

Appendix A

Public Participation

McDowell Mountain Regional Park

Master Plan Update

COMMUNICATION PLAN

1.0 PURPOSE

The purpose of this plan is to provide guidance and direction for internal and external communications and public involvement activities associated with the MP Update.

Goals

- Provide the public with accurate information regarding the proposed MP Update, the public participation process, and opportunities to influence the decision; and
- Ensure that anyone potentially involved in the process is aware of the opportunities for input into the MP Update.

2.0 ISSUE

MCPRD has initiated an update to MMRP's 1967 MP. The update is to serve the park for the next twenty (20) years and will address changing trends in both demographics and activities.

3.0 KEY AUDIENCES

The following list contains the agencies, entities, and members of the public that were contacted during the MP Update process. Others may have been contacted, as needed.

Table 1: Partners		
Agency	Name	Email Address
Arizona Game and Fish Department (AZGFD)	Curtis Herbert	CHerbert@azgfd.gov
Bureau of Land Management (BLM)	Ron Tipton	rtipton@blm.gov
City of Scottsdale	Kroy Ekblaw	kekblaw@scottsdaleaz.gov
City of Scottsdale	Scott Hamilton	shamilton@scottsdaleaz.gov
Flood Control District of Maricopa County	Ra'Desha Williams	radeshawilliams@mail.maricopa.gov
Flood Control District of Maricopa County	Doug Williams	daw@mail.maricopa.gov
Maricopa County Department of Transportation (MCDOT)	Denise Lacey	deniselacey@mail.maricopa.gov
Maricopa County Parks and Recreation Commission	Tom Rhodes	trhoades@gmail.com
Maricopa County Sheriff's Office (MCSO)	Henry Brandimarete	h_brandimarte@mcso.maricopa.gov
McDowell Park Association (Friends Group)	Diane Newcomb	dnewcomb1957@gmail.com
McDowell Sonoran Conservancy	Helen Rowe	helen@mcdowellsonoran.org
Sonoran Conservancy of Fountain Hills	Bill Craig	wcraig3@gmail.com
Sonoran Conservancy of Fountain Hills	Carol Ayres	quail16440@gmail.com
Town of Fountain Hills	Cory Pavar	cpovar@fh.az.gov
Town of Fountain Hills	Rachael Goodwin	rgoodwin@fh.az.gov
Maricopa County Board of Supervisors	Steve Chucris	chucris@mail.maricopa.gov
Maricopa County Board of Supervisors	Nicole Bendle	bendlen@mail.maricopa.gov

(Assistant)		
Maricopa County Sheriff's Office (MCSO)	Rich Johnson	r_johnson@mcso.maricopa.gov
Maricopa County Sheriff's Office (MCSO)	Mark Fisher	M_fisher@mcso.maricopa.gov
Southwest Wildlife Conservation Center	Nikki Julien	nikki.julien@southwestwildlife.org

The following list of stakeholders may have a special interest in the park due to their preferred outdoor recreation activity or another area of interest. Those noted on this list, and others as needed, were also contacted during the MP Update process.

Table 2:Stakeholders		
Organization	Name	Email Address
Ragnar Events	Alex Docta	alex@ragnarrelay.com
Arizona Mountain Biking	Amy Regan	azmtnbiking@gmail.com
Tonto Verde Community	Andy Andrews	aandrews@tontoverdeassociation.com
Western Spirit Cycling	Anne Clare Erickson	anneclare@westernspirit.com
Sonoran Conservancy of Fountain Hills	Bill Craig	wcraig3@gmail.com
Mountain to Fountain	Bob Schafer	scottsdalerunner@aol.com
Desert Classic Duathlon	Brett Stewart	brett@triphx.com
Trail Run(s)	Brian Wieck	bquick50k@hotmail.com
Fort McDowell Yavapai Nation	Calvin "Roddy" Pilcher	rpilcher@fmyn.org
Maricopa County Planning & Development	Daren Gerard	darrengerard@mail.maricopa.gov
Ragnar Events	Dave BeBoer	dave@ragnarrelay.com
Rio Verde Community	Dorris Findling	doris@rioverdehoa.org
AZ Quarter Horse Association	Doug Huls	chayazqha@aol.com
Fountain Hills Bike Shop	Doug Carlson	doug@fountainhillsbikes.com
Scott Sports	Garth Spencer	gspencer@scottusa.com
Fountain Hills Tourism Department	Grace Rodman-Guetter	gguetter@fh.az.gov
McDowell Sonoran Conservancy	Helen Rowe	helen@mcdowellsonoran.org
Aravaipa Running	Jamil Coury	jamil@aravaiparunning.com
Maricopa Trail Foundation	Jan Hancock	hancockjan@aol.com
Recreational Equipment, Inc. aka REI Phoenix Market	Jay Parks	jparks@rei.com
Cactus Adventures	Jennifer Morlock	cactusadventures.az@gmail.com
12 Hours of Fury	Jeremy Graham	race@4peaksracing.com
Arizona Outdoor Adventures	Jon Colby	jon@aoa-adventures.com
Gravity Riders Organization of Arizona	Ken Bennett	kenbentit@yahoo.com
Tonto National Forest	Kenna Belsky	kennambelsky@fs.fed.us
Lee Likes Bikes	Kevin Stiffler	stiffler.kevin@gmail.com
Rim Bike Tours	Kirstin Peterson	kirstin.m.p@gmail.com

McDowell Criterium	Larry McCormick	lmccormick@earthlink.com
Wild Bunch Desert Guides, LLC	Laurel Darren	laurel@wildbunchdesertguides.com
Four Peaks Elementary School	Linda McKeever	lmckeeper@fhUSD.org
Fountain Hills Middle School		
Maricopa County Department of Public Health	Liza Golden	LizaGolden@mail.maricopa.gov
Sonoran Outdoor Adventures (Fat Bike LLC)	Marek Kulesza	marek@sonoranoutdooradventures.com
McDowell Mountain Cycles	Marty Coplea	marty@mcdowellmountaincycles.com
Equine Trail Sports	Mary Sutherland	marysutherland@msn.com
Arizona State Land Dept. (ASLD)	Micha Horowitz	MHorowitz@azland.gov
Niner Bikes	Michael Hutchison	moehutchison@gmail.com
Arizona Interscholastic Cycling League	Mike Perry	mike@arizonamt.org
Cactus Cup	Mike and Sage Melley	michael.melley@gmail.com
Giant Bicycles	Pat Collier	patcollier@giantbicycle.com
Black Mountain Adventures, LLC	Patrick Riley	ricoriley@cox.net
Hike for the Homeless	Rae Herrera	rherrera@sjwjobs.org
Arizona Outdoor Specialist (Arizona Outdoor Adventures)	Rick Hill	rick@aoa-adventures.com
Fort McDowell Yavapai Indian Community	Roann Camelo	rcarmelo@fmyn.org
Bike MS	Sarah Grogger	sarah.grogger@nmss.org
Bike Paradise / Pedal Therapy	Scott Givens	scottgivens@cox.net
Dawn to Dusk	Seth Bush	elcapitan@ziarides.com
Xterra	Shannon Lindner	shannon@aztrailrace.com
Audubon Arizona	Sonia Perillo	sperillo@audubon.org
Lead, Follow or Get Out of My Way	Stephanie Palmer-Duross	luv4riding@aol.com
Ragnar Events	Steven Aderholt	steven@ragnarrelay.com
Rio Verde Horseman's Association	Terry Stecyk	Terry@rvha.us
MBAA	Tim Racette	info@mbaa.net
Pivot Cycles	Tristan Brandt	tristan@pivotcycles.com
McDowell Mountain Elementary School	Valerie Dehombreux	vdehombreux@fhUSD.org
Arizona Horse Council	Walter "Chip" Wilson	chipwilson@arizonahorsecouncil.org
Central Arizona Mountain Bike Patrol	--	admin@cambp.org.
Arizona State Parks SHPO Consultation	Mary-Ellen Walsh	mw Walsh@azstateparks.gov
Tribes	Angela Garcia-Lewis	angela.garcia-lewis@srpmic-nsn.gov
SRP	Alexander Reid	Alexander.Reid@srpnet.com
Arizona Horse Council	Jean Anderson	redbug@gorvw.net

4.0 CONSULTATION

Bureau of Land Management

Department staff has invited the BLM to all stakeholder and public meetings. Department staff also met with the BLM in March 2019 to discuss the MP and to get their approval, and an approval letter which will be included in the final MP update.

State Historic Preservation Office

The SHPO has not been consulted to date; however, SHPO will be notified before the final MP is released. After the final MP is approved, cultural resource survey(s) will be performed on any new ground disturbing projects, and the Department will follow any recommendations received from SHPO.

Native American Tribes

The Department will engage in a government-to-government consultation with one (1) federally recognized tribe that may have interest in the MP Update. The Fort McDowell Yavapai Nation was identified as a Stakeholder in the planning process and as such was extended an invite to each Stakeholder meeting. A representative for the Fort McDowell Yavapai Nation was notified by email of the MP update stakeholder meetings.

5.0 OUTREACH AND MEETINGS

The Department engages various opportunities to consult and interact with stakeholders and the public. As noted in Table 3, stakeholder meetings, public meetings and public announcements have been held throughout the planning process.

Table 3: List of Meetings, Meeting Topics, and Meeting Attendees			
Date	Type	Description	Audience
9/12/17	Planning Team Meeting #1	Kick-off the project, introduce project and timeline, review planning process for park master plans.	MCPRD staff
11/7/17	Planning Team Meeting #2	Intro to the work plan, review timeline and scope, review existing plans and land use.	MCPRD staff
11/14/17	Public Meeting	Park Advisory Commission notification and introduction to the planning process and McDowell Mountain Regional Park.	Members of the public, MCPRD staff
12/19/17	Planning Team Meeting #3	Demographics and park use presentation, issues and constraints analysis, identify long term needs of the public and improvement opportunities.	MCPRD staff
1/4/18	Partner Meeting #1	Introduction to the planning process, existing park features and uses, participation, and communication.	Partners, MCPRD staff
1/10/18	Park Staff and Volunteer Meeting	Introduction to the planning process, existing park features and uses, participation, and communication.	MCPRD staff and park volunteers
1/23/18	Stakeholder Meeting #1	Introduction to the planning process, existing park features and uses, participation, and communication.	Stakeholders, MCPRD staff
2/15/18	Planning Team Meeting #4	Review comments from Stakeholders, Partners, and the public, additional discussion on demographics, and planning for the open house.	MCPRD staff
2/20/18	Public Open	Open house #1 location/night one (1)	Members of the

	House		public, MCPRD staff
2/22/18	Public Open House	Open house #1 location/night two (2)	Members of the public, MCPRD staff
3/6/18	'Friends' Meeting	Evening presentation to Friends of McDowell group at Rio Verde Community Center.	Friends of McDowell, MCPRD planner
3/7/18	Planning Team Meeting #5	Site visit to McDowell to view existing conditions and infrastructure.	MCPRD staff
3/20/18	Public Meeting	Park Advisory Commission project update.	Members of the public, MCPRD staff
4/4/18	Partner Meeting #2	Recap of public open house meetings, PowerPoint on park use statistics, and discussion on park improvements.	Partners, MCPRD staff
4/10/18	Planning Team Meeting #6	Updates on public meetings, review of comments, review of planning process, and master plan deliverables.	MCPRD staff
4/11/18	Park Staff and Volunteer Meeting	Recap of public open house meetings, PowerPoint on park use statistics, and discussion on park improvements.	MCPRD staff and park volunteers
5/9/18	Planning Team Meeting #7	Site visit and feasibility analysis of new nature center location.	MCPRD staff, SWCC, Blackrock studios
5/24/18	Stakeholder Meeting #2	Recap of public open house meetings, PowerPoint on park use statistics, and discussion on park improvements and priorities.	Stakeholders, MCPRD staff
6/14/18	Planning Team Meeting #8	Prioritizing public requests and further discussion regarding offering cabins or yurts camping options at the park.	MCPRD staff
7/11/18	SWCC	Discussion on Co-op for the nature center wildlife sanctuary facility, and funding update.	MCPRD and SWCC staff
7/11/18	Park Staff and Volunteer Meeting	Recap of public Open House meetings, PowerPoint on park use statistics, and discussion on park improvements and priorities.	MCPRD staff and park volunteers
7/11/18	Partner Meeting #3	Recap of stakeholder meeting, progress with SWCC, and PowerPoint on park improvement opportunities.	Partners, MCPRD staff
7/19/18	Planning Team Meeting #9	Discussion of potential park improvements including interpretive programs, roadways and parking, and primitive pop-up tent camping.	MCPRD staff
8/20/18	SWCC	Discussion on Co-op for the nature center wildlife sanctuary facility, and funding update.	MCPRD and SWCC staff
8/2/18	Planning Team Meeting #10	Site Visit for new nature center and wildlife sanctuary.	MCPRD staff, SWCC staff
9/4/18	Planning Team Meeting #11	Recap of site visit with SWCC, discussion on cabins and site location, access points and trailheads, to do list items.	MCPRD staff
9/18/18	Public Meeting	Park Commission project update.	Members of the Public, MCPRD staff
9/27/18	SWCC	Nature center design charrette at Desert Outdoor Center.	MCPRD and SWCC staff
10/4/18	Planning Team	Partner agreement recaps, UMAs, SWCC, RV	MCPRD staff

	Meeting #12	campground loop feasibility study, Hesperus wash dam	
10/5/18	Public Open House	Partners, stakeholders, and members of the public were invited to a public open house to review the condensed version of all requested improvements to the park and its master planning document.	Members of the Public, MCPRD staff, partners, and stakeholders
10/30/18	Town of Fountain Hills	Hesperus Wash Dam#36	MCPRD Staff and Town of Fountain Hills Planning staff
11/13/18	Public Meeting	Park Advisory Commission project update.	Members of the public, MCPRD staff
11/29/18	SWCC	Team meeting with SWCC and Black Rock Studios to discuss land use and future nature center needs.	MCPRD, SWCC, and BRS
12/6/18	Planning Team Meeting #13	Review all information received.	MCPRD staff
1/15/19	Public Meeting	Park Advisory Commission project update.	Members of the public, MCPRD staff

Surveys

Additional information was gathered from the public via surveys. ASU performs visitor use surveys on a fairly regular basis. This information assists the Department with programing and management decisions as well as provides the survey respondents an open ended question to report back their thoughts.

Media/Social Media

Press releases are issued at least 30-days prior to any public meeting. Occasionally, a news outlet or social media source will repost the press release on their respective platforms. The Department will post or re-post its own press releases on approved social media platforms, websites, and subscription services. A sample press release is shown in Exhibit A.

Public Meetings

Staff will also schedule public information meetings in an Open House format on at least two (2) different dates. The logistics of the public meetings are announced at least 30-days prior a news release; posted on the Parks website; and emails are sent out to interested parties. During the public meetings, a formal PowerPoint presentation may be provided to ensure that all audiences/participants receive consistent base data. The audiences/participants is encouraged to view specific depictions that are displayed on large posters around the room. MCPRD staff are available to facilitate face-to-face communications aimed at fostering discussions and authentic opportunities for participation. MCPRD staff identify a scribe for the meeting to summarize highlights from the meeting. Audience members/participants are encouraged to write comments in their own words on comment cards and/or via a designated email address. The planning process also allows for a 30-day public comment period after each public meeting.

Public meetings were held at the following locations:

- Fountain Hills Community Center located south of the park at 13001 N. La Montana Dr., Fountain Hills.
- Tonto Verde Community Center located north of the park at 18401 El Circulo Drive, Rio Verde.

At all times, project information was available and updated on the website at: <https://www.maricopacountyparks.net/park-locator/mcdowell-mountain-regional-park/park-information/park-projects/>

Comments received during the public meetings indicated strong support for the proposed partnership with a nature or wildlife conservation center as part of the visitor center and strong support for additional recreation and camping opportunities. Other respondents expressed their desire for upgraded trail/trailhead signage showing trail mileage, walking trails that are separate from biking trails including ADA paved paths, additional educational programming, a nature play area, and a bike skills park and “flow” trail. Further break down of individual comments are listed in Table 1 and 2 of the meeting summaries

McDowell Park Association (Friends Group)

The Friends Group is a local non-profit group to advocate on the parks behalf. Department staff presented the MP Update to the Friends Group on March 6, 2018, during their annual meeting. The Friends Group was considered a partner in the planning process and as such, partner meeting invitations were sent out for each additional meeting.

6.0 CONTACTS

The following staff members were chosen in order to streamline the points of contact during the MP Update process.

Table 4: Contact information	
<u>Master Plan Process</u> Lauren Bromley, MCPRD, Park and Open Space Planner 602-506-9507 laurenbromley@mail.maricopa.gov	<u>News Media Inquiries</u> Dawna Taylor, MCPRD, Public Information Officer 602-506-9504 dawnataylor@mail.maricopa.gov



McDowell Mountain Regional Park Seeks Public Input on Park's Master Plan Update

The Maricopa County Parks and Recreation Department has begun the process of updating McDowell Mountain Regional Park's Master Plan. The goal of the Park Master Plan update is to develop a long-range vision for the park that takes into account visitor needs, while also protecting the resources and natural open space found within the park.

"The Park's Master Plan was originally developed in 1967," stated Maricopa County Board of Supervisor' Chairman Steve Chucri. "McDowell Mountain Regional Park is a point of pride for our county. The plan deserves a fresh look to benefit the changing community and the needs of today's park visitors."

Located four miles north of the Town of Fountain Hills, McDowell Mountain Regional Park is comprised of 21,099 acres within the lower Verde Basin, and is the third largest park in Maricopa County's regional park system.

"With over 60-miles of multi-use trails and 14-miles of competitive track, the park is recognized for its diversity of user experiences, and houses a number of large scale events," said R.J. Cardin, Maricopa County Parks and Recreation director. "In addition, the park is adjacent to Scottsdale's McDowell Sonoran Preserve, which provides users the opportunity to traverse between two great open spaces."

“Given the parks proximity to neighboring communities, diverse use, and collaborative partnerships, we will be hosting an array of meetings to ensure that we capture feedback from as many user groups as possible as we move through the process,” added Cardin.

At this time, the department would like to invite the public to attend an open house style public meeting for the project. To accommodate local residents to the north and south side of the park, two identical meetings have been scheduled. Residents may choose to attend either meeting:

- Tuesday, February 20 from 5:30 pm to 7:30 pm at the Fountain Hills Community Center located south of the park at 13001 N. La Montana Dr., Fountain Hills.
- Thursday, February 22 from 5:30 pm to 7:30 pm at the Tonto Verde Community Center located north of the park at 18401 El Circulo Drive, Rio Verde.

Once both public meetings have concluded, presentation materials will be posted on the park’s website at <https://www.maricopacountyparks.net/park-locator/mcdowell-mountain-regional-park/park-information/park-projects/>, and the public comment period will begin. Feedback will be collected via a survey link on the page. Public comments will be accepted through the close of business on Thursday, March 22.

For additional assistance, contact the department’s parks and open space planner, Lauren Bromley, at (928) 501-9207 or LaurenBromley@mail.maricopa.gov. The department anticipates the whole process to update McDowell Mountain Regional Park’s Master Plan take approximately 18 months. To learn more about Maricopa County’s regional park system, visit www.maricopacountyparks.net.

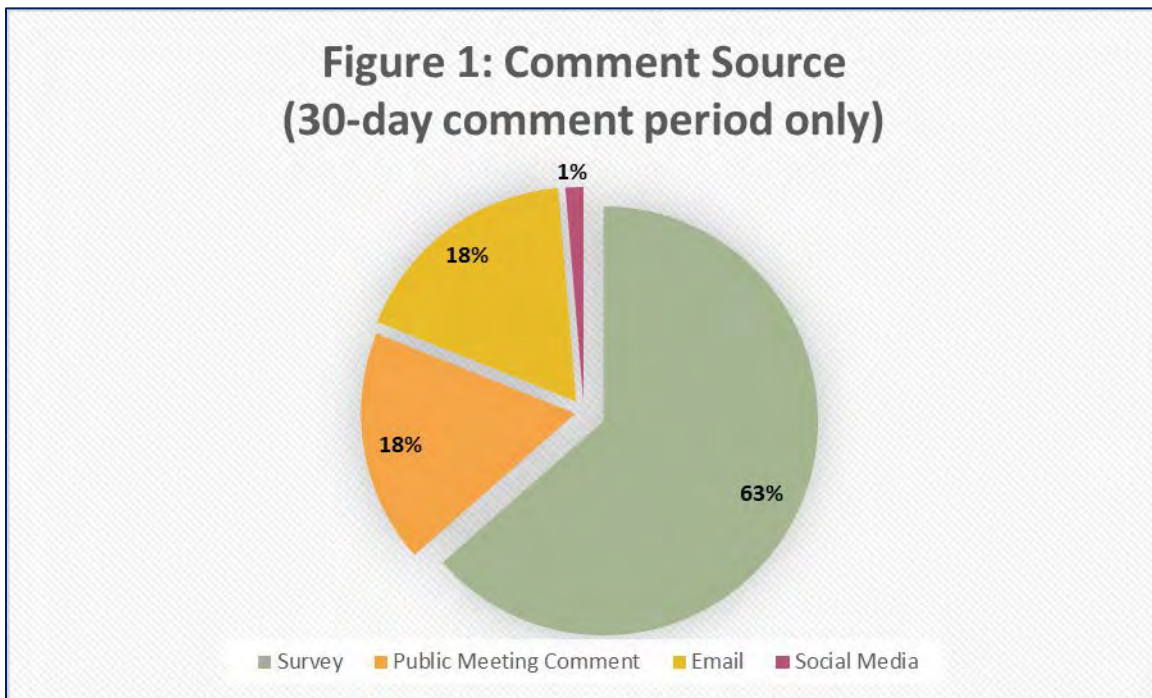
30

**McDowell Mountain Regional Park
Master Plan Update
Comments from February 20 and 22, 2018 Public Open House Meetings**

SUMMARY

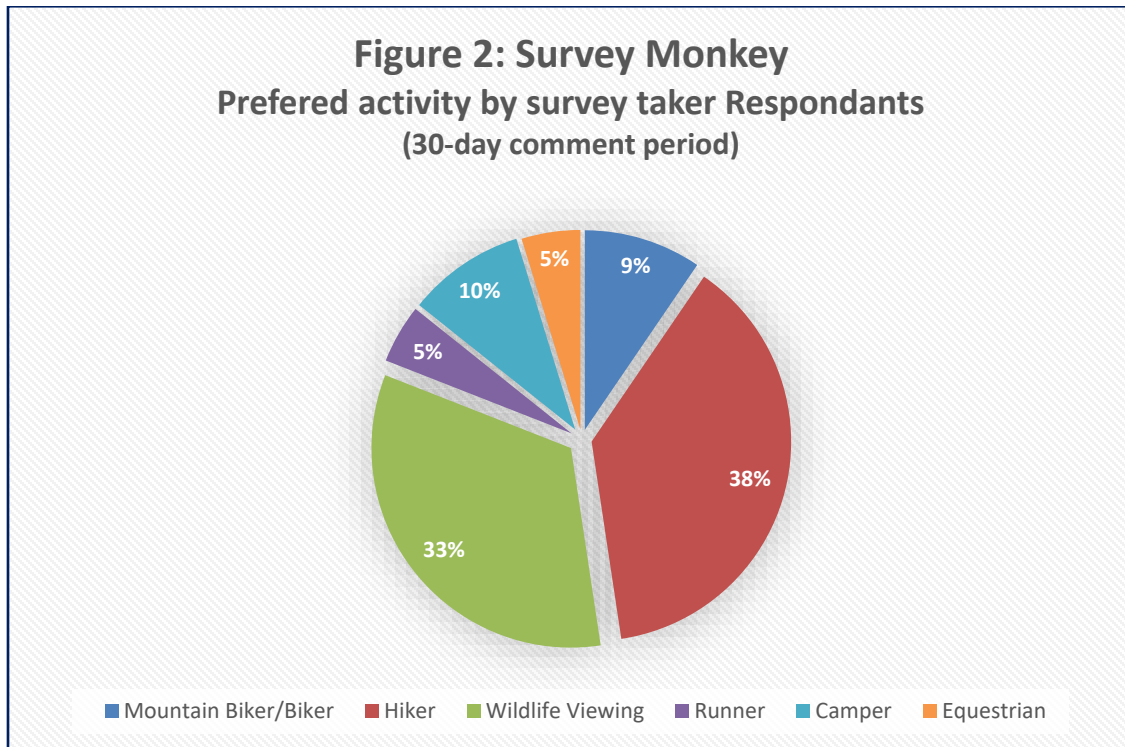
This public meeting was conducted in an open house style format and a PowerPoint presentation was presented on a looped feed. Display boards were stationed throughout the room in a manner that invited the public to work their way around the room to view each board after the presentation. Department staff were readily available to answer questions, and engage in discussions during and after the presentation. Members of the public were asked to view the displayed maps for the park, and write down comments to post to the map locations associated with those comments. Comment cards were available for interested parties to provide detailed comments and feedback. Between the two locations, a total of fifteen (15) people signed in at the meetings, fifteen (15) sticky note comments were collected from the maps, eleven (11) flip pad notes were written on the easel pads, and three (3) comment cards were collected at the end of the meetings.

The Department scheduled a 30-day comment period concluding on March 22, 2018, to provide the general public adequate time to provide feedback. Figure 1 demonstrates how the various pieces of communications were received during the 30-day comment period.



Commenters were allowed to choose more than one activity group that best represents themselves. Of those that specified their preferred activity, “Hiker” represented 38% of respondents, followed by “Wildlife Viewer” at 33% (Figure 2).

**McDowell Mountain Regional Park
Master Plan Update
Comments from February 20 and 22, 2018 Public Open House Meetings**



Department planning staff reviewed the 21 surveys received. Out of those 21 surveys, the Department planning staff recognized 94 unique comments. Further, out of the 94 unique comments, 22 (or about 23 percent) were considered to be out of the scope of the MP Update. *Out of scope* means that the comment or suggestion is already covered by another planning document; it may also mean that the comment pertains to an operational matter; or it may mean that the comment does not otherwise fall under the purview of a MP. Other comments deemed out of scope may also be too generalized or vague to work with. All comments were forwarded to park management for review.

Table 1: Unique and Out of Scope Comments

Total number of surveys received:	21
Unique Comments:	94
Out of Scope Comments:	22

A MP does not dictate hours of operation, staffing, programming or other day-to-day activities. It also does not dictate activities that occur outside of park boundaries. As noted at the public meeting, the purpose of a MP is **to outline the long-range vision for the park as well as development priorities that will provide for both the public's enjoyment, and the protection of the park's resources.** A MP also:

- Serves as a guide and policy document for current and future park staff, partnering agencies, elected officials, and interested members of the public.
- Guides management of natural, cultural, and recreational resources.

**McDowell Mountain Regional Park
Master Plan Update
Comments from February 20 and 22, 2018 Public Open House Meetings**

- Considers a range of issues such as staffing, funding, encroachment, wildlife corridors, public needs, and more.
- Considers staff, stakeholder, and public recommendations.
- Identifies park enhancement opportunities including possible upgrades to park facilities, recreation infrastructure, restoration opportunities, etc.

The remaining substantive comments will be further evaluated and potentially carried forward into the recommended park improvements for the MP. Table 1 details each unique comment received.

Table 1: Public Meeting #1		
30-Day Public Comment Period		
Method	Comment	Out of Scope
Comment Card	Add 25 plus RV sites	
Comment Card	Add a nature play area	
Comment Card	Partner with SWCC for a wildlife rehabilitation and education center	
Map Sticky note	Keep the open spaces as much as possible, preserve the natural space and beauty	x
Map Sticky note	More educational programing i.e. geology	x
Map Sticky note	Add a flow trail that is one direction	
Map Sticky note	Add campsites to campground	
Map Sticky note	Add a trail extending north to south through the center of the park connecting or crossing east to west trails	
Map Sticky note	Add trails to the competitive track area	
Map Sticky note	Obtain state land near the southeast corner of the park	x
Map Sticky note	Add access point northeast of the southeast boundary corner	
Map Sticky note	Add access point from state land area	
Map Sticky note	Add more trails on Lousley Hill	
Map Sticky note	Add a shade structure to CO right at map label	
Map Sticky note	Add a bike lane along the road throughout the park	
Map Sticky note	Add hike/bike in camping near the northwest corner of the park	
Map Sticky note	Make use of the mountains encompassed by the sport loop at the comp track	
Map Sticky note	Add campsites to campground	

**McDowell Mountain Regional Park
Master Plan Update
Comments from February 20 and 22, 2018 Public Open House Meetings**

Easel pads	Walking trails separate from biking trails	
Easel pads	Demo gardens of native plant life	
Easel pads	Signage to provide mileage	x
Easel pads	Consistent signage going to the Tonto National Forest	x
Easel pads	Web events notice 1 month out	x
Easel pads	ADA Trails (paved)	
Easel pads	Add campsites to campground	
Easel pads	More garbage disposal at competitive track	x
Survey Monkey - Question #3: After reviewing the original 1967 Master Plan map, is there anything you would like to see kept in the updated plan?		
Survey Monkey	No. It was horrible!	x
Survey Monkey	Western Historical History Interpretation and Displays	
Survey Monkey	additional access points like the north gate	
Survey Monkey	A ridgetop hiking trail on Lousley Hills	
Survey Monkey	I would love to see something like Southwest Wildlife there.	
Survey Monkey	The camping area and youth areas.	
Survey Monkey	ALL	x
Survey Monkey	hiking, wildlife viewing	
Survey Monkey	Wildlife preservation	x
Survey Monkey	Educational facilities from Southwest Wildlife. They do great work.	
Survey Monkey	Hiking Trails	
Survey Monkey	More wildlife.	x
Survey Monkey	The desert cattle ranching is no longer a viable activity. The update should include all previous endeavors to keep the area "natural".	x
Survey Monkey	Keep everything the same as it is but add Another loop for RV camping and bring in more revenue. The natural beauty and remoteness is what makes this park so unique.	
Survey Monkey	Youth camps	

**McDowell Mountain Regional Park
Master Plan Update
Comments from February 20 and 22, 2018 Public Open House Meetings**

Survey Monkey	No	x
Survey Monkey	A second entrance	
Survey Monkey	Less camping	
Survey Monkey	Interpretive exhibits	
Survey Monkey	No. It was horrible!	x
Survey Monkey Question #4: After reviewing the current park map, what do you like about the park?		
Survey Monkey	Extensive trail system.	
Survey Monkey	I like the Nursery Tank barrier-free trail but it needs updating and I would like to see a full loop trail there with interpretive displays and covered picnic area that is ADA as well.	
Survey Monkey	I like the camping near the north east corner of the park but I wish there was an area for pop up trail camping that was better suited to that style of camping. Maybe a gravel area with parking, picnic tables and fire pits similar to the tent area but less expensive than the traditional RV slots.	
Survey Monkey	I think Southwest Wildlife would be an excellent addition and draw to the park.	
Survey Monkey	The hiking trails	
Survey Monkey	Well marked hiking trails	
Survey Monkey	Open natural desert	
Survey Monkey	The size.	
Survey Monkey	The trail maps provided and convenient parking.	
Survey Monkey	Real Arizona not an amusement park	
Survey Monkey	Nice hiking biking trails	
Survey Monkey	Location and opportunities for outdoor activities	
Survey Monkey	Easy to camp and hike	
Survey Monkey	I love the trails, the opportunity to be outside in such a great area. We see wildlife regularly. It's great.	
Survey Monkey	I love the natural state of the environment, the ability of wildlife to survive unchallenged by development.	
Survey Monkey	The variety of trails and uses is perfect. Again, keeping the acreage natural cannot be more alluring. It should not be developed to be just another "arcade	

**McDowell Mountain Regional Park
Master Plan Update
Comments from February 20 and 22, 2018 Public Open House Meetings**

	tombstone". Possibly a Native American interactive lead talk to reveal how a people could live here for so many years but keep and respect the land.	
Survey Monkey	Multi-use trails	
Survey Monkey	Great trail system and links to other parks	
Survey Monkey	Lots of hiking trails, limited number of people, no or less horses on trails, lots of natural desert area	
Survey Monkey	Lots of trails!	
Survey Monkey	More trails	x
Survey Monkey	I like the Nature Center.	
Survey Monkey Question #5: Of the existing amenities and services, what would you like to see more of in the future?		
Survey Monkey	Interpretive trails that focus on inclusivity such as ADA and sensory displays, i.e. sound garden. More historical programing.	
Survey Monkey	More walking trails and opportunities to see local wildlife	
Survey Monkey	More paved trails for the elderly. I myself like more challenging hikes however my dad who is 77 is still a hiker and now shuffles when he walks and can easily be disoriented by things such as bikers on trails. He still loves to get out there and hike and I believe that this park is perfect to create more trails the elderly can go on that are paved and easy to walk. Also add in more informational signs along the way discussing the terrain and animals to further educate both the old and the young about the beautiful dessert we live in.	
Survey Monkey	I would like to allow the SWCC (SOUTHWEST WILDLIFE CONSERVATION CENTER) to relocate on public land. It is a fantastic facility and should NOT be in a residential area.	
Survey Monkey	Organized educational hikes, wildlife viewing	x
Survey Monkey	Green space and wildlife viewing.	
Survey Monkey	Restroom facilities at locations that do not offer them presently.	
Survey Monkey	They are minimal and should be kept that way.	x
Survey Monkey	There are a lot of amenities but would like to see animal education programs	x
Survey Monkey	Wildlife education	x
Survey Monkey	More wildlife	x

**McDowell Mountain Regional Park
Master Plan Update
Comments from February 20 and 22, 2018 Public Open House Meetings**

Survey Monkey	Trails - but there are already lots.	
Survey Monkey	More information and history about the area would be most welcome.	x
Survey Monkey	An additional campers loop	
Survey Monkey	Wildlife Viewing areas	
Survey Monkey	Trails, expanded comp loops	
Survey Monkey	I think it is just right as it is now.	x
Survey Monkey	More wildlife viewing opportunities	
Survey Monkey	More trails just for hikers	
Survey Monkey	Trailheads on the north side of the park	
Survey Monkey	Nature center.	
Survey Monkey Question #6: What amenities and services would you like to see added to the park in the future?		
Survey Monkey	Trail connecting Nature Center (Tortoise Trail) with Wagner Trail. A new Nature Center.	
Survey Monkey	Horse rentals and a rope course.	
Survey Monkey	Southwest Wildlife	
Survey Monkey	An entrance similar to the McDowell Sonoran Conservancy (Lost Dog Wash Trailhead & Gateway Trailhead) would be great! It is very inviting, bathrooms are right at the start of the main trailheads and on weekends when I have gone I have seen people there promoting the parks and trails along with the fact that there are large trail map signs and handouts available.	
Survey Monkey	Wildlife viewing areas	
Survey Monkey	A wildlife sanctuary and education about native wildlife.	
Survey Monkey	More to promote Arizona wildlife	x
Survey Monkey	Animal Education programs like Southwest Wildlife	
Survey Monkey	Southwest Wildlife Conservation education center and future expansion	
Survey Monkey	More camping and hiking. View wildlife.	
Survey Monkey	If Southwest Wildlife wanted to add an education center or expand their facilities into the park, I would be all for that.	

**McDowell Mountain Regional Park
Master Plan Update
Comments from February 20 and 22, 2018 Public Open House Meetings**

Survey Monkey	Southwest Wildlife is nearby but, if relocated to the park, could offer a golden opportunity to view wildlife in captivity.....an additional draw to the park for the general public and an added attraction to entertain and educate.	
Survey Monkey	Wildlife Sanctuary, more information about native wildlife	
Survey Monkey	Better restrooms and showers	
Survey Monkey	Hiking trails if anything.	
Survey Monkey	Southwest Wildlife Conservation Center!	
Survey Monkey	Expanded nature center.	
Survey Monkey : Additional Comments		
Survey Monkey	Best location for SWCC is near Nature Center because the area already has a lot of development; don't place it in less-developed areas to the north. Dust mitigation at Four Peaks Staging Area ahead of Ragnar during dry years.	
Survey Monkey	Expand the areas for special events and add more restrooms	
Survey Monkey	I believe that the trails such as the Sonoran Trail should be listed on maps as the entire trail length not just the portion on the McDowell Mountain Regional Park side alone. It would help bring more people into this park to hike trails that are more challenging	x
Survey Monkey	The gated neighborhood where the Dixie Mine Trail & the Sonoran Trail can be accessed in Fountain Hills really don't make us hikers feel welcome by deciding to be closed on certain holidays and having the gateman remind you as you walk in when the community gates are closed to the public. If this trailhead could be moved to a location where we feel invited that would be awesome. I love our parks for the beauty of nature and the challenges of hiking them and would love to help where I can.	
Survey Monkey	None	
Survey Monkey	It would be a great area for wildlife from SWCC to be available for public viewing at the park	
Survey Monkey	The preserve offers beautiful scenery and wildlife viewing as well as educational opportunities. Continuation of these opportunities is appreciated.	x
Survey Monkey	Keep it as natural Arizona as possible	x
Survey Monkey	Keep up the good work.	x
Survey Monkey	Addition of Southwest Wildlife Conservation Center would be perfect for the park!	

