

Pre-Submittal Application Process

The pre-submittal application process begins prior to the complete submittal of a commercial site plan or preliminary subdivision plat application. The process is used to provide the applicant with basic site related information for the project. This process will enable both the developer and staff to consider the various issues concerning site development. The process is not meant to be a comprehensive review but more of an overview of the project.

The process involves submitting a no-cost application form and basic site information prior to the pre-submittal meeting. Staff will review the application in advance of the meeting and provide the developer with comments at the time of the meeting. The meeting will typically be scheduled by staff within one week of the submittal at which time a project contact will be assigned.

The goal of the process is to reduce the review processing time of all development applications and to improve the quality of the overall project.

PRE-SUBMISSION MEETING APPLICATION
(Required prior to submittal of commercial site plans and subdivision plats)



TO: Department of Community Development
City of Sierra Vista
1011 N. Coronado Drive
Sierra Vista, AZ 85635
(520) 458-3315

1. Owner Name: _____
Phone No: _____ Address: _____
Tax Parcel ID Number: _____
Fax: _____ E-mail: _____

2. Agent Name: _____ Phone No: _____
(If different from above)
Address: _____
Fax: _____ E-mail: _____

3. Site Address or Location (if applicable): _____ Submittal Date: _____

4. Project Description: _____

REQUIRED SUBMITTAL ATTACHMENTS:

- 1 electronic copy of concept plan or plat;
(The following information will enable staff to provide a more thorough review.)

Site Plan Review

- Property lines;
- Building Setbacks;
- Zoning on the site
- Building sizes;
- Parking;
- Buffering (if known);
- Locations of existing and proposed access points;
- Show basic drainage patterns and basin locations;
- Landscape locations;

Subdivision Plan Review

- Lot Sizes; Number
- of Lots; Zoning on
- the site;
- Street Layout and Circulation;
- Areas to be dedicated;
- Buffering (if known);
- Show basic drainage patterns and basin locations;
- Locate adjacent right-of-ways;

City of Sierra Vista



Community Development Planning Site Plan Pre-Submittal Checklist

(This checklist is provided to the applicant to help with the formal submittal requirements of the site plan application. It is not intended to constitute the formal site plan review. The information provided is based on the concept plan submitted and are subject to change based on further plan revisions.)

Date: _____

Project Name: _____

Project Description: _____

GENERAL SITE PLAN CRITERIA

1. Proposed Use Meets Zoning District: Yes No Comments _____
Zoning District is: _____
2. Building(s) size is: _____
3. Does building meet zoning setback requirements? Yes No
Setbacks are: Front: _____ Side: _____ Side: _____
Rear: _____
4. Do building and improvements meet buffer requirements? Yes No
Buffers are: Front: _____ Side: _____ Side: _____
Rear: _____ Right-of-Way: _____ Other: _____
5. Applicable street classification: Arterial: _____ Collector: _____ Local: _____
6. Access location and separations acceptable? Yes No
If not acceptable, state why? _____
7. The required number of parking stalls is: _____ Complies? Yes No
8. Does parking stall width conform to aisle width? Yes No
If not shown requirement is: _____
9. Does parking stall length meet requirement? Yes No
If not shown requirement is: _____
10. Correct number of ADA stalls provided? Yes No
11. ADA configuration correct? Yes No
If not, change to: _____
12. Internal circulation acceptable: Yes No Comment _____

13. Type of refuse sanitation service to be provided? Dumpster Other _____
 Location acceptable? Yes | No |
 Enclosure required? Yes No Comment _____
14. Detention basin location(s) indicated? Yes No Comment _____
15. Existing sewer line location(s) and size(s) are: _____
16. Any applicable sewer reimbursement or augmentation fees: Yes No Amount: \$ _____
17. Applicable Surface Water Plan requirements provided to applicant? Yes No N/A
18. FEMA floodplain shown if applicable? Yes No N/A
19. Lighting shown? Yes No Comments _____
20. Landscape areas identified? Yes No Comments _____
21. Right-of-way dedication needed? Yes No
 If required the dedication width is: _____
22. Fire access and/or turnaround acceptable? Yes No
23. Other fire issues: _____
24. Applicable plat conditions? _____
25. Building issues: _____
26. Compliance with Specific Plan requirements (if applicable)? _____
27. Other applicable requirements? _____

- For further hydrology, drainage and sewer requirements, please contact the Public Works Engineering Department at (520) 458-5775.
- For further information regarding fire related issues, please contact Fire Marshal Paul Cimino at (520) 452-7075.
- For further information regarding planning and zoning issues please contact the Department of Community Development at (520) 458-3315.

SITE PLAN REVIEW APPLICATION



TO: Department of Community Development
City of Sierra Vista
1011 N. Coronado Drive
Sierra Vista, AZ 85635
(520) 458-3315

Date Submitted: _____

1. Applicant Name: _____

Address: _____

Telephone: _____ Email: _____

2. Agent Name: _____

Address: _____

Telephone: _____ Email: _____

3. Site Tax Parcel ID#: _____

4. Site Address (if applicable): _____

5. Acreage: _____

6. Project Description: _____

7. Required Attachments
(Electronic Submittal):

(Check those submitted)

- a. Civil Site Improvement Plans
- b. Landscaping plan
- c. Color Elevation plan
- c. Proof of Ownership
- d. Proof of Agency or Letter of Authorization
- e. Review Fee –
 - New development fee \$2,200 **AND** \$500 per acre (up to 5 acres)
 - Infill Incentive District \$1,100 **AND** per acre fee \$250 per acre (up to 5 acres)
- f. Completed Engineering Review and Planning Review Checklists

8. Other Attachments (Electronic submittal)

- a. Hydrology Report
- b. Soil Engineering Report
- c. Native Plant Salvage Application (if property >1 acre)
- d. Lighting Cutsheets
- e. Luminaire Worksheet
- f. Photometric Plan (if required by staff)



City of Sierra Vista Public Works Engineering Site Plan Review Check List



Project Name _____ Date _____

Community Development Site Plan No. _____

Reviewing Engineer _____

Developer's Certification: I have reviewed and followed this checklist in the preparation of my submittal.

_____ Date _____

Site Plan

Check items included in plan

N/A	Included	Deficient	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Plans must be stamped and signed by a registered civil engineer
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Proposed improvements must be shown in heavy, darker line-work. Existing features must be shown in lighter, screened line-work.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Location sketch with adjacent zoning and land uses (151.18.006.A.2.d)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Topography; contour lines for existing and proposed elevations at one-foot intervals (151.18.006.A.2.e(2)).
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Natural drainage and proposed drainage flow by directional arrows. If applicable, show that the finished floor elevation is above 100-year flood area (151.18.006.A.2.e(3) and e(4)).
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Legal description of the site to include total area of the site (151.18.006.A.2.f)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Spot elevations of existing/proposed key drainage points
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Percentage of the site covered by any and all structures (151.18.006.A.2.j)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Right-of-way dimensions of all abutting streets, whether public or private, and all access points to the site (151.18.006.A.2.m)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Locations, dimensions, and description of all existing or proposed easements (151.18.006.A.2.q)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Location of any non-vehicular access strips (151.18.006.A.2.p)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Service areas for uses such as trash disposal (151.18.006.A.2.u).
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Adequate dumpster detail (151.18.004.A.2.u)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	All existing and proposed utility locations (151.18.006.A.2.v)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	The location of the nearest fire hydrant (151.18.006.A.2.w)

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Street or alley rights-of-way to be dedicated and/or improved pursuant to the requirements (or 151.18.006.A.2.x)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Curb cuts, new and existing per ADA
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Driveway entrances need to meet the City's modified version for MAG 250. MAG 250 does not currently meet ADA standards.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Abutting land uses
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Grading, drainage, surfacing, and sub-grading details
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Geotechnical report, if required (151.18.006.A.5)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Are traffic control signals or signs required?
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	The effect of the site development on traffic conditions on abutting streets
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	One access per property
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Does the City have the ability to provide sewer service to the site? Are the sewer main lines public?
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Proper legend
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Show the closest street light and calculate light levels along the road access point to see if any additional streetlights are required (151.18.006.A.2.ff) SEE ARCHITECTURAL DRAWINGS
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Avoid disparity in grade caused by fill between this site and adjacent sites. A slope easement or retaining walls may be required.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Curb, gutter, scupper, and handicapped curb return ramp details included on the plans (if applicable to the site) REF. MAG STANDARD
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ADOT contacted for their approval of access and improvements in their right-of-way, if applicable
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Existing brick manholes are to be replaced when top needs to be adjusted to grade or new line enters manhole.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Make sure that all manholes are accessible to City maintenance trucks and are located in the public right-of-way or an easement. Check turning radii in easement, where applicable.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	If access to sewer easement MUST be restricted, gates should be used in place of bollards.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Gates will: <ul style="list-style-type: none"> • Be in accordance with City standard detail • Latch and lock in the middle. • If a gate is to be incorporated with railing, the gate is to match railing design. • Guidelines for gates may be adjusted to fit criteria of the area • Gate posts are to be set in 3 feet of concrete • Gates will swing open in both directions
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Laterals connecting to a new sewer main line shall be per MAG Detail 440 as modified by the City. Taps into an existing main line shall be per the old Type "B" detail. PROPOSING TO CUT IN MANHOLE DUE TO DEPTH.

Drainage Report

N/A	Included	Deficient	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	To be submitted with Site Plan
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Design storms to be 10-year, 1-hour storm and 100-year, 1-hour

- storm.
- All hydrology calculations to be complete. Peak flows shown in to be considered final.
- Provide detailed drainage exhibit. Exhibit to show watershed boundaries, concentration points, flow arrows, 10-year peak flows, 100-year peak flows, flow combinations, locations of drainageways, washes, proposed streets, detention basin, overland overflow route from detention basin, etc.
- Correct hydrology method used based on land area:
 1. Rational Method: < 0.5 square miles
 2. Pima County Method: 0.5 square miles - 5 square miles
 3. HEC-1: > 5 square miles
- Use City IDF curves. Available electronically from Engineering Division.
- Use C=0.35 for Rational Method calculations to determine pre-development runoff.
- Uses City of Tucson methodology (Section 4.5) for developing hydrographs based on Rational Method data.
- Detention (preferred) or retention of drainage runoff to match pre-development conditions (check 10-yr and 100-yr peak flows)
- Adequate detention basin size- show hydrograph routing
- Detention basins have bleed off pipes or other means of positive drainage
- All stormwater basins to have overland overflow path (no possibility of clogging) that allows excess flow to discharge without causing damage.
- No drywells in detention basins serving residential subdivisions
- Accommodates upstream drainage runoff from undeveloped land.
- Flow won't damage land or change the flow characteristics of the natural drainage.
- All drainage is discharged to improved public right-of-way, easement, or drainage way.
- No cross lot drainage.
- No encroachment of private land by water from public facility.
- Report to discuss drainage considerations due to phasing of construction.
- Summarize all findings in text of report
- Drainage in adjacent washes addressed in preliminary report, including:
 - Wash designation from Surface Water Plan (NDMC or FECC)
 - Wash hydrology to match FIS or Surface Water Plan
 - Discussion of proposed improvements to wash
 - Discussion of delineated FEMA floodplains. Show limits of floodplain on drainage exhibit.
 - Discussion of any special considerations for the wash
- Natural Drainage Maintenance Corridors should be platted to the most restrictive of the following:
 1. The 100-year floodway;
 2. The limits of the riparian vegetation zone:

- a) 50' setback from each bank of the low flow channel for watersheds < 1.5 square miles;
- b) 100' setback from each bank of the low flow channel for watershed > 1.5 square miles.

Up to a 100' wide drainage way centered within any Flood and Erosion Control Corridor (FECC).

Drainage Report describes collection and conveyance in text section of report. Calculations to support all aspects of collection and conveyance included in report.

Report contains complete hydraulic calculations for catch basin interception in accordance with HEC-22. Use clogging factors as follows:

- Grates in sump- 50%
- Grates on grade- 40%
- Curb openings in a sump- 20%
- Curb openings on grade- 20%
- Combination curb opening/grate in sump- 35%
- Combination curb opening/grate on grade- apply above factors separately
- Slotted drain to be analyzed in same manner as curb openings
- Clearly show bypass flows to next catch basin

Hydraulic calculations for channel conveyance, including streets
Depth of flow in public street does not exceed 0.6 feet during 100-year storm. Provide accurate hydraulic calculations for bends and areas where large flows come together.

Intersection depth of flow for a collector or arterial street < 0.1' during a 10-year storm.

Verify that all minor losses have been taken into account at channel entrances, and that headwater in street does not exceed 0.6 feet.

Model depressed sidewalks as broad-crested weirs. Use C=2.7

Hydraulic calculations for any necessary energy dissipators

Hydraulic analysis for improvements required in adjacent washes including:

- Local scour calculations
- Equilibrium slope calculations
- Grade control structures are of appropriate depth, width, and spacing
- Appropriate channel armor based on expected flow velocities
- Additional erosion set-back limits in areas with sharp bends

Report contains complete hydraulic calculations for storm drain systems. Analysis must include:

- Elevation of hydraulic grade line through entire system
- Peak flow in each section of pipe
- Pipe slopes

- Pipe roughness coefficients
 - Elevations of all manhole rims and catch basin grates
 - Detailed headloss coefficients for all bends, junctions, expansions, contractions, etc
 - Headloss due to momentum changes
 - Culvert calculations
- All hydraulic channels and detention basins to have at least 1-foot of freeboard
- Drainage does not discharge into a wastewater sewerage system.
- Bank protection provided in the case of intermediate or excessive velocities:
1. Excessive >6 fps for 100 year flow
 2. Intermediate 4-6 fps for 100 year flow
- Plans agree with drainage report. Check channel cross-sections, pipe sizes, detention basin sizes, catch basin sizes, etc.
- Dedication of drainageway to be used for conveyance of public runoff
- Sufficient access for channel maintenance (public channels).
- Provide minimum 20-foot right-of-way for dedicated drainageways.
- Channels in public right-of-way are trapezoidal in shape with no greater than 4:1 side slopes (more if adequate bank protection is provided).
- No depressed sidewalk (to be used as a weir) on arterials or collectors- OK on local streets.
- Channels or pipes discharging to a wash must be stable and protected from erosion due to flow in the main channel.
- Concrete and rip rap pads to have turned down edges.
- Show FHWA or ADOT rip rap gradations on plans if dumped rip rap is to be used.
- Hard channel linings to have turned down edges.
- CMP storm drains in public right-of-way are lined and coated per MAG Standard Detail 510 or Type II aluminum
- No fill materials are placed within the 100-year flood zone. Provide erosion protection in areas where fill is encroaching into the flood zone.
- Make sure storm drain manholes in public right-of-way meet MAG 520, 521, and/or 522
- Steel scuppers in public right-of-way to have spans of 12" or less. Larger scuppers are concrete only.
- Check that interim drainage in future development areas will not cause problems, particularly within the right of way.
- All pipes in public right-of-way to have at least 3 feet of cover or be RGRCP
- Show spacing between pipes if culvert has multiple pipes. See ADOT Standard Detail B-11.14 for large pipes and MAG Standard Detail 501-2 for small pipes.
- Culvert headwalls in public right-of-way to be formed concrete,

- not block (as shown in MAG Standard Detail 501).
- Lots to drain toward street (preferred) or have individual rear-lot drains.
- All catch basins in public right-of-way to have a grate for maintenance access

NOTE: *This document is intended for use as an aid for City of Sierra Vista staff in reviewing applications and is provided to developers as a courtesy in order to facilitate their preparation of site development plans. The checklist is not intended to be all-inclusive of the City of Sierra Vista Development Code. Submission of the items in the checklist does not imply acceptability of the contents of specific documents nor of any approval requests.*

A copy of this checklist will be included in the project file.

Revised 4/29/2022



City of Sierra Vista Community Development Planning Site Plan Review Check List

(This checklist is to be provided to the applicant to help with the submittal requirements of the site plan.)

