

FEBRUARY 2020

DATE REVISED: 02/2020

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**COVER SHEET** 

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#### **Chapter 1 – General Requirements**

#### **Abbreviations**

AASHTO – American Association of State Highway and Transportation Officials

ADOT – Arizona Department of Transportation

ASTM – American Society for Testing and Materials

FHWA – Federal Highway Administration

MAG – Maricopa Association of Governments

MCDOT – Maricopa County Department of Transportation

MPH - Miles Per Hour

MUTCD - Manual on Uniform Traffic Control Devices

USDOT – United States Department of Transportation

#### Introduction

These Roadway Signing and Pavement Marking Guidelines establish criteria for designing, modifying and constructing the roadway signing and pavement marking on public and private streets.

The requirements of these guidelines may be modified at any time by the Town of Queen Creek.

#### **Definitions**

**ADOT Standard Specifications:** The Arizona Department of Transportation Standard Specifications for Road and Bridge Construction, latest edition, herein after referred to as the ADOT Standard Specifications.

**Arterial Streets:** A street classification designated by the Town of Queen Creek Multimodal Transportation Master Plan as high capacity roadways that carry large volumes of traffic between areas of high residential density, employment, retail and commercial land uses. Arterial streets provide limited direct access to abutting land uses.

**Bike Lane:** A travel lane, located within the paved area of a street, which is provided for the exclusive use of bicycles designated by lane use roadway signs and pavement markings.

**Collector Streets:** A street classification designated by the Town of Queen Creek Multimodal Transportation Master Plan as streets that provide connections between arterial roadways and local streets linking residential employment and commercial areas.

**Dead End:** A street with a single location for ingress and egress for vehicles.





**Engineering Plans:** The official drawings, plans, profiles, typical cross-sections and supplemental drawings, and specifications, technical reports, or reproductions thereof, approved by the engineer, which show the location, character, dimensions and details of work to be performed. The engineering plan shall be prepared, dated, stamped and signed by a Professional Engineer licensed in the State of Arizona. All such documents are to be considered as a part of the plans whether attached to or separate. An engineering plan may be supplemented with reports which contain detailed calculations, structural calculations, or other supporting documents needed to assess the total plan.

**Local Streets:** A street classification designated by the Town of Queen Creek Multimodal Transportation Master Plan to provide direct access to property and move local neighborhood traffic.

**Median:** A raised landscaped area in the middle of a roadway that adds aesthetics and prevents left-turns at unauthorized locations.

**Record Drawing:** This is the record of all changes to the intended physical product of approved Engineering Plans. Record drawings shall show all changes that occurred during construction, including changes in materials, distances, lengths, locations, elevations, volumes, etc. and shall contain a Record Drawings certification conforming to these Standards.

**Thermoplastic:** A type of plastic, bonded to the street surface with a heat source, which is used for pavement markings.

Town - Town of Queen Creek.

#### **Design Policy**

- Design of roadway signing and pavement marking in the Town of Queen Creek shall adhere to these guidelines.
- Roadway signing and pavement marking design shall be submitted to the Town of Queen Creek for review and approval.
- Approval from the Town of Queen Creek shall be valid for one year from the date of the Town Engineer's signature.
- Developers shall install the required roadway signing and pavement marking on all on-site and
  off-site street improvements necessary as a result of their developments, at their own expense.
  This shall include the removal of all existing pavement markings and roadway signs that are in
  conflict with the proposed project.
- All construction documents shall be prepared by a registered Professional Civil Engineer licensed and practicing in the State of Arizona pursuant to the provisions of A.R.S. 32-101, 32-121 to 131, 32-141 to 152.
- When submitting plans for approval, each sheet of the plans shall include the appropriate professional State of Arizona seal signature, date, and date of expiration below seal. The Town of Queen Creek does not require original seals and/or signatures on preliminary design documents during the review cycle.





#### **Implementation**

The design standards defined in these guidelines shall be effective the date of the Town of Queen Creek Council adoption of the Roadway Signing and Pavement Marking Guidelines. Design standards shall apply to the following:

- All new plans and reports submitted to the Town of Queen Creek following the effective date of adoption of the Roadway Signing and Pavement Marking Guidelines.
- All plans requiring re-approval from the Town Engineer.
- All expired plans shall be brought into conformance with the design standards of these Roadway Signing and Pavement Marking Guidelines.
- All current approved plans that have not been permitted shall comply with the requirements of these guidelines.
- All expired plans shall be revised to the current standards set forth in these guidelines and resubmitted for review.

#### **Design Standards**

The following standards are used as a reference to develop design plans in the Town of Queen Creek. These Roadway Signing and Pavement Marking standards shall supersede all other agency standards.

Arizona Supplement to the Manual on Uniform Traffic Control Devices, ADOT

Guide for the Development of Bicycle Facilities, AASHTO

Manual of Approved Signs (MOAS), ADOT

Manual on Uniform Traffic Control Devices, USDOT, FHWA

Pavement Marking Manual, MCDOT

A Policy on Geometric Design of Highways and Streets, AASHTO

Signing and Marking Standard Drawings, ADOT

Standard Specification for Road and Bridge Construction, ADOT

Traffic Guidelines and Processes (TGP), ADOT

Uniform Standard Specifications and Details for Public Works Construction, MAG





# Chapter 2 - Design Criteria

#### **General Requirements**

- Design shall be in accordance with the MUTCD unless Modified by the Town of Queen Creek as noted.
- Pavement markings convey traffic control information to the driver and may be used alone or in combination with roadway signs and traffic signals.
- All roadway signs and pavement markings shall be visible at night.
- Any roadway signs or pavement markings that are not applicable or in conflict with the proposed project shall be removed.
- All arterial and collector streets shall be striped and marked with bike lanes in accordance with the MUTCD and the Town of Queen Creek Standard Drawings.
- Plans shall be submitted for review and approval by the Town of Queen Creek.

#### **Roadway Signing Requirements**

- Highway Gothic Series C font shall be used on all flat sheet aluminum street name signs. The size of font shall be determined by the roadway classification.
  - Arterial streets with 45 MPH or higher shall have roadway signs with 8" letters on a 12" high sign panel.
  - Collector streets and arterial streets with 30 to 40 MPH shall have roadway signs with 6" letters on a 10" high sign panel.
  - Local streets with 25 MPH shall have roadway signs with 4" letters on an 8" high sign panel.
- Street name sign panels exceeding 48" shall have approval from the Town of Queen Creek.
- Internally Illuminated Street Name Signs shall be used at arterial intersections with a traffic signal, as directed by the Town of Queen Creek Traffic Engineer.
  - Overhead signs shall have 12" letters on a 24" high panel, unless otherwise approved by the Town of Queen Creek Traffic Engineer.
- All sign layouts shall be approved by the Town of Queen Creek prior to fabrication.
- Roadway signs shall be orientated perpendicular to travel lanes, unless otherwise specified on project plans.
- Sign panels shall be 0.080 inch thick aluminum. Regulatory, Warning, and Marking signs over 9 square feet shall be 0.125 inches thick. Street Name panels shall be 0.125.
- Sign sheeting shall be ASTM Type XI. Sheeting shall be manufactured by 3M Corporation or approved equal. Signs shall be fabricated using manufactures matching component system.
- Sign posts for all signs shall be 2" square as shown in the Town of Queen Creek Standard Drawings, unless otherwise directed by the Town of Queen Creek.
- Roadway signs shall be installed on existing street furniture whenever feasible. A minimum ¾"
   0.030 stainless steel banding with appropriate fasteners shall be used for such installation.





#### **Roadway Signing Notes**

#### **Roadway Signing Plan General Notes**

- 1. The Town Traffic Engineer shall be notified at least five business days prior to beginning any roadway signing work associated with these plans.
- 2. The Town Traffic Engineer may require the Contractor to adjust roadway signing locations, offsets and types of signs at the time of installation.
- 3. All roadway signing materials and installation shall conform to Town requirements. Where Town Requirements do not provide the necessary information, Arizona Department of Transportation Standard Drawings and Specifications, the Manual on Uniform Traffic Control Devices (latest ADOT approved edition) and direction from the Town Traffic Engineer should be utilized.
- 4. The Contractor shall coordinate with the Town Traffic Engineering Division prior to ordering any materials to obtain the latest roadway signing requirements and specifications.
- 5. The Contractor shall notify the Traffic Engineering Division upon completion of all signing work to schedule a final inspection. The Contractor shall supply all required warranty documents to the Town Traffic Engineering Division prior to final job acceptance.
- 6. All existing roadway signs temporarily removed by the contractor shall be salvaged for reinstallation by the Contractor. All roadway signs permanently removed by the Contractor shall be salvaged and returned to the Town. The Contractor shall be solely responsible for maintaining each sign that is removed, ensuring that the signs integrity is maintained. In the event the sign is damaged, the Contractor shall be responsible for its replacement.
- 7. All roadway signs and sign posts shall be installed per Town of Queen Creek Standard Drawings.
- 8. Final acceptance of all roadway signing shall be provided by the Traffic Engineering Division.
- 9. The contractor shall ensure that at no time a traffic sign is installed in such a way as to be blocked by trees or any type of vegetation. In such cases, the contractor shall contact the Town's Traffic Engineering Section to provide an alternative location for the installation of signing in question.
- 10. Any signing that is to be affixed to a street light pole shall be done so using a minimum ¾ inch Stainless Steel banding with appropriate fasteners.
- 11. Any signing installed within the Town's right of way shall be installed by an individual that has a current certification in signing installation or inspection from the American Traffic Safety Association (ATSSA) or International Municipal Signal Association (IMSA). Equivalents will be considered but must be submitted in writing to the Town's Traffic Engineer 30 days prior to installation of any signing.

