CITY OF MESA SUPPLEMENT
TO THE
CITY OF PHOENIX
2007 TRAFFIC BARRICADE MANUAL

Effective August 6, 2011

This supplement is presented in two formats. Each format contains the same content, but presents it in different formats. Format A—Narrative presents the supplement as an easy to read narrative. Format B—Detailed Reference starts on page 18 and presents the supplement with detailed references to the City of Phoenix 2007 Traffic Barricade Manual, suitable for making notations directly in a copy of the Phoenix manual.

CITY OF MESA SUPPLEMENT
TO THE
CITY OF PHOENIX
2007 TRAFFIC BARRICADE MANUAL

Format A

NARRATIVE

VERSION

1.0 Introduction

This Narrative version of the City of Mesa's Supplement to the City of Phoenix 2007 Traffic Barricade Manual (COP TBM) presents the Mesa Supplement in an easy to read, narrative format. The Mesa Supplement is also available in a Detailed Reference format that is suitable for making notations directly in the COP TBM.

2.0 Engineering Judgment

The 2003 MUTCD states in Section 1A.09 that the MUTCD "should not be considered a substitute for engineering judgment." This is equally true of this Traffic Barricade Manual. No single publication could ever cover all the diverse conditions and circumstances a practitioner may face in controlling traffic on city streets. Engineering judgment is essential in applying the principles and practices contained in this Traffic Barricade Manual. Variations from the requirements and typical illustrations in this manual may be needed based on analysis and engineering judgment of a specific situation. The City Traffic Engineer shall have the final authority with respect to such variations.

3.0 References to the City of Phoenix

Some terms are used throughout the Phoenix manual that apply specifically to the City of Phoenix. Rather than noting this each time the terms appear, those terms are noted in the following table along with how they should be interpreted with respect to the City of Mesa.

Term in Phoenix Manual	***Mesa Equivalent***
RMP: The Right of Way Management Program	*Temporary Traffic Control Program*
RMP Administrator	*City Traffic Engineer or Designee*
RMP Agent	*Traffic Barricade Coordinator, Temporary Traffic Control (TTC) Staff or any other authorized agent working on behalf of the City Traffic Engineer*

Term in Phoenix Manual	*Mesa Equivalent*
RMP Client	*Entity authorized to work in the right-of-way be it a contractor, city crew, utility company, etc.*
TRACS—Temporary Restriction and Closure System Permit	*TTC Permit—Temporary Traffic Control Permit*

Other more general terms referring to the City of Phoenix should be interpreted as applying to the City of Mesa.

4.0 Temporary Traffic Control Permit

All persons, contractors, utilities, and other agencies including City departments must obtain a TTC permit if they are to restrict access (partial or complete closures) on public streets, sidewalks, bike lanes, alleys or other public facility except as noted in the City of Mesa Temporary Traffic Control Rules and Procedures. The permit authorizes restrictions to be in place as specified on the permit, but does not guarantee the requester exclusive rights to occupy a particular portion of the public right-of-way. Weather, emergencies, incidents, or other projects and special events might require rescheduling of activities. The City will attempt to identify all known potential conflicts so they can be resolved cooperatively among those involved.

Unless otherwise exempted by the TTC Rules and Procedures, TTC permits are required for restrictions on local streets as well as on collector and arterial streets.

In the case of unplanned restrictions due to emergencies, notify Transportation as soon as practical at 480-644-4TTC (4882)

5.0 Peak Traffic Hours

City of Mesa peak traffic hours are
6:30 a.m. to 8:30 a.m. and 4:00 p.m. to 6:00 p.m. weekdays

6.0 NCHRP 350 Compliance

All temporary traffic control devices shall comply with NCHRP Report 350 requirements.

7.0 Necessity for Restrictions

Restrictions and closures are permitted only when necessary considering impact to the traveling public, safety and efficiency. Restrictions shall not be in place when work activities are not being performed. Restrictions shall not be left in place simply for convenience or to avoid the need to remove barricades at the end of the work shift and reset them the following day. Restrictions shall not be left in place solely to accommodate storage of equipment, supplies, debris, etc. Excavations should be covered with steel plates or backfilled and the lanes opened to traffic at the end of the work day unless it is not feasible to do so.

Approval of a Temporary Traffic Control Plan that includes restrictions and closures for a given time period does not constitute approval to leave restrictions and closures in place in conflict with the requirements set forth above.

8.0 Designated Responsible Person

Any entity employing temporary traffic control on public streets, sidewalks, bike lanes, alleys or other public facilities must have a designated person who will be responsible for ensuring that all barricades, signs, barricade lights, signals, and other traffic control devices are established and maintained in compliance with the City of Mesa Traffic Barricade Manual, and the MUTCD. The designated person shall be trained and posses a current certification in temporary traffic control standards and practices by either ATSSA (American Traffic Safety

Services Association) or IMSA (International Municipal Signal Association). The designated person may be an employee of a traffic control company hired by the entity conducting the work. However use of a traffic control company does not relieve the entity doing the work from the responsibility to comply with the Traffic Barricade Manual.

9.0 Advance Notice for Restrictions

Advance notice to the public is required for certain planned restrictions. The amount of advance notice provided to the public depends primarily on the functional classification of the street, the type, extent and duration of the restriction, and the amount of disruption to normal traffic the restriction will cause. Minimum advance notice requirements are as follows unless an alternative is approved in the TTC permit. Advance notice may be required for other situations as determined by TTC Staff.

