PINAL • COUNTY
wide open opportunity

NOTICE OF PUBLIC MEETING AND AGENDA OF THE PINAL COUNTY PLANNING AND ZONING COMMISSION

Regular Meeting
9:00 a.m.
Thursday, September 15, 2016
EOC Room – Building F
31 N. Pinal St. Florence, Arizona

There may be a supplemental agenda for this hearing, please check with the Community Development Department at 520-866-6442.

Please turn off cell phones and other electronic devices or place in silent mode.

Action means discussion/recommendation for approval or denial to the Board of Supervisors on the following Planning Cases. (Numbers are shown for administrative convenience only. All interested persons should be aware that the cases may be heard in an order different than that shown on the agenda).

A work session is not a public hearing. For matters that are not listed as "public hearings" the public may attend and listen to the proceedings, but may only address the Commission with its permission.

COMMISSION MEMBERS

( )	RIGGINS, Chairman	( )	HARTMAN, Vice-Chairman
( )	AGUIRRE-VOGLER, Member	( )	SALAS, Member
( )	SMYERS, Member	( )	DEL COTTO, Member
( )	PUTRICK, Member	( )	AULT, Member
( )	SHEARER, Member	( )	GRUBB, Member (Absent)

AGENDA

1. CALL TO ORDER:

2. DISCUSSION OF ACTION ITEM REPORT

- Action Item Report

3. REPORT ON BOARD OF SUPERVISORS ACTION ON P & Z CASES

- August 24, 2016 & September 21, 2016: No Cases

4. REPORT ON TENTATIVE PLAT EXTENSIONS:

- Extension report is attached.

5. PLANNING MANAGER DISCUSSION ITEMS

- Pinal Tourism Authority (handout)

NEW CASES:

6. **SUP-003-16 – PUBLIC HEARING/ACTION:** Century Link, landowner, Michael Baker International, Inc., agent, requesting approval of a Special Use Permit to operate a 80' tall monopole wireless communication facility on a 0.35± acre parcel in the General Rural Zone; situated in a portion of the SW¼ of Section 16, T6S, R16E G&SRB&M, tax parcels 300-26-089B (legal on file) (located approximately five miles southeast of the Town of Winkelman adjacent to the west side of State Route 77).

7. **PUBLIC HEARING/DISCUSSION/ACTION ON THE FOLLOWING MAJOR AMENDMENT REQUESTS TO THE 2009 PINAL COUNTY COMPREHENSIVE PLAN.** Although this is one public hearing covering all the following requests, the Commissioners may ask the public to speak on each major amendment request separately and may discuss and vote on each request separately.

   A. **PZ-PA-003-16:** A request by Snell & Wilmer, agent, to amend the 2009 Pinal County Comprehensive Plan by changing the land use designation from **Very Low Density Residential (0-1 du/ac), Moderate Low Density Residential (1-3.5 du/ac), and High Intensity Activity Center to Employment and Secondary Airport** on approximately 937± acres, situated in a portion of Sections 17, 20 & 21 T07S, R05E located on the east side of Montgomery Road between Hanna Road and the Tohono O'Odham Nation.

   B. **PZ-PA-004-16:** A request by Boulevard Associates, LLC., agent, to amend the 2009 Pinal County Comprehensive Plan by changing the land use designation from **Moderate Low Density Residential (1-3.5 du/ac) to General Public Facilities/Services)** on approximately 257± acres, situated in a portions of Sections 29 & 30, T06S, R08E located adjacent to the south side of State Route Highway 287 approximately 1 mile east of Eleven Mile Corner Road.

TENTATIVE PLATS:

8. **S-015-16 - DISCUSSION/APPROVAL/DISAPPROVAL:** EHLH-KEMF Sherwood, LLC, landowner, Bowman Consulting, engineer, requesting approval of a tentative plat for **Sherwood Park**, 444 lots on a 128.18± acre parcel in the R-7/PAD zone; situated in a portion of Section 22, T3S, R8E, G&SRB&M, Tax Parcel 210-22-001 (located approximately .3 mile south of Bella Vista Road and .2 mile west of Sierra Vista Drive along the Union Pacific Railroad, northwest of the Town of Florence).

CALL TO THE COMMISSION:

9. **CALL TO THE COMMISSION:** Oral comments or suggestions from individual Commission Members reading items or staff action will be allowed. This is not intended to allow discussion or action on any item, but merely to provide the Commission a chance to express its opinions regarding the need for future action by Commission or staff.

ADJOURNMENT

The Planning and Zoning Commission may go into executive session for purposes of obtaining legal advice from the County's attorney(s) on any of the above agenda items pursuant to A.R.S.§ 38-431.03 (A)(3).

Supporting documents for the above-listed matters are available at the Pinal County Community Development Office for public inspection at least 48 hours prior to the meeting at the Pinal County Community Development Department, Pinal County Complex, Building F, 31 N. Pinal Street, Florence, Arizona, Monday through Friday between the hours of 8:30 a.m. and 4:30 p.m. and on the internet at:

http://pinalcountyaz.gov/COMMUNITYDEVELOPMENT/PLANNING/Pages/PZCommission.aspx

Persons with a disability may request a reasonable accommodation, such as a sign language interpreter, by contacting the Community Development Department at 520-866-6442 at least five business days prior to the meeting.

PINAL • COUNTY
wide open opportunity

PINAL COUNTY PLANNING AND ZONING COMMISSION
REGULAR MEETING
ACTION REPORT OF August 18, 2016

PRESENT

Mr. Riggins, Chairman Absent
Mr. Hartman, Vice Chairman
Mr. Salas, Member
Mr. Del Cotto, Member Absent
Mr. Putrick, Member
Mr. Shearer, Member
Ms. Aguirre-Vogler, Member
Mr. Smyers, Member
Mr. Grubb, Member Absent
Mr. Ault, Member

LEGAL STAFF PRESENT Mr. Langlitz, Deputy County Attorney

PLANNING STAFF PRESENT

Mr. Abraham, Planning Manager
Mr. Balmer, Planner I
Mr. Denton, Planner II
Ms. Fisk, Drafting Specialist

PUBLIC WORKS STAFF PRESENT

Mr. Chow, Development Section Chief

The meeting was called to order at 9:00 a.m., this date by Vice-Chairman Hartman in the EOC Room Bldg F, Florence, Arizona.

DISCUSSION OF MEETING MINUTES/ Action Item Report
Action Item Report

REPORT ON BOARD OF SUPERVISORS ACTION ON P & Z CASES
July 20, 2016
August 10, 2016

PLANNING MANAGER DISCUSSION ITEMS

NEW CASES:

PZ-PA-001-16 – PUBLIC HEARING/ACTION: Mike Passarelli, landowner, requesting approval of a Non-Major Comprehensive Plan Amendment from Very Low Density Residential (0-1 du/ac) to Secondary Airport on 118.7± acres pending and in conjunction with Rezone request SUP-002-16 in the GR zone; situated in a portion of the N½ of Section 21, T9S, R8E G&SRB&M, tax parcels 411-32-025, 026, & 028 (legal on file) (located approximately one mile southeast of the City of Eloy). **(Continued from June 16, 2016 Planning & Zoning Commission hearing**

MOTION: Commissioner Aguirre-Vogler made a motion to forward PZ-PA-001-16 to the Board of Supervisors with a favorable recommendation. Commissioner Salas seconded. Motion passed 7-0

SUP-002-16 – PUBLIC HEARING/ACTION: Mike Passarelli, landowner, requesting approval of a Special Use Permit to operate a private airstrip on a 118.7± acre parcel in the General Rural Zone; situated in a portion of the N½ of Section 21, T9S, R8E G&SRB&M, tax parcels 411-32-025, 026, & 028 (legal on file) (located approximately one mile southeast of the City of Eloy). **(Continued from June 16, 2016 Planning & Zoning Commission hearing)**

MOTION: Commissioner Aguirre-Vogler made a motion to forward PZ-PA-001-16 to the Board of Supervisors with a favorable recommendation. Commissioner Salas seconded. Motion passed 7-0

S-026-05 - DISCUSSION/APPROVAL/DISAPPROVAL: Meridian Land Holdings, LLC, landowner, Coe & Van Loo Consultants, Inc., engineer, requesting approval of a tentative plat extension for **Santa Cruz Ranch**, 4,157 lots on a 1,237± acre parcel in the CR-3/PAD zone; situated in portions of Sections 26, 27, 34 & 35, T5S, R4E, G&SRB&M, Tax Parcel 502-14-002A et al. (parcel list on file) (located along Anderson Road bisecting Ruben Drive and Teel Road approximately 1 mile west of the City of Casa Grande). **(Continued from the August 20, 2015 Planning & Zoning Commission hearing)**

S-033-06 - DISCUSSION/APPROVAL/DISAPPROVAL: SCR, LLC, landowner, Coe & Van Loo Consultants, Inc., engineer, requesting approval of a tentative plat extension for **Santa Cruz Ranch Units 4&5**, 2,030 lots on a 674± acre parcel in the CR-3/PAD & CB-1/PAD zones; situated in portions of Sections 26, 34, & 35, T5S, R4E, G&SRB&M, Tax Parcel 502-23-001 et al. (parcel list on file) (located along Anderson Road bisecting Teel Road and Miller Road approximately 1½ mile west of the City of Casa Grande). **(Continued from the August 20, 2015 Planning & Zoning Commission hearing)**

Applicant withdrew plat extension for tentative plat

WORK SESSION: Discussion of the Pinal County 2016 Major Comprehensive Plan amendments:

PZ-PA-003-16: WORK SESSION on a major amendment of the Pinal County Comprehensive Plan to amend the Land Use Plan to re-designate 937± acres of land from **Very Low Density Residential, Moderate Low Density Residential, and High Intensity Activity Center to Employment and Secondary Airport** in the Casa Grande area; situated in a portion of Sections 17, 20 & 21 T07S, R05E located on the east side of Montgomery Road between Hanna Road and the Tohono O'Odham Nation.

PZ-PA-004-16: WORK SESSION on a major amendment of the Pinal County Comprehensive Plan to amend the Land Use Plan to re-designate 257± acres of land from **Moderate Low Density Residential to General Public Facilities/Services** in the Coolidge area; situated in a portions of Sections 29 & 30, T06S, R08E located adjacent to the south side of State Route Highway 287 approximately 1 mile east of Eleven Mile Corner Road.

CALL TO THE COMMISSION: Oral comments or suggestions from individual Commission Members reading items or staff action will be allowed. This is not intended to allow discussion or action on any item, but merely to provide the Commission a chance to express its opinions regarding the need for future action by Commission or staff.

MOTION TO ADJOURN
Commissioner Putrick made a motion to adjourn. Commissioner Aguirre-Vogler seconded.

RESPECTFULLY submitted September 15, 2016.

Steve Abraham, Planning Manage

PINAL • COUNTY
wide open opportunity

MEMORANDUM

TO: Pinal County Planning and Zoning Commission

FROM: Bridget Fisk, Drafting Specialist
Community Development

DATE: September 15, 2016

SUBJECT: **BOARD OF SUPERVISORS (BOS) ACTION ON P&Z CASES**

BOS HEARING OF August 24, 2016
No Cases

BOS HEARING OF September 7, 2016
No Cases

Greg Stanley
County Manager

PINAL • COUNTY
wide open opportunity

MEETING DATE: September 15, 2016

TO: PINAL COUNTY PLANNING & ZONING COMMISSION

RE: **Tentative Plat Extensions**

Executive Summary:

During the month of August the Community Development Director granted one tentative plat extension.

---

1. S-032-05: This tentative plat was granted a one year extension by the Community Development Director based on the project being actively processed and the surrounding conditions did not warrant a revision in design.

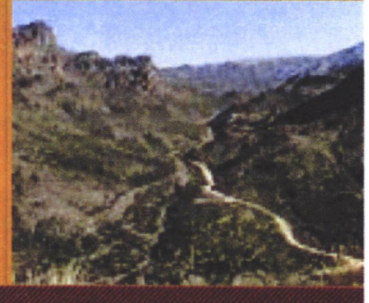
   Subdivision Name: CDO Ranch
   Landowner: CDO Ventures, LLC
   Zoning: CR-1, CR-1A, SR, TR & CB-1/PAD
   Size: 1,294± acre parcel
   Lots: 24 Blocks
   Location: Situated in a portion of Sections 1, 12 & 13, T10S, R14E, G&SRB&M. The subject property is located south of State Route 77 along Biosphere Road, in the Oracle area.
   Extended Date: January 20, 2018

Date Prepared: 9/8/2016 - dld

PINAL • COUNTY
Wide open opportunity

An *Opportunity* Kind of County

Pinal County Tourism Proposal
August 2016



Presented to the Pinal County Board of Supervisors

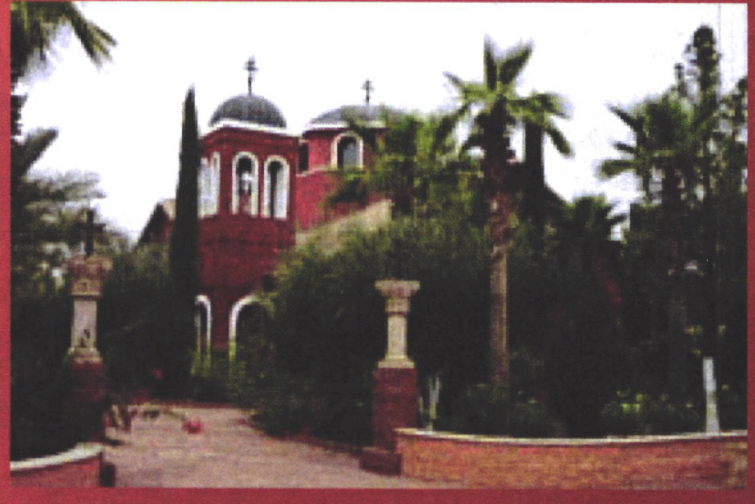
Presented by: Systems Technology Staffing
and Career Horizons

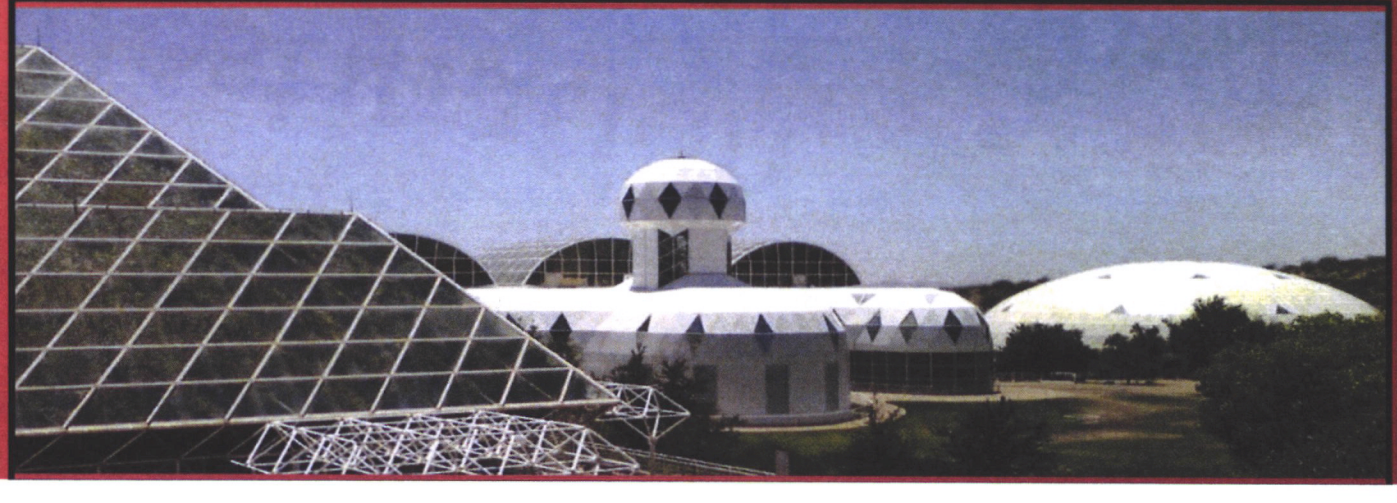
Pinal County is a great place to

Live

Work and Play

Pinal County has lots of things to see and do





But we have a problem…

Our attractions are hidden gems

Our Solution:

Attract more visitors by building a destination brand for Pinal County

Economic Impact of the Travel Industry in Arizona

Arizona's warm weather and magnificent natural beauty made tourism the number one export industry in Arizona in 2015.

42.1 million people visited Arizona in 2015.

Visitors **spent $21 billion** in the state.

The money spent by visitors supports jobs and generates tax revenue.

The **$2.99 billion** in 2015 tax revenue = an annual tax savings of **$1,180 for every Arizona household.**

AOT estimates Visitors spent $ 568 million visiting Pinal County in 2015.*

Local tax receipts (County and towns) $21.2 million*

* Dean Runyan Associates

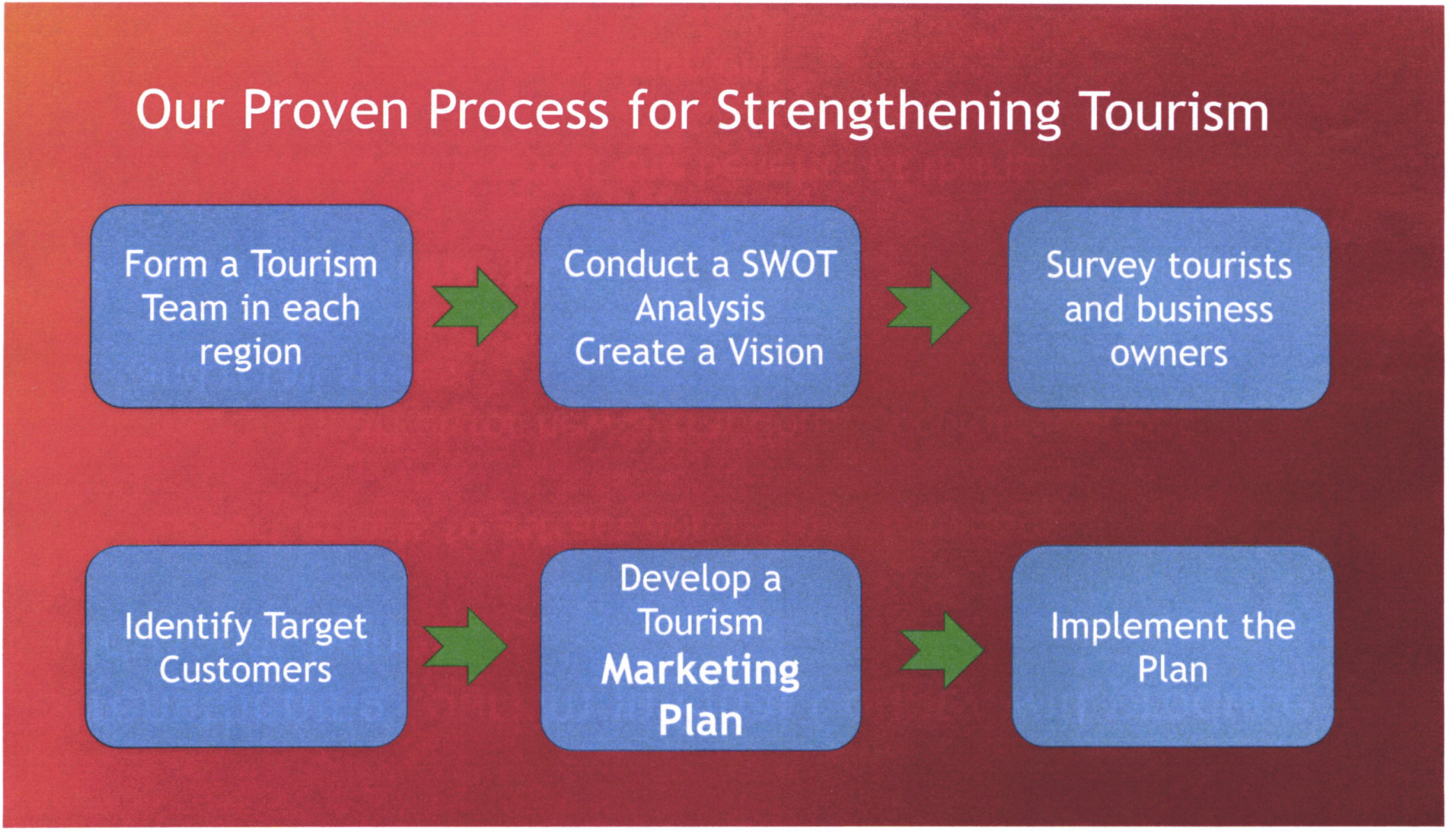
County Direct Travel Spending in 2015*

	$Million		$Million
Apache	102	Mohave	484
Cochise	302	Navajo	283
Coconino	1,182	Pima	2,241
Gila	268	Pinal	568
Graham/Greenlee	61	Santa Cruz	258
La Paz	136	Yavapai	707
Maricopa	10,074	Yuma	575

* Dean Runyan Associates

Strengthening tourism in Pinal County will produce additional benefits:

- Support efforts to attract and retain businesses
- Create a market for new attractions, accommodations and retail stores
- Provide additional jobs
- Educate residents about the benefits of tourism
- Support community development


Our Proven Process for Strengthening Tourism
Form a Tourism Team in each region
Conduct a SWOT Analysis Create a Vision
Survey tourists and business owners
Identify Target Customers
Develop a Tourism Marketing Plan
Implement the Plan

Surveys provide the data to build an effective **Marketing Plan.**

What we learned from analyzing surveys in the Copper Corridor:

- The most frequent comment: "I don't know what there is to see or do."
- Target visitors by interests, not age groups
- Visitors want itineraries that relate to their interests
- A regional approach gives people more options for things to do
- Branding draws people interested in a region's assets

Pinal's State Park Visitors

Boyce Thompson	85,913
Lost Dutchman	160,940
McFarland	9,123
Oracle	6,852
Picacho Peak	98,607
County Total	**361,435**
Arizona Total	**2,660,680**

We employ the following strategies for success

Engage stakeholders in activities and plans to promote tourism

Collaborate with local businesses, area attractions, AOT, ASU, Chambers, EDOs, AZ Lodging & Tourism Association, NAU

Conduct surveys to analyze who visits and what they like to do

Encourage Tourism Teams to think regionally for greater impact:
Visitors will do more and stay longer

Arizona Office of Tourism identifies 5 unique Regions:

1. West Coast – Yuma, Mohave, La Paz

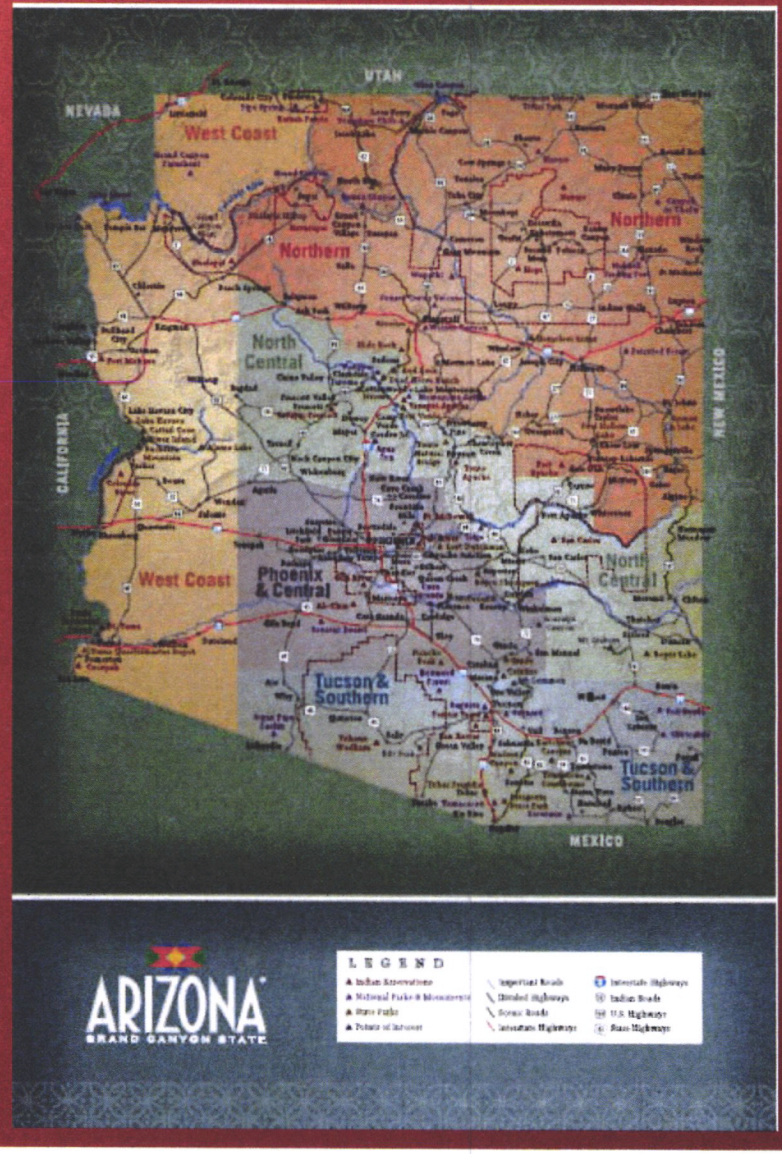
2. Northern – Coconino, Navajo, Apache

3. North Central – Yavapai, Gila, Graham, Greenlee

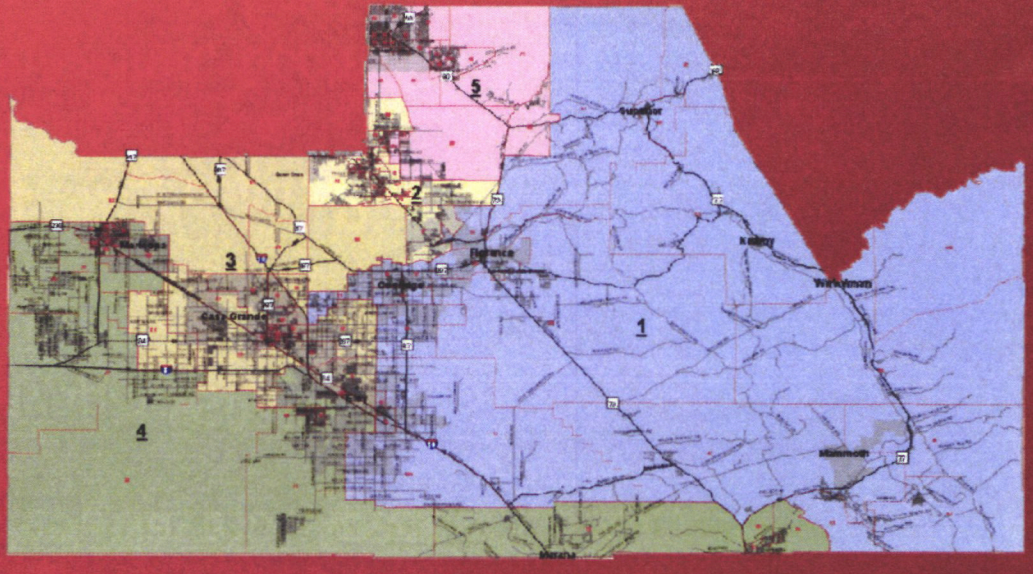
4. Phoenix & Central – Maricopa, **Pinal**

   = Marketing

5. Tucson & Southern – Pima, Cochise, Santa Cruz



Pinal County Supervisor Districts



Advantages of using Tourism Regions:

- Promotes ways for visitors to do more and stay longer
- Easily build itineraries for day or weekend trips
- Could instill healthy competition between districts
- Best way to obtain grants from outside sources, offset costs

Deliverables

A county-wide marketing action plan

Workshops for entrepreneurs and small businesses on marketing, social media, and co-op advertising

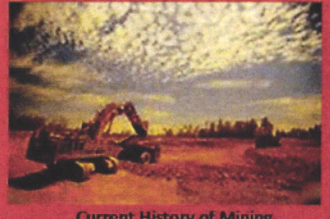
Produce a digital regional map that identify events and attractions

A Pinal County Tourism website

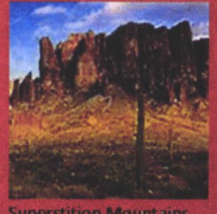
Customer Resource Management (CRM) updates the website event calendar, social media and visitor centers from community input

PROPOSED Web Page

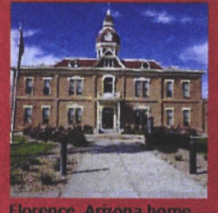
Home Page



Current History of Mining.

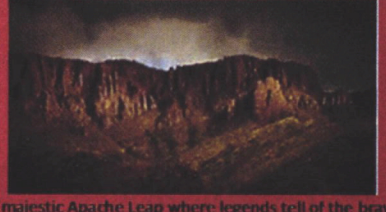


Superstition Mountains And Lost Dutchman Park.



Florence, Arizona home of most historic buildings.

Oracle, Arizona – Arizona Zip Line Adventures offers the longest & fastest zip line.



The majestic Apache Leap where legends tell of the brave Apaches leaping the cliffs rather than being captured by the U.S. Calvary.

Casa Grande Ruins in Coolidge, AZ.

Billy the Kid kills 1st man in Fort Grant, Arizona.

The Gila River runs east to west across Pinal County.

The Ore Cart Trail features ore carts and kiosks with information about each location.

Boyce Thompson Arboretum, 55 miles east of Phoenix. The park offers a variety of foliage, with guided tours.

The Arizona Trail is one of 11 National Trails. From Utah to Mexico, and through Pinal County.

Want to know more about each picture?

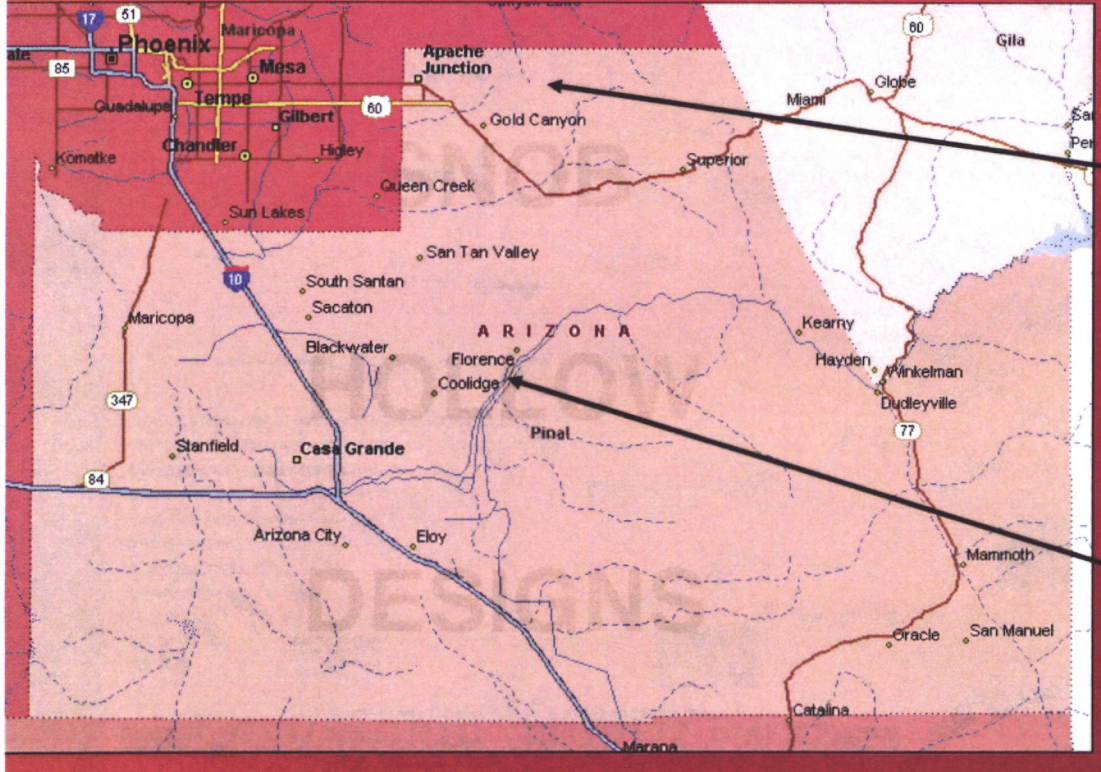
Just point and click to see ***What*** is there and ***Where*** it is located.

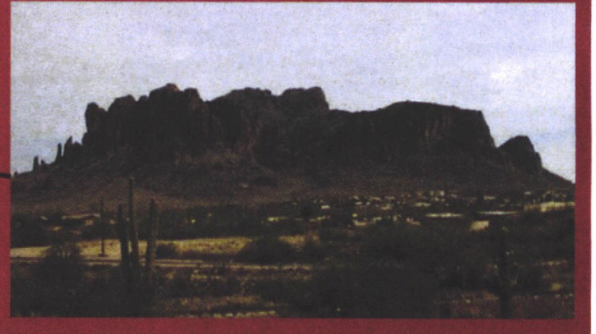
Maps describe locations of attractions

Points of interest

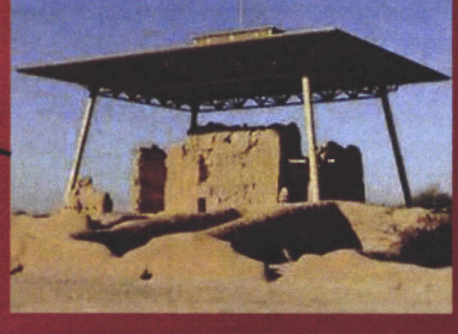
Home | About Us | Events/Attractions | Products | Contact Us

Type in a location





Superstition Mountains



Casa Grande Ruins

Deliverables

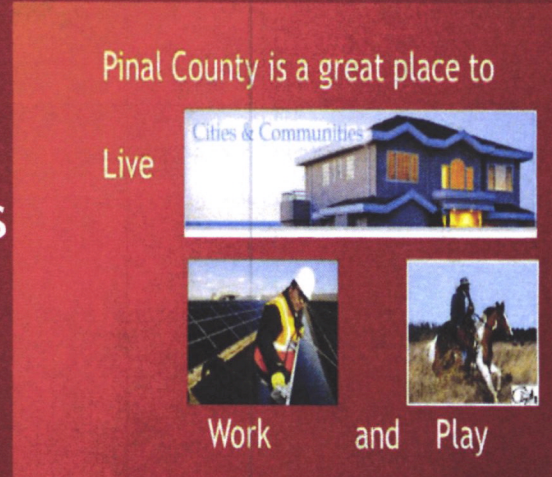
A county-wide marketing action plan

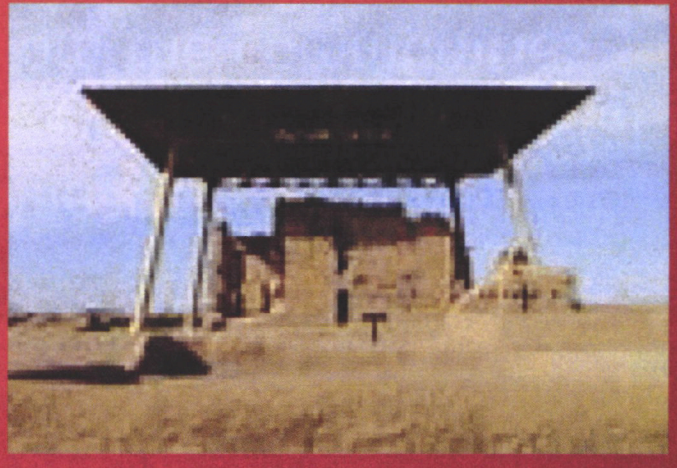
Workshops for entrepreneurs and small businesses on marketing, social media, and co-op advertising

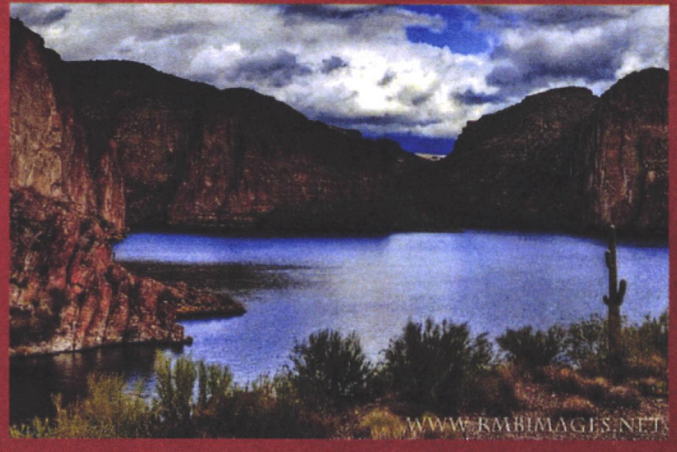
Produce digital regional map that identifies events and attractions

A Pinal County Tourism website

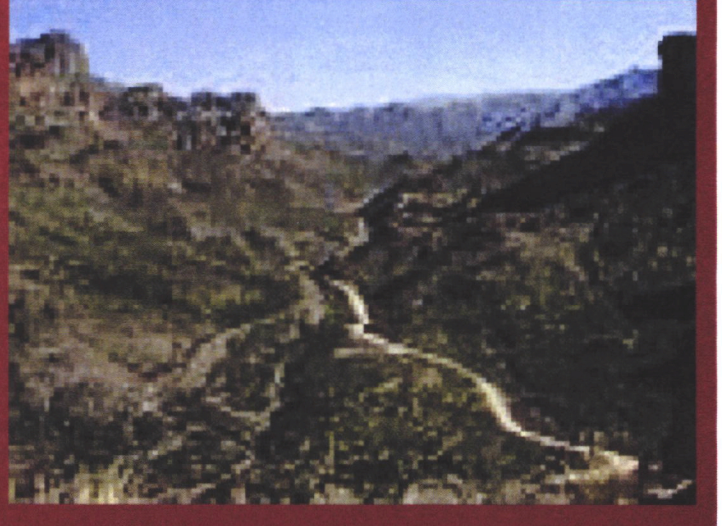
Customer Resource Management (CRM) for updating the website event calendar, social media and visitor centers from the communities







The End



SUP-003-16

Greg Stanley
County Manager

PINAL • COUNTY
wide open opportunity

MEETING DATE: September 15, 2016

TO: PINAL COUNTY PLANNING & ZONING COMMISSION

CASE NO.: **SUP-003-16 (Dudleyville Monopole Wireless Facility)**

CASE COORDINATOR: Enrique Bojorquez

Executive Summary:

This is a Special Use Permit request for the operation of an 80-foot tall monopole wireless communication facility on a 0.35± acre parcel in the General Rural Zone.

If This Request is Approved:

This Special Use Permit would allow the property owner to operate an 80-foot tall monopole wireless communication facility in the town of Dudleyville.

Staff Recommendation/Issues for Consideration/Concern:

Staff recommends denial of the request based on the current information provided and the fact that the proposed monopole if approved will be federally protected thus exempt from Pinal County regulations on wireless communication facilities, under Title 47 Part 1 and 17 of the 10/14 Federal Communication Commission Declaratory Ruling (FCC-14-153), which would allow an increase in tower height and colocation up to 20 feet in width without Commission approval. Furthermore, there appear to be existing vertical elements in the area that could accommodate the proposal and/or be located on San Carlos Apache Native American Community property 500 feet to the south.

LEGAL DESCRIPTION: A 0.35± acre parcel situated in a portion of the SW¼ of Section 16, T6S, R16E, G&SRB&M (legal on file).

TAX PARCELS: 300-26-089B

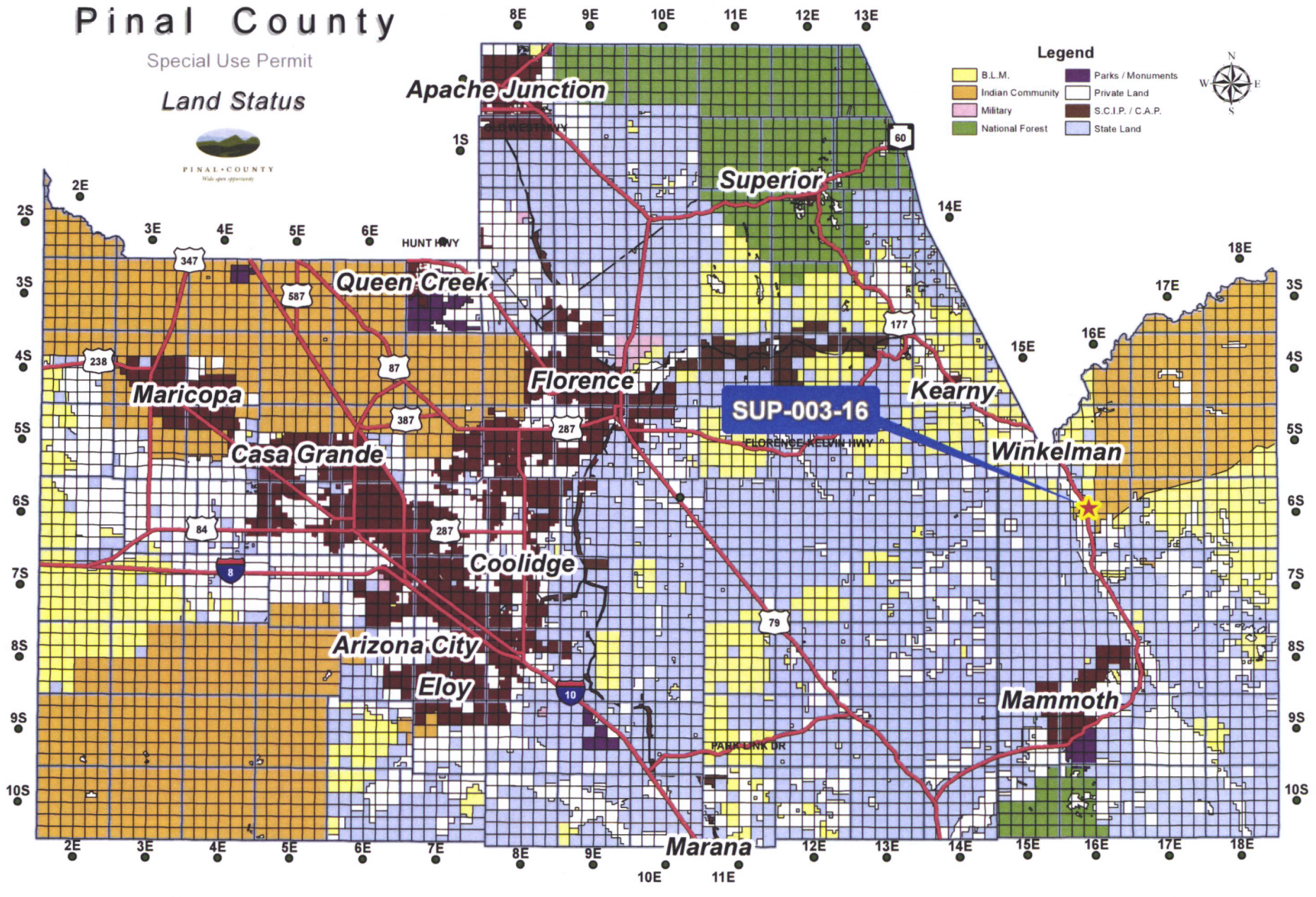
LANDOWNER/APPLICANT: Century Link

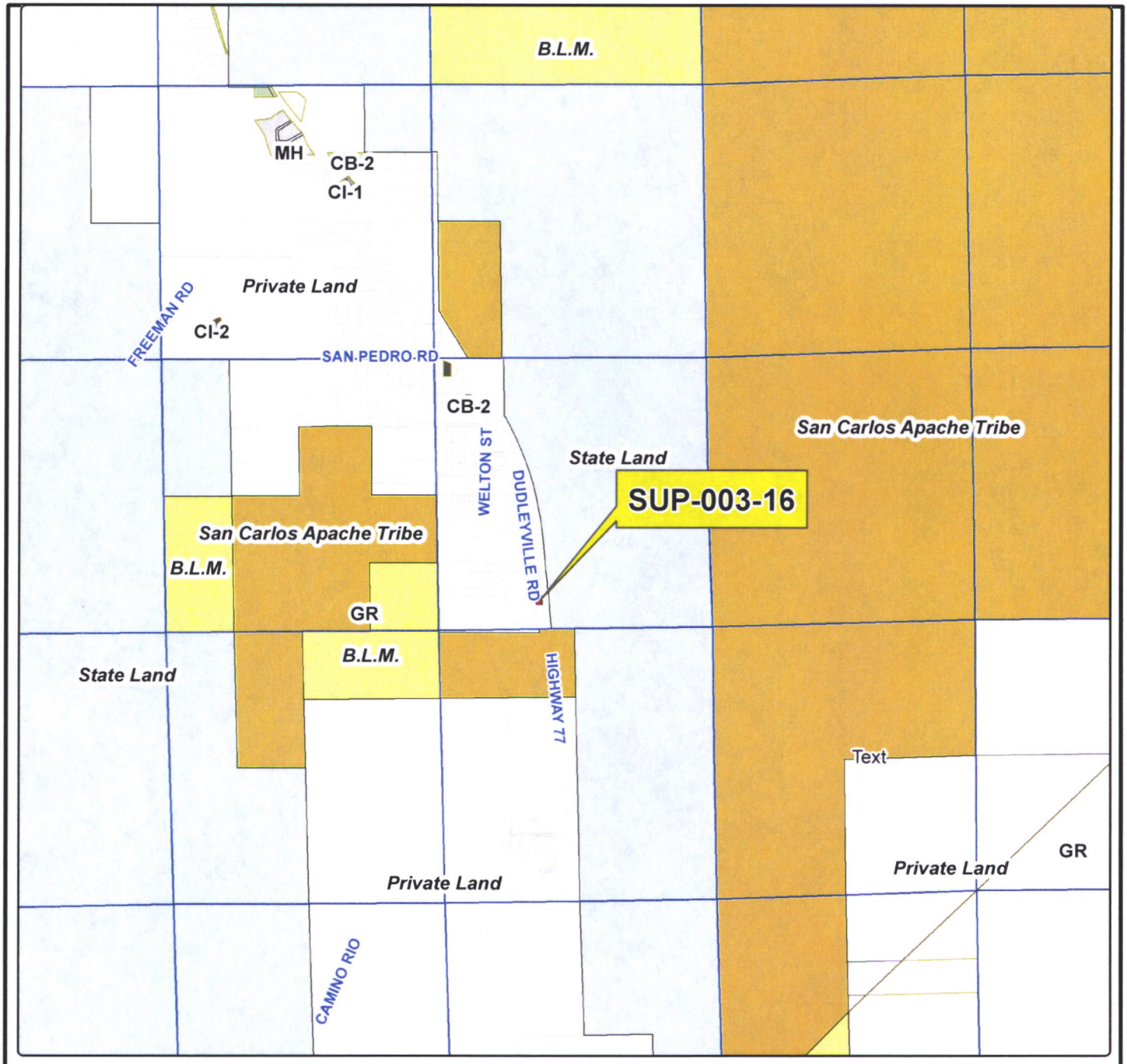
REQUESTED ACTION & PURPOSE: Century Link, landowner, Michael Baker International Inc., agent, requesting approval of a Special Use Permit to operate an 80-foot tall monopole wireless communication facility.

LOCATION: Located adjacent to the west side of Highway 77, in the Dudleyville area.

SIZE: 0.35± acres.

COMPREHENSIVE PLAN: The site is designated as Major Open Space. The surrounding properties are designated Major Open Space. The proposed use is in conformance with the Comprehensive Plan.


Pinal County
Special Use Permit
Land Status
PINAL • COUNTY
Wide open opportunity
Legend
B.L.M.
Indian Community
Military
National Forest
Parks / Monuments
Private Land
S.C.I.P. / C.A.P.
State Land
N
W
E
S
Apache Junction
Superior
Queen Creek
Florence
Maricopa
Casa Grande
Coolidge
Arizona City
Eloy
Kearny
Winkelman
Mammoth
Marana
SUP-003-16
HUNT HWY
FLORENCE-KELVIN HWY
PARK LINK DR
60
177
347
587
87
238
387
287
84
8
79
10

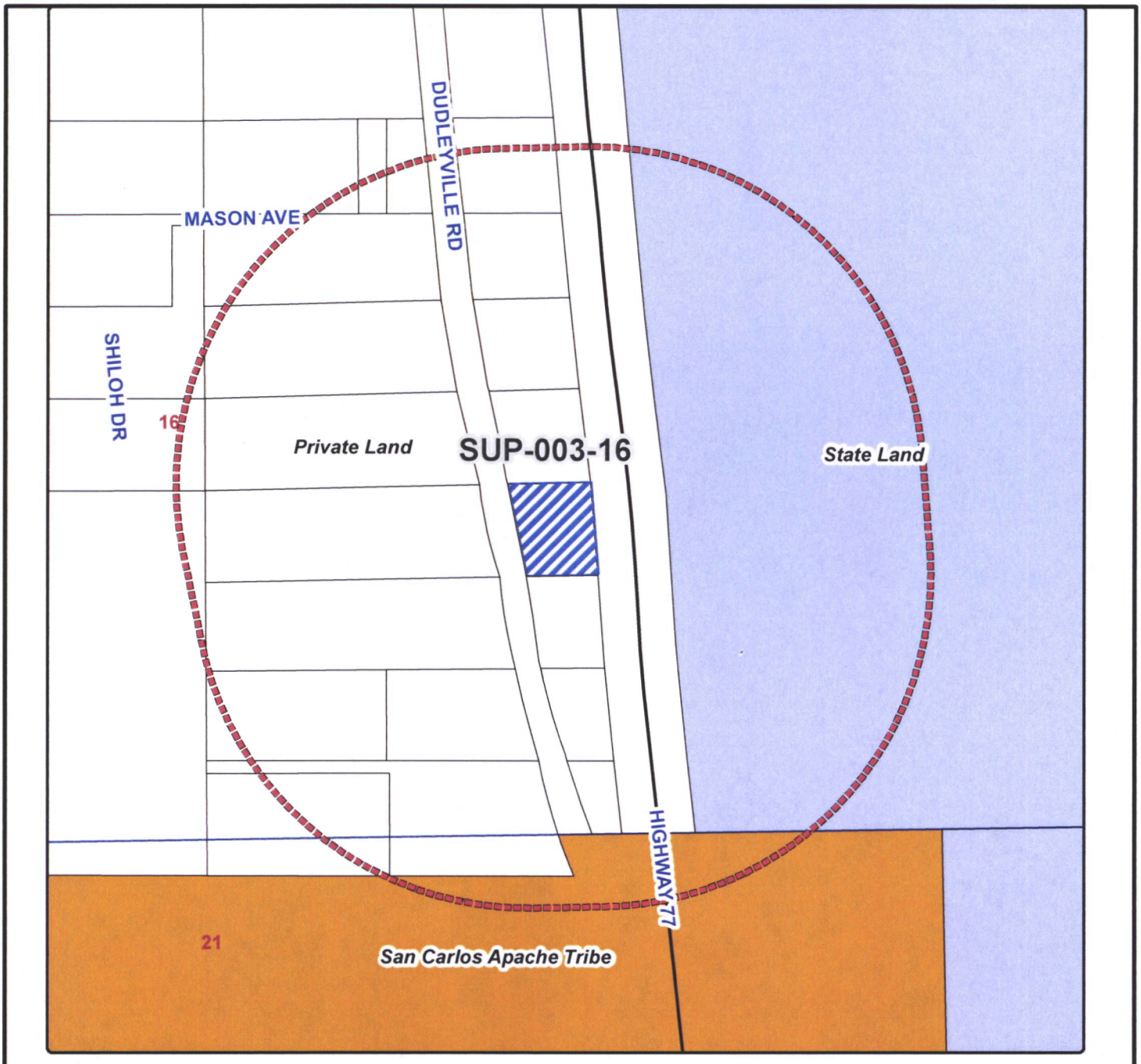


Special Use Permit

Community Development

PINAL • COUNTY
Wide open opportunity

Century Link	**Legal Description:** Situated in a portion of the Section 16, T06S,R16E, G&SRB&M, Parcel 300-26-089B (legal on file) (located approximately five miles southeast of the Town of Winkelman adjacent to the west side of State Route 77). T06S-R16E Sec 16	Sheet No. 1 of 1	Century Link Drawn By: GIS / IT / LJT Date: 7/26/2016 Sections 16 Township 06S Range 16E Case Number: SUP-003-16



Special Use Permit

SUP-003-16 – PUBLIC HEARING/ACTION: Century Link, landowner, Michael Baker International, Inc., agent, requesting approval of a Special Use Permit to operate a 80' tall monopole wireless communication facility on a 0.35± acre parcel in the General Rural Zone; situated in a portion of the SW¼ of Section 16, T6S, R16E G&SRB&M, tax parcels 300-26-089B (legal on file) (located approximately five miles southeast of the Town of Winkelman adjacent to the west side of State Route 77).

Current Zoning: GR
Request Zoning: Special Use Permit
Current Land Use: Major Open Space

PINAL • COUNTY
Wide open opportunity

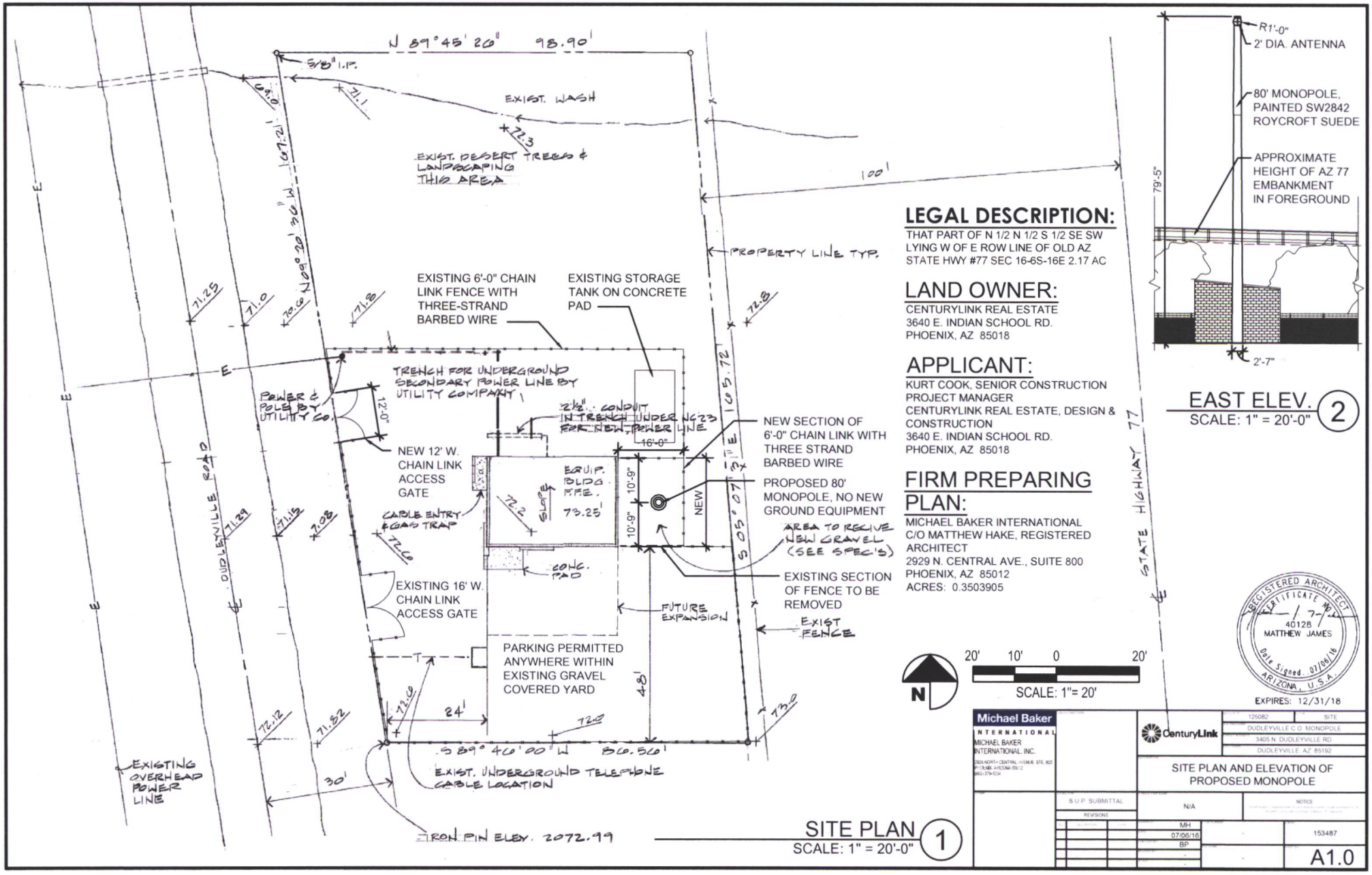
Legal Description: Situated in a portion of Section 16, T06S, R16E, G&SRB&M. Parcel 300-26-089B. (legal on file) (located approximately five miles southeast of the Town of Winkelman adjacent to the west side of State Route 77). T06S-R16E Sec 16		Owner/Applicant: Century Link	
		Drawn By: GIS / IT / LIT	Date: 7/26/2016
	Sheet No. 1 of 1	Sections 16	Township 06S / Range 16E
		Case Number: SUP-003-16	

Special Use Permit

NORTH

PINAL • COUNTY
Wide open opportunity

SUP-003-16



LEGAL DESCRIPTION:

THAT PART OF N 1/2 N 1/2 S 1/2 SE SW LYING W OF E ROW LINE OF OLD AZ STATE HWY #77 SEC 16-6S-16E 2.17 AC

LAND OWNER:

CENTURYLINK REAL ESTATE
3640 E. INDIAN SCHOOL RD.
PHOENIX, AZ 85018

APPLICANT:

KURT COOK, SENIOR CONSTRUCTION PROJECT MANAGER
CENTURYLINK REAL ESTATE, DESIGN & CONSTRUCTION
3640 E. INDIAN SCHOOL RD.
PHOENIX, AZ 85018

FIRM PREPARING PLAN:

MICHAEL BAKER INTERNATIONAL
C/O MATTHEW HAKE, REGISTERED ARCHITECT
2929 N. CENTRAL AVE., SUITE 800
PHOENIX, AZ 85012
ACRES: 0.3503905

EAST ELEV. 2
SCALE: 1" = 20'-0"

SITE PLAN 1
SCALE: 1" = 20'-0"

N

20' 10' 0 20'
SCALE: 1"= 20'

REGISTERED ARCHITECT
CERTIFICATE NO.
40128
MATTHEW JAMES
Date Signed 07/06/16
ARIZONA, U.S.A.
EXPIRES: 12/31/18

Michael Baker INTERNATIONAL
MICHAEL BAKER INTERNATIONAL, INC.
2929 NORTH CENTRAL AVENUE, STE. 800
PHOENIX, ARIZONA 85012
(602) 279-5234

CenturyLink

125082	SITE
DUDLEYVILLE C.O. MONOPOLE	
3405 N. DUDLEYVILLE RD.	
DUDLEYVILLE, AZ 85192	

SITE PLAN AND ELEVATION OF PROPOSED MONOPOLE

S.U.P. SUBMITTAL
REVISIONS

N/A
NOTICE

MH
07/06/16
BP

153487

A1.0

EXISTING ZONING AND LAND USE: The subject property is zoned GR (General Rural). The existing land use is a central office and an unmanned telecommunications facility.

SURROUNDING ZONING AND LAND USE:

North: GR – Vacant
East: GR – State Route 77
South: GR – Vacant
West: GR – (Residences)

FINDINGS:

Site data:

Flood zone: "x" an area that is determined to be outside the 100 year floodplain.
Access: The site is accessed only from Dudleyville Road.

PUBLIC PARTICIPATION:

Neighborhood Meeting:	June 21, 2016
Neighborhood and agency mail out:	August 12, 2016
Newspaper Advertising:	Week of August 8 & 15, 2016
Site posting: Applicant:	August 11, 2016
Site posting: County:	August 19, 2016

HISTORY: In 1983, Mountain States Telephone & Telegraph Company (then owner) split the property 300-26-089 into two parcels (A & B). Presently, the subject property is zoned GR. Currently, it operates as a central office and an unmanned telecommunications facility. No other entitlements have been granted to the subject property.

ANALYSIS: The applicant is requesting a Special Use Permit to allow for the operation of an 80-foot tall monopole. This project is located in the Dudleyville area. The site is located adjacent to the west side of State Route 77 and is accessible from Dudleyville Road.

In general, the site is relatively flat with State Route 77 running along a high ridge that borders the eastern boundary of the property. The site is located in a residential area and is sparsely populated. On the east side of State Route 77 is Arizona State Land. Approximately 500 feet south of the property is land owned by the San Carlos Apache Tribe.

If the proposed 80-foot monopole is approved, this type of facility would become federally exempt under Federal Communications Commission Title 47 (CFR), Parts 1 and 17. This exemption would enable the monopole to increase in height up to 10-percent and allow the addition of appurtenances protruding 20-feet beyond the monopole edge.

After reviewing the application and documentation provided by the applicant, it is staffs opinion that other viable alternatives could have been feasible. One alternative could have been to place the two foot diameter antenna on an existing 100 foot tall lattice tower located north of the site. A second alternative would have been to locate the 80-foot tall monopole on San Carlos Apache Tribal property, which is within 500 feet south of the proposed site. No evidence was submitted by the applicant to show attempts at seeking either alternatives.

To date, no letters of support or opposition have been received regarding the requested Special Use Permit.

The SUP the Commission is considering is for an 80-foot monopole wireless communication facility. The zoning ordinance identifies factors for consideration when reviewing special use permit requests under section 2.151.010 (N). These factors include, but are not limited to:

- **traffic conditions;**
- **provision of services and utilities to the site;**
- **the relationship of the proposed special use and surrounding uses;**
- **whether the proposed use is beneficial to the public health, safety and general welfare of the community;**
- **access to streets that are adequately designed and constructed to handle the volume generated by the use;**
- **does not result in the use of a residential street for non-residential through traffic;**
- **whether adequate measures have been taken to mitigate off-site impacts such as dust, smoke, noise, odors, lights or storm water runoff;**
- **the need for the proposed special use in the neighborhood/community;**
- **public input.**

If the Commission deems there is sufficient evidence to grant this SUP staff has included stipulations relating to the operation and permitting of the facility.

After review and analysis of the proposed application. Staff supports a recommendation of denial for the Special Use Permit by the Planning and Zoning Commission. Staff feels that the applicant has not taken the necessary steps to mitigate negative impacts to the surrounding area based largely on the federal exemption this facility would receive if approved.

The proposal was sent to the Town of Winkelman. The town did not provide any comments in regards to the requested Special Use Permit.

To date, no letters in support or opposition have been received regarding the requested Special Use Permit.

The **Pinal County Community Development Department Engineering Division** reviewed the proposal and had no comments.

The **Pinal County Air Quality Control District** reviewed the proposal and had no comments.

At the public hearing, the Commission needs to be satisfied that the health, safety and welfare of the County and adjacent properties will not be negatively impacted by this Special Use Permit under Planning Case **SUP-003-16**. Furthermore, the Commission must determine that this Special Use Permit will promote the orderly growth and development of the County, at this location and time, and this proposed development is compatible and consistent with the applicable goals and policies of the Pinal County Comprehensive Plan.

THE BURDEN OF PROOF IS UPON THE APPLICANT TO PROVIDE THE NECESSARY AND REQUIRED INFORMATION AT THE PUBLIC HEARING. THE APPLICANT NEEDS TO BE PREPARED TO ADDRESS AND MITIGATE, AS APPLICABLE, THE FOLLOWING ISSUES AND CONCERNS:

A) LAND USE, PERIMETER WALLS, SIGNAGE, SETBACKS, INGRESS/EGRESS & LANDSCAPING
B) PUBLIC SERVICES - SEWER, WATER, UTILITIES, DRAINAGE
C) NEIGHBORHOOD IMPACT
D) FLOOD CONTROL
E) TRAFFIC IMPACT
F) COMPATIBILITY/CONSISTENCY WITH PINAL COUNTY COMPREHENSIVE PLAN
G) BENEFITS/DETRIMENTS TO PINAL COUNTY

STAFF SUMMARY: The applicant, Century Link, has submitted the proper application, but lacks sufficient evidence to warrant a staff recommendation as provided in the Ordinance. Staff provides the following findings together with the information on Page 1 of this staff report:

1. This Special Use Permit will allow for the operation of an 80-foot tall monopole in the Town of Dudleyville.

2. To date, no letters in support or opposition have been received regarding the requested Special Use Permit.

3. The property is accessed from Dudleyville Road.

4. Granting of a Special Use Permit will require, after the time of approval, that the applicant/owner submit and secure from the applicable and appropriate Federal, State, County and Local regulatory agencies, all required applications, plans, permits, supporting documentation and approvals.

5. Granting of a Special Use Permit would allow the construction and the facility would then be federally exempt from Pinal County regulations on wireless communication facilities, under Title 47 Part 1 and 17 of the 10/14 Federal Communication Commission Declaratory Ruling (FCC-14-153).

6. No sufficient evidence was provided by the applicant regarding other alternatives for the placement of the two foot diameter antenna.

STAFF RECOMMENDATION:

After a detailed review of the request, Pinal County Comprehensive Plan, and the Pinal County Development Services Code (PCDSC), Staff recommends denial of this request.

However, in addition to staff recommendations, should the Commission find, after the presentation of the applicant and together with the testimony and evidence presented at the public hearing, that this special use permit request is not needed and not necessary at this location and time, will negatively impact adjacent properties, will not promote orderly growth and development of the County and will be not compatible and consistent with the applicable goals and policies of the Pinal County Comprehensive Plan, then staff recommends that the Commission forward **SUP-003-16** to the Board of Supervisors

with a recommendation of denial with the attached stipulations. If the Commission cannot find for all of the factors listed above, then staff recommends that the Commission forward this case to the Board of Supervisors with a recommendation of approval.

1) The permit is issued to CenturyLink, not to the land;

2) the permit is issued for ten (10) years from date of the Board of Supervisors approval;

3) the layout, design and set up of the 80 foot monopole wireless communication facility shall be as shown and set forth on the applicant's submittal documents and site plan and shall be an unmanned telecommunication facility;

4) submit a R.F. Engineer's certification that radiation meets FCC requirements;

5) all proposed outdoor lighting must conform to the applicable requirements of the Pinal County Development Services Code;

6) the applicant shall keep the area free of trash, litter and debris;

7) at such time as technology becomes available and the wireless communication facility is no longer needed, it shall be removed from the subject property;

8) all Federal (FCC), State, County and Local rules and regulations shall be adhered to and all applicable and required submittals, plans, approvals and permits be obtained, including but not limited to planning clearance, building permits, fencing and security lighting; and

9) violation of these conditions at any time may invoke revocation proceedings by the Pinal County Planning & Development Services Department.

10) any change or expansion of use shall require the approval of the Board of Supervisors under the procedures pursuant to Section 2.150.020 of the Development Services Code;

Date Prepared: 9/6/2016
Revised: 9/7/2016

Development Services

Michael Sundblom
Air Quality Director

PINAL • COUNTY
wide open opportunity

Greg Stanley
County Manager

MEMORANDUM FROM AIR QUALITY

Date: August 26, 2016

To: Steve Abraham

Cc: P & Z Review Committee

From: Anu Jain – Air Quality Engineer

Re: Planning & Zoning Cases

I have reviewed the following Planning & Zoning cases:

Date	Case #	Applicant	Project	*Response
9/15/16	SUP-003-16	Kurt Cook	80 feet Steel Monopole	See Comment 1

***Comments:**

1. An Air Quality Industrial permit may be required if there is a generator on site.

Michael Baker
INTERNATIONAL

We Make a Difference

CenturyLink™

CenturyLink Dudleyville Central Office
Monopole Installation

Special Use Permit Application

Z-PA-026-16

July 6, 2016

July 6, 2016

Pinal County Planning & Zoning Commission

RE: CenturyLink Dudleyville Central Office – Monopole Installation
Special Use Permit Application – APPLICATION CHECKLIST ITEMS

A. Hold a Neighborhood/Community Meeting
   1. All property owners within 1200' were notified of the Neighborhood/Community Meeting. The meeting was held on June 22, 2016 at the Minit Market at 6466 Arizona 77, Winkelman, AZ 85192, at the NW corner of the Arizona 77 and North Valentine Rd. (**Attachment A**)
   2. That location was within five miles of the subject property.
   3. The meeting was held from 5-6 p.m.
   4. Attached are the following:
      a. A copy of the Notice of the Neighborhood/Community Meeting (**Attachment B**)
      b. The list of property owner within 1200' who were copied (**Attachment A**)
      c. Minutes of the meeting: none of the property owners attended the meeting. There were no comments submitted by post or by e-mail per the instructions on the Notice of the Neighborhood/Community Meeting.
      d. The meeting sign-in sheet is included. The facilitator, Matthew Hake, passed the time in the Minit Market parking lot actively inquiring among the vehicles that pulled-up if any were present to attend the meeting. None of the property owners showed up, but four community members were curious about the meeting purpose. After the purpose was explained and plans and the photo simulation exhibited, those four community member enthusiastically expressed support for this effort understanding that it is part of the effort to advance the Apache Sky development. (**Attachment C**)

B. The Agency Authorization and Consent to Permit forms are provided.

C. Written narrative.
   1. The title page is at the beginning of this document.
   2. The Purpose of this request is as follows:

      CenturyLink's client, the Apache Sky Casino, requested to receive high-speed internet service via a monopole installation with an antenna dish sited at the existing CenturyLink Dudleyville Central Office site. At present, there is no fiber utility to the Apache Sky development site, and getting fiber to it is a significant endeavor that would likely be a multi-year effort. The proposed monopole is an existing 80' Valmont pole anticipated to have one 2' diameter Andrew VHLP2-180 antenna attached to it near the top of the pole.

      The self-supporting monopole is to be sited and installed at the existing CenturyLink Central Office site at 3405 N. Dudleyville Rd, Dudleyville, AZ 85192. That existing site is zoned General Rural (GR) and is surrounded by GR zoned residential parcels. The existing site is enclosed with a 6' chain link fence with three strands of barbed wire (approximately 18" higher than the top rail of the chain link fence). The monopole installation will require minor modification of the fence enclosure (a small, additional section to enclose the monopole site within the greater enclosed

yard). There is an existing Central Office, an unmanned facility, housing telecommunications equipment on this site. The monopole will be sited on the east side of the existing building to provide some screening of the installation from the adjacent Dudleyville road and the General Rural zoned parcels across the street. There is an embankment ascending up from the site to the AZ 77 highway that is about 30' high on the east side of the parcel. The embankment will shield or obscure some of the monopole as the site is well below the highway. The three parcels north and three parcels south of the site on the project's side (east side) of Dudleyville Road are all vacant.

3. Description of Proposal.

   a. Nature of the Project: This is a project to extend high speed internet service from the existing telecommunications utility building to the Apache Sky Casino project site via a monopole.
   b. Proposed Land Use: The Land Use is existing for public/semi-public utility (CenturyLink telecommunications facility).
   c. Conformance to adopted Comprehensive Plan: not applicable (uncertain if there exists a Comprehensive Plan for this area).
   d. Special circumstance or conditions: Existing telecommunication facilities are on this parcel making it the logical location for connectivity to existing fiber delivered high-speed internet/data services. The tri-pod tower 1.9 miles north of this site does not have proximity to the existing telecommunications equipment similar to that which is in the CenturyLink Dudleyville Central Office, so an antenna on that tower would not have the service to transmit (i.e. co-location on an existing installation is not an option). Installing fiber from this facility or to the proposed Apache Sky site involves one or any of the following: AZ State Trust Land, BLM Land, Private Land, Public Land, and Tribal Land. Getting the easements and permissions to bring fiber through these is likely a multi-year endeavor. For the Apache Sky organization to enjoy the full use of their property and to improve it, this is the solution that is deemed necessary.
   e. Impact on:
      1) Traffic – none
      2) Nearby properties – monopole is partially screened by the building and by the highway embankment. The properties directly north and south of the site are vacant. The monopole will be visible to some properties on the west side of Dudleyville Road near the site and it will be visible from various locations on the AZ 77.
      3) Health & Safety – none
   f. The SUPPORTING INFORMATION questions are addressed on those pages of the application.
4. Location & Accessibility: not applicable – this is a monopole installation
5. Factors for section 2.151.010(N): q. Such other uses as the Planning Commission may deem appropriate in the public interest.
6. Utilities & Services: no new utilities or service affected
7. Appendix: not applicable

Additional Information Required for Special Use Permit Applications

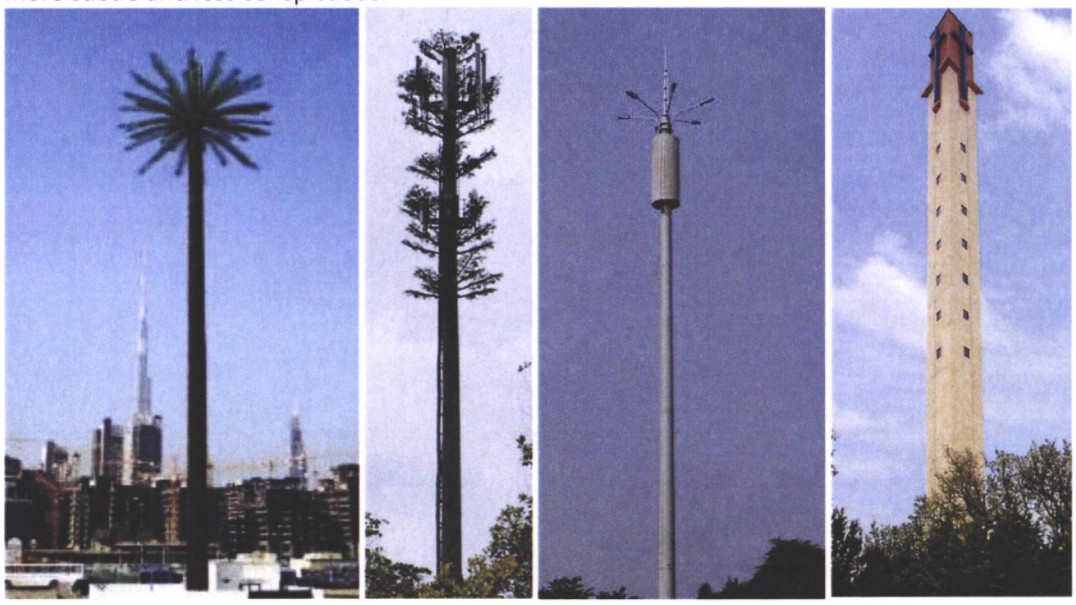
1. A map showing other wireless communications monopoles and towers is provided (A1.2 MAP OF OTHER WIRELES TOWERS WITHIN TWO MILES OF PROPOSED SITE).

2. Written narrative describing any neighborhood opposition, written or verbal. There were neither written nor verbal expressions of opposition. See item A. 4. a.-d. above from the APPLICATION CHECKLIST ITEMS.
3. A scale elevation drawing with the height and configuration of the monopole including the location of the antenna is represented on A1.0 SITE PLAN AND ELEVATION.
4. A scale site plan is depicted on A1.0 SITE PLAN AND ELEVATION. There is no ground based equipment as the single antenna will be routed to equipment internal to the existing telecommunications Central Office.
5. The proposed color for the monopole is Sherwin Williams Roycroft Suede, SW 2842, selected to blend the monopole with the hues of the desert earth and flora prevalent at and around the embankment of the SR 77. The back and sides of the antenna can be painted the same color. The Teglar Radome cover will be the manufacturer's brown, color no. 20040.

Brown No. 20040

Roycroft Suede, SW 2842

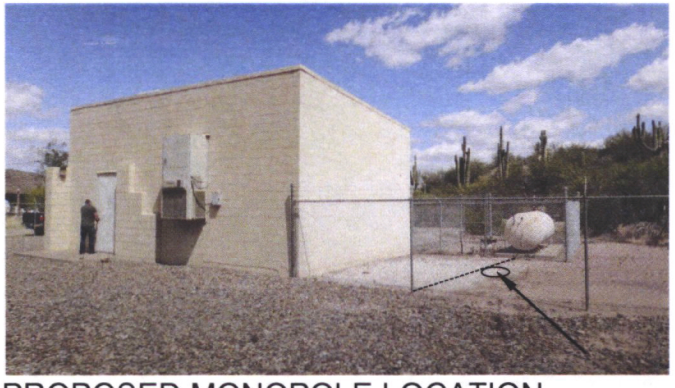
6. Contemporary camouflage solutions for monopoles generally make the pole appear like a palm tree, a pine tree, a substantial faux site light fixture, or a church spire. Relative to this particular site and the general lack of tall appurtenances in the environs, we contend the solution we are proposing is more subtle and less conspicuous.



7. There are no alternative sites that both share a similar proximity to the Apache Sky site and have fiber infrastructure for connectivity and subsequent transmission of high speed internet and data.
8. Regarding the possibility for co-locations on existing towers, there is a tower owned by a cellular company but CenturyLink would still need a monopole to shoot a signal to that tower making this a "two hop" service instead of "one hop."
9. A description of possibilities for using a greater number of shorter monopoles or towers in place of the proposed facility. Geographical location (ridges in the surrounding grades) restricts the use of a shorter pole. The proposed height is the minimum for this wireless service to work in this area.
10. Information on provisions for removal of the monopole or tower after it is no longer being used. This tower will be a permanent asset at the Central Office for this service.
11. Information on the willingness of the landowner and the service provider to allow other service providers to co-locate on the proposed facility. CenturyLink would be willing to share the monopole with another provider but CenturyLink is willing to restrict sharing if that is the desire of the County.
12. A description of potential gaps that could impede the provision of emergency services if this monopole or tower is not approved. This wireless service will be providing telephone service to the site which will provide 911 access. Internet access will also be provided with this service.
13. Certification from the Structural Engineer that the tower will meet the International Building Code is provided as **Attachment D**.

SITE:

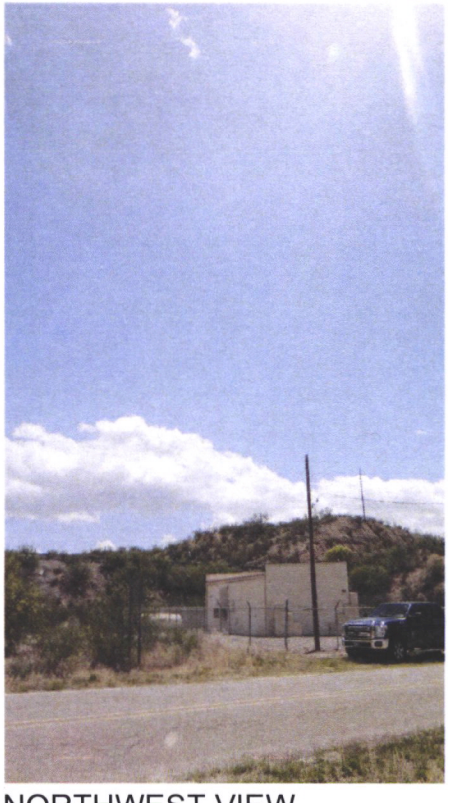
THAT PART OF N 1/2 N 1/2 S 1/2 SE SW LYING W OF E ROW LINE OF OLD AZ STATE HWY #77 SEC 16-6S-16E 2.17 AC



PROPOSED MONOPOLE LOCATION

NORTH VIEW (EXISTING)

AERIAL VIEW (EXISTING SITE)



NORTHWEST VIEW (EXISTING)

SOUTHWEST VIEW FROM DUDLEYVILLE ROAD (PROPOSED)

SOUTHEAST VIEW FROM AZ 77 (PROPOSED)

REGISTERED ARCHITECT
CERTIFICATE NO.
40128
MATTHEW JAMES
Date Signed: 07/06/16
ARIZONA, U.S.A.
EXPIRES: 12/31/18

Michael Baker INTERNATIONAL
MICHAEL BAKER INTERNATIONAL, INC.
CenturyLink

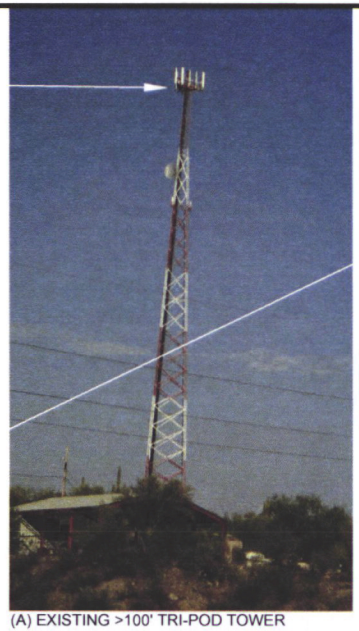
126082	SITE
DUDLEYVILLE C.O. MONOPOLE	
3405 N. DUDLEYVILLE RD	
DUDLEYVILLE, AZ 85192	

BEFORE & AFTER PHOTO SIMULATIONS

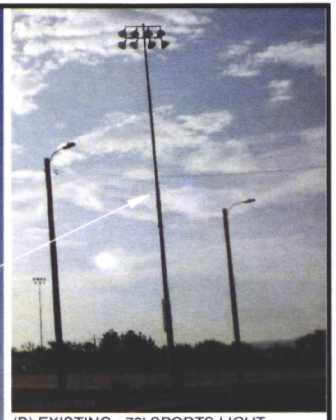
S.U.P. SUBMITTAL
REVISIONS
N/A
NOTICE
MH
07/06/16
BP
153487
A1.1

TOWER STRUCTURES WITHIN 2 MILES

MONOPOLE WITHIN 5 MILES



(A) EXISTING >100' TRI-POD TOWER



(B) EXISTING ~70' SPORTS LIGHT POSTS AND FIXTURES

(C) EXISTING APPROX. 40' MONOPOLE @ CENTRAL ARIZONA COLLEGE

REGISTERED ARCHITECT
CERTIFICATE NO.
40128
MATTHEW JAMES
Date Signed 07/06/16
ARIZONA, U.S.A.
EXPIRES: 12/31/18

Michael Baker INTERNATIONAL
MICHAEL BAKER INTERNATIONAL, INC.

