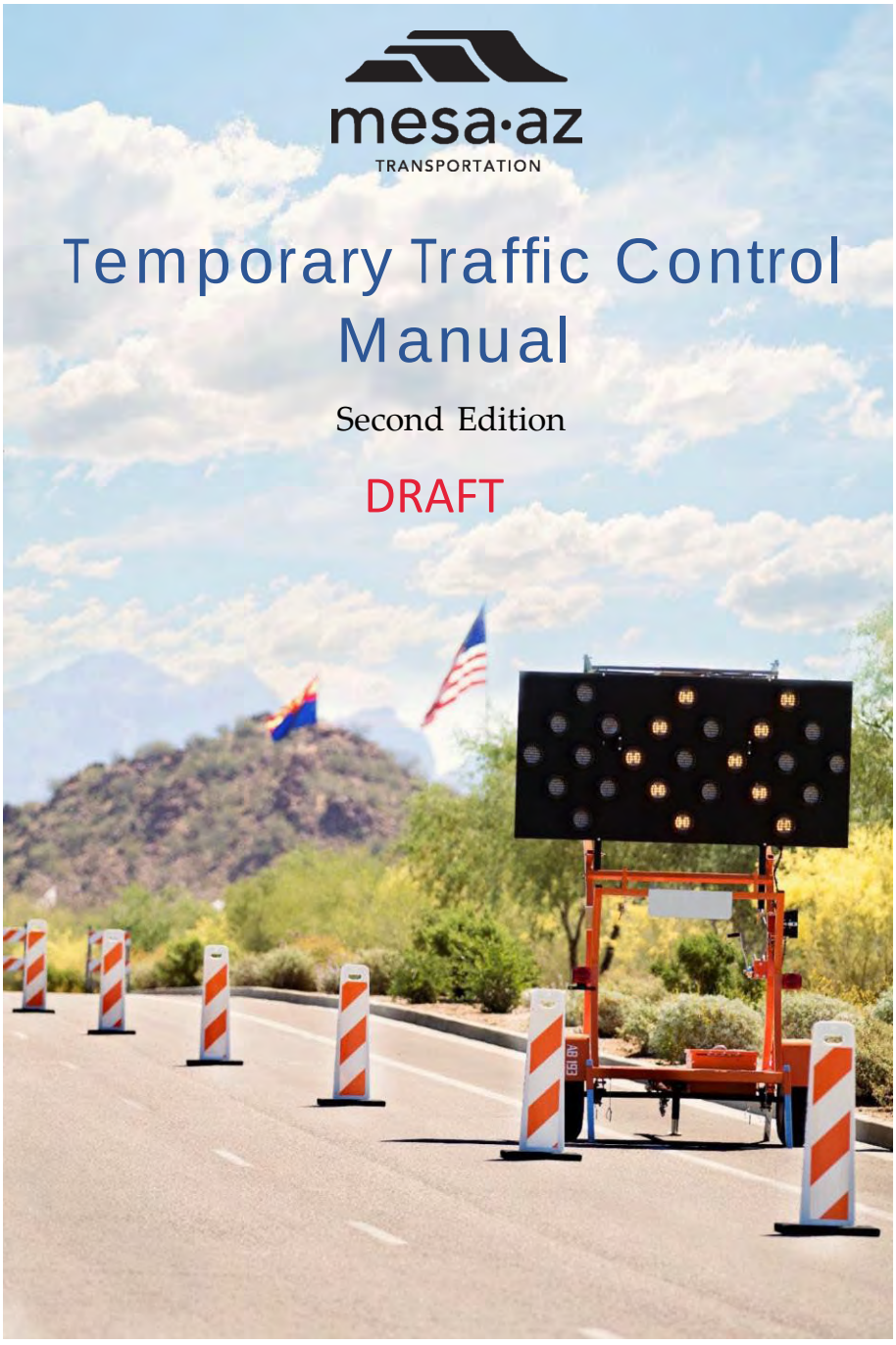

mesa·az
TRANSPORTATION
Temporary Traffic Control Manual
Second Edition
DRAFT

*All major edits from the previous manual are written in red. Minor edits also appear throughout, but for clarity, only significant additions or changes have been specifically listed.

Entire sections containing updates or additions will have *NEW* in the title rather than being written entirely in red.

Engineering Judgement

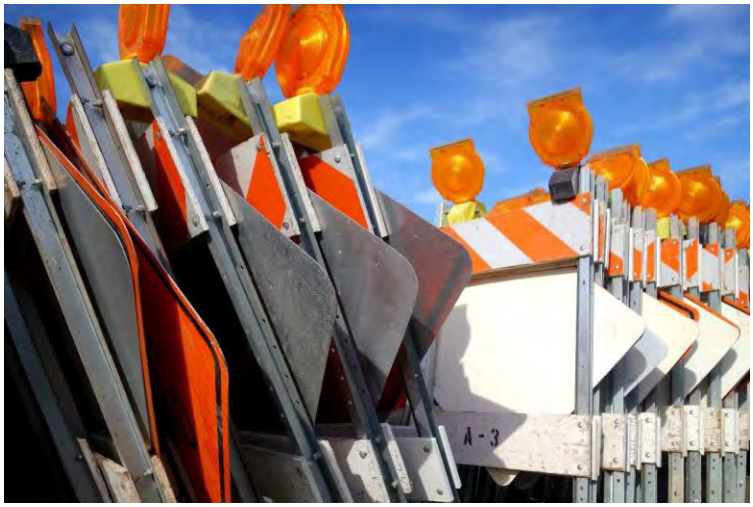
The current MUTCD states in Section 1A.04 (02), *"Where the content of this Manual requires a decision for implementation, such decisions shall be made by an engineer, or an individual under the supervision of an engineer, who has the appropriate levels of experience and expertise to make the traffic control device decision. Those decisions shall be made using engineering judgment or engineering study, as required by the MUTCD provision".*

No single publication would be able to cover all diverse conditions and circumstances a Temporary Traffic Control practitioner may encounter in governing traffic on city streets. Engineering judgment is essential in applying the principles and practices contained in this Temporary Traffic Control Manual (TTCM). 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 final authority with respect to such variations.

Acknowledgements

The City of Mesa Transportation Department sincerely appreciates and would like to acknowledge the following organizations for their contributions in the completion of this Temporary Traffic Control Supplement:

- American Traffic Safety Services Association (ATSSA), National
- American Traffic Safety Services Association (ATSSA), Arizona Chapter
- City of Mesa Engineering and Traffic Operations Departments
- City of Mesa Police Department



Introduction

Temporary traffic control planning is important as it minimizes impact on the traveling public. Proper planning allows the work needed to be completed as quickly as possible and is vital to public and worker safety within the work zone.

The City of Mesa has adopted the current Arizona Supplement to the MUTCD, and the current MUTCD as the legal standards for traffic control devices used within City right-of-way and jurisdictional influence.

This TTCM augments the current MUTCD and was prepared for those working in public right-of-way (streets, sidewalks, multi-use paths, etc.) or planning special events requiring traffic restrictions within the City of Mesa. It includes but is not limited to:

- Temporary Traffic Control (TTC), Permit Rules, and Procedures
- Information on Traffic Control permits and fees.
- Corrective Action Notifications and/or Civil Sanctions
- Excerpts from applicable sections of Mesa City Code
- The ordinance adopting the Temporary Traffic Control Manual for the City of Mesa
- Sample Traffic Control Plans (TCP)

Copies of this manual are available online at the City of Mesa Transportation website (https://www.mesaaz.gov/business/temporary-traffic-control-permits). Hard copies of this manual are also available through the Transportation Department at no charge. Use the following contact information for questions, comments, or to request copies of this supplement.

Phone: 480-644-4TTC (4882) or email: barricade@mesaaz.gov.

NOTE: The Rules and Procedures may be revised from time to time. Any revisions will be posted at the City of Mesa Transportation website.

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Chapter 1

Temporary Traffic Control Program

1.0 Temporary Traffic Control Program

All persons, contractors, utilities, and other agencies, including City departments shall obtain a Temporary Traffic Control (TTC) Permit if they are to restrict public ways except as noted in Section 1.2. 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 potential conflicts so they can be resolved cooperatively among those involved.

1.1 Permission to Restrict Public Ways

Per Mesa City Code, Title 10, Chapter 10, Prior Transportation Department approval is required for all restrictions or hazards on any public way including streets, bike lanes, alleys, sidewalks/pathways, or multi-use paths within the City of Mesa except as noted in Section 1.2 below.

1.2 Exceptions

A TTC permit is not required if ALL the following apply:

1. Restriction lasts less than one (1) hour, and
2. Only one (1) traffic lane (in a single direction) within multi lane streets is restricted, and
3. No part of the lane restriction (including taper) is closer than 300' to a signalized intersection, and,
4. The restriction does not take place during the peak traffic hours specified in the Temporary Traffic Control Manual (6:30 to 8:30 AM and 4:00 to 6:00 PM weekdays.
5. The restriction does not take place during the hours of darkness.

Note:

- TTC Staff may make an exception to any conditions above.
- Under unique conditions such as roadway geometrics, inadequate sight distance, median lane restrictions, or time of day, TTC Staff may require a TTC Permit even though all the above exceptions have been met.

In addition, a TTC permit may not be required on a local street for work in one location, where the street remains open to traffic in both directions, and where sidewalks are not restricted.

A permit is required when a sidewalk is closed, and pedestrians are redirected to the opposite side of the street. This also applies to pedestrian access maintained on the same side of the roadway where pedestrians are routed off from an existing facility into any temporary pathway.

1.3 Temporary Traffic Control Permit Application

A Temporary Traffic Control (TTC) Permit application must be submitted online using the City's online permit process (https://www.mesaaz.gov/business/temporary-traffic-control-permits). See Section 1.4 "Temporary Traffic Control Permit Fees."

Temporary traffic control fees are based on the number of days and type of traffic restrictions that are expected to be in place, not the number of permits.

There could be several different traffic control setups throughout the life of a project. Each unique traffic control configuration requires specific approval, which means a single project could have several different TTC Permits associated with it. If the different traffic control configurations can be adequately described in one application, a single TTC Permit could be issued for the entire project. However, in many cases it may be easier to submit individual TTC Permit applications as the project progresses. Any number of TTC Permits can be issued throughout the life of a project.

- TTC permit applications requesting durations of two weeks or more must include a schedule for review with the application. The schedule should detail the location and description of the work, TCP number, dates, and times.
- For questions or emergency notifications: Call: 480-644-4TTC (480-644-4882)

For unusual or complicated projects, the applicant is encouraged to call and discuss the temporary traffic control before submitting an application.

The typical review time for TTC Permit Applications is four (4) City of Mesa business days (Monday–Thursday). Contractors are encouraged to plan ahead and submit applications in accordance with the City's review schedule. While TTC staff strive to process applications efficiently, review times are dependent on the accuracy and completeness of the information provided by the applicant. If inaccurate plan designs or incomplete TTC Permit Applications are submitted, the review process may be extended beyond the standard four-day timeframe.

NOTE:

- If any City holidays fall within these time frames, review times will be longer.
- These review times do not account for required advance public notification as noted in Section 2.6. If advance public notice is required, applications need to be submitted with additional lead time.
- Requests for full arterial or intersection closures, half-street closures, and other restrictions with similar major traffic impacts, must have a minimum lead time of thirty (30) calendar days for City review and coordination. The request must be clear, complete, and correct with supporting documents to have a thorough and timely review.

1.4 Temporary Traffic Control Fees

Work involving temporary traffic control under a ROW Permit, UTL Permit, or Special Events that may be subject to permit fees must have those fees paid and the associated permit issued before applying for a TTC Permit.

The TTC fee must be paid prior to the issuance of a TTC Permit. The amount of the TTC fee is based on the number of days the permit holder plans to have restrictions in place per the following table. Each day or partial day that a restriction is in place is considered one restriction-day.

Table 1 - Temporary Traffic Control Fees

Description of Service	*Fee/Charge (Effective 1/1/2024)*
Temporary Traffic Control Fee	
Traffic Permit Fee:	
Roadway or Alley Restriction	*$75 Per Day AND DIRECTION*
24-Hour Roadway or Alley Restriction	*$200 Per Day and Direction*
Left Turn Prohibition – Signalized Intersection	*$100 Per Day and Direction*
24-Hour Left Turn Prohibition – Signalized Intersection	*$200 Per Day and Direction*
Traffic Restriction Exceeds ½ Mile in Length	*$100 Per Day and Direction*
Public Impact Fee for Restriction Duration	*$300 Per Week After 28 Days*
Minimum- No Restrictions Planned	*$50*
ARTERIAL Sidewalk Closure	*$100 Per Day*
Local/Collector Sidewalk Closure	*$20 Per Day*
Arterial Road Closure	*$4,000 Per Day*
Collector Road Closure	*$1,000 Per Day*
Residential Road Closure	*$500 Per Day*
Plan Review Fee (3rd and Subsequent Reviews)	*$50 Per Sheet/Review*
Bus Stop Closed or Relocated	*$50 Per Bus Stop Per Day*

NOTE:

TTC Permit fees may be revised as part of the City's annual budget process. The current Schedule of Fees and Charges is available on the web site: https://www.mesaaz.gov/business/temporary-traffic-control-permits.

The number of paid restriction days will be monitored based on the approved TTC permit. If additional restriction days are needed, a permit extension request is required. Additional temporary traffic control fees may also be required before the extension is approved. The following rules apply to use for calculation of TTC restriction days:

- Restrictions in place for any portion of a day count as one restriction-day used. There will be no credit for restrictions in place for a partial day.
- Restriction-days are assumed to be used per the approved TTC Permit unless restrictions are cancelled or rescheduled as noted in Section 1.7.
- Except for cancelled and rescheduled restrictions mentioned above, no credit or refund for unused restriction-days will be made. Credit/s could be given for cancelled restriction days when proper notification is given as described above. The credit will remain with the original project under which the fees were paid.
- The minimum fee applies:
    - When work is in the right-of-way under a ROW or Utility Permit, but there will be no restrictions to public ways, or
    - When traffic control devices are placed in the right-of-way, they only restrict access to a private facility.

A Plan Review Fee will be assessed on Traffic Control and Temporary Pedestrian Access Plans (TCP/TPAP) requiring third and subsequent reviews. Beginning with the initial review of a TCP, if a plan is sent back to the applicant for additional corrections, the applicant must address all redline comments before resubmitting the plan for a final review. If the resubmitted plan fails to address **all redline comments,** the plan will be sent back to the applicant requiring all comments to be addressed. The third submittal of the plan will require the applicant to pay the Plan Review Fee for each sheet resubmitted for final review.

1.5 Traffic Control and Temporary Pedestrian Access Plans

A. TCP is required when any of the following conditions apply:

1. A complete street or alley closure is requested, or
2. Lane restrictions (including tapers) are within 300 feet of a signalized intersection, or
3. Restrictions are requested during peak traffic hours (6:30 to 8:30 AM and 4:00 to 6:00 PM weekdays, and during hours of darkness), or
4. The minimum number of lanes will not be available:
   - If more than four (4) lanes exist: Four (4) lanes (two each way)
   - If four (4) or fewer lanes exist: Two (2) lanes (one each way)
   - On one-way streets: Two (2) lanes open
5. Any time when required by the Transportation Department.

B. A TPAP is required when any of the following conditions apply:

- Any portion of a sidewalk/pathway will be closed/restricted (plan must show pedestrian accommodation in detail).

The requirement for a TCP/TPAP may be waived by TTC Staff.

1.5.1 *NEW* Traffic Control and Temporary Pedestrian Access Plan Requirements

When a TCP/TPAP is required, the traffic control plan shall be designed with the following features:

- The minimum sheet format shall be 11" x 17".
- Temporary Pedestrian Access Plans should be submitted on a separate sheet along with the TCP.
- The location of the work area in relation to cross streets, driveways, alleys, bike lanes, or other major reference points must be clearly indicated.
- Sidewalks, pathways, bike lanes, transit stops, nearby schools, hospitals, fire stations, or other major facilities shall be noted.
- An accurate depiction of the street must be included, showing:
  - All pavement markings (bike lanes, crosswalks, intersection lane line extensions, etc.).
  - The correct number of lanes, including bike lanes.
  - Intersecting streets, driveways, addresses, and block numbers, labeled accurately.
  - Signalized intersections and all-way/two-way stops, clearly labeled.
- The size of the work area, including all dimensions, must be provided.
- All temporary traffic control devices required for the work zone should be included.
- Considerations for access to properties within the work zone must be documented.
- Pedestrian access accommodation within the work zone should be identified.
- Transit stop accommodation within the work zone must be addressed.
- The posted speed limit must be noted.
- Project details, including duration, work dates and hours, north arrow, and project number, must be included.
- The Traffic Control Plan designer's name and TCS Certification number must be provided.
- The north arrow should be oriented to the top or right of the page.

If any of the required design criteria are missing from a submitted traffic control plan, the plan may be denied and returned for revisions. This could result in additional review time and potential delays in the TTC permit process.

The Traffic Control Plan (TCP) designer must hold a valid Traffic Control Supervisor (TCS) certification through ATSSA. In addition to this certification, all designers are required to complete a Traffic Control Plan Design course conducted by the City of Mesa. Participants must achieve a minimum passing score of 70% on the course exam, and recertification is required every two years.

1.6 Temporary Traffic Control Permit Approval

Upon approval of the request, TTC Permit confirmation will be sent by email to the applicant, barricade company, and if noted, the City of Mesa inspector. If a request cannot be approved as submitted, a member of the TTC Staff will contact the applicant to discuss alternatives and will keep the City of Mesa inspector and barricade company contact informed of the outcome.

A copy of the approved TTC Permit and TCP/TPAP shall remain on-site at all times. The contractor and traffic control company identified on the TTC Permit shall have a copy of the permit to ensure compliance with the conditions of the TTC Permit and approved TCP/TPAP.

1.7 Changes, Extensions, and Emergencies

Changes or extensions must be submitted no later than the business day prior to the originally scheduled work date. If the work is expected to continue beyond the expiration date listed on the original permit, a request for an extension must be submitted by 11:00 a.m. on the business day before the permit expires. If the extension requires additional fees, payment must be received before the extension can be granted.

Extension requests submitted late may be denied.
If the extension will increase the total duration of the TTC permit to more than ten (10) days, a work schedule must also be submitted.

Failure to submit an extension request as noted may result in the closure of the permit when the permit expires.

Transportation shall be notified of unplanned restrictions due to emergencies such as water main breaks, utility damage, pavement failures, etc. as soon as practical. An emergency is an unplanned event requiring immediate action to preserve or protect public health, safety, or welfare. An event or incident that does not require an immediate response and can be scheduled for a future time does not meet the definition of an emergency.

1.8 Corrective Action Notices and Civil Sanctions

It is the City's intent to work with the temporary traffic control and contracting community to achieve voluntary compliance with the City's TTC regulations. However, if necessary, violations of the Temporary Traffic Control Manual or any provision of Mesa City Code Title 10, Chapter 10 may result in a corrective action notice or civil sanctions in the amount per day as listed in the following table.

Table 2 – Summary of Violations and Fines*

CITY CODE	VIOLATION	CIVIL SANCTION
10-10-3(E)(1)	Any act, error, or omission within the right-of-way that creates an imminent risk of death or injury.	$1,500.00
10-10-3(E)(2)	Restricting the right-of-way or easement without a required Temporary Traffic Control Permit.	$1,000.00
10-10-3(E)(3)	Restricting traffic during peak traffic hours as described in the Temporary Traffic Control Manual without authorization.	$1,000.00
10-10-3(E)(4)	Failing to correct or cure a violation of the Temporary Traffic Control Manual within the time period stated on the notice of violation.	$1,000.00
10-10-3(E)(5)	Restricting the right-of-way at an intersection with traffic signals without any work being conducted for which the restriction is necessary for a period of one continuous hour unless otherwise approved.	$1,000.00
10-10-3(E)(6)	Improperly closing a sidewalk or closing a sidewalk without first obtaining a required traffic control permit.	$500.00
10-10-3(E)(7)	Failing to comply with the conditions, restrictions, limits, or location of a Temporary Traffic Control Permit.	$500.00
10-10-3(E)(8)	Failing to install advance warning signs or failing to install advance warning signs that comply with the Temporary Traffic Control Manual.	$500.00

10-10-3(E)(9)	Failing to install traffic barricades or channelizing devices or failing to install barricades or channelizing devices that comply with the Temporary Traffic Control Manual.	$500.00
10-10-3(E)(10)	Failing to remove an advance warning sign leaving the sign facing traffic after the traffic restriction has been removed.	$250.00
10-10-3(E)(11)	Failing to remove traffic control devices from the right-of-way within twenty-four hours after expiration of the Temporary Traffic Control Permit.	$250.00
10-10-3(E)(12)	Failing to install and maintain traffic control devices that meet the quality requirements described in the Temporary Traffic Control Manual.	$250.00
10-10-3(E)(13)	Rendering a bus stop inaccessible without relocating it or making other approved accommodations.	$250.00
10-10-3(E)(14)	Failure to comply with any other provision of the Temporary Traffic Control Manual or this Chapter whether or not a Temporary Traffic Control Permit is required.	$250.00

- Please refer to Mesa City Code Title 10 Chapter 10 Section 3 for the most current version of violations, enforcement, and associated civil sanctions.

Repetitive violations may be considered a separate violation for each calendar day.

Traffic control devices may be impounded, and the owner of the devices subjected to corrective action measures by the city if:

- Left in the right-of-way and are not active to the work being performed.
- Not removed within 24 hours of an expired TTC Permit.
- Not removed in the time frame requested by TTC Staff.
- When devices present a hazard/nuisance to the public.

Impounded TTC devices may be stored by the City and made available for retrieval by the owner during normal business hours. The City will notify the owner to arrange for pickup. Any devices that remain unclaimed may be disposed of at the City's discretion.

Chapter 2

General Traffic Regulations

2.0 *NEW* General Traffic Regulations

2.1 Necessity for Restrictions

Restrictions and closures are permitted only, when necessary, with careful consideration of safety, efficiency, and the impact on the traveling public. Restrictions shall not remain in place when work activities are not being performed and must not be left in place for convenience or to avoid the removal and resetting of barricades at the end of a work shift. Additionally, restrictions shall not be maintained solely for equipment, materials, or debris storage unless explicitly approved by City staff.

Excavations in the roadway shall be covered with steel plates, and lanes must be reopened to traffic at the end of the workday unless doing so is not feasible. Approval of a Traffic Control Plan (TCP) that includes restrictions and closures for a specified period does not grant permission to leave them in place if they conflict with these requirements.

2.2 Designated Competent Person

All individuals deploying traffic control devices within the City of Mesa right-of-way must hold, at a minimum, an ATSSA Traffic Control Technician certificate of attendance.

Any entity implementing temporary traffic control on public streets, sidewalks, bike lanes, alleys, or other public facilities must designate a competent person to ensure that all barricades, signs, lights, signals, and other traffic control devices are established and maintained in compliance with this manual. The designated person must be trained and hold a current ATSSA Traffic Control Supervisor certification in temporary traffic control standards and practices. This individual may be an employee of a traffic control company hired by the entity conducting the work.

In addition to this certification, all supervisors are required to complete a Traffic Control Training course conducted by the City of Mesa. Participants must achieve a minimum passing score of 80% on the course exam, and recertification is required every two years.

The designated competent person must be identified on the TTC permit application. However, the use of a traffic control company does not relieve the entity performing the work from its responsibility to comply with the Temporary Traffic Control Manual (TTCM).

2.2.1 Certification Requirements

As stated in Section 2.2, an ATSSA Traffic Control Supervisor (TCS) certification is required to oversee the deployment of traffic control devices within the city's right-of-way.

The TCS certification is designed to train those who will be actively involved in designing, setting up and maintaining temporary traffic control in a work zone. It moves from the concepts and techniques taught in the Traffic Control Technician (TCT) course to the implementation of traffic control plans and techniques for installation and removal.

All contractors and barricade companies deploying traffic control within the City of Mesa right-of-way shall possess an ATSSA TCT attendance certificate.

The TCT course serves as an introduction to temporary traffic control in work zones for individuals responsible for installing and removing traffic control devices in the field. The course covers essential concepts, techniques, and practical exercises related to the proper installation and maintenance of traffic control devices.

Flagger requirements, refer to Chapter 5 Section 5.2.

2.3 Typical 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.

Traffic restrictions on arterial and collector streets are not permitted during peak traffic hours unless approved by TTC Staff. Some arterial roadways intersecting with freeways or where traffic volumes are high may have alternate peak traffic hours.

2.3.1 *New* Coordination with Schools

When conducting construction activities that impact schools, special coordination efforts are essential to minimize disruptions and ensure the safety of students, staff, and pedestrians.

The following considerations should be observed:

- **Bell Schedules:** Schedule construction activities to avoid peak arrival and dismissal times, as well as other key periods such as recess and lunch.
- **Weekend Work:** When feasible, prioritize construction work on weekends or outside of school hours to reduce interference with school operations.
- **School Breaks:** Whenever possible, plan major construction activities during school breaks, including summer vacation, winter holidays, and spring break.
- **Communication:** Maintain open communication with school administrators, staff, and parents. Provide timely updates regarding construction schedules, traffic impacts, and safety measures.
- **Safety Measures:** Implement enhanced safety precautions such as temporary fencing, clear signage, and designated pedestrian routes to protect students and school personnel during construction.

By aligning construction activities with school schedules and proactively addressing safety, we can reduce disruptions and maintain a safe environment for all involved.

2.4 Traffic Control Device Compliance

Temporary work zone devices manufactured after December 31, 2019, shall be successfully tested to the 2016 edition of the Manual for Assessing Safety Hardware (MASH). Devices manufactured on or before December 31, 2019, and successfully tested to National Cooperative Highway Research Report 350 (NCHRP 350) or the 2009 edition of MASH, may continue to be used throughout their normal service lives.

2.5 Temporary Traffic Control Devices

It shall be the Permittee's/contractor's responsibility to provide, erect, maintain and remove all traffic control devices, off-duty law enforcement personnel, steel road plates, certified flaggers and any other devices necessary to properly mark and control the construction areas for the safe and efficient movement of vehicular and pedestrian traffic. The Permittee shall provide additional traffic control devices and measures as deemed necessary by the City Traffic Engineer or TTC Staff.

Permittees are responsible for maintaining all traffic signs and pavement markings in their construction zones and for restoring the permanent traffic signs and pavement markings upon completion of their work.

During TTC operations, it is important to make sure that existing traffic control devices remain compatible with temporary traffic control being imposed. This includes, but is not limited to, signs, traffic signals, and pavement markings. The devices that remain applicable to the affected traffic must be maintained, while other devices must be covered, relocated, or in rare cases, completely removed.

All post-mounted signs shall be maintained upright, clean, and fully visible to the intended traffic by the Permittee at all times. If these signs interfere with construction activities, the Permittee shall temporarily relocate them to allow for construction while ensuring they remain fully visible and effective for the intended traffic. Portable signs may be used to supplement other signs that cannot be temporarily placed in their optimal position.

Existing signs that are no longer applicable shall be removed or **fully** covered by the Permittee (with approval by City Traffic Engineer or TTC Staff), taking care not to damage the signs. The removed signs are to be salvaged by carefully storing them out of the way on the adjacent property line. The Transportation Department shall be notified immediately of all sign removals by calling (480) 644-2160. When construction nears completion, the Permittee, unless otherwise specified, shall reset all needed signs at permanent locations.

Temporary signs, barricades, and channelizing devices shall be:

1. Installed prior to the start of any work.
2. Properly maintained (clean, legible, and in good working condition) and comply with Section 4.0 of this manual for quality of devices.
3. Kept in place only as long as needed.
4. Removed from the roadway when no longer needed.
5. Removed from the right-of-way within 24 hours of completing work or expiration of the TTC Permit.
6. In accordance with MUTCD Standards and this manual.
7. Affixed with the current company name and emergency contact number on each device.

2.6 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 arterial or partial /directional street closure ..... 10 full calendar days
- Full collector or partial /directional street closure ..... 10 full calendar days
- Local street full/directional street closure..... 5 full calendar days
- Peak hour reduction in through lanes on major street.....5 full calendar days
- Left turn prohibition at an arterial/collector signalized intersection ..... 5 full calendar days
  This 5-day notice is applicable to large 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 provided using portable changeable message signs. In certain situations, static signs may be used; however, their use must be approved through the TTC Permit process. Notification devices should remain on-site until the project is complete or deemed no longer necessary by the City of Mesa's TTC staff.

A 30-day written notification to the City of Mesa Transportation Department is required for all full arterial or partial/directional closures.

2.7 Traffic Signals

For work affecting traffic signal equipment, notify Intelligent Transportation Systems (ITS) Staff at least two working days prior at 480-644-2160 or 480-644-5888.

If TTC at an intersection with protected left turns/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 at 480-644-5888 or 480-644-4848 (after hours) in advance 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 two signal faces shall be located within the 40-degree cone of vision approaching the signal. For the lateral and longitudinal locations of primary signal faces (cone of vision) reference figure 4D-4 of the MUTCD and/or Appendix A of the TTCM.

2.8 *NEW* Temporary Paved Surface Requirements

When traffic lanes are redirected adjacent to existing pavement, the materials used to create the detour, or bypass shall be as follows:

- **For detours lasting less than five (5) consecutive days**: Materials such as asphalt millings or compacted aggregate base must be used to provide a smooth, rideable surface with proper dust control measures.
- **For detours lasting five (5) or more consecutive days**: A paved surface is required, and engineered, sealed plans must be submitted for review and approval by the City Traffic Engineer.

The paved detour must be inspected by a member of the TTC staff before redirecting traffic onto the temporary paved surface.

2.9 *NEW* Pavement Drop

Pavement drops commonly occur along the edges of milled areas. These drops shall not exceed one inch at driveways, street intersections, between adjacent traffic lanes (including turn lanes), and any other locations where vehicles are expected to cross.

Where drops exceed one inch, asphalt ramps shall be installed to provide a safe and smooth riding surface suitable for all vehicle types, including passenger cars, trucks, motorcycles, and bicycles.

Specific requirements include:

- **Driveways:** Ramps must span the entire width of the driveway, including the wings.
- **Intersections and Radius Returns:** Ramps must cover the full distance between radius points.

Pavement drops greater than one inch must be evaluated on a case-by-case basis and may require one or more of the following treatments:

- Installation of asphalt ramps to provide a smooth riding surface.
- Placement of appropriate warning signs (e.g., "Grooved Pavement," "Bump," "Dip").
- Installation of positive protection, if warranted.

All pavement drop conditions must be reviewed and approved by Temporary Traffic Control (TTC) Staff prior to reopening the roadway to traffic.

Refer to the latest edition of the *AASHTO Roadside Design Guide* for standards related to positive protection.

2.10 Local Access Requirements

Local access should be maintained to all properties on all streets (major, collector, and local) at all possible times. When property access cannot be maintained, it is the responsibility of the TTC Permittee to notify the affected property owners, residents, or tenants a minimum of 72 hours in advance. Reasonable access accommodation or other alternatives should be provided to the affected property owners. Business access signs may be required at the direction of TTC Staff.

2.10.1 Public Facility Access Requirements

Access to fire stations, police stations, hospitals, transit facilities, and schools must always be maintained. If restrictions are necessary, the TTC Permittee shall coordinate with the responsible person in charge of the affected facility to ensure continued access.

When a school zone (15 MPH) is located within a work zone, school zone signs must remain clearly visible and identifiable. Depending on the conditions, flagging or additional school zone signs may be required. School zone crosswalks must remain open and accessible at all times. When working adjacent to a school zone, additional safety measures may be required.

2.11 *NEW* Construction Moratoriums

Holiday Moratorium

The holiday moratorium period is in effect from November 15th to January 1st annually. During this time, proposed restrictions that may disrupt traffic flow near major retail shopping areas and transportation hubs, particularly on arterial or collector streets, are subject to stringent review. Normally, such proposals are denied ensuring the smooth movement of traffic, especially around key commercial zones, and transportation terminals, including airports and bus terminals.

Restricted Areas:

- Downtown Area:
- Boundaries: Broadway Road to University Drive, and Country Club Drive to Hobson.
    - Fiesta District
- Superstition Springs Mall Area
- Mesa Riverview
- Mesa Gateway Airport
- Mesa Falcon Field Airport
- Mesa Marathon

Note: The listed areas are not exhaustive; additional zones may also fall under the holiday moratorium.

Traffic Control Plan (TCP) Applications:

During the holiday moratorium period, applications for Traffic Control Plans (TCP) for any work that may impact traffic flow will be carefully assessed by TTC Staff. Approval will be granted only after thorough evaluation to ascertain if the proposed traffic restrictions can be accommodated without significant disruption.

Spring Training

The spring training moratorium period is in effect from the end of February to the end of March and varies annually based upon the MLB schedule. During this time, proposed restrictions that may disrupt traffic flow near major retail shopping areas and transportation hubs, particularly on arterial or collector streets, are subject to stringent review. Normally, such proposals are denied ensuring the smooth movement of traffic, especially around key commercial zones, and transportation terminals, including airports and bus terminals.

Restricted Areas:

- Downtown Area:
  - Center St from University Drive to McKellips Rd
  - Brown Rd from Mesa Dr to Country Club Dr.
- Mesa Riverview:
  - Dobson Rd from US-60 to Loop 202
  - Rio Salado Pkwy from Loop 101 to Alma School Rd

This policy aims to prioritize the convenience and safety of the public during the busy holiday season, minimizing traffic congestion and ensuring efficient movement around key commercial and transportation hubs.

2.12 *NEW* Haul Route/Over Dimensional Loads

Any haul or oversized vehicle route planned in Mesa will require a notification form to be submitted to the City of Mesa Transportation Department for review and approval.

General Requirements:
A no cost notification form must be submitted for all planned haul routes if 10,000 cubic yards or more of material is moved or if the haul exceeds 10 days in length and for oversized vehicles if the load exceeds 15 feet in height and 11 feet in width. The notification form and all other supporting documentation must be submitted to the City of Mesa Transportation Department via e-mail at barricade@mesaaz.gov for review. Please allow up to four (4) City business days (Monday-Thursday) for review. For question regarding the notification process, please contact TTC Staff at (480) 644-4882.
Haul Routes:

- Provide a vicinity map of the origin and destination sites.
- Applicant shall be responsible to verify any overhead obstructions and shall notify the responsible party.
- Provide a map showing the primary and alternative routes to be used for haul and oversized vehicle routes.
- If traffic control is required to facilitate a haul route, a Temporary Traffic Control (TTC) Permit application must be submitted along with a traffic control plan using the city's online permit process https://aca-prod.accela.com/MESA/Default.aspx. If the project permit(s) for the haul route is subject to fees, temporary traffic control fees may apply and must be paid prior to the issuance of the TTC Permit.

Oversized Loads:

- Provide a map showing the proposed route through the city.
- Provide a copy of any state issued oversized permit.
- Provide a copy of all route surveys.
- Provide the names of all escorting agencies and firms.

General Notes:

- A notification form must be approved prior to a haul route or oversized vehicle route commencing.
- Transportation must be notified 48 hours prior to the route commencing.

- The City of Mesa Police Department enforces laws regulating the operation of commercial vehicles. This includes enforcement of federal, state, county, and local laws, and ordinances. Questions regarding Commercial Vehicle enforcement should be directed to City of Mesa Code Compliance office at (480) 644-2061.

Haul Routes:

- Origin and destination sites must have a stabilized construction entrance and exit per Maricopa County Air Pollution Control Rules and Regulations; Rule 310 and a street sweeper should be used during haul hours.

- Trucks used for hauling shall not be staged on arterial or collector roadways.
- All plans revised after the original approval shall be resubmitted for review. The contractor must provide a detailed explanation as to why the route is being changed.

Approval Process:

Upon successful review of all documentation, the applicant will be notified by Transportation with a written approval of the notification application. There are no costs associated with the notification approval. If temporary traffic control is required for any haul routes, a separate TTC Permit will be issued and sent to the applicant through the City's online permit system.

2.13 *NEW* Steel Road Plates

Steel plates on the sidewalk without approved ADA-compliant approaches and surface treatment are not permitted. However, steel plates with proper surface treatment and are recessed (level with the sidewalk surface) will be considered.

Steel plates without holes, raised surfaces, or knuckles in marked or unmarked crosswalks are to be milled in and to be slip/skid resistant.

2.14 *NEW* Hazard Protection

Pedestrians and the traveling public must be protected from all hazards within the work zone.

- Hazards within **3 feet behind the sidewalk** must be protected using **longitudinal channelizing devices** placed around the perimeter to safeguard pedestrians or another **City of Mesa Transportation-approved method**.

- All unattended open trenches and excavations that are located in the roadway must be either covered with steel plates and fenced off or backfilled at the end of each workday.

- When trenches or excavations cannot be backfilled immediately, they must be covered with

steel plates to ensure safe passage for vehicles and pedestrians or protected with **positive barriers** in accordance with the current edition of the **AASHTO Roadside Design Guide**.

- If equipment is stored within the work zone, **positive protection** must be applied as defined in the current edition of the **AASHTO Roadside Design Guide**.
- All covered trenches, temporary patches, and protective barriers must be inspected daily to verify they remain secure and safe for the traveling public.
- If a steel plate, backfill, or temporary patch becomes loose, uneven, or unsafe, **immediate corrective action** must be taken.
- Contractors must be prepared to respond promptly to public complaints or safety concerns regarding trench covering and protection.

Chapter 3

Signs, Devices, and Applications

3.0 Signs, Devices, and Applications

3.1 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 plans shall be prepared under the supervision of a registered professional engineer familiar with the design requirements for temporary barriers, sealed by the engineer, and approved by the City Traffic Engineer.

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

3.2 *NEW* Longitudinal Channelizing Devices

Longitudinal Channelizing Devices

Longitudinal channelizing devices are lightweight, deformable barriers that may be used individually as Type 1, 2, or 3 barricades or connected to form a highly visible, continuous barrier. These versatile devices are suitable for channelizing both vehicle and pedestrian traffic, particularly in work zones. When installed to direct pedestrian traffic, the devices must comply with ADA (Americans with Disabilities Act) standards.

