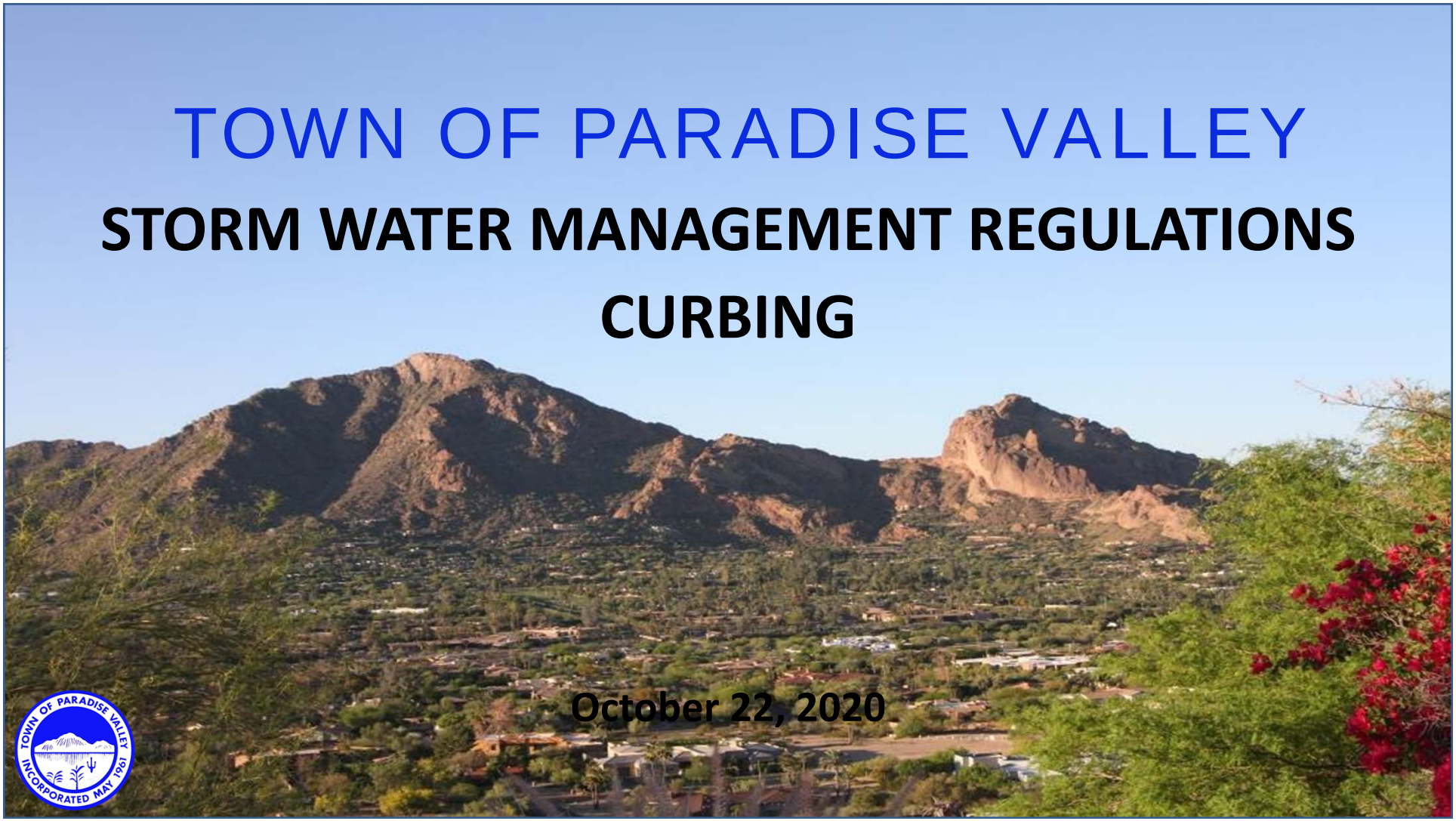
TOWN OF PARADISE VALLEY

STORM WATER MANAGEMENT REGULATIONS

CURBING



October 22, 2020

AGENDA

Agenda

1. Storm Water Management
2. Storm Drainage Design Manual
3. General Plan Roadway Cross-Sections
4. Types of Curbing
5. Right-Of-Way Permit Requirements
6. Flood Control District's Cudia City Wash Study

STORM WATER MANAGEMENT

Streets and roadways can be a key component to storm water management in new developments as curbing can be used to protect properties and direct stormwater to natural drainageways or storm drains. Curbing can also help to prevent erosion and undermining of the roadway edge.

In established residential areas curbing may be an option to direct storm water flows so long as a drainage study is completed to ensure that downstream properties are not adversely affected.