Project Name: _____
Reviewed By: _____

Date: _____

GENERAL SITE PLAN DESIGN ITEMS:

Met Pending N/A

Legend? <i>(Per Section 151.18.006.A.2.b)</i>	_____	_____	_____
North Arrow? <i>(Per Section 151.18.006.A.2.c)</i>	_____	_____	_____
Adjacent Zoning with Uses? <i>(Per Section 151.18.006.A.2.d)</i>	_____	_____	_____
Location sketch? <i>(Per Section 151.18.006.A.2.a)</i>	_____	_____	_____
Legal Description of the site? <i>(Per Section 151.18.006.A.2.f)</i>	_____	_____	_____
Scale Shown <i>(Per Section 151.18.A.2)</i>	_____	_____	_____
Proof of Ownership attached with Title Report? <i>(Per Section 151.18.006.A.9)</i>	_____	_____	_____
Proof of Agency Letter? <i>(Per Section 151.18.006.A.9)</i>	_____	_____	_____
Two Soils Reports Attached? <i>(Per Section 151.18.006.A.5)</i>	_____	_____	_____
Does creation of lot require a subdivision? <i>(Per Section 151.02.004)</i>	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

LOCATION OF STRUCTURES

Existing and proposed with distances to lot lines? <i>(Per Section 151.18.006.A.2.j)</i>			

_____	_____	_____	_____

Percentage of site covered showing the following: <i>(Per Section 151.18.006.A.2.l)</i>			
a) Asphalt? _____	_____	_____	_____
b) Concrete? _____	_____	_____	_____
c) Buildings? _____	_____	_____	_____
d) Open Space/Pervious Surface? _____	_____	_____	_____

Floor Plan showing building dimensions? <i>(Per Section 151.18.006.A.2.k)</i>			

_____	_____	_____	_____

DEVELOPMENT CODE REQUIREMENTS

Met

Pending

N/A

**Setback requirements are met and shown?
(Per various sections in Article 151.22)**

**Is buffer required for development?
(Per Buffer Table in Article 151.15)**

**Does development show correct buffer distance
to right-of-way?(Per Buffer Table in Article 151.15)**

**Does development show correct buffer distance
between zoning districts? (Per Buffer Table in
Article 151.15)**

Is a wall required in buffer? (Per Section 151.15.005)

**Is landscaping required in buffer? (40 feet or greater)
(Per Section 151.15.006.B.5)**

**Ground mounted mechanical equipment screened?
(Per Section 151.15.005.A.1)**

**Wall or berm needed to screen headlight impact?
(Only if adjacent to residential zoning districts)
(Per Section 151.09.004.O)**

ENVIRONMENTAL

**Plant salvage requirements met? (1 acre or more)
(Per Section 151.15.003)**

DEVELOPMENT CODE REQUIREMENTS

Met

Pending

N/A

**Oil and/or grease separators required? (Parking lots with 250 or more parking spaces)
(Per Section 151.09.004.C)**

**Surface water plan requirement met?
(Per Surface Water Plan and Section 151.08.008.E.11)**

**Project fall within a FEMA floodplain?
(Per FEMA FIRM Maps and Per Section 151.22.029)**

Grading Plan submitted to include existing and proposed contour lines at 1-foot intervals, flow arrows, etc? (Per Section 151.08.006.A.1.e)

**Cross lot drainage easement requirement?
(Per Section 151.08.008.E.3.b)**

PARKING

**Does the project have enough parking spaces?
(Per Section 151.09.005) Consider Parking Credits/
Flexible Parking Allocations (Section 151.09.007)**

Parking stall dimensions labeled and conform to Code? (Per Section 151.09.004.R-Standard Parking Area Dimensions Table)

**Parking access aisle conforms to stall dimensions?
(Per Section 151.09.0054.R-Standard Parking Area Dimensions Table)**

DEVELOPMENT CODE REQUIREMENTS

Met

Pending

N/A

**Are curb stops needed in any portion of parking lot? (landscaping/sidewalks)
(Per Articles 151.09.004.R-Standard Parking Area Dimensions Table and 151.15.004.A.6.e)**

Does the project provide enough handicapped parking spaces? (Per Americans With Disabilities Act Accessibility Guidelines ADAAG, Section 4.6)

Handicapped parking dimensions at 11' (stall) 5' (accessible aisle)?(Per ADAAG universal design requirements 4.6.3)

Location and detail drawing of the handicapped parking pole/wall sign shown? (Per ADAAG requirements 4.6.4 and City Code Chapter 71.04)

Handicapped parking Citation SVCC 71.02 or A.R.S. 28-884 cited?(Per City Code Chapter 71.04)

A diagram of the handicapped ramp slope provided with dimensions shown. (Per ADAAG requirements 4.8)?

ADA ramps identified at a slope not exceeding 1:12? (Per ADAAG requirements 4.8.2.)

ADA cross-slopes identified not exceeding 1:50? (Per ADAAG requirements 4.8.6)

DEVELOPMENT CODE REQUIREMENTS

Met

Pending

N/A

**Striped or paved pedestrian pathway to public sidewalk identified on plan?
(Per Section 151.09.004.G)**

Bike racks provided? 2 spaces minimum or equal to 5 percent of total parking (Per Section 151.09.006)

Bike Rack design and installation conforms. Requires frame and both wheels to be secured. (Per Section 151.09.006)

Bike Rack Location meets code requirements. Each rack provide a minimum 6 X3 unobstructed space, and not obstruct pedestrian ways. Racks spaced at least 48 inches apart. Located within 50 feet of public entrance. (Per Section 151.09.006)

**Provide detail drawings and notes showing pavement cross section?
(Per Section 151.09.004.A)**

CIRCULATION

**Traffic Impact Analysis Required?
(Per Section 151.17.002.B2, 151.18.006.A.7,
151.19.003.B.10)**

Rights-of-way dimensions shown on abutting streets? (Per Section 151.18.006.A.2.m)

**Rights-of-way dedication required?
(Per Section 151.08.003 based on Street Designation)**

DEVELOPMENT CODE REQUIREMENTS

Met

Pending

N/A

Proposed one-way driveway and parking aisles to be labeled one way with a minimum width of 20 feet? (Per Section 151.09.004.H and per the Standard Parking Area Dimensions Table)

Full improved street dimensions shown? (Per Section 151.08.003 based on street designation)

Consistent with Multi-Use Path Map requirements?

Clear vision area shown and accurate? (Per Section 151.04.010)

Streetlights shown? Are they needed? (Per Section 151.08.010)

Access locations for dumpster okay? Required separation okay? (Per Public Works dumpster enclosure requirements)

Dumpster doors required? Are details provided? Meet PW criteria? (Per Section 151.15.005.A.1 and the Public Works dumpster enclosure requirements)

Dumpster doors open 180 degrees? (Per Public Works dumpster enclosure requirements)

Locking mechanism or cane bolt detail provided For dumpster door? (Per Public Works dumpster enclosure requirements)

DEVELOPMENT CODE REQUIREMENTS

Met

Pending

N/A

EXTERIOR LIGHTING

**Are cut sheets for wall and pole lights attached?
(Per Section 151.11.003.A.2)**

**Location of wall and pole lighting shown on plan?
(Per Section 151.11.003.A.1)**

**Lighting fully shielded?
(Per Section 151.11.004.A)**

**Pole height with detail shown?
(Per Section 151.11.004.C)**

**Any wall mounted lighting proposed?
(Per Section 151.11.004.A.1)**

**Photometrics plan required?
(Per Section 151.11.003.A.4)**

**Total Outdoor Lumen Output Matrix
(Per Section 151.11.004.E)**

**Correlated Color Temperature Identified. 3,000K maximum
(LED Only) (Per Section 151.11.004.G)**

**Outdoor Lighting Uniformity Ratio not exceed 4:1
(Section 151.11.008.C)**

DEVELOPMENT CODE REQUIREMENTS

Met

Pending

N/A

A note indicating that all outdoor lighting fixtures shall be turned off between 10:00pm (or when business activities cease) and sunrise. (Section 151.11.002.G)

UTILITIES

Existing and proposed utilities shown and show tie-ins to buildings? (Per Section 151.18.006.A.2.v)

Are all easements shown?
(Per Section 151.18.006.A.2.q)

SIGNAGE

Free-standing signage locations shown on plan?
(Per Section 151.10.008 and 151.10.009)

Note reading, "signage by separate permit"?
(Per Section 151.18.006.A.2.eeA.)

ARCHITECTURAL

Have the architectural design standards been met?
(Per Article 151.20)

Statement that "all roof mechanical equipment screened"? Type of screening shown?
(Per Section 151.15.005.A.2)

MISCELLANEOUS

Is project being phased? If so, Master Plan required?
(Per Section 151.18.006.A.10)

DEVELOPMENT CODE REQUIREMENTS

Met

Pending

N/A

Any outstanding code issues?

**Note shown for the need for a future site plan?
(Per Section 151.18.006.A.11)**

Development Agreement Conditions on property?

**Notice of Proposed Construction or Alteration
application form submitted to FAA?
(<https://oeaaa.faa.gov/oeaaa/external/portal.jsp>)**

**Note on plat regarding Soil Report Compliance and
inspection requirements (Site Preparation and Earthwork:**

A Geotechnical Evaluation and Report in conjunction with an appropriately sealed City of Sierra Vista Special Inspection Certificate shall be submitted prior to the issuance of a building permit. All earthwork and installation of fill materials shall be done in compliance with soils report. A qualified inspector approved by the Building Official shall conduct all compaction tests. These test results shall be submitted to the City of Sierra Vista Building Department.

LANDSCAPING

**Is landscape plan provided?
(Per Section 151.15.002.A) (151.18.006.A.2.aa)**

**15 percent landscaping on the site?
(Per Section 151.15.003.A.3)**

**Sizes and quantities of all plants and boulders
identified? (Per Section 151.15.004.A.1.d,
151.15.004.A.5.a)**

DEVELOPMENT CODE REQUIREMENTS

Met

Pending

N/A

**Are spacing requirements being met?
(Per Section 151.15.004.A.5.d)**

**Street trees shown? (1 per 50 feet)
(Per Section 151.15.004.A.4.b)**

**Area averaging 10 feet between sidewalk and site?
(Per Section 151.15.004.A.4.a)**

**Plant quantities and percentages of the overall site
shown (no more than 20% of one species)?
(Per Section 151.15.004.B)**

**Plants from Drought Tolerant list (or equivalent)?
(Per Section 151.15.004.A.3, 151.15.004.A.5.c,
151.15.004.A.8.c)**

**The type and depth of groundcover provided?
(If applicable) (Per Section 151.15.004.A.1)**

**Irrigation Plan provided?
(Per Section 151.15.004.A.1.b)**

**Parking islands every 12 spaces shown with
Dimensions and required landscaping?
(Per Section 151.15.004.A.8.d)**

**Stormwater flow directed into depressed parking
island planters, where possible?
(Per Section 151.15.004.A.8.d)**

Luminaire Information Worksheet

Outdoor lighting is regulated by Development Code Article 151.11. See that section for information regarding all aspects of outdoor lighting.

The following information must be provided. Additional information such as luminaire symbols, labels, catalog numbers, etc. can also be included if desired.

(It is not necessary to replicate this form, but the requested information must be provided in this, or a similar, format).

1. Luminaire Schedule

<u>Description</u>	<u>Lamp</u>	<u>Quantity</u>	<u>Lumens</u>	<u>Total (Quantity X Lumens)</u>
Pole-Mounted Lights				
Wall-Mounted Lights				
Totals				

2. Lumens Per Acre

Total Lumens	Total Site Acreage *	Lumens Per Acre**

* Total Site Acreage: Consists of all improved surface area including buildings, structures, storage and service areas, parking, loading, driveway areas, required setback areas and required landscaping related to the use, but not areas that are only cleared.

** Lumens Per Acre: See Development Code Article 151.11 for maximum allowed.

Note: Gas Station canopies are allowed additional lighting. See Development Code Article 151.11 for specific information.

3. Uniformity Ratio

The Average/Minimum (uniformity) ratio cannot exceed 4:1. Where the information submitted indicates this ratio may not be achieved, the city may require a photometric plan or other supporting information.

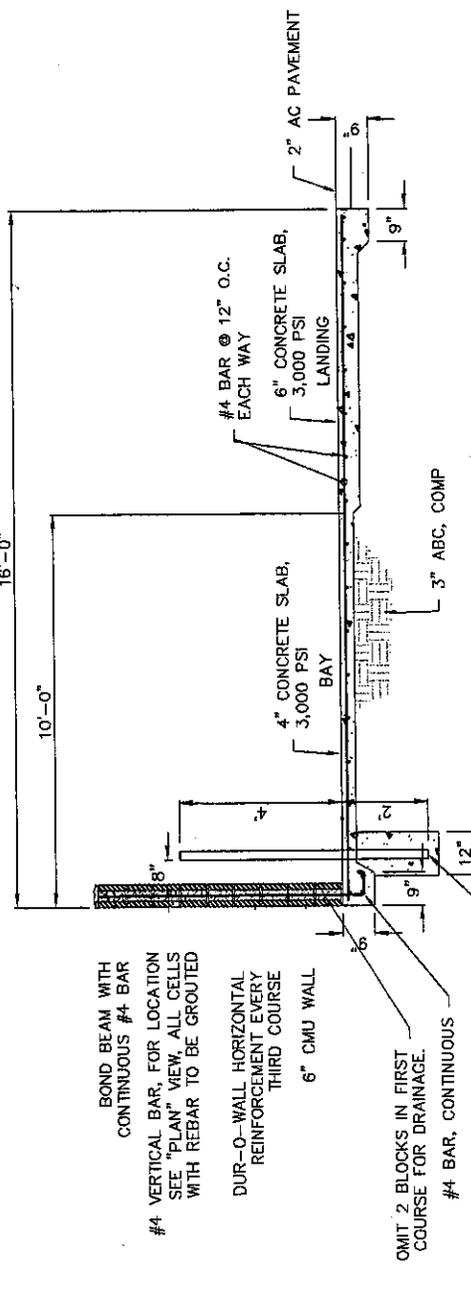
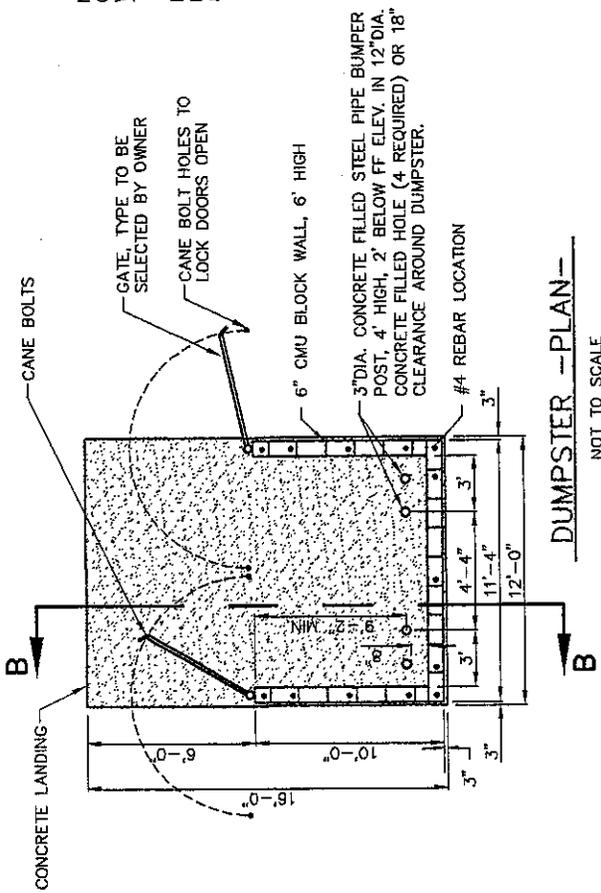
4. Lighting Cutsheets

Lighting catalog cutsheets that are clearly readable must be provided for all outdoor light fixtures proposed.

5. Lighting Site Plan

The site development plan must include information indicating the location of all proposed exterior lights, to include pole-mounted lights, wall-mounted lights, landscape lights, flag illumination lights, etc. The information can be shown on the site plan sheet or on a separate sheet.

NOTE:
 GATES SHALL HAVE 180° OPEN CLEARANCE WITH CANE BOLTS AND CANE BOLTS HOLES TO MAINTAIN OPEN POSITION.
 EACH ENCLOSURE SHALL HAVE MINIMUM DEPTH OF 9'-2" TO ALLOW SPACE FOR AN 8 YRD. DUMPSTER CONTAINER.



5 DUMPSTER PAD
 N.T.S.

COCHISE BICYCLE ADVOCATES

Bicycle Parking Facilities Guidelines

by
Thomas Armstrong
John Wettack

The purpose of this document is to summarize for business owners and managers factors to consider with the selection, capacity, and placement of bicycle parking facilities for customer and employees.

