



Pomona Valley ITS Project

Project Deliverable 3.7.2 **Fairplex Event Traffic Management Implementation Plan**

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HISTORY OF REVISIONS

FAIRPLEX EVENT TRAFFIC MANAGEMENT IMPLEMENTATION PLAN

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TABLE OF CONTENTS

FAIRPLEX EVENT TRAFFIC MANAGEMENT IMPLEMENTATION PLAN

PROJECT DESCRIPTION.....	1
1.1 Purpose of Report	2
1.2 Partners	2
1.3 General Concept of Operations	3
1.4 Implementation Recommendations.....	3
2.0 EXISTING CONDITIONS.....	5
2.1 Stakeholder Objectives.....	5
2.2 Fairplex Area Traffic Operations.....	5
2.3 Area Intersection Deficiencies	5
2.4 Improvement Recommendations.....	6
3.0 IMPLEMENTATION PLAN	10
3.1 Recommendations and Objectives Comparison	10
3.2 Improvement Prioritization	13
3.3 Estimated Improvement Costs	16
3.4 Roles and Responsibilities	20
3.5 Implementation Schedule.....	21
3.6 Funding Availability	21
4.0 CONCLUSIONS.....	22

TABLE OF CONTENTS
FAIRPLEX EVENT TRAFFIC
MANAGEMENT IMPLEMENTATION PLAN

LIST OF FIGURES

Figure 1: Implementation of Components on Routes to Fairplex..... 14
Figure 2: Implementation of Components in Vicinity of Fairplex 15

LIST OF TABLES

Table 1: Matrix of Recommendations and Project Objectives 11

Project Description

The County of Los Angeles, in cooperation with the cities within the Pomona Valley, has determined that development of an Intelligent Transportation System (ITS) in the Pomona Valley would help to reduce congestion, enhance mobility, provide traveler information during non-recurring and event traffic congestion, and manage event traffic. The Pomona Valley Intelligent Transportation Systems (PVITS) project was conceived as a recommendation from the Pomona Valley ITS Feasibility Study completed by the LACMTA in 1995. The ultimate objectives of the Project are to:

- Improve mobility by optimizing traffic management on arterials and freeways;
- Enhance Route 60 capacity by better coordinating freeway traffic with parallel arterials;
- Improve agency efficiency by coordinating management of operations and maintenance efforts among and between agencies; and
- Increase agency staff productivity by providing low-maintenance, high-quality communications and computational tools to assist in daily management and coordination activities.

Phase 1 of the PVITS project is the development of a conceptual design that defines solutions to enhance capacity, reduce congestion, and improve traveler information in the Pomona Valley.

1.0 IMPLEMENTATION PLAN OVERVIEW

1.1 Purpose of Report

The Fairplex Event Traffic Management Implementation Plan documents the development of an event traffic management plan for the Fairplex, as part of PVITS project Phase 1. The Fairplex lies within Pomona, and is one of the largest trip generators within the project study area.

This report provides a prioritization of the recommended improvements, a phasing plan, preliminary cost estimates and a general concept of operations for the implementation of the Fairplex Event Traffic Management Plan. The improvements are based upon the recommendations presented in PVITS project deliverable 3.6.1 (Fairplex Event Management Implementation Plan – Improvement Recommendations and Cost Estimates). The improvements discussed in this document will be incorporated into future PVITS project deliverables, in order to complete the conceptual design. The three deliverables produced prior to this document include:

- Deliverable 3.1.1 – Fairplex Interviews and Progress Reports
- Deliverable 3.3.1 – Fairplex Data Inventory and Review
- Deliverable 3.6.1 – Fairplex Event Management Implementation Plan – Improvement Recommendations and Cost Estimates

1.2 Partners

The Fairplex Administration is an important stakeholder in the PVITS project because of the level of regional traffic that the Fairplex generates. Significant benefits can be realized with coordination of the improvements between the Fairplex, Los Angeles County, and the cities within the Pomona Valley. This would include parking management and Advanced Traveler Information Systems (ATIS) improvements in and around the Fairplex.