#### Requirements for Roadway Sign Design (Other than Street Name Signs)

- 1. All roadway signs shall be faced on new 0.080 inch thick aluminum blanks. Signs over 9 square feet shall be 0.125 inches thick.
- 2. Sheeting shall be ASTM Type XI for all permanent Regulatory, Warning, Guide, Information, and Object Marker Signs (including sign legends and borders).
- 3. All Warning signs (yellow series) shall be manufactured with ASTM Type XI 3M Fluorescent Yellow 4081 diamond grade reflective sheeting or approved equal.
- 4. All School signs shall be manufactured with ASTM Type XI 3M Fluorescent Yellow Green 4083 diamond grade reflective sheeting or approved equal.
- Sheeting shall be manufactured by 3M Corporation or an approved equal with equal or greater warranty periods. All roadway signs shall be manufactured using matching components approved by the sheeting manufacturer.





6. All roadway sign panels shall be labeled on the back bottom right corner with a decal. The decal shall state the sign is property of the Town of Queen Creek and identify the manufacturer and date of installation.

#### **Street Name Signs**

- 1. All reflective sheeting materials shall be pressure sensitive ASTM Type XI 3M white 4090 diamond grade reflective sheeting or approved equal.
- All transparent acrylic, pressure sensitive film shall be 3M Series 1177 Green Electro Cut Film (or 3M Series 1175 Blue Electro Cut film for private streets) or approved equal. Screen print shall be 3M 800 Series Ink or approved equal.
- 3. Roadway signs shall be manufactured by applying white sheeting to the entire aluminum blank, then a green translucent pressure sensitive film containing the cut out street name. This method results in a white legend on a green background or blue background on private streets.
- 4. Lettering shall be upper- and lower-case Highway Gothic Series C font.
- 5. 8" letter heights shall be used for all intersections along an arterial street with 45 mph or higher. These signs shall use a 12" high blade and shall not exceed 60" in width without prior approval from the Town Traffic Engineer.
- 6. 6" letter heights shall be used for all intersections along an arterial or collector street with 30 mph to 40 mph. These signs shall use a 10" high blade and shall not exceed 48" in width without prior approval from the Town Traffic Engineer.
- 7. 4" letter heights shall be used for all intersections along local streets with 25 mph or less. These signs shall use an 8" high blade and shall not exceed 48" in width without prior approval from the Town Traffic Engineer.
- 8. 4" letter heights shall be used for all intersections along local streets with 25 mph or less these signs shall use an 8" high blade and shall not exceed 48" in width without prior approval from the town traffic engineer.
- 9. Sign panels over 48" shall be ground mounted on their own post with a minimum cross piece bracket length of 12" and with an 18" post cap.
- 10. Each sign panel mounted on a roadway light pole shall be on its own bracket.
- 11. Any sign panel mounted on a light pole be installed with its own wing bracket. Signs with a width between 36" to 48" shall use at a minimum 24" in length cantilever wing bracket.
- 12. Double street name signs can only be installed on local and collector streets.
  - Collector 6" letter height, 16" blade.
  - Local 4" letter height, 12" blade.

#### Street Name Signs - No Outlet/Dead End

- 1. All reflective sheeting materials shall be pressure sensitive ASTM Type XI Series 4090 white and Series 4091 yellow diamond grade reflective sheeting or approved equal.
- 2. All transparent acrylic, pressure sensitive film shall be 3M Series 1177 Green Electro Cut Film (or 3M Series 1175 Blue Electro Cut Film for private streets) and 3M 1178 Black EC film or approved equal.
- 3. These signs are constructed by applying white sheeting to the upper half of the sign blank and yellow sheeting to the lower half of the sign blank. On top of the white sheeting, a green translucent pressure sensitive film containing the cut out street name is applied. On top of the yellow sheeting, the black "DEAD END" or "NO OUTLET" and black arrow are applied.
- 4. Lettering for the street name (upper- and lower-case) and "DEAD END" or "NO OUTLET" shall be Highway Gothic Series C font.





- 5. 8" letter heights shall be used for all intersections along an arterial street with 45 mph or higher. These signs shall use a 16" high blade and shall not exceed 48" in width without prior approval from the Town Traffic Engineer.
- 6. 6" letter heights shall be used for all intersections along a collector street. These signs shall use an 18" high blade and shall not exceed 48" in width without prior approval from the Town Traffic Engineer.
- 7. 4" letter heights shall be used for all intersections along local streets. These signs shall use a 8" high blade and shall not exceed 14" in width without prior approval from the Town Traffic Engineer.
- 8. No Outlet/Dead End signs shall be on new 0.125 inch thick aluminum.
- 9. Arterial streets requiring a No Outlet/Dead End sign shall use a separate 36 inch W14-1a (DEAD END) sign below the street name sign.

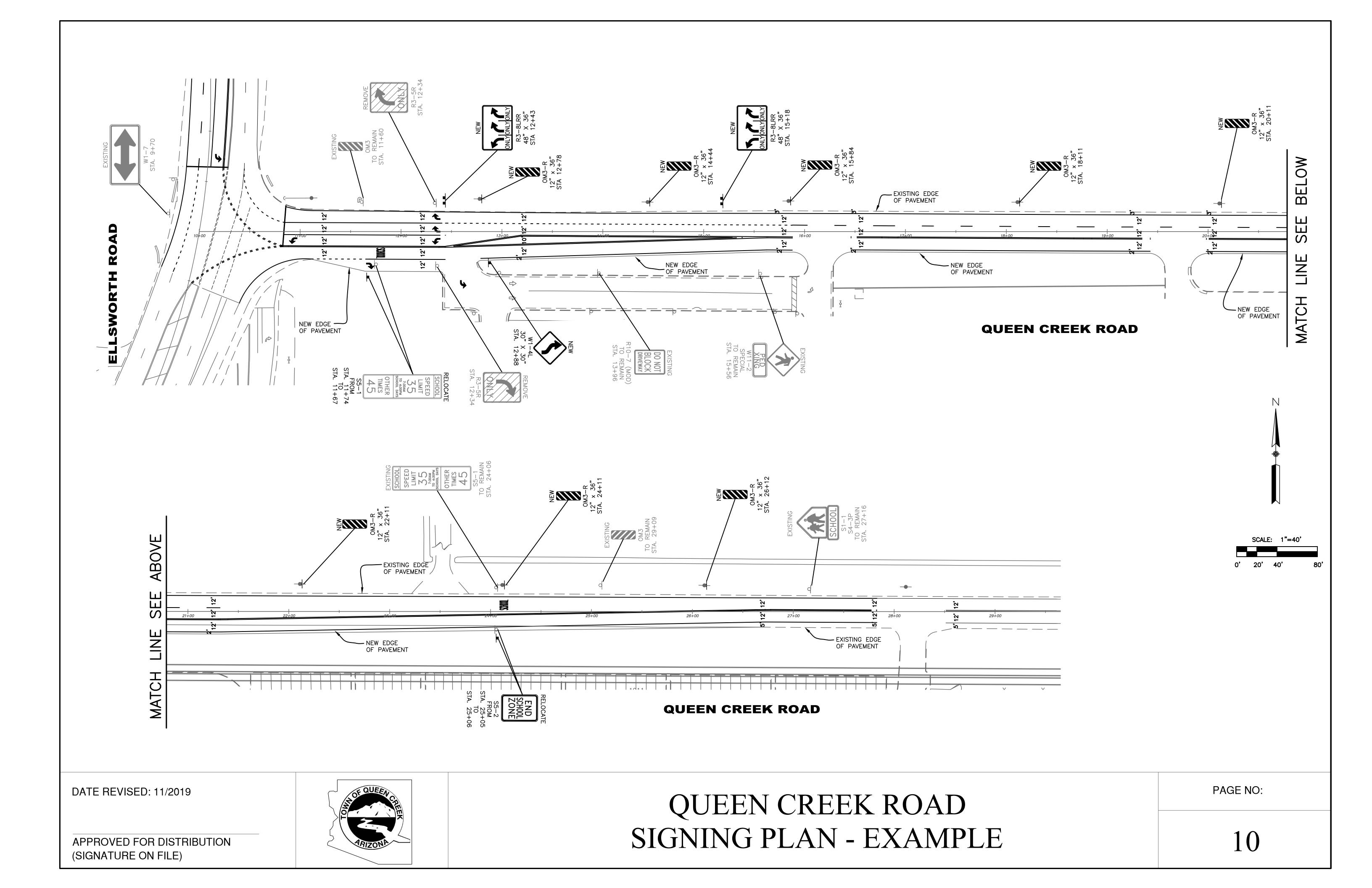
NOTE: The Contractor will be required to submit roadway signing shop drawings to the Town Traffic Engineer for approval prior to manufacturing.

#### **Warranty Documents**

The manufacturer of the roadway signing shall provide warranty documents covering materials and manufacturing defects up to 10 years. These documents shall be addressed to the Town of Queen Creek and shall provide the name of the sheeting manufacturer, type of sheeting (brand and type), type of overlay film (brand, type), name and contact information of the company responsible party manufacturing the roadway signs that shall be responsible for any warranty claims.

#### **Roadway Signing Design Plan Requirements**

- Plans sheets shall be created to a 1:40 scale. The scale shall be shown on the plan sheets.
- Plans sheets shall include:
  - Typical roadway signing notes, modified as needed for project specifications.
  - A table of quantities for all roadway signing items used in design, including:
    - Bid Item Number
    - Item Description
    - Unit of Measurement
    - Total Quantity
  - Quantities shall be calculated for items used in design, including but not limited to:
    - Number of Foundations
    - Post Length
    - Sign Sheeting
    - Object Markers
  - Plans view of roadway sign locations.
  - Sign formats for unique signs, not included in the MUTCD or ADOT MOAS.
- Sample Signing Plan shown on Page 10.







