These guidelines have been prepared for use as a guide in providing access for newly developed commercial, industrial, and multi-family properties. Driveway location and design are closely tied to the site plan and specific conditions for a given development. It is recognized that there will be instances where it may be impractical to meet these guidelines. In such cases, careful judgment must be used in granting variances. Traffic Engineering must approve all variances.

These guidelines were developed primarily for access from major streets. It is important that the minimum design features of driveway type and width not be compromised. To do so would adversely affect traffic flow on the major street. In general, these guidelines also should be applied to lower volume streets, although more latitude and flexibility are possible on lower volume streets.

The guidelines generally provide minimum standards. They should not be used to discourage engineers, architects, and designers from proposing innovative design solutions that vary from the minimum standards described here. Nor should they be applied arbitrarily when specific site conditions warrant something different.

Any questions about these guidelines, driveway and site layout in general, or specific problems should be directed to Traffic Engineering.

**Controlled Vehicular Access Easement**

Early in the zoning or subdivision review process for commercial sites, a Controlled Vehicular Access Easement (CVAE) should be placed along the site’s major street frontages. See Figure 1. This easement has the effect of requiring review and approval by Traffic Engineering for the proposed driveway and access plan. A Non Vehicular Access Easement (NVAE) is sometimes placed to prevent access along certain roadways. City Council action is necessary to abandon a NVAE.

**Number of Driveways**

At least one driveway per abutting street will be allowed.

One additional driveway may be allowed for a site with continuous frontage of 300 feet or more.

Two additional driveways may be allowed for a site with continuous frontage of 600 feet or more.

An additional service type driveway may be allowed for a site with continuous frontage of 600 feet or more, where the site layout is such that the service driveway is unlikely to be used by customers of the businesses on the site. For example, a large corner shopping center may have a service driveway near the property line for service truck access to the rear of the buildings.

Additional emergency driveways may be provided if they are gated and it is clear that they are restricted to emergency use only.

Driveway location must be evaluated with respect to the particular site layout and location. Variations may be permitted where a traffic analysis justifies a departure from these guidelines.

**Driveway Design**

For low to moderate volume driveways where only one entrance and one exit lane are needed, the minimum design is a City of Mesa Standard M-42 driveway, 30 feet wide. See Figure 2.
For higher volume driveways where two exit lanes are to be provided, the driveway should be 40 feet wide. This will provide a 16 foot wide entrance and two 12 foot wide exit lanes. This design offers the advantage of preventing drivers who exit by turning left from blocking those who turn right.

An alternative to the 40 foot wide driveway is to provide a divided driveway with a median. For divided driveways, the minimum widths should be 20 feet for the entrance and 24 feet for the two lane exit. If only a single exit lane is desired, the width should be 20 feet. See Figure 2.

One-way driveways must be a minimum of 20 feet wide, and should be designed to discourage inadvertent use as two-way driveways.

**Driveway Location**

Driveways near a corner must be located with a minimum of 100 feet between the driveway and the extension of the curb of the intersecting street. This may be reduced for unusual circumstance if approved by Traffic Engineering.

Where the adjacent parcel is undeveloped or has a driveway within 10 feet of the property line, there should be a minimum of 10 feet between a new driveway and adjacent property line. This is to avoid the possibility of adjacent driveways meeting at the property line. If however the adjacent property has been developed such that there will be no conflict, it is not necessary to keep the new driveway 10 feet from the property line.

There should be a minimum of 60 feet between adjacent driveways serving the same development. See Figure 3.

**Joint Use Driveways**

The joint use of a single driveway to serve adjoining parcels should be encouraged wherever possible. An access easement shall be recorded when the parcels are developed.

When larger corner sites are developed with small corner pads reserved for future construction, or vice versa, provision should be made for the corner pads to have access via the driveways for the larger development, and not require separate driveways for the pads. See Figure 4.

