Transportation staff, representtaives of impacted agencies such as parks, military or air quality, and consultants should be considered.

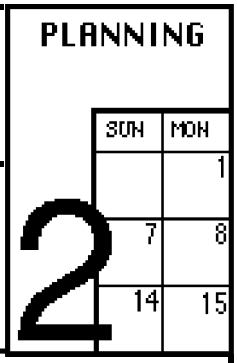
Before the meeting is held, provide the following information to those invited:

- Date, time and location of the workshop
- Description of the project
- Information on objectives of the workshop

B. CONSTITUENCY BUILDING

3. EDUCATIONAL WORKSHOPS

EXHIBIT: POTENTIAL WORKSHOP AGENDA



WORKSHOP AGENDA

I.INTRODUCTION BY PARTICIPANTS

II.REVIEW AGENDA AND EXPECTATIONS OF THE WORKSHOP

III.PROGRAM OVERVIEW
• Program description
• Implementation process and responsibilities
• Program schedule

IV.INFORMATION SHARING
• Each individual has an opportunity to identify issues and opportunities
• Identification of coordination/collaboration opportunities
• Identification of needs
• Identification of other potential partners

V.ACTION PLANNING
• Identify specific actions to be taken
• Assign responsibility for each action
• Create appropriate structures (committees, task force, etc.)
• Establish partnering agreements

VI.NEXT STEPS
• Establish tracking, correspondence, meeting process

VII.CLOSE
• Summarize actions

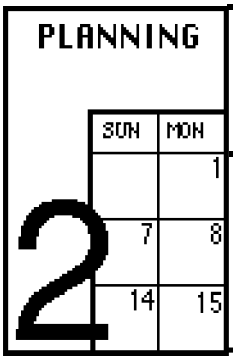
- Map of project
- Workshop agenda
- Contact person, telephone number and address
- List of attendees

Create an environment that facilitates a structured exchange of information. The setting and tone of the workshop should be relaxed and encourage interaction among attendees.

Follow-Up

Minutes and ongoing update information should be sent to all participants.

The input generated from these workshops will help you develop future action plans, particularly public involvement activities.



B. CONSTITUENCY BUILDING

4. INTERAGENCY COORDINATION

Success in maximizing marketing efforts must rely on gaining the support of natural allies. Interagency coordination is one of the most important elements of any marketing plan.

Moving individuals out of SOV's is a significant behavior change. Significant for the individual, for business and for government. It is a long term effort involving interjurisdictional coordination and involvement from a variety of public and private organizations.

Many states have regulations which have forced the issue of interjurisdictional coordination. Mandates for commute trip reductions have spurred the private sector into taking an active interest in the development of facilities which will encourage their employees to rideshare or use transit. For states or regions with growth management mandates, concurrence -- the recognition that an action by one organization will likely have a "shock effect" on the jurisdictions of others -- has brought many organizations to the same table to wrestle with issues which effect them all.

Examples of Interagency Impacts

A DOT decision to implement an HOV facility along a corridor will have a pronounced impact on law enforcement. State police or state highway patrol representatives should not only be involved in planning the HOV facility, they can also help to market it. In some states an HOV violator may not only get a ticket from a watchful trooper, but also receive a ridematch application so the violator can meet a carpool partners and use the lane legitimately in the future.

Will the HOV facility cause some carpoolers to divert from their existing corridors to the new HOV corridor? Or cause non-carpoolers to change their routes? This revised travel behavior will have an mpact on the local jurisdictions commuters will be traveling through. Staff members from the public works, traffic and planning departments need to be part of the HOV facility planning, design and implementation process. These staff members can also serve as a resource to gain access to jurisdiction mailing lists, promotion channels and education mechanisms.

Public transportation providers are also important to consider when planning, designing, implementing and promoting HOV facilities. Good analysis needs to be undertaken in the planning stages to understand who the market is for the HOV facility. What portion, if any, of the new HOV users will be switching away from riding the bus or train? Conversely, how can the transit agency use the HOV facility to entice more people abord their buses and trains? How will the HOV facility be integrated into the ongoing public transportation marketing strategy?

Problems with Lack of Coordination

Examples from past HOV projects contain several instances in which a lack of interagency coordination and a failure to build constituencies with natural allies has created enormous problems with HOV implementation. In the case of the Santa Monica Diamond Lanes (see Case Study A-4), the degree of involvement and commitment to the HOV project varied greatly among the many agencies affected by transportation decisions. When the media spotlight turned on the project, the public saw "...not a united front but a number of public agencies and elected officials pointing accusing fingers at the lead agencies, while other officials remained prudently silent." (Billheimer, et al., 1977). Several public agencies responsible for transportation activities adopted an adversary role which hindered both the free flow of project information and the coordination of project decisions.

In the case of another controversial HOV project, on the Dulles Toll Road (see Case Study A-6), supervisors from the two affected counties passed resolutions against the lanes at the time they were

EXHIBIT:ORGANIZATIONAL STRUCTURE OF THE I-394 CORRIDOR MANAGEMENT TEAM

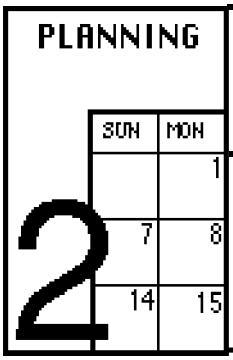
(Source: I-394 Case Study, Phase I Report, October 1987)

scheduled to open. One board went so far as to forbid the county ridesharing office to mail out brochures advertising the HOV lanes.

The Minnesota Example

The Corridor Management Team assembled by Minnesota DOT (MN/DOT) in support of the HOV lanes on I-394 has often been cited as a model of interagency coordination. A block diagram showing the relationship of the Coridor Management Team to the participating agencies appears in the accompanying exhibit. This organizational structure provided top-down open support from within MN/DOT and promoted strong interagency cooperation with the project. The Phase I Case Study (October 1987) notes that "...the public commitment of the Commissioner and the major decision-making role of the Corridor Management Team were very important in achieving this support" and cites the importance of designating a single Corridor Manager with overall responsibility as a key factor in the project's success. Because resposibility was concentrated at within a single, identified individual, MN/DOT was able to respond immediately to any problems or criticisms.

These examples, and examples throughout this manual show how aggressively solicitation of "partnership" relationships can leverage your limited resources and significantly increase your marketing effectiveness. Take a look at the listing of potential partners in the POTENTIAL PARTNERS section in Chapter 1. Think about which of these agencies you'll need to bring into the loop to avoid operational conflicts and to assist in the marketing and promotion efforts.



B.CONSTITUENCY BUILDING

5.POLITICAL LIAISON

A loss of political support can be fatal to HOV lanes.

It's best to have allied politicians announce their support for your HOV project in advance of opening day. That's no guarantee that they won't succumb to pressure from their drive-alone constituents and attack your project after it's opened, but it makes it harder for them to do so.

Dave Roper

As representatives of the drivers affected by HOV lanes, elected officials will be on the front line when it comes to phone calls from frustrated SOV drivers who are either dissatisfied because they can't use the lane, or angry because they were cited for using the HOV facility illegally. How elected officials respond to these calls will depend in large part to how well prepared they are. A planned and ongoing cultivation strategy will enable them to understand the benefits and implications of HOV lanes and help to ensure their support when discussing HOV facilities with their constituents.

Elected officials rely heavily on the recommendations and information provided by their staff. In some cases it can be equally or more effective to talk with the staff person than with the elected official. If you have difficulty getting together with an elected official, request the name of the staff person they would like to represent them on this issue. Even if the elected official is available to you, it doesn't hurt to ask if there is anyone else in their office that should receive copies of materials.

Communication Tools

The following tools can ensure that information is being passed to this group while helping identify individuals most likely to be advocates or advisories.

- General (group) legislative briefing held at noon or early evening
- Individual briefings
- Written material (periodic or one time)
- Legislative staff meetings
- Committee/sub committee briefings
- Creation of an advisory committee of elected official staffers

As with any other part of your HOV development plan, you should give equal weight to assigning liaison responsibilities and objectives to staff members. You may also want to consider contracting a bill tracking service to identify and track legislation that applies to all areas of HOVs.

If you work for, or represent a public agency, chances are you are prohibited from lobbying. You can and should however, provide education. In addition several of the potential partners identified in Chapter One of this manual can and will be motivated to directly influence legislative decisions.

The Cost of Political Opposition

Failure to build support for HOV lanes among political leaders can have disastrous results. SOV drivers far outnumber HOV users in most jurisdictions, so if elected officials are not primed on the benefits of HOV lanes, a simple head count tends to pull them into the opposition camp. In the case of the Dulles

B.CONSTITUENCY BUILDING

5.POLITICAL LIAISON

PLANNING

SUN	MON
	1
7	8
14	15

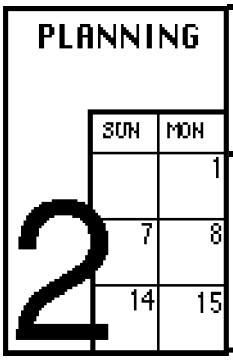
2

EXHIBIT:*LEESBURG TODAY* ACCOUNT OF POLITICAL BATTLE OVER DULLES TOLL ROAD

Toll Road (see Case Study A-6), the U.S. congressman representing Northern Virginia spearheaded the opposition to the HOV lanes, wrote several letters to Virginia's governor asking that HOV restrictions be delayed, and ultimately engineered the demise of the lanes by attaching an amendment to a federal transportation appropriations bill banning HOV lanes on toll roads on federal lands--a proviso that applied only to the Dulles Toll Road. After HOV restrictions had been lifted on the Toll Road, the *Washington Post* took VDOT to task for failing to "...develop an early and comprehensive HOV strategy to educate the general public or local and state political leaders," noting that when the U.S. representative from Northern Virginia "...made his first non-public rumblings against HOV to the highway department, no official bothered to hold his hand in an attempt to ease his constituent-instigated apprehensions."

Political opposition in the form of a General Assembly bill brought about the lifting of HOV restrictions on the first segment of the Route 44 carpool lanes in Hampton Roads, Virginia. In the case of the Santa Monica Diamond Lanes, a politician who had pressured CALTRANS behind the scenes to open the lanes was one of the first to call openly for their removal when controversy developed. Recognizing the critical importance of political support to the success of HOV lanes, the Transportation Research Board (TRB) offered the following guideline for HOV development:

> "*Do not open HOV facilities during election campaigns unless there is firm support from elected officials. Otherwise, political dissent is nearly assured."*



B.CONSTITUENCY BUILDING

6.ENFORCEMENT LIAISON

Without enforcement, an HOV lane soon becomes an SOV lane.

Just as the general public needs to understand the rules and benefits of new HOV lanes, they also need to understand what will happen if they do not comply with the requirements of the new lanes and believe that the risk of apprehension is high and that penalties will be enforced if they are caught.

Enforcement Issues

Cooperation between enforcement and operating agencies is necessary both for smooth operations and for effective enforcement of HOV facilities. For this reason, enforcement representatives should be involved in planning at the earliest opportunity. Some of the issues to be addressed include:

- Enforcement areas where officers can safely observe lane operations and initiate pursuit;
- Refuge areas for patrol officers to pull over violators;
- Turn-around facilities;
- Personnel requirements;
- Regular monitoring of violation rates;
- Identification of tolerable violation rates;
- Issuing ridesharing information with tickets and warnings;
- Incident management procedures; and
- Start-up strategies.

Types of Enforcement

Four primary enforcement strategies are in use on HOV facilities (Miller, et al., 1978):

1. **Routine enforcement**, or those enforcement activities randomly conducted in concert with the normal assortment of duties undertaken by a uniformed police officer;

2. **Special enforcement**, which entails the specific planning, scheduling and application of police activities on an HOV facility for a period of time, as when a patrol car is specifically assigned to a particular HOV lane or bypass ramp;

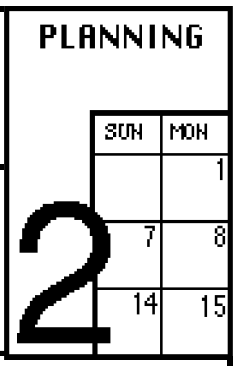
3. **Selective enforcement**, which represents a combination of both routine and special enforcement. This is the most common means of enforcing HOV lanes, and guidelines have been developed which relate the level and duration of special enforcement activities to violation rates (Billheimer, et al., 1981; and Billheimer, 1990). The accompanying exhibit shows an example of the guidelines.

4. **Self-enforcement**, in which motorists and HOV users help to police the lanes by taking voluntary actions to report violators. While self-enforcement may be applied in conjunction with any of the first three strategies, Fuhs (1990) notes that "...it is not considered a stand-alone alternative."

B.CONSTITUENCY BUILDING

6.ENFORCEMENT LIAISON

EXHIBIT:ENFORCEMENT GUIDELINES FOR RAMP METER BYPASS LANES

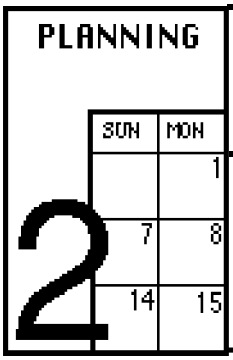


Public Information Support

Research has repeatedly shown that public information programs which notify the public of enforcement efforts increase the effectiveness of the enforcement activities and can reduce the officer presence required to achieve compliance goals. When HOV lanes are introduced, public information programs should stipulate usage requirements and make it clear that restrictions will be actually enforced and upheld by the courts. The levels of fines and other penalties (i.e. points on driving records) should be widely publicized.

Statistics on violation rates should be presented to the public as soon as they are available, along with other data on project use. Research (Billheimer, 1990) shows that drivers tend to over-estimate violation rates and are likely to become critical if actual violation rates rise above 10 percent. Roughtly 90 percent of the drivers surveyed in a recent California study (Billheimer, 1990) felt that the illegal use of carpool lanes was a problem. (One-third of the drivers felt it was a serious problem, while an additional 54% rated the problem as minor.)

While public education in conjunction with visible enforcement can help to lower lane violation rates, there is no evidence that public information alone, in the absence of enforcement, can affect violations. Visible enforcement is needed to maintain the integrity of an HOV facility and is a key component of a successful project. Research has shown that drivers are most aware of enforcement on HOV lanes with facilities for visible enforcement such as ample median lanes or enforcement areas adjacent to the HOV lanes.



B.CONSTITUENCY BUILDING

7.JUDICIAL LIAISON

Judicial support for enforcement and penalties is necessary to maintain HOV lane integrity.

Fuhs (1990) offers the following guideline penalties for HOV lane violations:

- Penalties should be significant enough to deter violators. Fines and demerits on a motorist's record should be considered.
- Widespread agency/political support should be solicited for adequate HOV penalties and for upholding penalties through the local traffic court system.

Fuhs also notes that "it is desirable that laws, at either the state or local level, specifically address occupancy infractions on HOV facilities. A basis for a specific statute can be 'failure to obey posted preferential traffic lane restrictions.'"

Fines should be high enough to discourage willful violators and graduated to deter repeat violators. Penalties on HOV projects in 1989 varied from $40 to over $246 for the first offense.

CARPOOL VIOLATION $246 MINIMUM FINE

In California, fines progress from around $250 for the first offense to over $600 plus court costs for the third offense.

No matter how high the posted fines are, they are useless unless the judicial system upholds them. Because enforcement without penalties can destroy the integrity of your HOV program, you must include judges and magistrates in your constituency building activities.

Find out who hears traffic infraction cases on your freeways (judges, magistrates, etc.), and be sure those people know the important role they play in ensuring the viability of the facilities.

As individuals, judges may not agree with the concept of penalties for HOV infractions and given their heavy work loads, may be inclined to give low priority to these infractions.

To ensure that violators will be fully penalized under the law, it is important to provide information to those charged withlevying infraction penalties.

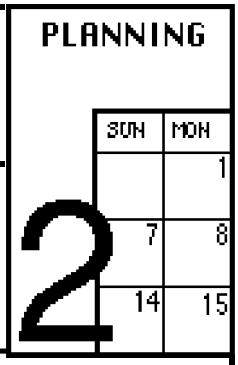
As with legislators, the following tools can ensure that information is being passed while helping identify individuals most likely to be advocates or advisories:

- General (group) briefings
- Individual briefings
- Written material (periodic or one time)
- Creation of an advisory committee
- Evaluate records of penalties given for each judge.

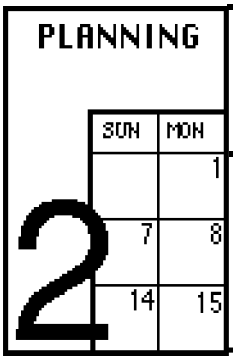
B.CONSTITUENCY BUILDING

7.JUDICIAL LIAISON

EXHIBIT:SELF-ENFORCEMENT PROGRAM BEGUN IN THE SEATTLE AREA



Source: Reprinted from Seattle HOV Task Force Brochure, 1989



B.CONSTITUENCY BUILDING

8.IDENTIFYING MEDIA PARTNERS

Talking to the people who talk to the public is one of the most important aspects of constituency building.

For 150 years the telegram represented the most immediate medium to deliver urgent messages. That service is now out of business. Technology and communications mediums are changing at a dizzying pace. In 1980 the number of televisions with remote controls was insignificant, there were no compact disks, very few videocassette recorders, and no video rental stores. Only restaurants used microwave ovens. Facsimile machines cost thousands of dollars, were only owned by large companies and took five minutes per page. There were no personal computers.

Each of the constitutents in this section are important, but none can impact as many people in as short a time as the media. As with any other communications process the most effective way to influence another individual is friend-to-friend talking face-to-face. The next is friend-to-friend talking on the phone, then through letters etc. That is the reason we see advertisers using so many celebrity spokespersons, and it is also the reason that news media are so important. It is also the way to cultivate the media.

Most television commercials are either thirty or sixty seconds long. As a viewer you know that during that time someone is going to try to sell you something. So, you might take that opportunity to go to the kitchen or just "zap" to another station. However, the average television news story is one-and-one-half minutes long, delivered by someone we trust and is delivered in an environment we rely on for factual information.

Always remember that there is no such thing as the "general public." Media, like their readers, viewers and listeners reflect tremendous diversity. Just as you need to prioritize your audience, you need to prioritize the media.

HOV education and arguments to change commuter behavior are best presented during those times that an individual is driving. Using media that can deliver the HOV message and provide the individual the opportunity to make a behavior change while they are in their vehicle will yield the best results. Therefore radio provides a great opportunity to communicate with SOV drivers.

A list of media positions that should be cultivated and subjects to consider discussing with each appears in the accompanying exhibit.

B.CONSTITUENCY BUILDING

8.IDENTIFYING MEDIA PARTNERS

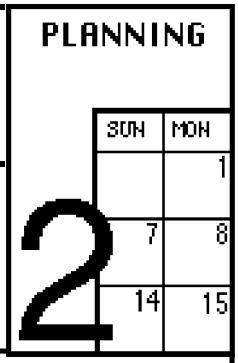
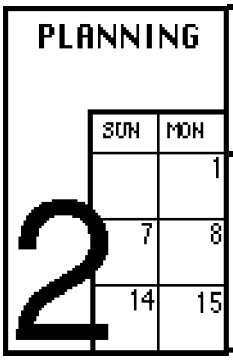


EXHIBIT:POTENTIAL MEDIA PARTNERS AND RELEVANCE TO HOV PROJECTS

POSITION	RELEVANCE TO HOV
TRAFFIC REPORTERS	Traffic reporters are the best marketers of HOV lanes on TV and radio. They can illustrate HOV lane benefits before and during the commute.
HEALTH REPORTERS	Air quality has a significant impact on health. Health is one of the strongest motivators for behavior change.
BUSINESS REPORTERS	The work place is changing. Businesses are not only complying with trip reduction laws but also managing a changing work environment.
CONSUMER REPORTERS	The financial, emotional and health benefits of using HOV
GOVERNMENT REPORTERS	What is government doing to preserve quality of life.
EDITORIAL BOARDS	HOV plans, timetables, primary reasons and significant benefits.
NEWS DIRECTORS	HOV plans, timetables, primary reasons and significant benefits.
TRANSPORTATION REPORTERS	HOV plans, timetables, primary reasons and significant benefits.
INTERESTED REPORTERS	Many reporters have personal interest in stories and follow them. Keep track of your coverage and customize your approach for each person.
LIFESTYLE EDITORS	Changes in the way we arrange our lives and think about our vehicles. Increased acceptance of individual responsibility for their environmental impacts.
REAL ESTATE EDITORS	Impact of HOV access on a residential and business zones.



B.CONSTITUENCY BUILDING

9.KEEPING THE MEDIA'S ATTENTION

It's important to establish a personal relationship with media representatives.

As with all other constituents, you want to establish a personal relationship with media representatives. Try to meet face-to-face whenever possible. Explain that you are not pitching a story but want to provide information about current and planned HOV programs and discuss how, in what form and when, you can best provide relevant information to them.

Steps for Cultivating Media Representatives

Typical steps for cultivating media representatives are listed below:

- Place **introductory call** and request meeting;
- Mail **letter** thanking for phone time and confirming meeting;
- Attend **face-to-face meeting**;
- Send **thank you note** confirming agreements;
- Send first **press release**;
- Make **follow-up call** to explain specific significance of release to individual media reps;
- Send **thank you note** for any coverage.

Topics of Interest to the Media

As we discussed, consumers are more interested in the benefits of a product than in the features. The media will ask questions to reveal benefits to their audience and to them: Is this important to most of my audience? Will this information bring in additional audience? Is this important to my audience in all geographic locations?

News is also a victim of trends and it is currently the trend to pursue stories on government waste aggressively. The *Seattle Times* in Seattle, Washington began running frequent ads in late 1993 asking readers to "Blow the whistle" on government. That the media is watching government and reporting waste is a good thing. But, be prepared to answer questions related to the cost of any HOV program, and be prepared to provide meaningful "user-friendly" comparisons of costs and related benefits. Without such guidance, the media may draw their own conclusions based on comparisons which may or may not be valid.

B.CONSTITUENCY BUILDING

9.KEEPING THE MEDIA'S ATTENTION

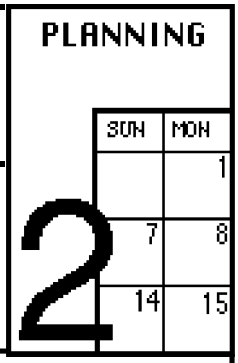
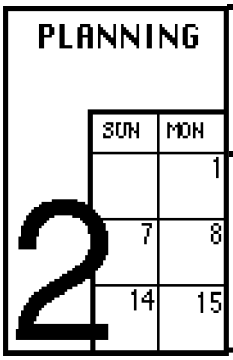


EXHIBIT:TIPS FOR CULTIVATING THE MEDIA

TIP	DESCRIPTION
CLIPPING SERVICE	Many clipping services are available to read publications and clip articles. Use them to keep track of who is reporting about you and what are they saying.
MEDIA LIST/TRACKING	Develop a media list of those individuals you want to keep informed. Track your contact with them and their coverage.
GRAPHIC STANDARDS	Standardize media documents so recipients immediately recognize that they come from you.
PROCEDURAL STANDARDS	If the media calls, who should they talk to? Who is the "official spokesperson?" Return all media calls within 20 minutes, etc.
SPOKESPERSON TRAINING	What our positions are, how to dress, how to look, how to correct bad information etc.
THANK YOU NOTES	The simplest and cheapest way to demonstrate sincerity. Send a copy to their supervisor.
RESOURCE MATERIALS	Help them perform their job more easily. Create a file video for television stations of construction use etc. of HOV areas. Create an annual HOV-FACTS document of statistics, projections, impacts, and information.
CRISIS RESPONSE TEAM	When things don't go as planned you need to identify a team of people to share information as quickly and accurately as possible.



B. CONSTITUENCY BUILDING

10. ENVIRONMENTAL GROUP RELATIONS

Bumper-to-bumper traffic wastes an estimated 3 billion gallons of gasoline a year – 5% of the nation's annual gas consumption.

The goals are the same for everyone: Move more people and goods in the safest, most cost effective, environmentally friendly process possible. Because HOV facilities can help communities realize that goal, environmental groups can be powerful allies.

Environmental groups will have very specific interest in the impacts of HOV projects. This interest is likely to fall within two basic areas.

1. Interest in impacts of HOV **construction** (on land use, wetlands, etc.)
2. Interest in the impacts of HOV **use** (on air pollution, fuel consumption, etc.)

It is important to remember that environmental groups with similar interests may have entirely different views of an HOV project. For example, it is not unusual for one group interested in air quality to support HOV lane construction because of the incentives it provides for carpooling and transit use. On the other hand, another air quality group might not support the construction of HOV lanes because they increase highway capacity.

As with the other segments of your audience you will want to use the same constituency building process with environmental groups:

1. Identify Potential Audiences
2. Gather/Analyze Information
3. Prioritize Audiences
4. Identify and Develop Materials
5. Distribute Materials

Ask yourself:

1. Who is my audience?
2. What do I want from them?
3. What do they currently know and feel?
4. When and where is best to reach them?
5. What communication tool will be most effective?

The accompanying exhibit suggests several constituency building activities for environmental groups. The introduction to this subsection (Section B-1) contains additional recommendations.

During this process you should investigate opportunities for collaborative efforts. Once it is determined that opportunities exist, make a formal request for involvement. Some organizations using partnership activities are formalizing relationships with written Partnering Agreements.

B. CONSTITUENCY BUILDING

10. ENVIRONMENTAL GROUP CONCERNS

PLANNING

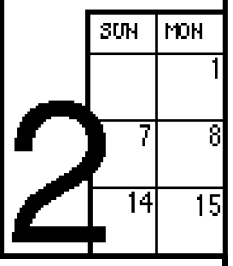


EXHIBIT: CONSTITUENCY BUILDING CHANNELS

MATERIALS

Displays
Videos, Slide Shows
Bus Tours
Briefing Packages
Project Summary
Artist Renderings
Maps
Speakers Bureau
Contact List
Public Involvement Activities
Hotline

DIRECT

Person to Person

MATERIALS

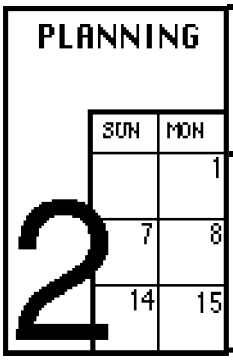
Personalized Letters
Newsletters
Press Releases
Tabloids
Advertising

INDIRECT

Direct Mail
Newspapers
Radio, TV

Materials that are produced for use to cultivate constituents can be used by these groups to distribute their constituents. Materials that would lend themselves to "second generation" distribution include:

- Posters, signs
- Displays
- Brochures and fact sheets
- Newsletters
- Hotline number
- Kids projects
- Tabloids
- Briefing packages
- Video, slide shows



B. CONSTITUENCY BUILDING

11. COMMUNITY RELATIONS

A review of results from your market research and focused interviews will help identify issues and opportunities that may be unique for each community.

Throughout this section we recommend specific strategies for each of the groups we have encouraged you to target. The strategies recommended are not for exclusive use with any single segment, but intended for consideration in developing *your* customized constituency building plan.

In addition to considering the groups and individuals with apparent interest in your project, you must also think of the broader characteristics of the community. Many groups and individuals will emerge and should be included in your constituency building, but you must also be proactive and reach out to include groups that may not be as vocal, such as ethnic minorities, people with disabilities, low-income and elderly citizens, grade- and high-schoolers, military personnel, industrial workers, and tribal members.

The following strategies can be effective in securing constituents in individual communities.

ACTIVITIES

Activities validate the importance of invited individuals and help them visualize potential impacts.

BUS TOUR	**Invited guests take a bus ride to gain further understanding of project objectives, routes, processes, etc.**
THANK-YOU RIDE	**Once the facility is open give a VIP bus tour**

MATERIALS

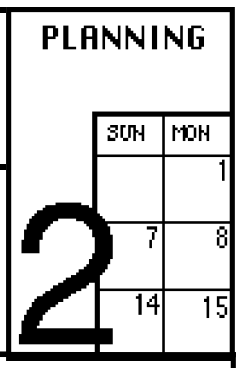
Materials can provide accurate and timely information in detailed or broad strokes.

NEWSLETTER	**Specific information customized for that community**
MEDIA RELEASES/ BRIEFINGS	**Printed and verbal briefings and releases for editors and reporters keep them and their audiences informed**
DISPLAYS/SPECIAL EVENTS	**Transportation fairs, employment sites can use un-staffed displays to disseminate information and self-administered questionnaires**
BROCHURES/BRIEFING PACKAGES/FACT SHEETS	**Basic information for wide distribution and specific/customized information for each community**
PAID ADVERTISEMENTS	**Invite community participation in public review stages and opening events**
SIGNAGE	**Signs along the corridor can alert residents to significant events and solicit their involvement**

B. CONSTITUENCY BUILDING

11. COMMUNITY RELATIONS

EXHIBIT: ACTIVITIES, MATERIALS, MEETINGS, AND FEEDBACK CHANNELS FOR BUILDING COMMUNITY RELATIONS



MEETINGS/WORKSHOPS

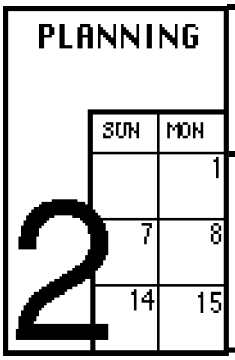
Although expensive, face-to-face communication strategies are usually the most effective and cost-efficient.

JURISDICTIONAL BRIEFINGS	**Briefings for elected officials, staff and public organizations**
SPEAKERS BUREAU	**Allows targeted outreach to groups and provide feedback channels**
PUBLIC MEETINGS/OPEN HOUSES	**Allows individuals to share specific interests without impairing participation/information needs of others**
NEIGHBORHOOD MEETINGS	**Opportunity for close interaction between citizens and project officials**
LEADERSHIP WORKSHOPS	**Provide a structured process for briefing and soliciting participation of elected/community leaders**
EMPLOYMENT SITE MEETINGS	**HOV facilities can have significant impact on employees of large organizations**
ISSUE-SPECIFIC MEETINGS	**Provide forum to discuss issues of a particular concern**
PERSONAL CONTACT WITH LANDOWNERS	**Door-to-door visits with corridor residents can significantly impact how they feel about the project**

FEEDBACK CHANNELS

The door should always be open for feedback. The following two strategies are easy and effective ways for individuals to reach you outside of the formal meeting environment.

HOTLINE	**A phone line dedicated for use by citizens to provide feedback and access information**
MEETING QUESTIONNAIRES	**Simple way to collect quantifiable results from those attending and allows less vocal participants to express their interest**



C.CAMPAIGN OBJECTIVES AND STRATEGIES

1.OVERVIEW

This section deals with three key marketing activities:

(1)Setting campaign objectives;
(2)Developing strategies to meet these objectives; and
(3)Getting professional help.

Setting Campaign Objectives

The first step in undertaking an HOV marketing campaign is the setting of well-defined objectives. Objectives may be broad ("Increase regionwide acceptance of ridesharing") or narrow ("Cause carpooling on I-394 to increase by fifteen percent"). However, they should be defined explicitly, since the development of campaign strategies, from the definition of target audiences to the selection of media channels, will be tied to these objectives.

Developing Campaign Strategies

The discussion of campaign strategy in this section addresses the following issues:

Identifying Key Issues. Key issues surrounding HOV lanes typically involve such topics as congestion, mobility, safety, equity, and ecology. It is important to identify those issues and develop positioning statements capable of focusing marketing activities and developing realistic project expectations.

Defining Target Audiences. It is essential that the primary and secondary audiences for the marketing campaign be well defined and carefully targeted. Key incentives will vary by audience segment.

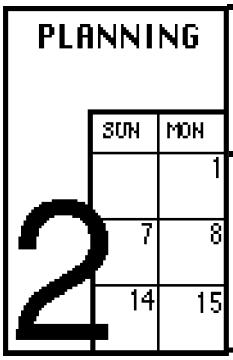
Budgeting. The campaign strategy and media mix for a public marketing program will be directly related to the amount of available funds. Marketing directors must find sufficient funding and allocate them among different communication channels to reflect campaign priorities.

Scheduling. Marketing activities should start early in the project planning stages, peak at the time a project opens, and continue throughout the life of the project.

Getting Professional Help. While public agencies can take the lead in carrying out HOV marketing campaigns, most lack the in-house capability to develop marketing materials. The assistance of professional advertising agencies should be sought in developing campaign concepts, producing campaign materials, and coordinating media distribution.

EXHIBIT: WASHINGTON STATE HOV SYSTEM MARKETING AND PROMOTION POLICY

Source: Washington State Freeway HOV System Policy (Washington State DOT, 1992).



C.CAMPAIGN OBJECTIVES AND STRATEGIES

2.SETTING CAMPAIGN OBJECTIVES

Marketing objectives should be defined explicitly, since the development of campaign strategies will be tied to these objectives.

Marketing objectives may focus broadly on building regionwide acceptance of ridesharing and more narrowly on convincing the non-carpoolers in a specific corridor to shift to carpooling. Whether broad or narrow, marketing objectives should be defined explicitly, since the development of campaign strategies will be tied to these objectives.

The accompanying exhibit lists a number of possible campaign objectives culled from a variety of sources. These objectives are discussed in more detail below.

Heighten public awareness of ridesharing as an option. One broad objective of a marketing campaign can be to heighten public awarness of ridesharing by publicizing the benefits of ridesharing throughout the community and emphasizing that the mission of the transportation system is to move people, and not just vehicles.

Increase public confidence in HOV strategies. In some locales, whether because of past HOV failures or general lack of familiarity with the HOV concept, it may be necessary to build public confidence in HOV strategies. Public confidence can sometimes be established by fostering an opening planning process and advertising the success of HOV lanes in different areas.

Develop accurate expectations for HOV facilities. Unrealistic public expectations can damage the credibility and morale of sponsoring oganizations, erode public confidence, and create opposition to the HOV concept. Stamm (1991) points out that it is not uncommon for an HOV facility that is technically successful to be "...viewed as a failure by your constituent groups because 'they don't look full' or because 'congestion is just as bad as before you opened the lane.'" One objective for an HOV marketing team is to shape accurate expectations of what an HOV facility can and cannot accomplish.

Prepare people for the coming of an HOV facility. One common purpose of HOV marketing activities is to publicize the coming of an HOV facility by keeping the public informed of construction activities, advertising usage requirements, creating an awareness of HOV lane signage, and "counting down" the number of days before a project opens.

Promote immediate use of HOV facilities. The most common objective of HOV marketers is to sell a specific project to potential HOV users in an attempt to get them to take up ridesharing.

Open channels for two-way communication. One objective sited by the advertising firm marketing I-394 in Minneapolis was "to provide a means of two-way communication with the affected communities and any other interested individuals which will help alleviate ill will during construction, provide a means of feedback, provide a vehicle to help measure marketing program results and to build a database for direct mail." (Minnesota DOT, 1993)

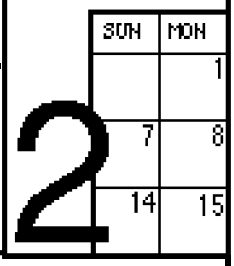


EXHIBIT:TYPICAL CAMPAIGN OBJECTIVES

•HEIGHTEN PUBLIC AWARENESS OF RIDESHARING AS AN OPTION;

•INCREASE PUBLIC CONFIDENCE IN HOV STRATEGIES;

•DEVELOP ACCURATE EXPECTATIONS FOR HOV FACILITIES;

•PREPARE PEOPLE FOR THE COMING OF THE HOV FACILITY;

•PROMOTE IMMEDIATE USE OF HOV FACILITIES;

•OPEN CHANNELS FOR TWO-WAY COMMUNICATIONS;

•CONVINCE DRIVE-ALONE COMMUTERS TO RIDESHARE ONCE A WEEK;

•CREATE AWARENESS OF SUPPORT FACILITIES;

•PROVIDE UPDATED ACCOUNTS OF HOV LANE TIME SAVINGS AND USAGE.

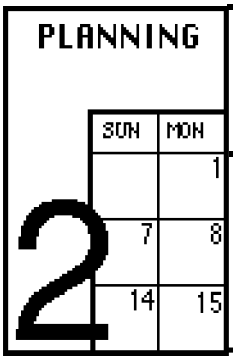
Sources: Stamm, 1991; Young and Baird, 1994; and Bloch, et al., 1994

Convince drive-alone commuters to rideshare once a week. An example of a more limited objective, the "Team Rideshare" campaign undertaken by CALTRANS in 1993 emphasized a one-day-a-week switch to ridesharing in an effort to inspire drive-alone commuters to sample ridesharing and to overcome the perception that ridesharing necessitated a full-time commitment. (Young and Baird, 1944)

Create awareness of support facilities. In the past, some HOV marketing campaigns have aimed to make the public aware of such support facilities as park and ride lots or rideshare matching services.

Provide updated accounts of HOV lane time savings and usage. One stated objective of ongoing marketing campaigns for existing HOV facilities is to publicize HOV lane time savings and usage on an updated basis in an effort to induce more non-carpoolers to try ridesharing.

Any given HOV marketing campaign may have only two or three of the above objectives. Over a period of years, however, marketing campaigns dealing with the planning, introduction, and implementation of a particular HOV facility might have occasion to address most of these objectives.



C.CAMPAIGN OBJECTIVES AND STRATEGIES

3.IDENTIFYING KEY ISSUES

Key issues concerning HOV facilities must be identified and addressed openly so that positioning statements can be developed capable of focusing marketing activities and developing realistic public expectations.

Key issues surrounding HOV lanes involve such topics as congestion, efficiency, mobility, safety, equity, and ecology. One reason that HOV lanes can be a "tough sell" is that their impacts on some of these key issues are ambiguous.

Congestion. HOV lanes must exist in an atmosphere of congestion. If there is no congestion, there will be no time advantage available to ridesharers. Further, in order for HOV lanes to be accepted, people must perceive that congestion exists and is a serious problem.

Efficiency. HOV lanes improve the efficiency of the transportation system by moving more people in fewer vehicles.

Relative Mobility. HOV lanes improve the mobility of ridesharers by saving them time and money and providing reliable, congestion-free service. Generally, however, HOV lanes are not perceived as a benefit by non-carpoolers. Additional space made available to non-carpoolers when carpoolers shift to their own lane is soon filled with latent demand, so that single occupant vehicles perceive little change in their own travel time. If the HOV project has been designed in such a way that non-carpoolers lose more time than carpoolers gain, moreover, public outcry could be sufficient to sink the project.

Equity. Is it fair to give ridesharers a better trip? Most surveys addressing this issue have found that the vast majority of drivers (carpoolers and non-carpoolers alike) see HOV lanes as fair and equitable. A small minority feel that HOV lanes unfairly deny access to taxpaying non-carpoolers. This minority can be vocal, particularly if the improved HOV trip is perceived to come at the expense of a worsened SOV trip.

Safety. Many HOV lane configurations improve road safety. This is typically true of meter bypasses and barrier-separated facilities. However, some (but by no means all) configurations with no separation between mixed flow lanes and HOV lanes have raised legitimate safety questions.

Ecology. The effects of HOV lanes on air quality are not well understood. To the extent that they induce more people to travel in fewer vehicles, they save gasoline and cut emissions. Additional congestion in mixed flow lanes can, however, lead to increased emissions.

In addressing these issues, it is helpful to develop positioning statements capable of focusing marketing activities and developing realistic project expectations. A list of sample positioning statements culled from existing projects appears in the accompanying exhibit. These information capsules address the key selling points of an HOV system and provide a solid base for developing campaign materials and discussing an HOV project with elected officials, the news media, citizens, civic groups, and other audiences.

It is incumbent upon the HOV marketing team to shape accurate public expectations of what an HOV facility can and cannot accomplish. Stamm (1991) points out that:

C.CAMPAIGN OBJECTIVES AND STRATEGIES

3.IDENTIFYING KEY ISSUES

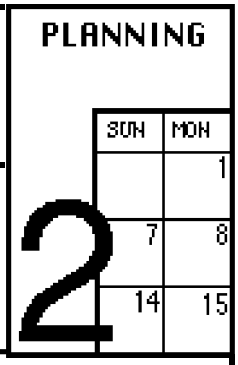


EXHIBIT: SAMPLE POSITIONING STATEMENTS

• CHANGING TRANSPORTATION SYSTEM
–Congestion is a fact of life in our community.
–Area growth places additional demands in our transportation network.
–New federal laws restrict adding conventional lanes to our freeways.

• HOV LANES BENEFIT RIDESHARING COMMUTERS
–HOV lanes save time and money for ridesharing commuters.
–HOV lanes reduce stress by providing a reliable, congestion-free ride.

• HOV LANES BENEFIT THE COMMUNITY
–HOV lanes improve freeway utilization by moving more people in fewer vehicles.
–Fewer vehicles can mean less gas consumption and less pollution.

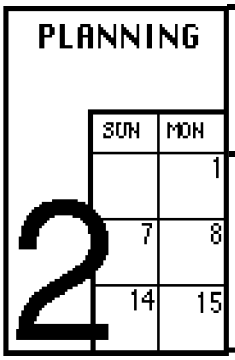
• HOV LANES CAN WORK
–HOV lanes have been successfully implemented throughout the U.S.
–HOV lanes provide a mobility option for those who can rideshare.
–HOV lanes have user-friendly support systems in the form of park-and-ride lots, ridematching services, employer programs.
–HOV lanes are just a part of the solution to transportation problems.

Sources:Adapted from"Positioning Statements, Hampton Roads HOV Systems" (VADOT, undated); (Young and Baird, 1994); and (Bloch, et al., 1994).

> "*Unrealistic public expectations can be extremely damaging to the credibility and morale of the organization undertaking the HOV project. They can also erode public confidence in the organization's ability to carry out it's mission. On the other hand, when the public (and the public's designated decision makers, such as elected officials, local jurisdictions staff, etc.) has been included in the planning process, expectations are much more likely to accurately reflect the goals, objectives and expected benefits and outcomes of the project."*

It is particularly important that HOV lanes not be billed as *the* solution to an area's transportation problems. Fuhs (1990) makes this point succinctly in summarizing the key advantages of HOV systems.

> "*…HOV facilities have proved cost effective for increasing mobility in urban freeway corridors. They can accommodate growth in travel demand, and they can serve the public with increased efficiency. However, they are not a "cure-all" for urban and suburban transportation problems. They are only part of the solution. Their use in corridors where justified can make a significant improvement for those who choose to take transit or to rideshare."*



C.CAMPAIGN OBJECTIVES AND STRATEGIES

4.DEFINING TARGET AUDIENCES

The question is not: **How do we reach the largest number of people with the same message?**
The question is: **How, when, where, and with what message do we communicate to these non-carpoolers with the best likelihood of becoming ridesharers?**

Simplistically, effective advertising and media communication involves creating customized messages and directing them appropriately and efficiently at carefully defined audiences. When embarking upon any public information campaign, it is crucial that the "public" be carefully defined. What is the primary audience? What are the major characteristics of members of that audience? How old are they? Where do they live? What do they do? In developing an HOV marketing program, it is crucial to *develop as detailed a profile as possible* of the primary and secondary audiences for the public outreach campaign. Effective HOV marketers should become sleuths--learning as much as possible about the persons they are trying to reach with campaign messages.

HOV marketing campaigns can be aimed at a number of target audiences. Potential target populations include:

- Corridor drivers
  - Non-carpoolers
  - Carpoolers
- Employers
- Corridor businesses
- Community groups
- Area residents
  - Corridor residents
  - Population at large
- Public agencies
- Decision-makers
- Media representatives

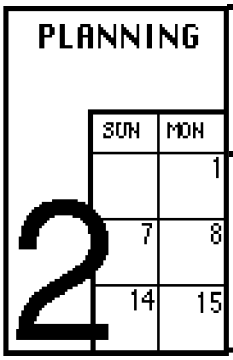
Part of the HOV marketing process involves defining key segments of the target audience and identifying their concerns so that they can be addressed openly and honestly. The market research procedures discussed in Section 2A can help both in defining the composition of target groups and identifying their concerns.

Probably the most important group to be targeted by an HOV marketing campaign contains those individuals who currently drive alone in the HOV corridor but who are likely candidates for future carpools. It is essential to recognize that this group is likely to represent a relatively small proportion of current drivers. A survey conducted in advance of HOV lanes on the Long Island Expressway (Bloch, et al., 1994) found that only twenty percent of existing expressway users were willing to consider carpooling as an option. Market research conducted prior to the opening of I-394 in Minneapolis determined that only ten percent of existing corridor users would consider switching to carpooling or busing when the Express Lanes were complete. (Strgar-Roscoe-Fausch, Inc., 1986). Females under the age of 35 represented the most likely target for this mode shift.

Market research can help to identify the population most likely to shift to carpooling and isolate the messages most likely to appeal to members of that population. The more information that marketers can obtain about their primary audience, the easier it is to target the media to reach that audience. Generally, the two most important audience characteristics for media purposes are age and gender. Other characteristics that may be of use in identifying members of the primary and secondary audience are place of employment, location of residence, household size, occupation, automobile access, income, and educational background. Once an audience profile is complete, material creation, media mix, and campaign targeting can be accomplished much more efficiently.

EXHIBIT:WHILE THE DRIVE-ALONE COMMUTER IS A PRIMARY HOV MARKETING TARGET, RELATIVELY FEW ARE WILLING TO SWITCH MODES

Source: Reprinted with permission from *Star Tribune*, Minneapolis



C.CAMPAIGN OBJECTIVES AND STRATEGIES

5.BUDGETING

The campaign strategy and media mix for an HOV marketing campaign will be directly related to the amount of available funds.

"*Half the money spent on advertising is wasted. The trouble is, nobody knows which half."*

The first questions asked by a commercial advertising agency when approached about handling a campaign are, "Who are you trying to reach?" and "How much money do you have?" The size of your budget determines the type of campaign you will be able to wage, and consequently guides all planning and implementing activities. If you're working with a million dollars to reach a target population, then you can consider substantial television production and placement activities. If you've got $40,000 for the same effort, you'd better plan on cultivating a great deal of in-kind support and cooperative ventures. By using materials from the public domain and relying exclusively on public service advertising, it is possible to conduct an effective campaign on a shoestring budget.

Regardless of the size of your available funds, your planning strategy should make extensive use of free or inexpensive marketing avenues: public service advertising; radio and television talk and magazine shows; donated outdoor advertising space; "piggyback" distribution of print materials; and in-kind fundraising activities.

To carry out the entire realm of activities required for an effective public outreach campaign, the full arsenal of media materials should be at your disposal. In a fully-rounded campaign, these include: television PSAs, radio PSAs, one- and two-color print ad slicks; premiums; press kits; billboards; basic information brochures; posters; flyers; newsletters; and speaker's bureaus. You should be able to prepare and distribute all of these items for a budget of under $150,000. As the budget amount increases, the quality of the products and the sphere of distribution can naturally increase. As the budget increases further, paid media placement can be considered.

The accompanying exhibit shows the size of the first year's marketing budgets for the HOV projects described in the case studies of Appendix A. These budgets range from negligible to $400,000. The size of the marketing budget is not necessarily correlated with the success of the project. One of the most successful projects listed, the San Francisco-Oakland Bay Bridge, received a negligible amount of marketing, while the failed Santa Monica Diamond Lanes had a marketing budget of $358,000. As has been noted, it's easy to sell a good project, but no amount of marketing can make a flawed HOV concept acceptable to the driving public.

The exhibit shows a wide variety of funding sources for HOV marketing activities. The Minnesota Department of Transportation used federal interstate monies to advertise the coming of the Sane Lane on I-394. CALTRANS combined an UMTA grant with state and county funding to publicize the Santa Monica Diamond Lanes. Seattle relied heavily on WSDOT funding to market the southern branch of HOV lanes on I-5.

The Washington State DOT (WSDOT) was one of the first State Transportation Agencies to recognize the importance of marketing activities in introducing and operating HOV projects. Their *Freeway HOV System Policy* states that "Education and marketing elements shall be included in project development and construction expense for each major HOV project." (WSDOT, 1992). In recent years, the Intermodal Surface Transportation Efficiency Act (ISTEA) has made federal highway funds available to encourage public involvement in state and local ridesharing projects.

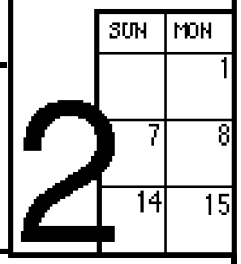
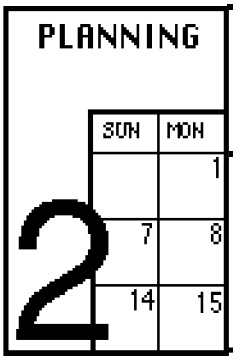


EXHIBIT:FIRST YEAR MARKETING BUDGETS FOR SAMPLE HOV PROJECTS

HOV PROJECT	YEAR	FIRST YEAR MARKETING BUDGET	FUNDING SOURCES
DULLES TOLL ROAD	1992	$12,000	VDOT
HAMPTON ROADS I-44	1986	40,000	VDOT
HAMPTON ROADS I-64	1992	300,000	FHWA, VDOT, State Transit
MINNESOTA I-394	1986	400,000	Federal Interstate Funding (90%); State (10%)
SAN FRANCISCO/OAKLAND BAY BRIDGE	1971	Negligible	CALTRANS
SANTA MONICA DIAMOND LANES	1976	358,000	UMTA (69%); State (14%); County (17%)
SEATTLE I-5	1991	41,530	WSDOT



C. CAMPAIGN OBJECTIVES AND STRATEGIES

6. HIRING PROFESSIONALS

It is best to let people who know what they are doing do what they do best.

"Every American man thinks that he can sing tenor, play shortstop for the Yankees and write ad copy."

Old Husband's Tale

There is a commonly held myth that hiring professional consultants is a waste of time and money. The myth is true only if you hire the wrong professionals for the wrong tasks. When marketing an HOV project, it is crucial to bring people on board who know what they are doing--those who possess the skills and resources to develop a successful campaign, promote the product, and educate the public. Webster's Dictionary describes the adjective "professional" as "showing a sound workman's command." In each marketing specialty, let the professional workmen carry out their duties to help you reach your marketing and campaign goals.

Difference between Advertising and Public Relations Agencies. Advertising agencies are best equipped to create, produce and place the various forms of paid media. Public relations firms specialize in obtaining press coverage and utilizing free media channels to generate public support for projects and products. The chart on the opposite page summarizes the specialties of each type of firm. Many agencies are "hybrid" organizations that can carry out the majority of advertising and public relations activities in-house for an HOV project. If the expertise does not exist internally at an agency, most have a working relationship with associated firms whose skills are complimentary.

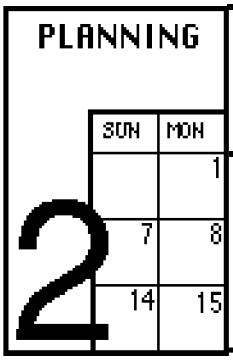
Selecting professional consultants. In selecting the appropriate agency or agencies, a number of processes can be utilized. The issuing of a Request for Proposal (RFP) for the desired services is the most common approach. One alternative is to issue an initial RFP for a firm or firms to design your marketing and information plan. You may wish to hire your selected consultants to carry out the marketing plan they developed, or you may find it best to issue a new RFP for the implementation of the plan. In any case, carefully specify the desired task areas of the project, the desired objectives of the campaign, the range of funds available, etc. Effective RFP evaluation schemes use a weighted average to compare submitted budgets --as opposed to a simple low bid process. Pay attention to the references of proposing firms, and thoroughly interview the account personnel who would be assigned to your HOV project to help assure compatibility. When selecting your media team, don't forget to look at philosophical credentials and conflicts of interest. A media team that believes in what you are trying to accomplish will do a better job at reaching your goals than an unmotivated but qualified one.

Advertising agencies have established relationships with media outlets and are savvy to placement contracts, schedules, etc. Many media buys can only be made by an advertising agency--not directly by the client. Bona fide advertising agencies receive a discount for placement usually equal to 15% of the published rates. You pay $100 for a spot, and the agency pays $85.00. Some agencies (if the placement budget is large enough to allow it) pay for the production of media spots from this discount, but it is more likely that the production costs will itemized in the agency budget and be paid directly by the client. In this case, the placement discount represents the agency's profit.

EXHIBIT: SPECIALTIES OF ADVERTISING AND PUBLIC RELATIONS FIRMS

SPECIALITIES OF ADVERTISING FIRMS	SPECIALTIES OF PUBLIC RELATIONS FIRMS
Market Research	Strategic Marketing Planning
Media Creation	Logo and ID Development
Graphic Design	Ongoing Media Relations
Logo and ID Development	Copywriting & Editing
Posters, Brochures, Collateral	Press Kits
Premiums/Special Items	Press Releases
Television Advertisements	Publicity
Radio Advertisements	Special Event Planning
Print (Newspaper and Magazine) Ads	Special Events
Packaging	Media Training
Direct Mail Pieces	Speech Writing
Premiums	Public Spokespersons
	Newsletters
Media Placement	Response to Public Inquiries
Television	Media Coverage Tracking
Radio	Talk Show Scheduling
Newspaper	
Magazine/Trade	
Outdoor	

Case Study References. As many sections of this manual illustrate, the initial design of an HOV project and the careful planning of the marketing and information campaigns are the most important determining factors in its marketing effectiveness. Advertising professionals helped to market Minnesota I-394 and Seattle I-5, both successful projects. As was shown in the case of the San Francisco-Oakland Bay Bridge HOV Lanes, however, a good project can market itself. The two most conspicuous failures in the case studies of Appendix A are the Santa Monica Diamond Lanes and the Dulles Toll Road HOV Lanes. Neither of these projects employed professional advetising agencies. However, it is unlikely that the best professional advertising firms or public relations experts could have saved these flawed projects, unless they were involved enough at the planning stages to have influenced design decisions.



