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July 30, 2002

Mr. Jon Williams
Manager, Synthesis Studies
Transportation Research Board
2001 Wisconsin Ave., N.W.
Washington D.C. 20418

Subject: Final Synthesis Draft
NCHRP Project 20-5/Topic 32-09: Transportation Planning and Management for Special Events

Mr. Williams,

In accordance with the Contract for the above referenced project, please find enclosed the following deliverable:

- Stage IV Deliverable: Final Draft of Synthesis
  - Two Manuscript Copies
  - Three 3.5 Diskettes with all required files
  - Pamphlet of Phoenix International Raceway as for use as Figures 9 & 10

Many excellent suggestions were made by the 20-5 Synthesis Oversight Committee members and were directly incorporated into the Synthesis Report. Below is the point-by-point response to each of the comments made of the committee.

5 (a) **Reviewer #1:** With respect to special event security, we conducted an extensive search for information related to security at special events through the internet and recent transportation conference compendiums, resource personnel at ITE and TRB, and through professionals such as Timothy Harpst, the Salt Lake City Transportation Director. Due to the recent nature of the heightened security concerns, very little formal documentation exists related to special event procedures. However, we did incorporate as much information as possible into the *Synthesis* regarding this issue. In Chapter 3, starting on page 32, you will find a summary of the information we found.

5 (b) **Reviewer #5:** Information regarding handicapped access to park-n-ride lots was obtained through direct contact of park-n-ride lot managers. It was found that in most instances, handicapped-accessible shuttle buses are used, and in the case of Phoenix International Raceway, preferential parking for handicap patrons is also provided (see page 51 in Chapter 4).

Reviewer #6: Adding more details from the body of the report to the individual sections expanded on Chapter 9, starting on page 86, so it was more specific for the readers.

5 (c) **Reviewer #1:** See 5 (a) where security was addressed.

6. **Reviewer #1:** In the section on security in Chapter 3, additional comments were added regarding aviation as it relates to security. Logistical information such as the need for additional ramp space for parking was also included. With regard to increased military roles in security, see Chapter 3, page 29. Information related to emergency evacuations and medical readiness was briefly included in Chapter 3, page 21. No formal documentation was found regarding this issue, but it seems appropriate that it could be handled well by an emergency operations center, which is already trained in this area.

Thank you for the opportunity to perform this study. If you have any questions or need additional information please feel free to call or email me at (406) 994-7998 or JodiC@ce.montana.edu or Ryan Bylsma at (406) 994-7378 or RBylsma@coe.montana.edu.

Sincerely,

Jodi L. Carson, Ph.D.
Assistant Professor

Cc: Ryan Bylsma
Graduate Research Assistant

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FIGURE 1 Survey Response from State and Local Transportation Agencies

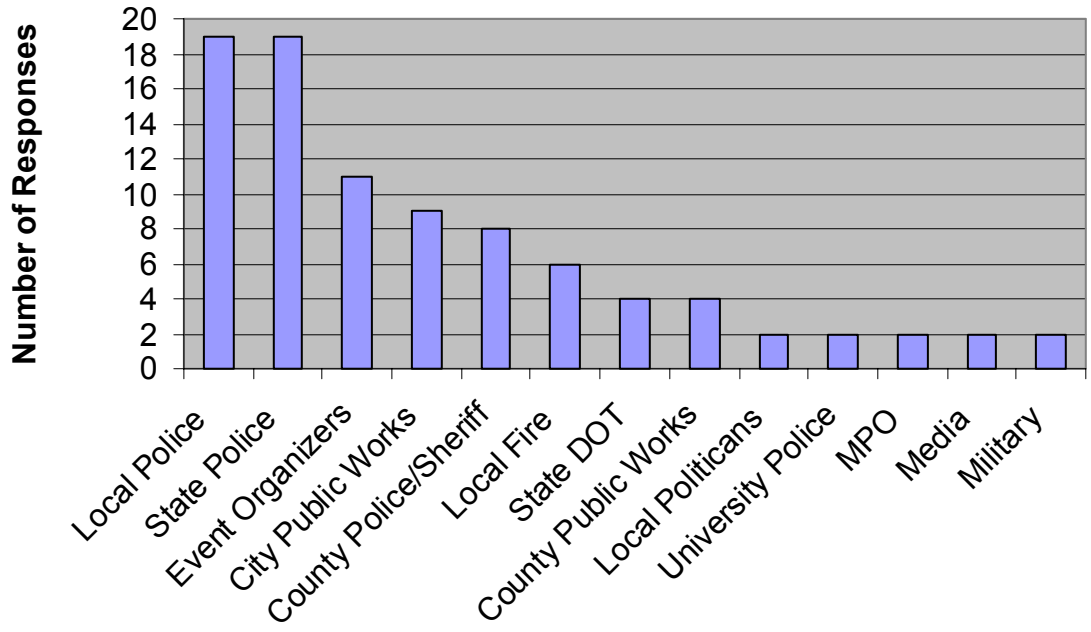


FIGURE 2 Primary Stakeholder Involvement

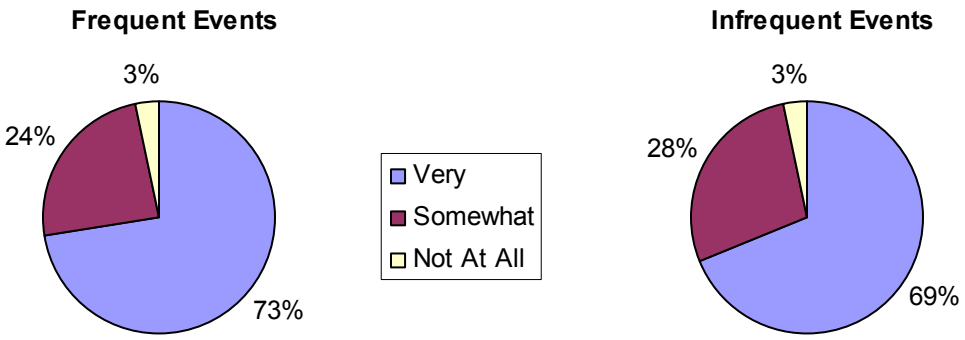


FIGURE 3 Consistency of Interaction Among Stakeholders

FIGURE 4 Portable Traffic Signal (Photo courtesy of K & K Systems, Inc.)

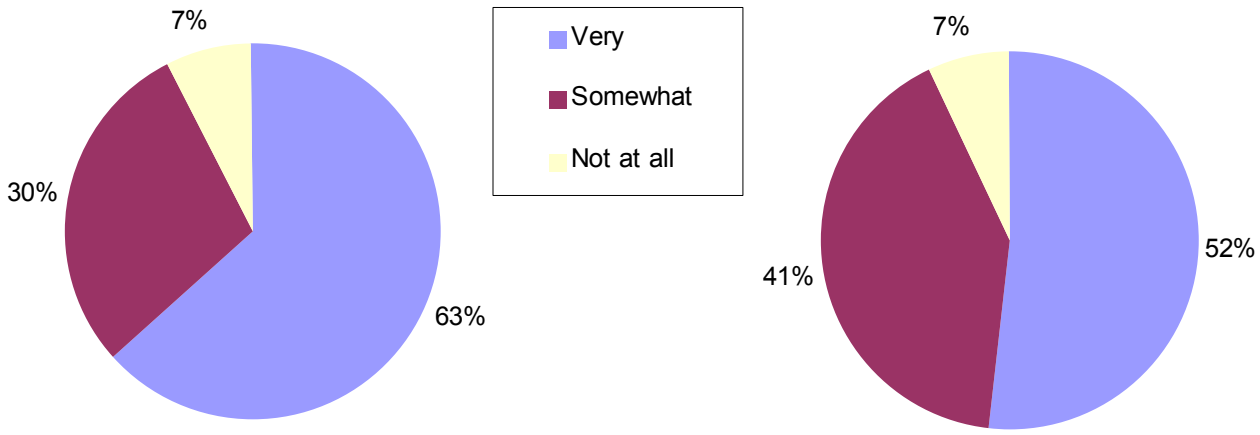


FIGURE 5 Consistency of Tools and Technique Use for Similar Events

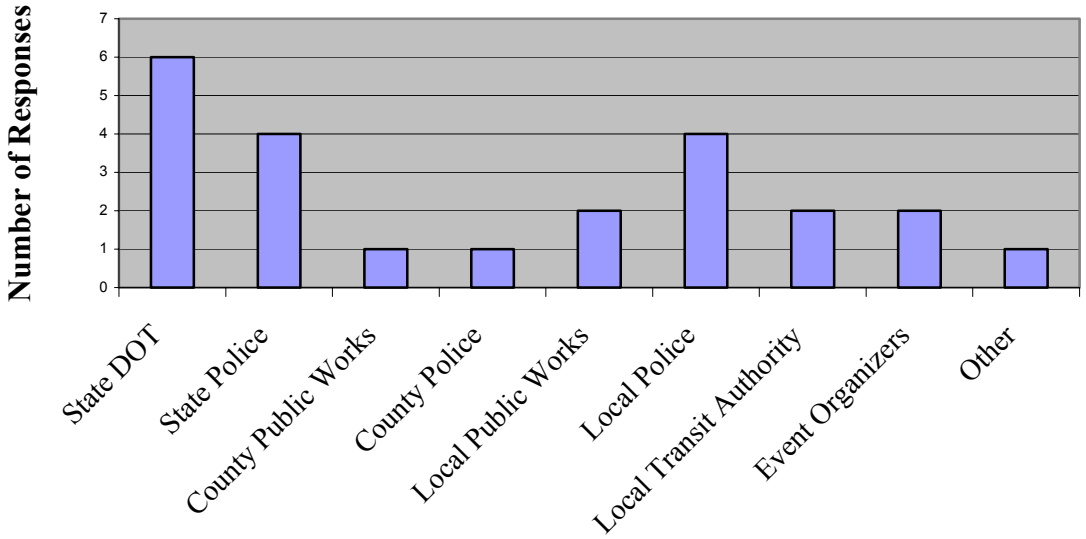


FIGURE 6 Stakeholder Involvement in Guidance Documentation Development

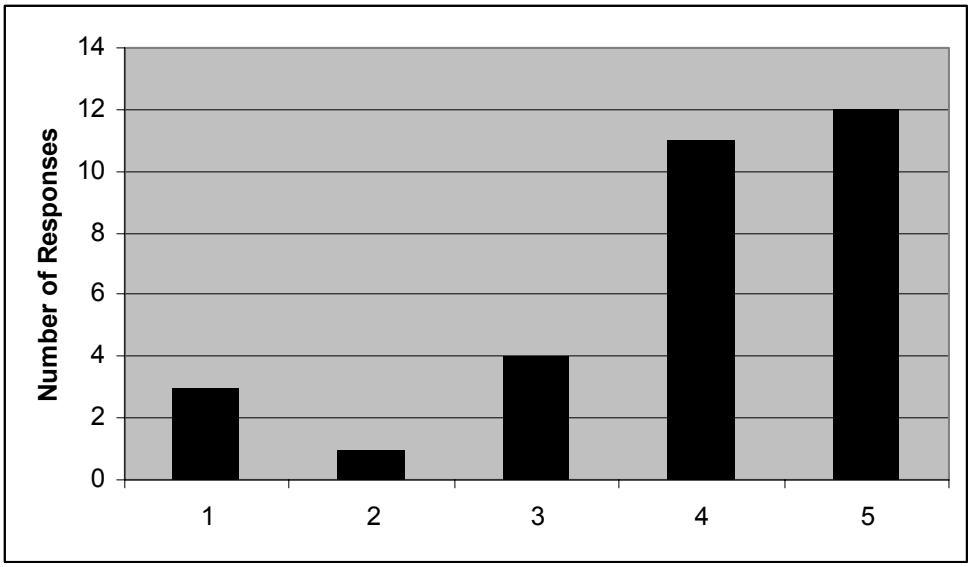


FIGURE 7: Reactive (1) vs. Proactive (5) Special Event Planning and Management Efforts

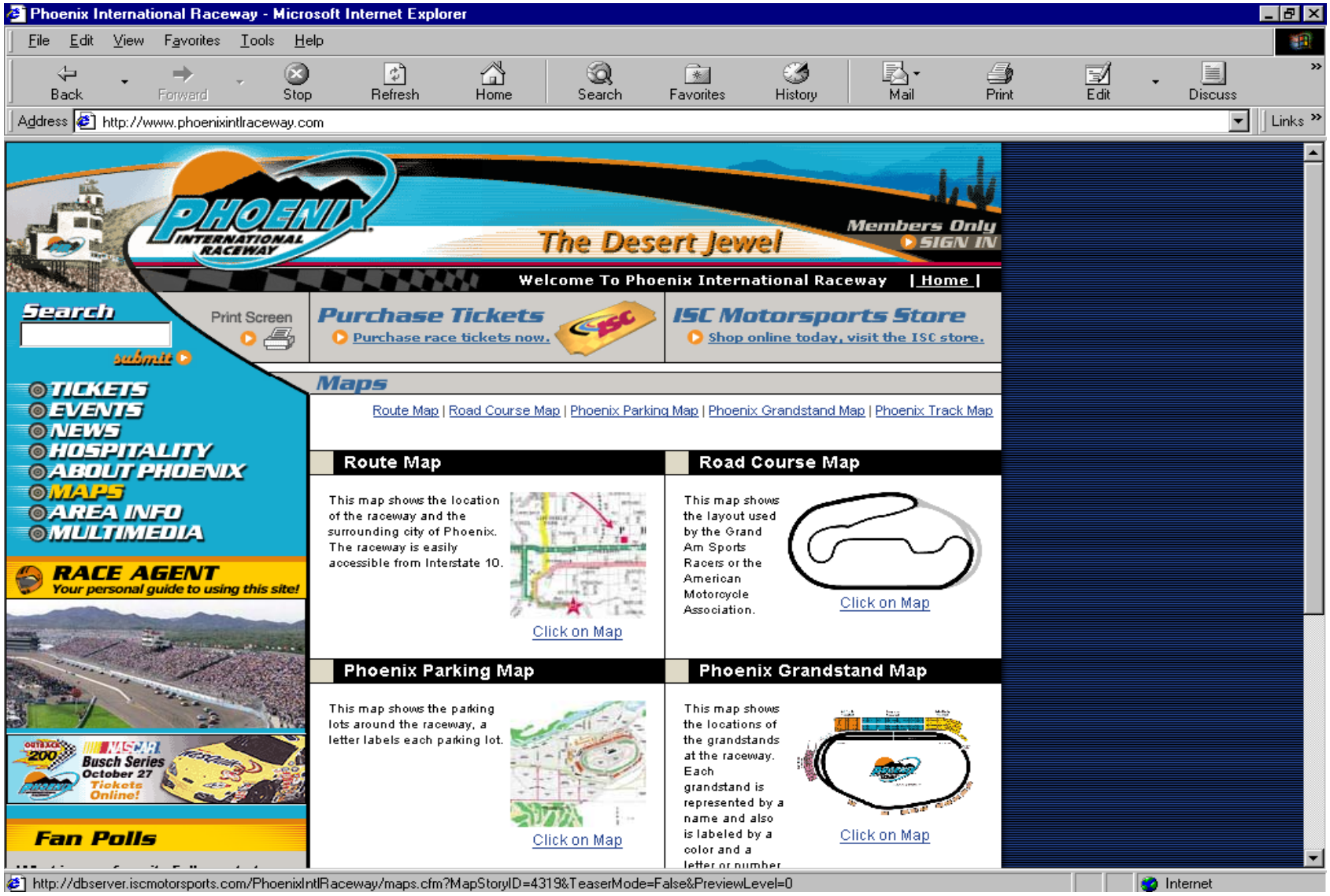
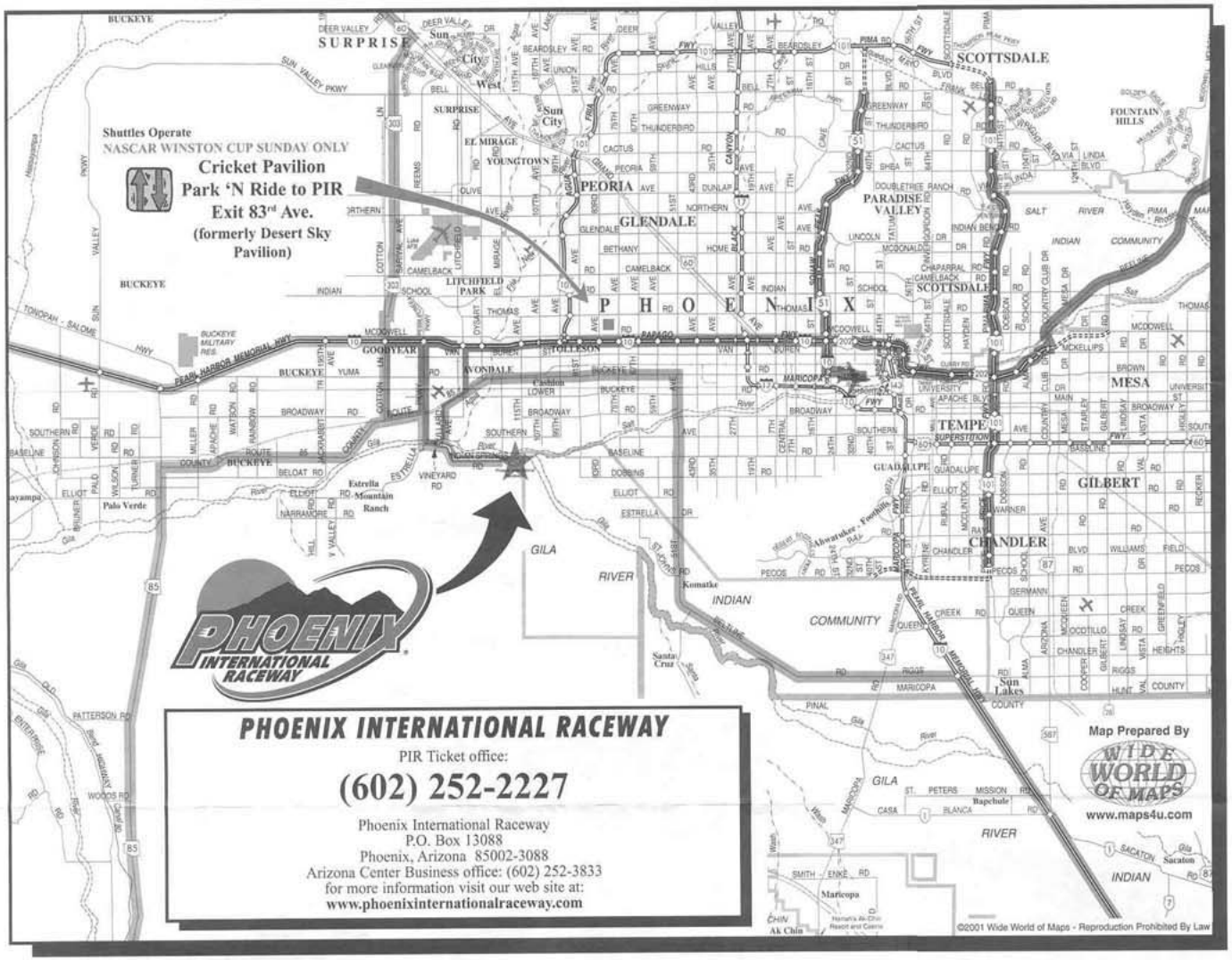


FIGURE 8 Internet Site for Phoenix International Raceway with Route and Parking Maps Available (Graphic courtesy of Phoenix International Raceway)



SUGGESTED ROUTES TO *PHOENIX INTERNATIONAL RACEWAY*

From I-17 North, Flagstaff, Prescott, Sedona

- Exit I-17 and take AZ101 (Agua Fria Fwy) Westbound
- Follow AZ101 west and south 21 miles to I-10
- Go Westbound on I-10 and follow the signs that read "to Los Angeles"
- Continue I-10 Westbound and exit at Litchfield Rd (exit 128)
- Left (south) on Litchfield Rd for 2.25 miles to Maricopa County Route 85 (MC85)
- Right (west) on MC85 for one (1) mile to Bullard Ave
- Left (south) on Bullard Ave for two (2) miles to Vineyard Rd
- Left (east) on Vineyard Rd and follow the signs/officers to the track

From Phoenix Sky Harbor International Airport

- PIR is approximately 30 miles from Phoenix Sky Harbor Int'l Airport
- Use I-10 Westbound and follow the signs that read "to Los Angeles"
- Continue I-10 Westbound and exit at Litchfield Rd (exit 128)
- Left (south) on Litchfield Rd for 2.25 miles to Maricopa County Route 85 (MC85)
- Right (west) on MC85 for one (1) mile to Bullard Ave
- Left (south) on Bullard Ave for two (2) miles to Vineyard Rd
- Left (east) on Vineyard Rd and follow the signs/officers to the track

I-10 Route from Phoenix, Paradise Valley, Scottsdale, and the Northeastern metro area.
Option A – via Estrella Parkway:

- Use major streets to access AZ51 (Squaw Peak Pkwy)
- Go south on AZ51 (Squaw Peak Fwy) to I-10 Westbound and follow the signs that read "to Los Angeles"
- Continue Westbound on I-10 to Estrella Parkway (exit 126)
- Left (south) on Estrella Parkway for five (5) miles to Vineyard Rd
- Left (east) on Vineyard Rd and follow the signs/officers to the track

I-10 Route from Scottsdale, Tempe, Mesa, Chandler, and the Southeast Valley.
Option B – via Cotton Lane:

- If traveling from Northeastern Arizona, use the Beeline Highway (AZ 87) to the AZ 202 (Red Mountain Fwy) Westbound
- Others use major streets to access the AZ101 (Price Fwy) from the South and AZ101 (Pima Fwy) from the North
- Follow the 101 Freeway to the Westbound 202 Freeway (Red Mountain Freeway) and follow the signs that read "to Los Angeles"
- Continue on the 202 Freeway through its transition to I-10 Westbound and continue to follow the signs that read "to Los Angeles"
- Continue on I-10 Westbound and exit at Cotton Ln (exit 124)
- Left (south) on Cotton Ln four (4) miles to MC85 (Buckeye Rd)
- Left (east) on MC85 (Buckeye Rd) two (2) miles to Estrella Parkway
- Right (south) on Estrella Parkway for two (2) miles to Vineyard Rd
- Left (east) on Vineyard Rd and follow the signs/officers to the track

From Casa Grande, Tucson and Southern Arizona

- I-10 Northbound to Riggs Road (exit 167)
- Turn left and head west to Maricopa Rd, where Riggs Rd becomes Beltline Rd
- Follow Beltline Rd approx. 12 miles, where it then becomes 51st Ave
- Continue (north) on 51st Ave. 11 miles to Buckeye Rd.
- Left (west) at Buckeye Rd (MC 85)
- Continue west on Buckeye Rd (MC85) 12.5 miles to Bullard Ave
- Left (south) on Bullard Ave for two (2) miles to Vineyard Rd and follow the signs/officers to the track.

From I-8 East, San Diego, Yuma, and Gila Bend

- Exit I-8 at Gila Bend and go north on AZ85 30 mi. to Maricopa County Rd 85
- Right (east) on MC85 for 13 miles to Estrella Parkway
- Right (south) on Estrella Parkway for two miles (2) to Vineyard Rd
- Left (east) on Vineyard Rd and follow the signs/officers to the track

From Kingman, Las Vegas, Prescott, and Sun City (Hwys 60, 89 & 93)

- Exit US60 at AZ303 and go south until road makes an adjustment and meets Cotton Ln (one mile north of I-10)
- Left (south) on Cotton Ln 5.25 miles to MC85 (Buckeye Rd)
- Left (east) on MC85 for two (2) miles to Estrella Pkwy
- Right (south) on Estrella Parkway for two (2) miles to Vineyard Rd
- Left (east) on Vineyard Rd and follow the signs/officers to the track

From I-10 Eastbound, Los Angeles, Palm Springs, and Blythe

- Exit I-10 at Cotton Ln. (exit 124)
- Right (south) on Cotton Ln. four (4) miles to MC85 (Buckeye Rd)
- Left (east) on MC85 for two (2) miles to Estrella Pkwy
- Right (south) on Estrella Parkway for two (2) miles to Vineyard Rd
- Left (east) on Vineyard Rd and follow the signs/officers to the track

TIPS FOR TRAVEL TO PIR

NASCAR WINSTON CUP SUNDAY SHUTTLE BUS
Cricket Pavilion Park 'N Ride - Round trip
Exit I-10 at 83rd Ave., North to 2121 N 83rd Ave. (Between McDowell & Thomas)
Enter Park 'N Ride parking from 83rd Ave. entrance. **Note: $7.00 per car load fee**

For updated traffic information:
Arizona Dept. of Transportation (ADOT) 1-(888) 411-ROAD (7623)
Maricopa County Dept. of Transportation (MCDOT) (602) 372-ROAD (7623)
Dept. of Public Safety (DPS) (602) 223-2000

Valuable Tips:
* Use the Cricket Pavilion Park 'N Ride!
* Car radios; tune to **530AM (ADOT)**
* Watch for special message boards on roadways
* Use recommended routes
* Follow the direction of officers!!

Note: You will note that our traffic plan, which requires your cooperation, suggests it is best to approach the facility utilizing Vineyard and Indian Springs roads. This makes access to the major parking areas a right turn rather than left across traffic flow. Thank you!

