Rosemont 138kV Transmission Line Project

Application for a Certificate of Environmental Compatibility



Prepared for

Arizona Power Plant and Transmission Line Siting Committee

Submitted I



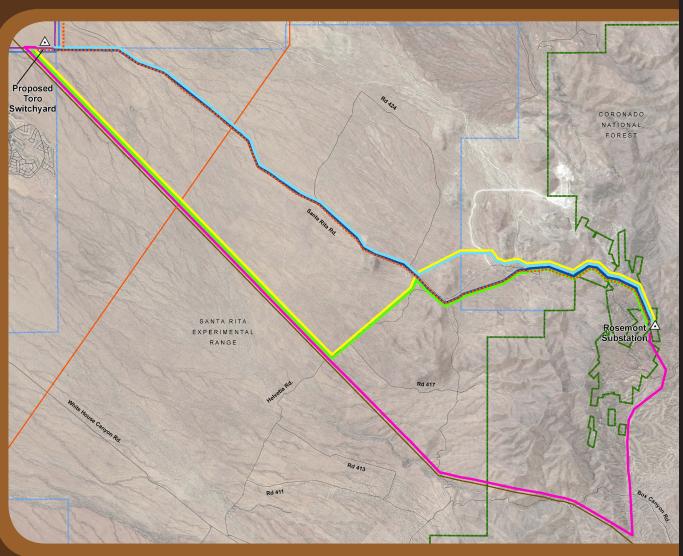
Tucson Electric Power Company

November 2011 Case No. 164

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BEFORE THE POWER PLANT AND TRANSMISSION LINE SITING COMMITTEE

In the matter of the Application of Tucson Electric Power Company for a Certificate of Environmental Compatibility authorizing the Rosemont 138kV Transmission Line Project, which includes the construction of a new 138kV transmission line and associated facilities originating at the proposed Toro Switchyard, Section 29, Township 17 South, Range 14 East, and terminating at the Rosemont Substation, Section 30, Township 18 South, Range 16 East, each located within Pima County, Arizona.

APPLICATION FOR A CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY



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LIST OF ACRONYMS AND ABBREVIATIONS

ACC Arizona Corporation Commission

AM amplitude modulation

AN audible noise

APE area of potential effect

Arizona Register Arizona Register of Historic Places
ASLD Arizona State Land Department
AZGFD Arizona Game and Fish Department

BLM Bureau of Land Management CCC Civilian Conservation Corps

CEC Certificate of Environmental Compatibility

CNF Coronado National Forest

EHV extra-high voltage

EIS Environmental Impact Statement EMF electric and magnetic fields

EPG Environmental Planning Group (EPG, Inc.)

ESA Endangered Species Act FM frequency modulation

FR Forest Road

IRA Important Riparian Area KOP Key Observation Point

kV kilovolt

MSCP Multi-species Conservation Plan (Pima County)

NEPA National Environmental Policy Act NRHP National Register of Historic Places

PCA Priority Conservation Area RMP Resource Management Plan Rosemont Rosemont Copper Company

ROW right-of-way

SHPO State Historic Preservation Office

SIO Scenic Integrity Objective
SMS Scenery Management System

SR State Route

SRER Santa Rita Experimental Range

TEP Tucson Electric Power USFS U.S. Forest Service

USFWS U.S. Fish and Wildlife Service
VMS Visual Management System
VQO Visual Quality Objective
VRM Visual Resource Management

INTRODUCTION

PROJECT OVERVIEW

Tucson Electric Power (TEP), the applicant, is seeking a Certificate of Environmental Compatibility (CEC) for a proposed 138-kilovolt (kV) transmission line, in response to a request from Rosemont Copper Company (Rosemont) to serve electrical power to the Rosemont Copper operations facilities in the Santa Rita Mountains. The proposed line would run generally southeast approximately 13 miles from a proposed switchyard, the Toro Switchyard (to be located on private property owned by Rosemont, approximately 3 miles south of Sahuarita Road and 3.5 miles east of I-19 near the Country Club Road and Corto Road alignments), to a breaker constructed on Rosemont property. Rosemont intends to construct a substation at its operations facility that will connect to the breaker. The Rosemont Substation is part of Rosemont's mining operations and is not a part of this application. When the Rosemont Substation is referred to in this document as the termination point, it is referenced in this context. The proposed Toro Switchyard will tap into the existing 138kV transmission line that extends from the South Substation to the Green Valley Substation. The line would cross land under the following iurisdictions: Town of Sahuarita; Arizona State Land Department (ASLD) (which leases the majority of its land in this area to University of Arizona – Santa Rita Experimental Range [SRER]); Pima County; Coronado National Forest (CNF); and potentially, the Bureau of Land Management (BLM), depending upon the final route chosen. The line will require approval and right-of-way (ROW) from ASLD for any of the routes identified since they all cross state land. Figure 1 shows the project location, proposed Toro Switchyard location, Rosemont Substation, and land jurisdictions crossed, as well as the preferred and alternative routes.

This application identifies five alternative routes that were studied in detail. Of these, TEP has identified a preferred route and four alternative routes for consideration by the Arizona Power Plant and Transmission Line Siting Committee (Committee) and Arizona Corporation Commission (ACC). Details of the studies performed to arrive at the final set of alternatives are provided in Exhibit B – Environmental Report of this application.

PROJECT PURPOSE AND NEED

The primary purpose and need for the proposed transmission line is to provide timely, adequate, and reliable power to Rosemont for construction and operation of the mine facilities. TEP is proposing to construct a 138kV transmission line that would meet the needed capacity of 118 MW. It would run southeast approximately 13 miles from the proposed Toro Switchyard, approximately 3 miles south of Sahuarita Road and 3.5 miles east of I-19, just west of the Country Club Road and Corto Road alignments, to the Rosemont Substation, which would be located in the Santa Rita Mountains on Rosemont property.

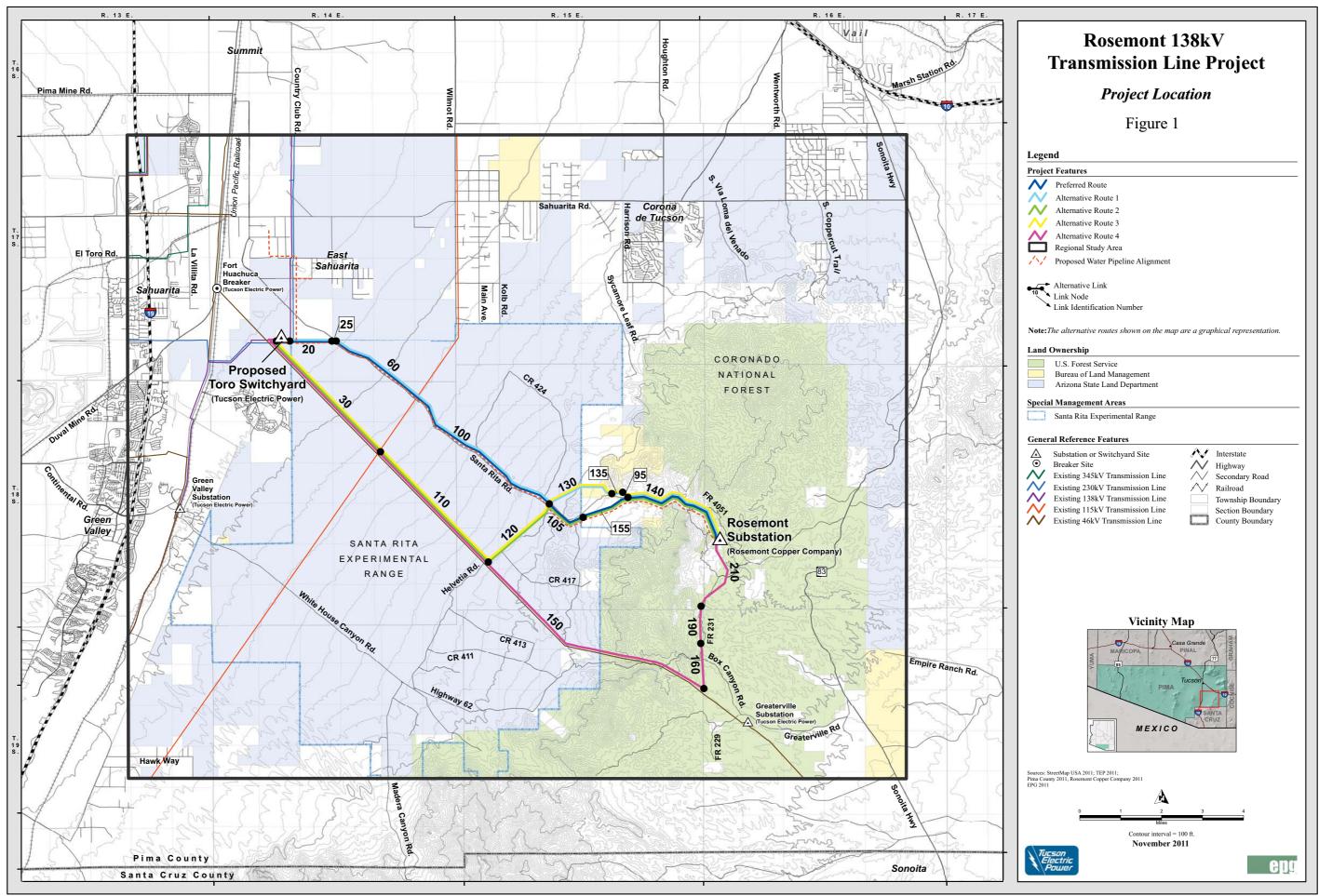
ENVIRONMENTAL STUDIES AND ROUTE SELECTION PROCESS

TEP selected Environmental Planning Group (EPG, Inc.), a consulting firm, to conduct an environmental planning process that began in mid-2008 and continued up to the filing of this application. The goal of this process was to identify suitable transmission line routes that meet the project's purpose and need. The environmental planning process started with a review of the area at a regional scale. As the process advanced, the focus was narrowed, and the level of detail considered for route identification and evaluation was increased. In the very early stages of the study process for this project, TEP was anticipating the need to connect the new 138kV line to its extra-high voltage (EHV) system at either its South Substation or its Vail Substation in order to have sufficient capacity to serve Rosemont's needs (see Exhibit B – Environmental Report). After the engineering analysis was completed, the need to extend the new 138kV line back to TEP's EHV system was eliminated, and TEP determined that a 138kV line tapping the existing South to Green Valley 138kV line would have sufficient capacity. Once this was determined, the regional environmental study area was reduced. This change resulted in the regional study area displayed in Figure 1. Also, Rosemont at one time indicated a need for transmission dedicated to providing construction power pending the completion of the transmission line from the Toro Switchyard to the Rosemont Substation. Potential options were identified to meet this separate and additional need during the environmental planning and public outreach process. Later, Rosemont indicated that it no longer had a need for a separate transmission line for construction power. This is because the mine-construction activities that will require significant power can be performed when the line from the Toro Switchyard to the Rosemont Substation is completed. Therefore, TEP eliminated the separate construction power route options from the project. The Preferred Route and four alternatives are options to supply all of Rosemont's power needs for construction and operation of the mine.

The environmental planning approach allowed for consideration of a broad range of reasonable alternative transmission line locations early in the process. It also included solicitation of public input on potential alternatives and focus on specific details and construction feasibility prior to TEP identifying the five final alternative transmission line routes. The result of this process was the identification of five alternative routes that are environmentally compatible while still meeting TEP engineering system requirements, constructability standards, and cost considerations. Exhibit B provides details of the environmental planning process.

PUBLIC AND AGENCY INVOLVEMENT OVERVIEW

As a part of the environmental planning process, a comprehensive public and agency involvement program was implemented for the project. This component was supported by TEP to ensure an open and meaningful public dialogue and assist TEP in understanding the community's needs and obtaining input regarding the locations of the alternative transmission line routes. TEP, with assistance from EPG, initiated this program to notify and educate the public, agencies, community leaders, and other affected stakeholders regarding the need for the project, as well as to allow participation throughout the environmental planning process.



Elements of the program included, but were not limited to, stakeholder group meetings, public open house meetings, local community meetings, newsletter mailings, a telephone information line, and website information. Exhibit J – Special Factors contains additional details of public and agency involvement activities.

PROPOSED TRANSMISSION LINES AND SWITCHYARD

Depending upon final route selection, the project will include the construction of approximately 13 to 18 miles of a 138kV transmission line between the proposed Toro Switchyard and the Rosemont Substation. The 138kV transmission line would follow an estimated 100-foot-wide ROW path acquired by lease or granted through the mining laws under the approval of a Mine Plan of Operations. The Rosemont Substation would be built on approximately 1 acre of Rosemont property, and the proposed Toro Switchyard on the western side of the study area would be on approximately 3 acres of Rosemont property. TEP has identified a preferred transmission line route and four alternative routes.

Preferred Route

The proposed transmission line route (Preferred Route) is approximately 13.2 miles long and originates at the proposed Toro Switchyard, located approximately 3 miles south of Sahuarita Road and 3.5 miles east of I-19. The route travels east approximately 1 mile and then southeast paralleling Santa Rita Road and a Rosemont water pipeline alignment that is part of the Rosemont mine plan of operations. Near the intersection of Santa Rita and Helvetia roads, the Preferred Route turns northeast and follows the Rosemont water pipeline alignment over Lopez Pass to the Rosemont Substation. This route would be located on land owned by the ASLD (which it leases to the SRER), CNF, and Rosemont.

The proposed transmission line and switchyard/substation sites satisfy the project purpose and need while providing a balance between public and agency input, potential environmental impacts, landowner considerations, and engineering and construction criteria. Figure 1 illustrates the Preferred Route.

ALTERNATIVE ROUTES

TEP has identified four alternatives to the Preferred Route that would satisfy the purpose and need. These alternative alignments also provide a balance between potential environmental impacts and engineering and construction criteria, but are contrary, to various extents, to preferences expressed by ASLD (leases to the SRER) and some members of the public.

Alternative Route 1

Alternative Route 1 is TEP's second choice and approximately 13.1 miles long. It follows the same path as the Preferred Route until approximately ½ mile northwest of the intersection of Helvetia and Santa Rita roads; instead of continuing southeast, Alternative Route 1 proceeds northeast in a new corridor, and then it turns east to connect to the Rosemont water pipeline

alignment that leads to the Rosemont Substation (similar to the Preferred Route). Figure 1 illustrates Alternative Route 1. This route would be located on land owned by the ASLD (which it leases to the SRER), BLM, Rosemont, and CNF.

Alternative Routes 2 and 3

Alternative Route 2 is approximately 15 miles long. It leaves the proposed Toro Switchyard, located approximately 3 miles south of Sahuarita Road and 3.5 miles east of I-19, in a westerly direction until it meets an existing TEP 46kV line (which serves Greaterville and Fort Huachuca areas). It then parallels the existing 46kV transmission line for approximately 7.6 miles in a southeasterly direction. The alignment turns northeast at Helvetia Road and generally follows this road until it intersects with the Rosemont water pipeline alignment at Santa Rita Road leading to the Rosemont Substation (similar to the Preferred Route). This route would be located on land owned by the ASLD (which it leases to the SRER), Rosemont, and CNF.

Alternative Route 3 is approximately 14.9 miles long. It follows the same path as Alternative Route 2 until approximately ½ mile northwest of the intersection of Helvetia and Santa Rita roads. Instead of continuing southeast along Santa Rita Road as in the Preferred Route and Alternative Route 2, Alternative Route 3 proceeds northeast in a new corridor (similar to Alternative Route 1) and then turns east to connect to the Rosemont water pipeline alignment that leads to the Rosemont Substation (similar to the Preferred Route). This route would be located on land owned by the ASLD (which it leases to the SRER), BLM, Rosemont, and CNF.

For both of these alternatives, the existing 46kV line would be consolidated onto the Project structures (subject to approval of the landowner) for the portion of the route that parallels the existing 46kV line, in order to reduce environmental impact. The existing 46kV structures would then be removed for this portion of these routes, based on approval by the landowner. Figure 1 illustrates Alternative Routes 2 and 3.

Alternative Route 4

Alternative Route 4 is approximately 18.2 miles long. Alternative Route 4 originates at the proposed Toro Switchyard, located approximately 3 miles south of Sahuarita Road and 3.5 miles east of I-19, and proceeds in a westerly direction until it meets an existing TEP 46kV line (which serves Greaterville and Fort Huachuca areas). It then parallels the existing 46kV transmission line in a southeasterly direction for approximately 14.1 miles and then turns north, leaving the existing 46kV alignment and paralleling portions of Forest Route (FR) 231, to the Rosemont Substation, a distance of approximately 4.1 miles (portions of which would be located within Rosemont mining operations area). For this alternative, the existing 46kV line would be consolidated onto the project structures (subject to approval of the landowner) for the portion of the route paralleling the 46kV alignment. The 46kV structures would then be removed for the 14.1 mile portion of Alternative Route 4 that is adjacent to the existing 46kV line, based on approval by the landowner. Figure 1 illustrates Alternative Route 4. This route would be located on land owned by the ASLD (which it leases to the SRER), CNF, and Rosemont.

APPLICATION FOR A CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY

1. Name and address of Applicant:

Tucson Electric Power Company (TEP) 88 East Broadway, Tucson Arizona 85701 P.O. Box 711, Tucson, Arizona 85702

2. Name, address and telephone number of a representative of applicant who has access to technical knowledge and background information concerning this application, and who will be available to answer questions or furnish additional information:

Ed Beck Director, Line Siting Services Tucson Electric Power 88 East Broadway, Tucson Arizona 85701 P.O. Box 711, Tucson, Arizona 85702 (520) 884-3615

3. State each date on which the applicant has filed a ten-year plan in compliance with A.R.S. § 40-360.02, and designate each such filing in which the facilities for which this application is made were described. If they have not been previously described in a ten-year plan, state the reasons therefore.

The project is included in the TEP Ten-Year Plans filed in January of 2009, 2010, and 2011.

- 4. Description of the proposed facility, including:
 - a. With respect to an electric generating plant:

(not applicable)

- b. With respect to a proposed transmission line:
 - i. Nominal voltage for which the line is designed; description of the proposed structures and switchyards or substations associated therewith; and purpose of constructing said transmission line.

The proposed project will incorporate single- and double-circuit 138kV structures. Double-circuit structures would be used for the consolidation with 46kV lines or distribution power lines, if applicable.

ii. Proposed structures:

The transmission line will be constructed using tubular steel monopole structures.

The structures would range between 75 and 150 feet above ground, depending on the span length and terrain. In limited cases, structures could be as tall as 199 feet for site specific clearance issues. The span length between structures would be approximately 750 feet, according to existing conditions and engineering requirements, to achieve

site-specific mitigation objectives. The tubular steel pole structures would have a self-weathering finish, and conductors would have a low-reflective (non-specular), dulled finish to reduce visibility.

Exhibit G – Concepts of Proposed Facilities contains a conceptual illustration of the proposed structures to be used for the project.

iii. Proposed switchyards/substations:

There are two proposed facilities to be constructed in association with this project. One would be the Rosemont Substation owned by Rosemont and which is not part of this Application. The other would be a switchyard (Toro) for tapping TEP's existing 138kV line and which is part of this Application. TEP would also install facilities before the Project terminates at the Rosemont Substation. That substation is part of the mining operations; therefore, it is not part of TEP's Application for approval of the Project. TEP will install a breaker (that will be operated by TEP) before the transmission line terminates at the Rosemont Substation. The proposed Toro Switchyard will include electrical equipment such as breakers and switches. TEP understands that the Rosemont Substation also will include transformers, in addition to other equipment such as switches and breakers. All equipment will be located within a perimeter fence. The Rosemont Substation would be located on Rosemont private property within the mining operations area in the Santa Rita Mountains. The facility would require approximately 1 acre of mining operations land owned by Rosemont.

The proposed Toro Switchyard site on the western end of the project is located in Pima County, east of the Town of Sahuarita, approximately 3 miles south of Sahuarita Road and 3.5 miles east of I-19, just west of the Country Club Road and Corto Road alignments. The facility would be located on private property (owned by Rosemont), within approximately 100 feet of the existing 138kV transmission line that will be tapped for this project, and require approximately 3 acres of land. The proposed Toro Switchyard would interconnect the proposed transmission line with the existing TEP 138kV transmission line that extends from the South Substation to the Green Valley Substation.

iv. Purpose of constructing said transmission line:

Electric utilities are required by the State of Arizona to provide electrical service to customers within their service territory upon request. The bulk of Rosemont's operations are within TEP's service territory, and Rosemont has requested that TEP provide electric power (Rosemont has identified 118 MW as its estimated load) to the Rosemont operations. The purpose of the project is to connect the Rosemont Substation to the existing TEP transmission system in order to provide adequate and reliable power for construction and operation of the Rosemont operations.

v. Description of geographical points between which the transmission line will be located:

The proposed transmission line will connect the following points:

- proposed Toro Switchyard on the western end in Section 29, Township 17 South, Range 14 East
- Rosemont Substation in Section 30, Township 18 South, Range 16 East

vi. Straight-line distance between such points:

The straight-line distance between the proposed Toro Switchyard on the western end and the Rosemont Substation is approximately 12 miles.

vii. Length of the transmission line for each alternative and sub alternative route:

Preferred Route	13.2 miles (approximately)
Alternative Route 1	13.1 miles (approximately)
Alternative Route 2	15.0 miles (approximately)
Alternative Route 3	14.9 miles (approximately)
 Alternative Route 4 	18.2 miles (approximately)

viii. Nominal width of the right-of-way required, nominal length of spans, maximum height of supporting structures and minimum height of conductor above ground.

The applicant is requesting approval for a total ROW width of up to 100 feet, which would be located within a general 500-foot corridor to be approved as part of this CEC. The nominal length of span is approximately 750 feet. The typical height of supporting structures will vary from roughly 75 feet to 150 feet. In limited cases, structures could be as tall as 199 feet for site specific clearance issues. The minimum height of the conductor above existing grade will be 22 feet.

ix. To the extent available, the estimated costs of the proposed transmission line and route, stated separately. (If application contains alternative routes, furnish an estimate for each route and a brief description of the reasons for any variations in such estimates.)

Costs shown are for the total route. Differential costs (as compared to the Preferred Route) have been included for the alternative routes.

Table 1. Estimated Costs for the Preferred and Alternative Routes						
		Right-of-Way Construction				
Routes	Total Length/Size	Cost (\$)	Increase from Preferred Route	Cost (\$)	Increase from Preferred Route	Total Cost (\$)
Preferred Route	13.2 miles	758,000	_	9,633,000	_	10,391,000
Alternative Route 1	13.1 miles	889,000	131,000	9,774,000	141,000	10,663,000
Alternative Route 2	15.0 miles	1,104,000	346,000	10,343,000	710,000	11,447,000
Alternative Route 3	14.9 miles	854,000	96,000	10,279,000	646,000	11,133,000
Alternative Route 4	18.2 miles	1,589,000	831,000	13,085,000	3,452,000	14,674,000

Table 1. Estimated Costs for the Preferred and Alternative Routes							
		Right-	of-Way	Construction			
Routes	Total Length/Size	Cost (\$)	Increase from Preferred Route	Cost (\$)	Increase from Preferred Route	Total Cost (\$)	
Proposed Toro Switchyard	3.0 acres	90,000	_	14,600,000*	_	14,690,000	
Rosemont Substation	1.0 acre	10,000	_	7,073,000	_	7,083,000	
* This includes the cost of a statcom.							

x. Description of the proposed route and switchyard locations. (If application contains alternative routes, list routes in order of applicant's preference, with a summary of reasons for such order of preference and any changes such alternative routes would require in the plans reflected in (i) through (iv) hereof).

The applicant has identified one Preferred Route and four alternative routes for the project. The applicant is requesting a 500-foot siting corridor for the final route. The Preferred Route is illustrated on Figure 1, and more detailed information is provided in Exhibit A – Location and Land Use Maps.

PREFERRED ROUTE

The proposed transmission line route (Preferred Route) is approximately 13.2 miles and originates at the proposed Toro Switchyard, located approximately 3 miles south of Sahuarita Road and 3.5 miles east of I-19. The route travels east approximately 1 mile to Santa Rita Road and then southeast along Santa Rita Road, paralleling a Rosemont water pipeline alignment that will serve the Rosemont operations. Near the intersection of Santa Rita and Helvetia roads, the Preferred Route turns northeast and follows the Rosemont water pipeline alignment over Lopez Pass in the Santa Rita Mountains to the Rosemont Substation. The water pipeline ROW would be 30 feet wide and include a 14 to 20-foot permanent access road for construction, operation, and maintenance. When co-located with the water pipeline, the transmission line ROW (100') would be centered to include the entire water pipeline ROW so that the access road could be shared which would reduce construction disturbance. This route would be located on land owned by the ASLD (which it leases to the SRER), Rosemont, and CNF.

The proposed transmission line and switchyard/substation sites satisfy the project purpose and need while providing a balance between public and agency input, potential environmental impacts, and engineering and construction criteria. Figure 1 illustrates the Preferred Route.

The following links (or segments that form a route), referenced in Figure 1, were combined to form the Preferred Route: 20, 25, 60, 100, 105, 155, and 140.

ALTERNATIVE ROUTES

TEP has identified four alternatives to the Preferred Route that it believes satisfy the purpose and need. These alternative alignments also provide a balance between potential environmental impacts and engineering and construction criteria, but are contrary to preferences expressed by ASLD (which it leases to the SRER), some members of the public, and Rosemont.

Alternative Route 1 – Alternative Route 1 is TEP's second choice and is approximately 13.1 miles long. It follows the same path as the Preferred Route until approximately ½ mile northwest of the intersection of Helvetia and Santa Rita roads; instead of continuing southeast, Alternative Route 1 proceeds northeast in a new corridor and then turns east to connect to the Rosemont water pipeline alignment that leads over Lopez Pass to the Rosemont Substation. Figure 1 illustrates Alternative Route 1. This route would be located on land owned by the ASLD (which it leases to the SRER), BLM, Rosemont, and CNF.

The following links, referenced in Figure 1, were combined to form Alternative Route 1: 20, 25, 60, 100, 130, 135, 95, and 140.

Alternative Routes 2 and 3 – Alternative Route 2 is approximately 15 miles long. It leaves the proposed Toro Switchyard, located approximately 3 miles south of Sahuarita Road and 3.5 miles east of I-19, in a westerly direction until it meets an existing TEP 46kV line (which serves Greaterville and Fort Huachuca areas). It then parallels the existing 46kV transmission line for approximately 7.6 miles in a southeasterly direction. The alignment turns northeast at Helvetia Road to intersect with the Rosemont water pipeline alignment at Santa Rita Road leading over Lopez Pass to the Rosemont Substation. This route would be located on land owned by the ASLD (which it leases to the SRER), Rosemont, and CNF.

The following links, referenced in Figure 1, were combined to form Alternative Route 2: 30, 110, 120, 105, 155, and 140.

Alternative Route 3 is approximately 14.9 miles long. It follows the same path as Alternative Route 2 until approximately ½ mile northwest of the intersection of Helvetia and Santa Rita roads. Instead of continuing southeast along Santa Rita Road as in Alternative Route 2, Alternative Route 3 proceeds northeast in a new corridor and then it turns east to connect to the Rosemont water pipeline alignment that leads over Lopez Pass to the Rosemont Substation. This route would be located on land owned by the ASLD (which it leases to the SRER), BLM, Rosemont, and CNF.

The following links, referenced in Figure 1, were combined to form Alternative Route 3: 30, 110, 120, 130, 135, 95, and 140.

For both of these alternatives, the existing 46kV line would be consolidated onto the Project structures for the portion of the route paralleling the 46kV alignment up to Helvetia Road, in order to reduce environmental impact. The existing 46kV structures would then be removed for this portion of that line, subject to approval from the landowner. Figure 1 illustrates Alternative Routes 2 and 3.

Alternative Route 4 – Alternative Route 4 is approximately 18.2 miles long. Alternative 4 originates at the proposed Toro Switchyard, located approximately 3 miles south of Sahuarita Road and 3.5 miles east of I-19. It proceeds in a westerly direction until it meets an existing TEP 46kV line (which serves Greaterville and Fort Huachuca areas). It then parallels the existing 46kV transmission line in a southeasterly direction for approximately 14.1 miles and then turns north, leaving the existing 46kV alignment and paralleling portions of FR 231 to the Rosemont Substation, a distance of approximately 4.1 miles (portions of which would be located within the Rosemont mining operations area). For this alternative, the existing 46kV line would be consolidated onto the project structures for the portion of the route paralleling the 46kV alignment. The existing 46kV structures would then be removed for this portion of that line, subject to approval from the landowner. Figure 1 illustrates Alternative Route 4. This route would be located on land owned by the ASLD (which it leases to the SRER), CNF, and Rosemont.

The following links, referenced in Figure 1, were combined to form Alternative Route 4: 30, 110, 150, 160, 190, and 210.

xi. For each alternative route for which application is made, list the ownership percentages of land traversed by the entire route (federal, state, Indian, private, etc.)

The preferred and alternative routes would cross land owned by the following entities:

Table 2. Land Ownership Crossed by Alternative Routes (approximate miles)					
Routes	USFS	BLM	ASLD	Private (Rosemont)	Total Length
Preferred Route	0.5 (3.8%)		9 (68.2%)	3.7 (28%)	13.2
Alternative Route 1	0.5 (3.8%)	1.1 (8.4%)	8.9 (67.9%)	2.6 (19.9%)	13.1
Alternative Route 2	0.5 (3.3%)	_	10.9 (72.7%)	3.6 (24%)	15
Alternative Route 3	0.5 (3.3%)	1.1 (7.4%)	10.8 (72.5%)	2.5 (16.8%)	14.9
Alternative Route 4	6.5 (35.7%)	_	11.4 (62.6%)	0.3 (1.7%)	18.2

5. List the areas of jurisdiction [as defined in A.R.S. § 40-360(1)] affected by each alternative site or route and designate those proposed sites or routes, if any, which are contrary to the zoning ordinances or master plans of any of such areas of jurisdiction.

The proposed and alternative routes cross unincorporated private (Rosemont) land; land under the jurisdiction of Pima County; and incorporated land under the jurisdiction of the Town of Sahuarita. The mileage of each route within each jurisdiction is as follows:

Table 3. Jurisdictions Crossed by Alternative Routes (approximate miles)				
Routes	Unincorporated Pima County*	Incorporated Town of Sahuarita		
Preferred Route	3.7			
Alternative Route 1	2.6			
Alternative Route 2	3.6	0.8		
Alternative Route 3	2.5	0.8		
Alternative Route 4	0.3	0.8		
*Private lands crossed by the alternative	ves outside the Town of Sahuarita's bou	ndaries		

The Preferred Route and the alternative routes were identified through an environmental planning process that included coordination with Pima County, the Town of Sahuarita, ASLD, SRER, CNF, and the BLM. Representatives of these entities were consulted individually and/or in small group meetings. These representatives participated in the process, which offered multiple opportunities to provide input.

6. Describe any environmental studies applicant has performed or caused to be performed in connection with this application or intends to perform or cause to be performed in such connection, including the contemplated date of completion.

A comprehensive environmental study addressing the factors to be considered for a CEC was completed as part of the environmental planning process for the proposed project. The environmental study used secondary data, as well as data gathered during field reviews. The results of the environmental study process are described in Exhibit B – Environmental Report, as part of this application.

In conjunction with the environmental studies, an agency and public participation program was implemented in the environmental planning process to receive and incorporate feedback, disseminate information, determine preferences regarding alternative routes, and identify issues raised by the general public. The public and agency participation program has continued up through the submission of this application. Methods to achieve these objectives included, but were not limited to, stakeholder group meetings, public open house meetings, local community meetings, newsletter mailings, a telephone information line, and website information. More specific information regarding the agency and public participation program is provided in Exhibit B and Exhibit J of the application.

This application also includes a summary of the results of land use studies (exhibits A and B), biological evaluation (exhibits C and D), and visual and cultural resources evaluations (Exhibit E).

7. Rationale for alternatives selection:

The Preferred Route and alternative routes described in this application have been found by TEP and its environmental consultant (EPG) to be environmentally compatible with impacts equivalent to the impacts of previously approved routes and consistent with past ACC decisions regarding transmission line siting projects.

Rationale for each alternative is presented below.

Preferred Route – The Preferred Route takes advantage of existing access roads. This alignment would share an access road with the Rosemont water pipeline alignment for the entire length of the route. The use of existing access would minimize impacts to biological resources and reduce visual contrast. Also, the route is preferred by the major land owner, ASLD. Based on engineering considerations, the route is preferred because it is one of the shorter routes and is adjacent to the water pipeline allowing use of the pipeline access road, and it provides the opportunity to co-locate electrical distribution services for water booster stations on the same structures. SRER believes the Preferred Route minimizes the impacts to its activities. In addition, the only private property traversed by this route is owned by Rosemont.

Alternative Route 1 – This route has the same basic alignment as the Preferred Route, except it would use links 130, 135, and 95, instead of links 105 and 155. Similar to the Preferred Route, Alternative Route 1 would co-located with the water pipeline alignment for the majority of the route except along links 130,135, and 95. This small sub route was identified to reduce visual impacts of the proposed 138kV line to residences just southeast of a small hill. Although Alternative Route 1 will be partially screened by the topography and vegetation and is located farther away from the residences, it would require a new access road for links 130,135, and 95. New access would create additional disturbance to biological resources and have the potential to increase undesirable public access to areas within the SRER that currently are inaccessible. Upgrading of the access road will potentially affect a larger number of federally-protected Pima pineapple cacti that are present on the Preferred Route. The ASLD (which it leases to the SRER) has specifically objected to this route on multiple occasions during the planning process because of the potential impact to repeat photography locations, research study areas, and livestock facilities.

Alternative Route 2 – Alternative Route 2 consolidated with the existing 46kV transmission line, co-locates with Rosemont water pipeline alignment, and parallels portions of Helvetia Road. Although the alignment would be consolidated with the existing 46kV transmission line, the access road for this line is not currently being maintained, is nonexistent for portions, and would require upgrades for the construction and maintenance of the proposed project. Upgrading of the access road will potentially affect a larger number of federally-protected Pima pineapple cacti that are present on the Preferred Route or Alternative Route 1. Alternative Route 2 would reduce potential visual impacts from the proposed project because it would be co-located with existing vertical structures, reducing the overall project contrast. Potential impacts to residences in the Quail Creek subdivision would be partially to completely screened by vegetation and terrain for residences within ½ mile. Development of this alignment would require new access roads along a portion of Link 120. The ASLD (which leases state land to the SRER) has specifically objected to this alternative route on

multiple occasions throughout the planning process because of the potential impact to repeat photography locations, research study areas, and livestock facilities.

Alternative Route 3 – This route has the same basic alignment as Alternative Route 2, except it would use links 130,135, and 95 instead of links 105 and 155. Similar to Alternative Route 2, Alternative Route 3 would be consolidated with the existing 46kV transmission line, potentially reducing visual impacts and overall project contrast. Links 130, 135, and 95 will avoid visual concerns to residences along Santa Rita Road; however, it will require a new access road for links 130, 135, and 95 and create additional disturbance. Upgrading of the access road will potentially affect a larger number of federally-protected Pima pineapple cacti that are present on the Preferred Route or Alternative Route 1. The ASLD (which it leases to the SRER) has specifically objected to this alternative route on multiple occasions throughout the planning process because of the potential impact to repeat photography locations, research study areas, and livestock facilities.

Alternative Route 4 – Alternative Route 4 would be consolidated with the existing 46kV transmission line for the majority of its length near the junction of FR 231 (Link 160) on CNF land where it turns north to the Rosemont Substation. Alternative Route 4 is the longest route traversing the SRER and CNF. The majority of the route would require upgraded access; this would create additional disturbance to biological resources through areas of dense vegetation and steep slopes; however, portions of this alternative route would be within the Rosemont mining operations area. Impacts to federally-protected Pima pineapple cacti would be similar to Alternative routes 2 and 3. Alternative Route 4 crosses (spans) riparian habitat within Box Canyon, which supports several special status species. Alternative Route 4 was preferred by the Town of Sahuarita. The SRER (which leases state land from ASLD in the Study Area) and CNF have indicated concerns with this alternative route on multiple occasions throughout the planning process. The CNF expressed concerns about the visual impacts this alternative might cause. TEP believes that the Preferred Route and four alternative routes are all environmentally compatible based on the factors described in both the state siting statutes and in previous siting decisions. The following considerations justify TEP's belief:

- No long-term or adverse effects to populations of special status species or unique habitats are likely with the construction of the proposed routes.
- Visual impacts for residential, recreation, and travel route viewers would be reduced, based on the following assumptions:
 - The routes would generally co-locate with the Rosemont water pipeline alignment or be consolidated with the existing 46kV transmission line for the majority of the length of each route.
 - Materials used would include non-specular conductors and self-weathering structures.
- Land use impacts are avoided by using existing utility corridors/access roads for the majority of the routes. Portions of the routes not located within an existing or planned utility corridor are located on Rosemont private property or within the Rosemont operations boundary.

- Impacts to cultural resources are avoided through selective structure placement. In instances where sites cannot be avoided, impacts would be mitigated through the preparation and implementation of a Historic Properties Treatment Plan (HPTP).
- The Preferred Route and each of the alternatives presented in this application would meet the requirements for the Rosemont 138kV Transmission Line Project, provided that ASLD would grant authorization to use state lands for transmission facilities on those routes to which it currently objects.

EXHIBIT A LOCATION AND LAND USE MAPS

As stated in Arizona Corporation Commission Rules of Practice and Procedure R14-3-219:

"Where commercially available, a topographic map, 1:250,000 scale, showing any proposed transmission line route of more than 50 miles in length and the adjacent area. For routes less than 50 miles in length, use a scale of 1:62,500. If application is made for alternative transmission line routes, all routes may be shown on the same map, if practicable, designated by the applicant's order of preference."

Exhibit A-1. Preferred and Alternatives Routes/Jurisdiction and Ownership

Exhibit A-2. Existing Land Use Exhibit A-3. Future Land Use

Exhibit A-1.	Preferred and Alternatives Routes/Jurisdiction and Ownership
	LARGE, FOLDED MAP INCLUDED HERE

Exhibit A-2. Existing Land Use

LARGE, FOLDED MAP INCLUDED HERE

Exhibit A-3. Future Land Use

LARGE, FOLDED MAP INCLUDED HERE

EXHIBIT B ENVIRONMENTAL REPORT

As stated in Arizona Corporation Commission Rules of Practice and Procedure R-14-3-219:

"Attach any environmental studies which applicant has made or obtained in connection with the proposed site(s) or route(s). If an environmental report has been prepared for any federal agency or if a federal agency has prepared an environmental statement pursuant to Section 102 of the National Environmental Policy Act, a copy shall be included as part of this exhibit."

Exhibit B-1. Planning Process and Responsibilities Exhibit B-2. Alternative Links Carried Forward

Exhibit B-3. Rosemont Copper Project Draft EIS (DVD copy provided in this exhibit)

INTRODUCTION

EPG completed the environmental studies for the Rosemont 138kV Transmission Line Project in 2011. These studies began in 2008 and included land use, visual resources, biological resources, and cultural resources analyses. The environmental planning process completed for the proposed project is described below, followed by a description of the land use study.

ENVIRONMENTAL PLANNING PROCESS

Overview

TEP worked with EPG to facilitate the studies for the Rosemont 138kV Transmission Line Project. Generally, the environmental planning process involved several steps including the identification of a study area, identification of alternatives, inventory and assessment of the proposed routes, alternatives comparison and selection, and CEC application preparation (Exhibit B-1 illustrates this process). The study information for this process was provided to the CNF for incorporation into the CNF's National Environmental Policy Act (NEPA) Environmental Impact Statement (EIS process for the Rosemont Copper Project – Rosemont operations project; Draft EIS is available through the CNF website, available at www.rosemonteis.us) and forest plan amendment. Likewise, studies and other appropriate information completed for the EIS process were shared with EPG for preparation of the CEC application.

Environmental studies, including land use, visual, biological, and cultural resources, were conducted for consideration in the siting of these project facilities. Also integral to the study was coordination with relevant agencies, jurisdictions, and others (e.g., CNF, ASLD, the University of Arizona [including SRER], BLM, Pima County, Town of Sahuarita, Green Valley, Rosemont, and public stakeholders). TEP and EPG implemented a comprehensive public involvement program to disseminate information and receive feedback. Public participation tools to achieve these objectives included a stakeholder group, which served in an advisory capacity; public open

house meetings; community and small group meetings; newsletters; a website; and a telephone information line. Activities associated with this process are described in Exhibit J.

Early in the process, an initial regional study area (including both the existing South and Vail Substations) was identified for purposes of the environmental and public planning process. At the beginning of this process, the study area encompassed both the TEP South and TEP Vail substations as potential starting points for the line and the Rosemont Substation on Rosemont property near the operations facilities as the termination point. At that time, TEP anticipated that the load forecast by Rosemont would require service at a 138kV voltage level originating at one of TEP's EHV source substations (South or Vail). Initial environmental studies, including public notifications, were conducted within this study area.

During the same period, TEP initiated a detailed electrical system engineering study and concluded that sufficient capacity would be available if the 138kV line to the mine connected to TEP's existing South to Green Valley 138kV line at the proposed Toro Switchyard location – located east of Sahuarita and on property owned by Rosemont. With this change, the study area was reduced in size to encompass the new point of origin while eliminating the South and Vail substation starting points. This revised regional study area allowed the study efforts to concentrate on a smaller footprint. While the footprint from a detailed analysis perspective was reduced, TEP continued to provide public notification to the initial larger regional study area notification list.

The revised regional study area was reviewed with the stakeholder group and public for comment. Data were collected and analyzed for this regional study area, and an opportunities and constraints analysis was conducted. Based on that analysis, the alternative links or segments that could be combined to form routes were identified and presented to the stakeholder group and public for comment. Environmental study results, public and agency input, engineering and technical considerations, and cost were considered by TEP and, ultimately, a preferred route and four alternative routes were selected.

Regional Study/Alternatives Identification.

As previously described, the initial larger regional study area was established during the beginning phase of the proposed project that encompassed the South and Vail substations (see Exhibit B–2). The South Substation is located near Pima Mine Road east of I-19 on the north side of the Town of Sahuarita. The Vail Substation is located just south of I-10 near South Rita Road on the south side of Tucson. In the larger regional study area, sensitive areas to avoid (constraints) as well as existing major linear features (opportunities) that could be utilized by the proposed project were identified. The northern regional study area boundary was located approximately 1 mile north of the Vail Substation, while the southern boundary was located near the south end of the SRER, for the most part staying north of the Mt. Wrightson Wilderness Area. The eastern boundary was located east of State Route (SR) 83 allowing its incorporation as an existing linear feature, while the western boundary was located west of I-19 to allow consideration of existing transmission line and railroad corridors as well as the Interstate itself. After the detailed electrical system engineering study eliminated the need to connect to TEP's EHV system at the existing South or Vail substations, the regional study area was updated to

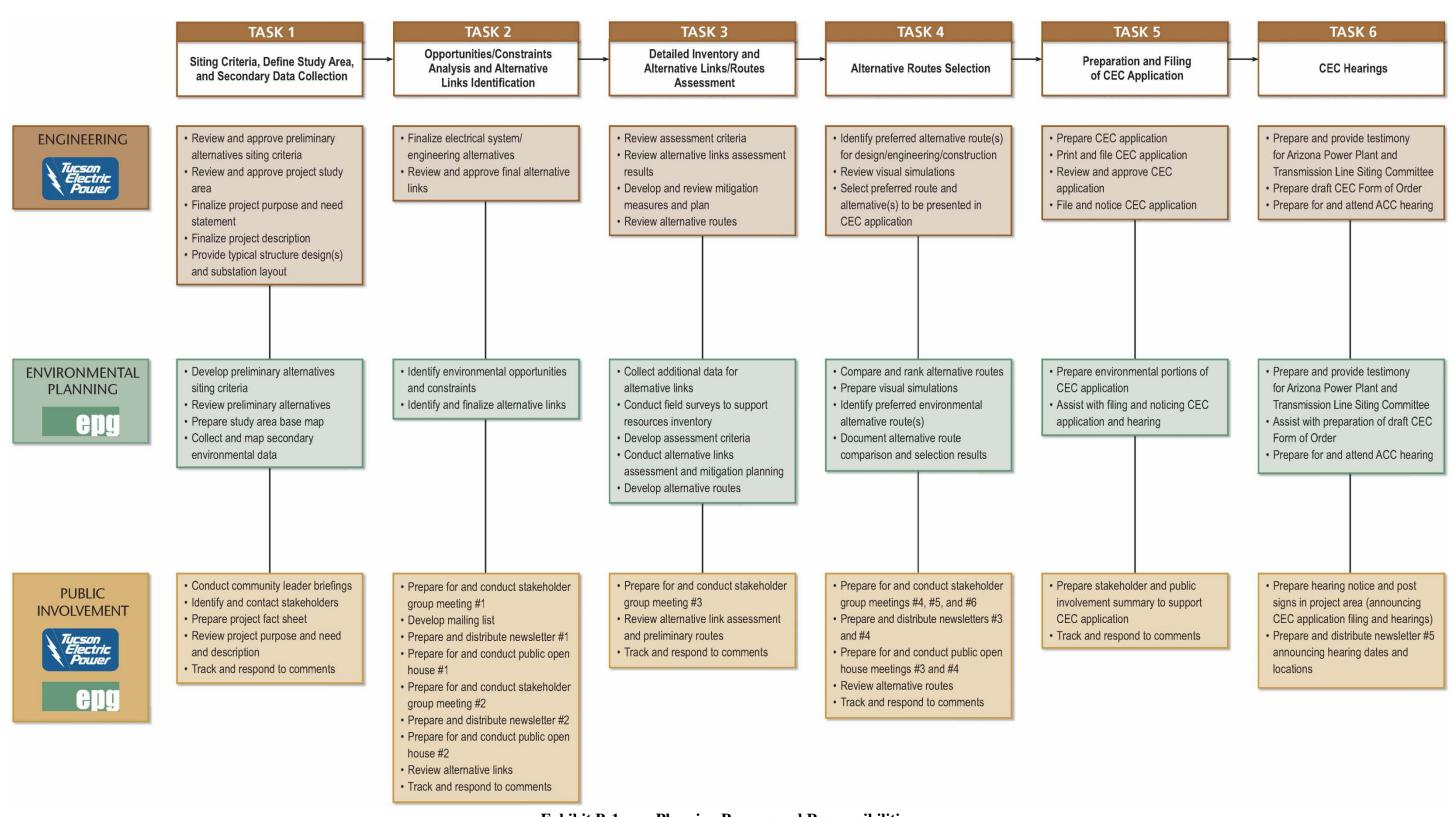


Exhibit B-1. Planning Process and Responsibilities

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more closely identify linear features originating at the new origination point. This change moved the northern boundary southward approximately 7 miles, eastern boundary to the west approximately 3 miles, and western boundary approximately 2.5 miles to the east. The southern boundary was not modified. Initial data collection and analysis efforts included the initial largerregional study area; but alternative routes were identified within only the revised regional study area from the point where the switchyard would interconnect with TEP's existing transmission system to the Rosemont operations site. Exhibit B-2 illustrates both the initial and revised regional study area boundaries. Both the initial and revised regional study areas were reviewed with the stakeholder group and public for input.

The revised (and final) regional study area consists primarily of ASLD land (leased by the University of Arizona for the SRER), CNF, and private (Rosemont) land, with dispersed parcels of BLM and other private land. Planning jurisdictions located within the study area include the Town of Sahuarita, Pima County, and Green Valley Planning Area (established by Pima County in coordination with the Green Valley Coordinating Council). Major features include I-19, CNF, and the University of Arizona SRER. It is characterized by primarily undeveloped land, with areas of dispersed residential development. More developed areas that include residential, commercial, industrial, and public uses are located in the north, northwestern, and western portions and within the unincorporated community of Corona de Tucson, Town of Sahuarita, and Green Valley Planning Area. In addition, besides the Rosemont operations, there are existing mining operations (Imerys Mine) near the center of the regional study area.

Opportunities for and constraints to siting a transmission line in the study area were identified based on environmental resource inventories including land use, visual, cultural, and biological resources, indicating whether or not an area/use would be considered more or less compatible for the proposed facilities. Examples of sensitivity criteria used to identify these areas include residential uses having a higher sensitivity and industrial uses having a lower sensitivity. Existing linear features such as transmission lines and roadways are typically considered opportunities for siting and constructing future transmission lines. This information was applied to the existing and future land use patterns within the study area (Exhibits A-2 and A-3), and opportunities and constraints within the study area were identified.

Using the information derived from the opportunities and constraints analysis, a set of preliminary transmission line alternative links were developed. The initial alternative links were chosen with a primary goal of maximizing opportunities to use existing linear features. This resulted in many of the links paralleling linear features, including existing transmission lines, roadways, and future utility alignments.

After the alternative links identification, an initial screening was conducted to eliminate alternative links based on consideration of: (1) minimizing or avoiding potential land use, visual, cultural, and biological impacts; (2) meeting system or engineering requirements; (3) responding to feedback from the jurisdictions and public; and (4) meeting Rosemont's operational requirements. The first level of screening was conducted for the purpose of eliminating less environmentally compatible routes prior to the detailed analysis. During this phase, alternative links were evaluated based on relative environmental impact, and the links with the least environmental impact were retained. The retained links were combined to form preliminary transmission line route alternatives. Project updates were presented to the stakeholder group

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through meetings and general public through newsletters and open houses, and feedback was received and incorporated. During this process, members of the stakeholder group suggested an alternative location for construction power by tapping the 46kV line near the intersection of the existing 46kV line and Helvetia Road. This construction option also was studied as part of the process and later removed, as it was determined to be not necessary, as previously described.

Data were analyzed, resulting in the identification of alternative links to carry forward (see Exhibit B-2) that would provide a balance of environmental and engineering compatibilities, with respect to public and agency support.

Overall, three preliminary route groups or families were developed from these links that largely paralleled existing major linear features, including the northern boundary of the SRER, Santa Rita Road, and the existing 46kV transmission line. The preliminary route families were referred to as the North Route family, the Santa Rita Road Route family, and the Adjacent 46kV Route family. The North Route family generally follows the northern and eastern boundary of the SRER. The Santa Rita Road Route family generally follows Santa Rita Road. The Adjacent 46kV Route family generally follows the existing 46kV alignment.

Detailed Analysis

A detailed analysis for each of the three preliminary alternative route families was conducted to determine potential environmental impacts, engineering and constructability, and the customer's (Rosemont) power need considerations. Each analysis considered and compared details of the alternative route families (e.g., those with the presence of access roads, the presence of existing transmission lines, etc.) that would not only minimize potential environmental impacts, but would also result in the most suitable location for the construction, operation, and maintenance of the proposed project. A second level of screening was performed based on this information and input from the stakeholder group, public, and agencies. The detailed environmental and engineering analysis covered approximately 45 to 60 miles of alternative links.

The impact assessment was conducted for each of the preliminary alternatives and included an evaluation of potential impacts to land use, visual, biological, and cultural resources. The impact assessment for each alternative tiered off of the siting criteria developed during the opportunities and constraints analysis phase. The impact assessment was based on experience with past high-voltage transmission line projects and input from agencies, planners, stakeholders, and the public. The intent of the impact assessment was to characterize impacts, and where possible, identify measures to mitigate and reduce or minimize the overall environmental impacts resulting from construction and operation of the proposed project (i.e., mitigation planning).

After determining the general locations of preliminary alternative routes and conducting the impact assessment and mitigation planning, this information was shared with the stakeholder group and the public (via public open houses) to gather comments on the preliminary alternative route families.,

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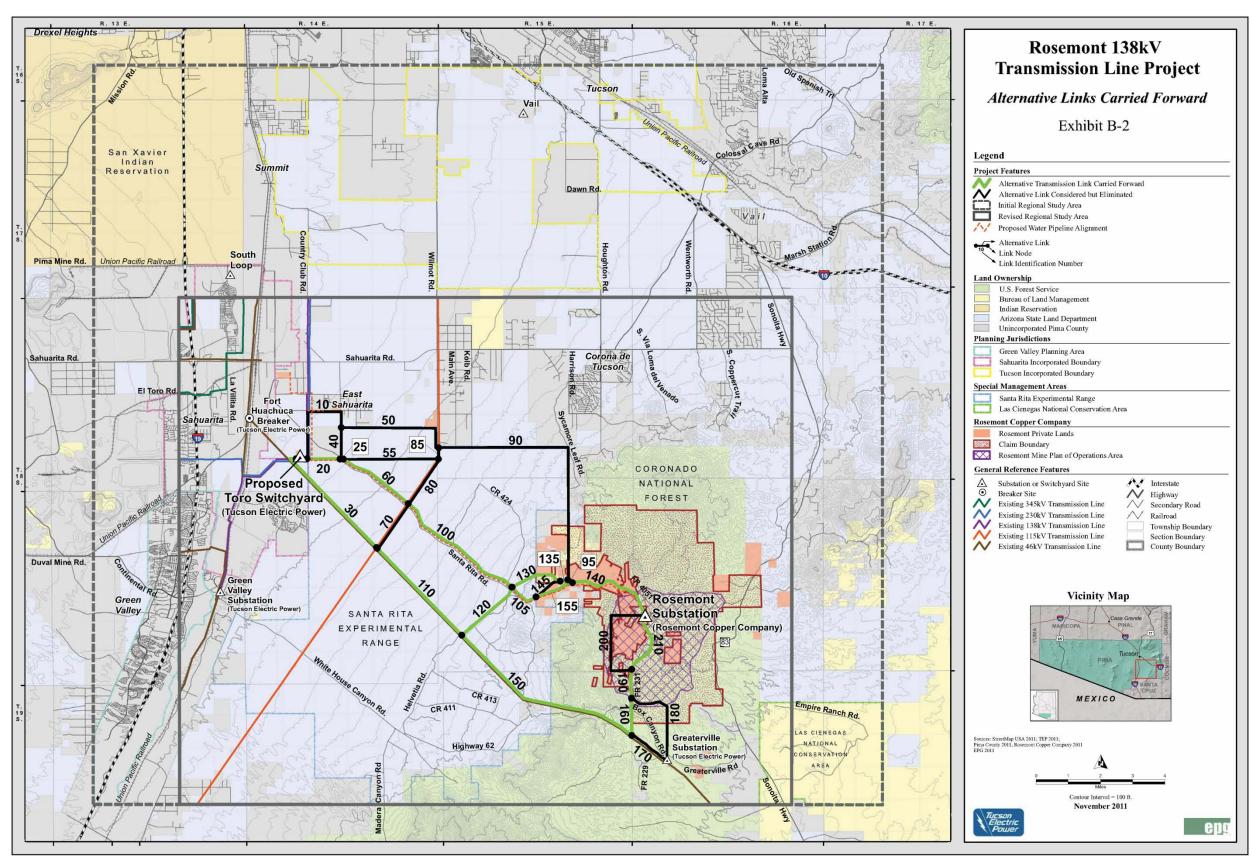


Exhibit B-2. Alternative Links Carried Forward

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Transmission Line Alternative Route Comparison and Selection

The next step was to determine which alternative routes should be carried forward into this application that would represent a balance between engineering and project requirements, potential environmental impacts, and public/agency input.

Ultimately, TEP selected a preferred and four alternative routes presented in this application based on environmental study results, public and agency input, engineering and technical considerations, and cost (see Exhibit A-1). TEP identified the routes that best responded to the criteria established to be carried forward, while the others were not recommended for further consideration (see Exhibit B-2). These routes were recommended to be carried forward because they minimize impacts by being co-located with the Rosemont water pipeline or consolidated with the existing 46kV structures for a substantial portion of their alignment to accommodate both the existing 46kV and proposed 138kV line. Since the routes would be co-located and/or consolidated with one of—or a combination of—these facilities, ground disturbance and impacts to resources would be reduced. The detailed project study area includes a 2-mile buffer around the preferred and alternative routes and switchyard/substation sites. recommended to be carried forward (see Exhibit A-1).

LAND USE

Overview

The project included a regional and detailed (within a 2-mile buffer) land use inventory, as well as an assessment of potential impacts that may occur as a result of construction and operation of the project. The following describes the inventory and impact assessment results of the land use study for the project.

Inventory

The land use inventory included land jurisdiction and existing and future land uses. Methods used for the land use inventory included collection of secondary data, field verification, and review and interpretation of maps, aerial imagery, comprehensive plans, and other documents. In addition, this inventory included communication with government agencies within the study area. Land use data were inventoried for the preferred and alternative routes and switchyard and substation sites and are described below.

Jurisdiction and Land Ownership

The Preferred Route and four alternative routes, as well as the switchyard site, cross land primarily under the jurisdiction of the ASLD (which it leases to the SRER) and also includes portions of USFS land managed by the CNF, private (Rosemont) land under the jurisdiction of Pima County, and a small portion of BLM land. Exhibit A-1, Preferred Routes and Alternatives Jurisdiction and Ownership, illustrates jurisdiction and land ownership for the Preferred Route and alternative routes.

Approximate surface land management and ownership by route is as follows (Table B-1 and Table B-2):

Routes	Unincorporated Pima County*	Incorporated Town of Sahuarita	
Preferred Route	3.7	0	
Alternative Route 1	2.6	0	
Alternative Route 2	3.6	0.8	
Alternative Route 3	2.5	0.8	
Alternative Route 4	0.3	0.8	

Table B-2. Land Ownership Crossed by Alternative Routes (approximate miles)					
Routes	USFS	BLM	ASLD	Private (Rosemont)	
Preferred Route	0.5 (3.8%)	0	9 (68.2%)	3.7 (28%)	
Alternative Route 1	0.5 (3.8%)	1.1 (8.4%)	8.9 (67.9%)	2.6 (19.9%)	
Alternative Route 2	0.5 (3.3%)	0	10.9 (72.7%)	3.6 (24%)	
Alternative Route 3	0.5 (3.3%)	1.1 (7.4%)	10.8 (72.5%)	2.5 (16.8%)	
Alternative Route 4	6.5 (35.7%)	0	11.4 (62.6%)	0.3 (1.7%)	

Existing Land Use

Existing land uses are mapped in Exhibit A-2 of Exhibit A – Location and Land Use Maps, the project study area is primarily undeveloped vacant land consisting of the SRER and CNF, with dispersed residential areas on private land, particularly in the northwestern portion of the study area as well as residences in the Helvetia area and along the 46kV alignment. Urban developed areas occur in the northern and western portion of the region, largely outside the project study area. Mining and other major industrial operations are located in isolated areas in the western and northern parts of the region, along with an operation on the CNF and BLM, near the alternative routes. Agricultural areas are clustered along the Santa Cruz River corridor on the western side of the regional study area. Several existing transmission lines traverse the western portion the area where most of the concentrated development occurs. The land use categories identified in Exhibit A – Location and Land Use Maps are described below.

Residential – Residential land uses primarily include low-density residential areas (between 0 and 2 dwelling units per acre). Dispersed residential areas occur on private land and within private inholdings of CNF and ASLD land. Medium residential areas (between 2.1 and 8 dwelling units per acre) are located on the western side of the regional and project study area

within the Town of Sahuarita incorporated boundary and unincorporated areas in Pima County, including Corona de Tucson and the Green Valley Planning Area.

Commercial – Commercial land uses are concentrated along the I-19 corridor along the western side of the regional study area. The retail/services include restaurants, gas stations, offices, hotels, etc.

Industrial – Industrial land uses are heavily concentrated along the Union Pacific Railroad and SR 89 in the western portion of the regional and project study area. Several copper mines are located to the west of I-19. Other industrial uses are located in the northern part of the regional area near Corona de Tucson. A sand and gravel operation is located west of the proposed Toro Switchyard. The Imerys Marble quarry is a limestone quarry facility located on CNF and BLM land in the central portion of the study area, and access to that site is provided via a portion of the same route that the Preferred Route and Alternative Route 1 follows along Santa Rita Road. In addition, Rosemont Copper Company has 132 patented mining claims totaling 1,968 acres and 899 unpatented mining claims representing more than 14,000 acres. Rosemont's holdings are located in the eastern portion of the regional study area.

Utilities –Electrical substations and transmission lines are present in the regional and project study area. There is one TEP 345kV transmission line that traverses generally southwest in the northwestern corner of the regional study area. A Southwest Transmission Cooperative, Inc. (SWTC) 230kV transmission line and the TEP South to Green Valley 138kV transmission line traverse generally north-south in the western portion of the regional and project study area, parallel to Country Club Road, and turn west at the location of the proposed Toro Switchyard. TEP plans to tap into the 138kV transmission line for this project. A UNS Electric, Inc. (UNSE) 115kV transmission line traverses the regional and project study area going south along Wilmot Road, and then continues in a southwest diagonal direction across the SRER through the project study area. A TEP 46kV transmission line that connects to the Fort Huachuca Breaker and Greaterville substations traverses the study area northwest to southeast, across the SRER and CNF.

Public/Quasi-public – Public/quasi-public uses in the study area are located in the northern and western portions of the regional study area, within the Town of Sahuarita incorporated boundary and unincorporated Corona de Tucson. They include uses such as schools, town department buildings, municipal court, and a police department.

Agriculture – Agricultural areas occur in the northwestern portion of the study area. There are irrigated pecan groves parallel on either side of the Santa Cruz River corridor as it traverses the regional and project study area.

Transportation – Major transportation routes in the regional and project study area include I-19, SR 89, SR 83, Sahuarita Road, and the Union Pacific Railroad.

Vacant/Undeveloped Land/SRER – The majority of the project study area is vacant or undeveloped land. The SRER consists of more than 80 square miles of grazed and ungrazed rangeland – which it leases from ASLD – located mostly in the center and making up a substantial portion of the project study area. The SRER uses multiple repeat photo locations to

study long-term range recovery from drought and over-grazing. The majority of the repeat photo locations occur in the southern portion of the range. According to an SRER representative, SRER is the oldest repeat photography site in the world (over 100 years). In addition, SRER has research study areas that are long-term study areas for the assessment of vegetation change over time. The grazing is part of those research study areas.

Recreation and Parks/Preservation – Recreation uses in the regional and project study area include golf courses and community parks associated with residential areas. These facilities are located in the northern and western portions of the regional study area within the Town of Sahuarita incorporated boundary and unincorporated areas of Corona de Tucson and the Green Valley Planning Area.

Pima County has identified proposed mountain parks within the regional study area, located adjacent to the northeastern corner of the CNF and in the southeastern corner of the regional study area. The Eastern Pima County Trail System Master Plan has identified a network of several first, second, and third priority trails. These trails generally follow roads and unnamed washes throughout the regional study area. A portion of the Anza National Historic Trail is located in the western portion of the regional area, generally following the Santa Cruz River corridor. The Arizona Trail, a designated National Scenic Trail, is located within the eastern portion of the regional and project study area, primarily on CNF land.

A small portion of the Las Cienegas National Conservation Area is located in the southeastern corner of the regional study area and managed by the BLM. Dispersed and permitted recreation opportunities include hiking, camping, mountain biking, picnicking, horseback riding, birding, back-country road touring, hunting, and photography.

Dispersed recreation activities occur throughout the CNF. These activities include hiking, camping, birding, horseback riding, picnicking, sightseeing, and visiting historic areas. As stated above, the Arizona Trail also occurs within the CNF. Recreation resources within the CNF are additionally discussed in the visual and recreation resources sections within Exhibit E and Exhibit F, respectively.

Public Lands – Approximately 60 square miles of the USFS-CNF land is located in the eastern/southeastern portion of the regional study area, with approximately 30 square miles within the project study area. Approximately 2 square miles of BLM land is located in the eastern portion of the project study area.

Future Land Use

Future land use designations were assigned to lands with current vacant/undeveloped use(s) based on information from planning documents relative to the regional and project study area. Stakeholder group members and jurisdictional representatives were contacted during the siting process to confirm general planned land use(s) and developments that were in the process of receiving permit approval. Three levels of planned developments were identified and include conceptual, general, and comprehensive plan uses; zoning approved developments; and plat approved developments. A description of each is provided below.

Conceptual/General/Comprehensive Plan Status land uses (e.g., residential, commercial, etc.) are guides for future land uses, as defined in planning documents from the planning, zoning, and/or development departments of jurisdictions and may not reflect actual development.

Zoning Approved Status land uses are developments that have submitted an initial plat, or layout plan, and have been tentatively approved by a jurisdiction subject to final plat submittal.

Plat Approved Status land uses are developments that have been submitted to a jurisdiction and have been approved for at least one final plat (i.e., one development could have multiple final plats depending on size), which establishes the necessary jurisdictional approval for construction to begin.

Future land uses are illustrated in Exhibit A-3 of Location and Land Use Maps. These data are based on the Pima County Comprehensive Plan Update (2009), Town of Sahuarita General Plan (2002), title records, and communication with the jurisdiction's planning departments. Land uses, types and patterns, and densities are not anticipated to change substantially in the project study area.

Coronado National Forest – Currently, the CNF Land and Resource Management Plan provides descriptions of current and future management directions and emphases for management areas within the CNF; however, the CNF is in the process of adopting the newer Land Use Zones. The management area identified within the study area is currently Management Area 4 (1986 Forest Plan Management Areas). Management emphasis for this area is sustainable harvest of livestock forage and fuel wood, while maintaining and improving game animal habitat. Under the proposed Santa Rita Ecosystem Management Area Land Use Zones, the following zones occur within the study area:

Wild backcountry – Managed for non-motorized areas including Roadless Areas, Wilderness Areas, and other relatively pristine areas. There are no permanent facilities, and settings are natural with no sounds of motorized vehicles or other urban elements. Few primitive roads exist in limited areas. Temporary roads may be allowed for specific purposes.

Roaded backcountry – Managed for a range of dispersed uses and motorized access, while retaining the natural character. Opportunities for developed and undeveloped camping and recreation facilities or administrative sites exist in this zone. New roads are added when needed.

Backcountry recreation – Managed for recreational motorized use, generally focused on allterrain vehicles and driving for pleasure. A network of CNF roads and high speed highways are located within this zone. New roads are added when needed.

Future Industrial Development – An Environmental Impact Statement process is currently underway by the CNF to evaluate the construction of the Rosemont Copper Project, which drives the need for the proposed transmission line project. The proposed Rosemont operation, which occurs both on private land owned by Rosemont and the CNF, is identified as future industrial development. Proposed project alternatives cross both the private and CNF portions of the project area.

In addition, many patented and unpatented mining claims exist within the project study area and broader regional area. Patented mining claims are lands which provide the owner with the right to extract minerals from those lands. Existing mining operations within the regional and project study area may expand operations in the future, though indications of this have not been identified.

Bureau of Land Management – The BLM Phoenix Resource Management Plan (RMP) and Final Environmental Impact Statement (1988) identifies goals to manage six key resource issues on public land, including land tenure, utility corridors, special management areas, off-road vehicle restrictions, recreation management, and land classifications. Under this RMP, BLM land within the project study area is identified for disposal in order to acquire land that would potentially eliminate the currently fragmented land pattern and form a more manageable one.

Pima County – Unincorporated areas of Pima County are primarily designated as rural residential, with portions designated for parks and preservation.

The Pima County Comprehensive Land Use Plan (2001) is periodically updated, when rezoning and specific plans are not consistent with the comprehensive plan. Management goals are to conserve the natural resources; to ensure efficient expenditure of public funds; and to promote health, safety, convenience, and general welfare of the public. Pima County Comprehensive Plan Update Version VI – November 2009 was used to identify future land use within the regional and project study area.

Santa Rita Experimental Range/ASLD – The SRER will continue to be vacant, undeveloped land managed and used by the University of Arizona, College of Agriculture to continue the mission "to advance research and education on the ecology and management of desert rangelands through the secure, long-term access to research areas, state-of-the-art facilities, new discoveries, and research legacies."

Town of Sahuarita – The Town of Sahuarita has designated commercial uses along the Sahuarita Road corridor in the northern portion of the regional study area. Several existing residential developments throughout the regional study area have development plans to expand the residential development beyond the existing build out.

The Town of Sahuarita General Plan (2002) emphasizes ways to address land use and circulation, open space and recreational needs, new public facilities and services, and growth management.

Potential Impacts Associated with the Alternatives

Land use resource data, including jurisdiction, surface management, and existing and future land use, were inventoried to determine environmentally compatible areas for the proposed facilities within the regional and project study area (described above).

Land use impacts may be defined primarily as (1) restrictions on a land use that would result from the construction or operation of the proposed project, (2) incompatibility with existing

plans, or (3) restricting a land use that would result from changing the use of that land to a utility corridor.

Preferred Route

The Preferred Route is approximately 13.2 miles long and likely to have minimal impacts to land use because it will result in minimal additional restrictions on lands crossed, and is not incompatible with existing jurisdictional plans for the areas crossed. The proposed Toro Switchyard will be constructed on Rosemont private property. The route primarily parallels Santa Rita Road for approximately 7 miles and would be co-located with the Rosemont water pipeline alignment for the majority of its length except on Rosemont property where the transmission line ends at the Rosemont Substation.

Alternative Route 1

Alternative Route 1 is approximately 13.1 miles long and likely to have minimal impacts to land use because it will result in minimal additional restrictions on lands crossed, will minimally interfere with existing uses on the SRER, and is not incompatible with existing jurisdictional plans for the areas crossed. Alternative Route 1 follows the same path as the Preferred Route, except for using links 130,135, and 95, which requires a new corridor and ROW across the SRER and an approximate 1.1-mile stretch of BLM land. Alternative Route 1 would be colocated with the Rosemont water pipeline utility corridor for approximately 10 miles, and would require approximately 2 miles of new utility ROW across the SRER and BLM land (under authorization as part of the EIS process).

Alternative Route 2 and Alternative Route 3

Alternative Route 2 is approximately 15 miles long and likely to have minimal impacts to land use because it will result in minimal additional restrictions on lands crossed, minimally interfere with existing uses on the SRER, and is not incompatible with existing jurisdictional plans for the areas crossed. From the proposed Toro Switchyard, Alternative Route 2 would be consolidated with the existing 46kV transmission line across state land, designated by Pima County as future residential, for approximately 1 mile, as well as approximately 6.6 miles across the SRER and would require a new ROW across the SRER along links 120/Helvetia Road. The route would be co-located with the Rosemont water pipeline alignment across the SRER and onto Rosemont private property similar to the Preferred Route.

Alternative Route 3 is approximately 14.9 miles long and likely to have minimal impacts to land use because it will result in minimal additional restriction on lands crossed, will minimally interfere with existing uses on SRER and BLM land, and is not incompatible with existing jurisdictional plans for these areas. It follows the same alignment as Alternative Route 2, until the intersection with the Rosemont water pipeline corridor. Alternative Route 3 will also use links 130,135, and 95, which will require a new corridor and ROW across the SRER and BLM land (under authorization as part of the EIS process). Alternative Route 3 would be co-located with the Rosemont water pipeline utility corridor for approximately 3 miles (similar to the Preferred Route), and would also be consolidated with the existing 46kV transmission line.

Alternative Route 4

Alternative Route 4 is approximately 18.2 miles long and likely to have minimal impacts to land use. Similar to Alternative Routes 2 and 3, Alternative Route 4 would be consolidated with the existing 46kV transmission line across state land, designated by Pima County as future residential, for approximately 1 mile, as well as approximately 10.4 miles across the SRER. The route would be consolidated with the existing 46kV transmission line for approximately 2.7 miles on CNF land.

REFERENCES

- Bureau of Land Management (BLM). Proposed Phoenix Resource Management Plan and Final Environmental Impact Statement. Adopted December 1988.
- _____. 1986. Eastern Arizona Grazing FEIS. September 1986
- Pima County Office of Conservation Science and Environmental Policy. Pima County Multiple Species Conservation Plan. December 23, 2008. Pima County, Arizona.
- Pima County. Pima County Comprehensive Plan Update Policies and Land Use Intensity Legend Version V. Adopted November 2009. Pima County, Arizona
- Town of Sahuarita. Town of Sahuarita General Plan. Adopted May 20, 2003. Town of Sahuarita, Arizona.
- U.S. Department of Agriculture. Coronado National Forest Land and Resource Management Plan. Adopted August 4, 1986. Washington, D.C.: Forest Service.

Exhibit B-3. Rosemont Copper Project Draft EIS

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EXHIBIT C AREAS OF BIOLOGICAL WEALTH

As stated in ACC Rules of Practice and Procedure R14-3-219:

"Describe any areas in the vicinity of the proposed site or route which are unique because of biological wealth or because they are habitats for rare and endangered species. Describe the biological wealth or species involved and state the effects, if any, the proposed facilities will have thereon."

Exhibit C includes summaries of areas of biological wealth and rare or endangered species that could potentially occur within the project study area, as well as summaries of the potential impacts to these resources and resource impacts specifically associated with the proposed and alternative routes and switchyard/substations.

BIOLOGICAL WEALTH

Areas of Biological Wealth

This analysis originally looked at the regional study area that encompassed all of the project alternative alignments and included areas outside those that could potentially be impacted by the project (see Figure 1 – Project Location Map). A subset of the regional study area consisting of a 2-mile buffer around project alternatives (project study area) was used for the analysis of potential impacts to biological resources that could result from project development, operation, and maintenance (Exhibit A-1). Pima County has developed the Pima County Multi-species Conservation Plan (MSCP). The MSCP was recently submitted to the U.S. Fish and Wildlife Service (USFWS) as part of Pima County's request for an incidental take (Section 10) permit, which will allow development within the county to occur with minimal need for repeated consultations with the USFWS on multiple projects authorized by the county and to minimize impacts to significant biological resources. This plan has yet to be approved. The entire project study area occurs within Pima County and is contained within the area covered by the Pima County MSCP (unapproved). In addition, a draft Biological Assessment has been prepared pursuant to Section 7 consultation with the USFWS. Within the project study area there are five specific areas and/or resources that stand out as important elements for several rare or endangered species. These are the Box Canyon riparian area; several manmade earthen livestock catchments; numerous abandoned mine shafts and adits; limestone substrates; and populations of agaves, primarily the Palmer agave (Agave palmeri). These resources are discussed individually below.

Pima County Multi-species Conservation Plan

The 2010 Pima County MSCP is the result of a long-term biological resource management and urban planning effort that provides protocols for protection of regional biological resources in compliance with the federal Endangered Species Act under an incidental take (Section 10) permit that will be in effect for 30 years once approved. The goal of the biological element of the

MSCP was stated as: "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" (Pima County 2010). The plan identifies 49 species (priority vulnerable species) and individual species Priority Conservation Areas (PCAs) for many of these species. Within the Conservation Land System the MSCP also identifies Biological Core Management Areas, Important Riparian Areas (IRAs), Multiple Use Management Areas, Special Species Management Areas (with potential for restoration or enhancement), Scientific Research Areas, and Critical Landscape Connections.

Species PCAs designated by the MSCP that occur within the project study area are listed under the discussion for each species. The uplands of the Santa Rita Mountains within the project study area are identified in the MSCP as a Biological Core Management Area. Several MSCP IRAs occur within the project study area including portions of the Santa Cruz River, Box Canyon, Enzenberg Canyon, Sycamore Canyon, and an unnamed canyon west of Sycamore Canyon. Of these, only the Box Canyon IRA could potentially be affected by the project. There are no MSCP Multiple Use Management Areas within the project study area. Special species management areas occur along the Santa Cruz River for four wildlife species, which are addressed in the following species (except the Mexican gartersnake *Thamnophis eques megalops*], which does not occur within the project study area). The only Scientific Research Area in the regional study area is the SRER. The entire Range is within the regional study area, and all project alternatives cross the Range. The only Critical Landscape Connection within the project study area is a segment of the Santa Cruz River considered important for habitat connectivity for the Mexican gartersnake. This landscape connection will not be affected by project development.

Box Canyon Riparian Area

The Preferred Route, Alternative Routes 1, 2, and 3 would not cross the Box Canyon Riparian area. Box Canyon supports some broadleaf riparian vegetation and seasonal flow that supports several deep perennial pools of water. The broadleaf riparian component could potentially support or be seasonally attractive to the following special status species: Western red bat *Lasiurus blossevillii*), Northern buff-breasted flycatcher (*Empidonax fulvifrons pygmaeus*), and Abert's towhee (*Pipilo aberti*). Perennial pools could support both the Chiricahua leopard frog (*Lithobates chiricahuensis*; present) and the lowland leopard frog (*Lithobates yavapaiensis*). The shaded bedrock walls of the canyon could support the Bartram stonecrop (*Graptopetalum bartramii*). Box Canyon is the type of locality for Box Canyon muhly (*Muhlenbergia dubioides*), which is a Forest Service sensitive species.

Alternative Route 4 would span Box Canyon at two locations. Potential impacts to aquatic habitat at Box Canyon could include sedimentation of waters from ground clearing induced erosion and contamination from construction related spills. However, project plans will contain mitigation, such as best management practices for erosion and spill prevention, and no impacts to aquatic wildlife or their habitats in Box Canyon are anticipated from project development due to these sources. Construction activity could disturb wildlife in the area, particularly nesting birds if construction occurs during the bird breeding season. If construction will occur during the bird breeding season (March 1 through August 31) a preconstruction clearance for nesting birds will be conducted by a qualified biologist and any nests with young or eggs that need to be salvaged will be removed by a licensed and permitted wildlife rehabilitation contractor.

Earthen Livestock Catchments

There are several earthen livestock tanks in the project study area that could potentially support species of leopard frogs, the Great Plains narrow-mouthed toad (*Gastrophryne olivacea*) and other aquatic-dependent species. The Chiricahua leopard frog was located at four of these tanks during the leopard frog surveys conducted within the Rosemont operations study area in 2008 and 2009 (Westland Resources 2008; 2009b).

Earthen livestock tanks are isolated features that are easily avoided during site-specific design and placement of project facilities. Erosion protection and spill prevention mitigations will preclude impacts to livestock tanks that support aquatic habitats, plants, and wildlife.

Abandoned Mines

Abandoned mine shafts and adits in the north end of the Santa Rita Mountains within the project study area provide roosting habitat for several species of bats. Surveys for the lesser long-nosed bat (*Leptonycteris yerbabuenae*) conducted in the Rosemont operations study area between 2006 and 2009 revealed use of abandoned mines by the lesser long-nosed bat, Mexican long-tongued bat (*Choeronycteris mexicana*), pale Townsend's big-eared bat (*Corynorhinus townsendii pallescens*), cave myotis (*Myotis velifer*), and the fringed myotis (*Myotis thysanodes*) (Westland Resources 2009a). The survey conducted for the project did not cover all potential habitats within the transmission line project study area. Other abandoned mine sites in the area may also be used by bats as roosts.

Because of construction and safety considerations, abandoned mine sites are typically avoided during the determination of structure placement. This precludes most potential impacts to bat roosts. However, if blasting is required to create pads for transmission structures, shock waves could affect roost stability and potentially disturb or injure bats present in roosts in the vicinity of blast sites during such activity.

Limestone Outcrops

Limestone outcrops support a variety of sensitive plant and wildlife species, some of which are endemic species (Clements et al. 2008; Perez-Garcia and Meave 2004). Three special status plant species potentially occurring within the project study area that are associated with limestone or limestone derived soils are Santa Rita yellowshow (*Amoreuxia gonzalezii*), Arizona manihot (*Manihot davisiae*), and the needle-spined pineapple cactus (*Echinomastus e. erectocentrus*). Some talussnails (*Sonorella* spp.) are endemic to limestone outcrops or talus. The Rosemont talussnail (*Sonorella rosemontensis*), a candidate for federal listing as threatened or endangered under the ESA, has been recorded within the project study area (Westland Resources [2010a]). If this species becomes listed prior to project development, consultation with the USFWS will be required to address potential impacts to the species. Limestone strata may contain hidden (cryptic) karst features, such as fissures and caves, which may support endemic troglobitic species (Culver and Pipan 2009; Elliott 2000).

Small areas containing limestone habitat could be disturbed by ground clearing activities for pole sites or access roads. Ground-disturbing activities, particularly vegetation removal, could provide

suitable habitat for colonization by non-native invasive plant species that could compete with sensitive plant species for resources. Invasive plant species can alter the fire regime and adversely affect the native plant community. Ground disturbance could also result in loss of individual animals such as talus snails.

Agaves

Two paniculate agave species that occur at middle to higher elevations in the project study area are the Palmer agave and Huachuca agave (*A. parryi*). These agave species support foraging by the nectarivorous lesser long-nosed and Mexican long-tongued bats. Some agaves are likely to be lost during project construction, but the numbers of plants involved represent only a very small fraction of a percent of the plants available, and loss of these agaves will not constitute a substantial impact on any special status wildlife species.

Rare and Endangered Species

Introduction

A review of regional natural resource information was conducted for the regional study area to determine which special status plant and wildlife species (biological wealth, in part) could potentially be present. A subset of this area, a two-mile buffer around project alternatives (project study area), was then evaluated to determine potential for special status biological resources occurring within these refined limits. Table C-1, near the end of this exhibit, is a list of special-status species that are known or may potentially occur within the project study area. Information reviewed included USFWS and Arizona Game and Fish Department (AZGFD) Internet website sources, and the current BLM and U.S. Forest Service (USFS) sensitive species lists (BLM 2010; USFS 2007). Reports prepared by Westland Resources for special status species in the vicinity of the Rosemont operations project, construction of which would be supported by this Project, were also reviewed. The current USFWS list for Pima County includes 16 Endangered Species Act [ESA] – threatened or endangered species; 7 ESA candidate species; 2 conservation agreement species; and 2 formerly listed (currently delisted) species, one of which, the cactus ferruginous pygmy-owl (Glaucidium brasilianum cactorum), has been petitioned for relisting. Approximately 250 special-status species were reviewed, with 87 of these species determined to be present or have some potential for occurring within the project study area. See Table C-1 near the end of this exhibit for a list of those species. These 87 species are briefly discussed in the individual sensitive species accounts below. Potential impacts that the project could have on these species are discussed for each.

Sensitive Species Accounts and Impacts

Mammals

Cockrum's Desert Shrew

This species is considered a rare endemic whose distribution is generally poorly known. However, records occur over a wide area and potential for the species occurring in the project study area is moderate. Ground-disturbing project activities could impact habitat for the species

and result in loss of individual animals. Due to the small acreage of disturbance that would occur in areas that may support these animals no substantial impacts to the Cockrum's desert shrew or its habitat are anticipated from construction of this project.

California Leaf-Nosed Bat

Potential for the California leaf-nosed bat occurring within the project study area is low, but they could use abandoned mines in the area for roosts. There are no MSCP designated PCAs for the California leaf-nosed bat within the project study area (Pima County 2004). Abandoned mines within the project alignment will be avoided and roosts are not likely to be affected by project development. Removal of vegetation could impact insects that could be used by these bats, but the quantity involved is considered inconsequential. No substantial impacts to the California leaf-nosed bat or its habitat are anticipated from construction of this project.

Mexican Long-Tongued Bat

The Mexican long-tongued bat has been recently documented within the project study area during the bat survey conducted for the Rosemont mine operations project. One individual bat was observed and others were documented feeding in the area during acoustic surveys (Westland Resources 2009a). Approximately the eastern half of the project study area is within a MSCP Level 2 PCA for the Mexican long-tongued bat (Pima County 2004). Bat roosts in mines are unlikely to be affected by construction, but removal of some food plants (saguaros and agaves) will certainly occur. Plants removed represent only a fraction of a percentage of those present in the project study area. No substantial impacts to the Mexican long-tongued bat or its habitat are anticipated from construction of this project.

Lesser Long-Nosed Bat

The project study area occurs near the approximate geographic center of the post-maternity dispersal region for the lesser long-nosed bat in Arizona, and evidence of nectar-feeding bats—both the lesser long-nosed bat and the Mexican long-tongued bat—has recently been recorded at abandoned mine features within the project study area (Westland Resources 2009a). A small number of lesser long-nosed bats were observed roosting at one of these mines on the CNF just northeast of the Rosemont holdings, approximately 1 mile from the nearest portion of the mine footprint. An additional four mine sites showed recent evidence (guano) of use by nectar-feeding bats (Westland Resources 2009a). One roost used by the bats is located about 0.6 mile west of Link 190 about a mile south of Weigles Butte (Westland Resources 2009a). Other potential roosts may exist in the project study area in abandoned mines west of the area covered by the Westland Resources study. Acoustic sampling for the lesser long-nosed bat in the Rosemont holdings vicinity documented widely scattered foraging activity by the bats (Westland Resources 2009a). The entire project study area is within a Pima County MSCP Level 2 Priority Conservation Area (PCA) for the lesser long-nosed bat (Pima County 2004).

Lesser long-nosed bats are known to be capable of flying long distances in a single night, to forage from their roost (Horner et al. 1998; USFWS 1994), and they are thus capable of occurring anywhere within the project study area where their primary foraging resources (paniculate agaves or saguaros) are present. Saguaros are generally frost-limited to elevations

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below 4,000 feet, and occur only in the western portion of the project study area, where they are relatively uncommon. To facilitate efficiency of foraging, lesser long-nosed bats typically forage where blooming agaves or cacti occur in large numbers, and their use of saguaros in the project study area is likely to be low due to low density of the plants.

There are many mines in the project study area, not all of which have been surveyed for bats. Some of these mine sites could provide roosting habitat for lesser long-nosed bats. Roosts may be spanned and are unlikely to be affected by construction. Removal of some food plants (saguaros and agaves) will likely occur. Plants removed represent a very small number of those present in the project study area. No substantial impacts to the lesser long-nosed bat or its habitat are anticipated from construction of this project.

Cave Myotis

The cave myotis is documented within the project study area (Westland Resources 2009a) and may use several abandoned mines in the area as roosts. A maternity roost of the cave myotis is known in proximity to Link 140. Because of construction related safety issues, abandoned mines will be avoided during construction of the transmission line and project development impacts on bats using mines as roosts are not likely. Removal of vegetation may affect some insects that could be used as prey by the cave myotis, but the quantity of prey involved will be inconsequential for the species. No substantial impacts to the cave myotis or its habitat are anticipated from construction of this project.

Western Red Bat

Potential habitat for this species in the project study area is very limited and is likely confined to portions of Box Canyon supporting broad-leaf riparian trees. The eastern portion of the project study area, in the Santa Rita Mountains, is within a MSCP Level 2 PCA for the Western red bat (Pima County 2004). Potential for the species occurring within the project study area is very low. Removal of vegetation could impact insects that could be used by these bats, but the quantity involved is considered inconsequential. No substantial impacts to the Western red bat or its habitat are anticipated from construction of this project.

Spotted Bat

Potential for the spotted bat occurring within the project study area is low. There are few records of this species in Arizona, and most are from higher montane elevations. However, the species is recorded from desertscrub habitats, and there is some potential for occurrence in the area. Suitable habitat for the spotted bat may be present in the project area. However, roosts are typically situated in openings in cliffs and are unlikely to be affected by project development due to difficulty of construction in such terrain. Impacts to the spotted bat will be limited to removal of vegetation that might result in loss of insects that could be used as prey. Such impacts are considered inconsequential for the species. No substantial impacts to the spotted bat or its habitat are anticipated from construction of this project.

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Allen's Big-eared Bat

Allen's big-eared bat is uncommonly encountered and populations of the species in most areas may be small. There is likely suitable habitat for this species at higher project elevations where steep rocky terrain, cliffs, and abandoned mines may provide suitable roost sites. The potential for the species occurring in the project study area is moderate. Removal of vegetation could impact insects that could be used by these bats, but the quantity involved is considered inconsequential. No substantial impacts to the Allen's big-eared bat or its habitat are anticipated from construction of this project.

Pale Townsend's Big-eared Bat

The pale Townsend's big-eared bat was recently documented during bat surveys for the Rosemont mine operations project (Westland Resources 2009a). The bats are likely to occur in small numbers in the project study area where they find suitable roosts in mine tunnels, caves, or old buildings. A portion of a MSCP Level 2 PCA for the pale Townsend's big-eared bat occurs within the eastern portion of the project study area (Pima County 2004). Because of the potential for unstable substrates in the vicinity of abandoned mines, they are typically avoided during transmission pole siting. Because of this, bat roosts are unlikely to be impacted by transmission line development. Vegetation removal may affect small quantities of insect prey used by this species, but the quantity involved is anticipated to be inconsequential for the species. No substantial impacts to the pale Townsend's big-eared bat are anticipated from construction of this project.

Pocketed Free-tailed Bat

There is a moderate potential for the pocketed free-tailed bat to occur within the project study area. Roosts that might be used by this species would occur in steep rocky terrain with vertical cliffs, which would be unlikely to occur within the project ROW. Potential impacts to this species will be limited to loss of some insects that might be used by the bats as prey. The quantity of insects involved is considered inconsequential for the species. No substantial impacts to the pocketed free-tailed bat are anticipated from construction of this project.

Big Free-tailed Bat

The potential for the big free-tailed bat occurring within the project study area is low. Roosts that might be used by this species would occur in steep rocky terrain with vertical cliffs, which would be unlikely to occur within the project alignment. Potential impacts to the big free-tailed bat will be limited to loss of some insects that might be used by the bats as prey. The quantity of insects involved is considered inconsequential for the species. No substantial impacts to the big free-tailed bat are anticipated from construction of this project.

Western Bonneted Bat

The potential for the Western bonneted bat occurring within the project study area is very low. Habitats that might support roosts used by this species are not anticipated to be impacted by project development. Impacts will be limited to removal of vegetation that might result in loss of insects that could be used as prey. Such impacts are considered inconsequential for the species. No substantial impacts to the Western bonneted bat are anticipated from construction of this project.

Underwood's Bonneted Bat

Arizona records for Underwood's bonneted bat are limited to the south-central portion of Pima County, where the bats have been documented on the Tohono O'odham Reservation and the southern Altar Valley (Hoffmeister 1986). Based on existing records, the project study area is near but outside of the known range for this species. However, suitable habitat may be present.

Underwood's bonneted bat is apparently at the extreme northern limit of its range in southern Arizona (Hoffmeister 1986; Kiser 1995), and the potential for the species occurring within the project study area is very low. Habitats that might support roosts used by this species are not likely to be impacted by project development. Impacts will be limited to removal of vegetation that might result in loss of insects that could be used as prey. Such impacts are considered inconsequential for the species. No substantial impacts to Underwood's bonneted bats are anticipated from construction of this project.

Banner-Tailed Kangaroo Rat

Banner-tailed kangaroo rats are present in the project study area in Sonoran desertscrub and semi-desert grassland habitats west of the Santa Rita Mountains. Impacts to banner-tailed kangaroo rats may include loss of individual animals and their young from collapse of burrows during project ground-disturbing activities. Forage and cover may be removed during vegetation removal activities. Quantities of forage and cover lost are not considered significant for banner-tailed kangaroo rats occurring in the project study area. No substantial impacts to banner-tailed kangaroo rats are anticipated from construction of this project.

Plains Harvest Mouse

There is very limited potentially suitable grassland habitat in the project study area that might support the plains harvest mouse, and its potential for occurrence is low. Project ground-disturbing activities could impact habitat for the species and individual animals could be lost. No substantial impacts to the plains harvest mouse or its habitat are anticipated from construction of this project.

Fulvous Harvest Mouse

There is a moderate potential for the fulvous harvest mouse occurring in the project study area. Impacts to the species could include loss of habitat and individual animals during project ground-disturbing activities. No substantial impacts to the fulvous harvest mouse or its habitat are anticipated from construction of this project.

Merriam's Mouse

Merriam's mouse has suffered declines primarily due to habitat loss, with mesquite being cut for firewood and lowland areas being converted to agriculture (Hoffmeister 1986). Little suitable habitat remains for this species in southern Arizona, with the few recognized habitat remnants occurring along segments of the Santa Cruz River, Arivaca and Cienega creeks, and the Tanque Verde Wash (Pima County 2004). Recent genetic studies (SWCA 2006) suggest that this mouse is much more common than previously thought and is present in suitable habitat in numbers. During the SWCA studies (2006), the species was found on the SRER within the project study area. There could be impacts to Merriam's mouse or its habitat resulting from development of this project.

Individuals and their young could be lost during ground disturbance activities. Habitat could be impacted or lost if mesquite stands that support the species are impacted by project development. Selection of structure sites that avoid areas of dense vegetation, particularly mesquite and cacti, will help minimize potential impacts to Merriam's mouse. No substantial impacts to Merriam's mouse or its habitat are anticipated from construction of this project.

Northern Pygmy Mouse

Due to a general lack of suitable habitat for this species in the project study area the potential for its occurrence is low. Impacts to the Northern pygmy mouse could include loss of habitat and individual animals during project ground-disturbing activities. No substantial impacts to the northern pygmy mouse or its habitat are anticipated from construction of this project.

Yellow-nosed Cotton Rat

The yellow-nosed cotton rat normally inhabits xeric, rocky slopes of desert mountains, among scattered bunch grasses where agaves, beargrass, or yuccas predominate within piñon-juniper or oak woodlands, but is known to occur up to ponderosa pine and Douglas fir woodlands (Baker and Shump 1978; Hoffmeister 1986). The potential for the yellow-nosed cotton rat occurring within the project study area is high. Impacts to the species could include loss of individuals and habitat during the ground-clearing phase of construction. No substantial impacts to the yellow-nosed cotton rat or its habitat are anticipated from construction of this project.

White-nosed Coati

In southern Arizona the white-nosed coati is usually associated with riparian corridors and adjacent habitats. Suitable terrain and forage is available for the species in the project study area, but riparian habitat is somewhat limited, occurring primarily in Box Canyon and a few canyons on the east of the crest of the Santa Rita Mountains in the vicinity of the proposed mine site. The potential for occurrence is moderate. Project ground-disturbing activities may impact foraging resources for coatis, but such impacts would be inconsequential for the species. No substantial impacts to the white-nosed coati or its habitat are anticipated from construction of this project.

Hooded Skunk

Suitable habitat is present for the hooded skunk in many portions of the project study area, and potential for its occurrence is moderate. Impacts to the hooded skunk would result from project ground-disturbing activities that would remove cover and forage used by the animals. Due to the small acreage of disturbance that would occur in areas that may support these animals no substantial impacts to hooded skunk habitat are anticipated from construction of this project.

<u>Jaguar</u>

The potential for the jaguar occurring within the project study area is very low. However, suitable and mostly contiguous habitat for the species is present along a chain of sky island ranges from northern Mexico through the Patagonia Mountains, and includes the Santa Rita Mountains (McCain and Childs 2008). Development of the transmission line will not fragment habitat for the jaguar and will be unlikely to impact the potential for movement of jaguars in the region. No substantial impacts to the jaguar or its habitat are anticipated from construction of this project.

Ocelot

Like the jaguar, occurrences of ocelots in Arizona have historically been infrequent, and potential for ocelots occurring within the project study area is very low. There have been two recent confirmed sightings of ocelots in southern Arizona (2009 and 2011), both in Cochise County (AZGFD 2011). In spite of these records, the species is probably not a permanent resident in southern Arizona. Development of the transmission line will not fragment habitat for the animals and will be unlikely to impact the potential for movement of ocelots that may occur in the area. No substantial impacts to the ocelot or its habitat are anticipated from construction of this project.

Birds

Golden Eagle

There is a moderate potential for golden eagles to occur in the project study area. Cliffs in the Santa Rita Mountains within the project study area could support nesting golden eagles. Impacts

to the golden eagle could include disturbance of breeding or nesting birds. Small numbers of prey that could be used by golden eagles may be lost during project ground-disturbing activities. However, vegetation removal along access roads and the ROW may increase prey visibility, and placement of poles could provide perches that raptors could use for hunting. Elevated perches, including power line structures, are used by raptors as hunting perches (Glinski and Hall 1998; Wheeler 2003). Impacts to nesting birds would be mitigated by conducting a preconstruction avian clearance survey in accordance with the Migratory Bird Treaty Act for any activities performed during the avian nesting season. The small quantity of golden eagle prey that could be lost during project construction is unlikely to be significant for any birds using the area. No substantial impacts to the golden eagle or its habitat are anticipated from construction of this project.

Swainson's Hawk

The potential for Swainson's hawk occurring within the project study area is moderate. Much of the eastern portion of the project study area is within a MSCP Level 1 PCA for the Swainson's hawk (Pima County 2004). Impacts to the species will likely be limited to loss of some small animal prey during vegetation clearing. No substantial impacts to the Swainson's hawk or its habitat are anticipated from construction of this project.

American Peregrine Falcon

The potential for peregrine falcons occurring within the project study area is low. Peregrine falcons will occasionally be present within the project area during migration or may forage in the area when they are present in winter, but would not be common. Potential impacts to the peregrine falcon will be limited to loss of some potential prey. No substantial impacts to the American peregrine falcon or its habitat are anticipated from construction of this project.

Gould's Wild Turkey

Gould's wild turkeys have been reintroduced into the Santa Rita Mountains and suitable habitat is present in the project study area. However, middle to upper elevation habitat preferred by the species is limited and numbers of the birds are likely low in the northern portions of the Santa Rita Mountains. Potential for occurrence within the project area is considered low. Impacts to Gould's wild turkey would primarily be associated with project ground-disturbing activities, which could remove cover and foraging habitat for the species. Eggs or nestlings would be vulnerable to vegetation removal activities. No substantial impacts to the Gould's wild turkey or its habitat are anticipated from construction of this project.

Whiskered Screech Owl

There is a moderate potential for whiskered screech owls occurring in the project study area. The owls would be most likely to be present on the eastern flank of the Santa Rita Mountains in the vicinity of the proposed mine site. Impact to whiskered screech owls could include loss of

nesting trees and prey animals during project vegetation clearing. No substantial impacts to the whiskered screech owl or its habitat are anticipated from construction of this project.

Cactus Ferruginous Pygmy-owl

While there may not be any suitable nesting habitat for the cactus ferruginous pygmy-owl within the project study area, most of the valley west of the Santa Rita Mountains could serve as dispersal habitat for the species. There are no MSCP PCAs for the cactus ferruginous pygmy-owl within the project study area (Pima County 2004). There are very few pygmy-owls remaining in southern Arizona, and the potential for this species occurring within the project study area is very low. Potential impacts could include disturbance of birds nesting in saguaros or trees with suitable nest cavities and loss of some prey during project ground-disturbing activities. Due to the low number of the birds remaining in Arizona and a general lack of nesting habitat in the project area, it is unlikely owls would be impacted. Minimizing impacts to saguaros or potential nesting trees will lessen potential impacts to cactus ferruginous pygmy-owl habitat. No substantial impacts to the cactus ferruginous pygmy-owl or its habitat are anticipated from construction of this project.

Western Burrowing Owl

There is moderate potential for the Western burrowing owl occurring within the project study area. The greatest potential is in the western portion of the project study area where gradients are low and vegetation is sparse. There are no MSCP PCAs for the Western burrowing owl within the project study area (Pima County 2004). Potential impacts to the Western burrowing owl could include disturbance of nesting birds and/or loss of birds, their eggs, or young during project ground-disturbing activities that could collapse burrows. Vegetation removal could impact prey species that could be used by the owls, but due to the small acreages of habitat alteration within any segment of the project, loss of prey that might result from development will be inconsequential for owls in the area. No substantial impacts to the Western burrowing owl or its habitat are anticipated from construction of this project.

Buff-Collared Nightjar

Suitable habitat for the buff-collared nightjar is present in the project study area. The project is at the northern limits of the range for the species, and the potential for occurrence in the project study area is low. Impacts to this ground-nesting species could include loss of eggs or young during project vegetation removal activities. Invertebrate prey used by the birds could also be affected. The amount of project vegetation removal is unlikely to substantially affect birds present in the area. No substantial impacts to the buff-collared nightjar or its habitat are anticipated from construction of this project.