**McDowell Mountain Regional Park
Master Plan Update
Comments from February 20 and 22, 2018 Public Open House Meetings**

Survey Monkey	Love the attention to our desert in one of its purest forms.	x
Survey Monkey	The current layout is extremely unique and should not be altered just for more revenue	x
Survey Monkey	Space and accommodations for Southwest Wildlife Conservation Center	
Survey Monkey	Would like to see better connections from comp loop to the rest of the trail system	
Comments submitted via email and Facebook		
Email	Consider a coin-operated laundry facilities for the RV campground. The closest laundromat is the Eagle View RV Resort at Fort McDowell.	
Email	I think it is a good idea to move the North trail head to the restroom.	
Email	The North Trail needs to be updated. Some of the points of interest markers are in poor condition and some of the indicated plants no longer exist.	x
Email	If the Verde Trail reroute to the Pemberton Trail is built it may be wise to close the North Trail to bikes. The North Trail is popular with the elderly snowbirds and kind of tight for shared traffic.	x
Email	A shower facility in the tent camping area would be appreciated.	
Email	The picnic area needs a few small shade Ramada's.	
Email	If glamping cabins or safari platform tent are trialed then shower and bathroom facilities need to be close by.	
Email	Consider an astronomy area in the area of the proposed nature area. Some circular pads for setting up telescopes close to a parking area. The area needs to be away from street lights and auto headlights. Perhaps screened from the parking lot. Other suitable areas would be the picnic area or Minks Camp. Good astronomy viewing sites are starting to become travel destinations.	
Email	Dixie Mine Area: A trail heading North or North East from the Dixie Mine trail head that connects to the Dixie Mine trail to create a five mile loop.	
Email	Scenic Trail: Create a link trail near the North end that heads Northeast to the Lousley Hill trail.	
Email	Granite Trail: Run a trail from the rock piles near the West region of the Granite Trail near the old concrete tank West to the Pemberton Trail. There are a number of interesting rock formations in this area.	
Email	Old Minks Camp trail: Restore the Minks Camp (MC) trail and extend it from Minks Camp site past the Youth Group Area and connect it to the Verde trail.	
Email	The Clay Pit SW of the Pemberton Pond that is eroding away the Pemberton Trail. Use a crawler dozer and push the clay spoil piles back into the pit to prevent erosion of the pit walls next to the Pemberton Trail.	x

**McDowell Mountain Regional Park
Master Plan Update
Comments from February 20 and 22, 2018 Public Open House Meetings**

Email	Four Peaks Staging Area needs a restroom facility or portable restrooms. Also the lot needs grading more frequently. Some sizable ruts form that are a bit much for sedans.	
Email	The Pemberton Pond and ranch house site area needs some maintenance. It is starting to look kind of ragged.	x
Email	More signage about keeping dogs on a leash (retractable leashes are a hazard) at all times in all areas of the park. We've encountered dogs off leash both on the trails and in the campground (our dog was actually attacked in the campground by a dog that got past its owner).	x
Email	Even with the poop bags supplied throughout the park, it's amazing the amount that is not picked up by dog owners on the trails (there's coyote poop too, but you can tell the difference, and there's a lot more dog poop). Maybe more visible signage about cleaning up after pets.	x
Email	Covers on all volunteer sites.	
Email	With the addition of the restroom at Four Peaks Staging Area, probably 2 or 3 volunteer sites so there is someone keeping an eye on things down there since it's so far removed from the campground. You would probably need at least 2, if not 3, because it would probably be overwhelming for 1 host to be there alone. We noticed many people would wait until they knew the entry station was closed to come into the park. We've also encountered vagrants in the park.	x
Email	Camp host site at tent area. The current camp host has to travel miles to check on the tent camping area. And, as mentioned above, many people come in after the entry station is closed and leave before volunteers/employees are have a chance to make their rounds.	
Email	We've seen many people cutting through the desert part (center of the loops) of the campground to go visit friends on the other side or to go to the restroom. We saw that Userly has some designated paths so that people aren't blazing their own trails. Maybe not a bad idea for MMRP?	
Email	Wi-Fi in the Visitor Center for volunteers or in the campground. Many campers upon checking in at the entry station would ask if the campground had WI-FI. I guess there are many State Parks (not sure which States) that have WI-FI available in the campground. The cell phone coverage at MMRP is very sketchy, so this would really help if not for all campers, at least for the volunteers.	
Email	At the last meeting there was talk about another campground loop for short term camping. We could definitely use more campsites.	x
Email	Any additional activities (additional playground, zip line, etc.) would probably be best somewhere near the Competitive Track. The campground is nice and peaceful (except the playground at times can be loud), I think that is one if the things that draws people to camp here. It's not like a commercial campground. Like you said at the meeting, there's such thing as loving the park to	

**McDowell Mountain Regional Park
Master Plan Update
Comments from February 20 and 22, 2018 Public Open House Meetings**

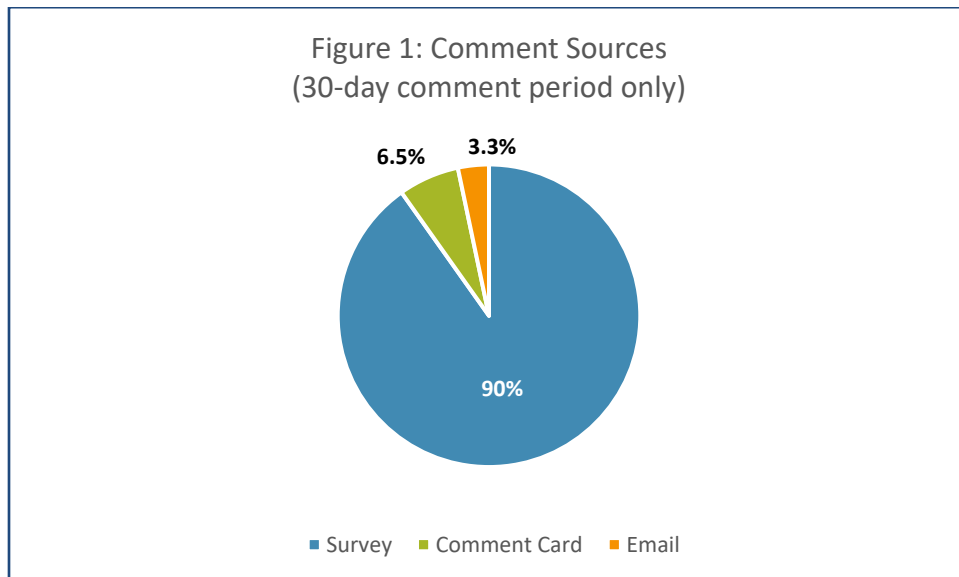
	death. When there are big events near the Competitive Track, you couldn't even tell anything was going on from the campground, which was nice.	
Email	It was mentioned at the last meeting about having a different way for the police to access the compound. I know it's because they might not drive 15mph through the campground, but I think that police presence is always a good thing. It's better to have people see them driving through than not see them, to deter unlawful activity. If they had a different access to the compound, they might never drive through. (Also, I think the park is thinking about installing speed bumps throughout the campground. We would strongly encourage this. It would slow everyone down without the added inconvenience/expense of putting in a new road).	
Email	Any new volunteer sites (if possible) would be best if they faced north. Most of them face south and if they have a Class A Motorhome, the windshield gets the afternoon sun and it's harder to keep cool.	
Facebook Response	Create a new RV camping loop	
Facebook Response	Add laundry facilities to the camping area	

**McDowell Mountain Regional Park
Master Plan Update
Comments from November 5, 2018 Public Open House Meeting**

SUMMARY

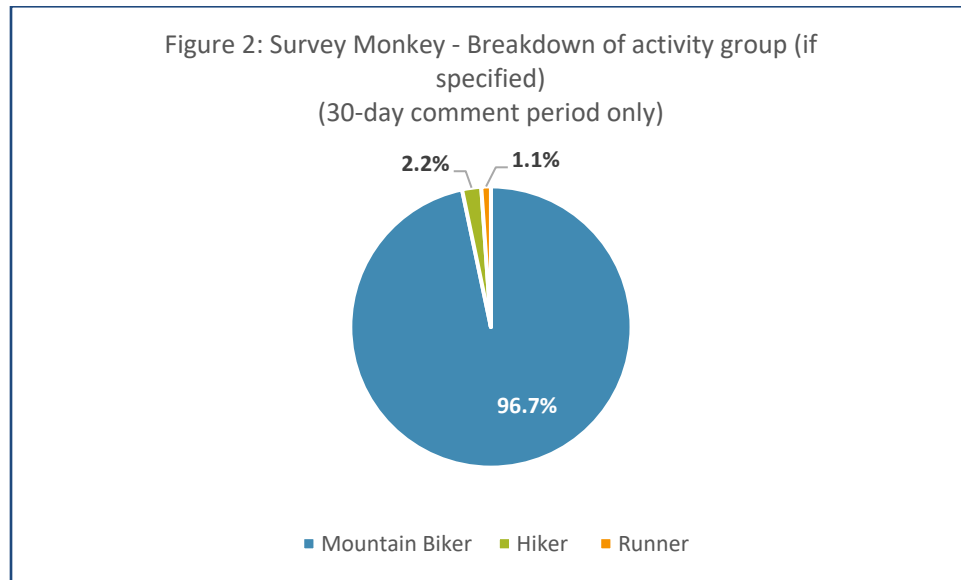
This public meeting was conducted in a presentation style format and a PowerPoint presentation was given along with questions and answers throughout the presentation. Display boards were stationed throughout the room, and the public was invited to work their way around the room to view each board after the presentation. Department staff were readily available to answer questions, and to engage in discussions during and after the presentation. Comment cards were available for interested parties to provide comments and feedback. Approximately 21 people signed in for the meeting, and twelve (12) comment cards were received by the end of the open house.

The Department scheduled a 30-day comment period concluding on December 5, 2018, to provide the general public adequate time to provide feedback. Figure 1 demonstrates how the various pieces of communications were received during the 30-day comment period.



Commenters were allowed to choose more than one activity group that best represents themselves. Of those that specified their preferred activity, “Bicyclists / Mountain Bikers” represented 96% of respondents, followed by “Hiker/Runner” at 4% (Figure 2).

**McDowell Mountain Regional Park
Master Plan Update
Comments from November 5, 2018 Public Open House Meeting**



Department planning staff reviewed each of surveys received. Out of those 92 submitted surveys, Department planning staff recognized 166 unique comments. Further, out of the 166 unique comments, 30 (or about 18 percent) were considered to be out of the scope of the MP Update. *Out of scope* means that the comment or suggestion is already covered by another planning document; it may also mean that the comment pertains to an operational matter; or it may mean that the comment does not otherwise fall under the purview of a MP. Other comments deemed out of scope may also be too generalized or vague to work with. In any case, all comments were forwarded to park management for their reference (Table 1).

Table 1: Unique and Out of Scope Comments	
Total number of surveys received:	92
Unique Comments:	166
Out of Scope Comments:	30

A MP does not dictate hours of operation, staffing, programing or other day-to-day activities. A MP also does not dictate activities that occur outside of park boundaries. As noted at the public meeting, the purpose of a master plan is **to outline the long-range vision for the park as well as development priorities that will provide for both the public’s enjoyment and the protection of the park’s resources.** The remaining substantive comments will be further evaluated and potentially carried forward into the recommended or preferred alternative for the MP. Table 2 details each unique comment received.

**McDowell Mountain Regional Park
Master Plan Update
Comments from November 5, 2018 Public Open House Meeting**

Table 2 - Public Meeting #2		
30-Day Public Comment Period		
Method	Comment	Out of Scope
Comment Card	Consider adding another trail that would connect the Cedar Tank area to the Campground area. Currently the only option from the norther side of Pemberton is via Lariat and the Pemberton to PBTH to the Visitor Center but you have to use the road to get to parking by the RV dump station. A nice flowing trail similar to the Lariat or Delsie would be great and provide an alternative for mountain bikers/hikers, other than PB.	
Comment Card	Add additional loops to the competitive track.	
Comment Card	Design and build a skills park	
Comment Card	Consider using the old alignment of the Pemberton Trail as the west boundary.	
Comment Card	Consider making the flow trail go from the Scenic High Point to the Escondido	
Comment Card	Ensure that all lighting outside (path lights, playground lights, etc.) are International Dark-Sky Association (IDA) approved and intelligently designed to avoid any light pollution or "Uplight." Also buildings where interior lights may be on at night should have blackout shades installed.	x
Comment Card	The term "Concessionaire" concerns me. I would not want a food service concession or any type of entertainment venue in this park.	
Comment Card	Add new trails from Fountain Hills east of Dixie Mine connecting to Dixie Mine Trail.	
Comment Card	I hope the park can leverage its existing dark skies and follow the lead of the National Parks to become a "dark sky park." This will increase the parks off-hour visitation and tie in well with the Fountain Hills recent IDA designation.	x
Comment Card	Extend Hilltop Trail along the ridge and connect to Scenic Trail. If implemented, it would be okay to close a portion of the Scenic Trail that is bypassed if desired.	
Comment Card	Make McDowell a Dark Sky Park	x
Comment Card	Please consider the Scenic Trail as a hikers only trail	
Survey Monkey - Question #3: After reviewing the proposed park amenities, which would you like to see developed first?		
Survey Monkey	I would like to see the bike skills park.	
Survey Monkey	Trails, flow and additional comp loops	
Survey Monkey	MTB park	
Survey Monkey	An additional mountain bike trails	
Survey Monkey	New loops and flow trail	
Survey Monkey	Skills park & trails	
Survey Monkey	Mountain bike skills park.	
Survey Monkey	Bike skills park	
Survey Monkey	Bike skills and flow trails and flow tracks.	

**McDowell Mountain Regional Park
Master Plan Update
Comments from November 5, 2018 Public Open House Meeting**

Survey Monkey	Mountain Bike Skills Park	
Survey Monkey	The Flow trail and the Skills park.	
Survey Monkey	Flow trail and a skills bike park!	
Survey Monkey	Competitive loop trails added to, add flow trail and skills park	
Survey Monkey	Mountain biking skill course	
Survey Monkey	As a runner first and a mountain biker second, it would be great to see additional trails and trailheads built in the park. I think additions to the competitive loop and a bike park would reduce congestion on the main trails as well between runners, hikers, bikers, and equestrians.	
Survey Monkey	Bike trails and skills park	
Survey Monkey	Bike park	
Survey Monkey	For track.	
Survey Monkey	Skills bike park	
Survey Monkey	Flow Trail	
Survey Monkey	Mountain bike skills trails and park	
Survey Monkey	More jump lines	
Survey Monkey	Expand the bike park and flow trails. Look at what Flagstaff did at Fort Tuthill as an example	
Survey Monkey	The flow trail	
Survey Monkey	Bike park	
Survey Monkey	Bike skills park	
Survey Monkey	Bike skills park and flow trails	
Survey Monkey	Bike park	
Survey Monkey	Competitive Track Extension	
Survey Monkey	Interpreter trail/skill trail would be a great addition to the already great flow trails existing.	
Survey Monkey	Bike/Skills park	
Survey Monkey	Bike park/flow trail	
Survey Monkey	Four peaks skill park	
Survey Monkey	Any amenities that pertain to the trails. Particularly MTB.	x
Survey Monkey	Mountain bike skills park, flow track, pump tracks.	
Survey Monkey	Mtb skills park. We have NOTHING like this in the Valley. And for this being a destination for bikers and a city of this size?	
Survey Monkey	Bike skills park	
Survey Monkey	Mountain bike park	
Survey Monkey	Flow track for mountain bikes... especial an advanced trail	
Survey Monkey	Flow trail/bike skills area	
Survey Monkey	The proposed mountain bike trails would definitely draw me back to McDowell Mountain Regional Park, and make a yearly pass worth it.	
Survey Monkey	Expansion of the competitive loops and bike skills park	
Survey Monkey	Skill park	
Survey Monkey	Bike park and new trails to the Competitive Track area.	
Survey Monkey	Mountain bike trails	
Survey Monkey	Skills park	

**McDowell Mountain Regional Park
Master Plan Update
Comments from November 5, 2018 Public Open House Meeting**

Survey Monkey	Flow trail	
Survey Monkey	Bike skills/drills course for improving riding abilities	
Survey Monkey	Skills park, flow trail.	
Survey Monkey	Bike parks and skills trails	
Survey Monkey	A Bike park with jump lines, skill areas, etc.	
Survey Monkey	I'd love to have a proper mountain bike skills/flow course. People currently ride some questionable DIY tracks out in the desert to get this experience, so having something that is groomed and maintained would bring them in and keep them safer.	
Survey Monkey	Mountain biking skills area.	
Survey Monkey	Bike skills park. We're sorely lacking a skills progression park in the Valley. Flagstaff and Sedona have done some amazing things lately with theirs.	
Survey Monkey	Mountain Bike Skills Park and New trails	
Survey Monkey	Flow trail	
Survey Monkey	Bike skills park and flow trail.	
Survey Monkey	Flow/jump lines	
Survey Monkey	Skills area	
Survey Monkey	The addition of a mountain bike skills park and flow trails would be amazing.	
Survey Monkey	Competitive Track extensions	
Survey Monkey	Skills bike park	
Survey Monkey	Skills park	
Survey Monkey	Extensions to the comp loops and bike park	
Survey Monkey	The bike skills park	
Survey Monkey	Flow trail.	
Survey Monkey	The flow trail and mountain bike skills area!	
Survey Monkey	Flow trail/skills park	
Survey Monkey	The mountain bike skills park and flow trail would be phenomenal!!	
Survey Monkey	Bike/Skills Park and Flow Trail please!	
Survey Monkey	Skills bike park.	
Survey Monkey	Bike flow trail, bike skills park, etc.	
Survey Monkey	Personally I like the expansion of multi-use (hikers, bikes and horses) trails. Bike parks are becoming more and more popular across the US. If done properly this could have a strong economic impact for the area.	
Survey Monkey	Bike skills park	
Survey Monkey	The mph train bike areas look fantastic. I've been mountain biking in McDowell Mtn Park since 1989 and would love to see even more expansion.	x
Survey Monkey	Do not build the cabins! Leave that area pristine. Use the money for more environmentally friendly projects.	
Survey Monkey	Flow trail / Bike skills park, I like the idea of a paved ADA path	

**McDowell Mountain Regional Park
Master Plan Update
Comments from November 5, 2018 Public Open House Meeting**

Survey Monkey	Bike Skills Park	
Survey Monkey	Mtb park	
Survey Monkey	Mountain bike park	
Survey Monkey	PLEASE develop mountain bike flow trail and skills park as soon as possible. It will greatly enhance McDowell Mountain Park as a premier mountain biking destination!!	
Survey Monkey	I'd really like to see the bike skills park. I'm always amazed how younger riders, including my children, enjoy them.	
Survey Monkey	More MTB trails and skills park.	
Survey Monkey	Updating the mountain biking trails and adding the skills park and flow trail.	
Survey Monkey	Bike skills area	
Survey Monkey	Mountain Bike Skills park / flow trails / etc.	
Survey Monkey	Flow trail	
Survey Monkey	Four peaks skill park	
Survey Monkey	A mountain bike skills and bike park. There is nothing like that anywhere in the valley and this will attract East valley riders. There are no trails in the valley that offer purpose built jump lines that beginners and advanced riders can enjoy.	
Survey Monkey	Restrooms with showers for tent camping (so they don't have to use the main loop showers).	
Survey Monkey	Campground extension to generate revenue. Verde Trail Extension and Flow Trail.	
Survey Monkey	New Trails & MTB Skills Park	
Survey Monkey Question #4 - Of the proposed park amenities identified, are there any others you would like to see incorporated into the updated master plan?		
Survey Monkey	Cheap tent camping	
Survey Monkey	I would like to see additional youth primitive group camping sites	
Survey Monkey	Restricted snow bird camping. It's too hard to get a spot in the winter since they bounce every 14 days to another spot.	x
Survey Monkey	Downhill trail/ track that has varying difficulty	
Survey Monkey	Water Points on the trails	
Survey Monkey	Maintenance of existing trails to keep us all safe. Banked corners. Removal of wooden "bridge" on Pemberton that are about to fall apart, could cause injury to biker or hiker	x
Survey Monkey	Flow track	
Survey Monkey	Bike park for jump progression, drops, etc.	
Survey Monkey	Flow and pump tracks	
Survey Monkey	Skills Park	
Survey Monkey	Wooden drops in skills area	
Survey Monkey	Bike park	
Survey Monkey	More mountain bike trails	

**McDowell Mountain Regional Park
Master Plan Update
Comments from November 5, 2018 Public Open House Meeting**

Survey Monkey	Bike park	
Survey Monkey	No at this time. This two (2) new additions are a great idea	x
Survey Monkey	Bike repair station	
Survey Monkey	Pump track	
Survey Monkey	This is an awesome park. Continue past practice. Thank You.	x
Survey Monkey	Additional MTB or multi use trails.	
Survey Monkey	ADA amenities (trail, camping)	
Survey Monkey	More trails	
Survey Monkey	Food and drinks with in the park always come handy even if it is food truck at least during the week ends	x
Survey Monkey	A separate lane at the entry station for yearly pass holders. Could also be used as a bypass for regular park users during events.	
Survey Monkey	Mountain bike trails	
Survey Monkey	Flow trails	
Survey Monkey	Additional dedicated trails for mountain biking around competitive loops.	
Survey Monkey	The flow trail in between cinch and Shallomo	
Survey Monkey	Mountain bike flow/jump line.	
Survey Monkey	Mountain Bike Skills Park	
Survey Monkey	More trail markers	
Survey Monkey	Any additions to the competitive loops would be beneficial.	
Survey Monkey	No, proposed plan looks great	x
Survey Monkey	I really want the skills park.	
Survey Monkey	Pump track	
Survey Monkey	As many new mountain bike trails as possible with jumps!	
Survey Monkey	More competitive track trails or trails with a relative high amount of elevation change	
Survey Monkey	More technical trails.	
Survey Monkey	Do not build the cabins! Leave that area as pristine open space.	
Survey Monkey	Mountain bike flow trail and skills park	
Survey Monkey	Showers at the primitive camping	
Survey Monkey	More MTB trails and skills park.	
Survey Monkey	"Fix it" stations for bikes located at the comp loops and at the new trail heads	
Survey Monkey	Any additional mountain bike trails would be great	x
Survey Monkey	Expand the bike park to include modern flow trails. Mountain biking has evolved and the valley hasn't done anything to stay up to date on riding.	
Survey Monkey	Add a trail extending north to south through the middle of the park, connecting the major East to West trails.	
Survey Monkey	Consider coin-operated laundry facilities for the RV campground.	
Survey Monkey	A shower facility in the tent camping area would be appreciated.	

**McDowell Mountain Regional Park
Master Plan Update
Comments from November 5, 2018 Public Open House Meeting**

Survey Monkey	Consider an astronomy area in the area of the proposed nature area. Some circular pads for setting up telescopes close to a parking area. The area needs to be away from street lights and auto headlights. Perhaps screened from the parking lot. Other suitable areas would be the picnic area or Minks Camp. Good astronomy viewing sites are starting to become travel destinations.	
Survey Monkey - Additional Comments		
Survey Monkey	Love this park and this will make it even better	x
Survey Monkey	Sedona did a skills, please move quickly to improve the park.	x
Survey Monkey	I like the idea of keeping our land and parks natural. No more concrete needed.	x
Survey Monkey	With the exception of a bike park and potentially additional showers, please keep everything else as close to natural as possible. The park is beautiful and much of the joy of recreation in the park comes from its natural setting.	x
Survey Monkey	Pump Track	
Survey Monkey	Great Trails!	x
Survey Monkey	More bike park and fun trails please! 😊	
Survey Monkey	Thank you for your support to this outdoor community.	x
Survey Monkey	All for this park renovation!! Hope it gets the attention it deserves	x
Survey Monkey	A park of the caliber that is in the master plan would be an amazing addition to the Valley!	x
Survey Monkey	MMRP is the best asset in greater Phoenix. Have loved it since 2001.	x
Survey Monkey	Excited for what is to come!	x
Survey Monkey	Thanks and looking forward to the new developments	x
Survey Monkey	All events should have a cap on total registrants. Some of the current events (RAGNAR) are too big for this park and should not be allowed. There should also be a refundable deposit for all events. If the park is returned to as good as or better shape after the conclusion of the event the deposit is returned. If not, the deposit is used for clean-up (horse shit) and/or repairs.	x
Survey Monkey	I'm just excited to see improvements coming. Mountain biking seems to growing at a rapid pace.	x
Survey Monkey	I'm excited to see the updates to the park, it's one of my favorite places to ride.	x
Survey Monkey	Please build a skills park.	
Survey Monkey	Thank you for listening to the mountain bikers.	x
Survey Monkey	The plan looks great. Build it and they will come.	x
Survey Monkey	Thank you!	x
Survey Monkey	Do not build the cabins! Leave the area pristine.	
Survey Monkey	Bike skills park would be a great addition.	
Survey Monkey	Any additional trails would be wonderful!	x
Survey Monkey	This will attract more riders than ever before.	x
Survey Monkey	We love McDowell. We camp here several times per year and bike here at least once per month.	x
Survey Monkey	I'm a day user only, but since the majority of the revenue comes from camping fees, it makes sense to add amenities for campers.	x

**McDowell Mountain Regional Park
Master Plan Update
Comments from November 5, 2018 Public Open House Meeting**

Comments Submitted via email		
Email	Consider a coin-operated laundry facilities for the RV campground. The closest laundromat is the Eagle View RV Resort at Fort McDowell.	
Email	<p>We would like to see hunting banned at McDowell Park or limited to an extremely small area. We have had several unfortunate encounters with hunters, & feel that with the expanded staging & camping areas, the potential for park patrons to be injured by a stray bullet will be even further increased.</p> <p>We have on multiple occasions had shots fired very close to us while walking down to the pond, & had to yell at the hunter to stop. We have encountered a hunter literally sitting in a lawn chair in camo clothing with what looked like a rifle right next to the pond. We have also heard shots in other areas, but not as close.</p> <p>Hunters don't stay on the trails (damaging the desert plants) & there is no way to enforce the distance they are supposed to stay away from trails. We have talked to several park employees about this, & they all said that they would like to see hunting banned at the park, & that they have expressed that opinion multiple times.</p> <p>It is very disconcerting to feel that we are putting our lives at risk by simply walking down to the pond. With so many activities going on at the park, having hunters randomly shooting all over the place is an accident waiting to happen. Eventually someone will be shot & injured or killed.</p>	x
Email	<p>Surveys</p> <p>Many of the comments at the public open houses and follow-up were about hiking trails. Mountain bikers are 58.9% of the users and surprisingly few comments about mountain biking. Wondering if the mountain bikers are coming from a larger area than Rio Verde and Fountain Hills.</p>	x
Email	Fountain Hills Resident - I am concerned about having cabins in the park. I can't bike on trails due to knee surgery so I use the roads and I don't want to see more traffic in this area or cabins. I think this area is beautiful and I don't want to see it ruined just for the placement of a few cabins.	x
Email	<p>Future Revenue</p> <p>Raise the fee for the day users and the annual passes. As a purchaser of an annual pass, I would be happy to pay more for the annual pass or an additional fee to keep the Park as it is. You will immediately start putting money into the parks fund with no debt or maintenance costs.</p>	x
Email	<p>Proposed Park Amenity Request</p> <p>What are the costs of the proposed projects? Costs should include planning costs including staff time, engineering and architectural costs, infrastructure,</p>	x

**McDowell Mountain Regional Park
Master Plan Update
Comments from November 5, 2018 Public Open House Meeting**

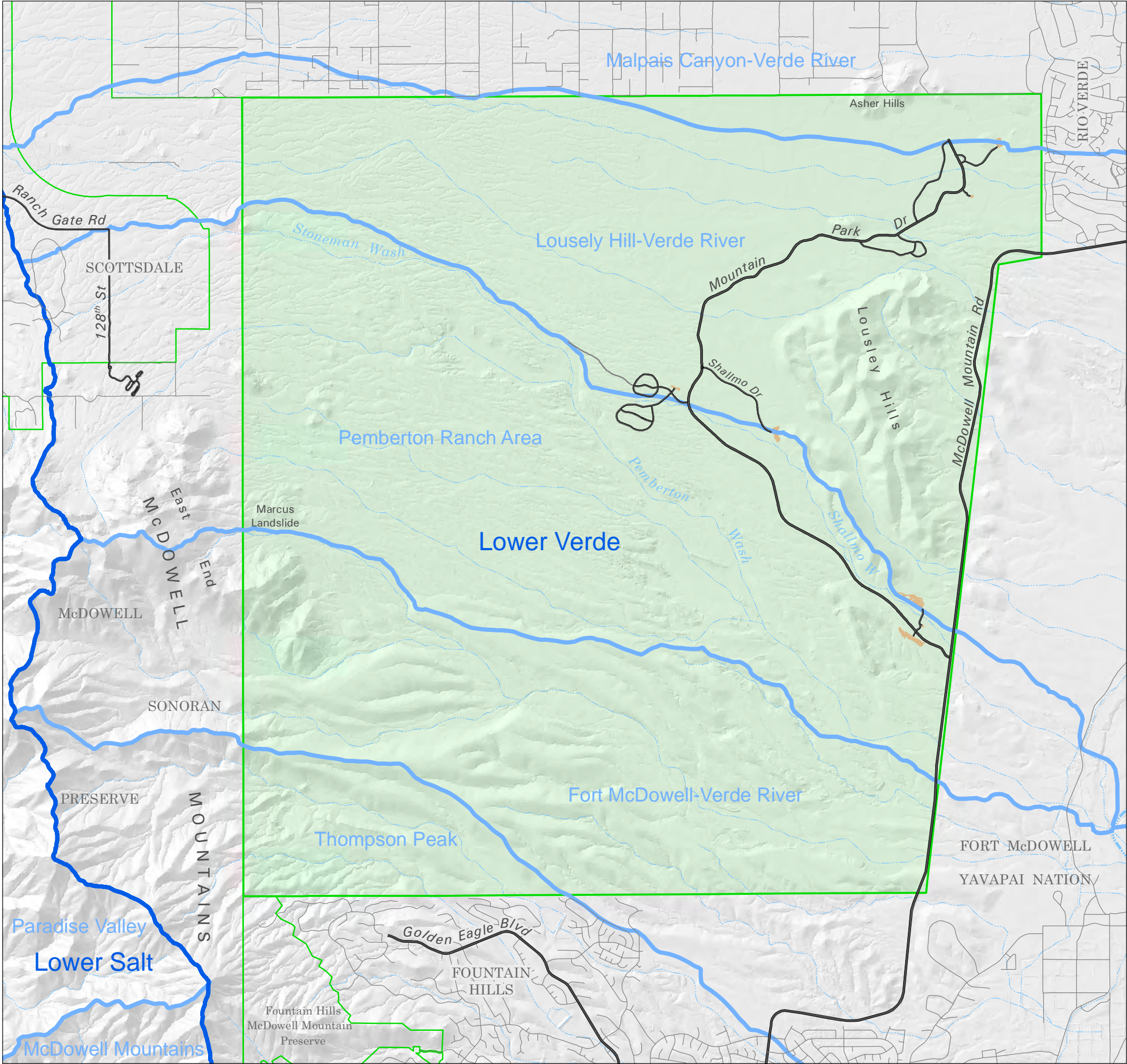
	operation and maintenance costs, and cost of capital. Also, there is the additional cost of destruction of acres of Upper Sonoran Desert.	
--	---	--

Appendix B



Water Resources

McDowell Mountain Regional Park

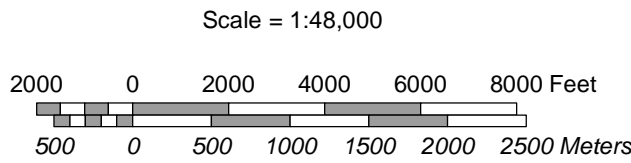
Watersheds



Hydrologic Unit Code*

-  HUC 8: Subbasin level - medium-sized river basins
-  HUC 12: Local sub-watershed level - captures tributary systems

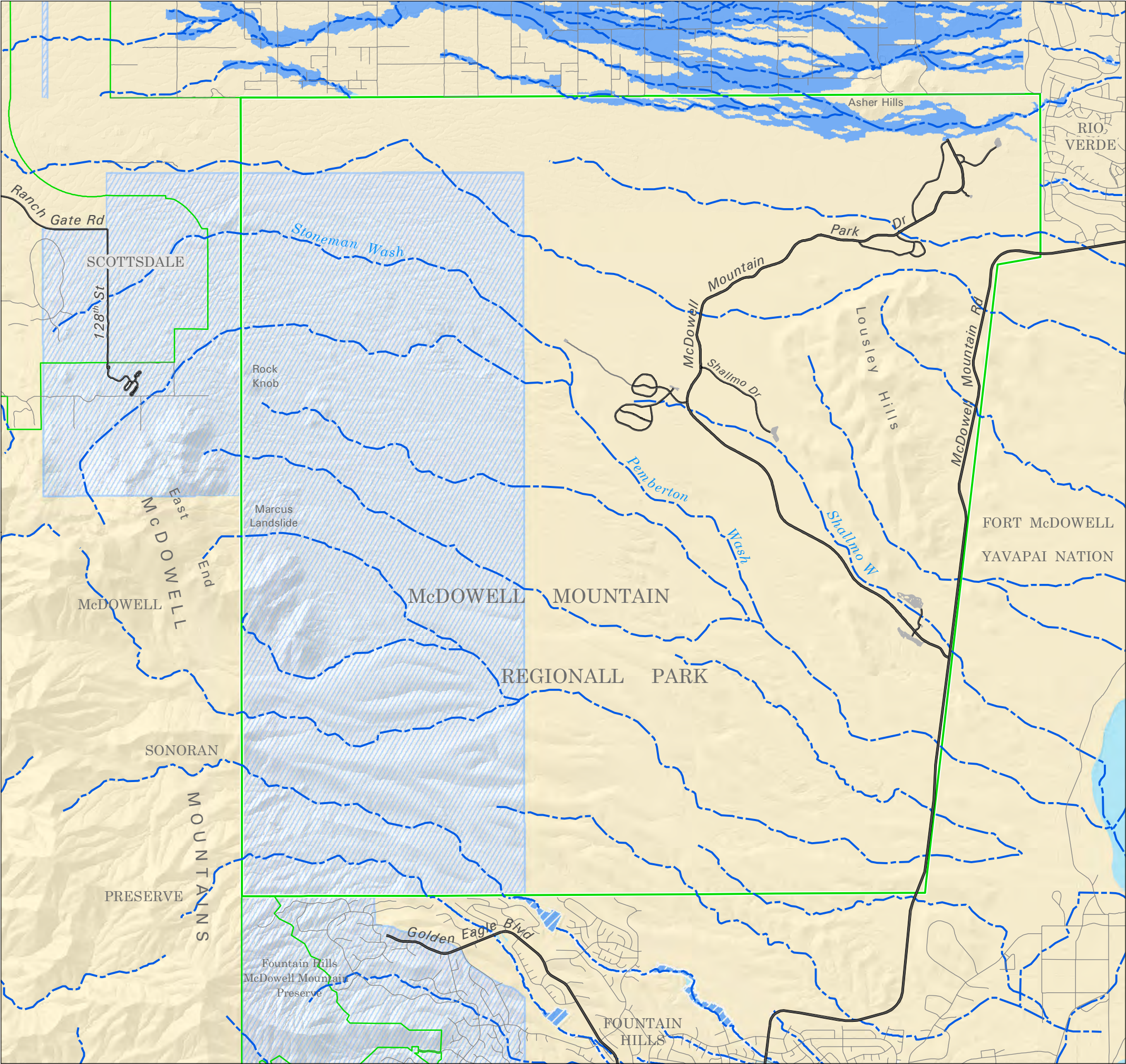
*Definitions derived from EnviroAtlas - Hydrologic Unit Codes: HUC 4, HUC8, and HUC 12.



DISCLAIMER: This map is a graphical representation designed for general reference purposes only. Viewer/User agrees to indemnify, defend and hold harmless Maricopa County, its officers, departments, employees and agents from and against any and all suits, actions, legal or administrative proceedings, claims, demands or damages of any kind or nature arising out of the use of this map, or the data contained herein, in its actual or altered form.

McDowell Mountain Regional Park

Flood Zone



Flood Zone (FEMA Effective)

- Baseline (FEMA Effective)
- A
- AE
- AE (Floodway)
- D
- X

A: Areas subject to inundation by the 1-percent-annual-chance flood event generally determined using approximate methodologies. Because detailed hydraulic analyses have not been performed, no Base Flood Elevations (BFEs) or flood depths are shown. Mandatory flood insurance purchase requirements and floodplain management standards apply.

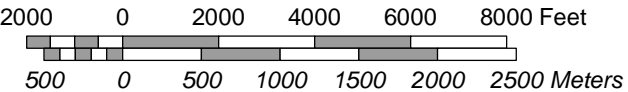
AE. Areas subject to inundation by the 1-percent-annual-chance flood event determined by detailed methods. Base Flood Elevations (BFEs) are shown. Mandatory flood insurance purchase requirements and floodplain management standards apply.

AE (Floodway): The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 100-year flood can be carried without substantial increases in flood heights.

