WATCHING IT ALL COMETOGETHER

CASE STUDIES REPORT ON SPECIAL EVENT PLANNING AND MANAGEMENT

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16. Abstract

Counties and municipalities throughout the United States host numerous national and regional planned special events including parades, festivals, and demonstrations, as well as many local events such as block parties and neighborhood festivals. Special Events is also the term given to unplanned, unwanted situations such as weather-related and other types of emergencies.

Whether planned or unplanned, local jurisdictions need to be ready to mobilize and respond by collaborating and planning together. Attention is always focused on how the transportation system is performing as a jurisdiction hosts a fair, golf tournament, national political convention or other major events.

This case studies report is designed to help the reader learn from others across the country. Useful strategies include cross boundary leadership needed to direct transportation, law enforcement, emergency management and agency professionals who might be unfamiliar with these ideas or have a difficult time working together. This report is designed to help you and those on your staff who may be involved in planning, managing or operating a planned or unplanned event.

The case study format offers an in-depth perspective of the different types of strategies currently used for particular special events across the U.S. Each example explores the challenges posed by the event, agencies involved, pre-event planning, day-of-event operations and management, the effect on neighborhoods and the relationship to other transportation needs.

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DEAR OFFICIAL

Dear Local Government Official,

Counties and municipalities in America host numerous national and regional planned special events including parades, festivals, and demonstrations, as well as many local events such as block parties and neighborhood festivals. Special Events is also the term given to unplanned, unwanted situations such as weather-related and other types of emergencies.

Whether planned or unplanned, local jurisdictions need to be ready to mobilize and respond by collaborating and planning together. Attention is always focused on how the transportation system is performing as a jurisdiction hosts a fair, golf tournament, national political convention or other major event.

This case studies report has been developed to help you learn from others across the country. Useful strategies include cross boundary leadership needed to direct transportation, law enforcement, emergency management and agency professionals who maybe unfamiliar with these ideas or have a difficult time working together.

As an elected or appointed local government official, you'll find guidance for yourself a well as for members of your staff who may be involved in planning, managing or operating a planned or unplanned event.

The case study format offers an in-depth perspective of the different types of strategies in use for particular special events across the U.S. Each example explores the challenges posed by the event, agencies involved, pre-event planning, day-of-event operations and management, neighborhood impacts and the relationship to other transportation needs.

While each situation differs in size, type, and approach, all have one element in common: the commitment of local government leaders like you to provide a safe, comfortable environment for their community.

Sincerely,
Dr. Costis Toregas,
President
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U.S. Department of Transportation
Federal Highway Administration

CASE STUDIES REPORT ON SPECIAL EVENT PLANNING AND MANAGEMENT

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The development of this case studies report was initiated by recommendations of members the PTI Transportation Task Force jurisdictions who, on a regular basis, face the challenges of planning and managing large and small special events that make their communities enjoyable places to live.

Thanks go to members of the PTI Transportation Task Force who provided direction and participated in interviews that provided most of the content for the guidebook. Bruce Schaller researched and authored the book; Walsh Graphics edited and developed the graphic design.

At PTI, Robert Hicks oversaw the project from concept to completion, managing the book's content development, writing, editing, design and production.

PTI is a non-profit technology R&D organization of the National League of Cities (NLC), the National Association of Counties (NACo), and the International City/County Management Association (ICMA). Since 1971, PTI has tapped collective research by its member jurisdictions and partnerships with private industry to create and advance technology-based products, services, and enterprises in cities and counties nationwide.

PTI's membership includes a special network of the nation's largest cities and counties. Working through four task forces (Public Safety, Sustainability, Telecommunications/Information and Transportation), PTI jurisdictions identify and test new solutions to common concerns and share their findings with a wide audience of local governments, large and small.

The Transportation Task Force guides PTI's Local Government Transportation Operations and Management Program, which ties advanced transportation technology research, planning, and implementation activities to the needs of local government. Through this program, city and county officials work actively with federal agencies and private technology firms to develop solutions to local and regional challenges.

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INTRODUCTION

Planned special events are among the most memorable highlights of the year for large cities and small towns alike. Whether it be a massive event like New Year's Eve in New York City's Times Square or July Fourth fireworks on the Mall in Washington, DC, or a county fair, music festival, marathon or bike race, a special event can embody a community's identity, its past, its aspirations or simply its vibrancy, energy and diversity. Hosting major events such as Olympic games or a national political convention can attract visitors and assert a city's standing as a major metropolis. Opening a new downtown baseball park can serve as a linchpin for downtown resurgence, as illustrated in Cleveland and Baltimore. Annual events such as fairs, festivals, parades and races knit a community together, drawing people from all walks of life to enjoy a festive day together. Special events create an opportunity for attendees to break out of their routines, reacquaint themselves with a different part of their community, and stimulate ancillary businesses such as restaurants and shops.

Many local governments work hard to draw large events such as national conventions and to create and nurture other events such as fairs, parades and races. But the sometimes huge crowds from these events attract create challenges for the local transportation system. Tens of thousands of travelers may overwhelm streets, highways, parking lots and transit capacity. People traveling for work, shopping and other purposes unrelated to the event may be startled and upset to find themselves stuck in event traffic. Those attending the event may become lost on unfamiliar streets, highways or transit facilities. Steps made to accommodate crowds, such as closing streets or redirecting traffic, may anger local business owners and residents.

Local government officials planning special events must anticipate these unique challenges for traffic, parking and transit. Quite often, they must also address institutional and interjurisdictional challenges. Transportation, public safety and other agencies unfamiliar with one another's operations, capabilities and missions can find it difficult to work together. Worries about resource requirements and distrust between uniformed and civilian agencies, or between central city and suburban jurisdictions, can impede effective planning.

On the other hand, planning for special events offers opportunities to enhance the performance of the transportation system and foster interagency bonds. The traffic, parking and transit needs for special events can catalyze investments in advanced traffic management systems, closed circuit television cameras, variable message signs and sophisticated traffic management centers. Once these are in place, traffic agencies can showcase the value of their investments. Similarly, transit agencies can serve riders who do not normally

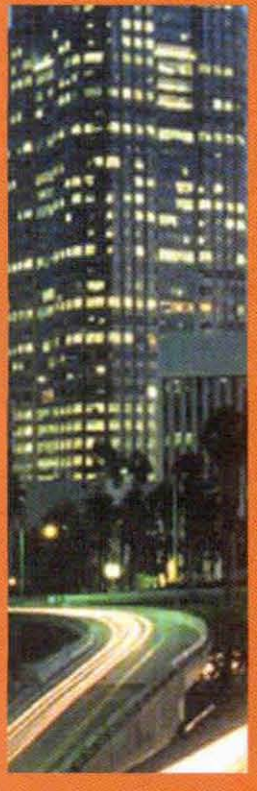
use bus and rail services and thus acquaint them with the value of the agency's services. Agencies can also use the compelling needs of upcoming events to form and strengthen effective working relationships.

Through a case study approach, this report describes successful experiences with managing travel to and from special events. For elected officials and senior city and county managers, the report highlights key lessons based on the experience of cities and counties with meeting traffic, parking and transit needs for special events. Also included are metrics that itemize how various cities and counties have solved common organizational, planning and operational challenges associated with transportation for special events.

Case studies in this report

The case studies highlight seven diverse special events taking place across the United States:

- Dallas, Texas – State Fair of Texas
- Los Angeles, California – 2000 Democratic National Convention
- Monroe County, New York – weather emergencies
- New York City – New Year's Eve in Times Square
- Northern Virginia – traffic management after July Fourth fireworks display on the Mall in Washington, D.C.
- Phoenix, Arizona – Bank One Ballpark baseball games
- San José, California – Compaq Center hockey games and other events



The transportation planning and management for each event are described in detail. After summarizing key points, each chapter relates:

- Challenges posed by the special event
- Agencies involved and their responsibilities
- Pre-event planning
- Day-of-event transportation operations and management
- Neighborhood impacts
- Relationship to planning and management of other special events and other transportation needs

The case studies are based on interviews with managers directly responsible for traffic, parking and transit for each event and a review of relevant documents. Agencies represented in the interviews included city, county and state transportation agencies, local law enforcement agencies, transit agencies and organizations responsible for community liaison. One-day site visits and personal interviews were conducted for case studies in San José, Los Angeles, New York and northern Virginia. Telephone interviews were conducted for case studies in Phoenix, Monroe County and Dallas.

The examples were selected to represent different types of events such as sports events, political conventions, state fairs, fireworks displays and weather-related emergencies. They offer insight into events that occur on a regular basis, those that are held annually, and major one-time events. They also reflect geographic diversity, different city sizes, downtown and other locations, and weekday and weekend events.

All seven of the events attract tens of thousands and sometimes hundreds of thousands of people and thus potentially impose a heavy strain on transportation capacity. Some of the approaches and strategies are applicable to smaller as well as larger events.

Six of the seven are planned special events where the date, time and location are set well in advance. Detailed transportation planning is carried out for each. The Monroe County, New York case study examines planning for weather-related emergencies and the experience with three such emergencies (a blizzard, ice storm and windstorm). Monroe County prepares detailed plans for responding to weather-related emergencies. Although the timing and magnitude of these situations are obviously not known before nature strikes, this case study illustrates significant commonalities between preparation for emergencies and for planned special events, and the opportunity to cross-pollinate between the two types.

This report can be used by local elected and appointed officials, transportation departments, law enforcement agencies and event organizers to help prepare for special events

CHALLENGES AND STRATEGIES

Anyone planning a major special event can quickly list a wide range of concerns, issues and problems that must be addressed. The case studies beginning on p. 21 illustrate successful plans, programs and services to solve a variety of challenges. The charts on the following pages summarize the challenges faced by each local government and the strategies used to address them, while the case studies themselves provide more complete detail.

MORE

new to their city or county, and as a source of approaches and techniques to help improve transportation for all special events in their jurisdiction.

Lessons Learned

The case studies offer a striking lesson: diverse events share common challenges. As a result, similar approaches and solutions are adopted by different local governments for a wide range of special events. This is not to say, however, that transportation aspects of special events can all be managed using a cookbook approach with the same ingredients and proportions applied in every instance. While many of the same techniques were used across the case studies, their application was tailored according to the particular needs and circumstances of each situation.

What approaches were commonly used and how were they applied? This chapter discussions twelve key lessons learned – steps that local governments found essential to the success of traffic, parking and transit services for special events. The twelve lessons explain why these steps were essential and why it was important for the local governments to use them

CHALLENGE	STRATEGY	EXAMPLES	WHY IT WORKS
1 MANY CITY OR COUNTY DEPARTMENTS INVOLVED; NEED HIGH LEVEL OF INTERAGENCY COORDINATION	Appoint citywide coordinator with mayoral mandate and support	Los Angeles	Coordinator has authority to get things done
	Designate lead department with authority to obtain cooperation	New York (New Year's Eve in Times Square)	Department has authority to get things done
	Coordinating committee or task force with regular meetings	San José, Phoenix, Los Angeles	Ethic of cooperation and collaboration; task force members have both authority to make decisions and responsibility for measurable results; regular meetings establish deadlines (complete task X by next meeting)
	Build on existing relationships among staff from different agencies	All case studies	Familiarity and trust already established
2 MANY DIFFERENT GOVERNMENTAL UNITS INVOLVED; NEED HIGH LEVEL OF INTER-JURISDICTIONAL COORDINATION	Build on existing strong relationships between sister agencies	Los Angeles	Familiarity and trust already established
	Bring in other agencies with strong ties to all agencies involved	Los Angeles (county Sheriff Department had strong relationship with cities within the county)	Familiarity and trust already established

The charts on these pages itemize specific challenges or problems encountered by local governments in the case studies and the solutions they used to address each. It serves as a matrix of methods to solve particular planning, institutional and operational problems.

As local government officials move through the stages of organizing, planning, operating and evaluating transportation aspects of special events, they must deal with an interwoven fabric of challenges and tasks. To help readers relate to these, the twelve lessons learned are grouped into four categories:

1 **Organizational arrangements** – addressing institutional, staffing and interagency issues to ensure smooth planning and running of transportation for special events.

2 **Resources** – the ingredients of funding, management backing and infrastructure that prove critical to successful events.

3 **Planning process** – key elements to a successful planning process and post-event evaluation.

4 **Day-of-event operations** – lessons affecting day-of-event traffic, parking and transit operations.

CHALLENGE	STRATEGY	EXAMPLES	WHY IT WORKS
2 **MANY DIFFERENT GOVERNMENTAL UNITS INVOLVED; NEED HIGH LEVEL OF INTER-JURISDICTIONAL COORDINATION** (cont.)	Offer other agencies benefit of agency expertise	Los Angeles Department of Transportation (closed circuit television feeds, analysis of traffic impacts of alternative street closure plans, photos of 80 delegate hotels)	Sharing of expertise and resources is major catalyst for inter-jurisdictional cooperation since all jurisdictions benefit
	Establish coordinating committee or task force with regular meetings	Los Angeles, Phoenix, San José	Provides focus for planning; regular meetings establish deadlines (complete task X by next meeting)
	Assign task force members both authority to make decisions and responsibility for results	Los Angeles, San José, Phoenix	Task force becomes effective body where decisions are made
	Establish operations center housing major agencies involved	Los Angeles, Monroe County	Face– to–face communication fosters closely coordinated planning
	Share radio frequencies and use cell phones as well as two-way radios	Los Angeles, Monroe County, Phoenix, Dallas (State Fair of Texas)	Police, traffic, parking and other staff in the field can communicate with each other directly
	Perfect operations prior to main event through training exercises or smaller event	Monroe County (training exercises), Los Angeles (used Grammy Award Ceremony as test of DNC plans)	Practice makes perfect

Organizational arrangements

1) Plan and manage special events jointly across agencies

Special events nearly always involve multiple local agencies. They often involve several jurisdictions—city, county and state agencies, transit authority, management authority for the facility hosting the event, and sometimes federal agencies. Within a city or county, several agencies are typically involved, such as the transportation, streets or public works department; police department; and special events office. Special events may also require involvement of the buildings department, sanitation department, cultural affairs office and other agencies.

Given the number and variety of agencies and jurisdictions that participate, interagency and inter-jurisdictional coordination lies at the heart of transportation planning and management for special events. In all of the case studies, interagency coordination was critical to the success of special event transportation planning and management.

Several mechanisms were used to facilitate joint or coordinated transportation planning and operations. The approach tended to be influenced by the novelty of the task and whether transportation needs would be affected by other events nearby. Transportation feasibility studies are often performed for large events.

CHALLENGE	STRATEGY	EXAMPLES	WHY IT WORKS
3 **SIGNIFICANT NEIGHBORHOOD IMPACTS ON RESIDENTS AND NEARBY BUSINESSES NEED TO BE ADDRESSED**	Assign community liaison to organization that is not responsible for transportation operations and can address full range of community concerns	San José (Arena Authority), Phoenix (Downtown Phoenix Partnership), New York (Times Square Business Improvement District)	Liaison organization can focus on liaison role while city/county departments focus on operations. Liaison organization also acts as clearinghouse for both the community and city/county departments, ensuring that the right people address each issue.
4 **CHALLENGING POLITICAL PRESSURES NEED TO BE MANAGED IN PLANNING THE EVENT**	Involve staff or consultants that have experience with these pressures and know some of the players	Los Angeles (hired consultant and brought back staff who planned 1984 Olympics)	Only experience with previous events earns understanding of the subtleties involved.
	Reach funding agreement with event organizers/sponsors in exchange for guaranteed level of service	San José, Dallas	In the interests of both parties
5 **FUNDING FOR EVENT IS NOT ASSURED**	Show success of transportation management in similar applications	Northern Virginia (quantified time and fuel savings), Los Angeles (similar plan executed for Grammy Award Ceremony)	Demonstrates value of transportation planning and management

Where planning a new event represented a major challenge, the most common approach was to form a task force or coordinating committee. Examples include the Convention Operations Committee in Los Angeles and committees that put together the original transportation plans for sports facilities in San José and Phoenix. Task forces and coordinating committees provided structure to the planning process and worked to ensure that environmental impacts were mitigated during the construction of these sports facilities. They brought together representatives of key agencies. They served as the focal point for planning transportation for the special event. Regularly scheduled meetings (generally biweekly or monthly) created deadlines and kept the planning process moving.

Task forces or coordinating committees are typically composed of the core agencies involved in transportation planning and management, such as the city transportation and police departments, county and/or state transportation department and community liaison. A variety of other agencies or organizations also may be included on the task force or coordinating committee, either as full members or called to participate as relevant issues arise.

A separate committee is typically devoted to transportation aspects for major special events. The committee is focused on the event in question and is composed only of those agencies and other stakeholders involved with the event. In Los Angeles, for example, the transportation subcommittee of the Convention Operations Committee carried out transportation planning for the 2000 Democratic National Convention. The committee also coordinated transportation plans with other aspects of the event.

In the case studies concerning downtown sports arenas, ongoing event management is the responsibility of a committee that coordinates all downtown events – arena events as well as others. Potential overlap between events is so central to event planning that one coordinating body makes sense. In San José, for example, the parking lots used by Compaq Center patrons are used as the venue for some outdoor special events. Traffic for the Compaq Center may also overlap with traffic for outdoor events in the adjacent downtown area. In Phoenix, numerous evening events may utilize the same set of parking lots.

Both Phoenix and San José actively encourage and promote a multiplicity of downtown events as part of downtown revitalization efforts, with the aim of bringing people downtown and offering them multiple activities. The coordinating committees' multi-event, downtown focus reflects both cities' goal of promoting a variety of downtown events.

The planning structure for annual events tended to be less formal than for first-time events. Many jurisdictions have a planning framework in place to manage the proposed special event. Planning for New Year's Eve in New York and the State Fair in Dallas involved only a few meetings among agencies involved in event operations. Continuity from year to year minimized the amount of planning that was necessary. In addition, staff

from transportation, law enforcement and other agencies work together regularly on other operations and are familiar to one other.

2) Ensure continuity of staffing from planning to day-of-event management, and from one event to another.

Uniformly across the case studies, the same staff members both planned and managed transportation aspects of the event. There was no "handoff" between the planning and operations phases. The continuity meant that strong relationships built in the planning process can be relied upon in the crucible of the day of the event. Event planners fully appreciate the challenges of event management based on their involvement in previous event management. Day-of-event managers are fully knowledgeable about the plan, and thus knew what they need to do, why, and how to adapt to unexpected conditions.

All of the case studies also exhibited staff continuity for recurrent events such as sports events, New Year's Eve and July Fourth celebrations. The benefits of familiarity, expertise and working relationships from having the same staff plan and manage these events are obvious. Perhaps more subtle is the impact on operational capabilities. As an example, the same police officers are regularly assigned for traffic operations to Bank One Ballpark games in Phoenix.

Resources

1) Provide necessary funding levels.

Transportation operations for planned special events are funded in a variety of ways. They may be funded as part of agencies' regular appropriations, as is the case with police, traffic and transit services for New Year's Eve in Times Square and for traffic management on July Fourth in northern Virginia.

Transportation operations may also be funded by the event itself. Traffic and police services in Dallas are funded directly by the State Fair of Texas and in San José by the organization that manages the Compaq Center. The San José funding is specified in the city's Transportation and Parking Management Plan, which also specifies the level of service to be provided by the city – e.g., traffic flow, signage and police staffing – for each of a dozen different types and sizes of arena events. Bank One Ballpark partially funds traffic and police costs in Phoenix. The advantage of these arrangements is that city agencies are assured of sufficient funding and the event is assured that the agreed-upon level of service will be provided.

In Monroe County, federal and state governments have reimbursed most of the cost of transportation operations for weather emergencies through disaster relief programs.