Violet-crowned Hummingbird

The violet-crowned hummingbird is a rare breeder in southeastern Arizona, and the project study area is at the northern limits of its range. Potential for occurrence in the project study area is very low. Clearing of vegetation could include loss of nesting habitat, nectar-producing flowers, and invertebrate prey that may be used by the species. Such losses are not anticipated to substantially affect any of the birds using the area. No substantial impacts to the violet-crowned hummingbird or its habitat are anticipated from construction of this project.

Broad-Billed Hummingbird

The broad-billed hummingbird occurs in southeastern Arizona as far north as the Galiuro Mountains. The species occurs primarily in riparian habitats in Arizona, and there is not much habitat in the project study area that would be attractive to this species. Potential for the broad-billed hummingbird occurring in the project study area is low. Clearing of vegetation could include loss of nesting habitat, nectar-producing flowers, and invertebrate prey that may be used by the species. Such losses are not anticipated to substantially affect any of the birds in the area. No substantial impacts to the broad-billed hummingbird or its habitat are anticipated from construction of this project.

Gilded Flicker

The gilded flicker is present in the project study area in Arizona Upland subdivision saguaro desert on the bajada of the west flank of the Santa Rita Mountains. Flickers commonly nest in saguaro cacti. Potential impacts to gilded flickers could include loss of nesting habitat where saguaros would be removed. Large saguaros cannot be successfully transplanted, but relocation of plants up to 15 feet in height will reduce potential nesting habitat impacts for the gilded flicker. Small quantities of invertebrate prey and plant forage materials would be lost during project ground-disturbing activities. The small quantities of foods that would be impacted would not be significant for gilded flickers living in the project study area. No substantial impacts to the gilded flicker or its habitat are anticipated from construction of this project.

Northern Beardless-Tyrannulet

This species prefers riparian woodlands and adjacent habitats, but will also be present in mesquite scrublands. The potential for the Northern beardless-tyrannulet occurring in the project study area is moderate. Project vegetation-clearing activities may impact nesting habitat, forage, or invertebrates that may be used as food by the birds. No substantial impacts to the northern beardless-tyrannulet or its habitat are anticipated from construction of this project.

Northern Buff-Breasted Flycatcher

The potential for the Northern buff-breasted flycatcher occurring within the project study area is very low. The project alignment is unlikely to pass through habitat suitable for this species. No

substantial impacts to the northern buff-breasted flycatcher or its habitat are anticipated from construction of this project.

Black-Capped Gnatcatcher

The potential for the black-capped gnatcatcher occurring within the project study area is very low. Potential impacts to the species will likely be associated with vegetation removal and could include disturbance of nesting birds, loss of eggs or young, and invertebrates that could be used by the birds as food. The quantity of potential prey that might be lost will be inconsequential for birds using the area. No substantial impacts to the black-capped gnatcatcher or its habitat are anticipated from construction of this project.

Bell's Vireo

The potential for Bell's vireo occurring within the project study area is moderate. No MSCP PCAs for the Bell's vireo occur within the project study area (Pima County 2004). Potential impacts to the species would be associated with vegetation removal and could include disturbance of nesting birds, loss of eggs or young, and invertebrates that could be used by the birds as food. The quantity of potential prey that might be lost will be inconsequential for birds using the area. No substantial impacts to the Bell's vireo or its habitat are anticipated from construction of this project.

Desert Purple Martin

There is a low potential for desert purple martins to occur within the project study area in saguaro forest habitat west of the Santa Rita Mountains. Impacts to birds would primarily be associated with loss of saguaros that are used by these cavity nesting birds. Salvaging and transplanting of saguaros in the project area will minimize habitat impacts for the species. Some insect prey that could be used by desert purple martins would be lost during project ground-disturbing activities, but does not represent a measurable impact for any of the birds using the area. No substantial impacts to the desert purple martin or its habitat are anticipated from construction of this project.

Abert's Towhee

There is a moderate potential for Abert's towhee to occur within the project study area along moderately- or well-developed xeroriparian habitats. The species is unlikely to be present in the higher elevations of the Santa Rita Mountains in the eastern portion of the project study area. A Level 1 MSCP PCA for Abert's towhee occurs in the western portion of the project study area along the Santa Cruz River, but this area will not be affected by project development (Pima County 2004). Potential impacts to the species would likely be associated with vegetation removal and could include disturbance of nesting birds, loss of eggs or young, and loss of invertebrates and seeds that could be used by the birds as food. Since the project will avoid riparian habitats, no substantial impacts to habitat and forage for Abert's towhees are anticipated

from construction of this project. No substantial impacts to the Abert's towhee or its habitat are anticipated from construction of this project.

Rufous-winged Sparrow

Rufous-winged sparrows are present within the project study area. Much of the western half of the project study area occurs within a MSCP Level 1 PCA for the Rufous-winged sparrow (Pima County 2004). Potential impacts to the species would be associated with vegetation removal and could include disturbance of nesting birds, loss of eggs or young, and loss of invertebrates and seeds that could be used by the birds as food. The quantity of forage that might be lost will be inconsequential for birds using the area. No substantial impacts to the rufous-winged sparrow or its habitat are anticipated from construction of this project.

Baird's Sparrow

The potential for Baird's sparrow occurring within the project study area is very low. Potential impacts to the species would be associated with vegetation removal and could include loss of invertebrates and seeds that could be used by the birds as food. The quantity of forage that might be lost will be inconsequential for birds using the area. No substantial impacts to the Baird's sparrow or its habitat are anticipated from construction of this project.

Varied Bunting

There is a moderate potential for the varied bunting to occur in the project study area along brushy desert washes. Potential impacts to the species would be associated with vegetation removal and could include loss of invertebrates and seeds that could be used by the birds as food. The quantity of forage that might be lost will be inconsequential for birds using the area. No substantial impacts to the varied bunting or its habitat are anticipated from construction of this project.

Amphibians

Great Plains Narrow-mouthed Toad

The potential for the Great Plains narrow-mouthed toad occurring within the project study area is very low. Project construction will avoid any aquatic habitats that might support this species. No substantial impacts to the Great Plains narrow-mouthed toad or its habitat are anticipated from construction of this project.

Western Barking Frog

The portion of the Santa Rita Mountains north of Box Canyon is somewhat lower and drier than the central section of the range, and may be less likely to support this species. The potential for the Western barking frog occurring within the project study area is, therefore, thought to be very

low. Potential impacts to the species could include loss of individuals and habitat during project ground-disturbing activities. The project alignment is unlikely to pass through terrain that would support this species. No substantial impacts to the Western barking frog or its habitat are anticipated from construction of this project.

Chiricahua Leopard Frog

The Chiricahua leopard frog was recently documented within the project study area at four distinct locations, including Box Canyon and three earthen livestock tanks (Westland Resources 2008; 2009b), and may potentially occur at any livestock watering site, including some not covered by the Westland surveys. There is proposed critical habitat for the Chiricahua leopard frog within the project study area (Figure 1). Critical Habitat Unit 8 at Greaterville is within the project study area, but is in an upstream segment of the watershed to the south, and would be unaffected by project development. Unit 9, which includes the lower reach of Empire Gulch near Cienega Creek, is not within the project study area, but the project is within the upper portion of the watershed, approximately six miles to the west (USFWS 2011). MSCP PCAs for the Chiricahua leopard frog occur within the project study area. Most of the eastern portion of the project study area is within a Level 2 PCA, and a Level 1 PCA is present from the vicinity of Box Canyon and to the south (Pima County 2004). Habitat avoidance is the primary mitigation for this species. Structures would not be placed in proximity to livestock tanks and the line would span Box Canyon. Erosion potential is high in the portion of Link 150 north of Box Canyon and access road development could be problematic. Helicopter construction of some of transmission structures in this area may be appropriate. Project erosion protection and spill prevention BMPs will help mitigate for the potential effects of ground-disturbing erosion and construction related spills that could affect water quality and Chiricahua leopard frog habitat. No substantial impacts to the Chiricahua leopard frog or its habitat are anticipated from construction of this project.

Lowland Leopard Frog

The lowland leopard frog was recently documented in the upper reach of Davidson Canyon (Westland Resources 2009b). This location is just outside of the project study area. No lowland leopard frogs were documented by Westland Resources in any of the earthen livestock tanks that were surveyed in 2008 and 2009 for the Rosemont mine operations project (Westland Resources 2008; 2009b). Potential for the lowland leopard frog occurring within the project study area is low. There are no MSCP PCAs for the lowland leopard frog within the project study area. A portion of the Santa Cruz River within the project study area is considered a Special Species Management Area for the lowland leopard frog (Pima County 2004). This area will not be affected by project development. Project development will avoid aquatic habitats at livestock ponds. Mitigation such as best management practices for erosion and spill prevention will minimize potential impacts to aquatic habitats. No substantial impacts to the lowland leopard frog or its habitat are anticipated from construction of this project.

Reptiles

Desert Box Turtle

The potential for the desert box turtle occurring within the project study area is moderate. A portion of the Santa Cruz River within the project study area is considered a Special Species Management Area for the desert box turtle (Pima County 2004). This area will not be affected by project development. Impacts to desert box turtles could include loss of individuals or eggs during ground-disturbing construction activity and potential for loss of individuals on project access roads. Ground disturbance could also adversely affect habitat and food sources for the species. No substantial impacts to the desert box turtle or its habitat are anticipated from construction of this project.

Sonora Mud Turtle

The potential for the Sonora mud turtle occurring within the project study area is moderate. Because the project will avoid aquatic habitats and will include mitigation such as best management practices for erosion and spill prevention, no substantial impacts to the Sonora mud turtle or its habitat are anticipated from construction of this project.

Sonoran Desert Tortoise

The potential for the Sonoran Desert tortoise occurring within the project study area is high. There is abundant suitable habitat for the species in the low foothills of the Santa Rita Mountains within the project study area. Desert tortoises are unlikely to occur on the lower portions of the bajada on the west flank of the Santa Rita Mountains. Potential impacts to desert tortoises include mortality of individual tortoises on project access roads or during construction related ground-disturbing activities. Individuals and/or their eggs could be lost due to construction equipment or vehicles, either on the surface or by collapse of burrows containing the animals. Removal of vegetation could impact forage potentially used by the species, and associated ground disturbance could provide opportunity for colonization by non-native invasive plant species. Invasive plants can compete with native vegetation that may be important to tortoises and can alter the local fire regime, which can adversely affect the native plant community. Changes in native plant composition within tortoise habitat can have substantial negative impacts on tortoises. Placement of transmission line support structures increases potential roosting and nesting sites for common ravens (*Corvus corax*), known predators on juvenile tortoises. Because of the small acreage of project disturbance, no substantial impacts to the Sonoran Desert tortoise or its habitat are anticipated from construction of this project.

Giant Spotted Whiptail

There is modeled potential habitat for the giant spotted whiptail in the core of the northern portion of the Santa Rita Mountains within the project study area as far south as Box Canyon and this area is within a Level 2 PCA. A portion of the Santa Cruz River within the project study area is considered a Special Species Management Area for the giant spotted whiptail (Pima County

2004). This area will not be affected by project development. The potential for the giant spotted whiptail occurring within the project study area is high. Potential impacts to the giant spotted whiptail could include loss of individuals or their eggs during ground-disturbing activities or travel on project access roads. Vegetation removal could impact some invertebrates that could be used as prey by the species. Because of the small acreage of ground disturbance associated with the project, quantities of prey involved will be inconsequential for any of the lizards present in the area. No substantial impacts to the giant spotted whiptail or its habitat are anticipated from construction of this project.

Reticulate Gila Monster

There is a moderate potential for the Gila monster occurring in the project study area in most habitats above the low valley floor west of the Santa Rita Mountains. Impacts to the Gila monsters resulting from ground-disturbing project activities could include loss of animals, their eggs or young and potential prey during these activities. Construction traffic could kill animals on roadways. No substantial impacts to the Gila monster or its habitat are anticipated from construction of this project.

Ground Snake

The potential for the ground snake occurring within the project study area is low. There are no MSCP PCAs for the ground snake within the project study area (Pima County 2004). Potential impacts to the ground snake could include loss of individuals or their eggs or young during ground-disturbing activities or travel on project access roads. Vegetation removal could impact some invertebrates that could be used as prey by the species. Quantities of prey involved will be inconsequential for any of the lizards present in the project area. No substantial impacts to the ground snake or its habitat are anticipated from construction of this project.

Green Rat Snake

There is a moderate potential for the green rat snake occurring in the project study area. Impacts to the species could include loss of animals, habitat, and potential prey animals resulting from project ground-disturbing activities. Construction traffic could kill animals on roadways. No substantial impacts to the green rat snake or its habitat are anticipated from construction of this project.

Arizona Ridge-nosed Rattlesnake

Some suitable habitat for this species is present at higher elevations in the project study area, but potential for occurrence is low. Impacts to the Arizona ridge-nosed rattlesnake could include loss of animals, habitat, and potential prey during ground-disturbing project activities. Construction traffic could kill animals on roadways. No substantial impacts to the Arizona ridge-nosed rattlesnake or its habitat are anticipated from construction of this project.

Mollusks

Talussnails

The Santa Rita Mountains (and extending to the northern portion of the Patagonia Mountains outside of the regional study area) contain at least seven species of Sonorella talussnails, three of which are widely distributed within this area (Bequaert and Miller 1973). Sonorella snails are known to occur within the project study area, and a recently published report conducted for the Rosemont project lists three species occurring within the limits of the Rosemont operations area; the Sonoran talussnail (S. magdalenensis), Rosemont talussnail (S. rosemontensis [a federal candidate species]), and S. walkeri (Westland Resources 2010a). The summary discussion in the Westland Resources study addresses the current uncertainty in the taxonomy of *S. rosemontensis*, and states that additional studies are needed to solidify the taxonomy of the species and its range. The transmission line project alignment just skirts the very northern edge of an area identified in the 2010 WestLand Resources talus snails report as the North Ridge Sonorella habitat area. The Westland Resources study looked at talus habitat only in Bolsa Quartzite. Species of Sonorella also occupy non-talus habitat, commonly on limestone substrates that are fractured and may provide abundant habitat for the snails. There are also species of Sonorella that are endemic to limestone substrates and would be unlikely to occur at the quartzite sites. Pima County recognizes all Sonorella species as priority vulnerable species (Pima County 2004). The MSCP does not designate any PCAs for species of Sonorella (Pima County 2004).

The Center for Biological Diversity petitioned the USFWS in 2010 to review two *Sonorella* species, the Rosemont and Sonoran talussnails, for potential listing as threatened or endangered species under the Endangered Species Act (Center for Biological Diversity 2010). The recent USFWS candidate review gave the listing priority for the Rosemont talussnail as low (USFWS 2010). The status of the Sonoran talussnail is still pending USFWS review. Impacts to talussnails could include loss of individuals and habitat associated with project ground-disturbing development activities. However, due to the unstable nature of typical talus snail habitat, placement of structures, and the development of access, may possibly avoid these areas. No substantial impacts to the talussnails or their habitat are anticipated from construction of this project.

Insects

Sabino Canyon Damselfly

Due to a general lack of suitable habitat for the species, potential for the Sabino Canyon damselfly occurring within the project study area is considered very low. The only habitat in the project study area that could potentially support this species would be in Box Canyon. Potential impacts to the Sabino Canyon damselfly could include impacts to aquatic habitat from erosion-caused sedimentation of waters, pollution of waters from spills, and impacts to potential invertebrate prey species associated with vegetation removal. Best management practices for erosion and pollution prevention will be implemented; therefore, no substantial impacts to the Sabino Canyon damselfly or its habitat are anticipated from construction of this project.

Santa Rita Mountains Chlorochroan Bug

The potential for the Santa Rita Mountains chlorochroan bug occurring within the project study area is very low. This estimation is based on the paucity of records of the species, likely representing a limited or disjunct range, and the surmised association of the species with aquatic habitats, which are very limited in the project study area. The literature also suggests a possible association of the species with cacti instead of aquatic habitat vegetation (Thomas 1983). Potential impacts to the species could include loss of individuals and eggs during vegetation removal or impacts to aquatic habitats from erosion or spill induced impacts to water quality that may affect aquatic plants on which the species may depend. Best management practices for erosion and pollution prevention control will be implemented to mitigate against such occurrence. Since project development will avoid aquatic resources, no substantial impacts to the Santa Rita Mountains chlorochroan bug or its habitat are anticipated from construction of this project.

Cestus Skipper

The project study area is within the known range of the cestus skipper, but because this species is apparently rare in southern Arizona, the potential for occurrence is considered very low. Suitable habitat for the species is likely present in the project study area. This skipper is believed to feed on grasses. Impacts to the species could include loss of eggs, larvae, and pupae and host plants the species requires. No substantial impacts to the cestus skipper or its habitat are anticipated from construction of this project.

Plants

Pima Indian Mallow

The Pima Indian mallow is recorded from the Santa Rita Mountains and the potential for the species occurring within the project study area is moderate. Impacts to the Pima Indian mallow could include loss of individual plants and habitat disturbance. Ground-disturbing activities, particularly vegetation removal, could provide suitable habitat for colonization by non-native invasive plant species that could compete with the Pima Indian mallow for resources. Invasive plant species can alter the fire regime and adversely affect the native plant community. Because of the small acreage of disturbance associated with this project, No substantial impacts to the Pima Indian mallow or its habitat are anticipated from construction of this project.

Santa Rita Yellowshow

The potential for this species occurring within the project study area is moderate. Potential impacts to the Santa Rita yellowshow could include loss of individual plants and habitat disturbance. Ground-disturbing activities, particularly vegetation removal, could provide suitable habitat for colonization by non-native invasive plant species that could compete with Santa Rita yellowshow for resources. Invasive plant species can alter the fire regime and adversely affect the native plant community. Because of the small acreage of disturbance associated with this

project, no substantial impacts to the Santa Rita yellowshow or its habitat are anticipated from construction of this project.

Lemmon Milkweed

The potential for the Lemmon milkweed occurring within the project study area is moderate. Potential impacts to the Lemmon milkweed could include loss of individual plants and habitat disturbance. Ground-disturbing activities, particularly vegetation removal, could provide suitable habitat for colonization by non-native invasive plant species that could compete with the Lemmon milkweed for resources. Invasive plant species can alter the fire regime and adversely affect the native plant community. Because of the small acreage of disturbance associated with this project, no substantial impacts to the Lemmon milkweed or its habitat are anticipated from construction of this project.

Dalhouse Spleenwort

The project study area occurs between the two mountain ranges that contain the known populations of the Dalhouse spleenwort in Arizona. Suitable habitat for the species is likely present within the project study area. The potential for the species occurring within the project study area is low. Potential impacts to the Dalhouse spleenwort could include loss of individual plants and habitat disturbance. Ground-disturbing activities, particularly vegetation removal, could provide suitable habitat for colonization by non-native invasive plant species that could compete with the Dalhouse spleenwort for resources. Invasive plant species can alter the makeup of native plant communities and may alter the local fire regime by providing an increased fuel load, potentially resulting in permanent alteration of the plant community from fire. Because of the small acreage of disturbance associated with this project, no substantial impacts to the Dalhouse spleenwort or its habitat are anticipated from construction of this project.

Chihuahuan Sedge

Chihuahuan sedge is recorded from the Santa Rita Mountains (AZGFD 2004). Due to a general lack of suitable habitat within the project study area, the potential for the Chihuahuan sedge is very low. Because the project will avoid aquatic habitats and include mitigation such as best management practices for erosion and spill prevention, no substantial impacts to the Chihuahuan sedge or its habitat are anticipated from construction of this project.

Arizona Giant Sedge

The Arizona giant sedge is recorded from the Santa Rita Mountains (AZGFD 2000). The species was recently documented from Scholefield Spring east of the project study area (Westland Resources 2010d). Due to a general lack of suitable habitat within the project study area, the potential for the Arizona giant sedge is low. Because the project will avoid aquatic habitats and include mitigation such as best management practices for erosion and spill prevention, no

substantial impacts to the Arizona giant sedge or its habitat are anticipated from construction of this project.

Pima Pineapple Cactus

Suitable habitat for this species likely occurs over a broad stretch of lands on the western bajada of the Santa Rita Mountains below the pediment level of the west flank of the range. Plants are apparently restricted to soils developed on Quaternary gravels (Qgth: red to brown soil or soil complex covering terrace-capping alluvium) in this area (Drewes 1971; Westland Resources 2010b). The plants have a clustered distribution and overall impacts to the species will vary by project alternative. There is a MSCP Level 1 PCA for the Pima pineapple cactus in the western portion of the project study area, mostly within the Santa Rita Experimental Range (Pima County 2004).

Surveys for the Pima pineapple cactus (*Coryphantha scheeri* var. *robustispina*) were conducted by Westland Resources along project alignments for both the Preferred Route (and Alternative Route 1) in 2009, and for the alternative 138kV transmission line routes (Alternative Routes 2, 3, and 4; in 2010). The 2010 surveys did not include the segment of the line west of the Toro Switchyard since this area was covered in the 2009 survey. Survey widths were 650 feet west of the Toro Switchyard and 500 feet for the remaining project alignments (Westland Resources 2009c, 2010b). Because these surveys were conducted before the current alternatives were finalized, see the impacts section of this document for clarification of the number of live PPC present along each alternative. Seven PPC located in the 2009 survey were on a segment along Country Club Road that is no longer part of this project. There are 36 live PPC present along the current Preferred Route and 37 along the Alternative 1 alignment.

Potential impacts to the Pima pineapple cactus could include loss of individual plants and habitat disturbance. Ground-disturbing activities, particularly vegetation removal, could provide suitable habitat for colonization by non-native invasive plant species that could compete with the Pima pineapple cactus for resources. Invasive plant species can alter the fire regime and adversely affect the native plant community. Project development will occupy only a portion of the ROW surveyed for PPC, and only some of the plants will ultimately be affected. Preconstruction surveys for PPC conducted after detailed design and engineering parameters have been established will allow for some plants to be buffered and avoided during construction. Pole spacing may be modified slightly to avoid some of the existing plants. There is potential to impact individual Pima pineapple cacti, but TEP will pursue and incorporate all appropriate mitigations as directed by the USFWS. Impacts from development would potentially affect only those plants. No substantial impacts to the Pima pineapple cactus or its habitat are anticipated from construction of this project.

Metcalfe's Ticktrefoil

There are few records of this species, but it has a rather wide distribution. Suitable habitat for Metcalfe's ticktrefoil is likely present in the project study area, and potential for occurrence is moderate. Impacts to this species could include loss of plants, disturbance of the seed bank and effects resulting from colonization by invasive plant species resulting from project ground-

disturbing activities. No substantial impacts to the Metcalfe's ticktrefoil or its habitat are anticipated from construction of this project.

Needle-Spined Pineapple Cactus

The project study area is outside of the known range of this species. The closest records for the species are in the foothills at the northeast portion of the Santa Rita Mountains. However, there may be some suitable habitat for the species on the west flank of the Santa Rita Mountains on limestone-derived substrates that occur within the elevation limits for the species. The potential for the species occurring in the project study area is very low. No substantial impacts to the needle-spined pineapple cactus or its habitat are anticipated from construction of this project.

Arid Throne Fleabane

There are several records of this species just southeast of the project study area, and a single record along Box Canyon Road within the project study area. The project study area appears to be at the edge of a localized population of the species in grassland habitat that is mostly outside of the project study area. Potential impacts to the arid throne fleabane could include loss of individual plants and habitat disturbance. Ground-disturbing activities, particularly vegetation removal, could provide suitable habitat for colonization by non-native invasive plant species that could compete with this species for resources. No substantial impacts to the arid throne fleabane or its habitat are anticipated from construction of this project.

San Pedro River Wild Buckwheat

The combination of a limited number of occurrences of this species and a likely lack of suitable clayey soils suitable for the species make the potential for occurrence of the San Pedro River wild buckwheat within the project study area very low. Potential impacts to the San Pedro River wild buckwheat could include loss of individual plants and habitat disturbance. Ground-disturbing activities, particularly vegetation removal, could provide suitable habitat for colonization by non-native invasive plant species that could compete with the San Pedro River wild buckwheat for resources. Invasive plant species can alter the fire regime and adversely affect the native plant community. Because of the small acreage of disturbance associated with this project, no substantial impacts to the San Pedro River wild buckwheat or its habitat are anticipated from construction of this project.

Bartram Stonecrop

Bartram stonecrop is recorded from the Santa Rita Mountains, suitable habitat is likely to be present within the project study area, and the potential for occurrence is moderate. Potential impacts to the Bartram stonecrop could include loss of individual plants and habitat disturbance. Development of the transmission line will generally avoid the steep, rocky habitat that typically supports this species, where the plants are found hanging in crevices or pockets on rock walls of canyons and along steep-walled, rocky drainages. Such habitat in small canyons will typically be

spanned by the transmission line and this likely precludes any impacts to the Bartram stonecrop or its habitat. No substantial impacts to the Bartram stonecrop or its habitat are anticipated from construction of this project.

Chisos Coral-root

The Chisos coral-root is non-photosynthetic and obtains its nutrients from a soil mycorhizal fungal association. The only above-ground portion of these cryptic plants is the inflorescence, which may not appear every year (Poole et al. 2007). The species is known in Arizona from three mountain ranges in the southern part of the state; the Baboquivari, Dragoon, and the Santa Rita Mountains (Westland Resources 2010c). One of the historic Santa Rita Mountain populations occurs in the project study area within the Rosemont operations project limits (Westland Resources 2010c). The 2010 Westland Resources study located additional plants associated with this population. Populations of the species in the Santa Rita Mountains are concentrated in areas supporting closed or nearly closed canopies of Arizona white oak (Quercus arizonica) (Westland Resources 2010c). Suitable habitat for the species in the Rosemont area was completely surveyed by Westland Resources during their 2010 study, and their conclusion was that other populations of the species are unlikely to be present in the area (Westland Resources 2010c). Habitat that may support this species is very limited within the limits of Rosemont Transmission Line Project alternatives. Potential impacts to the Chisos coral-root could include loss of individual plants and habitat disturbance. Ground-disturbing activities, particularly vegetation removal, could provide suitable habitat for colonization by non-native invasive plant species that could alter the plant community, potentially affecting the plants. Invasive plant species can alter the local fire regime and adversely affect the native plant community. The coralloid rhizomes of the plants could be lost if topsoil is not retained and replaced. However, because of the small acreage of disturbance associated with this project, no substantial impacts to the Chisos coral-root or its habitat are anticipated from construction of this project.

Arizona Manihot

There is a low potential for Arizona manihot occurring within the project study area. Potential impacts to the Arizona manihot could include loss of individual plants and habitat disturbance. Ground-disturbing activities, particularly vegetation removal, could provide suitable habitat for colonization by non-native invasive plant species that could compete with the Arizona manihot for resources. Invasive plant species can alter the fire regime and adversely affect the native plant community. Because of the small acreage of disturbance associated with this project, no substantial impacts to the Arizona manihot or its habitat are anticipated from construction of this project.

Box Canyon Muhly

Box Canyon in the Santa Rita Mountains is the type locality for this species, and there is a record of the species along the Greaterville Road from 2005 (Jenkins 2010), which is within the project study area. Potential impacts to the Box Canyon multiple could include loss of individual plants and habitat disturbance. Ground-disturbing activities, particularly vegetation removal, could

provide suitable habitat for colonization by non-native invasive plant species that could compete with the Box Canyon muhly for resources. Because of the small acreage of disturbance associated with this project, no substantial impacts to the Box Canyon muhly or its habitat are anticipated from construction of this project.

Weeping Muhly

Potential for the weeping muhly to occur within the project study area is moderate. Potential impacts to the weeping muhly could include loss of individual plants and habitat disturbance. Ground-disturbing activities, particularly vegetation removal, could provide suitable habitat for colonization by non-native invasive plant species that could compete with the weeping muhly for resources. Invasive plant species can alter the fire regime and adversely affect the native plant community. Because of the small acreage of disturbance associated with this project, no substantial impacts to the weeping muhly or its habitat are anticipated from construction of this project.

Lemmon Cloak Fern

Suitable habitat for the Lemmon cloak fern is likely present, and the potential for the species occurring within the project study area is moderate. Potential impacts to the Lemmon cloak fern could include loss of individual plants and habitat disturbance. Ground-disturbing activities, particularly vegetation removal, could provide suitable habitat for colonization by non-native invasive plant species that could compete with the Lemmon cloak fern for resources. Invasive plant species can alter the fire regime and adversely affect the native plant community. Spores of the species present in the soil could be lost if topsoil is not retained and replaced. Because of the small acreage of disturbance associated with this project, no substantial impacts to the Lemmon cloak fern or its habitat are anticipated from construction of this project.

Toumey Groundsel

Because of the very limited number of records of the species in the state and considering the widely disjunct nature of these records, the potential for the Toumey groundsel occurring within the project study area is very low. Potential impacts to the Toumey groundsel could include loss of individual plants and habitat disturbance. Ground-disturbing activities, particularly vegetation removal, could provide suitable habitat for colonization by non-native invasive plant species that could compete with the Toumey groundsel for resources. Invasive plant species can alter the fire regime and adversely affect the native plant community. Because of the small acreage of disturbance associated with this project, no substantial impacts to the Toumey groundsel or its habitat are anticipated from construction of this project.

Beardless Chinch Weed

The beardless chinch weed occurs on the east side of the Santa Rita Mountains, but the potential for the species occurring within the project study area is low. Potential impacts to the beardless

chinch weed could include loss of individual plants and habitat disturbance. Ground-disturbing activities, particularly vegetation removal, could provide suitable habitat for colonization by non-native invasive plant species that could compete with the beardless chinch weed for resources. Invasive plant species can alter the fire regime and adversely affect the native plant community. Because of the small acreage of disturbance associated with this project, no substantial impacts to the beardless chinch weed or its habitat are anticipated from construction of this project.

Catalina Beardtongue

Most known populations of the Catalina beardtongue are north and east of the project study area, and the potential for occurrence within the project study area is low. Potential impacts to the Catalina beardtongue could include loss of individual plants and habitat disturbance. Ground-disturbing activities, particularly vegetation removal, could provide suitable habitat for colonization by non-native invasive plant species that could compete with the Catalina beardtongue for resources. Invasive plant species can alter the fire regime and adversely affect the native plant community. Because of the small acreage of disturbance associated with this project, no substantial impacts to the Catalina beardtongue or its habitat are anticipated from construction of this project.

Broadleaf Ground-cherry

The broadleaf ground-cherry is recorded from the Madera Canyon area, but has not been recorded within the project study area, and potential for it occurring there is considered very low. Potential impacts to the broadleaf ground-cherry could include loss of individual plants and habitat disturbance. Ground-disturbing activities, particularly vegetation removal, could provide suitable habitat for colonization by non-native invasive plant species that could compete with the broadleaf ground-cherry for resources. Invasive plant species can alter the fire regime and adversely affect the native plant community. Because of the small acreage of disturbance associated with this project, no substantial impacts to the broadleaf-ground-cherry or its habitat are anticipated from construction of this project.

Whisk Fern

Due to a probable lack of suitable habitat for the whisk fern within the project study area and the few widely separated records of the species in Arizona, the potential for this species occurring within the project study area is very low. Potential impacts to the whisk fern could include loss of individual plants and habitat disturbance. Ground-disturbing activities, particularly vegetation removal, could provide suitable habitat for colonization by non-native invasive plant species that could compete with the whisk fern for resources. Invasive plant species can alter the fire regime and adversely affect the native plant community. Because of the small acreage of disturbance associated with this project, no substantial impacts to the whisk fern or its habitat are anticipated from construction of this project.

Chiricahua Mountain Brookweed

There are at least two records of the species from the Santa Rita Mountains, one from Florida Canyon more than a mile south of the project study area, and one of uncertain origin (SEINet 2010). Due to a general lack of suitable habitat for aquatic species, the potential for the Chiricahua Mountain brookweed occurring within the project study area is very low. Because the project will avoid aquatic habitats and include mitigation such as best management practices for erosion and spill prevention, no substantial impacts to the Chiricahua Mountain brookweed or its habitat are anticipated from construction of this project.

Nodding Blue-eyed Grass

There is only a single record of this species from the Santa Rita Mountains, and the potential for Nodding blue-eyed grass occurring within the project study area is low. Potential impacts to the Nodding blue-eyed grass could include loss of individual plants and habitat disturbance. Ground-disturbing activities, particularly vegetation removal, could provide suitable habitat for colonization by non-native invasive plant species that could compete with the Nodding blue-eyed grass for resources. Invasive plant species can alter the fire regime and adversely affect the native plant community. Because of the small acreage of disturbance associated with this project, no substantial impacts to the nodding blue-eyed grass or its habitat are anticipated from construction of this project.

Lemmon's Stevia

Lemmon's stevia is recorded from within the project study area at Box Canyon (SEINet 2010). Potential impacts to Lemmon's stevia could include loss of individual plants and habitat disturbance. Ground-disturbing activities, particularly vegetation removal, could provide suitable habitat for colonization by non-native invasive plant species that could compete with the Lemmon's stevia for resources. Invasive plant species can alter the fire regime and adversely affect the native plant community. Because of the small acreage of disturbance associated with this project, no substantial impacts to the Lemmon stevia or its habitat are anticipated from construction of this project.

Sonoran Noseburn

Sonoran noseburn is recorded from the Santa Rita Mountains, with a single record occurring within the project study area near Link 140 (SEINet 2010). Potential impacts to the Sonoran noseburn could include loss of individual plants and habitat disturbance. Ground-disturbing activities, particularly vegetation removal, could provide suitable habitat for colonization by nonnative invasive plant species that could compete with the Sonoran noseburn for resources. Invasive plant species can alter the fire regime and adversely affect the native plant community. Because of the small acreage of disturbance associated with this project, no substantial impacts to the Sonoran noseburn or its habitat are anticipated from construction of this project.

Tumamoc Globeberry

Tumamoc globeberry is known from the Santa Rita Mountains and Santa Cruz Valley area (Arizona Rare Plant Committee, no date). Potential for this species occurring in the project study area is moderate. The MSCP does not identify any PCAs for the Tumamoc globeberry (Pima County 2004). Potential impacts to the Tumamoc globeberry could include loss of individual plants and habitat disturbance. Ground-disturbing activities, particularly vegetation removal, could provide suitable habitat for colonization by non-native invasive plant species that could compete with the Tumamoc globeberry for resources. Invasive plant species can alter the fire regime and adversely affect the native plant community. Because of the small acreage of disturbance associated with this project, no substantial impacts to the Tumamoc globeberry or its habitat are anticipated from construction of this project.

POTENTIAL IMPACTS ASSOCIATED WITH ALTERNATIVES

Preferred Route and Alternative Route 1

The Preferred Route and Alternative Route 1 are illustrated on Figure 1 (see Introduction).

Wildlife

Removal of vegetation associated with project pole placement, development of new access roads, and substation structures may impact individual animals, and will likely result in loss of vegetation that could provide nesting sites, cover, and forage for wildlife. Less mobile animals or animals inhabiting burrows in areas to be cleared of vegetation could be killed or injured by construction equipment or associated vehicular traffic. Due to the relatively small acreage involved, loss of wildlife is not anticipated to substantially affect local populations of species impacted. Transmission line support structures typically have small foundations, which cumulatively do not account for substantial impacts to vegetation or wildlife habitat. Transmission lines are porous to most wildlife movements, but there could be some minor habitat fragmentation effects associated with vegetation removal for new road construction. No substantial long-term adverse impacts to any special status wildlife species will likely result from construction and operation of the Preferred Route or Alternative Route 1.

Vegetation

Pima pineapple cacti are known to be present along the Preferred Route. Thirty-six PPC were documented within the surveyed corridor (500-650 feet wide) along the current Preferred Route and 37 within the surveyed corridor along Alternative Route 1 during the survey conducted in 2009 (Westland Resources 2009c). Mitigation will have to be provided for these plants if they cannot be avoided. Mitigation for this species often consists of either avoidance or, if they cannot be avoided, a contribution to the mitigation bank for the species that has been established by the USFWS. The USFWSwill make a determination on appropriate mitigation for these plants through the Section 7 consultation process for the Rosemont Copper Project – operations project. Some agave (*Agave* spp.) plants and saguaro cacti, which are a food sources for nectar-feeding bats including the federally listed endangered lesser long-nosed bat, will likely need to be

removed during vegetation clearing. To minimize impacts to these plants TEP will incorporate mitigations as directed by the USFWS. The level of access along the Preferred Route will reduce the need for disturbance to native vegetation. No other impacts to special status plant species or unique habitats are anticipated to result from construction, operation, and maintenance of the Preferred Route. Similar to that for wildlife, impacts to vegetation will occur during clearing of pole sites, newly constructed access roads, and switchyard/substation sites in relatively undisturbed habitats. The Preferred Route will cross the lower portions of the bajada in the Santa Cruz Valley and will also pass through higher elevation habitats prior to reaching the transmission line terminus.

Potential impacts associated with Alternative Route 1 are similar to the Preferred Route. Alternative Route 1 links 130, 135, and 95 would require development of a new access road and would likely have a higher level of impact than the Preferred Route. In addition to the Pima pineapple cacti recorded along Santa Rita Road, a single Pima pineapple cactus was recorded on Link 130 (Westland Resources 2010a). This plant and any other Pima pineapple cacti located within the project ROW will need to be avoided or mitigated, as discussed above. No other sensitive species or unique habitats are known to be present along links 130,135, or 95, and are unlikely to be substantially impacted by development of Alternative Route 1.

As for all alternatives, the proposed Toro Switchyard would disturb approximately 3 acres of land. This proposed Toro Switchyard site is in Arizona Upland Sonoran Desertscrub, and no unique habitats are present. There is some potential for the Pima pineapple cactus to occur on this site. No other sensitive species are considered likely to be present on the site, and development of this switchyard is unlikely to substantially impact any sensitive species. The Rosemont Substation would disturb approximately 1 acre of land; however, no sensitive species or unique habitats are known to be present at the Rosemont Substation site.

Alternative Route 2 and Alternative Route 3

Alternative Route 2 and 3 are illustrated on Figure 1 (see Introduction). Potential impacts associated with Alternative Route 2 are similar to those anticipated for the Preferred Route and Alternative Route 1 with the following exceptions: links 120, 130, 135, and 95 would require upgrading to provide access for construction. Creation of new access through relatively undisturbed native habitats would have a higher level of impact to vegetation and wildlife using this area. Alternative Route 2 has 55 Pima pineapple cacti within the surveyed corridor, and one additional plant is present on Alternative 3 (total of 56) (Westland Resources 2010a). Mitigation for these plants will require avoidance or other mitigation to be determined by the USFWS (likely either relocation on site or possibly a contribution to the species mitigation bank for this species). No other sensitive species or unique habitats are known to be present along Alternative Routes 2 or 3.

Potential impacts associated with Alternative Route 3 are similar to those anticipated for Alternative Route 2. In addition to new access roads required for Link 120, alternative links 130, 135, and 95 would also require development of new access roads. In that sense Alternative Route 3 would have a higher level of impact to wildlife and vegetation than Alternative Route 2. Pima pineapple cacti are known to be present on each of these alternative routes, and avoidance, relocation on site, or compensatory mitigation, as determined by the USFWS, will need to be

provided for these plants. No other sensitive species or unique habitats are known to be present along links 120, 130, 135, or 95.

Alternative Route 4

Alternative Route 4 is illustrated on Figure 1 (see Introduction). Alternative Route 4 differs from all other Project alternatives primarily in its crossing of Box Canyon (links 150 and 160). Three sensitive plant and wildlife species may be present or use the Box Canyon area, including Box Canyon muhly and Chiricahua leopard frog (both present), and the Western red bat (very low potential). Some potential for minor impacts to broadleaf riparian-inhabiting wildlife species or their habitat, which are not present on any other project alternatives, exists at the Link 150 crossing. However, since the line will span the drainage, no substantial impacts are anticipated for any sensitive species or the riparian habitat. Potential impacts would be associated primarily with trimming of broad-leaf riparian tree species to maintain conductor clearance. Link 150 would span Box Canyon at the upper limits of broad-leaf riparian habitat where impacts will be minimized. The Link 160 crossing is further upstream in a more xeric section of the drainage, where there is no broad-leaf riparian vegetation. Best management practices (as stated in the DEIS) will minimize the potential for impacts to riparian habitat and water quality. There are 54 Pima pineapple cacti within the Alternative Route 4 surveyed corridor (Westland Resources 2010a). This is similar to the numbers of these plants on alternative routes 2 and 3.

Table C-1. Federally Listed and Other Special Status Species that are Known or May Potentially Occur in the Project Study Area					
Common Name	Latin Name	Status	Habitat	Potential for Occurrence Within the Project Study Area	
Mammals					
Cockrum's desert shrew	Notiosorex cockrumi	FS	Rare semi-desert endemic of southeastern Arizona Madrean mountains; broadleaf riparian habitats among sacaton.	Moderate	
California leaf-nosed bat	Macrotus californicus	SC; BLMS; WSC; PVS	Sonoran desertscrub with caves or mines.	Low	
Mexican long-tongued bat	Choeronycteris mexicana	SC; FS; BLMS; WSC; PVS	Found in canyons of mixed oak-conifer forests or in semi-desert grassland habitats in mountain ranges surrounded by desert. Roost sites usually near water and riparian vegetation. Roosts in caves, mines, buildings, and wide rock crevices.	Present	
Lesser long-nosed bat	Leptonycteris yerbabuenae	LE; WSC; PVS	Desertscrub or grassland habitat to lower oak elevations, where agaves and/or saguaros present as food sources.	Present	
Cave myotis	Myotis velifer	SC; BLMS	Roosts in mines and caves at lower elevations within a couple miles of water.	Present	
Western red bat	Lasiurus blossevillii	SC; FS; WSC; PVS	1,900 to 7,200 feet elevation in broadleaf deciduous tree riparian forests and woodlands. Summer resident. Mostly solitary, roosting in dense foliage in trees and sometimes in leafy shrubs or herbs, from a few to 40 feet above ground.	Very Low	
Spotted bat	Euderma maculatum	SC; FS; BLMS	A variety of habitats from low desert up to pine elevations.	Low	
Allen's big-eared bat	Idionycteris phyllotis	SC; BLMS; FS; PVS	Mostly occurs in montane forested areas associated with cliffs, boulder piles, mines, or caves used as roosts.	Moderate	
Pale Townsend's big- eared bat	Corynorhinus townsendii pallescens	SC; FS; BLMS; PVS	Found in day caves or mine tunnels, rest in abandoned buildings at night, in desertscrub, in shelters in desert mountains, oak woodland, piñonjuniper, coniferous forests.	Present	
	1	+	U 1 /		

Pocketed free-tailed

bat

Nyctinomops

femorosaccus

areas.

Roosts in crevices in cliffs or in rocky

SC; FS

Moderate

Table C-1. Federally Listed and Other Special Status Species that are Known or May Potentially Occur in the Project Study Area

Common Name	Latin Name	Status	Habitat	Potential for Occurrence Within the Project Study Area
Big free-tailed bat	Nyctinomops macrotis	SC	Roosts in crevices or rock shelters, usually in high cliffs.	Low
Western bonneted bat	Eumops perotis californicus	SC; FS; BLMS	Roosts in crevices and shallow caves on the sides of cliffs and rock walls.	Very Low
Underwood's bonneted bat	Eumops underwoodii	SC	Washes and open water bodies associated with mesquites and desertscrub vegetation.	Very low
Banner-tailed kangaroo rat	Dipodomys spectabilis	BLMS	Grassy habitats with catclaw, mesquite and <i>Opuntia</i> .	Present
Plains harvest mouse	Reithrodontomys montanus	FS	Well-developed grasslands.	Low
Fulvous harvest mouse	Reithrodontomys fulvescens	FS	Primarily dense grassy habitats with mixed shrubs/brush.	Moderate
Merriam's mouse	Peromyscus merriami	FS; PVS	Dense vegetation of mesquite bosques, cacti, or grasses.	Present
Northern pygmy mouse	Baiomys taylori ater	FS	Grassland habitats; particularly along drainages.	Low
Yellow-nosed cotton rat	Sigmodon ochrognathus	SC; FS	Inhabits grassy, rocky slopes of the oak belt between 3,000 and 8,000 feet elevation. Grassy covering is usually sparse, but the presence of beargrass, agave, or yucca dispersed through the grass provides sufficient refuges and nest sites.	High
White-nosed coati	Nasua narica	FS	Canyon woodlands and foothills in rocky areas that provided den and shelter habitat.	Moderate
Hooded skunk	Mephitis macroura milleri	FS	Rocky slopes and arroyos near cliffs.	Moderate
Jaguar	Panthera onca	LE;WSC	Occurs through a wide range of habitats up to subalpine conifer forest.	Very Low
Ocelot	Leopardus (Felis) pardalis	LE, WSC	Partly cleared forests, second growth woodland, and abandoned cultivated areas reverted to brush	Very Low
Birds				
Golden eagle	Aquila chrysaetos	SC;BLMS; BGEPA	Areas with high cliffs for nesting associated with large areas of open country for foraging.	Moderate
Swainson's hawk	Buteo swainsoni	PVS	Open country at Semidesert Grassland or grassland elevations.	Moderate

Table C-1. Federally Listed and Other Special Status Species that are Known or May Potentially Occur in the Project Study Area

Common Name	Latin Name	Status	Habitat	Potential for Occurrence Within the Project Study Area
American peregrine falcon	Falco peregrinus anatum	BLMS; FS; WSC	Prefers open areas with good visibility, usually near water. Normally requires high cliffs for nesting. Uses buildings or bridges as perches for hunting.	Low
Gould's wild turkey	Meleagris gallopavo mexicana	FS	Open grassy savannah with a variety of oaks; chaparral; stunted piñon juniper woodland.	Low
Whiskered screech owl	Megascops trichopsis	FS	Madrean oak woodland habitats; foothills and canyons of lower elevations in the mountains.	Moderate
Cactus ferruginous pygmy-owl	Glaucidium brasilianum cactorum	SC; FS; BLMS; WSC; PVS	Sonoran Desertscrub and Semidesert Grassland; occasionally in riparian woodland or suburban developments retaining adequate habitat elements.	Very Low
Western burrowing owl	Athene cunicularia hypugaea	SC; BLMS; PVS	Open areas of low slope where low vegetation provides good visibility. Usually associated with colonial burrowing rodents.	Moderate
Buff-collared nightjar	Caprimulgus ridgwayi	FS	Dry, thickly vegetated canyons.	Low
Violet-crowned hummingbird	Amazilia violiceps	FS; WSC	Montane and riparian habitats.	Very Low
Broad-billed hummingbird	Cynanthus latirostris	FS	Desert canyons, foothills, and low elevation woodlands.	Low
Gilded flicker	Colaptes chrysoides	SC; BLMS	Saguaro deserts.	Present
Northern beardless- tyrannulet	Camptostoma imberbe	FS	Lowland riparian woodland and adjacent scrub.	Moderate
Northern buff-breasted flycatcher	Empidonax fulvifrons pygmaeus	FR;FS; WSC	Open pine or riparian habitats with sycamores.	Very Low
Black-capped gnatcatcher	Polioptila nigriceps	WSC	Brushy, riparian woodland.	Very Low
Bell's vireo	Vireo bellii	PVS	Low, dense shrubby vegetation along riparian habitats.	Moderate
Desert purple martin	Progne subis hesperia	SC; BLMS	Sonoran desertscrub in the presence of saguaros	Low
Abert's towhee	Pipilo aberti	FS; PVS	Sonoran riparian deciduous woodland and riparian scrublands; dense understory vegetation.	Moderate

Table C-1. Federally Listed and Other Special Status Species that are Known or May Potentially Occur in the Project Study Area

Common Name	Latin Name	Status	Habitat	Potential for Occurrence Within the Project Study Area
Rufous-winged sparrow	Aimophila carpalis	PVS	Valley desert grasslands among shrubs and cacti.	Present
Baird's sparrow	Ammodramus bairdii	FS;WSC	Grassland habitats above 4,000 feet.	Very Low
Varied bunting	Passerina versicolor	FS	Low elevation brushy canyons and desert washes.	Moderate
Amphibians				
Great Plains narrow- mouthed toad	Gastrophryne olivacea	FS; BLMS; WSC	Ponds, cattle tanks, and flooded habitats; from Lower Colorado River Desertscrub up to Madrean evergreen woodland.	Very Low
Western barking frog	Eleutherodactylus augusti cactorum	FS; WSC	Madrean evergreen woodland.	Very Low
Chiricahua leopard frog	Lithobates chiricahuensis	LT; WSC; PVS	Rocky streams with deep pools in oak and pine-oak woodlands and pine forests. Mountainous areas of southeast Arizona, southwest New Mexico, and Mexico.	Present
Lowland leopard frog	Lithobates yavapaiensis	SC; BLMS; FS; WSC; PVS	Usually near permanent water, from desert to oak-pine woodland elevations.	Low
Reptiles				
Desert box turtle	Terrapene ornata luteola	BLMS; PVS	Sandy soils of Semidesert Grasslands.	Moderate
Sonora mud turtle	Kinosternon sonoriense sonoriense	BLMS	Ponds and streams.	Moderate
Sonoran Desert tortoise	Gopherus agassizii	C; FS;WSC	Rocky habitats of low hills and bajadas with soils suitable to support burrows or natural cavities, such as bedrock solution holes, rock shelters, or caliche "caves."	High
Giant spotted whiptail	Aspidoscelis burti stictogrammus	FS; PVS	Semidesert Grassland and Madrean evergreen woodland; shrubby vegetation along washes, riparian corridors, and low valley bottoms.	High
Reticulate gila monster	Heloderma suspectum suspectum	FS	Steep rocky terrain; along washes; primarily in desertscrub, but also in other habitats into chaparral.	Moderate

Table C-1. Federally Listed and Other Special Status Species that are Known or May Potentially Occur in the Project Study Area

Common Name	Latin Name	Status	Habitat	Potential for Occurrence Within the Project Study Area
Groundsnake	Sonora semiannulata	SC; PVS	Lower Colorado River Desertscrub up to lower woodland elevations.	Low
Green rat snake	Senticolis triaspis intermedia	FS	Rocky slopes or associated with riparian habitats in Madrean evergreen woodland	Moderate
Arizona ridge-nosed rattlesnake	Crotalus willardi willardi	FS; WSC	Heavily wooded canyons in Madrean evergreen woodland or Petran Montane Conifer Forest; sometimes lower.	Low
Mollusks		1		l
Rosemont talussnail	Sonorella rosemontensis	C; PVS	Known from three talus slopes in the Santa Rita Mountains.	Present
Talus snails	Sonorella spp.	PVS	Talus or steep rocky habitat, usually shaded and on north or northeastern aspects.	Present
Insects				
Sabino Canyon damselfly	Argia sabino	SC; FS	Upper Sonoran riparian habitat with permanent water.	Very Low
Santa Rita Mountains chlorochroan bug	Chlorochroa rita	SC	Known only from three specimens in the Santa Rita and Huachuca mountains of southern Arizona. Suspected associations may be with grasses, sedges or rushes at aquatic sites, or with cacti.	Very Low
Cestus skipper	Atrytonopsis cestus	FS	Canyons in thornscrub grasslands. Very rare species with few locations; known from Baboquivari, Atascosa, Tumacacori, Santa Catalina, and Galiuro Mountains.	Very Low
Plants				
Pima Indian mallow	Abutilon parishii	SC; BLMS; FS	Occurs on rocky slopes and canyon bottoms in desertscrub, and up into Semidesert Grassland from 2,477 to 4,856 feet.	Moderate

Table C-1. Federally Listed and Other Special Status Species that are Known or May Potentially Occur in the Project Study Area

Common Name	Latin Name	Status	Habitat	Potential for Occurrence Within the Project Study Area
Santa Rita yellowshow	Amoreuxia gonzalezii	SC; FS; HS	Rocky limestone hillsides; 4,200 to 4,500 feet.	Moderate
Lemmon milkweed	Asclepias lemmonii	FS	Open woodlands and canyons; 5,050 to 7,200 feet elevation.	Moderate
Dalhouse spleenwort	Asplenium dalhousiae	BLMS	Moist soils of shady, rocky habitats in Madrean oak woodland.	Low
Chihuahuan sedge	Carex chihuahuensis	FS	Wet meadows and streambed soils; 3,600 to 7,200 feet elevation.	Very Low
Arizona giant sedge	Carex ultra	BLMS; FS	Saturated soils at springs, seeps, and streams between 2,500 and 6,000 feet elevation.	Low
Pima pineapple cactus	Coryphantha scheeri var. robustispina	LE; HS; PVS	Sonoran Desertscrub or Semidesert Grassland to 4,000 feet.	Present
Metcalfe's ticktrefoil	Desmodium metcalfei	FS	Occurs on rocky slopes or in canyons of oak or piñon-juniper habitats.	Moderate
Needle-spined Pineapple Cactus	Echinomastus erectocentrus var. erectocentrus	SC; PVS	Arizona Upland Sonoran Desertscrub or desert grasslands; usually associated with limestone substrates.	Very Low
Arid throne fleabane	Erigeron arisolius	FS	Occurs at oak elevations in grassy habitat; often in moist areas.	Present
San Pedro River wild buckwheat	Eriogonum terrenatum	BLMS	Gravelly soils of the Pantano Formation in creosote bush or whitethorn acacia habitat.	Very Low
Bartram stonecrop	Graptopetalum bartramii	SC; BLMS; FS	Rocky outcrops in canyons; 3,900 to 6,700 feet.	Moderate
Chisos coral-root	Hexalectris colemanii (revoluta)	SC; FS	Beneath trees or shrubs in canyon bottoms; occasionally among rocky outcrops or cliffs; 4,500 to 5,200 feet elevation.	Present
Arizona manihot	Manihot davisiae	FS	Limestone slopes; 3,500 to 4,000 feet elevation.	Low
Box Canyon muhly	Muhlenbergia dubioides	FS	Rocky slopes of canyons in grassland or oak woodland habitats; 2,800 to 6,000 feet elevation.	Present
Weeping muhly	Muhlenbergia xerophila	FS	On bedrock or rocky slopes at seeps in oak woodland habitat; 3,520 to 6,000 feet elevation.	Moderate
Lemmon cloak fern	Notholaena lemmonii	SC	Rocky slopes and cliffs, usually on granitic or volcanic substrates; 3,280 to 4,920 feet.	Moderate

Table C-1. Federally Listed and Other Special Status Species that are Known or May Potentially Occur in the Project Study Area

Common Name	Latin Name	Status	Habitat	Potential for Occurrence Within the Project Study Area
Toumey groundsel	Packera neomexicana var. toumeyi	FS	Oak chaparral up to lower pine forest elevations.	Very Low
Beardless chinch weed	Pectis imberbis	FR; FS	Grasslands and grass-oak savannah; 4,000 to 5,500 feet.	Low
Catalina beardtongue	Penstemon discolor	SC; FS;HS	Bedrock outcrops in chaparral or pine-oak woodland; 4,400 to 7,200 feet.	Low
Broadleaf ground- cherry	Physalis latiphysa	FS	Along washes in desertscrub or grassland habitats; 3,000 to 4,700 feet elevation.	Very Low
Whisk fern	Psilotum nudum	FS; HS	Rocky slopes of low to mesic woods; may be arboreal; to 4,000 feet.	Very Low
Chiricahua Mountain brookweed	Samolus vagans	FS	Occurs on wet sand along streams; 3,500 to 6,000 feet elevation.	Very Low
Nodding blue-eyed grass	Sisyrinchium cernuum	FS	Along riparian canyon streams; approximately 4,000 feet elevation.	Low
Lemmon's stevia	Stevia lemmonii	FS	Rocky canyons, slopes, and streambeds in oak or pine-oak woodlands; 3,000 to 4,580 feet elevation.	Present
Sonoran noseburn	Tragia laciniata	FS	Shaded hillsides and canyon bottoms in oak woodland; 3,500 to 5,680 feet elevation.	Present
Tumamoc globeberry	Tumamoca macdougalii	BLMS; FS; PVS	Undisturbed soils along washes below 3,000 feet.	Moderate

Status:

Federal

 $LE-Federally\ listed\ endangered\ (ESA)$

LT – Federally listed threatened (ESA)

C - Federal candidate species for listing as threatened or endangered (ESA)

SC – Federal species of concern

FR - Currently under review in the candidate or petition process

BGEPA - Bald and Golden Eagle Protection Act

Forest Service

 $FS-Forest\ sensitive\ species$

Bureau of Land Management

BLMS – BLM sensitive species

Arizona Game and Fish Department

WSC – Wildlife species of concern

Arizona Department of Agriculture

HS – Highly safeguarded species

Pima County

PVS – Pima County Sonoran Desert Conservation Plan – Priority Vulnerable Species

*The Cactus Ferruginous Pygmy-owl has been petitioned for relisting.

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EXHIBIT D BIOLOGICAL RESOURCES

As stated in Arizona Corporation Commission Rules of Practice and Procedure R14-3-219:

"List the fish, wildlife, plant life and associated forms of life in the vicinity of the proposed site or route and describe the effects, if any, the proposed facilities will have thereon."

Exhibit D includes a summary of biological resources, as well as the potential impacts the proposed and alternative routes and switchyard/substations may have on biological resources.

BIOLOGICAL RESOURCES

Introduction

This section provides a general description of the existing environment with respect to vegetation and wildlife, and the impacts the proposed project may potentially have on these resources in the project study area and in conjunction with the project alternatives. The initial review covered a regional study area (Exhibit B–2), which was subsequently refined and reduced to the two-mile project study area buffer around the project alternatives (project study area; Exhibit A-1). The information provided herein includes the results of a literature search, secondary data collection from the USFWS and AZGFD Internet website sources, and a review of the Priority Vulnerable Species contained in the Pima County Sonoran Desert Conservation Plan. Modeled habitat for these species, which is available from Pima County, was reviewed for this analysis.

The current USFWS list for Pima County, Arizona, includes 16 federally listed species that currently receive protection under the ESA and 7 species that are Candidate species for ESA listing as threatened or endangered; the USFWS list also includes 2 species that are conservation agreement species, and 2 formerly listed species (USFWS 2011). The USFWS list of current and formerly listed federal species for Pima County, Arizona, is located in tables D-1 through D-3. The AZGFD sensitive species list for Pima County was also reviewed for species that may potentially occur within the project study area.

Wildlife

Mammals

Mammals that potentially occur in the project study area include 78 species, and are identified in Table D-1. Twenty three of these species have some special status, 12 of which are bats (see Exhibit C – Areas of Biological Wealth). Three federally listed endangered species, the jaguar, ocelot, and the lesser long-nosed bat, are among these 23 special-status species.

The potential for jaguars or occlots occurring within the project study area is very low. However, suitable, mostly contiguous habitat for these species is present along a chain of sky island mountain ranges from northern Mexico through the Patagonia Mountains, and includes the Santa Rita Mountains (McCain and Childs 2008). Development of the proposed project will result in

only minor potential habitat fragmentation, and will be unlikely to impact the potential for movement of jaguars or ocelots in the region. Presence of the lesser long-nosed bat has recently been confirmed during a 2009 survey for the species conducted by Westland Resources for the Rosemont mine operations project (Westland Resources 2009a).

Clearing of vegetation for access roads and at pole sites may have minor impacts on bats. Impacts on insectivorous bats may include loss of small quantities of invertebrates that could be used as prey. There will be removal of some agaves (*Agave* spp.) that may be used as forage by nectar-feeding bats. Due to the small quantities of these resources that will be affected, minimal effects to bat species are anticipated. Bats occurring in the project study area primarily use abandoned mines, cliffs, caves, or talus for roosting sites. Due to safety and structural concerns, such areas are normally avoided during construction. No impacts to bat roosting habitat are anticipated from development of this project. Transmission line structures, conductors and static wires present a relatively small collision hazard for bats when compared with effects to birds. Most bat collisions with these structures appear to be associated with migrating animals, when they may not be using their echolocating capabilities.

Ground-disturbing activities, including clearing of vegetation for access roads and at pole sites, could impact burrowing mammals or their young. Individual animals and small quantities of suitable habitat may be lost. However, the small acreage of ground disturbance associated with the proposed project will likely not adversely affect mammal populations in the area, and the project is not likely to result in substantial habitat fragmentation for any mammalian species. Clearing of vegetation may impact small mammals by removing cover, making them more susceptible to predation, while poles may provide hunting perches for raptors that could have impacts on small mammals.

Birds

Birds that potentially occur in the project study area include 139 species (Table D-2); 20 of these species have some special status.

Ground disturbance and vegetation removal for access roads and at pole sites may potentially impact individual birds, their eggs, or young. These activities can also remove insect prey and seeds used by birds, may also remove nesting habitat on the ground or in vegetation, and reduce cover provided by vegetation. Preconstruction clearance for nesting birds will mitigate for potential loss of birds, their eggs, or young and because acreage of disturbance is relatively small, impacts are not considered substantial for any bird species occurring in the project study area.

There are no identified avian flyways that are known to occur within the project study area. Transmission lines and support structures are known to present collision and electrocution hazards for birds. In order to minimize potential impacts, project elements will incorporate current Avian Power Line Interaction Committee (2006) recommendations into project design.

Amphibians and Reptiles

Eleven species of amphibians and 51 species of reptiles potentially occur in the project study area (Table D-3). Among these, 4 amphibians and 8 reptile species have special status. The only federally listed species is the Chiricahua leopard frog, a federally listed threatened species. The Chiricahua leopard frog was recently confirmed as occurring within the project study area (Westland Resources 2008, 2009b). The Sonoran Desert tortoise is a federal candidate species for listing as threatened or endangered.

Ground disturbance and vegetation removal for access roads and at pole sites may potentially impact individual reptiles, their eggs, or young. Many reptiles and some amphibians sequester themselves underground or among vegetation and are particularly susceptible to ground clearing construction activities. These animals are also susceptible to vehicular traffic on access roads and may become trapped in construction excavations.

Aquatic habitat in the project study area is limited to several earthen livestock tanks, a few springs, and seasonal flowing waters in canyons such as Box Canyon. Potential impacts to aquatic amphibians and reptiles would primarily be associated with degradation or loss of aquatic habitat. The proposed project will avoid earthen livestock tanks, and best management practices for spill prevention and erosion protection will be applied to minimize potential for impacts to aquatic habitats. The proposed project will span Box Canyon, minimizing any potential for impacts.

Fish

No native fish species occur in the project study area. There will be no impacts to any native fish species that will result from development of the proposed project.

Vegetation

Five distinct vegetation communities are present within the project study area, including the Lower Colorado River and Arizona Upland Subdivisions of Sonoran Desertscrub, Semidesert Grassland, Encinal Oak Community, and Xeroriparian Scrub. However, the project study area primarily contains Arizona Upland Subdivision, Semidesert Grassland, and Encinal Oak Communities.

Well-defined Xeroriparian Scrub is only present as a small area of the Santa Cruz River floodplain northwest of the proposed Toro Switchyard. Lower Colorado River Subdivision Sonoran Desertscrub is limited to a small area contiguous with the Xeroriparian Scrub and extends no more than approximately 1 mile on either side of the segment of the river supporting Xeroriparian Scrub. Neither of these vegetation communities will be crossed by any project alternative.

Arizona Upland Sonoran Desert is present in the northwestern portion of the project study area on the lower bajada on the west flank of the Santa Rita Mountains. As the elevation begins to rise in the southeastern portion of the project study area, Arizona Upland Sonoran Desert gives way to Semidesert Grassland. Encinal Oak Community is present at middle elevations in the

Santa Rita Mountains in the eastern portion of the project study area. The majority of the project study area in the valley, west of the Santa Rita Mountains, has seen many years of livestock grazing; vegetation over most of the area tends to be sparse, with creosote bush (*Larrea tridentata*), species of cholla (*Cylindropuntia* spp.), and other cacti being common at lower elevations. Saguaro cacti (*Carnegiea gigantea*) are present, but are nowhere common. Introduced or invasive plants associated with livestock grazing that occur in varying density include Lehmann lovegrass (*Eragrostis lehmanniana*), which is locally common, and snakeweed (*Gutierrezia* spp.).

Tree species are mostly limited to blue paloverde (*Parkinsonia florida*) and low-stature velvet mesquite (*Prosopis velutina*), both of which are more abundant along xeric desert washes. Mesquite trees here do not get large, as the water table is well below their reach, and they are supported only by rainfall. Farther to the southeast, with an increase in elevation, vegetation becomes more dense scrub habitat within a depauperate Semidesert Grassland that supports abundant catclaws (*Acacia greggii* and *Mimosa aculeaticarpa*). The abundance of catclaws is to some degree also a result of long-term livestock grazing.

Portions of the project that occur higher in the foothills of the Santa Rita Mountains, where terrain is steeper, support a healthier grassland community. Grasslands eventually become ecotonal with the Encinal Oak community, as elevation increases. A few elements of Madrean Evergreen Woodland (junipers, *Juniperus* spp. and piñon pine, *Pinus edulis*) are present on some of the highest points in the project study area, but are not common enough to be considered as constituting an established community.

There will be minimal impacts to all three of the vegetation communities crossed by the proposed project. None of these communities is rare or unique in the area, and the amount of habitat lost will not significantly affect any of the vegetation communities. Thirty-three sensitive plant species were identified as potentially occurring within the project study area, only the Pima pineapple cactus (*Coryphantha scheeri* var. *robustispina*) is a federally listed (endangered) species (Exhibit C). The presence of Pima pineapple cacti was documented during surveys conducted specifically for the species for the Rosemont water pipeline and 138kV transmission alignments that will support the Rosemont mine operations project (Westland Resources 2009c, 2010). Potential impacts to this species are addressed in Exhibit C.

Two paniculate agave species—the Palmer and Huachuca agaves—are present and important habitat foraging elements for the two nectarivorous bat species that occur in Arizona, the lesser long-nosed and Mexican long-tongued bats. Some agaves will be lost during project construction, but the numbers of plants involved represent only a very small fraction of a percent of the plants available. Therefore, impacts from the removal of the relatively small amount of agaves will likely be insubstantial for any wildlife species.

POTENTIAL IMPACTS ASSOCIATED WITH ALTERNATIVES

Preferred Route and Alternative Route 1

Potential impacts of the Preferred Route may include the loss of vegetation; disturbance impacts to wildlife and their habitat during construction, operation, and maintenance; and post

construction colonization by non-native invasive plants. Some impacts are anticipated to modeled habitat for Sonoran Desert Conservation Plan priority vulnerable species for most of the Preferred Route from the proposed Toro Switchyard to the Rosemont Substation. Co-locating the transmission line with the Rosemont water pipeline alignment to the Rosemont Substation for the majority of its length will minimize the extent of new disturbance, especially with a shared access road.

Alternative Route 1 from the proposed Toro Switchyard to the Rosemont Substation will likely have similar but slightly higher impacts than the Preferred Route. Alternative Route 1 incorporates links 130, 135, and 95, instead of Link 105 and Link 155 in the Preferred Route. Potential impacts associated with vegetation and modeled habitat for Sonoran Desert Conservation Plan priority vulnerable species are higher on links 130, 135, and 95, due to the need for a new access road. Application of best management practices will help minimize impacts from new road construction.

Alternative Route 2 and Alternative Route 3

Potential impacts of Alternative Route 2 may include the loss of vegetation during construction and disturbance impacts to wildlife and their habitat during construction and maintenance. Clearing activities may impact modeled habitat for Sonoran Desert Conservation Plan priority vulnerable species and provide disturbed ground suitable for colonization by non-native invasive plants. Similar to the Preferred Route, links 105 and 155 would be co-located with the Rosemont water pipeline and links 30 and 110 would be consolidated with the existing 46kV transmission line. Alternative Route 2 would, however, result in greater levels of disturbance due to the required upgrading or development of access roads along links 30, 110, and a portion of 120. In addition, Link 120 is likely to impact some of the SRER long-term photo monitoring points.

Alternative Route 3 incorporates links 130, 135, and 95, instead of Link 105 and Link 155 as in Alternative Route 2. Links 30 and 110 would be consolidated with the existing 46kV transmission line. Again, the need for new access roads for links 130, 135, and 95 will potentially result in higher levels of disturbance and potential impacts to vegetation and modeled habitat for Sonoran Desert Conservation Plan priority vulnerable species than the Preferred Route and Alternative Route 2.

Alternative Route 4

Due to vegetation sensitivity, need for new access, and difficulty of construction in hilly, undulating terrain, levels of disturbance and impacts will be higher along some portions of Alternative Route 4 in comparison with the other alternatives. Impacts potentially occurring during construction and maintenance activities on Alternative Route 4 may include the loss of vegetation during construction and disturbance impacts to wildlife and their habitat, including modeled habitat for Sonoran Desert Conservation Plan priority vulnerable species, during construction and maintenance. Ground disturbance activities may provide habitat suitable for colonization by non-native invasive plants. Due to a required upgrading of access roads and levels of disturbance, impacts along links 30 and 110, and the first 3 miles of Link 150 are likely to be higher than the other alternatives. The section of Link 150 between mileposts 3.0 and 5.9 passes through Box Canyon. Potential impacts in this segment are potentially higher due to the

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presence of vegetation and wildlife habitat sensitivities including riparian and upland habitats of juniper, oak, and grassland agave plant communities, however the canyon will be spanned. Impacts associated with Link 160 are likely to be higher in sections that require new access and lower where the link follows an existing road (FR 231). Links 190 and 210 connecting to the Rosemont Substation on the Rosemont operations site are likely to have low impacts due to the level of existing impact that will be present by the time the line is built.

Table D-1. Mammal Species with Potential to Occur in the Project Study Area			
Common Name	Latin Name	Habitat	Potential
Cockrum's desert Shrew	Notiosorex cockrumi	Rare semi-desert endemic of southeastern Arizona Madrean mountains; broadleaf riparian habitats among sacaton.	M
Desert shrew	Notiosorex crawfordi	Any area with ample ground cover, including plant debris, trash, lumber, etc.	Н
California leaf- nosed bat	Macrotus californicus	Roosts in caves or mines in low elevation desert habitats.	L
Mexican long- tongued bat	Choeronycteris mexicana	Found in canyons of mixed oak-conifer forests or in Semidesert Grassland habitats in mountain ranges surrounded by desert. Roost sites usually near water and riparian vegetation. Roosts in caves, mines, buildings, and wide rock crevices.	P
Lesser long- nosed bat	Leptonycteris yerbabuenae	Desertscrub or grassland habitat to lower oak elevations where agaves and/or saguaros are present as food sources.	P
Yuma myotis	Myotis yumanensis	Highly restricted to areas where available roosts are near open water habitat for foraging.	VL
Cave myotis	Myotis velifer	Roosts in mines and caves at lower elevations within a couple miles of water.	P
Long-legged myotis	Myotis volans	Resident of ponderosa pine or other coniferous forest habitats. Roost in trees, rock crevices, and buildings.	L
Fringed myotis	Myotis thysanodes	Found from chaparral to ponderosa pine, but most commonly in oak woodland from which they forage out into a variety of other habitats.	P
California myotis	Myotis californicus	Roost in crevices and cracks of canyon walls, sometimes in caves or mine shafts; forages over desertscrub and up into the oaks and along lower edge of coniferous forest.	M
Small-footed myotis	Myotis ciliolabrum	Roosts in crevices in cliffs, rock piles, embankments, and caves.	M
Silver-haired bat	Lasionycteris noctivagans	Primarily forages over montane meadows in coniferous forests, but occur at lower elevations in the mountains of southeastern Arizona in winter.	VL
Western pipistrelle	Pipistrellus hesperus	Hunts along canyons, stream beds, and water holes from desertscrub to pine forests, but never far from rocky canyon walls, cliffs, or rocky outcrops where they roost in narrow 1-inch vertical crevices.	Н
Big brown bat	Eptesicus fuscus	Wooded areas, desertscrub.	M
Western red bat	Lasiurus blossevillii	1,900 to 7,200 feet elevation in broad-leaf deciduous riparian forests and woodlands; summer resident. Mostly solitary, roosting in dense foliage in trees and sometimes in leafy shrubs or herbs from a few to 40 feet above ground.	VL

Table D	Table D-1. Mammal Species with Potential to Occur in the Project Study Area			
Common Name	Latin Name	Habitat	Potential	
Hoary bat	Lasiurus cinereus	Records of the species in Arizona indicate that they occur primarily in areas that support suitable roost trees. The project area is within the winter range of the species.	VL	
Spotted bat	Euderma maculatum	Roost in bedrock crevices, cracks, and caves over a wide elevation range in Arizona.	L	
Allen's big- eared bat	Idionycteris phyllotis	Mostly occurs in montane forested areas associated with cliffs, boulder piles, mines, or caves used as roosts.	M	
Pale Townsend's big-eared bat	Corynorhinus townsendii pallescens	Found in caves or mine tunnels during the day, and may rest in abandoned buildings at night. Ranges from desertscrub, oak woodland, and piñon-juniper up to coniferous forest elevations.	P	
Pallid bat	Antrozous pallidus	Inhabits desertscrub with caves, mines, cliffs, bridges, or other structures suitable for roosts.	Н	
Brazilian free- tailed bat	Tadarida brasiliensis	Desertscrub and foothills with mines, caves, bridges, or old buildings.	Н	
Pocketed free- tailed bat	Nyctinomops femorosaccus	Rocky cliffs and slopes of southern deserts in Arizona; also uses man-made shelters such as space beneath roofing tiles on buildings.	M	
Big free-tailed bat	Nyctinomops macrotis	Occurs in a variety of habitats including Sonoran Desertscrub, piñon-juniper, ponderosa pine, and Douglas fir. Roosts in rocky cliffs with crevices and fissures.	L	
Western bonneted bat	Eumops perotis californicus	Roosts in crevices and shallow caves in cliffs.	VL	
Underwood's bonneted bat	Eumops underwoodii	Uses rock crevices and hollow trees for roosts. Occurs from low desert habitat up to oak-pine woodland elevations; commonly forages near a water source.	VL	
Eastern cottontail	Sylvilagus floridanus	Chaparral or piñon-juniper woodland.	Н	
Desert cottontail	Sylvilagus audubonii	Desertscrub or semidesert grassland.	Н	
Black-tailed jackrabbit	Lepus californicus	Desertscrub or other areas with open ground cover.	Н	
Antelope jackrabbit	Lepus alleni	Desertscrub and Semidesert Grassland, often in areas of dense mesquite and limited grass ground cover.	P	
Cliff chipmunk	Eutamius dorsalis	Scrub to pine and fir elevations wherever large rocks or cliffs occur. The species does not occur in the northeastern portion of Arizona, or in the low deserts of the southwestern part of the state.	L	
Harris' antelope squirrel	Ammospermophilus harrisii	Occurs in brushy habitats, typically in saltbush or creosote bush-bursage, in low deserts, and generally in areas where soils are rocky.	Н	
Rock squirrel	Spermophilus variegatus	Rocky canyons and boulder-strewn slopes.	Н	
Spotted ground squirrel	Spermophilus spilosoma	Occurs in a variety of habitats in Arizona from deserts to mountain meadows. In southern Arizona often associated with mesquite and acacia.	M	

)-1. Mammal Speci	es with Potential to Occur in the Project Study A	rea
Common Name	Latin Name	Habitat	Potential
Round-tailed ground squirrel	Spermophilus tereticaudus	Creosote bush and saltbush desert with fine, deep soils in which extensive burrows are constructed.	Н
Botta's pocket gopher	Thomomys bottae	Occurs in a wide variety of habitats; any area with soil suitable for digging burrows.	Н
Arizona pocket mouse	Perognathus amplus	Mostly in Mojave and Sonoran Desertscrub habitats and up into lower juniper elevations.	M
Silky pocket mouse	Perognathus flavus	In southern Arizona the silky pocket mouse mostly occurs in plains and desert grassland areas including mesquite, grasses, and Russian thistle up to Mexican pine-oak woodland elevations.	M
Rock pocket mouse	Chaetodipus intermedius	Common in dry rocky terrain.	Н
Bailey's pocket mouse	Perognathus baileyi	Flats and adjacent slopes in deserts south of the Mogollon Rim.	Н
Desert pocket mouse	Chaetodipus penicillatus	Sandy areas of desertscrub or grassland with sparse vegetation including areas of creosote bush, mesquite, palo verde, or yucca.	Н
Hispid pocket mouse	Perognathus hispidus	Found in desert grasslands where the grasses are moderately high and dense but not especially thick, and soils are rocky but loose. Typical vegetation may include a mixture of yucca, ocotillo, mesquite, prickly pear, or agave.	Н
Ord's kangaroo rat	Dipodomys ordii	A variety of habitats at or below piñon-juniper elevation.	Н
Banner-tailed kangaroo rat	Dipodomys spectabilis	Prefers grassy areas, often between 3,500 and 4,000 feet elevation with catclaw, mesquite, and <i>Opuntia</i> species.	P
Merriam's kangaroo rat	Dipodomys merriami	Sandy areas of desertscrub often associated with mesquite and creosote bush.	Н
Plains harvest mouse	Reithrodontomys montanus	Desertscrub or chaparral.	L
Western harvest mouse	Reithrodontomys megalotis	Cool grassy meadows to dry tumbleweed and cocklebur fields, from weedy patches in coniferous forests to flats with cacti, mesquite, or sagebrush.	Н
Fulvous harvest mouse	Reithrodontomys fulvescens	Found on grassy slopes and alluvial fans, usually where there are scattered oaks or other deciduous trees. In some places, they are closely associated with yellow-nosed cotton rat.	M
Cactus mouse	Peromyscus eremicus	Low desert habitats among cacti, creosote bush, wood piles, rocks and rocky slopes, and in chaparral and on sandy flats.	Н
Merriam's mouse	Peromyscus merriami	Heavy forest-like stands of mesquite or mesquite and saltbush bottomlands.	P
Deer mouse	Peromyscus maniculatus	Coniferous or riparian woodland, desertscrub, often adjacent to canals or along intermittent creeks.	M
White-footed mouse	Peromyscus leucopus	Areas of thick vegetation, often along riparian habitats.	L
Brush mouse	Peromyscus boylii	Occurs in a variety of habitats that contain rocks and heavy brush; commonly along stream courses.	M

Common Name	Latin Name	Habitat	Potential
Southern grasshopper mouse	Onychomys torridus	Desertscrub or Semidesert Grassland with compact soils.	Н
Northern pygmy mouse	Baiomys taylori	Grassland habitats; particularly along drainages.	L
Arizona cotton rat	Sigmodon arizonae	Sometimes occurs in desert areas, usually characterized by mesquite and tumbleweeds with a small amount of grass. Other less arid places include canals and banks of small streams supporting weeds and brush. They also occupy rocky grass slopes in oak habitat.	L
Fulvous cotton rat	Sigmodon fulviventer	Occurs in a variety of habitats that support thick grasses or weedy vegetation; more common in middle elevation habitats.	L
Yellow-nosed cotton rat	Sigmodon ochrognathus	Inhabits grassy, rocky slopes of the oak belt between 3,000 and 8,000 feet elevation where the grass coverage is usually sparse, and the presence of beargrass, agave, or yucca dispersed through the grass provides adequate refuge and nest sites.	Н
White-throated wood rat	Neotoma albigula	All habitats below the conifer belt where cholla and prickly pears are abundant. Favor rocky areas that provide nest cavities that can be protected with cactus parts.	Н
House mouse	Mus musculus	Cultivated fields in or at the edges of towns, and in ruderal (roadside) areas.	L
Coyote	Canis latrans	Cosmopolitan, low desert to spruce forest elevations.	P
Kit fox	Vulpes macrotis	Low deserts where friable soils suitable for burrow construction are present.	L
Gray fox	Urocyon cinereoargenteus	Open desertscrub, chaparral, or lower elevation woodland, occasionally in ponderosa pine or Douglas fir.	Н
Black bear	Ursus americanus	Associated with mountains in Arizona. Also use riparian corridors; may use semidesert grasslands, encinal woodlands, or montane conifer forests.	P
Raccoon	Procyon lotor	Riparian or wetland habitats.	P
White-nosed coati	Nasua narica	Usually near a water source in woodlands, canyons, and riparian habitats; rocky habitats, caves, mines, or hollow trees may be used for den areas.	M
Ringtail	Bassariscus astutus	Inhabits rocky canyons where boulders, cliffs, caves, and mines provide den habitat.	Н
Badger	Taxidea taxus	Found on alluvial fans and flats around desert mountains, also found in open desert where soils are suitable for burrow construction.	Н
Western spotted skunk	Spilogale gracilis	Low and middle elevations, often in rocky areas or around human habitation.	M
Hooded skunk	Mephitis macroura	Poorly known, most specimens are from Arizona Upland Subdivision and grasslands. Seem to prefer rocky slopes, arroyos, and cliff bases, and riparian areas consisting of large washes and rivers.	M

Table D-1. Mammal Species with Potential to Occur in the Project Study Area			
Common Name	Latin Name	Habitat	Potential
Striped skunk	Mephitis mephitis	Occupies similar habitat as that of hooded skunk.	L
Hog-nosed skunk	Conepatus mesoleucus	A variety of habitats are occupied, from desert grassland upslope into coniferous forest.	L
Jaguar	Panthera onca	Occurs through a wide range of habitats up to subalpine conifer forest.	VL
Ocelot	Leopardus (Felis) pardalis	Partly cleared forests, second growth woodland, and abandoned cultivated areas reverted to brush	VL
Mountain lion	Puma concolor	Usually inhabits mountainous, forested areas, but also uses desertscrub and semidesert grassland habitats.	Н
Bobcat	Lynx rufus	Rocky upland areas interspersed with open desert, grassland, or woodland.	P
Collared peccary	Pecari tajacu	Desertscrub, especially along drainages with dense vegetation cover.	P
Mule deer	Odocoileus hemionus	Upland desert, chaparral, oak woodland, or pine forest.	P
White-tailed deer	Odocoileus virginianus	Woodland communities of evergreen oak or mixed oak- juniper-piñon. In areas where both deer species occur in close proximity, the white-tailed deer generally occupies higher elevations.	L

Potential for occurrence: P = Present

H = High M = Moderate L = Low VL = Very Low

VL = Very Low References: Adams 2003; Hinman and Snow 2003; Hoffmeister 1986; Olding and Cockrum 1977.

Table D-2. Bird Species with Potential to Occur in the Project Study Area			
Common Name	Latin Name	Habitat	Relative Abundance/ Status
Turkey vulture	Cathartes aura	Open country, agricultural areas.	C/S
Black vulture	Coragyps atratus	Open country and near human developments where they scavenge at landfills.	R/R
White-tailed kite	Elanus leucurus	Flat or gently rolling open terrain with a few scattered trees or tall shrubby plants; often associated with a nearby water source.	R/R
Northern harrier	Circus cyaneus	Agricultural areas, grasslands, and low brushy country.	U/W
Golden eagle	Aquila chrysaetos	Open country, and desert and barren areas, especially in hilly terrain.	U/R
Sharp-shinned hawk	Accipiter striatus	Forest and forest edges.	U/W
Cooper's hawk	Accipiter cooperii	Broken woodland, streamside habitats, and urban areas.	U/R
Harris hawk	Parabuteo unicinctus	Sonoran Desert, semi-arid woodland, and brushlands.	U/R

Common Name	Latin Name	Habitat	Relative Abundance/ Status
Zone-tailed hawk	Buteo albonotatus	Mountainous terrain typically associated with water courses.	P/S
Red-tailed hawk	Buteo jamaicensis	Occurs over a wider variety of habitats.	C/R
Swainson's hawk	Buteo swainsoni	Primarily Semidesert Grassland, often intermixed with desertscrub.	U/S
Ferruginous hawk	Buteo regalis	Open country, primarily prairie, plains, sagebrush, or badlands.	R/S
American kestrel	Falco sparverius	Open country, cities.	C/R
Merlin	Falco columbarius	Open to semi-open habitats; grasslands in winter.	U/W
Prairie falcon	Falco mexicanus	Dry open country, grasslands.	U/R
Peregrine falcon	Falco peregrinus	Cliffs near wetlands; bridges and tall buildings in cities.	U/R
Gould's wild turkey	Meleagris gallopavo mexicana	Open grassy savannah with a variety of oaks; chaparral; stunted piñon-juniper woodland.	U/R
Gambel's quail	Callipepla gambelii	Desert scrublands and thickets.	C/R
Scaled quail	Callipepla squamata	Semi-desertscrub and grasslands of mesas and bajadas above 3,000 feet.	U/R
Band-tailed pigeon	Columba fasciata	Oak or oak-conifer woodlands.	R/S
Rock pigeon	Columba livia	Urban and rural agricultural areas.	R/R
Mourning dove	Zenaida macroura	Wide variety of habitats.	A/R
White-winged dove	Zenaida asiatica	Saguaro – palo verde desert, thick mesquite, riparian woodland, or mature citrus groves.	C/S
Common ground dove	Columbina passerina	Open shrubby habitats.	U/R
Greater roadrunner	Geococcyx californianus	Scrub desert and mesquite groves; less common in chaparral and oak woodland.	C/R
Barn owl	Tyto alba	Open desert, grasslands, and farmlands. Nests in dark cavities in cliffs, trees, mines, or embankments.	U/R
Great-horned owl	Bubo virginianus	Common in a wide variety of habitats.	P/R
Western screech owl	Megascops kennicottii	Open woodlands, streamside groves, deserts, and suburban areas.	C/R
Whiskered screech owl	Megascops trichopsis	Madrean oak woodland habitats; foothills and canyons of lower elevations in the mountains.	U/R
Flammulated owl	Otus flammeolus	Oak and pine woodlands.	R/S
Cactus ferruginous pygmy-owl	Glaucidium brasilianum cactorum	Sonoran Desertscrub and Semidesert Grassland; occasionally in riparian woodland or suburban developments retaining adequate habitat elements.	R/R
Elf owl	Micrathene whitneyi	Desert lowlands and canyons.	U/S

Table D-2. Bird Species with Potential to Occur in the Project Study Area			
Common Name	Latin Name	Habitat	Relative Abundance/ Status
Burrowing owl	Athene cunicularia	Areas of sparse vegetation with colonial burrowing rodents; open country, agricultural areas, golf courses, and airports, and other urban habitats.	U/R
Lesser nighthawk	Chordeiles acutipennis	Dry, open country, scrubland, desert.	U/S
Common nighthawk	Chordeiles minor	Woodlands, suburbs, and towns.	R/S
Whip-poor will	Caprimulgus vociferous	Wooded canyons.	U/S
Buff-collared nightjar	Caprimulgus ridgwayi	Dry, thickly vegetated canyons.	U/S
Common poorwill	Phalaenoptilus nuttallii	Brushy or open country; along roads.	C/S
White-throated swift	Aeronautes saxatalis	Mountain canyons and cliffs.	C/R
Violet-crowned hummingbird	Amazilia violiceps	Montane and riparian habitats.	R/S
Broad-billed hummingbird	Cynanthus latirostris	Desert canyons, foothills, and low elevation woodlands.	U/S
Black-chinned hummingbird	Archilochus alexandri	Lowlands and low mountain areas.	C/S
Costa's hummingbird	Calypte costae	Desert washes, dry chaparral.	C/S
Anna's hummingbird	Calypte anna	Mountains and deserts.	C/R
Broad-tailed hummingbird	Selasphorus platycercus	Montane habitats.	R/S
Rufous hummingbird	Selasphorus rufus	Brushy slopes, thickets.	U/M
Gila woodpecker	Melanerpes uropygialis	Desertscrub and saguaro cactus forests.	C/R
Northern flicker	Colaptes auratus	Open woodlands, lowlands in winter.	U/R
Gilded flicker	Colaptes chrysoides	Low desert woodlands; saguaro forest.	U/R
Ladder-backed woodpecker	Picoides scalaris	Dry brushlands, mesquite and cactus country, towns and rural areas.	C/R
Western wood- pewee	Contopus sordidulus	Open woodlands.	U/S
Gray flycatcher	Empidonax wrightii	Dry habitats.	U/M
Northern beardless- tyrannulet	Camptostoma imberbe	Lowland riparian woodland and adjacent scrub.	U/S
Northern buff- breasted flycatcher	Empidonax fulvifrons pygmaeus	Open pine or riparian habitats with sycamores.	R/S

Table D-2. Bird Species with Potential to Occur in the Project Study Area			
Common Name	Latin Name	Habitat	Relative Abundance/ Status
Black phoebe	Sayornis nigricans	Woodland, parks, suburbs near water.	U/R
Say's phoebe	Sayornis saya	Dry, open areas, canyons, cliffs.	U/R
Vermilion flycatcher	Pyrocephalus rubinus	Streamside wooded and shrubby areas; around ponds.	U/R
Brown-crested flycatcher	Myiarchus tyrannulus	Saguaro desert and wooded areas along streams.	U/S
Ash-throated flycatcher	Myiarchus cinerascens	Wide variety of lowland to mid-elevation habitats.	C/S
Cassin's kingbird	Tyrannus vociferans	Varied habitats.	U/S
Western kingbird	Tyrannus verticalis	Dry, open lowlands.	U/S
Loggerhead shrike	Lanius ludovicianus	Open or brushy areas.	U/R
Bell's vireo	Vireo bellii	Riparian areas in grassland and desertscrub, especially in mesquite trees.	U/S
Gray vireo	Vireo vicinior	Chaparral or dry scrub or shrubby areas.	U/M
Plumbeous vireo	Vireo plumbeus	Variety of wooded habitats.	R/S
Warbling vireo	Vireo gilvus	Deciduous woods.	U/M
Western scrub	Aphelocoma californica	Lower elevation woodlands.	U/R
Mexican jay	Aphelocoma ultramarina	Pine-oak canyons.	C/R
Chihuahuan raven	Corvus cryptoleucus	Desertscrub and Semidesert Grassland habitats.	U/R
Common raven	Corvus corax	Mountains, deserts.	C/R
Horned lark	Eremophila alpestris	Dirt fields, gravel ridges, grasslands.	C/R
Purple martin	Progne subis	Open country, rural areas, often near water; saguaro cavity nester.	U/S
Violet-green swallow	Tachycineta thalassina	Variety of wooded habitats; riparian corridors.	U/M
Bank swallow	Riparia riparia	Riverbanks, highway cuts, and other embankment habitats.	U/M
Cliff swallow	Petrochelidon pyrrhonota	Lakesides, streams, and ponds. Also cliffs, and canals; nests on buildings, under nearby bridges, and other overhangs.	C/S
Northern rough- winged swallow	Stelgidopteryx serripennis	Nests in riverbanks, culverts, and bridges.	U/S
Barn swallow	Hirundo rustica	Nests under bridges, culverts, and on buildings.	U/S
Bridled titmouse	Baeolophus wollweberi	Oak, juniper, and sycamore riparian habitats.	U/R
Verdin	Auriparus flaviceps	Sonoran Desertscrub, mesquite bosques, riparian woodland.	C/R

Common Name	Latin Name	Habitat	Relative Abundance/ Status
Bushtit	Psaltriparus minimus	Woodlands and chaparral.	U/R
House wren	Troglodytes aedon	Thickets and scrub of open woodland, rural areas, and urban parks.	U/R
Bewick's wren	Thryomanes bewickii	Brushy slopes, piñon-juniper, live oak, and mesquite associations.	U/R
Cactus wren	Campylorhynchus brunneicapillus	Desertscrub habitats, especially with cholla cactus; nests in chollas or other spiny desert vegetation.	C/R
Rock wren	Salpinctes obsoletus	Semi-arid, scrubby and rocky canyons and hillside habitats.	C/R
Canyon wren	Catherpes mexicanus	Cliffs and rocky canyon habitats; often near water.	C/R
Ruby-crowned kinglet	Regulus calendula	Thickets and woodland habitats.	U/W
Blue-gray gnatcatcher	Polioptila caerulea	Brushy thickets and chaparral.	U/S
Black-capped gnatcatcher	Polioptila nigriceps	Brushy, riparian woodland.	R/S
Black-tailed gnatcatcher	Polioptila melanura	Desertscrub, especially along washes.	U/R
Western bluebird	Sialia mexicana	Open pine, deciduous and mixed woodland, and riparian woodland.	U/W
Hermit thrush	Catharus guttatus	Thickets and mixed woodland habitats.	U/S
Northern mockingbird	Mimus polyglottos	Variety of habitats up to oak-juniper zone.	C/R
Bendire's thrasher	Toxostoma bendirei	Thickets, brushy desert, open farmlands and grasslands.	U/R
Curve-billed thrasher	Toxostoma curvirostre	Semi-arid brushlands and canyons; commonly associated with cholla cacti.	C/R
Crissal thrasher	Toxostoma crissale	Among mesquites and other dense vegetation along drainages.	R/R
European starling	Sturnus vulgaris	Habitat generalist; including urban areas.	U/R
Phainopepla	Phainopepla nitens	Riparian areas, chaparral, and desertscrub, especially in trees with mistletoe, a primary food source.	C/R
Orange-crowned warbler	Vermivora celata	Open woodlands and forest edges; thickets.	U/W
Virginia's warbler	Vermivora virginiae	Riparian corridors during migration.	U/S
Nashville warbler	Vermivora ruficapilla	Desert flats and washes in winter in migration.	U/M
Lucy's warbler	Vermivora luciae	Mesquite bosque or deciduous riparian habitats.	U/S
Yellow-rumped warbler	Dendroica coronata	Conifer forests; widespread in lowlands in winter.	U/W
Black-throated gray warbler	Dendroica nigrescens	Woodlands, brushlands, and chaparral.	R/S

Table D-2. Bird Species with Potential to Occur in the Project Study Area				
Common Name Latin Name		Habitat	Relative Abundance/ Status	
Yellow warbler	Dendroica petechia	Open woodlands, gardens.	R/M	
MacGillivray's warbler	Oporornis tolmiei	Dense undergrowth.	U/M	
Wilson's warbler	Wilsonia pusilla	Dense streamside vegetation; woodlands.	U/M	
Common yellowthroat	Geothlypis trichas	Grassy fields and in shrubbery.	U/M	
Western tanager	Piranga ludoviciana	Coniferous forest; occasionally low deserts during migration.		
Green-tailed towhee	Pipilo chlorurus	Dense brush; towns in winter.	U/M	
Canyon towhee	Pipilo fuscus	Dry foothills and brushy desert canyons.	C/R	
Abert's towhee	Pipilo aberti	Desert woodland, dense riparian vegetation, suburban areas.	U/R	
Spotted towhee	Pipilo maculatus	Brushy shrublands or woodlands.	U/S	
Rufous-winged sparrow	Aimophila carpalis	Valley desert grasslands among shrubs and cacti.	U/R	
Rufous-crowned sparrow	Aimophila ruficeps	Rocky, brushy hillsides.	C/R	
Brewer's sparrow	Spizella breweri	Brushy desertscrub habitat.	C/M	
Lark Sparrow	Chondestes grammacus	Open habitats with scattered bushes and trees.		
Black-chinned sparrow	Spizella atrogularis	Arid brushy slopes of foothills and mountains.	U/W	
Black-throated sparrow	Amphispiza bilineata	Sonoran Desertscrub, mesquite grassland.	C/R	
Baird's sparrow	Ammodramus bairdii	Grassland habitats above 4,000 feet.	R/W	
Lark bunting	Calamospiza melanocorys	Dry plains and prairies.	U/W	
Savannah sparrow	Passerculus sandwichensis	Variety of open habitats, grasslands, and wetlands.	U/W	
Lincoln's sparrow	Melospiza lincolnii	Brushy thickets.	R/W	
Vesper sparrow	Pooecetes gramineus	Dry grasslands, clearings.	U/W	
Song sparrow	Melospiza melodia	Brush, particularly associated with drainages.	U/R	
White-crowned sparrow	Zonotrichia leucophrys	Woodlands, roadside vegetation.	CW	
Black-headed grosbeak	Pheucticus melanocephalus	Open woodlands.	U/S	
Northern cardinal	Cardinalis cardinalis	Along riparian habitats.	U/R	
Pyrrhuloxia	Cardinalis sinuatus	Brushy areas; mesquite woodlands.	U/R	

Table D-2. Bird Species with Potential to Occur in the Project Study Area				
Common Name Latin Name		Habitat	Relative Abundance/ Status	
Indigo bunting	Passerina cyanea	Open woodlands and woodland edges.		
Lazuli bunting	Passerina amoena	Open woodland and chaparral; also brushy areas near water.	R/M	
Varied bunting	Passerina versicolor	Low elevation bushy canyons and desert washes.		
Eastern meadowlark	Sturnella magna	Fields and meadows.	U/R	
Western meadowlark	Sturnella neglecta	Grasslands and cultivated fields.	U/R	
Brown-headed cowbird	Molothrus ater	Farmlands, suburbs, and woodlands.	U/R	
Bronzed cowbird	Molothrus aeneus	Open, brushy areas, or wooded mountain canyons.	U/S	
Scott's oriole	Icterus parisorum	Arid and semi-arid habitats.		
House finch	Carpodacus mexicanus	Riparian and suburban areas, farmland, desert.	C/R	
Lesser goldfinch	Carduelis psaltria	Open areas with scattered trees, second growth; and around human habitations.	C/R	
House sparrow	Passer domesticus	Cultivated areas, around human habitations, and edges of vegetated habitats.	U/R	
Relative abundance Status:	A = Abundant C = Common U = Uncommon R = Rare R = Resident S = Summer W = Winter visitor M= Migration spring	and/or fall Ehrlich et al. 1988; Glinski 1998; NGS 2002; Wheeler 2003.		