D: Areas in which flood hazards are undetermined, but possible.

X: Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

Scale = 1:48,000



DISCLAIMER: This map is a graphical representation designed for general reference purposes only. Viewer/User agrees to indemnify, defend and hold harmless Maricopa County, its officers, departments, employees and agents from and against any and all suits, actions, legal or administrative proceedings, claims, demands or damages of any kind or nature arising out of the use of this map, or the data contained herein, in its actual or altered form.



(1 of 2)



FIRM Panels: 04013C1335M

Map Effective Date: November 3, 2015

Map is Countywide, Not Printed

[Download](#) a graphic of the map (available if map panel is printed)

[Download](#) county GIS data

If Panel is not printed, the reason why:
NO SPECIAL FLOOD HAZARD AREAS

Version: 1.1.1.0

Source Citation: 04013C_BASE1

[Zoom to](#)

(1 of 2)



FIRM Panels: 04013C1353L

Map Effective Date: October 15, 2013

Map is Countywide, Not Printed

[Download](#) a graphic of the map (available if map panel is printed)

[Download](#) county GIS data

If Panel is not printed, the reason why:
NO SPECIAL FLOOD HAZARD AREAS

Version: 1.1.1.0

Source Citation: 04013C_BASE1

[Zoom to](#)

(1 of 2)



FIRM Panels: 04013C1365L

Map Effective Date: October 15, 2013

Map is Countywide, Not Printed

[Download](#) a graphic of the map (available if map panel is printed)

[Download](#) county GIS data

If Panel is not printed, the reason why:
ALL AREAS WITHIN 0.2% ANNUAL
CHANCE FLOODPLAIN

Version: 1.1.1.0

Source Citation: 04013C_BASE1

[Zoom to](#)

(1 of 2)



FIRM Panels: 04013C1354L

Map Effective Date: October 15, 2013

Map is Countywide, Not Printed

[Download](#) a graphic of the map (available if map panel is printed)

[Download](#) county GIS data

If Panel is not printed, the reason why:
NO SPECIAL FLOOD HAZARD AREAS

Version: 1.1.1.0

Source Citation: 04013C_BASE1

[Zoom to](#)

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The community map repository should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations (BFEs)** and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations (BFEs) shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The projection used in the preparation of this map was Arizona State Plane Central zone (FIPSZONE 0202). The horizontal datum was NAD 83 HARN, GRS1980 spheroid. Differences in datum, spheroid, projection or State Plane zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988 (NAVD 88). These flood elevations must be compared to structure and ground elevations referenced to the same vertical datum. Map users wishing to obtain flood elevations referenced to the National Geodetic Vertical Datum of 1929 (NGVD 29) may use the following Maricopa County website application: <http://www.fcd.maricopa.gov/Maps/gismaps/apps/gdacs/application/index.cfm>

This web tool allows users to obtain point-specific datum conversion values by zooming in and hovering over a VERTCON checkbox on the layers menu on the left side of the screen. The VERTCON grid referenced in this web application was also used to convert existing flood elevations from NGVD 29 to NAVD 88.

To obtain current elevation, description, and/or location information for National Geodetic Survey bench marks shown on this map, please contact the Information Services Branch of the National Geodetic Survey at (301) 713-3242, or visit its website at <http://www.ngs.noaa.gov>. To obtain information about Geodetic Densification and Cadastral Survey bench marks produced by the Maricopa County Department of Transportation, please visit the Flood Control District of Maricopa County website at: <http://www.fcd.maricopa.gov/Maps/gismaps/apps/gdacs/application/index.cfm>.

Base map information shown on this FIRM was derived from multiple sources. Aerial imagery was provided in digital format by the Maricopa County Department of Public Works, Flood Control District. The imagery is dated October to November 2009 and July to September 2010. Additional National Agricultural Imagery Program (NAIP) imagery was provided by the Arizona State Land Department (ALRIS) and is dated 2007. The coordinate system used for the production of the digital FIRM is State Plane Arizona Central NAD83 HARN, International Feet.


The **profile base line** depicted on this map represents the hydraulic modeling baselines that match flood profiles in the FIS report. As a result of improved topographic data, the profile base line, in some cases, may deviate significantly from the channel centerline or appear outside the SFHA.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

For information and questions about this map, available products associated with this FIRM including historic versions of this FIRM, how to order products or the National Flood Insurance Program in general, please call the **FEMA Map Information eXchange** at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA Map Service website at <http://msc.fema.gov>. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the website. Users may determine the current map date for each FIRM panel by visiting the FEMA Map Service Center website or by calling the FEMA Map Information eXchange.

LEGEND

 **SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD**

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A No Base Flood Elevations determined.

ZONE AE Base Flood Elevations determined.

ZONE AH Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.


ZONE AO Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.

ZONE AR Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.

ZONE A99 Areas to be protected from 1% annual chance flood event by a Federal flood protection system under construction; no Base Flood Elevations determined.

ZONE V Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.

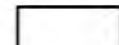
ZONE VE Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

 **FLOODWAY AREAS IN ZONE AE**

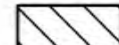
The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

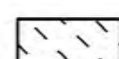
 **OTHER FLOOD AREAS**

ZONE X Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.




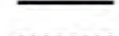




 **OTHER AREAS**

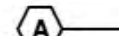
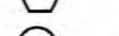
ZONE X Areas determined to be outside the 0.2% annual chance floodplain.
ZONE D Areas in which flood hazards are undetermined, but possible.

 **COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS**

 **OTHERWISE PROTECTED AREAS (OPAs)**

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

 1% annual chance floodplain boundary
 0.2% annual chance floodplain boundary
 Floodway boundary
 Zone D boundary
 CBRS and OPA boundary
 Boundary dividing Special Flood Hazard Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths, or flood velocities
 Base Flood Elevation line and value; elevation in feet*
 Base Flood Elevation value where uniform within zone; elevation in feet*
* Referenced to the North American Vertical Datum of 1988

 Cross section line
 Transect line
97°07'30", 32°22'30"
4750000 FT
6000000 FT
DX5510
● M1.5
River Mile

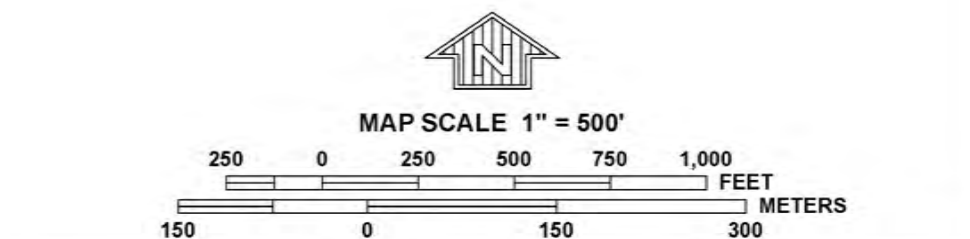
MAP REPOSITORIES
Refer to Map Repositories List on Map Index
EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
April 15, 1988

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL
September 29, 1989, July 19, 2001, September 30, 2009, October 16, 2013

November 4, 2015: to incorporate previously issued Letters of Map Revision, to add floodway, to change Base Flood Elevations, to advance suffix, to add Base Flood Elevations, to change floodway, to add Special Flood Hazard Areas, to update corporate limits, and to add roads and road names.

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.



NFIP
NATIONAL FLOOD INSURANCE PROGRAM
PANEL 1331M
FIRM
FLOOD INSURANCE RATE MAP
MARICOPA COUNTY, ARIZONA
AND INCORPORATED AREAS

PANEL 1331 OF 4425
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
MARICOPA COUNTY	040037	1331	M
SCOTTSDALE, CITY OF	045012	1331	M

Notice to User: The Map Number shown below should be used when placing map orders. The Community Number shown above should be used on insurance applications for the subject community.

MAP NUMBER
04013C1331M

MAP REVISED
NOVEMBER 4, 2015

Federal Emergency Management Agency

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The community map repository should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where Base Flood Elevations (BFEs) and/or floodways have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations (BFEs) shown on this map apply only to landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this jurisdiction. Areas of Special Flood Hazard shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The projection used in the preparation of this map was Arizona State Plane Central zone (FIPSZONE 0202). The horizontal datum was NAD 83 HARN, GRS1980 spheroid. Differences in datum, spheroid, projection or State Plane zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988 (NAVD 88). These flood elevations must be compared to structure and ground elevations referenced to the same vertical datum. Map users wishing to obtain flood elevations referenced to the National Geodetic Vertical Datum of 1929 (NGVD 29) may use the following Maricopa County website application: <http://www.fcd.maricopa.gov/Maps/gismaps/apps/gdacs/application/index.cfm>

This web tool allows users to obtain point-specific datum conversion values by zooming in and hovering over a VERTCON checkbox on the layers menu on the left side of the screen. The VERTCON grid referenced in this web application was also used to convert existing flood elevations from NGVD 29 to NAVD 88.

To obtain current elevation, description, and/or location information for National Geodetic Survey bench marks shown on this map, please contact the Information Services Branch of the National Geodetic Survey at (301) 713-3242, or visit its website at <http://www.ngs.noaa.gov>. To obtain information about Geodetic Densification and Cadastral Survey bench marks produced by the Maricopa County Department of Transportation, please visit the Flood Control District of Maricopa County website at: <http://www.fcd.maricopa.gov/Maps/gismaps/apps/gdacs/application/index.cfm>.

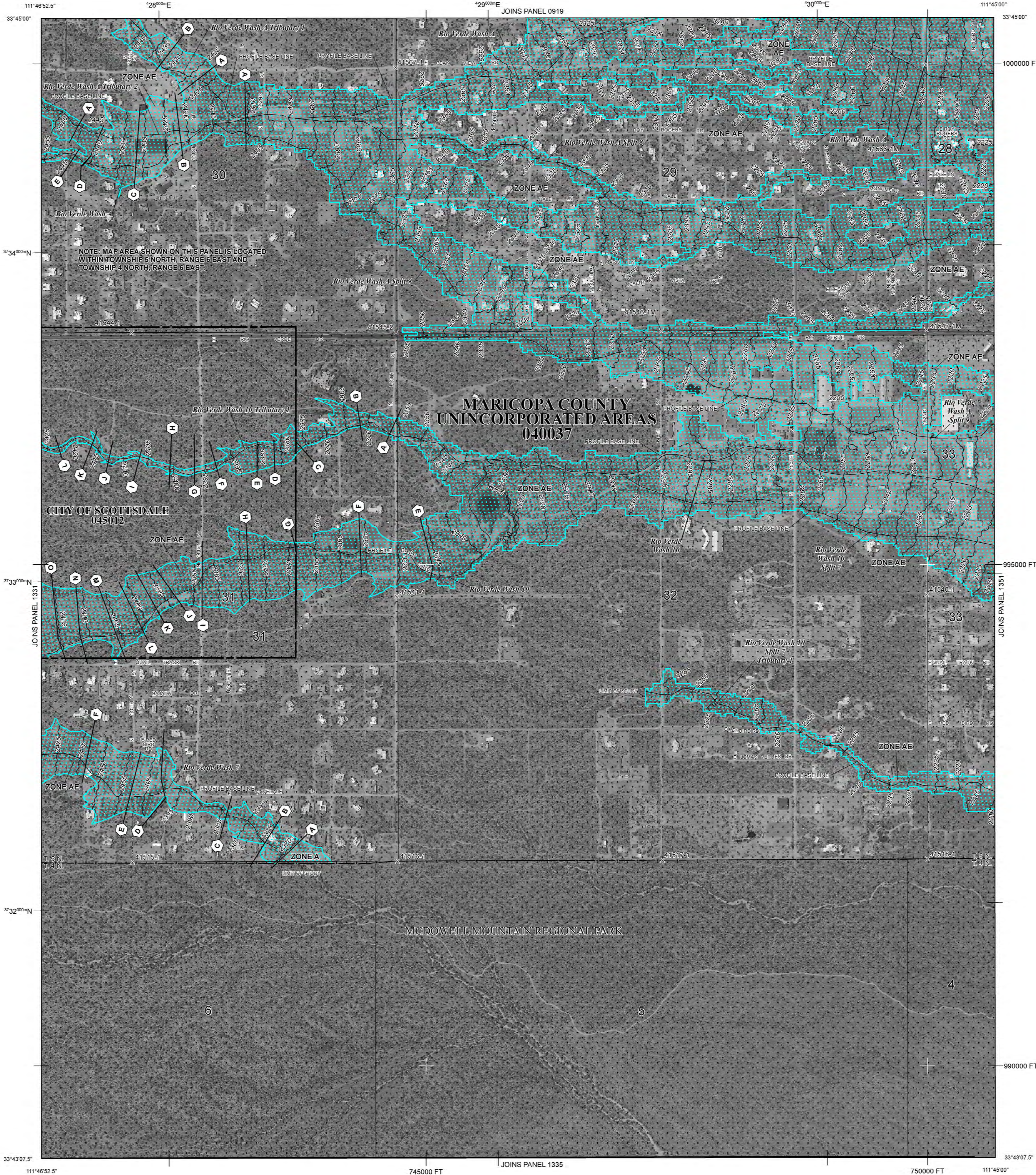
Base map information shown on this FIRM was derived from multiple sources. Aerial imagery was provided in digital format by the Maricopa County Department of Public Works, Flood Control District. The imagery is dated October to November 2009 and July to September 2010. Additional National Aerial Imagery Program (NAIP) imagery was provided by the Arizona State Land Department (ALRIS) and is dated 2007. The coordinate system used for the production of the digital FIRM is State Plane Arizona Central NAD83 HARN, International Feet.

The **profile base line** depicted on this map represents the hydraulic modeling baselines that match flood profiles in the FIS report. As a result of improved topographic data, the profile base line, in some cases, may deviate significantly from the channel centerline or appear outside the SFHA.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

For information and questions about this map, available products associated with this FIRM including historic versions of this FIRM, how to order products or the National Flood Insurance Program in general, please call the **FEMA Map Information eXchange** at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA Map Service website at <http://msc.fema.gov>. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the website. Users may determine the current map date for each FIRM panel by visiting the FEMA Map Service Center website or by calling the FEMA Map Information eXchange.



LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

- ZONE A** No Base Flood Elevations determined.
- ZONE AE** Base Flood Elevations determined.
- ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
- ZONE AO** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- ZONE AR** Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
- ZONE A99** Areas to be protected from 1% annual chance flood event by a Federal flood protection system under construction; no Base Flood Elevations determined.
- ZONE V** Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
- ZONE VE** Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X Areas determined to be outside the 0.2% annual chance floodplain. Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

- 1% annual chance floodplain boundary
- 0.2% annual chance floodplain boundary
- Floodway boundary
- Zone D boundary
- CBRS and OPA boundary
- Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths, or flood velocities
- Base Flood Elevation line and value; elevation in feet*
- Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988

- Cross section line**
- Transect line**
- Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere
- 1000-meter Universal Transverse Mercator grid ticks, zone 12
- 5000-foot grid values: Arizona State Plane coordinate system, Central Zone (FIPSZONE = 0202), Transverse Mercator
- Bench mark (see explanation in Notes to Users section of this FIRM panel)
- River Mile

MAP REPOSITORIES
Refer to Map Repositories List on Map Index

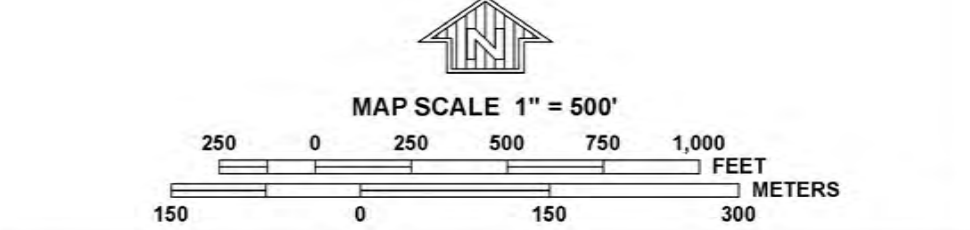
EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
April 15, 1988

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL
September 29, 1989, July 19, 2001, September 30, 2009, October 16, 2013

November 4, 2015: to incorporate previously issued Letters of Map Revision, to add floodway, to change Base Flood Elevations, to advance suffix, to add Base Flood Elevations, to change floodway, to add Special Flood Hazard Areas, to update corporate limits, and to add roads and road names.

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.



PANEL 1332M

FIRM
FLOOD INSURANCE RATE MAP
MARICOPA COUNTY,
ARIZONA
AND INCORPORATED AREAS

PANEL 1332 OF 4425
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:			
COMMUNITY	NUMBER	PANEL	SUFFIX
MARICOPA COUNTY	040037	1332	M
SCOTTSDALE, CITY OF	045012	1332	M

Notice to User: The Map Number shown below should be used when placing map orders. The Community Number shown above should be used on insurance applications for the subject community.

MAP NUMBER
04013C1332M

MAP REVISED
NOVEMBER 4, 2015

Federal Emergency Management Agency

NOTES TO USERS

This map is for use in administering the Nation Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations tables in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Arizona State Plane Central zone (FIPSZONE 0202). The **horizontal datum** was NAD 83 HARN, GRS1980 spheroid. Differences in datum, spheroid, projection or State Plane zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988 (NAVD 88). These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. Map users wishing to obtain flood elevations referenced to the National Geodetic Vertical Datum of 1929 (NGVD 29) may use the following Maricopa County website application: <http://www.fcd.maricopa.gov/Maps/gismaps/apps/gdacs/application/index.cfm>

This web tool allows users to obtain point-specific datum conversion values by zooming in and hovering over a VERTCON checkbox on the layers menu on the left side of the screen. The VERTCON grid referenced in this web application was also used to convert existing flood elevations from NGVD 29 to NAVD 88.

To obtain current elevation, description, and/or location information for National Geodetic Survey bench marks shown on this map, please contact the Information Services Branch of the National Geodetic Survey at (301) 713-3242, or visit its website at <http://www.ngs.noaa.gov>. To obtain information about Geodetic Densification and Cadastral Survey bench marks produced by the Maricopa County Department of Transportation, please visit the Flood Control District of Maricopa County website at: <http://www.fcd.maricopa.gov/Maps/gismaps/apps/gdacs/application/index.cfm>.

Base map information shown on this FIRM was derived from multiple sources. Aerial imagery was provided in digital format by the Maricopa County Department of Public Works, Flood Control District. The imagery is dated October 2009 to November 2009. Additional National Agricultural Imagery Program (NAIP) imagery was provided by the Arizona State Land Department (ALRIS) and is dated 2007. The coordinate system used for the production of the digital FIRM is State Plane Arizona Central NAD83 HARN, International Feet.

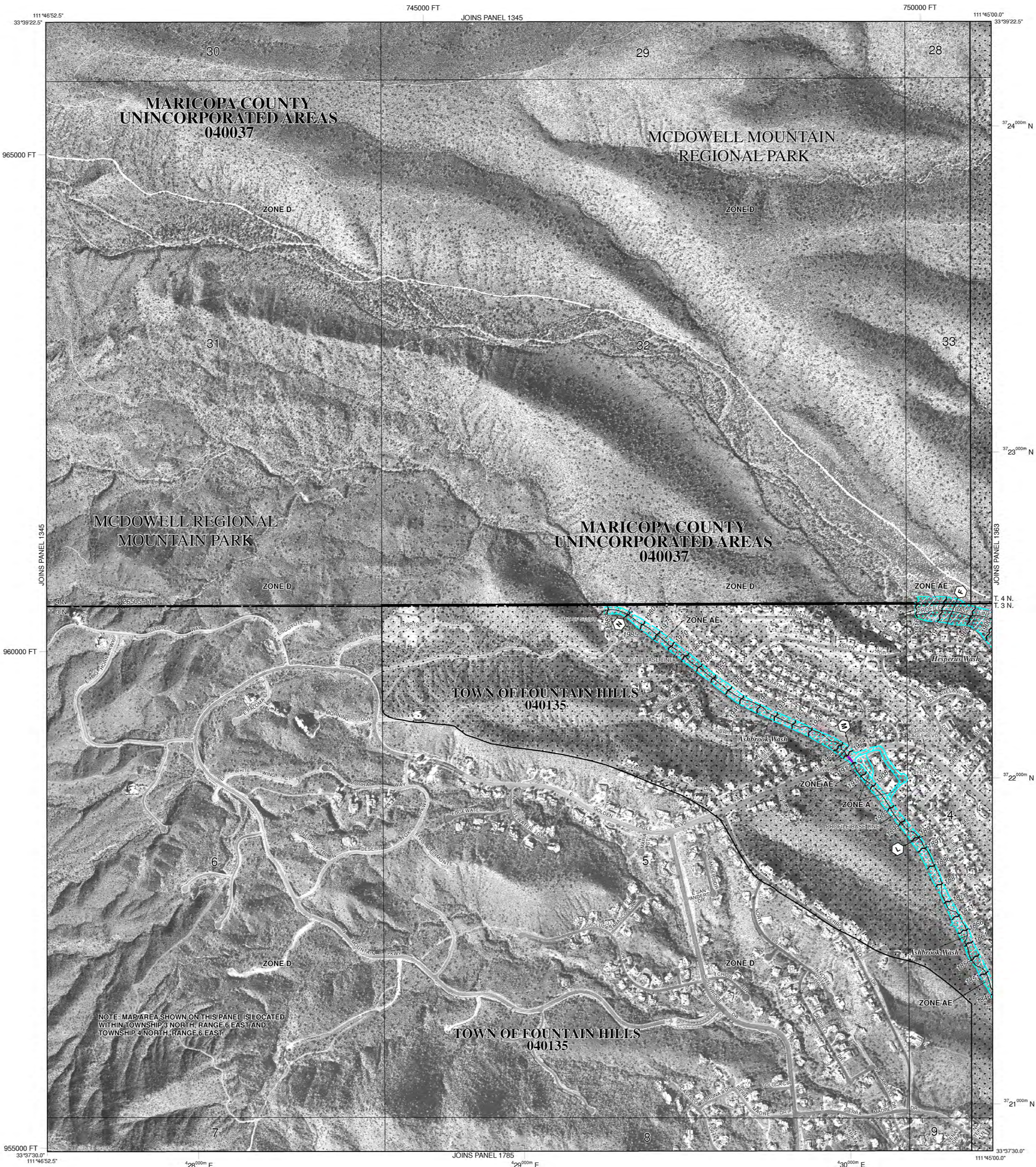
The **profile baseline** depicted on this map represents the hydraulic modeling baselines that match flood profiles in the FIS report. As a result of improved topographic data, the **profile baseline**, in some cases, may deviate significantly from the channel centerline or appear outside the SFHA.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

For information on available products associated with this FIRM, visit the **Map Service Center (MSC)** website at <http://msc.fema.gov>. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, or digital versions of this map. Many of these products can be ordered or obtained directly from the website.

If you have **questions about this map**, how to order products, or the National Flood Insurance Program in general, please call the **FEMA Map Information eXchange (FMIX)** at 1-877-FEMA MAP (1-877-336-2627) or visit the FEMA website at <http://www.fema.gov/>.



LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

- ZONE A** No Base Flood Elevations determined.
- ZONE AE** Base Flood Elevations determined.
- ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
- ZONE AO** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- ZONE AR** Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently declassified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
- ZONE A99** Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
- ZONE V** Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
- ZONE VE** Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

- ZONE X** Areas determined to be outside the 0.2% annual chance floodplain.
- ZONE D** Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

- 1% annual chance floodplain boundary
- 0.2% annual chance floodplain boundary
- Floodway boundary
- Zone D boundary
- CBRS and OPA boundary
- Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
- Base Flood Elevation line and value; elevation in feet*
- Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

- Cross section line
- Transect line
- Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)
- 1000-meter Universal Transverse Mercator grid ticks, zone 12
- 5000-foot grid ticks: Arizona State Plane coordinate system, central zone (FIPSZONE 0202), Transverse Mercator
- Bench mark (see explanation in Notes to Users section of this FIRM panel)
- River Mile

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

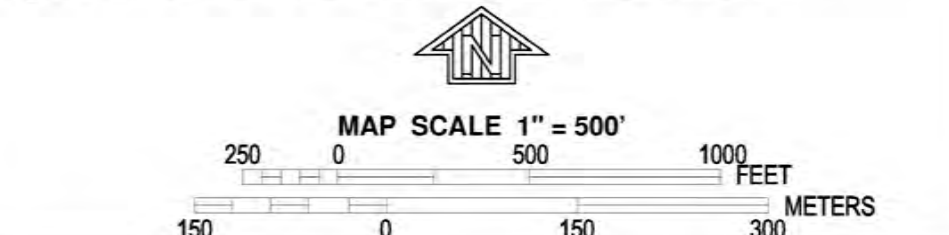
EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
April 15, 1988

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL
July 12, 2001 September 30, 2005

October 16, 2013 - to add special flood hazard areas; to add floodway; to add roads and road names; to update corporate limits; to change base flood elevations; to incorporate previously issued letters of map revision; to add base flood elevation; to change floodway; and to advance suffix.

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.



NFIP

PANEL 1344L

NATIONAL FLOOD INSURANCE PROGRAM

FIRM FLOOD INSURANCE RATE MAP MARICOPA COUNTY, ARIZONA AND INCORPORATED AREAS

PANEL 1344 OF 4425
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
MARICOPA COUNTY	040037	1344	L
FOUNTAIN HILLS, TOWN OF	040135	1344	L

Notice to User: The **Map Number** shown below should be used when placing map orders. The **Community Number** shown above should be used on insurance applications for the subject community.



MAP NUMBER
04013C1344L

MAP REVISED
OCTOBER 16, 2013

Federal Emergency Management Agency

NOTES TO USERS

This map is for use in administering the Nation Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations tables in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Arizona State Plane Central zone (FIPSZONE 0202). The **horizontal datum** was NAD 83 HARN, GRS1980 spheroid. Differences in datum, spheroid, projection or State Plane zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988 (NAVD 88). These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. Map users wishing to obtain flood elevations referenced to the National Geodetic Vertical Datum of 1929 (NGVD 29) may use the following Maricopa County website application: <http://www.fcd.maricopa.gov/Maps/gismaps/apps/gdacs/application/index.cfm>

This web tool allows users to obtain point-specific datum conversion values by zooming in and hovering over a VERTCON checkbox on the layers menu on the left side of the screen. The VERTCON grid referenced in this web application was also used to convert existing flood elevations from NGVD 29 to NAVD 88.

To obtain current elevation, description, and/or location information for National Geodetic Survey bench marks shown on this map, please contact the Information Services Branch of the National Geodetic Survey at (301) 713-3242, or visit its website at <http://www.ngs.noaa.gov>. To obtain information about Geodetic Densification and Cadastral Survey bench marks produced by the Maricopa County Department of Transportation, please visit the Flood Control District of Maricopa County website at: <http://www.fcd.maricopa.gov/Maps/gismaps/apps/gdacs/application/index.cfm>.

Base map information shown on this FIRM was derived from multiple sources. Aerial imagery was provided in digital format by the Maricopa County Department of Public Works, Flood Control District. The imagery is dated October 2009 to November 2009. Additional National Agricultural Imagery Program (NAIP) imagery was provided by the Arizona State Land Department (ALRIS) and is dated 2007. The coordinate system used for the production of the digital FIRM is State Plane Arizona Central NAD83 HARN, International Feet.

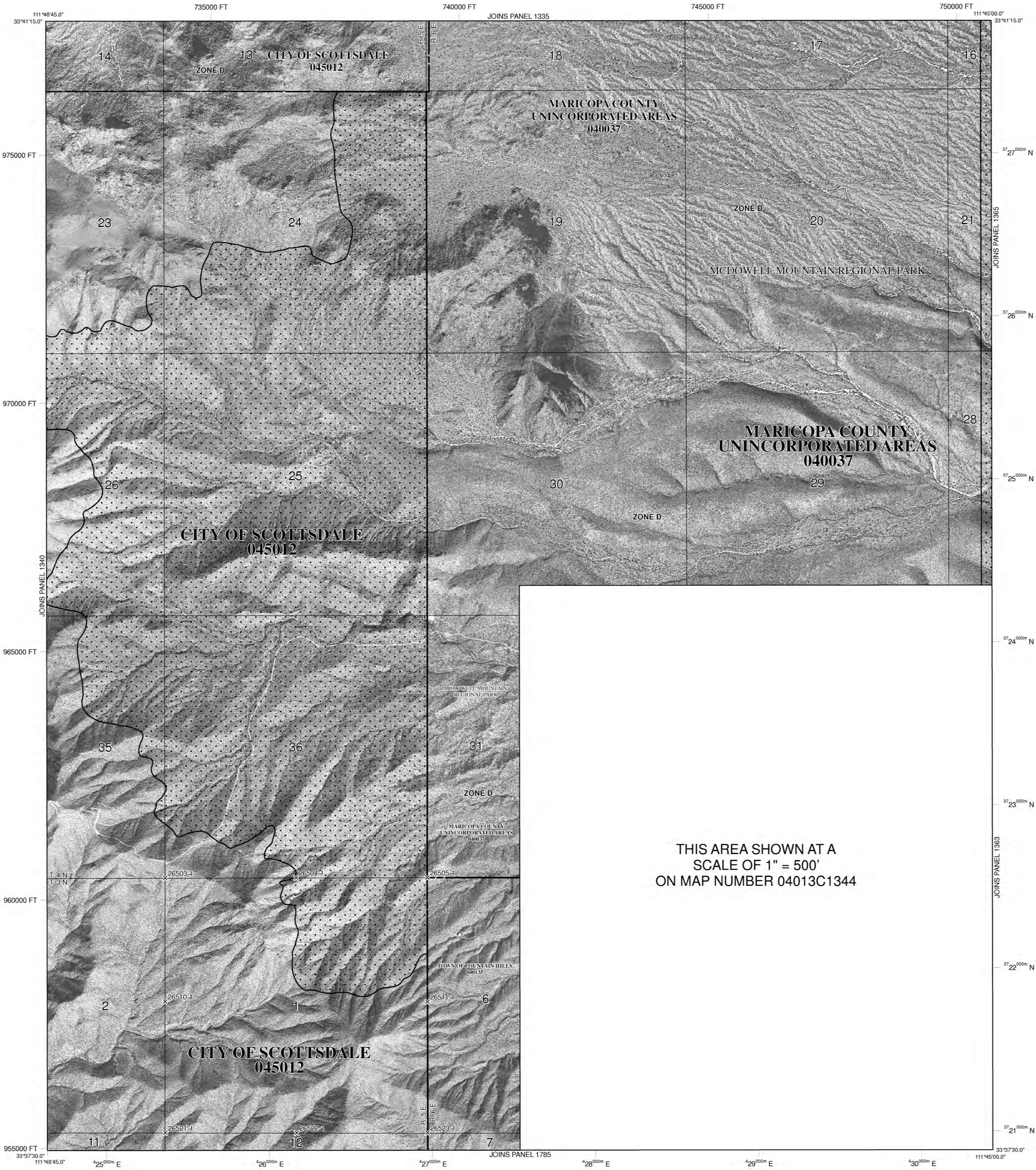
The **profile baseline** depicted on this map represents the hydraulic modeling baselines that match flood profiles in the FIS report. As a result of improved topographic data, the **profile baseline**, in some cases, may deviate significantly from the channel centerline or appear outside the SFHA.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels, community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

For information on available products associated with this FIRM, visit the **Map Service Center (MSC)** website at <http://msc.fema.gov>. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, or digital versions of this map. Many of these products can be ordered or obtained directly from the website.

If you have **questions about this map**, how to order products, or the National Flood Insurance Program in general, please call the **FEMA Map Information eXchange (FMIX)** at 1-877-FEMA MAP (1-877-336-2627) or visit the FEMA website at <http://www.fema.gov/>.



LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V and VE. The Base Flood Elevation is the water surface elevation of the 1% annual chance flood.

ZONE A
No Base Flood Elevations determined.
Base Flood Elevations determined.

ZONE AE
Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.

ZONE AH
Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.

ZONE AO
Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.

ZONE AR
Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.

ZONE A99
Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.

ZONE V
Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

ZONE VE
FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X
Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X
Areas determined to be outside the 0.2% annual chance floodplain.

ZONE D
Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

1% annual chance floodplain boundary
0.2% annual chance floodplain boundary
Floodway boundary
Zone D boundary
CBRS and OPA boundary
Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.

513 (EL 987)
Base Flood Elevation line and value; elevation in feet*
Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

A — A Cross section line
23 — 23 Transsect line
97°07'30", 32°22'30" Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)
4275000 N 1000-meter Universal Transverse Mercator grid ticks, zone 12
6000000 M 5000-foot grid ticks: Arizona State Plane coordinate system, central zone (FIPSZONE 0202), Transverse Mercator
DX5510 Bench mark (see explanation in Notes to Users section of this FIRM panel)
M1.5 River Mile

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
April 15, 1988

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL
July 19, 2001
September 30, 2005

October 16, 2013 – to change base flood elevations, to update corporate limits, to incorporate previously issued letters of map revision, to add roads and road names, to advance suffix, to change floodway, to add base flood elevation, to add special flood hazard areas, and to add floodway.

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 1345L

FIRM
FLOOD INSURANCE RATE MAP
MARICOPA COUNTY,
ARIZONA
AND INCORPORATED AREAS

PANEL 1345 OF 4425
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
MARICOPA COUNTY	040037	1345	L
FOUNTAIN HILLS, TOWN OF	040135	1345	L
SCOTTSDALE, CITY OF	045012	1345	L

Notice to User: The **Map Number** shown below should be used when placing map orders. The **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
04013C1345L
MAP REVISED
OCTOBER 16, 2013

Federal Emergency Management Agency

THIS AREA SHOWN AT A
SCALE OF 1" = 500'
ON MAP NUMBER 04013C1344

NOTES TO USERS

This map is for use in administering the Nation Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations tables in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Arizona State Plane Central zone (FIPSZONE 0202). The **horizontal datum** was NAD 83 HARN, GRS1980 spheroid. Differences in datum, spheroid, projection or State Plane zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988 (NAVD 88). These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. Map users wishing to obtain flood elevations referenced to the National Geodetic Vertical Datum of 1929 (NGVD 29) may use the following Maricopa County website application: <http://www.fcd.maricopa.gov/Maps/gismaps/apps/gdacs/application/index.cfm>

This web tool allows users to obtain point-specific datum conversion values by zooming in and hovering over a VERTCON checkbox on the layers menu on the left side of the screen. The VERTCON grid referenced in this web application was also used to convert existing flood elevations from NGVD 29 to NAVD 88.

To obtain current elevation, description, and/or location information for National Geodetic Survey bench marks shown on this map, please contact the Information Services Branch of the National Geodetic Survey at (301) 713-3242, or visit its website at <http://www.ngs.noaa.gov>. To obtain information about Geodetic Intensification and Cadastral Survey bench marks produced by the Maricopa County Department of Transportation, please visit the Flood Control District of Maricopa County website at: <http://www.fcd.maricopa.gov/Maps/gismaps/apps/gdacs/application/index.cfm>.

Base map information shown on this FIRM was derived from multiple sources. Aerial imagery was provided in digital format by the Maricopa County Department of Public Works, Flood Control District. The imagery is dated October 2009 to November 2009. Additional National Agricultural Imagery Program (NAIP) imagery was provided by the Arizona State Land Department (ALRIS) and is dated 2007. The coordinate system used for the production of the digital FIRM is State Plane Arizona Central NAD83 HARN, International Feet.