C. CAMPAIGN OBJECTIVES AND STRATEGIES

7. SELECTING MEDIA CHANNELS

A good media mix for an HOV project marketing and informational campaign utilizes all the various paid and public service media channels available--with final selections made on the basis of the costs and benefits of each in relationship to the available budget.

Major Media Channels. The media channels which can be utilized by an HOV project for marketing and informational purposes are similar to those for corporate marketers, with public service channels thrown into the mix. They include: radio, television, newspaper and periodical advertising; posters, brochures, newsletters and direct mail pieces; outdoor advertising, roadsign signs, bus-side and interior transit advertising; premiums; outreach videos and electronic communications. Those channels which offer "free" space or time in some measure to public service projects include radio, television and billboards. The chart on the opposite page shows some disadvantages and advantages of each type of media channel for HOV project use. More specific discussions of each type of media may be found in Sections 2D and 3B.

Selecting the Media Mix. The selection of a media mix and the prioritization of certain media channels is dependent upon three major factors: the size and makeup of the media market; the available budget; and the nature of the HOV project. The pie-chart below presents a breakdown of a generic media budget for an HOV project, Please consider it as just a template for how a budget could prioritize the media mix of a project.

Experience in Other Projects. A brief summary of media mixes in some other projects should prove helpful to HOV project planners. A major rideshare advertising campaign in Los Angeles in 1993 involved more than $4 million of advertising, with television, radio and outdoor advertising emphasized. In that campaign, 96% of adults aged 25-54 were exposed to an average of 167 messages each. A much more modestly budgeted project, the Minnesota I-394 campaign spent its annual marketing budget of roughly $400,000 to produce a radio spot, a billboard, newspaper ads, bus-side advertising, a newsletter, commuter guides and a campaign poster. The Seattle I-5 campaign developed almost an exactly similar media mix, with a further emphasis on premiums and live PSA scripts for radio and television stations. Virginia's first-phase Route 44 project budgeted $40,000 for a brochure, a two-page newspaper ad and an instructional video. The Second Phase mix added roadside signs, promotional tie-ins, sponsorships of radio traffic reports, and extensive public outreach media activities. The comprehensive media plan for the Long Island Expressway project was divided into three levels of marketing and informational activities, with the top level of budgeting including paid radio and television ads and the printing of newspaper supplements to be included in the papers of corridor residents.

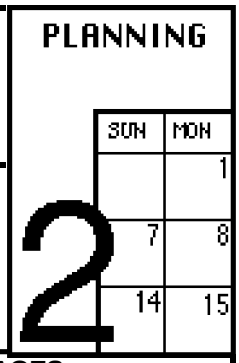
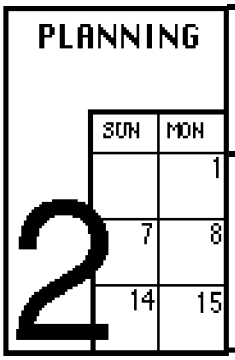


EXHIBIT: ADVANTAGES AND DISADVANTAGES OF POTENTIAL HOV MEDIA CHANNELS

MEDIA CHANNEL	DISADVANTAGES	ADVANTAGES
PUBLIC SERVICE RADIO	Infrequency of Broadcasts Scheduling of Airtime Limited Number of Outlets Run	Free Air Time Can Be Live Reads Production Economies
PAID RADIO	Placement Expense	Highly Targeted Traffic/News Sponsorships Production Economies Live Reads/Personalization
TV PSAs	Production Expense Broadcast Times	Free Air Time
PAID TV	Placement Expense Station Break Positioning	Highly Targeted Association with Programming Audience Viewership
DIRECT MAIL	"Junk Mail" Syndrome	Distribution Economies Highly Targeted
PAID BILLBOARDS	Production Expense Rental Expense	Specific Placement Illumination/Etc. Controlled Scheduling
DONATED BILLBOARDS	Production Expense Posting Expense Location and Schedule Uncertainty	Free Rental Space Widespread Exposure
NEWSPAPER ADS	Placement Expense Positioning within Newspaper Proliferation of Ads	Placement Positioning Credibility Commuter Readership
TRANSIT ADS	Placement Expense Surface Street Routes Interior Ads Preach to the Choir	Hits Them Where They Drive Emphasizes Public Transit Exterior Ads Wide Exposure
BROCHURES	Design & Printing Expense	Highly Informative Multiplicity of Information
POSTERS	Production Expense	Long Shelf Life Reinforces Campaign ID
NEWSLETTERS	Necessity of Repeated Mailings	Accepted Format Good for Direct Mail Breadth/Credibility
OUTREACH VIDEO	Cost of Development/Production Perception of "Expensive" Media	Multiple Public Uses Project Credibility Public Familiarity w/Format
ROADSIDE SIGNAGE	Expense/Installation & Reflectivity	Controlled Placement Appropriate Location
PREMIUMS	Wastage If Not Used	Good ID Reinforcement Distribution Channels



C. CAMPAIGN OBJECTIVES AND STRATEGIES

8. SCHEDULING

HOV marketing activities should begin as early as possible in the project planning stages, peak at the time the project opens, and continue over the life of the project.

Marketing activities surrounding HOV facilities can be divided into three separate phases, covering (1) Project planning; (2) Project opening; and (3) Ongoing project operations.

The accompanying exhibit summarizes the key marketing objectives formulated by the team responsible for publicizing the I-394 Express Lane in Minneapolis, along with the campaign strategies and tactics used to achieve these objectives.

Project Planning. The HOV marketing process should begin as early as possible in the project planning stages with constituency building activities and a review of the project's selling points and shortcomings from a public relations standpoint. Too often in the past, marketing personnel have been excluded from the inner circle of project planners until the facility is nearing completion and it's time to try to fill the lanes with ridesharers. As a result, many opportunities for public participation in the planning process are lost, and these lost opportunities can turn into marketing problems when the project is implemented. Potential marketing problems can often be identified and headed off by including marketing personnel on planning and design teams.

After polling a number of engineers, planners, marketers, and administrators to find out what they thought about a variety of HOV marketing issues, Stamm (1991) concluded that

> "*It appears that those who spend time trying to persuade commuters to leave their single occupant vehicles behind for life in the HOV lane (or sane lane, or diamond lane, or whatever the facility may be) need to consider yet another market--the engineers, planners and administrators who have ultimate oversight authority of HOV projects. So that they, too, will be invited to join the 'inner-circle,' HOV marketing professionals need to heighten the awareness and understanding of the value of marketing as part of the HOV planning process."*

Project Opening. The concentration of marketing activities around the opening of an HOV project represents the best understood and usually the best executed portion of the HOV marketing process. This phase calls for the careful orchestration of materials and events designed to announce the opening, advertise the benefits of ridesharing, and entice commuters to try carpooling or transit riding. The marshalling of marketing activities about an identifiable event, the project opening, most closely resembles traditional advertising promotions and can include such familiar activities as calendar count-downs, media blitzes, ribbon-cuttings, press tours and public speeches. A detailed treatment of the marketing activities surrounding the opening of HOV lanes can be found in the Seattle I-5 Case Study of Appendix A.

Ongoing Maintenance. HOV marketing should not stop once a facility has opened. Marketing should be an ongoing part of project operations, tracking the advantages of lane use, advertising support services such as park-and-ride lots or ridematching programs, answering public criticism, and creating realistic expectations for the role of HOV facilities in the modern transportation network.

The accompanying exhibit provides an example of the types of strategies which can be employed to achieve the marketing objectives identified at each stage of an HOV project. The third column lists a variety of tactics reflecting these strategies. Typically, these tactics consist of marketing materials (project logos, newsletters, print ads, radio ads, press kits, etc.) aimed at a particular segment of the target audience. The following section discusses these materials in more detail.

C.CAMPAIGN OBJECTIVES AND STRATEGIES

8.SCHEDULING

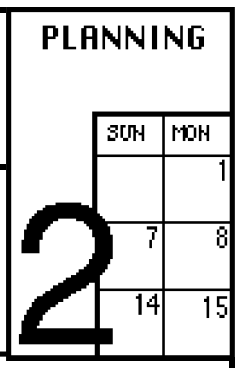


EXHIBIT:SAMPLE PHASING OF MARKETING ACTIVITIES MINNEAPOLIS I-394

PLANNING PHASE

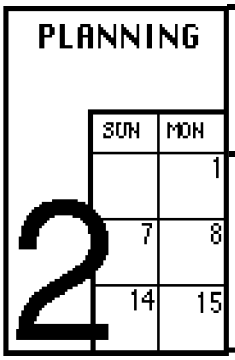
OBJECTIVES	STRATEGIES	TACTICS
Introduce project and long-term benefits Create awareness of Express Lane signage Address construction problems Introduce I-394 response center as information clearinghouse	Two-month mass media blitz Paid and non-paid advertising Target special interest groups (law enforcement, legislators, corridor businesses) Set up telephone response center Develop database	Send brochure with map to corridor households Quarterly newsletters Full-page newspaper ads Corridor billboards Radio spots during drive time Information meetings for special interest groups and media Create logo for I-394 connection

GRAND OPENING PHASE

OBJECTIVES	STRATEGIES	TACTICS
Announce opening Advertise benefits Track time savings Create awareness of downtown garages	Two-month mass media blitz Paid and non-paid advertising Target corporate support Develop project identity Develop Express Lane jingle	Heavy newspaper and radio advertising One-time direct mail piece to downtown employers Advance media tour Grand opening ceremony Provide hourly Express Lane status reports on traffic advisory radio shows Schedule weekly, planned news stories Use newsletter to disseminate garage information Produce press kits

ONGOING MAINTENANCE PHASE

OBJECTIVES	STRATEGIES	TACTICS
Increase lane usage by 5-10% per year Create awareness of park-and-ride lots Fill available downtown garage space Educate public in HOV system use Create realistic expectations	Update lane performance data Target corridor commuters, residences, and businesses Use print and broacast media to position lanes as an integrated transportation system Design special slide show Update database Hold HOV marketing workshop	Regular traffic advisories Continue quarterly newsletters Radio campaign featuring Express Lane jingle Use suburban newspapers to reach likely corridor users Update press kits



D.MARKETING MATERIALS

1.OVERVIEW

A wide variety of print and electronics marketing materials can be employed in HOV campaigns. Whenever possible, all materials should be unified through a memorable logo, slogan, or symbol.

This section addresses the variety of materials which can be employed in HOV marketing campaigns.

Range and Content. The accompanying exhibit displays the range of potential HOV marketing materials, along with an indication of the content which can be conveyed most easily through the materials and the likely target audience. Printed materials include brochures, newsletters, flyers, newspaper and magazine ads, and posters. Electronic media channels include radio and television spots, while outdoor advertising formats include roadside signs and billboards. A wide variety of premiums such as key fobs, bumperstrips, post-it notes, balloons, matchbooks, coffee mugs, and jam jars have also been used to encourage the use of HOV lanes. Subsequent subsections consider each of these materials in detail, using examples from existing or past campaigns whenever possible.

Thematic and Graphic Consistency. Most effective corporate advertising campaigns use, at a minimum, two primary unifying elements: (1) a slogan, and (2) the company's graphic logo. Both of these elements are customarily used in combination on *all* media products. This policy is not simply a current fad, it is a tried and true approach to building and maintaining a strong public image. The IBM logo, the shell of Shell Oil, "Fly the Friendly Skies," "This Bud's for You"--most people will instantly recognize these logos or statements and form an immediate association in their minds. In developing campaign materials, HOV marketers should strive to create the same consistency of program identity and graphics.

The key to achieving consistency in developing marketing materials is to translate program goals into an easily recognizable *theme* (both verbal and graphic) which will serve as a cornerstone for the media efforts. First, the project should be given a "public" title. This title should be brief and accurate. Research has shown that few drivers refer to carpool lanes as HOV lanes. Many members of the public do not even recognize the acronym. The public is much more likely to understand and identify with more descriptive titles such as the Sane Lane (the early title for Minneapolis I-394), Express Lanes (Minneapolis, San Diego and others), Diamond Lanes (Santa Monica and others), or Transitways (Houston).

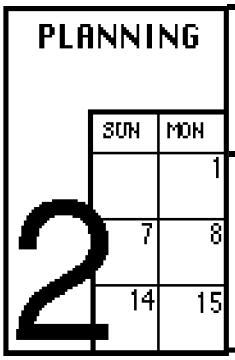
Once a suitable title has been found for the project, a professional designer should create a logo (title with accompanying image) or logo type (title in a unique style or rendering). This logo should be used to unify all campaign materials: letterheads, press releases, print and billboard art, television PSAs, etc. The logo should be designed to be appropriate for one- and two-color renditions, and, in some cases, full-color applications. Not every HOV project needs a title, symbol, or slogan, but they can be extremely helpful in conveying key themes to the public. For example, marketing materials on the I-394 project were unified through the use of a single logo showing a construction worker replacing the old Highway 12 sign with a new I-394 standard (shown at the right).

D.MARKETING MATERIALS

1.OVERVIEW

EXHIBIT:CONTENT AND TARGET AUDIENCE FOR COMMON HOV MARKETING MATERIALS

MARKETING MATERIALS	TYPICAL CONTENT	TYPICAL TARGET
BROCHURES	HOV Rules Project Map Common Qs and As Ridesharing Advantages Park-and-Ride Lot Locations	Targeted corridor/residents area Area businesses Community groups Media Representatives
NEWSLETTERS	Project Map Survey Findings Common Qs and As Construction Information Legislative Information Performance Data Ridesharing Advantages Park-and-Ride Lot Locations	Corridor residents Corridor businesses Corridor drivers Community groups Media representatives
FLYERS	Project Map Construction Information Ridesharing Advantages Project Schedule Opening Ceremonies Park-and-Ride Lot Locations	Targeted corridor residents Corridor businesses Community groups Transit riders Corridor drivers
PRINT ADS	Ridesharing Advantages Slogans Key Phone Numbers Project Schedule	Targeted area residents
POSTERS	Slogans Key Phone Numbers	Downtown businesses Park-and-ride lots
RADIO SPOTS	Ridesharing Advantages Project Schedule	Auto drivers and passengers Targeted area residents
TELEVISION SPOTS	Ridesharing Advantages Project Schedule	Targeted area residents
ROADSIDE SIGNS	Start-Up Date Occupancy Requirements Short Jingles Key Phone Numbers	Corridor users
BILLBOARDS	Start-Up Date Occupancy Requirements Key Phone Numbers	Corridor users
PREMIUMS – Bumperstrips – Post-It Notes – Mugs – Jam Jars	Slogans Key Phone Numbers Project Logo	Targeted employees



D.MARKETING MATERIALS

2.BROCHURES

Attractive brochures are effective vehicles for explaining project background, showing lane alignment, answering frequently asked questions, clarifying lane utilization requirements, and providing ridesharing and transit information.

Brochures describing the project and its use are a staple marketing tool that can be used to communicate with all segments of the public, as well as representatives of the political, judicial and business communities.

Format. The most popular format for HOV marketing brochures is the gate-fold or accordion-fold brochure which folds down into 3-1/2" by 8-1/2" panels. Brochures most often contain six or eight panels, but can be larger. Minnesota DOT produced a 24-panel fold-down *Commuters Guide* to the I-394 Express Lanes, while the Washington State DOT produced a 22-page booklet of answers to common HOV questions (see Exhibit). While the number of panels is flexible, the fold-down size fits both a number ten mailing envelope and common literature holders, so the brochures can easily be mailed out in response to requests for information and included in information racks at DMV offices, AAA offices, transit information stalls, rideshare centers, employer bulletin boards, and similar distribution points.

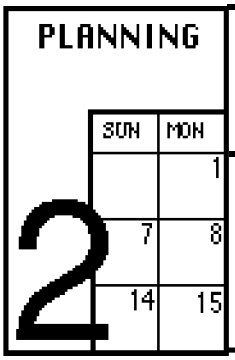
Content. Project brochures should contain general information, attractively presented that is designed for a long shelf life. Contents of existing brochures include

- Project maps
- HOV rules
- Arguments for ridesharing
- Transit information
- Background information
- Park-and-Ride Lot locations
- Common questions and answers
- Ridematching applications
- Information numbers

To ensure a long shelf life, time-dated material such as construction information, project schedule and transit timetables should generally not be included in the project brochure. This information is better handled in newsletters and ad-hoc flyers.

Distribution. As the primary campaign information piece, the marketing brochure should be designed for mass production and distribution. It will have literally hundreds of uses and can be handed out at public meetings, included in press kits, mailed to members of the target audience, forwarded in response to information requests, inserted in information display racks, and provided to legislators, business leaders, and members of the judiciary.

EXHIBIT:SAMPLE PAGES FROM HOV SYSTEM BROCHURE PREPARED BY THE WASHINGTON STATE DOT



D.MARKETING MATERIALS

3.NEWSLETTERS

Regular newsletters can be used to keep the public informed regarding route alignments, construction schedules, legislative changes, survey results, transit timetables, ongoing system performance, and other matters of interest.

A project newsletter is an effective marketing tool for communicating timely information on a variety of issues. As a regular (or even irregular) publication, it has more flexibility than a brochure, and can be used to update the public regarding changes in project schedules, pertinent legislation, and system performance.

Content. A project newsletter provides a forum for addressing a number of issues in a timely fashion. It can educate readers regarding the planning process, inform them of changes in construction schedules, announce the opening of park-and-ride lots and other support facilities, publish transit timetables, and report the findings of surveys and traffic counts. Newsletters also provide a mechanism for publicly recognizing project participation by constituency groups and allied agencies. Finally, newsletters can be used to correct misapprehensions and ensure that accurate public expectations are maintained regarding project scope and performance.

Frequency. A number of State Departments of Transportation have produced HOV project newsletters. These include Washington, Tennessee, and Minnesota (see Exhibit). Other State DOTs (i.e., CALTRANS) regularly produce newsletters which include HOV news. Regularly scheduled newsletters tend to be produced on a quarterly basis. Alternatively, newsletters can be timed to coincide with project milestones.

Distribution. The project newsletter should receive wide distribution to corridor residents, key employers, community groups, media representatives, transit riders, and affected drivers. In short, nearly everyone on the database mailing list. Regarding distribution, Stamm (1991) suggests that

> "*Project teams should look to partnering organiations for assistance in newsletter distribution. Transit agencies and local jurisdictions are a good starting point. They can put newsletters aboard their buses, distribute them to their employees, and place them in customer waiting areas. Elected officials may want to insert newsletters in publications they send to their constituents.*"

D.MARKETING MATERIALS

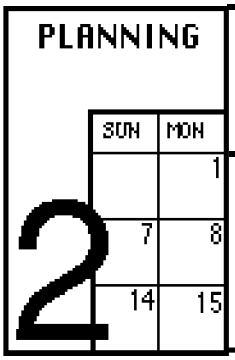
3.NEWSLETTERS

PLANNING

SUN	MON
	1
7	8
14	15

2

EXHIBIT:SAMPLE PAGE FROM THE NEWSLETTER "I-394 EXPRESSIONS"



D.MARKETING MATERIALS

4.FLYERS

Single-sheet flyers can be used to define project limits, provide construction updates, circulate general ridesharing information, and announce opening day celebrations and other special events.

Content. Single-sheet flyers are easy to design and reproduce, and can be used to supply the public with timely, up-to-the-minute information on construction progress, special events, temporary lane closings, and public meetings. They also provide a handy format for fact sheets covering a variety of topics such as HOV background, ridesharing benefits, fines for lane violations, and legislative requirements.

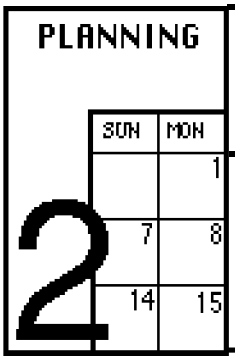
Distribution. Flyers can be backed with mailing information or mailed in one-sheet "shells" imprinted with the project logo, information number, and return address. They can also be handed out at park-and-ride lots, transit stations, ridesharing events, metered on-ramps, public meetings, office centers, and displayed in information racks at a variety of locations. They are typically aimed at specific segments of the commuting population.

D.MARKETING MATERIALS

4.FLYERS

PLANNING

EXHIBIT:SAMPLE FLYER



D.MARKETING MATERIALS

5.POSTERS AND PRINT ADS

Posters can help keep the project image before the public and serve as a continuing reminder of the opportunity for ridesharing.

Posters provide good visibility for public information campaigns. Once they have gone up, they continue to deliver lasting impressions to target audiences over time.

Content. To be effective, posters and print ads must be graphically appealing and draw in the audience for the marketing mesage. A good poster or ad should provide a "quick take" of the primary campaign message--attracting the desired audience, convincing them to read the message, providing them with a well-defined action item, motivating them to take the desired action, and leaving them with a positive feeling about what they've seen. Sentiment or humor can help to attract an audience, but sentiment or humor alone won't make a successful poster.

Posters and print ads can carry a number of HOV marketing messages effectively. Through a quick visual take they can convey ridesharing advantages, slogans, key phone numbers, and project identification. All posters and print ads should carry the project logo linking them with other campaign materials.

Posters should be approximately 18" x 24" in size--large enough to attract attention and do the job, but not so large as to discourage posting in locations where wall space or display room is in demand. It is often desirable to produce posters in two different sizes with a smaller size for bulletin boards and other space-limited locations. Even where space is not limited, posters must be sufficiently attractive to appeal to those responsible for posting them.

Distribution. Posters and print ads can be targeted at specific area residents or aimed at a more general audience. Typical locations for posters might include downtown businesses, transit stations, park-and-ride lots, shopping malls, high school driver's ed classes, parking garages, and such public locales as DMV offices and community centers.

D.MARKETING MATERIALS

5.POSTERS AND PRINT ADS

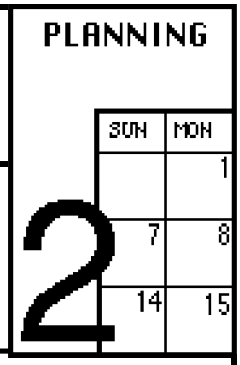
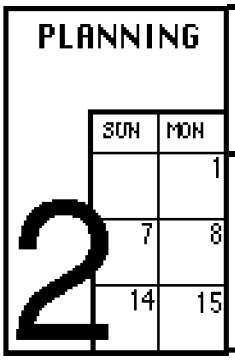


EXHIBIT:PRINT ART FROM ORANGE COUNTY HOV AD



D. MARKETING MATERIALS

6. NEWSPAPER ADVERTISEMENTS

While project personnel should attempt to create newsworthy events which will generate newspaper coverage, the purchasing of paid newspaper advertising does not usually represent an effective use of funds in a public information campaign.

In general, paid newspaper advertising should play a relatively minor role in the media mix of an HOV marketing campaign. This is not to say that newspaper advertising cannot be used effedtively in the right circumstances. Compared to other media channels available for promoting public service campaigns, however, newspaper advertising does not rank very high as an attention-getter or an effective use of resources.

Most newspapers do not provide display space free for public service campaigns and feel that they best serve the public interest by *covering* projects and events of public interest. They can devote more space and garner more attention in an editorial context than they might by donating advertising space. One strategy for involving newspapers in a public information campaign, then, is to generate newsworthy activities which will attract newspaper coverage. This is a far more effective, and more convincing, strategy than purchasing advertising space. Most newspapers will also gladly include notices of a public outreach campaign's events or activities in the community billboard or weekly schedule sections.

One of the negative aspects of paid newspaper advertising is the "fall-off" from full readership to readership of a particular advertisement. It may be that 200,000 people, for example, read a newspaper, of which 120,000 may look at a particular section and 80,000 at a particular page. Half of the 80,000 might spot an HOV marketing advertisement and 10,000 might peruse it. This may be a harsh example, but it is nevertheless true that placement costs are relatively high for an audience which is difficult to target effectively and is significantly lower than the total newspaper's readership.

From the standpoint of these guidelines, newspaper advertising just doesn't seem to offer the right vehicle for a public service campaign, particularly a narrowly targeted HOV marketing campaign. Newspaper advertising is extremely useful for retail purposes--advertising sales and products and services. But a large proportion of the population does not read newspapers, and it is a tall task to motivate those that do with the types of messages that would be created for a public education campaign.

There are a few specific instances in which newspaper advertising might offer a good use of funds for an HOV marketing campaign. An exception to the general rule could be made when the primary purpose of the campaign is to inform the general population of a single message--such as the availability of a common 800 number for rideshare matching, or the location of public meetings. These simple and straightforward messages can be effectively conveyed in a newspaper advertising program. Newspaper advertising can also be a cost-effective addition to an HOV marketing campaign if the public agency can find a private partner who is willing to assume the lion's share of the advertising expense in return for the name recognition afforded the partner's products or services. The accompanying exhibit provides an example of an HOV message embedded in an automobile advertisement placed in Houston newspapers.

D. MARKETING MATERIALS

6. NEWSPAPER ADVERTISEMENTS

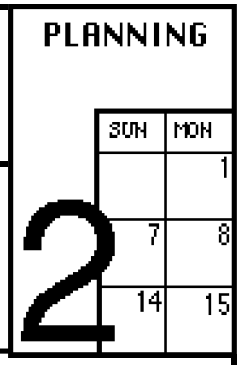
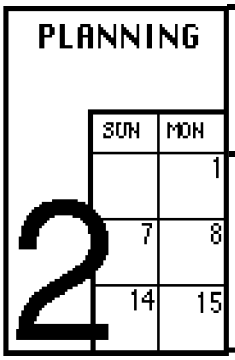


EXHIBIT:SAMPLE NEWSPAPER AD



D. MARKETING MATERIALS

7. RADIO SPOTS

Promotional material read by traffic reporters as part of their regular programs not only reaches drivers during their commute time, but also improves the reporters' perspective regarding preferential lanes.

Advantages of Radio. Radio offers several advantages as a communications medium for an HOV marketing campaign. It is relatively inexpensive, is easily targeted, versatile, personal, and reaches a captive audience of drivers at a time when they are experiencing the congestion HOV lanes are designed to relieve.

Direct production costs for a radio service campaign are relatively inexpensive. They can range anywhere from a few hundred to a few thousand dollars, depending on the sophistication of the concept, announcing fees, and the use of paid talent. The cost range is one-tenth to one-twentieth the cost of producing a television message of comparable length.

Demographic profiles for radio station audiences tend to be more heavily segmented and better defined than those for television stations. As a result, specific market segments are more easily targeted through radio messages.

Radio is versatile. One doesn't need to be a fan of old-time radio to appreciate the ability of the spoken word and sound effects to produce strong imagery and provoke the listener's imagination. The radio format allows a tremendous amount of latitude in the creative process, since radio broadcasts can evoke images which would be far too expensive to produce on television. As an example, a sound effect of screeching brakes and an automobile accident (cost $50) can create the same understanding in the radio listener that would require tens of thousands of dollars to create in video.

Radio broadcasts lend themselves to personalized messages more effectively than other types of media. If you're driving in your car and hear a radio message introduced by an on-air personality, it *seems* to be more personally directed at you than a similar message appearing on television or in the newspapers.

A good portion of the radio audience is a *captive* audience. Particularly during commute times, your message may well have the undivided attention of the listener. There is no better time to advertise the benefits of HOV lanes than the commute period, when solo drivers are stuck in traffic.

Live Reads by Traffic Reporters. HOV marketers report that one of the most effective means of reaching the audience of drive-alone commuters is through live on-the-air "reads" by traffic reporters. These messages not only reach drivers during their commute (and sound like reporting rather than the public service messages) but also improve the reporters' views of HOV lanes. Marketers in Minneapolis, Seattle, and Hampton Roads all realized great success with this approach.

Public Service Announcements. More traditional public service announcements (PSAs) can also represent an effective means of radio communication. Creative radio advertising can be produced for relatively small budgets. Peer-group testimonials, pop music beds, production music beds, clever dialogue, celebrity narrators, announcer narratives, and a host of other styles and techniques can be most effective. In Minneapolis, the "Sane Lane" jingle used to introduce the HOV lanes on I-394 was so effective that local residents continued to refer to the Sane Lane long after marketing efforts had been launched to change the identity of the project to Express Lane.

D.MARKETING MATERIALS

7.RADIO SPOTS

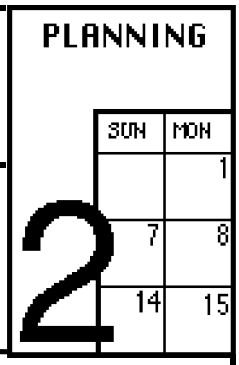
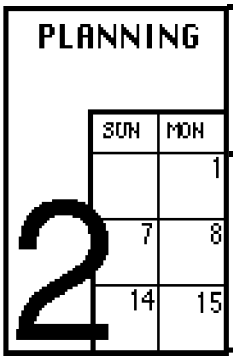


EXHIBIT:TRAFFIC REPORTERS PROVIDE AN EXCELLENT CHANNEL FOR RADIO SPOTS

It is generally productive to supply radio stations with different lengths of spots--usually a 60-second, 30-second, 20-second and 10-second treatment of each PSA. Radio station policy regarding acceptance of lengths of pre-recorded spots varies greatly from station to station and from market to market. So it's best to give station personnel a choice on the same reel or cassette. Given a choice, 60-second spots are preferred, simply because the length provides more time to be creative, establish the premise of the ad, and steal more attention from the audience.

Radio outlets are not obligated to broadcast *any* public service messages at this time. On the other hand, most do, and most like to demonstrate a spirit of community involvement, especially around the time their own broadcast license is up for renewal. And many stations are sincerely dedicated to stressing public service promotions. These responsible stations can be effectively reached with a good package of ads and accompanying material. Half the battle in procuring public service air time is in convincing the public service directors to run your ads. There is tremendous turnover among public service directors, and many are beleaguered staffers who pore over the stacks of messages on their desk in the back of the building. In order to appeal to these people and get your spots into the rotation, the ads must be striking and appealing--deemed appropriate to the station's audience--and be judged as providing a legitimate local public service. Minneapolis and Seattle are among the municipalities which have produced creative radio PSAs as part of an HOV marketing campaign.



D.MARKETING MATERIALS

8.TELEVISION SPOTS

HOV marketing budgets typically cannot support the production and placement of paid TV advertising, but effective use can be made of local TV news shows, talk shows, and outreach videos.

In any public information campaign, careful consideration should be given to the role of television in the media mix. In major U.S. media markets, the average time a person spends watching television greatly exceeds the time spent listening to the radio, reading newspapers, or being exposed to other media channels, and research suggests that television is the media channel best remembered as a source of public service messages. Moreover, the television industry has historically been more supportive of public service advetising than other media channels.

While television is an economical means of reaching large audiences (most paid advertising if effectively researched and scheduled, can be placed for between $5 and $25 per viewing households), production costs can be daunting for a small marketing budget, and it is difficult to target a specific audience with public service TV ads. Even so, there are a variety of ways television can be useful in an HOV marketing program. In addition to public service spots, effective use can be made of TV news shows, talk shows, video news releases, and educational videos.

Public Service Announcements. The cost of producing a 30-second television spot can range from a few thousand dollars to over three hundred thousand dollars. While a television spot does not necessarily have to be expensive to be effective, many of the elements required to make a television spot *effective* often require considerable expense. Most nationally distributed commercial advertising spots currently cost between $150,000 and $300,000 to produce, and public service announcements must compete with these commercial spots for the viewer's attention. Many sophisticated public service announcements have been produced for a cost between $15,000 and $50,000. Since the cost of producing a 30-second TV spot can consume a significant portion of a local HOV lane marketing budget, it may be more effective to join with a statewide ridesharing agency to produce a spot that can receive broad distribution.

News Shows. One strategy for involving local TV stations in an HOV marketing campaign is to generate newsworthy activities which will attract the attention of local TV news shows. HOV lane openings are newsworthy events, and should receive wide coverage.

Talk Shows. Local talk shows and community affairs programs offer another opportunity to use TV to promote HOV lanes. To schedule talk show appearances, HOV marketing personnel should phone the show's producers directly and provide a clear idea of the proposed subject matter, speakers, and campaign aims.

Outreach Videos. As an alternative to (or in addition to) a 30-second public service announcement, a longer, five-to-ten-minute video presentation documenting the reasons for HOV lanes, the benefits of ridesharing, and the penalties for using the lanes illegally can serve a variety of functions. Such a video can serve as the core of outreach presentations to community groups; be used as a mail-out piece to institutions and organizations; and provide program material for newscasts and talk shows on VHF, UHF, and Cable TV stations. Outreach videos can be produced at relatively low cost using the "news magazine" format currently popular on TV. The accompanying exhibit contains some sample titles of public information videos on HOV topics produced by a variety of jurisdictions, along with the names of contacts able to provide information on each video's availability.

D.MARKETING MATERIALS

8.TELEVISION SPOTS

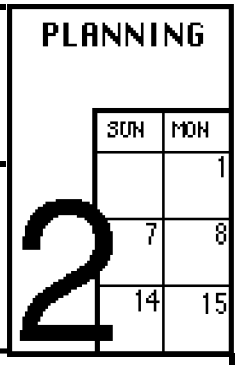
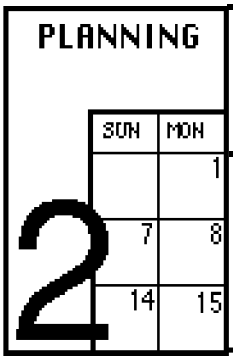


EXHIBIT:PUBLIC INFORMATION VIDEOS ON SELECTED HOV FACILITIES

TITLE	RUNNING TIME (MINIMUM)	CONTACT
"Making Carpool Lanes Work For You" (Five Versions: Statewide and Los Angeles, San Francisco, Sacramento, and San Diego Regions)	10:00	Mike Auslan, Public Information CALTRANS, (916) 654-2697
"Ramp Metering" (Five Versions)	10:00	Mike Auslan, Public Information CALTRANS, (916) 654-2697
"Traffic Management Plans" (Statewide)	10:00	Mike Auslan, Public Information CALTRANS, (916) 654-2697
"Tacoma Ramp Metering"	12:30	Heidi Stamm, Pacific Rim Resources WADOT, (206) 526-0559
"HOV Facilities: The High Occupancy Alternative"	19:04	Heidi Stamm, Pacific Rim Resources TRB HOV Systems Committee (916) 526-0559
"Hampton Roads HOV System"	12:51	Bill Cannell, Suffolk District VADOT, (804) 925-2584
"Transportation: Making Choices, Making a Difference"	8:00	Stacey Pruett, North Virginia District VADOT, (703) 934-7309
"Ground Control"	6:00	Roger Polson, Public Information TXDOT, (512) 463-8585
"I-394 Moving Into the Future"	11:30	Judy Rockvam, Library MNDOT, (612) 341-7505
"Vanpooling On Route"	30:00-60:00	Enza Pattison, Public Affairs BC Ministry of Transitways, (604) 387-7787
"High Occupancy Alternative"	19:00	Enza Pattison, Public Affairs BC Ministry of Transitways, (604) 387-7787
"Enjoy the Alternatives"	5:59	Lucy Unsworth, Project Director FLDOT, (305) 938-9222
"The Ottawa-Carleton Busways"	6:00	Ian Boyd, Transit Division Regonal Municipality of Ottawa-Carleton (613) 560-6001, Ext. 1717
"Hot to Ride the Bus"	10:00	Andrea Hahn, Public Information AZDOT, (602) 534-1804
"I-270 Maryland"		Heidi Van Luven, MDDOT (410) 333-1117



D. MARKETING MATERIALS

9. OUTDOOR ADVERTISING

Billboards, transit advertising, and roadside signs afford the campaign the opportunity of reaching drivers while they are actually traveling in HOV corridors.

Billboards. Billboards can be an effective channel for reaching targeted populations with public education messages dealing with construction, carpooling, and the coming of HOV lanes. There is little better way to reach drivers directly with timely messages than when they are actually on the road driving--billboard messages target the users of the routes in question and hit them "where they live." Several jurisdictions, notably Minneapolis and Seattle, have used billboards effectively to advise corridor drivers of the coming of HOV lanes.

Many billboard companies routinely offer a certain portion of their rentals to public agencies. You may find in your region that there is a billboard "pool" manager who deals with requests for donated billboard space. He or she may act as a broker with all of the local billboard companies to arrange for a posting of public service messages. Depending on the season or the local economy, there may be unrented billboard space which can be offered for public service campaigns.

Budget permitting, a certain amount of paid billboard placement might be able to leverage additional donated postings over those available in the absence of any purchased billboard space.

Transit Advertising. Bus-side advertising is another form of outdoor advertising which can be used effectively in HOV marketing efforts. HOV marketeers in Seattle purchased advertising space on the sides of buses used on the I-5 corridor to reinforce the message sent to cars stuck in the mixed flow lanes as buses sped by them.

Roadside Advertising. The Virginia Department of Transportation (VDOT) used a series of roadside signs carrying punchy poetry similar to the old Burma Shave jingles to advertise the coming of HOV lanes in Hampton Roads and on the Dulles Toll Road. Two examples of jingles used in Hampton Roads appear below.

A similar approach had been suggested for the changeable message signs on the Santa Monica Freeway (see Exhibit). While the Burma Shave jingles were widely praised in Hampton Roads, a similar approach was criticized on thte Dulles Toll Road.

D. MARKETING MATERIALS

9. OUTDOOR ADVERTISING

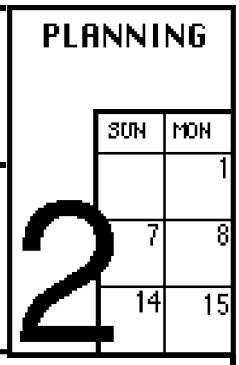
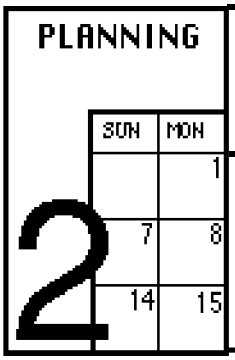


EXHIBIT: DIAMOND LANE JINGLES SUGGESTED BY THE SOCIETY FOR THE PRESERVATION OF BURMA SHAVE SIGNS IN AMERICA

Erected a year before the HOV lanes were introduced, some of the early Dulles signs were criticized as being too vague. One such series carried the poem:

After HOV restrictions had been rescinded on the Dulles Toll Road, the signs carried a new set of messages, one of which read:

VDOT was criticized in the press for using public funds to construct and manage the signs. The different reception accorded the roadside jingles in the successful Hampton Roads project and the unsuccessful Dulles Access Road project is another manifestation of the observation that it's easy to market a good product, but that no amount of marketing can salvage a flawed concept. In the case of HOV lanes, media attacks can sour the public on every aspect of a flawed project, from the marketing to the management.



D. MARKETING MATERIALS

10. OFFICIAL SIGNING

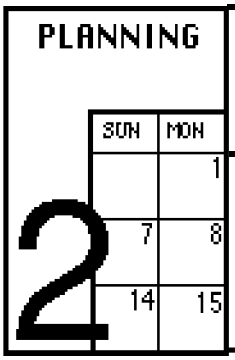
Official roadside signs provide marketing opportunities to post information regarding rideshare numbers, minimum fines, and HOV support facilities.

General Signing Guidelines. General signing and pavement marking requirements and guidelines for HOV facilities are contained in the Federal Highway Administration's Manual on Uniform Traffic Control Devices (MUTCD). Two sections specifically address preferential lanes: Section 2B-20, Preferential Lane Signing; and Section 3B-22, Preferential Lane Markings. Those sections establish requirements for (1) The regulatory nature of required signing; (2) The message format for the signing; and (3) The elongated diamond symbol to be used with both signing and pavement markings. Examples of Side- and Overhead-Mounted HOV signs from the MUTCD appear below.

Information Signing. Signings and markings for actual HOV projects are normally applied on a project-by-project basis following the principles of MUTCD. The use of roadside information signing following MUTCD guidelines provides a unique opportunity to send daily marketing messages to corridor drivers. Examples of informational signs with a marketing content appear below.

Support Facility Signing. Signing for HOV suppo

rt facilities such as transit stations and park-and-ride lots provide additional opportunities for constructing marketing messages along the right-of-way. Trailblazing signs directing drivers to these facilities can be liberally positioned along the right-of-way, so long as they conform to MUTCD guidelines. Some states permit the logo of the local transit agency or transportation department to be included on the signs. Examples of trailblazing signs for support facilities appear below.



D. MARKETING MATERIALS

11. PREMIUMS

Premiums incorporating the program logo can help to keep the project's image before the public. Bumperstrips are particularly valuable in this regard, while more personal items such as coffee mugs can serve as reminders for members of the working press.

The general term "premiums" incorporates the full realm of individual products, pamphlets, trinkets, and doodads that can be distributed to keep the name and/or slogan of a campaign in the public eye. Your home and office is undoubtedly littered with such premiums; calendars from the dry cleaners; digital clocks from *Sports Illustrated*; key fobs from the service station; paper weights from your insurance agents; a political button from a candidate for Sheriff, etc. Each of these premiums can do an effective job of keeping their sponsor's name in front of you on a regular basis. The selective use of premiums can be effective in HOV marketing campaigns, particularly in two areas: (1) for distribution to representatives of the press and community organizations; and (2) for outdoor "advertising" purposes in the form of bumperstrips, car shades, T-shirts, decals, and badges.

Coffee mugs and specially-imprinted desk items are good premiums to distribute to members of the press. They could be included with initial press kits or distributed with personal visits. These premiums have a way of sticking around and reminding the reporter or editor of your marketing message.

For the general public, bumperstrips can be a useful premium for public information campaigns. Bumperstrips provide an additional avenue for outdoor advertising, and research suggests that bumperstrips rank relatively high as a means of conveying traffic safety messages. On the other hand, research (Billheimer and Soloman, 1982) also suggests that small personal premiums such as matchbooks and key fobs are not generally recognized or remembered by the public at large.

Premiums should incorporate the program logo and/or slogan and, if possible, be somehow linked to the HOV marketing effort. Examples of premiums used in past HOV marketing and traffic safety campaigns appear below.

Traffic Jam Jars. Virginia DOT produced small jars of grape "Traffic Jam" as reminders of the congestion problem. These jars were given to business, government, media, and public opinion leaders who attend a half-day transportation conference of "jam sessions" designed to explore ways of solving the region's traffic problems. The invitations for the session echoed the Burma Shave jingles used to advertise the coming of Virginia's HOV lanes (See Section 2-D-9):

> We're all in this jam
> Like grapes in a bunch
> So join us for breakfast
> And be gone by lunch.

Post-It Notes. Seattle marketers used post-it notes to advertise the coming of the I-5 HOV lanes. These notes were distributed by janitorial services to desks in downtown office buildings and did double duty, reminding both the sender and receiver of the notes of the HOV message.

D. MARKETING MATERIALS

11. PREMIUMS

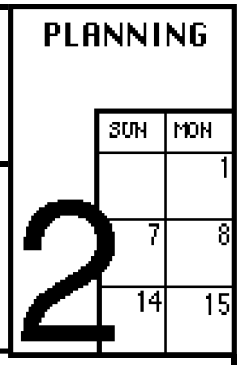


EXHIBIT: LITTERBAG FROM MINNESOTA DOT ADVERTISING THE COMING OF I-394

Litter Bags. Minnesota DOT developed litter bags advertising the coming of Express Lanes on I-394 (see Exhibit).

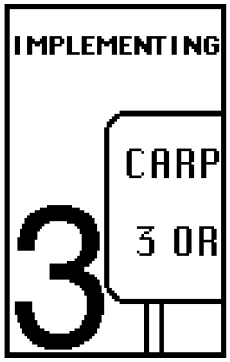
Calendars. Minnesota DOT also developed wall calendars which were handed out during the grand opening of I-394. Each month contained a view of the new express lanes and their supporting systems, along with a brief pitch for ridesharing. The expense of the calendar was defrayed by twelve business partners who each placed their logo on a calendar page.

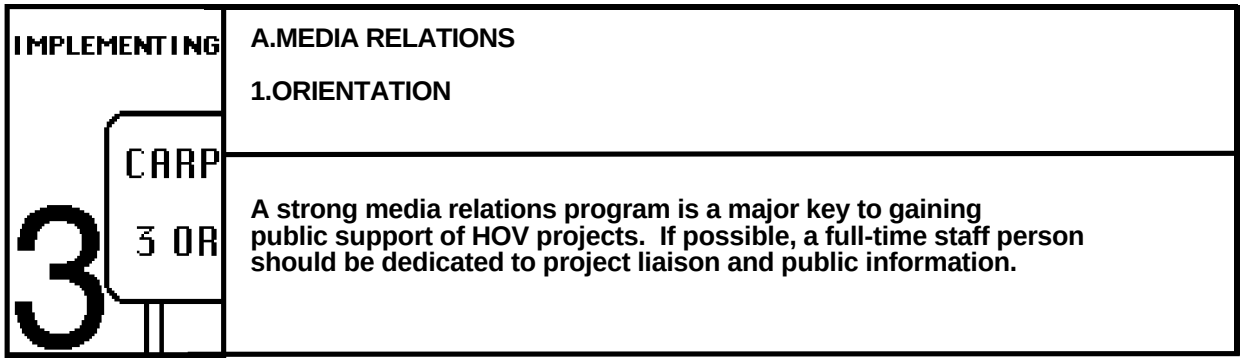
Car Shades. Folding cardboard sunscreens, or "car shades" make useful premiums in hot climates. They have been used successfully in promoting designated driver projects (Billheimer and Moore, 1987) and have a natural linkage with automobiles. Like bumperstrips, they provide a form of outdoor advertising when they appear in cars throughout the project area.

SECTION THREE

IMPLEMENTING

THE CAMPAIGN





"Good media relations are more important than advertising in ensuring project success."

Al Pint, Minnesota I-394 Corridor Manager

Overview. There is an old Latin phrase, still taught, to school children, "Vestis virum facit," roughly translated to mean "The clothes make the man." "Dress for Success" is still a best seller. "Image is Everything" is the advertising slogan for a popular camera. While we don't really believe that you can or should "judge a book by its cover," and will emphasize repeatedly that you should not try to make a "silk purse out of a sow's ear," the public perception of an HOV project is nevertheless a critical part of its success.

Like a newspaper photograph, which when observed closely is actually a pattern of dots, the sum total of all the project's coordinated media efforts will be the image that the public has of the reconstruction effort.

Understanding the needs and the problems of the media is one of the most important aspects of your media relations plan. When a reporter calls requesting information it is essential that he or she be dealt with candidly, accurately and promptly. Reporters are always under unreasonable deadline pressures. If you hedge, or fail to respond quickly it will be noted in their story. If you provide inflated self-praise, or try to cover up a real problem it will come back to haunt you and hurt the project, as it has in some noteworthy HOV project failures.

Primary Spokesperson. The necessity for a clear and single "voice" for a project is one of the most important reasons to assign and identify a single project spokesperson whenever possible. This person should be adept as a communicator, and be able to speak in an informed and helpful manner. He or she can become well-versed on the technical aspects of the project from project engineers, but need not, and perhaps should not, be a technical person himself or herself. The spokesperson becomes the focal point for press inquiries and public statements. Reporters and community organization leaders need to know who to call for information and answers. And having a single spokesperson helps avoid the perception on the part of the media that they are getting a bureaucratic runaround.

Accompanying Materials. Newspapers need information, charts, maps and photographs. Television needs pictures. Providing the television media with opportunities to collect footage, before and during HOV lane openings will make their jobs easier. If possible, provide the television reporters with "B-roll: footage" of traffic jams, smog, a shot of the Clean Air Act being signed by the President, a graphic chart that shows how many cars are likely to be taken off the road, etc. – all may end up in their coverage.

Lessons Learned from Other Projects. The appointment of a single I-394 Corridor Manager enabled MN/DOT to orchestrate the formal articulation of key messages and ensured that media representatives could get consistent, credible answers to questions as they arose. They provided the media with weekly press releases, a press kit, a press tour of the HOV lanes prior to the Grand Opening and made appearances on public affairs programs.

A.MEDIA RELATIONS

1. DOCUMENTATION

IMPLEMENTING

3

CARP

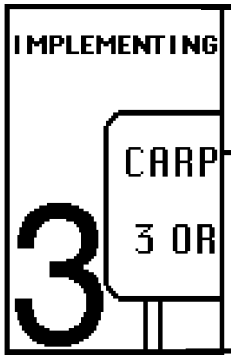
3 OR

EXHIBIT:IMAGE IS EVERYTHING

Reprinted with permission from
***Star Tribune*, Minneapolis**

As a result of these steps, the press and electronic media generally placed I-394 activities in a favorable light, reported ongoing developments accurately and generated positive news coverage for the project. On opening day, for example, the press staged a "race" along the length of the project between a carpool and a single occupant vehicle. The race was won handily by the car poolers.

In Santa Monica, planners predicted that there would be strong adverse public reaction to the conversion of mixed-flow lanes to the Diamond Lanes. And the in-house media team did try to provide public information about the positive aspects of the project. They had a well-funded and thorough marketing plan that included press conferences, newspaper ads, and the distribution of 120,000 brochures to the drivers at on-ramps. But following the disastrous opening day, participating agencies were on the defensive and many were pointing fingers at one another. Initial supporters of the concept found it politic to lay low. It was not until after two months of brutal media pounding that a professional media team was brought on board. Although they tried to generate support and rebutt some of the criticisms, it was much too late. As noted in the appendix case study (see Appendix A-4), it is unlikely that the best marketing campaign in the world could have saved the project.



A.MEDIA RELATIONS

2.PRESS KITS

Press kits containing samples of all media materials and suggestions for their integrated use can help promote both press coverage and community involvement.

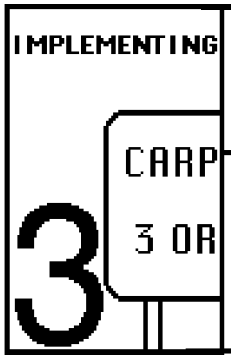
Orientation and Purposes. The process of preparing a comprehensive press kit can be a valuable exercise for HOV project marketing personnel. As the "bible" of campaign information, the HOV project press kit should be prepared with target audiences in mind. The primary use of the project press kit is for generating press coverage and serving as a resource for the reporters, editors, and assignment personnel at radio and television stations, newspapers and other periodicals. The secondary purpose is as an accessory to constituency building and the promotion of community involvement. Press kits should be scrupulously accurate. A good press kit adds credibility to the campaign--and provides valuable information to crucial audiences targeted by the project.

Contents. Although there are many different formats for press kits, we recommend a comprehensive organization of material that has something for everybody. The cover of the press kit should incorporate the project logo or primary ID and be attractive in design. Press kit covers can be printed up in advance, and then bound with internal information as the need arises. Press kits should include a table of contents, and perhaps first up a one- or two-page project summary. This summary should be a condensation of all the crucial information of a project: scheduling and timing, funding, agencies involved, corridor description, benefits of the project--and key motivational messages.

A question and answer (Q & A) section is an effective way of quickly and succinctly answering frequently asked questions. Anticipate questions from the press, community organizations and members of the public and put them into the Q & A format. (See Section 3-E-3 for sample questions from existing HOV projects.) Additional components of a good HOV project press kit could include: corridor maps, fact sheets on individual phases of a project; campaign clip art and/or clip ads for inclusion in press coverage or newsletters; project schedules; and agency contact people with their phone and fax numbers. Duplicate and bind the press kits in quantities appropriate for short term needs. It will be important to update the summaries, Q&A's and other sections on a frequent basis to keep the information current.

Distribution. The press kit can be made available for attendees at public hearings, press briefings, special events, and as a mail-out to leaders of community organizations, neighborhood associations and to those making inquiries via a project hotline or 800 number. During the initial phase of a project, key personnel should schedule appointments with reporters and organizational leaders from the campaign data base and hand the press kits out personally in face-to-face meetings.

EXHIBIT:PARTIAL CONTENTS OF VDOT PRESS KIT
ADVERTISING I-66 HOV LANES



A.MEDIA RELATIONS

3.PRESS RELEASES

Press releases should be succinct, accurate, and timely. They should be used sparingly to announce important project developments such as special events, lane openings, and construction timetables.

Format. Press releases should be succinctly worded, incorporating the basic elements of news writing. The effective press release should include: the letterhead of the issuing agency or HOV campaign (with logo), a good summary headline, the date of release, "For Immediate Release," the contact person(s) for the release with their phone, and perhaps their fax or pager numbers. The basic "who, what, where, why and when" of the release should be summarized in the initial two paragraphs of the release. Quotes from project or agency personnel can help to personalize the message. Most effective press releases do not exceed two pages in length. Fact sheets or additional data can be included as an appendix to a press release. The Associated Press Stylebook and other guides are valuable resources for writing press releases and news stories. Here again, the press release task should be left to those who do them best--either the on-project public liaison or the public relations consultants on board for the campaign.