FIGURE 9 Driving Directions Map for PIR (Graphic Courtesy of Phoenix International Raceway)

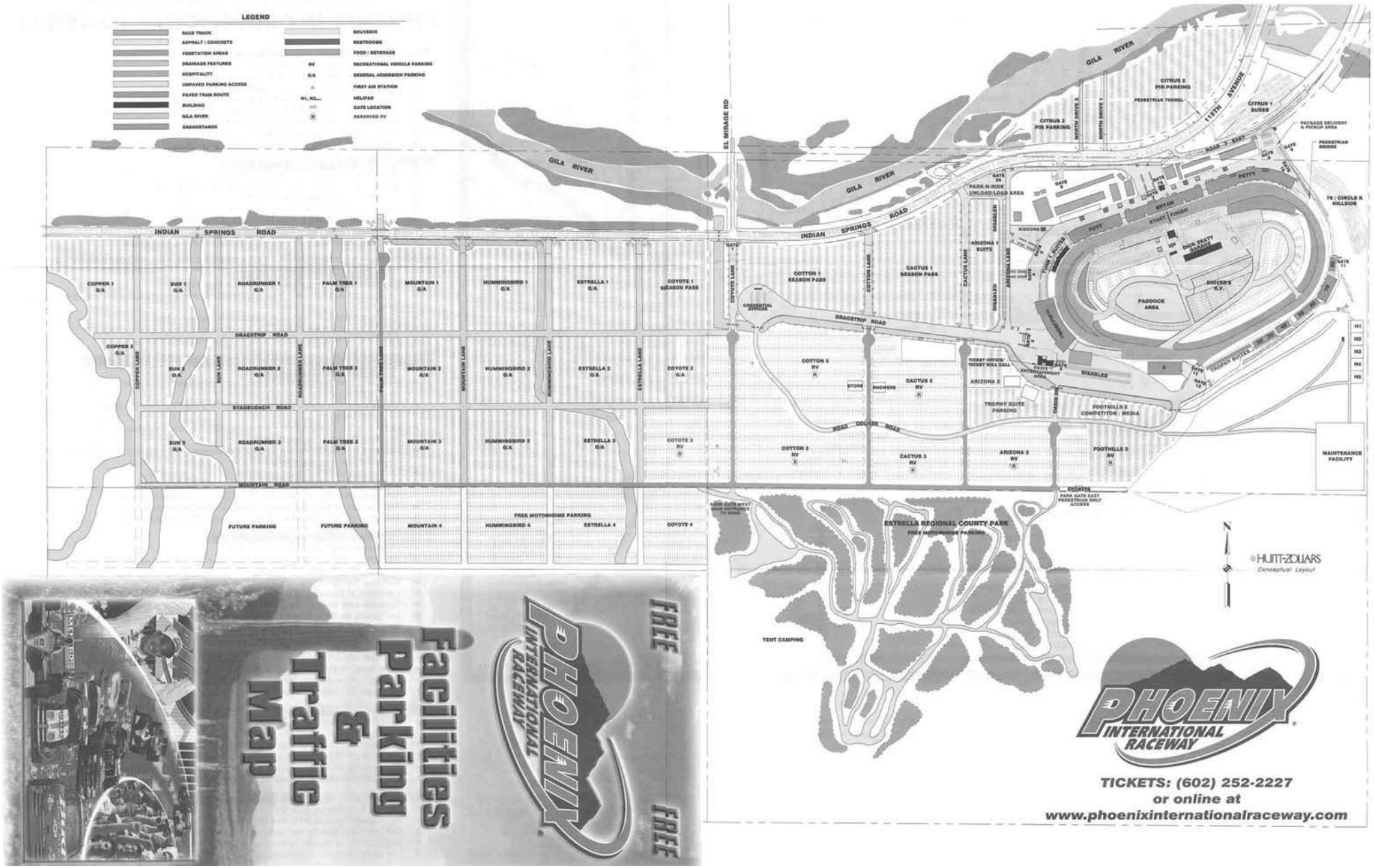


FIGURE 10 Parking Map for PIR (Graphic Courtesy of Phoenix International Raceway)

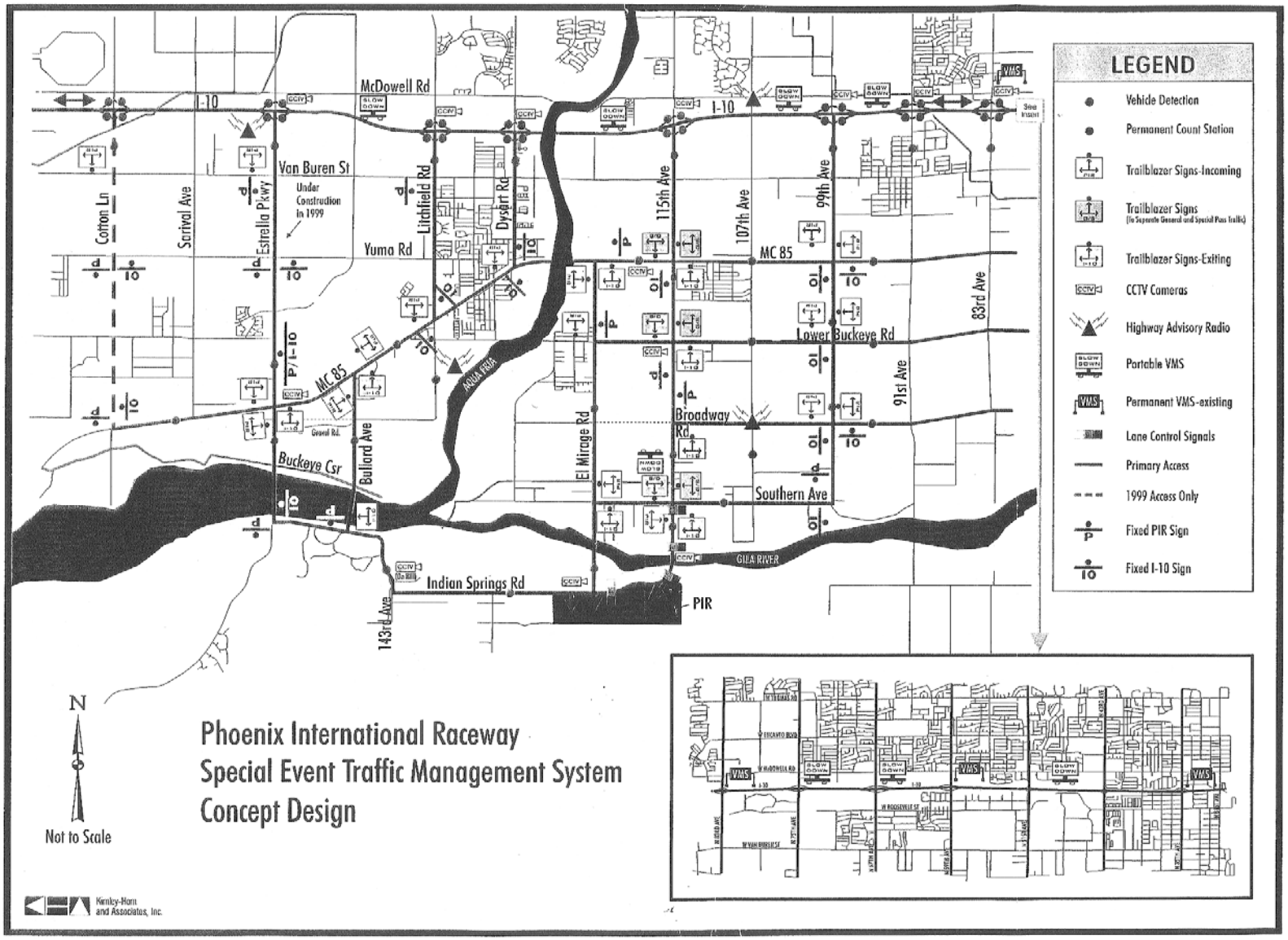


FIGURE 11 ITS Layout for Phoenix International Raceway (Graphic Courtesy of Kimley-Horn and Associates)

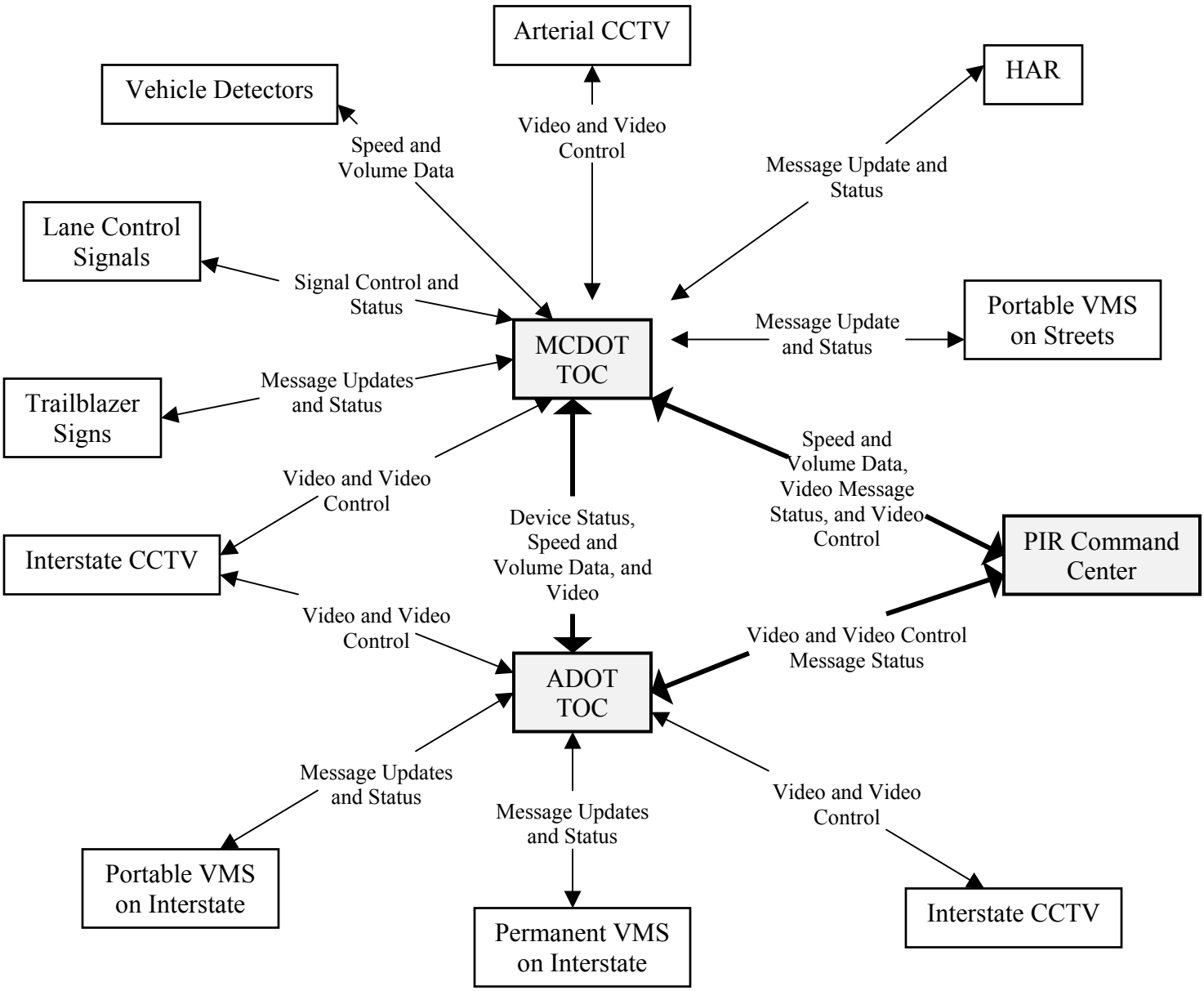


FIGURE 12 Information Flow Diagram for PIR (Graphic Courtesy of Kimley-Horn & Associates)

TABLE 1 Frequent Special Event Types and Characteristics Reported by Survey Respondents

FREQUENT EVENTS	SIZE	TIME OF DAY	TIME OF YEAR	DURATION	SCOPE OF IMPACT
Football Games	30-50,000	Midday	Aug-Dec		L (Local)
	35,000	9-4 PM		1 day/wk	L
	40,000			1 day/2 wks	L
	40,000	5-6 PM	Aug	1 day/wk	L
	50,000		Aug-Dec	1 day/2 wks	L
	50-70,000				L
	60,000	5-11 PM		1 day/wk	L
	60,000	2-6 PM		1 day/2 wks	R (Regional)
	65,000	1-4 PM	Aug-Dec	1 day/2 wks	L
	65,000		Nov		L
	65,000	10-5 PM		1 day/wk	L
	76,000	10 AM-12 PM	Aug-Dec		L, R
	76,000	10 AM-10 PM	Sep-Nov	1 day/wk	R
	80,000	1-4 PM	Aug-Dec	1 day/2 wks	R
	80,000	11-5 PM	Sep-Nov	1 day/2 wks	R
	80,000		Sep-Nov	1 day/wk	S (Statewide)
	80,000	12 PM-12 AM	Sep-Nov	1 day/wk	L
	100,000			1 day/2 wks	R
	68,000+		Aug-Dec		L
Baseball Games	6-8,000	5-11 PM	Apr-Oct	3-6 days/wk	R
	20,000	11-8 PM		1 week	R
	20-50,000		Apr-Sep	81 games	L, R
	40,000		Mar-Aug	13 games	
	45,000	7-10 PM	Apr-Sep	4 days/wk	L
	50,000	7-10 PM	Apr-Sep	4 days/wk	R
	50,000	7-10 PM	Apr-Sep	5 days/wk	R
Basketball/Hockey Games	5-17,000		Oct-Jun	100+ games	L, R
	10-20,000				L
	30,000	7-10 PM	Oct-May	3 days/wk	R
	30,000	7-10 PM	Oct-May	4 days/wk	R
	40,000		Dec-Mar	2 days/wk	L
Auto Racing	100,000	6 AM-6 PM		3 days	R
Golf	1-20,000	8 AM-6 PM	Apr	1 week	R
	20,000	8 AM-8 PM		7 days	R
	50,000+	7 AM-6 PM		1 week	L, R
	100,000	7 AM-7 PM		4 days	R
	100,000	7 AM-6 PM	Jul	3 days	L
	100,000	All Day		5 days	L

TABLE 1 Frequent Special Event Types and Characteristics Reported by Survey Respondents (Continued)

FREQUENT EVENTS	SIZE	TIME OF DAY	TIME OF YEAR	DURATION	SCOPE OF IMPACT
Concert Series	10,000 100,000		Aug	3 days Few times/yr	L R
Conferences/Conventions	1-25,000 2,000 10-20,000			1 week 1 week	 L
Parades	2-6,000 10,000 10,000 10-200,000 10-50,000 40,000	6-11 AM 10 AM-2 PM All Day	Apr-Jul May-Dec	1 day/wk Weekends 5-7 days/year 1 day	R L L L, R L L
Seasonal Markets	25,000		Jun-Sep	2 days/wk	R

TABLE 2 Infrequent Special Event Types and Characteristics Reported by Survey Respondents

INFREQUENT EVENTS	SIZE	TIME OF DAY	TIME OF YEAR	DURATION	SCOPE OF IMPACT
4th of July Celebrations	5-50,000	3-11 PM	Jul	1 day	L (Local)
	25,000	6-11 PM		1 day	L
	25-100,000	6-12 PM		1 day	L
	75,000	5 PM-12 AM		1 day	L
	100,000+	All Day		1 day	L
Other Fairs/ Festivals	5,000		Sep	3 days	L
	10-50,000				L
	20,000	7AM-7 PM		3 days	L
	25,000		Jul/Aug		L
	50,000		Jun	4-5 days	L
	50-100,000			1 day	L
	60-120,000	All Day		1 wk	L
	75,000	All Day	Mar	19 days	L, R (Regional)
	80-100,000	3-4 PM	Oct	1 day	L
	100,000	10 AM-4 PM	Apr	4 days	
	100,000	10 AM-6 PM		3 days	L
	100,000	5 PM-12 AM		28 days	L
	120,000	All Day	Mar	3 days	L, R
	250,000			1 day	L, R
	300,000	12-11 PM	Jul	4 days	R
	300,000	7 AM-4 PM		1 day	L, R
	500,000			7 days	S (Statewide)
	500,000			11 days	S
		9 AM-9 PM			L
Olympics/Games	15,000			3 days	R
	50,000			2 wks	L, R, S
	350,000	All Day		2 wks	R
	1,700,000	All Day		3 wks	S
				2 wks	R
				1 day	S
Political/Religious Visits				1 day	
					L
		All Day			R
		1-2 hrs/day			R
					L
					R
Protests/Rides	1-5,000			1 day	L
	200			4 days	S
	500	8 AM-7 PM			R
	100,000			1 day	R
Convention Events/Expos	100-500,000	All Day		2 days	L
	50,000	8 AM-5 PM	Nov	5 days	R
	100,000	5 PM-4 AM	Dec	1 day	L

TABLE 2 Infrequent Special Event Types and Characteristics Reported by Survey Respondents (Continued)

INFREQUENT EVENTS	SIZE	TIME OF DAY	TIME OF YEAR	DURATION	SCOPE OF IMPACT
Vehicle or Equipment Shows	1,000			2 days	L
	20-45,000	All Day		6 days	R
	25,000	7AM-4PM	Sep		L
	30,000	6-8 PM		4 days	L
	40,000	10 AM-10 PM	Apr		L
	100,000	All Day		3 days	L
	1,000,000			1-2 wks	L
Marathons/Bike Races	1-10,000			1 day	L
	1,000			1 day	L
	1,000			1 day	L
	2,000	6 AM-3 PM		1 day	L
	2,400	6 AM-6 PM		1 day	L
	2,500	7-10 AM		1 day	L
	4,000	6-10 PM		1 day	R
	10,000			2 days	L, R
	15,000			1 day	L
	17,000			1 day	S
	25,000		Dec		R
	25-50,000			1 day	L
	30,000	7 AM-12 PM	Feb		R
	30,000			3 days	R
	35-40,000			2 days	R
	50,000			1 day	L
	50-100,000		Apr	1 day	L
	100,000			1 day	R
	100,000	All Day	Jul/Sep	1 day	R
	100-6,000	7 AM-7 PM		2-4 days	R
	100-16,000	7 AM-12 PM		2-4 days	L
	140-170,000			3 days	R
	150,000	6 AM-6 PM		3 days	R
	150,000			3 days	R
	150-175,000	5-8 PM	Feb	1 day	L, R
	200-500				R
					L
		7 AM-8 PM	Feb	1 day	L, R
		7 AM-8 PM	Feb	1 day	L, R
		5-10 PM	Feb	1 day	L, R
Horse Races	60,000			3 days	L
Sailing	100,000	All Day	Spring	2 days	R
	400,000	All Day	Jul	5 days	R
	500,000	8 AM-10 PM		1 wk	S
Fishing Derby	12,000			1 day	L

TABLE 3 Secondary Stakeholder Involvement

• Mayor's Office	• Chamber of Commerce
• Emergency Operations Center	• Other State Departments of Transportation
• City/County Planning Boards	• Codes/Ordinances Offices
• Construction Offices	• Consultants
• Barricade Companies	• Public Transit Agencies
• State/National Parks Offices	• Department of Fish and Game
• Department of Forestry	• Railroads
• General Public	• Private Groups and Volunteers

TABLE 4 Tools and Techniques Currently Used Ranking

MOTORIST INFORMATION	FREQUENCY
Variable Message Signs	29
Media Partnerships	25
Pre-event Informational Campaigns	25
Highway Advisory Radio (HAR)	10
Other	4

TRAFFIC MANAGEMENT	FREQUENCY
Traffic Cones	29
Temporary Lane Closures	29
Portable Static Signs	28
Traffic Management Teams	22
Traffic Management Centers	20
Law Enforcement Motorcycle Patrols	18
Non-Law Enforcement Service Patrols	18
Traffic Responsive Signal Systems	18
Law Enforcement Service Patrols	15
Video and Closed –Circuit TV	15
Reversible Lanes/Moveable Barriers/Temporary Contraflow	15
Electronic Loop Detection	13
Aircraft Patrols	11
Portable Traffic Signals	6
Major Capacity Improvements	6
Ramp Metering	4
Other	1

TRAVEL DEMAND MANAGMENT	FREQUENCY
Park-n-Ride Lots	24
Alternative Routes	18
Parking Management	16
Economic or Preferential Incentives for Public Transportation	9
Auto-restricted Zones	8
Economic or Preferential Incentives for Ridesharing	5
Major Transit Improvements	4
Economic or Preferential Incentives for Walking/Biking	2
Alternative Travel Hours Incentives/Congestion Pricing	2
Other	1

TABLE 5 Tools and Techniques Planned For Use Ranking

MOTORIST INFORMATION	FREQUENCY
Highway Advisory Radio (HAR)	7
Variable Message Signs	3
Media Partnerships	3
Pre-event Informational Campaigns	1
Other	1

TRAFFIC MANAGEMENT	FREQUENCY
Video and Closed –Circuit TV	5
Traffic Management Centers	5
Major Capacity Improvements	5
Electronic Loop Detection	4
Traffic Responsive Signal Systems	4
Ramp Metering	4
Traffic Management Teams	3
Non-Law Enforcement Service Patrols	2
Portable Traffic Signals	2
Aircraft Patrols	1
Traffic Cones	1
Portable Static Signs	1
Temporary Lane Closures	1
Reversible Lanes/Moveable Barriers/Temporary Contraflow	1
Other	1
Law Enforcement Motorcycle Patrols	0
Law Enforcement Service Patrols	0

TRAVEL DEMAND MANAGMENT	FREQUENCY
Major Transit Improvements	4
Economic or Preferential Incentives for Walking/Biking	3
Economic or Preferential Incentives for Ridesharing	2
Economic or Preferential Incentives for Public Transportation	2
Park-n-Ride Lots	2
Parking Management	2
Other	2
Auto-restricted Zones	1
Alternative Travel Hours Incentives/Congestion Pricing	1
Alternative Routes	1

TABLE 6 Turnstile Arrivals-Sunday Baseball (Peterson 2000)

Fan Arrival Patterns	
1 to 2 hours Before Game Start	32%
Less Than 1 Hour Before Game Start	56%
After Game Start	12%
Fan Departure Patterns	
Before Game Ends	10%
Within 1 Hour of Game End	72%
More Than 1 Hour After Game Ends	18%

TABLE 7 Traffic Simulation Software

CORFLO	SimTraffic
CORSIM	Synchro
Highway Capacity Software (HCS)	TEAPAC
Integration	TRAFFIX
PARAMICS	VISSIM

TABLE 8: Special Event Planning and Management Challenges Within Agency

Communication Challenges
-Misinformation
-Untimely information
Agency Roles and Awareness Challenges
-Lack of
-operations focus
-appropriate media involvement
-Isolationist attitudes (planners vs. engineers, States vs. Districts)
Resource Challenges
-Lack of
-personnel
-equipment including traffic control resources
-training
-funds
-Untimely mobilization of resources
-Limited detours and accessibility
Administrative and Commitment Challenges
-Unsupportive organizational structure for multi-agency/jurisdictional activities
-Lack of
-accountability
-coordination

TABLE 9 Special Event Planning and Management Challenges External to Agency

Communication Challenges
-Misinformation
-Untimely information
Agency Roles and Awareness Challenges
-Lack of
-common goals
-teamwork and unified partnering
-trust
-experience and training
-proper oversight
-Indecision
-Political pressure
Resource Challenges
-Lack of:
-time
-access
-equipment
-technical support
-crowd control resources
-traffic control resources
Administrative and Commitment Challenges
-Lack of
-administrative support
-coordination
-Unsupportive organizational structure for multi-agency/jurisdictional activities
-Dynamic organizational structures

TRANSPORTATION PLANNING AND MANAGEMENT FOR SPECIAL EVENTS

SUMMARY

The intent of this overall investigation was to identify and document transportation-related activities related to the planning and management of special events. The National Highway Institute (1988) defines a special event as an occurrence that "abnormally increases traffic demand" (unlike an incident or construction/maintenance activities that typically restrict the roadway capacity). Under this definition, special events may include such things as sporting events, parades, fairs and other planned events.

Data to support this investigation came from four primary sources: (1) published literature, (2) surveys of stakeholders, (3) select, in-depth case studies and (4) various informal interviews with special event coordinators, Topic Panel members, etc. Because of the dearth of special-event related literature, the primary source of information to support this investigation came from a survey of stakeholder practices related to special event planning and management. The *Survey Questionnaire* provided background information describing this investigation, gave a general definition of a "special event" and solicited information regarding special event types, stakeholder involvement, tools and techniques, supporting guidance documentation, effectiveness of current efforts and funding sources.

In addition to the general *Survey Questionnaire*, a select number of case studies were pursued as part of this investigation. The intent was to identify case studies representative of each of the two special event types – frequent and infrequent.

A fundamental challenge to this investigation stemmed from the basic definition of a special event – occurrences that "abnormally increase traffic demand." This broad definition encompassed frequent events such as sporting events, musical concerts, summer-long event series and seasonal tourist venues as well as infrequent events such as national conventions, international summits, parades, fairs and others.

Event examples cited by survey respondents ranged in size from 1,000 to 1.7 million, in duration from a few hours to several months and in scope of impact from local to multi-state. This breadth in event size, duration and impact combined with the dynamic nature of special events challenges the ability to concisely categorize special events into groups that share common characteristics and present similar challenges in planning and management and subsequently challenges the ability to develop uniform procedures for special event planning and management.

Primary stakeholders in the special event planning and management process included law enforcement, fire departments, transportation departments, the media, event organizers, planning and political bodies and the military. In all, 29 different stakeholders were identified as having a potential role in the special event planning and management process. Agency and jurisdictional involvement varied by event size, type and location. Despite the significant number of stakeholders that could be involved in the special event planning and management process, relatively consistent interaction among the key stakeholders was reported. A "champion" was nearly always responsible for ensuring this interaction though the affiliation of the champion varied across responses. The affiliation of the champion also varied depending on the size, type and location of the special event. The most common forum for interaction was reported as interagency/inter-jurisdictional pre- and post-event meetings.

An extensive array of special event planning and management tools and techniques are reportedly in use or planned for use. In nearly all cases, a combination of tools and techniques are employed that address: (1) motorist information, (2) traffic management and (3) travel demand management needs. Common motorist information tools and techniques include variable message signs, highway advisory radio and pre-event informational campaigns. Predominant traffic management tools and techniques include the use of traffic cones, temporary lane closures, portable static signs, traffic management teams and traffic management centers. Travel demand management tools and techniques most commonly employed include park-n-ride lots, alternative routes and parking management. A high consistency in the use of these tools and techniques for both frequent and infrequent events was noted.

Limited formal guidance documentation to support special event planning and management was uncovered; only seven states responded affirmatively that they have such formalized guidance. Of those that did respond affirmatively and provide examples, differences were noted in the content and focus of the guidance documents depending on the lead development agency. Law enforcement-initiated documents focused more general public safety and enforcement duties and less on traffic control activities during special event times.

Efforts to quantitatively evaluate the effectiveness of special event planning and management activities have been limited; only one survey respondent out of 36 indicated that formal performance measures were pre-defined to evaluate efforts. Only eight survey respondents reported collecting data in support of planning and management efforts. Qualitative assessments of special event planning and management efforts were easier to obtain. When considering their own agency's performance, the majority of respondents indicated being satisfied with their

agency's level of effort towards special event planning and management. Externally, the common challenge expressed related to communication and cooperation with other stakeholders.

Common sources of funding for special event planning and management at the federal level include the Congestion Mitigation and Air Quality Improvement Program (CMAQ), the Federal Transit Administration (FTA) and the Federal Highway Administration (FHWA). At the state level, the most common funding source cited by survey respondents for special event planning and management was from state departments of transportation. Transportation department operating budgets have been used to support personnel, traditional traffic control devices and equipment such as variable message signs (VMS). Private partners and event organizers also provide funding for planning and managing special events, though at varying levels.