Other stakeholders in the Fairplex Event Traffic Management System include:

- City of Pomona Public Works Department
- City of Pomona Police Department
- City of La Verne Public Works Department
- City of La Verne Police Department
- Emergency Management Service Providers
- Fairplex staff and event organizers
- Los Angeles County Department of Public Works
- Los Angeles County Sheriff

1.3 General Concept of Operations

The traffic signals and field units (which include variable message sign and video detection units) that are part of this implementation plan are referred to collectively in this document as “the system”. The system would be controlled from the City of Pomona local control center (LCC), with additional control/ access to field elements from a workstation at the Fairplex. Based upon input and discussions with stakeholders and an analysis of the pros and cons of each location, the subregional TMC for the Pomona Valley has been recommended to be located at the City of Diamond Bar.

The Fairplex staff would have system monitoring access from an IEN/ATMS workstation located at the Fairplex. The system will have switching capability, so that full or partial control of field units, and coordination of traffic signals, can be done from the Fairplex by authorized City or Police Department staff, or remotely from the City of Pomona or the subregional TMC at Diamond Bar. In all monitoring and control operations, affected agencies would share control as necessary, and assume appropriate roles as laid out in adopted interagency agreements.

System control actions, such as changing preset messages, are not proposed to include direct control of traffic signals unless City of Pomona staff is present at the Fairplex. Pre-programmed event plans would be utilized that do not allow this direct control, but could coordinate timing plan selection for the traffic signals at certain intersections, set variable message and flip-disc signs, and orient closed-circuit television (CCTV) units to anticipated high-volume approaches of monitored intersections. Public Works or Police Department staff from the cities of Pomona, La Verne, or San Dimas, could have customized access rights to the system (based upon usernames and passwords) that would allow them to directly manipulate phasing and timing at their own traffic signals, as needed.

The involvement of each stakeholder in traffic management around the Fairplex is discussed in Section 3.4 of this report. A detailed concept of operations for the subregion is described in PVITS project deliverable 6.1.2 (Area Architecture and Concept of Operations).

1.4 Implementation Recommendations

Three categories of improvements were identified in deliverable 3.6.1:

- Physical Roadway Improvements (RI)
- Transit Improvements (TI)
- Intelligent Transportation System and Event Management Improvements (ITSEMI)

The acronyms RI, TI and ITSEMI used in this report will also be used in future PVITS project deliverables.

The objectives introduced below were developed for this document, based upon the PVITS project Scope of Work, Deliverable 3.6.1 - Improvement Recommendations and Cost Estimates, and Deliverable 4.1.2 - Stakeholder Objectives Report. These objectives form the basis of the development of recommended improvements.

- A. Improve the operation of traffic in the vicinity of the Fairplex during weekday and weekend special events.

- B. Allow for custom changes to the system during events (within the bounds of interagency agreements), so that unexpected traffic flow changes can be accommodated.
- C. Improve interagency traffic management through coordinated response to arterial incidents.
- D. Provide for the monitoring and coordination of traffic signal and ITS component operation, within guidelines established by each participating agency.
- E. Provide remote surveillance of real-time traffic conditions.
- F. Provide dissemination of incident and congestion information to motorists
- G. Reduce restrictions on traffic flow on the major routes around the Fairplex.
- H. Improve roadway and signal improvement plans and signal timing adjustments through inter-jurisdictional data sharing and cooperative timing plan development.
- I. Provide automated parking management and data collection strategies for the Fairplex
- J. Improve access to existing public transit

2.0 Existing Conditions

2.1 Stakeholder Objectives

Background information on stakeholder objectives for the Fairplex was compiled in Deliverable 3.1.1 - Interviews and Progress Reports. The interviews were conducted during meetings with staff from Fairplex Administration, the City of Pomona Public Works and Engineering staff, the City of Pomona Police Department, the City of La Verne, and the City of San Dimas.

2.2 Fairplex Area Traffic Operations

Background information on existing (2000-2001) traffic operations in the vicinity of the Fairplex was summarized in the Data Inventory and Review (deliverable 3.3.1). That report provides an inventory of the traffic control equipment locations, and documents non-event traffic conditions, event impacts, and event traffic control procedures.

2.3 Area Intersection Deficiencies

Major events at the Fairplex generate traffic that creates congestion on roadways and intersections surrounding the Fairplex site. Bottleneck congestion commonly occurs at certain locations without regard to the type or size of event. The Pomona Police Department manually reconfigures the following intersections near the Fairplex with traffic cones to provide improved traffic management; to better manage event related traffic congestion.