- *Full street closure……..7 full calendar days*
- *Peak hour reduction in through lanes on major street……..7 full calendar days*
- *Left turn prohibition at a major street signalized intersection……..3 full weekdays*
  This 3-day notice is applicable to major projects that typically have traffic control in place for several weeks or months. Advance notice is not required when the turn prohibition is during non-peak hours only, and planned for no more than three consecutive days.

The required advance notice is typically to be done with variable message boards. Use of static signs for advance notice may be feasible in limited situations. Use of static signs must be approved in the TTC permit.

10.0 Relocation of Pedestrian Routes

When pedestrian routes need to be temporarily relocated, the relocated routes should be maintained on the same side of the street as the original route unless otherwise approved by TTC staff. If a traffic lane is used for a temporary pedestrian route on a major street, pedestrians should be separated from traffic, preferably by temporary traffic barrier, or longitudinal channelizing barricades where feasible. In some cases a buffer zone created with other barricades or channelizing devices may be used. Factors to be considered in determining which separation method to use include length of relocated route, duration of relocation, volume and speed of traffic, volume of pedestrians, physical constraints to placing barriers or longitudinal channelizing barricades, etc.

10.1 Routing Pedestrians Into Curb Lane

See COP TBM p. 22, Figure 1. On major streets, or when temporary pedestrian route is in a normal traffic lane (not a parking lane), and traffic is maintained in the adjacent lane, pedestrians should be separated from traffic by a temporary traffic barrier or longitudinal channelizing barricades per Section 10.0 above. Depending on the curb height and lane width, the ramp may need to be installed with the slope parallel to the sidewalk and a landing at the top of the ramp to provide an ADA compliant slope. Maximum slope allowed is 1:12.

11.0 Temporary Barriers

Temporary barriers must be designed, installed, and maintained in compliance with the MUTCD and the AASHTO Roadside Design Guide. A detailed plan is required for any proposed use of temporary barriers. Such plan shall be prepared under the supervision of a registered professional engineer familiar with the design requirements for temporary barriers in the MUTCD and AASHTO Roadside Design Guide and sealed by the engineer.

Barricade warning lights may be used on temporary barriers per the MUTCD.

12.0 Longitudinal Channelizing Barricades

Longitudinal channelizing barricades are lightweight, deformable channelizing devices that can be used singly as Type I, II, or III barricades, or connected so they are highly visible and have good target value. They can be used to channelize vehicular and/or pedestrian traffic, and can provide a continuous separation between pedestrians and traffic lanes or work zones. When used during hours of darkness to channelize traffic, the channelizing barricades are to have approved barricade warning lights attached and operational.

Longitudinal channelizing barricades are not temporary traffic barriers. However, some devices can function either as a channelizing barricade or a temporary barrier depending on how they are installed. It is important to follow the manufacturer's instructions for a given device to make sure it is being installed properly for the intended use.

13.0 Service Vehicles

A service vehicle is a vehicle used in the construction, operation, maintenance, or service provision of a municipal, utility or other similar facility, infrastructure or service. When service vehicles must travel slowly or stop for brief periods, they are to display one of the following operating high level warning light systems.

- *High intensity rotating, flashing, oscillating, or strobe lights. Service vehicles with this type of lighting may be used to close a lane for a maximum of 40 minutes.*

- *One arrow panel in combination with high intensity rotating, flashing, oscillating, or strobe lights. Service vehicles with this*

type of lighting may be used to close a lane for a maximum of 60 minutes.

A short taper of cones may be used behind a service vehicle in addition to the lights described above.

The high intensity rotating, flashing, oscillating, or strobe lights must be visible to drivers who are approaching the service vehicle in the same lane the service vehicle is in, and to drivers approaching from the same direction in adjacent lanes. It may also be desirable for the rotating, flashing, oscillating, or strobe lights to be visible to drivers approaching from different directions depending on specific circumstances such as time of day, proximity to traffic in opposing lanes, etc.

14.0 Arrow Panels

Arrow panels are required for all lane closures on multi-lane streets, day or night, except for short term closures (not to exceed 40 minutes) as described under "Service Vehicles," above, and as provided for in Chapter 4 and illustrated in Figure 5 of the COP TBM, and for emergencies.

Arrow panels shall comply with MUTCD requirements.

15.0 "KEEP LEFT" and "KEEP RIGHT" Signing with Channelization

Channelization requires "KEEP LEFT" and/or "KEEP RIGHT" signs to clearly indicate the proper path to drivers. A "KEEP LEFT" or "KEEP RIGHT" sign shall be placed at the beginning of a line of channelizing devices, except where the W12-1 or W12-1a lane splitter sign is used. In addition, "KEEP LEFT" and/or "KEEP RIGHT" signs shall be placed at each intersection and at a maximum spacing of 500 feet where intersections are spaced more than 500 feet apart. Additional "KEEP LEFT" and/or "KEEP RIGHT" signs shall be used as needed at or near

driveways to direct drivers to the correct lanes. One "KEEP LEFT" and/or "KEEP RIGHT" sign may serve more than one driveway where the driveways are closely spaced.

However "KEEP RIGHT" and/or "KEEP LEFT" signs are not required in a short term setup (less than one hour) where traffic is not being channelized left of center and where channelizing devices are set in such a way that the proper path to follow is self-evident to drivers.