**Reuse of Existing Driveways**

Where a property is being converted to a new use, such as residential to commercial, or where a new commercial development is being built on an old commercial site with existing driveways, the current driveway design standard should be applied to the new development. If the old driveways are not appropriate according to the current standard, they should be removed and new driveways installed.

**Sight Distance**

Adequate sight distance shall be provided at all intersections and driveways.

The determination of whether an object constitutes a sight obstruction shall consider both the horizontal and vertical alignment of both intersecting roadways, as well as the height and position of the object. In making this determination, it should be assumed that the driver's eye is 3.5 feet above the roadway surface for passenger vehicles and that the object to be seen is 3.5 feet above the surface of the intersecting roadway. In cases where the typical vehicle is a truck, visibility is to be provided for a driver
eye height of 7.6 feet as well as 3.5 feet. The driver's eye is assumed to be positioned 15 feet back from the face of the adjacent street curb, at the centerline.

The sight distance required varies according to traffic speeds on the through road and widths of the intersecting streets or driveways. The most common street conditions are shown on Figure 5. Alternate cases, as well as supporting documentation for these values can be found on the Transportation Division website at /transportation/trans design guidelines.asp. A designer may provide sight distance from their own calculations as long as they are based on the 2004 AASHTO Policy on Geometric Design of Highways and Streets and submitted with the plans. Please note that Figure 5 is to be used for straight portions of roadway only. For curved portions of roadway use calculations based on AASHTO guidelines, or contact the City of Mesa Transportation Division.

Visibility must also be provided for traffic control devices, such as STOP signs at intersections. Sight distance required for STOP sign visibility is shown on Figure 6.

There shall be no fence, wall, shrubbery, sign, or any other obstruction to vision between a height of three feet (3’) and eight feet (8’) above the centerline grades of the intersecting streets or within the sight triangle. There should not be interference with the line of sight of a driver to an object, such as the overgrowth of a plant that is placed on the edge of the sight triangle. Figures 2.1 through 2.12 in the City of Mesa Engineering and Design Standards provide additional guidance for roadside development including objects within the sight triangles.

The designer must consider that other vehicles such as opposing left-turn vehicles in a median can block sight distance, and the design must account for this possibility. This is particularly evident along curves.

Deceleration Lanes

A deceleration lane added at an entrance is beneficial in that it allows entering vehicles to slow down and complete a right turn out of the through traffic flow, reducing the disruption to through traffic caused by driveway activity, and reducing the potential for rear-end accidents. A typical deceleration lane provides at least 150 feet of storage, a 100-foot taper or reverse curve, and a 12-foot wide lane. Please note that longer storage or tapers may be necessary depending on the site. See Figure 7.

Deceleration lanes may be provided at retail, multi-family, industrial or commercial sites depending on the size of the site. Generally, deceleration lanes should be provided at retail sites with 40,000 gross square feet or more of building area. Multi-family and private street residential developments should provide deceleration lanes if there are 100 or more units per access point for the site. Industrial parks with 200,000 gross square feet or more of building area, business parks and general office buildings with 100,000 gross square feet or more, and medical office buildings with 40,000 gross square feet or more should provide deceleration lanes. Smaller developments may need deceleration lanes also, based on site-specific conditions. Institutional sites such as hospitals and colleges are large enough to warrant deceleration lanes in most cases. Deceleration lanes should be provided for all of the driveways along a site where the lanes are required. If a driveway is mainly used for service and delivery vehicles, and it is separated from the main parking area, it may not require a deceleration lane.

Internal Site Circulation

Driveway design is intimately related to the site plan and internal traffic circulation. All must be evaluated as a whole.

Parking lots for larger developments with 200 or more parking spaces should be designed to limit the first point of entry to parking aisles to a distance of at least 40 feet behind the sidewalk. This removes conflicts from the immediate vicinity of the driveway, making entry and exit smoother and safer. See
Figure 8. Each site should be evaluated to determine the best layout for the conditions and planned development.