CenturyLink

125082 SITE
DUDLEYVILLE C.O. MONOPOLE
3405 N. DUDLEYVILLE RD
DUDLEYVILLE, AZ 85192

MAP OF OTHER WIRELESS TOWERS WITHIN TWO MILES OF PROPOSED SITE

S.U.P. SUBMITTAL
REVISIONS
N/A
NOTICE
MH
07/06/16
BP
153487
A1.2

Michael Baker
INTERNATIONAL

We Make a Difference

June 8, 2016

RE: Notice of Neighborhood/Community Meeting

Property owner(s) and head of homeowners' or community association:

This is a notification inviting the addressee(s) to attend a neighborhood/community meeting for citizen review in conjunction with the application for a Special Use Permit and/or a Temporary Use Permit for a telecommunications monopole installation at an existing CenturyLink building site located in Dudleyville.

The meeting will include a forum at which the project intent will be explained and a period for comment.
Date: Tuesday, June 21, 2016
Time: 5:00 p.m.
Location: Parking lot of the Minit Market at 6466 Arizona 77, Winkelman, AZ 85192 at the NW corner of the Arizona 77 and North Valentine Rd.
Description of Project: This project will be the installation of an 80' monopole behind (east of) the existing CenturyLink building between the building and the embankment of the Arizona 77.
Location of Project: The project site is at 3405 N Dudleyville Road, Dudleyville, AZ 85192.
Submission of written or verbal comments:
Written comments may be sent via e-mail, mail, or provided in person at the neighborhood/community meeting. To send by e-mail, address to matthew.hake@mbakerintl.com with the subject: Dudleyville Monopole Comments, by June 24, 2016. To send comments by mail, please send, postmarked by June 23, 2016, to:

Michael Baker International, Inc.
Attn: Matthew Hake, Architect
2929 N. Central Avenue, Suite 800
Phoenix, AZ 85012

Written comments provided in person will be recorded as having been submitted on a sign-in sheet adjacent to the commenter's name. A record of any/all comments will be provided to Pinal County's Planning and Zoning Department with the submission of the permit application. Verbal comments will be noted at the meeting by the meeting facilitator. The expectation is that the meeting will last 15-30 minutes. Thank you.

Sincerely,

Matthew J. Hake

Matthew Hake, Architect

MBAKERINTL.COM

2929 N. Central Avenue, Suite 800 | Phoenix, AZ 85012
Office: 602-279-1234 | Fax: 602-279-1411

ATTACHMENT B

Michael Baker
INTERNATIONAL

We Make a Difference

June 21, 2016

RE: CTL Dudleyville - Neighborhood/Community Meeting
Sign-In Sheet and Community Comments

Name:	Address:	Contact information (phone and/or e-mail):
* Mike Dalton	1520 Calle Valencia	[redacted]
* Alfred Devoscal	80530 E Cactus [redacted]	

* NEITHER COMMUNITY MEMBER ABOVE WERE A PART OF THE MAILING, BUT BOTH WERE ENTHUSIASTIC ABOUT THE PROPOSED CASINO.

Name:	Address:	Contact information (phone and/or e-mail):	
* Vanessa K Chavez	76415 E Indian Hills Dr	[redacted]	Support
* Rosa Romero	6890 N. Valentine Rd.	[redacted]	Support

* ibid.

MBAKERINTL.COM

2929 N. Central Avenue, Suite 800 | Phoenix, AZ 85012
Office: 602-279-1234 | Fax: 602-279-1411

ATTACHMENT C

ISE, Incorporated
Structural Engineers ***Telecommunications & Industrial Design***

PO Box 50039 • Phoenix, Arizona • 85076 • Office: (602) 403-8614 • Fax: (623) 321-1283 • www.ISE-INC.biz

July 6, 2016

Mr. Matthew Hake
Michael Baker International
Phoenix Plaza Tower II
2929 N. Central Avenue, 8th Floor
Phoenix, AZ 85012

Subject: Century Link Dudleyville Monopole
Design Specification

Mr. Hake,

Century Link proposes the installation of a new monopole structure to support communications equipment at their Dudleyville facility.

The monopole will be designed by our office per requirements of the 2012 International Building Code and its reference specification TIA-222-G, *"Structural Standard for Antenna Supporting Structures and Antennas"*.

Regards,

Glen L. Hunt III, MS/PE
Principal Engineer

ATTACHMENT D

Michael Baker
INTERNATIONAL

We Make a Difference

August 5, 2016

Mr. Enrique Bojorquez, Planner I
Pinal County Community Development
31 North Pinal Street, Building F
PO Box 2973
Florence, AZ 85132

RE: Special Use Permit – 8/5/16 Review Comments – **Engineer Letter** (Case SUP-003-16)

Dear Mr. Bojorquez:

Co-location on the existing sports lights post to the North of the proposed monopole site is not feasible.

This location will not work. The Dudleyville CO tower is designed specifically for the frequency being utilized. The radio system is operating at 18GHz and can only handle 1 degree of sway. With the lights and antenna system atop the light fixture pole located at the ball field, the pole would sway outside the limits of the radio system and disrupt service.

Also, the distance between the Radio system and the Dudleyville CO is beyond the limits to be operational. CenturyLink needs to have the radios and the electronics as close as possible for functioning radio performance.

In addition, there may be direct clear line to the Apache Sky Casino but, the radio signal does not travel in a direct line. It travels in an ellipsoid pattern. This would cause a higher sport light fixture pole to be required.

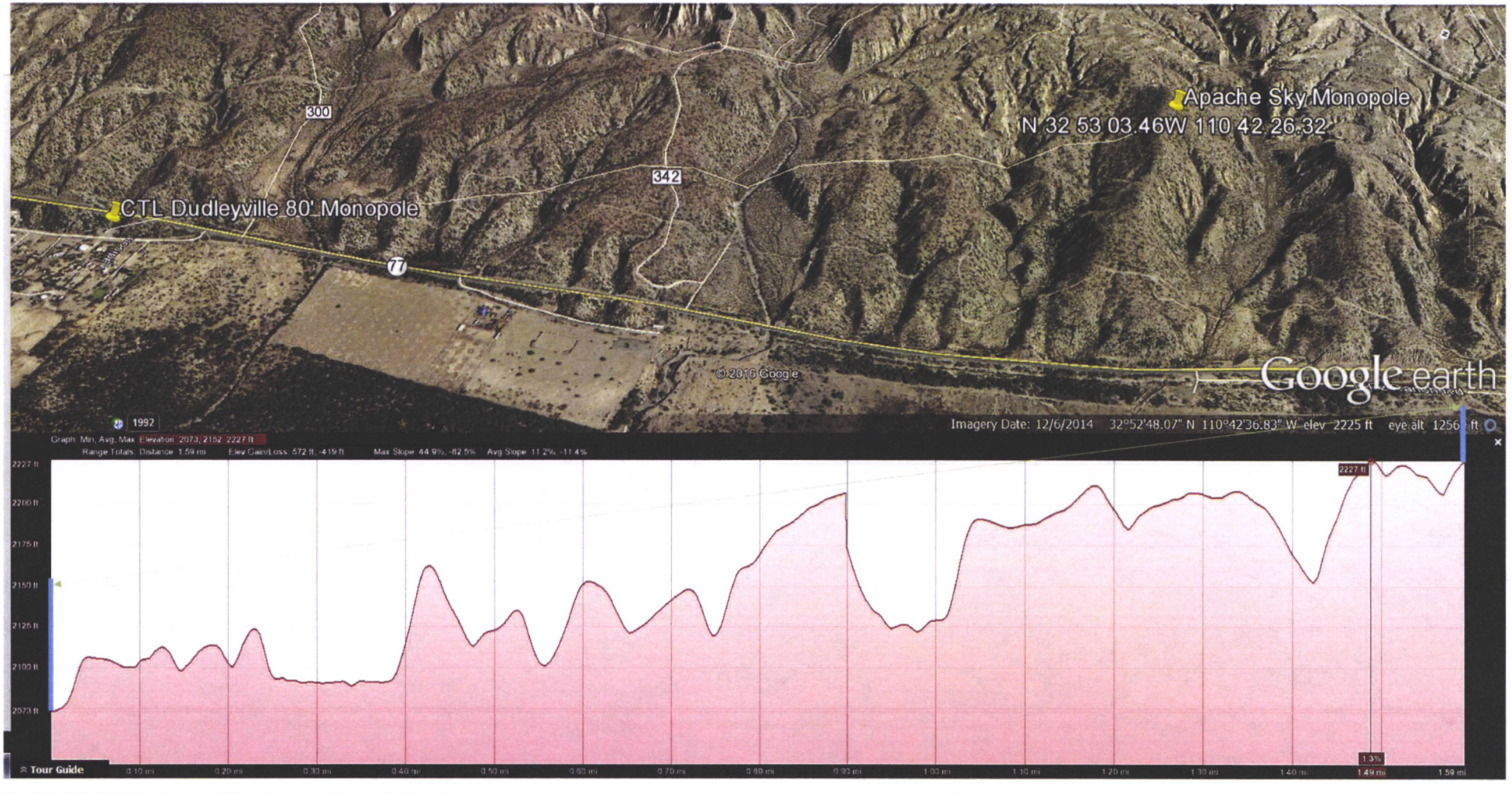
Sincerely,

Dean Levorsen, Electrical Engineer
Michael Baker International

REGISTERED PROFESSIONAL ENGINEER (ELECT.)
CERTIFICATE NO.
27200
DEAN P.
LEVORSEN
8-8-16
ARIZONA, U.S.A.

MBAKERINTL.COM

2929 N. Central Avenue, Suite 800 | Phoenix, AZ 85012
Office: 602-279-1234 | Fax: 602-279-1411



Pinal County Review Comment Response to **General, item 2**:

The 80' monopole proposed for the CenturyLink Central Office site located at 3505 N. Dudleyville Rd. is not a broadcast system; it is a direct point-to-point system. There is no coverage map to convey. Instead, we are offering an elevational profile with the CenturyLink 80' monopole depicted at the left end of the direct path and the receiving point at the Apache Sky location on the right side of the elevational profile representation.

APPLICATION FOR A SPECIAL USE PERMIT IN AN UNINCORPORATED AREA OF PINAL COUNTY, ARIZONA

*(All applications **must** be typed or written in ink.)*

1. Pinal County Staff Coordinator: Mr. Steve Abraham, AICP, MPA Planning Manager

2. Date of Concept Review: 05 / 24 / 2016 Concept Review No.: CR - Z-PA-026-16 - _____

3. The Legal Description of the Property: THAT PART OF N 1/2 N 1/2 S 1/2 SE SW LYING W OF E ROW LINE OF OLD AZ STATE HWY #77 SECT 16-6S-16E 2.17 AC

4. Tax Assessor Parcel No(s).: 300 26 089 B

5. Current Zoning: General Rural (GR)

6. Parcel size: ~~2.17~~ 0.35 ± acres

7. The existing use of the property is as follows: This property has a telecommunications facility owned by CenturyLink called the Dudleyville Central Office. It houses telecommunications equipment and provides phone and internet service to the community. The facility is an unmanned facility housing with the facilities enclosed in an existing chain link fence with three-strand barbed wire.

8. The exact use proposed under this request: Provision of an 80' monopole on the existing site, partially screened by the existing building and highway embankment, to provide dedicated high-speed internet service to the proposed Apache Gold organization for use during and after the construction of the new amenities serving the community. This would be similar to the monopole installed at the Central Arizona College Aravaipa Campus six miles south of the CenturyLink building.

9. Is the property located within three (3) miles of an incorporated community?
   ☐ YES ■ NO

10. Is an annexation into a municipality currently in progress?
    ☐ YES ■ NO

11. Is there a zoning violation on the property for which the owner has been cited?
    ☐ YES ■ NO

    If yes, zoning violation # _____

12. Discuss any recent changes in the area that would support your application i.e.: zone change(s), subdivision approval, Planned Area Development (PAD), utility or street improvements, adopted Comprehensive/Area Plan(s) or similar changes. The Apache Sky organization has announced plans and commenced design for the construction of the Apache Sky Casino on a substantial site just outside of the village of Dudleyville. The development is anticipated to create about 350 permanent jobs plus a couple hundred construction jobs, with a hotel and other features, such as a theater, bowling alley or conference center, anticipated to follow. There is no fiber or high-speed internet to support the construction process, and getting fiber optic service to the site is an extraordinary hardship as the path requires dealing with some or all of the following entities: AZ State Trust, BLM Land, Tribal lands

13. Explain why the proposed development is needed and necessary at this time. The Apache Sky organization desires the construction project to have the benefit of modern technology and communication, but at present, the proposed site is without fiber service. Anecdotally, the community (during the neighborhood/community meeting) expressed a strong support for this development to commence; the Apache Sky organization determined that contracting wireless internet service from the CenturyLink hub to be an appropriate solution to obtain service for this under-served area. It is our understanding, as has been explained to us, that Pinal County is tasked with being supportive to the Apache Sky endeavor and development. The time required to acquire both approvals and to install fiber to the site would potentially be years, thus this solution is critical for the development to commence. The approval of this installation will allow the Apache Sky organization better access to full and fair use of their land while benefiting the local community.

RECEIPT #: AMT: 500.00 DATE: 7/13/16 CASE: SUP-003-13

SUPPORTING INFORMATION

1. Provide information as to the use and evidence that it is in accordance with the intent of Section 2.151.010: "Such other uses as the planning commission may deem appropriate in the public interest" to support development and job creation near the Dudleyville community.

2. Note any services that are not available to the site. Discuss and improvements of services that would be paid for by the public: High-speed fiber service is not available to the Apache site. There is nothing in this Use Permit anticipated to be funded by the public.

3. What is the amount of traffic to be generated (# of trips/day, deliveries/week)? Show ingress/egress on the site plan: There will be no change in traffic/trips per day. As is already the case, there will continue to be an occasional technician visiting the site for routine maintenance.

4. How many parking spaces are to be provided (employees and customers)? Indicate these parking spaces on the site plan: Parking can accommodate more than the required number of spaces for this use (at least five spaces).

5. Is there a potential for excessive noise (I.E.; children, machinery) or the production of smoke, fumes, dust or glare with this proposed land use? If yes, how will you alleviate these problems for your neighbors? There is no potential for excessive noise, smoke, fumes, dust or glare with the installation of the monopole.

6. What type of landscaping are you proposing to screen this use from your neighbors? ___ Not applicable. The monopole will be behind (east of) the existing building and at the bottom of the embankment of the AZ 77.

7. What type of signage are you proposing for the activity? Where will the signs be located? There will be no signage associated with the monopole installation.

8. If the proposed land use involves any type of manufacturing or production process, provide a short synopsis of the processes utilizing diagrams, flowcharts and/or a short narrative: This is not applicable.

9. Explain how the appearance and operation of the proposed land use will maintain the integrity and character of the zone in which the Special Use Permit is requested: The proposed monopole will be sited to minimize the visual exposure to the adjacent property owners and will be no more intrusive than existing amenities like the tall sport light fixtures at the Lionel D. Ruiz Park and Playground located one-quarter mile north of the CenturyLink site.

10. Have you discussed possible conditions that may be placed on the permit with the Planning Department? Painting the monopole. ■ YES ☐ NO

11. Do you understand that if a condition is violated, that there is a public process by which your permit may be revoked and declared null and void? ■ YES ☐NO

I certify the information included in this application is accurate, to the best of my knowledge. I have read the application and I have included the information, as requested. I understand if the information submitted is incomplete, this application cannot be processed.

Name of Applicant	Address	Phone Number
Kurt Cook, Sr. Construction Project Manager	3640 E. Indian School Rd. PHX, AZ 85018	602 716-3308
Signature of Applicant		E-Mail Address
		Kurt.Cook@centurylink.com
Name of Agent/Representative	Address	Phone Number
Matthew Hake c.o Michael Baker International, Inc.	2929 N. Central Ave. Suite 800 Phoenix, AZ 85012	602 294 2244
Signature of Agent/Representative		E-Mail Address
		Matthew.Hake@MBakerIntl.com

The Agent/Representative has the authority to act on behalf of the landowner/applicant, which includes agreeing to stipulations. The agent will be the contact person for Planning staff and must be present at all hearings. Please use attached Agency Authorization form, if applicable.

Name of Landowner	Address	Phone Number
Mountain Bell (per 1982 Quit Claim Deed 730054) a.k.a. CenturyLink	3640 E. Indian School Road, Phoenix, AZ 85018	602 716-3308
Signature of Landowner		E-Mail Address
		Kurt.Cook@centurylink.com

If landowner is not the applicant, then applicant must submit a signed notarized consent form from the landowner with this application. Please use attached Consent to Permit form, if applicable.

TO BE COMPLETED BY ALL LANDOWNERS OF SUBJECT PROPERTY WHEN LANDOWNERS DO NOT REPRESENT THEMSELVES. ***Instructions for completing required information are in bold and brackets below lines. If applicant is a company, corporation, partnership, joint venture, trustee, etc., please use the corporate signature block and have the notary fill in the notarization section for corporations not individuals.***

AGENCY AUTHORIZATION

TO: Pinal County Planning & Development Services
P.O. Box 2973
Florence, AZ 85132

The Mountain States Telephone and Telegraph Company (a.k.a. CenturyLink Corporation, Colorado)

[Insert Name -- If a Corporation, Partnership or Association, Include State of Incorporation]

hereinafter referred to as "Owner," is/are the owner(s) of 2.17 acres located at , 3405 N. Dudleyville Rd., Dudleyville, AZ 85192

[Insert Address of Property]

and further identified as assessor parcel number 300 26 089 B and legally

[Insert Parcel Number]

described as follows:

THAT PART OF N 1/2 N 1/2 S 1/2 SE SW LYING W OF E ROW LINE OF OLD AZ STATE HWY #77 SECT 16-6S-16E 2.17 AC

Said property is hereinafter referred to as the "Property."

Owner hereby appoints

Matthew Hake of Michael Baker International, Inc.

[Insert Agent's Name. If the Agent Is a Company, Insert Company Name Only]

hereinafter referred to as "Agent," to act on Owner's behalf in relation to the Property in obtaining approvals from Pinal County for any necessary amendment to Pinal County's Comprehensive Plan; zone changes; planned area development overlay districts; platting of the subject property; special use permit or industrial use permit; and to file applications and make the necessary submittals for such approvals.

Owner consents and agrees to be bound by all stipulations agreed to by this Agent in connection with any of above-referenced processes.

[Individual PROPERTY OWNER signature block and acknowledgment. DO NOT SIGN HERE IF SIGNING AS AN OFFICER OF A CORPORATION ON THE NEXT PAGE.]

_____ _____

[Signature] ***[Signature]***

Dated: _____ Dated: _____

STATE OF _____)
) ss.
COUNTY OF _____)

The foregoing instrument was acknowledged before me this ____ day of _____, _____

By _____.

[Insert Name of Signor(s)]

_____

My commission expires _____ Notary Public

[Corporate PROPERTY OWNER signature block and acknowledgment The appropriate Corporate officer or trustee signs this signature block NOT the block on the previous page.]

Mountain Bell a.k.a. CenturyLink
[Insert Company or Trustee's Name]

JULIE K. TALLEY
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 20084031203
MY COMMISSION EXPIRES SEPTEMBER 8, 2016

By: _____
[Signature of Authorized Officer or Trustee]

Its: Vice President
[Insert Title]

Dated: 7/5/16

STATE OF Colorado)
City and) ss.
COUNTY OF Denver)

The foregoing instrument was acknowledged before me, this 5th day of July, 2016 by LaRae D. Dodson, Vice President Real Estate of Mountain Bell AKA Century Link, an Colorado
[Insert Signor's Name] *[Insert Title]* *[Insert Name of Company or Trust]* *[Insert State of Incorporation, if applicable]*
and who being authorized to do so, executed the foregoing instrument on behalf of said entity for the purposes stated therein.

Julie K. Talley
Notary Public

My commission expires: Sept 8, 2016

ALTERNATE: Use the following acknowledgment only when a second company is signing on behalf of the owner:

STATE OF _____)
) ss.
COUNTY OF _____)

On this ____ day of _____, _____, before me, the undersigned, personally appeared _____ Who acknowledged himself/herself to be
[Insert Signor's Name]
_____ of _____ *[Title*
of Office Held] *[Second Company]*
As _____ for _____, and who being
[I.e., member, manager, etc.] *[Owner's Name]*
authorized to do so, executed the foregoing instrument on behalf of said entities for the purposes stated therein.

_____
Notary Public

My commission expires: _____

CONSENT TO PERMIT

TO: PINAL COUNTY
c/o Planning & Development Services
P.O. Box 2973
Florence, AZ 85232

CenturyLink
[Insert Name of owner and if a corporation, company, partnership, etc., insert State of Formation]

hereinafter referred to as "Owner," is/are the owner(s) of 2.17 acres located

at 3405 N. Dudleyville Rd., Dudleyville, AZ 85192, and further
[Insert Address of Property]

identified as tax parcel number 300 26 089A and legally described as follows:
[Insert Parcel Number]

THAT PART OF N 1/2 N 1/2 S 1/2 SE SW LYING W OF E ROW LINE OF OLD AZ STATE HWY #77 SECT 16-6S-16E 2.17 AC

Said property is hereinafter referred as "the Property."

Owner consents to Matthew Hake of Michael Baker International on behalf of CenturyLink 's application
[Insert Name of Applicant]
for a Special Use Permit for installation of a monopole with antenna
[Insert Type of Permit] *[Describe Use]*
and consents to the issuance of the permit for the stated use on the Property.

[If an Individual, use the following Signature Block and Acknowledgment]

[Signature] *[Signature]*

Dated: Dated:

STATE OF)
) ss.
COUNTY OF)

The foregoing instrument was acknowledged before me, the undersigned Notary Public, this ____ day of _____, _____, by
[Insert Name of Signor(s)]
_____.

Notary Public

My Commission Expires: _____

[If a corporation or company, use the following signature block and acknowledgment]

Mountain Bell a.k.a. CenturyLink
[Insert Company Name]

By: _____
[Signature of Authorized Officer]

Title: Vice President

Dated: 7/5/16

STATE OF Colorado)
City and) ss.
COUNTY OF Denver)

On this 5th day of July, 2016, before me, the undersigned Notary Public, personally appeared LaRae D. Dodson who acknowledged himself/herself to be VP-Real Estate of Mountain Bell AKA CenturyLink of a(n) Colorado, and being authorized to do so on behalf of said entity, executed the foregoing instrument for the purposes therein contained.

[Insert Signor's Name] *[Insert Title]* *[Insert Name of Company]* *[State of Incorporation or Formation]*

_____
Notary Public

My Commission Expires: Sept 8, 2016

JULIE K. TALLEY
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 20084031203
MY COMMISSION EXPIRES SEPTEMBER 8, 2016

AFFIDAVIT OF POSTING OF BROADCAST SIGN

I LARRY WAYNE LONG Applicant for case SUP-003-16 (Case number), personally caused 1 sign(s) to be posted in a visible place on or near the proposed project site on 8-11-16 (Date), at least 28 days before the Planning and Zoning Commission Public Hearing, regarding the proposed PUBLIC HEARING (Type of application), in unincorporated Pinal County

The notice was posted as indicated on the attached map and photograph.

Larry W. Long 8-12-16
Applicant

STATE OF ARIZONA)
) ss:
COUNTY OF PINAL)

Subscribed and sworn to me by LARRY W. LONG this 12 day of AUGUST, 2016.

Notary Public
My Commission Expires

MIGUEL CARDENAS
Notary Public - Arizona
Pima County
My Comm. Expires Mar 29, 2019

PZ-PA-003-16/PZ-PA-004-16

2016 Pinal County

Major Comprehensive Plan Amendments

PZ-PA-003-16

Attesa

PZ-PA-004-16

Pinal Central Power

Pinal County

31 North Pinal Street,
Building F, EOC Room
Florence, AZ 85132

www.pinalcountyaz.gov

Citizen Advisory Committee
(9/1/2016 @ 6 PM)

Planning & Zoning Commission
(9/15/2015 @ 9 AM)

PINAL • COUNTY
wide open opportunity

PINAL • COUNTY
wide open opportunity

PINAL COUNTY CITIZEN ADVISORY COMMITTEE
REGULAR MEETING
MINUTES OF SEPTEMBER 1, 2016

PRESENT:	Mr. Paul Sabel, Chair	Mr. Charlie Weaver, Vice Chair
	Ms. Pamela Rabago	Ms. Pat Moore
	Ms. Shirley Ann Hartman	Mr. Ron Batt
	Ms. Joy Evelan	Mr. John Enright
	Mr. Steve Johnson	
ABSENT:	Mr. John Benavidez	Mr. Ruben Hernandez
	Ms. Cindy Sutton	

PLANNING STAFF PRESENT:

Mr. Steve Abraham, Planning Manager
Mr. Dedrick Denton, Planner II

The meeting was called to order at 6:00 p.m., this date by Chairman John Enright in the Emergency Operations Center (EOC) Hearing Room, Building F, Florence, Arizona. Member Weaver called in for meeting.

Elect Chair and Vice Chair

Member Moore made a motion to elect Member Enright as Chairman and Chair Sabel as Vice-Chairman. Member Evelan seconded the motion. Motion passed unanimously.

PZ-PA-003-16: A request by Snell & Wilmer, agent, to amend the 2009 Pinal County Comprehensive Plan by changing the land use designation from **Very Low Density Residential (0-1 du/ac), Moderate Low Density Residential (1-3.5 du/ac), and High Intensity Activity Center to Employment and Secondary Airport** on approximately 937± acres, situated in a portion of Sections 17, 20 & 21 T07S, R05E located on the east side of Montgomery Road between Hanna Road and the Tohono O'Odham Nation.

Mr. Abraham gave a PowerPoint presentation. He asked the Members if they had any questions.

Nick Wood from Snell & Wilmer Law Offices gave his presentation and talked about the Atessa Project. Mr. Wood talked about how excited everyone was for this to come to Pinal County. He introduced one of the clients Lisa Mitchell. He also said the engineer will be addressing the members too.

Lisa Mitchell spoke to CAC. She is the executive vice president for Atessa. She talked about what Atessa will bring to Pinal County and to the racing world. She spoke of the different phases in which it was going to be built. She stated it would create 1400 new jobs.

Darrel Wilson, an Engineer for the applicant came up and stated all of the good things Atessa was bringing to Pinal County.

Chairman Enright opened the public hearing for comment seeing none, Chairman Enright closed the public hearing

MOTION
Chairman Enright asked for a motion. Member Rabago motioned to recommend PZ-PA-003-16. Member Batt seconded the motion. Motion passed (7-0-2). With members Weaver and Hartman abstaining.

PZ-PA-004-16: A request by Boulevard Associates, LLC., agent, to amend the 2009 Pinal County Comprehensive Plan by changing the land use designation from **Moderate Low Density Residential (1-3.5 du/ac) to General Public Facilities/Services)** on approximately 257± acres, situated in a portions of Sections 29 & 30, T06S, R08E located adjacent to the south side of State Route Highway 287 approximately 1 mile east of Eleven Mile Corner Road.

Mr. Denton gave a Power Point presentation. He asked if there were any question.

Chairman Enright asked if they could vote on the items separately. Mr. Denton said they were together. The Member stated they were two separate items. One is a gas powered electrical facility and the other is a proposed solar facility. The member stated they could possibly put a nuclear plant on the parcel and requested again that they vote on the separately. Mr. Denton stated at the end of the day it is all related to power generation. Mr. Abraham stated it was all one designation.

The applicant stated his name as Mark (inaudible) He stated he wanted to give the Members some background on the Company Nextera based out of Florida. The applicant gave a PowerPoint presentation showing what the power plant would look like. He stated they would come back to the County for rezoning if the Comprehensive Plan amendment were passed.

Chairman Enright asked the public if there were any questions.

Tom Bangell stated the applicant failed to show that their home was right across the street and they do not want to see KV lines across the street from their home. He asked that the members deny this case.

A member stated the power lines contained radons and they are not good for people. The Applicant stated they were just trying to get the comprehensive plan changed first and then it would go to the utility commission.

Mr. Abraham stated that the case would go to the Planning Commission and then to the Board of Supervisors for approval. He stated they would be getting a yellow notice in the mail stating when and where the public hearing would be held.

A member asked if they measured wind speeds. He stated that the Fish and Game Department had some problems with guide wires how would they have the tower support it. The applicant stated they would be supported with wires. The member stated that Fish and Game thought that it would be a problem and detrimental to wild life. The member

asked if there was another way to do it. The applicant stated the tower would be surrounded by a fence.

A member stated they had a concern with water asking who their water providers are. The applicant stated they didn't have a water provider for sure yet. A member stated the applicant didn't notify persons who lived by the potential power plant.

A member had issues with wildlife. The applicant stated they reach out to find out what is on the endanger list before they start building. He stated they work with the Arizona Fish and Game to make sure that they do not harm the wildlife in any way.

A Member asked Staff if the Comprehensive Plan did not make pass what else could the land be used for. Mr. Denton read some of the other uses allowed.

MOTION

Chairman Enright asked for a motion. Member Hartman motioned to recommend denial of PZ-PA-004-16. Member Moore seconded the motion. Motion passed for denial with a 8-0-1 vote.

DRAFT

PZ-PA-003-16

MEETING DATE: September 1, 2016

TO: PINAL COUNTY CITIZEN ADVISORY COMMITTEE

CASE NO.: **PZ-PA-003-16 (Attesa)**

CASE COORDINATOR: Steve Abraham

Executive Summary:

This is a major amendment to the Pinal County Comprehensive Plan to re-designate 937± acres of land from Very Low Density Residential (0-1 du/ac), Moderate Low Density Residential (0-3.5 du/ac) & High Intensity Activity Center to Employment & Secondary Airport South of Casa Grande immediately adjacent to the Tohono O'Odham Nation.

If This Request is Approved:

If this major amendment to the Pinal County Comprehensive Plan is approved, the action will allow the applicant will begin the process of re-zoning the property.

Staff Recommendation/Issues for Consideration/Concern:

Staff recommends approval of the request. The amendment's location and accessibility to existing and proposed high capacity corridors appears approximate for larger scale employment and non-residential designated land uses.

LEGAL DESCRIPTION: 937± acres situated in a portion, situated in a portion of Sections 17, 20 & 21 T07S, R05E G&SRB&M (legal on file)

TAX PARCELS: 51115003A, 002; 51101015, 016B, 016C, 018B, 018C, 018D, 017D, 017B

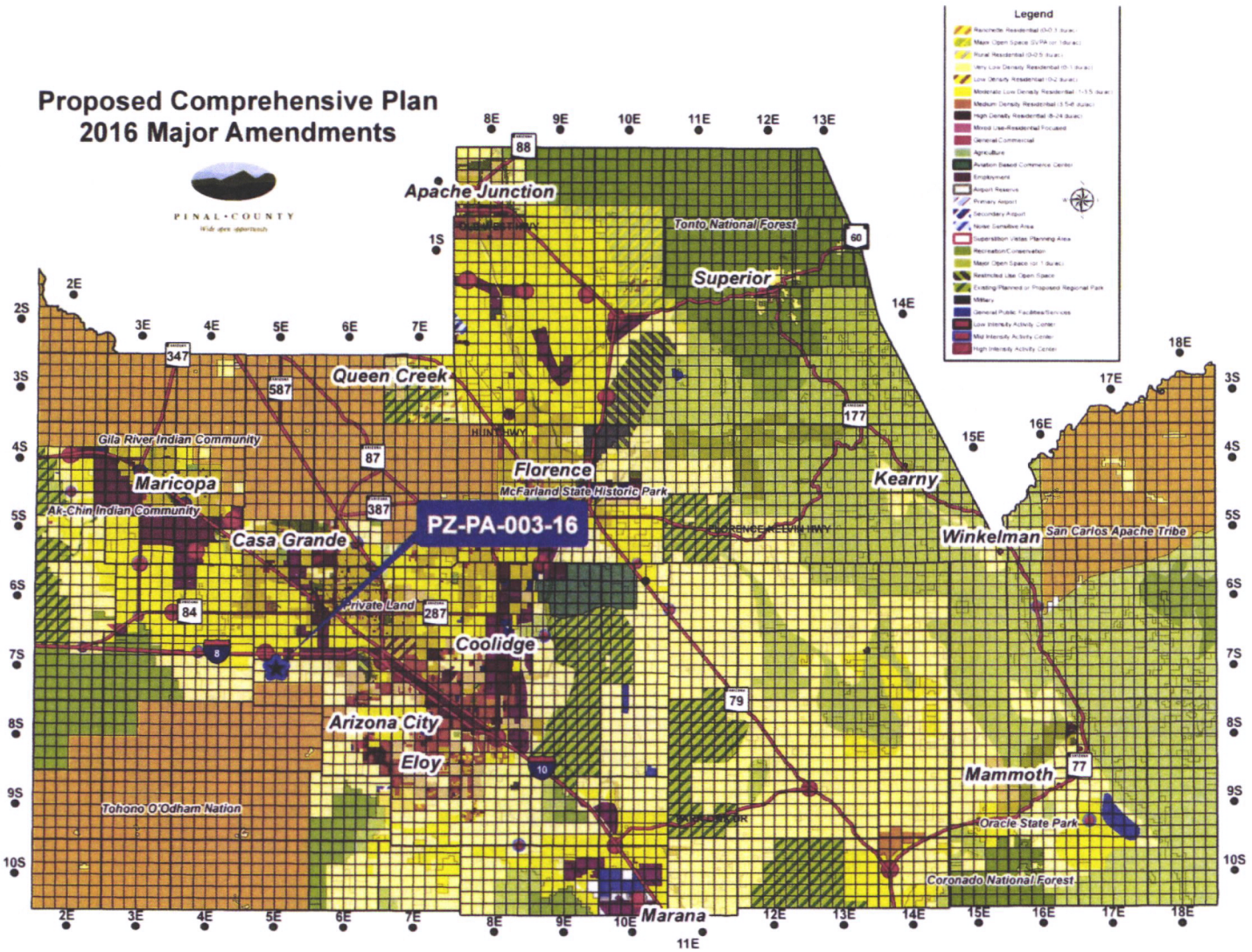
LANDOWNER/APPLICANT: Bingham Arizona Land LLC & DRE Development LLC, 4492 W Kitty Hawk Chandler AZ 85226

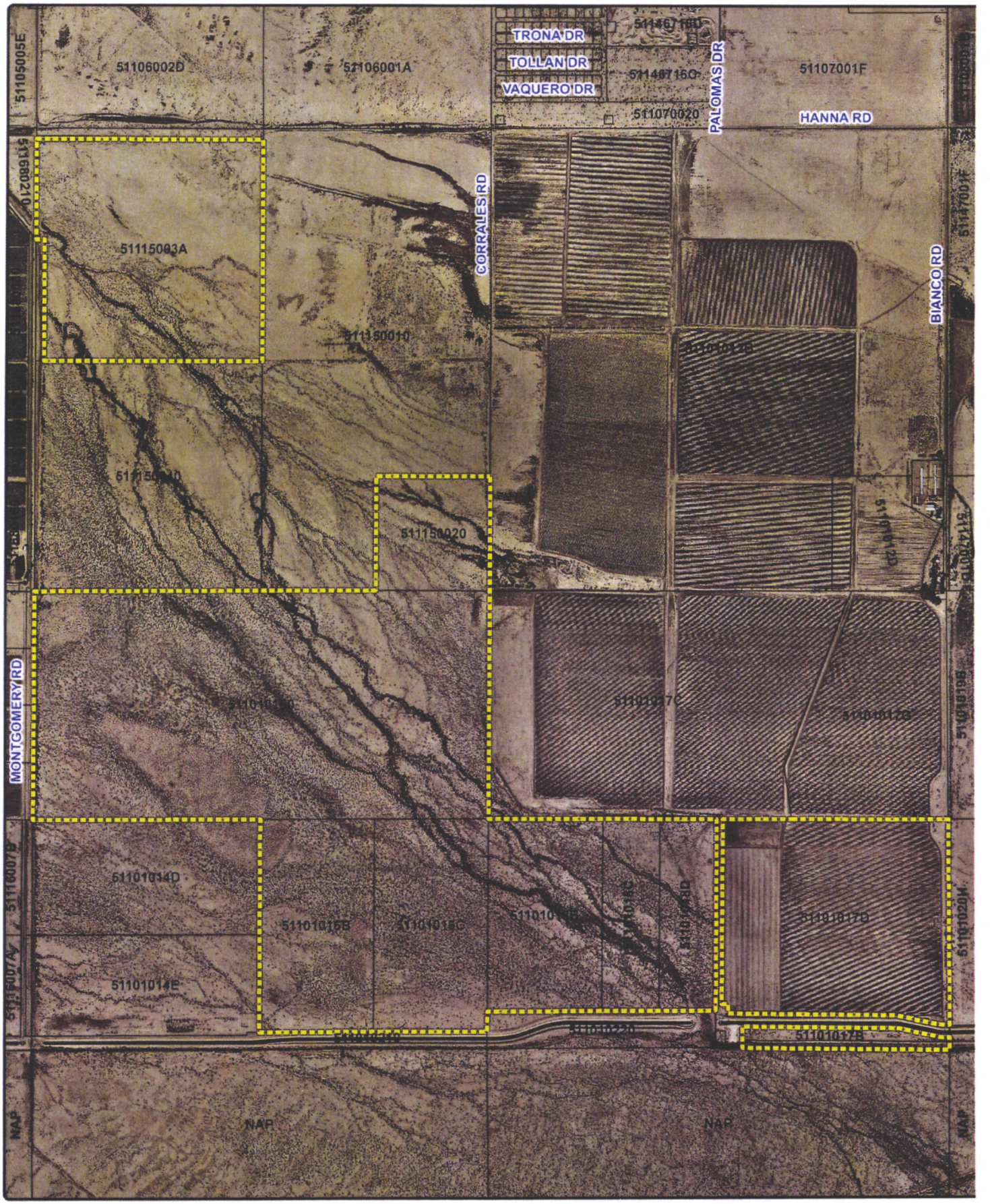
AGENT: Snell & Wilmer, LLP 1 Arizona Center 400E Van Buren, Suite 1900 Phoenix AZ 85004

REQUESTED ACTION & PURPOSE: A major amendment of the **Pinal County Comprehensive Plan** to amend the **Land Use Plan** from Very Low Density Residential (0-1 du/ac), Moderate Low Density Residential (1-3.5 du/ac), and High Intensity Activity Center to Employment and Secondary Airport on approximately 937± acres

LOCATION: Located on the east side of Montgomery Road between Hanna Road and the Tohono O'Odham Nation, south of Casa Grande

SIZE: 937+/- acres.


Proposed Comprehensive Plan
2016 Major Amendments
PINAL • COUNTY
Legend
Apache Junction
Tonto National Forest
Superior
Queen Creek
Gila River Indian Community
Maricopa
Ak-Chin Indian Community
Florence
McFarland State Historic Park
Kearny
Casa Grande
PZ-PA-003-16
Winkelman
San Carlos Apache Tribe
Private Land
Coolidge
Arizona City
Eloy
Tohono O'Odham Nation
Mammoth
Oracle State Park
Coronado National Forest
Marana



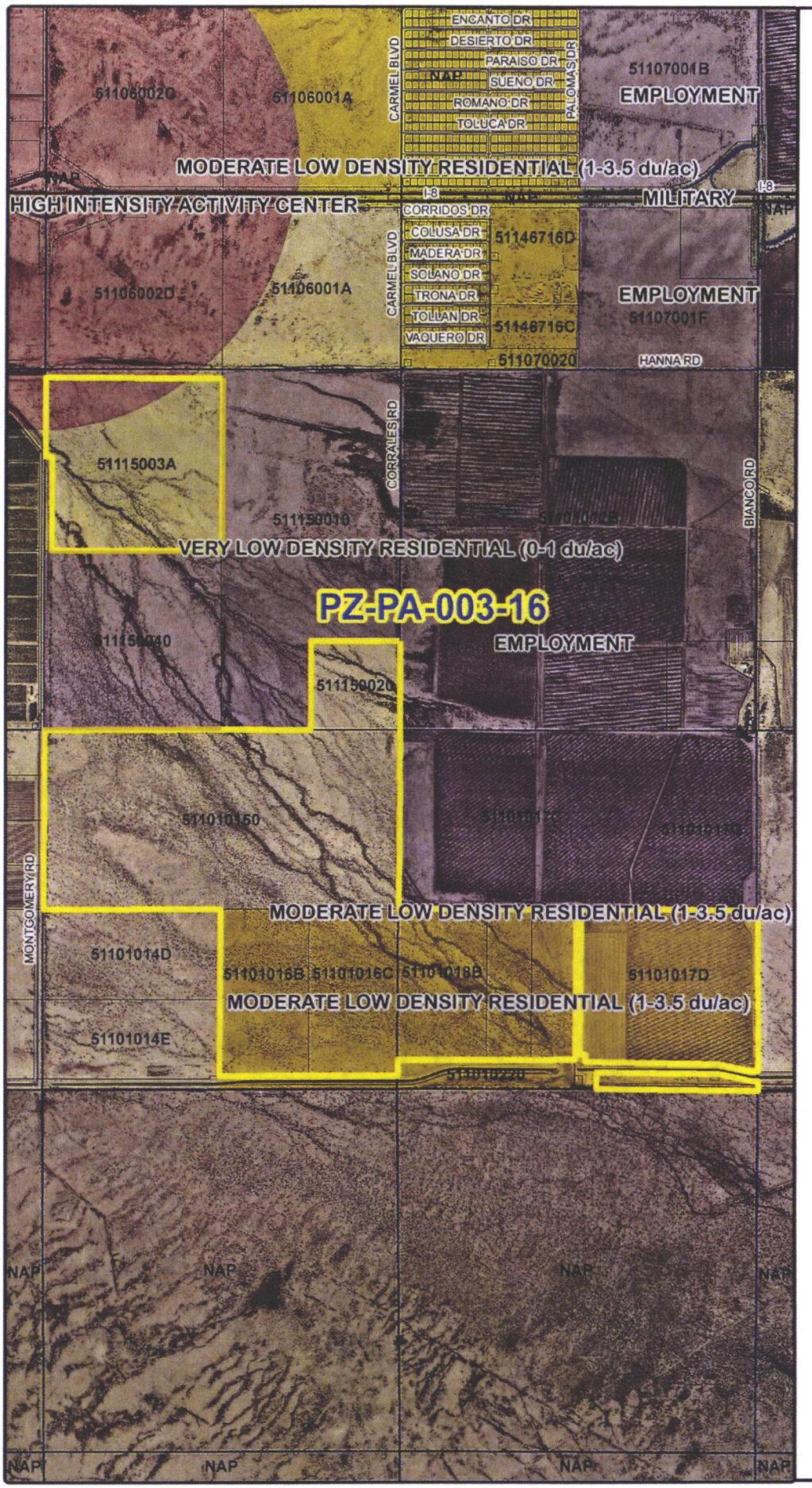
PZ-PA-003-16

NORTH

Applicant Proposal

Existing

Proposed



PINAL • COUNTY

Wide open opportunity

PZ-PA-003-16

FROM:

Very Low Density Residential, Moderate Low Density Residential, and High Intensity Activity Center

TO:

Employment and Secondary Airport

N

STAFF FINDINGS:

Public Comment: To date, no comments in writing have been received

Public Participation: BOS work session: 8/17/16
Neighborhood Meeting (direct mail): 8/18/16
Web posting and 60 day review: week of June 17, 2016
P&Z Work session: 8/18/16

Other Review Agency Comments:

The **State of Arizona Game and Fish Department** provided comments which are attached to the correspondence section of this report.

The **City of Casa Grande** provided comments which are attached to the correspondence section of this report.

Plan Amendment Discussion: The applicant is requesting a major amendment of the Pinal County Comprehensive Plan to amend the Land Use Plan from Very Low Density Residential (0-1 du/ac), Moderate Low Density Residential (1-3.5 du/ac), and High Intensity Activity Center to Employment and Secondary Airport on approximately 937± acres

The Comprehensive Plan designation of the properties adjacent to the site south of Hanna is Very Low Density Residential. North of Hanna Rd. designations are mixed that include high intensity activity center, which encourage "downtown" like development, moderate density residential and employment. If this amendment were to be approved, it would create a nearly 2400 acre employment area encompassing almost 4 full sections. Several years ago this site was originally proposed as a racetrack and today's application represents and expansion of that original idea.

Ultimately the applicant intends to rezone the site to include a variety of different uses such as race track, hotel, commerce-park, small airstrip and event conference space. When planning employment areas and large event type venues adequate transportation facility must be taken into account to ensure not just adequate onsite ingress egress but regional transportation impacts as well. The site is accessed by two aerial roadways, a potential parkway and is in close proximity to I-8, a copy of the transportation plan is included in the applicant narrative on page 19 of 20.

Another component to consider when evaluating this request is the proposal's impact on the activity center, located at the intersection of I-8 and Montgomery. With the employment designation and the intent to zone the area commercial, staff believes that the activity center is still intact even with this re-designation and the proper mix of residential, commercial and industrial use could be achieved.

If this request is approved, the applicant will be required to provide a Traffic Impact Analysis as part of their re-zoning application which will detail the potential traffic impacts associated with this projecting terms of Comprehensive planning the proposal would subtract approximately 2000 dwelling units at varying densities out of the land use mixture in the area.

STAFF RECOMMENDATION:

After a detailed review of the request, Pinal County Comprehensive Plan and the Pinal County Development Services Code, Staff recommends approval of this request. However, in addition

to staff recommendations, should the Citizen Advisory Committee find, after the presentation of the applicant and together with the testimony and evidence presented at the public hearing, that this Major Comprehensive Plan amendment is needed and necessary at this location and time, will not negatively impact adjacent properties, will promote orderly growth and development of the County and will be compatible and consistent with the applicable goals and policies of the Pinal County Comprehensive Plan, then staff recommends that the Citizen Advisory Committee forward **PZ-PA-003-16,** to the Planning and Zoning Commission with a favorable recommendation. If the Citizen Advisory Committee cannot fond for all of the factors listed above, then staff recommends that the Citizen Advisory Committee forward this case to the Planning and Zoning Commission with a recommendation of denial.

Date Prepared: 8/24/16 – sja
Revised:

2016 Major Comprehensive Land Use Plan
Map Amendment

ATTESA

A Regional Employment Core

Focused on Motorsports Activities, Testing, Advanced Technology, Entertainment and Supporting Uses

Prepared for:

DANRICK BUILDERS

Prepared by:

Snell & Wilmer
LAW OFFICES

Filed June 1, 2016
1st Revision Filed August 2, 2016

1. Introduction and Background

Danrick Builders ("Danrick") is master planning 2,360 acres into a unique, one of a kind regional sports and entertainment activity center, focused around motorsports racing and recreation, training, advanced automotive technology development and manufacturing to be known as "Attesa" (to be "in expectation of the new and exciting").

The location is ideal for the proposed uses, with direct access to Interstate 8 provided at both Montgomery and Bianco Roads. The site itself is located about eight (8) miles west from the Interstate 10/Interstate 8 junction, five (5) miles southwest from downtown Casa Grande. This location is about an hour drive from downtown Phoenix, an hour and ten minutes to downtown Tucson and only six and a half hours from downtown Los Angeles. With Sky Harbor, an international airport within about 50 miles, Attesa will have easy over road accessibility to west coast markets as well as air accessibility for international visitors.

Attesa will be a regional employment core, with motorsports and event facilities anchoring a supporting community of research, development, training and high-tech manufacturing firms. Key to this vision is the motorsports technology core, which features a public raceway facility, a private raceway (similar to a golf club type facility), potentially a karting facility, club racing and training track facility, all totaling 640 acres of direct motorsports related tracks, spectator facilities, "pit" areas and related improvements. The racing circuits have been designed by Apex Circuit Design out of the United Kingdom, one of the top raceway design firms in the world. Because of the quality of their design, it is anticipated that Attesa will attract motorsport enthusiasts (both personal and corporate) to use, and locate near, the motorsports racing core.

To support this motorsports core, a hotel and conference center, grand plaza and related entertainment space is planned (approximately 106 acres) to provide food, amusement and accommodations for visitors. Event related camping and recreational vehicle facilities will also be provided as major events are anticipated to attract large (20,000 plus) crowds requiring a diversity in overnight accommodation options (as is found at most major motorsport track facilities). Attesa will be a regional draw, with visitors expected from all over the western United States (and beyond for sanctioned racing events).

The core, with its supporting entertainment areas, will attract businesses that desire proximity to high-quality race surfaces for testing, training and research purposes. Attesa will include, as a primary land use, over 420 acres of commerce park type land uses, appropriate for research facilities, manufacturing firms and other industrial type businesses that will derive value out of close proximity to the motorsports racing core and its facilities. It is envisioned that a wide range of automotive related firms will want to be located in Attesa, including automotive manufactures, engine and transmission

manufactures, customized parts firms, tire development, electric drivetrain and vehicle firms as well as battery, self-driving and advanced materials companies.

This attraction of numerous automotive related businesses will drive additional supporting development, including commercial (office type land uses), retail (to support visitors and local customer needs) as well as residential (both custom homes for those interested in raceway accessible living and residences for employees in the development itself). A small general aviation airport is proposed to provide access to visitors, event participants, residents and for business users.

To facilitate the above concepts included in the master plan, the Pinal County Comprehensive Plan requires amendment to an "Employment" designation to properly reflect the automotive related employment focused vision of Attesa (which is also inclusive of its required supporting land uses).

A portion of Attesa (about 1,834 acres) was reclassified in 2010, approved via Resolution PZ-PA-002-10. In the period since then, Danrick has expanded the vision to include a total of 2,360 acres, most of which is currently classified for low-density residential land use, which is not compatible with the future zoning classification Attesa will require (as shown in Exhibit A). This Comprehensive Plan Land Use Map application is required to expand the "Employment" classification to the entire Attesa project site (as shown on Exhibit B), which will be subject to a following rezoning application to approve the development of the project's master plan.

2. Existing Land Use

The property is partially open desert range and partially active farming operations. There is no significant development on-site and, other than a homestead on Bianco Road, there are neither residences nor other non-farm related development within a mile or more of the property. An aerial is provided as Exhibit C.

3. Future Land Use and Proposed Comprehensive Plan Designation

Attesa is primarily about the motorsports activities core, which will support surrounding land uses that will complement the core, including commerce park (industrial and semi-industrial land uses), commercial (office and retail), temporary accommodation (hotel/resort, camping and recreational vehicle facilities) and residential land uses. A conceptual land use master plan is provided as Exhibit D. Please note this is a concept only.

The final zoning for Attesa will reflect flexibility in the exact nature, location and quality of each land use to support dynamic development over an extended period of time. Because the zoning will permit a range and variety in the exact location of specific land uses, it is most appropriate to classify the entire Attesa project as "Employment" which most closely matches the vision of the project as a regional employment core.

Other designations have been explored, and it has been determined that the other available land use designations do not properly describe Attesa's unique mix of land uses nor the intensity of the regional sports and entertainment activity center vision and therefore are not appropriate for the site (i.e. Mixed-Use Activity Center, General Commercial or Mixed-Use Residential Focused).

An "Employment" designation provides the policy support of the Comprehensive Plan to allow a wide range of underlying land uses, such as the raceways themselves to heavier industrial (such as an automotive electric vehicle battery manufacturer) that would otherwise not be encouraged in other, less intensive classifications.

The "Secondary Airport" designation is required to incorporate a general aviation airport to that will likely be required. Since Attesa will draw recreational visitors (those attending events), residents (many part-time residents are expected to utilize private aircraft) as well as corporate needs for quick connection to other locations for business purposes, it is anticipated that a general aviation airport will be required as part of the overall project plan. Because any future airport will not likely feature regularly scheduled airline service, a "Secondary Airport" designation is appropriate to provide support for a future general aviation airport.

4. Purpose for Proposed Comprehensive Plan Designation

The purpose of this request is to expand the prior approved Comprehensive Plan Land Use Map amendment (Resolution PZ-PA-002-10) to map the entire Attesa project site as "Employment". This request will also add a "Secondary Airport" designation for the project. This amendment will provide the policy support for a subsequent rezoning to an appropriate zoning district that will permit the development of the motorsports and event facilities core and the surrounding land uses discussed above as well as for a future general aviation facility required to support access needs for employers, visitors and residents.

5. Recent Changes in the Area that Would Support Request

Unlike a typical amendment request, this application is not a departure from prior planning efforts in the area; rather it is the update of a prior approved vision for the site to accommodate the expanded project.

6. Proposed Amendment in Necessary and Needed

Without this amendment, the Attesa project would be limited to the smaller (1,800 acre) area approved in 2010 for what was then known as the "Arizona Raceway Park". This plan was focused around racing facilities only; it was not envisioned to develop as a true regional sports and entertainment activity center.

Attesa, with its expanded focus around a motorsports technology core, training, advanced automotive equipment development and manufacturing, will establish a true

"Employment" core. Without this approval, the vision of Attesa would have to be re-evaluated and possibly refocused on a less grand project.

7. Environmental Permits/Compliance with Federal, State and Local Regulations

All development in Attesa will comply with all applicable requirements of federal and state agencies, as well as all Pinal County requirements.

8. Infrastructure

A key consideration in any development proposal is how the necessary water, wastewater, drainage and dry utilities will be provided. Below, each of these key items is reviewed in concept. Please note that detailed planning for specific infrastructure will occur during the entitlement (rezoning) as well as development phases to ensure adequate facilities.

WATER

Water service for Attesa will be provided by Arizona Water Company. Most of the project site is located within the Arizona Water Company's Certificate of Convenience and Necessity (CC&N) water service area boundary. It is anticipated that the remainder of the site will be added to the service area through a CC&N expansion request that will be submitted to the Arizona Corporation Commission for approval prior to development of those areas.

Arizona Water Company does not currently have water infrastructure adjacent to the project site. Therefore, it is anticipated that groundwater wells will be developed to serve the potable water demands for the development. Depending on Arizona Water Company needs and requirements, a water transmission main may also be installed to connect the site to the remainder of the existing potable water distribution system for additional redundancy.

The capacities, locations, and alignments of groundwater wells and/or transmission mains will be determined during the design phase. Depending on water quality, groundwater may be conveyed to a centralized water campus for treatment (if necessary) and storage and then pumped to the distribution system for delivery to individual parcels. The onsite potable water distribution system will generally consist of the pumps at the water campus and looped distribution mains, which will provide multiple points of connection to individual parcels. Water demands for Attesa will be refined in coordination with ongoing planning and design.

WASTEWATER

Attesa is located within the municipal planning area for the City of Casa Grande relative to the Central Arizona Government (CAG) Areawide Water Quality Management Plan pursuant to section 208 of the Clean Water Act. It is anticipated that the City of Casa

Grande will ultimately own and operate the water reclamation facility (WRF) and wastewater collection system. Since the site is located a distance from the City's existing wastewater infrastructure, a new WRF will be constructed in the northwestern portion of the site.

An amendment to the CAG 208 Plan may be required to ensure that the new WRF is consistent with regional planning. The collection system for Attesa will route wastewater flows from the individual parcels to the WRF for treatment. The treated effluent from the WRF may be discharged, reused, or recharged to the aquifer. The details of the WRF design, phasing, and effluent management will be developed during design. The anticipated wastewater generation rate for Attesa will be refined in coordination with ongoing planning and design.

DRAINAGE

The Attesa project area is predominantly undeveloped native desert land and agricultural farm land, which is split by Greene Wash running from southeast to northwest with a slope of approximately 0.3 percent.

The Project is affected by two (2) significant offsite drainages, Greene Wash and flows from the property to the east. The predominant drainage impact is from Greene Wash watershed which contributes approximately 14,000 cubic feet per second (cfs) (Len Erie and Associates) which approaches the Project from southeast.

The southern boundary of the project is fronted by the Santa Rosa Canal that impedes surface flow that is necked approximately one half mile west of the West Bianco Road alignment. While the canal is a physical barrier, it is not considered a flood control measure or a flood levee and is not included in the Regional flood mapping performed on behalf of the FEMA defined flood hazard zone for Greene Wash. Offsite flows exit the property at the along the northwestern corner and is collected in an existing drainage channel that continues on to the northwest.

Offsite flows will be managed by engineered channels to divert runoff around the Project. A large earthen channel has been proposed which will traverse the southern and western border of the Project to convey the larger Greene Wash flows approaching the site from the south to the historic outfall located at the northwestern corner of the site. The regulatory (FEMA) flood hazard limits shall be removed from the Project via the Conditional Letter of Map Revision (CLOMR)/ Letter of Map Revision (LOMR) with the Project's development. A smaller drainage corridor will be sized to divert runoff from the adjacent property east of the Project, north along the Bianco Road and then west along Hanna Road to its natural outfall within Greene Wash.

The onsite drainage area for the Project consists of approximately 2,360 acres. Planned uses include motorsports tracks, single and multi-family residential neighborhoods, commercial and business parks, parking, public facilities, and open spaces. Onsite rainfall runoff from the Project will be routed via surface flow and stormdrains to retention basins where the 100-year, 2-hour runoff will be retained to ensure that post-

developed flows do not exceed pre-developed flows exiting the property. Retention basins will be designed so that the runoff shall be disposed of within thirty-six (36) hours either by percolation, drywells or bleed-off connections into approved drainage ways. Flows from basins shall be in the location and direction of the historic flows. Excess runoff will overtop the retention basins and be routed emergency overflow corridors to the Project outfall located at the northwestern corner of the property.

All drainage infrastructure will be designed in accordance with Pinal County drainage standards and guidelines. The main objectives of the drainage plan is to ensure that the development provides 100-Year flood protection to habitable structures and the downstream drainage conditions are not significantly altered by the development of this Project. The storm water management systems will consider both the potential of offsite flooding sources and the surface runoff generated within the Project boundary.

In summary, this amendment will result in future development that will provide adequate infrastructure to support any and all proposed development. Final design of the required infrastructure will inform the final intensity levels of and the types of various land uses permitted within the amendment area (and Attesa as a whole).

9. Compliance with Comprehensive Plan's Vision Components

This proposed amendment is in compliance with the "Vision" of the Pinal County Comprehensive Plan. With its location, size and lack of an established development pattern in the vicinity, the Attesa project will redefine this area of the County from its current agricultural and vacant condition to an "Employment" core. More specifically, the proposed amendment is in compliance with the following Comprehensive Plan vision elements (in order as found listed on Appendix A, pages A-1 through A-6):

A. Sense of Community (as per Chapter 3): Attesa will establish an employment node adjacent to a future "High Capacity Corridor" (as shown on the Economic Development Plan Exhibit 3-10) proposed for the Montgomery Road alignment. Furthermore, the Comprehensive Plan encourages "Employment" land uses along the Interstate 8 corridor. With easy access to the interstate, the future north/south corridor as well as its proximity to Casa Grande, Attesa is an ideal location for the proposed regional sports and entertainment activity center. The Growth Area Plan (Exhibit 3-20) identifies the site as being within the West Pinal Growth Area which notes that the area is intended for the "*development of...activity centers and employment areas will significantly add to the job vase of Pinal County*" (Page 124). Jobs and economic growth are included in a number of the Goals, Objectives and Policies of this Vision Component (such as 3.7, 3.7.1.5 and others).

B. Mobility and Connectivity (as per Chapter 4): Access is key to the success of Attesa. The core of the development will be a regional, if not international, draw for major events which will include automotive racing, motorcycle racing, concerns, festival type events and other gatherings of large numbers of visitors.

Furthermore, the businesses in Attesa will require connectivity to reach their markets. While a general aviation airport is planned, access to Sky Harbor via the interstate is critical to providing access to those too far to conveniently drive to the site. The interstate also provides access to local and adjacent state visitors, as well as to markets in those areas. Capacity exists on Interstate 8 to support the anticipated traffic demands of Attesa. In addition, nearby roadways will be developed to accommodate peak demands (which will be event days). The development of a "High Capacity Corridor" on Montgomery Road and a "Principal Arterial" on Bianco Road (as planned in the Multimodal Circulation Plan, Exhibit 4-4) with Arica Parkway will provide additional roadway capacity and access to the site (Exhibit 5). Maximization of transportation corridors and the development of necessary supporting roadway infrastructure are encouraged by several of the Goals, Objectives and Policies of this Vision Component (including 4.1, 4.1.1.9, etc.)

C. Economic Sustainability (as per Chapter 5): As noted on Page 203, "*[a] successful economy does not just happen*". It requires planning and investment. Attracting major employers, particularly those in high tech fields such as advanced autonomous automobile systems, electric car technology and cutting edge automotive materials requires a catalyst or a reason to locate in a particular area. With its increasing population, Pinal County is challenged to provide sufficient employment to keep up with this growth (as noted on Page 206). This Vision Component supports an Attesa vision of a regional employment core, specifically Goals, Objectives and Policies 5.1, 5.1.1, 5.1.1.5, 5.2, 5.3, and 5.3.2.2.

D. Open Spaces and Places (as per Chapter 6): The Pinal County Open Space and Trails Master Plan provides a framework for County-wide trail connectivity, which Attesa will incorporate into the final development plans. A unique opportunity to conserve wildlife connectivity is offered by the future regional drainage improvements required by Attesa; these areas also will provide a large open space connection to act as a buffer to the Tohono O'odaham community to the south (allowing wildlife to connect through the site). This will meet the Vision Component Goals, Objectives and Policies 6.1.2, 6.1.2.3, 6.2.1.1, and 6.4.1.1.

E. Environmental Stewardship (as per Chapter 7): Facilities developed within Attesa will be of the most current building code, material and design which will be best practices in energy, water, and material usage. Waste management will include recycling services as well as the careful disposal of any hazardous waste generated (i.e. from battery technology). Environmental Stewardship Vision Component Goals, Objectives and Policies will be met, particularly those related to solid and hazardous waste management, 7.1.6.1 and 7.1.6.3 respectively. Also, with the anticipated use of solar systems and high-tech equipment, 7.4.1 and 7.6.2 will be met.

F. Healthy Happy Residents (as per Chapter 8): Attesa will be unique for its residents. Those that choose to live in Attesa will most likely be those that are attracted to the automotive related functions, such as the ability to rent "track time" or join a racing club. A large majority of the homes will be second homes, so an attractive living environment is a necessity. This Vision Component includes Objectives, such as 8.1.1, which calls for the County to "*[s]upport a mix of quality housing opportunities to support economic development efforts*" as well as 8.1.3.5 which states that the County should *"[c]reate new development codes and ordinances to encourage urban style, higher density residential development in areas...of future activity*". The unique housing options of Attesa will forward this Vision Component.

G. Quality Educational Opportunities (as per Chapter 9): It is anticipated that Attesa will attract university and technical programs that are automotive focused, such as those that are automotive engineering, repair and manufacturing related. This Vision Component provides a clear Objective that states that the County should "*[e]xpand educational quality and opportunities at all levels*" (9.1.1). By providing an opportunity to attract both new higher education opportunities as well as new advanced vocational training to Pinal County, this Objective will be met.

10. Conformance with Comprehensive Plan's Key Concepts

The Comprehensive Plan includes "Key Concepts" that are illustrative in nature and are shown on the Land Use, Economic and Circulation graphics. These concepts are listed out in Appendix A, pages A-7 through A-10):

A. Consistency with the Land Use Designation shown on the graphics.

The requested Land Use Designation modification will add additional "Employment" designation on property adjacent to the prior approval in 2010. Because this is a small addition to a prior approved amendment, the request is consistent with the vision provided for in both the Land Use and Economic Development graphics.

B. Consistency with the Mixed Use Activity Center Concept.

A small portion of the northwestern corner of the Attesa project is currently classified as "Mixed Use Activity Center" (MUAC). This area is approximately 40 acres. Due to the nature of the project, it is not appropriate to classify it as the "edge" of this concept and instead this area will be re-classified as "Employment" to create a uniform classification for the entire Attesa area. With this area re-classified, the project will not be shown within MUAC. However, the intent of the MUAC is met by Attesa, as the goal of the MUAC to establish a mixed activity center is achieved by the mix of land uses and intensities contemplated by the plan. Attesa will include a mix of land uses, to include employment (both "basic" as well as "service"), a mix of residential and the activity of the event facility. As surrounding MUAC classified lands are developed over time, the

"Employment" proposed by this application will result in complementary land uses and provide a proper transition from those uses and Attesa.

C. Consistency with the Planning Guidelines described in the Land Use element.

The Employment Planning Guidelines (pages 85 – 86) suggest that projects should:

... "*place Pinal County in a position to take advantage of future economic development opportunities*". Attesa will create a high-tech hub of advanced automotive technology businesses as well as provide a unique entertainment draw providing jobs for Pinal County residents.

"*Employment designated land uses should be located where access to major transportation corridors exist or can be provided.*" This amendment provides for additional "Employment" designated lands in proximity to both Interstate 8 as well as the future "High Capacity Corridor" on Montgomery Road.

"*Retail and services as well as civic uses could be included in high intensity employment campus areas but not as the primary land use.*" The primary land uses for Attesa will be racing and event facilities as well as employment uses, such as manufacturing, research and testing. Supporting retail, services and even housing are required, but are not intended to be primary land uses.

This proposed amendment is in consistent with the above Planning Guidelines.

D. Quality Employment Opportunities County-wide.

This proposed amendment will increase the number of quality jobs in this portion of the County, as noted prior, this is in conformance with the vision of the Comprehensive Plan.

E. Viable Agriculture, Equestrian and Rural Lifestyle.

By amending the Comprehensive Plan to support the Attesa plan, the County's agricultural/equestrian/rural lifestyle will not be negatively impacted. The properties subject to the amendment are not in agricultural production. Furthermore, the multi-use trails will permit equestrian connections to and through the project, forwarding the vision of the Comprehensive Plan to support and maintain equestrian uses throughout the County.

F. System of Connected Trails and Preservation of Open Space.

This amendment will not impact the trails plans for the County, as reflected in the Open Space and Trails Plan (Exhibit 6-5). As the resulting project develops, the master plans will be required to comply with the County's trail system and open space preservation

standards. By the eventual provision of master planned open space and connectivity, this amendment in conformance with this "Key Concept".

G. Natural and Cultural Resource Conservation.

The area has been reviewed for major cultural resources and none have been identified to date. Lands affected by this application are typical; there are no known special natural resources or extra ordinary features. By promoting the development of this area, much of which has been farmed prior, this amendment will be in conformance with this Comprehensive Plan element by avoiding areas of undisturbed or are in a more natural condition. Furthermore, as the project moves forward, the applicant will work diligently with the Tohono O'odham Nation to identify sensitive areas.

H. Water Resources, Public Facilities/Services, and Infrastructure Support.

This area has existing water rights and will include ground water recharge as part of the final development plans. All required infrastructure, including substations required for police, fire and/or medical services, shall be provided by the developer as the project is constructed. By establishing new infrastructure by the eventual development, this amendment is consistent with this "Key Concept".

In summary, this amendment is in conformance with the "Key Concepts" of the Pinal County Comprehensive Plan.

11. Conformance with Comprehensive Plan Amendment Determination Criteria

The Comprehensive Plan includes specific criteria that a Major amendment "must address" as listed on Page 332 and 333. The following is a review of those criterion and a summary statement as to how each have been complied with to document the overall benefit and the improvement of the Comprehensive Plan as required.

Criteria #1: The identified site is appropriate for the proposed use.

The area of amendment is appropriate for the proposed "Employment" uses, particularly the specific project, Attesa, which is planned for the larger site. The property is generally flat, with prior disturbance from agricultural activities. The property has easy access to two (2) existing access ramps to Interstate 8 and is in reasonable proximity to nearby communities for both employees as well as visitors. The area has already been deemed appropriate for "Employment" uses via the 2010 amendment of a portion of the surrounding property. This portion of the County along this portion of Interstate 8 has been identified as appropriate for "Employment" land uses (see Exhibit 3-10, Economic Development Plan Map) as well as a "Growth Area" (Exhibit 3-20, Growth Area Plan). This is an appropriate location for the development of "Employment" type uses and this request will add a nominal amount of additional "Employment" appropriate land to the area.

Criteria #2: The amendment must constitute an overall improvement to the County.

By approving this amendment, the County will be improved. If developed as proposed, Attesa will be a world-class motorsports destiation and employment hub that will attract new business to the County. Regardless of Attesa, development of the Interstate 8 corridor with "Employment" uses has been established as a key objective of the Comprehensive Plan, as discussed prior. This request will simply expand the available "Employment" land in the immediate area improving possible locations for jobs and employment related development.

Criteria #3: The amendment will not adversely impact a portion of, or the entire County, by:

a. significantly altering existing land use patterns, especially in established neighborhoods.

This request will not significantly alter existing land use patterns. The area is mostly vacant or otherwise agricultural; a land use pattern has not yet developed on or near the site. The area was already approved for "Employment" uses; this request adds some additional complementary area to that prior approval.

b. significantly reducing the jobs per capita balance in Pinal County.

Approval of this amendment will INCREASE the available area for employment uses, thereby creating more potential jobs.

c. replacing employment with residential uses.

This request replaces residential uses with employment.

d. placing new development away from existing or approved development if the new development overtaxes infrastructure systems and public services when considering: future contribution to infrastructure and services through construction and dedication of improvements, payment of development fees, and other mitigation measures.

The development in this amendment area, as well as those areas approved prior for "Employment" as part of the 2010 amendment, will require significant new infrastructure systems. Attesa will require the development of infrastructure and services which will be determined as the project moves forward into the entitlement and construction phases. Any new infrastructure and/or services will be provided as required by Pinal County.

e. negatively impacting the existing character (i.e., visual, physical, environmental and functional) of the immediate area.

Development in this area, once commenced, will set the character of the area. The final development plans for Attesa will be reviewed by Pinal County to ensure a balanced plan that establishes a "regional employment core" with a motorsports/automotive focus that promotes quality development and respects the environment in which the project is developed. Approval of this amendment will establish character, not negatively impact it.

f. increasing the exposure of residential to aviation-generated noise, and/or flight operations.

While Attesa will include a small general aviation airport in the southeastern portion of the project site, the local area is currently home to very few people. The eventual residents of Attesa (a non-primary use of the overall project area) will be made aware of the operational characteristics of this airport facility and therefore will be electing to locate in an area of possible aviation related sounds. With that in mind, the airport is intended to support small private operators, not large scale airline type activities.

g. diminishing the environmental quality of the air, water, land, or cultural resources.

As noted prior, this proposed amendment will result in a wide range of future employment related land uses. Any and all development will comply with the most current applicable environmental standards then in effect, ensuring that there will be no negative impacts to the localized or larger County's environment.

h. significantly decreasing the quality or quality of recreational amenities such as open space, parks and trials.

This amendment does not modify any proposed future open space areas nor modify the County trails plans.

In summary, the proposed amendment will be an overall improvement to the Pinal County Comprehensive Plan by expanding the prior "Employment" area to encompass the entire Attesa project site. This approval will comply with the Vision of the plan, as discussed prior, and will meet the applicable goals, objectives, policies and planning guidelines.

12. Pre-Application Meeting Staff Comments

Please see Attachment A to this narrative.

13. Conclusion

The initial vison of the lands making up the Attesa project as an area of "Employment" intensity was approved in 2010. Today, with the expanded land area and to support the

necessary future rezoning for the project, this Major Comprehensive Plan Amendment is necessary to provide uniform "Employment" designation across the entire property.

This request complies with the applicable Vision of the plan, as well as the goals, objectives, policies and planning guidelines as described herein. Approval of this application will improve the Comprehensive Plan and will result in the development of a high-quality "Employment" core with a unique, one of a kind focus that will attract motorsports enthusiasts and related businesses from across the region and even from around the globe.