16.0 Channelization Required When Two-Way-Left-Turn Lane Marking is Missing

Channelization must be provided when the existing two-way-left-turn lane marking is obliterated or missing. Channelization must be provided even if only one side of the two-way-left-turn lane marking is missing.

17.0 Pavement Marking Removal

Slurry seal is not to be used to obliterate markings unless specifically approved by the Transportation Department.

18.0 Obliterated or Missing Lane Lines On Multilane Streets

Where traffic is maintained on multilane streets without lane lines, the following minimum requirements apply:

- *Centerline must be delineated with channelizing devices except where a raised median or other physical feature serves to indicate the left edge of the traveled way.*

- *Separate left turn pockets are to be channelized at signalized intersections where there is sufficient room to do so and left turns are allowed.*

- *Exclusive right turn lanes at driveways and intersections are to be delineated with channelizing devices.*
- *Channelizing devices shall be spaced per the MUTCD: Spacing in feet shall not exceed 1 times the posted construction speed limit in mph on tapers, and 2 times the posted construction speed limit in mph on tangent sections.*

- *Where the street normally carries no more than two lanes of traffic in one direction, no additional lane delineation between the centerline barricades (or raised median) and the curb is required.*

- *Where the street normally carries three or more lanes of traffic in one direction, delineation of the lanes between the centerline barricades (or raised median) and the outside curb is required. This can be done with channelizing barricades or with temporary pavement markings.*

- *If done with channelizing barricades, it is usually necessary to eliminate one through lane. For example where there are normally three lanes, channelize traffic into two lanes. This type of setup requires review and approval in advance.*

- *If done with temporary pavement markings, such markings shall be reflective and comply with ADOT Standard Specifications for Road and Bridge Construction, 2008, sections 701-2.05, 701-3.05, and 701-3.09. The Chip Seal Pavement Marker per 701-2.05 and ADOT Standard Drawing M-20, may be used for fog, slurry, microseal, overlay and other paving projects where traffic is maintained without permanent lane lines. The markers may be placed on the top surface of a paving course on overlay and similar projects. All temporary pavement markings placed on or visible on final surface courses shall be placed in line with the location of permanent pavement markings. Unless otherwise*

specified in the project plans or specifications, the minimum spacing of the Chip Seal Marker is one marker per 40 feet, as noted on ADOT Standard Drawing M-20. If more recent versions of the ADOT Standard Specifications and Standard Drawings for temporary pavement markings or the Chip Seal Pavement Marker have been issued since adoption of this supplement, the most recent version shall be used unless otherwise indicated by the City Traffic Engineer.

19.0 Temporary Pavement Striping

Centerline markings are to be two 4-inch wide yellow lines with a 4-inch space between.

Lane line markings are to be 4-inch wide white lines, placed with 10-foot lineal feet of marking and 30 lineal feet of space between markings. When approaching marked crosswalks, the lane markings shall be 4-inch solid lines within approximately 75 feet of the crosswalk. Edge lines are to be 4-inch wide, continuous, white lines.

20.0 Temporary Pavement Markers

Temporary pavement markers may be used instead of temporary paint or tape markings. Temporary pavement markers also may be used instead of channelizing devices to delineate traffic lanes when lane lines are obliterated or missing. Temporary markers shall be reflective and comply with ADOT Standard Specifications for Road and Bridge Construction, 2008, sections 701-2.05, 701-3.05, and 701-3.09. The Chip Seal Pavement Marker per 701-2.05 and ADOT Standard Drawing M-20, may be used in Mesa for fog, slurry, microseal, overlay, reconstruction and similar paving projects where traffic is maintained without permanent lane lines. When used on overlays, reconstruction and other projects that provide more than a surface treatment, the markers shall be placed on the new surface immediately after paving, rather than on the old surface before treatment. All temporary pavement markings

placed on or visible on final surface courses shall be placed in line with the location of permanent pavement markings. If more recent versions of the ADOT Standard Specifications and Standard Drawings for temporary pavement markings or the Chip Seal Pavement Marker have been issued since adoption of this supplement, the most recent version shall be used unless otherwise directed by the City Traffic Engineer.

21.0 Manual Traffic Control

In some situations, off-duty police officers or flaggers may be required to assist with temporary traffic control.

21.1 Police Officers

Use of police officers for manual control of traffic is helpful with certain types of temporary control. Police officers are particularly helpful at major intersections where lanes are restricted and/or some movements are prohibited. Police officers can reinforce posted prohibitions, actively direct drivers in the appropriate direction, and can assess changing traffic conditions and respond accordingly.

The contractor, utility, agency or other entity responsible for the work should consider the need for a uniformed off-duty police officer to assist with temporary traffic control. Only uniformed Mesa police officers may be used for temporary traffic control within the City of Mesa, unless no off-duty Mesa officers are available. If no Mesa officers are available for a given date and time, off-duty State Department of Public Safety officers, or Maricopa County Sheriff's deputies may be used until the next date Mesa officers are available.

Scheduling and hiring of off-duty Mesa police officers for temporary traffic control is done through the Mesa Police Department at 480-644-2092. A minimum of 48 hours advance notice is needed. All costs associated with using off-duty police officers is the

responsibility of the contractor, utility, agency or other entity responsible for the work.