Benefits of bicycle parking facilities

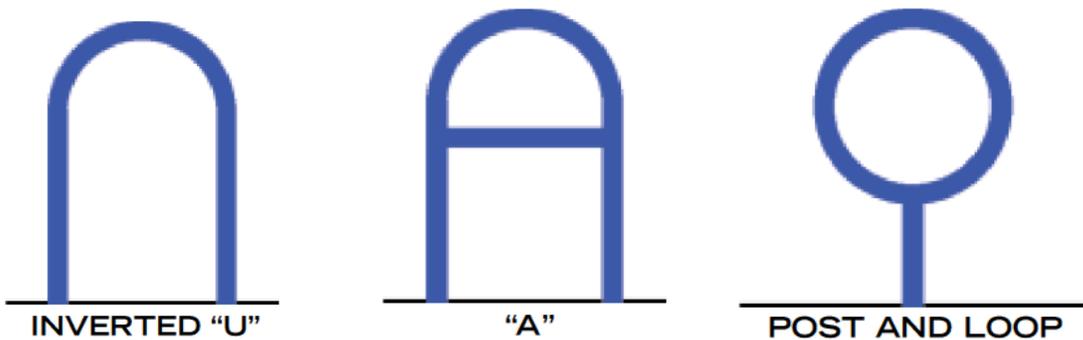
Bicycle racks benefit business by attracting bicycle-riding customer, controlling where bikes are parked to present an orderly appearance, and preventing bikes from blocking walkways or streets. Racks announce to customers this business is environmentally aware and supports sustainable transportation.

The lack of secure bicycle parking keeps many people from using their bikes for basic transportation. Leaving a bicycle unattended, even for short periods, may result in damage or theft. Finding a bike rack that can't be properly used or isn't conveniently located is a frustrating experience for bike riders.

Types of racks

Bike racks will be used only when they provide stability and security. Racks should support the bike frame in at least one place (two places is best) so bikes cannot fall over. Racks which hold only the front wheel are not desirable, because bikes can easily fall over, damaging the wheels or other parts of the bikes. When only the front wheel can be locked to the rack, it is easy to release the wheel and steal the bicycle. Racks should enable the bike frame to be locked to the rack with a high-security U-shape lock and accommodate locking the wheels with a cable lock. Racks should be anchored so they cannot be moved.

Bicycle racks that best meet the above guidelines are the U-style, A-style, and post and loop. These racks support the bike frame in two places and enable the bike to be easily secured.



INVERTED "U" "A" POST AND LOOP
One rack element supports two bikes. One rack element supports two bikes. One rack element supports two bikes.

Bicycle racks NOT meeting the above guidelines are the wave, comb, and toast type racks.

The popular wave-style rack can accommodate several bikes and support the frame at one place. However, bicyclists commonly use the “wave” rack as if it were a single inverted “U” (by placing their bikes alongside the rack.) This limits the capacity of the rack to two bikes regardless of the potential capacity. Bicycles parked perpendicular to a wave rack (as intended by the manufacturer) are not supported in two places and are more likely to fall over in the rack. The advertised capacity of a wave rack is often higher than the practical capacity.

The comb, toast, and other wheel-securing racks provide no support for the bicycle frame, making it more likely for the bicycle to fall over in the rack. Securing only the wheel increases the likelihood of bending the wheel. The advertised capacity of a wheel-securing rack is often higher than the practical capacity.



Number of bicycles to accommodate

Business owners can determine the capacity of bike racks to provide by applying standards or considering how many bike riders they would like to accommodate. One standard requires the following parking spaces, with a minimum of 2 spaces and fractional racks being rounded up to the next whole number:

- General food sales or groceries – 1 space for each 8,000 s.f. of floor area
- Restaurant – 1 space for each 40 customer seats.
- General retail – 1 space for each 20,000 s.f. of floor area
- Office – 1 space for each 20,000 s.f. of floor area.

Business wishing to attract more bicycle riders or groups of bicycle riders may provide more parking spaces. Groups of bike riders would patronize businesses when proper bike parking facilities are provided.

Locations of racks

- **Accessibility:** Racks should be placed close to building entrances for convenience – a maximum distance of 50 feet and be readily accessible from the street. Buildings with multiple entrances should have racks at each entrance.

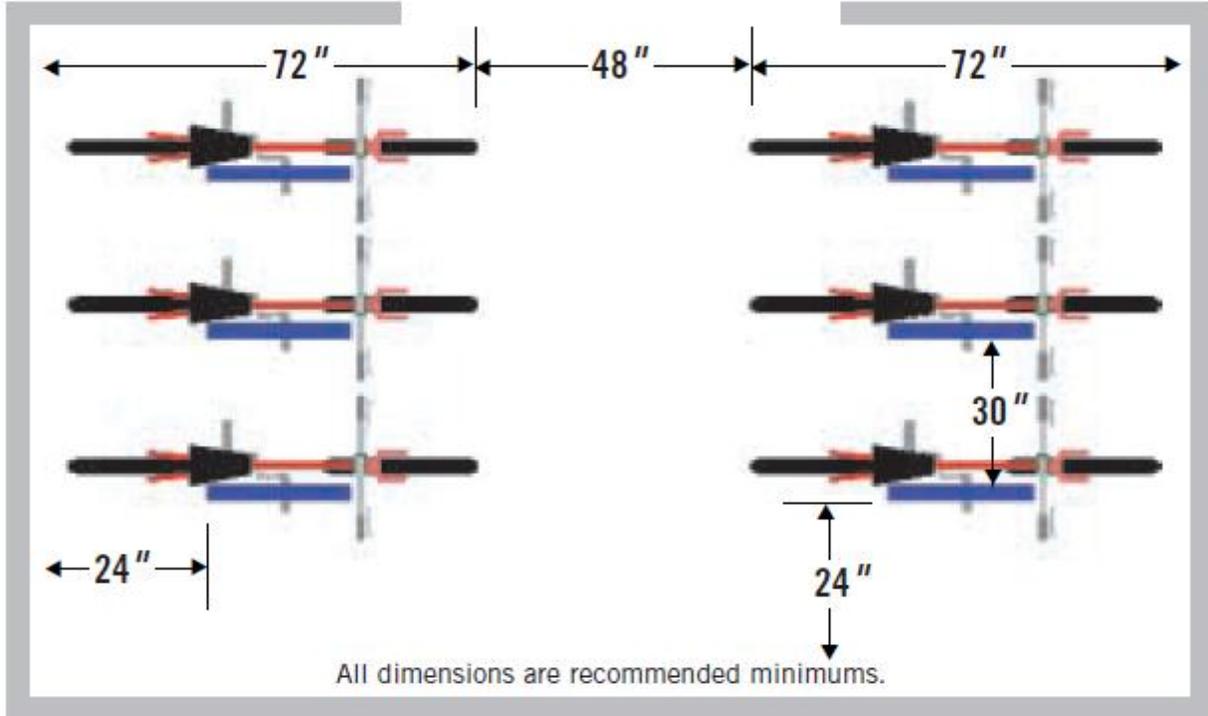
- **Visibility:** Racks should be easily spotted by cyclists as they arrive from the street or parking lot. Signs may be used to direct cyclists to the rack.
- **Security:** Racks should be in view of passers-by, retail activity, and when practical, in front of building windows to deter thieves and vandals. Where feasible, racks should be covered by roof overhangs for protection from sun and rain.
- **Avoid Conflict with Pedestrians:** Locate racks so bicycles in the racks do not block walkways, handicap facilities, building entrances or extend into roadways.
- **Positioning racks:** To serve their purpose, racks must be located so bikes can be placed in them as intended. Many racks in cannot be used as designed, because the racks' locations do not provide space for the bikes to be properly placed in the racks. The most common problems are placing racks too near building walls and not providing clearance for walkways. The following rules of thumb will permit racks to be used as designed:
 1. Provide 3 feet of clearance between bicycle racks and building walls, walkways, streets, and adjacent (side by side) racks.
 2. Provide 4 feet of clearance between bicycles parked one behind another.
 3. Wave style racks are designed to have bikes placed into the rack from both sides, so are best positioned perpendicular to walls or at least 7 feet from wall parallel to the rack.
 4. Adult bicycles are approximately 6 feet long, for considering clearance needs.

Examples of properly installed bicycle racks

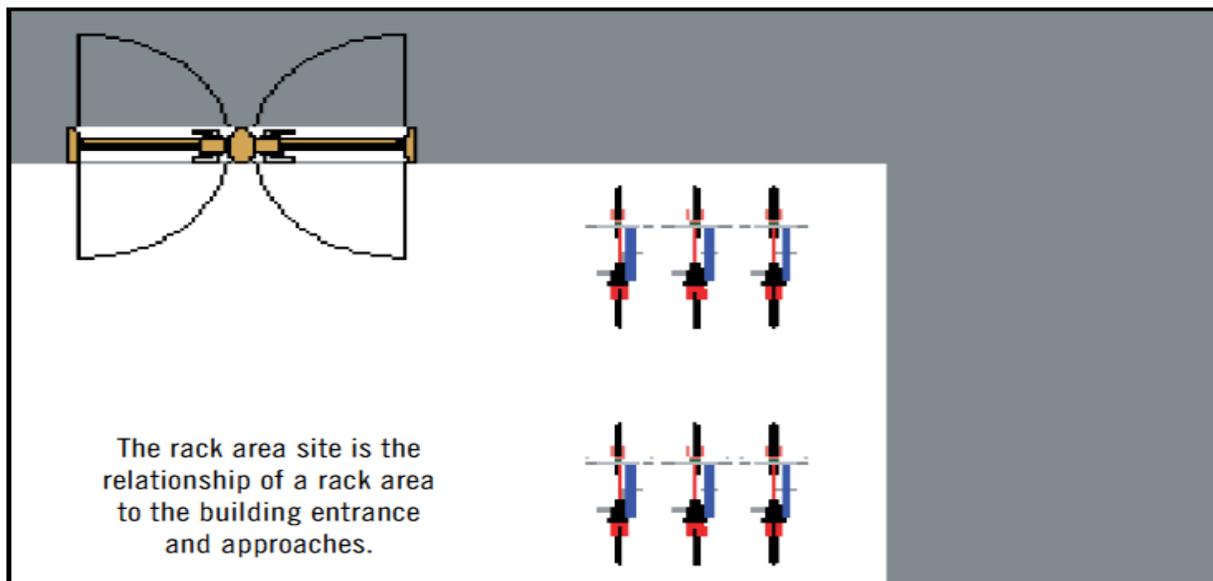
Properly installed bicycle racks may be seen at the following locations:

- U-type racks – The Cove Aquatic Center
- Ring-type racks – Fire Station #7
- Wave style rack – City Hall

Customer bicycle facility layout design



Not shown in this diagram are the pedestrian, car doors, entrance zone clearances which has a 48 inch minimum width



Employee Bicycle Parking

Bicycle racks for long-term employee parking should be of the preferred types described above that enable the bike frame and wheels to be locked to the rack. The parking should be located in areas not accessible or frequented by the public and which are observed by staff of the business. Protection from the weather is more important than for short-term parking. Ideally, bicycles would be parked inside the building or bicycle storage lockers.

Appropriate Bicycle Parking Facilities



"U" racks support bike frame at 2 places and provide space for a trailer



"U" type racks recommended distances provide maximum flexibility



"U" type racks with angled design allows for maximum space efficiency



Good parking options for many bikes



Designs can be simple with anchored rods and a supporting bar



Designs can be artistic

Inappropriate Bicycle Parking Facilities



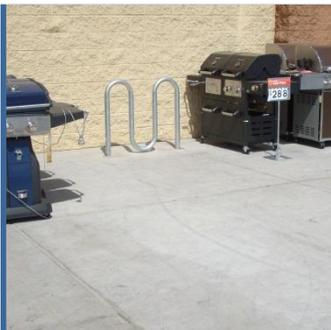
Bike blocking walkways.



Bikes blocking walkways



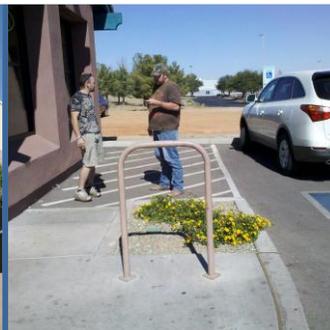
Bike blocking handicap access



Rack too close to the wall and not visible



Rack too close to the wall and the front wheel can easily be removed resulting in stolen bike.



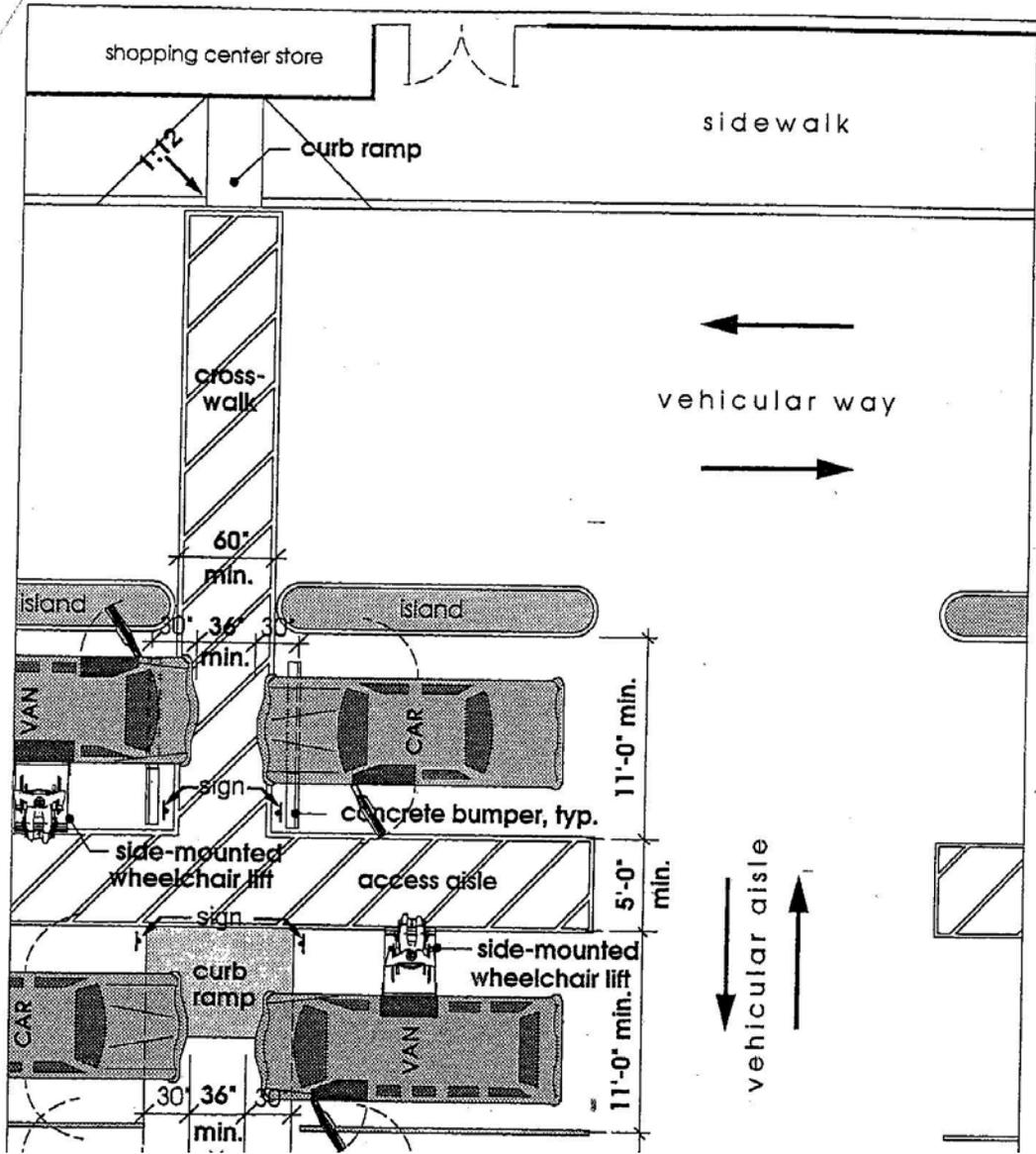
Rack placed so bikes would block sidewalk and extend into driveway

Bicycle Parking Checklist

1. Is there at least 3 feet of clearance between the bike rack and structures or other racks – to provide room to properly place bicycles in the rack?
2. Does the bike rack support the bicycle frame at least one place (support at 2 places is preferable)?
3. Are pedestrian walkways clear when bicycles are in the bike rack?
4. Is the bike rack easily accessible from the street?
5. Is the bike rack conveniently located to the building entrance and visible from the building?
6. Are parked bicycles protected from pedestrian and vehicle traffic?
7. Is there capacity to park the number of bicycles expected at any time?
8. Is the bike rack anchored so it cannot be moved?
9. Is parking for employees' bicycles in an area not accessible or frequented by the public?
10. Individuals with questions regarding bicycle parking facilities are invited to contact Cochise Bicycle Advocates at CochiseBicycleAdvocates@gmail.com

References

1. Guide for the development of bicycle facilities, American Association of State Highway and Transportation Officials, 1999. URL http://safety.fhwa.dot.gov/ped_bike/docs/b_aashtobik.pdf
2. Bicycle Parking Guidelines, Association of Pedestrian and Bicycle Professionals, 2002. URL http://www.apbp.org/resource/resmgr/publications/bicycle_parking_guidelines.pdf
3. Bicycle Parking Guidelines 2nd Edition, Association of Pedestrian and Bicycle Professionals, 2010. URL <http://www.apbp.org/?page=Publications>
4. Pedestrian and Bicycle Information Center (bicyclinginfo.org), Bicycle Parking. URL <http://www.bicyclinginfo.org/engineering/parking.cfm>
5. City of Chicago, Bike Parking for your Business. URL http://www.cityofchicago.org/content/dam/city/depts/cdot/bicycling/bikeparking/bikeparking_business.pdf
6. City of Denver, Rules and Regulations Establishing the Dimensional and Equipment Standards for Bicycle Parking Areas, December 23, 1998. URL <http://www.denvergov.org/Portals/646/documents/Equipment%20Standards%20for%20Bicycle%20Parking%20Areas.pdf>
7. City of Portland, Bicycle Parking. URL <http://www.portlandonline.com/transportation/index.cfm?&a=58409&c=34813>
8. City of Portland, Minimum Required Bicycle Parking Spaces. URL <http://www.portlandonline.com/transportation/index.cfm?&a=345205&c=34813>
9. City of Madison, Bike Rack Requirements. URL <http://www.cityofmadison.com/bikeMadison/documents/bikeRackRequirements.pdf>
10. Wikipedia: Door zone. URL http://en.wikipedia.org/wiki/Door_zone
11. AASHTO and Door Zone Bike Lanes. URL http://www.humantransport.org/bicycledriving/library/AASHTO_DZBL.pdf
12. Bicycle parking manual, The Danish Cyclist Federation 2008. URL http://www.sfbike.org/download/Bike_Parking/Danish_Bicycle_Parking_Manual_Screenversion.pdf



shopping center store

sidewalk

1:12

curb ramp

cross-walk

60" min.