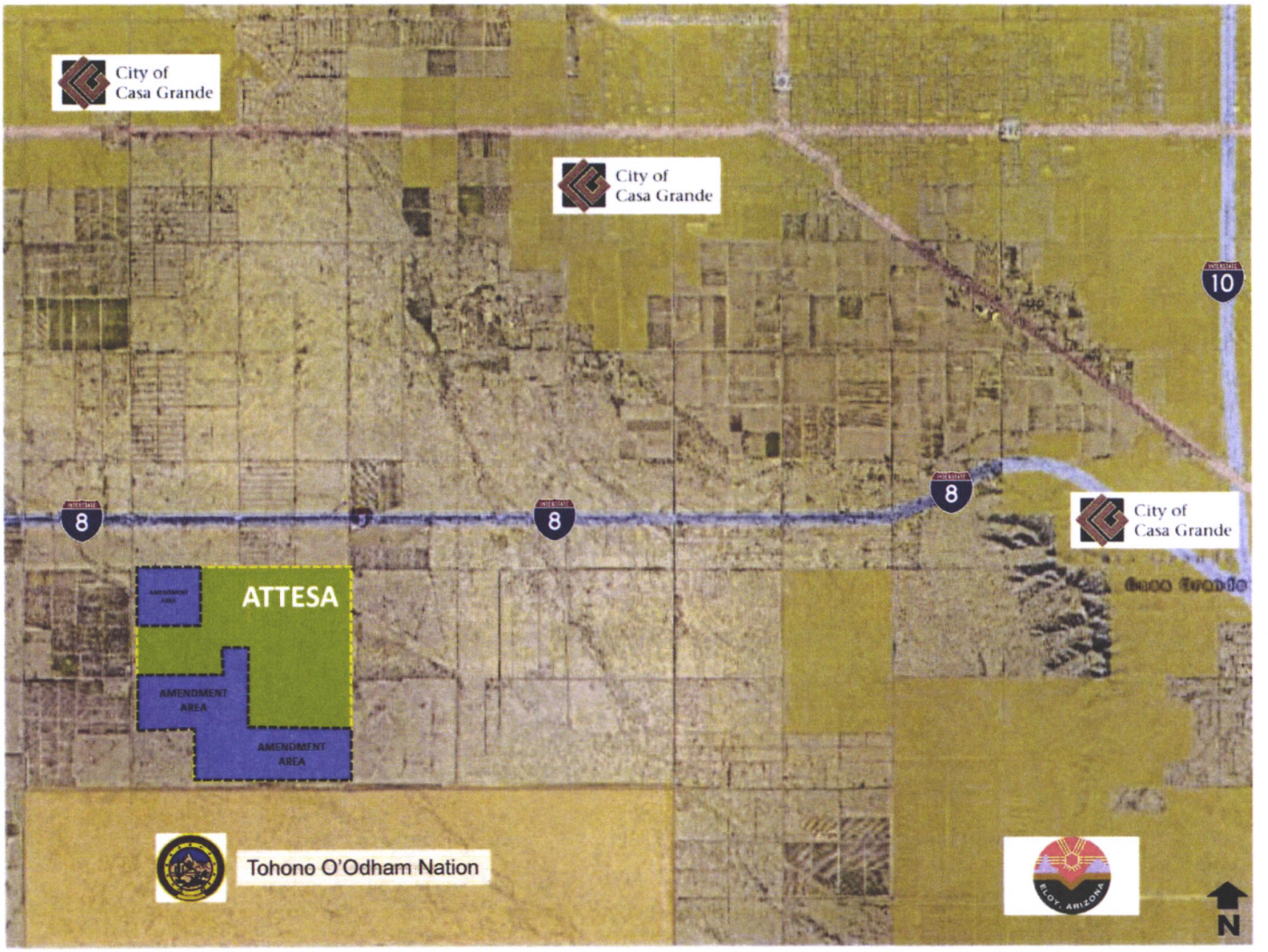

City of
Casa Grande
City of
Casa Grande
City of
Casa Grande
10
8
8
8
ATTESA
AMENDMENT
AREA
AMENDMENT
AREA
Tohono O'Odham Nation
ELOY, ARIZONA
N

Exhibit A – Current Comprehensive Plan Map Designations

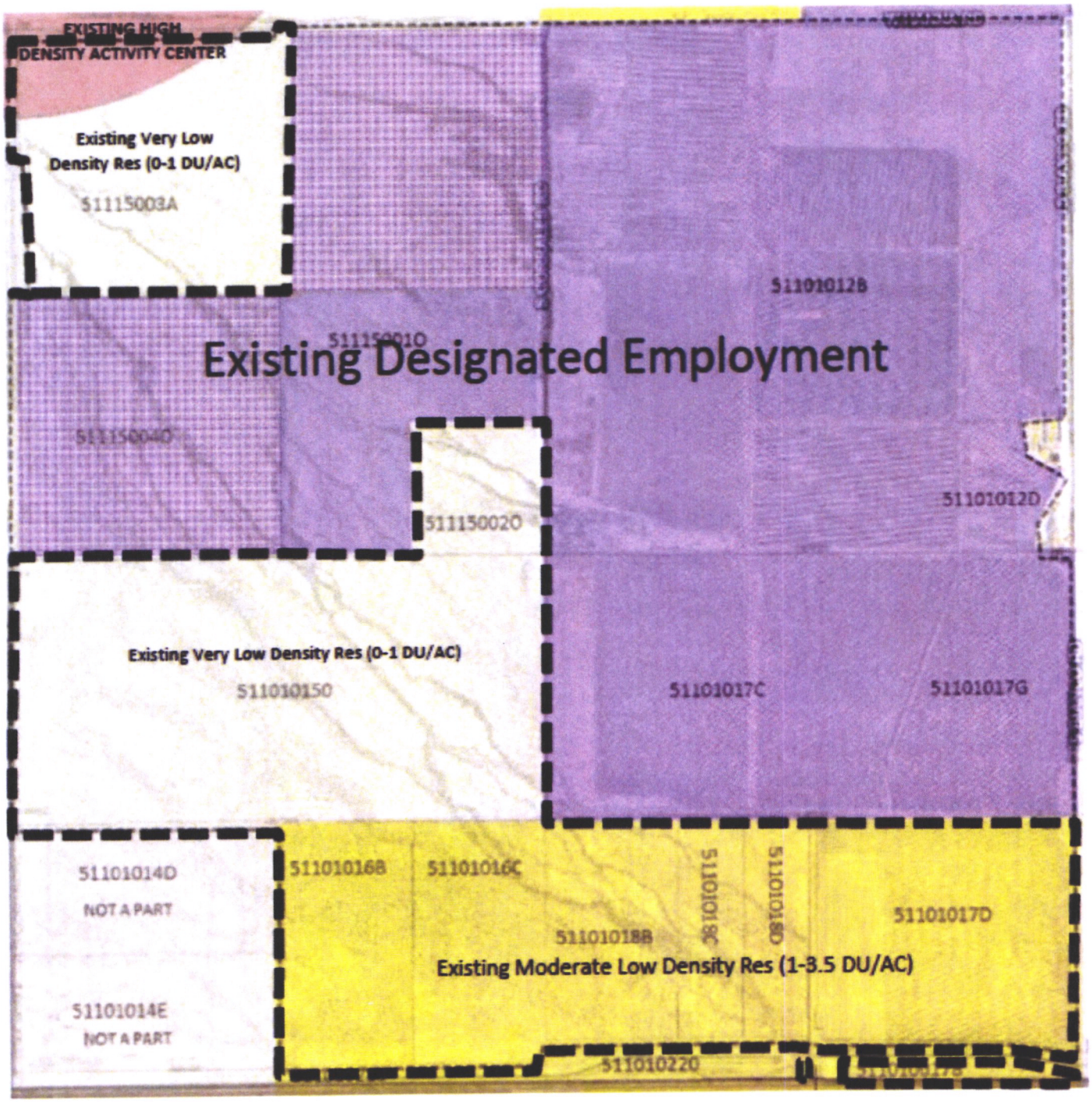


Exhibit B – Proposed Comprehensive Plan Map Designation

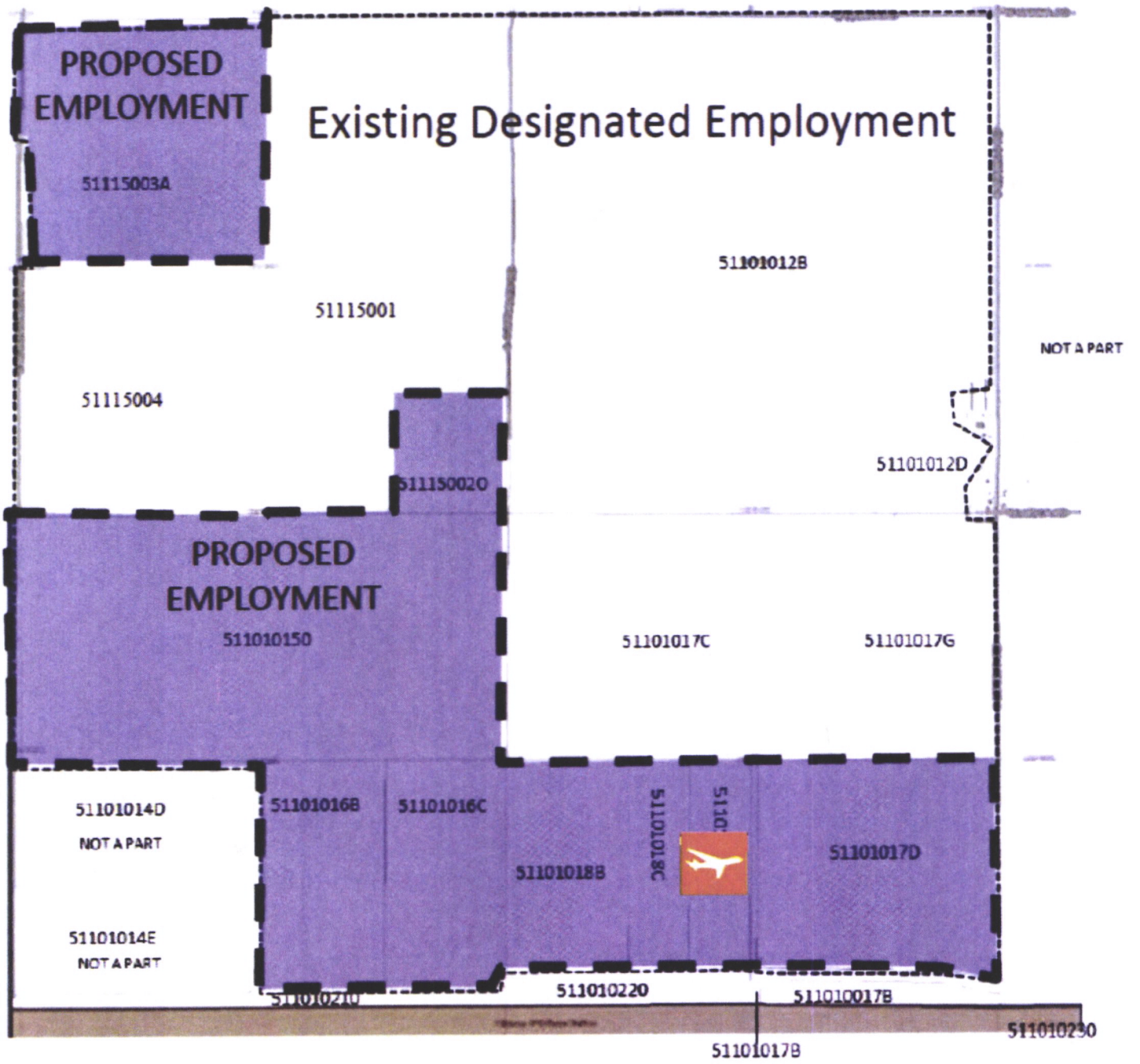


Exhibit C – Site Aerial

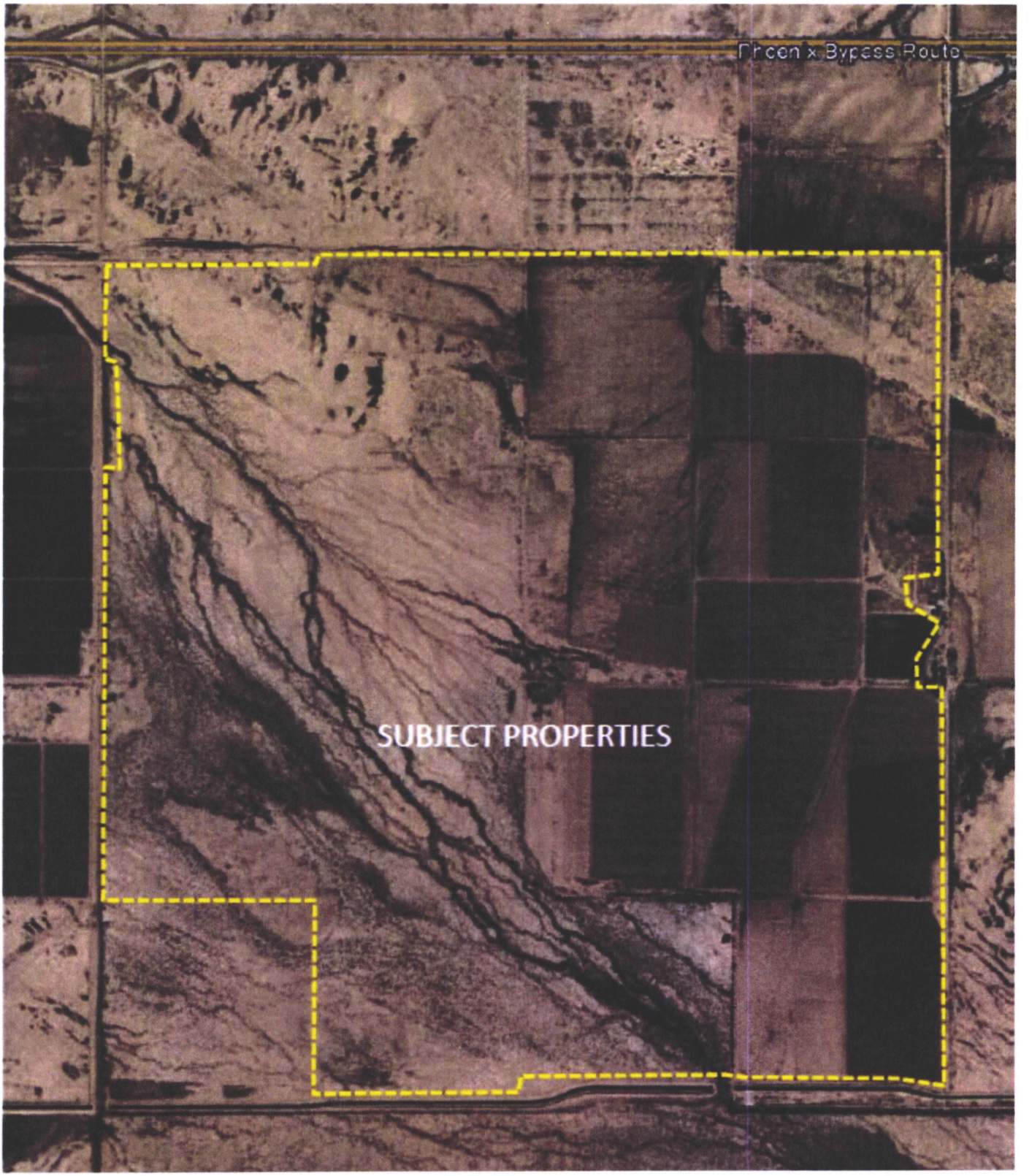


Exhibit D – Conceptual Land Use Master Plan for Attesa

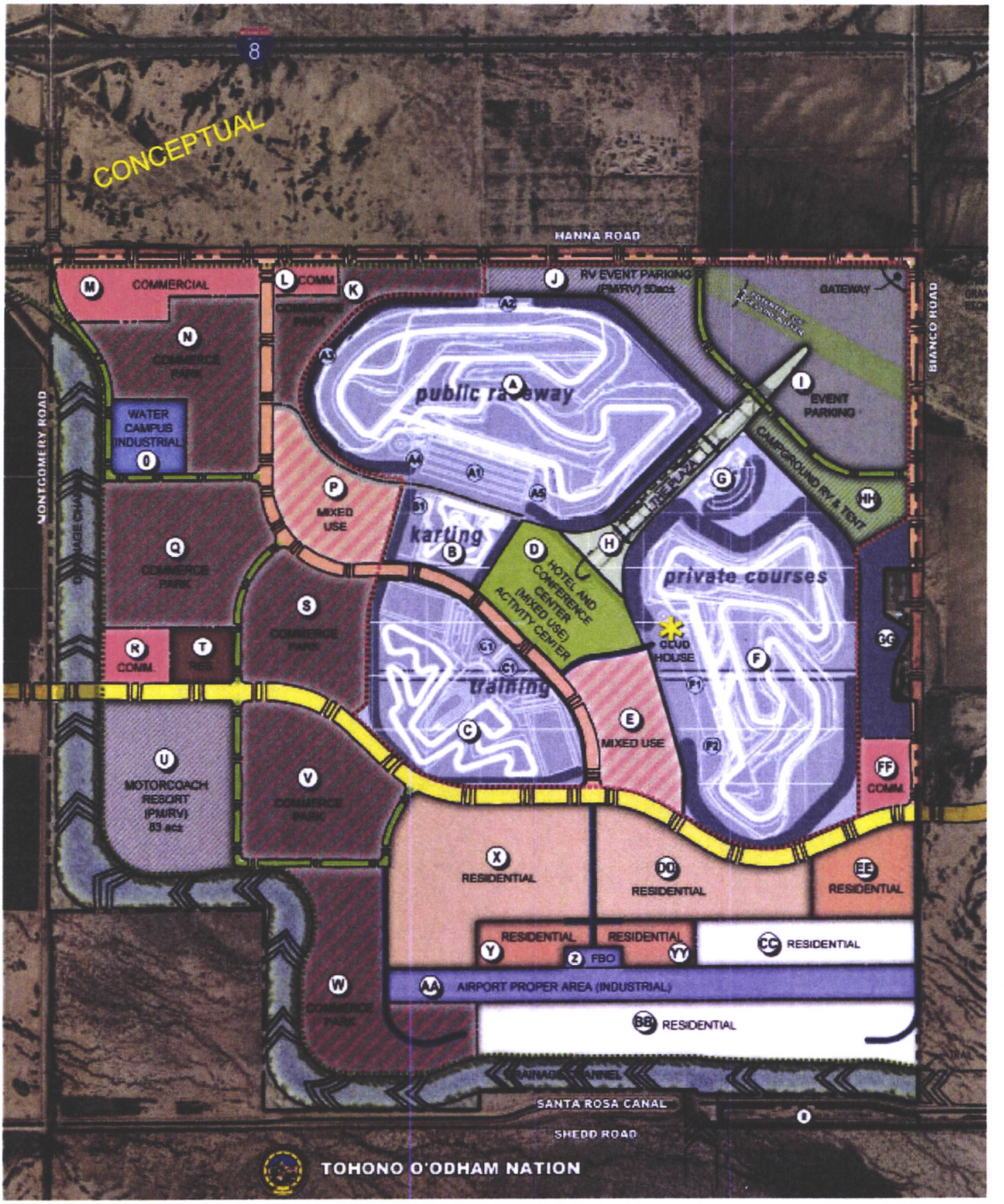
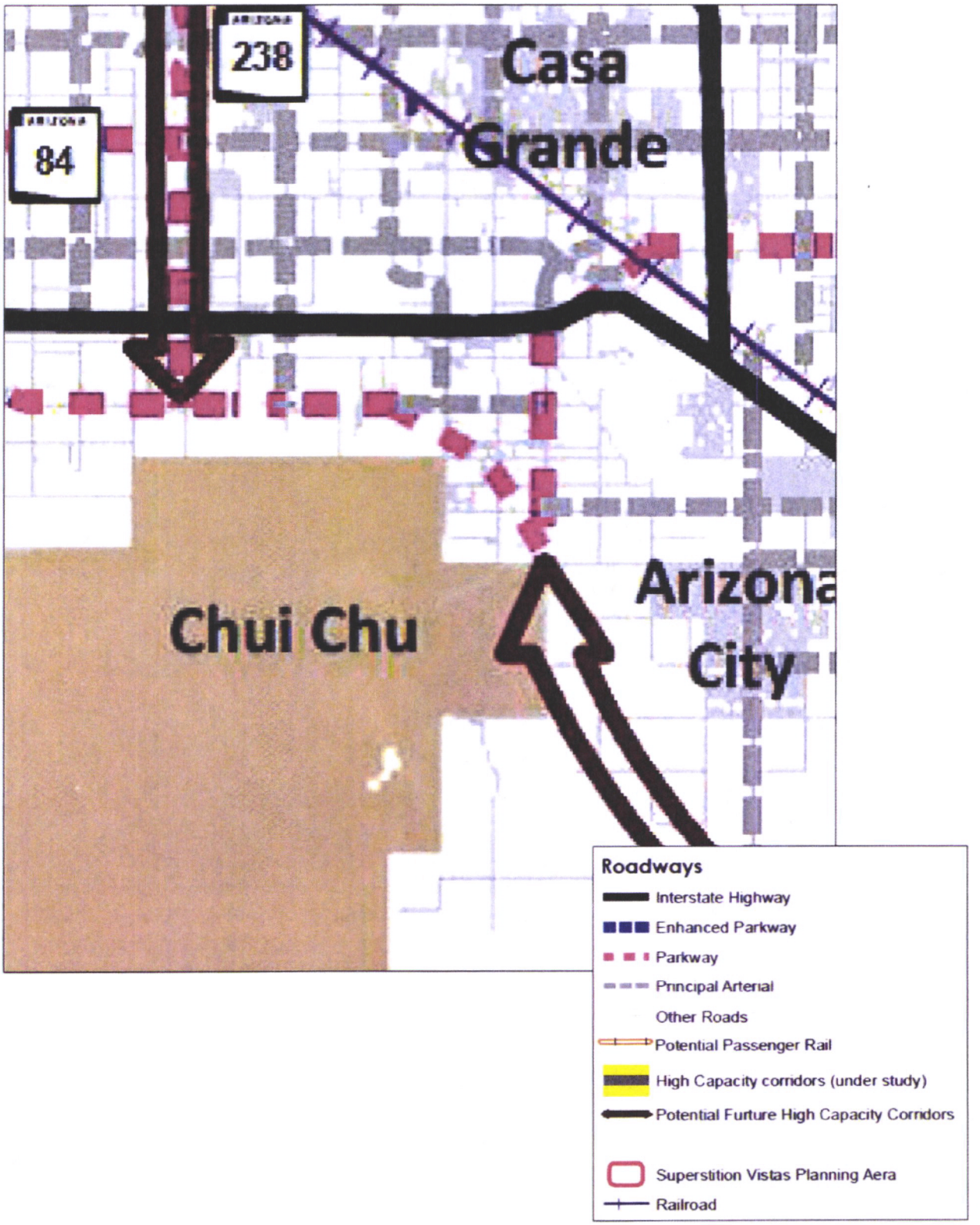


Exhibit E – Comprehensive Plan Identified Transportation Corridors



Attachment A – Staff Pre-Application Comments

PINAL • COUNTY
wide open opportunity

Greg Stanley
County Manager

Project Name: Attessa Major Comprehensive Plan Amendment
Case Number: Z-PA-022-16
Date: May 24, 2016
Time: 1:00 PM
Staff Coordinator: Steve Abraham

Comment	
	General
1	Feel free to begin notification process, include all property owners within Activity center on north western side of site.
2	51101023, appears to bisect proposed airstrip, will need consent from property owner
3	Two notice boards will be required one on Hanna and Bianco, another on Corrales and Hanna
4	Use "Comprehensive plan check list" to help craft narrative, discuss Arica Rd. re-alignment staff will confirm re-alignment outside of property boundaries is allowed w/o comp plan change, please include proposed re-alignment on all site plan and publicly distributed materials
	Narrative
	Site Plan
5	Feel free to include conceptual land use plan in application however official comprehensive plan documents will only show "employment", be sure to include both maps as part of public outreach.
	General

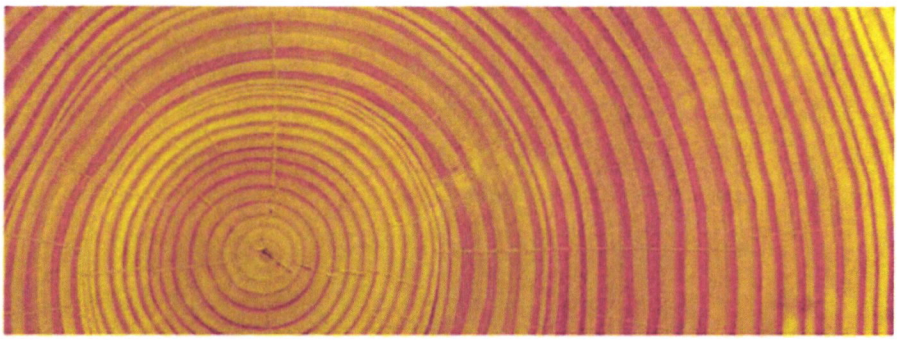
Please note that substantial changes to the proposal made between the "Pre-application meeting" and formal application submittal may result in an additional "pre-application meeting(s)" subject to the fees outlined in the Planning and Development fee schedule.

Staff has made every effort to identify issues that may arise with your proposal. However, when staff is reviewing completed applications, concerns which were not anticipated at the pre-application meeting will sometimes arise. These concerns can impact whether or not staff can support a proposal

COMMUNITY DEVELOPMENT
PLANNING DIVISION

31 North Pinal Street, Building F, PO Box 2973 Florence, AZ 85132 T 520-866-6442 FREE 888-431-1311 F 520-866-6435 www.pinalcountyaz.gov

Snell & Wilmer

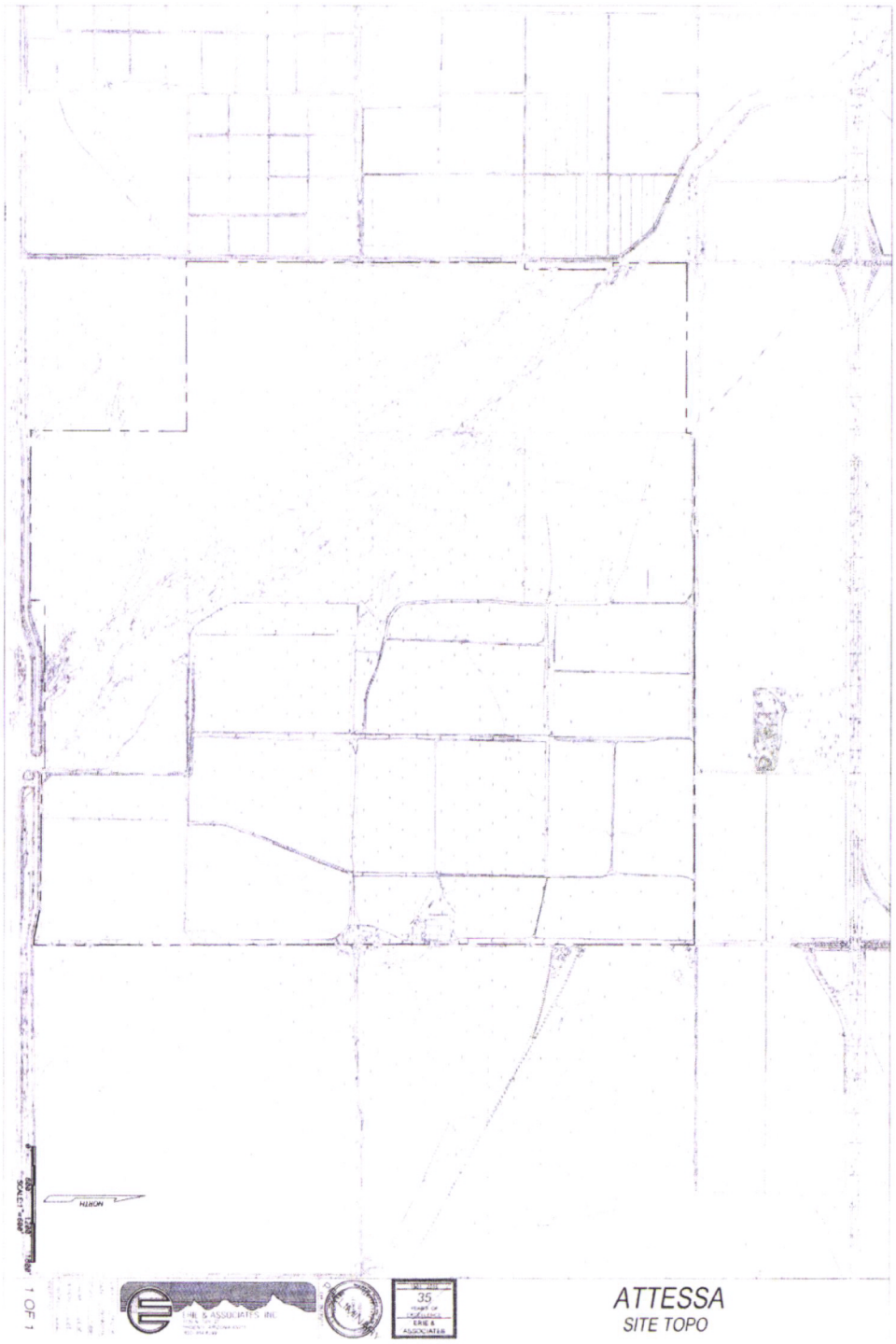


Topography Map

Nick Wood, Esq
Attorney

Noel J. Griemsmann, AICP
Sr. Urban Planner

Stephanie M. Watney
Urban Planner


1 OF 1
35
ATTESSA
SITE TOPO

Snell & Wilmer
L.L.P.
LAW OFFICES

One Arizona Center
400 E. Van Buren, Suite 1900
Phoenix, AZ 85004-2202
602.382.6000
602.382.6070 (Fax)
www.swlaw.com

Nicholas J. Wood
(602) 382-6269
nwood@swlaw.com

RECEIVED
JUL - 8 2016
Clerk of the Board

DENVER
LAS VEGAS
LOS ANGELES
LOS CABOS
ORANGE COUNTY
PHOENIX
RENO
SALT LAKE CITY
TUCSON

June 30, 2016

Re: Attesa Pinal County Major Comprehensive Land Use Map Amendment Application PZ-PA-003-16

Dear Neighbor:

On behalf of Danrick Builders, we have recently filed an amendment to the Pinal County Comprehensive Land Use Plan. This amendment will change the current mix of classifications from the current mix of Very Low Density Residential, Moderate Low Density Residential High Density Activity Center to Employment with a Secondary Airport designation.

You are receiving this letter as your property is located in proximity to the amendment area and we would like to make you aware of this application as well as to provide an invitation to meet with us at your convenience to discuss the application, the Attesa project or to address any questions, concerns or comments that you may have. We are happy to schedule a telephone call or an in-person meeting to discuss this proposal.

In the future, you will receive additional mailings with specific hearing dates where the Pinal County Planning and Zoning Commission as well as the Pinal County Board of Supervisors will consider this application.

This amendment will expand a prior 2010 amendment that established Employment over a portion of the Attesa project; this request will expand that approval to incorporate all of the 2,360 acres planned to be part of Attesa.

Please note that this is only an amendment to the Comprehensive Plan; future rezoning will be required to establish the appropriate zoning for the project. Enclosed are the current and proposed land use classification exhibits (Exhibit A).

As you will see on the attached conceptual master land use plan (Exhibit B), Attesa will be located just south of Interstate 8, with Hanna Road as its northern boundary, Bianco Road as its eastern boundary and Montgomery Road the western boundary. To the south are the Santa Rosa Canal and the Tohono O'Odham Nation.

Snell & Wilmer is a member of LEX MUNDI, The Leading Association of Independent Law Firms.

24320586

The Attesa project itself will be a recreational motorsports destination that will create an economic engine for the region, a global magnet for entertainment, thought leadership for transportation design innovation, and educational partnerships with universities conducting automotive research and development.

Attesa will have two, 2.6-mile road courses, a possible karting track, a driver experience center and a multi-surface track and event area. A small private airport with a 6,000-foot-long runway will enable patrons to fly in and out conveniently. Attesa also will include supporting residential, industrial and commercial uses.

In addition to the major motorsports facilities, the other development intended for Attesa will likely be automotive systems or component related. Examples of possible future land uses include automotive testing, racing systems development, autonomous technology as well as advanced drivetrain and battery systems. The goal is the establishment of a motorsports core (attracting events and tourists) surrounded by automotive related employment uses (and some complementary commercial and housing options).

This proposed Major Comprehensive Plan Land Use Map amendment is the first step in the required approvals for the Attesa project. As noted above, the next step will be a rezoning, likely in the fourth quarter of 2016 to formalize the specific zoning required for the project. As with this amendment, you will be updated on those efforts once they begin.

We look forward to discussing any questions or comments with you. Please feel free to contact me at the number above or contact my in-house urban planner, Noel J. Griemsmann, AICP, at 602-382-6824 or ngriemsmann@swlaw.com; he is also available to discuss the project at your convenience.

Thank you for your time.

Sincerely,

Snell & Wilmer

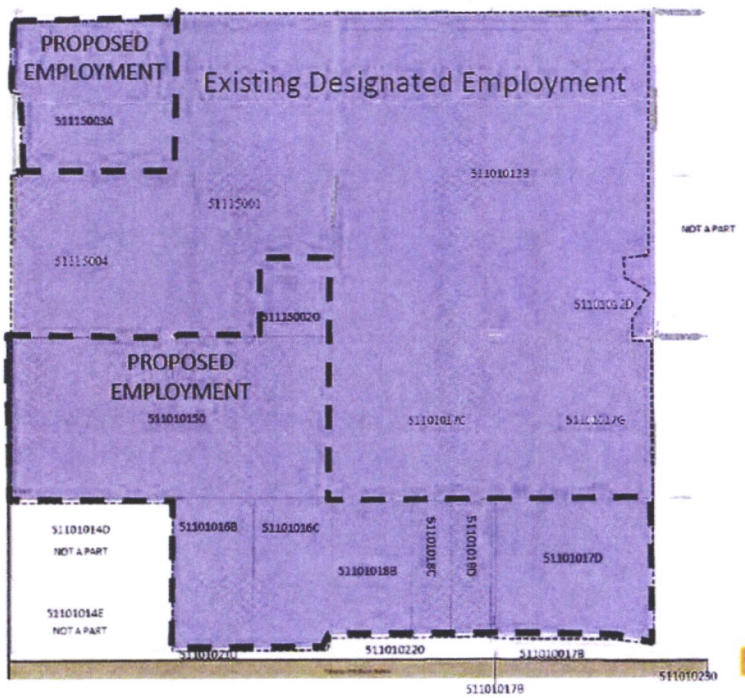
Nicholas J. Wood

24320586

EXHIBIT A: Current and Proposed Comprehensive Land Use Map Designations

CURRENT LAND USE MAP

PROPOSED LAND USE MAP



243205

EXHIBIT B – Conceptual Land Use Master Plan for Attesa

From:	Paul Tice <PTice@casagrandeaz.gov>
Sent:	Monday, July 18, 2016 4:15 PM
To:	Dedrick Denton
Cc:	Steve Abraham; Himanshu Patel; Terrence McKeon
Subject:	Attesa Pinal County Major Comprehensive Land Use Map Amendment - PZ-PA-003-16

Dedrick ....thank you for the opportunity to comment on the proposed Pinal County General Plan Land Use Map amendment for the Attesa development. Below please find the comments from both the Casa Grande Planning & Development and Public Works Departments:

Planning & Development

1. This area is outside of the Casa Grande corporate boundaries, and not currently eligible for annexation due to lack of contiguity. However, It is assumed that at some point in the future, as development occurs within the I-8 corridor, this property will become contiguous to the corporate boundaries of Casa Grande and be annexed.
2. The property is located within the Casa Grande Planning Area and therefore has been included within the Casa Grande General Plan 2020. The Land Use Map associated with the Casa Grande General Plan 2020 classifies this property as "Agricultural".
3. The proposed Attesa motorsports development proposal is not a land use that would normally be allowed within our "Agricultural" land use classification. However, given the location adjacent to the Montgomery Rd. (classified in our Small Area Transportation Plan as a Principal Arterial south of I-8 and as an Expressway north of I-8 and currently being considered as an option for the I-11 corridor) and given the fact that the property to the north along the I-8 corridor is classified as Commerce & Business in our General Plan 2020 a development such as the Attesa motorsports facility is logical in this area and would likely not have any adverse impacts upon the surrounding existing or future Rural or Agricultural uses.

Public Works

In reviewing the documents submitted on behalf of the Attesa development project, the City of Casa Grande has one comment to offer in regards to the Wastewater section. The concept described in the document is not entirely consistent with the concept agreed to by the City. As this project is a considerable distance from existing wastewater infrastructure, and the cost to extend those facilities would be prohibitive, the City is amenable to an interim solution which would provide sanitary sewer service. As such, we have had discussions regarding this with the developer, and the City has agreed to a solution which would allow the development to proceed. This agreement requires that the developer would design, permit, and construct a collections and treatment system which they will own, operate, and maintain until such time as city infrastructure is extended to a reasonable distance from the development. The sewer collection network would be designed such that it would ultimately be able to connect to the city's infrastructure at some point in the future. This concept also considers use of an appropriately designed packaged treatment system adequate to treat the sanitary sewer flows.

Paul R. Tice II, AICP
Casa Grande Planning & Development Director

Terrence S. McKeon, P.E.
Deputy Public Works Director/City Engineer

Arizona Environmental Online Review Tool Report

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

Project Name:
Attesa Development

Project Description:
This project is a master plan for 2360 acres into a regional sports and entertainment activity center focused on motorsports racing and recreation, training, advance automotive technology development and manufacturing.

Project Type:
Development Outside Municipalities (Rural Development), Commercial/industrial (mall) and associated infrastructure, New construction

Contact Person:
kelly wolff-krauter

Organization:
AZGFD

On Behalf Of:
AZGFD

Project ID:
HGIS-03873

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

Disclaimer:

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

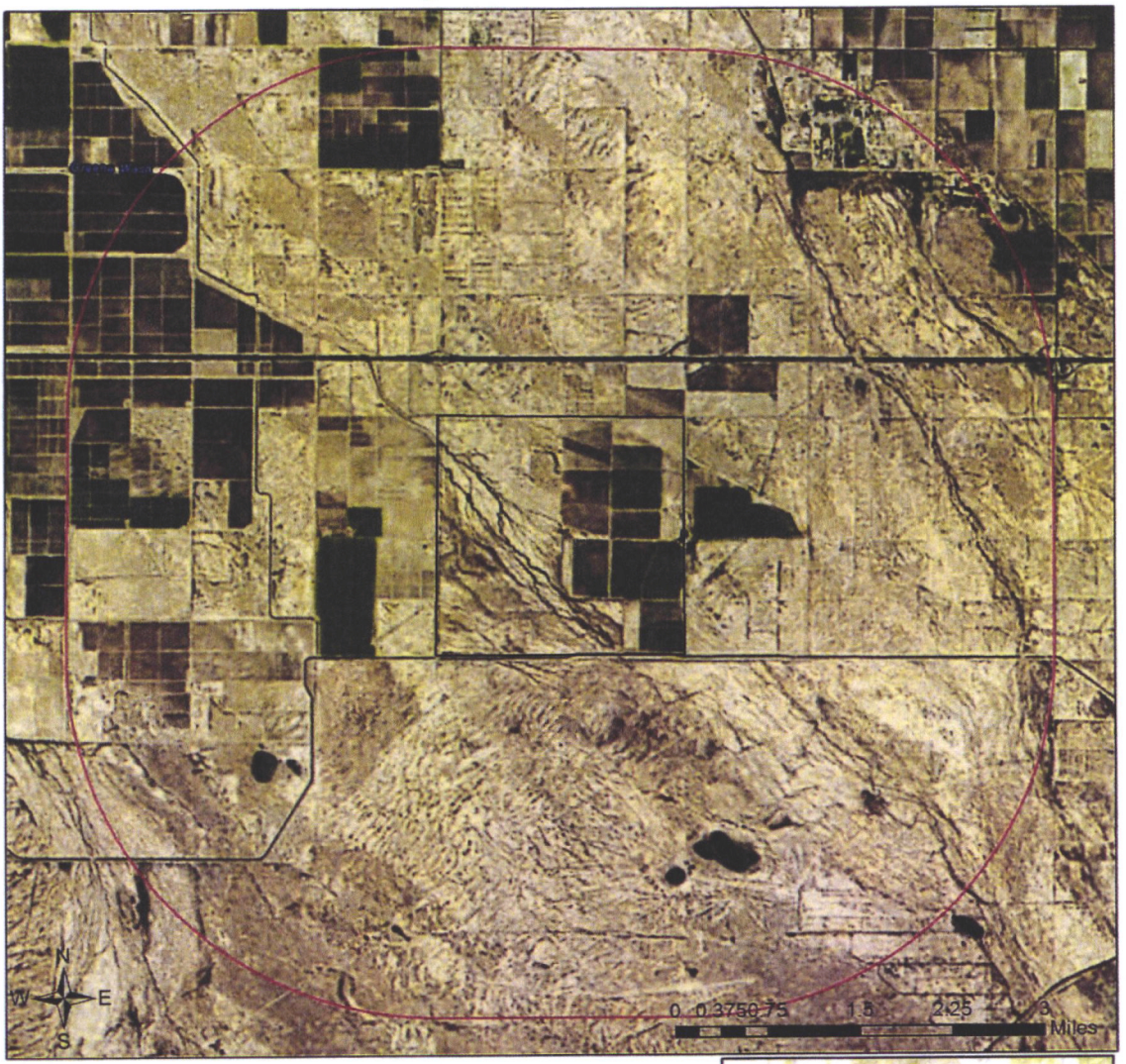
Locations Accuracy Disclaimer:
Project locations are assumed to be both precise and accurate for the purposes of environmental review. The creator/owner of the Project Review Report is solely responsible for the project location and thus the correctness of the Project Review Report content.

Recommendations Disclaimer:

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

Attesa Development

Aerial Image Basemap With Locator Map



Project Boundary

Buffered Project Boundary

Project Size (acres): 2,528.18

Lat/Long (DD): 32.8067 / -111.8431

County(s): Pinal

AGFD Region(s): Mesa

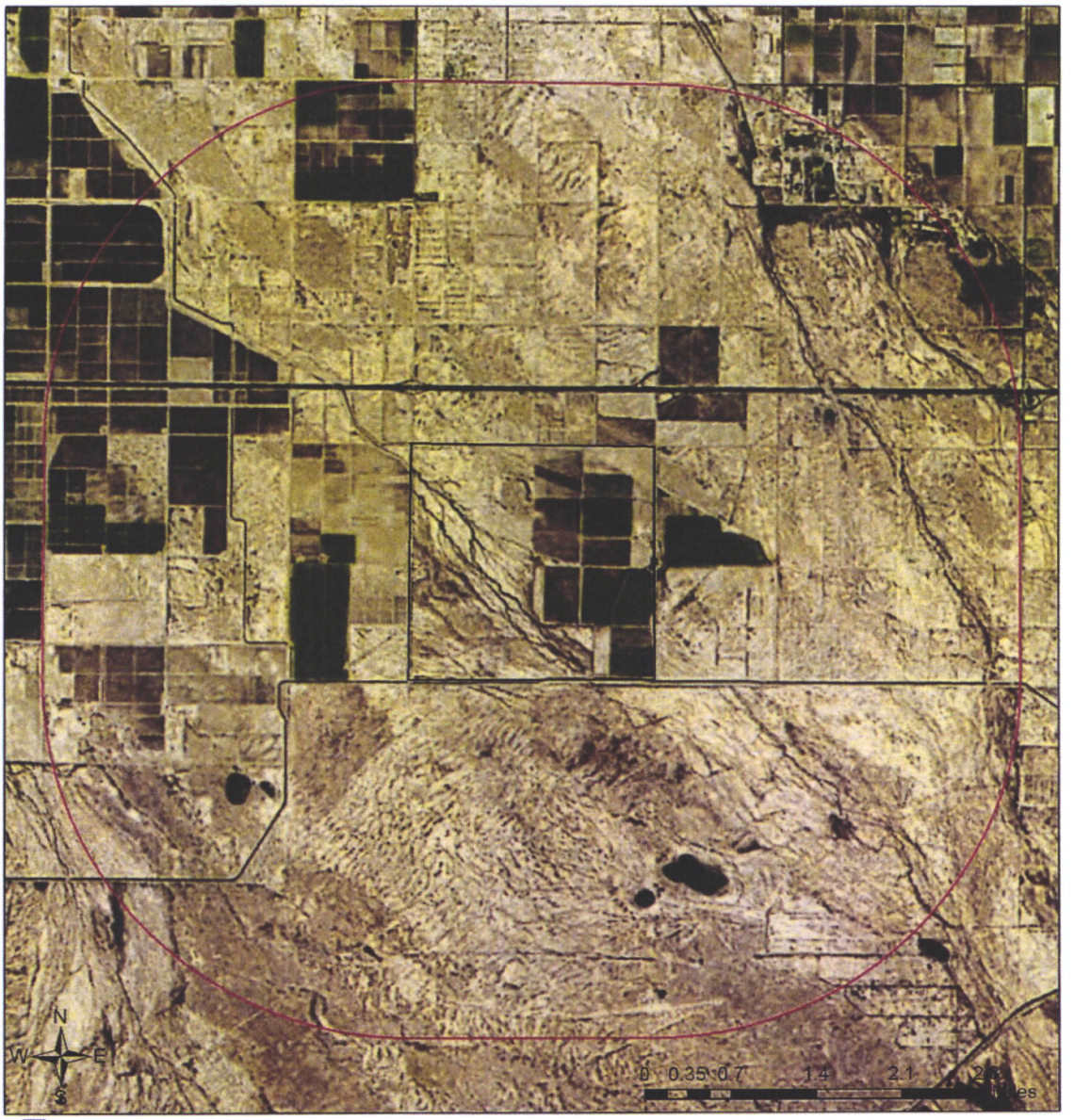
Township/Range(s): T7S, R5E

USGS Quad(s): CHUICHU

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

Attesa Development

Web Map As Submitted By User



- Project Boundary
- Buffered Project Boundary
- Wildlife Corridors

Project Size (acres): 2,528.18

Lat/Long (DD): 32.8067 / -111.8431

County(s): Pinal

AGFD Region(s): Mesa

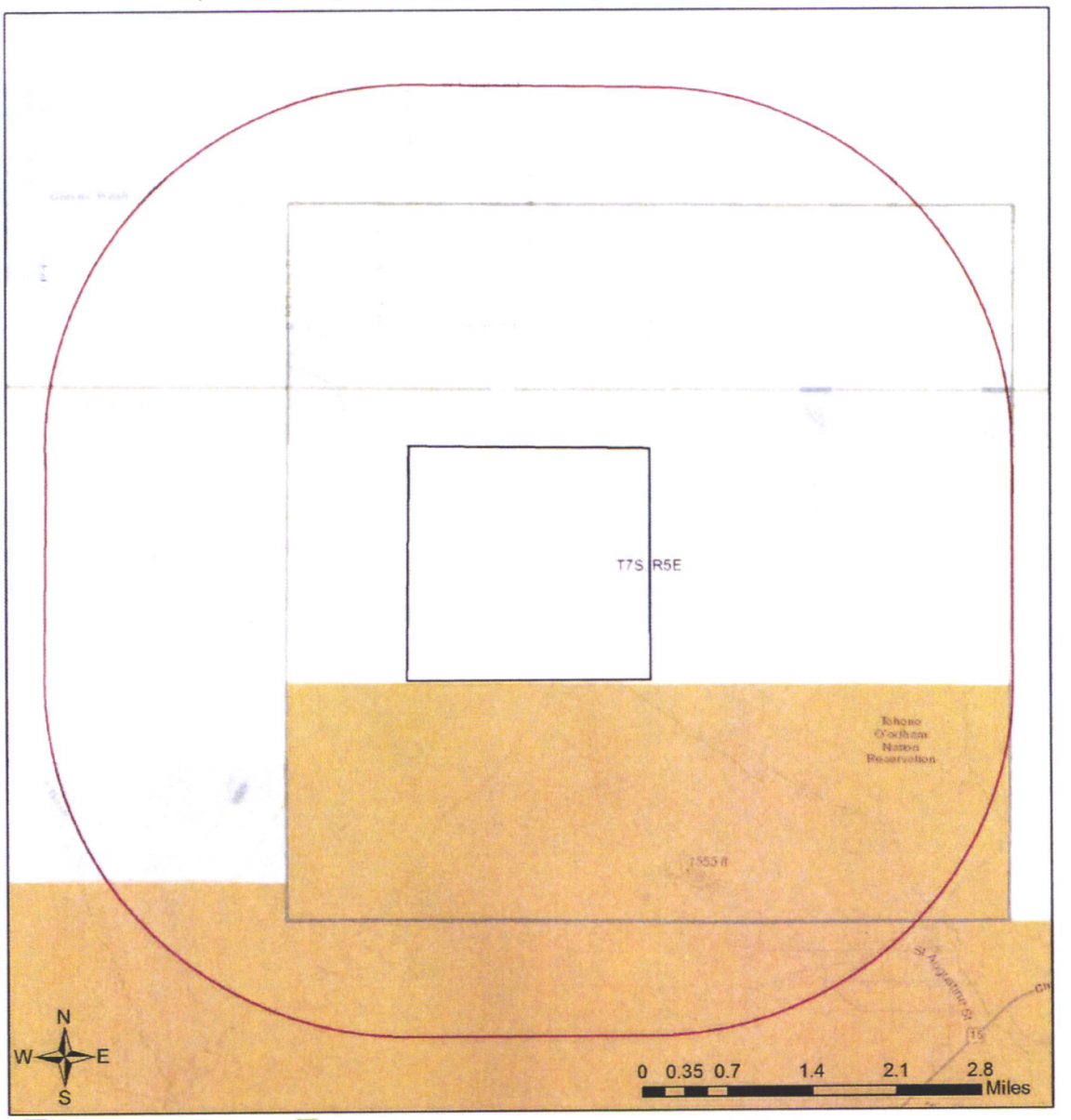
Township/Range(s): T7S, R5E

USGS Quad(s): CHUICHU

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Attesa Development

Topo Basemap With Township/Ranges and Land Ownership



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

Project Size (acres): 2,528.18
Lat/Long (DD): 32.8067 / -111.8431
County(s): Pinal
AGFD Region(s): Mesa
Township/Range(s): T7S, R5E
USGS Quad(s): CHUICHU

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

Special Status Species and Special Areas Documented within 3 Miles of Project Vicinity

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Antilocapra americana sonoriensis	10J area for Sonoran Pronghorn	LE,XN				
Gopherus morafkai	Sonoran Desert Tortoise	CCA	S			1A
Panthera onca	Jaguar Area of Capture Concern					
Tohono O'odham Nation	Tohono O'odham Nation					

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

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

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Aix sponsa	Wood Duck					1B
Ammospermophilus harrisii	Harris' Antelope Squirrel					1B
Anaxyrus retiformis	Sonoran Green Toad			S		1B
Aquila chrysaetos	Golden Eagle	BGA		S		1B
Athene cunicularia hypugaea	Western Burrowing Owl	SC	S	S		1B
Botaurus lentiginosus	American Bittern					1B
Buteo regalis	Ferruginous Hawk	SC		S		1B
Chilomeniscus stramineus	Variable Sandsnake					1B
Chionactis occipitalis klauberi	Tucson Shovel-nosed Snake	SC				1A
Coccyzus americanus	Yellow-billed Cuckoo (Western DPS)	LT	S			1A
Colaptes chrysoides	Gilded Flicker			S		1B
Coluber bilineatus	Sonoran Whipsnake					1B
Corynorhinus townsendii pallescens	Pale Townsend's Big-eared Bat	SC	S	S		1B
Crotalus tigris	Tiger Rattlesnake					1B
Crotaphytus nebrius	Sonoran Collared Lizard					1B
Euderma maculatum	Spotted Bat	SC	S	S		1B
Eumops perotis californicus	Greater Western Bonneted Bat	SC		S		1B
Glaucidium brasilianum cactorum	Cactus Ferruginous Pygmy-owl	SC	S	S		1B
Gopherus morafkai	Sonoran Desert Tortoise	C*	S			1A
Haliaeetus leucocephalus	Bald Eagle	SC, BGA	S	S		1A
Heloderma suspectum	Gila Monster					1A
Incilius alvarius	Sonoran Desert Toad					1B
Lasiurus blossevillii	Western Red Bat		S			1B
Lasiurus xanthinus	Western Yellow Bat		S			1B
Leptonycteris curasoae yerbabuenae	Lesser Long-nosed Bat	LE				1A
Lepus alleni	Antelope Jackrabbit					1B
Macrotus californicus	California Leaf-nosed Bat	SC		S		1B
Melanerpes uropygialis	Gila Woodpecker					1B

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

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Melospiza lincolnii	Lincoln's Sparrow					1B
Melozone aberti	Abert's Towhee		S			1B
Micruroides euryxanthus	Sonoran Coralsnake					1B
Myotis velifer	Cave Myotis	SC		S		1B
Myotis yumanensis	Yuma Myotis	SC				1B
Nyctinomops femorosaccus	Pocketed Free-tailed Bat					1B
Panthera onca	Jaguar	LE				1A
Passerculus sandwichensis	Savannah Sparrow					1B
Perognathus amplus	Arizona Pocket Mouse					1B
Perognathus longimembris	Little Pocket Mouse					1B
Phrynosoma goodei	Goode's Horned Lizard					1B
Phrynosoma solare	Regal Horned Lizard					1B
Rallus longirostris yumanensis	Yuma Clapper Rail	LE				1A
Setophaga petechia	Yellow Warbler					1B
Tadarida brasiliensis	Brazilian Free-tailed Bat					1B
Toxostoma lecontei	Le Conte's Thrasher					1B
Troglodytes pacificus	Pacific Wren					1B
Vireo bellii arizonae	Arizona Bell's Vireo					1B
Vulpes macrotis	Kit Fox					1B

Species of Economic and Recreation Importance Predicted within Project Vicinity

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

Project Type: Development Outside Municipalities (Rural Development), Commercial/industrial (mall) and associated infrastructure, New construction

Project Type Recommendations:

During the planning stages of your project, please consider the local or regional needs of wildlife in regards to movement, connectivity, and access to habitat needs. Loss of this permeability prevents wildlife from accessing resources, finding mates, reduces gene flow, prevents wildlife from re-colonizing areas where local extirpations may have occurred, and ultimately prevents wildlife from contributing to ecosystem functions, such as pollination, seed dispersal, control of prey numbers, and resistance to invasive species. In many cases, streams and washes provide natural movement corridors for wildlife and should be maintained in their natural state. Uplands also support a large diversity of species, and should be contained within important wildlife movement corridors. In addition, maintaining biodiversity and ecosystem functions can be facilitated through improving designs of structures, fences, roadways, and culverts to promote passage for a variety of wildlife. Guidelines for many of these can be found at: https://www.azgfd.com/wildlife/planning/wildlifeguidelines/.

Consider impacts of outdoor lighting on wildlife and develop measures or alternatives that can be taken to increase human safety while minimizing potential impacts to wildlife. Conduct wildlife surveys to determine species within project area, and evaluate proposed activities based on species biology and natural history to determine if artificial lighting may disrupt behavior patterns or habitat use. Use only the minimum amount of light needed for safety. Narrow spectrum bulbs should be used as often as possible to lower the range of species affected by lighting. All lighting should be shielded, cantered, or cut to ensure that light reaches only areas needing illumination.

Minimize potential introduction or spread of exotic invasive species. Invasive species can be plants, animals (exotic snails), and other organisms (e.g., microbes), which may cause alteration to ecological functions or compete with or prey upon native species and can cause social impacts (e.g., livestock forage reduction, increase wildfire risk). The terms noxious weed or invasive plants are often used interchangeably. Precautions should be taken to wash all equipment utilized in the project activities before leaving the site. Arizona has noxious weed regulations (Arizona Revised Statutes, Rules R3-4-244 and R3-4-245). See Arizona Department of Agriculture website for restricted plants, https://agriculture.az.gov/. Additionally, the U.S. Department of Agriculture has information regarding pest and invasive plant control methods including: pesticide, herbicide, biological control agents, and mechanical control, http://www.usda.gov/wps/portal/usdahome. The Department regulates the importation, purchasing, and transportation of wildlife and fish (Restricted Live Wildlife), please refer to the hunting regulations for further information https://www.azgfd.com/hunting/regulations.

Minimization and mitigation of impacts to wildlife and fish species due to changes in water quality, quantity, chemistry, temperature, and alteration to flow regimes (timing, magnitude, duration, and frequency of floods) should be evaluated. Minimize impacts to springs, in-stream flow, and consider irrigation improvements to decrease water use. If dredging is a project component, consider timing of the project in order to minimize impacts to spawning fish and other aquatic species (include spawning seasons), and to reduce spread of exotic invasive species. We recommend early direct coordination with Project Evaluation Program for projects that could impact water resources, wetlands, streams, springs, and/or riparian habitats.

The Department recommends that wildlife surveys are conducted to determine if noise-sensitive species occur within the project area. Avoidance or minimization measures could include conducting project activities outside of breeding seasons.

Based on the project type entered, coordination with State Historic Preservation Office may be required (http://azstateparks.com/SHPO/index.html).

Trenches should be covered or back-filled as soon as possible. Incorporate escape ramps in ditches or fencing along the perimeter to deter small mammals and herptefauna (snakes, lizards, tortoise) from entering ditches.

Communities can actively support the sustainability and mobility of wildlife by incorporating wildlife planning into their regional/comprehensive plans, their regional transportation plans, and their open space/conservation land system programs. An effective approach to wildlife planning begins with the identification of the wildlife resources in need of protection, an assessment of important habitat blocks and connective corridors, and the incorporation of these critical wildlife components into the community plans and programs. Community planners should identify open spaces and habitat blocks that can be maintained in their area, and the necessary connections between those blocks to be preserved or protected. Community planners should also work with State and local transportation planning entities, and planners from other communities, to foster coordination and cooperation in developing compatible development plans to ensure wildlife habitat connectivity. The Department's guidelines for incorporating wildlife considerations into community planning and developments can be found on the Widlife Friendly Guidelines portion of the Wildlife Planning page at https://www.azgfd.com/wildlife/planning/wildlifeguidelines/.

Based on the project type entered, coordination with Arizona Department of Environmental Quality may be required (http://www.azdeq.gov/).

Based on the project type entered, coordination with Arizona Department of Water Resources may be required (http://www.azwater.gov/azdwr/default.aspx).

Based on the project type entered, coordination with U.S. Army Corps of Engineers may be required (http://www.usace.army.mil/)

Based on the project type entered, coordination with County Flood Control district(s) may be required.

Development plans should provide for open natural space for wildlife movement, while also minimizing the potential for wildlife-human interactions through design features. Please contact Project Evaluation Program for more information on living with urban wildlife at PEP@azgfd.gov or at https://www.azgfd.com/wildlife/planning/wildlifeguidelines/ and https://www.azgfd.com/Wildlife/LivingWith.

The Department requests further coordination to provide project/species specific recommendations, please contact Project Evaluation Program directly: PEP@azgfd.gov

Project Location and/or Species Recommendations:

HDMS records indicate that Sonoran Desert Tortoise have been documented within the vicinity of your project area. Please review the Tortoise Handling Guidelines found at: http://www.azgfd.gov/hgis/pdfs/Tortoisehandlingguidelines.pdf

Your project site is within one or more defined Areas of Capture Concern. Please follow Department protocols while working within an Area of Capture Concern at U:\Agency Directives\JaguarOcelot Directives 17AUG10.pdf.

Tribal Lands are within the vicinity of your project area and may require further coordination. Please contact:
Tohono O'odham Nation
PO Box 837
Sells, AZ 85634
(520) 383-2028
(520) 383-3379 (fax)

THE STATE OF ARIZONA
GAME AND FISH DEPARTMENT
5000 W. CAREFREE HIGHWAY
PHOENIX, AZ 85086-5000
(602) 942-3000 • WWW.AZGFD.GOV
REGION VI, 7200 E. UNIVERSITY DRIVE, MESA, AZ 85207

GOVERNOR
DOUGLAS A. DUCEY
COMMISSIONERS
CHAIRMAN, EDWARD "PAT" MADDEN, FLAGSTAFF
JAMES R. AMMONS, YUMA
JAMES S. ZIELER, ST. JOHNS
ERIC S. SPARKS, TUCSON
KURT R. DAVIS, PHOENIX
DIRECTOR
LARRY D. VOYLES
DEPUTY DIRECTOR
TY E. GRAY

July 13, 2016

Mr. Dedrick Denton
Pinal County Community Development Department
31 North Pinal Street, Building F
Florence, Arizona 85132

RE: 2016 Pinal County Major Comprehensive Plan 60 Day Review

Dear Mr. Denton,

The Arizona Game and Fish Department (Department) has reviewed the proposed 2016 Major Amendments to the Pinal County Comprehensive Plan (Plan). The Department understands there are two major amendments proposed: Attesa Development and Pinal Central Power Generation Facility. The Department provides the following comments.

The Department maintains the public trust responsibility and jurisdictional authority under Arizona Revised Statute, Title 17 (§17-102 codifies state ownership of wildlife) to manage and regulates take of fish and wildlife within the state of Arizona irrespective of landownership, excepting those wildlife existing on tribal trust-status lands. This includes law enforcement authority. We continue to express interests in all land planning initiatives that may affect management of the State's fish and wildlife resources and/or wildlife related recreation. The mission of the Department is to conserve Arizona's diverse wildlife resources and manage for safe, compatible outdoor recreation opportunities for current and future generations.

Attesa

While the Department understands the need for residential and commercial expansion within Pinal County to accommodate and/or meet the demands of the growing population, we recommend ensuring compatibility of recreational uses, open spaces, wildlife corridors and other ecological services providing quality of life are adequately considered and built into these planning efforts.

Specifically, the Attesa proposal is for a range of very low to moderate residential development to a high density activity center (motorsports facility). This proposed amendment originally was adopted into the Plan in 2010 and the request is currently for additional lands that encompass the area.

The Department would like to extend its acknowledgement and appreciation of the proposal to identify the important drainage areas within the project that provide for open space and wildlife connectivity. The Department recommends consideration in the drainage designs to continue to allow for this movement into the future and would like to work with the project planning and design team to ensure the future permeability and sustainability of this movement along with additional wildlife components within the master plan for this project. Incorporation of components should include: use of buffers along the primary drainage areas, wildlife friendly fencing, promotion of base flows, maintaining of native species and riparian vegetation, retain natural drainage pattern from the agricultural fields adjacent, prevent excess runoff, escape and crossing structures, funnel fencing, reduction of human activity in the immediate vicinity, etc.

The immediate vicinity contains a major drainage considered high value of wildlife habitat, along with the southwestern portion of the project area containing high to medium value of wildlife habitat. Therefore, the Department has identified the need for mitigation due to the loss of existing habitat value and highly encourages measures that reduce and or eliminate the losses over time. In addition, compensation through replacement of habitat values in-kind, so that no net loss occurs need considered.

Pinal Central Power Generation Facility

The Department understands the need for additional energy generation and storage with the growing population. The proposed project would include significant infrastructure: generation facility, photovoltaic solar field, energy storage facility, transmission lines and additional infrastructure as needed and not identified in detail. The project will include 5 parcels of land currently used for residential and agricultural uses. Attached are the Department Guidelines for Solar Development for review and incorporation into the planning and informing the design of the project.

General

The Department recommends consideration for species of concern; such as those listed as threatened, endangered or candidate species for listing under the Endangered Species Act (ESA) and other sensitive species lists. A copy of the reports generated for the projects through the Arizona Environmental Online Review Tool is attached. The report contains links such as the Wildlife Compatible Fencing guidelines that should be incorporated into the Plan. In addition, when discussing future acquisition of lands and changes in land uses, a re-evaluation should be done due to the diversity of users and need for both consumptive and non-consumptive user recreation. Consideration of all of the species listed in the attachments should be considered during the planning process with refinement of those lists for further informing the specific designs within the project with pre and post surveys. In addition, even though open spaces may or may not have been identified, the wildlife connectivity and linkages areas should be incorporated.

2016 Pinal County Major Comprehensive Plan 60 Day Review
July 13, 2016

The Department appreciates the opportunity to provide comments on the proposed amendments. We look forward to future coordination as the planning and design efforts proceed. If you have any questions or information needs please contact me at 480-324-3550 or kwolff-krauter@azgfd.gov. Thank you for your time and consideration.

Sincerely,

Attachments

Cc: Laura Canaca, Project Evaluation Program Supervisor
Jay Cook, Regional Supervisor, Mesa
Ginger Ritter, Project Evaluation Program Specialist

M16-06200533

APPLICATION FOR A COMPREHENSIVE PLAN AMENDMENT IN AN UNINCORPORATED AREA OF PINAL COUNTY, ARIZONA

(all applications **must** be typed or written in ink)

1. The legal description of the property: Please see attached.

2. Parcel Number(s): Various. Please see attached. Total Acreage: Approximately 937

3. Current Land Use Designation: Very Low Density Res; Moderate Low Density Res & High Density Activity Cntr.

4. Requested Land Use Designation: Employment / Secondary Airport

5. Date of Concept Review: 5/24/16 Concept Review Number: Z-PA-022-16

6. Why is this Comprehensive Plan Amendment being requested? (You must provide a summary of the anticipated development on this page, if not provided, the application cannot be processed.):
   This Major Comprehensive Plan Amendment is requested in order to expand a 2010 approved amendment that is intended for the eventual development of the Attesa project, a major regional employment core that will focus on motor sports activities, testing and advanced technology. The Attesa project will include a regional track facility as its anchor, providing the catalyst for the eventual development of surrounding employment land uses as well as supporting commercial and residential land uses. Please see the enclosed narrative for additional details.

7. Discuss any recent changes in the area that would support your application.
   The prior 2010 amendment established an Employment designation for most of the project site; this request is intended to expand that approval to encompass the entire Attesa project area.

8. Explain why the proposed amendment is needed and necessary at this time.
   The Attesa project is ready to move forward with the required supporting land use entitlements. The Comprehensive Plan Land Use Map must be amended to support the vision of Attesa as an employment core. Please see the narrative for additional details.

RECEIPT #: 431427 AMT: $5,091 DATE: 6/1/16 CASE: PZ-PZ-003-16

Revised August 2015

IN ADDITION TO THIS APPLICATION, YOU WILL NEED TO SUBMIT:

A. One copy of a **certified** A.L.T.A. Survey, including legal descriptions of the proposed designations
B. Location map which identifies the property and its relationship to Pinal County environs.
C. Map showing the topography of the property.
D. Site map which specifically identifies the property including parcels under separate ownership.
E. Property owner(s) authorization for the Comprehensive Plan Amendment.
F. Other information as may be determined necessary by the Planning staff or other information the applicant feels is pertinent to this request.
G. Non-refundable filing fee as shown on the cover page.
H. Submit a CD which contains a copy of the application and narrative in PDF format.

THIS APPLICATION MUST BE SUBMITTED IN PERSON.

I certify the information included in this application is accurate, to the best of my knowledge. I have read the application and I have included the information, as requested. I understand if the information submitted is incomplete, this application cannot be processed.

Bingham Arizona Land, LLC/Picacho 300, LLC	N/A	N/A
Name of Landowner (Applicant)	Address	Phone Number
Signature of Landowner (Applicant)		N/A E-Mail Address

Nick Wood, Esq., Snell & Wilmer, L.L.P.	400 East Van Buren Street	602-382-6269
Name of Agent	Address	Phone Number
Signature of Agent		nwood@swlaw.com E-Mail Address

The Agent has the authority to act on behalf of the landowner. The Agent will be the contact person for Planning staff and must be present at all hearings. Please use the attached Agency Authorization form, if applicable.

Revised August 2015

IN ADDITION TO THIS APPLICATION, YOU WILL NEED TO SUBMIT:

A. One copy of a **certified** A.L.T.A. Survey, including legal descriptions of the proposed designations
B. Location map which identifies the property and its relationship to Pinal County environs.
C. Map showing the topography of the property.
D. Site map which specifically identifies the property including parcels under separate ownership.
E. Property owner(s) authorization for the Comprehensive Plan Amendment.
F. Other information as may be determined necessary by the Planning staff or other information the applicant feels is pertinent to this request.
G. Non-refundable filing fee as shown on the cover page.
H. Submit a CD which contains a copy of the application and narrative in PDF format.

THIS APPLICATION MUST BE SUBMITTED IN PERSON.

I certify the information included in this application is accurate, to the best of my knowledge. I have read the application and I have included the information, as requested. I understand if the information submitted is incomplete, this application cannot be processed.

DRE Development, LLC	N/A	N/A
Name of Landowner (Applicant)	Address	Phone Number
Signature of Landowner (Applicant)		N/A E-Mail Address

Nick Wood, Esq., Snell & Wilmer, L.L.P.	400 East Van Buren Street	602-382-6269
Name of Agent	Address	Phone Number
Signature of Agent		nwood@swlaw.com E-Mail Address

The Agent has the authority to act on behalf of the landowner. The Agent will be the contact person for Planning staff and must be present at all hearings. Please use the attached Agency Authorization form, if applicable.

Revised August 2015

TO BE COMPLETED BY ALL LANDOWNERS OF SUBJECT PROPERTY WHEN LANDOWNERS DO NOT REPRESENT THEMSELVES. ***Instructions for completing required information are in bold and brackets below lines. If applicant is a company, corporation, partnership, joint venture, trustee, etc., please use the corporate signature block and have the notary fill in the notarization section for corporations not individuals.***

AGENCY AUTHORIZATION

TO: Pinal County Planning & Development Services
P.O. Box 2973
Florence, AZ 85132

DRE Development, LLC, an Arizona Limited Liability Company
[Insert Name -- If a Corporation, Partnership or Association, Include State of Incorporation]
hereinafter referred to as "Owner," is/are the owner(s) of 427.85 acres located at N/A
[Insert Address of Property]
and further identified as assessor parcel number 5111018D; 51101017D; 51101017B 51101016B; 51101016C; 51101018B; 51101018C; and legally described as follows:
[Insert Parcel Number]

Legal Description is attached hereto as Exhibit A

Said property is hereinafter referred to as the "Property."

Owner hereby appoints
Nick Wood, Esq., Snell & Wilmer, L.L.P.
[Insert Agent's Name. If the Agent Is a Company, Insert Company Name Only]
hereinafter referred to as "Agent," to act on Owner's behalf in relation to the Property in obtaining approvals from Pinal County for any necessary amendment to Pinal County's Comprehensive Plan; zone changes; planned area development overlay districts; platting of the subject property; special use permit or industrial use permit; and to file applications and make the necessary submittals for such approvals.

Owner consents and agrees to be bound by all stipulations agreed to by this Agent in connection with any of above-referenced processes.

[Individual PROPERTY OWNER signature block and acknowledgment. DO NOT SIGN HERE IF SIGNING AS AN OFFICER OF A CORPORATION ON THE NEXT PAGE.]

[Signature]
Dated: 5/23/2016

[Signature]
Dated:

STATE OF Arizona)
) ss.
COUNTY OF Maricopa)

OFFICIAL SEAL
LISA MITCHELL
Notary Public - Arizona
MARICOPA COUNTY
My Commission Expires
SEPTEMBER 15, 2019

The foregoing instrument was acknowledged before me this 23rd day of May, 2016
By Daniel Erickson
[Insert Name of Signor(s)]

My commission expires September 15, 2019

Notary Public

Revised August 2015

TO BE COMPLETED BY ALL LANDOWNERS OF SUBJECT PROPERTY WHEN LANDOWNERS DO NOT REPRESENT THEMSELVES. ***Instructions for completing required information are in bold and brackets below lines. If applicant is a company, corporation, partnership, joint venture, trustee, etc., please use the corporate signature block and have the notary fill in the notarization section for corporations not individuals.***

AGENCY AUTHORIZATION

TO: Pinal County Planning & Development Services
P.O. Box 2973
Florence, AZ 85132

Bingham Arizona Land, LLC, an Arizona Limited Liability Company

[Insert Name -- If a Corporation, Partnership or Association, Include State of Incorporation]

hereinafter referred to as "Owner," is/are the owner(s) of 509.26 acres located at N/A,

[Insert Address of Property]

and further identified as assessor parcel number 51115003A; 51115002O; and 511010150 and legally described as follows:

[Insert Parcel Number]

Legal Description is attached hereto as Exhibit A

Said property is hereinafter referred to as the "Property."

Owner hereby appoints

Nick Wood, Esq., Snell & Wilmer, L.L. P.

[Insert Agent's Name. If the Agent is a Company, Insert Company Name Only]

hereinafter referred to as "Agent," to act on Owner's behalf in relation to the Property in obtaining approvals from Pinal County for any necessary amendment to Pinal County's Comprehensive Plan; zone changes; planned area development overlay districts; platting of the subject property; special use permit or industrial use permit; and to file applications and make the necessary submittals for such approvals.

Owner consents and agrees to be bound by all stipulations agreed to by this Agent in connection with any of above-referenced processes.

[Individual PROPERTY OWNER signature block and acknowledgment. DO NOT SIGN HERE IF SIGNING AS AN OFFICER OF A CORPORATION ON THE NEXT PAGE.]

_____ _____

[Signature] ***[Signature]***

Dated: _____ Dated: _____

STATE OF _____)
) ss.
COUNTY OF _____)

The foregoing instrument was acknowledged before me this ____ day of _____, _____

By _____.

[Insert Name of Signor(s)]

_____

My commission expires _____ Notary Public

Revised August 2015

[Corporate PROPERTY OWNER signature block and acknowledgment The appropriate Corporate officer or trustee signs this signature block NOT the block on the previous page.]

Picacho 300, LLC
[Insert Company or Trustee's Name]

By: _____
[Signature of Authorized Officer or Trustee]

Its: ~~REVOCABLE FAMILY TRUST AS MEMBER~~ JOHN W HOGLE, TRUSTEE OF THE JOHN WILSON HOGLE & RHONDA ELAINE HOGLE
[Insert Title]
OF RAVEN HOLDINGS, LLC AS SOLE MEMBER OF PICACHO 300, LLC

Dated: 5-20-16

STATE OF _____)
) ss.
COUNTY OF _____)

The foregoing instrument was acknowledged before me, this _____ day of _____, _____, by _____, _____ of
[Insert Signor's Name] *[Insert Title]*
_____, an _____
[Insert Name of Company or Trust] *[Insert State of Incorporation, if applicable]*
and who being authorized to do so, executed the foregoing instrument on behalf of said entity for the purposes stated therein.

_____
Notary Public

My commission expires: _____

ALTERNATE: Use the following acknowledgment only when a second company is signing on behalf of the owner:

STATE OF ARIZONA)
) ss.
COUNTY OF MARICOPA)

On this 20th day of May, 2016, before me, the undersigned, personally appeared
JOHN W. HOGLE Who acknowledged himself/herself to be
[Insert Signor's Name]
TRUSTEE of THE JOHN WILSON HOGLE & RHONDA E
[Title of Office Held] *[Second Company]*
As MEMBER for RAVEN HOLDINGS, LLC **, and who being
[i.e, member, manager, etc.] *[Owner's Name]*
authorized to do so, executed the foregoing instrument on behalf of said entities for the purposes stated therein.
& ELAINE HOGLE REVOCABLE FAMILY TRUST

_____
Notary Public

My commission expires: _____

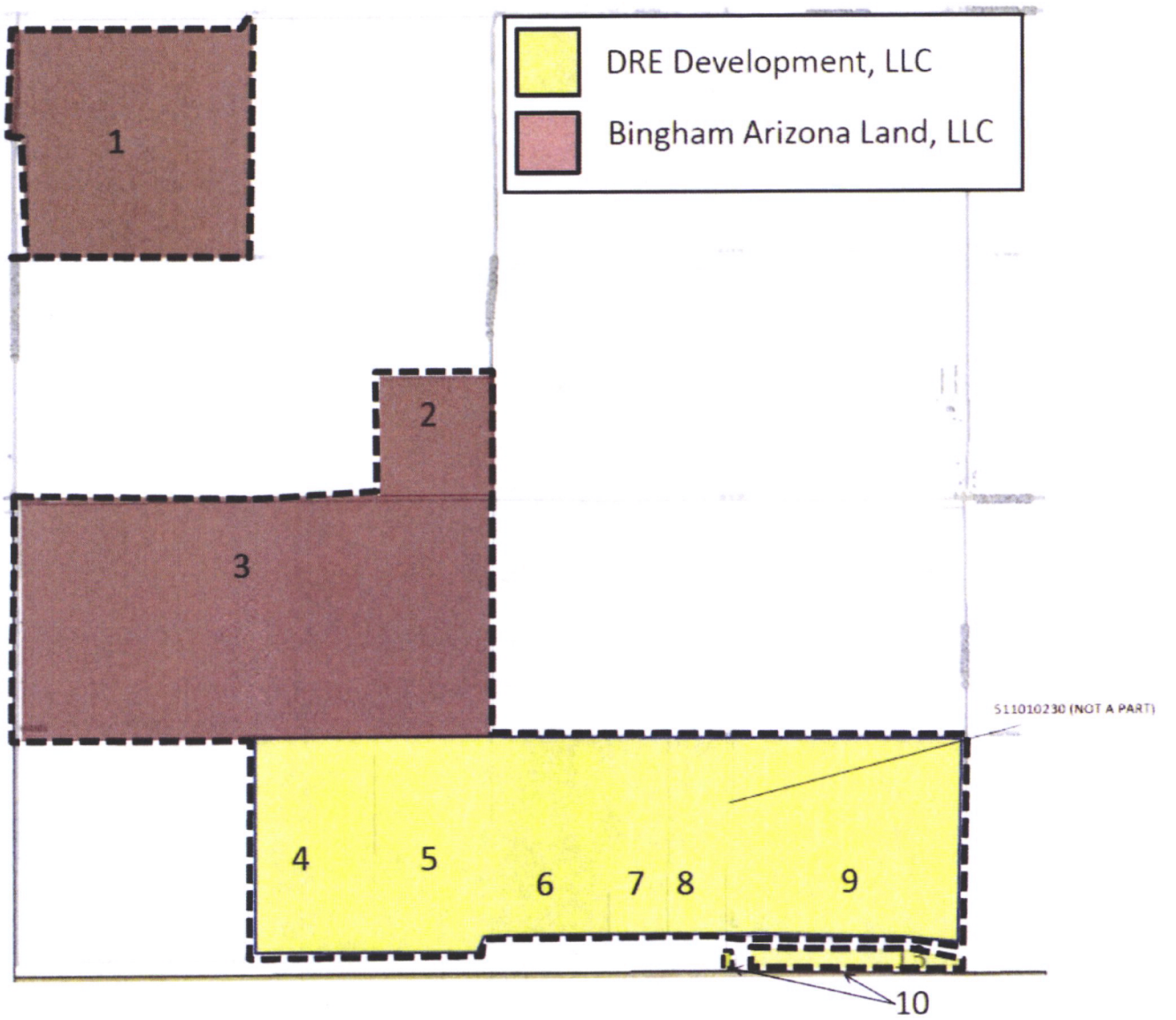
** AS SOLE MEMBER OF PICACHO 309 LLC.

Gretchen L. Bibb
Notary Public - ARIZONA
MARICOPA COUNTY
Commission No. 342319
My Commission Expires 11/4/2019

Revised August 2015

Due to the volume of paper associated with ownership documents, Ownership Deeds and certain ALTA survey pages have been purposely omitted. All documents verifying ownership are available for review in the Pinal County Community Development Office, please reference case PZ-PA-003-16, when inquiring.

EXHIBIT A – OWNERSHIP MAP
PAGE 1 OF 3



Item #	Parcel	Ownership	Acres	Legal Description
1	51115003A	Bingham Arizona Land LLC	149.26	The Northwest quarter of Section 17, Township 7 South, Range 5 East of Gila and Salt River Base and Meridian, Pinal County, Arizona; Except the North 125.00 feet and the South 1379.00 feet of the West 100 feet thereof.
2	51115002	Bingham Arizona Land LLC	40	The Southeast quarter of the Southeast quarter of Section 17, Township 7 South, Range 5 East of the Gila and Salt River Base and Meridian, Pinal County, Arizona.
3	51101015	Bingham Arizona Land LLC	320	The North half of Section 20, Township 7 South, Range 5 East of the Gila and Salt River Base and Meridian, Pinal County, Arizona. Except all coal and other minerals as reserved by the United States of America in the Patents to said land, recorded in Book 40, page 580 of Deeds and Book 41, page 9 of Deed and Also except 6% of any and all oil, gas and mineral rights as reserved in instrument recorded in Book 78, page 260 of Deeds.
4 5	51101016B 51101016C	DRE Development LLC	73.92 73.92	The Southeast quarter of Section 20, Township 7 South, Range 5 East of the Gila and Salt River Base and Meridian, Pinal County, Arizona; EXCEPT the South 200 feet thereof, as set forth in Declaration of Taking recorded in Docket 1340, page 868; EXCEPT ½ of all oil, gas and mineral rights as reserved in Docket 1427, page 931.
6 7 8	51101018B 51101018C 51101018D	DRE Development LLC	66.90 33.45 33.45	The Southwest quarter of Section 21, Township 7 South, Range 5 East of Gila and Salt River Base and Meridian, Pinal County, Arizona; EXCEPT the South 425.00 feet thereof, as set forth in Declaration of Taking recorded in Docket 1340, page 868; and EXCEPT ½ of all oil, gas and mineral rights as reserved in Docket 1427, page 931.

Item #	Parcel	Ownership	Acres	Legal Description
9 10	51101017D 51101017B	DRE Development LLC	135.81 10.4	The North half; and the Southeast quarter of Section 21, Township 7 South, Range 5 East of the Gila and Salt River Base and Meridian, Pinal County, Arizona; EXCEPT all coal, and other minerals as reserved by the United States of America, in the Patent to said land; and EXCEPTING therefrom the following described parcel: Beginning at the Northeast corner of the Northeast quarter of said Section 21; Thence along the Easterly line, South 00 degrees 22 minutes 53 seconds East, a distance of 115.00 feetl Thence leaving said Easterly line, South 89 degrees 59 minutes 13 seconds West, a distance of 260.04 feet; Thence North 31 degrees 34 minutes 06 seconds West, a distance of 43.11 feet; Thence North 04 degrees 43 minutes 20 seconds West (measured) North 04 degrees 45 minutes 32 seconds East (record), a distance of 78.53 feet to the Northerly line of the Northeast quarter of said Section 21; Thence along said Northerly line, North 89 degrees 59 minutes 13 seconds East, a distance of 288.35 feet to the POINT OF BEGINNING; and EXCEPT the following Parcels A and B as set forth in Declaration of Taking recorded in Docket 1340, page 858 ... Parcel B: The North 110 feet of the south 500 feet of the West 145 feet; and the North 2180 feet of the South 2680 feet of the West 70 feet of the East half of said Section 21 (APN: **511-01-017B**, 017C, **017D**, and 017G)
TOTAL			937	

PZ-PA-004-16

MEETING DATE: September 1, 2016

TO: PINAL COUNTY CITIZEN ADVISORY COMMITTEE

CASE NO.: **PZ-PA-004-16 (Pinal Central Power)**

CASE COORDINATOR: Dedrick Denton

Executive Summary:

This is a major amendment to the Pinal County Comprehensive Plan to re-designate 257± acres of land from Moderate Low Density Residential (0-1 du/ac) to General Public Facilities/Services in the Coolidge area.

If This Request is Approved:

If this major amendment to the Pinal County Comprehensive Plan is approved, the applicant will begin the process of re-zoning the property to Industrial with a Planned Area Development Overlay District.

Staff Recommendation/Issues for Consideration/Concern:

Staff recommends approval of the request to re-designate 257± acres to General Public Facilities/Services.

LEGAL DESCRIPTION: 257± acres situated in a portion Sections 29 and 30, T06S, R07E G&SRB&M (legal on file)

TAX PARCELS: 401-43-005, 401-44-001H, 401-44-001P, 401-44-006, & 401-44-010

LANDOWNER: Inland Farms, Inc., 2487 East Highway 287, Casa Grande, AZ 85194

LANDOWNER: Wuertz Farm Land, LLC, 2487 East Highway 287, Casa Grande, AZ 85194

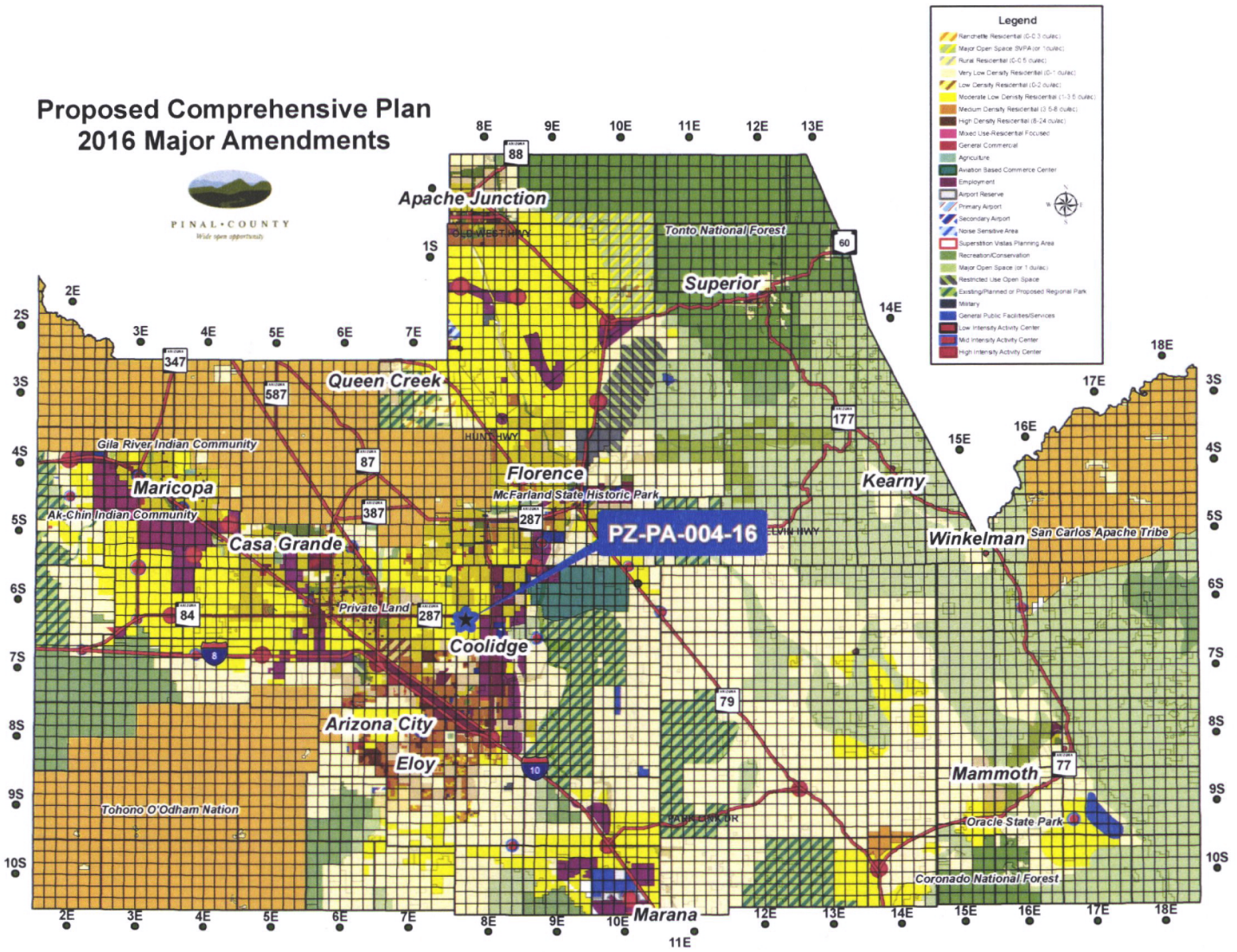
LANDOWNER: Marvin & Kathleen Wuertz Trust, 2487 East Highway 287, Casa Grande, AZ 85194

AGENT: Boulevard Associates, LLC, 700 Universe Boulevard, Juno Beach, FL 33408

REQUESTED ACTION & PURPOSE: A major amendment of the **Pinal County Comprehensive Plan** to amend the **Land Use Plan** to re-designate 257± acres of land from **Moderate Low Density Residential (0-1 du/ac)** to **General Public Facilities/Services**.