Police officers hired to support construction, maintenance or special event traffic control should be briefed by their employer in detail on how the traffic is to move through the temporary traffic control zone, and what the officer is expected to do. At a minimum, officers are typically expected to:

- *Position themselves so as to have a good view of traffic approaching from all directions*
- *Reinforce signed prohibitions on specific vehicle movements*
- *Be in uniform and equipped with proper equipment such as high-visibility safety vest, two-way radio, signal cabinet police panel key, etc.*
- *Assist pedestrians as needed through the work zone*
- *Direct traffic manually as needed to accommodate unforeseen or unusual traffic pattern changes*
- *Assist difficult flagging operations by providing a more authoritative presence to drivers.*

21.2 Flaggers

Flaggers shall be trained and certified as flaggers by ATTSA or IMSA, and possess current flagger certification.

22.0 Existing Traffic Signs

Existing signs that are no longer applicable shall be handled per the contract plans and specifications. If the plans and specifications are silent on existing signs, the signs are to be salvaged by carefully storing them out of the way on the adjacent property line. The Transportation Department Sign Shop shall be notified immediately of all sign removals by calling 480-644-3038, and arrangements made to return the salvaged signs to the City Sign Shop.

23.0 Existing Traffic Signals

For work affecting traffic signal equipment, notify ITS (Intelligent Transportation Systems) staff at least two working days prior at 480-644-2160.

If temporary traffic control at an intersection with left turn signals includes left turn prohibitions, care must be taken to avoid a situation where green left turn signals are displayed in conflict with "NO LEFT TURN" signing at the intersection. This can happen if through traffic is routed in what is normally a left turn lane, or if construction equipment occupies the vehicle detection zone in a closed left turn lane.

Notify ITS staff in advance at 480-644-2160 when there is a need to deactivate a left turn signal. It is also critical for ITS staff to know when a left turn signal is to be reactivated to avoid a situation where left turn traffic is faced with a red left turn signal that does not change. At intersections with fully protected left turn signals (where a red arrow is part of the signal display), the left turn signals must be reactivated ***before*** *removing the left turn prohibition.*

When traffic through a signalized intersection is guided into lanes other than the lanes normally used for that movement, visibility of the traffic signal indications should be checked. At least one, and preferably two signal faces shall be located within the 40-degree cone of vision approaching the signal. See p. 35 of COP TBM.

24.0 Definitions and Abbreviations

AASHTO: *American Association of State Highway and Transportation Officials*

ADOT: *Arizona Department of Transportation*

ATSSA: *American Traffic Safety Services Association*

COP: *City of Phoenix*

EMERGENCY: *An unplanned event requiring immediate action to preserve or protect public health, safety or welfare* (Add this to the existing definition on P. 105 of the COP TBM.)

IMSA: *International Municipal Signal Association*

MUTCD: *The Manual On Uniform Traffic Control Devices as adopted by the Arizona Department of Transportation*

NCHRP: *National Cooperative Highway Research Program*

NCU: *Non-City Utility*

ROW: *Right-of-way*

SERVICE VEHICLE: *Any vehicle used in the construction, operation or maintenance of a municipal, utility, or other similar facility or infrastructure, or in the provision of service for a municipal, utility, or other similar service.*

TBM: *Traffic Barricade Manual*

TTC: *Temporary Traffic Control*

25.0 City of Mesa Phone Numbers

Temporary Traffic Control Permits
& Information 480-644-4882 (4TTC)
Traffic Engineering Main Number 480-644-2160
Engineering Construction 480-644-2253

<u>After Hours, Weekends & Holidays, Emergency Numbers</u>
Fire/Police/Medical Emergency 911
Police (Non-emergency) 480-644-2211
Utilities Control Center (UCC) 480-644-2262
UCC will call out staff as needed to deal with an emergency involving City utilities, streets, traffic signals, etc.

<u>Other Numbers</u>
Development Services 480-644-4273
Energy Resources Admin. (Gas, Electric) 480-644-2749
Fire Department non-emergency 480-644-2622
Graffiti Hotline 480-644-3083
Police—Off-duty Officers 480-644-2092
Solid Waste 480-644-2688
Storm Drains 480-644-3038
Streetlights 480-644-3038
Traffic Signals 480-644-2160
Transportation Field Operations 480-644-3038
Utilities—see Energy Resources or Water Resources
Water Resources Admin. (Water, Wastewater) .. 480-644-2142

CITY OF MESA SUPPLEMENT
TO THE
CITY OF PHOENIX
2007 TRAFFIC BARRICADE MANUAL

Format B

DETAILED REFERENCE

VERSION

For Use in Making Notations in a
Phoenix 2007 Traffic Barricade Manual

Introduction

This Detailed Reference version of the City of Mesa's Supplement to the City of Phoenix 2007 Traffic Barricade Manual (COP TBM) presents the Mesa Supplement with detailed references to the COP TBM, in a format suitable for making notations directly in a copy of the Phoenix manual. The Mesa Supplement is also available in an easy to read Narrative format.

Format

Where the Mesa Supplement to the City of Phoenix 2007 Traffic Barricade manual deletes, replaces or modifies portions of the Phoenix manual for use in Mesa, the affected page of the Phoenix manual is listed in a heading, and the changes noted in the following type style:

> COP TBM p. 28
> Replace third paragraph beginning with "When service vehicles…" with the following text:"

Where Mesa additions are made, they appear with the following type style:

> *City of Mesa additions will appear in this type style.*

Any additional explanatory text appears with this type style:

> Additional explanatory text will have this type style.