#### **Pavement Marking Requirements**

- Pavement markings shall be thermoplastic
  - Extruded thermoplastic pavement markings shall be applied on all major arterials.
  - Sprayed thermoplastic pavement markings shall be applied on all other roadways.
- Pavement marking widths shall be as follows:
  - Lane Lines 4"
  - Bike Lanes 4"
  - Turn Lanes 8"
  - Cross Walks 12"
  - Stop Bars 18"
- Median Bull noses shall be painted and marked as shown in the Town of Queen Creek Standard Drawings.
- All pavement marking legend and symbols shall be pre-formed tape. Tape shall be 3M Series 380 or an approved equivalent, unless otherwise directed by the Town of Queen Creek.





#### **Pavement Marking Notes**

#### **Pavement Marking Plan General Notes**

- 1. The Contractor shall coordinate with the Town Traffic Engineering Division for an inspection prior to the application of any paint.
- 2. After meeting with the Town Traffic Engineer, the Contractor shall spot mark the entire project and have the layout approved by the Town Traffic Engineer prior to the application of any paint. Once all pavement markings have been installed, the Contractor shall notify the Town Traffic Engineer for a final inspection. At completion of the final inspection, the Contractor shall supply all required warranty documents to the Town Traffic Engineer prior to final job acceptance.
- 3. The Town Traffic Engineer may require the Contractor to adjust pavement marking locations, offsets and types of markings prior to installation.
- 4. Any pavement markings applied prior to inspection and approval by the Town Traffic Engineering Division shall be obliterated, sealed and restriped at the Contractor's expense.
- 5. All conflicting pavement markings shall be obliterated by means of water blasting to be completed by the Contractor.
- 6. A sealant approved by the Town shall be applied by the Contractor to all areas of pavement marking obliteration.
- 7. All pavement marking materials and installation shall conform to Town requirements, the Arizona Department of Transportation Standard Drawings and Specifications, the Manual on Uniform Traffic Control Devices, and direction from the Town Traffic Engineer at time of installation.
- 8. Pavement markings shall require two (2) separate applications. The initial application shall be entirely in paint to include all lane lines, holding bars, cross walks, and stop bars. All legends shall be applied with an approved tape product at this time. Raised Pavement Markers (RPM's) shall be installed with the initial paint installation. The Contractor shall return 30-45 days following the initial paint installation and restripe the entire project in thermoplastic or as directed by the Town Traffic Engineer.
- 9. All permanent pavement marking materials on major arterials shall be extruded thermoplastic. All permanent pavement marking materials on collector roadways shall be paint. All other roadways shall require spray thermoplastic for permanent pavement markings, unless otherwise specified by the Town Traffic Engineer.
- 10. All pavement marking symbols and legends shall be 3M Series 380 tape or approved equivalent. The Town Traffic Engineer has the right to modify the pavement marking material to 3M Series 270 tape or an approved equivalent.
- 11. All Raised Pavement Markers shall be installed with Crafco Pavement Reflector Adhesive, or an approved equivalent.
- 12. All median ends shall be painted per Town of Queen Creek Standard Details.

#### **NOTES:**

- 1. The Town reserves the right to modify this list, to reject items included on the list, or to accept items not included on the list, at any time, without prior notice, if determined necessary in the best interests of the Town.
- 2. Products not covered by this list shall be submitted to the Town Traffic Engineering Division for review and approval prior to ordering.
- 3. Brand names listed may be registered trademarks of their respective manufacturers.





#### **Pavement Marking Plan Symbols**

#### **Raised Pavement Markers (RPM)**

- Type D RPM Yellow, Two Sided Raised Pavement Marker. See Standard Drawing PM-01 for RPM details
- Type G RPM Clear, One Sided Raised Pavement Marker. See Standard Drawing PM-01 for RPM details.
- Type H RPM Yellow, One Sided Raised Pavement Marker. See Standard Drawing PM-01 for RPM details.

#### **Striping Types:**

#### Lane Line:

- 4" broken yellow or white line.
- 10' stripe with a 30' gap.
- Type D or G RMP shall be located in the center of the gap. See Standard Drawing PM-01 for RPM details.

#### **Guide Line and Lane Drop Line:**

- 4" broken white line.
- 2' stripe with a 6' gap.

#### **Edge Line:**

- 4" solid white line between travel lane and bike lane.
- 8" solid white line between bike lane and right turn lane.
- 8" solid white line between travel lane and left turn lane.

#### **Two Way Left Turn Lanes:**

- 4" broken yellow line and 4" solid yellow line with 10' stripe with a 30' gap.
- Type D RMP shall be located in the center of the gap. See Standard Drawing PM-01 for RPM details.

#### **Left Turn Bay:**

- 8" solid white line.
- Type G RMP at 20' spacing along stripe. See Standard Drawing PM-01 for RPM details.
- Turn lane length shall be a minimum of 100'. For turn lanes longer than 150', a second arrow shall be used.





#### **Right Turn Bay:**

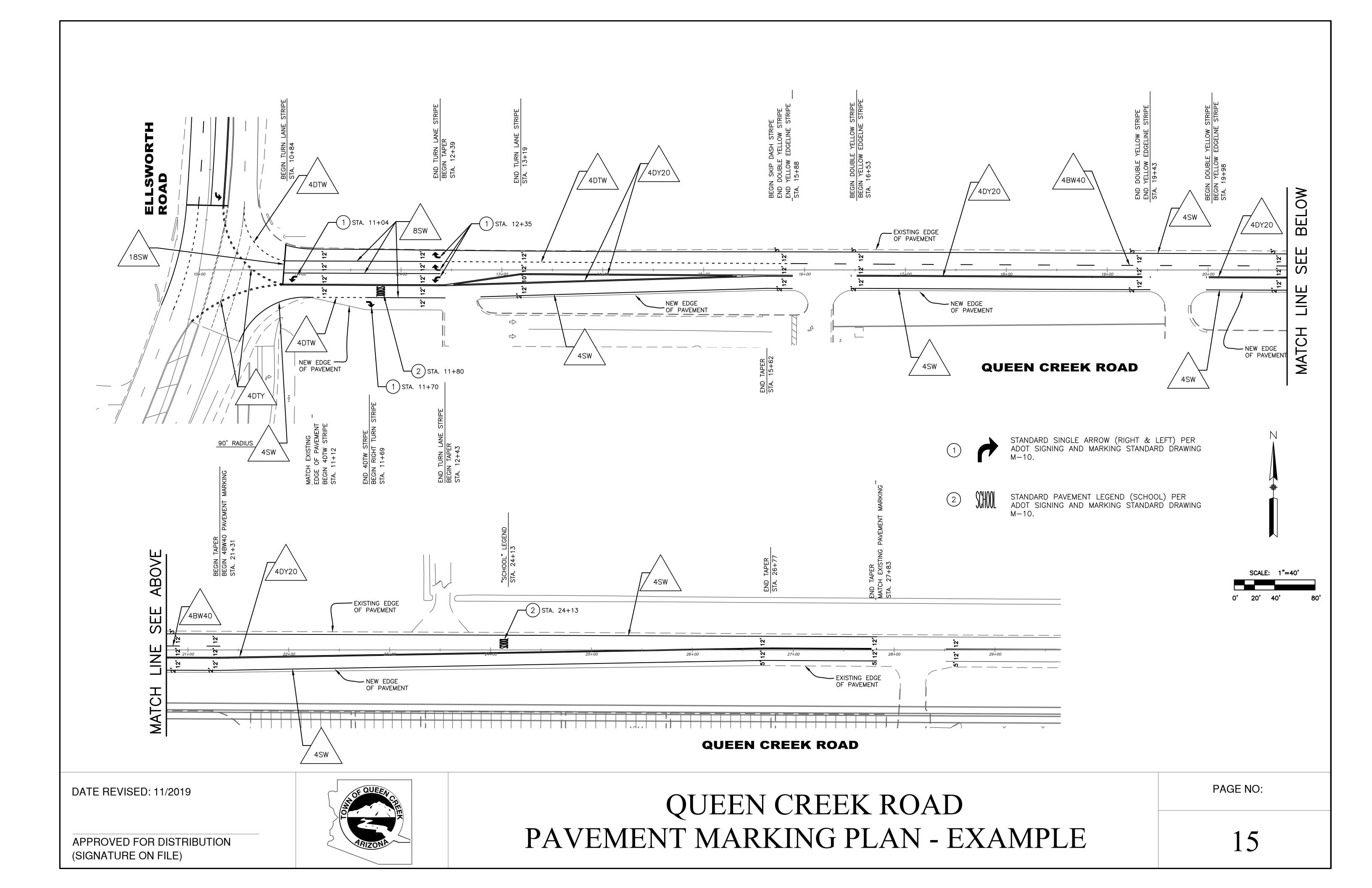
- 8" solid white line.
- Type G RMP at 20' spacing along stripe. See Standard Drawing PM-01 for RPM details.
- Turn lane length shall be a minimum of 100'. For turn lanes longer than 150', a second arrow shall be used.

#### **No Passing Stripes:**

- 4" double yellow lines.
- Type D RMP shall be located in the center of the gap. See Standard Drawing PM-01 for RPM details.