30" 36" 30" min.

island

island

VAN

CAR

11'-0" min.

sign

concrete bumper, typ.

side-mounted wheelchair lift

access aisle

5'-0" min.

sign

curb ramp

side-mounted wheelchair lift

11'-0" min.

30" 36" 30" min.

CAR

VAN

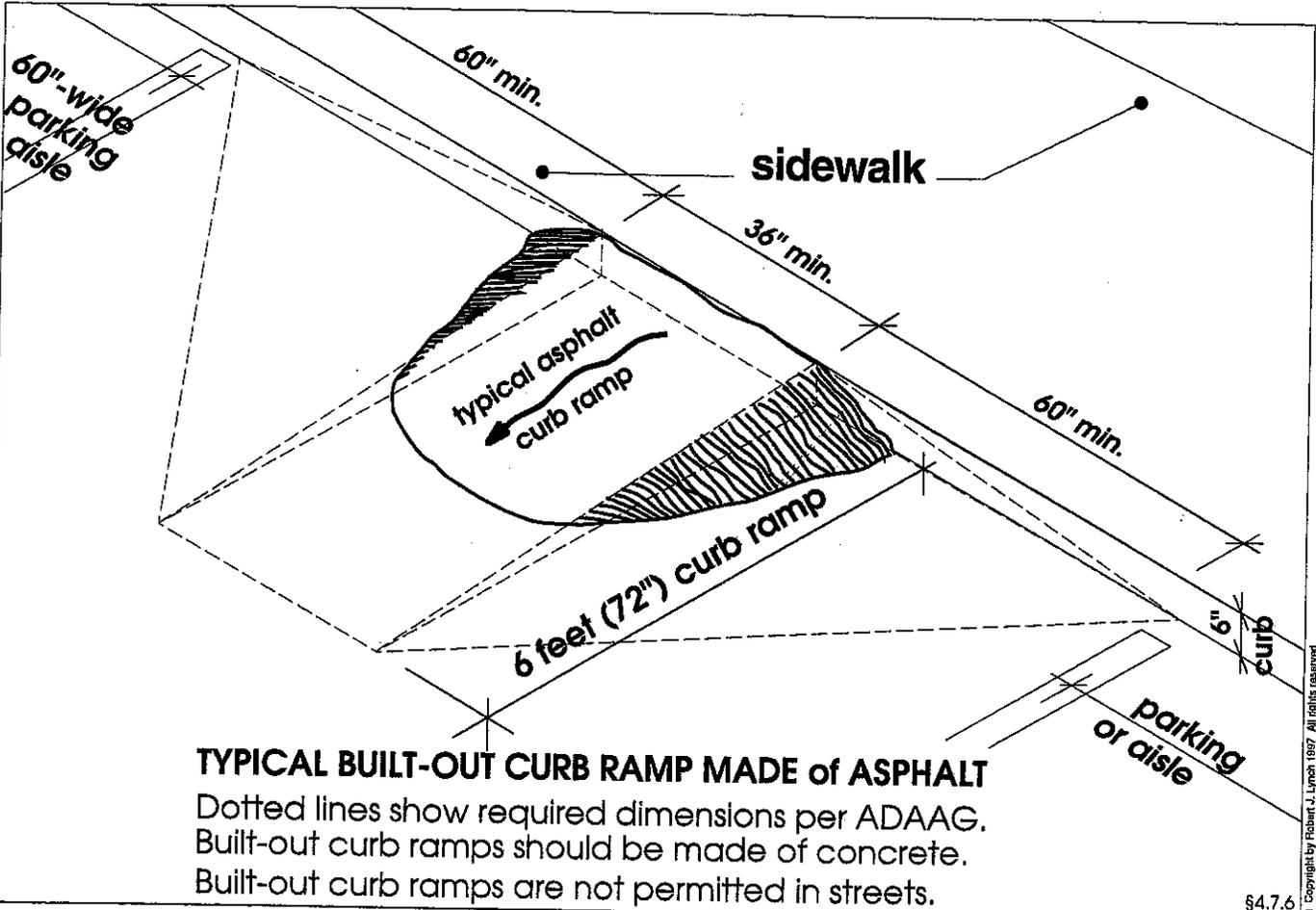


vehicular way

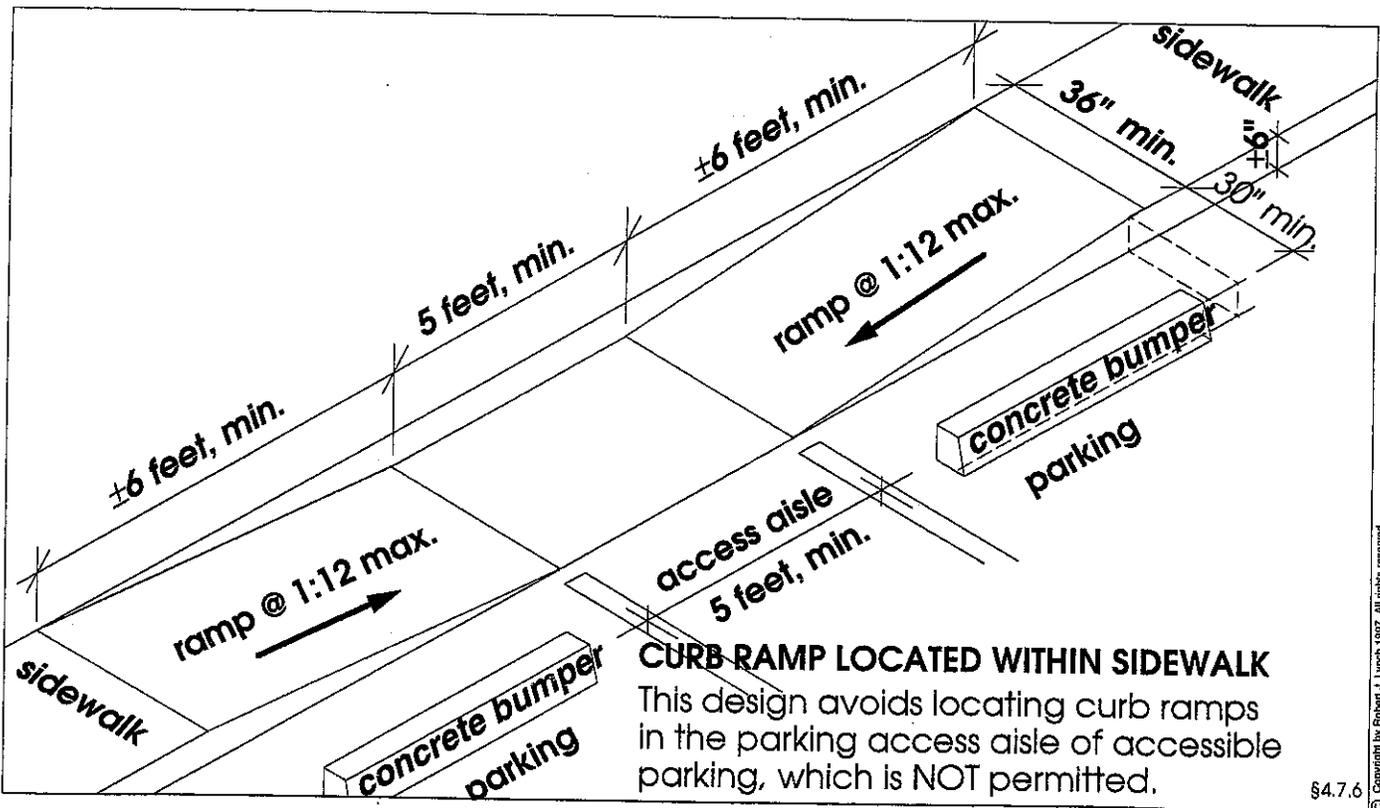


vehicular aisle





See verbatim text on page 177



See verbatim text on page 177

Recommended Plants for Sierra Vista by the UA Cooperative Extension Water Wise Program

N=Cochise County Native Species, T=Tree, S=Shrub, V=Vine, C=Cactus, Gc=Groundcover, Sc=Succulent, E=Evergreen, SE=Semi-evergreen, D=Deciduous FS = Full Sun, Psh = Partial Shade, FR = Flame Resistant, FL = Flammable, * = Toxic, M = Not cold hardy in our area, spp. = Species Supplemental Watering Frequency: 1 = None, 2 = Little, 3 = Moderate (every 2 to 3 weeks) Refer to Watering Guidelines in introductory comments				
<u>Common Name</u>	<u>Scientific Name</u>	<u>Mature Size</u>	<u>Watering Frequency</u>	<u>Remarks</u>
Trees				
Afghan Pine	<i>Pinus eldarica</i>	30-80'H 15-25'W	2	FS - E - FL - - One of best pines for desert
Argentine/Chilean Mesquite	<i>Prosopis alba or chilensis</i>	20 - 40' H & W	2 - 3	FS - SE or Evergreen mild climates -Thornless forms available
Arizona Ash	<i>Fraxinus velutina 'Rio Grande'</i>	30'H 30-40'W	3	FS - N - D - FR - 'Rio Grande', Fan-tex ash is the recommended ash for this area - Thrives in hot, dry climates and alkaline soils - Foliage resistant to wind burn
Arizona Cypress	<i>Cupressus arizonica</i>	40'H 20'W	2 - 3	FS - N - E - FL - Can be used as a windbreak
Arizona Walnut	<i>Juglans major</i>	50' H & W	3	FS - D - N - Edible nuts have a rich flavor
Blackbrush Acacia	<i>Acacia rigidula</i>	10-15' H&W	1 - 2	FS - SE - T or S - Fragrant, pale yellow flowers almost glow on a bright spring day - To train to a single stalk, trim off suckers at base
Blue Elderberry	<i>Sambucus mexicana</i>	10-30'H 8-20'W	3	FS - Psh - N - E - T or S - Drops its foliage during drought
Blue Palo Verde	<i>Cercidium floridum</i>	35'H 30'W	2 - 3	FS - D - Prune only to enhance form - Do not prune in summer
Bottlebrush	<i>Callistemon citrinus</i>	10-15' H&W	3	FS - E - T or S - M - Bruised leaves smell lemony
Buckeye Oak	<i>Quercus buckleyi</i>	35' H & W	2 - 3	FS - D - T or S - M - Trunk branches almost from base
Butterfly-leaf Acacia	<i>Acacia crassifolia</i>	10-15'H & W	2 - 3	FS - Psh - E - Leaves butterfly-winged shaped
Canyon Live Oak	<i>Quercus chrysolepis</i>	20-60' H&W	2 - 3	FS - E - Handsome round-headed or somewhat spreading tree with smooth whitish bark
Catclaw Acacia	<i>Acacia greggii</i>	15-25'H 15'W	1 - 2	FS - N - D - Thorns - Shrubby in drought, treelike with water
Chaste Tree	<i>Vitex agnus-castus</i>	25' H&W	2 - 3	FS - D - T or S - Leaves aromatic - Blooms summer to fall - Avail. with white, blue or pink flowers
Chinese Pistache	<i>Pistacia chinensis</i>	30-60' H & W	2 - 3	FS - D - FR - Reliable tree for streetside planting, lawn, patio, or garden - Good fall color
Chinquapin Oak	<i>Quercus muehlenbergii</i>	40-50'H 50-60'W	2 - 3	FS - D - Leaves turn orange and bronze in fall - Acorns edible
Chitalpa	<i>Chitalpa tashkentensis</i>	20-30' H&W	2 - 3	FS - D - Rapid grower - Flowers spring to fall - Chitalpa is a cross between Catalpa and Desert Willow - Susceptible to leaf spot, but won't harm tree
Common Hackberry	<i>Celtis occidentalis</i>	50' H&W	3	FS - Psh - D - Resistant to oak root fungus - Tree does not heave sidewalks - Good choice for street or lawn tree
Cork Oak	<i>Quercus suber</i>	30-60' H&W	2 - 3	FS - E - Handsome thick corky bark
Crape Myrtle	<i>Lagerstroemia spp.</i>	See remarks	3	FS - D - T or S - FR - All crape myrtles hardy for our zone except L. speciosa (Giant crape myrtle) - Check with nursery for sizes and colors
Deodar Cedar	<i>Cedrus deodora</i>	80'H 40'W	3	FS - E - FL - Many varieties available
Desert Museum Palo Verde	<i>Cercidium Desert Museum</i>	20 ' H & W	2 - 3	FS - D - Hybrid - Clean, thornless and few seedpods and litter - Prune only to enhance form - Don't prune in summer
Desert Olive	<i>Forestiera neomexicana</i>	12-18'H 12'W	2 - 3	FS - D -T or S - FR - Fairly fast grower - Can be trained to be a small multi-trunked tree
Desert Willow	<i>Chilopsis linearis</i>	15-30'H10-20'W	2 - 3	FS - N - D - T or S - FR - Flowers spring to fall, producing trumpet-shaped blossoms that attract hummingbirds - Sterile varieties not messy - Usually multi-trunked
Emory Oak	<i>Quercus emoryi</i>	50'H 40'W	2	FS - N - S E - Hollylike leaves - Tolerates a variety of soils - May shed leaves in spring
Eucalyptus	<i>Eucalyptus spp.</i>	See remarks	1 - 2	FS - E - T or S - FL - Check with nursery for hardiness and size - Prolonged freezes can kill even large trees Susceptible to eucalyptus redgum lerp psyllid
Gambel Oak	<i>Quercus gambelii</i>	15-30'H 15'W	2 - 3	FS - N - D - T or S - Foliage turns yellow-red or orange in fall
Golden Ball Lead Tree	<i>Leucaena retusa</i>	12-20' H & W	2 - 3	FS - E in mild winters, D otherwise - T or S - Useful between cultivated garden and native desert - Best if planted in wind sheltered area

Recommended Plants for Sierra Vista by the UA Cooperative Extension Water Wise Program