Table D-3. Amphibian and Reptile Species with Potential to Occur in the Project Study Area				
Common Name Latin Name Habitat Potential				
Tiger salamander	Ambystoma tigrinum	Typically occurs at grassland or higher elevations; requires seasonal water source for breeding.	VL	
Couch's spadefoot	Scaphiopus couchii	Areas of low rainfall, including mesquite and creosote bush desert.	P	
Mexican spadefoot	Spea multiplicata	Occurs from Arizona Upland Desertscrub up to Petran Montane Conifer forest.	M	

Table D-3. Amphibian and Reptile Species with Potential to Occur in the Project Study Area					
Common Name Latin Name Habitat Potenti					
Red-spotted toad	Desert streams and oases, open grassland and scrubland, oak woodland, rocky canyons, and arroyos. Uses crevices among rocks for shelter, breeds in rain pools, reservoirs, and temporary pools of intermittent streams.		Р		
Great Plains toad	Bufo cognatus	Occurs in low valleys from Lower Colorado River Desertscrub up to grassland elevations at temporary pools, ditches, and livestock tanks.			
Sonoran Desert toad	Bufo alvarius	Temporary pool; often occurs far from water.	P		
Great Plains narrow-mouthed toad	Gastrophryne olivacea	Occurs at a variety of water sources from Lower Colorado River Desertscrub up to Madrean Evergreen Woodland.	VL		
Western barking frog	Eleutherodactylus augusti cactorum	Madrean evergreen woodland.	VL		
Canyon treefrog	Hyla arenicolor	Rocky areas along or in streams; occasionally far from water; Arizona Upland Desertscrub up to Petran Montane Conifer Forest.	Р		
Lowland leopard frog	Lithobates yavapaiensis	Inhabits desert, grassland, and oak and oak-pine woodland. Usually stays close to water.	L		
Chiricahua leopard frog	Lithobates chiricahuensis	Dependent on permanent natural or manmade waters, primarily in oak and mixed oak-pine woodlands, between 1,200 and 4,000 feet elevation in southeastern Arizona/Sierra Madre Mountains and 3,500 and 8,000 feet elevation in central and eastern Arizona and adjacent mountains in New Mexico.	Р		
Desert box turtle	Terrapene ornata luteola	Primarily found within Semidesert Grassland and Chihuahuan Desertscrub communities in low valleys, plains, and bajadas. In Arizona found primarily between 3,000 and 6,500 feet.	M		
Sonora mud turtle	Kinosternon sonoriense sonoriense	Ponds and streams.	M		
Sonoran Desert tortoise	Gopherus agassizii	Rocky habitats of low hills in Sonoran Desertscrub habitat.	Н		
Eastern collared lizard	Crotaphytus collaris	Sparsely vegetated open terrain from desertscrub to piñon-juniper elevations.	М		
Long-nosed leopard lizard	Gambelia wislizenii	Found in flatland habitats with sparse vegetation below 6,000 feet.	M		
Zebra-tailed lizard	Callisaurus draconoides	Commonly occurs on flat, open terrain with sandy, gravelly soils; along washes, on areas of desert pavement or on dunes.	Н		

Table D-3. Amphibian and Reptile Species with
Potential to Occur in the Project Study Area

Common Name	Latin Name	Habitat	Potential
Greater earless lizard	Cophosaurus texanus	Occurs at middle elevations where cactus, mesquite, ocotillo, creosote bush, and paloverde grow. Associated with sandy, gravelly soils of flats, washes, and intermittent stream bottoms where plants are sparse and there are open areas for running. Occasionally found on rocky hillsides.	Н
Common lesser earless lizard	Holbrookia maculata	Prefers areas of sandy soils from valley flats, through semidesert grassland, and up to woodland elevations.	M
Ornate tree lizard	Urosaurus ornatus	Generally a lizard of trees and rocky areas from deserts up to conifer forest; sometimes occurs in treeless areas.	Н
Common side- blotched lizard	Uta stansburiana	Arid or semi-arid regions with sand, rock, hardpan, or loam with grass, shrubs, and scattered trees; often found along sandy washes.	Н
Southwestern fence lizard	Sceloporus cowlesi	Occurs in a variety of habitats between semidesert grassland and montane conifer forest elevations.	Н
Desert spiny lizard	Sceloporus magister	Arid and semi-arid regions on plains and lower slopes of mountains, found in Joshua tree, creosote bush, and shad-scale deserts, mesquite-yucca grassland, juniper and mesquite woodland, subtropical thornscrub, and along rivers grown to willows and cottonwoods.	Н
Clark's spiny lizard	Sceloporus clarkii	Occurs primarily in oak and oak-pine woodlands; lower along riparian corridors.	Н
Regal horned lizard	Phrynosoma solare	Frequents rocky and gravelly habitats of arid and semi-arid plains, hills, and lower slopes of mountains. Much of its range is in succulent plant habitat of upland desert. Plants present may include cactus, mesquite, and creosote bush. Seldom found on sandy flats.	Н
Greater short- horned lizard	Phrynosoma hernandesi	Primarily a higher elevation species that occurs in a wide variety of habitats including Semidesert and Plains grasslands, sagebrush, and evergreen forest.	Н
Sonoran spotted whiptail	Aspidoscelis sonorae	Occurs from desertscrub through Semidesert Grassland up to Petran Montane Conifer Woodland.	M
Desert grassland whiptail	Aspidoscelis uniparens	Generally found on plains and gentle foothill slopes; occasionally in areas with scant cover of grasses and herbs, but more commonly where mesquite and yucca are present.	М
Giant spotted whiptail	Aspidoscelis burti stictogrammus	Usually in canyons and drainages in mountainous terrain; also low valley riparian corridors. Primarily occupies Semidesert Grassland and Madrean Evergreen Woodland.	Н

Table D-3. Amphibian and Reptile Species with Potential to Occur in the Project Study Area				
Common Name	Latin Name	Habitat	Potential	
Tiger whiptail	Aspidoscelis tigris	Inhabits deserts and semi-arid habitats, usually where plants are sparse. Also found in woodlands, among streamside growth, and in the warmer, drier parts of forests.	Н	
Great Plains skink	Plestiodon obsoletus	Occurs in moist habitats from creosote bush to pine-oak woodland elevations.	M	
Madrean alligator lizard	Elgaria kingi	Uses a variety of habitats: broadleaf riparian corridors, Semidesert Grassland, Interior Chaparral, woodlands, and Petran Montane Conifer Forest. Often found in moist areas with loose ground cover such as fallen leaves, pine needles, and other dead plant materials.	P	
Western banded gecko	Coleonyx variegatus	Occurs in a wide variety of arid habitats from dune areas to rocky hillsides in desertscrub habitat.	Н	
Gila monster	Heloderma suspectum	Chiefly inhabits shrubby, grassy, and succulent desert; occasionally enters oak woodland. Found in canyon bottoms or arroyos with permanent or intermittent streams, where it digs burrows or uses those of other animals.	М	
Western thread snake	Leptotyphlops humilis	Desertscrub and brush covered hillsides with loose soils.	M	
Sonoran coral snake	Micruroides euryxanthus	Occurs from Sonoran Desertscrub to Semidesert Grassland habitats.	L	
Variable sand snake	Chilomeniscus stramineus	Inhabits areas with fine to coarse sand and leaf litter; primarily a resident of Arizona Upland Desertscrub, but may occur above or below this habitat along drainages.	L	
Groundsnake	Sonora semiannulata	Wide range of arid and semi-arid habitats with sparse to dense vegetation in loose soil with some subsurface moisture.	L	
Smith's black- headed snake	Tantilla hobartsmithi	Arizona Upland Desertscrub to Great Basin Conifer Woodland habitats.	M	
Ring-necked snake	Diadophis punctatus	Madrean evergreen woodland.	P	
Nightsnake	Hypsiglena chlorophaea	Wide range of habitats, including deserts, grassland, chaparral, woodlands, and mountain meadows.	М	
Western lyresnake	Trimorphodon biscutatus	Occurs in rocky areas of lowlands, mesas, and lower mountain slopes; also in rockless areas. Found in a variety of vegetative communities, including creosote bush, desert grasslands, chaparral, piñon-juniper, and oaks.	М	
Gophersnake	Pituophis catenifer	Open areas in a variety of habitats, including desertscrub, grassland, chaparral, woodlands, and coniferous forest.	Н	

Table D-3. Amphibian and Reptile Species with Potential to Occur in the Project Study Area				
Common Name	Latin Name	Habitat	Potential	
Glossy snake	Arizona elegans	Below 6,000 feet in sparsely vegetated woodland, chaparral, grassland, or desertscrub with loose soils.	Н	
Spotted leaf-nosed snake	Phyllorhynchus decurtatus	Alluvial soils and bajadas in Sonoran Desert habitat.	M	
Saddled leaf-nosed snake	Phyllorhynchus browni	Occurs on bajadas or alluvial soils in Arizona Upland Desertscrub, but sometimes on flats of Lower Colorado River subdivision.	M	
Eastern patch- nosed snake	Salvadora grahamiae	Occurs in Interior Chaparral, Great Basin Conifer Woodland, and Madrean Evergreen Woodland habitats.	L	
Western patch- nosed snake	Salvadora hexalepis	Washes, bajadas, and hills in desertscrub up to Great Basin conifer woodland.	Н	
Green rat snake	Senticolis triaspis intermedia	Rocky slopes or associated with riparian habitats in Madrean evergreen woodland.	M	
Sonoran whipsnake	Masticophis bilineatus	Found in Arizona Upland Desertscrub habitat, Semidesert Grassland, Interior Chaparral, Madrean Evergreen Woodland, and Great Basin Conifer Woodland. Often found on sunny, brushy slopes.	Н	
Coachwhip	Masticophis flagellum	Sparsely vegetated areas from low desert to juniper woodland.	Н	
Long-nosed snake	Rhinocheilus lecontei	Desertscrub, prairie, and tropical woodland to 5,500 feet.	M	
Common kingsnake	Lampropeltis getula	Wide variety of habitats, including desert, grassland, chaparral, woodlands, and coniferous forests.	M	
Sonoran mountain kingsnake	Lampropeltis pyromelana	Occurs in rocky habitat with abundant leaf litter and a vegetation canopy from Interior Chaparral up to Petran Montane Conifer Forest elevations.	L	
Black-necked gartersnake	Thamnophis cyrtopsis	Upper deserts to lower Petran Montane Conifer Forest.	P	
Checkered gartersnake	Thamnophis marcianus	Lower Colorado River Desertscrub up to Semidesert Grassland; associated with livestock tanks and other water developments associated with agriculture.	M	
Western diamond- backed rattlesnake	Crotalus atrox	Wide range of habitats below 7,000 feet, including desertscrub, Semidesert Grassland, chaparral, woodlands, and open pine forest.	Р	
Mojave rattlesnake	Crotalus scutulatus	Mostly in upland desert and lower mountain slopes, desertscrub, semidesert grassland, juniper woodland; areas with scattered shrubby vegetation, including creosote bush and mesquite.	Н	

rattlesnake	rotalus molossus	Found in a wide variety of habitats, from Sonoran Desertscrub to the lower reaches of Petran Subalpine Conifer Forest. Woodlands appear to be favored habitat. Rarely found	Н
Tiger rattlesnake Cr		below flats in hilly or mountainous terrain.	
3	rotalus tigris	Occurs on slopes or washes in rocky mountains or foothills and occasionally desert flatlands, but normally within a mile of foothills, mountains, or rocky habitat. Inhabits upland Sonoran and Chihuahuan Desertscrub, chaparral or Madrean evergreen woodlands.	Н
Rock rattlesnake Cr	rotalus lepidus	Rocky canyons and foothills from chaparral up to Petran Montane Conifer Forest.	P
	rotalus willardi illardi	Heavily wooded canyons in Madrean evergreen woodland of Petran Montane Conifer Forest; sometimes lower.	L

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EXHIBIT E SCENIC AREAS, HISTORIC SITES AND STRUCTURES, AND ARCHAEOLOGICAL SITES

As stated in Arizona Corporation Commission Rules of Practice and Procedure R14-3-219:

"Describe any existing scenic areas, historic sites and structures or archaeological sites in the vicinity of the proposed facilities and state the effects, if any, the proposed facilities will have thereon."

Exhibit E-1.	Simulation 1
Exhibit E-2.	Simulation 2
Exhibit E-3.	Simulation 3
Exhibit E-4.	Simulation 4
Exhibit E-5.	Simulation 5
Exhibit E-6.	Simulation 6

Exhibit E includes summaries of existing visual (scenic) and cultural resources, as well as the potential impacts the proposed project may have on each resource.

SCENIC AREAS

This section of Exhibit E addresses visual resources, including scenery, sensitive viewers, and agency visual resource management classifications. The text below provides a description of the visual resource environment (visual inventory) for the proposed project, followed by a description of the potential impacts to visual resources.

The USFS and BLM are the primary federal agencies with established visual management systems to which the proposed project must adhere. Using methods derived from the USFS's Visual Management System (VMS) and Scenery Management System (SMS), as well as the BLM's Visual Resource Management (VRM) System (VRM 8400 Series 1986), the following visual resource assessment addresses the inventory and potential impacts of the proposed project associated with scenery (scenic quality, variety class/scenic attractiveness) and sensitive viewers, and where applicable, conformance with agency visual management classifications.

INVENTORY METHODOLOGY

The methods used to conduct the inventory were consistent with, and adhered to, the USFS's VMS (U.S. Department of Agriculture, USFS, Agriculture Handbook Number 462, 1947), SMS (U.S. Department of Agriculture, USFS, Agriculture Handbook Number 701, 1995), and BLM's VRM Manual (BLM 1986). This inventory was conducted within the regional and project study area previously described in Exhibit B. The visual resources inventory was conducted on all land regardless of jurisdiction, including public, state, and private that may be affected by the project within the study area. Visual resource data collected within the project study area was based on aerial photographs, topographic maps, planning documents, consultation with participating

agencies, and field investigations. This data was reviewed and an inventory was conducted to determine the quality of scenery (scenic quality, variety class/scenic attractiveness), sensitive viewers and associated viewing conditions (including distance zones and viewer position), and agency visual management classifications (visual quality objectives [VQOs] scenic integrity objectives [SIOs], and VRM). The inventory results are presented below, including a description of the preferred and alternative routes.

INVENTORY RESULTS

Scenery

In the context of this Project, scenery is a measure of the inherent aesthetic value of the landscape (scenery) based on existing landscape features, including landform, rockform (USFS), vegetation, water, color, adjacent scenery, scarcity, and cultural modifications (1974 Forest Service Handbook 462, 1995 Forest Service Handbook 701, and 1986 BLM VRM 8400 Series). This definition of scenery was based on, and is consistent with, USFS scenic attractiveness/variety class and BLM scenic quality concepts. In determining scenery, discreet landscape units were inventoried using GIS for the project based on similarities of the landscape features. Generally, landscapes with a greater diversity of these features receive a higher rating. Variety class/scenic attractiveness ranking units are used by the USFS to describe specific landscape types found within the regional landscape. Variety class/scenic attractiveness rankings are categorized into three classes: A (distinctive/distinctive), B (common/typical), and C (minimal/indistinctive). Scenic quality rankings for BLM landscape units also include three categories: Class A (outstanding), B (above average), and C (common). The evaluation of scenery for the project is consistent with visual resource inventory procedures and existing agency data for ranking scenic quality, variety class, and scenic attractiveness.

The project study area is located within the Basin and Range physiographic province in southeast Arizona (Fenneman 1931). Developed areas in the western portion of the regional study area include the Town of Sahuarita and Green Valley. The topographic character within the project study area is generally flat, with areas of bajadas and foothills associated with the Santa Rita Mountains. The Santa Rita Mountains and Box Canyon are two areas of visual interest associated with the CNF. The predominant vegetation of the study area is characterized by the Arizona Uplands Subdivision of Sonoran Desertscrub, Semidesert Grassland, and Encinal Oak communities (Brown 1994). Generally, the northwest side of the study area is within the Arizona Upland Sonoran Desert, which gradually transitions into Semidesert Grassland as the study area rises in elevation to the southeast. Encinal Oak communities occur at higher elevations east of the Santa Rita Mountains, where terrain is steeper. Isolated woodland vegetation such as Juniper and Piñon Pine are present within the Encinal Oak community, but not common within the project study area.

Existing conditions adjacent to the centerline of the proposed alternatives range from natural to completely modified, based on the occurrences of transmission lines, substations, transportation routes, and other structural features that can modify the scenic quality of natural settings. Existing conditions were evaluated by means of aerial photography and field reconnaissance to determine the location where modifications have affected natural settings. The water pipeline

required for the Project would locally modify the landscape setting between the proposed Toro Switchyard and the Rosemont Substation. The water pipeline ROW would be 30 feet wide and include a 14 to 20-foot permanent access road for construction, operation, and maintenance. This underground linear utility and associated access road would require removal of all vegetation within the ROW and landscape recontouring. When co-located with the water pipeline, the transmission line ROW (100') would be centered to include the entire water pipeline ROW so that the access road could be shared which would reduce construction disturbance. The existing 46kV transmission line is a wooden monopole that is slightly smaller in scale than the proposed 138kV transmission line. Landscape modifications associated with the existing 46kV transmission line access road are minimal due to vegetation regrowth; however, some portions of the access road have been improved to allow maintenance of the line. Generally, these improved portions of the access road can be described as a primitive, 2-track, unpaved road.

A description of the scenery and existing conditions associated with the alternatives are described below.

Preferred Route – The Preferred Route would be co-located with the water pipeline route along Santa Rita Road to the Rosemont Substation, and would traverse Class A, B, and C scenery. The Preferred Route would traverse Class C scenery near the proposed Toro Switchyard and along Santa Rita Road where the landscape would be locally modified by the water pipeline required for Rosemont mining operations. In the northwest portion of the study area Class C scenery is characterized by flat topography occupied by creosote bush and species of cholla. The majority of the Preferred Route would cross Class B scenery, where the landscape would be locally modified by the water pipeline required for Rosemont mining operations. Class B scenery along the Preferred Route is primarily associated with the bajadas and foothills of the Santa Rita Mountains. In this area, the Arizona Uplands Subdivision vegetation community is associated with the bajadas west of the Santa Rita Mountains and Encinal Oak communities to the east, at higher elevations within the mountains. In addition to the water pipeline, other modifications associated with Class B scenery include residential development near the junction of Santa Rita and Helvetia roads and unpaved roads within the SRER and CNF. Class C scenery near the junction of Santa Rita and Helvetia roads is characterized by rounded foothills with Semidesert Grassland; however, historic mining activities have locally influenced the landscape setting. The Preferred Route would traverse an isolated area of Class A scenery when crossing the Santa Rita Mountains at Lopez Pass, before the route terminates at the Rosemont Substation. In this area, Class A scenery includes the unique formation of peaks and ridges associated with the Santa Rita Mountains, which would be modified by the water pipeline route.

Alternative Route 1 — Between the proposed Toro Switchyard and the Rosemont Substation, Alternative Route 1 would traverse the same area as the Preferred Route, with the exception of a small portion that starts near the junction of links 130 and 105. At this junction, Alternative Route 1 would depart the water pipeline route along Santa Rita Road, heading northeast in a new corridor to Link 140. This segment of the alternative would cross approximately 1 mile of Class B scenery and 1 mile of Class C scenery that would require new access for construction of the project.

Alternative Route 2 and Alternative Route 3 – Generally, Alternative Route 2 and Alternative Route 3 traverse the same Class A, B, and C scenery as previously described for the Preferred

Route and Alternative Route 1, between the proposed Toro Switchyard and the Rosemont Substation. Alternative Routes 2 and 3 would be consolidated with an existing 46kV transmission line that has modified this setting from the proposed Toro Switchyard to Helvetia Road. Alternative Route 2 and Alternative Route 3 would cross approximately 2 additional miles of Class B scenery while paralleling a portion of Helvetia Road, before connecting to Link 105 (Alternative Route 1) or Link 130 (Alternative Route 2). Both alternatives will require approximately 1 mile of new access along link 120.

Alternative Route 4 – Alternative Route 4 would be consolidated with an existing 46kV transmission line from the proposed Toro Switchyard to Link 160. Alternative Route 4 would traverse Class B and C scenery, which in addition to the existing 46kV line, has been minimally modified by primitive unpaved roads within the SRER and the CNF.

The majority of Alternative Route 4 would cross Class B scenery within the SRER and CNF, which is primarily associated with the bajadas and foothills of the Santa Rita Mountains in this area. Topography and vegetation communities associated with these landscapes exhibit greater diversity than adjacent Class C scenery. Class C scenery within the western portion of the study area, including lands adjacent to the proposed Toro Switchyard, is characterized by flat topography occupied by creosote bush and species of cholla. East of the Santa Rita Mountains, Class C scenery is characterized by flat to gently rolling topography occupied by Semidesert Grassland. Class A scenery would not be crossed by this alternative.

Sensitive Viewers and Viewing Conditions

The term "sensitive viewers" refers to what the USFS considers VQO sensitivity levels or SMS constituent information and the BLM key observation points (KOPs). Potential sensitive viewers that may have views of the proposed project within the study area were identified in coordination with the CNF, field verified, and documented. Viewing locations, such as travel routes, recreation areas, and residences, are examples of locations where viewers have a concern, or sensitivity, to visual modifications of the landscape.

Viewer sensitivity was based on the following five criteria: (1) type of use (location); (2) volume of use; (3) view duration; (4) concern for aesthetics; and (5) scenic or historic status. The USFS uses "Constituent Analysis" to characterize viewer sensitivity. This analysis serves as a guide to perceptions of attractiveness, helps identify special places, and helps to define the meaning viewers give to the landscape. Constituent analysis assesses the relative importance of aesthetics to sensitive viewers, expressed as a Concern Level value of 1, 2, or 3, to reflect the relative High, Medium, or Low importance of aesthetics (or viewer sensitivity). Travel routes and trails that were assigned concern levels were identified by the CNF and considered in the inventory.

Viewers associated with locations, including residences, recreation, scenic, and/or USFS Concern Level 1 travel routes, are typically more sensitive to changes in the landscape, because viewing duration would be longer and the expectation for aesthetics would be greater for this type of user. Viewing conditions include consideration for distance from the project, visibility (e.g., skylined or backdropped), and viewer elevation.

The distance from the viewer to the project influences the project visibility. For this study project-specific influence zones were established based on visibility thresholds specific to 138kV transmission line facilities. Visibility is the perception of form, line, color, texture, and other visual elements in the landscape that changes with distance. These elements become less detailed and obvious as distance from a viewpoint increases.

Viewing conditions are also associated with the viewer's elevation to the project and could range from superior, where the viewer is looking down at the project, to level views and inferior views, where the viewer is looking up at the project. Potential views of the project could also be skylined or backdropped by adjacent terrain, vegetation, or structures. When the project is backdropped, the color, texture, and form of the proposed facilities can be more subdued, reducing visibility. When a project is skylined, portions of it will appear above the horizon line and would be seen in the context of typically blue sky.

Following are descriptions of inventoried sensitive viewing locations including viewer sensitivity, viewing conditions, and the influence zone in which the project would be viewed.

Preferred Route

Recreation and Travel Routes – Santa Rita Road was inventoried as having high sensitivity based on a formal scenic designation by Pima County (Pima County Major Streets and Scenic Routes Plan 2010). This designation, however, does not prohibit the construction of adjacent transmission lines of 46kV and above. Travelers on this route, a maintained unpaved route, are primarily associated with trucks going to Imerys Mine and residences near Helvetia. Recreation destination travel route viewers (associated with CNF) along this scenic route would have extended viewing duration of scenery, thus, concern for aesthetics is anticipated, whereas truckers hauling materials from Imerys marble mine (approximately 10-15 trips per day) would have less concern for aesthetics. The Preferred Route would be co-located with the water pipeline route, which would parallel Santa Rita Road on the north side. Views of the project within approximately 1/8 mile would be minimally screened for travel route viewers along Santa Rita Road. Helvetia Road is associated with moderate sensitivity and is one of the few access roads within the SRER that provides access to the CNF as well as private land. As a local destination and recreation access route, moderate use volume and viewing duration is anticipated, a moderate level of concern for changes in the landscape is anticipated. Viewers along Helvetia Road would have level views of the Preferred Route within approximately 1/8 to ½ mile, and these views would be minimally screened. At Link 140, the Preferred Route would continue to be co-located with the water pipeline before terminating at the Rosemont Substation. Viewers associated with a USFS Concern Level 1 road (FR 4051) near Link 140—a high sensitivity CNF travel route—would have inferior views of both alternatives within approximately ½ to ½ mile. Viewers associated with State Route 83 (Patagonia-Sonoita Scenic Road) may have views of Link 140, approximately 2 miles to the east from a scenic overlook/rest area, in context with Rosemont operations (also may be completely screened by tailings and waste rock piles depending on the alternative). There are no USFS Concern Level 2—or moderate sensitivity—travel routes associated with the Preferred Route. Dispersed recreation viewers are primarily associated with CNF and potential views of the Preferred Route may occur for portions of the route near Link 140 on forest land. It should be noted that Link 140

traverses approximately ½ miles of CNF lands while the remainder rests on Rosemont's private property.

Residences – Residential development associated with Sahuarita Highlands occur along Santa Rita Road northeast of the proposed Toro Switchyard and future residential viewers associated with the planned Quail Creek community in the southern portion of Sahuarita would have potential views of the Preferred Route and proposed Toro Switchyard within approximately ½ mile. These existing and future residences would have level views of the Preferred Route and the proposed Toro Switchyard within ½ mile (approximately) that would be partially screened by vegetation. The Preferred Route along Link 155 would have approximately 1 residence with superior views and 15 residences with level views of the project within approximately to ½ mile. Depending upon local conditions, in general, views would be minimally screened from a superior viewing condition, whereas level views may be partially screened by vegetation.

Alternative Route 1

Recreation and Travel Routes – Recreation and travel route viewers would generally be the same as previously described for the Preferred Route between the proposed Toro Switchyard and the Rosemont Substation.

Residences – Residential viewers associated with Sahuarita Highlands and Quail Creek would generally be the same as previously described for the Preferred Route. Near Helvetia, Alternative Route 1 would utilize links 130, 135, and 95 which would have approximately 7 residences with level views and 1 residence with superior views of the project within approximately ½ to ½ mile. As mentioned previously, depending upon local conditions, in general views would be minimally screened from superior viewing locations, whereas level view locations may be partially screened by vegetation.

Alternative Route 2 and Alternative Route 3

Recreation and Travel Routes – Generally, the majority of Alternative Routes 2 and 3 would be consolidated with the existing 46kV transmission line until Helvetia Road, where both alternatives parallel a portion of the road until the junction of links 130 and 105. At this junction, viewers along Helvetia Road would have level views of both alternatives withinto ½ mile (approximately), with minimal to partial screening by vegetation. Alternative Route 2 would be located along the water pipeline route at Santa Rita Road, whereas, Alternative Route 3 would cross Santa Rita Road heading northeast to Link 140. Sensitive viewers on Santa Rita Road would have level views of both alternatives within approximate hill with minimal screening. At Link 140, both routes would be co-located with the water pipeline before terminating at the Rosemont Substation. Viewers associated with a Concern Level 1 road (FR 4051) near Link 140—a high sensitivity CNF travel route— would have inferior views of both alternatives within 1/8 to 1/2 mile. Viewers associated with State Route 83 (Patagonia-Sonoita Scenic Road) may have views of Link 140, approximately 2 miles to the east from a scenic overlook/rest area, in context with Rosemont operations (also may be completely screened by tailings and waste rock piles depending on the alternative). There are no USFS Concern Level 2, or moderate sensitivity, travel routes near these alternatives. Dispersed recreation viewers are

primarily associated with CNF and potential views of both routes may occur for an isolated portion (link 140) on forest land.

Residences – There are existing residences near Helvetia (at the southeastern end of Santa Rita Road), Sahuarita Highlands, and future residences associated with the Quail Creek community. Alternative Route 2 would be co-located with the water pipeline route along Link 155, which would have 15 residences with level views and 1 residence with superior views of the project within approximately ½ to ½ mile. Alternative Route 3 would utilize links 130, 135, and 95 which would have 7 residences with level views and 1 residence with superior views of the route within ½ to ½ mile. Level views may be partially screened by vegetation, whereas, superior views would likely be minimally screened. Quail Creek future residences would have potential views of both alternatives and the proposed Toro Switchyard within approximately ½ mile. Views of both alternatives from Quail Creek may be partially to completely screened by vegetation and backdropped by terrain.

Alternative Route 4

Recreation and Travel Routes – Generally, the majority of Alternative Route 4 would be consolidated with the existing 46kV transmission line which traverses the Box Canyon area. Box Canyon Road is considered to have high sensitivity based on formal scenic designations by the CNF. In addition to this scenic designation, Box Canyon Road is identified by CNF as a Concern Level 1 road, which is associated with high sensitivity and concern for changes in the landscape. A portion of this alternative would be visible above the horizon line of the mountains (skylined) as the route crosses through the Box Canyon area. Alternative Route 4 would parallel Box Canyon Road within to ½ mile (approximately) for a short duration along Link 150. This alternative would also cross Box Canyon Road at Link 160; however, viewers would have partially to completely screened views of the project due to adjacent topography and vegetation. Other Concern Level 1 travel routes include the Arizona Trail—which is also formally designated as a National Scenic Trail—and Forest Roads (FRs) 231 and 229. Alternative Route 4 would generally parallel FR 231 for a short duration along Link 160, and the route would be minimally screened for sensitive viewers within 1/8 mile (approximately). This alternative would not cross the Arizona Trail and FR 229; however, an isolated portion of the project would be visible to recreation viewers along the Arizona Trail, which occurs within 1/4 mile of the route. Sections of the Arizona Trail, generally north of Box Canyon Road, would be relocated due to Rosemont operations; however, at this time the proposed trail realignments are conceptual. State Route 83 (Patagonia-Sonoita Scenic Road) viewers may have views of this alternative; however, modifications associated with Rosemont operations would be dominant and possibly screen portions of the route. Travel routes associated with moderate sensitivity include Helvetia Road, which crosses Alternative Route 4 at the junction of links 110, and 150. Views are anticipated to be minimally screened at the crossing; however, the majority of the route would be partially to completely screened by topography and/or vegetation. There is no USFS Concern Level 2—or moderate sensitivity—travel routes near this alternative. Dispersed recreation viewers are primarily associated with CNF and potential views of the project may occur for portions of the route (links 150, 160, 190, and 210) on forest land.

Residences – Existing residences in the Sahuarita Highlands development and future residential viewers associated with the Quail Creek community would have potential views of Alternative

Route 4 and the proposed Toro Switchyard within approximately ½ mile. Views of the project from Quail Creek would be partially to completely screened by vegetation. Alternative Route 4 would be backdropped by terrain as the route crosses the SRER into the Box Canyon area. Three residences near the CNF boundary, located north of Box Canyon Road, would have inferior views of the project within approximately ½ to ½ mile. As Alternative Route 4 rises in elevation to cross the Santa Rita Mountains, a portion of this alternative would be skylined and, therefore, would be visible from this residence.

Agency Visual Resource Management Classifications

Both the USFS and the BLM utilize systems that establish guidelines for acceptable change on public lands. No formal guidelines for managing visual resources on state or private land were identified.

Currently, visual management classifications for the CNF are based on the VMS manual (1974, Forest Service Handbook 462); however, the CNF is in the process of adopting the newer Scenery Management System. Per direction of the CNF, conformance with agency management objectives was assessed for the project using both management systems. Current VQO designations are specified in the Coronado National Forest Land and Resource Management Plan (1986). Updated SIO classifications are outlined in the Draft Land and Resource Management Plan (March 2010).

Each objective describes the integration of aesthetics with other biological, physical, and cultural resources. There are five classifications for both VQO and SMS, described in Table E-1.

Table E-1. USFS Visual Resource Management Classifications				
	VQO Classification	SIO Classification		
Preservation	This visual quality objective allows for ecological changes only. Management activities, except for very low visual impact recreation facilities, are prohibited.	Very High	Refers to landscapes where the valued landscape character is intact with only minute, if any, deviations.	
Retention	This visual quality objective provides for management activities that are not visually evident.	High	Refers to landscapes where the valued landscape character appears intact.	
Partial Retention	Management activities remain visually subordinate to the characteristic landscape when managed according to the partial retention visual quality objective.	Moderate	Refers to landscapes where the valued landscape character appears slightly altered.	
Modification	Under the modification, visual quality objective management activities may visually dominate the original characteristic landscape.	Low	Refers to landscapes where the valued landscape character appears moderately altered.	
Maximum Modification	Management activities of vegetative and landform alterations may dominate the characteristic landscape.	Very Low	Refers to landscapes where the valued landscape character appears heavily altered.	

The BLM has a similar approach, although management objective terminology differs from USFS. The BLM's VRM methodology to determine management classifications consists of an inventory of scenic values, which are classified into four management classifications as presented in Table E-2.

	Table E-2. BLM Visual Resource Management Classifications
Class I	To preserve the existing character of the landscape. The level of change to the characteristic landscape should be very low and must not attract attention.
Class II	To retain the existing character of the landscape. The level of change to the characteristic landscape should be low.
Class III	To partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate.
Class IV	To provide for management activities that require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high.

VRM class designations are typically determined by the scenic quality of the landscape, public concern for the maintenance of the scenic quality, sensitive viewers and associated visibility, and specific management prescriptions based on other resource concerns. BLM land in Pima County is currently specified within the Eastern Arizona Grazing Final EIS (1986).

Preferred Route and Alternative Route 1

Both routes would traverse approximately ½ mile of designated VQO partial retention. The Preferred Route and Alternative 1 would traverse ½ mile of high SIO. For these designated areas, the water pipeline route and Rosemont mining operations would modify the landscape setting.

The Preferred Route would not cross BLM land; however, Alternative Route 1 would traverse approximately 1.1 miles of VRM Class III land.

Alternative Route 2 and Alternative Route 3

Both alternatives would traverse approximately ½ mile of designated VQO of partial retention. Alternative Route 2 and Alternative Route 3 would traverse ½ mile of high SIO. For these designated areas, the water pipeline route and Rosemont mining operations would modify the landscape setting.

Alternative Route 2 would not cross BLM land; however, Alternative Route 3 would traverse approximately 1.1 miles of VRM Class III land.

Alternative Route 4

Alternative Route 4 would traverse approximately 1.6 miles of designated VQO of retention, which is associated with the Box Canyon area, 3.3 miles of partial retention, and 1.6 miles of modification designation. Areas of partial retention include FR 231 near Barrel Canyon. Approximately 6.5 miles of high SIO would be traversed by Alternative Route 4. For these designated areas, it is important to note that the existing 46kV transmission line and associated access road has modified the landscape setting

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Alternative Route 4 would not cross BLM land.

VISUAL IMPACTS

The purpose of the visual impact assessment is to identify and characterize the level of visual change in the landscape and the perception of that change from public viewing locations that could result from the construction, operation, and maintenance of the proposed project. Modification of the landscape is described in levels of visual contrast, which affects compliance with visual agency management objectives (i.e., VQO/SIO and VRM Classes), and impacts to scenery and sensitive viewers. The potential contrasts resulting from the proposed project were assessed using a methodology consistent with the BLM's Contrast Rating System (BLM Manual 8431). Following is a description of how visual contrast is determined and the results of the visual impact assessment. Included in this discussion are the impacts to (1) scenery, (2) sensitive viewers, and (3) management objectives for the project alternatives.

Visual Contrast

The visual resource contrast rating focused on the evaluation and characterization of the level of visual change resulting from the construction, operation, and maintenance of the project. The measure of visual change is termed contrast and is consistent with USFS and BLM visual impact assessment procedures. Impacts on scenery and sensitive viewers are determined, in part, by evaluating the project contrast the proposed facilities would generate within existing landscapes. Specifically, visual contrast considers the project's effects on existing landscape features, including vegetation, landform (access roads, mines, etc.) and structures (i.e., transmission lines, and other facilities) in terms of form, line, color, and texture. Generally, project contrast is anticipated to be stronger when the project crosses steep terrain and requires new access for construction and new vertical features are introduced.

Visual contrast typically results from (1) landform modifications that are necessary to prepare a project site or ROW for access and transmission line construction, (2) the removal of vegetation to construct and maintain facilities including access roads, and (3) the introduction of new structures into the landscape. Introduction of project facilities, including the transmission line and access roads may result in visual contrast ranging from strong to strong/moderate, moderate, moderate/weak, or weak, as defined below:

- Strong visual change demands attention and strongly dominates the landscape
- Strong/Moderate visual change begins to demand attention and is still moderately dominant in the landscape
- Moderate visual change attracts attention, but is co-dominant in the landscape
- Moderate/Weak visual change begins to attract attention and is moderately subordinate in the landscape
- Weak visual change can be seen, but is subordinate in the landscape

Visual Simulations

As a part of the evaluation of visual contrast, photographic simulations were prepared to evaluate the accuracy of the predicted visual effects and to determine the effectiveness of mitigation recommendations. During meetings with the CNF, potential simulation locations were selected and as a result, six locations for simulations were chosen to illustrate the range of potential project contrast (see Exhibit E-1 through E-6). These locations represent sensitive viewers (travel routes and residences) and typical viewing conditions (distance and visibility).

The following sections provide a general description of project contrast and potential impacts on scenery, sensitive viewers, and conformance with agency visual resource management classifications for the project.

POTENTIAL IMPACTS ASSOCIATED WITH ALTERNATIVES

Scenery

Preferred Route – The Preferred Route is anticipated to result in minimal impacts on Class C scenery and Class B scenery for portions of the route between the proposed Toro Switchyard to the Rosemont Substation. Co-location with the water pipeline would allow shared access for construction and operation that would effectively reduce landscape contrast for the entire route. Although structure contrast would be stronger because there are no existing similar vertical structures along the water pipeline route, shared access for construction would result in moderate project contrast. An isolated area along link 140 of the Preferred Route—which is associated with Class A scenery—would result in moderate/strong structure contrast resulting from the introduction of vertical features (i.e., transmission structures) and strong landscape contrast from the construction of access in steep, rocky terrain (landform contrast). The water pipeline would locally modify this portion of the preferred route; therefore, moderate/high impacts to Class A scenery are anticipated although a portion of this route would be modified by Rosemont mining operations.

Alternative Route 1 – Impacts to scenery for the majority of Alternative Route 1 are anticipated to be the same as the Preferred Route which would be co-located with the water pipeline; however, approximately 2 miles of this alternative would not be co-located and, therefore, project contrast would be stronger. Specifically, this portion of Alternative Route 1 is anticipated to result in moderate/strong contrast, because both landscape and structure contrast would be moderate/strong where new structures and access are required in Class B scenery (approximately 1 mile). Therefore, moderate impacts to Class B scenery are anticipated for the portion of Alternative 1 (link 130) that would not be co-located with the water pipeline (approximately 1 mile). Moderate/low impacts are anticipated for Class C scenery where new structures and access would be required (approximately 1 mile).

Alternative Route 2 and Alternative Route 3 – Alternative Route 2 and Alternative Route 3 would traverse Class C and B scenery that is similar to the Preferred Route and Alternative Route 1; however, both routes would be consolidated with the existing 46kV transmission line from the proposed switchyard to the junction of Helvetia Road. Structure contrast is anticipated to be weak; however, the existing primitive access road would require upgrading for construction

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and operation. Overall, impacts are anticipated to be minimal for Class C and B scenery when these alternatives would be consolidated with the 46kV transmission line, because project contrast would be greatly reduced. Both alternatives would require new access for construction along a portion of Link 120, which would result in moderate to moderate/strong landscape contrast in this area. In addition, new vertical structures would be introduced along Helvetia Road resulting in moderate/strong structure contrast and, therefore, moderate impacts on Class B scenery along Helvetia Road (approximately 2 miles) would occur. Alternative Route 2 and Alternative Route 3 impacts would be similar to impacts associated with the Preferred Route and Alternative Route 1, previously described, from the junction of Santa Rita Road to the Rosemont Substation.

Alternative Route 4 – The majority of Alternative Route 4 would traverse Class B scenery with some areas of Class C scenery, and no areas of Class A scenery would be crossed. Alternative Route 4 would be consolidated with the existing 46kV transmission line from the proposed Toro Switchyard to Link 160. Structure contrast is anticipated to be weak; however, the existing access road would require upgrading for construction and operation resulting in weak/moderate landform contrast in flat to rolling terrain; therefore, impacts are anticipated to be low in Class B and C scenery. Portions of Alternative Route 4 in steep terrain associated with the Box Canyon area would result in moderate landscape contrast where upgraded access would be required; therefore, impacts are anticipated to be low/moderate for an isolated portion of Alternative 4 in Class B scenery. The majority of the route occurs in flat to rolling terrain; therefore, impacts are anticipated to be low for Class B and C scenery when consolidated with the 46kV transmission line because project contrast would be minimized.

Portions of this alternative associated with the Rosemont mine operations (links 190 and 210) would result in weak project contrast, because the landscape setting would be associated with an industrial or modified landscape. Therefore, impacts to Class B scenery are anticipated to be minimal. A portion of the route (Link 160) would require new structures and new access in rolling terrain which would result in moderate/strong project contrast; therefore, moderate impacts are anticipated for this isolated portion of Alternative Route 4 on CNF land (approximately 1 mile).

Scenery Impact Summary

Overall, co-location with the water pipeline route would reduce landscape contrast resulting in low/moderate to moderate/high impacts to Class A, B, and C scenery for the Preferred Route. Moderate/high impacts to Class A scenery are anticipated for the Preferred Route, Alternative Route 1, Alternative Route 2, and Alternative Route 3; however, the water pipeline would locally modify this landscape setting. Isolated portions of Alternative Route 1, Alternative Route 2, Alternative Route 3, and Alternative Route 4 would require new access which would result in moderate impacts to Class B scenery. Portions of Alternative Route 2 and 3 would be consolidated with the existing 46kV transmission line, which would reduce both landscape and structure contrast resulting in low impacts to Class B and C scenery. Similar impacts are anticipated for Alternative Route 4 which would be consolidated with the existing 46kV transmission line for the majority of the route.

Sensitive Viewers

The following section summarizes the impacts to sensitive viewers resulting from the construction, operation, and maintenance of the project. Impacts to viewers along travel routes are anticipated to be greatest at crossings where moderate to moderate/strong project contrast would be visible to viewers, and when the travel route is immediately adjacent (within ½ mile) to the project. Recreation and residential viewers would have higher impacts when the project occurs within ½ mile or if there are superior views of the project.

Preferred Route

Recreation and Travel Routes – The Preferred Route would be located adjacent to the water pipeline from the proposed Toro Switchyard to the Rosemont Substation. Co-location with the water pipeline would result in moderate project contrast because access for construction would be shared between the project and the water pipeline. In addition, the presence of haul trucks associated with the Imerys Mine operations along Santa Rita Road would result in a moderate structure contrast. Therefore, structure and landscape contrast would be reduced. High sensitivity viewers associated with Santa Rita Road would have views of the Preferred Route with minimal screening of moderate project contrast (i.e., structures and access road) within 1/8 mile. Moderate impacts are anticipated for high sensitivity viewers with views of the Preferred Route along Santa Rita Road for approximately 7 miles. An isolated portion of Helvetia Road—a moderate sensitivity travel route—near the junction of Santa Rita Road would have low/moderate impacts because the Preferred Route would be visible for viewers on Helvetia Road for a short duration, with minimal to partial screening within 1/8 mile. Viewers associated with a USFS Concern Level 1 road (FR 4051) near Link 140 would have moderate to moderate/high impacts because landscape contrast would be stronger in steep terrain associated with the crossing of Lopez Pass which would be viewed within 1/8 mile. Impacts are anticipated to be minimal for viewers associated with State Route 83 where the project would be backdropped by adjacent terrain and viewed in context with Rosemont operations at a distance of 2 miles and beyond. For dispersed recreation viewers associated with CNF, the Preferred Alternative would be viewed in the context of the Rosemont mine operations; therefore, impacts are anticipated to be minimal.

Residences – Impacts are anticipated for residences within ¼ to ½ mile with level views of the route; however, project contrast would be greater for residences with views of the project less than ¼ mile or with superior viewing conditions. Residences associated with Sahuarita Highlands and existing and future Quail Creek residences are anticipated to have low/moderate impacts, because the Preferred Route and proposed Toro Switchyard would be partially screened by vegetation within ½ mile (approximately) and viewed in the context of existing transmission lines. Residences near southeastern Santa Rita Road, approximately 15, would have level viewing conditions of the Preferred Route, which would be partially screened by vegetation or backdropped by surrounding terrain. One residence would have superior views of the project within approximately ½ mile with minimal screening, and approximately 10 residences would have views of the project within less than ¼ mile.

Alternative Route 1

Recreation and Travel Routes – Generally, recreation and travel route viewers would be the same as previously described for the Preferred Route, between the proposed Toro Switchyard and the Rosemont Substation.

Residences – This route would have 7 residential viewers with level views, and 1 with a superior view, of the project within ½ to ½ mile (approximately) which would be minimally screened. Impacts are anticipated for residences within ¼ to ½ mile with level views of the route and project contrast would be greater from the residence with superior viewing conditions.

Alternative Route 2 and Alternative Route 3

Recreation and Travel Routes -A portion of Alternative Route 2 and 3 (approximately 7.6 miles) would have reduced structure and landscape contrast because it would be consolidated with the existing 46kV transmission line. Similarly, landscape contrast would be reduced for Alternative Route 2 and 3 when co-located with the water pipeline starting at links 105 and 140 respectively. Viewers along Santa Rita Road, a designated scenic road, may have views of these routes beyond 1 ½ miles and would be partially screened by vegetation resulting in low impacts. At the junction of Helvetia Road, Alternative Route 2 would co-locate with the water pipeline and would result in moderate impacts to viewers along Santa Rita Road within 1/8 mile. Alternative Route 3 would not parallel this scenic route but would cross the road perpendicularly near the junction of links 130 and 105. At this crossing, moderate impacts are anticipated for viewers along this scenic route; however, the viewing duration would be short. Moderate sensitivity viewers associated with Helvetia Road would have moderate impacts for an isolated portion of both routes where new access would be required and structures would be introduced (link 120). Impacts to recreation and travel route viewers would generally be the same as previously described for the Preferred Route and Alternative Route 1 at the junction of Link 120 and Santa Rita Road to the Rosemont Substation.

Residences – Existing and future residences near the Quail Creek community are anticipated to have low impacts because the routes and proposed Toro Switchyard would be partially to completely screened for future residences within ½ mile of both alternatives. Impacts to existing residential viewers along Santa Rita Road would be the same as previously described for the Preferred Route and Alternative Route 1 (links 155 and 130).

Alternative Route 4

Recreation and Travel Routes – The majority of Alternative Route 4 is anticipated to result in reduced project contrast, because the route would be consolidated with the existing 46kV transmission line from the proposed Toro Switchyard to Link 160 which would lower impacts to viewers. Alternative Route 4 would be visible for moderate sensitivity travelers along Helvetia Road for a short duration within ½ mile of the proposed facilities. Although the project would be minimally screened, reduced project contrast is anticipated because the project would be consolidated with an existing transmission line; therefore, impacts are anticipated to be minimal. Alternative Route 4 would parallel Box Canyon Road (Link 150) for a short duration within ½ to ¼ mile with minimal screening. High sensitivity viewers with views of the route paralleling the

road are anticipated to have moderate impacts because the Project would be viewed within mile where existing modifications associated with the 46kV transmission line are evident. The portion of the route that crosses Box Canyon Road (Link 160) would require new access and some areas of upgraded access along FR 231. Contrast is anticipated to be moderate/strong for portions of this alternative that would require new access for construction in moderate to steep terrain. Due to partial screening and short viewing duration, moderate impacts are anticipated; however, in steep terrain where new access and facilities would be visible at the crossing of Box Canyon Road, limited occurrences of moderate-high impacts are anticipated. Alternative Route 4 would not cross the Arizona Trail and FR 229. Views of the project from FR 229 would be screened by topography; therefore, impacts are not anticipated. Impacts to the Arizona Trail are anticipated to be low because a portion of Alternative 4 would be consolidated with an existing 46kV transmission line which would reduce project contrast. Portions of Alternative Route 4 would be viewed in the context of the Rosemont mine operations or existing 46kV transmission line for dispersed recreation viewers associated with CNF and, therefore, impacts are anticipated to be low. Recreation viewers along the re-routed portions of the Arizona Trail are anticipated to have low impacts because Alternative Route 4, if visible, would be viewed in context with the Rosemont operations; thus, contrast would be greatly reduced. Views of the project from State Route 83 may be partially to completely screened by Rosemont operations and viewed at a distance of 2 miles and beyond; therefore, impacts are anticipated to be low.

Residences – Existing residences associated with Sahuarita Highlands and existing and future residences near the Quail Creek community are anticipated to have low/moderate impacts, because Alternative Route 4 and the proposed Toro Switchyard would be partially to completely screened within approximately ½ mile of the project. Views of Alternative Route 4 from three residences near the CNF boundary would be minimally screened within ½ mile; however, project contrast would be reduced because it would be consolidated with an existing 46kV transmission line. Impacts for this residence near Box Canyon Road are anticipated to be low/moderate, due to weak project contrast.

Sensitive Viewers Impact Summary

Overall, co-location with the water pipeline route would reduce project contrast resulting in low to moderate/high impacts to residences, scenic travel routes, and a USFS Concern Level 1 road for the Preferred Route. Moderate/high impacts to residences near Helvetia with views of the Preferred Route and Alternative Route 2 within 1/8 mile are anticipated; however, the transmission line would be viewed in context with the water pipeline. Alternative Route 1 and Alternative Route 3 would reduce impacts for 7 residences because link 130 would be partially to completely screened by vegetation and topography; however, 8 residences would have impacts similar to the Preferred Route. Residences associated with the Quail Creek community would have distant views of Alternative Route 2, Alternative Route 3, and Alternative Route 4, which would result in weak/moderate project contrast based on consolidation opportunities with the 46kV transmission line. In addition, each of the routes (link 30) would be partially screened by vegetation and backdropped by adjacent terrain which would result in minimal impacts. Portions of all alternative routes would be viewed by residences associated with Sahuarita Highlands, approximately ½ mile from the proposed Toro Switchyard, although the project would be viewed in context with existing transmission lines which would reduce project contrast.

In addition, the preferred and alternative routes and the switchyard would be partially screened by vegetation resulting in low/moderate impacts.

Agency Visual Resource Management Classifications

Following is a description of compliance with agency management classifications.

Preferred Route and Alternative Route 1 –The Preferred Route and Alternative Route 1 would not be initially compliant with VQO classification of partial retention or SIO classification of high. The removal of vegetation on steep visible slopes and the introduction of a new structure would result in moderate/strong project contrast, and therefore, portions of the Preferred Route and Alternative Route 1 would not be consistent with VQO classifications partial retention or proposed SIO classification of high. The Preferred Route would be compliant with visual resource objectives based on (1) the forest land use plan being amended due to the Rosemont EIS or (2) the CNF plan revision would identify a new management area for Rosemont operations.

The Preferred Route does not cross BLM land. Alternative Route 1 is compliant and consistent with the VRM classification for VRM Class III, because the portions of the project would only occur on Class III, which allows management activities that partially retain the existing character of the landscape.

Alternative Route 2 and Alternative Route 3 – Both alternative routes would not be initially compliant with VQO classifications partial retention or SIO classification of high. The removal of vegetation on steep visible slopes and the introduction of a new structure would result in moderate/strong visual contrast, thus, non-compliance. Both alternative routes would be compliant with visual resource objectives based on (1) the forest land use plan being amended due to the Rosemont EIS, or (2) the CNF plan revision would identify a new management area for Rosemont operations.

Alternative Route 2 does not cross BLM land; however, Alternative Route 3 is compliant and consistent with the VRM classification for VRM Class III. Portions of Alternative Route 3 would only occur on Class III land for less than ½ mile, approximately. Class III allows management activities that partially retain the existing character of the landscape.

Alternative Route 4 — Alternative Route 4 would not be initially compliant with VQO classifications retention and partial retention or SIO classification of high. The removal of vegetation on steep visible slopes and the introduction of a new structure would result in moderate/strong visual contrast, thus non-compliance. Compliance is anticipated for portions of Alternative Route 4 within VQO modification, because management activities may visually dominate the original characteristic landscape. Alternative Route 4 would be compliant with visual resource objectives based on (1) the forest land use plan being amended due to the Rosemont EIS, or (2) the CNF plan revision would identify a new management area for Rosemont operations. Alternative Route 4 would not cross BLM land.

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HISTORIC SITES, STRUCTURES, AND ARCHAEOLOGICAL SITES

This section of Exhibit E describes "historic sites and structures or archaeological sites," commonly referred to as "cultural resources," for the proposed project alternatives and the potential effects to resources associated with each of the alternatives.

A detailed description of cultural resources in the project study area that were recorded during pedestrian surveys of proposed project alternatives have been documented in separate reports and submitted for review to the CNF. The results in those reports are summarized in this exhibit. The assessment was prepared, in part, to identify impacts to historic properties that may be eligible or are eligible for listing on the National Register of Historic Places (NRHP), in accordance with the National Historic Preservation Act of 1966, as amended. The assessment also was prepared to support the ACC's compliance with the State Historic Preservation Act (Arizona Revised Statutes 41-861 through 41-864), which requires state agencies to consider impacts of their programs on historic properties listed in, or eligible for, the Arizona Register of Historic Places (Arizona Register), and to provide the State Historic Preservation Office (SHPO) an opportunity to review and comment on the ACC's actions that affect properties listed on, or eligible for listing on, the Arizona Register.

March 2010.

To be eligible for the NRHP and the Arizona Register, properties must be at least 50 years old (unless they have special significance) and have national, state, or local significance in American history, architecture, archaeology, engineering, or culture. They also must possess integrity of location, design, setting, materials, workmanship, feeling, and association, and meet at least one of four criteria (Arizona Administrative Code, Title 12, Chapter 8, Article 3, R12-8-302):

- Criterion A: be associated with significant historical events or trends
- Criterion B: be associated with historically significant people
- Criterion C: have distinctive characteristics of a style or type, or have artistic value, or represent a significant entity whose components may lack individual distinction
- Criterion D: have yielded or have potential to yield important information concerning history or prehistory

Inventory Methods

Class III pedestrian surveys were conducted for the preferred and alternative routes by EPG in November and December 2009 (Sheehan et al. 2010) and in June and July 2010 (Swanson et al. 2010); and by SWCA between May and August of 2008 (Ezzo et al. 2009). Survey methods followed ASM and SHPO guidelines for 100 percent survey coverage, with a spacing of 15 meters between surveyors. ASM and SHPO guidelines were used to determine whether a property was classified as a historic property (site) or as an isolated historic item (such as an isolated artifact or feature). The Helvetia Cemetery is located within the corridor surveyed for the Preferred Route and Alternative Route 1. In accordance with ASM and SHPO guidelines, this cemetery does not qualify as a historic property since it is still in use. The project will avoid the Helvetia Cemetery.

Inventory Results

As a result of these surveys, 13 historic properties recommended eligible for listing on the NRHP were recorded along the various alternative routes. These include simple artifact scatters and resource processing sites, complex artifact scatters with extensive processing features such as hearths and roasting pits, prehistoric habitation sites, historic roads, historic mines and habitation sites, and two historic mining towns (Table E-3).

Table E-3. NRHP Eligible Historic Properties along Preferred and Alternative Routes					
No.	Site Number	Description	CL Length through Site	Route ¹	
1	AZ EE:1:80(ASM)	Historic mining town of Helvetia	1830'/560m (P, 2) 2823'/860m (1, 3)	P, 1, 2, 3	
2	AZ EE:1:99(ASM)	Prehistoric artifact scatter with thermal features and tools	817'/249m (P, 1) 846'/258m (2, 3, 4)	P, 1, 2, 3, 4	
3	AZ EE:1:242(ASM)	Prehistoric artifact scatter with thermal features and tools	512'/156m	2, 3, 4	
4	AZ EE:1:245(ASM)	Prehistoric artifact scatter with thermal features and tools	545'/166m	2, 3, 4	

No.	Site Number	Description	CL Length through Site	Route ¹
5	AZ EE:1:392(ASM)	Prehistoric artifact scatter with thermal features and tools	700'/213m	P, 1
6	AZ EE:1:446(ASM)	Prehistoric habitation site (multiple room blocks)	262'/80m	P, 2
7	AZ EE:1:450(ASM)	Historic CCC-constructed Box Canyon Road	50'/15m (P, 1) 107'/31m (4)	4
8	AZ EE:1:452(ASM)	Prehistoric resource processing	184'/56m	2, 3
9	AZ EE:1:454(ASM)	Prehistoric artifact scatter	604'/184m	4
10	AZ EE:1:455(ASM)	Prehistoric artifact scatter with features	358'/109m	2, 3, 4
11	AZ EE:1:423(ASM)	Historic mine and road	1207'/368m (spannable to north of centerline)	P, 1, 2, 3
12	AZ EE:1:431(ASM)	Historic road	Parallels CL for approximately 1654'/504m.	P, 1, 2, 3
13	AZ EE:2:149(ASM)	Historic mining town of New Rosemont	891'/272m (spannable west of centerline)	P, 1, 2, 3

Five of the properties are artifact scatters with features and potential for intact, subsurface cultural materials that are recommended eligible for listing on the NRHP under Criterion D for their potential to provide important information on the subsistence and settlement strategies of prehistoric inhabitants of the southern Tucson Basin area: AZ EE:1:99(ASM), AZ EE:1:242(ASM), AZ EE:1:245(ASM), AZ EE:1:392(ASM), and AZ EE:1:455(ASM).

One property is a prehistoric habitation site that is recommended eligible for listing on the NRHP under Criterion D, for its potential to provide significant information on settlement, subsistence, and social interaction during the Classic (AZ EE:1:446[ASM]) period in the southern Tucson Basin.

One property is a historic mining and transportation site that is recommended eligible for listing on the NRHP under Criterion D, for its potential to provide important information on historic mining practices in the Rosemont area (AZ EE:1:423[ASM]).

Two of the properties are historic roads. One is recommended eligible for listing on the NRHP under Criterion D, for its potential to provide important information on historic mining practices and transportation in the Rosemont area (AZ EE:1:431[ASM]); the other historic road is recommended eligible for listing on the NRHP under Criteria A and C (AZ EE:1:450[ASM]). Criterion A is relevant because this Civilian Conservation Corps (CCC)-constructed road is associated with events that have made a significant contribution to the broad patterns of American history, namely the efforts and results of the "New Deal" legislation during the Great Depression. The property is also significant under Criterion C, because the features along the road (mostly of hand-laid, rough, native stone) embody distinctive characteristics of a type, period, and/or method of construction.

The historic mining towns of Helvetia (AZ EE:1:80[ASM]) and New Rosemont (AZ EE:2:149[ASM]) are recommended eligible for listing on the NRHP under Criterion D, for their potential to provide important information on historic mining practices and habitation during the historic period in the Rosemont area. Helvetia (AZ EE:1:80[ASM]) was also recommended eligible for listing on the NRHP under Criterion A for its association with the historic theme of mining.

The remaining two properties (AZ EE:1:452[ASM] and AZ EE:1:454[ASM]) are artifact scatters/processing areas recommended eligible for listing on the NRHP under Criterion D for their potential to provide important information on the subsistence and settlement strategies of prehistoric inhabitants of the southern Tucson Basin area.

Preferred Route

Seven NRHP eligible properties are located along the Preferred Route (Table E-3). Two sites likely cannot be spanned by transmission line structures under the current project design; these are the historic mining town of Helvetia (AZ EE:1:80[ASM]) and an Archaic site (AZ EE:1:99[ASM]). Five sites likely can be spanned by transmission line structures under the current project design; these are the historic mining town of New Rosemont (AZ EE:2:149[ASM]), a prehistoric artifact scatter with thermal features (AZ EE:1:392[ASM]), a prehistoric habitation site (AZ EE:1:446[ASM]), a historic road and mine (AZ EE:1:423[ASM]), and a historic road (AZ EE:1:431[ASM]).

There are no sites associated with the proposed Toro Switchyard that is common to all alternatives.

Alternative Route 1

Six NRHP eligible properties are located along Alternative Route 1 (Table E-3). Two sites likely cannot be spanned by transmission line structures under the current project design; these are the historic mining town of Helvetia (AZ EE:1:80[ASM]) and an Archaic site (AZ EE:1:99[ASM]). Four sites likely can be spanned by transmission line structures under the current project design; these are the historic mining town of New Rosemont (AZ EE:2:149[ASM]), a prehistoric artifact scatter with thermal features (AZ EE:1:392[ASM]), a historic road and mine (AZ EE:1:423[ASM]), and a historic road (AZ EE:1:431[ASM]).

Alternative Route 2

Ten NRHP eligible properties are located along Alternative Route 2 (Table E-3). Two sites likely cannot be spanned by transmission line structures under the current project design; these are the historic mining town of Helvetia (AZ EE: 1:80[ASM]) and an Archaic site (AZ EE:1:99[ASM]). Eight sites likely can be spanned by transmission line structures under the current project design; these are the historic mining town of New Rosemont (AZ EE:2:149[ASM]), two artifact scatters with thermal features (AZ EE:1:242[ASM] and AZ EE:1:245[ASM]), a prehistoric habitation site (AZ EE:1:446[ASM]), two prehistoric artifact scatters with features (AZ EE:1:452[ASM] and AZ EE:1:455[ASM]), a historic road and mine (AZ EE:1:423[ASM]), and a historic road (AZ EE:1:431[ASM]).

Alternative Route 3

Nine NRHP eligible properties are located along Alternative Route 3 (Table E-3). Two sites likely cannot be spanned by transmission line structures under the current project design; these are the historic mining town of Helvetia (AZ EE: 1:80[ASM]) and an Archaic site (AZ EE:1:99[ASM]). Seven sites likely can be spanned by transmission line structures under the current project design; these are the historic mining town of New Rosemont (AZ EE:2:149[ASM]), two prehistoric artifact scatters with thermal features (AZ EE:1:242[ASM] and AZ EE:1:245[ASM]), two prehistoric artifact scatters with features (AZ EE:1:452[ASM] and AZ EE:1:455[ASM]), a historic road and mine (AZ EE:1:423[ASM]), a historic road (AZ EE:1:431[ASM]).

Alternative Route 4

Six NRHP eligible properties are located along Alternative Route 4 (Table E-3). One site likely cannot be spanned by transmission line structures under the current project design: Archaic site AZ EE:1:99(ASM). Five sites likely can be spanned by transmission line structures under the current project design; these are two artifact scatters with thermal features (AZ EE:1:242[ASM] and AZ EE:1:245[ASM]), the historic CCC-constructed Box Canyon Road (AZ EE:1:450[ASM]), a prehistoric artifact scatter (AZ EE:1:454[ASM]), and a prehistoric artifact scatter with features (AZ EE:1:455[ASM]).

POTENTIAL IMPACTS ASSOCIATED WITH ALTERNATIVES

An undertaking can have an impact on historic sites and structures and archaeological sites, when it alters the characteristics of the property that qualify it for inclusion on the NRHP or Arizona Register. Impacts are adverse when they diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Adverse impacts on historic properties include, but are not limited to:

- physical destruction of, or damage to, all or part of the property
- removal of the property from its historic location
- change of the character of the property's use, or of physical features within the property's setting that contribute to its historic significance
- introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic characteristics
- neglect of a property which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to a Native American tribe
- transfer, lease, or sale of property out of government ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance

The area of potential effects (APE) for direct impacts would include the areas that would be disturbed by construction and operation of the proposed project.

Indirect effects to cultural resources may also result from the construction and operation of the proposed project. Indirect effects are particularly relevant to traditionally sacred sites, historic towns, and historic roads where visual and auditory conditions are considered elements of a historic property's NRHP eligibility. Indirect effects include, but are not limited to:

- increased looting and surface collection of cultural resources through improved access to site areas
- increased off-road recreation and subsequent destruction/erosion of cultural resources through improved access to site areas
- introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic characteristics
- wild-land fires generated by increased public utilization of an area through improved access

Impacts to sites eligible for listing on the NRHP under Criterion D can be mitigated through avoidance, monitoring, and data recovery. Two methods of avoidance that can be utilized for this project are short reroutes and spanning. Typical spans between structures will be 750 feet, thereby avoiding the majority of potential impacts to surface and subsurface components. Therefore, all NRHP eligible sites less than 750 feet in length can be avoided through careful transmission line structure placement and spanning. All of the sites in Table E-4 can be spanned, with the exception of two sites: the historic mining town of Helvetia (AZ EE:1:80[ASM]) and an Archaic site (AZ EE:1:99[ASM]).

Impacts to sites eligible under Criteria A, B, or C cannot be avoided by spanning. This is because visual impacts may diminish the integrity of the property's significant historic characteristics. However, the consolidation of a transmission line with existing utility structures, upgrading existing utility structures for new line, or placing the Project adjacent to an existing line would reduce indirect visual impacts to these kinds of sites.

Table E-4. Potential Impacts to NRHP Eligible Sites by Route						
Route	Eligible Sites	Sites that Can be Avoided	Sites that Cannot be Avoided			
Preferred	7	5	2			
Alternative Route 1	6	4	2			
Alternative Route 2	10	8	2			
Alternative Route 3	9	7	2			
Alternative Route 4	6	5	21			

Includes site AZ EE:1:450(ASM) eligible under Criteria A, C and D, that can be spanned, but would experience indirect visual impacts.

Construction activities will potentially impact two sites that are recommended eligible, and may require mitigation (AZ EE:1:80[ASM] by the Preferred Route and Alternatives 1, 2, and 3, and AZ EE:1:99[ASM] by all routes).

Seven other eligible prehistoric artifact scatters and habitation sites with potential for subsurface features could potentially be impacted by the proposed project: AZ EE:1:242(ASM) by

Alternatives 2, 3, and 4, AZ EE:1:245(ASM) by Alternatives 2, 3, and 4, AZ EE:1:392(ASM) by the Preferred Route and Alternative 1, AZ EE:1:446(ASM) by the Preferred Route and Alternative Route 4, AZ EE:1:452(ASM) by Alternative Routes 2 and 3, AZ EE:1:454(ASM) by Alternative Route 4, and AZ EE:1:455(ASM) by Alternative Routes 2, 3, and 4. These sites can be spanned with careful transmission line structure placement.

Two eligible historic sites related to mining and transportation could potentially be impacted by the proposed project: AZ EE:1:423(ASM) by all routes and AZ EE:1:431(ASM) by the Preferred Route and Alternative Routes 1, 2, and 3. These sites can be spanned with careful transmission line structure placement.

Direct impacts to the CCC-constructed Box Canyon Road (AZ EE:1:450[ASM]), eligible under Criteria A, C and D, may be avoided through spanning. The integrity of the property's historic, visual setting that contributes to the property's NRHP eligibility, could be indirectly affected. However, if the transmission line were consolidated onto new structures placed in the same corridor as existing structures, impacts to this property's visual setting would be reduced.

Proposed construction activities will potentially affect different sites, depending upon which route is chosen (see Table E-3 and Table E-4). If the Preferred Route is chosen, 7 sites will potentially be affected, 4 of which can likely be spanned, and impacts to another avoided by placing a transmission structure in a non-contributing area of the site; Alternative Route 1 will potentially affect 6 sites, 4 of which can likely be spanned; Alternative Route 2 will potentially affect 9 sites, 7 of which can likely be spanned; Alternative Route 3 will potentially affect 9 sites, 7 of which can likely be spanned; and Alternative Route 4 will potentially affect 6 sites, 4 of which can likely be spanned, and another that can be spanned but may have indirect visual impacts.

To summarize, all routes have potential impacts to cultural resources (see Table E-4). The Preferred Route and Alternative Routes 1, 2 and 3 will directly impact two sites. Alternative Route 4 will have direct impacts to one site, and indirect impacts to another site. Each route thus has the potential to impact an equal number of historic properties.

If avoidance is not possible for register-eligible sites, impacts to these sites may be mitigated by the development and implementation of a Historic Properties Treatment Plan, in consultation with the CNF, Arizona State Lands, interested tribes, and the Arizona SHPO prior to construction. Possible mitigation measures that could be proposed in the Historic Properties Treatment Plan include archival research, data recovery, and construction monitoring.

In the event human remains or funerary objects are discovered during construction of the proposed project, all work in the area should cease and the finding be reported to the director of the ASM or designee, in accordance with Statutes 41-844 and 41-865.

REFERENCES

Ezzo, Joseph, Eric S. Petersen II, Stephanie M. Whittlesey, and Dennis Gilpin
 2009 Archaeological Survey for the Proposed Rosemont Copper Mine, Pima County, Arizona.
 SWCA Cultural Resources Report No. 0-35.

Sheehan, Michael S., Steve Swanson, and Steven Shelley

2010 A Cultural Resource Survey for the Rosemont Project utility Corridor Pima County, Arizona. EPG Cultural Resource Service Technical Paper No 2010-001. EPG, Inc., Phoenix, Arizona.

Swanson, Steve, Dustin Sunderman, Benjamin Snow, and Cara Lonardo

2010 A Cultural Resource Survey of the 46kV Alternative and Additional Area for the Rosemont Project 138kV Line Pima County, Arizona. EPG Cultural Resource Service Technical Paper No 2010-0017. EPG, Inc., Phoenix, Arizona.



Existing Condition - Santa Rita Road within the Santa Rita Experimental Range

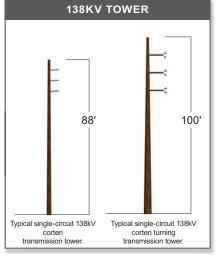


Simulated Condition - Proposed 138kV corten steel single-circuit transmission line and water pipeline with shared access road



Simulated Condition - Proposed 138kV galvanized steel single-circuit transmission line and water pipeline with shared access road





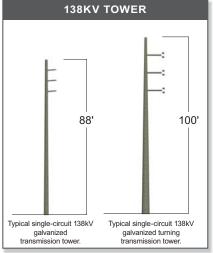


Photo Date and Time: 11-11-09, 2:14 p.m. Focal Length: 50mm

Structure models that were used in the simulations were created using diagrams provided by TEP. Pipeline information provided by Rosemont Copper.

This simulation represents a schematic concept design that will be refined and finalized. Actual final structure sizes, heights, materials, and conductor sag will vary on a case-by-case basis

Typical structures would range between 75 to 150 feet above ground and up to 199 feet for special clearance issues, with a span of 750 $\,$ feet. Typical conductor sag would be 34 to 46 feet above ground.



Rosemont 138kV Transmission Line Project **Exhibit E1: Simulation 1 - Preferred Route**

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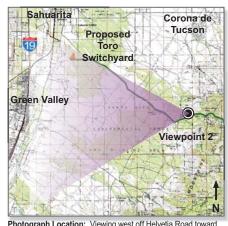
Existing Condition – Existing distribution lines and residences along Helvetia Road



Simulated Condition - Proposed 138kV corten steel double-circuit transmission line and water pipeline with shared access road

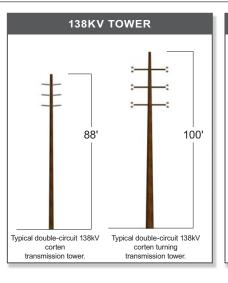


Simulated Condition - Proposed 138kV galvanized steel double-circuit transmission line and water pipeline with shared access road



Green Valley, Arizona.

Photo point is approximately 0.3 mile from nearest transmission line.



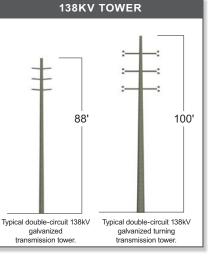


Photo Date and Time: 1-25-10, 10:50 a.m. Focal Length: 50mm

Structure models that were used in the simulations were created using diagrams provided by TEP. Pipeline information provided by Rosemont Copper.

This simulation represents a schematic concept design that will be refined and finalized. Actual final structure sizes, heights, materials, and conductor sag will vary on a case-by-case basis.

Typical structures would range between 75 to 150 feet above ground and up to 199 feet for special clearance issues, with a span of 750 feet. Typical conductor sag would be 34 to 46 feet above ground.



Rosemont 138kV Transmission Line Project Exhibit E2: Simulation 2 - Preferred Route

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Existing Condition – Box Canyon Road within the Santa Rita Mountains



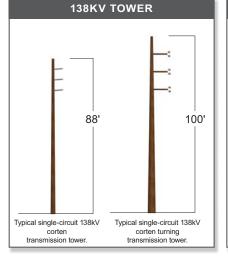
Simulated Condition - Proposed 138kV corten steel single-circuit transmission line



Simulated Condition – Proposed 138kV galvanized steel single-circuit transmission line



Canyon Road. Photo point is approximately 0.14 mile from nearest transmission line. Simulation location and viewpoint selected by Coronado National Forest landscape architect.



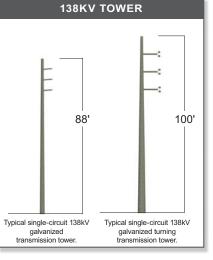


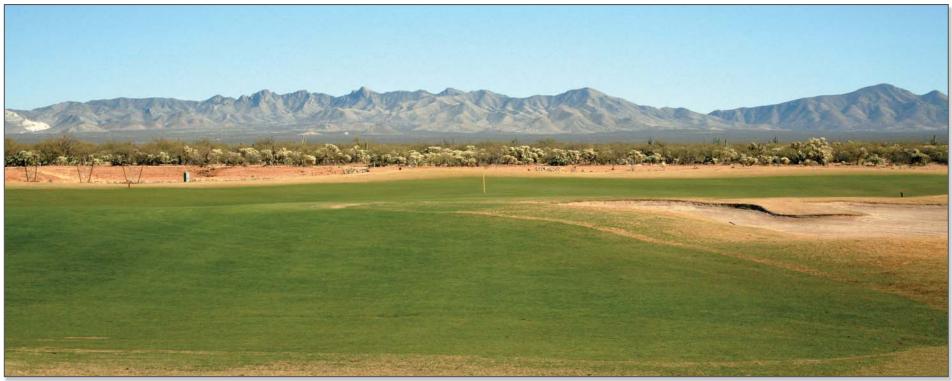
Photo Date and Time: 1-25-10, 12:59 p.m. Focal Length: 50mm

This simulation represents a schematic concept design that will be refined and finalized. Actual final structure sizes, heights, materials, and conductor sag will vary on a case-by-case basis.

Typical structures would range between 75 to 150 feet above ground and up to 199 feet for special clearance issues, with a span of 750 feet. Typical conductor sag would be 34 to 46 feet above ground.



Rosemont 138kV Transmission Line Project Exhibit E3: Simulation 3 - Alternative 4



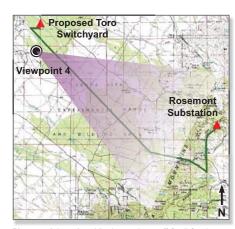
Existing Condition - Quail Creek Community Golf Course and existing 46kV transmission line



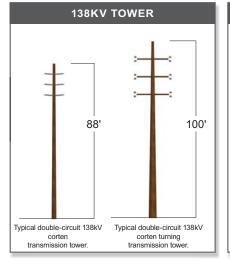
Simulated Condition - Proposed consolidated 138kV corten steel double-circuit transmission line



Simulated Condition - Proposed consolidated 138kV galvanized steel double-circuit transmission line



Photograph Location: Viewing southeast off Quail Cree Community Golf Course. Photo point is approximately 0.9 mile from nearest transmission line.



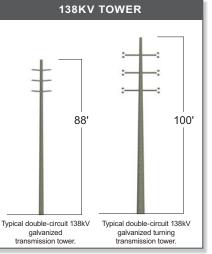


Photo Date and Time: 2-18-10, 2:37 p.m. Focal Length: 50mm

This simulation represents a schematic concept design that will be refined and finalized. Actual final structure sizes, heights, materials, and conductor sag will vary on a case-by-case basis.

Typical structures would range between 75 to 150 feet above ground and up to 199 feet for special clearance issues, with a span of 750 feet. Typical conductor sag would be 34 to 46 feet above ground.



Rosemont 138kV Transmission Line Project Exhibit E4: Simulation 4 - Alternative 4



Existing Condition – Sahuarita Highlands residences along East Broadwater Way, Santa Rita Road, and Santa Rita Mountains



Simulated Condition – Proposed 138kV corten steel single-circuit transmission line

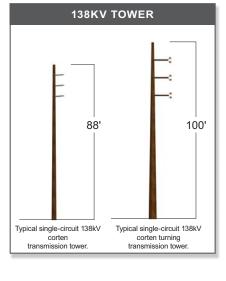


Simulated Condition - Proposed 138kV galvanized steel single-circuit transmission line



Highlands, on East Broadwater Way, toward Santa Rita Road.

Photo point is approximately 0.50 mile from nearest transmission line.



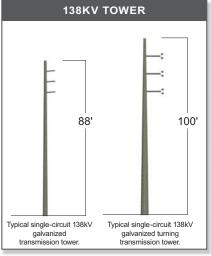


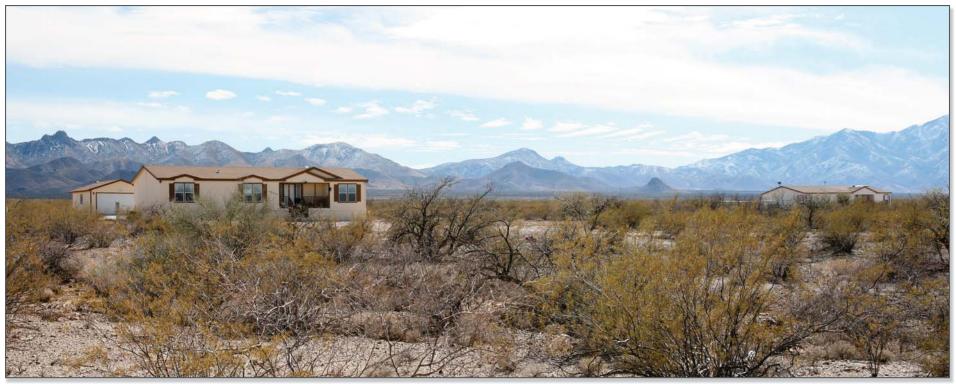
Photo Date and Time: 1-26-10, 11:45 a.m. Focal Length: 50mm

This simulation represents a schematic concept design that will be refined and finalized. Actual final structure sizes, heights, materials, and conductor sag will vary on a case-by-case basis.

Typical structures would range between 75 to 150 feet above ground and up to 199 feet for special clearance issues, with a span of 750 feet. Typical conductor sag would be 34 to 46 feet above ground.



Rosemont 138kV Transmission Line Project Exhibit E5: Simulation 5 - Preferred Route Alternative 1 November 2011



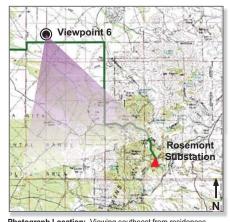
Existing Condition – Residences near Corona de Tucson, north of S. Kolb Road, with views of the Santa Rita Experimental Range and Santa Rita Mountains



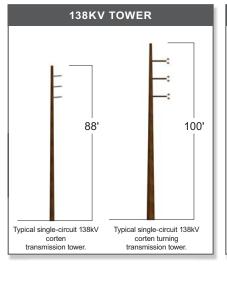
Simulated Condition – Proposed 138kV corten steel single-circuit transmission line



Simulated Condition - Proposed 138kV galvanized steel single-circuit transmission line



Photograph Location: Viewing southeast from residences, north of S. Kolb Road, toward the Santa Rita Mountains. Photo point is approximately 0.2 mile from nearest transmission line.



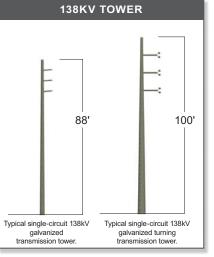


Photo Date and Time: 1-26-10, 1:19 p.m. Focal Length: 50mm

This simulation represents a schematic concept design that will be refined and finalized. Actual final structure sizes, heights, materials, and conductor sag will vary on a case-by-case basis.

Typical structures would range between 75 to 150 feet above ground and up to 199 feet for special clearance issues, with a span of 750 feet. Typical conductor sag would be 34 to 46 feet above ground.



Rosemont 138kV Transmission Line Project Exhibit E6: Simulation 6 - Northern Route Option 3 (Eliminated) November 2011

EXHIBIT F RECREATIONAL PURPOSES AND ASPECTS

As stated in Arizona Corporation Commission Rules of Practice and Procedure R14-3-219:

"State the extent, if any, the proposed site or route will be available to the public for recreational purposes, consistent with safety considerations and regulations and attach any plans the applicant may have concerning the development of the recreational aspects of the proposed site or route."

GENERAL OVERVIEW

Lands designated for public recreational purposes within the project study area include dispersed recreation, designated trails for hiking, and off-highway vehicle use. The Recreation Opportunity Spectrum (ROS) is a system used by USFS to inventory and classify land in terms of recreation experiences, opportunities, and settings. ROS settings within the project study area include Semi Primitive Motorized and Roaded Modified. Generally, the Semi Primitive Motorized designation includes areas with primitive roads, which would require high-clearance vehicles to access natural areas. The Roaded Modified designation in the project study area pertains to Box Canyon Road, which is passable by low-clearance vehicles primarily to access trails, campsites, and other areas of interest.

Within the regional study area, the Pima County Sonoran Desert Conservation Plan has identified a proposed new mountain park, the Santa Rita Mountain Park, adjacent to the northeastern corner of the CNF. The proposed park is outside the project study area and will not be affected by the project. The Eastern Pima County Trail System Master Plan has identified a network of several first, second, and third priority trails. The trail system is part of an extensive system of planned trails, including trails for equestrian use, biking, and hiking, as well as rest areas. The planned trails are all located outside the project study area.

As described in Exhibit E, several USFS Concern Level 1 routes—including the Arizona Trail, a designated National Scenic Trail, FR 4051, FR 231, Box Canyon Road, and FR 229—are identified for recreational use.

The land associated with SRER is currently owned by ASLD and leased by the University of Arizona for long-term ecological research. There are no existing or future plans to formally designate land within the SRER for public recreational purposes, although unauthorized recreation likely occurs on the range.

Potential Impacts Associated with the Alternatives

Preferred Route and Alternative Routes 1, 2, and 3

The Preferred Route and alternative routes 1, 2, and 3 would not cross any existing or planned trails for Pima County. The Arizona Trail and FR 229 would not be crossed by the Preferred Route or alternative routes 1, 2, or 3. In areas designated by the ROS as Semi Primitive Motorized and Roaded Modified, the introduction of the project, specifically the transmission

line facilities, may potentially diminish the natural character of the landscape. However, it is anticipated that the project would be consistent with the designations of the ROS, based on the forest land use plan being amended for the Rosemont EIS.

Alternative Route 4

Alternative Route 4 would not cross any existing or planned trails for Pima County. Alternative Route 4 would not cross the Arizona Trail or FR 229. A portion of Box Canyon would be paralleled/crossed by Alternative Route 4; however, the project would be consolidated with an existing 46kV transmission line. Box Canyon Road would be crossed near FR 231, which would be paralleled for a short duration by Alternative Route 4. In areas designated by the ROS as Semi Primitive Motorized and Roaded Modified, the introduction of the project, specifically the transmission line facilities, may potentially diminish the natural character of the landscape. However, it is anticipated that the project would be consistent with the designations of the ROS, based on the forest land use plan being amended for the Rosemont EIS.

REFERENCES

- Pima County Office of Conservation Science and Environmental Policy. Pima County Multiple Species Conservation Plan. December 23, 2008. Pima County, Arizona.
- Pima County. Pima County Comprehensive Plan Update Policies and Land Use Intensity Legend Version V. Adopted November 2009. Pima County, Arizona
- U.S. Department of Agriculture. Coronado National Forest Land and Resource Management Plan. Adopted August 4, 1986. Washington, D.C.: Forest Service.
- _____. 2010. Coronado National Forest Working Draft Land and Resource Management Plan. March 2010.

EXHIBIT G CONCEPTS OF PROPOSED FACILITIES

As stated in Arizona Corporation Commission Rules of Practice and Procedure R14-3-219:

"Attach any artist's or architect's conception of the proposed plan or transmission line structures and switchyards, which applicant believes may be informative to the committee."

Exhibit G-1.	Typical 138kV Single-Circuit Tangent Tubular Steel Monopole Structure	
Exhibit G-2.	Typical 138kV Double-Circuit Tangent Tubular Steel Monopole Structure	
Exhibit G-3.	Typical 138kV Single-Circuit Dead-End Tubular Steel Monopole Structure	
Exhibit G-4.	Typical 138kV Double-Circuit Dead-End Tubular Steel Monopole Structure	
Exhibit G-5.	Proposed Toro Switchyard	
Exhibit G-6.	Typical Pipeline and Transmission Line Easement	

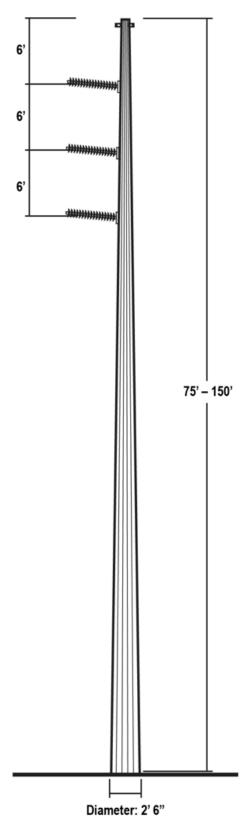


Exhibit G-1. Typical 138kV Single-Circuit Tangent Tubular Steel Monopole Structure

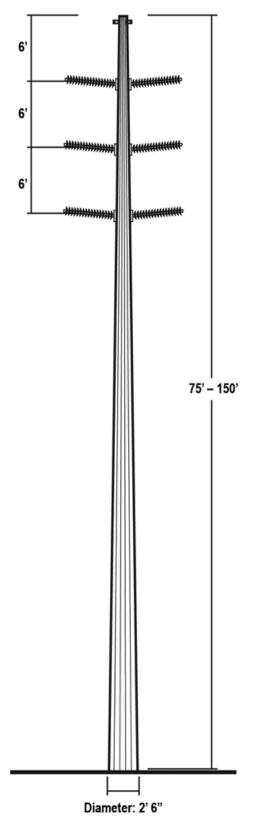


Exhibit G-2. Typical 138kV Double-Circuit Tangent Tubular Steel Monopole Structure

G-3

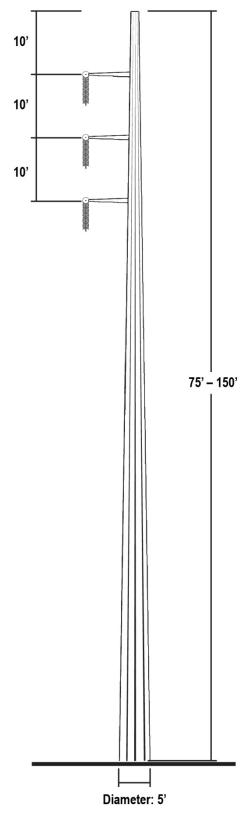


Exhibit G-3. Typical 138kV Single-Circuit Dead-End Tubular Steel Monopole Structure

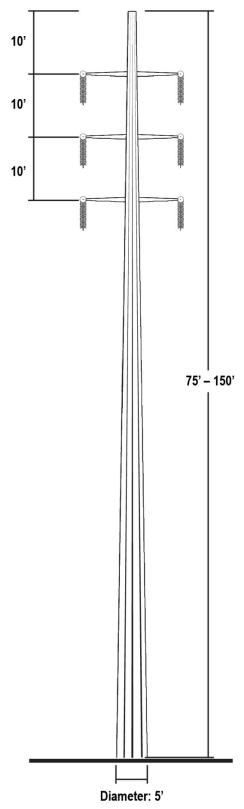


Exhibit G-4. Typical 138kV Double-Circuit Dead-End Tubular Steel Monopole Structure

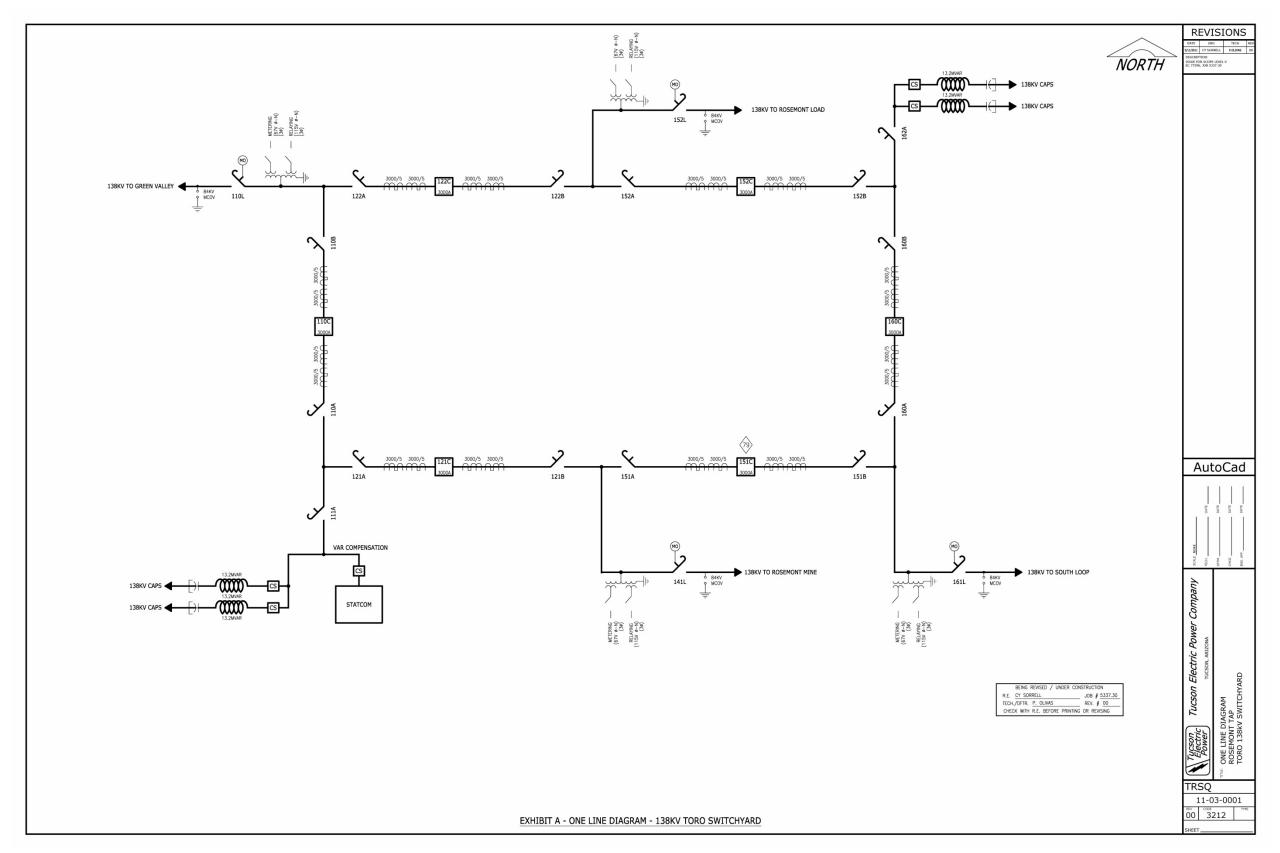


Exhibit G-5. Proposed Toro Switchyard

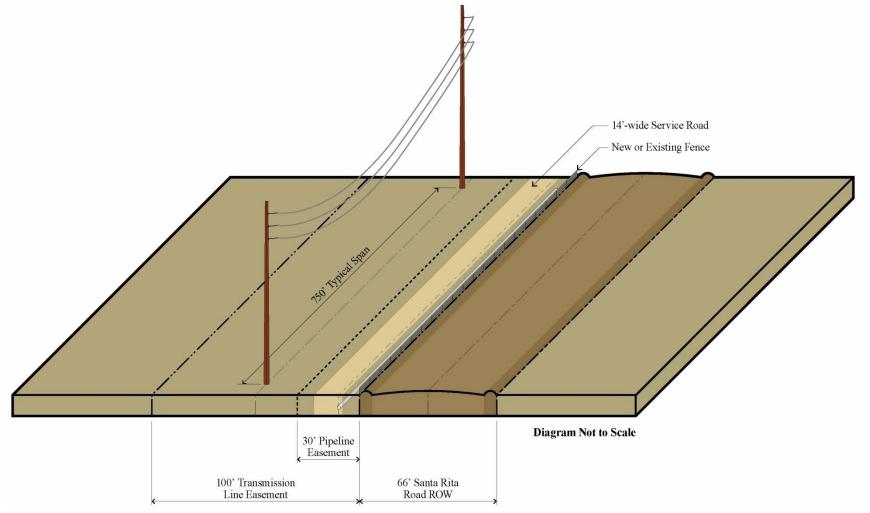


Exhibit G-6. Typical Pipeline and Transmission Line Easement

EXHIBIT H EXISTING PLANS

As stated in Arizona Corporation Commission Rules of Practice and Procedure R14-3-219:

"To the extent applicant is able to determine, state the existing plans of the state, local government, and private entities for other developments at or in the vicinity of the proposed site or route."

Exhibit H-1. Copy of Agency Letter Exhibit H-2. Responses to Agency Letter

Land uses are mapped in Exhibit A-2 and A-3 and discussed in Exhibit B. As part of the land use study, conceptual plans were gathered for the study area from the CNF, BLM, ASLD, Pima County, and Town of Sahuarita. Representatives from the CNF, BLM, Town of Sahuarita, and Green Valley Planning and Zoning Committee were included on the advisory stakeholder group for the planning process through which the alternative routes were reviewed, discussed, and determined. The purpose of this representation was to ensure consistency with plans, as well as to identify potential issues throughout the public planning and route selection process. Existing and future land use plans and input received from stakeholder group representatives regarding the planning process are summarized in Exhibit B. In general, the Preferred Route and Alternative Route 1 minimize conflicts with existing and planned land use on SRER and private (Rosemont) lands. Alternative Routes 2, 3, and 4 use the existing 46kV line route and link 120, which is not supported by SRER and ASLD because of the potential impact to repeat photography locations, research study areas, and/or livestock facilities. These long-term research facilities are sensitive to disturbance associated with construction, operation, and maintenance of the transmission line.

During the public planning process, members of the project team also met with representatives of the Pima County Development Services Department at key points in the planning process. In October, 2011, letters were sent to entities (listed in Table H-1) to provide project information, announce the preferred and alternative routes, and request new or additional information. Exhibit H-1 provides a copy of the agency letter and written responses.

Table H-1. Entities that Received Letters from TEP with Project Information		
Contact Name and Title	Jurisdiction/Agency	
Jim Upchurch Forest Supervisor	Coronado National Forest	
Brian Bellew Tucson Field Manager	Bureau of Land Management	
Ruben Ojeda Right-of-Way Section Manager	Arizona State Land Department	
Colin Kaltenbach Vice Dean and Director	University of Arizona, SRER	
Sherry Ruther Planning Manager	Pima County	

Table H-1. Entities that Received Letters from TEP with Project Information			
Contact Name and Title	Jurisdiction/Agency		
Sarah More Planning Director	Town of Sahuarita		
Stan Riddle President	Green Valley Coordinating Council		



October 7, 2011

RE: Rosemont 138kV Transmission Line Project

Dear ____,

As you know, Tucson Electric Power (TEP) proposes to site and construct a 138-kilovolt (kV) transmission line south of Tucson in Pima County, Arizona. The 138kV transmission line would extend from the proposed Toro Switchyard near the east side of the Town of Sahuarita to the proposed Rosemont Substation in the Santa Rita Mountains (see map, included). The distance for the preferred and alternative routes ranges from 13 to 18 miles. The line would traverse land that is owned primarily by the Arizona State Land Department, Rosemont Copper Company, and Coronado National Forest. Potentially, a small portion of Bureau of Land Management land could be crossed. The preferred and alternative routes would either parallel Santa Rita Road and a proposed water pipeline or co-locate with an existing 46kV line for a substantial portion of the route. Project construction is scheduled to begin after a Certificate of Environmental Compatibility is received from the Arizona Corporation Commission (ACC) and a decision approving the Rosemont Copper Project is issued by the Forest Service. The anticipated date for a Forest Service decision is in the first half of 2012.

Environmental Planning Group (EPG, Inc.) has been retained by TEP to assist with environmental siting and permitting for this project. We respectfully request your **response in writing** (an email is acceptable) as to whether or not you are aware of any changes to planned developments or activities in the vicinity of the proposed transmission line routes that should be brought to our attention. Your written response will be included in Exhibit H of the application for a Certificate of Environmental Compatibility. Submittal of this application to the Arizona Power Plant and Transmission Line Siting Committee of the ACC is in compliance with Arizona Revised Statute 40-360 (Article 6.2).

We would appreciate your response by October 19, 2011, so that we can evaluate the information prior to the submittal of the application, and thank you in advance for your reply. Should you have any questions, please do not hesitate to contact me by phone (602-956-4370) or email (lweinstein@epgaz.com).

Sincerely,

Lauren Weinstein Principal

cc: Ed Beck, TEP Project Manager Enclosure

Exhibit H-1. Copy of Agency Letter

Chelsa Johnson

From: Tim Bolton [tbolton@land.az.gov]
Sent: Thursday, October 13, 2011 3:03 PM
To: Chelsa Johnson; Ruben Ojeda
Cc: James Rees; Mark Edelman

Subject: Re: Fwd: Rosemont 138kV Transmission Line Project (14-115294,TEP)

Attachments: 18-114820_14-114819.pdf

Hi Chelsa - Per your request, I researched the area delineated on the attached map for development, current or proposed, on State Trust Lands.

The Department has two applications on file for the subject area. The applications are for a water pipeline and water recharge facility (see-attached maps). Both applications are in process and have yet to be approved. Should you have any questions regarding development and or planning activities please feel free to contact me, thank you

Tim Bolton
Principal Planner
Arizona State Land Department
Southern Arizona Real Estate Office
177 N Church, Suite 1104
Tucson, AZ 85701
(P) 520-209-4263
(f) 520-209-4251

http://www.land.state.az.us/

>>> Ruben Ojeda 10/11/11 9:19 AM >>>

Tim,

Would you please review the attached and provide an update; also, please copy me.

Thank you,

Ruben Ojeda ROW Section Manager Arizona State Land Department 1616 W Adams Street Phoenix, AZ 85007 Phone: (602) 542-2648 Facsimile: (602) 542-2720

E-mail: rojeda@land.az.gov Website: www.land.state.az.us

>>> "Chelsa Johnson" <<u>Cjohnson@epgaz.com</u>> 10/7/2011 4:30 PM >>>

Dear Mr. Ojeda,

The purpose of this email is to contact you regarding the Rosemont 138kV Transmission Line Project. As you may know, EPG was retained to assist TEP with the planning process and environmental studies for each of the proposed routes. At this time, we would like to request updated information pertaining to development or activities in the vicinity of these proposed routes. I've attached a PDF of the letter which wasalso mailed today regarding this request for information. We respectfully request your response in writing or email by Wednesday,

1

Exhibit H-2. Responses to Agency Letter

October 19, 2011. If you have any questions please do not hesitate to call me or Lauren at 602-956-4370. Sincerely, Chelsa Johnson | Senior Visual Resource Specialist/Project Coordinator | 602.956.4370 0 | 602.370.3622 C | 602.956.4374 F epg | 4141 North 32nd Street, Suite 102, Phoenix, AZ 85018 | cjohnson@epgaz.com (http://www.epgaz.com/) This email, including any attachments, is intended only for the use of the individual or entity to which it is addressed. It may contain information that is attorney work product, privileged, confidential, exempt or otherwise protected from disclosure or use under applicable law. If you have received this email in error, please notify the sender immediately by return email, and delete this email from all affected databases. Thank you.

Exhibit H-2. Responses to Agency Letter



Exhibit H-2. Responses to Agency Letter



Exhibit H-2. Responses to Agency Letter



Green Valley Council

Green Valley Village · 101 S. La Canada Drive, Suite 18 · Green Valley, AZ 85614-2633 (520) 648-1936 · Fax (520) 648-5079 · e-mail: gvccc@qwestoffice.net · web site: www.gvccc.org

October 17, 2011

Chelsa Johnson, Project Coordinator EPG Consultants 4141 North 32nd Street, Ste. 102 Phoenix, AZ 85018

Re: Rosemont 138KV Transmission Line Project

Dear Chelsa:

In response to your letter to President, San Riddle for any development activities near the proposed routes for this transmission project that should be brought to our attention, the following is our response:

- No projects in the Green Valley Specific Plan area have been submitted this year that would impact the proposed transmission routes.
- 2) The routes proposed do not directly affect the Green Valley Specific Plan area.

Should you have any questions, please contact me at (520-648-1936)

Sincerely,

Eddie Peabody, Jr. AICP

1st Vice President Green Valley Council

EP/kc

Cc: President, Stan Riddle

Executive Director, Sandi Richey

GDY OCT 18 2011

Exhibit H-2. Responses to Agency Letter





PIMA COUNTY DEVELOPMENT SERVICES DEPARTMENT

201 N. Stone Avenue, 2nd Floor Tucson, AZ 85701-1207

CARMINE DEBONIS, JR.
Director

Phone: (520) 740-6800 Fax: (520) 623-5411

October 14, 2011

Lauren Weinstein, Principal epg 4141 North 32 St., Suite 102 Phoenix, AZ 85018

Dear Ms. Weinstein:

This letter is in response to your letter to Sherry Ruther dated October 7, 2011 requesting information about "...any changes to planned development or activities in the vicinity of the proposed (Rosemont 138kv transmission line)..." of which she was aware.

There are several proposed development-related changes located within the project area designated on the map accompanying your letter. These include, but may not be limited to:

- A rezoning request under review by the County (Andrada Investors, LLC Andrada Road Alignment, Co9-11-08) requesting a rezoning from RH to SR, RH Restricted, TR, and CR-5 on 716 acres to allow 1,736 dwelling units. It is located approximately 1 mile north of Sahuarita Road between Houghton and Wilmot Roads.
- 2. A Comprehensive Plan Amendment [Farmers Investment Company (FICO) E. Continental Road, Co7-11-01] to change the designation from Resource Transition (RH), Low Intensity Rural (LIR), Low Intensity Urban 1.2 (LIU-1.2), Medium Intensity Urban (MIU), and Neighborhood Activity Center (NAC) to Medium Intensity Urban (MIU), Medium-High Intensity Urban (MHIU), Neighborhood Activity Center (NAC) and Community Activity Center (CA) for approximately 278 acres. This project is located generally on both sides of Continental Road, east of S. Abrego Drive.