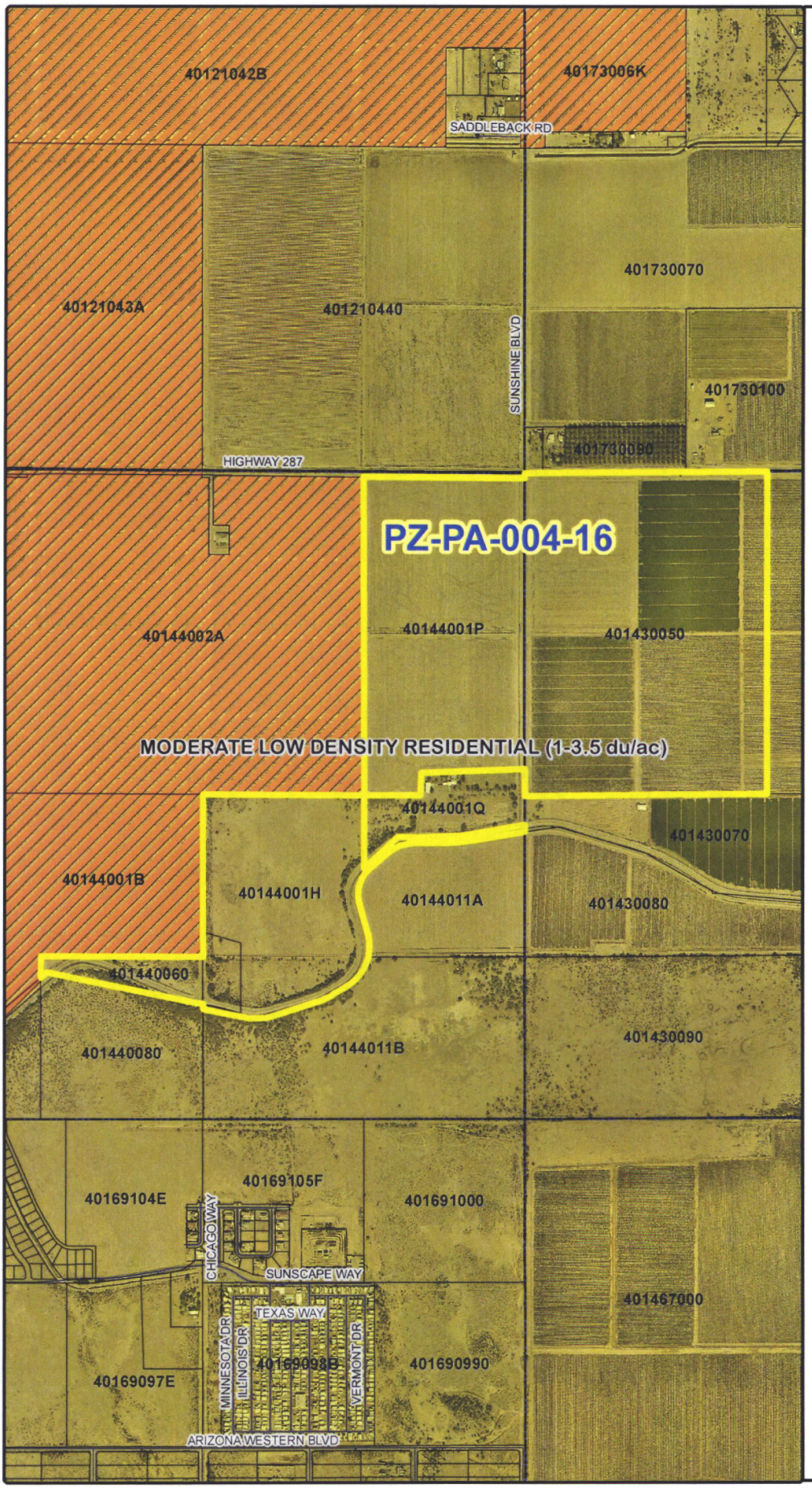
LOCATION: located adjacent to the south side of Highway 287 approximately one mile east of Eleven Mile Corner Road in the City of Coolidge area.

SIZE: 257± acres.


Proposed Comprehensive Plan
2016 Major Amendments
PINAL • COUNTY
Wide open opportunity
Legend
Ranchette Residential (0-0.3 du/ac)
Major Open Space SVPA (or 1du/ac)
Rural Residential (0-0.5 du/ac)
Very Low Density Residential (0-1 du/ac)
Low Density Residential (0-2 du/ac)
Moderate Low Density Residential (1-3.5 du/ac)
Medium Density Residential (3.5-8 du/ac)
High Density Residential (8-24 du/ac)
Mixed Use/Residential Focused
General Commercial
Agriculture
Aviation Based Commerce Center
Employment
Airport Reserve
Primary Airport
Secondary Airport
Noise Sensitive Area
Superstition Vistas Planning Area
Recreation/Conservation
Major Open Space (or 1 du/ac)
Restricted Use Open Space
Existing/Planned or Proposed Regional Park
Military
General Public Facilities/Services
Low Intensity Activity Center
Mid Intensity Activity Center
High Intensity Activity Center
PZ-PA-004-16
Apache Junction
Tonto National Forest
Superior
Queen Creek
Gila River Indian Community
Maricopa
Ak-Chin Indian Community
Casa Grande
Florence
McFarland State Historic Park
Kearny
Winkelman
San Carlos Apache Tribe
Private Land
Coolidge
Arizona City
Eloy
Tohono O'Odham Nation
Mammoth
Oracle State Park
Coronado National Forest
Marana
HUNT HWY
OLD WEST HWY
PINAL PKWY
1S
2S
3S
4S
5S
6S
7S
8S
9S
10S
2E
3E
4E
5E
6E
7E
8E
9E
10E
11E
12E
13E
14E
15E
16E
17E
18E
88
60
347
587
87
387
287
84
8
10
79
177
77

PZ-PA-004-16

NORTH



PINAL • COUNTY
Wide open opportunity

PZ-PA-004-16

FROM:

Moderate Low Density Residential (1-3.5 du/ac)

TO:

General Public Facilities/Services

N

Applicant Proposal

Existing

N

Proposed

STAFF FINDINGS:

The applicant is requesting a Major Comprehensive Plan Amendment to re-designate 257± acres of land from **Moderate Low Density Residential (0-1 du/ac)** to **General Public Facilities/Services** in the City of Coolidge area.

Public Comment: To date, no comments have been received

Public Participation: BOS work session: 8/17/16
Web posting and 60 day review: week of June 20, 2016
P&Z Work session: 8/18/16

Other Review Agency Comments:

The **State of Arizona Game and Fish Department** provided comments which are attached to the correspondence section of this report.

The **City of Apache Junction** provided comments which are attached to the correspondence section of this report.

Plan Amendment Discussion: The agent, Boulevard Associates, LLC., is requesting a Major Comprehensive Plan map amendment to amend the Land Use Plan from **Moderate Low Density Residential (0-1 du/ac)** to **General Public Facilities/Services** on 257± acres. The property is currently zoned General Rural and the current use is agriculture. The adjacent properties are zoned General Rural (GR) and are also used as agriculture. There are some scattered home sites in the area.

The applicant is proposing to construct and operate a "combined-cycle, gas-fired electrical generation facility with an output of up to approximately 600 megawatts. Additionally, a photovoltaic solar field with an expected electrical output up to approximately 50 MW may also be developed on the site with the proposed combined-cycle generation facility, or as a stand-alone project. An energy storage facility with an expected electrical output of up to 50 MW may be developed with the proposed combined-cycle generation facility or the proposed photovoltaic solar field".

The Comprehensive Plan designation of the properties adjacent to the site is Moderate Low Density Residential. Approximately a half mile east of the site adjacent to the south side of Highway 287 is designated Employment. The Employment designation would also support uses such as electrical generation facilities. Adjacent to the western border of the subject property is within the City of Coolidge. Within their city limits, which is the area south of highway 287 and east of Eleven Mile Corner Road is designated as Business & Commerce and Industrial & Manufacturing on their General Plan. If this amendment were to be approved, the General Public Facilities/Services designation would include large public and quasi-public facilities that require significant space such as power plants, landfills, solid waste transfer stations, wastewater facilities, water campuses, and concentrations of public buildings.

In the area of the proposed map amendment designation change it does include infrastructure such as 500 kV lines and the Pinal Central Substation. In the future, there are at least two additional proposed 500kV line corridors expected in this area. The line siting of these corridors are going to tie into the Pinal Central Substation. Due to proximity of the current and proposed electrical infrastructure, road infrastructure, proposed land area, and the area being sparsely

populated this proposed designation change along with the use being proposed may work well in this area.

STAFF RECOMMENDATION:

After a detailed review of the request, Pinal County Comprehensive Plan and the Pinal County Development Services Code, Staff recommends approval of this request. However, in addition to staff recommendations, should the Citizen Advisory Committee find, after the presentation of the applicant and together with the testimony and evidence presented at the public hearing, that this Major Comprehensive Plan amendment is needed and necessary at this location and time, will not negatively impact adjacent properties, will promote orderly growth and development of the County and will be compatible and consistent with the applicable goals and policies of the Pinal County Comprehensive Plan, then staff recommends that the Citizen Advisory Committee forward **PZ-PA-004-16,** to the Planning and Zoning Commission with a favorable recommendation. If the Citizen Advisory Committee cannot fond for all of the factors listed above, then staff recommends that the Citizen Advisory Committee forward this case to the Planning and Zoning Commission with a recommendation of denial.

Date Prepared: 8/22/16 – dld
Revised:

Pinal Central Power

Application for a Major Comprehensive Plan Amendment to Allow a Power Generation Facility

PZ-PA-004-16

Prepared for

Pinal County

Submitted by

Boulevard Associates, LLC

Prepared by

EPG, LLC.

June 2016

APPLICATION FOR A COMPREHENSIVE PLAN AMENDMENT IN AN UNINCORPORATED AREA OF PINAL COUNTY, ARIZONA

(all applications **must** be typed or written in ink)

1. The legal description of the property: Refer to ALTA Survey, attached to accompanying narrative report as Appendix A.

2. Parcel Number(s): 401430050,40144001H,40144001P, 401440060,401440100 Total Acreage: 257.12

3. Current Land Use Designation: Moderate Low Density Residential

4. Requested Land Use Designation: General Public Facilities/Services

5. Date of Concept Review: May 10, 2016 Concept Review Number: PZ-PA-002-16

6. Why is this Comprehensive Plan Amendment being requested? (You must provide a summary of the anticipated development on this page, if not provided, the application cannot be processed.): Refer to attachment.

7. Discuss any recent changes in the area that would support your application. Refer to attachment.

8. Explain why the proposed amendment is needed and necessary at this time. Refer to attachment.

RECEIPT #: AMT: DATE: CASE:

Revised August 2015

6. ***Why is this Comprehensive Plan Amendment being requested? (You must provide a summary of the anticipated development on this page, if not provided, the application cannot be processed.):***

Boulevard Associates, LLC is requesting this amendment in order to construct and operate a power generating facility on the subject parcels. The proposed Project is expected to include a combined-cycle, gas-fired electrical generation facility with an output of up to approximately 600 megawatts (MW). Additionally, a photovoltaic solar field with an expected electrical output up to approximately 50 MW may also be developed on the site with the proposed combined-cycle generation facility, or as a stand-alone project. An energy storage facility with an expected electrical output of up to 50 MW may also be developed with the proposed combined-cycle generation facility or the proposed photovoltaic solar field. The Project will also require generation intertie (gen-tie) transmission lines and additional project infrastructure.

7. ***Discuss any recent changes in the area that would support your application***

Immediately west of the Project site is the newly-constructed (2013) Pinal Central 500kV electrical substation, owned and operated by Salt River Project (SRP). Western Area Power Administration (WAPA) owns and operates the ED2 115kV electrical substation, which is located immediately west of the Pinal Central Substation. The SRP Pinal Central to Browning 500kV transmission line and the Tucson Electric Power Pinal Central to Tortolita 500kV transmission line were constructed in 2014 and 2015, respectively. Both of these high-voltage transmission lines connect into the Pinal Central Substation from the east, and pass near and through portions of the Project parcels.

SRP's Palo Verde to Pinal Central 500kV transmission line, which connects into the Pinal Central Substation from the west, was constructed in 2010. WAPA's two parallel ED2 to Coolidge 115kV transmission lines and two parallel ED2 to Saguaro 115kV line are located within 0.5 miles to the west of the Project parcels. In addition, in early 2016, the ACC approved a Certificate of Environmental Compatibility for the proposed SunZia Southwest Transmission Project, which would include two parallel 500kV transmission lines located along the southern boundary of the Project parcels, connecting from the east into the Pinal Central Substation.

The land use designation changes proposed under the requested Comprehensive Plan amendment are consistent with the existing and planned industrial/utility land uses on and adjacent to the Project parcels.

8. ***Explain why the proposed amendment is needed and necessary at this time.***

Boulevard Associates has identified the Project site as an optimal location for an electrical generation facility based on the existence of compatible adjacent and nearby land uses; and the proximity to existing electrical infrastructure, major transportation corridors (highway and rail), utility corridors (electric and natural gas), and electrical load centers. The amendment is needed in order to facilitate development of the proposed electrical generation facility, in turn allowing the contribution of clean, safe, affordable, and efficient energy to the regional transmission grid. Demand for this type of electrical generation facility at this location, interconnecting to the Pinal Central Substation, will occur as early as the year 2020, and 3 to 4 years are likely required for planning, design, and construction of the facility.

Pinal Central Power

Application Narrative for a Major Comprehensive Plan Amendment to Allow a Power Generation Facility

PZ-PA-002-16

Prepared for

Pinal County

Submitted by

Boulevard Associates, LLC

Prepared by

EPG, LLC.

June 2016

TABLE OF CONTENTS

1.0 Executive Summary 1
1.1 Proposed Land Use 1
1.2 Location & Accessibility 2
1.3 Site Suitability 2
1.4 Public Services/Utilities 2

2.0 Project Narrative 4
2.1 Introduction 4
2.2 Physical Setting, Existing Uses, and Relationship to Surrounding Land Uses 9

3.0 Comprehensive Plan Amendment Criteria 10
3.1 Consistency with Pinal County's Vision Components 10
Sense of Community 10
Mobility and Connectivity 11
Economic Sustainability 11
Open Spaces and Places 12
Environmental Stewardship 12
Happy, Healthy Residents 12
3.2 Consistency with the Plan's Key Concepts Illustrated on Land Use, Economic, and Circulation Graphics 13
Consistency with the Land Use Designation shown on the graphics 13
Consistency with the Mixed Use Activity Center Concept 13
Consistency with the Planning Guidelines described in the Land Use element 13
Quality Employment Opportunities County-Wide 14
Viable Agriculture, Equestrian and Rural Lifestyle 14
System of Connected Trails and Preservation of Open Space 14
Natural Resource Conservation 15
Water Resources, Public Facilities/Services, and Infrastructure Support 17

4.0 References 19

Appendix A: ALTA Survey A-1

LIST OF FIGURES

Figure 1. Project Parcels and Site 6
Figure 2 Existing Land Use 7
Figure 3 Planned Land Use 8

1.0 EXECUTIVE SUMMARY

Boulevard Associates, LLC (Boulevard Associates) is requesting an amendment to the 2009 Pinal County Comprehensive Plan (Comprehensive Plan) in order to construct and operate a power generating facility on five parcels comprising the proposed Pinal Central Power Project site (Project). Table 1 below lists the Project parcels, including Assessor's Parcel Numbers (APN), individual and total parcel acreage, and Public Land Survey System (PLSS) locations.

Table 1. Proposed Comprehensive Plan Amendment Parcels

APN	Acreage	PLSS Location
401-43-0050	120.0	Section 29, Township 6S, Range 8E
401-44-001H	48.01	Section 30, Township 6S, Range 8E
401-44-001P	76.11	Section 30, Township 6S, Range 8E
401-44-0060	8.0	Section 30, Township 6S, Range 8E
401-44-0100	5.0	Section 30, Township 6S, Range 8E
	Total Acreage: 257.12	

The proposed Project is expected to include a combined-cycle, gas-fired electrical generation facility with an output of up to approximately 600 megawatts (MW). Additionally, a photovoltaic solar field with an expected electrical output up to approximately 50 MW may also be developed on the site with the proposed combined-cycle generation facility, or as a stand-alone project. An energy storage facility with an expected electrical output of up to 50 MW may also be developed with the proposed combined-cycle generation facility or the proposed photovoltaic solar field. The Project will also require generation intertie (gen-tie) transmission lines and additional project infrastructure.

Paved and unpaved rural roads provide access to the site and adjacent properties. South Sunshine Boulevard runs north to south through the northern portion of the site, and East Laughlin Road is located in the central portion of the site. State Highway (SR) 287 bounds the site on the north.

The amendment is needed in order to facilitate development of the proposed electrical generation facility, in turn allowing the contribution of clean, safe, affordable, and efficient energy to the regional transmission grid. Demand for this type of electrical generation facility at this location, interconnecting to the Pinal Central Substation, will occur as early as the year 2020, and 3 to 4 years are likely required for planning, design, and construction of the facility.

1.1 PROPOSED LAND USE

The Comprehensive Plan land use designation proposed for the site is General Public Facilities/Services, with the specific proposed land use consisting of power generation.

The Project parcels are currently designated as a Moderate Low Density Residential land use.

1.2 LOCATION & ACCESSIBILITY

The Project site is located within unincorporated Pinal County, approximately 0.75 miles east-southeast of the intersection of 11-Mile Corner Road and SR287. The site is accessible via S. Sunshine Boulevard and E. Laughlin Road, both of which bisect portions of the site. The northernmost portion of the Project site fronts, and is also accessible via, SR287.

Interstate 10 (I-10), Interstate 8 (I-8), and the Union Pacific Railroad, all major transportation and freight corridors, are located less than 8 miles west of the Project site.

1.3 SITE SUITABILITY

The Project site is well suited for the proposed changes to the Comprehensive Plan. Boulevard Associates has identified the Project site as an optimal location for an electrical generation facility based on the existence of compatible adjacent and nearby land uses; and the proximity to existing electrical infrastructure, major transportation corridors (highway and rail), utility corridors (electric and natural gas), and electrical load centers.

The Project site is generally level, is in proximity to existing transmission lines and substations for potential interconnection, and does not contain any recreation areas or residences. The Project site is designated as Moderate Low Density Residential by the Comprehensive Plan. There are no perennial surface waters or wetlands on or near the property; however, a canal owned and operated by the San Carlos Irrigation and Drainage District (SCIDD) runs east/west directly adjacent to a portion of the southern boundary of the project site with canal laterals running north/south through and adjacent to the Project site. No Special Flood Hazard Areas (100-year floodplains) have been identified by the Federal Emergency Management Agency (FEMA) or the Flood Control District of Pinal County on the Project site.

1.4 PUBLIC SERVICES/UTILITIES

Existing utilities within the vicinity of the Project site include the Pinal Central Substation, a 115-kilovolt (kV) substation, three 500kV transmission lines, and four 115kV transmission lines. Two additional, parallel 500kV transmission lines are proposed to be constructed near the site and were recently permitted by the Arizona Corporation Commission (ACC) (Case No. 171, SunZia Southwest Transmission Project). There are also numerous electrical distribution lines, communications cables, and irrigation canals, laterals, and ditches within and in the vicinity of the site.

Immediately west of the Project site is the newly-constructed (2013) Pinal Central 500kV electrical substation, owned and operated by Salt River Project (SRP). Western Area Power Administration (WAPA) owns and operates the ED2 115kV electrical substation, which is located immediately west of the Pinal Central Substation. The SRP Pinal Central to Browning 500kV transmission line and the Tucson Electric Power Pinal Central to Tortolita 500kV transmission line were constructed in 2014 and 2015, respectively. Both of these high-voltage transmission lines connect into the Pinal Central Substation from the east, and pass near and through portions of the Project parcels.

SRP's Palo Verde to Pinal Central 500kV transmission line, which connects into the Pinal Central Substation from the west, was constructed in 2010. WAPA's two parallel ED2 to Coolidge 115kV transmission lines and two parallel ED2 to Saguaro 115kV line are located within 0.5 miles to the west of the Project parcels. In addition, in early 2016, the ACC approved a Certificate of Environmental Compatibility (CEC) for the proposed SunZia Southwest Transmission Project, which would include two parallel 500kV transmission lines located along the southern boundary of the Project parcels, connecting from the east into the Pinal Central Substation.

The land use designation changes proposed under the requested Comprehensive Plan amendment are consistent with the existing and planned industrial/utility land uses on and adjacent to the Project parcels.

Planned utilities and services on the site include water, electric, and natural gas.

The Pinal County Sheriff's Office provides law enforcement services to the Project vicinity. The Regional Fire and Rescue Department provides subscription-based fire and emergency medical services to the area. New or additional public services anticipated as a result of the proposed amendment are not anticipated.

2.0 PROJECT NARRATIVE

2.1 INTRODUCTION

This narrative report addresses the required information to support the request for a Major Comprehensive Plan Amendment (MCPA) for the Pinal Central Power Project (Project) on land in central Pinal County.

Boulevard Associates is requesting this amendment in order to construct and operate a power generating facility on the Project site. The proposed Project is expected to include a combined-cycle, gas-fired electrical generation facility with an output of up to approximately 600 megawatts (MW). Additionally, a photovoltaic solar field with an expected electrical output up to approximately 50 MW may also be developed on the site with the proposed combined-cycle generation facility, or as a stand-alone project. An energy storage facility with an expected electrical output of up to 50 MW may also be developed with the proposed combined-cycle generation facility or the proposed photovoltaic solar field. The Project will also require gen-tie transmission lines and additional project infrastructure.

Should the MCPA receive approval from Pinal County, Boulevard Associates intends to subsequently pursue and apply to Pinal County for a zoning change from General Rural (GR) to Industrial Zoning District (I-3) in order to allow for the development and operation of gas-fueled and solar power generation facility activities.

Boulevard Associates also intends to submit a Temporary Use Permit (TUP) application to Pinal County to allow for the installation and operation of a Meteorological Tower on one of the five Project parcels. The intent of the Meteorological Tower is to aid in understanding the climatological, weather, and air quality makeup in the region, and the data gathered through the use of the Meteorological Tower will help to inform and determine the specific technologies and arrangements Boulevard Associates would use in the proposed combined-cycle and solar generation facilities. Pre-construction and post-construction air monitoring is required under Pinal County Air Quality Control District Rule 3-3-260 in order to apply for and maintain an air permit for the proposed combined-cycle generation facility. Boulevard Associates expects to submit the TUP application to Pinal County in late second quarter, or early third quarter 2016.

A CEC will be required from the ACC to allow construction of the Project because the proposed combined-cycle generation facility is planned for an output capacity greater than 100MW, and because the gen-tie transmission lines connecting the generation facility to the existing power grid will likely be greater than 115kV. All requisite environmental studies and public participation activity results for the proposed Project will be compiled, formatted, and incorporated into a CEC application pursuant to the requirements of ARS 40-360 et seq. and ACC Rules of Practice and Procedure R14-3-219. The land use plan is one of the factors considered by the ACC in their review of a CEC application; consistency with Pinal County's Comprehensive Plan would be necessary in order to grant a CEC. Completing Pinal County's Comprehensive Plan Amendment process ensures the County's authority and opportunity for review prior to the State siting process (CEC). The public information process to be conducted

for the Pinal County zone change application process will supplement the Arizona CEC public involvement requirements.

Changing the Comprehensive Plan land use designation from Moderate Low Density Residential to General Public Facilities/Services for the Project site and subsequently granting a zoning change from GR to I-3 would allow development of this facility in a prime power generation area, which could increase the production of energy for delivery to the Phoenix metropolitan area and central Arizona where there is an increasing electrical demand. Additionally, a positive economic effect is expected to result from the proposed energy facility development by providing short and long-term job opportunities in the area, tax benefits to Pinal County, and local economic activity from Project workers' transactions with local businesses. Boulevard Associates will use local labor and local contractors/materials as much as possible for the Project.

Both the Project site and the region are well suited for the proposed changes to the Comprehensive Plan. The primary criteria for determining the location of power generation facilities include the existence of compatible adjacent and nearby land uses; minimal topographic variability; and the proximity to existing electrical infrastructure, major transportation corridors (highway and rail), utility corridors (electric and natural gas), and electrical load centers.

The Project site is displayed in Figure 1, Figure 2, and Figure 3, below. The site is generally level and in proximity to existing transmission lines, substations, highway and rail facilities, and large electrical load centers.

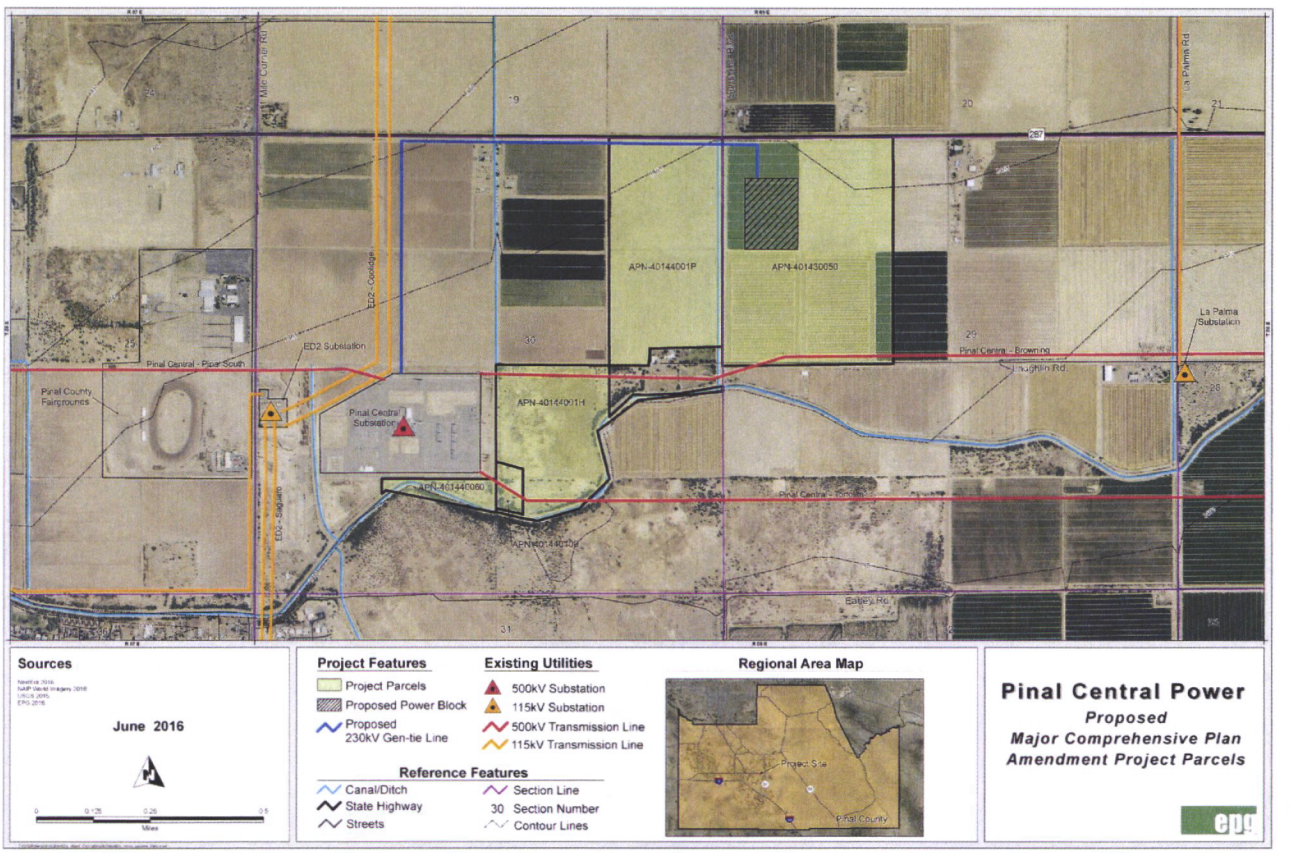


Figure 1. Project Parcels

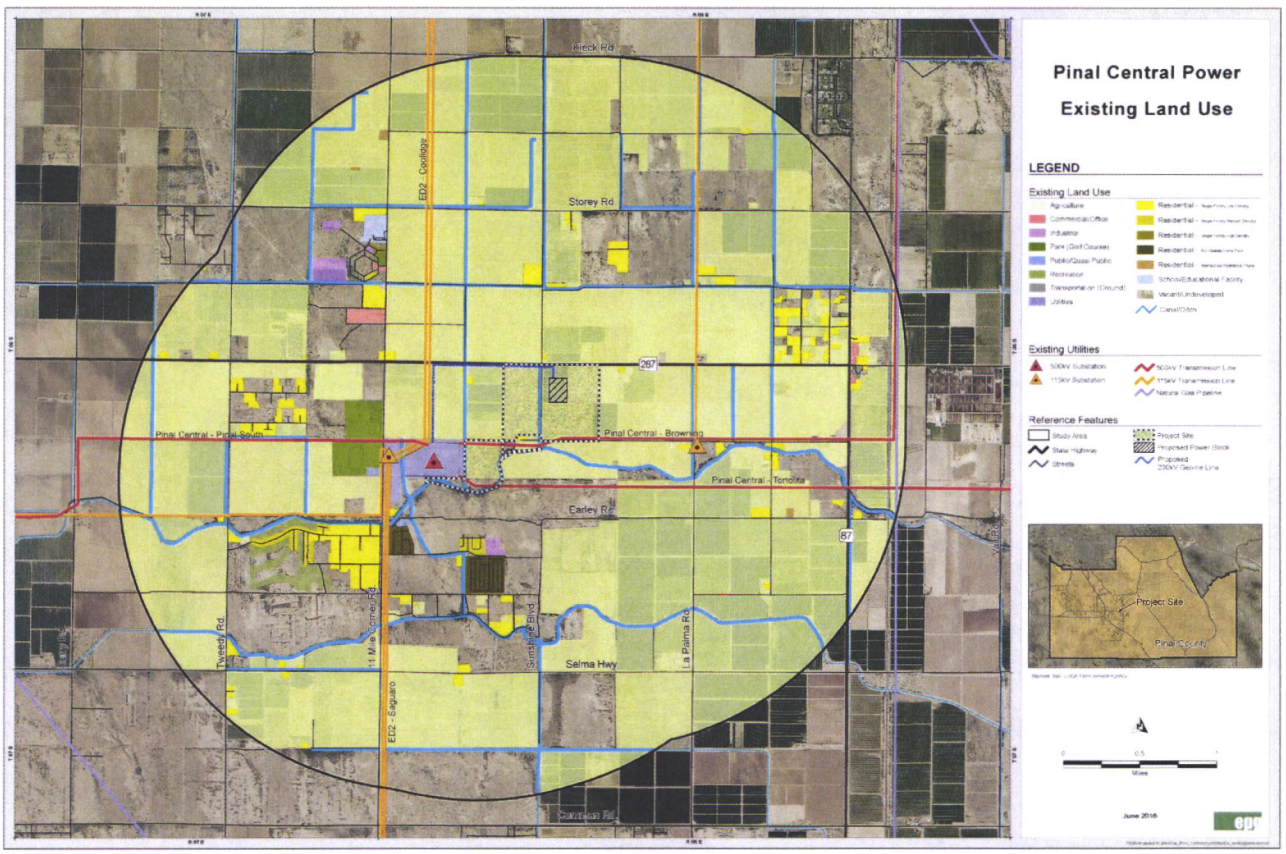


Figure 2 Existing Land Use

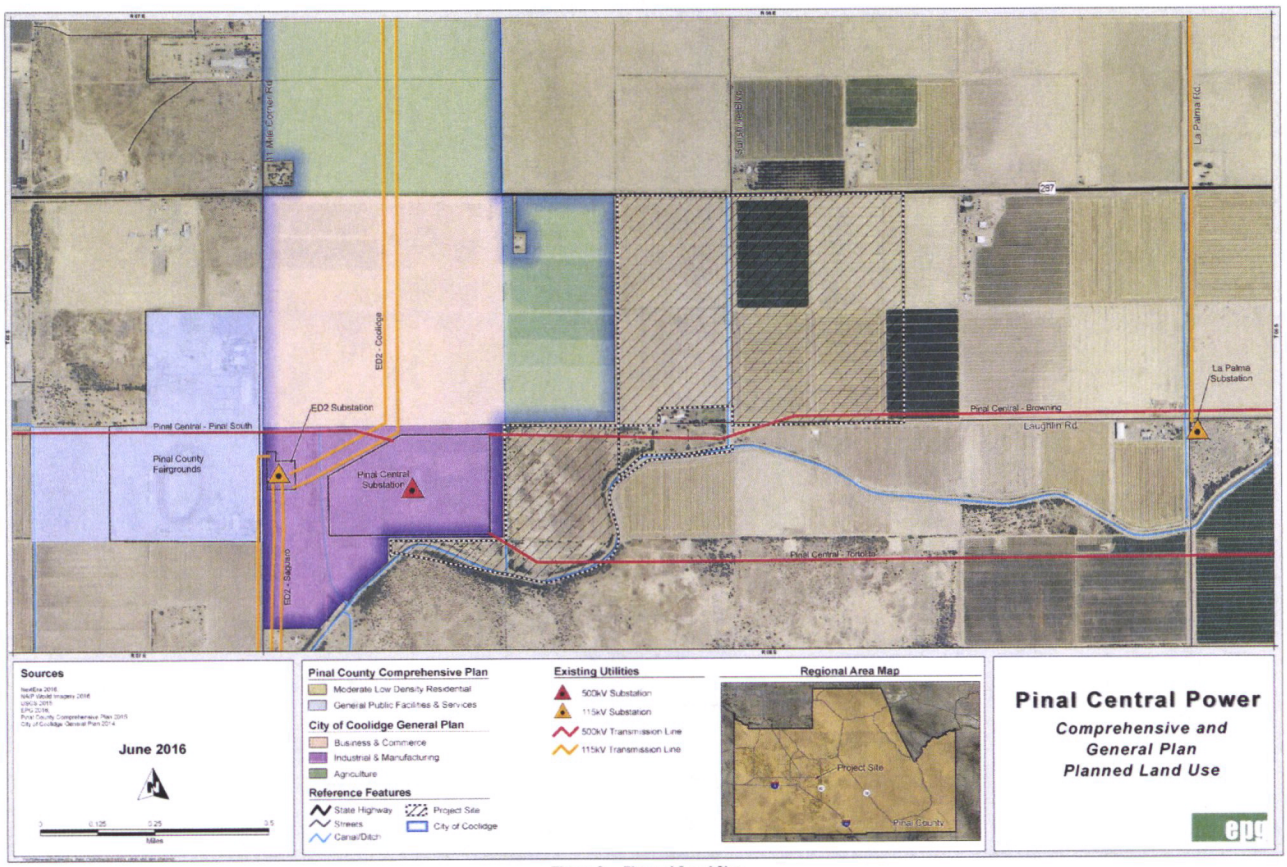


Figure 3 Planned Land Use

2.2 PHYSICAL SETTING, EXISTING USES, AND RELATIONSHIP TO SURROUNDING LAND USES

Existing land uses within approximately two miles of the Project site (study area) are described below, and displayed in Figure 2, above. As shown previously in Figure 3, a newly annexed portion of the City of Coolidge is located immediately west of and adjacent to the Project site (Pinal Central Substation). The boundary of the City of Eloy is located approximately 1.8 miles west of the Project site. Existing land uses within the study area include transportation, agriculture, utilities, residential, recreation, commercial, public services, education, and vacant land. The closest residence is located immediately south of the Project parcels, while another is located north of the Project parcels, separated by SR287. Scattered single-family residences are located throughout the Project study area, and a mobile home park is located approximately 0.4 miles south of the subject property. There are no areas designated as Open Space within the Project site.

The Project site is located adjacent (east) to the Pinal Central Substation with two (Pinal Central – Tortolita, and Pinal Central – Browning) 500kV transmission lines crossing the property from east to west.

Transportation and travel routes in the Project vicinity include SR287, which travels east to west, north of and adjacent to the Project site, Eleven Mile Corner Road, which travels north to south, approximately one mile west of the Project site, and several unpaved roads surrounding the site.

Land adjacent to the Project site is privately owned and largely used for agricultural production. There are no areas designated as Open Space within the proposed Project site. The proposed Project would not impact known planned recreational uses.

The area in which the proposed Project would be located is addressed in the Comprehensive Plan. The plan designates the proposed site and adjacent land as Moderate Low Density Residential. This designation intends to "provide for a larger lot development pattern with options for [a] suburban residential pattern. Suitability is determined by location, access, existing land use patterns and natural and man-made constraints" (Pinal County 2009). Areas designated as Moderate Low Density Residential are intended suburban residential areas with an expected 1 to 3.5 dwelling units per acre (du/ac).

The Project site is zoned as GR and the land uses entail a combination of active farmland, fallow farmland, and vacant lands. The property is privately owned, and contains no residences or buildings.

3.0 COMPREHENSIVE PLAN AMENDMENT CRITERIA

The overall intent of the Comprehensive Plan is to act as a tool that will serve to "steer the County on a positive course of action to manage growth, preserve the quality of life, and promote sustainability. It is a long-term vision that promotes effective economic vitality while ensuring environmental stewardship. The Plan articulates the vision and outlines the strategic direction to position Pinal as a vibrant, healthy, and economically sustainable region within the state of Arizona." (Pinal County 2009).

The proposed amendment is consistent with the vision components of the Comprehensive Plan, as discussed in the next section of this application. These include: Sense of Community; Mobility and Connectivity; Economic Sustainability; Open Spaces and Places; Environmental Stewardship; Healthy, Happy Residents; and Quality Educational Opportunities.

To ensure conformity with the Comprehensive Plan, all development proposals must meet the criteria outlined in the Plan's compliance checklist. The following sections are written in response to the criteria listed in the Comprehensive Plan compliance checklist, focused on two major components:

- Consistency with Pinal County's Vision Components, and
- Consistency with the Plan's Key Concepts illustrated on Land Use, Economic, and Circulation graphics.

3.1 CONSISTENCY WITH PINAL COUNTY'S VISION COMPONENTS

The proposed land use associated with this amendment would be consistent with the goals, objectives, and policies of the current Comprehensive Plan

The chapters of the Comprehensive Plan include: Sense of Community; Mobility and Connectivity; Economic Sustainability; Open Spaces and Places; Environmental Stewardship; Healthy, Happy Residents; and Quality Educational Opportunities vision components and are discussed below with specific responses to the applicable questions included in the Comprehensive Plan compliance checklist.

Sense of Community

Is the proposal consistent with the Sense of Community vision component?

The proposed amendment is consistent with the Sense of Community vision component. Sense of Community is largely achieved by paying close attention to residential and commercial land uses in the area. Densities of development either encourage or discourage a sense of community based on the land uses described the Comprehensive Plan. According to the Land Use Plan described in *Chapter 3*, the Project site is located within the Moderate Low Density Residential land use. This designation allows medium and high density residential, commercial, and employment (office and light industrial) land uses. Adjacent parcels to the Project site are

generally vacant land under this designation, but also include existing and planned utility uses. The proposed amendment would be consistent with the Sense of Community vision as described in the Comprehensive Plan by consolidating energy facilities in an area that contains similar and compatible land uses, as well as vacant land.

Mobility and Connectivity

Is the proposal consistent with Mobility and Connectivity vision component?

The proposed amendment is consistent with the Mobility and Connectivity vision component. *Chapter 4: Mobility and Connectivity* of the Comprehensive Plan explains Pinal County's vision to strive to serve persons with multimodal transportation options in transportation corridors at appropriate locations. Under the goals, objectives and policies in this chapter, *Policy 4.1.1.4* states that the County will evaluate the transportation impacts of all proposed Comprehensive Plan amendments and rezonings on Pinal County's regional transportation system. Power generation facilities on the Project site would have minimal impact on planned land uses from traffic and the goals that address this vision.

There would be a temporary increase in traffic volume during the construction period for the delivery of equipment and supplies and due to commuting workers. Existing roads and railroads are sufficient to accommodate the anticipated construction traffic. During the operational phase, traffic on area roads is not expected to increase due to the small operation and maintenance crew that would travel to and from the Project site.

Economic Sustainability

Is the proposal consistent with the Economic Sustainability vision component?

The proposed amendment is consistent with the Economic Sustainability vision component. Balancing residential growth with job creation is the central theme of the Economic Development element. The Economic Development element concentrates on the County's ability to provide quality employment opportunities for its residents by setting specific goals, objectives and policies. Two main goals that address this vision are to:

1. Encourage a full range of quality jobs for residents of Pinal County and increase the jobs per capita ratio.

2. Encourage sustainable development consistent with Pinal County's environmental preservation philosophy.

The proposed amendment would further promote economic diversity and employment opportunities in the area by providing direct and indirect employment during the construction and operational life of the proposed facility. Additionally, power generated by the proposed facility could potentially support residential growth and job creation by providing clean, safe, affordable, and efficient electricity to local communities and the region. The proposed

amendment would be compatible with the vision outlined in *Chapter 5: Economic Stability* as described in the Comprehensive Plan.

Open Spaces and Places

Is the proposal consistent with the Open Spaces and Places vision component?

The proposed amendment is consistent with the Open Spaces and Places vision component. According to the Comprehensive Plan, siting of specific proposed open space and trails is based on the "suitability of activities, surrounding land uses, ecological factors, topography, viewsheds, and cultural resources" (Pinal County 2009).

There are no existing dedicated open space areas or trails within the Project study area. However, the Comprehensive Plan and the final Open Space and Trails Master Plan for Pinal County identify a proposed designated trail corridor that would run parallel to SR287 on the north side, and north of the Project site. The proposed amendment is not expected to conflict with this proposed trail, and would not be in conflict with the planned land use.

Environmental Stewardship

Is the proposal consistent with the Environmental Stewardship vision component?

The proposed amendment is consistent with the Environmental Stewardship vision component. Throughout initial Project planning, Boulevard Associates has considered potential environmental impacts in their Project plans, and is committed to minimizing impacts to the human, natural, and cultural environment resulting from the proposed development. The Project will comply with any and all applicable state and federal laws, regulations, and guidelines, as required.

Current Project design includes the use of dry-cooled combined-cycle gas-fired generators, which minimize water use. Solar generation conserves natural resources, and battery energy storage facilitates the integration of renewable resources into the power grid. Minimization of water use and the use of renewable energy sources are both stated elements of the Environmental Stewardship vision of the Comprehensive Plan.

Happy, Healthy Residents

Is the proposal consistent with the Happy, Healthy Residents vision component?

The proposed amendment is consistent with the Happy, Healthy Residents vision component. Factors that contribute to Happy, Healthy Residents include well designed neighborhoods, the cost of housing, and public services, and the availability of healthy foods. *Chapter 8: Happy, Healthy Residents* of the Comprehensive Plan states the following goals for example:

Goal 8.1: Pinal County has a mix of housing types and is well positioned to respond to emerging housing industry trends and markets

Goal 8.2: Maximize residential development opportunities where existing infrastructure and services are provided or planned.

Goal 8.3: Promote a philosophy that new growth pays for its share of financial impacts in an equitable manner.

Goal 8.4: Maintain long-term financial sustainability for Pinal County.

Goal 8.5: Pinal County and its residents have access to healthy foods.

The proposed amendment would be consistent with this vision and would contribute toward maintaining long-term financial stability (Goal 8.4) by generating revenues and contributing to the tax base for Pinal County, and by allowing the contribution of clean, safe, affordable, and efficient energy to the regional transmission grid.

3.2 CONSISTENCY WITH THE PLAN'S KEY CONCEPTS ILLUSTRATED ON LAND USE, ECONOMIC, AND CIRCULATION GRAPHICS

Consistency with the Land Use Designation shown on the graphics

Land uses in the area surrounding the subject site are designated Rural Residential, Low Density Residential, and Moderate Low Density Residential as indicated on the Land Use and Economic Development graphic. This application for a proposed Major Comprehensive Plan Amendment is requested to change the land use designation from Moderate Low Density Residential to General Public Facilities/Services. The land use change would be consistent with supporting public utility infrastructure and energy facility uses including the Pinal Central Substation, west of the subject site, and the major high-voltage transmission lines that surround and pass through portions of the subject site.

Consistency with the Mixed Use Activity Center Concept

The Project site is not located within a Mixed Use Activity Center. Three of the High Intensity Activity Centers are located in Coolidge, Eloy, and Casa Grande and a planned Mid-Intensity Activity Center is located approximately 6 miles east of the Project site.

Consistency with the Planning Guidelines described in the Land Use element

The project land uses are consistent with the applicable Planning Guidelines described in the Land Use element.

Medium and high density residential, commercial, and employment (office and light industrial) land uses are allowed in the Moderate Low Density Residential designation. Parcels adjacent to

the Project site under this designation are generally vacant. Also in close proximity to the proposed site are transmission lines and structures that cross the site and terminate at the nearby Pinal Central Substation. Two additional, parallel 500kV transmission lines are proposed to be constructed near the Project parcels and were recently permitted by the Arizona Corporation Commission. There are also numerous electrical distribution lines, communications cables, and irrigation canals, laterals, and ditches within and in the vicinity of the Project parcels.

The Project site is located within the West Pinal Growth Area, which is described in the Pinal County Comprehensive Plan as the "heart of the Sun Corridor Megapolitan Area", planned for urbanization bordering Native American communities with expansion of new housing and commercial development. The site is also located within the City of Coolidge Planning Area containing about 12,000 acres surrounding the city to the east and south, designated Growth Area 2, which is projected to support a population of up to 148,000 (City of Coolidge 2014).

The proposed amendment would be a step toward allowing additional power generation and battery energy storage facilities and infrastructure within this Growth Area, which would contribute toward meeting regional electrical needs.

Quality Employment Opportunities County-Wide

The proposal is consistent with the Economic Development element.

The proposed amendment would further promote economic diversity and employment opportunities in the area by providing quality jobs during the construction and operational life of the facility. The proposed amendment will be compatible with the vision outlined in *Chapter 5: Economic Stability* of the Comprehensive Plan.

Viable Agriculture, Equestrian and Rural Lifestyle

The proposed amendment would cluster industrial (utility) development into an area that now supports many existing and planned utility uses, thus limiting dispersed impacts to open space and agriculture, or sprawl. A large portion of the Project site contains vacant or abandoned agricultural land.

System of Connected Trails and Preservation of Open Space

The proposed amendment is consistent with the Trails and Open Space Master Plan and Comprehensive Plan Open Space and Places Chapter.

The Open Spaces and Places chapter of the Comprehensive Plan's vision is to site specific proposed open space and trails based on the "suitability of activities, surrounding land uses, ecological factors, topography, viewsheds, and cultural resources" (Pinal County 2009).

Pinal County's Open Space and Trails Master Plan promotes the quality of life of the region by providing areas of passive and active recreational opportunities, while conserving existing

resources, such as natural scenic beauty, view corridors, wildlife habitat, agricultural resources designated at risk, and cultural heritage for the benefit of present and future generations.

There are no existing dedicated open space areas, designated scenic resources, or designated view corridors within the study area. However, the Comprehensive Plan and the final Open Space and Trails Master Plan for Pinal County identify a proposed multi-use trail corridor that would run north of and parallel to SR287, which is north of the Project site. The proposed amendment would not interfere with the proposed trail corridor, or other designated open spaces, nor is it expected to impact any designated scenic resources. As part of the Project design, Boulevard Associates would include visual screening features to minimize visual impacts to residents and other viewers in the Project vicinity. The proposed amendment would be compatible with Pinal County's vision concerning open space and trails.

Natural Resource Conservation

The proposal addresses environmentally sensitive areas it may impact, as described below.

Boulevard Associates has considered potential environmental impacts of the proposed Project, and will mitigate impacts to the natural and cultural environment by minimizing ground disturbance where possible. Development of the Project will comply with any and all applicable state and federal environmental laws, regulations, and guidelines, as required.

Based on preliminary review, the Project site is located in an area with minimal sensitive environmental resources present. Detailed environmental studies, including pedestrian biological and cultural/archaeological surveys will be completed for the site, and documented as part of the Arizona CEC application process. Results of a preliminary environmental review of the Project site are described below.

Biological Resources

Sensitive species lists from the Arizona Game and Fish Department (AGFD) and Arizona Department of Agriculture (ADA) were reviewed with regard to species with the potential to occur in Pinal County. Current habitat characteristics on the Project site do not appear to provide significant suitable habitat for the presence of the majority of the identified federal and state sensitive species, as the site is composed principally of cultivated cropland, and the majority of the identified species with potential to occur are associated with significant riparian habitats, aquatic habitats, rocky slopes, or other habitat types not present on the site. Because nearly all of the Project site has been subject to ground disturbance in the past, no sensitive plants are likely to be present.

Sensitive species reported on these lists that may be present in the vicinity of the site include the Great Egret, Western Yellow Bat, Lesser Long-nosed Bat, California Leaf-nosed Bat, Greater Western Bonneted Bat, and Tucson Shovel-nosed Snake. The Yuma Clapper Rail, Southwestern Willow Flycatcher, and Western Yellow-billed Cuckoo have been recorded at the nearby Picacho Reservoir but no suitable habitat is present on the Project site.

The Great Egret is a wading bird associated with aquatic habitats such as lakes, streams, marshes, and ponds. This species has been documented from the general vicinity of the site, and is often observed foraging in human-modified landscapes, including irrigation canals and flooded fields. However, project development is unlikely to result in significant impacts to this species, as it is unlikely to nest on the site, and similar foraging habitats are common in the vicinity of the site.

Lesser Long-nosed Bats and California Leaf-nosed Bats roost in mines, caves, or similar crevices, and are unlikely to roost on the site due to a lack of suitable habitats. The Western Yellow Bat roosts primarily in deciduous trees and fan palms, and the site generally lacks suitable roosting habitat for this species. The Greater Western Bonneted Bat roosts in cliffs and crevices, and no suitable roost habitat for this species is present. However, all of these bat species have the potential to forage on the site or traverse the site during foraging activities. As these species are unlikely to roost on the site, and habitats composing the site are common to the area, project development is unlikely to result in significant impacts to these bat species.

The Tucson Shovel-nosed Snake is generally associated with creosote and mesquite floodplains on valley floors, and typically inhabits soft, sandy loams. Although the majority of the site is unlikely to provide suitable habitat as a result of its utilization for agricultural crop production, limited areas may provide suitable habitat. The undeveloped desert areas dominated by mesquite and wolfberry along the adjacent canal have the potential to provide suitable habitat for this species. Nevertheless, the site does not appear likely to provide significant suitable habitat for this species, and the patches of potential habitat are surrounded by farmland and isolated from remaining habitat in the region. Project development is unlikely to result in significant impacts to this species.

The site provides suitable habitat for the Burrowing Owl, which is present throughout the region. This species occurs in a variety of habitats and can often be found in agricultural landscapes, where soft soils along field margins and canal banks are suitable for burrowing rodents. Although the Burrowing Owl is not designated as a sensitive species, it is a species of general conservation concern, which is closely monitored in Arizona and is protected under the Migratory Bird Treaty Act (MBTA). Boulevard Associates will follow the current AGFD survey protocol for this species in order to minimize potential impacts, and to comply with MBTA regulations.

Cultural Resources

The official database of cultural resources records (AZSITE) administered by the Arizona State Museum was reviewed to determine if cultural resources were located within the proposed site. Review of AZSITE indicated the presence of three historic period sites within or adjacent to the proposed site. These sites include the historic roadway alignments of SR287 and Sunshine Road, and the historic Casa Grande Canal.

The historic roadway alignment of SR287 is located adjacent to the northern boundary of the Project site. The original roadway of the segment adjacent to the site appears to have been obliterated by modern construction. Therefore, the historical integrity of this segment of roadway

has been compromised and would not be likely to contribute to the National Register of Historic Places (NRHP) eligibility of the overall historic roadway alignment.

Sunshine Road (or Sunshine Boulevard) traverses the center of the site in a north to south orientation. The portion of the roadway located within the Project site is a dirt road that is currently in use and shows signs of regular maintenance. Therefore, the historic integrity of the segment of roadway traversing the Project site has been compromised by modern use and maintenance and would not be likely to contribute to the NRHP eligibility of the overall historic roadway alignment.

The Casa Grande Canal traverses the site from roughly east to west. The portion of the canal that is located adjacent to the Project site is in use and show signs of regular maintenance. Due to the modern use and maintenance of the canal, the historic integrity of this segment of the canal has been affected.

Following the completion and documentation of Class III cultural surveys of the Project site, consultation with the State Historic Preservation Office, irrigation district, and relevant federal agencies will occur as part of the CEC process. Consultation with these agencies will be completed in order to determine the NRHP eligibility of the previously known and newly discovered sensitive cultural resources, and to determine if there would be impacts to these historic resources from project development.

Water Resources, Public Facilities/Services, and Infrastructure Support

The proposal has accounted for adequate services being in place or planned for within a reasonable time of the start of the new development.

The Pinal County Sheriff's Office provides law enforcement services to the Project vicinity. The Regional Fire and Rescue Department provides subscription-based fire and emergency medical services to the area. New or additional public services resulting from the proposed amendment are not anticipated.

Planned utilities and services on the site include water, electric, and natural gas. The Project is anticipated to use substantially less water than typical farmlands within the region. Boulevard Associates intends to obtain water primarily from private water providers in the Project vicinity, and has initiated preliminary discussions to that end.

Development of the Project would not impact existing water quality. The site would be designed to pass offsite stormwater through or around the site and release it in a manner similar to the existing condition. Based on a final hydrologic analysis of the site, onsite drainage will be routed as necessary to retention basins as per Pinal County Public Works regulations. This drainage design concept would allow the site to be developed, while not increasing stormwater runoff or creating an adverse impact on adjacent properties. Site design that is sensitive to existing topography and drainage patterns would also function to protect water quality.

In areas where there is any potential for contamination, all stormwater would be retained onsite to comply with Arizona Department of Environmental Quality requirements. The Project would

comply with the Arizona Pollutant Discharge Elimination System Construction General Permit. In addition, the proposed Project will adhere to the Arizona Department of Environmental Quality Aquifer Protection Program and bi-annual Water Quality Assessment Report, as required by the Clean Water Act.

4.0 REFERENCES

City of Coolidge 2014. City of Coolidge 2025 General Plan. Adopted June 23, 2014

Pinal County 2009. Pinal County Comprehensive Plan. Adopted November 18, 2009, updated January 20, 2014.

Dedrick Denton

From: Larry Kirch <lkirch@AJCity.Net>
Sent: Monday, June 20, 2016 11:36 AM
To: Dedrick Denton
Subject: RE: Pinal County 2016 Major Comprehensive Plan Amendments

Dedrick

Thank you for sending the Genera Plan Major Amendments for our review/information. We have looked at these and they are pretty far afield from the City of Apache Junction so we don't have any comments.

Thank you,

Larry Kirch
Director of Development Services

From: Dedrick Denton [mailto:Dedrick.Denton@pinalcountyaz.gov]
Sent: Friday, June 17, 2016 4:26 PM
To: Dedrick Denton <Dedrick.Denton@pinalcountyaz.gov>
Cc: Steve Abraham <Steve.Abraham@pinalcountyaz.gov>; Himanshu Patel <Himanshu.Patel@pinalcountyaz.gov>
Subject: Pinal County 2016 Major Comprehensive Plan Amendments

PUBLIC NOTICE:
Re: 60 Day Review Period for 2016 Pinal County Major Comprehensive Plan Amendments

The link below are the proposed 2016 Major Amendments to the Pinal County Comprehensive Plan. State Law prescribes a 60 day review period for all Major Amendments to the County's Comprehensive Plan. This year, the 60 day period will run between June 17, 2016 and August 16, 2016. Information regarding this year cases can also be found at http://pinalcountyaz.gov/CommunityDevelopment/Planning/Pages/CompPlan.aspx. To participate in the process, please have your comments to us by 4:30 pm, August 16, 2016. Thank you in advance for your attention, and we hope to hear from you with any questions or comments you may have.

2016 Major Comprehensive Plan Cases:

- PZ-PA-003-16 (Attesa)
- PZ-PA-004-16 (Pinal Central Power)

Comments may be submitted to:

Dedrick Denton
Pinal County Community Development Department
31 North Pinal Street, Building F
Florence, AZ 85132

E-Mail Address: dedrick.denton@pinalcountyaz.gov

Dedrick Denton | Planner II

1

THE STATE OF ARIZONA
GAME AND FISH DEPARTMENT
5000 W. CAREFREE HIGHWAY
PHOENIX, AZ 85086-5000
(602) 942-3000 • WWW.AZGFD.GOV
REGION VI, 7200 E. UNIVERSITY DRIVE, MESA, AZ 85207

GOVERNOR
DOUGLAS A. DUCEY
COMMISSIONERS
CHAIRMAN, EDWARD "PAT" MADDEN, FLAGSTAFF
JAMES R. AMMONS, YUMA
JAMES S. ZIELER, ST. JOHNS
ERIC S. SPARKS, TUCSON
KURT R. DAVIS, PHOENIX
DIRECTOR
LARRY D. VOYLES
DEPUTY DIRECTOR
TY E. GRAY

July 13, 2016

Mr. Dedrick Denton
Pinal County Community Development Department
31 North Pinal Street, Building F
Florence, Arizona 85132

RE: 2016 Pinal County Major Comprehensive Plan 60 Day Review

Dear Mr. Denton,

The Arizona Game and Fish Department (Department) has reviewed the proposed 2016 Major Amendments to the Pinal County Comprehensive Plan (Plan). The Department understands there are two major amendments proposed: Attesa Development and Pinal Central Power Generation Facility. The Department provides the following comments.

The Department maintains the public trust responsibility and jurisdictional authority under Arizona Revised Statute, Title 17 (§17-102 codifies state ownership of wildlife) to manage and regulates take of fish and wildlife within the state of Arizona irrespective of landownership, excepting those wildlife existing on tribal trust-status lands. This includes law enforcement authority. We continue to express interests in all land planning initiatives that may affect management of the State's fish and wildlife resources and/or wildlife related recreation. The mission of the Department is to conserve Arizona's diverse wildlife resources and manage for safe, compatible outdoor recreation opportunities for current and future generations.

Attesa

While the Department understands the need for residential and commercial expansion within Pinal County to accommodate and/or meet the demands of the growing population, we recommend ensuring compatibility of recreational uses, open spaces, wildlife corridors and other ecological services providing quality of life are adequately considered and built into these planning efforts.

Specifically, the Attesa proposal is for a range of very low to moderate residential development to a high density activity center (motorsports facility). This proposed amendment originally was adopted into the Plan in 2010 and the request is currently for additional lands that encompass the area.

The Department would like to extend its acknowledgement and appreciation of the proposal to identify the important drainage areas within the project that provide for open space and wildlife connectivity. The Department recommends consideration in the drainage designs to continue to allow for this movement into the future and would like to work with the project planning and design team to ensure the future permeability and sustainability of this movement along with additional wildlife components within the master plan for this project. Incorporation of components should include: use of buffers along the primary drainage areas, wildlife friendly fencing, promotion of base flows, maintaining of native species and riparian vegetation, retain natural drainage pattern from the agricultural fields adjacent, prevent excess runoff, escape and crossing structures, funnel fencing, reduction of human activity in the immediate vicinity, etc.

The immediate vicinity contains a major drainage considered high value of wildlife habitat, along with the southwestern portion of the project area containing high to medium value of wildlife habitat. Therefore, the Department has identified the need for mitigation due to the loss of existing habitat value and highly encourages measures that reduce and or eliminate the losses over time. In addition, compensation through replacement of habitat values in-kind, so that no net loss occurs need considered.

Pinal Central Power Generation Facility

The Department understands the need for additional energy generation and storage with the growing population. The proposed project would include significant infrastructure: generation facility, photovoltaic solar field, energy storage facility, transmission lines and additional infrastructure as needed and not identified in detail. The project will include 5 parcels of land currently used for residential and agricultural uses. Attached are the Department Guidelines for Solar Development for review and incorporation into the planning and informing the design of the project.

General

The Department recommends consideration for species of concern; such as those listed as threatened, endangered or candidate species for listing under the Endangered Species Act (ESA) and other sensitive species lists. A copy of the reports generated for the projects through the Arizona Environmental Online Review Tool is attached. The report contains links such as the Wildlife Compatible Fencing guidelines that should be incorporated into the Plan. In addition, when discussing future acquisition of lands and changes in land uses, a re-evaluation should be done due to the diversity of users and need for both consumptive and non-consumptive user recreation. Consideration of all of the species listed in the attachments should be considered during the planning process with refinement of those lists for further informing the specific designs within the project with pre and post surveys. In addition, even though open spaces may or may not have been identified, the wildlife connectivity and linkages areas should be incorporated.

2016 Pinal County Major Comprehensive Plan 60 Day Review
July 13, 2016

The Department appreciates the opportunity to provide comments on the proposed amendments. We look forward to future coordination as the planning and design efforts proceed. If you have any questions or information needs please contact me at 480-324-3550 or kwolff-krauter@azgfd.gov. Thank you for your time and consideration.

Sincerely,

Attachments

Cc: Laura Canaca, Project Evaluation Program Supervisor
Jay Cook, Regional Supervisor, Mesa
Ginger Ritter, Project Evaluation Program Specialist

M16-06200533

Arizona Environmental Online Review Tool Report

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

Project Name:
Pinal Central Power

Project Description:
New development of a solar and storage energy generation facility in Pinal County

Project Type:
Energy Storage/Production/Transfer, Energy Production (generation), photovoltaic solar facility (new)

Contact Person:
kelly wolff-krauter

Organization:
AZGFD

On Behalf Of:
AZGFD

Project ID:
HGIS-03877

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

Disclaimer:

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

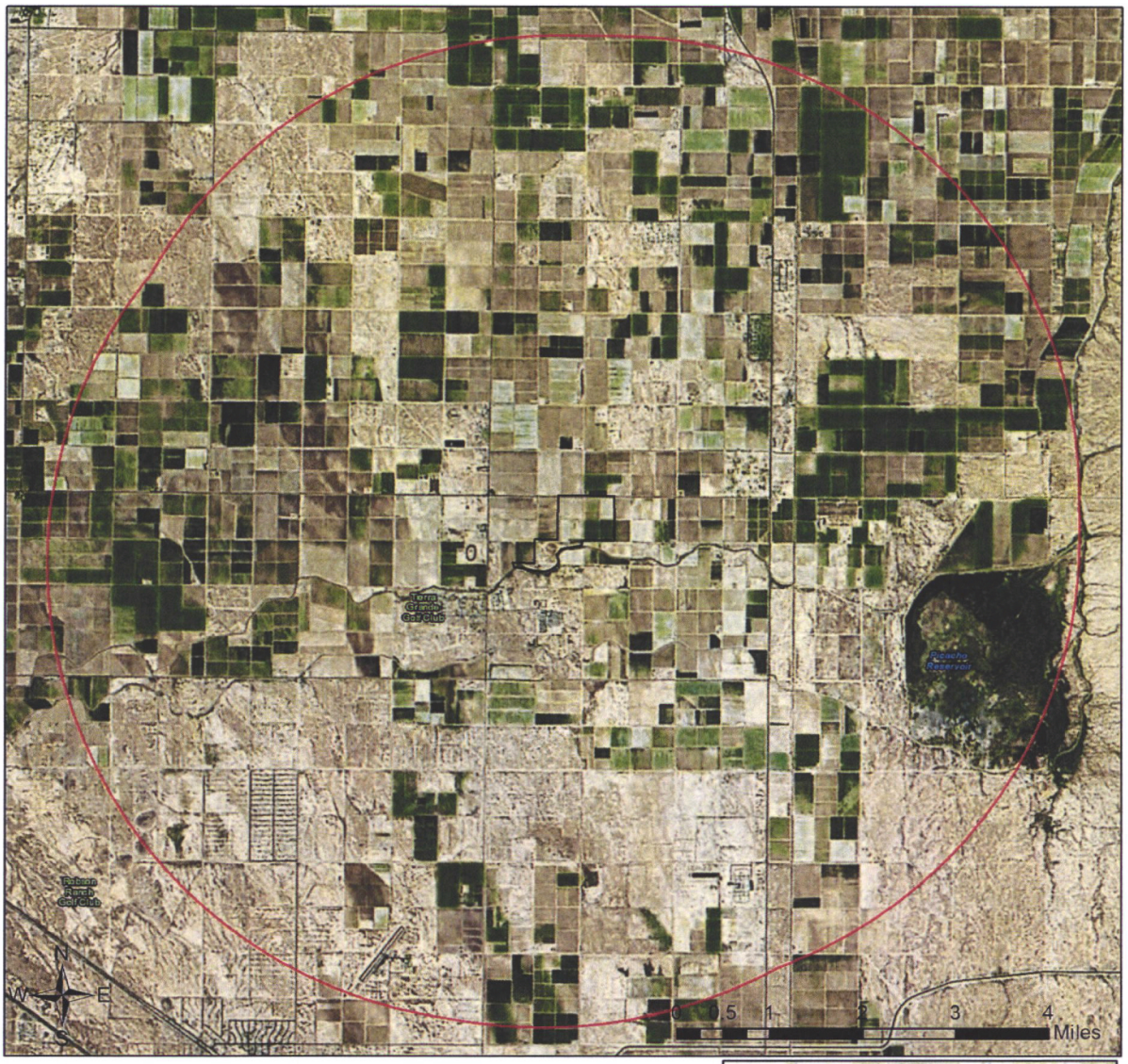
Locations Accuracy Disclaimer:
Project locations are assumed to be both precise and accurate for the purposes of environmental review. The creator/owner of the Project Review Report is solely responsible for the project location and thus the correctness of the Project Review Report content.

Recommendations Disclaimer:

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

Pinal Central Power

Aerial Image Basemap With Locator Map



Project Boundary

Buffered Project Boundary

Project Size (acres): 267.30

Lat/Long (DD): 32.8741 / -111.5508

County(s): Pinal

AGFD Region(s): Mesa

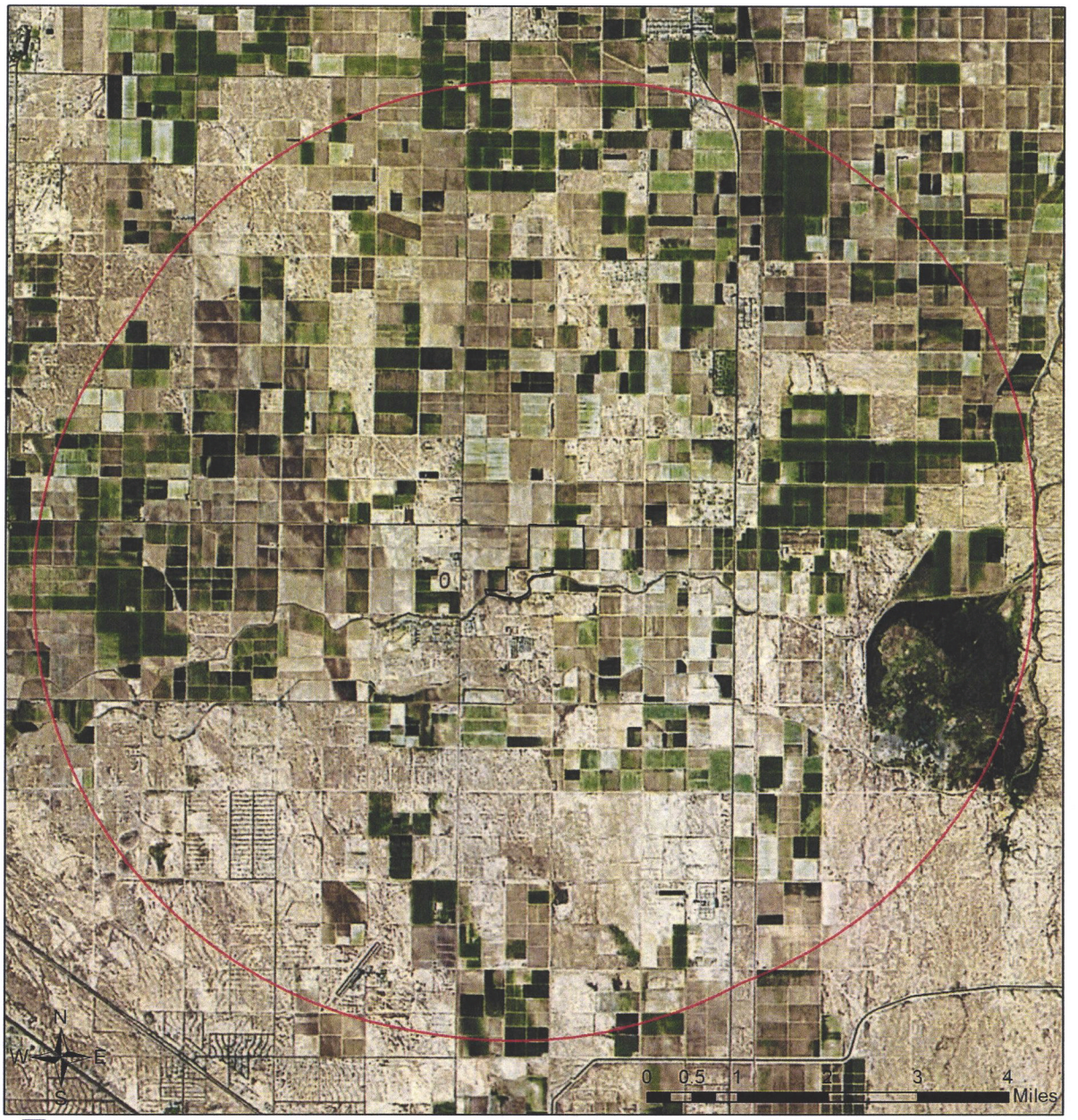
Township/Range(s): T6S, R8E

USGS Quad(s): COOLIDGE; ELOY NORTH

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

Pinal Central Power

Web Map As Submitted By User



Project Boundary

Buffered Project Boundary

Project Size (acres): 267.30

Lat/Long (DD): 32.8741 / -111.5508

County(s): Pinal

AGFD Region(s): Mesa

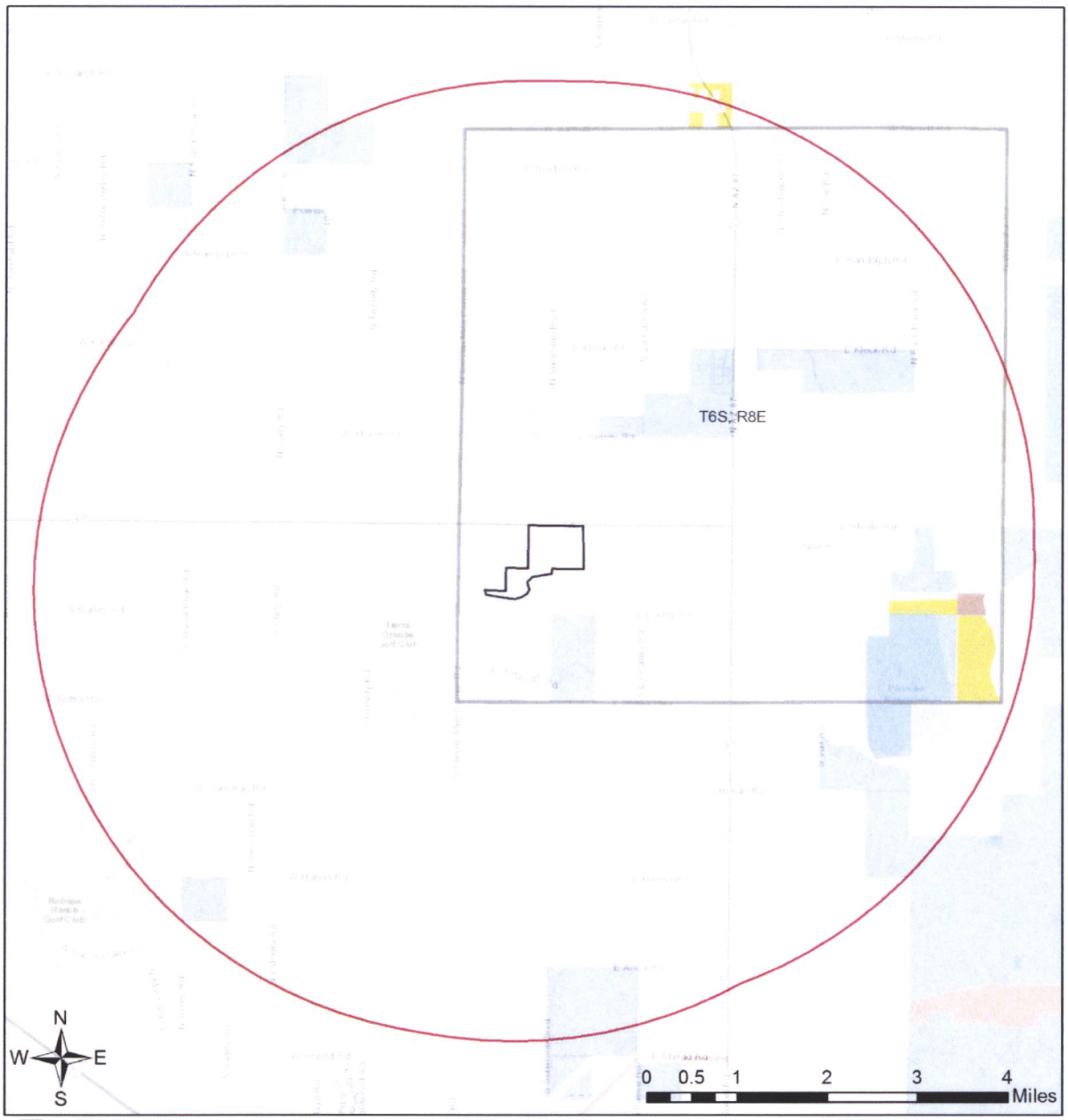
Township/Range(s): T6S, R8E

USGS Quad(s): COOLIDGE; ELOY NORTH

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Pinal Central Power

Topo Basemap With Township/Ranges and Land Ownership



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

Project Size (acres): 267.30
Lat/Long (DD): 32.8741 / -111.5508
County(s): Pinal
AGFD Region(s): Mesa
Township/Range(s): T6S, R8E
USGS Quad(s): COOLIDGE; ELOY NORTH

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

Special Status Species and Special Areas Documented within 5 Miles of Project Vicinity

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Athene cunicularia hypugaea	Western Burrowing Owl	SC	S	S		1B
Canis lupus baileyi	10J area Zone 2 for Mexican gray wolf	LE,XN				
Coccyzus americanus	Yellow-billed Cuckoo (Western DPS)	LT	S			1A
PCH for Coccyzus americanus	Yellow-billed Cuckoo Proposed Critical Habitat					
Rallus obsoletus yumanensis	Yuma Ridgeway's Rail	LE				1A

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

.

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

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Aix sponsa	Wood Duck					1B
Ammospermophilus harrisii	Harris' Antelope Squirrel					1B
Anaxyrus retiformis	Sonoran Green Toad			S		1B
Anthus spragueii	Sprague's Pipit	C*				1A
Aquila chrysaetos	Golden Eagle	BGA		S		1B
Athene cunicularia hypugaea	Western Burrowing Owl	SC	S	S		1B
Botaurus lentiginosus	American Bittern					1B
Buteo regalis	Ferruginous Hawk	SC		S		1B
Catostomus insignis	Sonora Sucker	SC	S	S		1B
Chilomeniscus stramineus	Variable Sandsnake					1B
Chionactis occipitalis klauberi	Tucson Shovel-nosed Snake	SC				1A
Coccyzus americanus	Yellow-billed Cuckoo (Western DPS)	LT	S			1A
Colaptes chrysoides	Gilded Flicker			S		1B
Coluber bilineatus	Sonoran Whipsnake					1B
Corynorhinus townsendii pallescens	Pale Townsend's Big-eared Bat	SC	S	S		1B
Crotalus tigris	Tiger Rattlesnake					1B
Euderma maculatum	Spotted Bat	SC	S	S		1B
Eumops perotis californicus	Greater Western Bonneted Bat	SC		S		1B
Gopherus morafkai	Sonoran Desert Tortoise	C*	S			1A
Haliaeetus leucocephalus	Bald Eagle	SC, BGA	S	S		1A
Heloderma suspectum	Gila Monster					1A
Incilius alvarius	Sonoran Desert Toad					1B
Kinosternon sonoriense sonoriense	Desert Mud Turtle			S		1B
Lasiurus blossevillii	Western Red Bat		S			1B
Lasiurus xanthinus	Western Yellow Bat		S			1B
Leopardus pardalis	Ocelot	LE				1A

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

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Leptonycteris curasoae yerbabuenae	Lesser Long-nosed Bat	LE				1A
Lepus alleni	Antelope Jackrabbit					1B
Melanerpes uropygialis	Gila Woodpecker					1B
Melospiza lincolnii	Lincoln's Sparrow					1B
Melozone aberti	Abert's Towhee		S			1B
Micruroides euryxanthus	Sonoran Coralsnake					1B
Myotis occultus	Arizona Myotis	SC		S		1B
Myotis velifer	Cave Myotis	SC		S		1B
Myotis yumanensis	Yuma Myotis	SC				1B
Nyctinomops femorosaccus	Pocketed Free-tailed Bat					1B
Panthera onca	Jaguar	LE				1A
Passerculus sandwichensis	Savannah Sparrow					1B
Perognathus amplus	Arizona Pocket Mouse					1B
Perognathus longimembris	Little Pocket Mouse					1B
Phrynosoma goodei	Goode's Horned Lizard					1B
Phrynosoma solare	Regal Horned Lizard					1B
Phyllorhynchus browni	Saddled Leaf-nosed Snake					1B
Progne subis hesperia	Desert Purple Martin			S		1B
Rallus longirostris yumanensis	Yuma Clapper Rail	LE				1A
Setophaga petechia	Yellow Warbler					1B
Tadarida brasiliensis	Brazilian Free-tailed Bat					1B
Toxostoma lecontei	Le Conte's Thrasher					1B
Troglodytes pacificus	Pacific Wren					1B
Vireo bellii arizonae	Arizona Bell's Vireo					1B
Vulpes macrotis	Kit Fox					1B

Species of Economic and Recreation Importance Predicted within Project Vicinity

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

Project Type: Energy Storage/Production/Transfer, Energy Production (generation), photovoltaic solar facility (new)

Project Type Recommendations:

During the planning stages of your project, please consider the local or regional needs of wildlife in regards to movement, connectivity, and access to habitat needs. Loss of this permeability prevents wildlife from accessing resources, finding mates, reduces gene flow, prevents wildlife from re-colonizing areas where local extirpations may have occurred, and ultimately prevents wildlife from contributing to ecosystem functions, such as pollination, seed dispersal, control of prey numbers, and resistance to invasive species. In many cases, streams and washes provide natural movement corridors for wildlife and should be maintained in their natural state. Uplands also support a large diversity of species, and should be contained within important wildlife movement corridors. In addition, maintaining biodiversity and ecosystem functions can be facilitated through improving designs of structures, fences, roadways, and culverts to promote passage for a variety of wildlife. Guidelines for many of these can be found at: https://www.azgfd.com/wildlife/planning/wildlifeguidelines/.

Consider impacts of outdoor lighting on wildlife and develop measures or alternatives that can be taken to increase human safety while minimizing potential impacts to wildlife. Conduct wildlife surveys to determine species within project area, and evaluate proposed activities based on species biology and natural history to determine if artificial lighting may disrupt behavior patterns or habitat use. Use only the minimum amount of light needed for safety. Narrow spectrum bulbs should be used as often as possible to lower the range of species affected by lighting. All lighting should be shielded, cantered, or cut to ensure that light reaches only areas needing illumination.