N=Cochise County Native Species, T=Tree, S=Shrub, V=Vine, C=Cactus, Gc=Groundcover, Sc=Succulent, E=Evergreen, SE=Semi-evergreen, D=Deciduous FS = Full Sun, Psh = Partial Shade, FR = Flame Resistant, FL = Flammable, * = Toxic, M = Not cold hardy in our area, spp. = Species Supplemental Watering Frequency: 1 = None, 2 = Little, 3 = Moderate (every 2 to 3 weeks) Refer to Watering Guidelines in introductory comments				
<u>Common Name</u>	<u>Scientific Name</u>	<u>Mature Size</u>	<u>Watering Frequency</u>	<u>Remarks</u>
Goldenrain Tree	<i>Koelreuteria paniculata</i>	20 H & W	3	FS - D - Can be gawky without pruning
Guajillo	<i>Acacia berlandieri</i>	5-12'H 5-20'W	1 - 2	FS - E - FL - M - Thornless forms available
Holly Oak	<i>Quercus ilex</i>	30-60' H & W	2 - 3	FS - E - Growth can be fairly fast, but varies with soil and water conditions
Honey Mesquite	<i>Prosopis glandulosa</i>	30' H & W	2	FS - D - Little pruning needed - Often multi-trunked - Thorniness variable - Cutting grown 'Maverick' is a superior thornless form
Italian Cypress	<i>Cupressus sempervirens</i>	60H 10'W	2 - 3	FS - E - FL - Several varieties available
Italian Stone Pine	<i>Pinus pinea</i>	40-80'H 40-60'W	2 - 3	FS - E - FL - M - Eventually too large for small gardens
Juniper	<i>Juniperus spp.</i>	See remarks	2	FS - Psh - E - Some N - FL - Check with nursery for size, water requirements & hardiness - When junipers fail, it's usually from too much moisture
Little-leaf Ash	<i>Fraxinus greggii</i>	25'H 20'W	2	FS - SE - May be multi-trunked - Good size ash for small yards
Littleleaf Palo Verde	<i>Cercidium microphyllum</i>	20' H & W	2 - 3	FS - N - D - Also called foothills palo verde - Arizona state tree
Mexican Blue Oak	<i>Quercus oblongifolia</i>	30' H & W	2	FS - N - S E - Gray bark fissured in square plates - Sheds leaves in spring
Mexican Blue Palm	<i>Brahea armata</i>	40'H 25'W	2	FS - E - Takes heat & wind
Mexican Buckeye	<i>Ungnadia speciosa</i>	15' H & W	1 - 2	FS - Psh - D - T or S - * - Naturally a shrub, but can be pruned to tree form - Seeds poisonous
Mimosa (Silk Tree)	<i>Albizia julibrissin</i>	40'H 60'W	3	FS - Psh - D - Can be controlled to a 10 to 20 ' umbrella patio tree - Sometimes multi-stemmed
Mountain Mahogany	<i>Cercocarpus spp.</i>	See remarks	1 - 2	FS - E or D - T or S - Some N - Check with nursery for sizes
Netleaf Hackberry	<i>Celtis reticulata</i>	25-30 'H & W	3	FS - Psh - N - D - FR - Tree does not heave sidewalks - Good choice for street or lawn tree
New Mexican Locust	<i>Robinia neomexicana</i>	6 - 30' H & W	2	FS - N - D - T or S - FR - Thorns - Wood brittle - Fast growing - Aggressive roots - Suckers
Olive 'Swan Hill'	<i>Olea europaea</i>	25-30' H&W	2 - 3	FS - E - T - M - This is a sterile variety - Non-sterile varieties stain pavement and lawns and are allergenic
Pinyon Pine	<i>Pinus cembroides, edulis, monophylla</i>	10 - 25' H	1 - 2	FS - N - E - FL - Cones contain edible seeds -Pine nuts edible - Slow growing
Russian Olive	<i>Elaeagnus angustifolia</i>	20' H & W	2 - 3	FS - Psh - D - Can be clipped to make a hedge - Takes almost any kind of punishment
Screwbean Mesquite	<i>Prosopis pubescens</i>	30' H & W	2	FS - N - D - T or S - Seed pods tightly coiled in a spiral curl - Highly prized in dried arrangements
Shoestring Acacia	<i>Acacia stenophylla</i>	30' H 20' W	1 - 2	FS - D - FL - M - Thornless
Silverleaf Oak	<i>Quercus hypoleucoides</i>	40' H 35' W	2 - 3	FS - N - SE - Leaves silvery white and woolly underneath - Sheds leaves in spring
Strawberry Tree	<i>Arbutus unedo</i>	8 - 35' H & W	3	FS - Psh - E -T or S - FR - Non-edible fruits resemble strawberries in texture - Several varieties
Sweet Acacia	<i>Acacia smallii</i>	10-35'H15-25'W	1 - 2	FS - D - FL - M - Thorns
Tecate Cypress	<i>Cupressus forbesii</i>	10-25'H 20'W	2 - 3	FS - E - FL - Fast grower - Keep on dry side so it won't grow so fast that it will topple
Texas Mountain Laurel	<i>Sophora secundiflora</i>	15-25'H10-15'W	3	FS - Psh - E - T or S - * - Naturally shrubby, but can be trained into a tree
Velvet Mesquite	<i>Prosopis velutina</i>	20' H 30' W	2	FS - N - D - Thorniness variable
Western Redbud	<i>Cercis occidentalis</i>	10-18 'H & W	3	FS - Psh - D - FR - Multi-stemmed T or S, magenta flowers in spring - Many seed pods in summer - 'Alba' is a 3 to 6' white-flowered shrub

Recommended Plants for Sierra Vista by the UA Cooperative Extension Water Wise Program

N=Cochise County Native Species, T=Tree, S=Shrub, V=Vine, C=Cactus, Gc=Groundcover, Sc=Succulent, E=Evergreen, SE=Semi-evergreen, D=Deciduous FS = Full Sun, Psh = Partial Shade, FR = Flame Resistant, FL = Flammable, * = Toxic, M = Not cold hardy in our area, spp. = Species Supplemental Watering Frequency: 1 = None, 2 = Little, 3 = Moderate (every 2 to 3 weeks) Refer to Watering Guidelines in introductory comments				
<u>Common Name</u>	<u>Scientific Name</u>	<u>Mature Size</u>	<u>Watering Frequency</u>	<u>Remarks</u>
Shrubs, Groundcovers, and Vines				
Agarita	<i>Berberis trifoliata</i>	6' H & W	3	FS - E - S - Some FR - Hollylike leaves - Yellow fragrant flowers Feb. thru Apr.
Apache Plume	<i>Fallugia paradoxa</i>	4-6' H 5' W	1	FS - N - E - S - Pruning usually not needed - Seed heads are feathery pink, like an Apache headdress
Arizona Grape Ivy	<i>Cissus trifoliata</i>	Climbs to 30'&2'W	2 - 3	FS - V - * - Evergreen only in warmest locations - Useful for covering chain link fences or trellises
Arizona Rosewood	<i>Vauquelinia californica</i>	20' H 15'W	2 - 3	FS - N - E - S - Good hedge plant - Slow grower at start - Similar to oleander, but not toxic
Artemisia	<i>Artemisia spp.</i>	See remarks	2 - 3	FS - S or Gc - Some N - E - Check with nursery for hardiness and size
Autumn Sage	<i>Salvia greggii</i>	1-4' H & W	3	FS - E - S - FR - Blooms spring and fall - Many varieties covering wide color range - Deadhead - Cut back to one half in winter to keep it full
Baccharis `Starn`	<i>Baccharis `starn`</i>	3-4' H 4-5' W	2 - 3	FS - E - S - Tolerates desert heat & resists root rot - This male cultivar that does not produce seed clusters
Black Dalea	<i>Dalea frutescens</i>	3' H 4' W	2 - 3	FS - E - S - FR - Prune by one half in January - Overwatering or drought can cause partial leaf drop
Blackbrush Acacia	<i>Acacia rigidula</i>	10-15' H&W	1 - 2	FS - SE - D - T or S - Fragrant, pale yellow flowers almost glow on a bright spring day - To train to a single
Blue Elderberry	<i>Sambucus mexicana</i>	10-30'H 8-20'W	3	FS - Psh - N - E - T or S - Drops its foliage during drought
Bottlebrush	<i>Callistemon citrinus</i>	10-15' H&W	3	FS - E - T or S - Marginal - Bruised leaves smell lemony
Broom Dalea	<i>Psoralethamnus scoparia</i>	3' H 4' W	2	FS - N - D - S - Requires sandy soil - Does not tolerate overwatering - Attractive erosion control
Buckwheat	<i>Eriogonum spp.</i>	See remarks	2 - 3	FS - E - S - Some N - FL - Check with nursery for size and hardiness
Bush Germander	<i>Teucrium fruticans</i>	4-8' H & W	3	FS - E - S - Blooms almost year-round
Bush Morning Glory	<i>Convolvulus cneorum</i>	2-4' H & W	3	E - FS - Psh - * - S or Gc - M - Best in sun
California Grape	<i>Vitis californica</i>	To 30'	1 - 2	FS - Psh - D - V - Leaves emerge grayish, mature to green, turn red or yellow in autumn - Several varieties
Cat's Claw	<i>Macfadyena unguis-cati</i>	25-40' spread	3	FS - Psh - E or D - V or Gc - After bloom, cut back some stems to stimulate growth lower down - Pinch back vigorous shoots as needed - Do not grow on stucco as it may pull the stucco off
Chuparosa	<i>Justicia californica</i>	3'H 4'W	2 - 3	FS - Psh - SE or D - S - M - May freeze to ground in winter, but will come back quickly in spring
Cleveland Sage	<i>Salvia clevelandii</i>	3-5' H 5-1' W	3	FS - FR - E - S - Many hybrids - Remove faded spikes to encourage rebloom
Cliffrose	<i>Purshia mexicana</i>	6' H & W	2 - 3	FS - E - S - N - FL - Fragrant creamy flowers
Climbing Milkweed	<i>Funastrum cynanchoides</i>	10' long	2 - 3	FS - Psh - N - D - V - Starlike white flowers bloom May to September
Coffeeberry/Buckthorn	<i>Frangula californica</i>	3-15' H - 8' W	3	FS - Psh - E - S - N - No irrigation needed when established - Check with nursery for size & color
Coral Bean	<i>Erythrina flabelliformis</i>	3-4' H - 2' W	2	FS - N - D - S - * - FR - Short spines - Seeds poisonous - Will freeze to ground in winter, but will recover
Cotoneaster	<i>Cotoneaster spp.</i>	See remarks	2 - 3	FS - D, E, or SE - S or Gc - FR - Many cotoneasters OK in our area - Check nurseries for hardiness and size
Crape Myrtle	<i>Lagerstroemia spp.</i>	See remarks	3	FS - D - S - FR - Several species, many varieties - Check with nursery for size and colors
Creeper Vines	<i>Parthenocissus spp.</i>	See remarks	3	FS - Psh - N - D - V - Handsome foliage is beautifully colored in autumn - P. henryana marginal in our zone -
Creeping Sage	<i>Salvia chinophylla</i>	4" H - 4' W	2 - 3	FS - E - Gc - FR - Interesting, attractive plant all year - Small blue flowers
Creosote Bush	<i>Larrea tridentata</i>	4-6' H - 8' W	1 - 2	FS - N - E - S - FL - Plants in shade become leggy
Crucillo	<i>Condalia lycioides, mexicana, spathulata</i>	8-1' H - 10' W	2	FS - N - E - S - Impenetrable security barrier - Slow growing

Recommended Plants for Sierra Vista by the UA Cooperative Extension Water Wise Program

N=Cochise County Native Species, T=Tree, S=Shrub, V=Vine, C=Cactus, Gc=Groundcover, Sc=Succulent, E=Evergreen, SE=Semi-evergreen, D=Deciduous FS = Full Sun, Psh = Partial Shade, FR = Flame Resistant, FL = Flammable, * = Toxic, M = Not cold hardy in our area, spp. = Species Supplemental Watering Frequency: 1 = None, 2 = Little, 3 = Moderate (every 2 to 3 weeks) Refer to Watering Guidelines in introductory comments				
<u>Common Name</u>	<u>Scientific Name</u>	<u>Mature Size</u>	<u>Watering Frequency</u>	<u>Remarks</u>
Damianita	<i>Chrysactinia mexicana</i>	2' H & W	2 - 3	FS - E - S - Shear in early spring - Cut back severely if plant too woody
Desert Broom	<i>Baccharis sarothroides</i>	5' H & W	2 - 3	FS - N - E - S - Purchase male plants only, females produce messy cottony seed clusters
Desert Hackberry	<i>Celtis pallida</i>	10' H & W	2 - 3	FS - Psh - N - D - FR - T or S - Good for screen, barrier or erosion planting
Desert Honeysuckle	<i>Anisacanthus quadrifidus wrightii</i>	3' H - 4' H	3	FS - Psh - D - S - Rabbits love new shoots, so protect - For compact shape and prolific bloom, cut back to 1/2 to 1/3 before spring growth - Attracts hummingbirds
Desert Honeysuckle	<i>Anisacanthus thurberi</i>	4' H & W	3	FS - D - N - S - Cut to ground before spring growth to rejuvenate - Attracts hummingbirds
Desert Lavender	<i>Hyptis emoryi</i>	3-10'H - 3-8'W	2 - 3	FS - E - S - M - Erect or spreading shrub - May die to roots in winter
Desert Olive	<i>Forestiera neomexicana</i>	12-18'H 12'W	2 - 3	FS - D - T or S - Fairly fast grower - Can be trained to be a small multi-trunked tree
Desert Sage	<i>Salvia dorrii</i>	1-3' H 2-4' W	3	FS - E - S - FR - Good in dry desert garden
Desert Scrub Oak	<i>Quercus turbinella</i>	10' H & W	2	FS - E - S - N - Water during dry spells - Can be trained as a small tree
Desert Spoon	<i>Dasyllirion wheeleri</i>	3-5' H 4-5' W	1 - 2	FS - Psh - N - E - S - Spherical clump - In fall, 9 -15' flower spikes - Prized in dry arrangements
Dusty Miller	<i>Senecio cineraria</i>	2' H & W	2 - 3	FS - E - S - FR - Another dusty miller - Gets leggy unless sheared occasionally
Dusty Miller	<i>Senecio viravira</i>	4' H & W	2 - 3	FS - Psh - S - FR - Fuller in full sun - Tip-pinch young plants to keep them compact
Evergreen Sumac	<i>Rhus virens</i>	12' H & W	2 - 3	FS - Psh - E - S - N - Use as informal hedge or as background for other plants
Fairy Duster	<i>Calliandra eriophylla</i>	1-3' H - 4' W	1 - 2	FS - Psh - N - D - S or Gc - * - FR - No irrigation needed, but blooms will last longer with some summer water
False Mockorange	<i>Fendlera rupicola</i>	4'H & 4'W	2	FS - D - S - N - Fragrant white flowers bloom in spring
Fern Acacia	<i>Acacia angustissima 'Hirta'</i>	5' H & W	2	FS - Psh - N - D - S - May freeze to ground in winter, but will recover - Soak root zone every month or two in summer, less or not at all in winter
Fernbush	<i>Chamaebatiaria millefolium</i>	6-8'H&W	2 - 3	FS - E - SE - D - S - Fragrant, light green ferny foliage - Upright white flower clusters 4" long
Firethorn	<i>Pyracantha spp.</i>	See remarks	2 - 3	FS - E - S - FR - Many species and hybrids - Check with nursery for sizes
Four-wing Saltbush	<i>Atriplex canescens</i>	3-6' H 4-8' W	1 - 2	FS - E - S - N - FR - To keep compact, cut back by one third each year before spring growth
Gambell Oak	<i>Quercus gambellii</i>	15-30'H 15'W	2 - 3	FS - N - D - T or S - Foliage turns yellow-red or orange in fall
Giant Flowered Purple Sage	<i>Salvia pachyphylla</i>	3'H 2.5'W	2	FS - FR - E - S - Blooms all summer - Evergreen silver foliage - Prune & shape in fall
Golden Dalea	<i>Dalea capitata</i>	8"H 3'W	2 - 3	FS - E - S or Gc - FR - Cut back in winter to generate new spring growth -Overwatering or drought can cause partial leaf drop
Green Desert Spoon	<i>Dasyllirion acrotriche</i>	3-4' H - 4-5' W	1 - 2	FS - Psh - E - S - Spherical clump - 10' or higher flower stalk
Green Hopbush	<i>Dodonaea viscosa</i>	10' H & 6' W	2 - 3	FS - Psh - N - E - S - S - FL - Can be trained as a small tree
Heavenly Bamboo	<i>Nandina domestica</i>	3-6' H 2-3' W	2 - 3	FS - Psh - E - S - FR - Many varieties - All types turn crimson in fall - Cut oldest canes to ground in spring before growth begins - Dwarf varieties available
Holly Redberry	<i>Rhamnus ilicifolia</i>	15' H & W	1	FS - Psh - E - S - No irrigation needed when established - Bulky shrub or shrubby tree
Indigo Bush/Silver Dalea	<i>Dalea bicolor</i>	3-4' H & W	2 - 3	FS - E - SE - D - S - FR - Rapid regrowth from hard winter pruning brings a quick crop of fresh foliage - Overwatering or drought can cause partial leaf drop
Jojoba (Goat Nut)	<i>Simmondsia chinensis</i>	3-6' H & W	2	FS - E - S - N - M - Inconspicuous flowers - Can be used as a hedge - Available in dwarf form
Juniper	<i>Juniperis spp.</i>	See remarks	2 - 3	FS - Psh - E - S or Gc - FL - Expect root rot if soil is waterlogged - Check with nursery for hardiness and size - Don't plant next to lawn sprinklers or overwater
Kidneywood	<i>Eysenhardtia orthocarpa</i>	20' H 12' W	1 - 2	FS - N - D - T or S - Excellent tree for small spaces - White vanilla scented flowers spring to summer
Lantana	<i>Lantana spp.</i>	See remarks	3	FS - D - S or Gc - * - All lantanas OK for our area - Many colors and varieties - Will die to ground in winter, but will recover - Check with nursery for size