CHAPTER ONE

INTRODUCTION

The intent of this overall investigation is to identify and document transportation-related activities related to the planning and management of special events. The National Highway Institute (1988) defines a special event as an occurrence that "abnormally increases traffic demand" (unlike an incident or construction/maintenance activities that typically restrict the roadway capacity). Under this definition, special events may include such things as sporting events, parades, fairs and other planned events. Challenging to this investigation is the range of activities that fall under this definition of "special event" and their related planning and management requirements, involvement and impact. In an effort to somewhat focus this investigation, unplanned events, such as natural disaster evacuations that may also increase traffic demand, were not considered.

BACKGROUND

Special events can be categorized as frequent or infrequent. Frequent special events include such activities as sporting events, musical concerts and others. Summer-long event series and seasonal tourist venues that temporarily increase traffic demand are also included here. The size of these events is likely manageable, with predictable times of day and durations. The scope of impact is anticipated to be local or possibly regional.

Infrequent special events include such activities as national conventions, international summits, parades, fairs and others. The amount of traffic associated with infrequent events may be dramatically larger than frequent events. Hence, the impact is likely regional or statewide rather

than local. The duration of these types of events is also likely longer than that of frequent events (i.e., several days vs. several hours).

Special event planning and management may involve transportation agencies at the Federal, State, regional and local levels. Further, law enforcement agencies, and to a lesser extent, media agencies may have an active role in special events. In well-planned events, fire, emergency medial services, and towing and recovery will also be actively involved to handle occurrences such as heat stroke, heart attacks, fender-benders, etc. Lastly, special event coordinators cannot be overlooked as a key stakeholder.

In larger urban areas, the planning and management of special events resembles that of routine congestion management activities. As such, transportation agencies likely take the lead in planning and managing special events of this type with little interaction from other stakeholders. In smaller urban and rural areas, State or local police may plan and manage special events with little input or involvement from transportation agencies.

Stakeholder activities with respect to special event planning and management focus on the dissemination of motorist information, the use of traffic control devices to manage traffic flow near the event and travel demand management strategies to reduce overall traffic demand.

Funding sources may differ dramatically between event types. The planning and management of frequent special events likely relies heavily on State or Federal transportation-related funding sources. Innovative sources of funding may include developer fees. The breadth of potential funding sources for infrequent events is often larger, and because these events are infrequent, one-time sources of funding may be more readily identified.

REPORT OBJECTIVES

The motivation for and potential benefits from improving special event planning and management relate to improvements in overall transportation system efficiency and safety. Specific benefits may include:

- reduced delay for motorists attending the special event through more active information dissemination, traffic management and alternate mode use;
- reduced delay for motorists not attending the special event through active promotion of alternate routes or modes;
- reduced overall traffic demand at or near the special event site through active promotion of alternate routes or modes or information dissemination resulting in the cancellation or delay of unnecessary trips and
- improved safety through more active traffic management and reduced motorist frustration.

By proactively planning and managing special events, the likely realization of these benefits is improved. Various stakeholders will be familiar with their role in special event activities and what is expected of them. Also, with the proper planning, no two agencies will duplicate the same function nor will a specific function be left unfulfilled. Secondly, the tools and techniques used for motorist information dissemination, traffic management or travel demand management can be more appropriately planned for, procured and implemented. Finally, complete and comprehensive guidance documentation outlining the special event planning and management process will provide long-term structure to these activities and ensure consistency in training when personnel turnover occurs.

This *Synthesis Report* supports these activities by providing a compilation of related information in a single source. The *Synthesis Report* is written to target those wishing to proactively plan or manage special events. As such, the content focuses not only on historical practices and the current state-of-the-practice but also highlights lessons learned and innovative, successful tools and techniques.

METHODOLOGY

Data to support this investigation came from four primary sources:

- published literature,
- surveys of stakeholders,
- select, in-depth case studies and
- various informal interviews with special event coordinators, Topic Panel members, etc.

Literature Review

Information contained in the published literature served two purposes: (1) an initial perusal of readily available literature helped to ensure that the scope of work, methodology and survey instrument for this investigation were comprehensive and complete and (2) findings resulting from a more detailed review of the literature were integrated directly into this *Synthesis Report*.

Primary sources of literature included:

- the Transportation Research Information System (TRIS),
- conference compendiums such as Transportation Research Board's Annual Meeting, Institute of Transportation Engineer's District and International Meetings, etc. and
- other Internet sites.

Though literature documenting smaller, more routine activities was sought, the published literature focused on special events of a larger magnitude. The review of the literature included both domestic and international special event activities.

Stakeholder Survey

Because of the dearth of special-event related literature, the primary source of information to support this investigation came from a survey of stakeholder practices related to special event planning and management. The *Survey Questionnaire* provided background information describing this investigation, gave a general definition of a "special event" and solicited information regarding the following:

- What types of special events do you encounter?
  - categorized as frequent and infrequent
  - detailed by size of event, time of day and duration and scope of impact
- Who do you interact with?
  - detailed by role, jurisdiction and formality of interaction (i.e., interagency agreement)
- What tools or techniques do you use?
  - categorized as motorist information, traffic management and travel demand management tools and techniques
  - considers both in-use and planned tools and techniques
- How formalized are these tools and techniques?
  - categorized as written guidelines, agency policies and State or Federal laws
- How effective are your efforts?
  - considers data collection, performance measures, public opinion surveys, self- and external assessment of efforts

- How are your efforts funded?
    - categorized as federal, state, county, local and private sources (see Appendix A).

The *Survey Questionnaire* was distributed initially to State-level Departments of Transportation, targeting personnel in engineering or operations (see Appendix B). Because special event management and planning is both multi-jurisdictional and interdisciplinary in nature, State-level transportation personnel were asked as part of their survey responses to suggest other key jurisdictional or agency contacts (i.e., local city personnel, local law enforcement, media, etc.) actively involved in special event planning or management. The intent was to ask these second-tier contacts to complete an abbreviated form of the *Survey Questionnaire* depending on the intended recipient. For example, a modified list of tools and techniques used for special event planning and management would be provided to law enforcement and media survey recipients who typically have a different and more limited set of resources available for traffic management. Nearly all respondents to the *Survey Questionnaire* who suggested additional contacts listed personnel within their agency. An additional survey of these personnel would have likely resulted in responses similar, if not identical, to those provided by the first-tier contacts.

Other agencies or organizations involved in special event planning and management, such as special event coordinators, were contacted more informally on an as-needed basis for supplementary information. No attempts were made to *comprehensively* gain responses from non-transportation agency personnel.

To help ensure a successful response rate from both first-tier and second-tier contacts, and to ensure the timely completion of this investigation, the survey was proactively administered.

When possible, the survey was distributed via email or facsimile to help speed the distribution process. Options for returning the survey by the same means were clearly detailed in the *Survey Questionnaire*. A definitive survey return date of July 31, 2001 was provided. Immediately following that date, follow-up telephone contact was made with the survey recipients to ensure that the survey had not been forgotten or misplaced. Despite this proactive approach, survey responses were received from only 23 states, though multiple surveys were returned in some states (see Figure 1). In all, 36 surveys were returned.

Case Studies

In addition to the general *Survey Questionnaire*, a select number of case studies were pursued as part of this investigation. The intent was to identify case studies representative of each of the two special event types – frequent and infrequent. Examples suggested preliminarily for this investigation included the Olympic Winter Games in Salt Lake City, Utah; sporting events at Miller Park in Milwaukee, Wisconsin and the Superbowl in Minneapolis, Minnesota. Limited project funds, particularly travel funds, restricted the ability to travel to case-study locations to gather information. Hence, case study information was primarily gathered through the literature review and telephone interviews with local representatives.

Informal Interviews and Input

Lastly, other agencies or organizations involved in special event planning and management, such as special event coordinators, were contacted informally on an as-needed basis for supplementary information. Further, informal (or formal) input from national experts was incorporated as appropriate in the *Synthesis Report*.

REPORT ORGANIZATION

This *Synthesis Report* is segmented into nine chapters. Following this introductory material, *Chapter 2 Special Event Types* describes the range of special events that agencies and organizations need to plan for and manage. The event types are categorized as frequent and infrequent. For each of these event types, the event's size, the time of day and duration and the scope of impact (i.e., local, regional or statewide) is detailed.

Chapter 3 Stakeholders describes: (1) the role each stakeholder has in the planning and management process, (2) the jurisdiction over which the stakeholder is responsible and (3) the interaction that takes place between individual stakeholders. In addition, other items discussed include: (1) the consistency with which the various stakeholder interactions take place, (2) provisions for sharing personnel and/or equipment, (3) who takes the lead in coordinating multi-jurisdictional or interagency activities and (4) the occurrence of multi-jurisdictional or interagency meetings to assess current practices.

Tools and techniques used in the planning and management of special events - both traditional and emerging - are the focus of *Chapter 4 Tools and Techniques*. The tools and techniques are categorized depending on use: (1) motorist information, (2) traffic management or (3) travel demand management. Communication protocol and event follow-up activities are also discussed.

Chapter 5 Supporting Guidance Documentation summarizes any supporting documentation uncovered for special event planning and management and notes the commonalities and differences among these documents. The motivation behind the documentation development and the jurisdiction and agency involvement is also discussed.

The use of traffic simulation, performance measures, public opinion surveys and a self- and external assessment of activities are discussed in *Chapter 6 Effectiveness of Current Efforts* as potential means to determine the effectiveness of special event planning or management activities.

Chapter 7 Funding Sources identifies both traditional and innovative funding sources for special event planning and management. Funding sources for large-scale, infrequent events or advanced technology applications are specifically detailed.

Chapter 8 Case Studies provides greater detail regarding the special event planning and management process for three diverse case studies: (1) the 2002 Olympic Winter Games in Salt Lake City, Utah; (2) the Phoenix International Raceway in Phoenix, Arizona and (3) the Sweet Pea Festival in Bozeman, Montana.

Finally, *Chapter 9 Conclusions* includes a summary of key findings and provides applicable recommendations based on the information obtained in this investigation.

CHAPTER TWO

SPECIAL EVENT TYPES

Under this investigation's definition of a special event - occurrences that "abnormally increase traffic demand" - the number of activities that can be classified as special events is substantial. One objective of this synthesis effort was to categorize special events into groups that share common characteristics and present similar challenges in planning and management. As such, special events were categorized as: (1) frequent events such as professional sporting events with predictable times of day and duration and that usually occur more than once a year and (2) infrequent events such as fairs, festivals, the Olympics, etc. for which the traffic demand may increase dramatically in size and duration over frequent events and occur once per year or less.

The breadth and variety of special events listed as part of the *Survey Questionnaire* challenged the categorization of each event type exclusively into one of these two categories. Nonetheless, each event was denoted either frequent or infrequent, although it should be noted that certain circumstances place some special events into both categories. Further, different agencies classified similar events in each category.

Tables 1 and 2 demonstrate the breadth of special event types and characteristics that were reported by survey respondents. Special event characteristics include crowd size, time of day, time of year, duration, and impact (denoted as L for local, R for regional and S for statewide). It should be noted that "impact" was not defined on the *Survey Questionnaire* and therefore left to the respondent's interpretation. Some events of similar nature appear to have differing scopes of impact as a result of the respondent's interpretation of impact or such factors as local population

and size of metropolitan area. The variability in event characteristics supports the need for further research and guidance into this topic area to identify commonalities and differences in planning and management activities.

FREQUENT SPECIAL EVENTS

Sporting events, including collegiate and professional sports such as baseball, basketball, football, hockey, and soccer are the most common frequently occurring activity in large and small urban and rural areas.

As reported in the *Survey Questionnaire*, the size of sporting events varied drastically. College football attendance varies from as little as several thousand at smaller colleges and universities to more than 100,000 for large universities. Professional football attendance generally ranges from 60,000 to 80,000 depending on the performance of the team and stadium size.

Professional hockey and basketball attendance is generally smaller than other types of events ranging from 5,000 to 30,000; larger capacity stadiums and arenas would not provide adequate viewing for all fans.

Attendance for major league baseball varies significantly depending on the time of year, day of week and time of day. Weekday afternoon games typically have smaller crowds that range from 10,000 to 40,000. Weekend and evening games have larger crowds that range from 30,000 to 60,000 depending on the stadium capacity.

Attendance at these events fluctuates with team performance and the point in the season; a baseball team that is doing well and playing critical games towards the end of the regular season may see greater attendance than a team that is no longer eligible for post-season activities.

Other types of frequently occurring sporting events include auto racing such as the National Association of Stock Car Auto Racing (NASCAR), Championship Auto Racing Teams (CART), and the Indy Racing League (IRL); horseracing; golf and tennis.

The primary commonality of these event types is that they generally have specific venues, which allows for the involvement of common stakeholders and more permanently deployed traffic management tools and techniques. Sporting event venues may see a more condensed arrival and departure traffic pattern (typically over three to four hours) than say, convention center activities that may be more dispersed throughout the day. The peaking characteristics of these events should be taken into consideration in the planning process.

Though the size of these events varies greatly depending on location, the crowds are generally predictable and limited in size to the capacity of the venue. As an example, the Martel Field football stadium at Montana State University has a seating capacity of 15,000, while the Michigan Stadium at the University of Michigan has a seating capacity of just over 107,500. Because of this significant size difference, events at these two college football stadiums cannot be planned and managed identically. However, because of the nature of college football, it can be anticipated that each year, from August until as late as January, a game will be played in the stadium approximately once every two weeks. Also, the exact dates and times of the games will generally be known well in advance of the actual event.

Sporting events are not the only type of event that can be classified as a frequent event. Other types of events that fit this category are concerts, parades, farmer's markets, and conventions.

Concerts that are held at a particular venue on a regular basis can be considered to be a frequent event. A concert's size may range from several thousand to more than 30,000 depending on

location and the appeal of the performer(s). Concerts that are not held regularly at the same venue can be dually classified as infrequent events (discussed later in this *Synthesis Report*).

Similarly, parades can be classified as both frequent and infrequent events, although they most commonly resemble frequent events. In many cities and towns, parades are held annually at various times of the year. Because a parade may be held on the same street or set of streets each year, their frequent nature may allow for a more permanent traffic management plan and the procurement of permanently deployed traffic management equipment.

Parades and similar event types (e.g., street festivals, marches, races, sports celebrations, presidential motorcades, and wagon trains) are somewhat unique in that a roadway closure is required in addition to the increased traffic demand resulting from the event. Motorists not attending the event should be notified in advance about the road closure to encourage alternate route use.

INFREQUENT SPECIAL EVENTS

One of the most common infrequent events noted in the *Survey Questionnaire* was 4th of July celebrations. The range in size of these events can be extreme depending on the location and type of festivities; reported attendance ranged from 5,000 to 200,000. Additionally, the time of day and duration of these events varied. Some localities have entertainment that lasts for a few hours in the evening while others host full-day or multi-day events. An added challenge for this particular special event type is the dispersion of the crowd for fireworks displays; spectators do not typically congregate to a central location but may disperse throughout the area.

Races, typically running or biking, constitute another type of infrequent special event. Running races ranged in size from several hundred participants and spectators for local races that average 1 to 10 kilometers (.62 to 6.2 miles) to marathons with more than 50,000 in attendance. Bicycle races are unique in that the race may cover long distances, such as the 200-mile Seattle to Portland Bicycle Classic. In most cases, roads do not have to be closed to regular traffic, but drivers should be warned of the bicyclists ahead. When road closures are necessary, the closures can be progressive with the road section closed as bicyclists approach and then reopened as soon as they pass.

As stated previously, some concerts can be categorized as infrequent as well as frequent events depending on their characteristics. Concerts best categorized as infrequent include multi-day concerts. As an example, northern California's *Reggae on the River,* a three-day annual event in early August, generally attracts 10,000 patrons. At the other extreme, 1994's Woodstock in upstate New York attracted approximately 350,000 people to a town of only 15,000 (Hansen 1996). As a side note, when planning and managing special events, it is important to not only consider the size of the event but the size of the event in relation to the characteristics of the locale.

CHAPTER THREE

STAKEHOLDERS

As demonstrated in the previous Chapter, special events are dynamic and vary considerably in size, duration, and impact. As such, the planning and management of special events requires the cooperation of many different parties to ensure safe and efficient travel during these times.

This Chapter describes stakeholder involvement in special event planning and management including: (1) the role each stakeholder has the in the process, (2) the jurisdiction over which the stakeholder is responsible and (3) the interaction that takes place between each of the stakeholders. Other issues described in this Chapter include: (1) the consistency with which the various stakeholders interact, (2) provisions for sharing personnel and/or equipment, (3) who takes the lead in coordinating multi-jurisdictional or interagency activities and (4) the occurrence of multi-jurisdictional or interagency meetings to assess current practices.

STAKEHOLDER INVOLVEMENT

Stakeholders identified as having a primary role in special event planning and management are depicted in Figure 2. For this investigation, a stakeholder is said to have a "primary" role if more than one survey respondent identified them in the *Survey Questionnaire*. Secondary stakeholders, who were identified in only a single instance as having a role in special event planning or management, are listed in Table 3. This phenomenon likely indicates that stakeholder interaction does not occur uniformly among all stakeholders but among isolated agencies. In all, survey respondents, emphasizing the complexity and coordination challenges of

special event planning and management, identified 29 different stakeholders. This number increases if peripheral stakeholders such as towing and recovery agencies or emergency medical services are included.

The role of each of the primary stakeholders, including law enforcement, fire departments, transportation departments, media, event organizers, planning and political bodies and the military is described below. Potential involvement from secondary stakeholders is also described.

Law Enforcement

Law enforcement agencies are most commonly involved in the planning and management of special events. Law enforcement agencies comprise state police or highway patrol, county police or sheriff and local police agencies. This diversity within law enforcement emphasizes the need for jurisdictional definition and coordination to ensure proper coverage and prevent unwanted infringement upon another agency's jurisdiction. Despite this diversity, the role of law enforcement agencies in special event planning and management is relatively consistent across the country with the three primary responsibilities being: (1) traffic control, (2) public safety, and (3) crowd control. In limited cases, the local police help disseminate traveler information to the media and the motoring public.

In larger urban areas, the planning and management for special events is similar to that of routine congestion management activities. As such, transportation agencies likely take the lead in planning and managing special events. But in smaller urban and rural areas, law enforcement may plan and manage special events with little or no input or involvement from transportation

agencies. In these instances, the role of law enforcement expands to actual event and route planning; law enforcement personnel develop and deploy traffic control plans. A common role for transportation departments is then the provision of traffic control equipment (i.e., traffic cones and barriers, portable variable message signs, static signs, etc.)

For university-based events, such as sporting events, concerts, festivals, conferences, etc., university police are involved in the planning and management of special events. Similar to other law enforcement jurisdictions, the role of university police is to provide traffic and crowd control and to ensure public safety.

Fire Departments

Fire departments support law enforcement agencies in ensuring public safety. Beyond their ability to deal with fires, fire department personnel are also typically trained to provide first response medical assistance. An additional role of fire departments may be in the enforcement of occupancy codes to limit the number of people within and around buildings for the benefit of public safety.

Emergency Operations Center

Cited as a secondary stakeholder in the special event planning and management process, an emergency operations center (EOC) supports resource coordination and dispatch and information dissemination. It's unlikely that an EOC would be involved in the planning and management of routine special events; their involvement is likely reserved only for large-scale events. They may also obtain the role of creating emergency evacuation plans and maintaining medical readiness in the event of a major catastrophe, such as a terrorist attack.

Transportation Departments

City and county departments of public works and state departments of transportation are involved in special event planning and management, though the level of involvement varies jurisdiction-to-jurisdiction and state-to-state.

City, county and state departments of transportation have similar roles in special event planning and management with the difference being their jurisdiction or coverage area. The jurisdictional coverage between city, county and state transportation departments is oftentimes neither consistent nor well-defined. For example, a city public works department may have jurisdiction over the interstate as it passes through the city limits; interstate jurisdiction reverts to the state department of transportation once outside the city limits. Conversely, a major arterial through an urban area may be under the jurisdiction of the state department of transportation while the connecting roadway network is under the jurisdiction of the city's public works department.

Public works departments primarily support efforts to provide traffic control, ensure public safety, and disseminate information to the motoring public. However, the responsibilities of public works departments are typically broader than that of a state department of transportation. As such, they may take on additional roles with respect to special events. One survey reported public works department's responsibilities for special event planning and management as follows:

- roadway maintenance,
- trash,
- sanitation,
- organization,

- administration,
- permitting and
- parking management.

State departments of transportation have a more well-defined role in special event planning and management; providing traffic control, ensuring public safety, and disseminating traveler information to the motoring public.

Other State Departments of Transportation

In instances where traffic from one state affects another state's transportation network, multiple departments of transportation may become involved in the planning and management of special events. This is not that uncommon, particularly for large special events hosted near state borders. In the State of Maryland, the Delaware and Virginia Departments of Transportation are involved with the provision of multi-state traveler information. Another example is the I-95 Coalition; a regional partnership between major private and public transportation agencies serving the northeastern portion of the United States from Maine to Virginia by providing traveler information. (I-95 website)

Construction Offices

Not directly related to the special event planning and management process but nonetheless important to its success is the coordination of transportation-related construction activities. A simultaneous increase in traffic demand resulting from a special event and restricted roadway capacity because of construction or maintenance activities can lead to significant delay and driver frustration. Coordination between the transportation agency, the construction contractor

and the special event coordinator can help alleviate problems related to increased traffic demand and restricted roadway capacity. If the coordination is initiated early enough, schedules may be modified to meet the needs of all parties.

Public Transit

Though cited only as a secondary stakeholder in the special event and management process, the involvement of public transit agencies is beneficial when a special event impacts the services they provide or if transit services can be utilized to reduce some of the traffic demand generated by the special event. In the City of Los Angeles, California, a large festival requires many city blocks to be closed to all traffic before the event to allow for setup before the event and the event itself (Ogura 1994). This road closure requires the rerouting of buses and the temporary relocation of vicinity bus stops.

Sports stadiums have worked with local transit agencies to provide extra or extended night service hours on days of special events so patrons would be able to ride transit both to and from the venue. If one of the goals is providing efficient transportation to and from the special event site through encouraging transit use, then the transit agency should be a key stakeholder in achieving that goal.

Railroads and Rail Transit

In places where special events impact roadways with rail-highway crossings, it may be necessary to involve the railroad or rail transit company in the planning and management of special events. Their noted role is dealing with traffic control impacts at rail-highway crossings. In certain instances where a significant amount of traffic must cross at-grade railways, either sufficient

traffic control must exist to warn motorists and prevent problems or it may be necessary to attempt to adjust schedules to avoid conflicts.

Media

Although only two agencies directly identified the media as a stakeholder, 25 of the 36 survey respondents later noted using media partnerships (print and radio/television) as an information dissemination tool (see *Chapter 4 Tools and Techniques*). The media serves a dual purpose in special event planning and management. Prior to the event, the media may work with special event coordinators to publicize the occurrence of the event and the affected road or traffic control changes. Before and during the event, the media can work with law enforcement and transportation departments to provide traveler information to the motoring public.

Chamber of Commerce

Cited as a secondary stakeholder, chambers of commerce can also play a dual role in special event planning and management by advertising the upcoming event and by disseminating traveler information to the motoring public.

Event Organizers

Event organizers initiate the special event planning process through a permit application, a letter of intent, or a notification phone call to the affected jurisdiction. As part of this process, the event organizer will generally specify the event date and time, duration, location, and expected size. Sizeable or frequent special events may require improvements or additions to existing venues, which typically requires a traffic impact study to be performed. Event organizers may

also assist in the management of special events by bringing in private traffic and crowd control resources.

City/County Planning Board

The city/county planning boards are responsible for the issuing of use permits for county land and roads. The planning board may work with other agencies in evaluating the traffic control plan or other documents submitted with the special event permit application.

Codes/Ordinances Office

Many cities and other jurisdictions have ordinances and other codes which can effect the execution of special events. Staff knowledgeable and responsible for these codes and ordinances may become involved in the special event planning and management process to educate other stakeholders as to the requirements. Examples may include fire codes and noise ordinances.

Consultants

As noted earlier, event organizers may be required to conduct a traffic impact study prior to receiving a permit, especially for special event venues, or they may be required to provide their own traffic management plan. In these instances, it is likely they will hire a consultant if they do not have the expertise on their staff for such a task. Consultants may also be asked to perform feasibility studies if the use of advanced traffic management technologies is being explored. The role of consultants is typically limited to pre-event planning due to difficulties in delegating real-time activities and decision making to authority from public agencies to consultants.

Barricade Companies

When large, infrequent events occur, public agencies may be unable to justify the purchase of required traffic control devices. Private companies can be contracted either by the event organizer or the public agency to perform traffic control before and after an event for less than the cost of buying equipment and paying personnel.

Private Groups and Volunteers

For smaller special events, private groups and volunteers often comprise special event staff. These people can be used to man traffic control posts and direct people to available parking, etc. Responsible agencies may be assuming some risk of liability when using private groups and volunteers as special event staff. Because these groups may consist of untrained personnel, they need to be brought in early enough to ensure they know their role and are properly trained to execute that role.

Planning/Political Bodies

Metropolitan Planning Organizations (MPO) provide long-term, regional planning strategies and help to secure funding to support necessary improvements. Metropolitan Planning Organizations can help to coordinate agencies and jurisdictions for regional benefit. As an example, MPO's can work with transit agencies to reduce traffic demand on city arterials at or near a special event site.

Local politicians may also get involved in the special event planning and management process. The primary role of political representatives is to monitor the impacts of the special event on

local roads and citizens. One job of politicians is to address problems that affect their constituents and work with the government to address those problems. If a special event is adversely affecting a particular neighborhood, the politician has the responsibility and contacts to help the neighborhood voice their concerns and find a solution.

Mayor's Office

The mayor's office was identified separately as a secondary stakeholder in special event planning and management. The role of this office is primarily to coordinate events and work with the media.

Home and Business Owners

Though identified as only a secondary stakeholder in the special event planning and management process by survey respondents, its likely that the general public, particularly home and business owners, plays a much more significant role. Oftentimes, special events affect local businesses and residents because of additional traffic through residential neighborhoods, the closure of a route that serves a business, or increased congestion on a roadway serving a business that might discourage retail business. The Los Angeles City Department of Transportation had to contend with this challenge during the 2000 Democratic National Convention; a sizeable perimeter around the business district was closed to all traffic during the convention. Common concerns of many residential neighborhoods near special event venues include event patrons parking on residential streets or increasing traffic on their streets (Kropidlowski 1992). If brought to light early enough in the planning process, traffic control can be planned to discourage such practices by event-goers. In some instances, special "resident parking only" areas can be established to

reduce problems near venues holding frequent special events.

