



0000165885

Arizona Water Company

W-01445A-15-0277

Amendment to Application

PART 3 OF 12

Arizona Corporation Commission
DOCKETED
AUG 21 2015

DOCKETED BY 

TABLE 7
 MONITORING LOCATIONS
 AWC PINAL VALLEY RECHARGE PROJECT

Source Water		Groundwater	
Monitor Point ID	Description	Cadastral Location	
SW-1	Intake Structure	D(6-8) 18DDD	
Monitor Point ID	ADWR Registration Number	Cadastral Location	Screened Interval (feet bls)
MW-1 (proposed)	tbd	D(6-8) 18BDA	70
			120

Notes:
 1 - MW-1 is proposed

TABLE 9
WATER QUALITY MONITORING
AWC PINAL VALLEY RECHARGE PROJECT

Analyte	Method	Groundwater		Source Water ²		Monitoring Frequency		Reporting Frequency
		Alert Level (mg/L)	OPL (mg/L)	OPL (mg/L)	OPL (mg/L)	First 12 Months	After 12 Months	
Field								
pH	Field	NA	NA	NA	NA	Every 3 Months	Every 6 Months	Annually
Specific Conductance	Field	NA	NA	NA	NA	Every 3 Months	Every 6 Months	Annually
Temperature	Field	NA	NA	NA	NA	Every 3 Months	Every 6 Months	Annually
Inorganic Analytes								
Alkalinity (Total)	310.1	NA	NA	NA	NA	Every 3 Months	Every 6 Months	Annually
Alkalinity, Bicarbonate	2320B	NA	NA	NA	NA	Every 3 Months	Every 6 Months	Annually
Alkalinity, Carbonate	2320B	NA	NA	NA	NA	Every 3 Months	Every 6 Months	Annually
Calcium	200.9	NA	NA	NA	NA	Every 3 Months	Every 6 Months	Annually
Chloride	300	NA	NA	NA	NA	Every 3 Months	Every 6 Months	Annually
Fluoride	300	Reserved ¹	Reserved ¹	4.0	4.0	Every 3 Months	Every 6 Months	Annually
Nitrate (as N)	300	Reserved ¹	Reserved ¹	10	10	Every 3 Months	Every 6 Months	Annually
Potassium	6010A	NA	NA	NA	NA	Every 3 Months	Every 6 Months	Annually
Sodium	273.1	NA	NA	NA	NA	Every 3 Months	Every 6 Months	Annually
Sulfate	300	NA	NA	NA	NA	Every 3 Months	Every 6 Months	Annually
Total Dissolved Solids	2540C	NA	NA	NA	NA	Every 3 Months	Every 6 Months	Annually
Trace Metals								
Aluminum	6010A	NA	NA	NA	NA	Every 3 Months	Every 6 Months	Annually
Antimony	200.9	0.0048	0.006	0.006	0.006	Every 3 Months	Every 6 Months	Annually
Arsenic	200.9	0.04	0.05	0.05	0.05	Every 3 Months	Every 6 Months	Annually
Barium	200.7	1.6	2	2	2	Every 3 Months	Every 6 Months	Annually
Beryllium	200.7	0.0032	0.004	0.004	0.004	Every 3 Months	Every 6 Months	Annually
Cadmium	200.7	0.004	0.005	0.005	0.005	Every 3 Months	Every 6 Months	Annually
Chromium	200.7	0.08	0.1	0.1	0.1	Every 3 Months	Every 6 Months	Annually
Copper	200.7	NA	NA	NA	NA	Every 3 Months	Every 6 Months	Annually
Iron	200.7	NA	NA	NA	NA	Every 3 Months	Every 6 Months	Annually
Lead	200.9	0.04	0.05	0.05	0.05	Every 3 Months	Every 6 Months	Annually
Magnesium	200.7	NA	NA	NA	NA	Every 3 Months	Every 6 Months	Annually
Manganese	200.7	NA	NA	NA	NA	Every 3 Months	Every 6 Months	Annually
Mercury	245.1	0.0016	0.002	0.002	0.002	Every 3 Months	Every 6 Months	Annually
Nickel	200.9	0.08	0.1	0.1	0.1	Every 3 Months	Every 6 Months	Annually
Selenium	200.9	0.04	0.05	0.05	0.05	Every 3 Months	Every 6 Months	Annually
Silver	6010A	NA	NA	NA	NA	Every 3 Months	Every 6 Months	Annually
Thallium	200.9	0.0016	0.002	0.002	0.002	Every 3 Months	Every 6 Months	Annually
Zinc	200.7	NA	NA	NA	NA	Every 3 Months	Every 6 Months	Annually
Microbiological								
Total Coliform	9221A	NA	Repeat Positive	Repeat Positive	Repeat Positive	Every 3 Months	Every 6 Months	Annually

Notes:
1 - The Alert Levels and OPLs for fluoride and nitrate in groundwater will be calculated after the first 4 sampling events and submitted to ADWR for approval.
2 - there is no Alert Level for the source water.

TABLE 10
 WATER QUANTITY MONITORING
 AWC PINAL VALLEY RECHARGE PROJECT

Monitor Point ID	Location	Latitude	Longitude	Monitoring Frequency	Reporting Frequency
Meter A				Weekly	Annually

Appendix A

**DRILLERS LOG SUMMARY FOR SECTION A-A' AND B-B' ON FIGURE 5
AND FIELD INVESTIGATION BORING LOGS**

CADASTRAL	INTERVAL	DESCRIPTION
(D-06-08) 24ada	0 - 10	top soil
	10 - 180	silty sand
	180 - 490	sandy clay
	490 - 1,390	silty clay
	1,390 - 1,570	silty to sandy clay
	1,570 - 1,760	clayey silt
	1,760 - 1,850	brownish silty sand & gravel
(D-06-09) 06acd	0 - 10	decomposed granite
	10 - 20	top soil
	20 - 70	caliche, sand & some clay
	70 - 90	sand, some gravel & clay
	90 - 120	sandy clay & some gravel
	120 - 135	sandy clay, sand stone with hard streaks (water @ 130')
	135 - 140	decomposed granite quartz
	140 - 150	sandy clay
	150 - 155	dark fine sand
	155 - 187	sandy clay with hard sandstone streaks
	187 - 203	red clay & some sand
	203 - 222	fine sandy clay
	222 - 255	red clay & gravel
	255 - 259	broken quartz & hard caliche
	259 - 292	red clay & some sand
	292 - 295	red, hard shale
	295 - 324	red clay
	324 - 329	red shale
	329 - 356	red clay
	356 - 360	red shale & sandstone
	360 - 435	red clay & hard streaks of clay shale
	435 - 490	red clay shale & sandstone
	490 - 518	red clay
	518 - 575	red clay shale & sandstone
	575 - 720	silty clay
	720 - 726	silty clay & sandstone
	726 - 778	silty clay
778 - 796	brown clay shale	
796 - 874	silty clay	
874 - 910	silt, fine sand & clay	
910 - 944	fine sand clay sandstone & broken quartz	
944 - 995	clay	
995 - 1,050	sandy clay, hard streaks with some gravel & sandstone	
(D-06-09) 07caa	0 - 30	clay
	30 - 50	sand
	50 - 155	clay
	155 - 160	sand
	160 - 165	clay
	165 - 175	sand & water
	175 - 295	clay
	295 - 305	hard sand
	305 - 325	clay
	325 - 335	hard sand
	335 - 789	clay
	789 - 792	sand
	792 - 925	clay
	925 - 1,045	clay & sand in streaks of about 5' each
	1,045 - 1,055	hard abasive sand
1,055 - 1,060	hard clay	
1,060 - 1,077	hard abrasive cemented sand	

CADASTRAL	INTERVAL	DESCRIPTION
(D-06-09) 07cdd	0 - 20	sand, clay & caliche
	20 - 45	clay
	45 - 55	sand
	55 - 65	cement
	65 - 445	light clay
	445 - 460	cement sand
	460 - 770	clay
	770 - 1,045	clay, fine sand & silt
	1,045 - 1,140	clay, clay shale & sand
	1,140 - 1,210	gravel
	1,210 - 1,600	gravel with strata of clay
(D-06-09) 18bad	0 - 10	top soil
	10 - 50	sandy clay
	50 - 60	sand & gravel
	60 - 220	clay
	220 - 240	sand & gravel
	240 - 450	clay
	450 - 470	sandstone
	470 - 1,150	clay
	1,150 - 1,160	sand & gravel
	1,160 - 1,170	clay
	1,170 - 1,260	sand & gravel
	1,260 - 1,275	clay
	1,275 - 1,440	sand & gravel
(D-06-09) 18bda	0 - 47	sandy clay
	47 - 63	coarse sand
	63 - 105	sandy clay
	105 - 115	coarse sand
	115 - 133	sandy clay with small strata of sand
	133 - 144	gravel & boulders
	144 - 170	cemented shell and jointed clay
	170 - 255	clay
	255 - 263	sand & gravel
	263 - 1,095	silty clay
	1,095 - 1,402	conglomerate of clay, sand & gravel
(D-06-09) 30aac	0 - 22	silt & dry clay
	22 - 115	dry clay
	115 - 210	silty clay
	210 - 390	clay with some gravel & silt
	390 - 450	sticky clay
	450 - 460	clay, some gravel & coarse sand
	460 - 473	clay
	473 - 495	sticky clay
	495 - 505	dry clay
	505 - 517	clay shale
	517 - 531	brown sticky clayq
	531 - 537	clay & fine sandq
	537 - 550	sticky clay
	550 - 580	dry clay
580 - 582	sand	

CADASTRAL	INTERVAL	DESCRIPTION
	582 - 586	red sticky clay
	586 - 595	silty clay
	595 - 600	clay & sand
	600 - 615	brown clay
	615 - 621	light brown sticky clay
	621 - 630	sticky clay
	630 - 640	clay & silt
	640 - 695	dry, hard clay
	695 - 710	sticky clay
	710 - 715	dry hard clay
	715 - 736	sticky clay
	736 - 812	dry, hard clay
	812 - 821	clay & some sand
	821 - 841	sticky clay
	841 - 885	dry, hard clay
	885 - 893	dry, hard clay
	893 - 906	hard clay shale
	906 - 919	silty clay
	919 - 925	sticky clay
	925 - 940	red clay
	940 - 978	silty clay
	978 - 1,005	sticky clay
(D-06-09) 33bad	0 - 50	silt & sand
	50 - 176	sand & gravel
	176 - 267	clay with sand streaks
	267 - 300	boulders
	300 - 427	sand with clay streaks
	427 - 500	sand & gravel
	500 - 575	clay
	575 - 650	sand & gravel
	650 - 758	sand & gravel with clay streaks
	758 - 770	clay
	770 - 950	sand & gravel with clay streaks
	950 - 1,085	sand & gravel
	1,085 - 1,100	clay
(D-07-08) 25ccc	0 - 100	sand
	100 - 180	gravel
	180 - 200	clay
	200 - 260	gravel
	260 - 380	sand
	380 - 400	gravel
	400 - 440	sand
	440 - 470	silt
	470 - 500	sand
	500 - 520	silt
	520 - 580	sand
	580 - 620	clay
	620 - 680	sand
	680 - 710	clay
	710 - 770	sand
	770 - 860	silt
	860 - 930	sand
	930 - 960	clay
	960 - 1,020	sand
	1,020 - 1,400	silt and clay
	1,400 - 1,944	clay

Data Source:

Montgomery & Associates, Inc. Feb. 2009. Report. Recovery Wellfield Siting Study Phase 1
Pinal County, Arizona. Prepared for Central Arizona Project.

ADWR Wells-35 Registry Database.

Project No.: 011010	Well/Boring Name: B4-R52	* Percentages of fines, sand, & gravels based on visual estimates of volume <input checked="" type="checkbox"/> Relative % fines (F < 0.075 mm; No. 200 sieve) <input type="checkbox"/> Relative % sand (S > 0.075 < 4.75 mm) <input checked="" type="checkbox"/> Relative % gravel (G > 4.75 mm; No. 4 sieve)
Project Name: <u>Pineal Recharge Project</u>	Date/ Time Started: 7/15/14	
ADWR Number:	Date/Time Completed: 7/16/14	
Location Cadastral:	Drilling Equipment:	
Location NAD 83:	Drilling Method: <u>Rotary Sonic</u>	
Drill Company: <u>Cascade</u>	Bit Size/Type:	
Driller(s): <u>Brigham</u>	Conductor Casing (type; diameter; depth):	
Logged By: <u>TL</u>	Total Borehole Depth:	

Depth (feet)	* Est. %			* Est. %			Drill Rate (ft/hr)	PID	Blows per foot	Mud Recovery Color	Sample Description	Remarks
	F	S	G	F	S	G						
10	65	30	5				20		Lite	7.54R 4/6	Sandy silt w/ trace gravel: Loose, Dry, silt no stickyness, no plasticity. Sand fine to coarse, SA to SR, mod sorted, composed of qtz, (felsic), Gravel up to 1.2cm, Angular, (felsic) composed of qtz and metamorphics.	
20	80	15	5				40		mod	7.54R 5/4	Silt w/ sand and gravel: Loose, Dry, silt no stickyness, no plasticity, Sand fine to coarse SA to SR, poorly sorted, composed of qtz, (felsic), Gravel up to 1cm, SA, Same lithology as sand.	
30	85	15	0				40		mod	7.54R 5/4	SAME AS ABOVE: Low amount of clay present decrease in gravel.	
40	80	20	0				40		mod	7.54R 4/4	Sandy silty/clay: Loose, dry, fines predom silt, low stickyness, ^{no} plasticity. Sand fine to coarse, SA to SR, mod sorted, composed of qtz, (felsic).	30-32 Sandy lens
50	90	10	0				40		mod	7.54R 4/4	SAME AS ABOVE:	
60	95	5	0				45		mod	7.54R 4/4	Silty clay with sand: Loose to hard clumps, dry, fines form hard clumps, mostly silt, low stickyness, no plasticity. Sand fine to coarse, SA to SR, poorly sorted, composed of qtz, (felsic).	
70	90	5	5				40		mod	7.54R 4/4	SAME AS ABOVE: Gravel present, up to 0.6cm SA to SR, composed of qtz,	

Depth (feet)	* Est. %			* Est. %			Drill Rate (ft/hr)	PID	Blows per foot	Mangell Recovery Color	Sample Description	Remarks
	F	S	G	F	S	G						
80	90	5	5				30		med	7.54R 4/4 Brown	Silt/Clay w/ sand and gravel. Loose to hard clumps. Fines predom silt, Low stickiness, no plasticity. Sand fine to coarse, SA to SR, poorly sorted composed of qtz, (felsic), Gravel up to 1cm, SA to SR, composed of qtz.	
90	85	10	5				30		med	7.54R 4/4 Brown	SAME AS ABOVE: Increase In sand	
100	95	5	Ø				30		Lite	7.54R 4/6 Strong Brown	SAME AS ABOVE: Decrease In Gravel	
110	99	T	Ø				40		non	7.54R 4/6 Strong Brown	Silt with trace sand and clay: Loose to blocky clumps, wet, fines predom silt, No stickiness medium coarse. Low plasticity, Sand is fine to coarse, mod sorted, SA to SR, composed of qtz.	Hit water @ 104'
120	99	T	Ø				40		non	7.54R 4/6 Strong Brown	SAME AS ABOVE:	
130	90	10	Ø				40		non	7.54R 5/4 Brown	SAME AS ABOVE: Increase In sand	
140	95	5	Ø				40		Lite	7.54R 5/4 Brown	SAME AS ABOVE: Decrease In sand.	
150	95	5	Ø				40		Lite	7.54R 5/4 Brown	Same AS ABOVE:	~ 128-131 sand here

Project No.: 011010	Well/Boring Name: B2-R51	* Percentages of fines, sand, & gravels based on visual estimates of volume
Project Name: Pinal Recharge Project	Date/Time Started: 7/16/14	
ADWR Number:	Date/Time Completed: 7/17/14	<input checked="" type="checkbox"/> Relative % fines (F < 0.075 mm; No. 200 sieve)
Location Cadastral:	Drilling Equipment:	<input type="checkbox"/> Relative % sand (S > 0.075 < 4.75 mm)
Location NAD 83:	Drilling Method: Rotasonic	<input checked="" type="checkbox"/> Relative % gravel (G > 4.75 mm; No. 4 sieve)
Drill Company: Cascode	Bit Size/Type:	
Driller(s): Brigham	Conductor Casing (type; diameter; depth):	
Logged By: TL	Total Borehole Depth: 190'	

Depth (feet)	* Est. %			* Est. %			Drill Rate (f/hr)	PID	Mud Blows per foot	Munsell Recovery Color	Sample Description	Remarks
	F	S	G	F	S	G						
10	80	20	T				40		mod	7.5YR 4/6 Strong Brown	Sandy Silt/Clay w/ Trace Gravel: Loose, dry. Fines predom silt, low stickiness, low plasticity. Sand is fine to coarse, SA to SR, poorly sorted, composed of qtz and mafic volcanics (felsic). Gravel up to 1cm, SA, composed of qtz, (felsic). Clumps of caliche present	
20	80	20	T				40		mod	7.5YR 5/4 Brown	Same As Above: Color change.	
30	80	15	5				30		mod	7.5YR 5/4 Brown	Same As Above: Gravel present up to 1.5 cm, Angular to SA, composed of qtz and basalt, (felsic)	
40	40	50	10				35		mod	7.5YR 6/4 Light Brownish	Silty Sand w/Gravel: Loose, dry, Sand fine to coarse, poorly sorted, SA to SR, composed of qtz and metamorphics. (felsic) mostly qtz, Gravel up to 1.7cm, SA, composed of qtz mod sorted.	32-38' ~ Alternating layers of sand/gravel and silt.
50	85	10	5				30		mod	7.5YR 5/4 Brown	Sandy Silt/clay w/gravel: Loose, dry, Fines are predom silt, low stickiness, low plasticity. Sand fine to coarse, SA to SR, Predom qtz with metamorphics. Gravel up to 1cm, SA to SR mod sorted,	
60	55	40	5				30		mod	7.5YR 5/4 Brown	Sandy & Silty/Clay w/gravel: Loose, dry, Fines are predom silt, low stickiness, low plasticity. Sand fine to coarse, SA to SR, poorly sorted, composed of qtz, metamorphics, Jasper, (felsic). Gravel up to 1cm, SA to SR, mod sorted. Same lithology as sand.	~ 52-53 - Sandy lens
70	80	15	5				40		mod	7.5YR 5/4 Brown	Sandy Silt/Clay w/Gravel: Fines predom silt, low stickiness, low plasticity. Sand fine to coarse SA to SR, poorly sorted, composed of qtz, metamorphics granite, mostly qtz, felsic. Gravel up to 1.6cm, SA to SR, mod sorted, Same lithology as sand.	

Depth (feet)	* Est. %			* Est. %			Drill Rate (ft/hr)	PID	Blows per foot	Amwell Recovery Color	Sample Description	Remarks
	F	S	G	F	S	G						
80	80	15	5				40		mod	7.54R 5/6 Strong Brown	Sandy Silt/clay w/ gravel! Loose to hard clumps, moist, Fines predom silt, Low stickyness, Low plasticity. Sand fine to coarse, SA to SR, mod sorted, composed of qtz, metamorphosed Jasper, felsic; Gravel up to 0.8cm, SA to SR, same lithology as sand.	
90	80	15	5				40		mod	7.54R 5/6 Strong Brown	SAME AS ABOVE;	
100	95	5	0				40		white	7.54R 5/6 Strong Brown	Silt/Clay with Sand: Loose to hard clumps, Fines predom silt, Low stickyness, Low plasticity. Sand is fine to coarse, SA to SR, poorly sorted composed of qtz.	
110	95	5	0				25		none	7.54R 5/6 Strong Brown	SAME AS ABOVE: Increase in clay content, mod plasticity, low stickyness.	~ Hit water @ .104'
120	99	T	0				25		none	7.54R 5/6 Strong Brown	SAME AS ABOVE: Decrease in sand	
130	25	65	10				20		none	7.54R 6/4 Light Brown	Silt/Clayey Sand with Gravel: Loose, wet, Sand fine to coarse, SA to SR, poorly sorted, composed of qtz, quartzite, volcanics, g.mite. (Intermediate) Gravel up to 3cm, SA to SR, poorly sorted, same lithology as sand.	~ 126-129' Sandy lense visible
140	30	50	20				20		slight	7.54R 6/6 Reddish Yellow	SAME AS ABOVE: Increase in clay and gravel	
150							20		slight	7.54R 5/6 Strong Brown	Silt/Clay: Soft to hard clumps; wet, Silt clay mixture, Low stickyness, Low plasticity.	

Project No.: <u>011010</u>	Well/Boring Name: <u>Basin 1</u>	* Percentages of fines, sand, & gravels based on visual estimates of volume <input checked="" type="checkbox"/> Relative % fines (F < 0.075 mm; No. 200 sieve) <input type="checkbox"/> Relative % sand (S > 0.075 < 4.75 mm) <input checked="" type="checkbox"/> Relative % gravel (G > 4.75 mm; No. 4 sieve)
Project Name: <u>Pinal Recharge Project</u>	Date/ Time Started: <u>7/1/14 1105</u>	
ADWR Number:	Date/Time Completed: <u>7/1/14 1640</u>	
Location Cadastral:	Drilling Equipment:	
Location NAD 83:	Drilling Method: <u>Auger</u>	
Drill Company: <u>GSI</u>	Bit Size/Type: <u>3"</u>	
Driller(s): <u>Tom</u>	Conductor Casing (type; diameter; depth):	
Logged By: <u>TC</u>	Total Borehole Depth: <u>30'</u>	

Depth (feet)	* Est. %			* Est. %			Drill Rate (ft/hr)	PID	Blows per foot	HCL Recovery	Sample Description	Remarks	
	F	S	G	F	S	G							
5	45	5	Ø	[Redacted]	[Redacted]	[Redacted]	7.5YR color		5	mod	Silt w/ sand: loose, dry, no plasticity slight stickiness. Sand, fine to med, poorly sorted, SA to SP, predom calcare (sp). Caliche stringers (veins) and clumps.		
							7.5YR		36				
							4/6 grains Brown		28				
10	45	5	Ø	[Redacted]	[Redacted]	[Redacted]	7.5YR		15	high	Same As Above: color change		
							5/4		16				
							Brown		19				
15	99	T	Ø	[Redacted]	[Redacted]	[Redacted]	7.5YR		21	high	Same As Above: Increase in calcare clumps. Decrease in sand.		
							5/4		35				
							Brown		50 for 3"				
20	99	T	Ø	[Redacted]	[Redacted]	[Redacted]	7.5YR		19	high	Same As Above: slight clay present ↓ (red brown)		
							5/4		50				
							Brown		for 6"				
25	99	T	Ø	[Redacted]	[Redacted]	[Redacted]	7.5YR		23	high	Same As Above:		
							5/4		42				
							Brown		50 for 4"				
30	99	T	Ø	[Redacted]	[Redacted]	[Redacted]	7.5YR		16	high	Same As Above		
							5/4		21				
							Brown		28				

Project No.: 011010 Pinul Recharge Project	Well/Boring Name: Basin 3	* Percentages of fines, sand, & gravels based on visual estimates of volume <input checked="" type="checkbox"/> Relative % fines (F < 0.075 mm; No. 200 sieve) <input type="checkbox"/> Relative % sand (S > 0.075 < 4.75 mm) <input checked="" type="checkbox"/> Relative % gravel (G > 4.75 mm; No. 4 sieve)
Project Name:	Date/ Time Started:	
ADWR Number:	Date/Time Completed:	
Location Cadastral:	Drilling Equipment:	
Location NAD 83:	Drilling Method: <u>Auger</u>	
Drill Company: <u>CSL</u>	Bit Size/Type:	
Driller(s): <u>Fern</u>	Conductor Casing (type; diameter; depth):	
Logged By: <u>TL</u>	Total Borehole Depth: <u>30'</u>	

Depth (feet)	* Est. %			* Est. %			Drift Rate (f/hr)	PID	Blows per foot	Recovery	Sample Description	Remarks	
	F	S	G	F	S	G							
5	40	10	0	7.54R	4/6	Strong Brown	7.54R	6	6	med	Silt w/sand: Loose, dry, silt no stickiness, no plasticity. Sands SA to SP, fine to med, poorly sorted, predom felsic (etc), Caliche clumps present		
													9
													14
10	95	5	0	7.54R	5/4	Brown	7.54R	10	13	18	med	Same As Above: Decrease in sand, clay present predom silt still.	
													13
													18
15	95	5	0	7.54R	5/4		7.54R	24	42	28	med	Same As Above: Color change	
													24
													28
20	25	35	0	7.54R	4/6	Strong Brown	7.54R	10	17	21	med	Sandy Silt: loose, dry, silt has no stickiness, no plasticity. Sand, fine to coarse SA to SP, poorly sorted, predom felsic (etc, granitic volcanics)	
													17
													21
25	95	5	0	7.54R	5/4	Brown	7.54R	16	23	29	high	Silt w/sand: loose to solid clumps, moist, has no stickiness, no plasticity. Sand SA to SP, poorly sorted, fine to medium, felsic dominated (etc). Caliche clumps present	
													23
													29
30	95	5	0	7.54R	5/4	Brown	7.54R	16	28	38	high	Same As Above & Small amount of clay present, still predom silt.	
													28
													38

Project No.: <u>011010</u>	Well/Boring Name: <u>Boring 5</u>	* Percentages of fines, sand, & gravels based on visual estimates of volume <input checked="" type="checkbox"/> Relative % fines (F < 0.075 mm; No. 200 sieve) <input type="checkbox"/> Relative % sand (S > 0.075 < 4.75 mm) <input checked="" type="checkbox"/> Relative % gravel (G > 4.75 mm; No. 4 sieve)
Project Name: <u>Pinnal Recharge Project.</u>	Date/ Time Started:	
ADWR Number:	Date/Time Completed: <u>0910</u>	
Location Cadastral:	Drilling Equipment:	
Location NAD 83:	Drilling Method:	
Drill Company: <u>CSL</u>	Bit Size/Type:	
Driller(s): <u>TJ</u>	Conductor Casing (type; diameter; depth):	
Logged By: <u>TL</u>	Total Borehole Depth: <u>30'</u>	

Depth (feet)	* Est. %			* Est. %			Drill Rate (ft/hr)	PID	Blows per foot	HCL Recovery	Sample Description	Remarks
	F	S	G	F	S	G						
5	95	5	0				7.5 HR 4 1/6 Strong brown		27 28 29	mod	Silt/clay mixture w/sand: loose, dry Fines are slightly plastic / slight stickiness Sand fine to coarse, sub angular to sub round, poorly sorted, predom felsic (etc grains)	
10	90	10	0				7.5 HR 4 1/6		21 26 21	mod	Same As Above: Increase In Sand	
15	90	10	0				7.5 HR 5 1/4 Brown		27 30 29	mod	Same As Above: Slight change In color. Small white clumps of clay	
20	70	30	0				7.5 HR 5 1/4		5 6 5	mod	Sandy Silt/clay : loose, ^{to slightly hard clumps} moist, Fines. slightly plasticity with slight stickiness. Sand. fine to coarse Angular to sub round, poorly sorted, predom felsic (etc, granite fragments, basalt fragments)	
25	95	5	0				7.5 HR 5 1/4		30 50 50 for 5"	mod	Silt/clay mixture w/sand: loose, moist slightly hard. Fines have slight plasticity slight stickiness, Sand fine to coarse poorly sorted. SA to SP, predom felsic	
30	95	5	0				7.5 HR 5 1/4		32 50 for 6"	mod.	SAME AS ABOVE:	

Project No.: 011010	Well/Boring Name: Basin 4, PZ-Basin 4	* Percentages of fines, sand, & gravels based on visual estimates of volume
Project Name: Pinel Recharge Project	Date/ Time Started:	
ADWR Number:	Date/Time Completed: 1040	<input checked="" type="checkbox"/> Relative % fines (F < 0.075 mm; No. 200 sieve)
Location Cadastral:	Drilling Equipment:	<input type="checkbox"/> Relative % sand (S > 0.075 < 4.75 mm)
Location NAD 83:	Drilling Method: Auger	<input checked="" type="checkbox"/> Relative % gravel (G > 4.75 mm; No. 4 sieve)
Drill Company: GSI	Bit Size/Type:	
Driller(s): Tim	Conductor Casing (type; diameter; depth):	
Logged By: RL	Total Borehole Depth: 30'	

Depth (feet)	* Est. %			* Est. %	Drill. Rate (ft/hr)	PID	Blows per foot	Recovery	Sample Description	Remarks
	F	S	G							
5	99	1	0	0	7.54R		6	med	Silt/clay mixture with fine sand/loam	
					4/6		9		NY, fines predom silt, low plasticity, slight stickiness. Sand fine to med, SA to SR, med sorted. Predom felsic	
					Shims Brown		14			
10	80	15	5	5	7.54R		10	med	Sandy silt w/ gravel: loose, dry to moist, fines w/low plasticity, slight stickiness, sand fine to coarse, SA to SR, poorly sorted, predom felsic (qtz, granite, basalt). Gravel, angular up to 5mm.	
					4/6		10			
							14			
15	80	20	10	10	7.54R		16	med	Same As Above: Occur gravel to 10	
					4/6		25			
					Brown		25			
20	80	20	0	0	7.54R		17	Low	Same As Above:	
					5/16		30			
					Brown		42			
25	75	25	0	0	7.54R		9	Low	Sandy silt/clay: loose, moist, fines low plasticity, slight stickiness, sand fine to coarse, SA to SR, poorly sorted, consist of fete, basalt, granite). predom felsic.	
					5/16		22			
					Brown		26			
30					7.54R		14	med.	Same As Above:	
					4/6		19			
					Shims Brown		30			

Project No.: <u>011010</u>	Well/Boring Name: <u>PZ-Basin 2, Basin 2</u>	* Percentages of fines, sand, & gravels based on visual estimates of volume <input checked="" type="checkbox"/> Relative % fines (F < 0.075 mm; No. 200 sieve) <input type="checkbox"/> Relative % sand (S > 0.075 < 4.75 mm) <input checked="" type="checkbox"/> Relative % gravel (G > 4.75 mm; No. 4 sieve)
Project Name: <u>Final Recharge Project</u>	Date/ Time Started:	
ADWR Number:	Date/Time Completed:	
Location Cadastral:	Drilling Equipment:	
Location NAD 83:	Drilling Method: <u>Auger</u>	
Drill Company: <u>CSI</u>	Bit Size/Type:	
Driller(s): <u>Tim</u>	Conductor Casing (type; diameter; depth):	
Logged By: <u>TZ</u>	Total Borehole Depth: <u>30'</u>	

Depth (feet)	* Est. %			* Est. %			Drift Rate (ft/hr)	PID	Blows per foot	Recovery	Sample Description	Remarks
	F	S	G	F	S	G						
5	99	T	Ø	7.5%	4%	Strong Brown	1/6	13	med		Silt w/ Trace Sand: Loose, dry, slight stickiness, no plasticity, Sand fine to medium. SA to SK, Rel(sic), (gts)	
								21				
								23				
10	99	T	Ø	7.5%	5%	Brown	5/4	9	med		Same As Above: Caliche clump present.	
								29				
								42				
15	99	T	Ø	7.5%	5%	Brown	5/4	14	high		Same As Above:	
								33				
								40				
20	99	T	Ø	7.5%	4%	Strong Brown	4/6	25	high		Same As Above: Slight amount of Red-brown, Clay bits.	- Clay Present ↓
								50 for 6"				
25	95	S	Ø	7.5%	4%	Strong Brown	4/6	23	med		Same As Above: Increased soil Clay Increase, slight plasticity and stickiness.	
								50 for 4"				
30	95	S	Ø	7.5%	5%	Brown	5/4	20	med.		Same As Above:	
								21				
								22				

Notes: Classification System: Unified Soil Classification System (USCS)



Appendix B

GEOTECHNICAL ANALYSES

SPEEDIE AND ASSOCIATES

Geotechnical • Environmental • Materials Engineers
3331 EAST WOOD STREET • PHOENIX, ARIZONA 85040

LABORATORY REPORT

Physical Properties of Soil and Aggregate

Client: Clear Creek Associates, PLC
ATTN: Tyler Levos
6155 E. Indian School, Suite 200
Scottsdale, AZ, 85251

Project No. 141101LA
Lab No. 422346
Field No. N/A
Report Date: 7/25/2014

Project: Pinal County Recharge Site

Location: Pinal County Recharge Site

Material: <u>Lean Clay</u>	Sampled By: <u>Client</u>	Date: <u>07-09-14</u>
Source/ID: <u>Boring No. 2 @ 5'</u>	Submitted By: <u>Client</u>	Date: <u>07-11-14</u>
Supplier: <u>Unknown</u>	Authorized By: <u>Client</u>	Date: <u>07-11-14</u>

Sample Location: Not Available

SIEVE ANALYSIS - ASTM C 136 & D 1140 ADDITIONAL TESTING

SIEVE SIZE in/mm	CUMULATIVE % PASSING	PROJECT SPECIFICATION
6 / 150.0	100	
3 / 75.0	100	
2½ / 62.5	100	
2 / 50.0	100	
1½ / 37.5	100	
1 / 25.0	100	
¾ / 19.0	100	
½ / 12.5	100	
⅜ / 9.5	100	
¼ / 6.3	100	
#4 / 4.75	100	
#8 / 2.36	100	
#10 / 2.00	100	
#16 / 1.18	99	
#30 / 600	98	
#40 / 425	97	
#50 / 300	96	
#100 / 150	93	
#200 / 75	87.0	

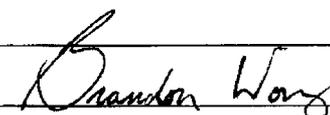
PHYSICAL PROPERTIES	RESULTS	TARGET/ SPECIFICATION
LIQUID & PLASTIC PROPERTIES, ASTM D 4318		
Liquid Limit	24	
Plastic Limit	14	
Plasticity Index	10	

Comments: NT denotes material not tested for this property.

* denotes material out of specification.

Laboratory test results reported herein apply only to the specific sample on which the test was run. The above services and report were performed pursuant to the terms and conditions of the agreement or proposal, if any, between SA and client. SA warrants that this work was performed under the appropriate standard of care, including the skill and judgement that is reasonably expected from similarly situated professionals. No other warranty, guaranty, or representation, either express or implied is included or intended.

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SPEEDIE AND ASSOCIATES

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3331 EAST WOOD STREET • PHOENIX, ARIZONA 85040

LABORATORY REPORT

Physical Properties of Soil and Aggregate

Client: Clear Creek Associates, PLC
ATTN: Tyler Levos
6155 E. Indian School, Suite 200
Scottsdale, AZ, 85251

Project No. 141101LA
Lab No. 422347
Field No. N/A
Report Date: 7/25/2014

Project: Pinal County Recharge Site

Location: Pinal County Recharge Site

Material: Sandy Lean Clay	Sampled By: Client	Date: 07-09-14
Source/ID: Boring No. 2 @ 10'	Submitted By: Client	Date: 07-11-14
Supplier: Unknown	Authorized By: Client	Date: 07-11-14

Sample Location: Not Available

SIEVE ANALYSIS - ASTM C 136 & D 1140 ADDITIONAL TESTING

SIEVE SIZE in/mm	CUMULATIVE % PASSING	PROJECT SPECIFICATION
6 / 150.0	100	
3 / 75.0	100	
2½ / 62.5	100	
2 / 50.0	100	
1½ / 37.5	100	
1 / 25.0	100	
¾ / 19.0	100	
½ / 12.5	100	
⅜ / 9.5	100	
¼ / 6.3	100	
#4 / 4.75	100	
#8 / 2.36	99	
#10 / 2.00	99	
#16 / 1.18	98	
#30 / .600	95	
#40 / .425	94	
#50 / .300	91	
#100 / .150	83	
#200 / .075	69.3	

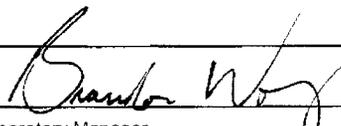
PHYSICAL PROPERTIES	RESULTS	TARGET/ SPECIFICATION
LIQUID & PLASTIC PROPERTIES, ASTM D 4318		
Liquid Limit	24	
Plastic Limit	15	
Plasticity Index	9	

Comments: NT denotes material not tested for this property.

* denotes material out of specification.

Laboratory test: results reported herein apply only to the specific sample on which the test was run. The above services and report were performed pursuant to the terms and conditions of the agreement or proposal, if any, between SA and client. SA warrants that this work was performed under the appropriate standard of care, including the skill and judgement that is reasonably expected from similarly situated professionals. No other warranty, guaranty, or representation, either express or implied is included or intended.

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LABORATORY REPORT

Physical Properties of Soil and Aggregate

Client: Clear Creek Associates, PLC
ATTN: Tyler Levos
6155 E. Indian School, Suite 200
Scottsdale, AZ, 85251

Project No. 141101LA
Lab No. 422348
Field No. N/A
Report Date: 7/25/2014

Project: Pinal County Recharge Site

Location: Pinal County Recharge Site

Material: <u>Sandy Lean Clay</u>	Sampled By: <u>Client</u>	Date: <u>07-09-14</u>
Source/ID: <u>Boring No. 2 @ 15'</u>	Submitted By: <u>Client</u>	Date: <u>07-11-14</u>
Supplier: <u>Unknown</u>	Authorized By: <u>Client</u>	Date: <u>07-11-14</u>

Sample Location: Not Available

SIEVE ANALYSIS - ASTM C 136 & D 1140 ADDITIONAL TESTING

SIEVE SIZE in/mm	CUMULATIVE % PASSING	PROJECT SPECIFICATION
6 / 150.0	100	
3 / 75.0	100	
2½ / 62.5	100	
2 / 50.0	100	
1½ / 37.5	100	
1 / 25.0	100	
¾ / 19.0	100	
½ / 12.5	100	
⅜ / 9.5	100	
¼ / 6.3	100	
#4 / 4.75	100	
#8 / 2.36	99	
#10 / 2.00	99	
#16 / 1.18	97	
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#40 / .425	90	
#50 / .300	86	
#100 / .150	76	
#200 / .075	65.2	

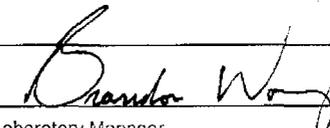
PHYSICAL PROPERTIES	RESULTS	TARGET/ SPECIFICATION
LIQUID & PLASTIC PROPERTIES, ASTM D 4318		
Liquid Limit	28	
Plastic Limit	14	
Plasticity Index	14	

Comments: NT denotes material not tested for this property.

* denotes material out of specification.

Laboratory test results reported herein apply only to the specific sample on which the test was run. The above services and report were performed pursuant to the terms and conditions of the agreement or proposal, if any, between SA and client. SA warrants that this work was performed under the appropriate standard of care, including the skill and judgement that is reasonably expected from similarly situated professionals. No other warranty, guaranty, or representation, either express or implied is included or intended.

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LABORATORY REPORT

Physical Properties of Soil and Aggregate

Client: Clear Creek Associates, PLC
ATTN: Tyler Levos
6155 E. Indian School, Suite 200
Scottsdale, AZ, 85251

Project No. 141101LA
Lab No. 422349
Field No. N/A
Report Date: 7/25/2014

Project: Pinal County Recharge Site

Location: Pinal County Recharge Site

Material: Clayey Sand	Sampled By: Client	Date: 07-09-14
Source/ID: Boring No. 2 @ 20'	Submitted By: Client	Date: 07-11-14
Supplier: Unknown	Authorized By: Client	Date: 07-11-14

Sample Location: Not Available

SIEVE ANALYSIS - ASTM C 136 & D 1140 ADDITIONAL TESTING

SIEVE SIZE in/mm	CUMULATIVE % PASSING	PROJECT SPECIFICATION
6 / 150.0	100	
3 / 75.0	100	
2½ / 62.5	100	
2 / 50.0	100	
1½ / 37.5	100	
1 / 25.0	100	
¾ / 19.0	100	
½ / 12.5	100	
⅜ / 9.5	100	
¼ / 6.3	100	
#4 / 4.75	99	
#8 / 2.36	98	
#10 / 2.00	97	
#16 / 1.18	93	
#30 / .600	87	
#40 / .425	83	
#50 / .300	78	
#100 / .150	64	
#200 / .075	49.7	

PHYSICAL PROPERTIES	RESULTS	TARGET/ SPECIFICATION
LIQUID & PLASTIC PROPERTIES, ASTM D 4318		
Liquid Limit	27	
Plastic Limit	14	
Plasticity Index	13	

Comments: NT denotes material not tested for this property.

* denotes material out of specification.

Laboratory test results reported herein apply only to the specific sample on which the test was run. The above services and report were performed pursuant to the terms and conditions of the agreement or proposal, if any, between SA and client. SA warrants that this work was performed under the appropriate standard of care, including the skill and judgement that is reasonably expected from similarly situated professionals. No other warranty, guaranty, or representation, either express or implied is included or intended.

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LABORATORY REPORT

Physical Properties of Soil and Aggregate

Client: Clear Creek Associates, PLC ATTN: Tyler Levos 6155 E. Indian School, Suite 200 Scottsdale, AZ, 85251	Project No. <u>141101LA</u> Lab No. <u>422350</u> Field No. <u>N/A</u> Report Date: <u>7/25/2014</u>
Project: <u>Pinal County Recharge Site</u>	
Location: <u>Pinal County Recharge Site</u>	
Material: <u>Sandy Lean Clay</u>	Sampled By: <u>Client</u> Date: <u>07-09-14</u>
Source/ID: <u>Boring No. 2 @ 25'</u>	Submitted By: <u>Client</u> Date: <u>07-11-14</u>
Supplier: <u>Unknown</u>	Authorized By: <u>Client</u> Date: <u>07-11-14</u>
Sample Location: <u>Not Available</u>	

SIEVE ANALYSIS - ASTM C 136 & D 1140 ADDITIONAL TESTING

SIEVE SIZE in/mm	CUMULATIVE % PASSING	PROJECT SPECIFICATION
6 / 150.0	100	
3 / 75.0	100	
2½ / 62.5	100	
2 / 50.0	100	
1½ / 37.5	100	
1 / 25.0	100	
¾ / 19.0	100	
½ / 12.5	100	
⅜ / 9.5	100	
¼ / 6.3	100	
#4 / 4.75	99	
#8 / 2.36	97	
#10 / 2.00	96	
#16 / 1.18	92	
#30 / .600	86	
#40 / .425	83	
#50 / .300	78	
#100 / .150	68	
#200 / .075	56.5	

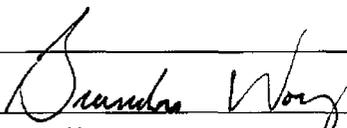
PHYSICAL PROPERTIES	RESULTS	TARGET/ SPECIFICATION
LIQUID & PLASTIC PROPERTIES, ASTM D 4318		
Liquid Limit	30	
Plastic Limit	14	
Plasticity Index	16	

Comments: NT denotes material not tested for this property.

* denotes material out of specification.

Laboratory test results reported herein apply only to the specific sample on which the test was run. The above services and report were performed pursuant to the terms and conditions of the agreement or proposal, if any, between SA and client. SA warrants that this work was performed under the appropriate standard of care, including the skill and judgement that is reasonably expected from similarly situated professionals. No other warranty, guaranty, or representation, either express or implied is included or intended.

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LABORATORY REPORT

Physical Properties of Soil and Aggregate

Client: Clear Creek Associates, PLC
ATTN: Tyler Levos
6155 E. Indian School, Suite 200
Scottsdale, AZ, 85251

Project No. 141101LA
Lab No. 422351
Field No. N/A
Report Date: 7/25/2014

Project: Pinal County Recharge Site

Location: Pinal County Recharge Site

Material: Sandy Lean Clay Sampled By: Client Date: 07-09-14

Source/ID: Boring No. 2 @ 30' Submitted By: Client Date: 07-11-14

Supplier: Unknown Authorized By: Client Date: 07-11-14

Sample Location: Not Available

SIEVE ANALYSIS - ASTM C 136 & D 1140 ADDITIONAL TESTING

SIEVE SIZE in/mm	CUMULATIVE % PASSING	PROJECT SPECIFICATION
6 / 150.0	100	
3 / 75.0	100	
2½ / 62.5	100	
2 / 50.0	100	
1½ / 37.5	100	
1 / 25.0	100	
¾ / 19.0	100	
½ / 12.5	100	
⅜ / 9.5	100	
¼ / 6.3	100	
#4 / 4.75	100	
#8 / 2.36	99	
#10 / 2.00	98	
#16 / 1.18	95	
#30 / .600	89	
#40 / .425	87	
#50 / .300	82	
#100 / .150	72	
#200 / .075	60.6	

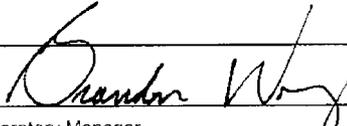
PHYSICAL PROPERTIES	RESULTS	TARGET/ SPECIFICATION
LIQUID & PLASTIC PROPERTIES, ASTM D 4318		
Liquid Limit	31	
Plastic Limit	16	
Plasticity Index	15	

Comments: NT denotes material not tested for this property.

* denotes material out of specification.

Laboratory test results reported herein apply only to the specific sample on which the test was run. The above services and report were performed pursuant to the terms and conditions of the agreement or proposal, if any, between SA and client. SA warrants that this work was performed under the appropriate standard of care, including the skill and judgement that is reasonably expected from similarly situated professionals. No other warranty, guaranty, or representation, either express or implied is included or intended.

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LABORATORY REPORT

Physical Properties of Soil and Aggregate

Client: Clear Creek Associates, PLC
ATTN: Tyler Levos
6155 E. Indian School, Suite 200
Scottsdale, AZ, 85251

Project No. 141101LA
Lab No. 422353
Field No. N/A
Report Date: 7/25/2014

Project: Pinal County Recharge Site

Location: Pinal County Recharge Site

Material: Sandy Silty Clay Sampled By: Client Date: 07-09-14

Source/ID: S1B Submitted By: Client Date: 07-11-14

Supplier: Unknown Authorized By: Client Date: 07-11-14

Sample Location: Not Available

SIEVE ANALYSIS - ASTM C 136 & D 1140 ADDITIONAL TESTING

SIEVE SIZE in/mm	CUMULATIVE % PASSING	PROJECT SPECIFICATION
6 / 150.0	100	
3 / 75.0	100	
2½ / 62.5	100	
2 / 50.0	100	
1½ / 37.5	100	
1 / 25.0	100	
¾ / 19.0	100	
½ / 12.5	100	
⅜ / 9.5	100	
¼ / 6.3	100	
#4 / 4.75	100	
#8 / 2.36	99	
#10 / 2.00	98	
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#50 / .300	77	
#100 / .150	64	
#200 / .075	52.3	

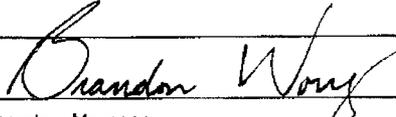
PHYSICAL PROPERTIES	RESULTS	TARGET/ SPECIFICATION
	LIQUID & PLASTIC PROPERTIES, ASTM D 4318	
Liquid Limit	20	
Plastic Limit	13	
Plasticity Index	7	

Comments: NT denotes material not tested for this property.

* denotes material out of specification.

Laboratory test results reported herein apply only to the specific sample on which the test was run. The above services and report were performed pursuant to the terms and conditions of the agreement or proposal, if any, between SA and client. SA warrants that this work was performed under the appropriate standard of care, including the skill and judgement that is reasonably expected from similarly situated professionals. No other warranty, guaranty, or representation, either express or implied is included or intended.

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LABORATORY REPORT

Physical Properties of Soil and Aggregate

Client: Clear Creek Associates, PLC
ATTN: Tyler Levos
6155 E. Indian School, Suite 200
Scottsdale, AZ, 85251

Project No. 141101LA
Lab No. 422354
Field No. N/A
Report Date: 7/25/2014

Project: Pinal County Recharge Site

Location: Pinal County Recharge Site

Material: Silty Sand	Sampled By: Client	Date: 07-09-14
Source/ID: S2A	Submitted By: Client	Date: 07-11-14
Supplier: Unknown	Authorized By: Client	Date: 07-11-14

Sample Location: Not Available

SIEVE ANALYSIS - ASTM C 136 & D 1140 ADDITIONAL TESTING

SIEVE SIZE in/mm	CUMULATIVE % PASSING	PROJECT SPECIFICATION
6 / 150.0	100	
3 / 75.0	100	
2½ / 62.5	100	
2 / 50.0	100	
1½ / 37.5	100	
1 / 25.0	100	
¾ / 19.0	100	
½ / 12.5	100	
⅜ / 9.5	100	
¼ / 6.3	100	
#4 / 4.75	99	
#8 / 2.36	96	
#10 / 2.00	94	
#16 / 1.18	89	
#30 / .600	81	
#40 / .425	76	
#50 / .300	71	
#100 / .150	57	
#200 / .075	42.2	

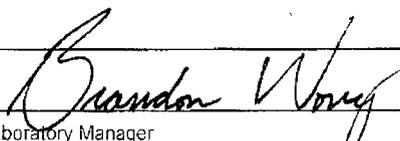
PHYSICAL PROPERTIES	RESULTS	TARGET/ SPECIFICATION
LIQUID & PLASTIC PROPERTIES, ASTM D 4318		
Liquid Limit	16	
Plastic Limit	14	
Plasticity Index	2	

Comments: NT denotes material not tested for this property.

* denotes material out of specification.

Laboratory test results reported herein apply only to the specific sample on which the test was run. The above services and report were performed pursuant to the terms and conditions of the agreement or proposal, if any, between SA and client. SA warrants that this work was performed under the appropriate standard of care, including the skill and judgement that is reasonably expected from similarly situated professionals. No other warranty, guaranty, or representation, either express or implied is included or intended.

Reviewed by



Laboratory Manager

Copies to: Addressee (1)

SPEEDIE AND ASSOCIATES

Geotechnical ■ Environmental ■ Materials Engineers
3331 EAST WOOD STREET • PHOENIX, ARIZONA 85040

LABORATORY REPORT

Physical Properties of Soil and Aggregate

Client: Clear Creek Associates, PLC
ATTN: Tyler Levos
6155 E. Indian School, Suite 200
Scottsdale, AZ, 85251

Project No. 141101LA
Lab No. 422355
Field No. N/A
Report Date: 7/25/2014

Project: Pinal County Recharge Site

Location: Pinal County Recharge Site

Material: Silty Sand	Sampled By: Client	Date: 07-09-14
Source/ID: S2B	Submitted By: Client	Date: 07-11-14
Supplier: Unknown	Authorized By: Client	Date: 07-11-14

Sample Location: Not Available

SIEVE ANALYSIS - ASTM C 136 & D 1140 ADDITIONAL TESTING

SIEVE SIZE in/mm	CUMULATIVE % PASSING	PROJECT SPECIFICATION
6 / 150.0	100	
3 / 75.0	100	
2½ / 62.5	100	
2 / 50.0	100	
1½ / 37.5	100	
1 / 25.0	100	
¾ / 19.0	100	
½ / 12.5	100	
⅜ / 9.5	100	
¼ / 6.3	100	
#4 / 4.75	99	
#8 / 2.36	95	
#10 / 2.00	91	
#16 / 1.18	78	
#30 / .600	63	
#40 / .425	56	
#50 / .300	48	
#100 / .150	33	
#200 / .075	22.9	

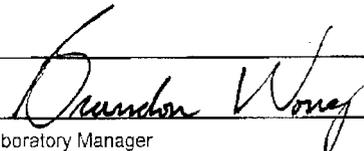
PHYSICAL PROPERTIES	TARGET/ SPECIFICATION
RESULTS	

Comments: NT denotes material not tested for this property.

* denotes material out of specification.

Laboratory test results reported herein apply only to the specific sample on which the test was run. The above services and report were performed pursuant to the terms and conditions of the agreement or proposal, if any, between SA and client. SA warrants that this work was performed under the appropriate standard of care, including the skill and judgement that is reasonably expected from similarly situated professionals. No other warranty, guaranty, or representation, either express or implied, is included or intended.

Reviewed by


Laboratory Manager

Copies to: Addressee (1)

SPEEDIE AND ASSOCIATES

Geotechnical ■ Environmental ■ Materials Engineers
3331 EAST WOOD STREET • PHOENIX, ARIZONA 85040

LABORATORY REPORT

Physical Properties of Soil and Aggregate

Client: Clear Creek Associates, PLC ATTN: Tyler Levos 6155 E. Indian School, Suite 200 Scottsdale, AZ, 85251	Project No. <u>141101LA</u> Lab No. <u>422357</u> Field No. <u>N/A</u> Report Date: <u>7/25/2014</u>
Project: <u>Pinal County Recharge Site</u>	
Location: <u>Pinal County Recharge Site</u>	
Material: <u>Silty Sand</u>	Sampled By: <u>Client</u> Date: <u>07-09-14</u>
Source/ID: <u>S3B</u>	Submitted By: <u>Client</u> Date: <u>07-11-14</u>
Supplier: <u>Unknown</u>	Authorized By: <u>Client</u> Date: <u>07-11-14</u>
Sample Location: <u>Not Available</u>	

SIEVE ANALYSIS - ASTM C 136 & D 1140 ADDITIONAL TESTING

SIEVE SIZE in/mm	CUMULATIVE % PASSING	PROJECT SPECIFICATION
6 / 150.0	100	
3 / 75.0	100	
2½ / 62.5	100	
2 / 50.0	100	
1½ / 37.5	100	
1 / 25.0	100	
¾ / 19.0	100	
½ / 12.5	100	
⅜ / 9.5	100	
¼ / 6.3	99	
#4 / 4.75	98	
#8 / 2.36	93	
#10 / 2.00	90	
#16 / 1.18	82	
#30 / .600	73	
#40 / .425	68	
#50 / .300	62	
#100 / .150	51	
#200 / .075	39.2	

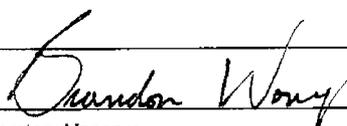
PHYSICAL PROPERTIES	RESULTS	TARGET/ SPECIFICATION
LIQUID & PLASTIC PROPERTIES, ASTM D 4318		
Liquid Limit	16	
Plastic Limit	13	
Plasticity Index	3	

Comments: NT denotes material not tested for this property.

* denotes material out of specification.

Laboratory test results reported herein apply only to the specific sample on which the test was run. The above services and report were performed pursuant to the terms and conditions of the agreement or proposal, if any, between SA and client. SA warrants that this work was performed under the appropriate standard of care, including the skill and judgement that is reasonably expected from similarly situated professionals. No other warranty, guaranty, or representation, either express or implied is included or intended.

Reviewed by


 Laboratory Manager

Copies to: Addressee (1)

SPEEDIE AND ASSOCIATES

Geotechnical ■ Environmental ■ Materials Engineers
3331 EAST WOOD STREET • PHOENIX, ARIZONA 85040

LABORATORY REPORT

Physical Properties of Soil and Aggregate

Client: Clear Creek Associates, PLC
ATTN: Tyler Levos
6155 E. Indian School, Suite 200
Scottsdale, AZ, 85251

Project No. 141101LA
Lab No. 422358
Field No. N/A
Report Date: 7/25/2014

Project: Pinal County Recharge Site

Location: Pinal County Recharge Site

Material: Silty Sand	Sampled By: Client	Date: 07-09-14
Source/ID: S4A	Submitted By: Client	Date: 07-11-14
Supplier: Unknown	Authorized By: Client	Date: 07-11-14

Sample Location: Not Available

SIEVE ANALYSIS - ASTM C 136 & D 1140 ADDITIONAL TESTING

SIEVE SIZE in/mm	CUMULATIVE % PASSING	PROJECT SPECIFICATION
6 / 150.0	100	
3 / 75.0	100	
2½ / 62.5	100	
2 / 50.0	100	
1½ / 37.5	100	
1 / 25.0	100	
¾ / 19.0	100	
½ / 12.5	100	
⅜ / 9.5	100	
¼ / 6.3	99	
#4 / 4.75	99	
#8 / 2.36	94	
#10 / 2.00	92	
#16 / 1.18	86	
#30 / .600	78	
#40 / .425	74	
#50 / .300	69	
#100 / .150	57	
#200 / .075	43.5	

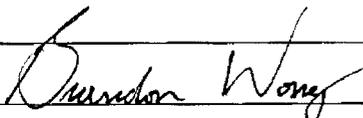
PHYSICAL PROPERTIES	TARGET/ RESULTS	SPECIFICATION

Comments: NT denotes material not tested for this property.

* denotes material out of specification.

Laboratory test results reported herein apply only to the specific sample on which the test was run. The above services and report were performed pursuant to the terms and conditions of the agreement or proposal, if any, between SA and client. SA warrants that this work was performed under the appropriate standard of care, including the skill and judgement that is reasonably expected from similarly situated professionals. No other warranty, guaranty, or representation, either express or implied is included or intended.

Reviewed by


Laboratory Manager

Copies to: Addressee (1)

SPEEDIE AND ASSOCIATES

Geotechnical ■ Environmental ■ Materials Engineers
3331 EAST WOOD STREET • PHOENIX, ARIZONA 85040

LABORATORY REPORT

Physical Properties of Soil and Aggregate

Client: Clear Creek Associates, PLC
ATTN: Tyler Levos
6155 E. Indian School, Suite 200
Scottsdale, AZ, 85251

Project No. 141101LA
Lab No. 422361
Field No. N/A
Report Date: 7/25/2014

Project: Pinal County Recharge Site

Location: Pinal County Recharge Site

Material: Silty Sand

Sampled By: Client

Date: 07-09-14

Source/ID: S5A

Submitted By: Client

Date: 07-11-14

Supplier: Unknown

Authorized By: Client

Date: 07-11-14

Sample Location: Not Available

SIEVE ANALYSIS - ASTM C 136 & D 1140 ADDITIONAL TESTING

SIEVE SIZE in/mm	CUMULATIVE % PASSING	PROJECT SPECIFICATION
6 / 150.0	100	
3 / 75.0	100	
2½ / 62.5	100	
2 / 50.0	100	
1½ / 37.5	100	
1 / 25.0	100	
¾ / 19.0	100	
½ / 12.5	100	
⅜ / 9.5	99	
¼ / 6.3	97	
#4 / 4.75	96	
#8 / 2.36	89	
#10 / 2.00	87	
#16 / 1.18	79	
#30 / .600	68	
#40 / .425	62	
#50 / .300	55	
#100 / .150	42	
#200 / .075	29.4	

Comments: NT denotes material not tested for this property.

* denotes material out of specification.

Laboratory test results reported herein apply only to the specific sample on which the test was run. The above services and report were performed pursuant to the terms and conditions of the agreement or proposal, if any, between SA and client. SA warrants that this work was performed under the appropriate standard of care, including the skill and judgement that is reasonably expected from similarly situated professionals. No other warranty, guaranty, or representation, either express or implied is included or intended.

Reviewed by

Brandon Wong
Laboratory Manager

Copies to: Addressee (1)

PHYSICAL PROPERTIES

RESULTS

TARGET/

SPECIFICATION

SPEEDIE AND ASSOCIATES

Geotechnical ■ Environmental ■ Materials Engineers
3331 EAST WOOD STREET • PHOENIX, ARIZONA 85040

LABORATORY REPORT

Physical Properties of Soil and Aggregate

Client: Clear Creek Associates, PLC
ATTN: Tyler Levos
6155 E. Indian School, Suite 200
Scottsdale, AZ, 85251

Project No. 141101LA
Lab No. 422362
Field No. N/A
Report Date: 7/25/2014

Project: Pinal County Recharge Site

Location: Pinal County Recharge Site

Material: Silty, Clayey Sand Sampled By: Client Date: 07-09-14

Source/ID: S5B Submitted By: Client Date: 07-11-14

Supplier: Unknown Authorized By: Client Date: 07-11-14

Sample Location: Not Available

SIEVE ANALYSIS - ASTM C 136 & D 1140 ADDITIONAL TESTING

SIEVE SIZE in/mm	CUMULATIVE % PASSING	PROJECT SPECIFICATION
6 / 150.0	100	
3 / 75.0	100	
2½ / 62.5	100	
2 / 50.0	100	
1½ / 37.5	100	
1 / 25.0	100	
¾ / 19.0	100	
½ / 12.5	100	
⅜ / 9.5	100	
¼ / 6.3	100	
#4 / 4.75	99	
#8 / 2.36	96	
#10 / 2.00	94	
#16 / 1.18	86	
#30 / .600	78	
#40 / .425	75	
#50 / .300	71	
#100 / .150	61	
#200 / .075	49.1	

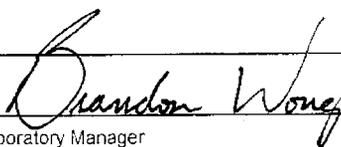
PHYSICAL PROPERTIES	RESULTS	TARGET/ SPECIFICATION
LIQUID & PLASTIC PROPERTIES, ASTM D 4318		
Liquid Limit	22	
Plastic Limit	17	
Plasticity Index	5	

Comments: NT denotes material not tested for this property.

* denotes material out of specification.

Laboratory test results reported herein apply only to the specific sample on which the test was run. The above services and report were performed pursuant to the terms and conditions of the agreement or proposal, if any, between SA and client. SA warrants that this work was performed under the appropriate standard of care, including the skill and judgement that is reasonably expected from similarly situated professionals. No other warranty, guaranty, or representation, either express or implied is included or intended.

Reviewed by



Laboratory Manager

Copies to: Addressee (1)

SPEEDIE AND ASSOCIATES

Geotechnical ■ Environmental ■ Materials Engineers
3331 EAST WOOD STREET • PHOENIX, ARIZONA 85040

PARTICLE SIZE ANALYSIS OF SOILS - HYDROMETER ASTM D-422

CLIENT: **Clear Creek Associates, PLC**
 PROJECT: **Pinal County Recharge Site**
 PROJECT NO: **141101LA**
 MATERIAL: **Sandy Lean Clay**
 SOURCE: **Boring No. 1 @ 20'**

SAMPLED BY:
 SUBMITTED BY:
 TESTED BY:
 REVIEWED BY:

Client DATE: **7/9/2014**
 Client DATE: **7/11/2014**
 W. Hottya DATE: **7/24/2014**
 B. Wong DATE: **7/25/2014**
 LAB NO: **422363**

SIEVE ANALYSIS

DISPERSION SAMPLE

Air Dry Wt., gms	61.16
Specific Gravity of Soil	2.650
Specific Gravity of Liquid	1.000

HYGROSCOPIC MOISTURE SAMPLE

Wt. of Container + Air Dry Sample, gms	40.60
Wt. of Container + Oven Dry Sample, gms	40.23
Wt. Container (tare), gms	19.54
Hygroscopic Moisture Content, %	1.79%

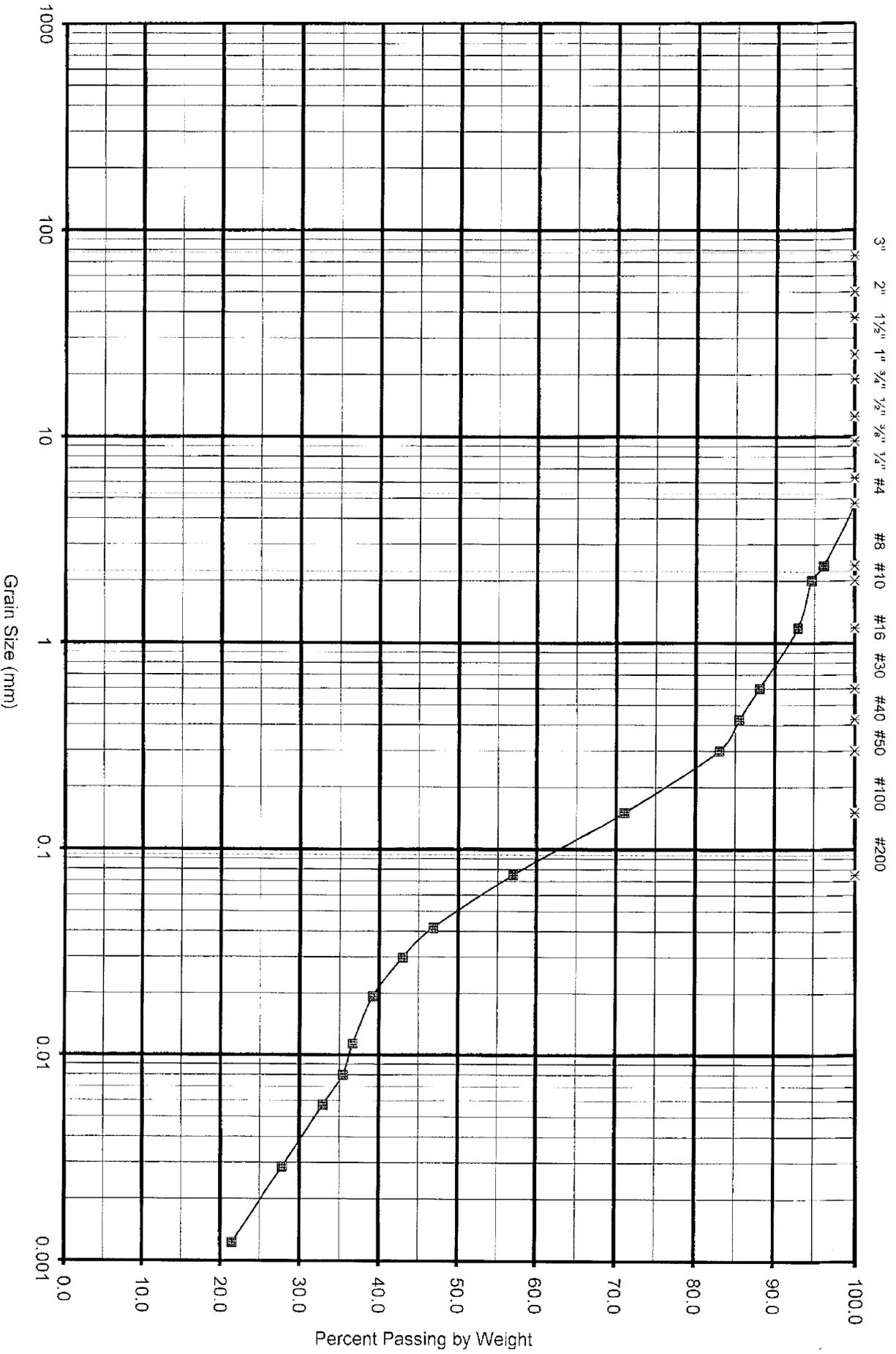
HYDROMETER CALCULATIONS

Wt. Soil Dispersed, gms	60.09
Oven Dry Mass - Total Sample, gms	63.49
% Gravel	0.0
% Sand	43.0
% Silt	32.5
% Clay	24.5

Sieve Size	Percent Passing
3"	100.0
2"	100.0
1½"	100.0
1"	100.0
¾"	100.0
½"	100.0
⅜"	100.0
¼"	100.0
#4	100.0
#8	96.1
#10	94.6
#16	92.9
#30	88.0
#40	85.5
#50	83.0
#100	71.0
#200	57.0
.020 mm	39.5
.005 mm	31.6
.002 mm	24.5
.001 mm	20.6

Elapsed Time, (minutes)	Temp °C	Hydrometer Reading	Correction	R - Corr	Percent Passing	Effective Depth (L), (cm)	Constant (K)	Particle Diameter, (mm)
1	26.1	1.0215	0.0030	1.0185	46.8	10.7	0.01272	0.041608
2	26.0	1.0200	0.0030	1.0170	43.0	11.0	0.01272	0.029831
5	26.0	1.0185	0.0030	1.0155	39.2	11.5	0.01272	0.019291
15	26.1	1.0175	0.0030	1.0145	36.7	11.8	0.01272	0.011282
30	26.1	1.0170	0.0030	1.0140	35.4	11.8	0.01272	0.007978
60	26.2	1.0160	0.0030	1.0130	32.9	12.1	0.01272	0.005712
250	26.3	1.0140	0.0030	1.0110	27.8	12.6	0.01272	0.002856
1440	26.1	1.0115	0.0030	1.0085	21.5	13.4	0.01272	0.001227

Particle Size Analysis of Soils - ASTM D422



Appendix C

NUMERICAL MODEL INPUT AND OUTPUT FILES (ON DVD)

Appendix D

ADWR 55-WELL REGISTRY FOR WELLS IN PVRP STUDY AREA

APPENDIX D ADWR 56-WELL REGISTRY FOR WELLS WITHIN STUDY AREA

LOCATION	REGISTRY_ID	INSTALLED	WELL_DEPTH	CSG_DEPTH	DIAMETER	WATER_LEVEL	PUMP RATE	WELL_TYPE	DRILL_LOG	UTM_E	UTM_N	OWNER
D0600800180A	606278	1/1/1954	1752	1752	16	337	2200	NON-EXEMPT		453804.00	3642505.00	CHARLES L & PENNY LYNN CARDINAL, TRS
D0600800180A	606277	1/1/1946	602	602	20	210	1200	NON-EXEMPT		453804.00	3642505.00	CHARLES L & PENNY LYNN CARDINAL, TRS
D0600800180A	605351	6/1/1964	401	341	10	215	15	EXEMPT		453983.80	3643005.00	HOLLAND, H
D0600800240A	610683	1/1/1963	1440	1297	13	153	1950	NON-EXEMPT	X	454921.10	3645107.00	MESA, CITY OF,
D0600800240A	610685	1/1/1950	490	490	20	350	800	NON-EXEMPT		454779.70	3644818.00	MESA, CITY OF,
D0600800240A	610684	1/1/1952	402	400	20	350	450	NON-EXEMPT		454980.50	3644705.00	PEN, JOHN & LOIS,
D0600800240A	533191	10/22/1991	230	230	0	0	0	OTHER	X	454980.50	3644705.00	SW GAS CORP,
D0600800240A	617563		0	0	0	0	0	NON-EXEMPT		454170.80	3644211.00	MESA, CITY OF,
D0600800240A	617563		0	0	0	0	0	NON-EXEMPT		454748.80	3644211.00	MESA, CITY OF,
D0600800240A	617564		0	0	0	0	0	NON-EXEMPT		453955.20	3643614.00	MESA, CITY OF,
D0600800240A	617775		0	0	0	0	0	EXEMPT		454165.50	3643014.00	MCFARLAND, B C
D0600800240A	617955		0	0	0	0	0	NON-EXEMPT		454979.40	3643809.00	MESA, CITY OF,
D0600800240A	617777		0	0	0	0	0	NON-EXEMPT		454978.90	3643309.00	MESA, CITY OF,
D0600800240A	617776		0	0	0	0	0	NON-EXEMPT		454978.30	3643010.00	MESA, CITY OF,
D0600800300A	907688	8/19/2007	60	60	8	59	800	OTHER	X	452659.00	3640054.00	EL PASO NATURAL GAS, ATTN: WILLIAM BALTZ
D0600800300A	605240	1/1/1953	300	300	20	160	800	NON-EXEMPT		453387.00	3645110.00	MFC ARIZONA I LLC
D0600800300A	605236	1/1/1947	700	700	20	160	700	NON-EXEMPT		453363.10	3640513.00	MFC ARIZONA I LLC
D0600800300A	605241	1/1/1955	2305	2305	20	200	1000	NON-EXEMPT		453360.80	3644214.00	MFC ARIZONA I LLC
D0600800300A	605241	1/1/1955	2305	2305	20	200	1000	NON-EXEMPT		453360.80	3644214.00	MFC ARIZONA I LLC
D0600800300A	605348	1/1/1950	602	600	20	300	800	NON-EXEMPT		452362.50	3644808.00	BARTLETT FARMS INC,
D0600800300A	605348	1/1/1960	2500	1800	20	300	1600	NON-EXEMPT		452565.10	3644808.00	BARTLETT FARMS INC,
D0600800300A	605350	1/1/1940	200	200	20	300	0	NON-EXEMPT		452563.10	3644808.00	BARTLETT FARMS INC,
D0600800300A	527481	5/6/1980	228	0	0	0	0	OTHER	X	451963.50	3643103.00	SOUTHWEST GAS CORP,
D0600800300A	605351	1/1/1950	700	700	20	300	800	NON-EXEMPT		452161.80	3644807.00	BARTLETT FARMS INC,
D0600800300A	855347	1/1/1946	500	500	20	300	800	NON-EXEMPT		452558.80	3644213.00	BARTLETT FARMS INC,
D0600800300A	605352	1/1/1975	600	600	16	300	600	NON-EXEMPT		452153.70	3643618.00	BARTLETT FARMS INC,
D0600800300A	605352	1/1/1975	600	600	16	300	600	NON-EXEMPT		452153.70	3643618.00	BARTLETT FARMS INC,
D0600800300A	620272	1/1/1974	400	400	12	170	35	NON-EXEMPT		451949.30	3643024.00	HANNAH, E
D0600800300A	620273	1/1/1950	230	230	6	170	20	EXEMPT		451949.30	3643024.00	HANNAH, E
D0600800300A	605353	1/1/1935	500	500	20	300	600	NON-EXEMPT		452149.50	3643023.00	BARTLETT FARMS INC,
D0600800300A	906884	4/1/2008	410	410	6	125	30	NON-EXEMPT	X	452349.80	3643022.00	EL PASO NATURAL GAS COMPANY
D0600800300A	201338		250	250	6	0	0	OTHER	X	452349.80	3643022.00	SALT RIVER PROJECT
D0600800300A	605237	1/1/1941	360	360	70	160	700	NON-EXEMPT		453536.30	3643016.00	A. WAYNE & HELEN L. FREEMAN
D0600800300A	605238	1/1/1956	800	800	20	160	700	NON-EXEMPT		452950.50	3643021.00	A. WAYNE & HELEN L. FREEMAN
D0600800300A	899361	4/1/1963	570	570	16	230	230	NON-EXEMPT	I	452950.50	3643021.00	KELLY FREEMAN
D0600800300A	605239	1/1/1940	300	300	20	160	700	NON-EXEMPT		453354.00	3643317.00	A. WAYNE & HELEN L. FREEMAN
D0600800300A	605242	1/1/1940	300	300	20	160	10	EXEMPT		453351.70	3643018.00	PETERSON, G E
D0600800300A	805408	12/31/1955	350	240	20	0	35	EXEMPT		453551.70	3643018.00	N.S.K. & B. B. PRISHIP
D0600800300A	919661	4/23/2009	30	0	8	23	0	OTHER	X	452643.30	3642067.00	WESTERN EMULSIONS, INC.
D0600800300A	525240		0	0	0	0	0	MONITOR		452748.80	3642771.00	SUNBELT REFINING CO,
D0600800300A	524748	6/13/1989	35	0	10	0	0	MONITOR	X	452747.30	3642569.00	SUNBELT REFINING CO,
D0600800300A	218940		0	0	0	0	0	NON-EXEMPT		452945.80	3642387.00	COOLIDGE POWER, LLC
D0600800300A	218941		0	0	0	0	0	NON-EXEMPT		452745.80	3642388.00	COOLIDGE POWER, LLC
D0600800300A	617778	5/31/2010	335	400	16	50	1180	NON-EXEMPT	X	453344.50	3642185.00	COOLIDGE POWER, LLC
D0600800300A	218927	5/4/2010	640	620	18	154	0	NON-EXEMPT	X	453344.50	3642185.00	COOLIDGE POWER, LLC
D0600800300A	218942		620	620	18	154	0	NON-EXEMPT	X	453344.50	3642185.00	COOLIDGE POWER, LLC
D0600800300A	218925	5/12/2009	620	658	18	154	0	NON-EXEMPT	X	453344.50	3642185.00	COOLIDGE POWER, LLC
D0600800300A	910128		36	7	6	30	0	OTHER	X	452246.10	3642471.00	ATTN: JOHN CASSADY
D0600800300A	524747	6/13/1989	36	0	0	0	0	MONITOR		452346.30	3642773.00	SUNBELT REFINING CO,
D0600800300A	524740		0	0	0	0	0	NON-EXEMPT		452347.00	3642571.00	COOLIDGE LAND ACQUISITION COMPANY, LLC
D0600800300A	524749	6/12/1989	30	7	6	20	0	MONITOR	X	452347.00	3642571.00	SUNBELT REFINING CO,

APPENDIX D ADWR 55-WELL REGISTRY FOR WELLS WITHIN STUDY AREA

LOCATION	REGISTRY_ID	INSTALLED	WELL_DEPTH	CSG_DEPTH	DIAMETER	WATER_LEVEL	PUMP_RATE	WELL_TYPE	DRILL_LOG	UTM_E	UTM_N	OWNER
D060080108AD	52241	8/7/1989	30	30	2	1.8	0	MONITOR	X	452947.10	364250.00	SUNBELT REFINING CO.
D060080108AD	52259	1/29/1989	493	493	12	180	137	NON-EXEMPT	X	452947.10	364257.00	COOLIDGE LAND ACQUISITION COMPANY, LLC
D060080108CB	67401	1/1/1945	600	600	20	250	600	NON-EXEMPT		451945.30	3642370.00	JOHN PAVLETTE K MCCLIVE
D060080108CC	202727	3/25/2004	59	59	4	40	0	MONITOR	X	451944.10	3642169.00	ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY
D060080108CC	540485		0	0	0	0	0	EXEMPT		451944.10	3642169.00	MOORE M
D060080108DB	217827		0	0	0	0	0	OTHER		452945.50	3642389.00	COOLIDGE POWER CORPORATION
D060080108DB	217828		230	230	0	50	0	MONITOR	X	452945.50	3642389.00	COOLIDGE POWER CORPORATION
D060080108CC	536634	10/6/1992	0	0	0	0	0	OTHER		451941.70	3641765.00	SW GAS CORP.
D060080108CC	617779		0	0	0	0	0	NON-EXEMPT		452738.00	3641361.00	MESA, CITY OF.
D060080108CC	617774		0	0	0	0	0	EXEMPT		453339.30	3641561.00	MCFARLAND, BONNYE C
D060080108DC	617780		610	176	16	176	0	NON-EXEMPT	X	453137.50	3641360.00	MESA, CITY OF.
D06008011AAA	805285	12/31/1993	0	0	0	10	0	EXEMPT		454972.70	3642356.00	MESA, CITY OF.
D06008011AAA	617559		0	0	0	0	0	NON-EXEMPT		454972.70	3642356.00	MESA, CITY OF.
D06008011ADA	617558		0	0	0	0	0	NON-EXEMPT		454972.70	3642356.00	MESA, CITY OF.
D06008011ADC	617560		0	0	0	0	0	NON-EXEMPT		454972.70	3642356.00	MESA, CITY OF.
D06008011BDA	617557		0	0	0	0	0	NON-EXEMPT		454972.70	3642356.00	MESA, CITY OF.
D06008011CCA	530066	11/30/1990	300	300	10	80	0	NON-EXEMPT		454972.70	3642356.00	MESA, CITY OF.
D06008011DDA	617561		0	0	0	0	0	EXEMPT	X	453744.80	3641559.00	MAIL 100 LLC
D06008011DDD	617562		0	0	0	0	0	NON-EXEMPT		454965.70	3641549.00	MESA, CITY OF.
D06008011DDD	523310		0	0	0	0	0	NON-EXEMPT		454964.00	3641347.00	MESA, CITY OF.
D06008012AAA	518655		0	0	0	0	0	EXEMPT		454964.00	3641347.00	CONNOLLY INVEST CORP.
D06008012AAA	634731		0	0	0	0	0	EXEMPT		454964.00	3641347.00	CONNOLLY INVEST CORP.
D06008013AAA	609758		1200	1200	20	0	0	EXEMPT		455586.40	3642752.00	VALLEY NATIONAL BANK
D06008013AAB	609762	12/1/1962	141	141	6	0	1000	NON-EXEMPT		455767.80	3641153.00	ALL STATE ASSOCIATES OF PINAL X1 LLC
D06008013AAD	609759	1/1/1945	500	450	20	0	600	NON-EXEMPT		455774.00	3640952.00	ALL STATE ASSOCIATES OF PINAL X1 LLC
D06008013AAB	550668	9/17/1995	500	114	8	0	0	OTHER	X	454955.90	3640543.00	EL PASO NATURAL GAS
D06008014CCC	625234	5/1/1953	450	450	6	300	600	NON-EXEMPT		455225.20	3639752.00	MESA, CITY OF.
D06008014DCA	507832	4/30/1984	440	260	20	160	15	EXEMPT	X	454543.20	3639944.00	COOPER, THEODORE J
D06008014DCB	507871	4/27/1984	350	350	6	180	10	EXEMPT	X	454340.00	3639946.00	JEFFREY SCOTT MARTIN
D06008014DDC	504821	12/4/1983	360	360	6	150	20	EXEMPT	X	454541.20	3639743.00	COOPER, T J
D06008015AAA	202084							EXEMPT		452530.00	3640356.00	AARON ZORRIST
D06008015AAB	203457							EXEMPT		452530.10	3640356.00	SUNCRAFT CONSTRUCTION LLC
D06008015AAC	596799	5/31/2003	355	355	7	104	20	EXEMPT	X	452228.30	3640155.00	STEVE & KATHY BOWERS
D06008015ACD	205740							EXEMPT		452528.10	3640155.00	SUNCRAFT CONSTRUCTION LLC
D06008015CCC	909949	10/26/2008	390	390	6	132	20	EXEMPT		451924.30	3639754.00	SCOTT E. & CINDY L CASLER
D06008015CCD	618029	11/20/1976	520	520	20	320	500	NON-EXEMPT	X	452724.80	3639752.00	PROLER INTERNL CORP.
D06008015CDD	596744	3/10/2003	385	385	7	105	20	EXEMPT	X	452524.50	3639753.00	JOHN & ROSE LAXAMANA
D06008015CDE	915090	12/13/2013	408	408	5	95	20	EXEMPT	X	452524.50	3639753.00	DUSTIN HINTZ
D06008015DCC	638418	1/1/1940	400	400	12	250	500	NON-EXEMPT		452724.40	3639753.00	MESA, CITY OF.
D06008022A00	625235	2/1/1947	400	400	8	220	35	EXEMPT		452617.70	3638947.00	DICKERSON M
D06008022A0C	625237	1/1/1952	600	600	16	350	600	NON-EXEMPT		452918.70	3638948.00	MESA, CITY OF.
D06008022ADC	625238	1/1/1950	600	600	16	350	500	NON-EXEMPT		453118.90	3638947.00	MESA, CITY OF.
D06008022ACD	625239	3/1/1945	500	500	16	350	500	NON-EXEMPT		453318.90	3638947.00	MESA, CITY OF.
D06008022B0D	625236	1/1/1945	500	500	16	300	200	NON-EXEMPT		452518.30	3638949.00	MESA, CITY OF.
D06008022B0C	605845	1/1/1936	535	535	16	110	600	NON-EXEMPT		451914.00	3638548.00	CONSOLIDATED,
D06008022B0B	605946	1/1/1936	535	535	16	110	0	NON-EXEMPT		451914.00	3638548.00	CONSOLIDATED,
D06008022C00	638433	1/1/1955	430	400	6	0	35	EXEMPT		451910.40	3638146.00	WINGLER T W
D06008022C0C	625945	1/1/1965	500	500	12	200	30	EXEMPT		451910.40	3638146.00	WUERTZ W
D06008022C0D	625244	1/1/1950	400	400	64	200	20	EXEMPT		451910.40	3638146.00	WUERTZ W
D06008022C0E	625240	1/1/1940	300	300	16	250	900	NON-EXEMPT		452111.90	3638144.00	MESA, CITY OF.
D06008023AAA	622418	1/1/1958	600	600	20	250	300	NON-EXEMPT		454946.00	3639539.00	MESA, CITY OF.