Issuing Press Releases. Press releases with no crucial time value can be mailed first class to the appropriate recipients. On time-sensitive releases, you can send a facsimile transmission of the press release, and follow it up with a mailed hard copy. Many fax machines are now available which have a large programmable memory. Project communication offices can program in the fax numbers of key media personnel, and then send a single release simultaneously, after-hours, to the recipients. In every instance, it is good press releations protocol to follow up by phone with key recipients and ask if they've received the release and if they have any further questions.

Wire and News Services. There are a wide variety of news services in most media markets which serve as clearinghouses for other forms of electronic and print media. Announcements of special events or public hearings are especially appropriate notices to post on these news services--followed up by personal phone calls, of course.

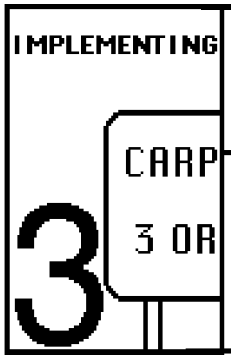
"*Your credibility is like your virginity--once you lose it, it's gone forever."*

Unattributed

Maintaining Credibility. Everything you put out in public in the form of a press release or other formal statement should be accurate and credible. Reporters and media outlets develop a sense of trust with project media representatives. If they're getting incomplete or inaccurate information, that sense of trust is disminished, and it becomes harder to generate positive coverage of the project. It's also important to avoid papering your contact's offices with press releases. Only issue press releases on important developments of a project--construction timetables, special events, lane openings, and the like. Also, avoid the "cry wolf" syndrome. There are enough pitfalls out there so that you don't need to be an alarmist or invent them.

Case Study References. The majority of HOV projects covered in the case studies of Appendix A used press releases primarily to announce the opening of new lanes or to announce special events. In the I-5 project in Seattle, the five major newspapers were targeted for coverage, and press releases were used to generate coverage as close to the lane opening as possible. In the Santa Monica project, CALTRANS sent out two press releases prior to the lane opening. In addition, the two participating bus lines also sent out three releases each during the week before the opening. These releases might have been better timed if they had been staggered so as not to deluge reporters with six press releases in the period of just a few days.

EXHIBIT:SAMPLE VDOT PRESS RELEASE ON I-66



A.MEDIA RELATIONS

4.PERSONNEL TRAINING

Project spokespersons who interact with radio, television and newspaper reporters should be well-prepared, presentable, and should receive advanced training in dealing with the media.

"*It usually takes me more than three weeks to prepare a good impromptu speech."*

Mark Twain

As is recommended in other sections of this manual, it is extremely important to engage a public spokersperson for an HOV project who is well-trained in media relations and who possesses strong communication skills. You wouldn't ask Peter Jennings to build a cloverleaf and shouldn't be surprised if project engineers don't sum things up as well as Peter does. Effective communication to large audiences via the printed or electronic media is a skill that requires experience and training. The key to good media presentations is to be accurate, articulate, succinct and non-detached. No easy task, and one which requires experience and training.

Training and Rehearsal. Even professional public relations spokespersons can benefit greatly from rehearsals and training. Prior to press events or media appearances, go through "dry runs" where the event or talk show is simulated. Prepare lists of expected questions from members of the press or program hosts and callers-in and respond to them, document the responses, then critique them for accuracy and positive PR values. We think it is helpful to anticipate "worst case scenarios," even though the worst may not ever occur. What are the most damaging questions you are likely to be asked, and how do you best respond to them in an accurate and self-effacing manner? If your spokespersons are well-prepared for the nasty questions, they will be well-equipped to respond to the friendly ones.

Appearance. Spokespersons should not only be able to speak well and respond intelligently to questions, they should look good. As public faces for the project, personnel who appear on the media become linked in the public mind with the project as a whole. A poorly dressed or groomed, paunchy spokesperson will give the project an image as being poorly dressed and paunchy itself. For television appearances and photo opportunities, project media personnel should wear conservative and attractive clothing, and avoid clothes which are highly patterned or clashing, and those which are red or blue (because of potential video and photographic difficulties).

Soundbites. Television and radio reporters, in particular, are looking for a good seven to ten second "soundbite." A soundbite is media jargon for a short, clear statement that answers the question or provides a description in a manner that people can clearly and quickly understsand. Bartlett's Quotations is filled with examples of effective historical soundbites, even though most of the authors were not aware that they were in training for 20th century media relations. Examples of classic soundbites are presented in this section of the Guide. In terms of HOV project soundbites, make sure to incorporate project slogans, titles, logos and imagery in all public presentations, to reinforce the project's other marketing and promotional products and activities.

Lessons from Case Studies. In an attempt to counter any negative image left by the early failure of the Route 44 lanes in Virginia, the project HOV Steering Committee made a point of employing top-echelon personnel from the sponsoring transportation agencies whenever a spokesperson was needed to address the public regarding project plans and policies. John Milliken, Virginia's Secretary of Transportation, gave the keynote speech at the Transportation conference preceding the opening of the lanes. The use of top level personnel sent the clear message that the individual agencies had strong top-down support for the HOV concept.

EXHIBIT:A HANDFUL OF CLASSIC 'SOUNDBITES'

"Diamonds are a girl's best friend."
Jules Styne and Hoagey Carmichael

"Don't fire until you see the whites of their eyes."
Overheard at the battle of Bunker Hill

"Fewer Cars Mean/Less Polution./Be a part of/the solution."
VDOT Advertising jingle

"I have not yet begun to fight."
John Paul Jones

"Express Yourself"
Express Lanes Advertising Slogan

"Nice guys finish last."
Leo Durocher

"He can run, but he can't hide."
Joe Louis, on opponent Billy Conn

"This time HOV Goes the Distance."
VDOT Advertising Slogan

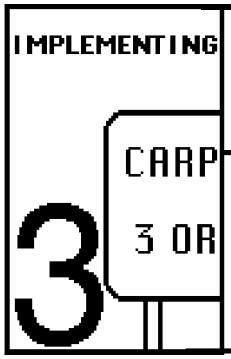
"In the future, everyone will be famous for fifteen minutes."
Andy Warhol

"Diamond is Rough"
Los Angeles Herald Examiner **Headlines on Santa Monica Diamond Lanes**

"All I know is what I read in the papers."
Will Rogers

"Any club that would accept me as a member, I wouldn't want to join."
Groucho Marx

For many years in California, law enforcement public affairs officers have been trained in media relations through workshops conducted by television reporting professionals. Videotaped interview sessions and immediate feedback are the keys to these effective workshops. Participants are asked a variety of questions by the TV reporter, ranging from supportive to hostile, and then the videotapes of the interviews are critiqued by both the media experts and the interviewees themselves. One particular media trainer even employs such tricky tactics as lowering the microphone to his side and pretending it is no longer live while letting both the microphone and the video camera run and eliciting "off the record" comments from subjects who are convinced they are off-camera. While reporters of your HOV project will not necessarily be tricky or deceitful, your spokespersons should know to be vigilant at all times in their representations concerning the project.



B.ADVERTISING PLACEMENT

1.RADIO

Stated simply, radio is the best paid marketing medium for an HOV project to reach commuters. Paid radio campaigns should feature sponsorships of syndicated traffic reports, supplemented by spot placements on several major area stations during key marketing campaign junctions.

Rationale. Radio advertising of commute alternatives hits listeners when they are most susceptible to the campaign appeals of the campaign during peak traffic times and during maximum congestion periods. Messages can be directed at the commuter precisely at the time they are the most affected.

Spot Radio. Spot Radio placement describes the placement of paid radio spots at pre-specified times and schedules. Radio spots are placed on the basis of the "day parts" in which they are broadcast. In the order of audience size, radio day parts are commonly called AM Drive (normally 6-10 a.m.), PM Drive (3-7 p.m. in most markets, Mid-Day (10 a.m. - 3 p.m.), Evening (7 p.m. to Midnight), and All Night (Midnight to 6 a.m.). Note that the two most popular radio day parts are the drive times, and not by accident commuters listen to the radio when they are in their cars.

Spots can be placed on a specific schedule, e.g. one spot each on Thursday and Friday AM Drives, or placed in a station rotation called a Total Audience Plan (TAP plan). TAP plans are the most economical, but you cannot control when the spots are going to air, and many of your spots will be broadcast in non-commute times. A single 60-second spot in AM Drive time on a market-leading station in a large market can run anywhere from $500 to perhaps $2,000.

Lengths and Formats of Spots. Radio spots are normally produced in either 60- or 30-second lengths, although more and more stations are broadcasting spots of shorter duration. 30-second spots customarily cost about 75% of the rate for a 60-second spot, so the 60's normally represent a better bargain. Pre-produce your project's spots using high production values. Try to incorporate music and/or humor where possible to lighten messages and increase listener attention. Match your radio spots to the station's format and the preferences of target audiences. Country and Western spots won't play well on the classical stations. Use professionals to produce, announce, and record a project's spots.

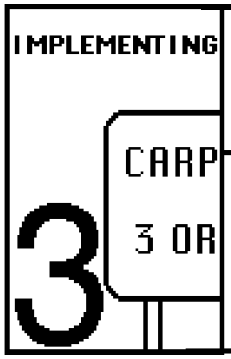
Syndicated Traffic Report Sponsorships. The purchase of sponsorship "slates" on syndicated radio traffic reports can be an extremely important component of an effective paid radio HOV campaign. Syndicated traffic report sponsorships are used by the majority of AM and FM radio stations in most markets, either exclusively or to supplement in-house traffic reports. You are undoubtedly familiar with the format of syndicated traffic reports, such as "This is Sandy with Metro Traffic Control, and this traffic update is brought to you by Diamonds in the Rough. At 6:35 a.m., a three-car accident occurred in lane number two of the eastbound Eisenhower just before Cicero. Illinois State Police have cleared the accident to the center divider, but rubberneckers have slowed traffic to a standstill for two miles. The carpool lanes on the northbound Tri-State are now operating, so that vehicles with three or more can breeze through traffic all the way to O'Hare."

Particulars. Traffic report syndicators exist in all of the major metropolitan areas of the U.S., but as a specific example, consider the situation in the S.F. Bay Area. There are two major traffic report syndicators, Metro Traffic and Shadow Broadcasing Services. Metro Traffic transmits traffic reports to 45 S.F. Bay Area radio stations, while Shadow Broadcasting Services has a stable of 19 Bay Area radio stations. Traffic update sponsorship customarily takes two forms: either a spnsorship line and a 10-second "live read" by the traffic reporter, or a sponsorship tag and a 15-second commercial prior to or after the actual traffic report. Placement is made by purchasing a specified number of spots per month, such as 125 or 250 spots. Your slates and messages are aired on all subscribing stations, and may even be customized on a daily basis. Although these sponsorships are relatively expensive, they are most

EXHIBIT:AIRBORNE TRAFFIC REPORTERS OFFER THE BEST MEANS OF REACHING THE TARGET AUDIENCE

appropriate to the task at hand. Placement occurs during peak commute hours, when the desired target audience is largely traffic-bound in their cars. A significant advantage of purchasing sponsorships with these syndicators is that they often offer substantial "free" spots to public service and transportation agencies to accompany the paid schedule. Traffic report sponsorship is therefore a relatively economical means of reaching the largest possible audience with appropriately-targeted messages. As with all paid advertising, time your schedules to coincide with important HOV project events, and use qualified consultants to negotiate and place the advertising.

Lessons from Case Studies. In Virginia, VDOT and TRT sponsored live "reads" by traffic reporters during morning and afternoon drive times. They felt that these messages sounded more like "reporting" than public service messages and that the sponsorships also improved the reporters' view of the lanes. On the Long Island Expressway Project, in the nation's most expensive radio market, project planners have purchased commercial drive time ads on three major local radio stations.



B.ADVERTISING PLACEMENT

2.BILLBOARDS

Billboards are rented on a monthly basis at rates that depend on size, location number, timing, illumination and production requirements. Many billboard companies routinely donate billboard rentals to public service projects.

As described previously in this manual, billboards are an effective channel for reaching drivers while they are experiencing the frustrations of traffic congestion.

Identifying Billboard Companies. Billboard companies may be identified in the Yellow Pages of phone directories under the catgory "Advertising – Outdoor." If you are employing an advertising agency, they will have contact with the major billboard companies in your area. In most media markets, two or three billboard companies will own the majority of boards in the region, with smaller independents picking up the remainder. Some major national billboard companies are Gannett Outdoor, Patrick Media Group, 3M/National, to mention a few.

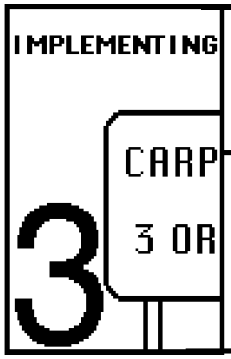
Paid Billboard Space. Billboards are rented on a montly basis at rates that depend on size, location, number, timing, illumination and production requirements. Billboard rental fees vary most widely depending upon their location. Rental is most commonly on a monthly basis. Boards on major freeways – where HOV projects, naturally, are located – are the most desirable boards and therefore the most expensive. Transportation agencies can use their own traffic flow data to pick billboard locations with the greatest exposure to drivers. Corporate marketers actually use accident statistics at intersections to select their locations. How many billboards should you rent? It really depends on the nature of your message and the phase of the project. Let your professional consultants make a recommendation based upon those factors.

Public Service Billboard Donations. Depending on the nature of your project, you can probably obtain donated billboard rental space from the billboard companies. Most have a public service section which fields and approves requests for donated space. It will undoubtedly be necessary to pay for the silkscreening of the billboard sheets and a posting fee – perhaps more than $100 per board – it is the only actual space rental fees that are donated. The timing and duration of the posting for donated billboards are not within your strict control. So donated boards are best used for general good will purposes – not for closely timed and targeted messages. Those messages should be reserved for paid placement at times and locations of your choosing.

Designing and Producing Billboards. Creating good billboards is an art in itself. Using professional graphic designers is important here, because they know the technical and artistic design requirements for outdoor advertising. Billboards are most commonly silkscreened on rugged, weather resistant material in common sizes – the most common being a "30-sheet" billboard. Billboards may be created in one-, two- or full-color processes. Most markets have a handful of billboard silkscreening companies – and your billboard company will tell you who they are used to working with. Some billboards are hand-painted, but this is a very expensive process which most HOV projects would want to avoid.

EXHIBIT:BILLBOARDS CAN TARGET DRIVERS USING A SPECIFIC ROUTE

Source: New Yorker



B.ADVERTISING PLACEMENT

3.PAID TELEVISION ADVERTISING

The good news is that the majority of Americans get their news and motivation from television. The bad news is that you probably can't afford to pay for production and placement.

Two thirds of Americans get most of their news from television. Fifty percent get all their news from television. A recent survey indicated that television reaches 98% of the population of the U.S. and that the average TV set in an American home is turned on from six to eight hours a day. The impact of television is well-known and quite obvious. As one example, within 36 hours of a television documentary on the famine in Ethiopia a few years ago, the "Save the Children Foundation" received 10,000 phone calls.

Unfortunately, HOV lane marketers cannot commonly use the paid TV airwaves to broadcast their motivational and informational messages. Although production costs can be kept in line, placement costs are normally prohibitive, regardless of the media market. Therefore, HOV lane marketers must use the "free" lines of access to television audiences by utilizing public service advertising, talk shows, free speech messages, and other "free" access to the television airwaves.

Production Cost. A decent television public service announcement can be produced for between $5,000 and $20,000. A high-quality 30-second TV commercial for a national advertiser would cost a minimum of $100,000 and could often run to seven figures, depending upon the sophistication of the spot. What does that tell you? It tells you that paid TV is out of the picture for most HOV projects projects. If you are able to produce television announcements, enlist the support and production capabilities of a local network, independent or cable public access station to ease the financial burden.

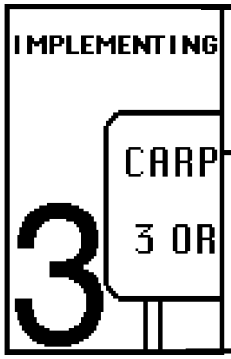
Local Placement. When a local advertiser places television spots on a local network or independent station prime time show, he or she is buying space on what are called "station breaks." That means that, for instance, the payment for placement is made for a spot which will be broadcast at the opening and conclusion of a particular TV show. For instance, if you bought a 30-second spot on 60-Minutes on your local CBS station, you would be paying for a spot that would be likely aired after the closing credits, or prior to the opening clicking clock. The national spots, which cost several hundreds of thousands of dollars to place, are aired in the middle of the show.

Placement Cost. The cost of placing a 30-second television spot (the customary length – although more advertisers are creating 15-second spots and "surrounding" 30-second spots with their messages) is based upon the measured audiences of the program according to the rating services. The two primary rating services are currently Nielsen and Arbitron. A single 30-second spot on a popular prime-time show such as Home Improvement might run more than $35,000 in the Los Angeles metro market. The same spot would cost about $350 in the Twin Falls, Idaho market. The audience for the program in L.A. is 100 times the audience in Twin Falls. You get what you pay for. Prime time TV placement is clearly the most expensive advertising option for an HOV campaign. If your project is in a smaller and more affordable media market, television placement is a possibility for what is called "early" and "late fringe" time – local programming in the 6-8 p.m. (or 5-7 p.m. Central time) and 11 p.m. to 1 a.m. (10 p.m. to midnight Central time). Daytime TV placement could also be considered, but keep in mind that commuting target audiences are not watching TV during the daytime.

Placement. To place television advertising, you will require the services of a bona fide advertising agency. Ad agencies have the research, the data, the negotiating skills, and, oftentimes, the expertise to create effective and economical placement schedules. In fact, most television stations will not readily accept advertising directly from a sponsor, and if they do, they will not offer you the industry-standard 15% discount on rates which applies to advertising agencies. Here again, public service advertising is an HOV project's best TV alternative.

EXHIBIT:GUIDES FOR TV AD PLACEMENT

Cable TV Advertising. As an alternative to rather expensive network affiliate advertising in a local market, HOV marketers with a sufficient budget might consider placing spots on cable television outlets or systems. Ad placement on cable channels such as CNN, MTV, and ESPN is surprisingly reasonable in cost. That's why you see so many hokey, home-made ads at times on these channels. You are not able to control the scheduling of the broadcast of the ads as well as on network TV, but the cost benefits may overshadow this inconvenience. Your advertising consultants will be able to recommend an appropriate timing and scheduling of cable TV advertising.



B.ADVERTISING PLACEMENT

4.TELEVISION PUBLIC SERVICE ANNOUNCEMENTS

Public service announcements (PSAs) featuring high production quality and issues of local interest stand the best chance of obtaining air time on most local TV stations.

Many public outreach campaign managers find that they develop a love/hate relationship with television public service announcements and the process which yields them airtime. On the one hand, television is a powerful medium and the free airtime is there for the taking. On the other hand, the time available for PSAs is not normally prime and the competition for that time can be fierce and frustrating.

Our experience has led to two basic conclusions regarding television public service advertising: (1) Your PSAs have to be of high quality and of local concern in the media markets in which you're operating; and (2) You should give personal, but not overbearing, attention to promoting the spots with the Public Service Directors of the television stations in your markets.

The Public Service Directors at many television stations may be found deep in the bowels of the facility, surrounded by seemingly unmanageable piles of boxes, video reels and file folders. At any time, they will have to make broadcast decisions from an inventory of 50 to 300 competing PSA tapes. The manager of a public outreach program must personally reach Public Service Directors, cultivate support for the project, and pull the project's PSAs out from the morass of messages from other worthy organizations. Once a PSA is actually in the rotation, it's likely to get a substantial run of three to nine months before being retired.

Most Public Service Directors indicate that they have a preference for (1) well-produced spots and/or (2) spots of local interest. Some basic rules in reaching and cultivating public service directors are listed below:

- Develop and maintain an accurate list of Public Service Directors, with names, correct addresses, and titles.

- Whenever possible, hand-carry tapes to Public Service Directors, along with scripts and appropriate background material. Rapport established through these visits can increase the air time given to your tapes.

- Once PSAs have been distributed, follow up with a phone call to the Public Service Director, and personal visits to discuss such topics as:

  – Station policies for airing PSAs
  – Lead times for entering PSAs in the system
  – Perceived strengths and shortcomings of past campaigns; and
  – Station support for current, past, and future campaigns.

- Offer and deliver commendations or other official thanks to those stations who have gone the extra mile to help out your program.

Public Service Directors often appreciate personal attention and enjoy involvement in good public outreach programs. But care should be taken not to badger these people with requests. Remember that you're asking for their help, not demanding it.

.ADVERTISING PLACEMENT

4.TELEVISION PUBLIC SERVICE ANNOUNCEMENTS

IMPLEMENTING

3 CARP 3 OR

EXHIBIT:PUBLIC SERVICE ANNOUNCEMENTS TYPICALLY AIR SO LATE AT NIGHT THAT IT'S BEEN SUGGESTED THAT THE REAL MEANING OF PSA IS PEOPLE SOUND ASLEEP.

IMPLEMENTING

3 CARP 3 OR

BADVERTISING PLACEMENT

5NEWSPAPERS

HOV Project personnel should focus their efforts on attempts to create newsworthy events which will generate newspaper coverage. The placement of newspaper advertising should be kept at a very modest level, to encourage positive editorial coverage, to achieve cost economies, and to reach targeted commuter audiences only during key project milestones.

Rationale and Potential Placement. Because of the relatively high cost of targeting display newspaper advertising to specific populations, we recommend only a modest schedule of newspaper placement in the HOV lane corridors during construction starts and lane openings. Placing a modicum of paid advertising – but some – also lets your newspapers know that you are serious about reaching their readers – and can have the effect of enhancing editorial coverage of the project by the paper. Newspaper advertising should be reserved for special times in the progress of an HOV project, in particular at construction commencement, when public hearings are scheduled, and at lane openings.

Costs and Placement. Newspaper advertising not found in the classified sections is called "Display Advertising." Rates are based upon the size of the ad (the number of column inches in size of the ad), the frequency of the advertising over a weekly period or a year, and the placement of the advertising in particular sections or positions. A half-page ad placed once in a major metropolitan daily newspaper can run to five figures. A reasonably economical alternative to specifically placed newspaper ads is what's called ROP, "Run of the Paper." With these programs, you can't control the placement of the ads within the newspaper, but the paper has the flexibility to drop them in where they have space, and therefore offer you cost savings. If your HOV project runs through suburban areas with daily or weekly newspapers, strongly consider these papers for advertising to target your messages and achieve cost savings. Our school of advertising thought suggests that it is much better to repeat newspaper ads of smaller size more frequently than to run larger-sized ads once or twice. Effective and economical newspaper ad placement is an art. Let your advertising consultants propose a specific schedule for your project, based upon commuter demographic information and key project milestones.

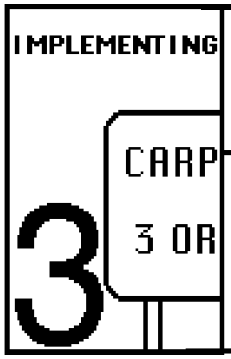
Advantages and Disadvantages. While newspaper advertising can be very effective for ongoing retail and service firms, it is not very economical for HOV project use. One of the negative aspects of paid newspaper advertising is the "fall-off" from full readership to readership of a particular advertising (see Section 2-D-6). While, for example 200,000 people might read a particular issue of a newspaper, only a small fraction of those, perhaps 10,000, might read your entire ad. Design your ads so that slogan and headline are bold and clear, so that the reader can get the gist of your message with a glance.

On the positive side, newspapers are important to opinion leaders, and your message is well-directed at them. Additionally, a large proportion of commuters grab their morning news from the paper prior to taking off in their cars. A well-placed ad can steal their attention before they encounter the lanes of your project.

Case Study References. In Santa Monica, the RTD, CALTRANS and SMMBL all placed ads in the three major papers three weeks before the opening of the lanes. SMMBL continued running the print ads after the opening. Unfortunately, very little was allocated for radio advertising, and the newspaper ads were soon outweighed by the adverse comment on the editorial pages.

In the Long Island Expressway (LIE) HOV lane project, marketers proposed to distribute newspaper supplements as well as newspaper advertising as part of the mix for the most comprehensive marketing strategy. The LIE project also designed a series of weekly "Op-Ed" type advertisements in local community weeklies beginning up to two months prior to commencement. These ads featured a "Why HOV" message and advice on starting up a carpool to utilize the new lanes.

EXHIBIT:SAMPLE NEWSPAPER AD MARKETING NASHVILLE'S FIRST HOV LANE



C.PROMOTION

1.DIRECT MAIL

Direct Mailings can be effective in economically reaching specifically targeted audiences such as corridor residents, HOV lane users, single auto drivers, violators, or employees of specific businesses.

Direct mail, as you know from gazing through your stack of mail at home, has proliferated – but has also become quite sophisticated in its capabilities. While direct mail may have a well-earned reputation as being "junk" mail, there are several advantages to using this device to inform target audiences and market HOV projects to drivers.

Advantages. It's called direct mail because it can be highly "directed" – narrowly targeted to specific audiences. Sources of mailing lists for targeted mail are numerous, and include: motor vehicle department registration and licensing data; HOV project databases; U.S. census tract information; private mailing lists; registrants at public hearings; employer/employee lists; registrar of voters household and resident lists, etc.

Direct mailings can be highly personalized – inside the envelope and out. Even the science of labeling is an art. Direct mail can be addressed to households, individuals by name, families, or a variety of other appellations. In terms of formats, direct mail runs the gamut from 8-1/2 x 11" newsletters folded in half to laser-printed personalized letters or heavy stock postal cards. A good supplier can design a direct mail piece to help you achieve what you want to accomplish. Oftentimes, the printing of a simple outside message line, or "snipe" such as "I-880, a Diamond in the Rough" communicates the essential information before the mailing hits the trash can.

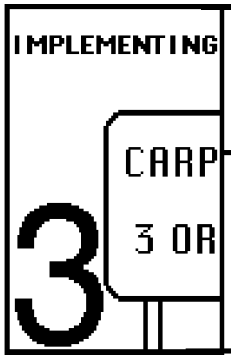
Direct mail is a relatively economical means to disseminate information, because it is produced in high volumes and is subject to the lower U.S. Postal Service bulk rates. Hand-affixed stamps can be used to make mailings look more like first-class mail. High-speed machinery for assembling mailing materials, inserting letters, and labeling envelopes can ease the process substantially, and there are many firms in each market that specialize in the direct mail process.

Almost every HOV project case study reviewed utilized some form of direct mail effectively – with newsletter mailings being a favorite. In Minnesota, a direct mail package was sent to 65,000 households in the I-395 corridor. This package included a "Commuter's Guide" brochure, project maps, the first issue of the I-394 "Expressions" newsletter and bus schedules.

Disadvantages. The primary disadvantage is the "junk mail" syndrome – that direct mail packages are widely ignored by the recipients and considered to be little more than recycling fodder. Another expressed disadvantage is the "big brother" stimga – the possible mistrust of bulk mail sent by large government agencies. The "big brother" problem of direct mail communication from transportation agencies can sometimes be circumvented by having the direct mail come directly from the HOV project office. Envelopes could feature return addresses of the project public information office, campaign logo and "quick-take" printed messages on the outside surfaces of the mailing piece.

EXHIBIT:USE YOUR DATABASE TO TARGET DIRECT MAILINGS

Drawing by Sydney Harris



C.PROMOTION

2.RADIO AND TV APPEARANCES

Appearances on television, and particularly radio talk shows should be actively sought for HOV project promotion. The primary project spokesperson, accompanied by high-level agency management technical experts, should make the appearances.

Talk and call-in programming is most prevalent on the AM band radio stations in most media markets. Normally, the two or three top stations in a market are the news/talk AM stations with large audiences in morning and afternoon drive times. These talk shows are outstanding vehicles for bringing HOV project information directly to target audiences – drivers in their cars. These programs are also excellent channels for reaching community and opinion leaders as well as the general public. Because these programs are a FREE way of reaching large audiences, appearances on them should be actively sought by project public relations personnel.

Competition for guest appearances on the top news/talk radio programs is stiff, but HOV lanes/highway reconstruction projects are important topics for radio stations, because the greatest proportion of listeners are, in fact, automobile commuters. You should encounter little resistance, therefore, to your request for appearances at appropriate times during the project. Try to schedule your appearances at crucial junctions of the project, e.g. construction starts, periods of greatest delay or traffic diversion, and most certainly at the opening of the HOV lane segments.

Producers and Booking. Most television and radio news/talk show programs have their own producers – who are normally not the on-air talent. These producers juggle the schedules, book the guests, manage the programs, and generally are charged with keeping things interesting and running smoothly. Your project staff or public relations consultant should create a data base of local news/talk radio and television programming, complete with the hours of the program, producer, host and contact information. The entertainment sections of daily newspapers list program times, and often, scheduled guests and discussion topics. Perhaps a month before crucial project events, contact the producers in your data base and try to arrange for guest appearances.

Primary Targets. Your advertising and public relations consultants can tell you the programming with the largest audiences. Target these programs for guest appearances. Most radio shows will be in AM and PM drive times, with some highly-ranked call-in programs in mid-day segments (10 a.m. to 3 p.m.). Call-in programs are desirable, because they allow your project spokespersons to answer directly questions which are on the commuter's minds. You can also seek to schedule appearances on radio and television public service programming, but be aware that most of these programs are prerecorded, and customarily air in the wee hours of Sunday mornings.

Spokespersons. It is important to have experienced, sophisticated spokespersons for several reasons. Because of the large audiences, radio and TV appearances represent a great way to help get the message out. However, a minor factual slip, or a faux pas in front of a huge electronic crowd will ultimately do the project more harm than good. A spokesperson who responds badly to hostile questions from an interviewer or the callers can help fuel a problem rather than soften it. It is important for the spokesperson to be well connected to the upper levels of the HOV agency to signal the public that the agency is solidly behind the project and to make sure that public concerns are accurately received by the HOV management team. Your primary project spokesperson should make the guest appearances. Media and communications talent is more important in this instance than technical knowledge. You can and should include the chief project engineer or agency official as well as to help provide quick and accurate answers to listener questions.

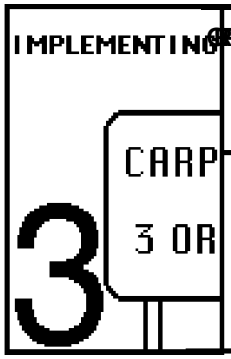
Lessons Learned from Other Projects. In the case of the Santa Monica Diamond Lanes, radio disc jockeys, news crews, and traffic reporters quickly sided with the outraged commuters.

EXHIBIT:TALK SHOW COMPETITION

Drawing by Sidney Harris

Examples of disc-jockey comments from opening day include: "You'll get home tonight if it takes all year," and "Somone wondered if it costs any money. No, it's absolutely free to drive on the Diamond Lane – it does cost $1.00 an hour to park there, however." If these broadcasters had been better briefed in advance, they might have been more understanding about the start-up problems and would not have fueled the hostility being registered by those stuck in traffic. As it was, their attacks left the HOV team on the defensive from day one.

In the Seattle I-5 project, both major television stations did positive news stories on the HOV lanes. They were invited on a bus tour of the lanes which helped the television collect the footage they needed for their stories. If film footage of the area is already available to the HOV lane media staff, they should provide it to the talk show producers so that it can be used to break the visual monotony of the "talking heads." Scheduling is important. Many popular talk shows run after most drivers are already at work. Pacific Rim Resources, the media consultants responsible for public information on several Seattle HOV projects, offer this advice about radio call-in shows: "Keep in mind that the people who benefit the most from lane conversion will probably not be calling in (they're all at work) unless your area has good call-in talk shows in the later pm hours. However, lots of drive-time radio segments are generated in part by talk shows completed during midday." (Pacific Rim Resources, 1993)



C. PROMOTION

3.COMPUTER COMMUNICATION

Developing communications technology allows campaigns to go "On-Line" with HOV Project Information.

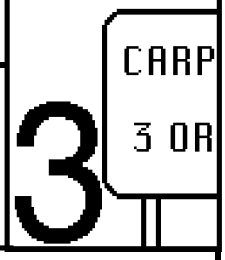
Modern information purveyors have a new arrow in their quiver: electronic communication through computers using on-line systems. Electronic Mail (E-Mail), internal corporate communications through message boards, computer forums on the Internet information super highway, on-line project maps and updates – all can play a positive role in marketing HOV projects and providing information to road-users.

Employer Communication. Large employers in certain industries often communicate with their personnel through message boards that are on the employee's computer workstation. These message boards include E-mail between workers, announcements of corporate policy or schedules of meetings, etc. Where the system permits, the HOV campaign should provide employers with pertinent late-breaking information, which can then be "sent" to the employee's workstations. Suitably-equipped companies could also make vanpooling, ridesharing and public transit information available "on-line" their internal computer system. HOV project community relations people can make computer information available to employers or the general public on disks or via a modem.

Commercial On-Line Services. It may be possible to make HOV project maps and information available to commercial on-line services, such as Prodigy, America Online and CompuServe (currently three of the systems with the largest subscription). Service subscribers could then access the information if they live or work in the HOV project corridor.

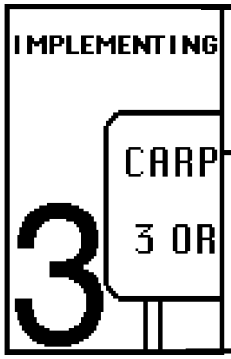
An example of the type of information which can be transmitted over a commercial on-line service occurred in the aftermath of the 1994 Los Angeles earthquake. The main menu board of the Prodigy network featured a map of the L.A. freeway system with all of the damaged freeway areas clearly indicated. By "clicking" on particular freeways or ramps, detailed information was then presented on construction progress and alternative routes. This was a very effective, interactive way to distribute important information electronically. The maps and updated data were made available by the local CALTRANS District and emergency management agencies to the computer services.

Advertising per-se is prohibited on the Internet, the global information highway, but knowledgeable navigators can post project information there on multiplicity of billboards and computer forums.



3.COMPUTER COMMUNICATION

Drawing by Sydney Harris



D.COMMUNITY RELATIONS

1.OVERVIEW

A positive community relations program is a natural outgrowth of the constituency building activities undertaken during the planning phase. Key program components include public meetings, business liaison activities, construction mitigation efforts, and open channels for public feedback.

Public awareness and community involvement are of primary importance throughout the HOV planning and implementation process. A dedicated community outreach effort must be initiated and maintained in order to keep key members of the community informed of the project's purpose, progress, and projected impacts. Key elements of the community outreach effort include:

- **Public Meetings**. Regular public meetings provide a means for means for educating the community, a podium for answering public questions, a channel for obtaining feedback, a forum for assessing progress, and a platform for encouraging community involvement.

- **Ridesharing Agencies**. In most urban areas, public agencies or non-profit organizations promote carpooling through ridematching services, roadside signs, media campaigns, and employer outreach programs. HOV marketing efforts should be coordinated through these agencies to avoid duplication of effort and get more bang for the advertising buck.

- **Business Liaison**. Contact with the business community can be made through Chambers of Commerce, ad-hoc committees of affected businesses, Transportation Management Associations (TMAs), company transportation coordinators, and other avenues. These contacts can provide valuable project support as well a a forum for employer-based carpool programs.

- **Commercial Tie-Ins**. Partnerships with private industry not only stretch marketing dollars but also provide public evidence of commercial support for the HOV concept.

- **Construction Mitigation**. Construction mitigation activities provide an additional opportunity to educate the public regarding the purpose and use of HOV lanes.

- **Telephone Hotlines**. Telephone hotlines provide a means of obtaining immediate feedback and communicating directly with the public by answering questions, recording complaints, and investigating problems.

Community relations programs represent a natural outgrowth and continuation of the constituency building activities undertaken in the planning phase of an HOV project (see Section 2B). The database developed in building contingencies to support the marketing program (See Section 2-B-2) is especially important in maintaining positive community relations. This database should be updated constantly, not only with the names of individuals and oganizations, but also with opportunities for coordination with transportation fairs and cultural festivals.

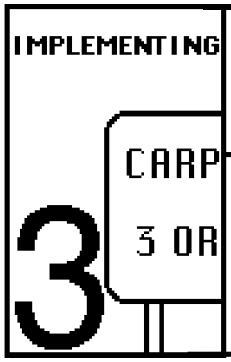
EXHIBIT:KEY THOUGHTS ON MAINTAINING PUBLIC ACCEPTANCE OF HOV FACILITIES

KEY THOUGHTS

1. WHENEVER YOU TALK TO ANYONE, ALWAYS ASK IF THEY KNOW OF SOMEONE ELSE THAT SHOULD KNOW ABOUT THE COMING OF YOUR HOV FACILITY!

2. BUILD A GREAT DATABASE, AND USE IT!

Source: Stamm, 1993



D.COMMUNITY RELATIONS

2. PUBLIC MEETINGS

Public meetings provide a means for educating the community, a podium for answering public questions, a channel for obtaining feedback, a forum for assessing progress, and a platform for encouraging community involvement.

Community meetings give the project team a conduit to several important constituent groups. Stamm (1991) notes that these meetings "...fulfill multiple purposes--they build constituencies, create partnerships, foster support, develop accurate expectations, and provide information which enhances future project planning activities." She goes on to observe that meetings are most successful when the HOV team asks for input and reaction to a set of specific HOV treatments, issues or scenarios--that is, when the team is prepared to listen as well as speak.

There are a number of occasions and formats for public meetings. A few which have been used effectively on past HOV projects are listed below.

Leadership Workshops. Leadership workshops provide a structured process for briefing and soliciting the participation of elected officials and community leaders.

Jurisdictional Briefings. Briefings for elected officials, public organizations, community leaders, and affected communities can be particularly effective when planning input is required and at the time the project is ready to open.

Neighborhood Meetings. Neighborhood meetings provide an opportunity for close interaction between project officials and citizens directly affected by the project.

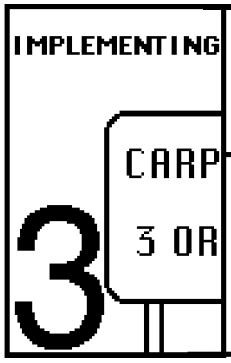
Open House/Transportation Fairs. Open houses and transportation fairs provide an opportunity for the project team to share information in a convenient setting. Staffed or even unstaffed displays can be used to disseminate information and solicit public reactions through self-administered questionnaires.

Issue-Specific Meetings. Issue-specific meetings provide a forum for discussing issues of particular concern, such as project design, occupancy requirements, or violations and enforcement.

Community Groups. A variety of community groups can be addressed through special meetings geared toward the interests of the group members.

Speaker bureaus, slide shows, and video presentations are all avenues for simplifying participation in public forums and bringing HOV issues before the public in a timely fashion. Brochures, flyers, and newsletters can be used as handouts to reinforce the messages conveyed at the meetings. Questionnaires distributed at meetings provide a simple mechanism for building a database, quantifying group concerns, and allowing less vocal participants to express their interests.

EXHIBIT:POSTCARD INVITATION TO A LEADERSHIP CONFERENCE SPONSORED BY VA DOT AND TIDEWATER REGIONAL TRANSIT



D.COMMUNITY RELATIONS

3.RIDESHARING AGENCIES

Most urban areas have public or non-profit agencies which support ridesharing through ridematching services, marketing campaigns, and employer outreach services. HOV marketing should be coordinated with these agencies to avoid duplication of effort and get more bang for the advertising buck.

Regionwide Programs. Most urban areas have public agencies or non-profit organizations that promote carpooling through ridematching services, roadside signs, media compaigns, and employer outreach programs. Examples of such organizations are RIDES in the San Francisco Bay Area and Commuter Transportation Services (CTS) in Los Angeles. The Federal Highway Adminitration report "Implementing Effective Travel Demand Management Measures" (COMSIS, September 1993) points out that many of these programs were created in response to the 1973 oil crisis.

Ridesharing organizations typically provide both ridematching and marketing programs to promote carpooling and vanpooling. These organizations maintain computerized databases with the names of potential carpoolers that are used for matching purposes. Employees and commuters can call the agency to receive "instant" matching over the phone or complete a carpool registration form and be sent a matching list with the names of others having similar commute patterns.

In addition to ridematching programs, ridesharing agencies often undertake regionwide marketing campaigns featuring roadside signs, brochures, media messages, print advertising, and employer outreach programs. Examples of ridesharing materials from RIDES in San Francisco and CTS in Los Angeles appear in the accompanying exhibit.

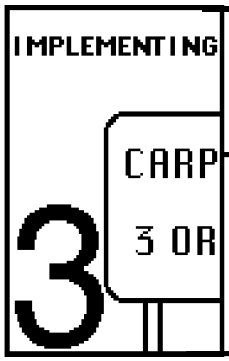
Need for Coordination. HOV marketing efforts undertaken by public transportation agencies should be coordinated with regional ridesharing agencies to avoid duplication of effort, to take advantage of their established distribution channels, and to get more bang for the advertising buck. Such agencies are a natural vehicle for regionwide maps showing the network of HOV facilities, the location of park and ride lots, and other rideshare promotional pieces.

Overall Effectiveness. An FHWA review of TDM measures (COMSIS, 1993) provides this overall assessment of the effectiveness of regionwide ridesharing agencies:

> "*Area-wide rideshare matching and promotion programs reduce work trip VMT by 0 percent to 3 percent. They do so by influencing a small, but significant proportion of ridesharers into choosing carpooling. The bulk of ridesharers, however, carpool with family and neighbors or as a result of employer-sponsored programs and incentives."*

In spite of their relatively low impact on regionwide ridesharing rates, the FHWA report argues that ridesharing programs deserve support because of their role in influencing employer-based programs and as "...insurance policies against additional traffic or as a program that is key to maintaining the existing proportion of commuters using (ridesharing) alternatives."

EXHIBIT:SAMPLE MARKETING MATERIALS PRODUCED BY RIDESHARING AGENCIES IN SAN FRANCISCO AND LOS ANGELES



D.COMMUNITY RELATIONS

4.BUSINESS LIAISON

Ongoing liaison with the business community can allay fears regarding a project's impacts, generate valuable project support, and provide a focus for effective employer-based carpool programs.

Business Contacts. Contact with the business community can be made through chambers of commerce, ad-hoc committees of affected businesses, industrial organizations, company transportation coordinators, transportation management associations (TMAs), ridesharing agencies, and other local channels. Where they exist, TMAs represent a natural point of contact with the business community. In most areas, ridesharing agencies have been established to promote alternatives to SOV commuting and to establish liaisons with employers. Employer-based programs that both reinforce the aims of HOV lanes and help to fill those lanes with carpoolers and transit users must be coordinated through these ridesharing agencies. Examples of such programs include preferential parking for HOVs, flexible work hours, vanpool acquisition or lease programs, HOV parking subsidies, discounted transit tickets, employer-based ride matching, and guaranteed rides home for carpoolers.

Air quality requirements in major cities have forced employers to take a closer look at ridesharing options and a more active role in reducing automobile-generated air pollution. The New York State DOT decided to make employer outreach efforts a key element of their HOV marketing efforts on the Long Island Expressway. To this end, they produced an introductory ten-minute video, informational brochures (see Exhibit), posters, a commuter transportation factbook for use by employee transportation coordinators (ETCs), and other handouts. Initial contacts with employers were not promising, with only one firm in ten expressing an interest in the outreach activities. When the ridesharing promoters combined HOV marketing with a discussion of employer goals under the Clean Air Act, however, the success rate improved significantly (Bloch, et al., 1994).

Employer-Based Carpool Programs. Research suggests that employer-based TDM programs are often more effective than regionwide ridesharing agencies or corridor-based marketing activities in reducing drive-alone trips. The FHWA "Guidance Manual for Implementing Effective Employer-Based Travel Demand Management Programs" (COMSIS, November 1993) lists several reasons for the relative success of employer-based programs.

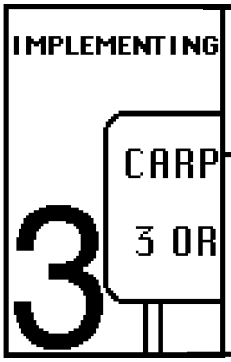
> "*TDM strategies can be chosen to meet a relatively narrow set of worksite characteristics, operational characteristics, and commuters' demographic and travel characteristics. Information dissemination can be targeted precisely to the employees most likely to use the alternatives, and offered in a personalized manner that eases commuters' transition to an unfamiliar travel mode. Further, employers can establish a 'corporate culture' that affirms employees' decision to use a commuting alternative. These factors combine to create a favorable atmosphere for trip reduction."* (COMSIS, September 1993)

An inventory and review of TDM measures sponsored by FHWA offers the following overall assesment of employer-based rideshare programs:

> "*Employer-based rideshare matching and promotion is probably more effective than areawide efforts alone, and employer programs have been documented with reducing trips 20 percent over prevailing conditions, but these results are largely due to the financial incentives and parking management strategies observed as part of the most effective employer program. When evaluated alone, carpool promotion might only be expected to reduce trips a few percentage points."*

EXHIBIT:SAMPLE PAGE FROM LONG ISLAND EXPRESSWAY BROCHURE CITING THE ROLE OF BUSINESS IN CONGESTION MANAGEMENT

Source: Bloch, et al., 1994



D.COMMUNITY RELATIONS

PRIVATE INDUSTRY SUPPORT

Private industry can be a valuable collaborator on public education programs.

The public support of "good cause" efforts can earn private corporations valuable recognition and improve their image in the eyes of potential customers. Marketing personnel creating an HOV campaign should analyze where any natural corporate tie-ins might occur and then follow through with appropriate company personnel.

Existing HOV projects provide many examples of corporate tie-ins:

- In Minneapolis, corporate sponsors helped produce a calendar celebrating the opening of I-394 and the benefits of ridesharing in return for advertising space on the calendar.
- In Houston, an Acura dealer created a newspaper ad that characterized their product as "The Shark in the Carpool Lane." (See Section 2-D-6).
- In Seattle, owners of downtown office buildings allowed their janitorial staffs to distribute post-it notes and other information pieces advertising the I-5 HOV lanes.
- In Hampton Roads, Pizza Hut offered a "Double Up and Save Special" in honor of the area's new HOV lanes. (See Exhibit.)

As these examples suggest, many kinds of assistance opportunities can be explored with potential corporate partners. Assistance can take a variety of forms, from in-kind donations to actual funding aid. The following illustrates a few more ways in which private sources can be tapped for program assistance:

- "Piggyback" mailings of program information in routine correspondence with customers and/or employees;
- Donations of billboard, or other advertising space for the placement of program messages;
- Placement of public educational program radio or television ads in the scheduled rotation of the corporation's advertising;
- Inclusion of articles or program materials in house organs, employee newsletters, and similar publications;
- Distribution of printed materials at points with high public visibility (e.g., at showrooms, display counters, or offices);
- Introduction of program personnel to board members, stockholders, others who could aid the public education effort; and
- Provision of employee/volunteers to distribute mateials, make phone calls, promote events, and perform other labor-intensive marketing activities.

D.COMMUNITY RELATIONS

1.PRIVATE INDUSTRY SUPPORT

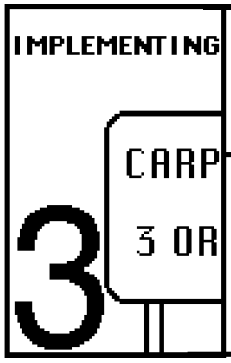
IMPLEMENTING

CARP

3 OR

3

EXHIBIT:PIZZA HUT HOV TIE-IN FROM HAMPTON ROADS



D.COMMUNITY RELATIONS

6.TELEPHONE HOTLINE

A telephone hotline is a useful means of supplying information, sampling opinions, and providing a lighning rod for public response during the weeks surrounding the opening of controversial or fledgling HOV projects.

Telephone hotlines provide the public with immediate access to information on HOV projects and a forum for praising or damning those projects. While they can be effective during the early weeks of a project, they have several drawbacks. They are labor-intensive, and, consequently, costly to operate. They can be over-run with non-project questions, and require staff and agency dedication to be effective. Experience shows moreover, that hotline use dwindles markedly after a few weeks, no matter how successful or controversial the project may be. Hotline experiences on a successful project, Minnesota I-394, and an unsuccessful and highly controversial project, the Santa Monica Diamond Lanes, are chronicled below.

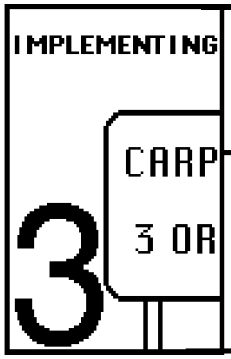
Minnesota I-394. Marketing and planning personnel on Minnesota I-394 felt that their telephone hotline was valuable only during the early weeks of the project. Calls were handled through a telephone response center called The Connection. This proved to be expensive, however, and call volume soon dropped off, even though the line was heavily publicized. As a result, the service was discontinued.

Santa Monica Diamond Lanes. A telephone hotline set up in cooperation with the Los Angeles Mayor's office served as a lightning rod for public opinion during the early weeks of the controversial Santa Monica Diamond Lane project. Between March 1 and April 2, 1976, the telephone center received and recorded 4,092 calls. Of these, 53% were negative, 13% were positive, 28% were information requests, and 6% were mixed. The telephone center was particularly active on the project's opening day, March 15, when over 800 calls were received, 70% of which expressed negative opinions of the project. By April 2, the volume of calls had dropped below 50 per day, the telephone center was closed, and incoming calls were referred to CALTRANS. A day-to-day history of hotline center calls appears in the accompanying exhibits.

Telephone hotlines are only likely to be productive during the early weeks of an HOV project, and they may not be necessary at all in an area where the local population is familiar with the HOV concept. If a hotline is established, telephone personnel should be thoroughly briefed, trained in advance to handle sample complaint calls, and provided with a complete project information kit as well as bus schedules, rideshare applications, and detailed project maps. The nature and disposition of each call should be logged, along with the caller's support (or lack of support) for the project, the type of information requested, the caller's mode of transportation, and any suggestions or comments.

EXHIBIT:DAILY DIST:DAILY DISTRIBUTION OF CALLS RECEIVED AT SANTA MONICA DIAMOND LANES TELEPHONE HOTLINE

Source: Billheimer, et al., 1977



E.ONGOING MARKETING

1.OVERVIEW

The need for marketing does not end once HOV lanes have been opened to the public, but rather lasts the life of the lanes.

Ford didn't stop marketing the Mustang when the first model rolled off the assembly line; Disney didn't muzzle its publicists as soon as Disneyland's doors were opened; and movie companies don't withdraw their advertising campaigns as soon as a new release has opened. Yet some HOV marketing campaigns have focused solely on introducing a new set of preferential lanes and folded as soon as the facility opened. As with automobiles, amusement parks, and Hollywood hits, the need to market the HOV product lasts as long as the product is before the public. Ongoing marketing efforts are needed to introduce new commuters to HOV facilities, announce changes in lane operations, update reports on project performance, and answer questions and criticisms as they arise.

Reaching the Changing Commuter Population. The constant turnover in commuters is one compelling reason for continuing HOV marketing efforts long after a facility has opened. Every day, employers hire new workers, homes are sold, and new businesses open. Although traffic counts on congested roadways may not vary much from year to year, the identity of individual drivers is constantly changing. New drivers entering the system may not have been exposed to the marketing messages issued when an HOV facility opened. They need to be informed of the workings of their particular HOV lanes, introduced to the benefits of ridesharing, and incorporated in ridesharing databases.

To make the constantly changing work force at the Norfolk Naval base aware of the Hampton Roads HOV lanes, VDOT undertook a program of ongoing education and promotion that included instructional videos, a computerized rideshare matching program for the base itself, and a weekly column in the base newspaper. (See Appendix A-3.) Although few areas have the employee turnover experienced by the Norfolk Naval Base, all jurisdictions experience a steady influx of new commuters. A regular project newsletter offers one means of reaching newcomers, as does the continued distribution of brochures, posters, and other print materials with a long shelf life. Radio spots featuring traffic reporters can be updated as needed to reflect new project developments.

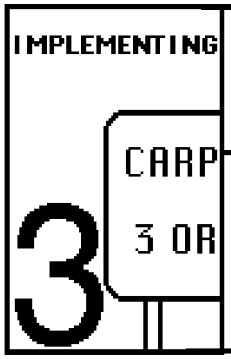
Announcing Operational Changes. Changes in lane operations are likely to accompany changes in the commuter population. As traffic grows, operating hours and occupancy requirements may change, HOV lanes may be extended, and new preferential treatment concepts may be introduced on metered ramps and arterial streets. Marketing personnel must introduce all these changes with the same care and flair that accompanied the opening of their initial HOV project.

Updating Progress Status Reports. Every HOV project needs to be monitored regularly to provide a basis for evaluating the project's impacts. Key information on vehicle volumes, occupancies, and travel times should be monitored at least annually (and preferably quarterly) before and after project implementation (see Section 4-B). This ongoing monitoring process can provide a continuing stream of material for marketers, who can translate data on carpools and travel times into press releases and project status reports. (See exhibit for an example of a news release covering ongoing lane operations.)