2) Give staff that are principally involved in planning both the authority and responsibility to plan and manage the event.

Decision-making within the planning process is a litmus test for the effectiveness of that process. It is very difficult for project managers to plan an event if they must obtain approval of every decision from superiors. In such cases, project managers' hands are tied when dealing with other agencies. Case studies showed that the most effective interagency task forces are composed of agency representatives who have the authority to make commitments to one another. Task forces so constituted are able to formulate and agree on effective plans. Task force members can also build trust and cooperation that are essential to managing events as they transpire.

This does not mean, however, that project managers are completely on their own. Project managers in all of the case studies reported to more senior managers on the status of event planning and operations, plans for the future, etc. At the same time, project managers felt that they could make commitments to other agencies and win approval from their superiors for those commitments.

The San José Arena Events Operating Committee is an excellent example of this principle in action. Members of this group feel able to make commitments to each other on

CHALLENGE	STRATEGY	EXAMPLES	WHY IT WORKS
6 **NEED NEW TRANSPORTATION PLAN FOR FIRST-TIME EVENT**	Begin planning process nine months to several years before event opens	San José (several years to develop the Transportation and Parking Management Plan for the San José Arena), Phoenix (18 months to develop the Sunburst Traffic Management Plan for Bank One Ballpark), Los Angeles (nine months for transportation plan for 2000 Democratic National Convention)	Sufficient time for agencies to work with each other and with affected community
	Create detailed written plan that serves as vehicle for planning process	San José, Phoenix	Fully spells out level of service and responsibilities for each agency
7 **TRANSPORTATION PLAN BECOMES OUTDATED AS CIRCUMSTANCES CHANGE**	Establish regular review cycle for plan	Three-year cycle in San José for major changes, monthly or biweekly meetings in San José and Phoenix adjust plan as necessary	Built-in review process
	Integrate long-range planning and event operations	San José (light rail development and flood control)	Builds on existing agency and community relationships

Compaq Center transportation issues. Furthermore, they expect to reach agreement at the committee level, an expectation evidently shared by their superiors. Asked what would happen if managers from different agencies could not resolve an event scheduling issue and if, hypothetically, one person took it to a higher level, an Office of Cultural Affairs manager responded that his supervisor would tell him to go back to the committee to resolve the issue.

The San José case study also shows that accountability should accompany authority. San José Department of Transportation staff emphasized that they are held accountable for their performance. For example, the amount of time needed to empty the parking lots is tracked for each event and becomes a performance indicator for the department.

Planning Process

1) Allow time for a thorough planning process.

In some cases, transportation plans required several years, in others several months.

The scope of the planning effort is governed by the size of the event, the level of previous experience with the same or similar events, the number of departments and jurisdictions involved, and the complexity of the event itself.

CHALLENGE	STRATEGY	EXAMPLES	WHY IT WORKS
8 **ASPECTS OF THE EVENT ARE UNPREDICTABLE (NUMBER OF ATTENDEES, ARRIVAL TIMES OF ATTENDEES, DEMONSTRATIONS)**	Establish operations center with key managers present during event	Los Angeles, Monroe County	Face-to-face coordination is critical to managing rapidly changing conditions
	Monitor traffic conditions in real time and adjust traffic signals, street closures, etc. as traffic conditions change	San José, Phoenix, Dallas, northern Virginia and Los Angeles (all using traffic management center)	Flexibility and sufficient information adjusts traffic management to actual conditions
	Rollout street closings as attendees arrive	New York	
	Maintain emergency access corridors	New York, Dallas	
	Establish contingency plans for various possible needs or events	Los Angeles, Monroe County	Can quickly execute changes as necessary
9 **NEED TO AUGMENT DEPARTMENTAL STAFF ASSIGNED TO EVENT**	Implement "Incident Command System" developed for emergency planning	Los Angeles, Monroe County	Draws personnel from throughout department; all personnel are trained in standardized terminology; assigns personnel to tasks that best suit their talents

The most important consideration in determining the time required for advance planning is previous experience (or lack thereof) with the same or very similar events. Less time is needed to plan recurrent events that take place in the same location and with essentially the same staff. The State Fair of Texas and New Year's Eve in Times Square can attract a million people or more. Yet planning involves only a few months and a few meetings to address transportation issues. Officials are able to rely primarily on the plan from the previous year, making fairly minor modifications to plans and procedures as the event and other circumstances change.

First-time events require far greater time for planning. Opening new downtown sports facilities, for example, required several years of planning in San José and 18 months in Phoenix. Transportation planning for the 2000 Democratic National Convention started 18 months before the first delegates arrived in Los Angeles. Officials typically compile extensive transportation management plans covering all aspects of the effort, including organizational arrangements, traffic control, parking and transit operations, post-event evaluation and funding. The charts on these pages illustrate the range of topics covered by a comprehensive transportation and parking plan.

Previous experience with other large events can be helpful when planning a first-time event. L.A.'s experience with the 1984 Olympics was valuable to Los Angeles Department

CHALLENGE	STRATEGY	EXAMPLES	WHY IT WORKS
10 **EVENT ATTENDEES UNFAMILIAR WITH TRANSPORTATION SERVING THE EVENT SITE**	Send transportation information with event tickets	Phoenix, San José	Information is targeted to the audience
	Provide transportation information on the Internet, radio and newspapers	Nearly all the case studies	Information is readily available; radio broadcasts can be updated as conditions change
	Provide courtesy patrols stationed in the area of the event	Phoenix (Cooper Square Ambassadors), Dallas (Texas DOT courtesy patrol)	Personnel are readily available to motorists and pedestrians
	Assign same police officers as assigned for previous running of the same event	Phoenix, Dallas, San José	Officers become familiar with transportation operations and can inform motorists
11 **MOTORISTS CONVERGE ON ONE CENTRAL, WELL-KNOWN STREET, CORRIDOR OR INTERSECTION, CREATING GRIDLOCK**	Offer free or reduced-price parking some distance away and provide shuttles if necessary	San José	Creates incentive to stay away from the congested central area
	Use variable message signs to direct motorists directly from access routes to parking	Dallas, Los Angeles, San José, Phoenix	Provides relevant information
	Reverse direction of streets and/or parking lot exits to increase traffic capacity	San José, New York, Los Angeles	Increases street capacity in congested direction
	Sell pre-paid parking to specific lots and provide directions from highways to the designated lot	Phoenix, San José, Dallas	Guides motorists directly to parking lot
	Coordinate closing of parking lots with traffic control	Phoenix, San José	Efficient traffic control

of Transportation officials. The department brought staff who worked on the Olympics out of retirement to help with planning for the 2000 Democratic National Convention (DNC).

The number of governmental jurisdictions involved with transportation planning and operations for a special event also affects the length of time needed to plan it. Planning for delegate transportation for the 2000 DNC in Los Angeles was more complex than for earlier political conventions in New York City, for example. Delegate hotels were scattered across the Los Angeles area while nearly all the delegate hotels for the New York convention were in Manhattan. Los Angeles therefore required far more inter-jurisdictional coordination to plan delegate transportation.

Another important factor is the complexity of the event itself. For a July Fourth fireworks or New Year's Eve in Times Square the main event is dominant, although some planning needs to be done to accommodate parties in the Times Square area, for example. By contrast, because of major sports and entertainment events during the State Fair of Texas, the transportation plan must provide for changing peak entry and exit times during the Fair's 24-day run. Planners must provide parking, for example, when up to 65,000 fans arrive for an afternoon football game.

CHALLENGE	STRATEGY	EXAMPLES	WHY IT WORKS
12 **HEAVY TRAFFIC OVERWHELMS STREET CAPACITY IN THE AREA AROUND THE EVENT SITE**	Implement traffic engineering steps such as long light cycles on arterials, ensure traffic signals are synchronized and use the exact same time of day, quickly repair malfunctioning traffic signals; ensure intersections are kept clear of cross traffic; restrict curbside parking; embargo street construction during major events	Northern Virginia, Phoenix, San José, Los Angeles, Dallas	More efficient use of streets increases carrying capacity
	Optimize traffic volumes and speeds based on simulation models that analyze archived traffic data	Northern Virginia	Derives optimal traffic signal plan
	Provide shuttle services to parking lots, transit stations and park & ride lots	San José, Dallas	Reduces demand on street capacity
	Moratorium on street construction and filming	Los Angeles, New York	Increases capacity of street for through traffic

2) Involve neighborhood residents and affected businesses early in event planning.

Every special event affects its neighbors whether from increased traffic, demand for parking, noise or street closures. Community consultation and involvement are critical parts of special event planning and affect the amount of time needed for the planning process.

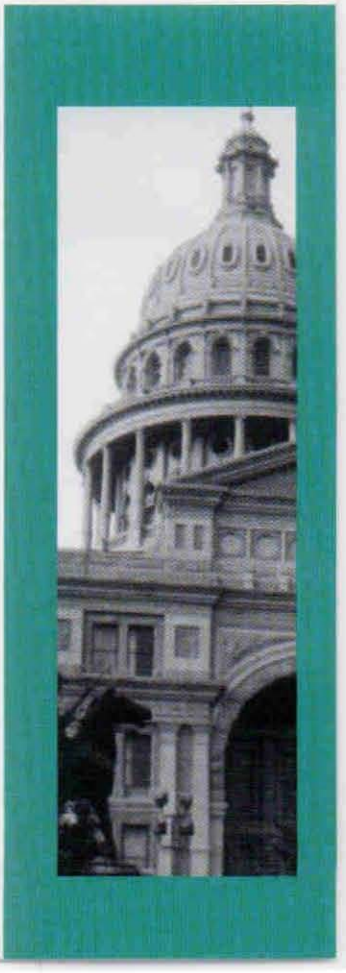
The case studies demonstrated the importance of involving the community at early stages of planning while plans were still fluid. Residents and businesses in close proximity are naturally curious and concerned about how the event will affect them. Planning staff in the case studies found it critical to hold informational meetings to brief community leaders and residents and answer questions as plans first take shape. In Los Angeles, briefings of downtown businesses and officials from suburban communities that would be housing delegates were instrumental in alleviating concerns about security and transportation measures. The briefings showed that officials had thought through the issues and were taking appropriate steps. Briefings also provide feedback that in some cases made planners rethink their plans.

The case studies illustrate several organizational approaches to community liaison. In some cases transportation and law enforcement agencies work directly with community groups. This occurred particularly with recurrent events such as the State Fair of Texas in Dallas.

Quite frequently, government agencies relied on community-based organizations or organizations with no direct operational responsibilities. These organizations provide a link between government agencies and local residents and businesses. For example, the New York City Police Department works through the Times Square Business Improvement District (BID) to distribute information and brief area businesses of arrangements for December 31.

In other cases, the liaison organizations advocate for the local community. For example, the Downtown Phoenix Partnership voices concerns of the downtown business community to city officials and helps work out solutions. Similarly, neighborhood associations (both business and residential) are instrumentally involved in community relations between the city of San José and local residents and businesses.

Community-based organizations such as business and neighborhood associations are well suited to connecting government agencies with local residents and businesses. These organizations can readily convey information to those affected by the special event, convene meetings with residents and businesses and provide feedback to local agencies. These organizations understand local concerns, are naturally able to view transportation impacts from special events in a broader context, and tend to be credible sources of information for the community. Most importantly, the community views these organizations either as neutral parties or, more often, as advocates for community interests, enhancing trust and credibility.



The involvement of community organizations also allows government agencies to focus on what they do best, namely, planning and managing the traffic, parking, transit and law enforcement aspects of the event. Each organization can thus concentrate on tasks within its expertise—community groups to liaison with the community, government agencies to carry out their transportation and other functions.

In formulating plans for a new downtown sports arena, the San José City Council created a new agency responsible for community liaison – the San José Arena Authority. The Arena Authority acts as a neutral third party to identify issues affecting the arena, convene the responsible organizations, liaison with the community, and find a resolution.

Community involvement in special event planning also establishes channels for communication of traffic, parking and transit information immediately prior to the event itself. Agencies have complete lists of community groups that need information. Residents and businesses have a sense of what to expect and a context to place the event-specific information. These relationships are vital to ongoing communication as well, for addressing and resolving issues that arise after the initial event that created the first collaboration.

3) Invest in transportation management infrastructure.

In all of the examples studied, transportation and law enforcement officials relied on the modern information technology of traffic management to manage and in some cases plan operations for the event. In northern Virginia, for example, the Virginia Department of Transportation monitors traffic conditions and adjusts traffic signal timing from its traffic management center. These capabilities are made possible by $26 million in funding that included new intersection traffic signal controllers, communications and a centralized traffic management center. VDOT optimizes traffic signal timings based on computer simulations that utilize advanced software and huge databases of traffic information from previous years. Traffic signals are monitored continuously and VDOT quickly dispatches repair crews when malfunctions threaten public safety.

Transportation and law enforcement officials in Los Angeles and San José possess similar capabilities, and can also view traffic conditions at key intersections using closed circuit television (CCTV) cameras. Transportation managers use video images to determine the cause of traffic tie-ups and decide on the appropriate response without traveling to the scene. During demonstrations outside the 2000 Democratic National Convention (DNC), transportation and law enforcement agencies were able to view CCTV images together and agree on the necessary response much more quickly than would have been possible without live video of bus and crowd conditions. In San José, a traffic center operator reports traffic and parking conditions to the police supervisor in charge of Compaq Center traffic management.

Variable message signs (VMS) are another important information technology that was effectively used in many of the case studies. These signs are used on highways and major arterial streets to provide motorists with information about highway exits and routing to event parking. Messages can be changed throughout the day based on event schedules, street closures, parking availability and changing traffic conditions.

Day-of-Event Operations

1) Communicate traffic, parking and transit information to the public.

Public information is a key tool for helping traffic, parking and transit systems operate smoothly. Travel information can inform attendees about the best route to parking lots or ways of reaching an event via public transportation. Motorists seeking other destinations can be routed around the event traffic instead of adding to it. Information for local residents and businesses can help mitigate impacts on those who live, work or shop in the area.

The case studies illustrate a myriad of ways to communicate travel information for special events. These include:

- General media such as radio, newspapers and the Internet
- Location-specific media such as variable message signs on highways and major arterial roads and posters in transit stations, trains and buses
- Direct mail to event attendees, often with tickets or other information included

CHALLENGE	STRATEGY	EXAMPLES	WHY IT WORKS
13 STREETS ARE OVERLOADED WITH TRAFFIC DUE TO OVERLAP BETWEEN SPECIAL EVENT AND OTHER SPECIAL EVENTS OR RUSH HOUR	Coordinate scheduling of events through special event coordinating committee	Phoenix, San José	Conflicts can be avoided if staff identify problems in time
	Distribute traffic throughout street and highway network using directional signage, variable message signs, signal timings, police traffic control	Phoenix	Fully utilizes available street and highway capacity
	Change time and/or location of special events to eliminate conflict	San José	Reduces demand for street capacity
	Publicize and encourage use of transit	Los Angeles, New York, San José, Dallas	Reduces demand for street capacity
	Direct through traffic around the special event traffic	Los Angeles, New York, Phoenix	Reduces demand for street capacity near the special event site
	Encourage attendees to arrive early or stay later after event	San José (especially with shuttle that connects downtown restaurants with Compaq Center)	Reduces traffic immediately before and after event; patrons can relax knowing they will be on time to event.
	Locate auto, bus, taxi and limo pickup and drop-off areas away from heavily used arterial streets	San José, Los Angeles, Phoenix	Reduces demand for street capacity at the special event site

- Direct mail to area businesses and residents, or distribution of information via fax or e-mail
- Volunteers or paid staff offering information and assistance at transportation hubs such as airports and train stations, hotels, convention centers and sports arenas, as well as on the street.

Local governments typically combine a variety of methods to reach the disparate audiences that range from event attendees to local residents and businesses to people commuting to and from work in the area.

2) Build in flexibility to adapt transportation operations to changing conditions as the event takes place.

Even the best planning cannot always anticipate key aspects of the event such as the exact number of attendees, when attendees will arrive, how long it will take people to clear security, whether they will stay after the event, etc? Crowd size and arrival times are particularly problematic for large public events such as July Fourth fireworks and New Year's Eve celebrations that do not involve advance ticket sales. Even when the number of people is known, timing can be difficult to anticipate. It came as a surprise to planners, for example, that most delegates to the 2000 DNC would travel from their hotels to the Staples Center in downtown Los Angeles in the late afternoon instead of the morning or early afternoon. Similarly, although it is known that revelers will begin to arrive in Times

CHALLENGE	STRATEGY	EXAMPLES	WHY IT WORKS
14 PARKING LOTS SERVING ONE EVENT ARE FILLED BY PATRONS FOR ANOTHER EVENT	Reserve parking capacity for patrons of event occurring next to the lot	Phoenix (space in parking lot next to symphony hall is reserved for concert-goers)	Symphony attendees can park next to concert hall; baseball fans have many parking alternatives and are more agreeable to walking several blocks
15 HEAVY PEDESTRIAN FLOWS SPILLOVER INTO MOVING TRAFFIC	Create pedestrian corridors by widening sidewalks, closing streets temporarily and roping off some lanes of traffic for pedestrian use	San José, Phoenix, New York, Los Angeles	Expands the pedestrian realm
16 LOCAL BUSINESSES CONCERNED THAT PATRONS WILL NOT BE ABLE TO REACH THEIR STORE, RESTAURANT OR OFFICE	Minimize number of street closures	Phoenix, San José	Increases available street capacity
	Leave some lanes open for traffic; separate traffic lanes from pedestrians using bollards	Phoenix	Increases available street capacity
	Roll out closures so streets are closed only as necessary	Phoenix, San José, New York, Los Angeles	Increases available street capacity for as long as possible
	Provide signage for routes to businesses	Phoenix, Los Angeles	Assists motorists with reaching destination
	Provide helicopter tour to top officials/business leaders to show effectiveness of traffic plan	Phoenix	Shows that while traffic is congested in some areas, overall plan works well
	Provide off-street parking	Los Angeles	Provides alternative parking

Square at about noon on December 31, the exact number and timing of their arrivals is dependent on weather and other factors and cannot be predicted in advance.

Another source of uncertainty is potential disruption from demonstrations or the potential for terrorist activity. Demonstrators were a huge concern to transportation planners for the 2000 DNC, who feared that they would prevent delegate shuttle buses from reaching the convention hall. Security was also a major concern for the 2000 DNC as well as for recent New Year's Eve celebrations in New York City, for the Millennial Celebration, and after the September 11, 2001 terrorist attacks.

Flexibility and contingency planning are critical to managing these types of uncertainties. Flexibility can be built into the transportation plan itself. For example, the New York City Police Department closes off streets on December 31 as spectators fill successive blocks north and south of the ball drop. The pace of street closures is timed to the actual arrival of celebrators. Parking managers for the State Fair of Texas open and close parking lots as lots fill in the morning and empty out later in the day. In Los Angeles, the operator of the delegate shuttle bus service switched from scheduled service in the afternoon peak to simply having buses leave each hotel after they filled to capacity.