- Fairplex Drive / McKinley Avenue
- White Avenue / McKinley Avenue
- White Avenue / Burdick Drive (I-10 eastbound White Avenue off-ramp access)

Project Deliverable 3.3.1 – Fairplex Data Inventory and Review provides detailed drawings indicating these reconfigurations. Many of these intersection reconfigurations are performed at the same intersections for most events. Fairplex events, although of different size and duration, often create similar patterns of traffic congestion.

There are common locations where gridlock occurs during different types of events, and common improvements could mitigate congestion at a significant number of these points. Linscott, Law, & Greenspan (LLG) conducted a traffic study in 1998 for the Paradise Park Project. This development was proposed but has not been built. The value of the study lies in its documentation of bottleneck intersections near the Fairplex and its recommended physical improvements. Although this development has not moved forward, these potential improvements could be applied to relieve congestion for current Fairplex events.

Although the Paradise Park Project has no specific development year, the study indicates that any new development on site would put greater demand on nearby roadways and intersections, similar to many

of the events hosted at the Fairplex. In general, many of the traffic impacts on nearby roadways and intersections will be the same from event to event, minus some differences in trip distribution. The improvements within the LLG document, except where noted below, were estimated by LLG to be feasible within the current roadway width.

- Fairplex Drive / Arrow Highway: An additional northbound left turn lane
- White Avenue / Arrow Highway: Additional northbound and southbound left turn lanes
- White Avenue / Bonita Avenue: Additional northbound through lane
- White Avenue / Gate 14: An additional southbound left turn lane *

* This improvement would require the reconfiguration of the roadway median, and widening of White Avenue. This improvement will fit into the current right of way.

2.4 Improvement Recommendations

Implementation measures for the Fairplex Event Traffic Management Plan are organized into physical roadway improvements (RI), transit access improvements (TI), and ITS and event management improvements (ITSEMI). Descriptions of these improvements are provided below, which were analyzed in more detail in PVITS project deliverable 3.6.1 (Fairplex Event Management and Implementation Plan – Improvement Recommendations and Cost Estimates):

Physical Roadway Improvements (RI)

- **RI-1:** The I-10 eastbound off-ramp connection to White Avenue should be improved, in order to provide improved access between the Fairplex and the I-10 freeway via White Avenue.
- **RI-2:** Capacity enhancements, including dynamic lane control, should be implemented on McKinley Avenue from White Avenue to Fairplex Drive. Lane control signals on White Avenue would allow for reconfiguration of the northbound right turn into Gate 14, as needed.
- **RI-3:** Capacity enhancements to intersections within the perimeter of the Fairplex.

Transit Improvements (TI)

- **TI-1:** Provide bus pull-outs (loading areas outside of the travel lanes) and a mini transit center on both the north and south side of McKinley Avenue at Gate 1.
- **TI-2:** Transit schedule and route information should be provided on kiosks at the recommended transit center location. Real-time "next bus" transit information, when available from transit providers, should be included.
- **TI-3:** Information kiosks at the transit center and on-site at the Fairplex should have links to transit schedules and fares on the Los Angeles County MTA and Foothill Transit web sites. Links should also include the Southern California Association of Governments' TransStar transit trip planning site.
- **TI-4:** A crosswalk with safety signage and tactile safety markers should be provided at the unsignalized intersection of McKinley Avenue with the Gate 1 roadway, to provide formal access to both the north and south sides of the transit center location.
- **TI-5:** Lighting, shelters, and signage should be improved at all bus stops adjacent to the Fairplex on McKinley Avenue and White Avenue. Stops on both sides of these streets should be improved.
- **TI-6:** Improve the tram service during the Los Angeles County Fair between entrance/exit gates and the Metrolink platform by providing:
 - Exclusive lanes or priority movements at traffic control points within the parking lot, or, as an alternate to this recommendation,
 - Route the existing shuttle service onto surface streets - with an alternate type of vehicle, if necessary - and provide priority to vehicle at controlled intersections.