56th Street south of Cherokee Wash

STORM DRAINAGE DESIGN MANUAL

Section 3-5 Street Drainage
- Access
- Design Standards

Maricopa County Drainage Design Policies & Standards

STREET HYDRAULIC DESIGN CRITERIA

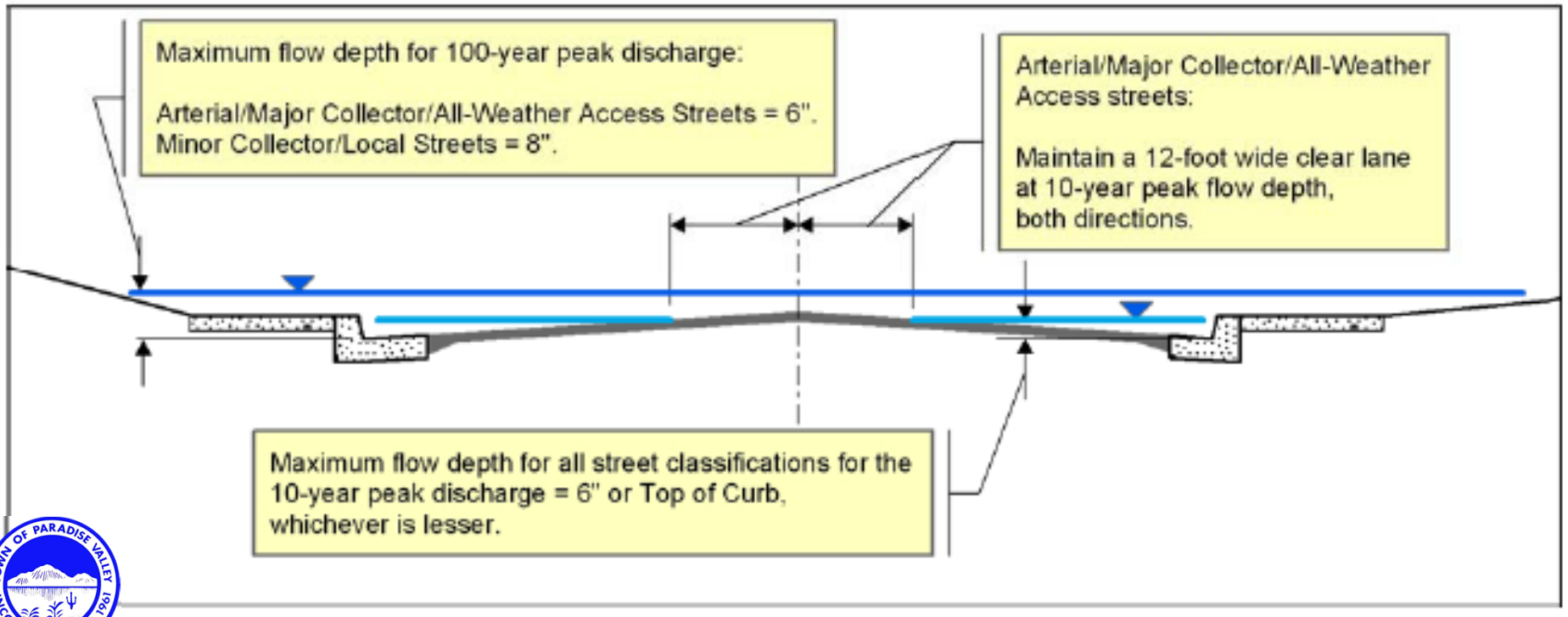
dmax = maximum depth at any point within the right-of-way

Drainage Feature	Peak Frequencies		
	10-Year	25/50-Year	100-Year
Street with Curb & Gutter	Contain runoff within street curbs. For collector and arterial streets maintain one 12-foot-wide dry driving lane in each direction.	N/A	Contain runoff below the building's lowest floor. Confine runoff to street rights-of-way or Drainage Easements. dmax = 8 inches.
Street without Curb & Gutter (Dirt Roads, Ribbon Curbs)	Contain longitudinal runoff within roadside channels with water surface elevation below pavement subgrade.	N/A	Contain runoff below the building's lowest floor. Confine runoff to street rights-of-way or Drainage Easements. dmax = 8 inches.
Street without Storm Drain System	Add pipes or roadside channels if runoff from 10-year flood exceeds street capacity, unless waived.	N/A	Add storm drain systems if a Base Flood inundates building's lowest floor. Provide catch basins, scuppers, etc. to remove water so dmax = 8 inches.
Cross Road Culvert or Bridge for Collector & Arterial Streets	N/A	Convey runoff by culvert or bridge under street with no flow overtopping the street for a 50-year flood.	Convey runoff by culvert and flow over the street so dmax =6 inches.
Cross Road Culvert or Bridge for Collector Streets, and Local Streets	Convey runoff by culvert or under bridge with no flow overtopping the street.	For a 25-year event, convey runoff by culvert or bridge and by flow over the street with so dmax = 6 inches.	dmax = 12 inches.
Any street or watercourse crossing that provides the only access to residential area.	N/A	N/A	Make all lots and structures accessible by at least 1 street with dmax = 12 inches for a Base Flood.
Local Streets with Low Volume Average Daily Trips	N/A		