The case studies also demonstrated the value of contingency planning. The San José Department of Transportation, for example, can call out additional police officers to manage traffic if necessary during an event at the Compaq Center. Extensive contingency

CHALLENGE	STRATEGY	EXAMPLES	WHY IT WORKS
17 **DELAYS IN EMPTYING PARKING LOTS AFTER EVENT**	Increase capacity by reversing direction of traffic	New York, San José	Increases street capacity in congested direction
	Dedicate highway lane to traffic entering from the event	Dallas	Eliminates merge from on-ramp and thus increases speed of vehicles entering highway
	Offer free or reduced-price parking some distance away and provide shuttles if necessary	San José, Dallas	Reduces number of cars parking at close-in lots
	Monitor and continually evaluate how quickly lots are cleared after event	San José	Staff evaluated for performance; provides feedback loop
18 **SPECIAL EVENT ATTENDEES PARK IN SURROUNDING NEIGHBORHOODS**	Set up residential and/or commercial parking program	San José	Reserves parking for residents
	Restrict on-street parking on the day of the event	San José, Los Angeles, New York	Eliminates on-street parking
	Tow illegally parked vehicles	New York, Los Angeles, Dallas	Enforces restrictions

plans were developed in Los Angeles to manage disruptions from demonstrations. Plans included bus re-routings and a safe haven for unarmed DOT personnel if they needed to evacuate the Staples Center area.

3) Use central command posts for events having a large element of unpredictability.

Centralized command posts are most valuable when local officials may need to respond quickly to unforeseen circumstances. During the 2000 Democratic National Convention, city, county and state law enforcement, transportation and transit agencies installed trailers in the L.A. Coliseum parking lot to run the delegate transportation operations. Officials considered the ability to talk with each other face-to-face to be vital to enabling rapid response to evolving demonstrations and to delays in security checks for buses when the convention opened. Similarly, during emergencies, the Monroe County emergency operations center houses managers from numerous organizations ranging from county and state transportation departments to the Red Cross and New York State National Guard.

CHALLENGE	STRATEGY	EXAMPLES	WHY IT WORKS
19 EVENT TRAFFIC DISTURBS RESIDENTIAL AREAS	Change traffic signal timings to discourage use of side streets	San José	Discourages use of side streets
	Signage directs event-goers to arterial streets	San José	Discourages use of side streets
20 HEAVY PASSENGER DROP-OFF AND PICKUP ACTIVITY (ESPECIALLY WITH PARENTS TRANSPORTING YOUTH)	Move drop-off/pickup location off main arterial and expand its size	San José	Increases available street capacity for moving vehicles
	Provide parent lounge in the event facility	San José	Encourages parents to park in lot and wait in lounge

In other cases, agencies staff their own command centers and communicate with other agencies by two-way radio and cell phone. Transportation agencies utilize their traffic management centers in San José, Phoenix and northern Virginia, for example. Police departments utilize police command centers in New York on New Year's Eve and in downtown Phoenix for Bank One Ballpark management. At times – as in Phoenix – personnel from other agencies are also at the police center.

4) Build in a process for modifications to transportation operations.

Transportation plans for recurrent special events need to be modified periodically based on experience with the event and changing conditions in the surrounding area. Experience in Phoenix, for example, showed that one of two street closures was unnecessary. Accordingly, Phoenix transportation officials modified the plan to keep one street open for traffic. Opening of a new theater in downtown Phoenix several years after Bank One Ballpark opened also necessitated adjustments to transportation and parking operations for baseball games.

These modifications are handled in Phoenix and San José through event planning and coordinating committees. The committees review recent events at biweekly or monthly meetings and develop any operational adjustments that may be needed.

San José also periodically reviews its formal Transportation and Parking Management Plan. Initially adopted in 1993, the plan was updated in 1994 and 2002. Each update was reviewed and approved by the city council. The latest update establishes a three-year review cycle.

The process for modifying the transportation plan in San José and Phoenix is built on processes and relationships established when the initial plan for the facility was written. In San José, for example, neighborhood issues are channeled through the San José Arena Authority, which is responsible for liaison between city agencies and the community. The Downtown Phoenix Partnership is the conduit for issues raised by the Phoenix business community about the transportation plan for Bank One Ballpark. In both cities, city agencies develop revisions to the transportation plan based on their own monitoring of traffic conditions.

Formal performance monitoring can play an important role in this process. San José has established a benchmark of clearing the parking lots within 30 minutes after the conclusion of an event at the Compaq Center. The agency staff is evaluated on achieving this performance measure. In contrast, some stadiums and arenas promote activities aiming to delay spectator departures in an effort to maintain travel time reliability.

Needed modifications to transportation plans for events that occur annually, such as the State Fair of Texas, New Year's Eve in Times Square and July Fourth fireworks celebrations,

are naturally evaluated during preparation for the event each year. The revision process is thus part of the annual planning process. The first step for planning "next year's" event is to identify problems that occurred with "this year's" event and work out solutions. This evaluation is usually made at the same time that planners identify changes in the event itself for the coming year that will necessitate changes to the transportation plan.

5) Build on special event plans and interagency relationships for the future.

Planned special events are among the many challenges faced by transportation agencies. In all of the case studies, agency managers viewed planned special events as part of overall development of their capabilities to plan and manage a variety of different types of events. Work on special events can help to build interagency relationships, technical capabilities and experience for future special events, as mentioned above. Special events can also contribute to successful incident management, preparation of emergency plans, day-to-day operations and long-term planning.

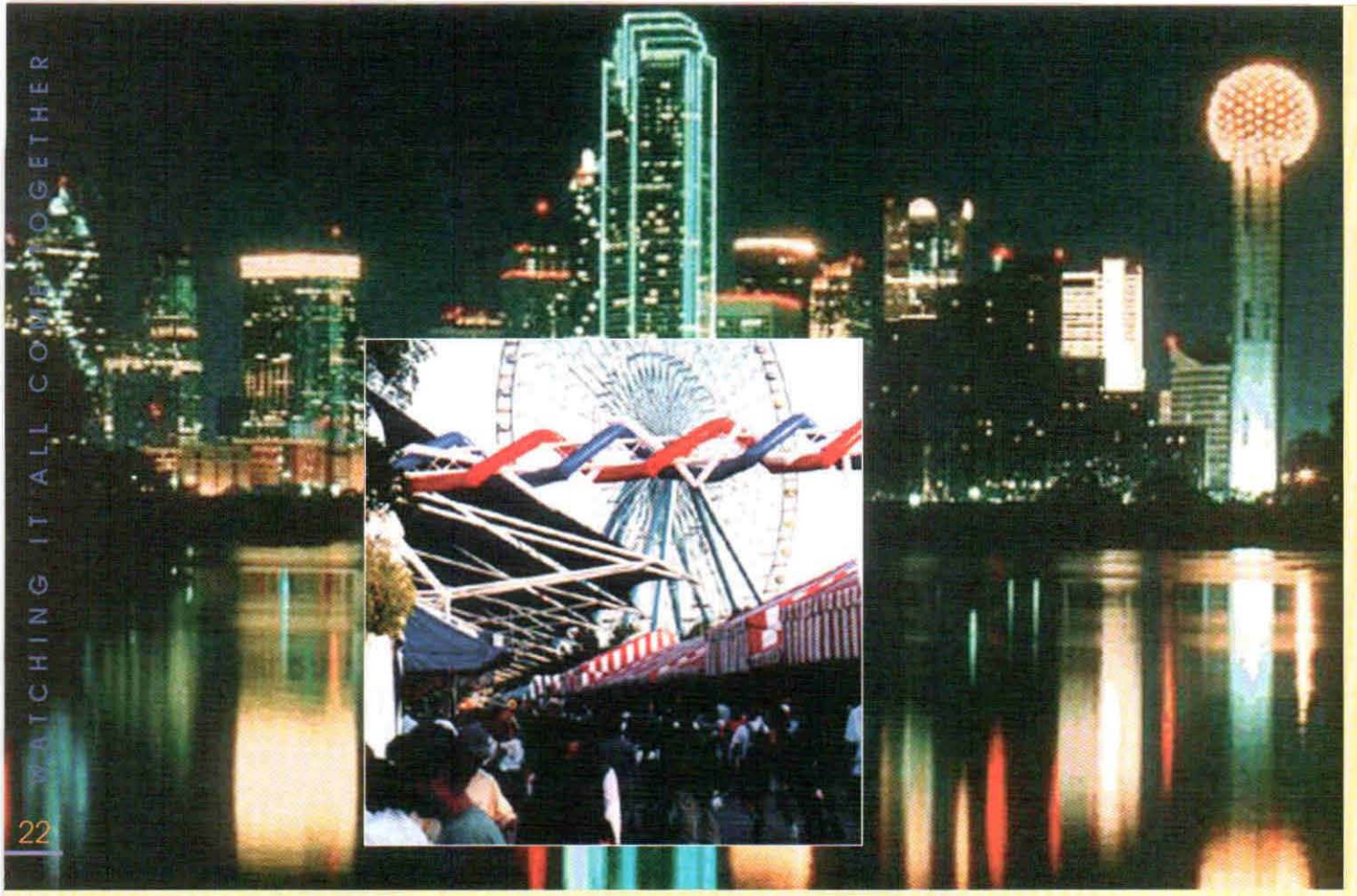
Several case studies demonstrate the importance of special events to progress in these areas. For example, in the experience of city of Dallas staff, working together on special events has strengthened agency relationships for freeway incident management, intelligent transportation systems (ITS), emergency preparedness and development of the regional transportation system. The Los Angeles County Sheriff's Department decided to co-locate its communications center for the Rose Bowl with the city of Pasadena, based on its experience with co-located command centers at the Coliseum for the Convention.

Agency managers interviewed for several case studies stressed the importance of special events to building interagency relationships through better understanding of one other's capabilities and stronger bonds of trust.

Conversely, special event planning and management benefits from experience in these other areas. Planning for the 2000 DNC in Los Angeles benefited from agency relationships built through the 1984 Olympics, the Northridge Earthquake in 1994 and Y2K preparations. Planning for a major golf tournament in Monroe County used relationships and procedures developed for emergency management.

Special events can also foster agency relationships and institutional structures that serve as a foundation for effective long-term planning. For example, the San José Arena Events Operating Committee, created to coordinate day-to-day management of Compaq Center and other downtown events, now also serves as a forum to address the impact on Compaq Center operations of light rail development and flood control on the Guadalupe River.

CASE STUDIES



Dallas Texas
STATE FAIR OF TEXAS

Any event that draws 3 million visitors over 24 days is likely to cause traffic jams. City, state and State Fair officials work together closely to manage traffic generated by the crowds attending the annual State Fair of Texas outside downtown Dallas. Keys to traffic management are:

- Close coordination between agencies for parking and traffic operations, nurtured by years of working together during the State Fair and for other events.
- Efficient use of highway and street capacity through motorist information and traffic management.
- Operational flexibility to fully utilize intersection and parking lot capacity.

In addition, the city of Dallas and Texas Department of Transportation are upgrading motorist information capabilities by adding dynamic message signs on highways and arterials and closed circuit television on arterials, to give both drivers and traffic managers better information about traffic and parking conditions.

Introduction

The State Fair of Texas features far more than cattle shows, bake-offs and amusement rides. Drawing 3 million visitors annually, the State Fair is a multifaceted event that includes indoor and outdoor concerts, outdoor sports stadium for 65,000 attendees, football and soccer games, rodeos and many museums.

The State Fair of Texas is held each year over 24 days in late September and October at Fair Park, a 277-acre recreational and entertainment complex owned by the city of Dallas. Fair Park is located two miles east of downtown Dallas. Fair Park contains 9,000 parking spaces; an additional 3,000 spaces are located at private off-site lots. Nearly all attendees arrive by car. Auto access is provided by I-30 and I-45.

Managing traffic to the State Fair poses several major transportation challenges. Unlike other major events that focus on the ingress and egress traffic for a single event, the State Fair grounds serve multiple venues throughout the day. One challenge is to direct State Fair visitors to available parking as the various lots fill up during the day. Another challenge is to manage the parking spaces throughout the day to make room for other special event parking such as soccer and football games, music concerts and rodeos to available parking. These events draw from several thousand to tens of thousands of fans. A third challenge is to accommodate the traffic volumes leaving the parking lots after events while traffic for other special events is inbound.

Organization and Agency Responsibilities

The State Fair of Texas, Inc. is responsible for the overall event and manages the parking lots in Fair Park.

Texas Department of Transportation (TxDOT) operates and maintains the highways providing access to the State Fair. For the State Fair, TxDOT services include dynamic message signs, a motorist assistance courtesy patrol and traffic management as described below.

The city of Dallas Public Works and Transportation Department operates traffic signals on surface streets serving Fair Park. All traffic signals are monitored and controlled remotely via a computer control system. The system uses CATV cable to communicate to each traffic signal. The Dallas Police Department directs traffic when traffic volumes exceed the capacity of the signal system to prevent gridlock and contain pedestrian crossings.

ANY EVENT THAT DRAWS 3 MILLION VISITORS OVER 24 DAYS IS LIKELY TO CAUSE TRAFFIC JAMS.

A private parking operator also provides 2,000 parking spaces outside Fair Park. Fairgoers walk from these lots to the Fair. Many of the local residents sell parking on their lawns and driveways and vacant lots.

The State Fair of Texas funds the time of Dallas police officers, transportation engineers, traffic management center operators and signal and sign technicians including overtime that is used for state fair traffic management.

Dallas Area Rapid Transit (DART) operates a shuttle service on weekends from nine DART Park&Ride lots. The Park&Ride shuttles operate every 30 minutes from approximately 9:30 a.m. to 11:30 p.m. Adult fares are $3.50 for the Park&Ride shuttles. In addition, a single-track heavy-rail train carries pedestrians 3,000 feet from a major parking area to the northern gate entrance. The rail shuttle operates every 15 minutes. Tram shuttles are also provided to carry disabled pedestrians from parking areas to the gate entrances. Light rail to Fair Park is currently under design and operation planned to begin in year 2007.

Planning

Two planning meetings are held each year relating to transportation. One meeting is specifically focused on transportation issues, and involves the State Fair of Texas and the Public Works and Transportation Department transportation engineering staff and police officials. A larger meeting is also held for all agencies and organizations involved with the State Fair to coordinate all aspects of the event. In addition to these two formal meetings, individual meetings between city transportation staff and the police are held as needed. Although aspects of the fair change from year to year, the planning effort is significantly aided by the years of experience and relationships built up over many years.

The key planning issue for transportation management is to identify visitor volumes, origins and destinations for each day of the fair. Visitor arrivals peak between 10 a.m. and 1 p.m., during which time cars entering the parking lots back up onto streets feeding into the parking lots. In addition to this normal daily pattern, visitor arrivals increase for concerts, sports events, etc. These volumes are considerable; up to 65,000 fans, for example, attend the Texas-Oklahoma and high school Grambling vs. Prairie View football games. Traffic plans for the State Fair must anticipate these volumes and the direction from which traffic will be arriving.

Day-of-Event Management

The goals for traffic management include:

- Encourage use of all four highway exits that provide access to Fair Park
- Direct motorists to available parking lots designated for their destination venue within Fair Park

- Keep intersections free of gridlock
- Minimize delays for cars entering the parking lots
- Empty the parking lots as quickly as possible after events

Key aspects of traffic management are:

- **Color-coded signage.** Dallas DOT posts color signs coded for each event to direct motorists to a parking lot near their venue. These signs are currently changed manually using slipcovers over roadside signage. The city of Dallas is replacing these manual-altered signs with electronic dynamic message signs (DMS), which will have three line LED color displays. The DMS signs can be tailored to specific upcoming events. City staff feel that motorists will be able to more easily read and follow a consistent color assignment directing them to an event parking area than posting directions to several different venues in a single color.
- **Dynamic message signs.** TxDOT uses permanent and portable variable message signs along the highways serving Fair Park to direct motorists to the appropriate exit. TxDOT is also planning to install permanent VMS signs that would direct motorists to the appropriate exit for events scheduled for that day. The city of Dallas plans to install color dynamic message signs by 2004 to direct motorists to the appropriate gate entrance and to designated freeway entrance ramps when exiting the park.
- **Dedicated highway entrance lanes.** After major events such as a football game, TxDOT assists in emptying city streets by closing the right lane on the highway in advance of the entrance. The free right lane unloads city streets more quickly since cars entering the highway do not need to merge with oncoming traffic.
- **Courtesy patrols.** TxDOT courtesy patrol teams cruise the highways in pickup trucks and offer motorists light mechanical assistance as needed. The assistance includes water for the car radiator, jacks to change flat tires and a push off the highway if the vehicle has a more serious mechanical breakdown.
- **Rotation of parking lot entrances in use.** The State Fair rotates open parking lots during the course of the day. The goals are twofold. The first is to open parking lots near venues such as the sports stadium or concert venue as patrons arrive for events at the venue. The second goal is to clear each parking lot of vehicles entering earlier in the day before reopening it later in the day for a special event. Incoming vehicles can park more quickly when motorists do not need to search the lot for an available parking space.
- **Closed circuit television cameras.** The city of Dallas also plans to install closed circuit television cameras at key points. Camera views will feed back to the agency's traffic management center using the CATV cable network. Currently, city transportation staff monitor traffic volumes based on data collected from magnetic loop detectors, devices buried in the pavement at each intersection. But without the cameras, staff cannot see the causes of traffic backups without sending a traffic engineer to the site.

The city of Dallas transportation staff, the Dallas Police Department, TxDOT and the State Fair of Texas closely coordinate transportation operations. For example, the State Fair communicates to city staff the opening and closing of gate entrances. Police officers move barricades and cones to adjust traffic capacity for each entrance. Police officers and city staff coordinate traffic signal operations and traffic management. The distribution of green time is remotely controlled using a central traffic control computer system located at a Traffic Management Center (TMC) in City Hall. Special traffic signal timing is implemented and fine-tuned from the TMC for areas that can be viewed by roadside cameras and by field engineering staff for areas lacking remote monitoring. When traffic volumes exceed the system capacity, Police officers override traffic signals and "pull" vehicles through red lights to prevent gridlock. They also contain pedestrians from crossing continuously. The police and transportation staff also coordinate with TxDOT for traffic management of the two highways that serve Fair Park.