At drive-through service developments such as fast food restaurants and drive-in banks, the site should be designed to maximize storage space for vehicles using the drive-through services, and the drive-through entrances and exits should not create conflicts with other traffic on the site.

Median Openings

Raised medians on major streets are provided to reduce conflicts and improve traffic flow. Careful consideration should be given to requests for median openings to insure that the purpose of the median is not defeated by a proliferation of indiscriminate median openings.

There are two (2) types of median openings used in Mesa. The full access opening allows left turns from the street into a site as well as left turns from a site onto the street. The partial access opening allows left turns from the street into a site, but it prohibits left turns from a site onto the street. The partial access opening allows fewer traffic conflicts and has a lower potential for accidents than the full access opening. Median openings shall be designed per City of Mesa Standard Detail M-16. The following criteria govern median openings.

- Median opening spacing is measured from the center of the median opening to the center of the adjacent median opening or intersection.
- In general, full access median openings may be provided at sixth-mile or eight hundred eighty feet (880') points along an arterial street. Additional median openings are allowed but should be the partial access type.
- A median opening closer than eight hundred eighty feet (880') to an arterial-to-arterial intersection shall be the partial access type.
- Median openings less than six hundred sixty feet (660') from an arterial-to-arterial intersection are not allowed.
- Median openings less than six hundred sixty feet (660') from any signalized intersection or an intersection likely to be signalized are not allowed.
- Median openings less than eight hundred eighty feet (880') from a freeway interchange generally are not permitted, although each case will be evaluated based on the configuration of the particular interchange.
- Adjacent median openings should not be so closely spaced as to eliminate all of the area available for landscaping in the median.
- Left turn storage shall be provided for both directions on the major street where appropriate.
- There may be unique geometric conditions at some locations that would affect the ability to provide a median opening. Variations from these guidelines may be appropriate depending on the particular design features of the street under consideration. The Traffic Engineer shall approve variations.

The design and construction of median openings for private businesses shall be the responsibility of those establishments, subject to approval by the City of Mesa.
FIGURE 2
CITY OF MESA M-42 DRIVEWAY DETAIL

1. Expansion joints to be constructed at each side of driveway depression at points of curvature and at all rigid structures.
2. All concrete shall be class "A" as per section 723.
3. All commercial driveways and alley entrances are to be 6" thick on 4" A.B.C. or 8" thick on compacted native.
4. All commercial driveways shall be provided with contraction joints at driveway centerline, at break between sidewalk and driveway wings and from back corner of apron to lip of gutter, both sides of driveway. The contraction joints may be either scored or sawcut 1-inch deep.
5. Finish grade elevation shall be equal to the top of curb elevation unless otherwise approved by the city engineer. Any change in elevation shall be clearly noted on approved plans.
6. Finish curb elevation shall transition uniformly from full height curb elevation to depressed curb elevation.

NOTES

- WHEN INSTALLING A DRIVEWAY IN EXISTING SIDEWALK AND/ OR CURB, THE FOLLOWING NOTES APPLY:
  A. REMOVE CURB PORTION ONLY WHEN CONSTRUCTING NEW DEPRESSION IN EXISTING CURB. GUTTER, EXISTING CURB SHALL BE REMOVED BY SAWCUTING CURB HORIZONTALLY TO GRADES AS SHOWN IN DETAIL A. DAMAGED GUTTER SHALL BE REMOVED AND REPLACED WHERE DIRECTED BY ENGINEER.
  B. SIDEWALK MUST BE SAWCUT TO FULL DEPTH OR REMOVED TO NEXT EXPANSION JOURT.
  C. INSTALL (2) 3" SCH. 40 P.V.C. CONDUITS AT 7" BACK OF CURB, MIN. 24" BELOW FINAL GRADE, AND EXTEND 2" MIN. BEYOND EDGE OF SIDEWALK FOR POSSIBLE FUTURE LANDSCAPING OR ST. LIGHT INSTALLATION. INSTALL PLUGS IN BOTH ENDS OF CONDUITS.
  D. 1/4" GROOVES AT 1" O.C. FULL WIDTH OF 5' WARP SECTION, EACH SIDE OF DRIVEWAY. SEE DETAIL NO. 1 ON TYPE D RAMP, M.A.G. DET. 234.
10' MIN. (DOES NOT APPLY TO SHARED DRIVEWAYS)