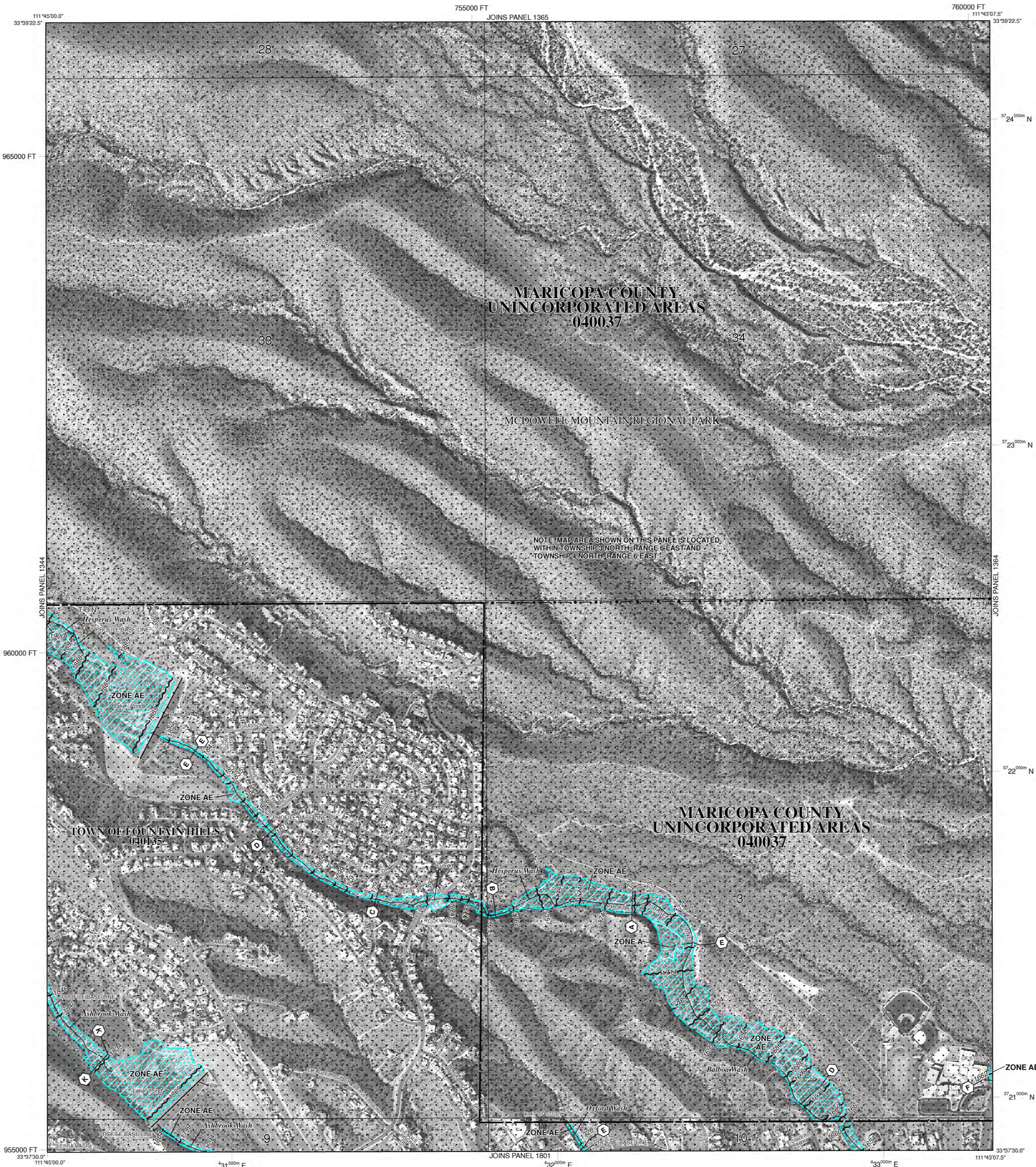
The **profile baseline** depicted on this map represents the hydraulic modeling baselines that match flood profiles in the FIS report. As a result of improved topographic data, the **profile baseline**, in some cases, may deviate significantly from the channel centerline or appear outside the SFHA.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

For information on available products associated with this FIRM, visit the **Map Service Center (MSC)** website at <http://msc.fema.gov>. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, or digital versions of this map. Many of these products can be ordered or obtained directly from the website.

If you have **questions about this map**, how to order products, or the National Flood Insurance Program in general, please call the **FEMA Map Information eXchange (FMIX)** at 1-877-FEMA MAP (1-877-336-2627) or visit the FEMA website at <http://www.fema.gov/>.



LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

- ZONE A** No Base Flood Elevations determined.
- ZONE AE** Base Flood Elevations determined.
- ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
- ZONE AO** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- ZONE AR** Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
- ZONE A99** Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
- ZONE V** Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
- ZONE VE** Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X Areas determined to be outside the 0.2% annual chance floodplain.

ZONE D Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

- 1% annual chance floodplain boundary
- 0.2% annual chance floodplain boundary
- Floodway boundary
- Zone D boundary
- CBRS and OPA boundary
- Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.

Base Flood Elevation line and value; elevation in feet*

Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

A Cross section line

23 Transsect line

Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)

1000-meter Universal Transverse Mercator grid ticks, zone 12

5000-foot grid ticks: Arizona State Plane coordinate system, central zone (FIPSZONE 0202), Transverse Mercator

Bench mark (see explanation in Notes to Users section of this FIRM panel)

M1.5 River Mile

MAP REPOSITORIES

Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP

April 15, 1988

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

September 4, 1991 July 10, 2001 September 30, 2005

October 16, 2013 - to add floodway, to change base flood elevations, to change floodway, to incorporate previously issued letters of map revision, to update corporate limits, to add base flood elevation, to add roads and road names, to advance suffix, and to add special flood hazard areas.

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'

250 0 500 1000 FEET

150 0 150 300 METERS

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 1363L

FIRM

FLOOD INSURANCE RATE MAP

MARICOPA COUNTY, ARIZONA

AND INCORPORATED AREAS

PANEL 1363 OF 4425

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY NUMBER PANEL SUFFIX

MARICOPA COUNTY 040037 1363 L

FOUNTAIN HILLS, TOWN OF 040135 1363 L

Notice to User: The Map Number shown below should be used when placing map orders. The Community Number shown above should be used on insurance applications for the subject community.

MAP NUMBER 04013C1363L

MAP REVISED OCTOBER 16, 2013

Federal Emergency Management Agency

NOTES TO USERS

This map is for use in administering the Nation Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Arizona State Plane Central zone (FIPZONE 0202). The **horizontal datum** was NAD 83 HARN, GRS1980 spheroid. Differences in datum, spheroid, projection or State Plane zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988 (NAVD 88). These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. Map users wishing to obtain flood elevations referenced to the National Geodetic Vertical Datum of 1929 (NGVD 29) may use the following Maricopa County website application: <http://www.fcd.maricopa.gov/Maps/gismaps/apps/gdacs/application/index.cfm>

This web tool allows users to obtain point-specific datum conversion values by zooming in and hovering over a VERTCON checkbox on the layers menu on the left side of the screen. The VERTCON grid referenced in this web application was also used to convert existing flood elevations from NGVD 29 to NAVD 88.

To obtain current elevation, description, and/or location information for National Geodetic Survey bench marks shown on this map, please contact the Information Services Branch of the National Geodetic Survey at (301) 713-3242, or visit its website at <http://www.ngs.noaa.gov>. To obtain information about Geodetic Densification and Cadastral Survey bench marks produced by the Maricopa County Department of Transportation, please visit the Flood Control District of Maricopa County website at: <http://www.fcd.maricopa.gov/Maps/gismaps/apps/gdacs/application/index.cfm>.

Base map information shown on this FIRM was derived from multiple sources. Aerial imagery was provided in digital format by the Maricopa County Department of Public Works, Flood Control District. The imagery is dated October 2009 to November 2009. Additional National Agricultural Imagery Program (NAIP) imagery was provided by the Arizona State Land Department (ALRS) and is dated 2007. The coordinate system used for the production of the digital FIRM is State Plane Arizona Central NAD83 HARN, International Feet.

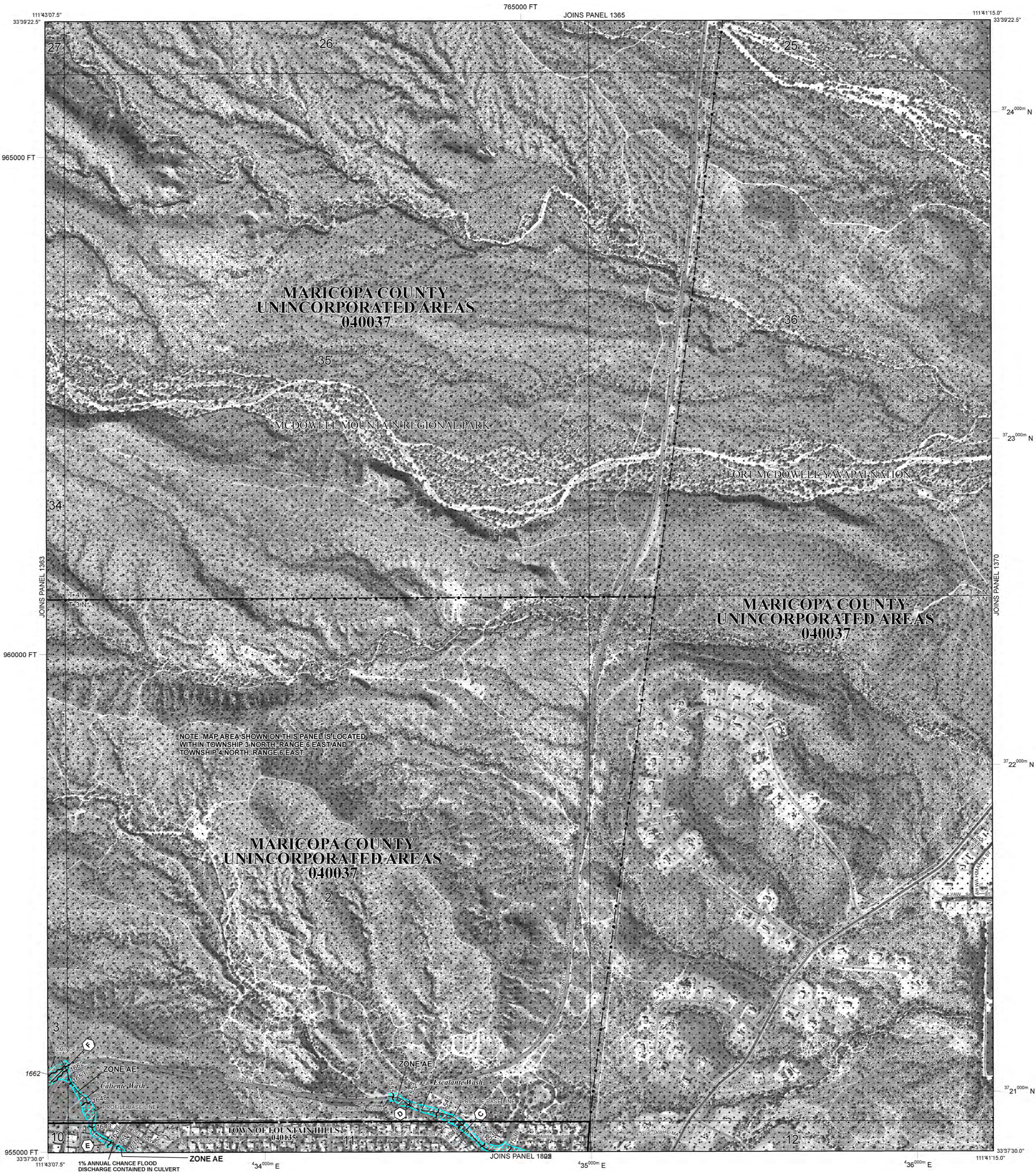
The **profile base line** depicted on this map represents the hydraulic modeling baselines that match flood profiles in the FIS report. As a result of improved topographic data, the profile base line, in some cases, may deviate significantly from the channel centerline or appear outside the SFHA.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community, as well as a listing of the panels on which each community is located.

For information on available products associated with this FIRM, visit the **FEMA Map Service Center (MSC)** website at <http://msc.fema.gov>. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, or digital versions of this map. Many of these products can be ordered or obtained directly from the MSC website.

If you have **questions about this map**, how to order products, or the National Flood Insurance Program in general, please call the **FEMA Map Information eXchange (FMIX)** at 1-877-FEMA MAP (1-877-336-2627) or visit the FEMA website at <http://www.fema.gov/>.



LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V and VE. The Base Flood Elevation is the water surface elevation of the 1% annual chance flood.

ZONE A No Base Flood Elevations determined.
ZONE AE Base Flood Elevations determined.
ZONE AH Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99 Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.
ZONE D Areas determined to be outside the 0.2% annual chance floodplain.
ZONE D Areas in which flood hazards are undetermined, but possible.

OTHER AREAS

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

1% annual chance floodplain boundary
0.2% annual chance floodplain boundary
Floodway boundary
Zone D boundary
CBRS and OPA boundary
Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
Base Flood Elevation line and value; elevation in feet*
Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

A Cross section line
23 Transect line
97°07'30", 32°22'30" Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)
42°7'00"N 1000-meter Universal Transverse Mercator grid ticks, zone 12
6000000 M 5000-foot grid ticks: Arizona State Plane coordinate system, central zone (FIPZONE 0202), Transverse Mercator
DX5510 Bench mark (see explanation in Notes to Users section of this FIRM panel)
M1.5 River Mile

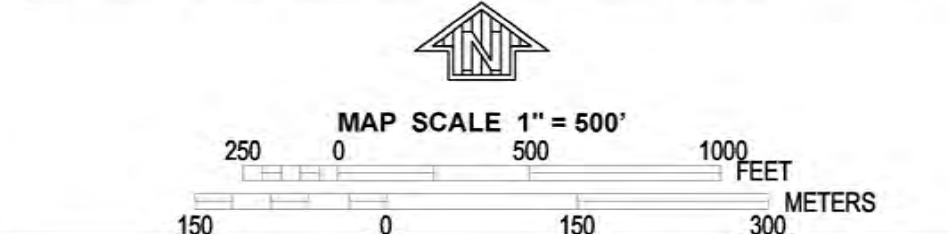
MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
April 15, 1988

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL
September 4, 1991, July 16, 2001, September 30, 2005
October 16, 2013 - to add special flood hazard areas, to change floodway, to update corporate limits, to change base flood elevations, to add floodway, to advance suffix, to incorporate previously issued letters of map revision, to add base flood elevation, and to add roads and road names

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.



NFIP

PANEL 1364L

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP
MARICOPA COUNTY,
ARIZONA
AND INCORPORATED AREAS

PANEL 1364 OF 4425
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:	COMMUNITY	NUMBER	PANEL	SUFFIX
MARICOPA COUNTY	040037	1364	L	
FOUNTAIN HILLS, TOWN OF	040135	1364	L	

Notice to User: The Map Number shown below should be used when placing map orders. The Community Number shown above should be used on insurance applications for the subject community.



MAP NUMBER
04013C1364L

MAP REVISED
OCTOBER 16, 2013

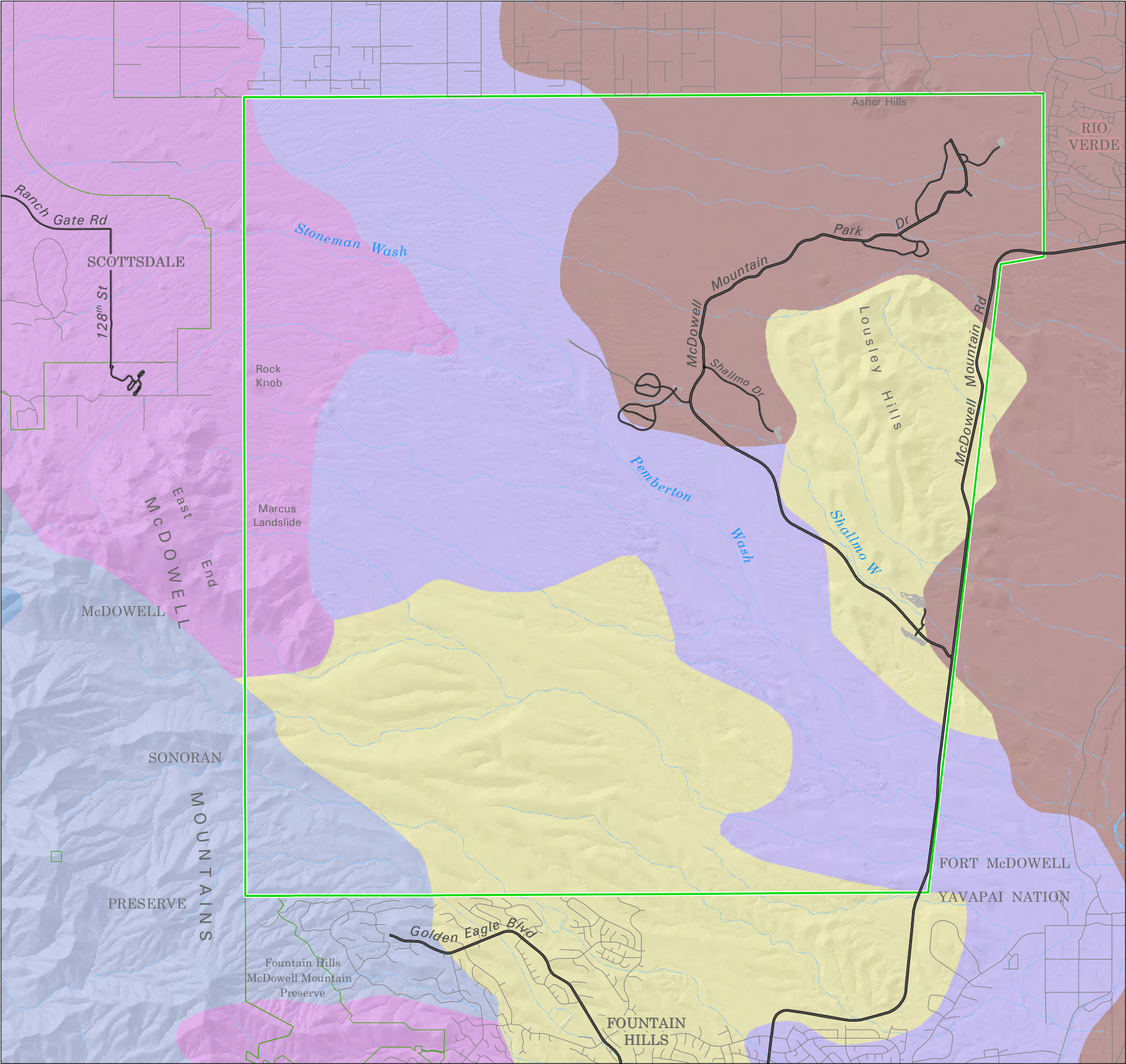
Federal Emergency Management Agency

Appendix C

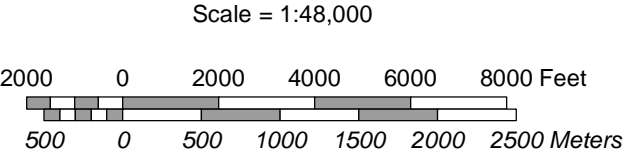
Earth Resources

McDowell Mountain Regional Park

Geology



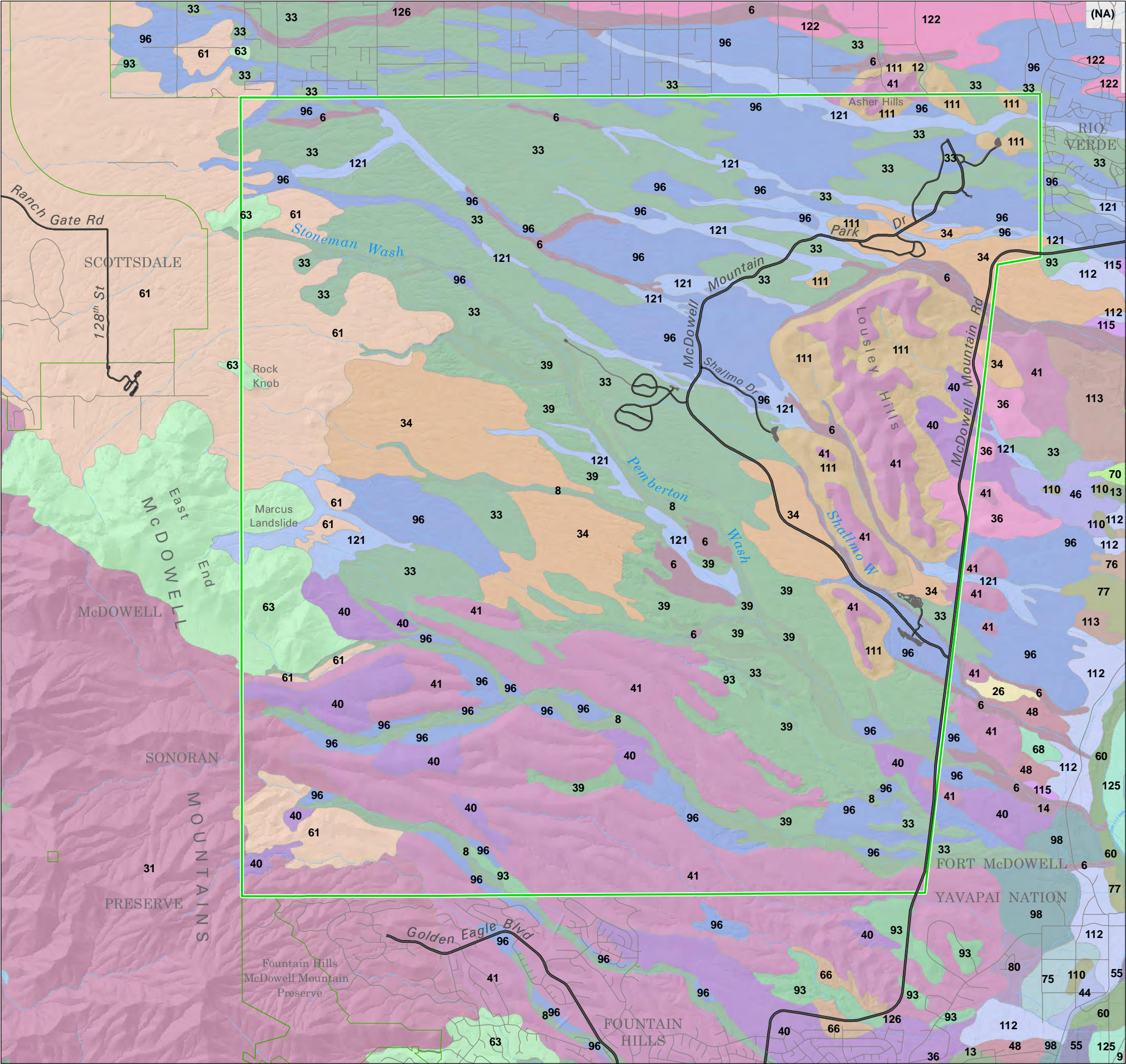
- Geology**
- Conglomerate
 - Granite
 - Gravel
 - Greenstone
 - Phyllite
 - Sand



DISCLAIMER: This map is a graphical representation designed for general reference purposes only. Viewer/User agrees to indemnify, defend and hold harmless Maricopa County, its officers, departments, employees and agents from and against any and all suits, actions, legal or administrative proceedings, claims, demands or damages of any kind or nature arising out of the use of this map, or the data contained herein, in its actual or altered form.

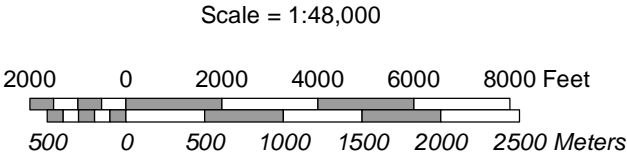
McDowell Mountain Regional Park

Soils



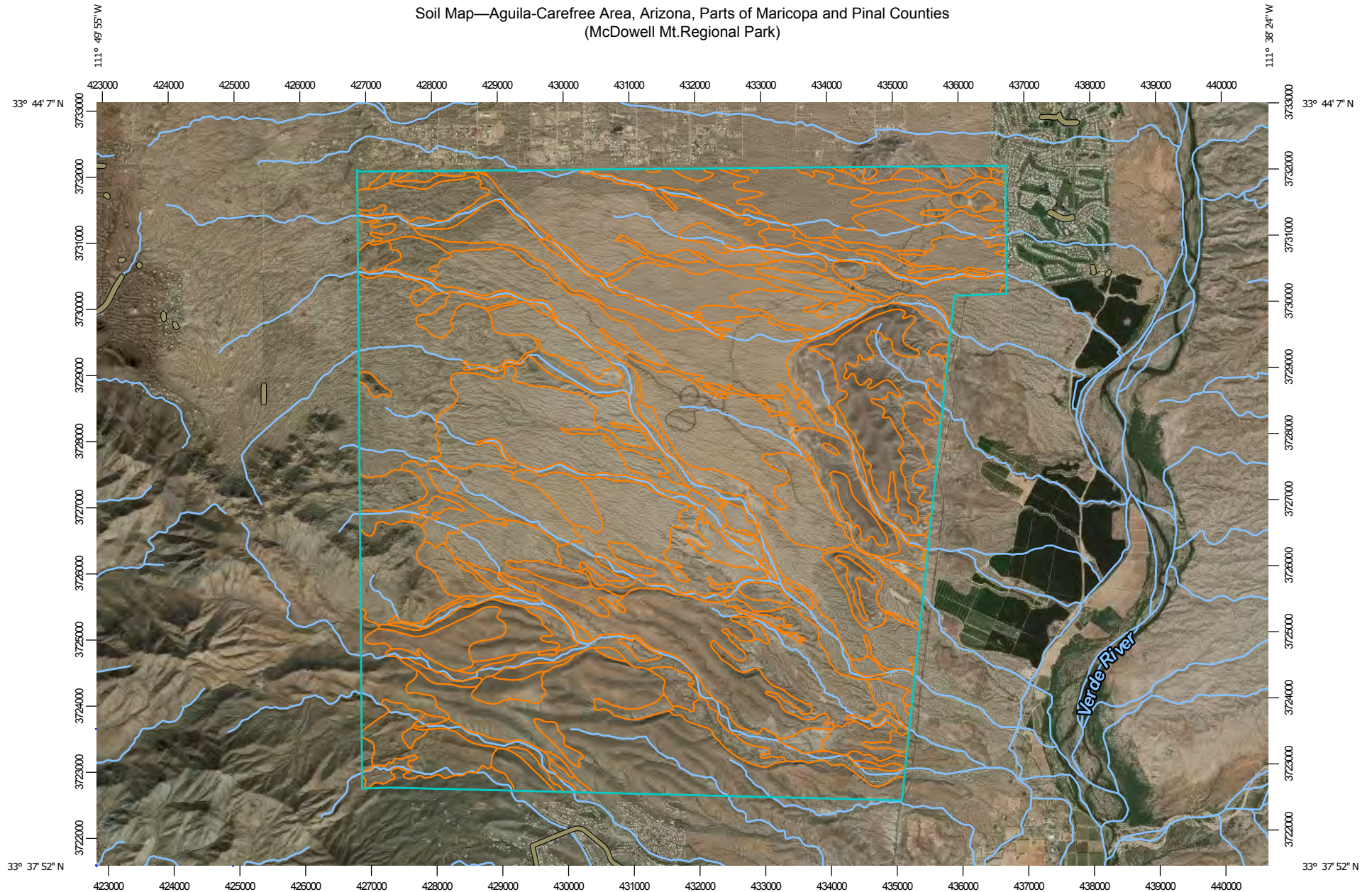
Soil Type & Description

- 6 Anthony-Arizo complex
- 8 Arizo cobbly sandy loam
- 10 Brios-Carrizo complex, 1 to 5 percent slopes
- 12 Carefree cobbly clay loam, 1 to 8 percent slopes
- 13 Carefree-Beardsley complex
- 14 Carrizo very gravelly sand
- 26 Continental cobbly clay loam, 1 to 8 percent slopes
- 31 Dixaleta-Rock outcrop complex, 25 to 65 percent slopes
- 33 Eba very gravelly loam, 1 to 8 percent slopes
- 34 Eba very gravelly loam, 8 to 20 percent slopes
- 36 Eba-Continental complex, 1 to 8 percent slopes
- 39 Eba-Nickel-Cave association, 3 to 25 percent slopes
- 40 Eba-Pinaleno complex, 3 to 20 percent slopes
- 41 Eba-Pinaleno complex, 20 to 40 percent slopes
- 44 Ebon very gravelly loam, 1 to 8 percent slopes
- 46 Ebon-Contine complex, 1 to 8 percent
- 48 Ebon-Pinamt complex, 3 to 20 percent slopes
- 52 Gachado-Lomitas-Rock outcrop complex, 7 to 55 percent slopes
- 55 Gilman loams
- 60 Glenbar loams
- 61 Gran-Wickenburg complex, 1 to 10 percent slopes
- 63 Gran-Wickenburg-Rock outcrop complex, 1 to 7 percent slopes
- 66 Greyeagle-Suncity Variant complex, 1 to 7 percent slopes
- 68 Gunsight-Cipriano complex, 1 to 7 percent slopes
- 70 Gunsight-Rillito complex, 1 to 25 percent slopes
- 75 Mohall loam
- 76 Mohall loam, calcareous solum
- 77 Mohall clay loam
- 80 Mohall-Tremant complex, 1 to 8 percent slopes
- 93 Nickel-Cave complex, 8 to 30 percent slopes
- 96 Pinaleno-Tres Hermanos complex, 1 to 10 percent slopes
- 98 Pinamt-Tremant complex, 1 to 10 percent slopes
- 110 Suncity-Cipriano complex, 1 to 7 percent slopes
- 111 Torriorthents, 15 to 40 percent slopes
- 112 Tremant gravelly sandy loams
- 113 Tremant gravelly loams
- 115 Tremant-Antho complex, 1 to 5 percent slopes
- 121 Tres Hermanos-Anthony complex, 1 to 5 percent slopes
- 122 Vado gravelly sandy loam, 1 to 5 percent slopes
- 125 Vint loamy fine sand
- 126 Lakes, ponds, reservoirs - perennial

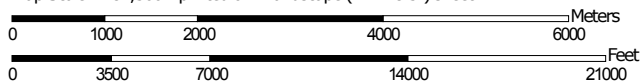


DISCLAIMER: This map is a graphical representation designed for general reference purposes only. Viewer/User agrees to indemnify, defend and hold harmless Maricopa County, its officers, departments, employees and agents from and against any and all suits, actions, legal or administrative proceedings, claims, demands or damages of any kind or nature arising out of the use of this map, or the data contained herein, in its actual or altered form.

Soil Map—Aguila-Carefree Area, Arizona, Parts of Maricopa and Pinal Counties
(McDowell Mt. Regional Park)



Map Scale: 1:81,500 if printed on A landscape (11" x 8.5") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 12N WGS84



Natural Resources
Conservation Service

Web Soil Survey
National Cooperative Soil Survey


12/21/2017
Page 1 of 3



Soil Map—Aguila-Carefree Area, Arizona, Parts of Maricopa and Pinal Counties
(McDowell Mt.Regional Park)

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features



Blowout



Borrow Pit



Clay Spot



Closed Depression



Gravel Pit



Gravelly Spot



Landfill



Lava Flow



Marsh or swamp



Mine or Quarry



Miscellaneous Water



Perennial Water



Rock Outcrop



Saline Spot



Sandy Spot



Severely Eroded Spot



Sinkhole



Slide or Slip



Sodic Spot



Spoil Area



Stony Spot



Very Stony Spot



Wet Spot



Other



Special Line Features

Water Features



Streams and Canals

Transportation



Rails



Interstate Highways



US Routes



Major Roads



Local Roads

Background



Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Aguila-Carefree Area, Arizona, Parts of Maricopa and Pinal Counties

Survey Area Data: Version 11, Sep 11, 2017

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Apr 5, 2015—Mar 10, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
6	Anthony-Arizo complex	420.9	2.0%
8	Arizo cobbly sandy loam	1,193.2	5.7%
31	Dixaleta-Rock outcrop complex, 25 to 65 percent slopes	357.9	1.7%
33	Eba very gravelly loam, 1 to 8 percent slopes	4,119.0	19.8%
34	Eba very gravelly loam, 8 to 20 percent slopes	1,720.4	8.3%
36	Eba-Continental complex, 1 to 8 percent slopes	33.6	0.2%
39	Eba-Nickel-Cave association, 3 to 25 percent slopes	1,751.8	8.4%
40	Eba-Pinaleno complex, 3 to 20 percent slopes	758.2	3.6%
41	Eba-Pinaleno complex, 20 to 40 percent slopes	3,293.6	15.8%
61	Gran-Wickenburg complex, 1 to 10 percent slopes	1,627.5	7.8%
63	Gran-Wickenburg-Rock outcrop complex, 10 to 65 percent slopes	590.6	2.8%
93	Nickel-Cave complex, 8 to 30 percent slopes	43.0	0.2%
96	Pinaleno-Tres Hermanos complex, 1 to 10 percent slopes	2,706.0	13.0%
111	Torriorhents, 15 to 40 percent slopes	1,143.7	5.5%
121	Tres Hermanos-Anthony complex, 1 to 5 percent slopes	1,092.1	5.2%
Totals for Area of Interest		20,851.4	100.0%

Map Unit Description

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this report, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named, soils that are similar to the named components, and some minor components that differ in use and management from the major soils.

Most of the soils similar to the major components have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Some minor components, however, have properties and behavior characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. All the soils of a series have major horizons that are similar in composition, thickness, and arrangement. Soils of a given series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Additional information about the map units described in this report is available in other soil reports, which give properties of the soils and the limitations, capabilities, and potentials for many uses. Also, the narratives that accompany the soil reports define some of the properties included in the map unit descriptions.