Minimize potential introduction or spread of exotic invasive species. Invasive species can be plants, animals (exotic snails), and other organisms (e.g., microbes), which may cause alteration to ecological functions or compete with or prey upon native species and can cause social impacts (e.g., livestock forage reduction, increase wildfire risk). The terms noxious weed or invasive plants are often used interchangeably. Precautions should be taken to wash all equipment utilized in the project activities before leaving the site. Arizona has noxious weed regulations (Arizona Revised Statutes, Rules R3-4-244 and R3-4-245). See Arizona Department of Agriculture website for restricted plants, https://agriculture.az.gov/. Additionally, the U.S. Department of Agriculture has information regarding pest and invasive plant control methods including: pesticide, herbicide, biological control agents, and mechanical control, http://www.usda.gov/wps/portal/usdahome. The Department regulates the importation, purchasing, and transportation of wildlife and fish (Restricted Live Wildlife), please refer to the hunting regulations for further information https://www.azgfd.com/hunting/regulations.

Minimization and mitigation of impacts to wildlife and fish species due to changes in water quality, quantity, chemistry, temperature, and alteration to flow regimes (timing, magnitude, duration, and frequency of floods) should be evaluated. Minimize impacts to springs, in-stream flow, and consider irrigation improvements to decrease water use. If dredging is a project component, consider timing of the project in order to minimize impacts to spawning fish and other aquatic species (include spawning seasons), and to reduce spread of exotic invasive species. We recommend early direct coordination with Project Evaluation Program for projects that could impact water resources, wetlands, streams, springs, and/or riparian habitats.

The Department recommends that wildlife surveys are conducted to determine if noise-sensitive species occur within the project area. Avoidance or minimization measures could include conducting project activities outside of breeding seasons.

For any powerlines built, proper design and construction of the transmission line is necessary to prevent or minimize risk of electrocution of raptors, owls, vultures, and golden or bald eagles, which are protected under state and federal laws. Limit project activities during the breeding season for birds, generally May through late August, depending on species in the local area (raptors breed in early February through May). Conduct avian surveys to determine bird species that may be utilizing the area and develop a plan to avoid disturbance during the nesting season. For underground powerlines, trenches should be covered or back-filled as soon as possible. Incorporate escape ramps in ditches or fencing along the perimeter to deter small mammals and herptefauna (snakes, lizards, tortoise) from entering ditches. In addition, indirect affects to wildlife due to construction (timing of activity, clearing of rights-of-way, associated bridges and culverts, affects to wetlands, fences) should also be considered and mitigated.

Based on the project type entered, coordination with State Historic Preservation Office may be required (http://azstateparks.com/SHPO/index.html).

Based on the project type entered, coordination with U.S. Fish and Wildlife Service (Migratory Bird Treaty Act) may be required (http://www.fws.gov/southwest/es/arizona/).

Vegetation restoration projects (including treatments of invasive or exotic species) should have a completed site-evaluation plan (identifying environmental conditions necessary to re-establish native vegetation), a revegetation plan (species, density, method of establishment), a short and long-term monitoring plan, including adaptive management guidelines to address needs for replacement vegetation.

The Department requests further coordination to provide project/species specific recommendations, please contact Project Evaluation Program directly. PEP@azgfd.gov

Project Location and/or Species Recommendations:

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

Phoenix Main Office
2321 W. Royal Palm Rd, Suite 103
Phoenix, AZ 85021
Phone: 602-242-0210
Fax: 602-242-2513

Tucson Sub-Office
201 N. Bonita Suite 141
Tucson, AZ 85745
Phone: 520-670-6144
Fax: 520-670-6155

Flagstaff Sub-Office
SW Forest Science Complex
2500 S. Pine Knoll Dr.
Flagstaff, AZ 86001
Phone: 928-556-2157
Fax: 928-556-2121

HDMS records indicate that Western Burrowing Owls have been documented within the vicinity of your project area. Please review the western burrowing owl resource page at: http://www.azgfd.gov/w_c/BurrowingOwlResources.shtml.

GUIDELINES FOR SOLAR DEVELOPMENT IN ARIZONA

Arizona Game and Fish Department

March 12, 2010

The Arizona Game and Fish Department Mission:

To conserve, enhance, and restore Arizona's diverse wildlife resources and habitats through aggressive protection and management programs, and to provide wildlife resources and safe watercraft and off-highway vehicle recreation for the enjoyment, appreciation, and use by present and future generations.

ABSTRACT The Guidelines for Solar Development in Arizona (*Guidelines*) provide information to help reduce impacts to wildlife from solar energy development in Arizona. They include recommendations on: 1) preliminary screening of proposed solar energy projects, 2) developing avoidance and minimization measures, 3) establishing appropriate mitigation, and 4) research opportunities.

ACKNOWLEDGEMENTS These *Guidelines* were compiled by Arizona Game and Fish Department (AGFD) employees. Some of the information contained is taken from AGFD's wind guidelines: *Guidelines for Reducing Impacts to Wildlife from Wind Energy Development in Arizona.*

RECOMMENDED CITATION Arizona Game and Fish Department. 2009. *Guidelines for Solar Development in Arizona*

DISCLAIMER The Arizona Game and Fish Department, its employees, contractors, and subcontractors make no warrant, express or implied, and assume no legal liability for the information in this report; nor does any party represent that the use of this information will not infringe upon privately owned rights. This report has been reviewed and endorsed by AGFD as guidance. The recommendations and protocols discussed in this report are intended to be guidance for developers and local permitting agencies to avoid, minimize, or mitigate their impacts to Arizona's wildlife. These *Guidelines* are voluntary and are not intended to implement, replace, duplicate, interpret, amend, or supplement any current statute or regulation. Adherence to these *Guidelines* does not ensure compliance with any local, state, or federal statute or regulation, nor does failure to follow these *Guidelines* necessarily imply a violation of state laws.

The Arizona Game and Fish Department receives Federal assistance from the U.S. Fish and Wildlife Service, and thus prohibits discrimination on the basis of race, color, religion, national origin, disability, age and sex pursuant to Title VII of the Civil Rights Act of 1964, Title IX of the Education Amendments of 1972, the Age Discrimination Act of 1975, Section 504 of the Rehabilitation Act of 1973 and Title II of the Americans with Disabilities Act of 1990. To request an accommodation or informational material in an alternative format or to file a discrimination complaint, please contact the Deputy Director's Office at (623) 236-7276 or by mail at 5000 West Carefree Highway, Phoenix, AZ 85086. Discrimination complaints can also be filed with the U.S. Fish and Wildlife Service, Wildlife and Sport Fish Restoration Program, Attention: Civil Rights Coordinator for Public Access, 4401 North Fairfax Drive, Arlington, VA 22203.

TABLE OF CONTENTS

Executive Summary 4

Introduction 5

The Future for Arizona's Wildlife 7
Habitat Connectivity & Why It Is Important 7
What developers should consider for accommodating wildlife and promoting connectivity 7
What is AGFD doing to address habitat fragmentation? 8

Wildlife Protection Regulations 10
Federal Regulations 10
Arizona Game and Fish Department Regulations 12
Other State Regulations 12

AGFD Policies on Habitat Compensation 13

AGFD Project Review 14

Preliminary Site Screening 15
Data Resources for Biological Information 15

Recommendations for Avoiding or Minimizing Impacts 16
Meteorological Towers 16
Facility Design 17
Hydrologic Resources 18
Evaporation Ponds 20
Habitat Disturbance and Fragmentation 20
Vegetation Removal and Reclamation 21
Noxious Weed Management 22
Public Recreation and Access 23
Seasonal Timing Limitations 23
Transmission Lines 23
Fencing 24
Hazardous Materials 25

Mitigation 27

APPENDIX A: Wildlife and Wildlife Habitat Compensation Policy 29

APPENDIX B: Research Concepts 32

Executive Summary

These *Guidelines* are recommendations and protocols to be used by solar energy developers and local permitting agencies in Arizona, and as a resource for other parties involved in the permitting process. Local governments are encouraged to integrate the recommended study proposals described herein with biological resource information and research unique to their region. The Arizona Game and Fish Department (AGFD), acting on behalf of the Arizona Game and Fish Commission, encourages the use of the *Guidelines* for the development, mitigation, and research of solar energy projects in Arizona.

This document provides a science-based approach for assessing the potential impacts a solar energy project may have on wildlife species and includes suggested measures to avoid, minimize, and mitigate identified impacts.

The document is organized around five basic project development steps:

1. Wildlife Protection Regulations
2. AGFD Regulations and Review
3. Gather preliminary information and conduct site screening
4. Identify potential impacts to wildlife
5. Mitigation

Information in the *Guidelines* was specifically designed to employ adaptive management to address local and regional concerns and site-specific conditions. Decisions on the intensity of survey effort need to be made in consultation with AGFD. The *Guidelines* do not duplicate or supersede any/or other legal requirements. This document does not mandate or limit the types of studies, mitigation, or alternatives an agency may decide to require.

Introduction

The Arizona Game and Fish Department (AGFD) recognizes and supports the development of renewable energy facilities in Arizona. AGFD understands the need for generating electricity that reduces the nation's dependence on foreign oil, carbon emissions, and the release of other pollutants associated with fossil fuel generation. AGFD is also aware of the need for utility-scale solar facilities to meet the energy consumption needs of the United States, bringing significant benefits to Arizona's economy, the country, and the environment.

However, AGFD recognizes there will be negative impacts from the development of these technologies on wildlife, the habitats on which they depend, and other multiple uses such as hunting and wildlife viewing. These impacts include wildlife mortality, habitat loss, habitat fragmentation, hydrologic impacts, and the cumulative effects from other human activities. In addition, AGFD expects that there will be unanticipated impacts from utility-scale solar operations, given that these facilities are relatively new in the United States.

Solar energy currently carries a reputation for being "green energy" and Americans expect solar energy companies to live up to this reputation. These guidelines were developed to assist companies in meeting these standards. The objective of these guidelines is to assist energy developers in identifying potential impacts to wildlife and wildlife habitats from their proposed development and potential alternatives to avoid, minimize, and/or mitigate for these negative impacts. **The first step is to contact AGFD early, during the conceptual design of your project, to initiate a collaborative process and minimize negative impacts to wildlife and their habitat. Contact AGFD's Project Evaluation Program at:**

Arizona Game and Fish Department
Project Evaluation Program
5000 W. Carefree Hwy.
Phoenix, AZ 85086
623-236-7600
pep@azgfd.gov

Habitat Loss

Wildlife habitat loss will result from the construction of large-scale utility solar facilities. The largest continuous piece of land loss will occur within the perimeter of the facility's security fence. Additional habitat loss will take place through the construction of new or expansion of existing substations, new transmission lines, and associated access roads. Project proposals for solar energy are primarily located within creosote-bursage and mixed desert scrub, grasslands, and fallow or active agriculture fields. Proposed projects can range in size from 100 to over 5,000 acres. Each project can result in significant habitat loss for wildlife.

Habitat Fragmentation

The development of utility-scale solar projects and associated construction of new substations, transmission lines, and access roads has the potential to negatively impact wildlife movement.

Solar development will impacts not only species that live within the project areas, but also species that must move through project areas.

AGFD is engaged in an ongoing process to identify wildlife corridors between crucial habitats in the state to ensure wildlife movement and genetic diversity. In addition to addressing the need for wildlife to move across obvious barriers such as roads, railroads, and canals, current efforts are also looking to maintain movement corridors across development areas, including urban, rural, and renewable energy installations. Therefore, the siting of a solar facility would require a biological investigation to determine impacts to wildlife movement.

Hydrology

Utility-scale solar facilities generally have large impervious surface areas which block or reroute surface flows, and, may use significant amounts of groundwater if using wet-cooled systems for turbines. The resulting changes in drainage patterns, storm water runoff, and depth to groundwater could result in significant negative impacts to wildlife and their habitats.

Cumulative Effects

Currently, applications for construction of solar facilities are being submitted for private, state, and federal lands totaling approximately 800,000 acres in Arizona. This scale of development will amplify the impacts to wildlife and wildlife habitats discussed above. For example, AGFD calculated the predicted population growth (MAG 2050) and current proposed solar development could result in the loss of 31% of the existing creosote-bursage and desert scrub habitats in the state. This significant loss of acreage could substantially reduce the viability of creosote flats and mixed scrub habitats and the species dependent on them. The loss of these habitats from solar development combined with losses from infrastructure development associated with population growth has the potential to result in the listing of several desert species under the Endangered Species Act.

The Future for Arizona's Wildlife

The Arizona Game and Fish Department's vision for the future of wildlife and their habitats in Arizona includes interconnected networks of large natural areas (crucial habitats) supporting viable populations of wildlife, while providing ample opportunity for people to enjoy and benefit from the presence of wildlife. Public lands, managed under the principle of multiple use, form the cornerstone of these large natural areas, and are augmented by key state and private lands which are managed in such a way to maintain their wildlife management function in perpetuity.

In AGFD's vision for Arizona, crucial wildlife habitats are distributed throughout the state, and are large enough to support viable populations of all native and desired species of wildlife found in Arizona, from the ambersnail to the black bear. An extensive network of wildlife movement corridors connect crucial habitats across public, state and private lands, preventing genetic isolation and allowing for habitat shifts caused by climate change. Biodiversity and ecological functions are maintained and restored in crucial habitats and corridors. In crucial habitats where natural processes have been altered, active wildlife management is maintained to ensure persistence of wildlife populations. High quality habitat allows for continued hunting, fishing, and viewing of Arizona's game and non-game wildlife species. Threatened and Endangered wildlife are recovered, and populations of wildlife in Arizona are maintained, enhanced, and restored.

Habitat Connectivity & Why It Is Important

Arizona's natural environment is extremely diverse, ranging from tundra on the San Francisco Peaks, to desert scrub in the Sonoran Desert. Within this range of environments is an equally diverse assortment of habitats and wildlife that have adapted to reproduce and survive. While wildlife have always had to deal with discontinuous landscapes to move between habitats in different seasons, the rate of habitat loss and fragmentation has become a threat to which most species are not equipped to adapt, hence the need for wildlife habitat connectivity.

Habitat loss and habitat fragmentation are commonly accepted as the leading causes of species extinctions. Therefore, it is essential to have connectivity for: wildlife access to resources within their home ranges; wildlife recolonization after a local extinction; species' maintenance of gene flow (the ability to evolve); species' movement in response to changing climates; maintenance of ecological processes and flows (response to disturbances, predator/prey interactions, seed dispersals, etc.); and allowance for seasonal wildlife migrations.

What developers should consider for accommodating wildlife and promoting connectivity

While some habitat loss is inevitable, habitat fragmentation can be prevented or at least reduced by appropriate site selection and the incorporation of AGFD's wildlife-friendly guidelines (www.azgfd.gov/w_c/WildlifePlanning.shtml) and these *Guidelines* in the design and construction of solar projects. Connectivity can be maintained through dedicated corridors of undisturbed lands or other forms of open spaces (parks/preserves/monuments) that support wildlife and allow wildlife to move between crucial unfragmented areas. Disturbed areas

(agriculture, flood control areas, low density residential areas) can also support wildlife and may act as movement corridors, especially if the disturbance is managed for minimizing impacts to wildlife. Both crucial habitats and the corridors connecting them can contribute to meeting the economic, recreational, social, and aesthetic needs of people. Smart planning is the key to retaining connectivity between large crucial habitat areas and increasing the value of disturbed areas to both wildlife and people. Striking a balance between the needs of people and the needs of wildlife is an essential element of responsible development.

What is AGFD doing to address habitat fragmentation?

AGFD is working with partners and stakeholders to identify wildlife corridors around the state. In 2004 several state and federal agencies and conservation organizations formed the Arizona Wildlife Linkage Workgroup (AWLW) and produced the "Arizona's Wildlife Linkages Assessment" (2006) (http://www.azdot.gov/Highways/OES/AZ_Wildlife_Linkages/index.asp, Figure 1 below).

The Arizona Wildlife Linkages Assessment is a collaboratively-developed statewide report on wildlife habitat and linkages critical to sustaining wildlife habitat connectivity with comprehensive recommendations for land use planners and managers. The AWLW has received considerable recognition as leading a groundbreaking initiative responsible for bringing the needs of wildlife to the forefront of planning processes in Arizona. The group recognized, however, that this statewide effort was only the first step and that finer-scale analyses and reports would be needed to ensure biological, social, and economic successes at the project level. In 2007 and 2008, 16 high-priority wildlife linkages from the original report were further refined (using a least-cost corridor modeling technique where appropriate) and detailed reports were produced by Dr. Paul Beier and the corridor design team at Northern Arizona University (www.corridordesign.org). These reports detail the ownership, landscape, and on-the-ground condition of each linkage and provided crucial information that planners need—such as what kind of crossing structure to consider and the importance of riparian features in the area.

Today, the AWLW is working on the next stage in this process – a comprehensive identification of wildlife corridors and the crucial habitats they connect at the county scale. By utilizing a county-by-county approach in which stakeholders and partners are brought together to identify crucial habitats and corridors, a more comprehensive wildlife linkage assessment for Arizona will be produced. County-level reports will be developed, prioritized linkages will be modeled in GIS, and additional fine-scale linkage reports will be produced and made available upon completion.

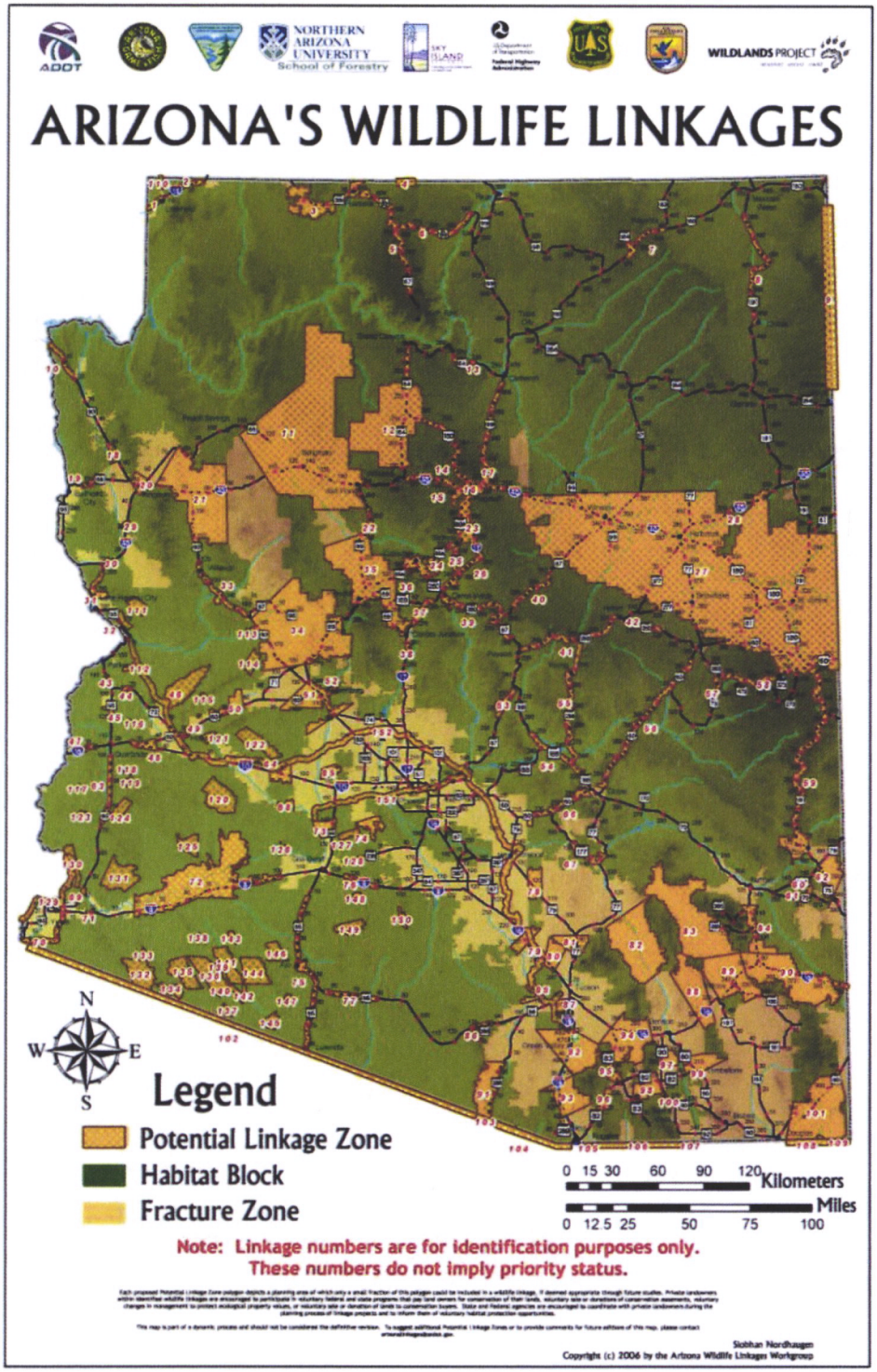


Figure 1. Arizona's Wildlife Linkages map. Each linkage identified by a number on the map is further described in the report.

Wildlife Protection Regulations

Various federal, state, and local laws regulate the permitting requirements for solar energy development in Arizona. AGFD strongly encourages adherence to these *Guidelines* to ensure impacts to wildlife populations are minimized from solar energy development and operations. Although it is not possible to absolve individuals and entities from liability for unlawfully taking wildlife under state law, AGFD will take compliance with these guidelines into consideration when considering any law enforcement action.

The permitting agency and project proponent should coordinate frequently with AGFD and USFWS throughout the process, and particularly during development of permit conditions. Permitting agencies should structure permit conditions to clearly define the obligations of the developer.

Federal Regulations

The following federal regulations may apply to protecting wildlife from the impacts of solar energy development or require federal agencies to coordinate or consult with Arizona Game and Fish Department.

- **The National Environmental Policy Act** (NEPA) and the regulations promulgated there under (42 U.S.C. § 4321, *et seq.*, 40 CFR § 1500.1, *et seq.*) require the federal government to assess the environmental impacts of any "federal action," which includes actions undertaken (1) on federal land, (2) by a federal agency, (3) with federal funds, or (4) where the federal government will be issuing a permit. Examples when federal agencies must prepare a NEPA document for a solar development include: locating the facility on BLM land; locating transmission lines across Bureau of Land Management (BLM) land; using Western Area Power Administration (WAPA) transmission lines or obtaining a Clean Water Act 404 permit. NEPA requires federal agencies to cooperate with state and local agencies in analyzing environmental impacts of proposed federal actions. More details on NEPA can be found at http://www.nepa.gov/nepa/regs/nepa/nepaeqia.htm.
- **The Endangered Species Act**, 16 U.S.C. §1531, *et seq.*, executed by for U.S. Fish and Wildlife Service (USFWS) provides for the conservation of ecosystems upon which threatened and endangered species of fish, wildlife, and plants depend. The ESA, among many other things: 1) authorizes the determination and listing of species as endangered or threatened; 2) prohibits unauthorized taking, possession, sale, and transport of endangered species (including land-use activities that "harm" or "harass"); and 3) authorizes the assessment of civil and criminal penalties for violating the Act or regulations. Taking provisions apply to private lands. ESA authorizes permits for the take of protected species if the permitted activity is for scientific purposes, is to establish experimental populations, or is incidental to an otherwise legal activity. Section 7 of the ESA requires federal agencies to insure that any action authorized, funded or carried out by them is not likely to jeopardize the continued existence of listed species or modify their critical habitat. Section 10 allows for the development of Habitat Conservation Plans and the issuance of an incidental take permit on private lands. USFWS consults

with the state wildlife agency on Section 7 and 10 consultations. More information on the ESA can be found at http://www.fws.gov/endangered/policy/index.html.

- **Migratory Bird Treaty Act**, 16 U.S.C. § 703, *et seq.*, prohibits taking, killing, possessing, transporting, and importing of migratory birds, including their eggs, parts, and nests, except when specifically authorized by USFWS. Slightly more than 400 species of birds that are protected by the MBTA are either resident or at least occur annually in Arizona during certain seasons of the year (winter, summer, or during migration). The MBTA authorizes permits for some activities, including but not limited to scientific collecting, depredation, propagation, and falconry. No permit provisions are available for incidental take for any project-related incidental take, including take associated with solar energy development. MBTA prohibition on take may require seasonal limitations on construction activities. For more information on the MBTA, go to http://www.fws.gov/permits/mbpermits/regulations/mbta.html.
- **Bald and Golden Eagle Protection Act**, 16 U.S.C. §668, *et seq.*, protects the bald eagle and the golden eagle by prohibiting, except under certain specified conditions, the take, possession, and commercial use of such birds. More information on the BGEPA can be found at http://www.fws.gov/laws/lawsdigest/baldegl.html.
- **Sikes Act**, 16 U.S.C. §670g, *et seq.*, requires BLM to coordinate with state wildlife agencies in the development of comprehensive plans for the conservation of wildlife. These plans may restrict uses of BLM lands, or require a plan amendment to allow an otherwise restricted use. BLM will coordinate plan development and plan amendments with the state wildlife agency.
- **Fish and Wildlife Coordination Act**, 16 U.S.C. §662, *et seq.* (FWCA) 1946 amendments, require consultation with the Fish and Wildlife Service and the state fish and wildlife agencies where the "waters of any stream or other body of water are proposed or authorized, permitted or licensed to be impounded, diverted . . . or otherwise controlled or modified" by any agency under a Federal permit or license. Consultation is to be undertaken for the purpose of "preventing loss of and damage to wildlife resources."
- **Federal Land Policy Management Act**, 43 U.S.C. §1701 (FLPMA) is the organic act for BLM. Section 102 declares that it is the policy of the United States that (9) "the public lands be managed in a manner ... that will provide food and habitat for fish and wildlife and domestic animals; and that will provide for outdoor recreation and human occupancy and use;". Section 202 (9) requires that BLM provide meaningful public involvement with state and local agencies on land use decisions.
- **Federal Water Pollution Control Act Amendments of 1972** (Clean Water Act) 33 U.S.C. §1251 et seq. Section 402 permits are administered by the Arizona Department of Environmental Quality (ADEQ) under authority of the Environmental Protection Agency. Solar projects may require an Arizona Pollution Discharge Elimination System (AZPDES) and/or a Stormwater Runoff permit from ADEQ. More information can be found at the ADEQ website at http://www.azdeq.gov/environ/water/permits/azpdes.html.
- **Federal Water Pollution Control Act Amendments of 1972** (Clean Water Act) 33 U.S.C. §1251 et seq. Section 404 requires a permit to dredge or put fill into a water of the U.S. 404 individual permits require a NEPA impact analysis and a FWCA consultation. 404 permits in Arizona are administered by the Los Angeles District of the Army Corps of Engineers. More information can be found at http://www.spl.usace.army.mil/regulatory/.

Arizona Game and Fish Department Regulations

Arizona State Statutes and AGFD Commission Policies have been established to conserve, protect, restore, and enhance fish and wildlife populations and their habitats. Project proponents should be familiar with these statutes and policies to ensure their projects are consistent with the intent of these laws and policies. Several Arizona state statutes and AGFD Commission policies, some of which are discussed below, are relevant to solar energy projects. Violation of these laws or other policies can result in criminal prosecution and/or civil liability.

- Pursuant to A.R.S. § 17-102, wildlife is the property of the state, and can be taken only as authorized by the Arizona Game and Fish Commission.
- "Wildlife" is defined in A.R.S. § 17-101(A)(22) as "all wild mammals, wild birds, and the nest or eggs thereof, reptiles, amphibians, mollusks, crustaceans, and fish, including their eggs or spawn."
- "Take" is defined in A.R.S. § 17-101(A)(18) as "pursuing, shooting, hunting, fishing, trapping, killing, capturing, snaring or netting wildlife or the placing or using of any net or other device or trap in a manner that may result in the capturing or killing of wildlife."
- It is unlawful to "take, possess, transport, buy, sell or offer or expose for sale wildlife except as expressly permitted" under A.R.S. § 17-309(A)(2).
- A.R.S. § 17-235 authorizes the Arizona Game and Fish Commission to regulate the taking of migratory birds in accordance with the MBTA, described above.
- Under A.R.S. § 17-236(A), "it is unlawful to take or injure any bird or harass any bird upon its nest, or remove the nests or eggs of any bird, except as may occur in normal horticultural and agricultural practices and except as authorized by commission order."
- No state or federal lands can be closed to hunting or fishing without the consent of the Arizona Game and Fish Commission, and no person may lock a gate blocking access to state lands pursuant to A.R.S. § 17-304 and Arizona Administrative Code R12-4-110. Permittees should contact the AGFD Ombudsman at AGFD Headquarters for information regarding filing a petition with the Arizona Game and Fish Commission where a project requires the closure of state or federal lands to hunting or fishing.

Other State Regulations

- **Native Plant Law**, A.R.S. § 3-901-907 is administered by Arizona Department of Agriculture (ADOA). The law lists plants protected under the law. Information on protected plants and permitting procedures can be found at the ADOA website http://www.azda.gov/esd/nativeplants.htm.
- State Water Laws are administered by the Arizona Department of Water Resources (ADWR). A.R.S. §45-152 establishes the need and procedure for obtaining a permit to appropriate surface water. A.R.S. Title 45 Chapter 2 establishes groundwater code. The type of well drilling permit required to use groundwater depends on location. More information state water permitting requirements for solar projects can be found at http://www.azwater.gov/AzDWR/WaterManagement/solar/default.htm.

AGFD Policies on Habitat Compensation

Although AGFD enforces Arizona's state wildlife laws, AGFD is not a permitting authority for solar energy development. Rather, AGFD makes recommendations to avoid, minimize and/or mitigate impacts to wildlife, and elects to support or oppose solar energy projects in consultation with the permitting agency. In making a decision to support or oppose a project, AGFD uses its *Wildlife and Wildlife Habitat Compensation Policy* (Commission Policy A2.16, Department Policy I2.3, authorized under A.R.S. 17-211) and its biological expertise to analyze impacts to wildlife from the proposed project activities.

The *Wildlife and Wildlife Habitat Compensation Policy* (Appendix A) guides AGFD in evaluating habitat loss from development projects such as solar energy. This policy requires AGFD to work with developers and permitting agencies to develop adequate mitigation plans for habitat losses resulting from land and water projects. General criteria used to identify mitigation goals fall into four categories:

- **Resource Category I**: Habitats in this category are of the highest value to Arizona Wildlife species and are irreplaceable on a statewide or regional basis.
  Goal: No loss of existing in-kind habitat value.
  Guideline: All potential losses of existing habitat values will be prevented. Insignificant changes may be acceptable provided they will have no significant cumulative impacts.
- **Resource Category II**: Habitats in this category are of high value for Arizona wildlife and are relatively scarce or becoming scarce on a statewide or regional basis.
  Goal: No net loss of existing habitat value, while minimizing loss of in-kind value.
  Guideline: Losses be avoided or minimized. If significant losses are likely to occur, AGFD will recommend alternatives to immediately rectify, reduce, or eliminate these losses over time.
- **Resource Category III**: Habitats in this category are of high to medium value for Arizona wildlife and are relatively abundant.
  Goal: No net loss of habitat value.
  Guideline: AGFD will recommend ways to minimize or avoid habitat losses. Anticipated losses will be compensated by replacement of habitat values in-kind, or by substitution of high value habitat types, or by increased management of replacement habitats, so no net loss occurs.
- **Resource Category IV:** Habitats in this category are of medium to low value for Arizona wildlife, due to proximity to urban development or low productivity associated with these sites.
  Goal: Minimize loss of habitat value.
  Guideline: AGFD will recommend ways to avoid or minimize habitat losses.

AGFD Project Review

Project proponents should consult with AGFD early in the project conceptual process to identify any potential impacts to special status species and other wildlife in the project area. AGFD consultations typically follow these steps:

1. The permitting agency or project proponent obtains a Special Status Species List from the Arizona On-line Environmental Review Tool or by request through the AGFD Project Evaluation Program (PEP). The list provides information on species that have been documented in the project area.
2. The permitting agency or project proponent initiates an AGFD project review through PEP. PEP provides policy, technical and environmental law compliance guidance and oversight, and coordinates an internal review of land use projects affecting fish and wildlife resources in Arizona. Providing baseline map information showing the facility layout would aid in the review. AGFD recommends mapping the location of sensitive resources to establish the layout of roads, fences, and other infrastructure to minimize habitat fragmentation and disturbance. Pre-construction studies should be sufficiently detailed in order to create maps of special status species habitats (e.g. wetlands or riparian habitat, large, contiguous tracts of undisturbed wildlife habitat, raptor nest sites) as well as other local species movement corridors (e.g., bats, birds, deer, elk, pronghorn, prairie dogs, badgers, gray/kit fox den sites) that are used daily, seasonally, or year-round, and winter bird concentrations.
3. AGFD encourages permitting agencies and project proponents to continue coordination throughout the preliminary site screening, pre-construction assessment, impact analysis and mitigation, and operations monitoring and reporting phases. Continued coordination with AGFD will ensure impacts to wildlife are avoided and/or minimized to the extent possible.

Federal and state wildlife laws can influence project siting and operations. Project proponents and permitting agencies should familiarize themselves with these laws during the permitting process to ensure impacts to wildlife are minimized and/or mitigated for in order to avoid violating state and federal law.

Preliminary Site Screening

Solar energy developers typically assess the biological sensitivity of a proposed project site early in the development process. Project proponents are encouraged to contact the AGFD Habitat Branch to aid in identifying species potentially at risk and determining the kinds of studies needed to assess the site. This allows the project proponent the opportunity to seek a different site if significant, unavoidable impacts seem likely. In addition, the project proponent needs to arrange for a qualified wildlife biologist who is knowledgeable about the wildlife in the region to conduct a reconnaissance survey. The purpose is to obtain information on the vegetative communities and significant topographic features which will help determine the wildlife community using the project site. Surveys should be of sufficient duration and intensity to adequately address all habitat types in and immediately adjacent to the project area and provide a basis for predictions about species occurrence at the area throughout the year.

Data Resources for Biological Information

AGFD Natural Heritage Program, Heritage Data Management System (HDMS) is an efficient and cost-effective source of biological information. HDMS is part of a global network of more than 80 Natural Heritage Programs and Conservation Data Centers. It identifies elements of concern in Arizona and consolidates information about their status and distribution throughout the state. Species lists are available by common name, scientific name, taxon, and county, and can be found at: http://www.azgfd.gov/w_c/edits/hdms_species_lists.shtml. Species abstracts are also available on the web at: http://www.azgfd.gov/w_c/edits/hdms_abstracts.shtml.

Another useful source of information is the Arizona Online Environmental Review Tool (http://www.azgfd.gov/hgis/) which The Online Tool uses HDMS data to create species lists for the project area. However, obtaining a species list does not constitute a review of the project by AGFD. In addition, HDMS data does not include potential distribution of special status species. Be aware that occurrences are only recorded in HDMS if the site has been previously surveyed during the appropriate season, detection was made, and the observation was reported and entered into the database. As such, do not use the absence from the HDMS of an occurrence in a specific area to infer absence of special status species. It is also important to evaluate known occurrences of sensitive species and habitats near the site and in comparable adjacent areas. Some permitting agencies have their own lists or stipulations you may need to consider as well.

In addition, AGFD has completed a *State Wildlife Action Plan* (formerly called the Comprehensive Wildlife Conservation Strategy) which should be used by solar developers to identify species and threats within their habitats. The *State Wildlife Action Plan* includes a list of Species of Greatest Conservation Need in Arizona by habitat type, outlines threats to species and habitats, and recommends actions which could be taken to address those effects.

Avoiding or Minimizing Impacts

Solar development has the potential to directly and indirectly affect all wildlife species within or moving through the project area. Examples of these effects are: small and large scale habitat fragmentation; displacement; collisions with structures; introductions of invasive species; behavior modifications; direct loss of habitat; degradation of aquatic habitat; and changes in water quality. Avoidance criteria are best applied during pre-construction site selection (macrositing) and during the final adjustment of the project footprint (micrositing). Good macrositing decisions are essential for choosing an acceptable site or portion of a site. Once a site is selected, micrositing efforts, such as appropriate placement of roads, power lines, and other infrastructure can avoid or reduce potential impacts to wildlife and other biological resources.

AGFD encourages project proponents to avoid impacts whenever possible. When not possible, minimization and/or mitigation are necessary conservation measures to counter the effects the project may have on wildlife and their habitats. Each solar project is unique, and no one recommendation will apply to all pre-construction site selection and layout planning. However, consideration of the following elements in site selection and development of infrastructure for the facility can be helpful to avoid and minimize impacts. AGFD staff is willing and available to help determine the best project design that avoids or minimizes negative impacts to wildlife and habitat.

Meteorological Towers

Some solar projects install meteorological towers to assess wind shear and solar intensity at proposed sites. Met towers (whether temporary or permanent) and their associated infrastructure have the potential to cause avian and bat mortalities resulting from mid-flight strikes with the tower guy wires. Studies have shown guy-wired towers can cause four times more bird mortality than towers without guy wires (Young et al., 2003. http://www.west-inc.com/reports/fcr_final_mortality.pdf). While bats can also strike guy wires, the occurrence is much less frequent. In addition, the visibility of met towers is important for the safety of aircraft pilots at low flight elevations. To reduce the potential for bat and bird collisions, and to provide guidance for keeping pilots and personnel safe, AGFD has developed the following recommendations:

- AGFD requests all *permanent* met towers be unguyed, free standing structures. If possible, AGFD also requests temporary met towers be unguyed, free standing structures.
- When guy wires are present, AGFD recommends attaching Bird Flight Diverters (BFDs) at spaced intervals along the length of multiple wires. **At a minimum, BFDs and Aircraft Warning Markers should be alternated at 10 meter intervals along the length of each outer wire**, ensuring that Aircraft Warning Markers are near the apex of the tower (Note: There are several manufacturers of BFDs: TYCO, Preformed Line Products, Dulmison, etc.). Research shows the attachment of BFDs can reduce bird collisions by as much as 86-89% (Pope et al., 2006) (http://www.chelanpud.org/documents/Burch_Final_Report_V1.pdf).

- AGFD recommends all guyed towers are only on site for the minimum amount of time needed to collect data. If towers are on site for more than 1 year, AGFD recommends carcass searches be implemented, especially during the bird migration period.
- When siting met towers, avoid habitat features that congregate wildlife such as water resources, habitat edges, etc.

AGFD Personnel Safety

- Low-level aerial flights by AGFD personnel can occur outside routine wildlife survey routes. GPS locations of all towers need to be provided to AGFD prior to construction to allow survey aircraft to avoid the towers. In addition, AGFD requests project proponents notify the AGFD when met towers are removed.
- When guy wires are present, AGFD recommends attaching Aircraft Warning Markers and Bird Flight Diverters alternated at 10 meter intervals along the length of each outer wire, ensuring that Aircraft Warning Markers are near the apex of the tower.
- For all monopole towers $\geq$ 50 feet tall, paint the top 30 feet of the tower in alternate orange and white paint. This does not apply to lattice towers or lit towers, both of which are more visible than monopoles.

Facility Design

The main issues affecting solar development are water and land use. Water conservation measures should be a priority when planning for any type of development in Arizona. AGFD supports and encourages the use of solar technologies which minimize the amount of water used for operation, such as photovoltaic applications. However, AGFD understands the need for concentrated solar power (CSP) which requires cooling methods for operation.

Cooling methods have the largest impact on water use for a solar facility and should be chosen carefully. AGFD recommends using dry-cooling technology, which consumes 30 times less water than traditional wet-cooling (*Land Letter*, Aug. 6). If the dry-cooling method is not feasible, hybrid parallel wet/dry cooling methods should be chosen because it consumes about half the water of wet-cooling technology. AGFD generally does not support the use of wet-cooling technology because it consumes large amounts of water, an extremely limited natural resource in Arizona.

For more information on how to reduce water consumption with CSP technologies, please refer to the U.S. Department of Energy report entitled, "Concentrating Solar Power Commercial Application Study: Reducing Water Consumption of Concentrating Solar Power Electricity Generation," http://www.nrel.gov/csp/publications.html.

Land use should also be a consideration in the planning process of any utility-scale solar facility. Installations should be sited on degraded and/or disturbed areas when possible. When possible, construction should occur on retired agriculture, brownfields (abandoned or underused industrial and commercial facilities available for re-use), abandoned mines, or other areas that do not provide quality wildlife habitat. Choose technologies that allow for versatility in siting with respect to landscape slope. This will increase the potential for available disturbed land. Fencing, grading and alteration of the natural landscape will impact the habitat quality and wildlife

movement as described in the previous section titled, 'Wildlife Connectivity & Why It Is Important.'

Hydrologic Resources

Much of Arizona's wildlife and habitat are highly dependent on the hydrologic resources of the region and the minimal precipitation received each year. Any changes to hydrologic resources, groundwater, surface water, or surface water flow may lead to broad scale mortality of vegetation and potentially change wildlife species distributions and abundance in the given area. Solar development can impact hydrologic resources through development of the project footprint (e.g., land disturbance, erosion, changes in runoff patterns, and hydrological alterations), project emissions (e.g., sediment runoff and water releases), and water use (e.g., water extraction, diversion, or change in use). Early consultation will aid in minimizing impacts to hydrologic resources through proper planning and design.

Groundwater

Groundwater can be impacted through various activities associated with the construction and operation of a solar facility. Those impacts include soil erosion, weathering of newly exposed soils leading to leaching and oxidation which release chemicals into the water, discharges of waste or sanitary water, presence of dissolved salts from untreated groundwater used to control dust, and herbicide or pesticide applications. A study on the geology of the area should be done in relation to the hydrogeology (as required by ADWR). Solar facilities are required to go through an ADWR permitting process for the use of groundwater and surface water. The following ADWR website provides links and tools to assist in the review and permitting process http://www.azwater.gov/AzDWR/WaterManagement/solar/default.htm. The Arizona Corporation Commission (ACC) and the Arizona Department of Environmental Quality (ADEQ) may have additional water management requirements and we strongly encouraged coordination with these entities as well.

- Identify and avoid unstable slopes and local factors that can cause slope instability (groundwater conditions, precipitation, seismic activity, slope angles, and geologic structure).
- Develop a contingency plan to prevent potential groundwater and surface water contamination.
- Develop a storm water management plan to ensure compliance with state and federal regulations and prevent off-site migration of contaminated storm water or increased soil erosion.
- Spread excess excavated soil to match surrounding topography or dispose of in an approved manner that minimizes erosion and leaching of hazardous materials.
- Closely monitor construction near aquifer recharge areas to reduce potential contamination of the aquifer.
- Incorporate low impact development into facility layout and design to incorporate best management practices for addressing water flows and water quality with onsite processes minimizing the hydromodification impacts (e.g., retention basins for treatment of water from runoff and infiltration and recharge of the groundwater basin).
- Develop and implement a monitoring program.

Water quality can also be degraded as a result of vehicular traffic and machinery operations during maintenance (e.g., erosion and sedimentation) and wastewater disposal. AGFD recommends the following to reduce these impacts:

- Apply erosion controls relative to possible soil erosion from vehicular traffic and during construction activities (e.g., jute netting, silt fences, and check dams). Regularly monitor rights-of-way (ROWs), access roads, and other project areas for indications of erosion.
- Clean and maintain catch basins, drainage ditches, and culverts regularly.
- Refuel in a designated fueling area that includes a temporary berm to limit the spread of any spill.
- Use drip pans during refueling to contain accidental releases and under fuel pump and valve mechanisms of any bulk fueling vehicles parked at the project site.
- Limit herbicide/pesticide use to non-persistent, immobile herbicides/pesticides.
- Keep all equipment and vehicles within the limits of the previously disturbed areas.

In addition, groundwater withdrawal could affect springs and riparian areas through lowering of the ground water table, and alter subsurface groundwater flow, potentially resulting in unwanted dewatering or recharging of any of these water resources. Therefore, AGFD recommends:

- Identify sustainable yields of groundwater and nearby surface water bodies.
- Limit the withdrawal of water at the facility so it does not exceed the sustainable yield.
- Develop and implement a monitoring program.

Surface Water

Surface water can be impacted through removal of xeroriparian washes and recontouring of the site. Solar facilities are required to go through an ADWR permitting process pertaining to the use of groundwater and surface water. The following ADWR website provides links and tools to assist in the review and permitting process http://www.azwater.gov/AzDWR/WaterManagement/solar/default.htm. Likewise, recontouring of the site may affect jurisdictional waters of the U.S. and Army Corp of Engineers (ACOE) should be consulted. AGFD recommends maintaining sheet flow, ephemeral flows, and reduce soil erosion to the maximum extent possible.

- Avoid streams, wetlands, and drainages where possible. Where access roads would cross a dry wash, the road gradient should be 0% to avoid diverting surface waters from the channel.
- Locate access roads to minimize stream crossings and to minimize impacts where crossings cannot be avoided.
- In areas of steep slopes, erodible soils, and stream crossings implement the following:
    i. Cross streams at right angles to the main channel if practical. Adjust the road grade to avoid the concentration of road drainage to stream crossings. Direct drainage flows away from the stream crossing site or into an adequate filter.
    ii. Avoid unimproved stream crossings. When a culvert or bridge is not feasible, locate drive-throughs on a stable, rocky portion of the stream channel.
    iii. Locate temporary construction bypass roads in locations where the stream course will have minimal disturbance. Time construction activities to protect fisheries and water quality.

iv. When the slope increases, additional diversion ditches should be constructed to further reduce the damages caused by soil erosion; ditches, adequate culverts, cross drains, etc., should be installed concurrent with construction.
v. Stabilize the side banks of a road during construction to aid in the control of erosion and road deterioration; this may require mesh or other stabilizing material in addition to planting and/or seeding and other structural measures.

- Construct drainage ditches only where necessary. Use appropriate structures at culvert outlets to prevent erosion. Also, ensure the culvert does not impede wildlife movement.
- Do not alter or restrict existing drainage systems, especially in sensitive areas such as erodible soils or steep slopes. Cross water bodies at right angles to the channel and/or at points of minimum impact.
- Develop a Stormwater Pollution Plan – the EPA site contains templates for the plan, http://cfpub.epa.gov/npdes/stormwater/swppp.cfm.

Evaporation Ponds

Arizona's wildlife is highly dependent on any available surface water. Wildlife, especially waterfowl, are attracted to any form of open water, even evaporations ponds, which could lead to inadvertent poisoning due to concentrated salt and other minerals or accidental drowning. Therefore, AGFD has the following recommendations regarding brine ponds toxic to wildlife:

- Locate ponds in an area undesirable to wildlife, such as high use/highly disturbed areas.
- Ponds should be fenced on the perimeter and the top screened to prevent unsuitable and possibly fatal use by wildlife.
- If screening is not feasible, create steep pond sides to minimize shallow areas that would be used by wading birds.
- Monitor ponds for wildlife mortality and have a contingency plan for wildlife mortality incidents. (i.e., if a waterfowl die-off is observed contact AGFD and US Fish and Wildlife Service (USFWS) as soon as possible and have a contingency plan to handle the situation)
- Monitoring the toxicity of the ponds over time is recommended along with a mitigation plan ready for implementation when toxicity levels rise
  i. The plan should include short term and long term measures to deter wildlife from the area.

Habitat Disturbance and Fragmentation

Solar development will potentially disturb and fragment wildlife habitat during and after construction of a facility. Pre-construction studies must provide sufficient detail in order for the habitat of special status species within the project vicinity to be mapped (e.g., wetland/ riparian habitat, contiguous tracts of undisturbed wildlife habitat, raptor nest sites) and for seasonal species movement corridors to be determined (e.g., winter bird concentrations, pronghorn seasonal migration). These maps, as well as others, should be used to show the location of sensitive resources and used to establish the layout of roads, fences, and other infrastructure in order to minimize habitat fragmentation and disturbance. Listed below are some "Best Management Practices" for avoiding, minimizing, and mitigating impacts to wildlife:

- Avoid using or degrading high value or large, intact habitat areas; use disturbed areas or agriculture lands with low habitat value when possible.

- Avoid high quality wildlife habitat (e.g., wetlands or riparian habitat, undisturbed wildlife habitat) when disturbed areas are not an option. Areas that are temporarily disturbed during construction (e.g., roads, staging areas) should be returned to the original grade and revegetated with site appropriate native species following construction.
- Locate staging areas and construction sites in previously disturbed areas and revegetate with site appropriate native species when construction is completed.
- Use existing roads for construction and access when possible.
- Minimize habitat fragmentation when new roads or two-tracks must be constructed by:
    i. creating the road through cross-country travel versus blading (check local land management agency for cross-country travel regulations).
    ii. construct the minimum footprint (i.e., road width) and number of roads needed to maintain the facility.
- Close, obliterate, and revegetate any roads constructed for the project which are not necessary for facility maintenance after construction including those areas not needed within the road right-of-way (ROW). Seed mixes used for revegetation should mimic the species composition and density of the surrounding habitat.
- Locate, design, construct, reconstruct, use, maintain, and/or reclaim roads so as to:
    i. control or prevent erosion, siltation, and air pollution by vegetating or otherwise stabilizing all exposed surfaces.
    ii. control or prevent damage to fish, wildlife, or their habitat and related environmental values.
    iii. prevent or control damage to public or private property.
- Coordinate with AGFD when there is any new road access or restriction (year-round or seasonal), especially where disturbance to wildlife and their habitat may occur as a result of public use of the road or when hunting season is occurring.

Vegetation Removal and Reclamation

Construction of solar facilities will create soil disturbance, opening the door to negative events such as soil erosion and/or non-native or invasive vegetation growth. The AGFD recommends each facility:

- Document pre-disturbance vegetation characteristics and soil conditions.
- Develop a Revegetation Plan that uses only native species, approximating the pre-disturbance plant community composition. The plan should include:
    i. Background information on the area
    ii. Goals for the revegetation
    iii. Approach
    iv. Implementation
    v. Monitoring and reporting
    vi. Mitigation measures, if necessary
- Salvage and transplant all succulents such as cacti, yucca, ocotillo, and agave to an on-site nursery for reclamation of disturbed areas. The salvaged plants should be used to re-vegetate temporary use areas, ROWs, and other disturbed areas post construction.
    - Revegetating with salvaged plants will enhance the natural reclamation process as well as provide structure for wildlife within the disturbed area.

- During project area clearing, scrape the first 6-12 inches of soil off of the top. Store this soil in piles no taller than four feet high (to prevent the death of soil biota).
- Reestablish soil stabilization, erosion control, restoration and vegetative cover. Contour the soil to match the original topography as much as possible.
- Re-spread the scraped top-soil over the re-contoured area to be reclaimed. Apply the seed following re-spreading (preferably the same day as a hardened soil crust will form from wind and/or rain).
    - Use certified seed sources, free of non-native herbs and grasses (e.g. intermediate wheatgrass, pubescent wheatgrass, crested wheatgrass, and smooth brome).
- Hydro-mulching is the preferred method of seed application.
    - Seeding success rate is **greatly** improved using this method because the hydromulch contains a tackifier that sticks the seed and mulch to the ground reducing seed predation by rodents, birds, and ants and reduces removal by the wind.
- Contact the applicable land management agency regarding guidelines for revegetation efforts.
- When possible push brush and surface rocks into multiple piles, scattered across the project area. The natural materials will provide habitat for many wildlife species and degrade over time returning the nutrients to the soil.
- Fence livestock out of newly reclaimed areas until proper vegetation cover is achieved. If fencing is utilized, please incorporate the recommendations provided in the AGFD wildlife friendly fencing guidelines.

Noxious Weed Management

Solar facilities should be prepared to prevent and manage noxious or invasive plants during the life of the project. AGFD recommends following these steps:

- Develop an Adaptive Weed Management Plan that includes:
    i. Monitoring the project site to detect the presence of noxious weeds.
    ii. Removing or treating weeds to prevent spread.
    iii. Reducing possibilities of contamination or introduction of non-native and noxious plants.
    iv. A post construction weed removal plan for the life of the project.
    v. Also include the recommendations below.
- Assume immediate responsibility for the control of all noxious weeds resulting from surface disturbances.
- Thoroughly wash all surfaces and undercarriages of vehicles and equipment before moving to the project site to remove any noxious or non-native plant seeds. This will reduce the possibility of transporting noxious or non-native plants from one site to another.
- To prevent the introduction of invasive species seeds, all earth moving and hauling equipment should be washed at the contractor's storage facility prior to entering the construction site.
- All disturbed soils that will not be landscaped or otherwise permanently stabilized by construction should be seeded using species native to the project vicinity.

- To prevent invasive species seeds from leaving the site, the contractor should inspect all construction equipment and remove all attached plant/vegetation and soil/mud debris prior to leaving the construction site. If possible, the vehicles should be thoroughly washed prior to leaving the construction site.

Public Recreation and Access

- Public recreation and access to public lands for the purpose of recreation is important to maintain when considering development of utility-scale solar. Unless constructed within previously developed areas, solar plants will occupy what is currently open space and therefore must be located in areas that minimize conflict with known uses such as hunting, birding, hiking, camping, and off-highway vehicle (OHV) recreation areas. Prior to finalizing development plans, AGFD should be consulted to ensure these conflicts are prevented or minimized.
- As solar projects are constructed around the state, there is a possibility they may impede or restrict access to public lands by placing a project on top of known travel routes. To guard against the creation of "wildcat" or illegal roads and maintain access to public lands, coordination is recommended with the appropriate landowners to create alternate travel routes. These alternate routes must be created in close proximity to the project to provide this critical access and should be similar in size to the original routes. Signs should be placed indicating travel routes while project construction takes place and remain in place after project completion.

Seasonal Timing Limitations

Construction of solar projects could temporarily or permanently displace breeding, migrating, and/or wintering wildlife species. Due to the difference in elevation across Arizona, wildlife species breed and/or winter at different times across the state. Therefore, project proponents should work with AGFD for site-specific breeding and wintering seasonal timing limitations for species such as migratory birds, deer, pronghorn, elk, and numerous nongame and special status species.

Transmission Lines

To prevent avian collisions and electrocutions, bury all connecting power lines associated with the solar development, unless burial of the lines would result in greater impacts to biological or archeological resources.

- Follow existing disturbed areas during installation to minimize habitat alterations. In low areas where the power line crosses drainages, the soil should be compacted to reduce the potential for erosion.
- Trenching and backfilling crews should be close together to minimize the amount of open trenches at any given time.
- Ideally, trenching should occur during the cooler months (October – March) when wildlife is less active. However, there may be exceptions (e.g. critical wintering areas) that need to be assessed on a site-specific basis.
- Avoid leaving trenches open overnight as they can be effective traps for wildlife. Where trenches cannot be back-filled immediately, escape ramps should be constructed at least

every 45 meters. Escape ramps can be short lateral trenches or wooden planks sloping to the surface. The slope should be less than 45 degrees (1:1).

- Trenches that have been left open overnight should be inspected daily, prior to work beginning, and any animals removed. Prior to backfilling, the trenches should be inspected and any animals removed. Development of a monitoring schedule for each segment of the underground power line installation to ensure minimizing potential impacts to wildlife.

All above-ground lines, transformers, or conductors should fully comply with the Avian Power Line Interaction Committee (APLIC) 2006 standards to prevent avian fatality, including use of various bird deterrents and avian protection devices.

Fencing

Fencing design is best done on an individual site basis, but most solar energy projects will have similar purposes, needs, and constraints. For these *Guidelines*, AGFD assumes the typical site will be a large parcel (1/4 section or larger) of relatively flat arid lands and the purpose of the fencing is to exclude livestock, people, and large wildlife (e.g., javelina, pronghorn, elk, deer) that can damage the solar components). If your application differs from this, we recommend you consult AGFD's Wildlife Fencing Guidelines, http://www.azgfd.gov/hgis/pdfs/FencingGuidelines.pdf. BLM also has fencing standards that may apply when the project occurs on federal lands.

In the arid flatlands of Arizona, wildlife species targeted for exclusion from a solar project will generally be deer, javelina, and in rare cases elk. The first step in excluding wildlife within the project site is to reduce attractants such as water, food, and habitat. Since the typical solar project will reduce or eliminate vegetation in the collector field, herbivorous wildlife such as deer should not be attracted to the area. Without vegetation, rodent populations should be low and will not attract coyotes and snakes. Nonetheless, fencing needs to be sufficient to discourage the occasional explorer from entering the site. Therefore, AGFD recommends using either a six foot chain link fence with two strands of barbed wire extending outwards from the top of the fence, or a woven wire/high tensile electric/barbed wire combination exclusion fence (as described in the AGFD Wildlife Fencing Guidelines).

Any area where a fence crosses a drainage or wash represents a potential point of failure during or following a large precipitation event. Unless the site has been contoured to divert all flows outside the exclusion area the crossings are subject to damage during flood events. Free swinging flood gates (also known as water bars) should be installed where the fence crosses the drainage *(illustrations)*. Even though the flood gates allow high volumes of water to pass through, they can potentially collect substantial amounts of debris which can lead to a dam effect and cause damage to the fence. Alternatively a small stretch of "sacrificial" woven wire fence could be constructed in the channel up-stream from the main fence. This fence will collect flood debris and usually prevents damage to the main fence. The sacrificial fence will need to be periodically dug out or even replaced after major flood events. Fences should be inspected immediately after storm events to check for damage.

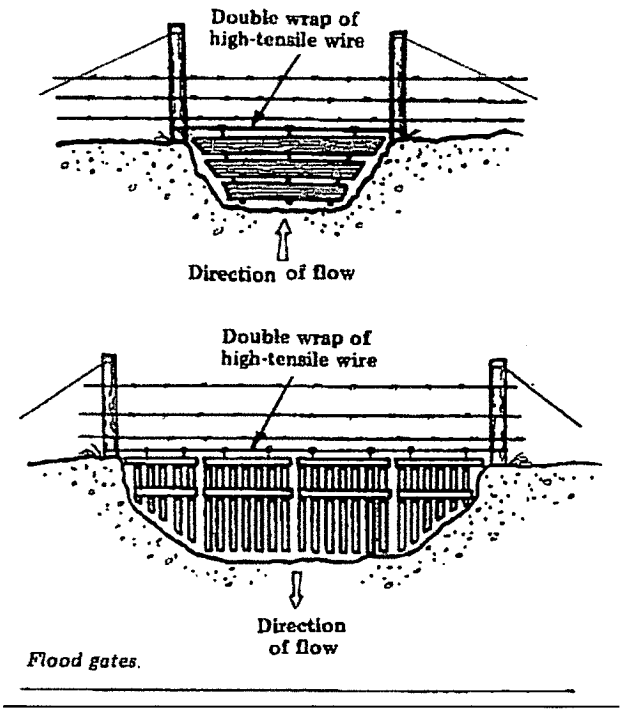


Figure 1 Free swing flood gates

Hazardous Materials

Solar energy plants have the potential to generate or spill hazardous materials during construction, operation, and/or decommissioning, which could affect wildlife, habitat, and surrounding water sources. Potential hazardous materials associated with solar energy plants include: heat transfer fluids (i.e., oils), molten salts, hydraulic fluids, coolants, lubricants, waste water, and photovoltaic panels. Most hazardous materials can be contained through good facility design, emergency planning, prudent operating practices, and proper disposal. Even general construction trash (e.g., plastic wrap, small metal scraps, and grease cartridges) can kill or injure wildlife. AGFD recommends developing a spill prevention and/or contingency plan for spills.

Solar energy plants that employ indirect energy conversion (i.e. concentrated solar power) use liquids such as oils or molten salts that may be hazardous and present spill risks. In addition, various fluids are used that are common to most industrial facilities, such as hydraulic fluids, coolants, and lubricants. These fluids may in some cases be hazardous, and present a spill-related risk. Proper planning and good maintenance practices can be used to minimize impacts from hazardous materials. If synthetic oil is involved in a spill/leak, soil should be removed to an on-site bioremediation facility and indigenous bacteria should be used to decompose the oil to acceptable levels. If inorganic salts are involved in a spill, the molten material should be immediately cooled to a solid, contained within concrete dikes and curbing, and removed or recycled back into the system.

Solar energy plants that employ direct energy conversion (i.e., photovoltaic (PV)) use solar panels that contain many of the same hazardous materials as electronic equipment waste (e.g., arsenic, cadmium, silicon). Although the panels are sealed under normal operating conditions, there is the potential for environmental contamination if they are damaged or improperly discarded (e.g., the leaching of toxic heavy metals out of the landfills into groundwater and streams). To prevent end-of-life hazards, solar plants should responsibly recycle/dispose PV panels by adhering to one or more of the following suggestions:

- create a protocol for responsible disposal of decommission PV solar panels prior to facility construction,
- determine if the PV panel manufacturers provides an Extended Producer Responsibility (EPR) service which requires the producer of the panel to take back their product thus ensuring the panels are recycled safely and responsibly, or
- recycle PV panels at existing responsible electronic waste recycling facilities or at facilities that recycle batteries containing lead and cadmium.

Mitigation

AGFD recognizes the purpose and need for renewable energy and that solar developments will impact wildlife and their habitat. Project proponents and permitting agencies should ensure that appropriate measures are incorporated into the planning and construction of the project to avoid or minimize impacts to the greatest extent possible. If these measures are insufficient to avoid negative impacts to wildlife, habitat connectivity, or depletion of water resources, mitigation can be used to offset such impacts, including cumulative impacts. The following potential mitigation options are known to protect and enhance wildlife populations at biologically appropriate locations when properly designed and implemented:

- Funding wildlife research (see Appendix B)
  - → Studies of displacement
  - → Population impacts
  - → Wildlife movement and behavior
- Offsite conservation of important/crucial/valuable habitat
  - → Nesting and breeding areas
  - → Foraging habitat
  - → Roosting or wintering areas
  - → Migratory rest areas
  - → Habitat corridors and linkages
- Offsite habitat restoration
  - → Restored habitat function
  - → Increased carrying capacity
  - → revegetation
- Offsite habitat enhancement
  - → Predator control program(s)
  - → Noxious/exotic/invasive species removal

Although impacts may occur, the ability to mitigate for them can influence whether a project is supported or not by AGFD. Practical and feasible mitigation is recommended when it will serve to minimize a project's effect on wildlife populations and their habitat. Mitigation is site- and species-specific, and must be formulated for each individual project. Mitigation should have a biological basis for ensuring protection or enhancement of the species affected by the project.

Funding wildlife research is one potential mitigation option with long-term benefits. The more knowledge about wildlife response to solar development in Arizona, the more effective recommendations can be made to avoid/minimize/mitigate impacts. When considering research as a mitigation option, consult with AGFD to help design and conduct investigations.

Mitigation can also involve the purchase of land through fee title, purchase of conservation easements, or other land conveyances for the permanent protection of the biological resources on these lands. The purchased land or easements should have biological value equal to or higher than the land lost for the target species, or community of species, affected by the solar energy

project. Please refer to AGFD's Conservation Easements Fact Sheet for more information at http://www.azgfd.gov/hgis/pdfs/LandsConservationEasement.pdf.

APPENDIX A: Wildlife and Wildlife Habitat Compensation Policy

I2.3 Wildlife and Wildlife Habitat Compensation

Effective: 06/04/1994
Process Owner: WMHB Branch Chief

Department Policy: It shall be the policy of the Department to develop adequate compensation plans for actual or potential habitat losses resulting from land and water projects in accordance with State and Federal laws. Habitat compensation plans will seek compensation at a 100% level, where feasible, and will be developed using habitat resource category designations. See Commission Policy A2.16.

Authority: The Director of the Arizona Game and Fish Department is authorized under A.R.S. Title 17-211, Subsection D, to perform the necessary administrative tasks required to manage the wildlife resources of the State of Arizona. Pursuant to those duties and in accordance with federal environmental laws and resource management acts, such as the National Environmental Policy Act, Fish and Wildlife Coordination Act, and Endangered Species Act, the Director is further charged with cooperating in the determination of potential impacts to Arizona's wildlife resources resulting from federally funded land and water projects. In addition, a Commission M.O.U. assigns similar responsibilities for evaluating proposed projects on lands administered by the State Land Department. An integral part of this process is the development of adequate compensation measures aimed at eliminating or reducing project-associated impacts.

Procedure: Criteria used to identify general compensation goals are as follows:

A. Resource Category I.

1. **Designation Criteria.** Habitat in this category are of the highest value to Arizona wildlife species, and are unique and/or irreplaceable on a statewide or ecoregion basis.
2. **Compensation Goal.** No loss of existing in-kind habitat value.
3. **Guideline.** The Department will recommend that all potential losses of existing habitat values be prevented. Insignificant changes that would not result in adverse impacts to habitat values may be acceptable provided they will have no significant cumulative impact.
4. **Habitat Types.** Habitat types associated with Resource Category I shall include, but not limited to the following examples:
   a. Perennial Stream Habitats
   b. Wetlands and Riparian habitats of at least one acre in size, which are associated with perennial waters. Biotic communities included in this classification follow descriptions provided in Brown (1982) and Henderson and Minckley (1984).
   c. Key utilization areas for species listed or proposed for listing under the Endangered Species Act of 1973 as Threatened or Endangered and Endangered State Threatened Native Wildlife species.

B. **Resource Category II.**

1. **Designation Criteria.** Habitats in this category are of high value for Arizona wildlife species and are relatively scarce or becoming scarce on a statewide or ecoregion basis.
2. **Compensation Goal.** No net loss of existing habitat value, while minimizing loss of in-kind value.
3. **Guideline.** The Department will recommend that all potential losses of Resource Category II habitat values be avoided or minimized. If significant losses are likely to occur, the Department will recommend alternatives to immediately rectify, reduce, or eliminate these losses over time.
4. **Habitat Types.** Habitat types associated with Resource Category II shall include, but not limited to, the following examples:
   a. Key utilization areas for antelope and bighorn sheep.
   b. Key utilization areas for Threatened and Candidate State Threatened Native Wildlife species, candidate species for federal listing as Threatened or Endangered (Categories I and 2).
   c. Actual or potential reintroduction sites for species that are listed as Extirpated or Endangered on the State Threatened Native Wildlife list.
   d. Blue ribbon fishing areas (i.e., Lee's Ferry and Becker Lake).
   e. Isolated mountain ranges provided Subalpine-coniferous forest habitats (i.e., Pinaleno Mountains).
   f. State and federally operated game preserves, refuges or wildlife areas.
   g. Montane meadows.

C. **Resource Category III.**

1. **Designation Criteria.** Habitats in this category are of high to medium value for Arizona wildlife species, and are relatively abundant on a statewide basis.
2. **Mitigation Goal.** No net loss of habitat value.
3. **Guidelines.** The Department will recommend ways to minimize or avoid habitat losses. Anticipated losses will be compensated by replacement of habitat values in-kind, or by substitution of high value habitat types, or by increased management of replacement habitats, so that no net loss occurs.
4. **Habitat Types Involved.** Habitats in this category are of a natural, undisturbed condition or they involve bodies of water of economic importance and shall include, but not be limited to, the following examples:
   a. Chihuahua, Great Basin, Mohave, and Sonoran Desert habitat types.
   b. Desert-grasslands and Chaparral zones.
   c. Oak and coniferous woodlands and coniferous forests.
   d. Reservoir habitats.

D. **Resource Category IV.**

1. **Designation Criteria.** Habitats in this category are of medium to low value for Arizona wildlife species, due to proximity to urban development or low productivity associated with these lands.
2. **Mitigation Goal.** Minimize loss of habitat value.

3. **Guideline.** The Department will recommend ways to avoid or minimize habitat losses. Should losses be unavoidable, the Department may make a recommendation for compensation, based on the significance of the loss.
4. **Habitat Types Involved.** Habitat types associated with Resource Category IV shall include, but not be limited to, the following examples:
   a. Agricultural Lands.
   b. Undeveloped urban areas (i.e., land proximal to waste water treatment facilities, municipal mountain preserves, and undeveloped lands in proximity to municipal and industrial areas).
   c. Habitats exhibiting low wildlife productivity as a result of man's influence.

APPENDIX B: Research Concepts

Information regarding impacts of utility-scale solar development on wildlife and habitats is lacking. In order to inform planning, development, and mitigation, AGFD has identified the following top solar-wildlife research needs in Arizona:

- Determine the "effective footprint" of utility-scale solar development so mitigation strategies can be implemented at the spatial extent of the impact.
    - Determine the potential effects of a proposed solar project on the demographics of select wildlife species.
- Evaluate the alteration of vegetation and micro-climate adjacent to solar facilities.
- Identify the impact that utility-scale solar development has on wildlife corridors.
    - Evaluate the movement and behavior patterns of select wildlife species (e.g. ungulates, grassland passerines, raptors) pre- and post-construction.
- Examine the impacts to migratory birds and bats.
- Develop mitigation strategies to reduce the impacts of water impoundments associated with solar facilities.

What is the "effective footprint" of utility-scale solar development?

AGFD's Research Branch has developed a monitoring plan to elucidate whether the impact of utility-scale solar projects stops at the project boundaries or if it extends beyond the project's physical footprint. This monitoring approach would inform planning, development, and mitigation on future projects by determining the true impacts from habitat loss, degradation, and fragmentation on wildlife habitat and connectivity. Our goal is to implement research on a landscape-scale by partnering with the solar industry, thereby allowing us to make accurate predictions regarding the impact that these projects will have on Arizona ecosystems. This data will greatly inform the appropriate planning and mitigation necessary to reduce impacts to wildlife and their habitat.

How do we mitigate the impact of utility-scale solar development on wildlife corridors?

The impacts of utility-scale solar development on the temporal and spatial movement patterns of wildlife are poorly understood. It is imperative these impacts are identified early in the development of the State's solar resources so that the location, configuration, and extent of future facilities are compatible with AGFD's vision for an interconnected network of conservation areas that maintain viable wildlife populations. A considerable amount of work has been done to identify, at the broad-scale, important habitat linkages that allow for the exchange of individuals among populations – a key ingredient in the long-term persistence of wildlife populations. AGFD, in a partnership with the solar industry, could identify the constraints that solar development exhibits on wildlife movement in an effort to develop proactive management recommendations that will lead to the coexistence of wildlife movement corridors and a renewable energy infrastructure.

How are vegetation and micro-climate affected by the development of utility-scale solar facilities?

Many of the proposed solar facilities will be located in what is currently considered intact wildlife habitat. These areas provide the resources required for survival and reproduction, namely access to food, water, shelter, and mates. It is unclear what the impact will be to adjacent habitat outside of the physical footprint of solar facilities although there is concern that alteration of vegetation and micro-climate resulting from solar reflectance and groundwater pumping will adversely affect wildlife habitat. These impacts need to be evaluated in order to develop habitat management strategies that retain the necessary characteristics of those habitats for wildlife persistence.

Are there impacts to migratory birds and bats resulting from the development of utility-scale solar facilities in desert ecosystems?

Some initial monitoring of large utility-scale solar facilities has shown bird mortality due to collisions with structures and burns from concentrated sunlight and mirrors. The incidence of bird collisions with solar facility structures may be amplified by the presence of open water impoundments. These water impoundments also have the potential to attract bats and increase an additional mortality risk due to collision or poisoning due to water quality issues (similar water quality issues are of concern for all wildlife). It has been shown that the heat from concentrated sunlight has lead to the mortality of birds, especially aerial forages (swifts and swallows). The mortality is thought to occur during morning startup, testing, and maintenance when the mirrors are refocused on "standby" points of sky around the tower.

Can water impoundments (i.e., salinity pools) be managed to benefit wildlife species?

Water is a limiting resource for many species that inhabit desert ecosystems. Although groundwater pumping has the potential to adversely impact habitat, the addition of water sources in the form of impoundments that are constructed as part of the solar facility could serve to benefit wildlife. AGFD has conducted a significant amount of research regarding the importance of water sources for desert wildlife and these results could be applied to water sources developed by solar facilities. As mentioned above, the attractive nature of water impoundments in Arizona can increase the likelihood of wildlife interacting with the infrastructure of the solar facility. In addition, poor water quality issues of open water impoundments can lead to increased wildlife mortality.

WILDLIFE FRIENDLY GUIDELINES

COMMUNITY AND PROJECT PLANNING

Arizona Game and Fish Department

Table of Contents

Introduction 3
Purpose 3
The Future for Arizona's Wildlife 3
$$$ Economics and Wildlife 3
Planning at Different Scales: The Roles of Community and Project Planners 3

Community Scale - Planning for Wildlife 5
Wildlife Habitat Connectivity 5

Identifying Wildlife Resources in your Planning Area 6
Wildlife Species Identification 6
Crucial Habitat Identification 6
Wildland Block and Corridor Assessment for Your Planning Area 9

Incorporating Wildlife Conservation into Community Comprehensive or Regional Plans 11

Incorporating Wildlife Conservation into Community or Regional Transportation Plans 15
Maintaining Wildlife Travel Corridors & Minimizing Habitat Fragmentation across Roads and Through Development 15

Conservation Lands Systems / Open Space Programs 19
Considerations for Conservation Lands Systems 19
Habitat Conservation Plans (HCP) 20

Project Scale - Planning for Wildlife 22
Wildlife Habitat Connectivity 22

Identifying Wildlife Resources in your Project Area 23
Wildlife Species Identification 23

Commercial/Industrial Land Uses 26
Pollution Discharge Permitting & Stormwater Management 26
General Guidelines for Managing Stormwater Runoff for Wildlife Benefits 26
Water Resource Management – Grey Water Use, Conservation 27
General Guidelines for Using Recycled Water to Benefit Wildlife 27

Residential Land Uses 29
Integrated Conservation Design 29

Human/Wildlife Interface 32
Living with Urban Wildlife, Landscaping for Desert Wildlife 32
Fencing to Buffer Natural Areas from Urban Areas 32
Nature Hiking/Biking Trails within Development and Connection with Regional Trails 34

Lighting 35

Glossary 37

Citations 39

Appendix I 42

Introduction

Purpose

These guidelines are intended to provide community and project planners the necessary information and tools to help protect wildlife and wildlife *habitat* in and around their planning area.

The Future for Arizona's Wildlife

The Arizona Game and Fish Department's (Department) vision of a 'wildlife friendly' Arizona includes interconnected networks of large ***wildland blocks*** supporting viable populations of all native species, while providing ample opportunity for people to enjoy and benefit from the presence of wildlife. The Department's vision for the future of Arizona also includes:

- Developing Arizona communities along transportation and infrastructure corridors that are ***permeable*** to wildlife movement.
- Incorporating wildlife passage structures into roadways to improve human safety.
- Planned communities where residents can enjoy positive wildlife viewing experiences from retained contiguous areas of open space along wildlife movement ***corridors*** and ***riparian*** areas that connect to larger wildland blocks.
- Within individual developments, limiting the proportion of disturbed area, utilizing native vegetation, and encouraging water conservation, ultimately allowing residents to enjoy and appreciate Arizona wildlife in their community while avoiding negative interactions.

$$$ Economics and Wildlife

Arizona is a state rich in natural resources with wildlife being one of its most valuable assets. With more than 900 animal species and 50 million acres of public land, Arizona provides some of the best wildlife related recreational opportunities in the nation. The annual economic impact of fishing, hunting, and wildlife watching alone in Arizona is 2.1 billion. In 2006, 1.5 million Arizonans engaged in wildlife associated recreation, with a significant number (1.3 million) participating in wildlife watching activities (US Census Bureau, 2006). The economic return for investing in wildlife conservation is enormous. The promotion and incorporation of natural areas, wildlife, and native landscaping in community planning and development projects, can reap significant financial returns.

Planning at Different Scales: The Roles of Community and Project Planners

Community Planning

Planning for responsible development is done at two scales: the community scale and the project scale. Community planning occurs at the ***landscape*** level. Community planners are typically professional planners employed by counties, cities, or associations of local governments. The role of the community planner is to work with community leaders to develop comprehensive or regional plans, and to assist community leaders with decisions related to industrial, commercial, residential, recreational, and municipal land uses. Community planners work with state agencies to plan the transportation and infrastructure of an area, and with planners from other communities to foster coordination and cooperation in developing compatible plans. The role of the Department at the landscape scale is to delineate areas of conservation priority and the lands

that provide wildlife means of moving between these areas (***wildlife linkages)***. **Community planners are encouraged work with the Department to identify the open spaces and wildland blocks to be maintained in their area, and the necessary connections between those blocks to be preserved or protected**. They are also encouraged to coordinate with developers to ensure new projects are compatible with the community comprehensive/regional plan and fit into the landscape-scale patchwork of existing projects so natural open spaces and wildlife corridors/habitats stitch together across developments and across land ownerships.

Project Planning

Project scale planning occurs at the level of the individual development. Project planners are typically comprised of a team of planners, engineers, and consultants hired by the developer to implement the design concept of a residential, commercial, or industrial development project. Project planners should work with community planners and the Department to ensure wildlife habitat ***connectivity*** and permeability are maintained across development projects. **The role of the community planner at the project scale should be to help developers understand the impacts their project may have at the landscape level and avoid, mitigate, or minimize those impacts. Project planners should also work with the Department to avoid impacts to wildlife, including threatened and endangered species in the project area and localized sensitive wildlife habitats.** It is at the project scale that community planners, project planners, and the Department can work together to design land use projects that maximize wildlife permeability and minimize human-wildlife conflicts.

Community Scale - Planning for Wildlife

The goal of responsible planning for wildlife at the ***landscape*** or community scale is to balance the growth, diversity, and mobility of Arizona residents with the sustainability, diversity, and mobility of Arizona wildlife. Communities can achieve this goal by incorporating wildlife planning into their regional/comprehensive plans, their regional transportation plans, and their open space/conservation land system programs. An effective approach to wildlife planning begins with the identification of the wildlife resources in need of protection, an assessment of important ***wildland blocks*** and connective ***corridors***, and the incorporation of these critical wildlife components into the community plans and programs.

Wildlife Habitat Connectivity

Arizona's natural environment is extremely diverse, ranging from tundra on the San Francisco Peaks to the Mojave Desert. Within this range of environments is an equally diverse assortment of habitats and wildlife. In fact, Arizona has the 3rd highest ***biodiversity*** in the United States (NatureServe 2002). Many species require different habitats in different seasons and need to be able to move long distances between habitats, hence the need for wildlife habitat connectivity. For a wildlife population to be ***sustainable***, it must have adequate habitat resources in large, contiguous swaths of undisturbed natural areas (wildland blocks). Fragmentation of wildland blocks reduces wildlife's ability to survive and reproduce. Smaller blocks can often be useful, if provisions for movement between blocks (***connectivity***) are adequate.

As connectivity between wildland blocks is lost, isolation deprives species of their daily, seasonal, and lifetime needs. Loss of connectivity deprives animals of resources, reduces gene flow, and prevents animals from re-colonizing areas where ***extirpations*** have occurred, and ultimately prevents animals from contributing to ***ecosystem*** functions such as pollination, seed dispersal, control of prey numbers, and resistance to ***invasive*** species. Maintaining biodiversity and ecosystem functions requires habitat connectivity. Connectivity can be established through dedicated corridors of undisturbed lands or other forms of open spaces (parks/preserves/monuments) that support wildlife and allow wildlife to move between ***(permeable)*** wildland blocks. Disturbed areas (agriculture, flood control areas, low density residential areas) can also support wildlife and may act as corridors, especially if the disturbance is managed so as to minimize impacts to wildlife.

Both the wildland blocks and the corridors can also contribute to meeting the economic, recreational, social, and aesthetic needs of people. Smart planning is the key to retaining connectivity between large wildland blocks and increasing the value of disturbed areas to both wildlife and people. Striking the balance between the needs of people and the needs of wildlife is the essential element of responsible development.

Identifying Wildlife Resources in your Planning Area

The first step in protecting wildlife resources is to determine which ***species of conservation concern*** are in the area and what ***crucial habitats*** are required to sustain them. There are several tools available to help planners identify species and habitats within their planning areas. In addition, the Arizona Game and Fish Department (Department) will work directly with community planners to identify resources and incorporate conservation concepts into planning documents and maps.

Wildlife Species Identification

Obtain a Species List:

a. The U.S. Fish and Wildlife Service provides species information at a county level for all listed Threatened and Endangered Species. http://www.fws.gov/southwest/es/arizona/
b. The Department also provides wildlife lists by county and by species. http://www.azgfd.gov/w_c/edits/hdms_species_lists.shtml.
c. The Department also has a Geographic Information System (GIS) tool – The Online Environmental Review Tool (http://www.azgfd.gov/hgis/) from which you can obtain a ***special status species list***. Keep in mind that this online tool generates lists primarily for smaller scale planning efforts.
d. The Department is in the process of developing a Geospatial Planning Tool which will allow overlays of species, stressors, ***biodiversity hot spots***, and infrastructure layers.