Exhibit H-2. Responses to Agency Letter

- 3. A Comprehensive Plan Amendment [Landmark Title and Trust TR 7933-T (M & S Unlimited LLC) E. Sahuarita Road, Co7-11-02] to change the designation from Medium Intensity Rural (MIR) to Medium Intensity Urban (MIU) for approximately 22.01 acres located generally at the northeast intersection of Sahuarita Road and Calle Rinconado.
- 4. A 49-unit subdivision (Sycamore Canyon Block 1, P1210-012, is nearing final approval located on the western side of the intersection of Harrison and Camino del Toro Roads.

There may be additional development plans for commercial projects and recently approved subdivision plats that a search of our open files do not readily reveal. You may contact Pima County Subdivision Coordination for more information. You may examine the files for all projects at our office on the 2nd floor of the Public Works Building at 201 N. Stone Ave Monday through Friday (except holidays) between the hours of 8 AM to 5 PM.

Please be aware that activity within Pima County rights of way requires approval of permits from the Pima County Department of Transportation. It appears from information on the TEP website that the preferred alternative route for the transmission line, water line, 25kv underground electric line, and service road will be in a 100-foot wide utility corridor will be located outside and adjacent to the Santa Rita Road right of way. It is our understanding that a right of way approval must be granted by the Arizona State Land Department before any activity related to the transmission line can occur and that the Department will request comments from Pima County on an application for right of way.

Although you have not requested the following information, we are providing it for your information. The proposed areas for the transmission lines are located within Pima County zoning districts, the County's Comprehensive Plan, and within areas designated by the Sonora Desert Conservation Plan to conserve threatened and endangered sensitive wildlife and plant habitat. They are located within areas designated by the Conservation Lands System of the Comprehensive Plan as Biological Core and Multiple Use Management. These Comprehensive Plan guidelines are to conserve 80% and 66.67%, respectively, of a project within the designated areas as Natural Open Space.

The Pima County Department of Transportation's online GIS MapGuide maps indicate that the routes for the proposed lines run through the following areas designated for habitat protection by the Sonoran Desert Conservation Plan as Primary Conservation Area:

Chiricahua leopard frog Rufous-winged sparrow Swainson's hawk Lesser long-nosed bat Pale Townsend's big-eared bat Mexican long-eared bat Western red bat Pima pineapple cactus

MapGuide also indicates that portions of the proposed locations run through areas designated by the Board of Supervisors as priority for acquisition under the 2012 Bond for conservation of sensitive

201 N. Stone Avenue, 2nd Floor, Tucson, Arizona 85701 |Tel: 520-740-6800 |Fax: 520-623-5411

Exhibit H-2. Responses to Agency Letter

habitat.

Consistent with the above, any activity within the designated areas should be carried out in a manner that causes the least amount of harm.

Please do not hesitate to contact me at 520-740-6862, or by email at daniel.signor@pima.gov.

Sincerely,

Daniel C. Signor, AICP, LEED Green Associate

Senior Planner

 Nicole Fyffe, Executive Assistant to the County Administrator Carmine DeBonis, Development Services Director Arlan Colton, Planning Director

201 N. Stone Avenue, 2nd Floor, Tucson, Arizona 85701 |Tel: 520-740-6800 |Fax: 520-623-5411

Exhibit H-2. Responses to Agency Letter

Chelsa Johnson

From: Orlanthia Henderson [ohenderson@ci.sahuarita.az.us]

Sent: Wednesday, October 19, 2011 11:06 AM

To: Lauren Weinstein Cc: Sarah More

Subject: Rosemont 138kV Transmission Line Project

Lauren,

In response to your request for any changes or activities in the vicinity of the Rosemont 138kV Transmission Line Project, the Town of Sahuarita would like to indicate the acceptance of two documents for projects that may be located within the vicinity of the 138kV transmission line project. The first is the Sahuarita Farms Specific Plan submitted by Farmer's Investment Company. Town staff has requested for additional information prior to beginning review of the document. The project is located along the Santa Cruz River with a majority of the project located within Town limits, the remaining portion can be found in Pima County. The applicant has a website dedicated to the project: http://www.sahuaritafarms.com/

In addition to the Sahuarita Farms Specific Plan, the Town has received the La Jolla Verde Specific Plan. This project is located near the Interstate 19 & Nogales Highway/Duval Mine interchange. The entire project is located within Town limits.

Please contact me if you have any questions.

Thank you

Orlanthia Henderson

Planner

Town of Sahuarita

Planning & Building Department

Direct (520) 822-8851

Fax (520) 822-8876

375 W. Sahuarita Center Way

Sahuarita, Arizona 85629



Please consider the environment before printing this email.

1

Exhibit H-2. Responses to Agency Letter

Chelsa Johnson

From: Lauren Weinstein

Sent: Wednesday, October 19, 2011 9:01 AM

Chelsa Johnson To:

Subject: FW: Rosemont 138kV Transmission Line Project

----Original Message----

From: Colin Kaltenbach [mailto:kltnbch@ag.arizona.edu]
Sent: Wednesday, October 19, 2011 8:50 AM

To: Lauren Weinstein

Subject: Rosemont 138kV Transmission Line Project

I am responding to your letter of October 7, 2011 with regard to the Rosemont 138kV Transmission Line Project involving the Santa Rita Experimental Range. I am not aware of any changes in activities on the Santa Rita Experimental Range that would affect the proposed siting or construction of the proposed transmission line.

Sincerely,

Colin Kaltenbach Vice Dean and Director Arizona Agricultural Experiment Station

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Exhibit H-2. **Responses to Agency Letter**

EXHIBIT I ANTICIPATED NOISE AND INTERFERENCE WITH COMMUNICATION SIGNALS

As stated in the Arizona Corporation Commission Rules of Practice and Procedure R14-3-219:

"Describe the anticipated noise emission levels and any interference with communication signals which will emanate from the proposed facilities."

Certain electromagnetic effects are inherently associated with overhead transmission of electrical power at high voltage. These effects are produced by the electric and magnetic fields (EMF) of the transmission line, with one of the primary effects being corona discharge. Corona effects are manifest as audible noise, radio interference, and television interference. These particular effects will be minimized by line location, line design, and construction practices. Results presented in this exhibit are based on consideration of the various possible construction configurations along the transmission line route.

CORONA AND AUDIBLE NOISE

Noise emanating from a transmission line is caused by corona. Corona is the electrical ionization of the air that occurs near the surface of the energized conductor and suspension hardware, due to very high electric field strength. Corona may result in audible noise being produced by a transmission line.

The amount of corona produced by a transmission line is a function of the voltage of the line, diameter of the conductors, locations of the conductors in relation to each other, elevation of the line above sea level, condition of the conductors and hardware, and local weather conditions. Corona typically becomes a design concern for transmission lines at 345kV and above and is less noticeable from lines that are operated at lower voltages, such as this proposed 138kV transmission line.

The electric field gradient is greatest at the surface of the conductor. Large-diameter conductors have lower electric field gradients at the conductor surface; hence, lower corona than smaller conductors, everything else being equal. The conductors for the project would be selected to have large diameters, and thus a reduced potential to create audible noise. Irregularities (such as nicks and scrapes on the conductor surface or sharp edges on suspension hardware) concentrate the electric field at these locations, increasing the electric field gradient and the resulting corona at these spots. Similarly, foreign objects on the conductor surface, such as dust or insects, can cause irregularities on the surface that are a source for corona.

Corona also increases at higher elevations where the density of the atmosphere is less than at sea level. Audible noise varies with elevation with the relationship of A/300, where A is the elevation of the line above sea level measured in meters (EPRI 2005). Audible noise at a 600-meter elevation would be twice the audible noise at 300 meters, all other things being equal.

Raindrops, snow, fog, hoarfrost, and condensation accumulated on the conductor surface are also sources of surface irregularities that can increase corona. During fair weather, the number of these condensed water droplets or ice crystals is usually small and the corona effect is also small. However, during wet weather, the number of these sources increases (e.g., due to rain drops standing on the conductor) and corona effects are therefore greater. During wet or foul weather conditions, the conductor would produce the greatest amount of corona noise; yet noise generated by heavy rain hitting the ground would typically be greater than the noise generated by corona, thus masking the audible noise from the transmission line.

Corona produced on a transmission line can be reduced by the design of the transmission line, and the selection of hardware and conductors used for the construction of the line. For instance, the use of conductor hangers that have rounded rather than sharp edges and no protruding bolts with sharp edges would reduce corona. The conductors themselves can be made with larger diameters and handled so that they have smooth surfaces without nicks, burrs, or scrapes in the conductor strands. The transmission line proposed for this project will be designed to reduce corona generation.

Some level of noise will result from transmission line construction, operation, and maintenance. During construction, equipment used for assembly and erection of structures, wire pulling and splicing, and rehabilitation activities will generate noise. Noise from construction activities would be audible, particularly, to the closest residents. This construction noise, however, would not be considered a major impact because construction would occur during daytime hours when tolerance to noise is higher, and would be temporary lasting only a few days at a time in any one location. Long-term noise impacts from transmission line operation and maintenance activities are expected to be minimal.

RADIO INTERFERENCE

Corona-generated radio interference is most likely to affect the amplitude modulation (AM) radio broadcast band (535 to 1,605 kilohertz); frequency modulation (FM) radio is rarely affected. Only AM receivers that are tuned to a weak station and are located very near to transmission lines have the potential to be affected by radio interference. An example is the humming noise on an AM radio that happens when the radio is near a power line, but diminishes as the radio moves away from the line. There should be little to no AM radio interference from any of the proposed project alternatives. FM radio is rarely affected by transmission lines. FM radio receivers usually do not pick up interference from transmission lines, because coronagenerated radio frequency noise currents decrease in magnitude with increasing frequency and are quite small in the FM broadcast band (88 to 108 megahertz). In addition, the excellent interference rejection properties inherent in FM radio systems make them virtually immune to amplitude-type disturbances. There should be little to no FM radio interference from any of the proposed project alternatives.

TELEVISION INTERFERENCE

Interference with over the air television reception from the transmission line's corona effects may occur during periods of bad weather, but is usually only a concern for transmission lines of

I-2

345kV or greater and only for receivers within 500 feet of the line. Because the nominal voltage is 138kV, television interference is not expected.

ELECTRIC AND MAGNETIC FIELD EFFECTS

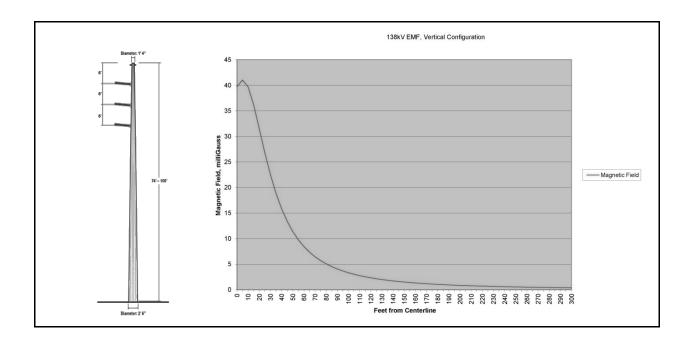
EMF are produced by power lines, and these fields would induce voltages and currents on nearby conductive objects. Electric fields are produced whenever a conductor is connected to a source of electrical voltage; for example, the plugging of a lamp into a wall outlet in a home. When the lamp is plugged in, a voltage is induced in the cord to the lamp, which causes an electric field to be created around the cord. Magnetic fields are produced whenever an electrical current flows in a conductor. In the lamp example, if the lamp is turned on (allowing electricity to flow to the lamp), a magnetic field is created around the lamp cord, in addition to the electric field. These fields exist around overhead and underground power lines, house wiring, computers, power tools, appliances, and anything that carries or uses electricity. Table I-1 demonstrates examples of EMF levels from various electrical sources.

Table I-1. EMF Strength of Various Electrical Sources at Various Distances							
EMF Source ¹	Distance	Strength	Distance	Strength	Distance	Strength	
Microwave Oven	0.5 ft	200 mG	1.0 ft	4 mG	4.0 ft	2 mG	
Vacuum Cleaner	0.5 ft	300 mG	1.0 ft	60 mG	4.0 ft	1 mG	
Hair Dryer	0.5 ft	300 mG	1.0 ft	1 mG	4.0 ft	0 mG	
Electric Shaver	0.5 ft	100 mG	1.0 ft	20 mG	4.0 ft	0 mG	
138kV Transmission Line, vertical ²	0 ft	40 mG	50 ft	11 mG	300 ft	0.4 mG	

¹ Appliance magnetic field strengths are median values in milliGauss (mG) for typical 60 Hz electrical current (source: USNIEHS 1999; Department of Energy 1995)

Both current and voltage are required to transmit electrical energy over a transmission line. The current, a flow of electrical charge, measured in amperes, creates a magnetic field. This can fluctuate with the amount of line loading at any given time. The voltage (force or pressure that causes the current to flow), measured in units of volts or thousand volts, creates an electric field. Though an electric field is present anytime a line is energized, even from one end, the magnetic field exists only when electricity flows. It is general practice to consider both fields together as EMF values in assessing the amount of effect at the outer edge of a transmission line's ROW. EMF decreases in strength with increased distance from the source. In addition, electric fields are further weakened by obstacles such as walls, roofs, trees, and vegetation. However, magnetic fields are not easily shielded by most materials and are primarily reduced in strength by distance alone. The EMF values associated with this project are expected to be comparable to other 138kV transmission lines in the state and are expected to be within generally accepted standards at the edge of the proposed ROW.

² 138kV power line ROW is 100 feet wide; 0-foot values represent directly below the lines at lowest point of sag



REFERENCES

IEEE/ANSI Standard C2-2007. National Electrical Safety Code.

National Academy of Sciences 1977. *Guidelines for Preparing Environmental Impact Statements on Noise*. Washington D.C.

National Academy of Sciences 1996. Possible Health Effects of Exposure to Residential Electric and Magnetic Fields. National Research Council.

National Institute of Environmental Health Sciences 1999. Health Effects from Exposure to Power-Line Frequency Electric and Magnetic Fields.

Environmental Health Information Service. Available at www.niehs.nih.gov/health/topics/agents/emf/index.cfm.

World Health Organization. Available at www.who.int/peh-emf/en.

EXHIBIT J SPECIAL FACTORS

As stated in the Arizona Corporation Commission Rules of Practice and Procedure R14-3-219:

"Describe any special factors not previously covered herein, which Applicant believes to be relevant to an informed decision on its application."

Exhibit J-1. Stakeholder Group Information Packets

Exhibit J-2. Project Newsletters

Exhibit J-3. Public Meeting Boards

Exhibit J-4. Website

Exhibit J-5. Agency Letters Received

INTRODUCTION

This exhibit includes information on the public and agency involvement program conducted for the Rosemont 138kV Transmission Line Project. As part of the overall planning process for siting the line, an extensive public involvement program was initiated in 2008 and continued into 2011 to notify and educate the public, agencies, community leaders, and other affected or interested parties of the proposed project and to allow participation throughout the environmental planning process.

PUBLIC AND AGENCY INVOLVEMENT PROGRAM SUMMARY

Public and agency involvement was an integral part of the environmental planning process for this project. TEP and EPG facilitated the public and agency involvement process that began early in the siting study, offering the community an opportunity to obtain information and provide input at all stages of the project. Through these activities, the community became instrumental in the planning process. This process was intended to ensure effective and timely communication between TEP and EPG staff, the public, agencies, and other interested parties. Several different public outreach efforts were used to inform the members of the community in the study area. Those efforts included:

- Community and agency briefings
- Stakeholder group
- Public open houses
- Telephone information line
- Internet website (including online comment form and interactive project map)
- Newsletters

The outreach effort was designed to offer multiple opportunities for interested parties to gain information and provide input. In each key step of the planning process, the public was presented with an opportunity to review and comment on new and updated project information. The public

process allowed the project team to be responsive to the comments and concerns expressed. The methods of communication and public interaction listed above are explained below.

Community and Agency Briefings

In order to introduce the proposed project, gauge the level of public concern, and identify potential issues, a number of key individuals within the various jurisdictions and agencies were identified to meet with and introduce the proposed project. At these briefings, project team members explained the purpose and need of the project, project description, and the environmental siting process, and asked for suggestions and opinions. TEP received input on concerns and sensitive resource areas within the study area. Community leaders and others that were briefed are included in Table J-1.

Table J-1. Community and Agency Briefing List		
Agency/Organization	Name/Title	
U.S. Forest Service	John Able, Deputy Director of Communications	
	Andrea Campbell, NEPA Coordinator	
	Teresa Ann Ciapusci, Project Manager	
	Beverly Everson, Geologist	
	Reta Laford, Deputy Forest Supervisor	
	James Copeland, Nogales District Ranger	
	Mindee Roth, Special Assistant to Forest Supervisor	
Arizona State Land Department	Ruben Ojeda, ROW Section Manager	
Pima County Board of Supervisors	Patrick McKenna, Special Staff Assistant to Carroll, Ray, Supervisor, District 4	
	Arlan Colton, Planning Director	
	Neva Connolly, Office of Conservation Science and Environmental Policy	
	Julia Fonseca, Environmental Planning Manager, Office of Conservation Science	
Pima County	Nicole Fyffe, Executive Assistant to the County Administrator	
	Chris Poirier, Assistant Planning Director, Development Services	
	Sherry Ruther, Planning Manager, Development Services	
	Nanette Slusser, Assistant to the County Administrator, Public Works Policy	
	John Beall, Principal Planner	
City of Tucson	Chris Kaselemis, Administrator, Comprehensive Planning Division	
	Josh Pope, Director of Geospatial Services	
Town of Sahuarita	Orlanthia Henderson, Planner	
Mountain Empire Action Alliance	Alison Bunting	
Sonoita Area Residents	13 residents	
Corona De Tucson	33 residents	

Regular briefings were held with Pima County and the CNF to provide updates to the project and request feedback and data input.

Stakeholder Group

During the initial phase of the project, key stakeholders in the regional study area that would have potential interest in the proposed project were identified. A stakeholder group, whose members are listed in Table J-2, was formed to represent a range of interests and opinions in a forum small enough to allow for thorough education of the participants, detailed discussion of issues, and informal dialogue. The intention of the group was to provide input during the process (not a decision making body). Representation in the group included federal, state and municipal agencies that have administrative jurisdiction within the project area; industry/business; and citizens on behalf of their communities/neighborhoods. Representatives from several agencies/organizations were contacted for possible participation in the group but declined (or did not respond to the request to participate) including Pima County (a county representative did attend meeting #6), Arizona Department of Transportation, Save the Scenic Santa Ritas, Sky Island Alliance, Sonoran Institute, and Coalition for Sonoran Desert Protection (represents numerous members including environmental and other organizations). Members were selected based on their knowledge of the project area, capability to commit the time required to participate in the stakeholder group throughout the planning process, and willingness to participate in an impartial manner. Phone interviews were conducted by EPG to introduce the project and solicit their participation in the planning process. Members of the stakeholder group participated in a series of six meetings at key milestones in the siting process. In addition to the meetings, stakeholder group members had an opportunity to participate in an optional field trip to the project site. A Rosemont representative also participated in these meetings to respond to questions regarding mine operations as it related to transmission line development and operation. Members were also informed of and encouraged to attend the public open houses which typically followed these meetings. Six meetings were held at TEP's downtown Tucson office and an optional field trip was arranged. The stakeholder group meetings (and optional field trip) were held on the dates listed below.

- February 12, 2009
- July 22, 2009
- December 10, 2009
- January 25, 2010 (optional field trip)
- March 5, 2010
- October 27, 2010
- May 12, 2011

Stakeholder group meeting No. 1 was held on February 12, 2009. In this first meeting, an overview of the purpose and need for the project, project schedule, public participation process, environmental data collected to date, opportunities for siting a 138kV transmission line, and potential issues and concerns for the project were discussed. During the meeting, the group was provided a packet of information that included power point presentation slides shown at the meeting, a planning process chart with the anticipated project schedule, a chart of the CEC application process, general siting criteria, a map of the preliminary study area, and a draft map of existing land uses in the project study area. Following the meeting with the stakeholder group, the siting criteria and secondary data were refined and presented to the public at open house meeting No. 1, held on March 24 and 25, 2009.

Stakeholder group meeting No. 2 was held on July 22, 2009. In this meeting, public comments were summarized, results of the opportunities and constraints analysis were reviewed, and preliminary alternative links were presented. The group was asked to review and provide comments on the preliminary links. The group was provided a packet of information that included power point presentation slides shown at the meeting. Following the meeting with the stakeholder group, preliminary alternative links were revised (links were added) in part to incorporate stakeholder group recommendations and presented to the public at open house meeting No. 2, held on August 27, 2009.

Table J-2. Stakeholder Group Members			
Agency/Organization	Name/Title	Area of Interest in Project	
Coronado National Forest	Kent Ellett (primary)	Jurisdiction over land within the study area	
	Teresa Ann Ciapusci		
	Bev Everson		
	James Copeland		
	Linda Hughes (primary)	Jurisdiction over land within the study	
Bureau of Land Management	Cindy Alvarez		
_	Dan Moore	area	
Davis Monthan AFB	LTC Mark Harting (primary) Kurt Tek	Flight paths in the study area	
Arizona State Land Department	Tim Bolton	Jurisdiction over land within the study area	
Santa Rita Experimental Range	Steve Husman	Management of land within the study area	
City of Tucson	Chris Kaselemis	Major urban area near the study area (within original study area boundary, prior to reduction in study area)	
	Orlanthia Henderson (primary)		
Town of Sahuarita	Sarah More	The study area includes the Sahuarita incorporated boundary	
	John Neuneubel	incorporated boundary	
Green Valley Coordinating Council, Planning Committee	Eddie Peabody	The study area includes the Green Valley planning area	
Diamond Ventures	Bob Iannarino – primary (formerly with Diamond Ventures)	Real estate developer with properties in the regional study area	
	Mark Weinberg		
	Ken Abrahams		
Farmers Investment Company (FICO)	Larry Robertson (primary), outside counsel	Agricultural business in the study area	
	Nan Walden		
Citizana	Marshall Magruder	Concerned citizens	
Citizens	Elizabeth Webb		

Stakeholder group meeting No. 3 was held on December 10, 2009. In this meeting, the public and agency comments received to date were discussed. EPG presented the environmental assessment methodologies, revised alternative links, and alternatives evaluation process. The stakeholder group was asked to provide input on the alternative routes. During the meeting, the

group was provided a packet of information that included power point presentation slides shown at the meeting. Stakeholder group members were offered an opportunity to participate in the optional field trip suggested in order to drive some of the route options (in January 2010). Following the meeting with the stakeholder group, some alternatives were eliminated from further consideration. The remaining alternatives were carried through the analysis process and presented at stakeholder group meeting No. 4 and public open house No. 3.

The optional field trip was held for the stakeholder group on January 25, 2010. The attendees were driven to approximate locations of alternative links to show how the links relate to the surrounding environment. Six stakeholder group members participated in this trip including a representative for Farmers Investment Company, along with additional individuals from TEP, CNF, citizens, EPG, and consultants. A bus was provided for transportation to allow an opportunity for conversation during the trip, and all but two of the participants opted to utilize the transportation provided. During the field trip, the group was provided a map that showed the links and the potential stops along the route.

Stakeholder group meeting No. 4 was held on March 5, 2010. The results of the impact assessment and six visual simulations of the transmission line alternatives were reviewed with the group in this meeting. Similar to previous meetings, the group was provided a packet of information that included power point presentation slides shown at the meeting, as well as a copy of each of the preliminary alternative route maps. Prior to the meeting, members of the stakeholder group were emailed maps of the preliminary alternative routes to be presented and discussed during the meeting and a comment form that would be used to submit comments on each of the alternative routes. The stakeholder group was asked to provide input regarding which alternative routes should be carried forward into the CEC application and submitted to TEP and EPG prior to public open house meeting No. 3. The final alternative routes recommended to be carried forward were presented at public open house meeting No. 3, held on April 13 and 14, 2010.

Stakeholder group meeting No. 5 was held on October 27, 2010. The primary purpose of this meeting was to provide an update and discuss the project schedule. During the meeting, the group was provided a packet of information that included a revised stakeholder group roster, power point presentation slides shown at the meeting, and a copy of the preferred and four alternative route maps. The Preferred Route and four alternative routes proposed to be carried forward in the CEC application were presented to the stakeholder group and at the public open house meeting No. 4, held on November 17, 2010. Similar to other meetings, the group was asked and did provide input regarding the routes. Several individuals indicated either full or partial support for the preferred route; one member supported Alternative Route 4 while another member supported portions of routes and suggested alternatives to the Project, such as on-site generation at the Rosemont operation site or undergrounding of the line.

Stakeholder group meeting No. 6 was held on May 12, 2011. The primary purpose of this meeting was to provide a project update and discuss the elimination of construction power options based on Rosemont's letter to TEP. The revised Preferred Route and four alternative routes being carried forward in the CEC application were presented to the stakeholder group. The group was provided a packet of information that included power point presentation slides

shown at the meeting and a map showing preferred and four alternative routes without the construction power alternatives.

When construction power options were still part of the Project, members of the stakeholder group suggested an alternative location for TEP to construct a new substation – as an alternative to providing construction power to Rosemont instead of constructing additional new transmission across Box Canyon Road (link 160). This became an alternative construction power option involving placement of a mobile transformer at the intersection of Helvetia Road and the 46kV transmission line (node of links 110 and 120) located on the SRER; Alternative Routes 2 and 3 included this option for construction power. It was also suggested that a construction power line not be included as a part of the Project. Eventually, the construction power options were removed from the Project because construction activities necessitating high voltage transmission could be performed when the line from the Toro Switchyard to the Rosemont Substation could be completed. Other stakeholder member suggestions included installing gas generation at the Rosemont mine operations site as well as undergrounding the line or using alternative pole finishes.

Meeting materials provided at each meeting are included in Exhibit J-1.

Public Open Houses

Four rounds of public open houses were held for the proposed project. The first round of meetings was held at two locations on two separate evenings: Acacia Middle School in Vail, Arizona, and Canoa Hills Social Center in Green Valley, Arizona. The second round, which occurred after the reduction of the study area, included one open house held at Rancho Resort Clubhouse in Sahuarita, Arizona. The third round consisted of two open houses: one at Corona Foothills Middle School in Corona de Tucson, Arizona and the other at Quail Creek Madera Clubhouse in Green Valley, Arizona. The fourth round consisted of one open house held at Rancho Resort Clubhouse in Sahuarita, Arizona. The time and location for each of these public open houses were announced in a newsletter or the website, and other media through news releases.

The format for the public meetings was primarily informal, held from 5:30 p.m. to 7:30 p.m. (meetings often extended an additional hour), which allowed community members to attend at their convenience. This arrangement gave community members the opportunity to review information displays and have one-on-one personal communication with members of the TEP and EPG technical staff. In addition to the one-on-one personal communication, and at the request of members of the stakeholder group and public, the third open house included a formal presentation with a question and answer session that took place from 6:30 p.m. to approximately 7:00 p.m. The fourth open house was held from 5:30 p.m. to 8:00 p.m., and also included a formal presentation with a question and answer session from 6:30 p.m. to approximately 7:00 p.m.

The open houses were held during key milestones in the process to present the most current information introduced in the newsletters and any additional relevant information, as well as to request comments from the public. The meetings' numerous stations included large maps and text boards that highlighted details of the project such as the project purpose and need, proposed

facilities, facility siting criteria and process, and environmental data. A laptop station with the preferred and alternative routes on Google Earth was available for the public to use at the third and fourth set of open houses, and an area was provided for attendees to sit and fill out comment forms. A court reporter was present at the second, third, and fourth open houses to allow additional opportunity for the public to submit comments regarding the proposed project. Project newsletters and information provided at public open houses are included in Exhibits J-2 and J-3.

Telephone Information Line

A toll-free telephone information line (1-866-632-5944) was established for the project. The automated message, in English and Spanish, provided basic project information and encouraged callers to leave a message requesting more information or a return call. The telephone number was advertised in the newsletters, as well as on the project website that was provided for the public to access updated project information. The information line voicemail was checked regularly, and more frequently following newsletter mailings and public open houses. All messages that required a response were provided by one of the appropriate project team members. Approximately 55 voicemails were received during the siting process. All messages received were entered into a comment tracking database.

Internet Website

Because more people are using the Internet as a primary source of information, TEP maintains a website featuring their various transmission line siting projects throughout southeastern Arizona. The site address is www.tep.com; the address specific to Rosemont is http://tep.com/Company/News/Rosemont. A page devoted to the proposed project was added to this website prior to initiation of the public process (see Exhibit J-4). As the Project progressed, an interactive Google Map/Earth viewer was added to the site to allow users to visualize the alternative routes using this web service.

The project website was updated regularly to include both general and specific information on the project, including the latest maps and each of the project newsletters. After each of the public open house meetings, the graphics presented were added to the project web page. The site also enabled people to submit comments via an online public comment form, or to request more information by providing to them the toll-free project information line number. The online public comment form offered a mechanism to track all comments received.

Newsletters

Over the course of the planning process, four newsletters were mailed out with a fifth newsletter to be mailed following the notice of the Committee hearings. Each newsletter provided project information on the status of the project and upcoming public meetings/open houses. Comment forms were mailed with the first four newsletters. Copies of the newsletters and comment forms are in Exhibit J-2.

The mailing list for the first newsletter had close to 43,000 addresses which extended well beyond the original regional study area. The three other newsletters were mailed to more than 20,000 addresses (the last mailing list contained approximately 23,000 addresses) and focused

primarily on addresses within the original regional study area. This mailing list remained as the basis for the mailings and was not reduced to match the revised smaller regional study area. Topics discussed in each newsletter are described below.

Newsletter #1, March 2009 – The newsletter introduced the project to the public and included a description of the proposed facilities, need for the project, environmental planning process, public participation opportunities, and study area map; provided an abbreviated planning process chart and schedule; announced the first set of public open houses for March 2009; and included a comment form.

Newsletter #2, August 2009 – This newsletter announced a change in the line's connection point to TEP's system and included a map of the revised study area; described preliminary routing options; provided an updated abbreviated planning process chart and schedule; announced the second public open house for August 2009; and included a comment form.

Newsletter #3, March 2010 – This newsletter provided an update on environmental and engineering studies; described preliminary alternative routes; summarized public comments received; provided an updated abbreviated planning process chart and schedule; announced the third set of public open houses for April 2010; and included a comment form.

<u>Newsletter #4, November 2010</u> – This newsletter provided a project update including the final set of alternative routes; provided an updated abbreviated planning process chart and schedule; announced the fourth public open house for November 2010; and included a comment form.

Comments Received

Over the course of the public process, approximately 1,500 comment submittals were received regarding the proposed project. Comments were submitted through various methods including:

- comment forms
- messages from the telephone information line
- letters
- emails from the public, agencies, jurisdictions, and other interested parties
- faxes

This information was used to better understand the concerns of the community in regard to this project and incorporate the concerns in the detailed environmental analysis. Comments are briefly summarized below.

Agency/Jurisdiction Comments

The CNF sent a letter to EPG (July 23, 2010; see Exhibit J-5) providing comments and stating they were not ready to identify a preferred route; however, the CNF did express its preferences for the alternative routes as they pertain to various environmental resources. Generally, as indicated in their letter, the CNF supported co-locating the proposed project with the Rosemont water pipeline and preferred to have the minimum amount of utility lines on the Forest. From a cultural resource perspective, CNF indicated that Alternative Route 4 is preferred; however,

Alternative Route 4 is the least preferred for visual resources. For Alternative Route 4, link 160, it was requested that portions of the transmission line be placed just to the west of the proposed alignment within side canyons, in order to reduce potential visual impacts.

The ASLD sent a letter to Rosemont (August 3, 2009) deferring to the recommendation of the SRER (see below) and its choice of the Preferred Route.

The University of Arizona, SRER submitted letters to the ASLD (June 30, 2009; September 29, 2009; and December 16, 2009; see Exhibit J-5) that expressed support for the Preferred Route. It was also expressed that any route that bordered the northern boundary of SRER (referred to during the planning process as the northern route family and which was not one of the five routes presented in this application) would attract trespassers who would disrupt the operations of the SRER, and is, therefore, not preferred. The SRER also expressed its preference to avoid any route using Link 130 (such as Alternative Route 1 and Alternative Route 3), due to the adverse impact it would have on two repeat photo sites. SRER indicated it strongly opposed Link 120 (which is part of Alternative Route 2 and Alternative Route 3), because it would negatively impact 4 repeat photo sites, 5 long-term research study areas, 20 long-term permanent vegetation transects, 1 long-term livestock exclosure area, and 1 livestock watering facility.

Representatives from Pima County were given the opportunity to provide comment and participate in the planning process, and to become a member of the stakeholder group. Pima County representatives declined participation in the stakeholder group, but were briefed periodically during the planning process. Further, a Pima County representative did attend and made comments at the final stakeholder group meeting, held on May 12, 2011. The Pima County Board of Supervisors submitted a letter (March 20, 2009) that expressed opposition to the installation of transmission lines from any TEP facilities to the Rosemont operations. Another letter was sent (September 3, 2009) to TEP requesting that TEP hold a public hearing, including a single presentation followed by public input, and encouraged the location of this public hearing be held in the Vail/Corona de Tucson area. (This was accomplished through a public meeting on April 13, 2010 in Corona de Tucson.)

The Town of Sahuarita submitted a letter to EPG (October 7, 2009) that expressed their support for Alternative Route 4 as it was an existing 46kV transmission line corridor.

Agency and jurisdiction letters received are included in Exhibit J-5.

General Comments

Throughout the public process comments and concerns were expressed primarily on the overall mine project and need for the project, location of facilities, aesthetic considerations and scenic quality of the study area, natural resource considerations, and property values. Issues identified through these comments were incorporated into the evaluation of alternatives, where possible. The impact assessment of the routes emphasized avoidance of existing residential areas, to the extent possible, and co-location with the water pipeline or consolidation with the 46kV line to respond to visual, ground disturbance, and other concerns raised. A summary of the primary issues identified during the planning process is provided below.

Overall Rosemont Operations Project and Project Need – People expressed concern about the underlying purpose and need for the Project (which is the Rosemont mine plan of operations); therefore, some members of the public indicated that they could not support the transmission line. These comments were received throughout the process. Also, some public commenters expressed concern that the Project was proceeding ahead of federal approval for the Rosemont mining operations. Given they did not see a need for the Rosemont operations, they did not see a need for the Project. An effort was made by the Project team to explain that the Project would not be constructed if the Rosemont mine plan of operations does not receive requisite approvals. There were comments received that indicated support for the mine plan of operations and the Project.

Location of Facilities – Some comments indicated a preference for following existing linear features. Preferences were expressed for all three route families to either follow the northern boundary of the SRER, Santa Rita Road, or the 46kV line. As mentioned earlier, the primary land owner for all three of the route families, ASLD, indicated a preference for the Preferred Route that co-locates with the water pipeline – TEP's preferred route.

Property Values – Concern for impacts to property values due to perceived impacts to views from existing and future residences was a concern expressed.

Aesthetics/Scenic Quality – There was concern expressed for impacting residential views of and from the Santa Rita Mountains as well as the scenic and visual landscape in general. Also, portions of the study area provide recreational opportunities, such as the Box Canyon area, with sensitivity to aesthetics and scenic quality. Pima County's scenic designation of Santa Rita Road occurred during the planning process in February 2010. Also, some comments suggested using alternative colors or materials for the structures; e.g., galvanized or painted structures versus a self-weathering finish, or undergrounding the line. Many comments expressed concern for residential views from Quail Creek, Sycamore Canyon, and Corona de Tucson areas toward the Santa Rita Mountains. Residents in Helvetia as well as along the 46kV line also expressed concern regarding the alternative routes nearest to their homes.

Natural and Cultural Resource Considerations – Some comments expressed a concern for disturbance to the naturalness, wildlife, and a research area including SRER and the Box Canyon area. Also, concern for cultural resources in the Box Canyon area was indicated.

The majority of comments received when TEP identified the Preferred Route and requested feedback was favorable.

Meetings List

Table J-3 contains a summary list of the various meetings held for the project.

Table J-3. Project Meetings and Briefings with Agency/Organization/Public		
Agency/Organization	Name/Title**	
U.S. Forest Service, Coronado	John Able, Deputy Director of Communications	
National Forest*	Andrea Campbell, NEPA Coordinator	

Agency/Organization	Name/Title**		
	Teresa Ann Ciapusci, Project Manager		
	Beverly Everson, Geologist		
	Reta Laford, Deputy Forest Supervisor		
	James Copeland, Nogales District Ranger		
	Melinda (Mindee) Roth, Special Assistant to Forest Supervisor		
Arizona State Land	George Cardieri, ROW Administrator		
Department*	Ruben Ojeda, ROW Section Manager		
Pima County Board of Supervisors	Patrick McKenna, Special Staff Assistant to Ray Carroll, Supervisor, District 4 (attended meeting with Pima County staff)		
Pima County*	Arlan Colton, Planning Director		
	Neva Connolly, Office of Conservation Science and Environmental Policy		
	Julia Fonseca, Environmental Planning Manager, Office of Conservation Science		
	Nicole Fyffe, Executive Assistant to the County Administrator		
	Chris Poirier, Zoning Administrator, Development Services		
	Sherry Ruther, Environmental Planning Manager, Development Services		
	Nanette Slusser, Assistant to the County Administrator, Public Works Policy		
City of Tucson	John Beall, Principal Planner		
	Chris Kaselemis, Administrator, Comprehensive Planning Division		
	Josh Pope, Director of Geospatial Services		
Γown of Sahuarita	Orlanthia Henderson, Planner		
Sonoita Area residents	13 residents		
Corona de Tucson residents	33 residents		

Stakeholder Group

- February 12, 2009
- July 22, 2009
- December 10, 2009
- January 25, 2010 (optional field trip)
- March 5, 2010
- October 27, 2010
- May 12, 2011

Public Meetings/Open Houses

- March 24, 2009 Vail, AZ
- March 25, 2009 Green Valley, AZ
- August 27, 2009 Sahuarita, AZ
- April 13, 2010 Corona de Tucson, AZ
- April 14, 2010 Green Valley, AZ
- November 17, 2010 Sahuarita, AZ

*More than one meeting occurred with this agency

**Various attendees at different meetings

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Exhibit J-1. **Stakeholder Group Information Packets** THIS PAGE INTENTIONALLY LEFT BLANK



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ROSEMONT 138-KV TRANSMISSION LINE PROJECT STAKEHOLDER GROUP

MEMBERSHIP

The purpose of the Stakeholder Group is to establish a group representing a range of opinions in a forum small enough to allow for thorough education of the participants, detailed discussion of issues, and informal dialogue. EPG, Inc. (EPG) contacted various individuals/organizations for selection of the members that would assist Tucson Electric Power (TEP) and EPG in identifying issues and concerns relevant to the proposed project. Representation of a cross-section of the region includes federal, state, county, and municipal agencies that have administrative jurisdiction within the project area; industry/business; and citizens on behalf of their neighborhoods. Members were selected based on their knowledge of the project area, capability to commit the time required to participate in the Stakeholder Group throughout the planning process, and willingness to participate in an impartial manner.

ROSTER OF STAKEHOLDER GROUP MEMBERS

Federal

- Bev Everson (beverson@fs.fed.us)/Teresa Ann Ciapusci (tciapusci@fs.fed.us), Coronado National Forest
- Cindy Alvarez (Cindy_alvarez@blm.gov)/Dan Moore (Daniel_J_Moore@blm.gov), Bureau of Land Management, Tucson

State

- Tim Bolton (tbolton@land.az.gov), Arizona State Land Department
- Steve Husman (husman@ag.arizona.edu), Santa Rita Experimental Range

City/Town

- Chris Kaselemis (chris.kaselemis@tucsonaz.gov), City of Tucson
- Orlanthia Henderson (ohenderson@ci.sahuarita.az.us)/John Neuneubel (jneunuebel@ci.sahuarita.az.us), Town of Sahuarita
- Eddie Peabody (emerald5@cox.net), Planning and Zoning Committee, Green Valley Coordinating Council

Industry/Business

- Bob Iannarino (biannarino@diamondven.com)/Mark Weinberg (mweinberg@diamondven.com)/Ken Abrahams (kabrahams@diamondven.com), Diamond Ventures
- Nan Walden (nswalden@greenvalleypecan.com), Farmers Investment Company

Citizens at Large

■ Marshall Magruder (marshall@magruder.org)

Stakeholder Group Roster Rosemont 138-kV Transmission Line Project Tucson Electric Power

1

EPG February 12, 2009

PROJECT TEAM

Tucson Electric Power

- Ed Beck (ebeck@tep.com)
- Shannon Breslin (sbreslin@tep.com)
- Lee Aitken (laitken@tep.com)
- Larry Lucero (llucero@tep.com)

EPG, Inc. - Phone (602) 956-4370

- Lauren Weinstein (lweinstein@epgaz.com)
- Jaime Wood (jwood@epgaz.com)
- Chelsa Johnson (cjohnson@epgaz.com)
- Emily Belts (ebelts@epgaz.com)

Rosemont Copper

- Kathy Arnold (karnold@rosemontcopper.com)
- Laurie Woodall, KR Saline (law@krsaline)

ROSEMONT 138-KV TRANSMISSION LINE PROJECT ROLES AND RESPONSIBILITIES

STAKEHOLDER GROUP

Role

The Rosemont 138-kV Project Stakeholder Group (SG) has been established to participate with the study team in the planning process for the proposed project. The SG is an important link to the community; therefore, the SG members should consider the views of the individual group members as well as the views of their representative organizations/communities.

Responsibilities

- Specifically, input will be sought from the SG members on the following:
 - Issues, ideas, and concerns held by the SG members and/or members of the community/organization in which they are involved
 - Resource information and studies
 - Criteria by which alternative(s) are identified
 - Alternative routes identified
 - Impact assessment and mitigation
 - Route selection process
 - Review and comment on study results at key points
- Consistency is very important. We ask that you attend all of the SG meetings planned (four) throughout the process.

Meetings will be organized to maximize the time available (approximately 2 hours). If a SG member would like a particular topic addressed, contact Chelsa Johnson or Lauren Weinstein at EPG (602-956-4370) prior to the meeting.

- Regular communication by SG members with their organizations, agencies, or communities is encouraged. Members of the SG accept the responsibility to keep their associates and constituency groups informed of the progress of the discussions and to seek advice and comments.
- Attendance at public open house meetings is encouraged.
- Information disseminated by SG members can be attributed only to an individual and not the entire group.

J-19

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EPG

Role

EPG is conducting the environmental and public planning process to site a proposed 138-kV transmission line required to meet future electrical demand for the proposed Rosemont operations. Facilitating the public involvement portion of the planning process includes working with the SG and conducting other activities to inform and involve the community.

Responsibilities

- Notify members of SG of meeting dates and times.
- Host and facilitate all meetings.
- Identify and track all issues discussed at SG meetings. Provide information on any decisions made by the project study team in response to issues raised by SG.
- Provide relevant technical information to SG in conjunction with the planning process.
- Consider and incorporate the SG's views in the planning process.

TUCSON ELECTRIC POWER

Role

During the public planning process, Tucson Electric Power (TEP) will be the technical advisor to the SG. TEP will also serve as the lead contact with the media.

Responsibilities

- Provide a description of the project.
- Provide an explanation of the purpose of and need for the project.
- Provide information, TEP policy, and/or relevant data sufficient to address issues and concerns raised by the SG and public.
- Provide technical information (e.g., engineering, system planning) sufficient to enhance the SG's understanding of the project.
- Select alternative(s) to be carried forward for detailed environmental impact analysis.

Select preferred route(s) to be carried forward in the CEC application and before the Arizona Power Plant and Transmission Line Siting Committee based on the various

decision elements: environmental, public acceptability, permits, engineering, right-ofway acquisition, cost, purpose and need

ROSEMONT COPPER COMPANY

Role

During the public planning process, Rosemont Copper Company (RCC) will work with TEP to provide technical data as necessary, ensure power requirements are well defined and that all options for receiving power are identified. RCC will also provide assistance for TEP's identification and selection of route options to be carried forward for detailed environmental impact analyses.

Responsibilities

- Provide resource information and studies.
- Monitor meetings and participate, as necessary or as requested.

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Rosemont 138-kV Transmission Line Project

<u>Agenda – Stakeholder Group Meeting #1</u>

February 12, 2009, 11:00am – 1:30pm Unisource building, 2nd Floor Conference Room One South Church Street Tucson, Arizona 85702

- Welcome and introductions
- Agenda
- Roles and responsibilities of stakeholder group
- Electric systems basics
- Planned facilities and study area
- Purpose and need for the project
 - TEP's system planning process
- Planning process and public participation activities
- Environmental studies
 - Inventory
 - Siting criteria
 - Opportunities and constraints
- Comments and questions
- Next meeting
- Action Items

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ROSEMONT 138-KV TRANSMISSION LINE PROJECT

Presentation

Stakeholder Group Meeting #1 February 12, 2009

Agenda

- · Welcome and introductions
- · Roles and responsibilities
- · Project overview: project study area, purpose and need, description, and system alternatives
- · Planning process and schedule
- · Environmental studies
- · Agency and public participation activities
- Tucson Electric Power (TEP) decision elements
- · Comments and questions
- · Next steps



ROSEMONT 138-KV TRANSMISSION LINE PROJECT February 12, 2009

Stakeholder Group Purpose

- · Represent agencies and land management jurisdictions, community members, constituents
- Attend and actively participate in four stakeholder group meetings at key points in the planning process



ROSEMONT 138-KV TRANSMISSION LINE PROJECT February 12, 2009

Stakeholder Group -Roles and Responsibilities

- · Member attendance
- · Identify key issues throughout the planning process
- Communicate project information to your constituents
- Review and comment on study results at key points
- Attend public open house meetings



CITY ROSEMONT 138-KV TRANSMISSION LINE PROJECT February 12, 2009

Project Overview

- TEP, as a part of its obligation to serve, is proposing to construct and operate a new 138-kV transmission line for the proposed Rosemont Copper operations
- Project area is located south of Tucson and includes lands managed by City of Tucson, Town of Sahuarita, Pima County, and federal agencies
- A planning process that includes environmental studies and public input will be conducted to assist in identification and comparison of alternative transmission line routes and environmental impacts



ROSEMONT 138-KV TRANSMISSION LINE PROJECT February 12, 2009

Project Overview (continued)

- An extensive public outreach program will be implemented throughout the planning process
- An application for a Certificate of Environmental Compatibility (CEC) will be submitted to the Arizona Corporation Commission (ACC)
- The project requires recommendation from the Arizona Power Plant and Transmission Line Siting Committee and final approval by ACC prior to construction
- Project area consists of land predominantly owned by Arizona State Land Department, Forest Service, interspersed with some BLM and privately-owned lands



ROSEMONT 138-KV TRANSMISSION LINE PROJECT February 12, 2009

Purpose and Need

- Electric utilities are required by the State of Arizona to provide electrical service to customers upon request
- · Rosemont Copper Company has requested TEP to provide electric power to the Rosemont Copper operations
- The primary purpose and need for the proposed transmission line is to provide adequate and reliable power for the proposed Rosemont Copper operations
- · Currently, there are no existing transmission lines and substations to serve this proposed operation





ROSEMONT 138-KV TRANSMISSION LINE PROJECT

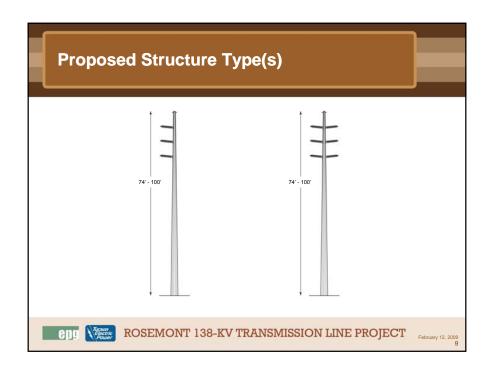
Project Description

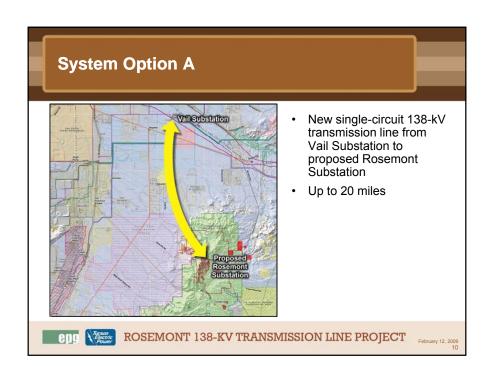
- Up to approximately 30 miles of 138-kV transmission line
- A 100-foot-wide right-of-way
- Approximately 1 acre of land for construction, operation, and maintenance for the proposed Rosemont Substation
- Upgrades to existing substations will not require additional property

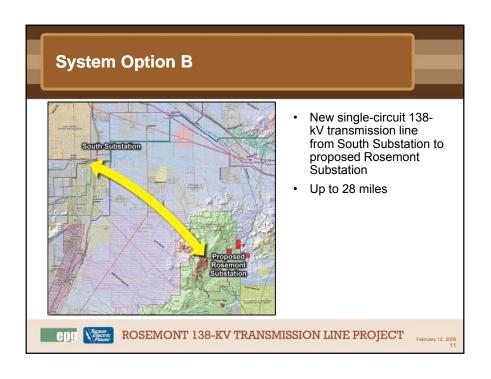


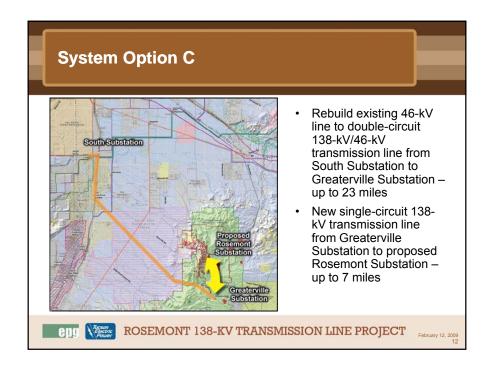


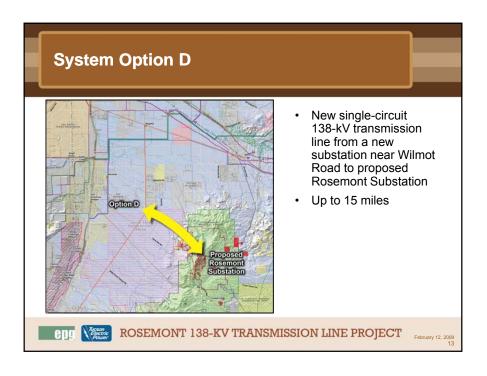
CILT ROSEMONT 138-KV TRANSMISSION LINE PROJECT February 12, 2009











Planning Process

- Comprehensive planning process consisting of six key tasks
- · Studies include environmental and engineering analysis, along with agency/public input
- · Several alternatives will likely be identified and evaluated to meet project purpose and need
- TEP will identify a preferred route(s) for permitting and construction, as well as alternative routes



CILI ROSEMONT 138-KV TRANSMISSION LINE PROJECT February 12, 2009

Planning Process (continued)

- TEP will prepare and file a CEC application to be reviewed by the Arizona Power Plant and Transmission Line Siting Committee
- The ACC will make a final decision to approve or deny the CEC application (with any conditions)



ROSEMONT 138-KV TRANSMISSION LINE PROJECT February 12, 2009



Environmental Studies Overview

- Environmental resources
 - Land use (existing/future land use and jurisdictional planning guidelines)
 - Visual (scenic quality, sensitive viewers, and scenic management guidelines)
 - Cultural (national register sites, archaeological sites, as well as other eligible sites)
 - Biology (wildlife, vegetation, rare species, and sensitive habitat)



ROSEMONT 138-KV TRANSMISSION LINE PROJECT February 12, 2009

Preliminary Alternatives Identification

- · Develop siting criteria (sensitivity levels and opportunities within study area)
- Determine opportunities and/or compatibility of resources inventoried (e.g., industrial = low sensitivity/high compatibility vs. parks = high sensitivity/low compatibility)
- Prepare siting opportunities and constraints analysis map
- · Identify preliminary link alternatives for transmission line routes



GII ROSEMONT 138-KV TRANSMISSION LINE PROJECT February 12, 2009

Sensitivity Levels

- Incompatible e.g., airports
- High sensitivity e.g., residences
- Moderate sensitivity e.g., retail shopping areas, offices, government buildings
- Low sensitivity e.g., industrial areas, undeveloped areas, utility facilities



GII ROSEMONT 138-KV TRANSMISSION LINE PROJECT February 12, 2009

Potential Opportunities

- Existing linear features
 - Utilities
 - Power lines
 - Pipelines
 - Transportation
 - · Major roads/arterials
 - Railroads
- · Industrial areas
- · Vacant/undeveloped lands without specific future conflicting development plans





ROSEMONT 138-KV TRANSMISSION LINE PROJECT February 12, 2009 20

Potential Constraints

- · Existing residences
- Future approved residential developments
- Educational facilities (e.g., schools)
- · Parks and recreation
- · Archaeological sites and historic properties
- Known special status species locations or critical habitat





COME ROSEMONT 138-KV TRANSMISSION LINE PROJECT February 12, 2009

Agency and Public Participation Activities

TEP Letter to Community Leaders:

- Coronado National Forest
- Bureau of Land Management
- Arizona State Land Department
- Pima County, City of Tucson, Town of Sahuarita, Green Valley Coordinating Council, Vail/Cienega Corridor Volunteer (Mayors, Managers, Development Directors, Planners, etc.)
- Pima County Association of Governments





COMPANY TRANSMISSION LINE PROJECT February 12, 2009

Agency and Public Participation Activities

(continued)

- Tohono O'odham Nation (San Xavier District)
- Pascua Yaqui Tribe
- Arizona Corporation Commission staff
- Southern Arizona Legislative Representatives
- University of Arizona, Santa Rita Experimental Range
- Davis-Monthan Air Force Base



ROSEMONT 138-KV TRANSMISSION LINE PROJECT February 12, 2000

Agency and Public Participation Activities

- Stakeholder group meetings
 - Spring and Summer 2009
- Public open house meetings
 - Spring and Summer 2009



ROSEMONT 138-KV TRANSMISSION LINE PROJECT February 12, 2009

Agency and Public Participation Activities

- Telephone information line (866) 632-5944
- TEP website (www.tep.com)
- · Arizona siting committee FAQs website: www.cc.state.az.us/Divisions/Utilities/Electric/LineSiting-FAQs.asp
- · Project newsletters mailed to community, including residents, landowners, and other interested parties
- Media briefings (TEP)

eng Rosemont 138-KV TRANSMISSION LINE PROJECT February 12, 2009

TEP Decision Elements

- · Purpose and need
- Environmental
- · Public input
- Permits
- Engineering
- · Ability to obtain right-of-way
- Cost

ROSEMONT 138-KV TRANSMISSION LINE PROJECT February 12, 2009

Comments and Questions

- Do you understand the project purpose and need and proposed facilities?
- Do you understand the planning process?
- Are there additional parties that should be brought into the planning process?
- · Are there additional data that should be considered in the studies?
- Other?





GIII ROSEMONT 138-KV TRANSMISSION LINE PROJECT February 12, 2009

Next Steps

- · Public open house meeting #1
- · Alternative link identification
- Stakeholder Group meeting #2



ROSEMONT 138-KV TRANSMISSION LINE PROJECT February 12, 2009 28

TASK 1

SITING CRITERIA, DEFINE STUDY AREA, AND SECONDARY DATA COLLECTION

TASK 2

OPPORTUNITIES/CONSTRAINTS **ANALYSIS AND ALTERNATIVES IDENTIFICATION**

TASK 4

ALTERNATIVES SELECTION AND RESOURCE SURVEYS

TASK 5

PREPARATION AND FILING OF CEC APPLICATION

TASK 6

CEC HEARINGS

- **ENGINEERING**
- Review and approve preliminary alternatives siting criteria
- Review and approve project study
- Finalize project purpose and need
- Finalize project description
- Provide typical structure design(s) and substation layout
- Finalize engineering alternatives (e.g., rebuilding existing structures)
- Review and approve final alternatives
- Review impact assessment criteria

TASK 3

DETAILED INVENTORY AND

ALTERNATIVES ASSESSMENT

- Review alternatives assessment results
- Develop and review mitigation measures and plan
- Identify preferred engineering alternative(s)
- Review visual simulations
- Select preferred route and alternative(s) to be presented in CEC application, in coordination with customer: Rosemont Copper
- Prepare CEC application
- Print and file CEC application • Review and approve application
- File and notice application
- Prepare and provide testimony for Arizona Power Plant and Transmission Line Siting Committee
- Review and approve supplemental CEC application filing (as necessary)
- Prepare draft CEC Form of Order
- Prepare for and attend ACC hearing

ENVIRONMENTAL PLANNING eng

- Develop preliminary alternatives siting criteria
- Review preliminary alternatives
- Prepare study area base map
- Collect and map secondary environmental data
- Identify environmental opportunities and constraints
- Identify and finalize alternatives
- Collect additional data for alternatives
- Conduct field surveys to support resources inventory
- Develop impact assessment criteria
- Conduct alternatives impact assessment and mitigation planning
- Compare and rank alternatives
- Prepare visual simulations • Identify preferred environmental
- alternative(s)
- Document alternative comparison and selection results
- Conduct cultural resource survey of preferred alternative
- SHPO consultation
- Prepare cultural resource survey report

- Prepare environmental portions of **CEC** application
- Assist with filing and noticing application
- Prepare and provide testimony for Arizona Power Plant and Transmission Line Siting Committee
- supplemental CEC application filing
- Prepare virtual route tour (optional)

Prepare testimony slides for

- Assist with preparation of draft CEC Form of Order
- Prepare for and attend ACC hearing



- Conduct community leader briefings
- Identify and contact stakeholders
- Prepare project fact sheet #1
- Review project purpose and need and description
- Track and respond to comments
- Prepare for and conduct stakeholder group meeting #1
- Develop mailing list
- Prepare and distribute newsletter #1
- Prepare for and conduct public open house #1
- Prepare for and conduct stakeholder group meeting #2
- Prepare and distribute newsletter #2
- Prepare for and conduct public open house #2
- Review alternatives
- Track and respond to comments

- Prepare for and conduct stakeholder group meeting #3
- Track and respond to comments
- Prepare for and conduct stakeholder group meeting #4
- Prepare and distribute newsletter #3
- Prepare for and conduct public open house meeting #3
- Review alternative assessment and selection
- Track and respond to comments
- Prepare stakeholder and public involvement summary to support **CEC** application
- Track and respond to comments
- Prepare hearing notice and post signs in project area (announcing CEC application filing and hearings)
- Track and respond to comments

TIMELINE

September 2008 - February 2009

April - May 2009

May - July 2009

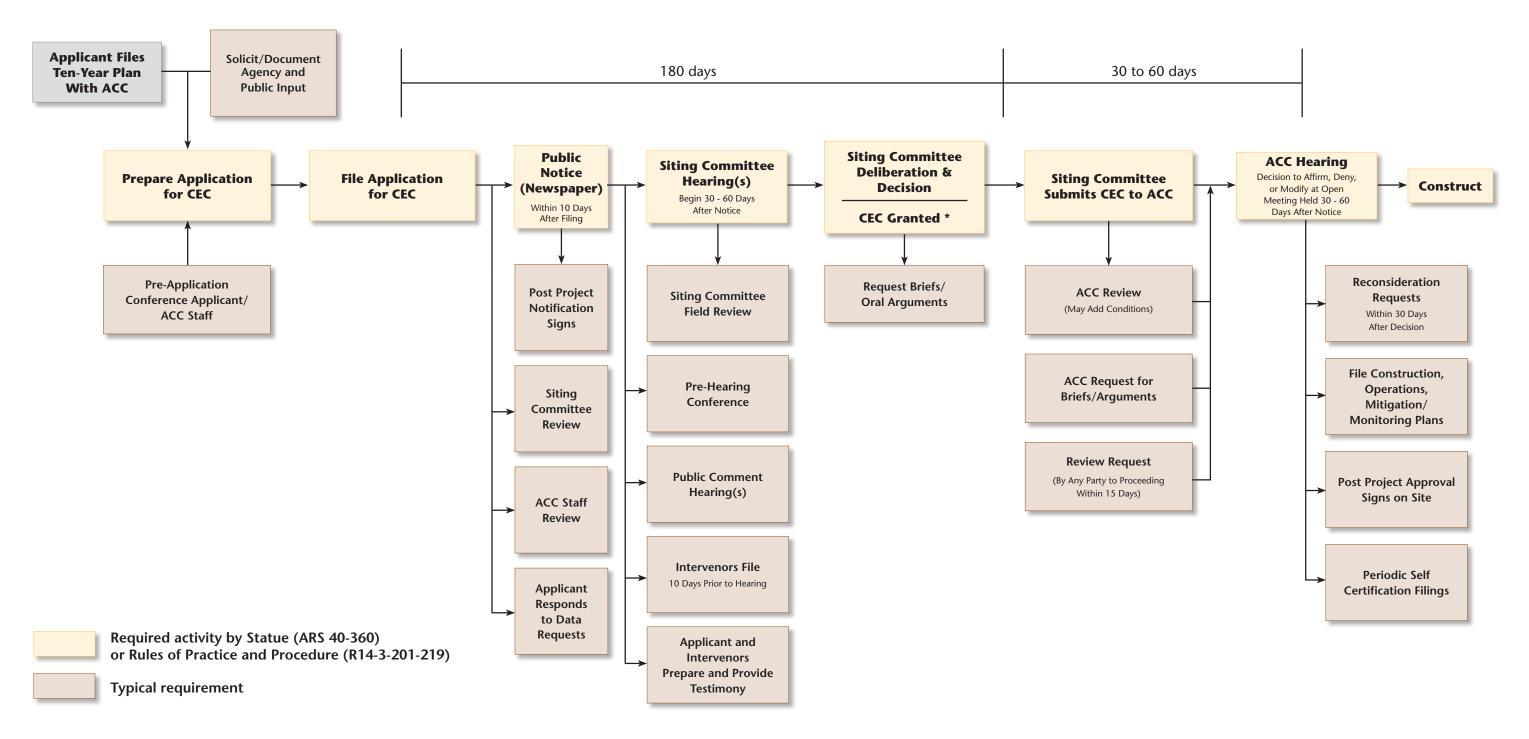
May - July 2009

July - October 2009

February - April 2009

Planning Process and Responsibilities Certificate of Environmental Compatibility (CEC) Application Rosemont 138-kV Transmission Line Proiect

February 12, 2009



* Decision within 180 days after receipt of application (R14-3-213), subject to extension

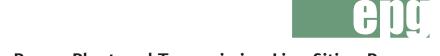
ACC: Arizona Corporation Commission

CEC: Certificate of Environmental Compatibility

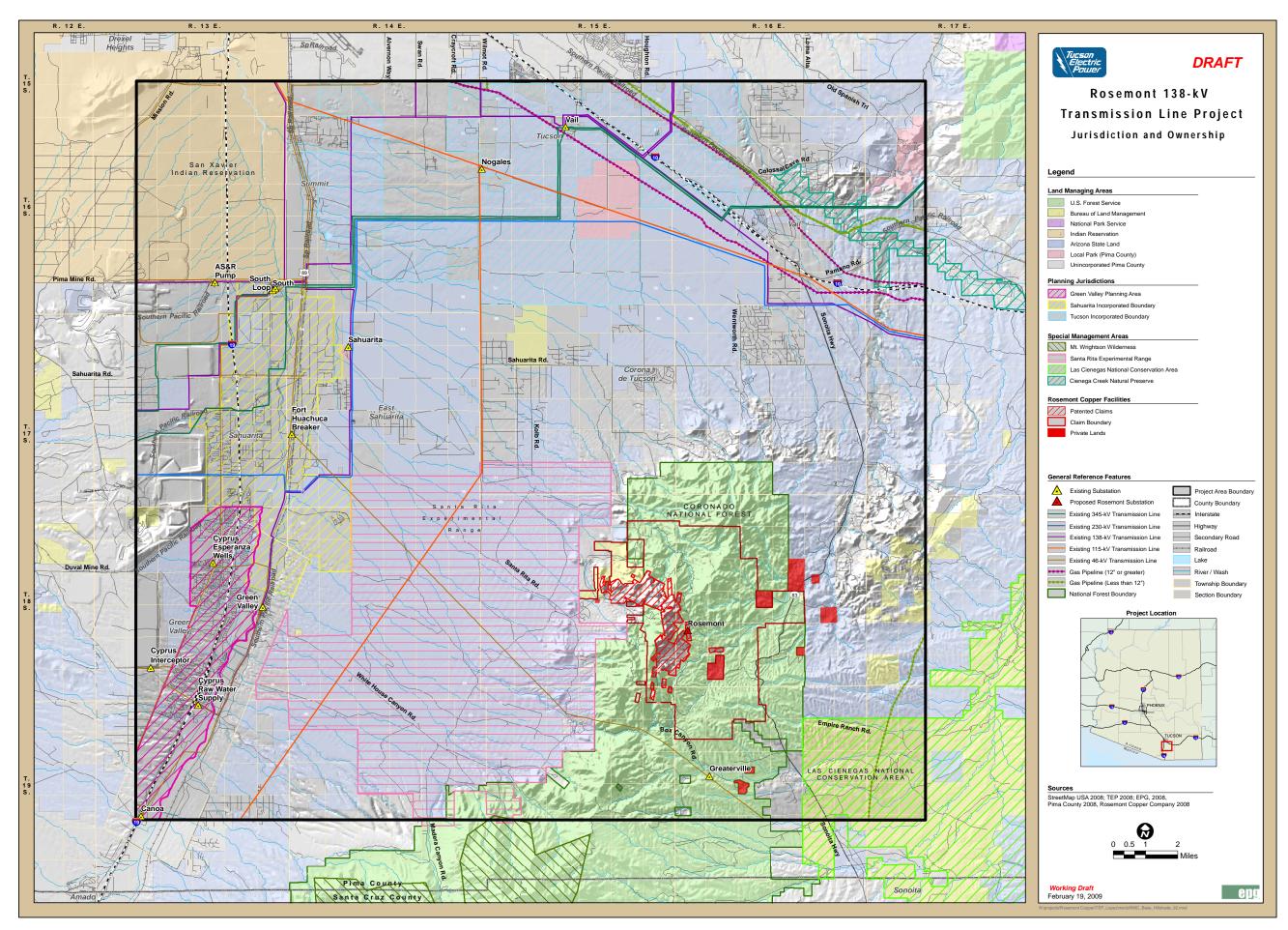
Siting Committee: Arizona Power Plant & Transmission Line Siting Committee

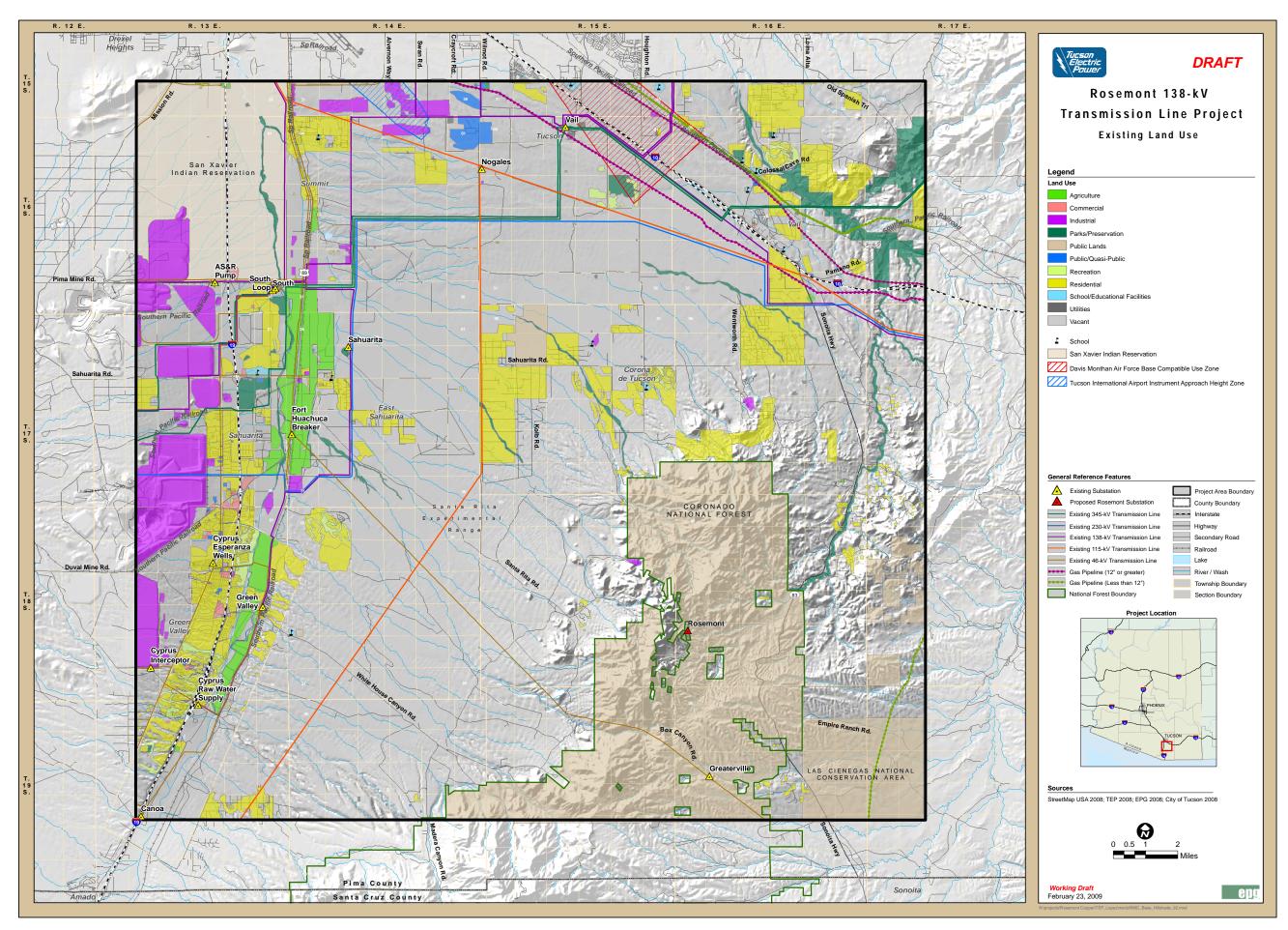


February 2009



Arizona Power Plant and Transmission Line Siting Process
Certificate of Environmental Compatibility
Rosemont 138-kV Transmission Line Project





ROSEMONT 138-KV SITING PROJECT General Siting Criteria – Opportunity and Constraint Analysis

An analysis of the individual resources' sensitivity to the construction and operation of a transmission line will be conducted. Sensitivity is that measure of the probable adverse response of each resource to direct and indirect impacts associated with the construction, operation, maintenance, and abandonment of the proposed transmission line. Criteria to be used in this determination included the following considerations:

- Resource Value: A measure of rarity, high intrinsic value or worth, singularity or diversity of a resource within the study area or region.
- Protective Status: A measure of the formal concern expressed for a resource either through legal protection or by designation of special status.
- Present or Future Uses: A measure of the level of conflict based on policies of land management agencies and/or use.

The resources will then be mapped according to their respective sensitivity levels (including levels that fall in between the major categories), as follows:

- Incompatible Areas where either legal status (i.e., designated wilderness or jurisdictional policy [e.g., active airports]) would prohibit, or most likely prohibit, the location of transmission facilities. Location of exclusion (or incompatibility) will be considered to be undesirable for location of transmission lines.
- High Sensitivity Areas Areas determined to be less suitable because of unique, highly valued, complex, historic or protected resources and significant potential conflict with use, or areas posing substantial hazards to construction and operation of the transmission line. Locations of high sensitivity will be considered least desirable for siting the transmission line.
- Moderate Sensitivity Areas Areas of potential environmental impact because of important, valued resources; resources assigned special status; some conflict with current or planned use. Locations of moderate sensitivity will be considered less desirable for siting the transmission line.
- Low Sensitivity Areas Areas where the resource conflicts that have been identified through the regional environmental study process are minimal. These areas of low sensitivity will be considered as minimal sensitivity or opportunities for locating the lines. particularly in existing power line corridors.

Opportunities: Existing and future linear features such as transmission lines, highways/roads. and canals are typically considered opportunities for siting and constructing future transmission lines. Opportunities are considered within the context of the sensitive resources throughout the study area. For example, an existing transmission line corridor may provide an opportunity to construct a new transmission line while minimizing environmental effects; however, there may also be adjacent or underlying environmental resources (e.g., residences or archaeological sites) that pose constraints which need to be considered during the siting, permitting, and construction of a new transmission line.

Rosemont 138-kV Transmission Project General Siting Criteria

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FACILITY SITING CRITERIA WORK SHEET					
DRAFT SENSITIVITY LEVELS – ROSEMONT 138-KV TRANSMISSION LINE					
		Stakeholder Group			
	Proposed	Suggested Sensitivity			
Resource Category	Sensitivity Level	Level	Rationale For Suggested Change		
Existing Land Use and Visual Resources					
Residential	High				
Schools/Educational Facilities	High				
Scenic Roads/Parkways (e.g., State Route 83)	Moderate-High				
Parks/Preservation	High				
Recreation Areas, Open Space, Golf Courses,	Moderate-High				
and Trails/Trailhead					
Commercial Retail/Commercial	Moderate				
Hotel/Resort	Moderate				
Agricultural Land (pecan groves)	Moderate				
Vacant Land	Low				
Industrial	Low				
Major Property Boundaries (section lines, half-	Low-Moderate				
section lines)					
Public/Quasi-Public					
- Church	High				
- Cemetery	High				
- Government Buildings	Moderate				
- Detention Facilities (Prisons)	Low				
Visual Classifications – BLM (VRM), Forest Service					
- VRM Class I	Incompatible				
- VRM Class II	Moderate-High				
- VRM Class III	Low-Moderate				
- VRM Class IV	Low				
- VQO Preservation	Incompatible				
- VQO Retention	High				
- VQO Partial Retention*	Moderate-High				
- VQO Modification	Low-Moderate				
- VQO Maximum Modification	Low				
Restricted Peaks and Ridges	Moderate-High				
	Future Land U	Jse and Visual Resources			
Residential Planned – Plat Approved	Moderate-High				
Residential Planned – Zoning Approved	Moderate				
Residential Planned –	Low-Moderate				
Conceptual/General/Comprehensive Plan					

Rosemont 138-kV Transmission Project Facility Siting Criteria Work Sheet

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FACILITY SITING CRITERIA WORK SHEET				
DRAFT SENSITIVITY LEVELS – ROSEMONT 138-KV TRANSMISSION LINE				
		Stakeholder Group		
	Proposed	Suggested Sensitivity		
Resource Category	Sensitivity Level	Level	Rationale For Suggested Change	
Commercial Planned – Plat Approved	Moderate			
Commercial Planned – Zoning Approved	Low-Moderate			
Commercial Planned –	Low			
Conceptual/General/Comprehensive Plan				
Parks /Preservation – Plat Approved	Moderate-High			
Parks /Preservation – Zoning Approved	Moderate			
Parks/Preservation –	Low-Moderate			
Conceptual/General/Comprehensive Plan				
Recreation Areas, Open Space, Golf Courses,	Moderate			
and Trails/Trailhead – Plat Approved				
Recreation Areas, Open Space, Golf Courses,	Low-Moderate			
and Trails/Trailhead – Zoning Approved				
Recreation Areas, Open Space, Golf Courses,	Low			
and Trails/Trailhead –				
Conceptual/General/Comprehensive Plan				
Utility Facilities Planned – Concept Stage	Low			
Utility Facilities Planned – Plat Approved	Low			
Mixed Use – Plat Approved	Moderate			
Mixed Use – Zoning Approved	Low-Moderate			
Mixed Use –	Low-Moderate			
Conceptual/General/Comprehensive Plan				
Military – Plat Approved	Moderate			
Military – Zoning Approved	Low-Moderate			
Military - Conceptual/General/Comprehensive	Low			
Plan				
		tural Resources		
Listed or Proposed National or State Register	Moderate-High			
Properties				
		ogical Resources		
Pima County Wildlife Corridors	Low-Moderate			
Santa Cruz River	Moderate			
Cienega Creek Natural Preserve	High			
Davidson Canyon	High			
Las Cienegas National Conservation Area	Moderate			
Pima County Conservation Lands System		<u></u>		
- Agricultural Inholdings within Conservation	Low			

Rosemont 138-kV Transmission Project Facility Siting Criteria Work Sheet

EPG DRAFT 2/10/09

FACILITY SITING CRITERIA WORK SHEET				
DRAFT SENSITIVITY LEVELS – ROSEMONT 138-KV TRANSMISSION LINE				
		Stakeholder Group		
	Proposed	Suggested Sensitivity		
Resource Category	Sensitivity Level	Level	Rationale For Suggested Change	
Area				
- Biological Core Management Areas	Low-Moderate			
- Important Riparian Areas	Low-Moderate			
- Multiple Use Management Areas	Low			
- Designated Scientific Research Areas	Low-Moderate			
	Exist	ing Opportunities		
Roads/Major Arterial Roadways	NA			
Pipelines	NA			
Railroads	NA			
Utility Facilities (substations, etc.)	NA			
46-kV Overhead Transmission Line Corridors	NA			
115-kV/138-kV Overhead Transmission Line Corridors	NA			
230-kV/345-kV Overhead Transmission Line Corridors	NA			
	Future (P	lanned) Opportunities		
Roads/Major Arterial Roadways - Approved	NA			
Roads/Major Arterial Roadways - Conceptual/General/Comprehensive Plan	NA			
	er evaluation of edge co	ondition (e.g., residential areas	adjacent to major arterial roads and 46-kV and	

Rosemont 138-kV Transmission Project Facility Siting Criteria Work Sheet

EPG DRAFT 2/10/09

Rosemont 138kV Transmission Line Project

Agenda - Stakeholder Group Meeting #2

July 22, 2009, 11:00am – 2:00pm Unisource building, 2nd Floor Conference Room One South Church Street Tucson, Arizona 85702

- Welcome and introductions
- Agenda
- Planning process review
- Engineering studies
- Public comments received
- Environmental studies
 - Final siting criteria
 - Opportunities and constraints analysis
- Preliminary link alternative identification
- Next steps
- Comments and questions

ROSEMONT 138KV TRANSMISSION LINE PROJECT STAKEHOLDER GROUP

Revised from February 2009

MEMBERSHIP

The purpose of the Stakeholder Group is to establish a group representing a range of opinions in a forum small enough to allow for thorough education of the participants, detailed discussion of issues, and informal dialogue. EPG, Inc. (EPG) contacted various individuals/organizations for selection of the members that would assist Tucson Electric Power (TEP) and EPG in identifying issues and concerns relevant to the proposed project. Representation of a cross-section of the region includes federal, state, county, and municipal agencies that have administrative jurisdiction within the project area; industry/business; and citizens on behalf of their neighborhoods. Members were selected based on their knowledge of the project area, capability to commit the time required to participate in the Stakeholder Group throughout the planning process, and willingness to participate in an impartial manner.

ROSTER OF STAKEHOLDER GROUP MEMBERS

Federal

- Kent Ellett (<u>kellett@fs.fed.us</u>), representative for the transmission line on behalf of the Coronado National Forest
 - o Bev Everson (beverson@fs.fed.us)
 - o Teresa Ann Ciapusci (tciapusci@fs.fed.us)
- Linda Hughes (<u>Linda_hughes@blm.gov</u>), representative for the transmission line on behalf of the Bureau of Land Management, Tucson
 - o Cindy Alvarez (Cindy_alvarez@blm.gov)
 - o Dan Moore (Daniel_J_Moore@blm.gov)
- Mark Harting (<u>mark.harting@aztucs.ang.af.mil</u>, <u>markkonharting@gmail.com</u>), representative for Davis Monthan AFB airspace management

State

- Tim Bolton (tbolton@land.az.gov), Arizona State Land Department
- Steve Husman (husman@ag.arizona.edu), Santa Rita Experimental Range

City/Town

- Chris Kaselemis (chris.kaselemis@tucsonaz.gov), City of Tucson
- Orlanthia Henderson (ohenderson@ci.sahuarita.az.us), Town of Sahuarita
- Eddie Peabody (emerald5@cox.net), Planning and Zoning Committee, Green Valley Coordinating Council

Industry/Business

- Bob Iannarino (biannarino@diamondven.com)/Mark Weinberg (mweinberg@diamondven.com)/Ken Abrahams (kabrahams@diamondven.com), Diamond Ventures
- Nan Walden (nswalden@greenvalleypecan.com)/Larry Robertson (tubaclawyer@aol.com), Farmers Investment Company

Citizens

- Marshall Magruder (marshall@magruder.org)
- Elizabeth Webb (vailaz@hotmail.com)

PROJECT TEAM

Tucson Electric Power

- Ed Beck (ebeck@tep.com)
- Shannon Breslin (sbreslin@tep.com)
- Lee Aitkin (laitken@tep.com)
- Larry Lucero (llucero@tep.com)
- Erik Bakken (ebakken@tep.com)
- Cory Pintor (cpintor@tep.com)

EPG, Inc. – Phone (602) 956-4370

- Lauren Weinstein (lweinstein@epgaz.com)
- Jaime Wood (jwood@epgaz.com)
- Chelsa Johnson (cjohnson@epgaz.com)
- Emily Belts (ebelts@epgaz.com)

Rosemont Copper

- Kathy Arnold (karnold@rosemontcopper.com)
- Laurie Woodall, KR Saline (law@krsaline)

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ROSEMONT 138KV TRANSMISSION LINE PROJECT

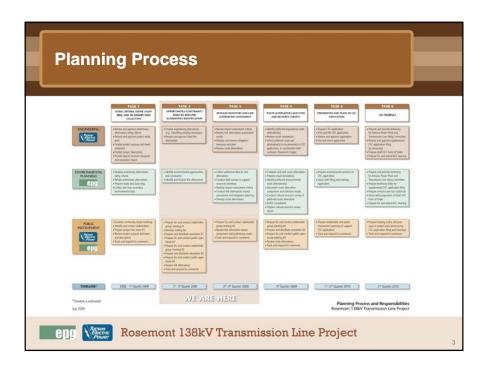
Presentation

Stakeholder Group Meeting #2 July 22, 2009

Agenda

- · Welcome and introductions
- · Planning process review
- · Engineering studies
- · Public comments received
- Environmental studies
- · Preliminary link alternative identification
- Next steps
- · Comments and questions







- Technical engineering studies completed by Rosemont and TEP to refine the project description
- Project description refined to identify a point at which the proposed transmission line will tap into TEP's electrical system at a proposed switchyard. This proposed switchyard will tap the existing South Substation to Green Valley 138kV transmission line and become the point of origin for the proposed transmission line
- Current plan of service does not include direct connection to Vail or South substations
- Study concluded that two components are required for the transmission line project
 - power for construction from a proposed 138kV transmission line extending from existing Greaterville Substation to proposed Rosemont Substation
 - power for operations from a proposed 138kV transmission line extending from proposed switchyard to proposed Rosemont Substation

epg



Rosemont 138kV Transmission Line Project

Public Comments Received

- · Approximately 430 comment forms, letters, and phone messages were received to date
- Summary of public concerns:
 - Location of alternatives near scenic or open space areas
 - Financial implications to Rosemont and TEP customers
 - Potential impacts to property values and taxes
 - Potential of undergrounding the transmission line
 - Potential source of power other than a transmission line for the Rosemont operations



Rosemont 138kV Transmission Line Project

Environmental Studies

Resource Data Collected

- Land use
 - existing and future land use
 - jurisdictional planning guidelines
- Visual and recreation
 - · scenic quality
 - · sensitive viewers
 - · scenic management guidelines
 - Roads/trails and trailheads

- Cultural

- archaeological districts
- · National Register or State Historic Districts or Sites

- Biological

- · wildlife and habitat
- vegetation
- · special status species



Rosemont 138kV Transmission Line Project

Resource Sensitivity Levels Overview

- Low: potential resource constraints are minimal or absent, typically representing areas most desirable for building transmission lines (e.g., industrial, vacant/undeveloped lands)
- Low-moderate: potential resource constraints are present, but conflicts or issues would likely be minimized with conventional design and construction methods (e.g., existing commercial, general planned residential areas)
- Moderate: potential resource constraints are present, but conflicts or issues would likely be reduced or minimized with conventional and non-conventional design and construction methods (e.g., agricultural [pecan groves], conceptually planned residential areas)



Rosemont 138kV Transmission Line Project

Resource Sensitivity Levels Overview (continued)

- Moderate-high: potential resource constraints are present, but conflicts or issues would likely be reduced with conventional and non-conventional design or mitigation measures (e.g., recreation areas, plat-approved residential areas)
- High: potential resource constraints are present where there are unique, highly valued, complex, or legally protected resources; conflicts or issues would be more difficult to avoid or reduce with the conventional and nonconventional design or mitigation measures (e.g., existing residential development)
- Incompatible: potential resource constraints are present where agencies have an adopted management plan or regulatory guidelines, which identify transmission lines as incompatible or in conflict with existing or future resources (e.g., designated wilderness areas)



Rosemont 138kV Transmission Line Project

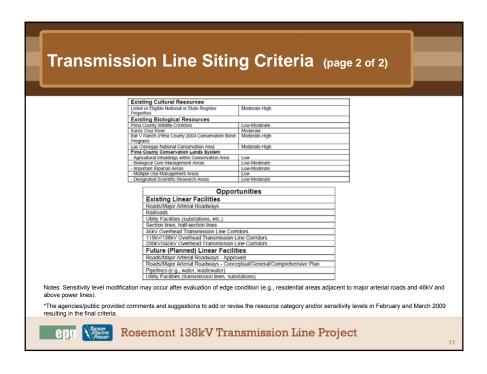
Opportunities and Constraints

- · Based upon resources within the project study area
- Sensitivity levels assigned based upon established criteria for each resource
- Sensitivity levels assist in identifying potential constraints for building a transmission line
- · Opportunities are considered within the context of the areas in which they occur
 - A constraint may be underlying or adjacent to an opportunity area



Rosemont 138kV Transmission Line Project

Transmission Line Siting Criteria (page 1 of 2) SENSITIVITY OF RESOURCES Middleground (1/2 to 4 miles) -Concern Level 2 (Moderate concern roads and Resource Category xisting Land Use Resources Sensitivity Level* Moderate -Concern Level 2 (Moderate concern roads and traits) – Immediate Foreground (0-300 feet) -Concern Level 2 (Moderate concern roads and traits) – Foreground (300 feet -1/2 mile) -Concern Level 2 (Moderate concern roads and Moderate ntial s/Educational Facilities ercial Retail Low-Moderate ricultural Land (pecan groves cant/Undeveloped Land nai /Quasi-Public Low-Moderate Existing Recreation Resources Low-Moderate Score Holds High Visual Classifications – BLM (VRM), Forest Service Concern Level Roads VRM Class III Low-Moderate High Low-Moderate Concern Level 1 High concern roads and trails — Immediate Foreground (0.300 feet) mediate Foreground (0-300 feet) encern Level 1 (High concern roads and traits) – reground (300 feet -1/2 mile) Rosemont 138kV Transmission Line Project





- · Existing/future linear features
 - Transportation
 - · Interstate 19
 - Major highways/arterials (e.g., Santa Rita Road)
 - Railroads
 - · Future transportation corridors
 - Utilities
 - · Irrigation canals
 - · Transmission lines
 - Pipelines (e.g., gas, water, wastewater)
- Industrial areas
- Vacant/undeveloped lands without specific future development plans





Constraints

- · Existing residences or master planned communities
- Future approved residential developments
- Schools
- Areas with adopted management guidelines restricting the siting of transmission line facilities
- Designated scenic roads
- Regional and local parks
- Known National Register or State Historic Districts or Sites
- Known special status species locations or critical habitat



Rosemont 138kV Transmission Line Project

Key Terms Defined

- Right-of-way: land authorized to be used or occupied for the construction, operation, and maintenance of a linear facility
- Corridor: a tract of land of varying width that allows the flexibility for a transmission line to be located within to accommodate final engineering and environmental considerations
- Preliminary link: short segment of a preliminary transmission line route between other intersecting segments
- Link node: intersecting point where two links meet
- Route or routes: series of links connecting the proposed switchyard and proposed Rosemont Substation



Preliminary Link Alternative Identification

- · Define sensitivity criteria for resources inventoried (e.g., general industrial – low sensitivity vs. existing residential – high sensitivity)
- Conduct opportunities and constraints analysis for resources inventoried (e.g., transmission lines, existing, and future land use)
- · Prepare opportunities and constraints map
- Identify preliminary link alternatives
 - Agency/public comment
 - Environmental
 - Engineering



Rosemont 138kV Transmission Line Project

Link Alternative Screening and Route Identification

- · Link alternatives will be screened based on more detailed environmental and engineering analysis, as well as agency/public input
- Link alternatives will be combined to form complete transmission line routes between the proposed switchyard and proposed Rosemont Substation



TEP Decision Elements

- · Purpose and need
- Environmental
- Public/agency input
- Permits
- Engineering
- · Ability to obtain right-of-way
- Cost



Rosemont 138kV Transmission Line Project

Next Steps

- Public information open house meeting #2 (August 27, 2009)
- · Detailed inventory and impact assessment
- · Route alternatives identification
- Stakeholder meeting #3 (TBD)





Docalisas Catamani	F RESOURCES Sensitivity Level*
Resource Category	Sensitivity Level*
isting Land Use Resources	T
sidential	High
nools/Educational Facilities	High
mmercial Retail	Low-Moderate
tel/Resort	Moderate
ricultural Land (pecan groves)	Moderate
cant/Undeveloped Land	Low
dustrial	Low
ıblic/Quasi-Public	Litale
Church	High High
Cemetery	
Government Buildings	Low-Moderate
xisting Recreation Resources	T
arks	High
ilderness Area	Incompatible
ventoried Roadless Area	High
eveloped National/Regional Trail	High
ocal Trails (County or City designated)	Moderate-High
ailheads, Picnic areas, and Campgrounds	High
xisting Visual Resources	
cenic Roads	High
sual Classifications – BLM (VRM), Forest Servic	e Concern Level Roads
VRM Class II	Moderate-High
/RM Class III	Low-Moderate
Concern Level 1 (High concern roads and trails) –	High
nmediate Foreground (0-300 feet)	
Concern Level 1 (High concern roads and trails) –	High
oreground (300 feet -1/2 mile)	
concern Level 1 (High concern roads and trails) –	Moderate
iddleground (1/2 to 4 miles)	
Concern Level 2 (Moderate concern roads and	Moderate
ails) – Immediate Foreground (0-300 feet)	Madayata
Concern Level 2 (Moderate concern roads and	Moderate
rails) – Foreground (300 feet -1/2 mile) Concern Level 2 (Moderate concern roads and	Low-Moderate
concern Level 2 (Moderate concern roads and rails) – Middleground (1/2 to 4 miles)	LOW-IVIOUEI ate
uture Land Use Resources	
	Madausta High
esidential Planned – Plat Approved	Moderate-High
esidential Planned – Zoning Approved	Moderate
esidential Planned –	Low-Moderate
onceptual/General/Comprehensive Plan	Low Moderate
ommercial Planned – Plat Approved ommercial Planned –	Low-Moderate
	Low
onceptual/General/Comprehensive Plan	Low Moderate
ixed Use – Conceptual/General/Comprehensive	Low-Moderate
an ilitany Plat Approved	Moderate
ilitary – Plat Approved	Moderate
lustrial Facilities – Plat Approved	Low
dustrial Facilities –	Low
onceptual/General/Comprehensive Plan	
ture Recreation Resources	Madarata High
	Moderate-High
	Low Madarata
arks – Plat Approved arks – Conceptual/General/Comprehensive Plan	Low-Moderate
	Low-Moderate Moderate-High Low

Existing Cultural Resources				
Listed or Eligible National or State Register	Moderate-High			
Properties				
Existing Biological Resources				
Pima County Wildlife Corridors	Low-Moderate			
Santa Cruz River	Moderate			
Bar V Ranch (Pima County 2004 Conservation Bond	Moderate-High			
Program)				
Las Cienegas National Conservation Area	Moderate-High			
Pima County Conservation Lands System				
- Agricultural Inholdings within Conservation Area	Low			
- Biological Core Management Areas	Low-Moderate			
- Important Riparian Areas	Low-Moderate			
- Multiple Use Management Areas	Low			
- Designated Scientific Research Areas	Low-Moderate			

Opportunities		
Existing Linear Facilities		
Roads/Major Arterial Roadways		
Railroads		
Utility Facilities (substations, etc.)		
Section lines, half-section lines		
46kV Overhead Transmission Line Corridors		
115kV/138kV Overhead Transmission Line Corridors		
230kV/345kV Overhead Transmission Line Corridors		
Future (Planned) Linear Facilities		
Roads/Major Arterial Roadways - Approved		
Roads/Major Arterial Roadways - Conceptual/General/Comprehensive Plan		
Pipelines (e.g., water, wastewater)		
Utility Facilities (transmission lines, substations)		

Notes: Sensitivity level modification may occur after evaluation of edge condition (e.g., residential areas adjacent to major arterial roads and 46kV and above power lines).