ITS and Event Management Improvements (ITSEMI)

- **ITSEMI-1:** The Fairplex web site and regional traveler information web sites should have standardized maps with customized directions to certain areas of Fairplex for different types of events.
- **ITSEMI-2:** The Fairplex web site address (www.fairplex.com) should be used on all publications, and event organizers could be required to use the address so that attendees use the customized Fairplex pre-trip information.
- **ITSEMI-3:** Press materials, and current and future Highway Advisory Radio (HAR) systems should utilize customized directions for the sake of consistency.
- **ITSEMI-4:** Traffic routing directions should be provided to all incoming motorists via variable message signs and flip-disc* signs. The first message signs seen by motorists headed for the Fairplex should be placed on freeway or regional arterial routes, and should be located at least three miles from the first major exit or decision point.
- **ITSEMI-5:** Variable message signs at each major decision-making point, or along major corridors, should reaffirm the recommended route to and from the Fairplex.
- **ITSEMI-6:** Displayed information on variable message signs should be verified or modified every five minutes – or more frequently - by Traffic Management Center personnel.
- **ITSEMI-7:** Pole-mounted variable message signs should be placed on existing sign poles, luminaire poles, or traffic signal arms. All signs on White Avenue north of Arrow Highway, and along Foothill Boulevard, should use these smaller signs.
- **ITSEMI-8:** Static signs should remain where dynamic control is not necessary.
- **ITSEMI-9:** The Fairplex monitoring and control site should reside within the current Fairplex Security Office, or at a potential new building to be constructed by Fairplex, east of the Fairplex Drive / McKinley Avenue intersection.
- **ITSEMI-10:** Traffic detectors should be installed and should include system detectors located at mid-block intervals, tied to the traffic signal controllers.

** The term “flip-disc sign” refers to remote-controlled pole-mounted signs that can display one of two different signs. In the case of flip-disc signs utilized for the Los Angeles County Fair, the signs are used during the duration of the Fair at freeway interchanges and major off-ramps for traffic guidance. An arrow and the word “Fairplex” indicate the preferred route to the site. Currently, these signs can be “flipped” manually which changes the direction of the directional arrow.*

- **ITSEMI-11:** Closed-circuit Television (CCTV) cameras should be utilized for traffic monitoring, including incident verification and detection at parking entrances.
- **ITSEMI-12:** CCTV should be utilized for queue detection at parking entrances.
- **ITSEMI-13:** CCTV cameras should be controlled (via pan/tilt/zoom features) using a CCTV server that will reside at a central control site (at the Fairplex).
- **ITSEMI-14:** Video recording equipment, frame storage devices, additional monitors, quad-splitters, and other ancillary equipment should also be provided at the central control site (at the Fairplex).
- **ITSEMI-15:** Signals on all routes from local freeways and regional arterials to the Fairplex should be linked into the system.
- **ITSEMI-16:** Fairplex control site workstations and the city LCCs should coordinate timing plan selection and synchronization of area signals - via selection of pre-determined event plans. This would be within parameters agreed to by the agencies that own the affected signals. Direct control of traffic signals will not be relinquished by local agencies, as any coordination of signals will be defined in interagency agreements before the start of operations.
- **ITSEMI-17:** Lane control signals and flip-disc signs would need to have separate controllers from the area traffic signals. Direct control would be provided from the central control site (at the Fairplex).
- **ITSEMI-18:** Graphic user interfaces on the control site workstation(s) should provide easy user access to remote control of field devices.
- **ITSEMI-19:** There should be limits on authorized users that would have access to signal system modification functions. This should be limited to individuals with the appropriate training and authority.
- **ITSEMI-20:** The central control site (at the Fairplex) should automatically link variable message signs, flip-disc signs, and other information devices to the signal timing system when a new pre-determined event plan is selected. This should be done with operator verification. *
- **ITSEMI-21:** Automated field information devices such as LCS and flip-disc signs should include an override key switch at the sign controller.

** This type of link between equipment is an important function of an ITS system. For example, if a specific event plan is activated in the control system, dynamic signs with directions for drivers would be activated. At the same time, signal timing plan and corridor synchronization would be implemented for signals that could be impacted by that change in traffic flow (per interagency agreements).*

The recommendations could be implemented simultaneously, contingent upon the interagency coordination requirements described above, coordinated construction phasing and funding availability. It is proposed that the implementation of this project be conducted in three priority phases.