MESA SUPPLEMENT TO THE CITY OF PHOENIX 2007 TRAFFIC BARRICADE MANUAL

Preface

Some terms are used throughout the Phoenix manual that apply specifically to the City of Phoenix. Rather than noting this each time the terms appear, those terms are noted in the following table along with how they should be interpreted with respect to the City of Mesa.

Term in Phoenix Manual	***Mesa Equivalent***
RMP: The Right of Way Management Program	*Temporary Traffic Control Program*
RMP Administrator	*City Traffic Engineer or Designee*
RMP Agent	*Traffic Barricade Coordinator, Temporary Traffic Control (TTC) Staff or any other authorized agent working on behalf of the City Traffic Engineer*
RMP Client	*Entity authorized to work in the right-of-way be it a contractor, city crew, utility company, etc.*
TRACS—Temporary Restriction and Closure System Permit	*TTC Permit—Temporary Traffic Control Permit*

Other more general terms referring to the City of Phoenix should be interpreted as applying to the City of Mesa.

COP TBM p. 2

Disregard all of page 2 as this applies specifically to the City of Phoenix, and add the following:

Engineering Judgment

The 2003 MUTCD states in Section 1A.09 that the MUTCD "should not be considered a substitute for engineering judgment." This is equally true of this Traffic Barricade Manual. No single publication could ever cover all the diverse conditions and circumstances a practitioner may face in controlling traffic on city streets. Engineering judgment is essential in applying the principles and practices contained in this Traffic Barricade Manual. Variations from the requirements and typical illustrations in this manual may be needed based on analysis and engineering judgment of a specific situation. The City Traffic Engineer shall have the final authority with respect to such variations.

COP TBM p. 8

Disregard this page entirely as it applies specifically to the City of Phoenix program, and add the following:

Designated Responsible Person

Any entity employing temporary traffic control on public streets, sidewalks, bike lanes, alleys or other public facilities must have a designated person who will be responsible for ensuring that all barricades, signs, barricade lights, signals, and other traffic control devices are established and maintained in compliance with the City of Mesa Traffic Barricade Manual, and the MUTCD. The designated person shall be trained and posses a current certification in temporary traffic control standards and practices by either ATSSA (American Traffic Safety Services Association) or IMSA (International Municipal Signal Association). The designated person may be an employee of a traffic control company hired by the entity conducting the work. However use of a traffic control company does not relieve the entity doing the work from the responsibility to comply with the Traffic Barricade Manual.

COP TBM p. 10
Delete the last bullet point.

COP TBM p. 10-11
Under the heading "Who Needs a TRACS Permit?" delete the first paragraph and replace it with the following:

> *All persons, contractors, utilities, and other agencies including City departments must obtain a TTC permit if they are to restrict access (partial or complete closures) on public streets, sidewalks, bike lanes, alleys or other public facility except as noted in the rules and procedures. The permit authorizes restrictions to be in place as specified on the permit, but does not guarantee the requester exclusive rights to occupy a particular portion of the public right-of-way. Weather, emergencies, incidents, or other projects and special events might require rescheduling of activities. The City will attempt to identify all known potential conflicts so they can be resolved cooperatively among those involved.*

COP TBM p. 11
Second paragraph, first sentence beginning with "Requests for TRACS permits…" delete "or Downtown District Special Provisions."

COP TBM p. 11
Third paragraph, delete "restrictions on Local streets,"

COP TBM p. 11
Delete the section titled "How to Obtain a TRACS Permit."

COP TBM p. 12
Replace the two bullet points with the following:

- *Mesa Temporary Traffic Control 480-644-4TTC (4882)*

COP TBM p. 12

Delete the second paragraph starting with "The amount of advance…" through the list of closure types, and replace it with the following:

The amount of advance notice provided to the public depends primarily on the functional classification of the street, the type, extent and duration of the restriction, and the amount of disruption to normal traffic the restriction will cause. Minimum advance notice requirements are as follows unless an alternative is approved in the TTC permit. Advance notice may be required for other situations as determined by TTC Staff.

- *Full street closure……..7 full calendar days*
- *Peak hour reduction in through lanes on major street……..7 full calendar days*
- *Left turn prohibition at a major street signalized intersection……..3 full weekdays*
  This 3-day notice is applicable to major projects that typically have traffic control in place for several weeks or months. Advance notice is not required when the turn prohibition is during non-peak hours only, and in place no more than three consecutive days.

The required advance notice is typically to be done with variable message boards. Use of static signs for advance notice may be feasible in limited situations. Use of static signs must be approved in the TTC permit.

COP TBM p. 12

In the third paragraph, delete the last sentence, which starts with "Work in alleys…"

COP TBM p. 12

Under the heading "Citywide General Regulations" change the times listed in item 1 to the following:

6:30 a.m. to 8:30 a.m. and 4:00 p.m. to 6:00 p.m. weekdays

COP TBM p. 13

Item 3, delete the second paragraph and replace it with the following:

Whenever traffic in one direction at a multi-lane signalized intersection is restricted to only one through lane, or when turn restrictions are in place, consideration should be given to using a uniformed police officer to assist with traffic control during hours work is underway. (See p. 63-64.)