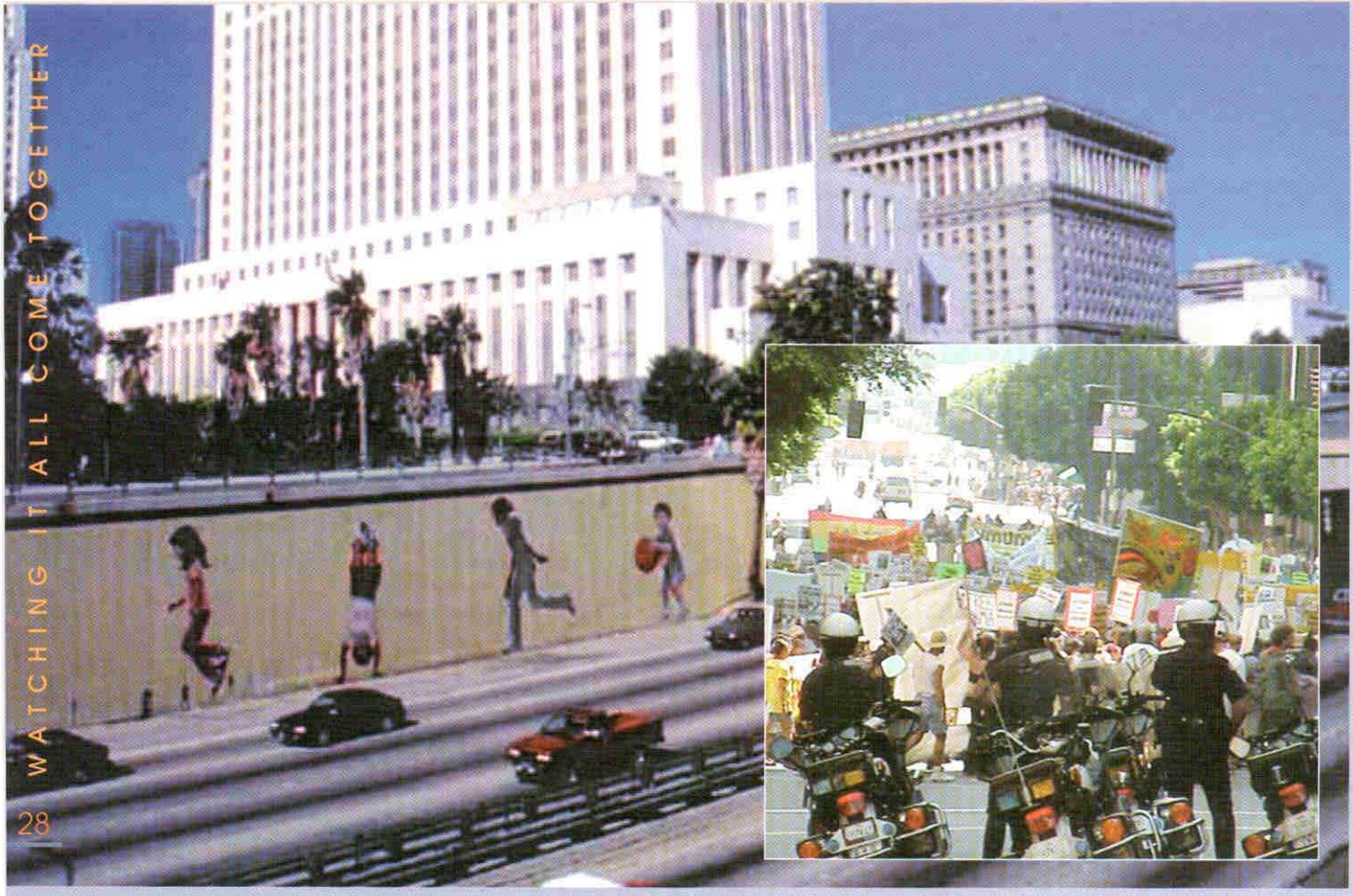
Dallas DOT, the Dallas Police Department, TxDOT and the State Fair of Texas use two-way radios and cell phones for intra-agency and interagency communications. A master contact list containing phone, fax, pager and cell phone numbers is updated and distributed each year designating the service, responsibility and contact person.

Neighborhood Concerns

Fair Park is in the midst of a primarily low-income residential neighborhood. The Dallas Police Department advertises traffic routes and street closures to residents prior to the opening of the Fair. Neighborhood residents' most common complaint to the police involves parked cars that block residential driveways. The police tow vehicles blocking driveways. Aside from that issue, police officials feel that residents are accustomed to the Fair and accept the traffic impacts.

Special Event Coordination and Planning

Annual coordination of the State Fair has helped build and strengthen relationships among city and state agencies. In the experience of city of Dallas staff, a decade ago a special event such as the State Fair was the only occasion that brought together DOT, police, fire, TxDOT and other agencies. Coordination now occurs much more broadly and regularly, covering such areas as freeway incident management, intelligent transportation systems, emergency preparedness and development of the regional transportation system. Working together on special events has strengthened these relationships. The converse is also true, as meetings throughout the year build relationships relied upon for State Fair transportation operations.



Los Angeles California
2000 DEMOCRATIC NATIONAL CONVENTION

ational political conventions always shower the host city with visitors and media attention. The 2000 Democratic National Convention (DNC) in Los Angeles also brought a downpour of security concerns, intensified by the civil unrest during the world economic conference in Seattle and the vandalism in Los Angeles after the L.A. Lakers won the National Basketball Association (N.B.A.) championship. Intense security concerns, the inherent size and complexity of a national convention, and the host of interagency and inter-jurisdictional challenges produced by the need to transport delegates from 80 hotels spread throughout the metropolitan area, raising anxiety levels as Los Angelinos planned for and anticipated the 2000 DNC.

Yet by the end of a relatively smooth-running Convention week, officials, the press and the public let out a long sigh of relief. Key factors in the success of the transportation aspects of the 2000 DNC were:

- An effective interagency planning team, which had an early start, developed as a cohesive team, and was given the authority to develop and implement a successful transportation plan.

- Network of command centers, including co-location of transportation functions at the L.A. Coliseum about one mile south of the Staples Center.
- A DNC coordinator, appointed by the mayor, with authority to make decisions, along with a phalanx of government agencies.
- Inter-jurisdictional cooperation among local, state and federal agencies to coordinate far-flung transportation operations with cities throughout L.A. County and California.
- Hiring a company that had planned similar events before and brought operating expertise and a feel for an event of the size, complexity and political nature of a national convention.
- Resourceful and forward-thinking LADOT staff, who first proposed construction of a security fence around the Staples Center and demonstrated the vital role that LADOT traffic cameras and other capabilities could offer to security agencies.
- Extensive contingency plans, which enabled agency staff to adapt quickly to changing conditions.

Introduction

The 2000 Democratic National Convention was held in the Staples Center, a new, state-of-the-art arena in downtown Los Angeles. Approximately 15,000 convention attendees and 15,000 media personnel attended the convention, which was held the week of August 13, 2000.

NATIONAL POLITICAL CONVENTIONS ALWAYS SHOWER THE HOST CITY WITH VISITORS AND MEDIA ATTENTION

Los Angeles won the selection of a venue for the 2000 DNC through the efforts of a business group that felt the convention would benefit the city's economy and image. The business group billed the Convention as a privately funded event. Although the city transportation and police departments were involved in writing the initial proposal for the convention, the city government did not completely mobilize its efforts to host the Convention until early in 2000. Funding to underwrite much of the expenses that were incurred by L.A. city and L.A. County departments was not enacted until shortly before the convention opened. Several departments juggled funds to pay for planning and preparation for the convention.

Forty years had elapsed since Los Angeles had last hosted a national convention – the 1960 DNC that nominated John F. Kennedy for president. Given this lengthy gap and the normal turnover in political staff at the Democratic National Committee, the 2000 DNC was the equivalent of a first-time event for both DNC and L.A. staff who planned the hosting arrangements.

Another challenge arose from heightened security needs. Demonstrators and looters disrupted the world economic conference in Seattle in 1999 and the International Monetary Fund conference in Washington, D.C. in April 2000. Looters vandalized property around the Staples Center after the L.A. Lakers won an NBA title in June 2000. A number of groups planned to demonstrate during the DNC in 2000, with a few pledging to disrupt

the Convention. As a result, agencies ranging from the Los Angeles Police Department to the Secret Service focused intensely on security needs to ensure against a repeat in August 2000. Police commanders pledged, "Not on my watch." How transportation considerations would fare in this environment was an open question in the minds of transportation planners.

Organization and Agency Responsibilities

The overall organizational structure was governed by a master agreement between the Democratic National Convention Committee (DNCC), the city of Los Angeles, LA 2000 (the event organizing committee) and the Los Angeles Arena Company, which owns and operates the Staples Center. The master agreement detailed transportation and security services to be provided by the cty in support of the convention and related activities. The master agreement also estimated the funding needed and amounts that LA 2000 would provide. Actual funding needs exceeded the initial budget.

The Los Angeles Department of Transportation (LADOT) was designated as the lead coordinating agency for provision of transportation services. The department's special events office had primary responsibility for planning LADOT operations during the convention, assisted by traffic engineering and traffic enforcement divisions.

LADOT chaired the transportation subcommittee of the Convention Operations Committee to plan, coordinate and manage transportation services for the convention. Transportation and enforcement agencies were key members of the transportation committee: LADOT, the L.A. County Metropolitan Transportation Authority (MTA), the Los Angeles Police Department (LAPD), the Los Angeles County Sheriff's Department and Event Transportation Associates (ETA), which operated the bus shuttles between the convention and delegate hotels. These organizations worked closely and collaboratively to provide transportation services for the convention.

In addition, the transportation subcommittee included as members the DNCC, LA Convention 2000, Los Angeles Convention and Visitor Bureau (LACVB), the Los Angeles World Airports Department and Burbank-Glendale Airport.

LADOT was responsible for traffic operations in the Staples Arena area and closely involved with providing bus transportation. LADOT also operated a taxi stand and holding lot at the Staples Center. Taxis were staged in a parking lot leased by the city about two blocks away. LADOT also extended its downtown DASH bus shuttle service to the convention center and extended DASH hours to midnight.

In addition to direct responsibility for traffic operations, DOT made major contributions to security, ranging from proposing the placement of a heavy-duty security fence around the Staples Center to providing enforcement agencies with closed circuit television (CCTV)

views of key locations around the arena.

The MTA provided most of the buses and drivers used for delegate transportation. MTA buses included alternative fuel buses and wheelchair-accessible buses. The MTA contacted other public agencies in California to obtain additional buses, and fueled both MTA and other agencies' buses during the convention. The MTA also rerouted bus routes affected by street closings in the Staples Center area. A light rail station just outside the perimeter was kept in service during the convention, providing another transportation option.

The Los Angeles County Sheriff's Department provided deputy sheriffs to ride each of the 265 buses used for the event to ensure the safe transportation of delegates. This ensured security for each bus and also the radio communications that were used to track bus locations as the buses moved between hotels and the Staples Center.

The Los Angeles Convention and Visitors Bureau was allocated funding for delegate transportation under agreement with the city. The LACVB in turn brought in Event Transportation Associates (ETA), a company specializing in large event transportation and management. LADOT assisted in the process of choosing the contractor. ETA planned and managed delegate transportation between the Staples Center and the 80 hotels spread throughout the metropolitan area that housed delegates. ETA also provided bus transportation to delegate receptions and other off-site events.

Another key participant was the city's DNC coordinator, appointed by the mayor in January 2000. Agency staff credit the city's DNC coordinator with making planning for the Convention run much more smoothly than would have been possible otherwise. He had the mayor's backing and could thus obtain cooperation and action from a wide range of city agencies. The DNC coordinator was a veteran of a half-dozen city departments and had just spearheaded the city's preparations for Y2K. He thus brought to the DNC assignment close relationships with managers in numerous city departments.

Other organizations involved in transportation aspects of the 2000 DNC were:

- LA 2000 provided volunteers who staffed airports, hotels, delegate receptions and convention facilities and assisted convention attendees in using the bus and other transportation services.
- LA 2000 managed public information for the convention, encouraging residents to take vacations during the convention in order to reduce traffic volumes. The traffic plan was published in newspapers and made available on the Internet. LA 2000 and the DNCC distributed to delegates information on public transportation, bus shuttles and tourist attractions, developed by a working group of transit operators that was initiated by LADOT.
- California Highway Patrol escorted dignitary transportation on highways.
- The L.A. Department of Public Works assisted with setting up the concrete security

fence around the Staples Center, cleaned the streets each evening and accelerated laying of an extensive network of fiber optic cables that was essential for sharing of closed circuit television images between operations centers during the convention.

- The LACVB contracted with an airport shuttle service to transport convention delegates from area airports to the official Convention hotels and return them to the appropriate airport at the end of the convention. Persons to be transported were provided with a voucher for each trip.
- The DNCC managed a motor pool operation with support from volunteers provided by LA Convention 2000.
- The LAPD motorcycle patrol escorted shuttle buses into the security zone.

Planning

Extensive planning was required to prepare for the convention due to the size and complexity of operations, the involvement of numerous government agencies and jurisdictions, and the fact that 2000 was the first time in four decades that Los Angeles had hosted a national convention.

Security considerations had a major impact on traffic and transportation operations. Transportation operations were shaped by street closures and parking restrictions in the Staples Center area, the vehicle access process for entering the Staples Center secure area, procedures for the security and safety of the bus shuttle system, driver screening and many other security aspects. At the earliest stages of planning, LADOT staff recognized the importance of meshing security and transportation considerations.

SECURITY CONSIDERATIONS HAD A MAJOR IMPACT ON TRAFFIC AND TRANSPORTATION OPERATIONS.

LADOT staff took several early steps to ensure fruitful coordination. For example, LADOT proposed to LAPD and the Secret Service that a fence be erected around the perimeter of the secure area. LAPD proposed using the heavy-duty fencing that is erected each year for the Long Beach Grand Prix. The fence provided a way to maintain control of the area immediately around the Staples Center and to control access to the Arena.

Siting of the fence was a key decision for both security agencies and transportation planners. The exact location of the fence was initially drafted by LADOT staff based on its analysis of traffic impacts from various levels of street closures and the ability to mitigate those impacts. During ensuing discussions about the best placement of the fence, LADOT was able to show the Secret Service that closing too many streets to traffic would create such congestion that delegates would not be able to reach the Staples Center.

Space was reserved for demonstrators just outside the fenced area. As the convention opening date neared, a judge ordered that the fence be moved to place the demonstration area within view of the main entrance to the Staples Center, but the city's ability to control the area inside the perimeter was maintained.

Other actions that contributed in key ways to the planning process included:

- **An early start to planning** – about nine months before the convention – which provided sufficient time for the extensive and detailed planning process. Equally important was assignment of staff whose time was dedicated to convention planning.
- **Co-location of transportation planning personnel.** Key members of the transportation subcommittee were moved to office space provided by the local gas company. Working side-by-side, the city's DNC coordinator and staff and the chief DNC planners from LADOT, LAPD, Los Angeles County Sheriff's Department and the DNC developed close, trusting relationships and a spirit of accommodation and cooperation. They freely shared information, including sensitive information related to event security. DOT staff reached an understanding with DOT management that certain sensitive information would not be shared beyond task force members. This enhanced trust within the task force group.
- **Integration of transportation engineers into the LAPD command structure.** LADOT felt there was a risk that security agencies would make decisions that would make it difficult to effectively manage traffic and provide delegate transportation effectively. They took steps to make themselves useful and play a key role in convention planning. One step was to propose the security fence concept and location, which formed the basis for subsequent planning of traffic and bus operations. Another step was to demonstrate LADOT's traffic management capabilities during the Grammy Awards, including the usefulness to security agencies of CCTV views. LADOT also prepared CD-ROMs with twelve pictures of each of the 80 hotels, showing entrances, back views, etc., which helped in both bus shuttle and security planning.
- **Planners implemented their own plans.** The same core transportation team both planned for the convention over a period of months and managed transportation operations during the convention. This meant that in the crucible of the event itself, managers had a very strong relationship with each other and a complete understanding of event plans.
- **Briefings of other enforcement agencies.** Differing views from the numerous jurisdictions and agencies affected by the convention could have made the job of the transportation subcommittee members very difficult. The Los Angeles County Sheriff's Department helped prevent this from occurring. The lieutenant from the Sheriff's Department who was on the transportation subcommittee briefed his command staff, the captain of each sheriff station and police officials in each city that they would be operating in during the convention. The sheriff's office brought LADOT engineers to each of these briefings and to briefings of the FBI and LAPD. These briefings gave transportation planning staff the opportunity to explain their plans, lay to rest the concerns of each audience, and maintain control of convention planning.

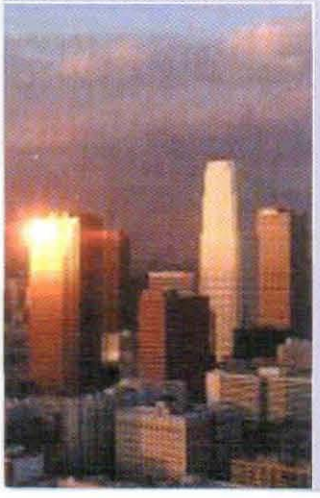
- **Hiring of an outside transportation management company.** ETA brought experience with managing the transportation operations of a large event such as a national convention. As a private company, ETA could more easily issue an RFP for charter buses and select charter bus companies to provide buses and drivers for the convention. ETA also brought several intangible assets. The company had a keener sense than city staff of the size and complexity of a national convention. ETA also helped the city and MTA evaluate DNC requests and frame a response.
- **Using a prior event as a test run.** LADOT, LAPD and the L.A. County Sheriff's Department used the Grammy Award Ceremony, held at the Staples Center several months before the convention, as a test run for the convention traffic plan. This test run also gave LADOT the opportunity to show the enforcement agencies ways that LADOT could contribute to the smooth running of the convention.

Day-of-Event Management

Several major streets within the security perimeter were closed to traffic beginning several days before the convention opened. LADOT also defined a traffic circulation impact area around which commuter traffic was re-routed using the area's extensive network of arterial streets. Certain streets were converted to one-way operation. Green arrows were provided for bus turns in order to speed the travel of bus shuttles for convention delegates. LADOT also put in place temporary parking restrictions, truck travel and parking restrictions and pedestrian wayfinding signs. Parking lots in the immediate area were set aside for convention needs including VIP parking and press access. Pedestrian access was limited to specific points of entry and open only to credentialed personnel.

LADOT deployed traffic officers at key intersections to help keep traffic flowing smoothly, adjust traffic signals and reroute buses if needed, and tow illegally parked vehicles.

LADOT operated a command center at the Los Angeles Coliseum and two traffic management centers—the main traffic management center next door to City Hall and a satellite center a few blocks from the Staples Center. The satellite center could monitor CCTV camera views and provided a staging area for traffic officers.



ETA operated 265 buses for delegate transportation during the convention. Buses were staged and stored at the Los Angeles Coliseum, which is about one mile south of the Staples Center. Buses were dispatched from the Coliseum each morning of convention week. They traveled on schedules between hotels and the Staples Center using pre-determined routes. In the late afternoon, when the majority of delegates traveled to the Staples Center, ETA switched from a scheduled service to demand-based service. Buses left hotels once they were loaded instead of at predetermined times. This approach helped to meet the strong peak demand in the 30 minutes before the convention was gaveled to order.

Features of traffic and bus shuttle operation that were important to the success of the operation were:

- **Colocation of bus staging and transportation command posts at the Coliseum.** LADOT, MTA, the California Department of Transportation (Caltrans) and the Street Services division of the Los Angeles Department of Public Works installed trailers in the Coliseum parking lot to run the transportation operations. In addition, the LAPD and L.A. County Sheriff's Department used the Coliseum as a staging area for 216 LAPD motor police who escorted the bus shuttles into the Staples Center and sheriff deputies who rode on each bus. Colocation was critical to coordination of operations between the agencies. Staff from each agency could easily walk between trailers, facilitating quick decision-making in an environment of rapidly changing operational needs.
- **Authority for decision-making at the Coliseum command posts.** Managers from each agency at the Coliseum command posts made key operational decisions and were not required to obtain permission from senior managers before they acted. Managers were thus able to adapt quickly to changing circumstances and needs.
- **Structure of central and field command posts.** The city activated its Emergency Operations Center (EOC) during the convention. The EOC was the central focal point for the full range of operations during the convention. Field command posts for security and transportation were linked by fiber optic cable with the EOC.
- **Sharing of LADOT's closed-circuit television (CCTV) feeds.** LADOT used its CCTV cameras in the Staples Center area to monitor key intersections. LADOT also installed fiber optic cables to the various command posts operated by city agencies, the Secret Service and FBI. Thus, all the agencies could monitor changing traffic conditions, bus locations and the location and size of demonstrations. These camera views were invaluable to agencies' ability to monitor their operations and make appropriate decisions. For example, the sheriff was able to determine the size of crowds that surrounded several buses trying to enter to Staples Center and decide the appropriate level of response. Camera views also gave sheriff supervisors peace of mind through simply seeing the location of buses and the sheriff deputies on board. In addition, staff from one agency could also show another agency particular conditions of concern rather than needing to describe conditions verbally. The ability to see the same thing facilitated interagency cooperation.
- **Originating commuter express buses at Union Station.** With changing traffic conditions and the movement of demonstrators, LADOT repeatedly rerouted buses and then sent staff to bus stops to advise patrons of new bus stop locations. When this proved infeasible, LADOT originated all of its commuter buses at Union Station in downtown L.A. Commuters could ride the Red Line subway to Union Station and then board their regular commuter express bus for the trip home.
- **Shared radio communications frequencies.** Each agency normally operates its own radio system. The L.A. County Sheriff's Department and LAPD, however,

shared an emergency frequency, allowing direct communication between officers in the field from each department. In addition, LADOT traffic engineers carried cellphones that enabled them to communicate without using the crowded LADOT radio frequencies.