Answering Questions and Criticisms. While some questions regarding HOV lane operations can be anticipated in advance, questions specific to each facility will arise once the lanes begin to operate. Lane operations will also bring a wide spectrum of public criticism. Critics from the right of the spectrum, seeing HOV lanes as half empty, will argue that public funds have been misused creating a facility that does not operate at peak efficiency and whose use is denied to most of the taxpaying public. Critics from the left of the spectrum, seeing HOV lanes as half full, will argue that they are just another ruse to encourage additional auto travel, increase urban sprawl, and worsen air pollution. All such questions should be addressed fairly and openly by project personnel.

EXHIBIT:NEWSPAPER REPORT UPDATING STATUS OF CARPOOL LANES ON HIGHWAY 101 IN SAN JOSE

Source: ***San Jose Mercury News***



E.ONGOING MARKETING

2.COMMON QUESTIONS AND ANSWERS

A list of common questions and answers published in a brochure or print ad both educates the public and training agency personnel to provide consistent responses to frequent inquiries.

While both questions regarding HOV operations can be anticipated in advance, questions specific to each facility will arise once operations begin. A list of common questions and answers is a good way of educating the public, training phone personnel, and conveying information through brochures and print advertisements. The accompanying exhibit shows a list of questions and answers concerning the I-64 HOV lanes developed by VA DOT and Tidewater Regional Transit. Other common questions and answers from a variety of marketing pieces are listed below.

Q. Why do we have an HOV lane?

A. We all know that traffic congestion is increasing in the Nashville area. In addition, the federal government has designated a five-county area of Middle Tennesee (Davidson, Rutherford, Sumner, Williamson and Wilson) as an air quality non-attainment area. That means the ozone levels here exceed the requirements of the Clean Air Act. Since ozone is largely generated by motor vehicles, reducing the number of cars on our highways will help to solve both the traffic and air quality problems. (Tennessee DOT)

Q. Why are some HOV lanes for two-person carpools, while others require three persons?

A. WSDOT is trying to accommodate two-person carpools as much as possible. We know it's easier to form a two-person carpool than a three-person carpool. The carpool definition of an HOV lane corridor is determined after extensive traffic analysis. While most freeway HOV lanes are for two-person carpools, there are some segments where three-person carpools are required to meet safety or performance standards. (Washington State DOT)

Q. Do children count as passengers?

A. Yes, children count as passengers. Ridesharing should be practiced by the whole family. It's never too early to start teaching children about the importance of carpooling and using transit. (Washington State DOT)

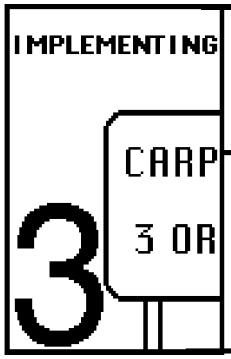
Q. Some cars and trucks cannot carry more than one passenger. Why aren't they allowed to use HOV lanes designated for three or more persons?

A. The purpose of the HOV lanes is to give motorists options. Commuters may choose to purchase any vehicle they desire; they may choose to drive alone. If they choose to carpool, vanpool or use transit, however, they have the option of using the HOV lane if their vehicle is carrying the appropriate number of passengers. Those people owning two-seater vehicles have the option of using the HOV lanes for two-person carpools; they also can use transit or form a vanpool. (Washington State DOT)

Q. Then why do motorcycles get to use the HOV lanes?

A. Federal law allows single-person motorcycles to use HOV lanes as long as safety is not negatively impacted. In Washington state recorded levels of motorcycle usage is relatively low. During the heaviest traffic volume months of winter there are virtually no motorcycles on the road. In the summer a few motorcycles are on the road, but they are still an insignificant percentage (below 0.5 percent) of the total traffic volume. (Washington State DOT)

EXHIBIT:QUESTIONS AND ANSWERS FROM AN HOV USERS GUIDE PREPARED BY VIRGINIA DOT AND TIDEWATER REGIONAL TRANSIT



E.ONGOING MARKETING

3.MORE QUESTIONS AND ANSWERS

The list of questions and answers concerning HOV lanes is nearly endless.

Q. Sometimes it appears that HOV lanes are empty. Why aren't the HOV lanes opened to general traffic when it's no longer rush hour?

A. When there is no congestion, HOV lanes are not needed. When there is congestion, HOV lanes should be reserved for carpools, vanpools and buses.

Rush hour is no longer an hour. Peak travel periods keep increasing. At present, the peak commuting period is approximately three hours in the morning and in the evening. In some corridors traffic congestion is heavy on the weekends and during off-peak commuting hours.

A commuter who chooses to carpool or use transit to get to a concert or sporting event during noncommute hours should be as justly rewarded as a commuter who opts to share the ride to work.

Striking that delicate balance between too full or empty is difficult to achieve 24 hours a day. Our goal is to keep an even flow of vehicles cruising at 45 mph or more in the HOV lanes whenever they're needed.

Since the HOV lanes can carry more people in fewer vehicles, they are often perceived as being under utilized when, in fact, they are working as they are intended. (Washington State DOT)

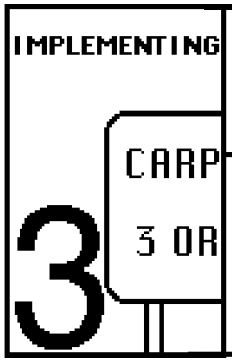
Q. How do meters – or signals – at freeway on-ramps help traffic flow? Separate carpool lanes seem to be popping up at more and more metered on-ramps. Why do we need carpool lanes?

A. By regulating the flow of traffic entering the freeways during peak traffic hours, the overall flow of traffic on the freeways is smoother. This regulated flow means we can accommodate more vehicles per hour on the freeways, shorter commuting times, and a higher degree of safety. Some metered ramps also feature a carpool lane. The purpose of this special lane is to provide a faster access for vehicles with two more passengers. This encourages ridesharing, by providing a special benefit for those people who carpool, vanpool, taxipool or ride the bus. (CALTRANS)

Q. Who benefits from an HOV lane?

A. Everyone benefits from the HOV lane; it is the way of the future. Of course, HOV lane users benefit the most by enjoying a less congested lane, but other travelers benefit from reduced traffic in the regular lanes. As additional growth occurs and traffic increases, the HOV lane will provide more significant time savings. And we all benefit from reduced air pollution. (Tennessee DOT)

EXHIBIT:QUESTIONS AND ANSWERS FROM AN HOV USERS GUIDE PREPARED BY THE WASHINGTON STATE DOT



E.ONGOING MARKETING

4.ANSWERING CRITICISM

Whether they are empty or full, HOV lanes are likely to attract public criticism. Responsible criticism deserves responsible answers.

Even the most successful HOV projects can expect to attract some public criticism. Criticism can be irresponsible, as in the case of the tacks and full-dress funeral procession introduced to stall traffic in the Santa Monica Diamond Lanes. However, specific HOV projects can also attract responsible criticism. While the timing and forum for answering critics will vary from project to project, and from critic to critic, resposible criticism deserves responsible answers.

Criticism from the Right. HOV lane operations can attract a wide spectrum of public criticisms. Critics from the right of the spectrum, seeing HOV lanes as half empty, argue that public funds have been misused to create a facility that does not operate at peak efficiency and whose use is denied to most of the taxpaying public. Such critics have also attacked HOV lanes on the grounds that their enviromental impact statement was inadequate (Santa Monica), their funding illegal (Santa Clara), their violation rates too high (Orlando), and their safety suspect (Santa Monica and Orange County).

A common attack on HOV lanes is that their use is unfairly denied to most of the taxpayers who paid to build them. This attack was particularly prevalent in the case of the Dulles Toll Road (See Appendix A-6), where non-carpoolers were denied access to the carpool lane after paying a toll to use the access road itself. One public letter to the U.S. Representative leading the fight against HOV lanes on the toll road skewered this argument with the observation that "*By your logic, because my taxes pay for military bases and salaries, I should be able to walk into any PX in the country and buy groceries and household items cheaper than at Giant. (I am also, by that logic, entitled to ride the Space Shuttle for free.)"*

In the plea for funds at the left, the "Commuters Against Diamond Lanes" confuse CALTRANS claims that Santa Clara County's diamond lanes carry 26% to 46% of total person movement with total vehicle movement. HOV marketing personnel must continually emphasize the difference between person throughput and vehicle throughput, particularly in addressing the empty lane syndrome.

Marketing personnel should not be content merely to point out that HOV lanes carry more people than adjacent lanes. That's what the lanes are supposed to do. At two or three persons per vehicle, it's not surprising to find more people in HOV lanes than adjacent lanes. To be successful, HOV lanes must bring about an increase in the number of carpools and transit riders using a corridor. It's more difficult to demonstrate that such an increase has occurred than to count heads in HOV lanes and mixed flow lanes, but a true assessment of HOV effectiveness requires that evaluators address the impact of the lanes on the formation of new carpools.

ENVIRONMENTALISTS

Attacks on HOV lane safety should not be dismissed cavalierly. While more research is needed to relate accidents to different HOV lane configurations, it is clear that some configurations (i.e. the Santa Monica Diamond Lanes) have led to an increase in accident rates. On the other hand, common sense suggests that totally separate HOV facilities such as the Shirley Highway and San Diego I-15 can only improve safety by providing a segregated environment for HOV travel and alleviating congestion on adjacent mixed-flow lanes.

Criticism from the Left. In recent years, HOV lanes have been subjected to criticism from the left of the spetrum as well. Environmentalists, seeing the lanes as half full, argue that they encourage additional automobile travel at the expense of transit use, thereby increasing urban sprawl and air pollution. (See Exhibit.) Many of these charges touch on complex issues requiring considerable research. The impacts of HOV-induced carpools on air pollution are not well understood. Although the overall mileage traveled by car is certainly reduced by HOV carpools, and cold starts made by people driving to meet their carpools will add disproportionately to auto exhaust emissions, as will the additional congestion in mixed flow lanes. HOV critics also contend that adding HOV lanes neither alleviates congestion nor reduces auto trips, since "...the shift of some drivers from solo to shared driving makes space on the roadway for others attracted by a decline in congestion that had previously discouraged them from driving (latent demand)." (Lehman, et al., 1993). While the ability of latent demand to fill freeway space is well documented, it is not clear whether this space is filled by people "previously discouaraged...from driving" or by drivers who previously traveled at a different time or used a different (perhaps more circuitous) route.

The charge that HOV lanes compete with transit systems for ridesharers and reduce transit ridership also merits investigation. However, surveys of drivers using existing HOV lanes suggest that relatively few were transit riders before they became carpoolers. A review of surveys on ten different carpool lanes throughout the U.S. (Billheimer, Fehon, and Bell, 1990) showed that the percentage of carpoolers who used to be transit riders ranged from 0.2% on Orange County Route 55 to 25% on the San Francisco-Oakland Bay Bridge. The average percentage of respondents on all ten projects who used to be transit riders was 8%. The researchers felt that "Since the survey questions were posed differently on different projects, it is dangerous to attach too much significance to this average value." However, the overwhelming weight of evidence supports the observation that HOV lanes draw relatively few new carpoolers from transit routes.

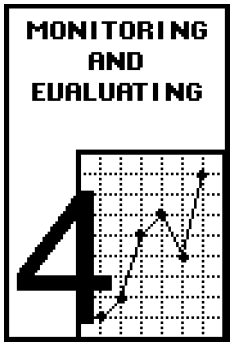
Defending Your Data. When critics attack an HOV project, they almost inevitably attack the data developed by the project's sponsors as well. The best defense against such attacks is to develop a detailed evaluation plan and follow it. The next chapter addresses the elements of such a plan (Section 4-B), as well as the pitfalls that threaten statistical validity and public credibility (Section 4-E). While a detailed evaluation plan will not stop critics from attacking project data, it lowers the probability that they will find embarrassing inconsistencies or errors in that data.

To discourage attacks on data credibility, a single outlet should be established for data dissemination. Project information should be released through the outlet on a schedule set by the sponsoring agencies that allows data to be assimilated, checked for consistency and accuracy, and thoroughly evaluated before it is released. Project personnel should not attempt to hide or gloss over negative findings (i.e. accidents, violations, or low HOV lane use), but should report the findings along with positive results. The use of an independent evaluator to assess HOV lane impacts can sometimes help to establish the credibility of performance data and project findings.

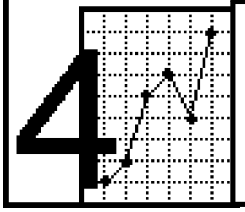
SECTION FOUR

MONITORING AND

EVALUATING THE PROJECT



MONITORING AND EVALUATING



A. OVERVIEW

Thorough evaluations of HOV projects are necessary to ensure that the projects are providing the desired benefits, that the benefits outweigh any undesirable side effects, and that the expenditure of public funds is justified.

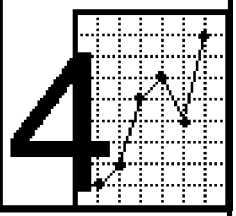
"One can never be certain whether a new social program actually will be a cure or whether it will have undesirable side effects. To start such a program without some plan for evaluating it is just as inefficient as it would be to start mass production of a radically new automobile without any road tests." *N.E. Miller, 1967*

A radically new automobile design may fail at the marketplace for a number of reasons. The styling may not appeal to the public, the accompanying advertising campaign may be misdirected, or the performance of the model may be inferior to that of similarly-priced competitive models. A carefully conceived evaluation process is needed at each stage of model design, development, and marketing if potential shortcomings are to be detected and corrected. Even the most sophisticated evaluations may be unable to isolate and explain the precise causes of failure at the marketplace. If the causes of failure often elude the evaluator, however, the fact of failure in such instances is generally unambiguous. The new design fails to sell enough models to justify additional investment and the model is discontinued.

In the case of government-sponsored transportation innovations such as HOV lanes, judgments regarding success or failure can themselves be ambiguous. In the absence of a relatively small body of shareholders interested in profit-and-loss statements, the stakeholders of HOV projects are members of the public at large. Various segments of the public have different perceptions regarding the success or failure of these projects. Non-carpooling drivers view HOV lanes in a different light than carpoolers and transit patrons. Transit operators sometimes see HOV lanes as ridesharing competition; some enviromentalists argue that additional freeway lanes, preferential or not, simply lead to more pollution; and traffic engineers can view half-empty HOV lanes as an underutilized resource. Thus the task of evaluating an HOV project can be even more complex than the task of evaluating a new automobile design.

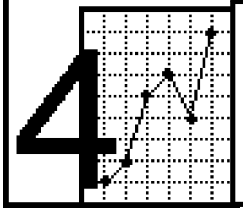
The task of evaluating the marketing campaign accompanying an HOV project is equally complex. Some HOV projects can succeed with virtually no marketing, while the best marketing program in the world can fail to save a poorly designed project. In any case, the evaluation ofan HOV marketing program must inevitably be tied to the evaluation of the HOV project itself. This chapter addresses the need for monitoring and evaluating all aspects of HOV projects, and provides guidelines for assessing the impact of projects and their accompanying marketing programs.

The accompanying exhibit lists a variety of reasons for evaluating HOV projects, condensed from the UMTA report "Suggested Procedures for Evaluating the Effectiveness of Freeway HOV Facilities" (Turnbull, et al., 1991). Evaluations are necessary to ensure that the HOVfacilities are providing the desired benefits, that the benefits outweigh any undesirable side effects, and that the expenditure of public funds on HOV lanes is justified. The information collected as part of the evaluation process can guide marketing efforts and help direct operating decisions regarding enforcement, operating hours, occupancy requirements, and access/egress points. The results of HOV lane evaluations can also support future planning efforts within and outside the metropolitan areas where the lanes are located. In spite of the obvious arguments in favor of evaluating HOV projects and their accompanying marketing efforts, evaluations conducted to date have often suffered serious shortcomings. Problems with past evaluations have included a lack of "before" data, unfocused criteria, poor design, inadequate sampling, and limited scope. The procedures proposed in this chapter are intended to support more comprehensive evaluations of HOV projects, improve the focus and quality of these evaluations and provide a level of standardization that will allow meaningful inter-project comparisons.



REASONS FOR EVALUATION

- **ESTABLISH GOALS AND OBJECTIVES**
  - **Quantify impacts**
  - **Answer public inquiries**
  - **Provide project data base**
- **GUIDE ONGOING MANAGEMENT DECISIONS**
  - **Assist with operating changes**
  - **Direct Marketing efforts**
- **SUPPORT FUTURE PLANNING EFFORTS**
  - **Calibrate planning and simulation models**
  - **Aid decision-making**
- **MEET FEDERAL OR STATE REQUIREMENTS**
- **BUILD COMMON BODY OF KNOWLEDGE**



B. THE EVALUATION PLAN

1. ELEMENTS OF THE EVALUATION PLAN

The evaluation plan provides a structured statistical framework for documenting findings regarding audience exposure, public reaction, and campaign impact and relating these findings to project objectives.

Evaluation has much in common with sex. Everyone is for it (under certain conditions, of course). Everyone feels they understand it (even though they wouldn't want to explain it). Everyone thinks execution is only a matter of following natural inclinations.'"

Philip B. Crosby, paraphrased by
Sar A. Levitan and Gregory K. Wurzburg
(Levitan and Wurzburg, 1979)

The first step in assessing the effectiveness of a public information campaign is the development of an evaluation plan that uses a structured statistical framework to relate program objectives to measurement processes and analytic activities. A detailed description of the contents of an evaluation plan may be found in SYSTAN's *Evaluation Handbook* (Billheimer and Trexler, 1980).

The evaluation plan prescribes methods for measuring exposure, reaction, and impacts and relating these measurements to project objectives. The plan defines the measures of effectiveness, or dependent variables, that best characterize audience exposure, public reaction, HOV lane use, and project impacts; identifies the independent variables that could be expected to affect the project's objectives; specifies data collection procedures; describes the populations to be monitored; prescribes statistical tests and analytical procedures; schedules measurement and analytic activities to coincide with campaign events; identifies potential threats to the validity of evaluation findings; provides a basis for managing the resources employed in the evaluation; and stipulates procedures for testing hypotheses relating campaign activities to observed attitudes and impacts. The accompanying exhibit lists ten elements of a complete evaluation plan.

EXHIBIT: TEN ELEMENTS OF A COMPLETE EVALUATION PLAN

EVALUATION PLAN ELEMENTS

4 1. **Impacts**. A list of anticipated impacts, both good and bad.

4 2. **Objectives**. A statement of well-defined objectives specifying the intent of the project and defining the scope of the evaluation.

4 3. **Measures of Effectiveness**. A definition of the measures that best characterize the anticipated impacts. In the language of statistics, these are called the dependent variables.

4 4. **Independent Variable**s. A list of those factors that mitigate or amplify the anticipated impacts (that is, the independent variables).

4 5. **Data Sources**. A description of the data sources and the measuring instruments to be used in documenting measures of effectiveness.

4 6. **Populations**. A description of the populations on which the measurements are taken (i.e., corridor drivers, HOV lane users, transit riders, etc.)

4 7. **Analysis Plan**. A plan for the statistical computations and tests to be performed on the data.

4 8. **Schedule**. A time schedule governing the measurements and subsequent analysis.

4 9. **Threats to Validity**. A consideration of the various factors that may limit the validity of the findings.

4 10. **Presentation Plan**. A plan for presenting the findings of the evaluation in an appropriate, intelligent manner.

Source: Adapted from Billheimer & Trexler, 1980.

B. THE EVALUATION PLAN

2. THE EVALUATION TABLEAU

The Evaluation Tableau is a tabular format relating data elements and analytic procedures to the evaluation criteria selected to measure project objectives and key issues.

A complete Evaluation Plan will describe the relationships between each of the ten factors listed on the preceding page. One means of summarizing these relationships is a tabular array, or tableau. The accompanying exhibit displays a sample tableau format and lists some objectives and issues developed for SYSTAN's evaluation of the Santa Monica Freeway Diamond Lane Demonstration (Billheimer, et al., 1977). This tableau shows the relationships between the anticipated impacts, or evaluation criteria, reflected in the project objectives (Column 1); the hypotheses developed to test these objectives (Column 2); dependent and independent variables (Columns 3 and 4); sample populations (Column 5); data sources and measuring instruments (Column 6); analytic comparisons (Column 7); statistical tests (Column 8); plan of presentation (Column 9); and a further explanation of the implied causal relationship between the demonstration and impact under consideration (Column 10). A schedule showing the time-phasing of measurements and analytic activities would be prepared separately, as would a treatment of potential threats to validity.

Uses of the Tableau. Although the use of tableaus provides no magical assurance that the evaluation will be trouble-free, tableaus help to provide a systematic approach for developing a comprehensive, complete, and efficient plan in which:

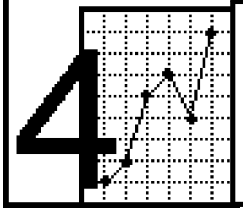
- Each objective is assured a thorough assessment;
- Each measurement is linked to a particular objective or research question; and
- Data collection plans are complete and non-redundant.

They also help to organize the diverse elements in an easily understandable format, thereby supporting comparisons between sites or alternative approaches.

EXHIBIT: SAMPLE EVALUATION TABLEAU
SANTA MONICA FREEWAY DIAMOND LANE EVALUATION

B. THE EVALUATION PLAN

3. SETTING EVALUATION OBJECTIVES



Project goals and objectives should be stipulated clearly and concisely in well-defined, measurable statements. The list of evaluation objectives should be comprehensive, and should anticipate undesirable side effects as well as advertised project goals.

The first step in developing an evaluation plan for any HOV project is to define the goals and objectives of the project itself. Goals and objectives should be stated clearly and concisely, so that each represents a well-defined, measurable statement. A list of typical objectives called from a study of a variety of HOV lane evaluations (Turnbull, et al., 1991) appears on the facing page. The study recommends that measurable objective statements be written in such a way as to include "...the desired end result, the action that will be taken to achieve this result, and the time frame within which the result will occur."

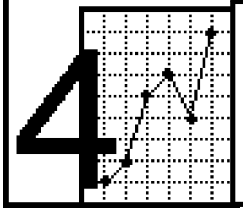
In any HOV lane assessment, the most significant impacts to be evaluated are generally those linked to the advertised local objectives of the project. However, measurements and analyses should be undertaken in all areas in which significant impacts might occur, whether or not they are related to the project's advertised objectives. In the evaluation of the Santa Monica Freeway Diamond Lanes (Billheimer, et al., 1977), for example, the stated objectives were to reduce energy consumption, improve air quality, increase freeway capacity, and improve transit travel time, reliability, and productivity. Nowhere in this list of objectives was a recognition of the project's most disturbing impact, a significant increase in freeway accident levels. The evaluation plan (Billheimer and Lave, 1975) identified this potential side-effect as a key concern, and the evaluation itself subsequently investigated the causes of the observed accident increase in some detail. For the benefit of other jurisdictions attempting to decide whether to implement similar service improvements, there is a need to understand the risks of undesirable side-effects as well as the rewards of attaining positive transportation objectives. Evaluation plans need to address the full range of objectives, issues and side-effects likely to result from a demonstration. One way of accomplishing this is to recognize all potential side effects in the stated projected objectives. Thus the list on the facing page recognizes the possibility of accidents explicitly by stating that "The HOV facility should be safe and should not unduly impact the safety of the freeway general-purpose mainlanes."

EXHIBIT: TYPICAL HOV PROJECT OBJECTIVES

PROJECT OBJECTIVES

- The HOV facility should improve the capability of a congested freeway corridor to move more people by increasing the number of persons per vehicle.
- The HOV facility should increase the operating efficiency of bus service in the freeway corridor.
- The HOV facility should provide travel time savings and a more reliable trip time to HOVs utilizing the HOV facility.
- The HOV facility should have favorable impacts on air quality and energy consumption.
- The HOV facility should increase the per lane efficiency of the total freeway facility.
- The HOV facility should not unduly impact the operation of the freeway mainlanes.
- The HOV facility should be safe and should not unduly impact the safety of the freeway general purpose mainlanes.
- The HOV facility should have public support.
- The HOV facility should be a cost-effective transportation improvement.

Source: Turnbull, et al., 1991.



B. THE EVALUATION PLAN

4. DEFINING MEASURES OF EFFECTIVENESS

Measures of effectiveness assigned to project objectives should be meaningful, operationally credible, measurable, analytically tractable, easily interpreted, and relevant for decisionmaking.

Once objectives have been clearly defined, the evaluator must identify those measures of effectiveness that best characterize each objective. A list of measures of effectiveness commonly used in assessing HOV project objectives appears in the facing table. A similar list reflecting the stipulated objectives of a variety of HOV marketing programs appears below.

TYPICAL HOV MARKETING OBJECTIVES AND RELATED MEASURES OF EFFECTIVENESS

OBJECTIVE	MEASURES OF EFFECTIVENESS
• The HOV marketing program will maximize public information and education through the use of a wide variety of materials and media channels.	• Exposure: Quantity of materials distributed (number of brochures, newsletters, handouts, etc.); Audience impressions from station logs and arbitron ratings; Newspaper circulation; • Reaction: Aided and unaided recall of materials and messages; Understanding and acceptance of messages.
• The HOV marketing program will build public acceptance of HOV lanes and ridesharing through active promotion of benefits	• Support for facility among users, non-users general public, media, and policy makers • Violation rates
• The HOV marketing program will increase bus patronage and carpooling in the HOV corridor	• Actual and percent increase in bus ridership and carpooling among target population.

As is evident from the accompanying lists, there is a certain degree of flexibility in the choice of objectives and evaluation measures. There are usually several variables that can measure an impact directly, and there may be several additional proxy indicators that are indirect measures of that same impact. Measures may be quantitative or qualitative, objective or subjective. A distinction can also be drawn between actual and perceived impact measures. Changes in travel time might be measured directly through physical observation (an actual measure) or by questioning riders regarding their perceptions of changes (a perceived measure). A comparison of actual and perceived measures can often illuminate otherwise inexplicable behavior by carpoolers and non-carpoolers.

To avoid setting meaningless evaluation tasks, certain general principals should be observed in defining measures of effectiveness. Raisbeck (1979) offered the following principles: Measures of effectiveness (MOEs) should be meaningful, in that they are clearly related to study objectives, key issues or significant side-effects. Measures should also be sensitive to factors affected by the HOV lanes. Raisbeck refers to this quality as operational credibility. MOEs should be measurable; that is, there must be some way of assigning a value to the criteria for purposes of evaluation. The measures themselves must be analytically tractable and finally, they should be easily interpreted, should not require reams of explanation, and should be relevant to the decisionmaking process.

EXHIBIT: TYPICAL HOV PROJECT OBJECTIVES AND RELATED MEASURES OF EFFECTIVENESS

OBJECTIVE	MEASURES OF EFFECTIVENESS
• The HOV facility should improve the capability of a congested freeway corridor to move more people by increasing the number of persons per vehicle	• Actual and percent increase in the person movement efficiency • Actual and percent increase in average vehicle occupancy rate • Actual and percent increase in carpools and vanpools • Actual and percent increase in bus riders
• The HOV facility should increase the operating efficiency of bus service in the freeway corridor	• Improvement in vehicle productivity (operating cost per vehicle-mile, operating cost per passenger, operating cost per passenger mile) • Improveed bus schedule adherence (on-time performance) • Improved bus safety (accident rates)
• The HOV facility should provide travel time savings and a more reliable trip time to HOVs utilizing the HOV facility	• The peak-period, peak-direction travel time in the HOV lane(s) should be less than the travel time in adjacent freeway lanes • Increase in travel time reliability for vehicles using HOV lane(s)
• The HOV facility should have favorable impacts on air quality and energy consumption	• Reduction in emissions • Reduction in total fuel consumption • Reduction in the growth of vehicle miles of travel (VMT) and vehicle hours of travel
• The HOV facility should increase the per lane efficiency of the total freeway facility	• Improvement in the peak-hour per lane efficiency of the total facility
• The HOV facility should not unduly impact the operation of the freeway mainlines	• The level of service in the freeway mainlines should not decline
• The HOV facility should be safe and should not unduly impact the safety of the freeway general-purpose mainlines	• Number and severity of accidents for HOV and freeway lanes • Accident rate per million vehicle miles of travel • Accident rate per million passenger miles of travel
• The HOV facility should have public support	• Support for the facility among users, non-users, general public, and policy makers • Violation rates (percent of vehicles not meeting the occupancy requirement)
• The HOV facility should be a cost-effective transportational improvement	• Benefit-cost ratio

Source: Turnbull, et al., 1991.

B. THE EVALUATION PLAN

5. COMPARISON STRATEGIES

Three comparison strategies are commonly used in identifying and measuring HOV project impacts: before/after comparisons, control route comparisons, and modeling comparisons.

HOV project impacts typically manifest themselves as changes in measures of effectiveness. These changes may be detected by different types of comparison. Three general comparison strategies are common: comparisons at different points in time; comparisons between different freeways, regions, or populations; and comparisons between real and hypothesized systems. These three common comparison strategies are shown in schematic form in the facing exhibit.

A. Before/After Approach

The first approach compares system states before and after the introduction of HOV lanes or some feature of the HOV project. Almost all HOV lane evaluations have relied heavily upon the approach. The methodological difficulty with this approach is that changes in measures of effectiveness may be caused by many factors, and it is often difficult to distinguish changes induced by a new HOV lane from those caused by other factors. For example, carpooling may be affected by gasoline prices, parking policy, and a number of other factors besides HOV lanes. Moreover, when simultaneous changes are introduced, as where a marketing campaign is timed to coincide with an HOV lane opening, the before/after approach often does not allow the evaluator to isolate causes.

B. Control Freeway Approach

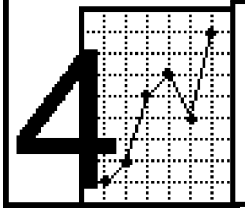
The above difficulties suggest a second comparison approach which relates the study freeway to a similar freeway which is not exposed to a particular HOV treatment. The second freeway is analogous to the traditional experimental control group. It is assumed that the two freeways are subject to the same forces except for the HOV treatment, and that comparing both freeways will reveal the effects of the treatment. The methodological difficulty with this approach is that no two freeways are absolutely comparable. However, the approach is useful in monitoring the effects of exogenous effects such as fuel shortages and regionwide trends in carpooling. Measurements on the control freeway can then be used to separate HOV project impacts from the effects of fuel shortages or regionwide trends.

C. Modeling Approach

The third comparative approach reflects the assumption that if the HOV project had not been introduced, some other innovation (i.e., an additional mixed-flow lane) would have been. Since it is seldom possible to introduce several major innovations in distinct time frames, this comparison requires a model of the freeway "after" the hypothetical introduction of those alternatives that are not actually implemented. Because the modeling of freeways and mode choice is not an exact science, this approach can hardly be said to be free of methodological difficulties. However, modeling is sometimes the only way of estimating the long-term effects of an innovation. Although Before/After studies can capture short-term effects such as mode choice, long-term changes such as residential location are often obscured by exogenous influences.

EXHIBIT: ALTERNATIVE COMPARISON STRATEGIES

Source:



B. THE EVALUATION PLAN

6. THE EVALUATION SCHEDULE

The Evaluation Plan should contain a detailed schedule of evaluation events to guide data collection activities and display the implications of proposed project changes.

It is important that a schedule of evaluation activities be developed and coordinated with the project implementation and operation schedule. The evaluation schedule should show the anticipated timing of measurements, analysis, and reporting relative to the timing of project activities. A sample evaluation schedule is shown in the accompanying exhibit.

A working version of the evaluation schedule should be completed prior to implementation to ensure that data will be collected in a timely fashion and that no perishable pre-project data will be lost. By carefully scheduling observations around the introduction of separate innovations (e.g., the HOV lane opening and a subsequent park-and-ride lot installation), it is often possible to document the separate impacts of these innovations. Furthermore, the development of a comprehensive schedule of measurement activities enables the evaluator to make maximum use of regularly-scheduled observations and accommodate seasonal fluctuations by collecting data during comparable time periods.

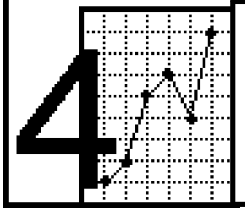
"Before" Data Timing. It is essential that representative data be collected prior to the implementation of the HOV project. It is virtually impossible to recreate "before" data once the project has been initiated, and it is difficult to document the impact of an HOV project in the absence of adequate "before" data. While this reminder of the need for "before" data may seem to overstate the obvious, the impacts of more than one HOV project remain uncertain because no data were assembled in advance of the project.

Ideally, jurisdictions should begin assembling traffic counts on a corridor as soon as it is identified for future HOV treatment. This will provide historical perspective and ensure that data collection activities will not be delayed until construction has begun, when counts will reflect an atypical situation. One count a year for five years before construction starts is better than five counts after the bulldozers have begun. As the FHWA guidelines on HOV lane evaluation (Turnbull, et al., 1991) observe, "a single data point is unlikely to accurately reflect before conditions."

"After" Data Timing. To ensure comparability, it is important that the same procedures, techniques, and definitions be used in collecting data before and after the project implementation, and in the ongoing monitoring process. Detailed "after" measurements should be delayed until a steady state response has been reached. It will usually take at least two months for both users and operators to become accustomed to a new project. During this start-up period, certain key variables (i.e. carpool volumes, traffic speeds) should be monitored frequently. When these variables indicate a steady state has been reached, detailed sampling of a wider range of variables may take place. Detailed readings of system status should typically be taken again after six months, and thereafter at least annually. Continuing observation over the long term is important, since many of the significant impacts of HOV projects occur two to four years after implementation.

EXHIBIT: SAMPLE EVALUATION SCHEDULE

Testing the impact of engineering, enforcement and education changes on the illegal use of preferential bus/carpool lanes by noncarpoolers.



C. MONITORING THE PROJECT

1. OVERVIEW

The range of measurements needed to evaluate an HOV project can include travel time runs, vehicle and occupancy-counts, accident statistics, enforcement data, transit performance measures, user and non-user surveys, and air quality measurements.

The HOV project itself needs to be monitored on a regular basis to provide timely information on project progress and assemble data on the wide range of potential project impacts. In the past, several HOV lane evaluations have focused on narrow objectives (i.e., counting the vehicles in the carpool lane). However, the range of potential impacts for any HOV project is too broad to be covered by simple vehicle counts. The wide range of potential impacts can require an equally wide range of measurements. Examples of the range of measurements appear below and in the accompanying exhibit.

Travel Time Runs. Travel time runs should be conducted in the HOV lanes and adjacent mixed-flow lanes on a regular basis to document the time savings afforded HOV lane users.

Vehicle and Occupancy Counts. Vehicle and occupancy counts should be made on HOV lanes, mixed flow lanes, parallel routes, and designated control routes.

Accident Statistics. Accident statistics should be assembled in HOV lanes; adjacent mixed-flow lanes, and on control freeways before and during project operations.

Enforcement Data. Routine and special assignments of law enforcement personnel to HOV lane enforcement should be documented, along with the numbers of citations issued to HOV lane violators.

Transit Performance. Any improvement in on-time performance for transit vehicles using the HOV lane should be documented, along with ongoing changes in transit ridership.

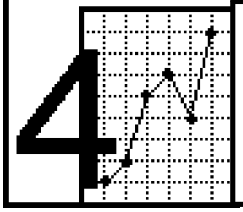
User and Non-User Surveys. Surveys of carpoolers, vanpoolers, bus riders, and non-carpoolers on mixed-flow lanes should be conducted to record perceptions, assess attitudes, document awareness of marketing approaches, and obtain information on mode choice.

Air Quality. On large-scale projects, measurements of total CO, HC, and NOx emissions may be warranted.

The nature and extent of the measurements needed in monitoring and evaluating a specific HOV project will vary depending on project design, objectives, and setting. Where Section B of this chapter has presented guidelines for developing evaluation plans reflecting a project's design and objectives, this section provides more general information on data collection and HOV project monitoring.

EXHIBIT: OVERVIEW OF MEASUREMENTS INVOLVED IN A TYPICAL HOV EVALUATION

Source: San Tomas Expressway Data Review and Requirements, SYSTAN, Inc., 1982.



C. MONITORING THE PROJECT

2. DATA COLLECTION FREQUENCY

Key information on vehicle volumes, occupancy, and travel times should be monitored quarterly, but no less than annually before and after project implementation.

The frequency of data collection activities will vary somewhat with the type of HOV facility, the maturity of the system, available resources, and changes or anticipated changes in the operating environment. Regardless of the type and maturity of the facility the FHWA evaluation guidelines (Turnbull, et al., 1991) suggest a desired level and a minimum level for basic data collection activities. These levels are summarized in the accompanying exhibit.

Type of Facility. Short contraflow lanes or metered flow bypasses that operate only during peak periods may require lower levels of effort than extensive exclusive or concurrent flow lanes.

Maturity of Facility. The FHWA Evaluation Guidelines (Turnbull, et al., 1991) suggest that "New facilities should be evaluated more frequently than those that have reached a stable operating level. This is not to say that older facilities should not continue to be monitored, but the frequency of these activities may be slightly less. Data from current projects suggest that usage levels on successful HOV facilities will continue to increase for several years. Thus, it is important that data collection and monitoring activities be organized to accurately monitor these changes."

Monitoring Changes. The frequency of data collection activities should be increased if changes have occurred or are anticipated in the operating environment. By increasing the frequency of measurements before and after the introduction of changes, affecting such features as hours of operation, occupancy requirements, enforcement levels, transit schedules, marketing efforts, support activities, or competing facilities, it may be possible to isolate the impact of these changes on HOV facility use.

Before/After Frequency. The importance of adequate "before/after" data has been noted in discussing the Evaluation Schedule (Section 4-B-6). The need to assemble enough before data to establish trends in traffic density, travel times, and occupancy counts on parallel and control routes, as well as before construction begins cannot be overemphasized. Historical information on accident rates on the facility itself should also be assembled.

Once the HOV facility is opened, vehicle and occupancy counts and travel time runs should be conducted on the HOV lanes, adjacent mixed flow lanes, and alternate routes at least once during the first 3 to 6 months of operations, and, at a minimum again at the 12 month mark. Vehicle and occupancy counts should also be assembled on the control freeway. An ongoing data collection effort should be established on the facility, adjacent lanes, parallel routes, and the control freeway. Accident and violation data should be examined on the same schedule. A survey of users and non-users should be conducted at some point during the first year and, at a minimum, at intervals of two to three years thereafter.

Seasons of the Year. Choice of appropriate seasons of the year and days of the week will depend on the likely sensitivity of the measurement process to each of these time units. Data collection activities should be scheduled during those seasons which are most representative of normal conditions. Generally, this will mean the fall and the spring, when weather conditions are mild and schools are in session. Measures taken during the summer vacation period are rarely comparable with measures taken during other seasons of the year.

EXHIBIT: SUGGESTED MINIMUM FREQUENCIES OF DATA COLLECTION

Data Collected	Facilities	Frequency (1)	
		Desirable	Minimum
Vehicle and Occupancy Counts	HOV facility, freeway, alternate parallel routes, control freeways, and park-and-ride lots	Quarterly/ Monthly for HOV lane	Annually (2)
Travel Time Runs	HOV facility and freeway	Quarterly	Annually (2)
Surveys	HOV facility and freeway	Annually	2-3 Years
Accident Information	HOV facility and freeway	Quarterly	Annually (2)
Violation Rates	HOV facility	Monthly	Annually (2)

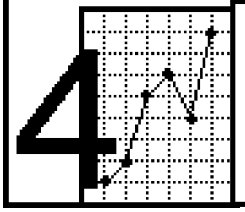
(1) It may be appropriate to focus these activities on the a.m. peak period if initial data collecton activities indicate this is appropriate.

(2) For HOV facilities that have reached a stable operating condition, it may be appropriate to cdlect this information every 18 to 24 months.

Source: Turnbull, et al., 1991.

Days of the Week. Data collection activities should be conducted on days that represent normal weekday conditions. Thus vehicle occupancy counts, travel time runs, and surveys are generally scheduled for Tuesday through Thursday. Mondays and Fridays should be avoided, since travel on these days tends to be less representative. The FHWA evaluation guidelines suggest the following additional procedures for assembling day-to-day HOV data:

"When possible, the data collection activities should be conducted on the same days for the HOV facility and freeway lanes. For example, if possible, travel time runs should be made on the same day for the HOV facility and the freeway lanes. When it is beneficial to have information for both the morning and afternoon peak-periods, it may be appropriate in some instances to conduct more intensive efforts during the morning peak-period."



C. MONITORING THE PROJECT

3. PRESENTING FINDINGS

Evaluation findings should be presented in a professional, accurate, and understandable manner in different levels of detail structured to meet the needs of a wide audience.

Ongoing Reporting. Project managers should establish a focal point for information dissemination. Project findings should be released to the press and public through a single outlet, on a schedule set by the participating agencies that allows data to be assimilated and evaluated before it is released.

Presentation Content. Evaluation findings should be presented in a professional, accurate, and understandable manner. The FHWA guide for evaluating HOV facilities (Turnbull, et al., 1991) offers the following presentation advice:

> *A key to presenting the results of the evaluation and ongoing monitoring program is to focus on the major measures of effectiveness. These should be presented in a clear, concise, and readable manner, that allows individuals to easily identify the purpose of the data and the changes that have occurred. In addition, the narrative accompanying these tables and graphics should be concise and easily understood. A good data collection and evaluation effort can be wasted if the results are presented in a sloppy and unprofessional way."*

Presentation Format. The results of data collection and ongoing monitoring activities can be presented in a variety of ways. The most common approach entails tabular and graphic comparisons of before/after data. The accompanying exhibit shows the use of tabular and graphic approaches in generating the results of an HOV lane evaluation (The Katy Transitway and the Santa Monica Diamond Lanes, respectively).

Levels of Detail. Evaluation reports will be read by a wide variety of audiences, each with their own interests and backgrounds. Transportation professionals and technical staff will look for different types of information than special interest groups who in turn will have a different focus than decisionmakers and the general public. The presentation, levels of detail, and analysis should be appropriate for the audience being addressed. For example, transportation professionals are likely to be interested in detailed technical information, including the assumptions and approximations that went into the analysis. Decisionmakers, on the other hand, may be more interested in summaries of general trends and utilization levels.

To satisfy the diverse audiences for project findings, it is best to structure evaluation reports in three general sections: an executive summary of key findings, a technical report supporting these findings, and appendices containing detailed information of interest to researchers and technical staff personnel.

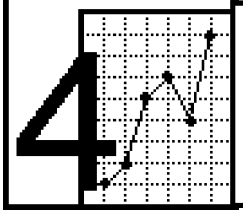
EXHIBIT: TABULAR AND GRAPHIC PRESENTATIONS OF RESULTS

Sources: Texas Transportation Institute, The Texas A&M University System.
Santa Monica Freeway Diamond Lane Evaluation (Billheimer, et al., 1977).

TABULAR PRESENTATION
Comparison of Measures of Effectiveness, Freeway (Katy I-10) With and Freeway Without Transitways, Houston

Measure of Effectiveness	"Representative" Pre-Transitway Value	"Representative" Current Value	% Change
Average A.M. Peak-Hour Vehicle Occupancy			
Freeway w/transitway	1.26	1.46	+15.9%
Freeway w/o transitway	1.34	1.32	–1.5%
A.M. Peak Hour, 2+ Carpool Volume Change			
Freeway w/transitway (6-7 a.m.)	505	975	+93.1%
Freeway w/o transitway	600	595	–0.8%
Bus Passengers, Peak Period			
Freeway w/transitway	900	2,645	+193.9%
Freeway w/o transitway	2,185	2,100	– 3.9%
Cars Parked at Park-and-Ride Lots			
Freeway w/transitway	575	1,873	+225.7%
Freeway w/o transitway	1,660	1,665	+0.3%
Facility Per Lane Efficiency			
Freeway w/transitway	38	74	+94.7%
Freeway w/o transitway	49	74	+51.0%

GRAPHIC PRESENTATION



D. MONITORING THE CAMPAIGN

1. OVERVIEW

Three levels of campaign evaluation address three successively more difficult questions of campaign effectiveness:

1. **EXPOSURE: WHO was reached by the campaign?**
2. **REACTION: DID the public remember the message?**
3. **IMPACT: WHAT was the effect on project objectives (i.e., ridesharing)?**

Commercial advertisers spend large sums of money not only in developing advertising campaigns, but also in pretesting and monitoring the effectiveness of these campaigns. The designers of public information campaigns designed to market HOV lanes must be equally dedicated in assessing the effectiveness of their messages. Typically, public service campaigns can be evaluated at three different levels:

1. **EXPOSURE: WHO was reached by the campaign?**

   This first level of evaluation documents promotional approaches, tabulates the size of the audience reached by each approach and gauges the success of the campaign in reaching members of the target population.

2. **REACTION: DID the public understand and remember the message?**

   This second level of evaluation investigates public reaction to the campaign. Typically, group discussions and surveys might be used to determine how many people remembered the campaign, liked it, understood its message, and followed its suggestions.

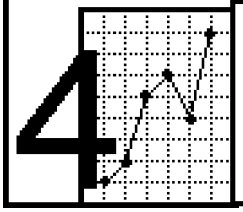
3. **IMPACT: WHAT was the campaign's effect on the project objectives?**

   This third level of evaluation documents the effect of the campaign on project objectives. It is at this point that the evaluation of the campaign directly intersects the evaluation of the HOV project itself, as changing travel patterns are documented and the influence of the marketing campaign on these changes is evaluated.

Each successive level of evaluation is progressively more difficult and more complex than the preceding level, and each level depends on the successful accomplishment of the earlier steps. Without some knowledge of whether the public has heard and understood a campaign message, it makes little sense to try to ascribe changes in HOV carpooling levels to that message.

EXHIBIT: THREE LEVELS OF CAMPAIGN EVALUATION

Source: Billheimer and Moore, 1987.



D. MONITORING THE CAMPAIGN

2. MEASURING EXPOSURE

Audience exposure to campaign messages can be estimated by logging the air time devoted to TV and radio spots, documenting the circulation of newspapers and magazines containing campaign materials, and counting the number of handouts, newsletters, or brochures put into public hands.

In measuring campaign exposure, the evaluator attempts to tabulate the size of the audience reached by each promotional approach and gauge the success of the campaign in reaching members of the target population. This is typically done by using station logs and arbitron ratings to estimate the size of the TV or radio audience, circulation figures to estimate the number of readers exposed to print ads, and simple counts of distributed materials to document the number of handouts, newsletters, or brochures put into the hands of the public.

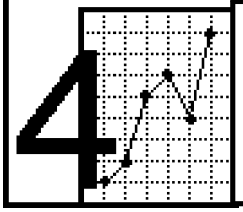
Electronic Media. In measuring audience exposure to radio and TV spots, the amount of air time devoted to each spot should be documented, so that the size of various audience segments can be estimated using Arbitron or Nielsen ratings. In the case of paid commercial advertising, radio and TV stations typically provide notorized statements documenting the date and time that each spot aired. Estimating the size of the audience for public service announcements can be difficult, since it involves requesting a search of daily computed logs by the public service coordinators responsible for making the decision to air the commercial. If a station's logs are computerized, the search simply requires an electronic scanning of the computer file. Otherwise, documentation can entail an arduous manual search of daily logs. Since the public information personnel responsible for creating a campaign can be understandably reluctant to request additional work from the station coordinators responsible for deciding which of many competing public service spots to aid, evaluators can be faced with the choice of obtaining gross estimates of playing time. (About how many times a week do you think the spot aired?") or searching the daily logs themselves.

Print Articles and Advertising. In the case of articles and advertising appearing in newspapers and magazines, it is possible to multiply the number of individual appearances by appropriate circulation figures to obtain a rough upper bound on the number of impressions made through the printed page. Even though a single newspaper or magazine may be passed from hand to hand, the circulation figures represent an upper limit on the viewing population, since only a fraction of the total number of readers can be expected to turn to the appropriate page, and a still smaller fraction will actually read the article or advertisement. The number of editorial columns, or column inches ofspace given to a topic provides another measure of newspaper exposure. This source is particularly useful in comparing exposure rates in different areas or over different periods of time. The accompanying exhibit traces the editorial response to the Santa Monica Diamond Lanes over the life of the project.

Billboards. In the case of outdoor advertising, the average daily traffic (ADT) passing a billboard location provides a basis for computing an upper bound on the number of viewer impressions made through this venue. ADT figures must be cut in half to reflect unidirectional flow and multiplied by an appropriate factor (say 1.15) to reflect auto occupancy. If the billboard is not illuminated, the estimate must be reduced still further to eliminate nighttime drivers. As in the case of newspapers, this estimating procedure can only provide a crude upper bound, since many drivers passing a billboard may be oblivious to its presence.

Posters, Brochures, and Bumperstickers. In the case of posters, brochures, and bumperstickers, it is virtually impossible to develop exposure estimates. Awareness of these channels can be documented if audience response is assessed through personal interviews. At a minimum, the number of posters, pamphlets, and bumperstickers that have been produced and distributed should be documented in lieu of exposure measures.

EXHIBIT: EDITORIAL TREATMENT OF THE SANTA MONICA FREEWAY DIAMOND LANES BY LOS ANGELES NEWSPAPERS



D. MONITORING THE CAMPAIGN

3. COST VS EXPOSURE

Campaign costs should be itemized by media channels so that the relative cost-effectiveness of reaching the target audience through each channel can be computed.

In evaluating a marketing campaign for a public facility such as an HOV project, it is often helpful to compare the cost of producing and distributing media materials with the size of the audience reached by those materials. Costs should be itemized by media channel, so that the cost of reaching a viewer through a 30-second television commercial can be compared with the cost of reaching readers through a newspaper advertisement.

Three different categories of costs are likely to be incurred in implementing an HOV marketing campaign:

Production Costs. Production costs include all the expenses incurred in creating and producing TV spots, radio commercials, advertising copy, billboard art, bumperstickers, and other media materials. These costs can vary over a wide spectrum. For example, newspaper advertising copy can be produced relatively cheaply, while TV production costs range from $2,000 to $200,000 for a 30-second commercial.

Personnel Costs. Personnel costs can include the person-hours consumed in negotiating with radio and TV personnel, hand-carrying public service announcements to station coordinators, and handing out flyers on freeway on-ramps.

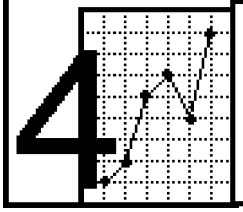
Distribution Costs. The cost of buying media time, leasing billboard locations, purchasing newspaper space, and making other time and space purchases must be included in the media budget.

The accompanying exhibit summarizes estimates of the cost per driver reached by each major campaign element employed in a Sober Graduation"campaign undertaken by the California Highway Patrol (CHP). While these estimates are somewhat crude and do not reflect the response of the public to the individual elements (some channels may be more effective than others in making an impression and eliciting a response), they do provide a broad ranking of the cost-effectiveness of individual campaign elements. This ranking can be revealing. The accompanying exhibit shows, for instance, that the cost per driver reached by 35 mm movie spots distributed to movie theaters was over ten times more expensive than the corresponding cost of reaching targeted drivers through TV public service announcements. Faced with this knowledge, the CHP abandoned 35 mm movie spots in subsequent DUI campaigns.

EXHIBIT: ESTIMATED COST-PER-DRIVER REACHED BY CAMPAIGN ELEMENTS OF THE CHP "SOBER GRADUATION" CAMPAIGN

COST PER DRIVER	CAMPAIGN ELEMENT
Under 0.1¢	Newspaper releases Radio announcements Bumperstickers Posters
0.1¢ to 1.0¢	Billboards 30-second TV spots Bus cards
1.0¢ to $1.00	35 mm movie spots

Source: Billheimer, 1986.



D. MONITORING THE CAMPAIGN

4. MEASURING REACTION

Public reaction to a campaign can best be measured by asking members of the public, through focus groups or broader surveys, whether they were aware of the campaign, understood its messages, and followed its suggestions.

Measuring public reaction to a publicity campaign or to an HOV project is more difficult than measuring audience exposure. Typically, focus group discussions or surveys are needed to determine how many people in the target audience remembered the campaign, liked it, understood its messages, and followed its suggestions. These same discussions and surveys can be used to document the reaction of the public to the HOV project itself.

FOCUS GROUP DISCUSSIONS

Just as focus group discussions can be used in shaping a fledgling campaign (See Section 2-A-3), they can also be used to explore the reactions of members of the target audience to a completed campaign or a campaign in progress. The small group setting provides an opportunity to determine not only which members of the group were exposed to specific campaign materials, but to explore individual reactions to the materials in detail and to determine whether those materials changed personal perceptions or commute choices.

Through focus group discussions, the Virginia DOT determined that one of their campaign creations to publicize Route I-64, the *Lone Rider*, a villanous character designed to discourage single occupant commuting, generated little recognition and less credibility among area commuters. The accompanying exhibit depicts the cartoon image of the Lone Rider. Typical ad copy reads: DONT BE A LONE RIDER! SHARE A RIDE TO WORK AND ENJOY THE BENEFITS!" This concept attempted to make bad guys"out of the majority of the drivers in the Hampton Roads area using the image of the Lone Ranger (who was, after all, a good guy.") Leaving aside the bad-guy/good-guy confusion, the concept failed for a more basic reason: It was impossible to establish the identity of the character in the publics mind using the limited air time and print exposure available to donated public service messages.

TELEPHONE OR MAIL-BACK SURVEYS

Telephone or mail-back surveys enable the evaluator to obtain a statistically valid and consistent sampling of public awareness among key population groups (i.e. carpoolers and non-carpoolers) over a period of time. (See Section 2-A-4 and 2-A-5).