#### **Pavement Marking Design Plan Requirements**

- Plans sheets shall be created to a 1:40 scale. The scale shall be shown on the plan sheets.
- Plans sheets shall include:
  - Typical pavement marking notes, modified as needed for project specifications.
  - A table of quantities for all pavement marking items used in design, not limited to, but including as needed:
    - Temporary Striping Paint
    - White Thermoplastic Striping
    - Yellow Thermoplastic Striping
    - Transverse Thermoplastic Striping
    - Type D RPM
    - Type G RPM
    - Bull Nose Striping
    - Pavement Symbols
    - Pavement Legends
  - Quantity table shall include:
    - Bid Item Number
    - Item Description
    - Unit of Measurement
    - Plans Quantity
    - Total Pay Quantity
  - Plans view of pavement marking. Station callouts shall be provided at all locations where stripe pattern changes and as needed for constructability.
- Sample Pavement Marking Plan on Page 15.







#### **Record Drawings**

Record Drawings shall be submitted at the completion of construction, prior to the Town of Queen Creek's final acceptance of the project. The Town of Queen Creek assumes no responsibility for the accuracy of record drawing information provided as a public record.

Record Drawing plans shall be created using computer software or hand written legibly in red. Record Drawings shall be submitted electronically on a CD, labeled with the project name, date, location, engineering firm, Town of Queen Creek project number, and "Record Drawings".

The Record Drawing plans set shall include:

- All sheets from the approved design/construction plan set
- Date in the upper right title block of all sheets
- "Record Drawing" lettering on the lower right corner of all sheets
- Improvements deleted in the field shall be crossed out with an "X"
- Improvements changed from the approved design plans shall be reflected and clearly called out by "clouding"
- A statement and the seal of a licensed professional engineer who is registered in the State of Arizona, certifying the record of all modifications to original design drawings.
  - "I hereby certify that the Record Drawings set of plans accurately reflects the conditions as they exist in the field to the best of my knowledge and belief."

RECORD DRAWING CERTIFICATION:	
I HEREBY CERTIFY THAT THE "RECORD DRAWING" MEASUREMENTS AS SHOWN HEREON WERE MADE SUPERVISION OR AS NOTED AND ARE CORRECT TO BEST OF MY KNOWLEDGE AND BELIEF.	
REGISTERED ENGINEER / LAND SURVEYOR	DATE
REGISTRATION NUMBER	

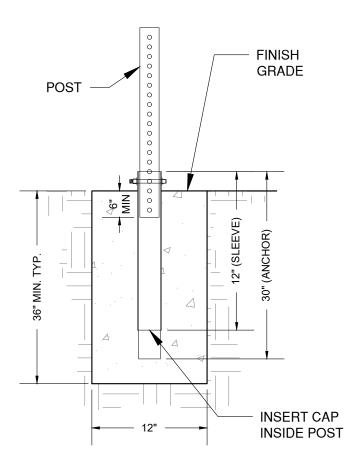




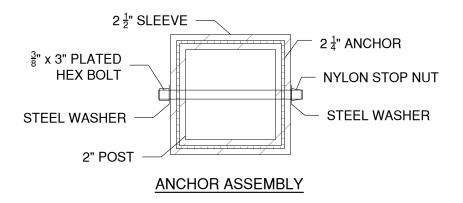
# **Introduction**

These Standard Drawing Guidelines establish criteria for designing, modifying and constructing the roadway signing and pavement marking on public and private streets.

The requirements of these guidelines may be modified at any time by the Town of Queen Creek.



SINGLE POST FOUNDATION



#### NOTES:

- 1. ANCHOR, SLEEVE, AND POST SHALL BE 12 GAUGE GALVANIZED STEEL SQUARE TUBING, PERFORATED WITH 7/16" DIAMETER HOLES, AT 1" SPACING.
- 2. POST ANCHOR SHALL BE SOLID AND HAVE 2 HOLES EXPOSED AT FINISHED GRADE.
- 3. BOLT FOR ANCHOR ASSEMBLY TO BE PERPENDICULAR TO THE FLOW OF TRAFFIC.
- 4. SIGN POST MUST BE ABLE TO TELESCOPE AFTER INSTALLATION.
- 5. ARIZONA DEPARTMENT OF TRANSPORTATION POST AND ANCHOR SPECIFICATIONS SHALL BE FOLLOWED IF NOTED ON PLAN SHEETS.

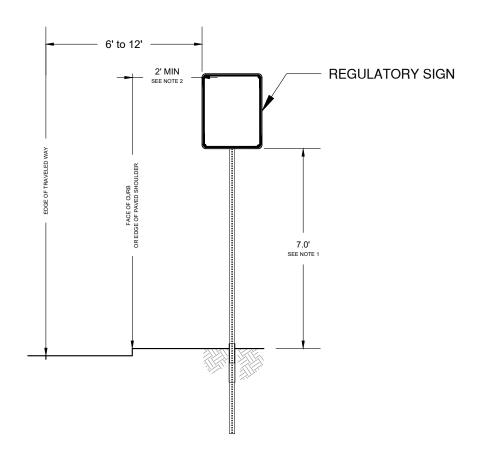
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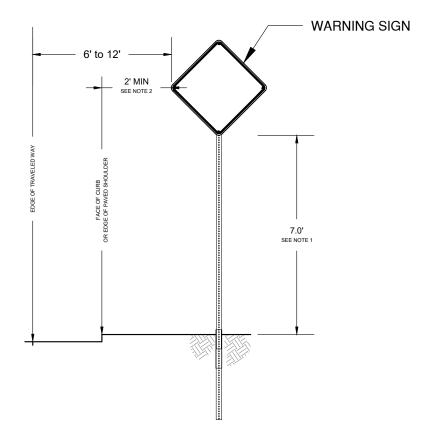
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TYPICAL SIGN POST

**DETAIL NO:** 





- 1. SIGN PANELS SHALL BE MOUNTED AT A MINIMUM HEIGHT OF 7 FEET. WHERE SUPPLEMENTAL SIGNS ARE REQUIRED, MEASUREMENT SHALL BE TO THE BOTTOM OF THE SUPPLEMENTAL SIGN.
- 2. A MINIMUM 1-FOOT LATERAL OFFSET FROM EDGE OF PAVEMENT OR FACE OF CURB MAY BE USED WHERE POLES ARE CLOSE TO EDGE OF ROAD OR CLEARANCE IS LIMITED.
- 3. SIGN SIZES TO BE PER THE LATEST EDITION OF THE MUTCD INCLUDING ARIZONA SUPPLEMENT (IF APPLICABLE).

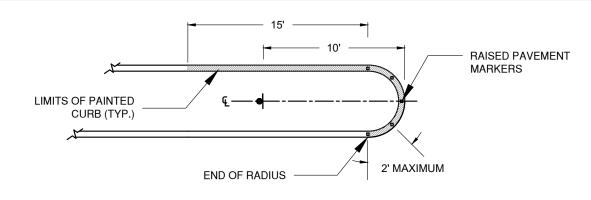
- 4. POST LENGTHS SHALL BE DETERMINED BASED ON PANEL SIZE, POST LENGTH, AND FOUNDATION DEPTH.
- 5. TWO POSTS SHALL BE REQUIRED WHEN SIGN PANEL AREA IS EQUAL OR GREATER THAN 48" WIDE FOR A SQUARE OR RECTANGULAR PANEL, OR AS REQUIRED BY THE TOWN OF QUEEN CREEK.
- 6. SIGNS SHOULD BE INSTALLED ON EXISTING STREET FURNITURE INSTEAD OF GROUND-MOUNTED POSTS, WHEN POSSIBLE.

DATE REVISED: 02/2020

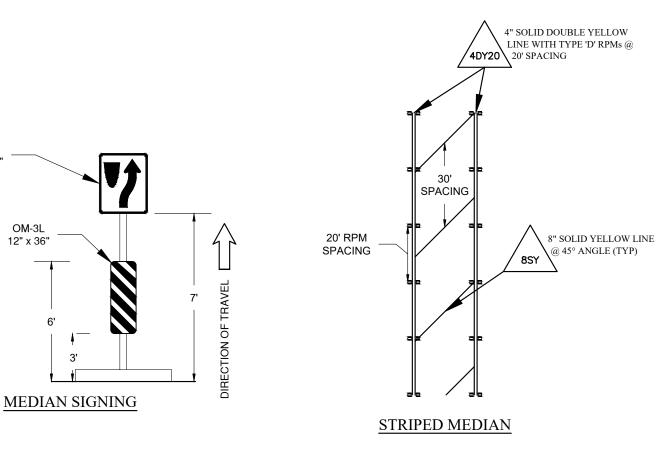
TANZONA

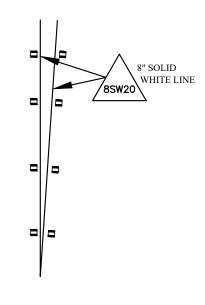
SIGN ASSEMBLY

DETAIL NO:



# TYPICAL MEDIAN ISLAND END TREATMENT AT CROSS STREET





# CARROT STRIPING

# NOTES:

- R4-7 SIGNS AND OBJECT MARKERS SHALL BE INSTALLED AT SIGNALIZED INTERSECTIONS AND AT THE BEGINNING OF A SERIES OF MEDIANS.
- 2. MEDIAN ISLAND END SHALL BE PAINTED WITH WHITE OR YELLOW REFLECTORIZED PAINT, DEPENDING ON APPLICATION
- 3. RAISED PAVEMENT MARKERS SHOULD BE USED TO PROVIDE ADDITIONAL VISIBILITY TO MEDIAN NOSES. THE RAISED PAVEMENT MARKERS SHALL BE INSTALLED ON THE TOP OF THE CURB, USING EITHER TYPE 'D' OR 'G', DEPENDING ON APPLICATION, WITH A MINIMUM QUANTITY OF FOUR.