Key Requirements

- Visibility: Longitudinal channelizing devices must be equipped with Type XI retroreflective material to enhance visibility, especially in low-light or night-time conditions. In poorly lit areas, Type C warning lights may be required to improve nighttime visibility. The decision to implement these lights is at the discretion of the City's Traffic Control Coordinator.
- Pedestrian Channelization: When used to channelize pedestrian traffic, devices must be installed in a manner that maintains ADA compliance, ensuring accessible and safe passage for all users, including individuals with disabilities.

Functionality

While longitudinal channelizing devices should not be confused with temporary traffic barriers, some models can serve dual purpose functioning either as channelizing devices or temporary barriers, depending on the installation method.
Contractors must follow the manufacturer's installation instructions to ensure proper deployment and use of the device according to its intended function.

Application Guidelines

- Vehicular Traffic: These devices provide clear guidance and separation from hazardous areas within the work zone.

- Pedestrian Traffic: Devices must create a continuous, visible, and secure pathway, maintaining safe separation from vehicular lanes. Special care must be taken when selecting and installing these devices, especially when used in conjunction with other traffic control measures.

The City understands that equipment replacement may take time and will allow a two-year grace period for all units to be brought into compliance with the requirements outlined in this newly revised manual.

3.3 *NEW* Barricades and Channelizing Devices

All **barricades and channelizing devices** used on City roadways shall comply with the standards outlined in the **Manual on Uniform Traffic Control Devices (MUTCD)**. These devices are essential for providing clear and safe guidance to both vehicular and pedestrian traffic in work zones.

Key Requirements:

- **Compliance**: Barricades and channelizing devices must meet the specifications outlined in the MUTCD, including dimensions, materials, and usage guidelines.
- **Retroreflective Sheeting**: All devices shall be equipped with a minimum of **Type XI retroreflective sheeting** to ensure high visibility, particularly during night hours or low-light conditions.

Usage Guidelines:

- **Street, Sidewalk, and Alley Closures**: When barricades are used to close streets, sidewalks, or alleys, the spacing between barricades should not exceed **five (5) feet**. This ensures a continuous and effective barrier for road users and pedestrians.
- **Ballasting**: Suitable **ballast** must be used to maintain the stability and functionality of barricades and channelizing devices, particularly in adverse weather conditions or high-wind areas. Ballasting helps prevent movement or tipping, ensuring the devices remain effective throughout the duration of the project.

3.4 Arrow Boards

Arrow boards are required for all lane closures on multi-lane streets, day, or night. Arrow boards shall comply with MUTCD requirements.

3.5 Sign Applications

3.5.1 Sheeting Requirements

Key Requirements:

- **Retroreflective Sheeting**:
    - **Warning Signs**: Black on orange signs (typically used to warn of construction or hazardous conditions) shall have Type XI retroreflective sheeting.
    - **Regulatory Signs**: Black on white signs (used to indicate rules or regulations) shall also meet the minimum requirement of Type IV-High Intensity Prismatic reflective sheeting.

For further details on the minimum requirements for sign sheeting, refer to the latest version of the **Manual on Uniform Traffic Control Devices (MUTCD)**.

Poorly Lit Areas:

- **Type A Lights**: In poorly lit areas, **Type A lights** (flashing warning lights) may be required for additional visibility during nighttime or low-light conditions. The decision to use these lights is left to the discretion of the city's Traffic Control Coordinator.

3.5.2 Sign Sizes

Guidelines for sign sizes, colors, and shapes can be found in the MUTCD and Appendix A of this manual.

3.5.3 Sign Mounting Heights

Portable, standard vertical supports, and permanent signing shall follow the same basic installation and placement guidelines as noted in the MUTCD and this manual.

*3.5.4 *NEW* Sign Mounting Procedures and Placement*

Portable and post-mounted signs should be placed on the right side of the roadway. When special emphasis is required, or when more than one lane of traffic in one direction is affected, dual signs should be installed approximately opposite each other. Signs must not obstruct access to driveways or intersecting streets, nor create sight visibility concerns. They should not be placed in areas too narrow to accommodate them. Conflicting existing traffic signs must be fully covered or removed.

Standard vertical supports used for barricades, vertical panels, and longitudinal channelizing devices may also be used for mounting portable signs. Suitable ballasts must be installed at the base of any portable support to ensure stability and functionality.

Signs mounted on supports must have a minimum of 150 square inches of Type XI retroreflective sheeting on the back of warning signs and Type IV High-Intensity Prismatic reflective sheeting on the

back of regulatory signs, both visible to opposing traffic. The retroreflective sheeting should be applied in strips no less than five (5) inches wide along the outer edges of the sign.

When signs are mounted on portable stands and positioned in two-way turn lanes, at least one (1) Type I or Type II barricade must be placed no more than five (5) feet behind the sign to alert opposing traffic. Channelizing devices such as traffic cones and vertical panels cannot be used as substitutes for the required barricade.

3.6 Signs

Temporary traffic control signing shall comply with the MUTCD and the Arizona Department of Transportation Manual of Approved Signs and this manual.

3.6.1 Advance Warning Sign Spacing

Recommended advance warning sign minimum spacing shall comply the MUTCD and Appendix A of this manual.

Speed categories for the City of Mesa are as follows:

- Urban (low speed) = Posted speed 35 mph or less.
- Urban (high speed) = Posted speed 40 mph or greater.

3.6.2 Work Zone Speed Limits

Work zone speed limit signs shall adhere to MUTCD requirements using the "Work Zone" (G20-5aP) sign mounted above the "Speed Limit" (R2-1) sign. When work zone speed limit signs are in place, existing/conflicting signing shall be covered. Signs shall be placed three (3) per 1/2 mile, per direction. Place one at the start of the buffer zone and two in the work zone.

The "SPEED LIMT 25" sign is typically used where the existing pavement has been removed, or where traffic is being maintained on a temporary detour road, on unpaved shoulders, or on traffic lanes that are severely restricted.

The "SPEED LIMIT 35" sign is commonly used in most work zones where temporary pedestrian pathways are established in the roadway within a work zone, on new asphalt during the completion of roadway paving project, on roadways with reduced number of travel lanes.

*3.6.3 *NEW* Steel Plate Ahead*

The "Steel Plate Ahead" (W8-24) sign shall be installed at locations where steel road plates are embedded into the roadway surface and exposed to traffic.

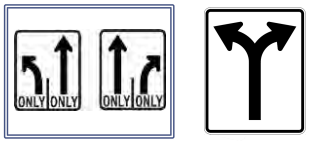
For roadways with posted speed limits of 30 mph or lower, where road plates are not embedded into the roadway or where a vertical lift greater than 1/2 inch exists, a "Bump" (W8-1) sign shall be installed prior to the road plate or hazard location. The "Bump" sign may not always be used in conjunction with the "Steel Plate Ahead" sign.

3.6.5 Bike Lane Closure Signing

Bike lane closed signs should be placed as depicted in FIG-29 which is located in Appendix A of this manual.

3.6.6 Advance Intersection Lane Control Signing

The "Intersection Lane Control" sign (R3-8LS, R3-8SR, R3-6Y) should be used at intersections to control vehicular movement for temporary left/right turn lanes adjacent to through travel lanes.



3.6.7 *NEW* Temporary No Parking Signs

Temporary No Parking Signs should be used at locations where street-side parking is available but must be prohibited for a specified length of time due to planned roadway restrictions or special events. Each No Parking sign must display the date(s) and times of the prohibition.

Signs should be spaced no more than 100 feet apart on streets without home fronts, as well as on collector and arterial streets. For local streets, a minimum of one (1) sign must be placed in front of each affected residence. Where parking stalls are prohibited, spacing between signs shall not exceed 40 feet.

Signs must be posted 48 hours prior to the start of work. The restrictions do not apply to marked construction vehicles, marked city vehicles, or first responders. All signs must comply with the requirements specified in this manual.

3.7 *NEW* Channelization Device Applications

Barricades and Channelizing Devices are essential components of Temporary Traffic Control (TTC) used for Construction. They are used to guide motorists and pedestrians through restricted areas, separate vehicular traffic from the workspace, pavement drop-offs, pedestrians, and opposing traffic.

All channelizing devices shall comply with MUTCD standards and guidelines and shall be Type XI diamond grade reflective sheeting.

The minimum height for traffic cones is 28 inches. Traffic cones used during hours of darkness must be equipped with reflectorized bands, with the width of these bands adhering to MUTCD requirements.

A travel lane through a work zone should be a minimum of 11 feet wide.

Spacing between channelizing devices in the activity area should not exceed 50 feet. Maximum spacing between devices in a taper and/or tangent must comply with the distances specified in the chart below.

Table 3 - Maximum Spacing of Channelization Devices

Speed (mph)	Maximum Channelizing Device Spacing		
	Taper* (feet)	Tangent (feet)	Conflict** (feet)
20	20	40	10
25	25	50	12
30	30	60	15
35	35	70	17
40 and higher	40	80	20

* Maximum channelizing device spacing for all speeds on shifting tapers is 20 feet.
Spacing for traffic cones used in a merging tapers shall not exceed **25 feet** regardless of speed.
** Use on intermediate and short-term projects for shifting tapers where there are no pavement markings or where there is a conflict between existing pavement markings and channelizing devices.

Channelization requires "KEEP LEFT" (R4-8a) and/or "KEEP RIGHT" (R4-7a) 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 R3-8LS or R3-8SR sign is used. In addition, "KEEP LEFT" and/or "KEEP RIGHT" signs shall be placed at each intersection and 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.

3.7.1 Taper Lengths

Barricades and channelizing devices used to guide motorists must provide a smooth, gradual transition, when moving traffic from one lane to another, onto a bypass detour, or when reducing the width of the street. The minimum desirable merging taper length formulas are shown in the tables below and can be found in the MUTCD.

Table 4 - Merging Taper Length Calculations

Speed Limit	Formula
40 mph or less	$L = WS^2/60$
45 mph and greater	$L = WS$

L = Taper Length (ft) W = Width of Lane (ft) S= Posted Speed Limit (mph)

The table below shows the typical merging length and spacing of devices for tapers calculated using the table above.

Table 5 - Typical Merging Taper Lengths and Spacing between Devices

Speed Limit (mph)	Taper Length = L (ft) / Lane Width = W (ft)			**Spacing between devices (ft)**
	10	11	12	
25	104	115	125	25*
30	150	165	185	30
35	205	225	245	35
40	270	295	320	40
45	450	495	540	45
50	500	550	600	50
55	550	605	660	55

Distance between traffic cones used for merging tapers should not exceed **25 feet regardless of speed.*

3.8 Warning Light Application

Lights are optional and at the discretion of the Traffic Control Coordinator. If used, lights are typically yellow and are mounted atop appropriate traffic control devices to draw attention to the device and provide alignment information to motorists. Red warning lights shall be used only on signs indicating stop conditions.

For detailed specifications on warning lights, refer to the MUTCD.

3.9 Temporary Pavement Markings

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.

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, micro-seal, 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.

3.9.1 Pavement Marking Removal

Slurry seal or black paint is not to be used to obliterate markings unless specifically approved by the City Traffic Engineer.

3.9.2 Obliterated or Missing Lane Lines of Multilane Streets

Where traffic is maintained on multilane streets and lane lines have been removed, 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. Temporary pavement markers shall not be used for centerline delineation.
- Separate left turn pockets are to be delineated with channelizing devices.
- Exclusive right turn lanes at driveways and intersections are to be delineated with channelizing devices.
- When either side of a two-way left turn lane is removed the missing line is to be delineated with channelizing devices.

- Channelizing devices shall be spaced per the MUTCD: Spacing in feet shall not exceed 1 time the posted construction speed limit in mph on tapers, and 2 times the posted construction speed limit in mph on tangent and centerline sections. Depending on the location and existing urban conditions, unit spacing of TTC devices in a centerline may be reduced as directed by TTC Staff.
- 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 shall be done with channelizing barricades.
- 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 by TTC Staff in advance.

*3.9.3 *NEW* Temporary Pavement Markers Specification*

Temporary pavement markers may be utilized as an alternative to temporary paint during road construction projects. These markers are particularly useful when lane lines are obliterated or missing and can be employed to delineate traffic lanes and turn lanes, except for centerlines. In situations where more than two travel lanes exist in the same direction, the implementation of temporary traffic control will be required to ensure safe and effective traffic management.

All temporary pavement markers must be reflective and comply with the Arizona Department of Transportation (ADOT) Standard Specifications for Road and Bridge Construction.

The Chip Seal Pavement Marker, and ADOT Standard Drawings, are approved for use in Mesa for various projects, including fog, slurry, micro-seal, 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 surface treatment, temporary 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 aligned with the location of permanent pavement markings to ensure consistency and visibility.

Temporary pavement markers should be utilized in areas where lane lines are missing or obliterated. They may replace channelizing devices to delineate lanes and turns, but not centerlines. In cases where more than two travel lanes exist in the same direction, temporary traffic controls are mandatory to manage traffic flow and ensure safety.

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 the adoption of this supplement, the most recent version shall be used unless otherwise directed by the City Traffic Engineer.

The contractor is responsible for maintaining the functionality of the chip seal marker and temporary traffic controls throughout the project duration.

3.10 Construction Entrance

The contractor is responsible for implementing dust control and track-out measures in compliance with Mesa City Code Title 8 and Maricopa County Rule 310. These regulations ensure that dust emissions and the tracking of dirt or debris onto public roadways are minimized during construction activities.

Dust Control and Track-Out Measures

- Dust control must be maintained at all times, particularly during the movement of vehicles and equipment, to prevent airborne dust from leaving the construction site.
- Track-out measures, such as stabilized construction entrances or wheel-wash systems, must be installed to prevent dirt and debris from being carried onto adjacent roadways by construction vehicles.

Failure to comply with these regulations may result in fines or work stoppages by regulatory authorities.

Temporary Traffic Control

- For the proper implementation of traffic control devices related to the construction entrance, refer to the drawings in Appendix A of this manual. These drawings provide detailed instructions on the placement of temporary traffic control devices to ensure safe and effective vehicle ingress and egress from the construction site.
- The contractor must ensure all traffic control devices are installed and maintained according to the project's traffic control plan, ensuring safety for both construction personnel and the general public.

3.11 *NEW* Storage of Temporary Traffic Control Devices

Temporary traffic control devices that are no longer applicable to a job shall not be stored within the City right-of-way. Traffic control devices must be removed from the city right-of-way within 24 hours following the expiration of a TTC Permit. In the downtown area, temporary traffic control devices should be removed daily.

When temporary traffic control devices are permitted to be stored within the City right-of-way, they should be grouped using the "cluster" method, with a minimum of three (3) units per cluster. Devices shall not be stored on raised medians and must be positioned in a manner that does not obstruct access for pedestrians, bicyclists, motorists, or wheelchair users, nor create visibility limitations for street or driveway access.

Chapter 4

Quality of Temporary Traffic Control Devices

4.0 Quality of Temporary Traffic Control Devices

The purpose of traffic control devices and equipment, as well as the principles for their use, is to promote roadway safety and efficiency by providing for the orderly movement of all road users on streets, bikeways, pedestrian facilities, and private roads open to public travel. Traffic control devices and equipment notify road users of regulations, provide warning and guidance needed for the uniform and efficient operation of the traffic system, and minimize the occurrence of crashes.

To be effective, temporary traffic control equipment should meet the following requirements:

- Fulfill a need;
- Command attention;
- Convey a clear, simple meaning;
- Command respect from the road users; and
- Give adequate time for proper response.

The design, placement, operation, maintenance, and uniformity of TTC equipment must be carefully considered to ensure compliance with the required standards. The quality of TTC equipment should align with the guidelines outlined above to meet these requirements effectively.

4.1 *NEW* ATSSA Quality Guidelines

The quality of TTC zone devices, such as signs, barricades, vertical panels, and cones, is classified into two categories: **Acceptable** and **Unacceptable**. These classifications help ensure that devices used in work zones meet the necessary safety and performance standards.

Device Quality Categories:

- **Acceptable**: Devices that meet all quality requirements outlined in this **Temporary Traffic Control Manual (TTCM)**, including specifications for design, size, color, weight, and other attributes specified in the project plans, are considered acceptable for use. These devices are fit for roadway construction, special events and/or contract maintenance projects.
- **Unacceptable**: Devices falling into this category are unsuitable for use and must not be deployed in TTC zones. If found during inspections, the contractor will be required to **replace or repair** them as directed by TTC Staff or as specified in the project contract.

Evaluation Guide:

An evaluation guide is available to assess the **reflective face** and **general appearance** of devices such as signs, barricades, vertical panels, and cones. It is crucial that all devices meet the minimum visibility and safety standards to ensure the protection of both road users and workers in construction zones.

Acknowledgement:

The **City of Mesa Transportation Department** acknowledges the use of copyrighted graphics and text from the **American Traffic Safety Services Association (ATSSA)** to support these quality guidelines. For a complete copy of the **Quality Guidelines for Temporary Traffic Control Devices and Features**, visit the ATSSA website at www.atssa.com.

4.2 Quality Guidelines for Channelizing Devices and Signs

Application of this guideline provides the means to meet the requirements of the MUTCD which states:

"Functional maintenance of traffic control devices should be used to determine if certain devices need to be changed to meet current traffic conditions. Physical maintenance of traffic control devices should be performed to retain legibility and visibility of the device, and to retain the proper functioning of the device. Clean, legible, properly mounted devices in good working condition command the respect of road users."

This guideline applies to all channelizing devices and signs used for TTC within the City's right-of-way and/or public domain.

All channelizing devices and signs shall conform to the requirements of the MUTCD and this TTCM with regard to size, shape, color, placement and legend. Special signs, if required, are normally detailed in the plans. All devices requiring M.A.S.H. testing shall meet those standards for approval by the Federal Highway Administration (FHWA).

Signs shall be installed plumb to the pavement. Sign positioning at the work site should comply with the MUTCD and this Temporary Traffic Control Manual's requirements, while also considering site conditions. In certain cases, sign spacing may be adjusted if the designated location proves unsuitable. Vertically mounted signs on temporary stands should be positioned as close to vertical as practicable.

All requirements of the City of Mesa, for barricades and vertical panels used in the work zone shall be met. Vertical panels shall be maintained in a vertical position. Barricades shall be considered unacceptable if they have bent or twisted legs, unfinished or excessively rusty metal parts, unfinished wooden rails, or a deformation of the support assembly to the extent that the barricade panel is not reasonably parallel to the roadway surface or visible to approaching traffic.

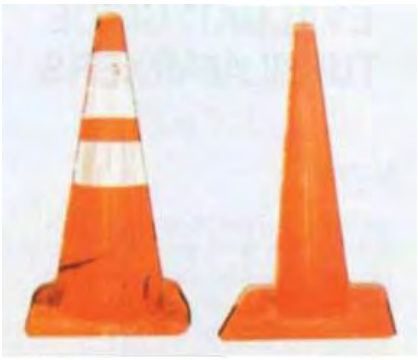
Acceptable channelizing devices and signs should be constructed and ballasted to perform predictably when struck by a vehicle. Channelizing devices and signs shall also be crashworthy, as specified by M.A.S.H. testing requirements.

Any instance where more than two adjacent channelizing devices are missing or substantially misaligned will be deemed unacceptable.

The guide that follows is to be used to evaluate the quality of the reflective face and general appearance of signs, barricades, and channelizing devices.

Evaluation Guide for Work Zone Signs	
Acceptable There are several abrasions on the surface, but minimal loss of lettering. No touch-up has been performed on the lettering. The message remains legible in accordance with the design criteria of the MUTCD	
Unacceptable Signs with asphalt splatter or cement slurry of an amount similar to the abrasions that are evident throughout the face of this sign are unacceptable. Some letters have a loss of more than fifty percent (50%). There is a noticeable color fading. The message is illegible per the design criteria of the MUTCD.	

Evaluation Guide for Type I, II, III Barricade or Vertical Panels	
Acceptable Panel is not deformed to an extent so as to decrease the panel's target value. There are several abrasions on the surface but very little loss of reflective sheeting. The orange is vivid and the striped provide contrasts.	
Unacceptable The surface is marred over a high percentage of the panel area. There is noticeable loss of reflectivity and obvious color fading. Panels with asphalt splatter and/or cement slurry, or any combination of missing and covered reflective material similar in area to that shown here would also make a panel unacceptable.	

Evaluation Guide for Traffic Cones	
Acceptable The conical shape should remain clearly identifiable with no significant distortion and must be free standing in its normal position. The surface is free of punctures and abrasions. The surface is free of asphalt splatter, cement slurry or other material and will readily respond to washing. The reflective bands, if required, have little or no loss of reflectivity, with only minor tears and scratches.	
Unacceptable Punctures and large areas of staining asphalt splatter or cement slurry make these an unlikely candidate for improvement. Large areas of missing or stained reflective material make the cone unacceptable.	

4.3 Warning Lights, Arrow Boards, and Portable Changeable Message Signs

All warning lights, advance warning arrow boards, and portable changeable message signs shall be in accordance with the most current version of the MUTCD.

The evaluation guide that follows is to be used to evaluate the appearance and function of warning lights, advance warning arrow boards, and portable changeable message signs. Because of the different types of advance warning arrow boards approved for use, the evaluation guide will address each type (mode) of panel separately.

Any warning light, arrow board, or portable changeable message sign, which is out of alignment from the intended driver's line of vision, shall be considered to be "unacceptable."

4.3.1 Warning Lights

Acceptable: One hundred percent (100%) of all warning lights must be properly operating and meeting the MUTCD specifications.

Unacceptable: Less than ninety percent (90%) of the warning lights properly operating and meeting the MUTCD specifications, or more than three (3) adjacent lights failing, or more than one (1) Type B warning light failing for more than twelve (12) consecutive hours or as specified in the contract document.

4.3.2 Arrow Boards

Arrow Board (Flashing Arrow Mode, or Sequential Arrow)

Acceptable: Not more than one (1) lamp out in stem and none out in arrowhead and dimming properly.

Marginal: Two (2) or fewer lamps in stem out. No lamps out in the head. Dimming properly.

Unacceptable: Any lamp out in the head, or more than two (2) lamps out in the stem or arrow board not dimming properly.

Note: Any operating lamp that is out of alignment will be considered "not functioning."

Arrow Board (Chevron Mode)

Acceptable: No lamps out in any chevron segment.

Marginal: Not more than one (1) lamp out in any one chevron segment and dimming properly.

Unacceptable: Two (2) or more lamps out in any one chevron segment or not dimming properly.

Note: Any operating lamp that is out of alignment will be considered "not functioning."

Arrow Board (Double Arrow Mode):

Acceptable: Not more than one (1) lamp out in stem and none out in arrow heads and dimming

properly.

Marginal: Two (2) lamps out in stem, but both heads completely functional with no lamps out dimming properly.

Unacceptable: Any lamps in heads out or more than two (2) lamps out in the stem, or arrow board not dimming properly.

4.3.3 Portable Changeable Message Signs

Acceptable: Ninety percent (90%) or more of the pixels per character module are operating properly.

Marginal: No less than ninety percent (90%) of the pixels per character module are operating properly.

Unacceptable: Less than ninety (90%) of the pixels per character module are operating properly or not performing within the criteria of the MUTCD.

Chapter 5

Manual Traffic Control

5.0 Manual Traffic Control

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

5.1 Police Officers

Use of police officers for manual control of traffic is helpful with certain types of temporary control and at times may be required. 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. Mesa Police Officers shall be given priority 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, officers from local adjacent public agencies should be used until the next date Mesa officers are available. If an officer is required as part of an approved traffic restriction, work shall not proceed until an officer is available and on site. Officers should check in with Mesa PD Dispatch upon arrival and departure of a job site.

Scheduling and hiring of off-duty Mesa police officers for temporary traffic control is done through "Off Duty Management (ODM)," (OfficerTRAK) a web-based service. Off-duty police officers can be hired, simply by using the following link, https://odm.officertrak.com/Mesa-AZ-PD/auth/signin?next=%2F or calling ODM directly at 1(877) 636-8300 or (480)582-3998. Finally, the Mesa Police Department Off Duty Hiring Coordinator can also assist hiring an off-duty officer by calling 480-644-2092. All costs associated with using off-duty police officers are 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:

- Contact the TTC Permit holder or City inspector to obtain direction on what activities will be performed.
- Position themselves to have a good view of traffic approaching from all directions.
- Reinforce speed limits, sign prohibitions, and other restrictions near or in the work zone.
- Be in uniform and equipped with proper equipment such as high-visibility safety vest, two-way radio, signal cabinet police panel key, red flashlight traffic cone for nighttime operations, whistle, etc.
- Always remain at their post except for planned breaks.
- Assist pedestrians as needed through the work zone.

- Direct traffic manually as needed to accommodate unforeseen or unusual traffic pattern changes.
- Assist in difficult flagging operations by providing a more authoritative presence to drivers.
- Position their vehicle in a manner that does not obstruct sidewalks or traffic.
- Observe and report traffic problems immediately to TTC Staff or City inspector.
- Assist, as needed, with setting up and removal of temporary traffic control devices.
- Officers should not make changes to the traffic control without first consulting with City of Mesa Traffic Control Staff, unless there is an immediate emergency.

5.2 Flaggers

Flagger operations within the City of Mesa shall comply with the Manual on Uniform Traffic Control Devices (MUTCD).

Any individual stationed in a work zone to perform flagging operations shall have completed training and possess current certification from a program that meets the training and certification standards of the American Traffic Safety Services Association (ATSSA) Flagger Program or an equivalent program approved by the City of Mesa Temporary Traffic Control (TTC) staff. Equivalent programs must meet the Federal Highway Administration (FHWA) standards for the control of traffic through highway work zones, as defined in the MUTCD.

Flaggers shall carry both a copy of their certification and a valid form of identification on site while performing flagging duties. Certification must be renewed at least once every four years.

This section does not apply to law enforcement personnel employed by governmental entities (A.R.S. § 28-653).

Depending on the complexity of the flagger control operations, two-way radio communication may be required.

Pilot car operations shall comply with the conditions of the issued TTC Permit, the approved traffic control plan, and the MUTCD.

5.2.1 *NEW* Automated Flagger Assistance Device (AFAD)

Automated Flagger Assistance Device (AFAD) operations must abide by the standards set forth in the MUTCD.

AFADs are remotely operated traffic control devices enabling flaggers to be positioned out of the traffic lane(s) and are used to control traffic in advance and within work zones. These devices are designed to be remotely operated. AFAD configurations using stop/slow or red/yellow lens applications are permitted in the city.

AFAD operators shall be Flagger certified in accordance with Section 5.2 of the City of Mesa Temporary Traffic Control Manual. An AFAD shall be remotely operated by an operator who is trained in the

operation of AFADs. The operator shall not leave the AFADs unattended while they are in use. The use of AFADs shall conform to the methods noted in the MUTCD. Additionally, a single AFAD operator may operate more than two AFAD devices as approved by TTC Staff and/or the City Traffic Engineer.

AFADs can be used on local and collector roadways with a single lane of traffic per direction, posted speed of 35 MPH or less, and where traffic volumes do not exceed 5,000 vehicles a day. AFADs should be placed along the shoulder section of the roadway and not in conflict with traffic or traffic control devices such as traffic signals or pedestrian hybrid beacons. Maximum spacing between devices should not exceed 800 feet.

A fail-safe plan addressing any malfunction of an AFAD must be in place and submitted to TTC Staff prior to permit approval.

5.3 High Visibility Apparel

Workers exposed to the risks of moving roadway traffic, or construction equipment shall wear high-visibility safety apparel meeting the requirements of International Safety Equipment Association (ISEA) "American National Standard for High-Visibility Safety Apparel" (see Section 1A.11), or equivalent revisions, and labeled as American National Standards Institute (ANSI) 107-2004 (or current edition) standard performance for Class 2, or 3 risk exposure.

For daytime and nighttime activity, flaggers shall wear safety apparel meeting the requirements of the ISEA "American National Standard for High-Visibility Apparel" (see Section 1A.11) and labeled as meeting the ANSI 107-2004 (or current edition) standard performance for Class 2 risk exposure. The apparel background (outer) material color shall be either fluorescent orange-red or fluorescent yellow green as defined in the standard. The retroreflective material shall be orange, yellow, white, silver, yellow-green, or a fluorescent version of these colors, and shall be visible at a minimum distance of 300 m (1,000 ft.). The retroreflective safety apparel shall be designed to clearly identify the wearer as a person.

Chapter 6

Service Vehicles

6.0 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. Service vehicle operations typically consist of a single vehicle or a single vehicle with a shadow vehicle (arrow board). Reference figure 36-38 in Appendix A. When service vehicles must travel slowly or stop for brief periods, they are to display the following operating high-level warning light system:

- High intensity rotating, flashing, oscillating, or strobe lights and four-way hazard flashers. Service vehicles with this type of lighting system may be used to close a lane for a maximum of 15 minutes. One (1) arrow board must be used in combination with this type of warning light system to increase the length of time to close a lane to a maximum of 60 minutes. This method is encouraged when closing lanes on arterial roadways.
- A short taper of cones (50-foot taper consisting of six (6) traffic cones) must be used behind a service vehicle in addition to the lighting system 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. The lights cannot be obstructed by dump beds, vehicle-mounted equipment, or work activities. Minimum mounting height should be seven feet. 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.

The arrow board shall be mounted on a vehicle, a trailer, or other suitable support. Minimum mounting height should be seven feet from the roadway to the bottom of the board, except on vehicle-mounted boards, which should be as high as practical. The size and operation of the arrow board shall meet the requirements as noted in Chapter 6 of the MUTCD.

Line-of-sight issues due to roadway geometry, landscaping, or other mitigating factors shall require the use of a separate shadow vehicle (and, in some cases, additional traffic control devices) positioned behind the service vehicle to provide adequate advance notice of lane restrictions. The use of multiple shadow vehicles to close more than one lane of traffic is generally prohibited but may be considered on a case-by-case basis.

Service vehicle operations are prohibited on arterial or collector streets during peak traffic hours as noted in Section 1.2 of this manual, except when authorized by TTC Staff or under emergency conditions.

Refer to the latest AASHTO Roadside Design Guide for an example of guidelines for spacing Shadow Vehicles.

15- Minute Short Term Service Vehicle Example

Service vehicles should be equipped with the following:

- High intensity rotating, flashing, oscillating, or strobe lights.
- Four-way hazard flashers
- A short taper of cones (50-foot taper consisting of six (6) traffic cones)

60- Minute Short Term/Slow-Moving Service Vehicle Example

Service vehicles should be equipped with the following:

- High intensity rotating, flashing, oscillating, or strobe lights.
- Four-way hazard flashers
- A short taper of cones (50-foot taper consisting of six (6) traffic cones)
- One (1) arrow board.

Chapter 7

Pedestrian and Bicycle Access Considerations

7.0 Pedestrian Access Considerations

Access to sidewalks/pathways (paved or unpaved), marked and unmarked crosswalks (including school crosswalks), and bus stops shall be maintained in a safe, usable condition as described in this chapter and in accordance with the Americans with Disabilities Act (ADA). Pedestrian access considerations shall comply with Chapter 6D of the MUTCD.

7.1 *NEW* Closure/Relocation of Pedestrian Facilities

Pedestrian facilities must remain open and accessible at all times. If a contractor's work requires the closure or relocation of a pedestrian facility, they must apply for a TTC Permit and submit a Temporary Pedestrian Access Plan (TPAP) to TTC staff for review. The TPAP must comply with the MUTCD's signage and barricade requirements for sidewalk or pathway closures and detours. A sample TPAP can be found in **Appendix A** of this manual.

7.2 *NEW* Relocation of Pedestrian Facilities

When pedestrian routes (paved or unpaved) need to be temporarily relocated, the detour should remain on the same side of the street as the original route unless otherwise approved by TTC staff. If a traffic lane is used as a temporary pedestrian route, pedestrians must be separated from traffic by temporary traffic barriers or longitudinal channelizing devices where feasible. These devices must comply with MUTCD standards for detectable edging for pedestrians.

Several factors should be considered when determining the appropriate separation method, including:

- Length and duration of the relocation
- Traffic volume and speed
- Pedestrian volume
- Physical constraints for placing barriers or channelizing devices
- Curb height and lane width

ADA-compliant ramps must be installed either perpendicular or parallel to the sidewalk, with compliant landings at both the top and bottom of the ramp at all entrance locations to the temporary pathway. The maximum allowable ramp slope is **1:12**.

To guide pedestrians safely into a temporary pathway, an **R11-11a "Pedestrian Guide" sign** should be installed at each access point. In dense urban areas where space behind the sidewalk is limited, a smaller **12" x 18"** sign may be used on a sign support with a base no wider than **12 inches**. Access to pedestrian push buttons should be made accessible at all times. Contact the City of Mesa's ITS Department for assistance.

Audible information devices shall be provided at midblock sidewalk closures and relocated crosswalk areas to ensure adequate communication for pedestrians with vision disabilities, as outlined in Part 6 of the current version of the MUTCD. City of Mesa TTC Staff will provide the approved verbiage for audible devices.

Temporary pedestrian pathways should include the following design features:

The width of the existing pedestrian facility should be maintained in the temporary pathway whenever possible.

- If maintaining a minimum width of five feet throughout the entire pathway is not feasible, a **5' x 5' passing space** must be provided every **200 feet**.
- The surface shall be **all-weather, compacted, smooth**, and include **dust control** measures.
- The maximum allowable **cross slope** is **2%** in either direction.
- There shall be no abrupt changes in **grade height greater than ¼ inch**.
- If temporary pedestrian access is maintained using an **approved ADA-compliant system**, the surface must be **level, skid-resistant,** and meet **ADA slope requirements** (a grade no greater than **1:12**).
- When pedestrians are routed through a **temporary pathway in the roadway behind channelizing devices**, the **work zone speed limit** must not exceed **35 mph**.
- **For steel plates** used in crosswalk areas, refer to Section 2.13 and must also comply with **MAG standard trench plating details**.

For **pedestrian access design samples**, refer to **Appendix A** of this manual.
For any additional pedestrian access considerations not covered in this manual, refer to **Part 6 of the MUTCD**.

7.3 *NEW* Pedestrian Spotter Assistance

The **safe and reasonable flow of pedestrian traffic** must always be maintained. If an existing pedestrian facility is impacted by a **short-term or short-duration** work area, establishing an **alternative pedestrian route** may not be necessary if work can be temporarily halted to allow pedestrians to safely pass through. This determination will be made by **Temporary Traffic Control (TTC) Staff**.

If a pedestrian facility must be **intermittently closed** due to conflicts with construction activities, **pedestrian spotters** shall be stationed at the work area for the entire duration of the closure.

Pedestrians may experience **short delays** while project personnel **remove obstructions or overhead hazards** to ensure safe passage.

The **sole duties** of pedestrian spotters include:

- Monitoring for pedestrians
- Alerting project personnel of approaching pedestrians
- Aiding pedestrians with disabilities as needed

Spotters must remain focused on these duties and **avoid distractions** (e.g., no use of cell phones, headphones, etc.). **Pedestrian spotters are not permitted to redirect or escort pedestrians away from the existing pedestrian facility.**

Requirements for Pedestrian Spotters:

- Shall always wear **high-visibility apparel**
- While **flaggers or off-duty officers** may serve as pedestrian spotters, their presence is **not required** for this role

To further support **safe pedestrian passage**, additional **warning signs and/or ADA-compliant channelizing devices** may be used. **TTC Staff may also require a Temporary Pedestrian Access Plan (TPAP) for review.**

7.4 *NEW* Special Pedestrian Requirements for Demolition and Construction of Buildings

When **demolition or construction** occurs near sidewalks, **special provisions** must be made to ensure pedestrian safety.

- **Gates and temporary fencing** providing access to the construction site **shall not** open into the street or obstruct pedestrian walkways.
- If the activity poses a risk of **falling debris, dropped loads, or other hazards** to pedestrians, a **covered walkway** shall be provided for protection.
- The construction of a covered walkway may require additional permits and sealed engineered drawings, which must be submitted through the Development Services Department.

A **covered walkway is typically required** when:

- The **building wall** is within **six feet** of the pedestrian walkway, or
- The **distance between the walkway and the temporary structure** is **less than half the height** of the exterior wall.

The **TTC Staff** will determine whether a covered walkway is necessary. If the walkway is at a **greater distance** than **half the height of the exterior wall**, a **construction fence** is generally required instead.

Additional Requirements:

- **Access** to **fire hydrants, traffic signal control boxes, pedestrian push buttons, manholes, and other utilities** must be maintained at all times.
- **Contractors** planning demolition or construction near **pedestrian facilities** must submit a **Temporary Pedestrian Access Plan (TPAP)** to **TTC Staff** for review.
- **Loading, unloading, material staging, or vehicles stopping** on the **street side** of walkways and fences is **prohibited** without prior approval from **TTC Staff**.

7.5 *NEW* Bicycle Considerations

Bicyclists' use of **City streets, paths, designated lanes, and routes** must be considered during **construction or other activities that may restrict access**. If any of these facilities **cannot be maintained**, the contractor is responsible for providing **alternative bicycle access**.

- **For closures of bicycle lanes/routes on City streets**, refer to **Appendix A** of this manual for detailed guidance.
- **For closures of bicycle pathways or multi-use pathways**, the contractor **must** provide an **alternative detour route** for bicycles.
- **M4-9 (a, b, c) signs** should be used to guide bicyclists from the existing pathway onto the temporary route.
- If the pathway is a **designated bicycle route**, the **route number** may be required on the detour signage. The **route number** should be placed **above the M4-9 sign** or incorporated into the sign design.
- **For additional guidance** on sign placement and design requirements, refer to **Part 6 of the MUTCD and Appendix A of this manual.**

Chapter 8

Transit Services

8.0 *NEW* Transit Services

The contractor should maintain all existing transit stop locations or provide alternate bus stop locations as required by TTC Staff. All temporary traffic control devices, signs, and temporary pedestrian ramps at transit stop locations shall comply with the Americans with Disabilities Act (ADA) and, where applicable, the MUTCD. The contractor shall prepare and submit a Traffic Control Plan (TCP) for the City's review and approval before relocating any transit stop. Additionally, the contractor shall notify the City of Mesa Transit Coordinator at (480) 644-4131 at least ten (10) calendar days before any bus stop relocations or access restrictions. Refer to Appendix A of this manual for examples of transit stops within a work zone.