Crucial Habitat Identification

The Department can help determine where crucial habitats exist, and where they should be preserved. There are also many resources and identification books available to assist in your planning efforts to identify habitats within planning areas including Brown, D. E., and C. H. Lowe (1980).

Crucial Habitat Types:

1. **Riparian Areas / Wetlands**

   Throughout Arizona, aquatic systems and associated ***riparian*** areas play a major role in maintaining biodiversity and often serve as movement corridors in the landscape context. Riparian communities and aquatic habitat provide migratory birds, pollinating insects, and bats with vital travel corridors for annual migrations. Scattered throughout the state, wetlands, springs, ***cienegas*** (marshes), and seeps provide important habitat for a large number of species.

   True wet meadows or wetlands with decisively moist organic soils are rare in Arizona, but include cienegas in the eastern and southeastern parts of the state and wet meadows and boggy areas in the higher elevations. Wet mountain meadows and streams are highly productive and provide important habitat for ***endemic*** plants and wildlife such as the Arizona willow, Mogollon paintbrush, White Mountains clover, and Apache trout.

Riparian areas in the Southwest are crucial habitats for wildlife sustainability. Even though riparian areas make up less than 2% of the total land area in the arid western United States, they are considered the most productive and ***ecologically diverse*** habitats in Arizona. The role of riparian areas is disproportionate to their size because of their many ecological functions, most importantly:

- Fish and wildlife habitat – 70% of all threatened and endangered vertebrate species in Arizona depend on riparian areas
- Increased water storage and recharge for aquifers
- Reduction of floodwater runoff
- Filtration and retention of upland sediment
- Reduction of chemical inputs from uplands by immobilizing, storing, and transforming
- Stabilization of stream banks and build up of new stream banks

Conservation Recommendations

- Preserve any existing self-sustaining riparian and aquatic ecosystem.
- Strive to protect ephemeral wetlands and ponds which provide important rearing, feeding, and life cycle opportunities for amphibians and other wildlife.
- Do not fragment wetlands with roads, trails, or buildings regardless of wetland size.
- Provide a buffer of upland vegetation of 100 feet or more around the wetland to protect it from sediment and chemical runoff and other degradation.
- Prevent pesticide, lawn, and farm chemicals including fertilizer and petroleum products from reaching the wetland.
- Expect and allow natural fluctuations in water levels. Minimize channelization and allow for natural movement of water over landscape during flood events.
- Minimize disturbance to your wetlands. Enjoy birds and other wildlife from afar.

2. Desert Habitat

Arizona contains portions of 4 different deserts, each with a distinctive biotic community: The Great Basin, Mojave, Chihuahuan, and Sonoran (Brown and Lowe, 1973). Of these, the Sonoran is the most imperiled by development. The flora of the Sonoran Desert is derived from subtropical elements, typically more intensively vegetated and composed of various vegetation communities whose biodiversity is among the highest of any desert in the world (Phillips and Comus 2000). Upland Sonoran desert scrub (Arizona has more than any other state), semi desert grassland, and ***xeririparian*** wash vegetation communities all provide important habitat to Arizona's diverse biotic community. The emblematic saguaro cactus is found in this community, as are numerous other succulent species including: chollas, pincushions, barrel cacti, organpipe, ocotillo, hedgehog, and prickly-pear. Saguaros provide important nesting habitat and food for a variety of desert wildlife, including gilded flickers, elf owls, and purple martins.

Conservation Recommendations

- Conserve forests of large, mature ironwood, mesquite, and palo verde. The cover and nutrition that mature desert trees provide is a critical resource for many desert wildlife species.

- Conserve large stands of saguaro cacti. Saguaro provide critically important nesting and roosting cavities for a variety of wildlife, and their flowers and fruits are an important foraging resource, particularly for nectar-feeding bats and doves.
- Conserve upland Sonoran Desert scrub to capitalize on its unique biological and aesthetic value to provide high quality open space and passive recreational opportunities.
- Utilize underpass crossing structures for wildlife when planning highways and roads through desert habitats.

3. Hardwood Tree Forests

Hardwood trees, such as aspen and oak, provide food and shelter for a wide array of Arizona's wildlife, while also providing soil stability to minimize erosion. Aspen forests are important for biodiversity: over 130 bird species use aspens for cavity nesting as well as insect-foraging in the leafy canopy. Aspen are also important forage and thermal cover for small and large mammals (from the chipmunk to the elk). Gambel's oak is particularly important in ponderosa pine forests because it provides rare forest understory habitat. Large, mature oak trees with cavities are the most important roosting sites for bats in ponderosa pine forests and Mexican spotted owls use these large oaks for thermal protection and hunting. Oak acorns provide essential nutrition for many wildlife species including bears, squirrels, and deer.

Conservation Recommendations

- Preserve aspen and mature oak forests within the planning area.
- Limit grazing and over-browsing of aspen stands. Grazing and over-browsing can significantly reduce aspen regeneration, understory foliage volume, and the structural diversity important for numerous bird species. Encourage community construction projects to build and maintain fences around aspen stands. Fences should be a minimum of 8 feet tall.
- Discourage cutting of mature and standing dead oak. These large oaks provide a very significant and rare habitat resource for wildlife and should be preserved wherever possible.

4. Grasslands

Grassland systems have great social, economic, and ecological value. Historically, grasslands occurred across one-third of Arizona – over 24 million acres. They provide unique wildlife habitat and play an important role in water collection and percolation to help form the headwaters of rivers such as the Verde and San Pedro. There are many sensitive wildlife species that specialize in grassland habitats including: pronghorn, prairie dogs, burrowing owls, and ferruginous hawks.

Grasslands are recognized by many as the most imperiled ecosystem worldwide. Grasslands in Arizona have changed considerably over the last 130 years, due primarily to agricultural and urban conversion but also due to the invasion of woody shrubs such as mesquite and juniper. Only 31% of the state's former grasslands are in good condition, containing their native perennial grasses and low shrub cover.

Conservation Recommendations

- The Department recommends preserving any native grassland in the planning area to ensure persistence of grassland birds and other grassland wildlife.
- Avoid planning highways across grasslands. Highways can cause significant fragmentation of habitat for grassland wildlife such as pronghorn. Because of their keen ability to detect movement from great distances, pronghorn will often avoid and refuse to cross high-traffic roadways.

Wildland Block and Corridor Assessment for Your Planning Area

The most effective way to ensure wildlife sustainability and habitat ***connectivity*** in your community is to delineate where the wildlife ***wildland blocks*** and ***corridors*** occur within your planning area. Once delineated, this information becomes a useful planning tool to help guide and inform growth, transportation, and conservation decisions that may impact wildlife and their habitats.

Delineating Wildland Blocks

Wildland blocks are large contiguous pieces of relatively undisturbed land dominated by natural vegetation that support habitat for a diverse array of native species, and have low levels of urbanization and agriculture. In general, wildland blocks should be large in size and have a relatively high area to perimeter ratio.

One approach to delineating wildland blocks in a planning area is to use distribution data for the suite of wildlife species potentially existing within a planning area. Species to include are typically identified by a scientific advisory committee assisting with plan development. Steps in the process are:

a. Determine threatened, endangered, and sensitive species within the area
b. Select a focal set of other species that represent the range of biodiversity for your area. Include species that have large-area requirements for survival (such as deer, bobcat, bear, or mountain lion).
c. Determine the boundaries of suitable habitat for the suite of species.
d. Establish a boundary around the relatively undisturbed area necessary to sustain populations of the species in the focal group.

Another approach is to use public land ownership boundaries within your planning area. Large areas of public ownership typically have a lower probability of habitat fragmentation relative to private and State Trust lands, and will encompass most of the primary habitats for wildlife in your planning area. Keep in mind, however, that wildland blocks can include State Trust or private lands if they are relatively unfragmented, dominated by natural vegetation that support habitat for a diverse array of native species, and have low to moderate levels of urbanization and agriculture. A combination of the approaches above should be assessed and utilized to appropriately identify wildland blocks within your planning area. For further assistance and available information contact the Department Regional office or the Phoenix Headquarters. Contact info can be found at: http://www.azgfd.gov/inside_azgfd/agency_directory.shtml.

Wildlife Corridors

Community Scale Planning

Wildlife corridors are the connections between wildland blocks that facilitate wildlife movement between areas. Corridors are critical for wildlife with large-area requirements, those species that migrate seasonally, and for all wildlife to maintain genetic diversity.

Corridor width requirements vary by the species that use them. For example, a flat-tailed horned lizard may not require a corridor as wide or as long as what might be needed for a black bear to pass safely from one habitat block to another. By planning corridors for those wildlife species with the largest width requirements, you can assume that you have provided the appropriate corridor width for most if not all of the wildlife species in your planning area.

So what makes a wildlife corridor? Streams, washes, canyons, and mountain ridges are some of the most frequently used landscape features for wildlife movement. Among these, ***riparian*** corridors are crucial because they house the highest wildlife diversity and yet are among the rarest landscape features in Arizona. When possible, planners should consult with the Department and local biology and wildlife experts to identify crucial wildlife movement corridors in their planning area. To identify wildlife corridors consider:

1. The Arizona Wildlife Linkages Assessment provides a broad framework of ***wildlife linkages*** and wildland blocks that exist around the state http://www.dot.state.az.us/Highways/OES/AZ_WildLife_Linkages/assessment.asp. The assessment document and map are the initial efforts to identify potential linkage zones that are important to Arizona's wildlife and natural ***ecosystems***. While this is only the first step in a continuing process of defining crucial habitat connectivity areas, it provides an extremely valuable planning tool for community planners.

2. The Department is currently working to further define and identify wildlife corridors within each county of the State. Wildlife linkages identified in Maricopa County are nearly ready for public distribution, and the identification process is set to begin for Coconino County in the near future. Please contact your Department Regional Office or the Phoenix Headquarters for updates and further information. Contact information can be found at: http://www.azgfd.gov/inside_azgfd/agency_directory.shtml.

3. If wildlife corridors have not been defined, topographic features such as streams, washes, ridges, and canyons may be used in a GIS framework to determine potential corridors. For more information on approaches to wildlife corridor assessment, refer to the Corridor Design website http://www.corridordesign.org/.

Incorporating Wildlife Conservation into Community Comprehensive or Regional Plans

Community planners have several tools they can use to incorporate wildlife conservation into local land use decision-making. Below is a list of examples of the types of planning tools that can guide responsible development for wildlife in your community.

1. **Wildlife Conservation Policies**
   County and regional plans that identify conservation of wildlife and their ***habitats*** as a goal or policy are a powerful tool for responsible development. Wildlife protection policies give community planners the authority to recommend wildlife habitat mitigation measures as part of the approval process in land use planning and zoning cases. Mitigation measures can be important to ensure "no net loss" of wildlife habitat, allowing for ongoing development, but providing conservation in other areas.

   Select Examples from Arizona Communities:

   - Coconino County Comprehensive Plan, 2003 Natural Environment Goal: "Protect wildlife communities and their habitat." See the Natural Environment section on pages 23-32.
   - Pima County Comprehensive Plan, Updated 2007 Environmental Element, Natural Resources, Conservation Lands System: "Conservation actions are to be encouraged, and protection of biological resources is considered an essential component of land-use planning." See Regional Plan Policies pages 39-47.
   - Maricopa County Comprehensive Plan: 2020 Eye to the Future, 2002 Policy EE4.2: "Encourage protection of all endangered and threatened plants and wildlife designated on the Endangered Species List for Maricopa County.", and Policy EE4.3: "Encourage the development of ***corridors*** linking established and proposed open space areas to allow migration of wildlife and encourage ***biodiversity*** of species."
   - City of Yuma, General Plan, 2002 Conservation and Environmental Element, Objective: "Promote the protection of the diverse wildlife in the Yuma area and the protection of natural habitats."

2. **Open Space Policies**
   Community open space is often composed of active recreation parks such as playgrounds, soccer fields, and golf courses. But when composed of undisturbed natural areas, community open space can serve as an important wildlife linkage between ***wildland blocks*** while also providing positive wildlife viewing experiences for community residents and visitors. Wildlife-based open space goals, policies, and objectives should be incorporated into county and regional plans, or within other departmental planning documents such as parks and recreation plans, regional open space and greenway plans, or natural resource management plans.

Select examples from Arizona communities:

- Pima County Region Plan, Policy 6 Environmental Element, Natural Resources, Conservation Lands System (amended 2005): "Ensure the long-term survival of the full spectrum of plants and animals that are indigenous to Pima County through maintaining or improving the habitat conditions and ecosystem functions necessary for their survival".
- Pinal County Open Spaces and Trails Master Plan 2007, Objective 1.1: "Preserve, protect, or conserve areas of critical habitat and high habitat value and wildlife movement corridors".
- City of Tucson, 2001 General Plan Element 10: Parks, Recreation, Open Space, and Trails (PROST), "Promote the preservation and protection of remaining natural riparian habitats along all watercourses designated as trail corridors to recognize their multiple values for recreation, flood control, wildlife habitat, and open space".
- City of Flagstaff 1998 Open Spaces and Greenways Plan: "Conserve natural ecosystems and wildlife habitats to be compatible with human needs for recreation functioning watersheds and community safety. Minimize the loss of critical wildlife habitat to keep wildlife in and around Flagstaff".

3. Environmentally Sensitive Lands Policies and Ordinances

Policies in county/regional plans that emphasize conservation of environmentally sensitive lands are encouraged, and can be translated into ordinances that prevent development of those resources within a planning area. Environmentally sensitive lands are those with critical resources such as: floodplains, riparian zones, rivers and streams, wetlands, springs and seeps, steep slopes, and known crucial wildlife habitat and movement corridors.

4. Wildlife Reference Maps

Many county and regional plans will include maps of land use zoning and planned roads and trails, among other existing and future land uses within the planning area. Maps are useful tools in county and regional plans because they help guide specific types of development in appropriate locations, and they help users identify where issues may arise based on proposed changes in land use.

Wildlife species and habitat reference maps can be used alongside other planning maps. If community planners and project developers know ahead of time that a proposed land use has the potential to negatively impact a wildland block or corridor (see above), they can identify the steps necessary to avoid and mitigate their potential impact. County and regional plans can also authorize the use of these wildlife reference maps in the planning and zoning decision-making process to regulate those impacts to wildlife (see Conservation Lands System, below).

In addition to the steps listed above for identification of species and habitats within planning areas, planners should also contact Regional Arizona Game and Fish Department offices for additional area-specific information on wildlife, habitats, and corridors for incorporation into planning maps. Contact information can be found at:
http://www.azgfd.gov/inside_azgfd/agency_directory.shtml

5. Zoning Designs to Conserve Wildland Blocks

The long-term viability of Arizona's wildlife depends on appropriate placement and planning of development. The Arizona Game and Fish Department (Department) encourages communities to guide development along available and planned infrastructure, utilities, and services, balanced with the available water supply.

a. Design wildlife corridors through developing communities to maintain connectivity between wildland blocks. Wildlife reference maps that identify wildland blocks and corridors can assist with zoning decisions. Coordination with the Department will also help ensure that wildlife corridor design and placement will be beneficial to local wildlife.
b. Avoid disconnected or spot development outside infrastructure corridors to avoid fragmentation of otherwise contiguous wildland blocks.
c. Encourage infill development within already urbanized zones.
d. Encourage a decreased intensity of land use as you move away from growth corridors, where low-density residential is the last development at the interface of wildlife wildland blocks. This zoning design creates a gradient or buffer effect between intensive human uses and wildlife. Development within growth corridors has the least impact to wildlife when it follows an integrated conservation design, described in #6 below.

6. Integrated Conservation Design

County and regional plans can also use policies to encourage creative planning and development that minimizes the loss of wildlife habitat and environmentally sensitive areas. These policies typically involve the incorporation of open space into development design. Ideally, these open space areas connect to larger wildlife corridor systems or protect environmentally sensitive lands such as wetlands, ***riparian*** areas, or steep slopes. Though implemented at the project scale, we encourage communities to recognize and describe these tools at the county/regional plan level to pave the way for their usage.

a. Clustering

This approach involves clustering development on a portion of the property that is less environmentally sensitive and allows the same net density that would be permitted with a conventional grid design under the existing zoning.

i. Clustering can be implemented through zoning ordinances that specifically allow clustering, or
ii. By amending existing zoning ordinances to allow clustering without a zone change.
iii. When a cluster approach is combined with the specification of building envelopes (designated spaces where structures are permitted), the land surrounding each site plus all other undeveloped land can be held in common by all owners for wildlife conservation purposes.
    - For an Arizona community example, see Coconino County's Planned Residential Development Zoning Ordinance: http://www.coconino.az.gov/uploadedFiles/Community_Development/Section13.pdf.

b. Transferring Development Rights (TDR)

This approach is another means of protecting highly sensitive wildlife wildland blocks and corridors in your planning area. It allows area sending property owners to realize an economic benefit from their property without having to develop the entire property. It also allows receiving area property owners to develop at densities greater than is permitted under the existing zoning. TDR programs can be implemented through direction provided in the county/regional plan, and then followed by development of a new ordinance.

- For an Arizona community example, see Pima County's Transfer of Development Rights (TDR) Program: http://pimaxpress.com/planning/

c. Density Bonus

An incentive-based approach where density of a developed area increases proportionately with every increase in area set aside for open space. Again, this type of approach is typically implemented via ordinance but is good to recognize at the county/regional plan level in order to ensure consistency in planning.

- For an Arizona community example, see Cochise County's Subdivision Regulation 603: Residential Conservation subdivision that awards a 30% density bonus to subdividers willing to dedicate 50% of their land for permanent open space

7. Conservation Acquisition and Easement

Perhaps one of the simplest and best ways to ensure wildlife habitat connectivity at the community scale is through purchasing lands in ***fee simple*** to set aside for conservation. Many Arizona communities have passed voter-approved bonds and initiatives that generate funds for the purpose of acquiring lands for public parks and natural open space. Recognition of this strategy in the county comprehensive plan or city/town general plan is an appropriate first step toward open space programs. Incorporating wildlife habitat connectivity objectives into those open space programs is one of the most effective methods you can use to ensure development does not occur in areas where wildlife will be most sensitive to habitat loss.

Rarely, however, do communities have the funds to purchase land in fee simple. One alternative to fee simple purchase is the purchase or donation of ***conservation easements***. Conservation easements allow landowners to retain their property and associated tax benefits, while restricting development rights in perpetuity. Conservation easements are flexible and can be tailored to meet the needs of all parties involved. In most cases, they are purchased for a portion of the land's fair market value and a third party, such as a government agency or a nonprofit land trust, holds the easement. Conservation easements are very effective tools for wildlife conservation, particularly on large ranchlands or in areas where wildlife habitat corridors pass through urbanizing areas.

Incorporating Wildlife Conservation into Community or Regional Transportation Plans

Transportation planning can have very direct impacts to wildlife (Panayides, 2006). As Arizona's urban and rural communities continue to expand, an increasing network of roadways are being planned and constructed to accommodate population growth. Where interstates are expanded and new highways are constructed, commercial and residential development is never far behind. As transportation systems are expanded outward, impacts to important wildlife ***habitats*** and ***corridors*** can be significant.

Roads act as barriers to wildlife, changing the physical ***landscape*** by altering hydrology and vegetation cover (1000 Friends of Florida, 2006-2007), and creating structures that some wildlife physically cannot cross over or under. **While road density may be a commonly used tool to measure impacts to wildlife, consideration should be given to the fact that road design and traffic volumes for any given area will have different impacts to different wildlife species** (Irwin, 2009).

To successfully design a transportation system that promotes human safety and minimizes impacts to wildlife, coordinate early and often with the Department and other wildlife stakeholders. There are generally two opportunities to reduce the impacts of roads on wildlife:

1. Modify current design and infrastructure of existing roads to accommodate wildlife passage (e.g. culverts, underpasses, overpasses, bridges)
2. Proactively plan, design, and engineer appropriate infrastructure through planned roads, highways, and other roadway networks to allow larger mammals to safely pass.

Efficient transportation planning can play a vital role in shaping where and how new growth occurs. Evaluating the overall landscape for ***wildland blocks*** and corridors, coordinating with state & federal wildlife management agencies, and understanding how transportation plans can facilitate future development are all essential to reducing or avoiding potential impacts to wildlife and their habitats.

Maintaining Wildlife Travel Corridors & Minimizing Habitat Fragmentation across Roads and Through Development

Fencing can act as a barrier to wildlife when construction is done without regard or knowledge of specific wildlife in the area. If fencing is necessary, it should be designed to allow for wildlife permeability, where appropriate and safe, and without compromising the intended use of the fence. Fencing design and roadway infrastructure engineering must be considered concurrently to allow for wildlife passage and to minimize vehicle – wildlife collisions.

One of the first steps a planner should take is to identify wildlife species, habitats, wildlife corridors and movement patterns of wildlife in the planning area.

Community Scale Planning

1. Available Maps and Tools to Identify Wildlife Corridors

- Arizona Wildlife Linkages Assessment at http://www.dot.state.az.us/Highways/OES/AZ_Wildlife_Linkages/index.asp
- The Maricopa County Wildlife Linkages Assessment will be available in 2009. Additional County wildlife linkage assessments will be forthcoming.
- Arizona Linkage Design Reports at http://www.corridordesign.org/arizona/
- The Department is developing a Geospatial Planning Tool which will allow overlays of species, stressors, ***biodiversity hot spots***, and infrastructure layers.
- Road kill database – Arizona Game and Fish Department & Arizona Department of Transportation
- Also see the 'Wildland Block and Corridor Assessment for Your Planning Area' section, above.

2. Overarching Recommendations

These are general recommendations for planners to consider, but each planning area is unique and will require specific guidelines be developed to ensure successful conservation efforts.

- Fragmentation of wildland blocks or contiguous habitat should be avoided whenever possible. If these wildland blocks must be fragmented, mitigate through the appropriate wildlife crossing structure (see 'Integrating Crossing Structure Engineering Guidelines' below).
- Where multiple roads serve the same destination or population centers, consolidation of the roads should be considered to avoid further habitat fragmentation.
- If new roads are built, remove/obliterate parallel roads and revegetate with native vegetation.
- Proposed road designs within a community should be evaluated for both human safety and wildlife permeability.
- Large/wide road medians present both an opportunity and threat to wildlife. Wildlife (especially low flying birds and small mammals) attracted to habitat within the median may be at risk not only while crossing the roadway but also because of the possibility of becoming trapped between traffic lanes.
- Use native vegetation for median and sidewalk/curb landscaping whenever possible.
- When domestic livestock are not present, fences within the right-of-ways and/or within wildlife corridors should be removed.
- Fencing can also be effective in guiding wildlife to safe crossing structures (***funneling***) along roadways to prevent crossing in unwanted areas.

3. Roadway Fencing

Fence wire spacing and type of wire (smooth or barbed) should be evaluated depending on wildlife species present. Right-of-Way (ROW) fencing along roads should adhere to wildlife friendly fence design specifications which can be found at http://www.azgfd.gov/hgis/pdfs/FencingGuidelines.pdf.

4. Integrating Crossing Structures: Engineering Guidelines

- Effective wildlife crossing structures can be designed to move wildlife over or under the road, based on the wildlife species affected, topography, linkage location, and habitat structure. The websites given below provide information on these structures:
  http://www.azgfd.gov/hgis/pdfs/BridgeGuidelines.pdf
  http://www.azgfd.gov/hgis/pdfs/CulvertGuidelinesforWildlifeCrossings.pdf
  You can use road kill density information to establish appropriate crossing areas and types of crossing structure needed. Contact the Arizona Game and Fish Department or the Arizona Department of Transportation for information on road kill.
- Fencing can also be effective in guiding wildlife to safe crossing structures to prevent crossing in unwanted areas.
- More guidelines, Best Management Practices, and general information about wildlife and roads can be found in Foreman et al. (2003), Bissonette and Cramer (2008), Ruediger and DiGeorgio (2007), and Beier et al. (2008).

5. State and Regional Transportation Planning Information

Transportation planning in Arizona can be initiated from a number of sources including the Federal Highway Administration, Arizona Department of Transportation, Counties, Cities, or public organizations. **It is important for planners to identify adjacent planning efforts to ensure consistency and an integrated and holistic approach to transportation planning and wildlife conservation.** General information on planning efforts within the State can be found on the various web sites (Appendix I).

6. Regional Pedestrian/Bike Trail Systems

Hiking trails and bike routes are excellent alternatives for people to move within or across their community and can have less of an impact on wildlife than new road development. Numerous regional trails have the potential to be connected to community trail systems. Trail systems through natural areas also can be excellent wildlife-watching routes, providing recreational and educational opportunities for community residents while generating economic benefits from visiting tourists.

To minimize disturbance to wildlife, pedestrian/bike trial systems should be developed away from high quality or sensitive habitats (e.g. ***riparian*** areas, fawning/nesting sites, areas with special status species). Other suggestions for minimizing disturbance to wildlife can include utilizing natural barriers such as trees or shrubs and the existing topography (Colorado Division of Wildlife, Colorado State Parks "Planning Trails with Wildlife in Mind" 1998, http://atfiles.org/files/pdf/Primer.PDF).

The Arizona Department of Transportation's Bicycle and Pedestrian Program website provides a wide variety of resources and information about biking and walking in Arizona. This website also contains 5-year plans for potential bike/pedestrian improvements. http://www.azbikeped.org

7. Alternative Transportation (Bus, Rail)

Alternative transportation allows commuters the ability to travel in and around rural and urban centers, and can provide an indirect benefit to wildlife by reducing the need for

additional roads, thus decreasing future habitat fragmentation. A selection of alternative transportation plans and resources can be found at the websites below:

- 2007 MAG Human Services Coordination Transportation Plan http://www.mag.maricopa.gov/pdf/cms.resource/HS_2007_Coordination-Transportation-Plan53747.pdf
- 2007 PAG Human Service Coordination Transportation Plan http://www.azdot.gov
- Rural and Small Urban Regional Transportation Coordination Plans http://www.azdot.gov
- Valley Metro (Bus/Light Rail/Rideshare) http://www.valleymetro.org/default.asp

Conservation Lands Systems / Open Space Programs

A conservation lands system (CLS) is, in its simplest form, a set of lands (including water resources) managed or set aside for conservation purposes. Some plans refer to this as an open space system or conservation reserve system. It is up to the planning agency (usually a county or municipality) to develop a conservation objective and determine what management focus and strategy will be implemented within the CLS to best meet this objective. A conservation objective could be as simple as preserving a viable population of a listed species or can be a complex and multipurpose conservation vision that applies to planning and zoning, open space acquisition, and regional transportation systems.

One example of a CLS in Arizona is within Pima County. To learn more about the Pima County CLS, visit http://www.pimaxpress.com/Planning/.

Pima County describes their CLS as "designed to protect the ***biodiversity*** and provide land use guidelines consistent with the conservation goals of the Sonoran Desert Conservation Plan (SDCP)". The overarching purpose of the SDCP is to: "Ensure the long-term survival of the full spectrum of plants and animals that are indigenous to Pima County through maintaining or improving the ***habitat*** conditions and ecosystem functions necessary for their survival". See www.pima.gov/sdcp for more information on the SDCP.

A CLS identifies those components of the regional ***biogeography*** which are most important for conservation. These lands may be in federal, state, or private ownership; therefore strategies for conserving these lands will vary. Conservation can be achieved through a variety of means including acquisition of real property, acquisition of ***conservation easements***, purchase or transfer of development rights, conservation based ordinances and guidelines, and intergovernmental agreements. In most cases lands should be prioritized for their value to the conservation objective.

In many cases a CLS will identify important historic or cultural concerns as well as scenic landscapes and natural areas important for human uses. Pima County, for instance, recognizes working ranchlands as an important component of their CLS. Preserving other historic and natural aspects of a landscape will also benefit wildlife.

A CLS should be identified and implemented concurrent with the general or comprehensive planning process. It is important that all stakeholders and the public be involved in the process to ensure the best possible plan and to gain community support. This is especially true when the planning agency needs to gain public support for purchasing lands.

Considerations for Conservation Lands Systems

1. **Arizona Game and Fish Department Planning Tools**
   The Arizona Game and Fish Department (Department) is in the process of developing various tools to help organizations plan for open space and conservation reserve systems.

Community Scale Planning

The Department's Areas of Conservation Priority model (ACP) is being developed using georeferenced datasets that reflect conservation planning priorities. Using Geographic Information System (GIS) software, the Department used spatial analysis to model and identify areas of conservation priority. The datasets developed in support of the ACP model can also be used in other models to address specific conservation questions as they arise. For more information about the ACP model and datasets, please contact the Department at 623-236-7734.

The Arizona Wildlife Linkages Assessment is a multi-agency report which identifies important landscape connections on a statewide scale using expert opinion and multi-agency input. The Arizona Wildlife Linkages Assessment provides a broad framework of ***wildlife linkages*** and wildland blocks that exist around the state. It can be accessed online at http://www.dot.state.az.us/Highways/OES/AZ_WildLife_Linkages/assessment.asp. The assessment document and map are the initial efforts to identify potential linkage zones that are important to Arizona's wildlife and natural ***ecosystems***. While this is only the first step in a continuing process of defining ***crucial habitat*** connectivity areas, it provides an extremely valuable planning tool for community planners. These linkages are going to be further refined at the County level, and 16 linkages have been modeled at the species level to identify the most valuable corridor areas within the identified statewide linkage (http://www.corridordesign.org/arizona/). Please contact the Department's Habitat Branch for further information at 623-236-7600.

2. Prioritization Strategies

The planning agency's conservation objective will determine which strategies are best for the CLS. In most cases special status species will be a top consideration. These will include any species listed under the federal Endangered Species Act, and may include non-listed species.

When considering which species are most important to the conservation objective, the planner should consider the scope of the CLS and the scope of the plans to which it relates (e.g. the Pima County CLS relates to the Sonoran Desert Conservation Plan). It may be a good strategy to focus on the highest priority vulnerable species, while examining the biotic community as a whole. It is important to know how such focal species fit into the biotic community and how the local ecosystem functions. It is useful to employ species experts and professional modelers to model potential outcomes of various alternative Conservation Lands Systems.

In all cases it will be important to begin discussions with an interdisciplinary team of local experts. The Department strongly encourages participation by U.S. Fish and Wildlife Service and Department officials.

Habitat Conservation Plans (HCP)

A Habitat Conservation Plan (HCP) is a landscape level planning tool, administered through the U.S. Fish and Wildlife Service (USFWS) that helps communities balance growth with conservation. An incidental take permit is required when non-federal activities will result in ***take*** of threatened or endangered wildlife. An HCP must accompany an application for an incidental

take permit. The purpose of the HCP is to ensure there is adequate minimization and mitigation of the effects of the authorized incidental take. The purpose of the incidental take permit is to authorize the incidental take of a listed species, not to authorize the activities that result in the take. The USFWS must comply with the National Environmental Policy Act (NEPA) before issuing an incidental take permit. Unless the proposed activities qualify for a categorical exclusion as a low-effect HCP, an Environmental Assessment (EA) or Environmental Impact Statement (EIS) must be prepared. Although preparation of NEPA documents is the responsibility of the USFWS, the applicant usually prepares the draft NEPA document to expedite the process.

More information can be obtained through the U.S. Fish and Wildlife Service at: http://www.fws.gov/Endangered/pdfs/HCP/HCP_Incidental_Take.pdf.

Typically, federally-listed wildlife species that are present or have habitat within the focal area are covered under an HCP. However, other sensitive wildlife species with the potential to be federally listed can also be covered. Although federally-listed plants receive protection under the Endangered Species Act (ESA), the ESA does not provide take prohibitions for listed plants on non-federal lands. However, the ESA requires that issuance of an HCP permit must not jeopardize any listed species; therefore, an HCP must address the effects of the permit on listed plants.

Project Scale - Planning for Wildlife

Project leaders can achieve the goal of responsible planning for wildlife at the project scale by incorporating wildlife planning into their site-specific projects while tiering to community and regional comprehensive plans including transportation plans and open space/conservation land system programs (see information provided in the Community Scale section above). An effective approach to wildlife planning begins with the identification of the wildlife resources in need of protection, an assessment of important ***wildland blocks*** and connective ***corridors***, and the incorporation of these critical wildlife components into the project plans.

Species have specific ***habitat*** needs that can be addressed at the project level including shelter from the elements and predators, food and water, and materials and locations for nesting or raising young. Some species require very specific conditions that exist in only a few localized sites, making it extremely important to identify species and associated habitat in your project area. Private lands make up 18% of Arizona's total area with concentrations near important resources for wildlife such as aquatic and ***riparian*** habitats, making private landowners key players in wildlife conservation.

Wildlife Habitat Connectivity

Knowing which wildlife species have ***crucial habitats*** and corridors in a project area is the first step in responsible development. However, knowing how your plans fit into the ***landscape*** context is equally important. Coordination between community planners and on-the-ground construction entities (e.g. developers, home builders, construction companies) is essential not only across roads, but also through human development to ultimately connect wildland blocks.

For example, if two developers design adequate open space within their developments to accommodate wildlife habitat, it is the responsibility of the community planners that oversee the developers' plans to make certain that the open space habitats "merge" if there is to be a true benefit to wildlife. This is crucial when a wildlife corridor has been identified in an area. Therefore, wildlife connectivity planning and coordination not only involves the roads, but also the developments between the wildland blocks.

Conservation of wildland blocks and corridors can contribute to meeting the economic, recreational, social, and aesthetic needs of people. Smart planning is the key to retaining connectivity between large wildland blocks and increasing the value of disturbed areas to both wildlife and people. Striking the balance between the needs of people and the needs of wildlife is the essential element of responsible development.

Identifying Wildlife Resources in your Project Area

The first step in protecting wildlife resources is to determine which ***species of conservation concern*** are in the area and what ***crucial habitats*** are required to sustain them. There are several tools available to help project developers identify species and habitats within their project areas. In addition, the Arizona Game and Fish Department (Department) works directly with project planners to identify resources and incorporate conservation concepts into project documents and maps.

Wildlife Species Identification

Obtain a Species List:

a. The U.S. Fish and Wildlife Service provides species information at a county level for all listed Threatened and Endangered Species http://www.fws.gov/southwest/es/arizona/.
b. The Department also provides wildlife lists by county and by species. http://www.azgfd.gov/w_c/edits/hdms_species_lists.shtml.
c. The Department also has a Geographic Information System (GIS) tool – The Online Environmental Review Tool (http://www.azgfd.gov/hgis/) from which you can obtain a ***special status species list***. Keep in mind that this online tool generates lists primarily for smaller scale planning efforts.

Sensitive Wildlife: Special Status Species

Below are specific guidelines to be applied when a project may adversely impact the following species:

Sonoran desert tortoises

The Department has developed guidelines to reduce potential impacts to desert tortoises, and to promote the continued existence of tortoises throughout the state. Sonoran desert tortoises (which occur south and east of the Colorado River) encountered in a project site should be moved out of harm's way to adjacent appropriate habitat. Department guidelines for handling Sonoran desert tortoises can be found at http://www.azgfd.gov/hgis/guidelines.aspx Note: These guidelines do not apply to the Mojave population of desert tortoises (north and west of the Colorado River). Mojave desert tortoises are specifically protected under the Endangered Species Act, and any potential disturbance of Mojave desert tortoises or their habitat requires consultation with the U.S. Fish and Wildlife Service.

Western burrowing owl

Over the past 50 years, most burrowing owl populations have experienced declines throughout their range in North America. Burrowing owls are found in desert and grassland areas of Arizona where urbanization and other human activities are occurring. Burrowing owls are active during daylight hours, and use underground burrows for nesting and escape cover. The use of burrows makes them susceptible to impacts from ground disturbing activities, and their presence often goes undetected on a project site until ground disturbance is imminent. The Department has developed a set of guidelines for when burrowing owls are encountered in a project area. http://www.azgfd.gov/hgis/guidelines.aspx

Project Scale Planning

Measures should be taken to avoid, minimize, or mitigate impacts to all special status species occurring in or near your project site. We encourage you to work with the Department to identify those site-specific measures.

Crucial Habitat Identification

Project developers should work with biological consultants to identify crucial habitats within and adjacent to the project area. There are many resources and identification books available to assist in your planning efforts to identify habitats within planning areas including Brown, D. E., and C. H. Lowe (1980).

The *Crucial Habitat Types* and *Conservation Recommendations* are the same as for those listed in the Community Scale Planning Section above. There are, however, finer scale issues that arise in Project Planning.

- **Large Trees & Snags**
  Standing dead trees (snags) are considered an integral habitat component of cavity-nesting birds and other wildlife (e.g., snag associated insects, bats) in the conifer forests of the southwestern United States. Some 85 species of North American birds construct nests in snags, or nest in natural cavities, or woodpecker-excavated holes in snags. Snags also serve as nesting and perching platforms for numerous raptor species. The tree species, size, bark retention, and condition influence the value of a snag as wildlife habitat. Removal of snags has been linked to declines in both diversity and density of cavity-nesting birds and tree roosting bats in southwestern forests.

  Conservation Recommendation
  - Preserve large trees and snags for wildlife.

  Caves and Mine Shafts

  Caves and mines provide stable conditions of temperature and humidity, making them ideal maternity and hibernation roosts for bats. Bats are an integral part of the natural environment. They undertake a range of important ecological functions which include the control of nocturnal insects (some of which are agricultural pests or annoying to people), and the pollination of agaves and other native plants.

  Bat populations have been declining at an alarming rate in recent years. The causes of this decline are destruction of habitat, pesticides, and disturbance. Loss of roosting and foraging habitat has resulted from reservoir construction, watershed development, forest conversion, urbanization, and cave commercialization.

  Conservation Recommendation
  - Protect caves and mines in your planning area by avoiding development around these features and incorporating them into open space.
  - The Department recommends surveying for the presence of bats in all caves and mines in the planning area where development will occur.
  - Do not backfill any caves or mines where bats are present. The Department recommends installation of a bat gate to provide protection for the bats and reduce any hazards the

mine or cave may have to the public. Examples of successful bat gate projects can be found at:
http://www.batcon.org/index.php/conservation/topics/bats-a-mines/subcategory/89.html

Canyons, Ridgelines, and Mountain Foothills

Large cliff areas and rocky hills are important nesting and roosting sites for a number of Arizona's bird species. The natural ledges and crevices found in cliff faces provide many raptors, such as peregrine falcons, with safe nest sites along with excellent vantage points for locating prey.

Arizona's deer populations, and therefore Arizona's large predators, are most common in canyons and mountain ranges throughout the state. Mountain lion and black bears use these steep areas for hunting, travel, and raising young. While mountain foothills and canyon rims provide scenic views that many desire for their own backyard, these are the places where dangerous interactions between people and predators are most common.

Conservation Recommendation

- Avoid development in canyons, mountain foothills, and along ridgelines to protect habitat for raptors and large predators and to reduce the potential for human-wildlife conflict.

Wildlife Corridors

Wildlife corridors are the connections between ***wildland blocks*** that facilitate wildlife movement between areas (see the "Wildland Block and Corridor Assessment' section, above). Corridors are critical for wildlife with large-area requirements, those species that migrate seasonally, and for all wildlife to maintain genetic diversity.

Corridor width requirements vary by the species that use them. For example, a flat-tailed horned lizard may not require a corridor as wide or as long as what might be needed for a black bear to pass safely between wildland blocks. By planning corridors for those wildlife species with the largest width requirements, you can assume that you have provided the appropriate corridor width for most if not all of the wildlife species in your project area.

Project developers should work with community planners and the Department to identify wildlife corridors in the vicinity of their project. Project developers and community planners should check with adjacent planned or existing developments to ensure open space designs "merge" well enough to provide wildlife habitat connectivity. If projects are located adjacent to a natural area already protected in public ownership, design your project's open space contiguous with the protected area.

So what makes a wildlife corridor? Streams, washes, canyons, and mountain ridges are some of the most frequently used landscape features for wildlife movement. Among these, ***riparian*** corridors are crucial because they house the highest wildlife diversity and yet are among the rarest landscape features in Arizona.

Commercial/Industrial Land Uses

Pollution Discharge Permitting & Stormwater Management

NOTE: Pollution discharge and stormwater management is regulated by federal, state, county, municipal, and local governing bodies. Please ensure compliance with all laws and ordinances in your area.

"Stormwater has been identified as a major source of pollution for all water body types in the United States, and the impacts of stormwater pollution are not static; they usually increase with land development and urbanization" (US Environmental Protection Agency Publication 841-F-07-006, December 2007).

Typical pollution sources can include oils and gas from vehicles on roads, parking lots and driveways, fertilizers, pesticides, pet waste, soap/cleaning agents, and general soil erosion (US Environmental Protection Agency, 1995). If stormwater runoff and pollution is not controlled, it can have negative impacts to fish, wildlife, and other species dependant on ***riparian***/wetland habitats.

General Guidelines for Managing Stormwater Runoff for Wildlife Benefits

- Planning stormwater runoff in a development should attempt to keep stormwater discharge at the same rate as it was prior to the development. (U.S. Environmental Protection Agency, 2008). Given the potential impacts to wildlife from untreated stormwater discharge, preventing excess runoff pollution could greatly benefit downstream wildlife and wildlife habitats.
- Typical stormwater conveyance includes hard infrastructure such as curbs, gutters, and pipes. Planners should consider the use of porous or semi-porous landscape materials (to the greatest extent possible), various topographic with vegetation, and infiltration/retention basins throughout the development to promote the infiltration of stormwater runoff back into the ground. This not only keeps pollutants from entering a natural waterway, but the ground also acts as a natural filter to enhance water quality for wildlife downstream.
- Water harvesting techniques not only reduce water needs for landscape irrigation, but also provide a temporary water source for wildlife and native vegetation.
- Avoid above-ground retention basins on properties adjacent to roads. Introducing standing water, and the increased vegetation production in the basins, can and will attract wildlife to the roadside. This is concern not only for wildlife, but also for human safety associated with vehicle/wildlife collisions.
- Design and vegetate stormwater retention basins with varied tree canopy cover, shrubs, and grasses to provide diverse habitat for local native wildlife. Keep the water depth relatively shallow and use gentle sloping shorelines. This will promote greater vegetation development on the shoreline and reduce erosion and sediment deposition into the basin. Another feature that enhances the area for wildlife is an irregular shoreline (Minnesota Pollution Control Agency 2002).

Project Scale Planning

Trash/Waste Containment

Wildlife, especially in an urban setting, can develop an affinity or dependence on human garbage or waste products. This can also alter the behavior of wildlife and eliminate the fear of humans in some species. When wildlife becomes accustomed to trash or garbage as a food source, this can lead to unwanted wildlife/human conflicts.

- Place trash in the appropriate receptacle and lock it to prevent wildlife from opening it.
- Keep trash receptacles in a fenced area, or in an enclosed location. To prevent birds and animals from getting to the area from above, install a roof structure or fencing.
- In bear country, use an approved bear proof trash receptacle. http://www.azgfd.gov/w_c/urban_bear.shtml

Landscaping

Using native vegetation for landscaping in a developed area can provide many benefits to wildlife in the urban setting. Wildlife that have adapted to an urban environment quickly utilize any available habitat for food, cover, and shelter. Using native vegetation landscaping within your development not only provides a micro-habitat for wildlife, but if done consistently throughout the community, can provide "mini-***corridors***" that the animals can use to take care of daily needs This would include areas between the sidewalk and the building and the medians in parking lots.

- Typically when an area is ready to be developed, the entire area is graded flat and constructed from the ground up. When possible, designate building envelopes where ground disturbance is allowed and otherwise leave the natural vegetation and topography intact in areas where development will not take place.
- While some city or county ordinances may require trimming and pruning landscape for aesthetic and safety purposes, try to keep vegetation as robust and natural as possible (especially in larger, undeveloped areas) to allow wildlife to use the vegetation available.
- For information on landscaping for desert wildlife please visit a Department office or visit the Department's website: http://www.azgfd.gov/w_c/urban_wildlife.shtml.
- A general guide for the planning, design, and implementation of schoolyard habitats can be downloaded from http://www.azgfd.gov/i_e/ee/resources/books/schoolyard_habitat.pdf. Concepts for using native landscaping in flood control areas can be found in "Landscape Design Themes Handbook: Guidelines for Identification and Selection of Landscape Design Themes for Applications to Flood Control Projects" – Flood Control District of Maricopa County, July 27, 2007.

Water Resource Management – Grey Water Use, Conservation

NOTE: All water resources and water quality issues are managed and/or administered by state, county, municipal, or local water authorities. If water resources are used in or for your development, please ensure compliance with all laws and ordinances in your area.

General Guidelines for Using Recycled Water to Benefit Wildlife

- Recycled water can be used to create riparian areas, wetlands, and aquatic habitat for wildlife on a development site. These areas provide water, food resources, and nesting habitat for waterfowl and other birds. These areas are also an excellent place for viewing wildlife.

Project Scale Planning

- Wastewater that is treated and discharged into a natural water course has the potential to benefit aquatic wildlife and riparian habitats downstream of the development. However, any water discharged must meet all Federal and State water quality standards.
- Water conservation throughout Arizona is important because of the arid nature of the State. Impacts from prolonged drought, climate change, and increased ground water and surface water use from expanding human populations place additional strains on the ***ecosystem*** and our available water resources. Increased and inefficient water use in rural and urban developments can also divert these resources from away from wildlife.

  Recommendations

  - Conserve water on your property by watering landscaping and vegetation directly via drip or soaker hose, rather than using a sprinkler system. This can help to reduce evaporation, and increase water infiltration and watering efficiency (National Wildlife Federation, 2006-2008).
  - Use mulch in landscaped areas to retain soil moisture and maintain vegetation health.
  - Utilize grass swales or porous walkways to increase water infiltration and reduce runoff (Goo, 1991).
  - Avoid unnecessary water features such as fountains and waterfalls as they have high rates of evaporation.

Residential Land Uses

Residential land uses can avoid and minimize their impacts to wildlife with good planning. Planning is best done with thorough coordination between the community planners and the project planners. Residential development can be ***permeable*** to wildlife with creative design that incorporates natural open space. A few of the tools that communities and developers can use are described below.

Integrated Conservation Design

Integrated Conservation Design typically involves a shift away from conventional grid development design, where developers can increase the intensity of land use on a portion of their property while conserving the remainder of the property as open space. Ideally, these open space areas within developments connect to a larger wildlife corridor system or protect environmentally sensitive lands. The best ways to ensure open spaces remain as undeveloped natural areas for wildlife is to donate a conservation easement on those lands to the county, city, or town in which your development resides. Otherwise, stipulate the allowable passive recreational uses of your open space within the Codes, Covenants, and Regulations (CC&Rs) for your development's Homeowners Association. The process for developing a property using an integrated conservation design method can vary, but some of the approaches are provided below and in the Community Scale Planning section above.

1. **Clustering**
   This approach involves clustering development on a portion of the property that is not environmentally sensitive and allowing the same net density that would be permitted with a conventional grid design under the existing zoning.

   When a cluster approach is combined with the specification of building envelopes (designated spaces where structures are permitted), the land surrounding each site plus all other undeveloped land can be held in common by all owners for wildlife conservation purposes. The ability to use clustering depends on the authority and flexibility within local land ordinances, so you will need to coordinate your project with your community planners.

2. **Gradient Density**
   Similar to clustering, this approach allows the same net density that would be permitted with a conventional grid design under the existing zoning but allows for variation in lot size. This variation in lot size allows you to focus your highest residential densities toward the center of your development, and then create a gradient of decreasing densities out from the project center toward the open space. Low-density residential developments can be more permeable to wildlife use and movement, and provide a safer buffer between high-density residential development and the wildlife that respond negatively to urban land uses.

3. **Transferring Development Rights (TDR)**
   This approach requires your county, city, or town to have passed a TDR ordinance. Check with your community planner to determine if this is an option for you. TDR allows sending

area property owners to realize an economic benefit from their property without having to develop the entire property, while allowing receiving area property owners to develop at densities greater than is permitted under the existing zoning. To transfer development rights to or from your development property, you must have a willing sender or receiver and you must have concurrence from your local government through the planning and zoning process. This can be an effective tool to reduce wildlife impacts in sensitive areas while allowing more intensive land uses in areas with fewer wildlife issues.

4. **Density Bonus**
An incentive-based approach where density of a developed area increases proportionately with every increase in area set aside for open space. Again, this type of approach requires going through your community's planning and zoning process.

- Consider ***landscape*** context – public/private partnerships to stitch adjacent ***habitats*** together
- Conservation Based Design Ordinances (allowing higher density development on a portion of the project in exchange for open space easements on the other portion of the property)
- Environmentally Sensitive Lands Ordinances (protecting wetlands, caves, ***riparian*** areas, etc.)
- Open space easements. Better dedicated to the County/City, but ok if part of the Codes, Covenants, and Regulations (CC&Rs).
- Open space designs that agree with focal species priorities from Conservation Lands System/Open Space/HCP priorities

5. **Stormwater Management**
   a. **Designation of floodways**
   In areas of urban development, stormwater is typically directed to the street curb and then transferred to a retention basin or to the nearest natural drainage. When the development is being planned, take advantage of the natural topography, vegetation, and existing drainage areas for stormwater management. Designation of drainage areas on the property not only help retain water on site for wildlife and vegetation use, but they could also serve as the first step in preventing polluted stormwater runoff from entering natural drainages or streams. See the General Guidelines for Managing Stormwater Runoff for Wildlife Benefits section of 'Commercial/Industrial Land Uses' for more information.

   b. **Retention Basins**
   Planning stormwater runoff in a development should attempt to keep stormwater discharge on the property at the same rate as it was prior to the development. Given the potential impacts to wildlife from untreated stormwater discharge, preventing excess runoff pollution could greatly benefit downstream wildlife and wildlife habitats.

   Typical stormwater conveyance includes hard infrastructure such as curbs, gutters, and pipes. Planners should consider the use of porous or semi-porous landscape materials, varied topography, and vegetation throughout the development to promote the infiltration of stormwater runoff back into the ground. This not only keeps pollutants from entering

a waterway, but the ground also acts as a natural filter to clean the water as it reaches groundwater to enhance water quality for wildlife.

Water harvesting techniques not only reduce water needs for landscape irrigation, but also provide a temporary water source for wildlife and native vegetation.

Within developments, avoid above-ground retention basins adjacent to roads. Introducing standing water, and the increased vegetation production in the basins, can and will attract wildlife to the roadside. This is a concern not only for wildlife, but also for human safety associated with vehicle/wildlife collisions.

Design and vegetate stormwater retention basins with varied tree canopy cover, shrubs, and grasses to provide diverse habitat for local native wildlife.

Rain barrels are helpful in slowing runoff velocities off rooftops and can be enforced through Homeowner Association Codes, Covenants, and Regulations.

Human/Wildlife Interface

Living with Urban Wildlife, Landscaping for Desert Wildlife

Wild animals venture into areas where people live in search of food and other resources they need to survive. With proper landscaping, people can enjoy wildlife watching in their own communities and prevent wildlife encounters that involve conflict. The Arizona Game and Fish Department (Department) provides information to the public and to landscape planners on living with wildlife and planning landscaping for desert wildlife at http://www.azgfd.gov/w_c/urban_wildlife.shtml.

The best way to prevent problem wildlife encounters is by keeping wildlife out of homes, buildings, and yards. Here are some tips:

- **Do not feed wildlife!**
  Do not feed wildlife. Feeding songbirds is okay, but be aware that it may attract other animals. Keep bird food clean and dry, and place bird feeders where they are not accessible to other wildlife.
- **Close holes.**
  Close holes around and under your home's foundation to discourage homesteading. Bury wire mesh 1 to 2 feet deep in places where animals might gain access.
- **Seal cracks.**
  Seal all cracks and holes larger than a ¼-inch in diameter to keep out rats, mice, bats and snakes.
- **Keep garbage sealed.**
  Store garbage in metal or plastic containers with tight-fitting lids. Keep cans in a garage or shed and put trash out only when it is scheduled to be picked up.
- **Keep pet food inside.**
  If you have a pet door, keep your pet's food in the cupboard or refrigerator.
- **Mark windows.**
  If birds fly into windows, mark them with strips of white tape or raptor silhouettes.
- **Fence gardens.**
  Fence gardens and cover fruit trees with commercially available netting.
- **Screen chimneys and vents.**
  Keep dampers closed to avoid 'drop-in' guests. Chimney tops should be screened from February to September to prevent nesting.
- **Keep cats indoors**.
  Scientists estimate that free-roaming cats kill hundreds of millions of birds, small mammals, reptiles and amphibians each year. Keeping your cat indoors will also help your pet remain healthy and safe from disease, predation, and vehicle dangers.

Fencing to Buffer Natural Areas from Urban Areas

Fencing may be necessary in the natural-urban interface to accomplish the following functions:

- Control or restrict pet and human access (e.g. fencing, signage).
- Reduce the chance of nuisance wildlife from entering urban/residential areas.

- Reduce attractions for pets and attractions for urban-tolerant wildlife species within the natural areas (e.g. cat feeding stations, open trash containers that attract nuisance wildlife).
- Allow limited and controlled recreational use in appropriate locations and restrict existing uncontrolled recreational uses (e.g., hiking, mountain biking, off-highway vehicle use, off-leash dog walking) that currently take place in sensitive ***habitats***.
- Minimize disturbance (e.g. noise, glare) from adjacent land to wildlife species.
- Provide areas for public education and interpretation of the preserves' natural resources in order to generate local support.
- Provide an aesthetically appealing visual transition between development and open space, allowing people to see into the natural area, encouraging a sense of ownership and stewardship.

A fundamental objective of the urban-wildlife interface design should be reduction of the unwanted movement of animals and plants between the natural area and adjacent developed areas. The creation of a physical barrier between these two habitats is the most basic element of achieving this objective. Fencing should be designed to exclude undesired species from the preserve and prevent target species from leaving the preserve.

The design and installation of fencing are intimately connected with the design of proposed developments. For example, positioning dwelling units and infrastructure nearest the street, while leaving the rear portion of the lots undeveloped and using a sound, approved fence separating the development from the natural area, might be the most desirable design solution. While this approach reduces some of the risks of roadways immediately adjacent to the preserve and can reduce development-related disturbances (e.g., lighting, noise), it is dependent on long-term owner compliance with and maintenance of prescribed design features (e.g., drainage patterns, species selected for landscaping, upkeep of appropriate fencing design and materials).

The Department encourages management authority of natural areas within residential subdivisions be retained by the project developer or Homeowner's Association. This will ensure fences adjacent to natural areas are properly monitored and maintained; landscaping is monitored for usage of appropriate species; drainage infrastructure is monitored and maintained according to desired specifications.

Fencing Guidelines

Fencing is typically used around individual homes along property lines and along subdivision boundaries. While fencing can be useful to exclude certain nuisance wildlife species from entering subdivisions or individual properties, often times the result is loss of wildlife habitat, movement ***corridors***, and entrapment/entanglement. The selection of fencing type and location is extremely important and will determine how it will affect wildlife.

Containment Fencing (inclusion) is designed to keep domestic animals in, and is used for cattle, horses, goats, sheep and other livestock, and for containment of pets or small children. This fence type can be particularly important for containing domestic dogs. Containment fencing is recommended around building envelopes of residential properties, but should be avoided on property perimeters of larger lots.

Project Scale Planning

Exclusion Fencing is designed to keep wildlife out. Each species may require different fencing designs and types, and many can be used for multiple species with similar habits and ability. The principle that should be followed for exclusion fencing on a property is to allow wild animals to use as much of your property as possible, and restrict them only from your designated building envelope or "living space". This provides for broad wildlife corridors and large areas of connected habitat. For corridors, you want as large an area as you can supply, and many paths and smaller corridor units can add passage choice and reduce predation by those species that learn quickly where game trails, fencing, and other features are that will aid their feeding strategy. In order to keep wildlife out, most exclusion fences must be at least 8 feet tall. Be aware that this fence height is above most county/city standards and may require a zoning waiver.

The Department provides additional information on wildlife fencing guidelines on our website at http://www.azgfd.gov/hgis/pdfs/FencingGuidelines.pdf

Nature Hiking/Biking Trails within Development and Connection with Regional Trails

There are many benefits of trails and greenways. They make our communities more livable, replace greenhouse-gas emitting modes of transportation, improve the economy through tourism and civic improvement, preserve and restore open space, and provide opportunities for physical activity to improve fitness and mental health. They can also provide wildlife-viewing opportunities and reduce pressure on expanding vehicular transportation systems that have impacts to wildlife and their habitats.

Economic and Community Values

Trail systems help preserve a distinctive and slower paced or "rural" atmosphere. Trails and open spaces can offer developers and property owners higher property values. Some communities report that their trails attract recreational tourist dollars and become opportunities for business development such as outdoor stores, equestrian centers, and bed and breakfast places along extended routes. Around shopping areas or business parks, trails can enhance the way that space is used, integrating recreation and respite opportunities, inviting moments of pause and renewal amid the hectic pace of such urban places. Colorado State Parks provides a good reference at http://atfiles.org/files/pdf/Primer.PDF.

Recreational trails can be a useful feature incorporated into the urban-wildland interface. A recreational trail along an urban boundary provides public access to open space while minimizing the adverse effects of this access on sensitive biological resources that might occur nearby.

Recreational trails can easily be combined with other interface elements such as wildlife-exclusion fencing, drainage controls, and firebreaks. Interpretive signs placed along recreational trails can inform the public about the adjacent preserve or natural area and create a sense of ownership and stewardship among local residents. These residents can then serve as informal patrols for the project developer or Homeowner's Association to help ensure that resources are

protected. Trails through particularly sensitive areas can be designed to minimize impacts through the use of boardwalks, bridges, or raised platforms.

Buffering vegetation can be effectively used adjacent to trails to serve as a physical and visual barrier between the trail and the preserve or natural area. For example, native drought-tolerant and fire-resistant shrubs could be planted between a trail and a low barrier fence to discourage entry into sensitive areas alongside trails.

Trails provide convenient access for people to enjoy viewing wildlife, experience local wildlife habitats, and encourage stewardship for the local environment that might otherwise be lost. Good trails reduce environmental degradation, promoting care and appreciation instead. Urban trails are increasingly convenient and provide for a much larger base of community participation than trails located in wildlands. Through signage and educational interpretation, trails are a device for expanding awareness of environmental values, wildlife, and geologic features. Urban trails are linear parks - taking parks to people in ways that enhance a sense of community participation and real connection to nature.

This website is a great resource for development and management of trails:
http://www.americantrails.org/resources/index.html

Lighting

"Ecological light pollution" affects wildlife at the individual, community, and ***ecosystem*** level through "direct glare, chronically increased illumination, and temporary, unexpected fluctuations in lighting" (Longcore and Rich 2004). A form of this pollution is known as "sky glow," and results from the accumulation of various artificial lighting sources, creating a glow that is reflected back to earth (Longcore and Rich 2004). The glow is naturally more pronounced near urban and other well-lit areas, but can also affect wildlife outside the city. Ecological light pollution stems from a wide variety of lighting systems, each of which is in use worldwide throughout the day and night.

Effects on Wildlife

The effects of ecological light pollution are widespread. They include disorientation from and attraction to artificial light, structural-related mortality due to disorientation, and effects on the light-sensitive cycles of many species.

Disorientation

Exposure to artificial light can create problems for species adapted to using light- or the absence of light- to aid in orientation. In these cases, ecological light pollution may interrupt natural behaviors, expose individuals to higher predation levels, or disrupt navigational abilities.

Nocturnal frogs are especially vulnerable to the effects of artificial lighting. A study conducted by Buchanan (1993) suggests that any exposure to artificial light impedes the ability of nocturnal frogs to locate and capture prey. This is probably due to their inability to adjust their eyes to new light levels quickly, a process that can take anywhere from minutes to hours (Cornell and Hailman 1984).

Many predatory birds and reptiles, usually active only during the day, will forage at night under artificial lights (Longcore and Rich 2004). Prey species may suffer adverse affects as a result of this foraging shift over time.

Light-sensitive Cycles

Many species of wildlife operate specific internal cycles or rhythms that help them determine when to initiate foraging, migratory or reproductive behavior. The addition of artificial light to the nighttime environment disrupts the precision of these cycles, thus modifying behavior.

For example, American robins exposed to high levels of artificial light will initiate their morning songs significantly earlier (in relation to the onset of dawn) than those exposed to less light, sometimes up to 100 minutes earlier (Miller 2006). Prolonged singing could result in higher energy demands, greater predation risk, or disruption of normal feeding cycles.

Recommendations

Alternatives to the current lighting systems are often surprisingly simple.

- Eliminate all bare bulbs and any lighting pointing upward. This is especially true for decorative lighting, and would reduce contributions to overall light pollution.
- Use only the minimum amount of light needed for safety.
- Use narrow spectrum bulbs as often as possible to lower the range of species affected by lighting.
- Shield, canter or cut lighting to ensure that light reaches only areas needing illumination. This will significantly reduce sky glow.
- Light only high-risk stretches of roads, such as crossings and merges, allowing headlights to illuminate other areas. Where possible, use embedded road lights to illuminate the roadway.
- In Flagstaff and Coconino County, the desire to maintain dark skies for the Flagstaff Naval Observatory and Lowell Observatory has led to city and county ordinances protecting dark skies. These ordinances have coincidentally offered wildlife relief from the negative impacts of light pollution. For more information visit http://flagstaffdarkskies.org/.
- All new developments should use the latest management technologies so that continued growth and expansion leads to no increase in the impact of light pollution (Salmon 2003).

Glossary

Biodiversity – The variety of species found in an area

Biodiversity hot spots – Areas where the number of species is high

Biogeography – The combination of physical features and animal and plant distributions in an area

Cienegas – Areas where the soil is moist year round

Connectivity – The absence of barriers to wildlife movement between wildland blocks.

Conservation Easements – Legal agreements that restrict uses of land to those compatible with preservation of the existing natural community

Corridors – Pathways with no or few barriers to a focal group of wildlife species, connecting one or more wildland blocks

Crucial Habitats – Places whose preservation has been judged by wildlife professionals as necessary to prevent unacceptable declines, or facilitate future recovery of important wildlife populations

Ecologically Diverse – A measure of the variety of ecosystems in a given area

Ecosystem – The complex of organisms and environment that function as an ongoing unit

Endemic – Native to an area

Extirpations – Loss of a species from a location

Fee simple – Absolute title to land

Funneling – Restrictions that cause animals to move through a given area

Habitat – A place where an animal has the resources necessary to survive and reproduce

Invasive – Non native species that displace native species in an ecosystem

Landscape (Scale or level) – A heterogeneous geographic area characterized by diverse interacting patches or ecosystems

Permeable – A measure of the likelihood an animal will move through an area

Riparian – The interface between land and a flowing body of water. A riparian area is generally defined as the area from the water's edge to the point where vegetation is no longer influenced by the availability of water from the body of water

Sustainable – The ability of a system to persist through time without human input

Special status species list – A report generated from AGFD's HDMS system for a given location identifying the proximity of species accorded some level of protection by either state or federal agencies

Species of Conservation Concern – Species whose persistence or abundance in an area is threatened by development

Take – Removal of an individual from a population

Wildland blocks – Large sections of contiguous pieces of relatively undisturbed land

Wildlife Linkages – Areas of connectivity identified as necessary to maintain the long-term sustainability of targeted wildlife populations

Xeriprarian – an area (generally a desert wash) that is normally without flowing or standing water, but supports a distinctive biotic community due to the occurrence of periodic or seasonal flows

Citations

Beier, P., D. Majka, S. Newell, E. Garding, 2008. *Best management practices for wildlife corridors*. Northern Arizona University. Flagstaff, Arizona. 14pp. www.corridordesign.org

Bissonette, J.A., and P.C. Cramer, 2008. *Evaluation of the use and effectiveness of wildlife crossings*. National Cooperative Highway Research Program Report 615, Utah. 174pp. http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_615.pdf

Brown, D. E. and C. H. Lowe. 1973. The Natural Vegetation of Arizona. Arizona Resources Information Systems (ARIS). Phoenix, Arizona.

Buchanan, B. W. 1993. Effects of enhanced lighting on the behaviour of nocturnal frogs. Animal *Behaviour* 45:893–899.

Colorado Division of Wildlife. Developing with Wildlife In Mind. Retrieved April 2008 from http://wildlife.state.co.us/WildlifeSpecies/LivingWithWildlife/Mammals/WildlifeInMind.htm.

Cornell, E. and J. P. Hailman. 1984. Pupillary responses of two *Rana pipiens*-complex anuran species. *Herpetologica* 40:356–366.

Forman, R.T.T., et al., 2003. *Road ecology: science and solutions*. Island Press: Washington, D.C.

Flood Control District of Maricopa County. 2007. Landscape Design Themes: Guidelines for Identification and Selection of Landscape Design Themes for Application to Flood Control Projects.

Goo, Robert. 1991. U.S. Environmental Protection Agency. Polluted Runoff (Nonpoint Source Pollution): Do's and Don'ts Around the Home. Retrieved June 2008 from http://www.epa.gov/owowwtr1/NPS/dosdont.html.

Grossman D.H., Faber-Langendoen D., Weakley A.S., Anderson M., Bourgeron P., Crawford R., Goodin K., Landaal S., Metzler K., Patterson K.D., Pyne M., Reid M., and Sneddon L., 1998. International classification of ecological communities: terrestrial vegetation of the United States. Volume I, The National Vegetation Classification System: development, status, and applications.

Hendrickson, DA, and WL Minckley. 1984. Cienegas - vanishing climax communities of the American Southwest. *Desert Plants* 6(3): 131-175.

Irwin, Hugh. Regional Road Density Analysis Using Weighted Metrics Sensitive to Landscape Conservation Effects. Retrieved February 2009 from: http://gis.esri.com/library/userconf/proc00/professional/papers/PAP404/p404.htm

Longcore, Travis and Catherine Rich. 2004. Ecological Light Pollution. *Frontiers in Ecology and the Environment* 2(4): 191-198

Majka, D., J. Jenness, and P. Beier, 2007. CorridorDesigner: ArcGIS tools for designing and evaluating wildlife corridors. Available at http://corridordesign.org.

Medina, AL, and JW. Long. 2005. http://www.rms.nau.edu/lab/4302/4302Research1-4.htm.

Miller, Mark W. 2006. Apparent Effects of Light Pollution on Singing Behavior of American Robins. *The Condor* 108(1):130-139

Minnesota Pollution Control Agency, 2000. Protecting water quality in urban areas: best management practices for dealing with stormwater runoff from urban, suburban and developing areas of Minnesota. Minneapolis. Available at http:///www.pca.state.mn.us/water/pubs/sw-bmpmanual.html.

National Wildlife Federation. 2006-2008. Save Water – Drip, Soak, and Mulch. Retrieved June 2008 from http://www.nwf.org/backyard/waterconservation.cfm

NatureServe. 2002. State of the Union: Ranking America's Biodiversity. Arlington, Virginia

Nature Conservancy, 2004. Arizona's Grasslands. http://azconservation.org/projects/grasslands/

Panayides, Panios. 2006. Wildlife-Friendly Methods for Spatial and Landscape Management in Cyprus. Retrieved May 2008 from http://www.cic-wildlife.org/fileadmin/Commissions_WG/habitat_fallow_land/WMA_Symposium/P.Panayides_Presentation.pdf.

Phillips, S. J. and P. W. Comus. 2000. *A Natural History of the Sonoran Desert*. University of California Press, 650 pp.

PRBO Conservation Science. Undated. Managing Aspen Habitat for Birds in the Sierra Nevada, Chester California.

Reudiger, B., and M. Digeorgion. 2007. *Safe Passage: a User's Guide to Developing Effective Highway Crossings for Carnivores and Other Wildlife. Southern Rockies Ecosystem Project (SREP) Report.* 20 pp. Available at www.carnivoressafepassage.org.

Salmon, M. 2003. Artificial night lighting and sea turtles. *Biologist* 50(4): 163-168

Sargent, M.S and Carter, K.S., ed. 1999. Managing Michigan Wildlife: A Landowners Guide.

Scott, V.E., K.E. Evans, D.R. Patton, and C.P. Stone. 1977. *Cavity-Nesting Birds of North American Forests*. USDA Forest Service Agriculture Handbook 511. 112 pp. Michigan United Conservation Clubs, East Lansing, MI. 297pp.

U.S. Census Bureau. 2006. National Survey of Fishing, Hunting, and Wildlife-Associated Recreation. http://www.census.gov/prod/2008pubs/fhw06-az.pdf

U.S. Environmental Protection Agency. 1995. Polluted Runoff (Nonpoint Source Pollution): Controlling Nonpoint Source Runoff Pollution from Roads, Highways, and Bridges. Retrieved June 2008 from http://www.epa.gov/owow/nps/roads.html.

U.S. Environmental Protection Agency. 2007. Polluted Runoff (Nonpoint Source Pollution): Reducing Stormwater Costs through Low Impact Development (LID) Strategies and Practices. Retrieved June 2008 from http://www.epa.gov/owow/nps/lid/costs07/.

U.S. Environmental Protection Agency. 2008. Polluted Runoff (Nonpoint Source Pollution): Managing Urban Runoff. Retrieved June 2008 from http://www.epa.gov/owow/NPS/facts/point7.htm

1000 Friends of Florida. 2006-2007. Draft Wildlife Planning, Design & BMP Manual Chapter 8 - Transportation Planning, Design and Management to Support Wildlife. Retrieved May 2008 from http://www.floridahabitat.org/Technical%20Committee%20and%20Draft%20Manual

Appendix I

STATE AND REGIONAL TRANSPORTATION PLANNING INFORMATION

Arizona Department of Transportation
Arizona Department of Transportation Planning
http://tpd.azdot.gov/

State & Regional Transportation Planning Areas
http://tpd.azdot.gov/planning/
Staff Contact Information
http://tpd.azdot.gov/planning/areas.php

Arizona Department of Transportation 5-year Construction Plan
http://tpd.azdot.gov/pps/introduction.asp

Flagstaff District - http://www.azdot.gov/Highways/districts/Flagstaff/index.asp

Globe District - http://www.azdot.gov/Highways/districts/Globe/index.asp

Holbrook District - http://www.azdot.gov/Highways/districts/Holbrook/index.asp

Kingman District - http://www.azdot.gov/Highways/districts/Kingman/index.asp

Phoenix Construction District -
http://www.azdot.gov/Highways/districts/Phx_Construction/index.asp

Phoenix Maintenance -
http://www.azdot.gov/Highways/districts/Phx_Maintenance/index.asp

Prescott District - http://www.azdot.gov/Highways/districts/Prescott/index.asp

Safford District - http://www.azdot.gov/Highways/districts/Safford/index.asp

Tucson District - http://www.azdot.gov/Highways/districts/Tucson/index.asp

Yuma District - http://www.azdot.gov/Highways/districts/Yuma/index.asp

County Departments of Transportation
Maricopa County Department of Transportation - http://www.mcdot.maricopa.gov/home.htm

Pima County Department of Transportation - http://www.dot.pima.gov/

Existing Regional Transportation Plans:
Maricopa Association of Governments (MAG) – Regional Transportation Plan 2007 Update – July 2007 - http://www.mag.maricopa.gov/project.cms?item=411
(generally updated annually)

Pima Association of Governments (PAG) – 2030 Regional Transportation Plan – June 2006 - http://www.pagnet.org/Default.aspx?tabid=379
(generally updated every 3-4 years)

Central Arizona Association of Governments – 5-year Transportation Improvement Plan FY2008-FY2012 - http://www.caagcentral.org/trans/tip.html

Regional Framework Studies:
"Building a Quality Arizona" bqAZ– Statewide Transportation Planning Framework http://www.bqaz.gov/
Northern Arizona
Western Arizona
Central Arizona
Eastern Arizona
I-10 Hassayampa Valley Study
I-8 and I-10 Hidden Valley Study

Dedrick Denton

From: Larry Kirch <lkirch@AJCity.Net>
Sent: Monday, June 20, 2016 11:36 AM
To: Dedrick Denton
Subject: RE: Pinal County 2016 Major Comprehensive Plan Amendments

Dedrick

Thank you for sending the Genera Plan Major Amendments for our review/information. We have looked at these and they are pretty far afield from the City of Apache Junction so we don't have any comments.

Thank you,

Larry Kirch
Director of Development Services

From: Dedrick Denton [mailto:Dedrick.Denton@pinalcountyaz.gov]
Sent: Friday, June 17, 2016 4:26 PM
To: Dedrick Denton <Dedrick.Denton@pinalcountyaz.gov>
Cc: Steve Abraham <Steve.Abraham@pinalcountyaz.gov>; Himanshu Patel <Himanshu.Patel@pinalcountyaz.gov>
Subject: Pinal County 2016 Major Comprehensive Plan Amendments

PUBLIC NOTICE:
Re: 60 Day Review Period for 2016 Pinal County Major Comprehensive Plan Amendments

The link below are the proposed 2016 Major Amendments to the Pinal County Comprehensive Plan. State Law prescribes a 60 day review period for all Major Amendments to the County's Comprehensive Plan. This year, the 60 day period will run between June 17, 2016 and August 16, 2016. Information regarding this year cases can also be found at http://pinalcountyaz.gov/CommunityDevelopment/Planning/Pages/CompPlan.aspx. To participate in the process, please have your comments to us by 4:30 pm, August 16, 2016. Thank you in advance for your attention, and we hope to hear from you with any questions or comments you may have.

2016 Major Comprehensive Plan Cases:

- PZ-PA-003-16 (Attesa)
- PZ-PA-004-16 (Pinal Central Power)

Comments may be submitted to:

Dedrick Denton
Pinal County Community Development Department
31 North Pinal Street, Building F
Florence, AZ 85132

E-Mail Address: dedrick.denton@pinalcountyaz.gov

Dedrick Denton | Planner II

THE STATE OF ARIZONA
GAME AND FISH DEPARTMENT
5000 W. CAREFREE HIGHWAY
PHOENIX, AZ 85086-5000
(602) 942-3000 • WWW.AZGFD.GOV
REGION VI, 7200 E. UNIVERSITY DRIVE, MESA, AZ 85207

GOVERNOR
DOUGLAS A. DUCEY
COMMISSIONERS
CHAIRMAN, EDWARD "PAT" MADDEN, FLAGSTAFF
JAMES R. AMMONS, YUMA
JAMES S. ZIELER, ST. JOHNS
ERIC S. SPARKS, TUCSON
KURT R. DAVIS, PHOENIX
DIRECTOR
LARRY D. VOYLES
DEPUTY DIRECTOR
TY E. GRAY

July 13, 2016

Mr. Dedrick Denton
Pinal County Community Development Department
31 North Pinal Street, Building F
Florence, Arizona 85132

RE: 2016 Pinal County Major Comprehensive Plan 60 Day Review

Dear Mr. Denton,

The Arizona Game and Fish Department (Department) has reviewed the proposed 2016 Major Amendments to the Pinal County Comprehensive Plan (Plan). The Department understands there are two major amendments proposed: Attesa Development and Pinal Central Power Generation Facility. The Department provides the following comments.

The Department maintains the public trust responsibility and jurisdictional authority under Arizona Revised Statute, Title 17 (§17-102 codifies state ownership of wildlife) to manage and regulates take of fish and wildlife within the state of Arizona irrespective of landownership, excepting those wildlife existing on tribal trust-status lands. This includes law enforcement authority. We continue to express interests in all land planning initiatives that may affect management of the State's fish and wildlife resources and/or wildlife related recreation. The mission of the Department is to conserve Arizona's diverse wildlife resources and manage for safe, compatible outdoor recreation opportunities for current and future generations.

Attesa

While the Department understands the need for residential and commercial expansion within Pinal County to accommodate and/or meet the demands of the growing population, we recommend ensuring compatibility of recreational uses, open spaces, wildlife corridors and other ecological services providing quality of life are adequately considered and built into these planning efforts.

Specifically, the Attesa proposal is for a range of very low to moderate residential development to a high density activity center (motorsports facility). This proposed amendment originally was adopted into the Plan in 2010 and the request is currently for additional lands that encompass the area.

The Department would like to extend its acknowledgement and appreciation of the proposal to identify the important drainage areas within the project that provide for open space and wildlife connectivity. The Department recommends consideration in the drainage designs to continue to allow for this movement into the future and would like to work with the project planning and design team to ensure the future permeability and sustainability of this movement along with additional wildlife components within the master plan for this project. Incorporation of components should include: use of buffers along the primary drainage areas, wildlife friendly fencing, promotion of base flows, maintaining of native species and riparian vegetation, retain natural drainage pattern from the agricultural fields adjacent, prevent excess runoff, escape and crossing structures, funnel fencing, reduction of human activity in the immediate vicinity, etc.

The immediate vicinity contains a major drainage considered high value of wildlife habitat, along with the southwestern portion of the project area containing high to medium value of wildlife habitat. Therefore, the Department has identified the need for mitigation due to the loss of existing habitat value and highly encourages measures that reduce and or eliminate the losses over time. In addition, compensation through replacement of habitat values in-kind, so that no net loss occurs need considered.

Pinal Central Power Generation Facility

The Department understands the need for additional energy generation and storage with the growing population. The proposed project would include significant infrastructure: generation facility, photovoltaic solar field, energy storage facility, transmission lines and additional infrastructure as needed and not identified in detail. The project will include 5 parcels of land currently used for residential and agricultural uses. Attached are the Department Guidelines for Solar Development for review and incorporation into the planning and informing the design of the project.

General

The Department recommends consideration for species of concern; such as those listed as threatened, endangered or candidate species for listing under the Endangered Species Act (ESA) and other sensitive species lists. A copy of the reports generated for the projects through the Arizona Environmental Online Review Tool is attached. The report contains links such as the Wildlife Compatible Fencing guidelines that should be incorporated into the Plan. In addition, when discussing future acquisition of lands and changes in land uses, a re-evaluation should be done due to the diversity of users and need for both consumptive and non-consumptive user recreation. Consideration of all of the species listed in the attachments should be considered during the planning process with refinement of those lists for further informing the specific designs within the project with pre and post surveys. In addition, even though open spaces may or may not have been identified, the wildlife connectivity and linkages areas should be incorporated.

2016 Pinal County Major Comprehensive Plan 60 Day Review
July 13, 2016

The Department appreciates the opportunity to provide comments on the proposed amendments. We look forward to future coordination as the planning and design efforts proceed. If you have any questions or information needs please contact me at 480-324-3550 or kwolff-krauter@azgfd.gov. Thank you for your time and consideration.