FIGURE 3b STREET HYDRAULIC DESIGN CRITERIA

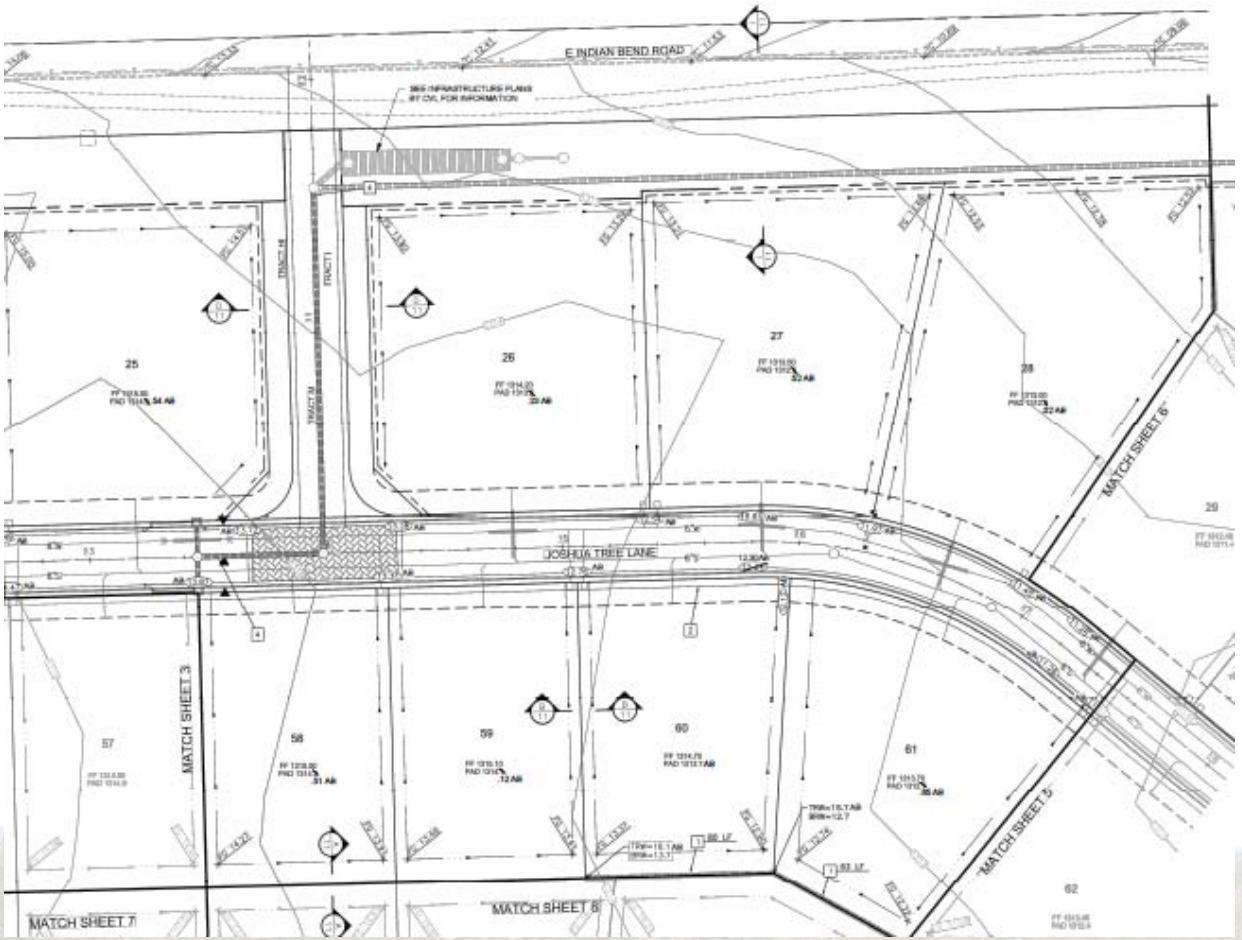
STREET FLOW DEPTH REQUIREMENTS

Example of Street Flow Depth Requirements , Flow Parallel to Street, with C&G



GRADING AND DRAINAGE PLANS

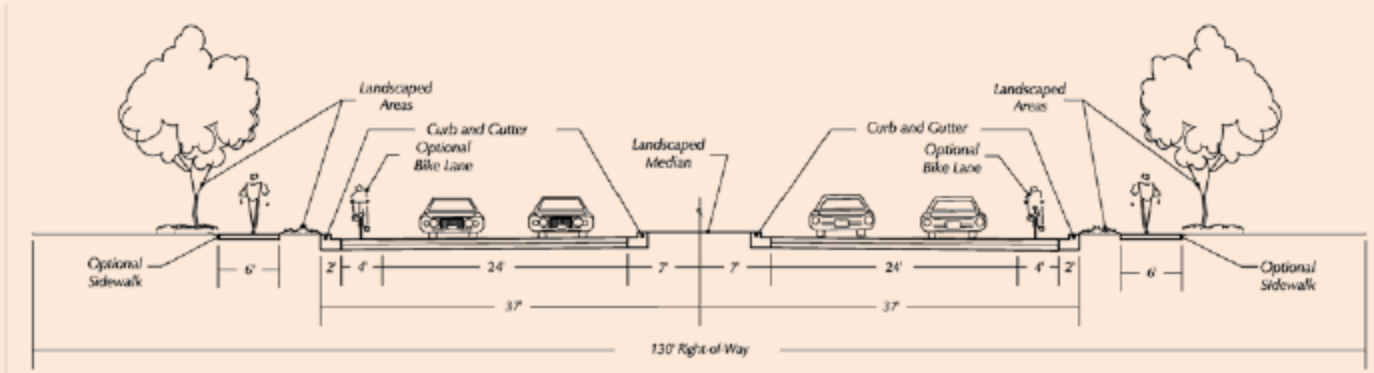
Shea Homes (Azure) grading & drainage plan sheet



GENERAL PLAN – MAJOR ARTERIAL ROADWAY

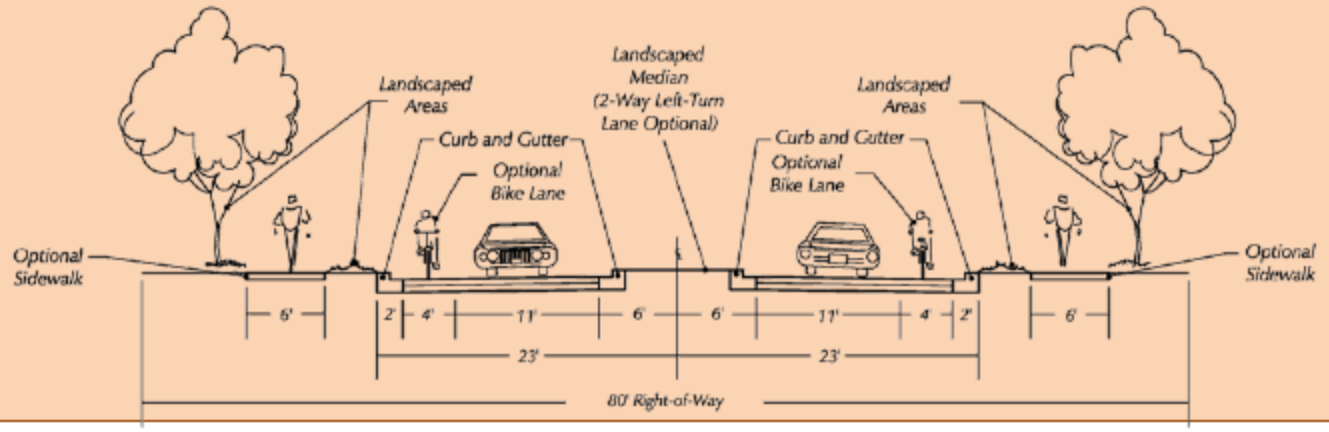
Figure 4.2: Typical Major Arterial Cross-Section