*The agencies/public provided comments and suggestions to add or revise the resource category and/or sensitivity levels in February and March 2009 resulting in the final criteria

TASK 1

SITING CRITERIA, DEFINE STUDY AREA, AND SECONDARY DATA COLLECTION

TASK 2

ANALYSIS AND LINK

OPPORTUNITIES/CONSTRAINTS ALTERNATIVES IDENTIFICATION

TASK 4

ROUTE ALTERNATIVES SELECTION AND RESOURCE SURVEYS

TASK 5

PREPARATION AND FILING OF CEC **APPLICATION**

TASK 6

CEC HEARINGS

ENGINEERING Tucson Electric Power

- Review and approve preliminary alternatives siting criteria
- Review and approve project study
- Finalize project purpose and need
- Finalize project description
- Provide typical structure design(s) and substation layout
- Finalize engineering alternatives (e.g., rebuilding existing structures)
- Review and approve final link alternatives
- Review impact assessment criteria

TASK 3

DETAILED INVENTORY AND LINK

ALTERNATIVES ASSESSMENT

- Review link alternatives assessment results
- Develop and review mitigation measures and plan
- Review route alternatives

- Identify preferred engineering route alternative(s)
- Review visual simulations
- Select preferred route and alternative(s) to be presented in CEC application, in coordination with customer: Rosemont Copper
- Prepare CEC application
- Print and file CEC application
- Review and approve application • File and notice application
- Prepare and provide testimony for Arizona Power Plant and Transmission Line Siting Committee
- Review and approve supplemental CEC application filing (as necessary)
- Prepare draft CEC Form of Order
- Prepare for and attend ACC hearing

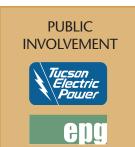
ENVIRONMENTAL PLANNING

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- Develop preliminary alternatives siting criteria
- Review preliminary alternatives
- Prepare study area base map
- Collect and map secondary environmental data
- Identify environmental opportunities and constraints
- Identify and finalize link alternatives
- Collect additional data for link alternatives
- Conduct field surveys to support resources inventory
- Develop impact assessment criteria
- Conduct link alternatives impact assessment and mitigation planning
- Develop route alternatives

- Compare and rank route alternatives
- Prepare visual simulations
- Identify preferred environmental route alternative(s)
- Document route alternative comparison and selection results
- Conduct cultural resource survey of preferred route alternative
- SHPO consultation
- Prepare cultural resource survey report

- Prepare environmental portions of **CEC** application
- Assist with filing and noticing application
- Prepare and provide testimony for Arizona Power Plant and Transmission Line Siting Committee
- Prepare testimony slides for supplemental CEC application filing
- Prepare virtual route tour (optional)
- Assist with preparation of draft CEC Form of Order
- Prepare for and attend ACC hearing



- Conduct community leader briefings
- Identify and contact stakeholders
- Prepare project fact sheet #1 Review project purpose and need

and description

- Track and respond to comments
- Prepare for and conduct stakeholder group meeting #1
- Develop mailing list
- Prepare and distribute newsletter #1
- Prepare for and conduct public open house #1
- Prepare for and conduct stakeholder group meeting #2
- Prepare and distribute newsletter #2
- Prepare for and conduct public open house #2
- Review link alternatives
- Track and respond to comments

- Prepare for and conduct stakeholder group meeting #3
- Review link alternative impact assessment and preliminary routes
- Track and respond to comments
- Prepare for and conduct stakeholder group meeting #4
- Prepare and distribute newsletter #3
- Prepare for and conduct public open house meeting #3
- Review route alternatives
- Track and respond to comments
- Prepare stakeholder and public involvement summary to support **CEC** application
- Track and respond to comments
- Prepare hearing notice and post signs in project area (announcing CEC application filing and hearings)
- Track and respond to comments

TIMELINE*

2008 - 1st Quarter 2009

1st - 3rd Quarter 2009

3rd - 4th Quarter 2009

4th Quarter 2009

1st -2nd Quarter 2010

2nd Quarter 2010

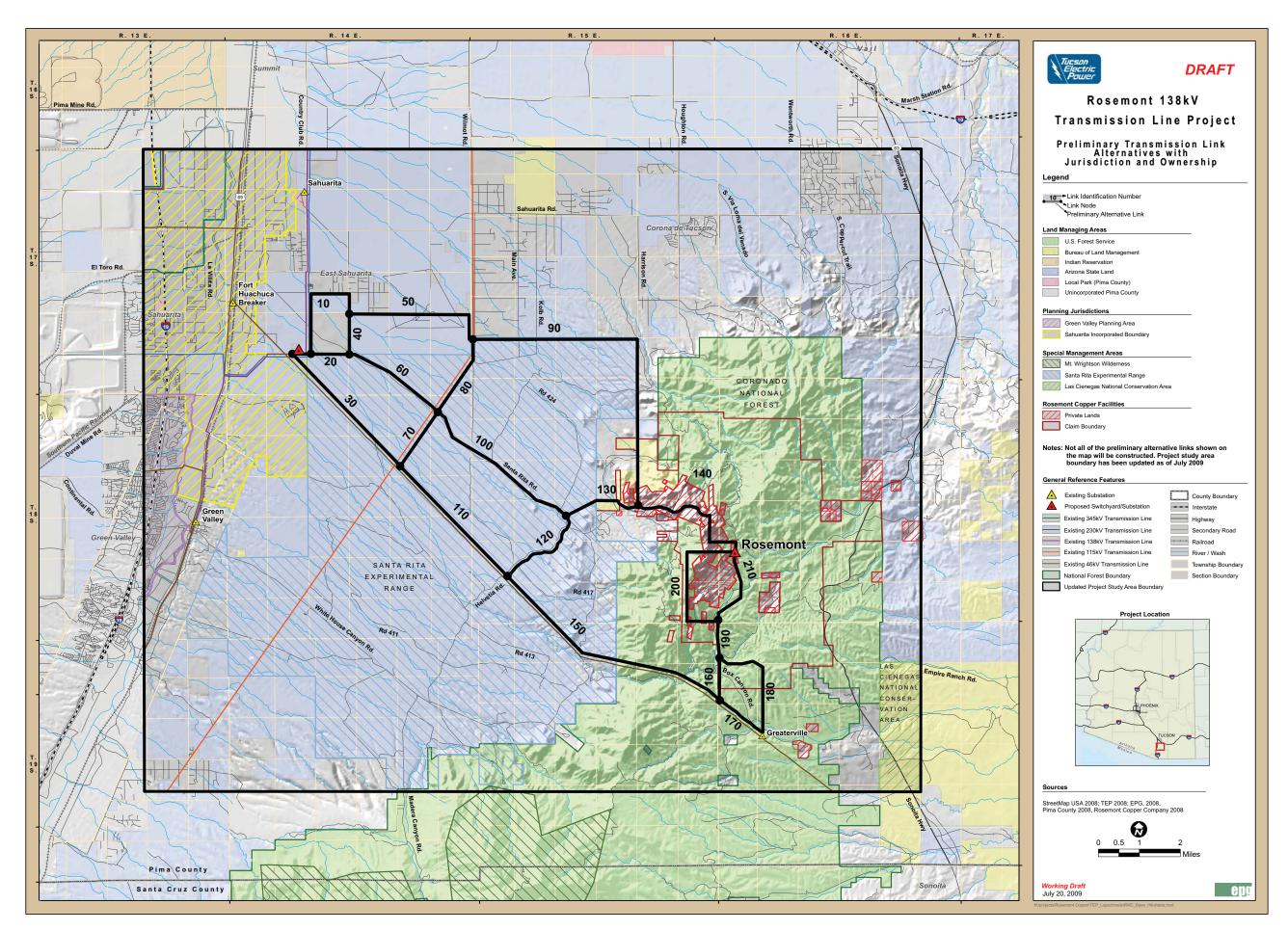
*Timeline is estimated

WE ARE HERE

Planning Process and Responsibilities Rosemont 138kV Transmission Line Project

July 2009

Tucson Electric Power Rosemont 138kV Transmission Line Project



Rosemont 138kV Transmission Line Project

Agenda - Stakeholder Group Meeting #3

December 10, 2009, 11:00am – 2:00pm Unisource building, 2nd Floor Conference Room One South Church Street Tucson, Arizona 85702

- Welcome
- Project Status
- Public and Agency Comments
- Environmental Impact Assessment Methodology
- Alternative Routes
- Next Steps
- Comments and Questions

ROSEMONT 138KV TRANSMISSION LINE PROJECT

Presentation

Stakeholder Group Meeting #3
December 10, 2009

December 10, 2009

Agenda

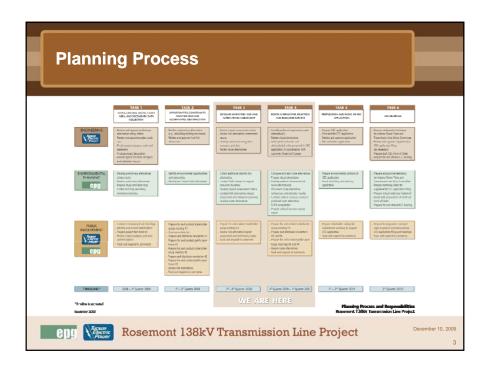
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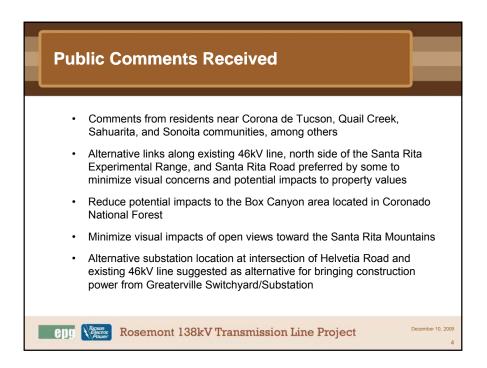
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Rosemont 138kV Transmission Line Project

December 10, 200





Agency Comments Received

- Santa Rita Experimental Range/Arizona State Land Department
 - Prefer transmission line alternative located along north side of Santa Rita Road to alternatives along northern range boundary and 46kV alignment
 - Prefer to co-locate linear utilities (proposed water pipeline and 138kV transmission line) along Santa Rita Road
- Town of Sahuarita
 - Prefers existing 46kV transmission line corridor to co-locate with existing infrastructure
 - Concerned with potential perceived visual impacts to residents from proposed western switchyard/substation
- Coronado National Forest
 - Prefers to minimize length of transmission line route crossing Coronado National Forest
 - Suggests potential mitigation measures to minimize visual impacts along Forest Service Concern Level travelways



Rosemont 138kV Transmission Line Project

Other Comments

- Colonia Sahuarita Heights/East Sahuarita
- Public meeting format include presentation and Q&A session
- Pole finish
- Community briefings



Detailed Inventory and Assessment

- Identified another interconnection alternative for construction power
- Conducting an environmental resource assessment for all alternative links
- Conducting a preliminary engineering analysis to ensure viability of alternative links, while considering electrical system planning, construction, and cost factors



Rosemont 138kV Transmission Line Project

Environmental Studies

Resource Data Collected

Land use

- · Existing and future land use
- · Jurisdictional planning guidelines

Visual and Recreation

- · Scenic quality
- · Sensitive viewers
- Scenic management guidelines
- · Roads/trails and trailheads

Cultural

- · Class I records review
- · National Register or State Historic Districts or sites

Biological

- · Wildlife and habitat
- Vegetation
- · Special status species



Resource Impacts

Land use impacts

- · Existing land use
- · Future land use

Visual resource impacts

- · Landscape scenic quality
- · Sensitive viewers (residences, roads/trails, trailheads)
- Scenic management guidelines

Cultural resource impacts

- · Known historic properties considered
 - Eliaible
 - Ineligible
 - Not evaluated

Biological resource impacts

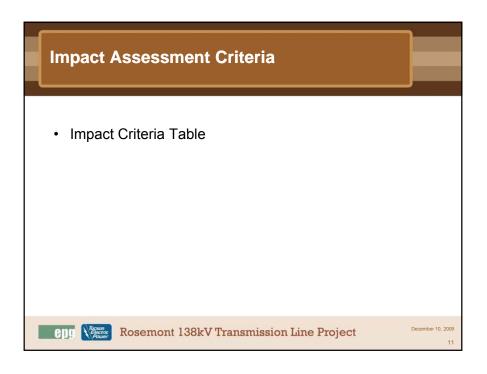
- · Biological conservation areas
- Vegetation
- · Wildlife

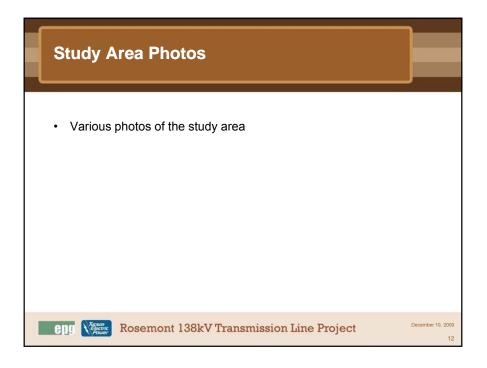


Rosemont 138kV Transmission Line Project

December 10, 2009

Access Levels - Definitions Access (Construction and Operation) Levels and Ground Disturbance Defined Disturbance Definition Areas where disturbance to existing landform, vegetation, and development would be lowest. Typical Crossing Conditions Developed lands parallel to established pave unpaved roads (e.g., residential, commercial, Access Level No new disturbance areas include existing access industrial, mixed use). No new disturbance areas include existing access roads and pre-fisturbed locations that do not require improvement (vegetation removal or grading). New improvements limited to overland drive and crush from existing disturbed locations. Vegetation is crushed but not cropped and no surface soil is disturbed. Transmission line and pipeline with established paved or unpaved roads (improvements not paved or unpaved roads (improvements not needed). Highway, roadway, railroad, canal or other linear facilities. Developed or undeveloped lands with existing roads. Developed or undeveloped lands with slopes not expecting 5%: Level 1 exceeding 5%. Developed or Undeveloped/desert lands with existing unimproved roads (Off-highway vehicle routes requiring improvement). Developed lands without existing linear corridors Areas where disturbance to existing landform, vegetation, and development would be moderate. New improvements limited to clearing and cutting of all vegetation in order to provide suitable access for construction equipment and vehicles. Vegetation is cropped and removed but no surface soil is disturbed. (e.g., roadways, greenways, utility easements). Transmission line and pipeline with established Level 2 Transmission line and pipeline with established paved or unpaved roads (improvements needed). Developed or undeveloped lands with slopes not exceeding 5%. Undeveloped/desert lands without existing roads (may create additional trespass to areas). Developed or undeveloped lands with slopes exceeding 5-10%. Areas where disturbance to existing landform, vegetation, and development would be highest. New improvements that require vegetation to be cleared and cut with removal of soil or grading disturbance. Vegetation and soil would be disturbed. Level 3 December 10, 2009 Rosemont 138kV Transmission Line Project





Alternative Route Identification

- Alternative links presented in July/August 2009 were combined to form transmission line route families based on:
 - Project construction power needs
 - Project operation power needs
 - Minimizing environmental impacts
 - Public and agency input
- Three route families combining construction and operation power
 - North routes
 - Santa Rita Road routes
 - Adjacent 46kV line routes



Rosemont 138kV Transmission Line Project

Switchyard/Substation Sites Analyzed

- Construction power sources
 - Expansion of existing Greaterville Switchyard/Substation
 - Temporary interconnection generally at the intersection of the existing 46kV transmission line and Helvetia Road
- Operation power switchyard/substation sites
 - Proposed switchyard/substation
 - Rosemont Substation



Summary of Alternative Routes

- Satisfies power needed for construction and operation of the Rosemont facilities
 - Alternative route families identified to meet construction and operation needs
- Common to all alternative routes
 - Serve future customer demand for electricity for Rosemont operations
 - Meets electrical system planning and engineering requirements

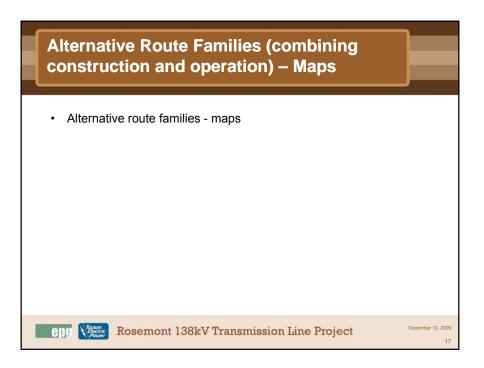
Maps

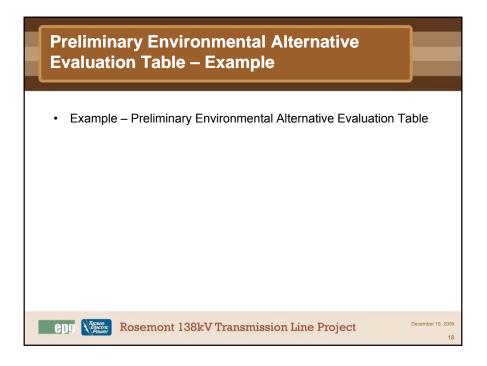


Rosemont 138kV Transmission Line Project

Construction and Operation Alternatives –

· Construction and operation alternatives - maps





Preliminary Alternative Comparison Summary Table – Example

• Example – Preliminary Alternative Comparison Summary Table



Rosemont 138kV Transmission Line Project

Alternative Route Evaluation

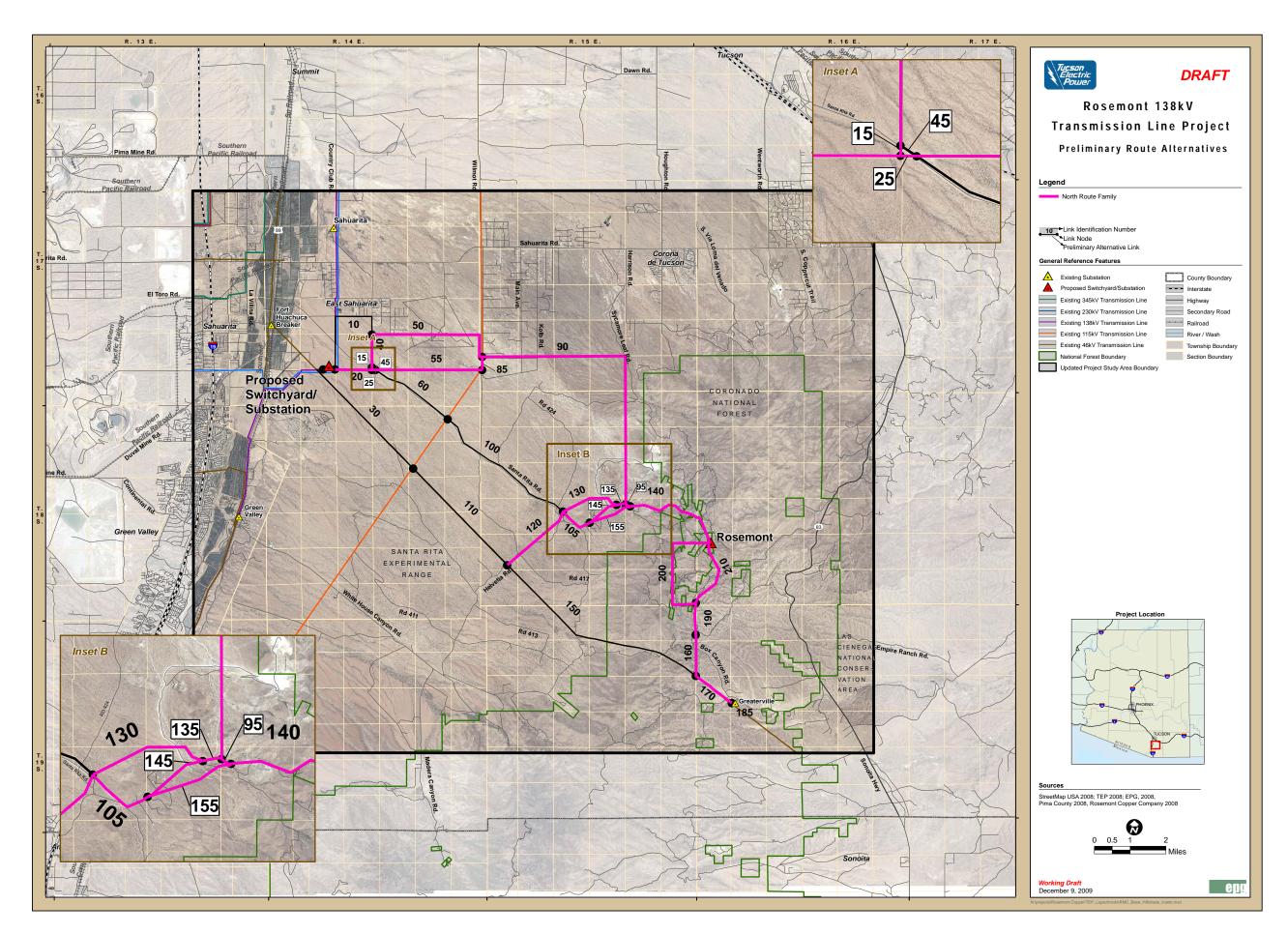
- Alternative routes will be compared following public and agency review
- Comparison and selection criteria will include:
 - Environmental compatibility
 - Electrical system planning requirements and timeframes
 - Engineering
 - · Constructability
 - · Cost
 - · Right-of-way
 - Public and agency support
 - Regulatory permits
- One or more alternative transmission line routes may be carried forward in the application for a Certificate of Environmental Compatibility (CEC) to be submitted to the Arizona Corporation Commission

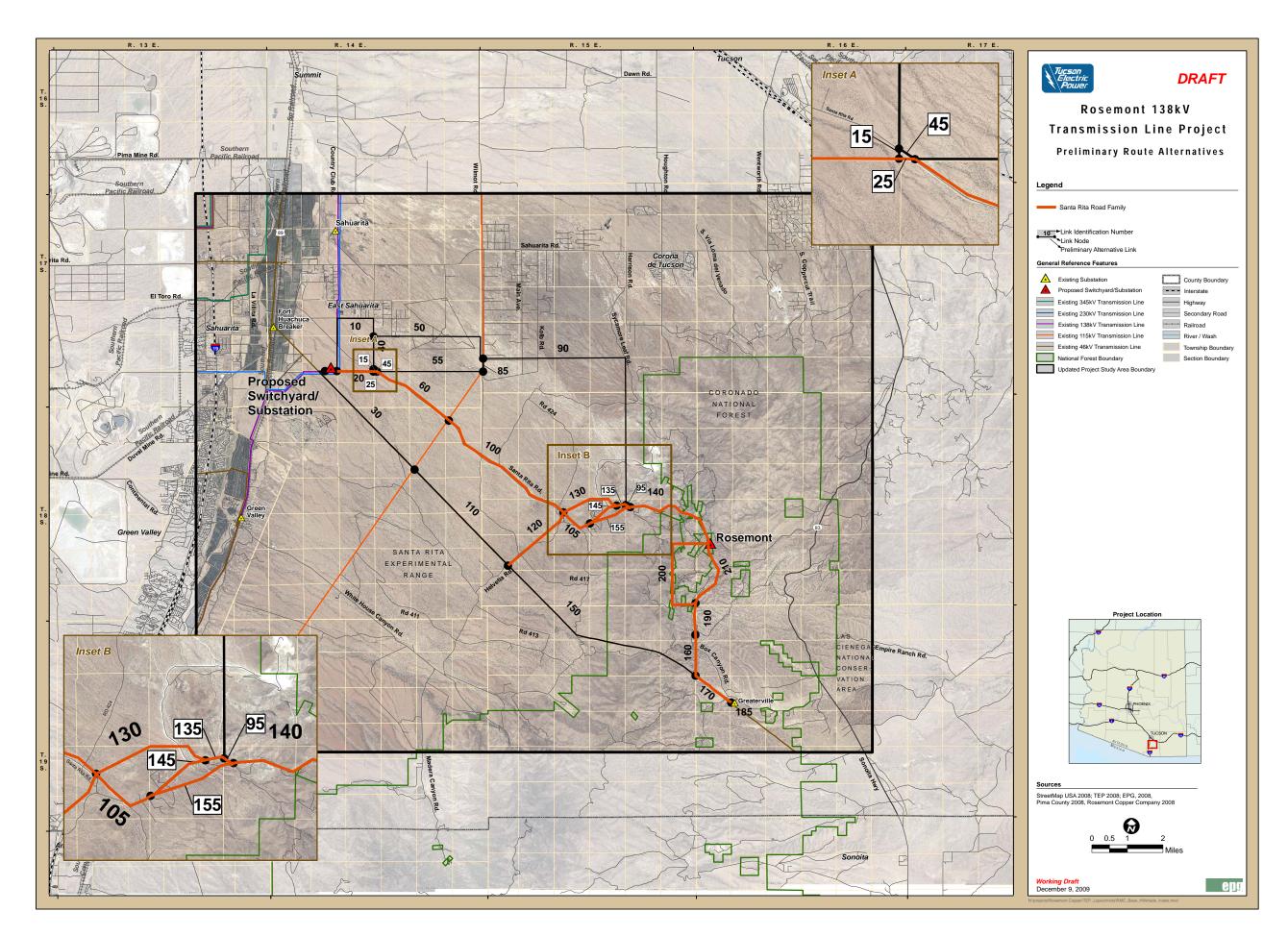


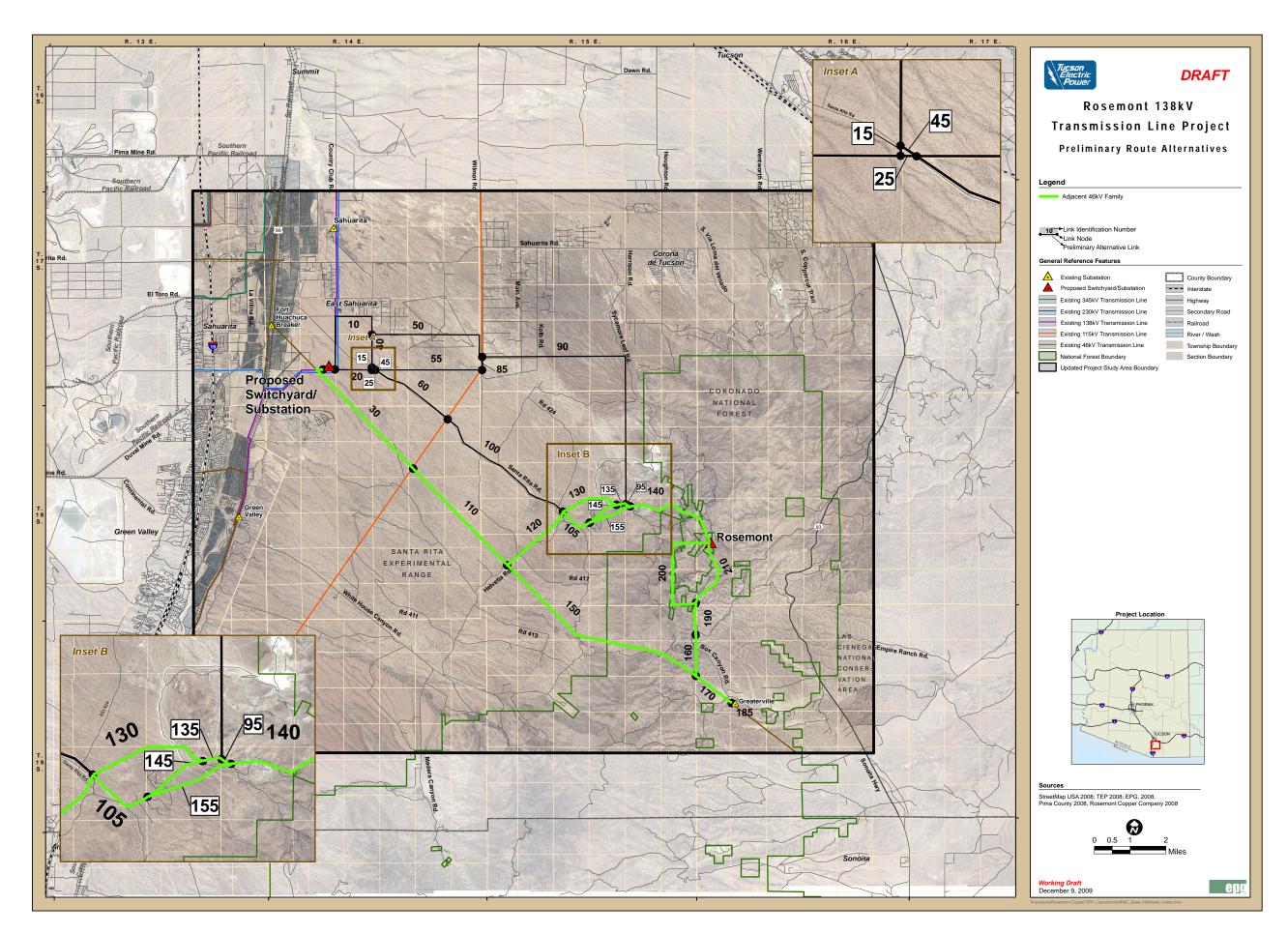


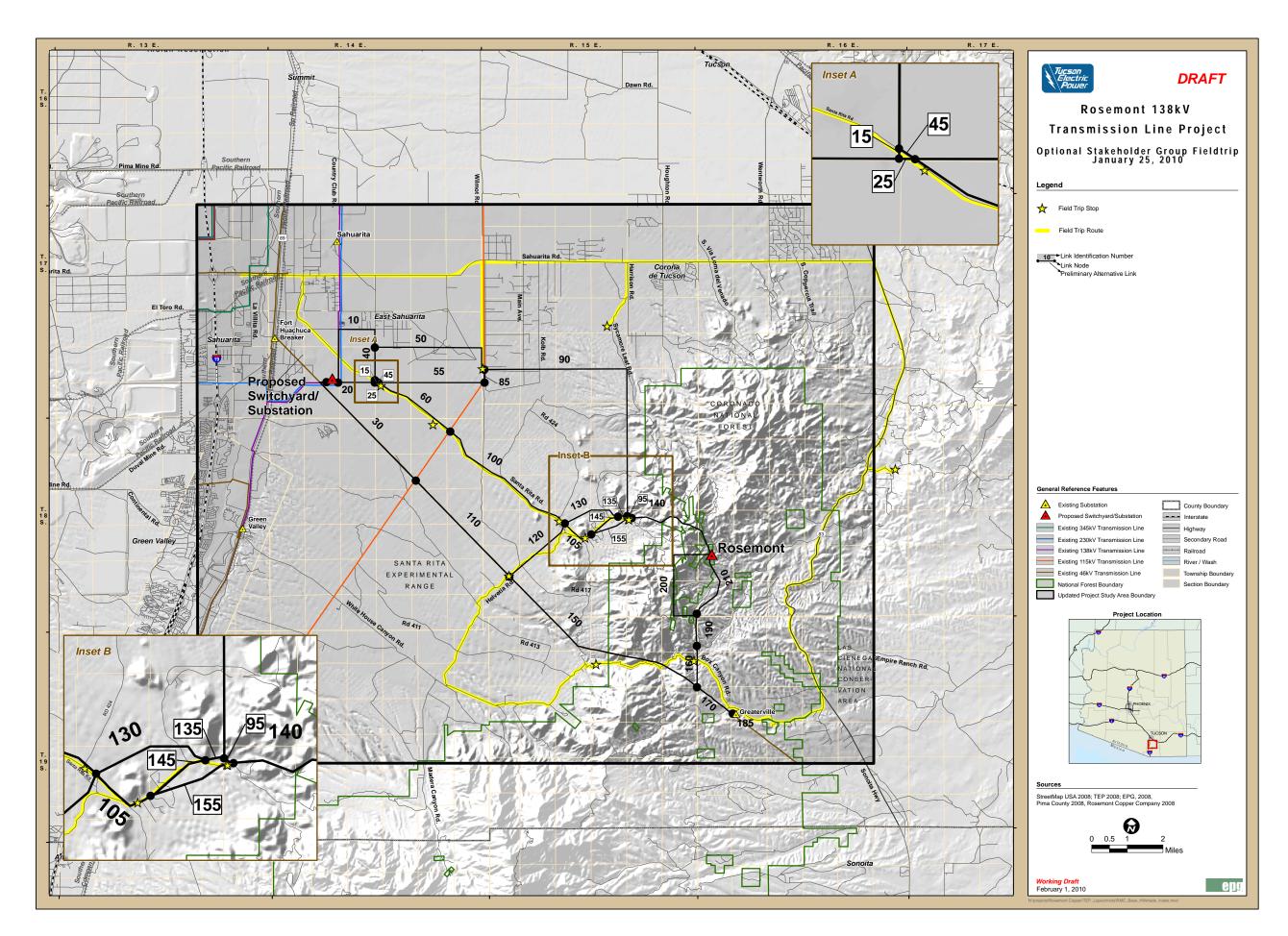
Project newsletter #3 Stakeholder meeting #4 (1st quarter 2010) Public open house meeting #3 (1st quarter 2010) Compare and identify final transmission line route(s) and construction power source(s) (1st-2nd quarter 2010) Stakeholder meeting #5 (2nd quarter 2010) Project newsletter #4 (2nd quarter 2010) File CEC application (2nd quarter 2010)











Rosemont 138kV Transmission Line Project

Agenda - Stakeholder Group Meeting #4

March 5, 2010 11:00am – 2:00pm Unisource building, board room One South Church Street Tucson, Arizona 85702

- Welcome
- Project Status
- Impact Assessment
- Alternative Route Evaluation
- Alternative Routes
- Next Steps
- Comments and Questions

ROSEMONT 138KV TRANSMISSION LINE PROJECT

Presentation

Stakeholder Group Meeting #4 March 5, 2010

March 5, 2010

Agenda

- Welcome
- **Project Status**
- Impact Assessment
- Alternative Route Evaluation
- Alternative Routes
- **Next Steps**
- **Comments and Questions**



Rosemont 138kV Transmission Line Project

March 5, 2010

Public Comments Received

- Comments from residents near Corona de Tucson, Quail Creek, Sahuarita, and Sonoita communities, among others
- Alternative links along existing 46kV line, north side of the Santa Rita Experimental Range, and Santa Rita Road preferred by some to minimize visual concerns and potential impacts to property values
- Reduce potential impacts to the Box Canyon area located in Coronado National Forest
- · Minimize visual impacts of open views toward the Santa Rita Mountains
- Alternative substation location at intersection of Helvetia Road and existing 46kV line suggested as alternative for bringing construction power from Greaterville Switchyard/Substation

epg



Rosemont 138kV Transmission Line Project

March 5, 2010

Agency/Stakeholder Group Comments Received

- Santa Rita Experimental Range/Arizona State Land Department
 - Prefer transmission line alternative located along north side of Santa Rita Road to alternatives along northern range boundary and 46kV alignment
 - Prefer to co-locate linear utilities (proposed water pipeline and 138kV transmission line) along Santa Rita Road
 - Does not support Link 120
- · Town of Sahuarita
 - Prefers existing 46kV transmission line corridor to co-locate with existing infrastructure
 - Concerned with potential perceived visual impacts to residents from proposed western switchyard/substation
- · Coronado National Forest
 - Prefers to minimize length of transmission line route crossing Coronado National Forest
 - Suggests potential mitigation measures to minimize visual impacts along Forest Service Concern Level travelways

epg



Rosemont 138kV Transmission Line Project

March 5, 201

Public Involvement Summary

- Agency briefings
- Stakeholder group meetings
- Field trip
- Public open houses
- Community briefings
- Newsletters
- Telephone information line
- Website (TEP)



Rosemont 138kV Transmission Line Project

March 5, 2010



Revised Alternative Links

- · Conducted environmental resource assessment for all alternative links
- Removed several preliminary alternative links from detailed impact assessment/alternative route development



Rosemont 138kV Transmission Line Project

March 5, 2010

Impact Assessment Summary

Land use impacts

- · Existing land use
- · Future land use

Visual resource impacts

- · Landscape scenic quality
- · Sensitive viewers (residences, roads/trails, trailheads)
- · Scenic management guidelines
 - Santa Rita Road was designated scenic by Pima County February 2010

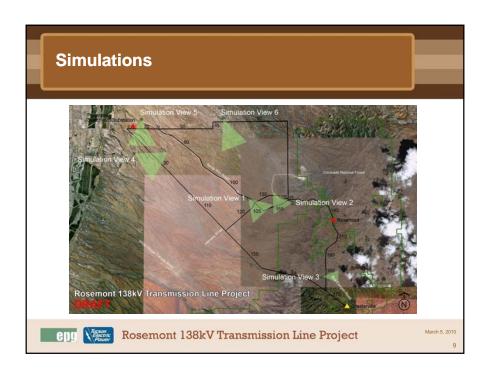
Cultural resource impacts

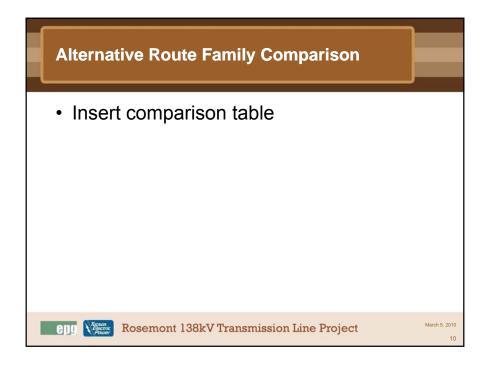
- · Known historic properties considered
 - Eligible
 - Ineligible
 - Not evaluated

Biological resource impacts

- · Biological conservation areas
- · Vegetation
- Wildlife







Key Considerations for Alternative Routes

- Project construction and operation power needs
 - Three route families combining power needs
- Minimizing environmental impacts
- Electrical system planning requirements and timeframes
- Engineering
 - Constructability
 - Cost
 - Right-of-way
- Public and agency input
- Regulatory permits
- One or more alternative transmission line routes may be carried forward in the application for a Certificate of Environmental Compatibility (CEC) to be submitted to the Arizona Corporation Commission



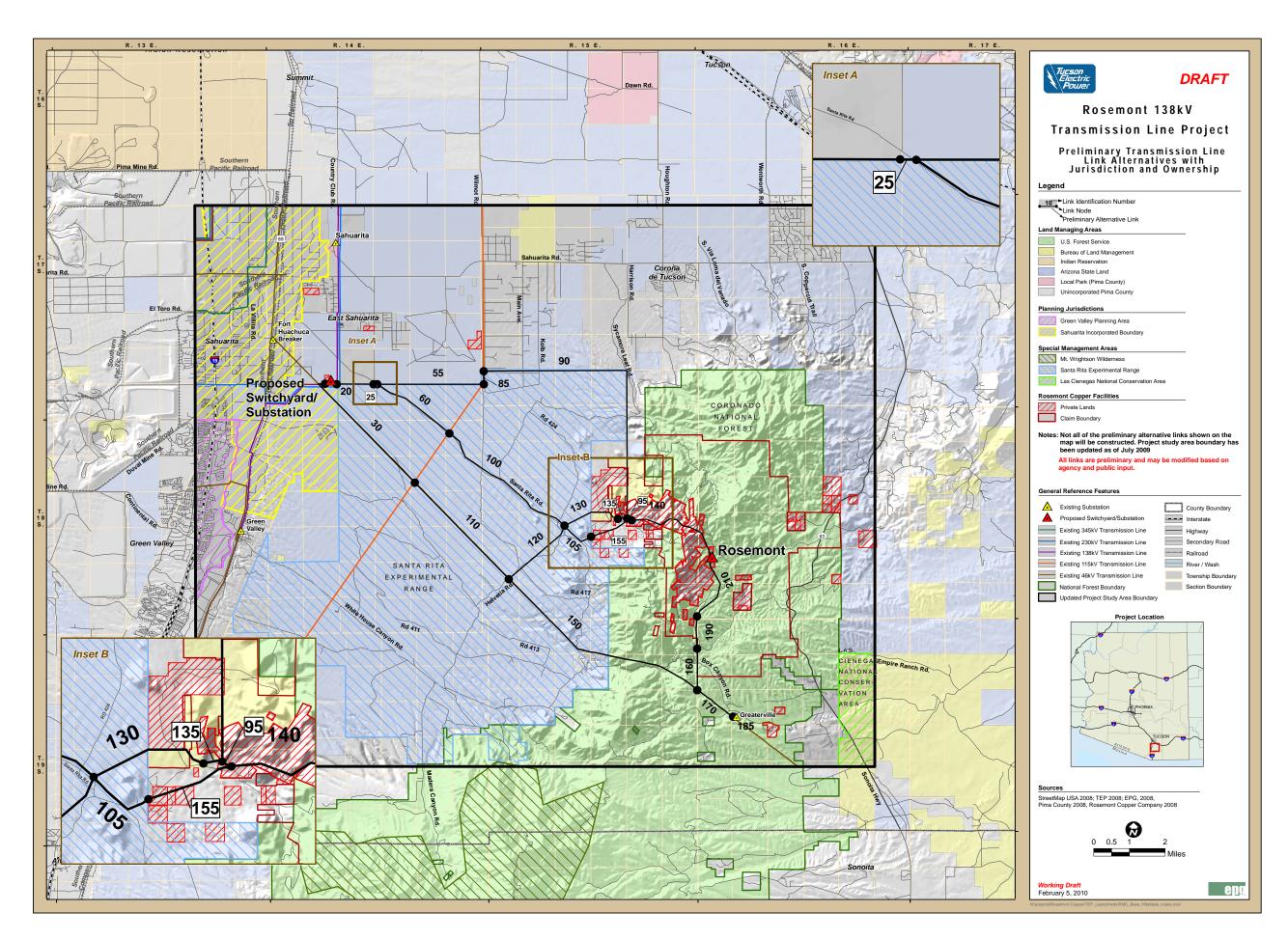


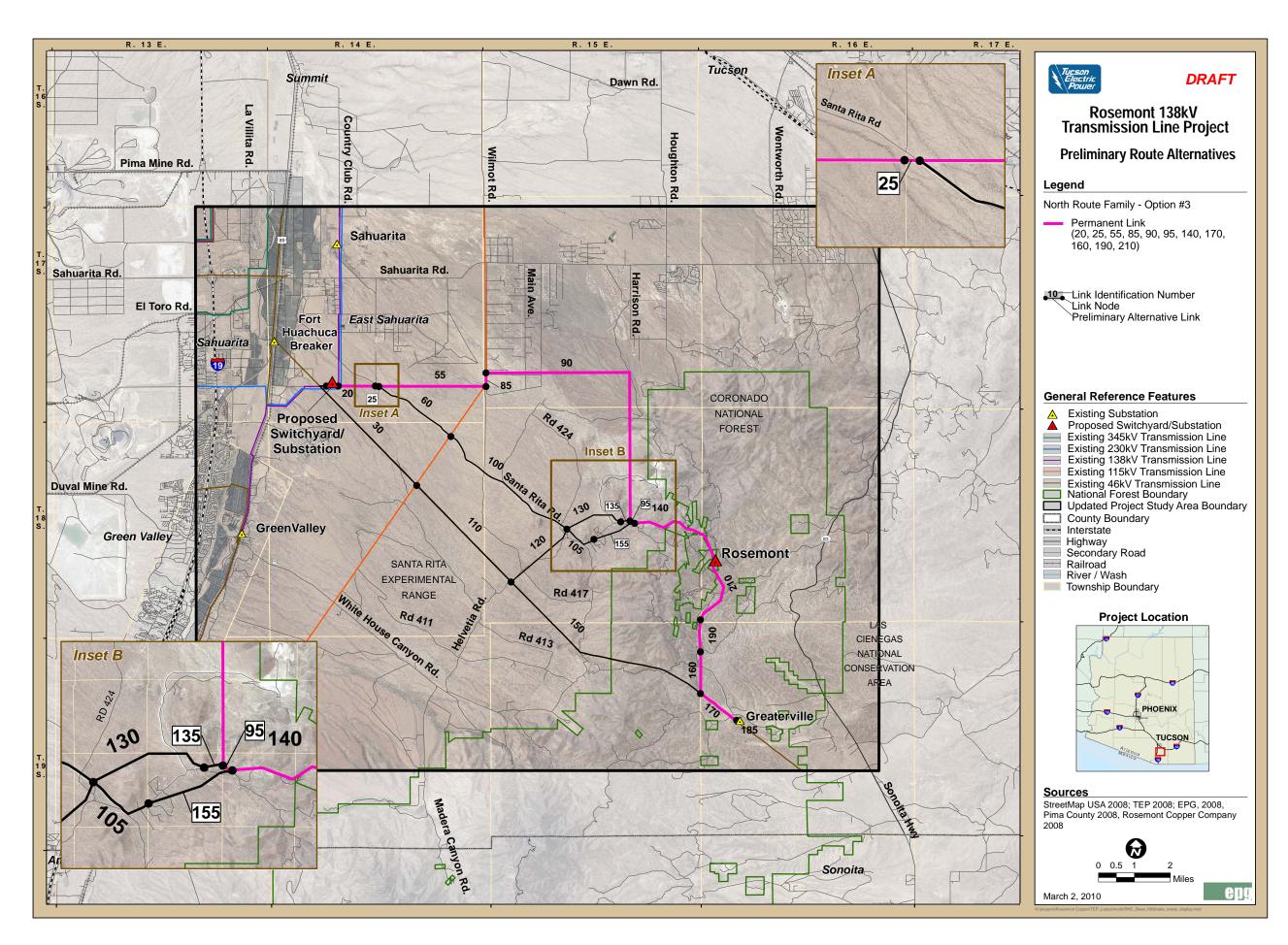
Rosemont 138kV Transmission Line Project

Next Steps

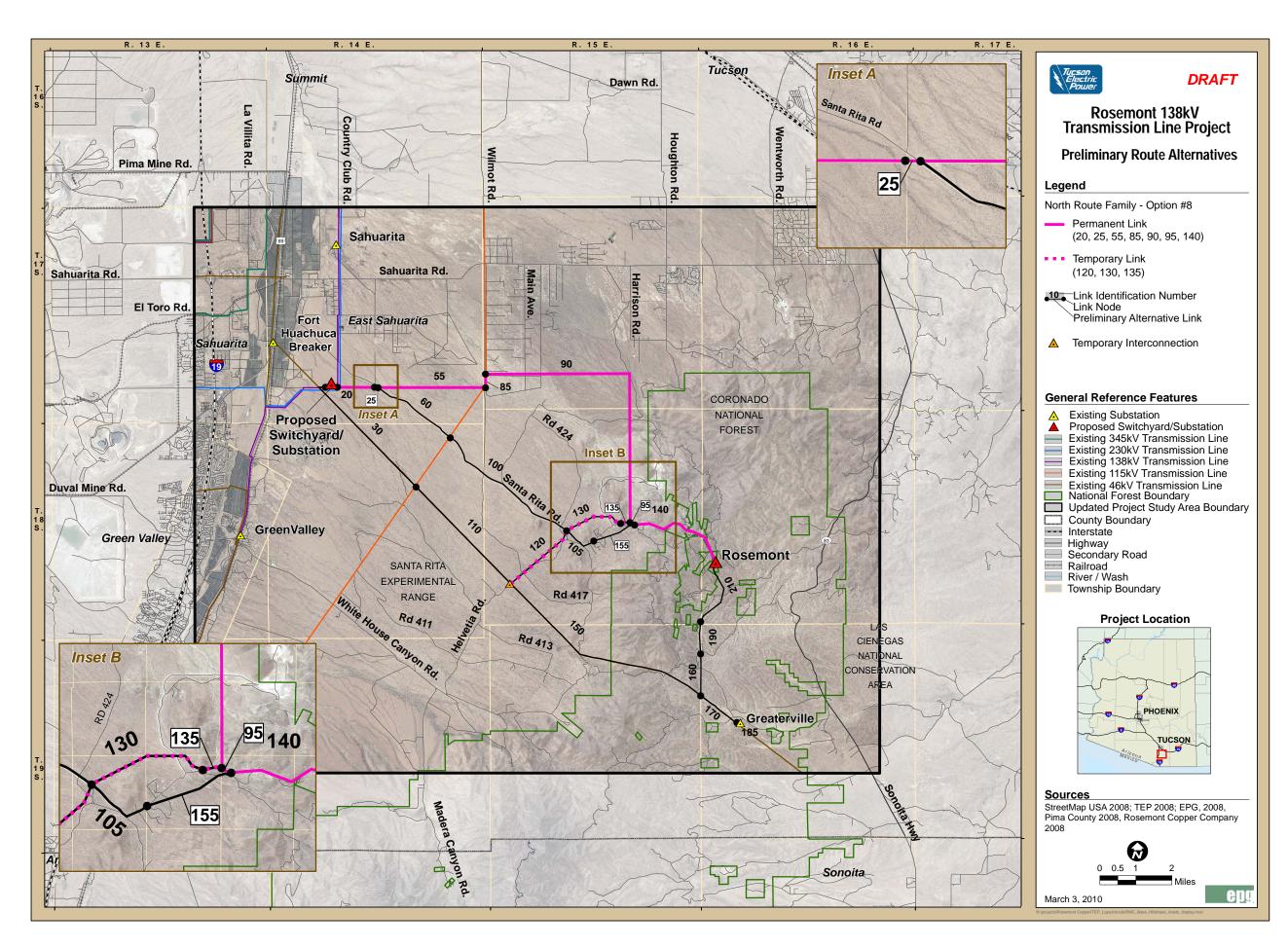
- Publish newsletter #3 March
- Public open house #4 April
- · Finalize route analysis for CEC application
- File CEC application Spring, depending upon DEIS publication

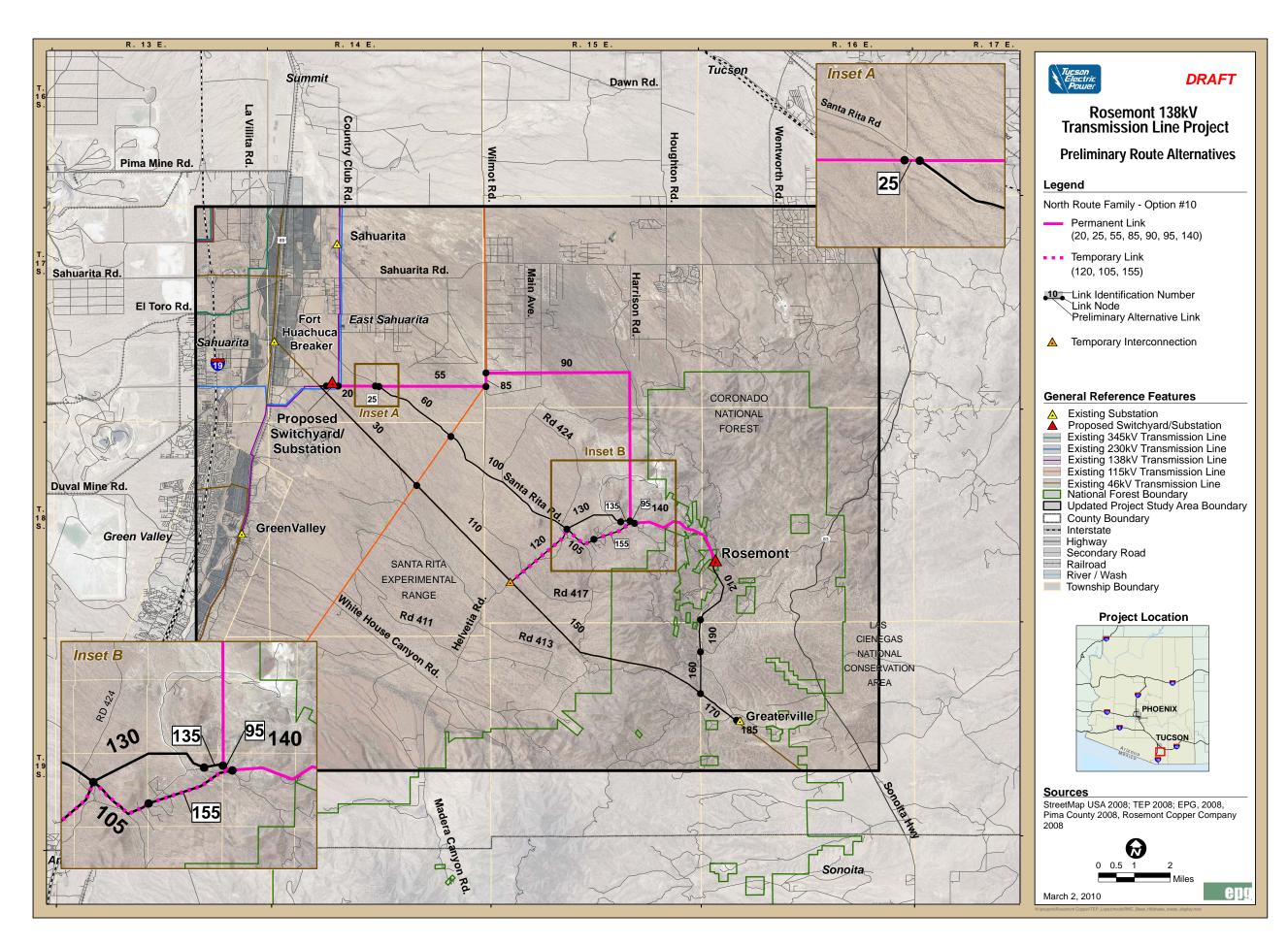


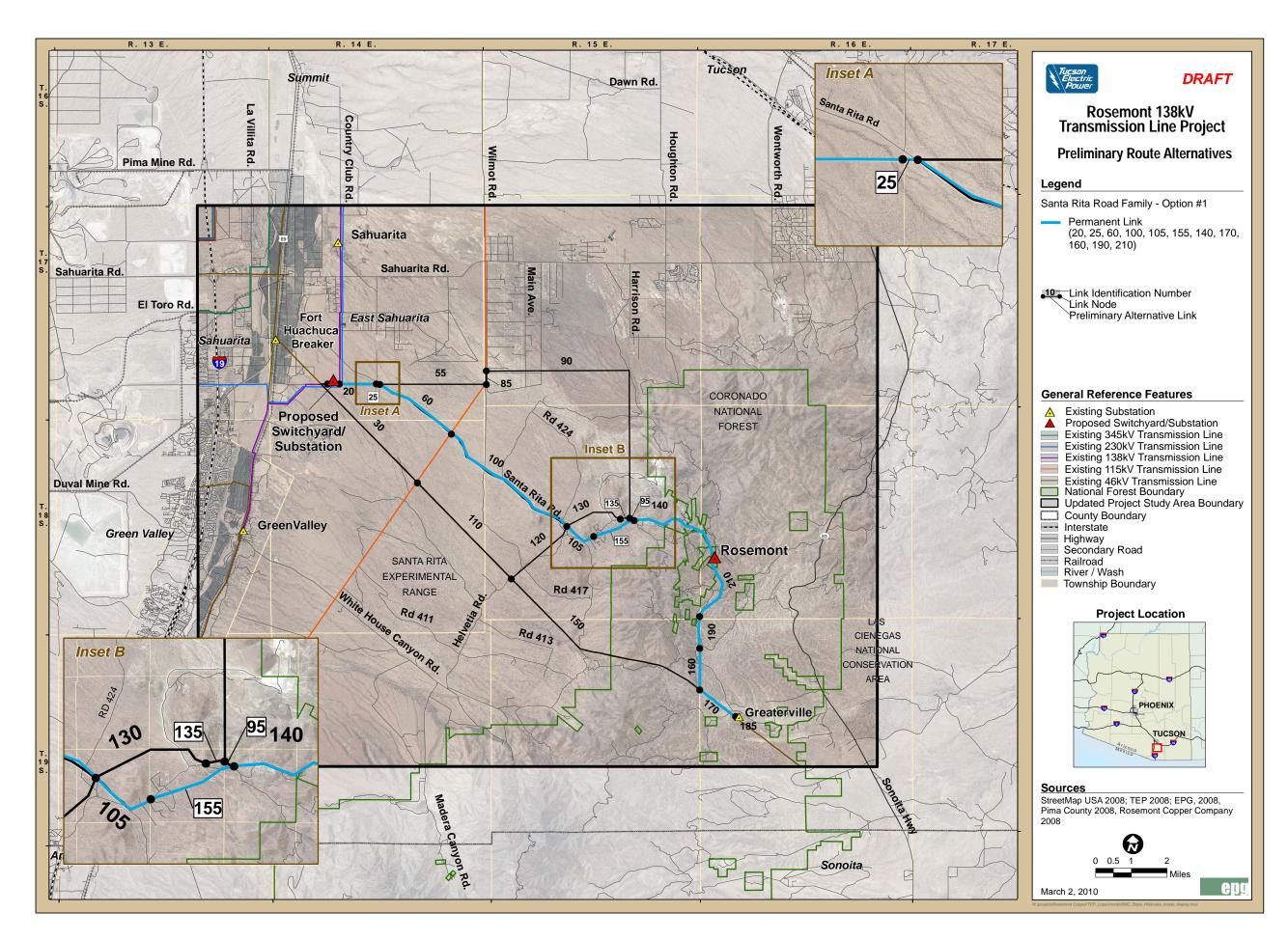


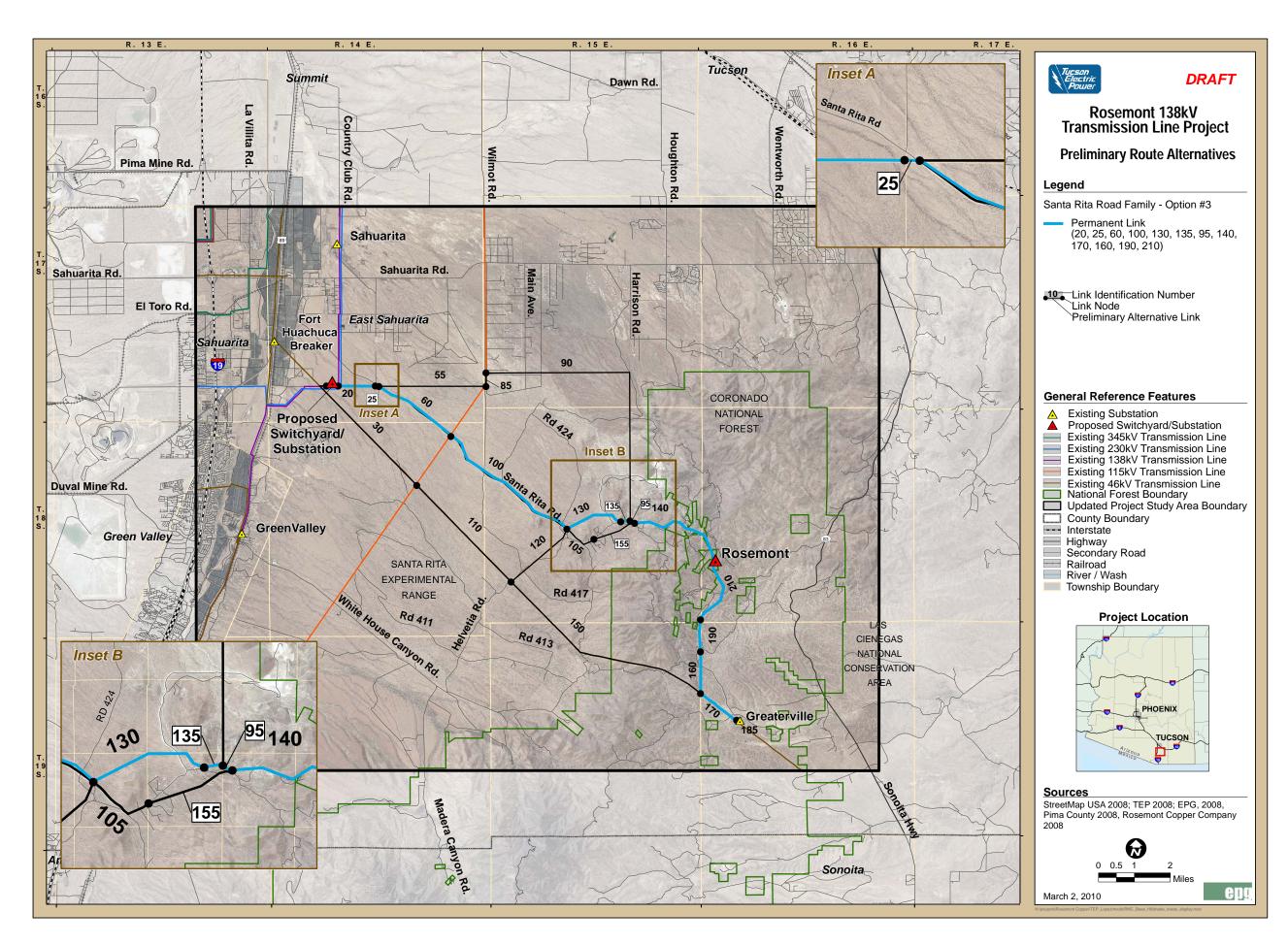


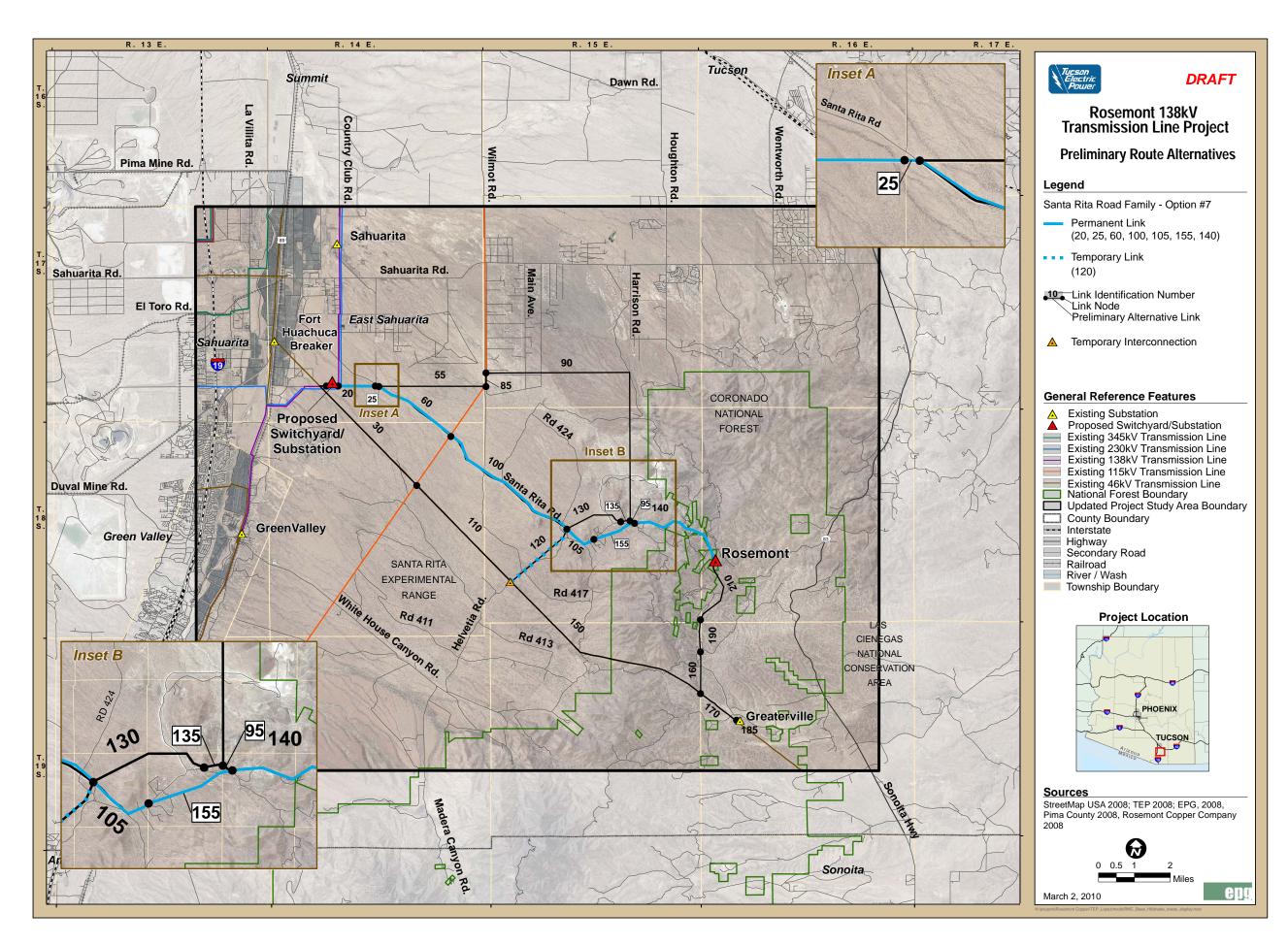
J-106

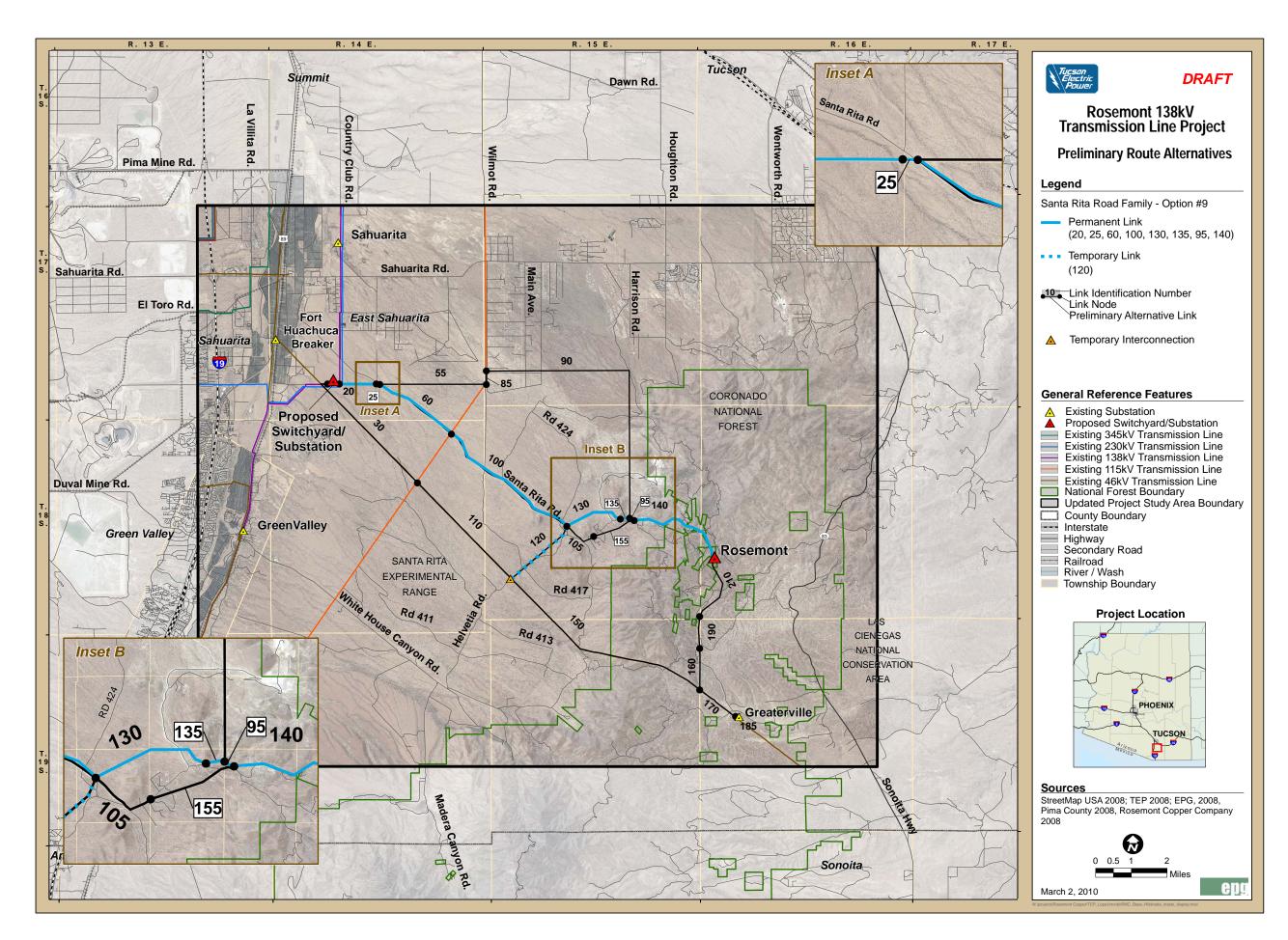


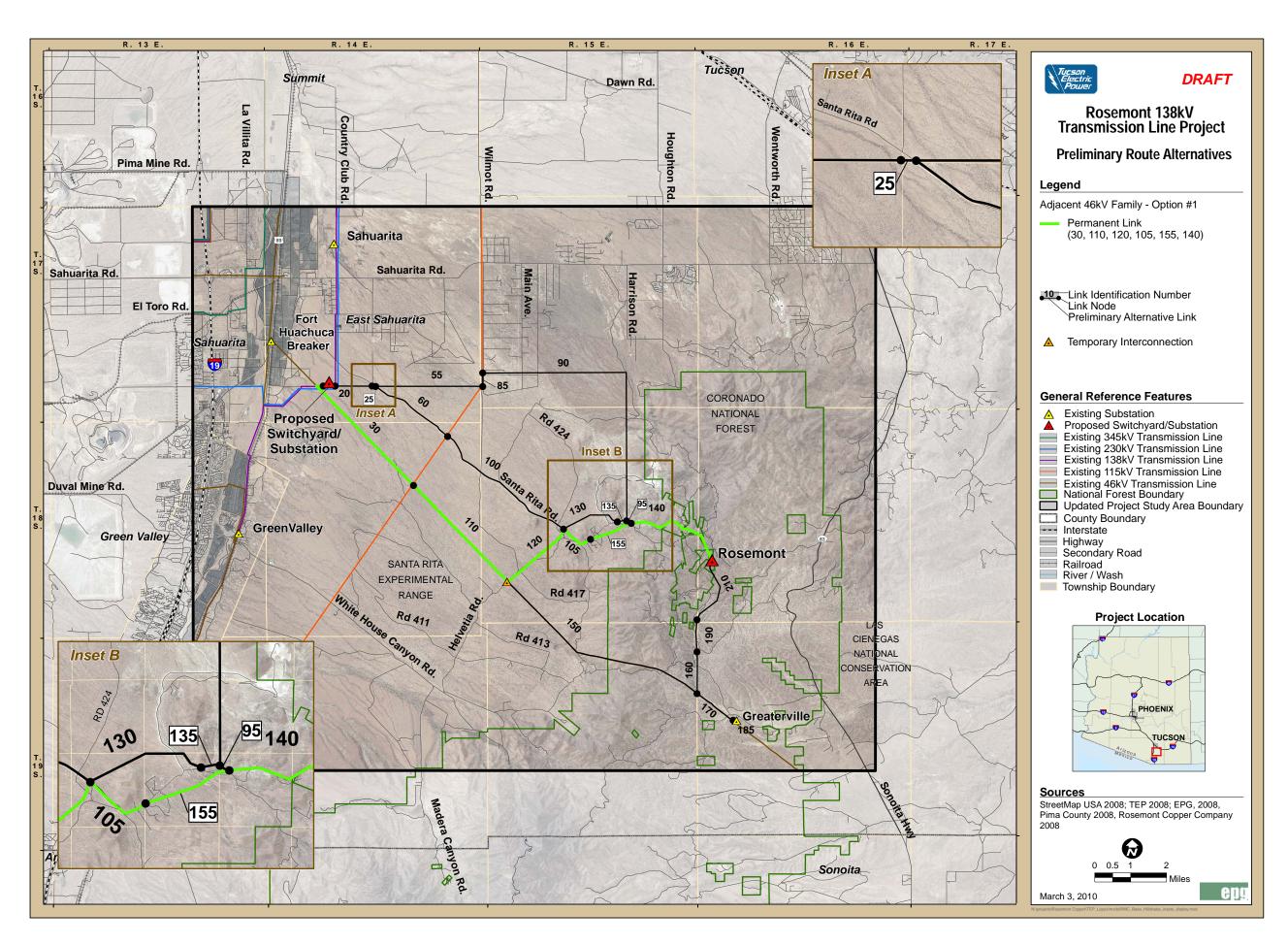


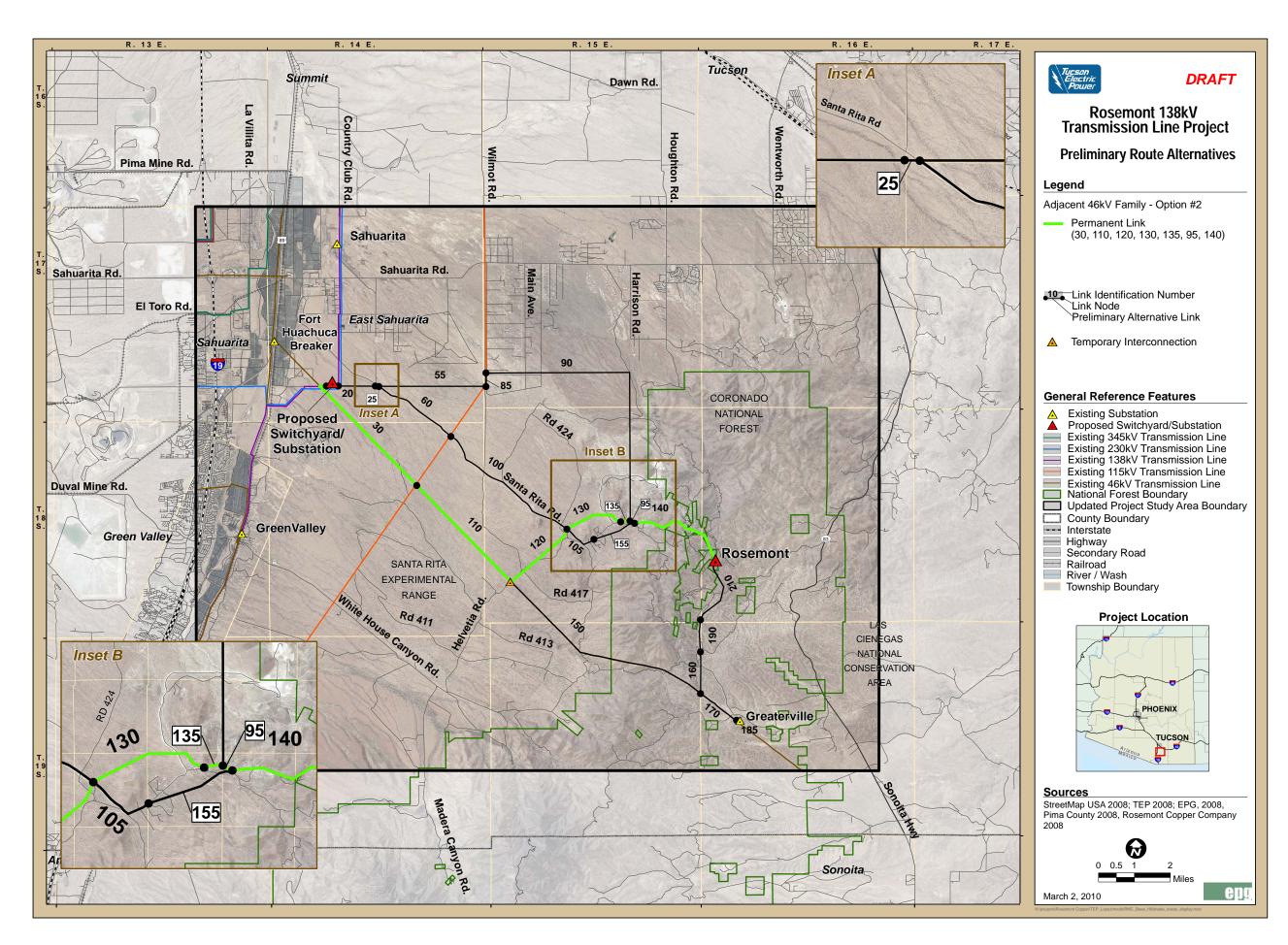


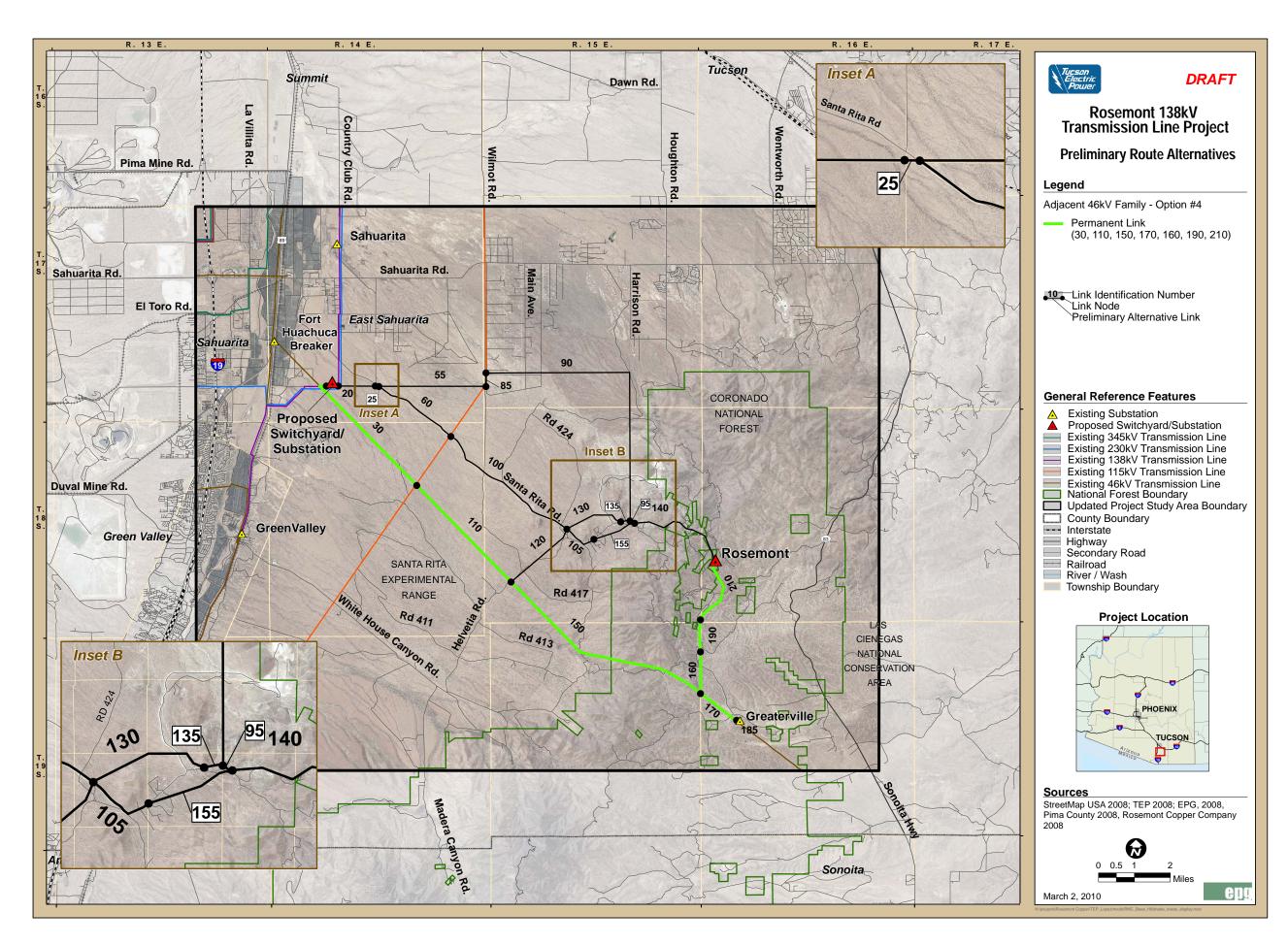




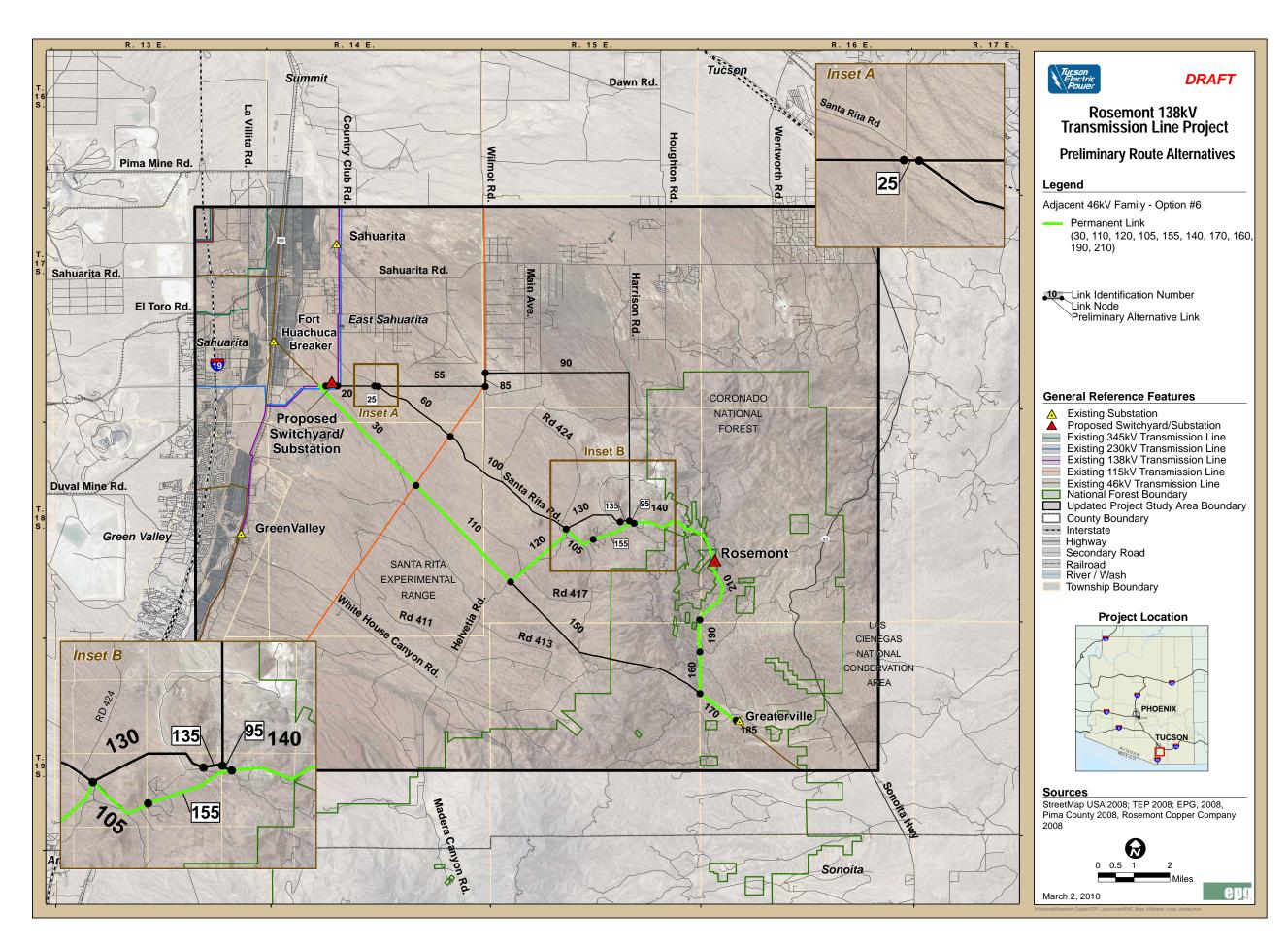








J-124



Rosemont 138kV Transmission Line Project

Agenda - Stakeholder Group Meeting #5

October 27, 2010 11:00am – 2:00pm Unisource building One South Church Street Tucson, Arizona 85702

- Welcome
- Project Status
- Preferred and Alternative Routes likely to be carried forward
- Next Steps
- Comments and Questions

ROSEMONT 138KV TRANSMISSION LINE PROJECT STAKEHOLDER GROUP

Revised October 2010

MEMBERSHIP

The purpose of the Stakeholder Group is to establish a group representing a range of opinions in a forum small enough to allow for thorough education of the participants, detailed discussion of issues, and informal dialogue. EPG, Inc. (EPG) contacted various individuals/organizations for selection of the members that would assist Tucson Electric Power (TEP) and EPG in identifying issues and concerns relevant to the proposed project. Representation of a cross-section of the region includes federal, state, county, and municipal agencies that have administrative jurisdiction within the project area; industry/business; and citizens on behalf of their neighborhoods. Members were selected based on their knowledge of the project area, capability to commit the time required to participate in the Stakeholder Group throughout the planning process, and willingness to participate in an impartial manner.

ROSTER OF STAKEHOLDER GROUP MEMBERS

Federal

- Jim Copeland (jcopeland@fs.fed.us), representative for the transmission line on behalf of the Coronado National Forest (replacement for Kent Ellett)
 - o Bev Everson (beverson@fs.fed.us)
 - o Mindee Roth (mroth@fs.fed.us)
- Linda Hughes (Linda_hughes@blm.gov), representative for the transmission line on behalf of the Bureau of Land Management, Tucson
 - o Cindy Alvarez (Cindy_alvarez@blm.gov)
 - o Dan Moore (Daniel_J_Moore@blm.gov)
- Kurt Tek (kurt.tek@ang.af.mil), representative for Arizona Air National Guard

State

- Tim Bolton (tbolton@land.az.gov), Arizona State Land Department
- Steve Husman (husman@ag.arizona.edu), Santa Rita Experimental Range

City/Town

- Chris Kaselemis (chris.kaselemis@tucsonaz.gov), City of Tucson
- Orlanthia Henderson (ohenderson@ci.sahuarita.az.us), Town of Sahuarita
- Eddie Peabody (emerald5@cox.net), Planning and Zoning Committee, Green Valley Coordinating Council

Stakeholder Group Roster Rosemont 138kV Transmission Line Project Tucson Electric Power EPG October 27, 2010

1

Industry/Business

- Bob Iannarino (biannarino@diamondven.com)/Mark Weinberg (mweinberg@diamondven.com)/Ken Abrahams (kabrahams@diamondven.com), Diamond Ventures
- Nan Walden (nswalden@greenvalleypecan.com)/Larry Robertson (tubaclawyer@aol.com), Farmers Investment Company

Citizens

- Marshall Magruder (marshall@magruder.org)
- Elizabeth Webb (vailaz@hotmail.com)

PROJECT TEAM

Tucson Electric Power

- Ed Beck (ebeck@tep.com)
- Shannon Breslin (sbreslin@tep.com)
- Cheryl Hall (chall@tep.com)
- Larry Lucero (llucero@tep.com)
- Erik Bakken (ebakken@tep.com)
- Cory Pintor (cpintor@tep.com)

EPG, Inc. – Phone (602) 956-4370

- Lauren Weinstein (lweinstein@epgaz.com)
- Paul Trenter (ptrenter@epgaz.com)
- Chelsa Johnson (cjohnson@epgaz.com)

Rosemont Copper

- Kathy Arnold (karnold@rosemontcopper.com)
- Laurie Woodall, KR Saline (law@krsaline)

2

ROSEMONT 138KV TRANSMISSION LINE PROJECT

Presentation

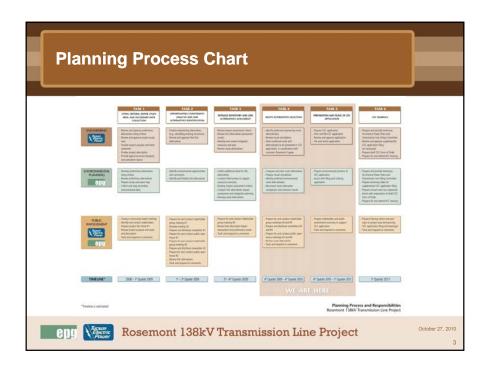
Stakeholder Group Meeting #5 October 27, 2010

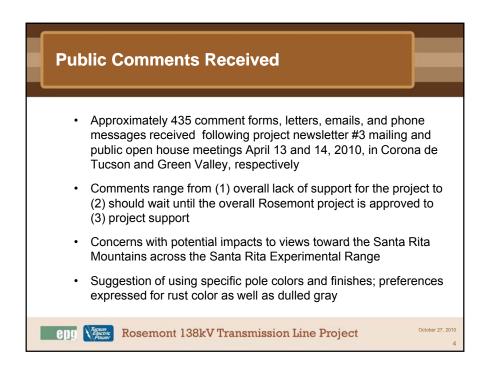
October 27, 2010

Agenda

- Welcome
- Project Status
- · Preferred and Alternative Routes likely to be carried forward
- · Next Steps
- Comments and Questions







Agency Comments Received

- Santa Rita Experimental Range/Arizona State Land Department
 - Prefer transmission line alternative located along north side of Santa Rita Road to alternatives along northern range boundary and 46kV alignment
 - Prefer to co-locate linear utilities (proposed water pipeline and 138kV transmission line) along Santa Rita Road
 - Does not support link 120
- · Town of Sahuarita
 - Prefers existing 46kV transmission line corridor to co-locate with existing infrastructure
 - Concerned with potential perceived visual impacts to residents from proposed western switchyard/substation
- · Pima County
 - No comments received

epg



Rosemont 138kV Transmission Line Project

October 27, 2010

Additional Agency Comments Received (summer 2010)

- · Coronado National Forest
 - Concurs with co-locating proposed utility line with proposed water pipeline to reduce ground disturbance footprint
 - Prefers to minimize length of transmission line route crossing Coronado National Forest. If links 160, 190, and 210 are retained, request link 150 is removed. Place links 160 and 190 to the west in side canyons to reduce visibility
 - Adjacent 46kV route (including Greaterville connection) least preferred for visual impacts





Rosemont 138kV Transmission Line Project

October 27, 2010

Alternative Route Maps

- Route family map (status in spring)
- Transmission line alternatives map (handout)
- Preferred and alternative route maps (handouts)



Rosemont 138kV Transmission Line Project

Key Considerations for Alternative Routes

- Project construction and operation power needs
- Minimizing environmental impacts
- Electrical system planning requirements and timeframes
- Engineering
 - Constructability
 - Cost
 - Right-of-way
- Public and agency input
- Regulatory permits
- One or more alternative transmission line routes may be carried forward in the application for a Certificate of Environmental Compatibility (CEC) to be submitted to the Arizona Corporation Commission



Preferred Route

- · Co-locates with proposed water pipeline
- Santa Rita Experimental Range and AZ State Land preference
- Santa Rita Road designated scenic by Pima County (February 2010)
- · Residences near link 155





Rosemont 138kV Transmission Line Project

Alternative 1

- Co-locates with proposed water pipeline
- · Majority of route supported by Santa Rita Experimental Range and AZ State Land, with the exception of link 130
- Santa Rita Road designated scenic by Pima County (February 2010)
- Link 130, 135: new corridor, no co-location with pipeline, farther from residences





Alternative 2

- Co-locates with and replaces 46kV structures to link 120
- · Requires new access for a portion of link 120
- Co-locates with proposed water pipeline at Santa Rita Road
- Santa Rita Experimental Range concern for impacts associated with link120, prefers co-location with proposed pipeline
- Residences near link 155





Rosemont 138kV Transmission Line Project

Alternative 3

- Co-locates with and replaces 46kV structures to link
- Requires new access for a portion of link 120
- Co-locates with proposed water pipeline at Santa Rita Road
- Santa Rita Experimental Range concern for impacts associated with links 120 and 130, prefers co-location with proposed pipeline
- · Link 130, 135: new corridor, no co-location with pipeline, farther from residences





Alternative 4

- · Co-locates with and replaces 46kV structures to **Greaterville Substation**
- · Town of Sahuarita preference
- Coronado National Forest stated least preferred for visual impacts
- · Link 150 within Box Canyon area
- New access required for link 160 which crosses Box Canyon Road
- · Longest route





Rosemont 138kV Transmission Line Project

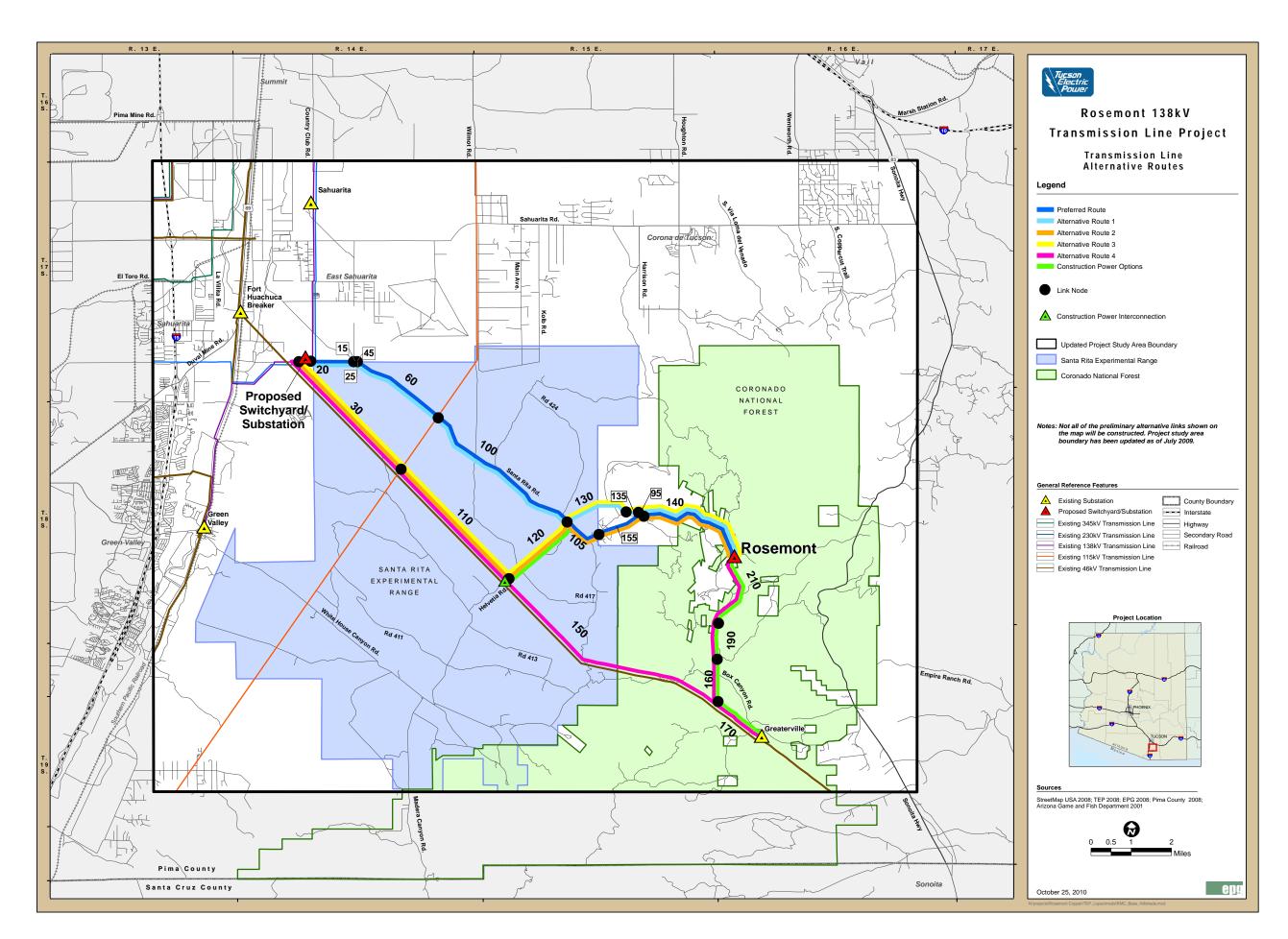
October 27, 2010

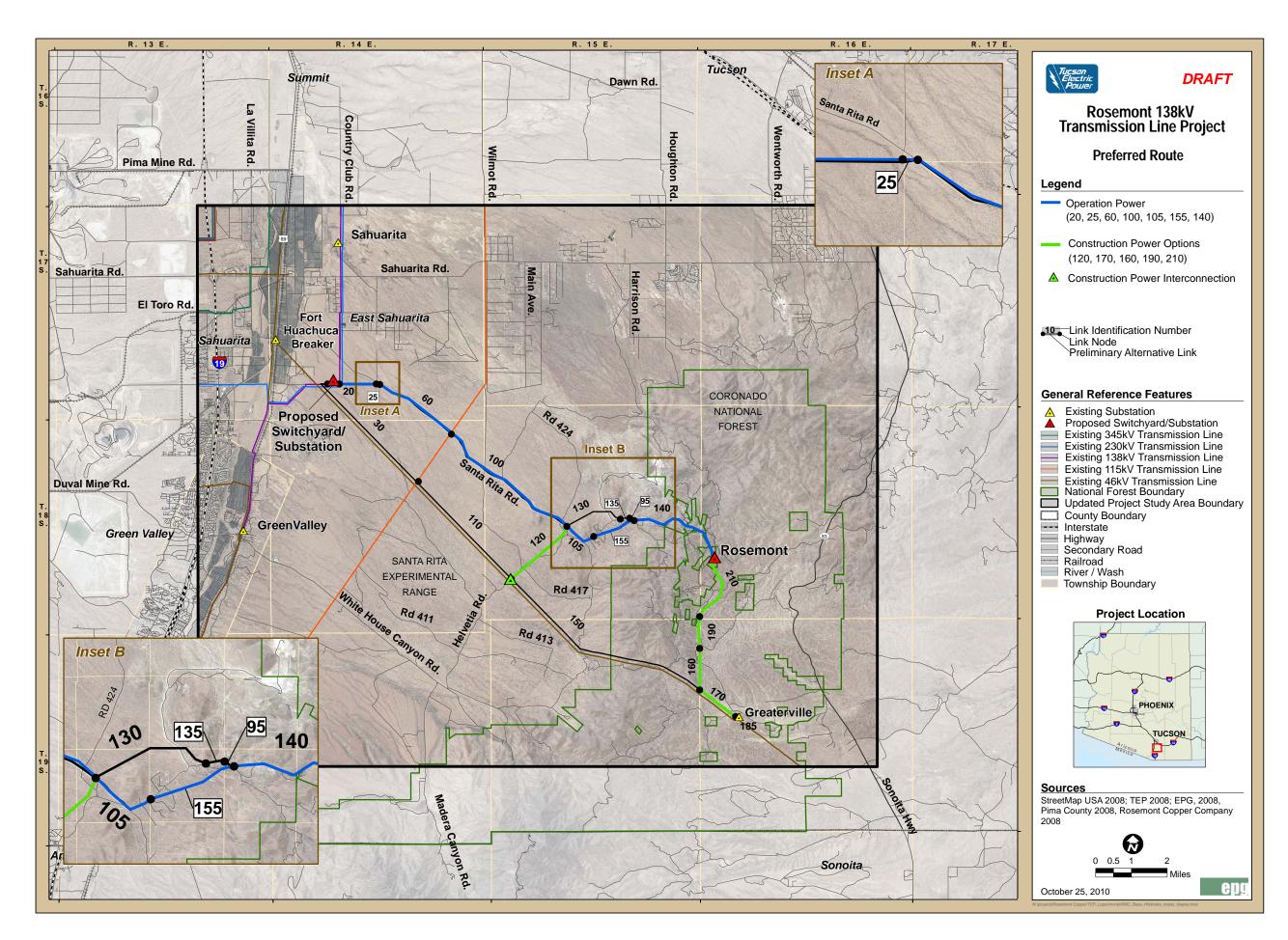
Next Steps

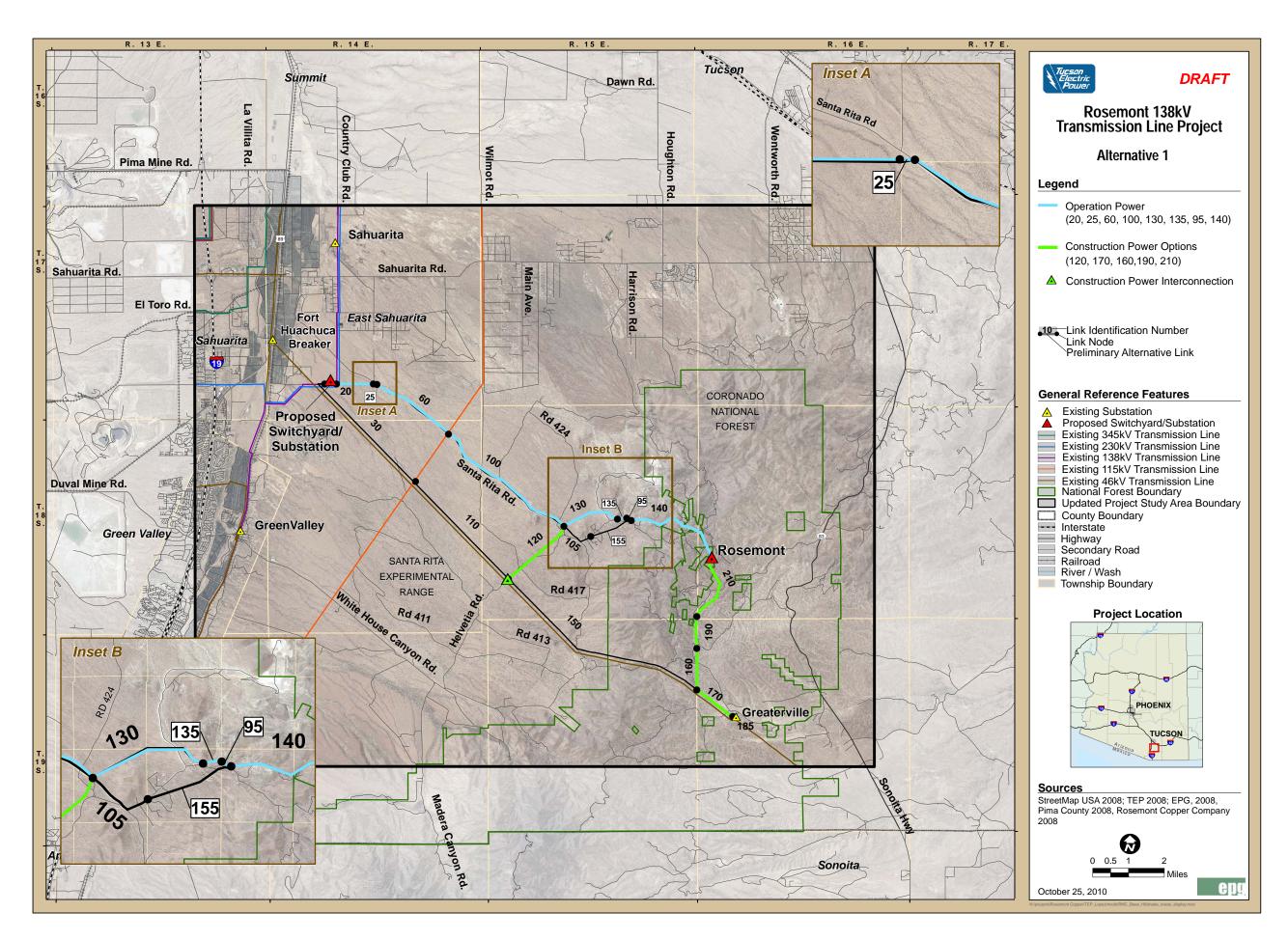
- Publish newsletter #4 November
- Public open house #4 November 17, 2010 at Rancho Resort Clubhouse
- · Finalize CEC application
- File CEC application first quarter 2011, depending upon DEIS publication