- **Sheriff deputies on board each bus shuttle.** The sheriff deputies provided security for the buses. They were critical in reassuring bus drivers and convention delegates in the few instances when a bus was swarmed by demonstrators. The deputies also provided radio communication that enabled the command center to track the location of each bus, and divert buses to alternate routes when necessary.
- **Separation of drop-off areas.** Vehicles carrying dignitaries entered the Convention Center underground parking lot and dignitaries walked underground to the Staples Center. Buses dropped off delegates on Figueroa Street and delegates then walked to the Staples Center. Charter buses staged on two blocks outside the Staples Center that were closed to traffic. An area was also provided for limousine drop-offs and pickups.
- **Extensive contingency plans.** Contingency plans were prepared for rerouting of bus shuttles in the event that demonstrations blocked certain entrances. LADOT was prepared to bring buses into the secure area around the Staples Center directly from adjacent freeways. In order to alter bus routing into the Arena as conditions warranted, LADOT personnel were given hand-held signs with a large arrow. These staff could then be deployed to specific locations to direct buses along alternate routes. The arrows were used two or three times during the convention.

LADOT also prepared remote bus staging areas where buses could stage in the event that access to the Staples Center was completely blocked for a period of time. (The remote staging area and alternate freeway exits were not used.) Finally, LADOT arranged to use a cemetery southwest of the Staples Center in case traffic control personnel needed to evacuate the Staples Center area to ensure their personal safety, as occurred during one demonstration.

- **Eliminate signage as potential weapon and other security-related actions.** LADOT replaced metal signage that could potentially be removed from posts and used as a weapon with signs made of a softer material. LADOT also removed traffic poles and signals adjacent to the perimeter fence to prevent anyone from climbing the traffic poles to surmount the fence. Because outsiders could monitor LADOT's analog radios, codes were used to identify intersections and streets.
- **The city placed a moratorium on construction and filming** in the traffic impact area around the Staples Center, to maximize traffic capacity and eliminate a source of potential disruption.

Neighborhood Concerns

Businesses in the area around the Staples Center were quite concerned about traffic impacts, access to their businesses and security. Access was maintained throughout the

convention. The example of riots in Seattle and after the Lakers' championship victory created strong concern among local businesses about security. The city briefed businesses on street closures and parking restrictions. Off-street parking was also provided for local businesses and signage was erected to help motorists reach local businesses affected by street closures. Ironically, businesses' concerns about security facilitated their acceptance of the detours, alternative routing and parking restrictions.

There was some concern that a residential neighborhood to the east and west of the Staples Center would be inundated with convention-related parking. In response to a suit brought by the American Civil Liberties Union, a judge prohibited the city from restricting entry into the neighborhood. LADOT arranged for parking at nearby churches. This parking alternative was not extensively used, however, as most residents take public transportation to work.

Special Event Coordination and Planning

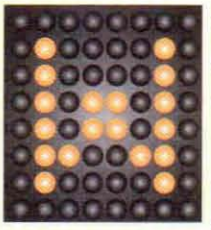
National conventions are large and unique events. Although they are held every four years, the venue changes in ways that seriously change how transportation needs are met. In Los Angeles, for example, delegates stayed in 80 hotels scattered throughout the metropolitan area. Eight years earlier, in New York City, delegate hotels were far more concentrated geographically. In addition to place, there are other discontinuities. Few DNC staff working a convention are still in place four years later. Security concerns were particularly intense for the 2000 Convention given the earlier events in Seattle and Washington D.C. For these reasons, the 2000 DNC could only partially look to previous experience with national conventions.

The 2000 DNC did, however, lead to benefits for events that followed. The L.A. County Sheriff's Department felt better informed about which agencies should be involved in planning an event, and as a result would involve other agencies earlier in the process of planning for events. the department gained a better understanding of LADOT's capabilities and role in special events ranging from traffic management to use of CCTV cameras. The Sheriff's Department also decided to co-locate its communications center for the Rose Bowl with the city of Pasadena, based on its experience with co-located command centers at the Coliseum for the convention. Staff from several agencies reported that the convention helped cement interagency relationships in working toward a uniform command and communications for emergency preparedness.

Planning for the convention also built on prior special events. LADOT brought back several retired staff who had worked on the 1984 Olympics. These veterans of a major special event helped build LADOT's credibility with other agencies early in the planning process for the convention. Experience with Y2K and the Northridge earthquake in 1994 also contributed.

THE CITY PLACED A MORATORIUM ON CONSTRUCTION AND FILMING.

Monroe County New York
WEATHER-RELATED EMERGENCIES



Weather-related emergencies do not really fall within the definition of planned special events. However, the planning and management of transportation for weather-related emergencies shares many of the characteristics of transportation management for planned special events. Monroe County, New York, which includes the city of Rochester and surrounding suburban and rural areas, has been hit by three major weather emergencies in the past dozen years, including a blizzard, major ice storm and major windstorm. County, city, town and state agencies have improved their ability to respond to weather events as a result of experience with these emergencies. The following are key to the ability of agencies in Monroe County to reopen roads and maintain transportation services during major weather emergencies:

- The effectiveness of Monroe County's Emergency Operations Center, which is the hub for communications, information sharing, needs and resources identification and coordination of agency responses.
- Coordinated planning for weather and other emergencies through the Monroe County Office of Emergency Preparedness, which ensures that the relevant agencies are involved in planning and operations for the range of emergencies that may

arise, prepares emergency plans and conducts training and exercises to prepare agencies for community emergencies.

- Compilation of detailed lists for staffing and equipment that enables the Monroe County Department of Transportation to quickly access necessary resources during a weather emergency.
- A strong ethic of cooperation, collaboration and mutual assistance, built over many years of agency coordination.

Introduction

The blizzard of March 1999 dropped 48 inches of wet snow on Monroe County in upstate New York. Thousands of people were already at work when the snow blocked roads. Hundreds of vehicles ranging from automobiles to transit buses were stuck in the snow. Blood banks and programs for organ donation and meals-on-wheels were needed to carry life-sustaining deliveries through the storm. Like a windstorm that downed power lines in September 1998 and a severe ice storm in March 1991, the blizzard of 1999 created an exceptional challenge to transportation officials in Monroe County.

These weather-related emergencies are not, of course, planned special events and are more properly placed in the category of emergency preparedness. Yet weather emergencies require preparation similar to that for planned special events for two reasons. First, Monroe County does in fact plan for these emergencies in a fashion similar to planning for sports events, political conventions, parades and fireworks displays.

Second, officials involved with planned special events are also often involved with emergency preparedness. Officials emphasize the similarities in the use of an operations center, interagency cooperation and contingency planning. This case study on a weather-related emergency further documents these links.

THE PLANNING AND MANAGEMENT OF TRANSPORTATION FOR WEATHER-RELATED EMERGENCIES SHARES MANY OF THE CHARACTERISTICS OF TRANSPORTATION MANAGEMENT FOR PLANNED SPECIAL EVENTS.

Organization and Agency Responsibilities

The Monroe County Office of Emergency Preparedness (MCOEP) has overall responsibility for planning and coordinating community emergencies in the county. The MCOEP ensures that the relevant agencies are involved in planning and operations, takes the lead on preparing emergency plans, and conducts training and training exercises. MCOEP also operates Monroe County's Emergency Operations Center (EOC).

The New York State Department of Transportation (NYSDOT) Region 4 is responsible for 1,680 lane miles of state highway including interstate highways in Monroe County. NYSDOT performs snow and ice removal on 730 lane miles of state highways and contracts with villages and towns for snow and ice removal for the remaining 950 lane miles. NYSDOT also removes fallen trees for all state highways in the county.

Monroe County Department of Transportation (MCDOT) is responsible for maintenance of 650 centerline miles of county roads. The county contracts snow and ice removal to townships and oversees their work. MCDOT is also responsible for traffic engineering including maintenance and control of traffic signals on county roads and all streets within the city of Rochester. The county has 380 intersections, primarily in Rochester, on a computerized system that enables centralized control of the signals.

City, townships and villages are responsible for snow and ice removal on local streets and, in some cases, on state highways under contract with NYSDOT and on county roads under contract with MCDOT.

The Rochester-Genesee Regional Transportation Authority (R-GRTA) operates bus service in the Rochester area.

Monroe County can request assistance from state agencies such as NYSDOT, the State Police and the New York State National Guard. The National Guard has provided personnel and vital equipment to Monroe County during weather emergencies.

Others involved with weather emergencies include organizations providing transportation services for mobility-impaired persons and individuals who volunteer to provide snowmobiles or personal watercraft ("jet skis") during emergencies.

Planning

The Monroe County Office of Emergency Preparedness (MCOEP) is responsible for emergency planning in the county. Plans range from weather emergencies to earthquakes, fires, air crashes, train derailments and emergencies at the nuclear power plant in an adjacent county.

For development of emergency plans, MCOEP identifies the type of hazard (e.g., a weather emergency, fires, etc.) and the agencies that would be involved. If the relevant agencies agree that a plan is needed for that type of emergency, MCOEP convenes meetings to develop a plan that specifies the vulnerability, resources needed and how agencies will work together. Once a plan is developed, MCOEP is responsible for training agency personnel and for holding training exercises, generally about once a year for each type of emergency.

A key aspect of emergency planning is the identification of resources. Agencies compile lists of available equipment, ranging from front-end loaders from utility companies, large snow blowers from the Rochester airport, and specialized equipment from the New York State National Guard. For example, the National Guard provides HEMMITS, super sized tow trucks that can pull buses and large vehicles that have gone off the road or become stuck in snow.

Monroe County DOT's experience demonstrates the importance and value of compiling inventories related to staffing and equipment. The need for these inventories was highlighted in the 1991 ice storm when MCDOT and other agencies needed to dispose of large amounts of debris and required mulchers, grinders and other equipment to handle the debris and locations to dump it.

Since 1991, MCDOT has compiled lists that include:

- Equipment owned by each county department and each town and village
- Contact names, phone numbers and rates for suppliers of numerous types of equipment such as generators, snow plows, front end loaders, etc.
- Skills of department staff such as snow plow driver, cutting torch operator, fork lift operator and RF radio equipment
- Home phone numbers of department employees, town employees and suppliers

MCDOT has also developed staffing schedules for 24/7 operations during emergencies. Operational procedures specify priorities for repair of traffic signals – e.g., signals on priority routes are repaired before signals on other routes. Procedures also govern the conditions under which roads should be closed, the agencies that must be notified of road closures, and required signage.

MCDOT has also developed work logs for staff to use during emergencies. Work logs track traffic signal outages, usage and location of equipment, staff hours, etc. Logs are used for operational purposes during an emergency. They also document staff time and payments to suppliers for use in obtaining federal disaster reimbursement.

Transportation Management During Weather Emergencies

The MCOEP Emergency Operations Center (EOC), located near the Rochester airport and across the street from the NYSDOT Region 4 Regional Traffic Operations Center headquarters, is the focus of activity for weather and other emergencies. Transportation agencies such as NYSDOT and MCDOT are represented at the EOC as are other law enforcement, fire service and emergency response organizations such as the Red Cross and major utility companies. The EOC is staffed on a 24/7 basis once activated for an emergency.

The EOC is the hub for communications, information sharing, needs and resources identification and coordination of agency responses. EOC managers facilitate inter-agency coordination, priority setting, identification of needs and resources.

Key aspects of EOC operations are:

- **Coordination of personnel and equipment.** Agencies are unlikely to be able to carry out their responsibilities for snow and ice removal, debris removal, clearing stranded vehicles, etc. without help from other agencies. Thus, the EOC matches transportation and utility crews to clear downed power lines; snow plow crews,

police, tow trucks and transit agency buses and bus operators to pick up drivers whose cars have become stuck in snow or ice; and highway work crews with snow blowers provided by the Rochester airport. Interagency coordination and collaboration occurs both in the EOC and in the field. For example, town highway department crews, which are formally responsible only for snow and ice removal, also assist with moving trees that block roads when needed.

- **Coordination of priorities for clearing roads.** Because life safety is the first priority in an emergency; transportation agencies focus on clearing roads for emergency vehicles. Priority is given to state routes near hospitals and then to high-volume roads, first to clear one lane for traffic and then to clear two lanes. Agency managers at the EOC agree on priorities for road clearance and coordinate deployment of state, county and town crews.
- **Staff relationships built up over years of planning, training and training exercises.** The same staff works together in a wide variety of areas that encompasses different types of emergencies as well as everyday operations. In addition, the same staff are responsible for both writing and executing plans. These long-term relationships spanning different types of projects facilitate close interagency coordination and collaboration.
- **Use of the "Incident Command System" during emergencies.** All state agencies as well as county departments use the incident command structure, a national standardized approach to operations, during emergencies. Personnel are drawn from throughout each agency and assigned to one of four sections: Operations, Planning, Logistics and Finance. Personnel are trained in the same terminology to aid communications and are assigned to jobs that best suit their talents. "The stripes come off," in the words of the Region 4 NYSDOT director.

MONROE COUNTY DOT'S EXPERIENCE DEMONSTRATES THE IMPORTANCE AND VALUE OF COMPILING INVENTORIES RELATED TO STAFFING AND EQUIPMENT.

Agency personnel communicate primarily using two-way radios and also by cell phone. The county can patch together radio channels used by different agencies to enable direct interagency communication. The EOC can also issue two-way radios on a pre-determined frequency to personnel from different agencies, for example, tying together 16 people from four different agencies.

Public information needs are handled by the Monroe County Office of Community and Special Events once the EOC is activated for an emergency. Information is passed from the EOC and incident commanders in the field to the Office of Community and Special Events, which then notifies the public through newspapers, radio and television. A telephone "hotline" number is programmed with pre-recorded messages. Information on road closures is displayed on variable message signs on highways.

The EOC also has the capability to operate a phone bank with live operators. This capability was set up for emergencies at a nuclear power plant in a neighboring county and

could be used for other emergencies if necessary.

Because each of the three weather-related emergencies was declared a federal emergency, federal and state governments reimbursed costs incurred during the emergency. MCDOT was reimbursed for 85 percent to 94 percent of its expenses for the blizzard, ice storm and windstorm.

Neighborhood Concerns

As with planned special events, weather emergencies raise issues of neighborhood impacts. One example is chipping, stockpiling and burning of debris from downed trees. Debris disposal is subject to state or county permitting processes that afford opportunity for public input in writing and/or at public hearings.

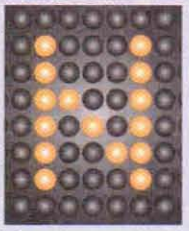
Another issue is dumping snow into rivers from various bridges. Residents sometimes object to the noise from trucks conducting these operations. This issue is addressed by the city or town government in selection of bridges to use for this purpose.

Emergency Coordination and Planning

Planning and management of emergency operations are in many ways similar to those for planned special events. For example, both types of events are often organized around an operations center that brings together a variety of agencies. The operations center facilitates interagency coordination and rapid adaptation to changing circumstances and needs. Operational needs are also similar; for example, the designation of travel routes and the need to move many people in a short period of time.

An example of the relationship between planned special events and emergency planning in Monroe County was the Ryder Cup golf event held in the late 1990s. Experience with emergency events was helpful in planning bus shuttles, major routes, communications, public information. Agency officials also drew on interagency relationships for Ryder Cup planning that had been developed during planning for community emergencies.

New York City, New York
NEW YEAR'S EVE IN TIMES SQUARE



Normally Times Square is one of the busiest intersections in Manhattan's congested Midtown business district, but every New Year's Eve it is closed to traffic completely. On these nights, up to a million spectators gather in Times Square to watch "the ball drop" at the stroke of midnight, ushering in the new year. Because the celebration is an annual event that has taken place for many years, the agencies involved in crowd control and traffic management are experienced and effective at carrying out their duties. Increased attendance for the millennial year and heightened security concerns in 2002, in the wake of the September 11 terrorist attacks, created additional complications. Nevertheless, the agencies' previous experience with the event enabled them to take these challenges in stride.

Key factors in the success of the transportation aspects of New Year's Eve are:

- **Well-defined roles for the major agencies involved** allow each agency to focus on doing its own job effectively, and reduces the need for interagency communication.
- **A large amount of manpower** – 8,000 or more police officers – is devoted to the event and keeps crowds and traffic under control.

- **Streets are closed gradually** on the afternoon of December 31, as spectators arrive, so that traffic continues to move through the afternoon of New Year's Eve. The scope of the street closures is tailored to the volume of spectators actually present.
- **Traffic diversions and parking restrictions** greatly reduce the number of autos in the Times Square area, as most spectators use public transportation to arrive and to leave the celebration.
- **Advance notice to motorists and members of the local community** – including official notice, and individuals' own experience from previous years – minimizes traffic in the Times Square vicinity on the night of the event.

Beyond these factors, the fact that the event is regularly held on an annual basis makes it run smoothly. Agencies have years of experience carrying out their designated tasks. They can predict how many spectators will attend, and thus how much manpower is needed. Motorists and local residents are familiar with the event, and know to avoid driving and parking in Times Square.

Introduction

On any normal day, Times Square is one of the busiest intersections in New York City, both for vehicular and pedestrian traffic. Broadway and Seventh Avenue, both major North-South thoroughfares, intersect there, along with several narrow but heavily-trafficked East-West cross streets. Though Times Square once had a reputation for seediness, its streets are now lined with Broadway theaters, cinemas, large retail stores, hotels and office towers. Underground, the Times Square subway station serves numerous subway lines and is one of the city's busiest mass transit hubs.

Every New Year's Eve, Times Square assumes a different role. At midnight, a glistening ball drops from the top of a tower to mark the beginning of the New Year. Half a million to a million spectators watched this nationally famous event in recent years. Broadway, Seventh Avenue, and several cross streets are closed to vehicular traffic to accommodate the crowds. Spectators arrive gradually throughout the day of New Year's Eve, with some arriving early in the morning in the hopes of staking out good vantage points. Spectators who arrive later may not be able to view the ball drop directly but can watch the ball drop on large TV screens in Times Square. After midnight, nearly all spectators leave immediately.

First taking place in 1904, the event has a degree of predictability that enables crowds and traffic to be managed smoothly. However, two complications have been added to the mix in recent years. First, in 2000, the millennium year, many more spectators attended the event. Since then, the agencies involved in the event have taken care to be prepared for larger-than-expected crowd volumes. The second complication has been the need for tighter security. Beginning in 2000, in anticipation of the crowds of the millennium, and especially in 2002, in the wake of September 11, security precautions have been much tighter in Times Square on New Year's Eve.

Organization and Agency Responsibilities

The New York Police Department (NYPD) is responsible for controlling crowds and managing traffic around Times Square on New Year's Eve. The NYPD devotes a tremendous amount of manpower – about 8,000 officers – to ensure that the event runs smoothly.

Two divisions of the NYPD have primary responsibility – the Manhattan South borough office, and the Traffic Control Division of the Transportation Bureau. The Manhattan South borough office is responsible for crowd control. Police officers under the Manhattan South command direct pedestrians into designated barricaded areas for safe viewing. Officers also operate security checkpoints at designated locations where spectators enter the area. Some police snipers are also stationed on rooftops of buildings overlooking Times Square.

The Traffic Control Division is responsible for managing vehicular traffic. It closes the streets in and around Times Square to traffic and redirects traffic from around Times Square.