Aguila-Carefree Area, Arizona, Parts of Maricopa and Pinal Counties

121—Tres Hermanos-Anthony complex, 1 to 5 percent slopes

Map Unit Setting

National map unit symbol: 1s45

Elevation: 1,800 to 3,000 feet

Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 66 to 70 degrees F
Frost-free period: 220 to 270 days
Farmland classification: Not prime farmland

Map Unit Composition

Tres hermanos and similar soils: 50 percent
Anthony and similar soils: 35 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tres Hermanos

Setting

Landform: Fan terraces, stream terraces
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed alluvium

Typical profile

A - 0 to 2 inches: gravelly loam
Btk - 2 to 22 inches: gravelly clay loam
2Bk - 22 to 60 inches: very gravelly loam

Properties and qualities

Slope: 1 to 5 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat):
Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 30 percent
Salinity, maximum in profile: Very slightly saline to slightly saline
(2.0 to 4.0 mmhos/cm)
Available water storage in profile: Low (about 5.7 inches)

Interpretive groups

Land capability classification (irrigated): 3s
Land capability classification (nonirrigated): 7c
Hydrologic Soil Group: C
Ecological site: Loamy Upland 10-13" p.z. (R040XA114AZ)
Hydric soil rating: No

Description of Anthony

Setting

Landform: Flood plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Dip
Down-slope shape: Linear

Across-slope shape: Linear
Parent material: Mixed alluvium

Typical profile

A - 0 to 2 inches: sandy loam
C - 2 to 40 inches: gravelly sandy loam
2Btkb - 40 to 60 inches: loam

Properties and qualities

Slope: 1 to 5 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat):
Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 15 percent
Salinity, maximum in profile: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Available water storage in profile: Moderate (about 6.3 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: A
Ecological site: Sandy Wash 10-13" p.z. (R040XA115AZ)
Hydric soil rating: No

Data Source Information

Soil Survey Area: Aguila-Carefree Area, Arizona, Parts of Maricopa and Pinal Counties

Survey Area Data: Version 11, Sep 11, 2017

Aguila-Carefree Area, Arizona, Parts of Maricopa and Pinal Counties

6—Anthony-Arizo complex

Map Unit Setting

National map unit symbol: 1s81

Elevation: 1,800 to 3,000 feet

Mean annual precipitation: 10 to 12 inches

Mean annual air temperature: 66 to 88 degrees F

Frost-free period: 220 to 270 days

Farmland classification: Not prime farmland

Map Unit Composition

Anthony and similar soils: 40 percent

Arizo and similar soils: 40 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Anthony

Setting

Landform: Flood plains

Landform position (two-dimensional): Summit

Landform position (three-dimensional): Dip

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Mixed alluvium

Typical profile

A - 0 to 2 inches: sandy loam

C - 2 to 40 inches: gravelly sandy loam

2Btkb - 40 to 60 inches: loam

Properties and qualities

Slope: 0 to 3 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat):

Moderately high to high (0.57 to 1.98 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum in profile: 15 percent

Salinity, maximum in profile: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)

Available water storage in profile: Low (about 5.9 inches)

Interpretive groups

Land capability classification (irrigated): 2s

Land capability classification (nonirrigated): 7s

Hydrologic Soil Group: A

Ecological site: Sandy Loam Upland 10-13" p.z. Deep
(R040XA117AZ)
Hydric soil rating: No

Description of Arizo

Setting

Landform: Drainageways
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Dip
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed alluvium

Typical profile

A - 0 to 1 inches: gravelly sandy loam
C1 - 1 to 8 inches: very gravelly sandy loam
C2 - 8 to 60 inches: very gravelly loamy sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Excessively drained
Capacity of the most limiting layer to transmit water (Ksat): High
(1.98 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Occasional
Frequency of ponding: None
Calcium carbonate, maximum in profile: 15 percent
Salinity, maximum in profile: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Available water storage in profile: Low (about 5.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: A
Ecological site: Sandy Wash 10-13" p.z. (R040XA115AZ)
Hydric soil rating: No

Data Source Information

Soil Survey Area: Aguila-Carefree Area, Arizona, Parts of Maricopa and Pinal Counties
Survey Area Data: Version 11, Sep 11, 2017

Aguila-Carefree Area, Arizona, Parts of Maricopa and Pinal Counties

8—Arizo cobbly sandy loam

Map Unit Setting

National map unit symbol: 1s92

Elevation: 1,800 to 3,000 feet

Mean annual precipitation: 10 to 12 inches

Mean annual air temperature: 66 to 70 degrees F

Frost-free period: 220 to 270 days

Farmland classification: Not prime farmland

Map Unit Composition

Arizo and similar soils: 100 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Arizo

Setting

Landform: Flood plains

Landform position (two-dimensional): Summit

Landform position (three-dimensional): Dip

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Mixed alluvium

Typical profile

A - 0 to 1 inches: cobbly sandy loam

C1 - 1 to 8 inches: very cobbly sandy loam

C2 - 8 to 60 inches: very cobbly loamy sand

Properties and qualities

Slope: 0 to 3 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Excessively drained

Capacity of the most limiting layer to transmit water (Ksat):

Moderately high to high (0.57 to 1.98 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: Occasional

Frequency of ponding: None

Calcium carbonate, maximum in profile: 15 percent

Salinity, maximum in profile: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)

Available water storage in profile: High (about 9.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7w

Hydrologic Soil Group: B

Ecological site: Populus fremontii-Salix gooddingii/Paspalum
distichum (F040XC331AZ)

Hydric soil rating: No

Data Source Information

Soil Survey Area: Aguila-Carefree Area, Arizona, Parts of Maricopa and Pinal
Counties

Survey Area Data: Version 11, Sep 11, 2017

Aguila-Carefree Area, Arizona, Parts of Maricopa and Pinal Counties

31—Dixaleta-Rock outcrop complex, 25 to 65 percent slopes

Map Unit Setting

National map unit symbol: 1s6b

Elevation: 1,800 to 3,000 feet

Mean annual precipitation: 10 to 12 inches

Mean annual air temperature: 66 to 70 degrees F

Frost-free period: 220 to 270 days

Farmland classification: Not prime farmland

Map Unit Composition

Dixaleta and similar soils: 55 percent

Rock outcrop: 35 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Dixaleta

Setting

Landform: Hills, mountains

Landform position (two-dimensional): Summit

Landform position (three-dimensional): Mountainflank, side slope

Down-slope shape: Convex

Across-slope shape: Convex

Parent material: Alluvium derived from schist and/or colluvium derived from schist

Typical profile

A - 0 to 1 inches: extremely channery sandy loam

B - 1 to 8 inches: extremely channery sandy loam

2Crk - 8 to 27 inches: bedrock

2R - 27 to 60 inches: bedrock

Properties and qualities

Slope: 25 to 65 percent

Depth to restrictive feature: 3 to 11 inches to paralithic bedrock; 20 to 60 inches to lithic bedrock

Natural drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat): Very low to low (0.00 to 0.01 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum in profile: 10 percent

Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water storage in profile: Very low (about 0.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7e

Hydrologic Soil Group: D

Ecological site: Schist Hills 10-13" p.z. (R040XA119AZ)

Hydric soil rating: No

Data Source Information

Soil Survey Area: Aguila-Carefree Area, Arizona, Parts of Maricopa and Pinal Counties

Survey Area Data: Version 11, Sep 11, 2017

Aguila-Carefree Area, Arizona, Parts of Maricopa and Pinal Counties

33—Eba very gravelly loam, 1 to 8 percent slopes

Map Unit Setting

National map unit symbol: 1s6g

Elevation: 2,000 to 3,000 feet

Mean annual precipitation: 10 to 12 inches

Mean annual air temperature: 66 to 70 degrees F

Frost-free period: 220 to 270 days

Farmland classification: Not prime farmland

Map Unit Composition

Eba and similar soils: 100 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Eba

Setting

Landform: Fan terraces

Landform position (two-dimensional): Summit

Landform position (three-dimensional): Tread

Down-slope shape: Convex

Across-slope shape: Convex

Parent material: Mixed alluvium

Typical profile

A - 0 to 3 inches: very gravelly loam

Btk - 3 to 36 inches: very gravelly clay

2Bk - 36 to 60 inches: extremely gravelly sandy loam

Properties and qualities

Slope: 1 to 8 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat):

Moderately low to moderately high (0.06 to 0.20 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum in profile: 30 percent

Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water storage in profile: Low (about 4.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7s

Hydrologic Soil Group: C

Ecological site: Clay Loam Upland 10-13" p.z. (R040XA120AZ)

Hydric soil rating: No

Data Source Information

Soil Survey Area: Aguila-Carefree Area, Arizona, Parts of Maricopa and Pinal
Counties

Survey Area Data: Version 11, Sep 11, 2017

Aguila-Carefree Area, Arizona, Parts of Maricopa and Pinal Counties

34—Eba very gravelly loam, 8 to 20 percent slopes

Map Unit Setting

National map unit symbol: 1s6j
Elevation: 2,000 to 3,000 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 66 to 70 degrees F
Frost-free period: 220 to 270 days
Farmland classification: Not prime farmland

Map Unit Composition

Eba and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Eba

Setting

Landform: Fan terraces
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Mixed alluvium

Typical profile

A - 0 to 3 inches: very gravelly loam
Btk - 3 to 36 inches: very gravelly clay
2Bk - 36 to 60 inches: extremely gravelly sandy loam

Properties and qualities

Slope: 8 to 20 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat):
Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 30 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Low (about 4.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: C
Ecological site: Clay Loam Upland 10-13" p.z. (R040XA120AZ)

Hydric soil rating: No

Data Source Information

Soil Survey Area: Aguila-Carefree Area, Arizona, Parts of Maricopa and Pinal
Counties

Survey Area Data: Version 11, Sep 11, 2017

Aguila-Carefree Area, Arizona, Parts of Maricopa and Pinal Counties

36—Eba-Continental complex, 1 to 8 percent slopes

Map Unit Setting

National map unit symbol: 1s6p

Elevation: 1,800 to 2,500 feet

Mean annual precipitation: 8 to 10 inches

Mean annual air temperature: 66 to 70 degrees F

Frost-free period: 180 to 270 days

Farmland classification: Not prime farmland

Map Unit Composition

Eba and similar soils: 45 percent

Continental and similar soils: 35 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Eba

Setting

Landform: Fan terraces

Landform position (two-dimensional): Summit

Landform position (three-dimensional): Tread

Down-slope shape: Convex

Across-slope shape: Convex

Parent material: Mixed alluvium

Typical profile

A - 0 to 3 inches: very gravelly loam

Btk - 3 to 36 inches: very gravelly clay

2Bk - 36 to 60 inches: extremely gravelly sandy loam

Properties and qualities

Slope: 1 to 8 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat):

Moderately low to moderately high (0.06 to 0.20 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum in profile: 30 percent

Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water storage in profile: Low (about 4.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7s

Hydrologic Soil Group: C

Ecological site: Loamy Upland 7-10" p.z. (R040XB213AZ)
Hydric soil rating: No

Description of Continental

Setting

Landform: Fan terraces
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Mixed alluvium

Typical profile

A - 0 to 1 inches: clay loam
Btk - 1 to 60 inches: clay

Properties and qualities

Slope: 1 to 8 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat):
Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 25 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0
to 2.0 mmhos/cm)
Available water storage in profile: Moderate (about 9.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: C
Ecological site: Clayey Upland 7-10" p.z. (R040XB204AZ)
Hydric soil rating: No

Data Source Information

Soil Survey Area: Aguila-Carefree Area, Arizona, Parts of Maricopa and Pinal
Counties
Survey Area Data: Version 11, Sep 11, 2017

Aguila-Carefree Area, Arizona, Parts of Maricopa and Pinal Counties

39—Eba-Nickel-Cave association, 3 to 25 percent slopes

Map Unit Setting

National map unit symbol: 1s6w

Elevation: 1,800 to 3,000 feet

Mean annual precipitation: 8 to 10 inches

Mean annual air temperature: 66 to 70 degrees F

Frost-free period: 220 to 270 days

Farmland classification: Not prime farmland

Map Unit Composition

Eba and similar soils: 30 percent

Nickel and similar soils: 25 percent

Cave and similar soils: 25 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Eba

Setting

Landform: Fan terraces

Landform position (two-dimensional): Summit

Landform position (three-dimensional): Tread

Down-slope shape: Convex

Across-slope shape: Convex

Parent material: Mixed alluvium

Typical profile

A - 0 to 3 inches: very gravelly loam

Btk - 3 to 36 inches: very gravelly clay

2Bk - 36 to 60 inches: extremely gravelly sandy loam

Properties and qualities

Slope: 3 to 8 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat):

Moderately low to moderately high (0.06 to 0.20 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum in profile: 30 percent

Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water storage in profile: Low (about 4.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7s

Hydrologic Soil Group: C
Ecological site: Clay Loam Upland 7-10" p.z. (R040XB205AZ)
Hydric soil rating: No

Description of Nickel

Setting

Landform: Fan terraces
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Mixed alluvium

Typical profile

A - 0 to 1 inches: gravelly sandy loam
Bk1 - 1 to 10 inches: gravelly loam
Bk2 - 10 to 50 inches: very gravelly sandy loam
Bk3 - 50 to 60 inches: very gravelly loamy sand

Properties and qualities

Slope: 3 to 25 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat):
Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 35 percent
Gypsum, maximum in profile: 5 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0
to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 13.0
Available water storage in profile: Low (about 4.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: B
Ecological site: Limy Slopes 7-10" p.z. (R040XB209AZ)
Hydric soil rating: No

Description of Cave

Setting

Landform: Fan terraces
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Mixed alluvium

Typical profile

A - 0 to 1 inches: gravelly loam

Bk - 1 to 14 inches: loam

Bkm - 14 to 20 inches: cemented material

Ck - 20 to 60 inches: very gravelly sandy loam

Properties and qualities

Slope: 3 to 25 percent

Depth to restrictive feature: 8 to 19 inches to petrocalcic

Natural drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum in profile: 30 percent

Salinity, maximum in profile: Very slightly saline to slightly saline (2.0 to 4.0 mmhos/cm)

Available water storage in profile: Very low (about 2.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7s

Hydrologic Soil Group: D

Ecological site: Limy Upland 7-10" p.z. (R040XB210AZ)

Hydric soil rating: No

Data Source Information

Soil Survey Area: Aguila-Carefree Area, Arizona, Parts of Maricopa and Pinal Counties

Survey Area Data: Version 11, Sep 11, 2017

Aguila-Carefree Area, Arizona, Parts of Maricopa and Pinal Counties

40—Eba-Pinaleno complex, 3 to 20 percent slopes

Map Unit Setting

National map unit symbol: 1s6z

Elevation: 1,800 to 3,000 feet

Mean annual precipitation: 10 to 12 inches

Mean annual air temperature: 66 to 70 degrees F

Frost-free period: 220 to 270 days

Farmland classification: Not prime farmland

Map Unit Composition

Eba and similar soils: 45 percent

Pinaleno and similar soils: 35 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Eba

Setting

Landform: Fan terraces

Landform position (two-dimensional): Summit

Landform position (three-dimensional): Tread

Down-slope shape: Convex

Across-slope shape: Convex

Parent material: Mixed alluvium

Typical profile

A - 0 to 3 inches: very gravelly loam

Btk - 3 to 36 inches: very gravelly clay

2Bk - 36 to 60 inches: extremely gravelly sandy loam

Properties and qualities

Slope: 3 to 20 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat):

Moderately low to moderately high (0.06 to 0.20 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum in profile: 30 percent

Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water storage in profile: Low (about 4.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7s

Hydrologic Soil Group: C

Ecological site: Clay Loam Upland 10-13" p.z. (R040XA120AZ)
Hydric soil rating: No

Description of Pinaleno

Setting

Landform: Fan terraces
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Mixed alluvium

Typical profile

A - 0 to 1 inches: very gravelly clay loam
Bt - 1 to 12 inches: very gravelly clay loam
Btk - 12 to 60 inches: loam

Properties and qualities

Slope: 3 to 20 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat):
Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 35 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0
to 2.0 mmhos/cm)
Available water storage in profile: Moderate (about 8.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: C
Ecological site: Clay Loam Upland 10-13" p.z. (R040XA120AZ)
Hydric soil rating: No

Data Source Information

Soil Survey Area: Aguila-Carefree Area, Arizona, Parts of Maricopa and Pinal
Counties

Survey Area Data: Version 11, Sep 11, 2017

Aguila-Carefree Area, Arizona, Parts of Maricopa and Pinal Counties

41—Eba-Pinaleno complex, 20 to 40 percent slopes

Map Unit Setting

National map unit symbol: 1s71

Elevation: 1,800 to 3,000 feet

Mean annual precipitation: 10 to 12 inches

Mean annual air temperature: 66 to 70 degrees F

Frost-free period: 220 to 270 days

Farmland classification: Not prime farmland

Map Unit Composition

Eba and similar soils: 45 percent

Pinaleno and similar soils: 35 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Eba

Setting

Landform: Fan terraces

Landform position (two-dimensional): Summit

Landform position (three-dimensional): Tread

Down-slope shape: Convex

Across-slope shape: Convex

Parent material: Mixed alluvium

Typical profile

A - 0 to 3 inches: very gravelly loam

Btk - 3 to 36 inches: very gravelly clay

2Bk - 36 to 60 inches: extremely gravelly sandy loam

Properties and qualities

Slope: 20 to 40 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat):

Moderately low to moderately high (0.06 to 0.20 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum in profile: 30 percent

Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water storage in profile: Low (about 4.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7s

Hydrologic Soil Group: C

Ecological site: Loamy Slopes 10-13" p.z. (R040XA113AZ)
Hydric soil rating: No

Description of Pinaleno

Setting

Landform: Fan terraces
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Mixed alluvium

Typical profile

A - 0 to 1 inches: very gravelly clay loam
Bt - 1 to 12 inches: very gravelly clay loam
Btk - 12 to 60 inches: loam

Properties and qualities

Slope: 20 to 40 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat):
Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 35 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0
to 2.0 mmhos/cm)
Available water storage in profile: Moderate (about 8.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: C
Ecological site: Loamy Slopes 10-13" p.z. (R040XA113AZ)
Hydric soil rating: No

Data Source Information

Soil Survey Area: Aguila-Carefree Area, Arizona, Parts of Maricopa and Pinal
Counties

Survey Area Data: Version 11, Sep 11, 2017

Aguila-Carefree Area, Arizona, Parts of Maricopa and Pinal Counties

61—Gran-Wickenburg complex, 1 to 10 percent slopes

Map Unit Setting

National map unit symbol: 1s85

Elevation: 1,800 to 4,000 feet

Mean annual precipitation: 10 to 12 inches

Mean annual air temperature: 66 to 70 degrees F

Frost-free period: 220 to 270 days

Farmland classification: Not prime farmland

Map Unit Composition

Gran and similar soils: 40 percent

Wickenburg and similar soils: 35 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Gran

Setting

Landform: Pediments, hillslopes

Landform position (two-dimensional): Summit

Landform position (three-dimensional): Side slope

Down-slope shape: Convex

Across-slope shape: Convex

Parent material: Alluvium derived from granite and gneiss and/or colluvium derived from granite and gneiss

Typical profile

A - 0 to 1 inches: very gravelly sandy loam

Bt - 1 to 12 inches: extremely gravelly sandy clay

Cr - 12 to 36 inches: bedrock

R - 36 to 60 inches: bedrock

Properties and qualities

Slope: 1 to 10 percent

Depth to restrictive feature: 3 to 20 inches to paralithic bedrock; 20 to 40 inches to lithic bedrock

Natural drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat): Very low to low (0.00 to 0.01 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water storage in profile: Very low (about 1.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7s

Hydrologic Soil Group: D

Ecological site: Granitic Upland 10-13" p.z. (R040XA121AZ)
Hydric soil rating: No

Description of Wickenburg

Setting

Landform: Pediments, hillslopes
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Alluvium derived from granite and gneiss and/or
colluvium derived from granite and gneiss

Typical profile

A - 0 to 1 inches: gravelly sandy loam
Bw - 1 to 12 inches: very gravelly sandy loam
Cr - 12 to 60 inches: bedrock

Properties and qualities

Slope: 1 to 10 percent
Depth to restrictive feature: 8 to 20 inches to paralithic bedrock
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very
low to low (0.00 to 0.01 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 5 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0
to 2.0 mmhos/cm)
Available water storage in profile: Very low (about 1.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Ecological site: Granitic Upland 10-13" p.z. (R040XA121AZ)
Hydric soil rating: No

Data Source Information

Soil Survey Area: Aguila-Carefree Area, Arizona, Parts of Maricopa and Pinal
Counties
Survey Area Data: Version 11, Sep 11, 2017

Aguila-Carefree Area, Arizona, Parts of Maricopa and Pinal Counties

63—Gran-Wickenburg-Rock outcrop complex, 10 to 65 percent slopes

Map Unit Setting

National map unit symbol: 1s88

Elevation: 1,800 to 4,000 feet

Mean annual precipitation: 10 to 12 inches

Mean annual air temperature: 66 to 70 degrees F

Frost-free period: 220 to 270 days

Farmland classification: Not prime farmland

Map Unit Composition

Gran and similar soils: 30 percent

Wickenburg and similar soils: 25 percent

Rock outcrop: 25 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Gran

Setting

Landform: Pediments, mountain slopes, hillslopes

Landform position (two-dimensional): Summit

Landform position (three-dimensional): Mountainflank, side slope

Down-slope shape: Convex

Across-slope shape: Convex

Parent material: Alluvium derived from granite and gneiss and/or colluvium derived from granite and gneiss

Typical profile

A - 0 to 1 inches: very gravelly sandy loam

Bt - 1 to 12 inches: extremely gravelly sandy clay

Cr - 12 to 36 inches: bedrock

R - 36 to 60 inches: bedrock

Properties and qualities

Slope: 10 to 65 percent

Depth to restrictive feature: 3 to 20 inches to paralithic bedrock; 20 to 40 inches to lithic bedrock

Natural drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat): Very low to low (0.00 to 0.01 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water storage in profile: Very low (about 1.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D
Ecological site: Shallow Hills 10-13" p.z. (R040XA105AZ)
Hydric soil rating: No

Description of Wickenburg

Setting

Landform: Pediments, mountain slopes, hillslopes
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Mountainflank, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Alluvium derived from granite and gneiss and/or
colluvium derived from granite and gneiss

Typical profile

A - 0 to 1 inches: gravelly sandy loam
Bw - 1 to 12 inches: very gravelly sandy loam
Cr - 12 to 60 inches: bedrock

Properties and qualities

Slope: 10 to 65 percent
Depth to restrictive feature: 3 to 20 inches to paralithic bedrock
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very
low to low (0.00 to 0.01 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 5 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0
to 2.0 mmhos/cm)
Available water storage in profile: Very low (about 1.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D
Ecological site: Shallow Hills 10-13" p.z. (R040XA105AZ)
Hydric soil rating: No

Data Source Information

Soil Survey Area: Aguila-Carefree Area, Arizona, Parts of Maricopa and Pinal
Counties
Survey Area Data: Version 11, Sep 11, 2017

Aguila-Carefree Area, Arizona, Parts of Maricopa and Pinal Counties

93—Nickel-Cave complex, 8 to 30 percent slopes

Map Unit Setting

National map unit symbol: 1sbb

Elevation: 1,800 to 3,000 feet

Mean annual precipitation: 10 to 12 inches

Mean annual air temperature: 66 to 70 degrees F

Frost-free period: 220 to 270 days

Farmland classification: Not prime farmland

Map Unit Composition

Nickel and similar soils: 50 percent

Cave and similar soils: 35 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Nickel

Setting

Landform: Fan terraces

Landform position (two-dimensional): Summit

Landform position (three-dimensional): Tread

Down-slope shape: Convex

Across-slope shape: Convex

Parent material: Mixed alluvium

Typical profile

A - 0 to 1 inches: gravelly sandy loam

Bk1 - 1 to 10 inches: gravelly loam

Bk2 - 10 to 60 inches: very gravelly sandy loam

Properties and qualities

Slope: 8 to 30 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat):

Moderately high to high (0.57 to 1.98 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum in profile: 35 percent

Gypsum, maximum in profile: 5 percent

Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Sodium adsorption ratio, maximum in profile: 13.0

Available water storage in profile: Low (about 4.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: B
Ecological site: Limy Slopes 10-13" p.z. (R040XA110AZ)
Hydric soil rating: No

Description of Cave

Setting

Landform: Fan terraces
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Mixed alluvium

Typical profile

A - 0 to 1 inches: gravelly loam
Bk - 1 to 14 inches: loam
Bkm - 14 to 20 inches: cemented material
Ck - 20 to 60 inches: very gravelly sandy loam

Properties and qualities

Slope: 8 to 30 percent
Depth to restrictive feature: 8 to 19 inches to petrocalcic
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 30 percent
Salinity, maximum in profile: Very slightly saline to slightly saline (2.0 to 4.0 mmhos/cm)
Available water storage in profile: Very low (about 2.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Ecological site: Limy Upland 10-13" p.z. (R040XA111AZ)
Hydric soil rating: No

Data Source Information

Soil Survey Area: Aguila-Carefree Area, Arizona, Parts of Maricopa and Pinal Counties
Survey Area Data: Version 11, Sep 11, 2017

Aguila-Carefree Area, Arizona, Parts of Maricopa and Pinal Counties

96—Pinaleno-Tres Hermanos complex, 1 to 10 percent slopes

Map Unit Setting

National map unit symbol: 1sbn

Elevation: 2,000 to 2,500 feet

Mean annual precipitation: 10 to 12 inches

Mean annual air temperature: 66 to 70 degrees F

Frost-free period: 220 to 270 days

Farmland classification: Not prime farmland

Map Unit Composition

Pinaleno and similar soils: 45 percent

Tres hermanos and similar soils: 40 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pinaleno

Setting

Landform: Fan terraces

Landform position (two-dimensional): Summit

Landform position (three-dimensional): Tread

Down-slope shape: Convex

Across-slope shape: Convex

Parent material: Mixed alluvium

Typical profile

A - 0 to 1 inches: very gravelly clay loam

Bt - 1 to 12 inches: very gravelly clay loam

Btk - 12 to 60 inches: loam

Properties and qualities

Slope: 1 to 10 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat):

Moderately high (0.20 to 0.57 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum in profile: 35 percent

Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water storage in profile: Moderate (about 8.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7s

Hydrologic Soil Group: C
Ecological site: Clay Loam Upland 10-13" p.z. (R040XA120AZ)
Hydric soil rating: No

Description of Tres Hermanos

Setting

Landform: Fan terraces
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Mixed alluvium

Typical profile

A - 0 to 2 inches: gravelly loam
Btk - 2 to 22 inches: gravelly clay loam
2Bk - 22 to 60 inches: very gravelly loam

Properties and qualities

Slope: 1 to 10 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat):
Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 30 percent
Salinity, maximum in profile: Very slightly saline to slightly saline
(2.0 to 4.0 mmhos/cm)
Available water storage in profile: Low (about 5.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7c
Hydrologic Soil Group: C
Ecological site: Loamy Upland 10-13" p.z. (R040XA114AZ)
Hydric soil rating: No

Data Source Information

Soil Survey Area: Aguila-Carefree Area, Arizona, Parts of Maricopa and Pinal Counties

Survey Area Data: Version 11, Sep 11, 2017

Aguila-Carefree Area, Arizona, Parts of Maricopa and Pinal Counties

111—Torriorthents, 15 to 40 percent slopes

Map Unit Setting

National map unit symbol: 1s3s

Elevation: 1,800 to 2,500 feet

Mean annual precipitation: 10 to 12 inches

Mean annual air temperature: 66 to 70 degrees F

Frost-free period: 220 to 270 days

Farmland classification: Not prime farmland

Map Unit Composition

Torriorthents and similar soils: 100 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Torriorthents

Setting

Landform: Stream terraces, fan terraces

Landform position (two-dimensional): Summit

Landform position (three-dimensional): Tread

Down-slope shape: Convex

Across-slope shape: Convex

Parent material: Mixed lacustrine and volcanic ash alluvium

Typical profile

A - 0 to 6 inches: gravelly loam

2C1 - 6 to 28 inches: silty clay

3C2 - 28 to 60 inches: clay

Properties and qualities

Slope: 15 to 40 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Well drained

Runoff class: High

Capacity of the most limiting layer to transmit water (Ksat):

Moderately low to moderately high (0.06 to 0.20 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum in profile: 5 percent

Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water storage in profile: High (about 10.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7s

Hydrologic Soil Group: C

Ecological site: Loamy Hills 10-13" p.z. (R040XA109AZ)
Hydric soil rating: No

Data Source Information

Soil Survey Area: Aguila-Carefree Area, Arizona, Parts of Maricopa and Pinal
Counties

Survey Area Data: Version 11, Sep 11, 2017

Aguila-Carefree Area, Arizona, Parts of Maricopa and Pinal Counties

121—Tres Hermanos-Anthony complex, 1 to 5 percent slopes

Map Unit Setting

National map unit symbol: 1s45

Elevation: 1,800 to 3,000 feet

Mean annual precipitation: 10 to 12 inches

Mean annual air temperature: 66 to 70 degrees F

Frost-free period: 220 to 270 days

Farmland classification: Not prime farmland

Map Unit Composition

Tres hermanos and similar soils: 50 percent

Anthony and similar soils: 35 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tres Hermanos

Setting

Landform: Fan terraces, stream terraces

Landform position (two-dimensional): Summit

Landform position (three-dimensional): Tread

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Mixed alluvium

Typical profile

A - 0 to 2 inches: gravelly loam

Btk - 2 to 22 inches: gravelly clay loam

2Bk - 22 to 60 inches: very gravelly loam

Properties and qualities

Slope: 1 to 5 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat):

Moderately high (0.20 to 0.57 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum in profile: 30 percent

Salinity, maximum in profile: Very slightly saline to slightly saline
(2.0 to 4.0 mmhos/cm)

Available water storage in profile: Low (about 5.7 inches)

Interpretive groups

Land capability classification (irrigated): 3s

Land capability classification (nonirrigated): 7c

Hydrologic Soil Group: C
Ecological site: Loamy Upland 10-13" p.z. (R040XA114AZ)
Hydric soil rating: No

Description of Anthony

Setting

Landform: Flood plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Dip
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed alluvium

Typical profile

A - 0 to 2 inches: sandy loam
C - 2 to 40 inches: gravelly sandy loam
2Btkb - 40 to 60 inches: loam

Properties and qualities

Slope: 1 to 5 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat):
Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 15 percent
Salinity, maximum in profile: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Available water storage in profile: Moderate (about 6.3 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: A
Ecological site: Sandy Wash 10-13" p.z. (R040XA115AZ)
Hydric soil rating: No

Data Source Information

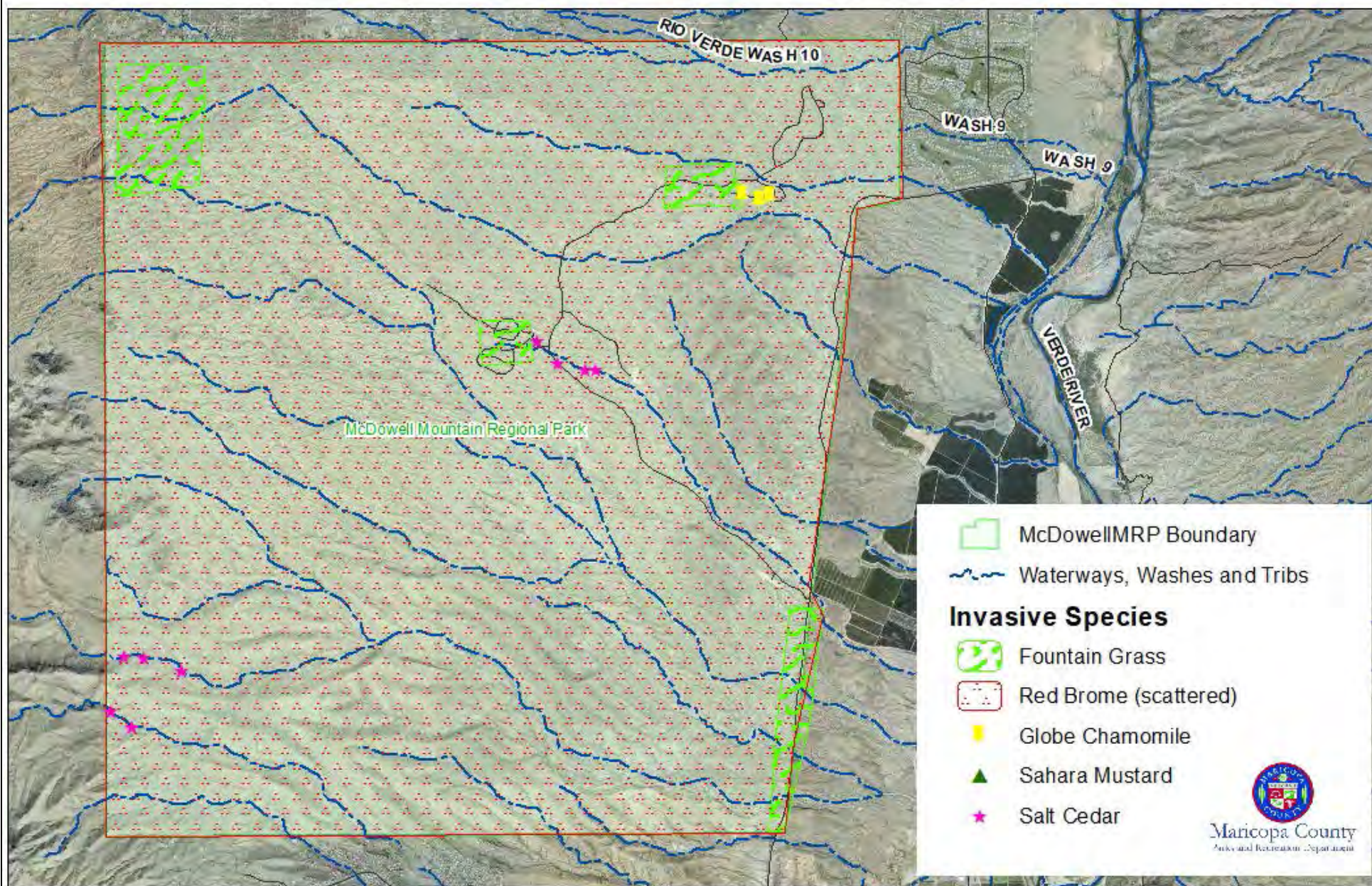
Soil Survey Area: Aguila-Carefree Area, Arizona, Parts of Maricopa and Pinal Counties

Survey Area Data: Version 11, Sep 11, 2017

Appendix D

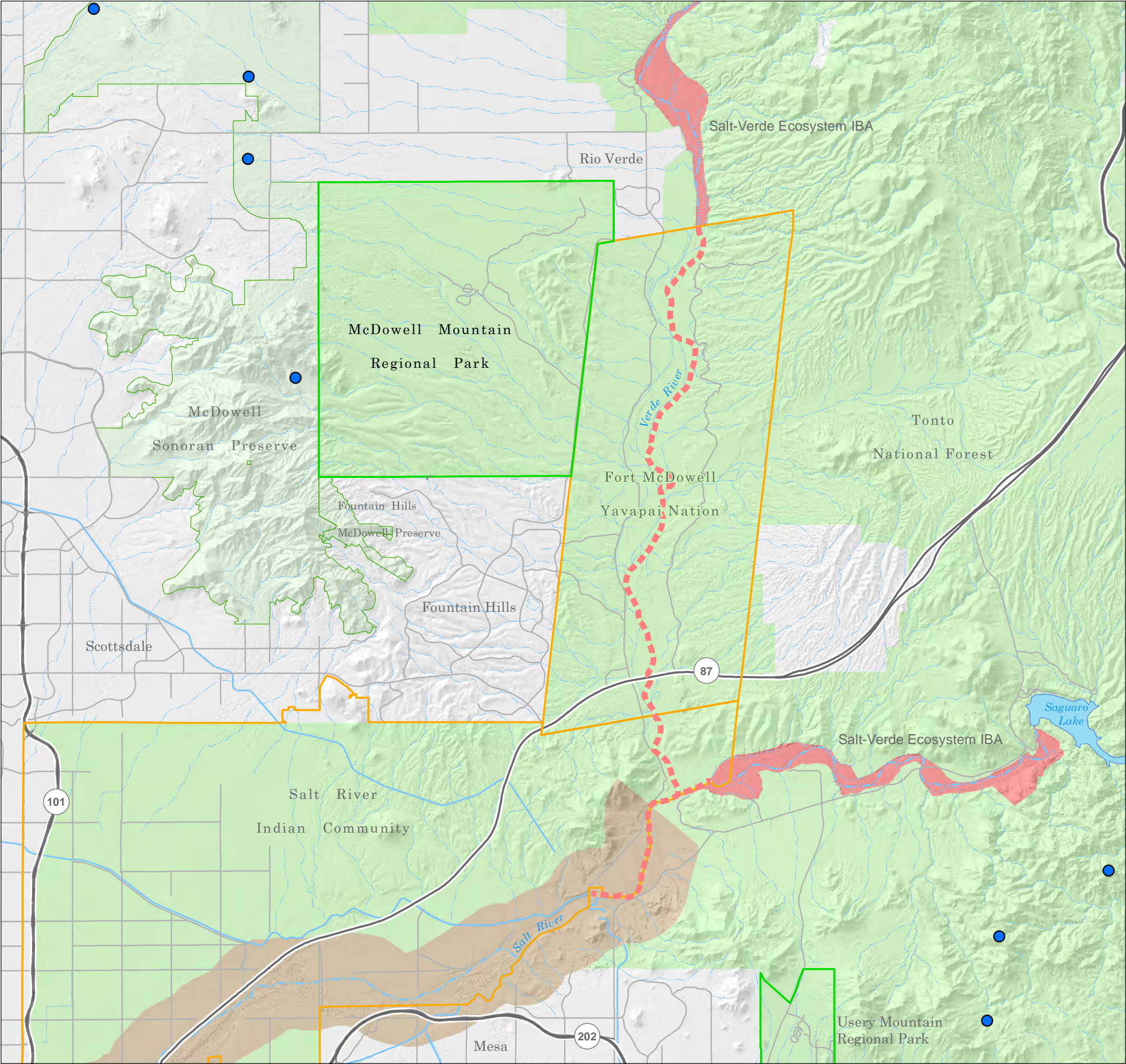
Biological Resources

McDowell Mountain Regional Park - Invasive Species Map



McDowell Mountain Regional Park

Wildlife Linkages

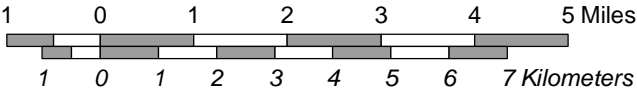


Wildlife Linkages

- Habitat Block (HabiMap Arizona)
- Potential Linkage Zones Across Habitat (HabiMap Arizona)*
- Important Bird Area (Audubon Society)
- Indian Community Boundary
- Sonoran Preserve (Scottsdale, Fountain Hills)
- Arizona Game & Fish Wildlife Waters
- Regional Park Boundary
- Possible Important Bird Area

**This layer was recreated from a screenshot of the online Arizona Game & Fish HabiMap viewer.*

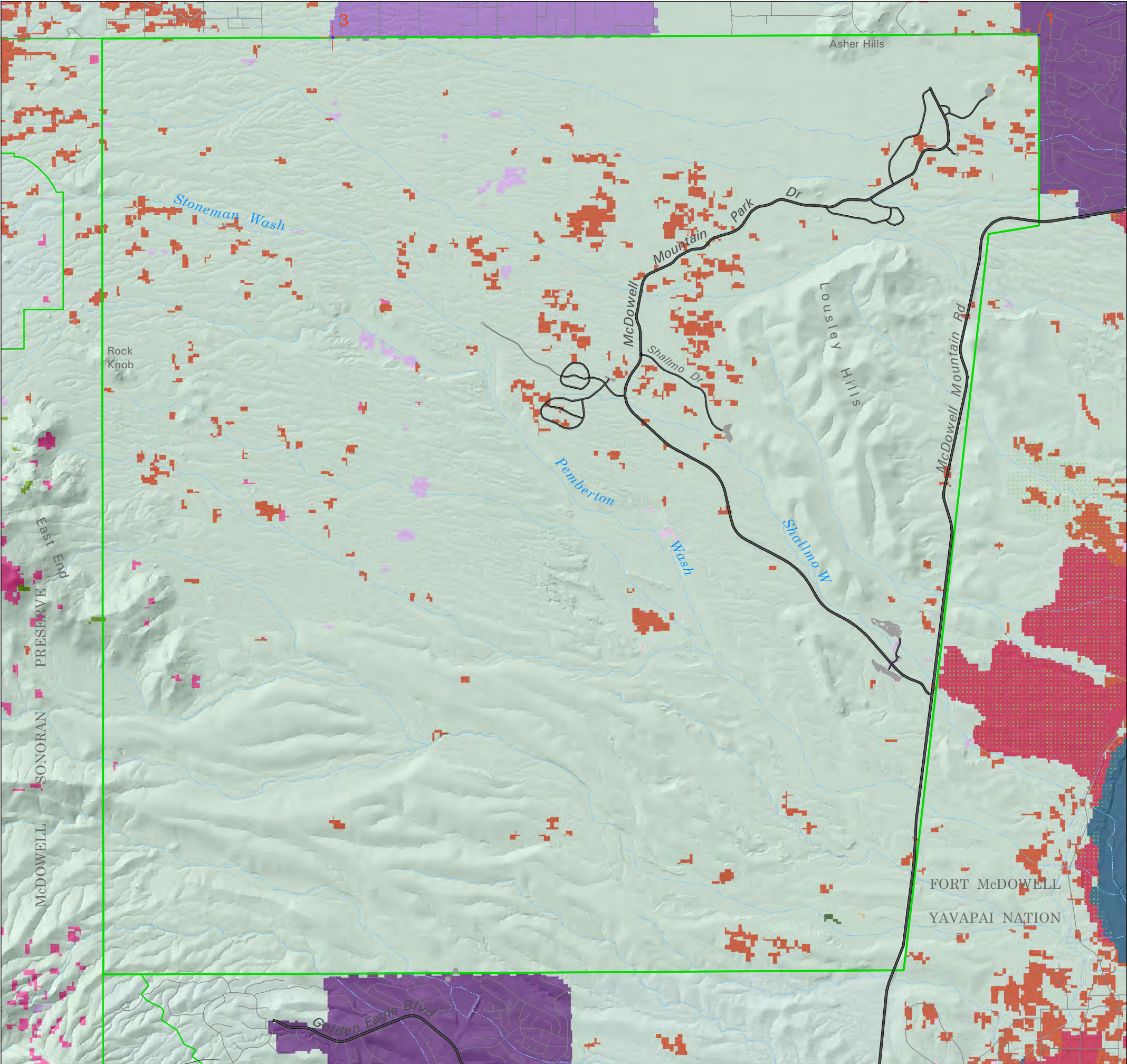
Scale = 1:130,000



DISCLAIMER: This map is a graphical representation designed for general reference purposes only. Viewer/User agrees to indemnify, defend and hold harmless Maricopa County, its officers, departments, employees and agents from and against any and all suits, actions, legal or administrative proceedings, claims, demands or damages of any kind or nature arising out of the use of this map, or the data contained herein, in its actual or altered form.