Call for Projects Proposition C funding obtained by Los Angeles County will be used to fund the initial implementation of the Fairplex recommendations. These funds are administered by the MTA, and were approved in the 1995-application year for use by Los Angeles County for ITS system development. Phase I improvements, as proposed in this document, would be implemented with this funding source. Funding of Phase II and Phase III improvements have not yet been identified, but could be included in future call for projects' applications submitted by the Los Angeles County to the MTA.

The evaluation of the improvements is provided in Section 3.1 of this report. The prioritization and locations of the Fairplex control site and system field units are provided in Section 3.2. Estimates of capital and operating costs and the three-phase implementation of the Plan are discussed in Section 4.2. These estimates include the costs of equipment procurement and installation, which includes signal and control communication links and the workstations, which provide monitoring and control.

3.0 Implementation Plan

3.1 Recommendations and Objectives Comparison

In order to assist with the prioritization of recommended improvements from project deliverable 3.6.1 into implementation phases, **Table 1** was developed. The table presents a comparison of the recommended improvements compared to Implementation Plan objectives established in Section 1.4. The sequencing of improvements into phases is based upon cost of installation and interconnect, geography (building outward from the control site), and fulfillment of these objectives.

Based on this comparison to the project objectives, there are eight prominent recommendations (in bold text) that should be considered for early implementation under the three-phase implementation program. They were selected because they satisfy four or more goals and together provide a good foundation for future expansion.

The resulting eight high priority recommendations are ITS components (as opposed to roadway, transit, or other improvements). This is due to the ability of each of those eight to satisfy the project objectives. These ITS related improvements can be implemented at substantially less cost than major roadway widening and will provide a benefit to all the traveling public, not just transit users. Therefore, the ITS solutions recommended have a greater potential to address the specific goals identified for this project (according to the analysis in Table 1) and offer a greater cost-benefit than the other recommendations.

Table 1: Matrix of Recommendations and Project Objectives										
Improvement Recommendation	Fairplex Event Traffic Management Plan Goals									
	A. Improved operation of traffic	B. Flexibility for custom changes during events	C. Improved interagency traffic management.	D. Remote signal coordination	E. Remote monitoring of roadway conditions	F. Congestion information for motorists	G. Removal of significant restrictions to traffic flow	H. Roadway and signal improvement plans	I. Improved parking management	J. Improve access to existing public transit
<i>Roadway Improvements</i>										
RI-1: White Ave Ramp	√						√	√		
RI-2: Reversible Lane on McKinley Ave.	√						√	√		
RI-3: Capacity enhancements to intersections around the perimeter of the Fairplex							√	√		
<i>Transit Improvements</i>										
TI-1: Transit Center	√									√
TI-2: Transit Kiosks						√				√
TI-3: Kiosk Links										√
TI-4: Gate 1 Crosswalk	√							√		√
TI-5: Bus Stops	√									√
TI-6: Metrolink Shuttle										√
<i>ITS & Event Traffic Management Improvements</i>										
ITSEMI-1: Event-Specific Web Maps	√					√				
ITSEMI-2: fairplex.com on Media						√				
ITSEMI-3: Wayfinding info.	√					√				
ITSEMI-4: VMS& flip-disc signs	√	√	√			√				
ITSEMI-5: Mid-Route VMS units		√	√			√				