When an individual transit stop is closed and a temporary stop is utilized, the contractor shall install wayfinding signage to guide transit users from the closed stop to the temporary stop. Whenever possible, temporary transit stops should be relocated downstream in the direction of traffic. The contractor shall provide the Mesa Transit Coordinator with the approximate distance between the closed stop and the temporary stop at least ten (10) calendar days before the relocation to coordinate with Valley Metro Operations.

When construction activities require transit services to be rerouted, detoured, or when multiple stop locations along the same route are affected, the contractor must submit a notification to the City of Mesa Transit Coordinator within the same timeframe as noted above. The contractor is responsible for posting route modification information at the affected stop locations at least seven (7) days before the detour begins. A template for the route modification notice may be obtained from the City of Mesa Transit Coordinator. Once the route has been restored to normal operations or the notice is no longer needed, the contractor is responsible for removing all posted route modification notices.

If a transit stop is closed or impacted by a route detour or construction activities for more than 24 hours, the contractor shall be responsible for maintaining the general cleanliness of the affected stop locations and all signage related to the reroute, detour, or closure. This includes emptying trash receptacles, picking up trash within a minimum 15-foot radius of the stop, general cleanup in and around the shelter or designated stop, and power washing if necessary. Transit stop cleanliness and maintenance will be monitored by the Transit Coordinator through periodic inspections for the duration of the project. The contractor shall correct any cleanliness or maintenance issues within 24 hours of notification by the Transit Coordinator or TTC Staff. For additional guidance on maintaining transit stops in work zones, refer to the figures in Appendix A of this manual.

Chapter 9

Special Events

9.0 *NEW* Special Events

A special event is an activity conducted on or adjacent to City roadways that has the potential to impact the City's transportation system by contributing to higher-than-normal traffic volumes and unexpected delays. These events can help showcase a specific area, community, or the entire city. Planning with City departments can help mitigate delays and reduce confusion for drivers traveling in the event area.

Event activities may include:

- Parking, access, and exiting, could affect normal traffic flow.
- Ride-share or shuttle drop-off/pick-up locations.
- Restricting or closing a portion of a city street.
- Increased pedestrian activity in the event area.
- Use of temporary traffic control devices to facilitate movement of events and non-event traffic.

9.1 *NEW* Special Event Traffic Related Concerns

As part of the special event planning process, applicants should consider:

- Other scheduled events.
- School locations.
- Availability of parking and ADA accessibility.
- Drop-off and pick-up locations.
- Impact on local businesses and property access.
- Emergency services (fire, police, hospitals, etc.).
- Transit routes and stops.
- Time of day.
- Impact on City streets and pathways (e.g., restrictions and possible closures).

Addressing these considerations early in the planning process may help reduce traffic control requirements for the event.

9.2 Requirements

Any special event as specified in Mesa City Code requires a Special Event License from the License Administrator. Special Event Licenses can be obtained by contacting the Special Events Office. Additional information is available on the website at https://www.mesaaz.gov/business/special-events. Applicants shall consult with Special Events Office prior to submitting any applications.

If public ways such as streets, sidewalks, pathways, or alleys are impacted by the event, a TTC Permit, and a TCP are required. A TCP shall be submitted to the Transportation Department for review. Depending on the complexity of the event and the potential for the Licensing processing time of thirty (30) to ninety (90) days, it is recommended that the event coordinator meet with Special Event Office and TTC Staff at least ninety (90) days in advance of the event date to discuss TTC requirements.

*9.2.1 *NEW* Pre-Event Temporary Traffic Control Planning*

The applicant is responsible for hiring a professional traffic control provider to design and submit the TCP in compliance with the design criteria outlined in Section 1.5.1 of this manual. Additionally, the applicant must apply for and obtain a TTC Permit for the event and comply with all conditions of the TTC Permit and the approved TCP.

9.2.2 Special Requirements

For events with street or lane closures, portable changeable message signs and/or static signs are required a minimum of ten (10) calendar days in advance of the event to notify the public of upcoming restrictions or closures. The number and location of these signs are dependent upon the size of the event and the number of streets impacted. See Appendix B Fig. SEV-1 for a sample of the special event static sign.

Lane restrictions, street closures, or impacted signalized intersections may require one or more uniformed police officers to direct traffic. Volunteers or flaggers are not permitted to perform this function. The number and placement of officers depend on the size of the event, the number of affected streets or intersections, and directives from Mesa P.D. and/or TTC Staff.

Full street closures should be considered for static events, parades, and marches held in the street. Full street closures or directional closures should also be considered for running, biking and walking events whenever possible to separate participants from traffic.

Channelization shall be used to separate running, walking, and biking participants from traffic when full closures are not permitted. Police escorted biking event may not require the same level of channelization. Vehicle mitigation devices may be required.

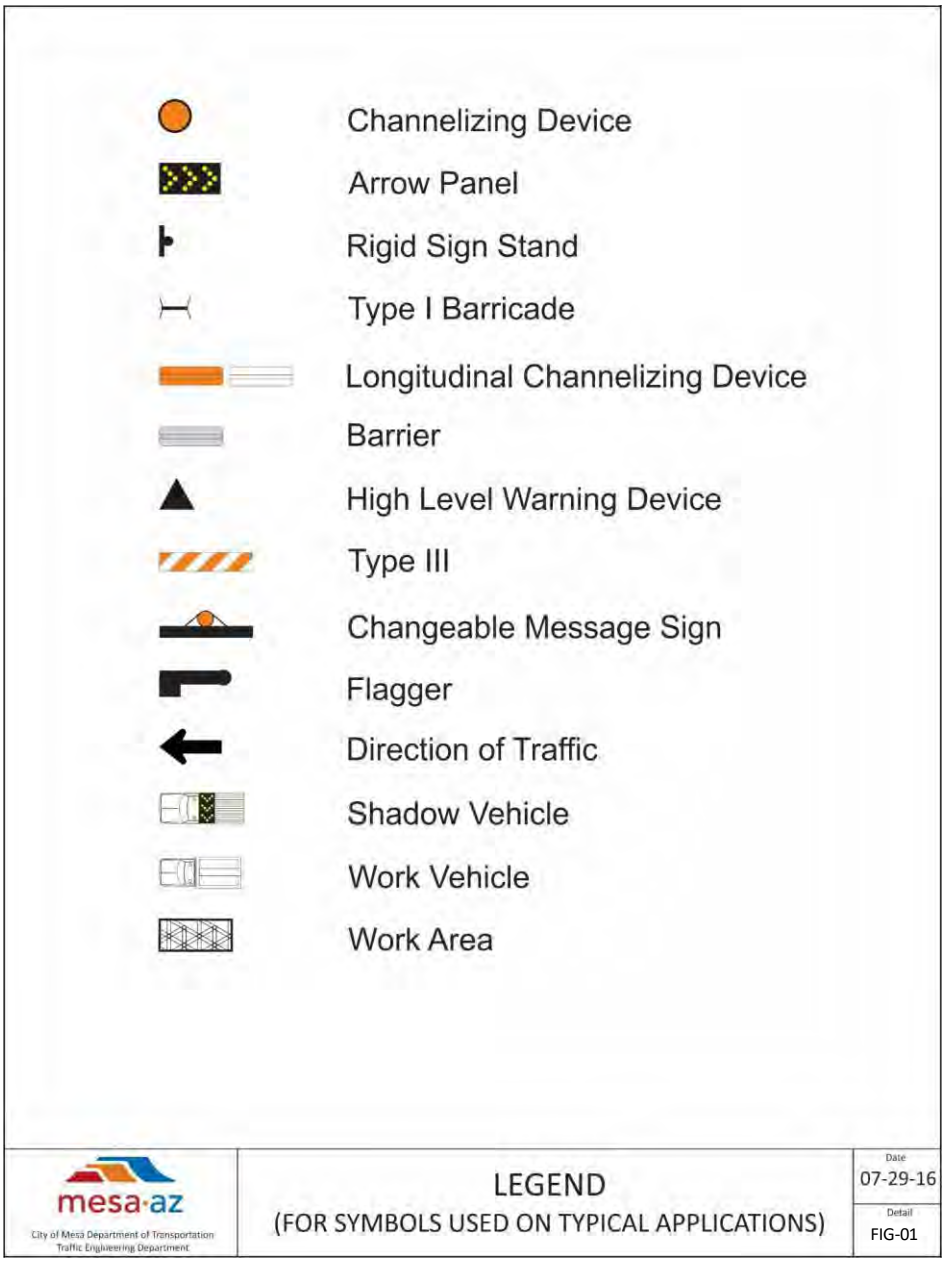
TTC staff or City staff shall inspect the proposed event route and notify the appropriate City departments of any potential hazards. Hazards for runners, walkers, bicyclists, and motorcyclists may include potholes, pavement grooves, missing utility covers, sand, gravel, rocks, or construction debris.

The event may be delayed if potential hazards are identified or if the TTC installation is incomplete. Approval will be provided by City staff

Appendix A

Typical Temporary Traffic Control Applications

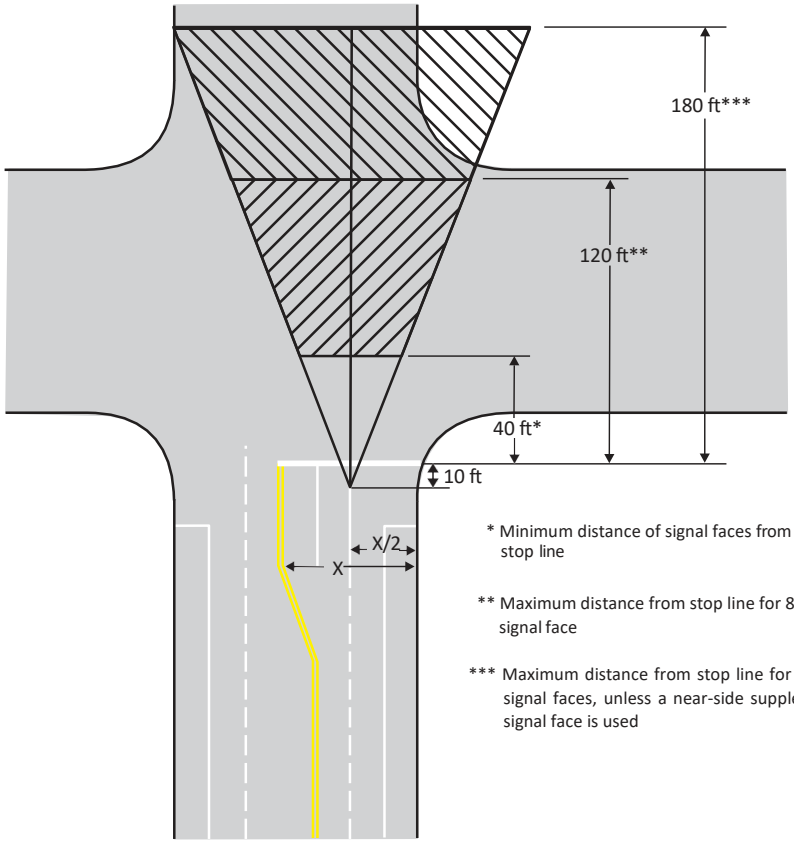
The following pages provide typical applications of signs, barricades, and channelizing devices for commonly encountered situations. Each illustration demonstrates strategic placements of temporary traffic control devices that have proven effective and efficient in urban conditions throughout Mesa. Situations not explicitly illustrated should be addressed using the general principles and guidelines outlined in this TTCM, the MUTCD, and these illustrations. Additionally, specific situations may require further engineering judgment.


Channelizing Device
Arrow Panel
Rigid Sign Stand
Type I Barricade
Longitudinal Channelizing Device
Barrier
High Level Warning Device
Type III
Changeable Message Sign
Flagger
Direction of Traffic
Shadow Vehicle
Work Vehicle
Work Area
mesa·az
City of Mesa Department of Transportation
Traffic Engineering Department
LEGEND
(FOR SYMBOLS USED ON TYPICAL APPLICATIONS)
Date
07-29-16
Detail
FIG-01

Location of primary signal faces within these areas:

12-inch signal indications, or 8-inch signal indications if used based on the option noted in the most recent version of the MUTCD.

12-inch signal indication



* Minimum distance of signal faces from stop line

** Maximum distance from stop line for 8-inch signal face

*** Maximum distance from stop line for 12-inch signal faces, unless a near-side supplemental signal face is used

NOTE: Reference Lateral Position of Signal Faces in the MUTCD for additional information on the Driver Cone of Vision.

mesa·az

City of Mesa Department of Transportation
Traffic Engineering Department

DRIVER'S CONE OF VISION

At Traffic Signals

Date: 12-30-24

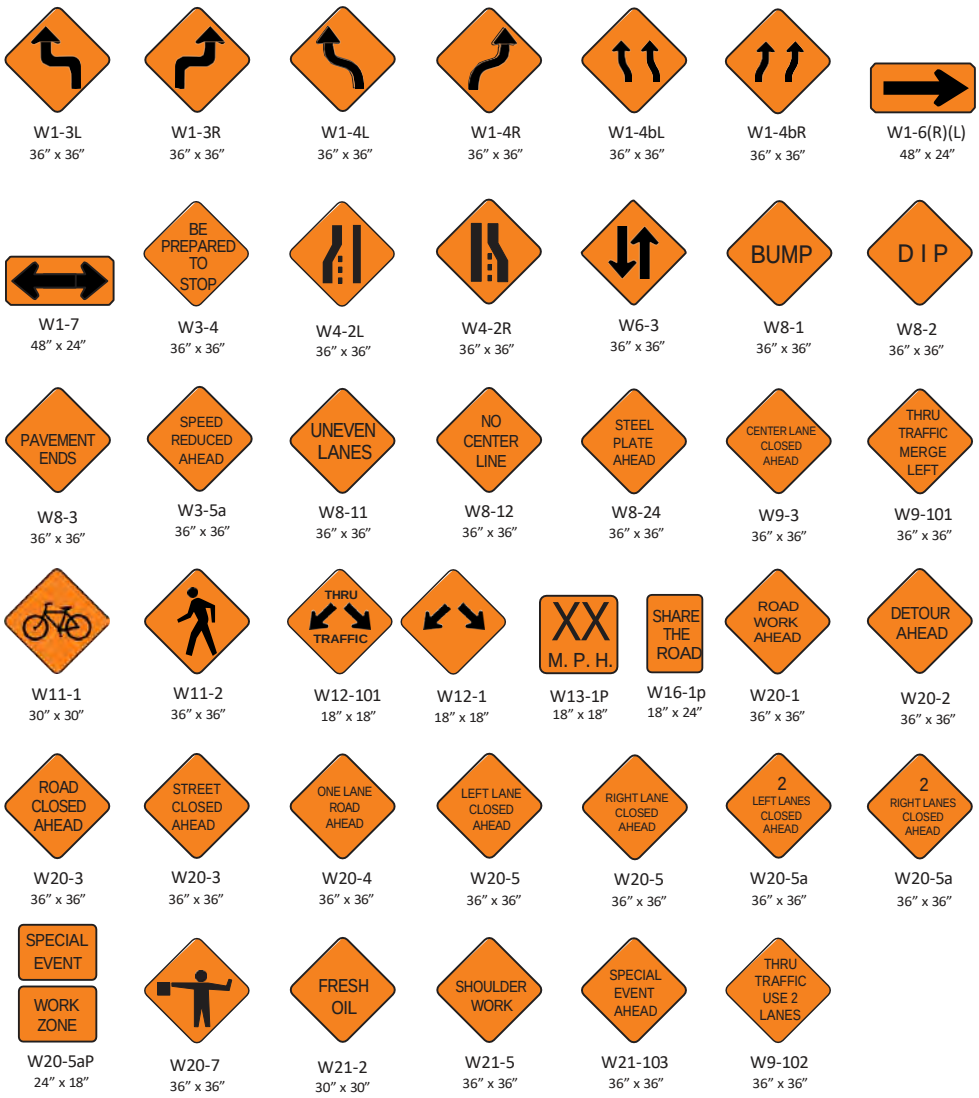
Detail: FIG-02

Recommended Advance Warning Sign Minimum Spacing			
Design or Posted Speed	Distance Between Signs		
	A	B	C
Speed Limit 30 mph or less	100 feet	100 feet	100 feet
Speed Limit 35-45 mph	350 feet	350 feet	350 feet
Speed Limit great than 45 mph	500 feet	500 feet	500 feet
Ref. Section 3.61 of this manual for speed limit detail.			

Taper Length Criteria for Temporary Traffic Control Zones	
Type of Taper	Taper Length
Merging Taper	at least L
Shifting Taper	at least 0.5 L
Shoulder Taper	at least 0.33 L
One-Lane, Two-Way Traffic Taper	50 feet min., 100 feet max.
Downstream Taper	50 feet min., 100 feet max.
Ref. Table 6C-3 Taper Length Criteria for Temporary Traffic Control Zones	

Formulas for Determining Taper Lengths	
Speed Limit	Formula
40 mph or less	$L = WS^2 / 60$
45 mph or greater	$L = WS$
L= Taper Length (ft) W = Width of Lane (ft) *S = Posted Speed Limit (mph)*	
Ref. Table 6C-4 Taper Length Criteria in the MUTCD	

Typical Taper Lengths				
Speed Limit (mph)	Taper Length (L) (feet) Lane Width:			Spacing Between Devices (feet)
	10'	11'	12'	
25	104	115	125	25*
30	150	165	185	30
35	204	225	245	35
40	267	293	320	40
45	450	495	540	45
50	500	550	600	50
55	550	605	660	55



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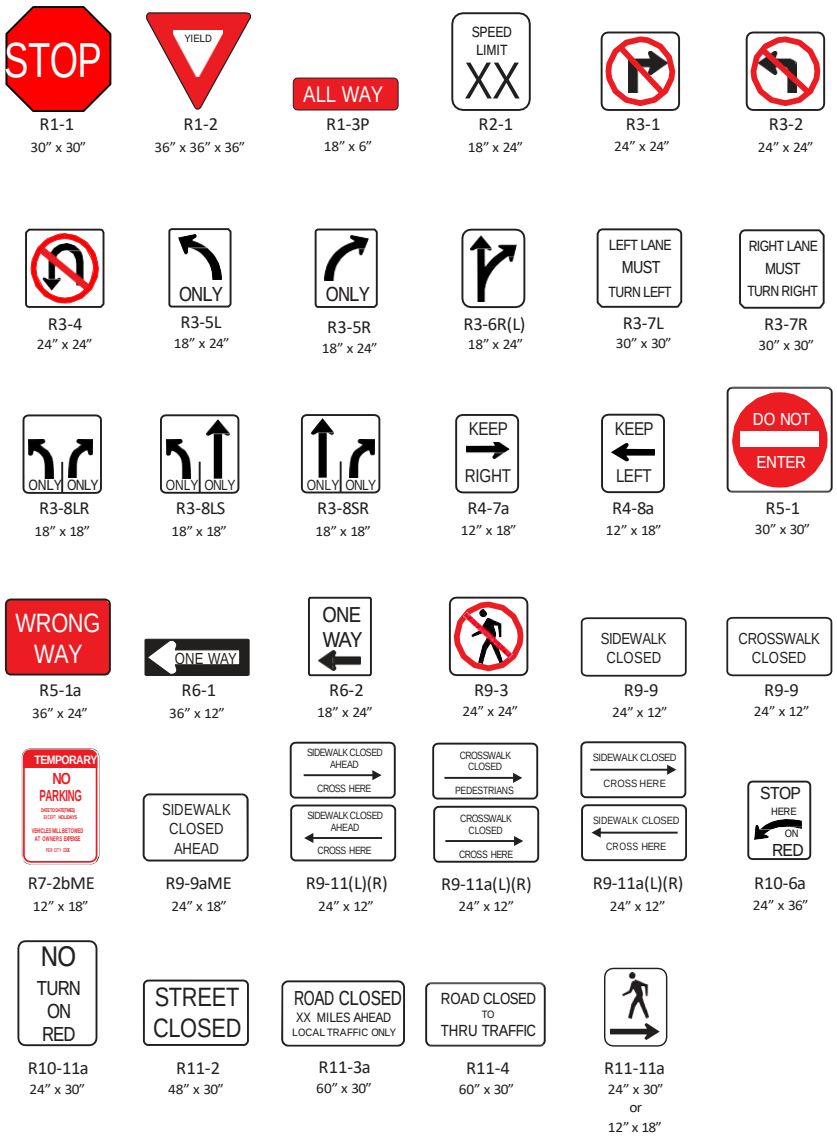
City of Mesa Department of Transportation
Traffic Engineering Department

WARNING SIGNS

Date
12-30-24

Detail
FIG-04



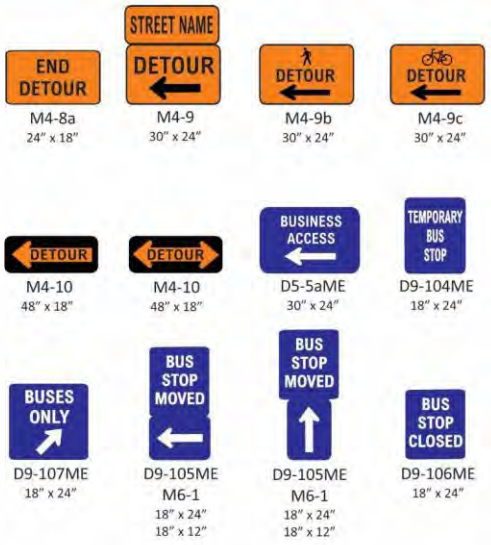
mesa·az

City of Mesa Department of Transportation
Traffic Engineering Department

REGULATORY SIGNS

Date
12-30-24

Detail
FIG-05



Note: Referenced sign sizes are minimum requirements.

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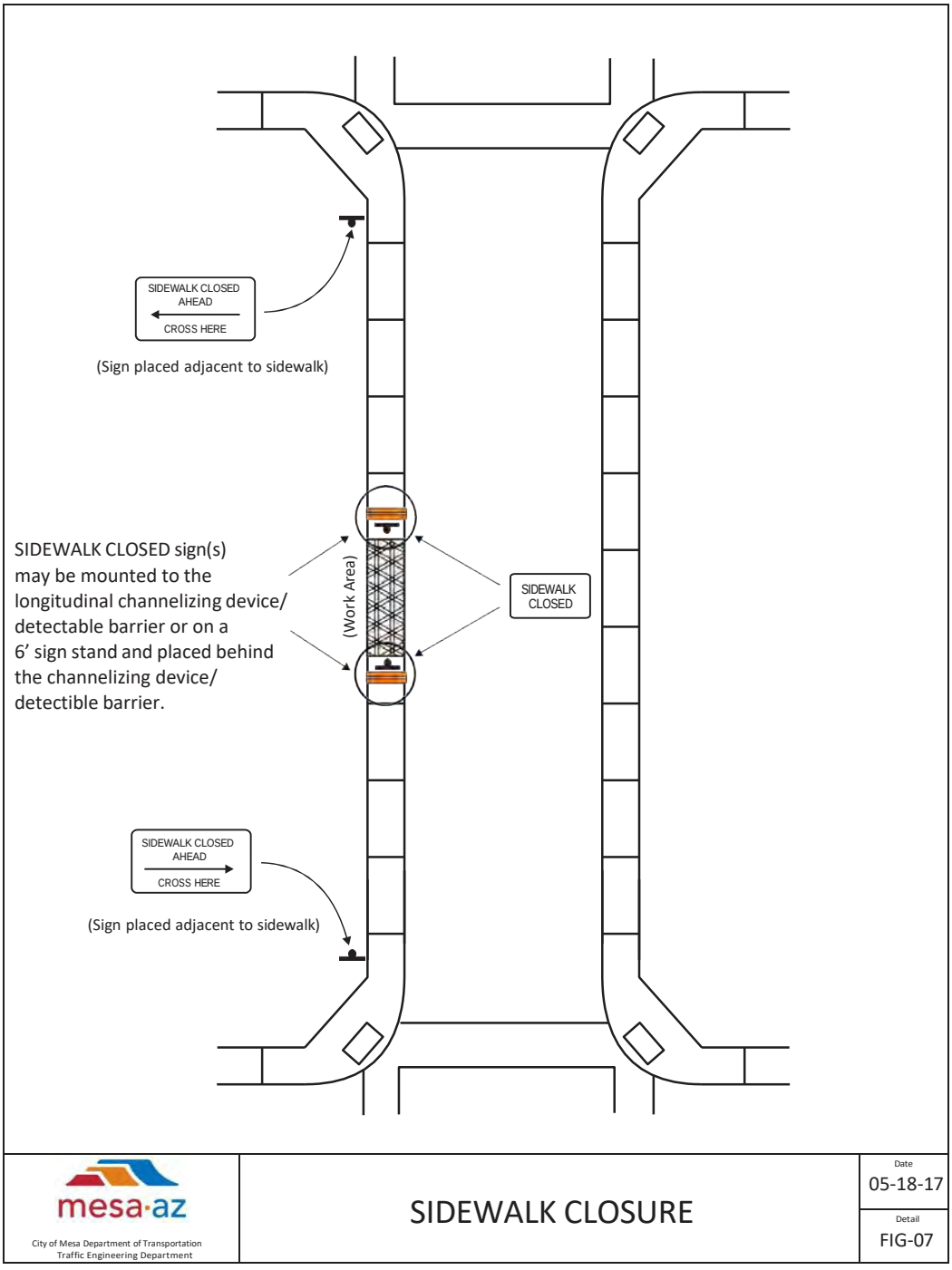
GUIDE SIGNS

Date
11-18-16

Detail
FIG-06


SIDEWALK CLOSED AHEAD
CROSS HERE
(Sign placed adjacent to sidewalk)
SIDEWALK CLOSED sign(s) may be mounted to the longitudinal channelizing device/ detectable barrier or on a 6' sign stand and placed behind the channelizing device/ detectible barrier.
(Work Area)
SIDEWALK CLOSED
SIDEWALK CLOSED AHEAD
CROSS HERE
(Sign placed adjacent to sidewalk)
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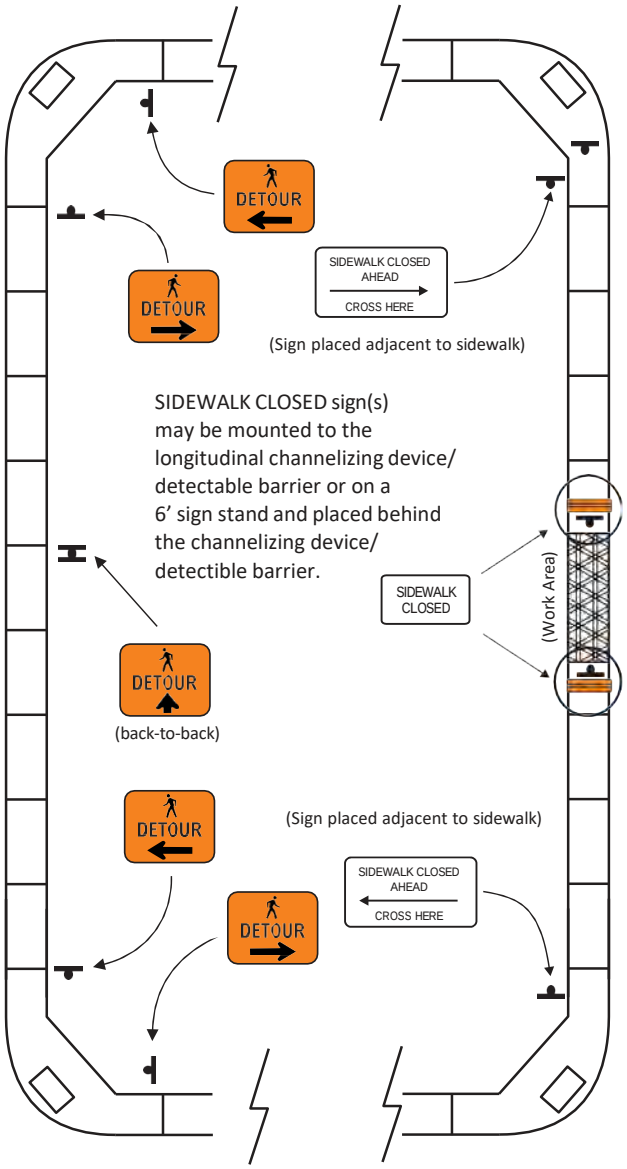
Traffic Engineering Department
SIDEWALK CLOSURE
Date
05-18-17
Detail
FIG-07



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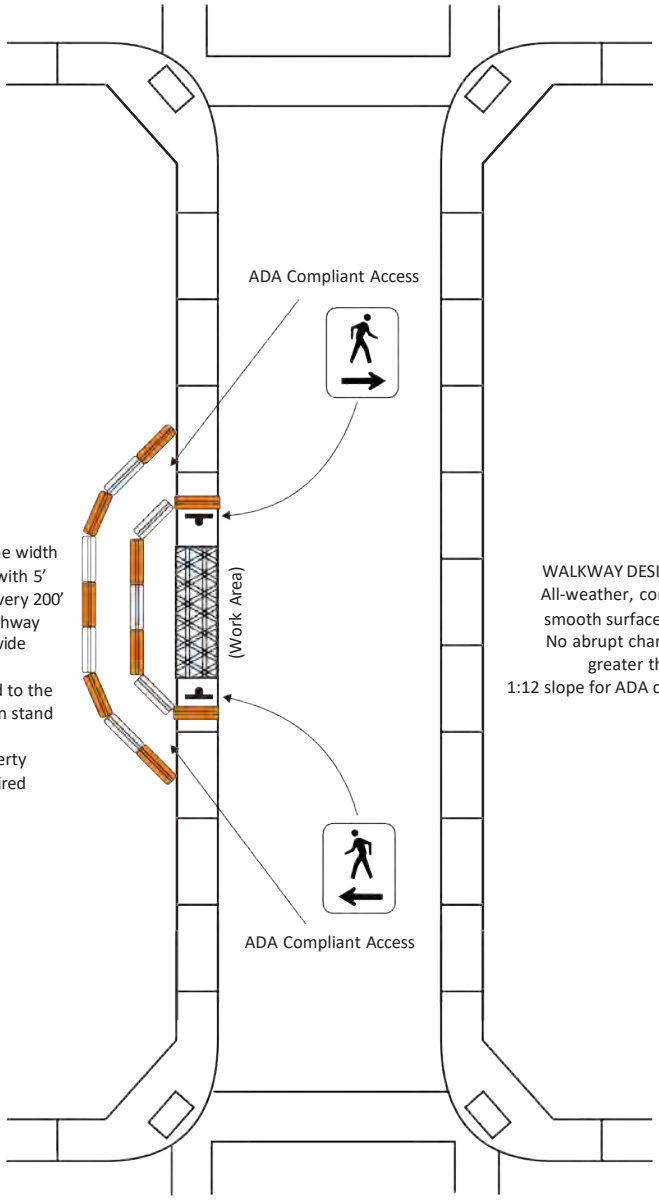
SIDEWALK CLOSURE

Pedestrian Detour

Date: 05-28-17

Detail: FIG-08



Min. width is equal to the width of the existing facility with 5' passing opportunities every 200' if the temporary pathway is not already 5' wide

R11-11 may be mounted to the wall or on a portable sign stand

Approval from property owner may be required

WALKWAY DESIGN FEATURES
All-weather, compacted, level, smooth surface w/dust control
No abrupt change in elevation greater than 1/4"
1:12 slope for ADA compliant ramping

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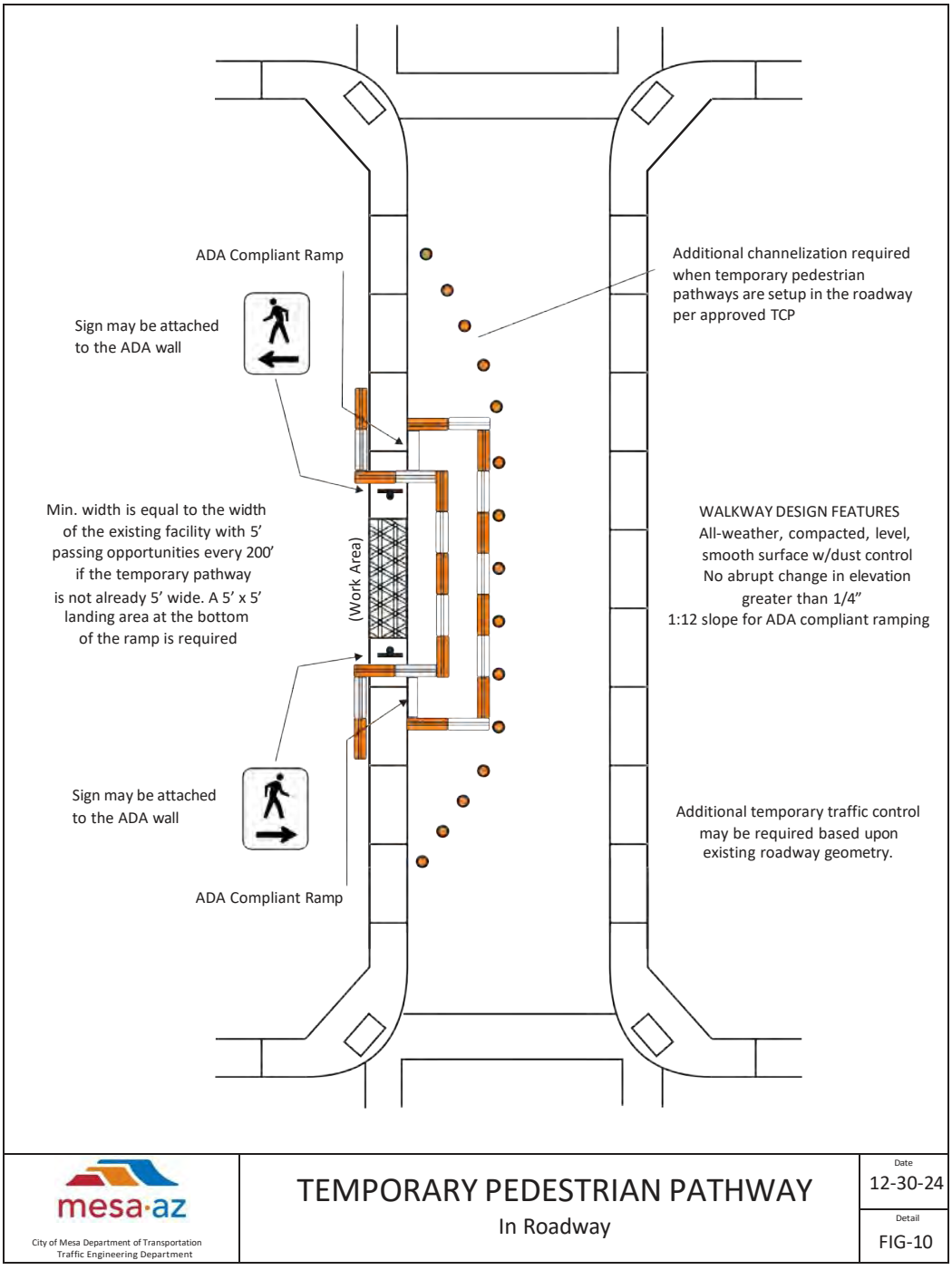
TEMPORARY PEDESTRIAN PATHWAY

Behind Sidewalk

Date
12.30.24

Detail
FIG-09


ADA Compliant Ramp
Sign may be attached to the ADA wall
Min. width is equal to the width of the existing facility with 5' passing opportunities every 200' if the temporary pathway is not already 5' wide. A 5' x 5' landing area at the bottom of the ramp is required
(Work Area)
Sign may be attached to the ADA wall
ADA Compliant Ramp
Additional channelization required when temporary pedestrian pathways are setup in the roadway per approved TCP
WALKWAY DESIGN FEATURES
All-weather, compacted, level, smooth surface w/dust control
No abrupt change in elevation greater than 1/4"
1:12 slope for ADA compliant ramping
Additional temporary traffic control may be required based upon existing roadway geometry.
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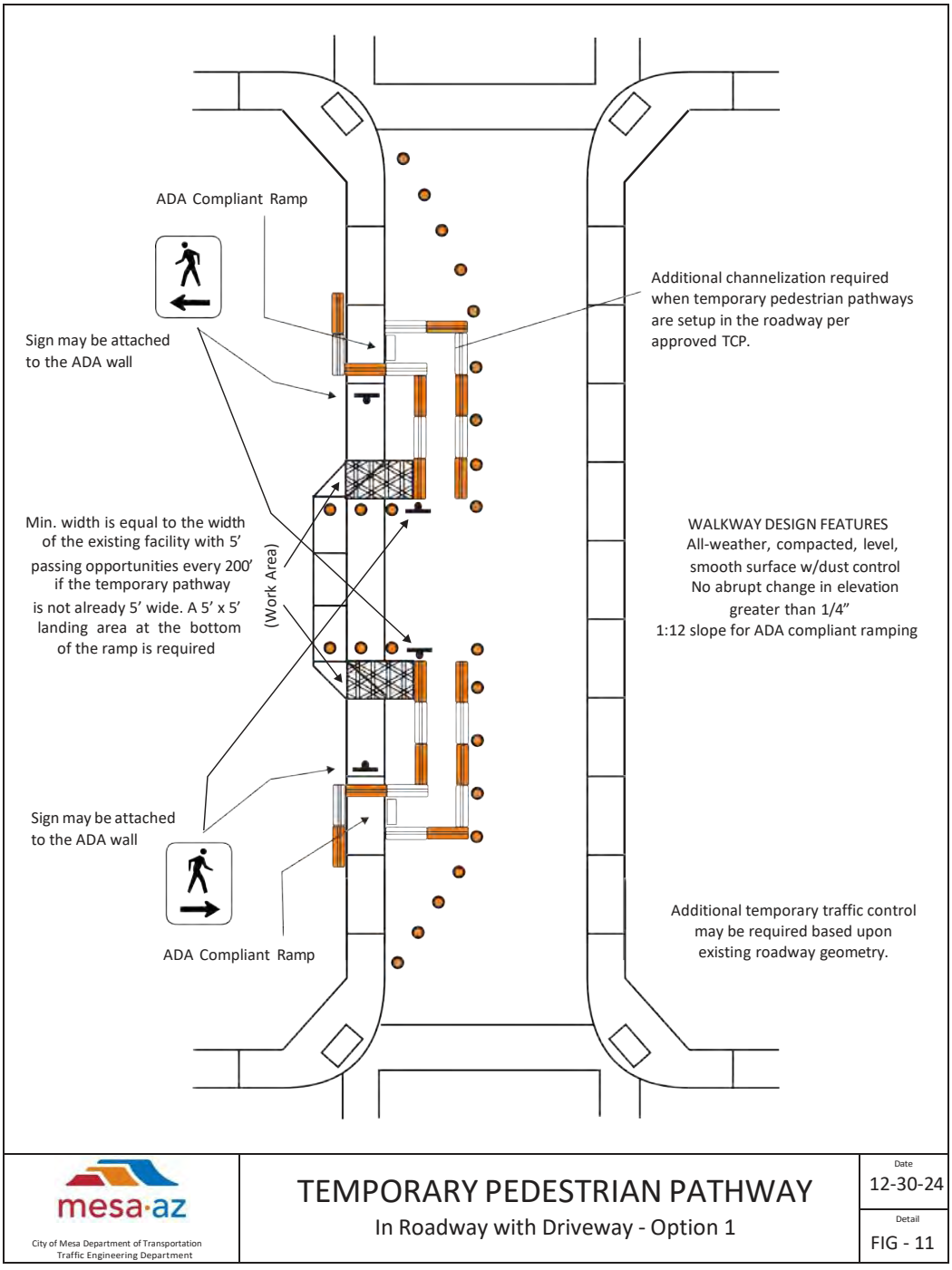
TEMPORARY PEDESTRIAN PATHWAY
In Roadway
Date
12-30-24
Detail
FIG-10