Military

Air shows and other events on military bases across the country are common occurrences with some military bases annually holding large events. When events are held on military bases, all traffic and security on the base is within military jurisdiction and therefore, their responsibility. Involving military personnel in the special event planning and management helps create a more seamless transition between traffic control on and off the base.

In regards to increased attention to security, the military is getting an expanding role. During the 2002 Winter Olympic Games in Salt Lake City, more than 5000 military troops helped provide security. In addition, Air Force F-16 fighter planes and Army Blackhawk helicopters flew air support missions.

State and National Parks Offices

Similar to the military jurisdiction described above, when events occur on state or national park land, the agency responsible for that land should be brought in as a stakeholder. Both state and national parks offices are responsible for providing public safety and managing park lands.

Department of Fish and Game

Departments of fish and game are responsible statewide for all laws and regulations pertaining to streams and rivers including fishing and safety (i.e., life vests) activities. Departments of fish and game should be involved as stakeholders whenever special event activities affect their jurisdictional coverage.

Department of Forestry

Similarly, the department of forestry may get involved when events occur within their jurisdiction. Roles they assume in special event planning and management are public safety, forest preservation, and fire control, particularly for events in the forest during dry, fire seasons.

STAKEHOLDER INTERACTION

In addition to simply identifying stakeholder involvement in the special event planning and management process, survey respondents were also asked to comment on the nature of their interaction with other stakeholders. The formality of their interaction was categorized as *informal*, *written*, or *other*. Even though responses to this question were variable, the two most common types of interaction are written correspondence and in-person meetings. Though a higher frequency of informal interaction was anticipated among the stakeholders, both written correspondence and in-person meetings allow for multiple stakeholders to be involved simultaneously. Several respondents indicated that a meeting was held among involved stakeholders before each special event. Respondents were also asked to comment on the consistency of their interaction with other stakeholders, segregated for frequent and infrequent events. Surprisingly, the majority indicated a high level of consistency in interaction and little difference was noted in responses between frequent and infrequent event interaction (see Figure 3). These results are not surprising for frequent special events that are anticipatory in nature and involve common stakeholders. However, a more significant reduction in the level of consistency was expected for infrequent events.

LEADERSHIP

Cooperative efforts typically require one person or agency to take the lead in coordinating interaction; a champion. Nearly all of the survey respondents indicated that there was in fact a champion among the stakeholders who assumed a leadership role in coordinating interagency interaction. However, the champion's affiliation varied. The three most common lead stakeholders included: (1) department of transportation personnel, particularly traffic and operations engineers, (2) the event organizers and (3) law enforcement at either the local, county or state levels depending upon jurisdiction. Many survey respondents indicated that the stakeholder champion might change depending on the circumstances of the particular special event (i.e., a football game and a parade may have a different champion due to the differing nature of the events).

PERSONNEL AND EQUIPMENT SHARING

Each stakeholder has somewhat unique personnel and equipment resources that can be used for special event planning and management. Because special events constitute a cooperative effort, oftentimes it is beneficial to share personnel or resources across agency or jurisdictional boundaries. Approximately 60 percent of survey respondents indicated that they have provisions in place for doing just that. Commonly, agreements exist between departments of transportation and law enforcement agencies; transportation departments provide traffic control devices and law enforcement provides personnel. In a somewhat unique case, the Utah Department of Transportation is "loaning" six full-time personnel to the 2002 Olympic Winter Games Coordinating Committee for the planning and management phases of this sizeable special event.

INTERAGENCY/INTER-JURISDICTIONAL MEETINGS

As noted previously, in-person meetings constitute much of the stakeholder involvement activities. Fifty-nine percent of the survey respondents indicated that, in addition to pre-event meetings, post-event interagency/inter-jurisdictional meetings were held to assess the success of current practices and to address any problems that may have arisen. This allows continued progression towards improved special event planning and management activities.

SECURITY

With the recent threats to and focus on national security, the role of law enforcement and security personnel in special event planning and management, particularly large scale-events, will likely increase. While it is uncertain what specific changes in special event planning and management will be instituted, public safety will come to the forefront, likely compromising mobility, efficiency, accessibility, and convenience for event patrons and non-event patrons in the vicinity. As the elevated focus on and concern over national security wane, the balance between safety and mobility will likely shift in conjunction.

Two recent major special events had to contend with increased security; the 2002 NFL Superbowl and the 2002 Olympic Winter Games. In each case, the events were classified as National Security Special Events (NSSE), a classification created in 1998 when then President Clinton issued Presidential Decision Directive 62. With this classification, the United States Secret Service is designated as the lead security planner for everything including transportation security.

Concomitant transportation security effects for both events were focused on the transport of hazardous materials and air travel. Hazardous material shippers and transporters were strongly encouraged and sometimes required to take alternate routes around the event vicinity. Although this created a safer environment, it added additional delays and inconvenience to the transporters of hazardous materials.

With respect to air travel, the Federal Aviation Administration (FAA) designated a Special Traffic Management Program for Salt Lake City, Utah during the 2002 Olympic Winter Games. This program called for a 72-kilometer (45-mile) radius around Salt Lake City to be closed to all planes except commercial flights. Additionally, the airspace was entirely closed during the opening and closing ceremonies. To accommodate the additional non-commercial flight traffic re-routed to nearby airports, private planes were required to make slot reservations for all arrivals and departures. As an additional consideration, additional ramp spaced is needed for parking the additional private plane demand at nearby airports.

A third example of recent security concern effects on special event management is the 2002 July Fourth Celebration in Washington D.C. During the celebration, people typically congregate in the Mall. Due to heightened security concerns in 2002, a double fence was installed around the Mall perimeter with a limited number of entrance points to allow patron screening. Additionally, most of the streets near the Mall were closed to vehicular traffic. Since parking was also limited during the event, people were encouraged to use the Metro subway. However, the Metro station closest to the Mall, the Smithsonian Metro Station, was closed for security reasons, requiring people to use the other nearby stations. This event provides an excellent example of how mobility can be sacrificed for security.

CHAPTER FOUR

TOOLS AND TECHNIQUES

To comprehensively plan and manage special event activities, efforts should focus on: (1) disseminating motorist information, (2) managing and controlling traffic and (3) managing travel demand. This Chapter describes techniques planned or currently in use by stakeholders to accomplish the above tasks.

A brief description of each of the tools and techniques is provided below, supported primarily from findings in the literature. Tables 4 and 5 indicate the level of use of each of these tools and techniques by survey respondents in order of frequency. Related issues regarding communication protocols and event follow-up activities are discussed in this Chapter as well.

Worthy of note here, many of the tools and techniques described in this Chapter are also applicable to incident management or construction and maintenance activities. Because of this, the investment in these tools and techniques does not have to be justified solely in improvements to special event traffic. For example, variable message signs on an interstate highway may direct traffic to the event venue before an event, but may also be used to warn drivers of incidents, poor weather, etc. during non-event times.

MOTORIST INFORMATION

The intent of providing motorist information is to: (1) allow motorists to select the best route, (2) direct motorists to available parking areas, (3) reduce driver frustration and (4) inform non-event traffic of the event to encourage the use of alternate routes.

Motorist information tools and techniques commonly used for special event planning and management include the following:

- variable message signs (VMS)
- highway advisory radio (HAR)
- media partnerships and
- pre-event informational campaigns.

Variable Message Signs

Variable message signs (VMS) have a changeable display allowing for the dissemination of a variety of pertinent information to motorists such as lane closures, warnings, and parking lot closures or simply provide directional information. It is generally recommended that pre-determined message sets be developed to: (1) lend consistency to the displays and (2) speed the messaging process. VMS require active monitoring to ensure that the information is accurate. VMS can be permanently installed on the roadside or truck- or trailer-mounted portable.

Highway Advisory Radio

Highway advisory radio (HAR) uses a specific radio frequency to provide information to motorists via their in-vehicle radio systems. This information is typically broadcast over the 530 AM or 1610 AM frequencies with various ranges depending upon the location of the transmission antennae. HAR messaging should be updated frequently with timely, accurate information. The benefit to using HAR is the ability to provide detailed messages of moderate length. Both permanent and portable HAR is available. For venues with frequent special events, the investment in permanent HAR may be worthwhile. The obvious benefit to portable HAR is the ability to transport it to various special event locations on an as needed basis.

Because of the invisible nature of HAR, its availability needs to be advertised and it should be used consistently for all events. This will help its credibility with motorists who may discontinue using HAR if it is selectively used and not advertised.

It should also be noted that HAR use is limited by geographic conditions. The AM frequencies used for HAR are not consistently reliable or effective in all areas of the country (i.e., mountainous regions). Therefore, this technology should be investigated further for a specific geographic region before an investment is made.

Media Partnerships

The media can be used to provide both pre-trip and en-route information to motorists. Common mediums for information dissemination are radio, television and print media, with radio having the best ability to provide en-route information. Print media such as newspapers are also beneficial because they provide hardcopy, printed maps of detour routes, parking, and transit. Efforts should be made to both coordinate and educate media personnel if brought in as a partner in motorist information activities. Personnel coordinating traffic for NASCAR races at Phoenix International Raceway witnessed first hand how limited coordination among various media sources can result in inconsistent and often times confusing information to motorists (Wall 2000). To help prevent such problems and provide accurate information, media information should be obtained from a single source such as the lead traffic engineer, lead law enforcement officer, a traffic management center, etc. Another media source is the Internet, which can be used to publish suggested driving directions and parking.

Pre-event Informational Campaigns

Pre-event information campaigns educate motorists about traffic and parking conditions prior to a special event. The most common method of information dissemination is through brochures, informational flyers, or pamphlets to event patrons (Chester 2000, Baker 1990, Wall 2000, Gibson 2000). Patrons are typically provided with suggested parking areas, recommended routes and even suggestions to arrive early.

For the Tennessee Titans' Adelphia Coliseum in Nashville, Tennessee, patrons with on-site parking are advised to use one interstate to reach the site, while patrons with off-site parking were directed to an alternate route to access central business district parking (Chester 2000).

In preparation for the Detroit Grand Prix in 1988, officials provided advanced publicity via TV, radio, local newspapers and special brochures. The information was directed not only to patrons, but also non-patrons hoping to avoid the accompanying increased traffic demand and road closures (Aggarwal 1989).

TRAFFIC MANAGEMENT

A wide range of tools and techniques exist to control and manage traffic at or near a special event site. Traffic management tools and techniques commonly used for special event planning and management can be categorized as the following:

- traffic control devices
- patrols
- electronic surveillance
- signalization

- geometric modifications and
- other.

Traffic Control Devices

Traffic control devices represent a standard set of tools used to regulate, warn, and guide traffic. Traffic control devices used for special event planning and management may include traffic cones, portable static signs or portable traffic signals.

Traffic Cones

Traffic cones are used to channel vehicles, divide opposing traffic or divide multiple lanes in the same direction (United States Department of Transportation 2000). The cones should be mostly orange with retro reflective material and of a material such that when struck by a vehicle, the vehicle is not damaged. The standard height for cones in low-speed situations is 450 millimeters (18 inches) and 700 millimeters (28 inches) on freeways and other high-speed highways. The standards for traffic cone use are provided in the *Manual on Uniform Traffic Control Devices (MUTCD), Chapter 6F.56*.

Portable Static Signs

The most common traffic control device in use is the static sign. For special event planning and management, temporary static signs are most useful unless the event is frequent in nature. Temporary signs can be exposed during the event and covered at its completion, mounted on temporary posts or trailer-mounted and staged only for the event. Static signs, both temporary and permanent should follow the standards for size, placement, color, etc. set forth in the *MUTCD*.

Portable Traffic Signals

Two types of portable traffic signals may be used for special event planning and management. For longer-duration special events such as the Olympic Winter Games, traffic signal poles and lights can be installed in a semi-permanent fashion. Alternatively, trailer-mounted portable traffic signal systems can be used (see Figure 4). The clear advantage of a portable system is the ease of transport from one location to another and its use for different events throughout the jurisdiction. The *MUTCD Chapter 4D.20* provides additional information on portable (temporary) traffic signals.

Patrols

Manual patrols to monitor traffic conditions during special event times are common though the composition of these patrols can vary.

Law Enforcement Motorcycle Patrols

Law enforcement motorcycle patrols provide an effective means to monitor ingress and egress routes during special events. One advantage is their ability to move more quickly than foot-patrols and to maneuver in confined spaces more effectively than a patrol car. An obvious disadvantage is their inability to operate in adverse weather conditions.

Law Enforcement Service Patrols

Law enforcement service patrols serve much the same function as motorcycle patrols except they are either in vehicles or on foot. Common responsibilities for these patrols include directing traffic at manned traffic control points and writing citations, or calling for a tow truck, for such

infractions as parking violations. The advantage of using manned traffic posts over signalized control is the presence of authority and the ability to make dynamic changes to the traffic flow. Public safety is also a primary responsibility of these patrols. Many times just their mere presence will prevent problems from arising. If not, these personnel generally have some form of first aid training to allow for the treating of minor injuries.

Non-Law Enforcement Service Patrols

Non-law enforcement service patrols typically consist of transportation, public works, event or other personnel. This group of individuals has a different set of skills and a different level of authority than law enforcement personnel that may be both beneficial and detrimental to the management of special events. As an example, transportation personnel have a heightened knowledge of traffic control and management but may not gain the same respect and responsiveness from the motoring public because of their lack of enforcement authority. These patrols may also provide services to motorists such as gas and air to reduce the impacts of stranded vehicles.

Traffic Management Teams

As an alternative, multidisciplinary teams can be formed to provide a balance between knowledge and authority. Traffic management teams are groups of personnel who work together in executing a traffic plan and who are all under one central command. For frequent special events, these teams become highly familiar with each member's role and responsibilities. One advantage of using a team such as this under the command of a single person or unit is the ease in relocating personnel to more critical event areas (Ogura 1994).

Aircraft Patrols

Using either fixed wing aircraft or helicopters, personnel can monitor traffic and identify problem locations or bottlenecks that are more difficult to detect from ground level. This information can then be relayed to personnel on the ground for appropriate action. Aircraft can also provide a vantage point for media personnel to obtain traffic information, which they can then pass on directly to motorists. Coordination among the various media should occur to avoid conflicting motorist information. Additionally, aircraft use is subject to airspace restrictions and weather conditions.

Electronic Surveillance

In addition to the manual surveillance provided by ground or air patrols, electronic surveillance can be used to monitor traffic conditions during special event times. Predominant electronic surveillance tools include the following:

- electronic loop detection
- video and closed-circuit television and
- traffic management centers.

Electronic Loop Detection

Electronic loop detection can monitor traffic volumes and vehicle speeds on various routes serving the special event venue. This information can then be used to re-route traffic from congested routes to less congested routes. The data collected by the electronic loops can also be stored for later analysis and improvement of related traffic control and signal timing plans.

Video and Closed-Circuit Television

Video and closed-circuit television provides the ability to visual survey traffic conditions from many points of views and locations. The cameras, usually mounted on poles or other infrastructure to provide a bird's eye view, can be placed at strategic locations throughout the roadway network serving the special event. A visual image, volume and speed data describing traffic conditions can be saved for later analysis and planning.

Traffic Management Centers

Traffic management centers (TMC) are generally the central communication hub for traffic-related information. TMCs collect information from personnel or electronically through electronic loops and video/CCTV. Pertinent information is then disseminated to motorists through an established motorist information system and used to control traffic flow through ramp metering, traffic signal systems, etc. The TMC can also dispatch personnel and other resources as needed based on the information they receive.

For some special event venues, a secondary TMC may be used. For example, the Los Angeles City Department of Transportation has a satellite TMC near the Staples Center. Although not as well equipped as the central TMC, it has the tools needed to manage traffic during special events at the site.

The development of a TMC is a capital-intensive effort and therefore not economically feasible in areas where the center cannot be used to benefit daily operations and congestion management. The Minnesota Department of Transportation (Mn/DOT) developed a Portable Traffic Management System (PTMS) as an alternative to a costly permanent TMC (Hill 1996).

The PTMS comprises VMS, HAR, spread spectrum radio, a portable traffic signal, CCTV, and a link to the permanent traffic management center (TMC). The spread spectrum radio allows data transfer between the CCTV and the TMC without hardwire connections. The VMS are used to disseminate traffic and travel information and are linked to the PTMS via cellular phone. The HAR has internally-stored, one-minute message capabilities activated via cellular phone. The CCTV cameras capable of tilt, pan, and zoom, are placed on extendable poles attached to the bed of service vehicles. They are placed at strategic locations to monitor traffic congestion and send compressed images to the PTMS. The portable traffic signals are used to improve traffic and pedestrian safety on congested routes near the special event site. The reception of the PTMC has been positive and resulted in improved traffic flow during special event times.

Signalization

Permanent traffic signal systems and ramp metering can be used to control and manage traffic during special event times.

Standard Signal Systems

Standard signal systems require timing plans to be adjusted for changing traffic conditions. For frequent events, special timing plans can be developed and stored in the controllers or system to assist in progressing special event traffic flows. For infrequent events, special timing plans can be implemented on the day of the event. Care needs to be taken to restore the original timing plan once the event has finished and traffic returns to normal.

Traffic-responsive Signal Systems

Traffic-responsive signal systems allow for the dynamic adjustment of cycle characteristics (splits, phasing, offsets, etc.) in response to real-time traffic condition data. Electronic loop detectors, CCTV, etc. can provide the real-time traffic data necessary to support this system. In turn, signal cycle lengths and characteristics are adjusted to optimize the performance of the roadway network. For roads that lead to or from a special event venue, an extended green time may allow for greater traffic volumes to move towards or away from the venue. Small scale events that result in only minor and temporary increases in traffic flow many not warrant investment in such a continually dynamic system.

Ramp Metering

Ramp metering is used to manage traffic entering controlled access facilities and prevent bottlenecks from forming at the access points. The use of ramp metering to ensure efficient operation of the controlled access facility may oftentimes lead to problematic queues or congestion on the ramps and secondary facilities.

Geometric Modifications

Both temporary and permanent modifications can be made to the geometrics of a roadway to better accommodate the increased traffic demand resulting from special events.

Temporary Lane Closures

Certain types of special events, such as parades or marathons, require temporary lane or road closures to accommodate the event. By doing so and ensuring that adequate alternate routes are

in place and that the motoring public is well-informed of those alternate routes, overall traffic flow through the region may improve.

Reversible Lanes/Temporary Contraflow/Movable Barriers

Reversible lanes and contraflow traffic, designated with movable barriers or other means, can temporarily add capacity in a single direction during times of increased traffic demand. For example, two-way streets can be temporarily converted to two-lane, one-way streets. Contraflow traffic on multi-lane facilities can accomplish similar capacity gains. A four-lane facility with two lanes in each direction can provide three lanes in one direction and one lane in the other. When using this technique, proper care must be taken to ensure proper traffic control and signing; some signs and markings may need to be hidden or removed to eliminate driver confusion (Wolshon 2001).

When enough width is available, shoulders can be used as temporary travel lanes to accommodate increased traffic flow. One common concern with this technique for long-term events is that it will prevent emergency response vehicles from accessing a downstream incident (emergency response vehicle will commonly utilize the shoulder as a travel lane when congestion prevents their use of the general travel lanes).

Major Capacity Improvements

Many special event venues around the country simply do not have transportation facilities with the capacity to handle the increased demand of special event traffic. For this reason, the construction of additional capacity to, from and near the venue may be required. Examples of

major capacity improvements include widening lanes or roadways, building additional roads, adding additional interchanges or intersections or adding turning lanes.

An excellent example of major capacity improvement is the Arena Drive interchange in Prince George's County Maryland. The Maryland State Highway Administration engineered a new interchange on I-95/I-495 (Capital Beltway) at Arena Drive in 1996. "The new interchange was necessary to minimize the effect of a new Washington Redskin Football Team stadium and USAir Arena events on operation of traffic along this segment of the Capital Beltway and its interchanges at MD 202 and MD 214." The interchange, a partial diamond with only one exit and one entrance ramp for the southbound lane, was to be open only during special events to reduce the existing and anticipated congestion on the beltway and the two current interchanges. The entrance ramp is closed during the pre-game to discourage people from attempting to use that as an entrance to I-95/I-495 and the exit ramp is closed during the post-game to discourage motorists from using that exit to access Arena Drive for other purposes (Maryland State Highway Administration 1996).

Other

In addition to the array of tools and techniques described thus far for special event planning and management, survey respondents cited two additional tools and techniques that were not provided on the *Survey Questionnaire* list of alternatives: (1) contracts with towing companies and (2) increased snow removal activities.

Towing contracts help to speed the removal of unauthorized (i.e., illegally parked either in the right-of-way or in other no parking zones) or disabled vehicles from the roadway. Unauthorized

or disabled vehicles can significantly reduce the existing capacity of the roadway; the effects are magnified during times of increased traffic demand.

An increase in regular snow removal activities benefits in two ways. By keeping the roadways free and clear of ice and snow, vehicles can travel at higher speeds increasing the overall vehicle throughput of the facility. Secondly, it improves the level of safety for the motoring public and prevents the occurrence of incidents that would restrict roadway capacity.

TRAVEL DEMAND MANAGEMENT

In addition to managing existing vicinity traffic, travel demand management techniques can be employed to actually reduce the vicinity traffic demand. Formally defined, "travel demand management (TDM) is the reduction of automobile travel demand, or the spreading of this demand over space or in time, by altering peoples' behavior" (Orski 2000).

Common TDM tools and techniques can be categorized as follows:

- economic or preferential incentives and disincentives for alternate mode use and alternate travel times
- alternate routes
- parking strategies and
- major transit improvements.

Economic or Preferential Incentives and Disincentives

Although listed as separate tools and techniques in the *Survey Questionnaire*, the intent behind economic or preferential incentives and disincentives is the same regardless of the alternative mode being encouraged (i.e., walking, biking, ridesharing, public transit). Each attempts to

reduce the number of single-occupant vehicles in the traffic stream, reducing overall traffic demand at the special event site.

Economic Incentives/Disincentives for Alternate Mode Use

Economic incentives for alternate mode use typically come in the form of free or reduced parking rates. The University of Washington charges different rates for single occupancy vehicles (SOV) and high occupancy vehicles (HOV) (Crandell 1989). In 1987, the charge for parking a single occupant vehicle was $9 while the parking charge for a high occupancy vehicle was $6.

The transportation planners for the Seattle Mariner's new baseball park, Safeco Field, also developed a program to promote HOV use to and from game events (Rankin 1998). Their strategy involved advertising parking lot services to advance ticket holders in exchange for reduced high occupancy vehicle parking rates. Participating lot locations are also listed on the ball park web site and telephone hotlines.

An additional technique includes offering free or reduced transit fares for event ticket holders. This method was used during the 2002 Winter Olympic Games held in Salt Lake City, Utah (TRAX 2001).

Preferential Incentive/Disincentives for Alternate Mode Use

Added convenience through preferential incentives is another approach to encouraging alternate mode use. Also at the Mariner's Safeco Field, the stadium provides secure, on-site, weather protected bicycle storage facilities for attendees and employees (Rankin 1998).

For the Staples Center and the Los Angeles Convention Center, larger crosswalks were developed, signal phases were extended, and some streets were closed off for pedestrians only (Gibson 2000). Specific close-in loading areas and off-street storage for buses helps to encourage transit use. Pedestrian access between the venues and the vicinity light rail station was also improved.

Other preferential incentives to encourage alternate mode use include high occupancy vehicle or bus lanes, which are intended to decrease ingress and egress travel times for the venue.

Auto-Restricted Zones

An extreme example of preferential disincentives for alternate mode use is auto-restricted zones. Auto-restricted zones eliminate automobile traffic on specific routes or portions of routes. These zones may be closed to all forms of motorized travel or closed to all automobile traffic and left open for transit vehicles. The result is a more pedestrian-friendly zone.

Economic Incentives/Disincentives for Alternative Travel Times and Congestion Pricing

Incentives and disincentives are also used to encourage alternate travel times. Oftentimes referred to as "congestion pricing," those choosing to travel during peak traffic demand periods may be charged a fee to do so. This fee may come in the form of a toll, elevated parking rates or other.

Table 6 shows fan arrival and departure patterns for Qualcomm Stadium in San Diego, California. Note that 32 percent and 56 percent of the traffic arrives one to two hours before game time and less than one hour before game time respectively. Incentives for early arrivals would shift a higher percentage of patrons to the one to two hours before game time arrival

category. Unfortunately, departure patterns are more concentrated. Seventy-two percent of patrons depart within one hour of the end of the game.

As a second example, an air show was held at Gallatin Field in Belgrade, Montana in August 2001. The gates opened at 10:00 AM and except for a minor influx of people at that time, attendees arrived intermittently throughout the day up to the main attraction, the Navy's Blue Angels at 2:30 PM. Because of the dispersed arrival pattern, ingress traffic was relatively insignificant. Upon conclusion of the Blue Angels' Air Show, the majority of attendees left simultaneously resulting in unexpected traffic congestion that did not dissipate for hours. If offered incentives to remain at the Air Show, this may have been avoided.

Alternative Routes

Travel demand management strategies encourage alternate mode use, alternate travel times and use of alternate routes to better disperse traffic demand over the roadway network. Alternate routes are not only beneficial for motorists accessing the special event site but also for those wishing to avoid it. To be most effective, the availability and characteristics (i.e., capacity, construction activity, vertical clearances for overpasses, weight restrictions, etc.) of alternate should be carefully investigated and monitored to ensure safe travel for all traffic, including commercial vehicle traffic.

Parking Strategies

Once at the special event site, the challenge becomes providing adequate parking. On-site, parking management strategies can be used to efficiently direct traffic to vacant parking spaces

or lots. Off-site, park-n-ride lots can relieve some of the parking demand if combined with alternate modes of transportation to access the site.

Parking Management Systems

Parking management systems can monitor the utilization of spaces and inform motorists of vacancies and even the approximate location of those vacancies. This is particularly helpful for large parking garages where significant time can be spent "trolling" for a vacant spot. Further, patrons can avoid queues at parking lot entrances by purchasing parking when they buy advanced tickets.

Park-n-Ride Lots

Park-n-ride lots provide a dual benefit for special event planning and management: (1) the need for on-site parking facilities is reduced and (2) the traffic demand near the event site is reduced. In many areas, especially dense urban areas, the number of on-site parking spaces is severely limited. In order to accommodate those wishing to drive, remote lots can be used; patrons can be bused to the event location. To encourage such behavior, incentives like those described in the previous section for ridesharing and public transportation can be offered. An example of such is Coors Field in Denver, Colorado. Due to the limited amount of on-site parking, extensive use is made of park-n-ride lots from all over the Denver area.