APPENDIX D ADWR 55-WELL REGISTRY FOR WELLS WITHIN STUDY AREA

LOCATION	REGISTRY_ID	INSTALLED	WELL_DEPTH	CSG_DEPTH	DIAMETER	WATER_LEVEL	PUMP_RATE	WELL_TYPE	DRILL_LOG	UTM_E	UTM_N	OWNER
D0600802380D	622457	1/1/1945	1000	1000	20	250	600	NON-EXEMPT		451125.10	353891.00	MESA, CITY OF.
D0600802380A	625241	1/1/1959	500	500	16	350	900	NON-EXEMPT		454939.60	3638734.00	MESA, CITY OF.
D0600802380C	625242	1/1/1950	500	500	12	350	500	NON-EXEMPT		454731.80	36383132.00	MESA, CITY OF.
D0600802440D	622463		0	0	20	250	20	EXEMPT		456550.40	3638938.00	BROWN LAND CATTLE CO.
D0600802440D	625243	1/1/1962	1900	1900	20	350	1500	NON-EXEMPT		455746.40	3638938.00	MESA, CITY OF.
D0600802480D	622460	1/1/1948	800	800	20	300	500	NON-EXEMPT		455746.40	3638938.00	MESA, CITY OF.
D0600802480D	807475	3/1/1997	300	300	20	0	0	NON-EXEMPT		455746.40	3638938.00	MESA, CITY OF.
D0600802480D	526158	2/28/1989	500	500	6	150	25	EXEMPT	X	456143.20	3638335.00	BREBETON, MARGARET.
D060080254AA	625222	1/1/1946	600	600	20	380	900	NON-EXEMPT		456943.30	3637993.00	INLAND FARMS INC.
D060080254AB	625225	1/1/1960	500	500	20	380	500	NON-EXEMPT		456939.60	3637993.00	INLAND FARMS INC.
D060080254AC	625223	1/1/1940	1600	1600	16	380	900	NON-EXEMPT		456940.50	3637333.00	INLAND FARMS INC.
D060080254AD	625224	1/1/1960	800	800	16	400	1000	NON-EXEMPT		456937.10	3638532.00	INLAND FARMS INC.
D06008026AAC	212344		0	0	0	0	0	EXEMPT		454731.10	3637733.00	GREG A. CLARK
D06008026ABA	944706		400	400	6	130	18	EXEMPT	X	454731.10	3637733.00	CEDAR CREEK/KAY DAVIS
D06008026BAD	622461	1/1/1953	800	800	16	300	200	NON-EXEMPT		454122.90	3637737.00	PAUL E. LAURA, SHERLEY
D06008027ABA	512225	6/28/1986	650	650	12	230	300	NON-EXEMPT	X	452911.90	3637942.00	GOLDMAN DAIRY INC.
D06008027ABD	508445		0	0	0	0	0	NON-EXEMPT		452911.50	3637742.00	GOLDMAN DAIRY INC.
D06008027ACC	620635		600	600	20	325	600	NON-EXEMPT		452709.70	3637344.00	GOLDMAN DAIRY INC.
D06008027BAD	625233	9/1/1995	380	380	20	0	600	NON-EXEMPT		452510.00	3637743.00	MESA, CITY OF.
D06008027BBD	640760	1/1/1950	306	306	0	0	34	EXEMPT		452608.50	3637844.00	SNEEDON V
D06008027BCC	625229	1/1/1940	500	500	16	350	600	NON-EXEMPT		451905.50	3637342.00	MESA, CITY OF.
D06008027BDD	625232	1/1/1960	500	500	16	300	600	NON-EXEMPT		452608.70	3637343.00	MESA, CITY OF.
D06008027CBB	625230	1/1/1975	500	500	16	350	600	NON-EXEMPT		451902.50	3638740.00	SHERLEY, LAURA E TR ETAL
D06008027CCB	550463	8/31/1995	300	300	4	120	18	EXEMPT	X	451901.70	3638538.00	BARBER, MARY.
D06008027CDB	625331	8/19/2001	414	414	12	107	700	NON-EXEMPT	X	452206.50	3638538.00	MESA, CITY OF.
D06008027DD	620634		400	400	20	325	1200	NON-EXEMPT		453311.60	3638649.00	OCHOA BROTHERS.
D06008034ACC	624160	1/1/1940	500	500	20	250	800	NON-EXEMPT		452700.60	3635740.00	MESA, CITY OF.
D06008034ACC	611559	1/1/1962	800	800	20	300	800	NON-EXEMPT		451891.00	3634927.00	SELMA AND 87 FARMS, L.L.C
D06008034CDD	624099	1/1/1946	800	800	20	300	1000	NON-EXEMPT		452609.30	3634927.00	HWT, 287 FLORENCE BLVD, INC
D06008034DD	620632		400	400	20	325	800	NON-EXEMPT		453296.90	3634940.00	MESA, CITY OF.
D06008034DD	620631		200	200	20	300	600	NON-EXEMPT		453296.90	3634940.00	MESA, CITY OF.
D06008035CDD	620633		400	400	20	325	1000	NON-EXEMPT		453899.90	3634940.00	MESA, CITY OF.
D06009004AA	620900	1/1/1942	545	435	16	300	1000	NON-EXEMPT		461126.70	3644874.00	ARIZONA WATER COMPANY
D06009004AA	620899	1/1/1942	475	410	16	289	333	NON-EXEMPT	X	461126.80	3645023.00	ARIZONA WATER COMPANY
D06009005ABA	220183	1/1/1946	1000	1000	20	240	2200	OTHER		459313.40	3645048.00	SOUTHWEST GAS CORPORATION
D06009006AAA	604213		0	0	0	0	0	NON-EXEMPT		458107.20	3645067.00	ARLENE F. NEELY INVESTMENTS LP
D06009006AAA	222663		0	0	0	0	0	NON-EXEMPT		458107.20	3645067.00	ARLENE F. NEELY INVESTMENTS LP
D06009006ACB	621903	10/27/1961	982	982	16	225	1300	NON-EXEMPT		457941.20	3644482.00	SAN CARLOS IRRIG.
D06009006ACC	621906	9/25/1959	1020	1020	20	211	1200	NON-EXEMPT		457913.70	3642993.00	SAN CARLOS IRRIG.
D06009007000	638443	1/1/1946	200	200	4	120	22	EXEMPT		457440.10	3642045.00	MITCHELL, H.A
D06009007000	639047		0	0	0	0	0	EXEMPT		457440.10	3642045.00	LEWIS, C
D06009007000	634025		0	0	6	120	27	EXEMPT		457063.20	3642449.00	MITCHELL AL R
D06009007BAA	215909	10/7/2003	305	305	7	50	25	EXEMPT	X	457347.10	3642748.00	ANDERSON IRIE TR AGREEMENT
D06009007BAB	594042		228	228	6	85	0	EXEMPT	X	456969.90	3642750.00	JOHNNY C SKILES SR
D06009007BAB	592529	10/26/1989	200	200	0	0	0	OTHER	X	456781.30	3642751.00	SOUTHWEST GAS CORP.
D06009007BAB	639695	1/1/1940	200	200	6	125	25	EXEMPT		456781.30	3642751.00	HARRIS, C
D06009007BAC	610635	1/1/1960	350	350	5	300	30	EXEMPT	X	456779.40	3642352.00	RODRIGO J GANTU
D06009007BAC	581230	8/6/2000	500	500	5	300	0	EXEMPT	X	456779.40	3642352.00	HARRIS BURTON
D06009007BAC	220207	11/10/2010	370	370	6	196	25	EXEMPT	X	456779.40	3642352.00	RODRIGO J GANTU
D06009007BAC	597446		0	0	0	0	0	EXEMPT		456778.40	3642152.00	CARTER, TONY & BETTY.
D06009007BACC	522486		0	0	0	0	0	EXEMPT		456778.40	3642152.00	CARTER, TONY & BETTY.

APPENDIX D ADWR 55-WELL REGISTRY FOR WELLS WITHIN STUDY AREA

LOCATION	REGISTRY_ID	INSTALLED	WELL_DEPTH	CSG_DEPTH	DIAMETER	WATER_LEVEL	PUMP_RATE	WELL_TYPE	DRILL_LOG	UTM_E	UTM_N	OWNER
D06009078CC	514011		C	0	0	0	0	EXEMPT		456778.40	3642152.00	CARTER, TONY L
D0600907CAA	605556	2/5/1958	1077	1077	20	228	2500	NON-EXEMPT		457344.70	3641946.00	THE SHELHOW LIMITED PARTNERSHIP
D0600907CAA	221958	8/30/2013	1200	1200	16	218	2500	NON-EXEMPT	X	457344.70	3641946.00	SHELHOW LIMITED PARTNERSHIP, LLP
D0600907CAA	50371A		0	0	0	310	1800	NON-EXEMPT	X	457344.70	3641946.00	THE SHELHOW LIMITED PARTNERSHIP, LLP
D0600907C8B	638440	1/1/1968	220	220	6	118	25	EXEMPT		456777.50	3641952.00	CARTER C
D0600907C8C	22075E	7/17/2012	405	405	5		13	EXEMPT	X	456776.50	3641753.00	FRED PERA
D0600907CDD	605559	5/1/1972	1600	1600	20	274	2000	NON-EXEMPT		457343.00	3641345.00	THE SHELHOW LIMITED PARTNERSHIP
D0600907CDD	605557	1/1/1946	500	500	20	196	800	NON-EXEMPT		457343.00	3641345.00	THE SHELHOW LIMITED PARTNERSHIP
D0600907CDD	622458	1/1/1979	1420	1420	20	250	1800	NON-EXEMPT		457343.00	3640945.00	MESA, CITY OF
D0600907CDD	622462	1/1/1958	1500	1500	20	250	1800	NON-EXEMPT		457343.20	3640943.00	MESA, CITY OF
D0600907CDD	622459	1/1/1954	800	800	20	300	200	NON-EXEMPT		456938.30	3639317.00	MESA, CITY OF
D0600907CDD	515432	8/18/1986	300	20	8	0	0	OTHER	X	460985.60	36393192.00	ALL AM. PIPELINE
D0600907C8B	548748	5/26/1995	400	0	0	0	0	OTHER	X	461502.10	36394829.00	ALL AMERICAN PIPELINE
D0600907C8B	638408		1200	1200	20	0	4	EXEMPT		460662.50	3633872.00	SHERLEY RANCH LLC
D0600907C8B	615435	1/1/1948	1000	1090	20	0	500	NON-EXEMPT		460462.46	3636076.00	AZ STATE LAND DEPT.

Appendix E

ADWR 35-WELL REGISTRY FOR WELLS IN PVRP STUDY AREA

APPENDIX E. ADWR 35-WELL REGISTRY FOR WELLS
IN PVRP STUDY AREA

WELL35_ID	REGNO_35	CADASTRAL	OWNER	WATER_USE	WELL_USE	LOG_DATA	WELL DEPTH	COMPLETED	WELL TEST	WELL YIELD	HORSE POWER	DTW	YIELD METHOD	DRAW-DOWN	UTM_E	UTM_N
20183		D-06008001B8B	x	OTHER-EXPLOR	ABANDONED	DRILLERS LOG	300	1/1/1946			0	0	108 x	0	455246.3	3644908.0
20184		D-06008001B8B	x	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	1754	5/21/1964		2400	0	260 x	100	455246.3	3644908.0	
20185		D-06008002AAA	x	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	1500	1/1/1963		1950	0	0	0	455044.4	3644908.8	
20186		D-06008002AAC	x	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	490	2/7/1950		1800	220	115 x	30	454842.0	3644609.6	
20187		D-06008002ADD	x	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	402	2/10/1952		2100	125	130 x	30	455042.8	3644009.8	
20188	XX076	D-06008002BAD	x	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	350	1/1/1940	7/15/1976	2800	125	100 x	100	454235.7	3644611.3	
20189		D-06008002BDA	PRIVATE	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	365	1/27/1947	11/8/1947	2500	100	66.9	0	454234.4	3644312.1	
20190		D-06008002BDD	PRIVATE	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	250	1/1/1929		1430	0	0	0	454233.1	3644012.8	
20191	23952	D-06008002CCC	x	STOCK	WATER PRODUCTION	DRILLERS LOG	384	5/25/1973		1710	0	0	0	453616.8	3642818.9	
20192		D-06008002DAD	x	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	300	10/23/1948		0	0	0	0	455041.7	3643410.5	
20193		D-06008002DAD	x	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	700	1/1/1935		0	0	96 x	0	455041.7	3643410.5	
20194		D-06008002DDO	x	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	300	1/1/1935		970	0	50.5	70	454939.3	3642961.5	
20195		D-06008002DDA	PRIVATE	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	250	1/1/1929		0	0	0	0	455041.2	3643110.9	
20196		D-06008002DDA	PRIVATE	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	700	1/1/1929		0	0	108 x	0	455041.2	3643110.9	
20197		D-06008003AAA	PRIVATE	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	400	2/23/1940		2500	165	60 x	160	453430.1	3644911.9	
20198		D-06008003AAA	PRIVATE	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	2305	4/10/1964		0	0	200 x	0	453430.1	3644911.9	
20199		D-06008003ADD	x	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	352	7/18/1951		1750	125	0	200	453430.1	3644911.9	
20200		D-06008003B8B	x	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	388	1/12/1949		2000	180	87 x	160	453430.1	3644911.9	
20201		D-06008003B8B	x	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	700	9/1/1957	10/5/1957	1300	0	110 x	110	452025.8	3644905.0	
20202		D-06008003BDD	PRIVATE	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	0			0	0	0	0	452621.1	3644014.5	
20203		D-06008003BDD	x	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	1750	1/1/1956		1600	0	110 x	150	452621.1	3644014.5	
20204		D-06008003BDD	x	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	625	1/1/1961		600	0	0	0	452621.1	3644014.5	
20205		D-06008003CAA	PRIVATE	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	388	3/13/1950		3820	0	0	0	452618.9	3643716.7	
20206		D-06008003CCD	x	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	516	11/18/1950		700	0	85 x	265	452211.8	3642824.8	
20207		D-06008003DAA	x	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	380	1/1/1961		350	75	0	120	453013.2	3642821.6	
20208		D-06008003DDC	x	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	570	1/1/1963	6/1/1963	1500	100	82 x	150	453416.3	3643118.9	
20209		D-06008003DDA	PRIVATE	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	474	4/1/1948		650	0	100 x	153	453414.0	3642820.0	
20210		D-06008003DDO	PRIVATE	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	310	1/1/1918		1000	75	73	0	452206.4	3641969.6	
20265		D-06008010BDD	PRIVATE	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	806	8/6/1956		0	0	0	0	452800.3	3641162.3	
20266		D-06008010BDD	PRIVATE	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	500	2/1/1947	2/7/1955	3000	200	200 x	0	452800.3	3641162.3	
20267		D-06008010DCC	x	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	1330	4/22/1961		0	0	0	0	453401.6	3641362.8	
20268		D-06008010DDA	PRIVATE	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	450	1/1/1940		3000	200	90 x	55	453401.6	3641362.8	
20269		D-06008010DDC	PRIVATE	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	800	6/9/1954		1800	0	0	0	453199.8	3641161.7	
20270		D-06008010DDO	PRIVATE	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	365	6/15/1951	8/15/1954	450	13	100 x	0	455035.0	3642157.2	
20271		D-06008011ADA	x	IRRIGATION	WATER PRODUCTION	MISCELLANEOUS	1216	5/4/1959		0	0	165 x	0	454829.8	3641956.9	
20272		D-06008011ADD	PRIVATE	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	365	1/1/1951		0	0	100 x	0	455033.3	3641955.4	
20273		D-06008011BDA	x	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	600	3/14/1961		0	0	200 x	0	454221.0	3642162.5	
20274		D-06008011DDA	x	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	300	1/1/1951		0	0	70 x	0	455028.0	3641350.3	
20275		D-06008011DDO	PRIVATE	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	500	7/1/1950	2/1/1963	850	75	80 x	250	455028.0	3641350.3	
20276		D-06008013AAA	PRIVATE	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	1200	11/24/1962	12/21/1962	1700	150	0	99	456639.1	3640954.9	
20277		D-06008013AAD	x	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	300	3/1/1951	9/24/1952	1200	110	80 x	220	456636.3	3640753.3	
20278		D-06008013CDA	x	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	300	7/1/1951		350	110	86 x	130	455817.5	3639743.0	

**APPENDIX E. ADWR 35-WELL REGISTRY FOR WELLS
IN PVRP STUDY AREA**

WELL35_ID	REGNO_35	CADASTRAL	OWNER	WATER_USE	WELL_USE	LOG_DATA	WELL DEPTH	COMPLETED	WELL TEST	WELL YIELD	HORSE POWER	DTW	YIELD METHOD	DRAW-DOWN	UTM_E	UTM_N
20279		D-06008014CCC	x	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	450	5/1/1953			0	55 x		0	453587.5	3639553.6
20280		D-06008014CDA	x	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	200	2/1/1950			0	62 x		0	454199.0	3639749.2
20281		D-06008015CCC	x	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	186	4/1/1944		1600	0	63 x		0	451987.2	3639555.2
20282		D-06008015DCC	PRIVATE	IRRIGATION	WATER PRODUCTION	x	186	1/1/1944			0	0 x		0	452786.7	3639954.7
20331		D-06008020000	x	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	190	1/1/1943		800	0	91 x	12	452680.0	3638648.7	
20332		D-06008022ADD	PRIVATE	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	200	1/1/1917		1200	0	49 x	0	453381.2	3638748.7	
20333		D-06008022ADD	x	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	400	12/10/1952	1/1/1952	700	75	95.5	250	453381.2	3638748.7	
20334		D-06008022BDD	PRIVATE	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	200	1/1/1945		800	0	50 x	0	452580.6	3638750.2	
20335		D-06008022CCB	PRIVATE	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	227	5/1/1946		600	30	73 x	0	451974.5	3638148.2	
20336		D-06008022CCB	PRIVATE	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	501	1/1/1959		0	0	190 x	0	451974.5	3638148.2	
20337		D-06008022DCC	x	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	315	5/1/1951	7/1/1952	1600	100	90.5	25	452775.3	3637944.5	
20338		D-06008023AAA	PRIVATE	x	x	DRILLERS LOG	320	1/1/1951		0	0	80 x	0	455008.3	3639340.2	
20339		D-06008023AAA	PRIVATE	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	650	5/25/1958	3/1/1959	600	125	130.4	0	455008.3	3639340.2	
20340		D-06008023BDD	PRIVATE	IRRIGATION	WATER PRODUCTION	x	0	1/1/1948		0	0	0 x	0	455003.5	3638736.6	
20341		D-06008023BDD	PRIVATE	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	815	5/31/1955		0	0	95 x	0	454191.4	3638742.9	
20342	26273	D-06008023DAA	x	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	500	12/9/1973		0	0	215 x	0	455001.9	3638535.4	
20343		D-06008023DAB	PRIVATE	IRRIGATION	WATER PRODUCTION	x	0			0	0	185 x	0	454798.8	3638536.9	
20344		D-06008023DCC	x	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	409	12/12/1950		0	0	60 x	0	454794.1	3637933.2	
20345		D-06008024AAA	PRIVATE	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	1850	1/1/1964		2000	0	212.0	180	456617.9	3639342.5	
20346		D-06008024ADA	CORPORATION	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	300	1/1/1947		2000	0	0.5	0	456614.5	3638940.8	
20347		D-06008024ADA	PRIVATE	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	1850	1/1/1964	1/1/1969	2000	200	212.0	180	456614.5	3638940.8	
20348		D-06008024BDD	x	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	400	1/1/1930		3300	150	70 x	0	455406.6	3638736.6	
20349		D-06008024BDD	PRIVATE	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	800	1/1/1956		1400	0	125.5	150	455808.7	3638737.8	
20350		D-06008024BDD	PRIVATE	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	2460	1/1/1964		0	0	120 x	0	455808.7	3638737.8	
20351		D-06008024DAA	CORPORATION	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	300	4/1/1947		2000	0	0.5	0	456611.0	3638539.4	
20352		D-06008025AAA	PRIVATE	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	510	2/1/1948		1600	125	60.5	0	456604.6	3637736.7	
20353		D-06008025ADA	PRIVATE	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	210	1/10/1968		1800	0	43 x	0	456603.4	3637335.4	
20354		D-06008025BAB	x	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	464	1/10/1968	5/28/1968	900	150	155.0	200	455600.1	3637732.9	
20355		D-06008025D00	x	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	150	1/1/1928		0	0	40 x	0	456300.5	3636634.7	
20356		D-06008025DAA	PRIVATE	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	502	3/29/1956	1/1/1957	1100	150	120.0	140	456602.1	3636934.3	
20357		D-06008025DAC	PRIVATE	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	522	10/1/1958		0	0	60 x	0	456400.7	3636734.4	
20358		D-06008026BAA	x	DOMESTIC	WATER PRODUCTION	DRILLERS LOG	500	7/28/1962		0	0	125 x	0	454185.4	3637737.4	
20359		D-06008027ADD	PRIVATE	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	600	1/5/1964	2/1/1964	1000	125	136.5	80	453374.9	3637145.9	
20360		D-06008027BAD	x	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	341	1/1/1957	1/1/1958	1000	125	0.4	50	452572.3	3637544.7	
20361		D-06008027BCC	PRIVATE	IRRIGATION	WATER PRODUCTION	x	200	1/1/1943		900	0	85.9	20	451967.8	3637143.9	
20362		D-06008027BCC	PRIVATE	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	400	12/10/1951	11/15/1952	1000	50	130.5	0	451967.8	3637143.9	
20363		D-06008027BDD	x	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	500	1/1/1945		900	0	0 x	0	452571.0	3637144.8	
20364		D-06008027BDD	x	IRRIGATION	WATER PRODUCTION	x	554	4/14/1972	4/18/1972	500	100	211.0	100	452571.0	3637144.8	
20365		D-06008027CBO	x	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	196	1/1/1952		400	0	90.5	110	452066.8	3636843.0	
20366		D-06008027CCB	PRIVATE	IRRIGATION	WATER PRODUCTION	x	216	1/1/1920		800	0	56 x	0	451964.8	3636541.5	
20367	33529	D-06008027CCC	x	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	500	1/1/1975	1/13/1976	600	100	257.7	103	451964.0	3636339.8	
20411		D-06008034ACC	PRIVATE	IRRIGATION	WATER PRODUCTION	x	500	1/1/1948		0	0	108 x	0	452762.9	3635541.9	

APPENDIX E. ADWR 35-WELL REGISTRY FOR WELLS
IN PVRP STUDY AREA

WELL35_ID	REGNO_35	CADASTRAL	OWNER	WATER_USE	WELL_USE	LOG_DATA	WELL DEPTH	COMPLETED	WELL TEST	WELL YIELD	HORSE POWER	DTW	YIELD METHOD	DRAW-DOWN	UTM_E	UTM_N
20412		D-06008034C0C	PRIVATE	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	760	8/25/1962		0	0	0	0	0	452354.8	3634729.2
20413		D-06008034CDD	PRIVATE	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	460	3/1/1946	9/1/1955	3000	200	118.5	70	70	452555.6	3634729.2
20414		D-06008034DD	PRIVATE	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	560	11/1/1947	1/1/1957	1600	200	126.4	97	97	453359.2	3634741.8
20415		D-06008035ABB	FEDERAL	OTHER-EXPLOR	DESTROYED	DRILLERS LOG	290	1/1/1934		0	0	61	0	0	454385.0	3636146.2
20416		D-06008036ADA	x	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	400	9/17/1951	1/1/1952	2000	100	110.0	100	100	456595.3	3635732.5
20417		D-06008036DD	x	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	500	8/25/1951	8/1/1952	2000	100	110.0	100	100	456585.9	3634732.7
20418		D-06009004ADA	COUNTY	DOMESTIC	WATER PRODUCTION	DRILLERS LOG	600	1/1/1943		700	0	199	25	25	461387.4	3644233.6
20419		D-06009004DD	COUNTY	x	x	DRILLERS LOG	556	1/1/1943		600	0	199	24	24	461385.9	3643939.8
20420		D-06009006AAD	x	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	608	1/1/1940		1800	0	128	32	32	458168.8	3644571.5
20421		D-06009006BDD	FEDERAL	OTHER-EXPLOR	ABANDONED	DRILLERS LOG	584	1/1/1947		0	0	148	0	0	457414.4	3643988.5
20422		D-06009006DAA	PRIVATE	IRRIGATION	WATER PRODUCTION	x	606	1/1/1940		1800	0	128	32	32	458166.5	3643682.7
20423		D-06009006DCA	FEDERAL	x	x	DRILLERS LOG	550	1/1/1947		0	0	75	0	0	457788.4	3643093.2
20424		D-06009006DCD	FEDERAL	IRRIGATION	WATER PRODUCTION	DRILLERS LOG, LITH LOG	1050	1/1/1959		2550	0	130	156	156	457787.6	3642796.3
20425		D-060090078BC	PRIVATE	DOMESTIC	WATER PRODUCTION	DRILLERS LOG	249	1/1/1936		0	0	0	0	0	456842.6	3642353.3
20426	26954	D-060090078BC	x	DOMESTIC	WATER PRODUCTION	DRILLERS LOG	370	1/1/1974		7	0	110	117	117	456842.6	3642353.3
20427		D-06009007CAA	PRIVATE	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	1077	1/1/1958		2200	0	100	60	60	457407.0	3641747.9
20428		D-06009007CB0	PRIVATE	DOMESTIC	WATER PRODUCTION	DRILLERS LOG	275	1/1/1940		0	0	66	0	0	456933.9	3641653.0
20429		D-06009007CDC	PRIVATE	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	500	1/1/1947		0	0	112	0	0	457216.0	3641149.3
20430		D-06009007CDD	PRIVATE	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	1600	1/1/1972		0	0	305	0	0	457405.3	3641146.6
20431		D-06009007CDD	x	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	500	1/1/1946		800	0	250	150	150	457405.3	3641146.6
20432	72646	D-06009018BAD	x	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	1440	1/1/1979		0	0	350	0	0	457400.1	3640744.5
20433		D-06009018BAD	CORPORATION	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	1402	1/1/1959		2900	0	150	0	0	457397.5	3640543.3
20434		D-06009018BDD	x	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	530	1/1/1947		0	0	102	0	0	457394.9	3640342.2
20435		D-06009019BDD	PRIVATE	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	500	1/1/1947		0	0	102	0	0	457000.6	3639138.3
20436	75019	D-06009019BDD	x	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	500	1/1/1947		0	0	102	0	0	457000.6	3639138.3
20437		D-06009030AAC	x	x	WATER PRODUCTION	DRILLERS LOG	1165	1/1/1972		0	0	0	0	0	457927.5	3637507.2
20438		D-06009030CCC	FEDERAL	IRRIGATION	WATER PRODUCTION	DRILLERS LOG, LITH LOG	1165	1/1/1972		3000	0	215	0	0	456794.7	3636330.6
20439		D-06009030CDD	x	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	390	1/1/1951		0	0	85	0	0	457171.6	3636324.6
20440		D-06009033BAD	x	IRRIGATION	WATER PRODUCTION	DRILLERS LOG	1200	1/1/1948		500	0	0	0	150	460524.6	3635877.3

Appendix F

ADWR GWSI FOR WELLS IN PVRP STUDY AREA

**APPENDIX F. ADWR GWSI FOR WELLS IN
PVRP STUDY AREA**

Site ID	Local ID	Reg. ID	DTW (ft)	Wl Elev (ft amsl)	WL Date	Data Type	Well Depth (ft)	Case Dia (in)	Water Use	Drill Date	Lat NAD27	Lon NAD27
325458111295101	D-06-08 10ADD	617778	59	1391	11/4/1998	STANDARD	806	20.00	IRRIGATION	8/6/1956	32.92	111.50
325458111304001	D-06-08 10BCA		54	1384	12/18/2013	STANDARD	500	16.00	UNUSED	2/1/1947	32.92	111.51
325429111301901	D-06-08 10DCC	617779	89	1358	12/18/2013	STANDARD	1330	20.00	UNUSED	4/22/1961	32.91	111.51
325440111295301	D-06-08 10DDA	617774	75	1375	1/10/1994	STANDARD	450	20.00	DOMESTIC	1/1/1940	32.91	111.50
32543111300101	D-06-08 10DDC	617780	68	1380	12/3/2003	STANDARD	800	20.00	UNUSED	6/9/1954	32.91	111.50
325507111291801	D-06-08 11ACB	617557	92	1368	11/4/1998	STANDARD	600	20.00	IRRIGATION	3/14/1961	32.92	111.49
325503111284801	D-06-08 11ADA1	617559	62	1411	12/3/2013	INDEX	365	18.00	UNUSED	6/15/1951	32.92	111.48
325503111285001	D-06-08 11ADA2	617558				STANDARD			IRRIGATION		32.92	111.48
325500111285901	D-06-08 11ADC	617560				STANDARD	1216	20.00	IRRIGATION	5/4/1959	32.92	111.48
325440111284901	D-06-08 11DDA	617561				STANDARD	500	12.00	UNUSED	7/1/1950	32.91	111.48
325439111284901	D-06-08 11DDD	617562	234	1239	12/4/2013	STANDARD	300	12.00	IRRIGATION	1/1/1951	32.91	111.48
325429111274601	D-06-08 13AAA	609758				STANDARD	1200	20.00	IRRIGATION	11/24/1962	32.91	111.46
325419111274801	D-06-08 13AAD	609759	78	1426	12/4/2013	STANDARD	300	16.00	UNUSED	3/1/1951	32.91	111.46
325348111282101	D-06-08 13CDA		108	1379	1/18/1955	STANDARD	300		UNUSED	7/1/1951	32.90	111.47
325342111294701	D-06-08 14CCC	625234	115	1341	12/3/2013	INDEX	450	20.00	IRRIGATION	5/1/1953	32.89	111.50
325348111292401	D-06-08 14CDA		109	1353	1/13/1958	STANDARD	225		UNUSED	2/1/1950	32.90	111.49
325342111290401	D-06-08 14DCD1	504821	104	1364	11/12/1993	STANDARD	360	6.00	DOMESTIC		32.90	111.48
325336111303901	D-06-08 15CCD	618029				STANDARD	520		IRRIGATION		32.89	111.51
325339111302001	D-06-08 15DCC	625235	90	1363	11/8/1988	STANDARD	186		UNUSED	4/1/1944	32.89	111.51
325311111300801	D-06-08 22ACD	625237	70	1387	12/18/2013	STANDARD	600		UNUSED		32.89	111.50
325311111300401	D-06-08 22ADC	625238	59	1398	12/18/2007	STANDARD	600		UNUSED		32.89	111.50
325313111295801	D-06-08 22ADD1		49	1411	1/1/1936	STANDARD	195	16.00	UNUSED	1/1/1917	32.89	111.50
325313111295101	D-06-08 22ADD2	625239	111	1348	1/10/1994	STANDARD	400	20.00	UNUSED	12/10/1952	32.89	111.50
325317111302801	D-06-08 228DD	625236	62	1396	11/20/2003	STANDARD	200	16.00	DOMESTIC	1/1/1945	32.89	111.51
325256111304801	D-06-08 22CCB1	605845	82	1381	12/6/2007	STANDARD	227	12.00	UNUSED	5/1/1946	32.88	111.51
325256111304901	D-06-08 22CCB2	605846	109	1355	11/12/1993	STANDARD	501	16.00	IRRIGATION	4/5/1959	32.88	111.51
325249111300201	D-06-08 22DCC	625240	105	1362	11/8/1984	STANDARD	315	16.00	IRRIGATION	5/1/1951	32.88	111.50
325336111284801	D-06-08 23AAA1		80	1394	9/12/1951	STANDARD	320	20.00	IRRIGATION	1/30/1951	32.89	111.48
325336111284901	D-06-08 23AAA2	622458	48	1426	12/16/2013	STANDARD	650	20.00	UNUSED	5/25/1958	32.89	111.48
325315111291501	D-06-08 23ADD					STANDARD		20.00	UNUSED	4/1/1948	32.89	111.49
325317111292101	D-06-08 238DD	622457				STANDARD	815	20.00	IRRIGATION	5/31/1955	32.89	111.49
325311111285601	D-06-08 23DAB	625241	181	1291	11/14/1984	STANDARD	500	20.00	IRRIGATION	1/1/1967	32.89	111.48

**APPENDIX F. ADWR GWSI FOR WELLS IN
PVRP STUDY AREA**

325247111285501	D-06-08 23DDD	625242	60	1413	8/17/1950	STANDARD	409	20.00	IRRIGATION	12/12/1950	32.88	111.48
325241111274701	D-06-08 24ADA	625243	89	1418	12/4/2013	STANDARD	1850	20.00	UNUSED	1/1/1964	32.89	111.46
325312111274601	D-06-08 24ADD	622463				STANDARD			DOMESTIC		32.89	111.46
325316111281701	D-06-08 24BDD1	807475	50	1440	3/10/1942	STANDARD	300	20.00	UNUSED	1/1/1941	32.89	111.47
325315111281701	D-06-08 24BDD2	622460	125	1365	2/17/1946	STANDARD	800	20.00	UNUSED	2/17/1956	32.89	111.47
325315111281801	D-06-08 24BDD3		122	1368	1/10/1994	STANDARD	2460	14.00	IRRIGATION	4/10/1964	32.89	111.47
325311111283801	D-06-08 24CBA		111	1367	11/14/1984	STANDARD	400	20.00	UNUSED	1/1/1930	32.89	111.48
325243111275101	D-06-08 25AAA	625222	122	1383	1/2/2014	STANDARD	510	20.00	IRRIGATION	2/1/1948	32.88	111.46
325245111281601	D-06-08 25ABB	625225	194	1301	1/17/1977	STANDARD	464	20.00	IRRIGATION	1/10/1968	32.88	111.47
325030111275701	D-06-08 25ADA	625223	119	1382	12/4/2013	STANDARD	210	20.00	IRRIGATION		32.87	111.46
325218111274701	D-06-08 25DAA		120	1383	3/29/1956	STANDARD	502	20.00	IRRIGATION	3/29/1956	32.87	111.46
325208111275801	D-06-08 25DAC	625224	124	1381	11/12/1998	STANDARD	522	20.00	IRRIGATION	10/1/1958	32.87	111.47
325204111275001	D-06-08 25DDA		100	1402	1/15/1957	STANDARD	150		IRRIGATION	1/1/1928	32.87	111.46
325238111292601	D-06-08 26BAD	622461	116	1351	12/16/2013	STANDARD	800		IRRIGATION		32.88	111.49
325221111295201	D-06-08 27ADC	620635				STANDARD	600	20.00	IRRIGATION	1/5/1964	32.87	111.50
325220111305001	D-06-08 27BCC1		70	1402	5/8/1944	STANDARD	212	12.00	IRRIGATION	1/1/1943	32.87	111.51
325221111304801	D-06-08 27BCC2		130	1342	12/1/1951	STANDARD	400	16.00	UNDETERMINED	1/1/1951	32.87	111.51
325218111305001	D-06-08 27BCC3		104	1368	11/1/1993	STANDARD		15.00	UNUSED		32.87	111.51
325232111302301	D-06-08 27BDA	625233	69	1396	12/7/2000	STANDARD		20.00	UNUSED		32.88	111.51
325226111305001	D-06-08 27BDD1		150	1322	1/13/1958	STANDARD	300	12.00	UNUSED	8/1/1943	32.87	111.51
325220111302201	D-06-08 27BDD2	625232	120	1350	11/14/2012	INDEX	554	16.00	IRRIGATION	4/14/1972	32.87	111.51
325203111304801	D-06-08 27CCB1		97	1378	2/3/1948	STANDARD	216	24.00	UNUSED	1/1/1920	32.87	111.51
325202111304901	D-06-08 27CCB2	625230	150	1325	7/24/1997	STANDARD	500		IRRIGATION		32.87	111.51
325156111302201	D-06-08 27CDD	625231	94	1383	11/5/1998	STANDARD	516	20.00	IRRIGATION	4/7/1953	32.87	111.51
325155111295001	D-06-08 27DDD	620634	100	1376	11/11/1998	STANDARD	604	20.00	IRRIGATION	5/29/1951	32.87	111.50
325131111301901	D-06-08 34ACC	611559	88	1397	12/2/2013	STANDARD	500	20.00	UNUSED	1/1/1948	32.86	111.51
325103111303301	D-06-08 34CCD	624100				STANDARD	760	20.00	IRRIGATION	8/25/1962	32.85	111.51
325103111302501	D-06-08 34CDD	624099	143	1346	11/14/1984	STANDARD	460	20.00	IRRIGATION	3/1/1946	32.85	111.51
325103111295101	D-06-08 34DDD	620632	92	1398	12/11/2013	STANDARD	560	20.00	UNUSED	11/1/1947	32.85	111.50
325151111291601	D-06-08 35ABB		61	1423	12/7/1949	STANDARD	290	20.00	UNUSED	5/1/1934	32.86	111.49
325103111294901	D-06-08 35CCC		205	1284	11/20/1984	STANDARD			IRRIGATION		32.85	111.50
325102111293501	D-06-08 35CCD	620633	77	1412	11/9/1993	STANDARD		20.00	UNUSED		32.85	111.49
325138111275001	D-06-08 36ADA		110	1453	9/17/1951	STANDARD	400	20.00	IRRIGATION	9/17/1951	32.86	111.46

**APPENDIX F. ADWR GWSI FOR WELLS IN
PVRP STUDY AREA**

325106111275001	D-06-08 36DDD		110	1390	8/25/1951	STANDARD	500	20.00	IRRIGATION	8/25/1951	32.85	111.46
325639111284801	D-06-08N02DAA	<u>610583</u>	172	1298	12/16/2013	STANDARD	1500	20.00	IRRIGATION	5/15/1963	32.94	111.48
325630111284901	D-06-08N02DAD					STANDARD	300		IRRIGATION		32.94	111.48
325605111285801	D-06-08N02DCA	<u>610585</u>	111	1355	12/16/2013	STANDARD	490	20.00	IRRIGATION	2/7/1950	32.94	111.48
325624111284701	D-06-08N02DDA	<u>610584</u>	120	1350	12/4/2013	STANDARD	402	20.00	IRRIGATION	2/10/1952	32.94	111.48
32564111295101	D-06-08N03DAA	<u>605240</u>	92	1351	12/3/2007	STANDARD	352	20.00	IRRIGATION	7/18/1951	32.94	111.50
325640111295001	D-06-08N03DDA	<u>605241</u>	65	1377	12/4/2013	STANDARD	2305	18.00	IRRIGATION	4/10/1964	32.94	111.50
325640111295101	D-06-08N03DDD	<u>605241</u>	88	1356	12/16/2013	STANDARD	400	20.00	IRRIGATION	2/23/1940	32.94	111.50
32561411282801	D-06-08S01BAB1	<u>606777</u>	125	1356	12/16/2013	STANDARD	300	20.00	IRRIGATION	10/31/1946	32.94	111.47
325613111283101	D-06-08S01BAB2	<u>606778</u>	234	1247	12/16/2013	STANDARD	1754	16.00	IRRIGATION	1/6/1964	32.94	111.47
325559111292301	D-06-08S02BDA	<u>617563</u>	92	1365	12/16/2013	STANDARD	365	20.00	IRRIGATION	1/27/1947	32.93	111.49
325550111292001	D-06-08S02BDD	<u>617563</u>	88	1369	11/2/1993	STANDARD	250	20.00	IRRIGATION	1/1/1929	32.93	111.49
325525111291901	D-06-08S02CDD	<u>617775</u>	65	1393	12/16/2013	STANDARD		20.00	UNUSED		32.92	111.49
325532111285201	D-06-08S02DAA	<u>617565</u>	258	1214	7/22/1997	STANDARD	250	20.00	IRRIGATION	1/1/1929	32.93	111.48
325526111284801	D-06-08S02DDD	<u>617776</u>	83	1391	12/16/2013	STANDARD			IRRIGATION		32.92	111.48
325547111295301	D-06-08S03ADD	<u>605237</u>	75	1369	12/16/2013	STANDARD	380	20.00	IRRIGATION	11/18/1950	32.93	111.50
325614111302101	D-06-08S03BAA	<u>605347</u>	107	1326	8/21/1996	STANDARD			IRRIGATION		32.94	111.51
325603111303601	D-06-08S03BBD	<u>605352</u>	63	1364	11/10/1998	STANDARD	700	20.00	IRRIGATION	9/1/1957	32.93	111.51
325548111303401	D-06-08S03BDC	<u>605349</u>	66	1364	11/10/1998	STANDARD			IRRIGATION		32.93	111.51
325550111302101	D-06-08S03BDD1		81	1352	11/7/1988	STANDARD	250	20.00	UNUSED	1/1/1940	32.93	111.51
325549111302101	D-06-08S03BDD2	<u>605348</u>	83	1351	12/5/2007	STANDARD	2500	20.00	UNUSED	2/23/1956	32.93	111.51
325547111302401	D-06-08S03CAA					STANDARD	388	20.00	UNUSED		32.93	111.51
325531111303601	D-06-08S03CCA	<u>605352</u>	82	1353	12/5/2007	STANDARD			IRRIGATION		32.93	111.51
325524111305601	D-06-08S03CCD		74	1361	12/19/2013	STANDARD	516	20.00	IRRIGATION	3/13/1950	32.92	111.51
325522111301501	D-06-08S03DCC	<u>605238</u>	88	1350	11/10/1993	STANDARD	800		IRRIGATION		32.92	111.50
325524111300701	D-06-08S03DCD		86	1354	12/5/2007	STANDARD	570		UNUSED		32.92	111.50
325532111295101	D-06-08S03DDA	<u>605239</u>	153	1292	9/24/1997	STANDARD	460	20.00	IRRIGATION	4/1/1948	32.93	111.50
325524111295201	D-06-08S03DDD	<u>605242</u>	145	1302	1/13/1977	STANDARD	310	20.00	DOMESTIC	1/1/1918	32.92	111.50
325513111274201	D-06-09 07B8C1					STANDARD	249	6.00	DOMESTIC	9/1/1936	32.92	111.46
325514111274101	D-06-09 07B8C2		110	1397	3/15/1975	STANDARD	370	6.00	DOMESTIC	10/15/1974	32.92	111.46
325454111265101	D-06-09 07CAA	<u>605556</u>	252	1266	1/2/2014	STANDARD	1077	20.00	IRRIGATION	2/5/1958	32.91	111.46
325451111273901	D-06-09 07CB UNSURV		66	1446	4/1/1940	STANDARD	275	6.00	DOMESTIC	1/1/1940	32.91	111.46

**APPENDIX F. ADWR GWSI FOR WELLS IN
PVRP STUDY AREA**

325432111272701	D-06-09 07CDD1	605557	101	1419	11/3/1998	STANDARD	500	20.00	UNUSED	1/1/1946	32.91	111.46
325432111271801	D-06-09 07CDD2	605559	264	1256	12/4/2013	STANDARD	1600	20.00	IRRIGATION	5/24/1972	32.91	111.46
325427111262800	D-06-09 17BAB					STANDARD	1504	8.00	UNUSED	8/23/1978	32.91	111.44
325427111262801	D-06-09 17BAB PZ1		283	1262	2/21/1979	STANDARD	1029	1.25	UNUSED	8/23/1978	32.91	111.44
325427111262802	D-06-09 17BAB PZ2		205	1340	2/21/1979	STANDARD	468	1.25	UNUSED	8/23/1978	32.91	111.44
325418111272301	D-06-09 18BAD	622456	245	1275	11/2/1993	STANDARD	1440	20.00	IRRIGATION	9/10/1979	32.91	111.46
325416111271801	D-06-09 18BDC	622462	203	1314	11/2/1993	STANDARD	1402	20.00	IRRIGATION	9/1/1959	32.90	111.46
325328111273501	D-06-09 1988D	622459	106	1411	11/5/1993	STANDARD	500	20.00	UNUSED	1/1/1947	32.89	111.46
325205111244001	D-06-09 27C8B		204	1411	9/26/1972	STANDARD	281	5.00	UNUSED	1/1/1966	32.87	111.41
325243111263700	D-06-09 2988A1					STANDARD	1806	8.00	UNUSED	8/15/1978	32.88	111.44
325243111263701	D-06-09 2988A1 PZ1		269	1273	2/28/1979	STANDARD	1202	1.25	UNUSED	8/15/1978	32.88	111.44
325243111263702	D-06-09 2988A1 PZ2		261	1281	2/28/1979	STANDARD	625	1.25	UNUSED	8/15/1978	32.88	111.44
325243111263801	D-06-09 2988A2					STANDARD	1150	6.00	UNUSED	5/10/1979	32.88	111.44
325243111263900	D-06-09 2988A3					STANDARD	800	8.00	UNUSED	5/30/1979	32.88	111.44
325243111263901	D-06-09 2988A3 PZ1		251	1291	11/14/2013	INDEX	780	2.00	UNUSED	5/30/1979	32.88	111.44
325243111264001	D-06-09 2988A4		300	1242	11/14/2013	INDEX	1520	6.00	UNUSED	8/3/1979	32.88	111.44
325158111273901	D-06-09 30CCC		215	1290	2/1/1972	STANDARD	1165	20.00	IRRIGATION	1/1/1972	32.87	111.46
325200111273301	D-06-09 30CCD		60	1449	11/9/1993	STANDARD	390	20.00	UNUSED	6/15/1951	32.87	111.46
325143111251901	D-06-09 33ACB	638400	242	1346	12/4/2013	STANDARD	1100	20.00	UNUSED	6/26/1948	32.86	111.42
325139111241101	D-06-09 34ABC		172	1456	9/10/1948	STANDARD		8.00	UNUSED		32.86	111.40
325617111244801	D-06-09N04DDD	620899	308	1280	1/6/2014	INDEX	600	16.00	DOMESTIC	2/12/1943	32.94	111.41
325634111264801	D-06-09N06DAA	604213	246	1276	11/14/2012	INDEX	608	20.00	IRRIGATION	7/1/1940	32.94	111.45
325610111245101	D-06-09S04AAD	620900	310	1279	12/4/2013	STANDARD	556	16.00	IRRIGATION	5/4/1943	32.94	111.41
325601111272101	D-06-09S06BAD	621903	173	1337	11/5/1998	STANDARD	982		IRRIGATION		32.93	111.46
325607111272101	D-06-09S06BDD1		148	1279	3/6/1952	STANDARD		9.50	UNUSED		32.94	111.46
325606111272101	D-06-09S06BDD2		80	1431	3/1/1947	STANDARD	584	20.00	UNUSED	5/5/1947	32.94	111.46
325600111270701	D-06-09S06DCA		75	1445	5/1/1947	STANDARD	550	20.00	UNUSED	5/1/1947	32.93	111.45
325534111270801	D-06-09S06DCD	621909	230	1291	12/8/2003	STANDARD	1050	20.00	OBSERVATION	8/24/1959	32.92	111.45

Appendix G

ENVIRONMENTAL DATABASE REPORT

Allands

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SPECIAL DATABASE SEARCH

YOUR FILE NO: 011010 / Task 450

ALLANDS FILE NO: 2014-11-081D

DATE OF REPORT: December 3, 2014

ALLANDS hereby reports the search results of Federal and State Databases. Allands is not responsible for errors in the available records. The total liability is limited to the fee paid for this report. This is a confidential, privileged and protected document for the use of Clear Creek Associates.

1. The land referred to in this report is located in Pinal County, Arizona, described as follows:

Property located South of Kelk Road and East of Wheeler Road, being in the West half of Section 18, Township 6 South, Range 9 East, Gila and Salt River Base and Meridian.

REGULATORY DATABASE SEARCH SUMMARY

Database	Date of Database	Approximate Minimum Search Distance (miles)	Reported Facilities
Standard Federal ASTM Environmental Record Sources			
NPL (National Priorities List) / Proposed NPL / DOD (Department of Defense Sites)	10/14	3.0	0
Delisted National Priorities List	10/14	3.0	0
CE:RCLIS (Comprehensive Environmental Response, Compensation and Liability Information System)/No Further Remedial Action Planned (NFRAP)	01/14	3.0	0
RCRA (Resource Conservation and Recovery Act)	10/14	3.0	2
RCRA – CORRACTS TSDFs (Corrective Action Treatment, Storage, and Disposal Facilities)	10/14	3.0	0
RCRA – Non-CORRACTS TSDFs	10/14	3.0	0
ERNS (Emergency Response Notification System)	10/14	3.0	0
Standard State ASTM Environmental Record Sources			
WQARF (Water Quality Assurance Revolving Fund) Areas	10/14	3.0	0
Superfund Program List (replaces ACIDS)	08/04	3.0	0
Solid Waste Facilities/Landfill Sites – Operating and Closed	05/99 & 05/04	3.0	0
Brownfields / Voluntary Remediation Program	01/14	3.0	0
Registered USTs (Underground Storage Tanks) (includes Tribal Records)	03/14	3.0	3
LUSTs (Leaking Underground Storage Tanks) Incident Reports (includes Tribal Records)	03/14	3.0	1
Additional Environmental Record Sources			
RCRA Compliance Facilities	10/14	3.0	0
Hazardous Materials Incidents Emergency Response Logbook	1984-06/01	3.0	0
ADFQ Drywell Registration Database (includes Tribal Records)	10/14	3.0	0
Topographical / Aerial Maps	See text	3.0	2
DRYCLEANER	06/06	3.0	0
Arizona Department of Water Resources Well Registration Database	04/14	3.0	See Text

Allands contacts the appropriate sources on a quarterly basis to maintain currency of data

Standard Federal ASTM Environmental Record Sources

SUPERFUND NATIONAL PRIORITIES LIST (NPL)

Under Section 105 of the Comprehensive Environmental Response, Compensation and Liability Act the Environmental Protection Agency established a National Priorities List (NPL) of Superfund sites. In addition, Proposed NPL and DOD (Department of Defense) Sites are researched in the section. These databases are provided by the EPA and the Arizona Department of Environmental Quality, dated October, 2014, and searched to identify all NPL/Proposed NPL/ DOD sites within a 3.0 mile search distance from subject property exterior boundaries.

Note: Due to inconsistency between the general area site description in the Narrative site information and the detailed site map, the distance/directions are determined based upon the most current site map available from ADEQ.

No National Priorities List (NPL) / Proposed NPL / DOD Sites were found located within a 3.0 mile search distance from subject property exterior boundaries.

DELISTED NATIONAL PRIORITIES LIST

Site may be delisted from the National Priorities List where no further response is appropriate. This database is provided by the Environmental Protection Agency, dated October, 2014, and searched to identify all Delisted NPL Sites within a 3.0 mile search distance from subject property exterior boundaries.

No Delisted National Priorities List (NPL) Sites were found located within a 3.0 mile search distance from subject property exterior boundaries.

FEDERAL CERCLIS / NFRAP LIST

The CERCLIS list contains sites which are either proposed to or on the NPL and sites which are in the screening and assessment phase for possible inclusion on the NPL. Those sites on the NFRAP list have no further remedial action planned. This database is provided by EPA dated January, 2014, and searched for facilities within a 3.0 mile search distance from subject property exterior boundaries.

No CERCLIS / NFRAP facilities were found located within a 3.0 mile search distance from subject property exterior boundaries.

RESOURCE CONSERVATION AND RECOVERY ACT FACILITIES (RCRA)

Under RCRA the Environmental Protection Agency compiles a database of facilities that are involved in the generation of hazardous materials. This database is from the Arizona Department of Environmental Quality RCRAInfo Database, dated October, 2014 and checked for Federal RCRA facilities located within a 3.0 mile search distance from subject property exterior boundaries.

EPA ID	FACILITY	ADDRESS	NOTIF. DATE	STATUS
AZE060500001	Loreal USA C/O Bright Corp	6300 N Airport Rd	9/30/2009	N
AZR000508028	Coolidge Generating Station	859 E Randolph Rd / 10/6s/8e	7/14/2009	CEG

CODES:

LQG: Large quantity generator (more than 1000 kg per month)
SQG: Small quantity generator (100 – 1000 kg per month)
CEG: Conditionally exempt small quantity generator (less than 100 kg per month)
N : Not a generator verified or inactive generator

CORRACTS FACILITIES

Under RCRA the Environmental Protection Agency compiles a database of Corrective Action Sites, sites with known contamination. Also known as the RCRA CORRACTS List, this is a list maintained by the EPA of RCRA sites at which contamination has been discovered and where some level of corrective clean-up activity has been undertaken. For example, a site may have been on the RCRA TSD or the RCRA Generators site list, and was placed on the CORRACTS list once contamination was discovered and remediation was underway. This database is dated October, 2014, and checked for facilities which occurred within a 3.0 mile search distance from subject property exterior boundaries.

No Facilities were found which occurred within a 3.0 mile search distance from subject property exterior boundaries.

TSD FACILITIES

Under RCRA the Environmental Protection Agency compiles a database of facilities that are involved in the transportation, treatment, storage, or disposal of hazardous materials. This database is from the Arizona Department of Environmental Quality Arizona Hazardous Waste Treatment, Storage and Disposal Facilities, dated October, 2014, and checked for Facilities which occurred within a 3.0 mile search distance from subject property exterior boundaries.

No TSD Facilities were found which occurred within a 3.0 mile search distance from subject property exterior boundaries.

FEDERAL EMERGENCY RESPONSE NOTIFICATION SYSTEM (ERNS) LIST

The ERNS list is a national database used to collect information on reported releases of oil and hazardous substances. This database is provided by the National Response Center and the EPA through the Right of Know Net by OMB Watch and Unison Institute from 1983 to October, 2014, and checked for incidents located within a 3.0 mile search distance from subject property exterior boundaries.

No incidents were found located within a 3.0 mile search distance from subject property exterior boundaries.

Standard State ASTM Environmental Record Sources

WATER QUALITY ASSURANCE REVOLVING FUND (WQARF)

The state of Arizona established a remedial program under A.R.S. 49-282 to facilitate the conservation and clean-up of Arizona drinking water and water sources. Under the authority of the WQARF program, the state actively identifies any actual or potential impact upon state waters, evaluates the extent of contamination, identifies parties responsible, and provides money grants to assist in clean-up activities. This database is provided by the Arizona Department of Environmental Quality dated October, 2014, and searched to identify all WQARF sites within a 3.0 mile search distance from subject property exterior boundaries.

Note: Due to inconsistency between the general area site description in the Narrative site information and the detailed site map, the distance/directions are determined based upon the most current site map available from ADEQ.

No WQARF Registry List sites were found located within a 3.0 mile search distance from subject property exterior boundaries.

ARIZONA SUPERFUND PROGRAM LIST

The Arizona Superfund Program List replaces the Arizona CERCLIS Information Data System (ACIDS). This list is more representative of the sites and potential sites within jurisdiction of the Arizona Department of Environmental Quality Superfund Programs Section (SPS). This database is provided by the Arizona Department of Environmental Quality, dated August, 2004, and searched to identify all sites within a 3.0 mile search distance from subject property exterior boundaries.

No facilities on the Arizona Superfund Program List were found located within a 3.0 mile search distance from subject property exterior boundaries.

Program Status codes:

Pending PI	WQARF Preliminary Investigation (PI) is scheduled or in process
On Registry	PI has resulted in inclusion of a site on the WQARF Registry
ACTIVE	The Department of Defense is presently addressing the site
On NPL	site has been listed on the CERCLA National Priorities List

LANDFILLS

The state of Arizona maintains listings of closed and permitted, operating landfills and solid waste dump sites. Lists of closed facilities are not necessarily complete - older dumping areas may not be documented. This database is from the Arizona Department of Environmental Quality Waste Programs Division; Solid Waste Section Directory of Arizona Active and Inactive Landfills dated May, 1999 and May, 2004, and checked for active and inactive landfills located within a 3.0 mile search distance from subject property exterior boundaries.

No active nor inactive landfills were found located within a 3.0 mile search distance from subject property exterior boundaries.

Codes:

MSWLF:	Municipal Solid Waste Landfills
CSWLF:	Closed Solid Waste Landfills
CSWOD:	Closed Solid Waste Dumps

BROWNFIELDS / VOLUNTARY CLEANUP PROGRAM

The Arizona Department of Environmental Quality has developed the AZURITE Database, reviewed through ADEQ GIS eMaps, which includes the ADEQ Voluntary Remediation Program and the ADEQ Brownfields Tracking System, dated January, 2014, and searched for sites which occurred within a 3.0 mile search distance from subject property exterior boundaries.

No brownfield sites were found which occurred within a 3.0 mile search distance from subject property exterior boundaries.

**REGISTERED UNDERGROUND STORAGE TANKS
(UST)**

State (A.R.S. 49-1001 to 1014) and Federal (RCRA Subtitle I) laws require that persons who own or have owned underground storage tanks containing "regulated substances" complete a notification form and register the tank with the state. Tribal UST records are researched when subject property exterior boundaries are within search distance of Tribal lands. This database is from the Arizona Department of Environmental Quality UST Log dated March, 2014, and searched for UST sites located within a 3.0 mile search distance from subject property exterior boundaries.

Facility ID	Facility Name	Address	Tank No	Tank Inst Date	Closure Type	Closure Date
0-001653	City Of Coolidge - Municipal Airport	6300 N Airport Rd	1	1/1/1982		
0-001653	City Of Coolidge - Municipal Airport	6300 N Airport Rd	2	1/1/1982		
0-001653	City Of Coolidge - Municipal Airport	6300 N Airport Rd	3	1/1/1950	Removal	1/30/1996
0-003959	Paul S Prechel	7534 N Attaway Rd	1	1/22/1976	Removal	12/1/1990
0-003959	Paul S Prechel	7534 N Attaway Rd	2	1/22/1976	Removal	12/1/1990
0-003959	Paul S Prechel	7534 N Attaway Rd	3	1/21/1978	Removal	12/1/1990
0-008673	Coolidge Airport	No Address On File	1	1/1/1942	Removal	11/2/1995
0-008673	Coolidge Airport	No Address On File	2	1/1/1942	Removal	1/1/1960
0-008673	Coolidge Airport	No Address On File	3	1/1/1942	Removal	11/2/1995

DETAILS

NOTE: Details section is from the ADEQ 2003 UST list, newer lists do not provide this information.

Facility Id	Facility	Owner Id	Owner
Tank No.	Status	Capacity	Age
Tank Release Detection	Content	Piping Type	Tank Material
	Pipe Material		Pipe Release Detection

0-001653 **Coolidge Municipal Airport** Pinal Co. 869 City Of Coolidge
6300 N Airport Rd ,Coolidge AZ 85228
1 ACTV Aviation G 10000 Tank Tightness with Inventory Controls Bare Steel Pressure Automatic Line Leak Detectors Gasoline Line Tightness Testing
2 ACTV Jet Fuel 10000 Tank Tightness with Inventory Controls Bare Steel Pressure
3 REMV Aviation G 1000 Bare Steel Suction: Check Gasoline

0-003959 **Paul S Prechel** Pinal Co. 2594 Paul S Prechel
S Attaway Rd ,Coolidge AZ 85228
1 REMV Gasoline 1000 Galvanized Steel
2 REMV Gasoline 2000 Galvanized Steel
3 REMV Diesel 4000 Galvanized Steel

0-008673 **Coolidge Airport** Pinal Co. 5343 Us Army Corps Of Engineers
Airport Rd ,Coolidge AZ 85228
1 REMV Gasoline 12000 Bare Steel
2 REMV 2500 Bare Steel
3 REMV Diesel 290 Bare Steel

**REGISTERED LEAKING UNDERGROUND STORAGE TANKS
(LUST)**

Owners of USTs are required to report to the Arizona Department of Environmental Quality any and all releases of tank contents for which ADEQ maintains an ongoing file documenting the nature of contamination and the status of each such incident. Tribal LUST records are researched when subject property exterior boundaries are within search distance of Tribal lands. This database is from the ADEQ LUST Log dated March, 2014, and searched for LUST sites located within a 3.0 mile search distance from subject property exterior boundaries.

ID	LUST ID NO	FACILITY	ADDRESS	DATE OPEN	DATE CLOSED	P CODE	DIST./ DIREC.
0-008673	4254.01	Coolidge Airport	Airport Road	11/2/1995	3/10/2000	5S	3.0 mi. NE
	4254.02			11/15/1995	3/18/1996	7	

P CODE (Leaking UST Priority):

5S	Closed case for suspected release (false alarm)
7	LUST case close-out involving combination with other LUST number/case at the same facility

Additional Environmental Record Sources

RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) COMPLIANCE FACILITIES

The RCRA Compliance Log lists facilities that have been or presently are under investigation for non-compliance with RCRA regulations. Inclusion of any facility on this list indicates a history of compliance problems and RCRA regulatory violation. This database is from the Arizona Department of Environmental Quality RCRA Compliance Log, dated October, 2014, and searched for compliance facilities within a 3.0 mile search distance from subject property exterior boundaries.

No compliance facilities were found located within a 3.0 mile search distance from subject property exterior boundaries.

HAZARDOUS MATERIAL INCIDENTS

The Arizona Department of Environmental Quality (ADEQ) Response Team documents spills and incidents involving hazardous materials that are reported to the unit. This database is from the Arizona Department of Environmental Quality Emergency Response Log from 1984 through June, 2001, and checked for hazardous material incidents located within a 3.0 mile search distance from subject property exterior boundaries.

No hazardous material incidents were found located within a 3.0 mile search distance from subject property exterior boundaries.

ADEQ DRY WELL REGISTRATION DATA BASE

Dry wells are constructed for the purpose of collecting storm waters. Dry wells are required to be registered with ADEQ. Tribal Drywell records are researched when subject property exterior boundaries are within search distance of Tribal lands. This database is from the ADEQ dry well registration database dated October, 2014, and searched for dry wells located within a 3.0 mile search distance from subject property exterior boundaries.

No registered dry wells were found located within a 3.0 mile search distance from subject property exterior boundaries.

USGS 7.5 MINUTE TOPOGRAPHICAL MAPS AERIAL PHOTOS

The United States Geological Survey Topographic maps and Aerial Photos are derived from Terrain Navigator Software from My Topo, a Trimble Company. (www.mytopo.com) and are for informational purposes only.

NAME	TYPE	DATE	REVISION	CONTOUR INTERVAL
Valley Farms	Topo	1992	None	5 feet
Bing	Aerial	2014		

DRYCLEANERS

The Drycleaners Inventory List summarizes current and historic dry cleaners sites throughout the state of Arizona and is not all inclusive. This database is from the Report for the Arizona Department of Environmental Quality Dry Cleaners Inventory Project, dated June, 2006, and searched for dry cleaners sites located within a 3.0 mile search distance from subject property exterior boundaries.

No drycleaners were found located within a 3.0 mile search distance from subject property exterior boundaries.

**ARIZONA DEPARTMENT OF WATER RESOURCES
WELL REPORT**

This database is from the Arizona Department of Water Resources Well Report Operations Division Report, dated April, 2014. This report identifies existing wells sequenced by legal description and checked for inclusion of subject site and adjacent properties within 3 miles.