Full Curb & Gutter



GENERAL PLAN – MINOR ARTERIAL ROADWAY

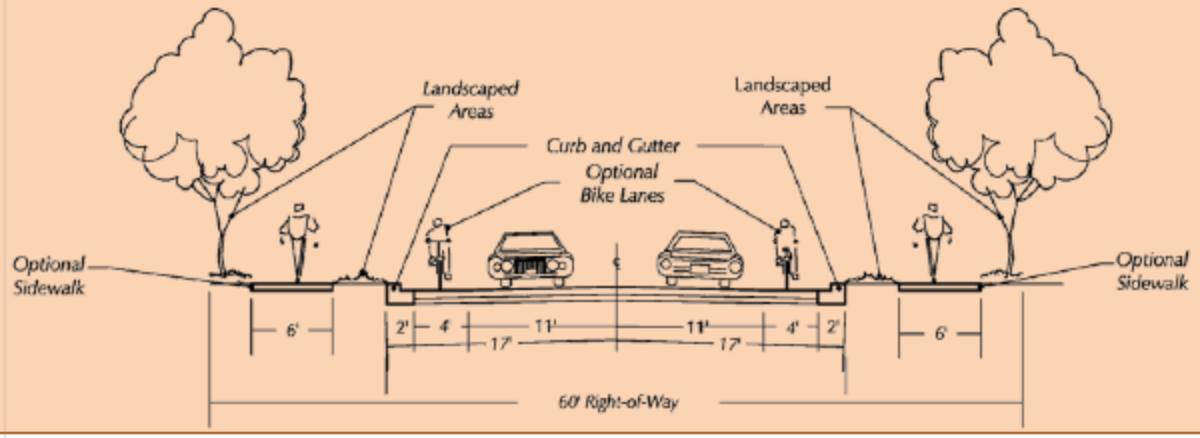
Figure 4.3: Typical Minor Arterial Cross-Section (With Median) **Full Curb & Gutter**