A common challenge for park-n-ride lots is accommodating persons with disabilities. During the 2002 Olympic Winter Games, shuttle buses were handicapped-accessible allowing disabled patrons to take full advantage of the system. The Phoenix International Raceway provides

handicapped-accessible bus transportation but also issues special parking tickets to disabled attendees that allow them special access to parking lots immediately adjacent to the raceway.

Major Transit Improvements

By and large, the best way to improve transit use is to improve transit accessibility and services. By locating a subway or rail station or bus terminal in the proximity of the special event venue, the convenience of using such a mode encourages increased patronage. In some cases, the increased patronage that can be realized even exceeds facility capacity.

In Chicago, Illinois, the Addison Rail Station serves Wrigley Field (Abrams 2000). When it became obvious the station was not able to service the crowds of the baseball games, the facility was redesigned. Adequate space to store all riders as they waited for the next train to arrive was provided. Second, the fare collection system was redesigned to efficiently service all riders. Additional turnstiles were installed and portable fare collection boxes were developed to assist in the processing of passengers.

Even for an infrequent major special event such as the Salt Lake City 2002 Olympic Winter Games, the development of a new transit system was undertaken. The primary purpose of building the TRAX system was to accommodate the extremely high demand during the Olympics. Existing bus routes operated by the Utah Transit Authority were re-oriented to serve TRAX (TRAX Facts 2001).

CONSISTENCY

Consistent use of the tools and techniques described above accomplishes two things: (1) motorists become accustomed to using the tools and techniques to navigate through traffic as

they enter or exit special events and (2) responsible stakeholders become proficient at using the tools and techniques improving the overall management of traffic during special event times. Overall, survey respondents rated their consistency of use as *very* consistent, though consistency in use was slightly lower for infrequent events (see Figure 5). For example, variable message signs are always used for medium-sized, medium-duration, frequent events.

COORDINATION AND COMMUNICATION

Although this Chapter described the various tools and techniques individually, the overall success of transportation management during special events requires the combination and coordination of multiple tools and techniques. Without adequate coordination, conflicting or duplicative activities may take place or misinformation and misdirection may be provided to the motoring public.

The development of formal protocols to assist in the coordination of the responsible personnel during special events is essential. One common protocol is the Incident Command System (ICS) that allows for the effective management of interagency teams. When such a method is used, all personnel managing a special event should be knowledgeable with ICS terms and concepts.

In the *Survey Questionnaire*, 61 percent of the respondents reported having formal communication and coordination protocols. When asked to identify who is formally trained to use the protocol, the responses were varied. Many of the respondents reported a wide variety of personnel such as police, fire, transportation, etc. Other respondents reported that all participants involved with traffic management had been formally trained.

CHAPTER FIVE

SUPPORTING GUIDANCE DOCUMENTATION

Effective communication and coordination among the various stakeholders will help to ensure successful special event planning and management activities. One method to encourage effective communication and coordination is with the use of supporting guidance documentation (i.e., an operations or response guide).

As part of the *Survey Questionnaire*, respondents were asked if they have a formal guide to support special event planning and management activities. Respondents from only seven states indicated having such supporting documentation. The remainder of this Chapter details the motivation for document development, stakeholder involvement, usage, updates and flexibility. In addition, specific examples of guidance documents are detailed.

MOTIVATION

The most common motivation for the development of guidance documentation was the need to better coordinate interagency resources for special event impact mitigation. Formal documentation of protocol and resources helps to eliminate redundancy and confusion.

STAKEHOLDER INVOLVEMENT

As with other special event planning and management activities, guidance documentation development is usually spearheaded by a single champion but requires the cooperation and support of multiple stakeholders. Figure 6 depicts stakeholder involvement. Of the seven survey respondents, most were affiliated with state departments of transportation. Hence, their

involvement in guide development was most common. Law enforcement is also commonly involved; police agencies routinely provide traffic control for special events. Other involvement may include local politicians, etc.

USAGE

Not surprisingly, almost all respondents indicating a role in documentation development also indicated regular use of the guide. It makes little practical sense to develop a guide that will coordinate and facilitate special event planning and management and not use it.

UPDATABILITY AND FLEXIBILITY

An important characteristic of effective guidance documentation is its updatability. Personnel contact information and available resources need to be kept up-to-date to ensure guide utility. Further, guide procedures or protocols found to be ineffective or inefficient should be modified accordingly.

In addition to ensuring that the guide is up-to-date, the guide should be flexible to respond to a variety of situations. Special events are dynamic. The number of people attending the special event may exceed expectations creating unforeseen traffic problems. Road construction and maintenance near a special event venue may temporarily reduce the capacity of the roadway network serving it. Documented procedures need to accommodate these unexpected occurrences.

NATIONAL EXAMPLES

Of the seven affirmative respondents indicating the existence of supporting documentation, only

three provided copies of actual documentation in use: (1) New Hampshire (New Hampshire Department of Transportation), (2) Florida (Daytona Beach Police Department), and (3) Maryland (Maryland Department of Transportation). Appendices C, D through F and G contain copies of the documentation received from New Hampshire, Florida (three documents), and Maryland, respectively.

New Hampshire

The New Hampshire Department of Transportation (NHDOT) *Implementation and Traffic Control Plan* details procedures for the New England 300 NASCAR Winston Cup Race at the New Hampshire International Speedway in July 2001. Specifically, the guide details procedures for the "Borrow-A-Lane" strategy that relies on the use of opposing direction capacity during times of increased traffic flow. For example, if an abnormally high southbound traffic demand is created by a special event, a northbound lane may be utilized for excess southbound traffic during the affected times. The directions may reverse at the conclusion of the special event.

The "need to document and formalize the many inter-dependent tasks undertaken by various agencies" motivated the development of this guide (Michael Dugas, NHDOT). Stakeholders involved in both the development of the guide and in the day to day special event planning and management process include the New Hampshire Turnpike Authorities, the New Hampshire Department of Transportation's District 5 and Bridge Maintenance Division and the New Hampshire State Police. Supplemental involvement in the guide development process came from local politicians and event organizers.

The guide details the roles and responsibilities of each stakeholder, even naming responsible

individuals on specific days and times. This level of detail helps to eliminate confusion in activities and improve overall process efficiency.

Florida

In the state of Florida, the Daytona Beach Police Department has developed several different operational guides for (1) July 4th through the conclusion of the NASCAR Pepsi 400 Winston Cup Race, (2) Speed Weeks and (3) Bike Week/Spring Break. Unlike New Hampshire's guidance documentation, the Daytona Beach Police Department's Operational Plans primarily focus on the assignments of local police officers.

Specifically, the guides identify the procedure for news releases, arrests, and radio communications and overviews the events taking place including event times, crowd sizes, and officers involved. A proposed traffic management plan is briefly described. The guide concludes with detailed duty hours for the police officers for the duration of the event. One benefit of this guide is that in addition to providing individual officers information regarding their responsibilities, an overview of all event activities is provided. An understanding of other stakeholder roles and responsibilities is invaluable in ensuring successful cooperative efforts.

Maryland

The Maryland Department of Transportation State Highway Administration's Chesapeake Highway Advisory Routing Traffic (CHART) Operation Manual details procedures to provide "more efficient and safer highway capacity through the application of advanced technology in high-traffic volume corridors" (Maryland State Highway Administration 1998). The five main elements of the CHART program are: (1) Congestion Monitoring and Detection, (2) Motorist

Information and Guidance, (3) Incident Response Service, (4) Traffic Management and (5) Communication Network and System Integration. In addition to detailing procedures to deal with congestion and incidents, the CHART Operations Manual has procedures defined for special events.

CHAPTER SIX

EFFECTIVENESS OF CURRENT EFFORTS

To ensure that the goals of safe and efficient traffic movement during special event times are met and oftentimes to secure funding for improvements, the effectiveness of special event planning and management efforts needs to be assessed. This assessment is most beneficial if formally quantified although much can be learned through a qualitative assessment of efforts as well. This Chapter details findings for both.

QUANTITATIVE ASSESSMENTS

Survey respondents were asked to detail their efforts to quantitatively assess their special event planning and management activities including the performance measures by which their activities are judged, data collection efforts to support the determination of these performance measures and evaluation tools used including simulation.

Performance Measures

When evaluating the effectiveness of special event planning and management efforts, performance measures should capture and reflect improvements in the provision of safe and efficient travel during special event times. As such, performance measures may include such things as increased travel speeds, increased vehicle throughput, increased transit ridership or reduced vehicular or pedestrian crashes.

Of the 36 survey respondents, only one affirmatively responded that they had pre-defined performance measures to gage their special event planning and management performance.

Traffic flow rates for arriving and departing traffic, including the duration of higher than normal flow rates, were used to evaluate the performance of their traffic management plans.

Data Collection

Consistent with the low affirmative response rate to pre-defined performance measures, only eight survey respondents indicated that they actively collect data in support of special event planning and management efforts. Of the data collected, the most frequent was all or a subset of traffic speeds, volumes and crashes. Traffic speeds and related travel times are indicative of mobility levels into and out of the event. Traffic volumes can be used to support parking management activities and capacity improvement decisions. High traffic volumes can also encourage travel demand management strategies to be implemented. Finally, historical crash data indicates where additional traffic control devices may be needed or where traffic separation should occur.

Simulation

For larger scale special events that are expected to significantly disrupt traffic flow and may require substantive traffic management efforts, traffic simulation may be used to better predict the impacts and the success of the efforts prior to the event. A variety of traffic simulation software packages are available for use, differing in their underlying theories and assumptions about traffic flow and their focus on macroscopic or microscopic traffic parameters (see Table 7). Despite the previous low response for formally defined performance metrics and limited data collection, nearly 25 percent of the survey respondents indicated using traffic simulation in the special event planning and management process.

QUALITATIVE ASSESSMENT

Special event planning and management activities can be assessed qualitatively as well. Comments from event organizers, the media, and the general public are indicative of the perceived success of special event planning and management efforts. No survey respondents had formally surveyed the public's perception of traffic planning or management of special events.

In addition to external comments, survey respondents were asked to rate the effectiveness of their own agency in the special event planning and management process. The majority (59 percent) reported being *satisfied* with the efforts of their agency; 34 percent and 7 percent reported being *somewhat satisfied* and *not satisfied*, respectively.

Respondents were also asked to rate their agency's special event planning and management activities on a scale of 1 to 5 with 5 being proactive and 1 being reactive. The majority again indicated proactive efforts (see Figure 7). An interesting correlation was noted between the respondent's level of satisfaction with their agency's efforts and whether they felt the agency was reactive or proactive; proactive efforts resulted in a higher level of respondent satisfaction.

Challenges

To better understand the challenges associated with effective special event planning and management, respondents were asked directly to cite difficulties that they encountered both within and external to their agency. The results of this question are summarized in Tables 8 and 9 respectively.

By and large, the predominant challenge noted both internal and external to the agency relates to communication and coordination among all stakeholders. This common theme stresses the need

to develop formal interagency communication, establish communication protocols, and develop formalized guidance documentation.

CHAPTER SEVEN

FUNDING SOURCES

Transportation-related projects of all types are typically funded through both traditional and innovative sources at the federal, state, and local levels and through private sources. Special event funding is no different. Available funding often limits the dedication of personnel and the procurement of supporting tools and techniques to special event planning and management. This Chapter describes the funding sources used to support the special event planning and management process.

FEDERAL

Common sources of funding for special event planning and management at the federal level include the Congestion Mitigation and Air Quality Improvement Program (CMAQ), the Federal Transit Administration (FTA) and the Federal Highway Administration (FHWA).

Congestion Mitigation and Air Quality Improvement Program

The CMAQ was identified by survey respondents as being the most widely used federal source of funding for special events. The CMAQ, first authorized in the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 and reauthorized with the Transportation Equity Act for the 21st Century (TEA-21), provides funding for surface transportation and other related projects that improve air quality and help mitigate congestion. Because the program is intended for air quality improvement, its application is primarily limited to areas that do not meet the National Ambient Air Quality Standards (NAAQS) or that have just recently met the NAAQS and are attempting to maintain it although states with no air quality problem areas are still

eligible to receive a small percentage. Once that criterion is met, a wide array of projects to improve air quality or reduce congestion is eligible for funding.

Survey respondents reported using CMAQ funding for the development of a traffic management center (TMC) and the deployment of variable message signs (VMS), closed circuit television (CCTV), highway advisory radio (HAR) and traffic signal control systems. The purchase of service patrol vehicles was also identified by several agencies as eligible under CMAQ funding.

Though not identified by any of the survey respondents, various transit or public transportation, bicycle and pedestrian projects also qualify for CMAQ funding. The CMAQ funds can be used to offset reduced or free transit fares to encourage transit usage and reduce overall traffic demand during special event times.

Federal Transit Administration

The Federal Transit Administration (FTA) operates a grant program designed to provide funding to transit agencies for transit-related purposes; Section 5307 for urbanized areas, Section 5309 for bus and bus facilities, and Section 5311 for rural and small urban areas (for more information on these grants, the reader is referred to www.fta.dot.gov). Only a single survey respondent noted use of these grants; Section 5307 and 5309 were used for capital improvements and transit system planning. One benefit to grants available through the FTA is that they not only benefit special event related activities but the larger transportation system in the locale.

Federal Highway Administration

The Federal Highway Administration (FHWA) also has a variety of grant programs available to support special event planning and management. For the 2002 Olympic Winter Games in Salt

Lake City, Utah both the FHWA and FTA provided grants to the Utah Department of Transportation (UDOT) and the Utah Transit Authority (UTA) to support their preparation for this sizeable event. Many of the projects funded through these grants directly integrate into the long-range plans of UDOT and UTA; the Olympic Winter Games simply accelerated their timeline.

STATE

At the state level, the most common funding source cited by survey respondents for special event planning and management was from state departments of transportation. Transportation department operating budgets have been used to support personnel, traditional traffic control devices and equipment such as variable message signs (VMS). Transportation department operating budgets have also reportedly been used to provide 20 percent matching funds for CMAQ and FTA grants.

Aside from this traditional source of state-level funding, the state of Kansas initiated its *Intelligent Transportation Systems (ITS) Set Aside Program* in which $2 million dollars is "set aside" annually for various ITS projects. Recently, a portion of these funds was used to purchase ITS event management equipment for the Kansas Speedway located in Kansas City, Kansas.

COUNTY/LOCAL

Funding for special event activities at the county and local levels is used to support similar tools and techniques as that of state level funding (i.e., personnel, traffic control devices, etc.). If state-level labor or equipment is used in special event activities in a county or local jurisdiction, county or local jurisdictions may be asked to reimburse the state for expenses.

PRIVATE

Private partners and event organizers also provide funding for planning and managing special events, though at varying levels. At the lowest level, an event organizer may be required to pay permit fee to cover the cost of reviewing the event request and issuing the permit.

In other instances, event organizers may be responsible for all or a portion of the special event costs. One survey respondent reported requiring the event organizer to pay 50 percent of all costs associated with setup, maintenance, and takedown of all traffic control devices. Other survey respondents indicated that special event organizers were responsible for providing traffic control equipment such as temporary static signs, variable message signs, highway advisory radio, etc.

For frequent special events, developer or impact fees have become an increasingly popular source of funding. Developers pay the costs associated with improving the transportation infrastructure to a level that can adequately support the increase in traffic demand resulting from the special event. This may include adding traffic control devices, increasing roadway capacity by adding lanes, or installing motorist communication devices. This type of fee works best for special event venues where activities are frequent enough to justify the longer-term expenditures.

A second type of innovative financing technique is public-private partnerships. In a public-private partnership, a public entity (e.g., state department of transportation) and the private industry work together to deploy an ITS technology. Through this deployment, the technology can be field tested to determine if it is capable of accomplishing what it was designed to do. Secondly, private industry has the opportunity to demonstrate their technology in a real world setting as a means for "advertisement". Finally, the public entity has the chance to test out new

tools and techniques with minimal investment. Some risk is incurred when field-testing equipment during high traffic, high profile special event times. As such, an agency may want to temporarily commit traditional traffic management resources to back up the technology being tested on an as-needed basis.

CHAPTER EIGHT

CASE STUDIES

To this point, this *Synthesis Report* has generally described the state-of-the-practice related to special event stakeholder involvement, tools and techniques, supporting documentation, effectiveness of efforts, and funding sources. To better detail the planning and management of special events with respect to the aforementioned topics, three case studies were investigated as part of this effort. With the intent of providing variety in special event size and frequency, the following three case studies were selected for inclusion: (1) the 2002 Olympic Winter Games in Salt Lake City, Utah; (2) the Phoenix International Raceway (PIR) in Phoenix, Arizona and (3) the Annual Sweet Pea Festival of the Arts in Bozeman, Montana.

2002 OLYMPIC WINTER GAMES

At the time of this *Synthesis Report*, the State of Utah had just finished hosting the 2002 Olympic Winter Games scheduled held February 8th through 24th, 2002 and the Para-Olympic Winter Games held March 7th through 16th, 2002. As such, findings related to the success of any of the special event planning or management efforts are limited.

Stakeholders

Because of the size (estimated to be 1.7 million people) and the anticipated traffic impact of the Olympic Winter Games, the level of planning required was very high, involving numerous stakeholders:

- The Salt Lake City 2002 Winter Olympic Games Organizing Committee is responsible for

overall execution of the Games.

- With respect to law enforcement, the Utah Olympic Public Safety Command (UPOSC) is responsible for public safety and limited traffic control, with jurisdiction over all interstates, state highways, and local roads. The UPOSC is comprised of representatives of:
  - Utah Department of Public Safety
  - Provo Utah Public Safety
  - University of Utah Police Department
  - West Valley Police Department
  - Ogden Police Department
  - Salt Lake City Police Department
  - Utah National Guard
  - FBI
  - United States Secret Service
  - Alcohol, Tobacco, and Firearms
  - Comprehensive Emergency Management
  - Ogden City Fire Department
  - Park City Fire Department
  - Weber County
  - Summit County
  - Wasatch County
  - Park City Municipal Corporation and
  - Park City Public Works.
- The Utah Department of Transportation provides transportation planning support to the Salt

Lake City 2002 Winter Olympic Games Organizing Committee through the loan of six full-time staff members. This began soon after transportation preparation plans began and continued up until the games.

- Local cities and counties in the greater Salt Lake City region are responsible for emergency management, public services, roads, and constituent impacts within their local jurisdictional boundaries.
- With a significant emphasis on travel demand management and use of alternate modes between the Games venues, the Utah Transit Authority (UTA) and the Park City Transit Authority are involved and responsible for providing adequate public transportation services to and form the Games.
- The Salt Lake City Airport Authority organizes air transportation including the additional arrivals and departures necessary to move the anticipated 1.7 million people.
- The Salt Lake City Metropolitan Planning Organization (MPO) is responsible for the development of the transportation improvement plan and funding in the urbanized areas.
- Lastly, financial partners from the federal government who are helping with the planning, capital, and operational costs of large transportation system improvements include the U.S. Department of Transportation (USDOT), the Federal Transit Authority (FTA), the Federal Highway Administration (FHWA), the Federal Railroad Administration (FRA), the Federal Aviation Administration (FAA), the U.S. Coast Guard, and the National Highway Traffic Safety Administration (NHSTA).

Tools and Techniques

Because of the enormity of the event, an extensive array of tools and techniques are being

planned and implemented for the Olympic Winter Games. Most of the tools and techniques were in the long-range plans of the Utah Department of Transportation and were to be incorporated into *CommuterLink*, a traffic management system. The Olympic Winter Games helped to accelerate their deployment.

Motorist Information

A system of variable message signs (VMS) and highway advisory radio (HAR) are already positioned throughout the region to provide real-time motorist information. Media partnerships will help to disseminate real-time motorist information. Prior to the Games, an extensive pre-event informational campaign was undertaken. Dedicated web sites provided information on transportation services for the Games including park-n-ride lots and transit. *CommuterLink* provided information on travel speeds, incidents, and construction on the roadways serving Olympic venues. To help motorists find their way to park-n-ride lots and other points of interest, special event wayfinding signage was installed to direct motorists.

Additionally, the *Olympic Transportation Guide,* a thirty-five page guide that documented the transportation system to be used during the games was printed and made free to the public and mailed to all ticket holders. Included in this comprehensive guide were driving maps, transit maps, shuttle maps, and even tips on how to bypass the games for make deliveries to downtown Salt Lake City.

Traffic Management

With respect to traffic management, non-law enforcement service patrols and traffic management teams provided direction and assistance to Olympic patrons. Aircraft patrols provided aerial

surveillance of the region.

CommuterLink provided electronic surveillance of the region. *CommuterLink* is based at the Utah Department of Transportation's Traffic Operations Center and linked to the traffic control centers in Salt Lake City and Salt Lake County. Through *CommuterLink*, over 150 closed-circuit television (CCTV) cameras provided real-time images and a means to verify incidents before dispatching response personnel. A network of traffic sensors placed every half-mile on the freeway provided real-time traffic volumes and speeds.

Approximately 25 ramp meters placed on various on-ramps along the freeway helped to control freeway congestion. To manage traffic on the surface arterials and streets, approximately 550 traffic signals throughout the Salt Lake City region were connected to *CommuterLink*. When combined with data from the traffic sensors, appropriate timing plans were developed to mitigate with congestion and incidents.

Other traffic management techniques included temporary lane closures, major capacity improvements including the I-15 reconstruction project, towing contracts to more quickly clear incidents, and increased snow removal to improve both safety and efficiency.

Travel Demand Management

In addition to simply managing existing traffic demand, Salt Lake City looked to actively manage the potential traffic demand. To encourage transit use, any patron with an Olympic Winter Game event ticket could have used the shuttle bus system or any UTA service free on the day of that event. Free park-n-ride and park-n-walk lots were also be prevalent throughout the region with easy access to Olympic Game venues via shuttle bus or on foot.

Strategies were also considered that to reduce congestion by Olympic non-patrons. These included alternative work and delivery schedules for businesses, carpooling and ridesharing incentives and telecommuting. Also, commercial and commuter routes were developed to reduce impacts on non-event traffic. Finally, the transit system in the area was vastly improved with UTA's TRAX light rail system that now has 18 stations. To further accommodate the increased demand on the light rail system during the Olympic Games, the UTA borrowed 33 additional light rail vehicles. Finally, 1000 borrowed buses were brought in the supplement the existing 600 owned by the UTA.

Simulation and Prediction Tools

Due to the size and uniqueness of this event, the DOT developed an in-house model to predict the location, magnitude, and duration of transportation problems. This model was a macro scopic model. In addition, a series of micro-simulation models was developed to better analyze individual problem locations.

Effectiveness of Efforts

Although limited due to the recentness of the games, some post evaluations have take place. Prior to the Olympic Games, transportation was rated an area of concern by 60 percent of the people in a public poll. In a poll taken by the Salt Lake City Tribune after the Olympic Games, 87 percent rated the transportation as either *good* or *excellent*. In a second question, participants were asked to state two of the biggest negatives of the Games. Only 4 percent specified transportation as one of their answers (Harpst 2002).

To provide readers with a sense of magnitude of the games, transit statistics were compiled

afterward. With regard to transit ridership, it was estimated that 2.52 million transit rides were provided during the Games. On an average day, 100,000 light rail rides, 42,000 shuttle bus rides and 80,000 regular bus rides were given. The Mountain Venue Express, a shuttle bus service, took approximately 30,000 people out of cars, which is approximately equivalent to taking 12,500 vehicles off the roads, assuming a higher than average vehicle occupancy for special event patrons (Harpst 2002).

The *Commuterlink* website also saw increased usage. Prior to the Games, the website received approximately 700 visits per day. On the average Olympic day the site received about 9,400 visits per day (Harpst 2002).

PHOENIX INTERNATIONAL RACEWAY

The Phoenix International Raceway (PIR) hosts auto races with crowds ranging in size from several thousand to approximately 150,000 people every year. The raceway is located in the Phoenix Valley and is approximately 393 acres in size. Access to the facility is via the interstate and state highway system with surface arterials leading to the raceway.

To help mitigate some of the challenges caused by the large events held at PIR, a set of objectives were developed:

- improve arterial and freeway access to the event
- improve parking guidance and internal circulation
- increase automation of traffic control
- centralize traffic management functions
- develop a coordinated incident management plan

- improve static and changeable signage on event routes
- minimize the impacts on nearby residential traffic and
- coordinate with the local media (Wall 2000).

To formally pursue these objectives, the Phoenix International Raceway (PIR) Special Event Traffic Management System was developed.

Stakeholders

The development of the Special Event Traffic Management System for PIR was a cooperative effort by many agencies and organizations including the Maricopa County Department of Transportation (MCDOT), Maricopa County Sheriff's Office (MCSO), Arizona Department of Transportation (ADOT), the Arizona Department of Public Safety (DPS), PIR officials, and a consultant, Kimley-Horn and Associates. Secondary stakeholders include M&M Parking, the media and the various vendors.

The consultant, Kimley-Horn and Associates, was responsible for conducting a needs assessment and system design, including opportunities for intelligent transportation systems (ITS) applications. An initial task included reviewing previous traffic control plans, interviewing key personnel and determining past problems. Next, they reviewed existing traffic management strategies to determine what worked well and what needed improvement. A stakeholder meeting was held during this process that included representatives of ADOT, MCDOT, PIR, and M&M Parking. Finally, they developed a design concept that would result in the final traffic management plan.

Tools and Techniques

Because of the frequent nature of PIR events and the permanence of venue, the tools and techniques deployed for special event planning and management can also be more permanent in nature.

Motorist Information

For motorists en-route to the event or for non-event motorists wanting to avoid the area, the Arizona Department of Transportation has both permanent and portable VMS along the primary access route, Interstate-10. Additional portable VMS also line the primary arterials leading to the venue. Sign messages are controlled from a central location; the PIR Command Center, MCDOT's Traffic Management Center or ADOT's Traffic Operations Center depending on the event's setup.

Three HAR stations are also strategically placed to provide continuously updated traffic conditions within a three-mile radius of the speedway. As an added appeal, HAR messages were recorded by a race driver, improving a motorists' willingness to tune-in. Driver interviews and track facts are also available to further encourage HAR use.

VMS and HAR messaging is complemented by the media. Several news stations in the region use helicopters for aerial surveillance and report traffic conditions to motorists via television and radio. Coordination among the various media sources has previously resulted in inconsistent and sometime confusing information to drivers. The media would suggest routes that would conflict with routes suggested by personnel on the ground. Coordination has since been increased to

avoid these conflicts.

Well in advance of any event, PIR officials use a pre-event informational campaign to provide transportation information to season ticket holders and other patrons. The information comes in the form of flyer that among other things encourages riders to use specific routes to reach the facility. A newsletter and web site are also available to the public (see Figures 8, 9 and 10). Telephone numbers to obtain additional traffic information such as the location of park-n-ride lots or traveler tips such as the HAR frequency, are also provided.