COP TBM p. 13

Item 7, add the following as a second paragraph under Item 7:

When pedestrian routes need to be temporarily relocated, the relocated routes should be maintained on the same side of the street as the original route unless otherwise approved by TTC staff. If a traffic lane is used for a temporary pedestrian route on a major street, pedestrians should be separated from traffic by a buffer zone, temporary traffic barrier, or longitudinal channelizing barricades unless otherwise approved by TTC Staff. Factors to be considered in determining which separation method to use include length of relocated route, duration of relocation, volume and speed of traffic, volume of pedestrians, physical constraints to placing barriers or longitudinal channelizing barricades, etc.

COP TBM p. 13

Item 8, delete "the Fiesta Bowl Parade, Fabulous Phoenix 4th of July, and other major"

COP TBM p. 14
Add Item 10 as follows:

Restrictions and closures are permitted only when necessary considering impact to the traveling public, safety and efficiency. Restrictions shall not be in place when work activities are not being performed. Restrictions shall not be left in place simply for convenience or to avoid the need to remove barricades at the end of the work shift and reset them the following day. Restrictions shall not be left in place solely to accommodate storage of equipment, supplies, debris, etc. Excavations should be covered with steel plates or backfilled and the lanes opened to traffic at the end of the work day unless it is not feasible to do so.

Approval of a Temporary Traffic Control Plan that includes restrictions and closures for a specified time period does not constitute approval to leave restrictions and closures in place in conflict with the requirements set forth above.

COP TBM p. 14
Delete the text of the "Downtown Special Regulations" section.

COP TBM p. 22, Figure 1
Add the following to Figure 1:

On major streets, or when temporary pedestrian route is in a normal traffic lane (not a parking lane), pedestrians should be separated from traffic with a buffer zone, temporary barrier, or longitudinal channelizing barricades. Depending on the curb height and lane width, the ramp may need to be installed with the slope parallel to the sidewalk and a landing at the top of the ramp to provide an ADA compliant slope. Maximum slope allowed is 1:12.

COP TBM p. 28
Third paragraph, first bullet point delete "are designed to provide 360-degree visibility and"

COP TBM p. 28
Fourth paragraph delete second sentence which reads as follows: "Minimum mounting height should be 8 feet."

COP TBM p. 29
In Figure 5, in the middle portion of the figure noted for "Maximum 60 Minutes" add the following:

- *A short taper of cones may be used behind a service vehicle in addition to the lights described above.*

COP TBM p. 30
First bullet point at top of the page, change to read as follows:

***40 minutes** if equipped with high intensity rotating, flashing, oscillating, or strobe lights.*

COP TBM p. 33
Replace second paragraph under "Traffic Signs" with the following:

Existing signs that are no longer applicable shall be handled per the contract plans and specifications. If the plans and specifications are silent on existing signs, the signs are to be salvaged by carefully storing them out of the way on the adjacent property line. The Transportation Department Sign Shop shall be notified immediately of all sign removals by calling 480-644-3038, and arrangements made to return the salvaged signs to the City Sign Shop.

COP TBM p. 33
Under the heading "Traffic Signals," delete the entire first paragraph.

COP TBM p. 33

Under the heading "Procedures to be Used Near Traffic Signals," first paragraph, second sentence replace "the City Signal Engineer (602-262-4693)" with:

TTC Staff

COP TBM p. 34

Second paragraph beginning with "The Signal Shop will…", delete the entire paragraph.

COP TBM p. 34

Third paragraph beginning with "Responsibility for…", delete the entire paragraph including the two bullet points and replace it with the following:

For work affecting traffic signal equipment, notify ITS (Intelligent Transportation Systems) staff at least two working days prior at 480-644-2160.

If temporary traffic control at an intersection with left turn signals includes left turn prohibitions, care must be taken to avoid a situation where green left turn signals are displayed in conflict with "NO LEFT TURN" signing at the intersection. This can happen if through traffic is routed in what is normally a left turn lane, or if construction equipment occupies the vehicle detection zone in a closed left turn lane.

Notify ITS staff in advance at 480-644-2160 when there is a need to deactivate a left turn signal. It is also critical for ITS staff to know when a left turn signal is to be reactivated to avoid a situation where left turn traffic is faced with a red left turn signal that does not change. At intersections with fully protected left turn signals

*(where a red arrow is part of the signal display), the left turn signals must be reactivated **before** removing the left turn prohibition.*

COP TBM p. 34
Fourth paragraph beginning with "Signal equipment modifications…" delete "24-hours" and replace it with:

two working days

COP TBM p. 34
Replace the last paragraph with the following*:*

When traffic through a signalized intersection is guided into lanes other than the lanes normally used for that movement, visibility of the traffic signal indications should be checked. At least one, and preferably two signal faces shall be located within the 40-degree cone of vision approaching the signal. See p. 35 of COP TBM.

COP TBM p. 36
Delete the last sentence in the second paragraph, and the first two sentences in the third paragraph referring to slurry seal. Add the following to the beginning of the third paragraph:

Slurry seal is not to be used to obliterate markings unless specifically approved by the Transportation Department.

COP TBM p. 36
Delete the entire "Parking Meters" section.

COP TBM p. 39

Last paragraph, add a fourth bullet point as follows:

- *The existing two-way-left-turn lane marking is obliterated or missing. This applies to any portion, even if only one side of the two-way-left-turn marking is missing.*

COP TBM p. 39

Immediately after p. 39 add the following:

No Lane Lines On Multilane Streets

Where traffic is maintained on multilane streets without lane lines, the following minimum requirements apply.