**TABLE 1 (continued):
MATRIX OF RECOMMENDATIONS AND PROJECT OBJECTIVES**

Improvement Recommendation	Fairplex Event Traffic Management Plan Goals									
	A. Improved operation of traffic	B. Flexibility for custom changes during events	C. Improved interagency traffic management.	D. Remote monitoring and coordination of	E. Remote monitoring of roadway conditions	F. Driver wayfinding and congestion information	G. Removal of significant restrictions to traffic flow	H. Roadway and signal improvement	I. Improved parking management	Improved access to existing public transit
ITSEMI-6: Monitoring of VMS text	√					√				
ITSEMI-7: Pole-mounted VMS	√	√	√			√				
ITSEMI-8: Static Signs	√					√				
<i>ITS & Event Traffic Management Improvements (continued)</i>										
ITSEMI-9: Fairplex Control Site	√	√	√	√	√	√		√	√	
ITSEMI-10: Traffic Volume Detectors					√			√		
ITSEMI-11: CCTV Incident Monitoring	√		√	√	√		√	√		
ITSEMI-12: CCTV at Pkg. Entrances					√				√	
ITSEMI-13: Remote control of CCTV			√		√					
ITSEMI-14: Video and traffic data recording			√		√			√		
ITSEMI-15: Traffic signal coordination	√	√	√	√	√		√	√		
ITSEMI-16: Traffic signal timing and synchronization	√	√	√	√	√			√		
ITSEMI-17: Lane control, flip-disc signs		√				√				
ITSEMI-18: TMC or city control of devices	√	√	√	√	√			√		
ITSEMI-19: Limits on system operators			√							
ITSEMI-20: Linking of devices to event mode	√	√	√			√		√		
ITSEMI-21: Manual override	√	√	√							

These recommendations include improvements to the Fairplex web site and print media, the Fairplex monitoring and control site, the traffic signal coordination system, variable message signs, and event-based management plans. The prioritization of improvements, discussed further in Section 3.2, allows for the development of key ITS functions during the initial implementation phase while considering funding limitations.

3.2 Improvement Prioritization

The location of improvements recommended as part of the three implementation phases are illustrated in **Figure 1** and in **Figure 2**. The following list provides an overview of the equipment and functionality that would be implemented within each phase.

- **Phase 1 Implementation Baseline ITS:** Internet improvements, Fairplex workstation and establishing a baseline of main ITS functionality (VMS, signal control, flip-disc signs, CCTV) on both Fairplex Drive and White Avenue, from McKinley Avenue to decision points south of the Fairplex. Arterial detection on main routes to site.
- **Phase 2 Expanded Baseline Implementation:** Provision of centralized signal control, CCTV units at Arrow Highway intersections. LCS structures on White Avenue. I-10 / Fairplex Drive interchange CCTV unit. Remote flip-disc signs.
- **Phase 3 Full Deployment Implementation:** Remaining flip-disc units. CCTV units at Arrow Highway / I-210 and Gate 19. LCS structures along McKinley Avenue.

The use of wireless communication is recommended for selected field devices, but bandwidth limitations inherent with wireless technology will need to be considered. Wireless connections that utilize cellular frequencies could become slowed or blocked during peak cellular phone use. When such peak use occurs, some or all of the ITS units connect to a wireless system could temporarily lose communication with the monitoring control site or TMC. Pager networks could also be utilized for communications, but such a system could only be utilized for simple remote operation (on/off functions, or switching of flip-disc signs). Specific locations for wireless interfaces will be identified during the detailed design phase of this project.

Leased communications solutions are therefore part of the implementation phases, in as many field unit locations as possible.

Figure 1: Implementation of Components on Routes to Fairplex

Figure 2: Implementation of Components in Vicinity of Fairplex

3.3 Estimated Improvement Costs

This section provides a planning-level estimate of project capital and operating costs for the recommended improvements, over the three project implementation phases.

Operations and Maintenance Cost Estimates

Compared to more traditional infrastructure improvements, ITS improvements typically incur a greater proportion of their costs as continuing operations and maintenance (O&M) costs. Generally, these improvements also have a shorter useable lifespan than traditional improvements such as roadway widening.

Capital Cost Opinions

The improvements recommended in this document include physical roadway improvements, ITS components, and traffic management improvements. Planning-level capital and operating costs for ITS components have been compiled from the ITS Cost Data Repository, administered by the United States Department of Transportation's Joint Program Office for Intelligent Transportation Systems. These represent estimated probable costs based upon national and Kimley-Horn experience.

Tables 2, 3, and 4 on the following pages provide detailed cost opinions for capital costs under each implementation phase of the project. The column entitled "IMPR#" references the number given to the improvement within this document for which the capital outlay is targeted. Communications cost estimates will be developed as a part of the Concept Design Report.