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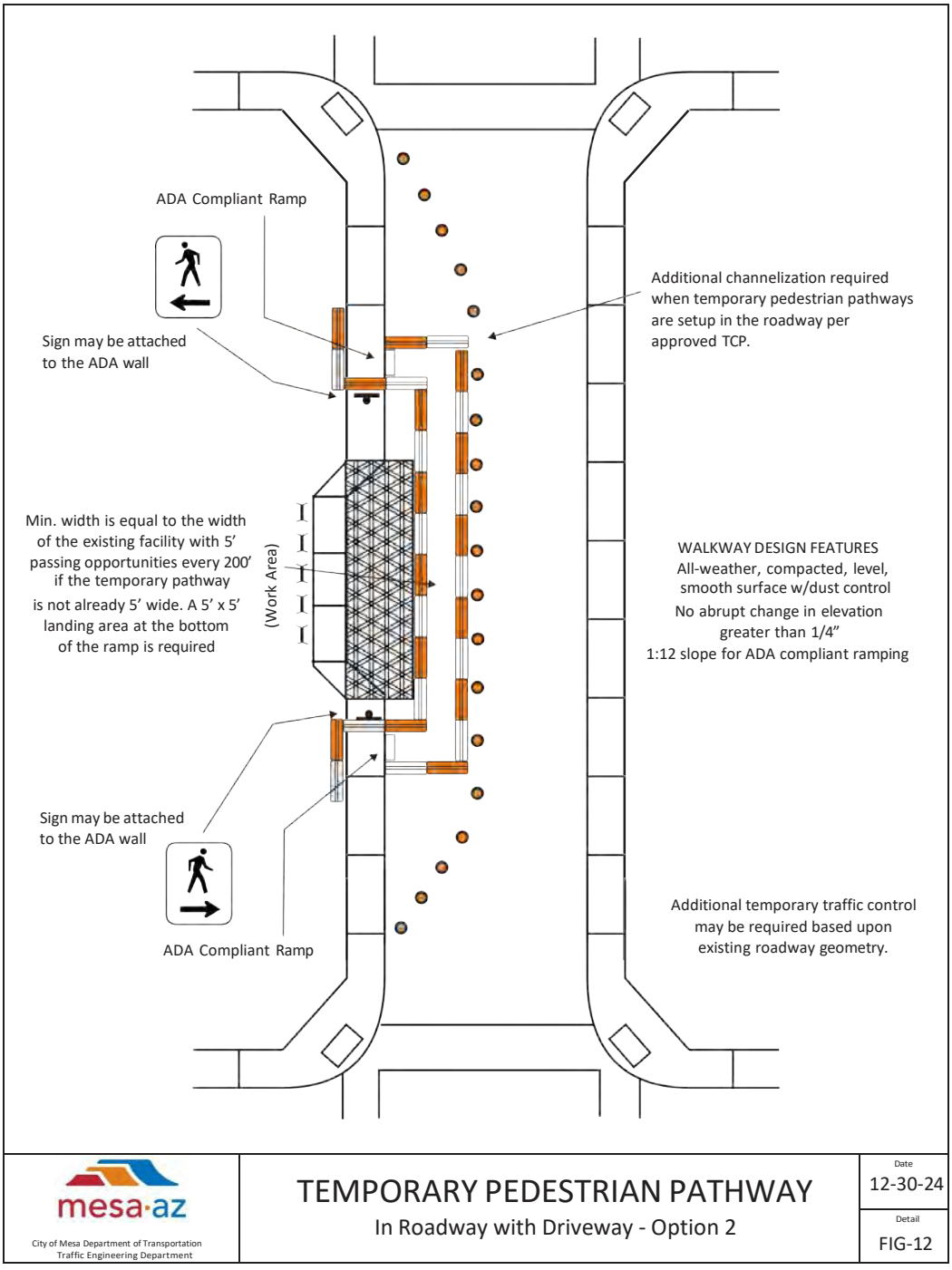
TEMPORARY PEDESTRIAN PATHWAY

In Roadway with Driveway - Option 1

Date: 12-30-24

Detail: FIG - 11



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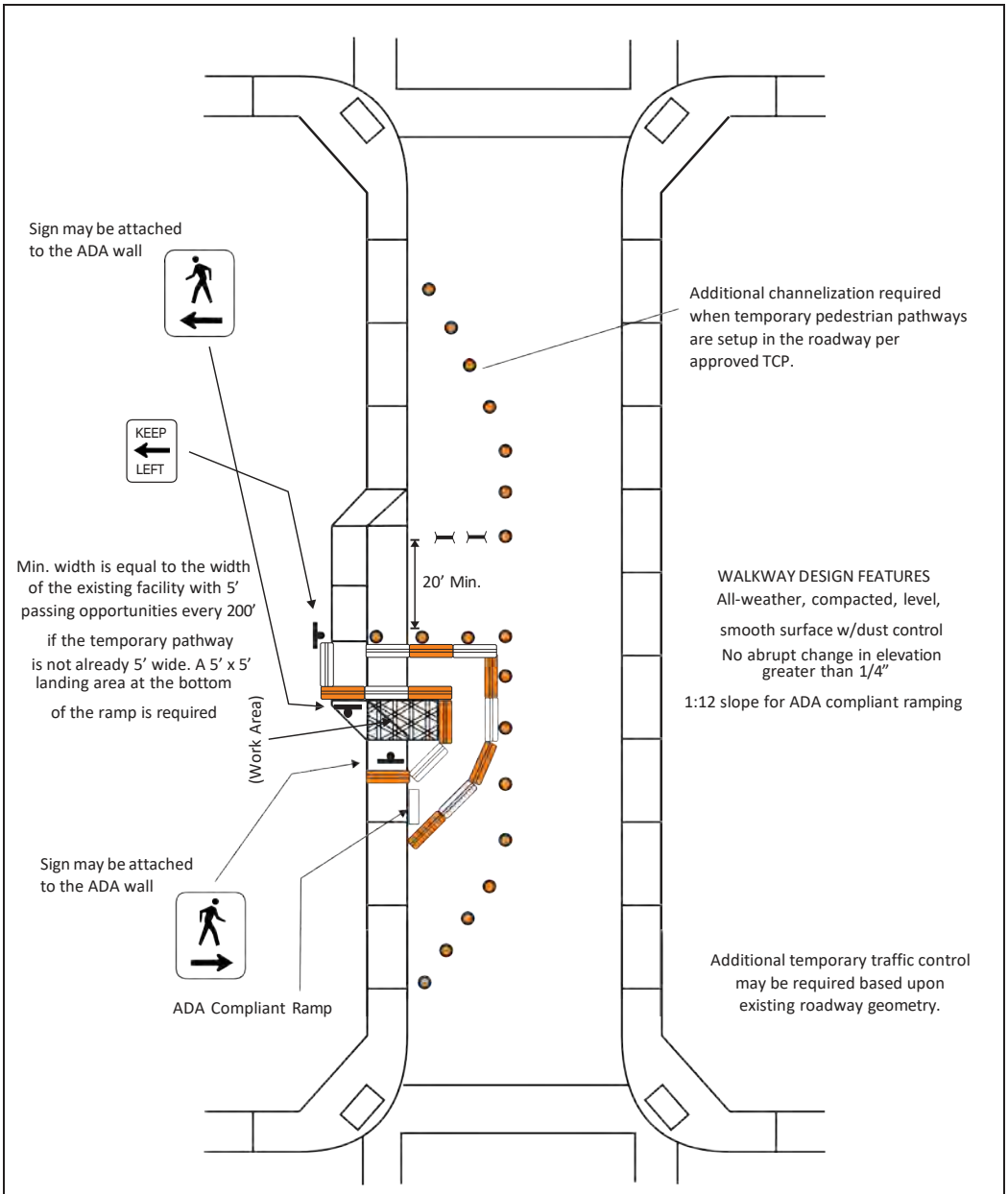
TEMPORARY PEDESTRIAN PATHWAY

In Roadway with Driveway - Option 2

Date: 12-30-24

Detail: FIG-12



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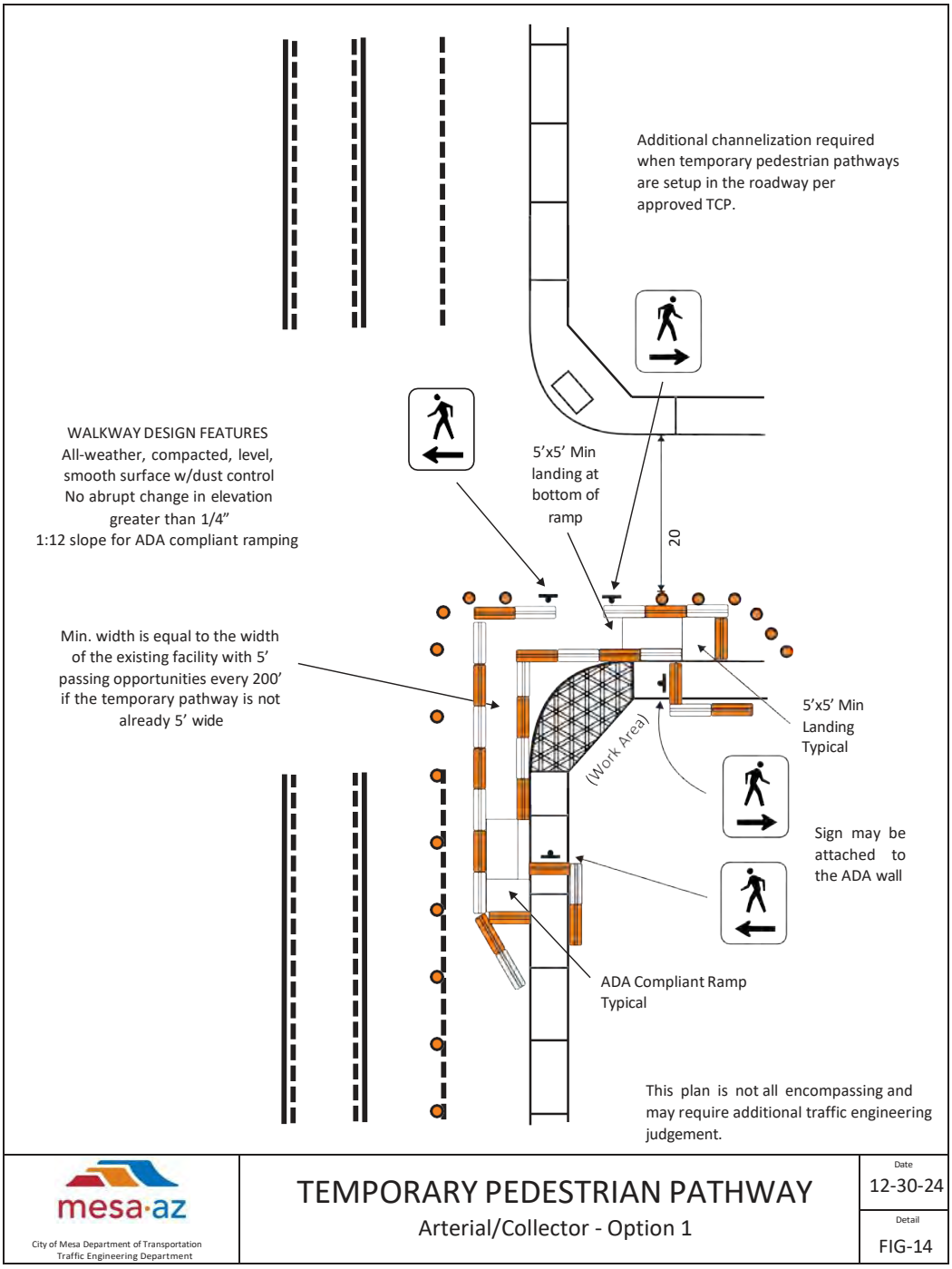
TEMPORARY PEDESTRIAN PATHWAY

In Roadway with Driveway - Option 3

Date: 12-30-24

Detail: FIG-13


Additional channelization required when temporary pedestrian pathways are setup in the roadway per approved TCP.
WALKWAY DESIGN FEATURES
All-weather, compacted, level, smooth surface w/dust control
No abrupt change in elevation greater than 1/4"
1:12 slope for ADA compliant ramping
5'x5' Min landing at bottom of ramp
20
Min. width is equal to the width of the existing facility with 5' passing opportunities every 200' if the temporary pathway is not already 5' wide
(Work Area)
5'x5' Min Landing Typical
Sign may be attached to the ADA wall
ADA Compliant Ramp Typical
This plan is not all encompassing and may require additional traffic engineering judgement.
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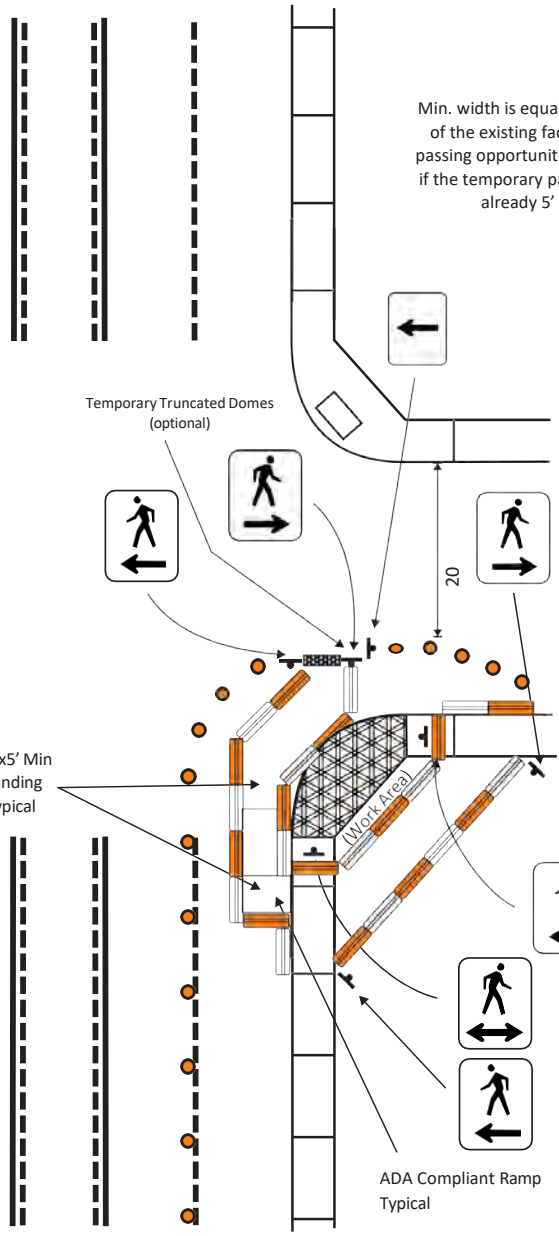
TEMPORARY PEDESTRIAN PATHWAY
Arterial/Collector - Option 1
Date
12-30-24
Detail
FIG-14

This plan is not all encompassing and shall require additional traffic engineering judgement.



WALKWAY DESIGN FEATURES
All-weather, compacted, level, smooth surface w/dust control
No abrupt change in elevation greater than 1/4"
1:12 slope for ADA compliant ramping

Additional temporary traffic control shall be required to implement a temporary pedestrian pathway as shown.

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TEMPORARY PEDESTRIAN PATHWAY

Arterial/Collector - Option 2

Date: 12-30-24

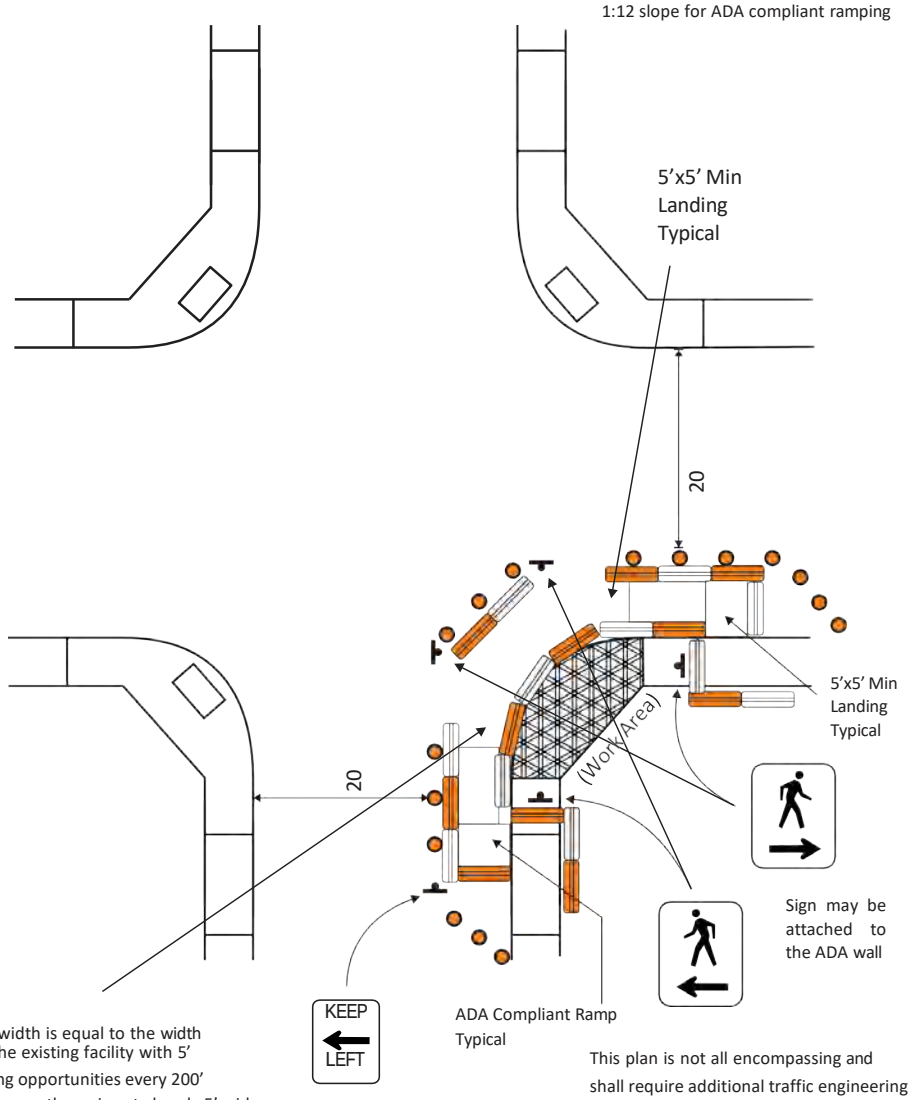
Detail: FIG-15

NOTE:

Parking prohibition and additional temporary traffic control shall be needed based upon existing roadway geometry and residential/ business access considerations.

WALKWAY DESIGN FEATURES

All-weather, compacted, level, smooth surface w/dust control
No abrupt change in elevation greater than 1/4"
1:12 slope for ADA compliant ramping



Min. width is equal to the width of the existing facility with 5' passing opportunities every 200' if the temporary pathway is not already 5' wide

This plan is not all encompassing and shall require additional traffic engineering judgement.

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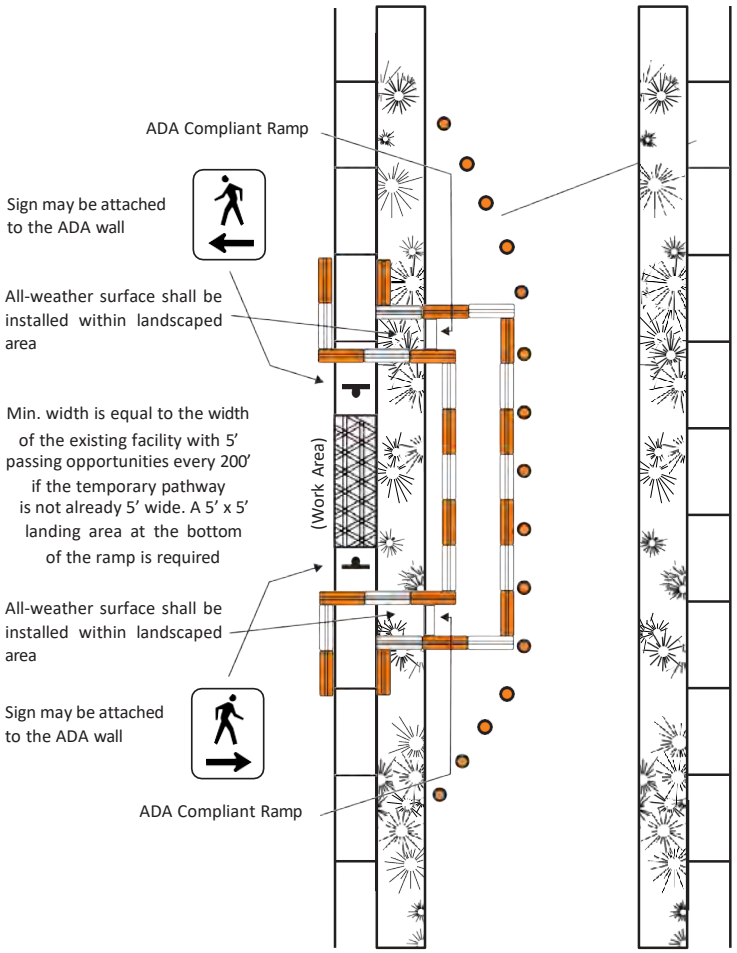
TEMPORARY PEDESTRIAN PATHWAY

Local Street

Date: 12-30-24

Detail: FIG-16



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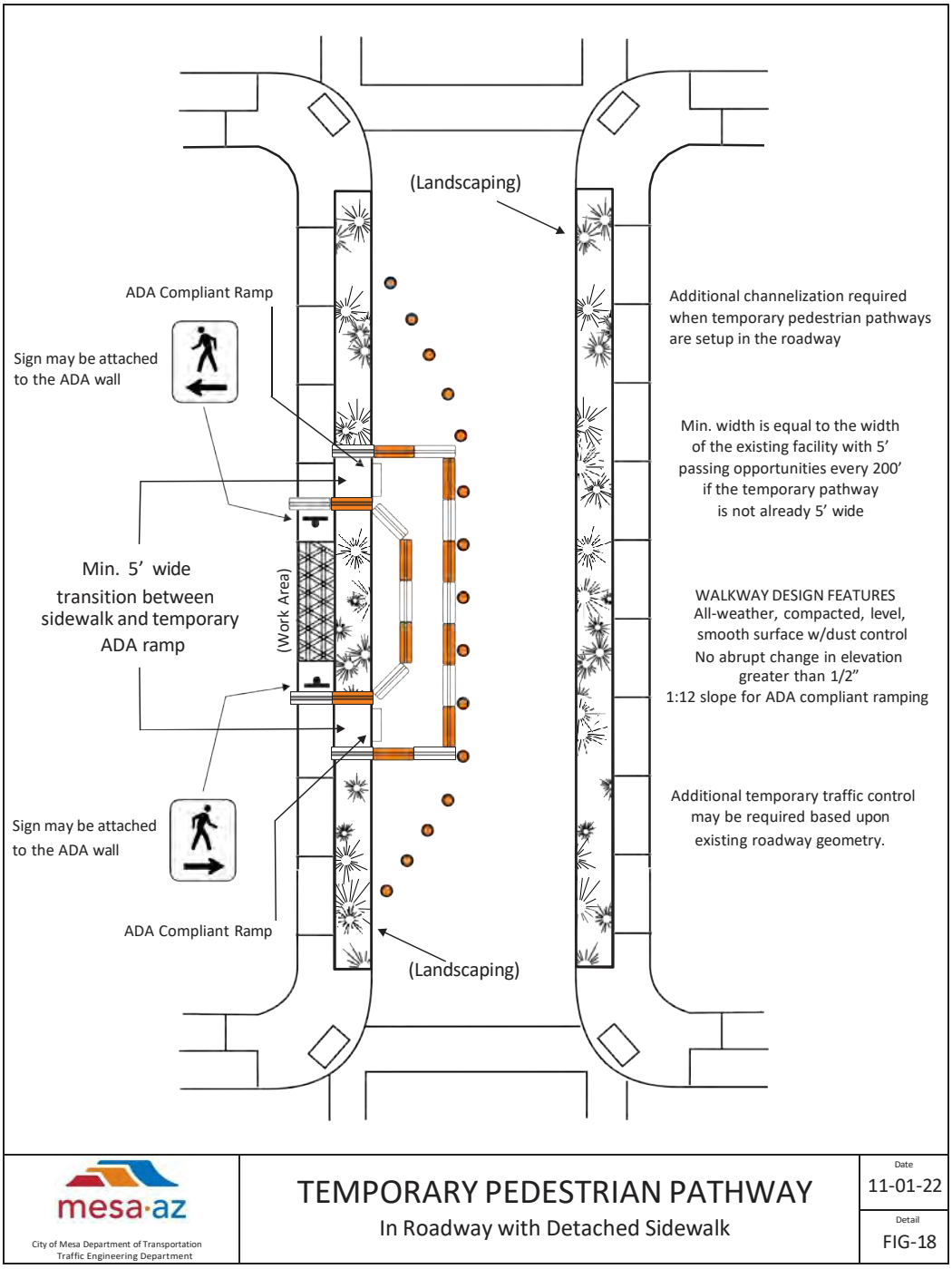
TEMPORARY PEDESTRIAN PATHWAY

With detached Sidewalk In Roadway

Date: 12-30-24

Detail: FIG-17



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TEMPORARY PEDESTRIAN PATHWAY

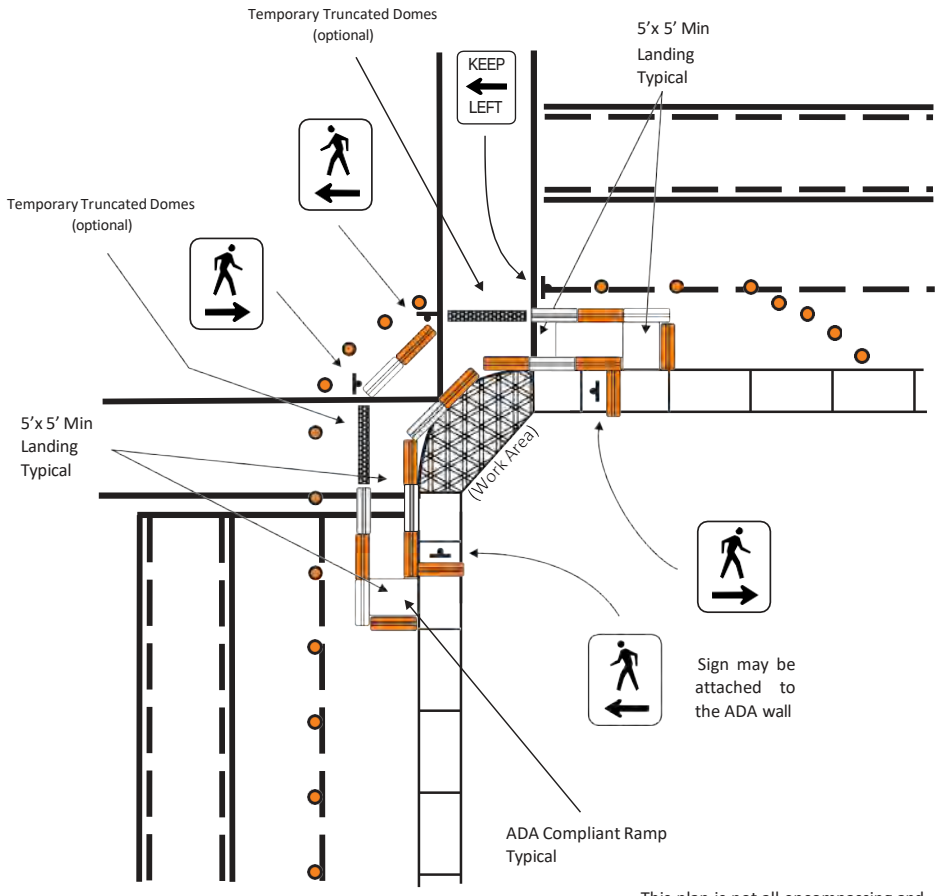
In Roadway with Detached Sidewalk

Date: 11-01-22

Detail: FIG-18

WALKWAY DESIGN FEATURES
All-weather, compacted, level, smooth surface w/dust control
No abrupt change in elevation greater than 1/2"
1:12 slope for ADA compliant ramping

Min. width is equal to the width of the existing facility with 5' passing opportunities every 200' if the temporary pathway is not already 5' wide



Additional temporary traffic control may be required to implement a temporary pedestrian pathway as shown.

This plan is not all encompassing and may require additional traffic engineering judgement.

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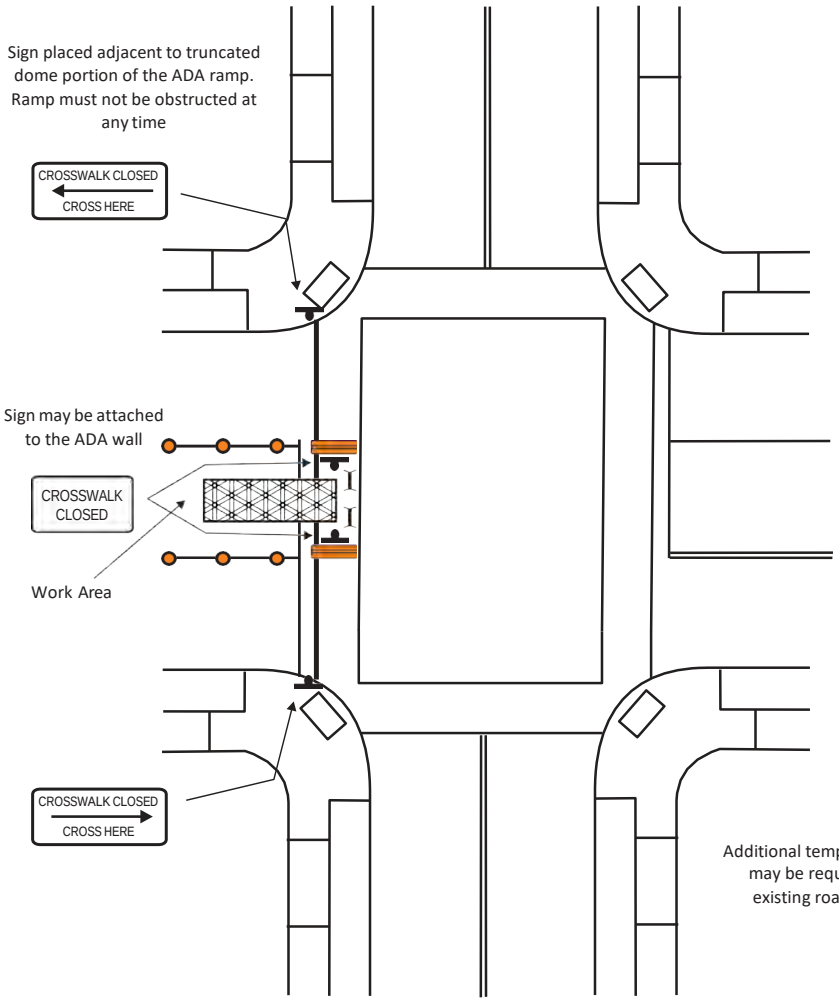
TEMPORARY PEDESTRIAN PATHWAY
Arterial - Option 1

Date: 04-17-23
Detail: FIG-19



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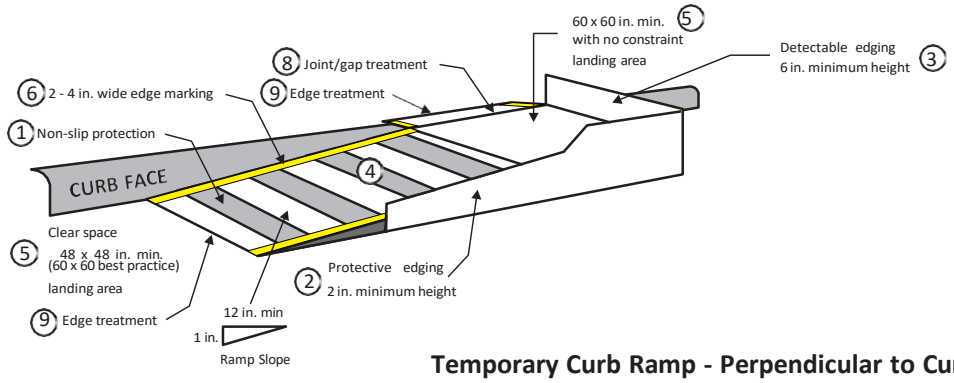
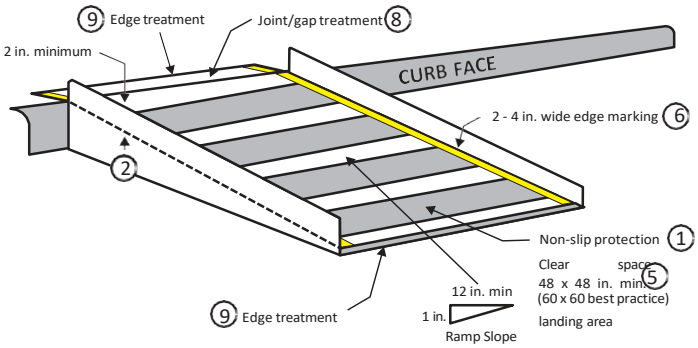
Temporary Curb Ramp - Parallel to Curb



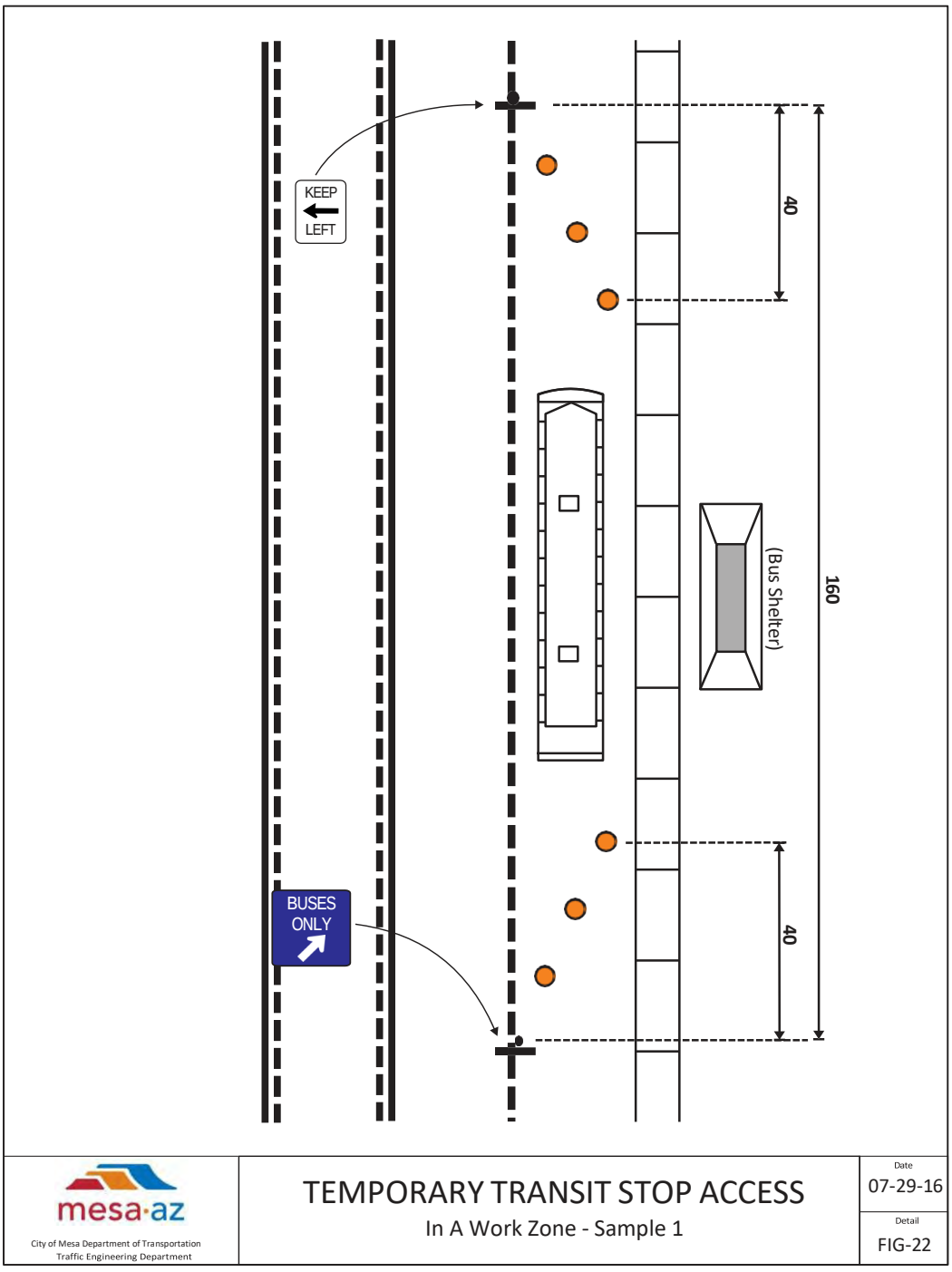
Temporary Curb Ramp - Perpendicular to Curb