Imaged Records are available at: <http://www.water.az.gov/adwr/Content/ImagedRecords/default.htm>

Water Uses (WU)

A Irrigation
 B Utility (Water Co.)
 C Commercial
 D Domestic
 E Municipal
 F Industrial
 G Recreational
 H Remediation
 I Mining
 J Stock
 K Other - Exploration
 L Drainage
 M Monitoring
 N None
 O Other - Non-Production
 P Remediation
 R Recharge
 T Test
 U Unknown
 V Dewatering

Legal Description

T Township
 N/S North or South
 R Range
 E/W East or West
 S Section
 Q1 Quarter of Section (160 Acres)
 Q2 Quarter Quarter of Section (40 Acres)
 Q3 Quarter Quarter Quarter of Section (10 acres)
 ID Well Registration Number
 WD Well Depth
 WL Water Level
 DIA Casing width

ID	T	N/S	R	E/W	S	Q1	Q2	Q3	WU	WD	WL	DIA	Name
633911	5	S	9	E	31	SE	SE	SE	D	360	230	6	Cole, M F
621954	5	S	9	E	31	SW	NE	NE	A	1137	209	16	San Carlos Irrig.
604214	5	S	9	E	32	SE	NW	SE	A	1105	240	20	Neely, Rex,
604215	5	S	9	E	32	SW	SW	SW	D	600	240	6	Neely, Rex,
606778	6	S	8	E	1	NW	SW	NE	A	1752	337	16	Cardinal, Trs
606777	6	S	8	E	1	NW	SW	NE	A	602	210	20	Cardinal, Trs
605561	6	S	8	E	1	SE	SW	SW	D	401	215	10	Holland, H
610583	6	S	8	E	2	NE	NE	NE	A	1440	153	13	Mesa, City Of,
610585	6	S	8	E	2	NE	NE	SW	A	490	350	20	Mesa, City Of,
610584	6	S	8	E	2	NE	SE	SE	A	402	350	20	Pen, John & Lois,
533191	6	S	8	E	2	NE	SE	SE	N	230	0	0	Sw Gas Corp,
617563	6	S	8	E	2	NW	SE	SE	A	0	0	0	Mesa, City Of,
617565	6	S	8	E	2	SE	NE	SE	A	0	0	0	Mesa, City Of,

**ARIZONA DEPARTMENT OF WATER RESOURCES
WELL REPORT (cont.)**

ID	T	N/S	R/E/W	S	Q1	Q2	Q3	WU	WD	WL	DIA	Name	
617777	6	S	8	E	2	SE	SE	NE	A	0	0	0	Mesa, City Of,
617776	6	S	8	E	2	SE	SE	SE	A	0	0	0	Mesa, City Of,
617564	6	S	8	E	2	SW	NE	SW	A	0	0	0	Mesa, City Of,
617775	6	S	8	E	2	SW	SE	SE	D	0	0	0	Mcfarland,B C
907688	6	S	8	E	3			N	60	59	8	El Paso Natural Gas, Attn: William Baltz	
605237	6	S	8	E	3	SE	NE	SE	A	360	160	20	Freeman
605239	6	S	8	E	3	SE	SE	NE	A	300	160	20	Freeman
805408	6	S	8	E	3	SE	SE	SE	D	350	0	20	N.S.K. & B. Prtshp,
605242	6	S	8	E	3	SE	SE	SE	D	300	160	20	Peterson,G E
809361	6	S	8	E	3	SE	SW	SE		570	230	16	Freeman
605238	6	S	8	E	3	SE	SW	SW	A	800	160	20	Freeman
525240	6	S	8	E	10	NE	NW	NW	M	0	0	0	Sunbelt Refining Co,
524748	6	S	8	E	10	NE	NW	SW	M	35	0	10	Sunbelt Refining Co,
218256	6	S	8	E	10	NE	SE	SE					Coolidge Power Llc
617778	6	S	8	E	10	NE	SE	SE	A	806	60	20	Coolidge Power Llc
218257	6	S	8	E	10	NE	SE	SE					Coolidge Power Llc
910128	6	S	8	E	10	NW							Coolidge Power, Llc Attn: John Cassady
617774	6	S	8	E	10	SE	SE	NE	D	0	0	0	Mcfarland,B C
617780	6	S	8	E	10	SE	SE	SW	A	610	176	16	Mesa, City Of,
617779	6	S	8	E	10	SE	SW	SW	A	0	0	0	Mesa, City Of,
805285	6	S	8	E	11	NE	NE	NE	D	0	10	0	McFarland, Bonnye,C
617558	6	S	8	E	11	NE	SE	NE	A	0	0	0	Mesa, City Of,
617559	6	S	8	E	11	NE	SE	NE	A	0	0	0	Mesa, City Of,
617560	6	S	8	E	11	NE	SE	SW	A	0	0	0	Mesa, City Of,
617557	6	S	8	E	11	NW	SE	NE	A	0	0	0	Mesa, City Of,
617561	6	S	8	E	11	SE	SE	NE	A	0	0	0	Mesa, City Of,
518655	6	S	8	E	11	SE	SE	SE	C	0	0	0	Connolly Invest Corp,
523310	6	S	8	E	11	SE	SE	SE	D	0	0	0	Connolly Invest Corp,
617562	6	S	8	E	11	SE	SE	SE	A	0	0	0	Mesa, City Of,
530066	6	S	8	E	11	SW	SW	NE	D	300	80	10	Vail 160 Llc
634731	6	S	8	E	12	NE	NE	NE	D	0	0	0	Valley National Bank,
609758	6	S	8	E	13	NE	NE	NE	A	1200	0	20	Goree,R L
609762	6	S	8	E	13	NE	NE	NW	D	141	0	6	Goree,R L
609759	6	S	8	E	13	NE	NE	SE	A	500	0	20	Goree,R L
550668	6	S	8	E	14	NE	SE	SE	N	500	0	8	El Paso Natural Gas,
507832	6	S	8	E	14	SE	SW	NE	D	440	160	6	Cooper, Theodore,J
507871	6	S	8	E	14	SE	SW	NW	D	350	180	6	Martin
504821	6	S	8	E	14	SE	SW	SE	D	360	150	6	Cooper,T J
625234	6	S	8	E	14	SW	SW	SW	A	450	300	20	Mesa, City Of,

**ARIZONA DEPARTMENT OF WATER RESOURCES
WELL REPORT (cont.)**

ID	T	N/S	R	E/W	S	Q1	Q2	Q3	WU	WD	WL	DIA	Name
625235	6	S	8	E	15	SE	SW	SW	A	400	250	12	Mesa, City Of,
638418	6	S	8	E	22				D	400	220	8	Dickerson,M
625239	6	S	8	E	22	NE	SE	SE	A	500	350	16	Mesa, City Of,
625238	6	S	8	E	22	NE	SE	SW	A	600	350	16	Mesa, City Of,
625237	6	S	8	E	22	NE	SW	SE	A	600	350	16	Mesa, City Of,
622458	6	S	8	E	23	NE	NE	NE	A	600	250	20	Mesa, City Of,
622457	6	S	8	E	23	NW	SE	SE	A	1000	250	20	Mesa, City Of,
625241	6	S	8	E	23	SE	NE	NE	A	500	350	16	Mesa, City Of,
625242	6	S	8	E	23	SE	SE	SW	A	500	350	12	Mesa, City Of,
622463	6	S	8	E	24	NE	SE	SE	D	0	250	20	Brown Land Cattle Co,
625243	6	S	8	E	24	NE	SE	SE	A	1900	350	20	Mesa, City Of,
807475	6	S	8	E	24	NW	SE	SE	D	300	0	20	Mesa, City Of,
622460	6	S	8	E	24	NW	SE	SE	A	800	300	20	Mesa, City Of,
526158	6	S	8	E	24	SE	SW	NE	D	500	150	6	Brebeton, Margaret,
625222	6	S	8	E	25	NE	NE	NE	A	600	380	20	Inland Farms Inc,
625225	6	S	8	E	25	NE	NW	NW	A	500	380	20	Inland Farms Inc,
625223	6	S	8	E	25	NE	SE	SE	A	1600	380	16	Inland Farms Inc,
625224	6	S	8	E	25	SE	SE	SW	A	600	400	16	Inland Farms Inc,
212344	6	S	8	E	26	NE	NE	SW	D				Clark
904706	6	S	8	E	26	NE	NW	NE	D	400	130	6	Cedar Creek/Kay Davis
622461	6	S	8	E	26	NW	NE	SE	A	800	300	16	Mesa, City Of,
512225	6	S	8	E	27	NE	NW	NE	J	650	230	12	Goldman Dairy Inc,
508445	6	S	8	E	27	NE	NW	SE	F	0	0	0	Goldman Land Co,
620635	6	S	8	E	27	NE	SW	SW	A	400	325	20	Goldman Dairy Inc,
620634	6	S	8	E	27	SE	SE	SE	A	400	325	20	Ochoa Brothers,
604213	6	S	9	E	6	NE	NE	NE	A	1000	240	20	Neely, Rex,
621903	6	S	9	E	6	NE	SW	NW	A	982	225	16	San Carlos Irrig,
621909	6	S	9	E	6	SE	SE	SW	A	1020	211	20	San Carlos Irrig,
638443	6	S	9	E	7				D	200	120	4	Mitchell,H A
639047	6	S	9	E	7				D	0	0	0	Lewis,L C
634025	6	S	9	E	7	NW			A	0	120	6	Mitchellet A1,R
594042	6	S	9	E	7	NW	NW	NE	D	300	85	6	Skiles Sr
639695	6	S	9	E	7	NW	NW	NW	D	200	125	6	Harris,I C
525629	6	S	9	E	7	NW	NW	NW	N	228	0	0	Southwest Gas Corp,
610635	6	S	9	E	7	NW	NW	SW	J	350	0	6	Rotz,J L
581230	6	S	9	E	7	NW	SW	NW	D	500	300	5	Cantu
597046	6	S	9	E	7	NW	SW	NW	D				Cantu

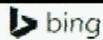
**ARIZONA DEPARTMENT OF WATER RESOURCES
WELL REPORT (cont.)**

ID	T	N/S	R/E/W	S	Q1	Q2	Q3	WU	WD	WL	DIA	NAME	
514011	6	S	9	E	7	NW	SW	SW	D	0	0	0	Carter, Tony,L
522489	6	S	9	E	7	NW	SW	SW	D	0	0	0	Carter, Tony & Betty,
503714	6	S	9	E	7	SW	NE	NE	A	0	310	0	Holland,H
605556	6	S	9	E	7	SW	NE	NE	A	1077	228	20	All State Associates Of Holland Ii-945, L.L.C.
638440	6	S	9	E	7	SW	NW	NW	D	220	118	6	Carter,C
605559	6	S	9	E	7	SW	SE	SE	A	1600	274	20	
605557	6	S	9	E	7	SW	SE	SE	A	500	196	20	All State Associates Of Holland Ii-945, L.L.C.
622456	6	S	9	E	18	NW	NE	SW	A	1420	250	20	Mesa, City Of,
622462	6	S	9	E	18	NW	SE	SW	A	1500	250	20	Mesa, City Of,
622459	6	S	9	E	19	NW	NW	SE	A	800	300	20	Mesa, City Of,
515452	6	S	9	E	21	NE			N	300	0	8	All Am. Pipeline,
548748	6	S	9	E	22	NW	NW	NW	N	400	0	0	All American Pipeline,
638400	6	S	9	E	33	NE	SW	NW	D	1200	0	20	Shepley Ranch Llc
615435	6	S	9	E	33	NW	NE	SE	J	1200	0	20	Az State Land Dept,

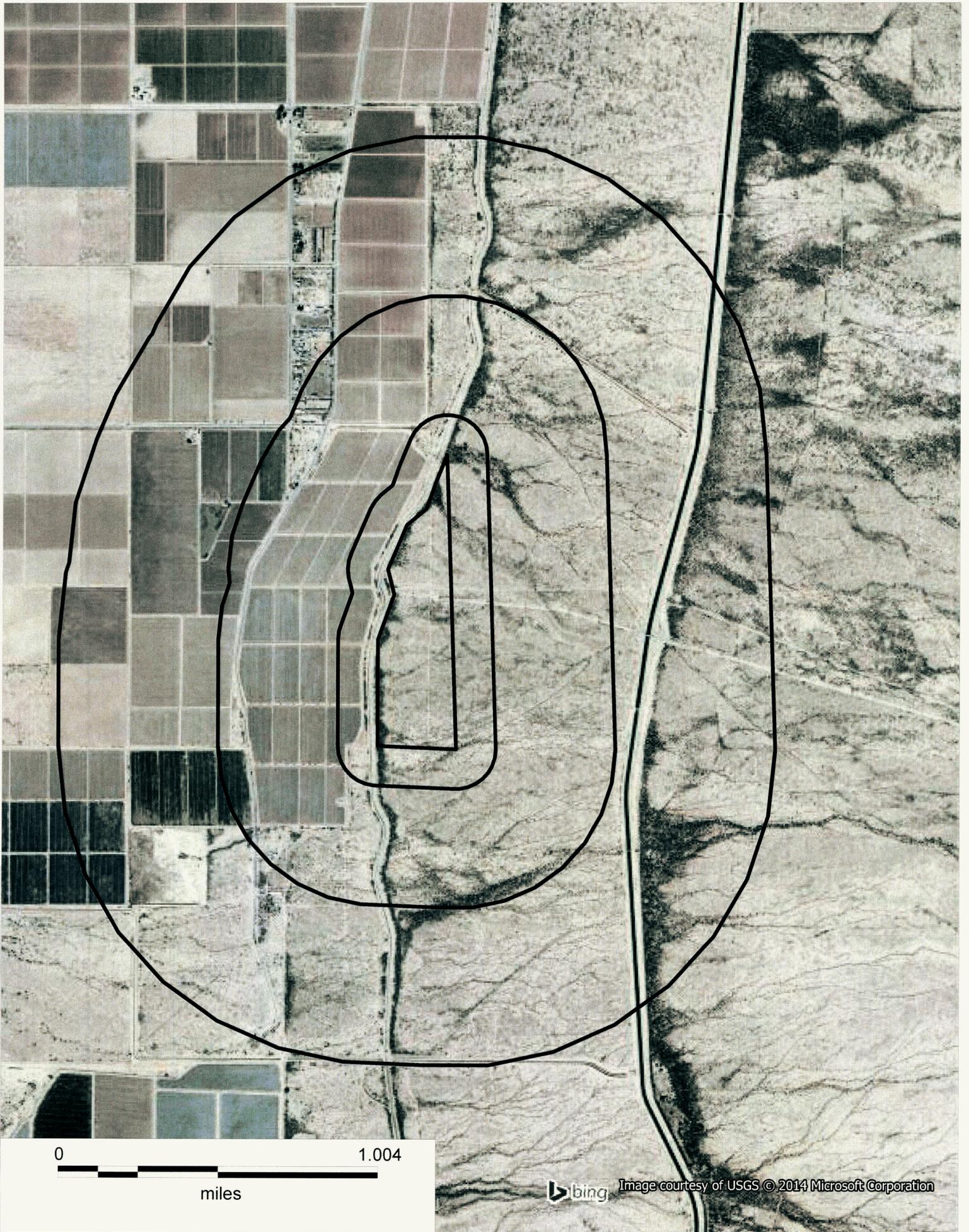


0 2.342

miles



© Harris Corp, Earthstar Geographics LLC Earthstar Geographics SIO © 2014 Microsoft Corporation

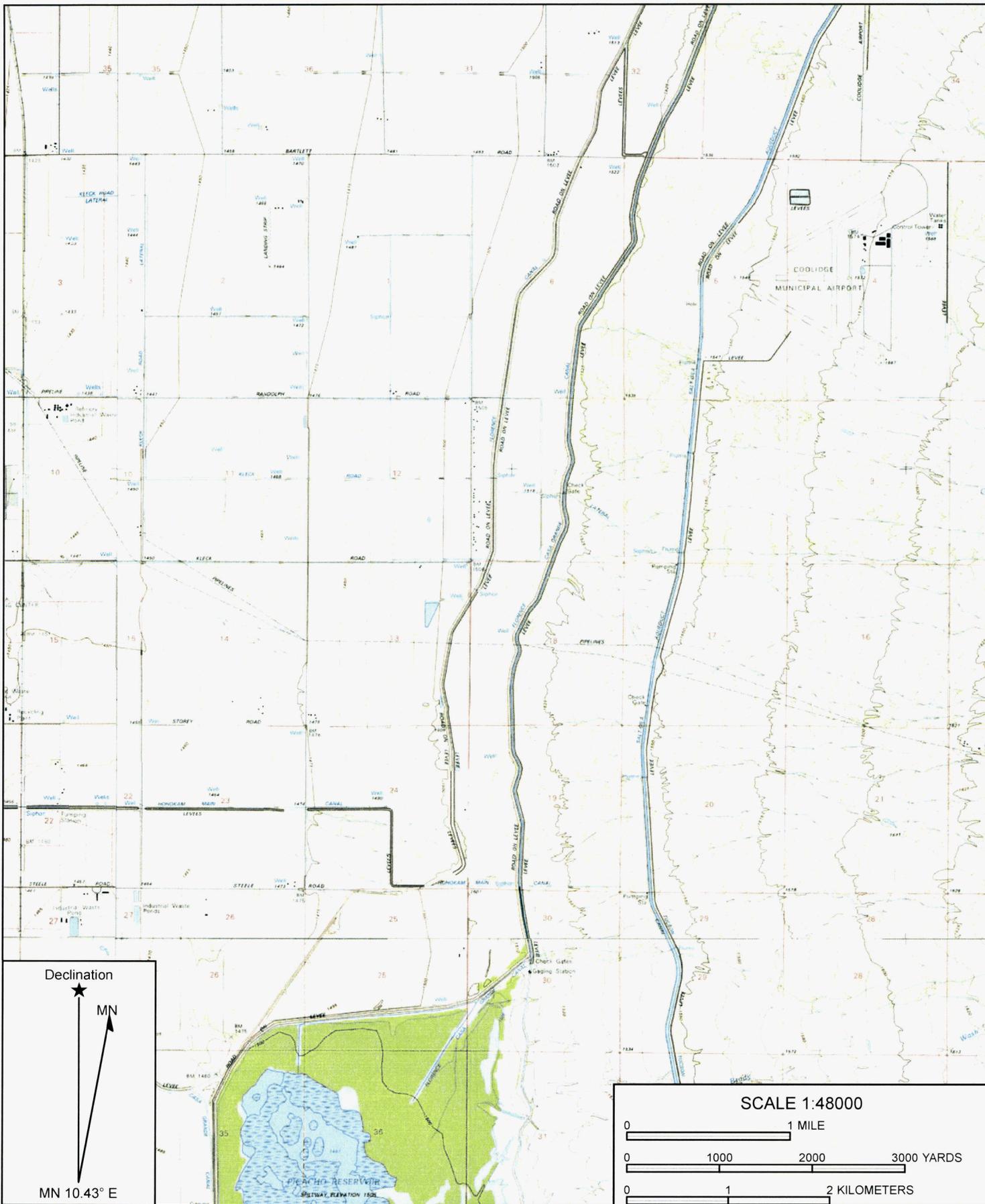


0 1.004

miles



Image courtesy of USGS © 2014 Microsoft Corporation



Name: VALLEY FARMS
 Date: 12/03/14
 Scale: 1 inch = 4,000 ft.

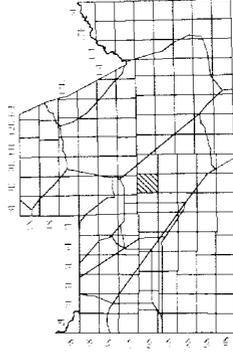
Location: 032° 54' 16.18" N, 111° 27' 35.39" W
 2014-11-081

TN.06S RG.09E

400-01

THIS MAP IS FOR VALUATION PURPOSES ONLY
THIS OFFICE WILL NOT ASSUME LIABILITY FOR
REPRESENTATION, MEASUREMENTS OR ACREAGE
SURVEYS & SUBDIVISION PLATS ARE ON FILE
WITH THE PINAL COUNTY RECORDERS OFFICE.

LOCATION MAP

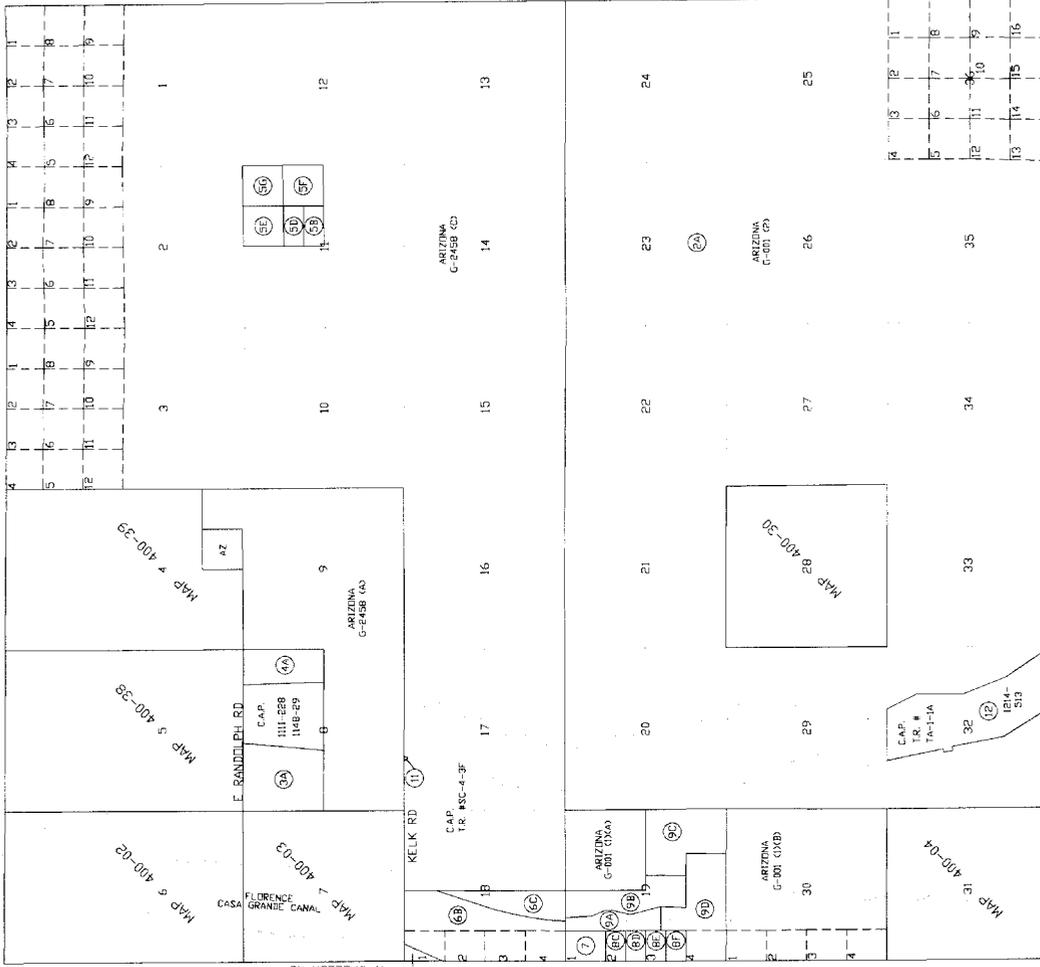


SCALE: 1" = 4000'

5-14-2008

UPDATED BY CC

SEE BOOK 202



SEE BOOK 401

SEE MAP 400-05

MAP 400-18

SEE MAP 400-15

PINAL COUNTY ASSESSORS MAP

Search Results (1 Entries)

open

Parcel Details (400-01-006C)

open

Previous year valuations are subject to change as prescribed in the Arizona Revised Statutes. All changes in value may not be reflected in this data. For updated/correct figures, please refer to the Treasurer's Office website.

[Link to This Parcel](#) [Print View](#)

Parcel Number 400-01-006C shows the following information for Tax Year: 2015 [Tax Year Chart](#)

Parcel Number: 400-01-006C (Taxing Information)			
Section: 18	Township: 06S	Range: 09E	
Atlas Number: 081-18	Map: View Parcel Map		
Property Description: (What is this?)			
THAT PART OF E1/2 W1/2 OF SEC 18-6S-9E LYING E OF CANAL 49.50 AC + OR -			

Primary Owner:	ARIZONA WATER COMPANY
Name 2:	
In C/O:	
Tax Bill Mailing Address	
Address:	PO BOX 29006
City:	PHOENIX
State:	AZ
Zip Code:	85038

Date of Sale:	1/13/2005
Sale Amount:	\$661,830.00
Document(s):	
2005-004484	
2004-042729	

Property Address (Location):					
Subdivision:					
Unit:		Block:		Lot:	
Phase:		Cabinet:		Slide:	

Imp: 0.00	Item:		
Const year: 0	Grnd Flr Perim:	0	
Stories:	Total Sq. Ft.:	0	

Parcel Size:	49.50
Size Indicator:	Acres
Tax Area Code:	0162 (Rates current as of 2013)
Use Code:	0004

Land Legal Class:	02RL - Vacant Land / Non-Profit Imp
Impr. Legal Class:	
Full Cash Value (FCV):	\$32,817.00
Limited Value (LPV):	\$32,817.00
Real Property Ratio:	
Assessed FCV:	\$5,251.00
Assessed LPV:	\$5,251.00

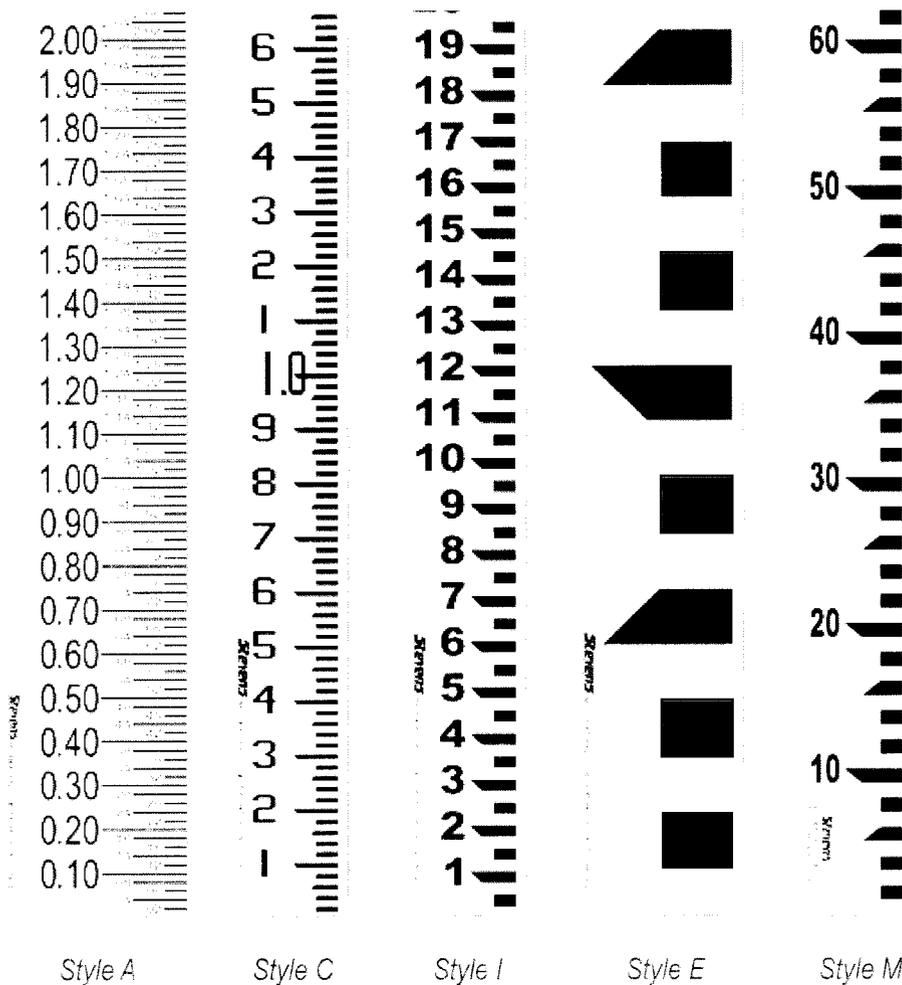
Attached Personal Property:	No Personal Property Listed
------------------------------------	-----------------------------

*The data presented on this website is deemed reliable but not guaranteed. This information should be used for informational use only and does not constitute a legal document for the description of these properties. The Pinal County Assessor's Office disclaims any responsibility or liability for any direct or indirect damages resulting from the use of this data.

Appendix H

FLOW MEASUREMENT DEVICE SPECIFICATIONS

Porcelain Enameled Standard & Custom Staff Gages



Description

The Staff Gage has a long history of providing a direct visual indicator for determining water level. Stevens staff gages are designed for easy mounting to a wall or pier, with heavy metal grommets and a 0.188 inch opening for screws or nails.

Each gage consists of a metal core, coated with porcelain enamel and marked with accurate measurement markings at specific intervals. The metal core is heavy 16 gauge (0.075 in / 1.9 mm) iron, which is completely covered with a baked-on porcelain enamel finish to resist rust or discoloration. Different colors of enamel are used to provide the markings; typically black numbers on a white background. Stevens staff gages are designed for years of trouble-free use, and can be easily cleaned.

Custom Staff Gages - a unique service offered by Stevens Water!

Stevens designs and provides custom staff gages for applications requiring larger displays, unique mounting angles, slopes or visual flow measurements.

www.stevenswater.com

1.800.452.5272

Stevens - The original developer of
Style A, C, I, E & M staff gages

Features

- Time-proven basic visual reference of water level measurement
- Easy to see and read
- Available in many standard sizes (english or metric)
- Custom scales, sizes and colors available
- Pre-numbered or "build your own" options
- Rugged and durable weather resistant design

Applications

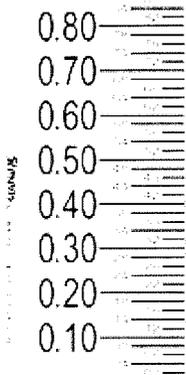
- Rivers, lakes, streams, dams and reservoirs
- Wastewater treatment plants
- Flumes and weirs
- Visual flow measurement
- Tanks

Stevens
Water Monitoring Systems, Inc.

Standard Staff Gages Styles

Style A

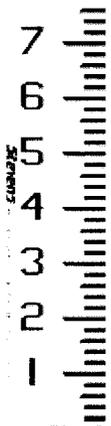
The Style A staff gage is 4 inches wide and comes in 3.33 ft. sections. The standard maximum height is 13.33 feet. The Style A has graduated marks every ft., 1/10th ft., and 0.02 ft. with total elevations.



Part Number	Range
15415	0 to 3.33 feet
15395	3.33 to 6.66 feet
15396	6.66 to 10.0 feet
15397	10.0 to 13.33 feet
15398	13.33 to 16.66 feet

Style C

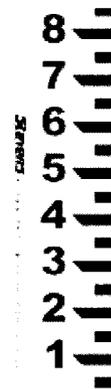
The Style C staff gage is 2.5 inches wide and is available in separate lengths of 0 - 1.06 feet, 0 - 1.56 feet, 0 - 1.56 feet, 0 - 2.06 feet, 0 - 3.06 feet, 0 - 4.06 feet, and 3.06 - 5.06 feet. Style C also comes in standard 3.33 ft. sections. Style C has graduations every 100th of a foot with numerical marks every ft. and every tenth of a ft.



Part Number	Range	Part Number	Range
15402	0 to 1.06 ft.	15409	13.33 to 16.66 ft.
15403	0 to 1.56 ft.	15410	16.66 to 20.00 ft.
15404	0 2.06 ft.	15411	20.00 to 23.33 ft.
15418	0 to 3.06 ft.	15412	23.33 to 26.66 ft.
15419	3.06 to 5.06 ft.	15413	26.66 to 30.00 ft.
43082	0 to 4.06 ft.	15414	30.00 to 33.33 ft.
15405	0 to 3.33 ft.	14509	33.33 to 36.66 ft.
15406	3.33 to 6.66 ft.	14510	36.66 to 40.00 ft.
15407	6.66 to 10.00 ft.	14511	40.00 to 43.33 ft.
15408	10.00 to 13.33 ft.	Please contact Stevens for availability of other ranges.	

Style I

The Style I staff gage is 2.5 inches wide and has graduation every 0.25 inches with numerical marks every inch. Style I is available in any length ranging from 0 to 48 inches.



Part Number	Range
90223	0 to 14.0 inches
44405	0 to 18.0 inches
44406	0 to 24.0 inches
44407	0 to 30.0 inches
45637	0 to 36.0 inches
45480	0 to 48.0 inches

Style E

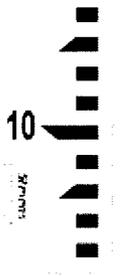
The Style E is an English measurement staff gage that is 3.5 inches wide and is available in 1, 2 or 5 ft. sections. Style E is graduated in feet every tenth of a ft. Separate figure plates (see below) can be fastened on a pier, wall or other surface next to the Style E staff gage to number any desired elevation.



Part Number	Range
15420	1 foot section
15421	2 foot section
15422	5 foot section

Style M

The Style M is a metric measurement staff gage that is 65 mm wide and is available in 1 meter sections. The Style M is divided into centimeters with each decimeter numbered. Separate figure plates (see below) can be fastened on a pier, wall or other surface next to the Style M staff gage to number any desired elevation.



Part Number	Range
15423	1 meter section

Figure Plates

Separate numerical figure plates are available in 2" x 3", 3" x 4" and 4" x 6" sizes. Figure plates are commonly used with Style E or Style M staff gages and are fastened to a pier or wall to mark custom elevations.

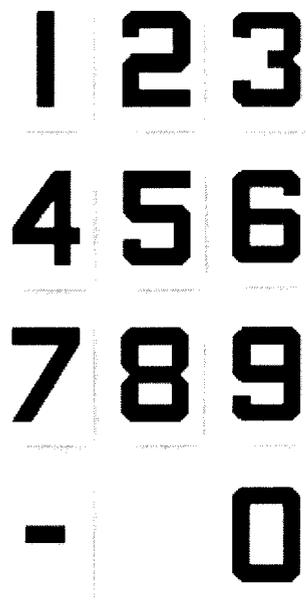


Figure Plate Number	Figure Plate Dimensions 2" x 3"	Figure Plate Dimensions 3" x 4"	Figure Plate Dimensions 4" x 6"
0	15424	90980	28134
1	15425	90981	28135
2	15426	90982	28136
3	15427	90983	28137
4	15428	90984	28138
5	15429	90985	28139
6 or 9	15430	90986	28140
7	15431	90987	28141
8	15432	90988	28142
Minus figure (-)	24187	-	-



Corporate Headquarters

12067 NE Glenn Widing Drive
Suite 106
Portland, Oregon 97220

800.452.5272 Tel

503.445.8000

503.445.8001 Fax

info@stevenswater.com

www.stevenswater.com

Since 1911, Stevens Water Monitoring Systems, Inc. has been a leading manufacturer of:

- Water Level Sensors
- Water Quality Sensors
- Soil Moisture Sensors
- Chart Recorders
- Staff Gages
- Telemetry Systems
- Data Collection Platforms

Porcelain Enameled Staff Gage DATA SHEET

Custom Staff Gages

Stevens is the leading provider of custom staff gages for unique applications. Staff gages can be designed for applications requiring large displays, flow measurement, slopes, or other unique mounting angles for easy visual measurements. Numbers, graduated markings, and colors used on the gage can also be customized to present a clear, visual measurement of water flow.

Contact Stevens today to discuss your custom staff gage requirements.



Custom Stevens staff gage mounted on a sloped pier on the Willamette River in Portland, Oregon. The submarine pictured is the USS *Blueback*.

Intelligent Functions for Greater Ease of Operation

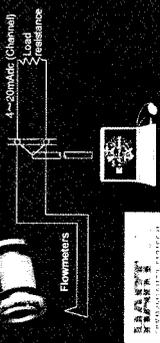
Multifunctional

A built-in microprocessor makes possible the numerous functions in the standard flowmeter specifications. Through their "Dev Com2000 Smart Device Communicator" or the Communicator of third party connected to a 4 to 20 mA line, many enable remote control of flowmeter control from remote locations.

Communication Functions (HART Protocol)

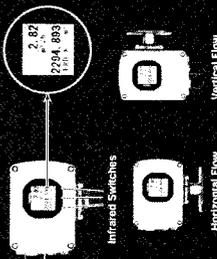
"Smart" transmission functions employ multiplexing of analog flow rate signals (4 to 20 mA dc) and digital signals. Together with the "Dev Com2000 Smart Device Communicator" or the Communicator of third party connected to a 4 to 20 mA line, many enable remote control of flowmeter control from remote locations.

Conversational Operation via LCD



Conversational Operation via LCD Display, Enclosed Operation

Various flowmeter operations can be performed while viewing the large 728x128 LCD display. In high humidity, the LCD display can be operated without opening the flowmeter cover (enclosed operation). (Standard on the LF620, LF622, LF232 & LF620) Also, LF620 & LF622 converter LCD display allows the LCD to be rotated electronically to 90, 180 and 270 degrees.



HART protocol/Highway Addressable Remote Transducer is a Communication protocol for industrial process recommended by IEC (HART Communication Foundation).

Converters

Input	Current output : 4-20mA dc Digital output : 1 Transistor open-collector 1 Solidstate relay contact	Digital Input: 1 (Note1)	Digital Input: 2 (option) Current output: 4-20mA dc Digital output : 1 Transistor open-collector 3 Solidstate relay contact (option)
Output	(Note1, Note2)		
Comm. functions	HART protocol, PROFIBUS Modbus	HART protocol, PROFIBUS (option)	HART protocol
Other functions	Pulse output Multi-range selection output High, High High, Low and/or Low low alarm Empty Pipe Alarm (Note3) Preset count (Simple batch system configurable using DI, DO) Low cut Fixed-Values for current and pulse outputs Zero-span calibration Zero adjustment function Full dot matrix LCD		
Display	LCD display (back-light provided)		2-row LCD
Surge protection	Built in power supply, current signal output circuit, digital Input/Output circuit		
Power Supply	100-240Vac 50/60Hz, 110Vdc 24Vdc (option)	100-240Vac 24Vdc (Note5)	100-240Vac (Note4) 24Vdc (Note5)
Structure	NEMA 4X (IP67) Watertight cFus Div.2		NEMA 4 (IP67) Watertight
Hazardous location Certificate			

Note1: DI, DO1, DO2 and HART cannot be used with Modbus communication.

Note2: Current output and HART cannot be used with PROFIBUS communication.

Note3: Not applicable to LF541

Note4: 100-120Vac in case of partially-filled type.

Note5: Applicable for meter size 1/10" to 18"



Safety Instructions

Misuse of product can result in property damage or human injury. Read related manuals carefully before using this product.

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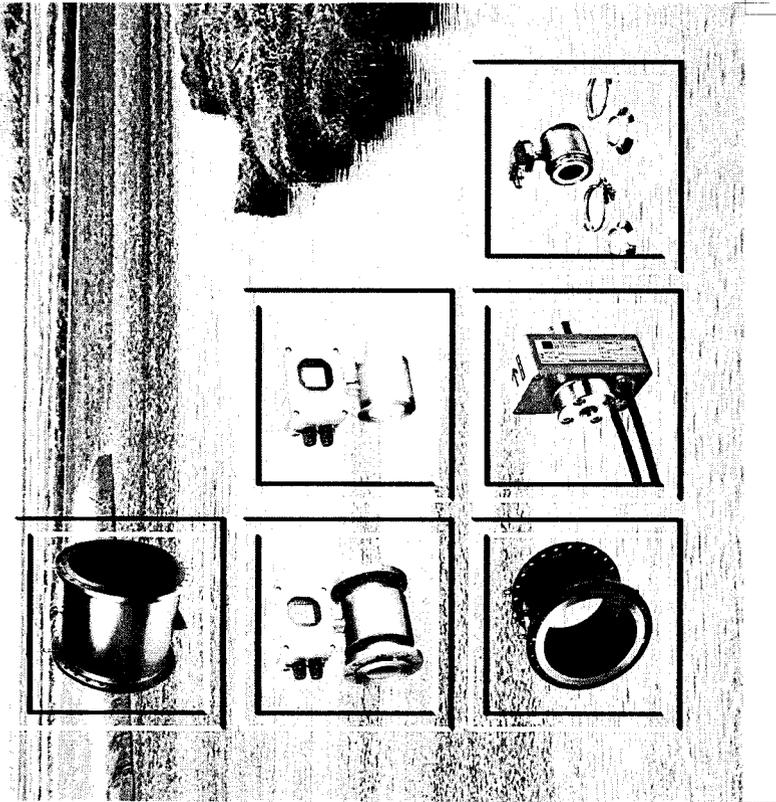
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TOSHIBA

Leading Innovation >>

TOSHIBA'S LINE-UP OF ELECTROMAGNETIC FLOWMETERS



TOSHIBA'S ELECTROMAGNETIC FLOWMETERS: INTELLIGENCE, HIGH QUALITY AND DURABILITY

Electromagnetic flowmeters are instruments for measuring the flow of conductive fluids, using Faraday's principle of electromagnetic induction. Toshiba has been marketing electromagnetic flowmeters since the late 1960's. Toshiba flowmeters, the result of a wealth of experience and considerable engineering expertise, have won accolades in all areas of industry.

A full lineup of products covering diameters from 1/16" to 120" as well as various liner materials to accommodate diverse fluids are available, making possible fluid measurements in almost any imaginable application.

Main Applications

- Water and Waste
- Food, Beverage, and Pharmaceutical
- Steel Nonferrous Metals
- Cooling Water, Metals Processing
- Stack Gas Desulfurization
- Fertilizers and Inorganic Chemicals
- Acetone, Alcohols, Acid Solutions
- Acetylene, Oxidizing Solutions
- Power and Nuclear Processes
- Pulp and Paper
- Chemical Fibers
- Water-soluble Applications
- Water-soluble Adhesives
- Liquids Containing Solid Matter
- Concrete Slurries, Molten Shires of Solid Matter

Toshiba Technology Meets Diverse Needs

The divided multi-sampling system provides reliable and accurate measurement of a wide variety of fluids. Toshiba noise suppression technology reduces chemical noise.

A high-purity alumina ceramic measurement tube eliminates potential problems in the measurement of fluids at elevated temperatures, corrosive chemicals, and thick undercoats.

Toshiba's functional magnetic field distribution technique and the reduced number of flowmeter components result in improved flow measurement efficiency and reliability.



Intelligent Functions for Industry Requirements

LF-20 and LF-22 converters are available to select the communication from HART protocol, PROFIBUS, and Modbus (RS-485).

Locally design-aided, the easy installation and operation of LF-20 and LF-22 converters can open the way from flowmeter to computer for the user's own data processing. High resolution, up to 16,384 counts, allows for 60,000 installation conditions. Available for LF-20, LF-22 and LF-21. All the converters are equipped with auto-reset switch. No need to open cover when setting.

Enhanced Resistance to Harsh Environments

Ceramic measurement tubes maintain resistance. The LF-20, LF-21 and LF-21 sanitary are used for employ an alumina ceramic measurement tube for improved resistance to abrasion, pressure and temperature. LF-50 PFA liner enable the flowmeter to operate under the extreme ambient temperature. LF-1A, LF-20 is filled up resin between detector and converter bringing more reliability for cooling water applications such as antifreeze liquid.

Full Product Lineup

Conventional Electromagnetic Flowmeters
A complete lineup of flowmeter models with pipe diameters ranging from 1/16" to 24" and with various lining materials accommodate diverse applications ranging from industrial flow to household measurements and from measurement of water flow to measurements of chemicals and slurries.

Capacitance type LF-51 (LF-54)

Toshiba's advanced capacitance technology, achieved to the technology of electroconductive flowmeter at the wetting point installation type.

Electromagnetic Flowmeters for Sanitary
Applications (LF-20, LF-21 sanitary 3A approved)
Model LF-20 and LF-21 sanitary are used for the measurement of flow under sanitary conditions. The flowmeters are designed for handling of clean in place requirements with quick connect components.

Ready for Use in Diverse Applications
Please consult a sales representative for information on specialized applications.

Measuring media	Measuring range (flow rate equivalent)	Accuracy	Measuring style	Living material (liner size)	Electrode material	Coating ring material	Detector body material	Structure	Compatible converters	Installation Certificate
Water and Waste	1/16" to 120" (15 to 4500 mm)	±0.5% (0.5% to 0.5%)	Flange	EPDM, PTFE, PFA, PP, PE, PVDF, FEP, PTFE, PFA, PP, PE, PVDF, FEP, PTFE, PFA, PP, PE, PVDF, FEP	316 stainless steel, Pt, Ti, Inconel	316 stainless steel, Pt, Ti, Inconel	316 stainless steel, Pt, Ti, Inconel	IP67 (Waterproof)	LF20, LF21, LF22, LF23, LF24, LF25, LF26, LF27, LF28, LF29, LF30, LF31, LF32, LF33, LF34, LF35, LF36, LF37, LF38, LF39, LF40, LF41, LF42, LF43, LF44, LF45, LF46, LF47, LF48, LF49, LF50, LF51, LF52, LF53, LF54, LF55, LF56, LF57, LF58, LF59, LF60, LF61, LF62, LF63, LF64, LF65, LF66, LF67, LF68, LF69, LF70, LF71, LF72, LF73, LF74, LF75, LF76, LF77, LF78, LF79, LF80, LF81, LF82, LF83, LF84, LF85, LF86, LF87, LF88, LF89, LF90, LF91, LF92, LF93, LF94, LF95, LF96, LF97, LF98, LF99, LF100	LF20, LF21, LF22, LF23, LF24, LF25, LF26, LF27, LF28, LF29, LF30, LF31, LF32, LF33, LF34, LF35, LF36, LF37, LF38, LF39, LF40, LF41, LF42, LF43, LF44, LF45, LF46, LF47, LF48, LF49, LF50, LF51, LF52, LF53, LF54, LF55, LF56, LF57, LF58, LF59, LF60, LF61, LF62, LF63, LF64, LF65, LF66, LF67, LF68, LF69, LF70, LF71, LF72, LF73, LF74, LF75, LF76, LF77, LF78, LF79, LF80, LF81, LF82, LF83, LF84, LF85, LF86, LF87, LF88, LF89, LF90, LF91, LF92, LF93, LF94, LF95, LF96, LF97, LF98, LF99, LF100
Food, Beverage, and Pharmaceutical	1/16" to 120" (15 to 4500 mm)	±0.5% (0.5% to 0.5%)	Flange	EPDM, PTFE, PFA, PP, PE, PVDF, FEP, PTFE, PFA, PP, PE, PVDF, FEP	316 stainless steel, Pt, Ti, Inconel	316 stainless steel, Pt, Ti, Inconel	316 stainless steel, Pt, Ti, Inconel	IP67 (Waterproof)	LF20, LF21, LF22, LF23, LF24, LF25, LF26, LF27, LF28, LF29, LF30, LF31, LF32, LF33, LF34, LF35, LF36, LF37, LF38, LF39, LF40, LF41, LF42, LF43, LF44, LF45, LF46, LF47, LF48, LF49, LF50, LF51, LF52, LF53, LF54, LF55, LF56, LF57, LF58, LF59, LF60, LF61, LF62, LF63, LF64, LF65, LF66, LF67, LF68, LF69, LF70, LF71, LF72, LF73, LF74, LF75, LF76, LF77, LF78, LF79, LF80, LF81, LF82, LF83, LF84, LF85, LF86, LF87, LF88, LF89, LF90, LF91, LF92, LF93, LF94, LF95, LF96, LF97, LF98, LF99, LF100	LF20, LF21, LF22, LF23, LF24, LF25, LF26, LF27, LF28, LF29, LF30, LF31, LF32, LF33, LF34, LF35, LF36, LF37, LF38, LF39, LF40, LF41, LF42, LF43, LF44, LF45, LF46, LF47, LF48, LF49, LF50, LF51, LF52, LF53, LF54, LF55, LF56, LF57, LF58, LF59, LF60, LF61, LF62, LF63, LF64, LF65, LF66, LF67, LF68, LF69, LF70, LF71, LF72, LF73, LF74, LF75, LF76, LF77, LF78, LF79, LF80, LF81, LF82, LF83, LF84, LF85, LF86, LF87, LF88, LF89, LF90, LF91, LF92, LF93, LF94, LF95, LF96, LF97, LF98, LF99, LF100
Steel Nonferrous Metals	1/16" to 120" (15 to 4500 mm)	±0.5% (0.5% to 0.5%)	Flange	EPDM, PTFE, PFA, PP, PE, PVDF, FEP, PTFE, PFA, PP, PE, PVDF, FEP	316 stainless steel, Pt, Ti, Inconel	316 stainless steel, Pt, Ti, Inconel	316 stainless steel, Pt, Ti, Inconel	IP67 (Waterproof)	LF20, LF21, LF22, LF23, LF24, LF25, LF26, LF27, LF28, LF29, LF30, LF31, LF32, LF33, LF34, LF35, LF36, LF37, LF38, LF39, LF40, LF41, LF42, LF43, LF44, LF45, LF46, LF47, LF48, LF49, LF50, LF51, LF52, LF53, LF54, LF55, LF56, LF57, LF58, LF59, LF60, LF61, LF62, LF63, LF64, LF65, LF66, LF67, LF68, LF69, LF70, LF71, LF72, LF73, LF74, LF75, LF76, LF77, LF78, LF79, LF80, LF81, LF82, LF83, LF84, LF85, LF86, LF87, LF88, LF89, LF90, LF91, LF92, LF93, LF94, LF95, LF96, LF97, LF98, LF99, LF100	LF20, LF21, LF22, LF23, LF24, LF25, LF26, LF27, LF28, LF29, LF30, LF31, LF32, LF33, LF34, LF35, LF36, LF37, LF38, LF39, LF40, LF41, LF42, LF43, LF44, LF45, LF46, LF47, LF48, LF49, LF50, LF51, LF52, LF53, LF54, LF55, LF56, LF57, LF58, LF59, LF60, LF61, LF62, LF63, LF64, LF65, LF66, LF67, LF68, LF69, LF70, LF71, LF72, LF73, LF74, LF75, LF76, LF77, LF78, LF79, LF80, LF81, LF82, LF83, LF84, LF85, LF86, LF87, LF88, LF89, LF90, LF91, LF92, LF93, LF94, LF95, LF96, LF97, LF98, LF99, LF100
Cooling Water, Metals Processing	1/16" to 120" (15 to 4500 mm)	±0.5% (0.5% to 0.5%)	Flange	EPDM, PTFE, PFA, PP, PE, PVDF, FEP, PTFE, PFA, PP, PE, PVDF, FEP	316 stainless steel, Pt, Ti, Inconel	316 stainless steel, Pt, Ti, Inconel	316 stainless steel, Pt, Ti, Inconel	IP67 (Waterproof)	LF20, LF21, LF22, LF23, LF24, LF25, LF26, LF27, LF28, LF29, LF30, LF31, LF32, LF33, LF34, LF35, LF36, LF37, LF38, LF39, LF40, LF41, LF42, LF43, LF44, LF45, LF46, LF47, LF48, LF49, LF50, LF51, LF52, LF53, LF54, LF55, LF56, LF57, LF58, LF59, LF60, LF61, LF62, LF63, LF64, LF65, LF66, LF67, LF68, LF69, LF70, LF71, LF72, LF73, LF74, LF75, LF76, LF77, LF78, LF79, LF80, LF81, LF82, LF83, LF84, LF85, LF86, LF87, LF88, LF89, LF90, LF91, LF92, LF93, LF94, LF95, LF96, LF97, LF98, LF99, LF100	LF20, LF21, LF22, LF23, LF24, LF25, LF26, LF27, LF28, LF29, LF30, LF31, LF32, LF33, LF34, LF35, LF36, LF37, LF38, LF39, LF40, LF41, LF42, LF43, LF44, LF45, LF46, LF47, LF48, LF49, LF50, LF51, LF52, LF53, LF54, LF55, LF56, LF57, LF58, LF59, LF60, LF61, LF62, LF63, LF64, LF65, LF66, LF67, LF68, LF69, LF70, LF71, LF72, LF73, LF74, LF75, LF76, LF77, LF78, LF79, LF80, LF81, LF82, LF83, LF84, LF85, LF86, LF87, LF88, LF89, LF90, LF91, LF92, LF93, LF94, LF95, LF96, LF97, LF98, LF99, LF100
Stack Gas Desulfurization	1/16" to 120" (15 to 4500 mm)	±0.5% (0.5% to 0.5%)	Flange	EPDM, PTFE, PFA, PP, PE, PVDF, FEP, PTFE, PFA, PP, PE, PVDF, FEP	316 stainless steel, Pt, Ti, Inconel	316 stainless steel, Pt, Ti, Inconel	316 stainless steel, Pt, Ti, Inconel	IP67 (Waterproof)	LF20, LF21, LF22, LF23, LF24, LF25, LF26, LF27, LF28, LF29, LF30, LF31, LF32, LF33, LF34, LF35, LF36, LF37, LF38, LF39, LF40, LF41, LF42, LF43, LF44, LF45, LF46, LF47, LF48, LF49, LF50, LF51, LF52, LF53, LF54, LF55, LF56, LF57, LF58, LF59, LF60, LF61, LF62, LF63, LF64, LF65, LF66, LF67, LF68, LF69, LF70, LF71, LF72, LF73, LF74, LF75, LF76, LF77, LF78, LF79, LF80, LF81, LF82, LF83, LF84, LF85, LF86, LF87, LF88, LF89, LF90, LF91, LF92, LF93, LF94, LF95, LF96, LF97, LF98, LF99, LF100	LF20, LF21, LF22, LF23, LF24, LF25, LF26, LF27, LF28, LF29, LF30, LF31, LF32, LF33, LF34, LF35, LF36, LF37, LF38, LF39, LF40, LF41, LF42, LF43, LF44, LF45, LF46, LF47, LF48, LF49, LF50, LF51, LF52, LF53, LF54, LF55, LF56, LF57, LF58, LF59, LF60, LF61, LF62, LF63, LF64, LF65, LF66, LF67, LF68, LF69, LF70, LF71, LF72, LF73, LF74, LF75, LF76, LF77, LF78, LF79, LF80, LF81, LF82, LF83, LF84, LF85, LF86, LF87, LF88, LF89, LF90, LF91, LF92, LF93, LF94, LF95, LF96, LF97, LF98, LF99, LF100
Fertilizers and Inorganic Chemicals	1/16" to 120" (15 to 4500 mm)	±0.5% (0.5% to 0.5%)	Flange	EPDM, PTFE, PFA, PP, PE, PVDF, FEP, PTFE, PFA, PP, PE, PVDF, FEP	316 stainless steel, Pt, Ti, Inconel	316 stainless steel, Pt, Ti, Inconel	316 stainless steel, Pt, Ti, Inconel	IP67 (Waterproof)	LF20, LF21, LF22, LF23, LF24, LF25, LF26, LF27, LF28, LF29, LF30, LF31, LF32, LF33, LF34, LF35, LF36, LF37, LF38, LF39, LF40, LF41, LF42, LF43, LF44, LF45, LF46, LF47, LF48, LF49, LF50, LF51, LF52, LF53, LF54, LF55, LF56, LF57, LF58, LF59, LF60, LF61, LF62, LF63, LF64, LF65, LF66, LF67, LF68, LF69, LF70, LF71, LF72, LF73, LF74, LF75, LF76, LF77, LF78, LF79, LF80, LF81, LF82, LF83, LF84, LF85, LF86, LF87, LF88, LF89, LF90, LF91, LF92, LF93, LF94, LF95, LF96, LF97, LF98, LF99, LF100	LF20, LF21, LF22, LF23, LF24, LF25, LF26, LF27, LF28, LF29, LF30, LF31, LF32, LF33, LF34, LF35, LF36, LF37, LF38, LF39, LF40, LF41, LF42, LF43, LF44, LF45, LF46, LF47, LF48, LF49, LF50, LF51, LF52, LF53, LF54, LF55, LF56, LF57, LF58, LF59, LF60, LF61, LF62, LF63, LF64, LF65, LF66, LF67, LF68, LF69, LF70, LF71, LF72, LF73, LF74, LF75, LF76, LF77, LF78, LF79, LF80, LF81, LF82, LF83, LF84, LF85, LF86, LF87, LF88, LF89, LF90, LF91, LF92, LF93, LF94, LF95, LF96, LF97, LF98, LF99, LF100
Acetone, Alcohols, Acid Solutions	1/16" to 120" (15 to 4500 mm)	±0.5% (0.5% to 0.5%)	Flange	EPDM, PTFE, PFA, PP, PE, PVDF, FEP, PTFE, PFA, PP, PE, PVDF, FEP	316 stainless steel, Pt, Ti, Inconel	316 stainless steel, Pt, Ti, Inconel	316 stainless steel, Pt, Ti, Inconel	IP67 (Waterproof)	LF20, LF21, LF22, LF23, LF24, LF25, LF26, LF27, LF28, LF29, LF30, LF31, LF32, LF33, LF34, LF35, LF36, LF37, LF38, LF39, LF40, LF41, LF42, LF43, LF44, LF45, LF46, LF47, LF48, LF49, LF50, LF51, LF52, LF53, LF54, LF55, LF56, LF57, LF58, LF59, LF60, LF61, LF62, LF63, LF64, LF65, LF66, LF67, LF68, LF69, LF70, LF71, LF72, LF73, LF74, LF75, LF76, LF77, LF78, LF79, LF80, LF81, LF82, LF83, LF84, LF85, LF86, LF87, LF88, LF89, LF90, LF91, LF92, LF93, LF94, LF95, LF96, LF97, LF98, LF99, LF100	LF20, LF21, LF22, LF23, LF24, LF25, LF26, LF27, LF28, LF29, LF30, LF31, LF32, LF33, LF34, LF35, LF36, LF37, LF38, LF39, LF40, LF41, LF42, LF43, LF44, LF45, LF46, LF47, LF48, LF49, LF50, LF51, LF52, LF53, LF54, LF55, LF56, LF57, LF58, LF59, LF60, LF61, LF62, LF63, LF64, LF65, LF66, LF67, LF68, LF69, LF70, LF71, LF72, LF73, LF74, LF75, LF76, LF77, LF78, LF79, LF80, LF81, LF82, LF83, LF84, LF85, LF86, LF87, LF88, LF89, LF90, LF91, LF92, LF93, LF94, LF95, LF96, LF97, LF98, LF99, LF100
Power and Nuclear Processes	1/16" to 120" (15 to 4500 mm)	±0.5% (0.5% to 0.5%)	Flange	EPDM, PTFE, PFA, PP, PE, PVDF, FEP, PTFE, PFA, PP, PE, PVDF, FEP	316 stainless steel, Pt, Ti, Inconel	316 stainless steel, Pt, Ti, Inconel	316 stainless steel, Pt, Ti, Inconel	IP67 (Waterproof)	LF20, LF21, LF22, LF23, LF24, LF25, LF26, LF27, LF28, LF29, LF30, LF31, LF32, LF33, LF34, LF35, LF36, LF37, LF38, LF39, LF40, LF41, LF42, LF43, LF44, LF45, LF46, LF47, LF48, LF49, LF50, LF51, LF52, LF53, LF54, LF55, LF56, LF57, LF58, LF59, LF60, LF61, LF62, LF63, LF64, LF65, LF66, LF67, LF68, LF69, LF70, LF71, LF72, LF73, LF74, LF75, LF76, LF77, LF78, LF79, LF80, LF81, LF82, LF83, LF84, LF85, LF86, LF87, LF88, LF89, LF90, LF91, LF92, LF93, LF94, LF95, LF96, LF97, LF98, LF99, LF100	LF20, LF21, LF22, LF23, LF24, LF25, LF26, LF27, LF28, LF29, LF30, LF31, LF32, LF33, LF34, LF35, LF36, LF37, LF38, LF39, LF40, LF41, LF42, LF43, LF44, LF45, LF46, LF47, LF48, LF49, LF50, LF51, LF52, LF53, LF54, LF55, LF56, LF57, LF58, LF59, LF60, LF61, LF62, LF63, LF64, LF65, LF66, LF67, LF68, LF69, LF70, LF71, LF72, LF73, LF74, LF75, LF76, LF77, LF78, LF79, LF80, LF81, LF82, LF83, LF84, LF85, LF86, LF87, LF88, LF89, LF90, LF91, LF92, LF93, LF94, LF95, LF96, LF97, LF98, LF99, LF100
Pulp and Paper	1/16" to 120" (15 to 4500 mm)	±0.5% (0.5% to 0.5%)	Flange	EPDM, PTFE, PFA, PP, PE, PVDF, FEP, PTFE, PFA, PP, PE, PVDF, FEP	316 stainless steel, Pt, Ti, Inconel	316 stainless steel, Pt, Ti, Inconel	316 stainless steel, Pt, Ti, Inconel	IP67 (Waterproof)	LF20, LF21, LF22, LF23, LF24, LF25, LF26, LF27, LF28, LF29, LF30, LF31, LF32, LF33, LF34, LF35, LF36, LF37, LF38, LF39, LF40, LF41, LF42, LF43, LF44, LF45, LF46, LF47, LF48, LF49, LF50, LF51, LF52, LF53, LF54, LF55, LF56, LF57, LF58, LF59, LF60, LF61, LF62, LF63, LF64, LF65, LF66, LF67, LF68, LF69, LF70, LF71, LF72, LF73, LF74, LF75, LF76, LF77, LF78, LF79, LF80, LF81, LF82, LF83, LF84, LF85, LF86, LF87, LF88, LF89, LF90, LF91, LF92, LF93, LF94, LF95, LF96, LF97, LF98, LF99, LF100	LF20, LF21, LF22, LF23, LF24, LF25, LF26, LF27, LF28, LF29, LF30, LF31, LF32, LF33, LF34, LF35, LF36, LF37, LF38, LF39, LF40, LF41, LF42, LF43, LF44, LF45, LF46, LF47, LF48, LF49, LF50, LF51, LF52, LF53, LF54, LF55, LF56, LF57, LF58, LF59, LF60, LF61, LF62, LF63, LF64, LF65, LF66, LF67, LF68, LF69, LF70, LF71, LF72, LF73, LF74, LF75, LF76, LF77, LF78, LF79, LF80, LF81, LF82, LF83, LF84, LF85, LF86, LF87, LF88, LF89, LF90, LF91, LF92, LF93, LF94, LF95, LF96, LF97, LF98, LF99, LF100
Chemical Fibers	1/16" to 120" (15 to 4500 mm)	±0.5% (0.5% to 0.5%)	Flange	EPDM, PTFE, PFA, PP, PE, PVDF, FEP, PTFE, PFA, PP, PE, PVDF, FEP	316 stainless steel, Pt, Ti, Inconel	316 stainless steel, Pt, Ti, Inconel	316 stainless steel, Pt, Ti, Inconel	IP67 (Waterproof)	LF20, LF21, LF22, LF23, LF24, LF25, LF26, LF27, LF28, LF29, LF30, LF31, LF32, LF33, LF34, LF35, LF36, LF37, LF38, LF39, LF40, LF41, LF42, LF43, LF44, LF45, LF46, LF47, LF48, LF49, LF50, LF51, LF52, LF53, LF54, LF55, LF56, LF57, LF58, LF59, LF60, LF61, LF62, LF63, LF64, LF65, LF66, LF67, LF68, LF69, LF70, LF71, LF72, LF73, LF74, LF75, LF76, LF77, LF78, LF79, LF80, LF81, LF82, LF83, LF84, LF85, LF86, LF87, LF88, LF89, LF90, LF91, LF92, LF93, LF94, LF95, LF96, LF97, LF98, LF99, LF100	LF20, LF21, LF22, LF23, LF24, LF25, LF26, LF27, LF28, LF29, LF30, LF31, LF32, LF33, LF34, LF35, LF36, LF37, LF38, LF39, LF40, LF41, LF42, LF43, LF44, LF45, LF46, LF47, LF48, LF49, LF50, LF51, LF52, LF53, LF54, LF55, LF56, LF57, LF58, LF59, LF60, LF61, LF62, LF63, LF64, LF65, LF66, LF67, LF68, LF69, LF70, LF71, LF72, LF73, LF74, LF75, LF76, LF77, LF78, LF79, LF80, LF81, LF82, LF83, LF84, LF85, LF86, LF87, LF88, LF89, LF90, LF91, LF92, LF93, LF94, LF95, LF96, LF97, LF98, LF99, LF100
Water-soluble Applications	1/16" to 120" (15 to 4500 mm)	±0.5% (0.5% to 0.5%)	Flange	EPDM, PTFE, PFA, PP, PE, PVDF, FEP, PTFE, PFA, PP, PE, PVDF, FEP	316 stainless steel, Pt, Ti, Inconel	316 stainless steel, Pt, Ti, Inconel	316 stainless steel, Pt, Ti, Inconel	IP67 (Waterproof)	LF20, LF21, LF22, LF23, LF24, LF25, LF26, LF27, LF28, LF29, LF30, LF31, LF32, LF33, LF34, LF35, LF36, LF37, LF38, LF39, LF40, LF41, LF42, LF43, LF44, LF45, LF46, LF47, LF48, LF49, LF50, LF51, LF52, LF53, LF54, LF55, LF56, LF57, LF58, LF59, LF60, LF61, LF62, LF63, LF64, LF65, LF66, LF67, LF68, LF69, LF70, LF71, LF72, LF73, LF74, LF75, LF76, LF77, LF78, LF79, LF80, LF81, LF82, LF83, LF84, LF85, LF86, LF87, LF88, LF89, LF90, LF91, LF92, LF93, LF94, LF95, LF96, LF97, LF98, LF99, LF100	LF20, LF21, LF22, LF23, LF24, LF25, LF26, LF27, LF28, LF29, LF30, LF31, LF32, LF33, LF34, LF35, LF36, LF37, LF38, LF39, LF40, LF41, LF42, LF43, LF44, LF45, LF46, LF47, LF48, LF49, LF50, LF51, LF52, LF53, LF54, LF55, LF56, LF57, LF58, LF59, LF60, LF61, LF62, LF63, LF64, LF65, LF66, LF67, LF68, LF69, LF70, LF71, LF72, LF73, LF74, LF75, LF76, LF77, LF78, LF79, LF80, LF81, LF82, LF83, LF84, LF85, LF86, LF87, LF88, LF89, LF90, LF91, LF92, LF93, LF94, LF95, LF96, LF97, LF98, LF99, LF100
Water-soluble Adhesives	1/16" to 120" (15 to 4500 mm)	±0.5% (0.5% to 0.5%)	Flange	EPDM, PTFE, PFA, PP, PE, PVDF, FEP, PTFE, PFA, PP, PE, PVDF, FEP	316 stainless steel, Pt, Ti, Inconel	316 stainless steel, Pt, Ti, Inconel	316 stainless steel, Pt, Ti, Inconel	IP67 (Waterproof)	LF20, LF21, LF22, LF23, LF24, LF25, LF26, LF27, LF28, LF29, LF30, LF31, LF32, LF33, LF34, LF35, LF36, LF37, LF38, LF39, LF40, LF41, LF42, LF43, LF44, LF45, LF46, LF47, LF48, LF49, LF50, LF51, LF52, LF53, LF54, LF55, LF56, LF57, LF58, LF59, LF60, LF61, LF62, LF63, LF64, LF65, LF66, LF67, LF68, LF69, LF70, LF71, LF72, LF73, LF74, LF75, LF76, LF77, LF78, LF79, LF80, LF81, LF82, LF83, LF84, LF85, LF86, LF87, LF88, LF89, LF90, LF91, LF92, LF93, LF94, LF95, LF96, LF97, LF98, LF99, LF100	LF20, LF21, LF22, LF23, LF24, LF25, LF26, LF27, LF28, LF29, LF30, LF31, LF32, LF33, LF34, LF35, LF36, LF37, LF38, LF39, LF40, LF41, LF42, LF43, LF44, LF45, LF46, LF47, LF48, LF49, LF50, LF51, LF52, LF53, LF54, LF55, LF56, LF57, LF58, LF59, LF60, LF61, LF62, LF63, LF64, LF65, LF66, LF67, LF68, LF69, LF70, LF71, LF72, LF73, LF74, LF75, LF76, LF77, LF78, LF79, LF80, LF81, LF82, LF83, LF84, LF85, LF86, LF87, LF88, LF89, LF90, LF91, LF92, LF93, LF94, LF95, LF96, LF97, LF98, LF99, LF100
Liquids Containing Solid Matter	1/16" to 120" (15 to 4500 mm)	±0.5% (0.5% to 0.5%)	Flange	EPDM, PTFE, PFA, PP, PE, PVDF, FEP, PTFE, PFA, PP, PE, PVDF, FEP	316 stainless steel, Pt, Ti, Inconel	316 stainless steel, Pt, Ti, Inconel	316 stainless steel, Pt, Ti, Inconel	IP67 (Waterproof)	LF20, LF21, LF22, LF23, LF24, LF25, LF26, LF27, LF28, LF29, LF30, LF31, LF32, LF33, LF34, LF35, LF36, LF37, LF38, LF39, LF40, LF41, LF42, LF43, LF44, LF45, LF46, LF47, LF48, LF49, LF50, LF51, LF52, LF53, LF54, LF55, LF56, LF57, LF58, LF59, LF60, LF61, LF62, LF63, LF64, LF65, LF66, LF67, LF68, LF69, LF70, LF71, LF72, LF73, LF74, LF75, LF76, LF77, LF78, LF79, LF80, LF81, LF82, LF83, LF84, LF85, LF86, LF87, LF88, LF89, LF90, LF91, LF92, LF93, LF94, LF95, LF96, LF97, LF98, LF99, LF100	LF20, LF21, LF22, LF23, LF24, LF25, LF26, LF27, LF28, LF29, LF30, LF31, LF32, LF33, LF34, LF35, LF36, LF37, LF38, LF39

Appendix I

TECHNICAL CAPABILITY

Arizona Water Company
Technical Capability

Raymond G. Murrieta, Arizona Water Company - Division Manager. More than 30 years of experience in operating and maintaining water treatment and distribution systems.

ADEQ Certified Water Treatment Operator, Grade 4 - No. 03555
ADEQ Certified Water Distribution Operator, Grade 4 - No. 03555

Fredrick K. Schneider, P.E., Arizona Water Company - Vice President - Engineering. 24 years of experience in designing and operating water and wastewater systems.

ADEQ Certified Water Treatment Operator, Grade 2 - No. 11557
ADEQ Certified Water Distribution Operator, Grade 3 - No. 11557
ADEQ Certified Wastewater Treatment Operator, Grade 2 - No. 11557
ADEQ Certified Wastewater Collection, Grade 3 - No. 11557

DONALD P. HANSON, R.G.

Title Principal Hydrogeologist

Expertise Hydrogeology, Groundwater Recharge, Water Resources

Academic Background B.S., Geology/Hydrogeology, Northern Arizona University, 1984

Registration Registered Geologist, 1992 - Arizona Registration No. 26036
Professional Geologist, 1998 - Wyoming Registration No. PG-2983

Experience Don Hanson joined Clear Creek Associates in May 2000. He has 30 years of experience in developing water resources, conducting hydrogeologic investigations, siting and permitting for groundwater recharge, and aquifer storage and recovery (ASR) and public supply well design and installation. He currently manages multiple water resources and recharge projects, including the evaluation and rehabilitation of existing recharge facilities. He has worked with ADEQ and ADWR to successfully permit and re-permit numerous groundwater recharge facilities.

PRIOR TO JOINING CLEAR CREEK ASSOCIATES

Mr. Hanson was manager of the Phoenix office of Harding Lawson Associates, a national engineering and environmental consulting firm.

Representative Projects

REPRESENTATIVE PROJECTS INCLUDE:

City of Surprise – Manager for siting, design, installation and testing of five new vadose zone injection wells to recharge reclaimed water produced from the City's new SPA-2 reverse osmosis WRF. Project included development of O&M plans, operator training, and technical support for automated control logic development. Project also included APP and USF/WS permitting.

City of Glendale – Manager for siting and conceptual design of new recharge facilities to manage increased reclaimed water production from an expansion to the City's West Area WRF. Project included an evaluation of technologies from managed recharge to full ASR, a cost benefit analysis for siting, reclaimed water quality requirements, and groundwater modeling of the preferred sites.

City of Phoenix – Manager for the CCWRP vadose zone well evaluation project. The project included a determination of the causes leading to premature failure of seven vadose zone injection wells, development of remedies to rehabilitate existing wells, and development of a new VZ well design for future VZ wells at the site.

City of Phoenix – Manager for the NE Phoenix Aquifer recharge siting project. The intent of the project was to evaluate recharge technologies and locations for a future indirect potable reuse system that will recharge reclaimed water from the City's Cave Creek WRF with recovery for both potable and non-potable uses. The project included the development of several scenarios including managed recharge, VZ wells and ASR, extensive groundwater modeling and particle tracking, and life cycle cost analysis.

Vistancia, LLC. – Manager for the design, permitting (WS, USF & APP), and construction management of two vadose zone injection wells for reclaimed water from the City of Peoria's Jomax WRF. Project includes City/Agency meetings, a hydrologic study, AOI, DIA and mounding modeling to demonstrate hydrologic feasibility.

City of Scottsdale – Managed the design, drilling, construction, and testing of a new ASR well. This project also included the design and installation of two deep (1,000') groundwater monitoring wells as required to meet APP and USF permit requirements.

City of Peoria – Managed the evaluation of performance problems at two new recharge basins at the City's Beardsley Road WRF. The project included detailed hydrogeologic investigation, pilot testing of recommended solutions, implementation and construction management of full scale remedy, and oversight of final testing.

DONALD P. HANSON, R.G.

Town of Gilbert – Managed USF permitting at several new and existing vadose zone recharge facilities. Several sites had significant environmental issues associated with nearby documented groundwater contamination from chlorinated solvents. Developed agency approved monitoring and contingency plans.

City of Chandler - Managed the design and installation of 6 high capacity ASR wells for the Ocotillo Recharge and Recovery Project and 9 high capacity ASR wells at the Tumbleweed Recharge and Recovery site. Projects included well design, bidding services, WS, USF and APP permitting, installation and testing and O&M support.

Memberships

Arizona Water Association (AZ Water)
National Groundwater Association (NGWA)
American Institute of Professional Geologists (AIPG)

**Publications/
Presentations**

2013 - *High Capacity Well Design*. National Groundwater Association, 2013 Groundwater Expo – Nashville, TN, December.

2013 – *Water Reuse – New Perspectives on Policy and Science*. 2013 Annual AHS Symposium – Shifting Boundaries. Recalibrating the Hydrologic Approach, September.

2013 - *Well Screen Rehabilitation*. Groundwater Resources Association of California, High Resolution Tools and Techniques for Optimizing Groundwater Extraction for Water Supply Symposium, June.

2013 - *Capitalizing on Well Capacity Analysis*. 86th Annual AZ Water Conference, May.

2013 – *Groundwater Recharge For The Future of Chile*. Presented to the Chilean Government, Department of Agriculture, April.

2012 – *Groundwater Recharge In Arizona*. Presented to the Chilean Government, Department of Agriculture, December.

2012 - *High Capacity Well Design*. National Groundwater Association, 2012 Groundwater Expo – Las Vegas, NV, December.

2012 - *117 Degrees in The Shade – Solutions to a Hot Water Supply Well*. 28th Annual Tri-State Seminar-on-the-River, September.

2012 - *Basin Recharge - Planning For Success*. 85th Annual AZ Water Conference, May.

2012 - *Well Evaluation Concepts and Techniques, Well Rehabilitation and Modification Methods*. ADEQ Operator Certification Program Workshop, April.

2011 - *Enhancing Basin Recharge*. A presentation to the City of Pomona, California, October.

2011 - *Aquifer Recharge-From Vision to Reality*. 84th Annual AZ Water Conference, May.

2011 - *Well Evaluation Concepts and Techniques, Well Rehabilitation and Modification Methods*. ADEQ Operator Certification Program Workshop, February.

2010 - *Groundwater Recharge – Tips for Siting, Design, and Operation*. 26th Annual Tri-State Seminar-on-the-River, September.

2008 - *Groundwater Recharge and its Impacts on Non-Point Source Nitrate Contamination*. Peer reviewed article in The Professional Geologist. Volume 45, Number 4 August/September.