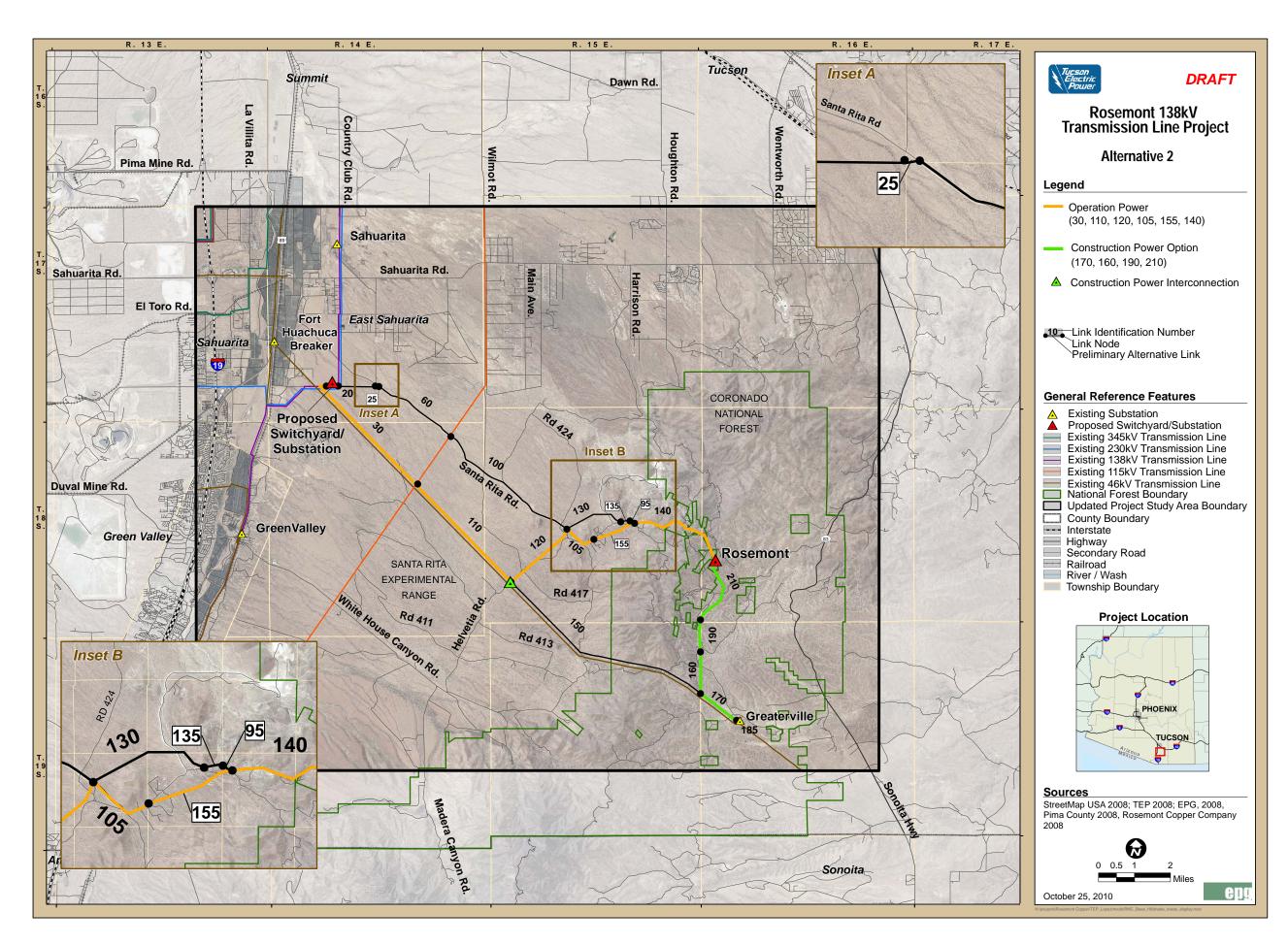


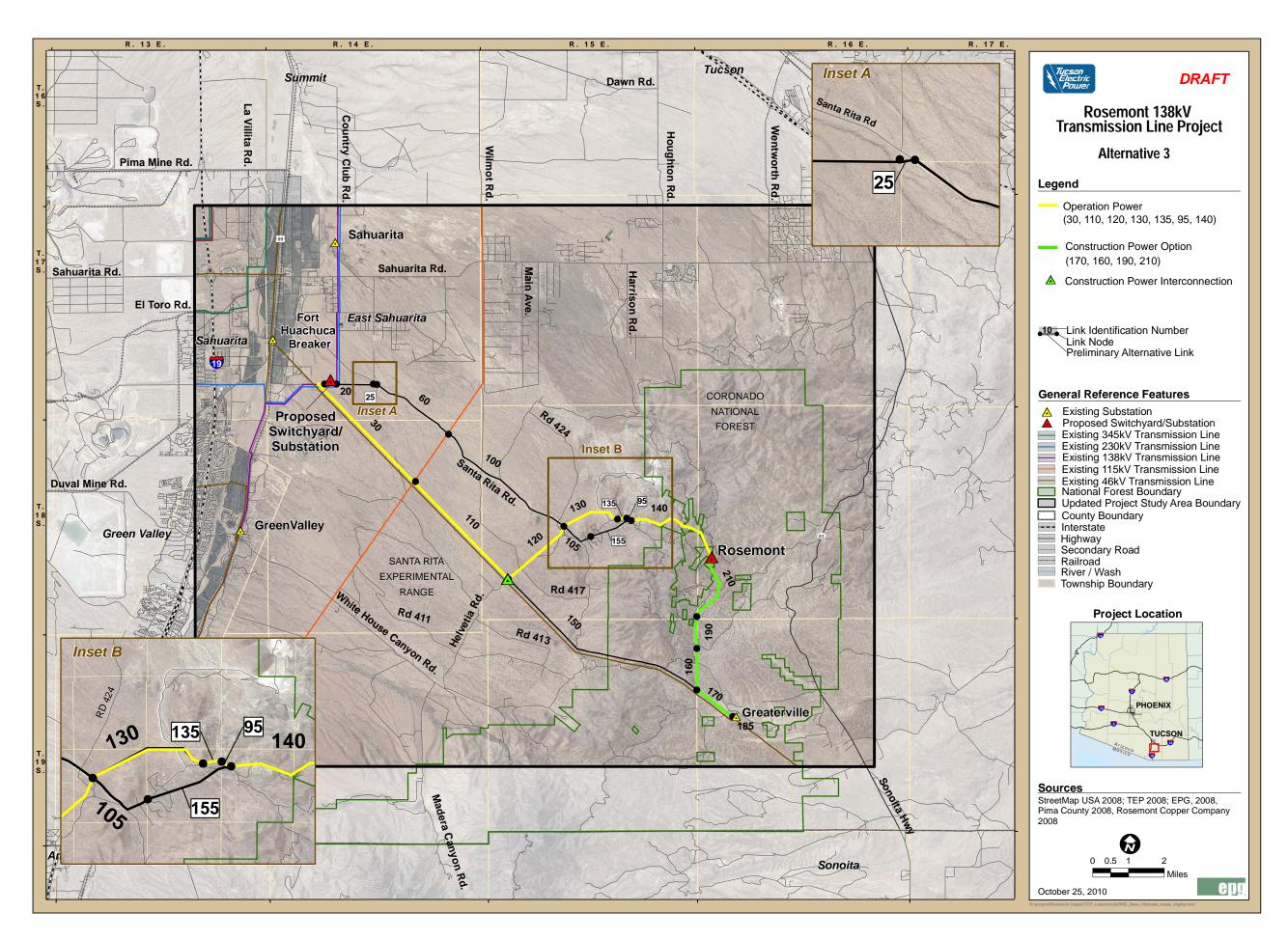


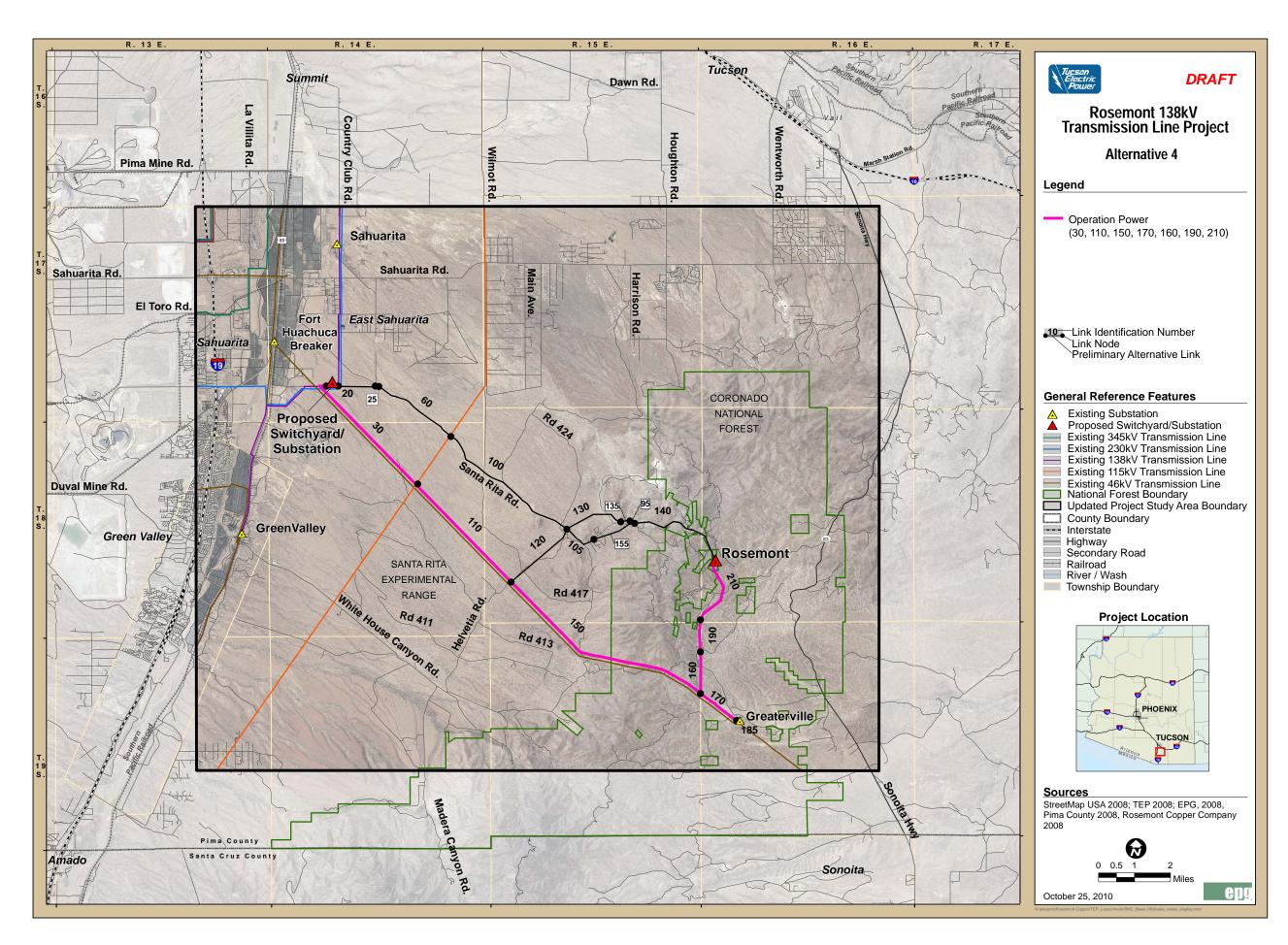


J-144

CEC Application November 2011







Rosemont 138kV Transmission Line Project

Agenda - Stakeholder Group Meeting #6

May 12, 2011 11:30am – 1:00pm Unisource building One South Church Street Tucson, Arizona 85702

- Welcome
- Project Status
- Construction Power Options Removed
- Next Steps
- Comments and Questions

ROSEMONT 138KV TRANSMISSION LINE PROJECT

Presentation

Stakeholder Group Meeting #6 May 12, 2011

May 12, 2011

Agenda

- Welcome
- Project status
- Construction power options removed
- Next steps
- · Comments and questions



Rosemont 138kV Transmission Line Project

May 12, 2011

Project Status

- · Continuing preparation of CEC application
- Revising project description to remove construction power options
- Informing stakeholder group of project description change



Rosemont 138kV Transmission Line Project

May 12, 2011

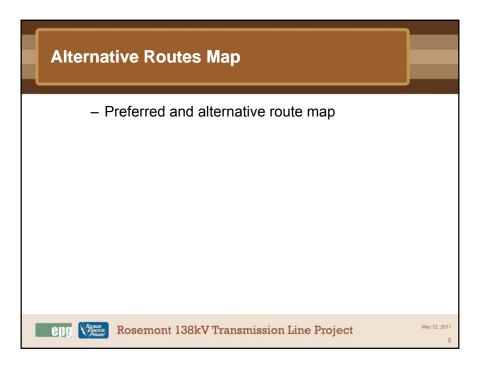
Construction Power Options Removed

- · Rosemont considered
 - engineering, environmental, public and agency input
 - materials deliveries, engineering timing, and construction timing of permanent line
- Determined a separate construction power line is not needed as part of the overall transmission project to bring power to Rosemont operations site



Rosemont 138kV Transmission Line Project

May 12, 2011





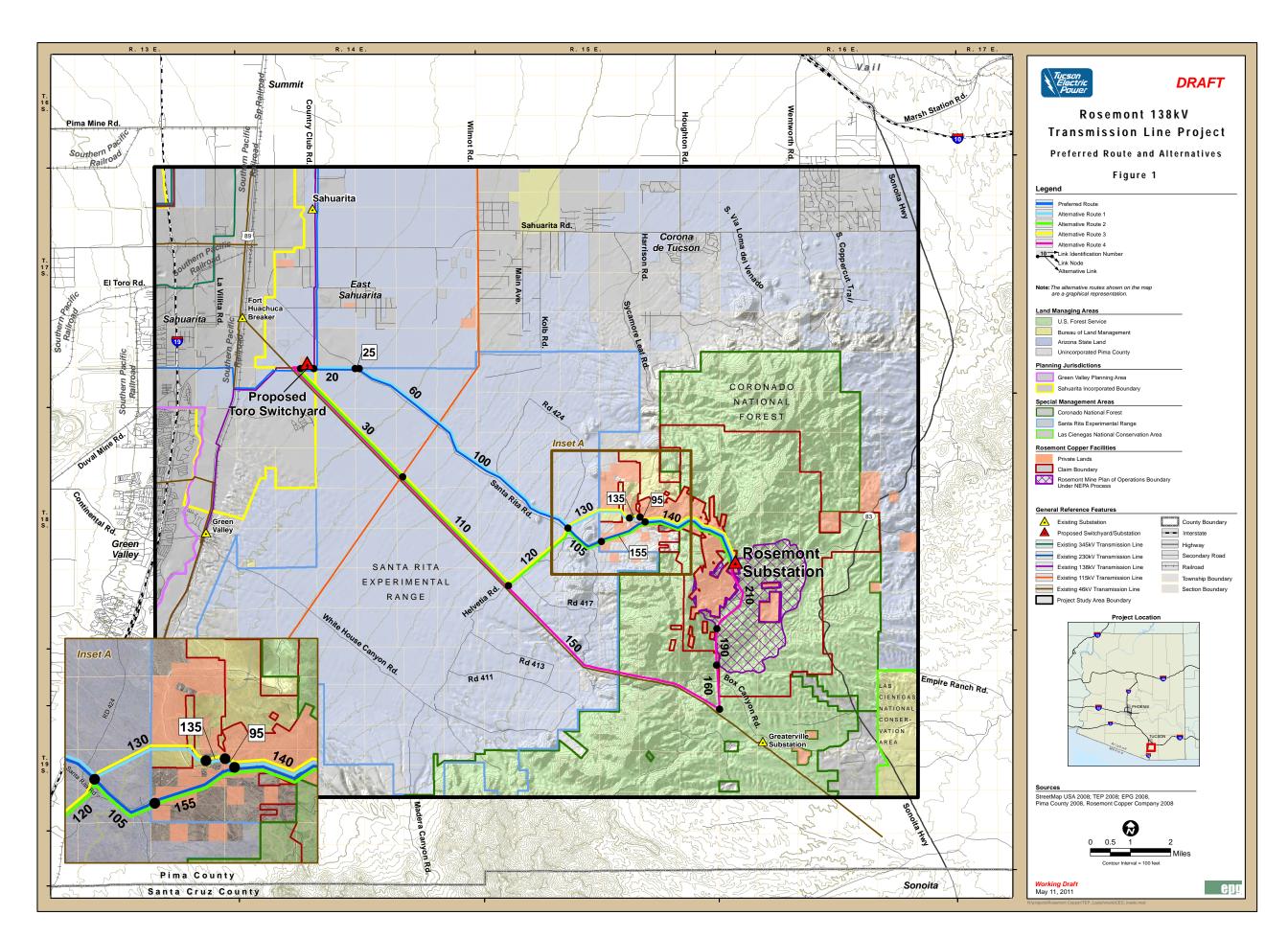


Exhibit J-2. Project Newsletters

FIRST-CLASS MAIL PRESORTED U.S. POSTAGE PAID WORLD MARKETING

IMPORTANT PUBLIC OPEN HOUSE NOTICE

PARA INFORMACIÓN EN ESPAÑOL, LLAME AL (866) 632-5944



Please attend one of the upcoming

PUBLIC INFORMATION OPEN HOUSES

March 24, 2009 5:30-7:30PM

Acacia Middle School 12955 East Colossal Cave Road Vail, Arizona 85641 March 25, 2009 5:30-7:30PM

Canoa Hills Social Center Palo Verde Room 3660 South Camino del Sol Green Valley, Arizona 85622



Introduction

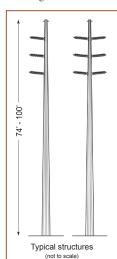
Tucson Electric Power (TEP) is in the preliminary stages of planning for the construction and operation of new electrical transmission facilities to serve the proposed Rosemont Copper Company (Rosemont) operations in the Santa Rita Mountains southeast of Tucson. The power delivery requirements will necessitate expansion of the existing electrical system in the area, including construction of a new 138-kilovolt (kV) transmission line, a new substation at the Rosemont facilities, and upgrades to an existing substation. The transmission line is expected to be in service by early 2011.

Purpose and Need

As a public utility regulated by the Arizona Corporation Commission (ACC), TEP is obligated to make service available to customers who request it and are able to pay the necessary costs. The proposed 138-kV transmission line and substation are needed to provide adequate and reliable power for operation of the proposed Rosemont facilities. No existing transmission lines or substations are capable of providing service for this purpose and need.

Project Description

The proposed Rosemont 138-kV Transmission Line could extend up to 30 miles from TEP's existing transmission system to a proposed substation located on Rosemont property approximately 11 miles east of Green Valley. Various locations are being considered for the line's starting point including, but



not limited to, TEP's South and Vail substations. Either of these substations would have adequate electrical capacity to serve the estimated 133-megawatt load that would be required for Rosemont Copper's operations. The line would follow an estimated 100-foot-wide rightof-way path acquired by lease or easement purchase. The proposed Rosemont Substation would be built on approximately 1 acre of Rosemont property. Although this is planned as a single circuit transmission line, in accordance with TEP's design standards, the transmission line structures would be built to accommodate a second circuit, if necessary.

Project Area

The project area incorporates all areas where the facilities could possibly be built. The area generally consists of state and federal land, including Coronado National Forest and Bureau of Land Management administered land, as well as privately-owned land in Pima County. A portion of the state land in the project area is the Santa Rita Experimental Range, managed by the University of Arizona. A map of this area is included in this newsletter.



Undeveloped lands within the central portion of the project area

The project area includes roads, railroads, power lines, and other existing linear features. Existing 115-kV, 138-kV, 230-kV, and 345-kV transmission lines and lower-voltage distribution lines generally follow roadways; two of these lines cross the Santa Rita Experimental Range within the project area. U.S. Interstate (I-)10 crosses the northern portion of the project area, while I-19/U.S. Highway 89 and the Union Pacific Railroad cross the western portion. State Route 83 extends north to south in the eastern portion of the project area, and the Pima/Santa Cruz County line is near the southern boundary.

The project area features a mixture of relatively flat lands that generally consists of creosote bush scrub and semidesert grassland. Several ephemeral washes/drainages extend into the area from the Santa Rita Mountains.

The communities of Sahuarita, Green Valley, and Vail and portions of Tucson are included in the study area, as are some rural residences and land used for agriculture or commercial and industrial purposes.

Arizona Corporation Commission Approval

Arizona Revised Statutes 40-360 to 40-360.13 require TEP to obtain a Certificate of Environmental Compatibility (CEC) from the ACC prior to construction of a high-voltage transmission line. TEP's CEC application will include a project description and environmental analysis to be reviewed by the Arizona Power Plant and Transmission Line Siting Committee. The application is likely to recommend a preferred and alternate route(s). After a decision by the Line Siting Committee, the ACC will review that decision and approve, deny, or modify it.

Planning Process and Project Schedule

TEP will complete environmental studies and solicit public comments on its plans before seeking approval of this proposed project. TEP will be conducting the planning process over the next several months and anticipates filing a CEC application in the second half of 2009. A diagram summarizing the planning process is included in this newsletter.

TEP has begun to collect data for a regional environmental inventory representing the resource areas. The project team has begun analyzing data and identifying opportunities and constraints for potential transmission line links that can be used to develop routes within the project area. This information will be displayed at the first set of public open houses.

Please attend one of the upcoming
PUBLIC INFORMATION
OPEN HOUSES

March 24, 2009 5:30-7:30PM

Acacia Middle School 12955 East Colossal Cave Road Vail, Arizona 85641

March 25, 2009 5:30-7:30PM

Canoa Hills Social Center Palo Verde Room 3660 South Camino del Sol Green Valley, Arizona 85622

Environmental Studies

Through its environmental consultant, Environmental Planning Group (EPG), TEP will consider many environmental factors, including existing and future land uses as well as visual, cultural, archaeological, and biological resources based on environmental analyses and studies. Environmental analyses as well as other factors will be considered before selecting proposed routes for this project. Evaluating these environmental factors is an important component of the CEC application.

TEP will consult with federal, state, and local jurisdictions, as well as other interested parties, regarding potential environmental constraints in the project area. TEP will review and evaluate the environmental constraints identified throughout the planning process and incorporate appropriate mitigation measures to avoid or minimize environmental impacts.

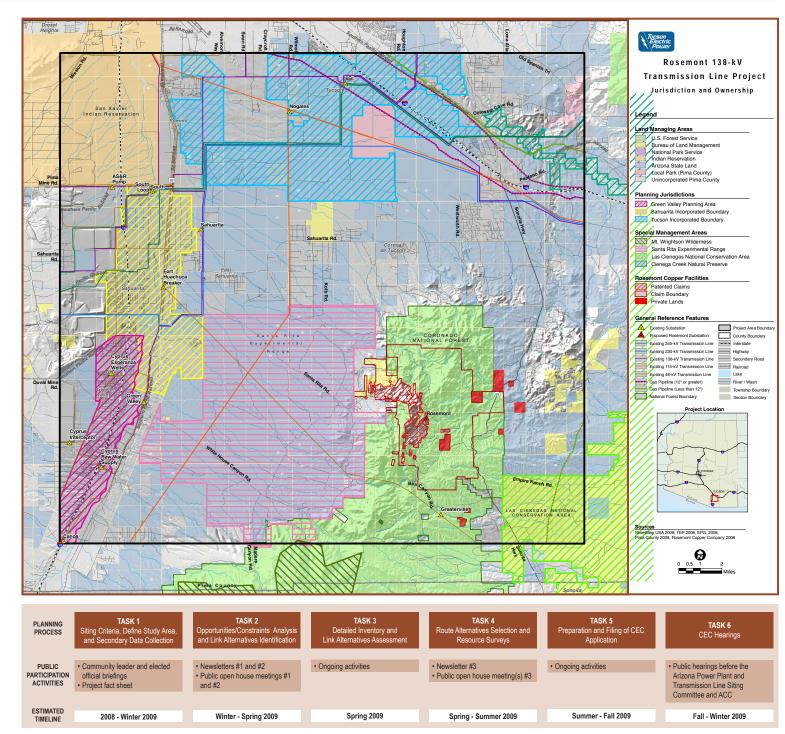
Public Participation

Public and agency input is another important component of the TEP decision process for selecting a proposed route(s). TEP will distribute information regarding the Rosemont project and request public input during individual meetings with community leaders, elected officials, and stakeholders, as well as through public open house meetings, informational newsletters, a telephone information line, and media briefings.

Numerous public open house meetings will be conducted within the project area and announced via project newsletters and the project Web site. The public will have opportunities to review key information, interact with project staff, and provide comments regarding the proposed transmission line project. See the box to the left for upcoming public open house information.

Contact Information

To offer comments or request additional information concerning the Rosemont 138-kV Transmission Line Project, please call the toll-free project telephone information line at (866) 632-5944 or visit TEP's Web site at www.tep.com.





Rosemont 138-kV Transmission Line Project

Comment Form #1

March 2009

We would like to hear your comments on the Rosemont 138-kV Transmission Line Project. Please take a few minutes to answer the following questions and then return this form to us by April 15, 2009 to ensure your comments are incorporated during this phase of the planning process. Public comments will be incorporated throughout the planning process. Comments will be accepted by mail, fax (602) 956-4374, or electronically via the project Web site www.tep.com.

Please provide your name and address if you'd like to be added to our mailing list:	 3. How did you learn about the project? Project website Newsletter mailing Media Word of mouth Other 	
Name		
Address		
City, State	4. Are you a resident in the project study area?	
Zip Code	Yes	
Phone Number	□ No	
	5. If not, please indicate your affiliation.	
 2. Please check the appropriate box below regarding your status on our mailing list. l'm already on the list Please add me to the list Please remove me from the list 	□ Agency□ City or Town□ Developer□ Landowner□ Other	
6. Do you have comments on the purpose and need for the proposed project?		
7. Do you have comments on the project study area boundary?		
8. Do you have any additional comments about the project?		

^{*} Feel free to attach additional pages, if necessary. You also may send additional comments or questions to the address listed on this form.



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IMPORTANT PUBLIC INFORMATION OPEN HOUSE NOTICE

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Please attend the upcoming

PUBLIC INFORMATION OPEN HOUSE

August 27, 2009 5:30-7:30PM

Rancho Resort Clubhouse 15900 South Rancho Resort Boulevard Sahuarita, Arizona 85629



Introduction

This newsletter is the second in a series concerning Tucson Electric Power's (TEP's) plan to build a new 138 kilovolt (kV) transmission line in Pima County. The new transmission line has been requested by Rosemont Copper Company (Rosemont) to serve its proposed mining operations southeast of Tucson. The proposed transmission line is expected to be in service in time to meet the needs of the proposed Rosemont operations.

Project Summary

After conducting detailed electrical system engineering studies, TEP has concluded that the line should connect to TEP's existing transmission system at a proposed switchyard located about 3.5 miles east of Interstate 19 and 3 miles south of Sahuarita Road (see the enclosed map). The project study area has been updated to more closely correspond with the vicinity of potential transmission line link alternatives originating at that location.

To satisfy Rosemont's initial need for power to construct its facilities, TEP plans to build a 138kV line to the proposed Rosemont Substation from its Greaterville Substation, which is tied to an existing 46kV line. Since that link could not provide enough power for Rosemont's long-term operations, those needs would be met by a 138kV transmission line that originates at the proposed switchyard and extends to the proposed Rosemont Substation either through the connection at the Greaterville Substation or via another route.

No existing TEP transmission lines are capable of providing the requested service in the vicinity of Rosemont's proposed operations

Preliminary Routing Options

TEP has identified a number of preliminary transmission line segments, or links, that could be combined to form complete routes for the proposed transmission line. These alternative links are shown on the map included with this newsletter. Please note that all links are preliminary and may be modified based on agency and public input.

In identifying these alternative links, TEP and its consultant, EPG, reviewed public input and environmental data collected for the project area. Areas or resources identified as more sensitive (less desirable) for the project include but are not limited to:

- Existing and approved future residential areas, schools, and parks
- Scenic landscapes or corridors, including trails and designated scenic routes
- Sensitive cultural/archaeological sites, plants, and wildlife

Areas identified as opportunities (more desirable) for a transmission line route include:

- Industrial parks or commercial retail areas
- Existing and future transmission lines and pipelines (water)
- Existing or future highways, roads, and railroads
- Major property boundaries such as section lines

TEP will continue to complete environmental and engineering studies on each of the preliminary transmission line links. TEP also will consider comments received from the public before identifying preferred and alternative routes.

TEP requires approval from the Arizona Corporation Commission (ACC) to build and operate the two components (i.e., power for construction and operation) of its proposed transmission line. TEP will request that the ACC approve a 500-foot-wide corridor for the project that will allow TEP flexibility during design and negotiation with landowners. TEP will acquire rights to build the line along a 100-foot right-of-way within the boundaries of that corridor

Public Comments Received

TEP has been meeting with various agencies, regional stakeholders and the general public to discuss the proposed transmission line, collect environmental data, and identify preliminary issues and concerns within the project study area. Information about the project also has been made available on TEP's Web site and in a newsletter mailed to area residents. The following answers address common questions raised in response to those outreach efforts.

Where will TEP build the proposed transmission line?

Please see the attached map to review the potential transmission line segments, or links, that could be incorporated in the final route approved by the ACC. TEP is currently undertaking a planning and public involvement process to identify potential routes.

Upon completion of this process, TEP expects to propose one or more potential routes for the ACC's review.

Is Rosemont paying for the transmission line siting study?

Yes. Like any customer requesting service at the transmission voltage level, Rosemont is paying for the transmission siting study. The transmission line is being designed to serve Rosemont's needs, and it will not be built if Rosemont does not proceed with its proposed plan of operations.

Will the existing utility rates increase because of this proposed project?

Because Rosemont would pay the costs associated with building this transmission line, the project would not contribute to an increase in TEP's base rates.

What effect will the proposed transmission line have on property values or taxes?

TEP cannot determine with any certainty whether construction of this proposed line will have any lasting effect on the value of nearby property. TEP has reviewed studies that have linked other transmission line projects to a temporary reduction in nearby property values. However, those studies also indicated that the effect diminished with time, and other studies have found no effect at all.

Is it possible to build the proposed transmission line underground?

It would not be practical to build this proposed transmission line underground. In addition to a significantly higher cost, an underground line would disturb more land and could create greater potential environmental impacts than an overhead line. It is more typical to locate lower-voltage distribution lines underground in populated areas.

Has Rosemont received final approval for its proposed mining operations?

No. The U.S. Forest Service is currently reviewing Rosemont's proposal and is

expected to issue a Draft Environmental Impact Statement on that project in the fourth quarter of 2009.

What is the source of the power that will serve the Rosemont operations?

Rosemont operations would be served from TEP's resource portfolio, which includes a mix of companyowned generation and power supply contracts. Rosemont needs will be met with a mix of energy from existing resources, new natural gas-fired plants, or renewable resources.

Is it possible to upgrade the existing Greaterville Substation and extend the new transmission line north to the proposed Rosemont Substation?

TEP is considering potential links that would involve the Greaterville Substation.

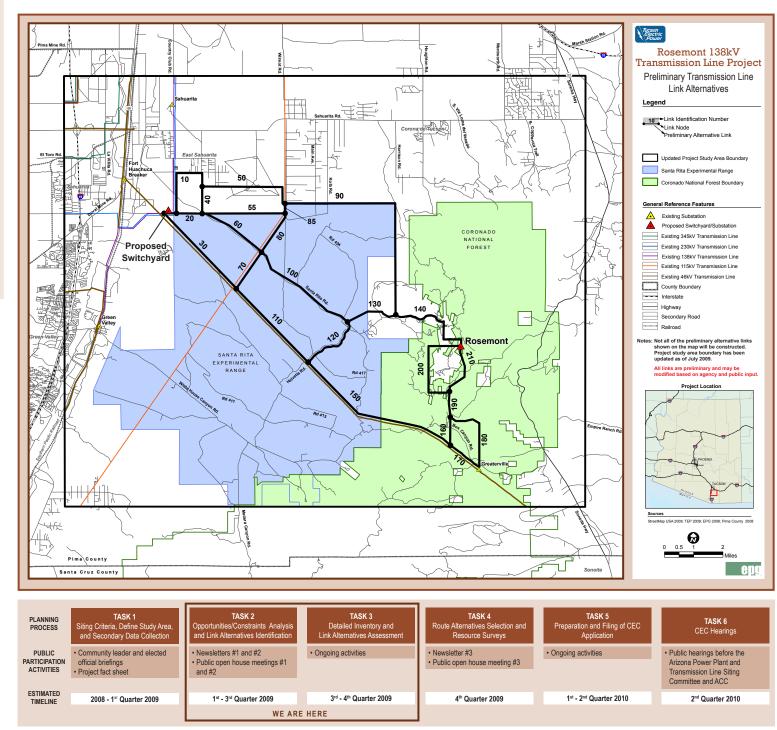
Public Participation

TEP is seeking public input on the preliminary transmission line links and other aspects of this project. Please take a few moments to share your thoughts using the enclosed comment form, which should be returned by September 10, 2009.

You also are invited to attend the second public information open house meeting on this project that will be held Thursday, August 27, from 5:30 to 7:30 p.m. at the Rancho Resort Clubhouse, 15900 South Rancho Resort Boulevard in Sahuarita. During this meeting, TEP will provide information and answer questions about the project. The meeting will be in an open house format with display boards and an opportunity for discussion.

Contact Information

To offer comments or request additional information about this project, please call the toll-free project telephone line at (866) 632-5944 or visit TEP's Web site at www.tep.com.





Rosemont 138kV Transmission Line Project

Comment Form #2

August 2009

We welcome your comments on the Rosemont 138kV Transmission Line Project. While public comments will be incorporated throughout the planning process, please take a few minutes to answer the following questions and return this form by September 18, 2009 to ensure that your comments will be incorporated during this phase. Comments will be accepted by mail, fax at (602) 956-4374, or through the project Web site at www.tep.com.

Please provide your name and address: Name	Which preliminary alternative link(s) do you prefer? (Please refer to link number(s) on the map.)
AddressCity, State	7. What factors from the list below influence your preference for these preliminary alternative link(s)? Land Use Property Values Scenic/Visual/Landscape Cultural/Historic Recreation Other Biological Explanation 8. Which preliminary alternative link(s) do you NOT prefer? (Please refer to link number(s) on the map.) 9. What factors from the list below influence your opposition to these preliminary alternative link(s)? Land Use Property Values Scenic/Visual/Landscape Cultural/Historic Recreation Other Biological Explanation
Zip Code 2. Please check the appropriate box below: I'm already on the mailing list Please add me to the mailing list Please remove me from the mailing list	
 3. How did you learn about the project? Project Web site Word of Mouth Newsletter Mailing Other Media 	
 4. Are you a resident in the project study area? Yes No 5. If not, please indicate any affiliation that has led your interest in this project. Agency Landowner City or Town Other Developer 	
10. Please provide any additional comments about the 11. Please provide any additional comments regarding	

* Please attach additional pages, if necessary. You also may send additional comments or questions to the address or Web site listed on this form.



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IMPORTANT PUBLIC INFORMATION OPEN HOUSE NOTICE

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Rosemont 138kV Transmission Line Project

- PLEASE ATTEND THE UPCOMING PUBLIC INFORMATION OPEN HOUSE

April 13, 2010 5:30 - 8:30 p.m.

(including presentation and question-andanswer session 6:30-7:00 p.m.)

Corona Foothills Middle School 16705 South Houghton Road Corona de Tucson, Arizona 85641 April 14, 2010 5:30 - 8:30 p.m.

(including presentation and question-andanswer session 6:30-7:00 p.m.)

Quail Creek Madera Clubhouse 1100 North Eagle Hollow Road Green Valley, Arizona 85614



Introduction and Project Summary

This is the third in a series of newsletters concerning Rosemont Copper Company's (Rosemont) request to Tucson Electric Power (TEP) to provide power to Rosemont's proposed operations in the Santa Rita Mountains southeast of Tucson.

If Rosemont secures approval for its proposed operations, a 138 kilovolt (kV) line would initially be built from an existing 46kV transmission line to the proposed Rosemont Substation to provide power for construction of the Rosemont operations facilities. Because that line is not adequate to provide power for Rosemont's long-term operations, a separate 138kV transmission line would be built, linking the Rosemont Substation to a proposed switchyard/substation tied to TEP's 138kV transmission system. Depending upon the final route selected, the route for the separate 138kV line could incorporate the transmission line and electrical facilities built to provide power for the construction of the Rosemont operations facilities.

Environmental and Engineering Studies

TEP and its consultant, Environmental Planning Group (EPG), reviewed agency, stakeholder, and public input, as well as environmental resource data collected for the project area to develop proposed routes for the project. Areas or resources identified as more sensitive (less desirable) and areas identified as opportunities (more desirable) for a transmission line route were considered in identifying these alternative routes.

Several preliminary line segments, or "links," were initially identified throughout the project study area. These links were first shown to the public and agencies for review and comment in July 2009. TEP has been gathering feedback and continuing studies on the links since that time. New links have been identified for analysis based on public comments and ongoing studies.

A detailed environmental analysis has been conducted for each of the preliminary links. This analysis includes (1) environmental resources; (2) agency, stakeholder, and public comments; (3) engineering and design of the facilities; (4) the constructability of a route; (5) the ability to obtain right-of-way; and (6) the overall cost of building the new facilities.

Transmission Line Route Alternatives

Preliminary links with minimal environmental impacts that meet engineering requirements have been combined to form the preliminary transmission line route alternatives shown on the map inside. Each route would link a proposed 138kV switchyard/substation and TEP's 46kV system to the proposed Rosemont Substation. The routes were created after a review of human, natural, and cultural resources throughout the project area, as well as the public input received concerning this project and engineering/design considerations. Please note that all alternative routes are preliminary and may be modified based on additional regulatory, agency, stakeholder, and public input as well as engineering and design considerations.

After gathering feedback on these preliminary routes from agencies, the stakeholder group, and the public, TEP will prepare final alternative routes for submission to the Arizona Corporation Commission (ACC).

Public Comments Received

Since July, TEP has received a variety of comments about this project from representatives of local agencies, members of the project stakeholder group, and the general public. These comments were submitted by mail, fax, telephone, through the project website, and in person at public open house meetings.

While the majority of the comments came from residents in the project study area, some comments were received from landowners who reside outside its boundary.

Some comments expressed concerns about potential impacts to residential views and property values, cultural resources, and the ecosystem within the study area boundary, including the Santa Rita Experimental Range. Other comments suggested locating the transmission line in open desert areas within the experimental range to minimize impacts to existing and future land uses included in general plans of Pima County and other local planning jurisdictions.

When boundaries were redrawn last year, some privately owned properties were removed from the project study area.

Some of those landowners asked if they would still receive project newsletters and have an opportunity to comment on the project; the answer is yes to both. The area included in the environmental and engineering studies was reduced in the summer of 2009, after TEP settled on serving Rosemont's energy needs from the proposed 138kV switchyard/substation (see map). However, TEP's mailing list for project communications was not reduced, and TEP continues to welcome feedback from all members of the public, including those living outside the study area.

Others wondered if TEP has a preferred location for the proposed transmission facilities. At this time, TEP does not; however, this siting process is intended to identify a preferred location for an environmentally compatible transmission line route that would meet the purpose and need for the project, while considering public and agency input, engineering constraints, and cost. TEP has not ranked the preliminary transmission line routes displayed in this newsletter, and will not do so until comments are received from jurisdictional representatives, the stakeholder group, and the general public.

Project Schedule

TEP is seeking public input on the alternative routes and other aspects of this project. Please take a moment to share your thoughts using the enclosed comment form, which

should be returned by May 7, 2010. An online public comment form is also available on the project website at www. tep.com/company/news/rosemont. After considering stakeholder and public input and making any appropriate revisions to the project plan, TEP will begin preparations to file a Certificate of Environmental Compatibility (CEC) application with the ACC in May 2010.

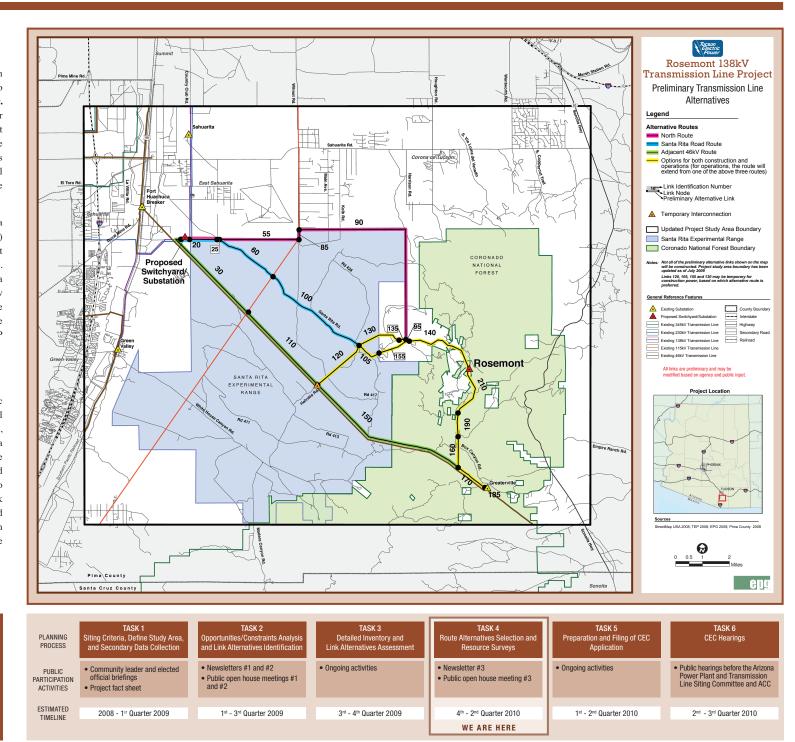
The CEC application will include a preferred route and alternative route(s) for review by the Arizona Power Plant and Transmission Line Siting Committee. This committee is responsible for issuing a CEC that will be available for final review and approval by the ACC. Hearings before the committee and the ACC are open to the public and will be announced on the TEP and ACC websites.

Public Participation

TEP invites you to attend one of two public open house meetings that will be held April 13, 2010 at Corona Foothills Middle School, and April 14, 2010 at Quail Creek Madera Clubhouse, to review and comment on the identified alternative routes. You may attend any time between 5:30 and 8:30 p.m. to view the preliminary route alternatives, talk individually with project team members, and offer feedback. A brief, formal presentation and question-and-answer session will be held from 6:30 to 7:00 p.m. each night.

Contact Information

To offer comments or request additional information about this project, please call the toll-free project telephone line at (866) 632-5944, or visit the TEP website, www.tep.com/company/news/rosemont.



We welcome your comments on the Rosemont 138kV Transmission Line Project. While public comments will be incorporated throughout the planning process, please take a few minutes to answer the following questions and return this form by May 7, 2010 to ensure that your comments will be incorporated during this phase. Comments will be accepted by mail, fax at (602) 956-4374, or through the project Web site at www.tep.com.

Please provide your name and address: Name	6. Which alternative route do you prefer? Or, which link(s) (noted by number) do you prefer?
Address	7. What factors from the list below influence your preference for the alternative route? Land Use Scenic/Visual/Landscape Cultural/Historic Recreation Biological
City, State	
Zip Code 2. Please check the appropriate box below regarding your status on our mailing list: I'm already on the mailing list Please add me to the mailing list Please remove me from the mailing list	
 3. How did you learn about the project? Project Web site Newsletter Mailing Other Media 	Which alternative route do you NOT prefer? Or, which link(s) (noted by number) do you NOT prefer?
4. Are you a resident in the project study area? ☐ Yes ☐ No	9. What factors from the list below influence your opposition to the alternative route? Land Use Scenic/Visual/Landscape Recreation Biological Other
 5. If not, please indicate any affiliation that has led your interest in this project. Agency Landowner City or Town Other Developer 	
10. What additional comments would you like to make repreference concerns?	elated to the alternative routes displayed and your
11. What additional comments do you have regarding the	ne overall project?
Please attach additional pages, if necessary. You also may send additional	al comments or questions to the address or Web site listed on this form



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IMPORTANT PUBLIC INFORMATION OPEN HOUSE NOTICE

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Rosemont 138kV Transmission Line Project

- PLEASE ATTEND THE UPCOMING PUBLIC INFORMATION OPEN HOUSE

November 17, 2010 5:30 – 8:00 p.m.

(including presentation and question-and-answer session 6:30-7:00 p.m.)

Rancho Resort Clubhouse 15900 South Rancho Resort Boulevard Sahuarita, Arizona 85629



Project Update

This newsletter provides an update on Tucson Electric Power's (TEP) plan to provide power to Rosemont Copper Company's proposed mining operations in the Santa Rita Mountains southeast of Tucson.

TEP is planning to build a 138 kilovolt (kV) line to provide power for the long-term operation of Rosemont's facilities. This transmission line would link the planned Rosemont Substation to a proposed switchyard tied to TEP's 138kV transmission system.

The final route for the 138kV line could incorporate the initial power line and electrical facilities needed to provide power to build Rosemont's facilities. Rosemont also has informed TEP that it might make other arrangements for securing construction power.

TEP has identified a preferred route and four alternative routes for the project that may be submitted to the Arizona Corporation Commission (ACC). The routes, which are shown on a map in this newsletter, were chosen from among 11 potential routes contained in 3 route families. A map of those routes was included in the previous project newsletter, distributed in March 2010, and was presented at public open house meetings held April 13 and 14, 2010 (this map is still available on the project website).

Each route would link a proposed 138kV switchyard/substation and the proposed Rosemont Substation. The preferred and alternative routes were selected based on agency and public comment and additional analysis that included overall environmental compatibility, engineering, construction concerns, and Rosemont's operating needs. Each analysis considered and compared details (e.g., ease of access, proximity to linear features, etc.) of the alternative route families that could minimize potential environmental impacts and accommodate the construction, operation, and maintenance of the proposed project. Please note that all alternative routes are conceptual and may be modified

based on additional agency, stakeholder, and public input, as well as engineering and design considerations.

The alternative routes TEP may carry forward would generally follow the path of a proposed water pipeline or replace the existing 46kV line with new facilities that could accommodate both the 46kV line and the proposed 138kV line. Since a majority of the routes would be co-located with these facilities, ground disturbance and impacts to resources would be reduced.

Project Schedule

TEP plans to apply for a Certificate of Environmental Compatibility (CEC) from the ACC in the first quarter of 2011. The application will be reviewed by the Arizona Power Plant and Transmission Line Siting Committee. This committee is responsible for making recommendations to the ACC, which will issue a final decision on the project. All hearings before the committee and ACC are open to the public and will be announced on the TEP and ACC websites.

Public Participation

TEP invites you to attend a public open house meeting on November 17, 2010, at the Rancho Resort Clubhouse, 15900 South Rancho Resort Boulevard in Sahuarita from 5:30-8:00 p.m., to review the preferred and alternative routes that may be carried forward into the CEC application. A brief presentation will be given at 6:30 p.m. You may use this opportunity to view the alternative routes, talk individually with project team members, and offer feedback. In addition to the public open house, comments will be accepted through the online comment form or by telephone, until December 6. More opportunities for public participation will be offered at the hearings held by the siting committee, including a public comment period on the first day of hearings (date to be determined). TEP's project website (www.tep.com/ company/news/rosemont) will provide information on future opportunities for public participation.

Contact Information

To offer comments or request additional information about this project, please call the toll-free project telephone line at (866) 632-5944, or visit the TEP website, www.tep.com/company/news/rosemont.

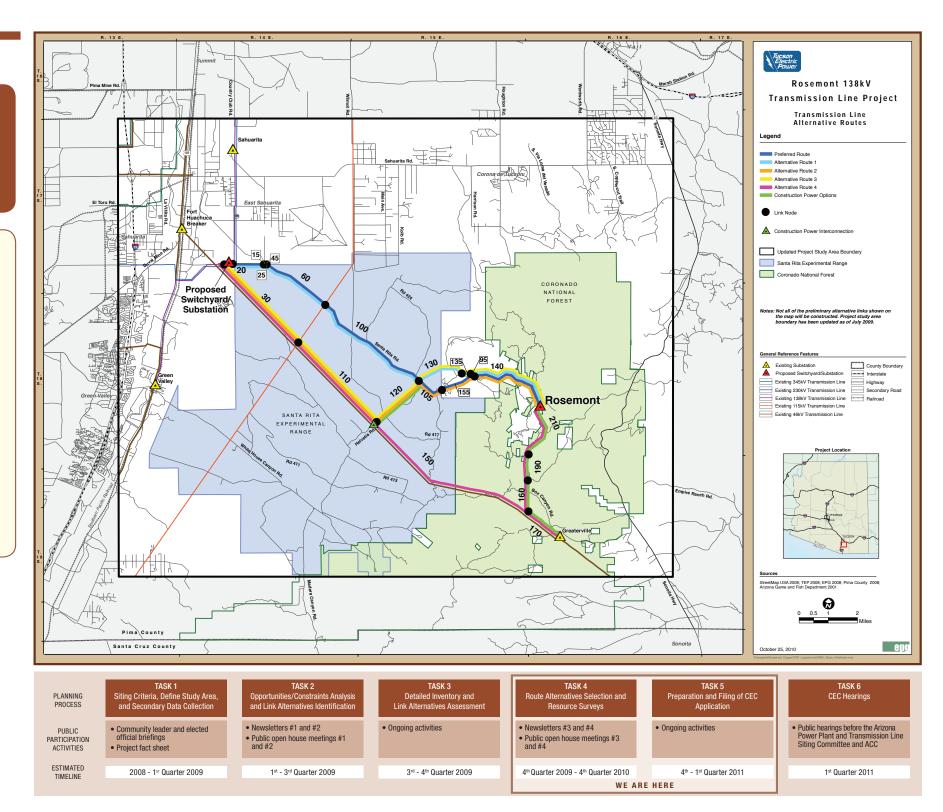
- PLEASE ATTEND THE UPCOMING -

PUBLIC INFORMATION OPEN HOUSE

November 17, 2010 5:30 – 8:00 p.m.

(including presentation and question-andanswer session 6:30-7:00 p.m.)

Rancho Resort Clubhouse 15900 S. Rancho Resort Blvd. Sahuarita, Arizona 85629





Rosemont 138kV Transmission Line Project

Comment Form #4

November 2010

We welcome your comments on the Rosemont 138kV Transmission Line Project. While public comments will be incorporated throughout the planning process, please take a few minutes to answer the following questions and return this form by December 6, 2010 to ensure that your comments will be incorporated during this phase. Comments will be accepted by mail, fax at (602) 956-4374, or through the project Web site at www.tep.com/company/news/rosemont.

1. Please provide your name and address: Name Address City, State Zip Code	 3. How did you learn about the project? Project Web site Word of mouth Newsletter mailing Other Media 4. Are you a resident in the project study area? Yes No
 2. Please check the appropriate box below regarding your status on our mailing list: l'm already on the mailing list Please add me to the mailing list Please remove me from the mailing list 	 5. Please indicate any affiliation that has led to your interest in this project. Agency
6. TEP's preferred route generally follows Santa Rita R Rosemont Substation to Greaterville. What commen	•
7. Please provide any additional comments you may	have regarding the transmission line project?

Please attach additional pages, if necessary. You also may send additional comments or questions to the address or Web site listed on this form.



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Exhibit J-3. Public Meeting Boards

INFORMATION

PUBLIC OPEN HOUSE MEETING TEP ROSEMONT 138-KV TRANSMISSION LINE PROJECT

Welcome to the public open house for the Tucson Electric Power (TEP) Rosemont 138-kV Transmission Line Project siting study. Thank you for attending and participating in the planning process.

Purpose: The purpose of this open house is to share information, answer questions, and seek your input as we conduct a planning process for the proposed transmission line. The format is designed to encourage one-on-one communications about the project. With this format, there will not be a presentation.

Stations: Stations are set-up around the room to provide details about the project. Representatives from TEP and its consultant, Environmental Planning Group (EPG), are available to answer questions and listen to your comments.

Comment form: Please be sure to complete a comment form either before you leave today, online at tep.com, or by mail by April 15, 2009. Please submit written comments even if you have spoken to a project team representative, as this will help us keep track of the input we receive.

Rosemont Copper Proposal: The planning process for this transmission line is separate from the ongoing federal review of Rosemont Copper Company's proposed operations in the Santa Rita Mountains. For more information on that review, you can visit the Coronado National Forest's project Web page at

http://www.fs.fed.us/r3/coronado/rosemont/index.shtml

Public Open House Information TEP Rosemont 138-kV Transmission Line Project March 24 and 25, 2009

Rosemont 138-kV Transmission Line Project

Public Open House Meeting #1 March 24 and 25, 2009

March 2009

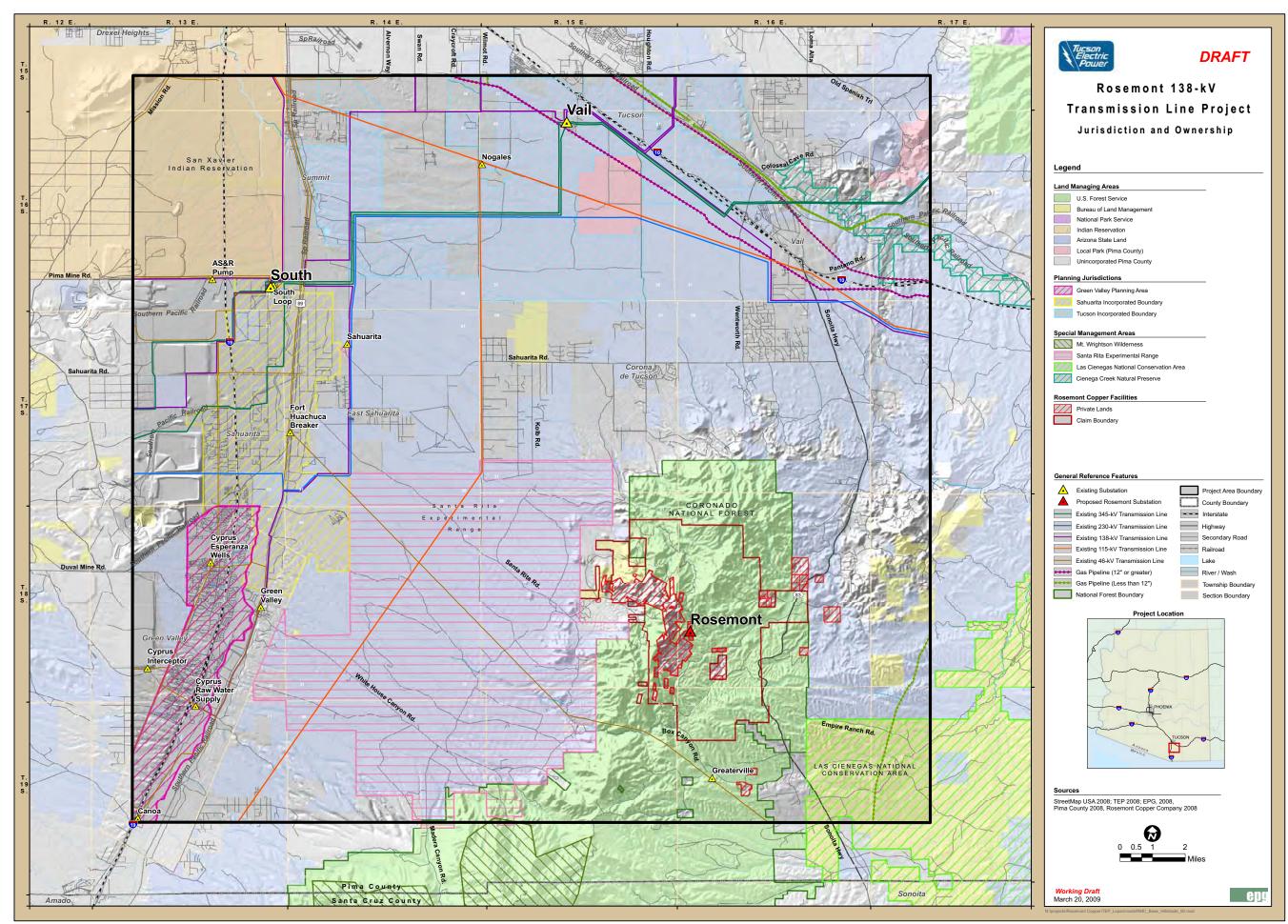
Project Overview

- TEP, as a part of its obligation to serve, is proposing to construct and operate a new 138-kV transmission line for the proposed Rosemont Copper operations
- Project area south of Tucson with lands managed by Arizona State Land Department, Forest Service, some Bureau of Land Management and privately-owned lands and under the planning jurisdictions of City of Tucson, Town of Sahuarita, and Pima County
- Planning process includes environmental studies and public input conducted to assist in identification and comparison of alternative transmission line routes and environmental impacts
- Project requires review by the Arizona Corporation Commission's (ACC)
 Power Plant and Transmission Line Siting Committee resulting in a
 recommendation to and a final determination by the ACC prior to
 construction





ROSEMONT 138-KV TRANSMISSION LINE PROJECT



Purpose and Need

- Electric utilities are required by the State of Arizona to provide electrical service to customers upon request
- Rosemont Copper Company has requested TEP provide electric power to the Rosemont Copper operations
- The primary purpose and need for the proposed transmission line is to provide adequate and reliable power for the proposed Rosemont Copper operations
- Currently, there are no existing transmission lines and substations to serve this proposed operation





ROSEMONT 138-KV TRANSMISSION LINE PROJECT

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Project Description

- Up to approximately 30 miles of 138-kV transmission line (line length depends upon final route)
- A 100-foot-wide right-of-way is required
- Approximately 1 acre of land for construction, operation, and maintenance of the proposed Rosemont Substation
- Any upgrades to existing substations are not anticipated to require additional property
- Any potential tap into an existing line may require additional equipment

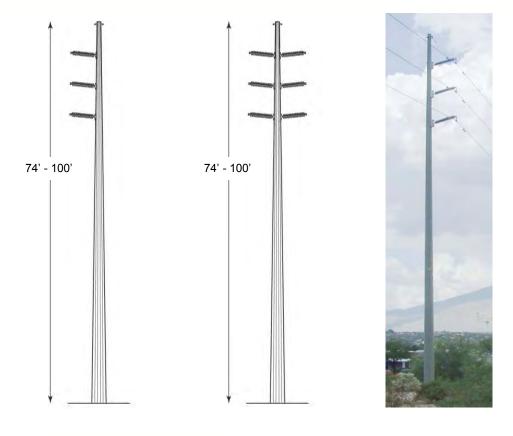




ROSEMONT 138-KV TRANSMISSION LINE PROJECT

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Proposed Structure Type(s)







ROSEMONT 138-KV TRANSMISSION LINE PROJECT

Vail Substation and South Substation









ROSEMONT 138-KV TRANSMISSION LINE PROJECT

TASK 1

SITING CRITERIA, DEFINE STUDY AREA, AND SECONDARY DATA COLLECTION

TASK 2

OPPORTUNITIES/CONSTRAINTS
ANALYSIS AND LINK
ALTERNATIVES IDENTIFICATION

TASK 3

ROUTE ALTERNATIVES SELECTION
AND RESOURCE SURVEYS

TASK 4

TASK 5

PREPARATION AND FILING OF CEC APPLICATION

TASK 6

CEC HEARINGS

- ENGINEERING

 Tucson
 Electric
 Power
- Review and approve preliminary alternatives siting criteria
- Review and approve project study area
- Finalize project purpose and need statement
- Finalize project description
- Provide typical structure design(s) and substation layout
- Finalize engineering alternatives (e.g., rebuilding existing structures)
- Review and approve final link alternatives
- Review impact assessment criteriaReview link alternatives assessment

DETAILED INVENTORY AND LINK

ALTERNATIVES ASSESSMENT

- results
 Develop and review mitigation measures and plan
- Review route alternatives
- Identify preferred engineering route alternative(s)
- Review visual simulations
- Select preferred route and alternative(s) to be presented in CEC application, in coordination with customer: Rosemont Copper
- Prepare CEC application
- Print and file CEC applicationReview and approve application
- File and notice application
- Prepare and provide testimony for Arizona Power Plant and Transmission Line Siting Committee
- Review and approve supplemental CEC application filing (as necessary)
- Prepare draft CEC Form of Order
- Prepare for and attend ACC hearing

ENVIRONMENTAL PLANNING

- eng
- Develop preliminary alternatives siting criteria
- Review preliminary alternatives
- Prepare study area base map
- Collect and map secondary environmental data
- Identify environmental opportunities and constraints
- Identify and finalize link alternatives
- Collect additional data for link alternatives
- Conduct field surveys to support resources inventory
- Develop impact assessment criteria
- Conduct link alternatives impact assessment and mitigation planning
- Develop route alternatives

- Compare and rank route alternatives
- Prepare visual simulations
- Identify preferred environmental route alternative(s)
- Document route alternative comparison and selection results
- Conduct cultural resource survey of preferred route alternative
- SHPO consultation
- Prepare cultural resource survey report

- Prepare environmental portions of CEC application
- Assist with filing and noticing application
- Prepare and provide testimony for Arizona Power Plant and Transmission Line Siting Committee
- Prepare testimony slides for supplemental CEC application filing
- Prepare virtual route tour (optional)
- Assist with preparation of draft CEC Form of Order
- Prepare for and attend ACC hearing

- PUBLIC INVOLVEMENT
 - Onc
- Conduct community leader briefings
- Identify and contact stakeholders
- Prepare project fact sheet #1
- Review project purpose and need and description
- Track and respond to comments
- Prepare for and conduct stakeholder group meeting #1
- Develop mailing list
- Prepare and distribute newsletter #1
- Prepare for and conduct public open house #1
- Prepare for and conduct stakeholder group meeting #2
- Prepare and distribute newsletter #2
- Prepare for and conduct public open house #2
- Review link alternatives
- Track and respond to comments

- Prepare for and conduct stakeholder group meeting #3
- Review link alternative impact assessment and preliminary routes
- Track and respond to comments
- Prepare for and conduct stakeholder group meeting #4
- Prepare and distribute newsletter #3
 Prepare for and conduct public open
- Prepare for and conduct public open house meeting #3
- Review route alternatives
- Track and respond to comments
- Prepare stakeholder and public involvement summary to support CEC application
- Track and respond to comments
- Prepare hearing notice and post signs in project area (announcing CEC application filing and hearings)
- Track and respond to comments

TIMELINE*

2008 - 1st Quarter 2009

1st - 2nd Quarter 2009

1st - 3rd Quarter 2009

3rd Quarter 2009

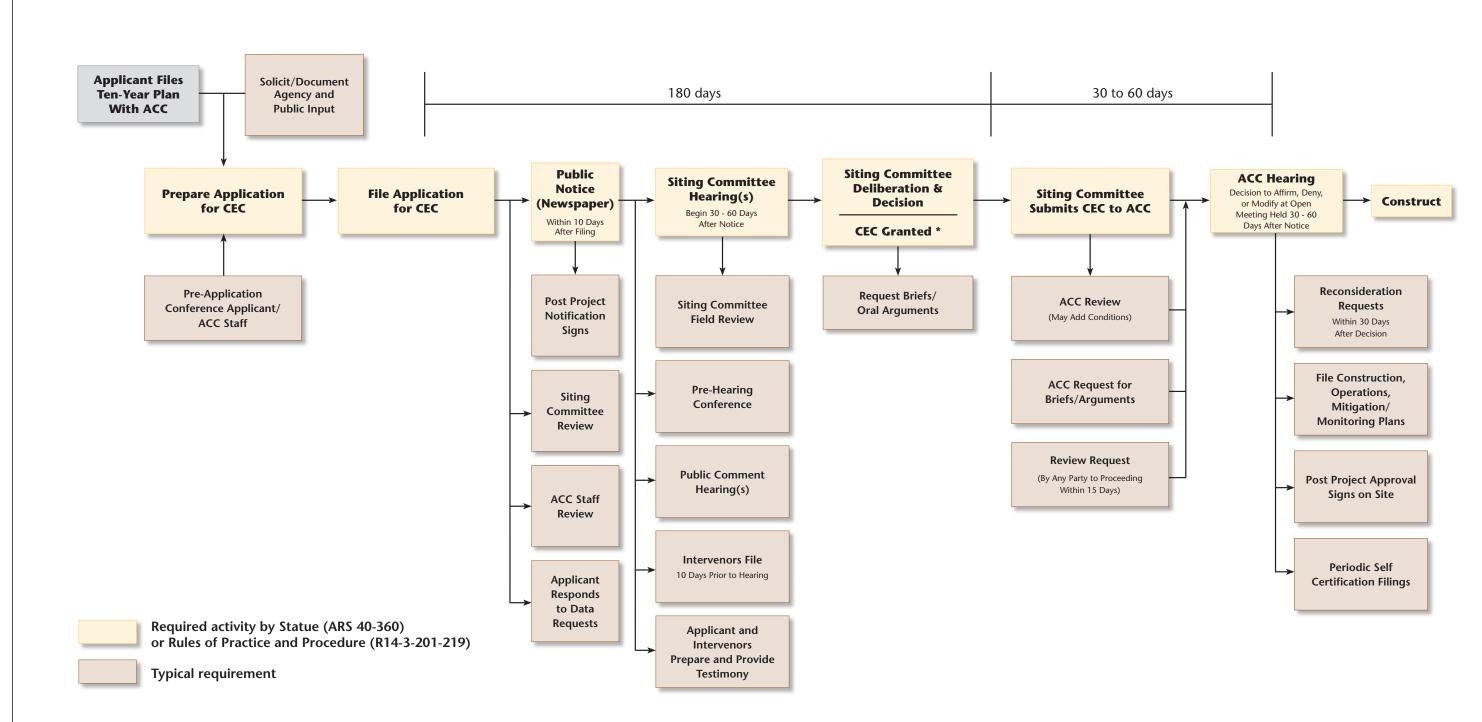
3rd - 4th Ouarter 2009

4th Ouarter 2009

*Timeline is estimated

March 2009

Planning Process and ResponsibilitiesRosemont 138-kV Transmission Line Project



J-191

* Decision within 180 days after receipt of application (R14-3-213), subject to extension

ACC: Arizona Corporation Commission

CEC: Certificate of Environmental Compatibility

Siting Committee: Arizona Power Plant & Transmission Line Siting Committee



Arizona Power Plant and Transmission Line Siting Process Certificate of Environmental Compatibility Application Process Rosemont 138-kV Transmission Line Project

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Environmental Studies Overview

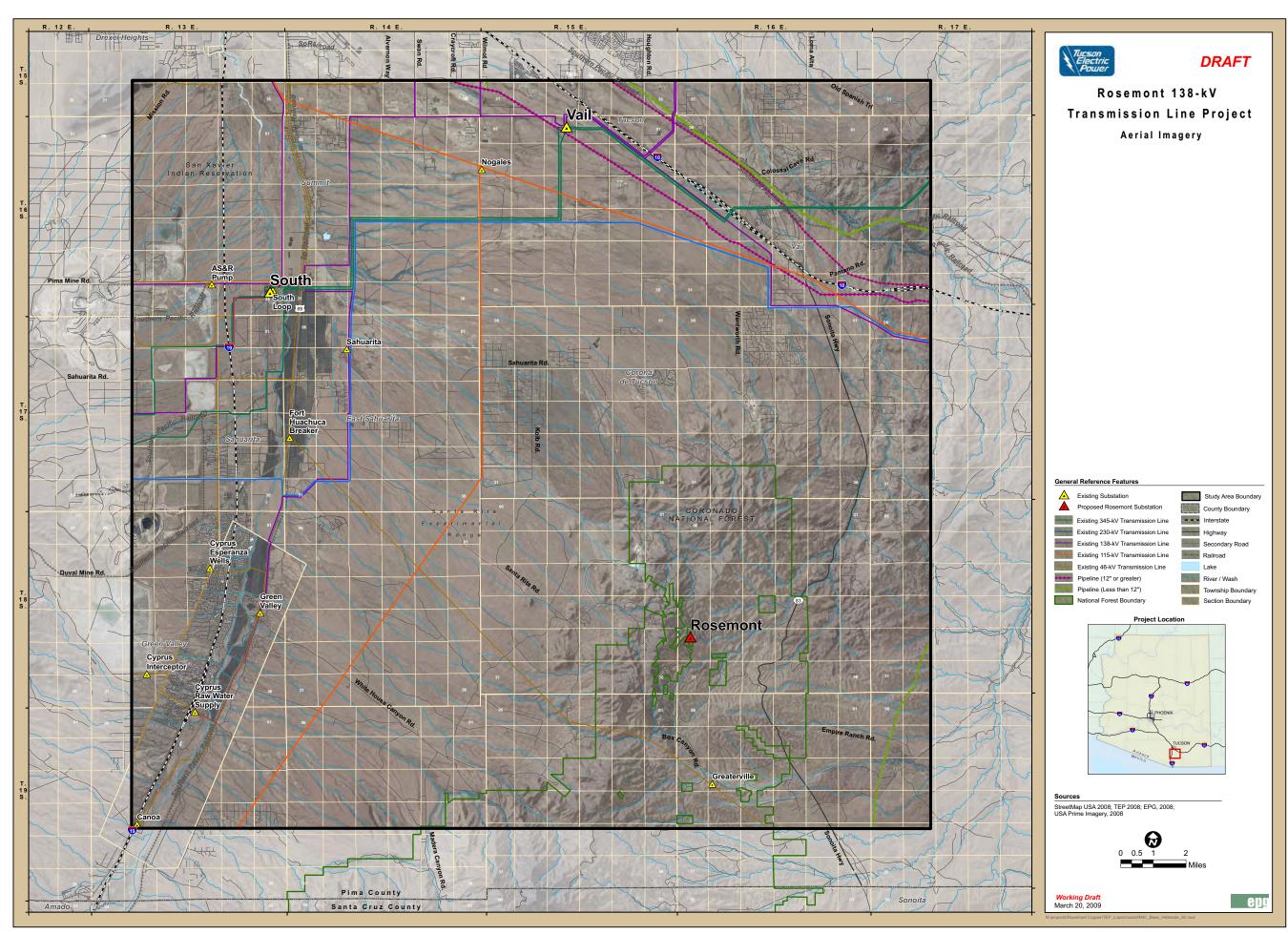
- Environmental resources
 - Land use (existing/future land use and jurisdictional planning guidelines)
 - Visual (scenic quality, sensitive viewers, and scenic management guidelines)
 - Cultural (national register sites, archaeological sites, as well as other eligible sites)
 - Biology (wildlife, vegetation, rare species, and sensitive habitat)

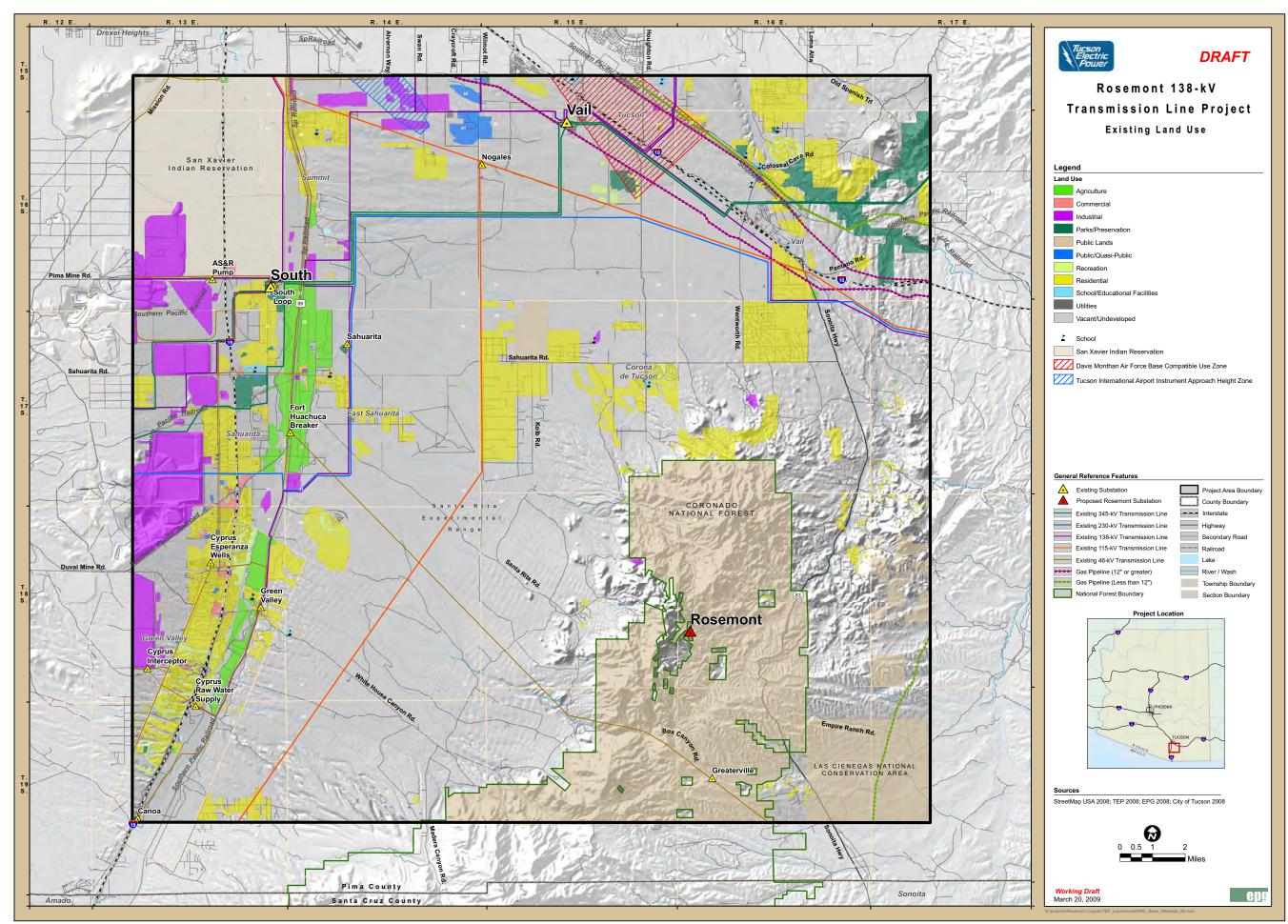


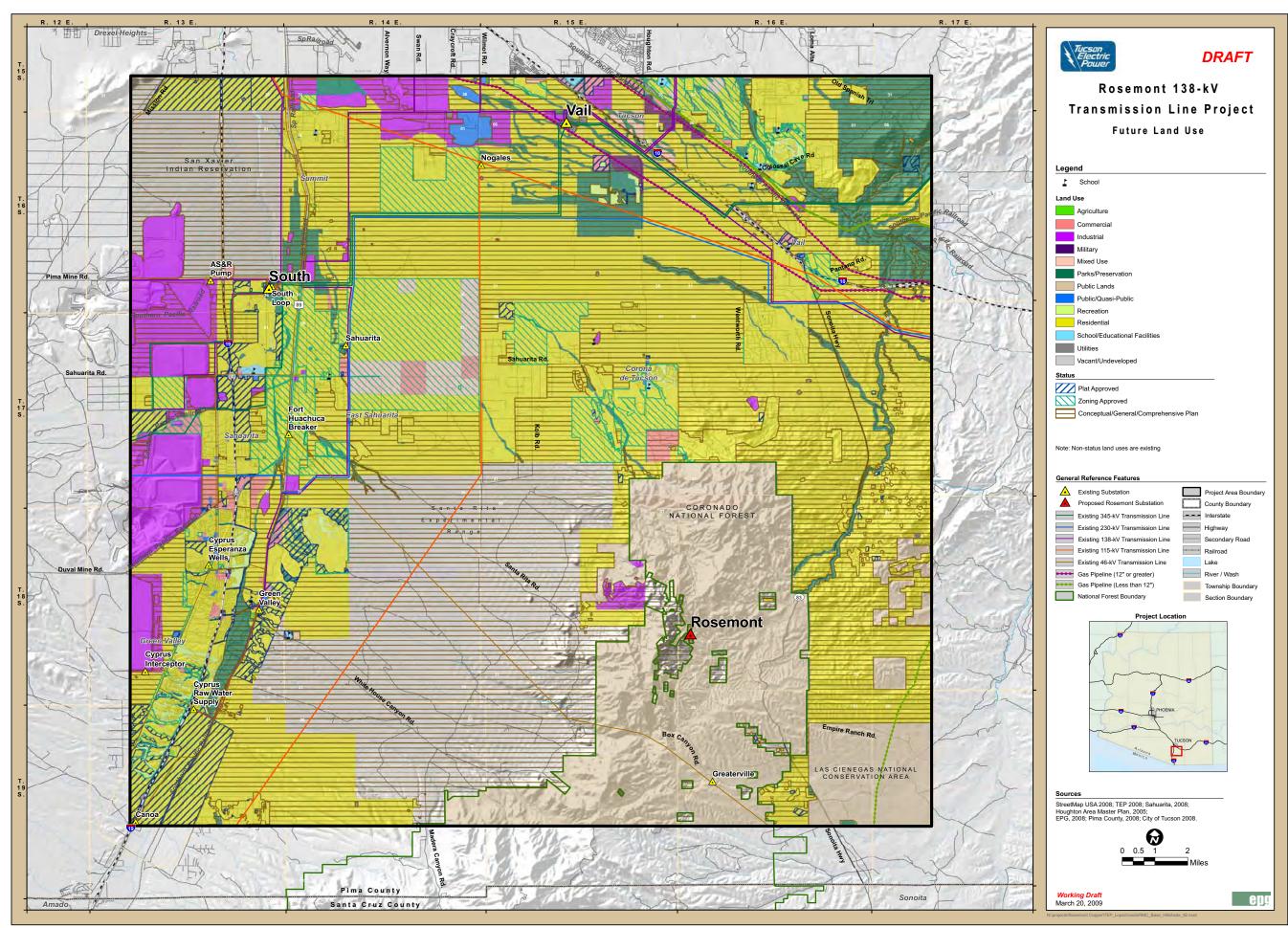


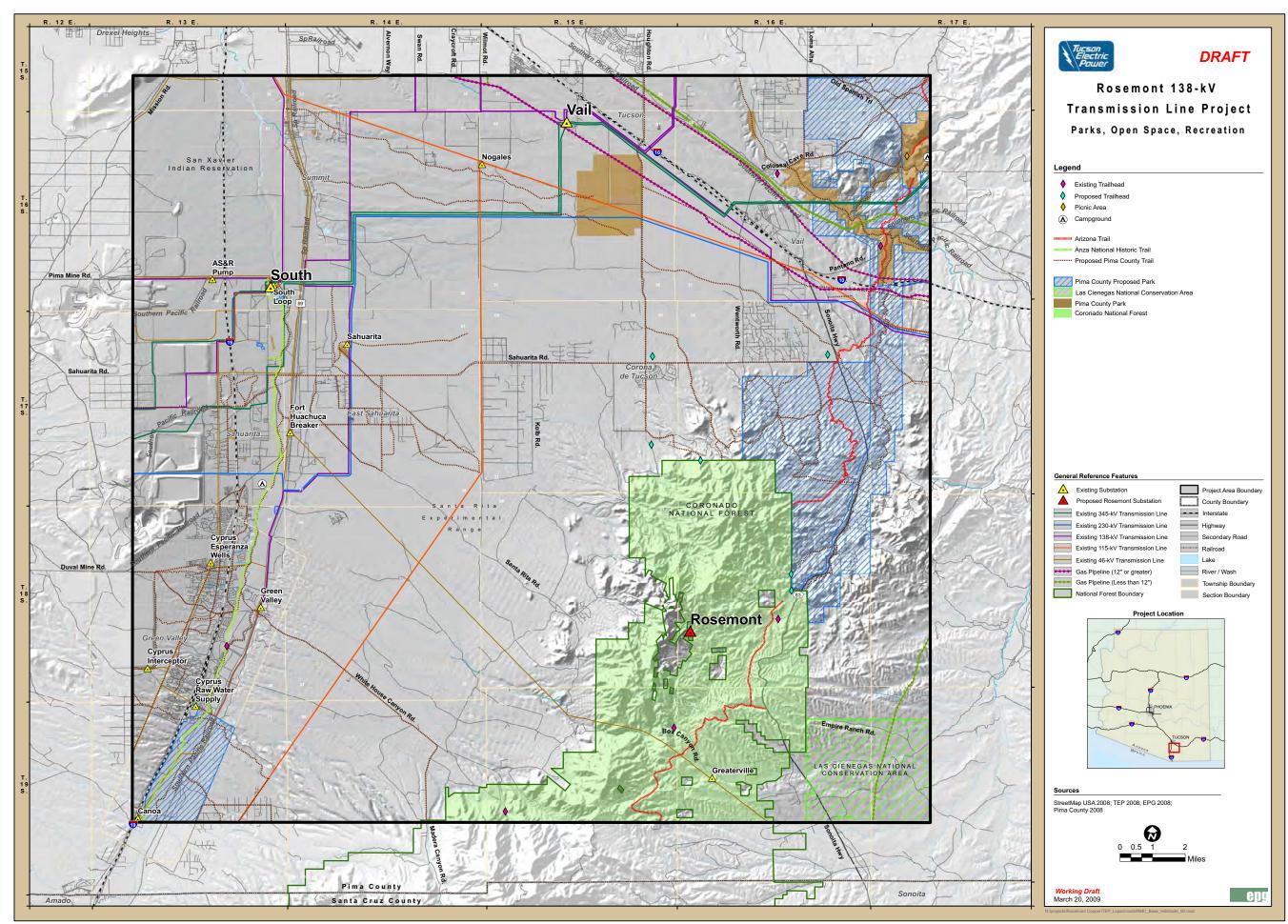
ROSEMONT 138-KV TRANSMISSION LINE PROJECT

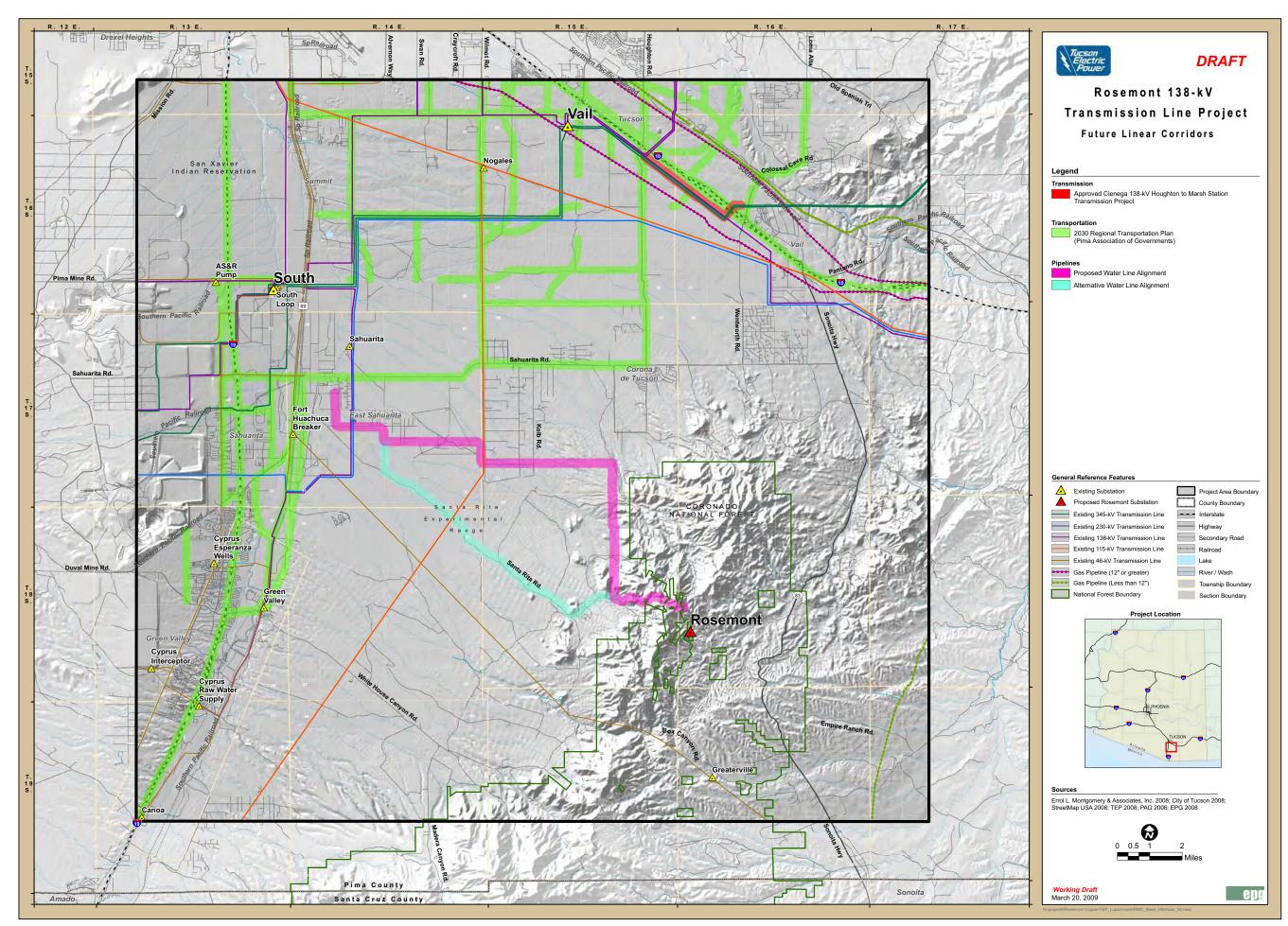
CEC Application November 2011

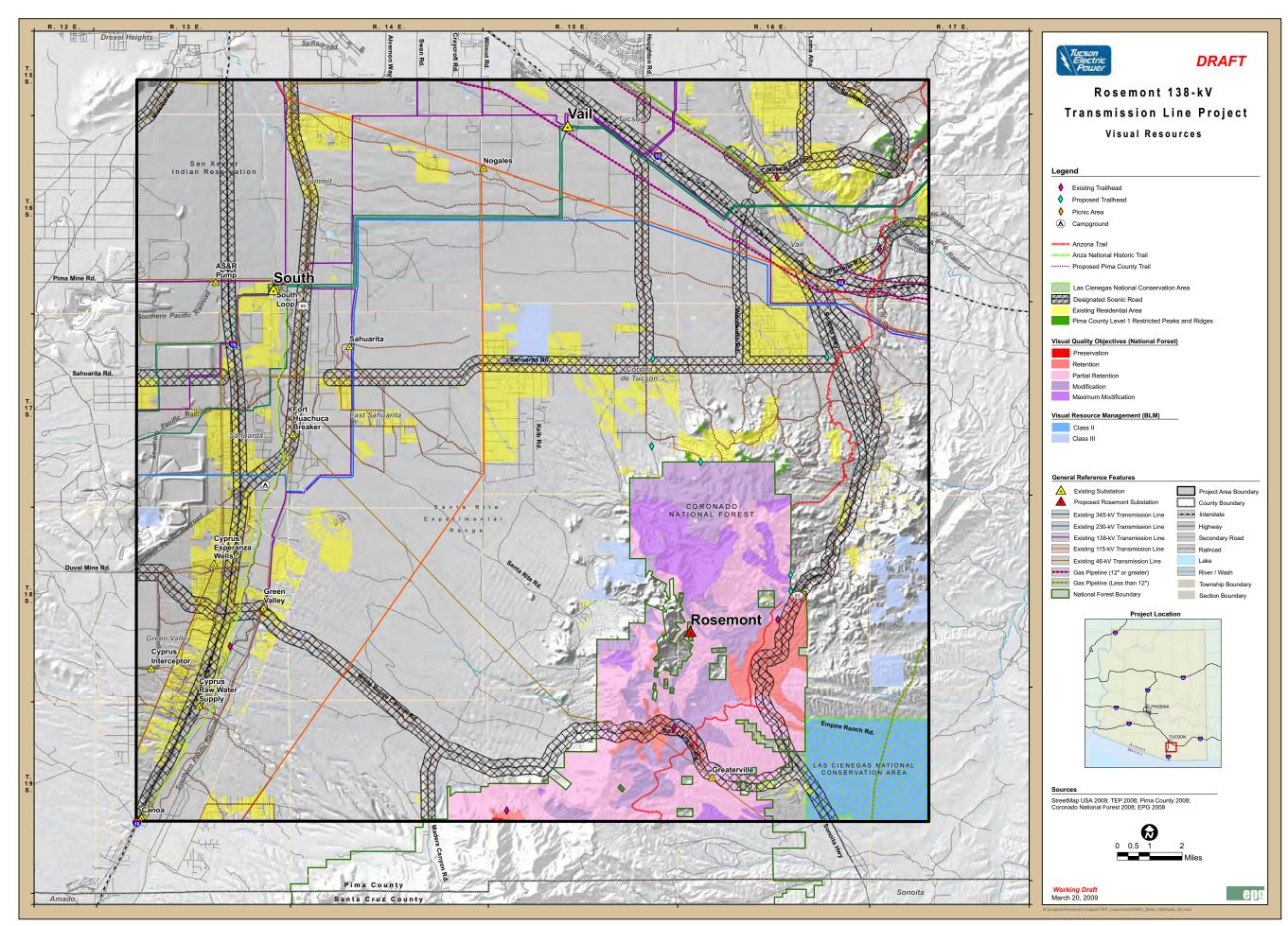


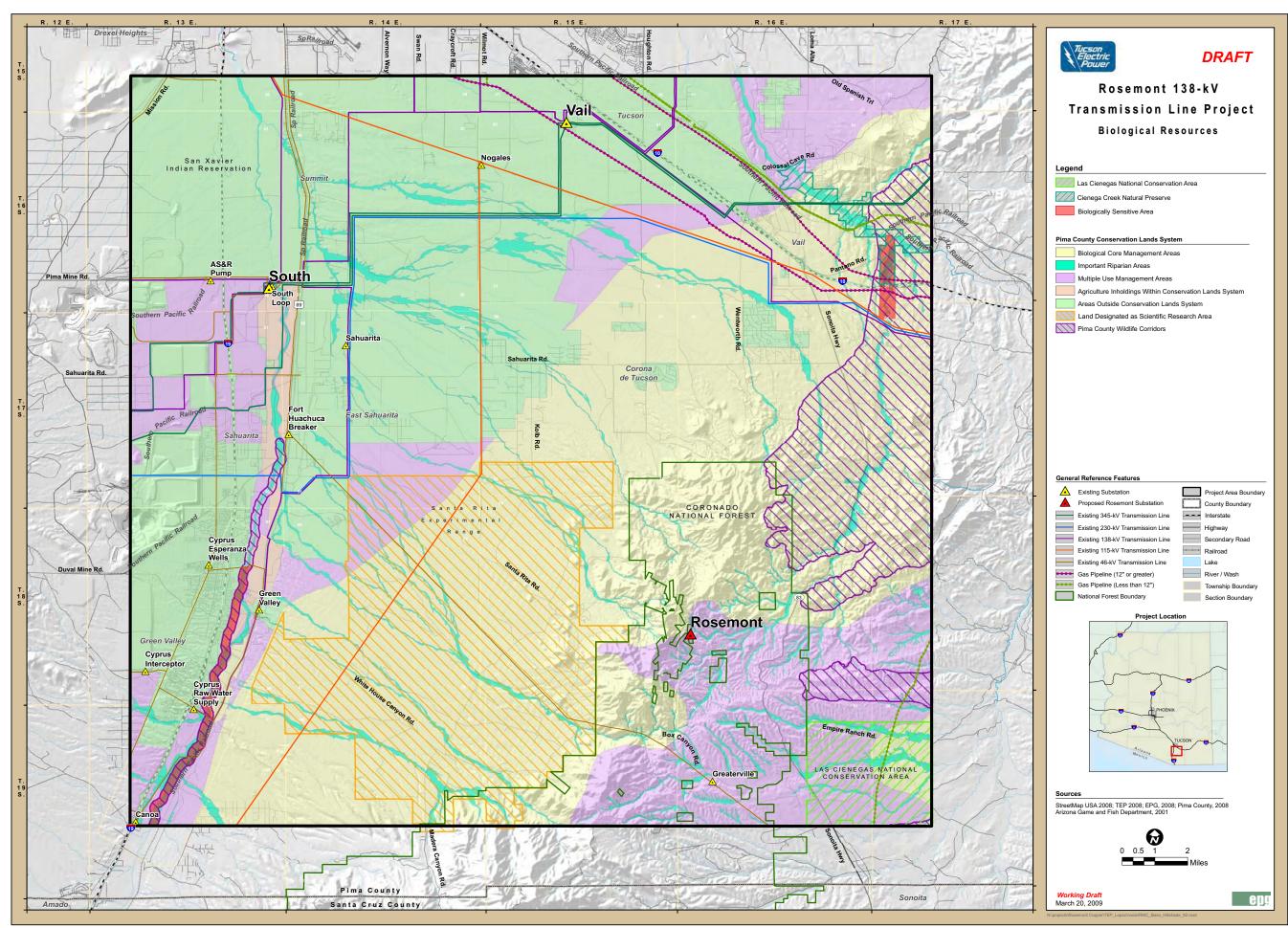












Opportunities and Constraints Analysis

- Identify opportunities and constraints through evaluation of environmental resources within the project study area
- Conduct an analysis of various environmental resources' sensitivity to the construction, operation, maintenance, and abandonment of a transmission line





ROSEMONT 138-KV TRANSMISSION LINE PROJECT

Draft Transmission Line Siting Criteria

SENSITIVITY OF RESOURCES	
Resource Category	Proposed Sensitivity Level
Existing Land Use and Visual Resource s	<u> </u>
Residential	High
Schools/Educational Facilities	High
Scenic Roads/Parkways (e.g., State Route 83)	Moderate-High
Parks/Preservation	High
Recreation Areas, Open Space, Golf Courses, and Trails/Trailhead	Moderate-High
Commercial Retail/Commercial	Moderate
Hotel/Resort Agricultural Land (pecan groves)	Moderate Moderate
Vacant Land (pecan groves)	Low
Industrial	Low
Major Property Boundaries (section lines, half-section lines)	Low-Moderate
Public/Quasi-Public	2011 MOGOTAGO
- Church	High
- Cemetery	High
- Government Buildings	Moderate
- Detention Facilities (Prisons)	Low
Visual Classifications – BLM (VRM), Forest Service (VQO)	
- VRM Class I	Incompatible
- VRM Class II	Moderate-High
- VRM Class III	Low-Moderate
- VRM Class IV - VQO Preservation	Low
- VQO Preservation - VQO Retention	Incompatible High
- VQO Retention - VQO Partial Retention	Moderate-High
- VQO Modification	Low-Moderate
- VQO Maximum Modification	Low
Restricted Peaks and Ridges	Moderate-High
Future Land Use and Visual Resources	
Residential Planned – Plat Approved	Moderate-High
Residential Planned – Zoning Approved	Moderate
Residential Planned – Conceptual/General/Comprehensive Plan	Low-Moderate
Commercial Planned – Plat Approved	Moderate
Commercial Planned – Zoning Approved	Low-Moderate
Commercial Planned – Conceptual/General/Comprehensive Plan	Low
Parks /Preservation – Plat Approved	Moderate-High
Parks /Preservation – Zoning Approved	Moderate
Parks/Preservation – Conceptual/General/Comprehensive Plan	Low-Moderate
Recreation Areas, Open Space, Golf Courses, and Trails/Trailhead – Plat Approved Recreation Areas, Open Space, Golf Courses, and Trails/Trailhead – Zoning Approved	Moderate
Recreation Areas, Open Space, Golf Courses, and Trails/Trailnead – Zoning Approved Recreation Areas, Open Space, Golf Courses, and Trails/Trailnead –	Low-Moderate
Conceptual/General/Comprehensive Plan	Low
Utility Facilities Planned – Concept Stage	Low
Utility Facilities Planned – Plat Approved	Low
Mixed Use – Plat Approved	Moderate
Mixed Use – Zoning Approved	Low-Moderate
Mixed Use – Conceptual/General/Comprehensive Plan	Low-Moderate
Military – Plat Approved	Moderate
Military – Zoning Approved	Low-Moderate
Military - Conceptual/General/Comprehensive Plan	Low
Cultural Resource s	
Listed or Proposed National or State Register Properties	Moderate-High
Biological Resources	
Pima County Wildlife Corridors	Low-Moderate
Santa Cruz River	Moderate
Cienega Creek Natural Preserve	High
Davidson Canyon	High
Las Cienegas National Conservation Area	Moderate
Pima County Conservation Lands System	Levi
- Agricultural Inholdings within Conservation Area	Low
- Biological Core Management Areas	Low-Moderate Low-Moderate
- Important Riparian Areas	
- Important Ripanan Areas - Multiple Use Management Areas - Designated Scientific Research Areas	Low Low-Moderate

(e.g., residential areas adjacent to major arterial roads and 46-kV and above power lines).