McDowell Mountain Regional Park

Arizona Upland Subdivision - Sonoran Desert Scrub Biotic Communities

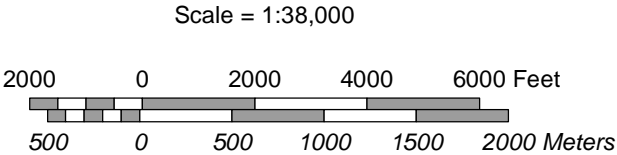


Modified USGS Regional GAP Land Cover*

- Sonoran Paloverde - Mixed Cacti Desert Scrub
- Inter-Mountain Basins Semi-Desert Shrub Steppe
- Madrean Encinal
- North American Warm Desert Riparian Woodland and Shrubland
- North American Warm Desert Desert Pavement
- Agriculture
- Developed, Open Space - Low Intensity
- Developed, Open Space - High Intensity

**This layer is a screenshot of the online Arizona Game & Fish HabiMap viewer.*

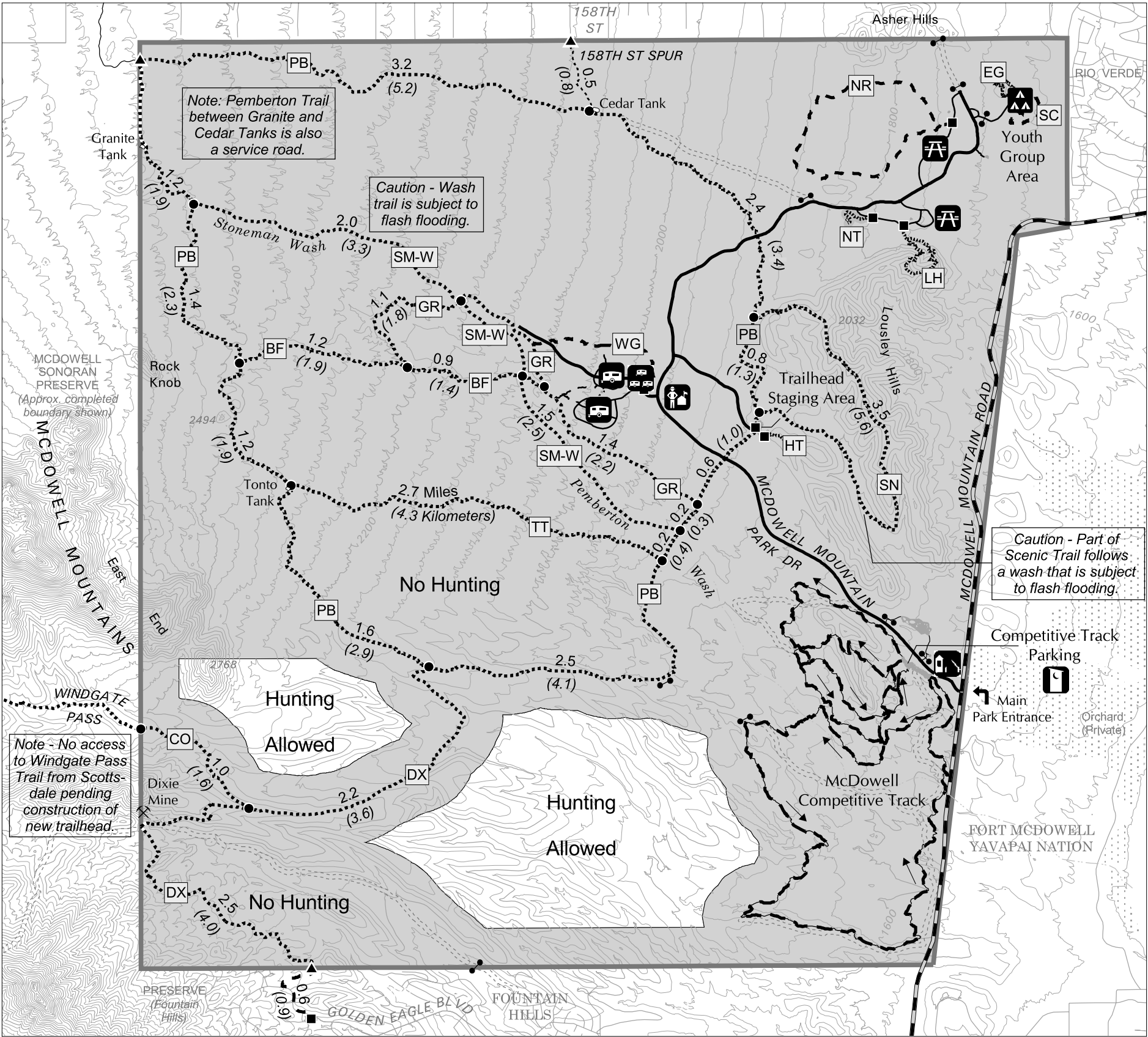
Regional Park Boundary



DISCLAIMER: This map is a graphical representation designed for general reference purposes only. Viewer/User agrees to indemnify, defend and hold harmless Maricopa County, its officers, departments, employees and agents from and against any and all suits, actions, legal or administrative proceedings, claims, demands or damages of any kind or nature arising out of the use of this map, or the data contained herein, in its actual or altered form.

McDowell Mountain Regional Park

Hunting Boundary Map



FACILITIES

Entrance station

Portable restroom

Group campground (By reservation)

Amphitheater

RV dump station

Family campground (E.I. Rowland)

Playground

Visitor center

Group picnic ramada (By reservation)

Picnic area (Day use only)

Youth campground

HUNTING

No hunting (inside park)

Hunting zones (inside park)

LEGEND

Shared-use trail

Hiker/biker-only trail

Hiker-only trail

Barrier-free trail

Competitive track

Trailhead/track starting point

Access gate

Locked gate

Service road

Regional Park bdy

State trust land

Private

Trail Code	Trail Name	Length Mi	Length (Km)	Use & Restrictions
BF	Bluff	2.2	(3.5)	Shared use
CO	Coachwhip	1.0	(1.6)	Shared use
DX	Dixie Mine	5.6	(9.0)	Shared use; hike, bike only in Fountain Hills
EG	Eagle	0.4*	(0.6*)	Hike only. (Youth group use only.)
GR	Granite	3.5	(5.6)	Shared use
HT	Hilltop	0.5*	(0.7*)	Hike only
LH	Lousley Hill	1.2*	(2.0*)	Hike only
NR	North	2.9*	(4.7*)	Hike, bike only
NT	Nursery Tank	0.6*	(0.9*)	Hike only, barrier-free
PB	Pemberton	15.4**	(24.9**)	Shared use
SN	Scenic	3.5	(5.6)	Shared use
SC	Scout	0.8*	(1.3*)	Hike, bike only. (Youth group use only.)
SM-W	Stoneman Wash	4.3	(6.9)	Shared use
TT	Tonto Tank	2.7	(4.3)	Shared use
WG	Wagner	1.1	(1.8)	Hike, bike only

- Distances shown above are one-way unless indicated by * for round-trip distance and ** for loop distance; map does not show round-trip or loop distances.

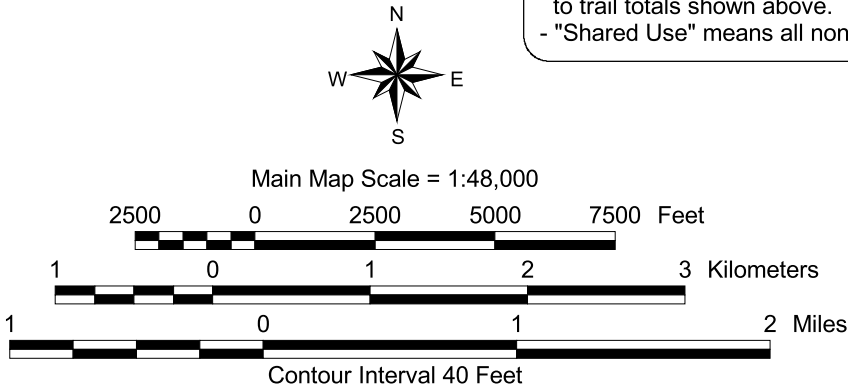
- Distances on map are for segments between trail junctions (●), or junction and trailhead. (Road crossings excluded.)

- Due to rounding, segment lengths on map may not add up to trail totals shown above.

- "Shared Use" means all non-motorized access is allowed.



Maricopa County
Parks and Recreation



Arizona Environmental Online Review Tool Report



Arizona Game and Fish Department Mission

To conserve Arizona's diverse wildlife resources and manage for safe, compatible outdoor recreation opportunities for current and future generations.

Project Name:

McDowell Mountain Park

User Project Number:

Maricopa County Parks and Recreation

Project Description:

Learning the flora and fauna of each park

Project Type:

Education/Information

Contact Person:

Juanita Armstrong-Ullberg

Organization:

Maricopa County Parks and Recreation

On Behalf Of:

MARICOPA

Project ID:

HGIS-08348

Please review the entire report for project type and/or species recommendations for the location information entered. Please retain a copy for future reference.

Disclaimer:

1. This Environmental Review is based on the project study area that was entered. The report must be updated if the project study area, location, or the type of project changes.
2. This is a preliminary environmental screening tool. It is not a substitute for the potential knowledge gained by having a biologist conduct a field survey of the project area. This review is also not intended to replace environmental consultation (including federal consultation under the Endangered Species Act), land use permitting, or the Departments review of site-specific projects.
3. The Departments Heritage Data Management System (HDMS) data is not intended to include potential distribution of special status species. Arizona is large and diverse with plants, animals, and environmental conditions that are ever changing. Consequently, many areas may contain species that biologists do not know about or species previously noted in a particular area may no longer occur there. HDMS data contains information about species occurrences that have actually been reported to the Department. Not all of Arizona has been surveyed for special status species, and surveys that have been conducted have varied greatly in scope and intensity. Such surveys may reveal previously undocumented population of species of special concern.
4. HabiMap Arizona data, specifically Species of Greatest Conservation Need (SGCN) under our State Wildlife Action Plan (SWAP) and Species of Economic and Recreational Importance (SERI), represent potential species distribution models for the State of Arizona which are subject to ongoing change, modification and refinement. The status of a wildlife resource can change quickly, and the availability of new data will necessitate a refined assessment.

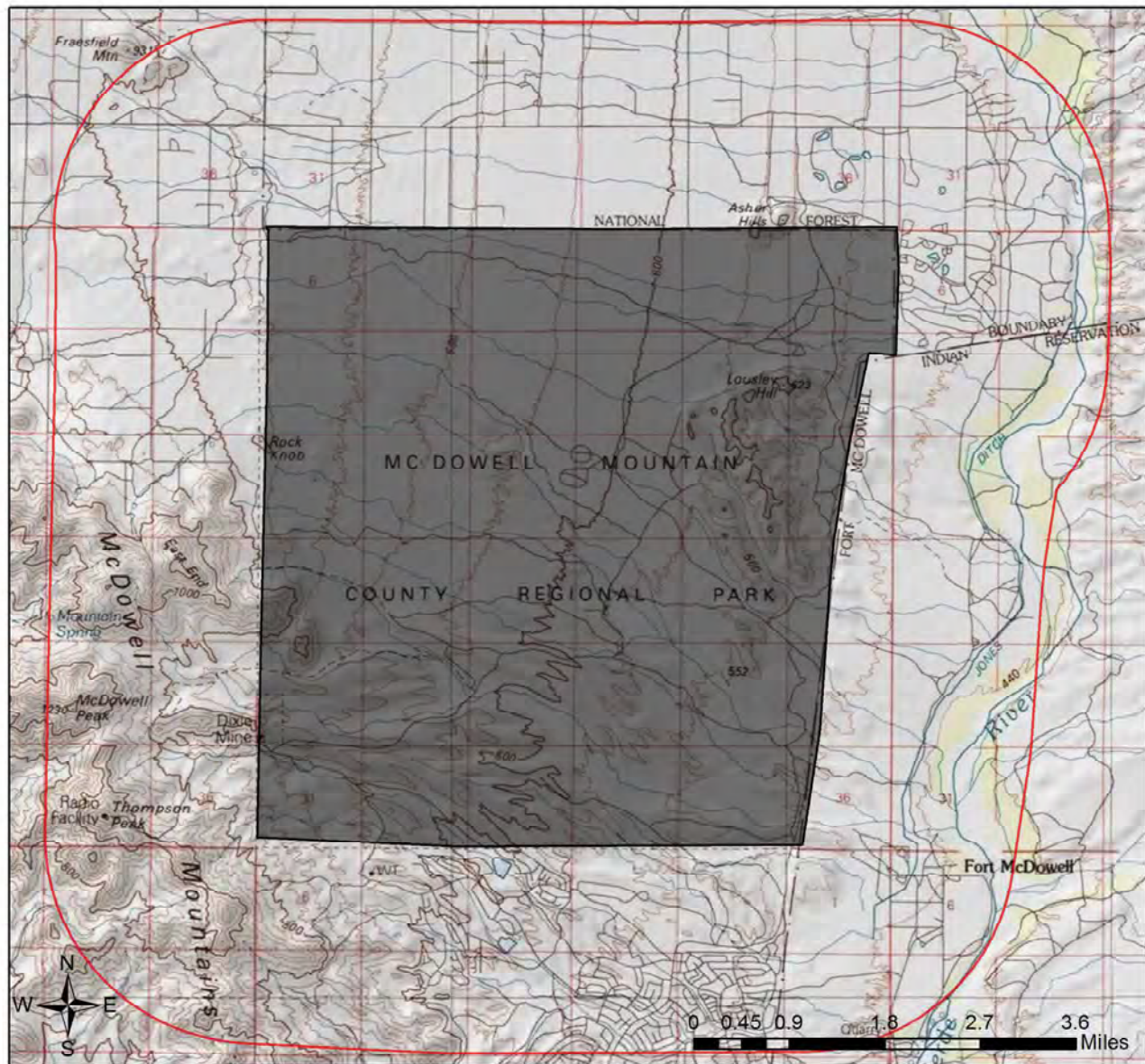
Locations Accuracy Disclaimer:



Project locations are assumed to be both precise and accurate for the purposes of environmental review. The creator/owner of the Project Review Report is solely responsible for the project location and thus the correctness of the Project Review Report content.

Recommendations Disclaimer:

1. The Department is interested in the conservation of all fish and wildlife resources, including those species listed in this report and those that may have not been documented within the project vicinity as well as other game and nongame wildlife.
2. Recommendations have been made by the Department, under authority of Arizona Revised Statutes Title 5 (Amusements and Sports), 17 (Game and Fish), and 28 (Transportation).
3. Potential impacts to fish and wildlife resources may be minimized or avoided by the recommendations generated from information submitted for your proposed project. These recommendations are preliminary in scope, designed to provide early considerations on all species of wildlife.
4. Making this information directly available does not substitute for the Department's review of project proposals, and should not decrease our opportunity to review and evaluate additional project information and/or new project proposals.
5. Further coordination with the Department requires the submittal of this Environmental Review Report with a cover letter and project plans or documentation that includes project narrative, acreage to be impacted, how construction or project activity(s) are to be accomplished, and project locality information (including site map). Once AGFD had received the information, please allow 30 days for completion of project reviews. Send requests to:
Project Evaluation Program, Habitat Branch
Arizona Game and Fish Department
5000 West Carefree Highway
Phoenix, Arizona 85086-5000
Phone Number: (623) 236-7600
Fax Number: (623) 236-7366
Or
PEP@azgfd.gov
6. Coordination may also be necessary under the National Environmental Policy Act (NEPA) and/or Endangered Species Act (ESA). Site specific recommendations may be proposed during further NEPA/ESA analysis or through coordination with affected agencies

McDowell Mountain Park USA Topo Basemap With Locator Map



-  Project Boundary
-  Buffered Project Boundary

Project Size (acres): 20,952.29

Lat/Long (DD): 33.6847 / -111.7388

County(s): Maricopa

AGFD Region(s): Mesa

Township/Range(s): T3N, R6E; T4N, R6E; T4N, R7E +

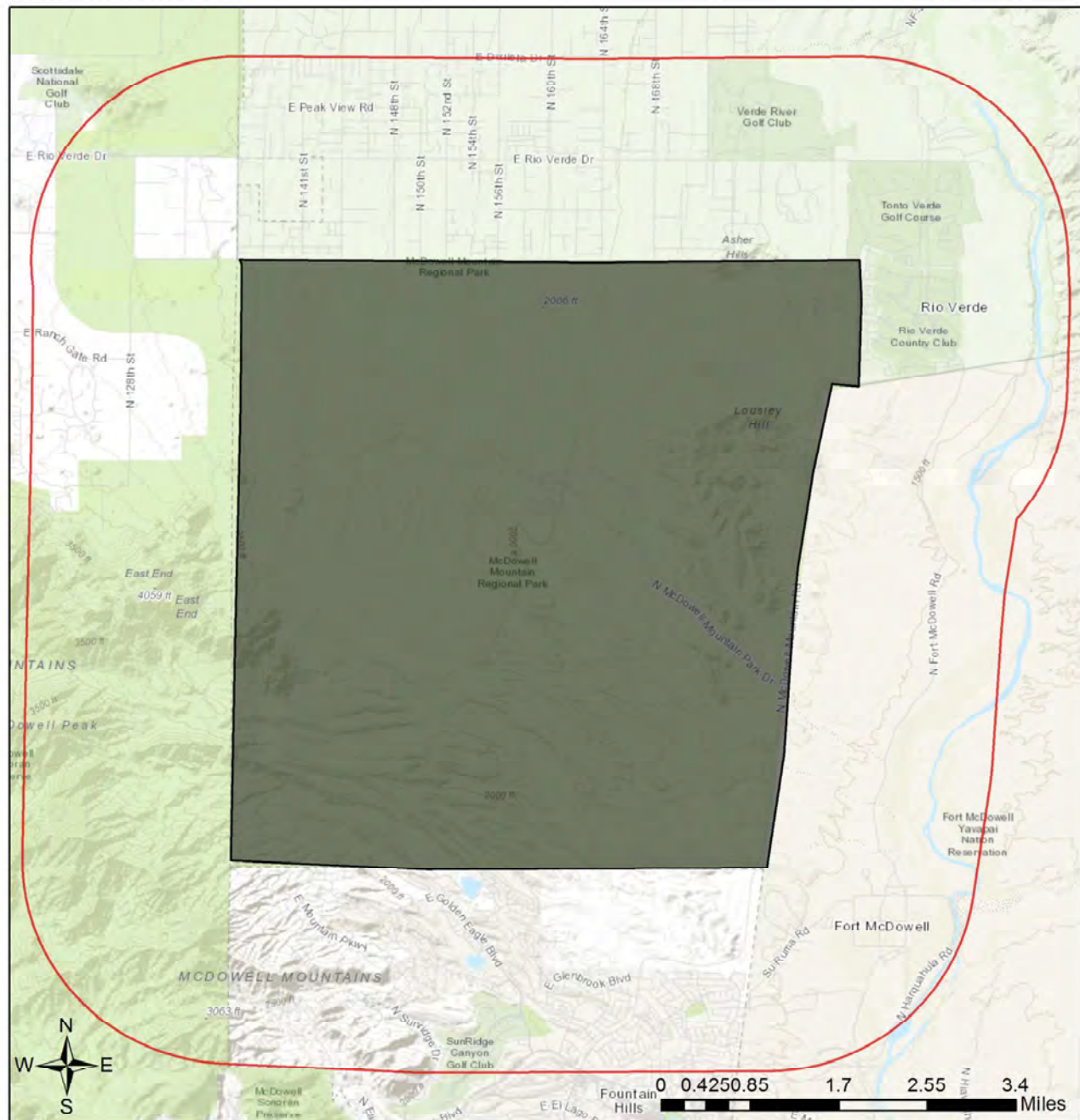
USGS Quad(s): FORT MCDOWELL; MCDOWELL PEAK

Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, ©



McDowell Mountain Park

Web Map As Submitted By User



- ☐ Project Boundary
- ☐ Buffered Project Boundary

Project Size (acres): 20,952.29

Lat/Long (DD): 33.6847 / -111.7388

County(s): Maricopa

AGFD Region(s): Mesa

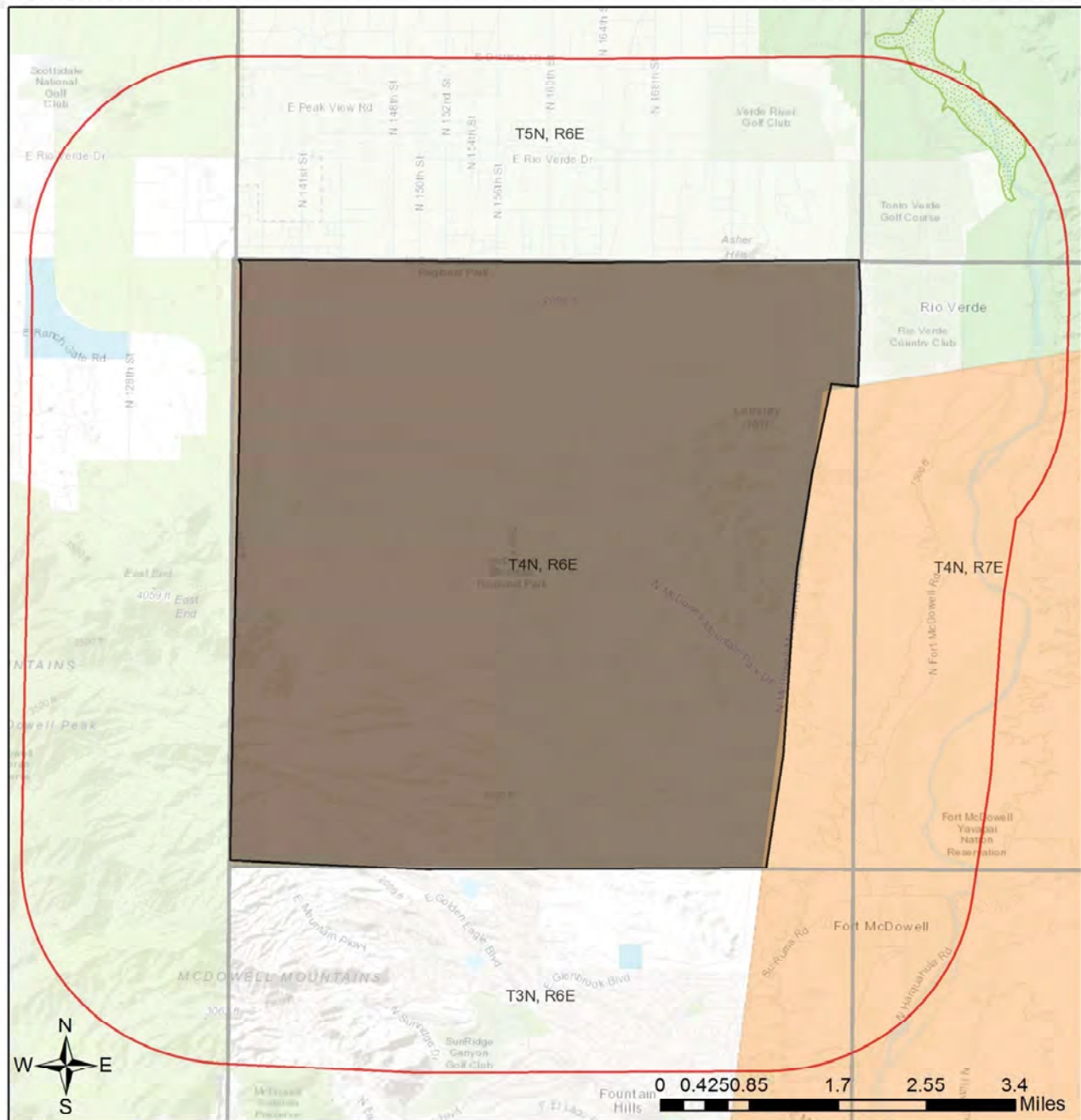
Township/Range(s): T3N, R6E; T4N, R6E; T4N, R7E +

USGS Quad(s): FORT MCDOWELL; MCDOWELL PEAK

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap contributors, and the GIS User Community
Arizona Game and Fish Department - GIS Program

McDowell Mountain Park

Topo Basemap with Township/Ranges, Land Ownership, Critical Habitats, Wildlife Corridors



- Project Boundary
- Buffered Project Boundary
- Township/Ranges
- Wildlife Corridors
- Critical Habitat

Land Ownership

- AZ Game & Fish Dept.
- BLM
- BOR
- Indian Res.
- Military
- Mixed/Other
- National Park/Mon.
- Private
- State & Regional Parks
- State Trust
- US Forest Service
- Wildlife Area/Refuge

Project Size (acres): 20,952.29

Lat/Long (DD): 33.6847 / -111.7388

County(s): Maricopa

AGFD Region(s): Mesa

Township/Range(s): T3N, R6E; T4N, R6E; T4N, R7E +

USGS Quad(s): FORT MCDOWELL; MCDOWELL PEAK

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap contributors, and the GIS User Community

Special Status Species and Special Areas Documented within 2 Miles of Project Vicinity

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Agave murpheyi	Hohokam Agave	SC	S	S	HS	
Bat Colony						
Corynorhinus townsendii pallescens	Pale Townsend's Big-eared Bat	SC	S	S		1B
Cyprinodon macularius	Desert Pupfish	LE				1A
Ericameria brachylepis	Rayless Turpentine Bush					
Falco peregrinus anatum	American Peregrine Falcon	SC	S	S		1A
Fort McDowell Indian Reservation	Fort McDowell Indian Reservation					
Gila robusta	Roundtail Chub	CCA	S	S		1A
Gopherus morafkai	Sonoran Desert Tortoise	CCA	S	S		1A
Haliaeetus leucocephalus (wintering pop.)	Bald Eagle - Winter Population	SC, BGA	S	S		1A
Haliaeetus leucocephalus pop. 3	Bald Eagle - Sonoran Desert Population	SC, BGA	S	S		1A
Heloderma suspectum cinctum	Banded Gila Monster	SC				1A
Heloderma suspectum suspectum	Reticulate Gila Monster					1A
Leptonycteris yerbabuenae	Lesser Long-nosed Bat	SC				1A
Lithobates yavapaiensis	Lowland Leopard Frog	SC	S	S		1A
Macrotus californicus	California Leaf-nosed Bat	SC		S		1B
Maricopella allynsmithi	Squaw Peak Talussnail	SC				1B
Myotis velifer	Cave Myotis	SC		S		1B
PCH for Coccozyus americanus	Yellow-billed Cuckoo Proposed Critical Habitat					
Poeciliopsis occidentalis occidentalis	Gila Topminnow	LE				1A
Rallus obsoletus yumanensis	Yuma Ridgway's Rail	LE				1A
Salt and Verde Riparian Ecosystem IBA						

Note: Status code definitions can be found at <https://www.azgfd.com/wildlife/planning/wildlifeguidelines/statusdefinitions/>

**Species of Greatest Conservation Need
Predicted within 2 Miles of Project Vicinity based on Predicted Range Models**

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Agosia chrysogaster	Longfin Dace	SC		S		1B
Aix sponsa	Wood Duck					1B
Ammospermophilus harrisi	Harris' Antelope Squirrel					1B
Anaxyrus microscaphus	Arizona Toad	SC		S		1B
Aquila chrysaetos	Golden Eagle	BGA		S		1B
Athene cunicularia hypugaea	Western Burrowing Owl	SC	S	S		1B
Botaurus lentiginosus	American Bittern					1B

**Species of Greatest Conservation Need
Predicted within 2 Miles of Project Vicinity based on Predicted Range Models**

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
<i>Buteo regalis</i>	Ferruginous Hawk	SC		S		1B
<i>Calypte costae</i>	Costa's Hummingbird					1C
<i>Castor canadensis</i>	American Beaver					1B
<i>Catostomus clarkii</i>	Desert Sucker	SC	S	S		1B
<i>Catostomus insignis</i>	Sonora Sucker	SC	S	S		1B
<i>Chilomeniscus stramineus</i>	Variable Sandsnake					1B
<i>Chionactis occipitalis klauberi</i>	Tucson Shovel-nosed Snake	SC				1A
<i>Cistothorus palustris</i>	Marsh Wren					1C
<i>Coccyzus americanus</i>	Yellow-billed Cuckoo (Western DPS)	LT	S			1A
<i>Colaptes chrysoides</i>	Gilded Flicker			S		1B
<i>Coluber bilineatus</i>	Sonoran Whipsnake					1B
<i>Corynorhinus townsendii pallascens</i>	Pale Townsend's Big-eared Bat	SC	S	S		1B
<i>Crotalus tigris</i>	Tiger Rattlesnake					1B
<i>Empidonax traillii extimus</i>	Southwestern Willow Flycatcher	LE				1A
<i>Empidonax wrightii</i>	Gray Flycatcher					1C
<i>Euderma maculatum</i>	Spotted Bat	SC	S	S		1B
<i>Eumops perotis californicus</i>	Greater Western Bonneted Bat	SC		S		1B
<i>Falco peregrinus anatum</i>	American Peregrine Falcon	SC	S	S		1A
<i>Gila robusta</i>	Roundtail Chub	CCA	S	S		1A
<i>Gopherus morafkai</i>	Sonoran Desert Tortoise	CCA	S	S		1A
<i>Haliaeetus leucocephalus</i>	Bald Eagle	SC, BGA	S	S		1A
<i>Heloderma suspectum</i>	Gila Monster					1A
<i>Incilius alvarius</i>	Sonoran Desert Toad					1B
<i>Kinosternon sonoriense sonoriense</i>	Desert Mud Turtle			S		1B
<i>Lasiurus blossevillei</i>	Western Red Bat		S			1B
<i>Lasiurus xanthinus</i>	Western Yellow Bat		S			1B
<i>Leopardus pardalis</i>	Ocelot	LE				1A
<i>Leptonycteris yerbabuenae</i>	Lesser Long-nosed Bat	SC				1A
<i>Lithobates yavapaiensis</i>	Lowland Leopard Frog	SC	S	S		1A
<i>Macrotus californicus</i>	California Leaf-nosed Bat	SC		S		1B
<i>Maricopella allynsmithi</i>	Squaw Peak Talussnail	SC				1B
<i>Melanerpes uropygialis</i>	Gila Woodpecker					1B
<i>Melospiza lincolni</i>	Lincoln's Sparrow					1B
<i>Melospiza aberti</i>	Abert's Towhee		S			1B
<i>Micrathene whitneyi</i>	Elf Owl					1C
<i>Microtus mexicanus</i>	Mexican Vole					1B
<i>Micruroides euryxanthus</i>	Sonoran Coralsnake					1B
<i>Myiarchus tyrannulus</i>	Brown-crested Flycatcher					1C

**Species of Greatest Conservation Need
Predicted within 2 Miles of Project Vicinity based on Predicted Range Models**

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Myotis occultus	Arizona Myotis	SC		S		1B
Myotis velifer	Cave Myotis	SC		S		1B
Myotis yumanensis	Yuma Myotis	SC				1B
Nyctinomops femorosaccus	Pocketed Free-tailed Bat					1B
Oreoscoptes montanus	Sage Thrasher					1C
Oreothlypis luciae	Lucy's Warbler					1C
Panthera onca	Jaguar	LE				1A
Passerculus sandwichensis	Savannah Sparrow					1B
Phrynosoma solare	Regal Horned Lizard					1B
Phyllorhynchus browni	Saddled Leaf-nosed Snake					1B
Poeciliopsis occidentalis occidentalis	Gila Topminnow	LE				1A
Rhinichthys osculus	Speckled Dace	SC		S		1B
Setophaga petechia	Yellow Warbler					1B
Sphyrapicus nuchalis	Red-naped Sapsucker					1C
Spizella atrogularis	Black-chinned Sparrow					1C
Spizella breweri	Brewer's Sparrow					1C
Tadarida brasiliensis	Brazilian Free-tailed Bat					1B
Toxostoma lecontei	LeConte's Thrasher			S		1B
Troglodytes pacificus	Pacific Wren					1B
Vireo bellii arizonae	Arizona Bell's Vireo					1B
Vireo vicinior	Gray Vireo		S			1C
Vulpes macrotis	Kit Fox	No Status				1B

Species of Economic and Recreation Importance Predicted within 2 Miles of Project Vicinity

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Callipepla gambelii	Gambel's Quail					
Odocoileus hemionus	Mule Deer					
Pecari tajacu	Javelina					
Puma concolor	Mountain Lion					
Zenaida asiatica	White-winged Dove					
Zenaida macroura	Mourning Dove					

Project Type: Education/Information

Project Type Recommendations:

Based on the project type entered (information/education), no impacts to land or water resources are anticipated and therefore no project type recommendations or mitigation measures are provided. If you entered this project type by mistake, please contact the PEP program to change the project type for you.

Project Location and/or Species Recommendations:

HDMS records indicate that one or more native plants listed on the Arizona Native Plant Law and Antiquities Act have been documented within the vicinity of your project area. Please contact:

Arizona Department of Agriculture

1688 W Adams St.

Phoenix, AZ 85007

Phone: 602.542.4373

<https://agriculture.az.gov/environmental-services/np1>

HDMS records indicate that one or more listed, proposed, or candidate species or Critical Habitat (Designated or Proposed) have been documented in the vicinity of your project. The Endangered Species Act (ESA) gives the US Fish and Wildlife Service (USFWS) regulatory authority over all federally listed species. Please contact USFWS Ecological Services Offices at <http://www.fws.gov/southwest/es/arizona/> or:

Phoenix Main Office

2321 W. Royal Palm Rd, Suite 103

Phoenix, AZ 85021

Phone: 602-242-0210

Fax: 602-242-2513

Tucson Sub-Office

201 N. Bonita Suite 141

Tucson, AZ 85745

Phone: 520-670-6144

Fax: 520-670-6155

Flagstaff Sub-Office

SW Forest Science Complex

2500 S. Pine Knoll Dr.

Flagstaff, AZ 86001

Phone: 928-556-2157

Fax: 928-556-2121

HDMS records indicate that Sonoran Desert Tortoise have been documented within the vicinity of your project area. Please review the Tortoise Handling Guidelines found at: <https://www.azgfd.com/wildlife/nongamemanagement/tortoise/>

HDMS records indicate that Lesser Long-nosed Bats have been documented within the vicinity of your project area. Please review the Lesser Long-nosed Bat Management Guidelines at: <https://www.azgfd.com/PortalImages/files/wildlife/planningFor/wildlifeFriendlyGuidelines/FINALIecuyeHabitatGdln.pdf>

The analysis has detected one or more Important Bird Areas within your project vicinity. Please see http://aziba.org/?page_id=38 for details about the Important Bird Area(s) identified in the report.

Tribal Lands are within the vicinity of your project area and may require further coordination. Please contact:

Fort McDowell Yavapai Nation

PO Box 17779

Fountain Hills, AZ 85269

(480) 837-5121

(480) 837-1630 (fax)



ECOS Environmental Conservation Online System

Conserving the Nature of America

[ECOS](#) / [Species Reports](#) / [Species occurrence by state](#)

/ Listed species believed to or known to occur in Arizona

Listed species believed to or known to occur in Arizona

Notes:

- As of 02/13/2015 the data in this report has been updated to use a different set of information. Results are based on where the species is believed to or known to occur. The FWS feels utilizing this data set is a better representation of species occurrence. Note: there may be other federally listed species that are not currently known or expected to occur in this state but are covered by the ESA wherever they are found; Thus if new surveys detected them in this state they are still covered by the ESA. The FWS is using the best information available on this date to generate this list.
- This report shows listed species or populations believed to or known to occur in Arizona
- This list does not include experimental populations and similarity of appearance listings.
- This list includes species or populations under the sole jurisdiction of the National Marine Fisheries Service.
- Click on the highlighted scientific names below to view a Species Profile for each listing.