2006 - *New Well Techniques for Well Installation*. 22nd Annual Tri-State Seminar-on-the-River, September.

2006 - *Developing a Wet Water Supply*. A presentation to Pulte Homes of Arizona, March.

2005 - *Is It a Pump or Well Problem*. 21st Annual Tri-State Seminar-on-the-River, September

2005 - *Maintaining ASR Well Efficiency*. 12th Biennial Symposium on Groundwater Recharge, June.

2005 - *Well Cleaning Eliminates Costly Arsenic Treatment*. AWPCA 78 Annual Conference and Exposition, May.

2004 - *The Data Game, How Much, What Kinds, and Why*. 20th Annual Tri-State Seminar-on-the-River, September.

2004 - *Chandler's Reclaimed Water Program Yields 30 MGD Water Supply*. Co-author. 19th Annual Water Reuse Symposium, September.

2003 – *Groundwater Recharge And Its Impacts On Non-Point Source Nitrate Contamination*, 11th Biennial Symposium on Groundwater Recharge, June.

STEVEN W. CORELL, R.G.

Title

Senior Hydrogeologist

Expertise

Hydrogeology/Geology, Groundwater Modeling

**Academic
Background**

B.A., Geology, State University of New York at Plattsburgh, 1981
NGWA - Short Course: Visual MODFLOW, Salem, Mass., 1998
U.S.G.S. Water Resources Division - Advanced Modeling of Groundwater Flow,
National Training Center, Denver, Colorado, 1995
University of Arizona - Subsurface Hydrology, 1990
Arizona State University - Groundwater Hydrology, 1987

Registration

Registered Geologist: Arizona, No. 30999 (1997)

Experience

CLEAR CREEK ASSOCIATES, PHOENIX, ARIZONA; 1999 TO PRESENT

Steven is a Senior Hydrogeologist with 30 years of professional experience, including 23 years of groundwater experience in Arizona. Areas of specialization include Underground Storage Facility applications, Aquifer Protection Permit applications, Assured Water Supply applications, construction of groundwater flow models, evaluation of groundwater resources, and Geographic Information Systems (GIS). Representative projects include the following.

• **UNDERGROUND STORAGE FACILITY PERMITTING**

- Salt River Project Granite Reef Underground Storage Project
- City of Phoenix Well 300
- City of Phoenix Well 299
- Anthem at Merrill Ranch Water Reclamation Plant
- City of Surprise – SPA2 Regional Water Reclamation Facility
- Chandler Heights Recharge Project
- Avondale Wetlands
- City of Peoria Beardsley Road WWTP
- City of Chandler Ocotillo Recharge and Recovery Facility
- City of Chandler Tumbleweed Recharge Facility
- Intel Recharge Facility
- CAWCD Agua Fria Recharge Project

• **GROUNDWATER SUPPLY STUDIES**

- American West Potash, Holbrook, Arizona, water supply study
- Buena Vista Ranch, Analysis of Assured Water Supply
- City of Cottonwood, Designation of Assured Water Supply
- Arizona Water Company, Pinal AMA Physical Availability Demonstration
- Cimmaron Development, Vekol Valley, Analysis of Assured Water Supply
- Long Meadow Ranch, Williamson Valley, Analysis of Assured Water Supply
- Global Water Company – Santa Cruz Water Company, Designation of Assured Water Supply
- Swan Southlands Development – Tucson, Arizona, Analysis of Assured Water Supply
- Broadstone Preserve – Mobile, Arizona, Analysis of Assured Water Supply
- City of Chandler, Hydrologic Map Series
- City of Mesa Well Siting and Hydrologic Impact Analysis
- City of Peoria, Groundwater Resource Investigation

STEVEN W. CORELL, R.G.

- American Ranch – Prescott, Arizona, Analysis of Assured Water Supply
- Johnson Ranch – Queen Creek, Arizona, Assured Water Supply
- City of Nogales – Portrero Canyon, Assured Water Supply
- Arizona Water Company - Apache Junction Service Area, Physical Availability Demonstration
- PG&E National Energy Group – groundwater model of Harquahala Valley for water supply analysis

• **AQUIFER PROTECTION PERMITTING**

- Freeport McMoRan Twin Buttes Mine
- Freeport McMoRan Sierrita Mine
- City of Peoria Vistancia Recharge Facility
- Copper Basin Water Reclamation Plant, Queen Creek, Arizona
- Town of Gilbert, South Recharge Facility and Riparian Facility

Professional History

Hydrogeologist, Bookman-Edmonston Engineering, Inc., Phoenix, Arizona; 1999
Hydrogeologist, Hydrosystems, Inc., Tempe, Arizona; 1997 to 1998
Hydrologist, Arizona Department of Water Resources, Phoenix, Arizona; 1988 to 1996
Geologist, Envirogas Inc., Mayville, New York; 1982 to 1987
Hydrocarbon Well Analyst, Continental Labs, Inc., Denver, Colorado; 1981

Professional Awards

Governors Recognition Award - Salt River Groundwater Modeling Team, 1994

Publications

Corell, S.W., Putman, F.P., Lovvik, D., and Corkhill, E.F., 1996; A Groundwater Flow Model of the Sierra Vista Subwatershed of the Upper San Pedro Basin - Southeastern Arizona, ADWR Modeling Report No. 10.

Corell, S.W., and Corkhill, E.F., 1994. A Regional Groundwater Flow Model of the Salt River Valley-Phase II, Phoenix AMA, Numerical Model, Calibration, & Recommendations. ADWR Modeling Report No. 8.

Corkhill, E.F., **Corell, S.W.**, Hill, B.M., and Carr, D.A., 1993. A Regional Groundwater Flow Model of the Salt River Valley - Phase I, Phoenix AMA, Hydrogeologic Framework and Basic Data Report. ADWR Modeling Report No.6.

Corell, S.W., 1992. Groundwater Flow and Contaminant Transport Model - Central Phoenix, Maricopa County, Arizona. ADWR Modeling Report No. 3.

Corell, S.W., Presentation 2002. "Expanded West Salt River Valley Groundwater Flow Model and its Application to the City of Peoria" – presented at the Arizona Hydrological Society's Symposium 2002.

Rob Buss, P.E.

Role: Carollo's Project Manager

Education:

BS Civil Engineering

Licenses:

Civil Engineer, AZ (14718)

Professional Engineer, NM (19168)

Years of Experience: 37 Years

Benefit to the Project:

Rob has a strong background in civil related infrastructure projects, from master planning of municipal water, wastewater, and reuse water systems to detailed design and construction of those systems. For this project, Rob brings his extensive knowledge of spreading basins recharge facility design to the team. He has current working relationships with Central Arizona Project (CAP) engineering and operations staff and his experience as the Project Manager for the CAP's Tonopah Desert Recharge Project (TDRP) is directly relevant to the Pinal Valley Recharge project since many of the project elements are the same. Rob also has a strong background in potable municipal well construction, equipping, and operations, therefore he brings insight into the details of the proposed recovery well and pipeline design and construction.

Responsibility:

Rob will provide his wealth of knowledge of detailed design of Recharge Facilities through many recharge projects experience. Rob is responsible for Carollo's portion of the work, and will review key work products to maintain project quality. He will maintain close contact with Clear Creek's project manager so that the work is carried out efficiently and meets CCA's expectations.

Relevant Project Experience:

- Project manager for the CAP Tonopah Desert Recharge Facility (TDRP).
- Project manager for the City of Chandler, Chandler Heights Recharge Project (CHRP).
- Project manager for the City of Chandler Alamosa Wells Equipping Project.
- Project manager for the City of Chandler Price Road Well Equipping Project.
- Project engineer for the Chandler/Intel Fab 12 Industrial Process WTF Recharge Well Design.
- Project manager / resident engineer for the Town of Gilbert Riparian Preserve at Water Ranch.
- Project manager for the Town of Gilbert South Recharge Site.
- Project manager for the Orange County Water District Imperial Headgates Rehabilitation.
- Project civil engineer for the Orange County Water District Weir Pond Rehabilitation Project.

Appendix J

FINANCIAL CAPABILITY LETTER

ARIZONA WATER COMPANY

3805 N. BLACK CANYON HIGHWAY, PHOENIX, ARIZONA 85015-5351 • P.O. BOX 29006, PHOENIX, AZ 85038-9006
PHONE: (602) 240-6860 • FAX: (602) 240-6874 • TOLL FREE: (800) 533-6023 • www.azwater.com

December 17, 2014

Arizona Department of Water Resources
3550 North Central Avenue
Phoenix, AZ 85012

Re: Financial Capability Statement - Underground Storage Facility Permit

Dear Sir or Madam:

As part of Arizona Water Company's Pinal Valley Recharge Project and Underground Storage Facility we plan to construct five recharge basins as a means to recharge the underlying aquifer. The estimated construction cost of the five recharge basins is \$4.8 million. The annual cost to operate and maintain the facility including the delivery cost of Central Arizona Project water is estimated to be \$2.0 million. This letter certifies that Arizona Water Company has the financial capability to construct and operate the facility for the twenty (20) year permitting time frame.

If you have any questions, please contact me at 602-240-6860.

Very truly yours,



Joseph D. Harris
Vice President and Treasurer

jgb

E-MAIL: mail@azwater.com

Arizona Water Company
Pinal Valley Recharge Project
Engineer's Opinion of Construction Cost



December 3, 2014

Item No.	Description	Quantity	Unit	Price/Unit	\$ Amount
1	Mob/Demob / Clearing & grubbing; site work	1	Lump Sum	\$ 250,000	\$ 250,000
2	Excavation of Basins & Haul off (60 Acres)	1	Lump Sum	\$ 300,000	\$ 800,000
3	Turnout at the CAP canal; coffer dam; meter vault	1	Lump Sum	\$ 500,000	\$ 500,000
4	Control Valve vaults, gauges, overflow conduits	1	Lump Sum	\$ 150,000	\$ 150,000
5	24-inch Raw Water Pipeline, valves and fittings	6,200	LF	\$ 200	\$ 1,240,000
6	Perimeter fencing (7-foot high) with access gates	8,000	LF	\$ 12	\$ 96,000
7	Drainage control, access roads & ABC	1	Lump Sum	\$ 150,000	\$ 150,000
8	Monitoring & Piezometer Wells - Solar powered	3	EA	\$ 80,000	\$ 240,000
9	Electrical & Instrumentation	1	Lump Sum	\$ 100,000	\$ 100,000
TOTAL DIRECT COST					\$ 3,526,000
CONTINGENCY (20%)					\$ 705,200
CONTRACTOR OVERHEAD, PROFIT, AND RISK (12%)					\$ 423,120
SALES TAX (BASED ON 50% MATERIALS - 4%)					\$ 70,520
TOTAL OPINION OF PROBABLE CONSTRUCTION COST					\$ 4,725,000

Arizona Water Company
Pinal Valley Recharge Project
Opinion of Probable Operations and Maintenance Costs



December 17, 2014

No.	Item Description	Maintenance Required	Estimated Cost per Year
1	Trashrack	Cleaning debris/hauling off	\$ 8,880
2	Flow Meter	Calibration/repair	\$ 8,320
3	Isolation Valve(s)	Repair/adjustment	\$ 500
4	24-inch waterline	Inspection/cleaning	\$ 2,000
5	Valve Vaults	Inspection/adjustment/repair	\$ 8,320
6	Basins	Scarifying/weed removal/repair	\$ 27,840
7	Monitoring wells	Adjustment/repair	\$ 8,320
OPINION OF PROBABLE O&M ANNUAL COST			\$ 64,180

Assumptions:

- 1 Requires one person and service truck - hauling directly to landfill
 $8 \text{ hrs} \times 12 \text{ days/year} \times \$80/\text{hr} = \$7,680$; Tipping fee = $\$100 \times 12 = \$1,200$; Total = \$8,880

- 2 Requires one person and service truck
 $2 \text{ hrs} \times 52 \text{ days/year} \times \$80/\text{hr} = \$5,200$; Total = \$8,320

- 3 Requires one person and service truck
Same as Item 2, except done concurrently.
Assume annual repair : LS = \$500

- 4 Requires Contract Company to CCTV - once every 5 years
Cost to CCTV $\$10,000/5 = \$2,000$ per year

- 5 Requires one person and service truck
 $2 \text{ hrs} \times 52 \text{ days/year} \times \$80/\text{hr} = \$8,320$; Total = \$8,320
Assume this is done by same person on same day as Items 2 & 3 above.
Makes for longer day, therefore, this cost is ADDED to the O&M total.

- 6 Requires three people, service truck, dozer, and dump truck - hauling directly to landfill
 $24 \text{ hrs} \times 12 \text{ days/year} \times \$80/\text{hr} = \$23,040$; Tipping fee = $\$100 \times 12 = \$1,200$; Total = \$24,240
Dozer and dump truck costs (assume AWC owns both) $\$300/\text{day} \times 12 = \$3,600$

- 7 Requires one person and service truck
 $2 \text{ hrs} \times 52 \text{ days/year} \times \$80/\text{hr} = \$8,320$; Total = \$8,320
Assume this is done by same person on same day as Items 2 & 3 above.
Makes for longer day, therefore, this cost is ADDED to the O&M total.

Appendix K

TITLE DOCUMENTS & STATE LAND LEASE

**STATE LAND DEPARTMENT
STATE OF ARIZONA**

Right of Way

R/W No. 14-108857

THIS RIGHT OF WAY (“Right of Way”) is entered into by and between the State of Arizona (as “Grantor”) by and through the Arizona State Land Department and

ARIZONA WATER COMPANY

(“Grantee”). In consideration of payment and performance by the parties of each of the provisions set forth herein, the parties agree as follows:

EXTENT OF DOCUMENT

“Additional Conditions”, “Exhibits”, and “Appendixes” are an integral part of this document. In case of a conflict between the printed boiler document and the additional conditions, exhibits, or appendixes, the applicable additional condition, exhibit, or appendix shall be considered the governing document and supersede the printed boiler, but only to the extent necessary to implement the additional condition, exhibit, or appendix, and only if the additional condition, exhibit, or appendix does not conflict with governing state or federal law.

**ARTICLE 1
SUBJECT LAND**

1.1 Grantor grants to Grantee a Right of Way on, over, through, and across the State lands described in Appendix A attached hereto (“Subject Land”).

1.2 Grantee makes use of the Subject Land “as is”, and Grantor makes no express or implied warranties as to the physical condition of the Subject Land.

**ARTICLE 2
TERM**

2.1 The term of this Right of Way commences on December 11, 2009 (“Commencement Date”), and expires on December 10, 2059 (“Expiration Date”), unless sooner canceled or terminated as provided herein or as provided by law.

ARTICLE 3
RENT

3.1 Base Rent shall be payable in advance every 25 years for the above mentioned term in such amount as determined to be due on the basis of appraisals made by the Commissioner.

3.2 If the Grantee should fail to pay rental when due, or fail to keep the covenants and agreements herein set forth, the Commissioner, at his option, may cancel said Right of Way or declare the same forfeited in the manner provided by law.

3.3 There shall be added to the delinquent rental or other monies due, a penalty and delinquent interest. The delinquent interest rate shall be set by the State Treasurer according to law. The penalty shall be the greater of a minimum processing cost as determined by the Commissioner or five (5%) percent. The delinquent rent, penalty and interest shall be a lien on the improvements and property on the land.

ARTICLE 4
PURPOSE AND USE OF SUBJECT LAND

4.1 The purpose of this Right of Way is the location, construction, operation, and maintenance of:

An underground 24 inch water transmission pipeline

4.2 No material may be removed by Grantee or its contractors without the written approval of the Grantor.

4.3 Grantee shall not exclude from use the State of Arizona, its lessees, or grantees, or the general public the right of ingress and egress over this Right of Way.

4.4 Grantee shall acquire required permits prior to construction, and adhere to all applicable rules, regulations, ordinances, and building codes as promulgated by the local jurisdiction and any applicable State or Federal agencies.

4.5 All use of State land outside the Right of Way must be applied for and authorized in accordance with applicable law.

4.6 Grantee shall not sublet or assign this Right of Way or any portion thereof without the written consent of the Grantor.

4.7 The Grantor retains ownership of the Subject Land. The use of this Right of Way is to be non-exclusive. This Right of Way is sold subject to existing reservations, easements, or rights of way heretofore legally obtained and now in full force and effect.

4.8 When necessary for Grantee's reasonable use of this Right of Way for the purposes for which the grant is made, it shall be deemed to include the rights in, upon,

over, and across the described Subject Land to erect, construct, reconstruct, replace, repair, and maintain the facilities authorized by this Right of Way.

4.9 Grantee shall have the right to erect, maintain, and use gates in all fences under the control of the Grantor which now cross or shall hereafter cross said Right of Way, and to trim, cut, and clear away trees or brush whenever in its judgment the same shall be necessary for the convenient and safe exercise of the right herein provided.

4.10 Grantee shall not fence any portion of this Right of Way unless specifically authorized in the attached additional conditions without prior written consent of Grantor, nor shall Grantee exclude from the use of the surface thereof the State of Arizona or its lessees or grantees as reserved in Paragraph 10.1.

ARTICLE 5 **CONFORMITY TO LAW**

5.1 This Right of Way is subject to applicable laws and covenants relating to State lands.

ARTICLE 6 **CANCELLATION, TERMINATION AND ABANDONMENT**

6.1 This Right of Way is subject to cancellation pursuant to A.R.S. § 38-511.

6.2 If at any time the Right of Way ceases to be used for the purpose for which it was granted, it shall become void, and the right to use the Subject Land and all the rights of Grantee hereunder shall revert to the Grantor.

6.3 Upon revocation or termination of the Right of Way, the Grantee shall remove all equipment or facilities, and so far as is reasonably possible, restore and/or rehabilitate the Subject Land to its original condition, and to the satisfaction of the Grantor.

ARTICLE 7 **ENVIRONMENTAL INDEMNITY**

7.1 Grantee shall protect, defend, indemnify, and hold harmless the Grantor from and against all liabilities, costs, charges, and expenses, including attorneys' fees and court costs arising out of (or related to) the presence of (or existence of) any substance regulated under any applicable federal, state, or local environmental laws, regulations, ordinances, or amendments thereto because of: (a) any substance that came to be located on the Right of Way due to Grantee's use or occupancy of the lands by the Grantee before or after the issuance of the Right of Way; or (b) any release, threatened release, or escape of any substance in, on, under, or from the Right of Way that is caused, in whole or in part, by any conduct, actions, or negligence of the Grantee, regardless of when such substance came to be located on the Right of Way.

shall notify the Grantor and the Arizona Department of Agriculture 30 days prior to any destruction or removal of native plants to allow salvage of those plants where possible.

12.3 Prior to surface disturbance, the Grantee hereof shall provide evidence of archaeological clearance to the Department. Archaeological surveys and site mitigation must be conducted in accordance with rules and regulations promulgated by the Director, Arizona State Museum. In the event additional archaeological resources are detected by Grantee after receipt of archaeological clearance, all work shall cease and notification shall be given to the Director, Arizona State Museum, and Grantor.

ARTICLE 13

GRANTEE SHALL PROTECT AND RESTORE THE SUBJECT LAND

13.1 Grantee shall be required, upon completion of Right of Way construction, to make such rehabilitation measures on the State lands, including but not limited to restoration of the surface, revegetation, and fencing as determined necessary by the Grantor.

13.2 Grantee shall conduct all construction and maintenance activities in a manner that will minimize disturbance to all land values including but not limited to vegetation, drainage channels, and streambanks. Construction methods shall be designed to prevent degradation of soil conditions in areas where such degradation would result in detrimental erosion or subsidence. Grantee shall take such other soil and resource conservation and protection measures on the Subject Land under grant as determined necessary by the Grantor.

13.3 Costs incurred by the Grantee in complying with restoration and rehabilitation requirements, as determined by the Department, on State lands shall be borne by the Grantee.

13.4 Grantee shall conduct its operations on the Subject Land in such a manner as is consistent with good environmental practices. Grantee shall exert reasonable efforts to avoid damage of protected flora, and restore the surface to its condition prior to the occupancy thereof by Grantee.

ARTICLE 14

MISCELLANEOUS

14.1 The described Subject Land shall be used only for the purpose stated in Paragraph 4.1, and as may be further detailed elsewhere.

14.2 This Document is submitted for examination and shall have no binding effect on the parties unless and until executed by the Grantor (after execution by the Grantee), and until a fully executed copy is delivered to the Grantee.

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14.3 In the event of a dispute between the parties to this Right of Way, it is agreed to use arbitration to resolve the dispute, but only to the extent required by A.R.S. § 12-1518. In no event shall arbitration be employed to resolve a dispute which is otherwise subject to administrative review by the Department.

14.4 The Grantor does not represent or warrant that access exists over other State lands which intervene respectively between the above Right of Way and the nearest public roadway.

14.5 Grantee agrees to indemnify, hold, and save Grantor harmless against all loss, damage, liability, expense, costs, and charges incident to or resulting in any way from any injuries to person or damage to property caused by or resulting from the use, condition, or occupation of the Subject Land.

14.6 If for any reason the State of Arizona does not have title to any of the Subject Land described herein, this Right of Way shall be null and void insofar as it relates to the land to which the State has failed to receive title.

14.7 Every obligation of the State under this Right of Way is conditioned upon the availability of funds appropriated or allocated for the payment of such obligation. If funds are not allocated and available for the continuance of this Right of Way, this Right of Way may be terminated by the State at the end of the period for which funds are available. No liability shall accrue to the State in the event this provision is exercised, and the State shall not be obligated or liable for any future payments or any damages as a result of termination under this paragraph.

14.8 The parties agree to be bound by applicable State and Federal rules governing Equal Employment Opportunity, Non-discrimination and Disabilities, including Executive Order No. 99-4.

14.9 Within 30 days of project completion, Grantee shall submit a completed certificate of construction (copy attached).

ADDITIONAL CONDITIONS

#14-108857

1. The legal description of this right-of-way is detailed in EXHIBIT A attached. Subject to the Grantor's rules and policies then in place, and as a result of construction-related restrictions, Grantor and Grantee may agree to modify the legal description via the Grantee submitting "as built" or "proposed realignment" legals, depending on the situation, to the Grantor for the Grantor's review. If approved by the Grantor, and additional acreage is impacted, Grantee agrees to pay an appraised or pro-rated charge as the Grantor determines is appropriate. No refund will be made for a reduction in acreage.
2. All rock brought to the surface along with topsoil and overburden from the affected State Trust lands shall be salvaged and stockpiled separately in a manner that replacement shall utilize one hundred (100%) percent of the materials upon project completion. Excess rock unsuitable for scattering shall be disposed of in a manner and location that is authorized by the Grantor.
3. All equipment shall be removed from the site within seven (7) days of project completion.
4. In the event the Grantor determines that the affected State Trust lands have not been restored and/or rehabilitated to the satisfaction of the Grantor, or the surrounding State Trust lands have been adversely affected, Grantee shall amend this right-of-way to include the affected State Trust lands, and remit compensation to the Grantor in an amount representing the greater of actual damages or three (3) times the contract rent within (30) days.
5. Grantee shall maintain the easement area in the manner described above during the term of this easement. Grantee agrees to complete any necessary restoration and rehabilitation to the satisfaction of the Grantor within ninety (90) days of written notification of non-compliance.

20.12

**ADDITIONAL CONDITION
FOR THREATENED/ENDANGERED SPECIES
#14-108857**

The Arizona Game & Fish Department's Heritage Data Management System has been accessed, and current records show that the species listed below has/have been documented as occurring in the project vicinity.

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
Yuma Clapper Rail	Rallus longirostris yumanensis	Listed Endangered
_____	_____	_____
_____	_____	_____
_____	_____	_____

The Arizona Game & Fish Department recommends that you contact the U.S. Fish & Wildlife Service for additional information regarding the Endangered Species Act and how it applies to the species noted above.

EXHIBIT A

#14-108857

Page 3 of 6.

Legal Description

The North 50.00 feet of the South 150.00 feet of the Southwest quarter of Section 17, Township 6 South, Range 9 East of the Gila and Salt River Base and Meridian, Pinal County, Arizona, lying West of the West right-of-way line of the Salt-Gila Aqueduct Reach 4, according to the records of the Arizona State land Department in right-of-way file 93-85542. (0.79 Acres)

EXHIBIT A
#14-108857
Page 4 of 6.

SEC. 17

TWP. 6S.
RGE. 9E.

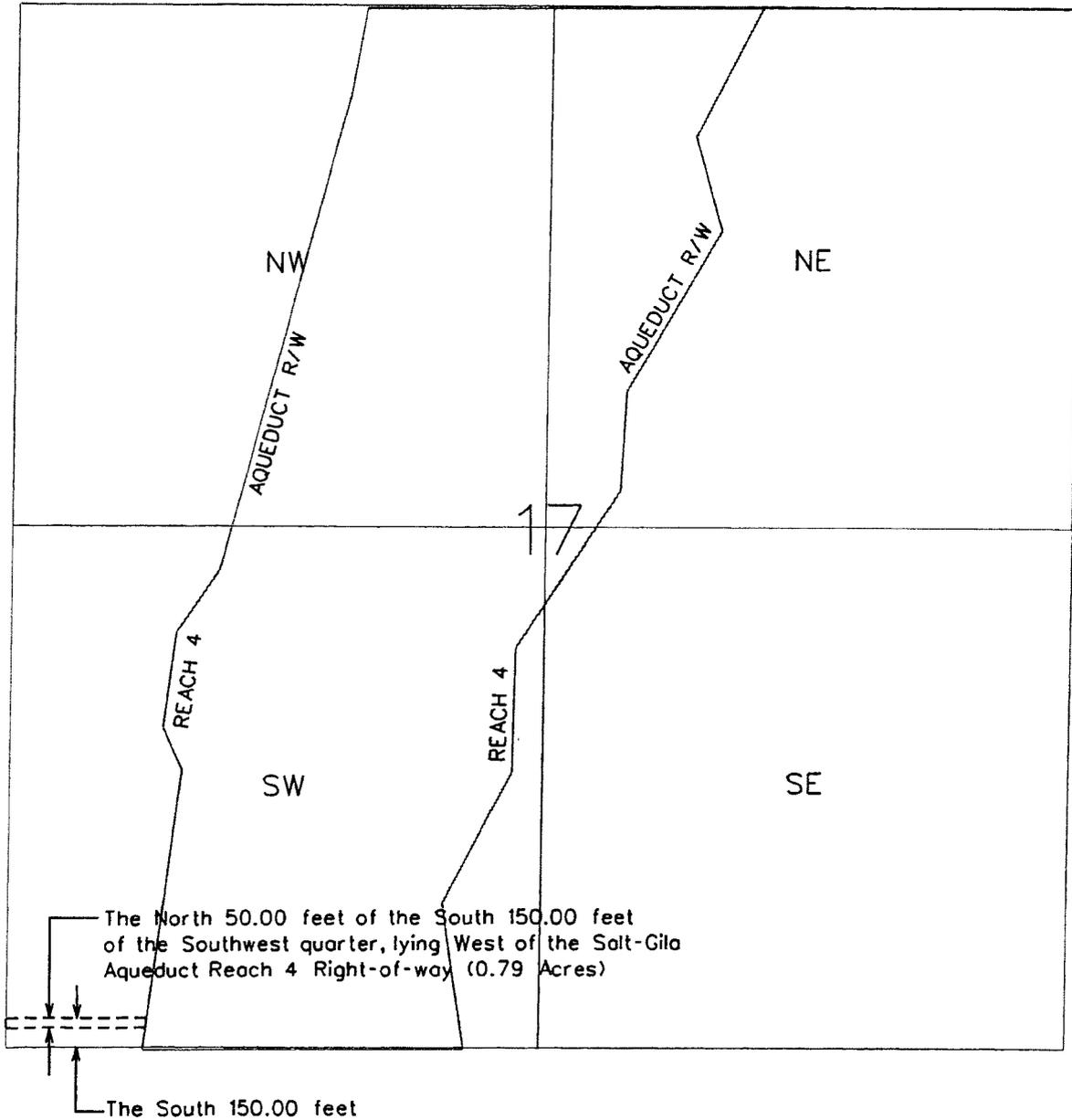


ARIZONA STATE LAND DEPT.

0.79 Acre

Revised 01.05.09 CB

1"=800'



20.12

EXHIBIT A
#14-108857
Page 5 of 6.

Legal Description

The North 50.00 feet of the South 150.00 feet of the Southeast quarter of Section 18, Township 6 South, Range 9 East of the Gila and Salt River Base and Meridian, Pinal County, Arizona. (3.02 Acres)

EXHIBIT A
#14-108857
Page 6 of 6.

SEC. 18

TWP. 6S.
RGE. 9E.

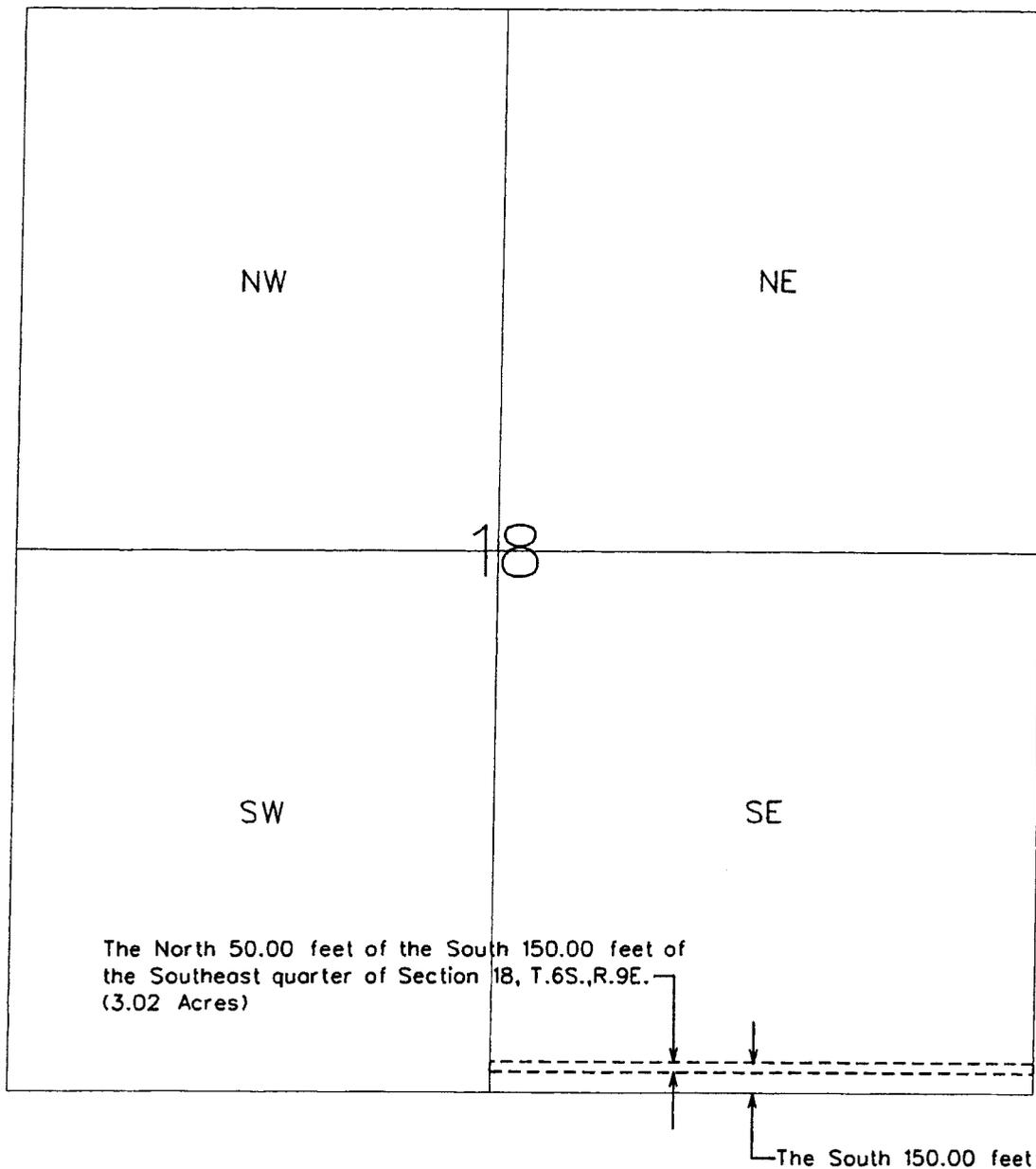


ARIZONA STATE LAND DEPT.

3.02 Acres

Revised 01.05.09 CB

1"=800'



20.12

STATE OF ARIZONA LAND DEPARTMENT
1616 W. ADAMS
PHOENIX, AZ 85007

RUN DATE 18-DEC-2009
RUN TIME: 09:33:18
APPENDIX A
PAGE: 001

KE-LEASE#: 014-108857-00-000 APPTYPE: NEW
AMENDMENT#: 0

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=====
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LAND#	LEGAL DESCRIPTION	AUS	ACREAGE
06.0-S-09.0-E-17-11-053-9004	N 50FT OF S 150FT LYING W OF 93-85542	0.00	0.790
06.0-S-09.0-E-18-11-031-9003	N 50FT OF S 150FT OF SE	0.00	3.020
	TOTALS:	0.00	3.810

20.12

IN WITNESS HEREOF, the parties hereto have signed this Right of Way effective the day and year set forth previously herein.

STATE OF ARIZONA, GRANTOR
Arizona State Land Commissioner

ARIZONA WATER COMPANY
GRANTEE

By: _____
Date

✓ Michael R. Lopez ✓ 3-31-10
Authorized Signature Date

(SEAL)

✓ ENGINEER
Title

✓ 3805 NORTH BLACK CANYON HIGHWAY
Address

✓ PHOENIX ✓ AZ ✓ 85015
City State Zip

GRANTEE'S CERTIFICATE OF CONSTRUCTION

RIGHT OF WAY NUMBER: _____

NAME OF GRANTEE: _____

DATE ISSUED: _____

PERMITTED USE: _____

LAND DEPARTMENT ADMINISTRATOR: _____

DATE CONSTRUCTION STARTED: _____

DATE CONSTRUCTION COMPLETED: _____

I hereby certify that the facilities authorized by the State Land Commissioner, were actually constructed and tested in accordance with the terms of the grant, in compliance with any required plans and specifications, and applicable Federal and State laws and regulations.

Grantee's Signature **Date**

Title

Return To: Arizona State Land Department
R/W Section
1616 W. Adams Street
Phoenix, AZ 85007

Vendor ID	Name	Payment Number	Check Date	Document Number	
ARIZO007	STATE OF ARIZONA	50016716	3/30/2010	028555	
Your Document Number	Date	Amount	Amount Paid	Discount	Net Amount Paid
128980	3/4/2010	\$18,883.00	\$18,883.00	\$0.00	\$18,883.00

\$18,883.00 \$18,883.00 \$0.00 \$18,883.00

LEFT AND RIGHT CHECK BORDERS ARE MICROPRINTING. VIEW UNDER MAGNIFICATION TO VERIFY AUTHENTICITY.



ARIZONA WATER COMPANY

GENERAL ACCOUNT

3805 N. BLACK CANYON HIGHWAY
 POST OFFICE BOX 29006
 PHOENIX, ARIZONA 85038-9006

Date
 3/30/2010

028555 91-170
 1221

Check Amount
 \$18,883.00

Eighteen Thousand Eight Hundred Eighty Three Dollars and 00 Cents

Pay to the Order of:

STATE OF ARIZONA
 STATE LAND DEPARTMENT
 1616 WEST ADAMS
 PHOENIX AZ 85007

R. W. Geate
Jackie R. Craig

THE BACK OF THIS CHECK CONTAINS WATERMARK. HOLD AT ANGLE TO VERIFY AUTHENTICITY.

20.12

Recorded at the request of **Capital Title Agency Inc.**
when recorded mail to



**OFFICIAL RECORDS OF
PINAL COUNTY RECORDER
LAURA DEAN-LYTLE**

Arizona Water Company

DATE/TIME: 01/13/05 1647
FEE: \$16.00
PAGES: 4
FEE NUMBER: 2005-004484

(A)

W/C

Special Warranty Deed

Escrow No. 1042105B

For the consideration of Ten Dollars, and other valuable considerations, I or we, **Boa Sorte Steele & Fast Tract, LLC, an Arizona Limited Liability Company as to an undivided 50% interest and Langley Desert View, L.L.C., an Arizona limited liability company as to an undivided 50% interest**, do/does hereby convey to **Arizona Water Company, an Arizona corporation**, the following real property situated in **Pinal**, County, Arizona:

See Exhibit A attached hereto and made a part hereof.

SUBJECT TO: all matters of record, all matters that an accurate survey or inspection would reveal, and any and all other matters of which Buyer or its officers and employees have actual knowledge.

And the Grantor hereby binds itself and its successors to warrant and defend the title, against all acts of the Grantor herein, and no other, subject to the matters set forth.

Dated this **10th** day of **January**, 2005

Boa Sorte Steele & Fast Tract LLC
By: **Boa Sorte Limited Partnership, sole member**
By: **Boa Sorte LLC, general partner**

Wilford R. Cardon

By: **Wilford R. Cardon, Manager**

Langley Desert View, L.L.C.

By: **Steven G. Rees, Manager**

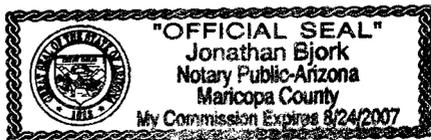
STATE OF [ARIZONA] } ss:
COUNTY OF Maricopa

This instrument was acknowledged before me this 12 day of January, 2005 by Wilford R. Cardon, Manager of Boa Sorte LLC, General Partner of Boa Sorte Limited Partnership, sole member of Boa Sorte Steele & Fast Tract, LLC

My Commission Expires: _____

Jonathan Bjork

Notary Public



STATE OF [ARIZONA]
COUNTY OF Maricopa

}ss:

This instrument was acknowledged before me this 12th day of January, 2005 by Steven G. Rees,
Manager of Langley Desert View, L.L.C.

My Commission Expires: April 21, 2008

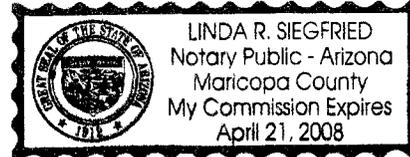


Exhibit A

That portion of the East half of the West half of Section 18, Township 6 South, Range 9 East of the Gila and Salt River Base and Meridian, Pinal County, Arizona lying East of the New Florence-Casa Grande Canal;

EXCEPTING THEREFROM 50% of all oil and mineral rights, as reserved in instrument recorded in Docket 723, Page 735, Pinal County Records.

20.12

Western Group Rate Case

Exhibit FKS-5



DOUGLAS A. DUCEY
Governor

THOMAS BUSCHATZKE
Director

ARIZONA DEPARTMENT of WATER RESOURCES
3550 North Central Avenue, Second Floor
Phoenix, Arizona 85012-2105
602.771.8500
azwater.gov

May 28, 2015

Arizona Water Company
Attn: Mr. Fredrick Schneider
3805 N. Black Canyon Highway
Phoenix, AZ 85015-5351

Re: Arizona Water Company, Underground Storage Facility (USF) Permit Application, No. 71-224242.0000, and Water Storage (WS) Permit Application, No. 73-224242.0000.

Dear Mr. Schneider:

The Arizona Department of Water Resources ("Department") has completed its review of the above referenced applications and has determined them to be administratively complete and correct under A.R.S. §§ 41-1074 and 45-871.01.

Pursuant to A.R.S. § 45-871.01, notice of these applications will be published in the Casa Grande Dispatch and will run for two consecutive weeks, after which there will be a fifteen (15) day objection period. The dates of publication will be June 4 and June 11, 2015, and the objection period will conclude on June 26, 2015. A copy of the public notice is enclosed. Please contact us immediately if you discover any inaccuracies in the notice.

Pursuant to A.R.S. § 45-871-01(E), public notice of this Water Storage Permit is required.

If you have any questions, please contact me at (602) 771-8622.

Sincerely,

A handwritten signature in cursive script that reads "Richard B. Obenshain".

Richard B. Obenshain, Manager
Recharge, Assured & Adequate Water Supply Programs

Enclosure

RBO/slr

**LEGAL NOTICE
ARIZONA DEPARTMENT OF WATER RESOURCES
BEFORE THE DIRECTOR**

In the matter of application number 71-224242.0000 for an underground storage facility permit and application number 73-224242.0000 for a water storage permit, located within the Eloy Sub-basin of the Pinal Active Management Area, the Director gives notice that Arizona Water Company has filed the above referenced applications pursuant to Arizona Revised Statutes, §§ 45-811.01 and 45-831.01.

The Pinal Valley Recharge Project Underground Storage Facility is located within a portion of the western ½ of Sec. 18, Township 6 South, Range 9 East, GSRB&M. The applicant proposes to store up to 10,884 acre-feet per year of CAP water at the Arizona Water Company Pinal Valley Recharge Project Underground Storage Facility for 20 years. The duration of water storage permit, application number 73-224242.0000, is to coincide with underground storage facility permit, application number 71-224242.

Copies of the underground storage facility permit application and the water storage permit application, including documentation and detailed maps of the location of the proposed storage, are available for review in the Water Planning Division, a section of the Department of Water Resources located at 3550 North Central Ave., Phoenix, Arizona 85012.

Objections to the issuance of these permits may be filed by persons who may be adversely affected by these projects and must be filed, in writing, with the Docket Supervisor of the Department of Water Resources, Legal Division, 3550 North Central Ave., 2nd Floor, Phoenix, Arizona 85012, within fifteen (15) days after the last day of publication of this notice. For these applications, the final date on which an objection may be filed is June 26, 2015. Objections are limited to whether the application for the underground storage facility permit meets the criteria of Arizona Revised Statutes, § 45-811.01, and whether the application for the water storage permit meets the criteria of Arizona Revised Statutes, § 45-831.01. An objection shall state the name and mailing address of the objector, be signed by the objector, his agent, or attorney, and must clearly set forth reasons why the permits should not be issued.

**Issued this 29th day of May, 2015
Thomas Buschatzke
Director**

Publication Dates: June 4, 2015 and June 11, 2015

Western Group Rate Case

Exhibit FKS-6

ID	Task Name	Duration	Start	Finish	Predecessors	2nd Quarter	3rd Quarter	4th Quarter	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	1st Quarter	
1	Preliminary Engineering	363 days	Wed 5/21/14	Fri 9/25/15														
2	Data Collection	18 days	Wed 5/21/14	Fri 6/13/14														
3	Collect Hydrogeologic Data	10 days	Wed 5/21/14	Tue 6/3/14														
4	Pre-Engineering Analysis of Hydrogeologic Data	8 days	Wed 6/4/14	Fri 6/13/14.3														
5	Conduct Initial Field Investigation	20 days	Mon 6/16/14	Fri 7/11/14.2														
6	Soil Borings	10 days	Mon 6/16/14	Fri 6/27/14														
7	Infiltration Testing	10 days	Mon 6/30/14	Fri 7/11/14.6														
8	Detailed Field Investigation	49 days	Mon 7/14/14	Thu 9/18/14.5														
9	Drill Exploratory Holes	5 days	Mon 7/14/14	Fri 7/18/14														
10	Field Sampling	15 days	Mon 7/21/14	Fri 8/8/14.9														
11	Pilot Recharge Basin Testing and Evaluation	15 days	Mon 8/11/14	Fri 8/29/14.10														
12	Aquifer Characterization	14 days	Mon 9/1/14	Thu 9/18/14.11														
13	USF Permit	266 days	Fri 9/19/14	Fri 9/25/15.8														
14	Groundwater Model	30 days	Fri 9/19/14	Thu 10/30/14														
15	Preliminary Engineering Report	25 days	Fri 10/31/14	Thu 12/4/14.14														
16	Prepare ADWR Application	10 days	Fri 12/5/14	Fri 12/19/14.17SF.15														
17	Submit Application to ADWR	1 day	Fri 12/19/14	Fri 12/19/14														
18	ADWR Review and Approval	200 days	Mon 12/22/14	Fri 9/25/15.17														
19	Design	205 days	Mon 7/20/15	Fri 4/29/16														
20	Preliminary Engineering	45 days	Mon 7/20/15	Fri 9/18/15														
21	Survey	40 days	Mon 7/20/15	Fri 9/11/15														
22	Select CAP Delivery Option	35 days	Mon 7/20/15	Fri 9/4/15.21SS														
23	Transmission Main Analysis	45 days	Mon 7/20/15	Fri 9/18/15.21SS														
24	30% Design	40 days	Mon 9/21/15	Fri 11/13/15.20														
25	CAP Delivery Structure	40 days	Mon 9/21/15	Fri 11/13/15														
26	Transmission Main	40 days	Mon 9/21/15	Fri 11/13/15														
27	Recharge Basin No. 1	40 days	Mon 9/21/15	Fri 11/13/15														
28	30% Design Report	15 days	Mon 10/26/15	Fri 11/13/15.27FF														
29	60% Design	60 days	Mon 11/16/15	Fri 2/5/16.25														
30	CAP Delivery Structure	60 days	Mon 11/16/15	Fri 2/5/16														
31	Transmission Main	60 days	Mon 11/16/15	Fri 2/5/16														
32	Recharge Basin No. 1	60 days	Mon 11/16/15	Fri 2/5/16														
33	60% Design Report	20 days	Mon 1/11/16	Fri 2/5/16.32FF														
34	90% Design	40 days	Mon 2/8/16	Fri 4/1/16.29														
35	CAP Delivery Structure	40 days	Mon 2/8/16	Fri 4/1/16														
36	Transmission Main	40 days	Mon 2/8/16	Fri 4/1/16														
37	Recharge Basin No. 1	40 days	Mon 2/8/16	Fri 4/1/16														
38	90% Design Report	15 days	Mon 3/14/16	Fri 4/1/16.37FF														
39	100% Design	20 days	Mon 4/4/16	Fri 4/29/16.34														
40	CAP Delivery Structure	20 days	Mon 4/4/16	Fri 4/29/16														
41	Transmission Main	20 days	Mon 4/4/16	Fri 4/29/16														

Project: PV USF Schedule
Date: Thu 7/23/15

Task Split

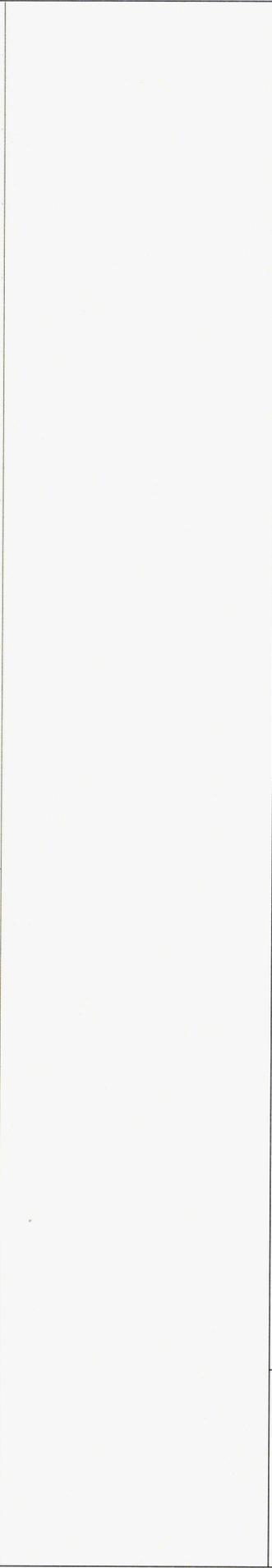
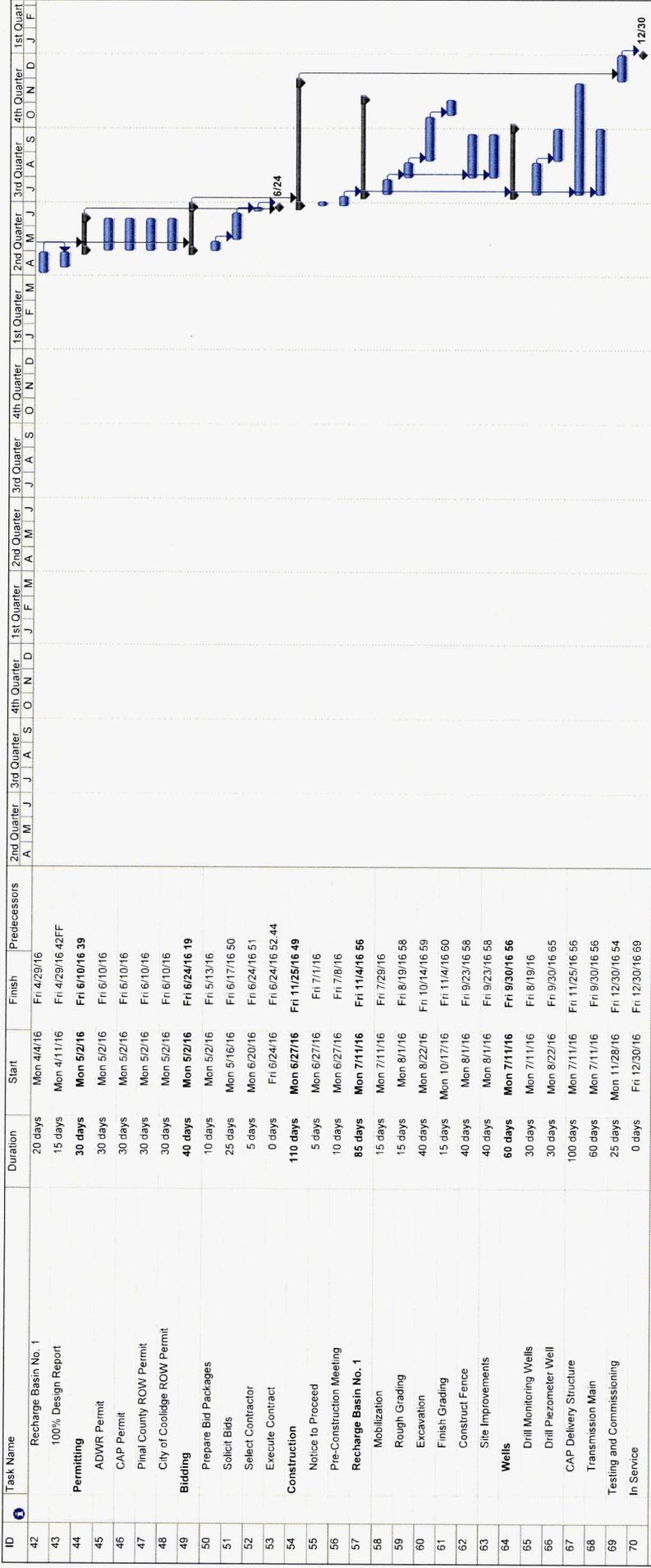
Progress Milestone

Summary Project Summary

External Tasks External Milestones

Deadline

Page 1



Western Group Rate Case

Exhibit FKS-7

ASU study: Parts of metro Phoenix area are sinking

 [Anne Ryman](#), The Republic | azcentral.com 7:22 p.m. MST August 12, 2015

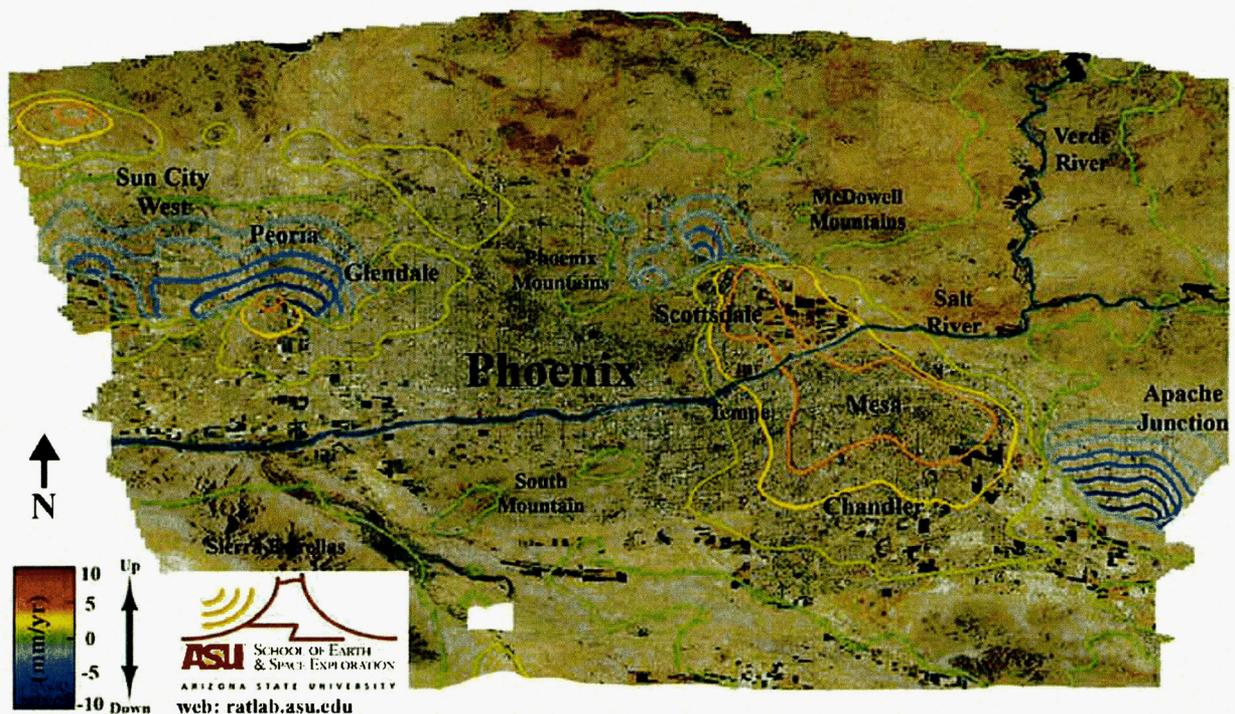
Ground elevation levels in Apache Junction are seeing the fastest drop, followed by Sun City West, Peoria and the north Valley, ASU researchers say.

Story Highlights

- ASU scientist say ground elevation levels are changing in parts of metro Phoenix
- Groundwater pumping before 1980 led to the problem
- Fissures in the ground can form when the elevation drops

8/11/2015

miller_shirzaei_jgr2015.jpg (1200x713)



Parts of metro Phoenix are sinking by about three-quarters of an inch a year, according to new research by Arizona State University.

The culprit: large amounts of groundwater pumped years ago.

Scientists at ASU's School of Earth and Space Exploration say ground-elevation levels in Apache Junction are seeing the fastest drop. Sun City West, Peoria and the north Valley are also descending.

People shouldn't panic, said ASU researcher Megan Miller, co-author of the study published recently in the *Journal of Geophysical Research*.

"If anything this is slow. It's rarely going to cause anything you would associate with a disaster. It can be a nuisance but has the potential to cause costly structural damages, and is something to keep an eye on," she said.

The study didn't examine whether people in the affected areas are seeing an impact.

If the trend continues over several years, more cracks in the ground called fissures will develop, she said.

Fissures can threaten canals, utility lines, water mains, storm drains and sewers. The foundations of homes and buildings can be damaged as ground levels drop. Changes in ground level also can affect where flood waters flow as water typically seeks the lowest spot when floods occur.

State officials have been aware of what's called "land subsidence" — where the earth collapses and drops — for years.

The Arizona Department of Water Resources is working with NASA to collect radar data to compliment the department's data and maps on where land has subsided. The department has been collecting and processing data since 2002 to monitor land subsidence, which is occurring over 2,800 square miles in Arizona.

The department says land subsidence has been happening in Arizona since the early 1900s with parts of Maricopa and Pinal Counties subsiding more than 18 feet since then. In Arizona, land subsidence in so-called geographical basin areas like the Valley is usually due to a lowered water table, according to the department.

But not all areas of the Valley are sinking, the ASU study found. Parts of Scottsdale, Chandler and Mesa have risen by as much as half a centimeter. ASU scientists say they did not observe a change in most of the city of Phoenix.

So how did it happen?

Miller said the variations of subsidence around the Valley depends on the composition of aquifer layers, the layer thicknesses and bedrock structure, as well as how much groundwater was removed.

When water was pumped out, the sediment layers essentially resettled after breaching a certain level of stress, leaving less available space for water than before and causing the ground level above to drop.

The study attributes the dropping water levels to water pumped from subsurface aquifers before 1980. Legislation passed in 1980 reduced the amount of groundwater pumping, with much of the Valley relying on the Central Arizona Project canal for surface water.

But even with the reduced groundwater pumping — and subsequent increase in the groundwater level — research published in 2005 and 2011 found the ground continued sinking and cracking in parts of the Phoenix metro area and other locations, including Tucson, Casa Grande and Eloy.

In the Valley, fissures have been reported in places including Apache Junction, Queen Creek, Chandler and Scottsdale. Some Valley homeowners have even filed claims and lawsuits against real-estate agents and builders, hoping to be compensated for property damage from fissures they say they weren't told about.

The Arizona Geological Survey is mapping the fissures and [posts the data online](#).

The ground sinking is not unique to the Valley. It's also occurring in southwestern Arizona and agricultural valleys in California.

Land subsidence also has been identified in Denver, Colo., the New Jersey coast, Savannah, Ga., and New Mexico's Albuquerque Basin. The U.S. Geological Survey has identified more than 17,000 square miles of land subsidence in 45 states, an area equivalent to the size of New Hampshire and Vermont combined.

Once the resettlement of the layers, or compaction, occurs, there's nothing scientists can do to stop or reverse it, ASU's Miller said.

"It's important we, as scientists, get a better understanding of what's happening," she said, "so we can get a better idea of what the effects will be if we have to change our pumping rates or if we withdraw more water."

The Bureau of Reclamation has projected about a 1-in-3 chance that as a result of the prolonged Southwestern drought Lake Mead will drop low enough to force Arizona to forgo some of its usual Colorado River water deliveries. The bureau has also forecast a better than a 2-in-3 chance that it will happen in 2017. The agency plans to release a new 24-month projection on Monday.

Any water shortage will initially affect central Arizona farmers, but a prolonged or deepening cut in supplies could force the state to start drawing water from its underground storage.

If Phoenix is forced to increase groundwater pumping due to the drought, that could affect both the extent of land subsidence and the rate at which it occurs, Miller said..

The ASU study used satellite data dating back to 1992 to examine elevation levels around the Valley and compare changes over time.

Miller and the study's co-author, ASU professor Manoochehr Shirzaei, plan to continue their research, including a model to predict where fissures in the ground could form.

Their research group, the Remote Sensing and Tectonic Geodesy Laboratory, or RaTLaB for short, uses remote sensing to observe and model deformation in the ground due to natural processes: subsidence, volcanic activity , earthquakes and landslides.

Reporter Brandon Loomis contributed to this story.

Reach the reporter at: 602-444-8072 or anne.ryman@arizonarepublic.com.

Western Group Rate Case

Exhibit FKS-8

Permitted recovery wells:

Well Registration Number	Location of Well (All located within GSRB&M)	Design Pump Capacity (GPM)	Well Depth (Feet)	Casing Diameter (Inches)	Maximum Annual Recovery (Acre Feet)
55-208822	SE $\frac{1}{4}$, SE $\frac{1}{4}$, SE $\frac{1}{4}$, Sec. 22, T6S, R6E	1000	1500	18	1129
55-210293	NE $\frac{1}{4}$, SW $\frac{1}{4}$, SE $\frac{1}{4}$, Sec. 20, T5S, R8E	750	2005	19	1161
55-210294	SW $\frac{1}{4}$, NE $\frac{1}{4}$, SE $\frac{1}{4}$, Sec. 15, T6S, R6E	1200	1506	18	1156
55-212419	NE $\frac{1}{4}$, NW $\frac{1}{4}$, NW $\frac{1}{4}$, Sec. 20, T5S, R8E	1500	2258	19	1129
55-212523	NE $\frac{1}{4}$, SW $\frac{1}{4}$, NE $\frac{1}{4}$, Sec. 25, T6S, R6E	800	1000	19	1290
55-214248	NE $\frac{1}{4}$, SW $\frac{1}{4}$, NE $\frac{1}{4}$, Sec. 36, T6S, R6E	1500	1200	19	1850
55-506809	SW $\frac{1}{4}$, SE $\frac{1}{4}$, SW $\frac{1}{4}$, Sec. 22, T6S, R6E	800	1238	20	1290
55-513443	NW $\frac{1}{4}$, NW $\frac{1}{4}$, NW $\frac{1}{4}$, Sec. 21, T6S, R6E	800	1230	12	1291
55-522319	NE $\frac{1}{4}$, NE $\frac{1}{4}$, NW $\frac{1}{4}$, Sec. 22, T6S, R6E	1600	1005	18	2016
55-526586	SW $\frac{1}{4}$, SE $\frac{1}{4}$, NE $\frac{1}{4}$, Sec. 19, T6S, R4E	230	1002	18	685.5
55-540306	SE $\frac{1}{4}$, SE $\frac{1}{4}$, SW $\frac{1}{4}$, Sec. 22, T6S, R6E	1000	1000	18	1137
55-546719	NE $\frac{1}{4}$, SE $\frac{1}{4}$, NW $\frac{1}{4}$, Sec. 22, T6S, R6E	1600	1074	18	2580
55-560803	SE $\frac{1}{4}$, SE $\frac{1}{4}$, SW $\frac{1}{4}$, Sec. 15, T6S, R6E	1200	1240	18	1828
55-568553	NE $\frac{1}{4}$, NE $\frac{1}{4}$, NW $\frac{1}{4}$, Sec. 5, T6S, R7E	500	1110	19	1202
55-571205	SE $\frac{1}{4}$, SE $\frac{1}{4}$, SE $\frac{1}{4}$, Sec. 35, T7S, R6E	500	1387	18	2322
55-595284	NW $\frac{1}{4}$, SW $\frac{1}{4}$, NW $\frac{1}{4}$, Sec. 25, T6S, R6E	1500	1120	18	1153
55-616582	SW $\frac{1}{4}$, SE $\frac{1}{4}$, SW $\frac{1}{4}$, Sec. 9, T7S, R5E	n/a	1048	16	n/a
55-616583	SE $\frac{1}{4}$, SE $\frac{1}{4}$, SE $\frac{1}{4}$, Sec. 6, T7S, R5E	750	650	20	n/a
55-616588	NW $\frac{1}{4}$, SE $\frac{1}{4}$, SE $\frac{1}{4}$, Sec. 1, T8S, R6E	300	1100	16	n/a
55-616593	SW $\frac{1}{4}$, SW $\frac{1}{4}$, SW $\frac{1}{4}$, Sec. 9, T7S, R5E	n/a	1022	16	n/a
55-616594	SE $\frac{1}{4}$, NW $\frac{1}{4}$, NW $\frac{1}{4}$, Sec. 9, T6S, R6E	400	1055	16	n/a
55-616595	SW $\frac{1}{4}$, NW $\frac{1}{4}$, NW $\frac{1}{4}$, Sec. 21, T6S, R6E	1000	1260	20	n/a
55-616596	SE $\frac{1}{4}$, SE $\frac{1}{4}$, NW $\frac{1}{4}$, Sec. 9, T6S, R6E	1100	1100	16	n/a
55-616597	NE $\frac{1}{4}$, NW $\frac{1}{4}$, NE $\frac{1}{4}$, Sec. 21, T6S, R6E	425	1203	20	n/a

Permit No. 74-224234.0000

LTSA No. 70-431230.0000

Well Registration Number	Location of Well (All located within GSRB&M)	Design Pump Capacity (GPM)	Well Depth (Feet)	Casing Diameter (Inches)	Maximum Annual Recovery (Acre Feet)
55-616601	NW¼, SW¼, SW¼, Sec. 15, T6S, R6E	450	805	16	n/a
55-616603	NW¼, NW¼, SW¼, Sec. 23, T6S, R6E	1500	1000	20	n/a
55-616604	SE¼, NE¼, NW¼, Sec. 22, T6S, R6E	1200	1000	20	n/a
55-616605	NE¼, NW¼, NE¼, Sec. 25, T5S, R6E	85	320	10	n/a
55-616606	NE¼, NE¼, SW¼, Sec. 22, T5S, R8E	1150	1105	20	n/a
55-616608	NE¼, SW¼, NW¼, Sec. 10, T5S, R8E	1360	475	20	n/a
55-616609	NE¼, SW¼, NW¼, Sec. 10, T5S, R8E	1200	1000	20	n/a
55-616682	SE¼, SE¼, NE¼, Sec. 36, T6S, R7E	800	578	20	n/a
55-616683	SW¼, SE¼, NE¼, Sec. 36, T6S, R7E	400	508	20	n/a
55-616684	SW¼, SW¼, SW¼, Sec. 20, T6S, R4E	350	811	16	n/a
55-616686	SW¼, SE¼, SW¼, Sec. 17, T5S, R9E	240	345	10	n/a
55-616687	SW¼, SE¼, SW¼, Sec. 17, T5S, R9E	312	700	8	n/a
55-620899	NW¼, NE¼, NE¼, Sec. 4, T6S, R9E	333	475	16	n/a
55-620900	NW¼, NE¼, NE¼, Sec. 4, T6S, R9E	1000	545	16	n/a
55-801030	SE¼, SE¼, NE¼, Sec. 36, T6S, R7E	600	585	20	n/a

An "n/a" under the column titled "Maximum Annual Recovery (Acre Feet)" signifies a pre-code well for which there is no annual volume limit.

Recovered water will be used for: Municipal Purposes

Legal description of the land on which recovered water will be used: Within the Arizona Water Company Pinal Valley Public Water System service area

Effective Date: Effective upon signature

Permit Conditions

1. The quantity of water recovered shall be reported to the Arizona Department of Water Resources, 3550 North Central Ave., Phoenix, Arizona, 85012 in the form of annual data reports. The annual report shall be submitted no later than March 31 following the end of each completed annual reporting period. The first annual reporting period shall be from the effective date of this permit through December 31, 2015. Subsequent annual reporting periods shall be January 1 through December 31.

2. The annual report shall include the following information:
 - a. The well registration number and location of the wells used to recover stored water.
 - b. For each recovery well from which stored water was recovered during the year, the quantity of stored water recovered from the well, as measured in a manner consistent with the requirements and specifications for water measuring devices adopted pursuant to A.R.S. § 45-872.01; the Water Storage Permit Number(s) from which the water storage originated; the amount of recovery (in acre feet) attributed to each Water Storage Permit; the amount and source of stored water recovered on an annual basis; and the amount and source of stored water recovered from a long-term storage account.
 - c. For each recovery well from which water was recovered during the year, whether recovery occurred inside or outside the area of impact of the stored water.

3. Total withdrawals from the wells referenced below, including all production and recovery regardless of ownership, shall not exceed the following specified annual volume limits:

<u>Well Registration Numbers</u>	<u>Acre Feet per Annum Limit</u>
55-208822	1129
55-210293	1161
55-210294	1156
55-212419	1129
55-212523	1290
55-214248	1850
55-506809	1290

Permit No. 74-224234.0000

LTSA No. 70-431230.0000

55-513443	1291
55-522319	2016
55-526586	685.5
55-540306	1137
55-546719	2580
55-560803	1828
55-568553	1202
55-571205	2322
55-595284	1153

4. Recovery of stored water shall continue to be consistent with the management plan and achievement of the management goal for the Pinal Active Management Area for the duration of this permit.
5. Permittee may only recover the following:
 - a. Water stored by permittee in the Pinal AMA pursuant to permittee's Water Storage Permits, or
 - b. Long-term storage credits originating from water stored by another person pursuant to a water storage permit in the Pinal AMA, that have been assigned to permittee's long-term storage account pursuant to A.R.S. § 45-854.01.
6. If ownership of the wells listed above changes at any time after the permittee has applied for this recovery well permit, the permittee shall submit to the Department written consent from the new well owner or other documentation that the permittee may legally continue to operate the well as its recovery well.

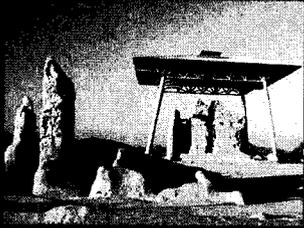
WITNESS my hand and seal of office this 9th day of June, 2015.



Michael Johnson, Ph.D., P.E.
Assistant Director

Western Group Rate Case

Exhibit FKS-9



2025 GENERAL PLAN

THE FUTURE TODAY



ADOPTED JUNE 23, 2014

Acknowledgements

City Council

Mayor Thomas R. Shope
Vice Mayor Gilbert Lopez
Councilmember Richard Lister
Councilmember Steve Hudson
Councilmember Jon Thompson
Councilmember Judy Rotz-Lopez
Councilmember Jacque Hendrie-Henry

Planning & Zoning Commission

Chairman Nitza Verdugo-London
Vice Chairman Billie Jo Garcia
Commissioner Don Williams
Commissioner William Pertzborn Jr.
Commissioner Norma Polee-Muhammad
Commissioner A. Brent Kempton
Commissioner John Hill
Commissioner Ken Bolan

City Team

Robert Flatley, City Manager
Jill Dusenberry, Assistant City Manager
Rick Miller, Growth Management Director
Susanna Struble, Public Works Director
Ricky Lapaglia, Parks & Recreation Director
Carol Alejandrez, Permit Technician
Tony Roth, Webmaster/Channel 11
Tim Hansen, GIS Coordinator

Special Thanks

Arizona Water Company
Coolidge Chamber of Commerce
Coolidge Youth Coalition
Wilson & Company
TischlerBise Inc.
Coolidge Examiner

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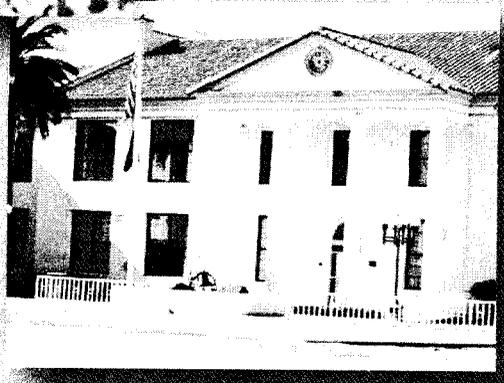
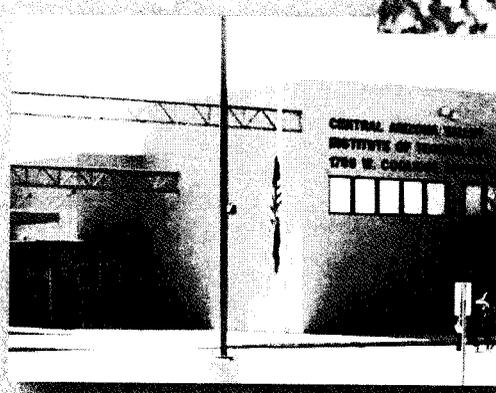
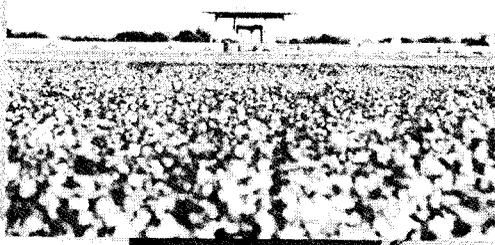
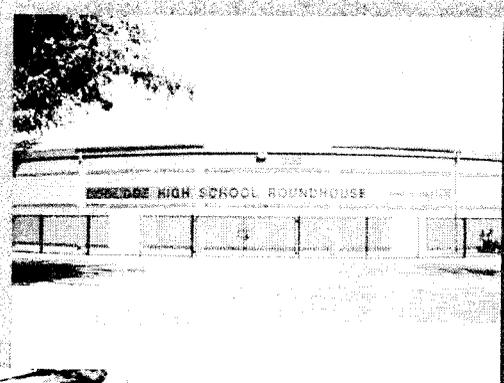
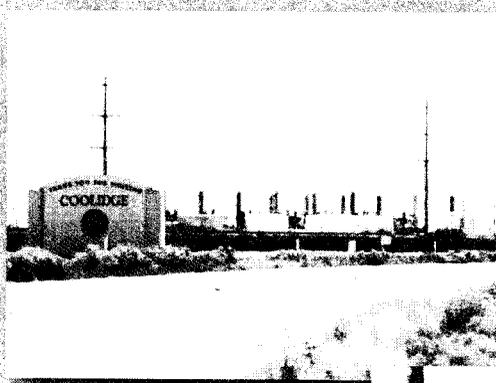
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CHAPTER 1: INTRODUCTION





Introduction

GENERAL PLAN PROCESS & PUBLIC PARTICIPATION PLAN

The Mayor and City Council directed City staff to seek public input and prepare a new City of Coolidge General Plan to replace the General Plan Update adopted on November 10, 2003. This sixteen month planning effort began in January 2013 with a General Plan Kick-off meeting and discussion about Land Use. Every month thereafter through July the Growth Management Department held public meetings to review and receive comment on the six other elements of the plan including Circulation, Growth Areas, Parks, Open Space and Trails, Cost of Development, Water Resources and Environmental.

The next seven months of the planning process involved monthly public meetings on the evening of the regularly scheduled Planning and Zoning Commission meeting. A series of monthly newsletters were published and distributed throughout the City. Every General Plan meeting was televised and these recordings are available on the City of Coolidge website at www.coolidgeaz.com. The Coolidge Examiner was also instrumental in keeping the public informed through detailed reporting of each planning meeting.

Most City General Plans including the November 2003 update are filled with text and data that can be useful but difficult to read. This General Plan is going to be an exception to that rule. The Growth Management Department has made a special effort to introduce more pictures, graphics and charts and limiting the text. It is said "a picture is worth a thousand words" so this plan will be full of illustrations.

Formal 60 day review of the draft plan was held from March 5, 2014 through May 1, 2014 with the formal adoption of the plan by City Council on June 23, 2014. Following the statutory 120 day waiting period from City Council approval, the General Plan 2025 will be presented on the ballot during the City of Coolidge General Election on November 4, 2014.

Community Vision Statement

The preparation of the City of Coolidge General Plan-2025 began in January 2013 during a kick-off meeting attended by a diverse group of eager participants. Three questions were asked:

- * How would you describe Coolidge as it is today to someone who has never been to the City?
- * What words or phrases (be romantic) would you want to be able to use to describe Coolidge in the future?
- * What challenges do you think Coolidge may face in achieving these future visionary statements?