NOTES:

1. Curb ramps shall be 48 in. minimum width (60 x 60 in. best practice) with a firm, stable and non-slip surface.
2. Protective edging with a 2in. minimum height shall be installed when the curb ramp or landing platform has a vertical drop of 6 in. or greater or has a side apron slope steeper than 1:3 (33%). Protective edging should be considered when curb ramps or landing platforms have a vertical drop of 3 in. or more.
3. Detectible edging with 6 in. minimum height and contrasting color shall be installed on all curb ramp landings where the walkway changes direction (turns).
4. Curb ramps and landings should have a 1:50 (2%) max. cross-slope.
5. Clear space of 60 x 60 in. minimum shall be provided at the top for parallel ramps and a clear space of 48 x 48 in. minimum (60 x 60 in. best practice) above and below all other curb ramps.
6. The curb ramp walkway edge shall be marked with contrasting color 2 to 4 in. wide marking. The marking is optional where color contrasting edging is used.
7. Water flow in the gutter system shall not be restricted.
8. Lateral joints or gaps between surfaces shall be less than 0.5 in. width.
9. Changes between surface heights should not exceed 0.5 in. lateral edges should be vertical up to 0.25 in. high, and beveled at 1:2 between 0.25 in. and 0.5 in. height.

mesa·az City of Mesa Department of Transportation Traffic Engineering Department	TYPICAL ADA PEDESTRIAN DEVICES	Date 07-29-16 Detail FIG-21


KEEP
LEFT
40
160
(Bus Shelter)
BUSES
ONLY
40
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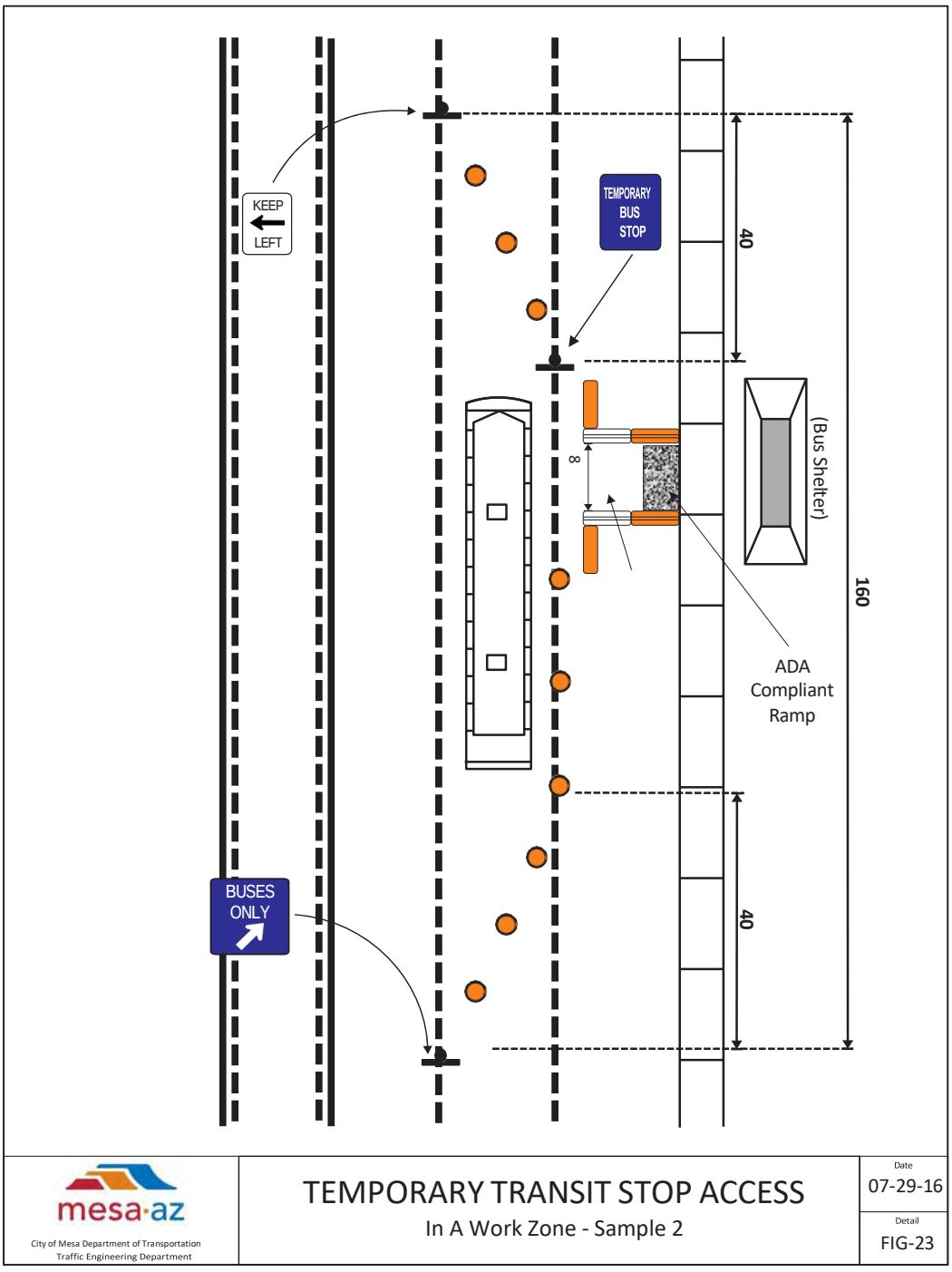
TEMPORARY TRANSIT STOP ACCESS
In A Work Zone - Sample 1
Date
07-29-16
Detail
FIG-22


KEEP
LEFT
TEMPORARY
BUS
STOP
40
8
(Bus Shelter)
160
ADA
Compliant
Ramp
BUSES
ONLY
40
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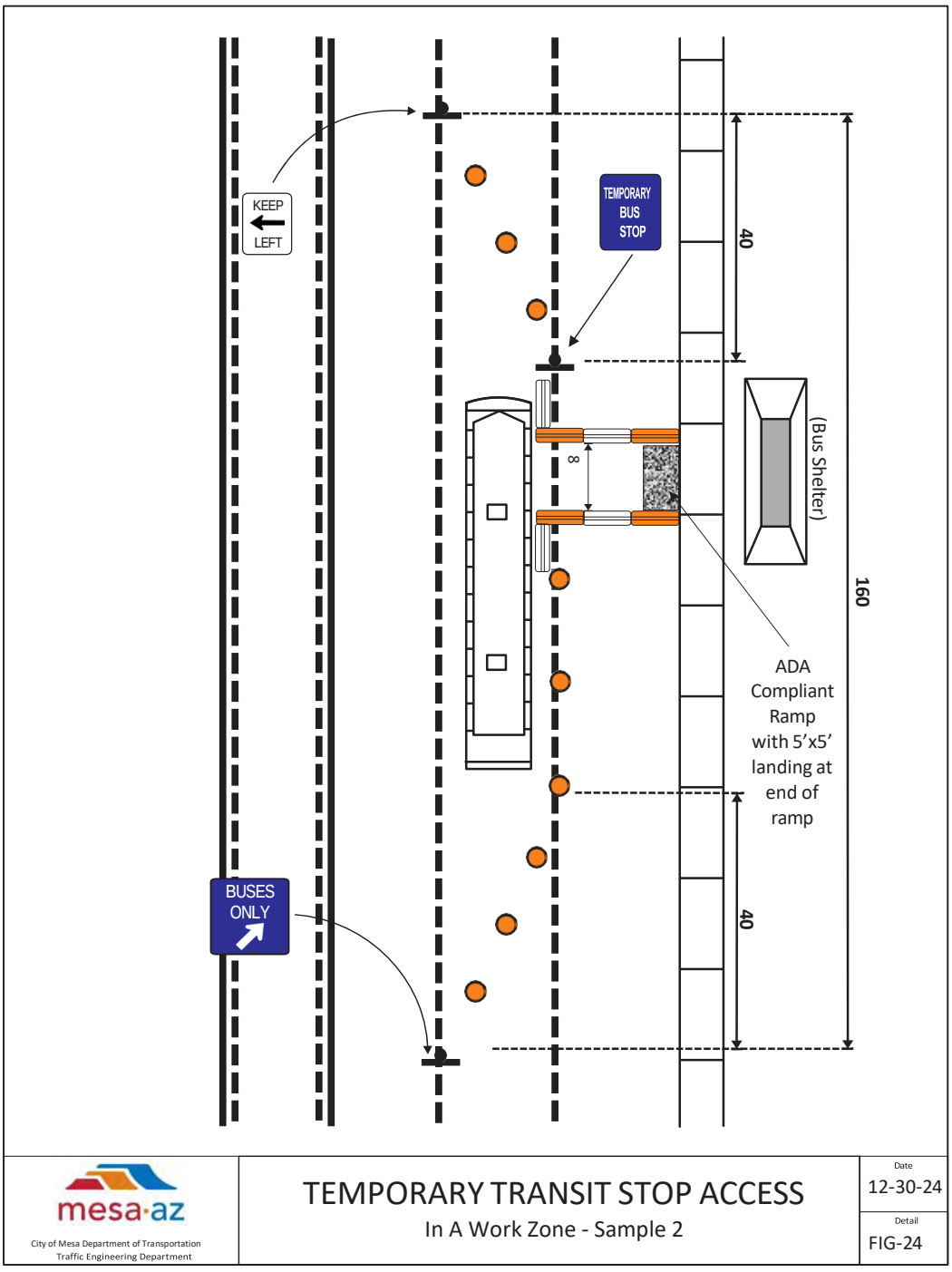
TEMPORARY TRANSIT STOP ACCESS
In A Work Zone - Sample 2
Date
07-29-16
Detail
FIG-23


KEEP
LEFT
TEMPORARY
BUS
STOP
40
8
(Bus Shelter)
160
ADA
Compliant
Ramp
with 5'x5'
landing at
end of
ramp
40
BUSES
ONLY
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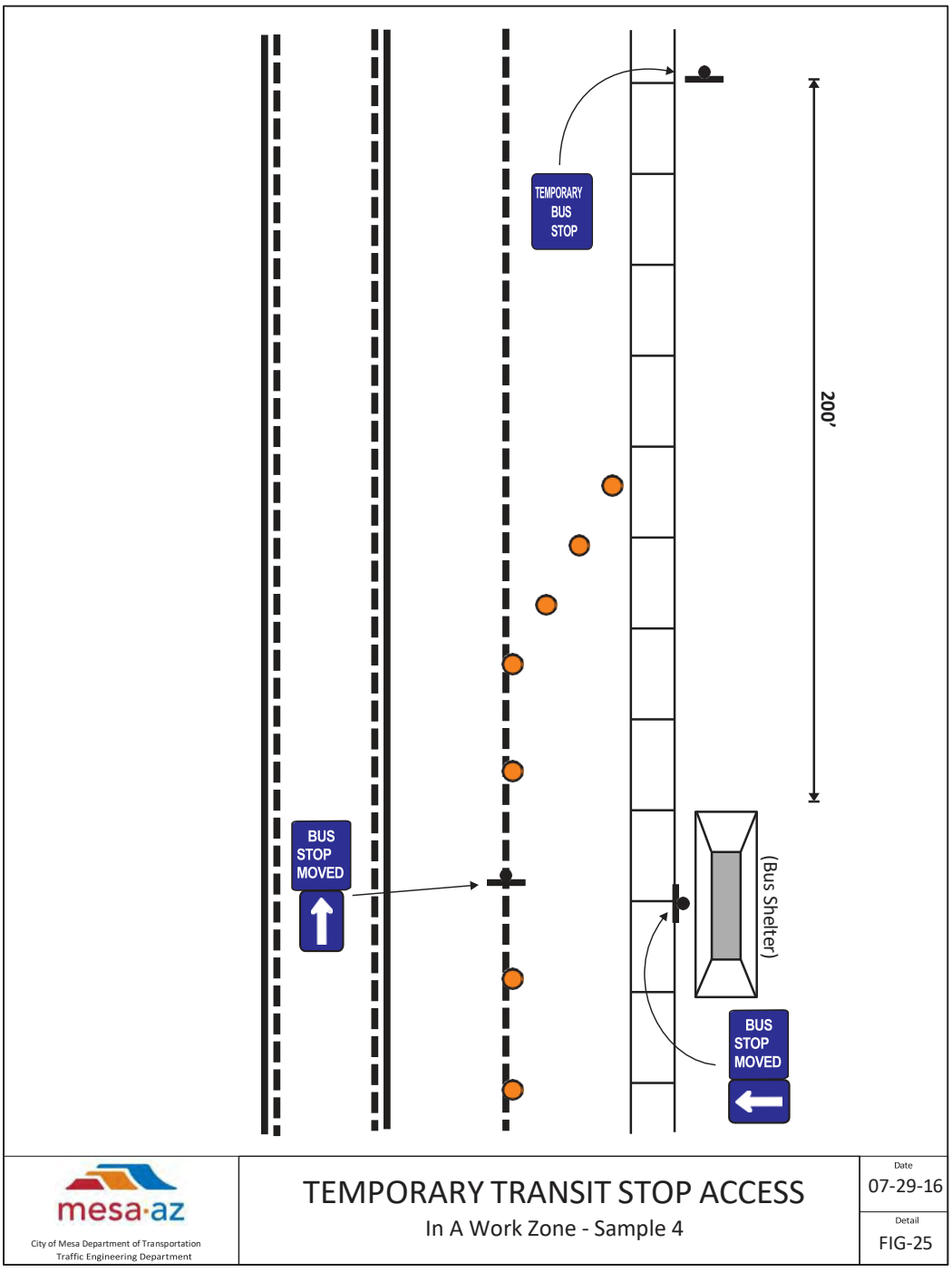
TEMPORARY TRANSIT STOP ACCESS
In A Work Zone - Sample 2
Date
12-30-24
Detail
FIG-24


TEMPORARY
BUS
STOP
200'
BUS
STOP
MOVED
(Bus Shelter)
BUS
STOP
MOVED
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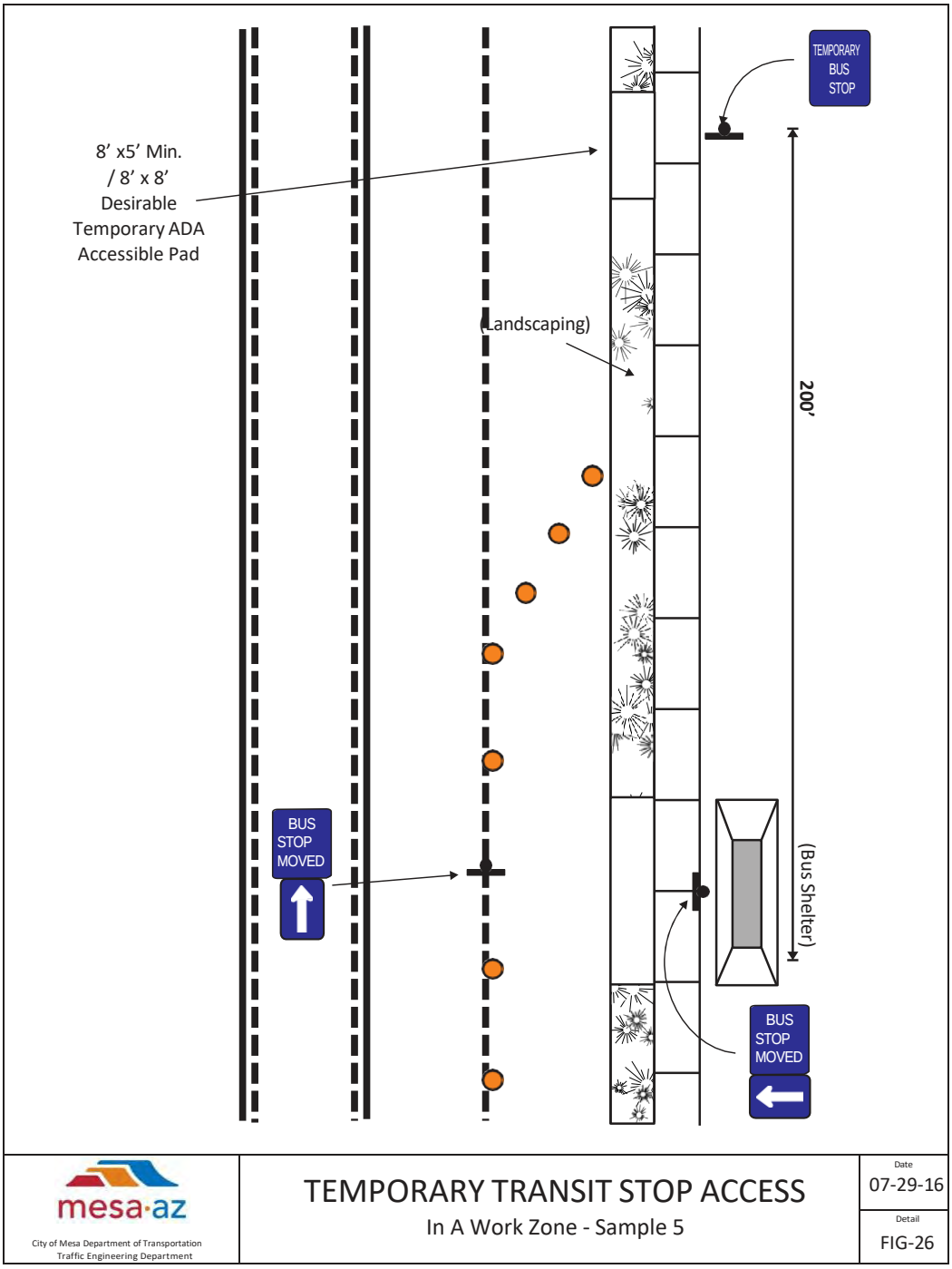
TEMPORARY TRANSIT STOP ACCESS
In A Work Zone - Sample 4
Date
07-29-16
Detail
FIG-25



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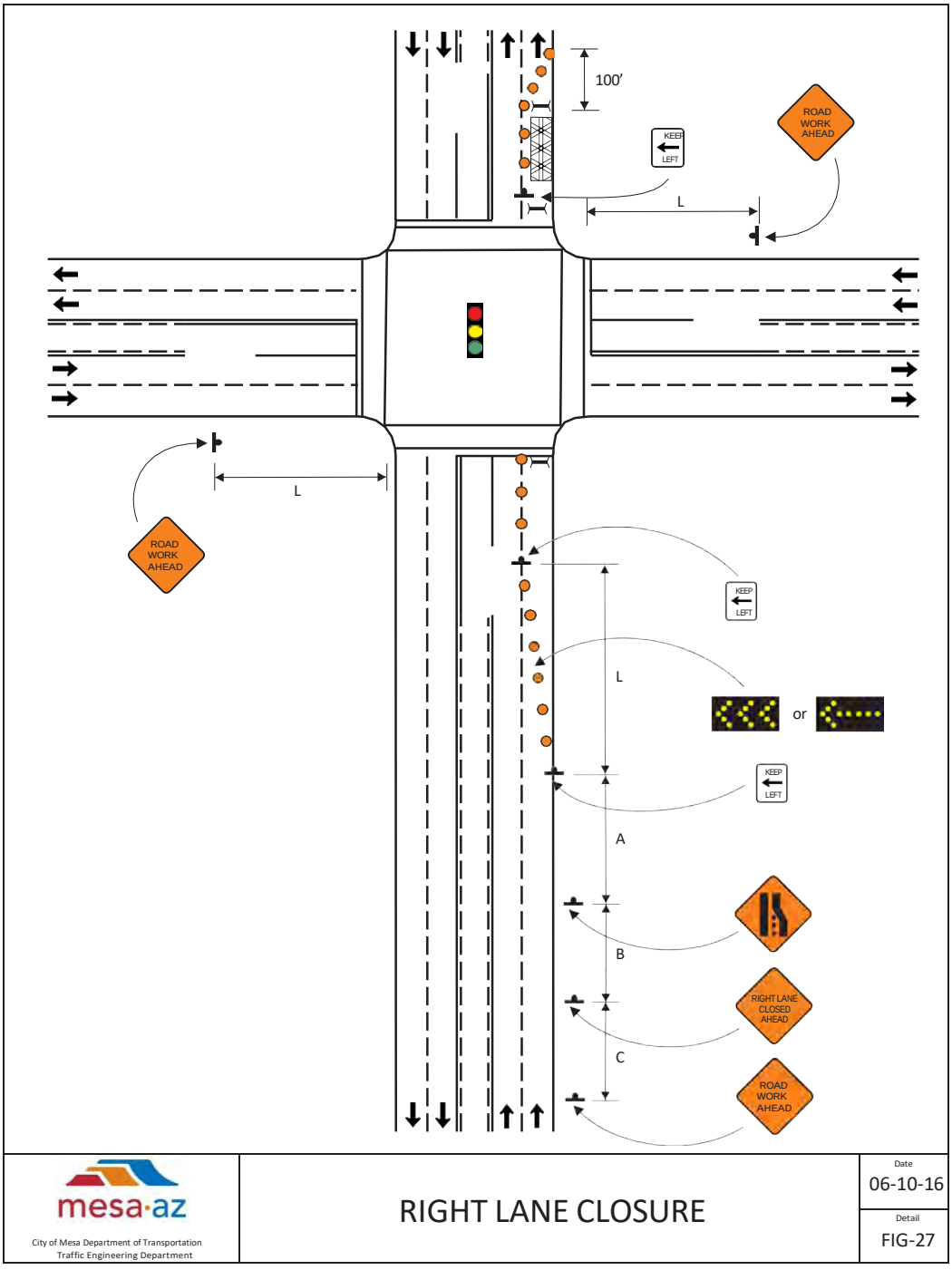
TEMPORARY TRANSIT STOP ACCESS

In A Work Zone - Sample 5

Date
07-29-16

Detail
FIG-26



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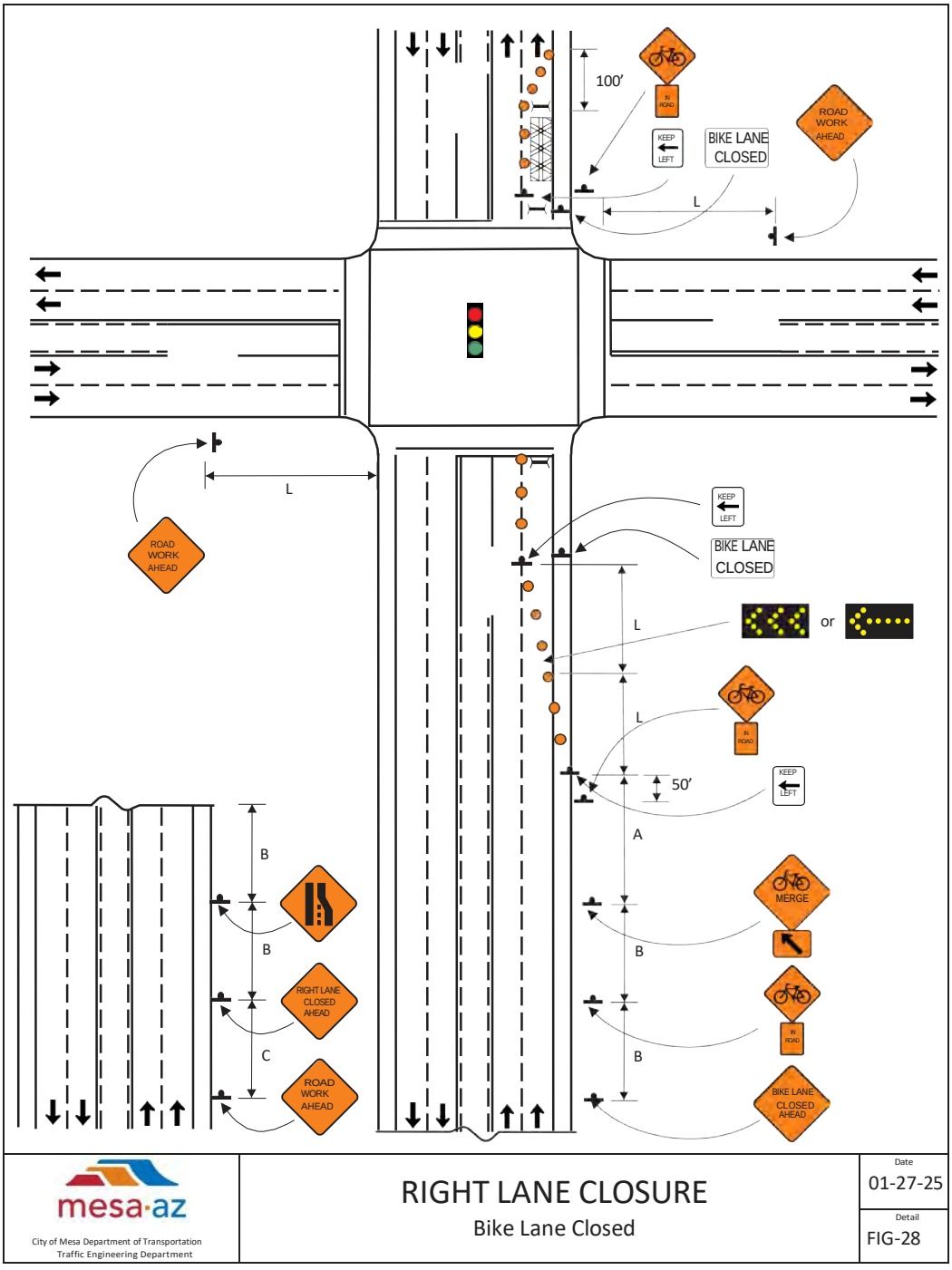
RIGHT LANE CLOSURE

Date
06-10-16

Detail
FIG-27



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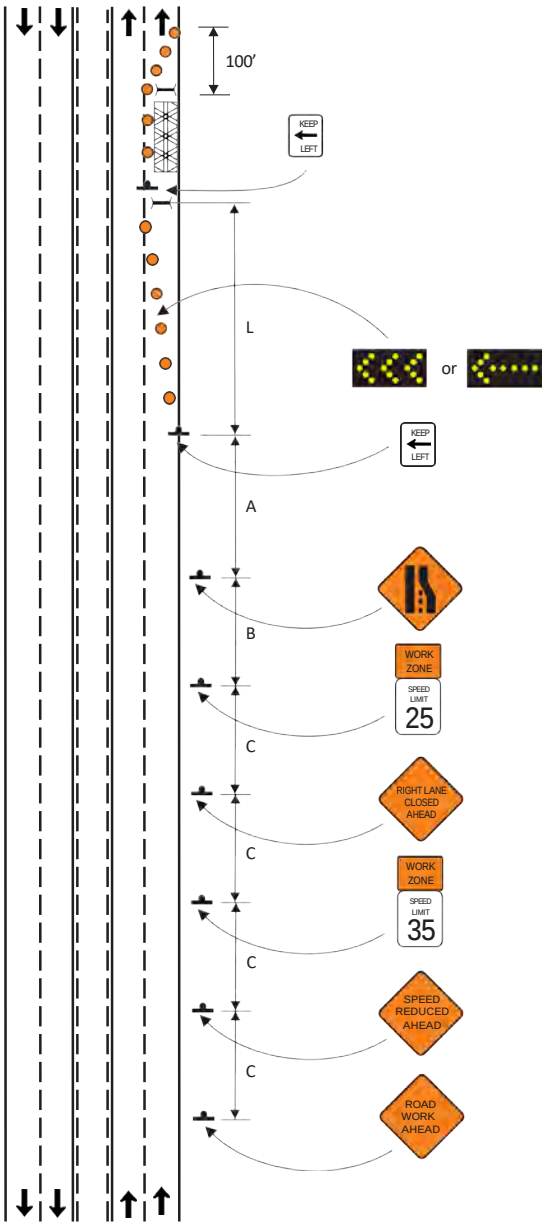
RIGHT LANE CLOSURE

Bike Lane Closed

Date: 01-27-25

Detail: FIG-28



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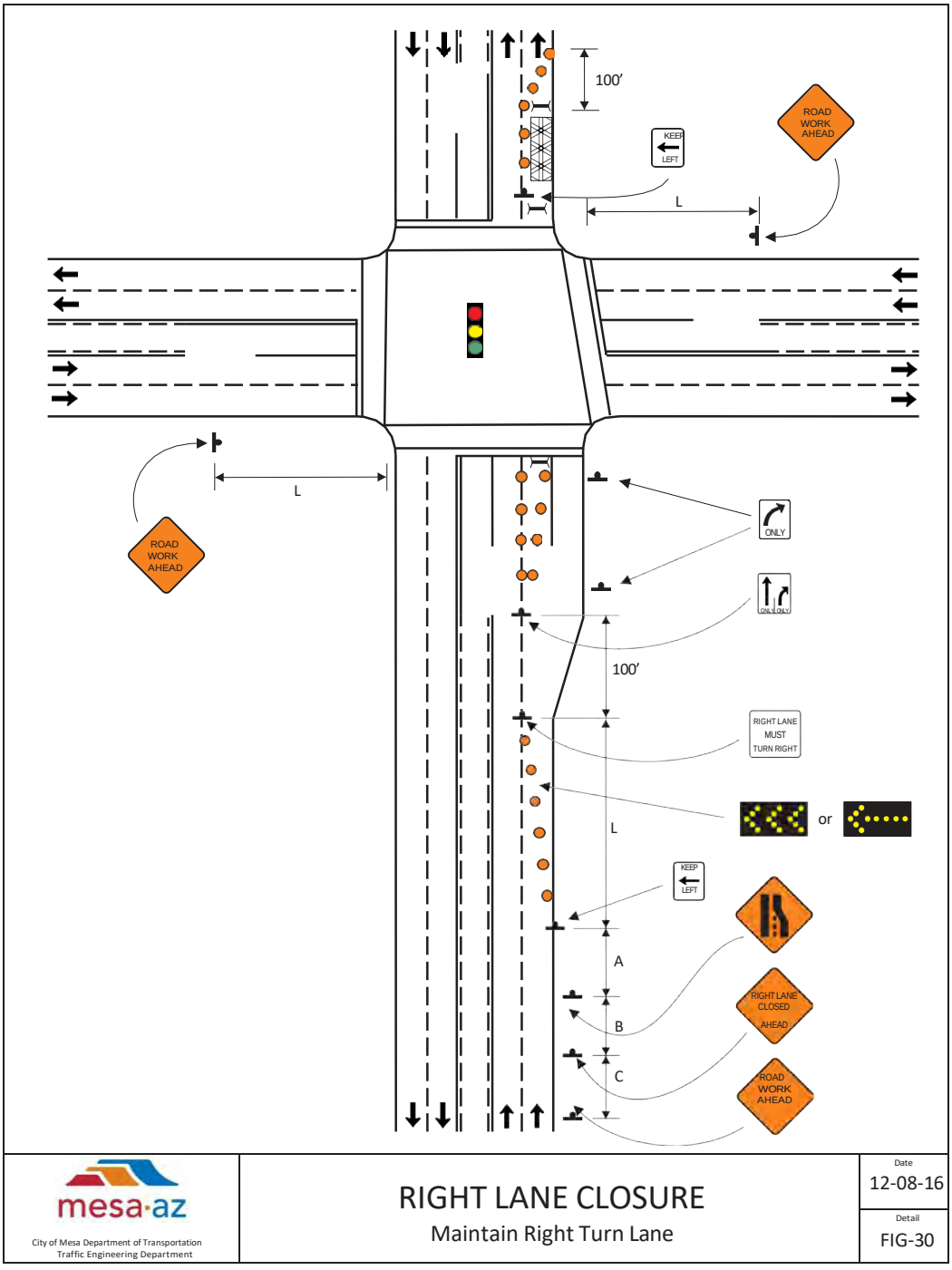
RIGHT LANE CLOSURE

Reduction in Speed

Date
07-29-16

Detail
FIG-29



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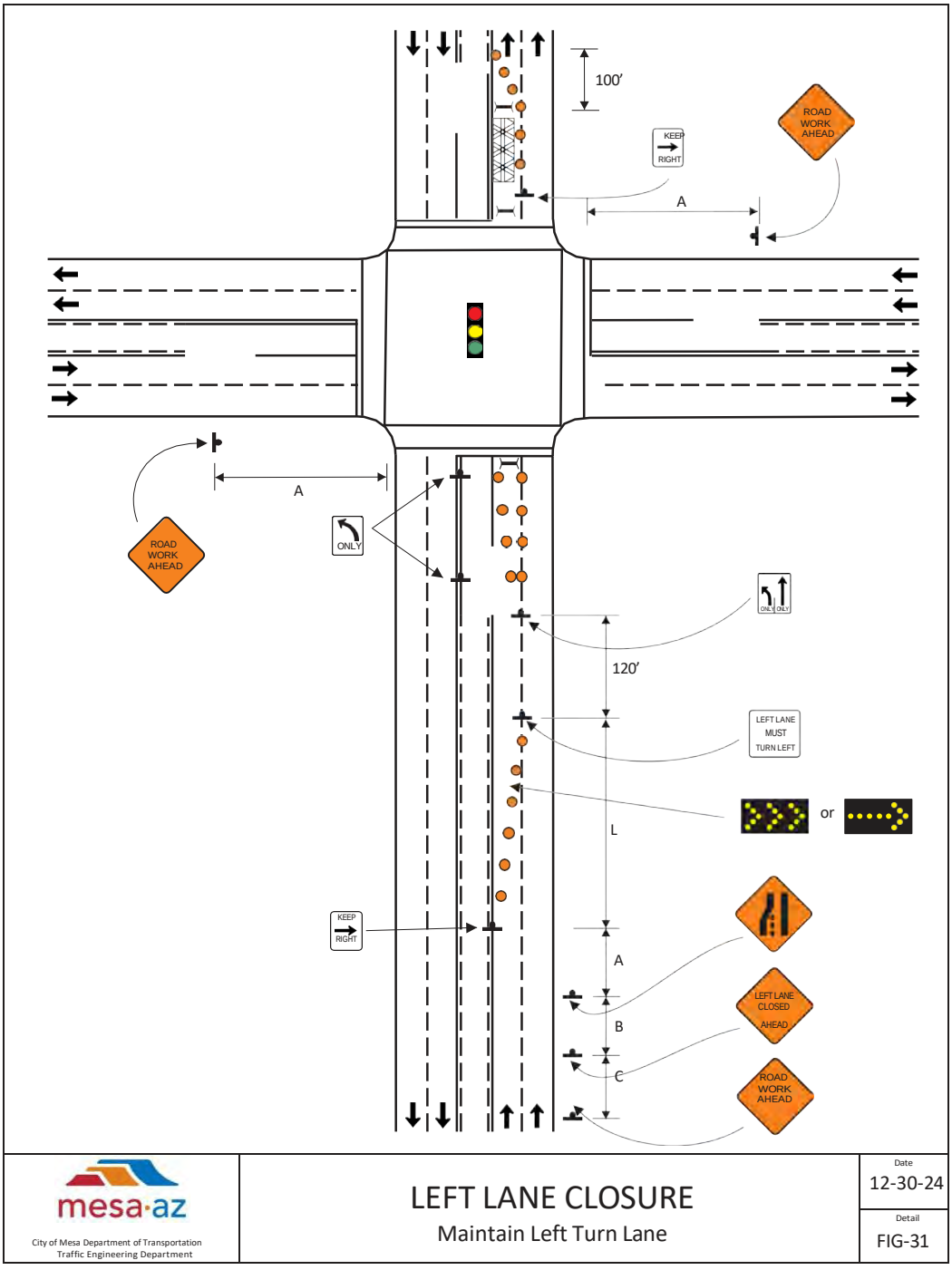
RIGHT LANE CLOSURE

Maintain Right Turn Lane

Date
12-08-16

Detail
FIG-30



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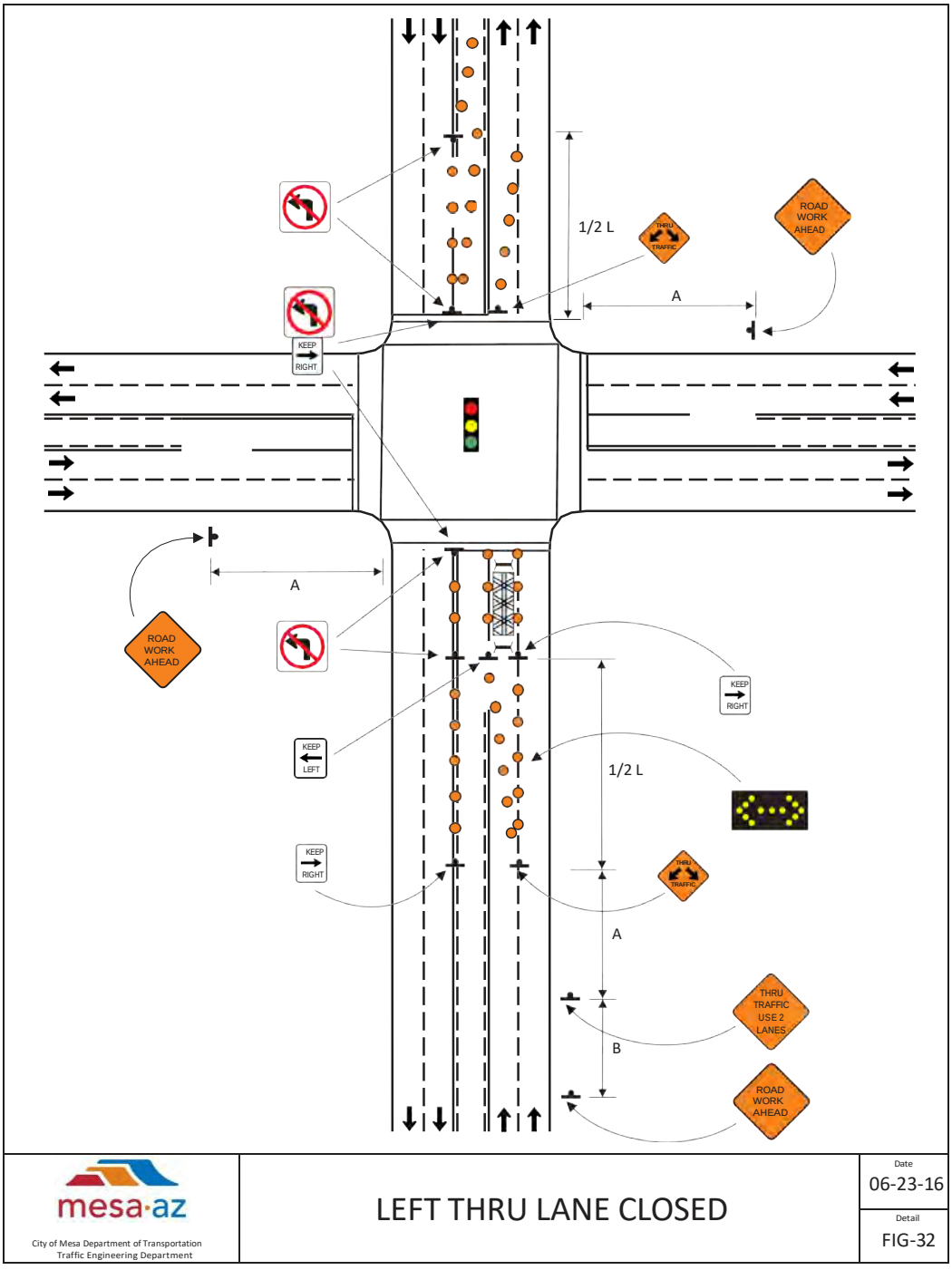
LEFT LANE CLOSURE