DATE REVISED: 02/2020

R4-7 24" x 30"

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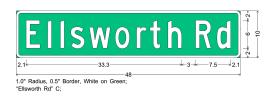
**MEDIAN SIGNING** 

DETAIL NO:

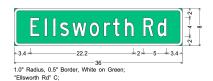
#### 8 INCH LETTER HEIGHT:



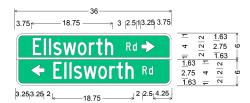
#### 6 INCH LETTER HEIGHT:



#### 4 INCH LETTER HEIGHT:



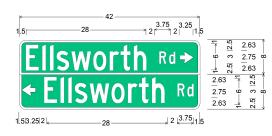
#### 4 INCH LETTER HEIGHT:



1.50" Radius, 0.50" Border, White on Green; [Ellsworth] C 50% spacing; [Rd] C; Arrow 2" Type D1 - 3.25" 0°;

1.50" Radius, 0.50" Border, White on Green; Arrow 2" Type D1 - 3.25" 180°; [Ellsworth ] C 50% spacing; [Rd] C;

#### 6 INCH LETTER HEIGHT:



1.50" Radius, 0.50" Border, White on Green; [Ellsworth] C 50% spacing; [Rd] C; Arrow 2" Type D1 - 3.25" 0°;

1.50" Radius, 0.50" Border, White on Green; Arrow 2" Type D1 - 3.25" 180°; [Ellsworth ] C 50% spacing; [Rd] C;

#### NOTES:

- 1. ALL REFLECTIVE SHEETING MATERIAL(S) SHALL BE PRESSURE SENSITIVE ASTM TYPE XI 3M WHITE 4090 DIAMOND GRADE REFLECTIVE SHEETING OR APPROVED EQUAL.
- ALL TRANSPARENT ACRYLIC, PRESSURE-SENSITIVE FILM SHALL BE 3M SERIES 1177 GREEN ELECTRO CUT FILM (OR 3M SERIES 1175 BLUE ELECTRO CUT FILM) OR APPROVED EQUAL. SCREEN PRINT SHALL BE 3M 800 SERIES INK OR APPROVED EOUAL.
- 3. ROADWAY SIGNS SHALL BE MANUFACTURED BY APPLYING WHITE SHEETING TO THE ENTIRE ALUMINUM BLANK, THEN A GREEN TRANSLUCENT PRESSURE-SENSITIVE FILM CONTAINING THE CUT OUT STREET NAME. THIS METHOD RESULTS IN A WHITE LEGEND ON A GREEN BACKGROUND OR BLUE BACKGROUND ON PRIVATE STREETS.
- LETTERING SHALL BE UPPER AND LOWER CASE HIGHWAY GOTHIC SERIES "C" FONT.
- 5. SIGNS SHALL BE ON 0.125 INCH THICK ALUMINUM.
- 6. 8" LETTER HEIGHTS SHALL BE USED FOR ALL INTERSECTIONS ALONG AN ARTERIAL STREET WITH 45 MPH OR HIGHER - THESE SIGNS SHALL USE A 12" HIGH BLADE AND SHALL NOT EXCEED 60" IN WIDTH WITHOUT PRIOR APPROVAL FROM THE TOWN TRAFFIC ENGINEER.
- 7. 6" LETTER HEIGHTS SHALL BE USED FOR ALL INTERSECTIONS ALONG AN ARTERIAL OR COLLECTOR STREET WITH 30 MPH TO 40 MPH THESE SIGNS SHALL USE A 10" HIGH BLADE AND SHALL NOT EXCEED 48" IN WIDTH WITHOUT PRIOR APPROVAL FROM THE TOWN TRAFFIC ENGINEER.
- 8. 4" LETTER HEIGHTS SHALL BE USED FOR ALL INTERSECTIONS ALONG LOCAL STREETS WITH 25 MPH OR LESS THESE SIGNS SHALL USE AN 8" HIGH BLADE AND SHALL NOT EXCEED 48" IN WIDTH WITHOUT PRIOR APPROVAL FROM THE TOWN TRAFFIC ENGINEER.
- SIGN PANELS OVER 48" SHALL BE GROUND MOUNTED ON THEIR OWN POST WITH A MINIMUM CROSS PIECE BRACKET LENGTH OF 12" AND WITH A 18" POST CAP.
- EACH SIGN PANEL MOUNTED ON A ROADWAY LIGHT POLE SHALL BE ON ITS OWN BRACKET.
- 11. ANY SIGN PANEL MOUNTED ON A LIGHT POLE BE INSTALLED WITH ITS OWN WING BRACKET. SIGNS WITH A WIDTH BETWEEN 36" TO 48" SHALL USE, AT A MINIMUM, 24" IN LENGTH CANTILEVER WING BRACKET.
- 12. DOUBLE STREET NAME SIGNS CAN ONLY BE INSTALLED ON LOCAL AND COLLECTOR STREETS.
  - \* COLLECTOR 6" LETTER HEIGHT, 16" BLADE.
  - \* LOCAL 4" LETTER HEIGHT, 12 INCH BLADE.
  - WHERE REQUIRED ON LOCAL STREETS "DEAD END" AND "NO OUTLET" SIGNS SHALL BE PLACED ON THE SAME PANEL BELOW THE STREET NAME. THE LOWER HALF OF THE PANEL SHALL HAVE YELLOW SHEETING WITH BLACK LEGEND AND ARROW APPLIED.

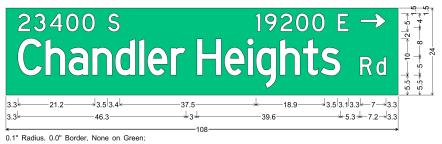
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STREET NAME SIGN DETAIL

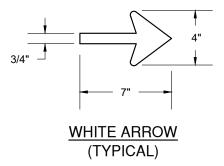
DETAIL NO:

# $\frac{STANDARD\ SIGN\ LAYOUT}{(WITH\ DESCENDING\ LETTERS\ /\ MAXIMUM\ SIGN\ LENGTH\ )}$

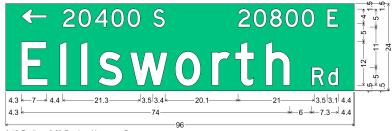


"23400 S" White D; "19200 E" White D; Arrow Custom - 0° White; "Chandler Heights " White D 30% spacing; "Rd" White D;

\*SEE NOTE 5 FOR ADDITIONAL INFORMATION.



#### STANDARD SIGN LAYOUT



0.1" Radius, 0.0" Border, None on Green;
Arrow Custom - 180° White; "20400 S" White D; "20800 E" White D; "Ellsworth " White D;
"Rd" White D:

#### NOTES:

- LETTERS, NUMBERS, AND ARROWS SHALL BE WHITE ON A GREEN BACKGROUND. LETTERING SHALL BE UPPER- AND LOWER-CASE HIGHWAY GOTHIC SERIES "D" FONT.
- 2. FOR STREET NAMES WITH DESCENDING STROKES, A MINIMUM (VIEWABLE) BOTTOM MARGIN OF 1" IS REQUIRED, MEASURED FROM THE DESCENDING LETTER TO THE BOTTOM EDGE OF THE SIGN BLANK.
- 12" LETTER HEIGHTS SHALL BE USED FOR ALL OVERHEAD IISNS UNLESS OTHERWISE APPROVED BY THE TOWN OF QUEEN CREEK TRAFFIC ENGINEER.
- 4. ALL STREET NAME SIGNS ARE SUBJECT TO APPROVAL BY THE TOWN OF QUEEN CREEK PRIOR TO INSTALLATION.
- ALL SIGNS ARE SUBJECT TO A 9 FOOT (108 INCH) LENGTH LIMIT. COMPRESSION OF TEXT TO FIT IS SUBJECT TO A MAX LIMIT OF 30%.

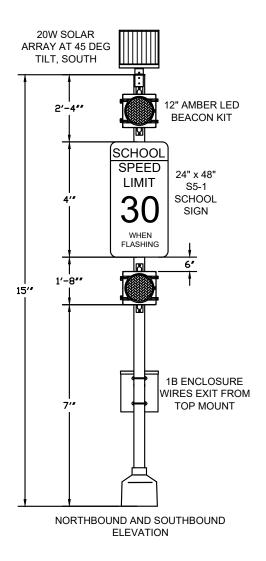
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INTERNALLY ILLUMINATED STREET NAME SIGN

DETAIL NO:



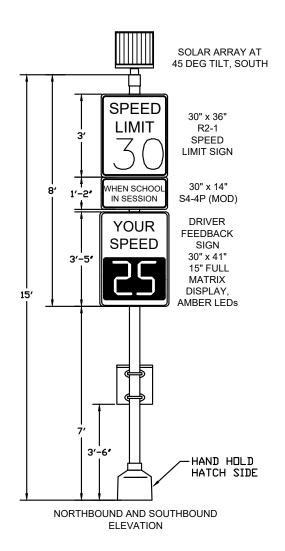
- SOLAR POWERED SCHOOL ZONE FLASHING BEACON WITH DUAL 12" DC LED INDICATORS. INCLUDE A SIZING REPORT TO SUBSTANTIATE SIZE OF SOLAR POWER SYSTEM.
- 2. 15'-15'6" OVERALL POLE HEIGHT WITH SPUN ALUMINUM POLE KIT (14' SCH40 SPUN AL POLE, AL BREAKAWAY BASE AND 3/4"X18" GALVANIZED ANCHOR BOLTS). BASE TO HAVE INTEGRAL HIGH NECK. INSTALL ASSEMBLY ON A CITY OF GLENDALE A-POLE FOUNDATION (T5-15).
- 3. 12" AMBER DC LED LAMPS TO HAVE AN OPTICAL OUTPUT ON CENTER >1000CD MAX BRIGHT
- 4. BEACON KIT TO INCLUDE AL MOUNTING HARDWARE AND STAINLESS FASTENERS HEAD TO BE YELLOW POLYCARBONATE W/TUNNEL VISOR AND LOUVERED 5" BACK PLATE.
- 5. SYSTEM ENCLOSURE TO BE AL W/POLE MOUNTS FOR A 4.5" O.D. POLE, #2 LOCK ON DOOR, 0.125" THICK AL CONSTRUCTION. SIZE IS APPROXIMATELY 15.5"X17"X15.5" AND INCLUDES LOUVERED VENTS W/AL SCREENING. PRE-WIRED W/COLOR-CODED WIRING HARNESS FOR LAMPS AND SOLAR.
- 6. CONTROLS TO INCLUDE AN INTEGRATED CHARGE/FLAHSER CONTROL UNIT W/AUTO NIGHT DIMMING, RATED 15A CHARGE CONTROL INPUT, 5A COMPLIMENTARY OUTPUT AND ON-OFF-EXTERNAL CONTROL SWITCH.
- TIMER TO INCLUDE LCD DISPLAY OF 4 LINES X 12 CHARACTERS AND BE SIMILAR TO OTHER IN USE IN THE CITY.
- LED LAMPS TO FLASH 50-60FPM AT A 50% DUTY CYCLE PER MUTCD AND COMPLY W/FHWA RULING 4(09)-28(I).
- INCLUDE S5-1 SIGN ON 0.08" THICK AL SHEET SPEED LIMIT VALUE TO BE DETERMINED BY LOCATION, SHEETING TO MEET MUTCD STANDARDS.
- 10. SOLAR FLASHER WILL ALSO BE AVAILABLE IN A BAND MOUNT CONFIGURATION TO ALLOW INSTALLATION ON A POLE W/O.D. GREATER THAN 5.5". REFER TO ADOT STANDARD DRAWING S-9 FOR BAND MOUNT CONFIGURATION.

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SCHOOL ZONE FLASHING SIGN DETAIL DETAIL NO:



- RADAR SENSOR BASED DRIVER FEEDBACK SIGN, SOLAR COMPATIBLE.
- 2. SOLAR POWER SYSTEM FOR TIME OF DAY OPERATION OF SIGN YEAR ROUND IN THE METRO PHOENIX AREA.
- 3. SIZE SOLAR ARRAY AND BATTERY BANK FOR PROJECTED HOURS OF SCHEDULED OPERATION M-F. MINIMUM SOLAR ARRAY SIZE IS 20W AND MINIMUM BATTERY SIZE IS 36Ah
- SPUN ALUMINUM POLE KIT TO BE INCLUDED AS PART OF SYSTEM SHALL INCLUDE 3/4X18" GALVANIZED ANCHOR BOLD KIT WITH NUT AND SQUARE WASHER.
- SIGN TO INCLUDE DATA LOGGING, BLUETOOTH USER CONNECTION AND HAVE SOFTWARE FOR LAPTOP AND ANDROID APPLICATION FOR SMART PHONE, APP IS TO BE FREE.
- 6. SIGN TO BE SIMILAR TO OTHERS WITHIN THE TOWN, SHEETING IS YELLOW WITH BLACK LETTERING.
- INSTALL ASSEMBLY ON A CITY OF GLENDALE A-POLE FOUNDATION (T5-15)
- 8. ALUMINIMUM 3R SYSTEM ENCLOSURE W/POLE MOUNTS FOR A 4.5" O.D. POLE ON REAR #2 KEY ON DOOR AND SCREENED LOUVERS FOR CROSS VENTILATION.
- SIGN DISPLAY IS A FULL MATRIX FORMAT W/AMBER LED ELEMENTS. DISPLAYS 15" NUMERALS AND 8" HIGH TEXT MESSAGES "SLOW DOWN" AND "TOO FAST" BASED USER PROGRAMMED SPEED THRESHOLDS.
- 10. RADAR SENSOR WILL ALSO BE AVAILABLE IN A BAND MOUNT CONFIGURATION TO ALLOW INSTALLATION ON A POLE W/O.D. GREATER THAN 5.5". REFER TO ADOT STANDARD DRAWING S-9 FOR BAND MOUNT CONFIGURATION.

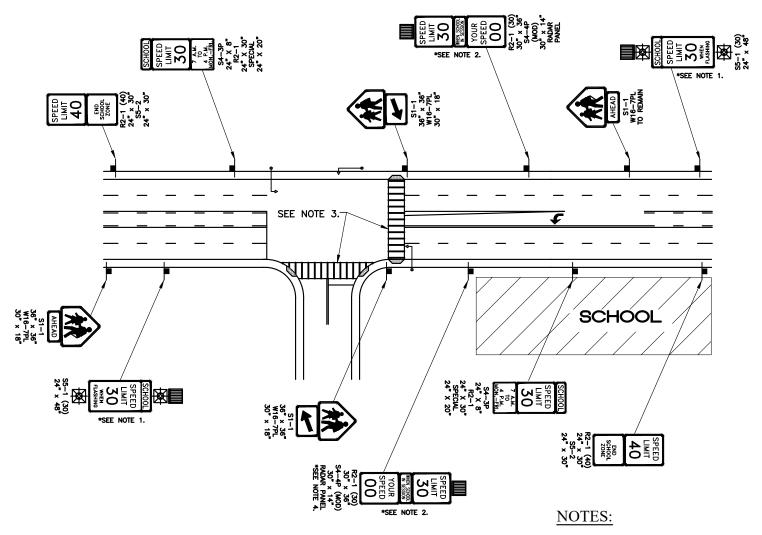
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# SCHOOL ZONE NON-FLASHING SIGN DETAIL

DETAIL NO:



- 1. SEE SIGN DETAIL ON SHEET RS-06.
- 2. SEE SIGN DETAIL ON SHEET RS-07.
- 3. SEE CROSSWALK DETAIL ON SHEET PM-10
- SIGN PLACEMENT WILL DEPEND ON EXISTING CONDITIONS. ENGINEERING JUDGEMENT TO BE USED TO AVOID CONFLICTS. SIGNS SHALL NOT BE PLACED CLOSER THAN 150 FEET APART.

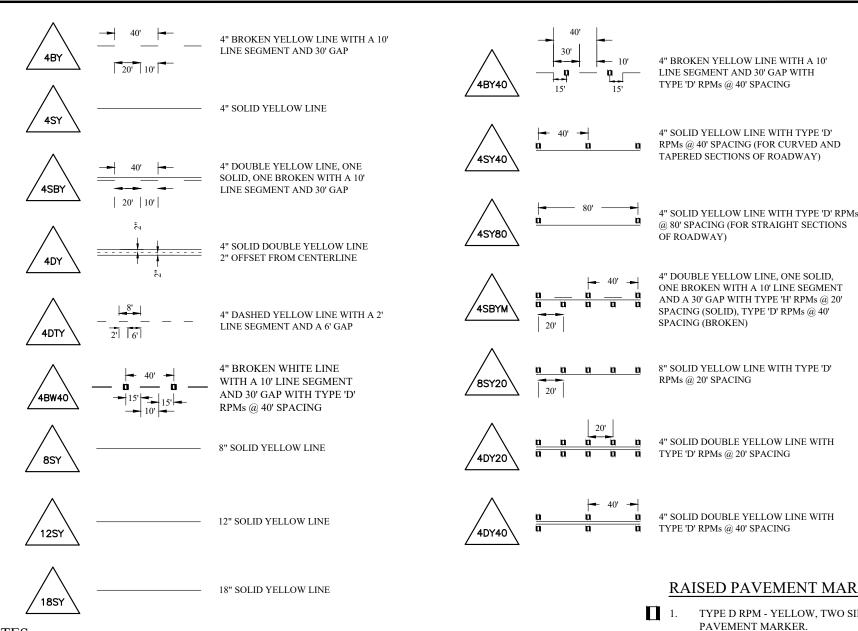
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# TYPICAL SCHOOL ZONE SIGN PLACEMENT DETAIL

DETAIL NO:



- FOR WHITE LINES, REPLACE THE "Y" WITH A "W" AND REPLACE TYPE 'D' RPMs WITH TYPE 'G' RPMs.
- RAISED PAVEMENT MARKERS SHALL BE PLACED SO THAT THE RETROREFLECTIVE FACE OF THE MARKER IS FACING AND PERPENDICULAR TO TRAFFIC

# RAISED PAVEMENT MARKERS

- TYPE D RPM YELLOW, TWO SIDED RAISED
- TYPE G RPM CLEAR, ONE SIDED RAISED PAVEMENT MARKER.
- TYPE H RPM YELLOW, ONE SIDED RAISED PAVEMENT MARKER.