Unaided Recall. Telephone interviews can test whether a campaign has made a large enough impression on respondents so that they recall it without direct prompting from the interviewer. By beginning with a general question (i.e., Have you seen or heard any advertising regarding commute alternatives?") and following with more detailed probing (What do you remember reading?"), it is possible to test respondents'recollection of a specific slogan or campaign theme without quoting the slogan or theme directly. Slogans volunteered by respondents in response to this probing are classifed as unaided recall" and reflect a strong response to campaign imagery.

Aided Recall. If respondents are asked directly whether they have heard a specific slogan, seen a particular advertisement, or read a project newsletter, their responses fall under the heading of aided recall." Whereas unaided recall"can generally be tested only through personal interviews or telephone surveys, aided recall"can be measured through mail-back surveys as well. A user assessment survey conducted for the Minnesota Department of Transportation (Strgar-Roscoe-Fausch, 1993) determined that 61% of the households in the I-394 corridor had seen a copy of the project newsletter, and 50% of the housholds thought the information was useful.

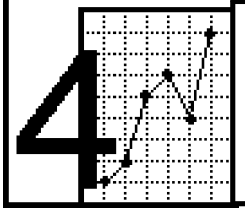
EXHIBIT: THE LONE RIDER

A failed attempt to characterize the non-carpooler as a bad guy.

Mode Shifts. Follow-up surveys can be used to document any changes in commuting habits which have occurred among members of the target population since an HOV project was introduced or a particular ridesharing campaign was implemented.

Project Opinions. Many project evaluators have used follow-up surveys to sample public opinion regarding the project itself. These questions can be framed in different ways. Drivers in the Santa Monica Freeway Corridor were asked whether they would rate the Santa Monica Diamond Lanes as Greatly Beneficial (9%); Beneficial (10%); Of No Benefit (19%); or Harmful (67%). Drivers in the I-394 Corridor in Minneapolis were asked to rate their level of satisfaction with the completed project as: Very Satisfied (36%); Somewhat Satisfied (39%); or Not Satisfied (25%). Seattle drivers are being asked to indicate the extent to which they agree or disagree with the statement HOV lanes are a good idea."Drivers in various transitway corridors in Houston have been asked at yearly intervals whether they feel the transitway in their corridor...is, at present, sufficiently utilized to justify the project,"and whether that transitway...is a good transportation improvement." By 1989, the percentage of freeway motorists who felt the transitway adjoining their freeway was a good idea ranged from 63% on the Gulf Transitway to 71% on the Northwest Transitway.

In view of the sometimes polarizing nature of HOV lanes on public opinion, it is best to give respondents a range of choices when asking their opinion of a particular project. That is, it is best to request more opinion shadings than a simple thumbs up"or thumbs down." Once a question format for elicitig public opinion is chosen, moreover, it should remain unchanged in successive surveys so that valid comparisons can be made over time.



E. EVALUATION PITFALLS

1. LACK OF HISTORICAL PERSPECTIVE

The most common pitfall plaguing past HOV lane evaluations has been a lack of adequate "before" data.

"Summing up, it is clear the future holds great opportunities. It also holds pitfalls. The trick will be to avoid the pitfalls, seize the opportunities, and get back home by six o'clock."

Woody Allen

Nearly all evaluations of HOV lanes and accompanying publicity campaigns rely heavily on before/after" comparisons. The most common pitfall plaguing these evaluations has been the lack of adequate before" data. For example, the failure to record traffic volumes on Route 55 in Orange County prior to the installation of HOV lanes has made it difficult to answer claims that the lanes caused an increase in accidents. It is virtually impossible to recreate before" data once the project has been initiated, and it is difficult to document the impact of an HOV project in the absence of adequate before" data.

As has been noted in discussing the scheduling of evaluation activities (Section 4.B.3), jurisdictions should begin assembing traffic counts on a corridor as soon as it is identified for future HOV treatment. This will provide historical perspective and ensure that data collection activities will not be delayed until construction has begun, when counts will reflect an atypical situation. One count a year for five years before construction starts is better than five counts after the bulldozers have begun. As the FHWA guidelines on HOV lane evaluation (Turnbull, et al., 1991) observe, a single data point is unlikely to accurately reflect before conditions."

The difficulty of relying on a single data point to document before" conditions is illustrated in the accompanying exhibit, which presents two views of the impacts of a speeding crackdown in Connecticut during the mid-50's. The exhibit shows the results of the crackdown as interpreted (a) by the Governor responsible for the crackdown and (b) by an uninvolved statistician. The Governor chose to use a single ?before" data point (see Exhibit A) to argue that the speeding crackdown was successful, while the statistician took a broader view based on five years of pre-crackdown accident data.

The statistician, Donald Campbell (Campbell, 1969) tested the statistical foundations for the Governor's statement that with the saving of 40 lives in 1956, a reduction of 23% from the 1955 motor vehicle death toll, we can say that the program is definitely worthwhile." Campbell tested a number of plausible rival hypotheses for the observed decrease in traffic fatalities, exploring such potential threats to validity as regression, exogenous events, and the inherent statistical instability of accident data. In addressing the possibility of statistical instability, Campbell had this to say:

"Seemingly implicit in the public pronouncement was the assumption that all of the change from 1955 to 1956 was due to the crackdown. There was no recognition of the fact that all time-series are unstable even when no treatments are being applied. The degree of this normal instability is the crucial issue, and one of the main advantages of the extended series (Exhibit B) is that it samples this instability. The great pretreatment instability now makes the treatment effect look relatively trivial. The 1955-56 shift is less than the gains of both 1954-55 and 1952-53. It is the largest drop in the series, but it exceeds the drops of 1951-52, 1953-54, and 1957-58 by trivial amounts. Thus the unexplained instabilities of the series are such as to make the 1955-56 drop understandable as more of the same. On the other hand, it is noteworthy that after the crackdown there are no year-to-year gains, and in this respect the character of the time series seems definitely to have changed."

Campbell, 1969

E. EVALUATION PITFALLS

1. LACK OF HISTORICAL PERSPECTIVE

EXHIBIT: TWO VIEWS OF THE IMPACTS OF THE MID 1950'S CRACKDOWN ON CONNECTICUT SPEEDERS

A. Connecticut Traffic Fatalities

(Deliberately graphed to emphasize impact of speeding crackdown.)

B. Connecticut Traffic Fatalities

(Same data as A presented as part of an extended time series.)

Source: Campbell, 1969.

E. EVALUATION PITFALLS

2. THREATS TO VALIDITY

***Internal* validity refers to the degree to which a campaign's impacts can be measured and interpreted correctly within the area of dominant influence, while *external* validity refers to the ability to transfer findings regarding these impacts to other areas.**

Any real-world evaluation will be marked by a number of exogenous events that threaten the statistical validity of the findings, the transferability of results, and the sanity of the evaluator. Many events may threaten the internal statistical validity of an evaluation of HOV lanes and accompanying programs. Examples include gasoline price hikes that encourage carpooling, concurrent advertising campaigns, ramp closings, construction activity, and changes in the local economy. In addition, certain factors may affect the transferability of findings from one city to another. Public support for HOV lanes may differ from city to city, and the uniqueness of a geographic setting may contribute to the success or failure of a project. Finally, certain events--such as funding cutbacks or administrative policy changes--that pose no threat to statistical validity may still threaten the orderly completion of the evaluation.

In the uncontrolled environment of an urban setting, many factors threaten the ability of the analyst to record events accurately or to draw correct statistical inferences from recorded data. These threats to validity can be conceived as falling into two groups: those that threaten *internal* validity and those that threaten *external* validity. Internal validity refers to the correct interpretation of the local impacts of the innovation within the test sites. (Was the Katy Freeway effective in inducing carpools in West Houston?) External validity addresses the relevance to correctly-interpreted local impacts in predicting the impacts of similar projects in other metropolitan areas. (If it worked in Houston, will it work in Dallas?) Lack of internal validity typically implies lack of external validity, except by coincidence. The converse is not necessarily true.

Threats to validity are not all statistical in nature. Many can be traced to the process of measurement and its effect on the environment or on those variables being sampled. Other threats reflect the difficulty of isolating the impacts of a single campaign from the many uncontrollable factors that are constantly changing in a dynamic urban setting.

One purpose of the Evaluation Plan (see Section 4-B) is to minimize and mitigate threats to validity. In some cases, these threats can be defused by scheduling innovations and measurements so they do not interfere with each other, by avoiding external interference, or by carefully defining control groups. Although the mitigation of threats to validity is a paramount goal, the ability to counter these threats effectively in a real setting (as opposed to a laboratory) is constrained by many factors. In cases in which threats cannot be countered effectively, they should at least be described comprehensively so that evaluation findings are accompanied by a full statement of the factors which may limit the validity of the results.

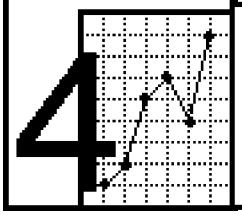
E. EVALUATION PITFALLS

2. THREATS TO VALIDITY

EXHIBIT: DRAWING DEPICTING *INTERNAL* THREAT TO VALIDITY

(Drawing by Sidney Harris)

"It was more of a '*triple*-blind' test. The patients didn't know which ones were getting the real drug, the doctors didn't know, and, I'm afraid nobody knew."



E. EVALUATION PITFALLS

3. INTERNAL THREATS TO VALIDITY

Major pitfalls theatening the *internal* validity of an HOV lane evaluation include exogenous events, maturation, measurement, interventions, time interference, instrumentation errors, faulty population selection, statistical regression, and statistical instability.

The accompanying exhibit lists eight potential threats to the internal validity of an HOV lane evaluation, along with a summary of possible countermeasures. These threats are discussed below.

1. **Exogeneous Factors** include all external events, such as gasoline shortages, concurrent advertising campaigns, changing economic conditions, or unseasonal weather, which are likely to affect the levels of such key impact variables as carpooling tendencies, public awareness, and accident rates. The careful definition of control groups offers one of the most effective means for countering this threat.

2. **Maturation** refers to the effects of time, independent of specific events, and includes existing trends in population growth and socioeconomic factors (i.e., the maturing of the baby-boom population and an overall decline in accidents per vehicle mile) which can affect observed impact levels. The best way to cope with this threat to validity is to use time-series analysis to detect existing trends and test the significance of subsequent observations.

3. **Measurement (Heisenberg's Principle)**. The measurement process itself may affect performance and response. For example, the sight of observers counting occupancy rates may cause violators to bail out of HOV lanes. Measurements should generally be unpublicized and unobtrusive.

4. **Time Interference** occurs when two or more concurrently scheduled activities obscure the individual effects of each. For example, HOV marketing campaigns are typically timed to coincide with the opening of HOV lanes, so that it is difficult to separate campaign impacts from the impacts of the lanes themselves. The effects of time interference can sometimes be countered by rescheduling activities to minimize interference or coordinating measurements to document separate and combined impacts. Since it is rarely desirable to decouple an HOV marketing campaign from the opening of HOV lanes, rescheduling is not usually an option in evaluating HOV campaigns. However, it is possible to use surveys to document the extent of campaign awareness among different groups of drivers.

5. **Instrumentation** refers to errors introduced by the measurement instrument or process, independent of any change in the phenomenon measured. These errors can sometimes be minimized by documenting the tolerance of both human and mechanical data collectors, and by spot-checking data for consistency and credibility. Before the Santa Monica Diamond Lanes opened, one roadside observer responsible for counting vehicle occupants at a particular location recorded all carpools and vanpools as having exactly three occupants, even if there were more passengers. This three-fingered counter"was replaced after lanes opened by an observer who recorded occupancy rates more accurately. As a result, before/after" comparisons showed a hefty increase in occupancy rates at one location. The fact that these increases were out-of-line with experience at other count stations led to a re-examination of field data, the identification of the three-fingered counter, and the voiding of his inaccurate counts.

6. **Population Selection** threats arise when sampled populations are not those specified in the evaluation plan, when populations vary in non-random ways between measurements, or when errors in logic are made in assigning a characteristic to a group.

E. EVALUATION PITFALLS

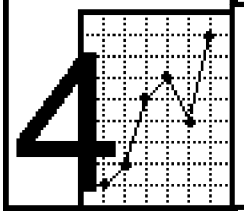
3. INTERNAL THREATS TO VALIDITY

EXHIBIT: SUMMARY OF POTENTIAL THREATS TO INTERNAL VALIDITY AND PLANNED COUNTERMEASURES

Threats to Internal Validity	Applicable Examples	Planned Countermeasures
1. Exogenous Events	• Gasoline crisis • Unseasonal weather • School holidays	• Use of control routes • Scheduling of observations to minimize ambiguity
2. Maturation	• Population increases • Overall decline in accident rates	• Use time series analysis to document past trends • Use of control routes
3. Measurement (Heisenberg's Principle)	• Roadside observers scare off violators	• Keep measurement process unobtrusive
4. Time Interference	• Concurrent scheduling of marketing campaign and HOV lane opening	• Use of control routes • Use surveys to record campaign awareness
5. Instrumentation	• Human counting errors and inconsistencies	• Spot check data for consistency and credibility
6. Population Selection	• Assuming random phone sample accurately reflects corridor driver	• Use license plate sample to identify corridor users
7. Statistical Regression	• Focus on corridors with low occupancy rates	• Use at least five years of baseline data in targeting programs and evaluating results
8. Instability	• Observed changes due to random process	• Time series analysis • Tests of statistical significance

7. **Statistical Regression**. Erroneous before"measurements and regression to the mean ca n distort the relative impacts attributed to public information campaigns. In choosing targets for safety programs, law enforcement agencies often focus on locations where accidents have risen dramatically in the past year. This selection process almost guarantees that the level of accidents at the target location will drop in subsequent years, whether or not an accident-reduction program has been introduced. Ideally, at least five years worth of data should be used in defining before"conditions, and time-series analysis should be used to evaluate results.

8. **Instability** refers to the ubiquitous possibility that observed changes are due to random statistical variations, ratherthan to the process being evaluated. The threat of instability can be countered by careful time-series analysis and tests of statistical significance.



E. EVALUATION PITFALLS

4. EXTERNAL THREATS TO VALIDITY

Major pitfalls theatening the *external* validity of an evaluation include the uniqueness of the project locale and any experimental conditions surrounding project implementation.

All threats to internal validity also threaten external validity. In addition, however, two types of factors specifically affect the transferability of evaluation results from one locale to another. The first is the uniqueness of any project location, and the second stems from the experimental conditions and/or controversy surrounding some HOV projects.

UNIQUENESS OF LOCALE

In assessing and communicating evaluation results, evaluators should ask Does the locale have characteristics so unlike other regions that impacts measured there cannot be expected in other cities?" Local geographic, institutional, economic, social, transportation, and demographic factors must be studied to determine whether they strongly influence the project's outcome.

Several aspects of the Los Angeles area and the Santa Monica Freeway itself served to amplify and modify the effects of the ill-fated Santa Monica Diamond Lanes. The official federal evaluation of the project (Billheimer, et al., 1977) cited five uniquely local concerns for the benefit of decisionmakers attempting to translate the Santa Monica Freeway experience in terms of their own geographic areas.

1. **Los Angeles' geographic sprawl and lack of a CBD orientation**. Because of the scattering of trip origins and destinations throughout Los Angeles, relatively few users of the Santa Monica Freeway were destined for the CBD. The lack of a focal point for trip destinations made carpool formation relatively difficult, decreased the pool of potential riders of the CBD-directed bus service, and increased the possibility of merging accidents.

2. **Los Angeles' automobile dependence**. As a result of the geographic sprawl of the City, Los Angeles residents generally travel further and are more dependent on their automobiles than residents of other, more compact, U.S. cities.

3. **The high incomes of area residents**. Some of the most influential persons in the city lived in the project area, resented any restrictions on auto use, and had the political influence to guarantee a hearing for that resentment.

4. **Fragmentation of government authority**. Los Angeles' fragmentation of public power and authority meant that a large number of government agencies and elected officials had some purview over the Diamond Lane project. Each decision maker had his own concept of project goals, and the degree of involvement and commitment to the Diamond Lanes varied greatly from agency to agency.

5. **Ramp metering**. In operating during the demonstration, the ramp meters on the Santa Monica Freeway helped to alleviate the freeway congestion caused by lane dedication. Prior to the project, moreover, the meters alone had so improved freeway traffic speeds that the Diamond Lanes suffered somewhat by comparison.

All locations are unique, and the best way to cope with the threat to external validity imposed by this uniqueness is to use a standard statistical framework to document the characteristics of the demonstration locale so that other jurisdictions can easily compare their own situations with that site. The accompanying exhibit suggests potential categories of site classification data.

EXHIBIT: SAMPLE SITE CLASSIFICATION DATA

ILLUSTRATIVE DATA DESCRIBING GENERAL URBAN SETTINGS

DEMOGRAPHIC DATA

- Population Densities
- Income/Employment Distribution
- Employment Distribution
- CBD Employment Densities
- Land Area/Development Patterns
- Climate
- Major Terrain Features
- Settlement Form
- Crime Rate
- Household Auto Ownership
- Cost of Living Index
- Population/Employment Growth Rates

TRANSPORTATION SYSTEMS DATA

- Journey to Work (Mode & Distance)
- Number of Licensed Drivers
- Miles of Highway & Transit Routes
- Average Trip Length & Time
- Vehicle-Miles Traveled/Capital
- Parking Charges
- Vehicle Occupancy Rate
- Transit Ridership/Capita
- Accident History (Property Damage, Injury, & Fatal Accidents)
- Gasoline Sales Per Capita

MEDIA MARKET DATA

- Total Service Area (Radio and TV)
  - Geographic Boundaries
  - Number of Viewers
- Area of Dominant Influence
  - Geographic Boundaries
  - Number of Viewers
- Average Costs Per Thousand Viewers

HOV CLIMATE DATA

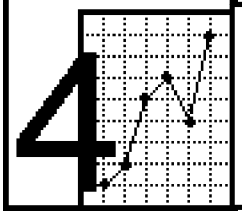
- Existence of Other HOV Lanes
- Alternate Traffic Routes
- Minimum Fine for HOV Violations
- Support Systems
  - Transit
  - Park and Ride Lots
  - Rideshare Organization

EXPERIMENTAL CONDITIONS

Some HOV projects have been publicly labeled as experimental demonstrations, while others have been threatened with closure throughout their existence. The San Francisco-Oakland Bay Bridge HOV Lanes were labeled as a Priority Lane Experiment," while politicians threatened to close both the Santa Monica Diamond Lanes and the HOV lanes on the Dulles Access road from opening day onward.

In the case of experimental HOV projects, long measurement processes, special media attention, and frequent service and operational changes, and the novelty of the demonstration itself may all affect user response to the project. It is generally best to avoid publicizing the experimental nature of a project and to discourage excessive management tinkering as time progresses.

Controversy and constant threats of closure will obviously affect public reaction to an HOV project. As noted in the Santa Monica Diamond Lane report (Billheimer, et al., 1977), a project whose life is consistently being threatened and that is treated as tentative by participants cannot be expected to generate as many long-term commitments to carpooling and bus riding as a project that is guaranteed to be around for a specified period before being junked, modified, or accorded permanent status."



E. EVALUATION PITFALLS

5. THREATS TO CREDIBILITY

When controversy arises, the credibility of HOV lane sponsors can come under attack. These attacks may be countered by following a pre-determined evaluation plan, reviewing all data and data collection procedures, releasing both positive and negative findings through a single focal point, and employing an independent evaluator.

Many different groups have an interest in the performance of HOV lanes, and provide many different viewpoints regarding the success or failure of individual projects. Environmental activists, drive-alone commuters, transit supporters, police officers, transportation department employees, carpoolers, clean air regulators, and politicians all have different viewpoints regarding the desirability and effectiveness of HOV lanes. This mix of conflicting viewpoints can make HOV lanes the center of public controversies and call into question the credibility of the sponsoring agencies. On controversial projects such as the Dulles Access Road and the Santa Monica Diamond Lanes, project opponents publicly accused the sponsoring agencies of dishonesty in reporting project findings. In addition to creating ill feeling and confusion among area residents, such public assaults can demoralize transportation agency employees and even cause internal dissension.

In the case of the Dulles Access Road, VDOT was accused of knee-jerk thinking, inflating HOV lane counts, and unfeeling arrogance in dealing with tax-paying commuters. In the case of the Santa Monica Diamond Lanes,

> *"One of the most serious controversies emerging during the demonstration turned on the question of data credibility. The sponsoring agencies were collecting data as the project progressed, and CALTRANS became the source for disseminating project statistics. As CALTRANS' project' came under attack, so did the data it issued. Other agencies began drawing different conclusions from the CALTRANS data, and some local groups--including the press itself--began collecting and issuing their own data. The free-form use of different numbers and different reference bases during the demonstration made it difficult for the public to know who or what to believe, and led the press to question the credibility of project participants. The credibility of project foes was rarely questioned by the media." (Billheimer, et al., 1977)*

Under the best of circumstances, there will always be some degree of ambiguity associated with traffic data. When HOV projects find themselves in the center of controversy, statistics can be assembled under the worst of circumstances, hastily collected under rigid deadlines, hurriedly processed in the glare of publicity, and interpreted by agencies and groups with a vested interest in defending or attacking the project. While there is no sure way to keep an agency's credibility from being called into question, several steps can be taken to bolster that credibility if it comes under attack.

- **Develop a detailed evaluation plan and follow it**. A structured statistical plan for measuring project impacts should be developed in advance. (See Section 4-B.) The plan should define what is to be measured, specify what comparisons are to be made, establish the statistical procedures to be used to validate the comparisons, and set a schedule for releasing results. While the evaluation plan may not keep project critics from questioning the credibility of the sponsoring agency, the plan should demonstrate the agency's good faith, guide data collection and analysis activities along defensible paths, and help to avoid embarrassing public pitfalls.

- **Include all affected public agencies and officials in the planning process**. The importance of constituency building in advance of the project cannot be overemphasized. If bridges are built in advance between agencies, groups, and officials with an interest in the project, the project is likely to accommodate a broader range of interests and the number of potential critics will be lowered.

EXHIBIT: EDITORIAL CARTOON INPUGNING CALTRANS' INTEGRITY DURING SANTA MONICA DIAMOND LANE PROJECT

- **Provide a lightning rod for public response**. On controversial projects, a central telephone center should be established shortly in advance of implementation to supply information, sample public opinion, record suggestions, and provide an outlet for public indignation.

- **Check and double-check all data before it is released**. Traffic data collection is subject to a number of errors, from simple human miscalculations to complex computer failures. All data should be checked for accuracy and consistency and reviewed to make sure apparent increases or decreases in key measures of effectiveness such as carpool formation are statistically valid and don't reflect seasonal quirks or changes in counting personnel.

- **Establish a focal point for information dissemination**. Project information should be distributed to the press through a single outlet, on a schedule set by the participating agencies

that allows data to be assimilated and evaluated before it is released.

- **Review data collection procedures to make sure they are unbiased**. In some cases, historical data collection procedures can cause traffic data to appear biased. For example, CALTRANS personnel have historically been instructed to abandon speed runs in the face of incident-caused congestion. As a result, speed runs reflect only incident-free days, making travel times appear faster than they actually are and raising questions of credibility with day-to-day commuters. This practice can also bias before/after comparisons if the number of freeway incidents changes between the before and after periods.

- **Publicize both positive and negative project impacts**. Attempts to improve a project's appearance and increase its acceptance by publicizing only positive statistics (i.e. carpool formation) while ignoring negative impacts (i.e. added congestion in mixed flow lanes) can only help to call an agency's credibility into question. Public agencies must be prepared to address both the positive and negative impacts of HOV lanes. In the case of controversial projects, negative impacts will be aired by project foes, who are likely to overstate them in the absence of official measurements.

- **Hire an independent evaluator**. Questions of credibility can sometimes be put to rest by having an independent evaluator to assess project impacts. If a project is seen in advance as being controversial, the evaluator should be brought on board early enough to assist with the evaluation plan and monitor before"data collection activities.

APPENDIX A

CASE STUDIES

PREFACE AND ACKNOWLEDGEMENTS

This appendix contains marketing case studies of seven HOV projects:

Appendix	Project
A1	Minneapolis I-394
A2	Hampton Roads Route 44
A3	Hampton Roads I-64
A4	The Santa Monica Diamond Lanes
A5	The San Francisco/Oakland Bay Bridge
A6	The Dulles Toll Road
A7	Seattle I-5 South

These case studies were chosen to represent a range of successful and unsuccessful HOV projects. The studies provide an overview of the project itself, and focus on the marketing campaign accompanying the project, including such topics as market research, campaign strategy, marketing materials, constituency building, media relations, community reaction, ongoing monitoring and evaluation, and the perceived reasons for the success or failure of the project.

Dr. John Billheimer of SYSTAN prepared case studies A1 through A6, while Heidi Stamm of Pacific Rim Resources prepared study A7, dealing with Seattle I-5 South HOV lanes. The authors received generous assistance from a number of individuals affiliated with the various projects. Special acknowledgement is due to Al Pint and Judith Rockvam of MN DOT and Charleen Zimmer of Strgar-Roscoe-Fausch, Inc. for their assistance with Minneapolis I-394; to Lynda South Webster and Frank Dunn of VDOT for their help with both the Hampton Roads projects; to Ron Klusza and Bob Goodell of CALTRANS District 7 for dredging up their memories of the Santa Monica Diamond Lanes; to M. Scott MacCalden Jr. of JHK Associates for unearthing the early technical reports on the San Francisco/Oakland Bay Bridge; to Mary Ann Reynolds and Carole Valentine of VDOT for reliving their experience with the Dulles Toll Road; and to Jerry Ayres, Melissa Loomis, and Rob Fellows of WA DOT for sharing their insights into Washington State HOV policies and programs.

APPENDIX A

CASE STUDIES

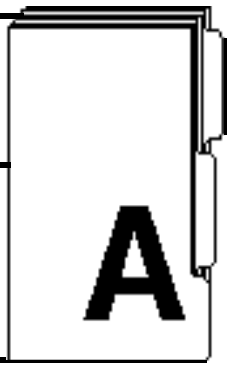


TABLE OF CONTENTS

A-1 CASE STUDY: MINNEAPOLIS – I-394

1.1 PROJECT DESCRIPTION

1.1.1 Location

I-394, the last segment of the interstate system to be constructed in the Twin Cities Metropolitan Area, extends eleven miles from downtown Minneapolis on the east to the city of Wayzata on the west (see Exhibit 1.1). The design consists of two mixed-flow lanes and one concurrent-flow HOV lane in each direction along the eight mile segment west of Highway 100, and two mixed flow lanes in each direction with two barrier separated, reversible HOV lanes along the three-mile median east of Highway 100. The lanes are supported by a variety of elements, including two major transit stations, seven park-and-ride lots, ramp metering, HOV bypass lanes at selected ramps, and three new directly accessible parking garages in downtown Minneapolis, which offer discounted rates to carpoolers.

1.1.2 Scheduling

I-394 was built along the alignment of U.S. Highway 12, and construction was staged in such a manner that the highway carried traffic while I-394 was being built. To help manage traffic during the construction of I-394 and introduce the concept of HOV lanes to the public, an interim HOV lane was implemented. The interim HOV lane, or "Sane Lane," as it was originally called, opened for carpools and buses in November 1985. The Sane Lane initially opened in two barrier-separated segments, and expanded to assist with traffic management as construction on I-394 proceeded. A concise description of the construction schedule, along with a thorough history of the decision process leading to the design and construction of the $420 million I-394 project, can be found in the FHWA publication "HOV Project Case Studies" (Turnbull, 1990). At present, all roadwork is complete, the lanes are open to traffic, and all garages and transit stations are operating. Extensive final landscaping is scheduled for 1994.

1.1.3 Utilization

Once operational, the I-394 HOV lanes offered an average time savings of from five to seven minutes to buses and two-person carpoolers traveling the length of the project. Express Lane usage has grown markedly since the project was completed. In November 1986, one year after the temporary Sane Lane was opened to relieve congestion during construction and introduce the concept of HOV lanes to Minneapolis commuters, 1,650 people traveled in the Express Lane during the peak morning hour. The number of Express Lane travelers remained fairly constant until 1991, when major new segments of I-394 began to open. Since that time, Express Lane usage has nearly tripled. (See Exhibit 1.2.) By the spring of 1993, 4,606 people, or 48% of the eastbound commuters during the peak hour, used the Express Lane each morning.

1.2 MARKETING

1.2.1 Overview

The Express Lanes on I-394 have been accompanied by a dedicated and extensive marketing program which has grown and evolved as the lanes proceeded from construction to completion. The marketing program included a thorough and ongoing market research

EXHIBIT 1.1
DESIGN FEATURES OF I-394

EXHIBIT 1.2
EXPRESS LANE USAGE ON I-394
(Source: I-394 Expressions, Spring/Summer 1993)

component; a unified marketing plan that guided the production and dissemination of a wide variety of promotional materials; attention to constituency building among public agencies and the maintenance of good community relations; and, finally a process of monitoring and evaluation which enabled MN/DOT to report project impacts in an accurate and timely fashion.

Objectives. Marketing objectives evolved gradually from introducing the HOV concept as construction began to filling the HOV lanes when construction was completed. Throughout the project, marketing personnel concentrated on "increasing carpooling and bus riding, establishing two-way communication with target audiences, and maintaining positive media relations." (Draft Phase III Report, 1993). According to MN/DOT,

> "Strategies regularly focused on communicating the benefits of I-394, utilizing both paid and non-paid media to reach target audiences and tying all communication vehicles together with a similar look and a Highway 12/I-394 logo. As construction neared completion, both the objectives and messages began to focus more on selling the total I-394 transportation system concept and the big-picture messages about how this system fits into the transportation environment both today and into the future." (Draft Phase III Report, 1993)

Budget. The marketing program was supported by an in-house marketing liaison, a contract with a public relations/advertising agency, and a dedicated budget that averaged approximately $400,000 per year. During construction, 90% of these marketing dollars came from federal interstate funding, with the remaining 10% coming from the state, and the budget was generally split evenly between advertising and public relations efforts.

Key Concerns. MN/DOT staff and their consultants identified the following key marketing considerations at the start of the project

- it is essential to develop a cooperative relationship with the police and judicial communities;
- it is critical to avoid the empty lane syndrome;
- continuous, positive media relations must be maintained;
- a wide variety of media channels should be used to communicate with target audiences;
- it is important to know the audience--key incentives vary by audience.

1.2.2 Market Research

The I-394 marketing program has benefited from ongoing market research which has used telephone surveys, focus groups, and employer discussion groups to assess marketing potential, identify target audiences, test promising marketing approaches, and measure public reactions to the Express Lanes.

Well before construction began, a Rideshare Market Potential Study was undertaken by the Metropolitan Transit Commission (MTC), in cooperation with MN/DOT and the Metropolitan Council. (Metropolitan Transit Commission, 1984). The analysis examined rideshare programs in other areas, surveyed current corridor users, and evaluated potential strategies. The following four strategies were recommended in the study:

- Encouraging the development of self-created carpools and vanpools.
- Establishment of a corridor employer and community program to encourage ridesharing.
- Creation of study area commuter club to promote ridesharing.
- Interim HOV lanes/treatments on State Highway12 before I-394 construction.

Turnbull (1990) notes that "While all of these recommendations were utilized in the development of other aspects of the I-394 plan, the recommendation on the use of an interim HOV lane had the biggest impact."

Additional research at the start of construction indicated that:

- Most respondents were dissatisfied with the existing Highway 12; there was strong support for the new I-394;
- 10% of the respondents said they would consider switching to carpooling or bus riding when the new I-394 was complete;
- time and money were the two greatest incentives to carpool or ride the bus; and
- brochure/maps, drivetime radio reports and television news were the preferred means of obtaining pertinent information about I-394.

Follow-up focus groups and telephone surveys were conducted during the implementation period and after construction was complete. A survey of 400 residents of western Minneapolis suburbs contacted by phone roughly three months after the completion of construction showed that 75% of those surveyed were satisfied with I-394. (36% said they were very satisfied, while 39% were somewhat satisfied.)

1.2.3 Campaign Strategy

Because I-394 represented the first introduction of HOV lanes in the Minneapolis/St. Paul area, an extensive marketing plan was developed. The initial focus of the plan was to let people know how to use the HOV lane, parking garages, and transit and rideshare services. The marketing team strove to create realistic expectations for the project, to encourage commuters to use the HOV lanes, and to gain the support of decision makers, the media, and the public at large.

Early Promotional Activities. To accomplish these objectives, an aggressive public information campaign was undertaken prior to the opening of the HOV lane and during the first year of operations. During the six weeks immediately preceding the opening of the initial segment and immediately after the Grand Opening, the following activities were undertaken:

- **Direct Mail**. A direct mail package was sent to 65,000 households in the I-395 corridor. This package included a "Commuter's Guide" brochure, project maps, the first issue of the I-394 Expressions" newsletter, and bus schedules.

- **Newsletter**. A quarterly (later semi-annual) newsletter "I-394 Expressions" was mailed to corridor households.

- **Construction Bulletins**. Construction bulletins were distributed door-to-door in local areas directly impacted by a specific construction activity.

- **Media Relations**. Positive media relations were promoted through weekly press releases, a press kit, a press tour of the HOV lane prior to the Grand Opening, and appearances on public affairs programs.

- **Advertising Channels**. Traditional advertising approaches used a radio spot, a billboard along the right-of-way, newspaper ads, bus-side advertising, and a project poster.

- **Special Events**. A grand opening ceremony was held for the HOV lane and carpool parking lot. Special events also commemorated groundbreakings and grand openings of major interchanges and the three parking garages.

- **Telephone Hotline**. A HELP-394 Information Center hotline was established.

Ongoing Promotions. Several new approaches were added and others were modified as the project progressed and research identified new targets.

- **Construction Briefs**. In response to business owners' feedback, a bi-weekly (later monthly) construction update was developed and mailed to corridor businesses who wished to have more frequent communication.

- **Name Change**. The name "Sane Lane," which focus groups initially selected to connote the benefit of avoiding construction hassles, was changed in 1990, when new research found the term "Express Lane" to better reflect the Lane's purpose. While all outgoing communications reflect this change, the public and media often continue to use the term "Sane Lane," largely because of the effective radio jingle used in the initial marketing program.

- **Target Shift**. Females under 35 were originally identified as the primary target group for project advertising. Within a year, this was changed to males aged 18-45, and subsequently broadened to all adults in this age range. More recent 1992 research suggested that females in the 18 to 35 age category with incomes under $35,000 per year had the greatest propensity to carpool or ride the bus. With this finding, marketing was redirected toward the original target group.

1.2.4 Marketing Materials

Marketing materials on the I-394 project were unified through the use of a single logo showing a construction worker replacing the old Highway 12 sign with a new I-394 standard (see Exhibit 1.3).

EXHIBIT 1.3
I-394 PROJECT LOGO

Marketing personnel noted that they had designed their advertising materials to look "professional, but not too flashy." They feared that "flashy" materials might lead the public and some legislators to question whether MN/DOT was spending the taxpayer's money wisely. In reviewing the materials and approaches used to promote I-394, project personnel had clear ideas regarding those elements which had been most successful.

Effective Materials. Marketing approaches judged to be most effective were:

- **The I-394 Newsletter** which regularly showed a high awareness lead;

- **Telemarketing** which convinced 58% of those contacted to sign up for the carpool matching program;

- **Traffic Report Spots**. When traffic reporters read promotional material as part of their regular programs, the message not only reached drivers during their commute, but also improved the reporters' view of the lanes.

- **Single Spokesperson**. The identification of a single project spokesperson, the I-394 Corridor Manager, enabled MN/DOT to orchestrate the formal articulation of key messages and ensured that media representatives could get consistent, credible answers to questions as they arose.

Discontinued Approaches. Other approaches proved to be less effective. Some discontinued approaches are listed below.

- **Telephone Hotline**. The telephone hotline was felt to be valuable during the early weeks of the project. Calls were handled through a telephone response center called The Connection. This proved to be expensive, however, and call volume soon dropped off, even though the line was heavily publicized. As a result, the service was discontinued.

- **Outdoor Advertising**. Billboards were used effectively in generating early project awareness. They were discontinued when focus groups suggested that

outdoor advertising was "...not a preferred medium for obtaining pertinent information." (Draft Phase III Report, 1993)

- **The "Big Ride Guide."** A "Big Ride Guide" foldout containing information on potential rideshare partners was judged to be ineffective and discontinued when it was suggested that public information regarding individual's addresses and work hours might be useful to burglars.

- **Carpool Campaign Slogan**. A carpooling campaign entitled "Gang Up Downtown" was cancelled days after it began in response to political sensitivity regarding gang activity in downtown Minneapolis.

1.2.5 Constituency Building

At the outset of the projects, MN/DOT took care to involve all affected agencies in the planning and decisionmaking of I-394. A Corridor Management team was formed that included representatives from the following agencies:

- MN/DOT
- Metropolitan Council
- Regional Transit Board (RTB)
- Metropolitan Transit Commission (MTC)
- Minnesota Rideshare
- Federal Highway Administration (FHWA)
- Minnesota State Patrol
- City of Minneapolis
- Hennepin County

A block diagram showing the relationship of the Corridor Management Team to the participating agencies appears in Exhibit 1.4. This organizational structure provided top-down open support from within MN/DOT and promoted strong interagency cooperation with the project. The Phase I Case Study prepared in October 1987 notes that "...the public commitment of the Commissioner and the major decision-making role of the Corridor Management Team were very important in achieving this support." The report also cites the importance of designating a single Corridor Manager with responsibility for the interim HOV lane as well as the construction of I-394 as a key factor in the project's success. Because responsibility was concentrated at within a single, identified individual, MN/DOT was able to respond immediately to any problems or criticisms.

EXHIBIT 1.4
ORGANIZATIONAL STRUCTURE OF THE I-394
TRANSPORTATION SYSTEM MANAGEMENT PLAN

(Source: I-394 Case Study, Phase I Report, October, 1987)

To cement relations with the legislature, judicial system, and the public at large, informational meetings were held prior to the opening of the HOV lane with legislators, elected local officials, prosecutors and hearing officers, law enforcement officers, and various community groups.

Individuals involved with the process reported that the early and continuing involvement of the different agencies and jurisdictions was a critical factor in the development of the plan and the success of I-394 Express Lanes. The FHWA case study (Turnbull, 1990) notes that "The diverse nature of the different elements of the plan and activities critical to making the overall project a success made the need for ongoing communication very important." The report goes on to note that the case of the Project Management Team and other coordination mechanisms has been used as a model for other subsequent projects and cite the following key elements that ultimately made the planning process work:

- Strong support and commitment from the top levels and key individuals within the different agencies. Most often noted was the strong leadership from the MN/DOT Commissioners and other top MN/DOT staff, the support of FHWA administrators, and the support of the regional agencies (Metropolitan Council and Regional Transit Board) and the city of Minneapolis.

- Good working relationship among the technical staff of the different agencies and jurisdictions, and the high level of interaction between the staff and the consultants on the project.

- The lack of agreement at the metropolitan level concerning the future role for transit, especially rail transit, in the area. This resulted in a lack of agreement on the role for transit in the I-394 corridor.

- The continued involvement of the public, neighborhood groups and local communities in the process. Even with the vocal and often strong opposition by many community groups, residents and local elected officials were willing to continue to work with MN/DOT and other agencies to try to reach a plan acceptable to all.

- The involvement of the Minnesota Legislature in stopping work on I-394 planning, and ultimately restricting the width and design of the facility.

- Once the final decision had been made in 1981, the early involvement of affected agencies and organizations in the planning process was important. For example, the State Patrol, which would be responsible for enforcement of both the Sane Lane and the permanent HOV lanes, was brought into the process early to insure that the lanes were designed and operated to accommodate safe and efficient enforcement.

While Turnbull notes that all groups were "not...always in agreement on every issue throughout the development of the plan," she adds that "the process provided for the open discussion of issues and resolutions of conflicting points of view in such a manner that the ongoing coordination and communication was not jeopardized." An important feature of this coordination was the agreement on the part of all implementing agencies to actively support the project during the 18-month start-up period to give the HOV Express Lanes a fair test.

1.2.6 Media Relations

Recent media coverage of the I-394 Express Lanes has been almost uniformly positive. The Corridor Manager, Al Pint of MN/DOT, notes that "good media relations are more important than advertising in ensuring project success," although he observed that good advertising and advertising placement can help promote positive media coverage. Other steps taken to promote positive media coverage included:

- Media training for all I-394 Project Engineers;
- The dedication of a full-time staff person to project liaison and public information;
- Regular press releases, current press kits, and media tours of the HOV lanes prior to opening; and
- The release of key data in a timely fashion.

As a result of these steps, the press and electronic media have generally placed I-394 activities in a favorable light, have reported ongoing developments accurately and have generated positive news coverage. On opening day, for example, the press staged a "race" along the length of the project by a carpool and a single occupant vehicle, a race won handily by the carpool.

Press opposition to I-394 tends to come from rail advocates who feel that HOV lanes are half-measures foisted off on a gullible public by "freeway mathematicians,...concrete spending, and their guardian angels from think tanks" using "stacks and stacks of dubious numbers." (Jim Klobuchar; Minneapolis *Star Tribune*, September, 1993). They question whether the money spent to change people's behavior ("...to coax them to learn to love carpooling and buses") will solve the traffic problem. As Jim Klobuchar wrote in the Minneapolis *Star Tribune* "we aren't going to change a whole lot of behavior, despite the claims of earnest propagandists who are trying to justify the lonely express lane and the parking warehouses."

To counter these barbs, MN/DOT has tried to create realistic expectations for the I-394 Express Lanes and market the lanes as a promising mobility option that represents a single element of the solution to Minneapolis traffic problems, not a panacea for congestion.

1.2.7 Community Reaction

Community reaction to I-394 has generally been as positive as media coverage.

Public Reaction. As noted, 75% of western Minneapolis residents interviewed by phone three months after the completion of the project reported that they were satisfied with I-394. Follow-up questions among those expressing dissatisfaction revealed most of the residents expressing some measure of dissatisfaction (roughly half of those interviewed) were displeased because certain points along the freeway remained congested during the morning and evening peaks. MN/DOT's answer to those disappointed with continuing congestion, as expressed in its I-394 Newsletter, Expressions, reflects the Agency's policy of promoting realistic public expectations:

> I-394 was not designed to be congestion-free, the financial and environmental costs of such a design are just too great. Instead, I-394 offers mobility now and

into the future through increased carpooling and bus riding. MN/DOT is currently analyzing the I-394 design in the Penn Avenue and I-94 interchange area to determine if there are any modifications that would help ease congestion in those areas.

Source: MN/DOT I-394 Expressions, Spring/Summer 1993

Business Reaction. MN/DOT's relationship with the businesses along the I-394 route got off to a rocky start, with early research showing a majority of the businesses negative about the frequency and quality of the communication received from MN/DOT. However, the Phase III Report notes that "efforts to improve the situation increased and 1990 research showed a significant improvement in both the frequency and quality of the information received." These efforts included newsletters, special meetings and construction bulletins with maps that could be reproduced for the customer of the affected businesses.

MN/DOT received much criticism after several businesses closed during the construction phase and directly blamed the I-394 project for their failure. In order to maintain as good a relationship as possible with the business community, a MN/DOT worked closely with the 1,250 member Twin West Chamber of Commerce, meeting monthly with a special task force comprised of business owners." (Draft Phase III Report) This helped keep MN/DOT in tune to business owner needs during various stages of the project. Ongoing research in 1988 and 1990 showed that very few business owners experienced significant negative impacts from the construction. Those who did cite a negative impact tended to be businesses dependent on sight lines and drive-by customers.

1.2.8 Ongoing Monitoring and Evaluation

From conception through implementation and operation, the I-394 Project has consistently maintained a high level of ongoing monitoring, evaluation, and reporting. In addition to the regularly scheduled newsletters, project documentation includes a comprehensive Transportation System Management Plan (Strgar, Roscoe-Fausch, 1986), as well as major evaluation reports on Phase I (Strgar, Roscoe-Fausch, 1987), and Phase II (Strgar-Roscoe-Fausch, 1990). A Phase III Report is currently in preparation. These reports reveal a well-thought-out evaluation plan that identified necessary pre-project data and defined the ongoing measurements needed to provide meaningful measures of effectiveness. The evaluation not only analyzed traffic data, but also documented public reactions through focus groups and telephone surveys. The process has enabled MN/DOT to assess the effectiveness of the project at regular intervals and to establish a credible forum for reporting evaluation findings to the media and the public in a timely fashion.

1.3 REASONS FOR SUCCESS

By almost any measure, the I-394 Express Lanes can be termed a success. They are accepted by the public, offer carpoolers and bus riders a consistent time savings of five to seven minutes, have minimal violation rates, carry 48% of the Corridor's commuters during the peak morning hour, and have led to the formation of a number of carpools. Many factors contributed to this success in the planning, design, construction and operation stages. The factors judged to be most important by the participants themselves were cited as follows in the Phase I Report (Strgar, Roscoe-Fausch, 1987):

- The lane worked the way it was intended to work. Its benefit in bypassing congestion is clearly visible to people who use Highway 12.

- The promises for time savings were kept. People perceive greater time savings than were promised and say this is the main reason they use the HOV lane.

- The definition of a carpool as a passenger vehicle with two or more people made it easier to form carpools and put reasonable volumes in the lane immediately; thus, there was no "empty lane syndrome."

- Occupancy requirements were rigorously enforced. Patrols were highly visible during the first few weeks of operation and periodically thereafter.

- There was top-down open support from within MN/DOT and strong interagency support for the project. The public commitment of the Commissioner and the major decision-making role of the Corridor Management Team were very important in achieving this support.

- By designating a Corridor Manager, with responsibility for the operation of the interim HOV lane as well as the construction of I-394, MN/DOT was able to respond immediately to any problems or criticism.

- A lot of attention was given to providing timely information to people, to maintaining a positive image of I-394 construction and the HOV lane, and to marketing the benefits of carpooling and riding the bus. A variety of methods were used including a telephone "hotline," newsletters, billboards, media coverage and special events.

- A system of supportive facilities and programs was implemented to provide the best possible level of service, cost savings and time savings for people who carpool or ride the bus.

The last four of these factors (interagency support, focused responsibility, timely information, and support facilities) fall under the traditional heading of marketing concerns. However, the first four factors, which address the design and operating decisions which ensured that the lanes would work the way they were intended to work, were just as important from a marketing standpoint. In the words of Corridor Manager Al Pint, "It's easy to market a good product."

A-2 CASE STUDY: HAMPTON ROADS ROUTE 44 (PHASE I)

2.1 PROJECT DESCRIPTION

2.1.1 Location and Design

At the Norfolk/Hampton Crossroads, where Route 44, I-64, and I-264 meet between Norfolk, Hampton Roads, and Virginia Beach, HOV lanes were planned on I-64 and the Virginia Beach-Norfolk Expressway (Route 44). The segment on Route 44 consisted of five miles (ten lane miles) of concurrent flow HOV lanes. Adjoining lanes on I-64 were designed as barrier-separated reversible flow lanes. (See Exhibit 2.1.) The initial design of the lanes made no provision for express bus service or park-and-ride facilities.

2.1.2 Scheduling

The first leg of the HOV system was constructed on Route 44. The concurrent-flow lanes were constructed in two phases, with the first phase opening in September, 1986 and the second phase opening in January 1987. When federal money for the completion of the reversible lane on I-64 proved to be slow in coming, VDOT had to decide whether to open the Route 44 lanes as HOV lanes or open the new lanes to all traffic and restrict them to HOVs when the entire system was complete. Feeling it would be too difficult to reclaim the lanes for HOVs once they had been opened to all traffic, VDOT decided to restrict the new lanes to vehicles with three or more occupants from opening day onward. Unfortunately, the decision was not made until two months before the lanes were to open, leaving little time to plan a marketing campaign.

2.1.3 Utilization

Once operational, the lanes shaved five minutes from commuting times during rush hour. However, few motorists elected to take advantage of this time savings by forming three-person carpools. One month after opening, the lanes carried just 50 vehicles per hour, or about one percent of the total number of rush-hour vehicles. One year after opening, in September 1987, HOV lane traffic had grown to 250 vehicles per hour. This included a number of violators, as exasperated non-carpoolers wove in and out of the HOV lanes. Even with violators, the lanes appeared to be empty, and outrage grew. "I don't think people would have been so mad if they'd seen a car in there now and then," one state senator who opposed the lanes was quoted as saying. Politicians, recognizing that the number of non-carpoolers far outnumbered the number of carpoolers, capitalized on the public outrage. Four months after the Route 44 HOV lanes were opened, a General Assembly Bill was introduced to rescind the HOV concept on Hampton Roads. During the 1987 elections, seven candidates in seven contested races for General Assembly from the Norfolk-Virginia Beach area opposed the HOV lanes. VDOT stood behind the lanes, citing numbers that showed the lanes were carrying a growing proportion of the people moving on the expressway. This satisfied neither the public nor the politicians, who accused VDOT of using "...one of the oldest tricks in the book: lies, damn lies, and statistics." (Assemblyman Glenn Croshaw, quoted in the September 6, 1992 *Virginia Pilot and Ledger-Star*).

2.1.4 Rescinding the HOV Lanes

The legislature prevailed and the General Assembly passed a law exempting Virginia communities with population profiles fitting the Norfolk-Hampton Road-Virginia Beach area from

HOV restrictions. In April, 1988, nineteen months after they opened, the HOV restrictions on Route 44 were rescinded and workers sandblasted the diamond symbols from the pavement. In a

EXHIBIT 2.1
SOUTH HAMPTON ROADS
HIGH OCCUPANCY VEHICLE SYSTEM

compromise move undertaken to protect federal funding, it was agreed that lanes would be reopened when the entire HOV system was completed on I-64. Accordingly, the HOV-3 signs were left standing, covered with a message saying that the carpool provisions were "temporarily rescinded." (See Exhibit 2.2). At their peak, the Route 44 lanes carried only 250 vehicles per hour, less than 5% of the vehicles and less than 20% of the commuters using the route.

XHIBIT 2.2
SIGN ANNOUNCING TEMPORARY END OF ROUTE 44 HOV LANES
(Source: *Virginia Pilot and Ledger-Star*)

2.2 MARKETING

2.2.1 Overview

Because the decision to open the Route 44 lanes as HOV-3 lanes was delayed until two months before the actual opening of the lanes, little pre-project marketing could be accomplished. Marketing activities were handled by VDOT's Suffolk District Office, which budgeted $40,000 for the following items:

- A brochure entitled "Want to Travel in Faster Company?"
- A two-page newspaper ad in the *Virginia Pilot*; and
- An instructional video.

2.2.2 Market Research and Coalition Building

Little research into public attitudes preceded the project, and the adverse public response to the HOV lanes was underestimated. The short set-up period also left no time to build coalitions with allied agencies or seek out potential supporters in the legislature. As a result, the lanes were largely unenforced, and the General Assembly had no trouble passing the bill that killed HOV lane operations.

A survey of commuters and ridesharers conducted when the lanes were in operation showed that even ridesharers had problems with the Route 44 lanes. Ridesharers observed that too few people used the lanes; they were not well enforced; they did not go far enough (i.e. onto adjacent I-64); and it was unsafe when drivers from other lanes pulled in.

2.2.3 Monitoring and Evaluation

In defending the HOV lanes, VDOT cited counts which indicated that the number of carpools was growing and promised that conditions would improve when the system was completed. After eighteen months, however, the lanes carried only 250 vehicles per hour, far too few to overcome the "empty lane syndrome." The promise of more vehicles at some indefinite future date did little to sway public opinion.

2.2.4 Reasons for Failure

When reversible HOV lanes on I-64 were completed, the Route 44 lanes were reopened as part of a broader system (See Section 3.0). At this time, VDOT personnel reviewed the reasons the lanes had failed to gain a following during their initial incarnation. These reasons are listed below:

- We failed to gain support for HOV from those who could not use the lanes.
    - Use was very low. Volume never increased enough to overcome the impact of empty lane syndrome perceptions.
    - There was little time savings experienced by the commuters.
    - The system was too incomplete to be a significant benefit to the public.
    - The public couldn't conveniently make rideshare accommodations in order to make use of the lanes.
    - The violation rate was high; the enforcement rate was low.

Source: Historical Perspective, paper prepared by Lynda South Webster, Director of Public Affairs for VDOT.

Lynda South Webster, VDOT's Director of Public Affairs, noted that the "failure to realize material benefits in time savings, slow growth in overall use, and a poor understanding and 'buy in' of the long-range benefits" led to the rescinding of the Route 44 lanes. While she observed that reducing the carpool requirement to HOV-2 might have helped counter the empty lane syndrome, the project as staged was incomplete and unsupported by either a rideshare program or park-and-ride lots. "The product was simply not a good one," she concluded and "the best marketing program can't salvage a poor product."