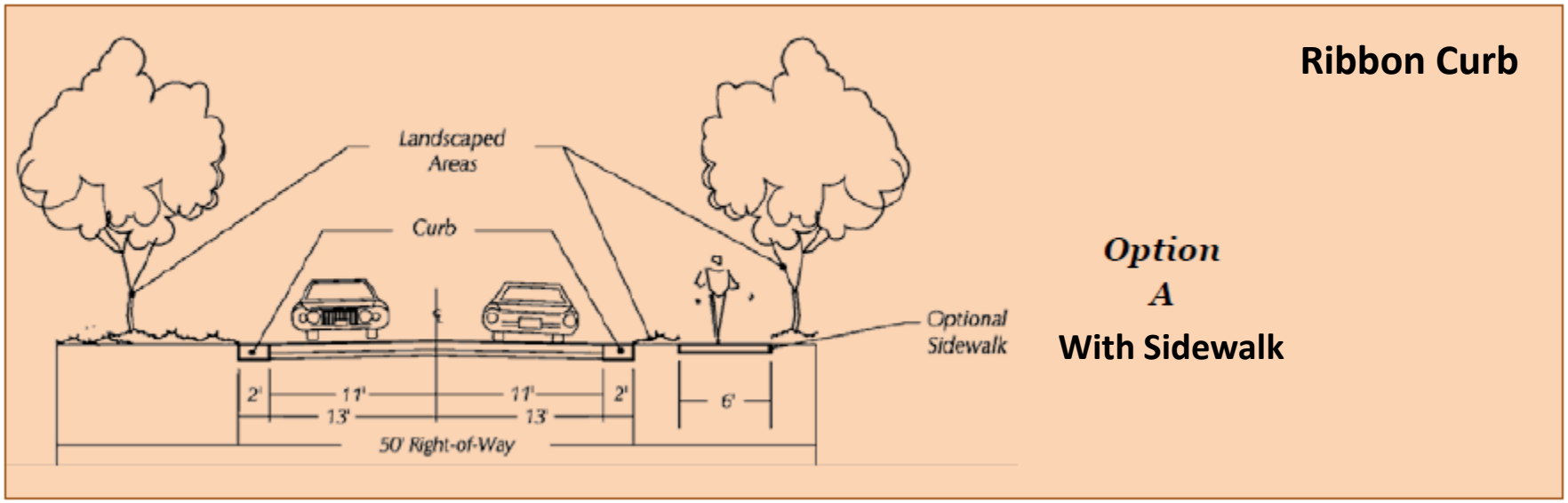
GENERAL PLAN – COLLECTOR ROADWAY

Figure 4.5: Typical Collector Cross-Section

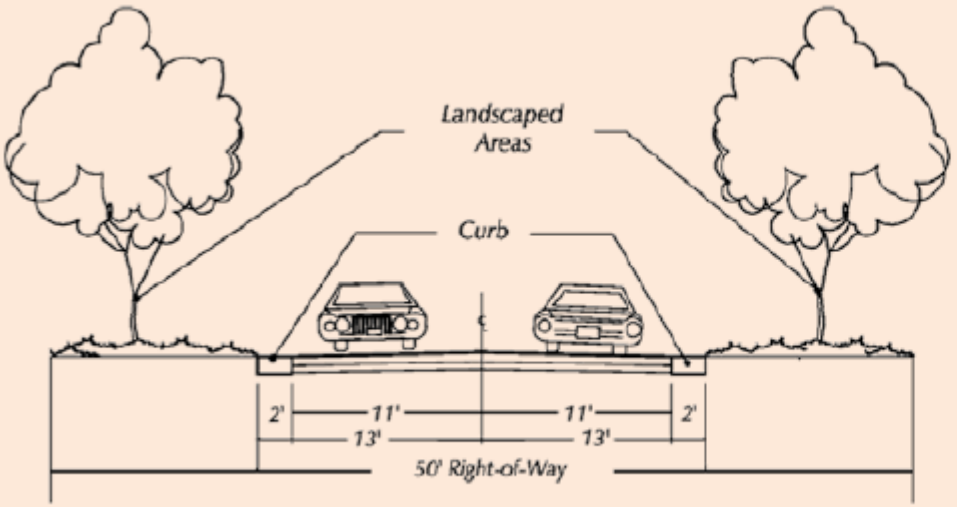
Curb & Gutter, Roll Curb or Ribbon Curb