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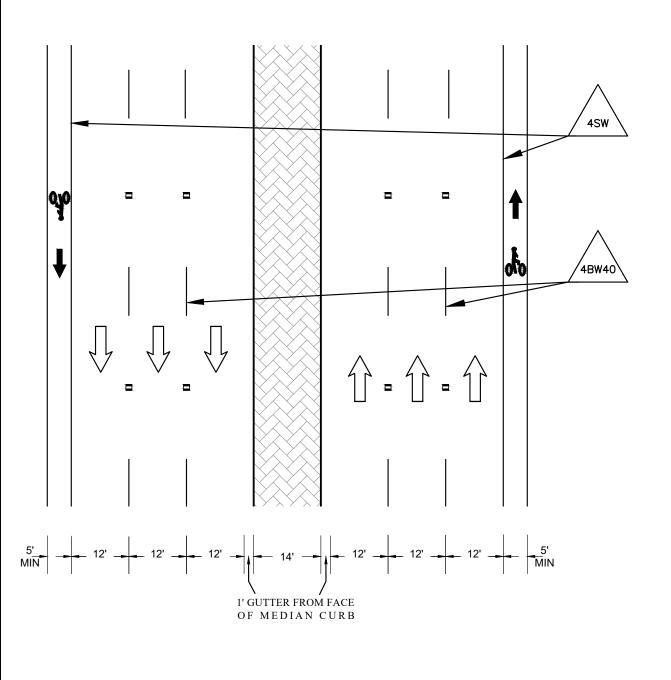
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PAVEMENT MARKING DETAILS TYPES OF LANES

DETAIL NO:



- WHERE ROADWAY CONDITIONS DO NOT PERMIT USE OF THIS STANDARD, ALTERNATE TREATMENT SHALL BE APPROVED BY THE TOWN OF QUEEN CREEK.
- ALL STRIPING DIMENSIONS SHALL BE TO CENTER OF STRIPE OR FACE OF CURB.
- FINAL LAYOUT AND/OR FIELD ADJUSTMENTS OF PAVEMENT MARKING SHALL BE APPROVED BY THE TOWN OF QUEEN CREEK.

# LEGEND:

4" SOLID WHITE LINE



4" BROKEN WHITE LINE WITH A 10' LINE SEGMENT AND 30' GAP WITH TYPE 'D' RPMs @ 40' SPACING



4" SOLID YELLOW LINE



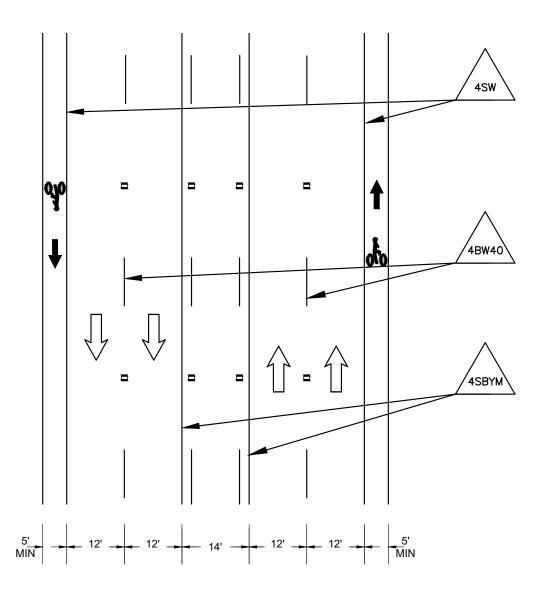
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TYPICAL ARTERIAL WITH MEDIAN, PAVEMENT MARKING ONLY

DETAIL NO:

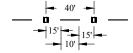


- WHERE ROADWAY CONDITIONS DO NOT PERMIT USE OF THIS STANDARD, ALTERNATE TREATMENT SHALL BE APPROVED BY THE TOWN OF QUEEN CREEK.
- 2. ALL STRIPING DIMENSIONS SHALL BE TO CENTER OF STRIPE OR FACE OF CURB.
- FINAL LAYOUT AND/OR FIELD ADJUSTMENTS OF PAVEMENT MARKING SHALL BE APPROVED BY THE TOWN OF QUEEN CREEK.

# LEGEND:

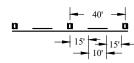
4" SOLID WHITE LINE





4" BROKEN WHITE LINE WITH A 10' LINE SEGMENT AND 30' GAP WITH TYPE 'D' RPMs @ 40' SPACING





4" DOUBLE YELLOW LINE, ONE SOLID, ONE BROKEN WITH A 10' LINE SEGMENT AND A 30' GAP WITH TYPE 'D' RPMs @ 40' SPACING (BROKEN)



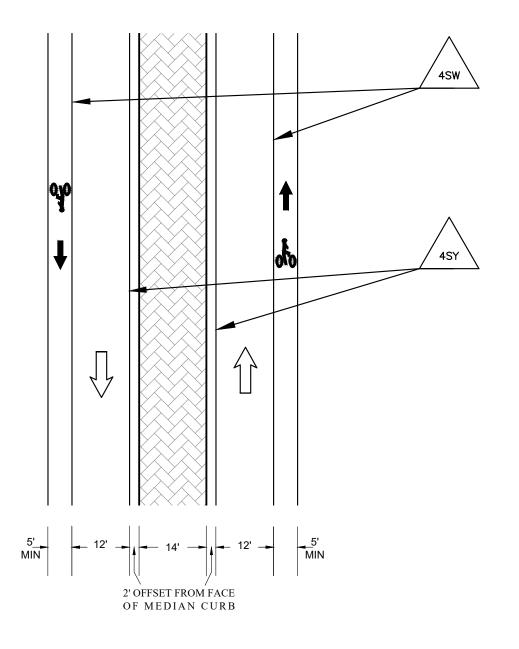
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TYPICAL ARTERIAL WITHOUT MEDIAN, PAVEMENT MARKING ONLY

DETAIL NO:



- WHERE ROADWAY CONDITIONS DO NOT PERMIT USE OF THIS STANDARD ALTERNATE TREATMENT SHALL BE APPROVED BY THE TOWN OF QUEEN CREEK.
- 2. ALL STRIPING DIMENSIONS SHALL BE TO CENTER OF STRIPE OR FACE OF CURB.
- FINAL LAYOUT AND/OR FIELD ADJUSTMENTS OF PAVEMENT MARKING SHALL BE APPROVED BY THE TOWN OF QUEEN CREEK.

# LEGEND:

4" SOLID WHITE LINE



4" SOLID YELLOW LINE



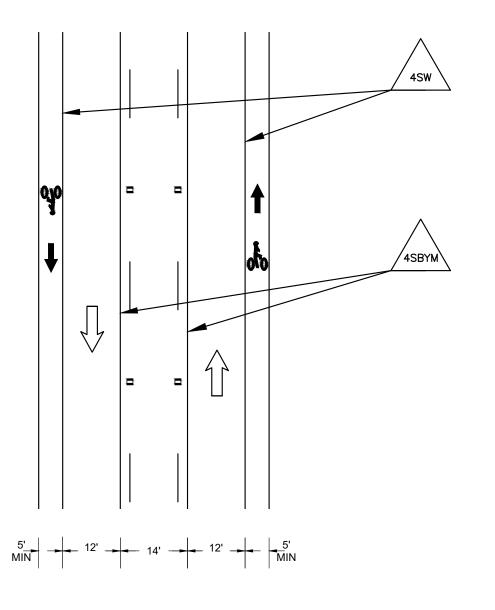
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TYPICAL COLLECTOR - WITH MEDIAN, PAVEMENT MARKING ONLY

**DETAIL NO:** 



- WHERE ROADWAY CONDITIONS DO NOT PERMIT USE OF THIS STANDARD ALTERNATE TREATMENT SHALL BE APPROVED BY THE TOWN OF QUEEN CREEK.
- ALL STRIPING DIMENSIONS SHALL BE TO CENTER OF STRIPE OR FACE OF CURB.
- 3. FINAL LAYOUT AND/OR FIELD ADJUSTMENTS OF PAVEMENT MARKING SHALL BE APPROVED BY THE TOWN OF QUEEN CREEK.

### LEGEND:

4" SOLID WHITE LINE



4" DOUBLE YELLOW LINE, ONE SOLID, ONE BROKEN WITH A 10' LINE SEGMENT AND A 30' GAP WITH TYPE 'D' RPMs @ 40' SPACING (BROKEN)



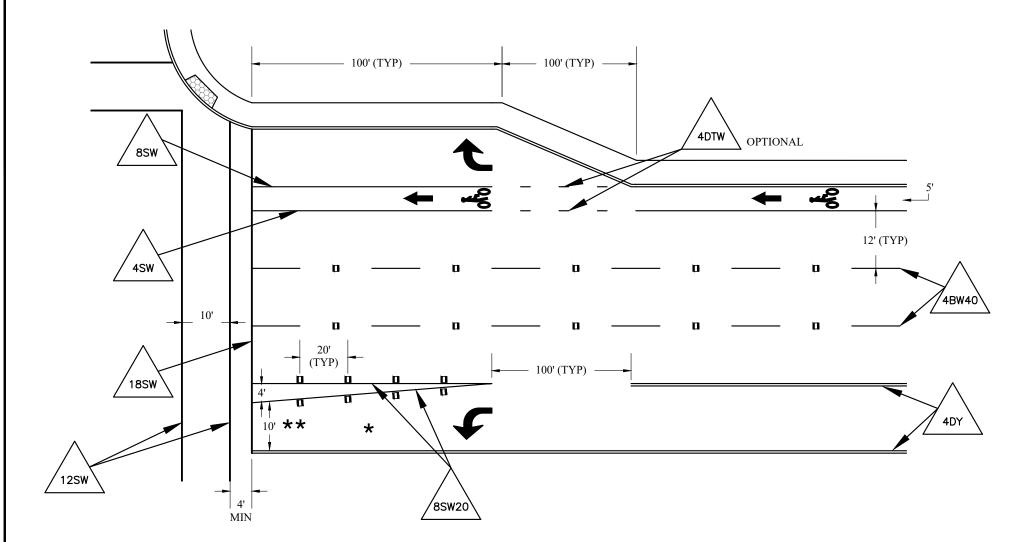
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TYPICAL COLLECTOR - WITHOUT MEDIAN, PAVEMENT MARKING ONLY

DETAIL NO:



- 1. MARKED CROSSWALKS SHALL BE INSTALLED AT SIGNALIZED AND 4-WAY STOP INTERSECTIONS AS DESIGNATED BY THE TOWN OF QUEEN CREEK.
- ALL NEW CROSSWALKS SHALL BE INSTALLED BASED ON AN ENGINEERING STUDY.
- 3. ALL STRIPING WILL BE FROM CENTER OF STRIPE TO CENTER OF STRIPE, OR FACE OF CURB.
- 4. IF NO CROSSWALK IS PROVIDED, STOP BAR SHALL BE PLACED AT CURB RETURN.
- \* OPTIONAL "ONLY" LEGEND
- \*\* SECOND ARROW SYMBOL TO BE INSTALLED WHEN TURN LANE IS LONGER THAN 150 FEET

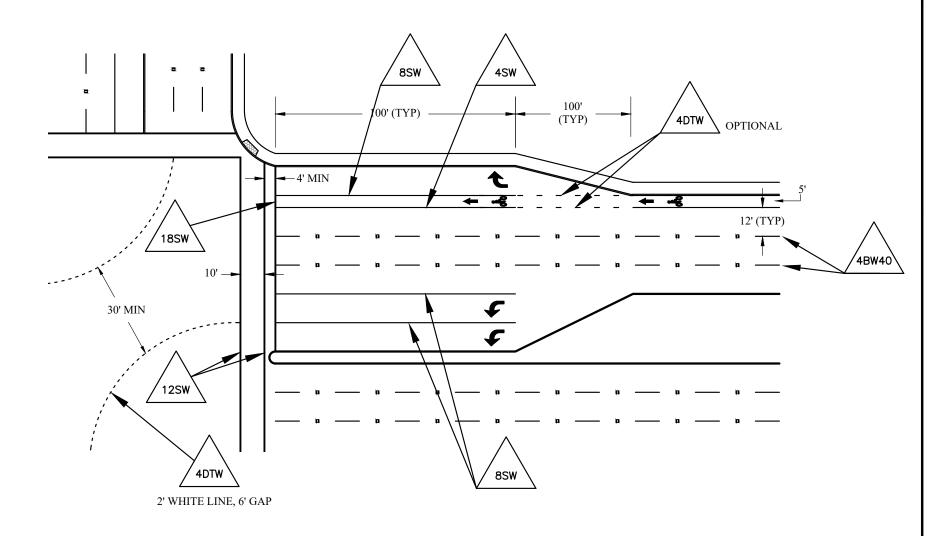
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# TYPICAL INTERSECTION PAVEMENT MARKING ONLY- NO MEDIAN

DETAIL NO:



- 1. ALL DIMENSIONS AT CURB LINE ARE TO FACE OF CURB
- 2. IF NO RIGHT TURN LANE, CONTINUE 5' BIKE LANE TO STOP BAR,
- 3. THROUGH INTERSECTION PAVEMENT MARKING "PUPPY TRACKS" SHALL BE UTILIZED AT ALL ARTERIAL/ARTERIAL INTERSECTIONS TO GUIDE LEFT TURN MOVEMENTS.

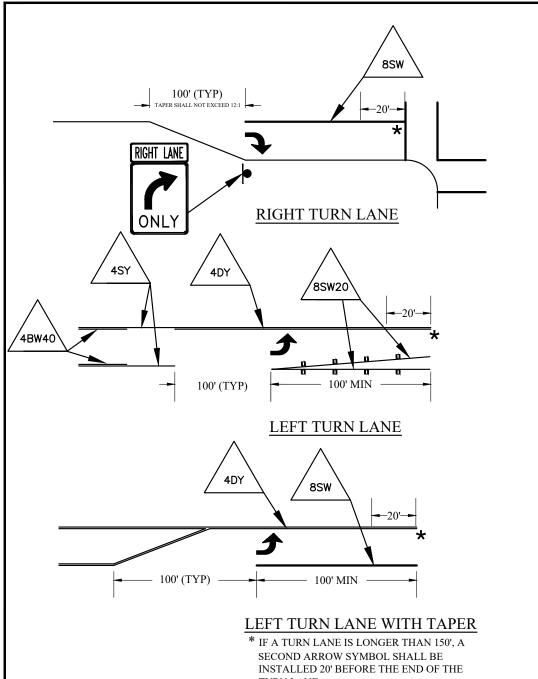
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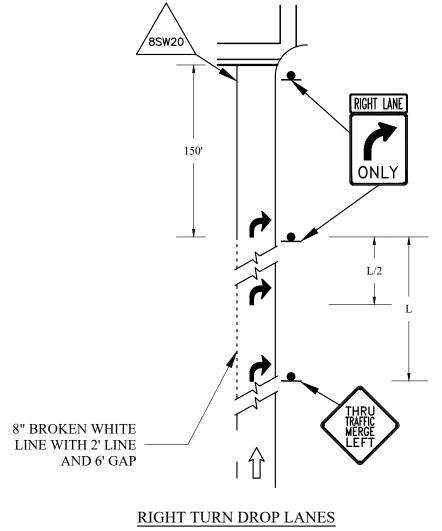
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TYPICAL INTERSECTION WITH DUAL LEFT TURN LANES, PAVEMENT MARKING ONLY WITH MEDIAN

DETAIL NO:





POSTED SPEED (MPH)	20	25	30	35	40	45	50	55	60	65
'L' (FT)	275	350	425	500	575	650	725	800	875	950

TABLE FROM MCDOT PAVEMENT MARKING MANUAL.

TURN LANE.

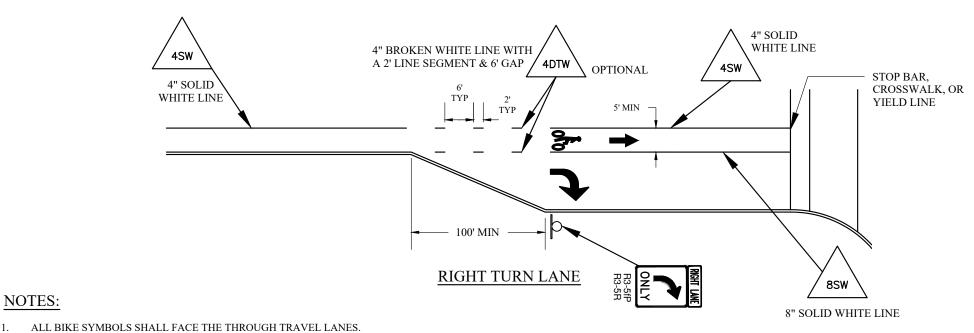
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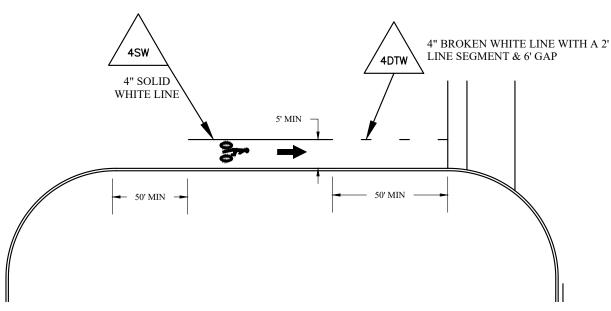


TYPICAL TURN LANES, PAVEMENT MARKING ONLY

**DETAIL NO:** 



- ALL BIKE SYMBOLS SHALL BE APPLIED 3M SERIES 380 TAPE OR APPROVED EQUIVALENT.
- CENTER ALL SYMBOLS BETWEEN INSIDE EDGE(S) OF 4" SOLID WHITE LINE(S) AND/OR LIP OF GUTTER.
- ALL BICYCLE FACILITY SIGNS AND PAVEMENT MARKINGS SHALL BE REVIEWED AND APPROVED BY THE TOWN OF QUEEN CREEK.
- BIKE LANE SYMBOLS SHALL BE INSTALLED IMMEDIATELY AFTER EACH ROADWAY INTERSECTION AND ANY BREAKS IN THE BIKE LANE PER TOWN OF QUEEN CREEK DETAILS. BIKE LANES SYMBOLS SHALL BE INSTALLED NO GREATER THAN 500' APART.



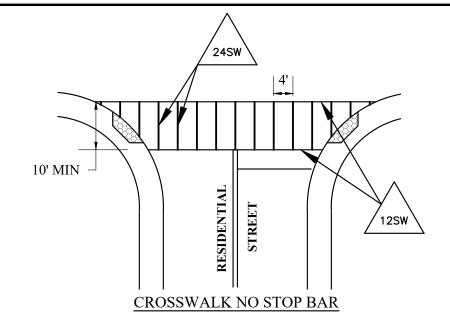
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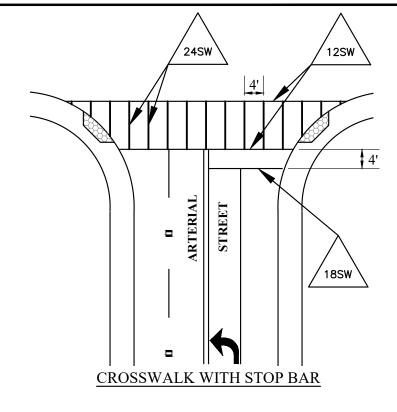
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**BIKE LANE** 

**DETAIL NO:** 





- 1. CROSSWALK STRIPING SHALL BE 12" WIDE (12SW) THERMOPLASTIC MATERIAL.
- 2. LATERAL STRIPING SHALL BE 24" WIDE (24SW) THERMOPLASTIC MATERIAL.
- 3. FOR ANY VARIATIONS, CONTACT THE TOWN OF QUEEN CREEK TRAFFIC DEPARTMENT FOR APPROVAL.
- 4. CROSSWALKS THAT REQUIRE A 18" SOLID WHITE STOP BAR SHALL BE PLACED 4' BACK FROM THE BACK OF CROSSWALK.

# LEGEND:

12" SOLID WHITE LINE

24" SOLID WHITE

LINE





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SCHOOL CROSSWALK

**DETAIL NO:**