2.2.5 Concurrent Project

At the same time that the Route 44 HOV lanes were creating controversy and generating legislative opposition, an experimental HOV access lane was successfully implemented at the entrance of the Midtown Portal leading out of Norfolk. The access lane offered a 20-minute time savings to ridesharing commuters and was opened to three-person carpools shortly after being opened for van pools and buses on August 1, 1981. The acceptance of this lane, which continues to operate successfully, showed that the Hampton Roads public could accept the HOV concept if it were properly designed and presented. In contrast to the Route 44 lanes, VDOT felt that these access lanes succeeded because:

- They offered a significant time savings;
- They did not obviously inconvenience the general public, which liked the new traffic pattern;
- A personal sales/promotion campaign that targeted corridor commuters;
- Good signage; and
- Heavy monitoring and enforcement.

A-3 CASE STUDY: HAMPTON ROADS ROUTE 44 AND I-64 (PHASE II)

3.1 PROJECT DESCRIPTION

3.1.1 Location and Design

To protect federal funding for the freeway improvements planned at the Norfolk/Hampton Crossroads, it was agreed that the HOV lanes on Route 44 would be re-opened when the reversible lanes on I-64 were completed and the entire HOV system was in place. After the elimination of HOV restrictions on Route 44, traffic volumes continued to increase until all lanes, including those designated for future HOV conversion, were operating at capacity. Therefore, VDOT concluded it would be necessary to convert the outside shoulders of Route 44 to travel lanes so that there would be no reduction in the total number of lanes available to mixed-flow traffic when HOV restrictions were re-established. The shoulder lane conversion was scheduled to take place in the same time frame as the reverse lane construction on I-64, leading to the final project design already depicted in Exhibit 2.1.

3.1.2 Scheduling

The completed HOV project at the Norfolk/Hampton Crossroads opened on September 15, 1992. In the four-and-a-half years between the legislatively-mandated lifting of restrictions on Route 44 and the opening of the completed system, VDOT took several measures to ensure the success of the new system. These included:

- The formation of an HOV Steering Committee;
- The development of a long-range marketing program;
- The design of several rideshare support facilities; and
- The redefinition of occupancy requirements.

HOV Steering Committee. An HOV Steering Committee was established to develop a plan to ensure public acceptance of the HOV system in Hampton Roads. Members of the Committee included representatives of:

- Local municipalities (Norfolk, Virginia Beach, Chesapeake)
- Hampton Roads PDC
- Norfolk Naval Base
- Virginia State Police
- VDOT
- Virginia Department of Rail and Public Transportation (VDRPT)
- Tidewater Regional Transportation District Commission (TRT)

Long-Range Marketing Plan. Recognizing the importance of marketing to the success of the HOV system, the HOV Committee established a marketing subcommittee and delegated the task of developing a five-year marketing program to TRT. This provided the group with additional marketing expertise, as well as a marketing consultant to work with VDOT's public affairs office and resulted in the development of a 5-year marketing plan. This plan is described in more detail in Section 3.2.

Rideshare Support Facilities. To help ensure the success of the HOV lanes, a number of support facilities and programs were developed. These included:

- Computer **ridematching**;
- **Employer outreach** programs;
- Additional **park-and-ride lots**;
- **Highway signage** promoting ridematching and existing park-and-ride facilities;
- **Express Bus Service** from several park-and-ride lots in Virginia Beach to the Naval Base; and
- A Commuter Check Program of subsidized transit fares for participating employees (as much as $60/month).

Occupancy Requirements. To combat the empty lane syndrome which helped to doom the initial Route 44 HOV lanes, the Committee strongly recommended that transportation officials open the new lanes to two-person carpools (HOV-2) and move to three-person carpools (HOV-3) when congestion in the HOV lanes dictated the need for tighter restrictions.

3.1.3 Utilization

Early vehicle counts and traffic observations suggest that the HOV lanes on Route 44, I-564, and I-64 have improved traffic conditions in Hampton Roads, but data are too limited to support definitive conclusions. Exhibit 3.1 shows speeds during the peak morning commute period in the conventional lanes before and after the installation of HOV lanes. The exhibit shows that speeds in conventional lanes improved dramatically with the installation of HOV lanes, while vehicles in the HOV lane were able to travel at 55 miles per hour throughout the morning peak.

Eight months after installation, the freeways were carrying approximately the same number of people in 12% fewer vehicles during the morning peak, and the number of carpools with two or more people had more than doubled, increasing from 1,439 before the HOV lane opening to 3,043 after eight months. During the evening peak, 4,328 carpools used the freeways, up from 3,269 before the HOV lanes opened.

3.2 MARKETING

3.2.1 Overview

In view of the negative public reaction to the initial opening of HOV lanes on Route 44, the HOV Steering Committee felt it needed to "...be more positive, set a stronger image, and promote a civic responsibility (to rideshare)." To accomplish this, the Committee developed a five-year, three-

phase marketing plan designed to "overcome past problems, create positive awareness, and induce ridesharing through the use of HOV lanes."[1*]

EXHIBIT 3.1

AVERAGE RUNNING SPEED ON CONVENTIONAL AND HOV LANES
AM PEAK PERIOD 5:00 – 8:30

HOV Objectives. The marketing plan began to cast the lanes in a positive light well in advance of their actual opening.

- **Phase I**. The first phase of the three-phase plan started in FY 1989/90, three years prior to the scheduled opening of the HOV project. The goals of this phase of the project were:

  – to promote the concept of ridesharing;

  – to show the benefits of ridesharing to individuals;

  – to inform the public of the possibilities of ridesharing; and

  – to promote the concept of HOV lanes and issue status reports on construction progress.

- **Phase II** of the marketing plan covered the final year of construction before the lanes opened. During this period the overall marketing objectives remained the same, but emphasis shifted to HOV lane operating issues and away from more general ridesharing messages.

- **Phase III** of the marketing plan covered the first two years of HOV operation. The marketing objectives during this phase were to open the lanes successfully, ensure their continuing acceptance and use, and give credibility to the lanes' effectiveness and use. At the same time, the plan called for the continued promotion of the community and individual benefits of ridesharing.

Budget. The marketing plan called for a budget of $1.5 million over the five-year time frame. Funding sources included FHWA, VDOT, and State Transit funds.

Key Issues. VDOT was forthright in admitting that the initial Hampton Roads HOV lanes had been a failure and conveying the message that they had learned from that failure. A key phrase in Phase I and II advertising was:

"THIS TIME HOV GOES THE DISTANCE"

reflecting the fact that the longer lanes offered more significant time-savings, and carrying the positive message that the lanes would succeed this time out.

---

[*]Hampton Roads Area HOV-Rideshare Marketing Program, May, 1989.

To address key issues, VDOT and its consultant developed a series of positioning statements. These bullets of information addressed the HOV system's key selling points and provided a solid, consistent base for discussing the HOV system with the news media, citizens, civic groups, and other audiences. The statements were divided into four key categories, as outlined below.

- **HOV Lanes Benefit Commuters**. "HOV makes life better for commuters because it saves them money, time, and reduces the stress involved in driving to and from work."

- **HOV Lanes Benefit the Community**. Hampton Road growth is affecting air quality and placing more demands on the transportation network. Clean air and smooth traffic flow are vitally important to creating jobs in the area.

- **The Transportation Industry is Changing**. "Because of environmental concerns, rising construction costs and limited space, transportation networks are being designed under a different philosophy. We are developing multi-modal systems that effectively deal with current – and future – traffic conditions."

- **Route 44 and I-64 Are a Very Important Part of the HOV System**. The HOV lanes on Route 44 and I-64 are a critical part of the system because they serve the State's largest population center.

3.2.2 Market Research

Attitudinal and behavioral research was conducted during each of the three phases of the Marketing Program.

Benchmark Research. During Phase I, ridesharers using Route 44 and the Midtown tunnel were interviewed, along with a sampling of all commuters using Route 44. This research, which was conducted while the ill-fated HOV lanes were in effect on Route 44, showed that:

- While commuters were fairly affluent, ridesharers tended to be in the middle income brackets;

- Ridesharing was discretionary. Most ridesharers (88%) had access to a vehicle they could use for commuting.

- The three primary reasons for ridesharing were: (1) to avoid traffic congestion (23%); (2) to save money (20%); and (3) to take advantage of HOV lanes (12%).

- About 30% of non-ridesharing commuters believed that nothing would make them share a ride. Another 36% would share a ride and use the HOV lanes only if they did not have a car available.

- The work place was most often cited as the place where ridesharers recalled seeing or hearing materials promoting ridesharing. After the workplace came newspapers, radio and television.

Interim Research. Interim research conducted during the summer of 1991 as part of Phase II of the marketing program included both focus groups and commuter surveys. This research indicated that awareness of ridesharing was rising and support for HOV lanes was increasing.

Ongoing Research. Interviews conducted after the lanes were opened found that 70% of the commuters responding to the interviews were in favor of the HOV lanes.

3.2.3 Campaign Strategy

Phase I. The campaign goals during Phase I (1989 to 1991) were:

- To build a constituency for HOV lanes among potential users and non-users before the lanes were reinstated and change negative attitudes to neutral or positive attitudes. The key message chosen to accomplish this was "Ridesharing is not for everyone, but the benefits are!"

- To keep commuters well informed. This was accomplished through road construction updates.

- To create a public attitude that single occupant vehicle travel was not desirable.

Activities during Phase I included employer outreach programs and speaker's bureaus. Other promotional activities included newspaper ads, outdoor advertising, and brochures promoting ridesharing and vanpooling. Regular news releases updated the media on construction progress.

Phase II. Phase II of the marketing program covered the year before the lanes opened. During this period, the key positioning messages stayed the same, but the campaign emphasis shifted to public education in anticipation of the opening of the HOV lanes.

Major outreach activities included:

- A half-day **HOV Conference** to educate employers, government representatives, judicial leaders, and the media regarding the conception, design and use of the HOV lanes.

- **Media visits** to show media representatives how the new HOV lanes, express bus service, and rideshare program would work.

- A large **static display** with a map of the HOV lanes and information describing the working of the lanes and the associated rideshare programs and express bus service. This display was stocked with brochures and rotated through shopping centers and large employment sites.

Promotional activities included:

- Educational public service announcements;

- Radio and TV campaigns;

- Radio and TV talk shows;
- A **commuter guide** for the newspapers; and
- New highway signs, including a series of "burma shave" limericks promoting HOV lane use and ridesharing in general.

Phase III. Phase III of the Marketing Program covered the opening of the lanes. The immediate campaign strategy at this time shifted to operational issues and focused on instructing the public in the use of the lanes.

Outreach activities included:

- A **video** showing how to use the HOV lanes that was provided to Naval Commands and other large area employers;
- A pre-opening **press event** that included a bus tour of the HOV lanes;
- **Brochures** with questions and answers on lane use that were distributed to large area employers.

Promotional activities included:

- A full-page newspaper article showing how to use the lanes;
- Sponsorship of radio traffic reports;
- Release of the "how to" video for cable TV use;
- Newspaper and radio promotion;
- News releases; and
- Promotional tie-ins with Pizza Hut (see Exhibit 3.2).

3.2.4 Marketing Materials

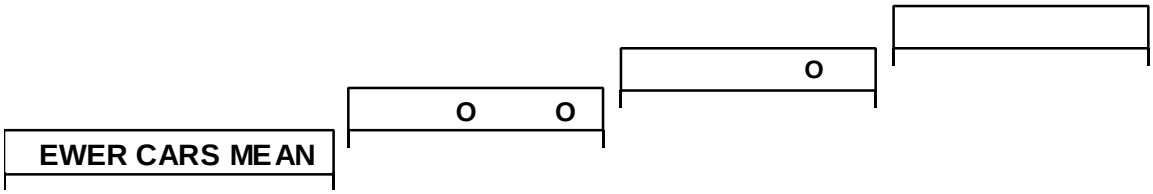
Marketing materials developed at the time the new lanes were opened bore the emblem:

HOV - 2

which served as a unifying theme and also helped to distinguish the new HOV lanes from the failed I-44 lanes, which had three-person occupancy requirements.

Effective Materials. Marketing approaches judged to be most effective were:

• **Burma Shave Signs**. Roadside jingles modeled after the old "Burma-Shave" signs reached corridor commuters directly with memorable messages. A sample message appears below:



Local marketing personnel felt that these signs represented the most effective use of their advertising dollars.

• **Traffic Report Spots**. VDOT and TRT sponsored live "reads" by traffic reporters during the commute periods. These messages not only reached drivers during their commute (and sounded like reporting rather than public service messages) but also improved the reporters' views of the lanes.

EXHIBIT 3.2

PIZZA HUT HOV TIE-IN

• **Brochures**. An all purpose fold-out brochure was developed that bore a map of the project, instructions for using the lanes, information on express bus service, and common questions and answers regarding lane design and use.

Ineffective Approaches. Participants agreed that one marketing approach that didn't work involved the attempt to establish a villainous character, the Lone Rider (see Exhibit 3.3), to discourage single occupant commuting.

EXHIBIT 3.3

THE LONE RIDER

A failed attempt to characterize the non-carpooler as a bad guy.

Typical ad copy read:

DON'T BE A LONE RIDER!
SHARE A RIDE TO WORK AND ENJOY
THE BENEFITS

This concept attempted to make "bad guys" out of the majority of the drivers in the Hampton Roads area using the image of the Lone Ranger (who was, after all, a "good guy.") Leaving aside the bad-guy/good-guy confusion, the concept failed for a more basic reason: It was impossible to establish the identity of the character in the public's mind using the limited air time and print exposure available to donated public service messages.

3.2.5 Constituency Building

Steering Committee. As a first step toward constituency building, VDOT formed an HOV Steering committee (see Section 3.1.2) composed of representatives of all those public agencies and entities having an interest in the HOV Project. In addition to VDOT, these included the local municipalities, the Hampton Roads PDC, the Norfolk Naval Base, the Virginia State Police, the Virginia Department of Rail and Public Transportation, and TRT.

Transportation Conference. Roughly six months before the HOV lanes were scheduled to open, VDOT and TRT invited business, government, and public opinion leaders to a half-day transportation conference designed to explore ways to "work together to solve the transportation problems of our region." The invitations echoed the "Burma Shave" jingles used to advertise the coming of the HOV lanes:

We're all in this jam
Like grapes in a bunch
So join us for breakfast
And be gone by lunch.

In addition to a continental breakfast, attendees received small jars of grape "Traffic Jam" as a reminder of the problem. The well-attended and well-received program was composed of "jam sessions" that featured a look at HOV lanes around the country, as well as the HOV component of the planned Hampton Roads network, and included discussions of ridesharing, light rail, integrated transportation systems, and employer participation.

Employer Outreach. VDOT and TRT included the area's largest employer, the Norfolk Naval Base, on the HOV Steering Committee, and made sure that base officials were aware of progress and policies involving the Hampton Roads HOV project. A program of ongoing education and promotion was necessary because of the constantly changing work force at the base. To provide this ongoing program, the marketing committee set up a computerized rideshare matching program on the base, distributed instructional videos, and contributed a weekly column to the base newspaper.

Other area employers were contacted with more traditional outreach efforts, which included brochures, videos, and construction updates.

Top Level Spokespersons. In an attempt to counter any negative image left by the early failure of the Route 44 lanes, the HOV Steering Committee made a point of employing top echelon people from individual agencies whenever a spokesperson was needed to address the public regarding HOV plans and policies. For example, John Milliken, Virginia's Secretary of Transportation, gave the keynote speech at the Transportation Conference preceding the opening of the lanes. The use of top level personnel sent the clear message that the individual agencies had strong top-down support for the HOV concept.

3.2.6 Media Relations

Media coverage of the new, improved HOV lanes was almost uniformly positive. The local newspaper, the Virginia-Pilot gave the lanes ten days of feature-article coverage prior to opening. Each article was headed by a count-down logo (see below) listing the number of days remaining before the lanes opened on September 15.

HOV2

INSIDE

10 9 8 7 6 5 4 3 2 1 days to open

t **Full-page color graphic describing the new HOV system on Page A15.**

Success. Northern Virginia quickly embraced HOV lanes/**A16**

Failure. In Hampton Roads, public outcry sank HOV lanes/**A16**

Articles over the ten-day period covered such topics as the scheduled hours, the success of HOV lanes in Northern Virginia, the previous failure of the Route 44 HOV lanes, measures of success, how-to-information, and common questions and answers.

Among the features that helped to provide positive press coverage were:

- **The positioning statements** which helped to focus media coverage;

- **Forthright comparisons** of the new project with the previous Route 44 lanes, emphasizing the reasons the current version was likely to succeed; and

- A police-escorted tour of the lanes for photographers and press representatives prior to opening.

3.2.7 Community Reaction

As reported by VDOT, "...the HOV lanes opened without measurable negative comment from the press or public." After one week of operation, the I-64 lanes carried as many as 4,000 vehicles during the evening peak period, 1,000 more than projected. Eight months after the lanes opened, there were 4,902 HOVs using the reversible I-64 roadway during the evening peak.

Commuter surveys conducted after the lanes opened indicated that 70% of those surveyed were in favor of the lanes.

3.2.8 Monitoring and Evaluation

An ongoing program of monitoring and evaluation has been established under which VDOT and the Southwestern Virginia PDC monitor vehicle occupancy rates at established locations at regular intervals. Reports documenting these occupancy levels and relative travel speeds have been produced at six-month intervals. At the same time, TRT monitors the usage of park-and-ride lots and transit services, while VDOT conducts regular surveys of commuter attitudes and awareness. Reports to date have made no attempt to draw conclusions regarding the effectiveness of the lanes, largely because the lanes have been operational for a relatively short time.

3.2.9 General Marketing Conclusions

Although it is too early to judge the effectiveness of the Hampton Roads HOV lanes, they are carrying more carpools than planners initially projected and have been well received by the public. Reflecting on their experience with both the initial HOV lanes on Route 44 and the more complete current network, the public relations personnel at VDOT set down the following conclusions:

1. The HOV concept is not easily accepted by the public.

2. For HOV to be successful, a change in commuter attitude and behavior toward ridesharing is essential...it alone will overcome the empty lane syndrome.

3. A transient workforce (Navy) necessitates constant education on "how to" use the HOV system.

4. Continued acceptance of HOV requires continued education and promotion of the personal and social benefits of ridesharing to commuters, employers and political leaders.

5. Good enforcement is also key to positive perception of how well the HOV lanes work. Ease of enforcement must be a key component in designing future systems.

6. Convenience is a key factor. Convenient, safe park-and-ride lot locations, ridematching services, express bus service and employer support are essential elements in the success of the HOV system.

7. It appears that public acceptance is contingent on the perception of high utilization of the lane. *Success breeds success*... The strategy of starting with HOV-2 and moving up as congestion dictates is consistent with this idea.

A-4 CASE STUDY: THE SANTA MONICA DIAMOND LANES

The project description and marketing analysis which follows borrows heavily from SYSTAN's UMTA/TSC Project Evaluation Report "The Santa Monica Freeway Diamond Lanes" (Billheimer, Bullemer, and Fratessa, September, 1977).

4.1 PROJECT DESCRIPTION

4.1.1 Location and Design

The Santa Monica Freeway, which connects the City of Santa Monica and downtown Los Angeles, is one of the most heavily-traveled freeways in the world, and is served by a variety of sophisticated traffic control devices, including metered on-ramps with preferential entry provisions at selected locations, a computerized surveillance system, and centrally-controlled electronic displays. On March 15, 1976, the California Department of Transportation (CALTRANS), acting in conjunction with the California Highway Patrol (CHP) and local bus operators, reserved the median lane in each direction of a 12-mile, eight-lane segment of the Santa Monica Freeway for the exclusive use of buses and carpools carrying three or more occupants. The reserved lanes, known locally as the Diamond Lanes, operated in each direction during the peak hours of traffic flow. No barriers separated these lanes from the remaining flow of freeway traffic. Implementation of the Diamond Lanes was accompanied by the introduction of a variety of express bus services and the opening of three new Park-and-Ride lots in Western Los Angeles. Exhibit 4.1 shows the geographic boundaries of the Santa Monica Diamond Lanes, as well as the locations of the Park-and-Ride lots and the supporting bus service.

4.1.2 Scheduling

The Santa Monica Freeway project marked the first time preferential lanes had been created by taking busy freeway lanes out of existing service and dedicating them to the exclusive use of high-occupancy vehicles. Although the Diamond Lanes entailed no major physical modifications or construction on the freeway itself, they generated considerable emotional reaction among freeway drivers and other residents of Los Angeles. The project neither started nor ended as scheduled. The original starting date was delayed by a combination of concerns including operational readiness, financial problems, a local dispute over the implications of nationwide labor protective agreements, and the Southern California rainy season. When the Diamond Lanes finally opened, the first day of operations was disastrous, featuring bumper-to-bumper traffic, long queues at on-ramps, a malfunctioning ramp meter, many accidents, outraged drivers, poor press notices, and derisive news commentary. As the project progressed, freeway performance improved somewhat and both bus and carpool ridership increased, but accidents remained a serious problem and the climate of public opinion and media reaction grew more hostile. The preferential lanes operated amid much controversy for 21 weeks until August 9, 1976, when Judge Matthew Byrne of the U.S. District Court in Los Angeles halted the project and ordered additional environmental studies prior to its continuation.

4.1.3 Utilization

Much of the controversy surrounding the Diamond Lanes consisted of conflicting claims regarding the ability of the project to accomplish its stated objectives of conserving energy, improving air quality, and expanding effective freeway capacity by increasing the occupancy of

buses and automobiles using the freeway. SYSTAN's independent analysis of the vast quantities of data assembled by both friends and foes of the project revealed that, although some of the

EXHIBIT 4.1

OVERVIEW OF THE SANTA MONICA DIAMOND LANE PROJECT

stated objectives had been attained by the close of the demonstration, the cost in accidents, driver delay, and public outrage was far greater than anyone had anticipated. Major findings of that analysis are summarized below.

On the positive side of the ledger:

- During the last seven weeks of the project, the Santa Monica Freeway carried 1.8% fewer people in 10.1% fewer automobiles than it had carried prior to the project in the morning and evening peak periods. The entire corridor, including parallel surface streets, carried 1% more people in 5% fewer vehicles.

- The number of carpools on the freeway increased by 65% during the project.

- In response to both the Diamond Lanes and a significant increase in transit routes and service frequency, daily bus ridership between the Westside study area and the Los Angeles CBD more than tripled, increasing from 1,171 riders per day prior to the project to 3,793 riders per day during the last week of Diamond Lane operation.

- Speeds recorded by carpoolers in the Diamond Lanes were both faster and more consistent than pre-demonstration speeds. Carpoolers traveling the length of the Diamond Lanes were able to save between two and three minutes over pre-project travel times and approximately five or six minutes over travel times in other lanes.

However, certain hoped-for benefits failed to materialize during the short life of the project:

- After an initial increase, fuel consumption levels on the freeway and adjacent city streets dropped slightly during the last seven weeks of the project, falling an estimated 0.8% below pre-project levels.

- ...Estimates of vehicle emissions made on the basis of mileage computations indicated that emissions increased early in the project and dropped to pre-project levels by the close of the demonstration.

Moreover, the positive and neutral impacts of the project were counterbalanced by the following negative considerations:

- Freeway accidents rose markedly during the project. An average of 25 accidents per week occurred during Diamond Lane operating hours, roughly 2.5 times the weekly pre-project average.

- During the Diamond Lane demonstration, freeway speeds for non-carpoolers were both slower and less predictable than they were before the demonstration.

Although speeds improved as the demonstration progressed, freeway driving time for non-carpoolers traveling the full length of the Diamond Lanes over the last seven weeks of the project were slightly more than one minute longer than pre-project levels in the westbound direction during the P.M. peak and more than four minutes longer in the eastbound direction during the A.M. peak.

- Average delays at the busiest metered ramps increased between one and five minutes per car during the peak hours of morning and evening operations.

- Combining ramp delays and slower freeway speeds, measured increases in total trip times for non-carpoolers traveling eastbound on the freeway in the morning ranged from six minutes per trip at the western end of the freeway to negligible increases at on-ramps near the CBD. Corresponding increases for westbound travelers in the evening ranged from seven minutes per trip for drivers entering near the CBD to insignificant delays west of La Cienega Boulevard for drivers entering midway along the length of the project.

- Aggregate travel speeds on surface streets paralleling the freeway slowed slightly during the demonstration, dropped by about 4.5%.

- The weight of the media and public opinion were solidly against the project. Eighty-six percent of corridor drivers surveyed, including the majority of carpoolers, felt that the Diamond Lanes were either harmful or of no benefit whatsoever.

After the close of the demonstration, conditions on the freeway approximated those experienced prior to the project. Although bus service continued and bus ridership remained high, at more than two and one-half times pre-project levels, the number of carpools dropped to within 5% of the number on the freeway before the Diamond Lanes were implemented.

Thus, the Santa Monica Freeway Preferential Lane project succeeded to some degree in attracting riders to carpools and transit, and increased freeway capacity with a minimum amount of additional construction and enforcement costs. However, the project brought about a significant increase in freeway accidents; energy savings and air quality improvements were insignificant; non-carpoolers lost far more time than carpoolers gained; and a heated public outcry developed which delayed the implementation of other preferential treatment projects in Southern California and has given planners and public officials in other areas ample cause for reflection before attempting to implement similar projects.

4.2 MARKETING

4.2.1 Overview

The participating agencies had developed a conventional marketing plan (Caltrans, August, 1975) designed primarily to introduce the public to the Diamond Lanes and induce ridesharing. From its disastrous opening day onward, the demonstration project was anything but conventional. It quickly became a media event, generating reams of newsprint, radio and television coverage, vocal public reactions, political debate, lawsuits, banners, slogans, badges, cartoons, and at least one song. As expressed in the official DOT evaluation (Billheimer, et al., 1977), "From their implementation to their dissolution, the Diamond Lanes were never far from public view and, when in view, they were treated as an eyesore."

Objectives. The objectives stipulated in the Caltrans marketing plan were to:

- induce public acceptance of an improved means of mass transportation which involved taking away one freeway lane for the exclusive use of buses and carpools;

- enhance the chances of success of the experiment through maximum public information and education; and

- increase bus patronage and carpooling by promoting new and improved services in West Los Angeles.

Key Issues. From the start, Caltrans and its allied agencies recognized that the key issue facing the project was the problem of taking a lane away from one of the busiest freeways in the U.S. and restricting it to bus and carpool use. They were aware that the early days of the pilot project were likely to be hectic ones filled with public confusion and activity. As stated in their marketing plan, the "...project will be a difficult one requiring a thorough marketing effort, particularly in the advance and beginning stages of operation when a significant adverse public reaction can be expected." (Caltrans, August, 1975)

To counteract this anticipated adverse reaction, the marketing team planned to stress the positive benefits of the project: economy, convenience, environmental improvement, energy conservation, better utilization of existing transit facilities, and increased ridesharing through both buses and carpools. The name "Diamond Lane Express" was to provide a "memorable, meaningful, and promotable identity" for the project, and others like it.

Budget. The initial promotional program was developed by the project team as part of an UMTA grant for marketing and data collection. The sources and recipients of marketing funds are itemized below.

RECIPIENTS AND SOURCES OF MARKETING FUNDS

RECIPIENT	AMOUNT	SOURCE
CALTRANS	$163,650	UMTA
	50,456	State
Subtotal	214,106	
SCRTD	73,711	UMTA
	60,000	LA County
Subtotal	133,711	
SMMBL	10,254	UMTA
TOTAL	$358,071	

Thus a total of $358,071 was allocated to the project for marketing and public information. Of this, $214,106 went to Caltrans, while the remainder went to the two participating bus lines, the Southern California Rapid Transit District (SCRTD – $133,711) and the Santa Monica Municipal Bus Lines (SMMBL – $10,254).

4.2.2 Market Research

Pre-Project Research. No market research was undertaken in advance of the Santa Monica Diamond Lane project. The chief feature of the project, that of lane conversion, had never been attempted on a similar scale, and it felt that people could not react intelligently to a project they had not experienced. The concept of preferential HOV lanes was not new either to Los Angeles or to the Santa Monica freeway. Twelve of the thirty metered entry ramps serving the freeway had featured bypass lanes for carpools with two or more occupants for nearly eight months prior to the opening of the Santa Monica Diamond Lanes.

East of Los Angeles on Interstate Route 10 (the same interstate designated as the Santa Monica Freeway to the east of the city), the El Monte Busway had been operational since early 1973. Public opinion on the busway had been strongly positive ever since its opening. The busway had been opened briefly to carpools during a 1974 bus strike, and was permanently opened to three-person carpools in October 1976.

Post-Project Research. Once the Santa Monica Diamond Lanes opened, several mechanisms were used to monitor public reaction. These included a telephone response center, surveys of bus riders, carpoolers, and other corridor drivers, ad hoc newspaper polls, and public hearings. All these mechanisms revealed an overwhelmingly negative public response to the Diamond Lanes. As reported in SYSTAN's DOT evaluation, "In the most extensive survey undertaken, eighty-six percent of the corridor drivers surveyed--including the majority of carpoolers--felt that the Diamond Lanes were either harmful or of no benefit whatsoever."

4.2.3 Campaign Strategy

The promotional strategy outlined in the initial marketing plan focused on introducing the public to the Diamond Lane project and stressing the project's positive benefits.

Introductory Campaign. The promotional package used to introduce this new service to the public included radio, newspaper, and television ads, billboards, freeway message signs, and commuter handouts. Exhibit 4.2 shows the schedule of marketing events planned around the March 16, 1976 opening date. Following a March 1 press conference, newspaper advertisements began to appear regularly, the changeable message signs on the freeway advised commuters of the "Soon to Open" project, and 120,000 brochures were handed out by CALTRANS personnel on Santa Monica Freeway on-ramps. The brochures explained the reasons for the Diamond Lanes and how to use them, and included rules for drivers, alternate route descriptions, bus and carpool information, and a tear-off postcard that could be mailed in for additional information.

Ongoing Marketing. Following the disastrous opening day, the advertising campaign was drowned out by the media outcry and the public sponsors, placed on the defensive, were able to do little to counter the tide of adverse public reaction. Early in May, CALTRANS hired a public relations consultant and took a more aggressive stance in an attempt to improve the project's image, broaden the base of support for the Diamond Lanes, and disseminate project information to

a wider community of people. As part of this more aggressive marketing campaign, a program of appearances at public forums was established, downtown employers were contacted, a "Friends of the Diamond Lane" group was formed, and quick responses were generated to press coverage that was viewed as inaccurate or misleading. Unfortunately, CALTRANS' own image had suffered so much by early June that little could be done to improve the negative image of the project created by the media blasts, the public outcry, and the more disappointing aspects of the Diamond Lanes' operation. CALTRANS credibility came under attack as foes of the project generated their own data and attacked CALTRANS statistics and conclusions. A June 1 Diamond Lane review in the Los Angeles Times, which was followed by editorials headed "Dishonesty with Diamonds," and "Sin and the Diamond Lane" were particularly damaging to CALTRANS.

4.2.4 Marketing Materials

Marketing materials prepared in advance of the Diamond Lanes' opening consisted primarily of hand-out brochures and newspaper ads featuring the changeable message signs and the freeway itself. (See Exhibit 4.3.)

EXHIBIT 4.2

SANTA MONICA FREEWAY DIAMOND LANE
INTRODUCTORY PROJECT MARKETING SCHEDULE

		Opening Day		
		March 16		
		Week One	Week Two	Week Three
1.	Handout CALTRANS Brochure (freeway on-ramps)	**********		
2.	Freeway Changeable Message Signs (CALTRANS)	Began mid-February **********	(Indefinite) **********	
3.	Information Booths (RTD)	**********	**********	**********
4.	Technical Press Briefing (RTD)	*		
5.	CALTRANS Radio Spots		**********	
6.	Billboards (RTD)		(to 4-30) **********	
7.	CALTRANS News Advertising		O, T	O
8.	RTD News Advertising	O, W	W, O	W, T, O W
9.	SMMBL News Advertising		O O W	O O O O
10.	Bus Cards (SMMBL)		(Indefinite) **********	
11.	Bus Cards (RTD)		**********	
12.	Public Service Announcement		(to 4-30) **********	
13.	Community Relations (non-users)		(Indefinite) **********	
14.	Telephone Information Center	**********	**********	
15.	News Releases (CALTRANS)	*	*	
16.	News Releases (RTD)		***	
17.	News Releases (SMMBL)		***	

O = Santa Monica Overlook

T = LA Times
W = LA Times-Western Edition

EXHIBIT 4.3

SAMPLE NEWSPAPER AD

Given the extent of the newspaper ads and accompanying radio announcements, the use of the changeable message signs, and the quantity of brochures handed out on the freeway, it is unlikely that many regular users of the Santa Monica Freeway were unaware that March 15, 1976 marked the opening of the Diamond Lanes. Although the lanes themselves should have come as no surprise, opening day commuters did have reason to be surprised by several of the unannounced adjustments accompanying the opening of the lanes, including the tightening of ramp meter rates and the barricading of the slip ramp at the Harbor Freeway interchange. These unannounced adjustments undoubtedly contributed to the opening day confusion, and helped make March 15 the chaotic "Mad Monday" which received scathing press coverage.

4.2.5 Constituency Building

Several factors contributed to the stormy political weather encountered during the Diamond Lane demonstration. These included:

- The complexity of transportation planning, financing, and decision-making in the Los Angeles area;
- The changing philosophy, policies and personnel in the State transportation agency; and
- The scheduling of the demonstration in an election year.

All of these factors combined in a setting where everyone talks about transportation conditions but few are able to do anything about them. Prior to the project, transportation plans had proliferated as the number of federal, state and local agencies with an interest in transportation multiplied. Los Angeles' fragmentation of public power and authority meant that a large number of government agencies and elected officials had some purview over the Diamond Lane project.

In an attempt to unify these diverse elements, CALTRANS and SCRTD formed a Joint Project Committee composed of representatives of key agencies with an interest in the project. Agencies participating in Joint Project Committee meetings included:

CALTRANS
Southern California Rapid Transit District (SCRTD)
County of Los Angeles Road Department
Santa Monica Municipal Bus Lines (SMMBL)
California Highway Patrol (CHP)
Commuter Computer
Los Angeles City Traffic Department
Los Angeles Police Department
Los Angeles Mayor's Office
Southern California Association of Governments (SCAG)

Representatives of the County Board of Supervisors sometimes attended planning meetings, as did staff from SYSTAN, Inc., the official federal evaluator. No outside marketing personnel were involved, and members of the press were not invited until after the project had become front-page news.

Although there was broad agency participation in the Joint Project Committee, each decisionmaker had his own concept of project goals, and the degree of involvement and commitment to the Diamond Lanes varied greatly from agency to agency. When the media spotlight turned on the project, the public saw not a united front but a number of public agencies and elected officials pointing accusing fingers at the lead agencies, while other officials remained prudently silent. Several public agencies responsible for transportation activities adopted an adversary role which hindered both the free flow of project information and the coordination of project decisions.

Public reaction and the media din were exacerbated by the frequent and public opposition of several elected and appointed City and County officials. The level of opposition ranged from responsible criticism on the part of some officials who had worked with project personnel in an attempt to make the Diamond Lanes more acceptable to their constituents to simple attempts on the part of other officials to align themselves publicly with the opposition to a clearly unpopular project. Responsible opposition and objective analysis had to clamor for a hearing alongside of simplistic arguments, emotional appeals, and self-serving electioneering. The Diamond Lanes even became a pawn in the election-year battle for the approval of funds for a rapid rail system in Los Angeles (STAMP OUT DIAMOND LANES: VOTE YES FOR RAPID TRANSIT). In the face of the opposing clamor from the media, public, and elected and appointed officials, those officials who might have favored the project found it prudent to remain silent, and little in the way of a constructive public dialogue emerged.

CALTRANS, the lead agency responsible for project implementation, went from a state of flux immediately prior to the project to a state of siege during the demonstration. In the period immediately preceding the project, the agency was in a state of transition that included shifts in executive responsibility at the State level as well as sweeping layoffs locally. The shuffling of responsibilities, layoffs, and changes in management caused problems in both planning continuity and pre-project data collection. Once the project began, the new faces at CALTRANS were confronted with a new set of problems. Whereas the agency had become accustomed to public pressure over the building of freeways, the Diamond Lanes represented a new concept with a new set of aims and enough adverse side effects to lead some within the agency itself to question whether CALTRANS was justified in defending the project. As CALTRANS struggled to assess the operations on the freeway, deal with the hostile press, and evaluate a number of complex issues involving the project's future, an

impatient press and public blistered the agency for its apparent intransigence and insensitivity to the needs of the citizens. (See, for example, inset cartoon.)

4.2.6 Media Relations

Newspaper Coverage. During the 21 weeks of Diamond Lane operation, the three major daily newspapers covering the project--the morning Los Angeles Times, the afternoon Herald-Examiner, and the Santa Monica Evening Outlook--produced an average of nine articles and editorials per week on the Diamond Lanes. The predominant tone of the articles was negative, and the editorials were solidly against the project. Although the operations on the freeway improved following the disastrous opening day, when all three newspapers carried banner headlines proclaiming "FREEWAY CHAOS" and "DIAMOND IS ROUGH," newspaper coverage grew steadily more hostile as the demonstration progressed. Recurring themes in the press treatment of the project were:

* The operational failure of the lanes ("A Total Flop," Times, June 11, 1976);
- The distasteful, coercive nature of the use of disincentives to encourage carpooling ("Freeway Folly," Herald-Examiner, March 11, 1976);
- Bureaucratic recalcitrance ("CALTRANS Needs Education," Valley News, April 13, 1976); and
- The credibility of the data published by the project's sponsors ("Dishonesty With Diamonds," Times, June 16, 1976).

Radio and Television. The Diamond Lanes were also a popular subject for radio and television coverage, and provided a platform for many public figures seeking public exposure. As in the case of the press, the general tenor of the coverage provided by local and national radio and television stations was hostile to the project, with a few pleas for patience interspersed among many demands for termination. Perhaps the most hostile and least balanced of all media coverage was provided by the radio disc jockeys and traffic reporters, whose jibes ("you'll get home tonight if it takes all year") reached motorists while they were in the middle of their congested commuting period.

4.2.7 Community Reaction

Surveys, interviews, telephone calls, newspaper polls, public hearings, and letters to newspaper editors occurring during and after the project all revealed an overwhelmingly negative public response to the Diamond Lanes. As has been noted, *in the most extensive survey undertaken, eighty-six percent of the corridor drivers surveyed--including the majority of carpoolers--felt that the Diamond Lanes were either harmful or of no benefit whatsoever.* But public response to the Diamond Lane project was not limited to such formal avenues as survey responses and letters to editors. Residents of Los Angeles managed to find unique ways of expressing their general distaste for the Diamond Lanes. On opening days, nails were spilled in the lane by a disconsolate motorist, and a "baggy bomber" used paint-filled balloons to obliterate several of the painted diamonds in the lane. On June 3, the "Citizens Against the Diamond Lane" slowed Diamond Lane users by staging a mock funeral procession in the lanes, and they later attempted to hang anti-project signs from a freeway overpass. A smaller, less vocal group of "Citizens for the Diamond Lanes" was organized and developed a newsletter to champion their cause. Entrepreneurs sold bumper stickers and badges carrying comments on the lanes, while college students offered their services as riders for a fee to drivers wishing to qualify as carpoolers, and the media reported a brisk sale of mannequins designed to gull observers into believing one driver and two dummies constituted a three-person carpool.

All of the anti-Diamond Lane activities were reported by the media, which helped to create and sustain the climate of negative public opinion. It is impossible to know whether the public outcry was generated by the negative public image, or whether the media image simply reflected public outrage. Whichever came first, both the public and the media were in full cry early in the project, and each supported the other as the attack on the lanes progressed.

Any attempt to lay the full blame for the hostile climate of public opinion on the media both oversimplifies and overstates the case. It is unlikely that the negative media reports alone could have generated such a hostile response if the report were not reinforced by a negative impact on the lives of the public. In writing on the relationship of the media and public opinion at the time of the Diamond Lane experiment, Washington columnist Joseph Kraft observed that:

> "One of the few things we know about public opinion is that it grows from experience. People develop views when something happens to them. The more acute the happening--the more it makes us pay in money or blood--the more strongly held the view...

"Public opinion is the sum total of all (their) experiences. Things read in the paper or seen on television only form a part of the total. But a part that is dim unless reinforced by experience."

In Los Angeles, the negative media image of the Diamond Lanes was reinforced daily for over 100,000 freeway users who found their daily commute trip lengthened by a project designed to benefit a perceptibly smaller proportion of the traveling public.

4.2.8 Monitoring and Evaluation

At the time the Santa Monica Diamond Lanes were implemented, the dedication of an existing freeway lane to high-occupancy traffic was a controversial measure with equally controversial impacts, of interest not only in Los Angeles but throughout the United States. To ensure that the full range of these impacts would be measured and evaluated with a high degree of statistical precision, the federal Urban Mass Transportation Administration (UMTA), acting through the Transportation Systems Center (TSC), sponsored a detailed evaluation of the Diamond Lane project as part of its Service and Methods Demonstration (SMD) Program. To accomplish this evaluation, TSC hired an independent contractor, SYSTAN, Inc. of Los Altos, California.

Evaluation Plan. Prior to the Diamond Lane demonstration, SYSTAN prepared a detailed evaluation plan (SYSTAN, November, 1976) designed to address the key issues surrounding the demonstration and to provide a quantitative assessment of the full range of project impacts involving such critical elements as traffic speeds, carpool formation, travel delays, transit ridership, accidents, violations, enforcement, air quality, public attitudes, and media coverage. The plan defined the variables that best characterized these elements, identified factors which might mitigate or amplify the anticipated demonstration impacts, specified the instruments to be used in collecting data, described the populations to be measured, identified statistical tests and analytic procedures, scheduled measurement and analysis activities to coincide with demonstration activities, described potential threats to the validity of demonstration findings, and suggested methods for increasing the transferability of results to other areas.

Evaluation Monitoring. Prior to the project and in the early stages of the Diamond Lane demonstration, the evaluation generally followed the detailed evaluation plan. As the demonstration progressed, adjustments in the basic plan were made to focus on questions of interest, make the best use of available personnel, respond to the need for operational decisions and public information, and capture perishable data as a hedge against the possibility that the project might be closed without warning. The sudden closing of the project interrupted the evaluation in midstream and necessitated a number of significant changes in the structure of the evaluation plan. One such change entailed the collection and analysis of an extensive body of data following project termination to document any lasting changes in carpool use and bus ridership, and to shed additional light on the nature and source of impacts recorded during the demonstration.

Final Report. Under the evaluation plan, data collection responsibilities were divided among the many local agencies responsible for implementing the project itself. Once the field data were collected, SYSTAN undertook an independent review and analysis of all data elements, assessed the validity and applicability of the data, developed independent summaries, performed the statistical tests and comparisons specified in the evaluation plan, analyzed the results of these comparisons, and prepared an extensive, two-volume final report (Billheimer, Bullemer, and

Fratessa, September 1977). The report findings were subsequently summarized in Transportation Research Record 663 of the Transportation Research Board.

4.2.9 Observations and Implications

To suggest that the Santa Monica Diamond Lanes might have been salvaged with a better marketing plan is like saying that the Titanic might have survived if its deck chairs had been painted differently. The marketing approach, a well-planned public information program, could not withstand the media outcry which was fueled by the project's technical shortcomings. While the Diamond Lanes succeeded to some degree in attracting riders to carpools and transit, they brought about a significant increase in freeway accidents, non-carpoolers lost far more time than carpoolers gained, and the negative public reaction stalled the implementation of other preferential treatment projects in Southern California.

The Implications of Lane Conversion. Whereas other preferential lane projects have constructed additional lanes or converted lanes in off-peak directions to preferential use, the Santa Monica Freeway Diamond Lane project marked the first time preferential lanes were created by taking busy freeway lanes out of existing service and dedicating them to the exclusive use of high-occupancy vehicles. This aspect of the project contributed to most of the negative impacts recorded during the demonstration. The removal of two lanes from general use contributed heavily to the congestion and confusion on opening day, was a slight but important factor in the increased accident rate, and appears to have been one of the chief sources of public dissatisfaction with the project. Many freeway users felt strongly that they had paid for the lanes with their gasoline taxes and were entitled to go on using them. The lane preemption and the resulting slowdown were viewed with hostility by most corridor drivers, who appeared to perceive the preemption as a plot to force individuals out of their own cars, a plot designed by meddling bureaucrats to inconvenience many for the sake of a few. Moreover, the number of project beneficiaries were perceived to be even fewer than their numbers indicated because they traveled three-to-a-car, or rode in buses that were often half-empty, and did not fill the Diamond Lane to capacity.

Los Angeles vs. the Rest of the World. Several aspects of the Los Angeles area and the Santa Monica Freeway itself served to amplify and modify the effects of the Diamond Lanes. For the benefit of decisionmakers attempting to translate the Santa Monica Freeway experience in terms of their own geographic areas, the most important of these aspects are:

- **Geographic Sprawl**. Because of the scattering of trip origins and destinations throughout Los Angeles, relatively few users of the Santa Monica Freeway were destined for the CBD. The lack of a focal point for trip destinations made carpool formation relatively difficult, decreased the pool of potential riders of the CBD-directed bus service, and meant that drivers were likely to want to enter and leave the Diamond Lanes at points all along their 12.5-mile length, greatly increasing the possibility of accidents.

- **Automobile Dependence and the Mystique of the Automobile**. As a result of the geographic sprawl of the City, Los Angeles residents generally travel further and are more dependent on their automobiles than residents of other U.S. cities.

- **High Incomes**. Many of the most influential persons in the city lived in the project area, resented any restrictions on automobile use, and had the political influence to guarantee a hearing for that resentment.

- **Fragmentation of Government Authority**. Los Angeles' fragmentation of public power and authority meant that a large number of government agencies and elected officials had some purview over the Diamond Lane project, and the degree of involvement and commitment to the Diamond Lanes varied greatly from agency to agency. In the glare of the media spotlight, some agency heads turned hostile to the project.

- **Ramp Metering**. Prior to the project, the ramp meters on the Santa Monica Freeway had so improved freeway traffic speeds that the Diamond Lanes suffered somewhat by comparison. Where available, moreover, carpool bypass lanes on the on-ramps offered more of a time savings to carpools than the Diamond Lanes themselves. Thus, the ramp meter bypasses which were safer and, surveys showed, less objectionable to the public than the Diamond Lanes, actually provided a greater incentive to carpooling than the preferential freeway lanes, while the meters themselves improved freeway traffic flow.

Planning and Implementation Suggestions. The following list of suggestions for planning, marketing and implementing preferential lane projects was compiled from a variety of observers and participants in the wake of the Diamond Lane demonstration, and published in SYSTAN'S project evaluation report (Billheimer, et al., 1977). These guidelines are hardly comprehensive nor were they intended as a compendium of implied project shortcomings. As noted in the evaluation report, "Many of the items listed were tried successfully in Los Angeles, while others were not tried at all; some might have been done better, while others were done as well as possible; some might have helped the project while others, given the particular set of circumstances surrounding the Santa Monica Freeway, might not have helped at all."

Early Planning Suggestions.

- **Identify all potentially adverse effects in advance**. Any major new transportation measure, particularly a measure that attempts to strike a balance between incentives and disincentives, will have a negative impact on some portion of the population. Both positive and negative impacts should be assessed and documented in advance, the gainers and losers should be identified, and negative impacts should be dealt with insofar as possible.

- **Publicize both positive and negative impacts in advance**. A Policy Background paper prepared by the American Institute of Planners, prepared following the Santa Monica experience, suggested that "Until experience with and acceptance of preferential lane facilities is much more established, all projects should be preceded by a full statement of environmental (including energy) impacts. This, in turn, should be given wide public exposure, before project decisions are finalized." (American Institute of Planners, 1976)

- **Include all affected public agencies and officials in the planning process**. Bridges should be built in advance between all agencies and officials with responsibility for transportation or for the interests of the public affected by the

proposed project. All should have an opportunity to participate, and procedural agreements should be ratified and recorded.

- **Involve the public in the planning process**. Public involvement in critical decisions is a responsibility shared by participating agencies, elected officials and the media. The opportunity exists to inform the planning process with public input through elected officials, public hearings, citizen committees, forums, etc. and to keep the public apprised of project developments through informative press releases, project newsletters and other forms of communication.

- **Involve the planners in the public process**. Planners and public agencies should be responsive to public input during the planning stages, either by altering plans to reflect responsible criticism, or by explaining to the public why plans were not altered. In addition, all planners should be made to drive the length of the corridor before and during all preferential treatment projects. It not only gives them a street-level understanding of the project, but also avoids embarrassment when public officials inquire, with the media watching, "whether anyone responsible for the project has ever driven it?"

Pre-Implementation Suggestions.

- **Establish and communicate standards for project performance**. The planners' hopes for the project should be communicated and, in cases where perceived disincentives are involved, at least two sets of standards should be established and publicized in advance. One set of standards should reflect conservatively-set criteria for aborting the project at any stage in its development, while another set should reflect the long-term criteria for judging project success. While it is instructive to measure short-term occurrences against long-term hopes, there is no reason to expect that long-term goals will be met early in the project, and the failure to meet such goals before the paint has dried on the pavement should not be held as due cause for pillorying project participants. On the other hand, a different set of ongoing standards capable of triggering project termination needs to be set to ensure that some unforeseen negative by-product of the project, such as increased accident levels, does not grow so large in the short-term as to outweigh any possible long-term benefits.

- **Develop a detailed evaluation plan and follow it**. A structured statistical plan for measuring project impacts should be developed in advance, identifying precisely what is to be measured, what comparisons are to be made, and what statistical procedures are to be used to validate the comparisons. Preliminary data should be collected in accordance with this plan and summarized in advance to provide a comprehensive record of "before" conditions.

- **Publicize all aspects of the project in advance at appropriate levels**. The public at large needs to know when the project will be introduced, why it has been decided to introduce it now, and what the long-term hopes for the project are. The corridor driver needs to know not only when a preferential lane will be introduced, but what traffic engineering changes will accompany the lane, in the form of signal adjustments, detours, and access ramp changes.

- **Provide a lightning rod for public response**. On controversial projects, a central telephone center should be established shortly in advance of implementation to supply information sample public opinion, record suggestions, and provide an outlet for public indignation.

Implementation Suggestions.

- **Establish a focal point for information dissemination**. Project information should be distributed to the press through a single outlet, on a schedule set by the participating agencies that allows data to be assimilated and evaluated before it is released.

- **Let the demonstration run its course**. So long as project standards capable of triggering project termination are not exceeded, the demonstration should be allowed to continue until its allotted time is up, and the intention to persevere should be conveyed to the public. A project whose life is continually being threatened and that is treated as tentative by participants cannot be expected to generate as many long-term commitments to carpooling and bus riding as a project that is guaranteed to be around for a specified period before being junked, modified, or accorded permanent status.

A-5 CASE STUDY: THE SAN FRANCISCO-OAKLAND BAY BRIDGE

5.1 PROJECT DESCRIPTION

5.1.1 Location and Design

The Bay Bridge between San Francisco and Oakland features one of the oldest and most successful preferential carpool lanes in the U.S. The bridge has two roadway decks, each of which carry five traffic lanes. Tolls are collected only in the westbound direction at a toll plaza located a half mile east of the bridge's upper deck. On December 8, 1971 two lanes of the seventeen toll lanes approaching the westbound bridge deck were taken from general use and reserved for carpools with three or more occupants. A schematic of the initial lane configuration appears in Exhibit 5.1. At the time of their opening, the toll-free HOV lanes saved carpoolers between four and five minutes of waiting time, as well as the 50¢ toll assessed of non-carpoolers.

The initial design of the Bay Bridge HOV lanes has undergone significant changes since they were introduced. The placement of the HOV lanes in the center of the seventeen-lane configuration allowed violators to enter from either side and made enforcement difficult. In addition, the fact that the HOV lanes extended onto the bridge itself meant that the five westbound bridge lanes were not fully utilized when HOV volumes were low. During the early experimental phase, this problem of under-utilization was "solved" after a fashion by violators who passed legitimately through the non-carpool toll booths, paid their 50¢ toll, and then crossed plastic stanchions to fill the available space in the HOV lanes and avoid waiting in the merging bridge queues. Violation rates during the early experimental period ranged as high as 30% of the vehicles using the lane.

To solve the violation problem and restore bridge use to full capacity, an early report on the priority lane experiment, (MacCalden and Davis, April, 1973) recommended that a metering system be installed across each of the seventeen access lanes beyond the toll booths. This metering system allowed the bridge to carry the maximum number of vehicles without delaying carpoolers. It also simplified enforcement, which no longer required that officers pursue violators onto the bridge itself. In a subsequent improvement, the HOV lanes were moved from the center to the left-most lanes, so that officers could enforce easily by waving violators into a coned-off area beyond the toll booth without disturbing mixed-flow traffic.

The current bridge approach contains twenty-two lanes. Three of these lanes (Lanes number 1, 21, and 22) are dedicated to HOV use and save carpoolers an estimated ten minutes of waiting time during the morning peak, as well as the $1.00 toll collected in other lanes. The lanes operate between 5 a.m. and 10 a.m., and between 3 p.m. and 6 p.m.

5.1.2 Scheduling

Exhibit 5.2 presents a chronological history of key events in the life of the San Francisco-Oakland Bay Bridge HOV lanes. Roughly twenty months before the carpool lanes were created, a single lane was dedicated to exclusive bus use. Metering was introduced in March, 1974, two years and three months after the carpool lanes opened.