Recommended Plants for Sierra Vista by the UA Cooperative Extension Water Wise Program

N=Cochise County Native Species, T=Tree, S=Shrub, V=Vine, C=Cactus, Gc=Groundcover, Sc=Succulent, E=Evergreen, SE=Semi-evergreen, D=Deciduous FS = Full Sun, Psh = Partial Shade, FR = Flame Resistant, FL = Flammable, * = Toxic, M = Not cold hardy in our area, spp. = Species Supplemental Watering Frequency: 1 = None, 2 = Little, 3 = Moderate (every 2 to 3 weeks) Refer to Watering Guidelines in introductory comments				
<u>Common Name</u>	<u>Scientific Name</u>	<u>Mature Size</u>	<u>Watering Frequency</u>	<u>Remarks</u>
Lavender	<i>Lavandula spp.</i>	See remarks	3	FS - E - S - FR - Forms mounds - Many species - Check nursery for size, hardiness and color
Lion's Tail	<i>Leonotis leonurus</i>	4 - 6' H & W	1 - 2	FS - E - S - If frost hits, cut back to live growth in spring
Little-leaf Cordia	<i>Cordia parvifolia</i>	4-8' H 4-10' W	2 - 3	FS - E - S - FR - Can be used as an informal hedge
Lycium	<i>Lycium spp.</i>	6' H & W	2	FS - N - D - S - Can be used for barrier plantings
Manzanita	<i>Arctostaphylos pungens</i>	6' H & W	2 - 3	FS - Psh - N - E - S - Smooth red bark and crooked branches
Mexican Buckeye	<i>Ungnadia speciosa</i>	15' H & W	3	S - Psh - D - T or S - * - Large shrub, but can be trained into a tree - Summer irrigational optional
Mexican Grass Tree	<i>Dasyliirion quadrangulatum</i>	10-16'H & 9' W	1 - 2	FS - Psh - M - E - S - Green leaves in fountainlike clump
Mojave Sage	<i>Salvia mohavensis</i>	2' H 2.5' W	2	FS - E - S or Gc - FR - Be careful not to overwater in summer - Fragrant foliage
Mormon Tea	<i>Ephedra spp.</i>	See remarks	1 - 2	FS - Some N - E - S - Erect and densely branched - Check with nursery for sizes
Mountain Mahogany	<i>Cercocarpus spp.</i>	See remarks	1 - 2	FS - E or D - T or S - Some N - Check with nursery for sizes
Muhgo Pine	<i>Pinus mugo mugo</i>	4-8' H 8-15' W	2	FS - E - S - FL - Group includes compact selections
Myoporum	<i>Myoporum parvifolium</i>	3-6" H 9' W	2 - 3	FS - E - S - Marginal - Great ground cover - Some dieback in cold winters, recovers rapidly
Myrtle	<i>Myrtus communis</i>	5-6" H 4-5' W	2 - 3	FS - Psh - E - S - FR - Many named selections - Check with nursery for size and hardiness
New Mexican Locust	<i>Robinia neomexicana</i>	6 - 30' H & W	2	FS - N - D - T or S - FR - Thorns - Wood brittle - Fast growing - Aggressive roots - Suckers
Ocotillo	<i>Fouquieria splendens</i>	8-15'H 5-10'W	1 - 2	N - D - S - Attractive long red flower clusters resemble candles - Does not regularly have leaves
Oleander	<i>Nerium oleander</i>	3-20'H 4-12'W	2 - 3	FS - E - S - * - FR - Routine pruning not necessary - Do not burn wood, smoke may cause skin irritation
Paperbag Bush	<i>Salazaria mexicana</i>	3' H & W	2	FS - D - S - Common name refers to fruit that develops into an inflated pouch
Pineleaf Milkweed	<i>Asclepias linaria</i>	2' H 3' W	2	FS - E - S - N - M - Delicate needle-like leaves, 2" white-flower clusters bloom Mar - Dec.
Quail Bush	<i>Atriplex lentiformis</i>	3-10'H 6-12'W	1 - 2	FS - D - S - FR - Cut back by one third before spring growth
Rabbitbrush	<i>Chrysothamnus nauseosus</i>	6' H 3' W	1 - 2	FS - N - E - S - FR - Leaves and stems aromatic - Good for natural plantings - C. viscidiflorus also available - Important: must have good drainage
Raspberry Delight	<i>Salvia hybrid</i>	3' H & W	3	FS - Psh - E - S - FR - The deep green foliage has an herbal fragrance when crushed
Red Barberry	<i>Berberis haematocarpa</i>	5' H & W	3	FS - Psh - N - E - S - Attractive foliage, pretty flowers, showy berries - Other barberries not water wise
Red Bird of Paradise	<i>Caesalpinia pulcherrima</i>	2-4' H & W	1 - 2	FS - D - S - M - Dies to ground in winter - Prune before spring growth - Red flowers
Rosemary	<i>Rosmarinus officinalis</i>	See remarks	2 - 3	FS - E - S or Gc - Many varieties - Check nursery for size and characteristics
Royal Purple Sage	<i>Salvia muelleri</i>	2-3'H 4-6'W	3	FS - E - S - FR - Drought tolerant - Spring to fall flowers
Santolina	<i>Santolina spp.</i>	See remarks	2	FS - E - S - FR - Size varies by species - Cut back yearly before spring growth
Scarlet Creeper	<i>Ipomoea coccinea</i>	8' H	2	FS - N - Vine - * - Bright red tubular flowers frequented by hummingbirds
Scarlet Sage	<i>Salvia microphylla</i>	4' H & 3' W	3	FS - E - S - Usually 3-4'H 3-6'W - Available in various colors
Screwbean Mesquite	<i>Prosopis pubescens</i>	30' H & W	2 - 3	FS - D - T or S - N - Can be trained as a tree - Can be multi-stemmed - Spirally twisted seed pods
Shrubby Cinquefoil	<i>Potentilla fruticosa</i>	1-3'H 3-4'W	3	Psh in hottest climates - D - S - Many varieties, white pink, red and yellow flowers
Shrubby Senna	<i>Cassia wislizenii</i>	5-8'H 5-10'-W	2 - 3	FS - N - D - S - Brilliant yellow-flowers in late summer
Silk Tassel	<i>Garrya wrightii</i>	8' H 6'W	1 - 2	FS - Psh - N - E - S - FR -Can be used as an informal hedge
Smoke Bush/Indigo Bush	<i>Dalea pulchra</i>	8'H 5'W	2 - 3	FS - E - S - N - Spectacular spring bloom of purple flower clusters - Allow ample room to grow
Snakeweed	<i>Gutierrezia sarothrae</i>	18' H 2' W	1 - 2	FS - N - E - S - Low-growing shrub with July to Sept flowers can brighten a desert garden

Recommended Plants for Sierra Vista by the UA Cooperative Extension Water Wise Program

N=Cochise County Native Species, T=Tree, S=Shrub, V=Vine, C=Cactus, Gc=Groundcover, Sc=Succulent, E=Evergreen, SE=Semi-evergreen, D=Deciduous FS = Full Sun, Psh = Partial Shade, FR = Flame Resistant, FL = Flammable, * = Toxic, M = Not cold hardy in our area, spp. = Species Supplemental Watering Frequency: 1 = None, 2 = Little, 3 = Moderate (every 2 to 3 weeks) Refer to Watering Guidelines in introductory comments				
<u>Common Name</u>	<u>Scientific Name</u>	<u>Mature Size</u>	<u>Watering Frequency</u>	<u>Remarks</u>
Strawberry Tree	<i>Arbutus unedo</i>	8 - 35' H & W	3	FS - Psh - E - T or S - FR - Fruits resemble strawberries in texture - Several varieties
Sumac	<i>Rhus spp.</i>	See remarks	2 - 3	FS - E & D - T or S - Some N - FR - Check with nursery for size and hardiness
Sun Rose	<i>Helianthemum nummularium</i>	6" H 18" W	3	FS - Psh - E - Gc - Several colors - Shear after flowering for light repeat blooming
Texas Mountain Laurel	<i>Sophora secundiflora</i>	15-25'H10-15'W	3	FS - Psh - E - T or S - * - Naturally shrubby, but can be trained into a tree
Texas Ranger/Sage	<i>Leucophyllum spp.</i>	See remarks	2 - 3	FS - E - S - Many species - Requires little or no pruning - Check nursery for size
Texas Sotol	<i>Dasyllirion texanum</i>	5' H & W	1	FS - E - S - 15' H flower stalk
Threadleaf Grounel	<i>Senecio longilobus</i>	3'H 2'W	1 - 2	FS - N - E - S - * - Poisonous to livestock - Common on overgrazed grasslands - Do not overwater
Tombstone Rose	<i>Rosa banksiae</i>	See remarks	3	FS - E - S - Can grow to humongous size, but can be controlled - Local experience says moderate water OK
Trailing Indigo Bush	<i>Dalea greggii</i>	1.5'H 6'W	2 - 3	FS - E - Gc - N - FR - Mounding habit - Overwatering or drought can cause partial leaf drop
Turpentine Bush	<i>Ericameria laricifolia</i>	2 - 3' H	2	FS - N - E - S - FL - If the plant becomes lanky, prune it back and it will regrow with dense foliage
White Thorn Acacia	<i>Acacia constricta</i>	6 - 20' H & W	2	FS - N - D - S - Bark looks red in winter when wet
Whitebrush	<i>Aloysia gratissima</i>	6'H 8'W	3	FS - Psh - D - S - Flowers strongly vanilla scented
Wild Cotton	<i>Gossypium thurberi</i>	2 - 6' H 3' W	2 - 3	FS - Psh - N - D - S - FL - Head back fast growing terminal branches to side buds for a more compact plant
Winter Fat	<i>Ceratoides lanata</i>	1.5 - 3' H & W	2 - 3	FS - Psh - N - E - S - Can be used in dry arrangements
Wisteria	<i>Wisteria spp.</i>	See remarks	2 - 3	FS - D - S - * - Check nursery for exposure and size for different species and varieties - Control size & shape and encourage bloom production by pruning and training - W. sinensis will bloom in FS or in Psh
Woolly Butterfly Bush	<i>Buddleja marrubiiifolia</i>	5' H & W	2 - 3	FS - E - S - Small, ball shaped, orange flower clusters in spring and summer - Prune after bloom
Wright's Bee Bush	<i>Aloysia wrightii</i>	5' H & W	3	FS - Psh, but prefers sun - N - D - S - Blooms spring through fall
Xylosma	<i>Xylosma congestum</i>	8-10' H & W	3	FS - Psh - E or D-T or S - Single or multi-stemmed - Stems zigzag and branches droop - X. compacta grows slowly to half the size of species
Yellow Bells	<i>Tecoma stans</i>	8' H 5' W	3	FS - Psh - N - E - S - M - Will die back in winter, but will recover quickly
Yellow Bird of Paradise	<i>Caesalpinia gilliesii</i>	5-10' H 4' W	1 - 2	FS - D - T or S - * - Yellow flowers with red stamens - Naturalized
Annuals (A) (flowers first year, then dies), Biennials (B) (flowers 2nd year, then dies), Perennials (P) (flowers every year)				
Includes some flowers that can be used as groundcovers (Gc)				
Agastache	<i>Agastache spp.</i>	2-4' H & W	3	FS - Psh - P - Check nursery for interesting hybrids and water requirements - Reblooms if deadheaded
Albert's Buckwheat	<i>Eriogonum alberti</i>	1.5' H 1'W	1	FS - N - P - FL - Tiny pink flowers appear in clusters mid-summer through fall
Alyssum	<i>Alyssum wulfenianum</i>	1.5' W mound	3	FS - Psh - P - Prostrate & trailing with pale yellow flowers
Angelita Daisy	<i>Tetranneuris acaulis</i>	8" H 12' W	2 - 3	FS - E - P - 1' stems - Daisy yellow flowers nearly all year in mild winter climates - Cut off faded flowers to prolong bloom
Arizona Blue Eyes	<i>Evolvulus arizonicus</i>	1' H & 1' W	1	FS - N - P - Gc - Usually grown as an annual
Artemisia spp.	<i>Artemisia spp.</i>	See remarks	2 - 3	FS - E - P - Many species - Some N - Inquire at nursery for size, exposure and hardiness - Perennials & evergreen shrubs
Bahia	<i>Bahia absinthifolia</i>	1' H & W	1	FS - N - E -P - Gc - Shallow caliche soil OK - Fast growth rate - New plants volunteer readily

Recommended Plants for Sierra Vista by the UA Cooperative Extension Water Wise Program

N=Cochise County Native Species, T=Tree, S=Shrub, V=Vine, C=Cactus, Gc=Groundcover, Sc=Succulent, E=Evergreen, SE=Semi-evergreen, D=Deciduous FS = Full Sun, Psh = Partial Shade, FR = Flame Resistant, FL = Flammable, * = Toxic, M = Not cold hardy in our area, spp. = Species Supplemental Watering Frequency: 1 = None, 2 = Little, 3 = Moderate (every 2 to 3 weeks) Refer to Watering Guidelines in introductory comments				
<u>Common Name</u>	<u>Scientific Name</u>	<u>Mature Size</u>	<u>Watering Frequency</u>	<u>Remarks</u>
Basket of Gold	<i>Aurinia saxatilis/Alyssum</i>	8-12" H mound	3	FS - Psh - P - Many varieties - E - Shear lightly to one half right after bloom
Bear Grass	<i>Nolina microcarpa</i>	3'H 6'W	1 - 2	FS - N - P - Strong vertical silhouette - Good for dry landscapes
Blackfoot Daisy	<i>Melampodium leucanthum</i>	1' H & W	2 - 3	FS - N - P - If straggly, cut back in fall - Grows best in decomposed granite
Blue Sage	<i>Salvia chamaedryoides</i>	1-2' H 2-3' W	3	FS - E - P - M - FR - Deadhead to encourage rebloom
'Boothill'	<i>Conoclinium (Eupatorium) greggii</i>	1.5 -2'H 1-3'W	2	FS - Psh - N - P - First found near Tombstone - Fluffy lavender flowers late spring to fall
Butterfly Weed	<i>Asclepias tuberosa</i>	3' H 1' W	3	FS - N - P - Long lasting cut flowers
Californica Poppy	<i>Eschscholzia californica ssp. mexicana</i>	8" H 1' W	2 - 3	FS - FR - N - A - Deep golden flowers in spring
Catmint/Catnip	<i>Nepeta spp.</i>	See remarks	3	FS - Psh - P - Great for attracting every cat in the neighborhood into your yard - Many varieties, check for height, width and hardiness
Chamomile	<i>Chamaemelum nobile</i>	3-12" mat	3	FS - Psh - P - Small yellow button flowers - Useful between stepping stones
Chocolate Flower	<i>Berlandiera lyrata</i>	1.5 - 3' H & W	2	FS - E - N - P - Shear seedheads lightly to encourage more bloom - Dry for winter bouquets
Clary Sage	<i>Salvia sclarea</i>	3-4' Flower Stalks & 2-3' W	2 - 3	FS - FR - B or short-lived P - Cutting stems before seeds form produces rebloom and may prolong plant's life
Clustered Goldflower	<i>Tetaneuris scaposa</i>	8"H 12"W	2 - 3	FS - E - P - 16" stems - Cut off faded flowers to prolong bloom
Common Yarrow	<i>Achillea millefolium</i>	See remarks	2 - 3	FS - E - P - FR - Many varieties of different colors - Spreads by underground runners
Coreopsis	<i>Coreopsis spp.</i>	See remarks	2 - 3	FS - FR - A and P - Many species - Check with nursery for hardiness, size and interesting varieties
Cosmos	<i>Cosmos spp.</i>	See remarks	3	FS - A and P - Several varieties from 1 to 7' H - Various colors
Desert Marigold	<i>Baileya multiradiata</i>	1.5' H & 1' W	2	FS - N - E - A or P - FR - Short-lived, but freely reseeds
Desert Phlox	<i>Phlox tenuifolia</i>	2' H & W	3	FS - Psh - N - P - Mounded white flowers
Dusty Miller	<i>Centaurea, Artemisia, Senecio spp.</i>	See remarks	2 - 3	FS - E - A, P or B - Common name given to many plants with lovely gray foliage - H & W varies
Dyssodia (Includes Dogweeds, Dahlberg Daisy and Golden Fleece))	<i>Thymophylla spp.</i>	4"-1'H 4"-1.5'W	3	FS - E - Some N - P - Some grown as annuals - Mounds - Blooms summer to fall - When plants get ragged, pull them out - Can easily be started from seed
Euphorbia	<i>Euphorbia spp.</i>	See remarks	2	Water requirements, exposure, size vary by species - Some native - Some D, Some E - A, B or P - * - ,About 2000 species in genus - Only buy plant species that use moderate or less water - Can be trees, shrubs, perennials, or annuals - All euphorbias have a milky white sap that is toxic on contact, including gopher plants and poinsettias
Evening Primrose	<i>Oenothera spp.</i>	See remarks	2 - 3	FS - Psh - N - P - FR - Some native - Open during day - Stems die back in winter All except <i>Oenothera elata hookeri</i> OK for our area - Sizes variable, check with nursery
Fernleaf Yarrow	<i>Achillea filipendulina</i>	4-5'H 3'W	2 - 3	FS - E - P - Deep green fernlike leaves - Bright yellow flowers - Several varieties
Firewitch	<i>Dianthus gratianopolitanus</i>	1' W mat	3	FS - Psh - P - Gc - Gray-blue foliage, hot-pink flowers
Flame Flower	<i>Phemeranthus calycinum</i>	8-12" H 5' W	3	FS - P - Long summer bloomer - Often goes dormant before first frost