Listed species -- 64 listings

Animals -- 43 listings

<u>Status</u>	Species/Listing Name
E	Ambersnail, Kanab Wherever found (<i><u>Oxyloma haydeni kanabensis</u></i>)
E	Bobwhite, masked (quail) Wherever found (<i><u>Colinus virginianus ridgwayi</u></i>)
T	Catfish, Yaqui Wherever found (<i><u>Ictalurus pricei</u></i>)
E	Chub, bonytail Wherever found (<i><u>Gila elegans</u></i>)
E	Chub, Gila Wherever found (<i><u>Gila intermedia</u></i>)
E	Chub, humpback Wherever found (<i><u>Gila cypha</u></i>)

<u>Status</u>	Species/Listing Name
T	Chub, Sonora Wherever found (<i><u>Gila ditaenia</u></i>)
E	Chub, Virgin River Wherever found (<i><u>Gila seminuda (=robusta)</u></i>)
E	Chub, Yaqui Wherever found (<i><u>Gila purpurea</u></i>)
E	Condor, California U.S.A. only, except where listed as an experimental population (<i><u>Gymnogyps californianus</u></i>)
T	Cuckoo, yellow-billed Western U.S. DPS (<i><u>Coccyzus americanus</u></i>)
E	Ferret, black-footed Wherever found, except where listed as an experimental population (<i><u>Mustela nigripes</u></i>)
E	Flycatcher, southwestern willow Wherever found (<i><u>Empidonax traillii extimus</u></i>)
T	Frog, Chiricahua leopard Wherever found (<i><u>Rana chiricahuensis</u></i>)
T	gartersnake, narrow-headed Wherever found (<i><u>Thamnophis rufipunctatus</u></i>)
T	gartersnake, northern Mexican Wherever found (<i><u>Thamnophis eques megalops</u></i>)
E	Jaguar Wherever found (<i><u>Panthera onca</u></i>)
E	Minnow, loach Wherever found (<i><u>Tiaroga cobitis</u></i>)
E	Mouse, New Mexico meadow jumping Wherever found (<i><u>Zapus hudsonius luteus</u></i>)
E	Ocelot wherever found (<i><u>Leopardus (=Felis) pardalis</u></i>)
T	Owl, Mexican spotted Wherever found (<i><u>Strix occidentalis lucida</u></i>)
E	Pikeminnow (=squawfish), Colorado Wherever found, except where listed as an experimental population (<i><u>Ptychocheilus lucius</u></i>)
E	Pronghorn, Sonoran Wherever found, except where listed as an experimental population (<i><u>Antilocapra americana sonoriensis</u></i>)
E	Pupfish, desert Wherever found (<i><u>Cyprinodon macularius</u></i>)
E	Rail, Yuma clapper Wherever found (<i><u>Rallus longirostris yumanensis</u></i>)
T	Rattlesnake, New Mexican ridge-nosed Wherever found (<i><u>Crotalus willardi obscurus</u></i>)
E	Salamander, Sonora tiger Wherever found (<i><u>Ambystoma tigrinum stebbinsi</u></i>)
T	Shiner, beautiful Wherever found (<i><u>Cyprinella formosa</u></i>)

<u>Status</u>	Species/Listing Name
E	Spikedace Wherever found (<i><u>Meda fulgida</u></i>)
T	Spinedace, Little Colorado Wherever found (<i><u>Lepidomeda vittata</u></i>)
T	springsnail, San Bernardino Wherever found (<i><u>Pyrgulopsis bernardina</u></i>)
E	Springsnail, Three Forks Wherever found (<i><u>Pyrgulopsis trivialis</u></i>)
E	Squirrel, Mount Graham red Wherever found (<i><u>Tamiasciurus hudsonicus grahamensis</u></i>)
E	Sucker, razorback Wherever found (<i><u>Xyrauchen texanus</u></i>)
E	Sucker, Zuni bluehead Wherever found (<i><u>Catostomus discobolus yarrowi</u></i>)
E	Tern, California least Wherever found (<i><u>Sterna antillarum browni</u></i>)
E	Topminnow, Gila (incl. Yaqui) Wherever found (<i><u>Poeciliopsis occidentalis</u></i>)
T	Tortoise, desert Wherever found, except AZ south and east of Colorado R., and Mexico (<i><u>Gopherus agassizii</u></i>)
T	Trout, Apache Wherever found (<i><u>Oncorhynchus apache</u></i>)
T	Trout, Gila Wherever found (<i><u>Oncorhynchus gilae</u></i>)
E	Turtle, Sonoyta mud Wherever found (<i><u>Kinosternon sonoriense longifemorale</u></i>)
E	Wolf, Mexican Wherever found, except where listed as an experimental population (<i><u>Canis lupus baileyi</u></i>)
E	Woundfin Wherever found, except where listed as an experimental population (<i><u>Plagopterus argentissimus</u></i>)

Plants -- 21 listings

<u>Status</u>	Species/Listing Name
E	Blue-star, Kearney's (<i><u>Amsonia kearneyana</u></i>)
E	Cactus, Acuna (<i><u>Echinomastus erectocentrus var. acunensis</u></i>)
E	Cactus, Arizona hedgehog (<i><u>Echinocereus triglochidiatus var. arizonicus</u></i>)
E	Cactus, Brady pincushion (<i><u>Pediocactus bradyi</u></i>)
T	Cactus, Cochise pincushion (<i><u>Coryphantha robbinsiorum</u></i>)

<u>Status</u>	Species/Listing Name
E	Cactus, Fickeisen plains (<i><u>Pediocactus peeblesianus fickeiseniae</u></i>)
E	Cactus, Nichol's Turk's head (<i><u>Echinocactus horizonthalonius var. nicholii</u></i>)
E	Cactus, Peebles Navajo (<i><u>Pediocactus peeblesianus var. peeblesianus</u></i>)
E	Cactus, Pima pineapple (<i><u>Coryphantha scheeri var. robustispina</u></i>)
T	Cactus, Siler pincushion (<i><u>Pediocactus (=Echinocactus,=Utahia) sileri</u></i>)
E	Cliffrose, Arizona (<i><u>Purshia (=Cowania) subintegra</u></i>)
T	Cycladenia, Jones (<i><u>Cycladenia humilis var. jonesii</u></i>)
T	Fleabane, Zuni (<i><u>Erigeron rhizomatus</u></i>)
E	ladies-tresses, Canelo Hills (<i><u>Spiranthes delitescens</u></i>)
E	mallow, Gierisch (<i><u>Sphaeralcea gierischii</u></i>)
E	Milk-vetch, Holmgren (<i><u>Astragalus holmgreniorum</u></i>)
E	Milk-vetch, Sentry (<i><u>Astragalus cremnophylax var. cremnophylax</u></i>)
T	Milkweed, Welsh's (<i><u>Asclepias welshii</u></i>)
T	Ragwort, San Francisco Peaks (<i><u>Packera franciscana</u></i>)
T	Sedge, Navajo (<i><u>Carex specuicola</u></i>)
E	Water-umbel, Huachuca (<i><u>Lilaeopsis schaffneriana var. recurva</u></i>)

McDowell Mountain Regional Park

Authors: Meredith A. Lane

Citation: Lane, M. A. 1981. Vegetation and flora of the McDowell Mountain Regional Park, Maricopa County, Arizona. Journal of the Arizona-Nevada Academy of Science 16: 29-38.

Locality: (33.683900, -111.722400)

Families: 60

Genera: 205

Species: 289

Total Taxa: 293



Abutilon abutiloides



Abutilon incanum



Acacia constricta



Acacia greggii



Acamptopappus sphaerocephalus



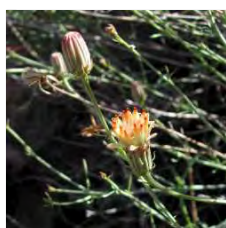
Acamptopappus sphaerocephalus
var.
sphaerocephalus



Acourtia nana



Acourtia wrightii



Adenophyllum porophylloides



Agave deserti



Allionia incarnata



Aloysia wrightii



Amaranthus blitoides



Ambrosia ambrosioides



Ambrosia confertiflora



Ambrosia deltoidea



Ambrosia dumosa



Ambrosia monogyra



Ambrosia salsola



Amsinckia intermedia



Amsinckia tessellata



Anemone tuberosa



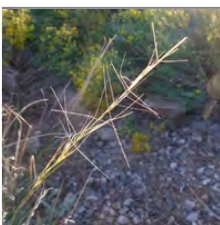
Arabis perennans



Aristida adscensionis



Aristida purpurea



Aristida purpurea
var. *nealleyi*



Aristida purpurea
var. *parishii*



Aristolochia watsonii



Artemisia ludoviciana



Artemisia ludoviciana subsp.
sulcata



Asclepias
nyctaginifolia



Asclepias
subulata



Astragalus
allochrous



Astragalus
allochrous var.
playanus



Astragalus
didymocarpus



Astragalus
didymocarpus var.
dispermus



Astragalus
nuttallianus



Astragalus
nuttallianus var.
imperfectus



Astrolepis
cochisensis



Astrolepis
cochisensis subsp.
cochisensis



Astrolepis
sinuata



Atriplex
canescens



Atriplex
canescens
var. *canescens*



Atriplex
elegans



Baccharis
salicifolia



Baccharis
sarothroides



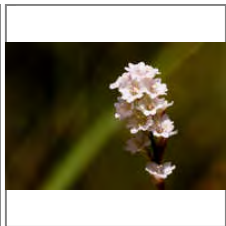
Bahioopsis
parishii



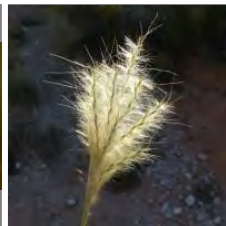
Baileya
multiradiata



Boerhavia
coccinea



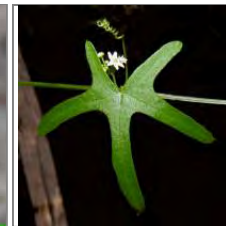
Boerhavia
wrightii



Bothriochloa
barbinodis



Bowlesia
incana



Brandegia
bigelovii



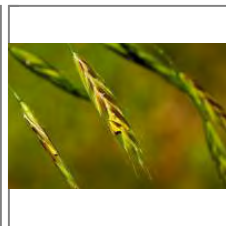
Brickellia
coulteri



Bromus
arizonicus



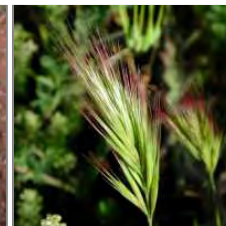
Bromus
berterianus



Bromus
carinatus



Bromus
marginatus



Bromus
rubens



Calandrinia
ciliata



Calliandra
erriophylla



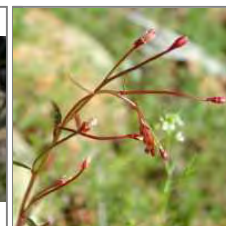
Calochortus
kennedyi



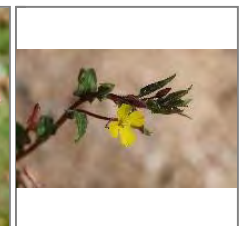
Calycoseris
wrightii



Camissonia
californica



Camissonia
chamaenerioides



Camissonia
micrantha



Canotia holacantha



Carnegiea gigantea



Castilleja exserta



Castilleja exserta
subsp. exserta



Caulanthus
lasiophyllus



Celtis pallida



Centaurea
melitensis



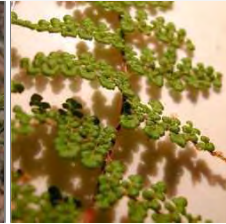
Cercocarpus
montanus



Chaenactis
carphoclinia



Chaenactis
stevioides



Cheilanthes covillei



Cheilanthes parryi



Chenopodium
berlandieri



Chenopodium
fremontii



Chenopodium
murale



Chorizanthe
brevicornu



Chorizanthe rigida



Cirsium
neomexicanum



Claytonia perfoliata



Clematis
drummondii



Conyza canadensis



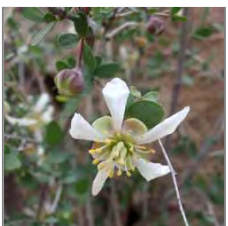
Conyza canadensis
var. glabrata



Cottisia gracilis



Crassula connata



Crossosoma
bigelovii



Cryptantha
barbigera



Cryptantha
decipiens



Cryptantha maritima



Cryptantha maritima
var. pilosa



Cryptantha
nevadensis



Cryptantha
nevadensis var.
rigida



Cryptantha
pterocarya



Cryptantha
pterocarya var.
cycloptera



Cucurbita digitata



Cuscuta indecora



Cylindropuntia
acanthocarpa



Cyllindropuntia
acanthocarpa var.
major



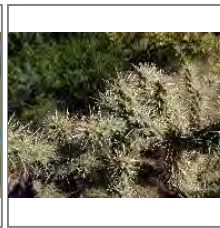
Cyllindropuntia
acanthocarpa var.
thornberi



Cyllindropuntia
bigelovii



Cyllindropuntia
fulgida



Cyllindropuntia
fulgida var. *fulgida*



Cyllindropuntia
leptocaulis



Cyllindropuntia x
tetracantha



Cynanchum
arizonicum



Cynodon dactylon



Dasyochloa
pulchella



Daucus pusillus



Delphinium parishii



Delphinium parishii
subsp. *parishii*



Descurainia pinnata



Dichelostemma
capitatum



Dichelostemma
capitatum subsp.
pauciflorum



Dimorphotheca
aurantiaca



Ditaxis lanceolata



Ditaxis neomexicana



Dodonaea viscosa



Draba cuneifolia



Draba cuneifolia var.
integrifolia



Echinocereus
engelmannii



Echinocereus
engelmannii subsp.
engelmannii



Echinochloa colona



Emmenanthe
penduliflora



Encelia farinosa



Encelia farinosa var.
farinosa



Encelia virginensis



Encelia virginensis
var. *virginensis*



Ephedra aspera



Eragrostis mexicana



Eriastrum diffusum



Eriastrum eremicum



Ericameria laricifolia



Erigeron accedens



Eriogonum oxyphyllum



Eriogonum deflexum



Eriogonum deflexum
var. *deflexum*



Eriogonum fasciculatum



Eriogonum fasciculatum var.
polifolium



Eriogonum inflatum



Eriogonum inflatum
var. *inflatum*



Eriogonum palmerianum



Eriogonum trichopes



Eriogonum wrightii



Eriogonum wrightii
var. *wrightii*



Eriophyllum lanosum



Eriophyllum pringlei



Erodium cicutarium



Erodium texanum



Erythranthe guttata



Eschscholzia californica



Eschscholzia californica subsp.
mexicana



Eucrypta chrysanthemifolia



Eucrypta chrysanthemifolia
var. *bipinnatifida*



Euphorbia abramsiana



Euphorbia albomarginata



Euphorbia capitellata



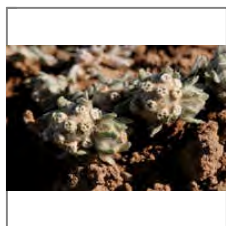
Euphorbia melanadenia



Euphorbia polycarpa



Euphorbia setiloba



Evax multicaulis



Ferocactus cylindraceus



Ferocactus cylindraceus var.
lecontei



Filago arizonica



Filago californica



Fouquieria splendens



Galium aparine



Galium stellatum



Galium stellatum subsp.
eremicum



Gilia flavocincta



Gilia flavocincta
subsp. *flavocincta*



Gilia stellata



Glandularia
bipinnatifida



Glinus radiatus



Gnaphalium palustre



Gutierrezia
sarothrae



Harpagonella
palmeri



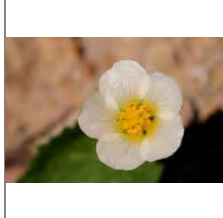
Hedeoma nana



Helianthus annuus



Heliotropium
curassavicum



Herissantia crispa



Herniaria hirsuta



Heterotheca
subaxillaris



Hordeum murinum



Hordeum murinum
subsp. *leporinum*



Hordeum pusillum



Hyptis emoryi



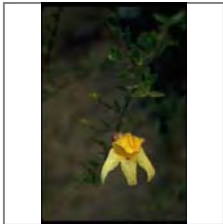
Isocoma acradenia



Juniperus
coahuilensis



Justicia californica



Keckiella
antirrhinoides



Keckiella
antirrhinoides
subsp. *microphylla*



Krameria bicolor



Krameria erecta



Lactuca serriola



Laennecia coulteri



Larrea tridentata



Lasthenia californica



Layia glandulosa



Lepidium
lasiocarpum



Lepidium
lasiocarpum var.
lasiocarpum



Lepidium virginicum



Lepidium virginicum
var. *medium*



Leptochloa viscida



Leptosiphon aureus



Linanthus bigelovii



Lomatium nevadense



Lomatium nevadense var. *parishii*



Lotus humistratus



Lotus rigidus



Lotus salsuginosus



Lotus salsuginosus var. *brevivexillus*



Lotus strigosus



Lotus strigosus var. *tomentellus*



Lupinus concinnus



Lupinus concinnus subsp. *orcuttii*



Lupinus sparsiflorus



Lupinus sparsiflorus subsp. *mohavensis*



Lycium berlandieri



Lycium berlandieri var. *longistylum*



Lycium exsertum



Lycium fremontii



Lycium fremontii var. *fremontii*



Malva parviflora



Mammillaria grahamii



Marah gilensis



Marina parryi



Marrubium vulgare



Matricaria discoidea



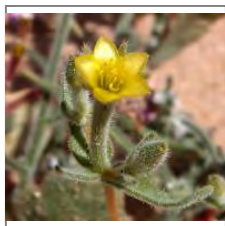
Melampodium leucanthum



Melilotus indicus



Menodora scabra



Mentzelia affinis



Mentzelia multiflora



Minuartia douglasii



Mirabilis laevis



Mirabilis laevis var. *villosa*



Monoptilon bellioides



Muhlenbergia microsperma



Nama hispidum



Nama hispidum var. *mentzelii*



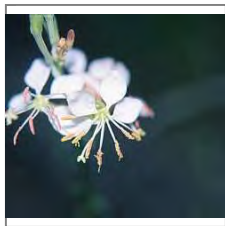
Nicotiana obtusifolia



Notholaena californica



Notholaena standleyi



Oenothera curtiflora



Oenothera primiveris



Oenothera primiveris subsp. primiveris



Olneya tesota



Opuntia engelmannii



Orobanche cooperi



Parietaria hespera



Parietaria hespera var. hespera



Parkinsonia florida



Parkinsonia microphylla



Pectis papposa



Pectis papposa var. papposa



Pectocarya heterocarpa



Pectocarya platycarpa



Pectocarya recurvata



Pectocarya setosa



Pellaea truncata



Peniocereus greggii



Peniocereus greggii var. transmontanus



Penstemon subulatus



Pentagramma triangularis



Pentagramma triangularis subsp. maxonii



Perityle emoryi



Phacelia crenulata



Phacelia crenulata var. ambigua



Phacelia distans



Phalaris angusta



Phlox tenuifolia



Pholistoma auritum



Pholistoma auritum var. arizonicum



Phoradendron californicum



Physaria tenella



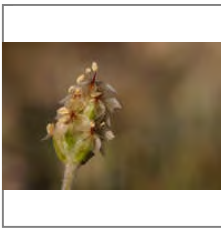
Plagiobothrys arizonicus



Plagiobothrys jonesii



Plagiobothrys pringlei



Plantago ovata



Plantago patagonica



Pluchea sericea



Poa annua



Poa bigelovii



Polygonum aviculare



Polypogon monspeliensis



Populus fremontii



Porophyllum gracile



Proboscidea althaeifolia



Prosopis velutina



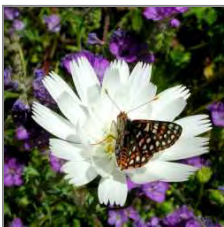
Psilostrophe cooperi



Pterostegia drymarioides



Quercus turbinella



Rafinesquia neomexicana



Rumex crispus



Rumex hymenosepalus



Sairocarpus pusillus



Salix gooddingii



Salsola tragus



Salvia columbariae



Sarcostemma cynanchoides



Sarcostemma cynanchoides subsp. hartwegii



Schismus arabicus



Schismus barbatus



Selaginella arizonica



Senecio flaccidus



Senecio flaccidus var. monoensis



Senecio lemmonii



Senna covesii



Setaria macrostachya



Silene antirrhina



Simmondsia chinensis



Sisymbrium irio



Solanum douglasii



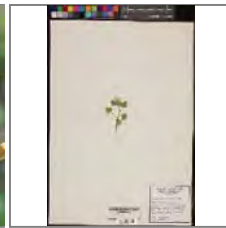
Sonchus asper



Sonchus oleraceus



Sphaeralcea ambigua



Sphaeralcea ambigua subsp. *ambigua*



Sphaeralcea coulteri



Sphaeralcea emoryi



Stephanomeria pauciflora



Stuckenia pectinata



Stylocline micropoides



Tamarix chinensis



Thysanocarpus curvipes



Trifolium wormskioldii



Trisetum interruptum



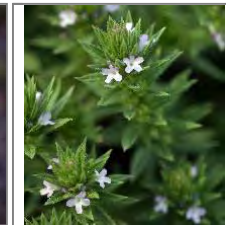
Trixis californica



Typha domingensis



Uropappus lindleyi



Verbena bracteata



Veronica peregrina



Veronica peregrina subsp. *xalapensis*



Vulpia microstachys



Vulpia microstachys var. *ciliata*



Vulpia microstachys var. *pauciflora*



Vulpia octoflora



Vulpia octoflora var. *hirtella*



Vulpia octoflora var. *octoflora*



Xanthisma spinulosum



Xanthium strumarium



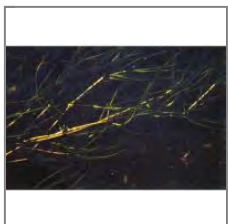
Yucca baccata



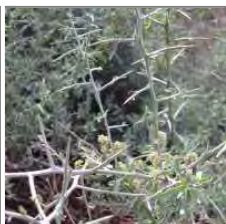
Yucca elata



Yucca elata var. *elata*



Zannichellia palustris



Ziziphus obtusifolia



Ziziphus obtusifolia var. *canescens*

Appendix E

Cultural Resources

McDowell Mountain Regional Park
Cultural Resource
Archeological Site Inventory

Johnson 1963

*An Appraisal of the Archaeological Resources of Fie Regional parks in Maricopa County, Arizona
Based on a survey made for the Maricopa County Parks and Recreation Department
By: The Arizona State Museum and the University of Arizona, Tucson, Arizona*

Site #1	Arizona U:5:5
Site #2	Arizona U:5:6
Site #3	Arizona U:5:7
Site #4	Arizona U:5:10 (ASM) * Additional Survey's: Northland 2005
Site #5	Arizona U:6:6
Site #6	Arizona U:6:7

Northland 2005

A Cultural Resources Survey of Proposed Trail Alignments Totaling 5.45 Linear Miles Within McDowell Mountain Regional Park, Maricopa County, AZ

Site #4	Arizona U:5:10 (ASM) * Original Survey by Johnson 1963
---------	--

Northland 2006

*A Cultural resource survey of 1.7 Acres in the McDowell Mountain Regional Park, Maricopa County, AZ
Site listed on the National Register of Historic Places (NRHP)*

Site #7	Arizona U:6:323 (ASM)
---------	-----------------------

ACS 2009

Cultural Resources Survey for the proposed promenade hiking trail within the McDowell

Site #8	Arizona U:5:345 (ASM)
---------	-----------------------

Northland 2009

A Cultural Resources Survey of Proposed Trail Alignments Totaling 3.03 Linear Miles within McDowell Mountain Regional Park, Maricopa County, AZ

Site #9	Arizona U:5:342 (ASM)
Site #10	Arizona U:5:343(ASM) and U:5:344 (ASM)
Site #11	Arizona U:6:339 (ASM)

ACS 2010

Cultural Resource Survey for Two Proposed Trail Connectors within the McDowell Mountain Regional Park Near Fountain Hills, Maricopa County, AZ

Site #12	Arizona U:6:346(ASM)
----------	----------------------

Survey's Conducted - No sites Found

EcoPlan Associates, Inc. March 2004 - *A Cultural Resource Survey for the Replacement of 12 Poles along SRP's 69-Kv Transmission Line, Between Fountain Hills and Rio Verde, Maricopa County, AZ*

Archaeological Consulting Services, LTD. (ACS) March 2013 - *Cultural Resource Survey for the McDowell Mountain Regional Park New Trail No.5 Near Fountain Hills, Maricopa County, AZ*

ACS _June 2011 - *Cultural Resource Survey for the Expansion of the McDowell Horse Staging Area within the McDowell Mountain Regional Park near Fountain Hills, Maricopa County, AZ*

Northland Research, INC. June 2011 - *A Cultural Resources Survey of the Proposed Trail 12 Alignment Totaling 1.1 Linear Miles (2.8 Acres) within McDowell Mountain Regional Park, Maricopa County, AZ*

ACS _October 2012 - *Cultural Resource Survey for the McDowell Mountain Regional Park Recreational -Pemberton Trails Near Fountain Hills, Maricopa County, AZ*

ACS _March 2013 - *Cultural Resource Survey for the McDowell Mountain Regional Park New Trail No.5 Near Fountain Hills, Maricopa County, AZ*

Johnson 1963

An Appraisal of the Archaeological Resources of Five Regional Parks in Maricopa County, Arizona

Based on a survey made for the Maricopa County Parks and Recreation Department

By: The Arizona State Museum and the University of Arizona, Tucson, Arizona

Site #1	Arizona U:5:5
Description	This site is a sherd area, situated on the edge of a terrace near an arroyo. Sherds were found scattered over an area of about one-half acre, but there was no indication of any depth of deposit.
Location	T4N, R6E, Sec. 23, SW 1/4, NW 1/4
Cultural Affiliation	Hohokam
Pottery	Plainware
Dates	Unknown
Site #2	Arizona U:5:6
Description	This site is a small village, covering a maximum of ten acres along a wash. Cultural material is present to a depth of about 25 cm. Quantities of gray quartzite occur in gravel deposits on surrounding hills, and there is abundant evidence, in the form of chipping detritus, that this was utilized for the manufacture of stone
Location	T4N, R6E, Sec. 30, NW 1/4, NW 1/4
Cultural Affiliation	Hohokam
Pottery	Plainware
Dates	Unknown
Site #3	Arizona U:5:7
Description	This is the site of a village situated in an area which slopes gradually from the surrounding hills to a nearby wash. Sherds were found scattered over some ten acres, and cultural material is probably present to a depth of about 25 cm.
Location	T4N, R6E, Sec. 30, NW 1/4, NW 1/4
Cultural Affiliation	Hohokam
Pottery	Plainware, redware
Dates	A.D. 1100-1450?
Site #4	Arizona U:5:10 (ASM) * Additional Survey's: Northland 2005
Description	Small Hohokam village consisting of three or four rooms straddling a high ridge above a wash.
Location	T4N, R6E, Sec. 20, SW 1/4, SW 1/4
Cultural Affiliation	Hohokam
Pottery	Ceramic
Dates	AD 200-1500
Site #5	Arizona U:6:6
Description	Location of a sherd area along a steep hillside. Quantities of broken chert and quartzite cobbles were found,
Location	T4N, R6E, Sec. 26, NW 1/4, NE 1/4
Cultural Affiliation	Hohokam
Pottery	Plainware
Dates	Unknown
Site #6	Arizona U:6:7
Description	Village site covering some five acres at the northwest corner of McDowell Mountain Regional Park. The site
Location	T4N, R6E, Sec. 1, SE 1/4, SE 1/4
Cultural Affiliation	Hohokam
Pottery	Plainware
Dates	Unknown

Northland 2005

A Cultural Resources Survey of Proposed Trail Alignments Totaling 5.45 Linear Miles Within McDowell Mountain Regional Park, Maricopa County, AZ

Site #4	Arizona U:5:10 (ASM) * Original Survey by Johnson 1963
Description	Represents a difused Hohokam artifact scatter distributed in three large but low density concentrations. The dirversity of artifacts identified within the site suggests that it represents more than a chipping stationo or other limited activity area. When the site was orionally recorded in 1963, it was described as including three or four "houses". However, during the current survey no surface evidence for those houses was identified. It is possible that dense <u>vegetation on the ridge obsured these feartures</u>
Location	T4N, R6E, Sec. 20, SW 1/4, SW 1/4
Cultural Affiliation	Hohokam
Pottery	Ceramic
Dates	AD 200-1500

Northland 2006

A Cultural resource survey of 1.7 Acres in the McDowell Moutnain Regional Park, Maricopa County, AZ
 Site listed on the National Register of Historic Places (NRHP)

Site #7	Arizona U:6:323 (ASM)
Description	Pemberton Ranch
Location	T4N, R6E, Sec. 22, SW 1/4, NE 1/4, SW1/4
Cultural Affiliation	Historical Anglo-American
Site Type	Historical Ranch
Dates	ca. A.D. 1900-1950

Northland 2009

A Cultural Resources Survey of Proposed Trail Alignments Totaling 3.03 Linear Miles within McDowell Mountain Regional Park, Maricopa County, AZ (RioVerde Connection trail, the Promenade trail, and Rock Knob Trail)

Site #9	Arizona U:5:342 (ASM)
Description	Site is a small Hohokam habitation site with a moderately dense artifact scatter and three rock eatures.
Location	T4N, R63, Sec. 31, SW 1/4, NE 1/4
Cultural Affiliation	Hohokam; Classic Perido
Pottery	Redware, plainware ceramics, flaked stone tools and debitage, and ground stone.
Dates	A.D.200-1500
Site #10	Arizona U:5:343(ASM) and U:5:344 (ASM)
Description	Site is an abandoned dirt road or jeep trail
Location	T4N, R63, Sec. 31, SW 1/4, NW 1/4, NE 1/4
Cultural Affiliation	Euro-American, Historic
Site Type	Road
Dates	Pre-1965
Site #11	Arizona U:6:339 (ASM)
Description	This is the site of a small Hohokam dry farming site located along the Rio Verde Conneftion
Location	T4N, R63, Sec. 1, SW 1/4, NE 1/4
Cultural Affiliation	Hohokam, Unknown
Site Type	Agricultural rock pile site
Dates	A.D.200-1500

ACS 2009

Cultural Resources Surevey for the proposed promenade hiking trail within the MDowell

Site #8	Arizona U:5:345 (ASM)
Description	Northwest-southeast trending two track road segment possibly assoiciated with the Historic Dixie Mine
Location	T4N, R6E, Sec. 31, South 1/2
Cultural Affiliation	Euro-American
Site Type	Historic Road
Dates	Late Historic (1920s-1960) to present

ACS 2010

Cultural Resource Survey for Two Proposed Trial Connectors within the McDowell Mountain Regional Park Near Fountain Hills, Maricopa County, AZ

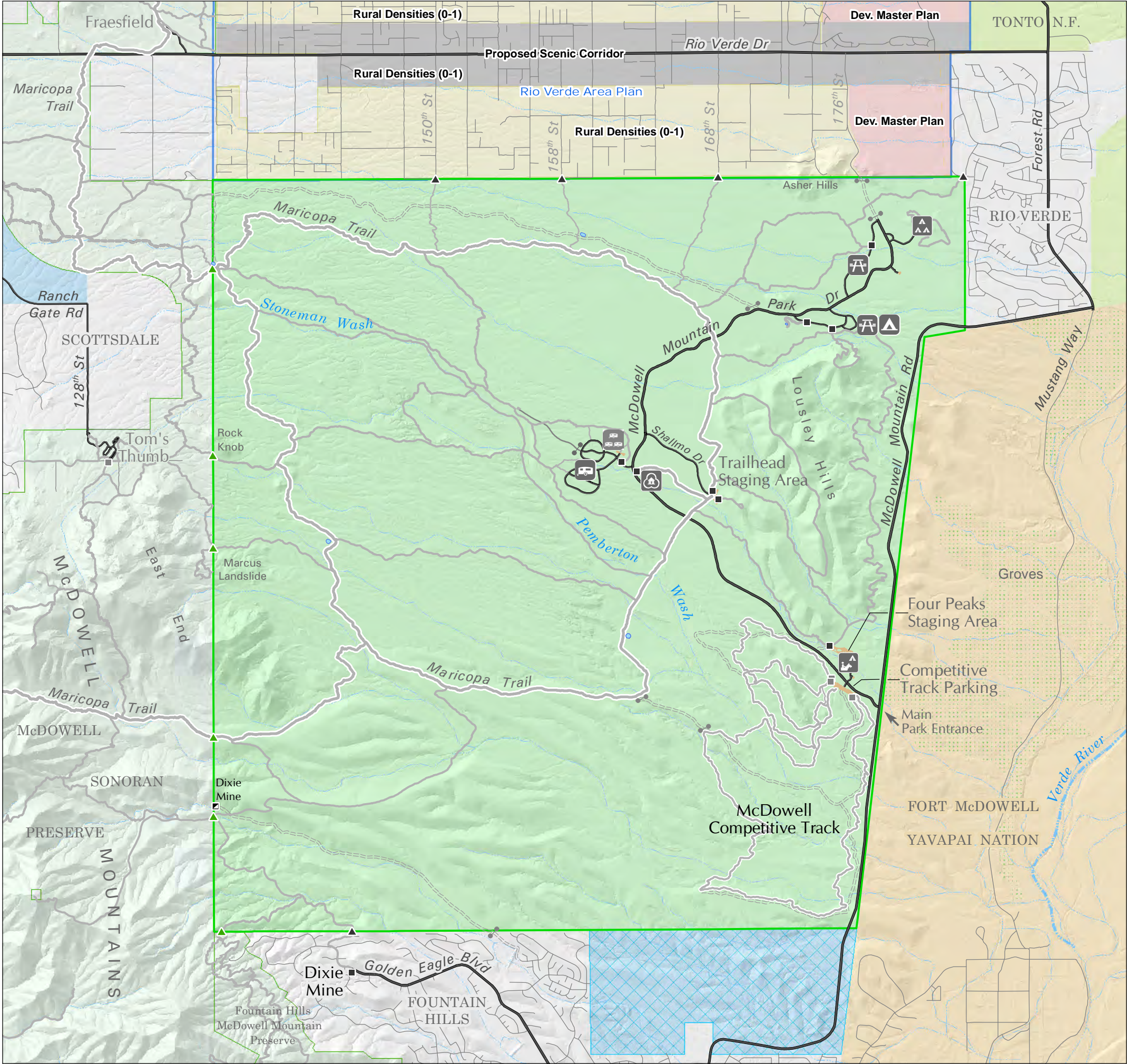
Site #12	Arizona U:6:346(ASM)
Description	The road follows along a small crest of a low hill and has a small berm on either side. A large quarry is located on the south side of the road. The quarry is oblong and a tailgins pile is located at the southwest end.
Location	T4N, R63, Sec. 15 East 1/2
Cultural Affiliation	Euro-American
Site Type	Historic Road and quarry
Dates	Late Historic (ca. 1930s-1930s)

Appendix F

Land Use

McDowell Mountain Regional Park

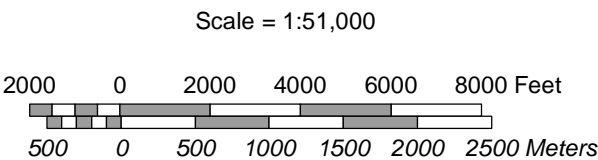
Land Use



- Land Ownership (Current)**
- State Land Department
 - Reverted to State (subject to resale)
 - US Forest Service
 - Reservation Lands
 - McDowell Mountain Regional Park
 - Private (Outside Rio Verde Area Plan)

- County Land Use**
- Proposed Scenic Corridor
 - Rural Densities (0-1 du/ac)
 - Large Lot Residential (0-2 du/ac)
 - Development Master Plan
 - Area Plan (County)

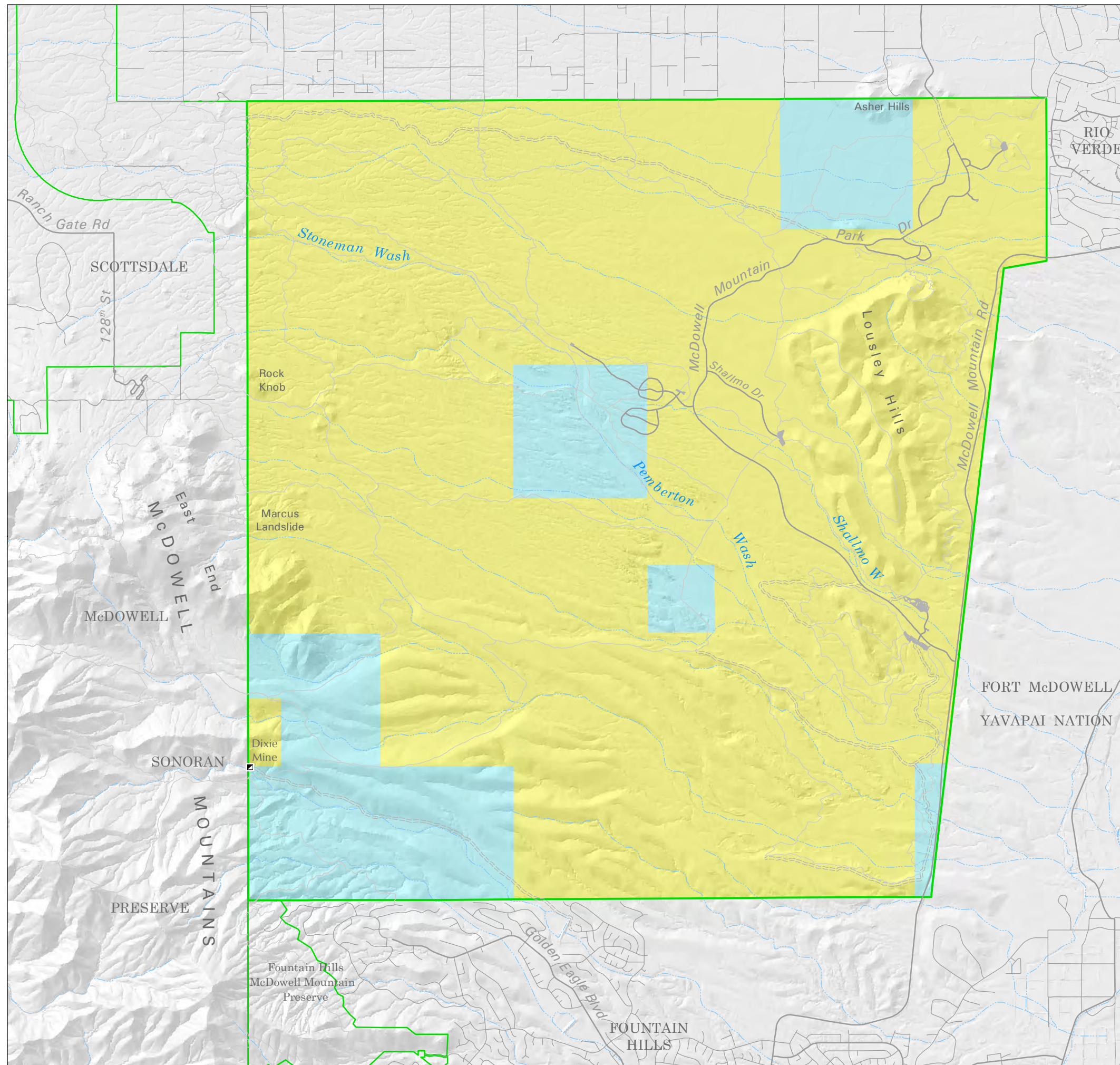
- Horse Staging & Primitive Equestrian Camping
- Nature Center
- Campground
- Group Campground
- Picnic Area
- Youth Campground
- Tent Campsites
- Maricopa Trail*
- Park Trail/Track
- Access Gate
- Preserve Access
- Trailhead/Track Start
- Locked Gate
- Service Road



DISCLAIMER: This map is a graphical representation designed for general reference purposes only. Viewer/User agrees to indemnify, defend and hold harmless Maricopa County, its officers, departments, employees and agents from and against any and all suits, actions, legal or administrative proceedings, claims, demands or damages of any kind or nature arising out of the use of this map, or the data contained herein, in its actual or altered form.