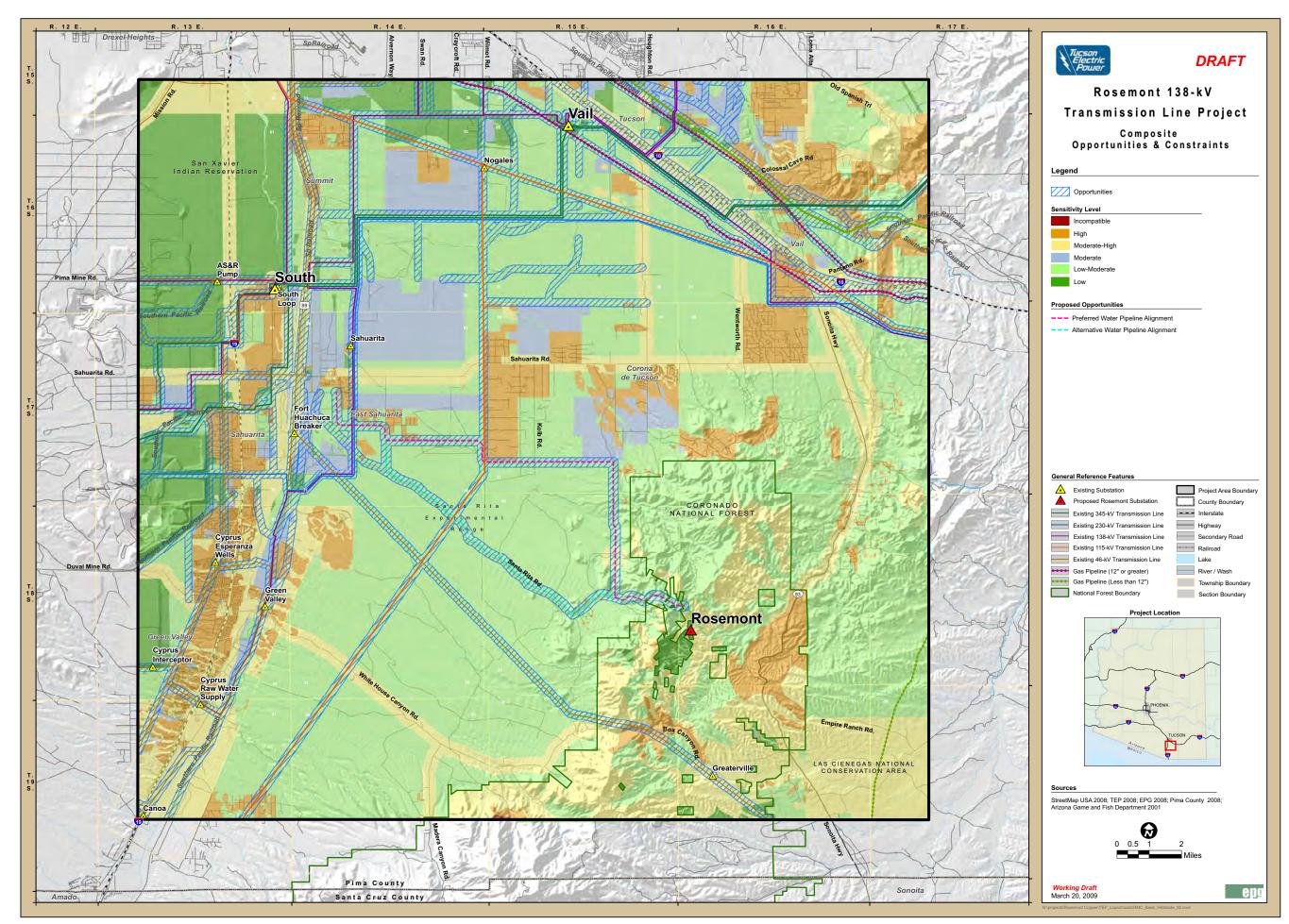
Opportunities	
Existing Linear Facilities	
Roads/Major Arterial Roadways	
Pipelines	
Railroads	
Utility Facilities (substations, etc.)	
46-kV Overhead Transmission Line Corridors	
115-kV/138-kV Overhead Transmission Line Corridors	
230-kV/345-kV Overhead Transmission Line Corridors	
Future (Planned) Linear Facilities	
Certificated transmission line corridors	
Roads/Major Arterial Roadways - Approved	
Roads/Major Arterial Roadways - Conceptual/General/Comprehensive Plan	





Rosemont 138-kV Transmission Line Project

March 2009



Initial Agency/Organization Contacts

TEP sent a letter to community leaders announcing the proposed project:

- Coronado National Forest
- Bureau of Land Management
- Arizona State Land Department
- Pima County, City of Tucson, Town of Sahuarita, Green Valley Coordinating Council, Vail/Cienega Corridor Volunteer (Mayors, Managers, Development Directors, Planners, etc.)
- Pima County Association of Governments
- Tohono O'odham Nation (San Xavier District)
- Pascua Yaqui Tribe
- ACC staff
- Southern Arizona Legislative Representatives
- University of Arizona, Santa Rita Experimental Range
- Davis-Monthan Air Force Base





ROSEMONT 138-KV TRANSMISSION LINE PROJECT

Public Participation Opportunities

- Public open house meetings
- Telephone information line (866) 632-5944
- TEP website: www.tep.com
- Arizona siting committee FAQs website:

www.cc.state.az.us/Divisions/Utilities/Electric/LineSiting-FAQs.asp

- Media briefings
- Project newsletters mailed to community, including residents and landowners, and other interested parties





ROSEMONT 138-KV TRANSMISSION LINE PROJECT

Next Steps

- Collect and document public and agency comments
- Finalize opportunities and constraints analysis
- Identify alternative transmission line links
- Stakeholder meeting #2 (2nd Quarter 2009)
- Public Open House #2 (2nd-3rd Quarter 2009)





ROSEMONT 138-KV TRANSMISSION LINE PROJECT

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ROSEMONT 138kV TRANSMISSION LINE PROJECT

Public Open House Meeting #2 August 27, 2009

Project Overview

- Tucson Electric Power (TEP), as a part of its obligation to serve, is proposing to construct and operate a new 138kV transmission line for the proposed Rosemont Copper operations
- Like any customer requesting service at the transmission voltage, Rosemont is paying for the transmission siting study
- Updated project area south of I-10 and east of I-19, with lands managed by Arizona State Land Department in conjunction with University of Arizona, Forest Service, Bureau of Land Management, and privately-owned lands under the planning jurisdictions of the Town of Sahuarita and Pima County
- Planning process includes environmental studies and public input conducted to assist in identification and comparison of alternative transmission line routes and environmental impacts
- Project requires review by the Arizona Corporation Commission's (ACC) Power Plant and Transmission Line Siting Committee resulting in a recommendation to and a final determination by the ACC prior to construction





Purpose and Need

- Electric utilities are required by the State of Arizona to provide electrical service to customers upon request
- Rosemont Copper Company has requested that TEP provide electric power to the Rosemont Copper operations
- The primary purpose and need for the proposed transmission line is to provide adequate and reliable power for the proposed Rosemont Copper operations
- There are no existing transmission lines and substations in the vicinity of the proposed operation with the needed electrical capacity





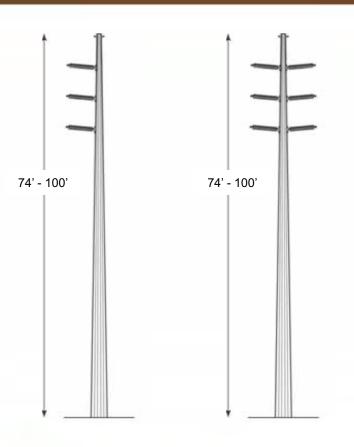
Project Description

- Up to approximately 20 miles of 138kV transmission line (line length depends upon final route)
- A 500-foot-wide corridor will be requested, and within that corridor a 100-foot-wide right-of-way would be obtained
- Approximately 2 acres of land for construction, operation, and maintenance of the proposed switchyard
- Approximately 1 acre of land for construction, operation, and maintenance of the proposed Rosemont Substation





Proposed Structure Type(s)











Proposed Switchyard

- Photograph is of a typical TEP switchyard that resembles the proposed switchyard
- Proposed facility for interconnection with the existing TEP transmission system
- Approximately 1 acre in size
- Located on private land







Rosemont 138kV Transmission Line Project

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Technical Engineering Studies

- Technical engineering studies completed by KR Saline and TEP to refine the project description
- Project description refined to identify a point at which the proposed transmission line will tap into TEP's electrical system at a proposed switchyard. This proposed switchyard will tap the existing South to Green Valley 138kV transmission line and become the point of origin for the proposed transmission line
- Current plan of service does not include direct connection to Vail or South substations
- Study concluded that two components are required for the transmission line project
 - Power for construction from a proposed 138kV transmission line extending from existing Greaterville Substation to proposed Rosemont Substation
 - Power for operations from a proposed 138kV transmission line extending from proposed switchyard to proposed Rosemont Substation





Environmental Studies

Resource Data Collected

- Land use
 - Existing and future land use
 - Jurisdictional planning guidelines
- Visual and recreation
 - Scenic quality
 - Sensitive viewers
 - Scenic management guidelines
 - Roads/trails and trailheads

Cultural

- Archaeological districts
- National Register or State Historic Districts or Sites
- Biological
 - Wildlife and habitat
 - Vegetation
 - Special status species





University of Arizona's Santa Rita Experimental Range

- Established in 1902 and is considered the oldest experimental range in the country
- Provides a unique scientific resource with an archive of repeat photos
- Consists of more than 80 square miles leased from the Arizona State Land Department of grazed and ungrazed land on the range





Resource Sensitivity Levels Overview

- Low: potential resource constraints are minimal or absent, typically representing areas most desirable/compatible for construction/ operation of transmission lines (e.g., industrial, vacant/undeveloped lands)
- Low-moderate: potential resource constraints are present, but conflicts or issues would likely be minimized with conventional design and construction methods (e.g., existing commercial, general planned residential areas)
- Moderate: potential resource constraints are present, but conflicts or issues would likely be reduced or minimized with conventional and non-conventional design and construction methods (e.g., agricultural [pecan groves], zone-approved residential areas)





Resource Sensitivity Levels Overview (continued)

- Moderate-high: potential resource constraints are present, but conflicts or issues would likely be reduced with conventional and non-conventional design or mitigation measures (e.g., recreation areas, plat-approved residential areas)
- High: potential resource constraints are present where there are unique, highly valued, complex, or legally protected resources; or where conflicts or issues would be more difficult to avoid or reduce with the conventional and non-conventional design or mitigation measures (e.g., existing residential development)
- **Incompatible:** potential resource constraints are present where agencies have an adopted management plan or regulatory guidelines that identify transmission lines as incompatible or in conflict with existing or future resources (e.g., designated wilderness areas)





Opportunities and Constraints

- Based upon resources within the project study area
- Sensitivity levels assigned based upon established criteria for each resource
- Sensitivity levels assist in identifying potential constraints for building a transmission line
- Opportunities are considered within the context of the areas in which they occur
 - A constraint may be underlying or adjacent to an opportunity area





Siting Criteria

SENSITIVITY OF RESOURCES August 2009		
Resource Category	Sensitivity Level*	
xisting Land Use Resources		
esidential	High	
chools/Educational Facilities	High	
mmercial Retail	Low-Moderate	
tel/Resort	Moderate	
ricultural Land (pecan groves)	Moderate	
cant/Undeveloped Land	Low	
lustrial	Low	
blic/Quasi-Public		
hurch	High	
Cemetery	High	
overnment Buildings	Low-Moderate	
cisting Recreation Resources		
rks	High	
ilderness Area	Incompatible	
rentoried Roadless Area	High	
eveloped National/Regional Trail	High	
cal Trails (County or City designated)	Moderate-High	
ailheads, Picnic areas, and Campgrounds	High	
ma County Natural Areas	Moderate	
cisting Visual Resources	moderate	
enic Roads	High	
enic Roads sual Classifications – BLM (VRM), Forest Service		
RM Class II	Moderate-High	
/RM Class III	Low-Moderate	
oncern Level 1 (High concern roads and trails) –	High	
mediate Foreground (0-300 feet)	riigii	
concern Level 1 (High concern roads and trails) –	High	
preground (300 feet -1/2 mile)	riigii	
oncern Level 1 (High concern roads and trails) –	Moderate	
ddleground (1/2 to 4 miles)	Woderate	
concern Level 2 (Moderate concern roads and	Moderate	
alls) – Immediate Foreground (0-300 feet)		
concern Level 2 (Moderate concern roads and	Moderate	
ils) – Foreground (300 feet -1/2 mile)	modorato	
oncern Level 2 (Moderate concern roads and	Low-Moderate	
ils) – Middleground (1/2 to 4 miles)		
uture Land Use Resources		
sidential Planned – Plat Approved	Moderate-High	
sidential Planned – Plat Approved	Moderate	
esidential Planned –	Low-Moderate	
onceptual/General/Comprehensive Plan	LOW-WOODIALE	
ommercial Planned – Plat Approved	Low-Moderate	
ommercial Planned – Plat Approved	Low-Moderate	
onceptual/General/Comprehensive Plan	LOW	
xed Use – Conceptual/General/Comprehensive	Low-Moderate	
an	LOW-WOODE ALE	
itary – Plat Approved	Moderate	
ustrial Facilities – Plat Approved	Low	
dustrial Facilities = Flat Approved	Low	
nceptual/General/Comprehensive Plan	LOW	
ture Recreation Resources	I .	
rks – Plat Approved	Moderate-High	
irks – Conceptual/General/Comprehensive Plan	Low-Moderate	

Local Trails (County or City designated) – Conceptual/General/Comprehensive Plan	Low	
Pima County Natural Areas – Plat Approved	Low-Moderate	
Pima County Natural Areas – Zoning Approved and Conceptual/General/Comprehensive Plan	Low	
Existing Cultural Resources		
Listed or Eligible National or State Register Properties	Moderate-High	
Existing Biological Resources		
Pima County Wildlife Corridors	Low-Moderate	
Santa Cruz River	Moderate	
Bar V Ranch (Pima County 2004 Conservation Bond Program)	Moderate-High	
Las Cienegas National Conservation Area	Moderate-High	
Pima County Conservation Lands System		
- Agricultural Inholdings within Conservation Area	Low	
- Biological Core Management Areas	Low-Moderate	
- Important Riparian Areas	Low-Moderate	
- Multiple Use Management Areas	Low	
- Designated Scientific Research Areas	Low-Moderate	

Opportunities		
Existing Linear Facilities		
Roads/Major Arterial Roadways		
Railroads		
Utility Facilities (substations, etc.)		
Section lines, half-section lines		
46kV Overhead Transmission Line Corridors		
115kV/138kV Overhead Transmission Line Corridors		
230kV/345kV Overhead Transmission Line Corridors		
Future (Planned) Linear Facilities		
Roads/Major Arterial Roadways - Approved		
Roads/Major Arterial Roadways - Conceptual/General/Comprehensive Plan		
Pipelines (e.g., water, wastewater)		
Utility Facilities (transmission lines, substations)		

Notes: Sensitivity level modification may occur after evaluation of edge condition (e.g., residential areas adjacent to major arterial roads and 46kV and above power lines).

*The agencies/public provided comments and suggestions to add or revise the resource category and/or sensitivity levels in February and March 2009 resulting in the final criteria





Rosemont 138kV Transmission Line Project

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Key Terms Defined

Right-of-way: land authorized to be used or occupied for the construction, operation, and maintenance of a linear facility

Corridor: a tract of land of varying width that allows the flexibility for a transmission line right-of-way to be located within to accommodate final engineering and environmental considerations

Preliminary link: short segment of a preliminary transmission line route between other intersecting segments

Link node: intersecting point where two links meet

Route or routes: series of links connecting the proposed switchyard and proposed Rosemont Substation





Preliminary Link Alternative Identification

- Defined sensitivity criteria for resources inventoried (e.g., general industrial – low sensitivity vs. existing residential – high sensitivity)
- Conducted opportunities and constraints analysis for resources inventoried (e.g., transmission lines, existing, and future land use)
- Prepared opportunities and constraints map
- Identified preliminary link alternatives
 - Agency/public comment
 - Environmental
 - Engineering





Link Alternative Screening and Route Identification

- Links will be screened based on additional environmental and engineering analysis, as well as agency/public input
- Links will be combined to form complete transmission line route alternatives between the proposed switchyard and proposed Rosemont Substation





TEP Decision Elements

- Purpose and need
- Environmental analysis
- Public/agency input
- Permits
- Engineering analysis
- Ability to obtain right-of-way
- Overall cost





Public Participation Opportunities

- Public open house meetings
- Telephone information line: (866) 632-5944
- TEP website: www.tep.com
- Arizona siting committee FAQs website: <u>www.cc.state.az.us/Divisions/Utilities/Electric/LineSiting-FAQs.asp</u>
- Media briefings
- Project newsletters mailed to community, including residents, landowners, and other interested parties





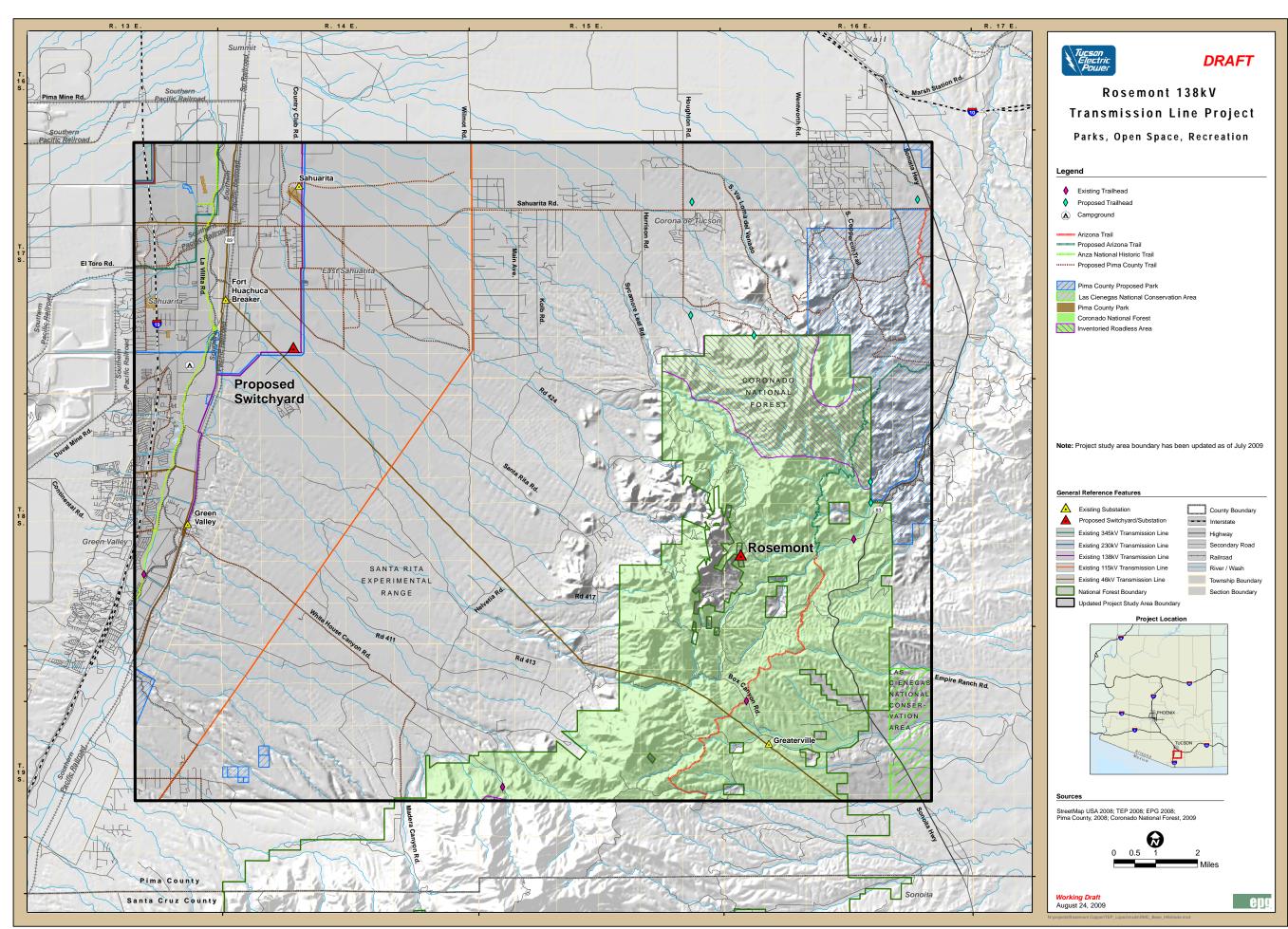
Next Steps

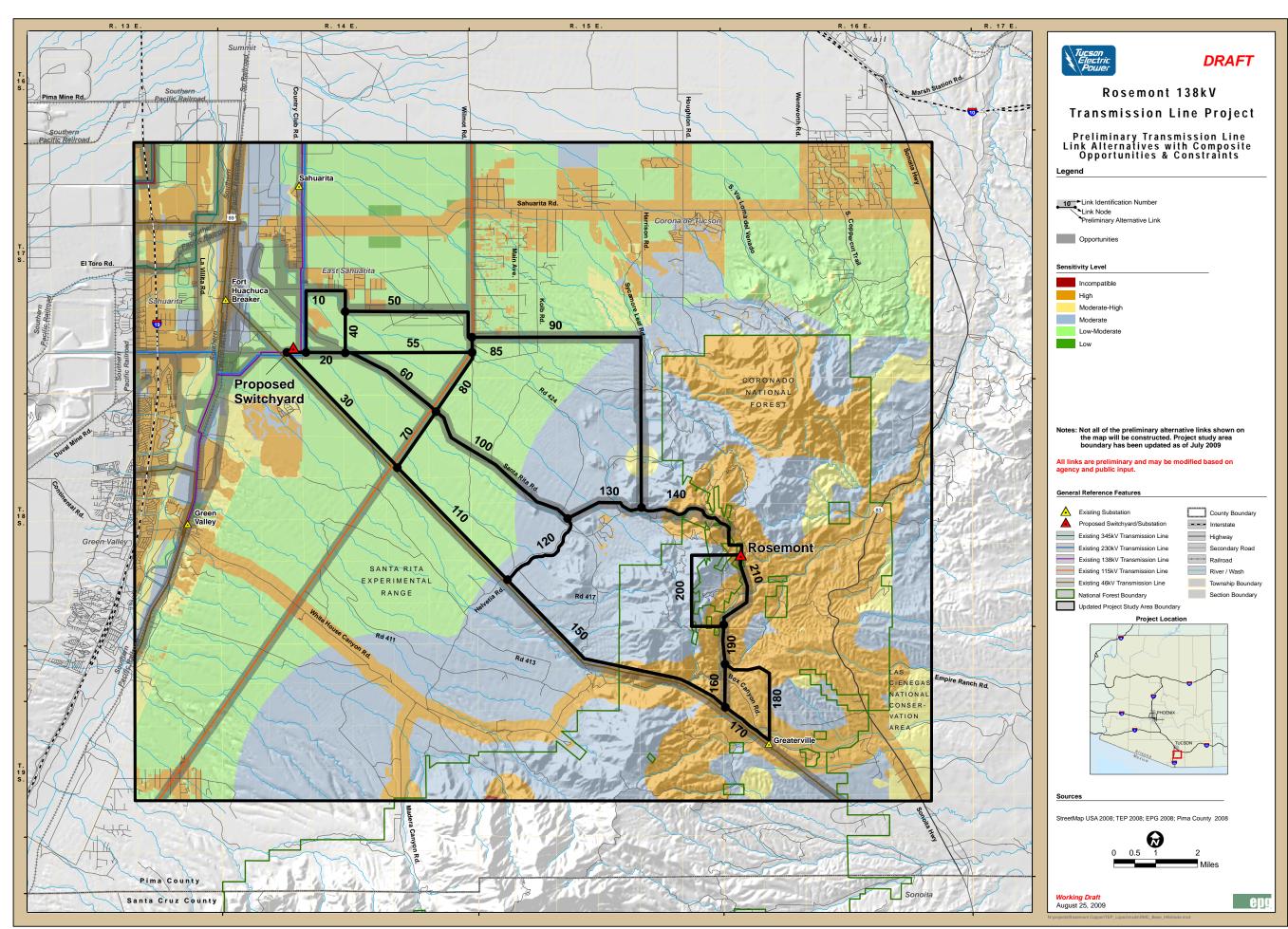
- Ongoing
 - Collect and document public and agency comments
 - Conduct detailed engineering and environmental studies on preliminary link alternatives
- Fall 2009
 - Conduct stakeholder meeting #3
 - Identify transmission line route alternatives from the preliminary links
- Fall/winter 2009
 - Conduct stakeholder meeting #4
 - Conduct public open house #3

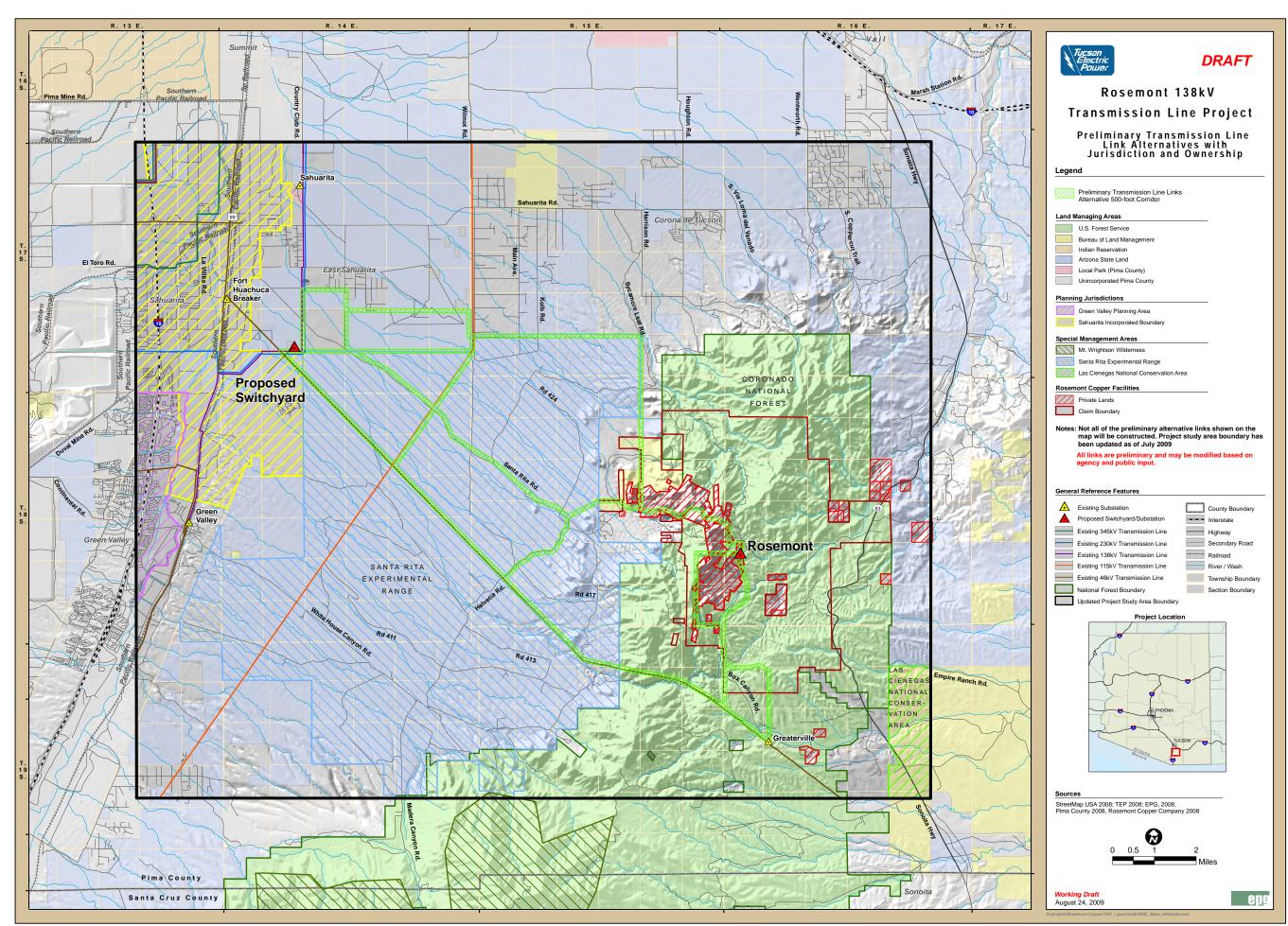


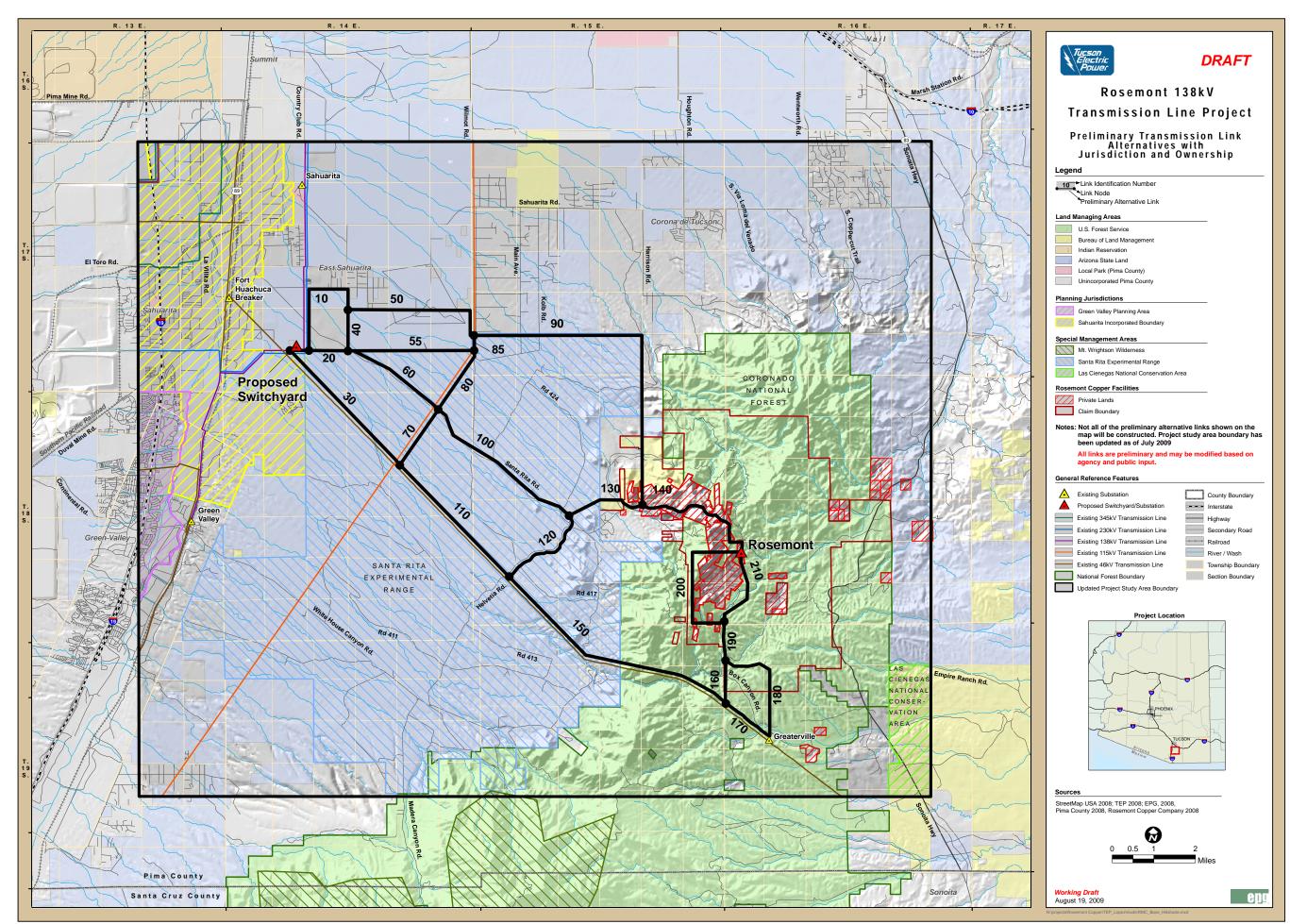


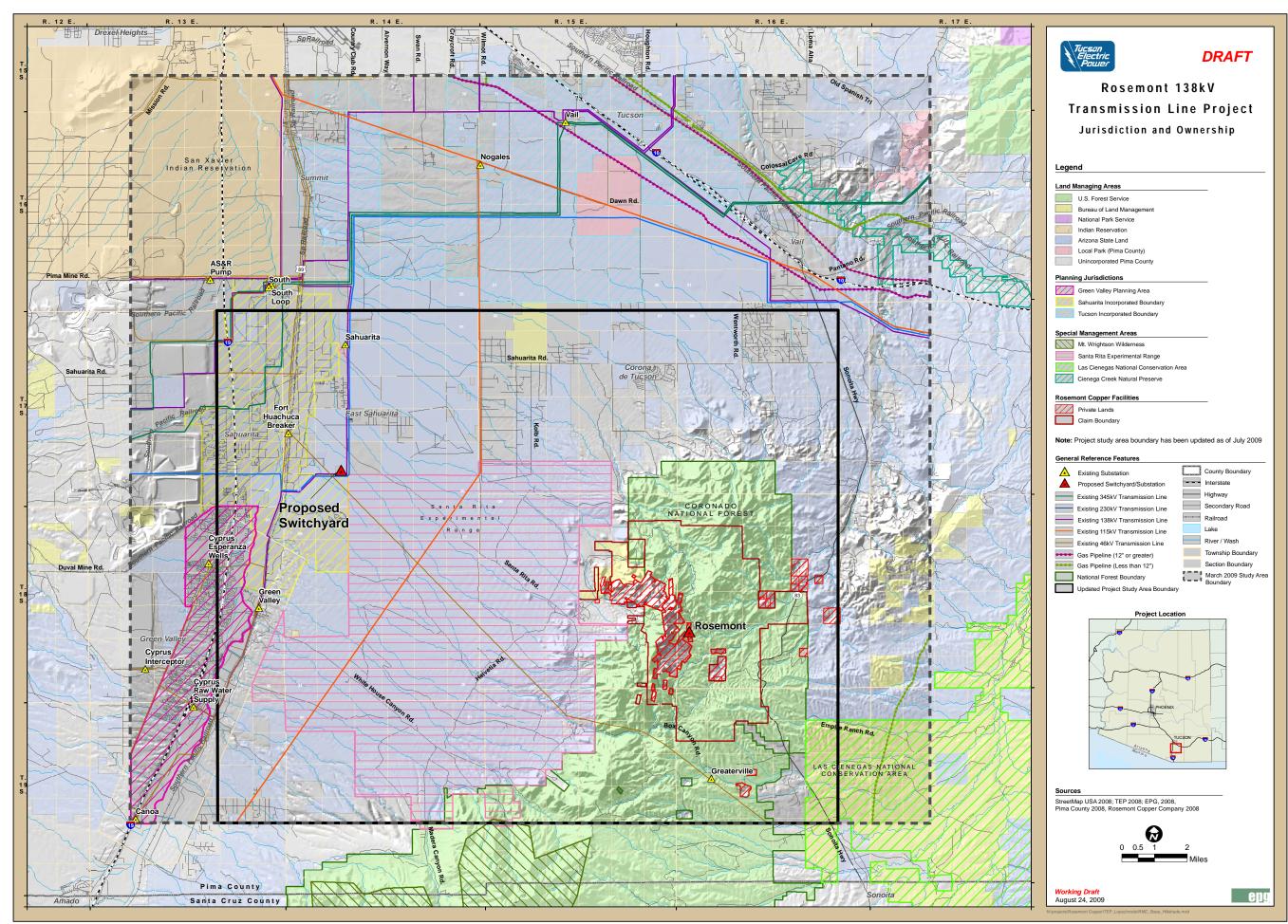
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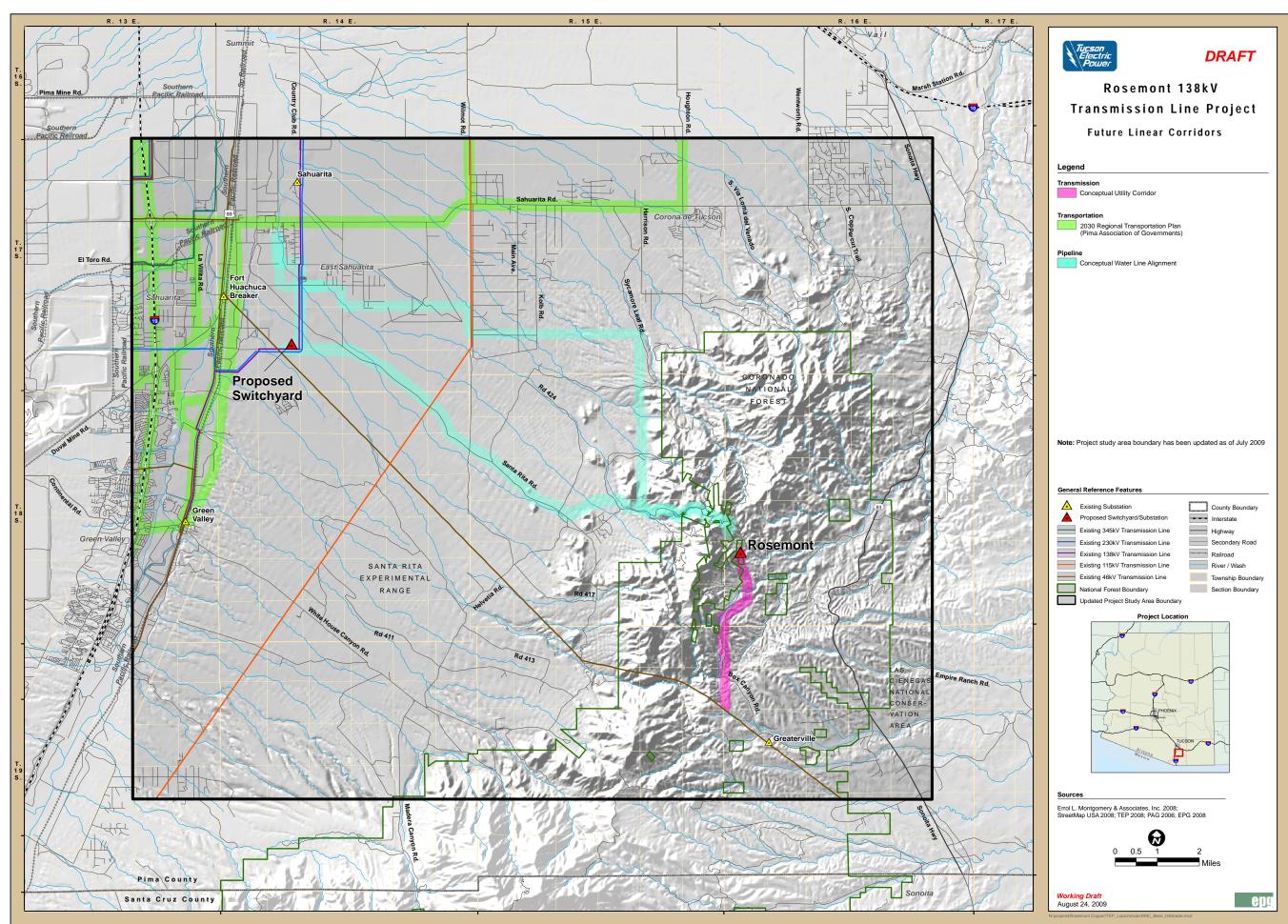


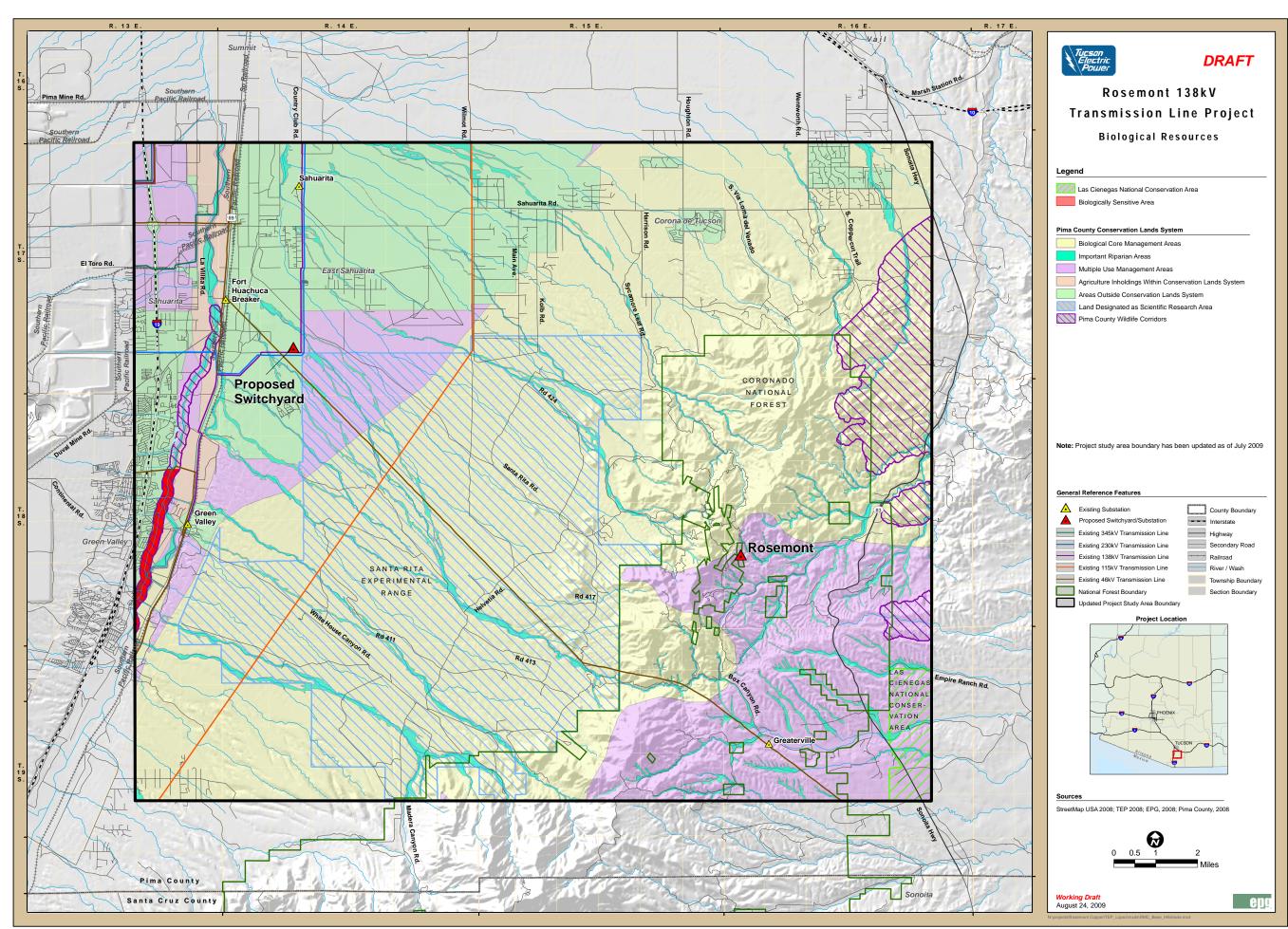


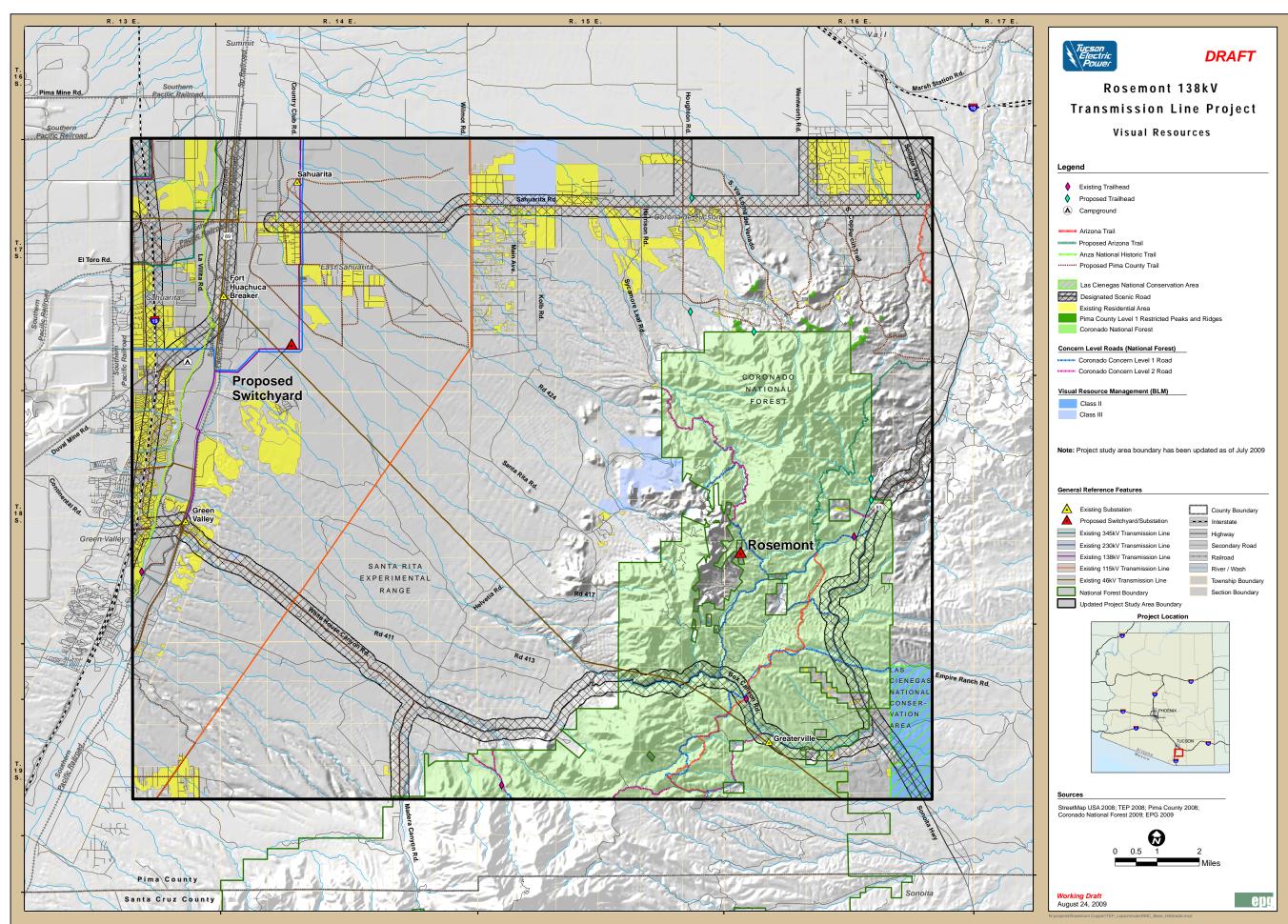


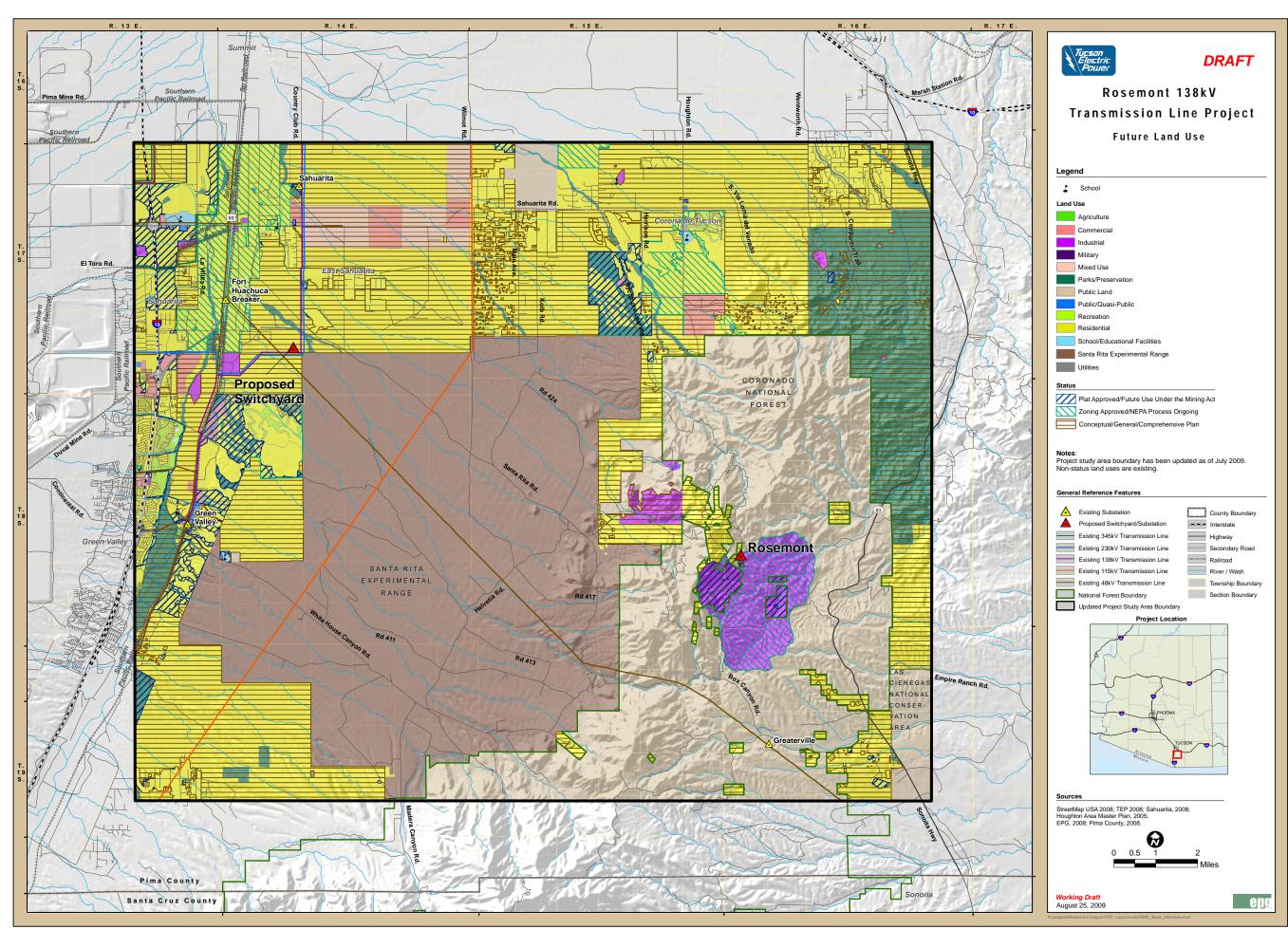


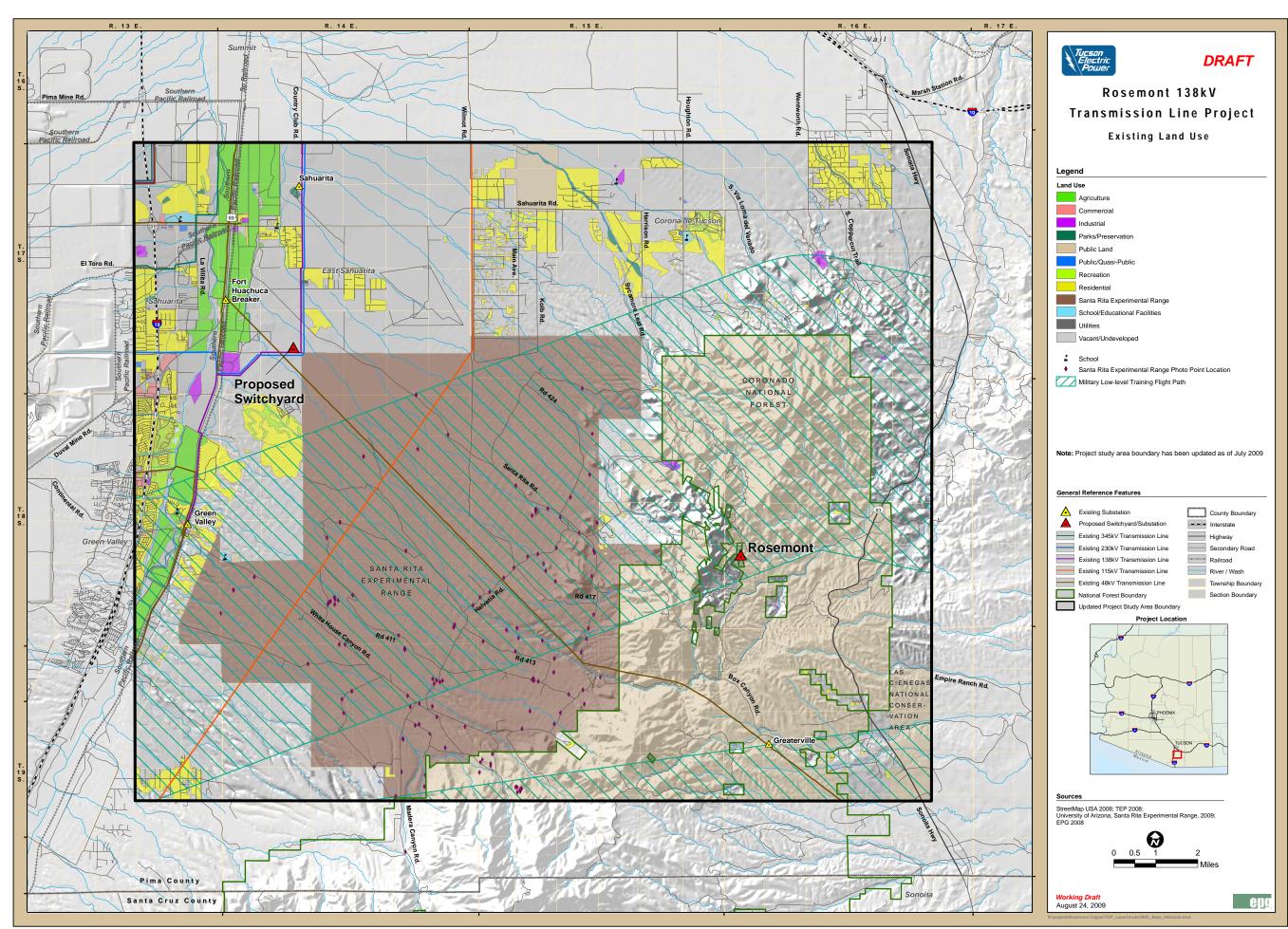


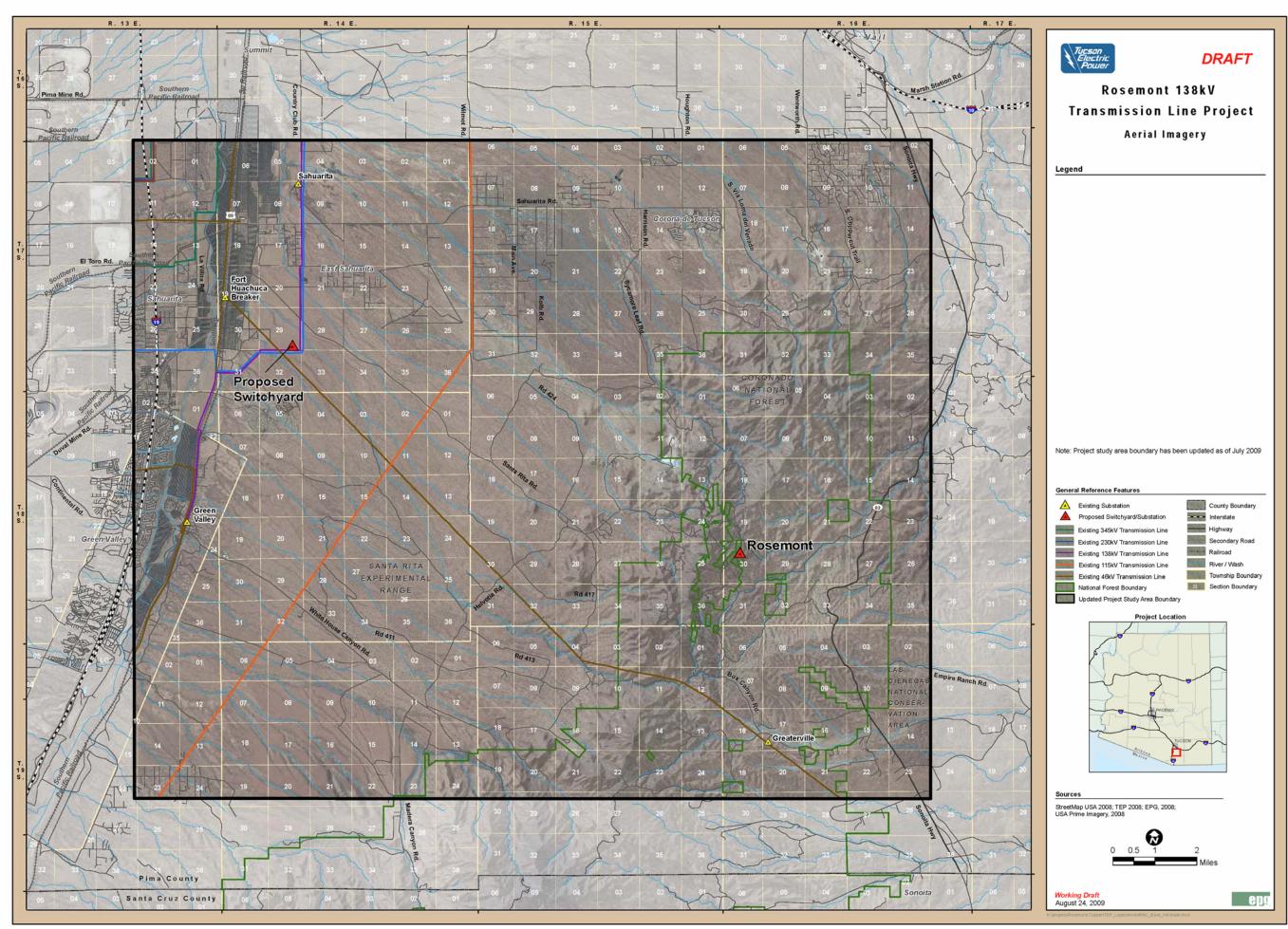














ROSEMONT 138KV TRANSMISSION LINE SITING STUDY PROJECT

Public Open House Meeting #3

April 13, 2010 - Corona de Tucson

April 14, 2010 - Quail Creek

5:30pm - 8:30pm

Presentation and Question and Answer:

6:30pm - 7:00pm

April 13, 2010

Project Overview

- Tucson Electric Power (TEP), as a part of its obligation to serve, is proposing to construct and operate a new 138kV transmission line for the proposed Rosemont Copper operations
- Planning process includes environmental studies and public input conducted to assist in identification and comparison of alternative transmission line routes and environmental impacts. Similar to any customer requesting service at the transmission voltage, Rosemont is paying for the transmission line siting study
- Project area south of I-10 and east of I-19, with lands managed by Arizona State
 Land Department in conjunction with University of Arizona, Forest Service, Bureau of
 Land Management, and privately-owned lands under the planning jurisdictions of the
 Town of Sahuarita and Pima County
- Project requires review by the Arizona Corporation Commission's (ACC) Power Plant and Transmission Line Siting Committee resulting in a recommendation to, and a final determination by, the ACC prior to construction





Rosemont 138kV Transmission Line Project

April 13, 2010

2

Purpose and Need

- Electric utilities are required by the State of Arizona to provide electrical service to customers upon request
- Rosemont Copper Company has requested TEP to provide electric power to the Rosemont Copper operations
- The primary purpose and need for the proposed transmission line is to provide adequate and reliable power for the proposed Rosemont Copper operations
- Currently, there are no existing transmission lines and substations to serve this proposed operation





Rosemont 138kV Transmission Line Project

April 13, 2010

Project Description

- Up to approximately 22 miles of 138kV transmission line
- A 500-foot-wide corridor will be requested, and within that corridor a 100-foot-wide right-of-way would be obtained
- Approximately 3+ acres of land for construction, operation, and maintenance for proposed Rosemont Substation, western-most switchyard/substation, Greaterville, Helvetia Road/46kV temporary interconnection
- Three connection points
 - New switchyard/substation for connection to TEP system
 - New Rosemont switchyard/substation at Rosemont operations
 - Greaterville Substation or temporary switchyard/substation interconnection (Helvetia Road & 46kV intersection) for construction power and possible long-term reliability purposes

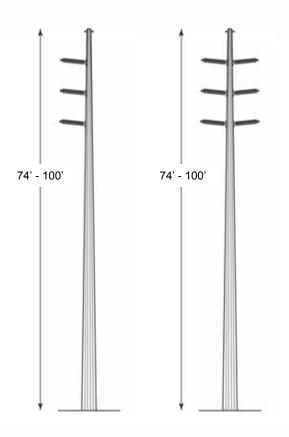




Rosemont 138kV Transmission Line Project

April 13, 2010

Proposed Structure Type(s)













Rosemont 138kV Transmission Line Project

April 13, 2010

Proposed Switchyard/Substation

- Photograph is of a typical TEP switchyard that resembles the proposed switchyard/substation(s)
- Proposed facility for interconnection with the existing TEP transmission system
- Approximately 3+ acres in size



Located on private land

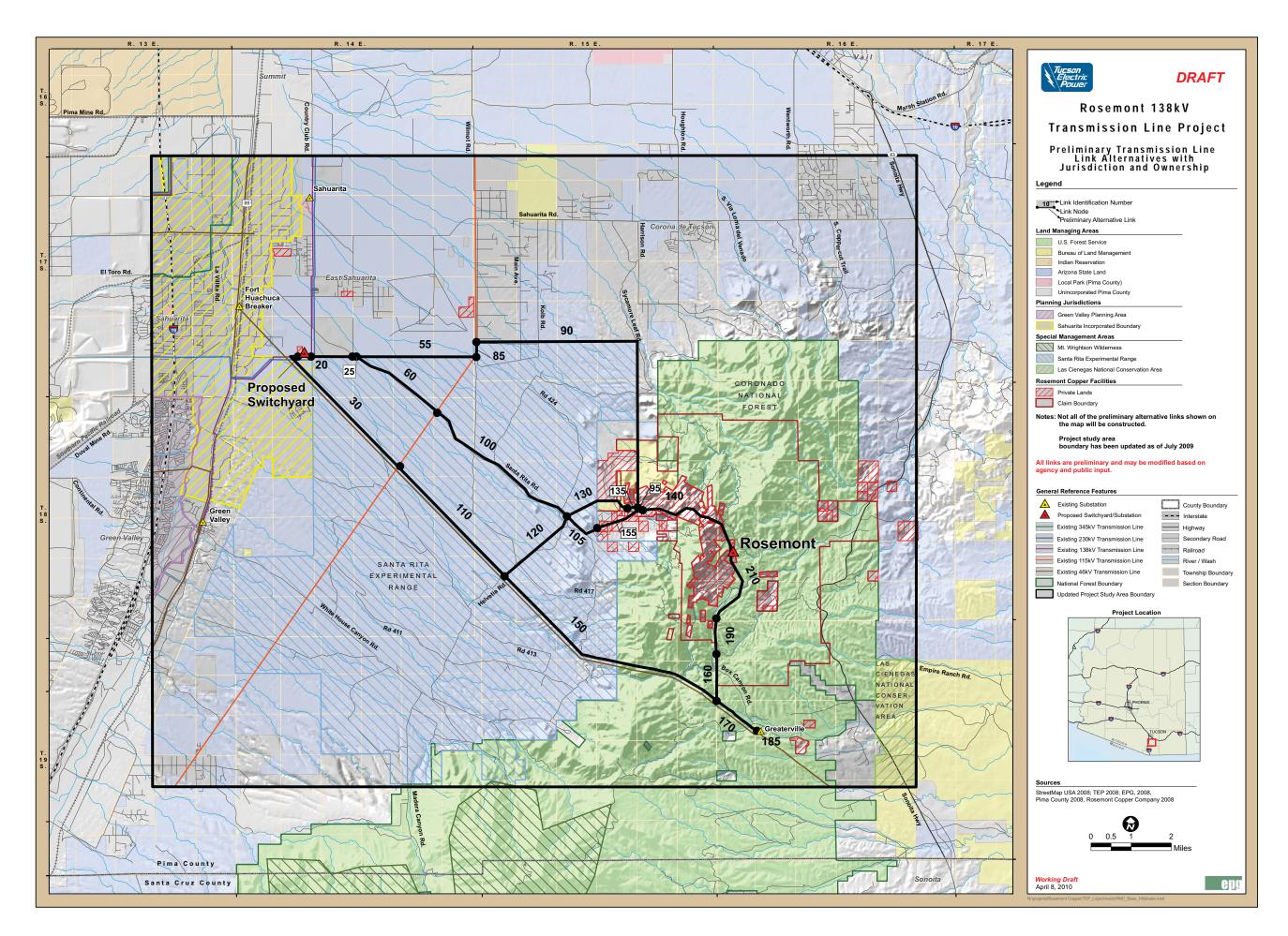




Rosemont 138kV Transmission Line Project

April 13, 2010

7A



Planning Process

- Comprehensive planning process consisting of six key tasks. Studies include environmental and engineering analysis, along with agency/public input
- Identification and evaluation of alternatives that meet project purpose and need
- TEP will identify a preferred route(s) for permitting and construction, as well as alternative routes
- TEP will prepare and file a Certificate of Environmental Compatibility (CEC) application to be reviewed by the Arizona Power Plant and Transmission Line Siting Committee
- The Arizona Corporation Commission (ACC) will make a final decision to approve or deny the CEC application (with any conditions)

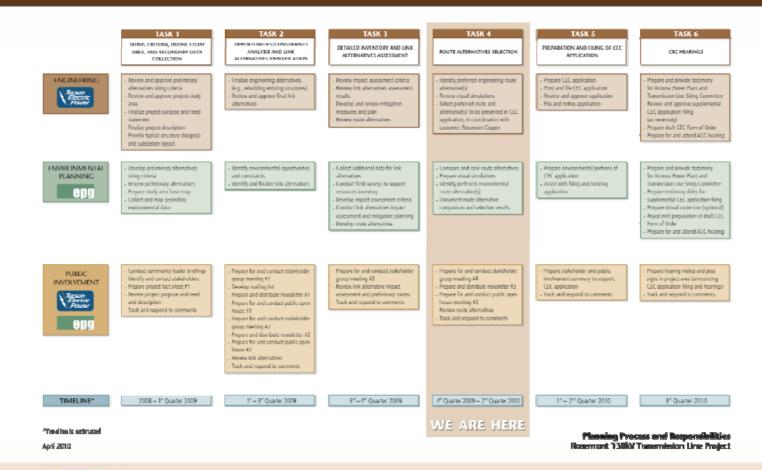




Rosemont 138kV Transmission Line Project

April 13, 2010

Planning Process Chart



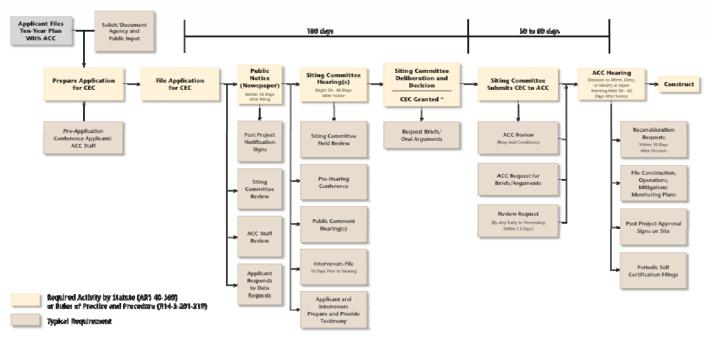




Rosemont 138kV Transmission Line Project

April 13, 2010

Certificate of Environmental Compatibility Application Process



^{*} Decalum within 180 days after receipt of application (#14-3-213), subject to extension

Arizona Corporation Coremission Certificate of Environmental Compatibility Arlama Power Plant & Transmission Line Siting Committee





Arizona Power Plant and Transmission Line Siting Process Certificate of Environmental Compatibility Resement 138kV Transmission Line Project





Rosemont 138kV Transmission Line Project

April 13, 2010

Key Considerations for Selection of Recommended Routes

- Project construction and operation power needs
- Minimizing environmental impacts
- Electrical system planning requirements and timeframes
- Engineering
 - Constructability
 - Cost
 - Right-of-way
- Public and agency input
- Regulatory permits
- One or more alternative routes may be carried forward in application for a CEC to be submitted to the Siting Committee and ACC





Rosemont 138kV Transmission Line Project

April 13, 2010

Key Terms Defined

Right-of-way: land authorized to be used or occupied for the construction, operation, and maintenance of a linear facility

Corridor: a tract of land of varying width that allows the flexibility for a transmission line right-of-way to be located within to accommodate final engineering and environmental considerations

Link: short segment of a preliminary transmission line route between other intersecting segments

Link node: intersecting point where two links meet

Route or routes: series of links connecting the proposed switchyard and proposed Rosemont Substation and construction power source (e.g., Greaterville or Helvetia Rd./46kV)

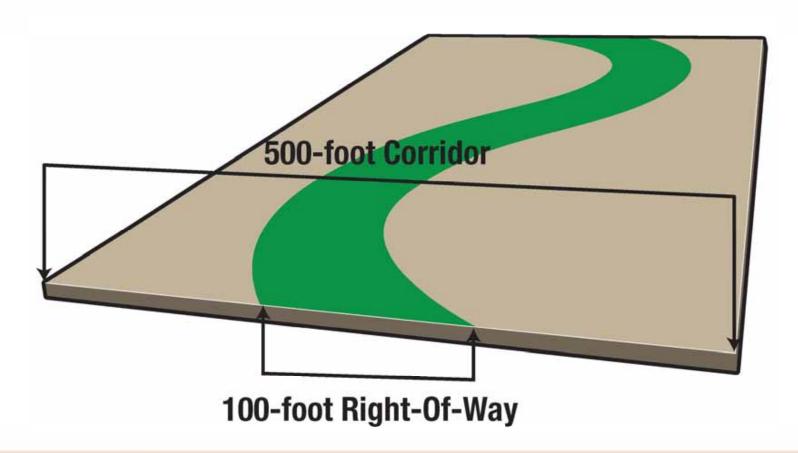




Rosemont 138kV Transmission Line Project

April 13, 2010

Example Corridor and Right-of-Way Configuration







Rosemont 138kV Transmission Line Project

April 13, 2010

Environmental Analysis Summary

Land use

- Existing land use
- Future land use

Visual resource

- Landscape scenic quality
- Sensitive viewers (residences, roads/trails, trailheads)
- Scenic management guidelines

Cultural resource

- Known historic properties considered
 - Eligible
 - Not eligible
 - Not evaluated

Biological resource

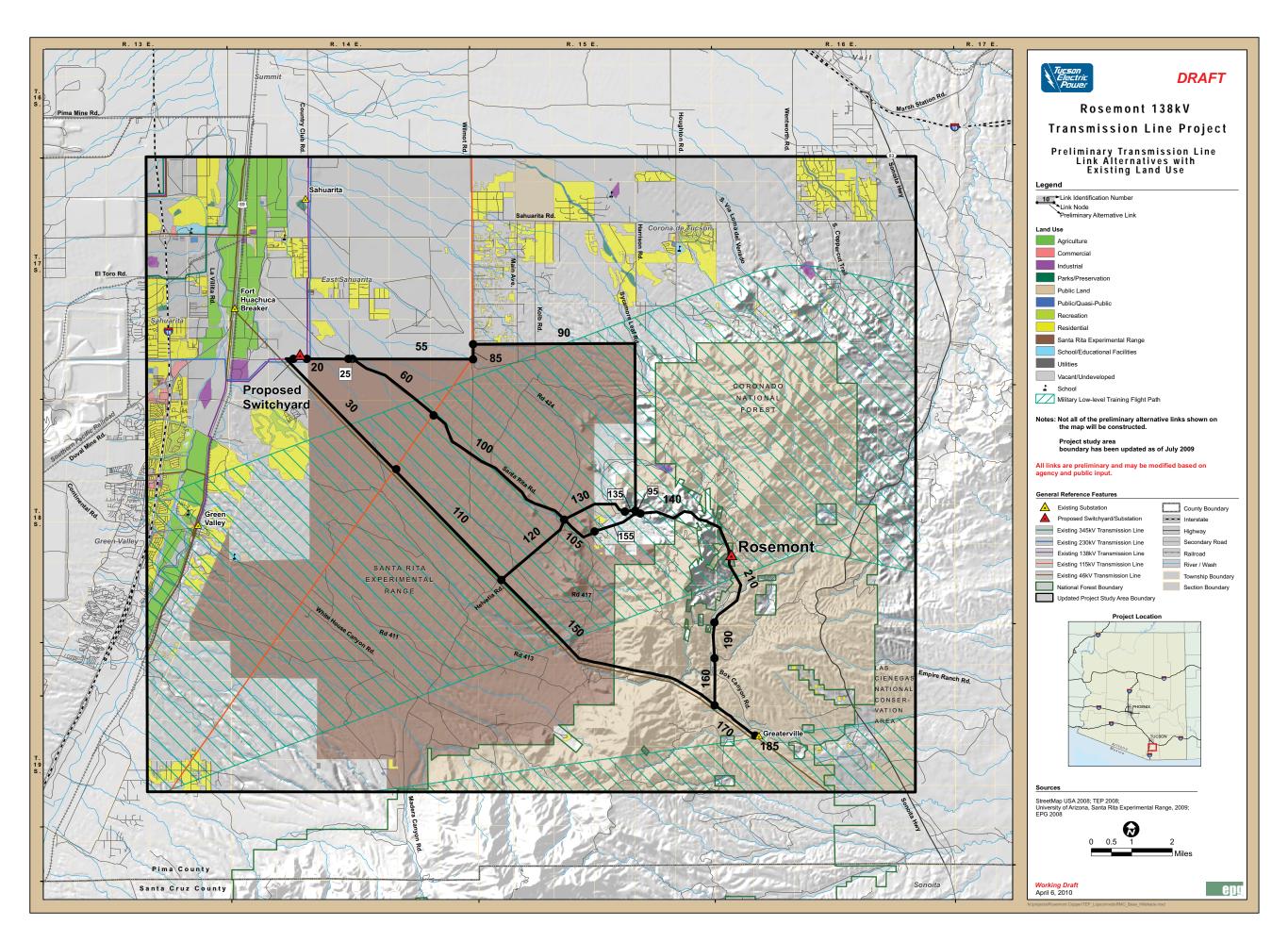
- Biological conservation areas
- Vegetation
- Wildlife

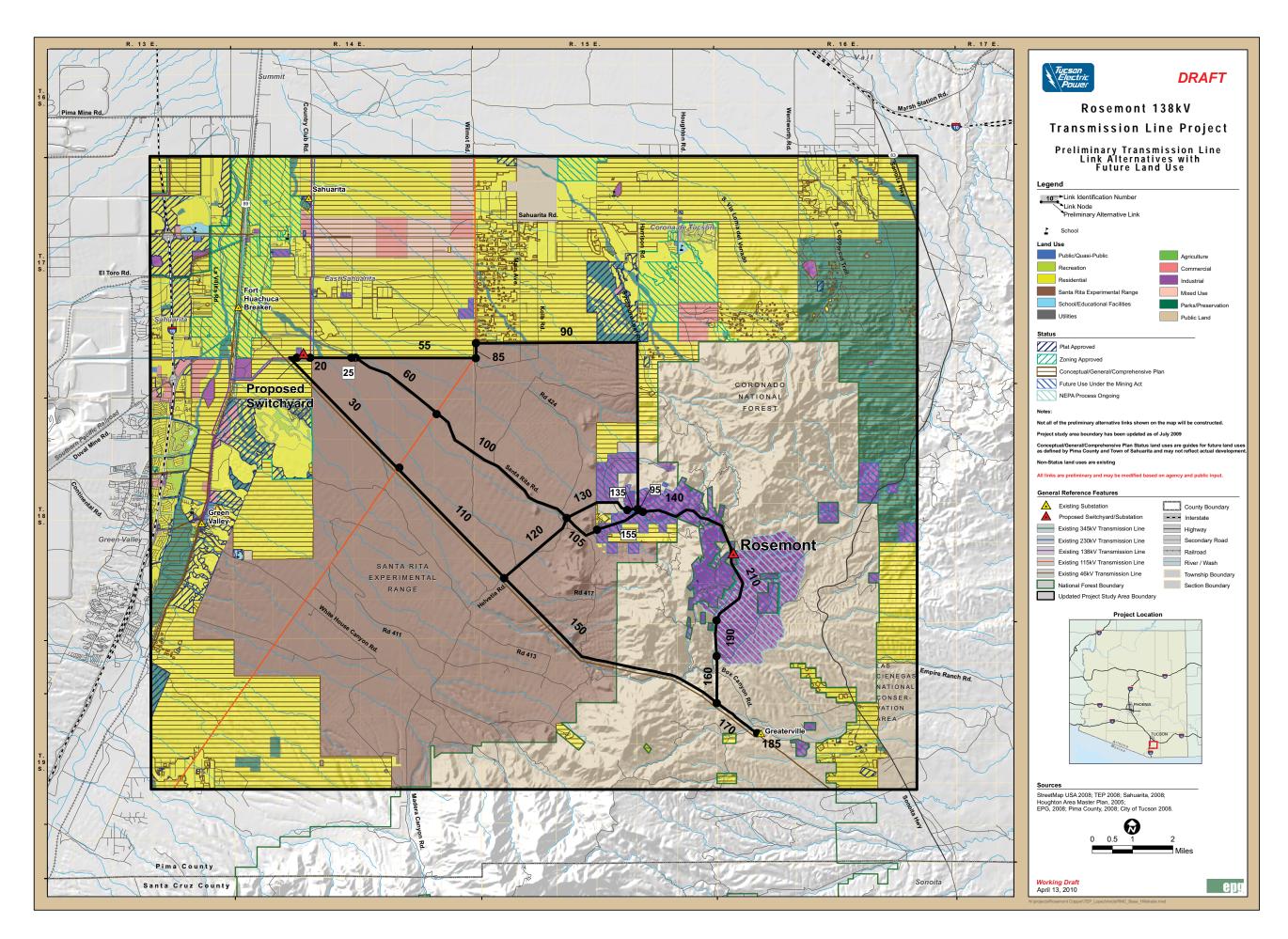


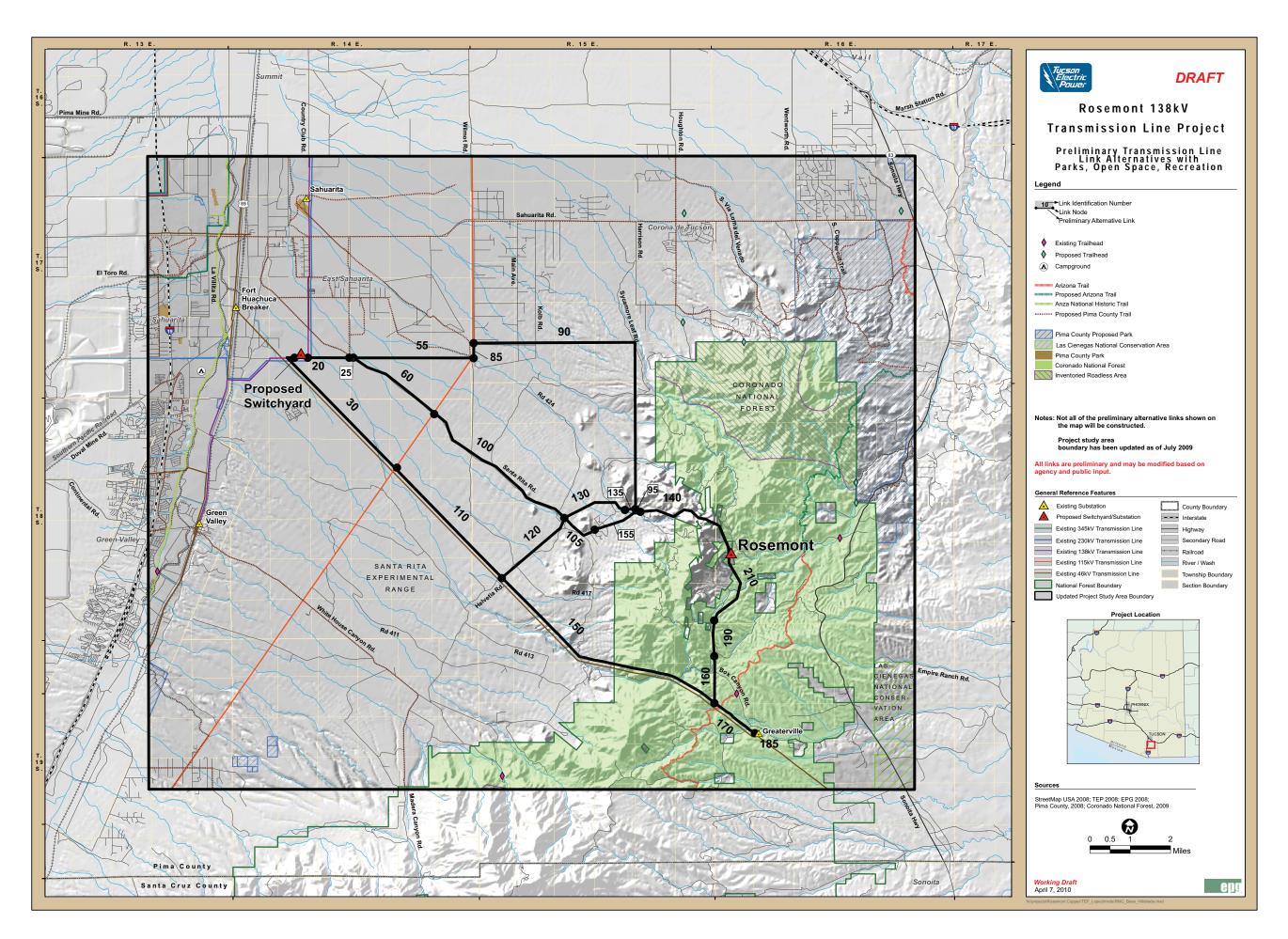


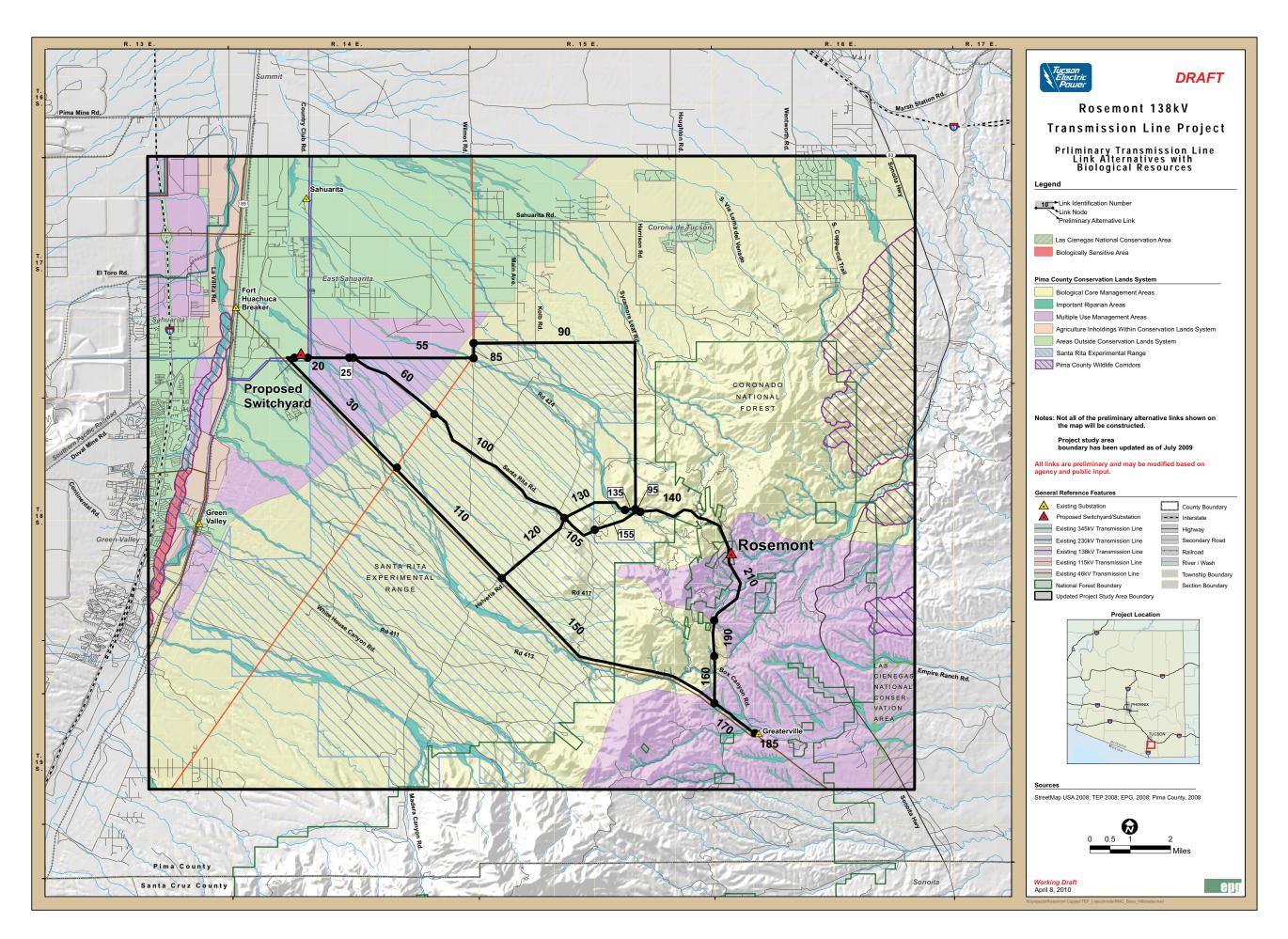
Rosemont 138kV Transmission Line Project

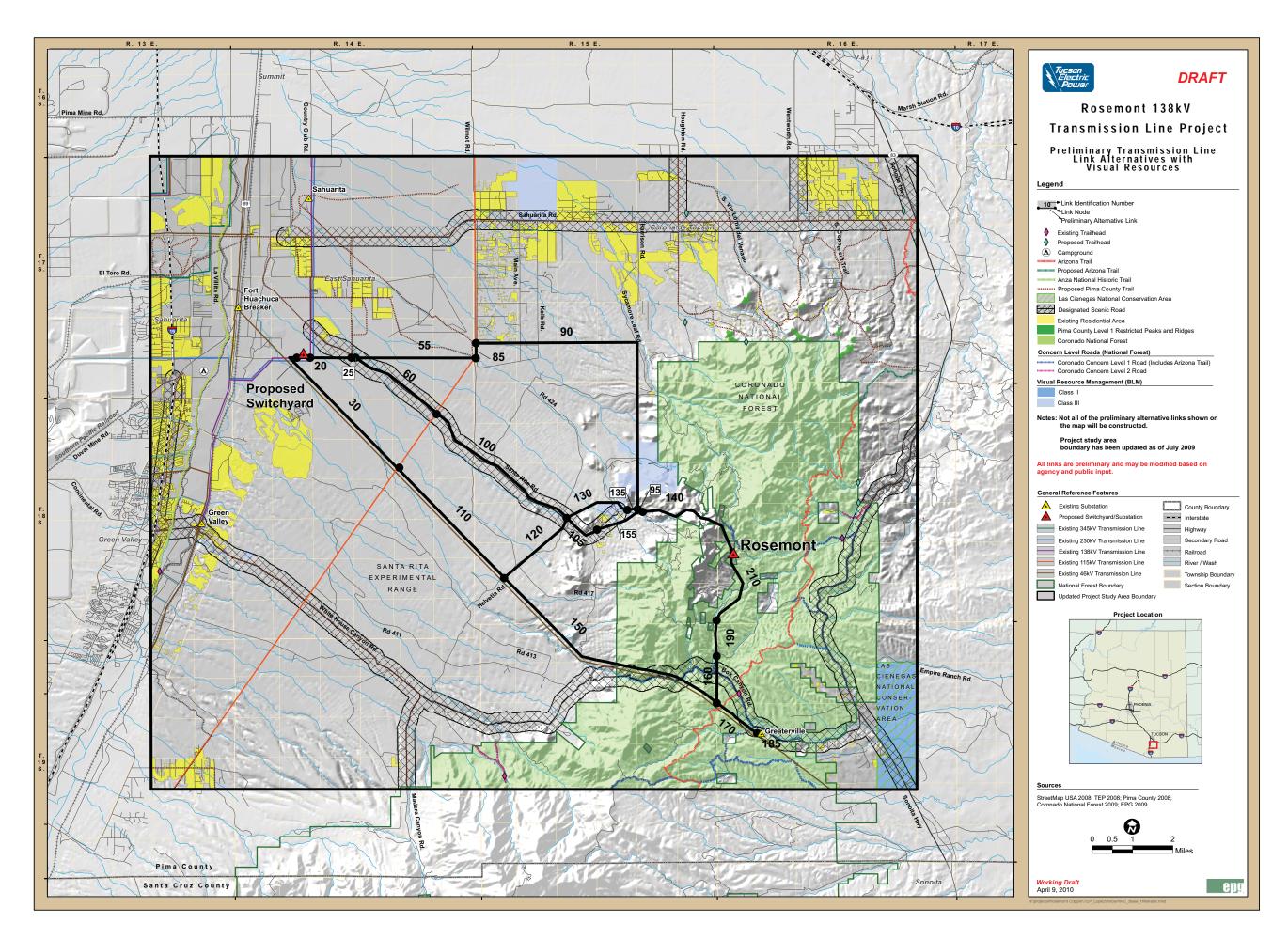
April 13, 2010

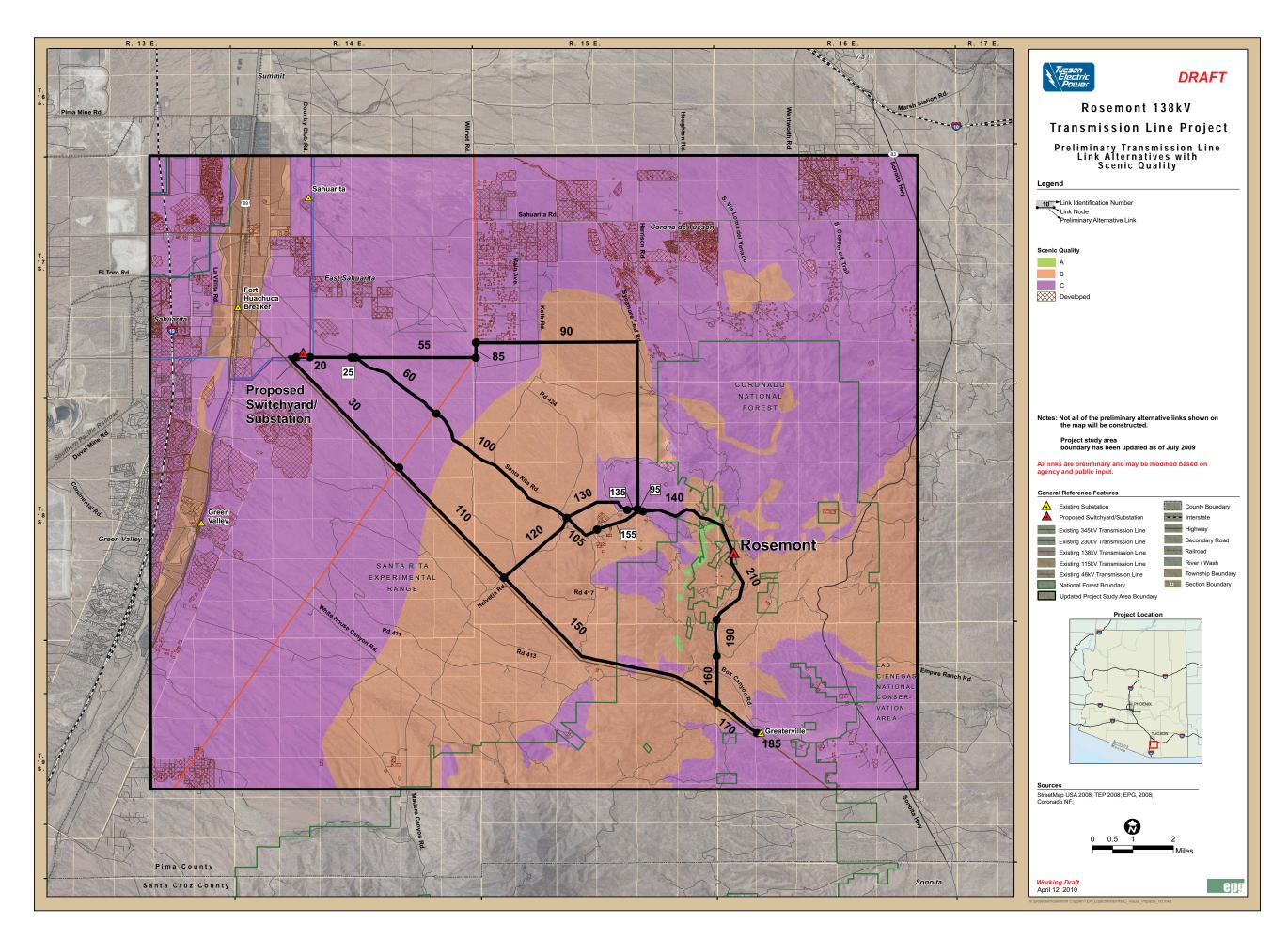












University of Arizona's Santa Rita Experimental Range

- Established in 1902 and is considered the oldest experimental range in the U.S.
- Provides a unique scientific resource with an archive of repeat photos
- Consists of more than 80 square miles of grazed and ungrazed rangeland leased from the Arizona State Land Department

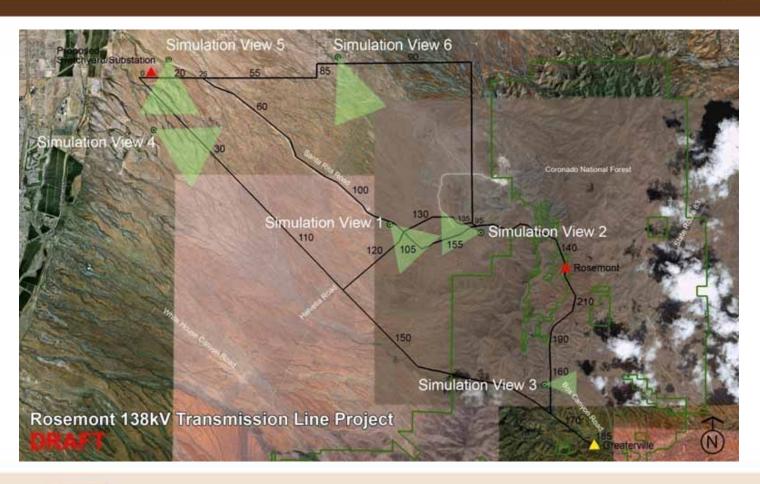




Rosemont 138kV Transmission Line Project

April 13, 2010

Simulations







Rosemont 138kV Transmission Line Project

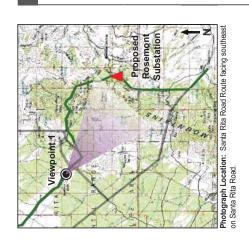
April 13, 2010

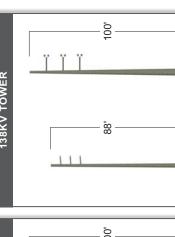


Existing Condition - Santa Rita Road within the Santa Rita Experimental Range









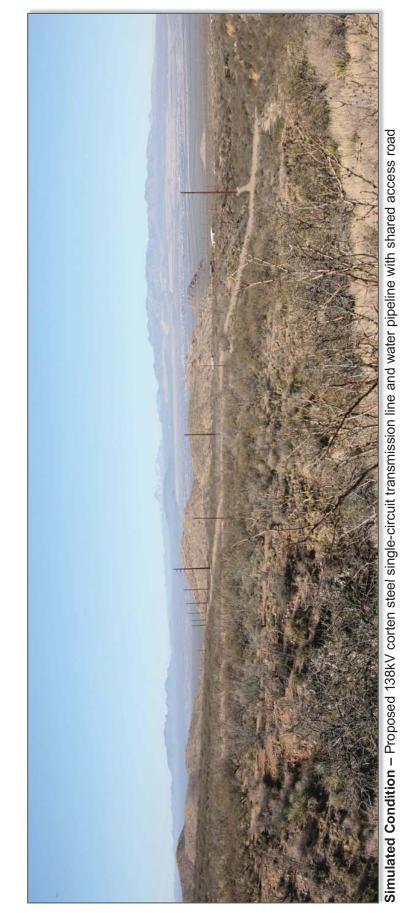
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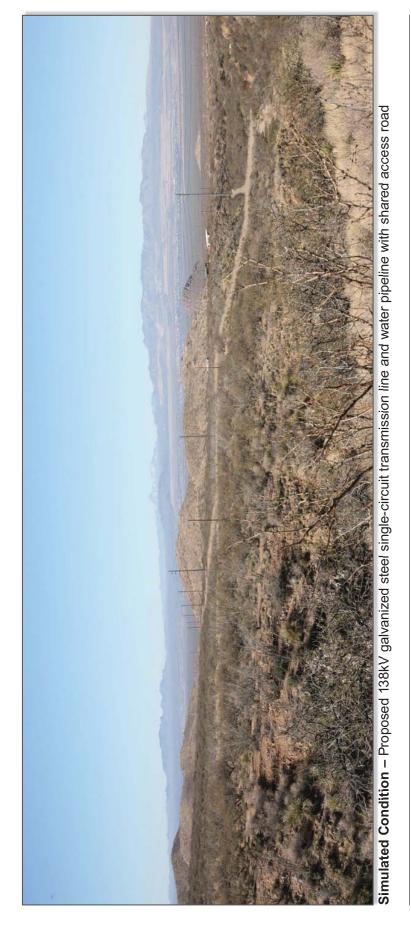
Rosemont Copper Transmission Line Project Simulation 1 - Santa Rita Road Route Family Option 1 DRAFT

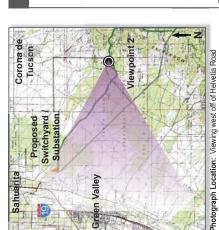
Tucson Electric Power Rosemont 138kV Transmission Line Project

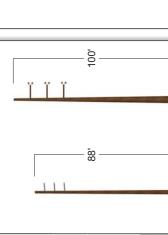


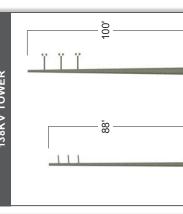
Existing distribution lines











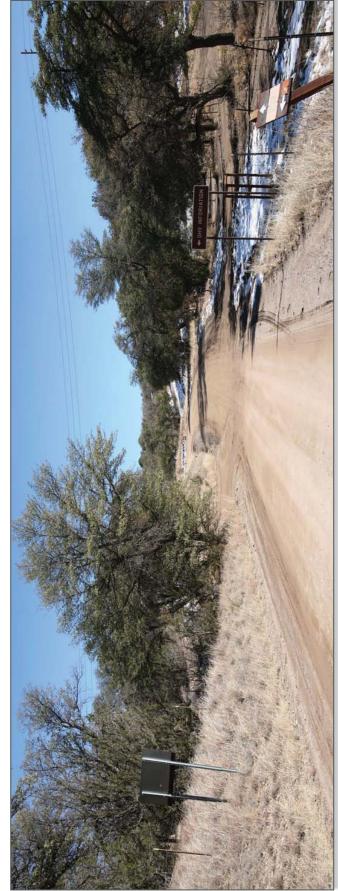
Rosemont Copper Transmission Simulation 2 - Santa Rita Road F DRAFT



Canyon Road within the Santa Rita Mountains Existing Condition - Box

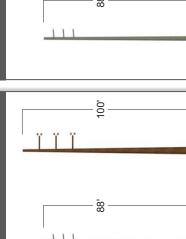


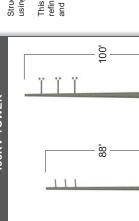
Proposed 138kV corten steel single-circuit transmission line Simulated Condition

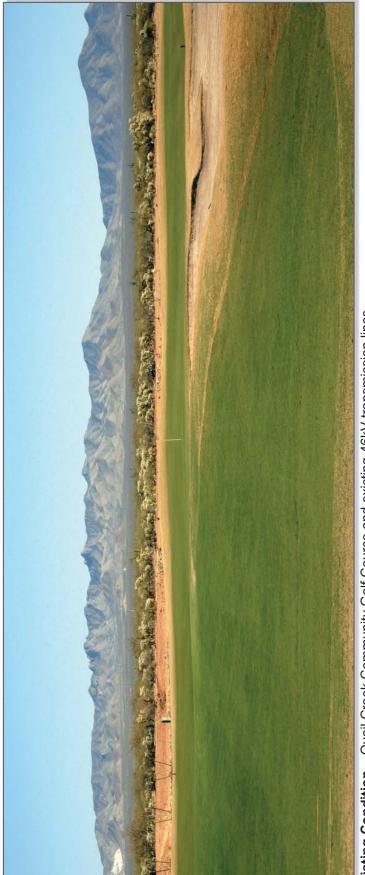


Proposed 138kV galvanized steel single-circuit transmission line Simulated Condition –

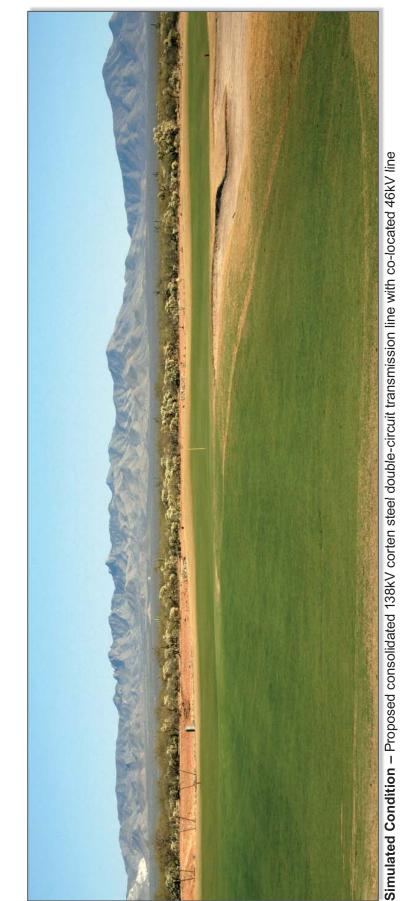


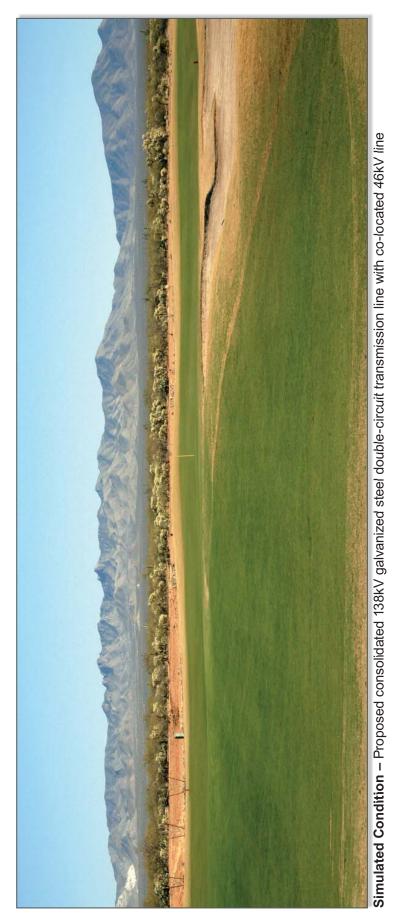


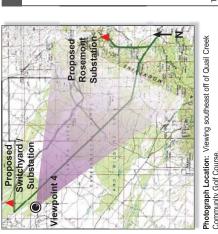


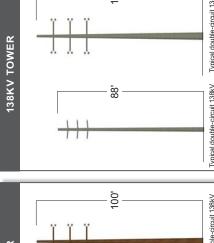


Existing Condition – Quail Creek Community Golf Course and existing 46kV transmission lines









odels that were used ms provided by TEP.