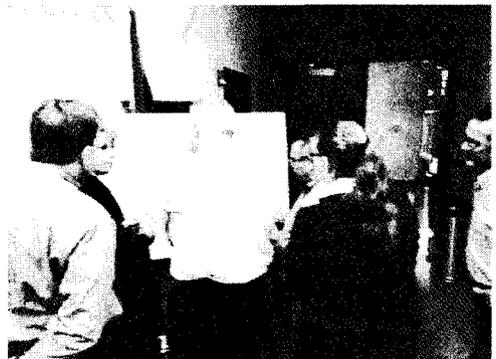
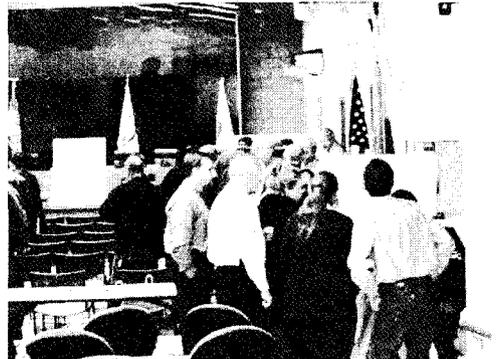
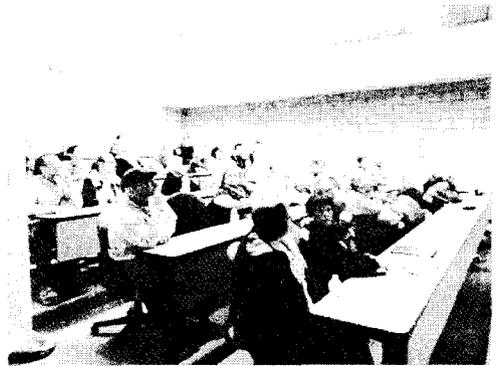
The answers to these questions were integrated into the following "Community Vision Statement" that describes the city we are proud to call our home:

Historic Coolidge, Arizona is:

Located midway between Phoenix and Tucson in the heart of the Sun Corridor. It is a safe community built on a solid foundation shaped by faith and family values. This home to the early ancestors of the Pima Indians is an up and coming cultural arts hub within Pinal County and continues to be a major agricultural center and a great place to start a business. It is rich in educational programs including the Coolidge Unified School District, Imagine Charter School, Central Arizona Vocational Institute of Technology and Central Arizona College.

In 2025 Coolidge will be:

A warm, inviting, and beautiful City with prospering individuals, strong families and active seniors. It is a well planned and managed city having strong and capable leadership. Cultural and recreational opportunities flourish and it is the epicenter of educational excellence. It is a city that has attracted quality businesses and industry creating jobs to keep our young people working, prospering, and growing a strong tax base that is re-invested here. The City is a wise steward of its natural resources and continues to be capable of delivering the necessary public services to support new growth. It is a City with acceptable laws and regulations that are sensitive to business and promote quality development.



INTRODUCTION

Community History and Regional Setting

Archaeologists date human occupation of the Coolidge area as early as 300 A.D. beginning with the Hohokam who lived in Central Arizona for hundreds of years. The Hohokam established farming communities that included irrigation canals. The extensive irrigation system diverted water from the Gila and Salt Rivers for agricultural purposes throughout the Gila River Valley. Between 1200 – 1450 A.D., the Hohokam built walled villages, including the Casa Grande Ruins, during the 1300s. Around 1450 A.D., the Hohokam villages, including the Casa Grande Ruins, were abandoned.



The Hohokam ruins were discovered by Europeans during the 1600s but were left undisturbed until the 1900s when active settlement of the area began. At the time of the European discovery, the Pima, thought to be descendants of the Hohokam, were living in the area. In 1694 A.D., Father Eusebio Francisco Kino, a Jesuit Missionary, discovered and named the Casa Grande Ruins, which translated means “Big House” or “Great House”.

In 1884 A.D., a petition was submitted to protect the ancient ruins of Casa Grande. By this time, weathering and the removal of artifacts had already damaged the ruins. In 1918, the Casa Grande Ruins were officially proclaimed a National Monument and the Country's first archaeological preserve.

In 1924 the San Carlos Irrigation Canal was completed and the area around Coolidge became a major agricultural area. By 1925, the Southern Pacific Railroad was completed through the community and the City of Coolidge was founded. Richard J. Jones platted the original 80-acre town site that was later named after President Calvin Coolidge who dedicated the Coolidge Dam on the Gila River in 1930. Also in the 1920s the Coolidge-Picacho link of the Tucson-Phoenix highway was completed.



The City's economic base continued to be based on farming through the 1950's. The City grew as the commercial center of Arizona's cotton industry until the late 1940's when mechanization of cotton production slowed population growth of the area. Retail shifted during the 1950's from servicing the needs of cotton farmers into manufacturing and mining. Interest in the Casa Grande Ruins placed a greater emphasis on the tourism industry. The

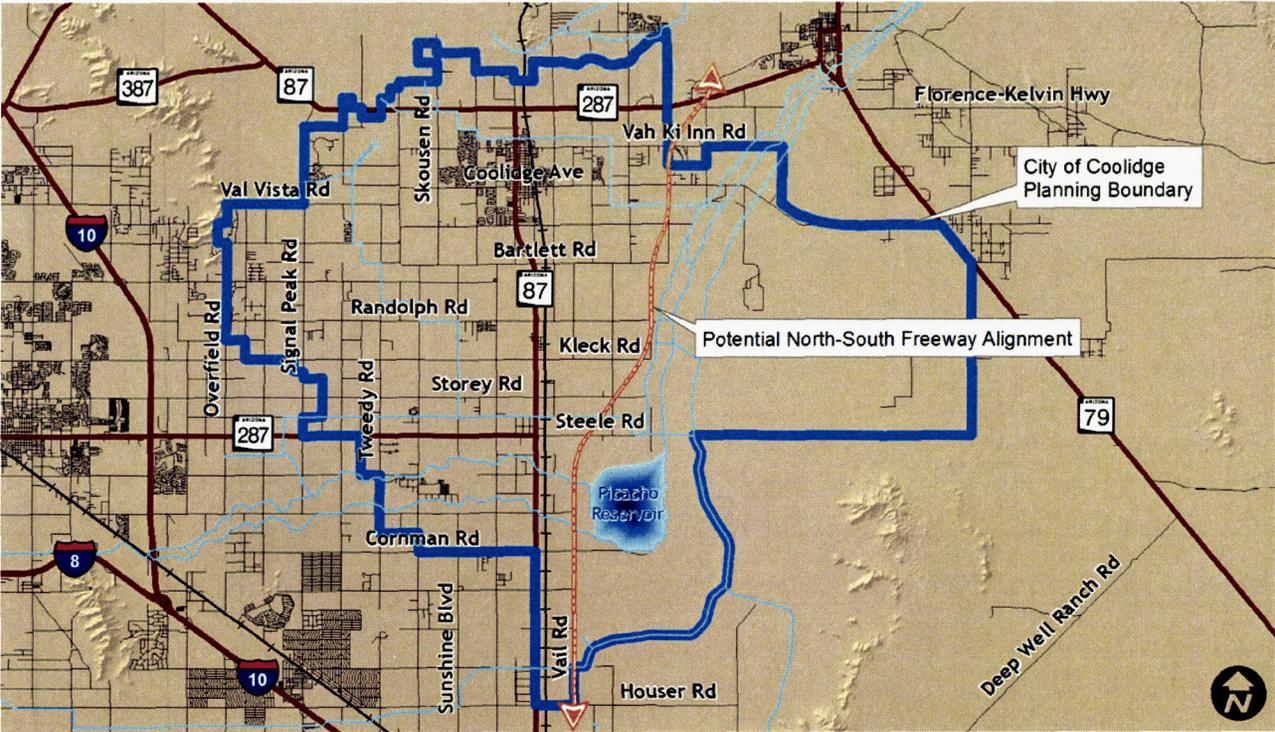
City continued to maintain its importance as a regional trade and service center until the shift to discount retailing, which was established in Casa Grande during the 1980's.

The Coolidge Municipal Airport, located southeast of the City, is a general aviation airport serving Coolidge and Florence. This historic airport was originally constructed in the early 1940's for the Army Air Forces as an air transport command base and served as an auxiliary operating base to Williams Airfield during World War II. The City owns and operates the Airport which will become a significant employment center as the region builds out.



The City of Coolidge is located in central Pinal County between the metropolitan areas of Phoenix and Tucson. It is situated in the heart of what many call the "Sun-Corridor" which is one of the fastest growing Mega Regions in the Country over the past few decades. The Arizona Department of Transportation has been studying routes for a future North South freeway corridor connecting the East Valley at the US 60 in Apache Junction with Interstate 10 just south of Eloy near Picacho Peak State Park. The economic impact that a North South Freeway will have on the City is significant and one of the most important transportation and land use goals that must be addressed by local, county and state leaders as well as private property interests.

Figure 1.1 : North-South Freeway



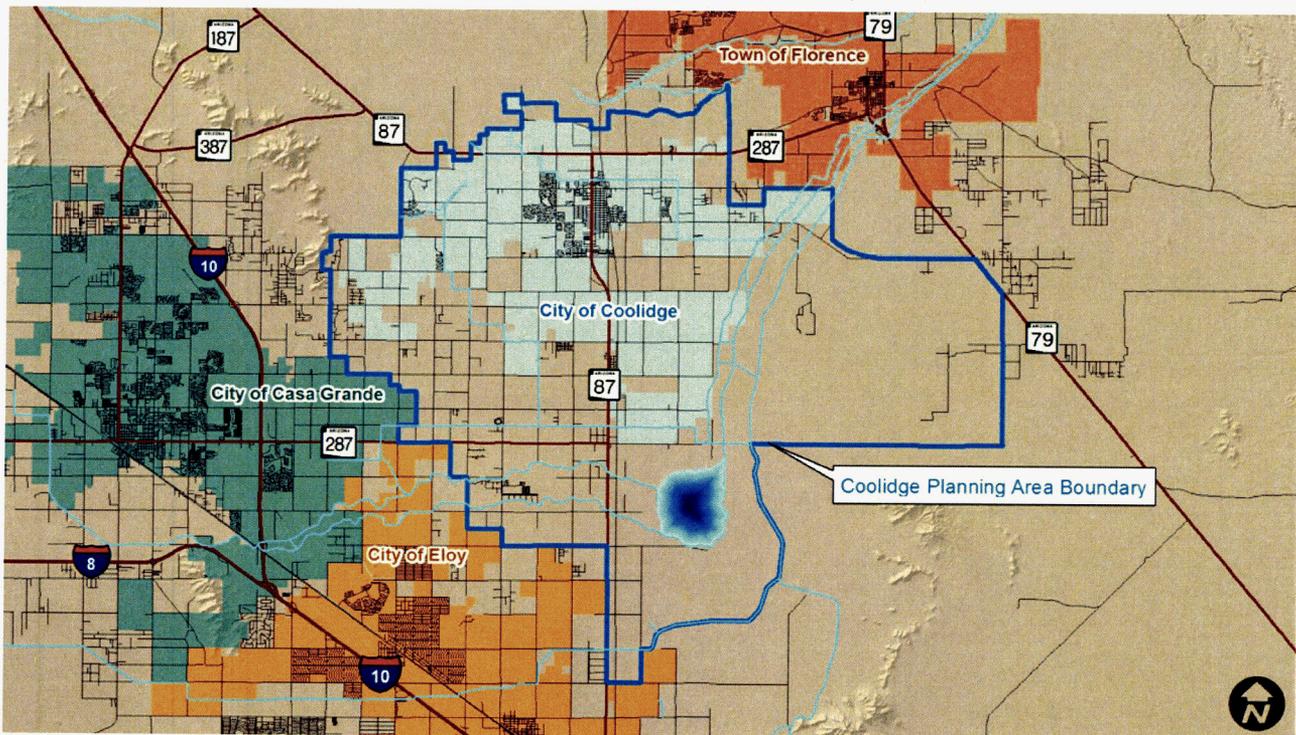
Planning Area Boundary

The City of Coolidge Planning Area Boundary is approximately 117,026 acres or 183 square miles. A Planning Area Boundary defines the area which the City will establish long range planning goals and policies including but not limited to: pre-annexation development agreements, annexation, infrastructure planning, zoning facilitation, subdivision facilitation, specific area planning etc.

It should be noted that the Planning Area Boundary may be expanded upon request by property owners to expand the City limits boundary beyond the existing Planning Area Boundary. Efforts by the City to extend the Planning Area Boundary are considered to be minor amendments to the General Plan and will be coordinated together with annexation of property that necessitates the expansion of the Planning Area Boundary.

In 2005, the City of Coolidge and the City of Casa Grande entered into an intergovernmental agreement to establish a mutual understanding of where the two jurisdictions eastern and western boundaries would extend respectfully. Since 2005, the City of Casa Grande received an annexation request by property owners to be annexed. The mutually agreed upon boundary was revised following the annexation of that property into the City of Casa Grande. The intergovernmental agreement is no longer in place. The City of Coolidge does not have a similar intergovernmental agreement with the Town of Florence or the City of Eloy and will consider annexation request by property owners that expand the Coolidge Planning Boundary into these adjacent community planning areas.

Figure 1.2 : Planning Area Boundary



Environmental Characteristics

Environmental characteristics describe the physical and man-made conditions in the City and the surrounding area, which is presented in the following sub-sections:

TOPOGRAPHY AND SLOPE

The study area geographically falls within the basin and range province of Southern Arizona, consisting of broad, expansive valleys interrupted by rugged mountain terrain. Typically, the valleys consist of a deep alluvial fill, due to erosion of nearby mountains. Elevation ranges from 2,282 feet in the northwestern corner of the study area near Signal Peak to 1,429 feet north of the City near the Gila River.



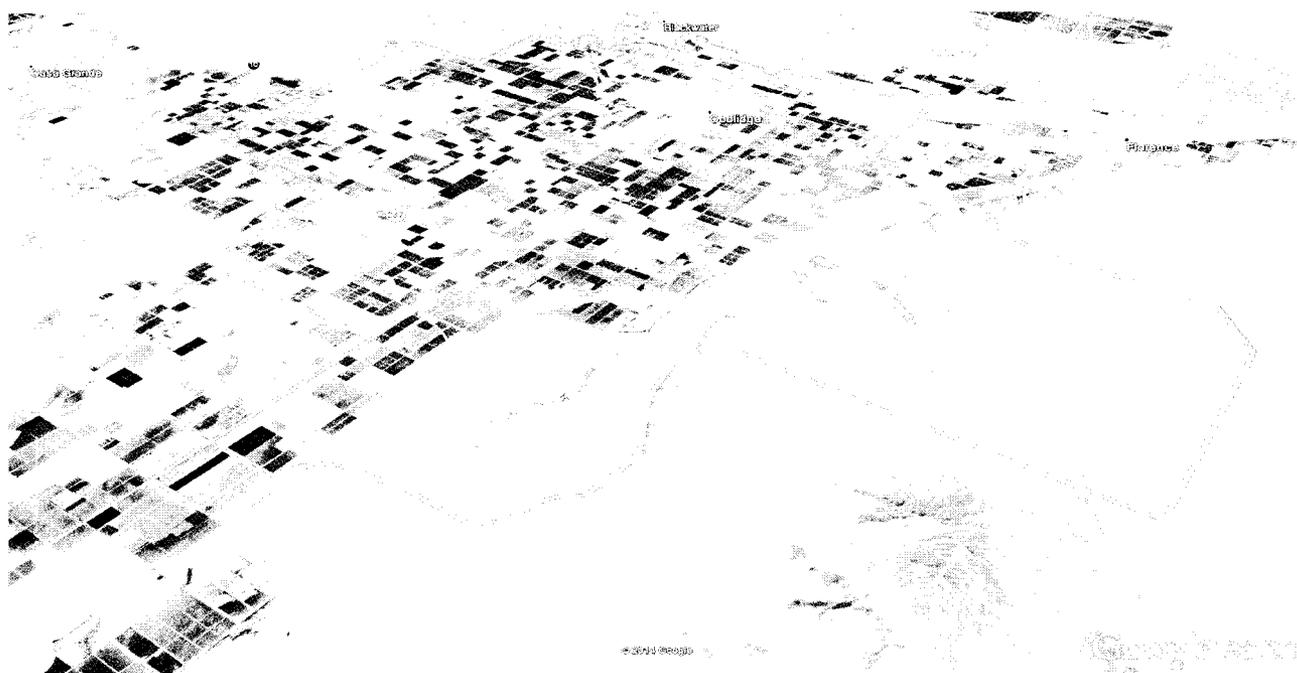
Topography within the area is gently sloping to the north to the Gila River and to the southwest to the Casa Grande Valley. Slopes range from less than one percent over most of the study area to greater than twenty-five percent on the mountain hillside at Signal Peak. The average elevation of the City is 1,450 feet above sea level, and gently slopes north to the Gila River.

RENEWABLE ENERGY USE

Coolidge is located in an area that receives more than 300 days of sunshine each year, known by many as the "Sun Corridor". As a result, development within the City is in a good position to take advantage of passive and active solar energy systems. Passive solar systems consist of architectural and site designs that provide for shading of structures and windows during summer months, while providing for sunlight and natural heating during winter months. Simple techniques include orienting a building to lessen the impact of the sun's heat and installing skylights or clerestory windows to maximize the use of natural lighting. Active solar systems generally include systems for heating domestic and pool water and photovoltaic panels for solar-generated electricity. Use of solar power is encouraged for new development within the City.

DRAINAGEWAYS AND FLOODPLAINS

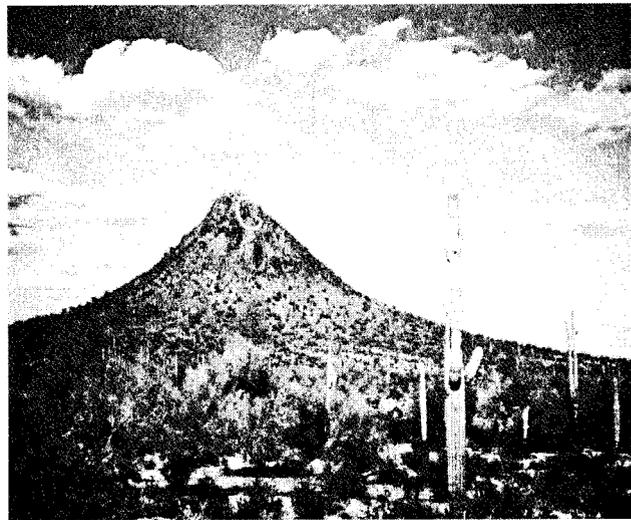
The Gila River and washes in the southeast part of the study area comprise the major drainage ways and floodplains in the region. The Picacho Reservoir, located within the 100 year floodplain, drains an area of approximately 200 square miles along the western slopes of the Picacho Mountains. Drainage is generally east to west, ending at the Picacho Reservoir and the Florence-Casa Grande Canal. Run-off from the reservoir passes through the Central Arizona Project Salt – Gila Aqueduct embankment, which temporarily detains runoff, and reduces the 100-year storm discharge. The Picacho Reservoir emergency spillway has historically overflowed onto land located west of the reservoir and east of the Union Pacific railroad tracks. The Casa Grande and Florence-Casa Grande Canal extensions have also overflowed. There are no plans to improve the reservoir to provide flood protection to downstream properties; therefore these areas will be subject to infrequent overflows. The Gila River and adjacent areas in the northern portion of the study area are also located within the 100-year floodplain. Runoff from buttes to the southeast and mountain ranges to the north flows into the river. Agricultural activities, roadways and canals have modified the natural drainage patterns.



VEGETATION AND WILDLIFE

This sub-section will be further discussed in the Environmental Element found in Chapter 6 of this Plan. Native vegetation of the Gila River Valley, found only on undeveloped or non-farmed land, is generally composed of Lower Sonoran Desert plant species. The lower Sonoran Desert is composed of three distinct plant communities based on elevation above sea level. The Desert Saltbush Community occurs in elevations between 1,000 and 1,500 feet above sea level and was once found in areas now under agricultural use. The Creosote Bush Community occurs in areas with elevations ranging from 1,500 feet to 2,000 feet. The Palo Verde-Saguaro Community occurs where elevations range from 2,000 to 3,000 feet, which in the study area is primarily around Signal Peak to the Northwest and the Picacho Mountains to the Southeast.

As most of the surrounding areas are located within the Desert Saltbush Community some wildlife species associated with the Sonoran Desert may exist. However, since much of the area has been developed for agriculture, any native wildlife would most likely be found in foothills areas or in the area generally east of the central Arizona Project Salt-Gila Aqueduct. In the foothills area located near the Picacho Mountains, Walker Butte, and Black Butte, known as the Creosote Bush Community, larger mammals exist. The Picacho Reservoir, a major riparian area southeast of the City, includes a number of waterfowl and other aquatic birds. The area surrounding the reservoir has a history of providing fishing opportunities and dove and quail habitats. An extended Arizona drought has dried up much of the reservoir, but during heavier rainfalls the reservoir does hold water for extended periods. Pinal County has considered Picacho Reservoir for development as a regional recreation facility including enlargement of the reservoir for recreational boating and waterskiing, camping, etc. As urban development continues, the potential support for the Picacho Reservoir recreational area will gain momentum and have a significant impact on the region. Open space linkages and corridors must be maintained for the renewal of wildlife habitats through wildlife migration from surrounding areas.

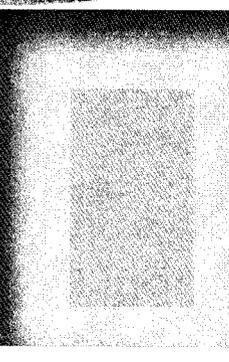


AIR QUALITY

The main air pollutant in southern and western deserts is particulates. Sources of particulate matter vary widely in Arizona from region to region and season to season. Farming activity and vehicular traffic on unpaved roads suspends large quantities of dust, contributing to the majority of the particulate concern in the Casa Grande Valley. Other significant dust sources include construction and windblown dust from disturbed soils. The greater Casa Grande Valley has been designated a non-attainment area by the Federal Environmental Protection Agency.



*When planning for a year, plant corn. When planning for a decade,
plant trees. When planning for a life, train and educate people.
-Chinese proverb*



CHAPTER 2: LAND USE

Land Use Element

Overview

The Land Use Element establishes a blueprint to guide development in the direction that gives focus to the vision that the City hopes to create through zoning and land use regulations. Goals, objectives and strategies are also developed to put the plan into action, and can be found in Chapter 9.

The City experienced a 52% increase in population between 2000 and 2010 growing from 7,786 to 11,825 permanent residents. Much of the new growth occurred in the newer subdivisions that were developed since 2000. There is still a large supply of buildable lots ready for new homes throughout the planning area.



Coolidge Area 2013

Land Use Plan

The land use plan is the backbone of the General Plan 2025 document. It provides the guidance on development decisions in a manner that is consistent with the Community vision.

The City of Coolidge General Plan Update adopted in 2003 established 14 land use classifications. The

General Plan 2025 Land Use Plan is more generalized with 6 land use classifications. The Land Use Policy Map (Figure 2.1, Figure 2.2) illustrates the locations for the six land use categories that are further described in this section. The six land use classifications include:

- **Agriculture**
- **Rural Ranchette**
- **Urban Neighborhood**
- **Downtown Core**
- **Business & Commerce**
- **Industrial & Manufacturing**

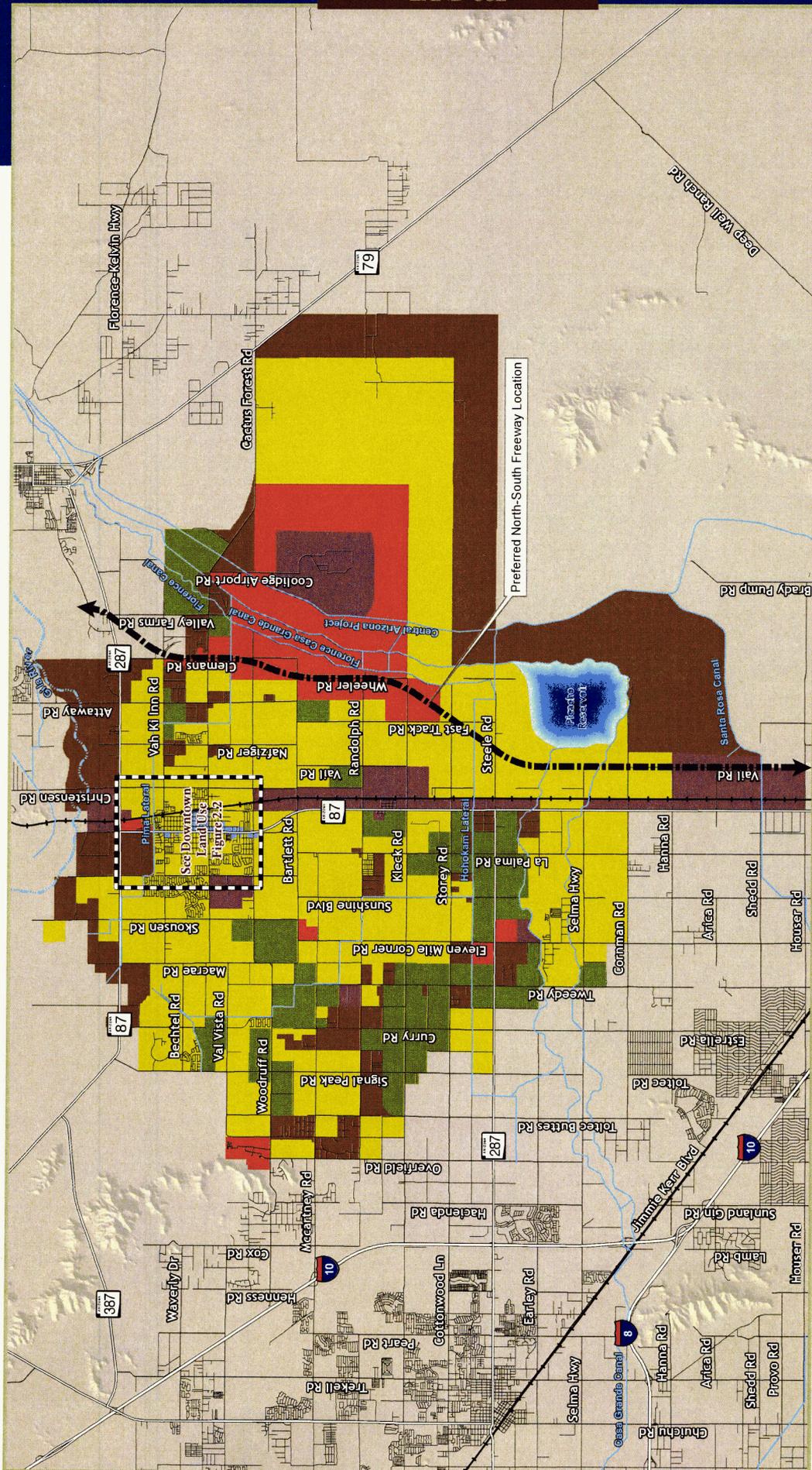
Figure 2.1 provides a breakdown of the land use classifications by acreage and percent of the total planning area.

Land Use Summary

Each of the land use classifications are summarized in the following pages with accompanying photographs that provide a visual depiction of how this land use would appear from an aerial or landscape point of view. Specific direction on appropriate uses, zoning, density and intensity, infrastructure and mobility, spatial form and design, and transition land uses are also provided for each of the land use classifications.

Numbers identified as “targets” in this Plan are not intended to be binding restrictions but are instead offered as examples of vision for the areas described. Proposals that fall outside of any “targets” offered in the Plan will still be deemed consistent with the General Plan and will be able to be heard without the need for a General Plan Amendment of any kind.

LAND USE



Land Designation - Total Acres - Percent of Total

-  Agriculture - 12,282 acres - 11%
-  Rural Ranchette - 26,953 acres - 23%
-  Urban Neighborhood - 57,719 acres - 49%
-  Downtown Core - 354 acres - <1%
-  Business & Commerce - 11,167 acres - 10%
-  Industrial & Manufacturing - 8,551 acres - 7%



Figure 2.1 : Land Use Policy Map

The end we aim must be known before the way can be made.
-Jean Paul

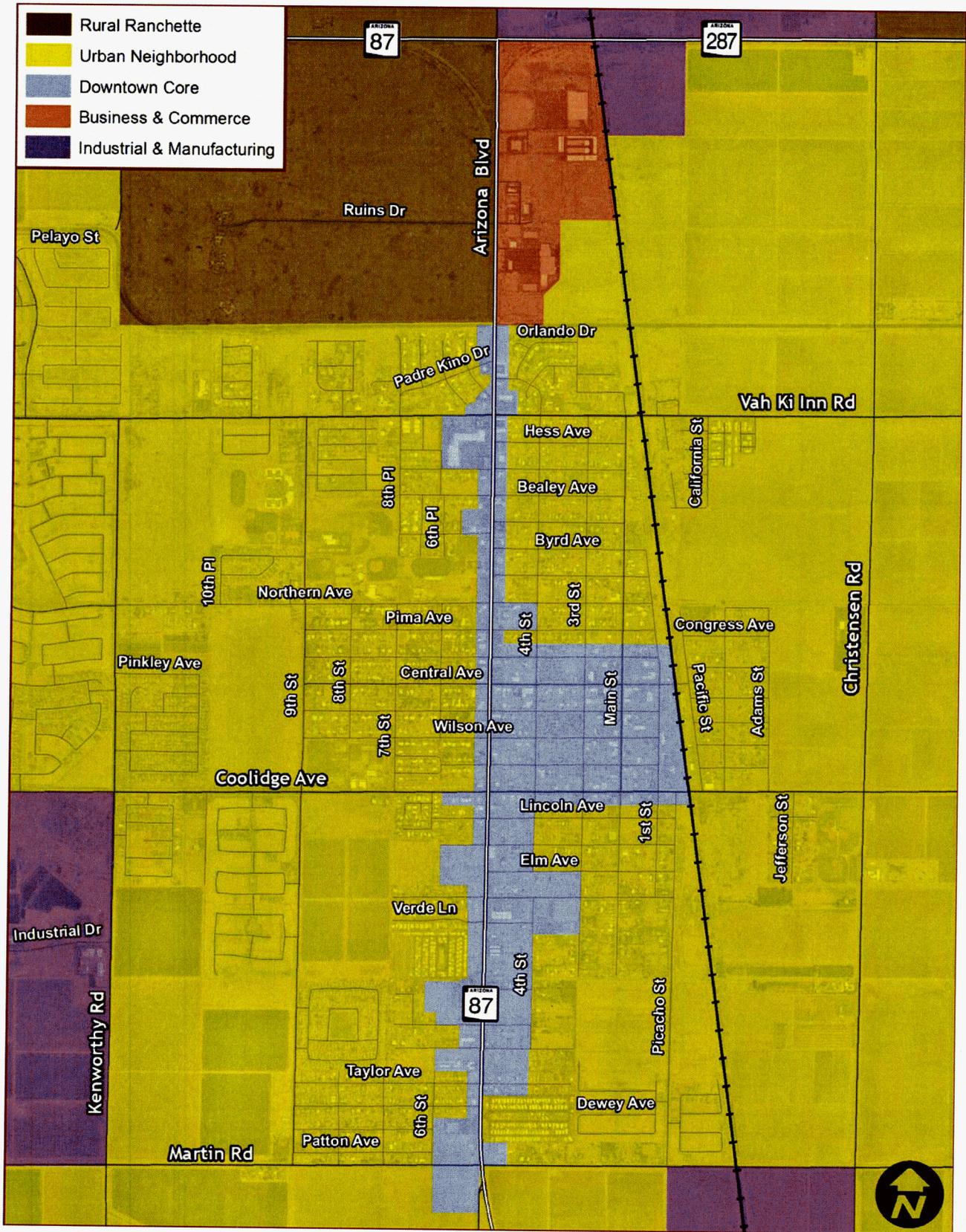


Figure 2.2 : Downtown Land Use

LAND USE

AGRICULTURE

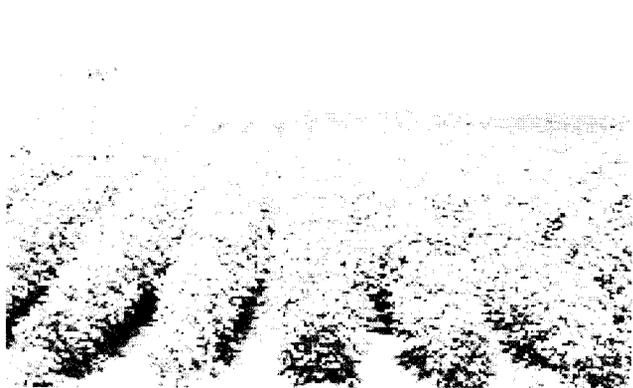
DESCRIPTION

Over a thousand years the ancestral people of the Sonoran Desert supported themselves with food they grew, hunted, or gathered. The Salt and Gila rivers were their lifelines which they tapped with irrigation canals that diverted water to the floodplains rich soil. Since these early days, agriculture has been a valuable economic resource in the Coolidge planning area. This industry is an asset to the City's landscape. The General Plan 2025 recognizes the importance of agriculture in the planning area and this land use accounts for nearly 19 square miles of the entire planning area.

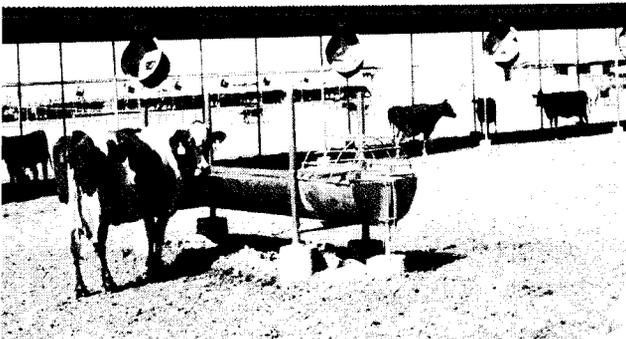
APPROPRIATE LAND USES



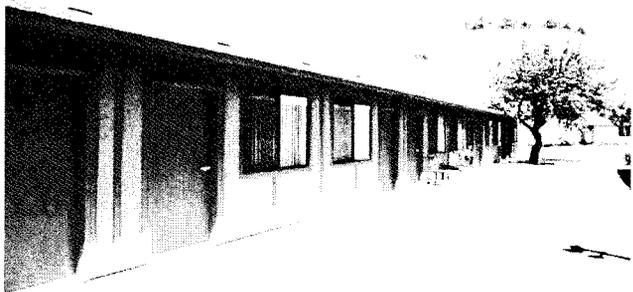
Agricultural Production and Processing



Agricultural Operations



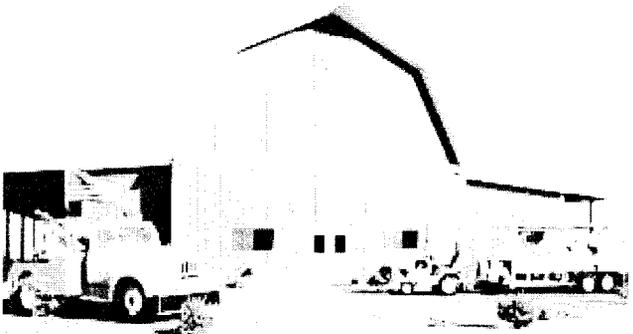
Dairies, Feedlots



Ag-Related Residential, Farm Worker Housing



Ag Related Commercial, Feed Stores, Ag Machinery Sales, Service and Repair, Irrigation Equipment Sales etc.



APPROPRIATE ZONING

- Agricultural Zone (AG)
- Neighborhood Business Zone (C-1)
- General Business Zone (C-2)
- Planned Area Development (PAD), maximum 1 dwelling unit per acre



DENSITY AND INTENSITY

- The maximum density for this land use classification is one dwelling unit per acre
- Target lot coverage – 40%
- Target Building Height – 30' (exclusive of silos, gins, barns and other accessory buildings)

ACCESS AND INFRASTRUCTURE

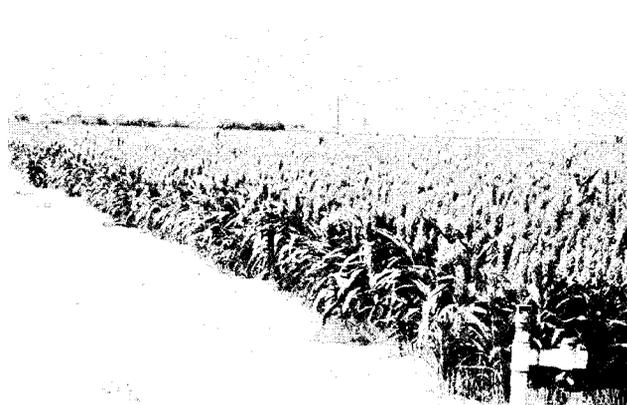
- Accessibility from arterial, collector and local streets, some of which may not be paved, graded or maintained and may be offset from typical City grid.
- Open irrigation ditches and canals may be present
- Emergency, safety and community services are available but may be below City norms.
- Above ground utility wires are common.
- Natural drainage may be found in the area.
- Provisions may be made to support on-site septic and wastewater treatment facilities.

LAND USE DESIRED DESIGN

- Unobstructed, flat landscapes w/expansive views.
- Linear features such as crop rows and canals.
- Buildings that may not front on to streets.
- Buildings with linear forms and varying geometric shapes.
- Larger buffer zones between agricultural and adjacent non-agricultural uses.
- Unpaved and unmarked parking areas.
- Outdoor equipment that may be visible from street or adjacent properties.
- Limited street lighting along arterial roads.
- Agricultural activities that may at times impact air quality levels through the generation of dust.
- Aerial spraying that are common practices in agricultural operations and are likely to cause noise and odors.
- Odors from dairy, feedlot and grazing operations.
- Bright lights from outdoor roping arenas and other agricultural operations.

TRANSITION TO LAND USES

- Rural Ranchette – Minor Amendment
- Urban Neighborhood – Major Amendment
- Downtown Core – Major Amendment
- Business & Commerce – Major Amendment
- Industrial & Manufacturing– Major Amendment



LAND USE

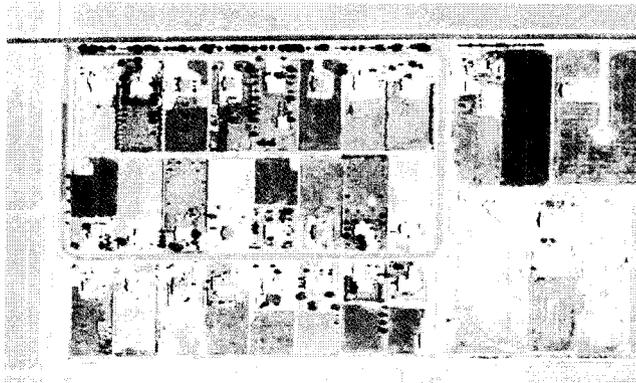
RURAL RANCHETTE

DESCRIPTION

The Rural Ranchette land use classification defines those properties within the planning area that have not typically developed under a set of adopted subdivision standards. These distinctive environments are characterized by very low density, rural residential developments that convey a mini-ranch lifestyle. Lands are typically divided into a minimum of one acre but five acre and larger parcels are intermixed in the rural areas.

The Rural Ranchette land use classification is often found at the boundary between the urban neighborhoods and the open undeveloped desert land areas. Rural commercial activities may be located within this land use classification including small tack rooms, veterinarian services, convenience stores, and other business services that cater to and are designed to compliment the rural nature of the area.

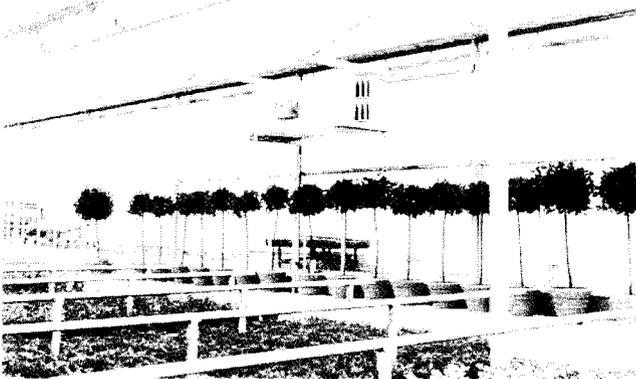
APPROPRIATE EXAMPLES



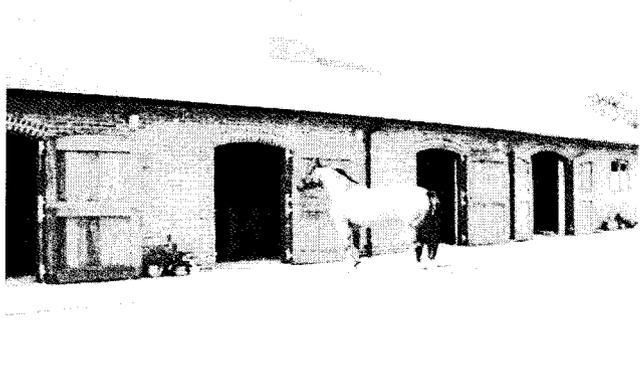
Large Lot Residential



Hobby Farms



Small Scale, Low Intensity Commercial Agriculture



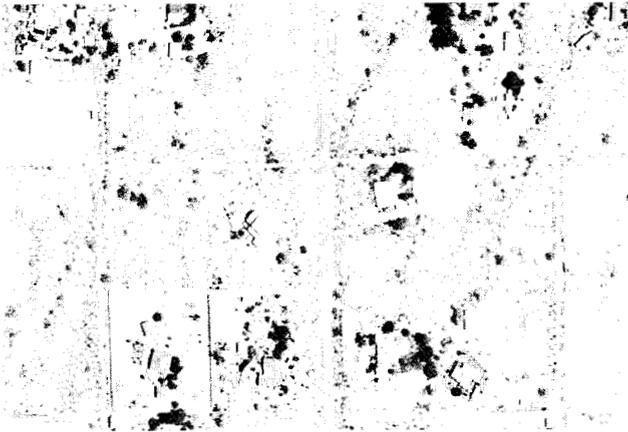
Commercial and Private Stables



Very Low Intensity, Neighborhood Retail and Support Services

APPROPRIATE ZONING

- Agricultural Zone (AG)
- Neighborhood Business Zone (C-1)
- Commercial Office Zone (C-O)
- Planned Area Development (PAD), maximum 1 dwelling unit per acre.



DENSITY AND INTENSITY

- The net density for this land use category is 1 dwelling unit per acre; the City-wide target density is 0.6 dwelling units per acre.
- Target residential lot coverage, (inclusive of parking) is 25%.
- Target Commercial Floor Area Ratio (FAR) of 0.2.



DESIGN AND INFRASTRUCTURE

- Arterial streets are generally paved, collector and local streets to existing development may be unpaved and may be offset from the City grid.
- Collector and arterial streets should be paved according to rural design standard.
- Commercial water service may be available.
- City sewer may be available.
- Open irrigation ditches and canals.
- Electric and communication lines may be visible.



RURAL RANCHETTE

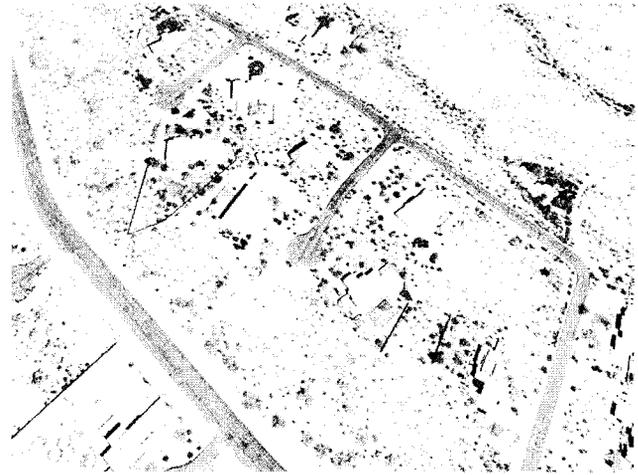
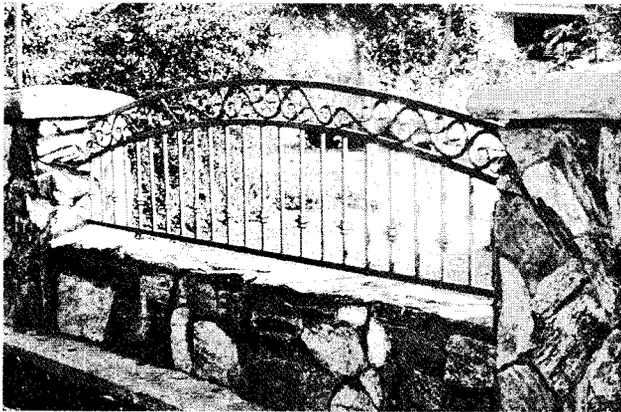
LAND USE FORM AND DESIGN



- Large front and side yard setbacks when appropriate to terrain.
- Variety in building architecture and design.



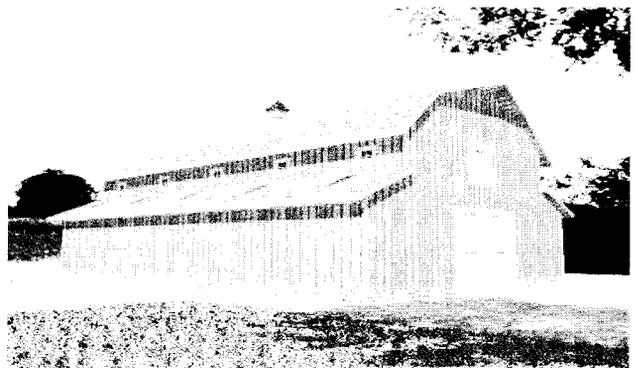
- Building placement that varies from lot-to-lot.
- Rear and side yard walls should be a minimum 50% view fencing.



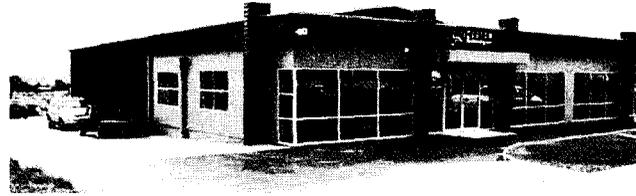
- Development that conserves open spaces, natural landscapes and habitats and allows for expansive views.



- Outbuildings necessary to support farming or livestock may be visible from the street and adjacent properties.



- Development that contributes to making the area a pedestrian and equestrian friendly rural destination.
- Primary vehicular and pedestrian access to and from an arterial street.



- In commercial developments of 10 acres or greater, at least 0.5% of the net lot area (exclusive of setbacks, pedestrian ways, sidewalks and parking areas) shall be used to provide public open space in the form of seating, gardens or shaded areas that connote a rural town center feel.
- On-site buildings should be reused and added to when appropriate.

- When possible and practical, all new solely commercial uses should be located adjacent to existing commercial development.



- Equestrian friendly commercial uses, such as public riding and boarding stables are permitted on sites not less than 10 acres and in accordance with the City's Zoning Ordinance.
- The grazing and raising of livestock that is in accordance with the City's Zoning Ordinance.

- Commercial buildings should be set back no more than 50 feet from the outside edge of the arterial right of way. Parking is permitted within this setback.

TRANSITION TO LAND USES

- Agriculture - Minor Amendment
- Urban Neighborhood - Major Amendment
- Downtown Core - Major Amendment
- Business & Commerce - Major Amendment
- Industrial & Manufacturing - Major Amendment

URBAN NEIGHBORHOOD

DESCRIPTION

The Urban Neighborhood land use category provides for a mixture of uses that would typically be found in an urbanized section of land including neighborhood scale commercial services, professional office, single family and multi family residential at varying densities, community facilities including churches and schools, public utility installations and parks and open space. Within the Planning area boundary, the Urban Neighborhood category is located over previously approved planned area developments that provide a mix of uses that are designed with places of character. Commercial services and parks shall be accessible from residential areas by bicycles, pedestrians and designed to promote non-motorized circulation between residential units and non-residential activity areas.

APPROPRIATE LAND USES



Single Use Retail, Service, or Office Development



Neighborhood and Community Retail Development

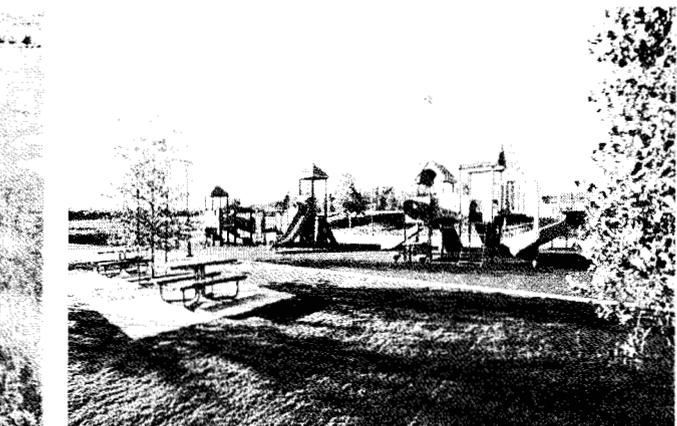


Horizontal and Vertical Mixed-Use Retail/Office/Residential Developments

APPROPRIATE LAND USES



Single Family Residential



Neighborhood and Community Parks



Mobile Home and Recreational Vehicle Parks

APPROPRIATE ZONING

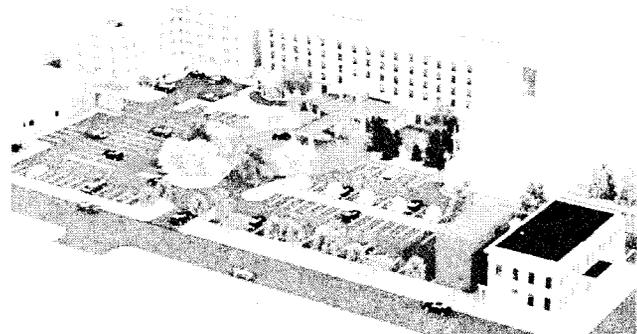
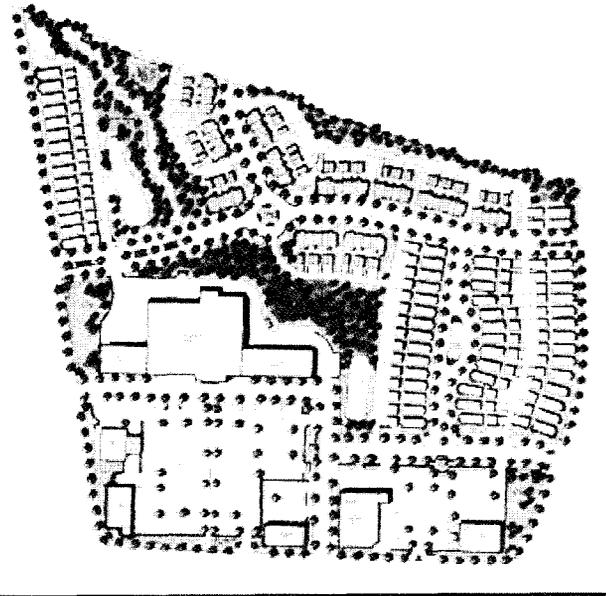
- Single-Family Residential Zone (R-1)
- Single-Family Residential/Duplex (R-2)
- Multi-Family Residential Zone (R-3, R-4)
- Mobile Home & Recreational Vehicle (R-5, R-6)

- Neighborhood Business Zone (C-1)
- General Business Zone (C-2)
- General Services Zone (C-3)
- Commercial Office Zone (CO)
- Planned Area Development (PAD)

URBAN NEIGHBORHOOD

DENSITY AND INTENSITY

- The Citywide net target density for this land use category shall be 4.0 dwelling units per acre.
- Developments on sites greater than 160 gross acres shall provide a minimum of 10% of the total gross acreage at densities of one or less dwelling units per acre or as approved through the PAD process.
- Development on sites greater than 160 acres may include up to 12.5% of the total gross development area at residential densities up to 16 dwelling units per acre.
- Developments on sites between 40 and 160 acres may be permitted to achieve up to net target densities of 4.0 dwelling units per acre or less.
- Development up to 4.5 dwelling units per acre may be permitted for developments on sites between 40 and 160 acres that provide for a range of lot sizes and integrate housing attainable by low, moderate and other income households, individuals or families.
- Developments on sites over 160 acres may achieve up to a net target density of 4.5 dwellings per acre.
- Residential densities up to 18 dwelling units per acre net are permitted on single site developments of less than 25 acres.
- Residential densities up to 20 dwelling units per acre are permitted as part of vertical, mixed-use commercial and residential developments.
- Multi-family housing shall have primary direct access to an arterial or collector street.
- Permit neighborhood and community commercial and service development on single sites up to 40 acres.
- A single commercial site of up to 40 acres shall be designed in such a way as to represent an appropriate neighborhood human scale.
- Permit horizontal and vertical mixed-use retail/office/residential developments on sites up to 40 acres (residential 30% maximum of total site area).



ACCESS AND INFRASTRUCTURE

Development in this land use category includes the following:

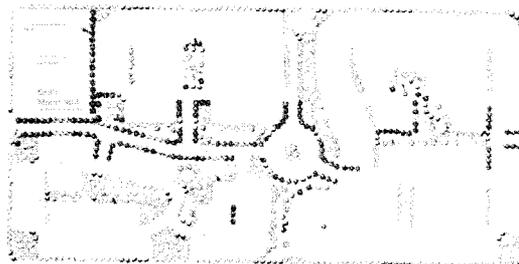
- Paved streets constructed to City standards and connected to the City-wide grid at key access points.
- Development that is connected to an approved water provider and approved sewer system.
- Services that are within this land use category meet or exceed City norms.
- Publicly accessible usable open space, exclusive of detention, roadway landscaping and entry monuments, comprises a minimum of 15% of the total residential acreage in this land use category.
- Direct pedestrian, bicycle and open space connections between neighborhoods that are provided at maximum intervals of 1/4 of a mile.
- Utilities that are provided underground.
- Publicly accessible usable open space to include a minimum of 10% of all commercial acreage in this land use category.

- Commercial uses that provide direct vehicular access to arterial streets and to adjacent residential, mixed use and commercial developments.
- A primary entrance to buildings that shall be connected to the sidewalk.
- Mixed-use buildings located across local or collector streets or adjacent to residential development that shall be appropriate in form and scale.
- Neighborhood service uses such as service stations, drive-thru, or other auto-oriented uses that may be incompatible with residential uses shall be buffered from mixed use and single use residential areas.
- Shading shall be provided through either trees, stand-alone shade structures, or building elements and cover at least 25% of the public and private sidewalks or as approved by the Growth Management Director where innovative design or specific challenges warrant a deviation from this standard.

SPATIAL FORM AND DESIGN

Development within this land use category provides:

- Streets that are united with common design elements.
- A variety of residential types and building design within neighborhoods.
- Mitigation, through setbacks, height limits, step-backs and/or other design techniques of the negative impacts of height between buildings.



TRANSITION TO LAND USES

- Downtown Core - Minor Amendment
- Rural Ranchette - Minor Amendment
- Agriculture - Minor Amendment
- Industrial & Manufacturing - Major Amendment
- Business & Commerce - Major Amendment

DOWNTOWN CORE

DESCRIPTION

This land use category is represented along the historic State Route 87 that was the primary route between Phoenix and Tucson prior to the construction of Interstate 10 in the late 1960's. In addition, the historic downtown area bounded by Arizona Boulevard on the west, Pinkley Avenue on the north, Main Street on the east, and Coolidge Avenue on the south is also represented by this designation. The Downtown Core allows a mixture of uses at intensities that are pedestrian friendly and not designed around motorized travel. Higher density residential structures occupy this area to provide the economic stimulus necessary for retail shops and services to succeed. The Downtown Core is designed for the pedestrian and features elements that promote non-motorized circulation including outdoor plazas, abundant landscaping, water features, shade, continuous streetscapes with architectural variety featuring recessed patios and interesting outdoor social gathering places.

APPROPRIATE LAND USES



Higher Density Residential Developments



Established Historic Neighborhoods



Horizontal and Vertical Mixed-Use Retail/Office/Residential Developments

APPROPRIATE ZONES

- Residential Zones (R-2, R-3)
- General Business Zone (C-2)
- Commercial Office Zone (CO)
- Planned Area Developments (PAD)



DENSITY AND EXTENSIO

- Residential development shall be at net densities between 4 and 20 dwelling units per gross acre.
- The scale and form of buildings shall be appropriate to their siting along roadway classifications and abutting land uses.
- Where single family residential uses exist along the opposing collector street, a target of 65% of all new ground floor uses should be residential.



ACCESS AND INFRASTRUCTURE

Development within this land use category includes:

- Paved streets constructed to City standards and integrated into the City-wide grid.
- Streets that include facilities for pedestrians, cyclists, automobiles and considerations for future transit.



- Development that is connected to an approved water provider and City sewer.
- Services that shall meet or exceed City norms.
- Through pedestrian access and egress that shall be provided at a maximum of 400' intervals.
- Electrical utilities are underground.



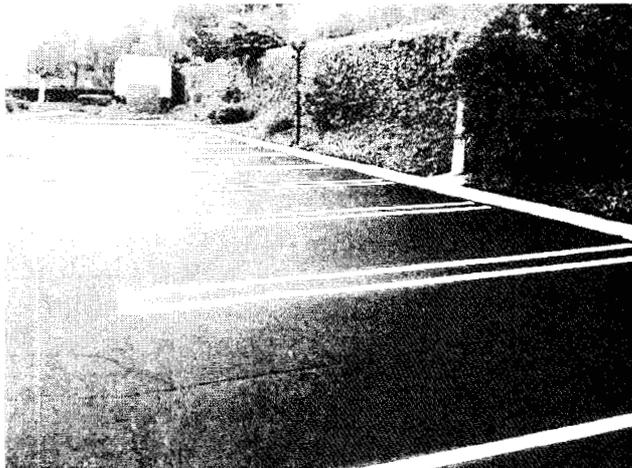
LAND USE

DOWNTOWN CORE

- New or re-development abutting or across a local or collector street from single-family residential development that shall be single-family residential or mixed-use residential/retail development.



- Parking areas abutting and adjacent to single-family development shall be screened from view.
- Parking and vehicular access is secondary to pedestrian accessibility and mobility.



- On-street parking will be permitted on local and collector streets and may be permitted along principal arterials.

- Connected parking areas between abutting developments.
- Pedestrian access shall be provided between abutting and adjacent residential and other mixed or single use developments.
- To retain a small town feel, vertical residential and commercial mixed use developments that are over 30 acres must provide a target of 2.5% open space visible from the street. The development must be accessible to the public during operating hours exclusive of parking, drainage and landscaped setbacks.



- In order to retain a small town feel, single use residential developments must provide a target of 10% open space exclusive of parking, drainage, and landscaped setback areas.



- The primary entrance of all development along arterial streets shall provide direct pedestrian access from the building to the public sidewalk.

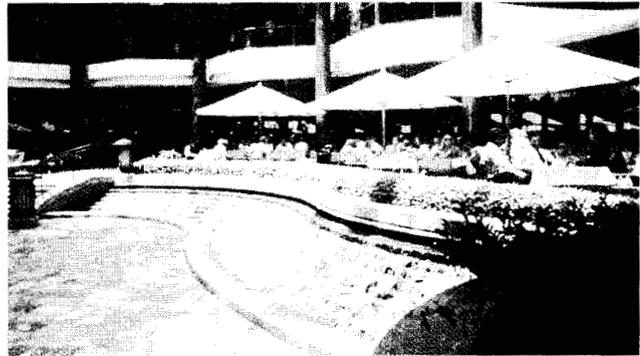


- Frontage on a minimum of 75% of the ground floor building, such frontage includes sidewalks and landscaped pedestrian areas along arterial and collector streets for public right of way and pedestrian accessibility.
- Shade structures will be provided through either trees or building elements covering at least 25% of the public sidewalk adjacent to development.



TRANSITION TO LAND USES

- Urban Neighborhood - Minor Amendment
- Business & Commerce - Minor Amendment
- Rural Ranchette - Major Amendment
- Agriculture - Major Amendment
- Industrial & Manufacturing - Major Amendment



BUSINESS & COMMERCE

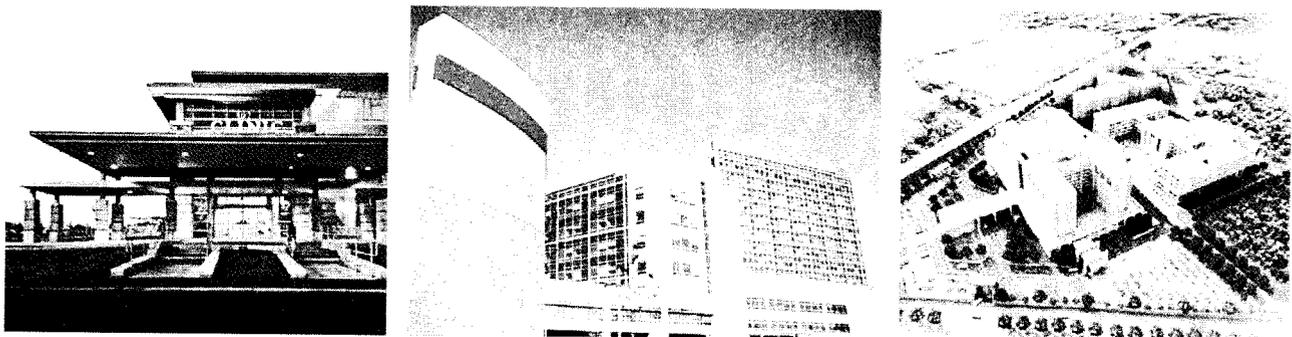
DESCRIPTION

The Business/Commerce land use category provides for intense commercial, retail and light manufacturing in an attractive setting and within enclosed buildings as well as those uses necessary to support these developments. The majority of this land use category is located in the eastern portion of the City's planning area in the vicinity of the proposed North/South Freeway that will connect the U.S. 60 near Apache Junction with Interstate 10 south of Eloy. The Business/Commerce area is also situated around the City of Coolidge Airport and Central Arizona College. This land use allows a mix of complimentary uses that also support future transit to these employment and regional shopping centers. Single family residential uses are not an acceptable use but higher density multi-family housing would be a complimentary use.

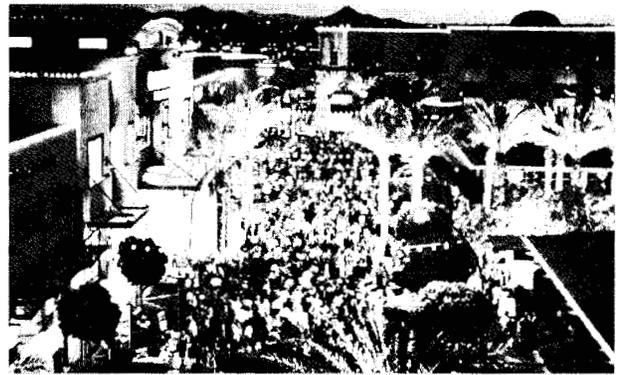
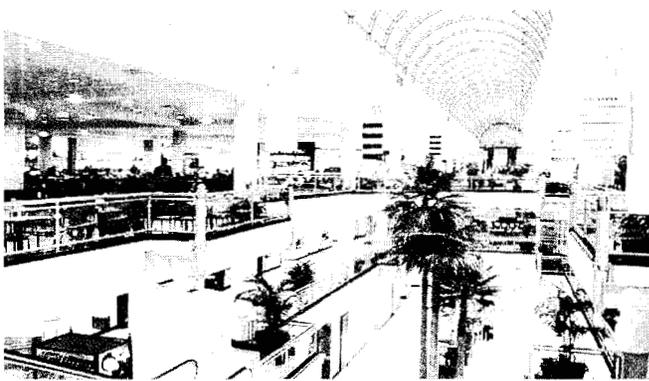
APPROPRIATELY AND USES



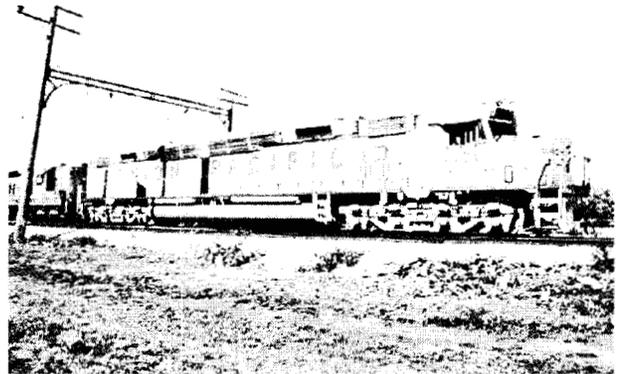
Single Use or "Big Box" Retail



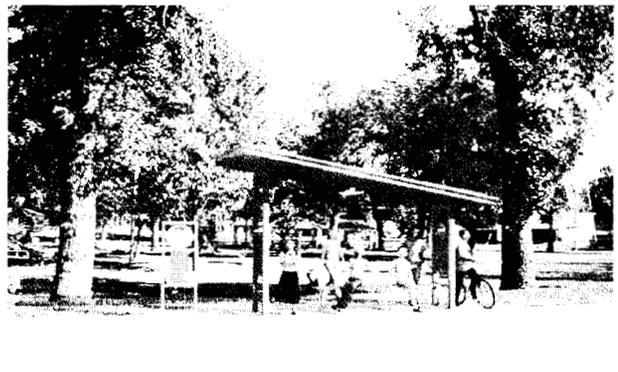
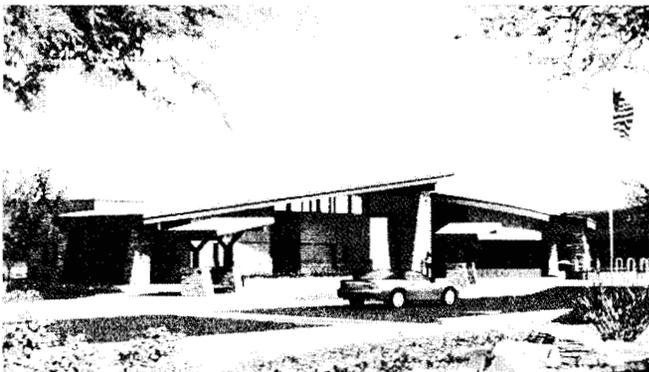
Medical Campus or Hospital



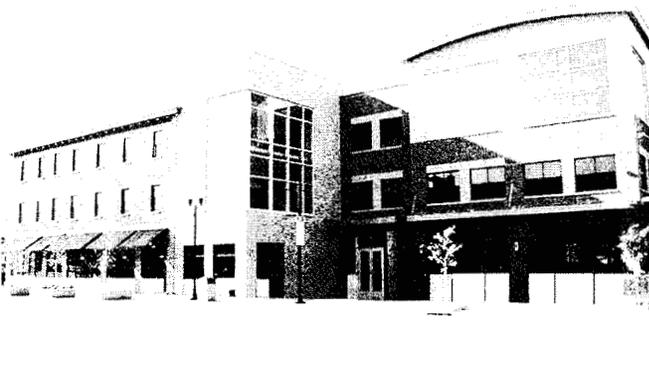
Enclosed or Open-Air Regional Retail Shopping Centers



Freeway, Rail, and Auto-Oriented Retail/Commercial



Transit Terminals and Park & Ride Facilities



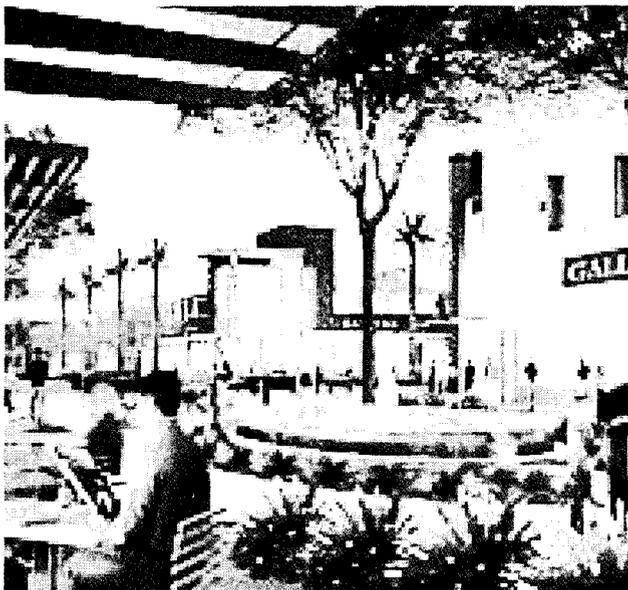
Campus-Style Developments including Offices, Light Manufacturing, Flex-Space, Lodging and Commercial Services

LAND USE

BUSINESS & COMMERCE

APPROPRIATE ZONING

- Multi-Family Residential Zone (R-3)
- General Business Zone (C-2)
- General Service Zone (C-3)
- Garden and Light Industrial Zone (I-1)
- Planned Area Development (PAD), commercial uses only
- Commercial Office Zone (CO)



DENSITY AND DIVERSITY

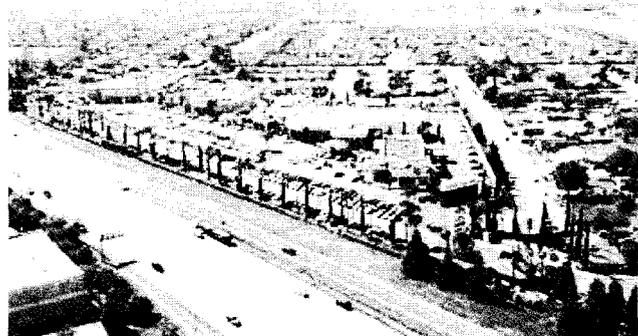
- Minimum site acreage shall be 5 acres.
- Multi-family residential units are allowed only when this land use category is over 60 acres and is adjacent to Neighborhood land use category.
- Target residential land use 30% of the gross site area.
- Where the land use is a business/office park, landscape and outdoor plazas/patios (inclusive of landscape features) shall comprise a target of 20% of the gross site area.



INFRASTRUCTURE AND MOBILITY

Development within this land use category includes:

- Paved arterial streets connected to the City street-system.
- Emergency and other services provided to development within this land use category shall meet or exceed City norms.
- Pedestrian facilities between buildings and the street.
- Development connected to City sewer and an approved water provider system.
- Primary access and egress to collector or arterial streets. Access to primarily residential local or collector streets is discouraged.
- Utilities that are either above or below ground.
- Left-turn access from driveways, local or collector streets onto arterial streets at no closer than 1/8 mile spacing.





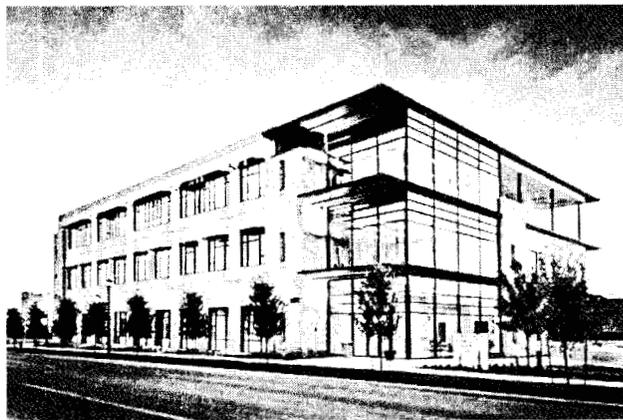
STAFFS, FORM AND DESIGN

Development within this land use category provides:

- Multiple buildings in a campus setting.
- Mix of building forms and building heights.



- Consistent architectural styles.
- Direct pedestrian connections between buildings and public sidewalks.



- Internal pedestrian circulation and identified pedestrian districts and direct pedestrian connections to adjacent pedestrian districts.
- Shared parking should be maximized.
- Landscaped areas connected to other public open spaces and trails.
- Residential uses should not comprise more than 20% of the total area designated Commerce and Business on the Land Use Map.



PERMITTED ACTIVITIES

- Downtown Core - Minor Amendment
- Industrial & Manufacturing - Minor Amendment
- Agriculture - Minor Amendment
- Rural Ranchette - Major Amendment
- Urban Neighborhood - Major Amendment



LAND USE

INDUSTRIAL & MANUFACTURING

DESCRIPTION

There are excellent opportunities for industrial development at three different sectors within the planning area. These sectors include the Union Pacific Railroad, Coolidge Municipal Airport and the Existing Coolidge Industrial Park adjacent to the City's wastewater treatment facility. The City will support a wide range of manufacturing and industrial uses within these sectors to provide a stable economic base. This land use category preserves locations that are best suited for industrial development well into the future as the City continues to expand allowing citizens of Coolidge to work in the community they live. It is anticipated that there could be a major inland port adjacent to the Union Pacific Railroad R.O.W. and State Route 87 (Arizona Blvd.).