McDowell Mountain Regional Park

Original Land Ownership



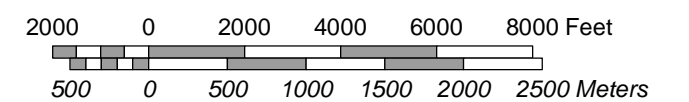
Original Ownership

- Bureau of Land Management
- State Land Department

Other

- Trail
- Service Road

Scale = 1:48,000



DISCLAIMER: This map is a graphical representation designed for general reference purposes only. Viewer/User agrees to indemnify, defend and hold harmless Maricopa County, its officers, departments, employees and agents from and against any and all suits, actions, legal or administrative proceedings, claims, demands or damages of any kind or nature arising out of the use of this map, or the data contained herein, in its actual or altered form.

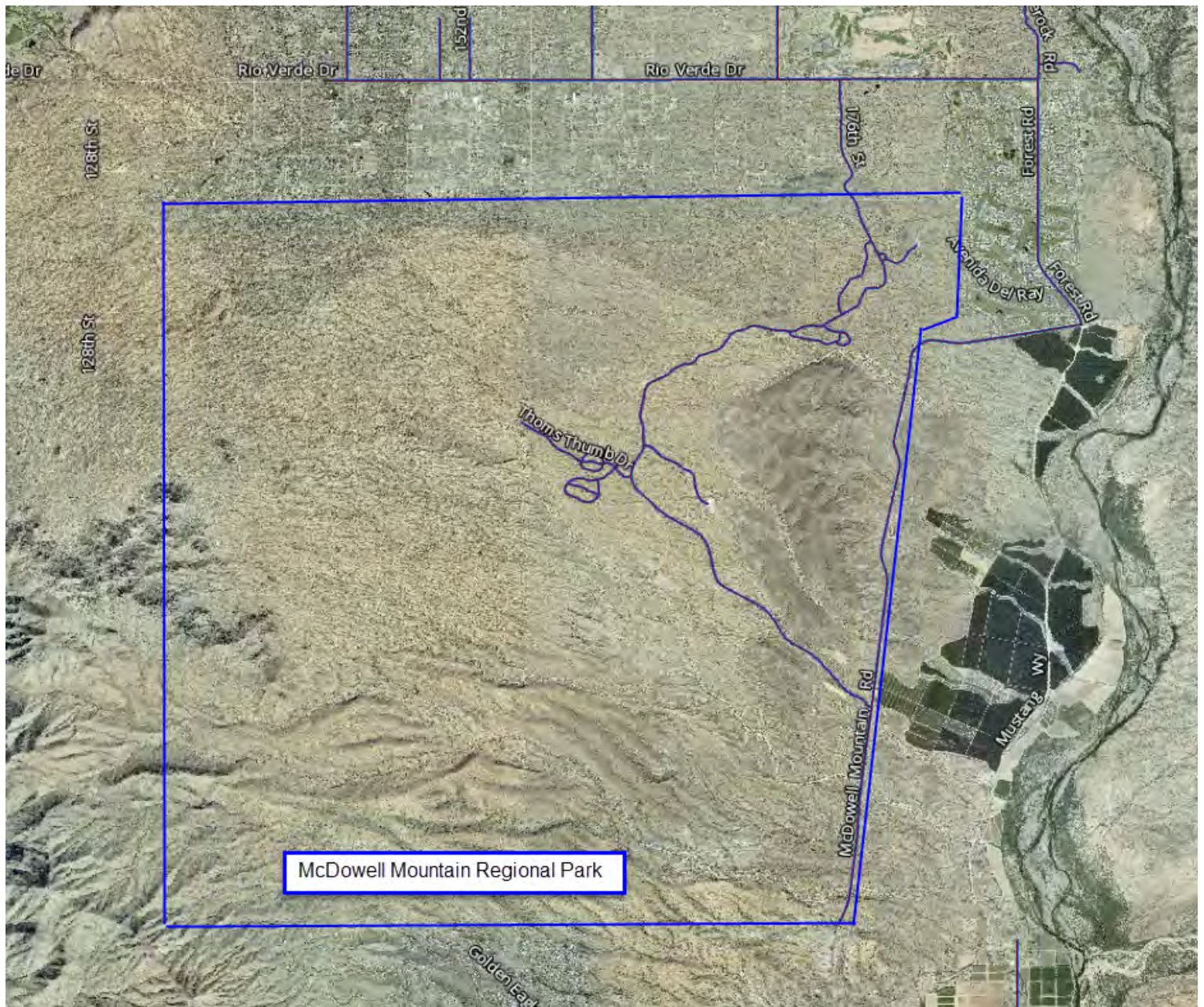
Appendix G

Facilities

Youth/Group Camp Areas			
	Minks Camp	Decomposed granite surface, 1 port-o-jon, fire pit, two natural material shade structures, 1 grill, access to Escondido Trail	~0.3 acres
	Eagle Camp	Decomposed granite surface, 1 port-o-jon, fire pit, one natural material shade structure, 1 grill	~ 0.1 acres
	Scout Camp	Decomposed granite surface, 3 port-o-jon's, fire pit, two natural material shade structures, 2 grills, access to Eagle Trail and Scout Trail	~1.6 acres
Additional Assets/Facilities			
	Trails	27 trails, 3 competitive tracks, multiple spur trails and trailheads, 7 self-pay iron rangers	~ 80.6 miles
	Memorial Bench(S)	Throughout the park	23
	RV dump station	Two pull-through clean-outs 2000 gal septic tank	7,409 sq.ft.
	Wagner Trailhead	Asphalt paved parking ~17 spaces located adjacent to RV dump station	4,900 sq.ft.
	Wildlife water catchments	Pemberton Pond and Nursery Tank are kept full, others are seasonal	6
	Additional Bike Service Stations	Granit Tank and Coachwhip/Pemberton - Tools include; allen keys, wrenches, wire cutter, screwdrivers, air pump, and honor system flat tire tubes (taken to Fountain Hills Bikes)	2
	Playground	Updated with Nature Based play equipment in 2014 - Cedar woodchip base, Concrete/fiberglass playscape - structures include: Rattle snake slide, spider web climber, Cactus climber, water fountain, 3 fabric shade sails	2,845 sq.ft
	Booster Pump	Located near east boundary southeast of Scout Camp- unpaved access road from Scout Camp Drive.	2,071 sq.ft.

Appendix H

Roads



Maricopa County Department Of Transportation - Roadway Inforamtion Mapper
<https://gisportal.maricopa.gov/roadinformation/>

From: John Counts - MCDOTX

Sent: Monday, August 11, 2014 8:25 AM

To: Mitch Wagner – MCDOTX

Cc: Nicolaas Swart - MCDOTX

Subject: Park Speed Limits - McDowell Mountain Regional Park

Mitch,

MCDOT Traffic Management Division recommends to leave the posted Speed Limit at 25 mph due to the following reasons:

1. The design speed for a Principle Park Rd for rolling terrain is 35mph preferred and 25mph minimum.
2. MCDOT post speed limits at 10mph below the design speed which is why McDowell Mountain Park Dr is posted 25mph.
3. McDowell Mountain Park Dr is ~ 27-28 Ft wide with no paved shoulders so vehicles/pedestrians/bicyclist all have to use the 12 Ft lanes that are available.
4. McDowell Mountain Regional Park has Special Events throughout the year and to raise the speed limit will endanger the participants because of the available space for all road users. (Bikes and vehicles going both directions using just 12 Ft of paved lane).
5. The distance from the Competitive Track and the Visitors Center is 2.5 miles. Traveling 35mph it will take a vehicle 6 minutes and traveling 25mph it will take 4.3 minutes to drive 2.5 miles.. To gain only 1.7 minutes traveling time at the higher speed is not really gaining much.
6. Safety for all Park users is our main concern with raising the posted speed limit.
7. The only Maricopa County Park that has a posted speed limit higher than 25 mph is Lake Pleasant Regional Park. The roads inside the Park are 40 Ft wide with 8 Ft paved shoulders.

Questions; let me know.

Thanks

John R. Counts, Traffic Studies Branch Manager
Traffic Management Division
Maricopa County Department of Transportation
2901 W. Durango St, Phoenix, AZ
(602) 506-4624
JohnCounts@mail.maricopa.gov

Appendix I

Trails



Maricopa County

McDowell Mountain Regional Park

P.O. Box 18415
Mountain Hills, AZ 85269-8415
Phone: 480-471-0173
Fax: 480-471-3523
www.maricopa.gov/parks

Memorandum

To: RJ Cardin, Director

Through: Teresa Retterbush, Eastside Superintendent
Ken Mouw, Chief Engineer

From: Rand Hubbell, Park Supervisor
Allen Ockenfels, Trails Supervisor
Joe Ballengee, Trails Planner

Date: December 16, 2008

Re: Trail Amendments

The current McDowell Mountain Regional Park Trail Master Plan was developed in 1999. With the area growth, increased use of the park and requests by our park visitors, it became apparent that the Trail Master Plan needed to be amended.

After meeting with department staff, 12 amendments were proposed for public discussion. A summary of the proposed trail amendments and an invitation to a public meeting was mailed to all McDowell Mountain Regional Park Annual Pass holders and contacts known to the park for special interest groups which included equestrian, hiking and mountain biking clubs and associations in Arizona.

On May 21, 2008 a public meeting was held at the Visitor Center at McDowell Mountain Regional Park to present a list of 12 amendments to the Master Trail Plan and solicit public response. A count of attendees during the meeting indicated that at one point mid way through the meeting 58 people were present, not counting Parks Department employees. 41 written comments were also received that were made prior to, during and within 30 days following that meeting.

The recommended amendments to the Master Trail Plan are the consolidated opinions of park visitors, neighbors, public meeting input, and department staff. Of the 12 amendments presented, 11 of them received solid support. Amendment #5 had major opposition to it and it is not being recommended for approval. Amendments #8, #10 & #11 were not recommended because of their close proximity to existing trails.

We are recommending that we incorporate nine (8) of the proposed amendments into the McDowell Mountain Regional Park Trail Master Plan.

Amendment #1 - Spur trail from the Dixie Mine Trail to the McDowell Mountain Regional Park Mountain Preserve in Fountain Hills

- Received strong support, recommend incorporation into Trail Master Plan.

Amendment #2 – Trail from the Dixie Mine Trail south to the two sections of land that are within the Town of Fountain Hills and will be developed by the Ellman Corporation

- Received strong support, recommend that it be incorporated into the Trail Master Plan.
- When this trail will be needed by residents in this planned community is unknown at this time.
- The route shown indicates a route/corridor with the intention to connect the southern boundary to the trail system and away from the competitive track. Specific trail alignment to be determined at the time of construction. *(Trails are recommending that the final map not show the route of this trail. Park field staff believes it would be inappropriate not to show this future trail connection with the anticipated development that is currently planned for the area.)*

Amendment #3 – Wash trail from the Pemberton Trail to the 30-Acre Overflow Parking Area

- Recommend that it be incorporated into the Trail Master Plan. This trail is currently in use by the equestrian community.

Amendment #4 – Trail from the North Trail to the northeast corner of the Park, connecting to Rio and Tonto Verde

- Received strong support, recommend incorporation into the Trail Master Plan.

Amendment #5 – Trail along the northern boundary of the Park w/ a fence set back 10-12 feet

- Not recommended for adoption due to opposition received from a majority of the property owners along the boundary.

Amendment #6 – Connecting trail from the Pemberton to the western boundary of the park providing a connection to the McDowell Sonoran Preserve MSP

- Proposal was to move existing trail number 1-15 north three-quarters of a mile to a point just south of Rock Nob. City of Scottsdale requested a loop trail to and from the Marcus Slide and climbing locations within the Preserve. Recommend leaving trail 1-15 where it was planned and add a new trail 1-20 at new proposed location just south of Rock Nob to also connect to the MSP.

Amendment #7 – Spur trail from the Pemberton Trail to the Visitor Center providing trail system connectivity

- Recommend that it be incorporated into the Trail Master Plan. The need for this trail will increase as a new Visitor Center and associated activity become a reality at McDowell Mountain Regional Park.

Amendment #8 – 12 *Series of trails leading from the northern boundary of the Park to the Pemberton Trail*

- Recommend incorporation of #9 and #12 into the Trail Master Plan but that only Amendment #9 would be considered for construction at this time. This amendment is for access to the Pemberton Trail from 150th Street and could possibly include the construction of a fenced parking area constructed on park property to provide off-street parking for park visitors.

The following data is a summary of public comments made via e-mails to the park supervisor, telephone calls to the park and comments made at or following the public meeting.

12 of the comments, or 29% received, indicated their support of all the amendments presented.

Amendment #1 – 10% or 4 comments were in favor of this amendment and no comments indicated objection to this amendment.*

Amendment #2 – No comments addressed this amendment specifically, 12 comments supported all the amendments.*

Amendment #3 - No comments addressed this amendment specifically, 12 comments supported all the amendments.*

Amendment #4 – 32% or 11 of the 41 comments supported this amendment to the trail plan. No comments voiced an objection to this amendment.*

Amendment #5 – 10% of the comments received, or 4 comments supported this addition to the plan. **

Amendment #6 - No comments addressed this amendment specifically, 12 comments supported all the amendments.*

Amendment #7 - No comments addressed this amendment specifically, 12 comments supported all the amendments.

Amendment #8 – 12 – 3 comments supported all or some of these proposed amendments.**

*Two (2) comment were from individuals who indicated that they were board members of the Grand Canyon Chapter of the Sierra Club and they opposed the building of any new trails within the park.

**Two (2) comment indicated that the north boundary of the park, between 136th Street and 176th Street worked well as is and no changes were needed.

Three (3) comments stated that the trail system currently built in the park worked well; met their needs and hoped we wouldn't change a thing.

One comment from one of the original designers of the Competitive Track at McDowell Mountain Regional Park stated that the track needed to be revisited and some new options built in to the existing loops to renew interest and create some more technical sections.

The City of Scottsdale, via their Preserve Director Bob Cafarella, asked that instead of moving trail 1-15 north to the area of Rock Nob, that it remain as planned and a new trail be added at Rock Nob. Bob stated in the attached letter, that new publicity and interest in the Marcus Slide along with the possible interpretation potential near the slide would warrant having a loop consisting of a new trail coming south down through the climbing areas to the Marcus Slide within the Preserve, then going east on the 1-15 original alignment, north on the Pemberton Trail to the area of Rock Nob and then traveling west to the original connection would create a nice loop that may be interest to Preserve and Park visitors.



Trail System Plan

McDowell Mountain Regional Park


July 1999

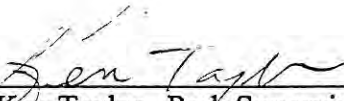


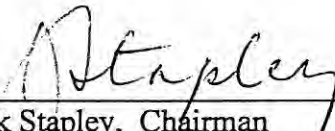
**Maricopa County
Parks and Recreation Department**

McDOWELL MOUNTAIN REGIONAL PARK

TRAIL SYSTEM PLAN

Recommended:  July 12, 1999
Bob Skaggs, Trails Planner Date

Recommended:  7/12/99
Ken Taylor, Park Supervisor Date

Recommended:  7-13-99
Jack Stapley, Chairman Date
Maricopa County Parks & Recreation Commission

Recommended:  7/13/99
Bill VanAusdal, Deputy Director Date

Approved:  7-13-99
William C. Scalzo, Director Date



PARKS AND RECREATION DEPARTMENT
MARICOPA COUNTY, ARIZONA

Table of Contents

Introduction	1
Purpose	1
The planning process	1
Amendment process	2
Public Comments	3
Scoping comments	3
Draft plan review comments	4
Trail System Plan	7
Policies	7
Actions	9
Other actions related to trails	15
Map	Attachment

This page intentionally left blank.

Introduction

Purpose

The purpose of the McDowell Mountain Regional Park (MMRP) Trail System Plan is to determine the desired future condition of the trail system, including trailheads, service road access, and competitive tracks, and prescribe actions to achieve the planned condition. It covers trails, tracks, and access points within the park boundaries; at this time, Maricopa County Parks and Recreation Department (PRD) has no holdings (right-of-way, easement, permit, or other) adjacent to or in proximity to the park for purposes of trail-related recreation.

This plan is tiered to the 1967 MMRP Master Plan. The Master Plan contains a small vague section about trail, does not specify an action plan or schedule, and is recognized as being out of date. The trail section within the MMRP Master Plan – Design Objectives section H., Hiking and Riding (p 38) is superceded by this plan. If a new master plan is created or the current master plan is amended, it will include text which delegates trail planning to this plan.

This Plan will guide the management of trails, tracks, and access within the park by developing specific management actions for the MMRP trail system. It is consistent with federal, state and county laws and PRD rules and policies.

The MMRP Trail System Plan was developed with the involvement of the public and is of particular value to the Park Supervisor and the Trails Planner. It

provides the needed framework for the management of MMRP's trail system and in the planning of specific trail work projects. This plan will also be used to educate PRD personnel about the overall management of the MMRP trail system.

The planning process

The planning team

This Trail Plan was produced by the McDowell trail planning team consisting of: Ken Taylor, MMRP Supervisor; Bob Skaggs, Trails Planner; and Sue Dahlstrom, Park Ranger. This team compiled and analyzed all pertinent information including public comments, recommendations of government agencies, natural and cultural resource protection issues, specifications for county trails, PRD policies, and the MMRP master plan.

The scoping phase

People interested in participating in the trail planning process were sought through news releases sent to area newspapers and radio stations. Announcement flyers were placed within MMRP at the trailhead kiosks. In addition, announcement letters were sent to several individuals, organizations, and government agencies potentially interested in participating in the plan development process.

In response to these announcements, PRD received 35 notices of interest from those who wanted to participate in the planning process. These participants were sent a letter of information which outlined the

planning process and requested scoping comments concerning the current and future trail system of MMRP. To facilitate this initial comment phase, some trail concerns were itemized and a park map was included for visual reference.

Altogether, PRD received 22 letters and messages from the scoping phase. Individuals and organizations submitting these comments represented hikers, park neighbors, bicyclists and equestrians. The planning team reviewed every pertinent comment submitted and then developed the draft plan.

The draft review phase

The draft plan was mailed to citizens and organizations who requested a copy. Fifteen responses were received. The planning team reviewed these responses and then developed the plan.

The approval phase

The plan was recommended for approval by the planning team and presented to the Parks and Recreation Commission and the Deputy Director for review and recommendation. The Director approved the plan. All recommendations and approval are indicated by signature on the title page.

Amendment process

As per policy in the PRD Trails Manual additions and deletions of entire trails to the Trail System (and subsequent construction or obliteration work in the field) requires an amendment to the Plan. The amendment process consists of the planning team gathering and analyzing data concerning a proposed action. The proposal is sent to participants on the plan mailing list. The planning team compiles public comments and sends the information to the PRD Director for approval or disapproval.

Public comments

Scoping comments

Twenty-two comment letters, e-mail messages, and voice-mail messages were received within the scoping period. The comments were sent by organizations and individuals who are interested in the management of trails and tracks. A summary of the comments are listed below.

Use designation

- Designate Wagner Trail for multiple-use (hiker, equestrian, and cyclist).
- Designate North Trail for multi-use.
- Designate Granite Trail for multi-use.
- Designate any new trails for multi-use.
- Designate more trails for hiking only.
- Open Youth Group Area trails for general public (reservation not required).

Connecting trails

- Install connections to McDowell Sonoran Preserve trails.
- Install trail connections as proposed by City of Scottsdale and Town of Fountain Hills in their conceptual trail plans.
- Make trail connections an invisible transition between two systems.

Trailheads

- Install new trailhead at boundary with Fountain Hills.
- Install new trailhead on extension of park office road.

- Install trailheads where Pemberton trail crosses park road.

New trails

- Install trail from Fountain Hills to Dixie Mine.
- Install bike trail from Fountain Hills to “Pemberton bike trail”.
- Install Stoneman Trail in wash bottom.
- Install Stoneman Trail as shown on old maps.
- Install short hike/bike trails for kids.
- Install trail connection from Scenic Trail to competitive track parking lot.
- Install Wagner Trail connection to bypass group camp area.
- Install trails across Pemberton Trail loop for medium length routes.
- Install spur trail at west end of Wagner long loop to rocky area.
- Install trail south from campground trailhead to Granite Trail.
- Install loop trail in southwestern area of park.
- Install more wash trails in park.

Alterations to existing trails

- Re-align north Pemberton Trail segment off the road.
- Install alternate route to bypass “whoop-de-do’s” on west segment of Pemberton Trail.
- Repair “whoop-de-do” section of Pemberton Trail.
- Repair rocky road section on south section of Pemberton Trail.

- Renovate Pemberton Trail to make it safer for hikers.
- Don't change Pemberton Trail.
- Re-align Scenic Trail out of wash bottom.

Competitive track

- Close track entirely
- Add alternate route to bypass ledge hill.
- Add parallel track passing zones.
- Don't make passing zones; it's part of the game.
- Designate connection between loops for two-way travel.
- Add halfway cut across route on Long Loop (middle ridge service road).

Park rules

- Enforce stay-on-designated-trail rule.

Signs

- Post trailhead sign (to campground trailhead) on main road.
- Post information kiosks at all trailheads.

Draft plan review comments

Fifteen letters, e-mail messages, faxes, and personal conversations resulting from review of the MMRP draft trail plan, were received by the planning team.

Use designation

- Designation of most trails as multi-use is supported.

- Do not designate Granite Trail for multi-use.
- Do not designate more trails for hiking only.
- Open youth group area trails to general public.
- Do not allow horses on Wagner or North Trails.

Connecting trails

- Establishment of trails connecting to Fountain Hills and Scottsdale trails is supported.
- Choose only one trail from three proposed southwest area trails.
- Do not establish trails connecting to Scottsdale preserve.
- Trails connecting to Scottsdale may allow intrusions by vehicles using jeep roads in mountains.
- Establish trails and access gates to neighborhoods north of park (136 St., 158 St. & approx. 168 St.). Parking not needed. Neighborhood north of park will assist with development costs and supports installation of pay stations.
- Trail west from Dixie Mine must be on service road due to topography.
- Add "bike trail" from Fountain Hills trailhead to Pemberton Trail.
- Classify trail between Dixie Mine and Pemberton Trail as a "bike trail" since it connects with Pemberton which is a "bike trail".
- Add hiking trail from Dixie Mine to trail to the north.
- Add connection from Fountain Hills to competitive track.

Trailheads

- Establishment of trailhead at Fountain Hills boundary is supported.
- Add hitchrails and water troughs at Trailhead Group Area.

New trails

[Note that numbered trail references are altered from the draft to the final plan. For example, #11 is now shown on the action item list as #1-11.]

- #11 trail making loop with #13 trail is supported.
- #12 and #13 trails are too close together; delete #12.
- #12 and #13 trails lead too much traffic to remote areas of park.
- #12 trail in wash bottom is supported.
- Establish #12 trail on ridge tops, not in wash bottom.
- Too many new trails causing congestion, no opportunities to experience isolation.
- #10 trail is supported.
- #5 trail should be in picnic area “island”.
- Install more wash trails.
- #13 and #14 trails are supported.
- Establish trail from Scenic Trail to track parking lot.

Alterations to existing trails

- Reconstructing #6 Scenic Trail out of wash bottom is supported.
- Reconstructing Pemberton trail off of service road and eliminating “whoop-de-do’s” is supported.
- #8 trail should remain on #24 [#3-5] service road; extra wide tread

alleviates potential for collisions between high-speed cyclists and other travelers; if new route is built, travelers may go in both directions for curiosity and variety; build alternate trail for equestrians.

- If making new segment off of service road, make it with similar features to road (sweeping curves, ability for bikers to maintain pace).
- Pemberton Trail should be designated as secondary and remain isolated.
- Do not eliminate “whoop-de-do’s” from Pemberton Trail; Install alternate trail for equestrians; .
- Pemberton Trail is good the way it is.
- Align #3 trail onto Asher Hills.
- Do not align Wagner Trail around group camp area.

Competitive track

- Add support facilities (ramadas, tables) to parking lot.
- Tables and ramadas are not necessary.
- Continuance of competitive track is supported.
- Make no alterations to the track; do not make bypasses on expert section.

Park rules

- Enforcement of stay-on-designated-trail rule is supported.

Signs

- Post information kiosks at all trailheads with maps and other information.
- Identify on maps and kiosks that wash trail is unsuitable for bikes.

- Post trailhead sign (to campground trailhead) on main road.

Other comments

- Entire plan is supported.
- Obliteration of unauthorized paths is supported.
- Routine maintenance is supported so long as it is minimal and does not destroy natural features.
- Trails should be out of wash bottoms.
- Locate trails by scenic view points and other points of interest.

- Primary trail standards are too easy for bikers.
- Retain as much “singletrack” as possible and add more.
- Clarify classifications in the text.
- Dixie mine shafts and adits should be securely blocked.
- Dixie Mine has existing exclosure gate; access to entire mine area may be recommended for restriction by Arizona Game & Fish Department for habitat protection.

Trail system plan

Execution of the Plan is described in the section titled “Actions” (page 9). A quick reference chart titled “Summary of Action Items” is on page 16.

The map included with this trail plan shows the planned trail system. If a pre-existing designated trail or track, or an unauthorized route that is currently being used by the public, does not appear on the map, it is slated for closure and obliteration. The locations of trails and tracks on the plan map are not intended to be precise; new trails will be installed as dictated by PRD standards and area topography.

All of the trails and tracks are subject to modifications and improvements as needed to repair hazards to visitors, reconstruct or re-align sections which exceed standards, prevent erosion, or address other management concerns.

Please note: planned trails are not open to travel until properly constructed, posted, and designated by PRD. Travelling on these unauthorized trails causes damage to the land, may be hazardous, and is in violation of park rules.

Policies

Type of use

PRD policy encourages designating trails and tracks for multiple-use whenever possible. This means pedestrians, equestrians, and cyclists should be allowed to use all of the designated trails in MMRP. Where essential, for visitor

safety or special use conditions, use may be restricted (e.g., interpretive or barrier-free trails, trails linking to a facility with such restrictions, or during special events).

Standards and objectives

Standards and management objectives for classifications of trails and tracks are as directed in the PRD Trails Manual. Classifications are listed as primary, secondary, interpretive, and barrier-free trails, and competitive track.

A summary of standards and objectives for each classification is found on page 8.

Definitions

Classification: A category of management objectives and standards directing the design, construction, and maintenance of designated trails aimed at providing an appropriate visitor experience.

Competitive Track: A recreation facility designed, constructed, and maintained for non-motorized, competitive-type activities that allows for high speeds and sport.

Maximum sustained grade: Maximum inclination allowed for the tread. Grade is a function of rise over run expressed as percent (i.e., $\text{rise/run} = \%$).

Trail: A recreational facility designed, constructed, and maintained to serve non-motorized modes of transportation. Motor travel is permitted for suitable wheelchairs and administrative and emergency vehicles.

SUMMARY OF STANDARDS AND SPECIFICATIONS

	BARRIER-FREE TRAIL	INTERPRETIVE TRAIL	PRIMARY TRAIL	SECONDARY TRAIL	COMPETITIVE TRACK
Management objectives	To provide outdoor recreation for visitors with mobility, sight, and hearing limitations. Has sitting benches and a hardened surface. Low speed. Non-motorized. ¹	To provide educational recreation away from distracting use and activities. Low speed. Non-motorized. ¹	To provide leisurely outdoor recreation which allows for side-by-side travel and easy passing. Medium speed. Non-motorized. ¹	To provide leisurely outdoor recreation in areas that may be distant from an access point or have rugged topography. Medium speed. Non-motorized.	To provide challenging, strenuous, and high speed outdoor recreation for individuals, groups, and organized events. Direction of travel is one-way. High speed. Non-motorized. ²
Experience objectives	To feel safe, socialize, and be surrounded by nature.	To anticipate, discover, gain environmental awareness, and be a part of nature.	To exercise, socialize, and be surrounded by nature.	To be adventurous, discover, obtain solitude, be remote, and be a part of nature.	To be challenged, take risks, be competitive, exercise, and be active in a natural setting.
User types	Pedestrians, including the physically disabled and toddlers.	Pedestrians.	Multi-use (hikers, equestrians, and bicyclists). ³	Multi-use (hikers, equestrians, and bicyclists). ³	Multi-use (runners, equestrians, and bicyclists). ⁴
Construction standards	5% max. sustained grade. 8% (for 1/10th or less of total length) max. grade. ⁵ 7 ft. (two-way), or 5 ft. (one-way) width.	10% max. sustained grade. 15% max. grade. ⁵ 4 ft. width.	10% max. sustained grade. 15% max. grade. ⁵ 4 ft. width.	15% max. sustained grade. 20% max. grade. ⁵ 2 ft. width.	20% max. sustained grade. (No limit) max. grade. ⁵ Up to 10 ft. width.

¹ Except for wheelchairs, and administrative and emergency use.

² Except for administrative and emergency use.

³ Certain trails may be restricted where essential.

⁴ Use is restricted during organized events.

⁵ For specified short distances where essential.

Tread: Maintained surface of trail or track; may be natural earth or imported material.

Trail signs

The signs marking the trail system will be consistent with the PRD Trail Manual guidelines. This includes colors of beige on brown, trail name and directional arrows on junction signs, and trail name and user type on terminus signs.

Track signs have color and shape similar to highway signs as appropriate.

Regulatory or warning signs may be posted on trails where essential.

Perimeter access points

Access points may be developed to allow connecting trails from the MMRP trail system to adjacent land. According to PRD policy, trail access points may be added along park boundaries only if:

1. There is a demonstrated public need and demand.
2. The access is guaranteed, long-term for the general public.
3. Other adjacent landowners concur with the establishment of access.

Note that County Board of Supervisors action established a new fee schedule effective July 1, 1999. All persons entering the park at any entry point are subject to payment of an entry fee.

Washes

Wash trails have specifications equal to primary trail standards. Since natural openings of wash bottoms typically exceed specifications for primary trails,

the primary standards are considered to be minimum specifications for wash trails. Where vegetation growth or other obstacles encroach upon the trail width, and then action is taken to remove the obstacles to meet the minimum specifications for tread width and vegetation clearance width.

Actions

The following action items provide direction for the establishment of the MMRP Trail System and access to trails. Each action item's number corresponds to numbers on the attached map and the chart on page 15. Unless it is otherwise indicated, all trails are designated for non-motorized, multiple-use by hikers, cyclists, and equestrians.

Trail Management

1-1. Northeast area

Maintain a designated secondary trail at the Youth Group Area.

- This trail is 0.5 mi./0.8 km in length.
- Restricted to hikers only.
- Youth Group Area is occupied by reservation only.

1-2. Northeast area

Maintain a designated primary trail at the Youth Group Area

- This trail is 0.8 mi./1.3 km in length.
- Restricted to hike/bike only.
- Youth Group Area is occupied by reservation only.

1-3. Northeast area

Maintain a designated primary trail at Palo Verde Picnic Area.

- This trail is 3.1 mi./5.0 km in length.
- Restricted to hike/bike only.

1-4. Northeast area

Maintain a designated secondary trail at the Ironwood Picnic Area to the top of Lousley Hill.

- This trail is 1.2 mi./1.9 km in length.
- Restricted to hikers only.

1-5. Northeast area

Install, designate, and post a barrier-free, interpretive trail at the Ironwood Picnic Area.

- This trail will be approximately 0.3 mi./0.5 km in length.
- Restricted to pedestrians only.

1-6. East-central area

Maintain a designated secondary trail east of the Trailhead Group Area.

- This trail is 2.8 mi./4.5 km in length.
- Re-align south segment of trail out of wash bottom.

1-7. East-central area

Maintain a designated secondary trail at the Trailhead Group Area.

- This trail is 0.3 mi./0.5 km in length.
- Restricted to hikers only.

1-8. Northwest-central area

Maintain a designated primary trail from the Trailhead Group Area in a large loop through the park.

- This trail is 15.3 mi./24.5 km in length.
- Re-align north and southeast segments off of service roads.
- Construct a spur trail from the a point on the north central segment of 1-8 to the Park boundary at 158th Street and Jomax Road only in coordination with Action Item 3-13.
- Construct a spur trail to the Park boundary only in coordination with Action Item 3-14 and as follows:

Situation #1: The spur trail will be located from the northwest corner of trail 1-8 to the northwest corner of the Park boundary (approximately 136th Street). **OR** Situation #2: If the City of Scottsdale installs a trail adjacent to the west Park boundary, then the spur trail will be located from the northwest corner of trail 1-8 to the City trail in the vicinity of Granite Tank. Situation #2 requires an intergovernmental agreement (IGA) between Maricopa County and City of Scottsdale.

1-9. Central area

Maintain a designated primary trail north of the campground.

- This trail will be approximately 1.0 mi./1.6 km in length.
- Restricted to hike/bike only.
- Construct a segment to bypass the Group Camp Area.

1-10. Central area

Install, designate, and post a primary trail east of the campground.

- This trail will be approximately 0.5 mi./0.8 km in length.
- Restricted to hike/bike only.

1-11. Central area

Maintain a designated primary trail north of Pemberton Wash.

- This trail will be approximately 3.0 mi./4.8 km in length.
- Spurs to campground are restricted to hike/bike only.
- Construct new east-end segment to new trail junction south of Pemberton Wash.
- Re-align segment north of the maintenance compound.

1-12. West-central area

Install, designate, and post a wash (primary) trail.

- This trail will be approximately 4.0 mi./6.4 km in length

1-13. West-central area

Install, designate, and post a primary trail.

- This trail will be approximately 2.0 mi./3.2 km in length.

1-14. West-central area

Install, designate, and post a primary trail.

- This trail will be approximately 2.5 mi./4.0 km in length.

1-15. West area

Install, designate, and post a primary trail to the boundary with the McDowell Sonoran Preserve.

- This trail will be approximately 1.0 mi./1.6 km in length.
- Construct this trail only in coordination with action item 3-15.
- This action item will be carried out only if access criteria are met (see “Policies – Perimeter Access Points”).
- IGA between Maricopa County and City of Scottsdale required.

1-16. Southwest area

Install, designate, and post a primary trail.

- This trail will be approximately 2.0 mi./3.2 km in length.
- This action item will be carried out only if 1-17, 1-18, and 1-19 are installed.
- IGA between Maricopa County, City of Scottsdale, and Town of Fountain Hills is required.

1-17. Southwest area

Install, designate, and post a primary trail to a parking lot at the boundary with Fountain Hills.

- This trail will be approximately 4.0 mi./6.4 km in length.
- Includes spur trail to Dixie Mine site.
- Mitigate impacts to habitat at Dixie Mine site in coordination with Arizona Game and Fish Department.
- This action item will be carried out only if access criteria are met (see “Policies – Perimeter Access Points”).