Recommended Plants for Sierra Vista by the UA Cooperative Extension Water Wise Program

N=Cochise County Native Species, T=Tree, S=Shrub, V=Vine, C=Cactus, Gc=Groundcover, Sc=Succulent, E=Evergreen, SE=Semi-evergreen, D=Deciduous FS = Full Sun, Psh = Partial Shade, FR = Flame Resistant, FL = Flammable, * = Toxic, M = Not cold hardy in our area, spp. = Species Supplemental Watering Frequency: 1 = None, 2 = Little, 3 = Moderate (every 2 to 3 weeks) Refer to Watering Guidelines in introductory comments				
<u>Common Name</u>	<u>Scientific Name</u>	<u>Mature Size</u>	<u>Watering Frequency</u>	<u>Remarks</u>
Fleabane	<i>Erigeron spp.</i>	See remarks	2 - 3	FS - Psh - E - P - Some N - FR - Check with nursery for sizes and hardiness
Fringed Wormwood	<i>Artemisia frigida</i>	1.5' H & W	2 - 3	FS - E - P - Cut back as needed
Gaillardia	<i>Gaillardia spp.</i>	2-4' H 1 1/2' W	2 - 3	FS - Some N - A or P - FR - Height of the several species vary - Check with nursery
Gaura	<i>Gaura lindheimeri</i>	2-4' H 2-3' W	2 - 3	FS - P - FR - Several varieties - Remove seed-bearing spikes to improve appearance - Long bloom period
Germander	<i>Teucrium x lucidrys</i>	1' H 2' W	3	FS - E - P - Thin and cut back before spring growth begins - T. prostratum is 4 to 6" Hi and 3' or more wide
Gilia	<i>Gilia spp.</i>	See remarks	2 - 3	FS - Some N - A - Check nursery for sizes - Flowers late spring to early fall
Globe Thistle	<i>Echinops spp.</i>	2-4' H 2' W	3	FS - P - Several species - Check with nursery - Excellent for dry arrangements
Globemallow	<i>Sphaeralcea spp.</i>	2-4' H 1.5-3' W	1 - 2	FS - D - P - Some N - Cut old stems almost to ground in spring - Many colors available
Goldeneye	<i>Heliomeris (Viguiera) spp.</i>	3' H & 3' W	2 - 3	FS - Some N - A or P - Cut back after bloom or before new growth begins - Can be grown from seed
Goldenrod	<i>Solidago spp.</i>	1-3'H 2"W	3	FS - Psh - P - * - Four native Solidago species in Cochise County - 1 1/2 to 3'H 2"W - Does not cause hay fever
Hardy Hummingbird Trumpet/California Fuschia	<i>Zauchneria californica latifolia</i>	1.5' H 2' W	2 - 3	FS - P - 'Everett's Choice' is an improved variety - 'Arizonica' is 3' high and has bright orange flowers
Hardy Jerusalem Sage	<i>Phlomis russeliana</i>	36" H 20" W	3	FS - Psh - P - Yellow flowers, olive-green leaves
Hens and Chickens	<i>Sempervivum tectorum</i>	2-5"W rosettes	2	Psh - E - Sc - P - Water only to prevent shriveling
Ice Plant	<i>Delosperma spp.</i>	See remarks	2 - 3	FS - Psh - P - Sc - E - FR - Several species - Check with nurseries for size and hardiness
Jupiter's Beard	<i>Centranthus ruber</i>	3' H & W	2 - 3	FS - Psh - P - Not fussy about growing conditions - Blooms late spring through summer
Keller's Yarrow	<i>Achillea X kellereri</i>	6" H 12' W	3	FS - P - FR - Large white flower clusters continue through summer
Lambs Ears	<i>Stachys byzantina</i>	18" H	3	FS - Psh - E - P - Tongue-shaped woolly white leaves - Spreads by surface runners
Lavender	<i>Lavandula spp.</i>	See remarks	3	FS - A or P - FR - Many species and varieties available - All are water wise, but some are not hardy in our zone - Check with nursery for hardiness and size
Leadplant	<i>Amorpha canescens</i>	2-4' H 3' W	3	FS - P - Prune to one foot in fall to increase flowers
Logan Calhoun	<i>Callirhoe alcaeoides</i>	6" H 18-24"W	3	FS - P - Summer bloomer - White flowers
Mexican Catchfly	<i>Silene laciniata</i>	15" H & W	3	FS - N - P - Summer blooming - Too much water after established will cause plant to get floppy
Milkweeds	<i>Asclepias spp.</i>	See remarks	1 - 2	FS - Psh - P - Some N - Some E - Some V - Height and width vary by species
Moonshine Yarrow	<i>Achillea 'moonshine'</i>	1.5' - 2' H 2' W	2 - 3	FS - E - FR - P - Silver-gray foliage, deep yellow flowers
Mount Atlas Daisy	<i>Anacyclus depressus</i>	3" H 15" W	2 - 3	FS - E - P - Silvery-gray foliage with white daisy flowers - Good plant for edging pathways
Mountain Gold Alyssum	<i>Alyssum montanum</i>	4"H 18""W	3	FS - P - Gc - FR - After bloming is finished, sheer off the faded flowers just above the foliage and enjoy the texture of its low-growing gray-green mat of leaves
Mountain Marigold	<i>Tagetes lemmonii</i>	3-6' H & W	3	FS - E, SE or D - P - N - Leaves fragrant when rubbed - Can flower all year- Cut back after heavy bloom - Can get frost damage
Mullein	<i>Verbascum olympicum</i>	5' H 3' W	3	FS - P - Soft downy-white leaves, bright yellow flowers
Old Woman/Dusty Miller	<i>Artemisia stellerana</i>	2.5' H 3"W	2 - 3	FS - E - P - Another dusty miller
Oregano	<i>Origanum spp.</i>	2' H & W	2 - 3	FS usually - P - Many species, some not hardy in our area - Check with nursery for exposure and hardiness
Oriental Speedwell	<i>Veronica orientalis</i>	8" H 18" W	3	FS - P - Compact mounds of gray-green foliage, deep blue flowers
Paper Flower	<i>Psilostrophe spp.</i>	18" H & W	1 - 2	FS - E - N - P - Dried flowers can be used in arrangements

Recommended Plants for Sierra Vista by the UA Cooperative Extension Water Wise Program

N=Cochise County Native Species, T=Tree, S=Shrub, V=Vine, C=Cactus, Gc=Groundcover, Sc=Succulent, E=Evergreen, SE=Semi-evergreen, D=Deciduous FS = Full Sun, Psh = Partial Shade, FR = Flame Resistant, FL = Flammable, * = Toxic, M = Not cold hardy in our area, spp. = Species Supplemental Watering Frequency: 1 = None, 2 = Little, 3 = Moderate (every 2 to 3 weeks) Refer to Watering Guidelines in introductory comments				
<u>Common Name</u>	<u>Scientific Name</u>	<u>Mature Size</u>	<u>Watering Frequency</u>	<u>Remarks</u>
Penstemon	<i>Penstemon spp.</i>	See remarks	2 - 3	FS - Psh - P - FR - Over 250 species, many natives - Check nursery for size, hardiness and water requirements - If plants require regular water, then they are not acceptable.
Perennial Blue Statice	<i>Limonium latifolium</i>	30" H 24" W	3	FS - Psh - A or P - Airy summer bloomer with lavender-blue sprays - Good dried cut flower
Poppy Mallow	<i>Callirhoe involucrata</i>	5" H 24-30"W	2 - 3	FS - P - Wine-red flowers with a white eye all summer - Good cascader
Prairie Skullcap	<i>Scutellaria spp.</i>	See remarks	2 - 3	FS - Some N - E - P - Neat mound of lavender-blue flowers in late spring - Check with nursery for size
Prairie Zinnia	<i>Zinnia grandiflora</i>	4"H 15"W	1 - 2	FS - N - A in our zone - Late summer bloomer - Can be difficult to grow
Prince's Plume	<i>Stanleya pinnata</i>	36"H 18"W	2	FS - P - Clear yellow flowers - Cut off entire flower spike after blooming to fill out the plant
Purple Prairie Clover	<i>Dalea purpurea</i>	18" H & W	2 - 3	FS - M - P - Heavy summer bloomer
Red Hot Poker	<i>Kniphofia uvaria</i>	3' H & W	3	FS - P - M - Easy to grow - Grasslike foliage - Red & yellow spikes in summer
Red Yucca	<i>Hesperaloe parviflora</i>	3 - 4' H & W	2 - 3	FS - Psh - E - P - Heat tolerant - Red flowers - There are yellow and yellow-red-flowered forms
Russian Sage	<i>Perovskia</i>	3-4' H & W	2 - 3	FS - E - P - FR - Trim spent blossoms to extend bloom season - Several varieties
Sand Sagebrush	<i>Artemisia filifolia</i>	4' H 5' W	1 - 2	FS - * - P - many-branched shrub - Yellowish-white flowers bloom spring through fall
Sante Fe Helianthus	<i>Helianthus maximiliana</i>	6-8' H 4' W	3	FS - A or P - Fall bloomer has large golden-yellow flowers - Grows in any soil
Sedum/Stonecrop	<i>Sedum spp.</i>	See remarks	2 - 3	FS - Psh - E - P - Some N - FR - Many species - Check nursery for sizes - Will not take foot traffic
Serbian Yarrow	<i>Achillea serbica</i>	4" H 15" W	3	FS - P - FR - Slow-growing mats of evergreen leaves covered with numerous white flowers
Shrubby Ice Plant	<i>Ruschia calvinia pink</i>	18"H & W	3	FS - E - P - Shrublet - Clear pink flowers - Winter foliage is purple
Silver Speedwell	<i>Veronica incana</i>	10" H 15" W	3	FS - Psh - P - Blooms late spring, but will keep flowering all summer if deadheaded
Skeletonleaf Goldeneye	<i>Viguiera stenoloba</i>	3' H & W	1 - 2	FS - Psh - E - P - Differs in both culture & foliage from other desert plants - Can be utilized in medians, parking lot parking strips, and planter boxes
Stachys	<i>Stachys spp.</i>	Sizes vary	3	FS - Psh - P - FR - S.- Coccinea native in Cochise County - Not fussy about soil type - Needs good drainage
Sulfur Flower	<i>Eriogonum umbellatum</i>	1.5' H 3' W	2 - 3	FS - P - Prune to shape when plants are young
Sundrops	<i>Calylophus spp.</i>	1.5' H 2' W	2 - 3	FS - Psh - Some N - P - FR - Prune just before spring growth begins - Flowers in spring and from late summer to late fall (actually into winter)
Thyme	<i>Thymus spp.</i>	See remarks	3	FS - Psh - P - Some grown as A - Many species and varieties - Check water use and size - Small space groundcovers
Tree Bear Grass	<i>Nolina matapensis</i>	10-25'H 10"W	2	FS - P - Lush looking species - Allow ample space for growth
Verbena	<i>Verbena bipinnatifida</i>	8-16"H 18"W	2 - 3	FS - FR - Gc - P - Some grown as annuals - Eight native verbenas in Cochise County - Fast-growing ground covers - Attractive in crevices and hanging baskets - V. bonariensis, V. gooddingii, V..x hortensis, V. peruviana, also attractive and acceptable
Verbena	<i>Verbena peruviana</i>	1'H 3"W	3	FS - E - P - Pink, red, white or purple flowers - Spreads by above-ground runners
Violet Cloud'	<i>Scutellaria x hybrid</i>	6" H 15" W	3	FS - Psh - E - P - Mounding habit - Water regularly first season
Western Blue Flax	<i>Linum lewisii</i>	3' H 1' W	3	FS - N - A or P - FR - Easy to grow from seed - Hard to divide - Other linums OK
Woolly Thyme	<i>Thymus lanuginosus</i>	2" H 18" W	3	FS - E - P - Low maintenance variety with tiny, felted, gray leaves - Good for high traffic areas -
Wright's Buckwheat	<i>Eriogonum wrightii</i>	18" H 24" W	1 - 2	FS - N - P - FL - Tiny white or pink flowers appear in clusters midsummer through fall
Yellow Stork's Bill	<i>Erodium chrysanthum</i>	5" H 12"W	3	FS - P - Late spring blooming - Primrose yellow flowers with lacy green foliage
Zexmenia	<i>Zexmenia hispida</i>	2-3' H & W	2 - 3	FS - Psh - P - Can lose leaves in cold winters

Recommended Plants for Sierra Vista by the UA Cooperative Extension Water Wise Program