Sincerely,

Kelly Wolff-Krauter

Attachments

Cc: Laura Canaca, Project Evaluation Program Supervisor
Jay Cook, Regional Supervisor, Mesa
Ginger Ritter, Project Evaluation Program Specialist

M16-06200533

Arizona Environmental Online Review Tool Report

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

Project Name:
Pinal Central Power

Project Description:
New development of a solar and storage energy generation facility in Pinal County

Project Type:
Energy Storage/Production/Transfer, Energy Production (generation), photovoltaic solar facility (new)

Contact Person:
kelly wolff-krauter

Organization:
AZGFD

On Behalf Of:
AZGFD

Project ID:
HGIS-03877

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

Disclaimer:

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

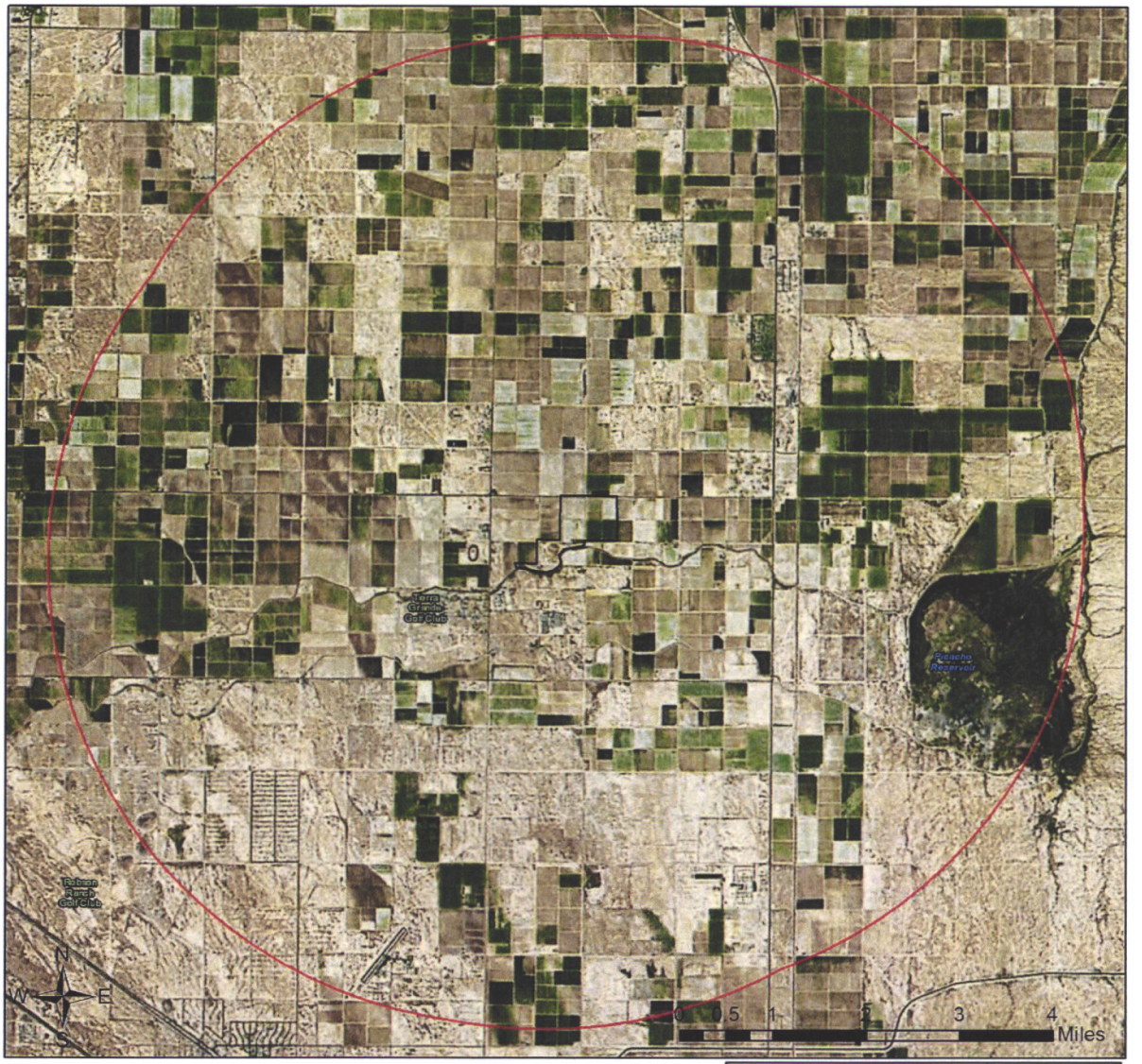
Locations Accuracy Disclaimer:
Project locations are assumed to be both precise and accurate for the purposes of environmental review. The creator/owner of the Project Review Report is solely responsible for the project location and thus the correctness of the Project Review Report content.

Recommendations Disclaimer:

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

Pinal Central Power

Aerial Image Basemap With Locator Map



Project Boundary

Buffered Project Boundary

Project Size (acres): 267.30

Lat/Long (DD): 32.8741 / -111.5508

County(s): Pinal

AGFD Region(s): Mesa

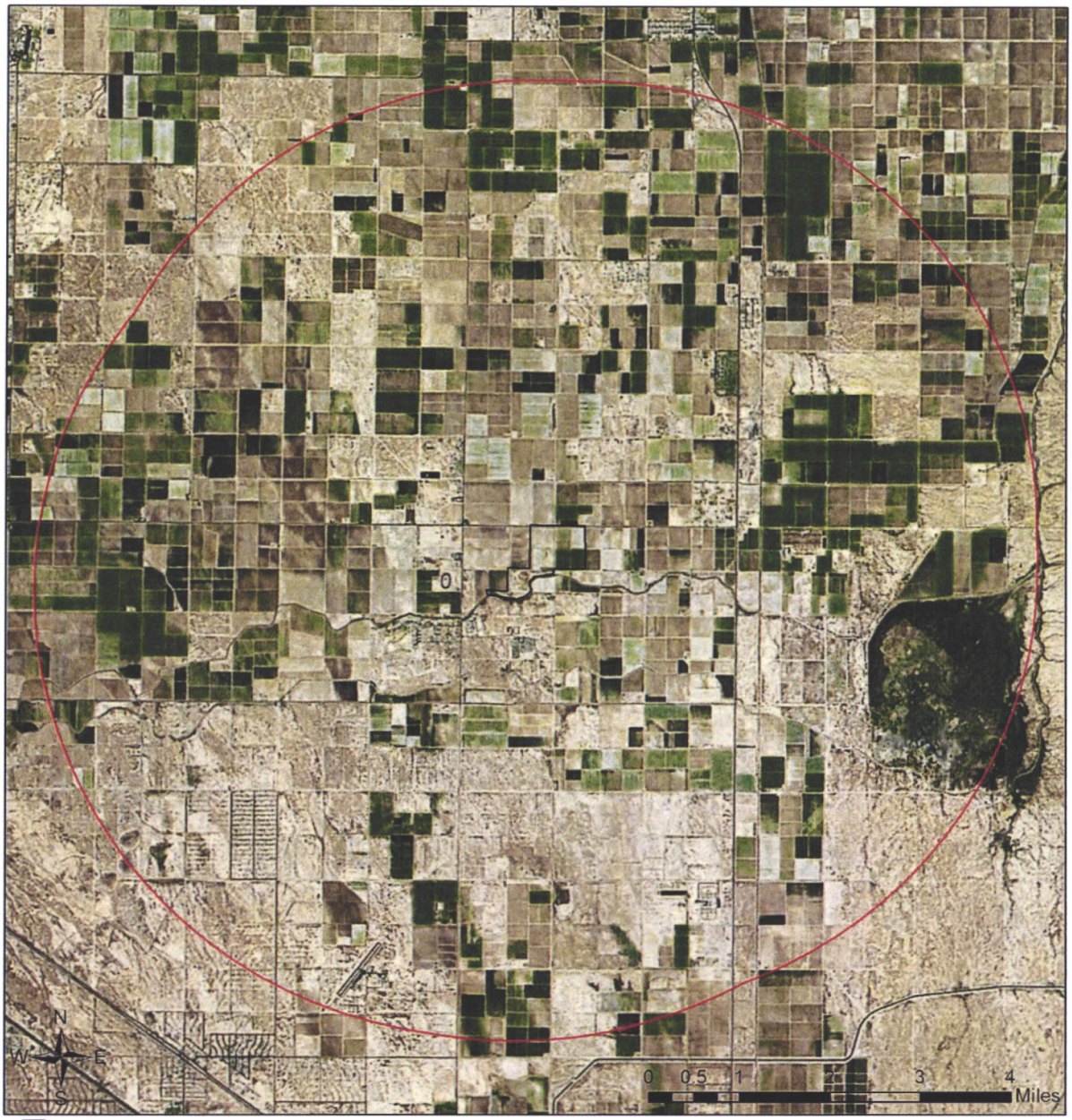
Township/Range(s): T6S, R8E

USGS Quad(s): COOLIDGE; ELOY NORTH

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

Pinal Central Power

Web Map As Submitted By User



Project Boundary

Buffered Project Boundary

Project Size (acres): 267.30

Lat/Long (DD): 32.8741 / -111.5508

County(s): Pinal

AGFD Region(s): Mesa

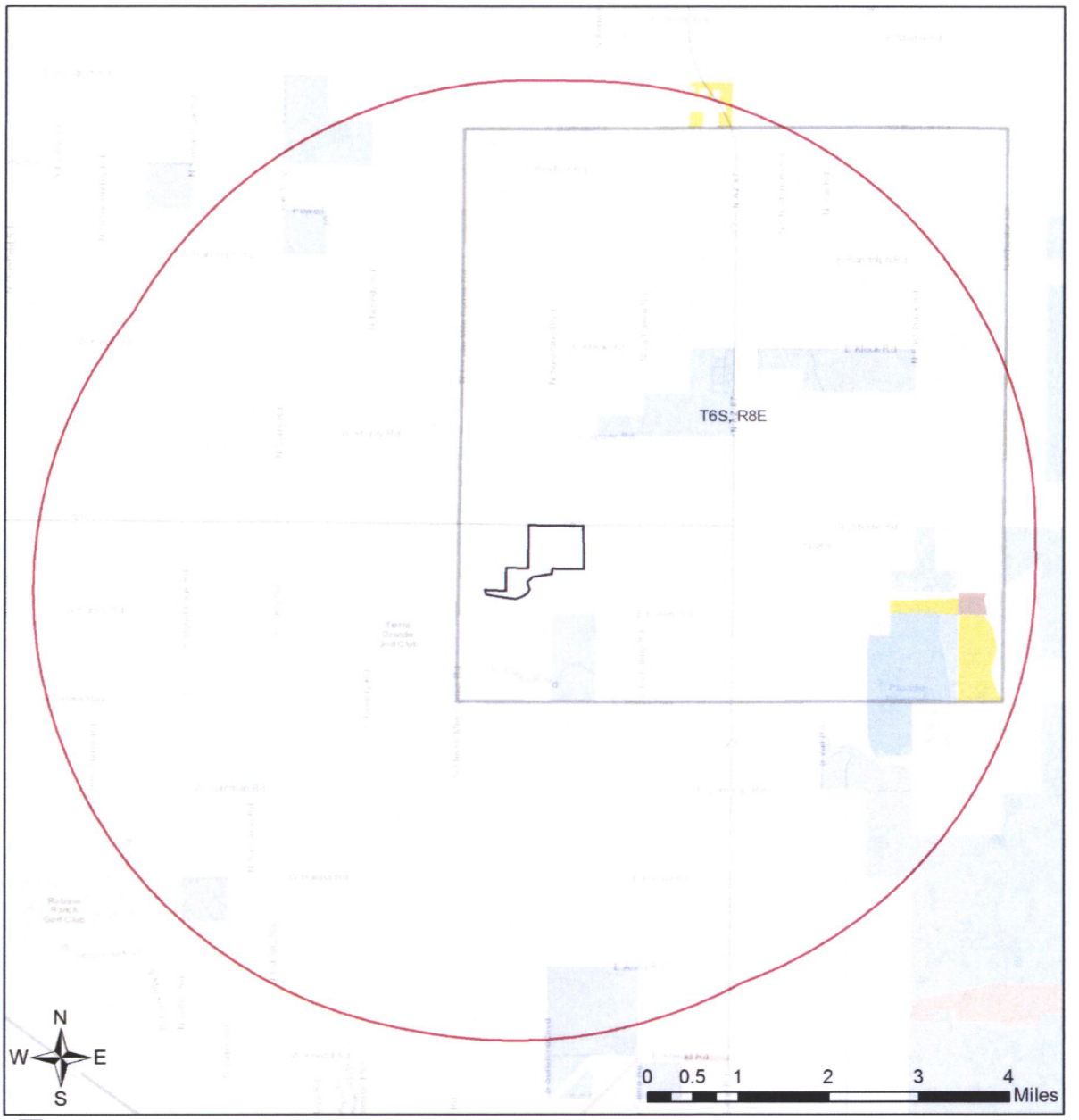
Township/Range(s): T6S, R8E

USGS Quad(s): COOLIDGE; ELOY NORTH

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Pinal Central Power

Topo Basemap With Township/Ranges and Land Ownership



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

Project Size (acres): 267.30

Lat/Long (DD): 32.8741 / -111.5508

County(s): Pinal

AGFD Region(s): Mesa

Township/Range(s): T6S, R8E

USGS Quad(s): COOLIDGE; ELOY NORTH

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

Special Status Species and Special Areas Documented within 5 Miles of Project Vicinity

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Athene cunicularia hypugaea	Western Burrowing Owl	SC	S	S		1B
Canis lupus baileyi	10J area Zone 2 for Mexican gray wolf	LE,XN				
Coccyzus americanus	Yellow-billed Cuckoo (Western DPS)	LT	S			1A
PCH for Coccyzus americanus	Yellow-billed Cuckoo Proposed Critical Habitat					
Rallus obsoletus yumanensis	Yuma Ridgeway's Rail	LE				1A

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

.

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

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Aix sponsa	Wood Duck					1B
Ammospermophilus harrisii	Harris' Antelope Squirrel					1B
Anaxyrus retiformis	Sonoran Green Toad			S		1B
Anthus spragueii	Sprague's Pipit	C*				1A
Aquila chrysaetos	Golden Eagle	BGA		S		1B
Athene cunicularia hypugaea	Western Burrowing Owl	SC	S	S		1B
Botaurus lentiginosus	American Bittern					1B
Buteo regalis	Ferruginous Hawk	SC		S		1B
Catostomus insignis	Sonora Sucker	SC	S	S		1B
Chilomeniscus stramineus	Variable Sandsnake					1B
Chionactis occipitalis klauberi	Tucson Shovel-nosed Snake	SC				1A
Coccyzus americanus	Yellow-billed Cuckoo (Western DPS)	LT	S			1A
Colaptes chrysoides	Gilded Flicker			S		1B
Coluber bilineatus	Sonoran Whipsnake					1B
Corynorhinus townsendii pallescens	Pale Townsend's Big-eared Bat	SC	S	S		1B
Crotalus tigris	Tiger Rattlesnake					1B
Euderma maculatum	Spotted Bat	SC	S	S		1B
Eumops perotis californicus	Greater Western Bonneted Bat	SC		S		1B
Gopherus morafkai	Sonoran Desert Tortoise	C*	S			1A
Haliaeetus leucocephalus	Bald Eagle	SC, BGA	S	S		1A
Heloderma suspectum	Gila Monster					1A
Incilius alvarius	Sonoran Desert Toad					1B
Kinosternon sonoriense sonoriense	Desert Mud Turtle			S		1B
Lasiurus blossevillii	Western Red Bat		S			1B
Lasiurus xanthinus	Western Yellow Bat		S			1B
Leopardus pardalis	Ocelot	LE				1A

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

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Leptonycteris curasoae yerbabuenae	Lesser Long-nosed Bat	LE				1A
Lepus alleni	Antelope Jackrabbit					1B
Melanerpes uropygialis	Gila Woodpecker					1B
Melospiza lincolnii	Lincoln's Sparrow					1B
Melozone aberti	Abert's Towhee		S			1B
Micruroides euryxanthus	Sonoran Coralsnake					1B
Myotis occultus	Arizona Myotis	SC		S		1B
Myotis velifer	Cave Myotis	SC		S		1B
Myotis yumanensis	Yuma Myotis	SC				1B
Nyctinomops femorosaccus	Pocketed Free-tailed Bat					1B
Panthera onca	Jaguar	LE				1A
Passerculus sandwichensis	Savannah Sparrow					1B
Perognathus amplus	Arizona Pocket Mouse					1B
Perognathus longimembris	Little Pocket Mouse					1B
Phrynosoma goodei	Goode's Horned Lizard					1B
Phrynosoma solare	Regal Horned Lizard					1B
Phyllorhynchus browni	Saddled Leaf-nosed Snake					1B
Progne subis hesperia	Desert Purple Martin			S		1B
Rallus longirostris yumanensis	Yuma Clapper Rail	LE				1A
Setophaga petechia	Yellow Warbler					1B
Tadarida brasiliensis	Brazilian Free-tailed Bat					1B
Toxostoma lecontei	Le Conte's Thrasher					1B
Troglodytes pacificus	Pacific Wren					1B
Vireo bellii arizonae	Arizona Bell's Vireo					1B
Vulpes macrotis	Kit Fox					1B

Species of Economic and Recreation Importance Predicted within Project Vicinity

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

Project Type: Energy Storage/Production/Transfer, Energy Production (generation), photovoltaic solar facility (new)

Project Type Recommendations:

During the planning stages of your project, please consider the local or regional needs of wildlife in regards to movement, connectivity, and access to habitat needs. Loss of this permeability prevents wildlife from accessing resources, finding mates, reduces gene flow, prevents wildlife from re-colonizing areas where local extirpations may have occurred, and ultimately prevents wildlife from contributing to ecosystem functions, such as pollination, seed dispersal, control of prey numbers, and resistance to invasive species. In many cases, streams and washes provide natural movement corridors for wildlife and should be maintained in their natural state. Uplands also support a large diversity of species, and should be contained within important wildlife movement corridors. In addition, maintaining biodiversity and ecosystem functions can be facilitated through improving designs of structures, fences, roadways, and culverts to promote passage for a variety of wildlife. Guidelines for many of these can be found at: https://www.azgfd.com/wildlife/planning/wildlifeguidelines/.

Consider impacts of outdoor lighting on wildlife and develop measures or alternatives that can be taken to increase human safety while minimizing potential impacts to wildlife. Conduct wildlife surveys to determine species within project area, and evaluate proposed activities based on species biology and natural history to determine if artificial lighting may disrupt behavior patterns or habitat use. Use only the minimum amount of light needed for safety. Narrow spectrum bulbs should be used as often as possible to lower the range of species affected by lighting. All lighting should be shielded, cantered, or cut to ensure that light reaches only areas needing illumination.

Minimize potential introduction or spread of exotic invasive species. Invasive species can be plants, animals (exotic snails), and other organisms (e.g., microbes), which may cause alteration to ecological functions or compete with or prey upon native species and can cause social impacts (e.g., livestock forage reduction, increase wildfire risk). The terms noxious weed or invasive plants are often used interchangeably. Precautions should be taken to wash all equipment utilized in the project activities before leaving the site. Arizona has noxious weed regulations (Arizona Revised Statutes, Rules R3-4-244 and R3-4-245). See Arizona Department of Agriculture website for restricted plants, https://agriculture.az.gov/. Additionally, the U.S. Department of Agriculture has information regarding pest and invasive plant control methods including: pesticide, herbicide, biological control agents, and mechanical control, http://www.usda.gov/wps/portal/usdahome. The Department regulates the importation, purchasing, and transportation of wildlife and fish (Restricted Live Wildlife), please refer to the hunting regulations for further information https://www.azgfd.com/hunting/regulations.

Minimization and mitigation of impacts to wildlife and fish species due to changes in water quality, quantity, chemistry, temperature, and alteration to flow regimes (timing, magnitude, duration, and frequency of floods) should be evaluated. Minimize impacts to springs, in-stream flow, and consider irrigation improvements to decrease water use. If dredging is a project component, consider timing of the project in order to minimize impacts to spawning fish and other aquatic species (include spawning seasons), and to reduce spread of exotic invasive species. We recommend early direct coordination with Project Evaluation Program for projects that could impact water resources, wetlands, streams, springs, and/or riparian habitats.

The Department recommends that wildlife surveys are conducted to determine if noise-sensitive species occur within the project area. Avoidance or minimization measures could include conducting project activities outside of breeding seasons.

For any powerlines built, proper design and construction of the transmission line is necessary to prevent or minimize risk of electrocution of raptors, owls, vultures, and golden or bald eagles, which are protected under state and federal laws. Limit project activities during the breeding season for birds, generally May through late August, depending on species in the local area (raptors breed in early February through May). Conduct avian surveys to determine bird species that may be utilizing the area and develop a plan to avoid disturbance during the nesting season. For underground powerlines, trenches should be covered or back-filled as soon as possible. Incorporate escape ramps in ditches or fencing along the perimeter to deter small mammals and herptefauna (snakes, lizards, tortoise) from entering ditches. In addition, indirect affects to wildlife due to construction (timing of activity, clearing of rights-of-way, associated bridges and culverts, affects to wetlands, fences) should also be considered and mitigated.

Based on the project type entered, coordination with State Historic Preservation Office may be required (http://azstateparks.com/SHPO/index.html).

Based on the project type entered, coordination with U.S. Fish and Wildlife Service (Migratory Bird Treaty Act) may be required (http://www.fws.gov/southwest/es/arizona/).

Vegetation restoration projects (including treatments of invasive or exotic species) should have a completed site-evaluation plan (identifying environmental conditions necessary to re-establish native vegetation), a revegetation plan (species, density, method of establishment), a short and long-term monitoring plan, including adaptive management guidelines to address needs for replacement vegetation.

The Department requests further coordination to provide project/species specific recommendations, please contact Project Evaluation Program directly. PEP@azgfd.gov

Project Location and/or Species Recommendations:

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

Phoenix Main Office
2321 W. Royal Palm Rd, Suite 103
Phoenix, AZ 85021
Phone: 602-242-0210
Fax: 602-242-2513

Tucson Sub-Office
201 N. Bonita Suite 141
Tucson, AZ 85745
Phone: 520-670-6144
Fax: 520-670-6155

Flagstaff Sub-Office
SW Forest Science Complex
2500 S. Pine Knoll Dr.
Flagstaff, AZ 86001
Phone: 928-556-2157
Fax: 928-556-2121

HDMS records indicate that Western Burrowing Owls have been documented within the vicinity of your project area. Please review the western burrowing owl resource page at: http://www.azgfd.gov/w_c/BurrowingOwlResources.shtml.

GUIDELINES FOR SOLAR DEVELOPMENT IN ARIZONA

Arizona Game and Fish Department

March 12, 2010

The Arizona Game and Fish Department Mission:

To conserve, enhance, and restore Arizona's diverse wildlife resources and habitats through aggressive protection and management programs, and to provide wildlife resources and safe watercraft and off-highway vehicle recreation for the enjoyment, appreciation, and use by present and future generations.

ABSTRACT The Guidelines for Solar Development in Arizona (*Guidelines*) provide information to help reduce impacts to wildlife from solar energy development in Arizona. They include recommendations on: 1) preliminary screening of proposed solar energy projects, 2) developing avoidance and minimization measures, 3) establishing appropriate mitigation, and 4) research opportunities.

ACKNOWLEDGEMENTS These *Guidelines* were compiled by Arizona Game and Fish Department (AGFD) employees. Some of the information contained is taken from AGFD's wind guidelines: *Guidelines for Reducing Impacts to Wildlife from Wind Energy Development in Arizona.*

RECOMMENDED CITATION Arizona Game and Fish Department. 2009. *Guidelines for Solar Development in Arizona*

DISCLAIMER The Arizona Game and Fish Department, its employees, contractors, and subcontractors make no warrant, express or implied, and assume no legal liability for the information in this report; nor does any party represent that the use of this information will not infringe upon privately owned rights. This report has been reviewed and endorsed by AGFD as guidance. The recommendations and protocols discussed in this report are intended to be guidance for developers and local permitting agencies to avoid, minimize, or mitigate their impacts to Arizona's wildlife. These *Guidelines* are voluntary and are not intended to implement, replace, duplicate, interpret, amend, or supplement any current statute or regulation. Adherence to these *Guidelines* does not ensure compliance with any local, state, or federal statute or regulation, nor does failure to follow these *Guidelines* necessarily imply a violation of state laws.

The Arizona Game and Fish Department receives Federal assistance from the U.S. Fish and Wildlife Service, and thus prohibits discrimination on the basis of race, color, religion, national origin, disability, age and sex pursuant to Title VII of the Civil Rights Act of 1964, Title IX of the Education Amendments of 1972, the Age Discrimination Act of 1975, Section 504 of the Rehabilitation Act of 1973 and Title II of the Americans with Disabilities Act of 1990. To request an accommodation or informational material in an alternative format or to file a discrimination complaint, please contact the Deputy Director's Office at (623) 236-7276 or by mail at 5000 West Carefree Highway, Phoenix, AZ 85086. Discrimination complaints can also be filed with the U.S. Fish and Wildlife Service, Wildlife and Sport Fish Restoration Program, Attention: Civil Rights Coordinator for Public Access, 4401 North Fairfax Drive, Arlington, VA 22203.

TABLE OF CONTENTS

Executive Summary 4

Introduction 5

The Future for Arizona's Wildlife 7
Habitat Connectivity & Why It Is Important 7
What developers should consider for accommodating wildlife and promoting connectivity 7
What is AGFD doing to address habitat fragmentation? 8

Wildlife Protection Regulations 10
Federal Regulations 10
Arizona Game and Fish Department Regulations 12
Other State Regulations 12

AGFD Policies on Habitat Compensation 13

AGFD Project Review 14

Preliminary Site Screening 15
Data Resources for Biological Information 15

Recommendations for Avoiding or Minimizing Impacts 16
Meteorological Towers 16
Facility Design 17
Hydrologic Resources 18
Evaporation Ponds 20
Habitat Disturbance and Fragmentation 20
Vegetation Removal and Reclamation 21
Noxious Weed Management 22
Public Recreation and Access 23
Seasonal Timing Limitations 23
Transmission Lines 23
Fencing 24
Hazardous Materials 25

Mitigation 27

APPENDIX A: Wildlife and Wildlife Habitat Compensation Policy 29

APPENDIX B: Research Concepts 32

Executive Summary

These *Guidelines* are recommendations and protocols to be used by solar energy developers and local permitting agencies in Arizona, and as a resource for other parties involved in the permitting process. Local governments are encouraged to integrate the recommended study proposals described herein with biological resource information and research unique to their region. The Arizona Game and Fish Department (AGFD), acting on behalf of the Arizona Game and Fish Commission, encourages the use of the *Guidelines* for the development, mitigation, and research of solar energy projects in Arizona.

This document provides a science-based approach for assessing the potential impacts a solar energy project may have on wildlife species and includes suggested measures to avoid, minimize, and mitigate identified impacts.

The document is organized around five basic project development steps:

1. Wildlife Protection Regulations
2. AGFD Regulations and Review
3. Gather preliminary information and conduct site screening
4. Identify potential impacts to wildlife
5. Mitigation

Information in the *Guidelines* was specifically designed to employ adaptive management to address local and regional concerns and site-specific conditions. Decisions on the intensity of survey effort need to be made in consultation with AGFD. The *Guidelines* do not duplicate or supersede any/or other legal requirements. This document does not mandate or limit the types of studies, mitigation, or alternatives an agency may decide to require.

Introduction

The Arizona Game and Fish Department (AGFD) recognizes and supports the development of renewable energy facilities in Arizona. AGFD understands the need for generating electricity that reduces the nation's dependence on foreign oil, carbon emissions, and the release of other pollutants associated with fossil fuel generation. AGFD is also aware of the need for utility-scale solar facilities to meet the energy consumption needs of the United States, bringing significant benefits to Arizona's economy, the country, and the environment.

However, AGFD recognizes there will be negative impacts from the development of these technologies on wildlife, the habitats on which they depend, and other multiple uses such as hunting and wildlife viewing. These impacts include wildlife mortality, habitat loss, habitat fragmentation, hydrologic impacts, and the cumulative effects from other human activities. In addition, AGFD expects that there will be unanticipated impacts from utility-scale solar operations, given that these facilities are relatively new in the United States.

Solar energy currently carries a reputation for being "green energy" and Americans expect solar energy companies to live up to this reputation. These guidelines were developed to assist companies in meeting these standards. The objective of these guidelines is to assist energy developers in identifying potential impacts to wildlife and wildlife habitats from their proposed development and potential alternatives to avoid, minimize, and/or mitigate for these negative impacts. **The first step is to contact AGFD early, during the conceptual design of your project, to initiate a collaborative process and minimize negative impacts to wildlife and their habitat. Contact AGFD's Project Evaluation Program at:**

Arizona Game and Fish Department
Project Evaluation Program
5000 W. Carefree Hwy.
Phoenix, AZ 85086
623-236-7600
pep@azgfd.gov

Habitat Loss

Wildlife habitat loss will result from the construction of large-scale utility solar facilities. The largest continuous piece of land loss will occur within the perimeter of the facility's security fence. Additional habitat loss will take place through the construction of new or expansion of existing substations, new transmission lines, and associated access roads. Project proposals for solar energy are primarily located within creosote-bursage and mixed desert scrub, grasslands, and fallow or active agriculture fields. Proposed projects can range in size from 100 to over 5,000 acres. Each project can result in significant habitat loss for wildlife.

Habitat Fragmentation

The development of utility-scale solar projects and associated construction of new substations, transmission lines, and access roads has the potential to negatively impact wildlife movement.

Solar development will impacts not only species that live within the project areas, but also species that must move through project areas.

AGFD is engaged in an ongoing process to identify wildlife corridors between crucial habitats in the state to ensure wildlife movement and genetic diversity. In addition to addressing the need for wildlife to move across obvious barriers such as roads, railroads, and canals, current efforts are also looking to maintain movement corridors across development areas, including urban, rural, and renewable energy installations. Therefore, the siting of a solar facility would require a biological investigation to determine impacts to wildlife movement.

Hydrology

Utility-scale solar facilities generally have large impervious surface areas which block or reroute surface flows, and, may use significant amounts of groundwater if using wet-cooled systems for turbines. The resulting changes in drainage patterns, storm water runoff, and depth to groundwater could result in significant negative impacts to wildlife and their habitats.

Cumulative Effects

Currently, applications for construction of solar facilities are being submitted for private, state, and federal lands totaling approximately 800,000 acres in Arizona. This scale of development will amplify the impacts to wildlife and wildlife habitats discussed above. For example, AGFD calculated the predicted population growth (MAG 2050) and current proposed solar development could result in the loss of 31% of the existing creosote-bursage and desert scrub habitats in the state. This significant loss of acreage could substantially reduce the viability of creosote flats and mixed scrub habitats and the species dependent on them. The loss of these habitats from solar development combined with losses from infrastructure development associated with population growth has the potential to result in the listing of several desert species under the Endangered Species Act.

The Future for Arizona's Wildlife

The Arizona Game and Fish Department's vision for the future of wildlife and their habitats in Arizona includes interconnected networks of large natural areas (crucial habitats) supporting viable populations of wildlife, while providing ample opportunity for people to enjoy and benefit from the presence of wildlife. Public lands, managed under the principle of multiple use, form the cornerstone of these large natural areas, and are augmented by key state and private lands which are managed in such a way to maintain their wildlife management function in perpetuity.

In AGFD's vision for Arizona, crucial wildlife habitats are distributed throughout the state, and are large enough to support viable populations of all native and desired species of wildlife found in Arizona, from the ambersnail to the black bear. An extensive network of wildlife movement corridors connect crucial habitats across public, state and private lands, preventing genetic isolation and allowing for habitat shifts caused by climate change. Biodiversity and ecological functions are maintained and restored in crucial habitats and corridors. In crucial habitats where natural processes have been altered, active wildlife management is maintained to ensure persistence of wildlife populations. High quality habitat allows for continued hunting, fishing, and viewing of Arizona's game and non-game wildlife species. Threatened and Endangered wildlife are recovered, and populations of wildlife in Arizona are maintained, enhanced, and restored.

Habitat Connectivity & Why It Is Important

Arizona's natural environment is extremely diverse, ranging from tundra on the San Francisco Peaks, to desert scrub in the Sonoran Desert. Within this range of environments is an equally diverse assortment of habitats and wildlife that have adapted to reproduce and survive. While wildlife have always had to deal with discontinuous landscapes to move between habitats in different seasons, the rate of habitat loss and fragmentation has become a threat to which most species are not equipped to adapt, hence the need for wildlife habitat connectivity.

Habitat loss and habitat fragmentation are commonly accepted as the leading causes of species extinctions. Therefore, it is essential to have connectivity for: wildlife access to resources within their home ranges; wildlife recolonization after a local extinction; species' maintenance of gene flow (the ability to evolve); species' movement in response to changing climates; maintenance of ecological processes and flows (response to disturbances, predator/prey interactions, seed dispersals, etc.); and allowance for seasonal wildlife migrations.

What developers should consider for accommodating wildlife and promoting connectivity

While some habitat loss is inevitable, habitat fragmentation can be prevented or at least reduced by appropriate site selection and the incorporation of AGFD's wildlife-friendly guidelines (www.azgfd.gov/w_c/WildlifePlanning.shtml) and these *Guidelines* in the design and construction of solar projects. Connectivity can be maintained through dedicated corridors of undisturbed lands or other forms of open spaces (parks/preserves/monuments) that support wildlife and allow wildlife to move between crucial unfragmented areas. Disturbed areas

(agriculture, flood control areas, low density residential areas) can also support wildlife and may act as movement corridors, especially if the disturbance is managed for minimizing impacts to wildlife. Both crucial habitats and the corridors connecting them can contribute to meeting the economic, recreational, social, and aesthetic needs of people. Smart planning is the key to retaining connectivity between large crucial habitat areas and increasing the value of disturbed areas to both wildlife and people. Striking a balance between the needs of people and the needs of wildlife is an essential element of responsible development.

What is AGFD doing to address habitat fragmentation?

AGFD is working with partners and stakeholders to identify wildlife corridors around the state. In 2004 several state and federal agencies and conservation organizations formed the Arizona Wildlife Linkage Workgroup (AWLW) and produced the "Arizona's Wildlife Linkages Assessment" (2006) (http://www.azdot.gov/Highways/OES/AZ_Wildlife_Linkages/index.asp, Figure 1 below).

The Arizona Wildlife Linkages Assessment is a collaboratively-developed statewide report on wildlife habitat and linkages critical to sustaining wildlife habitat connectivity with comprehensive recommendations for land use planners and managers. The AWLW has received considerable recognition as leading a groundbreaking initiative responsible for bringing the needs of wildlife to the forefront of planning processes in Arizona. The group recognized, however, that this statewide effort was only the first step and that finer-scale analyses and reports would be needed to ensure biological, social, and economic successes at the project level. In 2007 and 2008, 16 high-priority wildlife linkages from the original report were further refined (using a least-cost corridor modeling technique where appropriate) and detailed reports were produced by Dr. Paul Beier and the corridor design team at Northern Arizona University (www.corridordesign.org). These reports detail the ownership, landscape, and on-the-ground condition of each linkage and provided crucial information that planners need—such as what kind of crossing structure to consider and the importance of riparian features in the area.

Today, the AWLW is working on the next stage in this process – a comprehensive identification of wildlife corridors and the crucial habitats they connect at the county scale. By utilizing a county-by-county approach in which stakeholders and partners are brought together to identify crucial habitats and corridors, a more comprehensive wildlife linkage assessment for Arizona will be produced. County-level reports will be developed, prioritized linkages will be modeled in GIS, and additional fine-scale linkage reports will be produced and made available upon completion.

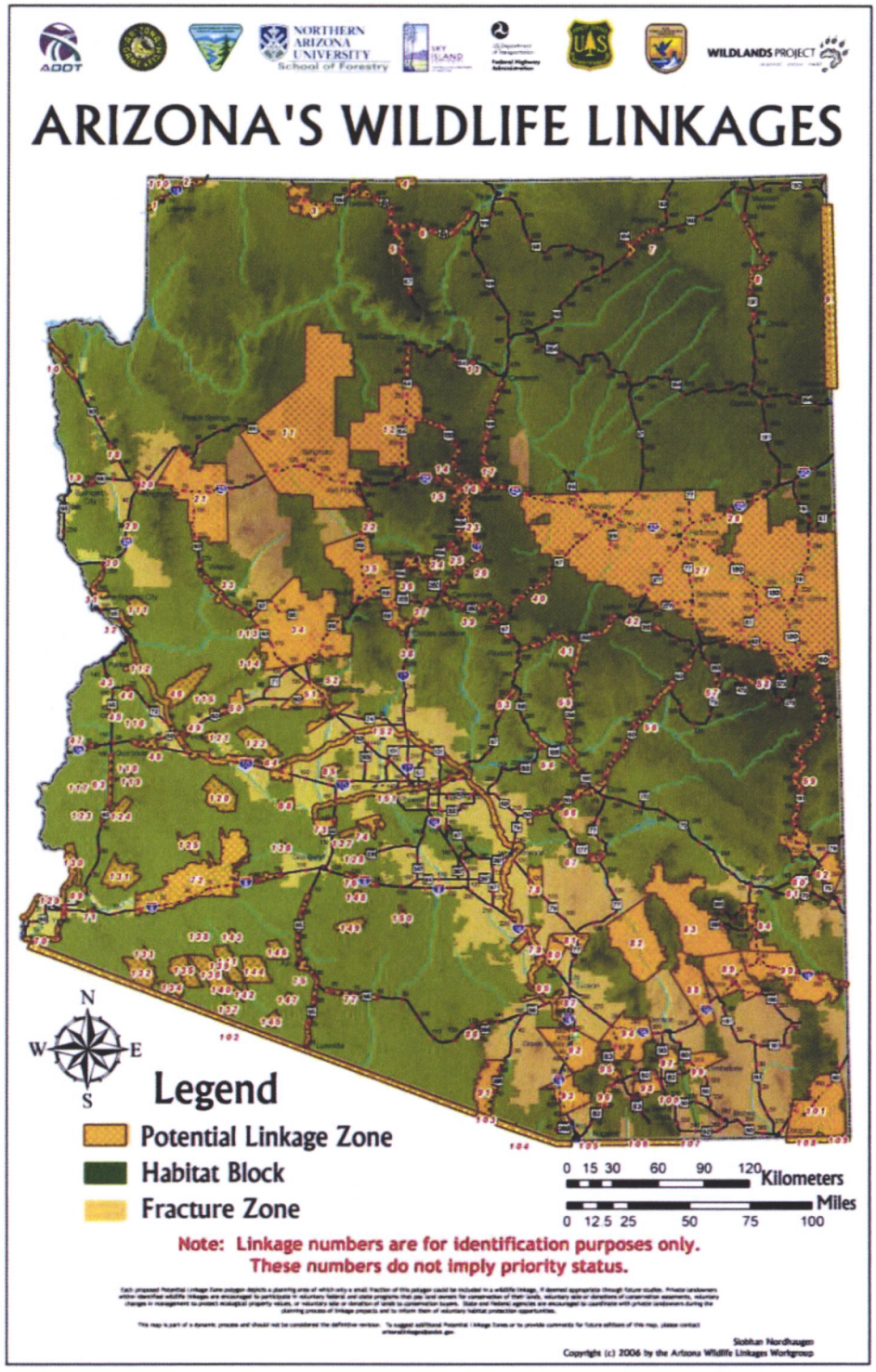


Figure 1. Arizona's Wildlife Linkages map. Each linkage identified by a number on the map is further described in the report.

Wildlife Protection Regulations

Various federal, state, and local laws regulate the permitting requirements for solar energy development in Arizona. AGFD strongly encourages adherence to these *Guidelines* to ensure impacts to wildlife populations are minimized from solar energy development and operations. Although it is not possible to absolve individuals and entities from liability for unlawfully taking wildlife under state law, AGFD will take compliance with these guidelines into consideration when considering any law enforcement action.

The permitting agency and project proponent should coordinate frequently with AGFD and USFWS throughout the process, and particularly during development of permit conditions. Permitting agencies should structure permit conditions to clearly define the obligations of the developer.

Federal Regulations

The following federal regulations may apply to protecting wildlife from the impacts of solar energy development or require federal agencies to coordinate or consult with Arizona Game and Fish Department.

- **The National Environmental Policy Act** (NEPA) and the regulations promulgated there under (42 U.S.C. § 4321, *et seq.*, 40 CFR § 1500.1, *et seq.*) require the federal government to assess the environmental impacts of any "federal action," which includes actions undertaken (1) on federal land, (2) by a federal agency, (3) with federal funds, or (4) where the federal government will be issuing a permit. Examples when federal agencies must prepare a NEPA document for a solar development include: locating the facility on BLM land; locating transmission lines across Bureau of Land Management (BLM) land; using Western Area Power Administration (WAPA) transmission lines or obtaining a Clean Water Act 404 permit. NEPA requires federal agencies to cooperate with state and local agencies in analyzing environmental impacts of proposed federal actions. More details on NEPA can be found at http://www.nepa.gov/nepa/regs/nepa/nepaeqia.htm.
- **The Endangered Species Act**, 16 U.S.C. §1531, *et seq.*, executed by for U.S. Fish and Wildlife Service (USFWS) provides for the conservation of ecosystems upon which threatened and endangered species of fish, wildlife, and plants depend. The ESA, among many other things: 1) authorizes the determination and listing of species as endangered or threatened; 2) prohibits unauthorized taking, possession, sale, and transport of endangered species (including land-use activities that "harm" or "harass"); and 3) authorizes the assessment of civil and criminal penalties for violating the Act or regulations. Taking provisions apply to private lands. ESA authorizes permits for the take of protected species if the permitted activity is for scientific purposes, is to establish experimental populations, or is incidental to an otherwise legal activity. Section 7 of the ESA requires federal agencies to insure that any action authorized, funded or carried out by them is not likely to jeopardize the continued existence of listed species or modify their critical habitat. Section 10 allows for the development of Habitat Conservation Plans and the issuance of an incidental take permit on private lands. USFWS consults

with the state wildlife agency on Section 7 and 10 consultations. More information on the ESA can be found at http://www.fws.gov/endangered/policy/index.html.

- **Migratory Bird Treaty Act**, 16 U.S.C. § 703, *et seq.*, prohibits taking, killing, possessing, transporting, and importing of migratory birds, including their eggs, parts, and nests, except when specifically authorized by USFWS. Slightly more than 400 species of birds that are protected by the MBTA are either resident or at least occur annually in Arizona during certain seasons of the year (winter, summer, or during migration). The MBTA authorizes permits for some activities, including but not limited to scientific collecting, depredation, propagation, and falconry. No permit provisions are available for incidental take for any project-related incidental take, including take associated with solar energy development. MBTA prohibition on take may require seasonal limitations on construction activities. For more information on the MBTA, go to http://www.fws.gov/permits/mbpermits/regulations/mbta.html.
- **Bald and Golden Eagle Protection Act**, 16 U.S.C. §668, *et seq.*, protects the bald eagle and the golden eagle by prohibiting, except under certain specified conditions, the take, possession, and commercial use of such birds. More information on the BGEPA can be found at http://www.fws.gov/laws/lawsdigest/baldegl.html.
- **Sikes Act**, 16 U.S.C. §670g, *et seq.*, requires BLM to coordinate with state wildlife agencies in the development of comprehensive plans for the conservation of wildlife. These plans may restrict uses of BLM lands, or require a plan amendment to allow an otherwise restricted use. BLM will coordinate plan development and plan amendments with the state wildlife agency.
- **Fish and Wildlife Coordination Act**, 16 U.S.C. §662, *et seq.* (FWCA) 1946 amendments, require consultation with the Fish and Wildlife Service and the state fish and wildlife agencies where the "waters of any stream or other body of water are proposed or authorized, permitted or licensed to be impounded, diverted . . . or otherwise controlled or modified" by any agency under a Federal permit or license. Consultation is to be undertaken for the purpose of "preventing loss of and damage to wildlife resources."
- **Federal Land Policy Management Act**, 43 U.S.C. §1701 (FLPMA) is the organic act for BLM. Section 102 declares that it is the policy of the United States that (9) "the public lands be managed in a manner ... that will provide food and habitat for fish and wildlife and domestic animals; and that will provide for outdoor recreation and human occupancy and use;". Section 202 (9) requires that BLM provide meaningful public involvement with state and local agencies on land use decisions.
- **Federal Water Pollution Control Act Amendments of 1972** (Clean Water Act) 33 U.S.C. §1251 et seq. Section 402 permits are administered by the Arizona Department of Environmental Quality (ADEQ) under authority of the Environmental Protection Agency. Solar projects may require an Arizona Pollution Discharge Elimination System (AZPDES) and/or a Stormwater Runoff permit from ADEQ. More information can be found at the ADEQ website at http://www.azdeq.gov/environ/water/permits/azpdes.html.
- **Federal Water Pollution Control Act Amendments of 1972** (Clean Water Act) 33 U.S.C. §1251 et seq. Section 404 requires a permit to dredge or put fill into a water of the U.S. 404 individual permits require a NEPA impact analysis and a FWCA consultation. 404 permits in Arizona are administered by the Los Angeles District of the Army Corps of Engineers. More information can be found at http://www.spl.usace.army.mil/regulatory/.

Arizona Game and Fish Department Regulations

Arizona State Statutes and AGFD Commission Policies have been established to conserve, protect, restore, and enhance fish and wildlife populations and their habitats. Project proponents should be familiar with these statutes and policies to ensure their projects are consistent with the intent of these laws and policies. Several Arizona state statutes and AGFD Commission policies, some of which are discussed below, are relevant to solar energy projects. Violation of these laws or other policies can result in criminal prosecution and/or civil liability.

- Pursuant to A.R.S. § 17-102, wildlife is the property of the state, and can be taken only as authorized by the Arizona Game and Fish Commission.
- "Wildlife" is defined in A.R.S. § 17-101(A)(22) as "all wild mammals, wild birds, and the nest or eggs thereof, reptiles, amphibians, mollusks, crustaceans, and fish, including their eggs or spawn."
- "Take" is defined in A.R.S. § 17-101(A)(18) as "pursuing, shooting, hunting, fishing, trapping, killing, capturing, snaring or netting wildlife or the placing or using of any net or other device or trap in a manner that may result in the capturing or killing of wildlife."
- It is unlawful to "take, possess, transport, buy, sell or offer or expose for sale wildlife except as expressly permitted" under A.R.S. § 17-309(A)(2).
- A.R.S. § 17-235 authorizes the Arizona Game and Fish Commission to regulate the taking of migratory birds in accordance with the MBTA, described above.
- Under A.R.S. § 17-236(A), "it is unlawful to take or injure any bird or harass any bird upon its nest, or remove the nests or eggs of any bird, except as may occur in normal horticultural and agricultural practices and except as authorized by commission order."
- No state or federal lands can be closed to hunting or fishing without the consent of the Arizona Game and Fish Commission, and no person may lock a gate blocking access to state lands pursuant to A.R.S. § 17-304 and Arizona Administrative Code R12-4-110. Permittees should contact the AGFD Ombudsman at AGFD Headquarters for information regarding filing a petition with the Arizona Game and Fish Commission where a project requires the closure of state or federal lands to hunting or fishing.

Other State Regulations

- **Native Plant Law**, A.R.S. § 3-901-907 is administered by Arizona Department of Agriculture (ADOA). The law lists plants protected under the law. Information on protected plants and permitting procedures can be found at the ADOA website http://www.azda.gov/esd/nativeplants.htm.
- State Water Laws are administered by the Arizona Department of Water Resources (ADWR). A.R.S. §45-152 establishes the need and procedure for obtaining a permit to appropriate surface water. A.R.S. Title 45 Chapter 2 establishes groundwater code. The type of well drilling permit required to use groundwater depends on location. More information state water permitting requirements for solar projects can be found at http://www.azwater.gov/AzDWR/WaterManagement/solar/default.htm.

AGFD Policies on Habitat Compensation

Although AGFD enforces Arizona's state wildlife laws, AGFD is not a permitting authority for solar energy development. Rather, AGFD makes recommendations to avoid, minimize and/or mitigate impacts to wildlife, and elects to support or oppose solar energy projects in consultation with the permitting agency. In making a decision to support or oppose a project, AGFD uses its *Wildlife and Wildlife Habitat Compensation Policy* (Commission Policy A2.16, Department Policy I2.3, authorized under A.R.S. 17-211) and its biological expertise to analyze impacts to wildlife from the proposed project activities.

The *Wildlife and Wildlife Habitat Compensation Policy* (Appendix A) guides AGFD in evaluating habitat loss from development projects such as solar energy. This policy requires AGFD to work with developers and permitting agencies to develop adequate mitigation plans for habitat losses resulting from land and water projects. General criteria used to identify mitigation goals fall into four categories:

- **Resource Category I**: Habitats in this category are of the highest value to Arizona Wildlife species and are irreplaceable on a statewide or regional basis.
  Goal: No loss of existing in-kind habitat value.
  Guideline: All potential losses of existing habitat values will be prevented. Insignificant changes may be acceptable provided they will have no significant cumulative impacts.
- **Resource Category II**: Habitats in this category are of high value for Arizona wildlife and are relatively scarce or becoming scarce on a statewide or regional basis.
  Goal: No net loss of existing habitat value, while minimizing loss of in-kind value.
  Guideline: Losses be avoided or minimized. If significant losses are likely to occur, AGFD will recommend alternatives to immediately rectify, reduce, or eliminate these losses over time.
- **Resource Category III**: Habitats in this category are of high to medium value for Arizona wildlife and are relatively abundant.
  Goal: No net loss of habitat value.
  Guideline: AGFD will recommend ways to minimize or avoid habitat losses. Anticipated losses will be compensated by replacement of habitat values in-kind, or by substitution of high value habitat types, or by increased management of replacement habitats, so no net loss occurs.
- **Resource Category IV:** Habitats in this category are of medium to low value for Arizona wildlife, due to proximity to urban development or low productivity associated with these sites.
  Goal: Minimize loss of habitat value.
  Guideline: AGFD will recommend ways to avoid or minimize habitat losses.

AGFD Project Review

Project proponents should consult with AGFD early in the project conceptual process to identify any potential impacts to special status species and other wildlife in the project area. AGFD consultations typically follow these steps:

1. The permitting agency or project proponent obtains a Special Status Species List from the Arizona On-line Environmental Review Tool or by request through the AGFD Project Evaluation Program (PEP). The list provides information on species that have been documented in the project area.
2. The permitting agency or project proponent initiates an AGFD project review through PEP. PEP provides policy, technical and environmental law compliance guidance and oversight, and coordinates an internal review of land use projects affecting fish and wildlife resources in Arizona. Providing baseline map information showing the facility layout would aid in the review. AGFD recommends mapping the location of sensitive resources to establish the layout of roads, fences, and other infrastructure to minimize habitat fragmentation and disturbance. Pre-construction studies should be sufficiently detailed in order to create maps of special status species habitats (e.g. wetlands or riparian habitat, large, contiguous tracts of undisturbed wildlife habitat, raptor nest sites) as well as other local species movement corridors (e.g., bats, birds, deer, elk, pronghorn, prairie dogs, badgers, gray/kit fox den sites) that are used daily, seasonally, or year-round, and winter bird concentrations.
3. AGFD encourages permitting agencies and project proponents to continue coordination throughout the preliminary site screening, pre-construction assessment, impact analysis and mitigation, and operations monitoring and reporting phases. Continued coordination with AGFD will ensure impacts to wildlife are avoided and/or minimized to the extent possible.

Federal and state wildlife laws can influence project siting and operations. Project proponents and permitting agencies should familiarize themselves with these laws during the permitting process to ensure impacts to wildlife are minimized and/or mitigated for in order to avoid violating state and federal law.

Preliminary Site Screening

Solar energy developers typically assess the biological sensitivity of a proposed project site early in the development process. Project proponents are encouraged to contact the AGFD Habitat Branch to aid in identifying species potentially at risk and determining the kinds of studies needed to assess the site. This allows the project proponent the opportunity to seek a different site if significant, unavoidable impacts seem likely. In addition, the project proponent needs to arrange for a qualified wildlife biologist who is knowledgeable about the wildlife in the region to conduct a reconnaissance survey. The purpose is to obtain information on the vegetative communities and significant topographic features which will help determine the wildlife community using the project site. Surveys should be of sufficient duration and intensity to adequately address all habitat types in and immediately adjacent to the project area and provide a basis for predictions about species occurrence at the area throughout the year.

Data Resources for Biological Information

AGFD Natural Heritage Program, Heritage Data Management System (HDMS) is an efficient and cost-effective source of biological information. HDMS is part of a global network of more than 80 Natural Heritage Programs and Conservation Data Centers. It identifies elements of concern in Arizona and consolidates information about their status and distribution throughout the state. Species lists are available by common name, scientific name, taxon, and county, and can be found at: http://www.azgfd.gov/w_c/edits/hdms_species_lists.shtml. Species abstracts are also available on the web at: http://www.azgfd.gov/w_c/edits/hdms_abstracts.shtml.

Another useful source of information is the Arizona Online Environmental Review Tool (http://www.azgfd.gov/hgis/) which The Online Tool uses HDMS data to create species lists for the project area. However, obtaining a species list does not constitute a review of the project by AGFD. In addition, HDMS data does not include potential distribution of special status species. Be aware that occurrences are only recorded in HDMS if the site has been previously surveyed during the appropriate season, detection was made, and the observation was reported and entered into the database. As such, do not use the absence from the HDMS of an occurrence in a specific area to infer absence of special status species. It is also important to evaluate known occurrences of sensitive species and habitats near the site and in comparable adjacent areas. Some permitting agencies have their own lists or stipulations you may need to consider as well.

In addition, AGFD has completed a *State Wildlife Action Plan* (formerly called the Comprehensive Wildlife Conservation Strategy) which should be used by solar developers to identify species and threats within their habitats. The *State Wildlife Action Plan* includes a list of Species of Greatest Conservation Need in Arizona by habitat type, outlines threats to species and habitats, and recommends actions which could be taken to address those effects.

Avoiding or Minimizing Impacts

Solar development has the potential to directly and indirectly affect all wildlife species within or moving through the project area. Examples of these effects are: small and large scale habitat fragmentation; displacement; collisions with structures; introductions of invasive species; behavior modifications; direct loss of habitat; degradation of aquatic habitat; and changes in water quality. Avoidance criteria are best applied during pre-construction site selection (macrositing) and during the final adjustment of the project footprint (micrositing). Good macrositing decisions are essential for choosing an acceptable site or portion of a site. Once a site is selected, micrositing efforts, such as appropriate placement of roads, power lines, and other infrastructure can avoid or reduce potential impacts to wildlife and other biological resources.

AGFD encourages project proponents to avoid impacts whenever possible. When not possible, minimization and/or mitigation are necessary conservation measures to counter the effects the project may have on wildlife and their habitats. Each solar project is unique, and no one recommendation will apply to all pre-construction site selection and layout planning. However, consideration of the following elements in site selection and development of infrastructure for the facility can be helpful to avoid and minimize impacts. AGFD staff is willing and available to help determine the best project design that avoids or minimizes negative impacts to wildlife and habitat.

Meteorological Towers

Some solar projects install meteorological towers to assess wind shear and solar intensity at proposed sites. Met towers (whether temporary or permanent) and their associated infrastructure have the potential to cause avian and bat mortalities resulting from mid-flight strikes with the tower guy wires. Studies have shown guy-wired towers can cause four times more bird mortality than towers without guy wires (Young et al., 2003. http://www.west-inc.com/reports/fcr_final_mortality.pdf). While bats can also strike guy wires, the occurrence is much less frequent. In addition, the visibility of met towers is important for the safety of aircraft pilots at low flight elevations. To reduce the potential for bat and bird collisions, and to provide guidance for keeping pilots and personnel safe, AGFD has developed the following recommendations:

- AGFD requests all *permanent* met towers be unguyed, free standing structures. If possible, AGFD also requests temporary met towers be unguyed, free standing structures.
- When guy wires are present, AGFD recommends attaching Bird Flight Diverters (BFDs) at spaced intervals along the length of multiple wires. **At a minimum, BFDs and Aircraft Warning Markers should be alternated at 10 meter intervals along the length of each outer wire**, ensuring that Aircraft Warning Markers are near the apex of the tower (Note: There are several manufacturers of BFDs: TYCO, Preformed Line Products, Dulmison, etc.). Research shows the attachment of BFDs can reduce bird collisions by as much as 86-89% (Pope et al., 2006) (http://www.chelanpud.org/documents/Burch_Final_Report_V1.pdf).

- AGFD recommends all guyed towers are only on site for the minimum amount of time needed to collect data. If towers are on site for more than 1 year, AGFD recommends carcass searches be implemented, especially during the bird migration period.
- When siting met towers, avoid habitat features that congregate wildlife such as water resources, habitat edges, etc.

AGFD Personnel Safety

- Low-level aerial flights by AGFD personnel can occur outside routine wildlife survey routes. GPS locations of all towers need to be provided to AGFD prior to construction to allow survey aircraft to avoid the towers. In addition, AGFD requests project proponents notify the AGFD when met towers are removed.
- When guy wires are present, AGFD recommends attaching Aircraft Warning Markers and Bird Flight Diverters alternated at 10 meter intervals along the length of each outer wire, ensuring that Aircraft Warning Markers are near the apex of the tower.
- For all monopole towers $\geq$ 50 feet tall, paint the top 30 feet of the tower in alternate orange and white paint. This does not apply to lattice towers or lit towers, both of which are more visible than monopoles.

Facility Design

The main issues affecting solar development are water and land use. Water conservation measures should be a priority when planning for any type of development in Arizona. AGFD supports and encourages the use of solar technologies which minimize the amount of water used for operation, such as photovoltaic applications. However, AGFD understands the need for concentrated solar power (CSP) which requires cooling methods for operation.

Cooling methods have the largest impact on water use for a solar facility and should be chosen carefully. AGFD recommends using dry-cooling technology, which consumes 30 times less water than traditional wet-cooling (*Land Letter*, Aug. 6). If the dry-cooling method is not feasible, hybrid parallel wet/dry cooling methods should be chosen because it consumes about half the water of wet-cooling technology. AGFD generally does not support the use of wet-cooling technology because it consumes large amounts of water, an extremely limited natural resource in Arizona.

For more information on how to reduce water consumption with CSP technologies, please refer to the U.S. Department of Energy report entitled, "Concentrating Solar Power Commercial Application Study: Reducing Water Consumption of Concentrating Solar Power Electricity Generation," http://www.nrel.gov/csp/publications.html.

Land use should also be a consideration in the planning process of any utility-scale solar facility. Installations should be sited on degraded and/or disturbed areas when possible. When possible, construction should occur on retired agriculture, brownfields (abandoned or underused industrial and commercial facilities available for re-use), abandoned mines, or other areas that do not provide quality wildlife habitat. Choose technologies that allow for versatility in siting with respect to landscape slope. This will increase the potential for available disturbed land. Fencing, grading and alteration of the natural landscape will impact the habitat quality and wildlife

movement as described in the previous section titled, 'Wildlife Connectivity & Why It Is Important.'

Hydrologic Resources

Much of Arizona's wildlife and habitat are highly dependent on the hydrologic resources of the region and the minimal precipitation received each year. Any changes to hydrologic resources, groundwater, surface water, or surface water flow may lead to broad scale mortality of vegetation and potentially change wildlife species distributions and abundance in the given area. Solar development can impact hydrologic resources through development of the project footprint (e.g., land disturbance, erosion, changes in runoff patterns, and hydrological alterations), project emissions (e.g., sediment runoff and water releases), and water use (e.g., water extraction, diversion, or change in use). Early consultation will aid in minimizing impacts to hydrologic resources through proper planning and design.

Groundwater

Groundwater can be impacted through various activities associated with the construction and operation of a solar facility. Those impacts include soil erosion, weathering of newly exposed soils leading to leaching and oxidation which release chemicals into the water, discharges of waste or sanitary water, presence of dissolved salts from untreated groundwater used to control dust, and herbicide or pesticide applications. A study on the geology of the area should be done in relation to the hydrogeology (as required by ADWR). Solar facilities are required to go through an ADWR permitting process for the use of groundwater and surface water. The following ADWR website provides links and tools to assist in the review and permitting process http://www.azwater.gov/AzDWR/WaterManagement/solar/default.htm. The Arizona Corporation Commission (ACC) and the Arizona Department of Environmental Quality (ADEQ) may have additional water management requirements and we strongly encouraged coordination with these entities as well.

- Identify and avoid unstable slopes and local factors that can cause slope instability (groundwater conditions, precipitation, seismic activity, slope angles, and geologic structure).
- Develop a contingency plan to prevent potential groundwater and surface water contamination.
- Develop a storm water management plan to ensure compliance with state and federal regulations and prevent off-site migration of contaminated storm water or increased soil erosion.
- Spread excess excavated soil to match surrounding topography or dispose of in an approved manner that minimizes erosion and leaching of hazardous materials.
- Closely monitor construction near aquifer recharge areas to reduce potential contamination of the aquifer.
- Incorporate low impact development into facility layout and design to incorporate best management practices for addressing water flows and water quality with onsite processes minimizing the hydromodification impacts (e.g., retention basins for treatment of water from runoff and infiltration and recharge of the groundwater basin).
- Develop and implement a monitoring program.

Water quality can also be degraded as a result of vehicular traffic and machinery operations during maintenance (e.g., erosion and sedimentation) and wastewater disposal. AGFD recommends the following to reduce these impacts:

- Apply erosion controls relative to possible soil erosion from vehicular traffic and during construction activities (e.g., jute netting, silt fences, and check dams). Regularly monitor rights-of-way (ROWs), access roads, and other project areas for indications of erosion.
- Clean and maintain catch basins, drainage ditches, and culverts regularly.
- Refuel in a designated fueling area that includes a temporary berm to limit the spread of any spill.
- Use drip pans during refueling to contain accidental releases and under fuel pump and valve mechanisms of any bulk fueling vehicles parked at the project site.
- Limit herbicide/pesticide use to non-persistent, immobile herbicides/pesticides.
- Keep all equipment and vehicles within the limits of the previously disturbed areas.

In addition, groundwater withdrawal could affect springs and riparian areas through lowering of the ground water table, and alter subsurface groundwater flow, potentially resulting in unwanted dewatering or recharging of any of these water resources. Therefore, AGFD recommends:

- Identify sustainable yields of groundwater and nearby surface water bodies.
- Limit the withdrawal of water at the facility so it does not exceed the sustainable yield.
- Develop and implement a monitoring program.

Surface Water

Surface water can be impacted through removal of xeroriparian washes and recontouring of the site. Solar facilities are required to go through an ADWR permitting process pertaining to the use of groundwater and surface water. The following ADWR website provides links and tools to assist in the review and permitting process http://www.azwater.gov/AzDWR/WaterManagement/solar/default.htm. Likewise, recontouring of the site may affect jurisdictional waters of the U.S. and Army Corp of Engineers (ACOE) should be consulted. AGFD recommends maintaining sheet flow, ephemeral flows, and reduce soil erosion to the maximum extent possible.

- Avoid streams, wetlands, and drainages where possible. Where access roads would cross a dry wash, the road gradient should be 0% to avoid diverting surface waters from the channel.
- Locate access roads to minimize stream crossings and to minimize impacts where crossings cannot be avoided.
- In areas of steep slopes, erodible soils, and stream crossings implement the following:
    i. Cross streams at right angles to the main channel if practical. Adjust the road grade to avoid the concentration of road drainage to stream crossings. Direct drainage flows away from the stream crossing site or into an adequate filter.
    ii. Avoid unimproved stream crossings. When a culvert or bridge is not feasible, locate drive-throughs on a stable, rocky portion of the stream channel.
    iii. Locate temporary construction bypass roads in locations where the stream course will have minimal disturbance. Time construction activities to protect fisheries and water quality.

iv. When the slope increases, additional diversion ditches should be constructed to further reduce the damages caused by soil erosion; ditches, adequate culverts, cross drains, etc., should be installed concurrent with construction.
v. Stabilize the side banks of a road during construction to aid in the control of erosion and road deterioration; this may require mesh or other stabilizing material in addition to planting and/or seeding and other structural measures.

- Construct drainage ditches only where necessary. Use appropriate structures at culvert outlets to prevent erosion. Also, ensure the culvert does not impede wildlife movement.
- Do not alter or restrict existing drainage systems, especially in sensitive areas such as erodible soils or steep slopes. Cross water bodies at right angles to the channel and/or at points of minimum impact.
- Develop a Stormwater Pollution Plan – the EPA site contains templates for the plan, http://cfpub.epa.gov/npdes/stormwater/swppp.cfm.

Evaporation Ponds

Arizona's wildlife is highly dependent on any available surface water. Wildlife, especially waterfowl, are attracted to any form of open water, even evaporations ponds, which could lead to inadvertent poisoning due to concentrated salt and other minerals or accidental drowning. Therefore, AGFD has the following recommendations regarding brine ponds toxic to wildlife:

- Locate ponds in an area undesirable to wildlife, such as high use/highly disturbed areas.
- Ponds should be fenced on the perimeter and the top screened to prevent unsuitable and possibly fatal use by wildlife.
- If screening is not feasible, create steep pond sides to minimize shallow areas that would be used by wading birds.
- Monitor ponds for wildlife mortality and have a contingency plan for wildlife mortality incidents. (i.e., if a waterfowl die-off is observed contact AGFD and US Fish and Wildlife Service (USFWS) as soon as possible and have a contingency plan to handle the situation)
- Monitoring the toxicity of the ponds over time is recommended along with a mitigation plan ready for implementation when toxicity levels rise
    i. The plan should include short term and long term measures to deter wildlife from the area.

Habitat Disturbance and Fragmentation

Solar development will potentially disturb and fragment wildlife habitat during and after construction of a facility. Pre-construction studies must provide sufficient detail in order for the habitat of special status species within the project vicinity to be mapped (e.g., wetland/ riparian habitat, contiguous tracts of undisturbed wildlife habitat, raptor nest sites) and for seasonal species movement corridors to be determined (e.g., winter bird concentrations, pronghorn seasonal migration). These maps, as well as others, should be used to show the location of sensitive resources and used to establish the layout of roads, fences, and other infrastructure in order to minimize habitat fragmentation and disturbance. Listed below are some "Best Management Practices" for avoiding, minimizing, and mitigating impacts to wildlife:

- Avoid using or degrading high value or large, intact habitat areas; use disturbed areas or agriculture lands with low habitat value when possible.

- Avoid high quality wildlife habitat (e.g., wetlands or riparian habitat, undisturbed wildlife habitat) when disturbed areas are not an option. Areas that are temporarily disturbed during construction (e.g., roads, staging areas) should be returned to the original grade and revegetated with site appropriate native species following construction.
- Locate staging areas and construction sites in previously disturbed areas and revegetate with site appropriate native species when construction is completed.
- Use existing roads for construction and access when possible.
- Minimize habitat fragmentation when new roads or two-tracks must be constructed by:
    i. creating the road through cross-country travel versus blading (check local land management agency for cross-country travel regulations).
    ii. construct the minimum footprint (i.e., road width) and number of roads needed to maintain the facility.
- Close, obliterate, and revegetate any roads constructed for the project which are not necessary for facility maintenance after construction including those areas not needed within the road right-of-way (ROW). Seed mixes used for revegetation should mimic the species composition and density of the surrounding habitat.
- Locate, design, construct, reconstruct, use, maintain, and/or reclaim roads so as to:
    i. control or prevent erosion, siltation, and air pollution by vegetating or otherwise stabilizing all exposed surfaces.
    ii. control or prevent damage to fish, wildlife, or their habitat and related environmental values.
    iii. prevent or control damage to public or private property.
- Coordinate with AGFD when there is any new road access or restriction (year-round or seasonal), especially where disturbance to wildlife and their habitat may occur as a result of public use of the road or when hunting season is occurring.

Vegetation Removal and Reclamation

Construction of solar facilities will create soil disturbance, opening the door to negative events such as soil erosion and/or non-native or invasive vegetation growth. The AGFD recommends each facility:

- Document pre-disturbance vegetation characteristics and soil conditions.
- Develop a Revegetation Plan that uses only native species, approximating the pre-disturbance plant community composition. The plan should include:
    i. Background information on the area
    ii. Goals for the revegetation
    iii. Approach
    iv. Implementation
    v. Monitoring and reporting
    vi. Mitigation measures, if necessary
- Salvage and transplant all succulents such as cacti, yucca, ocotillo, and agave to an on-site nursery for reclamation of disturbed areas. The salvaged plants should be used to re-vegetate temporary use areas, ROWs, and other disturbed areas post construction.
    - Revegetating with salvaged plants will enhance the natural reclamation process as well as provide structure for wildlife within the disturbed area.

- During project area clearing, scrape the first 6-12 inches of soil off of the top. Store this soil in piles no taller than four feet high (to prevent the death of soil biota).
- Reestablish soil stabilization, erosion control, restoration and vegetative cover. Contour the soil to match the original topography as much as possible.
- Re-spread the scraped top-soil over the re-contoured area to be reclaimed. Apply the seed following re-spreading (preferably the same day as a hardened soil crust will form from wind and/or rain).
    - Use certified seed sources, free of non-native herbs and grasses (e.g. intermediate wheatgrass, pubescent wheatgrass, crested wheatgrass, and smooth brome).
- Hydro-mulching is the preferred method of seed application.
    - Seeding success rate is **greatly** improved using this method because the hydromulch contains a tackifier that sticks the seed and mulch to the ground reducing seed predation by rodents, birds, and ants and reduces removal by the wind.
- Contact the applicable land management agency regarding guidelines for revegetation efforts.
- When possible push brush and surface rocks into multiple piles, scattered across the project area. The natural materials will provide habitat for many wildlife species and degrade over time returning the nutrients to the soil.
- Fence livestock out of newly reclaimed areas until proper vegetation cover is achieved. If fencing is utilized, please incorporate the recommendations provided in the AGFD wildlife friendly fencing guidelines.

Noxious Weed Management

Solar facilities should be prepared to prevent and manage noxious or invasive plants during the life of the project. AGFD recommends following these steps:

- Develop an Adaptive Weed Management Plan that includes:
    i. Monitoring the project site to detect the presence of noxious weeds.
    ii. Removing or treating weeds to prevent spread.
    iii. Reducing possibilities of contamination or introduction of non-native and noxious plants.
    iv. A post construction weed removal plan for the life of the project.
    v. Also include the recommendations below.
- Assume immediate responsibility for the control of all noxious weeds resulting from surface disturbances.
- Thoroughly wash all surfaces and undercarriages of vehicles and equipment before moving to the project site to remove any noxious or non-native plant seeds. This will reduce the possibility of transporting noxious or non-native plants from one site to another.
- To prevent the introduction of invasive species seeds, all earth moving and hauling equipment should be washed at the contractor's storage facility prior to entering the construction site.
- All disturbed soils that will not be landscaped or otherwise permanently stabilized by construction should be seeded using species native to the project vicinity.

- To prevent invasive species seeds from leaving the site, the contractor should inspect all construction equipment and remove all attached plant/vegetation and soil/mud debris prior to leaving the construction site. If possible, the vehicles should be thoroughly washed prior to leaving the construction site.

Public Recreation and Access

- Public recreation and access to public lands for the purpose of recreation is important to maintain when considering development of utility-scale solar. Unless constructed within previously developed areas, solar plants will occupy what is currently open space and therefore must be located in areas that minimize conflict with known uses such as hunting, birding, hiking, camping, and off-highway vehicle (OHV) recreation areas. Prior to finalizing development plans, AGFD should be consulted to ensure these conflicts are prevented or minimized.
- As solar projects are constructed around the state, there is a possibility they may impede or restrict access to public lands by placing a project on top of known travel routes. To guard against the creation of "wildcat" or illegal roads and maintain access to public lands, coordination is recommended with the appropriate landowners to create alternate travel routes. These alternate routes must be created in close proximity to the project to provide this critical access and should be similar in size to the original routes. Signs should be placed indicating travel routes while project construction takes place and remain in place after project completion.

Seasonal Timing Limitations

Construction of solar projects could temporarily or permanently displace breeding, migrating, and/or wintering wildlife species. Due to the difference in elevation across Arizona, wildlife species breed and/or winter at different times across the state. Therefore, project proponents should work with AGFD for site-specific breeding and wintering seasonal timing limitations for species such as migratory birds, deer, pronghorn, elk, and numerous nongame and special status species.

Transmission Lines

To prevent avian collisions and electrocutions, bury all connecting power lines associated with the solar development, unless burial of the lines would result in greater impacts to biological or archeological resources.

- Follow existing disturbed areas during installation to minimize habitat alterations. In low areas where the power line crosses drainages, the soil should be compacted to reduce the potential for erosion.
- Trenching and backfilling crews should be close together to minimize the amount of open trenches at any given time.
- Ideally, trenching should occur during the cooler months (October – March) when wildlife is less active. However, there may be exceptions (e.g. critical wintering areas) that need to be assessed on a site-specific basis.
- Avoid leaving trenches open overnight as they can be effective traps for wildlife. Where trenches cannot be back-filled immediately, escape ramps should be constructed at least

every 45 meters. Escape ramps can be short lateral trenches or wooden planks sloping to the surface. The slope should be less than 45 degrees (1:1).

- Trenches that have been left open overnight should be inspected daily, prior to work beginning, and any animals removed. Prior to backfilling, the trenches should be inspected and any animals removed. Development of a monitoring schedule for each segment of the underground power line installation to ensure minimizing potential impacts to wildlife.

All above-ground lines, transformers, or conductors should fully comply with the Avian Power Line Interaction Committee (APLIC) 2006 standards to prevent avian fatality, including use of various bird deterrents and avian protection devices.

Fencing

Fencing design is best done on an individual site basis, but most solar energy projects will have similar purposes, needs, and constraints. For these *Guidelines*, AGFD assumes the typical site will be a large parcel (1/4 section or larger) of relatively flat arid lands and the purpose of the fencing is to exclude livestock, people, and large wildlife (e.g., javelina, pronghorn, elk, deer) that can damage the solar components). If your application differs from this, we recommend you consult AGFD's Wildlife Fencing Guidelines, http://www.azgfd.gov/hgis/pdfs/FencingGuidelines.pdf. BLM also has fencing standards that may apply when the project occurs on federal lands.

In the arid flatlands of Arizona, wildlife species targeted for exclusion from a solar project will generally be deer, javelina, and in rare cases elk. The first step in excluding wildlife within the project site is to reduce attractants such as water, food, and habitat. Since the typical solar project will reduce or eliminate vegetation in the collector field, herbivorous wildlife such as deer should not be attracted to the area. Without vegetation, rodent populations should be low and will not attract coyotes and snakes. Nonetheless, fencing needs to be sufficient to discourage the occasional explorer from entering the site. Therefore, AGFD recommends using either a six foot chain link fence with two strands of barbed wire extending outwards from the top of the fence, or a woven wire/high tensile electric/barbed wire combination exclusion fence (as described in the AGFD Wildlife Fencing Guidelines).

Any area where a fence crosses a drainage or wash represents a potential point of failure during or following a large precipitation event. Unless the site has been contoured to divert all flows outside the exclusion area the crossings are subject to damage during flood events. Free swinging flood gates (also known as water bars) should be installed where the fence crosses the drainage *(illustrations)*. Even though the flood gates allow high volumes of water to pass through, they can potentially collect substantial amounts of debris which can lead to a dam effect and cause damage to the fence. Alternatively a small stretch of "sacrificial" woven wire fence could be constructed in the channel up-stream from the main fence. This fence will collect flood debris and usually prevents damage to the main fence. The sacrificial fence will need to be periodically dug out or even replaced after major flood events. Fences should be inspected immediately after storm events to check for damage.

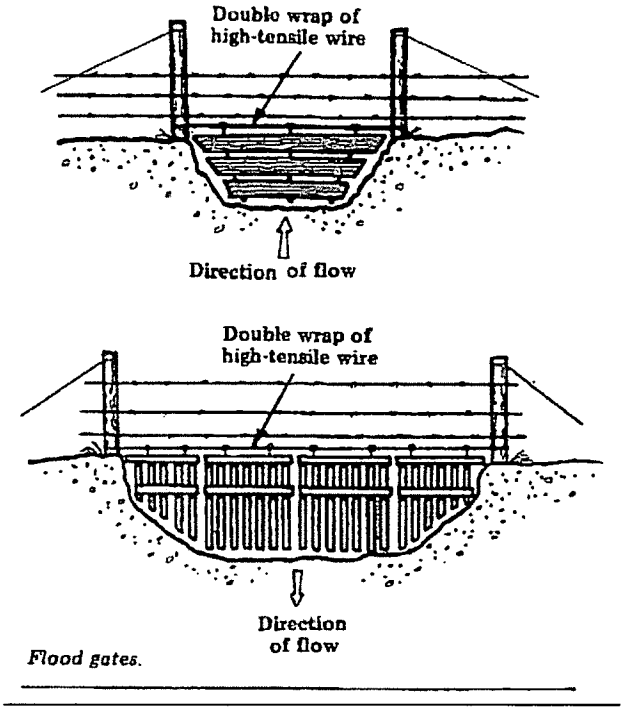


Figure 1 Free swing flood gates

Hazardous Materials

Solar energy plants have the potential to generate or spill hazardous materials during construction, operation, and/or decommissioning, which could affect wildlife, habitat, and surrounding water sources. Potential hazardous materials associated with solar energy plants include: heat transfer fluids (i.e., oils), molten salts, hydraulic fluids, coolants, lubricants, waste water, and photovoltaic panels. Most hazardous materials can be contained through good facility design, emergency planning, prudent operating practices, and proper disposal. Even general construction trash (e.g., plastic wrap, small metal scraps, and grease cartridges) can kill or injure wildlife. AGFD recommends developing a spill prevention and/or contingency plan for spills.

Solar energy plants that employ indirect energy conversion (i.e. concentrated solar power) use liquids such as oils or molten salts that may be hazardous and present spill risks. In addition, various fluids are used that are common to most industrial facilities, such as hydraulic fluids, coolants, and lubricants. These fluids may in some cases be hazardous, and present a spill-related risk. Proper planning and good maintenance practices can be used to minimize impacts from hazardous materials. If synthetic oil is involved in a spill/leak, soil should be removed to an on-site bioremediation facility and indigenous bacteria should be used to decompose the oil to acceptable levels. If inorganic salts are involved in a spill, the molten material should be immediately cooled to a solid, contained within concrete dikes and curbing, and removed or recycled back into the system.

Solar energy plants that employ direct energy conversion (i.e., photovoltaic (PV)) use solar panels that contain many of the same hazardous materials as electronic equipment waste (e.g., arsenic, cadmium, silicon). Although the panels are sealed under normal operating conditions, there is the potential for environmental contamination if they are damaged or improperly discarded (e.g., the leaching of toxic heavy metals out of the landfills into groundwater and streams). To prevent end-of-life hazards, solar plants should responsibly recycle/dispose PV panels by adhering to one or more of the following suggestions:

- create a protocol for responsible disposal of decommission PV solar panels prior to facility construction,
- determine if the PV panel manufacturers provides an Extended Producer Responsibility (EPR) service which requires the producer of the panel to take back their product thus ensuring the panels are recycled safely and responsibly, or
- recycle PV panels at existing responsible electronic waste recycling facilities or at facilities that recycle batteries containing lead and cadmium.

Mitigation

AGFD recognizes the purpose and need for renewable energy and that solar developments will impact wildlife and their habitat. Project proponents and permitting agencies should ensure that appropriate measures are incorporated into the planning and construction of the project to avoid or minimize impacts to the greatest extent possible. If these measures are insufficient to avoid negative impacts to wildlife, habitat connectivity, or depletion of water resources, mitigation can be used to offset such impacts, including cumulative impacts. The following potential mitigation options are known to protect and enhance wildlife populations at biologically appropriate locations when properly designed and implemented:

- Funding wildlife research (see Appendix B)
  - → Studies of displacement
  - → Population impacts
  - → Wildlife movement and behavior
- Offsite conservation of important/crucial/valuable habitat
  - → Nesting and breeding areas
  - → Foraging habitat
  - → Roosting or wintering areas
  - → Migratory rest areas
  - → Habitat corridors and linkages
- Offsite habitat restoration
  - → Restored habitat function
  - → Increased carrying capacity
  - → revegetation
- Offsite habitat enhancement
  - → Predator control program(s)
  - → Noxious/exotic/invasive species removal

Although impacts may occur, the ability to mitigate for them can influence whether a project is supported or not by AGFD. Practical and feasible mitigation is recommended when it will serve to minimize a project's effect on wildlife populations and their habitat. Mitigation is site- and species-specific, and must be formulated for each individual project. Mitigation should have a biological basis for ensuring protection or enhancement of the species affected by the project.

Funding wildlife research is one potential mitigation option with long-term benefits. The more knowledge about wildlife response to solar development in Arizona, the more effective recommendations can be made to avoid/minimize/mitigate impacts. When considering research as a mitigation option, consult with AGFD to help design and conduct investigations.

Mitigation can also involve the purchase of land through fee title, purchase of conservation easements, or other land conveyances for the permanent protection of the biological resources on these lands. The purchased land or easements should have biological value equal to or higher than the land lost for the target species, or community of species, affected by the solar energy

project. Please refer to AGFD's Conservation Easements Fact Sheet for more information at http://www.azgfd.gov/hgis/pdfs/LandsConservationEasement.pdf.

APPENDIX A: Wildlife and Wildlife Habitat Compensation Policy

I2.3 Wildlife and Wildlife Habitat Compensation

Effective: 06/04/1994
Process Owner: WMHB Branch Chief

Department Policy: It shall be the policy of the Department to develop adequate compensation plans for actual or potential habitat losses resulting from land and water projects in accordance with State and Federal laws. Habitat compensation plans will seek compensation at a 100% level, where feasible, and will be developed using habitat resource category designations. See Commission Policy A2.16.

Authority: The Director of the Arizona Game and Fish Department is authorized under A.R.S. Title 17-211, Subsection D, to perform the necessary administrative tasks required to manage the wildlife resources of the State of Arizona. Pursuant to those duties and in accordance with federal environmental laws and resource management acts, such as the National Environmental Policy Act, Fish and Wildlife Coordination Act, and Endangered Species Act, the Director is further charged with cooperating in the determination of potential impacts to Arizona's wildlife resources resulting from federally funded land and water projects. In addition, a Commission M.O.U. assigns similar responsibilities for evaluating proposed projects on lands administered by the State Land Department. An integral part of this process is the development of adequate compensation measures aimed at eliminating or reducing project-associated impacts.