Maintain Left Turn Lane

Date
12-30-24

Detail
FIG-31



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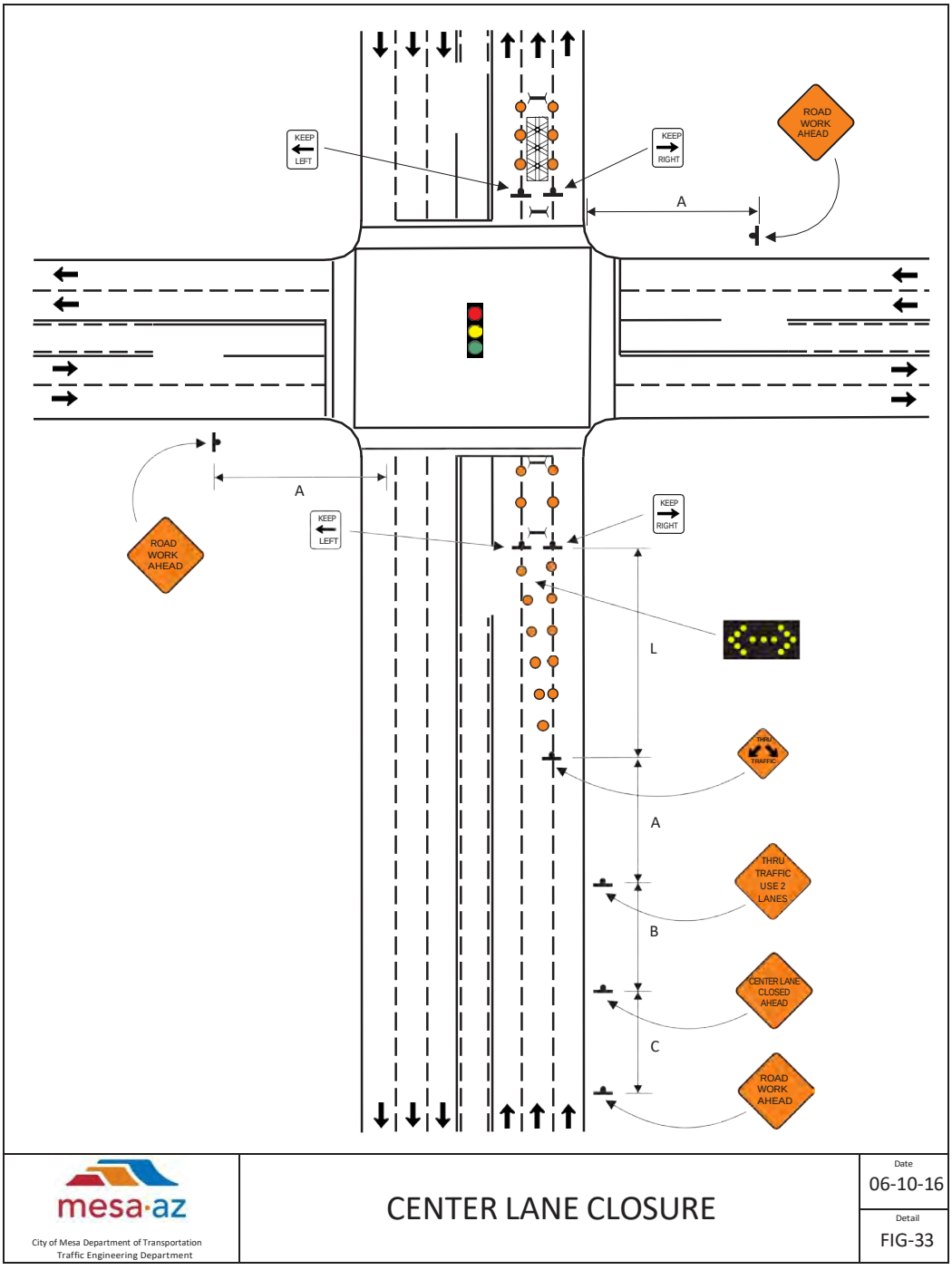
LEFT THRU LANE CLOSED

Date
06-23-16

Detail
FIG-32



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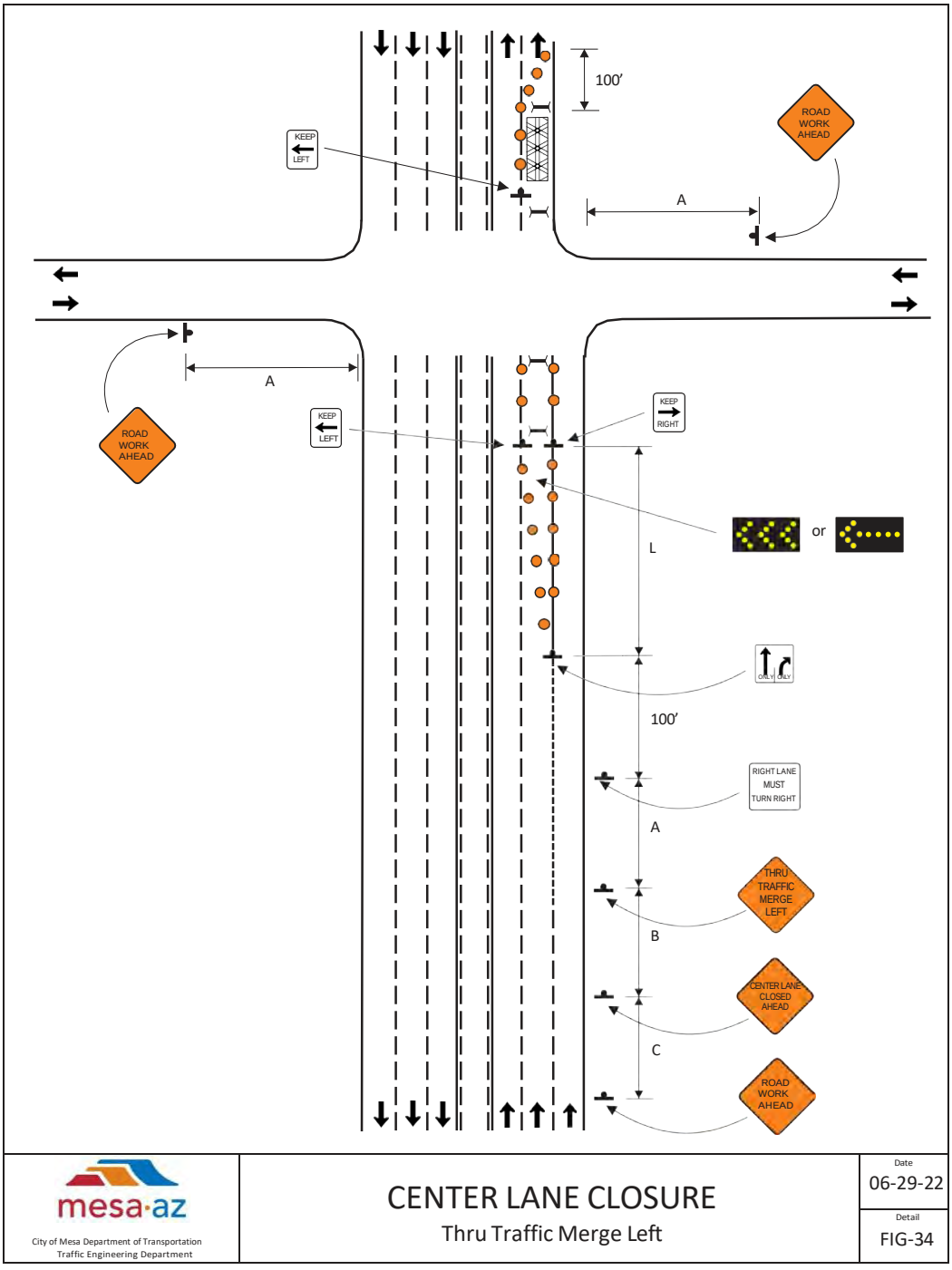
CENTER LANE CLOSURE

Date
06-10-16

Detail
FIG-33



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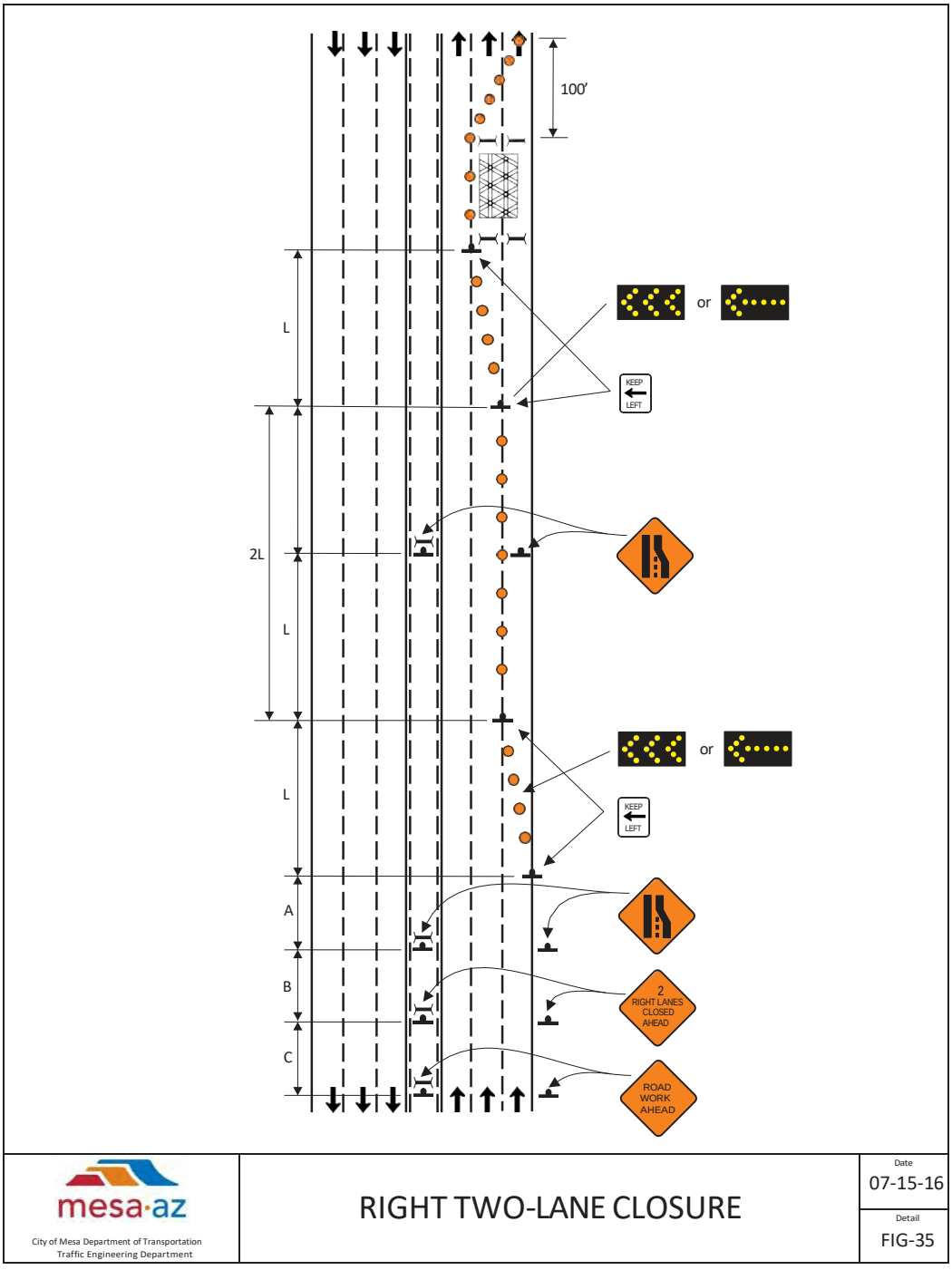
CENTER LANE CLOSURE

Thru Traffic Merge Left

Date
06-29-22

Detail
FIG-34



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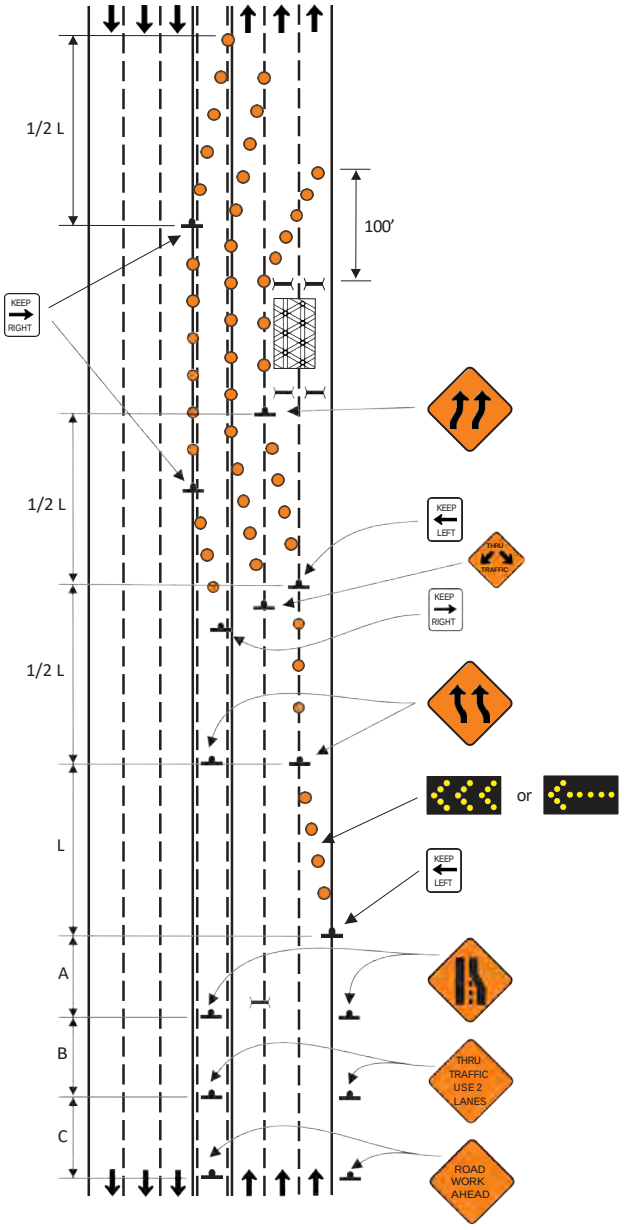
RIGHT TWO-LANE CLOSURE

Date
07-15-16

Detail
FIG-35



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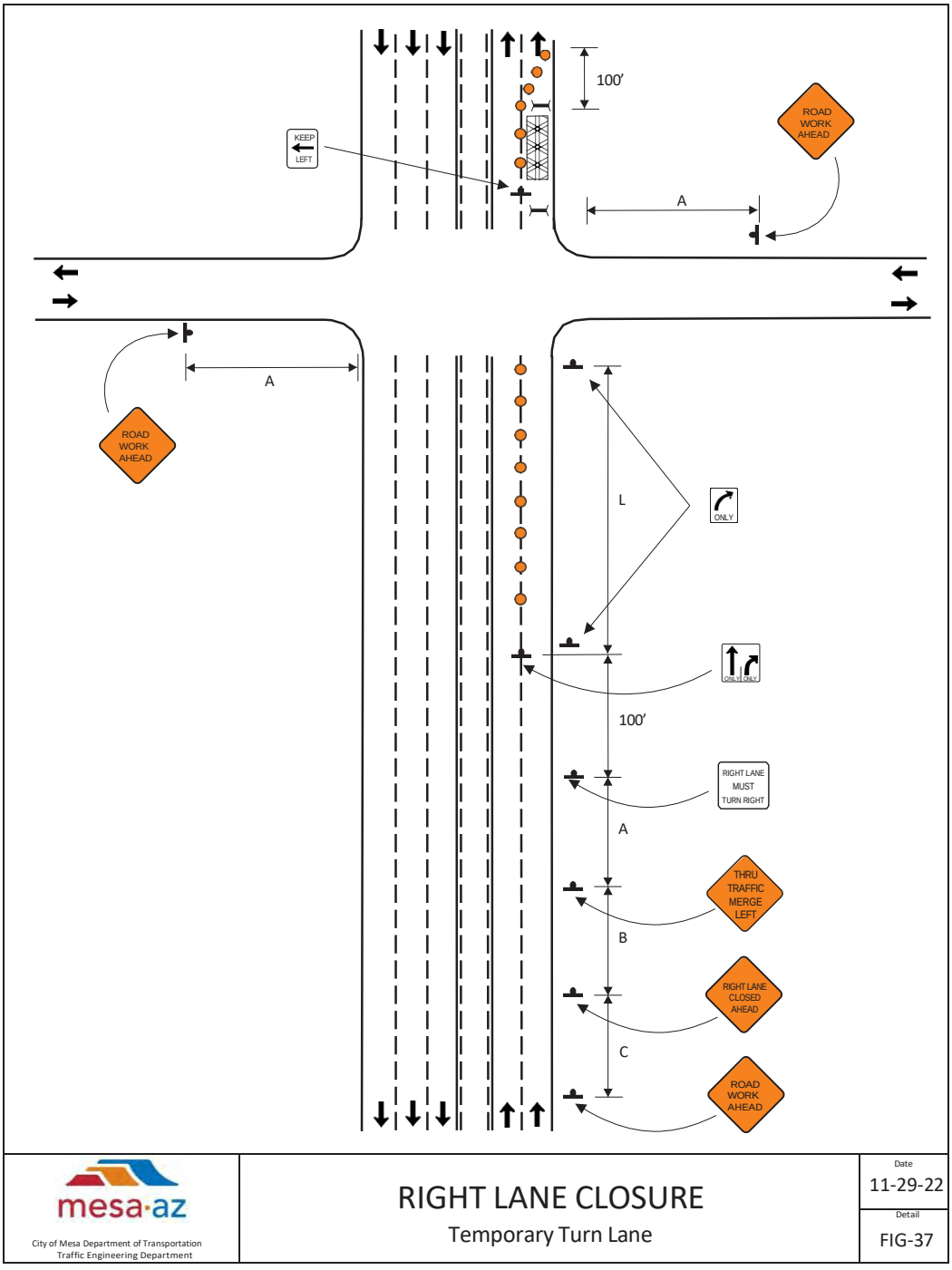
RIGHT TWO LANES CLOSED

Maintain Two Lanes

Date
07-15-16

Detail
FIG-36



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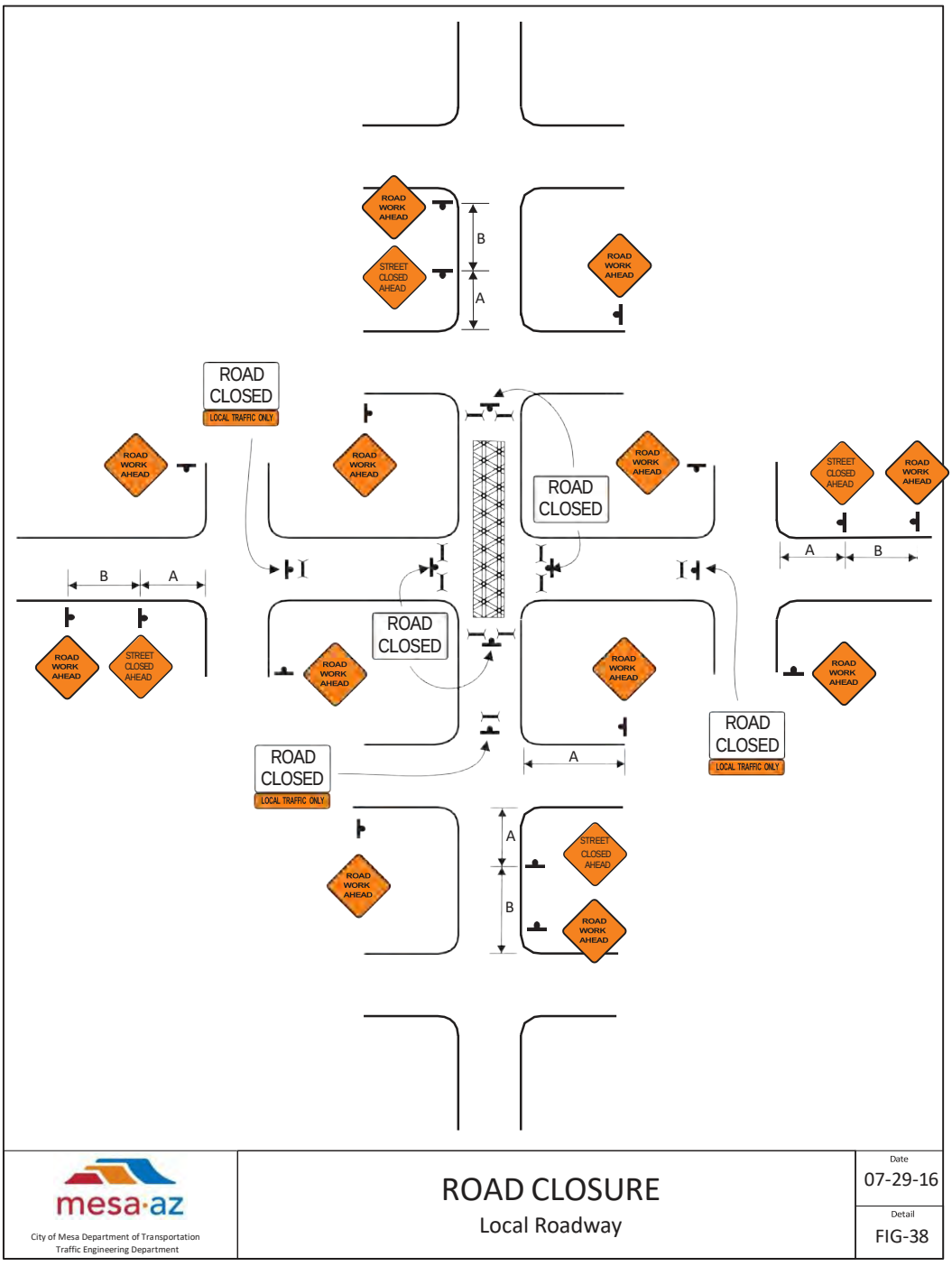
RIGHT LANE CLOSURE

Temporary Turn Lane

Date
11-29-22

Detail
FIG-37



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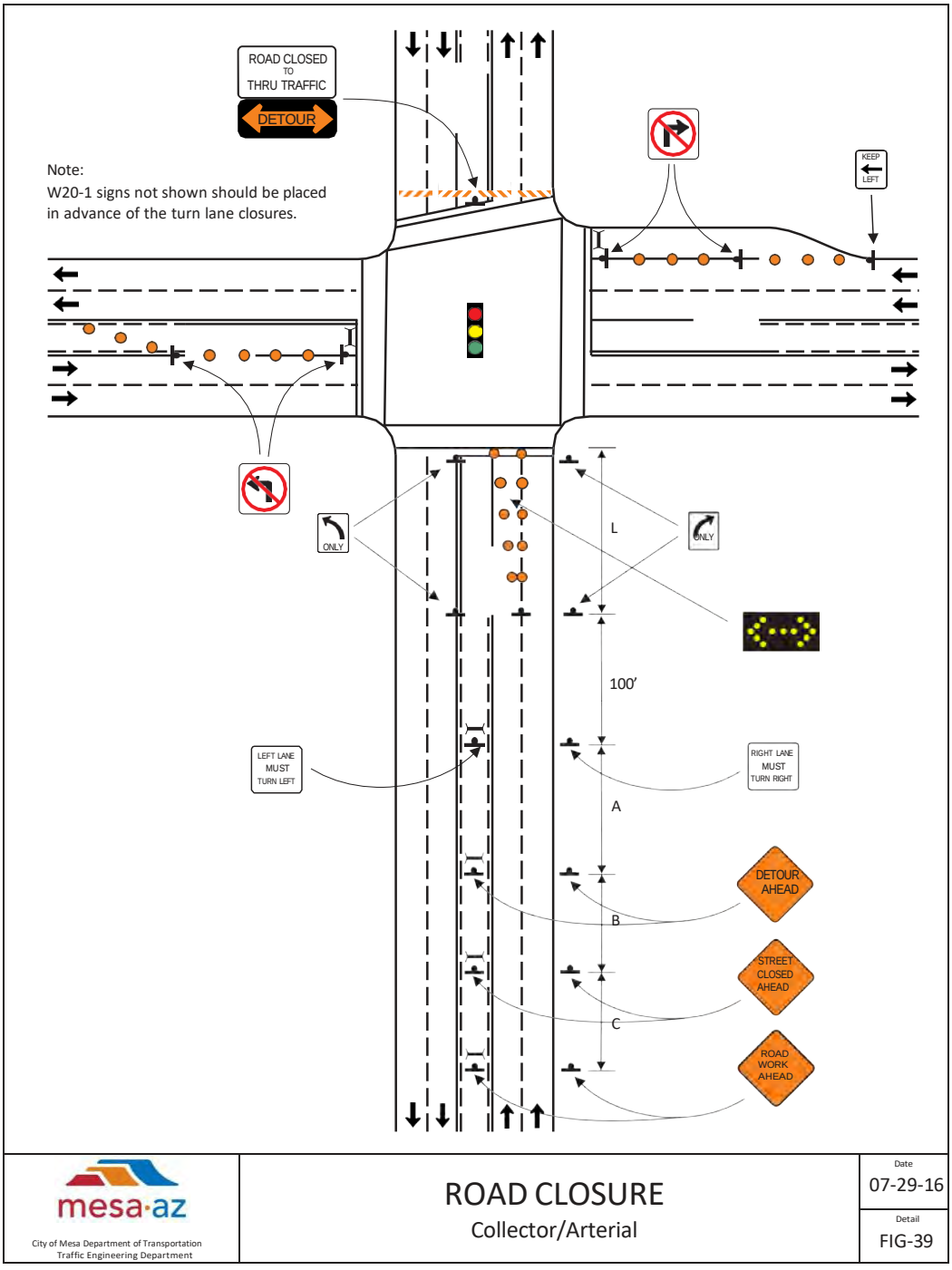
ROAD CLOSURE

Local Roadway

Date
07-29-16

Detail
FIG-38


ROAD CLOSED
TO
THRU TRAFFIC
DETOUR
Note:
W20-1 signs not shown should be placed
in advance of the turn lane closures.
KEEP
LEFT
ONLY
ONLY
L
100'
LEFT LANE
MUST
TURN LEFT
RIGHT LANE
MUST
TURN RIGHT
A
DETOUR
AHEAD
B
STREET
CLOSED
AHEAD
C
ROAD
WORK
AHEAD
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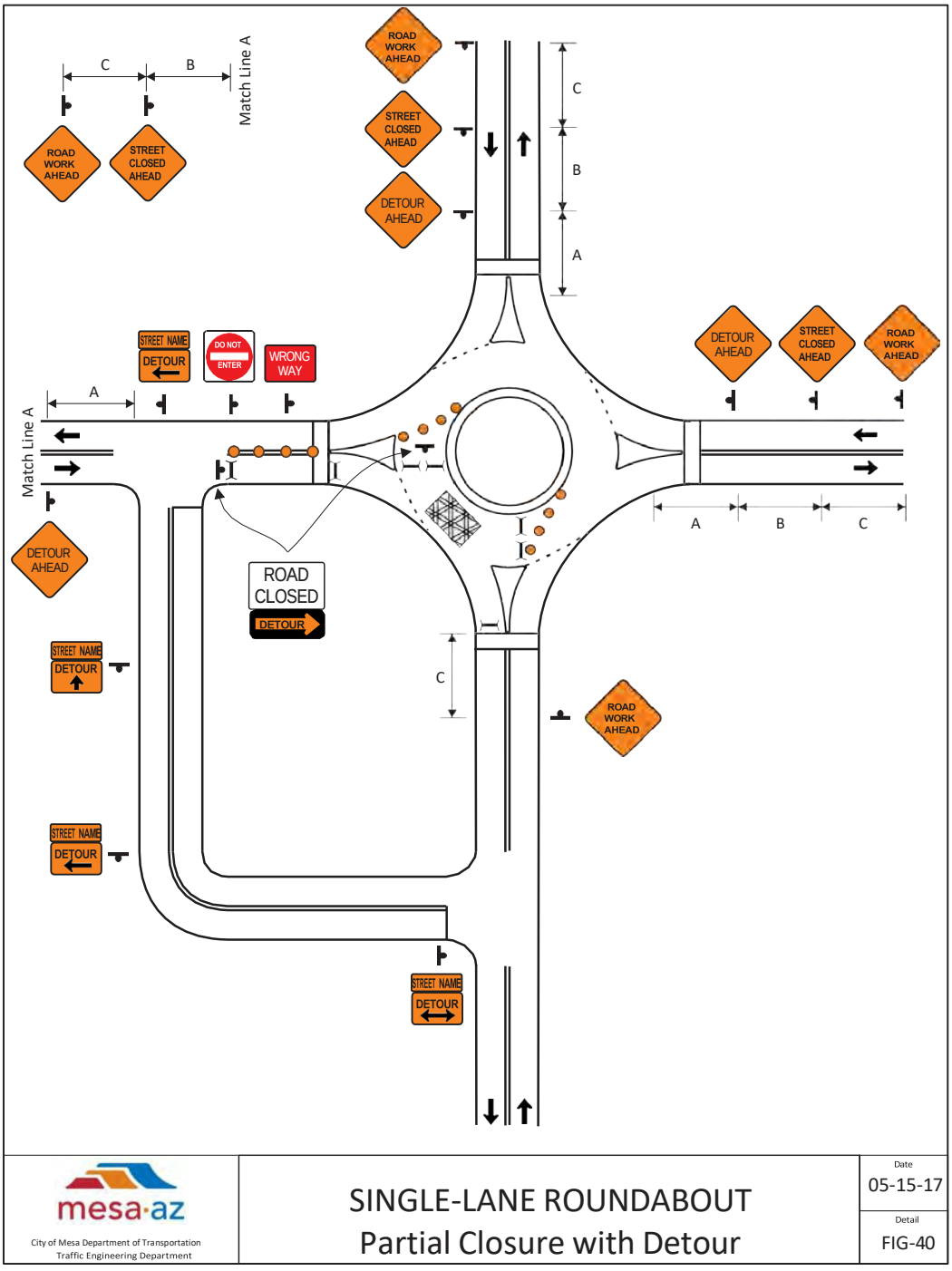
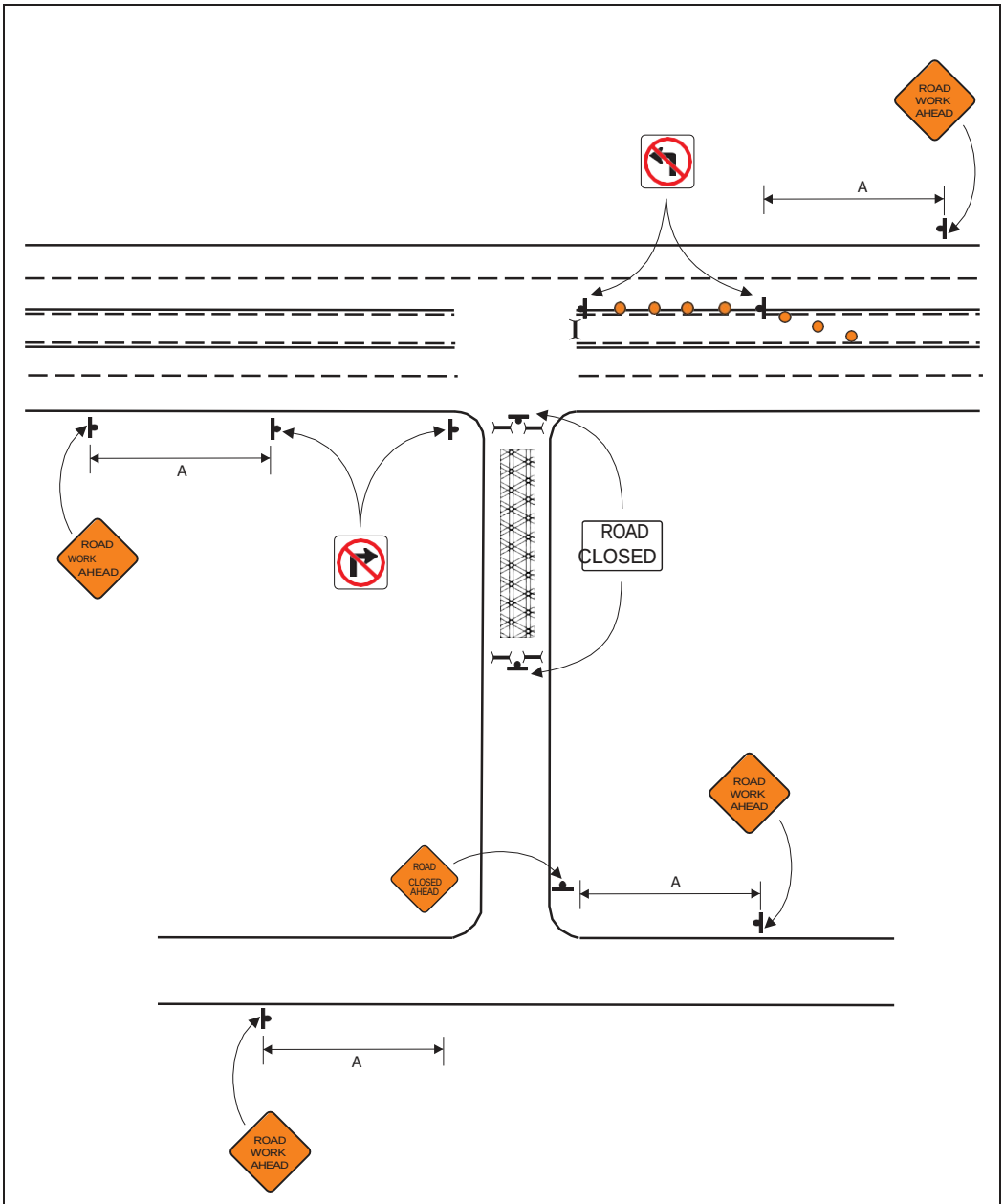
Traffic Engineering Department
ROAD CLOSURE
Collector/Arterial
Date
07-29-16
Detail
FIG-39


ROAD WORK AHEAD
STREET CLOSED AHEAD
DETOUR AHEAD
C
B
A
Match Line A
STREET NAME DETOUR
DO NOT ENTER
WRONG WAY
ROAD CLOSED DETOUR
mesa·az
City of Mesa Department of Transportation
Traffic Engineering Department
SINGLE-LANE ROUNDABOUT
Partial Closure with Detour
Date
05-15-17
Detail
FIG-40



mesa·az

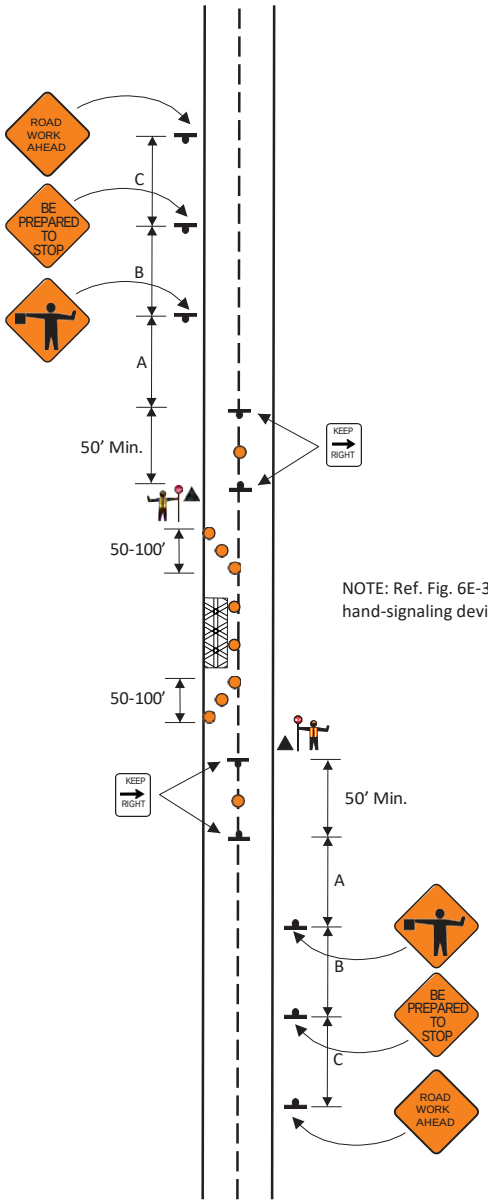
City of Mesa Department of Transportation
Traffic Engineering Department