N=Cochise County Native Species, T=Tree, S=Shrub, V=Vine, C=Cactus, Gc=Groundcover, Sc=Succulent, E=Evergreen, SE=Semi-evergreen, D=Deciduous FS = Full Sun, Psh = Partial Shade, FR = Flame Resistant, FL = Flammable, * = Toxic, M = Not cold hardy in our area, spp. = Species Supplemental Watering Frequency: 1 = None, 2 = Little, 3 = Moderate (every 2 to 3 weeks) Refer to Watering Guidelines in introductory comments				
<u>Common Name</u>	<u>Scientific Name</u>	<u>Mature Size</u>	<u>Watering Frequency</u>	<u>Remarks</u>
Succulents				
<i>Hundreds available, check with nursery for water requirements & hardiness - In general, succulents are FR</i>				
<i>Agaves: Most agaves die after flowering, may take five to forty years to flower.</i>				
Agave Parviflora	<i>Agave parviflora</i>	6"H 8"W	1 - 2	FS - Psh - E - Sc - Petite plants ideal for pots or small patio areas
Agave Utah	<i>Agave utahensis</i>	1'H 2'W	1 - 2	FS - E - Sc - This species highly variable in form, size, and color - Often forms large clumps
Agave Victoria	<i>Agave victoriae reginae</i>	Clumps 1' W	1 - 2	FS - Psh - E - Sc - Slow growing, can stand in ground or pot 20 years before flowering, and then die
Arizona or Texas	<i>Echinocereus pectinatus</i>	1' H	1	FS - Psh - Some N - E - C - Alternating reddish and pale yellow horizontal bands on stem
Banana Yucca	<i>Yucca baccata</i>	3' H 5' W	1	FS - N - E - Sc - T or S - FR - Fruits look like short green bananas
Beaked Yucca	<i>Yucca rostrata</i>	12' H 9' W	1 - 2	FS - Sc - E - Treelike - Trunk covered with soft gray fuzz - Showy spikes of creamy white flowers
Beavertail Cactus	<i>Opuntia basilaris</i>	1' H 4' W	1	FS - E - C - Purplish pads - Very common in Arizona landscapes
Blue Yucca	<i>Yucca rigida</i>	12' H 5' W	1 - 2	FS - E - Sc - S or T - M - Dense spikes appear in spring or early summer
Cane Cholla	<i>Opuntia spinosior</i>	8' H 4' W	1	FS - N - E - C - Favored nesting plant for cactus wrens and thrashers - Magenta flowers, yellow fruit
Century Plant	<i>Agave americana</i>	6' H 10' W	1 - 2	FS - Psh - E - Sc - Variegated varieties available - Be sure you want a large plant before you buy it
Claret Cup	<i>Echinocereus triglochidiatus</i>	6"H	1	FS - N - E - C - One of nearly 50 hedgehogs - Showy red flowers - Forms clumps
Desert Christmas Cactus	<i>Opuntia leptocaulis</i>	2 - 3' H & W	1	FS - C - E - Thin stems with bright red fruit
Engelman's Prickly	<i>Opuntia engelmannii</i>	15' spread	1	FS - N - E - C - Most common prickly pear in Arizona
Fishhook Barrel Cactus	<i>Ferocactus wislizenii</i>	10' H 3' W	1	FS - N - E - C - Yellow or yellow-edged flowers in fall - Hooked spines like fishhooks
Golden Barrel Cactus	<i>Echinocactus grusonii</i>	3' H 2' W	1	FS - Psh - E - C - M - Best known barrel - Combines well with other cacti and succulents
Huachuca Agave	<i>Agave parryi var. huachucensis</i>	2 - 3' W	1 - 2	FS - Psh - N - E - Sc - Common in the Huachuca Mountains
Lechuguilla	<i>Agave lechuguilla</i>	10-20"H 8"W	1 - 2	FS - Psh - E - Sc - Note small size - Colonizes
Mountain Yucca	<i>Yucca schottii</i>	6-15' H 3-4'W	1 - 2	FS - Psh - N - Sc - E - Clusters of white flowers from spring to midsummer
Palmer's Agave	<i>Agave palmeri</i>	3-4' H & W	1 - 2	FS - Psh - N - E - Sc - The most common agave found in the grasslands in this area
Parry's Agave	<i>Agave parryi</i>	2-3' W	1 - 2	FS - Psh - N - E - Sc - 2 - 3' rosettes - Several varieties available
Pincushions	<i>Mammillaria spp.</i>	2 - 6" H	1 - 2	Psh - Some N - E - C - Many species - Globe or cylindrical shape - Keep dry in winter to induce bloom -
Plain Soapweed	<i>Yucca glauca</i>	3-4' H & W	1 - 2	FS - Sc - E - In the summer green-white flowers are borne on narrow spikes 4' above foliage
Purple Prickly Pear	<i>Opuntia macrocentra</i>	4'H 6'W	1	FS - N - E - C - Spines are half white and half dark - 'Tubac' is said to hold purple color throughout year
Rough-leaved Agave	<i>Agave scabra</i>	4' H & W	1 - 2	FS - Sc - E - Wide gray-green leaves rough on the back
Santa Rita Prickly Pear	<i>Opuntia santa-rita</i>	4'H 6'W	1	FS - N - E - C - The purple coloration of this prickly pear becomes more pronounced with drought or cold weather
Silver Cholla	<i>Opuntia echinocarpa</i>	3' H & W	1	FS - E - C - Spines not sharply barbed

Recommended Plants for Sierra Vista by the UA Cooperative Extension Water Wise Program

N=Cochise County Native Species, T=Tree, S=Shrub, V=Vine, C=Cactus, Gc=Groundcover, Sc=Succulent, E=Evergreen, SE=Semi-evergreen, D=Deciduous FS = Full Sun, Psh = Partial Shade, FR = Flame Resistant, FL = Flammable, * = Toxic, M = Not cold hardy in our area, spp. = Species Supplemental Watering Frequency: 1 = None, 2 = Little, 3 = Moderate (every 2 to 3 weeks) Refer to Watering Guidelines in introductory comments				
<u>Common Name</u>	<u>Scientific Name</u>	<u>Mature Size</u>	<u>Watering Frequency</u>	<u>Remarks</u>
Soaptree Yucca	<i>Yucca elata</i>	6-20'H 8-10'W	1	FS - N - Sc - E - T or S - FR - Slow grower - 2' flowers on 3' annual spikes - Very common in grasslands
Teddybear Cholla	<i>Opuntia bigelovii</i>	3-6' H 3' W	1	FS - E - C -M - Beautiful, but treacherous
Tiger Tongue	<i>Opuntia ellisiana</i>	4'H 6'W	1	FS - E - C - Spineless small pads - Tidy prickly pear
Tree Cholla	<i>Opuntia imbricata</i>	6- 8 'H 10'W	1	FS - E - C - Deep pink flowers followed by green fruit - Shrubby when young, then treelike

Recommended Plants for Sierra Vista by the UA Cooperative Extension Water Wise Program

N=Cochise County Native Species, T=Tree, S=Shrub, V=Vine, C=Cactus, Gc=Groundcover, Sc=Succulent, E=Evergreen, SE=Semi-evergreen, D=Deciduous FS = Full Sun, Psh = Partial Shade, FR = Flame Resistant, FL = Flammable, * = Toxic, M = Not cold hardy in our area, spp. = Species Supplemental Watering Frequency: 1 = None, 2 = Little, 3 = Moderate (every 2 to 3 weeks) Refer to Watering Guidelines in introductory comments				
<u>Common Name</u>	<u>Scientific Name</u>	<u>Mature Size</u>	<u>Watering Frequency</u>	<u>Remarks</u>
Grasses				
<i>More available - Check nurseries for availability, water needs & hardiness - All grasses flammable when dry - Almost all grasses are allergenic to some extent - Mowing grasses before they develop seedheads will reduce their tendency to be allergenic - Grasses listed below are bunch grasses unless noted</i>				
Alkali Sacaton	<i>Sporobolus airoides</i>	3' H & W	2 - 3	FS - N - Warm season grass - Showy five foot tall, feather-like panicles in summer
Arizona Cottontop	<i>Digitaria californica</i>	2'H 1'W	1 - 2	FS - N - Warm season grass - Lovely silvery seedheads
Big Sacaton	<i>Sporobolus wrightii</i>	4-5'H & W	2 - 3	FS - N - Warm season grass - Showy seven foot tall, feather-like panicles in summer
Blue Grama Grass	<i>Bouteloua gracilis</i>	1.5' H 1' W	2	FS - N - Warm season turf and pasture grass - If used as turf it is not low water use
Bull Grass	<i>Muhlenbergia emersleyi</i>	1.5'H 3-4'W	2	FS - Psh - N - Warm season grass - Feathery spikes are purplish to reddish, fading to cream with age
Cane Beardgrass	<i>Bothriochloa barbinodis</i>	3'H 1.5'W	1 - 2	FS - Psh - Warm season grass - Can be scattered throughout a desert landscape
Indian Rice grass	<i>Achnatherum hymenoides</i>	1-2' H & W	1 - 2	FS - Cool season grass - Leaves green in cool weather, golden brown in summer heat - Useful plant in desert landscapes
Jose Select Tall Wheatgrass	<i>Elytrigia elongata 'Jose Select'</i>	4-5'H 1.5'W	3	FS - Warm season grass - Grows in any soil including highly alkaline clay
Mexican Feather Grass/Needle Grass	<i>Nassella tenuissima</i>	2'H 2-3'W	2	FS - Warm season grass - Among finest textured and most billowy looking of all grasses - Can be invasive
Muhly/Deer Grass	<i>Muhlenbergia spp.</i>	Size varies	2	FS - Psh - Some E in mild winters - Some N - Warm season grass
Pink Muhly	<i>Muhlenbergia capillaris</i>	3'H - 6'W	2	FS - Psh - Warm season grass - Very drought tolerant, looks better and bigger if given some water
Prairie Sky	<i>Panicum virgatum 'Prairie Sky'</i>	4 - 5'H 2'W	3	FS - Warm season grass - Tight growing upright columns of sky blue foliage
Purple Fountain Grass	<i>Pennisetum setaceum 'Rubrum'</i>	5' H & W	2	FS - Psh - Warm season grass - This attractive pennisetum variety usually does not self-sow - The green variety is invasive
Purple Three-Awn	<i>Aristida purpurea</i>	12 to 24"H 1' W	1 - 2	FS - N - Warm and cool season grass - Purple-tinted stems and flowers
Regal Mist	<i>Muhlenbergia capellensis</i>	3' H & W	2	FS - Warm season grass - Spectacular dusky pink in the fall
Side-oats Grama	<i>Bouteloua curtipendula</i>	1-2' H 2' W	1 - 2	FS - N - Warm season grass - Grows from seed or division - Use in borders or rock gardens
Turf:				
Warm Season Grass				Blue Grama, Buffalo, Bermuda, etc.; 19.5 gallons/sq ft/year
Cool Season Grass				Fescue, Rye, etc.; 30.75 gallons/sq ft/year
Overseeded Cool & Warm				Overseeded Cool & Warm Season Grass - 29 gallons/sq ft/year

Wetting Areas Trees and Shrubs and Ground Covers/Vines:

Gallons needed to penetrate to root system based on wetting band of 2 feet around dripline

Canopy Diameter:	1' depth <u>GC/Vines</u>	Canopy Diameter:	2' depth <u>Shrubs</u>	Canopy Diameter:	3' depth <u>Trees</u>
0	0.0	0	0	0	0
0.5	0.6	0.5	1.2	0.5	1.9
1	1.3	1	2.5	1	3.7
1.5	1.3	1.5	2.5	1.5	3.7
2	1.3	2	2.5	2	3.7
3	5.9	3	11.7	3	17.6
4	7.9	4	15.7	4	23.5
5	9.8	5	19.6	5	29.4
6	11.8	6	23.5	6	35.2
7	13.7	7	27.4	7	41.1
8	15.7	8	31.3	8	47
9	17.6	9	35.2	9	52.9
10	19.6	10	39.2	10	58.7
11	21.6	11	43.1	11	64.6
12	23.5	12	47	12	70.5
13	25.5	13	50.9	13	76.3
14	27.4	14	54.8	14	82.2
15	29.4	15	58.7	15	88.1
		16	62.6	16	94
		17	66.6	17	99.8
		18	70.5	18	105.7
		19	74.4	19	111.6
		20	78.3	20	117.5
		25	97.9	21	123.3
		30	117.5	22	129.2
		35	137	23	135.1
				24	140.9
				25	146.8
				30	176.2
				35	205.5
				40	234.9
				45	264.3
				50	293.7
				55	323.1
				60	352.5

Type Key:

T: Tree

S: Shrub

G: Groundcover/Vine/Grass

Watering Frequency Key:

3: Moderate Water Use Plant - 14 waterings/year

2 -3: Low to Moderate Water Use Plant - 11 waterings/year

2: Low Water Use Plant - 6 waterings/year

1-2: Very Low to Low Water Use Plant - 3 waterings/year

1: Very Low Water Use Plant - no supplemental watering

learn what you or your business can do to help prevent stormwater pollution

Recommended Practices for Construction Sites, Home Repair Industries, & General Contractors

The City of Sierra Vista, like many municipalities in the state, operates a “municipal separate stormwater sewer system” or MS4, which is designed to convey discharges that are composed entirely of stormwater, and is separate from the wastewater sewer system that conveys discharges from individual homes or businesses. It is important to note that MS4 stormwater **discharges receive no formal treatment** and flow directly into our community retention basins, city parks, washes, and rivers.

Poor training and material management practices at locations under repair or construction can cause pollutants such as trash, debris, sediment, oil, solvents, and paint waste to enter our stormwater system. These pollutants can build up in stormwater lines and cause blockages, negatively impact the operation of stormwater retention areas and drywells, or degrade water quality of our washes and rivers. Pathways of this pollution include the direct pouring or dumping by ill-trained employees, poor cleaning habits, improper storage of chemicals and waste, and poor maintenance of waste containers.

Many of the Best Management Practices (BMPs) identified below are non-structural and cost little or nothing to implement. This listing is not all inclusive and other non-structural and structural BMPs can be implemented to further reduce the potential of contributing to stormwater pollution.

DO

DON'T

Waste and Materials Management

Contain all demolition materials and waste construction and packing materials in covered trash dumpsters or roll-off bins.

Leave waste materials lying on the ground or street and allow these materials to blow or wash into the stormwater system.

Cover landscaping materials, such as crushed gravel or stone, or excavated soils. Store these materials on bare soil or plastic sheeting instead of pavement and in areas not susceptible to stormwater runoff.

Pile landscape materials, such as crushed gravel or stone, or excavated soils directly on paved surfaces, or leave these materials uncovered and blow/wash into the stormwater system.

Store building materials (roof rafters, framing boards, concrete bags, etc.) elevated above ground surface and in areas stormwater does not flow or accumulate.

Place building materials (roof rafters, framing boards, concrete bags, etc.) directly on bare soil or paved areas or in areas that stormwater may accumulate or flow.

Setup controlled concrete truck washout areas, frequently and properly dispose of this material, and keep these areas clean.

Establish concrete truck washout areas in areas where stormwater will flow, not maintain these areas, or allow these areas to overflow.

Keep solvents, paint cans, and bulk paint supplies sealed and store in areas protected by secondary containment.

Allow storage of open containers of paints or solvents or any conditions that may allow these chemicals to enter the stormwater system.

Daily sweep or vacuum sawdust and dirt inside building structures without completed walls and roofs.

Allow sawdust and dirt to be blown or washed into the stormwater system from the interior of incomplete building units.

Use brooms, blowers, or street sweeping machines to clean outdoor areas.*

Clean outdoor paved surfaces washing pollutants into the storm drains.

**Effective Best Management Practices
Construction & Home Repair Industries and General Contractors (continued)**

DO

DON'T

Vehicles

Have designated parking areas for all equipment and personal vehicles.

Have equipment and vehicles stored and parked throughout the site.

Place berms around vehicle parking areas and drip pans or plastic sheeting beneath equipment stored onsite to contain fluid leaks.

Allow leaky vehicles and equipment to be discharged from vehicle parking areas and flow into the stormwater system.

Cleanup oil leaks and fluid spills promptly using dry adsorbent materials.

Allow spilled materials to be tracked out of or throughout the site.

Keep absorbent cleanup materials readily accessible in all work areas.

Waste time responding to a spill or leak by looking for the appropriate cleanup materials.

Properly contain and dispose of used absorbent materials as required.

Pile spent absorbent materials on the ground or dispose of them uncontained in a dumpster.

Sediment Control

Install controls to keep sediment from being tracked-out onto street surfaces. Maintain these structures frequently, especially after rainfalls.

Allow track-out control structures to become laden with sediment and allow sediment to be tracked onto street or into the stormwater system.

Hire a street sweeping company to frequently wash interior project paved areas and affected arterial street.

Spray down streets with a hose or use a pressure washer to clean interior project paved areas or arterial streets.

Preserve natural site conditions such as trees, scrubs, and grasses as long and as much as possible.

Do mass grading and remove all natural ground covering plants until other soil stabilization techniques are utilized.

Install and maintain brush barriers/waddles, silt fences, check dams, catch basin sediment filters, traps or basins etc.

Allow sediment to impact existing stormwater structures or to cause erosion within or around those that are currently under construction.

Install riprap in areas where stormwater is channeled or discharged from pipes.

Leave areas where stormwater is channeled or discharged unprotected from erosion.

Install geotextile fabric, waddles, or other stabilizing devices on sloped areas and install surface landscape as soon as possible.

Allow the banks of an excavation or retention basin to fail by not installing slope stabilizing devices.

Control dust with silt fences and other wind breaking devices. Use only what is required to do the job when using water trucks for dust control.

Allow sediment to be blown into the air or over apply water during dust control activities and therefore be discharged to the stormwater system.

Staff Training

Train employees and proper materials management, storage, disposal, and spill cleanup procedures.

Assume your staff knows or will implement the proper materials management, storage, disposal, and spill cleanup procedures.

Post a listing of Best Management Practices where all employees will have reference.

Expect your employees to remember the proper ways of cleaning and handling waste.

* See the *Recommended Practices for Cleaning Outdoor Areas* guide.

Facts

It is easier and cheaper to prevent stormwater pollution than to clean it up.

Your operations are not "safe" from stormwater pollution regulations.

Developing, implementing, and maintaining a StormWater Pollution Prevention Plan (SWPPP) onsite, even if your operations are not required to do so, would help keep your operations from negatively impacting the stormwater system.