APPROPRIATE LAND USES



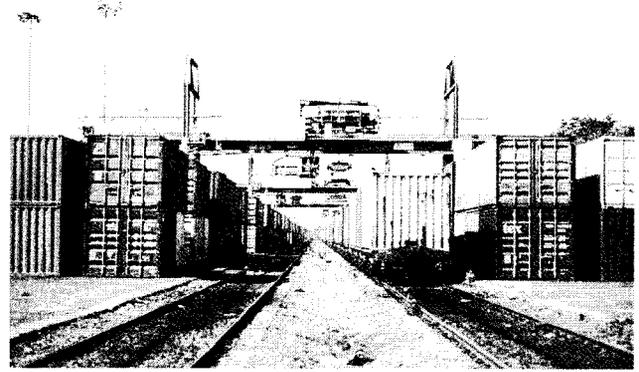
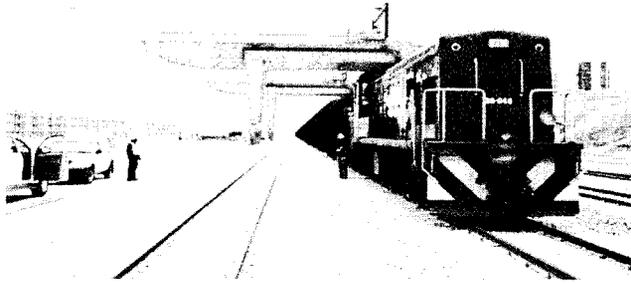
Single Site Manufacturing, Industrial, & Production Activities



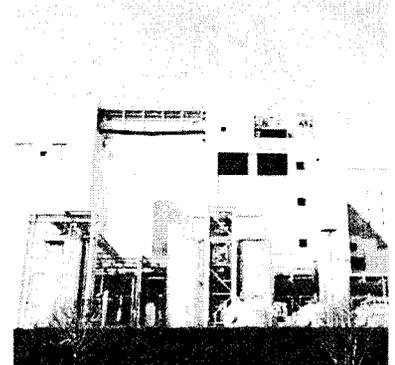
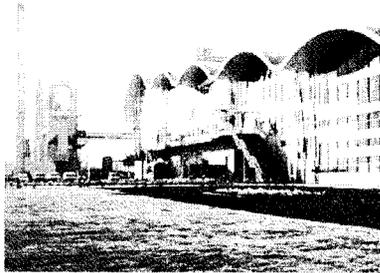
Outdoor Assembly, Storage



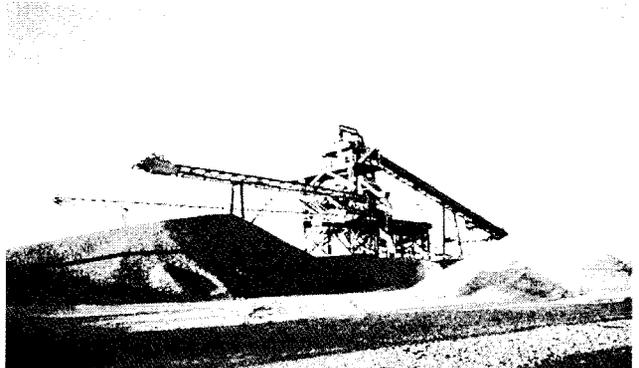
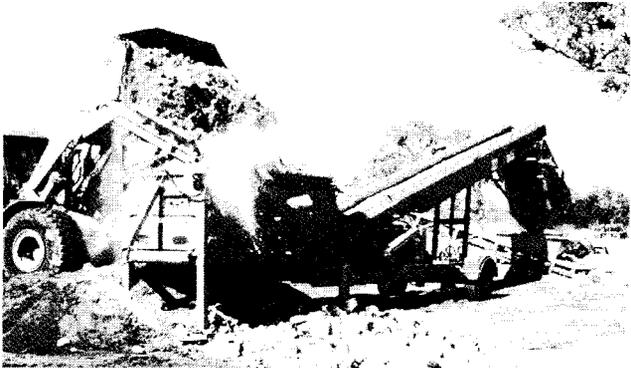
Warehousing and Distribution



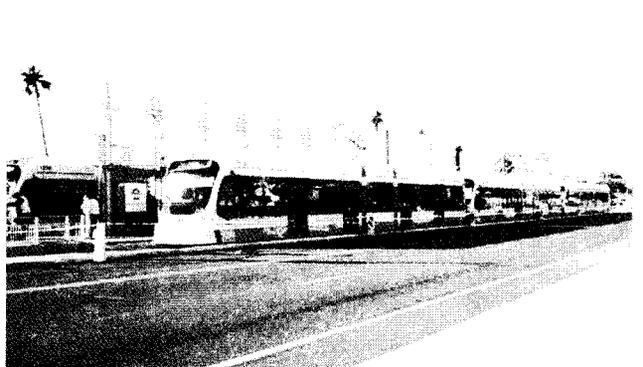
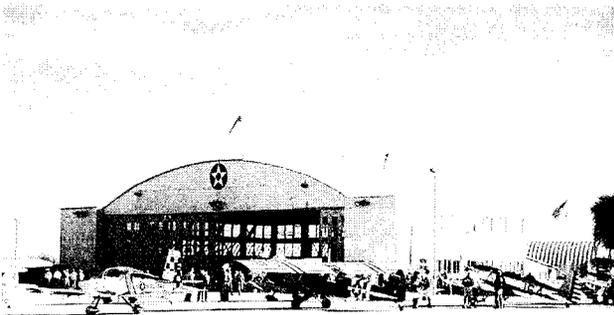
Rail and Freight-Based Activities



Land Uses that result in Noise, Dust or Other Impacts that Extend Beyond the Site



Resource Extraction

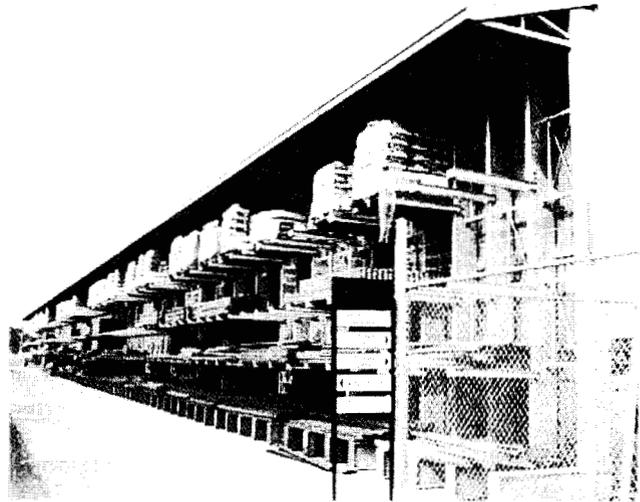
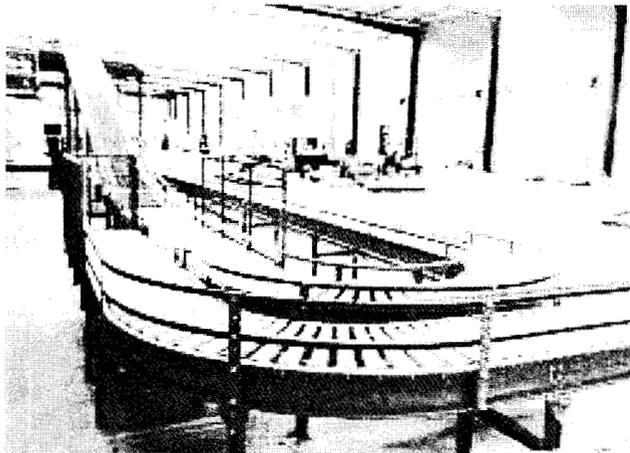


Transportation Related Activities such as Light Rail, Rail Yards, Aircraft Maintenance and Operations, Vehicle Maintenance, Storage and Crushing

INDUSTRIAL & MANUFACTURING

APPROPRIATE ZONING

- Neighborhood Business Zone (C-1)
- General Business Zone (C-2)
- General Service Zone (C-3)
- Garden and Light Industrial Zone (I-1)
- General Industrial Zone (I-2)
- Planned Area Development (PAD), manufacturing uses only



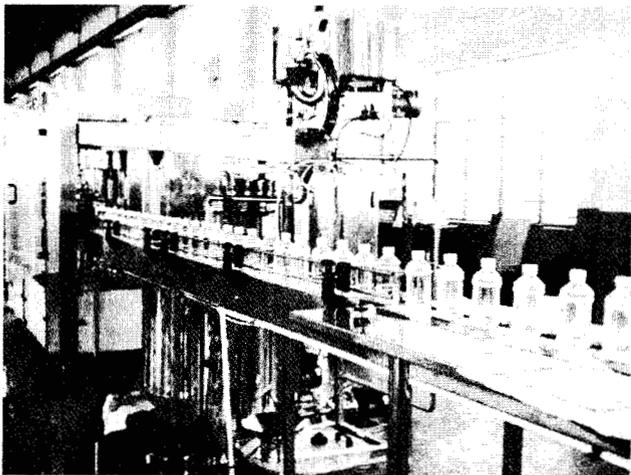
STRUCTURE AND FORM

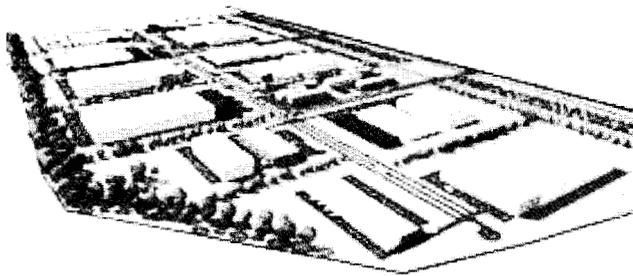
Development includes the following attributes:

- Development that is connected to the City sewer system and shall be connected to an approved water provider.
- Development that shall provide vehicular access and egress to the street network as well as rail spurs, and limited access roadways where appropriate.
- Development that shall be accessible by paved arterial streets, capable of servicing the requirements of the development and built to City norms.

DENSITY AND INTENSITY

Target lot coverage (including parking, storage and roadway areas) shall be 80%.

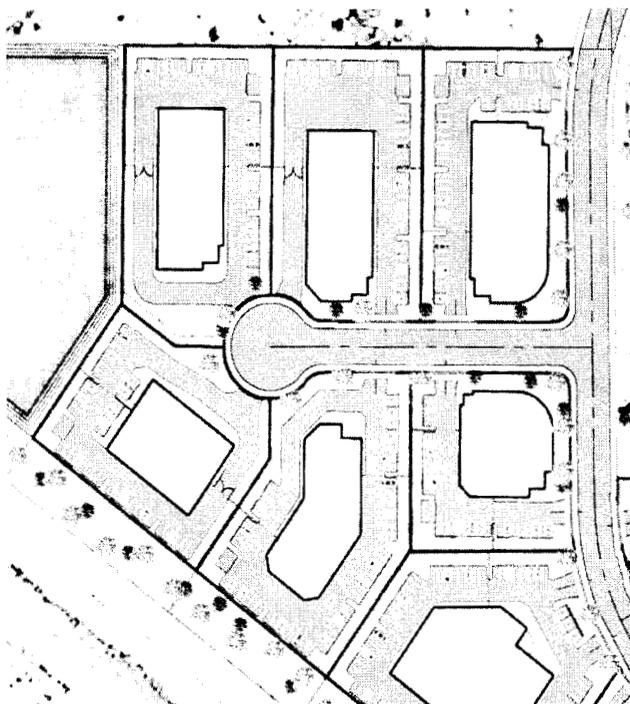




SPATIAL FORM AND DESIGN

Development within this land use category provides:

- Large front setbacks and, if appropriate, side and rear yard setbacks that will be encouraged to reduce the impact and mass of buildings from the street and adjacent non-manufacturing developments
- Perimeter fencing or walls and buffers to screen storage, equipment, and outdoor activities shall be required.
- Entry ways that are landscaped.
- Pedestrian connections between the street and building.
- Monument style entry signs.

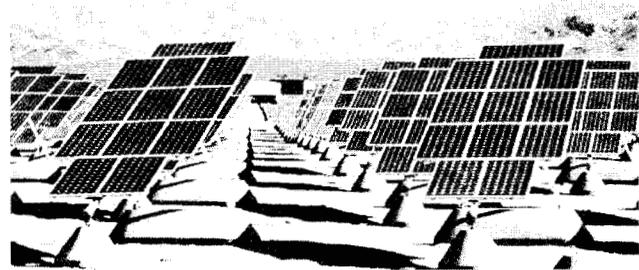


THE FUTURE TODAY



TRANSITION LAND USES

- Business & Commerce - Minor Amendment
- Agriculture - Minor Amendment
- Rural Ranchette - Major Amendment
- Downtown Core - Major Amendment
- Urban Neighborhood - Major Amendment



EXISTING AGGREGATE LOCATIONS

Arizona Revised Statute requires cities to identify current aggregate operations within the planning area and to develop measures to preserve currently identified aggregates for future development and policies to avoid incompatible land uses. Aggregate means cinder, crushed rock or stone, decomposed granite, gravel, pumice, pumicite and sand.

Within the City Planning Area Boundary there are existing sand and gravel operations along the Gila River flood plain. These locations are shown on Figure 2.3 and were identified from current aerial photography as well as records provided by the Arizona State Mine Inspector.

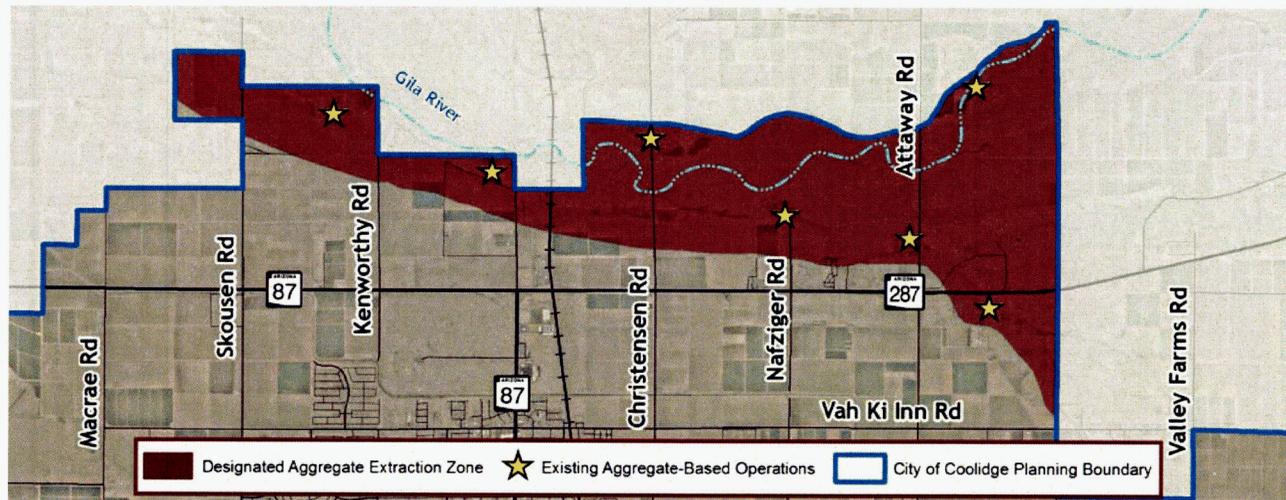


Figure 2.3 : Aggregate Land Use

The City recognizes that future sand and gravel operations are possible along the Gila River and has identified existing operations in the area. The City will carefully review any development plan for private property adjacent to active aggregate mining operations and will develop land use policies to avoid incompatible land uses, by providing equal protection for active aggregate mining operations and residential development.

The City will discourage the construction of new residential development where future residences would be adjacent to an active aggregate mining operation. New residential zoning may be allowed adjacent to, or coinciding with, active mining operations, but may not proceed to develop until such mining operations have permanently ceased.

The City will discourage new mining operations adjacent to or in close proximity to existing or planned residential development and existing or planned City recreation facilities.

The City will promote non-residential development such as business-park, commercial, or industrial uses adjacent to active mining operations, where such mining operations are not required to cease upon development of adjacent property.

GENERAL PLAN AMENDMENT PROCESS

From time to time, the City may choose to amend the General Plan in order to respond to opportunities or for other reasons. Arizona Revised Statutes §9-461.06 allow for an annual Major Amendment to the General Plan as well as Minor Amendments, (which may occur at any time during the year). State Law defines a Major Amendment as "a substantial alteration of the municipality's land use mixture or balance as established in the municipality's existing general plan land use element".

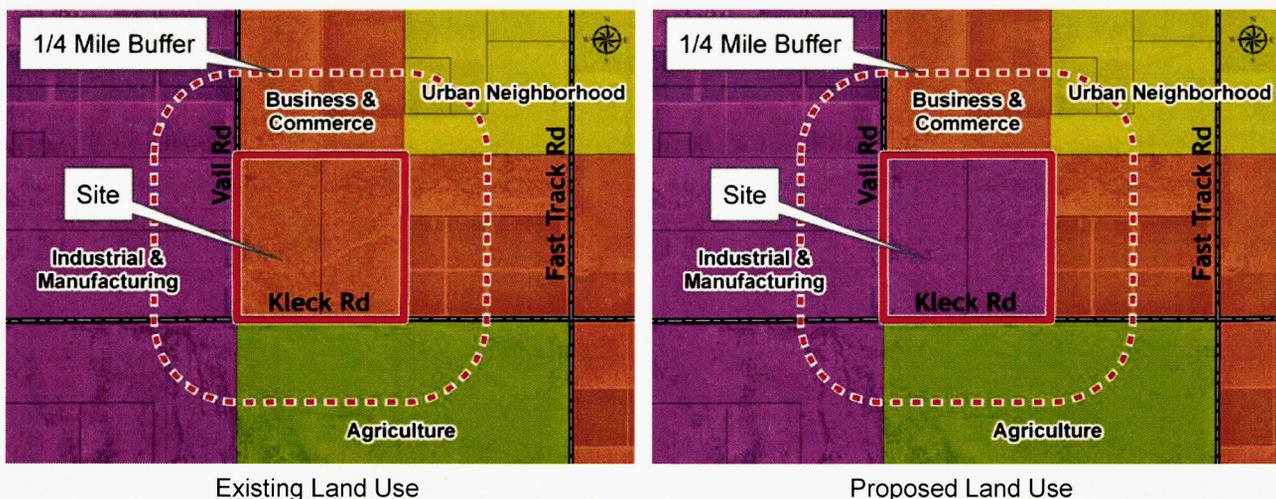
An amendment to the General Plan is initiated by a request that:

- May be submitted by the Coolidge City Council or the Coolidge Planning and Zoning Commission.
- By the owner of a property within the City or its Planning Area.
- As a result of a determination by the City of Coolidge Growth Management Department that a proposed rezoning request is not in conformance with the General Plan.

All requests to amend the General Plan shall be submitted to the City of Coolidge Growth Management Department and shall be accompanied by:

- A response to the General Plan Amendment Determination.
- A map detailing the proposed location of the amendment and its current General Plan land use designation, along with the land use designations of properties within 1/4 mile of the proposed amendment.
- A map detailing the proposed change in General Plan land use designation and the land use categories of the properties within 1/4 mile of the proposed amendment.

The Coolidge Growth Management Department will consider Major Amendments to the General Plan according to a Public Participation Schedule approved by City Council each year. This schedule will be posted on the City's web page, www.coolidgeaz.com. Minor Amendments to the General Plan may be considered at any time during the calendar year.



GENERAL PLAN AMENDMENT PROCESS

MAJOR AMENDMENTS:

In conformance with Arizona State Statute, a Major Amendment to the General Plan will be required for:

- Any rezoning request that is not in conformance with the Coolidge General Plan 2025 Land Use Map (Figure 2.1) and that meets the General Plan 2025 Major Amendment Criteria listed within each Land Use Classification Summary.
- Addition of new roadway classifications that result in wider lane widths, increased number of lanes and/or a reduced pedestrian or multi-modal transportation environment to Table 3b Access Management, and/or the Transportation Plan Map (Figure 3.3).
- Any changes to the Coolidge General Plan 2025 land use category text in the Description, Appropriate Zoning, Density and Intensity and Transitional Land Uses sections.
- Any changes to the Coolidge General Plan 2025 that change the original intent of the Plan or that contradict the intent or meaning of the Coolidge General Plan 2025 Vision, Goals, Policies, or Strategies or that would alter the density, intensity, infrastructure, or development standards described herein.

MINOR AMENDMENTS:

Minor Amendments to the Coolidge General Plan 2025 may be processed at any time and in accordance with the City's usual Planning and Zoning Hearing Schedule. A Minor Amendment to the General Plan is considered as:

- Any rezoning request that is not in conformance with the Coolidge General Plan 2025 Land Use Map (Figure 2.1) and that meets the General Plan 2025 Minor Amendment Criteria listed within each Land Use Classification Summary.
- Updates to statistics, descriptions and summary text that reflect changing conditions and new facts.
- Addition of new roadway classifications that result in narrower lane widths, reduced number of lanes and/or an enhanced pedestrian or multi-modal transportation environment to Table 3b Access Management, and/or the Transportation Plan Map (Figure 3.3).
- Other changes determined by the Coolidge Growth Management Department staff to constitute a minor amendment to the Coolidge General Plan 2025 or not described herein as a Major or Minor Amendment.

DETERMINATION CRITERIA

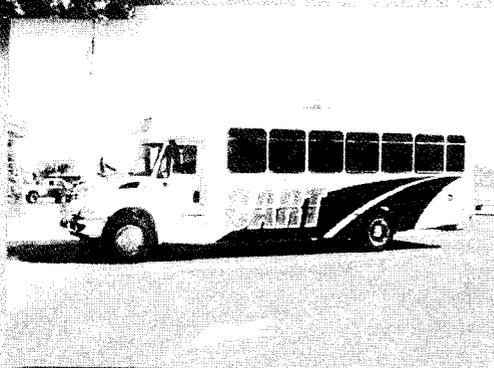
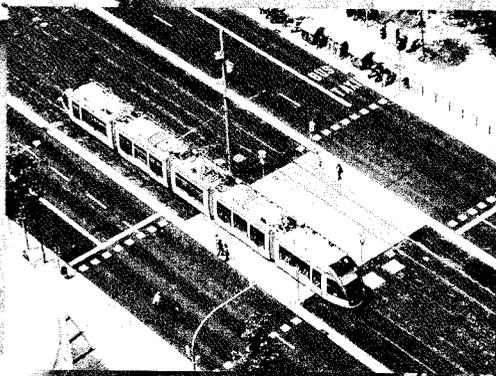
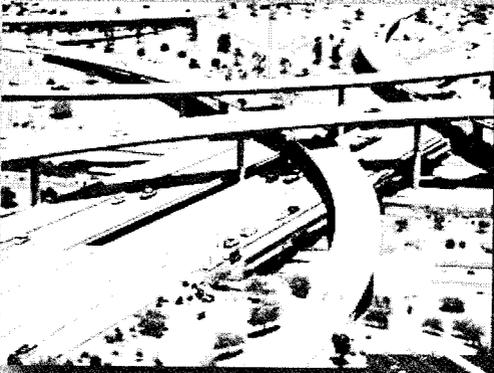
A determination to make a Major or Minor Amendment to the Coolidge General Plan 2025 shall be based on the following criteria:

- Describe how the proposed amendment furthers the General Plan Vision.
- Describe how the proposed amendment furthers Smart Growth principles to:
 1. Mix land uses.
 2. Take advantage of compact building design.
 3. Create a range of housing opportunities and choices.
 4. Create walk-able neighborhoods.
 5. Foster distinctive, attractive communities with a strong sense of place.
 6. Preserve open space, farmland, natural beauty, and critical environmental areas.
 7. Strengthen and direct development towards existing communities.
 8. Provide a variety of transportation choices.
 9. Make development decisions predictable, fair, and cost effective.
 10. Encourage community and stakeholder collaboration in development decisions.
 11. Further the sustainable use of resources and materials.
- Describe how the proposed amendment enhances or has no net impact on future water supplies.
- Describe how the proposed amendment enhances or has no net impact on mobility and traffic congestion.
- Describe how the proposed amendment enhances or has no net impact on the quality and quantity of publicly accessible open spaces and trails.
- Discuss if the proposed amendment will result in a higher net cost to the City or its residents for City Services.
- Does the proposed amendment require public investment or financing?
- Describe how the proposed amendment enhances or has no net impact on the natural environment, including air and water quality.
- Describe how the proposed amendment enhances or has no net impact on the rural character of the City.
- Describe how the proposed amendment results in the creation of jobs for Coolidge residents.
- Describe how the proposed amendment provides enhanced educational opportunities for Coolidge residents.
- Discuss how the specific goals, policies and strategies are furthered by the proposed amendment.

In order to plan your future wisely, it is necessary that you understand and appreciate your past.

-Jo Coudert

CHAPTER 3: CIRCULATION



Circulation Element

The Circulation Element addresses multimodal transportation improvements to roads and infrastructure serving motorists, transit patrons, pedestrians, and bicyclists. Much of the information in this section is directly from the City of Coolidge Comprehensive Transportation Feasibility Study adopted by Coolidge City Council in June 2012.

Key objectives of this section include identifying and establishing a multimodal transportation plan that provides a vision that promotes community growth and economic development, accommodates anticipated local and regional travel demand, and supports regional multimodal initiatives in a manner that informs regional decision making. The recommendations and direction provided in this section is the first of several required steps to implementation. The Circulation Element provides the community vision for transportation investments.

The urbanization process and general population growth is expected to add significantly to the number of households in the study area through year 2040, and beyond. Household and employment growth will be further enhanced by the regional transportation investments being contemplated. Being directly between the two metropolitan areas of Phoenix and Tucson, Coolidge is situated to provide residents and businesses a great amount of flexibility and proximity to these two key established population and employment areas of Arizona, while providing the framework to grow jobs and households locally. At this regional level, Coolidge is also positioned to be a central hub to support regional travel demand and tie into other regional transportation investments such as a North-South Corridor and an Intercity Rail system.

Approximately 30% of the future primary roadway network is currently paved, but these paved roads are not in the form of an ultimate arterial or parkway standard. In addition, of the arterial network in place, more than half of that system needs major or significant maintenance. The strategy outlined in this element provides an approach to establish the critical transportation corridors in a phased manner so to maximize system mobility and connectivity while minimizing maintenance activity requirements.

This plan worked closely with other regional stakeholders to ensure that plans were coordinated in an efficient manner. One of the key studies referenced throughout this work effort was the Pinal County Regionally Significant Routes for Safety and Mobility Study (RSRSM). The recommendations from the Circulation Element will inform and augment the County's Regionally Significant Routes (RSR) map (Figure 3.1). The significance of this map is that it illustrates those regional facilities designated for preservation through planning and access management applications. The principal arterials and parkway facilities illustrated in Figure 3.3 of this Plan should be integrated as Regionally Significant Routes for Pinal County.

There are three key multimodal parts of the Circulation Plan, including Roadways, Transit, and Bicycle/Pedestrian. Although described separately, they are all interrelated and must be implemented as a system.

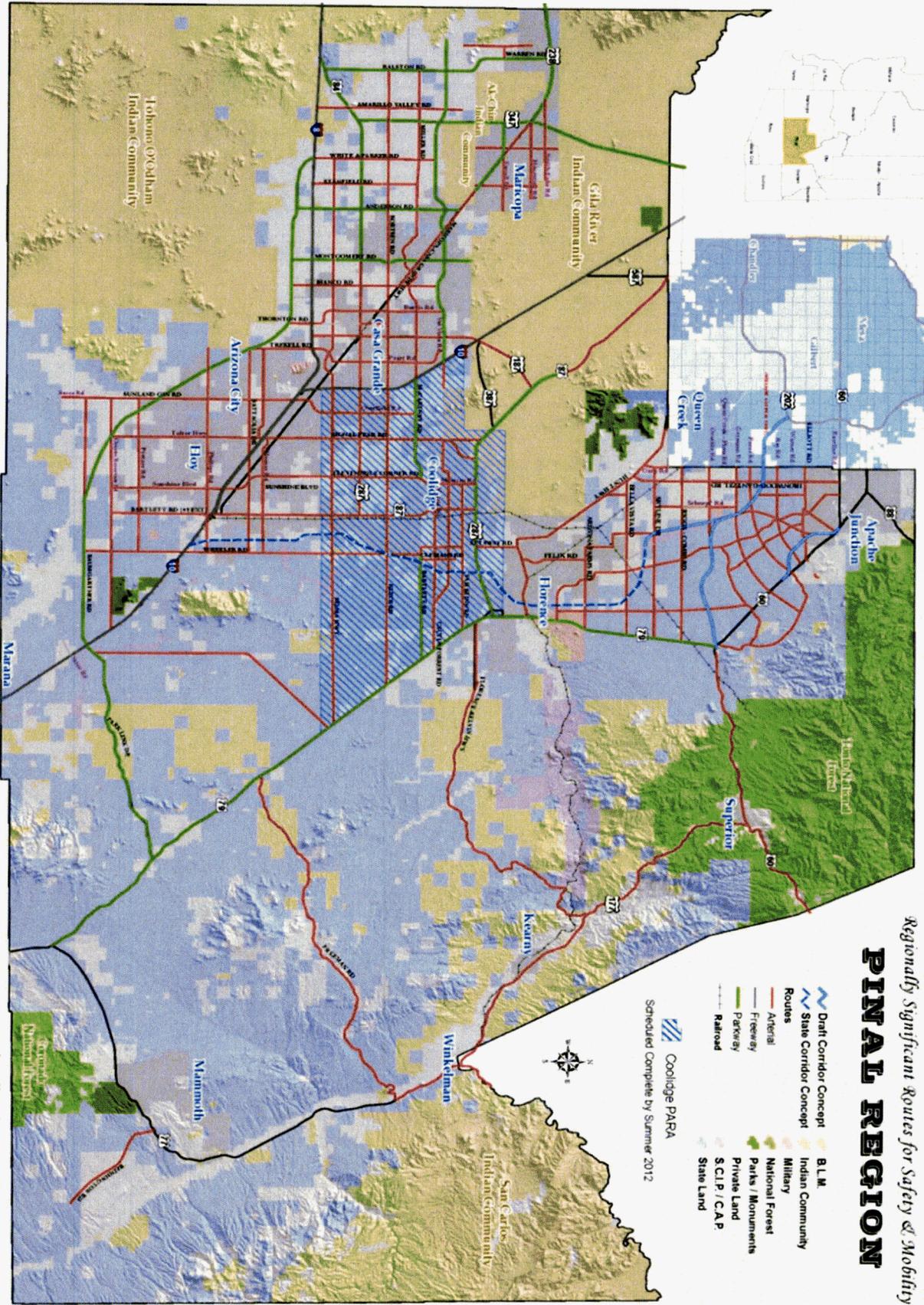
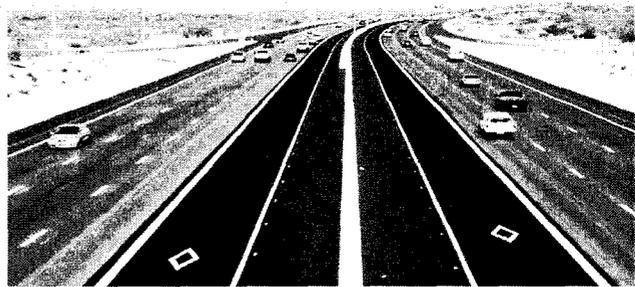


Figure 3.1 : Regionally Significant Routes

ROADWAYS

The future roadway facilities described herein are based on the existing and committed model network used for the North/South Corridor Study. The current travel demand model does not identify Principal Arterials versus Minor Arterials, and it does not differentiate between Major and Minor Collectors. The proposed changes, later described in this section, will correct these issues.



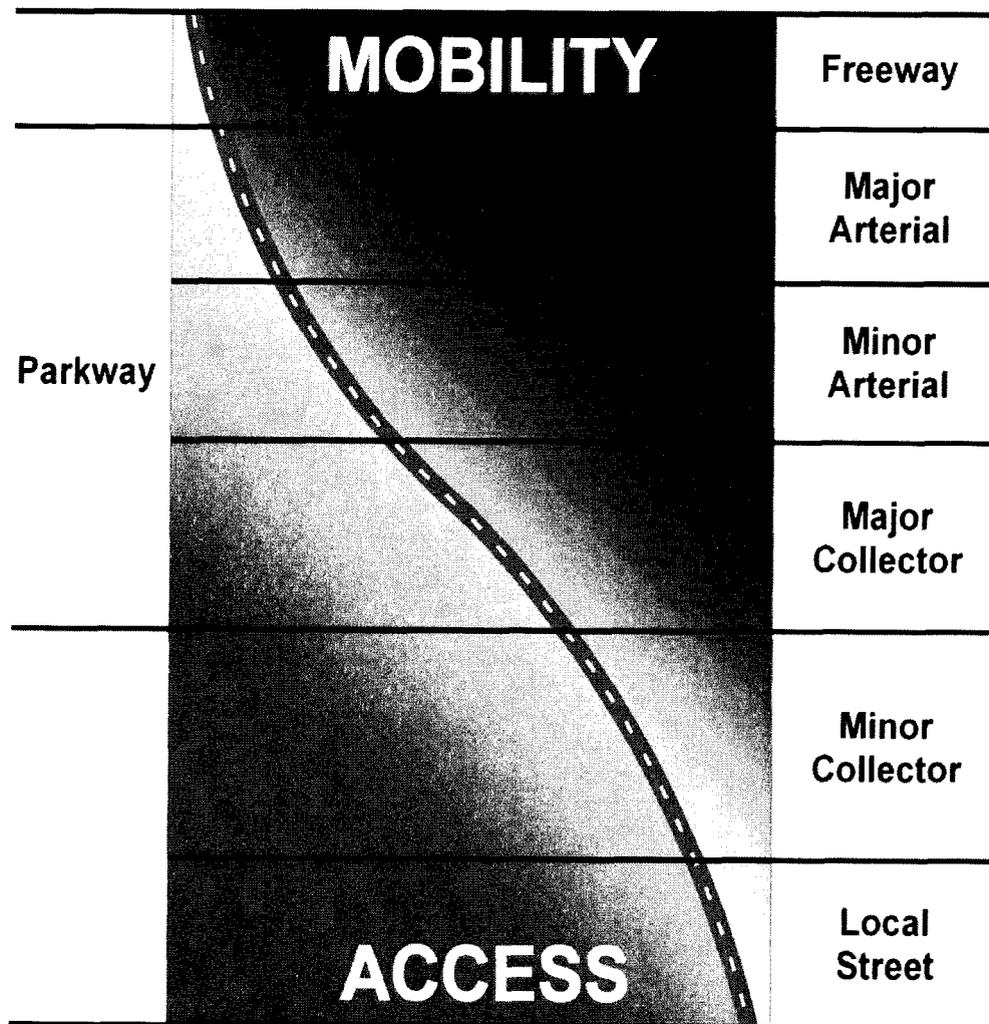
Roadway Functional Classification Roads are classified according to specific design and traffic characteristics. The functional classification process categorizes roads by how they perform in regard to providing access and mobility within the community. The region's roadway network includes five roadway functional classifications. The following roadway functional classifications are recommended to provide a sound transportation system for the City to accommodate local growth and regional transportation demands. The functional classification of the roadway network in Coolidge has been established in accordance with the definitions provided by ADOT and FHWA, as summarized below:

- **Freeway:** Multi-lane, high-speed, controlled access, divided roadway with the primary purpose of efficiently serving longer regional or interregional trips;
- **Parkway:** High capacity multi-lane, higher speed, controlled access, divided roadway with the primary purpose of efficiently and safely serving longer regional trips, major activity centers, providing access to freeways and arterials, and providing controlled access to abutting property owners;
- **Principal Arterial:** Higher speed, controlled access, divided roadway of two or more lanes in each direction, designed for efficient travel between major activity centers, providing access to freeways with limited access to/from abutting property;
- **Minor Arterial:** Higher speed, controlled access, divided roadway of two or more lanes in each direction connecting lower and higher functionally classified facilities as well as major activity centers, and facilitating access to and connectivity between larger land tracts and commercial developments;
- **Major Collector / Commerce Park Collector:** Two-lane roadway facilitating connectivity to the higher order arterial network, while providing direct access to the roadway network for larger commercial parcels and larger residential developments; and
- **Minor Collector / Residential Collector:** Two-lane roadway providing direct access to the roadway network for commercial parcels and multi-family residential developments via major collector and minor arterial roadways.



The Circulation Element graphically depicts all freeway, parkway, principal and minor arterial routes planned for the Coolidge Planning Area Boundary (Figure 3.3). The regional routes that include freeways, parkways and principal arterials facilitate regional travel and have the greatest amount of access control and management. These facilities should be integrated into the Pinal County Regionally Significant Routes system, the Sun Corridor MPO's Long Range Transportation Plan, and be part of the Regional Transportation Plan network. The major and minor collector facilities are not all identified as many of those facilities have the greatest potential for change as development occurs. Collectors that change cardinal direction should be discouraged as it creates out of direction travel and additional turning traffic movements, ultimately reducing capacity and decreasing intersection safety. As the functional classification transitions from arterial roadways to local roadways, the level of access increases, the capacity decreases, and the purpose of the roadway changes from efficiently moving vehicles to providing direct property access. This system of functional classifications is critical to provide a network capable of accommodating regional mobility and local property access.

Figure 3.2 : Access vs Mobility



ROADWAYS

FUNCTIONAL CLASSIFICATION CAPACITIES

Roadway capacity corresponds directly with roadway functional classification. In general, as the roadway classification is elevated, the roadway can handle higher traffic volumes. Factors such as level of access control, number of driveways, availability of left-turn lanes, and if the roadway is divided or undivided play a critical role in overall capacity.

Table 3a : Roadway Capacities (Daily Volume Threshold)

Functional Classification	Number of Lanes	Divided/ Undivided	Left-Turn Lane	Description	ADT Capacity Threshold (LOS D)
Freeway	4	Divided	n/a		101,600
	6	Divided	n/a		152,400
Arizona Parkway	4	Divided	ILT		60,000
	6	Divided	ILT		90,000
Principal Arterial	2	Undivided	Yes	State Class 1	15,500
	4	Undivided	No	Arterials	23,940
	4	Divided	Yes		34,200
	6	Divided	Yes		51,400
Minor Arterial	2	Undivided	No	State Class 2	11,600
	2	Undivided	Yes	Arterials	14,500
	4	Undivided	No		22,900
	4	Divided	Yes		30,600
Major Collector	2	Undivided	No		10,800
	2	Undivided	Yes		13,600
	3	Continuous LTL	Yes		15,000
	4	Undivided	No		15,200
Minor Collector	2	Undivided	No		7,500
	2	Undivided	Yes		9,400
	3	Continuous LTL	Yes		12,000

Source: Florida Department of Transportation *Quality Level of Service Handbook, 2002*

Table 3a above provides planning level capacities that should be considered as the transportation system is being phased and implemented. The capacities above also illustrate the significance of improved capacity for divided versus undivided roadways. Dividing the freeway, parkway, principal and minor arterial roadways with a raised median can provide approximately 40% additional capacity and greatly enhanced safety without a significant difference in investment costs.

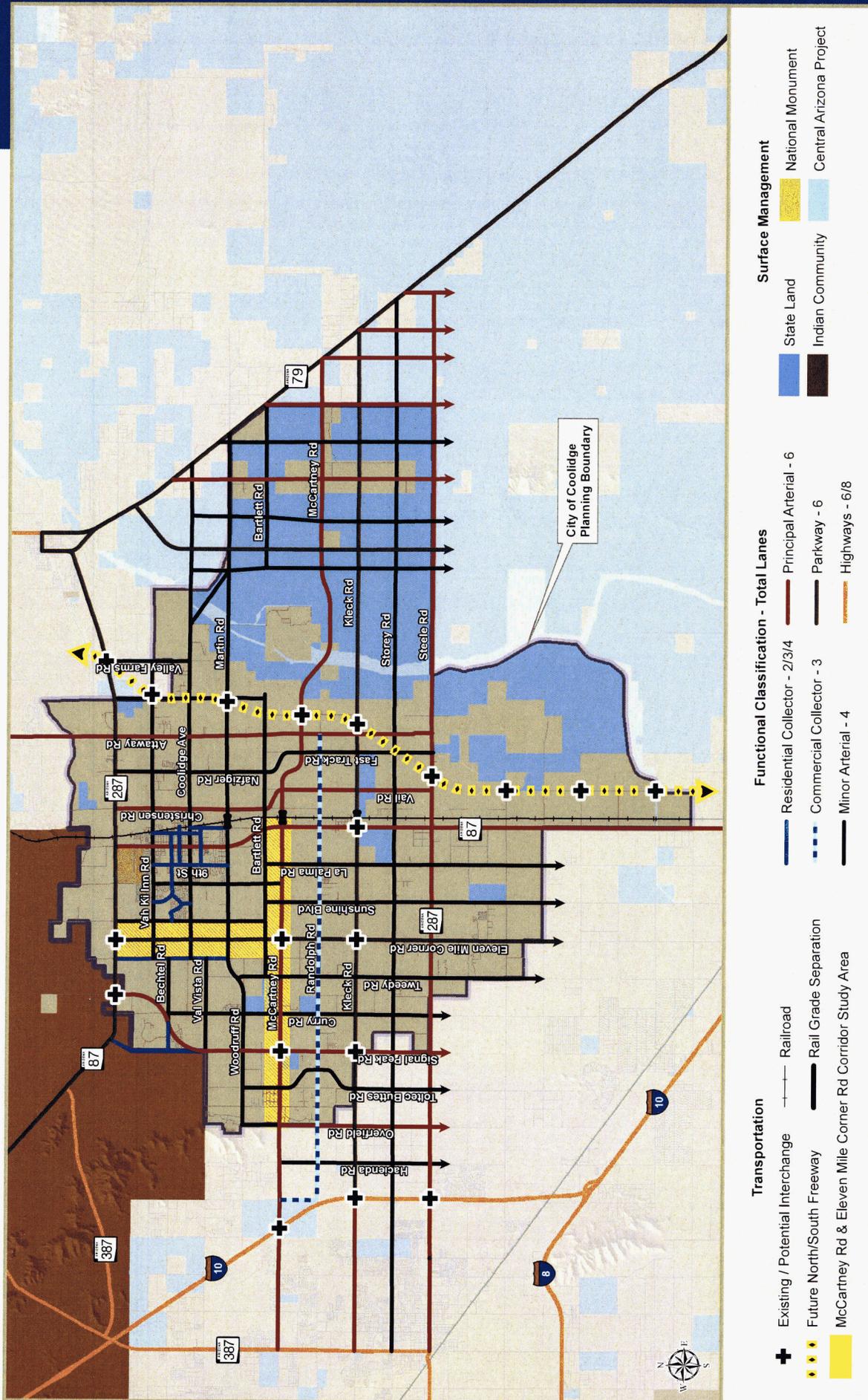


Figure 3.3 : Transportation Plan Map

*All you need is the plan, the road map, and the courage
to press on to your destination.*
-Earl Nightingale

TRANSPORTATION PLAN & ACCESS MANAGEMENT

Table 3b below documents the roadway criteria and design standards including the applicable access management strategy for each cross section.

Table 3b : Access Management

Criteria	Functional Classification				
	Arizona Parkway	Principal/Major Arterial	Minor Arterial	Commerce Park Collector	Residential Collector
Road Purpose	Mobility	Mobility	Mobility/Access	Access	Access
Planning Average Daily Traffic	60,000 – 90,000	45,000 – 60,000	30,000	10,000	8,000
Design Standards					
Design Speed	55 mph	55 mph	45 mph	35 mph	35 mph
Right-of-Way Width	200'	130' - 150'	110'	80'	70'
Median	Divided	Divided	Divided	TWTL	NA
Number of Lanes	6	4 - 6	4 - 5	2 - 4	2 - 3
Left-turn Lanes	Indirect Left-Turn. Spacing at 1320' or 660' as permitted	1/4 - 1/2 mile	1/4 - 1/2 mile	At all locations where permitted	At all locations where permitted
Right-turn Lanes	At all locations where permitted and warranted	At all locations where permitted and warranted	At all locations where permitted and warranted	At all locations where permitted and warranted	At all locations where permitted and warranted
Access Management Guidelines					
Public Access	1/8 – 1/2 mile	1/8 – 1/2 mile	1/8 – 1/4 mile	1/8 – 1/4 mile	1/8 mile
Property Access	Right in/Right out	Right in/Right out. Full access where approved	Right in/Right out. Full access where approved	Full access where approved	Full access where approved
Traffic Signal Spacing	1 mile; 1/2 mile where warranted and permitted	Mile and 1/2 mile locations where warranted, fully coordinated and progressed	1/2 mile locations, 1/4 mile locations where warranted, fully coordinated and progressed	1/2 mile locations, 1/4 mile locations where warranted	NA
Typical Traffic Control	Signalized, two-way stop	Signalized, two-way stop (interim – roundabout allowed)	Signalized, two-way stop (interim – roundabout allowed)	Signalized, roundabout stop	Signalized, roundabout stop
Parking	Prohibited	Prohibited	Prohibited	Restricted	Restricted
Alternative Modes					
Transit	Bus pull-outs and queue jumpers where warranted	Bus pull-outs and queue jumpers where warranted	Bus pull-outs and queue jumpers where warranted	NA	NA
Bike Lanes	Yes	Yes	Yes	Share the Road	Share the Road
Multi-use Path	10'	10'	10'	NA	10'
Sidewalk	6'	6'	6'	5' (both sides)	5'

TWTL – Two-way Turning Lanes

ROADWAYS

CROSS SECTIONS

Roadway cross sections provide the framework for a community to understand how to move people from their travel origins to their destinations. Several factors are balanced when developing cross sections to best manage future traffic demand based on existing and future land uses, including:

- Amount of traffic (high-volume versus low-volume)
- Type of traffic (large vehicles, heavy vehicles, buses, cars)
- Level of pedestrian activity
- Level of bicyclist activity
- Density of driveways
- Turning traffic volume (driveways, street intersections, offset versus aligned intersections)
- Surrounding land uses (schools, residential, industrial, commercial)
- Regional mobility corridors (through route, established bicycle route)

In communities across the nation, transportation system investments have strived to better accommodate multiple travel modes through “Complete Streets” initiatives. Whether it is providing sidewalks for pedestrians, shared-use paths or shoulders for bicyclists, wide outside travel lanes to allow for a safe area for cyclists to ride either in the shoulder or in a signed bicycle lane, bus pull-outs for transit stops, or trails for equestrians, communities are making the investments to provide safe mobility options to their residents, employers and visitors. Many of the proposed cross sections include a shared-use path that would be wide enough for more than two people to walk side-by-side, bicycle use and/or equestrian use. Each cross section also includes a detached sidewalk that is at least five-feet wide, and is separated from the roadway by at least five feet as indicated in the Arizona Department of Transportation (ADOT) *Roadway Design Guidelines*. All roadways should be designed in a context-sensitive manner; meaning the roadway condition should be proportional in scale to the adjacent development. This is particularly true in the two collector cross-sections (Commerce Park and Residential), which should be designed according to their adjacent land uses. Figures 3.4 and 3.6 through 3.9 depict the typical cross sections for each functional classification, and Figure 3.5 illustrates an indirect left-turn lane treatment for Parkway functional classification roadways. Where approved by Growth Management and Public Works, modifications may be made to these cross sections as necessary and appropriate to provide enhanced safety, design, circulation, or streetscape.

Figure 3.4 : Arizona Parkway Typical 6-Lane Section

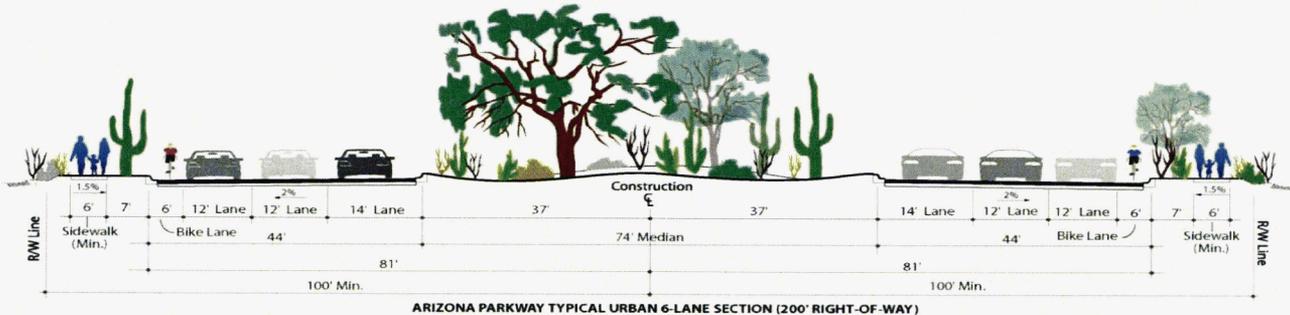


Figure 3.5 : Indirect Left-Turn Treatment

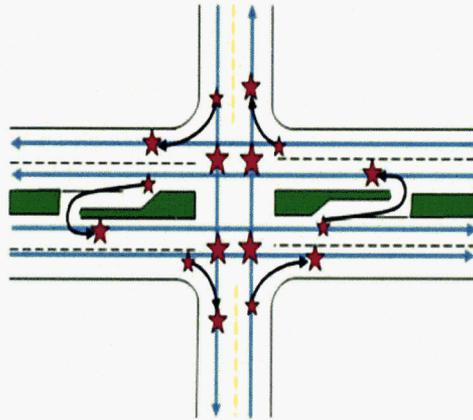


Figure 3.6 : Principal Arterial Typical Section

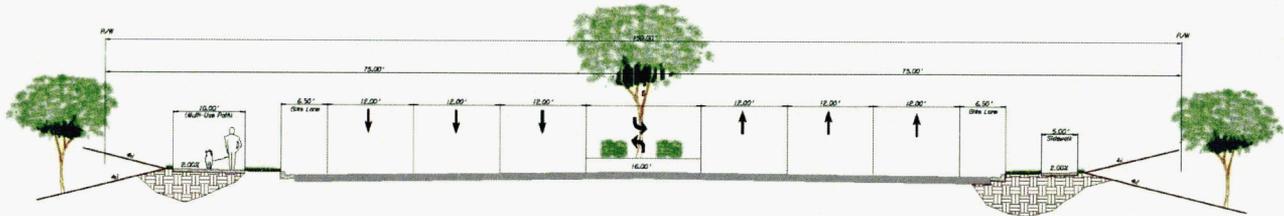


Figure 3.7 : Minor Arterial Typical Section

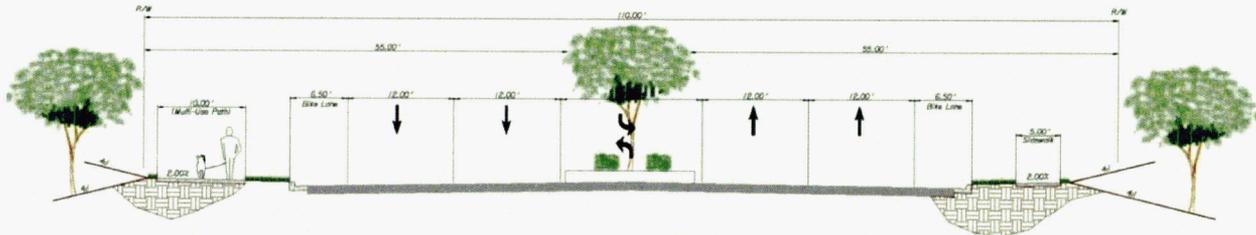


Figure 3.8 : Commerce Park Collector Typical Section

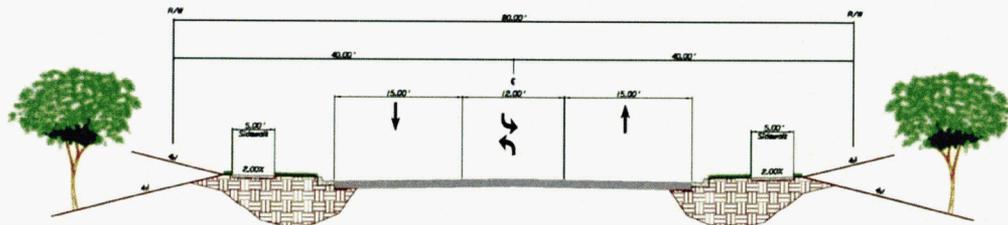
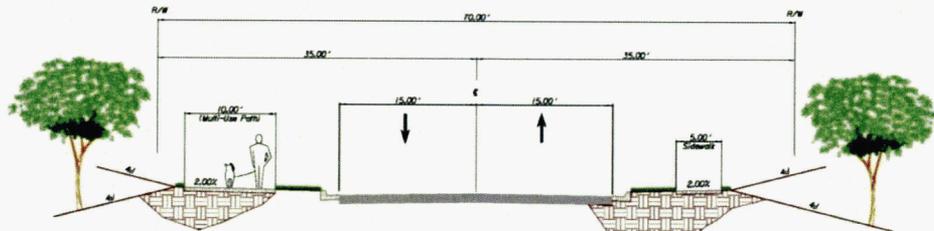


Figure 3.9 : Residential Collector Typical Section



TRANSIT

The provision of transit, both at a local level and at a regional level, is very important to the Coolidge community. Successful transit is a core component of a stable economic program to serve not only social service needs, but support and promote employer needs. Successful transit requires continued system investments that integrate transit into the framework of a community so as roads are improved, as developments are constructed and as new employment centers are attracted, transit can be a viable means of transportation for those patrons, visitors and employees. There are several key factors that directly apply for a transit provider to operate and manage a successful transit system. Seven key factors that relate to the City of Coolidge Cotton Express system success include:

1. **Reliability:** Reliable transit service is critical to ensure users that the bus will pick up patrons at a scheduled time.
2. **Predictability:** Predictable transit service is very important to those users that have to arrive at their destination at a certain time. For work, school and trips that involve a scheduled appointment, predictability of when the bus will arrive at the destination stop is critical.
3. **Cost Effectiveness:** Cost effective transit service is a balanced equation between the cost of attracting transit users and the expense to the users to make it a viable alternative to driving.
4. **Frequency/Headways:** Many systems have different needs during the morning and evening peak hours than during the mid-day or late evening travel periods. The frequency of service should be set in a manner that allows the user to have choices and flexibility regarding scheduled service. Service frequencies of less than 20 minutes by direction should be developed.
5. **Ties to Origins and Destinations:** Providing safe, direct and easy access for transit users to access the transit stop and providing safe direct easy mobility for transit users to reach their destination once they depart from the bus is critical for a successful transit system. When it is easy for users to access transit, the user identifies transit as a potential viable alternative to driving. Additionally, when the user can reach their destination safely and easily after being dropped off at a transit stop, that ease of making their complete trip is directly measured against the cost and ease of using other modes such as driving.
6. **Bus Stop Accessibility:** Due to the high degree of pedestrian and bicycle use to access transit, eliminating barriers transit patrons face as they arrive at / depart from transit stops is critical for the ultimate success of the transit system. Typically, the average transit user is willing to walk one-quarter mile to a station or stop, although external factors can affect this distance. There are both soft and hard factors that affect the experience of the pedestrian transit user. Hard factors include the street design, land use, and frequency of transit service. Soft factors include weather protection, landscaping, social experience, and personal safety.
7. **Trip Duration:** Minimizing the need to transfer ultimately reduces the amount of time dedicated to making the transit trip which therefore increases the potential reliability and predictability.

Providing transit services that incorporate the seven factors above will result in a successful and well used transit system.

In 2009, the **Cotton Express: City of Coolidge Five Year Transit Plan** was completed, which identified transit issues and suggested a simplified route be created along SR-87/Arizona Boulevard that would offer more frequent, 10-minute headways. This suggested route would improve transit access along the City's most heavily traveled commercial corridor. Additionally, the 2009 plan recommended an additional transit study to determine the feasibility of the SR-87 route including the need for bus bays (pull-outs). After further examining the potential improvement with the SR-87 route, the future transit recommendation includes a local circulator route to be created to improve transit service throughout the community. Similar to the SR-87 route, the local circulator route is recommended to have 10-minute headways but would connect Coolidge east-to-west (Figure 3.10). The local service would provide direct support for planned long-term regional transit services (Figure 3.11). In addition, ADOT is examining prospective regional intercity passenger rail services between Phoenix and Tucson. Cotton Express can actively support this with a potential passenger rail stop in Coolidge.

Figure 3.10 : Proposed Transit Service

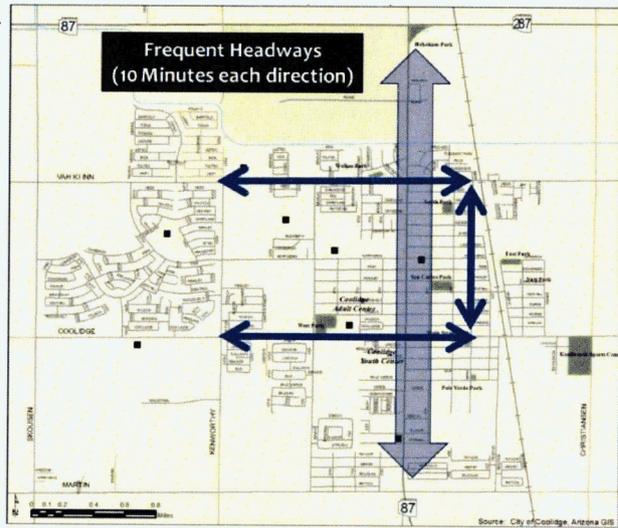
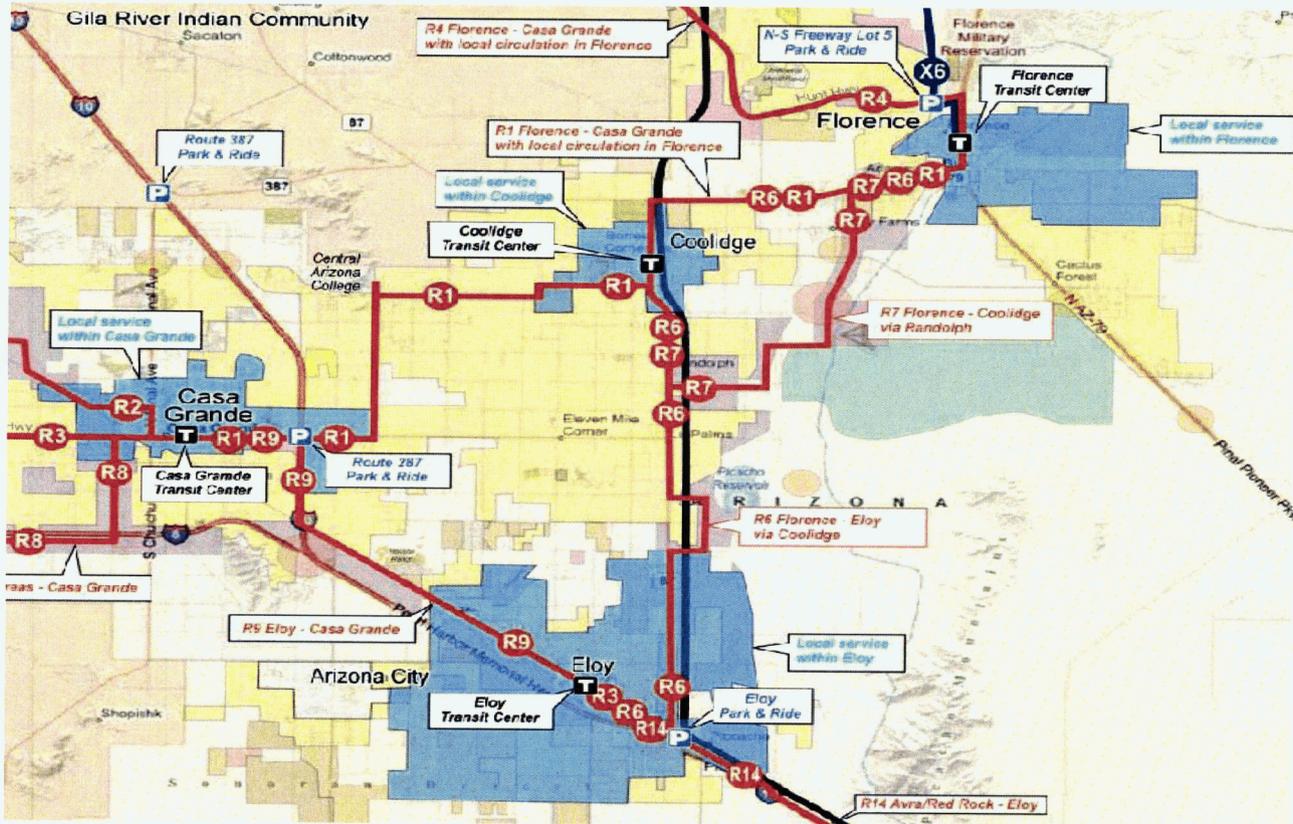


Figure 3.11 : Regional Long-Term Transit Improvements



BICYCLE/PEDESTRIAN

The City has an extensive local roadway network, and a developing collector and arterial network. Developing a network of sidewalks and paths within the community provides opportunities to walk or ride to a near-by destination instead of driving. Additionally, connecting key nodes in the City, such as schools, parks, and commercial centers are of utmost importance. The grid street pattern found in Coolidge helps to promote pedestrian mobility; however many of the existing roadways do not have sidewalks for pedestrians. The roadway cross sections included herein, when implemented, will provide a safe system of paths and detached walkways for non-motorized use. Within the built environment of the City, there are key corridors that should be improved to provide existing Coolidge residents, transit riders and activity center patrons safe corridors for pedestrian mobility. Figure 3.12 below shows the corridors where sidewalks should be constructed or continued as a priority.

Figure 3.12 : Priority Pedestrian Improvement Corridors

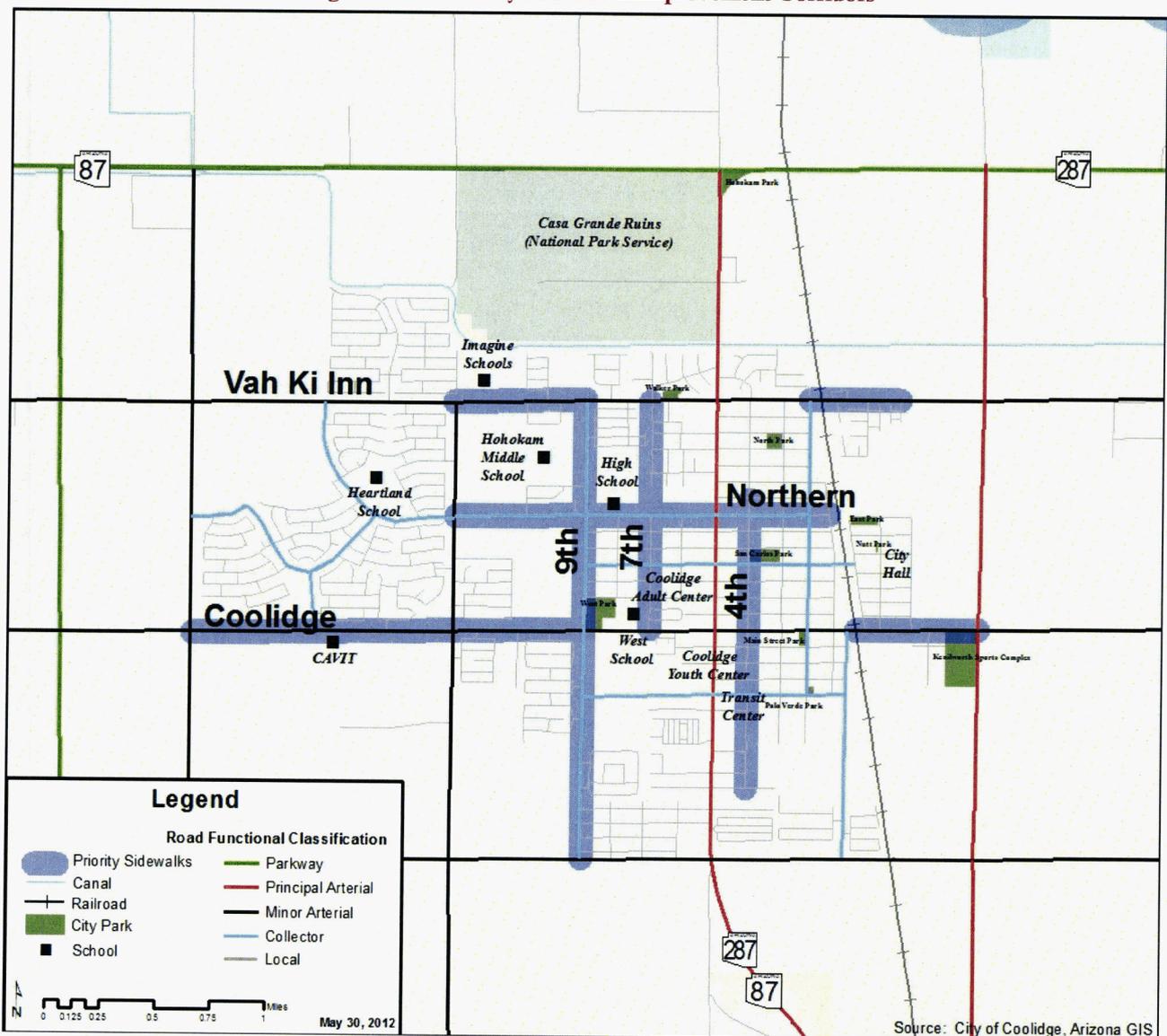
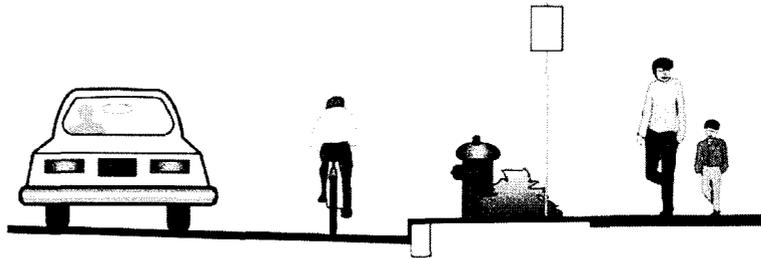


Figure 3.13 to the right shows a detached sidewalk with a defined curb and gutter, buffer zone, and sidewalk. Signs and other utilities are located in the buffer zone or in the area adjacent to the sidewalk so that pedestrians have a clear walking path along the sidewalk. This provides a de-

Figure 3.13 : Detached Sidewalk Layout



defined zone or area to place items such as street signs, fire hydrants, light poles, street furnishings, utilities and greenery all while leaving the sidewalk free and clear of obstacles. This area can also be useful for future construction projects and updates since it is unlikely that additional right-of-way will be needed. A five-foot paved shoulder services the bicycle traffic and also provides an additional buffer between the pedestrians and the vehicles along the roadway. Detaching the sidewalk and path from the curb and gutter can offer several advantages, including:

- Increased safety for the pedestrian;
- Lower cost for maintenance since the sidewalk and curb/gutter are not monolithic;
- Pedestrians would potentially not be impacted by roadway and curb/gutter maintenance activities;
- Improved ability to maintain sidewalk use during maintenance activities; and
- Improved ADA accessibility, particularly during roadway maintenance activities.

MULTI-USE PATHS

Multi-use paths serve multiple users including pedestrians and bicyclists. They are generally 10-feet wide. Similar to sidewalks that cross over railroad crossings, paths also have limitations and design concerns at rail crossings, as described below.

Complete Streets: Integrating multi-modal elements in a community's transportation system is critical for the ultimate success of achieving community mobility. The movement of "Complete Streets" has been in motion for several years. Complete Streets are designed to serve everyone – pedestrians, bicyclists, transit riders and drivers. Complete Streets in communities improve safety and mobility for all regardless of age or special needs.

Canals: Land adjacent to canals is a great resource for a larger community or regional trail system. An added benefit of locating a multi-use path adjacent to a canal is the immediate water access which can be rare to find in Arizona. There are several canals that cross through the City. A 10-foot to 15-foot multi-use path adjacent to each of these canals would provide an excellent regional trail system.

Railroad Crossings: Railroad crossings can be dangerous for pedestrians, bicyclists, and especially wheelchair dependent pedestrians. There are several methods to reduce this hazard including approach treatments, signage, crosswalk design, additional warning mechanisms, and materials.

Planning is bringing the future into the present so that you can do something about it now.

Alan Lakein

CHAPTER 4: OPEN SPACE



Open Space Element

Parks, Open Space and Trails are important components of a healthy and desirable City. Many of us enjoy the quiet solitude of our own private back yard where we can socialize with friends and neighbors or have time to ourselves. Other residents depend on property management companies to provide and maintain these outdoor spaces within apartment complexes, townhomes or other higher density neighborhoods. Our children enjoy active outdoor play areas at the local schools during their recess where they interact with coaches, teachers and other school children. The Open Space Element provides information about the existing parks, open spaces and trails as well as how these important community amenities will be planned for in the future.

NATIONAL PARKS

The Casa Grande Ruins National Monument is uniquely located inside the existing City limits and attracts nearly 100,000 visitors per year. The City is



fortunate to have this pre-historic cultural treasure and the abundant open space that surrounds the Casa Grande Ruins. There is quite a contrast driving along the busy Arizona Boulevard retail corridor and entering the National Monument surrounded by the pristine beauty of the desert surrounding the ruins.

REGIONAL PARKS

There are currently no regional parks in the Coolidge Planning Area Boundary that are maintained and operated by the City Parks and Recreation Department.

There may be other opportunities for regional park development within or just outside the Coolidge Planning Area Boundary that should be considered. One such area is located near the Picacho Reservoir which is famous for bird watching and has been considered as a recreational lake for the region.

COMMUNITY PARKS

Community parks are intended to serve as a draw for the entire community and should be strategically located along a major trail corridor and when possible, next to a school site. A community park should be utilized as a unifying element within a community, providing a civic core, central amenity, social gathering spot, and



community destination. A community park should contain lighted fields for evening activity as well as daytime recreation. The **Parks Amenities Table** (Table 4b) describes the potential amenities that may be programmed into a community park. A desirable design for a community park would provide a minimum of three items from Category 1, four items from Category 2, and five items from Category 3 as listed in the **Parks Amenities Table**, but may include additional or alternative amenities to provide a comparable or enhanced set of amenities. These parks are usually 10 to 20 acres to accommodate the desired uses.

NEIGHBORHOOD PARKS

Neighborhood parks varying in size from five acres to ten acres should be included within new development, serving as neighborhood cores within the residential parcels. All residents should be located within a quarter of a mile or a three to five minute walk from an open space amenity, creating a walkable neighborhood. The neighborhood parks are designed to provide both active and passive recreational activities, while also providing storage for storm water runoff in retention basins. These parks will provide opportunities for people of all ages with appropriately scaled amenities as well as shaded areas in each park. A



desirable design for a neighborhood park would provide a minimum of two items from Category 2 and two items from Category 3 listed in the **Park Amenities**

Table, but may include additional or alternative amenities to provide a comparable or enhanced set of amenities. Where physical structures have been proposed, site grading will elevate those structures above the bottom of the retention basin to minimize nuisance flows and to keep those facilities more accessible.

TRAILS, PATHS AND LINEAR PARKS

A trail and/or path system should serve to physically and visually tie neighborhoods together. The internal multi-use paths and walkway network should be designed to provide safe and convenient connections to all open spaces, uses and neighborhoods. All walkways and paths should be constructed of concrete, asphalt, or other approved material.

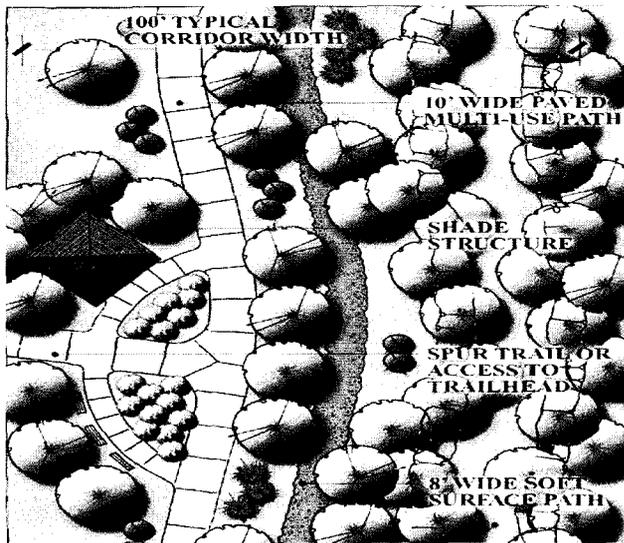


Major collector streets running through a project will include a 10 foot wide multi-use path on one side of the roadway located in a 20 foot wide landscape easement. In addition, there will be a 6 foot wide walkway on the opposite side of the street, also located in a 20 foot wide landscape easement. The two paths will serve as the connective backbone of the trail and pathway system through a project.

A 10 foot wide multi-use path will also be provided along arterial streets. Connectivity can be established through a trail provided in a linear park corridor, within an existing gas line easement, along or adjacent to

Open Space Element

canals, or in other existing corridors. In addition, four foot wide sidewalks along the local streets will provide neighborhood and community links. This hierarchy of paths and trails will provide connectivity throughout a project, connecting residents with all land uses and promoting an active and social lifestyle.



EXISTING PARKS

Coolidge currently has approximately 50 acres of existing City owned parks and open space (Table 4a). Privately (HOA) maintained parks and open space totaling roughly 112 acres also exist throughout Coolidge. The City plans to provide a uniform level of service and equal service for parks and recreation facilities throughout the City.

The City should consider a Parks and Recreation Master Plan and a Trails Master Plan to better address the Parks, Open Space and trails development needs to serve the residents of the City with accessible, equitable and quality recreational opportunities at the local and regional level. Residents of the City should be surveyed to determine the community needs and desires for recreation and establish a plan for the implementation of these improvements.

Table 4a : City Owned Parks & Open Space

Park	Address	Acreage
Adult Center	250 S. 3rd Street	2.1
East Park	301 N. Pacific Street	2.4
Hohokam Park	1795 N. Arizona Boulevard	3.5
Kenilworth Sports Complex	671 E. Coolidge Avenue	20.2
Landmark Field	800 W. Sunset Drive	3.4
Main Street Park	203 W. Coolidge Avenue	1.0
North Park	800 N. 3rd Street	2.4
Nutt Park	200 N. Washington Street	0.2
Palo Verde Park	146 W. Palo Verde Avenue	0.5
San Carlos Park	300 W. Central Avenue	4.2
Teen Center	660 S. Main Street	1.1
Walker Park	650 W. Vah Ki Inn Road	1.8
West Skate Park	811 W. Wilson Avenue	7.8

Table 4b : Parks Amenities Table

Category 1	Category 2	Category 3
Swimming Pool Facility	Soccer Field	Benches (Minimum 2)
Recreation Center	Football Field	Umbrella and Table Set
Interactive Water Play	Baseball Field	BBQ / Trash Can (Minimum 2)
Aesthetic Water Feature	Softball Field	Tetherball
Amphitheater	Half Court Basketball	Sand Play Area
Gathering Plaza	Full Court Basketball	Horseshoes
Restroom	Sand Volleyball	Frisbee Golf
Recreation Lake	Tennis Court	Bocce Ball
Skate Park	Pickle Ball	Passive Turf Area
Parking Area	Interactive Garden	Pet Station
Lighting	Exercise Par Course	Outdoor Chess Game
	Group Picnic Area	Artwork
	Climbing Structure	Drinking Fountain
	Independent Play Structure (riders, panels, spring toys)	
	Boulder Play Area	
	Shaded Play Structure for 2-5 year olds	
	Shaded Play Structure for 5-12 year olds	
	Shaded Ramada / Gazebo with Picnic Tables	
	Play Structure with Swings, Slides, and Imaginative Play	

During the community meeting on the Open Space Element, the participants discussed several recreational opportunities for the area and ranked these in order of importance. A new pool/water park was listed as the most desired recreational opportunity followed by a YMCA/Boy's and Girl's Club and a new library.