ROAD CLOSURE

Local Street to Arterial

Date
06-18-24

Page
FIG-41



NOTE: Ref. Fig. 6E-3 in the MUTCD for use of hand-signaling devices by flaggers

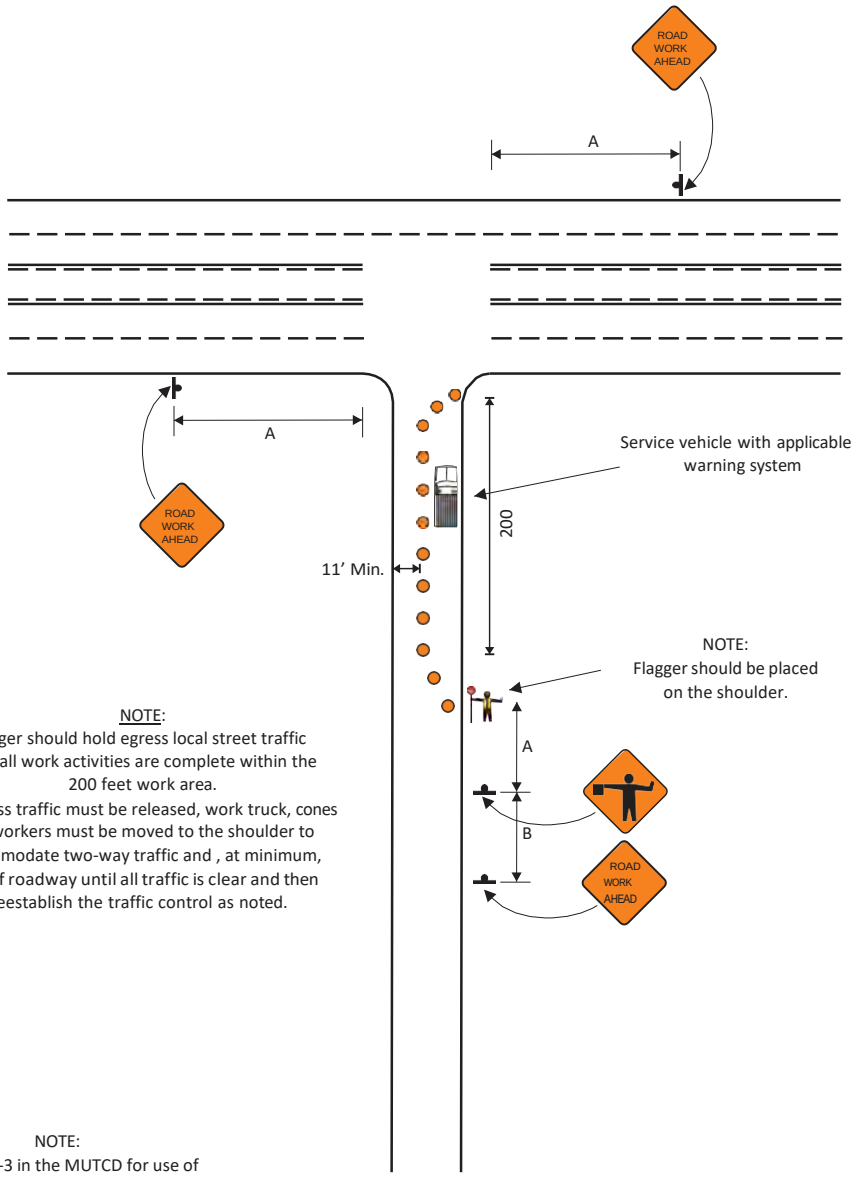
mesa·az

City of Mesa Department of Transportation
Traffic Engineering Department

FLAGGER CONTROL

Date
11-13-14

Page
FIG-42



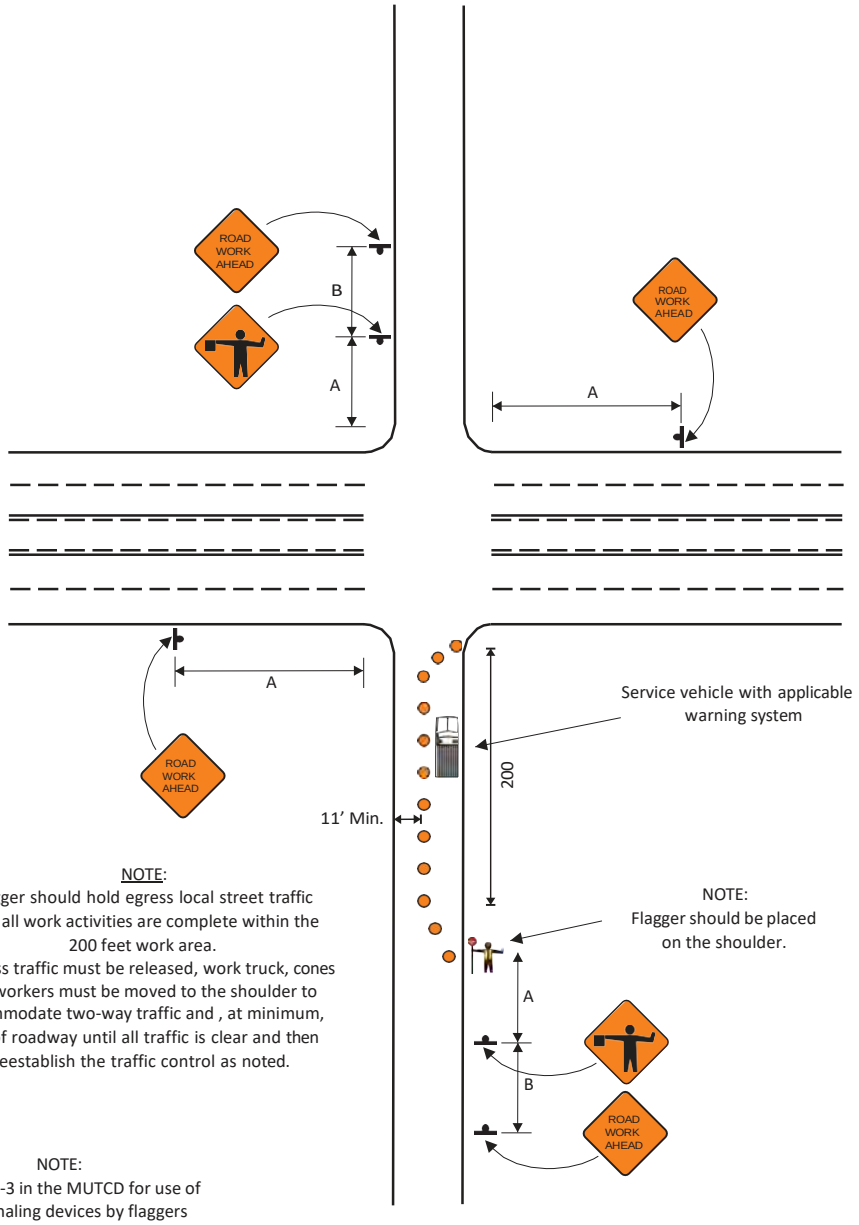
City of Mesa Department of Transportation
Traffic Engineering Department

FLAGGER CONTROL

Moving Operation - Local Street to Arterial (Option 1)

Date: 12-19-23

Page: FIG-43



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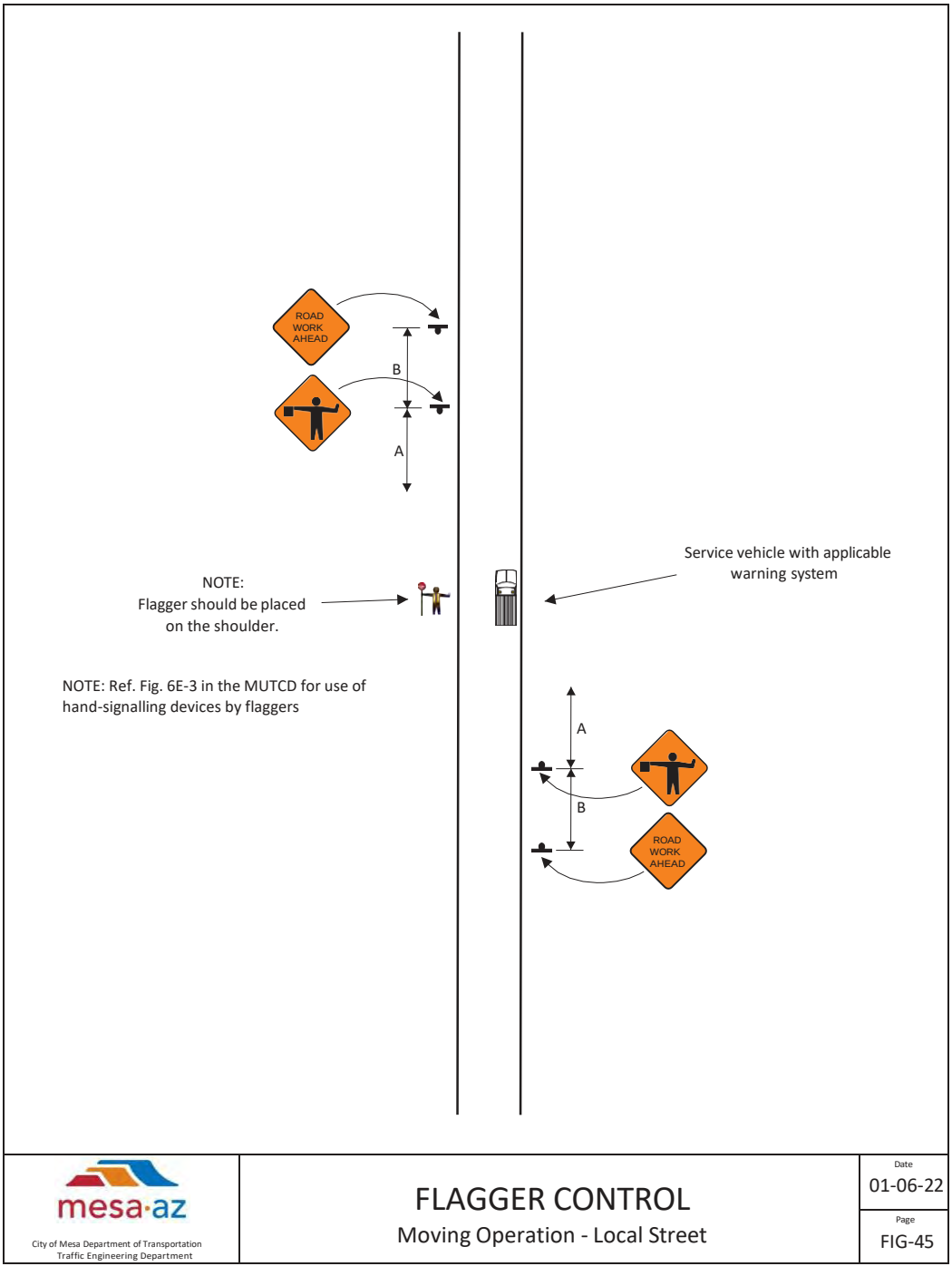
City of Mesa Department of Transportation
Traffic Engineering Department

FLAGGER CONTROL

Moving Operation - Local Street to Arterial (Option 2)

Date: 12-19-23

Page: FIG-44



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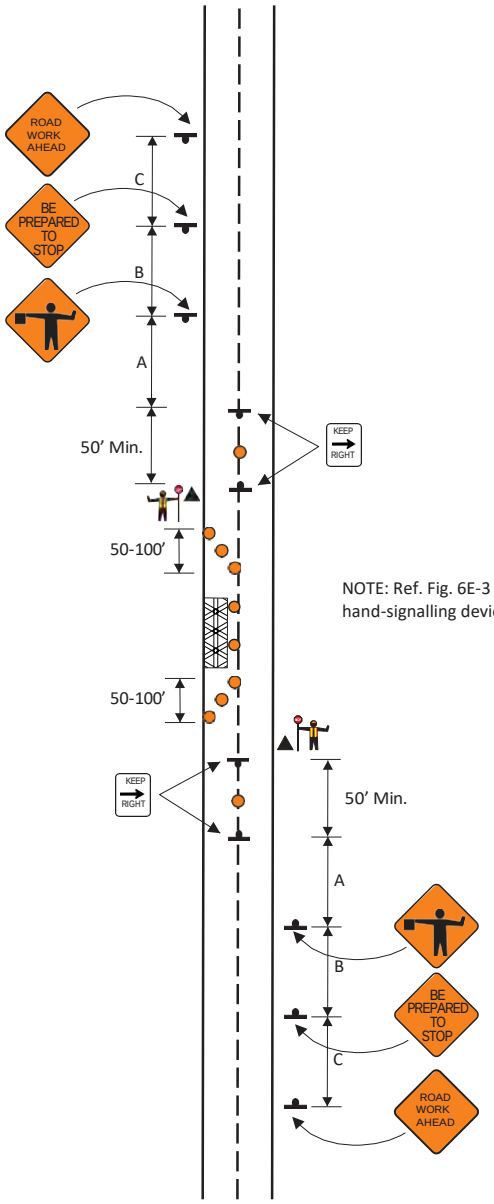
City of Mesa Department of Transportation
Traffic Engineering Department

FLAGGER CONTROL

Moving Operation - Local Street

Date
01-06-22

Page
FIG-45



NOTE: Ref. Fig. 6E-3 in the MUTCD for use of hand-signalling devices by flaggers

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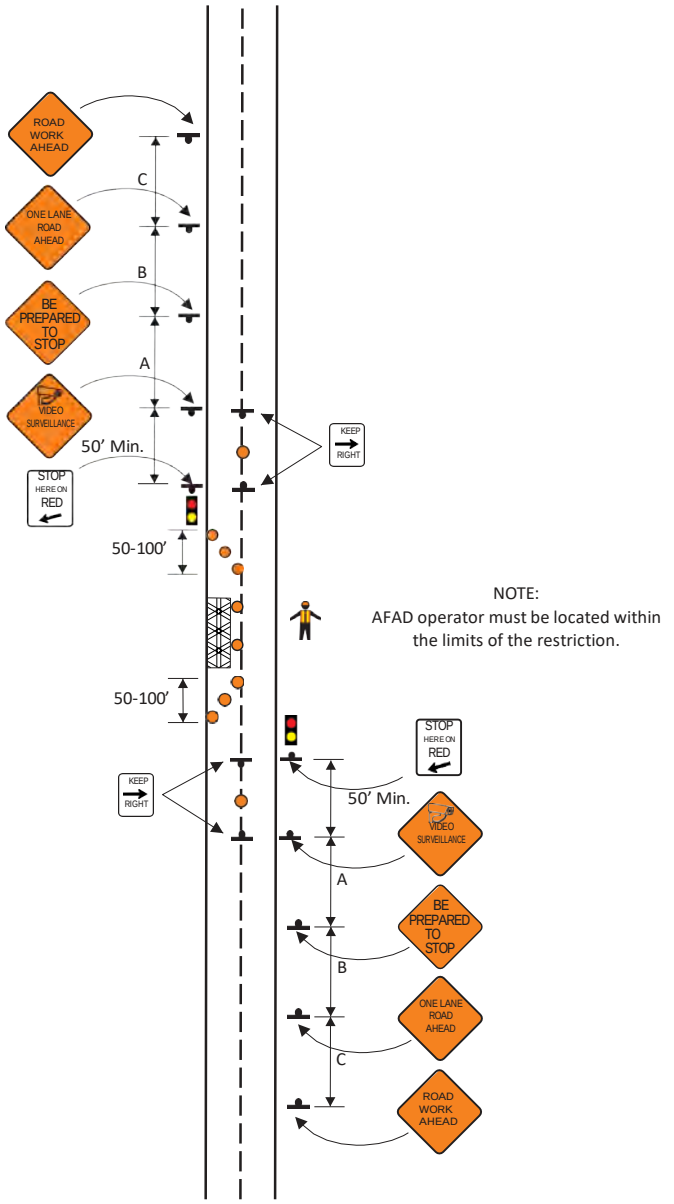
City of Mesa Department of Transportation
Traffic Engineering Department

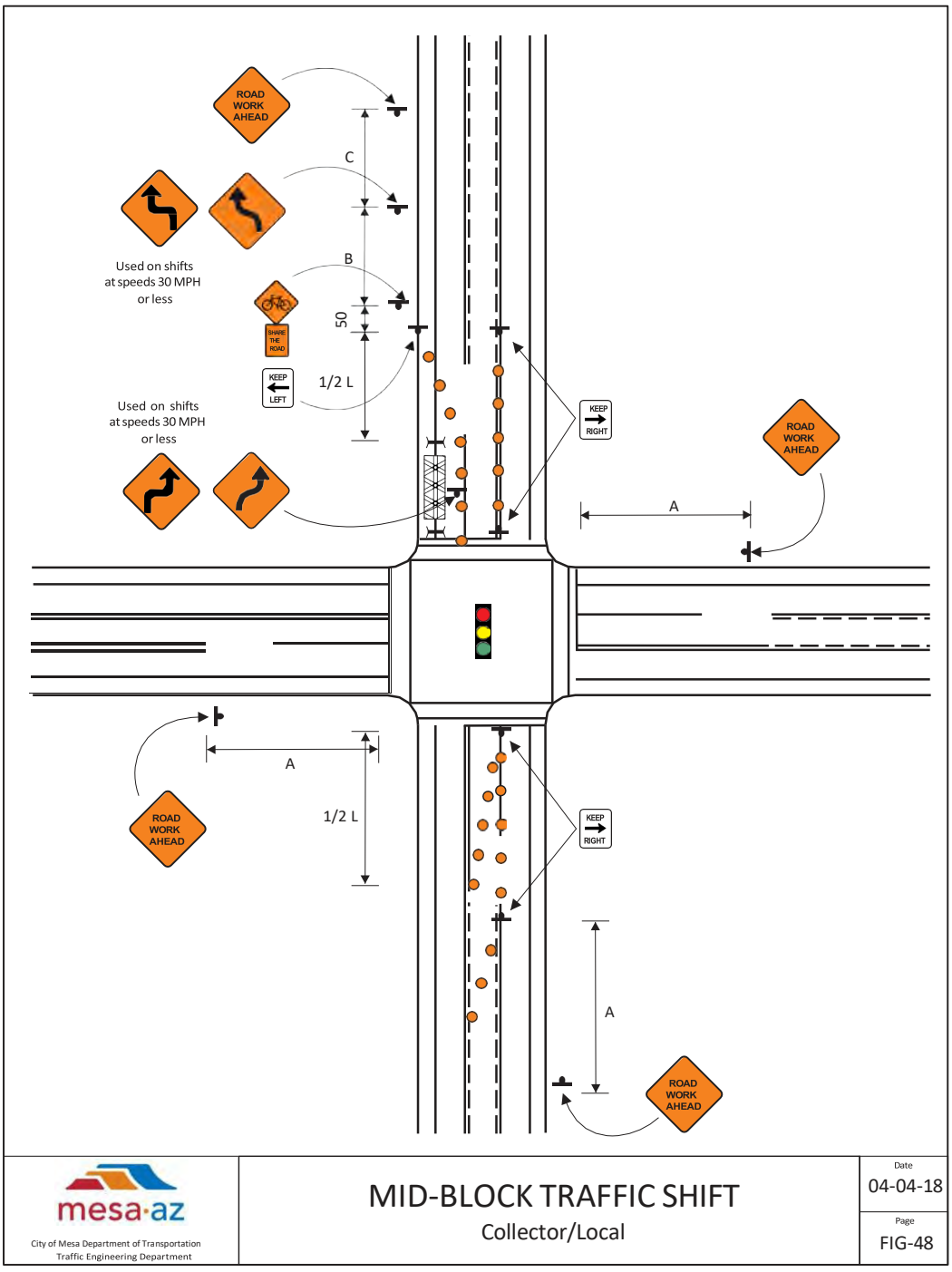
FLAGGER CONTROL

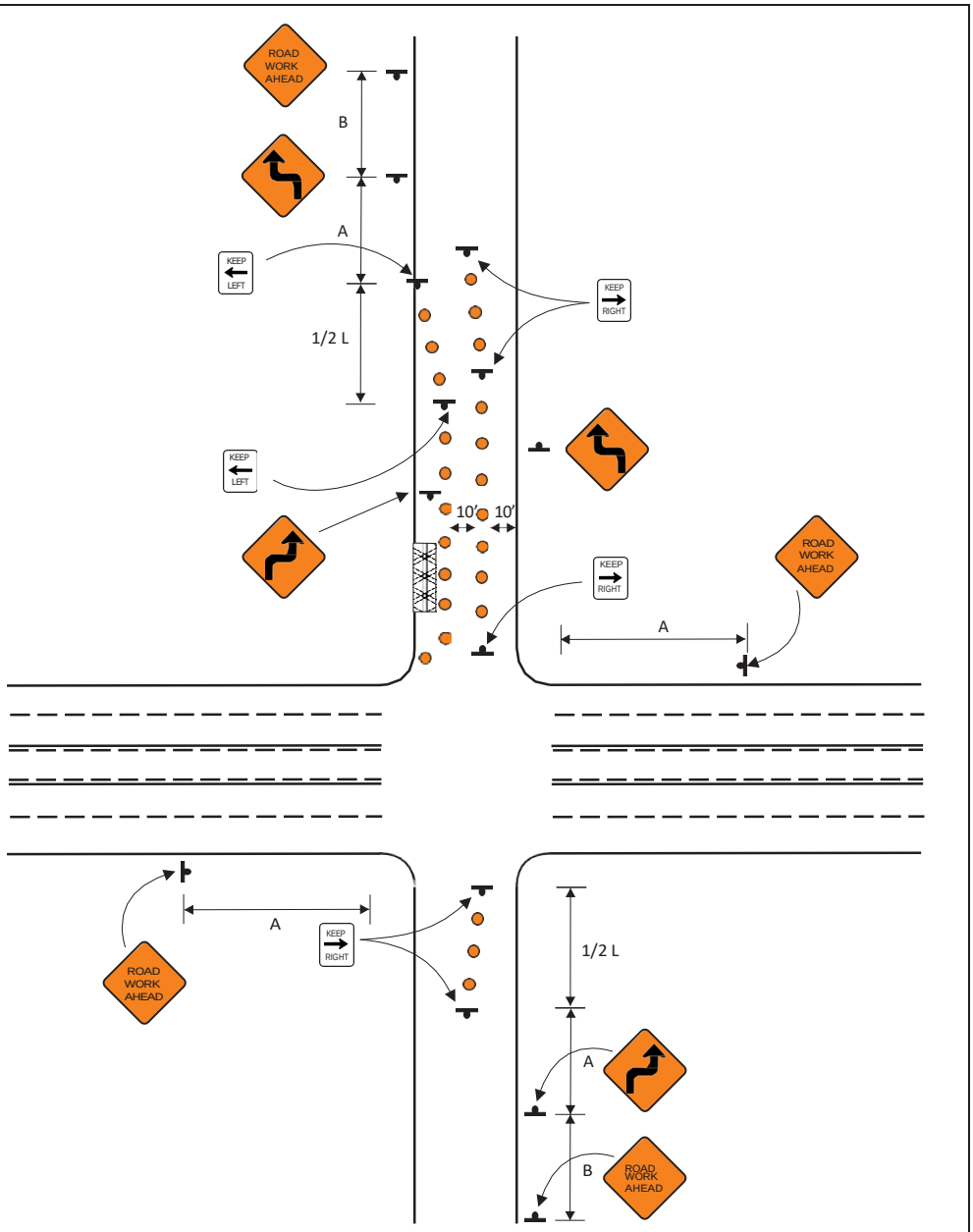
Date
11-13-14

Page
FIG-46



mesa·az City of Mesa Department of Transportation Traffic Engineering Department	AUTOMATED FLAGGER ASSISTANCE DEVICE	Date 04-02-24 Page FIG-47


ROAD WORK AHEAD
C
B
Used on shifts at speeds 30 MPH or less
50
SHARE THE ROAD
KEEP LEFT
1/2 L
Used on shifts at speeds 30 MPH or less
KEEP RIGHT
ROAD WORK AHEAD
A
A
1/2 L
ROAD WORK AHEAD
KEEP RIGHT
A
ROAD WORK AHEAD
mesa·az
City of Mesa Department of Transportation
Traffic Engineering Department
MID-BLOCK TRAFFIC SHIFT
Collector/Local
Date
04-04-18
Page
FIG-48



mesa·az

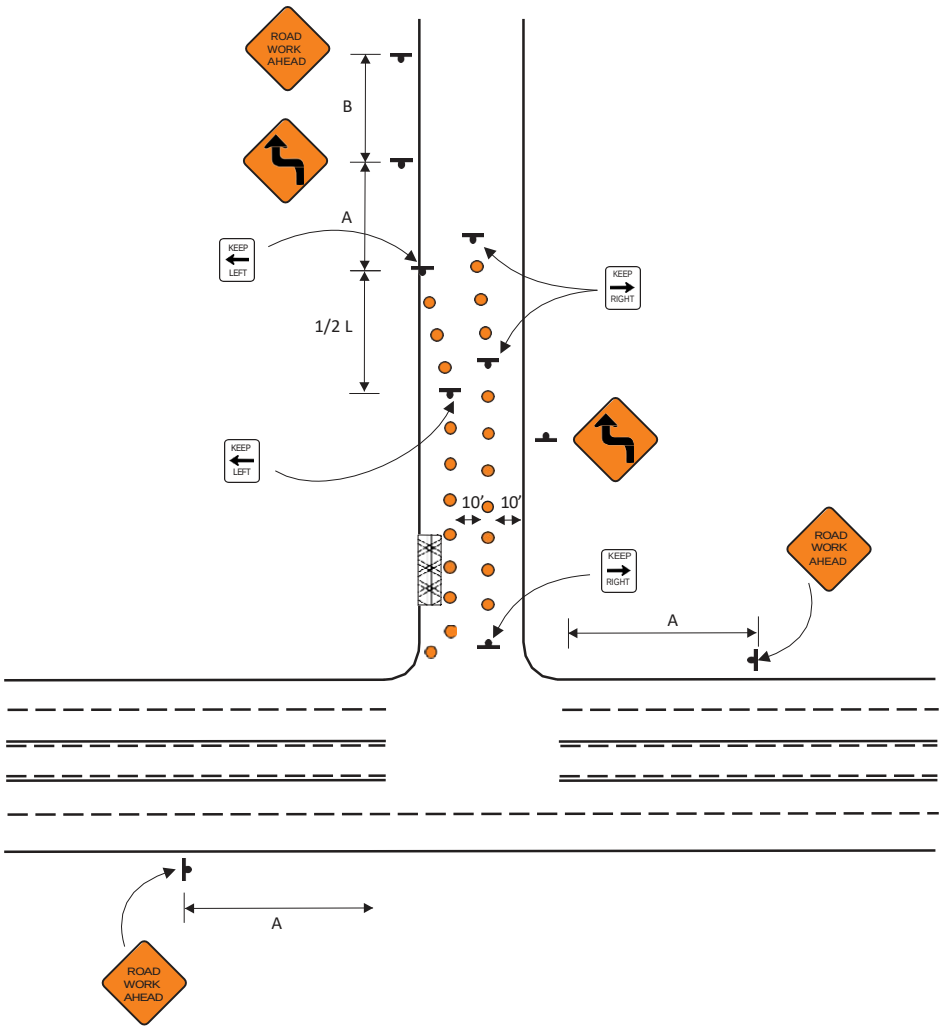
City of Mesa Department of Transportation
Traffic Engineering Department

MID-BLOCK TRAFFIC SHIFT

Local to Arterial Street

Date
09-12-24

Page
FIG-49



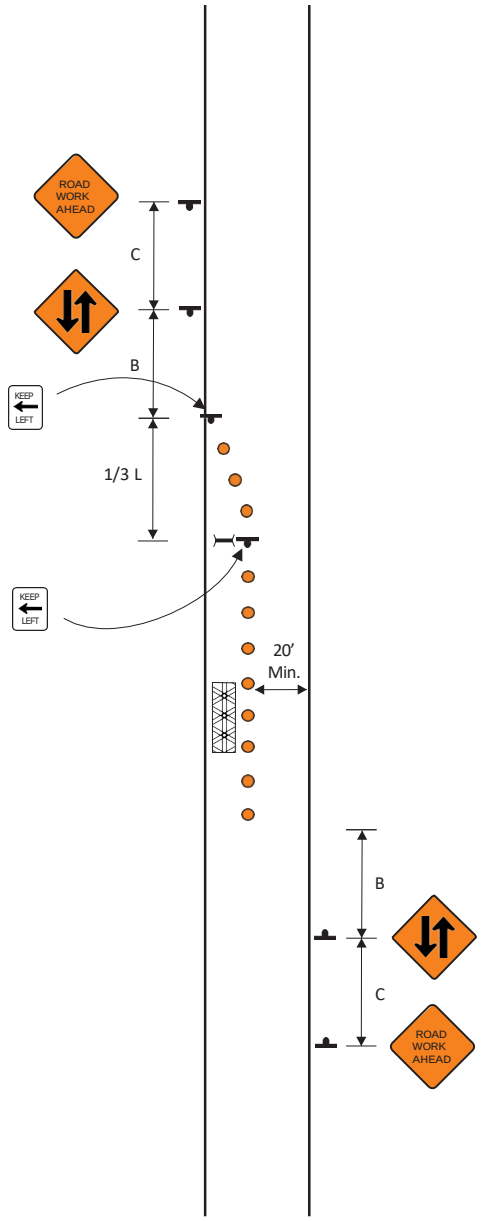
City of Mesa Department of Transportation
Traffic Engineering Department

MID-BLOCK TRAFFIC SHIFT

Local to Arterial Street (T-Intersection)

Date: 09-19-24

Page: FIG-50



mesa·az

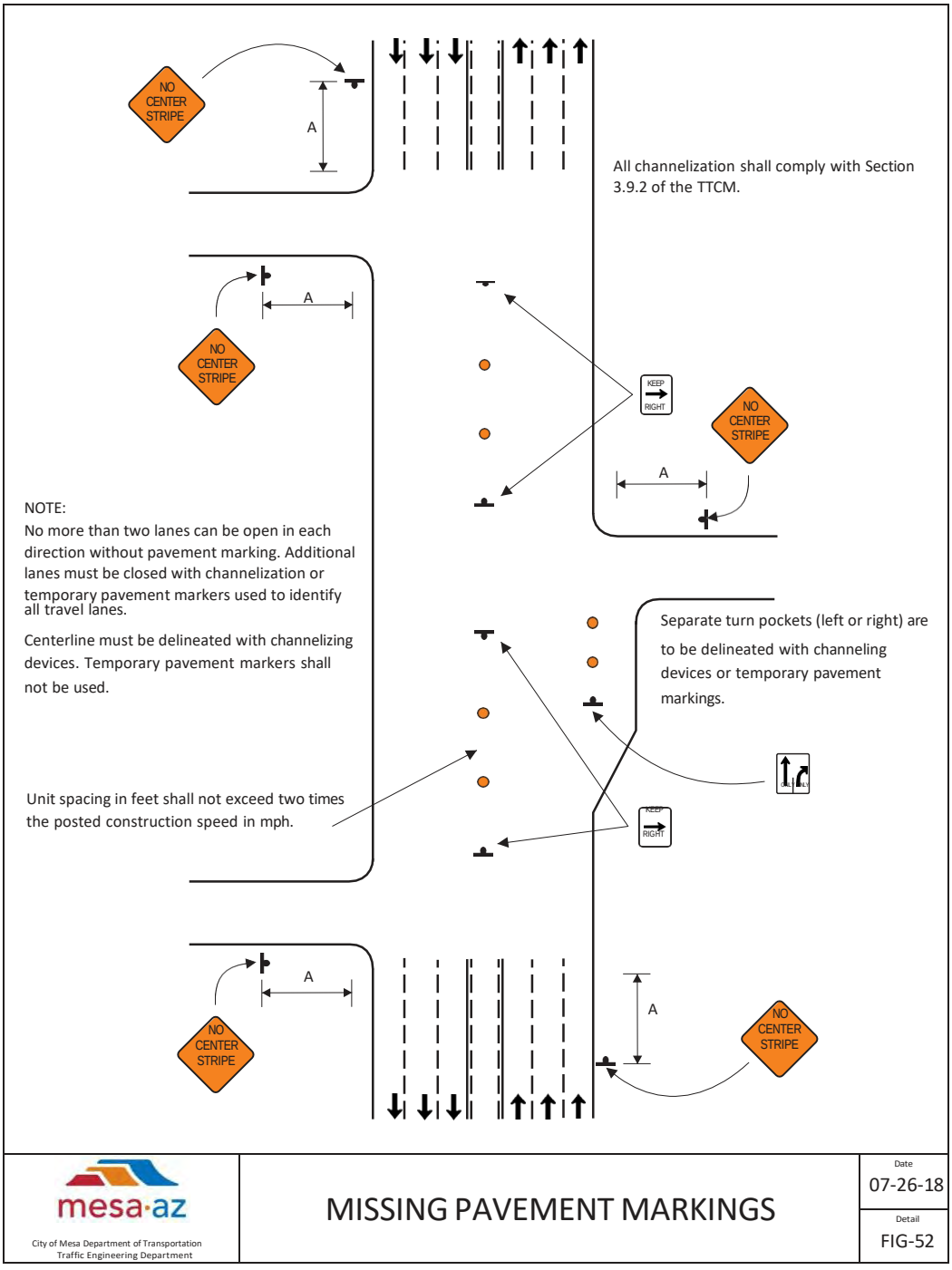
City of Mesa Department of Transportation
Traffic Engineering Department

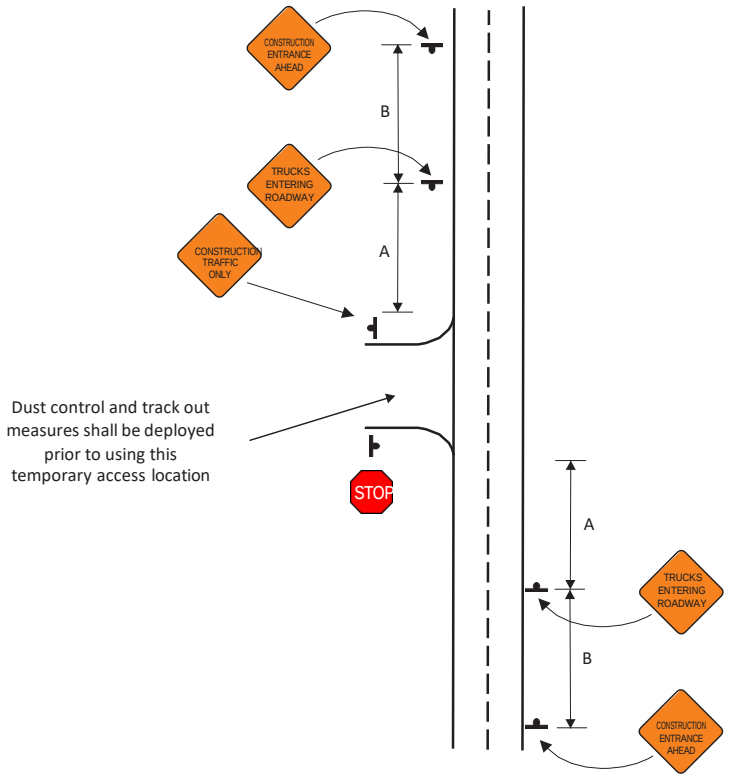
TWO-WAY TRAFFIC SHIFT

Local Street

Date
05-14-20

Page
FIG-51


NO CENTER STRIPE
A
All channelization shall comply with Section 3.9.2 of the TTCM.
NO CENTER STRIPE
A
KEEP RIGHT
NO CENTER STRIPE
A
NOTE:
No more than two lanes can be open in each direction without pavement marking. Additional lanes must be closed with channelization or temporary pavement markers used to identify all travel lanes.
Centerline must be delineated with channelizing devices. Temporary pavement markers shall not be used.
Separate turn pockets (left or right) are to be delineated with channeling devices or temporary pavement markings.
Unit spacing in feet shall not exceed two times the posted construction speed in mph.
KEEP RIGHT
NO CENTER STRIPE
A
A
NO CENTER STRIPE
City of Mesa Department of Transportation
Traffic Engineering Department
MISSING PAVEMENT MARKINGS
Date
07-26-18
Detail
FIG-52



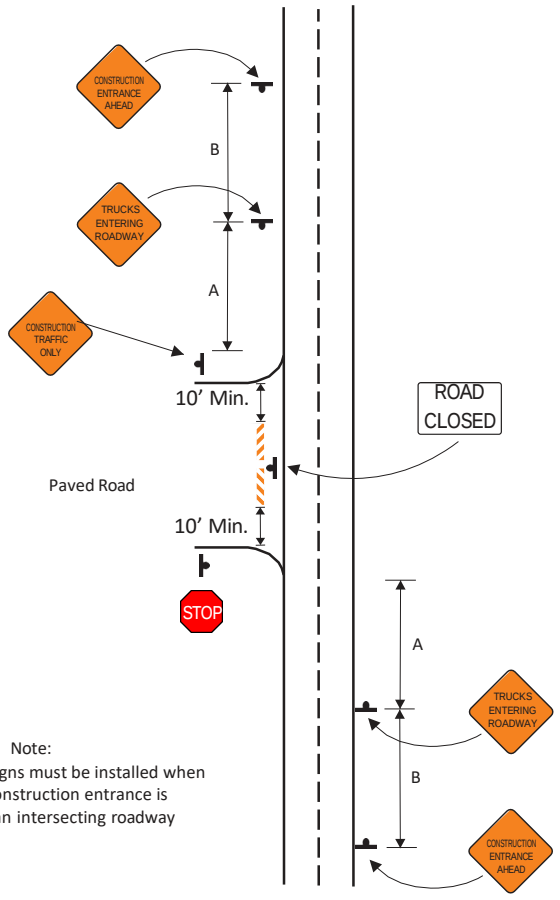
mesa·az

City of Mesa Department of Transportation
Traffic Engineering Department

TEMPORARY CONSTRUCTION ENTRANCE

Date
4-7-22

Page
FIG-53



Note:
Advance warning signs must be installed when a temporary construction entrance is established to an intersecting roadway