Procedure: Criteria used to identify general compensation goals are as follows:

A. Resource Category I.

1. **Designation Criteria.** Habitat in this category are of the highest value to Arizona wildlife species, and are unique and/or irreplaceable on a statewide or ecoregion basis.
2. **Compensation Goal.** No loss of existing in-kind habitat value.
3. **Guideline.** The Department will recommend that all potential losses of existing habitat values be prevented. Insignificant changes that would not result in adverse impacts to habitat values may be acceptable provided they will have no significant cumulative impact.
4. **Habitat Types.** Habitat types associated with Resource Category I shall include, but not limited to the following examples:
   a. Perennial Stream Habitats
   b. Wetlands and Riparian habitats of at least one acre in size, which are associated with perennial waters. Biotic communities included in this classification follow descriptions provided in Brown (1982) and Henderson and Minckley (1984).
   c. Key utilization areas for species listed or proposed for listing under the Endangered Species Act of 1973 as Threatened or Endangered and Endangered State Threatened Native Wildlife species.

B. Resource Category II.

1. **Designation Criteria.** Habitats in this category are of high value for Arizona wildlife species and are relatively scarce or becoming scarce on a statewide or ecoregion basis.
2. **Compensation Goal.** No net loss of existing habitat value, while minimizing loss of in-kind value.
3. **Guideline.** The Department will recommend that all potential losses of Resource Category II habitat values be avoided or minimized. If significant losses are likely to occur, the Department will recommend alternatives to immediately rectify, reduce, or eliminate these losses over time.
4. **Habitat Types.** Habitat types associated with Resource Category II shall include, but not limited to, the following examples:
   a. Key utilization areas for antelope and bighorn sheep.
   b. Key utilization areas for Threatened and Candidate State Threatened Native Wildlife species, candidate species for federal listing as Threatened or Endangered (Categories I and 2).
   c. Actual or potential reintroduction sites for species that are listed as Extirpated or Endangered on the State Threatened Native Wildlife list.
   d. Blue ribbon fishing areas (i.e., Lee's Ferry and Becker Lake).
   e. Isolated mountain ranges provided Subalpine-coniferous forest habitats (i.e., Pinaleno Mountains).
   f. State and federally operated game preserves, refuges or wildlife areas.
   g. Montane meadows.

C. Resource Category III.

1. **Designation Criteria.** Habitats in this category are of high to medium value for Arizona wildlife species, and are relatively abundant on a statewide basis.
2. **Mitigation Goal.** No net loss of habitat value.
3. **Guidelines.** The Department will recommend ways to minimize or avoid habitat losses. Anticipated losses will be compensated by replacement of habitat values in-kind, or by substitution of high value habitat types, or by increased management of replacement habitats, so that no net loss occurs.
4. **Habitat Types Involved.** Habitats in this category are of a natural, undisturbed condition or they involve bodies of water of economic importance and shall include, but not be limited to, the following examples:
   a. Chihuahua, Great Basin, Mohave, and Sonoran Desert habitat types.
   b. Desert-grasslands and Chaparral zones.
   c. Oak and coniferous woodlands and coniferous forests.
   d. Reservoir habitats.

D. Resource Category IV.

1. **Designation Criteria.** Habitats in this category are of medium to low value for Arizona wildlife species, due to proximity to urban development or low productivity associated with these lands.
2. **Mitigation Goal.** Minimize loss of habitat value.

3. **Guideline.** The Department will recommend ways to avoid or minimize habitat losses. Should losses be unavoidable, the Department may make a recommendation for compensation, based on the significance of the loss.
4. **Habitat Types Involved.** Habitat types associated with Resource Category IV shall include, but not be limited to, the following examples:
   a. Agricultural Lands.
   b. Undeveloped urban areas (i.e., land proximal to waste water treatment facilities, municipal mountain preserves, and undeveloped lands in proximity to municipal and industrial areas).
   c. Habitats exhibiting low wildlife productivity as a result of man's influence.

APPENDIX B: Research Concepts

Information regarding impacts of utility-scale solar development on wildlife and habitats is lacking. In order to inform planning, development, and mitigation, AGFD has identified the following top solar-wildlife research needs in Arizona:

- Determine the "effective footprint" of utility-scale solar development so mitigation strategies can be implemented at the spatial extent of the impact.
    - Determine the potential effects of a proposed solar project on the demographics of select wildlife species.
- Evaluate the alteration of vegetation and micro-climate adjacent to solar facilities.
- Identify the impact that utility-scale solar development has on wildlife corridors.
    - Evaluate the movement and behavior patterns of select wildlife species (e.g. ungulates, grassland passerines, raptors) pre- and post-construction.
- Examine the impacts to migratory birds and bats.
- Develop mitigation strategies to reduce the impacts of water impoundments associated with solar facilities.

What is the "effective footprint" of utility-scale solar development?

AGFD's Research Branch has developed a monitoring plan to elucidate whether the impact of utility-scale solar projects stops at the project boundaries or if it extends beyond the project's physical footprint. This monitoring approach would inform planning, development, and mitigation on future projects by determining the true impacts from habitat loss, degradation, and fragmentation on wildlife habitat and connectivity. Our goal is to implement research on a landscape-scale by partnering with the solar industry, thereby allowing us to make accurate predictions regarding the impact that these projects will have on Arizona ecosystems. This data will greatly inform the appropriate planning and mitigation necessary to reduce impacts to wildlife and their habitat.

How do we mitigate the impact of utility-scale solar development on wildlife corridors?

The impacts of utility-scale solar development on the temporal and spatial movement patterns of wildlife are poorly understood. It is imperative these impacts are identified early in the development of the State's solar resources so that the location, configuration, and extent of future facilities are compatible with AGFD's vision for an interconnected network of conservation areas that maintain viable wildlife populations. A considerable amount of work has been done to identify, at the broad-scale, important habitat linkages that allow for the exchange of individuals among populations – a key ingredient in the long-term persistence of wildlife populations. AGFD, in a partnership with the solar industry, could identify the constraints that solar development exhibits on wildlife movement in an effort to develop proactive management recommendations that will lead to the coexistence of wildlife movement corridors and a renewable energy infrastructure.

How are vegetation and micro-climate affected by the development of utility-scale solar facilities?

Many of the proposed solar facilities will be located in what is currently considered intact wildlife habitat. These areas provide the resources required for survival and reproduction, namely access to food, water, shelter, and mates. It is unclear what the impact will be to adjacent habitat outside of the physical footprint of solar facilities although there is concern that alteration of vegetation and micro-climate resulting from solar reflectance and groundwater pumping will adversely affect wildlife habitat. These impacts need to be evaluated in order to develop habitat management strategies that retain the necessary characteristics of those habitats for wildlife persistence.

Are there impacts to migratory birds and bats resulting from the development of utility-scale solar facilities in desert ecosystems?

Some initial monitoring of large utility-scale solar facilities has shown bird mortality due to collisions with structures and burns from concentrated sunlight and mirrors. The incidence of bird collisions with solar facility structures may be amplified by the presence of open water impoundments. These water impoundments also have the potential to attract bats and increase an additional mortality risk due to collision or poisoning due to water quality issues (similar water quality issues are of concern for all wildlife). It has been shown that the heat from concentrated sunlight has lead to the mortality of birds, especially aerial forages (swifts and swallows). The mortality is thought to occur during morning startup, testing, and maintenance when the mirrors are refocused on "standby" points of sky around the tower.

Can water impoundments (i.e., salinity pools) be managed to benefit wildlife species?

Water is a limiting resource for many species that inhabit desert ecosystems. Although groundwater pumping has the potential to adversely impact habitat, the addition of water sources in the form of impoundments that are constructed as part of the solar facility could serve to benefit wildlife. AGFD has conducted a significant amount of research regarding the importance of water sources for desert wildlife and these results could be applied to water sources developed by solar facilities. As mentioned above, the attractive nature of water impoundments in Arizona can increase the likelihood of wildlife interacting with the infrastructure of the solar facility. In addition, poor water quality issues of open water impoundments can lead to increased wildlife mortality.

S-015-16

Greg Stanley
County Manager

PINAL • COUNTY
wide open opportunity

MEETING DATE: September 15, 2016

TO: PINAL COUNTY PLANNING & ZONING COMMISSION

CASE NO.: **S-015-16 (Sherwood Park)**

CASE COORDINATOR: Dedrick Denton

Executive Summary:

This is a request for a tentative plat approval for Sherwood Park. This development was approved by the Board of Supervisors under Planning Cases PZ-003-13 & PZ-PD-003-13, which zoned the subject property to R-7/PAD. The Planning & Zoning Commission approved the tentative plat for this development in 2014 under planning case S-040-14. The approved tentative plat has expired and the applicant is requesting re-approval of the tentative plat. Staff does not have any recommended changes in stipulations and has attached twenty-one stipulations for the Commission's consideration.

If This Request is Approved:

The developer would be allowed to submit their final plat for review and consideration for approval by the Board of Supervisors.

Staff Recommendation/Issues for Consideration/Concern:

Staff recommends approval of the request with the attached stipulations. The tentative plat conditionally conforms to the approved development plan and standards as well as the Subdivision Regulations and Subdivision Infrastructure and Design Manual. A motion and recommended stipulations are included in this staff report.

LEGAL DESCRIPTION: 128.18± acres, situated in a portion of Section 22, T3S, R8E G&SRB&M.

TAX PARCELS: 210-22-001

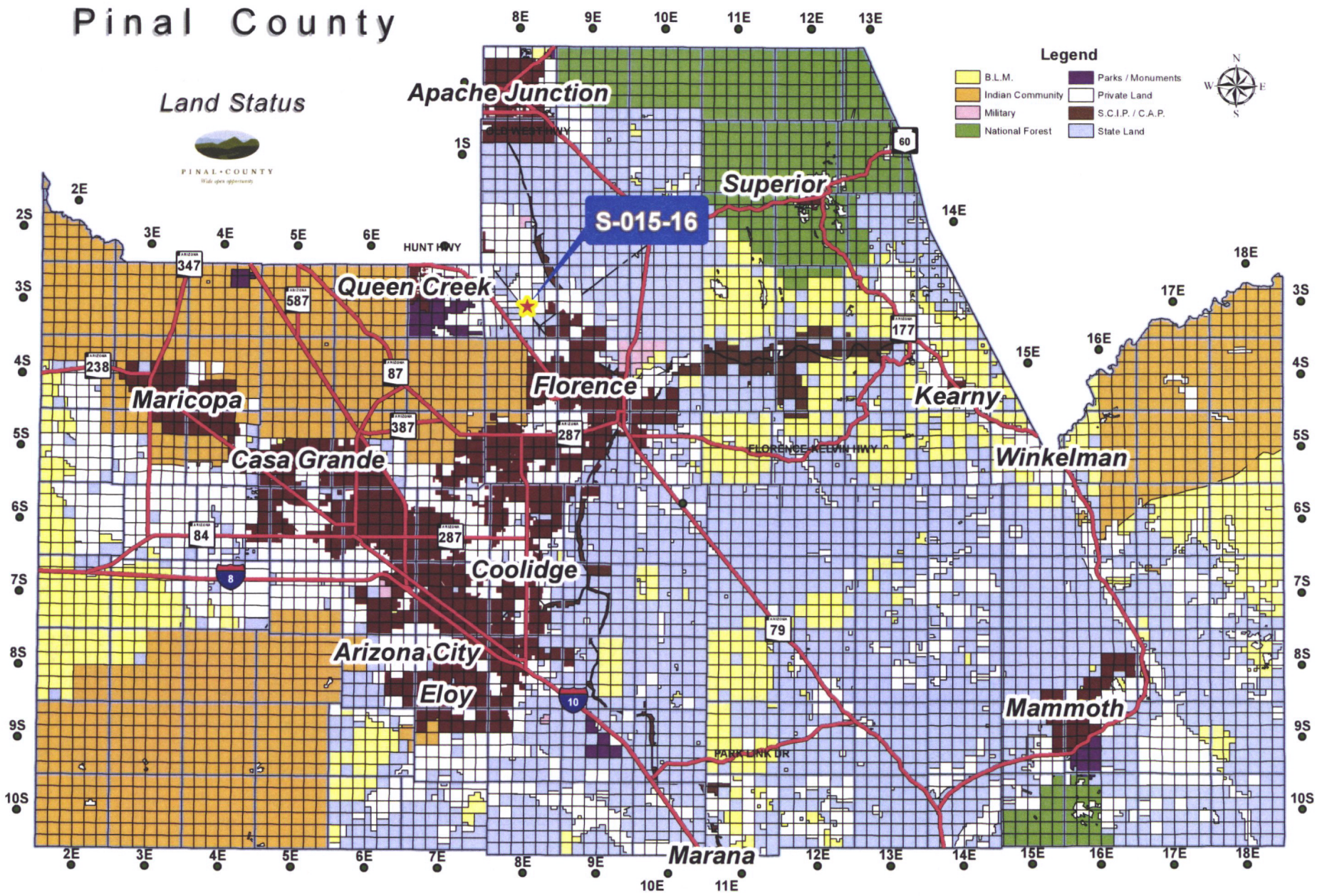
LANDOWNER/DEVELOPER: EHLH-KEMF Sherwood, LLC, 7337 E Doubletree Ranch Road, #C-185, Scottsdale, AZ.

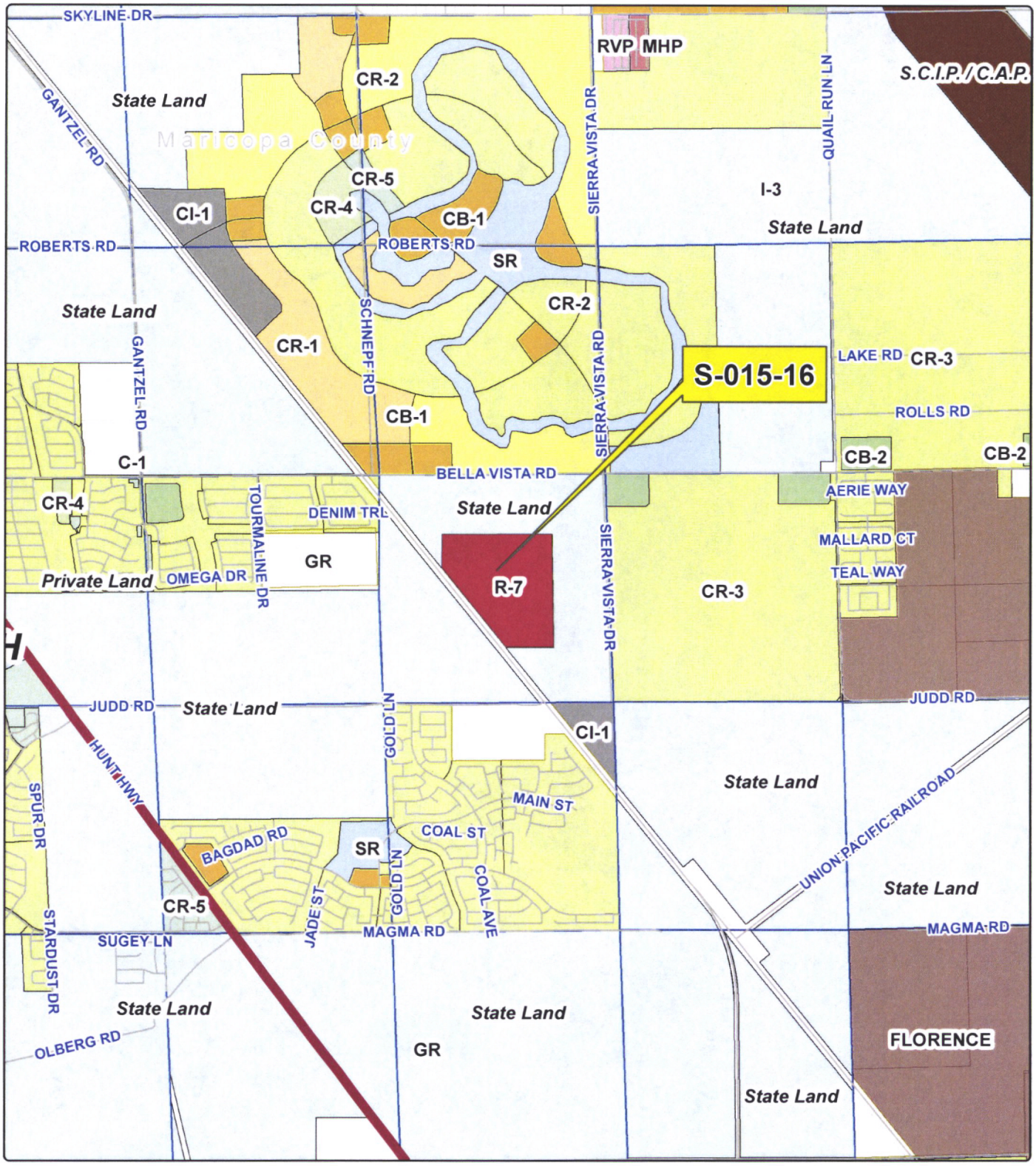
AGENT: Bowman Consulting, 1295 West Washington Street, #108, Tempe, AZ 85281.

REQUESTED ACTION & PURPOSE: EHLH-KEMF Sherwood, LLC, landowner, Bowman Consulting, engineer, requesting approval of a tentative plat for **Sherwood Park**, 444 lots on a 128.18± acre parcel in the R-7/PAD zone **(PZ-003-13 & PZ-PD-003-13)**.

LOCATION: Located approximately 1,400 feet south of Bella Vista Road and 1,400 feet west of Sierra Vista Drive, along the eastern side of the Union Pacific Railroad, in the Town of Florence area.

SIZE: 128.18± acres.

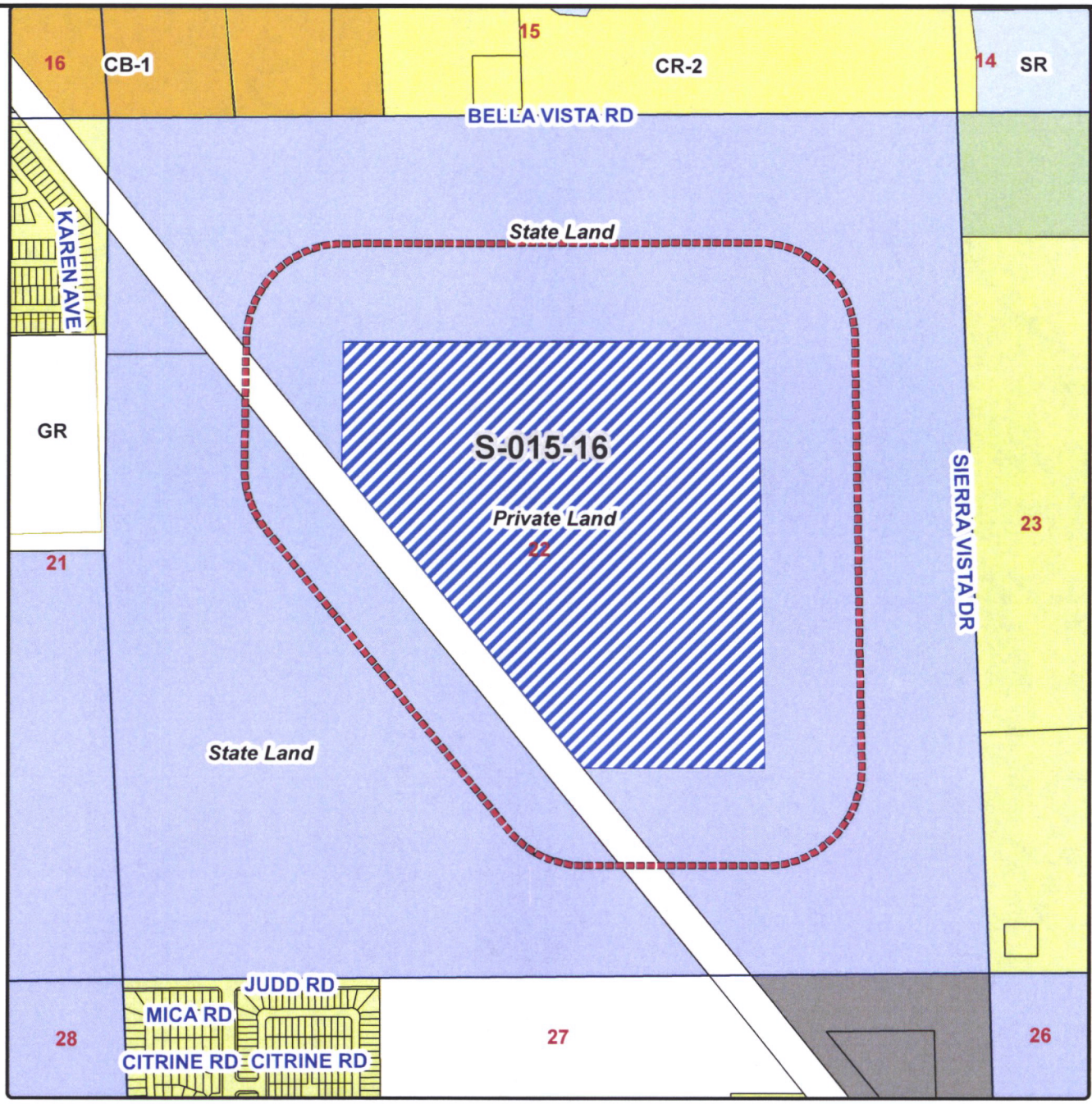

Pinal County
Land Status
PINAL•COUNTY
Legend
B.L.M.
Indian Community
Military
National Forest
Parks / Monuments
Private Land
S.C.I.P. / C.A.P.
State Land
N
W
E
S
Apache Junction
Superior
S-015-16
Queen Creek
Florence
Kearny
Maricopa
Casa Grande
Winkelman
Coolidge
Arizona City
Eloy
Mammoth
Marana
HUNT HWY
FLORENCE-KELVIN HWY
PARK LINK DR
347
587
87
238
387
287
177
84
8
10
79
60
1S
2S
3S
4S
5S
6S
7S
8S
9S
10S
2E
3E
4E
5E
6E
7E
8E
9E
10E
11E
12E
13E
14E
15E
16E
17E
18E



Vicinity Map

Community Development

EHLH-KEMF SHERWOOD LLC	PINAL • COUNTY *Wide open opportunity*	Sheet No. 1 of 1	Vicinity Map Drawn By: LJT Date: 09/08/2016 Sections 22 Township 3S Range 8E Case Number: S-015-16



Community Development

S-015-16 - DISCUSSION/APPROVAL/DISAPPROVAL: EHLH-KEMF Sherwood, LLC, landowner, Bowman Consulting, engineer, requesting approval of a tentative plat for Sherwood Park, 444 lots on a 128.18± acre parcel in the R-7/PAD zone; situated in a portion of Section 22, T3S, R8E, G&SRB&M, Tax Parcel 210-22-001 (located approximately .3 mile south of Bella Vista Road and .2 mile west of Sierra Vista Drive along the Union Pacific Railroad, northwest of the Town of Florence).

Current Zoning: R-7
Current Land Use: MLDR

PINAL • COUNTY
Wide open opportunity

Legal Description:
Situated in a portion of Section 22, T03S, R08E, G&SRB&M. Tax parcel 210-22-001 (legal on file) (located approximately .3 mile south of Bella Vista Road and .2 mile west of Sierra Vista Drive along the Union Pacific Railroad, northwest of the Town of Florence)

T03S-R08E Sec 22

Sheet No. 1 of 1

Owner/Applicant: EHLH-KEMF SHERWOOD LLC

Drawn By: GIS / IT / LJT	Date: 5/08/2018
Section: 22	Township: 03S
Range: 08E	

Case Number: S-015-16

Community Development

NORTH

PINAL • COUNTY
Wide open opportunity

S-015-16

COMPREHENSIVE PLAN: The property is designated as Moderate Low Density Residential.

EXISTING ZONING AND LAND USE: The subject property is zoned R-7/PAD under approved Planning Case PZ-003-13 & PZ-PD-003-13 and is currently vacant.

SURROUNDING ZONING AND LAND USE:
North: GR; Arizona State Land
East: GR; Arizona State Land
South: GR; Arizona State Land
West: GR; Arizona State Land and Union Pacific Railroad

HISTORY: The subject property was rezoned from GR to R-7 with a PAD Overlay District in 2013 under Planning Case PZ-(PD)-003-13 to allow a 444 unit single-family residential development within the 128.18± acre parcel. The Planning & Zoning Commission approved a tentative plat for the 444 lot development in 2014 under planning case S-040-14. Since that time the tentative plat has expired and the applicant is requesting re-approval of the tentative plat.

UTILITIES: The applicant has indicated that the proposed subdivision service providers are:

Telephone:	Century Link
Electrical:	Salt River Project
Water:	Johnson Utilities
Sewer:	Johnson Utilities
Fire District:	Rural Metro Fire
Refuse:	Waste Management
Cable:	Cox Communications
Gas:	Mesa Gas
School:	Florence Unified School District
Police:	Pinal County Sheriff Department

DEVELOPMENT STANDARDS: There were no changes in the development standards. The minimum are listed below.

Lot Area (SQ FT)	Front Yard	Side Yard	Rear Yard	Lot Width	Height
5,700	15' / 20'	5' / 8' (48'X120')	20'	48'	30'
7,750	15' / 20'	5' / 10' (65'x120')	20'	65'	30'
6,550	15' / 20'	5' / 10' (55'x120')	20'	55'	30'

FINDINGS: Under Chapter 3.15.050(H) of the Development Services Code, the Commission shall hear and consider all evidence relating to the tentative plat and make findings as to the conformity of the tentative plat with these regulations. The Commission may request changes to the type and extent of improvements to be made.

The Commission shall consider the following criteria in conditionally approving or denying a tentative plat. The Commission may consider other criteria in addition to the criteria listed below, and may deny approval of a tentative plat if conformance is not found with one or more of the following:

1. Whether the proposed subdivision is consistent and in conformance with Title 3 of the Pinal County Development Services Code and other applicable ordinances and regulations.

   Analysis: The tentative plat contains all the required information, is in satisfactory form, and comments have been received from those who participated in the Subdivision Coordinating Committee meeting.

   Finding: Staff finds that the proposed subdivision will be consistent and in conformance with the Pinal County Development Services Code and other applicable ordinances and regulations with the recommended stipulations.

2. Whether the proposed subdivision is consistent with the approved zoning or Planned Area Development (PAD), if applicable.

   Analysis: This project is located within the R-7/PAD zoning classification. The Board approved thirty (30) stipulations under planning cases PZ-003-13 & PZ-PD-003-13.

   Finding: Staff finds that the lots in the proposed tentative plat meet the requirement of the development standards in the approved PAD.

3. Whether the design of the proposed subdivision is suitable to the environment or causes substantial environmental damage or presents serious public health problems.

   Analysis: The design of Sherwood Park is suitable to the environment and does not cause any substantial environmental damage or presents any serious public hazard problems. The project presents comprehensive solutions for water, sewer, infrastructure, drainage, utilities, and traffic circulation.

   Finding: Based on information provided to date, staff is not aware of any other situation(s) that the proposed subdivision may cause serious public health problems.

4. Whether the design of the proposed subdivision is compatible with the physical features of the site including, but not limited to, natural slopes greater than 15%, floodplains and habitat areas.

   Analysis: The proposed subdivision is in an area where the topography slopes northwesterly within the subject property.

   Finding: Staff finds that the proposed tentative plat, with the approved attached stipulations will conform to the physical features of the site.

5. Whether the proposed subdivision will have adequate permanent access.

Analysis: Access for this tentative plat is from Bella Vista Drive, north of the subject property.

Finding: Staff finds that the proposed subdivision, with the attached stipulations, will have permanent access.

6. Whether the proposed subdivision will place an unreasonable burden on the ability of the County or other local governments to provide for streets, water, sewage, fire, police, hospital, solid waste, education, housing, recreation and other services, that is not offset by improvements associated with the proposed subdivision.

Analysis: The applicant is required to develop the proposed streets both public and private to County Road Standards.

Water service is to be provided by Johnson Utilities. A will serve letter will be provided at time of final plat approval.

Sewage is to be provided by Johnson Utilities.

Police protection is to be provided by the Pinal County Sheriff's Dept.

Solid waste service is to be provided by Waste Management.

Finding: Staff finds that the proposed subdivision, with the attached stipulations, will not place an unreasonable burden on the local government to provide necessary utilities and amenities.

7. Whether the design of the proposed subdivision promotes the safety, health, and general welfare of the public.

Analysis: The applicant did submit a tentative plat in conformance with the Comprehensive Plan, Planned Area Development and Development Services Code, in order to be heard by Pinal County Planning Commission. Additional requirements to be provided during the final platting process will ensure that the proposed subdivision will promote the safety, health and general welfare of the public.

Finding: With information that was provided by the applicant, County Departments and agencies/entities, staff finds that the design and layout of the proposed subdivision will promote the safety, health, and general welfare of the public, with the attached stipulations.

STAFF SUMMARY AND RECOMMENDATION: All submittals, evidence presented, written documentation, public testimony, planning case staff reports (PZ-003-13 & PZ-PD-003-13) with stipulations are considered part of the record in this subdivision case. Based upon the Planning Director's review of the application, exhibits received in evidence, a staff visit to the subject property and the ATTACHED STAFF REPORT, staff recommends that the Commission adopt the staff report and record as presented and grant approval to the tentative plat with the following recommended motion:

I move to approve findings 1 – 7 as set forth in the staff report and approve the tentative plat in Planning Case S-015-16 with the 21 stipulations as presented in the staff report.

1. All peripheral road and infrastructure improvements shall be per the approved Traffic Impact Analysis (TIA) to mitigate impacts on all surrounding roadways to be completed at the developer's cost. These may include construction of acceleration/deceleration lanes, left turn pockets, traffic signals or other public improvements as approved by the County Engineer. The TIA shall be in accordance with the current Pinal County TIA Guidelines;

2. All roadway and infrastructure improvements shall be in accordance with the current Pinal County Subdivision Standards or as approved by the County Engineer;

3. The drainage plan shall be in accordance with the current Pinal County Drainage Manual. The approved Drainage Plan shall provide retention for storm waters in common retention areas;

4. An association, including all property owners in the development will be formed and have the responsibility for maintaining all common areas to be noted as "tracts" or easements (including landscaped areas, street lights, and drainage facilities) in accordance with approved plans;

5. In order to provide public access from Bella Vista Rd. to the subject property, right-of-way from the Arizona State Land Department, shall be conveyed prior to final plat approval, with the understanding that submittal of tentative plat and final plat applications is at the property owner's own risk, and Pinal County incurs no obligation to approved final plats or any plans related thereto prior to conveyance of the public access. Furthermore, Pinal County incurs no obligation to purchase, provide, or construct public access to this development;

6. Right-of-way dedication will be required along all mid-section lines or as approved by the County Engineer. All right-of-way dedication shall be free and unencumbered;

7. Lift stations, if required, shall be located in a tract and shall not be located adjacent to a residential lot. Access to the lift station shall be provided off a local street. Final location of the lift station to be approved by the County Engineer.

8. The developer agrees to contribute a portion of the cost to provide signals at intersections significantly impacted by the development as required by the approved traffic study. Prior to the recordation of the first final plat for this subdivision, developer shall contribute toward the total cost of traffic signals at each intersection required by the approved traffic study and as approved by the County Engineer. Funds in escrow or other assurance as determined by the County Engineer shall be posted with Pinal County to guarantee the installation of the required traffic signals;

9. Street lights shall be provided at all arterial/collector, collector/collector, and collector/local street intersections. Street lights shall be maintained by the Homeowners' Association;

10. Prior to final plat approval, the developer is required to contact the local electric service provider to determine if a substation will be required within or directly adjacent to the proposed subdivision. The developer will provide a written verification from the electrical provider of their substation plans in the immediate area. If there are any existing substations requiring modification or new substations are required, the developer will pay all costs for block screening walls and landscaping around the substation site;

11. At least two corners of the subdivision shall be tired by course and distance to a monument as designated by the Pinal County Engineer;

12. If any conflicts or discrepancies between the tentative plat and these stipulations arise, the stipulations shall govern.

13. It shall be the responsibility of the developer/subdivider to ensure that all contractors engaged to perform work on this subdivision are aware of the stipulations associated with this plat and that all work performed is in conformance with all applicable stipulations.

14. The applicant/owner shall develop the 444 lot subdivision in accordance with the subdivision submittal documents for Sherwood Park and in accordance with all applicable criteria of Title 3 of the Development Services Code, Pinal County Subdivision & Infrastructure Design Manual, and approved zoning case (PZ-003-13 & PZ-PD-003-13), or secure any Waivers/Variances prior to signing the final subdivision plat by the Board of Supervisors.

16. All construction activity must conform to the Earthmoving Activity requirements of the Pinal County Air Quality Control District.

17. The final plat/map title **(Required by A.R.S. § 11-481)** shall include:

    a. Type of map or plat.

    b. Name of subdivision and description with township, range and section.

c. Name of the owner of record.

d. Recorder's information and seal block.

This information shall be located on the top ¼ of the face of the final plat with the Recorder's seal block located on the top ¼ of each page of the final plat.

18. Place the following in notes section on the final plat:

- Any adjacent State Land may be developed for any possible land use in the future.
- This subdivision is subject to an agricultural spray easement recorded by fee No. _____, in the official records of the County Recorder of Pinal County, Florence, Arizona.
- No schools or day care centers to be located within (¼) one-quarter mile of land in agricultural production requiring aerial spraying.

21. Prior to Final Plat approval, the applicant/ developer/owner shall provide written verification from the wastewater / sewage disposal provider, together with associated documentation, that:

a. The wastewater/sewerage disposal provider has adequate capacity for collection, treatment and disposal of wastewater for the development.

b. The development boundaries are located within a service area designated with an approved **Certificate of Convenience and Necessity (CCN).**

c. The wastewater plan for the proposed development is in conformance with the **Certified Water Quality Management Plan (208).**

TENTATIVE PLAT OF "SHERWOOD PARK"

A PORTION OF SECTION 22, TOWNSHIP 3 SOUTH, RANGE 8 EAST, OF THE GILA AND SALT RIVER BASE AND MERIDIAN, PINAL COUNTY, ARIZONA

NOTES

3.4.1 PLANNING DEPARTMENT
A. THE GROSS AREA OF THE SUBDIVISION IS 128.18 ACRES.
B. ZONING INFORMATION:
ZONING IS R7-PAD (PZ-PD-003-13)
C. THE NUMBER OF LOTS IS 444.
D. THE APPROXIMATE AREA IN ACRES OF PARKS, RECREATION AREAS, DRAINAGE WAYS, OPEN SPACE AND ALL OTHER PROPOSED NON-RESIDENTIAL USES 31.15 ACRES.
3.4.2. PUBLIC WORKS DEPARTMENT
A. STREET NAME BELLA VISTA ROAD IS THE NEAREST PAVED ACCESS MAINTAINED BY THE COUNTY WHICH SERVES THIS SUBDIVISION. IT IS 0.75 MILES/1323 FEET AWAY FROM OR ADJACENT TO, THIS SUBDIVISION.
B. ANY RELOCATING, MODIFICATION, UNDERGROUNDING, ETC., OF THE EXISTING UTILITIES AND/OR IMPROVEMENTS REQUIRED BY THIS SUBDIVISION DEVELOPMENT WILL BE PAID BY THE SUBDIVIDER.
3.4.3 BUILDING SAFETY DEPARTMENT AND ENVIRONMENTAL HEALTH DEPARTMENT
1. ONSITE SANITARY SEWERS WILL BE CONSTRUCTED, OPERATED AND MAINTAINED ON A PRIVATE BASIS, EXCEPT PUBLIC SEWERS WITHIN PUBLIC SEWER EASEMENTS OR RIGHTS-OF-WAY. THE LOCATION AND METHOD OF CONNECTION TO AN EXISTING PUBLIC SANITARY SEWER IS SUBJECT TO REVIEW AND APPROVAL BY THE COUNTY BUILDING & SAFETY DEPARTMENT AT THE TIME OF SUBMITTAL OF PLUMBING OR BUILDING PLANS. THE SIZE, LOCATION AND CONSTRUCTION OF SEPTIC TANKS ARE SUBJECT TO REVIEW AND APPROVAL OF THE COUNTY ENVIRONMENTAL HEALTH DEPARTMENT AT THE TIME OF BUILDING PERMIT APPLICATION.
2. A HOMEOWNERS' ASSOCIATION MAY BE FORMED TO ACCEPT RESPONSIBILITY AND LIABILITY FOR CONSTRUCTION, MAINTENANCE, OPERATION, AND CONTROL OF ALL PRIVATE SEWERS. OR
4. WASTEWATER COLLECTION AND TREATMENT WILL BE PROVIDED BY JOHNSON UTILITIES. WASTEWATER GENERATED WILL BE COLLECTED THRU A SEWER NETWORK THEN BE ROUTED BY GRAVITY OR A LIFT STATION, 5600 FEET TO AN EXISTING SEWER SYSTEM AT THE VILLAGE OF COPPER BASIN SUBDIVISION LOCATED SOUTHWEST OF SHERWOOD PARK.
5. DOMESTIC WATER WILL BE SUPPLIED BY A PROPOSED 12" WATER MAIN LINE THAT WILL BE EXTENDED FROM AN EXISTING 12" WATER LINE IN SIERRA VISTA DRIVE. JOHNSON UTILITIES RECENTLY CONSTRUCTED A WATER STORAGE TANK AND WELL SITE AT SIERRA VISTA AND JUDD ROAD THAT WILL ENSURE MINIMUM PRESSURES FOR THE SITE.
3.5.1 PLANNING DEPARTMENT
B. THE FLOOD ZONE(S) DESIGNATION IS ZONE X.
C. MINIMUM LOT SIZE 5700 SQUARE FEET, LOTS 109-277
7750 SQUARE FEET, LOTS 1-108
6550 SQUARE FEET, LOTS 278-444
3.5.2 ENVIRONMENTAL HEALTH AND BUILDING SAFETY DEPARTMENTS
A. PUBLIC SEWERS
1. THE REQUIRED OFF-SITE PUBLIC SANITARY SEWER LINE WILL BE DESIGNED AND CONSTRUCTED TO ADEQ CRITERIA.
2. THE REQUIRED OFF-SITE PUBLIC SANITARY SEWER AUGMENTATION WILL BE DESIGNED AND CONSTRUCTED TO ADEQ CRITERIA.
3. ALL SANITARY SEWERS WILL BE DESIGNED TO PROVIDE GRAVITY FLOW.
4. THE RELOCATION, IF ANY, OF PUBLIC SEWERS WILL BE CONSTRUCTED, INSPECTED, COMPLETED, AND APPROVED BY ADEQ PRIOR TO ISSUANCE OF COUNTY BUILDING PERMITS.
5. THE RELOCATION OF THE EXISTING PUBLIC SEWER IS BEING DONE FOR THE CONVENIENCE OF THE SUBDIVIDER.
C. DRYWELLS
ALL DRYWELLS SHOWN ON THIS PLAT SHALL BE MAINTAINED BY THE OWNER AND ARE TO BE REPLACED BY THE HOA/OWNER WHEN THEY CEASE TO DRAIN THE STORED SURFACE WATER IN A 36 HOUR PERIOD. ANNUAL INSPECTION AND MAINTENANCE OF THE DRY WELL SILTING CHAMBER IS REQUIRED.

BENCHMARK
NGS DESIGNATION L 68. A DISK SET ON TOP OF A CONCRETE MONUMENT.
DATUM NAVD88, GEOID 12A
ELEVATION 1511.96. ELEVATION FROM OPUS ON 2/28/2013 WAS USED.

BASIS OF BEARING
BASIS OF BEARING IS THE EAST LINE OF THE NORTHEAST QUARTER OF SECTION 22, TOWNSHIP 3 SOUTH, RANGE 8 EAST OF THE GILA AND SALT RIVER BASE AND MERIDIAN, PINAL COUNTY ARIZONA
SAID BEARING BEING: SOUTH 02 DEGREES 17 MINUTES 48 SECONDS EAST

LAND USE TABLE

GROSS ACREAGE	128.18 ACRES		
AREA OF STREETS	28.64 ACRES	AREA OF STREETS (FUTURE)	0.77 ACRES
NET ACREAGE	100.77 ACRES		
AREA OF TRACTS	31.68 ACRES		
TOTAL NUMBER OF LOTS	444 LOTS		
OVERALL DENSITY	3.46 DU/GROSS AC		
AVERAGE AREA PER LOT	6,854 SF		

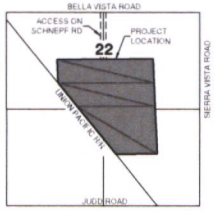
TRACT TABLE

TRACT	TRACT USE	AREA (SF)	AREA (AC)
A	OPEN SPACE, LANDSCAPING, ENTRY MONUMENTATION	20,233 SF	0.46 AC
AA	OPEN SPACE, LANDSCAPING	4,323 SF	0.10 AC
B	OPEN SPACE, LANDSCAPING	3,375 SF	0.08 AC
BB	OPEN SPACE, LANDSCAPING, RETENTION, AMENITY (BASKETBALL COURT)	36,119 SF	0.83 AC
C	OPEN SPACE, LANDSCAPING	3,375 SF	0.08 AC
CC	OPEN SPACE, LANDSCAPING	3,375 SF	0.08 AC
D	OPEN SPACE, LANDSCAPING	3,375 SF	0.08 AC
DD	OPEN SPACE, LANDSCAPING	1,784 SF	0.04 AC
E	OPEN SPACE, LANDSCAPING, REGIONAL TRAIL SYSTEM, RETENTION	594,917 SF	13.66 AC
EE	OPEN SPACE, LANDSCAPING	3,453 SF	0.08 AC
F	OPEN SPACE, LANDSCAPING, AMENITY (RAMADA)	16,289 SF	0.37 AC
FF	OPEN SPACE, LANDSCAPING	3,452 SF	0.08 AC
G	OPEN SPACE, LANDSCAPING	3,375 SF	0.08 AC
GG	OPEN SPACE, LANDSCAPING	4,447 SF	0.10 AC
H	OPEN SPACE, LANDSCAPING	1,688 SF	0.04 AC
HH	WELL SITE	11,208 SF	0.26 AC
I	OPEN SPACE, LANDSCAPING, RETENTION	53,298 SF	1.22 AC
II	OPEN SPACE, LANDSCAPING, RETENTION	55,802 SF	1.28 AC
J	OPEN SPACE, LANDSCAPING	15,749 SF	0.36 AC
K	OPEN SPACE, LANDSCAPING, RETENTION	167,183 SF	3.84 AC
L	OPEN SPACE, LANDSCAPING	3,450 SF	0.08 AC
M	OPEN SPACE, LANDSCAPING	3,450 SF	0.08 AC
N	OPEN SPACE, LANDSCAPING, RETENTION, AMENITY (TOT LOT, RAMADA, VBALL CT)	75,354 SF	1.73 AC
O	OPEN SPACE, LANDSCAPING	3,375 SF	0.08 AC
P	OPEN SPACE, LANDSCAPING	3,375 SF	0.08 AC
Q	OPEN SPACE, LANDSCAPING	3,375 SF	0.08 AC
R	OPEN SPACE, LANDSCAPING, RETENTION, COMMUNITY PARK	226,036 SF	5.19 AC
T	OPEN SPACE, LANDSCAPING	4,575 SF	0.11 AC
U	OPEN SPACE, LANDSCAPING	1,785 SF	0.04 AC
W	OPEN SPACE, LANDSCAPING	3,375 SF	0.08 AC
X	OPEN SPACE, LANDSCAPING	3,375 SF	0.08 AC
Y	OPEN SPACE, LANDSCAPING, RETENTION	16,581 SF	0.38 AC
Z	OPEN SPACE, LANDSCAPING	4,331 SF	0.10 AC

OWNER/ DEVELOPER
EVEREST HOLDINGS
7337 E. DOUBLETREE RANCH ROAD
SUITE C-185
SCOTTSDALE, AZ 85258
PHONE: (480) 363-8442
CONTACT: ED DePINTO
EDEPINTO@EVERESTHOLDINGS.COM

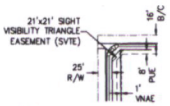
ENGINEER
BOWMAN CONSULTING
1295 W. WASHINGTON ST
SUITE 108
TEMPE, AZ 85281
PHONE: (480) 629-8830
CONTACT: TROY PETERSON

VICINITY MAP
N.T.S.

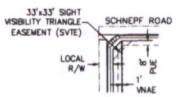


LOCATION MAP
N.T.S.

BASE ZONING & ZONING CASE #:
ZONING: R7-PAD
ZONING CASE: PZ (PD)-003-13
FRONT SETBACK: 15' / 20'
SIDE YARD SETBACK: 5' / 8' (48x120) LOTS 109-277
5' / 10' (65x120) & (55x120) LOTS 1-108, 278-444
REAR YARD SETBACK: 20'
LOT COVERAGE: N/A
MINIMUM LOT WIDTH: 48' (48x120) LOTS 109-277
55' (55x120) LOTS 278-444
65' (65x120) LOTS 1-108
MINIMUM LOT AREA: 5,700 sf
OPEN SPACE %: 31.68 Acres (25%)



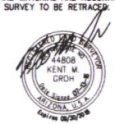
TYPICAL CORNER LOT DETAIL - LOCAL STREET



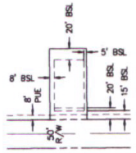
TYPICAL CORNER INTERS. DETAIL
COLLECTOR & ARTERIAL STREETS

LAND SURVEYOR'S CERTIFICATION
I HEREBY CERTIFY THAT THE SURVEY AND SUBDIVISION OF THE PREMISES DESCRIBED AND PLATTED HEREIN WERE MADE UNDER MY DIRECTION DURING THE MONTH OF JULY, 2016, AND THIS PLAT REPRESENTS THE SURVEY MADE. I FURTHER CERTIFY ALL EXTERIOR BOUNDARY MONUMENTS SHOWN HEREON ACTUALLY EXIST AND THEIR LOCATION, SIZE AND MATERIAL ARE ACCURATELY SHOWN AND ARE SUFFICIENT TO ENABLE THE SURVEY TO BE RETRACED.

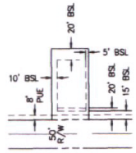
KENT GROH
ARIZONA R.L.S. #44808
1295 W WASHINGTON STREET
SUITE 108
TEMPE, AZ 85281
(480) 629-8830



TYPICAL LOT LAYOUT & BUILDING SETBACKS



48'x120'
LOT SETBACK DETAIL
LOTS 109-277



65'x120' & 55'x120'
LOT SETBACK DETAIL
LOTS 1-108 & LOTS 278-444

LEGEND
PROPOSED SEWER LINE, MANHOLE & FLOW DIRECTION
PROPOSED SURFACE DRAINAGE FLOW DIRECTION
PROPOSED WATER LINE & FIRE HYDRANT ASSEMBLY
PROPOSED WATER VALVE
PROPOSED RETENTION BASIN
EXISTING CONTOUR
STREET CENTERLINE
PUBLIC UTILITY EASEMENT (PUE)
PROPOSED RIGHT OF WAY
VNAE (VEHICULAR NON-ACCESS EASEMENT)

SERVICE PROVIDERS

ELECTRIC (UNDERGROUND	SRP
TELECOMMUNICATIONS (UNDERGROUND)	CENTURY LINK/COX
NATURAL GAS (UNDERGROUND)	MESA GAS
WATER/WASTEWATER (UNDERGROUND)	JOHNSON UTILITIES
POLICE	PINAL COUNTY SHERIFF
FIRE	RURAL METRO
SCHOOLS	FLORENCE UNIFIED SCHOOL DISTRICT #1
STREETS	PINAL COUNTY
TRACTS & PARKS	SHERWOOD PARK HOMEOWNERS ASSOCIATION
REFUSE	PRIVATE CONTRACT

NO.	REVISION	DATE
1	1ST REVIEW COMMENTS	11/21/14

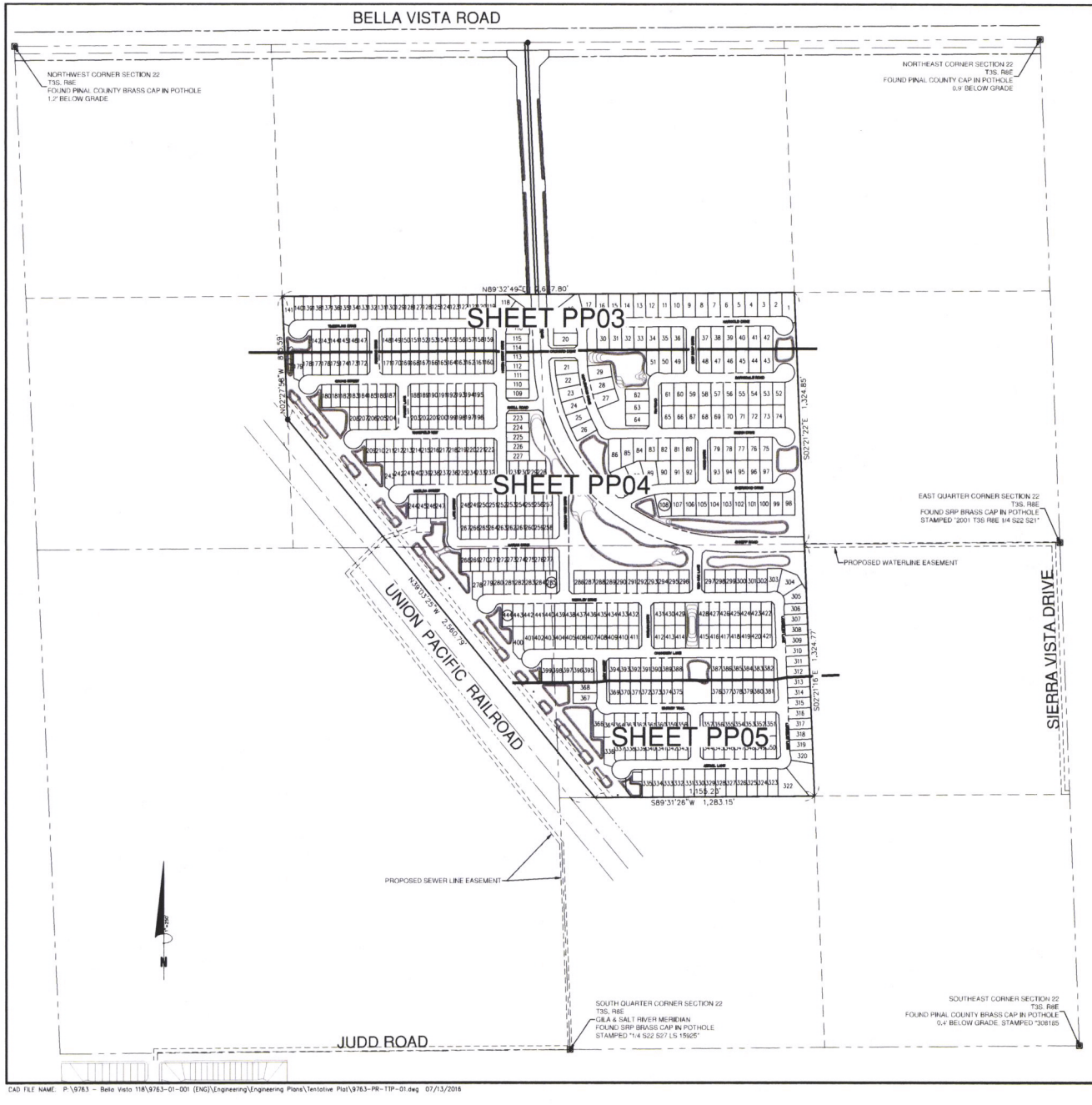
Bowman CONSULTING

SHERWOOD PARK
TENTATIVE PLAT COVER SHEET

PROJECT NO: 9763-01-001	SCALE: N/A	SHEET NO.	FILE NO.
DRAWN: TC DATE: JULY 2016	CHECK: TC DATE:	APPROVED: DATE:	1 OF 5	PP1

S-040-14

CAD FILE NAME: P:\9763 - Bella Vista 118\9763-01-001 (ENG)\Engineering\Engineering Plans\Tentative Plat\9763-PR-TTP-01.dwg 07/13/2016



Bowman CONSULTING

Bowman Consulting Group, Ltd.
1295 West Washington - Ste 126
Tempe, Arizona 85281
Phone: (480) 629-8830
www.bowmanconsulting.com

TENTATIVE PLAT SHEET INDEX

SHERWOOD PARK

PINAL COUNTY

SAN TAN VALLEY, ARIZONA

PROJECT NUMBER

32334
D. TROY PETERSON
11/21/16

PLAN STATUS

DATE	DESCRIPTION
11/21/14	1ST REVIEW COMMENTS

DESIGN	DRAWN	CHKD
DD	DD	

SCALE H: 1"=250'
V:

JOB No. 9763-01-001

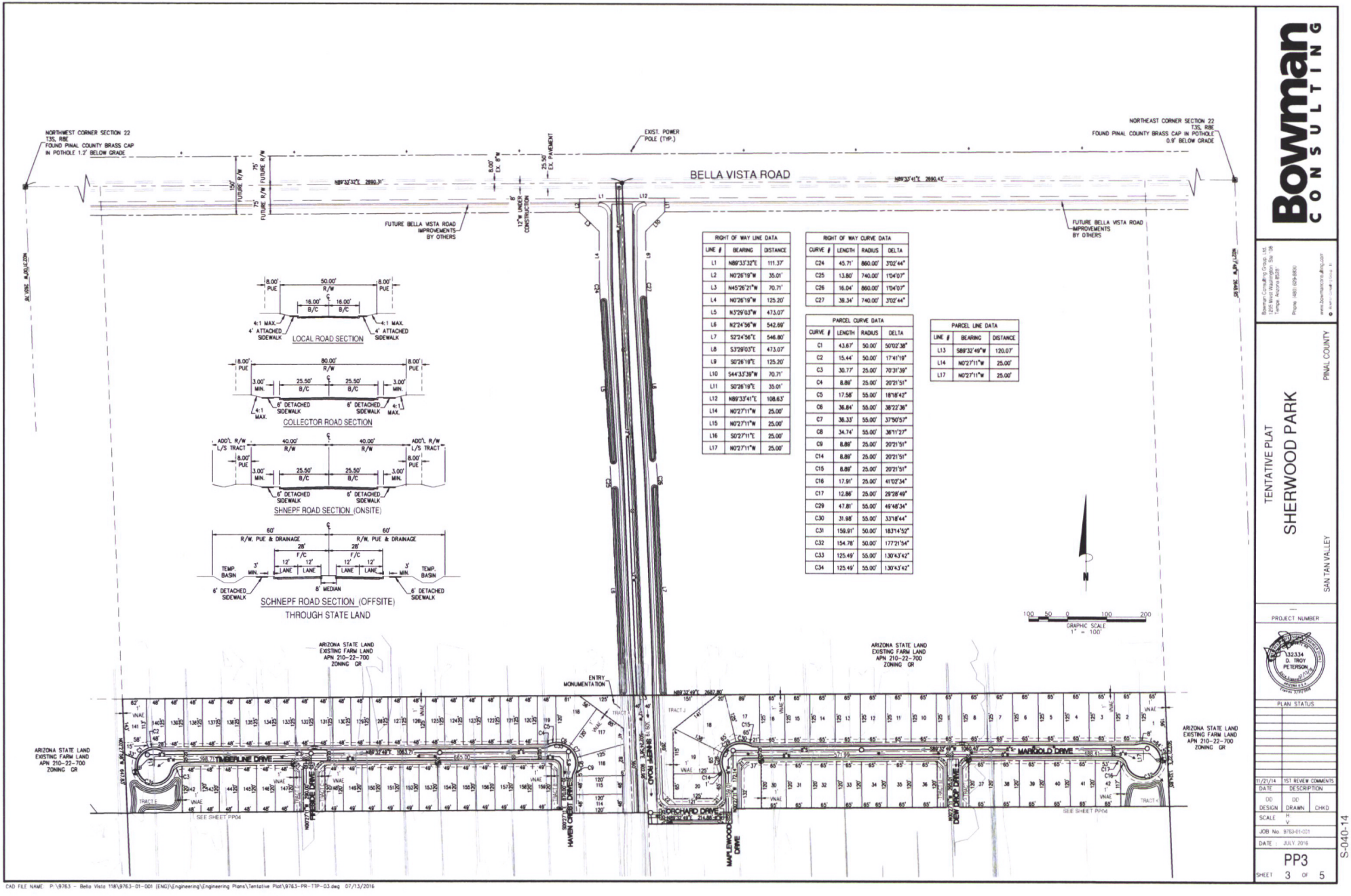
DATE : JULY 2016

PP2

SHEET 2 OF 5

S-040-14

CAD FILE NAME: P:\9763 - Bella Vista 118\9763-01-001 (ENG)\Engineering\Engineering Plans\Tentative Plat\9763-PR-TTP-01.dwg 07/13/2016



RIGHT OF WAY LINE DATA		
LINE #	BEARING	DISTANCE
L1	N89°33'32"E	111.37'
L2	N0°26'19"W	35.01'
L3	N45°26'21"W	70.71'
L4	N0°26'19"W	125.20'
L5	N3°29'03"W	473.07'
L6	N2°24'56"W	542.69'
L7	S2°24'56"E	546.80'
L8	S3°29'03"E	473.07'
L9	S0°26'19"E	125.20'
L10	S44°33'39"W	70.71'
L11	S0°26'19"E	35.01'
L12	N89°33'41"E	108.63'
L14	N0°27'11"W	25.00'
L15	N0°27'11"W	25.00'
L16	S0°27'11"E	25.00'
L17	N0°27'11"W	25.00'

RIGHT OF WAY CURVE DATA			
CURVE #	LENGTH	RADIUS	DELTA
C24	45.71'	860.00'	3°02'44"
C25	13.80'	740.00'	1°04'07"
C26	16.04'	860.00'	1°04'07"
C27	39.34'	740.00'	3°02'44"

PARCEL CURVE DATA			
CURVE #	LENGTH	RADIUS	DELTA
C1	43.67'	50.00'	50°02'38"
C2	15.44'	50.00'	17°41'19"
C3	30.77'	25.00'	70°31'39"
C4	8.89'	25.00'	20°21'51"
C5	17.58'	55.00'	18°18'42"
C6	36.84'	55.00'	38°22'36"
C7	36.33'	55.00'	37°50'57"
C8	34.74'	55.00'	36°11'27"
C9	8.89'	25.00'	20°21'51"
C14	8.89'	25.00'	20°21'51"
C15	8.89'	25.00'	20°21'51"
C16	17.91'	25.00'	41°02'34"
C17	12.86'	25.00'	29°28'49"
C29	47.81'	55.00'	49°48'34"
C30	31.98'	55.00'	33°18'44"
C31	159.91'	50.00'	183°14'52"
C32	154.78'	50.00'	177°21'54"
C33	125.49'	55.00'	130°43'42"
C34	125.49'	55.00'	130°43'42"

PARCEL LINE DATA		
LINE #	BEARING	DISTANCE
L13	S89°32'49"W	120.07'
L14	N0°27'11"W	25.00'
L17	N0°27'11"W	25.00'

Bowman CONSULTING

Bowman Consulting Group, Ltd.
1295 West Washington, Ste. 236
Tempe, Arizona 85281
Phone: (480) 629-8830
www.bowmanconsulting.com

TENTATIVE PLAT
SHERWOOD PARK
PINAL COUNTY
SAN TAN VALLEY

PROJECT NUMBER

32334
D. TROY
PETERSON

PLAN STATUS

DATE	DESCRIPTION
11/21/14	1ST REVIEW COMMENTS

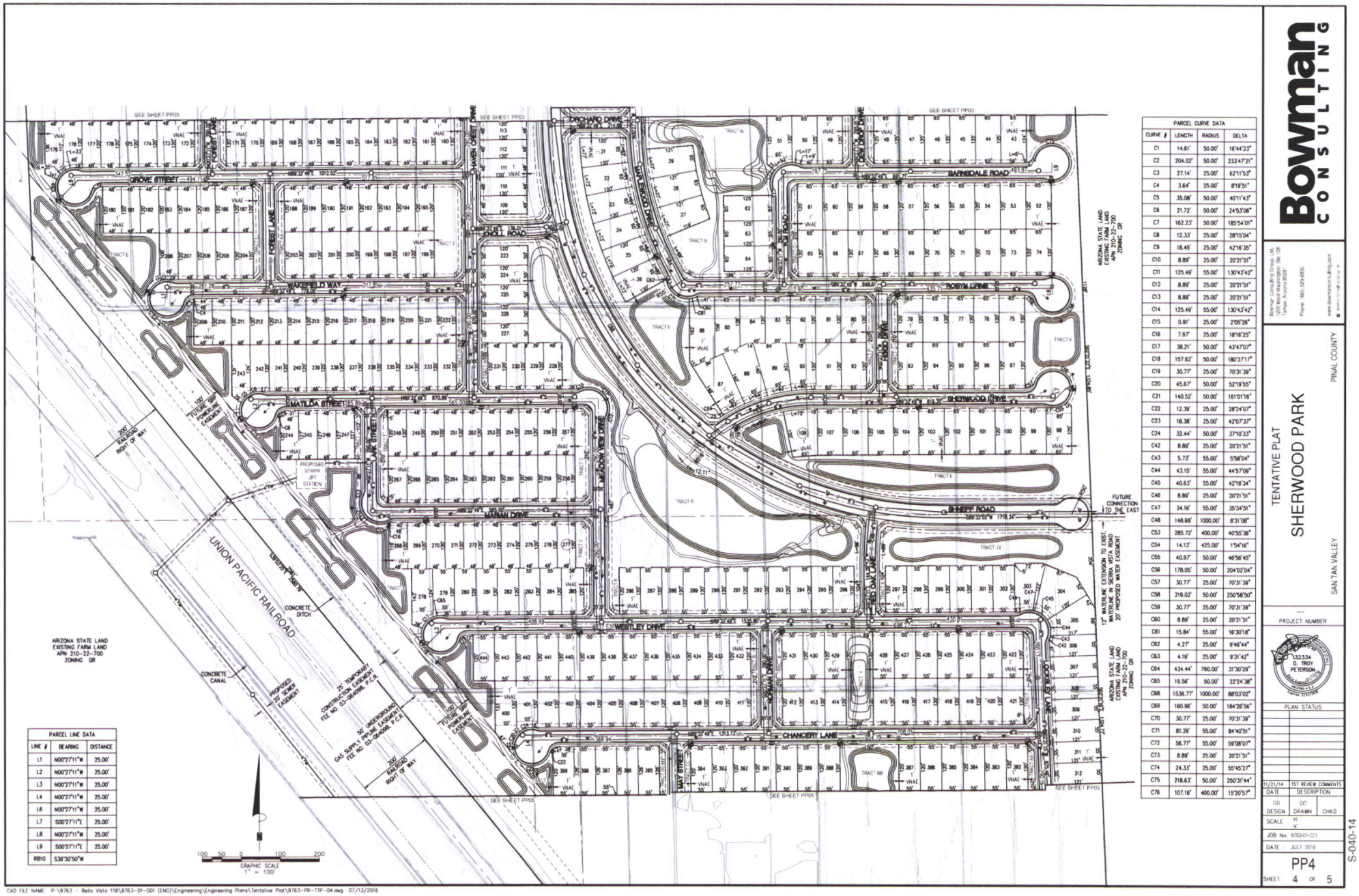
DESIGN	DRAWN	CHKD
DD	DD	

SCALE H: V:
JOB No. 9763-01-001
DATE: JULY 2016

PP3
SHEET 3 OF 5

S-040-14

CAD FILE NAME: P:\9763 - Bella Vista 118\9763-01-001 (ENG)\Engineering\Engineering Plans\Tentative Plat\9763-PR-TTP-03.dwg 07/13/2016



PARCEL LINE DATA		
LINE #	BEARING	DISTANCE
L1	N00°27'11"W	25.00'
L2	N00°27'11"W	25.00'
L3	N00°27'11"W	25.00'
L4	N00°27'11"W	25.00'
L6	N00°27'11"W	25.00'
L7	S00°27'11"E	25.00'
L8	N00°27'11"W	25.00'
L9	S00°27'11"E	25.00'
RB10	S36°30'50"W	

PARCEL CURVE DATA			
CURVE #	LENGTH	RADIUS	DELTA
C1	14.61'	50.00'	16°44'23"
C2	204.02'	50.00'	233°47'21"
C3	27.14'	25.00'	62°11'53"
C4	3.64'	25.00'	8°19'51"
C5	35.08'	50.00'	40°11'43"
C6	21.72'	50.00'	24°53'06"
C7	162.23'	50.00'	185°54'01"
C8	12.33'	25.00'	28°15'04"
C9	18.45'	25.00'	42°16'35"
C10	8.89'	25.00'	20°21'51"
C11	125.49'	55.00'	130°43'42"
C12	8.89'	25.00'	20°21'51"
C13	8.89'	25.00'	20°21'51"
C14	125.49'	55.00'	130°43'42"
C15	0.91'	25.00'	2°05'28"
C16	7.97'	25.00'	18°16'25"
C17	38.21'	50.00'	43°47'07"
C18	157.62'	50.00'	180°37'17"
C19	30.77'	25.00'	70°31'39"
C20	45.67'	50.00'	52°19'55"
C21	140.52'	50.00'	161°01'16"
C22	12.39'	25.00'	28°24'07"
C23	18.38'	25.00'	42°07'37"
C24	32.44'	50.00'	37°10'33"
C42	8.89'	25.00'	20°21'51"
C43	5.73'	55.00'	5°58'04"
C44	43.15'	55.00'	44°57'06"
C45	40.63'	55.00'	42°19'34"
C46	8.89'	25.00'	20°21'51"
C47	34.16'	55.00'	35°34'51"
C48	148.68'	1000.00'	8°31'08"
C53	285.72'	400.00'	40°55'36"
C54	14.13'	425.00'	1°54'16"
C55	40.97'	50.00'	46°56'45"
C56	178.05'	50.00'	204°02'04"
C57	30.77'	25.00'	70°31'39"
C58	219.02'	50.00'	250°58'50"
C59	30.77'	25.00'	70°31'39"
C60	8.89'	25.00'	20°21'51"
C61	15.84'	55.00'	16°30'18"
C62	4.27'	25.00'	9°46'44"
C63	4.16'	25.00'	9°31'42"
C64	434.44'	790.00'	31°30'29"
C65	19.56'	50.00'	22°24'38"
C68	1536.77'	1000.00'	88°03'02"
C69	160.96'	50.00'	184°26'56"
C70	30.77'	25.00'	70°31'39"
C71	81.29'	55.00'	84°40'51"
C72	56.77'	55.00'	59°08'07"
C73	8.89'	25.00'	20°21'51"
C74	24.33'	25.00'	55°45'27"
C75	218.63'	50.00'	250°31'44"
C76	107.16'	400.00'	15°20'57"

Bowman CONSULTING

Bowman Consulting Group, Ltd.
1295 West Washington Ste. 108
Tempe, Arizona 85281
Phone: (480) 629-8830
www.bowmanconsulting.com

TENTATIVE PLAT

SHERWOOD PARK

PINAL COUNTY

SAN TAN VALLEY

PROJECT NUMBER

32334
D. TROY PETERSON
EXPIRES 9-30-17

PLAN STATUS

DATE	DESCRIPTION
11/21/14	1ST REVIEW COMMENTS

DD DESIGN	DD DRAWN	CHKD

SCALE H: V:

JOB No. 9763-01-001

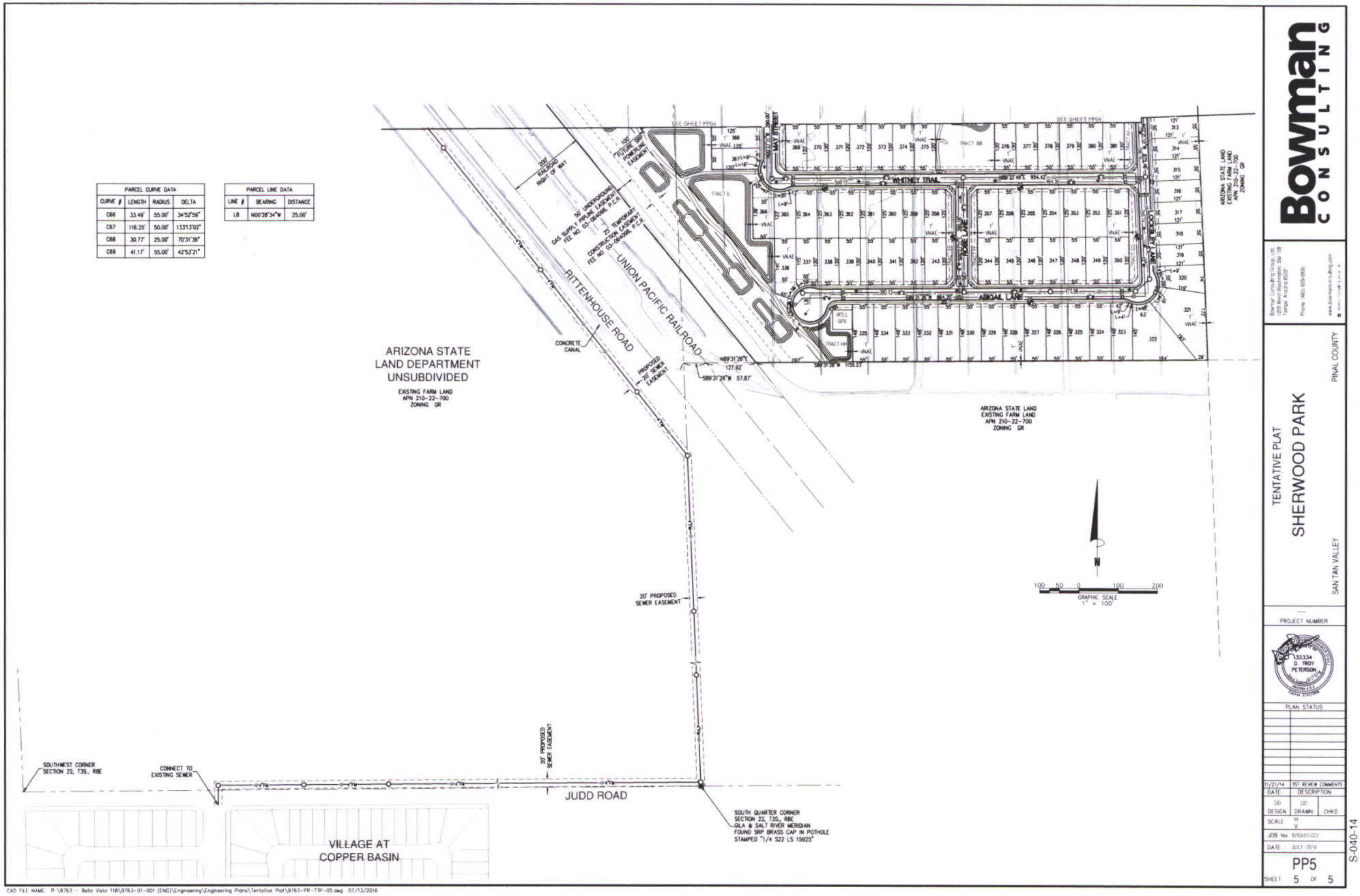
DATE JULY 2016

PP4

SHEET 4 OF 5

S-040-14

CAD FILE NAME: P:\9763 - Bella Vista 118\9763-01-001 (ENG)\Engineering\Engineering Plans\Tentative Plat\9763-PR-TTP-04.dwg 07/13/2016



Bowman CONSULTING

Bowman Consulting Group, Ltd.
1295 West Washington Ste. 108
Tempe, Arizona 85281
Phone: (480) 629-8830
www.bowmanconsulting.com

TENTATIVE PLAT
SHERWOOD PARK
PINAL COUNTY
SAN TAN VALLEY

PROJECT NUMBER

32334
D. TROY PETERSON
EXPIRES 9/30/2018

PLAN STATUS

DATE	DESCRIPTION
11/21/14	1ST REVIEW COMMENTS

DD	DD	CHKD
DESIGN	DRAWN	

SCALE H:
V:

JOB No. 9763-01-001

DATE JULY 2016

PP5

SHEET 5 OF 5

S-040-14

CAD FILE NAME: P:\9763 - Bella Vista 118\9763-01-001 (ENG)\Engineering\Engineering Plans\Tentative Plat\9763-PR-TTP-05.dwg 07/13/2016

Greg Stanley
County Manager

PINAL • COUNTY
wide open opportunity

Memorandum

Date: September 15, 2016

To: Steve Abraham, Planning Division Manager
Community Development Department

From: Lester Chow, Engineering Division Manager
Community Development Department

Cc: Scott Bender, P.E.
Pinal County Engineer

Subject: Tentative Plat for SHERWOOD PARK, Case No. S-015-16

The Public Works Department has reviewed the Tentative Plat for SHERWOOD PARK, Case No. S-015-16 and recommends that it be approved subject to the following conditions:

1) All peripheral road and infrastructure improvements shall be per the approved Traffic Impact Analysis (TIA) to mitigate impacts on all surrounding roadways to be completed at the developer's cost. These may include construction of acceleration/deceleration lanes, left turn pockets, traffic signals or other public improvements as approved by the County Engineer. The TIA shall be in accordance with current Pinal County TIA Guidelines, as amended;
2) All roadway and infrastructure improvements shall be per current Pinal County ordinances, codes, rules, regulations, standards, guidelines, and manuals, as amended, or as approved by the County Engineer;
3) The approved Drainage Plan shall be per current Pinal County ordinances, codes, rules, regulations, standards, guidelines, and manuals, as amended, and shall provide retention for storm waters in a common retention area;
4) An association, including all property owners in the development will be formed and have the responsibility for maintaining all common areas to be noted as "tracts" or easements (including landscaped areas, street lights, and drainage facilities) in accordance with approved plans;
5) In order to provide public access from Bella Vista Rd. to the subject property, right-of-way from the Arizona State Land Department, shall be conveyed prior to final plat approval, with the understanding that submittal of tentative plat and final plat applications is at the property owner's own risk, and Pinal County incurs no obligation to approve final plats or any plans related thereto prior to conveyance of the public access. Furthermore, Pinal County incurs no obligation to

purchase, provide, or construct public access to this development;

6) Right-of-way dedication will be required along all mid-section lines or as approved by the County Engineer. All right-of-way dedication shall be free and unencumbered;
7) Lift stations, if required, shall be located in a tract and shall not be located adjacent to a residential lot. Access to the lift station shall be provided off a local street. Final location of the lift station to be approved by the County Engineer;
8) The developer agrees to contribute a portion of the cost to provide signals at intersections significantly impacted by the development as required by the approved traffic study. Prior to the recordation of the first final plat for this subdivision, developer shall contribute toward the total cost of traffic signals at each intersection required by the approved traffic study and as approved by the County Engineer. Funds in escrow or other assurance as determined by the County Engineer shall be posted with Pinal County to guarantee the installation of the required traffic signals;
9) Street lights shall be provided at all arterial/collector, collector/collector, and collector/local street intersections. Street lights shall be maintained by the Homeowners' Association;
10) Prior to final plat approval, the developer is required to contact the local electric service provider to determine if a substation will be required within or directly adjacent to the proposed subdivision. The developer will provide a written verification from the electrical provider of their substation plans in the immediate area. If there are any existing substations requiring modification or new substations are required, the developer will pay all costs for block screening walls and landscaping around the substation site;
11) At least two corners of the subdivision shall be tied by course and distance to a section corner, a quarter section corner, or established city or county survey monument as designated by the Pinal County Engineer;
12) If any conflicts or discrepancies between the tentative plat and these stipulations arise, the stipulations shall govern.

cc: D. Denton

WASTE MANAGEMENT

July 1, 2013

Bowman Consulting
3010 S Priest Dr, Suite 103
Tempe, AZ 85282
Attn: Jessica Sarkissian
480-267-9973

RE: **Sherwood Park Parcel # 210-22-001**

Waste Management Four Corners Market Area will provide trash service for the community of Sherwood Park, Parcel 210-22-001 in the North Florence/ San Tan Valley area near Bella Vista Road and Schnepf Road across from the new San Tan CAC campus.

WM will provide trash and recycle service.

Customers will call in to our Service Center and give the community name and address to our representative to set up trash and recycle service. The trash and recycle containers will be delivered within 3-5 business days.

Sincerely,

Julie Fanning
Public Sector Services
Residential Solutions Representative
Waste Management of Arizona
602-725-0486 cell
Jfanning2@wm.com

II. GENERAL SUBDIVISION INFORMATION

Please Print:

Troy Peterson; 1295 W. Washington Street, #108, Tempe, AZ 85281	480-629-8830
Name of Applicant — Mailing Address	Phone

tpeterson@bowmancg.com
Applicant E-Mail Address

EHLH-KEMF Sherwood, LLC	7337 E Doubletree Ranch Rd, Suite C-185 Scottsdale, AZ; 480-383-8442
Name of Landowner(s)	Mailing Address — Phone

edepinto@everestholdings.com
Landowner(s) E-Mail Address

All notices will be mailed to the applicant unless otherwise noted below.

Name and mailing address of person to be notified

Signature of Applicant — Date

Planning and Development Review Fees:

Tentative Plat:

First Review:	$2,113.00 + $63.00 Per Sheet
Subsequent Review:	$63.00 Per Sheet

Final Plat:

First Review:	$330.00 + $114.00 Per Sheet
Subsequent Review:	$84.00 Per Sheet

Landscape Plans:

First Review:	$114.00 Per Sheet
Subsequent Review:	$84.00 Per Sheet

Residential Design Requirements:

First Review:	$66.00 Per Sheet
Subsequent Review:	$35.00 Per Sheet

PINAL • COUNTY
wide open opportunity

1. Pre-application meeting case number: S-PA-_____
2. The name of the proposed subdivision: Sherwood Park
3. Number of lots this subdivision contains: 444
4. Number of access roads proposed by this subdivision: 1
5. Are the streets within proposed subdivision intended to be: public: X private: ____
6. Septic system or public/private sewer? sewer
7. Parcel number(s): 210-22-001
8. Township 3S Range 8E Section(s) 22
9. Parcel size: 128.18 acres
10. Zoning Classification: R-7 PAD Planning Case(s) #: PZ-003-13 & PZ-PD-002-13
11. Flood Zone Designation: X
12. Topography: essentially flat, with a slope of 0.25% to the northwest
13. Does it front a public road? yes Name of road(s) Schnepf Road
14. Does it front a private road? no Name of road(s)_____

III. SERVICE PROVIDERS CONTACT INFORMATION

1. Sewer service provider:

   Company Name: Johnson Utilities

   Contact Person: Daniel Hodges

   Address: 5230 E Shea Blvd, Suite 200, Scottsdale, AZ 85254

   Phone Number: 480-998-3300

2. Water service provider:
   Company Name: Johnson Utilities
   Contact Person: Greg Brown
   Address: 5230 E Shea Blvd, Suite 200, Scottsdale, AZ 85254
   Phone number: 480-998-3300

3. Electrical service provider:
   Company Name: SRP
   Contact Person: Sherylyn Belman
   Address: 2727 E Washington St, Phoenix, AZ 85034
   Phone number: 602-236-6374

4. Gas service provider:
   Company Name: Mesa Gas
   Contact Person: Lucy Lopez
   Address: 55 N. Center Street, Mesa, AZ 85201
   Phone number: 480-644-3683

5. Telephone service provider:
   Company Name: Century Link
   Contact Person: Ester Medina
   Address: 6350 S. Maple Ave. Rm #125, Tempe, AZ 85283
   Phone number: 480-768-4474

6. Cable service provider:
   Company Name: Cox Communications
   Contact Person: Ken DeGrafferien
   Address: 1550 W Deer Valley Rd., Phoenix, AZ 85027
   Phone number: 623-328-3423

PINAL • COUNTY
wide open opportunity

7. Solid waste provider:

Company Name: Waste Management

Contact Person: Julia Fanning

Address: 222 S. Mill Ave. #333, Tempe, AZ 85281

Phone number: 602-725-0486

8. Fire District:

Company Name: Rural Metro Fire #842

Contact Person: Chief Chuck Fitzgerald

Address: 1576 E. Ocotillo Rd., San Tan Valley, AZ 85140

Phone number: chuck.fitzgerald@rmetro.com

9. School District:

Company Name: Florence Unified School District #1

Contact Person: Dana Hawman

Address: 350 S. Main Street, Florence, AZ 85132

Phone number: 520-866-3532