The are approximately 2,160 acres of proposed parks, open space and trails identified on a number of Planned Area Developments that were reviewed and approved by the City during the housing boom. City residents in some of the constructed planned developments enjoy the benefits of these recreational facilities. Some subdivisions in the City failed to develop

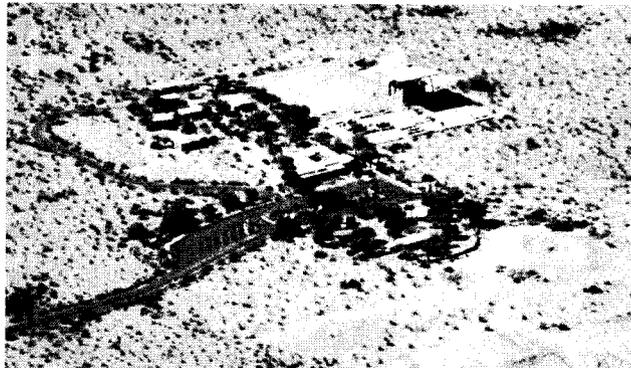
as expected and there has been a lack of maintenance where these community assets were introduced. As residential construction picks up in these planned developments, the City will require the developer and/or homebuilder to improve these recreational amenities.

As a community, Coolidge places a high importance on its parks. Staff takes pride in providing clean, well-maintained parks and the community responds by using and appreciating the parks and recreation facilities. Impact fees for parks and recreation facilities will be collected to maintain the current level of service offered to residents of the City.

Open Space Element

OPEN SPACE

For the purposes of this plan, *natural open space* is defined as lands to be acquired and/or preserved in their current state or returned to a natural state. For the purposes of this plan, *open space* is defined as developed common and private open areas designed to provide functions such as recreation, aesthetics, and a balance to the built environment. Examples of open space would be lakes, landscaped tracts, parks, trails, plazas, sport fields, and cultural landmarks. In some cases open space may also include educational institutions or other public facilities, and corridors for public uses such as canals and power line easements. These lands should provide for low impact recreation that is compatible with resource protection goals. It is not uncommon for open space to be up to 30% or more of the land area set aside for new community parks. The open space areas tend to buffer the active recreation areas within the park from adjacent houses. The City is fortunate to have one of the best examples of preserved open space within the boundaries of the Casa Grande Ruins National Monument.



The City has several open space properties and corridors (Figure 4.1). The Gila River floodplain on the City's northern boundary has been identified as an area where aggregate resources are extracted and



future open space can be preserved due in part to the floodplain development limitations. This major wash corridor can serve as a separator and connector simultaneously. Linking open lands together creates a network of corridors that allow for the movement of wildlife and people along natural open space areas. The Gila River can link the City of Coolidge together with the Town of Florence while at the same time separating them to allow each community to keep its own identity. Natural open space corridors connecting the Gila River floodplain to the Casa Grande Ruins National Monument is very important to maintain migration of wildlife to and from these important open space preserves for future generations.



The area around Picacho reservoir offers a tremendous opportunity for open space and wildlife habitat. This area is one of the best locations in the State of Arizona for bird-watchers and wildlife photography. Open space corridors must be planned to connect this natural system with other systems as future development is planned.

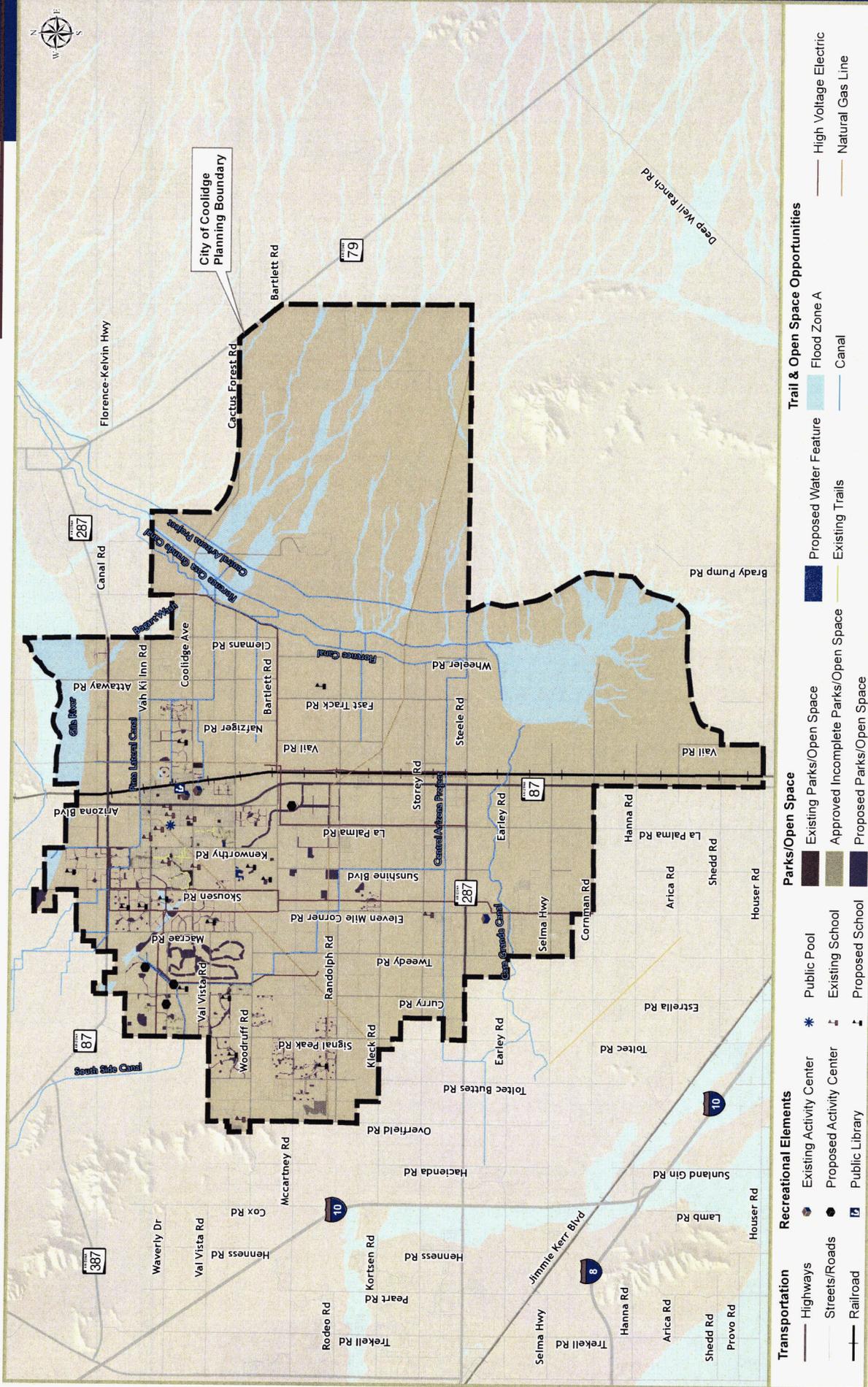


Figure 4.1 : Existing and Approved Open Space

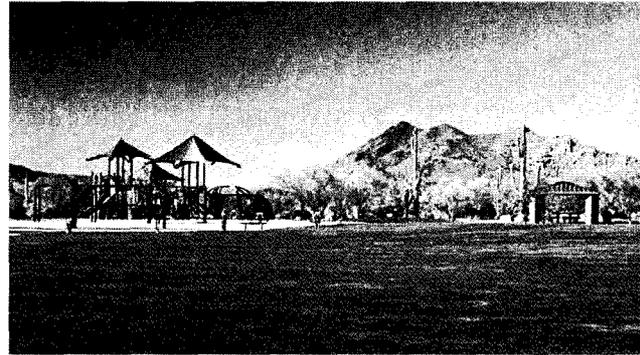
*The structure will automatically provide the pattern
for the action that follows.*

-Donald Curtis

PARKS & OPEN SPACE DESIGN GUIDELINES

The City needs to establish parks and open space guidelines that can be used for new construction and to keep existing parks up to the same standards. The following guidelines should be used for addressing future development ordinances and in discussions regarding development requirements in Planned Area Developments (PAD's).

- A minimum of 15% open space shall be provided within the single family residential portions of a PAD.
- Of the required open space, 50% of the area shall be developed as usable for parks and trails. Usable open space does not include detention or retention areas unless approved by the City Parks & Recreation and Growth Management Departments. In each retention areas, a minimum of one operational drywell may be required and maintained in perpetuity. In addition, during construction, all subdivisions are required to comply with the Storm Water Prevention Protection Plan.
- Within the developed area, 25% shall be set aside for trail corridors (assuming a 25' ROW). The remainder of the usable open space shall be developed for recreational improvements subject to the requirements as it is written below.
- Generally, golf course do not fall into the open space category; however, a portion of golf courses in PAD's may be counted in open space figures, especially in age targeted or age restricted communities



EXAMPLE:

Developer introduces a Planned Area Development to the City that is one square mile. As stated, the following acreages would apply:

- Total PAD acreage = 640 acres
- 15% required open space = 96 acres
- 50% developed open space = 48 acres
- 25% trail dedication = 12 acres



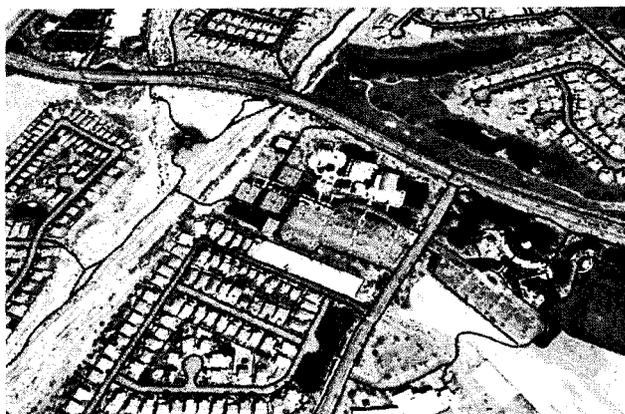
When looked at in terms of linear feet of trail in the development it looks like this:

12 acres of 25' trail ROW = 12ac x 43,560 sf per acre = 522,720 sf / 25' width of trail = 20908.8 linear feet of trail. 20908.8 linear feet of trail / 5,280 ft per mile = 3.96 miles of trail which will create two, one-mile trails that run through the center of the PAD and 2 one-mile perimeter trails. As adjacent properties develop, it is assumed that the other perimeter trails adjacent to the property will be developed.

Open Space Element

TRAILS

A comprehensive connected network of trails should be planned as the City grows. Primary trails should follow along drainage ways, irrigation canals, gas line easements, and electrical transmission corridors. The Gila River floodplain will also serve as a primary corridor for trails. These trail systems can also follow along parkways, and major arterial streets if they are designed to provide an enjoyable recreational experience.

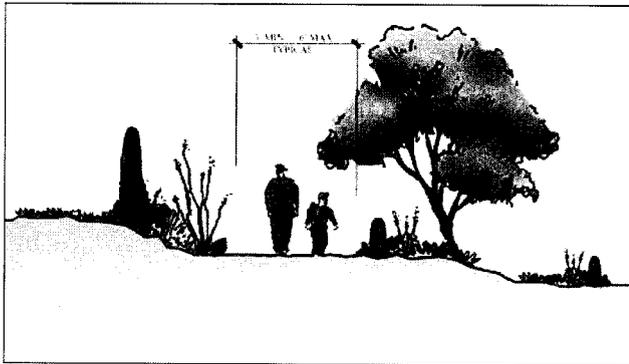


Primary trails incorporate landscaping and amenities along the way and ideally create a circuit and return to the starting point without having to backtrack. Primary trails are the backbone of this non-motorized trail system which links neighborhoods and schools and community parks together. Primary trails should be spaced no more than one mile apart and are generally constructed with concrete at least 10 feet wide. In some cases this width could be reduced to eight feet if an adjacent 3 foot crusher fines trail is incorporated which is sometimes preferred by runners and others who like having a choice of surfaces along a particular route. Primary trails are intended to be multi-use paths and should meet the requirements of the Americans with Disabilities Act.

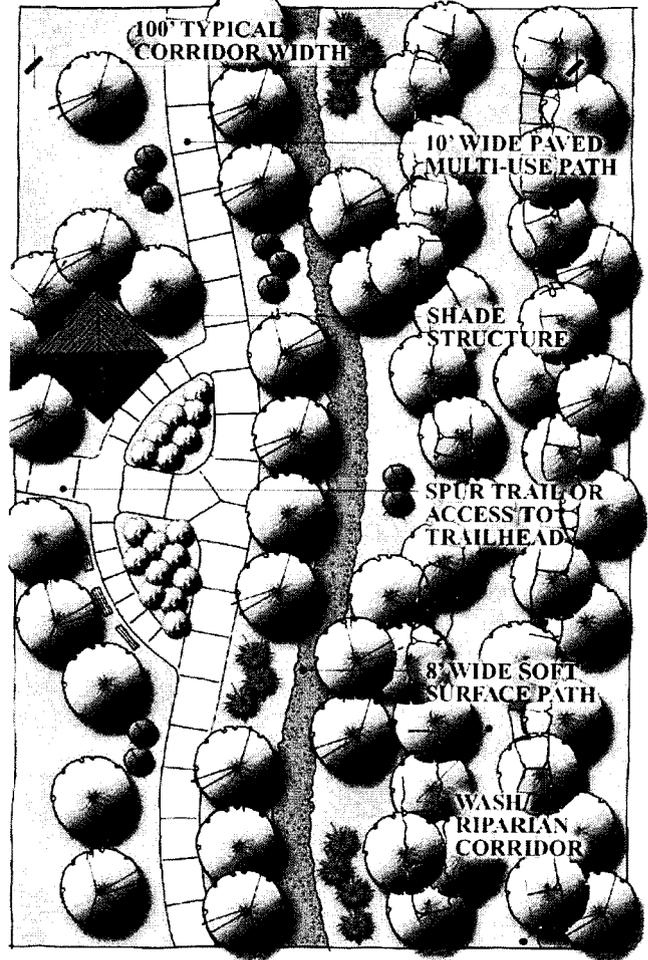


The City should work toward the development and adoption of a Regional Trails Master Plan that identifies opportunities for a comprehensive network of trails. The Master Plan would serve as a guiding document as the City works with developers of master planned communities to insure that neighborhoods are interconnected with an alternative to motorized transportation. Walking, jogging, cycling and horseback riding are activities that promote a healthy community and are one of the highest ranking public amenities that a developing city can offer to residents.

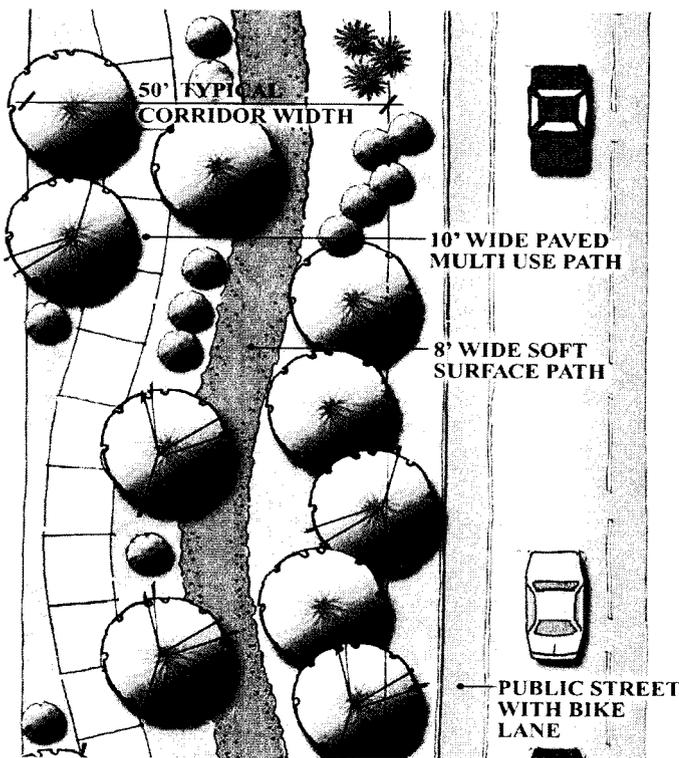




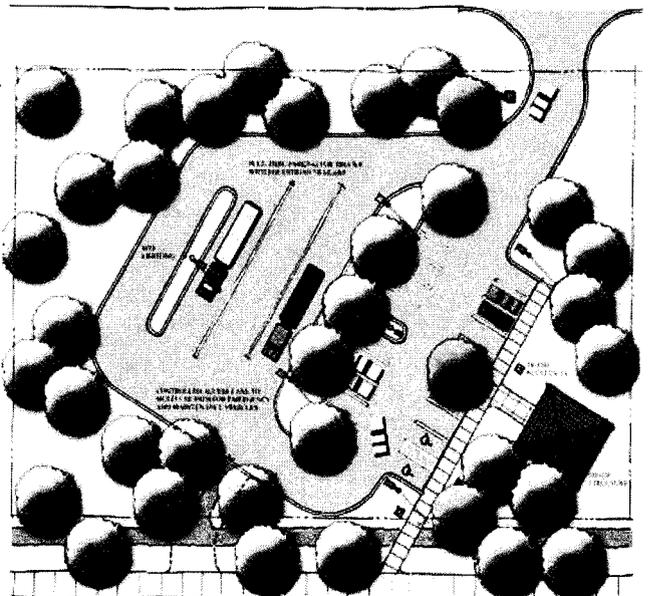
Primitive Trail Example



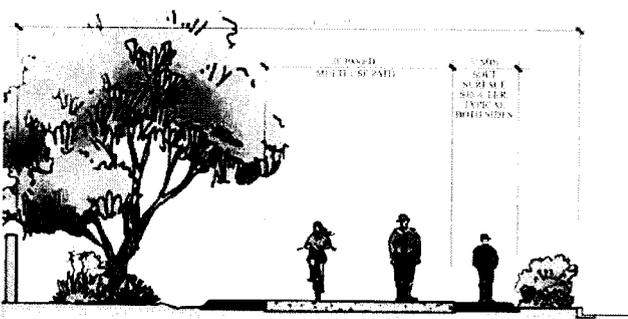
Linear Trail Example



Primary Trail Example



Trailhead Example

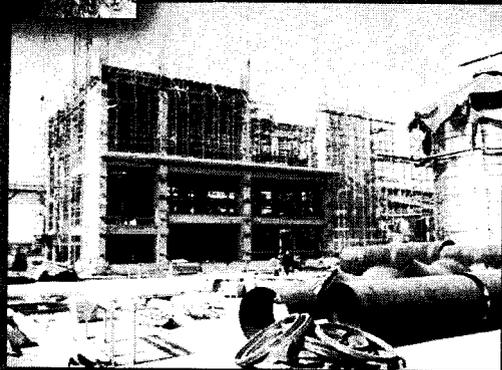
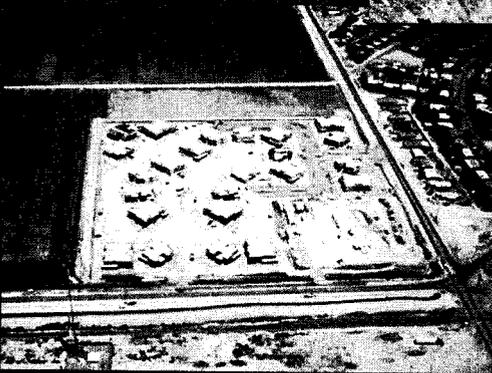
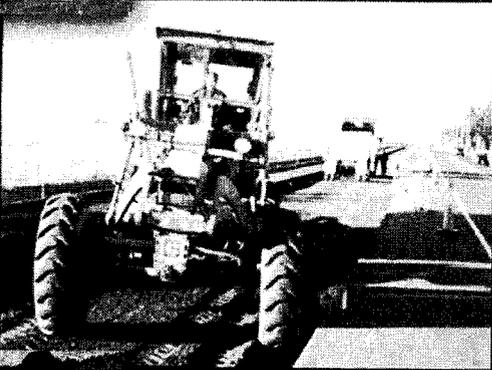
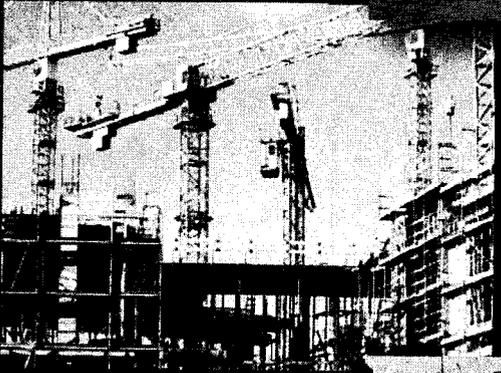
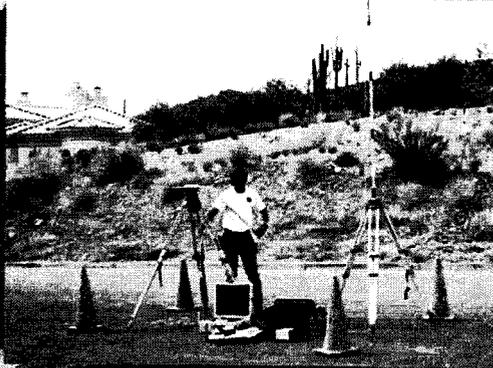


Primary Trail Example

OPEN SPACE

It is better to look ahead and prepare than to look back and regret.
-Jackie Joyner Kersee

CHAPTER 5: GROWTH AREAS



Growth Areas Element

The *Growing Smarter/Plus Act* was approved by the Arizona State Legislature and became effective on May 18, 2000. The purpose of the Act is to strengthen the ability of Arizona's communities to plan for growth, acquire and preserve open space, and develop strategies to address growth related pressures. The Act requires cities with populations over 10,000 to include seven elements within the General Plan including a Growth Area Element.

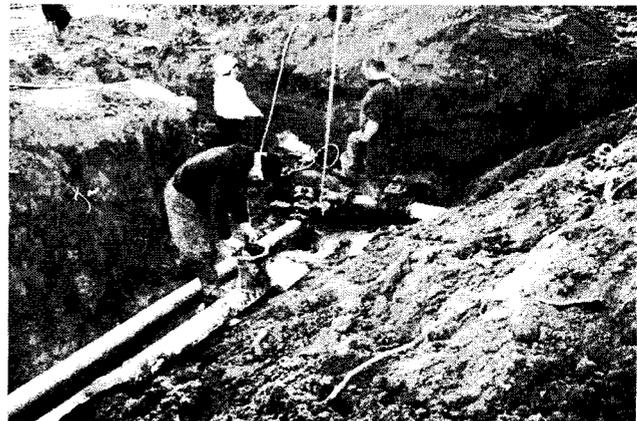
The Growth Area Element of the Plan is used to assist potential developers with an understanding of the current limits of existing City infrastructure, and to help citizens know where to expect future growth.

The City experienced its fastest rate of growth in the last decade when the Phoenix metropolitan area and Pinal County had the second fastest growth rate in the United States. Even though the City went through this period of unprecedented growth, much of the development was a logical extension of the City's infrastructure and the developed part of the City is still somewhat compact and extending outward in a manner that is efficient to service with City programs and resources.

The Growth Areas Element identifies four areas that are defined by suitability for development due to the availability of existing City resources, contrasted by the areas that are less suited for development due to the absence of services and infrastructure. The outer limits of the Growth Area Map is the extent of the City's "Planning Area Boundary". Growth areas are not prohibitive to new development, but simply target development to identified areas that are best served with City infrastructure and programs. In particular, large master planned communities that provide bene-

fits to the City in the form of economic development are encouraged throughout the City planning area with proper planning for important factors such as transportation, infrastructure, schools, and a variety of land uses.

The primary growth area is the area served by the City's existing wastewater collection system. The outer boundary of this growth area is approximately one-quarter of a mile beyond the closest sewer mains serving Coolidge Residents. This area is where the City should encourage near term development to take place due to the proximity of City services. This area of the community will best accommodate growth through the year 2025.



A secondary growth area was defined on the map which encompasses an area that extends approximately one mile beyond the primary boundary. This area lacks City sewer service and is mostly rural/agricultural land. It also includes a significant number of Planned Area Developments that were approved during the height of the real estate boom but never developed. This area may experience isolated development in closer proximity to other major influences like the Central Arizona College and proximity to Interstate 10 and the Southeast Phoenix metro area. Sig-

GROWTH AREAS

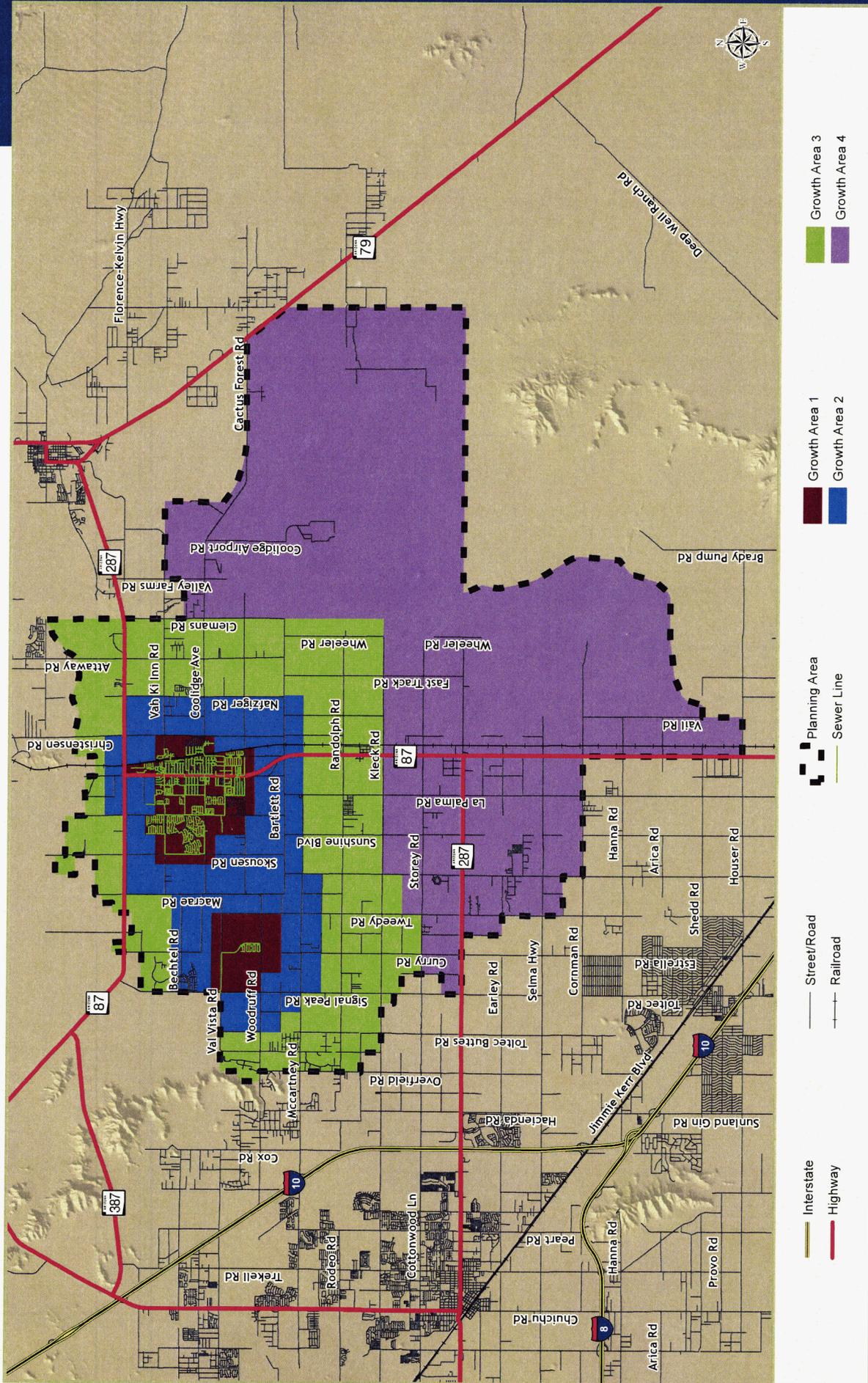


Figure 5.1 : Growth Areas Map

Table 5a : Population Projections

GROWTH AREA 1		
Designated Neighborhood	5,056 acres	3.4 du/ac = 17,190 4.4 du/ac = 22,246
Designated Rural	61 acres	0.2 du/ac = 12 1.0 du/ac = 61
Area 1 Low End Total =		17,202 x3.0=
Area 1 High End Total =		22,307 x3.0=
		Projected Population
		51,606
		66,921
GROWTH AREA 2		
Designated Neighborhood	10,911 acres	3.4 du/ac = 37,097 4.4 du/ac = 48,008
Designated Rural	1,346 acres	0.2 du/ac = 269 1.0 du/ac = 1,346
Area 2 Low End Total =		37,366 x3.0=
		9,354 x3.0=
		112,098
		148,062
GROWTH AREA 3		
Designated Neighborhood	13,235 acres	3.4 du/ac = 44,999 4.4 du/ac = 58,234
Designated Rural	7,921 acres	0.2 du/ac = 1,584 1.0 du/ac = 7,921
Area 3 Low End Total =		46,583 x3.0=
		139,749
Area 3 High End Total =		66,155 x3.0=
		198,465
GROWTH AREA 4		
Designated Neighborhood	28,238 acres	3.4 du/ac = 96,009 4.4 du/ac = 124,247
Designated Rural	17,905 acres	0.2 du/ac = 3,581 1.0 du/ac = 17,905
Area 4 Low End Total =		99,590 x3.0=
		298,770
Area 4 High End Total =		142,152 x3.0=
		426,456
Low End Grand Total =		200,741 x3.0=
		602,223
High End Grand Total =		279,968 x3.0=
		839,904

nificant development in this area is not expected in the next ten years but possibly ten to twenty years from now.

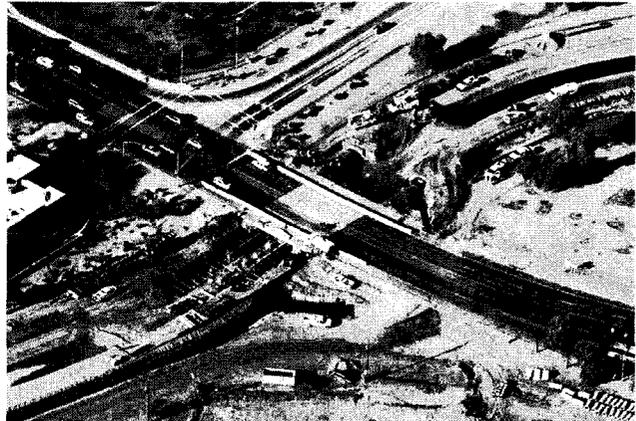
An area extending two miles beyond the secondary growth boundary represents an outer growth area that is also largely vacant/rural/agricultural property. Similar to the secondary growth area, future development may extend into this area near I-10 with the potential for rail served industrial land along the Highway 87 and Union Pacific Railroad. There are no development timelines predicted within this growth area or the outer growth area.

One additional growth area is featured on the map which involves a large area of State Trust Lands surrounding isolated pockets of private property. There shouldn't be any development within this growth area well into the future unless a funding alternative is found for the proposed North/South Freeway connecting I-10 south of Eloy to the US 60 near Apache Junction.

The City can implement smart growth strategies that encourage the outward expansion of development from those areas where services are readily available. It is economically advantageous to develop residential, commercial and industrial properties where City services are available and have capacity to support the new growth.

In the City's land use assumptions, it is projected that an average of 140 dwelling units per year will be constructed over the next twenty years with 120 dwelling units per year being constructed in the next ten years. The City evaluated build out projections within the planning area in each of the growth boundaries using a moderate (3.4 du/acre) and high (4.4 du/acre) residential density assumptions.

If the assumptions hold true, all of the projected growth in the next twenty years can easily be accommodated within the existing vacant lots in the City's infill area and within the 3,800 vacant lots that were improved for new home construction during the last housing boom in 2006 and 2007. As the Southeast Valley continues to extend south into Pinal County, and a proposed North South Freeway is constructed connecting the US 60 to Interstate 10 near Picacho, the projections for the Coolidge Planning Area must be re-evaluated. Until this occurs, the City should continue to support plans for development within the primary growth area by focusing its capital infrastructure expansion within this area.

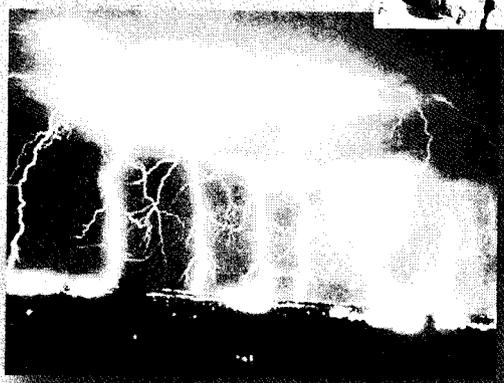
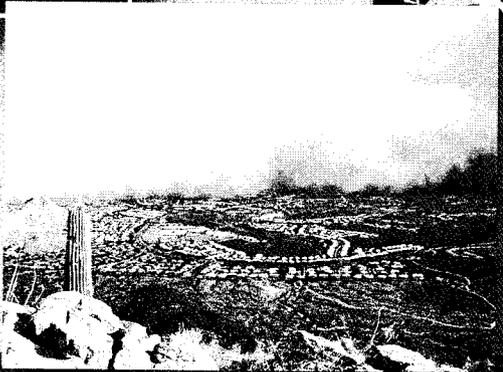
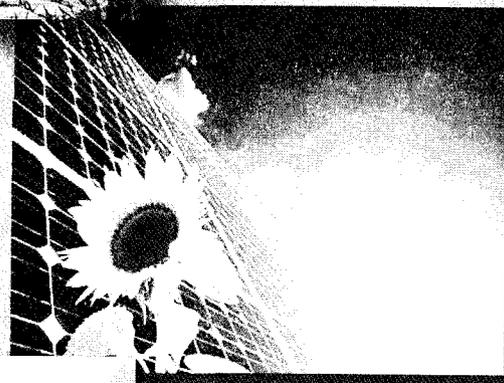
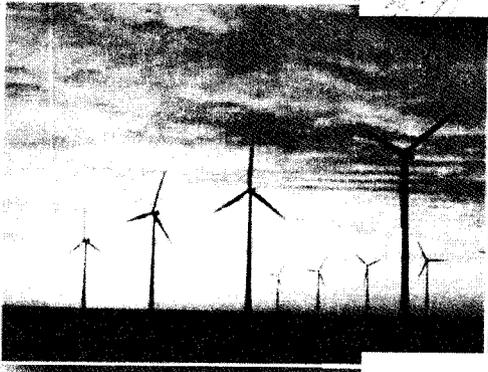


Planning for Growth will make automobile, transit and other modes of transportation more efficient, make infrastructure expansion more economical and provide a rational pattern of land development as contrasted with costly "leap frog" development.

As the growth areas develop, the City will identify and conserve any significant natural and cultural resources and plan for open spaces within and connecting to open spaces outside of proposed developments. The City will continue to partner with the Casa Grande Ruins National Monument and the Gila River Tribal Government to discuss the potential impacts from development on important cultural resources.

Spectacular achievement is always preceded by spectacular preparation.
-Robert H. Schuller

CHAPTER 6: ENVIRONMENTAL



Environmental Element

The management and preservation of natural resources is an important consideration in the General Plan 2025. The purpose of the Environmental Planning Element is to ensure that growth and development that occurs should be balanced with the interest of protecting natural resources.

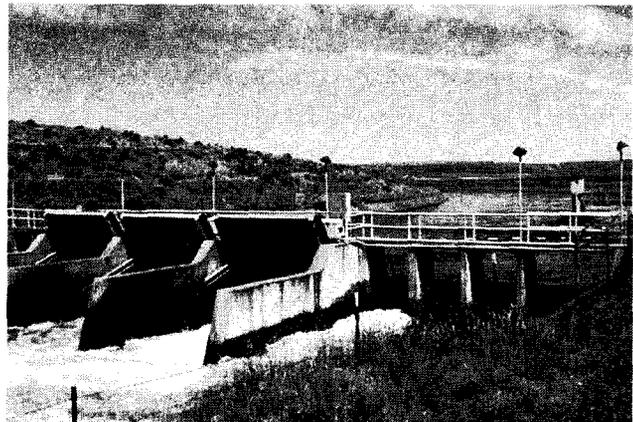
Ground and surface water quality, air quality, soils conditions, geologic hazards, wildlife habitat must all be maintained and/or evaluated at a high level to insure a safe, healthy and enjoyable environment for the current and future citizens of Coolidge.



Each of these topics are addressed in this section of the Plan. Requirements of ARS § 9-461.05.D.3 state that the Environmental Element must contain analysis, policies and strategies to address any anticipated effects of the Plan's elements and new development called for by the Plan on any water quality and natural resources. These policies and strategies will have community-wide applicability and do not require environmental impact statements beyond those that are already required.

GROUND & SURFACE WATER RESOURCES

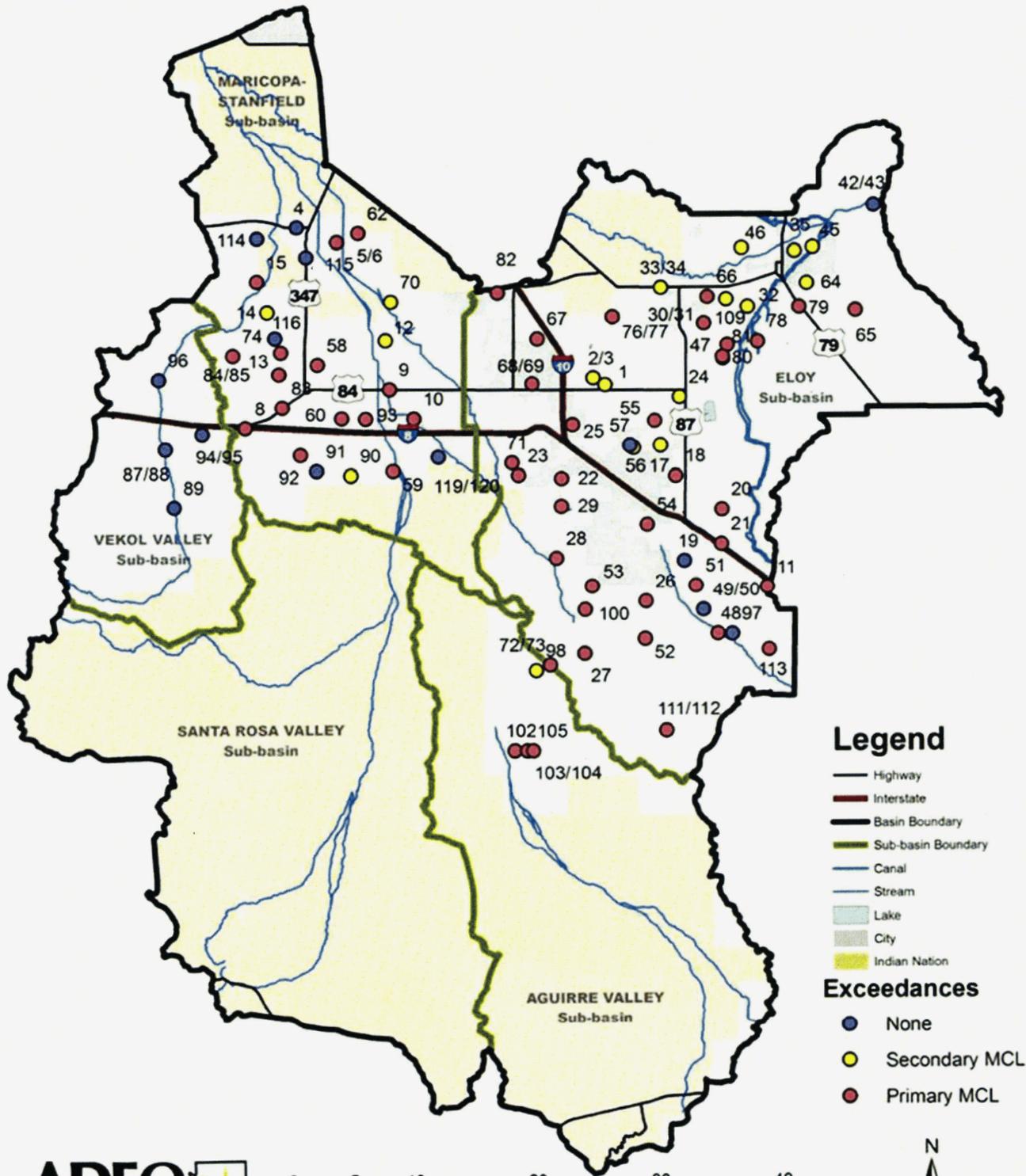
The City of Coolidge Planning Area Boundary is located within the Pinal Active Management Area (Figure 6.1) designated by the Arizona Department of Water Resources. The Water Resources Element in Chapter 7 of this Plan provides a more detailed analysis of Ground and Surface Water Resources which are summarized in this section of the Environmental Element.



There are four potable water companies within the City of Coolidge Planning Area. Arizona Water Company is largest encompassing approximately 64 square miles. At the end of 2012 this company serviced approximately 4,600 connections within the Coolidge Planning Area. 1,600 of these connections were made in the last ten years demonstrating the significant growth that occurred during the housing boom starting in 2004 and tapering off in 2007.



Figure 6.1 : Pinal AMA Water Quality Status

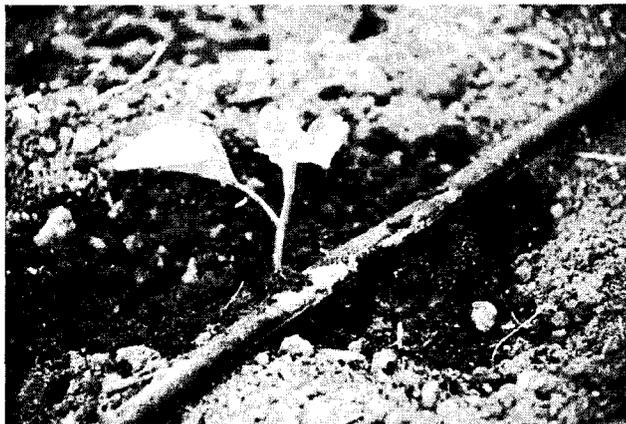


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Environmental Element

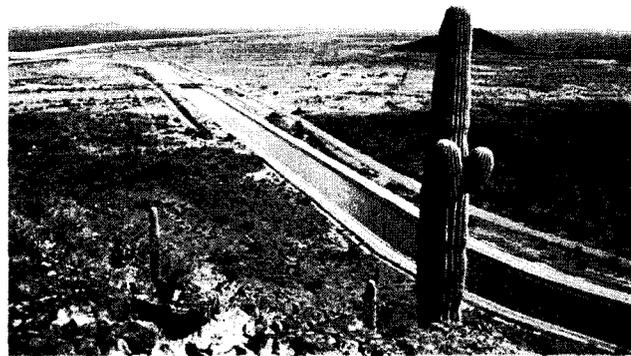
To satisfy the Arizona Corporation Commission and the Arizona Department of Water Resources Best Management Practices, Arizona Water Company and the agencies approved the following ten water conservation programs within the City's planning area:

- Public Education Program
- Residential Audit Program
- Customer High Water Use Notification
- Customer High Water Use Inquiry resolution
- Water waste Investigations and Information
- Special Events & Community Presentations
- New Homeowner landscape information
- Landscape Consultation
- Leak Detection Program
- Meter Repair or Replacement Program



The first eight water conservation programs are customer-oriented and the last two are water conservation measures the Arizona Water Company uses to monitor and control water loss. The City of also requires the use of drought tolerant native landscaping in its landscape code and the use of low flow plumbing fixtures outlined in the 2006 International Plumbing Code.

In addition to the groundwater supplies, the Coolidge Planning Area has other sources of water available. The Central Arizona Project has an allocation to the Arizona Water Company for its Pinal Valley water system. Hohokam Irrigation and Drainage District provides irrigation water for 32 square miles of agricultural land within the planning area and the San Carlos Irrigation and Drainage District provides irrigation water for another 28.5 square miles of agricultural land.



The City wastewater treatment facility receives and treats up to 1,000,000 gallons per day and has capacity to treat up to 2,000,000 gallons per day to Class C Effluent Standards. This treated water is delivered to adjacent farms for non-edible food crops. Eventually, the City will treat this water to Class A standards.



AIR QUALITY

In 1967, the Pinal County Board of supervisors established the Pinal county Air Quality Control District (PCAQCD) to provide for the local protection and regulation of air quality. The District has the primary responsibility for the administration of the County's air quality program. The Pinal County Air Quality department is generally responsible for protecting the public's interest in assuring that the air remains safe to breathe. What ensures this safety is air quality standards which originate from federal, state and local laws and regulations.



Western Pinal County, including the City of Coolidge, has been designated by the EPA as a PM10 Non-Attainment Area. PM10 is particulate matter where the size of the actual particles is 10 microns in diameter or less. PM10 is a type of air pollution that includes dust, soot, and tiny bits of solid materials that are released and move around in the air. This includes burning of diesel fuels, incineration of garbage, mixing and applying fertilizers and pesticides, road construction, steel making, mining, field burning, forest fires, fireplaces and woodstoves. It causes eye, nose and throat irritation and respiratory problems. The primary cause of PM10 in the Coolidge Planning Area is fugitive dust kicked up by vehicles traveling on unpaved roads, farm cultivation, and shaping land. Every precaution should be taken to reduce the amount of dust generated by these activities.



Dust in the air is a hazard to humans for many reasons. As fine particles, dust can have a direct adverse effect on human and animal health. Dust may contain pesticides, pollen, fungi, and other irritants to the lungs and eyes of humans. Dust can affect visibility. Traffic accidents involving up to 100 cars and trucks have occurred at times when dust obscured stopped vehicles on highways. Probably the greatest economic impact of dust is the cost of filters and of wear and tear on vehicles and on mechanical appliances, such as air conditioners. Dust is never appreciated when it enters the home. Soils contribute dust to the atmosphere from natural forces, such as the wind, and from human activities, such as driving vehicles on dirt roads, cultivating fields, and shaping land.



Environmental Element

SOILS CONDITIONS

Figure 6.2 illustrates the types of soils that are commonly found within the Coolidge Planning Area Boundary.

Soil is important but is often an overlooked component of our urban infrastructure. It is especially important in regulating runoff of storm water and in supporting trees, shrubs, lawns, and gardens. Soil erosion during construction commonly is a serious problem. Information about many erosion-control practices is available in local soil and water conservation district offices. Preventing soil-related problems is easier and more cost effective than correcting them later. Developers, contractors, and local governments need to work together to limit compaction and soil loss during construction operations.

Although construction activities may affect only a relatively small acreage of land in a watershed, they can be a major source of sediment and increased water runoff. Construction activities often leave the soil disturbed, bare, and exposed to the abrasive action of wind and water. These conditions greatly accelerate erosion, which produces large amounts of sediment.



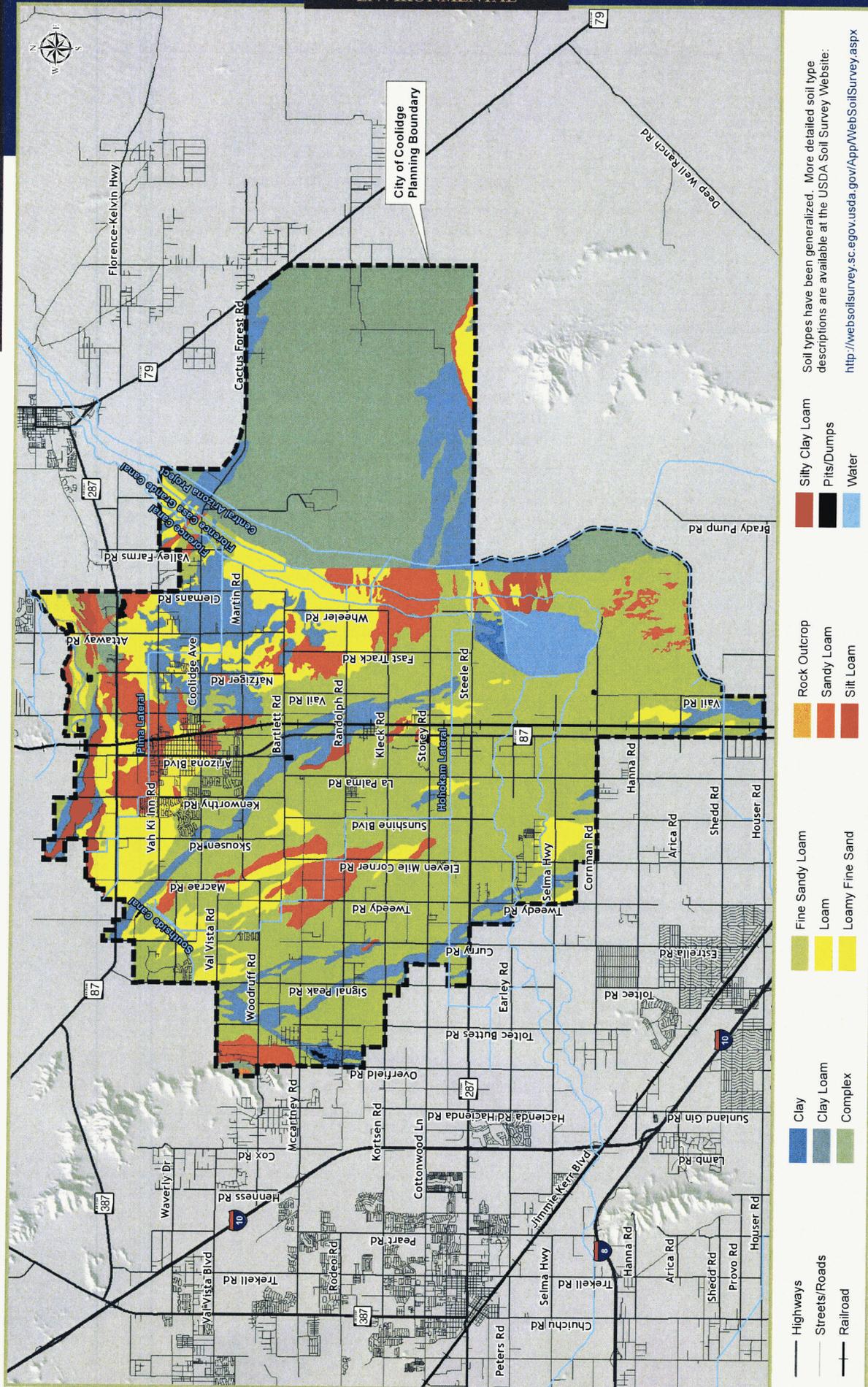
The sediment is unsightly in the local area, clogs storm-water drains, reduces the capacity of reservoirs, and adds nutrients and sediment to streams. Erosion on construction sites is commonly 100 times greater than that on agricultural land. Adequate measures are available to prevent onsite and offsite damage.



The City should continue to enforce regulations intended to control or prevent erosion on construction sites by requiring contractors to develop detailed erosion- and sediment-control plans before beginning construction projects.

Soils in the Coolidge area should also be evaluated for their shrink/swell potential. Sandy and Clay Loam soils are the most commonly found within the Planning Area Boundary. Homes built on expanding clays may experience structural damage as the clay takes up water.

The American Society of Civil Engineers estimates that half of the homes in United States are built on expansive soils and half of these will have some damage. The group claims that these soils are responsible for more home damage every year than floods, tornadoes, and hurricanes combined. Building contractors should take precautions to stabilize the structures. One solution is post-tensioned foundations for homes.



Soil types have been generalized. More detailed soil type descriptions are available at the USDA Soil Survey Website: <http://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>

Figure 6.2 : Soil Types Map

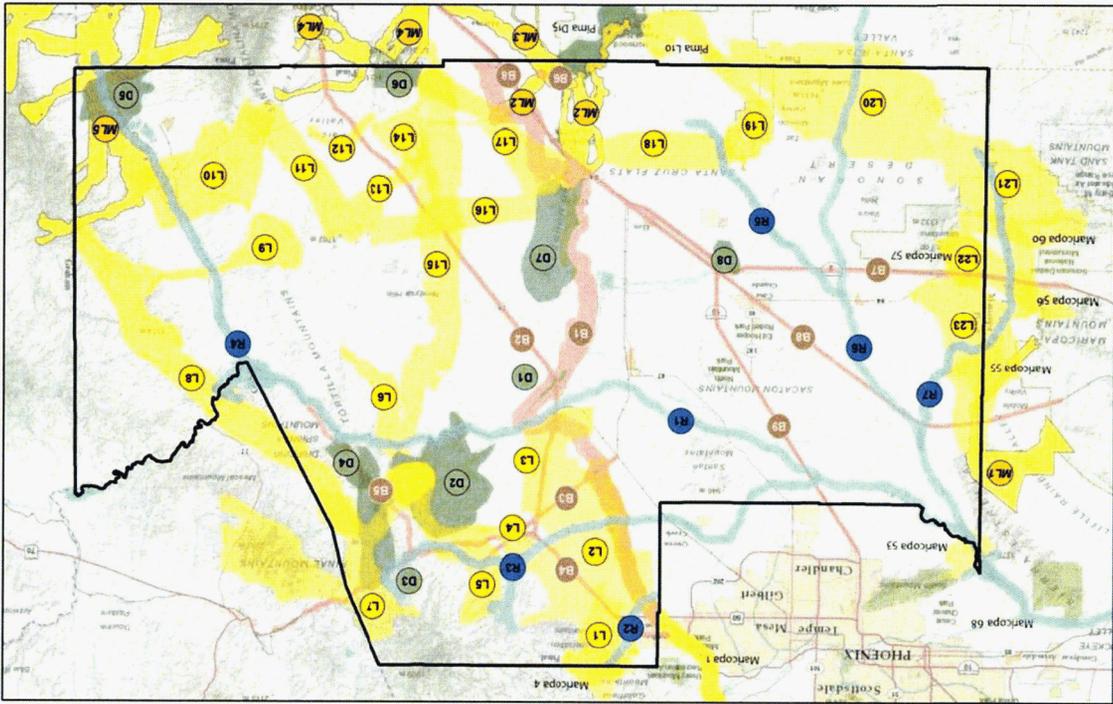


Arizona Game and Fish Department makes no warranties, expressed or implied, with any of the information on this map.



Figure 6.3 : Wildlife Connectivity Assessment

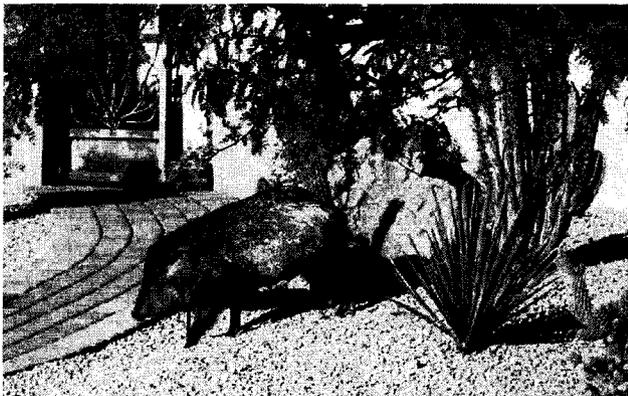
- Wildlife Linkages (Modeled)
 - Major Barriers to Wildlife Movement
 - Riparian Movement Area (Wildlife Movement Through Riparian Habitat)
 - Landscape Movement Area (Wildlife Movement Between Midland Blocks)
 - Off-axis Movement Area (Wildlife Movement within a block)
- Wildlife Linkages (Stakeholder Input at Workshop)
- Modeled by Beier et al and ACFD



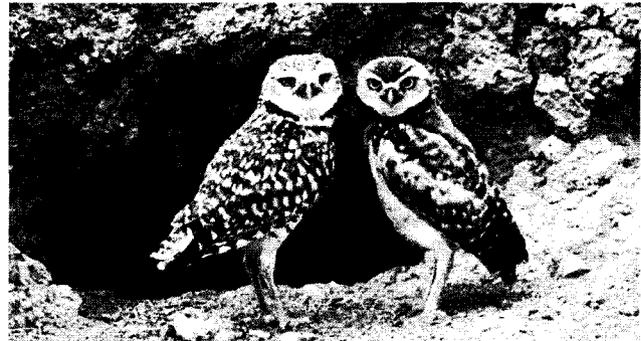
Pinal County Wildlife Connectivity Assessment: Overview

BIOLOGICAL HABITATS

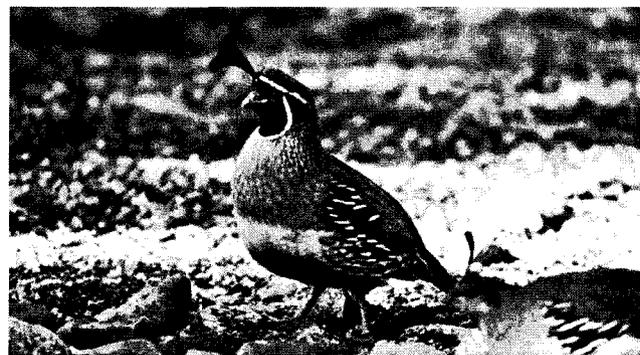
The natural habitats of the Coolidge Planning Area are located in the lower Sonoran Desert region. Vegetation in this area of the Sonoran Desert consists of pockets of plant life, usually dominated by creosote bush, bursage and brittlebush scrub with mixed cacti. Mesquite, palo verde, and ironwood trees are also prevalent within the planning area. Since the damming of the river in 1928, the Gila River has been largely barren, with the exception of periods following heavy rainfall. Because of the damming and the current sand and gravel operations along the river corridor, the vegetation and wildlife of this riparian area has significantly decreased. While a large portion of the Planning Area consists of agricultural land, there are still significant areas of natural desert that support native wildlife to be preserved and protected.



The Sonoran Desert region supports a variety of animal and reptile species, including rattlesnake, coyote, black-tailed jackrabbit, cottontail rabbit, javelina, mountain lion, badger, bobcat, and mule deer. A variety of birds also inhabit the area, including dove, quail and red-tailed hawks. Three species in the Planning Area have been defined by the Federal Government as a Species of Concern or Endangered, including the Western Burrowing Owl, Nochol Turk's Head Cactus, and the Arizona Hedgehog Cactus.



In 2006, the Arizona Wildlife Linkages Workgroup (a collection of nine public and nonprofit agencies, including the Arizona Department of Transportation and AGFD) completed Arizona's Wildlife Linkages Assessment (Figure 6.3), which is an initial effort to identify potential linkage zones important to Arizona's wildlife and natural ecosystems that may be interrupted by large transportation infrastructure projects. The two main reasons for this project are highway safety and wildlife conservation. Consideration of wildlife corridors and connectivity can be integrated into the planning stages of transportation projects such as free-ways. Through this process, significant wildlife linkages have the potential to be maintained or conserved. The Planning Area has two main designated corridors: the Gila River area and the Central Arizona Project canal. However, the two canals located east of the City Core—Florence Casa Grande Canal and the Florence Canal—are natural wildlife corridors as well, and should be considered for conservation purposes. Arizona State Land and the Bureau of Land Management should also be engaged in land conservation efforts.



Environmental Element

GEOLOGIC & OTHER HAZARDS



Earth fissures and flood prone areas are two hazards that can be encountered within the Coolidge Planning Area. Figure 6.4 depicts the general proximity where these two conditions can exist. Earth fissures have been documented east of Wheeler Road and typically South of the Coolidge Municipal Airport. Earth fissures are associated with basin subsidence that accompanies extensive ground water mining. In Arizona, fissures were first noted near Eloy in 1929. Their physical appearance varies greatly, but they may be more than a mile in length, up to 15 feet wide, and hundreds of feet deep. During torrential rains they erode rapidly presenting a substantial hazard to people and infrastructure. Moreover, fissures provide a ready conduit to deliver runoff and contaminated waters to basin aquifers. Ariz. Rev. Stat. § 27-106 charges the Arizo-



na Geological Survey (AZGS) with comprehensive mapping of earth fissures throughout Arizona and delivering earth fissure map data to the State Land Department to be posted online with other GIS map layers for the public to use to build their own customized maps.

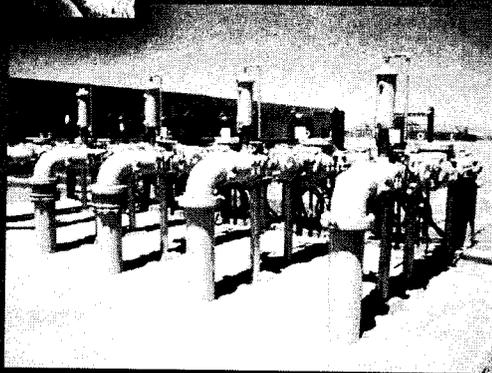
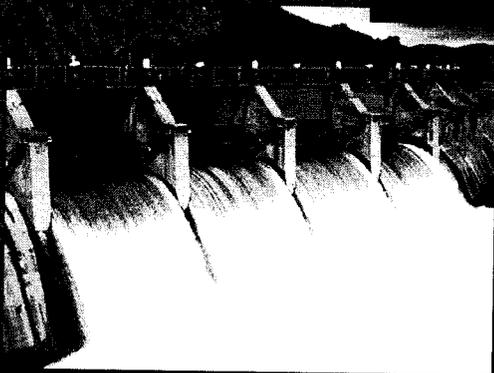
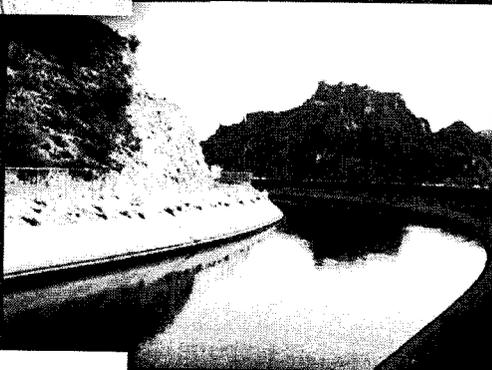
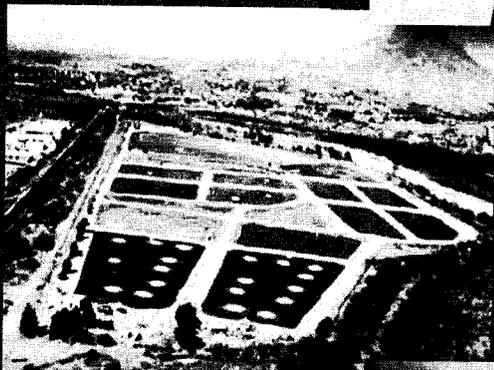


The area with the greatest flood potential is along the Gila River on the north boundary of the planning area and along the McClellan Wash influence area in the Northeast part of the planning area. Other areas prone to flooding are low lying areas along Raymond and Bealey Streets and in several area drainage channels that were developed to convey storm-water around developments like Heartland Ranch.



*The time to repair the roof is when the sun is shining.
-John F. Kennedy*

CHAPTER 7: WATER RESOURCES



Water Resources Element

INTRODUCTION

Arizona Water Company ("AWC") is a public service corporation regulated by the Arizona Corporation Commission ("ACC") which owns, operates and maintains the Pinal Valley water system which serves the City of Coolidge and the surrounding areas. AWC prepared the *Water Resources Plan* with AWC's historical information and projections as well as information provided by the City. The *Water Resources Plan* addresses the development and delivery of safe, reliable and adequate water supplies within the City's projected planning area through the year 2025.

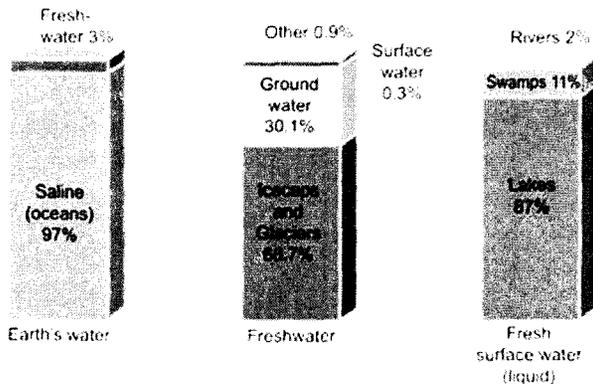
The *Water Resources Plan* focuses on issues that influence water availability, supplies and demands through the year 2025. Among the issues are current and future sources of supply, population growth rates and projections, projected water demands and conservation requirements. The *Water Resources Plan* focuses, in a large part, on areas within the City's projected planning area with the highest potential for growth.



BACKGROUND

There are four public service corporations (or water companies) that provide water service within the City's planning area boundary; Arizona Water Company, Carter Water Company, Signal Peak Water Company, and Woodruff Water Company. AWC provides potable water service to residential, commercial, and industrial users and is the largest potable water provider in the Coolidge area with a service area encompassing 68 square miles of the City's planning area. Woodruff Water Company has the second largest service area with approximately five square miles although it serves only a few customers. Signal Peak Water Company and Carter Water Company have the smallest service area with 0.71 and 0.21 square miles respectively. Figure 7.1 shows the ACC-authorized Certificates of Convenience and Necessity areas for water providers in the City's planning area.

Distribution of Earth's Water



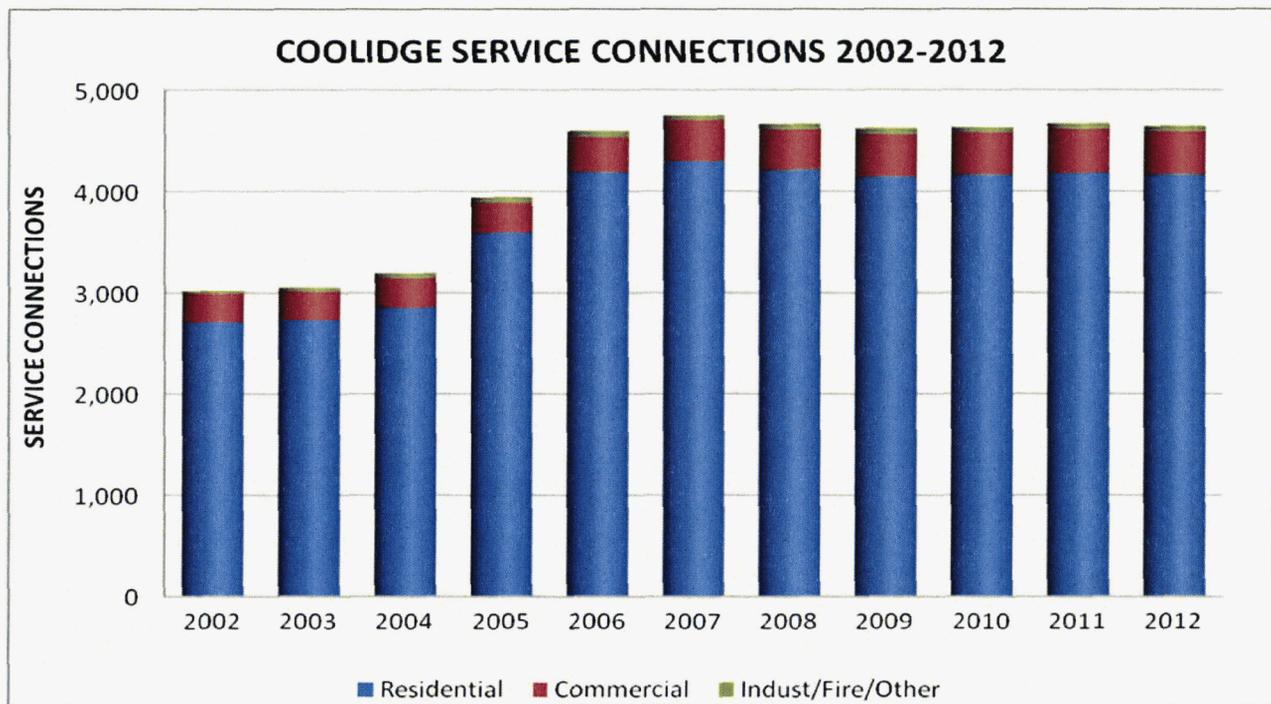
Water Resources Element

SERVICE CONNECTIONS

At the end of 2012, AWC's Pinal Valley water system provided water service to about 27,850 service connections of which more than 4,600 are in the City's planning area. 90% of the service connections are residential; 9% are commercial; the remaining 1% are either industrial, private fire service or other types of non-residential service.

In the past ten (10) years, AWC has added over 1,600 new service connections within the City's planning area. Growth during this time has resulted in a 54% increase in the number of residential service connections and a 56% increase in the number of commercial and other non-residential service connections, as illustrated in Figure 7.2. The majority of this growth occurred between 2004 and 2006. Since 2007, growth has been flat.

Figure 7.2 : Arizona Water Company Service Area Connections by Type



The other water companies within the City's planning area: Signal Peak Water Company, Carter Water Company, and Woodruff Water Company collectively have less than sixty service connections. There has been very little or no growth in these three water companies' service areas.

GROUNDWATER SUPPLY

Within the City's planning area, AWC currently provides water from seven groundwater wells located in the Coolidge area and from one groundwater well located in the Casa Grande area, through a 16-inch water main located on the west side of Coolidge. These eight wells have a combined supply capacity of over 5,000 gallons per minute ("GPM") or 7.73 million gallons per day ("MGD"), as shown in Table 7a, below.

Table 7a: Well Identification and Source Capacity

Source of Supply	ADWR Well ID Number	Source Capacity (GPM)	Source Capacity (MGD)
Well No. 7	55-616606	1,100	1.60
Well No. 9	55-616608	1,240	1.80
Well No. 10	55-616609	1,430	2.00
Well No. 27	55-568553	455	0.65
Well No. 1 VF	55-616686	250	0.36
Well No. 2 VF	55-616687	250	0.36
Well No. 1 CL	55-620899	350	0.50
Well No. 2 CL	55-620900	320	0.46
TOTAL		5,395 GPM	7.73 MGD

Woodruff Water Company has one well with a maximum pump yield of 1,760 GPM and Carter Water Company has one well with a maximum pump yield of 20 GPM. Signal Peak Water Company has no wells. Instead AWC supplies water to Signal Peak Water Company from a connection to AWC's Pinal Valley water system.

TREATMENT & STORAGE

AWC's 7.73 MGD of source capacity located within the City Planning Area includes one 1.4 MGD nitrate treatment facility and one 0.7 MGD arsenic treatment facility. The remaining water sources comply with the safe drinking water requirements without treatment, other than chlorination.

Within the City's planning area AWC currently has eight water storage tanks with a combined capacity of over two million gallons. Five of the water storage tanks are centrally located within or near the center of the City. The remaining three water storage tanks are located at Valley Farms, Coolidge Airport and at the Well No. 27 site near Overfield and McCartney Roads.

Carter Water Company has one 2,500-gallon water storage tank for its service area. According to the annual reports on file at the ACC, Woodruff Water Company and Signal Peak Water Company do not list any water storage tanks.

Water Resources Element

WATER CONSERVATION REQUIREMENTS - BEST MANAGEMENT PRACTICES

As part of the ACC and Arizona Department of Water Resources ("ADWR") Best Management Practices, AWC proposed and the agencies approved the following ten water conservation programs for AWC in the City's planning area:

1. **Public Education Program**
2. **Residential Audit Program**
3. **Customer High Water Use Notification**
4. **Customer High Water Use Inquiry Resolution**
5. **Water Waste Investigations and Information**
6. **Special Events/Programs and Community Presentations**
7. **New Homeowner Landscape Information**
8. **Landscape Consultations**
9. **Leak Detection Program**
10. **Meter Repair or Replacement Program**

The first eight water conservation programs are customer-oriented conservation measures. The Leak Detection and Meter Repair or Replacement Programs are water conservation measures AWC uses to monitor and control water loss.

AWC's Leak Detection Program utilizes visual inspection as well as state of the art electronic leak detection equipment to quickly identify leaks and breaks. Consequently, leaks and breaks can be identified quickly and repaired in a timely manner, thus reducing water loss.

AWC's Meter Shop, located in the Coolidge, has established specific meter replacement criteria based on total gallons and years in service. Meter Shop employees also perform periodic testing of meters both while in service and after replacement to provide an ongoing assessment of the current replacement criteria. In this manner, AWC thereby ensures that meter accuracy is maintained and confirmed.