GENERAL PLAN – RESIDENTIAL ROADWAY



GENERAL PLAN – RESIDENTIAL ROADWAY

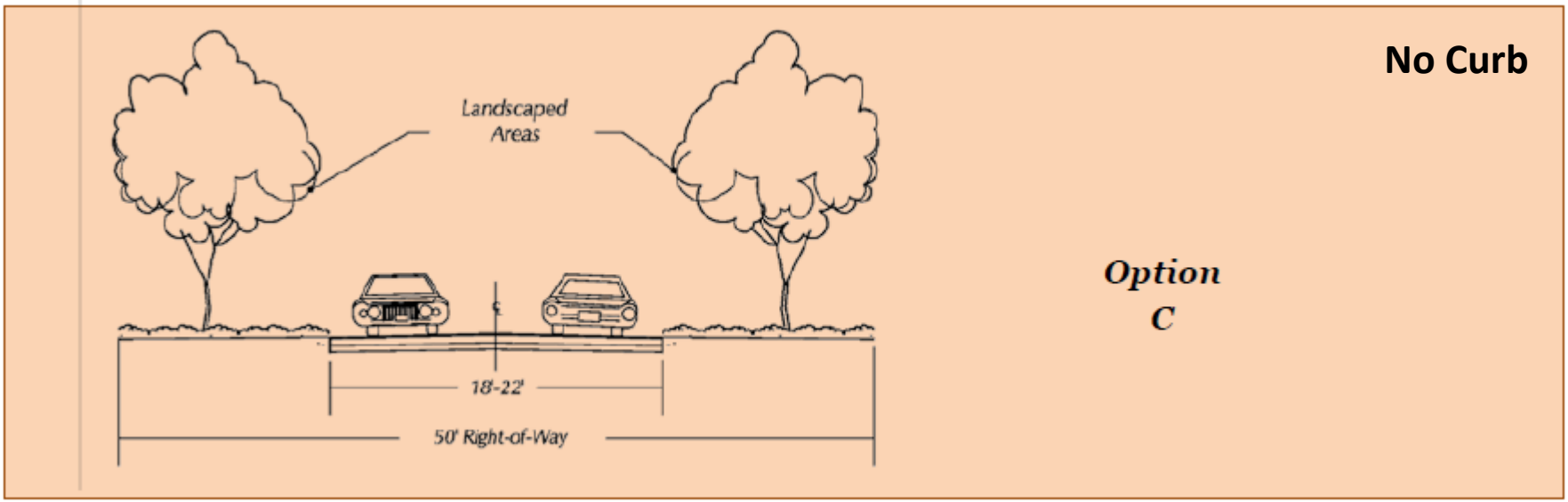


Ribbon Curb

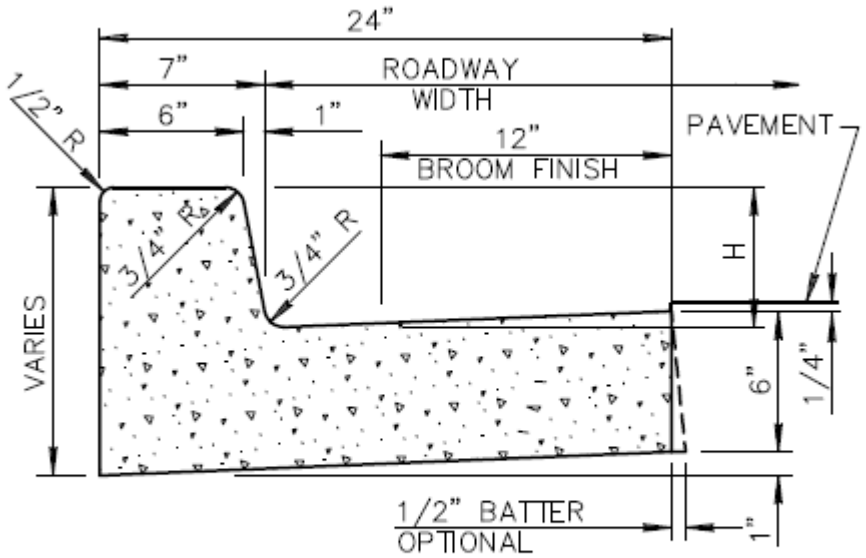
Option B

Without Sidewalk

GENERAL PLAN – RESIDENTIAL ROADWAY