Traffic Management

The PIR Special Event Traffic Management System employs a variety of traffic management tools and techniques (see Figure 11). Approximately 40 manned traffic control posts are stationed at intersections near the racetrack during special events for both event ingress and egress. Personnel consist mainly of law enforcement teams from the Arizona Highway Patrol and Maricopa County Sheriff's Office. Local police and personnel from MCDOT and ADOT supplement these crews. Communication among traffic control post personnel occurs through radio and cellular phones given to key staff.

In addition to the extensive network of manual surveillance, three traffic management centers provide electronic surveiallance: (1) the MCDOT Traffic Management Center, (2) the ADOT Traffic Control Center and (3) PIR's Command Center. Both real-time and time-lapse Closed Circuit Television (CCTV) cameras provide visual images of traffic conditions to each of the three traffic management centers. Additionally, a grid of vehicle detection stations was deployed on the roadway network to collect 15-minute vehicle counts. These counts are currently used

only for post-event evaluation purposes but in the future may be updated to provide real-time counts to the traffic management centers for use in redistributing traffic. The three centers are connected with high-speed communications to allow exchange of real-time traffic information (see Figure 12). Note the high level of coordination and information sharing among the three centers.

Changeable, electronic, remotely controlled "Trailblazer" signs that display directional arrows when lit, were installed near intersections and other critical decision points along the arterials. These signs serve as the primary traffic control in the area of the racetrack. Lane control signals installed on one of the arterials leading from the interstate to PIR; reversible lanes will add additional capacity during both ingress and egress times.

Lastly, a fence along Indian Springs Road adjacent to the raceway forces pedestrians to use the tunnel under the roadway and discourages jaywalking across Indian Springs Road. This improves both the traffic flow along this route and pedestrian safety.

Travel Demand Management

In an effort to either decrease the number of automobiles accessing to the raceway or disperse the traffic more efficiently across the roadway network, PIR has implemented several TDM strategies.

To reduce demand on the primary roadways serving PIR, drivers are encouraged to enter the raceway using a variety of routes. Maps depict access points via written instructions and color-coded schemes. By actively promoting the use of many alternative routes, the traffic demand is dispersed among the roadway network.

For the largest PIR event, the NASCAR Winston Cup Race, a dedicated park-n-ride facility is established. The lot can accommodate 5,500 vehicles. Thirty buses carry fans to PIR before the race and 50 buses return them to the lot afterward.

Parking management strategies are also in place for large events at PIR. The raceway has three levels of parking: (1) special pass owners, (2) general admission and (3) PIR employees. On one of the arterials near the raceway, special pass owners use the left traffic lanes while the general admission motorists use the right lanes. To identify the special pass owners, they are given special colored window stickers.

A phased deployment of these tools and technique was undertaken allowing PIR to: (1) spread the cost over time, (2) test various segments for performance against desired objectives, and (3) evaluate changes in traffic patterns in the vicinity of the racetrack and adjust the strategies accordingly. Systems deployed in this phased manner allow for easier determination of which system components have the greatest benefit to the system as a whole.

Supporting Guidance Documentation

The PIR special event planning and management activities are also formally documented in a traffic control plan. This plan is updated each year, and in some cases, is modified before an event depending on anticipated attendance, weather conditions, and other factors. This plan was developed and is used by all of the stakeholders involved.

Effectiveness of Current Efforts

In addition to using vehicle detectors to evaluate the success of the traffic management system at

PIR, other measures of effectiveness include travel and departure times. In 1998, the average travel time to PIR from Phoenix was two to three hours. In 1999, travel times were reduced to less than 45 minutes and to between 20 and 30 minutes in 2000. In 1998, five and a half hours on average were required to clear the parking lot following a major event. In 2000, that's been reduced to approximately three and a half hours. These significant improvements in traffic flow have occurred despite a noted increase in overall traffic volumes. Total traffic volumes increased from 85,744 in 1998 to 133,185 in 2000.

Qualitatively, feedback from the general public has improved as well. Before improvements to the special event planning and management process, PIR would receive approximately 300 pieces of negative feedback each year. With the new plan in place, they received approximately 200 pieces of *positive* feedback instead.

Funding

The PIR Special Event Traffic Management System was cooperatively funded through a public-private partnership. The MCDOT and ADOT made an agreement with two ITS vendors for them to supply time-lapsed cameras and Trailblazer directional signs, connecting them to the PIR Command Center and to the MCDOT Traffic Management Center. This partnership allowed PIR to test the technologies at minimal cost, the vendors to demonstrate the technologies and supply their expertise in support of the ITS technologies.

Lessons Learned

During the development of the PIR Special Event Traffic Management System, a number of lessons were learned resulting in the following set of recommendations:

- Actively involve a third party, such as consultant, to help facilitate a higher level or collaboration and cooperation.
- Intelligent Transportation Systems (ITS) can be an effective tool to enhance agency traffic management efforts, but ITS does not replace experienced judgment of traffic management personnel.
- Partner with technology vendors and coordinate with them early to explore options for demonstrating equipment prior to purchasing.
- Provide clear, understandable directions to motorists with messaging technologies. Motorists will obey VMS and trailblazers if the information is consistent and does not contradict other messages being broadcast.
- Involve public safety personnel early in the process. Large-scale event management often relies on multiple public safety agencies-their input, consensus, and participation are vital to the success of any strategies implemented.
- Begin a public outreach campaign several weeks prior to the event. Distribute information to event patrons via mailings; newsletters, web sites, and other means. Conduct press conferences prior to the event and develop strong relationships with local media to help disseminate accurate and consistent information.
- Conduct regular scheduled meetings among all the involved agencies (public and private) to make sure everyone is up-to-date on the latest plans of action.
- Collect baseline data prior to implementing any strategies as a means of measuring the effectiveness of the overall plan.
- Plan a post-race-weekend meeting with all of the partner agencies. This will allow for a productive working session of what worked, what didn't and what should be improved upon

for the next event (Wall 2000).

SWEET PEA FESTIVAL

The Sweet Pea Festival of the Arts is held annually in Bozeman, Montana the first full weekend of August. The weekend consists of outdoor concerts, theatre, juried arts and crafts shows, food tasting, and a large parade. The festival is held each year in Lindley Park near downtown. Attendance in 2001 was approximately 19,800; the population of Bozeman, Montana was approximately 29,000 in 2001. A parade is held on Saturday morning at 10 AM and traverses 1.6 kilometers (1 mile) along Main Street. Although Main Street is within city limits, it is a designated state highway with moderate truck traffic.

Stakeholders

The Sweet Pea Festival is planned and managed by committee and approximately 2,000 volunteers. The Parade Committee - responsible for Main Street during the parade and the Physical Arrangements Committee - responsible for the pedestrian crossing area at Lindley Park and the shuttle bus service are the most directly responsible for traffic management during the event. Each committee deploys traffic control and provides volunteers for the manned posts.

A host of other agencies also have a role in the event. The Montana Department of Transportation has jurisdiction over Main Street and hence are responsible for detouring highway traffic, particularly commercial vehicle traffic, around the Main Street closure during the parade. Because the event falls under their jurisdiction, the event organizer is required to initially send a letter to the Montana Department of Transportation informing them of the event. MDT reviews the proposed traffic control plan, and then with permission of the city, posts appropriate detour

signs. The City of Bozeman Sign Department provides and places some of the traffic control devices.

The City of Bozeman Police Department does not provide traffic control, but is responsible for public safety and therefore needs to be aware of all activities occurring throughout the weekend. Because of the annual nature of this event, communication with the police department is informal comprising only a phone call to discuss the exact dates of the event and any minor changes from the previous year.

And lastly, because they are required to approve the parade permit application, the Bozeman Fire Department, Street Department, Public Works Department, City Attorney and City Manager must be included as stakeholders.

Tools and Techniques

The tools and techniques used for an event of this nature are significantly more limited than those of the two previous case study examples.

Motorist Information

Because this event is annual, Bozeman residents are familiar with the festival and the transportation challenges it brings with it. For this reason, motorist information dissemination has not taken a priority. Limited information related to parking and the event shuttle bus is provided in the *Festival Program* that is distributed at businesses and other venues well in advance of and during the event.

Traffic Management

Two traffic management teams are used in the management of event traffic. Before and during the parade, all cross streets along the parade route are blocked with cones and barricades. Because some motorists do not obey these control measures, festival volunteers are posted at all cross streets to prevent motorists from encroaching on the parade route.

The second traffic management team is staged at the pedestrian crossing at Lindley Park. Previous efforts to reduce driver speeds in this area have failed; volunteers in orange vests with paddles assist pedestrian access and safety by temporarily stopping traffic.

Other traffic management tools include traffic cones, which outline the crosswalks at Lindley Park and the cross streets during the parade, static signs warning drivers of road closures from both directions on Main Street and subsequent detours, and dynamic pedestrian signs near the Lindley Park crossing. The dynamic signs consist of the standard pedestrian crossing sign highlighted with dual flashing beacons. In order to discourage parking along the parade route, temporary signs ask drivers to avoid parking on Main Street between specific times.

Travel Demand Management

Bozeman Deaconess Hospital is located approximately 1.6 kilometers (1 mile) from Lindley Park. During this special event weekend, permission has been granted to use hospital parking as a Festival park-n-ride lot. Static signs (and the *Festival Program*) direct attendees to the lot. From there, they can catch a free shuttle bus that runs continuously during festival hours with short headways. There is also a direct trail from the park-n-ride lot to Lindley Park for pedestrians. To disperse parking throughout the downtown area and away from Lindley Park, a

free shuttle bus runs down the two one-way streets that parallel Main Street. The bus runs during most of the festival hours with a headway of approximately 30 minutes. Along the two one-way streets, temporary shuttle bus stops are marked with signs reading "Sweet Pea Bus Stop"; the City of Bozeman does not have a regular transit system.

Effectiveness of Current Efforts

Although no formal assessment of special event planning and management activities has been undertaken, there are future plans to survey a selected portion of attendees to get their perception of the Festival including the transportation services offered.

Lessons Learned

The primary challenge faced by the Festival Committee in the special event planning and management process is a lack of expertise. As such, the City of Bozeman requires the event organizer to be responsible for all aspects of delivering transportation services during special events including the provision of equipment and personnel.

Funding

Funding for nearly all of the transportation services for the Sweet Pea Festival comes from revenues generated from the Festival itself. The shuttle buses are provided free to event patrons from Festival proceeds. The City of Bozeman is reimbursed for sign use, vehicle use and personnel wages and benefits, also from Festival proceeds. The City also receives funds from the $100 parade permit fee. The Montana State Department of Transportation covers their expense internally.

CHAPTER NINE

CONCLUSIONS

The motivation for and potential benefits from improving special event planning and management relate to improvements in overall transportation system efficiency and safety. By proactively planning and managing special events, the likely realization of these benefits is improved.

This *Synthesis Report* overall provides a compilation of related information in a single source, targeting those wishing to proactively plan or manage special events. This Chapter summarizes key findings related to special event types, stakeholder involvement, tools and techniques, supporting guidance documentation, effectiveness of current efforts and funding sources.

SPECIAL EVENT TYPES

A fundamental challenge to this investigation stemmed from the basic definition of a special event – occurrences that "abnormally increase traffic demand." This broad definition encompassed frequent events such as sporting events, musical concerts, summer-long event series and seasonal tourist venues as well as infrequent events such as national conventions, international summits, parades, fairs and others.

Event examples cited by survey respondents ranged in size from 1,000 to 1.7 million patrons, in duration from a few hours to several months and in scope of impact from local to multi-state. This breadth in event size, duration and impact combined with the dynamic nature of special events challenges the ability to concisely categorize special events into groups that share

common characteristics and present similar challenges in planning and management and subsequently challenges the ability to develop uniform procedures for special event planning and management.

While the categorization of special events in this *Synthesis Report* was based on the frequency of the event, the diversity of special events would allow many different classifications. Events may be categorized as to the type of venue (e.g., fixed or temporary, single or multiple) or by the event time and duration, scope of impact, and even area type (rural or urban). Because of the noted variability in special event type, no two events are identical and therefore must be planned and managed independently.

STAKEHOLDERS

Primary stakeholders in the special event planning and management process included law enforcement, fire departments, transportation departments, the media, event organizers, planning and political bodies and the military. In all, 29 different stakeholders were identified as having a potential role in the special event planning and management process. Agency and jurisdictional involvement varied by size, type and location of the event. As noted previously, special events are often unique with respect to their characteristics such as size, type and location. As such a fixed, pre-defined set of stakeholders cannot be defined. The list of stakeholders provided in this *Synthesis Report* represents only a good starting place for potential stakeholder involvement. For example, stakeholders related to event security became more critical following the events of September 11, 2001.

Despite the significant number of stakeholders that could be involved in the special event

planning and management process, relatively consistent interaction among the key stakeholders was reported. A "champion" was nearly always responsible for ensuring this interaction though the affiliation of the champion varied across responses. The affiliation of the champion also varied depending on the size, type and location of the special event, with the most common being department of transportation personnel, the event organizers and law enforcement. The most common forum for interaction between all stakeholders was reported as interagency/inter-jurisdictional pre- and post-event meetings.

TOOLS AND TECHNIQUES

An extensive array of special event planning and management tools and techniques are reportedly in use or planned for use. In nearly all cases, a combination of tools and techniques are employed that address: (1) motorist information, (2) traffic management and (3) travel demand management needs.

Common motorist information tools and techniques include variable message signs, highway advisory radio, media partnerships and pre-event informational campaigns. Variable message signs and highway advisory radio provide excellent means to communicate with motorists on the road during ingress and egress periods. Pre-event informational campaigns provide means to inform motorists prior to a special event when they can make the most critical changes to their travel plans. Media partnerships can be used for both pre-trip and en-route information dissemination with television and print media providing pre-trip information and radio providing en-route information.

Predominant traffic management tools and techniques include the use of traffic control devices,

patrols, electronic surveillance, signalization and geometric modifications. Common traffic control devices include traffic cones, portable traffic signs, and portable traffic signals. Many different types of patrols such as law enforcement motorcycle patrols, law enforcement service patrols, non-law enforcement service patrols, traffic management teams and aircraft patrols are used, each with a different level of authority, mobility, and coverage area. Electronic loop detection, video and closed-circuit television and traffic management centers make up the electronic surveillance tools. Signalization techniques used include signal systems that have programmed timing plans, traffic-responsive signal systems that allow dynamic adjustment of timing plans, and ramp metering for freeway use. Common geometric modifications include temporary lane closures, reversible or contraflow lanes or even major capacity improvements such as adding lanes, building new roads, or installing additional interchanges or intersections.

Travel demand management tools and techniques most commonly are categorized as economic or preferential incentives and disincentives for alternate mode use and alternate travel times, alternate routes, parking strategies and major transit improvements. Economic incentives for alternate mode use include charging different parking rates for SOV and HOV. Preferential incentives for alternate mode use include having HOV lanes or simply improving access for people who ride a bicycle or walk. Parking strategies include parking management systems to monitor parking vacancies to reducing trolling times or park-n-ride lots to simply reduce the need for on-site parking and reduce the overall demand near the event site. Major transit improvements include adding additional ticket lines and booths at transit terminals or actually adding transit stations near the event venue.

SUPPORTING GUIDANCE DOCUMENTATION

Limited formal guidance documentation to support special event planning and management was uncovered; only seven states responded affirmatively that they have such formalized guidance. Of those that did respond affirmatively and provided examples, differences were noted in the content and focus of the guidance documents depending on the lead development agency. Law enforcement-initiated documents focused more general public safety and enforcement duties and less on traffic control activities during special event times. The most common motivation for the creation of such guidance documentation was the need to better coordinate resources, which helps eliminate redundancy and confusion. The stakeholders who helped in the creations of these documents were typically from either transportation or law enforcement agencies. One important aspect uncovered was the need for updatability and flexibility. Special events are dynamic and changing conditions may create unforeseen traffic problems.

EFFECTIVENESS OF CURRENT EFFORTS

Efforts to quantitatively evaluate the effectiveness of special event planning and management activities have been limited; only one survey respondent out of 36 indicated that formal performance measures were pre-defined to evaluate efforts. Only eight survey respondents reported collecting data in support of planning and management efforts. For larger scale events, the use of traffic simulation was not uncommon.

Qualitative assessments of special event planning and management efforts were easier to obtain. When considering their own agency's performance, the majority of respondents indicated being satisfied with their agency's level of effort towards special event planning and management.

Externally, the common challenge expressed related to communication and cooperation with other stakeholders. This common theme stresses the need to develop formal interagency communication, establish communication protocols and develop formalized guidance documentation.

FUNDING SOURCES

Common sources of funding for special event planning and management at the federal level include the Congestion Mitigation and Air Quality Improvement Program (CMAQ), the Federal Transit Administration (FTA) and the Federal Highway Administration (FHWA). At the state level, the most common funding source cited by survey respondents for special event planning and management was from state departments of transportation. Transportation department operating budgets have been used to support personnel, traditional traffic control devices and equipment such as variable message signs (VMS). Transportation department operating budgets have also reportedly been used to provide 20 percent matching funds for CMAQ and FTA grants. Private partners and event organizers also provide funding for planning and managing special events, though at varying levels. At the lowest level, an event organizer may be required to pay permit fee to cover the cost of reviewing the event request and issuing the permit. In other instances, event organizers may be responsible for all or a portion of the special event costs.

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APPENDIX A

SURVEY QUESTIONNAIRE

NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM
Project 20-5/Topic 32-09

TRANSPORTATION PLANNING AND MANAGEMENT FOR SPECIAL EVENTS

Survey Questionnaire

The National Highway Institute (1988) defines a special event as an occurrence that "abnormally increases traffic demand" (unlike an incident or construction/maintenance activities that typically restrict the roadway capacity). Under this definition, special events may include such things as sporting events, parades, national conventions, international summits, music festivals, fairs and other planned events. For this investigation, special events are categorized as: (1) frequent events such as professional sporting events and (2) infrequent events such as the Olympics. **Note: this investigation does not consider unplanned events such as natural disaster evacuations that also may increase traffic demand.**

Special events challenge the ability of transportation agencies to provide acceptable levels of mobility and safety to the motoring public. As such, the National Cooperative Highway Research Program (NCHRP), as part of its Synthesis series (Project 20-5/Topic 32-09), is conducting this survey to identify and summarize the state of the practice in the transportation-related planning and management of special events.

Please assist us in this endeavor by completing this survey or passing this survey along to an appropriate individual within your agency. Return your completed survey questionnaire **NO LATER THAN JULY 31, 2001** by:

(1) email (if you received it electronically) to JodiC@ce.montana.edu

(2) fax (406) 994-6105 or

(3) mail, along with any attachments, to:

Dr. Jodi L. Carson
Department of Civil Engineering
214 Cobleigh Hall
Montana State University-Bozeman
Bozeman, MT 59717

If you have any questions related to the distribution of this survey or about the survey content, please contact Dr. Carson at (406) 994-7998 or at JodiC@ce.montana.edu.

TELL US ABOUT YOURSELF

Name/Title _____

Agency/Division _____ Telephone _____

Street Address _____ Fax _____

Town/State/Zip _____ E-mail _____

1. Is there someone else, either within your agency or in another agency or jurisdiction, who is actively involved in the planning or management of special events that we should contact? ❑ Yes ❑ No

   ➥If yes, please provide contact information._____

   _____

2. Approximately how many Full-time Equivalents (FTEs) are dedicated to planning or managing special events within your agency?_____

WHAT TYPES OF SPECIAL EVENTS DO YOU ENCOUNTER?

3. What types of special events has your agency been involved in planning or managing in the last year (January 1 – December 31, 2000)? Comment on the size, time of day, duration and scope of impact.

FREQUENT EVENTS (e.g., Sporting Events, Concerts)

Event Description	Size (Attendees)	Time of Day and Duration	Scope of Impact (Local, Regional, Statewide)
Example: Mariners Games	*35,000*	*7-10 PM ~4 days/week April-September*	■ L ❑ R ❑ S
_____	_____	_____	❑ L ❑ R ❑ S
_____	_____	_____	❑ L ❑ R ❑ S
_____	_____	_____	❑ L ❑ R ❑ S
_____	_____	_____	❑ L ❑ R ❑ S
_____	_____	_____	❑ L ❑ R ❑ S
_____	_____	_____	❑ L ❑ R ❑ S

INFREQUENT EVENTS (e.g., International Summits, Parades)

Event Description	Size (Attendees)	Time of Day and Duration	Scope of Impact (Local, Regional, Statewide)
Example: Winter Olympics	*500,000*	*All day ~3 weeks*	❑ L ❑ R ■ S
_____	_____	_____	❑ L ❑ R ❑ S
_____	_____	_____	❑ L ❑ R ❑ S
_____	_____	_____	❑ L ❑ R ❑ S
_____	_____	_____	❑ L ❑ R ❑ S

4. Have there been any particularly notable special events in the last 5 years that your agency has been involved in planning or managing? Comment on the size, time of day and duration and scope of impact.

_____

_____

5. Is there a particular special event planned and managed by your agency that you would suggest as a case study for this investigation? Please describe. _____

_____

WHO DO YOU INTERACT WITH?

6. Who do you regularly interact with when planning or managing special events? Comment on the role, jurisdiction and formality of this interaction. If ❑ Other, please explain.

Agency/ Organization	Role in Special Event Planning	Jurisdiction or Coverage Area	Interaction (Informal, Written, Other)
Example: State Police	*Public safety, crowd control, limited traffic control*	*All interstates and state highways*	❑ I ■ W ❑ O
			❑ I ❑ W ❑ O
			❑ I ❑ W ❑ O
			❑ I ❑ W ❑ O
			❑ I ❑ W ❑ O
			❑ I ❑ W ❑ O
			❑ I ❑ W ❑ O
			❑ I ❑ W ❑ O

7. How consistent is this interaction among agencies/organizations?

Frequent Events	❑ Very	❑ Somewhat	❑ Not at all
Infrequent Events	❑ Very	❑ Somewhat	❑ Not at all

8. Does someone typically take the lead on coordinating agency/organization interaction? ❑ Yes ❑ No

➥If yes, who? _____

9. Do you have provisions for sharing personnel and equipment among agencies/organizations and/or jurisdictions? ❑ Yes ❑ No

10. Are interagency meetings held to assess the success of current practices and to address any problems that may arise? ❑ Yes ❑ No

➥If yes, how often? ❑ Monthly ❑ Annually ❑ Bi-Annually ❑ Other _____

WHAT TOOLS OR TECHNIQUES DO YOU USE?

11. From the list of available tools or techniques, please indicate which are planned or currently used for planning or managing special events.

MOTORIST INFORMATION

Planned or Currently Used		Tools or Techniques
❑ P	❑ CU	Highway Advisory Radio (HAR)
❑ P	❑ CU	Variable Message Signs (VMS)
❑ P	❑ CU	Media Partnerships
❑ P	❑ CU	Pre-event Informational Campaigns
❑ P	❑ CU	Other_____

TRAFFIC MANAGEMENT

Planned or Currently Used		Tools or Techniques	
❑ P	❑ CU	Law Enforcement Motorcycle Patrols	
❑ P	❑ CU	Law Enforcement Service Patrols	
❑ P	❑ CU	Non-Law Enforcement Service Patrols	
❑ P	❑ CU	Traffic Management Teams	
❑ P	❑ CU	Aircraft Patrols	
❑ P	❑ CU	Electronic Loop Detection	
❑ P	❑ CU	Video and Closed-circuit TV	
❑ P	❑ CU	Traffic Management Centers	
❑ P	❑ CU	Traffic Cones	Traffic Control Devices
❑ P	❑ CU	Portable Static Signs	
❑ P	❑ CU	Portable Traffic Signals	
❑ P	❑ CU	Temporary Lane Closures	
❑ P	❑ CU	Reversible Lanes/ Movable Barriers/Temporary Contraflow	
❑ P	❑ CU	Traffic Responsive Signal Systems	
❑ P	❑ CU	Ramp Metering	
❑ P	❑ CU	Major Capacity Improvements (e.g., street widening)	
❑ P	❑ CU	Other _____	

TRAVEL DEMAND MANAGEMENT

Planned or Currently Used		Tools or Techniques
❑ P	❑ CU	Economic or Preferential Incentives for Walking/Biking
❑ P	❑ CU	Economic or Preferential Incentives for Ridesharing
❑ P	❑ CU	Economic or Preferential Incentives for Public Transportation
❑ P	❑ CU	Park-n-Ride Lots
❑ P	❑ CU	Parking Management
❑ P	❑ CU	Auto-restricted Zones
❑ P	❑ CU	Alternative Travel Hours Incentives/Congestion Pricing
❑ P	❑ CU	Alternate Routes
❑ P	❑ CU	Major Transit Improvements (e.g., subway line extension)
❑ P	❑ CU	Other_____

WHAT TOOLS OR TECHNIQUES DO YOU USE? (CONTINUED)

12. How consistently are these tools and techniques used for similar special event conditions (i.e., are variable message signs always used for medium-sized, medium-duration, frequent events)?

Frequent Events	❑ Very	❑ Somewhat	❑ Not at all
Infrequent Events	❑ Very	❑ Somewhat	❑ Not at all

13. Are any formal coordination or communication protocols, such as the Incident Command System (ICS), used to assist in the coordination of interagency field personnel during special events? ❑ Yes ❑ No

➥If yes, who has been formally trained to use this protocol? _____

14. Do your tools and techniques accommodate both special event arrival and departure traffic (i.e., moving people into and out of the area)? ❑ Yes ❑ No

HOW FORMALIZED ARE THESE TOOLS AND TECHNIQUES?

15. Has the use of these tools or techniques been formally documented in an Operations or Response Guide? ❑ Yes ❑ No

➥If yes, may we get a copy?

➥ If yes, what motivated the development of this guide? _____

_____

➥ If yes, who was involved in the development of this guide?

❑ State Dept. of Transportation	❑ County Public Works Dept.	❑ Local Public Works Dept.
❑ State Police	❑ County Police	❑ Local Police
❑ Local Transit Authority	❑ Event Organizers	❑ Other _____

➥If yes, who regularly uses this guide in day-to-day operations?

❑ State Dept. of Transportation	❑ County Public Works Dept.	❑ Local Public Works Dept.
❑ State Police	❑ County Police	❑ Local Police
❑ Local Transit Authority	❑ Event Organizers	❑ Other _____

➥If yes, is this guide regularly updated? ❑ Annually ❑ Bi-Annually ❑ Monthly ❑ Other_____

16. Has the use of these tools or techniques been mandated by agency policy or State or Federal law?

Agency Policy	❑ Yes	❑ No
State or Federal Law	❑ Yes	❑ No

➥If yes, may we get a copy?

HOW EFFECTIVE ARE YOUR EFFORTS?