Complementing the work of the NYPD, the New York City Department of Transportation (DOT) maintains the physical safety of the streets in and around Times Square. In advance of the event, DOT inspects streets for damages and makes necessary repairs. It welds manhole covers shut for safety and security reasons. It removes bollards and light posts from the street to make room for large numbers of pedestrians. DOT also ensures that the outdoor stage, decorations, and other special entertainment facilities are safe. Working with the Traffic Control Division of the NYPD, DOT deploys electronic signs to disseminate information about street closings in Times Square. The DOT Office of Special Events coordinates these activities, which involve several divisions within DOT.

MTA New York City Transit, which operates the city's bus and subway system, reroutes buses to take account of the closure of Times Square and increases the amount of subway service to handle the crowds. Trains typically arrive every ten minutes until about 1:30 a.m. instead of arriving at the 20-minute intervals that are standard for the early morning hours. NYC Transit also deploys "gap" trains that can fill in where a large number of people are waiting at Times Square stations. Station entrances (but not entire stations) immediately around the ball drop are closed and part-time entrances on the periphery are opened for the evening.

The Times Square Business Improvement District (BID) hosts the New Year's event and organizes its production – setting up the ball drop, a stage, decorations, and other entertainment. In early December of each year the BID hosts a meeting of property owners and security directors for buildings in Times Square to explain the details of the event. The BID instructs area businesses on the wording to use in passes that businesses distribute to customers who need to reach their locations after the area is closed on December 31. Hotels, for example, create write-band passes and restaurants distribute leaflets that allow patrons to go to that restaurant but nowhere else.

The costs to NYCDOT, NYPD and other agencies are born through their regular budgets.

Planning

As an annual event, each agency's responsibilities are well-defined and an extensive planning process is not necessary. Agencies meet at City Hall several months prior to the event to review responsibilities and discuss any changes from previous year. Most agencies also participate in a meeting at the NYPD command center one week prior to the event to finalize plans and tie up any loose ends.

Day-of-Event Management

The size of the eventual crowd and the fact that spectators arrive continuously throughout the day of December 31 pose challenges for managing traffic and pedestrians in Times Square on New Year's Eve. Times Square businesses remain open throughout the day, particularly when New Year's Eve falls on a weekday. People need to be able to go to and from offices and commercial establishments throughout the day, even as spectators begin to arrive.

NYPD's basic strategy is to control places at which people can gather and the density of the crowd, and to maintain separation between pedestrians and vehicular traffic. The heart of this strategy involves assembling pedestrian pens, built out of movable metal barricades. Two or three pens are erected on each block, on each side of the street. Each pen holds about 1,500 to 2,000 people. When police officers deem a given pen to be full, it is closed off to additional spectators. Space is kept clear between pens for pedestrian movement and emergency vehicles.

Grouping spectators into pens prevents dangerous overcrowding, particularly in the areas of Times Square that afford the best views of the ball drop. Alongside the pens, an emergency traffic lane in the middle of each street is kept clear of spectators. The sidewalks are also kept clear. These measures allow police officers and emergency vehicles to access any of the pens easily and provide a safe exit for any spectators who wish to leave early.

To ensure thorough coverage of the Times Square area, the police officers are organized into sectors. Each sector covers an area of a few blocks. Officers report to sector commanders, who monitor the area and communicate with the commanders of adjacent sectors when necessary. Nextel cell phones with a direct connect feature are used for direct sector-to-sector communication. There is also a Manhattan South radio frequency dedicated to communication for the event, and a citywide radio frequency that is used for all major events.

Like Manhattan South, the Traffic Control Division's personnel are organized into sectors, typically with one sergeant and eight officers in each sector. Officers have Nextel cell phones and radios for communication among sectors. The manpower is deployed so that

ON ANY NORMAL DAY, TIMES SQUARE IS ONE OF THE BUSIEST INTERSECTIONS IN NEW YORK CITY, BOTH FOR VEHICULAR AND PEDESTRIAN TRAFFIC.

the most capable people are located where they are most needed. The most experienced officers are stationed closest to Times Square. Officers drawn from farther reaches of the city are stationed at less critical intersections at some distance from Times Square itself. Civilian traffic agents are stationed furthest from Times Square, where police action is unlikely to be necessary. This extensive amount of manpower allows the Traffic Control Division to direct traffic manually wherever necessary, in order to prevent gridlock and keep traffic moving.

Streets are closed to traffic as far north as 57th Street and as far south as 34th Street, depending on crowd size. The Traffic Control Division erects barriers as it closes streets. Up to a certain time of day, residents whose homes are on the closed streets are permitted to use otherwise closed-off streets to reach their homes. Later in the day, however, not even residents are allowed to bring cars on to the closed streets. Vehicles directly involved in the New Year's event – setup vehicles, press vehicles, and VIPs – are registered with the NYPD in advance and are allowed to enter if the proper paperwork is presented upon arrival.

The Sanitation Department cleans up after the event. Traffic Control officers reopen the last streets around 4 a.m.

Keys to traffic and crowd management are:

- **Streets are closed and spectator pens are set up as the crowd grows.** The first pens are erected in the heart of Times Square, closest to the site of the ball drop. Cross streets are closed one by one starting about noon as the pens fill up and more space is needed to assemble additional pens. As spectators arrive at the perimeter, they are channeled along specified cross streets into pens. This process continues throughout the day, until close to midnight. In this manner, the number of pens is matched to accommodate the size of the crowd, streets are not closed to traffic until necessary and spectators are not allowed to roam around Times Square searching for a better viewing perch.
- **Additional streets are closed when attendance is unexpectedly high.** As it prepares for the event, the Traffic Control Division has an idea of how many streets eventually will need to be closed, based on attendance projections from the event producers at the BID and experience from previous years. Since projections may not be accurate, however, the Traffic Control Division is prepared to deploy officers rapidly to close additional streets, if actual crowding warrants this action. For example, Sixth Avenue and Eighth Avenue, along the perimeter of Times Square, were partially closed for the first time in 2000, because unusually large crowds began to spill on to those avenues.
- **Police officers manually control traffic at every intersection in the area.** Traffic officers are stationed at every intersection within a broad radius around Times Square. Officers are charged with the task of preventing gridlock, which

occurs when traffic blocks an intersection after the signal turns red. Officers stop traffic from entering the intersection if vehicles cannot clear the intersection before the signal changes. Officers can override traffic signals at their own discretion to keep traffic moving.

- **Traffic is diverted well before it reaches the Times Square area.** The Traffic Control Division sets up detours at major intersections well away from Times Square to direct traffic away from the area entirely. For example, at the intersection of Broadway and Columbus Avenue, which is more than a mile north of Times Square, traffic officers direct all southbound traffic on to Columbus Avenue (which becomes Ninth Avenue) so that it is kept away from Broadway. Similarly, although Sixth Avenue and Eighth Avenue along the perimeter of Times Square are kept open, if traffic on those avenues becomes very heavy, officers may temporarily close the cross streets leading to those avenues.
- **The travel direction of side streets is reversed to empty parking garages after shows let out.** Broadway theaters, many of which are located on cross streets within a block of the Seventh Avenue/Broadway bow tie, are open in Times Square on New Year's Eve. The Traffic Control Division temporarily reverses the direction of one-way cross streets after show time so that all streets head away from Times Square and theatergoers can quickly leave parking garages after shows let out between 10 p.m. and 11 p.m.
- **Capacity for spectators and through traffic is maximized through parking restrictions.** An important aspect of closing streets to traffic is keeping them clear of parked cars. This creates more room for spectators and is an important security measure because cars could be used to store bombs or weapons. The Traffic Control Division posts "No Parking" signs a few days in advance, along all streets from 34th Street to 59th Street (over a mile, with Times Square in the center), between Sixth Avenue and Eighth Avenue and a few other streets. Any vehicles parked on these streets are towed the morning of New Year's Eve. Cars are towed to available spots further away from Times Square. Officers keep records of where cars are relocated, so drivers are able to reclaim their cars with little difficulty. Scattered locations on several blocks near Times Square are designated for police officer parking to keep the officers' own vehicles from exacerbating the area's traffic problems.
- **Advance notice is given to motorists.** Letting motorists know in advance that Times Square will be closed to traffic allows them to plan their trips so as to avoid the area. Because the New Year's Eve celebration is an annual event, most people already are aware of the situation, so traffic is reduced. Weekday afternoon rush hour traffic is greatly reduced because many people leave work early and many businesses close early. Even so, DOT disseminates information about street closures in advance. DOT posts signs along the affected streets and displays messages with variable message signs at major intersections and on nearby highways such as

FDR Drive. The BID also assists by distributing information to its member businesses throughout the Times Square area.

- **New construction is embargoed between Thanksgiving and New Year's Day.** Construction sites are often disruptive and not compatible with large crowds. A holiday construction embargo in effect between Thanksgiving and New Year's Day reduces the impact of construction on New Year's Eve. The city's Department of Buildings, which issues building permits, and DOT, which issues sidewalk closure permits, jointly enforce this requirement.

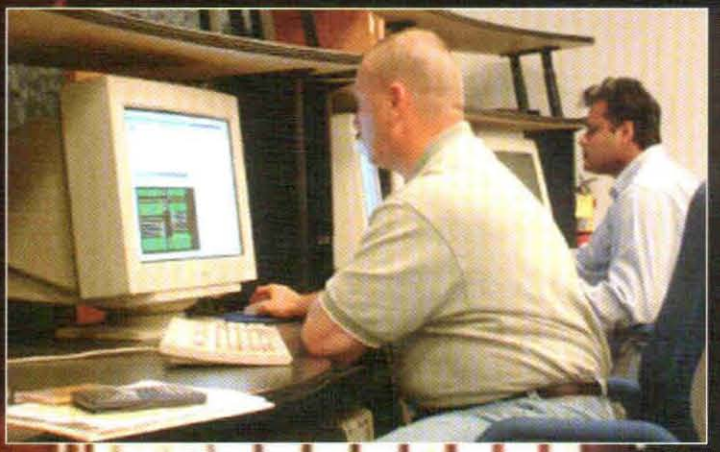
Neighborhood Concerns

The New Year's Eve celebration, and related traffic management and crowd control efforts, greatly impact Times Square and surrounding neighborhoods. Many of the NYPD's practices, discussed above, are geared toward softening the impact of the event on local residents and businesses. Particularly, street closures are rolled out throughout the day so that local traffic is not affected until as late in the day as possible. Even when streets are closed, local residents are allowed to drive to their homes until even later in the day. The BID, as an organization of local businesses, is an important channel for communicating local concerns to the NYPD and other agencies. Members of the local community are well aware of the event and its impacts, so they do not suffer from any unpleasant surprises.

Special Event Coordination and Planning

Hundreds of large special events take place in Manhattan every year. Though New Year's Eve is a particularly large event in terms of the crowd that it attracts, DOT and NYPD officials do not consider it to be one of the more challenging events to manage. All of the agencies involved have well-defined roles and ample experience. Extensive planning is not necessary beyond a few meetings.

MANY OF THE NYPD'S PRACTICES ARE GEARED TOWARD SOFTENING THE IMPACT OF THE EVENT ON LOCAL RESIDENTS AND BUSINESSES



Northern Virginia:
JULY FOURTH AFTER THE FIREWORKS

For Virginia Department of Transportation traffic engineers in northern Virginia, July 4 is no longer an occasion to answer complaints from fireworks viewers stuck in traffic on their way home from the Mall in Washington, D.C. Instead, the VDOT traffic control center in Arlington is quiet as traffic engineers monitor traffic conditions while connected to traffic center computers from home.

The quiet in the traffic center shows the value to special events of:

- Centralized traffic signal control system that permits remote monitoring and control of traffic signals and collects extensive data on traffic volumes.
- Skilled traffic engineers on staff using modern traffic simulation software and extensive databases to analyze traffic data for July 4 traffic from previous years, determine optimal traffic signal timings and pre-program traffic signals especially for July 4.
- Inter-jurisdictional coordination of traffic signals at key locations so that motorists are "handed off" from one set of green signals to another set of green signals as they cross jurisdictional boundaries.

The success of July 4 traffic management at VDOT is thus built on a multiyear program of upgrading traffic signals and connecting traffic signals to a central control center. It has also proceeded from success in optimization of traffic signals along specific corridors and in congested areas such as Tyson's Corner. Showing the benefits of traffic signal improvements has been important to obtaining support for further work. Benefits have been calculated in dollars of fuel savings and hours of time savings for motorists. Motorists who arrive home a few minutes earlier than expected, or who can reach run their errands more quickly on the weekend have also directly experienced benefits.

Introduction

In the early 1990s, the Virginia Department of Transportation (VDOT) and city agencies responsible for traffic management in the northern Virginia suburbs of Washington D.C. faced a very visible and worsening problem of traffic congestion. Population, employment and travel growth in the area was saturating the roadway network, producing long commutes to work and endemic traffic jams whether during rush hour, at malls on holiday weekends, or leaving major special events such as the July 4 fireworks display along the Mall in Washington.

In response, VDOT and local agencies pursued an opportunity that was largely invisible to motorists caught in congestion. The opportunity was to make far more efficient use of existing roadway capacity through computerized and refined traffic signal coordination. In the mid 1990s VDOT began installation of a $26 million traffic signal system that included new intersection traffic signal controllers, communications for central control of the traffic signals, and a centralized traffic management center. Completed in 1998, the approximately 1,000 traffic signals that VDOT owns and operates in northern Virginia were upgraded. Traffic engineers at VDOT's traffic management center in Arlington monitor the operation of each traffic signal and can alter timing patterns as warranted by traffic volumes. The challenge remained, however, to use the new system to move traffic more quickly for both special events and daily operations.

IN THE EARLY 1990S, VDOT AND CITY AGENCIES FACED A VISIBLE AND WORSENING PROBLEM OF TRAFFIC CONGESTION.

Organization and Agency Responsibilities

VDOT operates approximately 1,000 signalized intersections in northern Virginia. VDOT is responsible for maintenance, operation and eventual replacement of traffic signal equipment at these intersections.

The traffic signal controllers at each intersection are connected with VDOT's traffic management center in Arlington. VDOT uses copper wire lines leased from the telephone company using digital data service technology. VDOT has also installed over 10,000 magnetic loop detectors–devices buried under the pavement that detect traffic passing over the traffic lane. Loop detectors are placed at the intersection and several hundred feet from the intersection to give a preview of traffic volumes approaching each intersection.

Computers at the traffic center monitor traffic volumes and speeds at each intersection. Traffic engineers can evaluate the effectiveness of current signal timings and design and download new timing plans as warranted. The computerized system also monitors proper functioning of each traffic signal and alerts staff when a malfunction is detected. VDOT quickly sends repair technicians to any location where signals are malfunctioning. VDOT no longer needs to wait until police officers or citizens report a malfunctioning signal. Traffic data is also archived in large databases for later analysis.

Several local governments maintain ownership and control over traffic signals in their jurisdictions. These include Arlington County and the cities of Alexandria, Fairfax, Falls Church and Vienna. Together, these local jurisdictions operate 300-400 signalized intersections.

Like VDOT, Arlington County, Alexandria and Fairfax City can remotely monitor most or all of their traffic signals and alter signal timings from control centers. Falls Church is in the process of upgrading to a similar system.

In addition, Arlington County has implemented the SCOOT adaptive traffic control system, which adjusts traffic signal timings in real time as traffic volumes fluctuate. Thus, the system may automatically lengthen signal cycles when traffic volumes are unusually heavy, such as on a Friday afternoon. The SCOOT system is operational in Pentagon City, Crystal City and on Arlington Blvd. (Route 50) and Columbia Pike (Route 244). The city of Alexandria has a similar system on the drawing boards.

The District of Columbia also controls traffic signals remotely from a control center.

Day-of-Event Management

Northern Virginia interstate and state highways experience unusually high traffic volumes in the late evening of July 4 as motorists return home from the fireworks display on the Mall in Washington, D.C. The peak in traffic begins immediately after the fireworks ends as motorists parked on the bridges head home. Traffic volumes approximate normal Saturday afternoon traffic volumes, as illustrated in Figure 1.

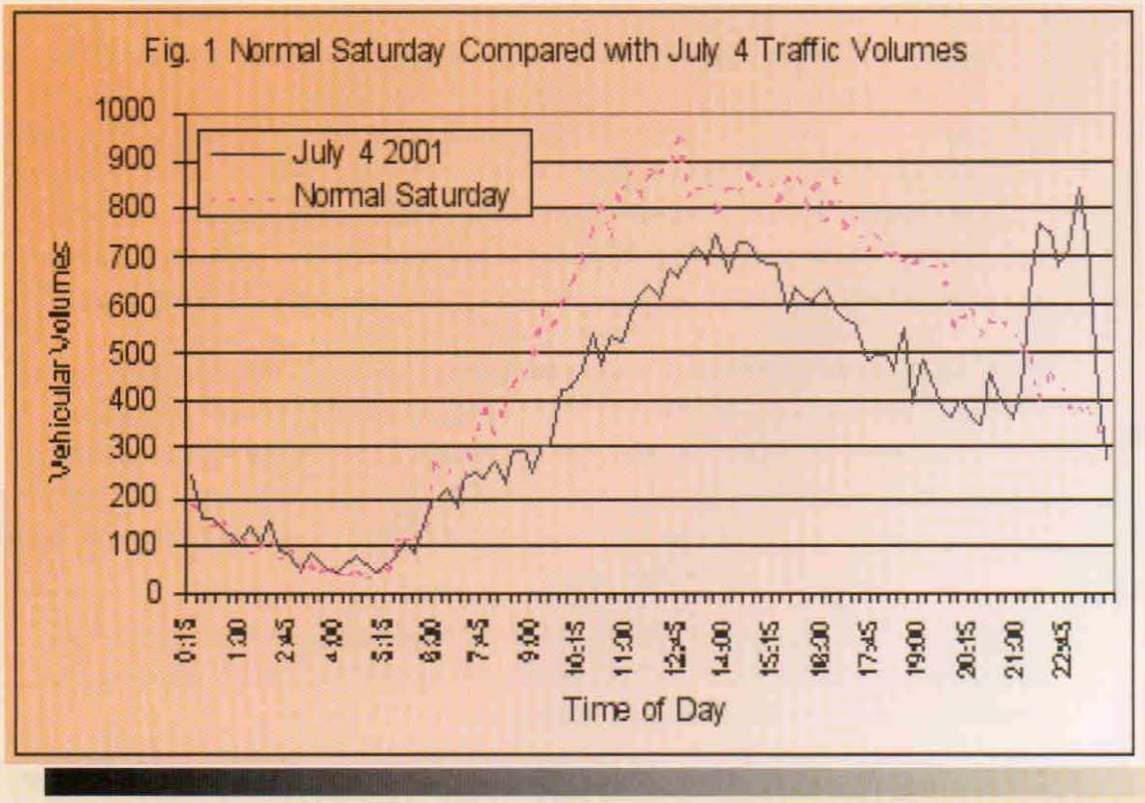
Traffic management for moving this surge of fireworks traffic relies on the systems installed for normal traffic signal operations. These include:

- **Long cycle lengths to increase the vehicular capacity of arterials leading out from the District.** VDOT uses cycle lengths of up to 240 seconds with outbound signal progression on major arterials. Alexandria sets Route 1 signal timings to the afternoon rush hour plan to handle the mass of traffic coming from DC immediately after the fireworks ends. Cycle lengths are128 seconds north of Old Town and 80 seconds in Old Town, which accommodates both traffic volumes and pedestrians crossing Route 1. The District of Columbia uses its morning rush hour signal-timing plan from 1 p.m. to 9 p.m. on July 4 and the outbound rush hour

plan from 9 p.m. to 1 a.m. Arlington County programs its SCOOT adaptive control system for longer cycle lengths on Route 50 starting at 9:15 p.m. on July 4.