- *Centerline must be delineated with channelizing devices except where a raised median or other physical feature serves to indicate the left edge of the traveled way.*
- *Separate left turn pockets must be channelized at signalized intersections.*
- *Exclusive right turn lanes at driveways and intersections must be delineated with channelizing devices.*
- *When channelizing devices are used to divide opposing lanes of traffic or divide two or more lanes traveling in the same direction for extended distances—beyond approximately 1/8th of a mile (660 feet)—spacing between devices may be extended to no more than 80 feet.*
- *Where the street normally carries no more than two lanes of traffic in one direction, no additional lane delineation between the centerline barricades (or raised median) and the curb is required.*
- *Where the street normally carries three or more lanes of traffic in one direction, delineation of the lanes between the centerline barricades (or raised median) and the outside curb is required.*

This can be done with channelizing barricades or with temporary pavement markings.

- *If done with channelizing barricades, it is usually necessary to eliminate one through lane. For example where there are normally three lanes, channelize traffic into two lanes. This type of setup requires review and approval in advance.*
- *If done with temporary pavement markings, such markings shall be reflective and comply with ADOT Standard Specifications for Road and Bridge Construction, 2008, sections 701-2.05, 701-3.05, and 701-3.09. The Chip Seal Pavement Marker per 701-2.05 and ADOT Standard Drawing M-20, may be used for fog, slurry, microseal, overlay and other paving projects where traffic is maintained without permanent lane lines. The markers may be placed on the top surface of a paving course on overlay and similar projects. All temporary pavement markings placed on or visible on final surface courses shall be placed in line with the location of permanent pavement markings. Unless otherwise specified in the project plans or specifications, the minimum spacing of the Chip Seal Marker is one marker per 40 feet, as noted on ADOT Standard Drawing M-20.*

COP TBM p. 52

Between the fourth and fifth paragraph, add the following:

Channelization requires "KEEP LEFT" and/or "KEEP RIGHT" signs to clearly indicate the proper path to drivers. "KEEP LEFT" or "KEEP RIGHT" sign shall be placed at the beginning of a line of channelizing devices, except where the W12-1 or W12-1a lane splitter sign is used. In addition, "KEEP LEFT" and/or "KEEP RIGHT" signs shall be placed at each intersection and at a maximum spacing of 500 feet where intersections are spaced more than 500 feet apart. Additional "KEEP LEFT" and/or "KEEP RIGHT" signs shall be used as needed at or near driveways to direct drivers to the correct lanes.

One "KEEP LEFT" and/or "KEEP RIGHT" sign may serve more than one driveway where the driveways are closely spaced.

However "KEEP RIGHT" and/or "KEEP LEFT" signs are not required in a short term setup (less than one hour) where traffic is not being channelized left of center and where channelizing devices are set in such a way that the proper path to follow is self-evident to drivers.

COP TBM p. 56

Immediately before the heading "High Level Warning Devices:" insert the following:

Longitudinal Channelizing Barricades

Longitudinal channelizing barricades are lightweight, deformable channelizing devices that can be used singly as Type I, II, or III barricades, or connected so they are highly visible and have good target value. They can be used to channelize vehicular and/or pedestrian traffic, and can provide a continuous separation between pedestrians and traffic lanes or work zones. When used during hours of darkness to channelize traffic, the channelizing barricades are to have approved barricade warning lights attached and operational.

Longitudinal channelizing barricades are not temporary traffic barriers. However, some devices can function either as a channelizing barricade or a temporary barrier depending on how they are installed. It is important to follow the manufacturer's instructions for a given device to make sure it is being installed properly for the intended use.

COP TBM p. 57

Under "Flashing Devices and Applications" add the following:

> *In addition to the types of lamps listed above, flashing devices may use light emitting diodes (LEDs) with the same flash rates and similar visibility characteristics as the listed lamp types.*

COP TBM p. 58

Under the heading "Arrow Panels" second paragraph, third sentence, delete "at night."

In that same paragraph, delete the last sentence, which starts with "A common example…"

> This has the effect of requiring arrow panels for lane closures on major streets, except for short term closures as provided for in Chapter 4 and illustrated in Figure 5 of the COP TBM, and for emergencies.

COP TBM p. 60

Replace the first two bullet points with the following:

- *Centerline markings are to be two 4-inch wide yellow lines with a 4-inch space between.*
- *Lane line markings are to be 4-inch wide white lines, placed with 10-foot lineal feet of marking and 30 lineal feet of space between markings. When approaching marked crosswalks, the lane markings shall be 4-inch solid lines within approximately 75 feet of the crosswalk. Edge lines are to be 4-inch wide, continuous, white lines.*

COP TBM p. 60

Replace the next to last paragraph with the following:

Temporary pavement markers may be used instead of paint or tape markings. Temporary markers shall be reflective and comply with ADOT Standard Specifications for Road and Bridge Construction, 2008, sections 701-2.05, 701-3.05, and 701-3.09. The Chip Seal Pavement Marker per 701-2.05 and ADOT Standard Drawing M-20, may be used in Mesa for fog, slurry, microseal, overlay, reconstruction and similar paving projects where traffic is maintained without permanent lane lines. When used on overlays, reconstruction and other projects that provide more than a surface treatment, the markers shall be placed on the new surface immediately after paving, rather than on the old surface before treatment. All temporary pavement markings placed on or visible on final surface courses shall be placed in line with the location of permanent pavement markings. If more recent versions of the ADOT Standard Specifications and Standard Drawings for temporary pavement markings or the Chip Seal Pavement Marker have been issued since adoption of this manual, the most recent version shall be used unless otherwise indicated by the City Traffic Engineer.