17. Does your agency currently collect and archive data such as traffic speeds, volumes, crashes, etc. prior to and/or during special events? ❑ Yes ❑ No

    ➥If yes, what data do you collect? _____

18. Does your agency use traffic simulation to estimate the transportation-related impacts of special events?

Frequent Events	❑ Frequently	❑ Sometimes	❑ Rarely
Infrequent Events	❑ Frequently	❑ Sometimes	❑ Rarely

19. Does your agency currently have performance measures defined by which you measure the success of special event planning and management? ❑ Yes ❑ No

    ➥If yes, what are these performance measures? _____

    _____

20. Has your agency conducted any surveys to assess the public's perception of the planning or management of special events? ❑ Yes ❑ No

    ➥If yes, may we get a copy of the results?

21. On a scale from 1 to 5, with 5 being proactive and 1 being reactive, how would you classify your agency's response to the traffic planning and management needs of special events? _____

22. In your opinion, how satisfied are you with your agency's special event planning and management efforts? ❑ Satisfied ❑ Somewhat Satisfied ❑ Not Satisfied

23. In your opinion, what challenges successful special event planning or management within and external to your agency?

    Within Your Agency _____

    _____

    _____

    _____

    _____

    External to Your Agency _____

    _____

    _____

    _____

    _____

HOW ARE YOUR EFFORTS FUNDED?

24. Where has your agency obtained funding for planning or managing special events? Please list specific sources of funding when possible and describe in general terms what the funds were used for.

Funding Agency/Organization	Funding Source	Use/Application
Example: ■ *Federal Highway Administration*	*Congestion Mitigation and Air Quality*	*Variable Message Signs and Highway Advisory Radio*
❑ Federal Highway Administration		
❑ Federal Transit Administration		
❑ State Department of Transportation		
❑ County Public Works Department		
❑ Local Public Works Department		
❑ Private Partners/Event Organizers		
❑ Other		

25. Has your agency applied for and/or obtained special funding for the planning or management of large-scale, infrequent special events? ❑ Yes ❑ No

➥If yes, please describe. _____

26. Has your agency applied for and/or obtained special funding to deploy advanced technologies (e.g., ITS) for the planning or management of special events? ❑ Yes ❑ No

➥If yes, please describe. _____

Thank you very much for your assistance.

APPENDIX B

CONTACT LIST

States				
Alabama	Hawaii	Massachusetts	New Mexico	South Dakota
Alaska	Idaho	Michigan	New York	Tennessee
Arizona	Illinois	Minnesota	North Carolina	Texas
Arkansas	Indiana	Mississippi	North Dakota	Utah
California	Iowa	Missouri	Ohio	Vermont
Colorado	Kansas	Montana	Oklahoma	Virginia
Connecticut	Kentucky	Nebraska	Oregon	Washington
Delaware	Louisiana	Nevada	Pennsylvania	West Virginia
Florida	Maine	New Hampshire	Rhode Island	Wisconsin
Georgia	Maryland	New Jersey	South Carolina	Wyoming
Provinces				
Alberta	New Brunswick	Nova Scotia	Prince Edward Island	Yukon
British Columbia	Newfoundland	Nunavut	Quebec	
Manitoba	Northwest Territories	Ontario	Saskatchewan	
Cities & Counties				
Denver	Kansas City	King County	Maricopa County	Nashville
Oklahoma City	Portland	Spokane	Spokane County	

MPOs
Adirondack-Glens Falls Transportation Council
Association of Monterey Bay Area Governments
Berkeley-Charleston-Dorchester Council of Governments
Binghamton Metropolitan Transportation Study
Bloomington Area Transportation Study
Brooke-Hancock Planning & Development Council
Cape Cod Metropolitan Planning Organization
Charlotte County-Punta Gorda Metropolitan Planning Organization
Chittenden County Metropolitan Planning Organization
Corpus Christi Metropolitan Planning Organization
Evansville Urban Transportation Study
Evansville Urban Transportation Study
Genesee Transportation Council
Grand Stand Area Transportation Study Policy Committee
Greater Buffalo-Niagara Regional Transportation Council
Indian Nations Council of Governments
Ithaca-Tompkins County Trans. Council
Lee County Metropolitan Planning Organization
Lewiston-Auburn Comprehensive Transportation Study (LACTS)
Lexington-Fayette Urban County Government
Metropolitan Transportation Commission-San Francisco

Miami-Dade County Metropolitan Planning Organization
Middle Rio Grande Council of Governments
Northwest Alabama Council of Local Governments
Oahu Metropolitan Planning Organization
Poughkeepsie-Dutchess County Transportation Council
South Alabama Regional Planning Commission
South Eastern Council of Governments
Stanislaus Area Association of Governments
Texoma Council of Governments
Tulare County Association of Governments
Wilmington Area Planning Council (WILMAPCO)

APPENDIX C

IMPLEMENTATION & TRAFFIC CONTROL PLAN FROM NEW HAMPSHIRE DEPARTMENT OF TRANSPORATION

SUNRISE: 5:26 A.M.
SUNSET: 8:18 P.M.

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N.H.I.S. 2001
I-93 "BORROW-A-LANE"
IMPLEMENTATION & TRAFFIC CONTROL PLAN
"NEW ENGLAND 300"
WINSTON CUP RACE
RACE - 300 LAPS
SUNDAY, July 22, 2001
RACE STARTS: 2:05 P.M.
RACE OVER: 5:20 P.M. + OR -

June 22, 2001
REVISED July 12, 2001

STATE AGENCY	PERSONNEL	DATE/TIME	T.C.P. SCHEDULE
Turnpikes District 5		Wednesday Thursday July 18 & 19	1. Erect Borrow-A-Lane signs into the Quick-Punch Post and Base System at right angles to the normal direction of traffic on I-93 and related ramps. 2. Place reflectorized delineator barrels in front of fixed end objects on the right and left sides of the Borrow-A-Lane facing southbound traffic on the northbound lane through the Borrow-A-Lane section of I-93.
Traffic District 5 Turnpikes	-	Wednesday July 18 Prior to 12:00 Noon	25 variable message boards delivered to the Bureau of Traffic, allowing for programming of messages. Radio test, use Race Ops Turnpikes C as primary and Race Ops Turnpikes B as back up.
Turnpikes District 5 State Police Bridge Maintenance		Thursday July 19 5:30 AM	Set up temporary lane closures for both the northerly and southerly Borrow-A-Lane cross-overs. Move the portable concrete barrier from the cross-overs and store in the median, adjacent to the existing median guard rail. **Note: All concrete barrier to be pinned together while being stored.** Place portable impact attenuator barrels to protect the leading face of the concrete barriers. Place 42" delineator tube channelizing devices every 3 feet on center line of median through the open Borrow-A-Lane cross-overs. 110 tubes on each cross – over
Turnpikes H-298 H-294		Thursday July 19 7:30 AM.	Set three (3) Variable Message Boards (V.M.B. No. 22, 23 & 10) 1. I-93 "Northbound" - 1 Mile South of the Southerly "Borrow-A-Lane" Crossover 2. I-89 "Southbound" - 1/4 Mile prior to the I-93 Northbound On Ramp **V.M.B. NO. 22 & 23** | **N.H.I.S. RACE July 22** | → | **EXPECT DELAYS SUNDAY** | → | **ONE LANE N.B. 3:10 11:00 PM** 3. Set VMB No. 10, Southbound I-93, North of Exit 16 **NO 10** | **N.H.I.S RACE July 22** | → | **EXPECT DELAYS SUNDAY** | → | **4:10 PM TO 11:00 PM**
District 5		Thursday July 19 7:30 AM	Move all variable message boards from the Bureau of Traffic to their required locations, level trailers and check fuel, oil and belts, run engine and check V.M.B. computer program for proper sign message.

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STATE AGENCY	PERSONNEL	DATE/TIME	T.C.P. SCHEDULE
Turnpikes District 5	-	Saturday July 21	Day open to complete sign erection and opening Borrow-A-Lane cross-overs, if required.
District 5		Sunday July 22 4:30 AM	Turn quick punch signs on I-93, Exit 15E and place 10 temporary R.P.M.'s.
Turnpikes		Sunday July 22 4:30 AM	7 Maintenance Personnel and 2 Maintenance Supervisors Report to the Turnpikes Hooksett Maintenance for Roadway Assignments. Kevin O'Neil Ray Brasley Mike Mead Ed Sisk Dave Ross Vinnie Benincasa Bernd Huber Shaun Eliott
Turnpikes District 5 H-294 H-306		4:45 AM	Start showing message on V.M.B. No. 8, Northbound, north of Exit 13. **V.M.B. NO. 8** | **SPEEDWAY RIGHT LANE** | **USE EXIT 15E** | **TWO LANE RAMP** Optional message, to be used should traffic back-up during the AM, Northbound I-93. **NO. 12 22 & 23** | **SLOW MOVING TRAFFIC** | **AHEAD** | **BE PREPARED TO STOP**
Turnpikes District 5 H-294		4:55 AM	Start showing message on V.M.B. No. 20 on I-393 Eastbound **V.M.B No. 20** | **Exit-1 CLOSED** | **USE EXIT-2** | **TO FORT EDDY ROAD**
District 5 State Police		5:00 AM	I-93 Exit 15E two unobstructed travel lanes to I-393 Eastbound Establish a right travel lane closure on I-393 Eastbound beginning at the Gore Point of I-393 Eastbound to I-93 Northbound, ending at the gore for Exit 15E. Set Exit-2 detour signs.

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STATE AGENCY	PERSONNEL	DATE/TIME	T.C.P. SCHEDULE
District 5		5:00AM	Close the I-393 Eastbound Exit-1 "Off" Ramp to Fort Eddy Road. Detour traffic to Exit-2
District 5		5:00 AM	Close the I-93 Northbound "On" Ramp from Loudon Road at Exit 14. Detour "On" Ramp traffic to I-393 Exit-1 to I-93 Northbound via Fort Eddy Road.
District 5		5:00 AM	Start showing message on V.M.B. No. 19 for the I-93 Northbound "Off" 15-E Ramp. **No. 19** **RAMP TRAFFIC** → **FORM 2 LANES**
District 5		5:00 AM	Establish 2 Lanes of Traffic on the I-93 Northbound "Off" 15E Ramp to I-393 Eastbound
Turnpikes H-298 H-1520		7:35 AM	Move 4 arrow boards to the required locations at the southerly Borrow-A-Lane cross-over (see Borrow-A-Lane layout plans) (setup; **run on bar mode only**).
District 5		9:00 AM	I-393, Exit 15, Two lane ramp temporary pavement marking tape and temporary raised pavement marker installation 1. Place black-out tape on the existing white gore markings. 2. Establish the second lane entering the two lane ramp with temporary white pavement marking tape. 3. Place white temporary raised pavement markers on center line of the two lane ramp.
District 5 State Police		11:00 AM	1. Shut down and secure V.M.B. No. 19. 2. Open the I-393 Eastbound Exit-1 "Off" ramp to traffic. 3. Open the I-93, Exit 14 Northbound "On" Ramp from Loudon Road to traffic. 4. Remove the I-393 Eastbound Lane Closure. 5. Remove the I-393 Exit-2 and Fort Eddy Road detours. 6. Shut down and secure V.M.B. No. 20. 7. Shut down V.M.B. 8 & 12. 8. Remove optional message from V.M.B. 22 & 23 and change back to original message. 9. Reestablish the I-93 Northbound "Off" 15-E Ramp to a single lane traffic pattern. 10. Turn quick punch signs on 15E at right angles to traffic.
Turnpikes H-294 District 5		11:00 AM	Move V.M.B. No. 20 on I-393 Eastbound to V.M.B. No. 20A location on I-393 Westbound Move V.M.B. No. 19 on I-93 Exit 14 Ramp. To V.M.B. No 19 -A location on I-93 Southbound, South of Ramp 15E
District 5		11:30 AM	Two 3 man D.O.T. sign crews report to the Turnpikes Hooksett Maintenance Facility

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State Police	-	12:30 PM	2 NH State Troopers report to the Turnpikes Hooksett Maintenance Facility.
District 5 State Police		12:45 PM	Begin turning Borrow-A-Lane signs on "Quick Punch" sign post (facing traffic) on interchange ramps (I-89, Exits 12, 13, 14, 15 & 16). **Utilize 2 NH State Troopers and Two 3 Man D.O.T. Sign Crews.**
Turnpikes District 5		1:00 PM	19 Additional Maintenance Personnel Report to the Turnpikes Hooksett Maintenance Facility.
Turnpikes District 5 State Police		1:30 PM	The 2 NH State Troopers previously reporting at 12:30 PM and 5 additional NH State Troopers including all Highway Maintenance Personnel, report to the Turnpike Hooksett Maintenance Facility. State Police briefing. Topics to include placement of N.H. State Police at Exits 12, 13, 14 & 15 & Northerly and Southerly crossovers and use of blue lights.
District 5 State Police		2:00 PM	Begin turning Borrow-A-Lane signs (facing traffic) on I-93 northbound and southbound. Utilize 2 NH State Troopers and two 3 Man D.O.T. Sign Crews. **Do not turn the Northbound median signs between the Northerly and Southerly cross-overs at this time** **SEE: 3:10 PM Page 5**
Turnpikes State Police		2:30 PM	1. Set 28" traffic cones for the Northbound Lane Closure, closing lane #3 (NB median lane) for the Southerly Borrow-A-Lane Cross-Over. Start the 3 required Arrow Boards. **Note: Utilize 1 NH State Trooper with cruiser and 1-3 man D.O.T. crew with pick-up truck.** 2. Set 28" Traffic Cones on the Southbound Lane, closing lane #3 (SB median lane) from the I-89 Interchange to the Southerly Borrow-A-Lane Cross-Over. **Note: Utilize 1 NH State Trooper with cruiser and 1-3 man D.O.T. crew with pick-up truck.**

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Turnpikes#1 H-1177 District 5 #2 H-589 State Police		2:50 PM	Place 42" delineator tubes on painted layout points through the southerly Borrow-A-Lane cross-over. **Note: 2 lane traffic northbound remains in effect until 3:10 PM.**
Turnpikes or District 5		3:05 PM	Start showing message on V.M.B. No. 12 Northbound located at the southerly Borrow-A-Lane cross-over. **NO. 12** | **LEFT LANE CLOSED** | → | **2 WAY TRAFFIC** | → | **NEXT 5 MILES**
Turnpikes District 5 State Police		3:10 PM #1 Truck #2 Truck	1. Verify V.M.B. No. 12 is showing the correct message. 2. Begin placing 42" channelizing devices on the northbound Borrow-A-Lane broken white line at the beginning point on every third broken white line continuous to the northerly Borrow-A-Lane cross-over. Note: Place 42" channelizing devices on a 25 foot maximum spacing extending past the Northbound I-89 CD Ramp to prevent left turn movements on the Borrow-A-Lane. 3. 2 D.O.T. trucks placing 42" channelizing devices to be escorted by **two NH State Trooper**. 4. 2 D.O.T. sign crews to turn the Northbound median signs behind the 42" delineator tube placement
Turnpikes or District 5		4:00 PM	Change message on V.M.B. No. 8 on I-93 Northbound, north of Exit 13 to read: **NO. 8** | **EXIT 15W CLOSED** | → | **USE EXIT 14** | → | **TO NO. MAIN STREET**

H-1177 # 1 Leaves First - 78 Tubes Need to Stay on Truck for Southbound Duel Lane Ramp.

Tube Trucks

~~H-589 # 2~~

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Turnpikes or District 5		4:00 PM	Start showing message on V.M.B. No. 11-A, on Fort Eddy Road, Closing the I-393 "On" Ramp Westbound					
			NO. 11-A	**I-393 ON RAMP**	→	**TO I-93 CLOSED**		
Turnpikes District 5 H-294		4:10 PM	**APPROXIMATELY 4:10 PM OR NOT PRIOR TO 100 LAPS REMAINING IN THE LAST RACE**					
			Start showing messages on the 5 V.M.B.'s at the northerly Borrow-A-Lane cross-over located on I-93 Southbound (V.M.B.'s 10, 13, 14, 15 & 16).					
			V.M.B 10, 13 & 16 located I-93 Southbound - North of Exit -16 V.M.B. 14 & 15 located I-93 Southbound - South of Exit - 16					
			Note: change Message on V.M.B. No. 10 to read the Following					
			NO. 10	**EXIT 15E CLOSED**	→	**USE EXIT 16 TO I-393**		
			NO. 13 & 14	**CAUTION DETOUR AHEAD**	→	**THRU TRAFFIC ANY LANE**	→	**CONCORD AND I-89 RT. LANE**
			NO. 15	**CONCORD BOW EXITS**	→	**TO I-393 AND I-89**	→	**KEEP RIGHT**
			NO. 16	**EXPRESS LANE I-93 TO**	→	**HOOKSETT TOLL ONLY**	→	**KEEP LEFT NO EXITS**

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District 5		4:15 PM	1. Close 15W Northbound "Off" Ramp. 2. Close Southbound "On" Ramp from I-393 Eastbound to I-93 Southbound (Stickney Avenue). 3. Close Exit 1 (I-393) Westbound "On" Ramp from Fort Eddy Road.
Turnpikes State Police		4:20 PM	1. Verify V.M.B.'s No. 10, 13, 14, 15 & 16 are showing correct messages. 2. **One NH State Trooper** with cruiser and two D.O.T. Maintenance personnel with pick-up truck to clear the southbound Borrow-A-Lane of possible northbound traffic and assure placement of channelizing devices.
State Police		4:30 PM	Establish a State Police rolling road block (**two NH State Troopers with cruisers**) Southbound I-93, north of Exit 16. The exact location to begin the rolling road block is dependent on Southbound I-93 traffic volumes. The exact location and time to begin the rolling road block will be coordinated between NH State Police and the D.O.T. prior to implementation.
Turnpikes District 5 State Police H-294		4:30 PM	1. Place 42" channelizing devices on the painted layout points across the Merrimack River Bridge Southbound I-93 and through the northerly Borrow-A-Lane cross-over. 2. Start showing message on V.M.B. No. 9 on I-93 Southbound, located north of Bridge No. 46, Fan Road. **V.M.B. NO. 9** | **EXIT 14 CLOSED** | → | **USE EXIT 15W** | → | **TO NO. MAIN STREET**

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<tr><th>STATE AGENCY</th><th>PERSONNEL</th><th>DATE/TIME</th><th>T.C.P. SCHEDULE</th></tr>
<tr><td>District 5</td><td></td><td>4:30 PM</td><td>Close the following ramps to traffic:

1. Exit 14 Southbound "Off" Ramp
2. Exit 15E Southbound "Off" Ramp</td></tr>
<tr><td></td><td></td><td></td><td>Ramp closures will be established with 27" traffic cones placed on painted layout points 10 feet off the travel way.</td></tr>
<tr><td>District 5
State Police</td><td></td><td>4:30 PM</td><td>Begin placing channelizing devices southbound from the northerly Borrow-A-Lane cross-over, shifting southbound traffic from the right travel lane onto the left passing lane through the I-393 Exit 15 Interchange. Note: 36" traffic cones will be utilized from the northerly Borrow-A-Lane cross-over to the I-393 Bridge.
42" delineator tubes will be utilized from the I-393 Bridge - southerly, separating the I-93 southbound traffic from traffic merging at the I-393 dual lane ramp.
Note: Utilize 50 delineator tubes and place on the lead end and 10 feet beyond each broken white line.</td></tr>
<tr><td>Turnpikes or
District 5</td><td></td><td>4:35 PM</td><td>Start showing message on V.M.B. No. 19 -A on I-93 Southbound, located south of Ramp 15E.

NO. 19-A | 2 LANE TRAFFIC | → | MERGE LEFT | → | WITH THRU TRAFFIC</td></tr>
<tr><td>District 5
Turnpikes
State Police</td><td></td><td>4:40 PM</td><td>After receiving radio verification the Borrow-A-Lane is unobstructed and all channelizing devices are in place, the State Police rolling road block will lead the first motorists through the Borrow-A-Lane Southbound.</td></tr>
</table>

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Turnpikes or H-294 District 5 State Police		4:45 PM	1. Start showing messages on the 2 V.M.B.'s on I-393 westbound located east of the dual lane ramp.
			NO 20A | **I-93 SOUTH** | → | **FORM 2 LANES** | → | **THRU TRAFFIC KEEP LEFT**
			NO 21A | **FORM 2 LANES** | → | **I-93 SOUTH** | → | **2 LANE RAMP**
			2. Lower the "2 Lane Ramp" signs on the two I-393 Westbound overhead sign structures.
Turnpikes District 5		5:00 PM	**NOTIFY HOOKSETT TOLL THAT THE I-93 BORROW-A-LANE IMPLEMENTATION COMPLETE**
			SUNSET 8:18 P.M.
		Approximately 9:30 PM	Southbound traffic will remain on the Borrow-A-Lane with all traffic control devices in place until approximately 9:30 to 10:00 PM or until **Southbound I-93 Traffic Volumes Decrease.**
District 5 State Police		Approximately 9:30 PM	Change the I-393 two lane ramp back to a single lane traffic condition. 1. Raise and secure the "2 Lane Ramp" signs on the two I-393 Westbound overhead sign structures. 2. Shut down and secure V.M.B.'s No. 20A and 21A. 3. Remove temporary black out tape and temporary white two lane pavement marking tape. 4. Remove temporary raised pavement marker on the two lane ramp. 5. Open Exit 15W Northbound "Off" Ramp 6. Open Exit - 1 (I-393) Westbound "On" ramp from Fort Eddy Road
Turnpikes		9:35 PM	Verify by radio - the dual lane ramp at Exit-15 is back to a single lane traffic condition.
District 5 Turnpikes State Police		9:35 PM	**Establish a State Police rolling road block utilizing a 2 NH State Troopers with cruisers**, Southbound I-93, north of Exit-16. Begin the rolling road block at the same location as agreed at 4:30 PM to set up the northerly Borrow-A-Lane cross-over. Confirm by radio.

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STATE AGENCY	PERSONNEL	DATE/TIME	T.C.P. SCHEDULE
Turnpikes District 5 State Police		9:40 PM With Crew With Crew	When the State Police rolling road block creates a break in Southbound traffic, immediately perform the following: 1. Remove all remaining channelizing devices on I-93 Southbound including devices on the Merrimack River Bridge and the southbound section of the northerly Borrow-A-Lane cross-over. 2. Place 42" channelizing devices every 3 feet, on centerline of median through the open cross-over. 3. Remove all channelizing devices on I-93 Southbound closing lane 3 South of the I-89 Interchange, beginning at the Merrimack River Bridge, remove channelizing devices through the Exit - 15 Interchange southbound. **Note: Utilize 3-3 man D.O.T. crews with pick-up trucks and 1-5 man D.O.T. crew with tube truck.** 4. Remove channelizing devices from the Southbound lanes at the Southerly Borrow-A-Lane cross-over. **Note: Utilize 1 NH State Trooper with cruiser and 1-5 man D.O.T. crew with pick-up truck.** 5. Turn all "Quick-Punch" signs, right angles to traffic, indicating the Southbound lane shift. **NOTE: Utilize 1 NH State Trooper with cruiser and 1-3 man D.O.T. crew with pick-up truck.**
District 5		9:40 PM	Open the following ramps to traffic and remove 27" traffic cones. 1. Exit 14 Southbound "Off" Ramp 2. Exit 15E Southbound "Off" Ramp 3. Southbound "On" Ramp from I-393 Eastbound to I-93 Southbound (Stickney Ave.)
Turnpikes District 5		9:45 PM	Verify by radio, all ramps are re-opened to traffic. Shut down and secure V.M.B.'s in the following order: No. 10, 13, 14, 15, 16, 9, 19-A, 8 and 11-A
Turnpikes District 5		9:55 PM	Verify by radio - all channelizing devices have been removed from the Southbound lanes.

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State Police		9:55 PM	State Police rolling road block to lead Southbound I-93 traffic back on to the normal southbound traffic pattern.
		10:00 PM	**Southbound traffic is off the Borrow-A-Lane and back on the normal southbound traffic pattern.**
District 5 State Police		10:10 PM	3-Man D.O.T. Crew with pickup and 1 NH State Trooper with cruiser to travel south on the Borrow-A-Lane and turn all Southbound Borrow-A-Lane signs, located in the median only, right angles to the normal direction of traffic.
Turnpikes H-1177 State Police H-589		10:15 PM	Two 5-Man D.O.T. Crews with patrol trucks and two NH State Troopers with cruisers to remove 42" channelizing devices from the Northbound I-93 Borrow-A-Lane, beginning at the northerly Borrow-A-Lane cross-over and ending at the southerly cross-over.
Turnpikes H-298 State Police H-1520		10:40 PM	1. Remove channelizing devices at the southerly Borrow-A-Lane cross-over. 2. Place 42" channelizing devices every 6 feet, on centerline of median through the open cross-over.
Turnpikes State Police ↓		10:50 PM	Remove channelizing devices, shut down and secure arrow boards on the northbound lane closure (Lane 3) at the southerly Borrow-A-Lane cross-over.
District 5 State Police		11:00 PM	Two 3-Man D.O.T. Crews and two NH State Troopers with cruisers to turn all remaining Borrow-A-Lane signs on main line and ramps, right angles to the normal direction of traffic.
Turnpikes District 5		11:00 PM	Verify all channelizing devices have been removed from the Northbound Borrow-A-Lane and clear to open two lanes of traffic. Shut down and secure **V.M.B. No. 12, 22 & 23.**
Turnpikes		12:00 PM	**Notify Hooksett Toll Borrow-A-Lane secured with all traffic back on normal patterns**. **Final sweep of all devices (Signs, V.M.B.'S, Cones, Tubes).**

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STATE AGENCY	PERSONNEL	DATE/TIME	T.C.P. SCHEDULE
Turnpikes Bridge Maintenance State Police		Monday July 23 9:00 AM	1. Portable concrete barriers at the southerly Borrow-A-Lane cross-over shall be placed in their permanent locations on centerline of median. **Note: Pin All Concrete Barrier.** 2. Portable impact attenuator barrels shall be removed from the cross-over and stored at the Turnpikes Hooksett Maintenance Facility.
District 5 State Police Bridge Maintenance		Monday July 23 9:00 AM	1. Portable concrete barriers at the Northerly Borrow-A-Lane cross-over shall be placed in their permanent locations on centerline of median. **Note: Pin All Concrete Barrier**. 2. Portable impact attenuator barrels shall be removed from the cross-over and stored at the Turnpike Hooksett Maintenance Facility
District 5		Monday July 23	Return V.M.B.'s to Bureau of Traffic for pick up.
Turnpikes District 5		Tuesday July 24	All Borrow-A-Lane signs and delineator barrels protecting fixed end projects shall be removed and stored at the Turnpikes Hooksett Maintenance Facility.