Table 2: Planning-Level Capital and O&M Costs
Implementation Phase I

ITEM	IMPR #	QUANTITY	UNIT COST	TOTAL CAPITAL COSTS	ANNUAL O&M COSTS *
Variable Message Sign	ITSEMI-4 ITSEMI-5 ITSEMI-6 ITSEMI-7	1 unit	\$50,000	\$50,000	\$2,000
Flip-Disc Sign	ITSEMI-4 ITSEMI-5	5 units	\$8,000	\$40,000	\$8,000
CCTV Camera	ITSEMI-11 ITSEMI-123 ITSEMI-13	2 units	\$30,000	\$60,000	\$3,000
Arterial Detection	ITSEMI-10	2 units	\$8,000	\$16,000	\$200
Workstation and Center-to-Center Communications	ITSEMI-9, ITSEMI-18 through ITSEMI-21	1 unit	-	\$8,000	\$800
Traffic Signal and ITS unit Communications	ITSEMI-17 ITSEMI-20	**	-	-	-
Phase 1 Subtotal				\$174,000	\$14,000
Contingency			25%	\$43,500	N/A
Phase 1 Total				\$217,500	\$14,000
<p><i>Capital costs have been estimated from the ITS Cost Data Repository, administered by the United States Department of Transportation's Joint Program Office for ITS, as well as Kimley-Horn experience.</i></p> <p><i>* The ITS Cost Data Repository does not provide separate breakdowns for estimated operations cost and maintenance cost. Therefore, O&M costs are provided as a single value.</i></p> <p><i>** Communications cost estimates will be developed as a part of the Concept Design Report.</i></p>					

Table 3: Planning-Level Capital And O&M Costs
Implementation Phase II

ITEM	IMPR #	QUANTITY	UNIT COST	TOTAL CAPITAL COSTS	ANNUAL O&M COSTS*
Variable Message Sign	ITSEMI-4 ITSEMI-5 ITSEMI-6 ITSEMI-7	2 units	\$50,000	\$100,000	\$4,000
Lane Control Signals and Structure	ITSEMI-15 ITSEMI-16	2 units	\$20,000	\$40,000	\$4,000
Flip-Disc Sign	ITSEMI-4 ITSEMI-5	4 units	\$8,000	\$32,000	\$4,000
CCTV Camera	ITSEMI-11 ITSEMI-12 ITSEMI-13	4 units	\$30,000	\$120,000	\$6,000
Arterial Detection	ITSEMI-10	2 units	\$8,000	\$16,000	\$200
Traffic Signal and ITS unit Leased Communications	ITSEMI-17 ITSEMI-20	**	-	-	-
Phase II Subtotal				\$308,000	\$18,200
Contingency			25%	\$77,000	N/A
Phase II Total				\$385,000	\$18,200

Capital costs have been estimated from the ITS Cost Data Repository, administered by the United States Department of Transportation's Joint Program Office for ITS, as well as Kimley-Horn experience.

** The ITS Cost Data Repository does not provide separate breakdowns for estimated operations cost and maintenance cost. Therefore, O&M costs are provided as a single value*

*** Communications cost estimates will be developed as a part of the Concept Design Report..*

Table 4: Planning-Level Capital And O&M Costs
Implementation Phase III

ITEM	IMPR #	QUANTITY	UNIT COST	TOTAL CAPITAL COSTS	ANNUAL O&M COSTS*
White Ave. Ramp	RI-1	1 ramp	\$500,000	\$500,000	\$0
Reversible Lane on McKinley Ave.	RI-2	1.25 miles	\$200,000 / mile	\$250,000	\$37,500
Capacity enhancements	RI-3	**	-	-	-
Transit Center	TI-1	1 unit	\$50,000	\$50,000	\$0
Kiosks	TI-2 TI-3 ITSEMI-1 ITSEMI-2 ITSEMI-3	2 units	\$25,000	\$50,000	\$12,000
Gate 1 Crosswalk	TI-4	1 unit	\$5,000	\$5,000	\$100
Bus Stops	TI-5	**	-	-	-
Metrolink Shuttle Service Expansion	TI-6	Estimated 3 miles	\$100,000 / mile	\$ 300,000	\$ 75,000
Lane Control Signal and Structure	ITSEMI-15 ITSEMI-16	3 units	\$20,000	\$60,000	\$6,000
Flip-Disc Sign	ITSEMI-4 ITSEMI-5	6 units	\$8,000	\$48,000	\$6,000
CCTV Camera	ITSEMI-11 ITSEMI-13 ITSEMI-14	8 units	\$30,000	\$240,000	\$12,000
Traffic Signal and ITS unit Leased Communications	ITSEMI-17 ITSEMI-20	***	-	-	-
Phase III Subtotal				\$1,503,000	\$111,100
Contingency			25%	\$375,750	N/A
Phase III Total				\$1,878,750	\$111,100

Capital costs have been estimated from the ITS Cost Data Repository, administered by the United States Department of Transportation's Joint Program Office for ITS, as well as Kimley-Horn experience. .