- **Ensuring that each traffic signal controller is using the exact same time of day.** When traffic signal controllers are not connected to a traffic control center, their internal clocks tend to drift away from the correct time. This drift makes it impossible to maintain signal progression.

  VDOT and local traffic engineers fix the clock drift problem by regularly synchronizing traffic signal controllers with the accurate time broadcast by the National Institute of Standards and Technology (NIST). For most users in the United States, the received accuracy of these broadcasts should be less than 10 milliseconds (1/100 of a second), quite sufficient for traffic signal purposes. Clocks are synchronized once or twice a day.



- **Quick repairs to malfunctioning traffic signals.** Engineers at the traffic control centers run by VDOT and local agencies can often troubleshoot signal malfunctions from the control center, including determining whether the problem requires immediate attention. Some signal malfunctions cannot be fixed remotely and require a visit by a repair technician. VDOT and several local traffic agencies can send technicians out to malfunctioning traffic signals within a short period of time. For example, Arlington County responds to malfunctioning traffic signals within 30 minutes during working hours and within 3 hours at other times.

- **Coordination between jurisdictions.** Several jurisdictions coordinate traffic signal timings across jurisdictional boundaries at selected locations. For example, VDOT and Arlington County coordinate traffic signal timings along Route 50 (Arlington Blvd.) through the congested Seven Corners area and where Route 244 (Columbia Pike) traverses the county/VDOT boundary. VDOT also coordinates signals timings with Arlington County and Falls Church on Route 29 (Lee Highway). Traffic signal coordination involves ensuring that traffic signals use compatible cycle lengths and offsets. As a result, during the evening rush hour, for example, outbound signal progression is maintained as traffic moves across jurisdictional boundaries. Without inter-jurisdictional coordination, motorists would frequently hit red lights at jurisdictional boundaries, backing up traffic and unnecessarily reducing street capacity. Inter-jurisdictional coordination is not always appropriate or even possible. Along Route 1, for example, the distance between Alexandria's last signal and VDOT's first signal is too great to make coordination useful. In addition, the presence of a major I-95 interchange adds and absorbs so much traffic that even if the signals were closer together, signal coordination might not be of much value. Another example is where Arlington County's adaptive control system, SCOOT, abuts another jurisdiction. Since SCOOT alters signal cycles "on the fly," coordination with adjacent jurisdictions using fixed cycle lengths is not possible.
- **Analysis of traffic data from previous years.** VDOT records traffic volumes and speeds in a large database. Using sophisticated traffic optimization software, VDOT traffic engineers can find the most efficient signal timings for each intersection or corridor. Engineers can also evaluate the effectiveness of alterations to signal timings. VDOT has tweaked its traffic signal timings based on analysis of previous July 4 traffic data to improve the flow of traffic.

THE ACTUAL EVENING OF JULY 4 CAN BE REMARKABLY UNEVENTFUL.

In addition to building on these aspects of day-to-day operations, as July 4 approaches traffic engineers double-check that traffic signals are functioning properly and have the proper signal timings loaded into intersection controllers.

The actual evening of July 4 can be remarkably uneventful. Signal timing plans take effect automatically and little other than continued monitoring needs to be done. VDOT traffic engineers monitor the system from home using dial-up connections to the control center. Engineers can adjust traffic signals if they see a need and can call on repair crews if necessary.

Neighborhood Concerns

Neighborhood concerns have not been a significant issue for July 4 traffic operations. VDOT staff report that traffic signal adjustments to accommodate the late-evening surge in traffic do not create problems for cross-street traffic because of low traffic volumes on cross-streets at that hour of the day. VDOT signals on main arterials provide a green signal for cross-street traffic only when loop detectors detect a waiting car. If there is no cross traffic, the signal remains green for Route 50 traffic. Pedestrian push-buttons activate the signal for any pedestrians using an intersection.

Special Event Coordination and Planning

Optimization of the traffic signal system for July 4 has been part of addressing traffic congestion in specific locations and times of day. In the view of VDOT's head traffic engineer, success with improving traffic management on July 4 showed VDOT how to build an "outside the norm" plan and produce noticeable improvements in traffic flow.

Prior to the July 4 effort, VDOT optimized the traffic signal system in the Tyson's Corner area, a busy commercial hub near Vienna. VDOT's traffic models using actual traffic volumes showed that motorists saved $1.5 million in fuel costs and additional savings of millions of dollars in the value of their time. The public experienced real improvements in traffic. Some motorists called VDOT to convey their appreciation at arriving home earlier than usual; motorists passing VDOT roadside crews signaled "thumbs up" in appreciation; and the Washington Post ran a positive news article.

Inspired by this success, VDOT turned its attention to complaints about July 4 traffic. As with Tyson's Corner, the public reacted positively. Whereas VDOT had received a steady stream of complaints about traffic after the fireworks, they have not received complaints since the improvements were implemented.

These successes have led to further signal optimization in the Tyson's Mall area. VDOT views a logical next step as incident management planning working cooperatively with counties and cities in northern Virginia.

Phoenix, Arizona:
BANK ONE BALLPARK

Given the traffic congestion that was already occurring for smaller events in downtown Phoenix, how could the addition of 50,000 baseball fans be accommodated for the Arizona Diamondbacks' new ballpark without major traffic delays?

In response to this challenge, the city of Phoenix, in cooperation with downtown business groups, developed the "Sunburst Traffic Control Plan" to manage the increased traffic and pedestrian volumes from the ballpark, particularly when game days overlapped with multiple other downtown events. Keys to the success of the traffic plan included:

- Extensive transportation and parking planning for game nights, integrated as part of an overall planning effort that encompasses all downtown special events.
- Active participation of a downtown business group in transportation planning and facilitate communication between city agencies and businesses and the public.
- Extensive public information including outreach to businesses, real-time updates to a local radio station and courtesy personnel providing information and assistance to motorists and pedestrians.
- An emphasis on utilizing much of Phoenix's extensive arterial and highway network to prevent traffic from building at any one location.

- An emphasis on taking just enough steps (such as street closures) to maintain good pedestrian and traffic flow, thus balancing special event needs with needs of local businesses and residents.

Introduction

Bank One Ballpark (BOB), a 50,000-seat retractable-roof stadium that is home to the Arizona Diamondbacks, opened on March 29, 1998 in downtown Phoenix. While over 30,000 parking spaces in the downtown area provide ample parking for ball games and other events, the potential for traffic jams on game days was a widespread concern. Not only would baseball patrons be driving and walking in downtown Phoenix, but a resurgent downtown brought crowds for cultural and entertainment events to a host of facilities. These facilities include the Phoenix Symphony, Herberger Theatre, Civic Plaza convention center, America West Arena for basketball and hockey games, and the Science Center. 80,000 to 100,000 people were expected to attend 12 scheduled events in downtown Phoenix on the Diamondbacks' Opening Day.

In response to this challenge, the Phoenix Department of Streets Transportation and Phoenix Police Department developed the Sunburst Traffic Control Plan, in cooperation with downtown groups. The plan covers street closures and barricading, street signage, parking management, interface with the freeway and city traffic management systems and police operations.

Organization and Agency Responsibilities

The Phoenix Department of Streets Transportation and the Phoenix Police Department share responsibility for downtown traffic management.

Streets Transportation is responsible for formulating the traffic plan and pre-programming traffic signals for baseball games at Bank One Ballpark as well as other special events. The Police Department provides traffic control during events and off-site security. (The County Sheriff provides security inside Bank One Ballpark under contract with the facility.)

Police staffing and barricading costs are partially offset by payments from Bank One Ballpark. The amount is set through negotiations between the venue and the city.

The Downtown Phoenix Partnership, a private group, also plays an important role as a liaison between the business community and city agencies. Involvement of the Partnership provides businesses with one point of contact for downtown traffic issues. Likewise, Streets Transportation and Police Departments are able to use the Partnership as a single point of contact for hearing the concerns of downtown businesses and providing responses and a flow of information. The Partnership gives voice to concerns of the business community and helps work out solutions with city agencies.

THE DOWNTOWN PHOENIX PARTNERSHIP, A PRIVATE GROUP, PLAYS AN IMPORTANT ROLE AS LIAISON BETWEEN THE BUSINESS COMMUNITY AND CITY AGENCIES.

Planning

Work on the Sunburst Traffic Control Plan began 18 months prior to the opening of Bank One Ballpark. This early start gave staff time to present the first draft of the plan to a range of community and business groups. This process afforded city staff with the opportunity to both educate groups that would be affected by the new ballpark and to make improvements to the plan based on the discussions.

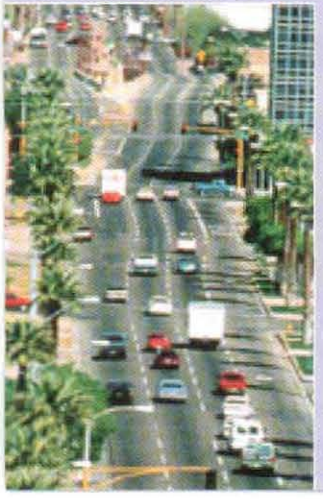
Two planning mechanisms have been used. For the initial planning, the assistant city manager created a task force in August 1997 to resolve traffic and parking issues. The task force was composed of Streets Transportation, Police, Community and Economic Development, and Transit Departments of the city of Phoenix. Out of this group was born the Sunburst Traffic Management Plan.

Currently, an Event and Transportation Coordinating Committee provides the forum to address issues related to downtown events and traffic issues. The group includes the Streets Transportation, Transit and Police Departments and the Downtown Phoenix Partnership. Downtown venues such as Bank One Ballpark, Dodge Theatre and Civic Plaza, which manages the largest parking garage in the area, also participate.

In bi-weekly meetings, the Event and Transportation Coordinating Committee works on plans for upcoming events, reviews issues from recent events and works to ensure that all affected organizations are aware of downtown activities that may affect them. The Downtown Phoenix Partnership acts as a facilitator to this process to assist with communication and liaison between city departments as well as between city departments and businesses in the area and the general public. The Downtown Phoenix Partnership also informs stakeholders such as local businesses of upcoming events and street closures and traffic routing. Notifications are sent by fax and e-mail. The Partnership also issues media alerts to inform the general public.

Keys to the ongoing planning and coordination process are:

- Regular meetings of the Event and Transportation Coordinating Committee. Meetings provide a forum to keep affected parties informed of upcoming events and to raise and resolve issues. A key aspect of this committee is that it includes both city departments and business representatives. Business representatives feel that they have input throughout the planning process. City staff feels the forum fosters teamwork and issues are worked out at the operational level.
- Communication and facilitative role of the Downtown Phoenix Partnership. The Partnership ensures that affected parties are kept informed, helps to focus city departments on issues that need to be addressed, and communicates traffic and parking information to local businesses and the public. The police feel that the Partnership's role is important to letting them focus on traffic operations and safety.



Day-of-Event Management

The goal of traffic management for the Bank One Ballpark is to minimize traffic congestion in the downtown area and make people's experience as pleasant and problem-free as possible in going to and leaving the ballpark.

Streets Transportation pre-programmed traffic signals at 40 intersections for downtown events with traffic signal timings designed for special event traffic conditions, taking account of street closures, traffic volumes, turning movements, etc.

The Police Department assigns 34 to 40 officers to the downtown area during baseball games at Bank One Ballpark, approximately 15 to 20 more than are normally assigned to the area. The Police Department regulates and directs traffic before and after the game utilizing officers, traffic cones, signs and variable message boards. As game time approaches and traffic and pedestrian activity intensifies, officers manually control traffic signals. Both the police and Streets Transportation staff feel that manual control is the most effective approach because officers can see how many vehicles and pedestrians are approaching the intersection, rather than reacting to them once they have arrived.

After the game, the police direct traffic away from the area using street closures and prohibiting certain turning movements. These restrictions serve to disperse traffic headed toward highways and to empty parking lots within 30 minutes after conclusion of the game.

The Police Department operates a management center across the street from the ballpark and monitors traffic via closed circuit television; cameras can be controlled from the management center. Video is also fed to the separate traffic management center.

The traffic management plan is designed to:

1. **Maximize use of the available vehicle capacity on arterial streets and the Inner Loop of freeways (I-10 and I-17 and 50) that forms a rectangle around downtown Phoenix.** Downtown Phoenix enjoys excellent highway access and an extensive grid of arterial streets. The transportation plan aims to fully utilize traffic capacity by spreading traffic throughout the street and highway network. For example, drivers are urged to enter downtown from Seventh Avenue to avoid congestion at Third Street and Jefferson.

2. **Guide drivers from freeways to parking lots along routes that separate traffic coming from different directions.** Traffic planners divided the approaches to the downtown area into quadrants. Signage guides drivers so that they do not cross over into other quadrants on route to parking lots. Separating the traffic coming from each quadrant helps prevent traffic from building at any one central location. City and

Downtown Phoenix Partnership staff believe, however, that drivers are reticent to follow the signs. Many motorists continue to use exits familiar to them that let them off close to the park, so that the intersection of I-10 and Seventh Street continues to be congested before games.

3. **Take just enough steps to maintain good traffic and pedestrian flow.** The intent is to balance the needs of Bank One Ballpark traffic and pedestrians with the needs of local businesses and residents. For example, the initial closure of a north/south street pair (Washington and Jefferson) for 30 minutes after each game to accommodate the surge of pedestrians was reduced to closing only the southbound street (Jefferson). Experience showed that closure of Jefferson only was sufficient, and keeping Washington open served to maintain vehicular access to businesses on Washington.

Instead of closing Washington Street after games, one or two lanes of traffic are blocked off to create a wider space for pedestrians. Bollards are inserted into the pavement and chained together to demarcate the pedestrian space.

Traffic information is distributed in several ways. The Downtown Phoenix Partnership distributes press releases giving the best routes in and out of Copper Square. This information is also on the Internet. As the time for an event approaches, variable message signs on highways direct traffic to less-congested exits.

AS THE TIME FOR AN EVENT APPROACHES, VARIABLE MESSAGE SIGNS ON HIGHWAYS DIRECT TRAFFIC TO LESS-CONGESTED EXITS.

The Downtown Phoenix Partnership stations a staff person at the police command center who monitors traffic conditions. As streets become congested, the staff person calls a local radio station, KTAR, to broadcast the traffic information and advise motorists to take less-congested exits or streets.

Downtown Phoenix Partnership staff check parking lots in garages and as they fill, communicates this information to the police, who can then direct traffic to lots with available parking spaces.

Other steps taken as part of Bank One Ballpark transportation management are:

1. **Reserve parking capacity for attendees of cultural events.** Events are often held simultaneously at the ball park and Symphony Hall. A certain amount of parking capacity next to Symphony Hall is reserved for patrons of cultural events. As the lots fill, parking lot attendants direct drivers who are attending a ball game to other lots while admitting drivers attending the cultural event. Any inconvenience to game attendees is minor since there is other parking near the stadium.

2. **Copper Square Ambassador program.** The Downtown Phoenix Partnership provides about ten Copper Square Ambassadors on game nights to provide public information and assistance. Ambassadors are employees of the Partnership. Each ambassador is assigned about five blocks with heavy pedestrian activity. The ambassadors answer

questions and guide people to their destinations, escorting them if necessary. At the end of the game, the ambassadors go so far as to help people find their car if they have become disoriented. The Ambassador program is funded through the Partnership's assessment on property owners in the downtown area.

3. **The Same police officers are frequently assigned to work ballgames and other events.** Officers become very familiar with the traffic management for downtown events. As a result, any officer can answer questions from motorists or pedestrians regardless of their posting that day.

4. **Helicopter tours during events.** Downtown garages, the Streets Transportation Department and the Diamondbacks club expressed concerns about traffic management, how quickly certain garages emptied out, and the necessity of closing certain streets. Standing at any intersection, it is difficult to judge whether the overall traffic plan is working well. The police offered helicopter tours so that those who raised these issues could observe first-hand traffic and pedestrian movements after the game. The police feel that these tours helped officials in the helicopter to literally see the effectiveness of the overall operation and thus put their concerns at ease.

In addition, areas are designated for handicapped pickup and drop-offs and bus and limo staging.

Police communicate internally with two-way radios; sergeants are equipped with cellphones to call their supervisors. The Copper Square Ambassadors also have two-way radio communication with their supervisors.

A shuttle bus service was provided when the ballpark first opened and was well used by fans who feared becoming stuck in traffic. Use of the shuttle faded through the year, however, as the traffic moved well. The shuttle service is no longer offered. A free downtown shuttle called DASH does connect the State Capitol with the ballpark, however. DASH operates until 11 p.m. nightly with 6 to 12 minutes between shuttles.

Neighborhood Concerns

Downtown businesses in the area of the ballpark have been concerned about the impact of street closures and traffic diversions on the ability of patrons to reach their businesses. The "just enough" approach of the transportation plan seeks to accommodate their needs as much as possible. Streets are closed only to the extent necessary to accommodate heavy pedestrian flows. As a mitigation measure, signage is posted instructing drivers on how to reach businesses when drivers must detour.

Residents living south of the ballpark have raised concerns about parking in the area. The complaints were recently publicized in a local newspaper. Some residents sell parking spaces for about $5 each in vacant lots, and others sell parking in their driveways. Those

not engaged in these practices complain about the increase in traffic, speeding vehicles and trash. Police are citing cars that block private driveways but not towing the cars. To help with the trash problem, community service workers from the juvenile court system have been assigned to pick up trash after games. A residential parking permit program is under consideration, although earlier, residents of only one block voted to join the permit program when it was offered to the neighborhood.

Residents have also complained about traffic from games cutting through residential streets. Streets Transportation temporarily closes several minor streets after games to prevent this from occurring.

Special Event Coordination and Planning

Traffic planning for Bank One Ballpark is part of continually evolving planning for traffic for downtown Phoenix. The plan is adapted as the city grows and new downtown venues open. For example, the New Dodge Theatre opened in April 2002 and holds about 200 events a year. The Bank One Ballpark traffic plan was modified to take into account traffic going to this new venue. These changes are coordinated through the Event and Transportation Coordinating Committee.

San José, California:
COMPAQ CENTER

The opening of a downtown indoor arena seating 18,000 spectators could create neighborhood and patron dissatisfaction from traffic and parking conflicts. Arena events could also strain city resources for planning and managing arena sporting and other events.

The city of San José recognized that opening the San José Arena (now the Compaq Center at San José) in 1993 required an integrated effort involving the facility, city agencies, neighborhood groups and other affected stakeholders. This effort involved a series of actions to ensure effective planning, management, funding and coordination. Steps taken included:

- Compilation of a thorough transportation and parking plan that is formally adopted by the City Council. Under the plan, city agencies use a combination of technologies (closed circuit television cameras, changeable message signs, magnetic loop detectors), a traffic management center and on-site police traffic management to effectively manage traffic, pedestrian and parking activities.
- Commitment of adequate funding and staffing for transportation management.
- Creation of an arena oversight agency that also acts as the principal liaison with the community.

- Ongoing monitoring, evaluation and adjustment of transportation operations strategies through monthly interagency operations committee meetings.
- Outcome-based approach to tracking agency performance.
- A procedure to modify the transportation plan as circumstances warrant.
- Strong spirit of coordination and accommodation among agency staff, a commitment to address neighborhood issues, and a results-oriented ethic of accountability.

Also notable is the evolution from event planning to long-term planning issues. The same group of agencies that have built close relationships to plan, communicate and coordinate arena events have added long-term issues to their agenda, such as extension of a light rail line to serve the arena and a flood control project.