VERTICAL CURB

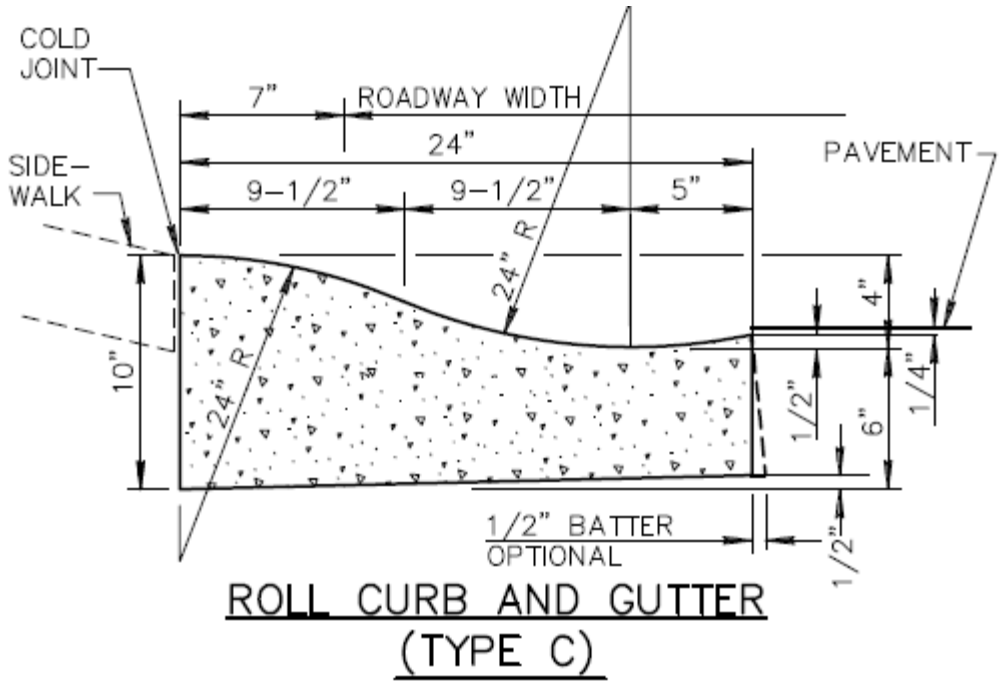


VERTICAL CURB AND GUTTER
(TYPE A)

VERTICAL CURB

6” Vertical Curb & Gutter

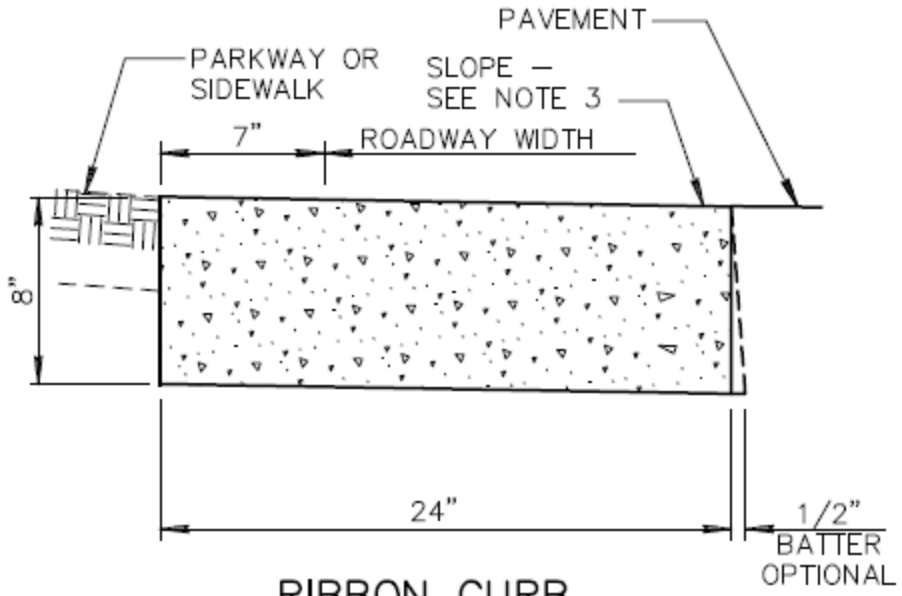
ROLL CURB



ROLL CURB AND GUTTER
(TYPE C)