** MAY BE REDUCED TO 75' FOR UNUSUAL CONDITIONS IF APPROVED BY TRAFFIC ENGINEERING

MINIMUM 300' FRONTAGE FOR TWO DRIVEWAYS

FIGURE 3
DRIVEWAY LOCATION
<table>
<thead>
<tr>
<th>Speed Limit of Through Road</th>
<th>Cross-Section of Through Road</th>
<th>L (feet)</th>
<th>R (feet)</th>
<th>M1 (feet)</th>
<th>M2 (feet)</th>
<th>M3 (feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>2LU (34')</td>
<td>245</td>
<td>135</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>2LU (40')</td>
<td>190</td>
<td>125</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>35</td>
<td>2 LU (40')</td>
<td>250</td>
<td>165</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>3LU (46' &amp; 48')</td>
<td>270</td>
<td>145</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>40</td>
<td>5LU (68')</td>
<td>315</td>
<td>145</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>4LD (72')</td>
<td>325</td>
<td>140</td>
<td>515</td>
<td>380</td>
<td>255</td>
</tr>
<tr>
<td></td>
<td>7LU (88')</td>
<td>345</td>
<td>130</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>6LD (94')</td>
<td>340</td>
<td>120</td>
<td>555</td>
<td>430</td>
<td>275</td>
</tr>
<tr>
<td>45</td>
<td>5LU (68')</td>
<td>350</td>
<td>160</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>4LD (72')</td>
<td>355</td>
<td>145</td>
<td>575</td>
<td>420</td>
<td>280</td>
</tr>
<tr>
<td></td>
<td>7LU (88')</td>
<td>385</td>
<td>145</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>6LD (94')</td>
<td>375</td>
<td>135</td>
<td>615</td>
<td>475</td>
<td>305</td>
</tr>
</tbody>
</table>

Values of "L", "R", "M1" and "M2" are based on 2001 AASHTO Intersection Sight Distance Guidelines for Case B1 – Left Turn Maneuver From STOP, Level Grade, Passenger Car.

Values of "M3" are based on 2001 AASHTO Intersection Sight Distance Guidelines for Case F – Left Turns From Major Road Level Grade, Passenger Car.

Reductions to the values of "L", "R", "M1", "M2", and "M3" should be made to account for the cross-street width ("W") by subtracting one-half the cross-street width ("W"). For example, if the cross-street is 30 ft wide, a reduction equal to 15 ft (i.e., 30'/2 = 15') can be made to the values of "L", "R", "M1", "M2" and "M3" in each case.

Values reflect a driver's eye position 15 ft back from face of through road curb, and on the centerline of the approach/cross-street. Values for "M3" are for a left turning through road driver's eye position at the centerline of the cross-street and 5.5 feet off of the through road median.

Values in the table are based on sight distances calculated for 5 mph over the posted speed limit.

NOTE: This is the same as Figure 2.15 of the Engineering & Design Standards, 2005
FIGURE 6
SIGHT DISTANCE REQUIREMENTS FOR STOP SIGNS

NOTE: This is the same as Figure 2.16 of the Engineering & Design Standards, 2005
FIGURE 7  DECELERATION LANE TREATMENTS

NOTE: This is the same as Figure 2.14 of the Engineering & Design Standards, 2005.
FIGURE 8

INTERNAL PARKING LOT AISLE