5.1.3 Utilization

Exhibit 5.2 also traces the number of three-plus carpools using the Bay Bridge during the peak westbound commute hours between 6 a.m. and 9 a.m. Prior to the opening of the HOV

EXHIBIT 5.1

ORIGINAL CONFIGURATION
SAN FRANCISCO-OAKLAND BAY BRIDGE HOV LANES

Source: MacCalden, M. Scott Jr., and Charles A. Davis, Report on Priority Lane Experiment on the San Francisco-Oakland Bay Bridge, prepared by the State of California Business and Transportation Agency, Department of Public Works, Division of Bay Toll Crossings, April 1973.

EXHIBIT 5.2

CHRONOLOGY OF SAN FRANCISCO-OAKLAND BAY BRIDGE HOV LANES

DATE	EVENT	NUMBER OF 3+ CARPOOLS WESTBOUND 6 A.M. to 9 A.M.*
April 15, 1970:	One lane opened to buses only; 50¢ toll for all autos	1140
December 8, 1971:	Two lanes (lanes 9 and 10) opened to 3+ carpools (6-9 a.m.); no toll	2280
May 1, 1972:	$1.00 per month charge for carpools with ID card	2050
March 12, 1974:	Metering operational	NA
July 1, 1974:	AC Transit strike begins	4400
September 2, 1974:	AC Transit strike ends	2220
September 18, 1974:	BART begins Transbay Service	1800
March 1, 1975:	No toll for carpools; hours extended to 6-9 p.m. and 3-6 p.m.	2040
July 1, 1977:	Toll for non-carpools raised to 75¢	NA
February 11, 1982:	Two additional carpool lane opened. Lanes 9, 10, 18, and 19 reserved for 3+ HOVs	5316
July 19, 1983:	Carpool lanes reduced to three (lanes 1, 18, 19)	6355
September 7, 1988:	HOV morning hours extended to 5-10 a.m.	6644
January 1, 1989:	Toll for non-carpools raised to $1.00	NA
April 1, 1989:	Violation fine increased to $200	6955
October 18, 1989:	Bridge closed due to Loma Prieta Earthquake	--
November 12, 1989:	Bridge reopens, four lanes (1, 2, 20, 21) designated for HOV use	6260
June 1, 1992:	Violation fine raised to $275	6151
May 6, 1993:	Three lanes (1, 21, 22) designated for 3+ HOV use	5360

*Counts taken between indicated event dates.

lanes, counts showed only 1100 carpools using the bridge during this period. After the introduction of the HOV lanes, the number of carpools initially doubled, jumped to 4400 during the 1974 AC Transit strike and rose to nearly 7000 just prior to the Loma Prieta earthquake in October, 1989, which shut the bridge down for a month.

The most recent traffic counts on the bridge (May 6, 1993) tallied 5360 carpools during the 6 a.m.-9 a.m. time period. This represented an auto occupancy rate of 1.83 persons per vehicle, an increase of 38% over the rate 1.33 measured prior to the introduction of the HOV lanes. During the peak morning commute hour (7 a.m. to 8 a.m.) the carpool lanes carried 56.6% of the people crossing the bridge in only one-quarter of the vehicles.

Even though the time savings offered by the Bay Bridge HOV lanes are consistently higher than those available from other California HOV projects, the ease and frequency of enforcement have kept violation rates low. A 1981 study (Billheimer, et al., 1981) found that the project had the lowest violation rate (5.4%) of any mainline HOV project in the state.

5.2 MARKETING

5.2.1 Overview

Although the San Francisco Bay Bridge HOV lanes are easily the most successful carpool lanes in California, the project has received very little marketing support. At the time the lanes were introduced, bridge handouts announced the project and advance warning signs on the bridge crossings warned drivers that[1*]:

CARPOOL LANE BEGINS
1500 FEET

and

3 OR MORE PER CAR
1000 FEET

In subsequent years, the bridge lanes have been included in promotional materials prepared by RIDES for Bay Area Commuters, which provides referral services for Bay Area residents seeking ridesharing assistance, and in the Year 2005 HOV Lane Master Plan prepared by CALTRANS, the CHP, and the Metropolitan Transportation Commission (MTC). However, no marketing activities are dedicated to the promotion of the lanes themselves.

[*]The original signs read simply "CARPOOL LANE AHEAD" and "3 OR MORE PER CAR AHEAD," and were changed at the suggestion of the CHP to "CARPOOL LANE BEGINS 1500 FEET" and "3 OR MORE PER CAR 1000 FEET" to leave no doubt in drivers' minds where the carpool lane began.

5.2.2 Market Research

No market research preceded the opening of the lanes. A feasibility study undertaken by the Department of Public Works and Dr. Adolf May of the University of California at Berkeley focused on technical issues and concluded by April, 1971 that it was in the public interest to provide a field test of the priority lane concept in the westbound direction.

5.2.3 Campaign Strategy

The Marketing Strategy in support of the San Francisco Bay Bridge HOV lanes has simply been to inform the public that the lanes were coming and to remind drivers from time to time that the lanes exist.

5.2.4 Marketing Materials

Initial Announcement. On November 18, 1971, drivers using the Bay Bridge were informed of the upcoming priority lane experiment through the use of handouts at the toll booths. A card was also included (see Exhibit 5.3) to be filled out by anyone interested in forming carpools. The information on the returned cards was processed and lists of potential carpoolers were developed and distributed to commutes traveling between the same zip code areas.

Ongoing Marketing. Over the years, the Bay Bridge HOV lanes have been included in marketing publications of RIDES for Bay Area Commuters, although they tend to be lumped anonymously with other HOV bridge lanes. RIDES' "Bay Area Commuter's Survival Guide," for example, notes that "Many diamond lanes are toll-free on bridges." and the joint MTC/CALTRANS/CHP brochure entitled "Year 2005 HOV Lane Master Plan" contains a map showing the Bay Bridge and other Bay Area HOV lanes, along with the observation that "...for motorists who cross the Bay during their commute, both time and money can be saved at the toll booth, since five of the toll bridges in the region allow carpoolers to drive by without paying during peak hours."

Word of Mouth. One aspect of Bay Bridge carpooling which has grown enormously without benefit of any formal marketing is the casual carpooling phenomena. Every weekday morning, from 5,000 to 8,000 commuters form "casual car pools," in which drivers meet passengers at BART and AC Transit Stations to form spontaneous carpools whose make-up changes daily. Passengers are generally dropped off near the transbay bus terminal in San Francisco, where all AC Transit buses terminate. The incidence of casual carpooling increased steadily through word of mouth and observation until the Loma Prieta earthquake disrupted all Bay Bridge traffic for a month in October 1989. When the Bridge was reopened in December, casual carpooling had dropped significantly. Although commute patterns eventually reestablished themselves, the numbers of carpools, casual or otherwise, crossing the bridge have not yet reached their pre-earthquake peaks.

5.2.5 Constituency Building

Although Interagency cooperation has been effective in dealing with specific issues, formal efforts to build a constituency for the carpool lanes on the San Francisco-Oakland Bay Bridge are difficult to identify. CALTRANS worked closely with the Department of Public Works Division of Bay Toll Crossings to study the feasibility of the lanes and install them. The CHP has cooperated in enforcing the lanes and has made several useful suggestions regarding signing and lane configuration. RIDES and MTC have helped to publicize the time and money to be saved in using the lanes.

EXHIBIT 5.3

HANDOUT PRIOR TO OPENING
OF
SAN FRANCISCO BAY BRIDGE HOV LANES

While generally supporting the Bay Bridge HOV lanes, the two transit agencies most affected by casual carpooling, AC Transit and BART, point out that this phenomenon has created some problems for their operations. In 1987, AC Transit estimated that casual carpooling cost them $900,000 annually in lost fares. In response to the one-way direction of the casual carpool, AC Transit runs approximately 40 fewer buses westbound in the morning and has created a differential fare designed to discourage casual carpooling, charging $2.00 for the ride into San Francisco and $2.50 for the return trip.

BART points out that casual carpooling co-opts parking spaces meant for round-trip rail patrons. To combat this, they implemented a restricted parking program at their Orinda and Lafayette stations that requires patrons to enter the paid area of BART stations and drop free tokens in a slot corresponding to their parking stall numbers. While this program reportedly reduced the number of casual carpoolers parking in BART's Orinda lot, a significant number of casual carpools continue to form at that station (Beroldo, 1990).

5.2.6 Media Relations

The HOV lanes on the San Francisco-Oakland Bay Bridge receive relatively little media attention and have generated almost no controversy. They are widely accepted and treated as a fact of life in the Bay Area, and proposals to extend HOV lanes to other Bay Area Bridges met with relatively little opposition. Newspaper coverage tends to be either positive or humorous, sometimes both at once. An editorial cartoon from the early 1980's tweaked the Bridge Authority for its changing and variegated toll schedule (see Exhibit 5.4) while an article from the "Phantom

EXHIBIT 5.4
BAY BRIDGE CARTOON FROM SAN FRANCISCO CHRONICLE-EXAMINER

Commuter" during the same period described a reporter's attempts to pass off two armless and legless mannequins vs. carpoolers. Although this reporter was not caught, the article took pains to point out that the use of the HOV lane had been increasing ever since CALTRANS allowed free passage for carpoolers, and that the lanes, "...an effective way to encourage East Bay residents to share rides...can cut commute times between five and fifteen minutes a day."

5.2.8 Community Reaction

Like press coverage, community reaction to the San Francisco-Oakland Bay Bridge HOV lanes has generally been positive.

Early Reaction. The initial report on the "Priority Lane Experiment on the San Francisco-Oakland Bay Bridge" (MacCalden and Davis, 1973) characterized public reaction as follows:

> "Public reaction toward the priority lane concept generally tended to be favorable when measured by letters and telephone calls received by the Division of Bay Toll Crossings. Those indicating a favorable reaction either felt that they had personally experienced a reduction in travel time, or they endorsed a public policy which they believed promoted the more efficient use of existing highway facilities. Those opposed to the priority lane either felt that there were inequities in

terms of: a) reduced tolls to car pools, b) some sport cars and motorcycles are not designed to carry three or more occupants, c) their individual travel patterns did not allow for use of the car pool mode, or d) they objected to the number of violators who took advantage of the system while they must remain in queue obeying the rules. About 30 percent of the vehicles in the priority lane enter it illegally."

The violation problem was subsequently cleared up when metering was installed and the lanes were repositioned for easier enforcement. A 1987 report on enforcement levels on California HOV Lanes (Billheimer, et al., 1981) found the Bay Bridge Violation rate to be 5.4%, the lowest of any project surveyed.

Ongoing Reaction. Public response to the Bay Bridge HOV lanes continues to be positive. In the 1981 study cited above, only 20% of bridge commuters disagreed with the statement "more special freeway lanes are needed for carpoolers." This was the lowest percentage recorded for any of the 13 projects surveyed. By way of contrast, in the same survey nearly 60% of all drivers (including 37% of all carpoolers) using nearby Alameda 580 disagreed with the need for more carpool lanes.[2*] In a subsequent survey of Bay Area HOV lane users sponsored by MTC (Billheimer, 1990), 91.6% of the carpoolers on the Bay Bridge said they felt their carpool lanes helped to improve traffic flow. This was the highest percentage recorded for any Bay Area HOV lane.

5.2.9 Monitoring and Evaluation

In their first years of operation, the Bay Bridge HOV lanes were closely monitored by CALTRANS and the Division of Bay Toll Crossings (BTC), and detailed reports were issued in 1973 by BTC and in 1976 by CALTRANS. The authors of the first report (MacCalden and Davis, 1973) were particularly sensitive to the public reaction because, they wrote, they were "...not aware of any previous field tests where lanes formerly carrying peak direction traffic have been reallocated for the exclusive use of high occupancy vehicles such as buses and carpools."

In the twenty-two years since their opening, preferential lanes have been added to the other bridges in the Bay Area and the original Bay Bridge lanes have been taken for granted both by the general public and by the bridge operators. CALTRANS continues to monitor occupancy rates on the Bridge roughly once each year, but few comprehensive studies have reviewed or summarized the results of these counts. HOV activities on the bridge have been included in a few research studies with a broader focus, notably a 1981 enforcement study ("TSM Project Violation Rates," Billheimer et al., 1981), a 1988 review of "The Effectiveness of High-Occupancy Vehicle Facilities" by the Institute of Transportation Engineers (ITE, 1988), and a 1989 survey of HOV lane users (Billheimer, 1990). The Bay Bridge has recently received FHWA approval for a congestion pricing experiment which will focus attention on the attitudes and price sensitivity of carpoolers and other commuters. An extensive evaluation is expected to accompany this experiment.

5.2.10 General Marketing Observations

With a minimal amount of marketing, the HOV lanes on the San Francisco Bay Bridge have become one of the most successful preferential lane projects in the country. The number of three-person carpools crossing the bridge has increased more than five-fold since the lanes were opened in December 1971. Even though the lanes were created by converting mixed-flow lanes, they have remained free of controversy and enjoy one of the lowest violation rates among California's preferential lane projects. The addition of metering in March 1974 made the lanes

---

[*]The controversial carpool lanes on Alameda 580 were subsequently opened to all traffic.

easy to enforce, and ensured that the bridge would be used to its fullest capacity. Moreover, because the metering system controlled the rate of flow onto the bridge, the total delay for all vehicles remained the same, guaranteeing that the time lost by non-carpoolers would exactly equal the time saved by carpool vehicles.

The lesson of the San Francisco-Oakland Bay Bridge priority lanes would seem to be that if you've got a good project, one that is safe, easily enforced, allows the facility to operate at 100% capacity, and saves carpoolers significant amounts of time without costing non-carpoolers more time than carpoolers save, then you may not need much formal marketing.

A-6 CASE STUDY: DULLES TOLL ROAD

6.1 PROJECT DESCRIPTION

6.1.1 Locations

The Dulles Toll Road stretches twelve miles from the Dulles International Airport to Tysons Corner, Virginia, paralleling the Dulles Airport Access Road and providing Northern Virginia residents of Loudoun and Fairfax Counties access to the I-495 Capital Beltway and I-66 to Washington, D.C. (see Exhibit 6.1). In 1989, the Virginia General Assembly unanimously passed SB 808, which allowed one new lane to be added to the two existing toll road lanes in each direction and mandated that the additional lanes be designed as HOV lanes. After a lengthy construction period, the lanes were scheduled to open September 2, 1992, the day after Labor day. The lanes were reserved for buses and carpools with three or more occupants between 6:30 and 9:00 in the morning and 4:00 and 6:30 in the evening. A set of temporary park-and-ride lots were scheduled to open in support of the new HOV lanes, with more extensive, permanent facilities planned for the future.

6.1.2 Scheduling

Premature Opening. A six-mile section of the new roadway was completed in October 1991, nearly one year in advance of the projected HOV-lane opening date. At the time, the toll road was carrying 76,000 vehicles daily, well in excess of the planned capacity of 47,000 vehicles. In the face of existing congestion, Virginia Department of Transportation (VDOT) officials considered their options and decided to open the newly completed six-mile stretch of road to all traffic. A similar decision was made when the final six-mile section of toll road was completed the following July. The opening of 12 miles of new lanes to all traffic relieved congestion on the toll road and made commuters happy, but it left VDOT faced with the prospect of shoehorning three lanes of traffic back into two lanes when HOV restrictions were imposed following Labor day.

Political Opposition. By early August, opposition to the opening of the Dulles Toll Road HOV lanes began to manifest itself. Opposition was led by U.S. Representative Frank Wolf, a Republican representing Northern Virginia, who sent a series of letters to Virginia Governor L. Douglas Wilder asking the Governor to delay the implementation of HOV restrictions. Wolf argued that closing one of the already-opened lanes to normal traffic would increase congestion, causing more pollution and increasing the risk of accidents. He also argued that the HOV lanes themselves would be underutilized and difficult to enforce. Wolf also voiced the opinion that restricting traffic on the Dulles Toll Road would be unfair to drivers who pay to use the highway since it would be "...the only toll-road in the nation with HOV restrictions."

Wolf's opposition, announced at an August 3 press conference, generated a heated debate in the local news media and led to the formation of an anti-HOV group, the Citizens Against Dulles HOV (CAD HOV). By the time the HOV restrictions were scheduled to be implemented, the Supervising Boards of both Loudoun and Fairfax Counties had voted in opposition to the HOV concept.

6.1.3 Utilization

In the midst of the controversy, VDOT stood firm in its intention to introduce HOV-3 restrictions the day after Labor day. On opening day, traffic tie-ups exceeded those experienced before the new lanes were constructed, commute trips that had taken only a half-hour before stretched to over an hour, the HOV lanes appeared empty in comparison to the bumper-to-bumper congestion in adjacent lanes, and the frustrations of thousands of non-carpoolers further fueled the controversy.

EXHIBIT 6.1
DULLES TOLL ROAD HOV LANES
As Presented in the *Washington Post*

Over the initial weeks of HOV lane operation, toll road accidents increased and some non-carpoolers defected to the nearby country roads, clogging them and causing toll road revenues to drop from ten to 15 percent below normal. Travel time measurements by VDOT showed that the twelve-mile trip in the congested mix-flow lanes took anywhere from 14 to 46 minutes, while carpoolers could rely upon a 15-minute trip at any time during the morning and evening peak. VDOT reported that the number of vehicles in the carpool lanes during the two-and-a-half hour morning commute increased from 600 to 800 over the first month of operations.

6.1.4 Shutdown

The initial month of operations was marked by public argument and political electioneering with VDOT adopting a "wait-and-see" attitude as HOV lane usage increased, Representative Wolf calling the traffic delays "a commuter's worst nightmare come true," and CAD HOV assembling signatures on a petition attacking the lanes. Near the end of September, Representative Wolf seized the initiative by attaching an amendment to a federal transportation appropriations bill banning HOV lanes on toll roads on federal lands--a proviso that applied only to the Dulles Toll Road. When the measure passed, Governor Wilder, a Democrat, preempted the bill's impact by unilaterally lifting the HOV restrictions, at the same time chiding Representative Wolf for interfering with State decisions from his federal position. The lanes reverted to general use on Monday, October 5, roughly one month after their controversial implementation.

6.2 MARKETING

6.2.1 Overview

Shortly after the HOV lanes opened on the Dulles Toll Road, the *Washington Post* published this analogy of the marketing problems facing VDOT:

> "*Imagine you had this sales job: Your potential customer is a commuter who spends too much time stuck in his car in creeping traffic. Your product is a brand new $37 million lane of traffic that could get the commuter to work perhaps twice as fast. But there is this catch: The commuter has to give up his single-occupant car to which he has been habituated for years and form a high-occupancy vehicle with two other people whom he doesn't know.*
>
> *If the commuter works late and misses his car pool, he'll have to figure out another way to get home. If he has to rush home for an emergency midday, he'll have to hire and wait on a taxi.*
>
> *Just before you make your pitch for HOV, your customer gets to test-drive the new lane without any restrictions and happily discovers that he can now get to work in 30 minutes instead of an hour.*
>
> *Finally, anti-HOV politicians remind him in a drumbeat of statements that his 25- and 50-cent tolls paid for the now-restricted lane.*
>
> *Would you rather be selling motor tours of Bosnia?*
>
> *As grim as it sounds, the above scenario is exactly what the Virginia Department of Transportation encountered when it brought HOV to the new third lane of the Dulles Toll Road on September 1."*

The *Post* concludes that VDOT "...faced such a daunting sales job because all the players, public and private, failed to write a better marketing program, even though they had plenty of time to prepare--four years--and could have checked the handwriting on the wall of an earlier HOV failure in Norfolk."

Objectives. The *Post's* reference to Norfolk (See Case Study A-2) is particularly ironic, since at the same time the Dulles Toll Road was opening to catcalls and commuter clamor, VDOT was successfully marketing and introducing the follow-on HOV lanes to the failed Route 44 project (See Case Study A-3). The Washington DC setting was much different from Norfolk, however. Whereas Route 44 represented Norfolk's first introduction to HOV lanes, HOV lanes had been operating in the Washington DC area and Northern Virginia for some time. The Shirley Highway is one of the oldest and most successful HOV lanes in the country, and Dulles Toll Road carpoolers destined for downtown in the District of Columbia could avail themselves of the separated carpool lanes on I-66. Consequently, VDOT's initial marketing objective for the Dulles Toll Road Lanes was simply to advertise their coming. Key tasks such as constituency building and public education were ignored, presumably because the public was assumed to be familiar with, and attuned to, the HOV concept.

Budget. Whereas a total of $52 million was spent to build the Dulles Toll Road HOV Lanes and related improvements, the *Washington Post* reported that "...only $12,000 was spent on public-private efforts to get commuters to use the new lanes."

Key Concerns. As noted, VDOT's initial marketing efforts focused on advertising the coming of the HOV lanes on the Dulles Toll Road. When the lanes were opened temporarily to unrestricted traffic, their concerns and problems expanded enormously. While under siege, they had to find ways to respond to critics, mollify politicians, and make non-carpoolers accept being shoehorned back into two lanes when HOV restrictions were imposed. These weren't easy tasks under the best of circumstances, and they were undertaken under the worst of circumstances, in a short time frame while under attack from politicians, the press, and the public.

In the words of the *Washington Post* "Everybody fell asleep on the Dulles Toll Road, including HOV's most ardent supporters." By the time they woke up, the best marketing campaign in the world couldn't have saved the project.

6.2.2 Market Research

Roughly fifteen months before the Dulles Toll Road HOV lanes were scheduled to open, VDOT handed out over 10,000 surveys to toll road users. Some 3,677 motorists mailed back responses to the survey. In reviewing these responses, VDOT found several positive signs which they felt provided "...a solid base for HOV growth in the Dulles Corridor." These signs included the facts that:

- Seven percent of Toll Road users already met HOV-3 requirements, which could mean 300 fewer cars per hour on conventional lanes on opening day;
- Another eight percent were carpooling with one person, so that they only needed one additional person to qualify for the HOV-3 lanes;
- Eight out of ten Toll Road users commuted more than ten miles each way, while almost half drove over 20 miles, so that the road was filled with the long trips conducive to carpooling; and
- A relatively high proportion of Toll Road users were aware of rideshare matching services.

The survey also contained a few warning signals. The 300 carpools per hour the HOV-3 lanes were guaranteed on opening day (from pre-existing three person carpools) were not nearly enough to overcome the empty lane syndrome. Also, the survey reported that 32% of all survey respondents said HOV lanes were a good idea. When controversy developed prior to the actual lane opening, opponents of the lane turned this finding around, pointing out that 68% of the Toll Road users felt HOV lanes were not a good idea.

6.2.3 Campaign Strategy

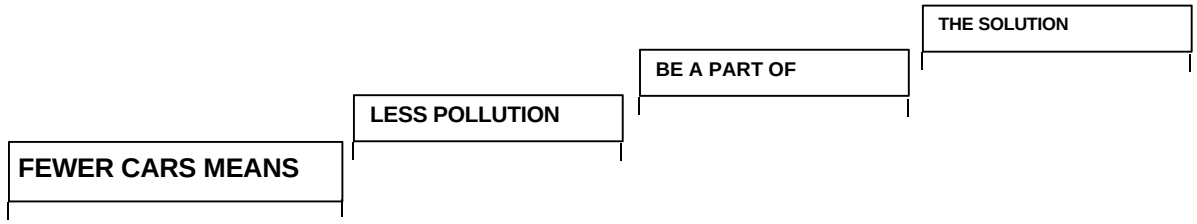
The initial campaign strategy focused narrowly on the need to advertise the coming of the HOV-3 lanes to corridor drivers. To this end, VDOT:

- Constructed "Burma Shave" signs announcing the coming of the lanes and singing the praises of carpooling;
- Placed extensive advertising on Metro buses;
- Prepared brochures announcing the lane opening and showing the location of temporary carpool lots; and
- Planned elaborate opening day ceremonies.

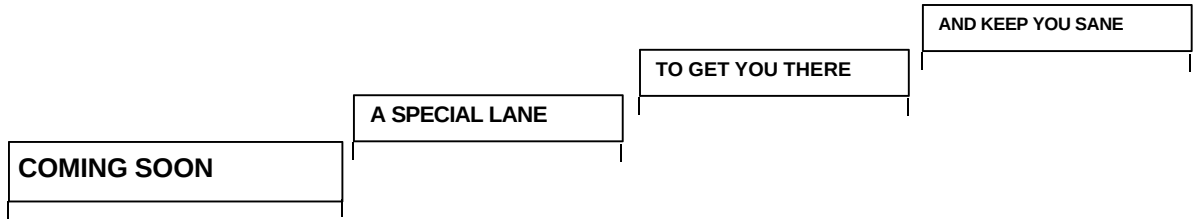
Once the new lanes were opened to unrestricted traffic and controversy developed, this initial strategy was overwhelmed by the need for damage control.

6.2.4 Marketing Materials

Burma Shave Signs. A year before the HOV lanes were scheduled to open, VDOT began installing a series of roadside signs carrying punchy poetry similar to the old Burma Shave jingles to encourage ridesharing and advertise the coming of the carpool lanes. Some of the early signs were criticized as being too vague. One such series carried the poem,



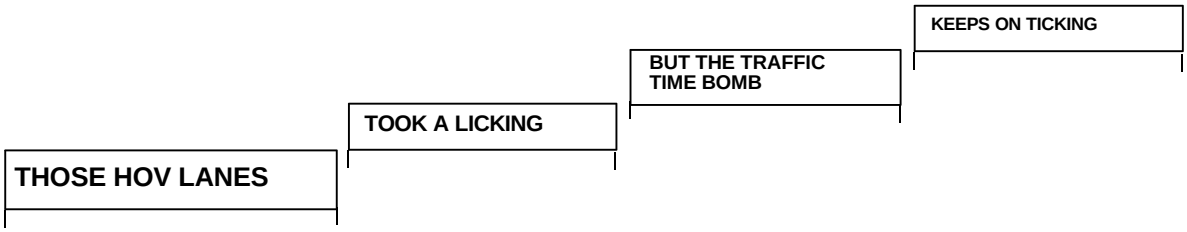
As the HOV lane opening approached, the signs became more specific.



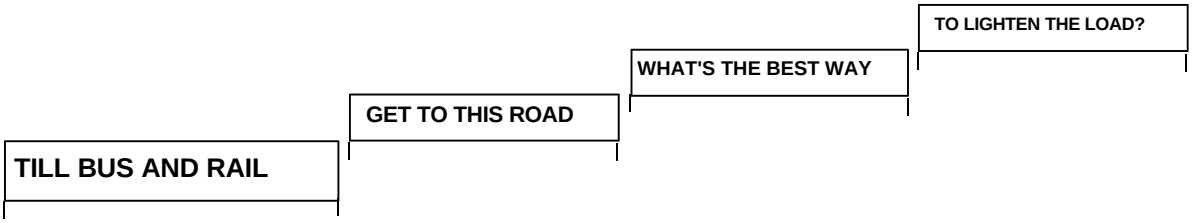
The last sign in the series carried the rideshare phone number 1-800-745-POOL.

VDOT had received special permission from the FHWA to use this unique approach. When controversy developed, however, the agency was criticized in the press for using public funds to construct and manage the signs.

After HOV restrictions had been rescinded on the Dulles Toll Road, the signs carried a new set of messages, one of which read:



These signs aroused the wrath of the politicians who had worked to remove HOV restrictions on the lanes, and they were soon replaced by messages advertising a hotline to take congestion relief suggestions from Toll Road users.



The hotline number, (703) 934-0704, followed. The line was open 24 hours a day and the suggestions by motorists were accumulated and provided a newly formed advisory group deliberating the future of the lanes.

Although the Burma Shave signs were publicly criticized on the Dulles Toll Road, a similar approach on the Hampton Roads HOV Lanes (see Case Study A-3) was well received by press and public alike.

Bus Advertising. VDOT also advertised the lanes extensively on Metro buses.

Brochures. VDOT developed brochures advertising "Sane Lanes Ahead on the Toll Road!" The brochures answered common questions, provided information on temporary park-and-ride lots, and contained a rideshare application. The brochures were to have been distributed by the ridesharing offices in Fairfax and Loudoun Counties. In the midst of controversy during the critical marketing period just prior to the lanes' opening, however, the Loudoun County Board of Supervisors forbade the county ridesharing office to mail out the brochures.

Opening Day Ceremonies. In lieu of a ribbon-cutting, VDOT held a "barrel bashing" ceremony to recognize the end of construction and mark the official opening of the HOV lanes. Attendees could consume hamburgers, hot dogs, wurst, and non-alcoholic beer donated by local merchants and were given the chance to take up a sledgehammer and bash one of the orange-and-white construction barrels used during the construction process. The party was well covered by the local media.

Another planned opening day giveaway was less successful. A local restaurant had promised to hand out 7,000 blueberry muffins to commuters passing through the Spring Hill Road Plaza on opening day. At the last minute, the muffin distribution was canceled by VDOT personnel and the State Police, who feared the distribution might cause additional tie-ups and might not be well received by drivers fed up with delays. The muffins were sent to homeless shelters in Northern Virginia.

6.2.5 Constituency Building

One of the most critical shortcomings in VDOT's marketing efforts on the Dulles Toll Road was the failure to build constituencies that could provide backing and support services for the HOV lanes during the month of controversy that preceded their opening. As Tom Grubisich, editor-in-chief of the Connection newspapers in Fairfax County, pointed out in the *Washington Post*, VDOT failed to

> "*…develop an early and comprehensive HOV strategy to educate the general public or local and state political leaders. When Rep. Frank R. Wolf (R-VA) made his first nonpublic rumbles against HOV to the highway department, no official bothered to hold his hand in an attempt to ease his constituent-instigated apprehensions."*

As has been noted, the Boards of Supervisors of both Fairfax and Loudoun Counties passed resolutions against the lanes.

Another potential ally, the Metropolitan Washington Airports Authority (MWAA), couldn't find land for a park-and-ride lot on Route 28, even though MWAA had demanded and received $15 million "flyover" ramps so that the drivers leaving Dulles Airport at Route 7 in the morning wouldn't have to meld with HOV traffic.

Tytran, the consortium of employers at Tysons Corner, was another natural marketing ally. Although the consortium sponsored an HOV Conference for CEOs and top management for June 19, the *Washington Post* noted that the organization "...went into hibernation all summer instead of organizing a 'guaranteed-ride-home' program to ease the apprehensions of employees who hesitate to join car pools because they don't want to get stranded when they work late or have a midday emergency--the very fears cited by the Tysons-employed paralegal who organized a highly visible anti-HOV group."

MWAA operates the Dulles access road paralleling the Toll Road. The access road, which is dedicated to airport users, flowed freely in full view of the congested toll road back-ups every morning and evening. It was suggested that the nearby presence of the access road made drivers even angrier with the HOV restrictions. One popular suggestion made on the hotline established after the HOV restrictions were removed was to allow commuting carpoolers to use the access road. The MWAA had vetoed such a suggestion some years earlier.

6.2.6 Media Relations

One all-important constituency which VDOT failed to bring around to its point of view was the media. During the two months of controversy before and during HOV lane operations, newspaper editorials were overwhelmingly opposed to the HOV option on the Dulles Toll Roads. Although not necessarily opposed to the HOV concept, most editorial writers felt that the toll road was the wrong time and the wrong place to apply the concept.

Two local traffic reporters joined the anti-HOV chorus. Andy Parks of WMAL-AM and Jim Russ of WMZQ-AM and FM not only attacked the concept on the air during drive time, but also wrote opposition leader Representative Frank Wolf public letters opposing the Dulles Toll Road HOV lanes. Russ expanded his attack to include the long-time, successful HOV lanes on the Shirley Highway, saying "Carpooling does not fit the busy lifestyles of so many Washington area residents." Parks wrote the following to Wolf:

> "*I have watched the effects of HOV lanes from my airplane on a daily basis for the past nine years. I can honestly say that the principle of HOV lanes is a good one. But I also think that HOV is* '*wishful thinking' by highway officials. Frankly, the HOV lanes on I-95, 395 and 66 are as empty now as they were in 1985. I have heard all the VDOT propaganda regarding the number of people moved in HOV lanes versus conventional lanes. Their figures are twisted and very deceiving...when I have questioned survey techniques on specific numbers while speaking with VDOT officials, they could never back up their inflated statistics...Once again, the people of Virginia would have millions of their tax dollars spent on a project that would benefit a select few."*

6.2.7 Community Reaction

As VDOT learned in its survey a year in advance of the HOV lane opening, 68% of the toll road users were opposed to the toll road from the outset. No poll was taken during the lane's operations, but the newspapers were filled with tales of angry motorists who claimed to experience long delays, see many violators, narrowly avoid accidents, and who viewed the lanes as "social engineering designed by bureaucrats for bureaucrats."

The controversy gave rise to an anti-HOV citizens group, the Citizens Against Dulles HOV (CAD HOV), which produced orange-and-black anti-HOV bumperstickers, circulated petitions protesting the lanes, logged protest calls, generated press articles, and challenged VDOT's figures on lane usage.

The editorial pages of local newspapers ran a balanced sampling of articulate letters from residents on either side of the HOV controversy. HOV critics argued that the non-carpoolers who paid the fee to use the toll road had a right to use the entire road. One public letter to Representative Frank Wolf skewered this argument with the observation that

> "*…your* '*fairness' argument can be made to other HOV lanes, such as I-66 and I-95 (which I understand you support), as well as to many public facilities that are* '*off limits' to most taxpayers. By your logic, because my taxes pay for military bases and salaries, I should be able to walk into any PX in the country and buy groceries and household items cheaper than at Giant. (I am also, by that logic, entitled to ride the Space Shuttle for free.) You should know better than to pander to commuters by asserting the false logic that taxpayers may use any facility paid for by public funds, simply because their tax funds helped pay for it. We all know that is not the way our system works."*

6.2.8 Monitoring and Evaluation

The HOV lanes on the Dulles Toll Road were too short-lived to produce any significant statistical conclusions regarding their ability to generate new carpools. Activity in the carpool lane was well monitored by VDOT (see Exhibit 6.2), although VDOT's figures came under attack along with the lanes themselves. The head of CAD HOV took exception to several of VDOT's lane-counting procedures and noted "Asking VDOT to monitor the HOV lanes is like asking Congress to evaluate itself."

EXHIBIT 6.2
TOLL ROAD HOV USE

Whenever HOV lanes come under attack, it is inevitable that agency counts of HOV lane usage will also come under attack. VDOT countered the attack by inviting the president of CAD HOV to join their observers counting at the main toll plaza to take her own counts. In publishing HOV lane usage, VDOT could have deflected some criticism by separating violators and carpoolers. By focusing on total vehicle flow, the agency let itself be open to the charge that the lane usage was artificially inflated. Since VDOT counted occupancy rates at the same time they counted vehicles (violators reportedly constituted less than 10% of HOV lane use) this would have been an easy adjustment to make.

6.3 MARKETING LESSONS LEARNED

In reflecting on the Dulles Toll Road experience, Mary Ann Reynolds, the VDOT spokeswoman responsible for press relations on the project, agreed that the paramount public relations mistake was opening the completed HOV lanes to all traffic while the finishing touches were put on an HOV toll booth. As reported in the Fairfax County Connection,

> "*Opening the lanes allowed traffic to flow smoothly and made HOV vulnerable to the 'if it ain't broke, don't fix it' attack from Congressman Frank Wolf and other Republican politicians."*

As a result, when lane restrictions were imposed, the HOV lanes were seen as creating congestion rather than relieving it.

VDOT and FHWA offered the following advice to the HOV marketer:

1. **Know the market and refine the product**. Opening the Toll Road Lanes in advance seriously weakened the lanes' chances of success, but the lack of support facilities such as permanent park-and-ride lots also contributed to the lanes' demise.

2. **Start selling early**, six months to a year in advance of opening day.

3. **Seek out natural allies**. Build constituency groups in advance, particularly among politicians, community leaders, and media representatives such as traffic reporters and columnists.

4. **Choose a unifying theme**. All marketing materials should be unified through a consistent logo or slogan. Giving the project a name such as the Sane Lanes or the Smart Lanes (anything but HOV lanes) makes marketing easier.

5. **Time the opening carefully**. Open the lanes when traffic is relatively low, rather than during a high-traffic time such as the day after Labor Day, when commuters are adjusting to back-to-school traffic.

6. **Avoid election years**. Opening in September of an election year guaranteed that politicians would seek headlines by catering to single auto drivers; who represent far more votes than carpoolers.

7. **Stick with it**. A project whose life is constantly threatened isn't likely to attract many full time commitments to carpooling.

In the end though, you have to have a credible product to market. In the words of a Loudoun *Times-Mirror* editorial, "All the high-powered public relations in the world can't overcome terrible policy."

A-7 CASE STUDY: SEATTLE'S I-5 SOUTH HOV PROJECT

7.1 PROJECT DESCRIPTION

7.1.0 Impetus

The Interstate 5 (I-5) Corridor is the major north-south interstate running the entire length of Washington State. In the Puget Sound region it bisects Seattle and serves as the major roadway to and through the Metropolitan Seattle Area. The following case study focuses on the I-5 South Corridor --- the portion of I-5 to the south of Seattle between Southcenter and Federal Way (see Exhibit 7.1).

The I-5 South HOV Project occurred in response to several events. In February of 1990, Pierce Transit's Board of Directors passed a resolution which requested the Washington State Department of Transportation (WSDOT) to accelerate the opening of HOV lanes between Tacoma and Seattle. This was to assure the success of express transit service Pierce Transit had committed to begin operating in September, 1990. In addition, during this period of time a local group known as SHOVE (Southend High Occupancy Vehicle Enthusiasts) gathered over 2,000 signatures from commuters who wanted HOV lanes in South King County and North Pierce County. This petition was presented to the state's Secretary of Transportation, along with a request for HOV lanes along the corridor as soon as possible. In response, the State Transportation Commission instructed the WSDOT to perform a study to determine which sections of the corridor currently warranted HOV lanes.

After further deliberation, the Transportation Commission directed the WSDOT to pursue a project in the I-5 South Corridor that could be opened in the Summer of 1991. As a result of this directive, the I-5 South HOV lanes were opened on August 28, 1991.

7.1.1 Location

As part of a region-wide effort to improve mobility for commuters, the I-5 South Corridor has been programmed to incorporate high-occupancy vehicle (HOV) facilities by the year 2000. HOV facilities are part of a 10-year, $200 million program to upgrade and rehabilitate I-5 South, bringing the freeway up to current design and safety standards. In 1991, WSDOT opened a HOV lane on Northbound I-5 between South 272nd Street and South 200th Street, and on Southbound I-5 between Klickitat Drive and State Route 516. Each HOV lane runs 4.5 miles long and is adjacent to the freeway general purpose lanes. When first opened only vehicles carrying three or more persons were allowed to use the HOV lanes. This designation was changed to two or more persons in 1993. The lanes are supported by park-and-ride lots and easily accessible parking locations in downtown Seattle that offer discounted rates to carpoolers.

7.1.2 Scheduling

HOV lanes along the I-5 South Corridor were being planned by the WSDOT for opening in the late 1990s. In response to public pressure, HOV lanes in both the northbound and southbound directions were opened to traffic in the summer of 1991. The accelerated construction of this temporary facility was the Department of Transportation's short term response to direction from the State Transportation Commission. Construction of the inside HOV lanes north and southbound was staged to maintain 4 lanes of general purpose traffic in both directions. By narrowing the existing 4 lanes from 12 feet to 11 feet and shrinking the median from 10 feet to 4 feet general purpose traffic was not negatively impacted through the addition of the HOV lane.

EXHIBIT 7.1

7.1.3 Utilization

Initially only vehicles carrying three or more persons were allowed to use the HOV lanes. Peak period volume data indicated that the HOV lanes in the South Corridor were being under-used. A preliminary study offered a number of reasons for this low utilization. These reasons included: bottlenecking where HOV lanes end and merge with general purpose lanes; and access to exit ramps unavailable from HOV lanes. (see report "Evaluation of Seattle's South I-5 Interim HOV Lanes" by Gary Farnsworth) To alleviate bottlenecking, changes were made by WSDOT. Rather than have the HOV lane merge into the left general purpose lane, the right lane was turned into an exit lane at the point where the HOV lane converts to a general purpose lane. It was also concluded in this evaluation that the amount of travel time savings provided by use of the HOV lanes was insubstantial during peak hour travel time. In addition, occupancy requirements for all HOV facilities in the region (with the exception of the SR- 520 Westbound HOV lane) were changed to a 2+ designation in mid-1993. An evaluation of the occupancy and operations of the lane since the change in occupancy designation has not been undertaken at this writing.

7.2 MARKETING

7.2.1 Overview

The marketing activities for the I-5 HOV Study were designed to stimulate awareness and comments from a variety of target markets associated with or having an interest in the study process and its outcome. These markets included elected officials, jurisdiction staff, employers, commuters, the media and the general public. A unique characteristic of the project was the early involvement of the general public in the process. A group of citizens, organized as SHOVE (Southend High Occupancy Vehicle Enthusiasts), gathered more than 2000 signatures from commuters who wanted HOV lanes in South King County and North Pierce County. These signatures were sent to the Secretary of Transportation, the State Transportation Commission and the chair of the Legislative Transportation Committee. Leaders of SHOVE also testified before members of the State Transportation Commission.

7.2.2 Market Research

Market research activities were utilized to support and guide the marketing plan development. A telephone survey and executive interviews were conducted as part of the market research activities of this project.

Telephone Survey

The telephone survey reflected the attitudes and opinion of 819 randomly selected residents of South King County and North Pierce County. The data provided a baseline measure of attitudes and opinions regarding HOV travel and treatments, and the potential for converting people from single occupancy vehicles to HOVs.

The following emerged from the telephone survey:

- A large number of King and Pierce County residents were highly frustrated with the level of traffic on I-5.

- A majority of King and Pierce County residents believed HOV lanes are "fairly" or "very effective" while few have personally used HOV lanes in the past.

- Respondents were moderately interested in taking actions to reduce traffic congestion. Actions which most interested respondents were reading articles about traffic congestion; taking the bus or using carpools/vanpools and distributing information to co-workers about ridesharing opportunities. They were least interested in attending meetings about ridesharing.

Executive Interviews

Executive interviews were conducted with 22 pre-selected individuals. These individuals represented a mix of political, neighborhood, and business representatives. The objectives of the interviews were to: assess attitudes regarding a variety of HOV treatments; identify opportunities for regional partnerships to build community awareness and support for this project; identify specific institutional/organizational concerns regarding this HOV project; and obtain information about the communication challenges foreseen by these individuals and in turn solicit assistance to facilitate communication during the implementation phase.

The following emerged from the executive interviews:

- Speakers Bureau: WSDOT officials in District One and District Three should look for opportunities to talk about the WSDOT's commitment to the HOV system.

- Concept Marketing: Activities associated with general HOV marketing should be increased.

- Market Development Component: A component which allows for the facilitation of employee transportation programs which would enhance the usage of HOV treatments should be considered.

- Program Partnerships: A strong partnership with transit agencies and the media should be developed to strengthen bonds between public agencies, the media and the general public.

Overall communication recommendations that emerged from this research included:

- Mount an early general pro-HOV campaign before scenarios are introduced, emphasizing the strong local support by community groups and its link to a long range regional transportation program.

- The immediacy of the I-5 HOV improvements should be repeatedly emphasized.

- Packaging materials as "traffic information" should be considered as long as it emphasizes solutions and improvements.

- Continue to provide accessible information to the general public, as well as targeted groups, on a steady basis.

- To achieve broader participation, mechanisms should be used which do not require a major time commitment, and which emphasize a link between participation and personal benefit to the individual.

- Communications should incorporate the following themes:
  It works.
  It makes public transportation cheaper and faster.

- Market segments for the project are as follows:
  Travel Mode: Bus Riders, SOV, Carpool or Vanpool users
  County of Residence: Pierce or King
  Commute Destination: North Pierce County, South King County, or Seattle/East of Lake Washington

7.2.3 Campaign Strategy

An extensive education plan was developed to educate elected officials and key jurisdictions about the role HOV facilities play in providing mobility for the region. The education focus of the plan included: a bus tour; a kick off briefing; ongoing media relations and database management; the publication of a quarterly newsletter; and jurisdictional briefings. In addition, to promote the opening of this HOV segment a marketing plan was implemented (plan outline is attached). The marketing component included: the development of a logo (see Exhibit 7.2); transit advertising; displays; special event participation; and the development of promotional materials including posters, brochures, buttons, balloons and self-stick note pads all incorporating the logo for the project.

EXHIBIT 7.2
PROJECT LOGO

Education Actions

Bus Tour: The purpose of the bus tour was to develop an understanding of the project objectives and process among a variety of elected officials and staff of public agencies affected by the HOV facility. The tour, held on July 15, 1990, was attended by 47 participants. The tour route began in downtown Seattle and traveled south along the I-5 corridor to the Lakewood park-and-ride lot in South Pierce County, the southern terminus of the study corridor. Information about HOV facilities in general, and specific plans for HOV facilities along the corridor was presented. A leader of SHOVE was also part of the tour, and spoke on behalf of the organization.

Kick-Off Briefing: The purpose of the Kick-Off briefing was to present and discuss the objectives and work tasks of the I-5 South Interim HOV Study to WSDOT Headquarters, District One and District Three staff. Because early understanding of the project was considered essential given the fast-track timeline -- the Transportation Commission had directed WSDOT to open an HOV facility in less than one years time -- the Kick-Off briefing set the tone of partnership and cooperation which was carried out throughout the entire project.

Media Relations: Throughout the project the study team maintained contact with the media. Media relations activities focused on maintaining a heightened awareness of the study process and outcomes with targeted media representatives. This ongoing relationship resulted in positive coverage on the study in local newspapers.

Data Base Management: A database of public and private agencies, organizations and businesses who participated in any of the information gathering activities or who expressed interest in the project was developed and maintained. In addition, a complete database of all SHOVE members was maintained to facilitate the distribution of study information and updates.

Newsletter: The project team published the I-5 HOV Study Bulletin quarterly throughout the project. Each issue of the newsletter was distributed via mail, at worksites and aboard transit buses to nearly 15,000 people living or working within the corridor. Bulletin articles included information on survey results, the opening of the HOV lane, potential improvements and general information about the ongoing process of the project.

Displays/Special Events: Project information was presented and public comment solicited through displays at employment site transportation fairs, and special community-sponsored events.

Jurisdictional Briefings: Briefings were conducted with elected officials and staff representing 18 local jurisdictions and public organizations. A marketing goal of these briefings was to persuade these jurisdiction to partner with the WSDOT in the distribution of education and marketing materials. This partnering was a successful and cost-effective strategy which resulted in thousands of brochures and newsletters distributed at no distribution cost to WSDOT.

Marketing Actions

A detailed marketing implementation plan is included at the end of this case study. The following is a brief summary of the activities undertaken as part of promoting the opening of the new lanes.

Information Development: Information was developed which announced the opening of the new HOV lane and encouraged recipients to try an HOV mode. This information took a variety of forms, and included, newsletter articles, brochures, posters, flyers, transit advertising, buttons, post-a-notes and balloons.

Information Distribution: Promotional material was distributed in a variety of ways, including on-board Metro and Pierce Transit buses, at employment sites in King and Pierce counties, to residences through assistance from local jurisdictions and by members of SHOVE.

Thank-You Ride: Two weeks after the opening of the new HOV facility the chair of the Transportation Commission hosted a special "thank-you ride" for the leader of SHOVE. The chair of the commission rode with SHOVE leaders along the entire new corridor. Media representatives were also invited to provide them the opportunity to talk to SHOVE leaders and the Commissioner.

Promotion: In addition to information distributions, announcements about the pending opening were made aboard transit coaches, and signs announcing the day of opening were posted along the construction site.

Media Relations: Media relations activities included on-air interviews, talk-show interviews and day -of-opening coverage. Efforts were made by WSDOT to provide visibility for SHOVE as a leader in working to get the lanes designed and opened.

7.2.4 Marketing Materials and Budget

A variety of materials were developed and distribute which promoted the opening of the lanes and encouraged it's immediate usage. These materials included:

Item	Messages	Distribution
What would you do with 100 hours of free time? Brochure	• When the HOV lanes were opening • Rules and enforcement • Join a carpool (the brochure contained an applicaton to the region's free computerized ridematching	• Desktop by janitorial service at targeted worksites • Transit Information Centers • Commuter Information Centers (located at 500 employment sites throughout the region)
What would you do with 100 hours of free time? Poster (two sizes: 11"x17" and 28"x48")	• When the HOV lanes were opening • Join a carpool/ride the bus	• Transit Information Centers • Commuter Information Centers (located at 500 employment sites through-out the region)
I-5 HOV Lanes transit exterior sign	• HOV lanes opening on I-5 in S. King County	• Posted on outside of 100 buses traveling I-5 corridor in S. King County
I-5 HOV Lanes post-it-notes	• HOV lanes opening on I-5 in S. King County	• Desktop by janitorial services at targeted worksites • Worksite transportation fairs
I-5 HOV Lanes buttons	• HOV lanes opening on I-5 in S. King County	• Desktop by janitorial services at targeted worksites • Worksite transportation fairs

The total budget (including all consultant costs for marketing and promotion strategy development and implementation) totaled $41,530. This budget covered all costs, including printing/production costs, postage/distribution costs and advertising/transit sign placement costs.

7.2.5 Community Reaction

SHOVE was satisfied that the needs of the community were met through the opening of the I-5 South HOV lanes. This satisfaction was evidenced by leaders of SHOVE formally thanking members of the Transportation Commission, as well as positive statements made by SHOVE leaders to the media regarding the efforts made by WSDOT to design and build the lanes swiftly. In a survey conducted by the WSDOT to gauge traveler support for the HOV facility after the opening of the lanes, nearly 80% of those surveyed who traveled the South-I-5 corridor agreed with the statement "HOV lanes are a good idea" and thought that WSDOT should extend the HOV lanes farther. Over 70% thought WSDOT should continue with the construction of HOV lanes and

only a little more than 10% of survey respondents agreed with the statement "HOV treatment is unfair to single-occupant travelers".

7.2.6 Monitoring & Evaluation

No evaluation of the marketing activities was undertaken as part of the project. However, a number of reports were written to monitor the usage of the newly opened lanes themselves. In general, it was concluded that in-and-of themselves, the lanes covered too short of a distance to persuade any substantial mode-shift to HOV. Moreover, a lack of addition transportation system management treatments such as park-and-ride lots and ramp metering hampered the success of the HOV facility. The new facility did, however, provide time-savings and travel time reliability to those who did use them. An evaluation undertaken by WSDOT estimated travel time savings of only 2 to 3 minutes. However, some users of the lanes -- particularly leaders of SHOVE -- have reported significant travel time saving of over 15 minutes on some days. (See "Community Reaction - 7.2.5" for additional information)

7.2.7 General Marketing Conclusions

As with most HOV projects, it is difficult to separate the success of the marketing activities from the success of the project. Well-designed projects where there is demand will result in facility success, whereas poorly designed projects or projects implemented in areas where there is little demand may be termed a failures. In the case of the I-5 South HOV lanes, the facility did little to contribute to Washington States goals for mobility and congestion management.

There were, however, two key elements which make the project a success from a marketing perspective:

- **Market research activities** established a baseline of depth and breadth regarding HOV understanding and support. This market research -- both telephone survey and Executive Interviews -- gave the WSDOT an understanding of the expectations their constituents had for HOV facilities. This information aided not only in the marketing messages used to promote the opening of the HOV lanes, but in the design of the facility as well.

- **The constituency-building process,** which was an integral part of the technical planning and implementation actions, established the WSDOT commitment to HOV facilities as part of the vision of the region's vision for mobility This process of recognizing jurisdictions and community leaders as partners in the education and marketing process as well as the planning of the facility broadened the understanding and support for the specific HOV facility on I-5 in South King County.

BIBLIOGRAPHY

Executive Interviews. Pacific Rim Resources. December 13, 1990.

Public Opinion and Behavior Regarding HOV Alternatives: Volume One. Pacific Rim Resources. November 20, 1990.

Public Opinion and Behavior Regarding HOV Alternatives: Findings, Communications Strategies, Appendix. Pacific Rim Resources. November 20, 1990.

Communication Strategies. Pacific Rim Resources. December 13, 1993.

I-5 South Interim HOV Project: Final Recommendations Report. Parsons Brinckerhoff Quade & Douglas, Inc. July 8, 1991.

Evaluation of Seattle's South I-5 Interim HOV Lanes Gary Farnsworth -- WSDOT. Spring 1992.

APPENDIX B

SAMPLE MATERIALS

[Note: The items listed below are not available in this electronic version of the document.]

- NEWSLETTER (Minnesota I-394)
- HANDOUT (Seattle)
- PIZZA-HUT TIE-IN (Hampton Roads)
- NEWSPAPER AD (Nashville)
- CONSTRUCTION BULLETIN (Minnesota I-394)
- HOV SYSTEM FLYER (Seattle)
- PRESS RELEASE (San Jose)

APPENDIX C

HOV PROJECT DATA

[This appendix intentionally not included here due to outdated data. Please consult the documents bookmarked in the adjoining column for recent HOV projects status information.]