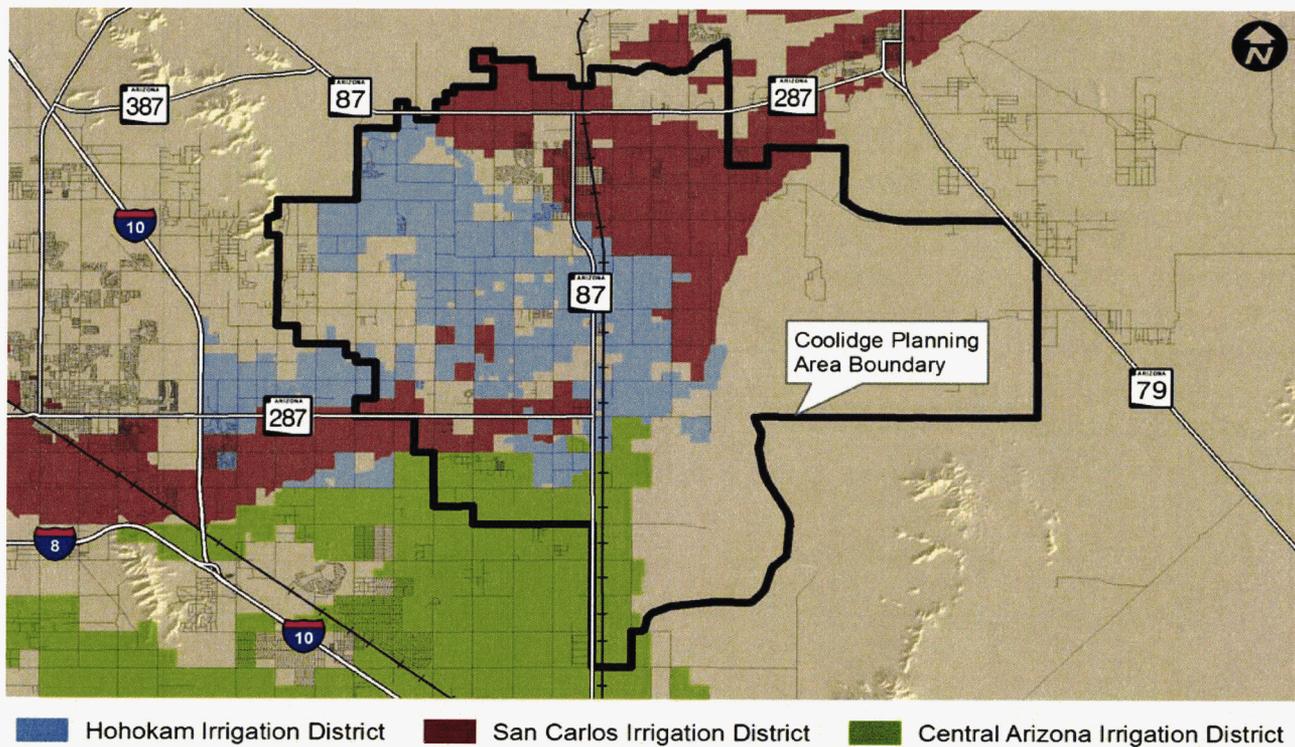
In addition to the water conservation measures described above, the City requires that any new and expanded development adhere to the plumbing guidelines outlined in the 2006 *International Plumbing Code*, which provides specific criteria for low-flow water fixtures and appliances. Also, Article XII of the *City of Coolidge Zoning Code* promotes water conservation with specific landscape design and maintenance requirements for all new and expanded developments within the City. Included in Article XII is a low water use plant list which includes a wide variety of trees, plants, shrubs and grasses indigenous to arid regions.

ADDITIONAL SOURCES OF SUPPLY

In addition to the available groundwater supply within the City's planning area, several other sources of supply are available. AWC currently has Central Arizona Project ("CAP") water allocations for its Pinal Valley water system. These municipal and industrial CAP subcontracts entitle AWC to 2,000-acre-feet and 8,884 acre-feet respectively of CAP water per year for AWC's Coolidge and Casa Grande areas, respectively. The other three water companies in the City's planning area do not have CAP allocations.

Hohokam Irrigation and Drainage District ("HIDD") provides irrigation water for 41 square miles of agricultural land within the planning area. San Carlos Irrigation and Drainage District ("SCIDD") provides irrigation water for 35 square miles of agricultural land within the planning area. Central Arizona Irrigation and Drainage District ("CAIDD") provides irrigation water for 14 square miles of agricultural land within the planning area. Figure 7.3 shows the service area for each irrigation and drainage district.

Figure 7.3 : Irrigation and Drainage Districts



HIDD receives 47,303 acre-feet of non-Indian agricultural CAP water per year. HIDD also banks over 85,000 acre-feet of water annually for the Arizona Water Banking Authority. When available, SCIDD also has the ability to receive and deliver over 100,000 acre-feet of Gila River water annually. SCIDD delivers over 35,000 acre-feet of CAP water annually for agricultural irrigation. CAIDD delivers 325,000 acre-feet annually for agricultural irrigation; 124,000 acre-feet come from CAP allocations.

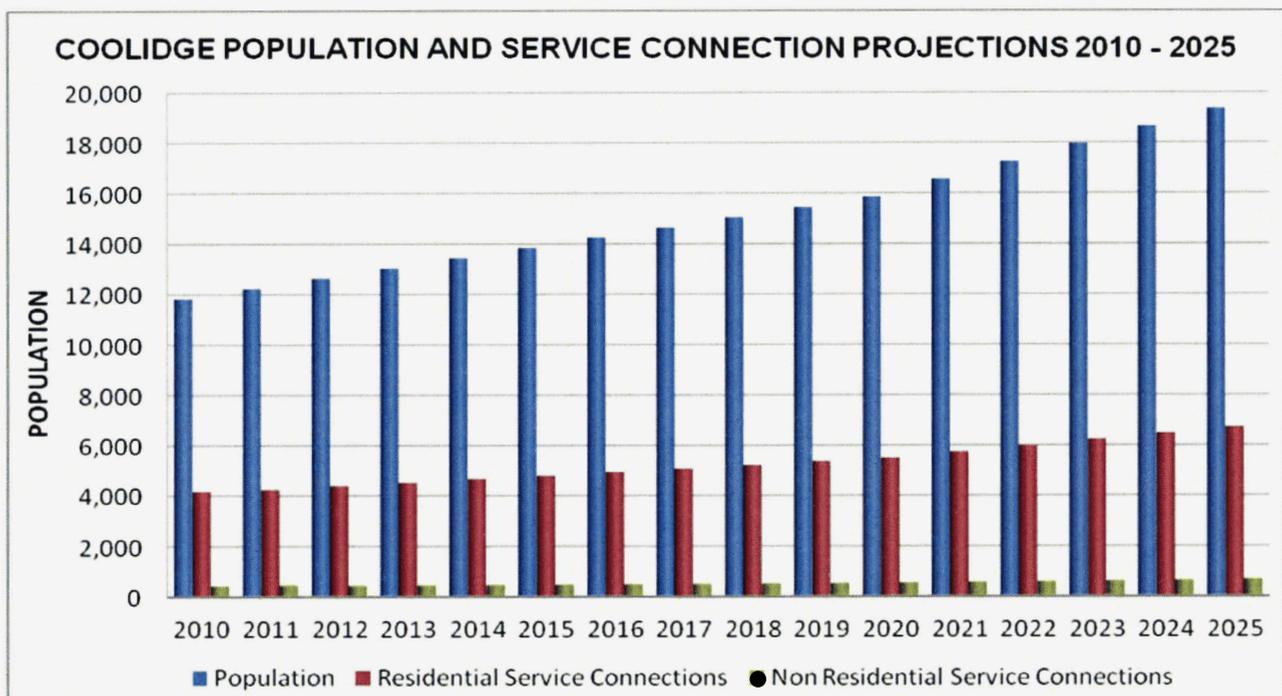
The City's wastewater treatment facility receives and treats up to 1 million gallons per day. The treated reclaimed water is then delivered to adjacent farms for non-edible crops.

Water Resources Element

POPULATION & SERVICE CONNECTION PROJECTIONS

The 2010 census data estimates an average of 2.88 persons per household in the City's planning area. Central Arizona Governments ("CAG") estimates a growth rate of 3.4 percent between 2010 and 2020, and 4.45 percent between the 2020 and 2025. Based on this population per household and growth rate data, the City estimates its planning area could have a population of over 19,000 by the year 2025. Utilizing the same census data, there could be over 6,700 residential and nearly 700 non-residential service connections in the City's planning area by the year 2025.

Figure 7.4 : Coolidge Planning Area Projections 2010-2025



WATER DEMANDS

Current Demands

Annual water demands within the City have grown from nearly 550 million gallons in 2002, to nearly 800 million gallons in 2012, representing a 46% increase in annual water demands during this time period. The majority of this increase in water demands occurred between 2002 and 2007. Since 2007, demands have been stable. Figure 7.5 shows the historical water demands from 2002 through 2012.

Projected Demands

Based on AWC's 2012 average water demands for customers within the City and surrounding areas and CAG estimated population growth rates, AWC estimates water demands could be over 1.2 billion gallons per year by 2025 for the Coolidge area. As stated previously, growth will predominantly occur in Zone 1 within the City's planning area. Figure 7.6 shows the projected water demands from 2012 through 2025.

Figure 7.5 : Coolidge Historical Water Demands

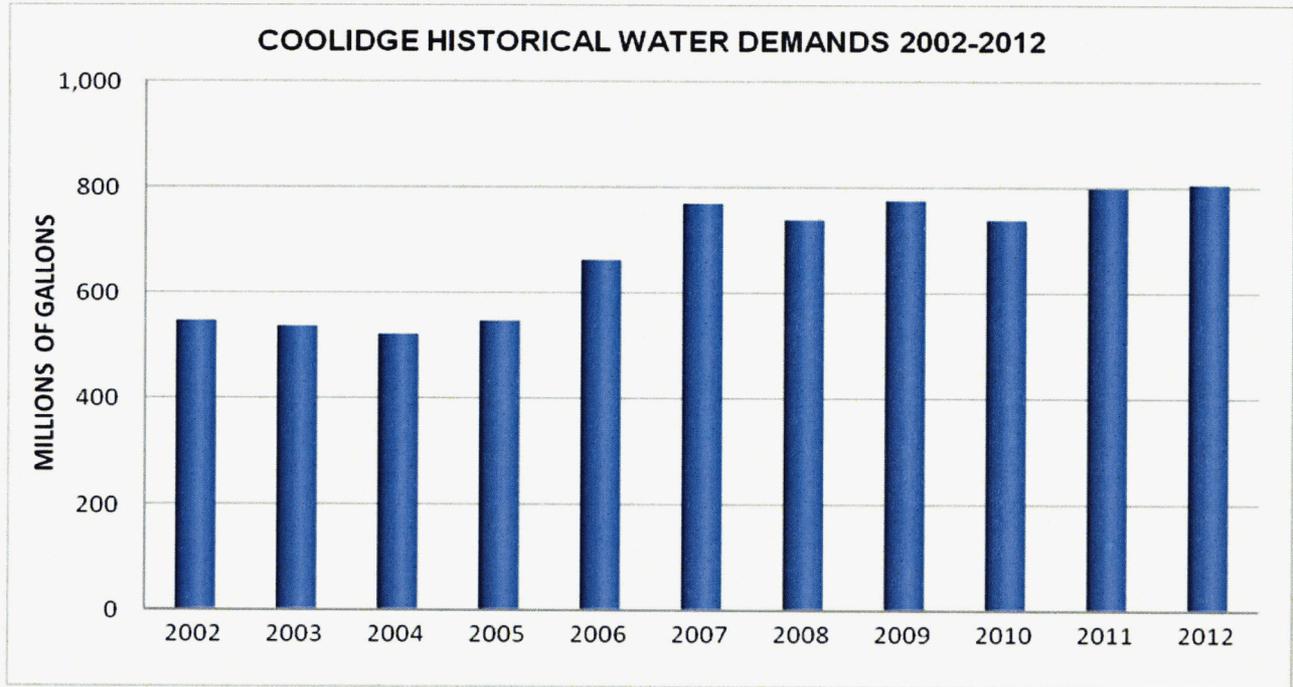
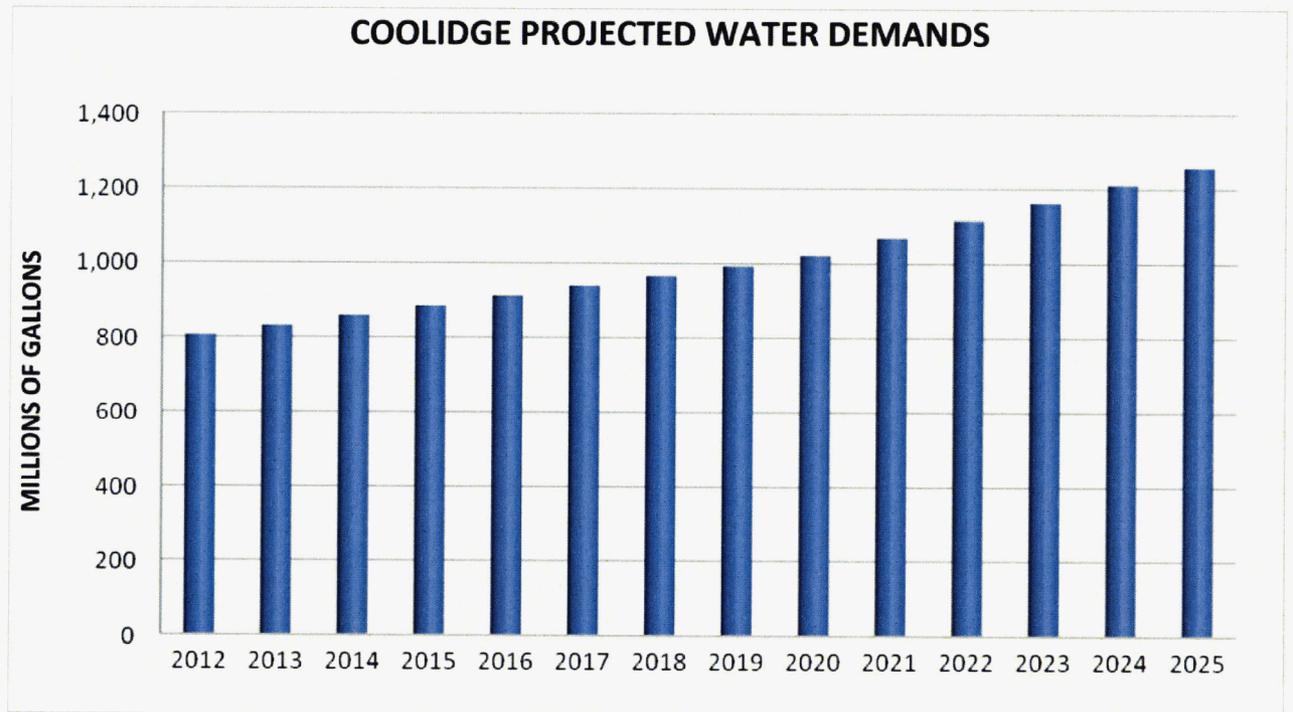


Figure 7.6 : Coolidge Projected Water Demands



Water Resources Element

FUTURE PLANNING

Short-Term Planning

To meet the projected annual demands of 1.2 billion gallons in 2025 for the City's planning area, by 2025 it will be necessary to acquire or develop additional sources of supply. To meet these new demands, AWC plans to drill and equip six wells within the City's planning area. These six new wells will be funded primarily by developers as part of developing new subdivisions. The new wells are needed to meet the projected demands of these new subdivisions.

AWC is also developing a plan to use its CAP water allocation through groundwater recharge, storage and recovery. Recharge is accomplished through direct basin recharge, either by spreading CAP water in ponds to percolate down through the soil, to be stored in local groundwater basins or pumping CAP water through injection wells directly into the groundwater basin. In both instances, the CAP water is stored in what is known as an Underground Storage Facility ("USF"). AWC then recovers the stored CAP water through its recovery wells and delivers it to AWC's customers in Coolidge and elsewhere in the Pinal Valley water system.

Long-Term Planning

AWC also has identified several long-term plans to meet the growing demands in the City's planning area as further described below.

AWC will utilize the full amount of its CAP water allocations and, if necessary, acquire additional CAP water allocations as they become available. AWC has a site in the southern portion of the City's planning area (Figure 7.7) to utilize its CAP water. AWC has plans for a CAP surface water treatment facility at this site, which would employ best available treatment technology for direct potable use. AWC extended the schedule for the CAP surface water treatment facility originally scheduled for 2012 because of the severe downturn in homebuilding in Pinal County. Meanwhile, AWC will design and operate facilities at this site to recharge, store and recover CAP water as a lower cost method of using CAP water until a treatment plant is needed.

Under this plan, AWC will take delivery of CAP surface water from a planned 24-inch transmission main from the CAP canal to the recharge site. The CAP surface water will flow into one or more recharge basins and percolate into the groundwater basin and be stored pursuant to a USF permit from ADWR. AWC will recover stored CAP surface water from wells at the recharge, storage and recovery site and from other wells in the AWC Pinal Valley service area, pursuant to recovery well permits from ADWR. The water recovered from the on-site wells will flow from the site through a 36-inch transmission main to the Pinal Valley water system. The groundwater recharge, storage and recovery facility will assure long-term availability of sustainable water supplies for AWC's customers in Coolidge and elsewhere in the Pinal Valley water system.

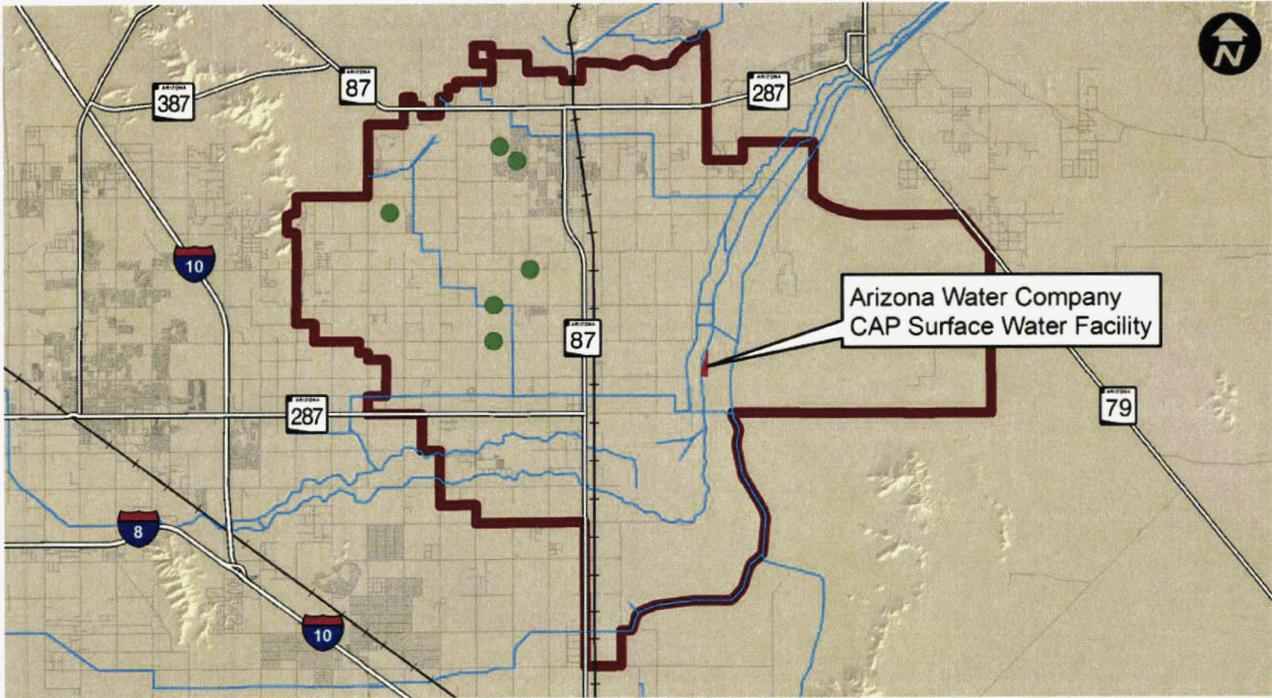


Figure 7.7 : Future Water Demand Planning

- Future Well Sites
- Canals
- City of Coolidge Planning Area

The City's wastewater reclamation facility will also provide another source of water for the City's planning area. While currently treating up to one million gallons per day, the water reclamation facility has an expansion capability of up to four million gallons per day which could be delivered to additional agricultural users. Upgrades to the City's wastewater reclamation facility to Class A+ quality reclaimed water will also allow reclaimed water to be recharged into groundwater basins. Other long-term plans for additional supplies within the City of Coolidge planning area will focus on the conversion of water used for agriculture to municipal/industrial uses.

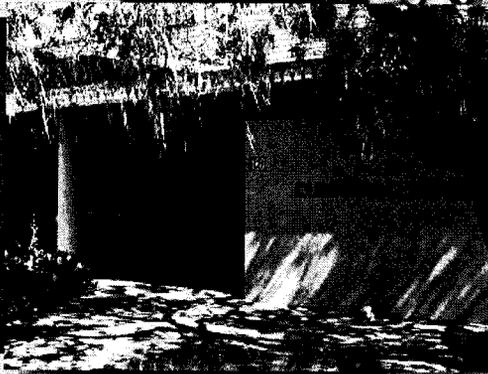


City of Coolidge Wastewater Treatment Plant

I have never yet seen any plan which has not been mended by the observations of those who were much inferior in understanding to the person who took the lead in the business.

-Edmund Burke

CHAPTER 8: COST OF DEVELOPMENT



Cost of Development Element

OVERVIEW

The 2025 General Plan presents strategies to manage Coolidge's land use and growth decisions in a fiscally sustainable manner. The 2025 General Plan includes strategies to maximize land uses, preserve the quality of place, and ensure development pays its fair share of improvements to provide necessary public services like transportation infrastructure, utilities, parks, recreational facilities, and public safety.

Numerous factors influence the fiscal results for different land uses. These factors include, but are not limited to:

- Local revenue structure,
- Services provided
- Local levels of service,
- Capacity of existing infrastructure
- Demographic and market characteristics of new growth

LOCAL REVENUE STRUCTURE

A key determinant in calculating net fiscal results from new development is the local revenue structure, which affects fiscal findings through both its composition and revenue distribution/collection formulas. Every community has at least one major revenue source, and in some cases, several on which it is reliant. Examples include property tax, local sales tax, and state shared revenues. An important component of revenue structure is the distribution/collection formulas for various sources. With the exception of property tax, the distribution/collection formulas for common revenue sources can vary greatly from state to state. For example, in states where sales tax is collected, some allow communities to assess a local option sales tax,

which is usually collected on a situs-basis (point of sale). Other states collect sales tax at the state level and distribute the revenue to communities using a population-based formula.

SERVICES PROVIDED

Another important factor in the fiscal equation is the services provided by the jurisdiction. Jurisdictions provide different services and the fiscal impact analysis will reflect this—and stakeholders and the audience for the study will need to understand this. For example, in many states, school districts are separate entities with their own tax rates (e.g., Arizona). In other states, schools get their local funds from County General Fund taxes (e.g., Virginia). Fiscal analyses will obviously reflect the services provided and funding streams, and audiences need to be aware of this to prevent both unintentional and deliberate confusion.

LEVELS OF SERVICE

Another factor in fiscal impact analysis is an understanding of the levels of service currently being provided in a community. Existing levels of service are defined as the facility or service standard currently being funded through the budget. Examples of level of service standards are wastewater ratios (i.e., gallons per day per connection), parkland per capita, etc. This is an important factor since levels of service generally vary from community to community.

CAPACITY OF EXISTING INFRASTRUCTURE

The capacity of existing infrastructure in a community also has a bearing on the fiscal sustainability of new development. For example, a community may have the capacity to absorb a large number of additional vehicle trips on its existing road network or may be

significantly under capacity with regards to high school enrollment. In either of these situations, using a case study-marginal cost approach that account for existing facilities and levels of usage to assess fiscal impacts, a community with excess capacity could absorb substantially higher growth over time without making additional infrastructure investments than a community without these capacities. This excess capacity results in lower capital costs over time. This is an important factor in the fiscal equation, since the largest cost associated with capital facilities are the annual operating costs, which typically account for approximately 80% of a community's budget.

DEMOGRAPHIC & MARKET CHARACTERISTICS OF NEW GROWTH

Next to a community's revenue structure, no other factor has as great an impact on the net fiscal results as the demographic and market characteristics of different land uses. Examples of demographic and market variables for residential development include average household sizes, market value of housing units, trip generation rates, density per acre, and average household income. Important demographic and market characteristics for nonresidential development include square feet per employee, trip generation rates,

market values per square foot, sales per square foot (retail), and floor area ratio.

GENERAL FUND REVENUES

The primary revenue source for the City General Fund is sales tax revenue generated from retail activity (under Local Taxes). The City is working to diversify the mix of residential and nonresidential development in an effort to diversify the tax base and revenues generated.

Table 8a shows the revenue sources for the City during fiscal year 2014. Local Taxes is the most significant revenue source (\$4,658,726) for the City. It represents 47% of all General Fund revenue collected in 2014. Intergovernmental revenue disbursed to the City during fiscal year 2014 totals \$2,859,465, and represents 29% of revenues generated. These monies are generated from three types of taxes: state sales, income and vehicle license. As is the case in many states, State Shared Revenues are unpredictable; and are largely disbursed based on municipal shares of state population. Property Taxes generated \$762,858 in revenue, representing only 8% of the total \$9.8 million.

Table 8a : General Fund Revenues FY2014

Revenue Type	Amount	Percent
Property Tax	\$668,991	8%
Local Taxes	\$3,621,000	47%
Licenses & Permits	\$108,000	1%
Intergovernmental	\$2,859,465	29%
Charges for Services	\$312,360	3%
Fines and Forfeits	\$250,000	3%
Interest on Investments	\$7,000	0%
In-Lieu Property Taxes	\$591,000	7%
Miscellaneous	\$150,000	2%
TOTAL	\$9,836,922	100%

Cost of Development Element

The balance of revenue to expenditures is a complex process, the details of which are best reviewed in either the City's annual budget or Comprehensive Annual Financial Report (CAFR). The budget process for the City is generally a balanced process from year to year; however, some expenditures and investments in infrastructure can occur over several years. The framework established to distribute these revenues towards the various costs to serve development consists of several Funds. These Funds include the: General Fund; Capital Projects Fund; Enterprise Funds; Highway Users Revenue Fund, etc.

GROWTH RELATED INFRASTRUCTURE

The City has several funds/revenue sources in place to contribute to and address the cost of development. Below is a description of some of the sources of revenue the City has established to fund infrastructure.

Highway User Revenue Fund: The Highway User Revenue Fund (HURF) is funded through gasoline and fuel taxes distributed from the State of Arizona. The City uses these funds to address street maintenance such as overlay improvements, striping and signage and general maintenance. This revenue source is not used to fund growth-related transportation infrastructure.

Wastewater Fund: The Wastewater Fund is an enterprise fund, where user fees are set to recover the cost of providing wastewater services and facilities to its customer base. These revenues are used to cover operating and some capital items such as debt service. The City augments these revenues with wastewater impact fees, designed to recoup new growth's share of needed infrastructure.

Impact Fees: Impact fees are one-time payments used to construct system improvements needed to accommodate development. Impact fees must be proportionate and reasonably related to the capital facility service demands of new development. The City collects impact fees for transportation, police, fire, libraries, parks/recreation and wastewater.

Other Funding: Other funding for improvements will include pay-as-you-go funding out of current revenues for lower cost improvements. Grants will be used to bridge funding gaps and leverage additional funds. Bonds provide an inexpensive way to finance large-scale projects. However, the City does not have much bonding capacity at the present.

STRATEGIES TO REDUCE COSTS

The 2025 General Plan process identified a tolerance for more intensity of development in appropriate areas, and identified parts of City with the capacity to absorb such growth (e.g., Downtown Core and Urban Neighborhoods). The maximum allowable densities identified in the Land Use Element describe how the community could develop over the course of a build-out, which is not expected for many decades.

The Future Land Use Map designates 18,719 acres for nonresidential development (Business/Commerce and Industrial), and an additional 38,415 acres for mixed use development (Downtown Core and Neighborhood) that may host commercial, office and residential development.

Density: The General Plan presents strategies to introduce more fiscally neutral housing stock by encouraging housing unit built closer to existing services and amenities. A healthy mix of land uses can serve to

balance revenue sources and demands on necessary public services like public safety and parkland.

The Land Use Element examines increases in allowable development densities as a part of a new Future Land Use Map for the City. Areas of City with the infrastructure capacity to absorb additional development will support increased density, which is intended to create more fiscally balanced or profitable land use mixtures. Given the revenue structure and capital demands of land uses in the City the best means to maintain fiscal sustainability is to diversify and intensify the land uses. As shown in Table 8b below, the City collects property tax and sales tax from retail establishments, but of the nonresidential land uses retail has the highest operating and capital demands. Retail generates the highest number of vehicle trips, stressing the street infrastructure, and has higher rates of public safety calls compared to other nonresidential land uses. Low density residential, generates higher property tax revenues, but requires extension and maintenance of streets, water, and utilities out to greater distances than higher density clustered development. Sprawling development generates more vehicle trips per housing unit than a unit in a multi-unit structure, and on average single residential units in Coolidge have more persons per household than units

in multi-unit structures, which generates more vehicle trips, and demands for public safety, and parkland capital investments.

Infill Development: The 2025 General Plan identifies a community desire to encourage infill development as a means to slow outward growth, to create vibrancy in the Downtown Core. Infill development takes advantage of already existing public infrastructure like streets, water, and utilities with the capacity to absorb the growth in a vacant or underutilized property. By encouraging investments to be made within developed areas the property values of the surrounding neighborhood may benefit. Increased property values is a net gain for the City; however because property tax is not a large revenue stream for Coolidge, the purpose of infill is more to encourage vibrancy and create demand for commercial services that generate sales tax revenue. Infill development that is compatible with the existing neighborhood character restores continuity to the built environment. Infill development is environmentally friendly in many ways; it does not require use of fresh greenfield land, it does not threaten existing trees, it requires fewer raw building materials than a ground-up build, and it absorbs growth in already built districts close to services and amenities.

Table 8b : Hierarchy of Land Uses and Fiscal Impacts

Land Use	Property Tax Revenue	Sales Tax Revenue	Demand for Services	Fiscal Benefit
Residential (see map)				
Agriculture	Medium	-	High	Negative
Rural Ranchette	Medium	-	Medium	Negative
Urban Neighborhood	High	-	Medium	Negative
Commercial				
Downtown Core	High	+	Medium	Positive
Office	Medium	-	Medium	Positive
Retail	High	+	High	Positive
Industrial/Manufacturing	Low	-	Low	Neutral

Planning is an unnatural process; it is much more fun to do something. The nicest thing about not planning is that failure comes as a complete surprise, rather than being preceded by a period of worry and depression.

-Sir John Harvey

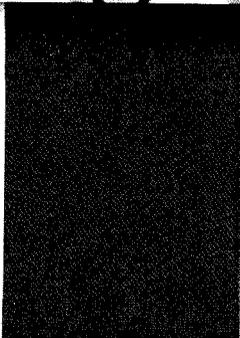
CHAPTER 9: IMPLEMENTATION

Vision

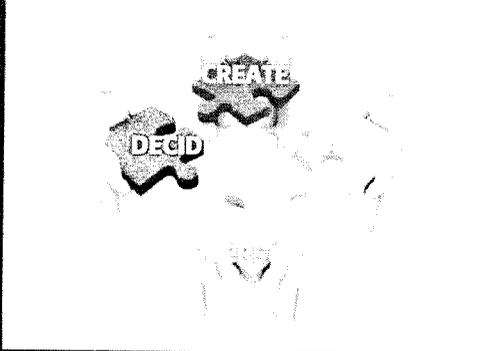
Goals

OPPORTUNITY
AHEAD

leadership
vision
shared
purpose
people
good
open
state
inner
community
personal
life
family
friends
also
group



Connect
Collaborate
global
Communicate
learning
educational
workplace
understand
communication
requires
evocative
digital
institutions
nature
offer
evaluate



Motivation

Teamwork

Plan Implementation

This chapter focuses on the community goals, objectives and strategies that will be used to implement the community vision that has been expressed in the introduction of the Plan. The following are generalized definitions which should be referred to when reading this section of the Plan.

GOAL: A desired end or condition which, if pursued over a long term will ultimately result in the attainment of a desired living, working or recreational environment.

OBJECTIVE: A desired level of achievement or measurable step which if pursued and accomplished in conjunction with other objectives, will ultimately result in the attainment of the goal to which it relates.

STRATEGY: A more specific prescribed step applied to attain the established goals. Strategies are a prescription for a course of action.

Most of the goals, objectives and strategies discussed in the following pages were developed as part of a Strategic Plan for the City of Coolidge but they relate very well with the Community Vision as stated in Coolidge General Plan 2025 – “The Future Today”.



The stated community goals in this plan are as follows:

- **A Clean and Safe City**
- **A High Performing City Organization**
- **Expanded Economy**
- **Managed Growth and Revitalization**
- **A Revitalized Downtown**
- **A More Livable City**

The Community Vision Statement on page 2 of this Plan includes several statements that coincide with these stated goals including:

“A safe community built on a solid foundation shaped by faith and family values; Prospering individuals; Rich in educational programs; Warm inviting and beautiful city; Well planned and managed city having strong and capable leadership; Cultural and recreational opportunities flourish; Epicenter of educational excellence; city that has attracted quality businesses and industry creating a strong employment base; A wise steward of its natural resources, and capable of delivering services to support new growth”.

The goals, objectives and strategies outlined in the remaining pages of this Plan are all supportive of the community vision and bring life to the plan if they are implemented. This chapter is the “make it happen” part of the plan and will require the work and effort of the City Government and involved citizenry.

GOAL 1

A Clean and Safe City: Low Crime, Attractive City, Community Pride.

Objective

Reduce the number of homes and businesses not meeting Code.



Strategies

- Complete inventory of existing homes and businesses that are blighted and a public nuisance.
- Utilize current health and safety, sanitation, public nuisance, and zoning laws to correct violations and clean up these homes and businesses.
- Develop additional codes to address property maintenance and upkeep where they may be lacking.
- Demolish or reuse abandoned buildings and homes.
- Complete an inventory of existing abandoned buildings and homes that are candidates for demolition.
- Issue property abatement notices to owners of the properties and take action to remove the dangerous and unhealthy structures.
- Continue to request funding in the City Budget for the demolition of dangerous and unsafe vacant buildings and homes.

Objective

Reduce trash, litter and rubbish from the City.



Strategies

- Establish stricter laws and penalties for illegal dumping in the City limits.
- Use City resources to immediately remove illegal dumpsites on public right-of-way and lands.
- Initiate Code enforcement action against property owners that have unsightly buildings and premises.
- Develop a City-wide recycling program.
- Establish a solid waste transfer station that allows residents to dispose of their bulk trash items.
- Install surveillance cameras in areas where illegal dumping is occurring to catch illegal dumping in progress and issue proper citations for such acts.

Objective

Maintain low crime rate.



Strategy

- Increase police presence and visibility in the community.

Plan Implementation

GOAL 2

A High Performing City Organization: Exceptional Service, Financially Sustainable.

Objective

Align the City organization around the core beliefs of Service, Productivity, Integrity, Responsibility, Innovation and Teamwork "S.P.I.R.I.T.".

Strategies

- Implement City-wide employee training programs focused on the core beliefs.
- Recognize employees through a "Spirit Award" for demonstration of the core beliefs.

Objective

Expand City revenues to support services at current service levels.

Strategies

- Evaluate land use assumptions, infrastructure improvement plan and development impact fees every two years to determine if fees are aligned with the City's current levels of service and projected facility expansion due to growth.
- Survey citizens to determine their expectations of City services and willingness to pay.

Objective

Outcome based performance measures for all City activities.

Strategy

- Establish performance measures of the City organization and service effectiveness.

Objective

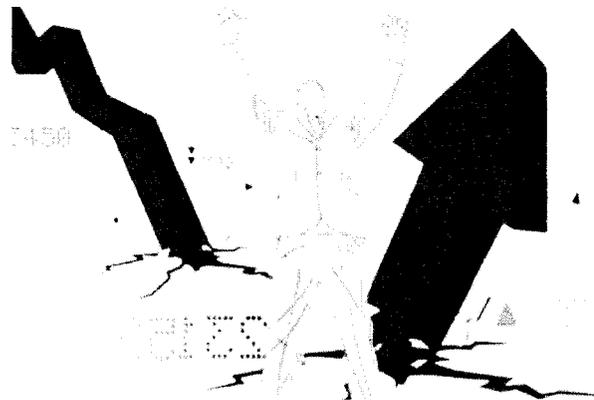
Increase citizen participation in City Government.

Strategies

- Continue City leadership academy to train future boards/commissions/committees.
- Initiate a volunteer outreach program to allow greater citizen participation in government services.

GOAL 3

Expand City Economy: More Jobs, More Diverse Economy.



Objective

Prepare the community to successfully locate new manufacturing and businesses that are consistent with the community's vision and create quality jobs for the City.

Strategies

- Conduct an inventory of existing commercial and industrial space and available infrastructure.
- The City, Access Arizona, Coolidge Economic Development Committee, and the Chamber of Commerce will complete the development of a regional-based and community-based economic database to include all the information that a site selector would typically require when selecting a location to establish a business facility.

- Prepare a master plan for industrial parks together with appropriate marketing materials which shall be developed and continually updated.
- Complete a comprehensive building inventory for new business development.
- Establish certified ready sites for Employment and Industrial Uses.
- Evaluate and establish plans to expand infrastructure to employment areas as needed.

Objective

Strengthen existing Coolidge businesses.

Strategies

- Establish and foster businesses that provide complimentary services to existing businesses.
- Working with the Small Business Development Center at Central Arizona College and Access Arizona, the Chamber shall create a comprehensive local business retention and expansion program. The purpose of the program is to determine local business needs, understand the businesses better, and match resources and programs to local business needs.

Objective

Work with private partner, Pinal Land Holdings, (PLH) to develop the Inland Port of Arizona Project adjacent to the Union Pacific railroad Right-of-Way north of Houser road and Highway 87.

Strategies

- Negotiate a pre-annexation development agreement with PLH for all property that was previously purchased by the City of Mesa for water rights.
- Complete the annexation of the PLH and City of Mesa properties into the City limits and establish Planned Area Development (PAD) zoning consistent with the Land Use Policy Map in this Plan.

Objective

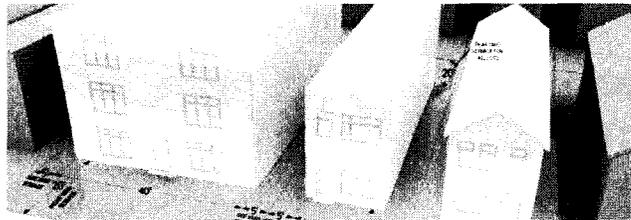
Complete the annexation of the municipal airport property.

Strategies

- Investigate alternatives to bring additional electrical power capacity to the Coolidge Municipal Airport including, but not limited to, Arizona Public Service, Electrical District No. 2, and San Carlos Irrigation Project.
- Work with Arizona Water Company to increase water reservoir capacity at the airport to insure adequate fire protection of existing and future structures at the Coolidge Municipal Airport.
- Support the development of a world class outdoor shooting facility on adjacent State Lands to the east of the Coolidge Municipal Airport property in conjunction with the development of a high end recreational vehicle park in the non-aviation area of the airport.

GOAL 4

Managed Growth and Revitalization: Quality New Development, Quality Infill.



Objective

The Community Vision and General Plan 2025 will guide development decisions.

Strategies

- Update General Plan 2025 as needed to meet the opportunities and challenges the City of Coolidge will face over the next ten years at which time a new General Plan update will be adopted and referred to the voters.

Plan Implementation

- Capital improvement decisions should be based on the goals, objectives and Strategies of the General Plan 2025.

Objective

Insure services and infrastructure coincides with new development.

Strategies

- Continue to monitor the land use assumptions and infrastructure improvement plan prepared by Tischler/Bise and to keep impact fees at levels that maintain current services.
- Require developers to install public improvements in accordance with minimum development standards outlined in the zoning and subdivision regulations.
- Review and track all previous development agreements to verify infrastructure is completed in accordance with the provisions in the agreements.
- Review and update development standards and design standards to promote quality new development and quality infill.
- As construction begins in the previously abandoned subdivisions, require homebuilders to establish or re-establish the neighborhood improvements in accordance with approved plans.

Objective

Remove or re-use abandoned buildings and homes.



Strategies

- Inventory entire City to identify vacant, abandoned and unsafe buildings and houses that should be demolished or re-used.
- Clean and lien properties that are identified in the inventory.
- Initiate a neighborhood profile program designed to gain greater citizen involvement in neighborhood revitalization efforts and local government.

Objective

Upgrade City streets and sidewalks in older neighborhoods.



Strategy

- Update City pavement management system and develop a City-wide sidewalk program in older neighborhoods.

Objective

Improve and expand wastewater system as necessary to keep up with capacity demands.

Strategy

- Monitor the wastewater mechanical plant: timing, design and funding of plant expansion to keep pace with growth.

GOAL 5

Revitalized Downtown: Becoming a Community Focal Point and Economic Center.

Objective

Improve the cleanliness and appearance of downtown commercial buildings.

Strategies

- Organize a Downtown Business Association that will continuously work on the image of downtown.
- Investigate possible Downtown Business Improvement District.



- Continue Code enforcement and voluntary demolition programs in the downtown area.

Objective

Attract additional retail and restaurants to the downtown.

Strategies

- Work with a downtown economic restructuring committee to look for retail and entertainment development opportunities in the downtown area.
- Work with the Coolidge Economic Development Committee, Chamber of Commerce, and the Performing Arts Center to develop the Artisan Village of Coolidge (maker space and business incubator) and to transition activities from the Center Village into downtown retail space.

Objective

Expand community events and festivals downtown.



Strategy

- Establish a downtown promotions committee that can identify a number of downtown special events that attract people from the surrounding areas.

Objective

Expand government –schools and civic center in the downtown area.

GOAL 6

A More Livable City.



Objective

Work with Coolidge Unified School District, Central Arizona Vocational Institute of Technology, Imagine, and Central Arizona College for quality schools and educational programs.

Plan Implementation

Strategies

- Enhance marketing and promotion of existing quality educational programs and facilities that exist in the City today and improve upon those assets.
- Support the Artisan Village of Coolidge, a center for creativity, innovation and design, located in the former North School facility.

Objective

Improve the quality of the roads in Coolidge including landscaping and streetscape enhancements.



Strategy

- Continue to fund a City-wide roadway improvement program including the continued requests for grant funding to offset these costs.



Objective

Expand recreational facilities, programs and services for all age groups.



Strategies

- Initiate the planning and development of a state of the art aquatics park for the City.
- Initiate planning and development for a new library/city hall complex in the downtown.
- Prepare a Parks and Recreation Master Plan for the City Planning Area.
- Prepare a Community Trails & Open Space Plan.

Objective

Support for family oriented activities

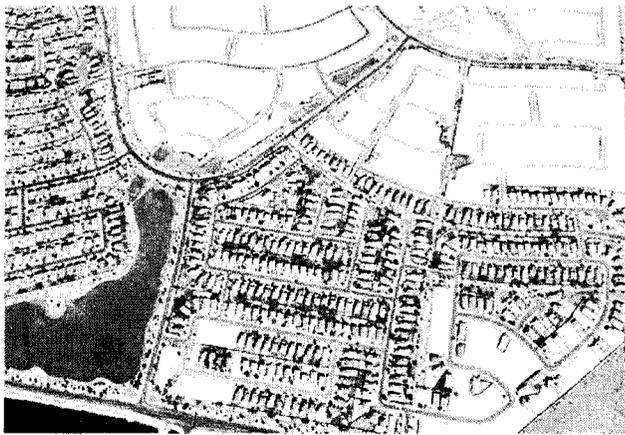


Strategies

- Complete a citizen survey on quality of life.
- Re-open discussions about the proposed Picacho Reservoir Recreational Area.

The City's housing stock dramatically increased in recent years fueled by housing speculation by investors in the Phoenix and Tucson metropolitan housing market. Rising prices of housing in the metro areas resulted in many residents driving into Pinal County to seek inexpensive homes in Coolidge, Florence, Casa Grande, San Tan valley and Maricopa. The City of Coolidge issued 1,242 permits for new single family homes in just two years, 2005-2006.

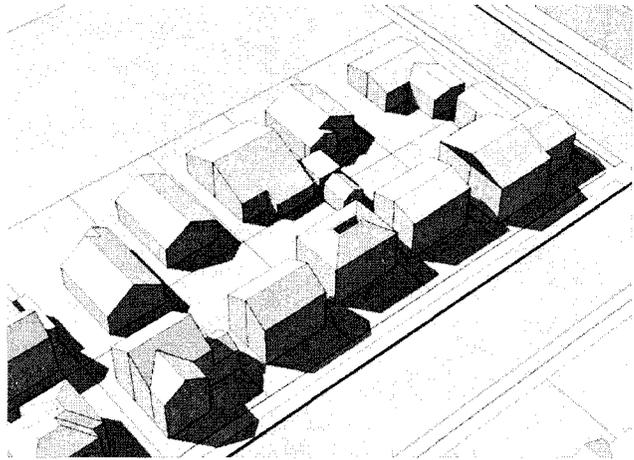
Much of the housing activity in the City during this time and the recent economic decline left the City with a surplus of vacant and foreclosed single family properties. Housing projects halted due to this surplus and the City has been challenged with the potential for vandalism and lack of maintenance which negatively impacts the neighborhoods where the new housing stock was constructed. Until this surplus inventory is absorbed in the Phoenix metro area, the pace of new construction for single family homes is expected to rebound at a slower pace.



The General Plan 2025 provides for a continuation of the housing goals, objectives and strategies that were approved in the City of Coolidge General Plan Update adopted on November 10, 2003. The four goals outlined below were identified in the plan with accompanying objectives and strategies.

GOAL 7

Provide a variety of housing alternatives.



Objective

Rehabilitate substandard housing.

Strategies

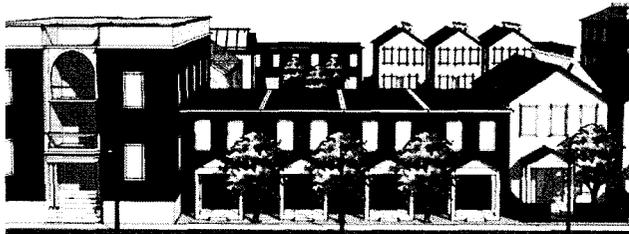
- Continue to identify homes and/or neighborhoods that are in need of renovation, establish a rehabilitation program for the identified homes and neighborhoods, and prioritize and schedule renovation projects.
- Work with lending institutions to offer low-interest loans for home repairs and upgrades.
- Solicit funding opportunities from public and private organizations such as Habitat for Humanity, local chambers, Lions Club, Rotary Club, U.S. Department of Housing and Urban Development (HUD), and Community Development Block Grants.



Plan Implementation

Objective

Support alternative-housing options for special groups, such as renters or the elderly.



Strategies

- Continue to update the housing analysis to determine what type of housing the community demands (i.e. transitional care needs and assisted living).
- Provide a greater range of rental homes from apartments to duplexes to single family homes.
- City should work with private homeowners and developers to encourage alternative housing options in approved areas of the City.

GOAL 8

Ensure that opportunities for fair housing exist in the City to provide residents the opportunity for decent, safe, and affordable housing choices.

Objective

Continue to support the development of fair and affordable housing opportunities for very low, low and moderate-income families in the City.

Strategies

- The City shall continue to support and comply with the requirements of Section 504 Regulations of the Department of Housing and Urban Development regarding nondiscrimination based on disability in federal assisted programs and activities.

- The City shall continue to support and comply with the requirements of the Americans with Disabilities Act (ADA) in the development of affordable housing units within the City.
- The City shall ensure that residents with special needs (i.e., elderly, physically and mentally challenged, homeless, and at-risk populations) are not discriminated against in the City's housing Strategies.

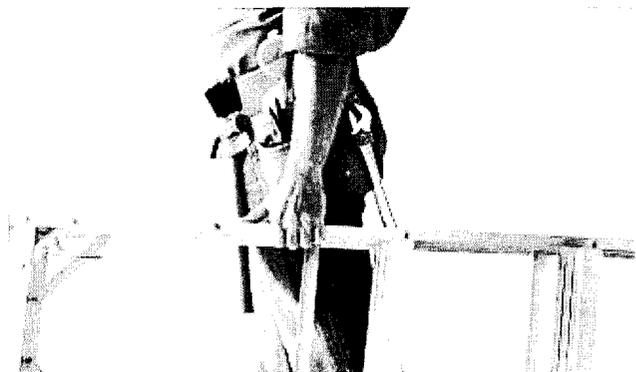


GOAL 9

Maintain and improve the existing affordable housing stock in the City and preserve the quality and appearance of the housing stock and overall environment of the community.

Objective

Continue to provide home rehabilitation and improvement programs for owner-occupied properties.



Strategies

- The City shall provide Code enforcement activities in conjunction with rehabilitation services as an educational process to remove health and environmental hazards and promote cleanliness and pride of ownership.
- The City shall offer referral services to the various agencies offering assistance in areas of housing, medical, financial hardship, and legal aid, among others.
- The City will ensure that the housing staff are trained to provide assistance from initial contact through completion of work and loan services.
- The City will ensure that Code enforcement personnel are trained to serve as liaisons for all available programs and environmental/beautification programs.
- The City will continue its Demolition Program to demolish vacant, abandoned, and dilapidated buildings. This effort removes slum and blight conditions and allows for the redevelopment of land for safe, decent and affordable housing.
- The City will provide temporary housing for families whose house is under construction through the City's housing rehabilitation program.
- The City will support and encourage the implementation of neighborhood improvement programs as a way to better the community housing, while maintaining the historic character and architectural variety of the historic core.

GOAL 10

Increase the supply of affordable housing for low and moderate income families in the community.

Objective

Utilize a variety of sources to support the development of affordable housing in the community.

Strategies

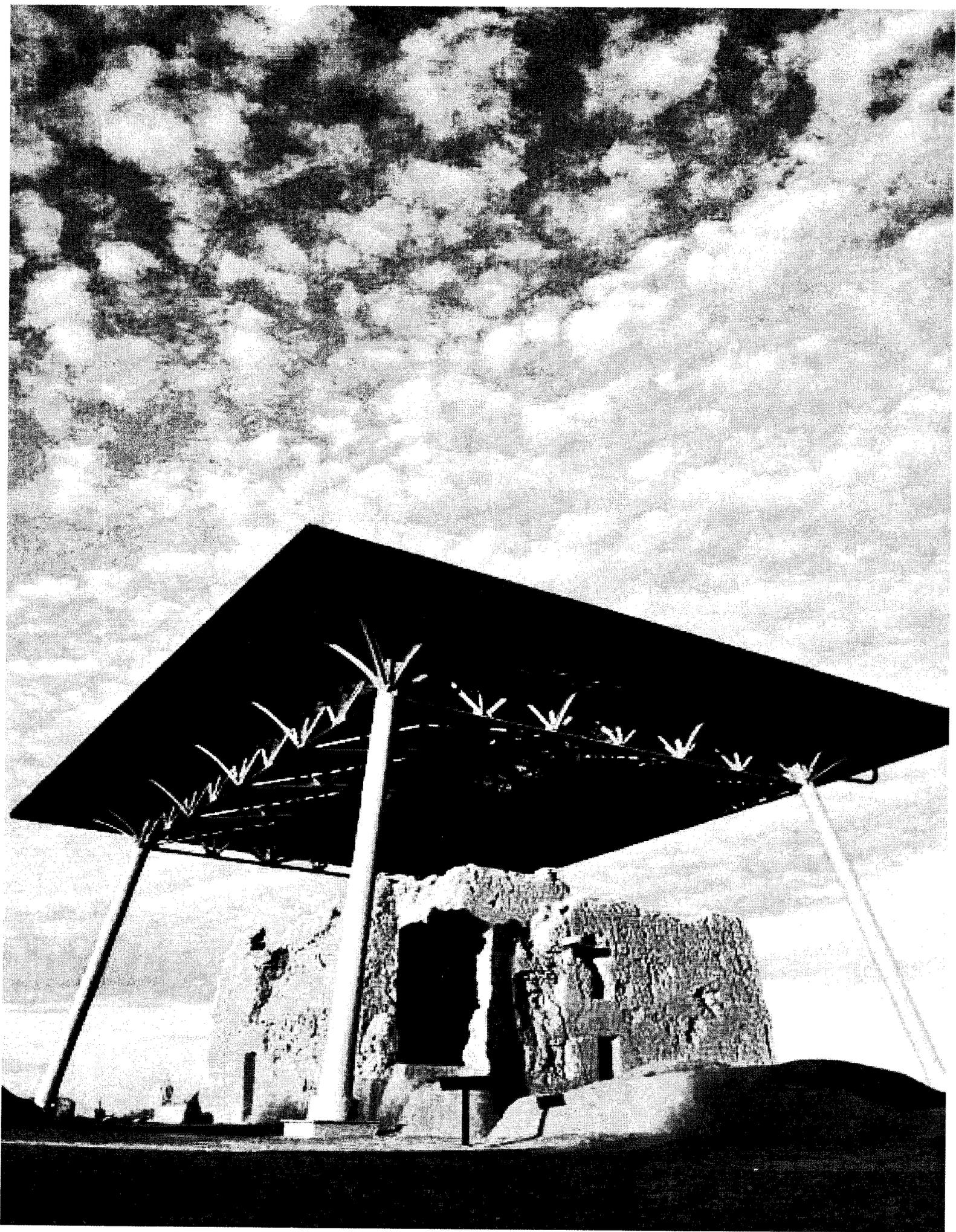
- The City shall actively seek funding from a variety of sources including, but not limited to, the United States Department of Housing and Urban Development (HUD), Community Development Block Grants (CDBG), HOME Investment in Affordable Housing (HOME), Housing Trust Funds, Rural development 504 Grants and Loans, Rural development Housing Preservation Grants (HPG), Community Action Human resources Agency (CHARA) and local banks.
- The City will utilize its Capital Improvement Program to improve deficient infrastructure in mature neighborhoods, where possible.



- The City will examine the potential to develop standards for housing density bonus for large projects that offer affordable housing.
- The City will support coordination with local non-profits and state and federal agencies to develop programs and a network of resources for home ownership opportunities.
- The City will examine ways to provide incentives to developers to reduce the cost of housing development where long-term affordability is assured in large projects.
- The City shall utilize the development of affordable housing in the City as a tool for economic growth and job opportunities for local residents.

If you have accomplished all that you have planned for yourself, you have not planned enough.

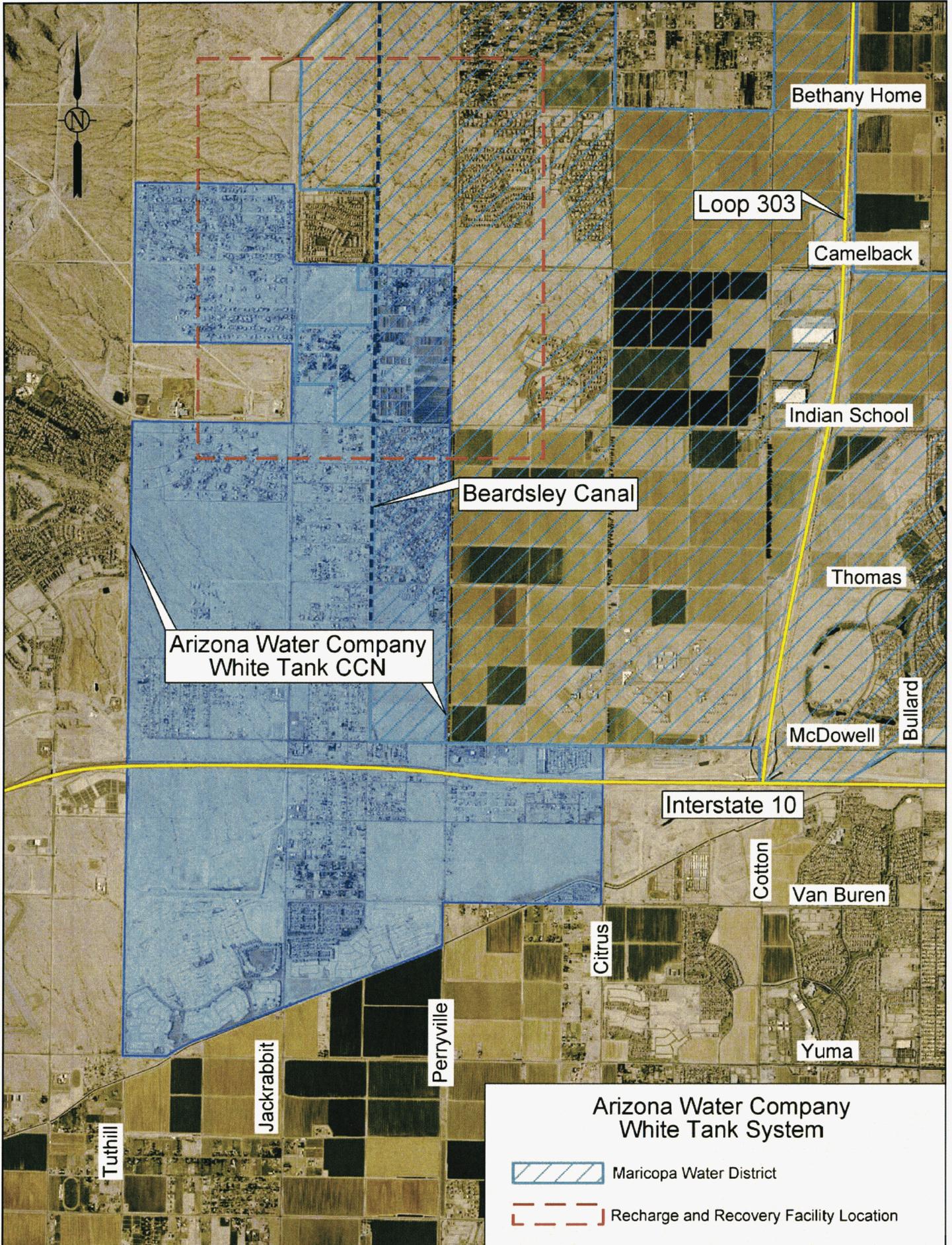
-Edward Everett Hale

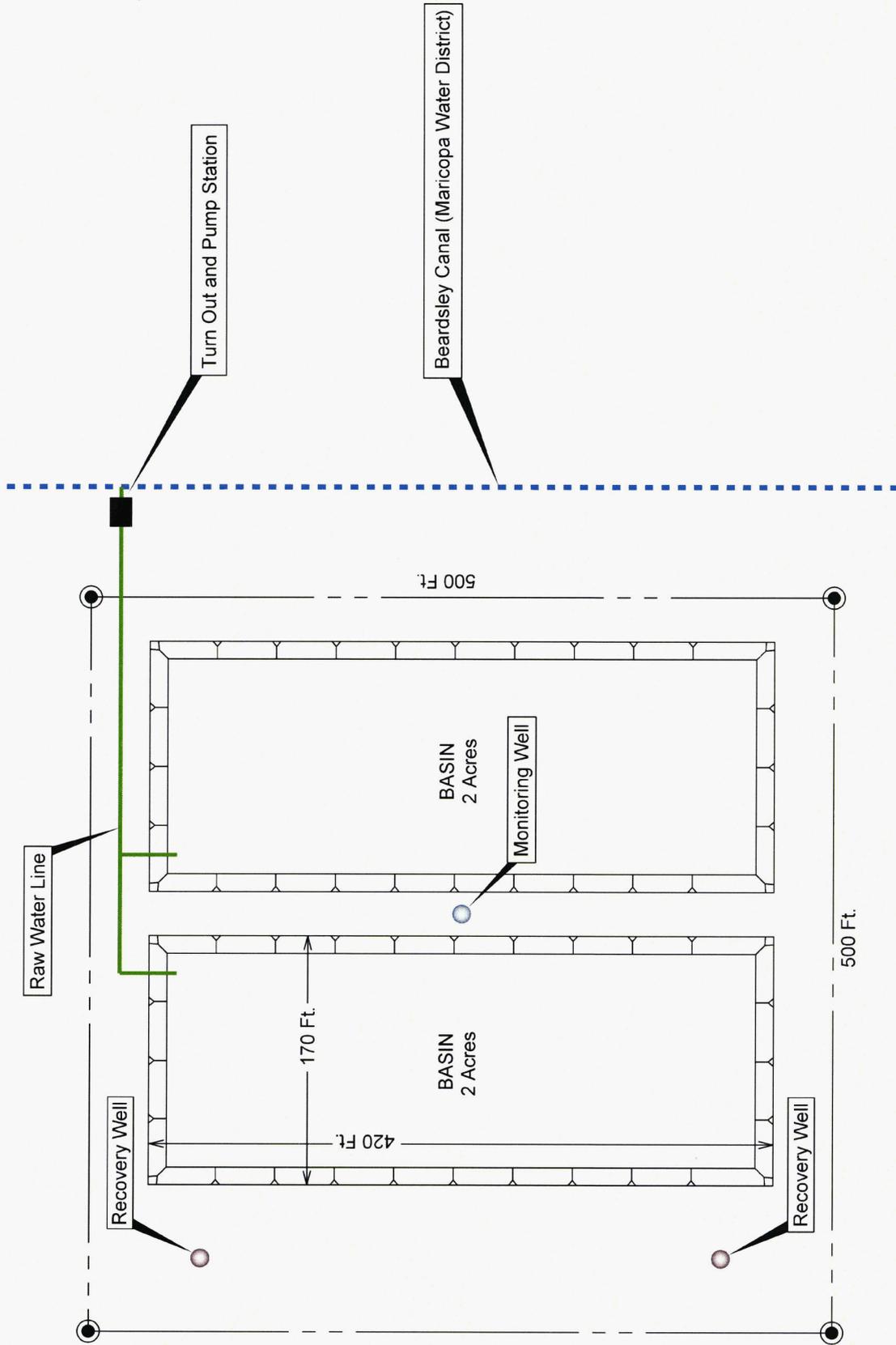
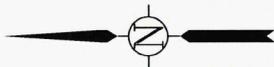




Western Group Rate Case

Exhibit FKS-10



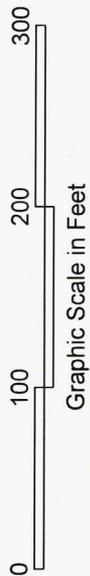


ARIZONA WATER COMPANY

DESCRIPTION: WHITE TANK RECHARGE and RECOVERY FACILITY CONCEPTUAL LAYOUT

LOCATION: White Tank System

DATE: 07.08.2015 SCALE: 1"= 100 Ft. DRAWN BY: CB



ARIZONA WATER COMPANY

**OPINION OF PROBABLE COST
PROPOSED WHITE TANK CENTAL ARIZONA PROJECT
RECHARGE AND RECOVERY FACILITY
FOR THE WHITE TANK WATER SYSTEM**

DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	TOTAL
Engineering				
Design/Plan Approvals	1	LS	\$ 100,000	\$ 100,000
Mob/Demob/Bonds/Insurance/Permits				
Mob/Demob	1	LS	\$ 50,000	\$ 50,000
Construction Facilities and Temp Controls	1	LS	\$ 10,000	\$ 10,000
Permits	1	LS	\$ 30,000	\$ 30,000
Bonds/Insurance	1	LS	\$ 20,000	\$ 20,000
Site Work				
Clearing and Grubbing	6	AC	\$ 2,500	\$ 15,000
Basin Excavation and Disposal	30,000	CY	\$ 15	\$ 450,000
CAP Turnout/Trash Rack/Suction Line	1	LS	\$ 100,000	\$ 100,000
Grading and Drainage	1	LS	\$ 25,000	\$ 25,000
Access Drive (6" ABC)	500	CY	\$ 100	\$ 50,000
Site Fence	2,000	LF	\$ 20	\$ 40,000
Pump Station				
Pumps (2 duty, 1 stby, 400 gpm each)	1	LS	\$ 75,000	\$ 75,000
Concrete Slabs	1	LS	\$ 10,000	\$ 10,000
Electrical and Instrumentation	1	LS	\$ 200,000	\$ 200,000
Piping and Appurtenances				
Discharge Piping/Transmission Main (12")	200	LF	\$ 125	\$ 25,000
Valves (12")	3	LF	\$ 5,000	\$ 15,000
Valves (8")	2	EA	\$ 4,000	\$ 8,000
Mag Meter (8")	1	EA	\$ 10,000	\$ 10,000
Overflow Main (18")	200	LF	\$ 150	\$ 30,000
Flapper Valves	2	EA	\$ 5,000	\$ 10,000
Micellaeous Appurtenances	1	LS	\$ 10,000	\$ 10,000
Monitoring				
Monitoring Well	1	EA	\$ 100,000	\$ 100,000
SUBTOTAL				\$ 1,383,000
Contractor Overhead and Profit	12	%	\$ 1,383,000	\$ 165,960
Sales Tax	8	%	\$ 1,383,000	\$ 110,640
Contingencies	15	%	\$ 1,383,000	\$ 207,450
SUBTOTAL				\$ 484,050
Project Management/Administrative	200	HR	\$ 65	\$ 13,000
Testing	1	LS	\$ 2,500	\$ 2,500
Inspections	150	HR	\$ 55	\$ 8,250
SUBTOTAL				\$ 23,750
OPINION OF PROBABLE CONSTRUCTION COST				\$ 1,890,800
Land Acquisition	6	AC	\$ 125,000	\$ 750,000
OPINION OF TOTAL PROJECT COST				\$ 2,640,800

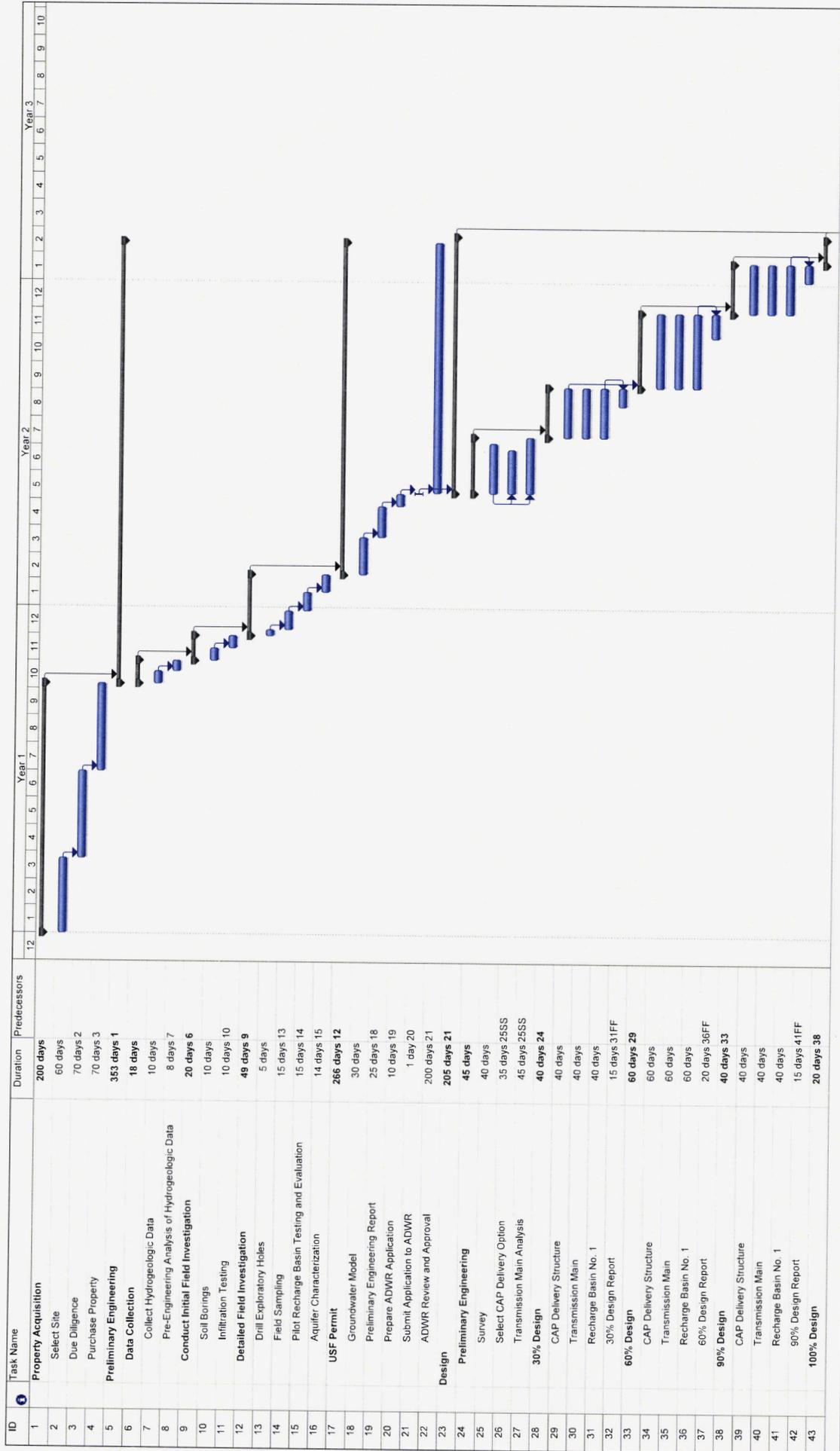
ARIZONA WATER COMPANY

**PROPOSED WHITE TANK CENTRAL ARIZONA PROJECT
RECHARGE AND RECOVERY FACILITY
FOR THE WHITE TANK WATER SYSTEM**

DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	ANNUAL COST
<u>Trash Rack/Weeds</u>				
Clean Trash Rack/Weed Site	20	MHR	\$ 75	\$ 1,500
Debris Disposal/Dump Fee	10	TRIP	\$ 50	\$ 500
Vehicle/Fuel	10	TRIP	\$ 100	\$ 1,000
<u>Pump Station</u>				
Pump Station/Pipe/Valve Maintenance	40	MHR	\$ 75	\$ 3,000
Electricity	30,000	kWh	\$ 0.12	\$ 3,600
Parts	1	LS	\$ 2,500	\$ 2,500
Vehicle/Fuel	10	TRIP	\$ 100	\$ 1,000
<u>Basins</u>				
Basin Maintenance	80	MHR	\$ 75	\$ 6,000
Equipment	12	TRIP	\$ 200	\$ 2,400
Vehicle/Fuel	10	TRIP	\$ 100	\$ 1,000
<u>Monitoring</u>				
Monitoring	12	MHR	\$ 75	\$ 900
Laboratory	1	LS	\$ 400	\$ 400
Vehicle/Fuel	12	TRIP	\$ 100	\$ 1,200
OPINION OF PROBABLE ANNUAL O&M COST				\$ 25,000

Western Group Rate Case

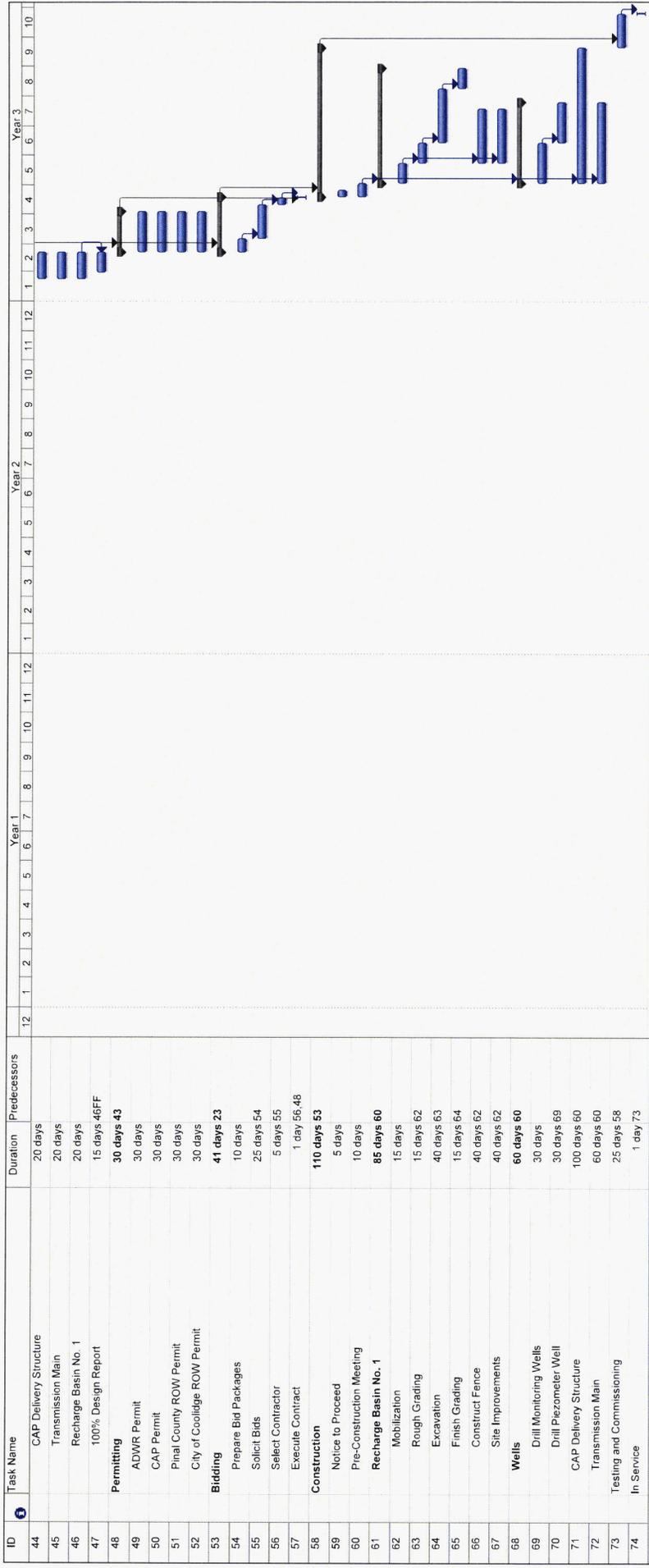
Exhibit FKS-11



Project: WT USF Schedule
Date: Thu 7/23/15

Legend:
 Task
 Split
 Progress
 Milestone
 Summary
 Project Summary
 External Tasks
 External Milestone
 Deadline

Page 1



ID	Task Name	Duration	Predecessors
44	CAP Delivery Structure	20 days	
45	Transmission Main	20 days	
46	Recharge Basin No. 1	20 days	
47	100% Design Report	15 days 46FF	
48	Permitting	30 days 43	
49	ADWR Permit	30 days	
50	CAP Permit	30 days	
51	Pinal County ROW Permit	30 days	
52	City of Coolidge ROW Permit	30 days	
53	Bidding	41 days 23	
54	Prepare Bid Packages	10 days	
55	Solicit Bids	25 days 54	
56	Select Contractor	5 days 55	
57	Execute Contract	1 day 56, 48	
58	Construction	110 days 53	
59	Notice to Proceed	5 days	
60	Pre-Construction Meeting	10 days	
61	Recharge Basin No. 1	85 days 60	
62	Mobilization	15 days	
63	Rough Grading	15 days 62	
64	Excavation	40 days 63	
65	Finish Grading	15 days 64	
66	Construct Fence	40 days 62	
67	Site Improvements	40 days 62	
68	Wells	60 days 60	
69	Drill Monitoring Wells	30 days	
70	Drill Piezometer Well	30 days 69	
71	CAP Delivery Structure	100 days 60	
72	Transmission Main	60 days 60	
73	Testing and Commissioning	25 days 58	
74	In Service	1 day 73	

Project: WT USF Schedule
Date: Thu 7/23/15

Task Split

Progress Milestone

Summary Project Summary

External Tasks External Milestone

Deadline