** The ITS Cost Data Repository does not provide separate breakdowns for estimated operations cost and maintenance cost. Therefore, O&M costs are provided as a single value.*

*** Would require conceptual design in order to identify enough project detail to develop cost estimates.*

**** Communications cost estimates will be developed as a part of the Concept Design Report.*

3.4 Roles and Responsibilities

This implementation Plan addresses the required coordination efforts between the Fairplex Administration and local and regional agencies.

To implement the recommendations in this report, Memorandums of Understanding (MOUs) may be needed between:

- City of Diamond Bar (as subregional TMC operator)
- City of La Verne Public Works Department
- City of La Verne Police Department
- City of Pomona Public Works Department
- City of Pomona Police Department
- Emergency Management Service Providers
- Fairplex Administration
- Los Angeles County Department of Public Works
- LA County Sheriff's office

These MOUs would provide structure for the roles, responsibilities, policies, procedures, practices and actions of the stakeholders that will be involved in controlling and monitoring the implemented components and control equipment. Standard Operating Procedures (SOPs) would also need to be implemented, under the guidance and approval of these stakeholders.

In addition to control provided by the City of Pomona LCC and potentially the subregional TMC, a workstation would be provided at the Fairplex site. Optimal operation of the PVITS system will include coordination with Fairplex on-site systems such as the planned parking management and Advanced Traveler Information Systems (ATIS). Control of traffic signals and ITS field devices would be switched as necessary between the subregional TMC or the City of Pomona and the Fairplex control site operated by the Fairplex Administration staff. Switching of control would depend on Fairplex event size and overall traffic management needs. Under normal, non-event traffic conditions, control would be assumed by the City of Pomona.

Operation of the system at the City of Pomona LCC would be handled by City of Pomona staff. When full or partial control of area signals and ITS field devices is transferred to the Fairplex, affected agencies will have the following roles:

- Fairplex Administration: System control of event management devices, pre-agreed timing plan selections.
- City of Pomona: System monitoring of Pomona LCC. Verification of signal timing and ITS device changes by Fairplex TMC. Potential local control and monitoring on-site at the Fairplex.
- City of Pomona Police Department: On street monitoring
- City of La Verne Public Works Department: Monitoring of Arrow Highway traffic via local city control site at City of La Verne. Verification of predefined signal timing and ITS changes by Fairplex TMC.
- City of La Verne Police Department: On street monitoring

3.5 Implementation Schedule

Table 5 provides a schedule for implementation of all project components, which includes a phasing of improvements.

Table 5: Prioritized Schedule of Recommendations												
	Time →											
Phase I interconnect and ITS units												
Phase II interconnect and ITS units												
Phase III interconnect and ITS units												
	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
	2003	2004			2005				2006			
		Design				Construction						
<i>Source: Kimley-Horn and Associates, Inc.</i>												

3.6 Funding Availability

A majority of the recommended improvements referenced within this document could potentially be funded under the LACMTA Call for Projects grant program. Roadway improvements, traffic signal system improvements, and ITS control sites and field units, can all potentially be funded under this program, which occurs periodically. Recommended railroad grade crossing safety enhancements could be funded via construction program grants from the Federal Railroad Administration (FRA).

4.0 Conclusions

This Fairplex Event Traffic Management Plan will become an integral part of event traffic management on roadways around the Fairplex.

When design and implementation construction is complete, the Plan will assist the Fairplex and local stakeholders in utilizing Advanced Traffic Management System (ATMS), Advanced Traveler Information System (ATIS), and Intelligent Transportation System (ITS) technologies to better manage off-site event traffic conditions and disseminate information to travelers bound for or departing the Fairplex site.