ROLL CURB

RIBBON CURB



RIBBON CURB
(TYPE B)

RIBBON CURB

NO CURB

NO CURB

EXAMPLE (PERMITTED CURB INSTALLATION)

Before: Ribbon Curb

After: Vertical Curb

EXAMPLE (UNPERMITTED CURB INSTALLATION)

Before: No Curb

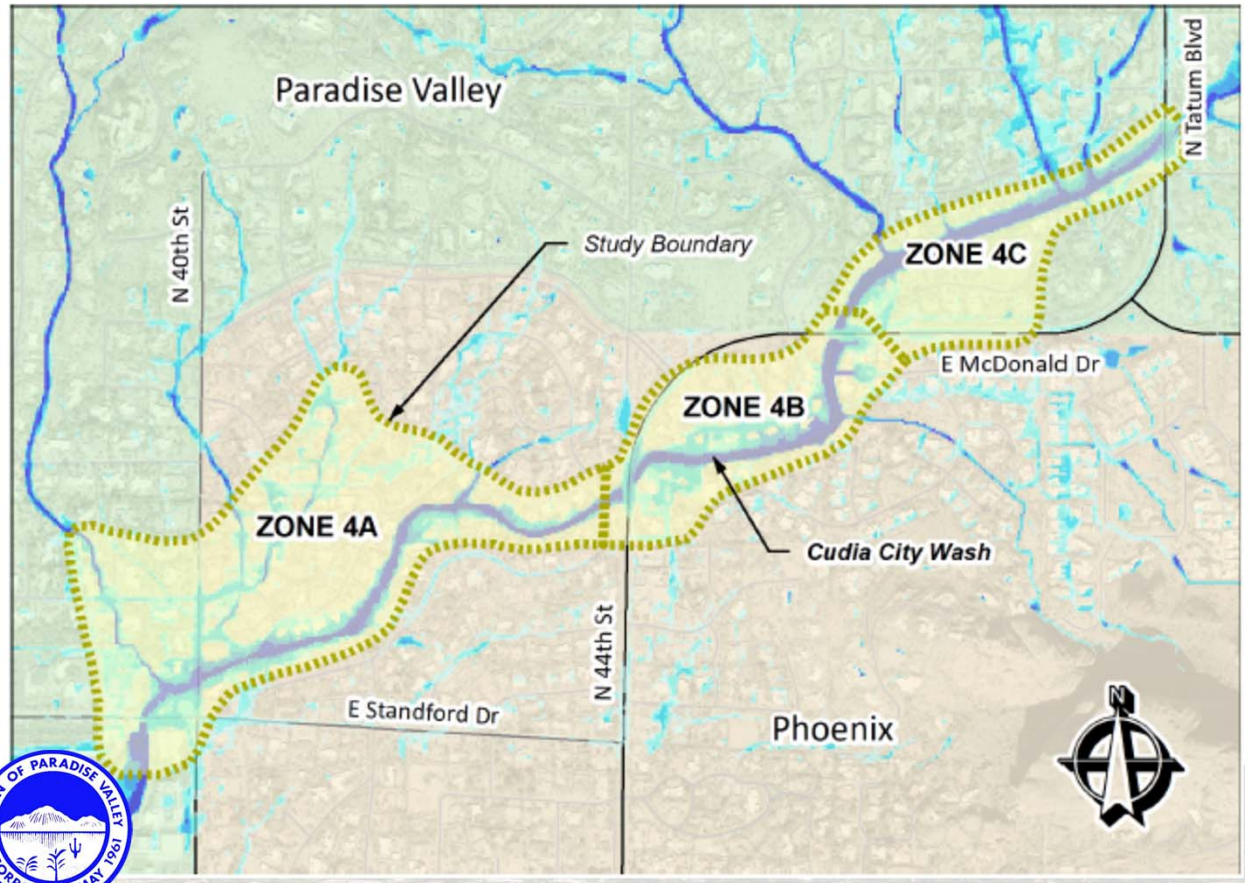
After: Rock Curb

EXAMPLE (UNPERMITTED CURB INSTALLATION)

After: Rock Curb Removed

- Notice of Violation Letter
- Voluntary Compliance
- 6+ Months To Remove Rock Berm

MCFCD CUDIA CITY WASH STUDY



- Area Drainage Master Study (ADMS) completed.
- Design Concept Report in process for main channel study area shown.
- Stone Canyon subdivision proposed for future task order. Potential curb & gutter improvements to channelize stormwater flows to washes if washes on private property can accommodate flows.
- Potential future Capital Improvement Projects

QUESTIONS?