APPENDIX D

DAYTONA BEACH POLICE DEPARTMENT'S JULY 4TH

2001 OPERATIONAL PLAN

Independence Day 2001 Festivities Operational Plan

Introduction

The festivities for the 4th of July weekend will start on July 4th with a Fireworks Show at the Main Street Pier. On Thursday July 5th the activities will continue at the Daytona International Speedway with NASCAR Winston Cup Practice and Qualifying for the 43rd running of the Pepsi 400 Stock Car Race. Practice will continue through Friday, July 6th, along with the running of the Daytona USA.COM 150, Goody's Dash Series race. The festivities will conclude on Saturday, July 7th, with the running of the Pepsi 400 Winston Cup Race.

These events are expected to bring in excess of 250,000 visitors to Daytona Beach. In order to manage the traffic that is associated with these events, there will be a cooperative effort between the area law enforcement agencies, Traffic Engineering Divisions of Daytona Beach, Volusia County and Florida State Department of Transportation, along with area businesses and Daytona International Speedway personnel. Patrol Shift's personnel shall be utilized to assist in staffing traffic posts as listed within this plan. Police Department related responsibilities shall rest with the Commander of the Patrol Division, Commander, Sr. Lieutenant, Special Operations, shall be responsible for interagency communications and coordination associated with the event traffic management.

News Releases – PSA

Will be coordinated through the Department's Public Information Officer for dissemination.

Arrests

All traffic cases and arrests for other violations will be handled in the normal manner. Where appropriate, prisoners will be turned over to a Prisoner Transport Wagon. Proper paperwork is to be completed on every prisoner before they are turned over to the Prisoner Transport Wagon.

Radio Communications

During the time the events are ongoing, the event operations will be utilizing "DB-TRAFF" talk group within the Event System. The Speedway will monitor "DB-SECT5," also within the Event System.

Races & Starting Times

Thursday	July 5, 2001	8:00 p.m.	Pepsi 400 qualifying
Friday	July 6, 2001	6:30 p.m.	Daytona USA.Com 150
Saturday	July 7, 2001	8:00 p.m.	Pepsi 400

Overview of Events

Wednesday, July 4th

Speedway Gate 40 will be open for motor homes at 0800 hours.

At 2145 hours there is a fireworks display scheduled at the Main Street Pier. Both the City of Daytona Beach and The Boardwalk Property Owner's Association are sponsoring the event. Historically, this event draws a large local crowd to not only the Boardwalk, but to the peninsula as a whole. In order to manage the anticipated crowd and traffic for this event, members of the Traffic Unit, Part-time Officer Program, and Traffic Control Officer Program will be augmented by the on-duty Charlie Platoon Officers. All scheduled on-duty Charlie Platoon officers will report to their normal briefing points at 2000 hours for briefing and deployment. The Charlie Platoon Commander, or designee, will be provided a comprehensive roster and assignment sheet for their personnel. Assignments and event related duties will be at the direction of the Special Operations Lieutenant, Lieutenant.

Thursday, July 5th

The Daytona International Speedway will open their Grandstand gates at 1400 hours. NASCAR Winston Cup Practice and Goody's Dash Series practice will run from 1430 hours to 1830 hours then Winston Cup Qualifying for the Pepsi 400 at 2000 hours until 2300 hours. A crowd of approximately 50,000 spectators is expected to be in attendance for the Qualifying runs. The area of the Speedway shall be staffed with a contingent of Traffic Unit Officers, Part-time Officers, Traffic Control Officers and personnel from Traffic Engineering for traffic management. Members of the Traffic Unit will report for duty at 1130 hours and TCOs and Part-time Officers will report for duty by 1300 hours.

Friday, July 6th

The Daytona International Speedway will open the Grandstand gates at 0800 hours and host Goody's Dash Series practice from 0815 hours to 1600 hours at 1800 hours the Daytona USA 150 is scheduled to start. Immediately after the race, the final 90 minutes of NASCAR Winston Cup practice will take place. A crowd of approximately 35,000 spectators is expected to be in attendance for the race and practice. The area of the Speedway shall be staffed with a contingent of Traffic Unit Officers, Full-time Officers, Part-time Officers, Traffic Control Officers and personnel from Traffic Engineering for traffic management. On duty members of the Traffic Unit will report for duty at 1200 hours and TCOs & Part-time Officers will report for duty by 1300 hours.

All scheduled on-duty Charlie Platoon District Officers will report at 2200 hours for normal duty assignments. The following morning (Saturday, 06-07-00), these Charlie Platoon Officers will report for traffic duty in the Training Room at 0800 hours.

Saturday, July 7th

The 43rd annual running of the Pepsi 400 is scheduled to start at 2000 hours at Daytona International Speedway. Additionally, a fireworks display is scheduled at the Speedway after the conclusion of the race. The fireworks are expected to start at approximately 2245 hours. The Speedway is going to allow those spectators that wish to remain in the infield to stay until the next day. In order to manage the traffic that is anticipated in the area of the Speedway, a Traffic Management Plan has been devised which includes holding over the July 6th Charlie Platoon Shift to work part of the inbound traffic. It also includes the utilization of the July 7th Baker Platoon officers to work the outbound race traffic. All Baker Platoon shift personnel shall report for duty at their normally scheduled reporting times at their normal briefing location. At 2100 hours, all on-duty Baker Platoon Personnel shall report to the Training Room for briefing and assignments relative to event traffic management.

Sunday, July 8th

The spectators in the infield of Daytona International Speedway that stayed overnight after the conclusion of the Pepsi 400 and the fireworks display will be encouraged to leave by 1200 hours.

TRAFFIC MANAGEMENT PLAN
Independence Day 2001 Festivities Operational Plan

Traffic management shall be a coordinated effort between Special Operations and Traffic Engineering. The following personnel will be assigned duties in the field in order to successfully implement the traffic plan.

- A contingent of Traffic Control Officers, Part-time Police Officers and Full-time Officers from the Daytona Beach Police Department.
- Traffic Unit Officers from the Daytona Beach Police Department.
- A contingent of Florida Highway Patrol Troopers.
- A contingent of Traffic Engineering Division personnel.
- Officers from outside law enforcement agencies.

1. Beachside Traffic patterns shall be in place after the fireworks display on Wednesday July 4th in order too more effectively manage the outbound flow of traffic. The situation will be constantly evaluated and coordinated by Commander Creamer and the Traffic Engineer.

2. Special traffic patterns ***will be in effect*** in the vicinity of the Speedway before and after races on Saturday, July 7th. *(See attached PSA.)*

3. Commander will supervise all traffic control efforts needed in connection with Speedway activities. He will coordinate this Department's efforts with those of the Florida Highway Patrol, Volusia County Sheriff's Office, Traffic Engineering, Speedway Officials and other participating agencies.

4. Commander is responsible for coordination with Speedway officials and Traffic Engineering to obtain needed traffic signs, cones and other traffic control devices.

A compliment of portable lights will be used to illuminate staffed locations. In addition, the Volusia County Helicopter,"Air One", shall be utilized to observe traffic in outlying areas to better manage and more efficiently direct both inbound and outbound traffic.

At various times throughout the operation, traffic patterns on the effected roadways shall be altered and some roadways restricted, one-way, or closed to access in order to effectively manage the traffic generated by this event. (See 2001 Pepsi 400 PSA for specific roadways and patterns)

Duty Hours – Independence Day 2001

Special Services Division

Wednesday July 4, 2001 through Sunday July 8, 2001

1. The duties of Special Services Division personnel will be assigned by their respective supervisors, as approved by Commander.

2. **TRAFFIC ASSIGNMENTS** - Personnel will be assigned to traffic duty as requested by Commander Creamer and directed by Commander, or his designee.

Criminal Investigation Division:

Wednesday July 4, 2001 through Sunday, July 8, 2001

1. Assignments and duty hours for personnel of the Criminal Investigation Division will be established by Commander, or his designee, in accordance with Departmental investigative needs.

2. **TRAFFIC ASSIGNMENTS** - Personnel will be assigned to traffic duty as requested by Commander and directed by Commander, or his designee.

Patrol Division:

Wednesday July 4, 2001 through Sunday, July 8, 2001

Wednesday, July 4, 2001

Adam Platoon	Normal duty hours.
Baker Platoon	Normal duty hours
Charlie Platoon	Report to normal briefing at the scheduled reporting times. Each Officer will be given traffic post assignment.
Traffic Unit	Duty hours as assigned
All Part-Time Officers & All Traffic Control Officers	Report to Sergeant in the Daytona Beach Police Department Headquarters (990 Orange Avenue), Training Room @ 1700 hours.

Thursday, July 5, 2001

Adam Platoon	Normal duty hours.
Baker Platoon	Normal duty hours.
Charlie Platoon	Normal duty hours.
Traffic Unit	Duty hours as assigned
All Part-Time Officers & All Traffic Control Officers	Report to Sergeant in the Daytona Beach Police Department Headquarters (990 Orange Avenue), Training Room @ 1300 hours.

Friday, July 6, 2001

Adam Platoon	Normal duty hours.
Baker Platoon	Normal duty hours.
Charlie Platoon	All scheduled on-duty Charlie Platoon District Officers will report at 2200 hours for normal duty assignments. The following morning (Saturday, 06-07-00), these Charlie Platoon Officers will report for traffic duty in the Training Room at 0800 hours.
Traffic Unit	Duty hours as assigned
All Part-Time Officers & All Traffic Control Officers	Report to Sergeant in the Daytona Beach Police Department Headquarters (990 Orange Avenue), Training Room @ 1400 hours.

Saturday, July 7, 2001

Adam Platoon	Normal duty hours.
Baker Platoon	All Baker Platoon shift personnel shall report for duty at their normally scheduled reporting times at their normal briefing location. At 2100 hours, all on-duty Baker Platoon Personnel shall report to the Training Room for briefing and assignments relative to event traffic management.
Charlie Platoon	Normal duty hours.
Traffic Unit	Duty hours as assigned
All Part-Time Officers & All Traffic Control Officers	Report to Sergeant in the Daytona Beach Police Department Headquarters (990 Orange Avenue), Training Room @ 0800 hours.

Sunday July, 8, 2001

Adam Platoon	Normal duty hours
Baker Platoon	Normal duty hours
Charlie Platoon	Normal duty hours
Traffic Unit	Duty hours as assigned
All Part-Time Officers & All Traffic Control Officers	Duty hours as assigned

APPENDIX E

DAYTONA BEACH POLICE DEPARTMENT'S SPEED WEEKS 2001 OPERATIONAL PLAN

2001 Speedweeks Operational Plan

Introduction:

The 2001 Daytona Speed Weeks Event is scheduled to start on Saturday, February 3, 2001 with the start of the Rolex 24 Hour Race at the Daytona International Speedway. It will conclude on Sunday, February 18, 2001 after the 43rd running of the Daytona 500 NASCAR Winston Cup Series Race. During that time, the greater Daytona Beach area will host approximately 500,000 race fans and visitors to our community. The heavy influx of vehicular traffic creates a challenge to all residents in the area attempting to negotiate the roadways of this city. Consequently, the challenge to those responsible for traffic movement and safety throughout the area is great. As members of the Daytona Beach Police Department, we bear the majority of that responsibility.

Patrol Division Commander shall be responsible for event related police services throughout the City during Speed Weeks. He, or his designee, will coordinate traffic assistance and management with Traffic Engineering and other agencies. The Special Operations Lieutenant shall be Commander second in this endeavor. Lieutenant shall be responsible for the planning of, and execution of the plan.

Significant Races & Starting Times:

Sunday - February 11, 2001	11:00 a.m.	- Bud Shootout / DAP 200
Thursday - February 15, 2001	12:00 p.m.	- Twin 125's
Friday - February 16, 2001	11:00 a.m.	- Florida Dodge Dealers 250 & IROC
Saturday - February 17, 2001	1:00 p.m.	- NAPA Auto Parts 300
Sunday - February 18, 2001	1:00 p.m.	- Daytona 500

Traffic Patterns:

1. We do not anticipate any special beachside traffic patterns. The situation will be constantly evaluated and coordinated by Commander and the Traffic Engineer.

2. Special traffic patterns ***will be in effect*** in the vicinity of the Speedway before and after races on Sunday, February 11, 2001 through Sunday, February 18, 2001. *(See attached PSA.)*

3. Commander will supervise all traffic control efforts needed in connection with Speedway activities. He will coordinate this Department's efforts with those of the Florida Highway Patrol, Volusia County Sheriff's Office, Traffic Engineering, Speedway Officials and other participating agencies.

4. Commander is responsible for coordination with Speedway officials and Traffic Engineering to obtain needed traffic signs, cones and other traffic control devices.

News Releases - PSA

Will be coordinated through the Department's Public Information Officer for dissemination.

Arrests: All traffic cases and arrests for other violations will be handled in the normal manner. Where appropriate, prisoners will be turned over to a Patrol Prisoner Transport Wagon. Proper paperwork is to be completed on every prisoner before they are turned over to the Prisoner Transport Wagon.

Radio Communications:

During the time the events are ongoing, the event operations will be utilizing "DB-TRAFF" talk group within the Event System. The Speedway will monitor "DB-SECT5," also within the Event System

Duty Hours - Special Services Division

Sunday, February 11, 2001 through Sunday, February 18, 2001

1. The duties of Special Services Division personnel will be assigned by their respective supervisors, as approved by Commander.

2. **TRAFFIC ASSIGNMENTS** - Personnel will be assigned to traffic duty as requested by Commander Creamer and directed by Commander or his designee.

Duty Hours - Criminal Investigation Division:

Sunday, February 11, 2001 through Sunday, February 18, 2001

1. Assignments and duty hours for personnel of the Criminal Investigation Division will be established by Commander, or his designee, in accordance with Departmental investigative needs.

2. **TRAFFIC ASSIGNMENTS** - Personnel will be assigned to traffic duty as requested by Commander and directed by Commander or his designee.

Duty Hours - Patrol Division

Saturday, February 3, 2001

Adam Platoon	Normal duty hours. Days off ***not*** cancelled.
Baker Platoon	Normal duty hours. Days off ***not*** cancelled.
Charlie Platoon	Normal duty hours. Days off ***not*** cancelled.
Traffic Unit	Duty hours as assigned.
All Part-Time Officers & All Traffic Control Officers	Report to Sergeant in the Daytona Beach Police Department Headquarters (990 Orange Avenue), Training Room @ 0800 hours.

Sunday, February 4, 2001

Adam Platoon	Normal duty hours. Days off ***not*** cancelled.
Baker Platoon	Normal duty hours. Days off ***not*** cancelled.
Charlie Platoon	Normal duty hours. Days off ***not*** cancelled.
Traffic Unit	Duty hours as assigned.
All Part-Time Officers & All Traffic Control Officers	Report to Sergeant in the Daytona Beach Police Department Headquarters (990 Orange Avenue), Training Room @ 1100 hours.

Sunday, February 11, 2001

Adam Platoon	Duty hours as directed by Commander, or his designee.
Baker Platoon	Duty hours as directed by Commander , or his designee.
Charlie Platoon	Duty hours as directed by Commander, or his designee.
Traffic Unit	Duty hours as assigned. Days off cancelled.

All Part-Time Officers & All Traffic Control Officers	Report to Sergeant in the Daytona Beach Police Department Headquarters (990 Orange Avenue), Training Room @ 0700 hours.

Wednesday, February 14, 2001

Adam Platoon	Normal duty hours. Days off ***not*** cancelled.
Baker Platoon	Normal duty hours. Days off ***not*** cancelled.
Charlie Platoon	Normal duty hours. Days off ***not*** cancelled.
Traffic Unit	Duty hours as assigned.
All Part-Time Officers & All Traffic Control Officers	Report to Sergeant in the Daytona Beach Police Department Headquarters (990 Orange Avenue), Training Room @ 1000 hours.

Thursday, February 15, 2001

Adam Platoon	Duty hours as directed by Commander, or his designee.
Baker Platoon	Duty hours as directed by Commander , or his designee.
Charlie Platoon	Duty hours as directed by Commander, or his designee.
Traffic Unit	Duty hours as assigned. Days off cancelled.
All Part-Time Officers & All Traffic Control Officers	Report to Sergeant in the Daytona Beach Police Department Headquarters (990 Orange Avenue), Training Room @ 0600 hours.

FRIDAY, FEBRUARY 16, 2001

Adam Platoon	Duty hours as directed by Commander, or his designee.
Baker Platoon	Duty hours as directed by Commander, or his designee.

Charlie Platoon	Duty hours as directed by Commander, or his designee.
Traffic Unit	Duty hours as assigned. Days off cancelled.
All Part-Time Officers & All Traffic Control Officers	Report to Sergeant in the Daytona Beach Police Department Headquarters (990 Orange Avenue), Training Room @ 0700 hours.

Saturday, February 17, 2001

Adam Platoon	Normal deployment
Baker Platoon	Normal deployment
Charlie Platoon	The early shift is suspended, and all Sergeants and officers scheduled for duty on February 17 shall report for duty at 10:00 PM. At 5:00 AM, all on duty C Platoon members are to report to the Training Room for their race assignments and briefing.
Traffic Unit	Duty hours as assigned. Days off cancelled.
All Part-Time Officers & All Traffic Control Officers	Report to Sergeant in the Daytona Beach Police Department Headquarters (990 Orange Avenue), Training Room @ 0600 hours.

Sunday, February 18, 2001

Adam Platoon	All Sergeants and officers scheduled for duty on February 18 shall report for duty at 4:30 AM. Briefing will be kept to 15 minutes in order to facilitate C Platoon officer's race briefing at 5:00 AM. All on duty members of A Platoon will report for race assignments and briefing at 2:00 PM in the Training Room.
Baker Platoon	All Sergeants and officers scheduled for duty on February 18 will report for duty at 1:30 PM and will work normal zone assignments and will be secured from duty by the C Platoon commander or his designee.

Charlie Platoon	Normal deployment
Traffic Unit	Duty hours as assigned. Days off cancelled.
All Part-Time Officers & All Traffic Control Officers	Report to Sergeant in the Daytona Beach Police Department Headquarters (990 Orange Avenue), Training Room @ 0500 hours.

Speedway Tunnel Entrance

Officer, or his designee, will be on duty at the Speedway tunnel entrance at the following dates and times:

Sunday	February 11, 2001	8:00 a.m. until relieved
Thursday	February 15, 2001	8:00 a.m. until relieved
Friday	February 16, 2001	8:00 a.m. until relieved
Saturday	February 17, 2001	8:00 a.m. until relieved
Sunday	February 18, 2001	8:00 a.m. until relieved

APPENDIX F

DAYTONA BEACH POLICE DEPARTMENT'S 2001

BIKEWEEK AND SPRING BREAK OPERATIONAL PLAN

CITY OF DAYTONA BEACH POLICE DEPARTMENT
2001 BIKE WEEK AND SPRING BREAK OPERATIONAL PLAN

Special Events Considerations

Historically, the Special Events season produces unique challenges to the Police Department personnel tasked with an enormous influx of visitors for Bikeweek and Spring Break. The primary venues for these events are on the core beachside peninsula (Atlantic Avenue, Main Street, Seabreeze areas); Downtown/Beach Street locale; and the Daytona International Speedway. The focus of this challenge is multi-faceted: Maintaining the safety and security of the visiting public and preventing the encroachment of event participants into the residential community; and, balanced with the servicing the needs of the community, providing a quality and acceptable level of service to our residents, businesses, and visitors.

Past Special Event seasons have identified several areas of concerns:

Traffic related:
Traffic congestion; vehicular crashes and serious injury/fatality;
Pedestrian safety;
Motorcycle noise violations, careless driving (burnouts), speeding; "throttle jockeying";
Motorcycle thefts;
Parking violations.

Participant Related Conduct:
Alcohol/Substance violations (DC, DI, Marchman Act);
Exposure of Breasts (unique to Bikeweek);
Disturbance calls (primarily liquor lounge related);
Underage possession (alcohol, tobacco);
Code violations.

Bikeweek and Spring Break participants are provided with information concerning these areas from numerous and varied governmental and private sources prior to and throughout the season. Traffic Engineering has partnered with Police Department resources to provide safe and optimum movement of pedestrian and vehicular traffic. As the education and engineering requirements are in place, enforcement remains the final phase of maintaining the public safety status and eliminating resident complaints. All Division personnel have been provided direction to implement strict, but fair enforcement of motorcycle related violations during Bikeweek 2001. The "Speed Trailer" will be

placed in various locations throughout the City where motorcycle speed violations have been identified in an effort to reduce complaints. All Patrol Division personnel will place emphasis on elimination of complaints on motorcycle speeding, muffler noise, and careless operation during this year's event. Spring Break participants will receive emphasis on tobacco, alcohol, and conduct violations, with strict, but fair enforcement in areas that generated complaints in previous years.

State Alcohol, Beverage, and Tobacco agents have indicated strong support during both events with enforcement expertise in alcohol and tobacco violations. Code Enforcement officers will be encouraged to provide support to line personnel in addressing licensing, ordinance, and LDC violations.

The Patrol Division focus will be preventative identification and proactive intervention of previous year's complaints in an effort to eliminate conflicts before these areas become major concerns.

Patrol Division Shift Assignments

Special Events Deployment will staff 4 platoons (A, B, C, and E) on 10 hour shifts to service calls for service. The platoons will utilize the call signs Adam, Baker, Charlie, and Echo respectively. The Echo Platoon, [Flex Shift] will be deployed on foot beats in the Main Street area during Bikeweek, and redeployed in the liquor lounge and motel areas during Spring Break. A Traffic Unit comprised of the City Traffic and Speedway Traffic Units will be assigned to traffic related concerns during both events. Part-time officers and Traffic Control officers are scheduled on traffic posts in strategic areas to provide maximum safety to vehicular and pedestrian traffic.

Front Desk Staffing

- ***Main Headquarters Building***
  Four (4) full time officers will be assigned to the Front Desk.

- ***Beachside Precinct Station***
  Six (6) part-time officers will be assigned to the Front Desk. These officers shall turn in daily payroll cards for their assignment. Full-time officers may be called upon to staff the Front Desk of the Precinct when part-time officers are not available.

Substation / Transport Wagon Staffing

- **Substation**

Full time (Phase I Trainees) and Two (2) part-time officers will be temporarily assigned to the Division of Support Services for duty at the Substation. This will provide officers twenty-four (24) hours a day, seven (7) days a week.

- **Transport Wagons**

Part Time Officers will be assigned to the operation of the Prisoner Transport Wagons as the part time resources will allow.

Flex Squad

Twenty-six (26) officers will be assigned to the Flex Squad. This will yield three squads of six officers, each supervised by a Sergeant. Two Boardwalk units and four Bike units. The Flex Squad units will be under the supervision and command of the Special Operations Lieutenant, or his designee.

Traffic Unit

The Traffic Unit will be compromised of the Department's Traffic Unit and the Speedway Traffic Unit. This will yield a twenty-one (21) officer Traffic Unit (one (1) sergeant and twenty (20) officers). The Traffic Unit's scheduled duty hours may be adjusted to address special circumstances. The Traffic Unit shall be under the supervision and command of the Special Operations Lieutenant.

K-9 Unit, DUI Unit, Animal Control Officers, Communications Unit

The K-9 Unit, DUI Unit, Animal Control Officers, and the Communications Unit shall remain under their normally scheduled deployments and shall report to the on-duty Platoon Supervisors and Shift Commander.

Ancillary Personnel

The Department has established a liaison with the following agencies in the event additional personnel are necessary to manage any contingency:

Part Time Police Officers
Traffic Control Officers
Florida Highway Patrol, Motorcycle Officers & Troopers
Volusia County Sheriff's Office, Motorcycle Unit
State Alcohol and Tobacco Beverage Agents

Outside Details

Having uniformed police officers at motels, nightclubs, etc. beneficial to public safety. The detail officers' presence in itself is a deterrent to rowdiness.

Scheduled Personal Leave, Birthdays, Employee Appreciation Days

Only Scheduled Personal Leave (Vacations) previously signed up for will be permitted from March 2nd through March 11th. Birthdays and Employee Appreciation Days will be permitted during this time. The use of Scheduled Personal Leave is prohibited from March 30 through April 1, 2001; Birthdays and Employee Appreciation Days **will not** be permitted during this time frame.

Holidays

Due to the nature of Special Events Deployment, ***NO HOLIDAYS*** will be permitted for sworn personnel within the Patrol Division from Friday, March 2, 2001 through and including Sunday, March 11, 2001; and, Thursday, March 29, 2001, through and including Sunday, April 1, 2001.

APPENDIX G

MARYLAND DEPARTMENT OF TRANSPORTATION

SPECIAL EVENT EXCERPT FROM CHART

SPECIAL EVENTS

REDSKINS

When there is an event at the Jack Kent Cook Stadium, CHART will have two people at the Redskins Stadium Command Center located at Jack Kent Cook Stadium. Stadium command will go 10-8 three hours prior to the beginning of the event. The SOC will have at least one extra operator on duty at the SOC during stadium events. Three hour prior to the beginning of the event, the SOC Operator will activate the Redskins pre-game plan and monitor all traffic via District 3 CCTV cameras. The SOC Operator will also call VDOT TMS and ask them to activate some of their traffic devices as well. CHART will have various signal technicians manning signals in and around the stadium area as well as various ETP's patrolling the interstates leading into the stadium. All field operations will be supervised and dispatched by personnel at Stadium Command. All TAR and VMS operations will be handled by the SOC Operator. The SOC Operator will also update the media about traffic conditions as need be. The Stadium Command will remain 10-8 until all vehicles have left the stadium area after the event is over. SOC Operator will continue to monitor backups via CCTV cameras and update TAR and VMS's accordingly. For specific information on VMS and TAR messages, refer to Redskins Manual located at SOC console.

ORIOLES

When there is an event at Camden Yards Stadium, the AOC will activate the Orioles Pre-Game Plan two hours prior to the start of the event. The AOC will monitor traffic via CCTV camera to I-95/I-395. If the ramps leading into the stadium begin to back up, the AOC Operator will change VMS messages to help divert traffic away from the congested area(s). The AOC Operator will inform the SOC of all back ups and problems during stadium events. The AOC Operator will also update the media about traffic conditions as needed. When the event begins, the AOC Operator will blank all VMS and TAR's. For more information on specific VMS and TAR messages and plans, see the Orioles Handbook located at the SOC console.

USAIR ARENA/UNIVERSITY OF MARYLAND

During events at either the USAir Arena or the University of Maryland, the SOC Operator will activate the respective VMS/TAR plan that is appropriate for the event. The Operator will also monitor traffic via CCTV cameras and/or field personnel patrolling the area. The Operator will also update the media abut the traffic conditions as needed.