COP TBM p. 61

Last paragraph, delete the remainder of the paragraph after the first two sentences (delete the third through sixth sentences).

COP TBM p. 62

Delete everything on this page and replace it with the following:

Temporary barriers must be designed, installed, and maintained in compliance with the MUTCD and the AASHTO Roadside Design Guide. A detailed plan is required for any proposed use of temporary barriers. Such plan shall be prepared under the supervision of a registered professional engineer familiar with the

design requirements for temporary barriers in the MUTCD and AASHTO Roadside Design Guide and sealed by the engineer.

COP TBM p. 63-64

Delete these two pages and replace them with the following:

In some situations, off-duty police officers or flaggers may be needed to assist with temporary traffic control.

Police Officers

Use of police officers for manual control of traffic is helpful with certain types of temporary control. Police officers are particularly helpful at major intersections where lanes are restricted and/or some movements are prohibited. Police officers can reinforce posted prohibitions, actively direct drivers in the appropriate direction, and can assess changing traffic conditions and respond accordingly.

The contractor, utility, agency or other entity responsible for the work should consider the need for a uniformed off-duty police officer to assist with temporary traffic control. Only uniformed Mesa police officers may be used for temporary traffic control within the City of Mesa, unless no off-duty Mesa officers are available. If no Mesa officers are available for a given date and time, off-duty State Department of Public Safety officers, or Maricopa County Sheriff's deputies may be used until the next date Mesa officers are available.

Scheduling and hiring of off-duty Mesa police officers for temporary traffic control is done through the Mesa Police Department at 480-644-2092. A minimum of 48 hours advance notice is needed. All costs associated with using off-duty police officers is the responsibility of the contractor, utility, agency or other entity responsible for the work.

Police officers hired to support construction, maintenance or special event traffic control should be briefed by their employer in detail on how the traffic is to move through the temporary traffic control zone, and what the officer is expected to do. Typical expectations of officers include:

- *Position themselves so as to have a good view of traffic approaching from all directions*
- *Reinforce signed prohibitions on specific vehicle movements*
- *Be in uniform and equipped with proper equipment such as high-visibility safety vest, two-way radio, signal cabinet police panel key, etc.*
- *Assist pedestrians as needed through the work zone*
- *Direct traffic manually as needed to accommodate unforeseen or unusual traffic pattern changes*
- *Assist difficult flagging operations by providing a more authoritative presence to drivers.*

COP TBM p. 65

Second paragraph, add the following:

Flaggers shall be trained and certified as flaggers by ATTSA or IMSA, and possess current flagger certification.

COP TBM p. 70

Third paragraph, delete the last three sentences and add the following:

All temporary traffic control devices shall comply with NCHRP Report 350 requirements.

COP TBM p. 103-107

Change the title of Appendix A-2 to "Definitions and Abbreviations" and add the following to the listed definitions:

AASHTO: *American Association of State Highway and Transportation Officials*

ADOT: *Arizona Department of Transportation*

ATSSA: *American Traffic Safety Services Association*

COP: *City of Phoenix*

EMERGENCY: *An unplanned event requiring immediate action to preserve or protect public health, safety or welfare* (Add this to the existing definition on P. 105 of the COP TBM.)

IMSA: *International Municipal Signal Association*

MUTCD: *The Manual On Uniform Traffic Control Devices as adopted by the Arizona Department of Transportation*

NCHRP: *National Cooperative Highway Research Program*

NCU: *Non-City Utility*

ROW: *Right-of-way*

SERVICE VEHICLE: *Any vehicle used in the construction, operation or maintenance of a municipal, utility, or other similar facility or infrastructure, or in the provision of service for a municipal, utility, or other similar service.*

TBM: *Traffic Barricade Manual*

TTC: *Temporary Traffic Control*

COP TBM p. 110-111

Delete Appendix A-4 in its entirety and replace it with the following:

CITY OF MESA PHONE NUMBERS

Temporary Traffic Control Permits
& Information 480-644-4882 (4TTC)
Traffic Engineering Main Number 480-644-2160
Engineering Construction 480-644-2253

After Hours, Weekends & Holidays, Emergency Numbers
Fire/Police/Medical Emergency 911
Police (Non-emergency) 480-644-2211
Utilities Control Center (UCC) 480-644-2262
UCC will call out staff as needed to deal with an emergency involving City utilities, streets, traffic signals, etc.

Other Numbers
Development Services 480-644-4273
Energy Resources Admin. (Gas, Electric) 480-644-2749
Fire Department non-emergency 480-644-2622
Graffiti Hotline 480-644-3083
Police—Off-duty Officers 480-644-2092
Solid Waste 480-644-2688
Storm Drains 480-644-3038
Streetlights 480-644-3038
Traffic Signals 480-644-2160
Transportation Field Operations 480-644-3038
Utilities—see Energy Resources or Water Resources
Water Resources Admin. (Water, Wastewater) .. 480-644-2142