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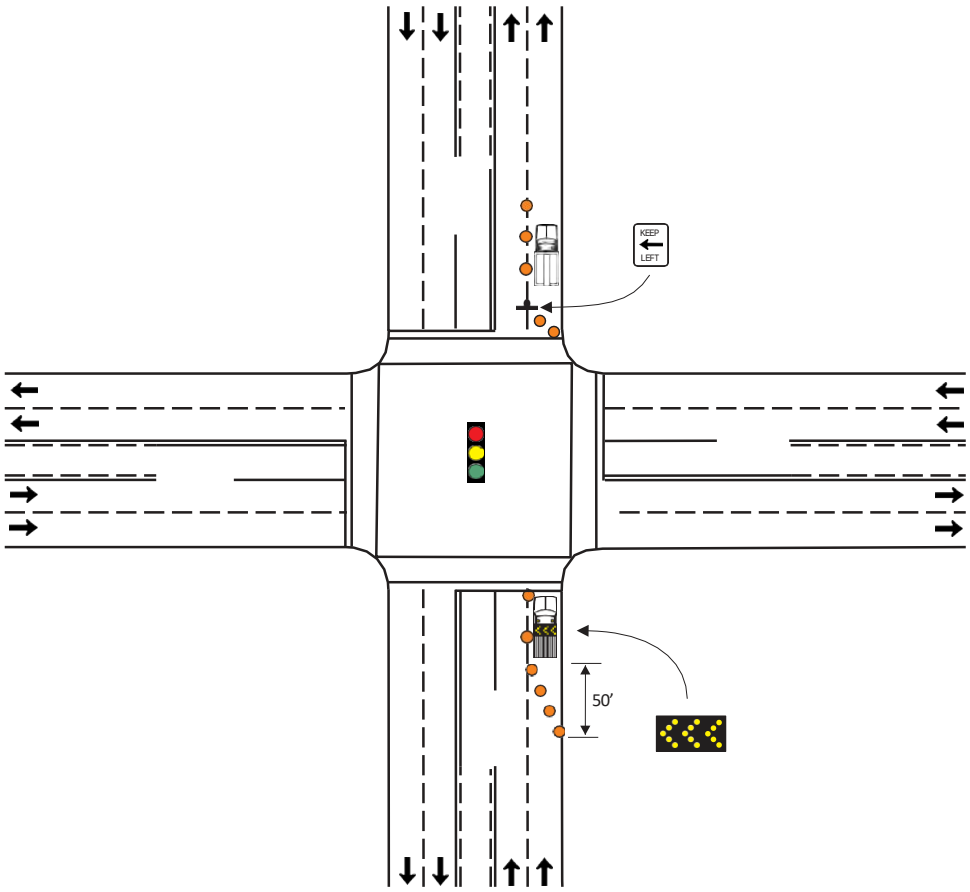
City of Mesa Department of Transportation
Traffic Engineering Department

TEMPORARY CONSTRUCTION ENTRANCE

Date
1-22-24

Page
FIG-54



mesa·az

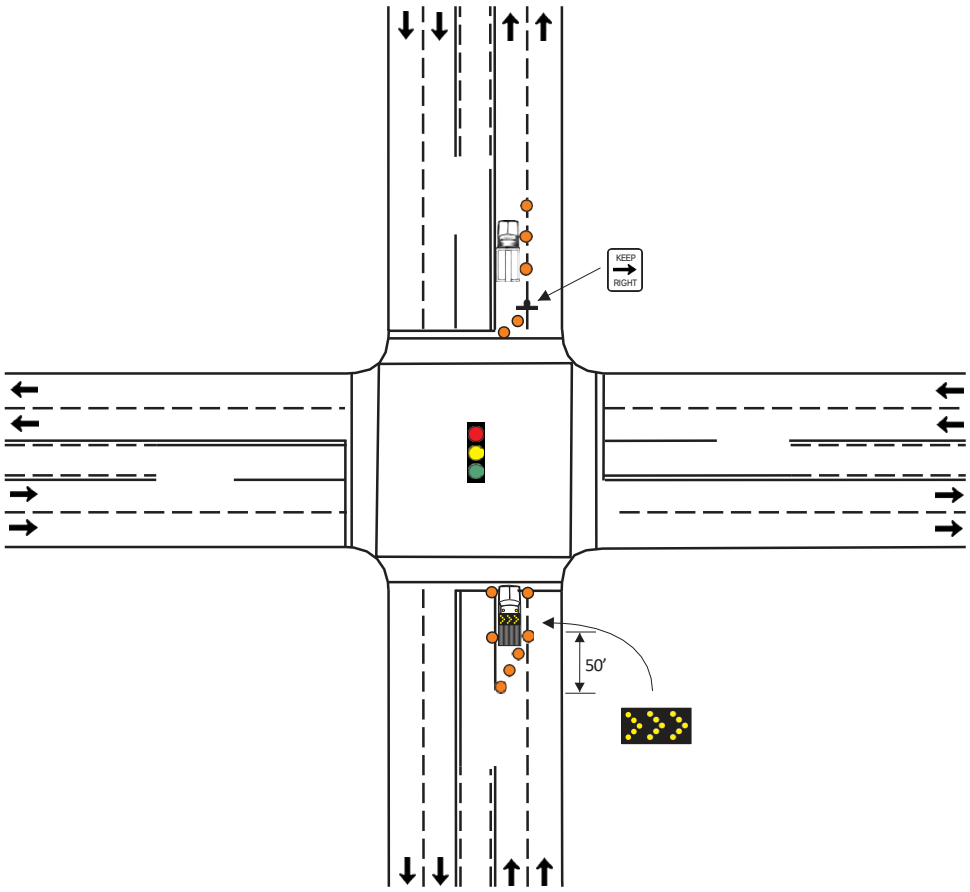
City of Mesa Department of Transportation
Traffic Engineering Department

SERVICE VEHICLE OPERATION

Option 1

Date
12-30-24

Detail
FIG-55



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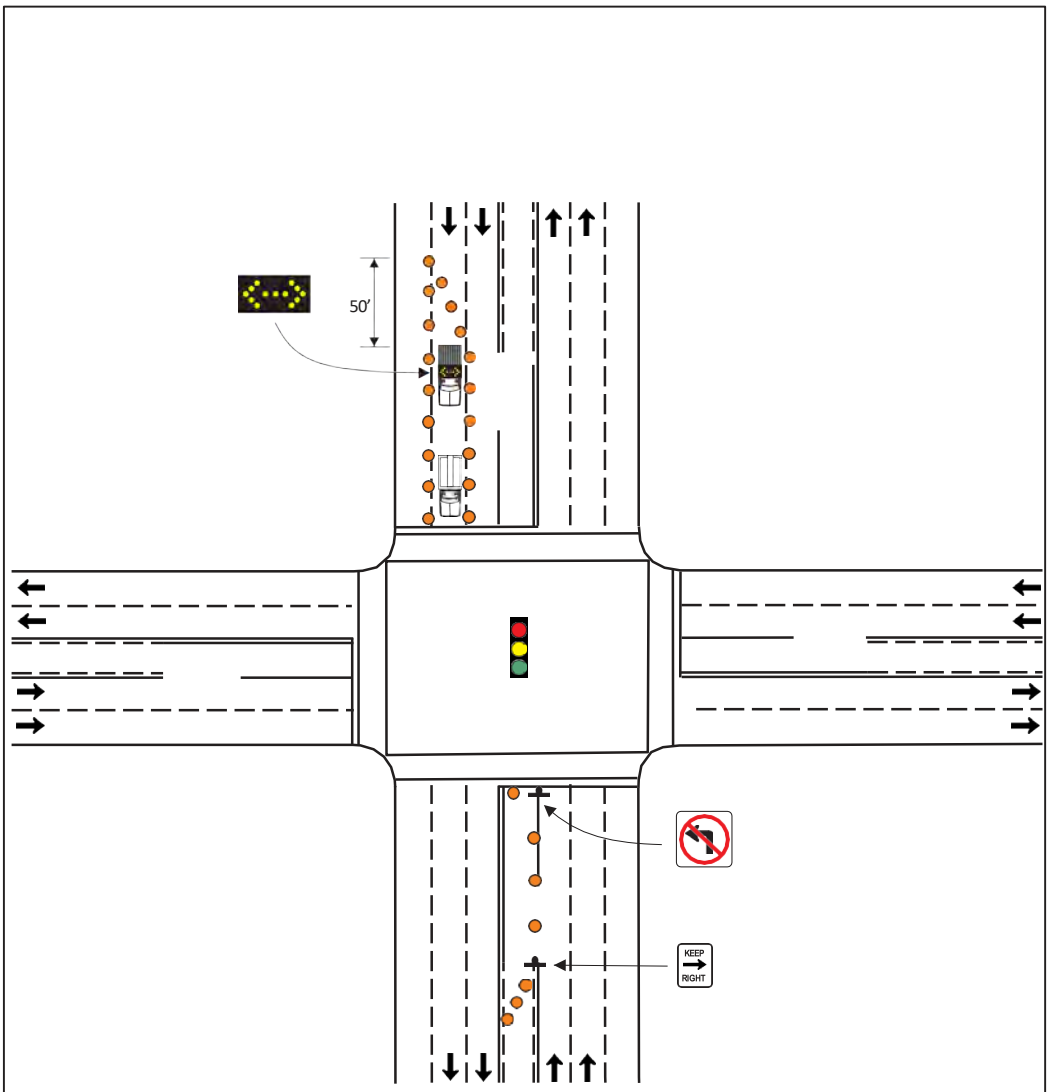
City of Mesa Department of Transportation
Traffic Engineering Department

SERVICE VEHICLE OPERATION

Option 2

Date
12-30-24

Detail
FIG-56



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City of Mesa Department of Transportation
Traffic Engineering Department

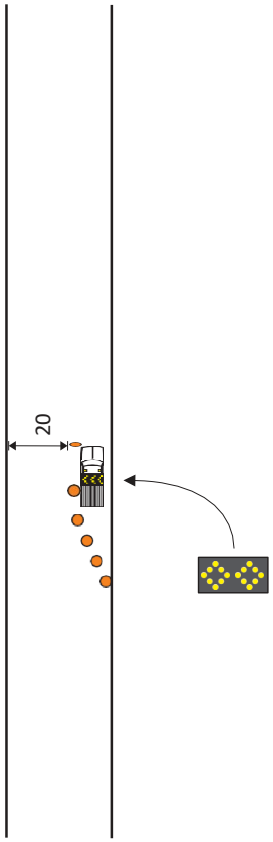
SERVICE VEHICLE OPERATION

Option 3

Date
12-30-24

Detail
FIG-57

Note:
A service vehicle application shall only be used on local streets where no pavement markings are present and a minimum of 20’ of roadway is maintained for two-way traffic.



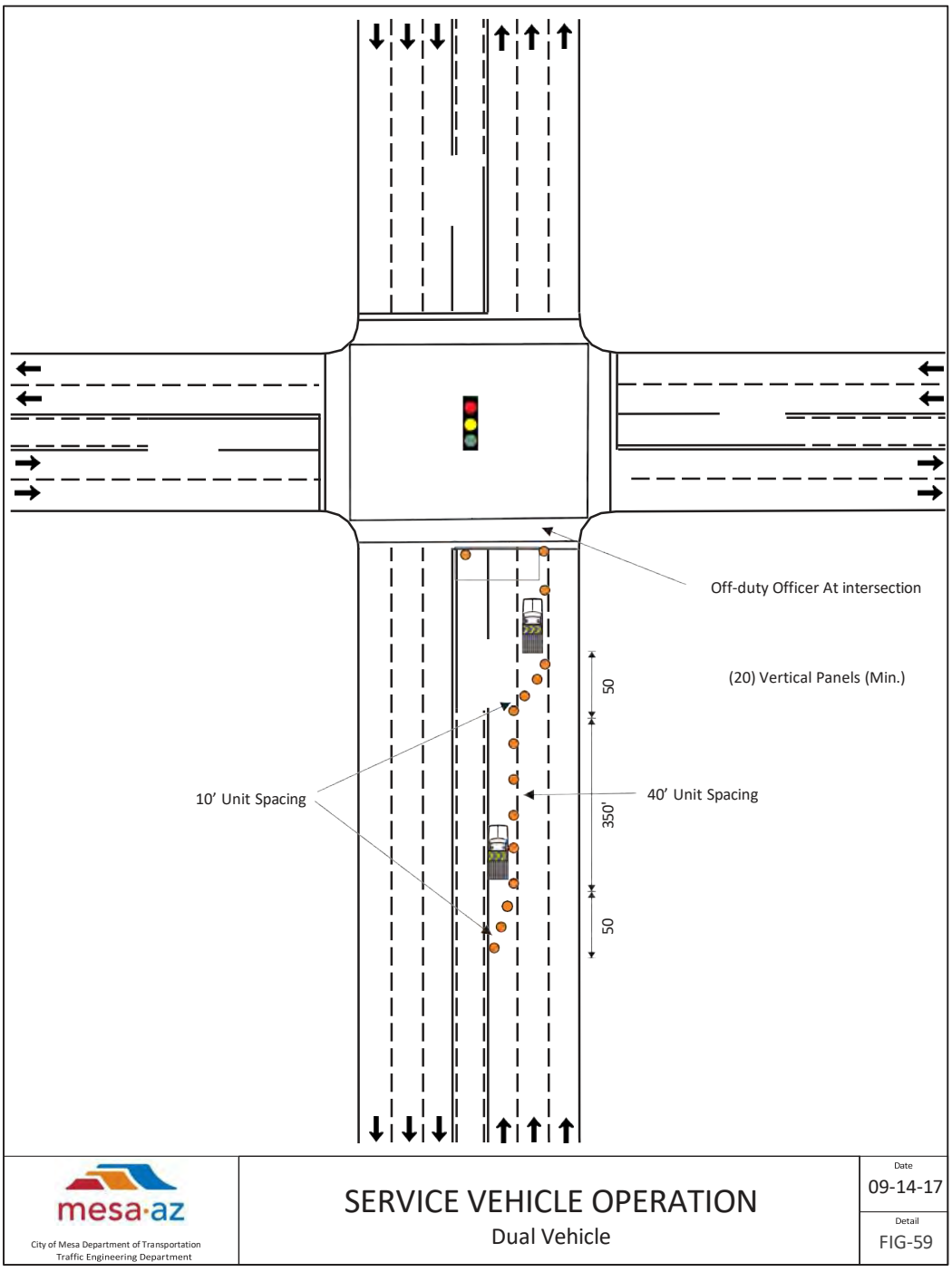
City of Mesa Department of Transportation
Traffic Engineering Department

SERVICE VEHICLE OPERATION

Option 4 (Local Street)

Date: 01-22-24

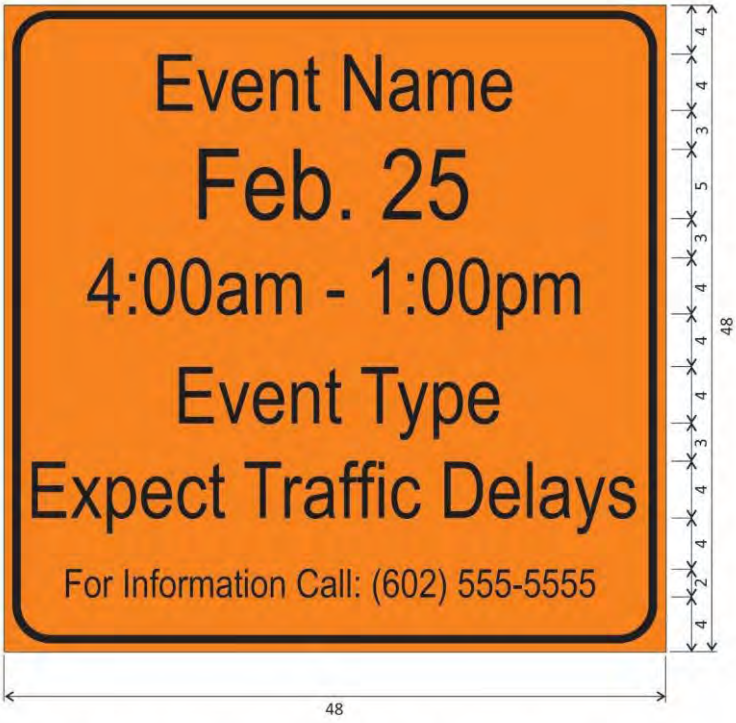
Detail: FIG-58


Off-duty Officer At intersection
(20) Vertical Panels (Min.)
50
10' Unit Spacing
40' Unit Spacing
350'
50
mesa·az
City of Mesa Department of Transportation
Traffic Engineering Department
SERVICE VEHICLE OPERATION
Dual Vehicle
Date
09-14-17
Detail
FIG-59

Appendix B

Mesa Sign Detail

SIZE: 48" x 48"



48.000" across sides 3.000" Radius, 1.250" Border, 0.750" Indent, Black on Orange

COLORS:
Legend & Border - Black (Non-Refl.)
Background - Orange (Refl.)

ALL DIMENSIONS ARE IN INCHES

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City of Mesa Department of Transportation
Traffic Engineering Department

SPECIAL EVENT SIGN

Date
11-18-16

Detail
SEV-1

SIZE: 48” x 48”

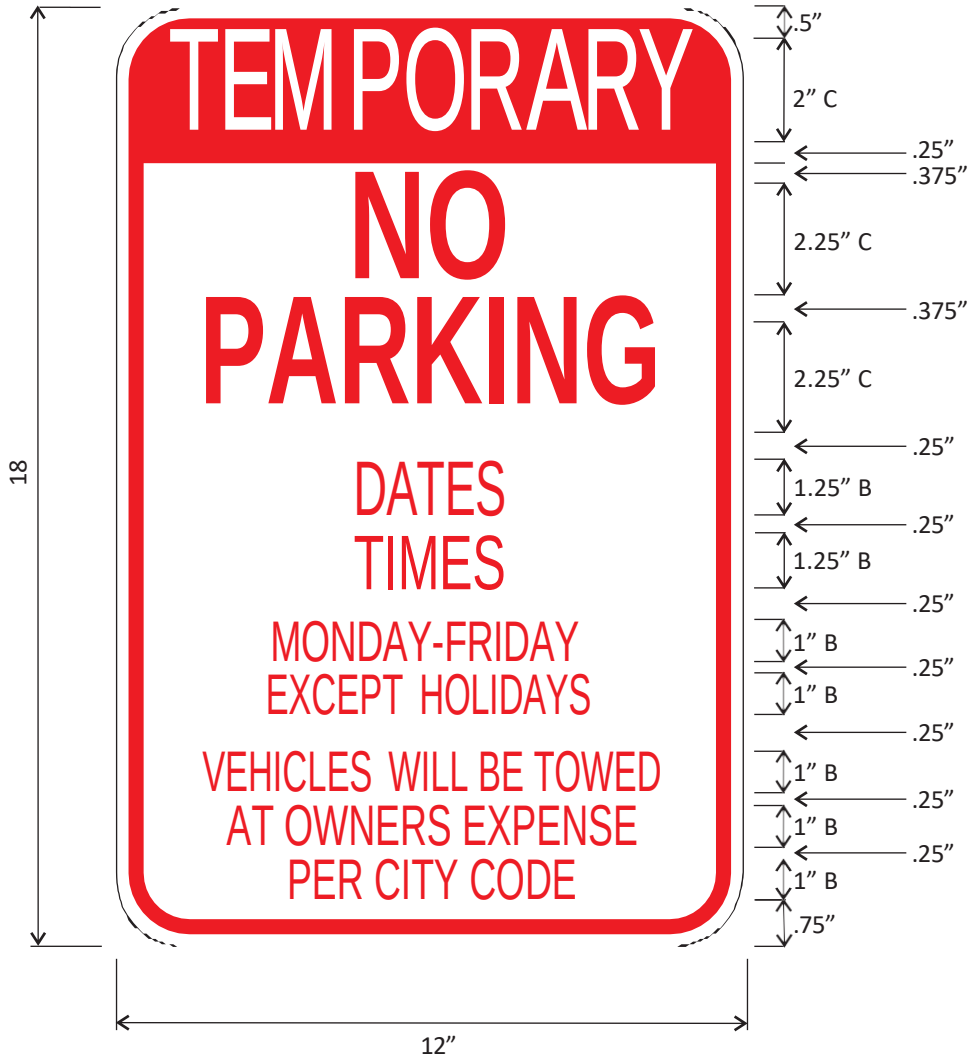
48.000” across sides 3.000” Radius, 1.250” Border, 0.750” Indent, Black on Orange

COLORS:
Legend & Border - Black (Non-Refl.)
Background - Orange (Refl.)

ALL DIMENSIONS ARE IN INCHES

mesa·az City of Mesa Department of Transportation Traffic Engineering Department	PROJECT SIGN	Date 02-27-24 Detail SEV-2

SIZE: 12” x 18”



1.5” Radius, .25” Border, 0.25” Indent, Red on White

COLORS:

Legend & Border - Black (Non-Refl.)
Background - White (Refl.)
Font: Highway B and C

ALL DIMENSIONS ARE IN INCHES

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City of Mesa Department of Transportation
Traffic Engineering Department

TEMPORARY NO PARKING SIGN

Date 05-29-25

Detail

SIZE: 24" x 18"

1" Radius, .375" Border, 0.375" Indent, Black on White

COLORS:
Legend & Border - Black (Non-Refl.)
Background - White (Refl.)
Font: Highway C

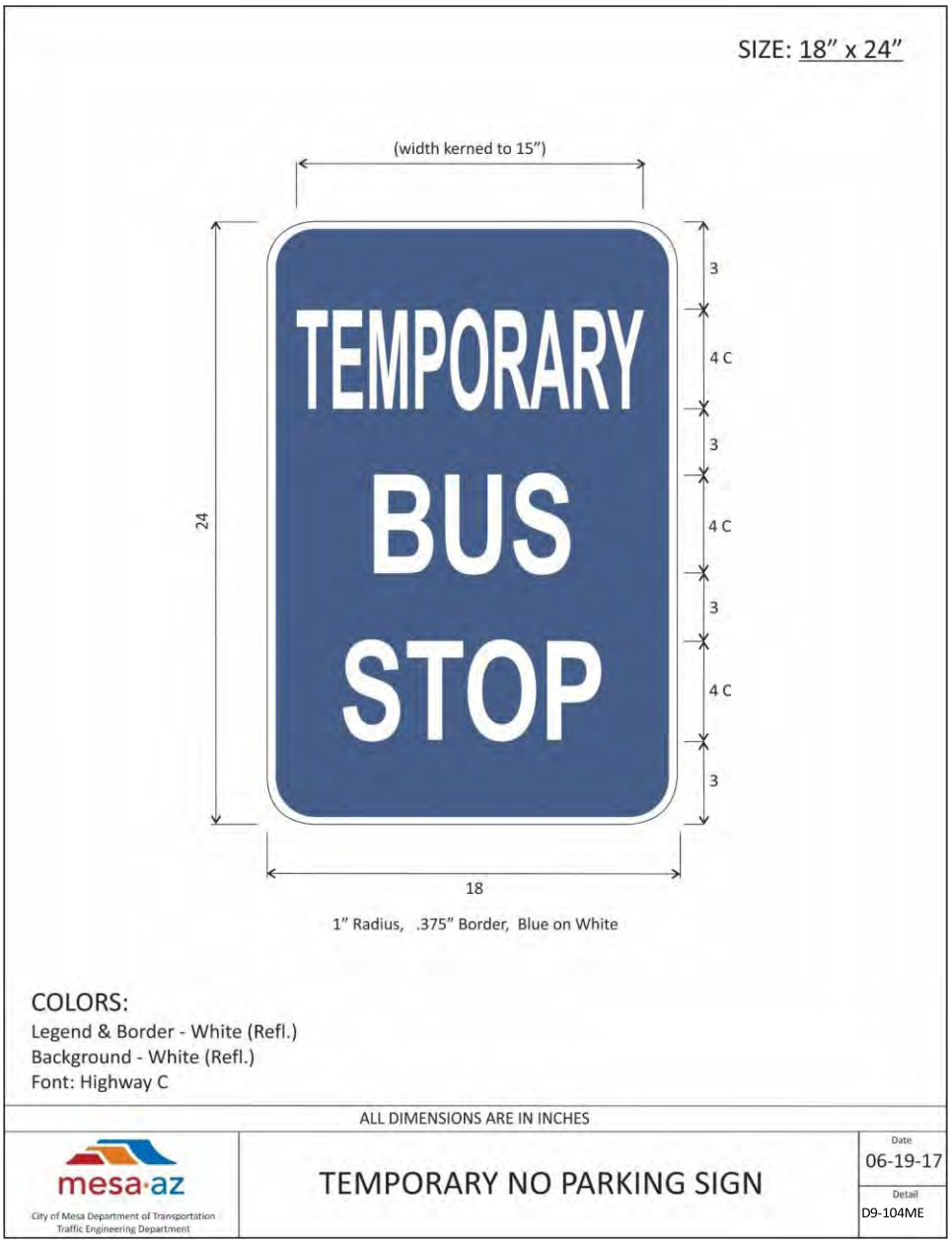
ALL DIMENSIONS ARE IN INCHES

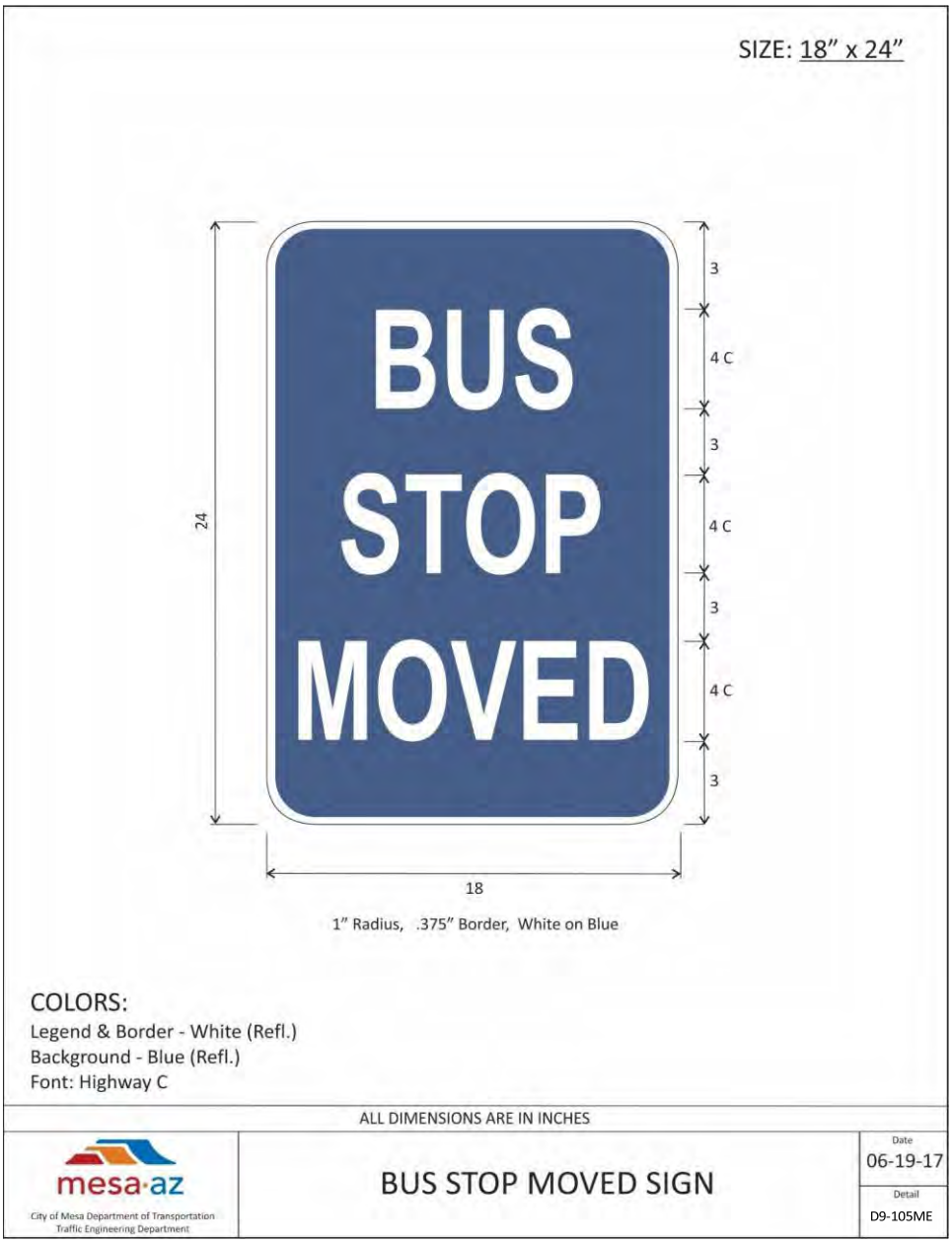
mesa·az
City of Mesa Department of Transportation
Traffic Engineering Department

SIDEWALK CLOSED AHEAD SIGN

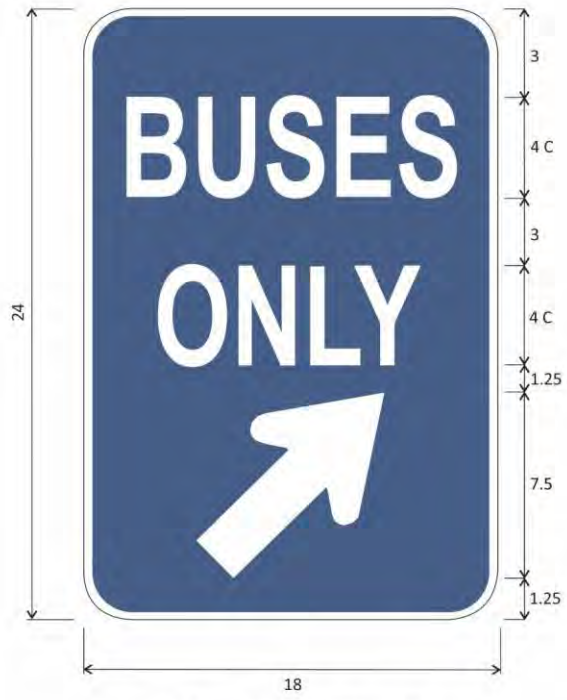
Date
05-17-17

Detail
R9-9aME


SIZE: 18" x 24"
(width kerned to 15")
TEMPORARY
BUS
STOP
24
3
4 C
3
4 C
3
4 C
3
18
1" Radius, .375" Border, Blue on White
COLORS:
Legend & Border - White (Refl.)
Background - White (Refl.)
Font: Highway C
ALL DIMENSIONS ARE IN INCHES
mesa·az
City of Mesa Department of Transportation
Traffic Engineering Department
TEMPORARY NO PARKING SIGN
Date
06-19-17
Detail
D9-104ME


SIZE: 18" x 24"
BUS
STOP
MOVED
24
3
4 C
3
4 C
3
4 C
3
18
1" Radius, .375" Border, White on Blue
COLORS:
Legend & Border - White (Refl.)
Background - Blue (Refl.)
Font: Highway C
ALL DIMENSIONS ARE IN INCHES
mesa·az
City of Mesa Department of Transportation
Traffic Engineering Department
BUS STOP MOVED SIGN
Date
06-19-17
Detail
D9-105ME

SIZE: 18" x 24"



1" Radius, .375" Border, White on Blue

COLORS:
Legend & Border - White (Refl.)
Background - Blue (Refl.)
Font: Highway C

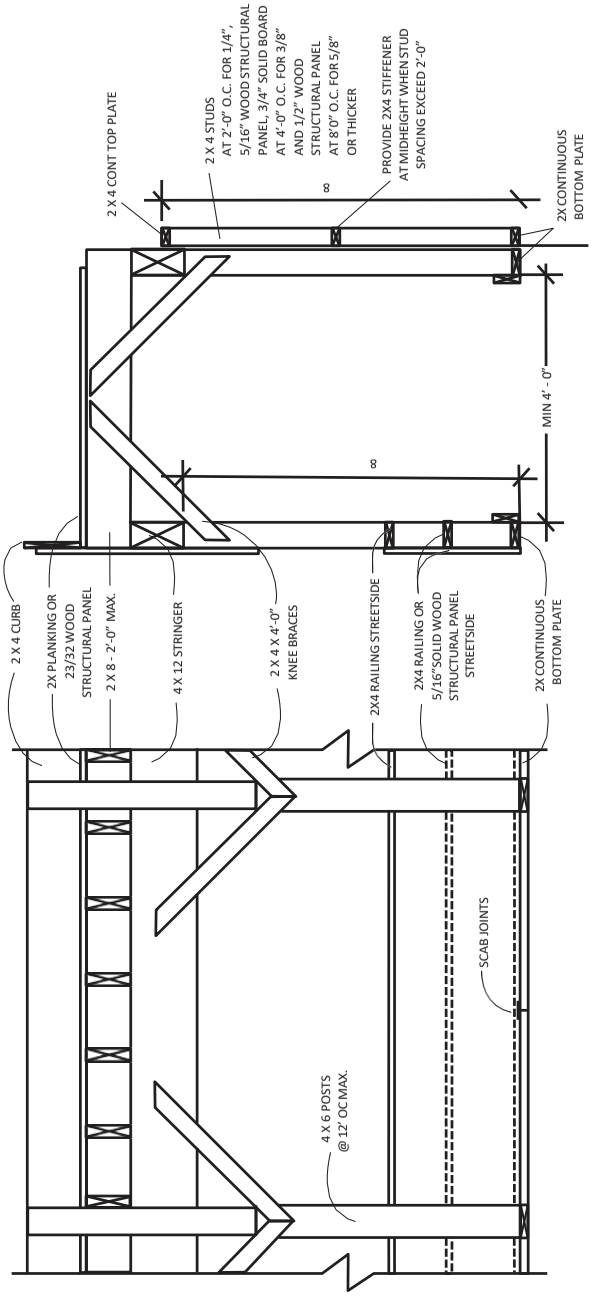
ALL DIMENSIONS ARE IN INCHES

mesa·az
City of Mesa Department of Transportation
Traffic Engineering Department

TEMPORARY BUSES ONLY SIGN

Date
06-19-17

Detail
D9-106ME



Note: Example of CONSTRUCTION WHEN DESIGN IS IN LIEU OF 75 PSF LOADS

City of Mesa Department of Transportation
Traffic Engineering Department

PEDESTRIAN PROTECTION

During Construction/Demolition

Date
03-13-18

Page

Appendix C

Definitions and Abbreviations

Appendix C – Definitions

AASHTO: American Association of State Highway and Transportation Officials.

ADOT: Arizona Department of Transportation.

ADVANCE NOTICE: Represents the minimum number of calendar days in advance of the work.

ANSI: American National Standards Institute.

ARTERIAL STREET: Streets designated as "Arterial" streets should meet the roadway design criteria as provided in the Mesa Standard Details & Specifications (latest edition) detail number M-19.01.

ATSSA: American Traffic Safety Services Association.

CHANNELIZING DEVICE: Temporary traffic control devices used in conjunction with one another to provide for smooth and gradual vehicular traffic flow from one lane to another. They are used to channelize vehicular traffic away from work areas and opposing directions of traffic.

COLLECTOR STREET: Streets designated as "Collector" streets should meet the roadway design criteria as provided in the Mesa Standard Details & Specifications (latest edition) detail number M-19.01.

DETOUR: A temporary relocation of roadway users onto an existing street in order to avoid a temporary traffic control zone.

EMERGENCY: An unplanned event requiring immediate action to preserve or protect public health, safety or welfare.

FHWA: Federal Highway Administration.

HOURS OF DARKNESS: Hours from sunset to sunrise.

IMSA: International Municipal Signal Association.

INTERSECTION: An at-grade junction where two or more roads meet or cross.

ISEA: International Safety Equipment Association.

ITS: Intelligent Transportation Systems.

LOCAL STREET: Streets designated as "Local" streets should meet the roadway design criteria as provided in the Mesa Standard Details & Specification (latest edition) detail number M-19.01.

MASH: Manual for Assessing Safety Hardware.

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

NCHRP 350: National Cooperative Highway Research Program.

NON-PEAK TRAFFIC HOURS: Times not defined as "peak traffic hours".

PEAK TRAFFIC HOURS: Hours between 6:30 a.m. to 8:30 a.m. and 4:00 p.p. to 6:00 p.m., weekdays (Monday-Friday).

POLICE OFFICER: A uniformed City of Mesa, Maricopa County Sheriff's Department, or Department of Public Safety law enforcement officer, on-duty of off-duty, duly authorized to enforce the Arizona Revised Statues and Mesa City Code in the City of Mesa.

PUBLIC RIGHT-OF-WAY: All land in the City of Mesa dedicated and/or expressly used for the use of vehicular and traffic and/or utilities.

RESTRICTION: Any induced reduction to the normal flow/access of vehicular or pedestrian traffic in the public right-of-way.

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.

SHADOW 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 following a service vehicle to provide directional guidance for motorists.

TPAP: Temporary Pedestrian Access Plan

TRAFFIC: Pedestrians, bicyclists, vehicles, trains, and other conveyances either singularly or together using any street for purposes of travel.

TTCM: Temporary Traffic Control Manual

TTC: Temporary Traffic Control

TCP: Traffic Control Plan

Definitions of headings, words, and phrases used in this manual not appearing in Appendix B may be found in Section 1A.13 of the MUTCD.

Appendix D

City Contact Numbers

Appendix D-City Contact Numbers

Temporary Traffic Control Permits & Information, 480-644-4882(4TTC)

Traffic Engineering Main Number, 480-644-2160

Traffic Management Center (Traffic Signals), 480-644-5888

Engineering Construction, 480-644-2253

Transit Services, (480) 644-4131

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

Transportation Field Operations, 480-644-3038

Utilities, see Energy Resources or Water Resources

Water Resources Admin. (Water, Wastewater), 480-644-2142

City of Mesa

Transportation Department

300 E. 6th Street

P.O. Box 1466

Mesa, Arizona 85211-1466

480-644-2160