Introduction

The Compaq Center at San José hosts 40-50 hockey games a year and approximately 125 other events such as concerts, indoor football, tennis, figure skating, family shows, conventions and seminars. Opening in September 1993, the arena helped revive a moribund downtown. Combined with expansion of the convention center, opening of major new hotels, construction of prime office space, good rail and highway transportation access, and a broad variety of special events held downtown each year, the Compaq Center has helped attract residents and visitors to the downtown area.

The arena is located immediately to the west of downtown San José. It is adjacent to single-family residential neighborhoods to the north, west and south and a commercial area to the east. The arena can be reached by car from I-87 which runs immediately to the east and several major arterials. There are 1,650 on-site parking spaces, used primarily for prepaid parking, and 11,000 off-site parking spaces, including 4,308 off-site parking spaces within one-third of a mile of the Arena.

The arena is a short walk away from a Caltrain commuter rail station and several Valley Transportation Authority (VTA) bus routes. VTA's most utilized bus route has a bus stop right in front of the arena. A VTA light rail line is a ten- to fifteen-minute walk from the center. A free VTA shuttle bus connects the light rail line to the arena during events at the arena. About 550 patrons use CalTrans, light rail and/or the shuttle bus on hockey game nights, and about half that number for other events. A new light rail line with a station just south of the arena entrance is currently under construction and scheduled to open by 2004.

Organization and Agency Responsibilities

The San José Department of Transportation has the lead responsibility for traffic and parking planning and management for arena events. DOT has a $500,000 annual budget for this purpose. This includes the cost of police officers and supervisors who staff events for the purpose of traffic control. DOT specifies the number of officers needed for each event, based on the Transportation and Parking Management Plan (TPMP), and approves deploy-

THE COMPAQ CENTER AT SAN JOSÉ HOSTS 40-50 HOCKEY GAMES A YEAR AND APPROXIMATELY 125 OTHER EVENTS SUCH AS CONCERTS, INDOOR FOOTBALL, TENNIS, FIGURE SKATING, FAMILY SHOWS, CONVENTIONS AND SEMINARS.

ment of any additional officers. DOT also staffs its traffic signal control center (called "Signal Central") during events at the arena. Signal Central operators monitor traffic and parking conditions using the CCTV cameras and loop detectors, and communicate with the police and parking attendants, making changes to signal timings and changeable message signs.

The San José Police Department is also integrally involved in pre-event planning. During events, the PD is responsible for traffic control. Its relationship with DOT during events is described as being "hand in hand," although formally the PD is in control on the day of the event. The PD is not responsible for security in and around the arena during events; security functions are assigned to the San José Arena Management Corporation.

Another agency playing a key role in transportation planning and management is the San José Arena Authority. The Arena Authority was created by the San José City Council in 1990 during planning of the Arena and operates under an agreement with the city of San José. The Arena Authority has two broad missions: oversight of arena management and liaison with the community. The Arena Authority acts as a neutral third party to identify issues affecting the arena, convene the responsible organizations and find a resolution.

Interagency coordination takes place through the Arena Events Operating Committee (AEOC). This group develops an Operations Manual based on the TPMP, coordinates event planning, monitors performance of traffic and parking operations, and debriefs on recent events. The AEOC is composed of representatives from the Arena Authority, Arena Management Corporation, Santa Clara Valley Transportation Agency, Convention Center, San José Redevelopment Agency and the following city agencies: San José Police Department, Office of Cultural Affairs, Office of Conventions, Arts and Entertainment, Parks Department Visitor Services Unit. The AEOC also handles management of downtown area parking lots.

Agency representatives to AEOC are given considerable latitude to make decisions. They are also held accountable for satisfactory arena operations.

Most of the parking facilities in the area are owned and/or operated by the San José Arena Management Corporation, which coordinates parking management through the AEOC. Several other private parking operators also serve arena patrons. These operators have signed letters of intent with the city. The letters of intent assure that the parking lots will be open and properly staffed. In exchange, signage directs motorists to the lots. Attendants at the lots are equipped with two-way radios to communicate with city staff when their lots are full to capacity.

TRAFFIC AND PARKING FOR THE ARENA FOLLOWS THE TRANSPORTATION AND PARKING MANAGEMENT PLAN (TPMP), WHICH COVERS TRAFFIC FLOW, SIGNAGE AND POLICE STAFFING

Planning

Traffic and parking for the arena follows the Transportation and Parking Management Plan (TPMP), which covers traffic flow, signage and police staffing for each of a dozen different types and sizes of arena events. The TPMP is agreed to by the city and the San José Arena

Management Corporation and adopted by the City Council.

The TPMP was first developed prior to the opening of the Arena and approved by the City Council in June 1993, prior to the September 1993 opening. The original plan provided for a trial period. A revised plan, reflecting fine-tuning based on initial experience, was adopted in 1994. The plan was most recently revised in February 2002. Revisions are now planned on a three year cycle.

The TPMP details the level of service that the city will provide for arena events. A separate agreement addresses revenue provided by the San José Arena Management Corporation to the city. Although the two agreements are not formally connected, staffing and other resources to carry out the TPMP are available due to the revenue the city derives from the arena.

The TPMP's goals are to assure efficient and effective vehicular and pedestrian traffic circulation; provide sufficient parking access, minimize traffic congestion on surrounding streets, and minimize traffic and parking intrusion into the neighborhood. The plan identifies key characteristics affecting traffic and parking needs such as event attendance, time of day and crowd characteristics. The plan is also adjusted for other important factors such as a high volume of passenger drop-offs and high limousine or charter bus turnout. Each plan identifies traffic ingress and egress routes; traffic circulation patterns; major pedestrian corridors and bike facilities. Signal timings, static signs, police traffic control and temporary street closures are tailored for each set of conditions identified in a dozen different plans.

Day-of-Event Management

Traffic and parking management activities rely on the city's network of interconnected traffic signals. Of the 775 traffic signals within the city of San José, 545 are currently connected to a central computer via city-owned copper cable, leased telephone lines, microwave and spread spectrum technology. All 43 signalized intersections in the immediate Compaq Center area are on this system. From the city's traffic management center (called "Signal Central"), city staff can configure and make real-time adjustments to signal timing plans in response to changing traffic conditions. The central computer also continuously verifies that vehicle detection and control systems are in working order.

Traffic conditions are monitored using a magnetic-loop detection system and closed circuit television cameras (CCTV). Loop detectors are embedded in the pavement at major intersections and show volume and speed of traffic through the intersection. CCTV cameras are mounted on 45' high poles located at intersections to provide an unobstructed view of major arterial streets. There are 16 CCTV cameras in the immediate Compaq Center area.

Another critical technology is changeable message signs (CMS). The signs are used as

attendees arrive in the area to direct motorists to available various parking lots in the area. As lots fill to capacity, CMS messages are changed to direct motorists to alternative facilities in the downtown area. The signs are also used to separate motorists with pre-paid parking passes, who are directed to the pre-paid lots, from those not using pre-paid parking.

In addition to the nine CMS signs in the arena area, static guide signs are posted throughout the arena area for both motorists and pedestrians. Signage in the Compaq Center area is the primary means of public communication. Driving directions and transit information is also mailed to season ticket holders and placed on the arena's web site.

Major features of traffic and parking management are:

- **Close coordination between the Signal Central and police directing traffic at the Compaq Center.** Signal Center is staffed for all but minor events (generally, under 7,000 attendance) and is in constant communication with the police supervisor and parking lot attendants via two-way radio. The Signal Center operator modifies changeable message signs and traffic signal timings based on current traffic, parking and pedestrian conditions. The operator receives instructions from the police supervisor, reports from parking lot attendants when lots fill and views traffic conditions using CCTV cameras. Signal Center operators also report traffic and parking conditions to the police supervisor based on CCTV camera views and data from the loop detectors.
- **Separation of drop-off and pickup areas from the arena entrance.** The arena is located on Santa Clara Street, a busy arterial leading into downtown San José, with the entrance on the corner of Autumn Street. In order to maintain traffic flow on Santa Clara Street, designated passenger car drop-off and pickup areas are established approximately one block south of the arena on two streets with light traffic volumes. About 160 feet are available on both sides of Montgomery Street and an additional 160 feet on Autumn Street. These areas are heavily used by parents dropping off their teenagers for youth-oriented concerts. Static signage and orange cones are placed along Santa Clara Street to prevent the street frontage from being used for drop-offs and pickups.
- **Separate bus and limousine parking areas.** Autumn Street adjacent to the arena is closed to traffic during events. The street is used for limousine and charter bus parking where 20 or more limousines, or 20 or fewer buses, are expected for an event. The use of Autumn Street as a staging area is intended to keep these vehicles from circulating and parking in the surrounding neighborhoods. Limousines and buses pay $15 to park on this block for the duration of the event. Events expected to attract more than 20 buses, such as religious seminars and college basketball tournaments, utilize an on-site parking lot for bus staging and storage. VTA shuttle buses also use Autumn Street for staging.
- **Encourage use of remote parking at free parking lots connected by**

shuttle bus. The main parking lot at the arena charges $15 for parking while the fee at less-convenient lots is less. Patrons can also park for free after 6 p.m. at city-owned lots in downtown San José and ride the free shuttle bus to the arena (see below). Use of these remote lots reduces the amount of traffic at the arena, and is particularly popular with hockey fans who become very familiar with the parking and shuttle bus.

- **Pedestrian corridors.** Certain streets around the arena are identified as major pedestrian corridors frequently used by patrons walking from parking lots or arriving by transit. Several steps are taken to accommodate heavy pedestrian flows. Some sidewalks were widened when the arena was constructed; Santa Clara Street sidewalks are 15 feet in width, for example. Fixed signage is designed to facilitate pedestrian flows toward the arena. In addition, signal timings are designed to accommodate pedestrian surges before and after events. Several blocks near the arena entrance are closed off for approximately 15 minutes immediately after events conclude to facilitate quick dispersal of attendees.
- **Parents lounge for teen pickups.** Even with the size of separate pickup areas on Montgomery and Autumn Streets, double-parking has been an issue for teen-oriented concerts. The Compaq Center recently opened a parents' lounge in the Compaq Center where parents can wait for their children after the event, after parking in a nearby lot.
- **Residential parking permit program.** A major concern of the neighborhoods surrounding the arena is preventing attendees from parking on residential streets and taking on-street parking used by area businesses. The city established a parking permit program for the Compaq Center area that took effect shortly before the arena opened in September 1993. The program is unusual in that it addresses the needs of not only residential neighborhoods but also commercial and light-industrial land uses. The city DOT issues parking permits to residents and businesses within the permit parking zone, as long as adequate proof of residency or employment is provided. Businesses are entitled to one permit per registered vehicle and two guest parking permits. Businesses receive no more than one permit per employee. On-street parking is restricted to vehicles displaying permits on a 24/7 basis. The city proactively enforces the permit parking zones during all major events and other times as necessary.
- **VTA shuttle bus service.** The Santa Clara County Valley Transportation Authority (VTA) operates a free shuttle bus service from downtown San José to the Arena. The shuttle bus serves several light rail stops as well as downtown restaurants and offices and free parking lots.

Many of these program elements are modified depending on the type of event. For example, bus staging is moved to a larger area when necessary; the frequency of shuttle bus service varies with the size of event;

of the hallmarks of traffic and parking management at the Compaq Center is the emphasis on ongoing evaluation and adjustment. The TPMP is a living document with an established three-year revision cycle. A TPMP goal is to adjust the traffic and parking operations plan as needs and opportunities arise. In addition to the overall process of revising the TPMP, the monthly AEOC meetings are a key mechanism used to evaluate and adjust traffic and parking operations.

Neighborhood Concerns

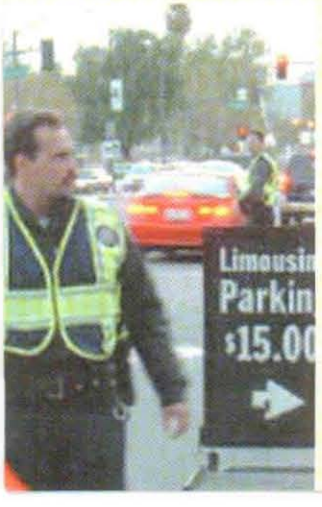
A primary goal of the TPMP is to minimize traffic and parking impact on the surrounding communities. The Arena Authority is responsible for regular and ongoing outreach to the neighborhood and business communities. Arena Authority officials keep in regular communication with the three neighborhood associations and two business associations in the area on traffic, parking and livability concerns. The Arena Authority mails neighborhood associations and businesses a monthly event calendar. It also holds periodic community meetings to update residents and businesses on event operations and plans that affect their neighborhoods.

The Authority acts as a neutral broker/middleman between the neighborhood groups and DOT, VTA and other government agencies. This division of labor between the Arena Authority and DOT has several major benefits. It provides one point of contact for community groups. It also enables DOT to focus on finding solutions to community traffic and parking concerns while the Arena Authority focuses on communication with the neighborhood, identifying issues and convening the appropriate agencies.

TPMP commits the city to "actively pursue best efforts to achieve and maintain at least 6,350 off-site parking spaces within one-half mile" of the arena entrance.

Special Event Coordination and Planning

San José hosts over 300 outdoor special events annually. The city's Office of Cultural Affairs (OCA) issues permits for outdoor special events and coordinates the special event calendar with affected agencies such as DOT. Many of these outdoor events take place in downtown San José and reflect the city's commitment to bringing people downtown and creating a lively sense of activity downtown. As a major attractor, the Compaq Center has been a key contributor to the rejuvenation of downtown San José.



The OCA, DOT and other agencies coordinate day-to-day special event planning for the Compaq Center and for downtown special events. The goal is to maintain sufficient spatial and temporal separation to avoid traffic conflicts. For example, an afternoon event is scheduled to end with enough time to clear the traffic from the event before people begin arriving for an evening event at the Compaq Center. Planners believe that attendees generally come downtown for one event only. What attracts them back for other events is a

good experience, and part of a good experience is ease of travel before and after the event.

The exception to this approach involves ancillary events that are planned in conjunction with a major event. For example, the Arena Green, a small park adjacent to the arena, is sometimes used for a "lunch in the park" before an event at the arena.

The AEOC is used as a forum for agencies to compare schedules and identify and resolve potential conflicts. This is particularly important for special events that utilize the parking lots in the arena area. These events use parking spaces that would otherwise be used by arena attendees and generate additional traffic. Events in the adjacent downtown area are also scheduled to minimize traffic conflicts. In addition to monthly AEOC meetings, the Arena Authority hosts quarterly meetings with city and other agencies on downtown events. Participants are asked to "bring your schedules and let's talk about how to get around conflicts," says an Arena Authority official.

Responsibility and accountability for day-to-day operations and management is assigned to a mid-level manager at DOT, who works with managers at a comparable level across agencies. Managers at the AEOC have the authority to make commitments for their agencies in terms of staffing, scheduling of events and related issues. Managers evidence a spirit of accommodation and cooperation with an expectation that issues will not be appealed to senior levels of the department. Asked what would happen if OCA and DOT managers could not resolve an event scheduling issue and if, hypothetically, he took it to a higher level, an OCA manager responded that his supervisor would tell him to go back to the committee to resolve the issue.

In addition to these day-to-day planning activities, the Arena Authority also identifies long-term planning issues that affect traffic and parking management for the area. Two major projects are currently underway that directly affect the Compaq Center: extension of the VTA's Vasona light rail line, with a new station to be immediately to the south of the Arena, and flood control on the Guadalupe River, which runs half a block to the east of the Arena. The Arena Authority is proactive in identifying issues and convening the VTA, the flood control agency, San José DOT and other affected agencies to address these planning issues.

WHAT ATTRACTS ATTENDEES BACK FOR OTHER EVENTS IS A GOOD EXPERIENCE, AND PART OF A GOOD EXPERIENCE IS EASE OF TRAVEL BEFORE AND AFTER THE EVENT.

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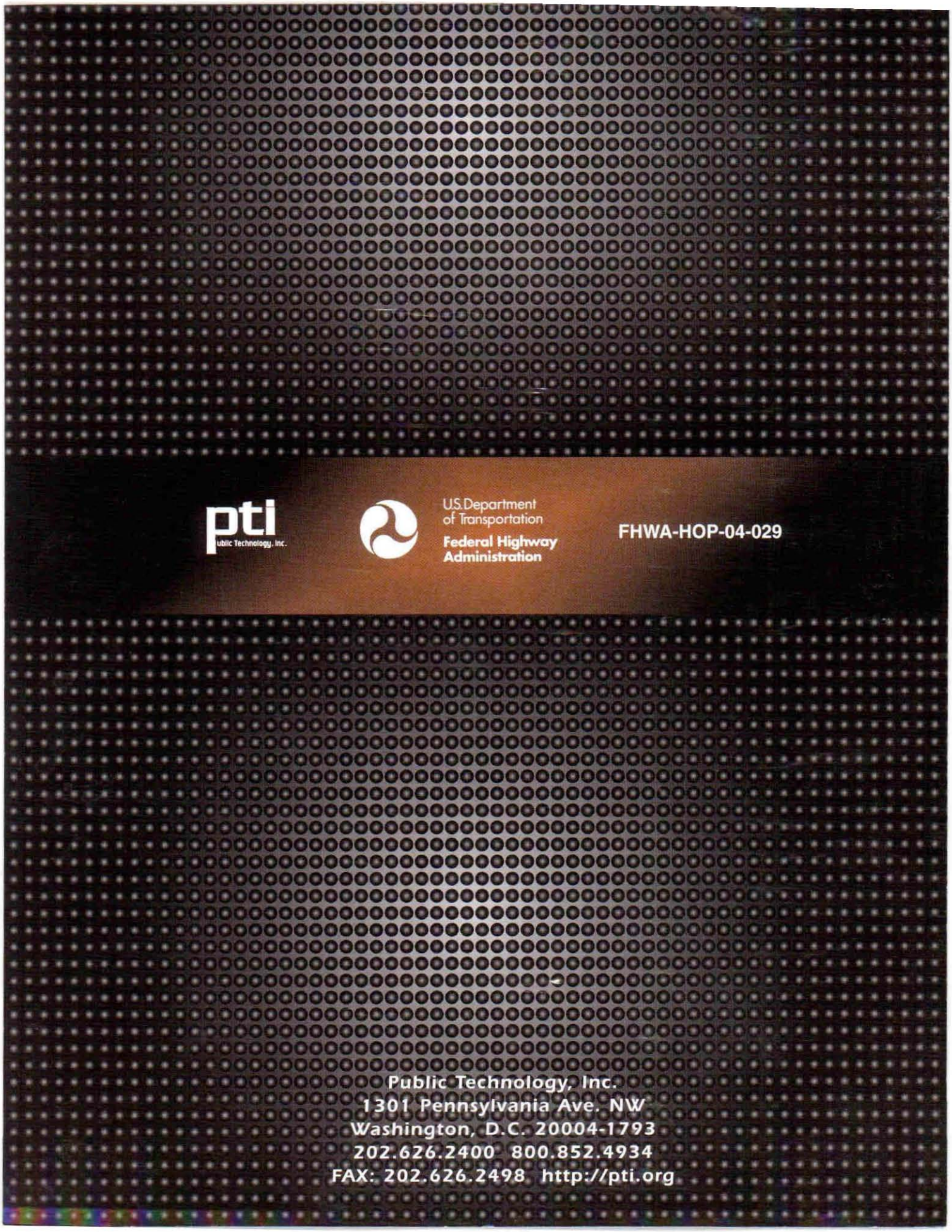

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