LISTING OF PROPOSED MAJOR FREEWAY/EXPRESSWAY HOV FACILITIES AS OF JANUARY 1998 (Listed by State/Province)

Project	Project Length		Status or Anticipated Opening
	Route-kilometers (miles)	Lane-kilometers (miles)	
Arizona, Phoenix			
Route Loop 202 (East Papago Freeway) I-10 to SR 101 concurrent-flow lanes	1.6 (1)	3.2 (2)	1998
I-10 (91st to Chandler Rd.) concurrent-flow lanes	8 (5)	16 (10)	1998
I-17(SunCap/Univ.-Berkeley) concurrent-flow lanes	1.6 (1)	1.6 (1)	1998
British Columbia, Vancouver, Canada			
Trans Canada Highway, concurrent-flow-lanes	12.8 (8)	25 (16)	Late 1990s
California, Bay Area			
I-80 (Contra Costa County) concurrent-flow lanes	16.1 (10))	112 (70)	Partially open through 1998
US 101 (Marin County) concurrent-flow lanes	4.8 (3)	9.6 (6)	Late 1990s
I-80/580/880 (Alameda County) concurrent-flow lanes	27 (17)	52 (32.3)	Staged through late 1990s
I-680 (Contra Costa County) concurrent-flow lanes	9.6 (6)	18 (11.2)	Staged through 1999
I-880 (Santa Clara County) concurrent-flow lanes	9.6 (6)	17 (10.8)	Late 1990s
SR 85 (Santa Clara County) concurrent-flow lanes	3.2 (2)	6.4 (4)	1999
SR 101 (Santa Rosa) concurrent-flow lanes	8 (5)	16.6 (10.4)	Late 1990s
California, Los Angeles County			
I-10 (San Bernardino Fwy.) concurrent-flow lanes	33 (20.3)	66 (41)	On hold
I-10 (Santa Monica Fwy.) concurrent-flow lanes	15 (9.3)	30 (18.6)	2020
I-405 concurrent-flow lanes	(24.9)	(49.8)	1998-2005
I-605 concurrent-flow lanes	(13.7)	(27.4)	1998-2000
I-710 concurrent-flow lanes	13 (8)	26 (16)	Beyond 2015
I-5 concurrent-flow lanes	56 (35)	111 (69)	2003-2009
SR 14 concurrent-flow lanes	58 (36)	115 (72)	1998-2003
SR 30 concurrent-flow lanes	(6)	(12)	2005
SR 60 concurrent-flow lanes	30 (19)	61 (38)	1998-2003
California, Orange County			
I-5 concurrent-flow lanes (SR 22 to SR 91)	15 (9)	30 (18)	2002-2004
SR 91 concurrent-flow lanes	14 (9)	30 (18.8)	2000
SR 57/91 HOV ramp flyover	1.6 (1)	3.2 (2)	2000
SR 55/405, 57/91 interchanges, HOV ramps	9.6 (6)	21 (13)	2000-2005
SR 73 concurrent-flow lanes	4.8 (3)	7 (4.4)	Planning studies
I-605 concurrent-flow lanes	4.8 (3)	9.6 (6)	Planning studies
SR 22 concurrent-flow lanes	19 (12)	38 (24)	Planning studies
California, San Bernardino County			
I-10 concurrent-flow lanes	16 (10)	32 (20)	1999
SR 30 concurrent-flow lanes	36 (22)	72.4 (45)	Beyond 2000
SR 71 concurrent-flow lanes	13.5 (8.4)	27 (16.8)	1998
I-215 concurrent-flow lanes	8 (5)	16 (10)	1999
SR 60 concurrent-flow lanes	32 (20)	62 (39)	1998
California, Riverside County			
SR 71 concurrent-flow lanes	9.6 (6)	19 (12)	Planning studies
I-215 concurrent-flow lanes	11.2 (7)	22 (14)	2000-2002
California, Sacramento			
SR 99 concurrent-flow lanes	11.3 (7)	22.7 (14.1)	1998-2001
US 50 concurrent-flow lanes	44 (27.3)	88 (54.7)	Planning studies
I-80 concurrent-flow lanes	13.7 (8.5))	27.3 (17)	Planning studies
California, San Diego County			

(Continued)
LISTING OF PROPOSED MAJOR FREEWAY/EXPRESSWAY HOV FACILITIES
AS OF JANUARY 1998 (Listed by State/Province)

Project	Project Length		Status or Anticipated Opening
	Route-kilometers (miles)	Lane-kilometers (miles)	
I-5 concurrent-flow lanes	37 (23)	73 (45.6)	Staged through 2010
I-15 concurrent-flow lanes or transitway	14 (9)	27 (16.8)	Beyond 2000
Colorado, Denver			
I-25, barrier-separated reversible lanes ramps	6.4 (4)	12.8 (8)	Late 1990s
Connecticut, Hartford			
I-84 WB concurrent-flow lane	2.4 (1.5)	2.4 (1.5)	1998
Florida, Orlando-Tampa			
I-4 exclusive 2-way barriered lanes	64 (40)	141 (88)	Beyond 2000
I-4 interim reversible lane (Orlando)	9.6 (6)	9.6 (6)	Late 1990s
Florida, Ft. Lauderdale			
I-95 concurrent-flow lanes	17.7 (11)	93 (58)	Beyond 2000
Florida, Miami			
South Busway (extension to Metrorail Line)	10 (6)	20 (13)	1999
Georgia, Atlanta			
I-85 concurrent-flow lane extensions	20 (12)	40 (24)	1999
I-75 concurrent-flow lanes extensions	34 (20.5)	68 (41)	Before 2005
Maryland			
SR 141, SR 301 concurrent-flow lanes	(NA)	(NA)	Late 1990s
I-95/495 Capital Beltway concept to be determined	(NA)	(NA)	Planning studies
Massachusetts, Boston			
I-93 north contraflow lanes	12.8 (8)	26 (16)	2004
SR 3 south concurrent-flow lanes	18 (11)	36 (22)	Planning studies
I-93 Southeast Expy. reversible flow lane	12.8 (8)	12.8 (8)	2004
I-93 Central Artery concurrent-flow lanes	6.4 (4)	12.8 (8)	2004
Route 128 (I-95) concurrent-flow lanes	22 (13.7)	44 (27.4)	2004
Route 3 North (concept to be determined)	35 (22)	70 (44)	Late 1990s
I-90 Massachusetts Turnpike queue bypasses	1.6 (1)	1.6 (1)	Late 1990s
Minnnesota, Minneapolis			
I-35W concurrent-flow lanes	8 (5)	16 (10)	2003
Hiawatha Ave./Hwy. 55 Transitway (busway)	16(10)	NA	2002
New Hampshire			
I-93 concurrent-flow lanes	32 (20)	64 (40)	Planning studies
New Jersey, Morris and Somerset Counties			
I-287 concurrent-flow lanes (project extension)	10 (6)	20 (12)	Late 1990s
New York, New York			
I-495 Long Island Expy. concurrent-flow lanes	48 (30)	96 (60)	Staged through 2003
Gowanus Expy., concurrent-flow lanes	8 (5)	16 (10)	Late 1990s
North Carolina, Charlotte			
US 74, reversible lane and ramps	6.9 (4.3)	6.9 (4.3)	1997-2001
Various busways	NA	NA	Planning studies pending
Ontario, Toronto area, Canada			
H-403 median concurrent-flow lanes	16 (10)	32 (20)	Beyond 2000
H-403 outside concurrent-flow lanes	5 (3)	10 (6)	Late 1990s

(Continued)
LISTING OF PROPOSED MAJOR FREEWAY/EXPRESSWAY HOV FACILITIES
AS OF JANUARY 1998 (Listed by State/Province)

Project	Project Length		Status or Anticipated Opening
	Route-kilometers (miles)	Lane-kilometers (miles)	
H-404 (Hwy. 401 to Maj. Mackenie Drive) concurrent-flow lanes	15.5 (9.3)	31 (18.6)	Beyond 2000
H-427 (Hwy. 401 to 407) concurrent-flow lanes	(7.6)	(15.2)	Beyond 2000
H-401			Under study
H-410			Under study
Ontario, Ottawa, Canada			
Highway 17-Orleans concurrent lane in EB shoulder	5 (3)	5 (3)	Beyond 2000
Highway 417-Kenta concurrent lane in WB shoulder	3.3 (2)	3.3 (2)	Beyond 2000
Pennsylvania, Pittsburgh			
Airport Busway	8 (5)	16 (10)	2000
Wabash Tunnel reversible HOV lane	1.6 (1)	1.6 (1)	Late 1990s
East Busway extension	NA	NA	Beyond 2000
Tennessee, Nashville			
I-24	15 (9)	30 (18)	Under construction
Texas, Austin			
Various corridors	NA	NA	Studies pending
Texas, Dallas			
I-35 E (R.L.Thornton) interim reversible lane	6.4 (4.0)	12.8 (8.0)	1999
US 67 interim concurrent-flow lanes	6.4 (4.0)	12.8 (8.0)	1999
US 75 (North Central Expy.) reversible lane	8 (5)	16 (10)	2005
I-635 HOV/Express lanes (3 ea. dir.)	16 (10)	NA	Planning studies
Texas, Houston			
US 59 (Eastex Fwy.) reversible-flow lane	32 (20)	32 (20)	1998-2000
I-45 (North Fwy.) reversible-flow lane extension	10 (6.2)	10 (6.2)	Late 1990s
I-45 (Gulf Fwy.) reversible-flow lane extension	6.4 (4)	6.4 (4)	Late 1990s
I-10 (Katy Fwy.) reversible-flow downtown extension	4.8 (3)	4.8 (3)	1998
I-10 (Katy Fwy.) reversible and 2-way transitways	42 (25)	96 (58)	2002-2005
I-610 (North and West Loop) in study	NA	NA	Planning studies (MIS*)
Tomball (SH 149) corridor, busway	NA	NA	Planning studies pending
Westpark corridor, reversible flow lane	7.8 (4.7)	7.8 (4.7)	2000 (also MIS* pending)
Texas, San Antonio			
I-35 North Pan Am Fwy. HOV/Express lanes	NA	NA	Planning studies
Utah, Salt Lake City			
I-15 concurrent-flow lanes	32 (10)	64 (20)	2000-2005
Virginia, Norfok/Virginia Beach			
Route 44 concurrent-flow lanes	32 (10)	64 (20)	Late 1990s
I-64 concurrent-flow lanes	NA	NA	Planning studies (MIS)
Virginia, Washington D.C. Area			
I-66 concurrent-flow lanes	12 (7.5)	24 (15)	Late 1990s
I-95/495 Capital Beltway concept to be determined	32 (20)	64 (40)	To be determined
Dulles Tollroad	16 (10)	32 (20)	1998
Washington, Seattle/Tacoma/Everett			
I-405 extensions to concurrent-flow lanes (median)	12.8 (8)	26 (16)	Staged through 2000
I-5 South, extensions to concurrent-flow lanes	30 (19))	60 (38)	Staged through 2000
I-5 North, extensions to concurrent-flow lanes	8 (5)	16 (10)	Staged through 2000
SR 520 concurrent-flow lanes	6.4 (4)	12.8 (8)	Staged through 2000

(Continued)
LISTING OF PROPOSED MAJOR FREEWAY/EXPRESSWAY HOV FACILITIES
AS OF JANUARY 1998 (Listed by State/Province)

Project	Project Length		Status or Anticipated Opening
	Route-kilometers (miles)	Lane-kilometers (miles)	
SR 525 concurrent-flow lanes	4.8 (3)	9.6 (6)	Staged through 2000
SR 167 extensions to concurrent-flow lanes	9.6 (6)	19 (12)	Staged through 2000
SR 16 concurrent-flow lanes	9.6 (6)	16 (10)	Staged through 2000
SR 526 queue bypass	1.6 (1)	1.6 (1)	NA

NA Not available
* Major Investment Study

OPERATIONAL CHARACTERISTICS OF SELECTED FREEWAY/EXPRESSWAY HOV FACILITIES AS OF JANUARY 1998

HOV Facility	Number of Lanes	Project Length km (miles)	HOV Operation Period[1]	General Eligibility Requirements	Changes in Rules Since Opening
Busway					
Miami, FL (US 1, southwest corridor)	1 each direction	5 (3)	24 hours	Buses only	Feeds Metro rail line
Ottawa, Ontario, Canada 32.2 km (19.3 miles)					
Southeast Transitway	1 each direction	10 (6)	24 hours	Buses only	No
West Transitway	1 each direction	8.5 (5.1)	24 hours	Buses only	No
Southwest Transitway	1 each direction	3.6 (2.2)	24 hours	Buses only	No
East Transitway	1 each direction	6.6 (4)	24 hours	Buses only	No
Central Transitway	1 each direction	3.5 (2.1)	24 hours	Buses only	No
Pittsburgh, PA					
East Patway	1 each direction	9.9 (6.2)	24 hours	Buses only	No
West Patway	1 each direction	6.6 (4.1)	24 hours	Buses only	No
Minneapolis, MN					
U of M Intercampus Busway	1 each direction	1.8 (1.1)	24 hours	Buses only	No
Dallas, TX					
Southwest Texas Medical Center busway	1 each direction	1 (0.6)	24 hours	Buses only	No
Barrier-Separated: Two-Way					
Los Angeles, CA					
I-10 (El Monte) San Bernardino Fwy.	1 each direction	6.4 (4)	24 hours	3+ HOVs	Changed from buses only in 1978
I-105/I-110 fwy/fwy connectors	1 each direction	1.6 (1)	24 hours	2+ HOVs	No
Orange County, CA I-5	1-2 each direction	7.2 (4.5)	24 hours	2+ HOVs	No
Houston, TX I-610/US 290 elevated, opposing flow not separated	1 each direction	2.4 (1.5)	5 am to 12 noon, 2-9 pm	2+ HOVs	No
Seattle, WA I-90	1 each direction	2.4 (1.5)	24 hours	2+ HOVs	No
Barrier-Separated: Reversible-Flow					
Denver, CO I-25	2 reversible	12 (7.5)	6 am to 10 pm	2+ HOVs	Yes, from buses only
Northern Virginia					
I-395 (Shirley Hwy.)	2 reversible	24 (15)	24 hours	2+ HOVs	No
Houston, TX					
I-10 (Katy Freeway)[5]	1 reversible	21 (13)	5 am-12 noon, 2-9 pm, 5 am-5 pm WB Sat., 5 am-9 pm Sun.	3+ peak hours, 2+ other times	Opened for authorized buses and vanpools, lowered and raised since, 2-occ. toll pending
I-45 (Gulf Freeway)	1 reversible	19.4 (12.1)	5 am to 12 noon, 2-9 pm	2+ HOVs	No
US 290 (Northwest Freeway)	1 reversible	21.6 (13.5)	5 am to 12 noon, 2-9 pm	2+ HOVs	No
I-45 (North Freeway)	1 reversible	21.6 (13.5)	5 am to 12 noon, 2-9 pm	2+ HOVs	Started with buses and vanpools only, changed operation periods
US 59 (Southwest Freeway)	1 reversible	20 (12.5)	5 am to 12 noon, 2-9 pm	2+ HOVs	No
San Diego, CA I-15[5]	2 reversible	16.3 (9.8)	6-9 am, 3-6:30 pm	2+ HOVs/ toll SOVs	No
Minneapolis, MN I-394[5]	2 reversible	8 (5)	6-10 am, 2-7 pm	2+ HOVs	No
Pittsburgh, PA I-279/579	1-2 reversible	6.6 (4.1)	5-9 am, noon-8 pm	2+ HOVs, all traffic NB after 8 pm during sports games	Changed from 3+ and operating periods, all traffic allowed to use lanes during sports games downtown
Norfolk, VA I-64	2 reversible	12.8 (8)	5-8:30 am WB, 3-6 pm EB, mixed flow other times	2+ HOVs	No
Seattle, WA					
I-5 North (Express Lanes)	2-3 reversible	SB 4.2 (2.6), NB 2.6 (1.6)	5-8:30 am SB, 12 noon-4 am NB	2+ HOVs	Changed from 3+ NB
I-90	2 reversible	9.9 (6.2)	24 hours	2+ HOVs	No
Concurrent-flow: Buffer-Separated/					

(Continued)
OPERATIONAL CHARACTERISTICS OF SELECTED FREEWAY/EXPRESSWAY HOV FACILITIES
AS OF JANUARY 1998

HOV Facility	Number of Lanes	Project Length km (miles)	HOV Operation Period[1]	General Eligibility Requirements	Changes in Rules Since Opening
Non-Separated					
Phoenix, AZ					
I-10	1 each direction	33.6 (21)	6-9 am, 4-7 pm	2+ HOVs	Changed from 3+
SR 202	1 each direction	12.8 (8)	6-9 am, 4-7 pm	2+ HOVs	Changed hours
I-17	1 each direction	9.6 (6)	6-9 am, 4-7 pm	2+ HOVs	Changed hours
Vancouver, BC, Canada					
H-99	1 each direction	SB 6.4 (4), NB 1.6 (1)	24 hours	3+ HOVs	Changed from buses only
Los Angeles County, CA					
I-10 (El Monte) San Bernardino Fwy.-(wide buffer separation)	1 each direction	12.8 (8)	24 hours	3+ HOVs	Changed from buses only in 1978
I-105	1 each direction	25.6 (16)	24 hours	2+ HOVs	No
I-110	2 each direction	17.8 (10.7)	24 hours	2+ HOVs	No
I-210	1 each direction	30.8 (18.5)	24 hours	2+ HOVs	No
I-405 (includes Orange Co. line to I-710)	1 each direction	45.6 (27.4)	24 hours	2+ HOVs	No
SR 91	1 each direction	22.9 (14.3)	24 hours	2+ HOVs	Changed from peak periods only
SR 118	1 each direction	18.2 (11.4)	24 hours	2+ HOVs	No
SR 134	1 each direction	22.1 (13.3)	24 hours	2+ HOVs	No
SR 170	1 each direction	9.8 (6.1)	24 hours	2+ HOVs	No
I-605	1 each direction	11.6 (7)	24 hours	2+ HOVs	No
SR 57	1 each direction	7.5 (4.5)	24 hours	2+ HOVs	No
SR 30	1 each direction	3.8 (2.3)	24 hours	2+ HOVs	No
Orange County, CA					
I-5	1-2 each direction	54.4 (34)	24 hours	2+ HOVs	No
SR 55	1 each direction	19.7 (12.3)	24 hours	2+ HOVs	No
I-405	1 each direction	38.4 (24)	24 hours	2+ HOVs	No
SR 57	1 each direction	19.2 (12)	24 hours	2+ HOVs	No
SR 91	1 each direction	4.2 (2.6)	24 hours	2+ HOVs	No
SR 91 toll/HOV lanes[2]	2 each direction	16.2 (10.1)	24 hours	3+ HOVs reduced toll	On 12/97 tolls were placed on 3+ HOVs
Riverside County, CA SR 91	1 each direction	27.2 (17)	24 hours	2+ HOVs	No
San Bernardino County, CA					
SR 60	1 each direction	16 (10)	24 hours	2+ HOVs	No
SR71	1 each direction	5 (3)	24 hours	2+ HOVs	No
Santa Clara/San Mateo Counties, CA					
US 101	1 each direction	51.6 (31)	5-9 am, 3-7 pm	2+ HOVs	No
SR 237	1 each direction	9.6 (6)	5-9 am, 3-7 pm	2+ HOVs	No
SR 85	1 each direction	35.2 (22)	5-9 am, 3-7 pm	2+ HOVs	No
I-280	1 each direction	17.6 (11)	5-9 am, 3-7 pm	2+ HOVs	No
Capitol Expy. (shoulders)	1 each direction	8.3 (5)	5-9 am, 3-7 pm	2+ HOVs	No
Lawrence Expy. (shoulders)	1 each direction	17 (10)	5-9 am, 3-7 pm	2+ HOVs	No
Montague Expy. (shoulders)	1 each direction	9.6 (6)	5-9 am, 3-7 pm	2+ HOVs	No
San Tomas Expy.(shoulders)	1 each direction	12.8 (8)	6-9 am, 3-7 pm	2+ HOVs	No
Alameda County, CA					
I-880	1 each direction	15 (9)	5-9 am, 3-7 pm	2+ HOVs	No
Contra Costa County, CA					
I-80	1 each direction	16.1 (10)	5-9 am, 3-7 pm	3+ HOVs	No
I-680	1 each direction	23 (14.4)	6-9 am, 3-6 pm	2+ HOVs	No
I-580	1 each direction	9.8 (6.1)	7-8 am, 5-6 pm	2+ HOVs	No
Marin County, CA US 101 (2 projects)	1 each direction	16.7 (10)	6:30-8:30 am, 4:30 -7 pm	2+ HOVs	Changed from 3+
Sacramento, CA SR 99	1 each direction	6.2 (3.9)	6-10 am, 4-7 pm	2+ HOVs	Reduced hours
Denver, CO, US 36 Boulder Turnpike	1 EB only	6.6 (4.1)	6-9 am	Buses only	No
Hartford, CT					

(Continued)
OPERATIONAL CHARACTERISTICS OF SELECTED FREEWAY/EXPRESSWAY HOV FACILITIES
AS OF JANUARY 1998

HOV Facility	Number of Lanes	Project Length km (miles)	HOV Operation Period[1]	General Eligibility Requirements	Changes in Rules Since Opening
I-84 (wide buffer separation)	1 each direction	16 (10)	24 hours	2+ HOVs	Changed from 3+
I-91 (wide buffer separation)	1 each direction	14.4 (9)	24 hours	2+ HOVs	No
Ft. Lauderdale, FL I-95	1 each direction	43.2 (27)	7-9 am, 4-6 pm	2+ HOVs	No
Concurrent-flow (Continued)					
Miami, FL					
I-95	1 each direction	52 (32)	7-9 am SB, 4-6 pm NB	2+ HOVs	No
I-95 freeway/freeway ramp	2-way	5 (3)	7-9 am SB, 4-6 pm NB	2+ HOVs	No
Orlando, FL I-4	1 each direction	48 (30)	7-9 am SB 4-6 pm NB	2+ HOVs	No
Atlanta, GA					
I-20	1 each direction	14 (8.5)	6:30-9:30 am WB, 4:30-7 pm EB	2+ HOVs	No
I-75/I-85 central section	1 each direction	12.5 (7.5)	24 hours	2+ HOVs	No
I-75	1 each direction	19.3 (11.6)	24 hours	2+ HOVs	No
I-85	1 each direction	18.2 (10.9)	24 hours	2+ HOVs	No
Honolulu, HI					
Moanaloa Fwy.	1 each direction	3.8 (2.4)	6-8 am, 3:30-6 pm	2+ HOVs	No
Kalanianaole Hwy.	1 (WB only)	3.2 (2.0)	5-8:30 am	2+ HOVs	No
H-1	1 each direction	12.8 (8)	6-8 am, 3:30-6 pm	2+ HOVs	No
H-2	1 each direction	13.1 (8.2)	6-8 am, 3:30-6 pm	2+ HOVs	No
Montgomery County, MD					
US 29 (shoulders)	1 each direction	4.8 (3)	Peak periods only	Buses only	No
I-270	1 each direction	25.8 (15.5)	Peak periods only	2+ HOVs	
I-270 (western spur)	1 each direction	5 (3)	Peak periods only	2+ HOVs	
I-270 (eastern spur)	1 each direction	5 (3)	Peak periods only	2+ HOVs	No
Boston, MA I-93 North	1 (SB only)	1.8 (1.1)	6:30-9:30 am	2+ HOVs	Changed from 3+
Minneapolis, MN					
I-35W	1 each direction	8 (5)	6-9 am NB, 4-7 pm SB	2+ HOVs	No
I-394	1 each direction	11.2 (7)	6-9 am EB, 4-7 pm WB	2+ HOVs	No
Morris County, NJ					
I-80	1 each direction	17.6 (11)	Peak periods only	2+ HOVs	No
New Jersey Turnpike	1 each direction	16 (10)	Peak periods only	3+ HOVs	No
I-287	1 each direction	20 (12)	Peak periods only	2+ HOVs	Temp. closed in late 97, reopens 1/19/98
Suffolk County, NY I-495	1 each direction	19.2 (12)	6-10 am, 3-8 pm	2+ HOVs	Yes, changed hours
Ottawa, Ontario, Canada					
Hwy. 417 Kenta (EB shoulder)	1 (EB only)	4.8 (3)	7-9 am	Buses only	No
Hwy. 17 Orleans (WB shoulder)	1 (WB only)	4.8 (3)	7-9 am	Buses only	No
Memphis, TN I-40	1 each direction	10 (6)	NA	2 + HOVs	Opened Aug. 97
Nashville, TN					
I-65 (South)	1 each direction	11.5 (7.2)	7-9 am NB, 4-6 pm SB	2+ HOVs	No
I-40	1 each direction	8.3 (5)	7-9 am WB, 4-6 pm EB	2+ HOVs	No
Dallas, TX					
I-35E (Stemmons Freeway)	1 each direction	SB 11.7 (7.3), NB 9.7 (6.0)	24 hours	2+ HOVs	No
I-635 (LBJ Freeway)	1 each direction	EB 11 (6.8), WB 9.8 (6.1)	24 hours	2+ HOVs	No

(Continued)
OPERATIONAL CHARACTERISTICS OF SELECTED FREEWAY/EXPRESSWAY HOV FACILITIES AS OF JANUARY 1998

HOV Facility	Number of Lanes	Project Length km (miles)	HOV Operation Period[1]	General Eligibility Requirements	Changes in Rules Since Opening
Concurrent-flow (Continued)					
Northern Virginia					
I-66 (outside Capital Beltway)[4]	1 each direction	11.2 (7)	6-9 am, 3:30-6 pm	2+ HOVs	No
I-66 (inside Capital Beltway)	2-3 each direction	15.4 (9.6)	6:30-9 am EB, 4-6:30 pm WB	2+ HOVs	Changed operating periods and from 3+
Norfolk/Virginia Beach, VA					
SR 44[4]	1 each direction	6.4 (4)	5-8:30 am WB, 3-6 pm EB	2+ HOVs	No
I-64	1 each direction	8 (5)	Peak periods only	2+ HOVs	No
I-564	1 EB only	3.2 (2)	3:30-6 pm EB	2+ HOVs	No
I-264	1 each direction	6.4 (4)	Peak periods only	2+ HOVs	No
Seattle, WA					
I-5 North	1 each direction	SB 22 (13.6), NB 18 (11.3)	24 hours	2+ HOVs	Changed from 3+
I-5 South	1 each direction	30 (19)	24 hours	2+ HOVs	No
I-90	1 each direction	11.7 (7.3)	24 hours	2+ HOVs	General purpose lane conversion
I-405 (median and shoulders)	1 each direction	SB 36 (22.5), NB 35 (21.7)	24 hours	2+ HOVs	No
SR 167	1 each direction	6.7 (4.2)	24 hours	2+ HOVs	No
SR 520 (shoulder)	1 WB only	3.7 (2.3)	24 hours	3+ HOVs	Changed from bus only in AM peak period
Contraflow					
Honolulu, HI					
Kalanianaole Hwy.	1	WB 7 (4.4), EB 1.6 (1)	5-8:30 am, 4-6:30 pm	2+ HOVs	Changed from 3+
Kahekili Hwy.	1	1.8 (1.1)	5:30-8:30 am, 3:30-7 pm	2+ HOVs	No
New Jersey, Rte. 495 (to Lincoln Tunnel)	1 EB only	4 (2.5)	6-10 am	Buses only	No
New York City, NY I-495 Long Island Expy.	1	6.4 (4)	7-10 am	Buses, vanpools taxis	No
Dallas, TX I-30 East, (R.L. Thornton Fwy.)	1 each peak direction	8.3 (5.2)	6-9 am, 4-7 pm	2+ HOVs	No
Boston, MA I-93 Southeast Expy.	1 each peak direction	9.6 (6)	6-10 am, 3-7 pm	3+ HOVs	Additional hour added in AM period
Montreal, Quebec, Canada Rte. 10/15/20 Champlain Bridge	1	6.9 (4.3)	6:30-9:30 am NB, 3:30-7 pm SB	Buses only	Speed limit reduced
Queue Bypasses					
Bay Area, CA					
S.F./Oakland Bay Bridge toll plaza, I-80	3	1.4 (0.9)	6-9 am, 3-6 pm	3+ HOVs	Number and location of lanes reoriented
Dumbarton Bridge toll plaza, SR 84	1	3.2 (2)	Peak periods	2+ HOVs	Changed from 3+
San Mateo Bridge toll plaza, SR 92	1	1.6 (1)	Peak periods	3+ HOVs	No
SR 4	1	0.8 (0.5)	Peak periods	3+ HOVs	No
Various freeway entrance ramps	1	0.2 (0.1)	When demand warrants	2+ HOVs	No
Los Angeles and Orange Counties, CA					
Over 250 entrance ramps	1	0.2 (0.1)	When demand warrants	2+ HOVs	No
San Diego, CA					
Various entrance ramps			As warranted	2+ HOVs	No
Coronado Bridge toll plaza	1 (WB only)	0.2 (.1)	24 hours	2+ HOVs	No
A Street entrance ramp to I-5 freeway	1	0.6 (0.4)	24 hours	Buses only	No
I-5/Mexico port of entry	4 gates	0.2 (0.1)	24 hours M-F	4+ HOVs	No
Honolulu, HI, H-2	1 (SB only)	1.3 (0.8)	6-8 am,	2+ HOVs	No

(Continued)
OPERATIONAL CHARACTERISTICS OF SELECTED FREEWAY/EXPRESSWAY HOV FACILITIES AS OF JANUARY 1998

HOV Facility	Number of Lanes	Project Length km (miles)	HOV Operation Period[1]	General Eligibility Requirements	Changes in Rules Since Opening
			3:30-6 pm		
Queue Bypasses (Continued)					
Illinois, Chicago, I-90 toll plaza	1 (EB only)	0.8 (0.5)	Peak periods	Buses only	No
Minneapolis, MN, Various entrance ramps	1	0.6 (0.2)	Peak periods	2+ HOVs	No
New Jersey					
Ft. Lee, I-95 (to George Washington Br.)	1 (EB only)	1.6 (1)	7-9 am	3+ HOVs	No
Union, Rte. 495 (Lincoln Tunnel toll plaza)	1 (WB only)	0.5 (0.3)	6-10 am	Buses only	No
Seattle, WA					
SR 509 shoulder	1 (NB only)	1.3 (0.8)	24 hours	2+ HOVs	Changed from 3+
SR 526	1	0.8 (0.5)	24 hours	Buses only	No
Freeway entrance ramps (69)[3]	1	0.2 (0.1)	24 hours	2+ HOVs	No
Ferry terminal dock, downtown	1-2	0.2 (0.1)	24 hours	Registered carpools/ vanpools only	No

Footnotes
[1] Part-time periods are 5-day week, typically in peak directions as noted.
[2] This project is a privatized toll road with congestion pricing. Registered 3+ HOVs can travel free.
[3] Included are 39 metered ramps and 30 non-metered ramps.
[4] HOV is converted from left side general purpose lane, while outside shoulder becomes a general purpose lane.
[5] These projects are operating or planned toll lanes for 2-occupant or SOV "buy-in" under FHWA congestion pricing demonstration program.

APPENDIX D

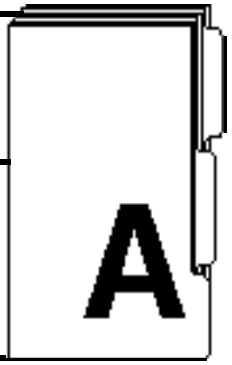
SAMPLE SURVEY FORMS

[Note: The items listed below are not available in the electronic version of the document]

- ORANGE COUNTY I-405 (Post Card Survey)
- HOUSTON NORTHWEST TRANSITWAY CARPOOL/VANPOOL SURVEY
- MINNEAPOLIS I-394 HOV LANE USE USER SURVEY
- SANTA MONICA FREEWAY CORRIDOR USER SURVEY

APPENDIX E

DIRECTORY OF HOV MARKETING CONTACTS



APPENDIX E

DIRECTORY OF HOV MARKETING CONTACTS

Appendix E is a directory of HOV professionals with marketing experience around the U.S. and Canada. General area(s) of expertise noted in parentheses.

Baird, Jan (marketing)
Partnership Marketing
111 N. Sepulveda Blvd., Suite 250
Manhattan Beach, CA 90266
(310) 937-1502

Billheimer, John (research, enforcement, evaluation, marketing)
Vice President
SYSTAN, Inc.
343 Second Street
P.O. Box U
Los Altos, CA 94022
(415) 941-3311

Burroughs, Presley (citizen participation)
State of California
Department of Transportation, District 7
120 S. Spring Street
Los Angeles, CA 90012
(213) 897-4428

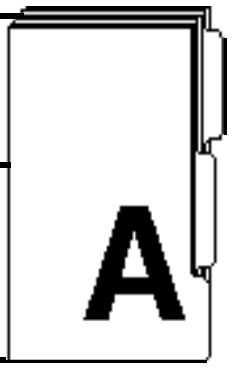
Christiansen, Dr. Dennis (policy, planning, design, operation, evaluation)
Division Head
Texas Transportation Institute
Texas A&M University
College Station, TX 77843
(409) 845-1535

Dunn, Frank (planning)
Senior Transportation Engineer
Virginia DOT
1401 East Broad Street
Richmond, VA 23219
(804) 786-2974

Emerson, Jerry
Traffic Management System Division
FHWA, Office of Traffic Operations
400 7th Street S.W. HTV-31
Washington, D.C. 20590

APPENDIX E

DIRECTORY OF HOV MARKETING CONTACTS



Fuhs, Charles (planning, design, implementation, operation)
Senior Professional Associate
Parsons Brinckerhoff
505 S. Main Street, Suite 900
Orange, CA 92668
(714) 973-4880

Iwamuro, Heather
Commuter Transportation Services
3550 Wilshire Blvd., Suite 300
Los Angeles, CA 90010
(213) 380-7750

Klusza, Ron (planning, evaluation, operation)
Traffic Operations HOV Coordinator
CALTRANS District 7
120 South Spring Street
Los Angeles, CA 90012
(213) 620-3264

Larson, James L.
Community Affairs Director
State of California
Department of Transportation, District 11
2829 Juan Street
P.O. Box 85406
San Diego, CA 92186-5406
(619) 688-6678

Lomax, Tim (planning, evaluation, design, operation)
Associate Research Engineer
Texas Transportation Institute
Texas A&M University
College Station, TX 77843
(409) 845-1535

Loomis, Melissa
Public Information Officer
Washington State Department of Transportation
District 1
15700 Dayton Avenue North
P.O. Box 330310
Seattle, WA 98133-9710
(206) 440-4700

APPENDIX E

DIRECTORY OF HOV MARKETING CONTACTS

Moore, J.B. (marketing, public relations)
The Roanoke Company
1115 Merrill Street
Menlo Park, CA 94025
(415) 327-2251

Morris, Joan (public information)
Virginia Department of Transportation
3975 Lake Ridge Drive
Fairfax, VA 22033
(703) 934-7309

Pint, Al (design, implementation, operation)
I-394 Project Manager
Minnesota DOT
Waters Edge Building
1500 Watt County Road B2
Roseville, MN 55113
(612) 582-1343

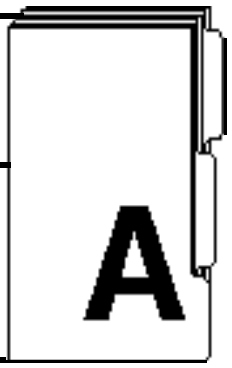
Pratsch, Lew (operation)
Program Manager
Department of Energy
Forrestal Building
1000 Independence Avenue, S.W., Room 5F0178
Washington, D.C. 20585
(703) 960-7433

Rains, Karla (market research)
Director of Marketing Research
Minnesota Department of Transportation
Waters Edge Building
1500 Watt County Road B2
Roseville, MN 55113
(612) 582-1396

Rockvam, Judith (marketing)
I-394 Project Liaison
Metropolitan District
Traffic Management Center
1101 - 4th Avenue S.
Minneapolis, MN 55404
(612) 341-7505

APPENDIX E

DIRECTORY OF HOV MARKETING CONTACTS



Roper, Dave (design, implementation, operations)
Roper & Associates
1732 Hill Street
Santa Monica, CA 90403
(310) 452-3301

Sinclair, Camille (public information)
New Jersey Department of Transportation
1035 Parkway Avenue, CN 600
Trenton, NJ 08625
(609) 530-4280

South Webster, Lynda
Director
Office of Public Affairs
Virginia Department of Transportation
1401 East Broad Street
Richmond, VA 23219
(804) 786-2715

Stamm, Heidi (marketing public involvement)
Pacific Rim Resources
10700 Meridian Avenue, North, Suite 506
Seattle, WA 98133
(206) 367-5120

Strickland, Sheldon (operation)
Chief, Traffic Management & System Division
FHWA, Office of Traffic Operations
400 7th Street, S.W., HTO-1
Washington, D.C. 20590
(202) 366-1993

Turnbull, Katherine (policy, evaluation)
Assistant Research Scientist
Texas Transportation Institute
Texas A&M University
College Station, TX 77843
(409) 845-1535

APPENDIX E

DIRECTORY OF HOV MARKETING CONTACTS

Van Luven, Heidi
Maryland Dept. of Transportation
State Highway Administration
707 North Calvert Street, Room 215
Baltimore, MD 21202
(800) 735-2258

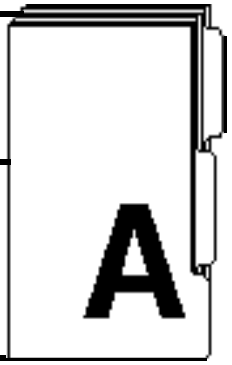
Wraith, Linda
Advertising and Promotions Coordinator
Metro
Municipality of Metropolitan Seattle
821 Second Avenue, M.S. 62
Seattle, WA 98104-1598
(206) 684-1550

Young, Roy
Commuter Transportation Services
3550 Wilshire Blvd., Suite 300
Los Angeles, CA 90035
(213) 365-6822

Zimmer, Charleen (public awareness)
Associate
Stargar-Roscoe-Fausch
One Carlson Parkway N., Suite 150
Minneapolis, MN 55391
(612) 475-0010

APPENDIX F

SELECTED BIBLIOGRAPHY



APPENDIX F

SELECTED BIBLIOGRAPHY

American Association of State Highway and Transportation Officials, Guide for the Design of High Occupancy Vehicle Facilities, Washington, D.C., 1991.

Batz, Thomas M., High Occupancy Vehicle Treatments, Impacts and Parameters (A Synthesis), Volume I: Procedures and Conclusions, New Jersey Department of Transportation, Trenton, New Jersey, August, 1986.

Billheimer, John W., Ken Kaylor, and Charles Shade. Use of Videotape in HOV Lane Surveillance and Enforcement, prepared for the California Department of Transportation by SYSTAN, Inc., and ATD, Inc., Los Altos, California, March, 1990.

Billheimer, John W. HOV Lane Violation Study. Final Report prepared for the California Department of Transportation and the California Highway Patrol by SYSTAN, Inc., Los Altos, California, January, 1990.

Billheimer, John W., Kevin Fehon and Derek Bell. HOV System Planning Study for the Sacramento Metropolitan Area Final Report prepared for the Sacramento Area Council of Governments by SYSTAN, Inc., Los Altos, California, May, 1990.

Billheimer, John W. San Francisco Bay Area HOV Lane User Study, Final Report prepared for the Metropolitan Transportation Commission by SYSTAN, Inc., Los Altos, California, May, 1990.

Billheimer, John W. Commuter Lane Performance Evaluation, prepared for the Santa Clara County Transportation Agency by SYSTAN, Inc., January, 1989.

Billheimer, John W., J. McNally, and R. Trexler, Evaluating and Planning HOV Enforcement, Transportation Research Board, Washington, D.C., 1983.

Billheimer, John W., Juliet McNally and Robert Trexler, TSM Project Violation Rates, Final Report prepared for the California Department of Transportation and the California Highway Patrol by SYSTAN, Inc., Los Altos, California, 1981.

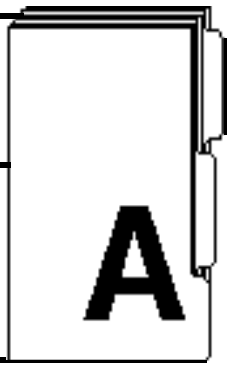
Billheimer, John W., and Gail Fondahl, TSM Project Violation Rates: Study Design, Prepared for the California Department of Transportation and the California Highway Patrol by SYSTAN, Inc., Los Altos, California, June, 1979.

Billheimer, John W., and J.B. Moore, THE DRIVER: A Public Education Project by Law Enforcement, Vol. I: Technical Report and Vol. II: Planning, Implementation and Evaluation Guidelines, prepared for the California Department of Transportation, National Highway Traffic Safety Administration by SYSTAN, Inc., Los Altos, California, January, 1987.

Billheimer, John W., and Robert Trexler, Evaluation Handbook for Transportation Impact Assessment, Report No. UMTA-IT-06-0203-81-1, prepared for the Urban Mass Transportation Administration, Washington, D.C., December, 1980.

APPENDIX F

SELECTED BIBLIOGRAPHY



Billheimer, John W., Robert Bullemer and Carolyn Fratessa, The Santa Monica Freeway Diamond Lanes: An Evaluation, SYSTAN, Inc., Los Altos, California, April, 1977.

Billheimer, John W., San Tomas Expressway Data Review and Requirements, prepared for the Santa Clara County Transportation Agency by SYSTAN, Inc., Los Altos, CA, April, 1982.

Bloch, Arnold, Margaret Campbell, Wayne Ugolik, and Melvin Cooperman, Marketing HOV in a Suburban Setting: The Long Island Expressway Experience, paper presented at the 73rd annual meeting of the Transportation Research Board, Washington, D.C., January, 1994.

California Department of Transportation, Guidelines: Bus and Carpool Lanes, Park-and-Ride, Draft, Sacramento, California, February, 1981.

California Department of Transportation, HOV Guidelines, Unpublished Draft, HOV Systems Branch, Sacramento, California, 1990.

California Department of Transportation, Caltrans District 04, Bus/Carpool Lanes Route 101 Marin County: Evaluation Report, San Francisco, California, March, 1977.

California Department of Transportation, Caltrans District 04, SCL-101 Commuter Lane Preliminary Evaluation Report, San Francisco, June, 1988.

California Department of Transportation, Caltrans District 07, Route 55 Newport Costa Mesa Freeway Commuter Lane 18 Month Report, Los Angeles, July, 1987.

California Department of Transportation, Caltrans District 04, Toll Bridge Preferential Treatment Study, San Francisco, December, 1976.

California Department of Transportation, Caltrans District 07, Route 91 Artesia Freeway Operational Report Based on 18 Months of Commuter Lane Use, Los Angeles, December, 1986.

California Department of Transportation, Caltrans District 07, ?Evaluation of Implemented HOV Strategies," Draft, December, 1977.

California Department of Transportation, Caltrans District 07, Evaluation of High Occupancy Vehicle (HOV) Strategies, Unreleased Report, Los Angeles, April, 1978.

California Department of Transportation, Caltrans District 11, Interstate Route 15 Reversible Roadway for High Occupancy Vehicles Operational Plan, San Diego, July, 1984.

California Highway Patrol, ?Golden Gate Division Motorcycle Assignment CalTrans Committee Report," San Francisco, March, 1978.

APPENDIX F

SELECTED BIBLIOGRAPHY

California Highway Patrol, Freeway Enforcement, HPG 70.18, Sacramento, California, March, 1971.

Cechini, Frank, Operational Considerations in HOV Facility Implementation, prepared for Transportation Research Board Task Force ASTS1 (HOV Systems) Federal Highway Administration, Sacramento, CA, October, 1988.

Christiansen, Dennis L., The Effectiveness of High-Occupancy Vehicle Facilities, Texas Transportation Institute, presented at the Institute of Transportation Engineers annual meeting, College Station, Texas, September, 1988.

Christiansen, Dennis L., The Status and Effectiveness of the Houston High-Occupancy Vehicle Lane System, 1988, Texas Transportation Institute, presented at the 69th annual meeting of the Transportation Research Board, Washington, D.C., January 1990.

DKS Associates, Route 101 in Santa Clara County, Corridor Study and Operations Analysis, Final Report, prepared for Santa Clara County Traffic Authority and the California Department of Transportation, Oakland, CA, July, 1987.

Fuhs, Charles A. The Evolution of HOV Facility Development in Southern California , Parsons Brinckerhoff Quade & Douglas, presented at the Institute of Transportation Engineers annual meeting, Orange, California, September, 1988.

Fuhs, Charles, High-Occupancy Vehicle Facilities, A Planning Design, and Operation Manual, Parsons Brinckerhoff Quade & Douglas, Inc., New York, December, 1990.

Glazer, Lawrence, J., San Bernadino Freeway Express Busway Evaluation of Mixed-Mode Operations, prepared for Southern California Association of Governments, Crain & Associates, Menlo Park, California, July, 1978.

Institute of Transportation Engineers, The Effectiveness of High-Occupancy Vehicle Facilities, Washington, D.C., 1986.

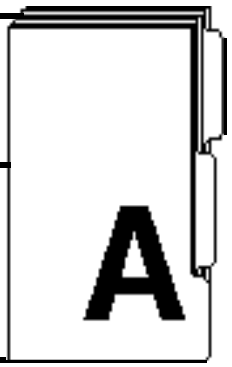
Institute of Transportation Engineers, More for Less With HOV: The Benefits of High Occupancy Vehicle Projects, ITE Publication No. LP-251, Washington, D.C., 1992.

Institute of Transportation Engineers, Guidelines for High-Occupancy Vehicle (HOV) Lanes, A Recommended Practice, Publication No. RP-017, Washington, D.C., 1986.

Institute of Transportation Studies, University of California, Irvine, Results of Preliminary Study of Accidents on the SR-55 Freeway, prepared for Orange County Transportation Commission by ITS. Irvine, California, November, 1986.

APPENDIX F

SELECTED BIBLIOGRAPHY



Lomax, Timothy J., Freeway and HOV Lane Mobility Estimation Methodology, Research Report 1131-1, Texas Transportation Institute for the Texas State Department of Highways and Public Transportation, College Station, Texas, August, 1988.

Lomax, Timothy J., and Daniel E. Morris, Guidelines for Estimating the Cost Effectiveness of High-Occupancy Vehicle Lanes, Research Report 339-5, Texas Transportation Institute for the Texas State Department of Highways and Public Transportation, College Station, Texas, November, 1985.

Lovelock, Christopher H. and Charles B. Weinberg, Marketing for Public and Non Profit Managers, John Wiley & Sons, 1984.

Metropolitan Washington Council of Governments, Washington HOV Lane Conference Final Report, COG Number 89601, Washington, D.C., June 13, 1988.

MacCalden, M., Scott Jr., Report on Priority Lane Experiment on the San Francisco-Oakland Bay Bridge, California Business and Transportation Agency, Sacramento, CA, April, 1973.

Miller, Craig and Robert Deuser, Enforcement Requirements for High-Occupancy Vehicle Facilities, Beiswenger, Hoch and Associates, Inc., Final Repot, December, 1978.

Newman, Leonard, Cornelius Nurworsoo, and Adolf D. May, Operational and Safety Experience with Freeway HOV Facilities in California, Submitted to Transportation Research Board for Publication, January, 1988.

Newman, Leonard, Cornelius K. Nurworsoo, and Adolf D. May, Design of Bus and Carpool Facilities: A Technical Investigation, Research Report UCB-ITS-R-87-15. Institute of Transportation Studies, University of California, Berkeley, November, 1987.

Orange County Transit District, Planning Department, Commuter Market Study, September, 1985.

Orange County Transportation Commission, Commuter Attitudes Toward Proposed High Occupancy Vehicle Lanes in Orange County, August, 1985.

Pacific Rim Resources, Maintaining Public Acceptance of an HOV Facility Implemented Through Lane Conversion, A handbook developed for the Federal Highway Administration Services on Planning, Operation and Design of High Occupancy Vehicle Facilities, Atlanta, GA, August 1993.

Parsons Brinckerhoff Quade & Douglas, Orange County Transitway Concept Design: Communications, Signage, and Passenger/User Information System, Working Paper C.8, prepared for Orange County Transit District, Orange, California, November 1988.

APPENDIX F

SELECTED BIBLIOGRAPHY

Proceedings, Second National Conference on High-Occupancy Vehicle Lanes and Transitways, Houston, Texas, October 25-28, 1987.

Proceedings, Third National High-Occupancy Vehicle (HOV) Facilities Conference, Minneapolis, Minnesota, October 17-19, 1988.

Proceedings, Fourth National High-Occupancy Vehicle (HOV) Facilities Conference, Washington, D.C., April, 1990.

Raub, R.A., Summary and Critique of the Literature Pertaining to the Effects of Increased Enforcement of Traffic Lanes on Improving Traffic Safety (Reducing Accidents), Illinois Department of Law Enforcement, Springfield, Illinois, December, 1979.

Robinson, Jim, Signing and Pavement Markings for HOV Lanes, prepared for the Institute of Transportation Engineers Committe 5C-11: Guidelines for the Design Features of HOV Facilities, Washington, D.C., April 27, 1989.

Rothenberg, Morris J., and Donald R. Samdahl, High Occupancy Vehicle Facility Development, Operation and Enforcement (Volumes I and II), FHWA-IP-82-1, JHK and Associates for the U.S. Department of Transportation, Federal Highway Administration, Alexandria, Virginia, April, 1982.

Shu, Jarvia and L.J. Glazer, Commuter Computer Carpool Program Evaluation, Commuter Transporattion Services, Inc., Los Angeles, May, 1979.

Stamm, Heidi, Marketing as Part of the HOV Planning Process, presented at the 5th National Conference on High Occupancy Vehicle Systems, Seattle, April, 1991.

Strgar-Roscoe-Fausch, Inc., Transportation System Management Plan, Interstate 394, Summary Report prepared for Minnesota Department of Transportation, Mineapolis, MN, January, 1986.

Strgar-Roscoe-Fausch, Inc., I-394 Interim HOV Lane: A Case Study Phase I Report, prepared for Minnesota Department of Transportation, Minneapolis, MN, October, 1987.

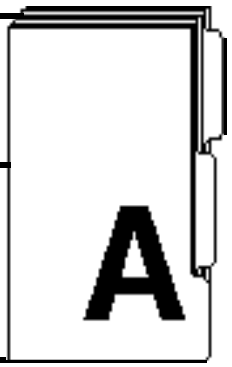
Strgar-Roscoe-Fausch, Inc., I-394 Interim HOV Lane: A Case Study Phase II Report, prepared for Minnesota Department of Transportation, Minneapolis, MN, July, 1990.

Strgar-Roscoe-Fausch, Inc., I-394 User Assessment Survey, prepared for Minnesota Department of Transporation, Minneapolis, MN, April, 1993.

SYSTAN, Inc., Santa Clara County Commuter Lane Performance Evaluation, prepared for Santa Clara County Transportation Agency, Los Altos, CA, March, 1989.

APPENDIX F

SELECTED BIBLIOGRAPHY



SYSTAN, Inc., HOV Lane Violation Study: Study Plan, prepared for the State of California Department of Transportation, Los Altos, CA, October, 1988.

Turnbull, Katherine F., and James Hanks, Jr., A Description of High-Occupancy Vehicle Facilities in North America, Texas Transportation Institute for the Texas Department of Highways and Public Transportation, College Station, Texas, July, 1990.

Turnbull, Katherine F., and Russell Henk, Suggested Procedures for Evaluating the Effectiveness of Freeway HOV Facilities, Texas Transportation Institute for the Texas State Department of Highways and Public Transportation, College Station, Texas, August, 1990.

Ulberg, Cy, Cost Effectiveness of HOV Lanes, Final Report, WA-RD 121.1, prepared for the Washington State Department of Transportation, Olympia, Washington, March 26, 1987.

U.S. Department of Transportation, Federal Highway Administration, A Guidance Manual for Implementing Effective Employer-based Travel Demand Management Programs, Washington, D.C., November 1993.

U.S. Department of Transportation, Federal Highway Administration, Evaluation of Travel Demand Management Measures to Relieve Congestion, Washington, D.C., February 1990.

U.S. Department of Transportation, Federal Highway Administration, Implementing Effective Travel Demand Management Measures: Inventory of Measures and Synthesis of Experience, Washington, D.C., September 1993.

U.S. Department of Transportation, Federal Highway Administration, Manual on Uniform Traffic Control Devices for Streets and Highways, Washington, D.C., 1988.

Virginia Department of Transportation, Hampton Roads Area HOV – Rideshare Marketing Program, Richmond, VA, May, 1989.

Washington State Department of Transportation, Washington State Freeway HOV System Policy, Executive Summary, Olympia, WA, November, 1992.

Washington State Department of Transportation, High Occupancy Vehicle Priority Treatment, Section 339, Washington State Department of Transportation Design Manual, Olympia, Washington, February 1988.

Webster, Lynda South, Historical Perspective on Hampton Roads HOV Lanes, Internal Working Paper, Virginia Department of Transportation, undated.

Young, Roy and Jan Baird. The Influence of HOV Lane Access on Rideshare Trial During a Major Rideshare Advertising Campaign in Los Angeles, paper presented to the 73rd Annual Meeting of the Transportation Research Board, Washington, D.C., January, 1994.