Rosemont Copper Transmission Line Project
Simulation 4 - Adjacent 46kV Route Family
Option 4 DRAFT

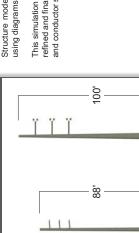




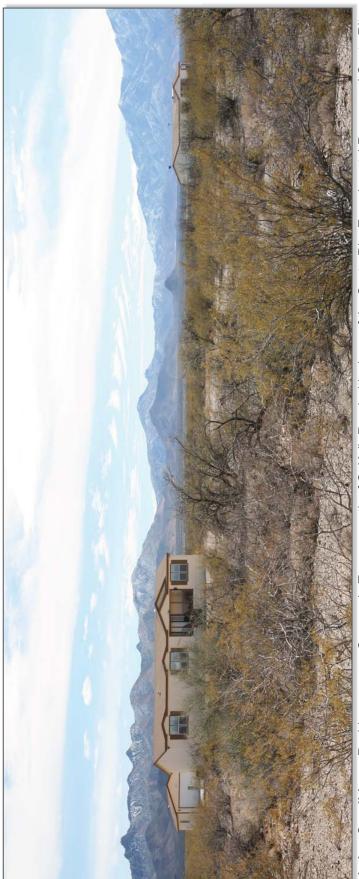
Existing Condition - Sahuarita Highlands residences along East Broadwater Way, Santa Rita Road, and Santa Rita Mountains



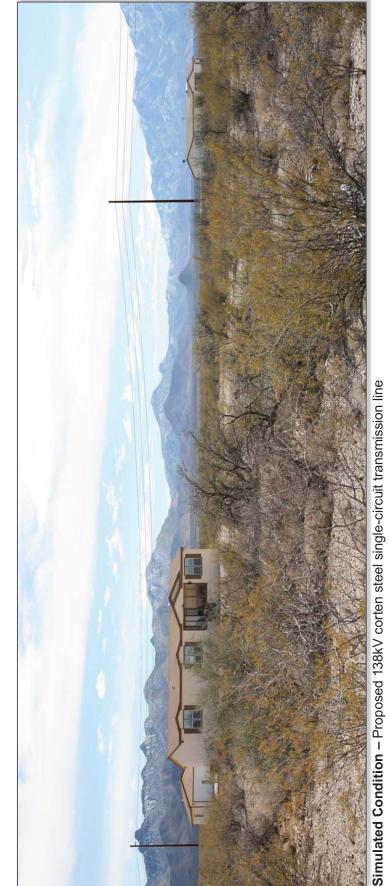


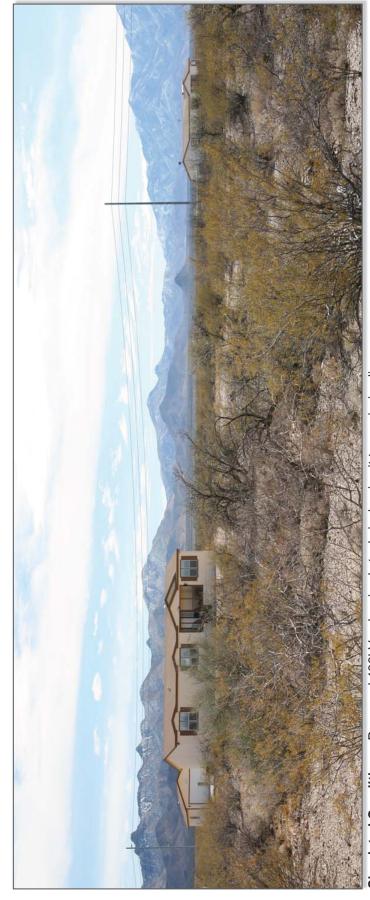


Rosemont Copper Transmission Simulation 5 - Santa Rita Road F DRAFT



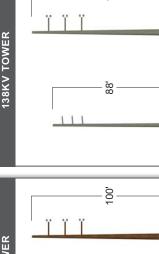
Residences near Corona de Tucson, north of S. Kolb Road with views of the Santa Rita Experimental Range and Santa Rita Mountains Existing Condition –





Proposed 138kV galvanized steel single-circuit transmission line Simulated Condition –





1-26-10, 1:19 p.m.



Rosemont Copper Transmission Line Proje Simulation 6 - Northern Route Fam

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Alternative Route Families (Groups)

- Northern Route generally follows northern boundary and a portion of eastern boundary of Santa Rita Experimental Range
- Santa Rita Road generally follows Santa Rita Road alignment
- Adjacent 46kV line generally follows existing 46kV power line alignment





Rosemont 138kV Transmission Line Project

April 13, 2010

CEC Application November 2011

NORTH ROUTE FAMILY – ROSEMONT 138KV PROJECT ALTERNATIVE ROUTES COMPARISON SUMMARY

DRAFT 4-13-10

Alternative Routes		Approxim (in n	ate Length niles)	Environmental			Agency/Jurisdiction/Stakeholder Group	Public Comments	Comments
	Links Included	Permanent	Temporary		Engineering/Constructability	Mine Operations	Comments (received to date)		
3	20, 25, 55, 85, 90, 95, 140, 170, 160, 190, 210	20.95	n/a	Primarily requires new access (may create additional trespass onto Santa Rita Experimental Range) New access creates disturbance to vegetation and wildlife resources Shared route with pipeline corridor along link 140 Adjacent to residences primarily along link 90 Requires new right-of-way from private and Arizona State Land Department Links 190 and 210 would be located within proposed mine plan of operations boundary Requires new access for a portion of link 160	 Access to links 160, 170, 190 and 210 was assumed to be by building spurs off of Box Canyon Road Link 95 and 140 require major improvement to existing access road Most of these links are in mountainous areas and will require special foundations Majority of these links reflect slow climbing access, therefore, they will require additional construction time and cost more, accordingly Also, links 160 and 190 reflect construction from mountain peaks to mountain peaks. This will be very time consuming from construction perspective and requires heavier structures Several very heavy angle structures will be required 	Generally, North routes are not preferred due to the longer distance (schedule & cost). The preferred of the North Route Family is Route 3. Pros: Redundancy - 2 lines into plant providing critical backup power in case of primary line loss Line for construction power would take less time to build Cons: Does not follow pipeline route so there are no shared access points	Second most preferable by Santa Rita Experimental Range Not supported by Town of Sahuarita Davis-Monthan airspace management considers this 2 nd most compatible route		
8	20, 25, 55, 85, 90, 95, 140, 120*, 130*, 135*	15.62	4.11	Primarily requires new access (may create additional trespass onto Santa Rita Experimental Range) New access creates disturbance to vegetation and wildlife resources Shared route with pipeline corridor along link 140 Adjacent to residences primarily along link 90 Requires new right-of-way from private and Arizona State Land Department Link 120 disturbs several repeat photograph sites Link 130 requires new access and avoids residences in the vicinity of links 105 and 155	 Access to links 120, 130, 135 was assumed to be off existing roads such as Helvetia with spurs built off of them Link 95 and 140 require major improvement to existing access road Links 95 and 140 are in mountainous areas and will require special foundations Links 140 and 95 will be slow climbing access, therefore, they will require additional construction time and will cost more accordingly There are also several very heavy angle structures 	Not Preferred Pros: not specified Cons: Links 120, 130, 135 are temporary and provide no valuable connection to system in future Line for construction power would require 2 additional months to build Does not follow pipeline route so there are no shared access points	Not supported by Santa Rita Experimental Range Link 120 is not supported by Santa Rita Experimental Range Not supported by Town of Sahuarita		
10	20, 25, 55, 85, 90, 95, 140, 120*, 105*, 155*	15.62	4.38	 Primarily requires new access (may create additional trespass onto Santa Rita Experimental Range) New access creates disturbance to vegetation and wildlife resources Shared route with pipeline corridor along link 140, 105, and 155 Adjacent to residences primarily along links 90, 105, and 155 Requires new right-of-way from private and Arizona State Land Department Link 120 disturbs several repeat photograph sites 	Access to link 105, 155 and 120 was assumed to be off of existing roads such as Helvetia road with spurs built off of these Link 95 and 140 require major improvement to existing access road Links 95 and 140 are in mountainous areas and will require special foundations These links also reflect slow climbing access over rocky terrain, therefore, construction will take longer and cost more There are also several very heavy angle structures	Not Preferred Pros: If Link 120 is used, links 105, 155 are preferable over 130,135 due to less turns/dead-end structures and the structures along 155 can be placed on private rather than public land Cons: Links 120, 105, 155 are temporary and provide no valuable connection to system in future. Line for construction power would require 2 additional months to build Does not follow pipeline route so there are no shared access points	Not supported by Santa Rita Experimental Range Link 120 is not supported by Santa Rita Experimental Range Not supported by Town of Sahuarita		

SANTA RITA ROUTE FAMILY – ROSEMONT 138KV PROJECT ALTERNATIVE ROUTES COMPARISON SUMMARY

DRAFT 4-13-10

			A ROUTE FAMILY – ROSEM	ONI ISON I ROJECI AL	TERNATIVE ROUTES CO.		DRAF1 4-13-10	
Alternative Routes	Links Included	Approximate Length (in miles)	Environmental	Engineering/Constructability	Mine Operations	Agency/Jurisdiction/Stakeholder Group Comments (received to date)	Public Comments	Comments
1	20, 25, 60, 100, 105, 155, 140, 170, 160, 190, 210	18.24 n/a	 Shared route with pipeline corridor, existing access for majority of the route New access creates disturbance to vegetation and wildlife resources Requires new access for a portion of link 160 Links 190 and 210 would be located within proposed mine plan of operations boundary Nearby residences primarily along links 105 and 155 Santa Rita Road is designated as scenic by Pima County (February 2010) Forest Service Concern Level 1 roads (i.e., Box Canyon Road) crossed by link 160 	special foundations in rocky terrain	Generally, Santa Rita Road Family routes are preferred due to the more direct route and ability to provide electrical distribution services to the water wells and booster stations. The preferred of the Santa Rita Road Route Family is Option 1. Pros: Redundancy - 2 lines into plant providing critical backup power in case of primary line loss Line for construction power would take less time to build. Power would be available when needed Links 105, 155 are preferable over 130,135 due to less turns/dead-end structures, and the structures along 155 can be placed on private rather than public lands Shared access to pipeline corridor Cons: not specified	Most preferred by Santa Rita Experimental Range Supported by Arizona State Land Department Not supported by Town of Sahuarita Davis-Monthan airspace management considers this I st most compatible route		
3	20, 25, 60, 100, 130, 135, 95, 140, 170, 160, 190, 210	18.12 n/a	Shared route with pipeline corridor for majority of the route New access creates disturbance to vegetation and wildlife resources Link 130 requires new access and avoids residences in the vicinity of links 105 and 155 Requires new access for a portion of link 160 Links 190 and 210 would be located within proposed mine plan of operations boundary Santa Rita Road is designated as scenic by Pima County (February 2010) Forest Service Concern Level 1 roads (i.e., Box Canyon Road) crossed by link 160	 Links 160, 190, 140, and 210 will require special foundations in rocky terrain Access to links 160, 170 and 190 was assumed to consist of spurs off of box canyon road Major improvements to access roads for link 140 will be required Links 60 and 100 will be accessed off of Santa Rita Road Most of these links consist of slow going heavily sloped roads which result in longer construction time and cost Construction along links 160, 190 and 170 consist of mountain peak links that are both time consuming and difficult to build and will require heavy structures 	Pros: Redundancy - 2 lines into plant providing critical backup power in case of primary line loss Line for construction power would take	Supported by Santa Rita Experimental Range Supported by Arizona State Land Department Not supported by Town of Sahuarita		
7	20, 25, 60, 100, 105, 155, 140, 120*	12.91 2.18	Shared route with pipeline corridor with existing access for majority of the route New access creates disturbance to vegetation and wildlife resources Requires new access for a portion of link 120 Nearby residences primarily along links 105 and 155 Link 120 disturbs several repeat photographs sites Santa Rita Road is designated as scenic by Pima County (February 2010)	 Link 140 will require special foundations in rocky terrain Major improvements to access roads for link 140 will be required Links 60, 100 and 105 will be accessed off of Santa Rita Road Access to link was assumed to be off of Helvetia Road Link 140 consists of slow going heavily sloped roads which result in longer construction time and cost 	• Links 105, 155 are preferable over 130,135	Not supported by Santa Rita Experimental Range Link 120 is not supported by Santa Rita Experimental Range Not supported by Town of Sahuarita Citizen member of Stakeholder Group – supports this route		
9 *Tomporory inter	20, 25, 60, 100, 130, 135, 95, 140, 120*	12.79 2.18	access for majority of the route	 Links 140 and 95 will require special foundations in rocky terrain. Road improvements will be required along links 95 and 140 Links 95 and 140 consist of slow going heavily sloped roads that will extend construction time and cost. Access to links 60 and 100 are assumed to be off of Santa Rita Road Access to link 120, 130 and 135 was assumed off of Helvetia Road 	Pros: • Shared route with the pipeline corridor Cons: • Line for construction power would require 2 additional months to build power not available when needed • Link 120 is temporary and provides no valuable connection to system in future • Links 130,135 require more turns and deadend structures than links 105, 155	Not supported by Santa Rita Experimental Range Link 120 is not supported by Santa Rita Experimental Range Not supported by Town of Sahuarita Citizen member of Stakeholder Group – supports this route		

Tucson Electric Power Rosemont 138kV Transmission Line Project

ADJACENT 46KV ROUTE FAMILY – ROSEMONT 138KV PROJECT ALTERNATIVE ROUTES COMPARISON SUMMARY

DRAFT 4-13-10

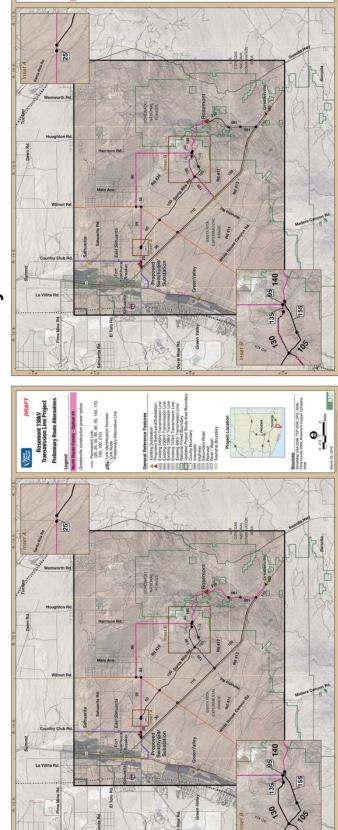
Alternative	I in hear I 1 3 - 3	Approximate Length	English and a late	En sin a suin a/C 4 4-1-11/	Mino Out and in the	Agency/Jurisdiction/Stakeholder Group	Public	Comment
Routes 1	Links Included 30, 110, 120, 105, 155, 140	(in miles) 15.06 n/a	and would require access upgrade for a portion of the route Shared route with pipeline corridor for links 105, 155, 140 New access creates disturbance to vegetation and wildlife resources Requires new access for a portion of link 120 Link 120 disturbs several repeat photographs sites Nearby residences primarily along links 105	Engineering/Constructability Link 140 will require special foundations in rocky terrain Link 140 will be slow traveling and will take longer to construct Access road improvement to link 140 will be required Links 30, 110 will require improvement to existing access road Access to link 120, 105 and 155 were assumed off of Helvetia or other existing roads	Mine Operations Pros: Links 130,135 require more turns and deadend structures than links 105, 155 Cons: Personnel safety risks and possible multiple outages required when installing a 138kV line with the 46kV line Line for construction power would require 2 additional months to build, power not available when needed This route does not follow the pipeline corridor so there is no shared access	Comments (received to date) Not supported by Santa Rita Experimental Range Link 120 is not supported by Santa Rita Experimental Range Citizen member of Stakeholder Group – supports this route	Comments	Comments
2	30, 110, 120, 130, 135, 95, 140	14.94 n/a	 and would require access upgrade for a portion of the route Shared route with pipeline corridor for link 140 New access creates disturbance to vegetation 	 Links 95 and 140 will require special foundations in rocky terrain Access road improvement to links 95 and 140 will be required Existing access road improvements will be required for links 30 and 110 Links 95 and 140 consist of slow going heavily sloped roads, which will take longer to construct and cost more Access to links 120, 130 and 135 was assumed to be off of Helvetia Road 	Pros: not specified Cons: Personnel safety risks and possible multiple outages required when installing a 138kV line with the 46kV line Links 130,135 require more turns and deadend structures than Links 105, 155 Line for construction power would require 2 additional months to build, power not available when needed This route does not follow the pipeline corridor so there is no shared access	Not supported by Santa Rita Experimental Range		
4	30, 110, 150, 170, 160, 190, 210	19.49 n/a	and would require access upgrade for majority of route New access creates disturbance to vegetation and wildlife resources Requires new access for a portion of link 120 Portion of link 150 within Box Canyon area Links 190 and 210 would be located within proposed mine plan of operations boundary	 Links 160, 190 and 210 will require special foundations in rocky terrain Access road or improvement to existing roads will be required along links 30, 110, 150, 170 and 210 Access to links 160 and 190 was assumed to consist of spurs off of box canyon road Some of these links consist of slow going heavily sloped roads, therefore, construction will be time consuming Some of the construction will be from mountain peak to mountain peaks which will be difficult requiring special structures 	corridor so there is no shared access	Preferred by Town of Sahuarita Not supported by Santa Rita Experimental Range Davis-Monthan airspace management considers this 3 rd most compatible route		
6	30, 110, 120, 105, 155, 140, 170, 160, 190, 210	21.78 n/a	Adjacent to existing 46kV transmission line and would require access upgrade for a portion of the route New access creates disturbance to vegetation and wildlife resources Requires new access for a portion of link 120 Link 120 disturbs several repeat photographs sites Shared route with pipeline corridor for links	 Links 160, 190, 140, and 210 will require special foundations in rocky terrain Access road or improvement to existing roads will be required along links 30, 110, 120, 170, and 210 	This is the preferred route for the Adjacent 46kV Family (assuming Link 120 is permanent) Pros: not specified Cons: • Personnel safety risks and possible multiple outages require when installing a 139kV line with the 46kV line • This route does not follow the pipeline corridor so there is no shared access	Not supported by Santa Rita Experimental Range		

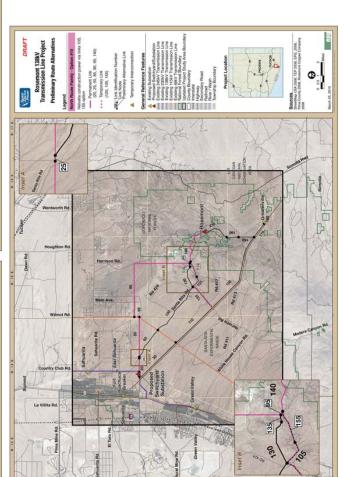
Tucson Electric Power
Rosemont 138kV Transmission Line Project

J-283

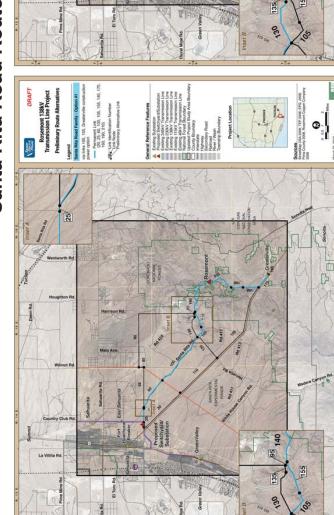
Alternative Routes

North Route Family





Santa Rita Road Route Family



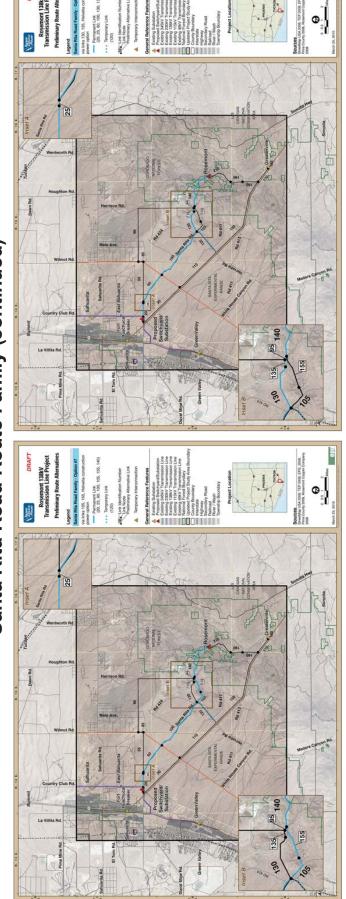


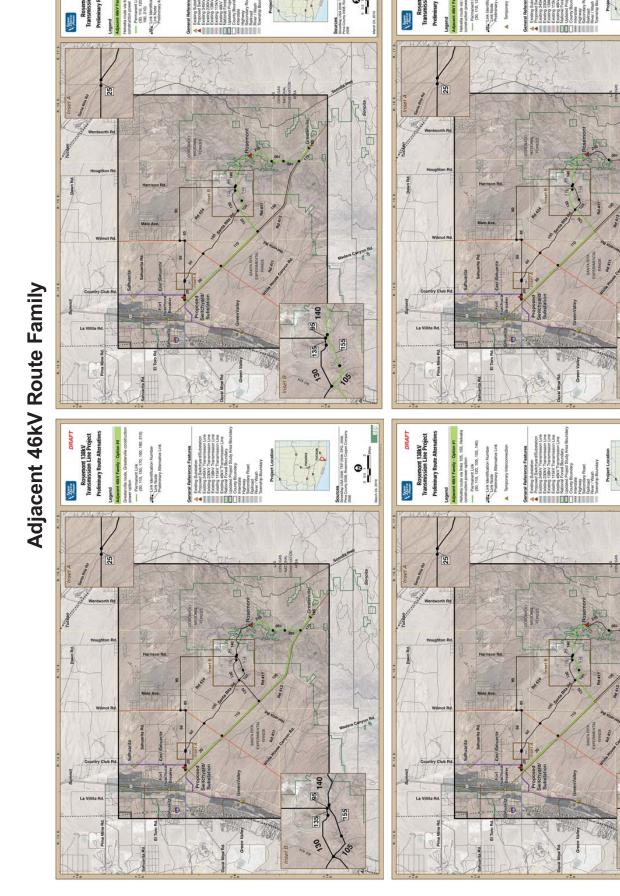




Alternative Routes

Santa Rita Road Route Family (continued)











Alternative Routes Recommended to be Carried Forward

- Santa Rita Road options 1 and 3
 - Option 1 (uses links 130, 135, Greaterville for construction interconnection)
 - Option 3 (uses links 105, 155, Greaterville for construction interconnection)
- Adjacent 46kV Line options 1, 2, and 4
 - Option 1 (uses links 105,155, Helvetia/46kV for construction interconnection)
 - Option 2 (uses links 120,130,135, Helvetia/46kV for construction interconnection)
 - Option 4 (uses link 150, Greaterville for construction interconnection)

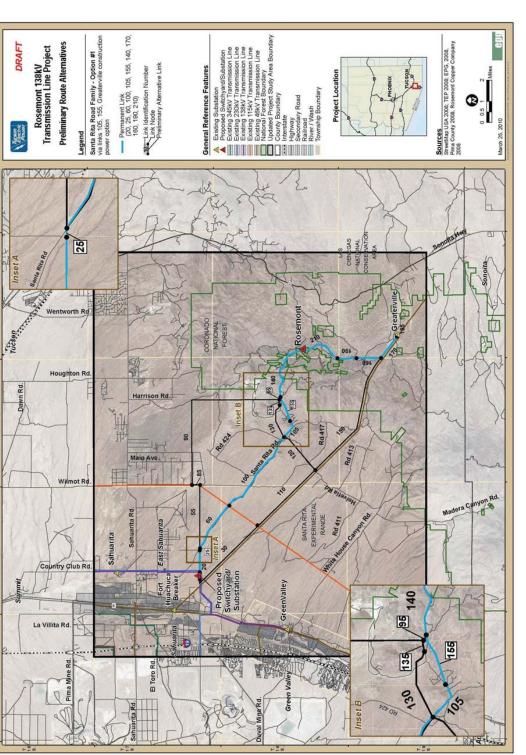


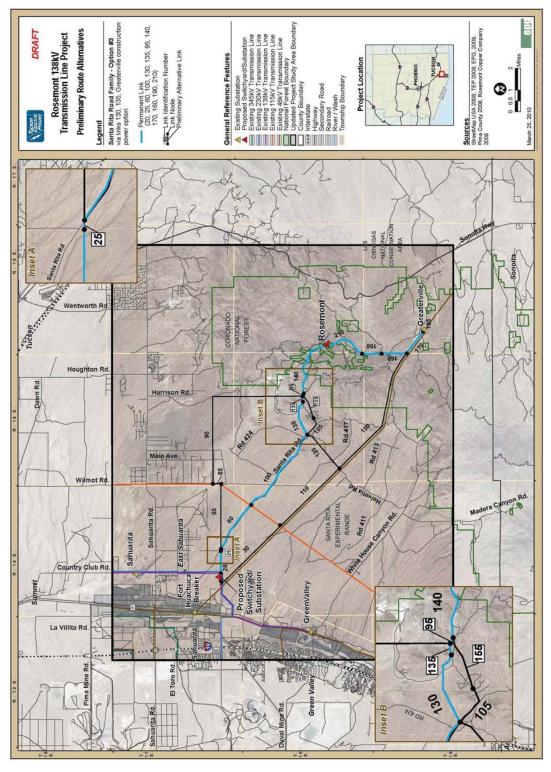


Rosemont 138kV Transmission Line Project

April 13, 2010

Santa Rita Road - Options 1 & 3

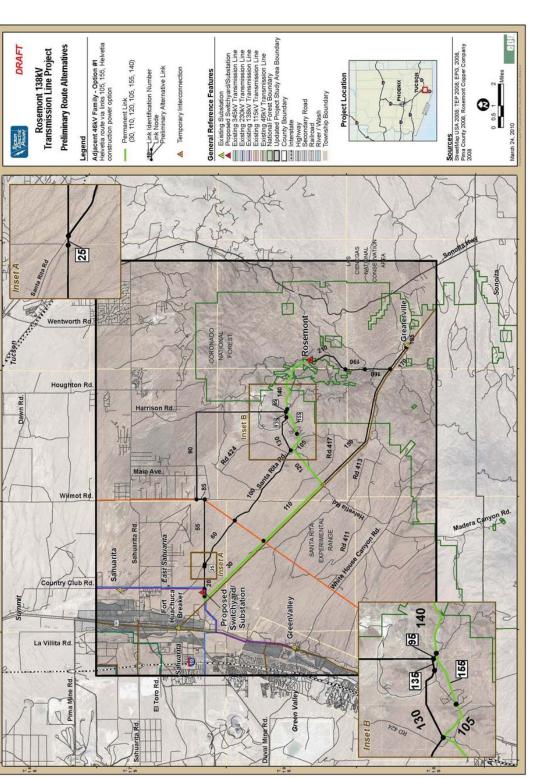


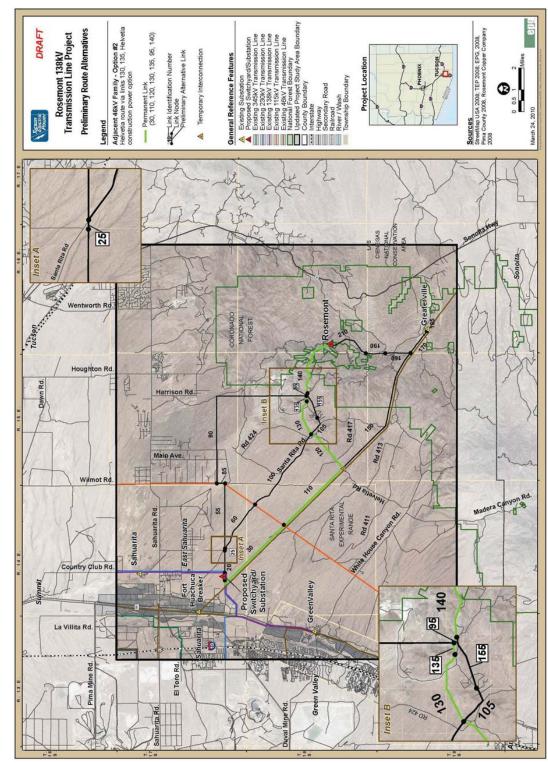






2 8 8 - Options Adjacent 46kV Line

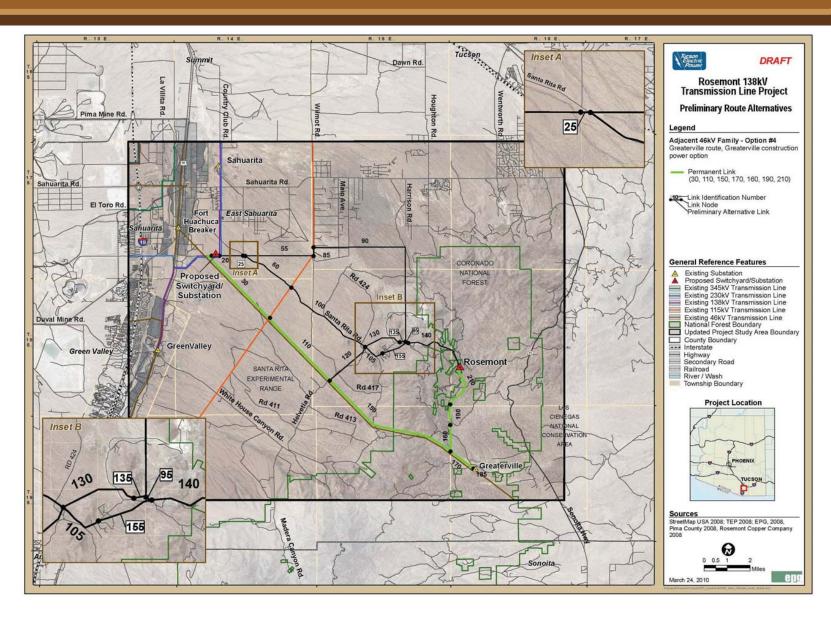








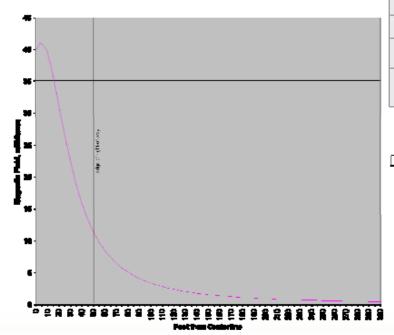
Adjacent 46kV Line – Option 4



April 13, 2010

Electric and Magnetic Fields (EMF)

20 M Def. Velleri Graft.



EMF STRENGTH OF VARIOUS ELECTRICAL SOURCES AT VARIOUS DISTANCES									
EMF Source ¹	Distance	Strength	Distance	Strength	Distance	Strength			
Microwave Oven	0.5 feet	200 mG	1.0 feet	4 mG	4.0 feet	2 mG			
Vacuum Cleaner	0.5 feet	300 mG	1.0 feet	60 mG	4.0 feet	1 mG			
Hair Dryer	0.5 feet	300 mG	1.0 feet	1 mG	4.0 feet	0 mG			
Electric Shaver	0.5 feet	100 mG	1.0 feet	20 mG	4.0 feet	0 mG			
138 kV Transmission Line,	0 feet	40 mG	50 feet	11 mG	300 feet	0.4 mG			
vertical-	o ieet	1 0 1110	30 ieet	111110	300 1661	0.7 1110			

¹Appliance magnetic field strengths are median values in milliGauss (mG) for typical 60 Hz electric current (source: USNIEHS, DOE 1995)



Additional EMF information resources are available from:

Environmental Health Information Service: http://www.niehs.nih.gov/health/topics/agents/emf/

World Health Organization: www.who.int/emf





Rosemont 138kV Transmission Line Project

April 13, 2010

² 138kV power-line right-of-way is 100 ft wide, 0 feet values represent directly below the lines at lowest point of sag.

Agency and Public Participation Activities

- Agency briefings
- Stakeholder group meetings
- Field trip
- Public open houses
- Community briefings
- Newsletters
- Telephone information line
- Website (TEP)





Rosemont 138kV Transmission Line Project

April 13, 2010

Public Participation Opportunities

- Public open house meetings
- Telephone information line (866) 632-5944
- TEP website: www.tep.com/company/news/rosemont
- Arizona siting committee FAQs website:

www.cc.state.az.us/Divisions/Utilities/Electric/LineSiting-FAQs.asp

- Media briefings
- Comment forms within newsletters mailed to community, including residents and landowners, and other interested parties, or submit electronically at website





Rosemont 138kV Transmission Line Project

April 13, 2010

Comments

- Your comments received will be reviewed and incorporated into the siting process
- A court reporter is available tonight to record in writing your verbal comments on the proposed project, if you desire
- Comments may also be submitted on the comment forms provided at the open house meetings and in Newsletter #3, or submitted electronically at the TEP website





Rosemont 138kV Transmission Line Project

April 13, 2010

TEP Decision Elements

- Purpose and need
- Environmental analysis
- Public/agency input
- Permits
- Engineering analysis
- Ability to obtain right-of-way
- Overall cost





Rosemont 138kV Transmission Line Project

April 13, 2010

Next Steps

- Finalize route analysis for CEC application
- File CEC application timing depends upon publication of the Coronado National Forest's Rosemont Copper Project Draft Environmental Impact Statement





Rosemont 138kV Transmission Line Project

April 13, 2010

COURT REPORTER





Rosemont 138kV Transmission Line Project

April 13, 2010

ROSEMONT 138KV TRANSMISSION LINE SITING STUDY PROJECT

Public Open House Meeting #4

November 17, 2010

Rancho Resort Clubhouse

5:30pm – 8:00pm

Presentation and Question and Answer

6:30pm - 7:00pm

November 17, 2010

Project Overview

- Tucson Electric Power (TEP), as a part of its obligation to serve, is proposing to construct and operate a new 138kV transmission line for the proposed Rosemont Copper operations
- Planning process includes environmental studies and public input conducted to assist
 in identification and comparison of alternative transmission line routes and
 environmental impacts. Similar to any customer requesting service at the transmission
 voltage, Rosemont is paying for the transmission line siting study.
- Project area is south of I-10 and east of I-19, with lands managed by Arizona State
 Land Department in conjunction with the University of Arizona, Forest Service, Bureau
 of Land Management, and privately-owned lands under the planning jurisdictions of
 the Town of Sahuarita and Pima County.
- Project requires review by the Arizona Corporation Commission's (ACC) Power Plant and Transmission Line Siting Committee resulting in a recommendation to, and a final determination by, the ACC prior to construction.





Rosemont 138kV Transmission Line Project

November 17, 2010

Purpose and Need

- Electric utilities are required by the State of Arizona to provide electrical service to customers, upon request.
- Rosemont Copper Company has requested TEP to provide electric power to the Rosemont Copper operations.
- The primary purpose and need for the proposed transmission line is to provide adequate and reliable power for the proposed Rosemont Copper operations.
- Currently, there are no existing transmission lines and substations to serve this proposed operation.





Rosemont 138kV Transmission Line Project

November 17, 2010

Project Description

- Up to approximately 20 miles of 138kV transmission line
- A 500-foot-wide corridor will be requested, and within that corridor a 100-foot-wide right-of-way would be obtained
- Approximately 3+ acres of land for construction, operation, and maintenance for the proposed Rosemont Substation, westernmost switchyard/substation, Greaterville Substation, Helvetia Road/46kV temporary interconnection
- Three connection points:
 - New switchyard/substation for connection to TEP system
 - New Rosemont switchyard/substation at Rosemont Copper operations
 - Greaterville Substation or temporary switchyard/substation interconnection (Helvetia Road & 46kV intersection) for construction power and possible long-term reliability purposes

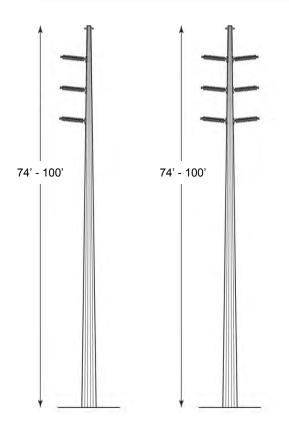




Rosemont 138kV Transmission Line Project

November 17, 2010

Proposed Structure Type(s)











Rosemont 138kV Transmission Line Project

November 17, 2010

Proposed Switchyard/Substation

- Photograph is of a typical TEP switchyard that resembles the proposed switchyard/substation(s)
- Proposed facility for interconnection with the existing TEP transmission system
- Approximately 3+ acres in size



Located on private land

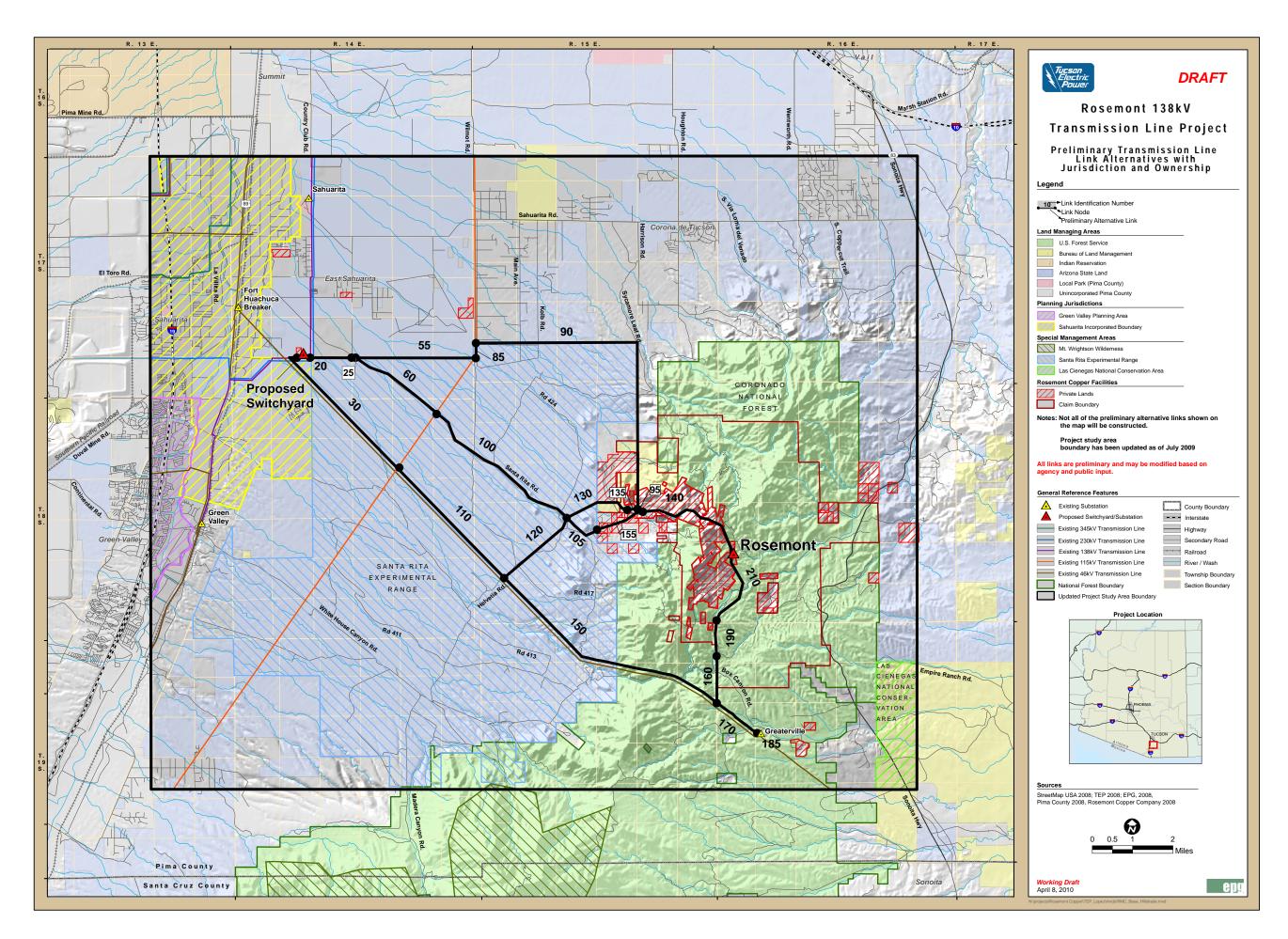




Rosemont 138kV Transmission Line Project

November 17, 2010

7A



Planning Process

- Comprehensive planning process consisting of six key tasks. Studies include environmental and engineering analysis, along with agency/public input.
- Identification and evaluation of alternatives that meet project purpose and need
- TEP will identify a preferred route(s), as well as alternative routes, for permitting and construction.
- TEP will prepare and file a Certificate of Environmental Compatibility (CEC) application to be reviewed by the Arizona Power Plant and Transmission Line Siting Committee.
- The ACC will make a final decision to approve or deny the CEC application (with any conditions).

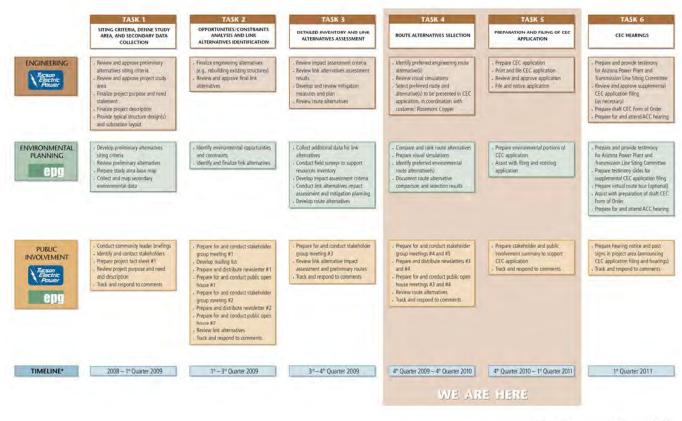




Rosemont 138kV Transmission Line Project

November 17, 2010

Planning Process Chart



*Timeline is estimated

Planning Process and Responsibilities Rosemont 138kV Transmission Line Project

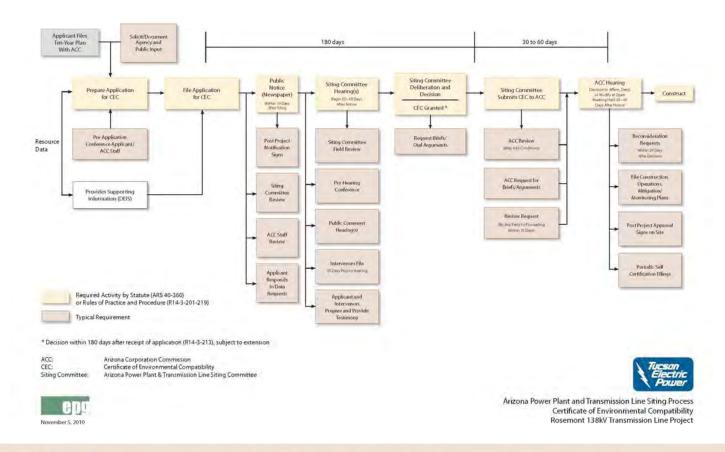




Rosemont 138kV Transmission Line Project

November 17, 2010

Certificate of Environmental Compatibility Application Process







Rosemont 138kV Transmission Line Project

November 17, 2010

Key Considerations for Selection of Recommended Routes

- Project construction and operation power needs
- Minimizing environmental impacts
- Electrical system planning requirements and timeframes
- Engineering
 - Constructability
 - Cost
 - Right-of-way
- Public and agency input
- Regulatory permits
- One or more alternative routes may be carried forward in application for a CEC to be submitted to the Siting Committee and ACC

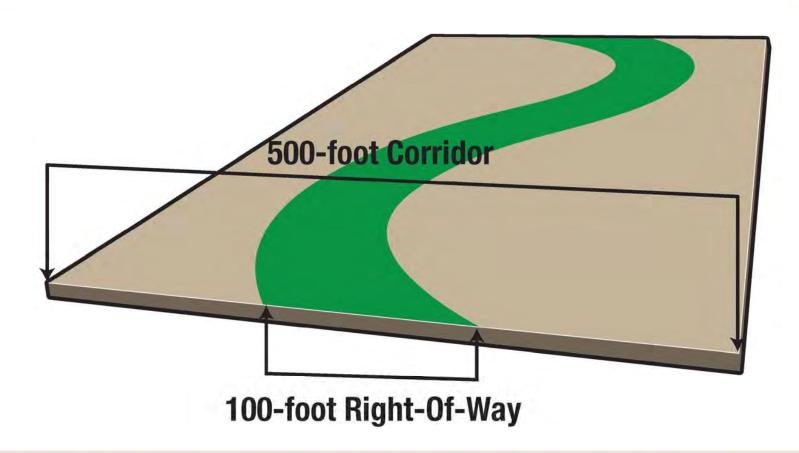




Rosemont 138kV Transmission Line Project

November 17, 2010

Example Corridor and Right-of-Way Configuration



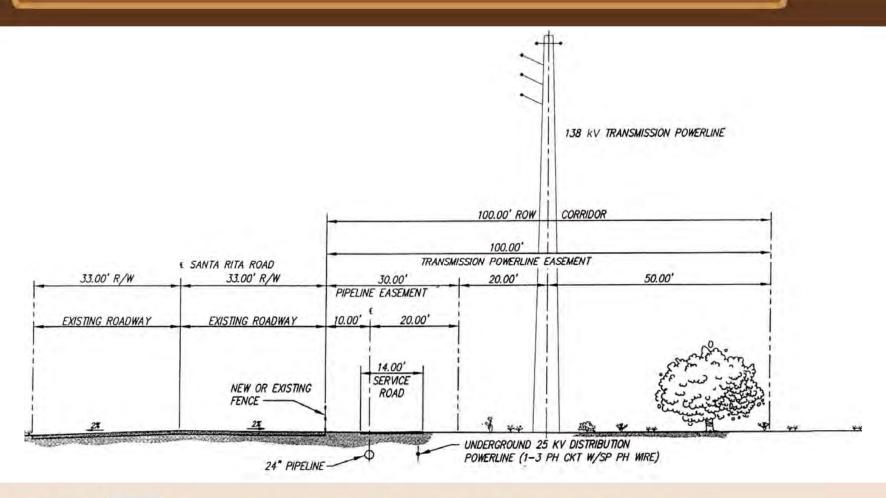




Rosemont 138kV Transmission Line Project

November 17, 2010

Example Section of Transmission Line and Pipeline Right-of-Way







Rosemont 138kV Transmission Line Project

November 17, 2010

Environmental Analysis Summary

Land Use

- Existing land use
- Future land use

Visual Resource

- Landscape scenic quality
- Sensitive viewers (residences, roads/trails, trailheads)
- Scenic management guidelines

Cultural Resource

- Known historic properties considered
 - Eligible
 - Not eligible
 - Not evaluated

Biological Resource

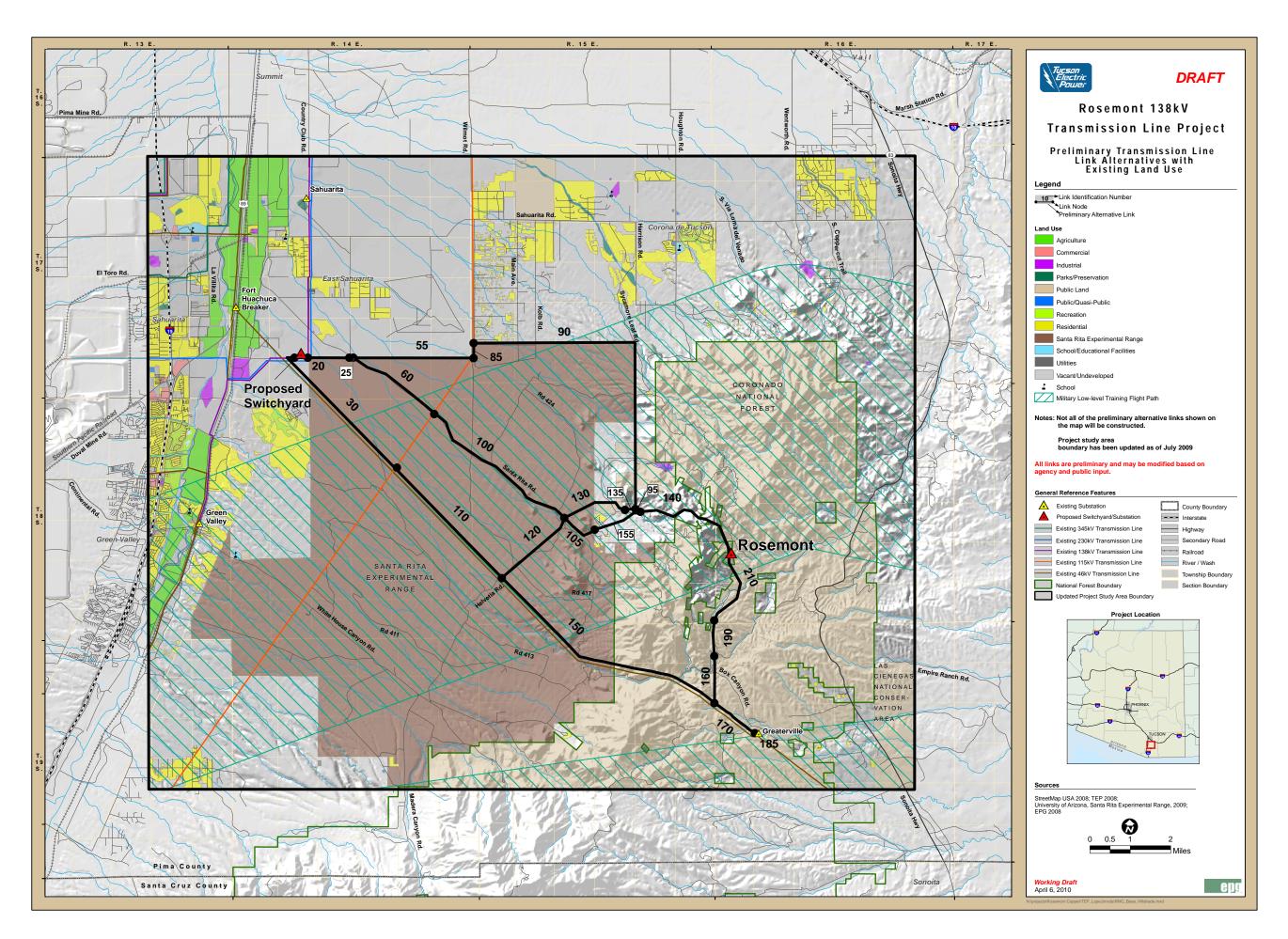
- Biological conservation areas
- Vegetation
- Wildlife

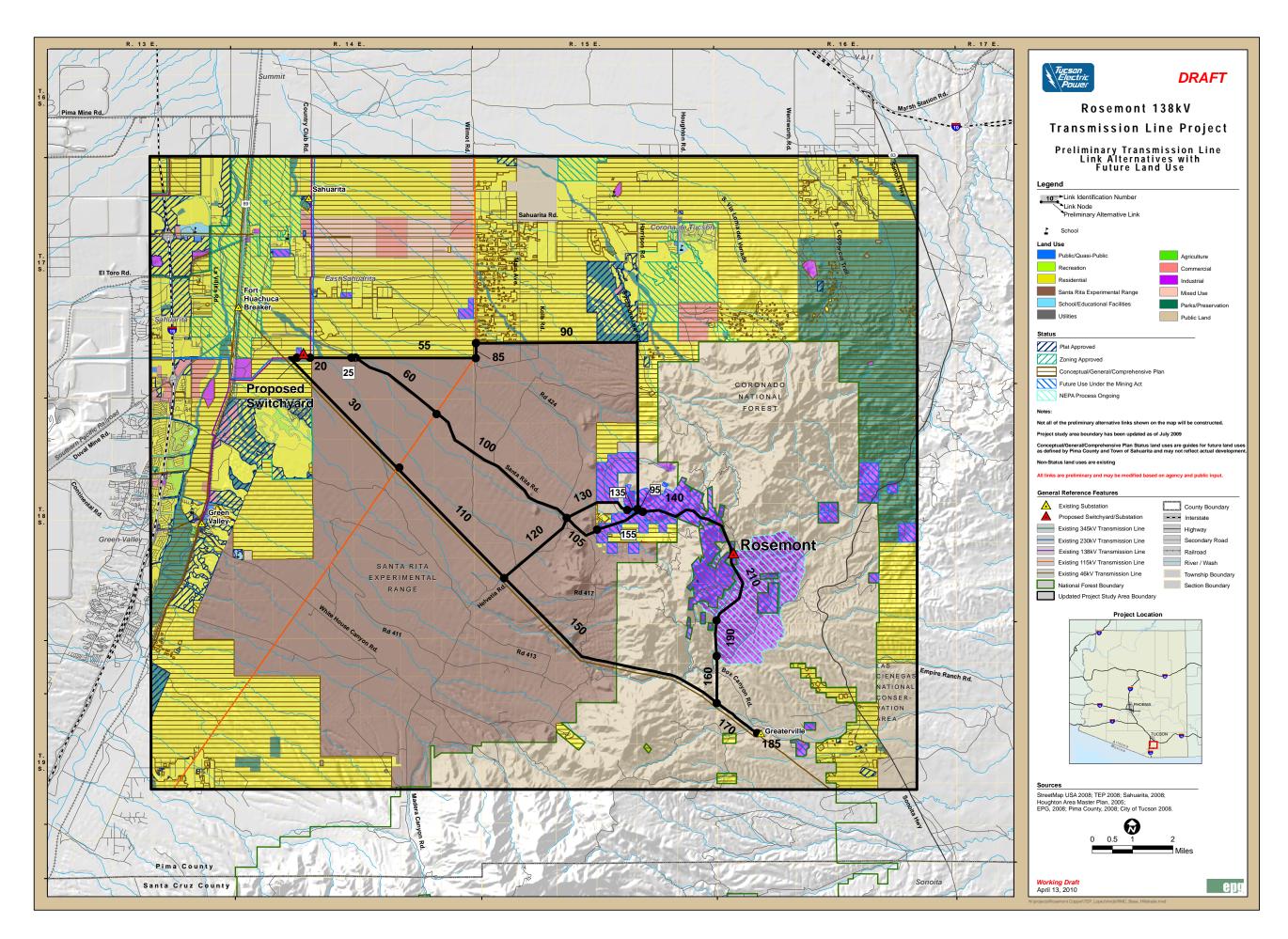


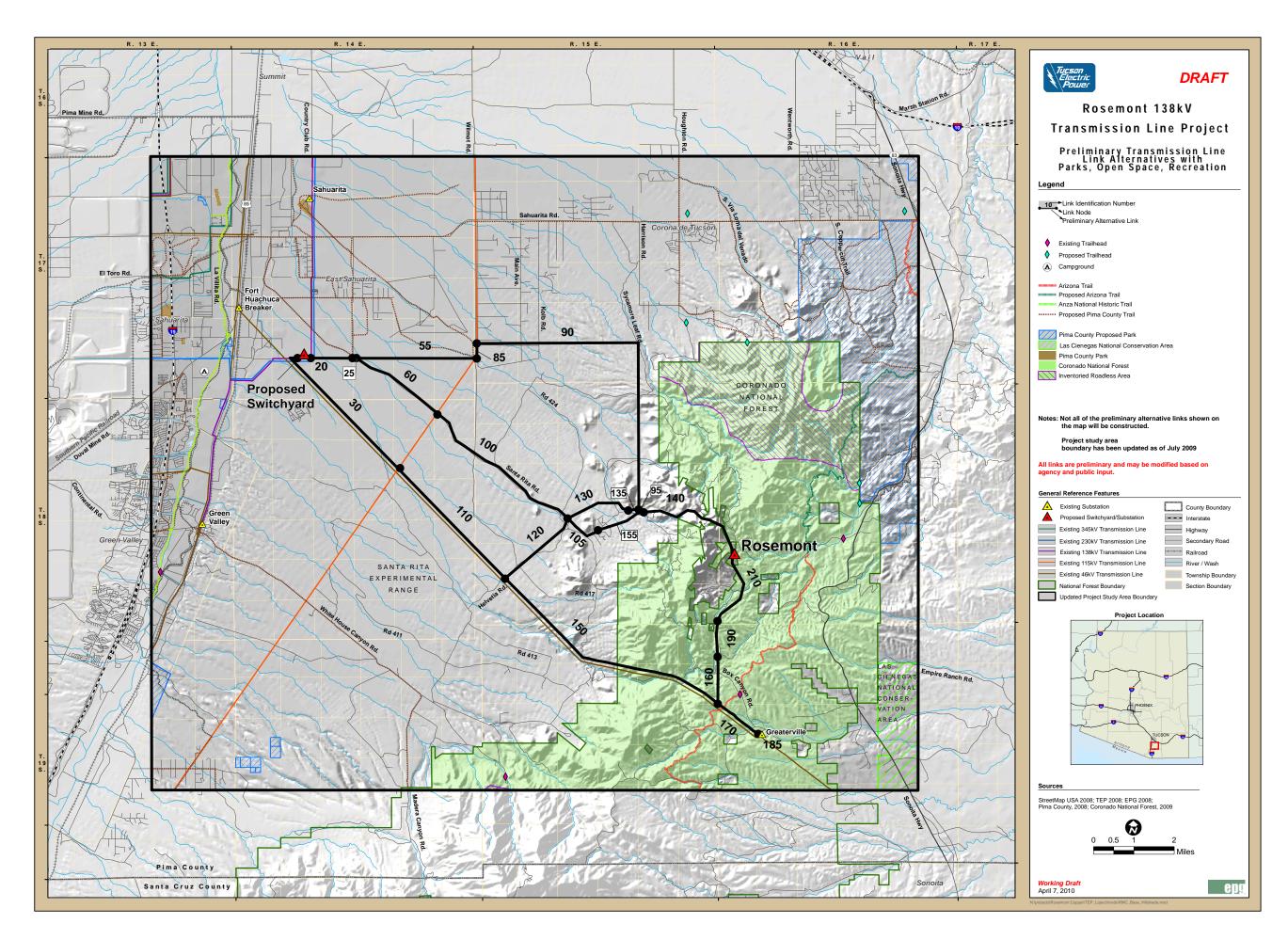


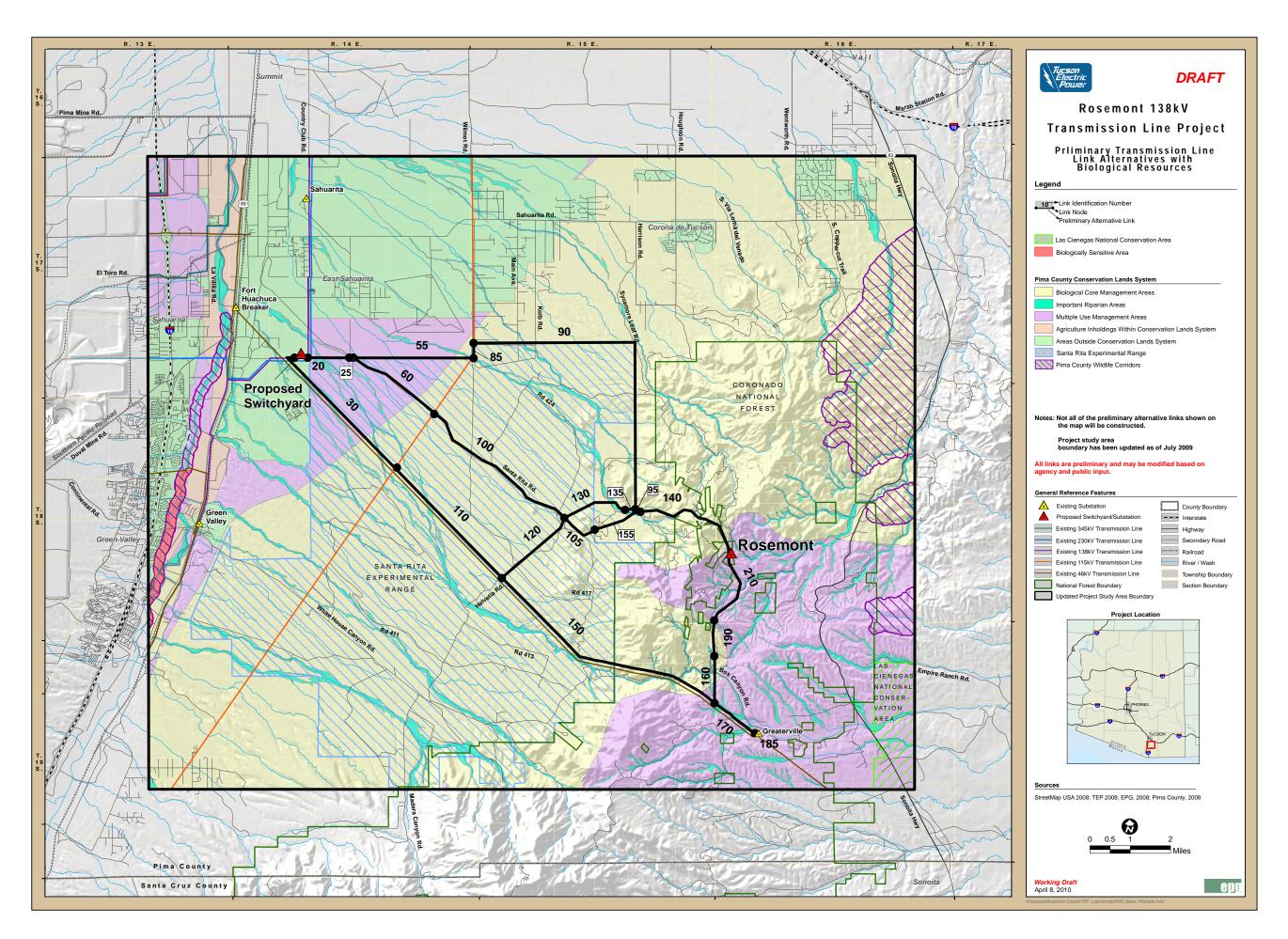
Rosemont 138kV Transmission Line Project

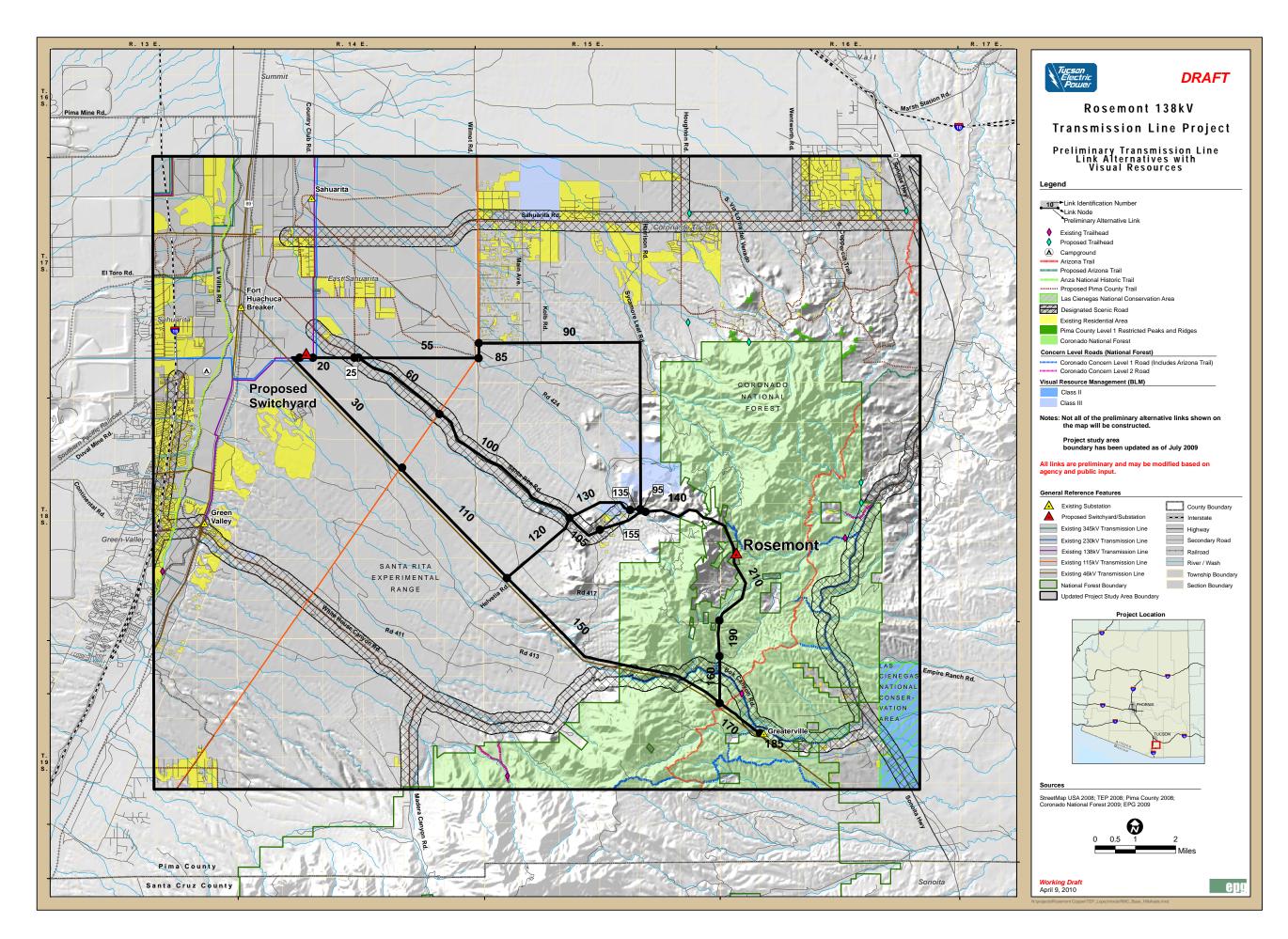
November 17, 2010

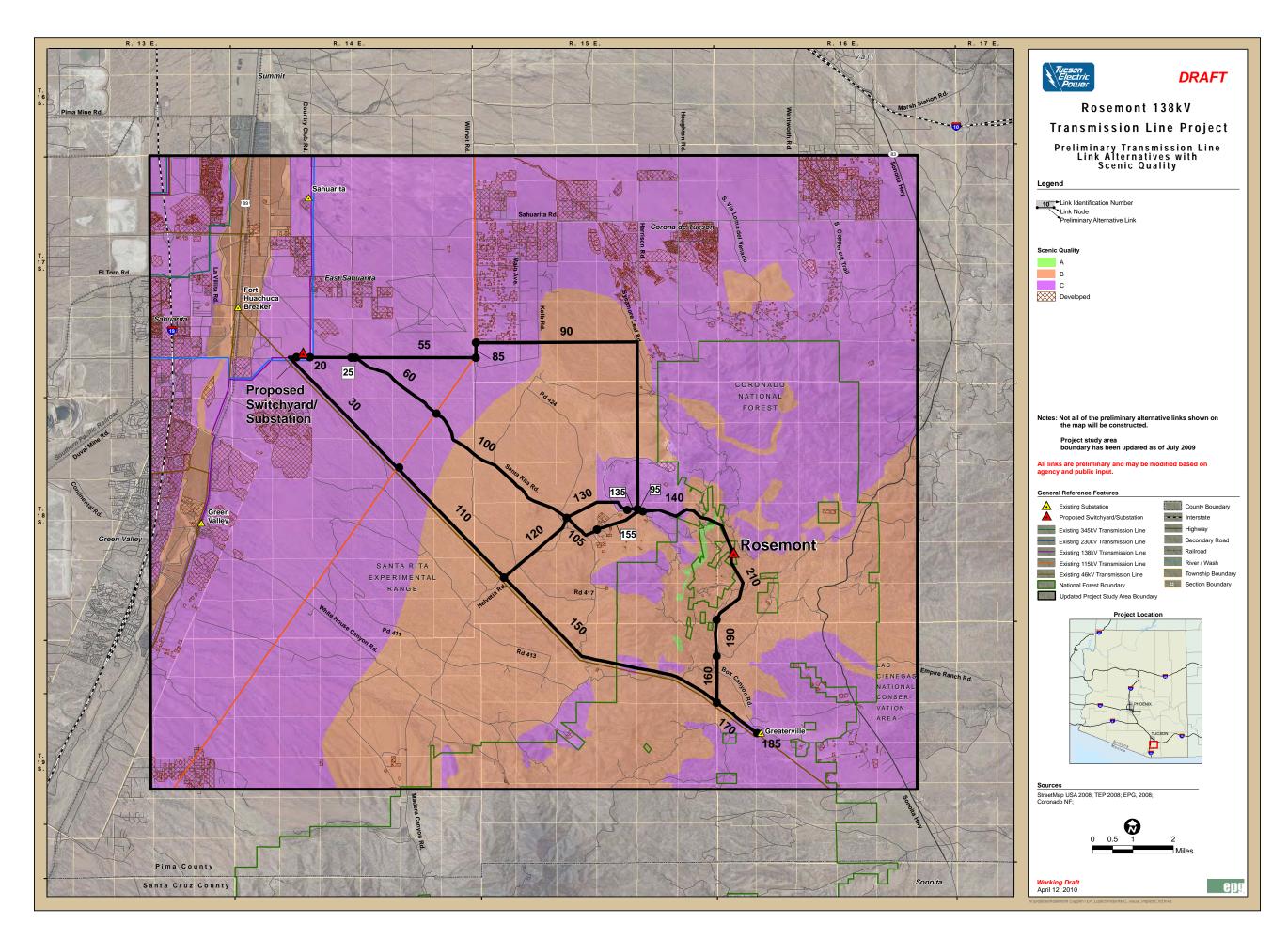




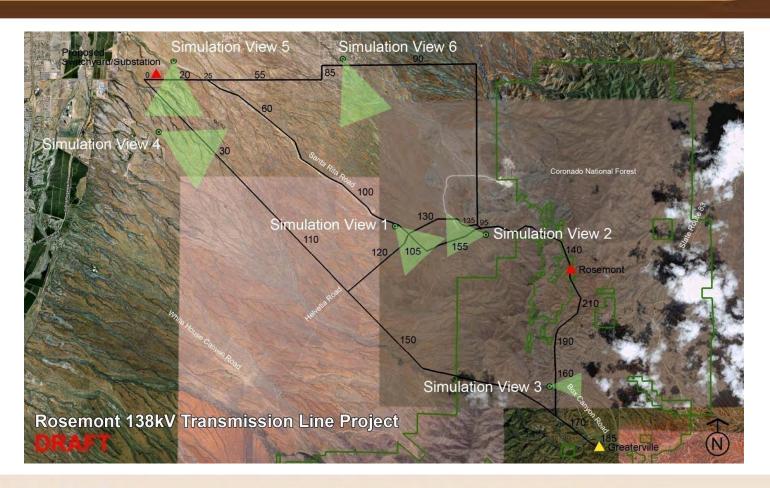








Simulations







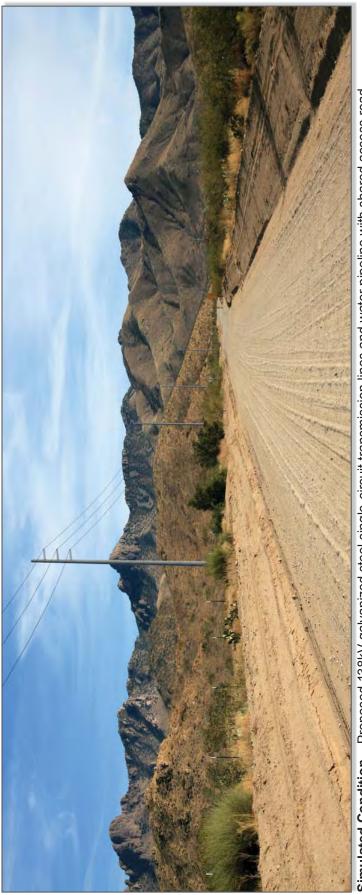
Rosemont 138kV Transmission Line Project

November 17, 2010

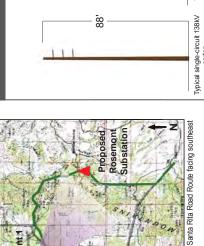


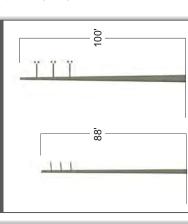
Santa Rita Road within the Santa Rita Experimental Range Existing Condition –





Proposed 138kV galvanized steel single-circuit transmission lines and water pipeline with shared access road Simulated Condition –

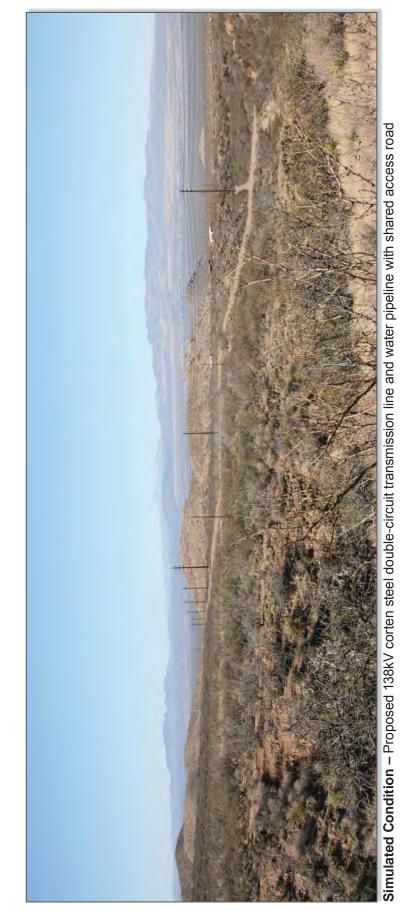


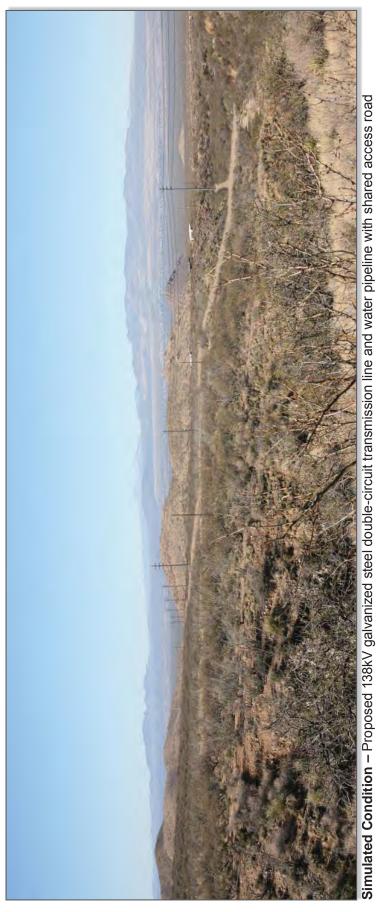




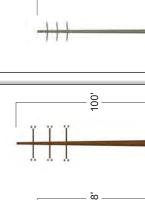
Rosemont Copper Transmission Line Project Simulation 1 - Preferred Route

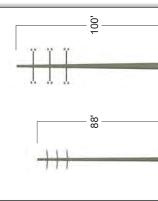
Existing distribution lines and residences along Helvetia Road **Existing Condition**















Tucson Electric Power Rosemont 138kV Transmission Line Project



Existing Condition - Box Canyon Road within the Santa Rita Mountains

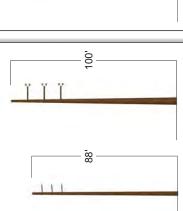


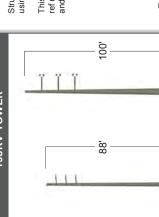
Simulated Condition - Proposed 138kV corten steel single-circuit transmission line



Simulated Condition - Proposed 138kV galvanized steel single-circuit transmission line

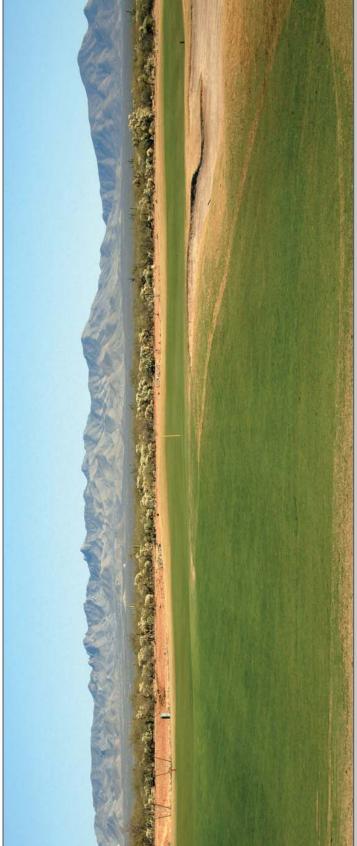








Rosemont Copper Transmission Line Projec Simulation 3 - Preferred Route Alternative 1, Alternative

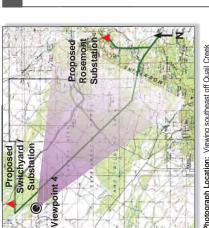


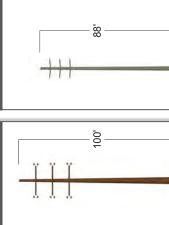
Existing Condition - Quail Creek Community Golf Course and existing 46kV transmission lines

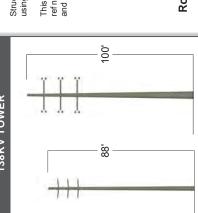




Simulated Condition - Proposed consolidated 138kV galvanized steel double-circuit transmission line with co-located 46kV line







Structure models that were used in the using diagrams provided by TEP.



Rosemont Copper Transmission Line Project
Simulation 4 - Alternative 4

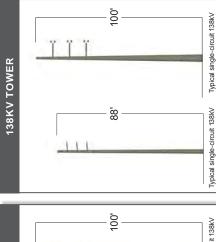


Existing Condition - Sahuarita Highlands residences along East Broadwater Way, Santa Rita Road, and Santa Rita Mountains











Rosemont Copper Transmission Simulation 5 - Pre DRAFT



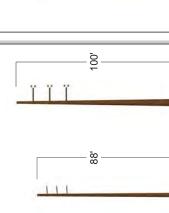
Tucson, north of S. Kolb Road with views of the Santa Rita Experimental Range and Santa Rita **Existing Condition**

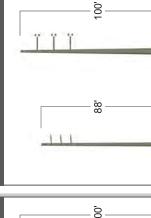




Proposed 138kV galvanized steel single-circuit transmission line Simulated Condition



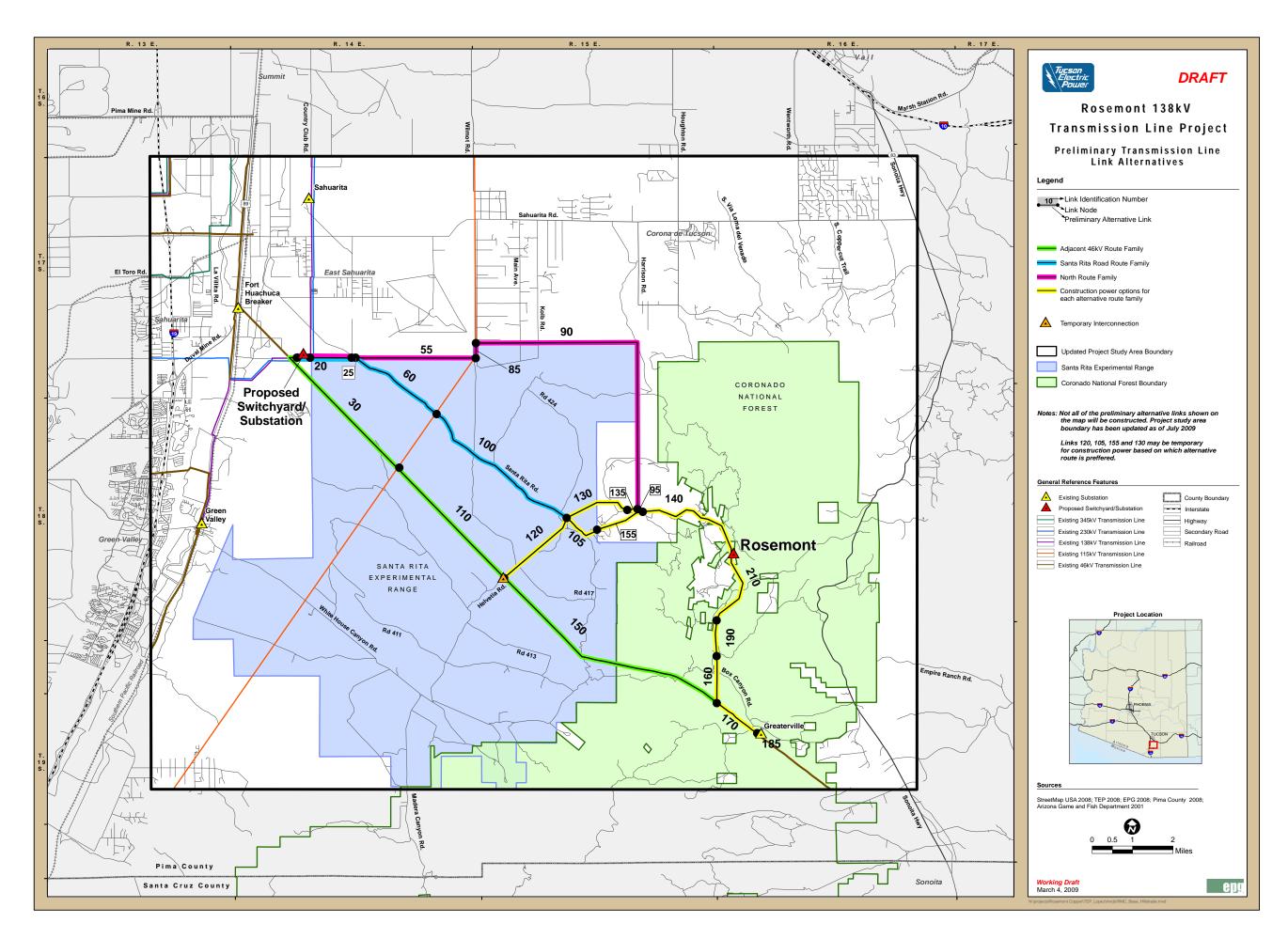


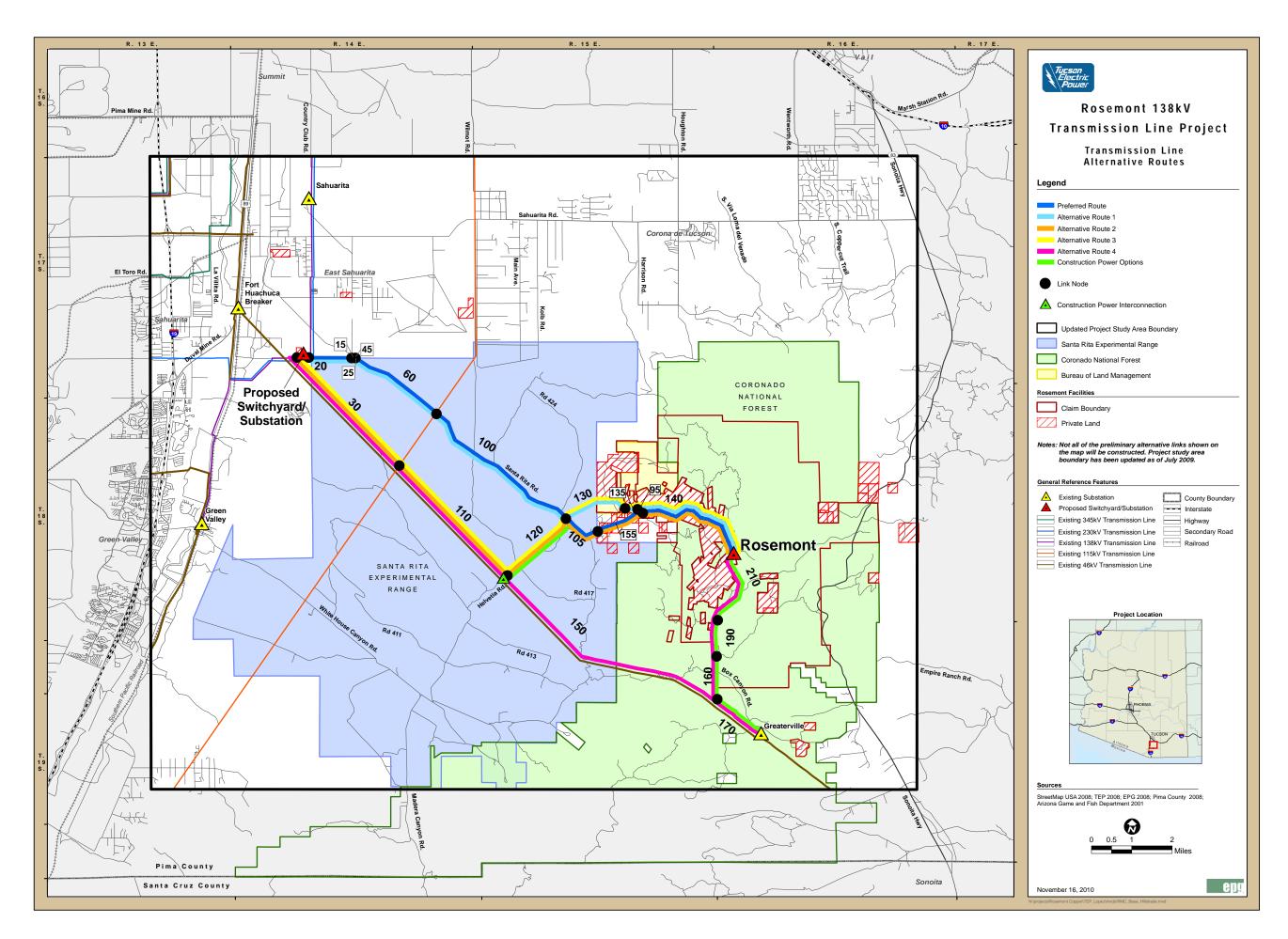


1-26-10, 1:19 p.m.



Rosemont Copper Transmission Line P Simulation 6 - Northern Option 3 (Elimii November 1





Alternative Routes Summary Table

	Links Included	Approximate Length (in miles)		
Alternative Routes		Permanent Power	Construction Power*	Route Considerations
Preferred Route	20, 25, 60, 100, 105, 155, 140, 170*, 160*, 190*, 210*	12.9	5.3 (separate from permanent power route)	 Permanent line co-located with proposed water pipeline Preferred by Santa Rita Experimental Range and Arizona State Land Department Santa Rita Road designated scenic route by Pima County (February 2010) Residences near link 155
Alternative 1	20, 25, 60, 100, 130, 135, 95, 140, 170*, 160*, 190*, 210*	12.8	5.3 (separate from permanent power route)	 Permanent line co-located with proposed water pipeline Majority of route supported by Santa Rita Experimental Range and Arizona State Land Department, with the exception of link 130 Santa Rita Road designated scenic route by Pima County (February 2010) Link 130, 135: new corridor, no co-location with pipeline, farther from residences
Alternative 2	30, 110, 120*, 105*, 155*, 140*	15.1	7.2 (common with permanent power route)	 Co-located with and replaces 46kV structures to link 120 Requires new access for a portion of link 120 and temporary disturbance for interconnection Co-located with proposed water pipeline at Santa Rita Road Santa Rita Experimental Range concern for impacts associated with link 120 as well as links 30 and 110, prefers co-location with proposed pipeline Residences near link 155
Alternative 3	30, 110, 120*, 130*, 135*, 95*, 140*	15	7.1 (common with permanent power route)	 Co-located with and replaces 46kV structures to link 120 Requires new access for a portion of link 120 and temporary disturbance for interconnection Co-located with proposed water pipeline at Santa Rita Road Santa Rita Experimental Range concern for impacts associated with link 120 and 130, as well as links 30 and 110, prefers co-location with proposed pipeline Link 130, 135: new corridor, no co-location with pipeline, farther from residences
Alternative 4	30, 110, 150, 170*, 160*, 190*, 210*	19.5	5.3 (common with permanent power route)	 Co-located with and replaces 46kV structures to Greaterville Preferred by Town of Sahuarita Coronado National Forest stated least preferred for visual impacts Coronado National Forest concern with link 150 within Box Canyon Area New access required for link 160, which crosses Box Canyon Road (designated scenic road) Longest route

^{*}Connection for construction power

Rosemont 138kV Transmission Line Project

DRAFT November 16, 2010

J-349

Alternative Routes Recommended to be Carried Forward

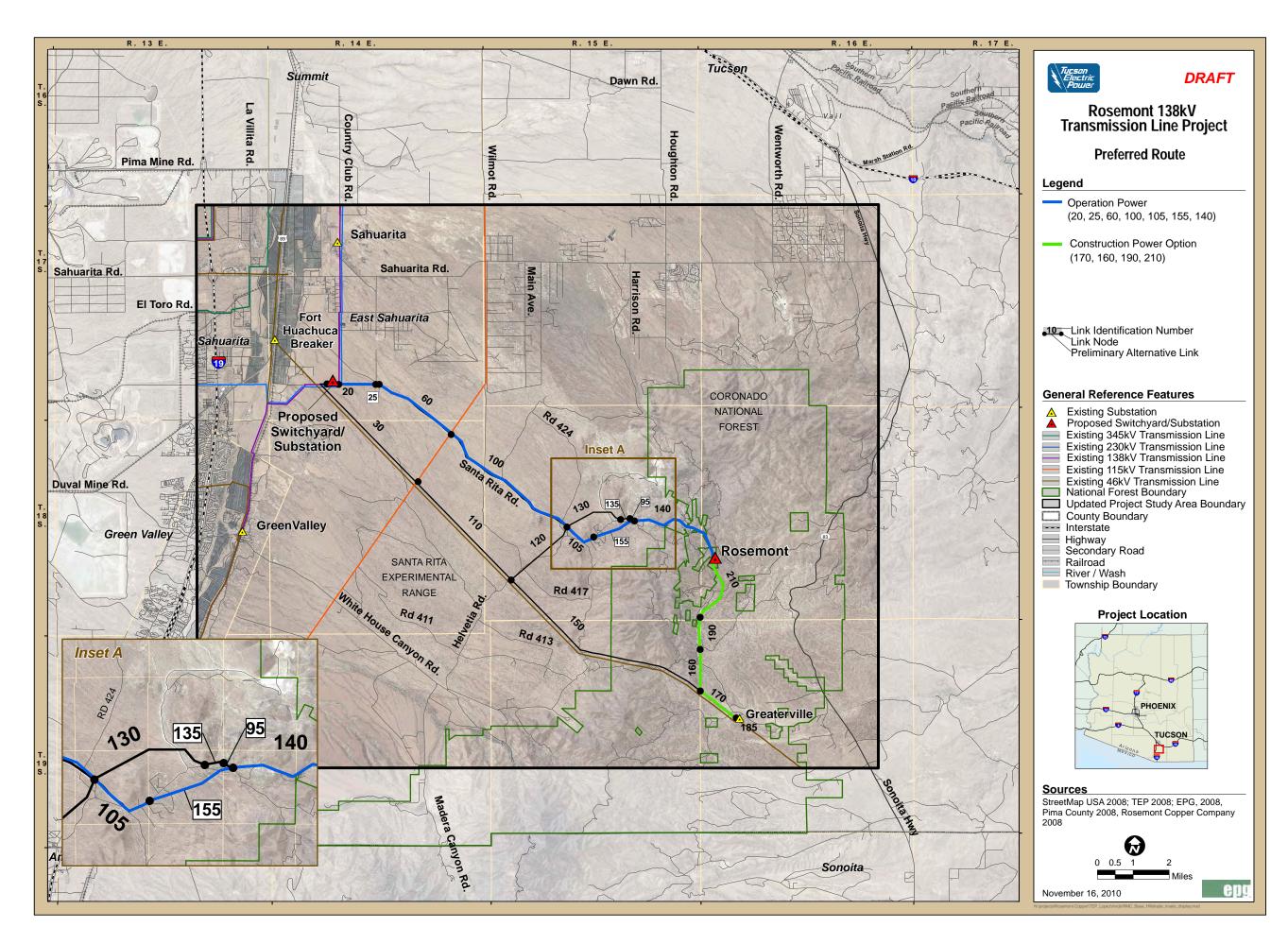
- Preferred Route (Santa Rita Road option 1)
 - Uses links 105, 155, Greaterville for construction interconnection
- Alternative 1 (Santa Rita Road option 3)
 - Uses links 130, 135, Greaterville for construction interconnection
- Alternative 2 (Adjacent 46kV Line option 1)
 - Uses links 105,155, Helvetia Road/46kV for construction interconnection
- Alternative 3 (Adjacent 46kV Line option 2)
 - Uses links 120,130,135, Helvetia/46kV for construction interconnection
- Alternative 4 (Adjacent 46kV Line option 4)
 - Uses link 150, Greaterville for construction interconnection

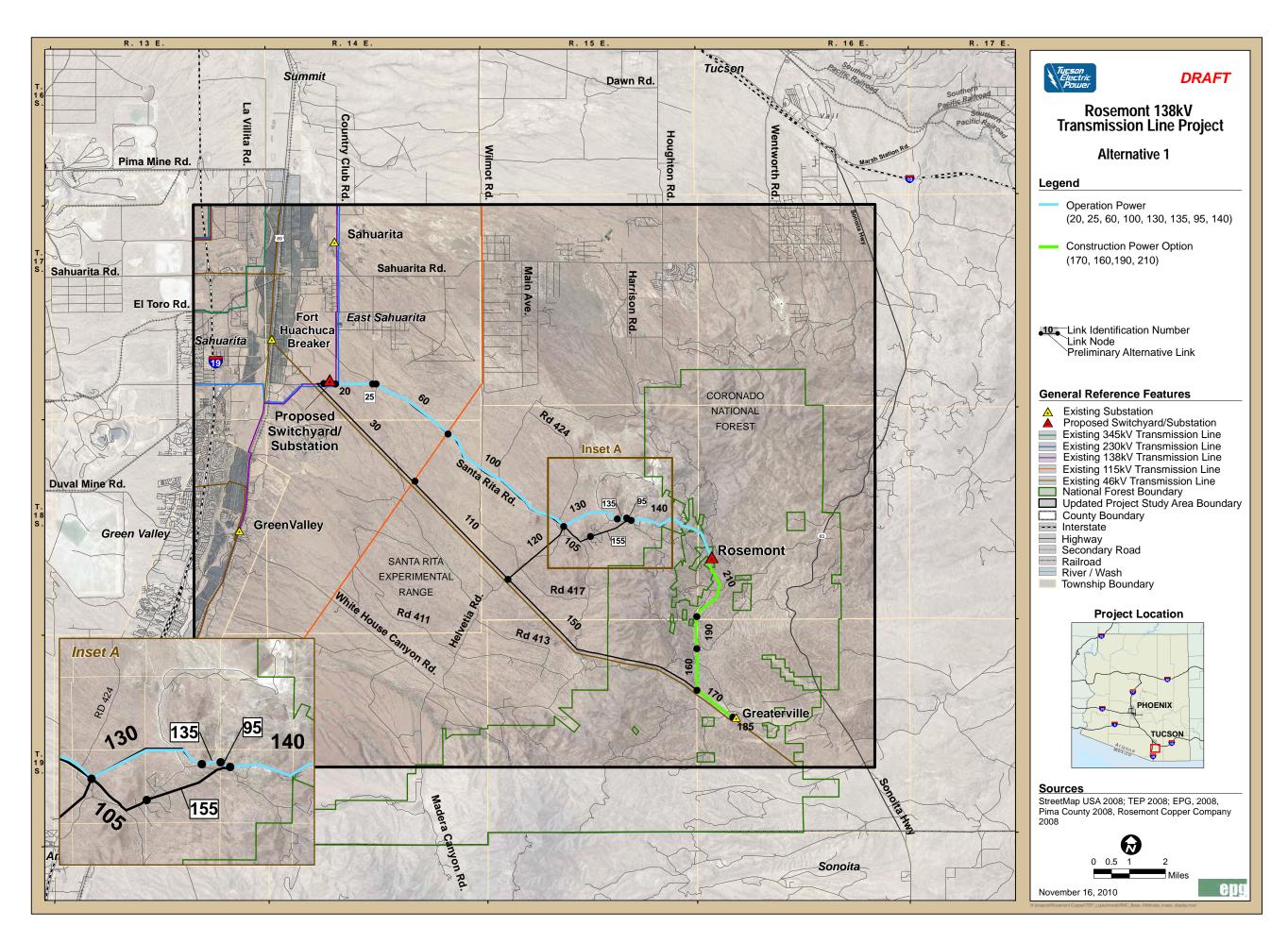


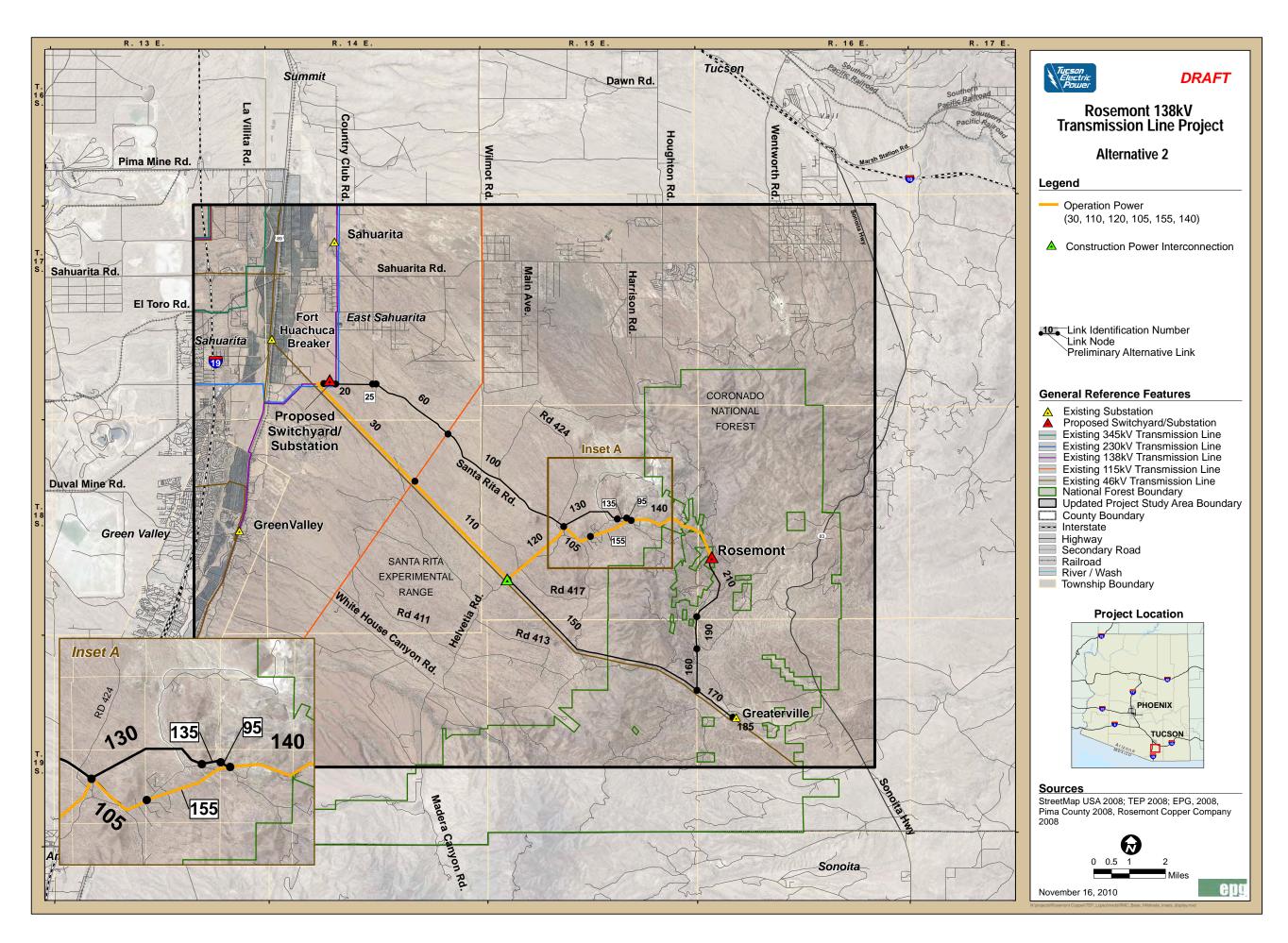


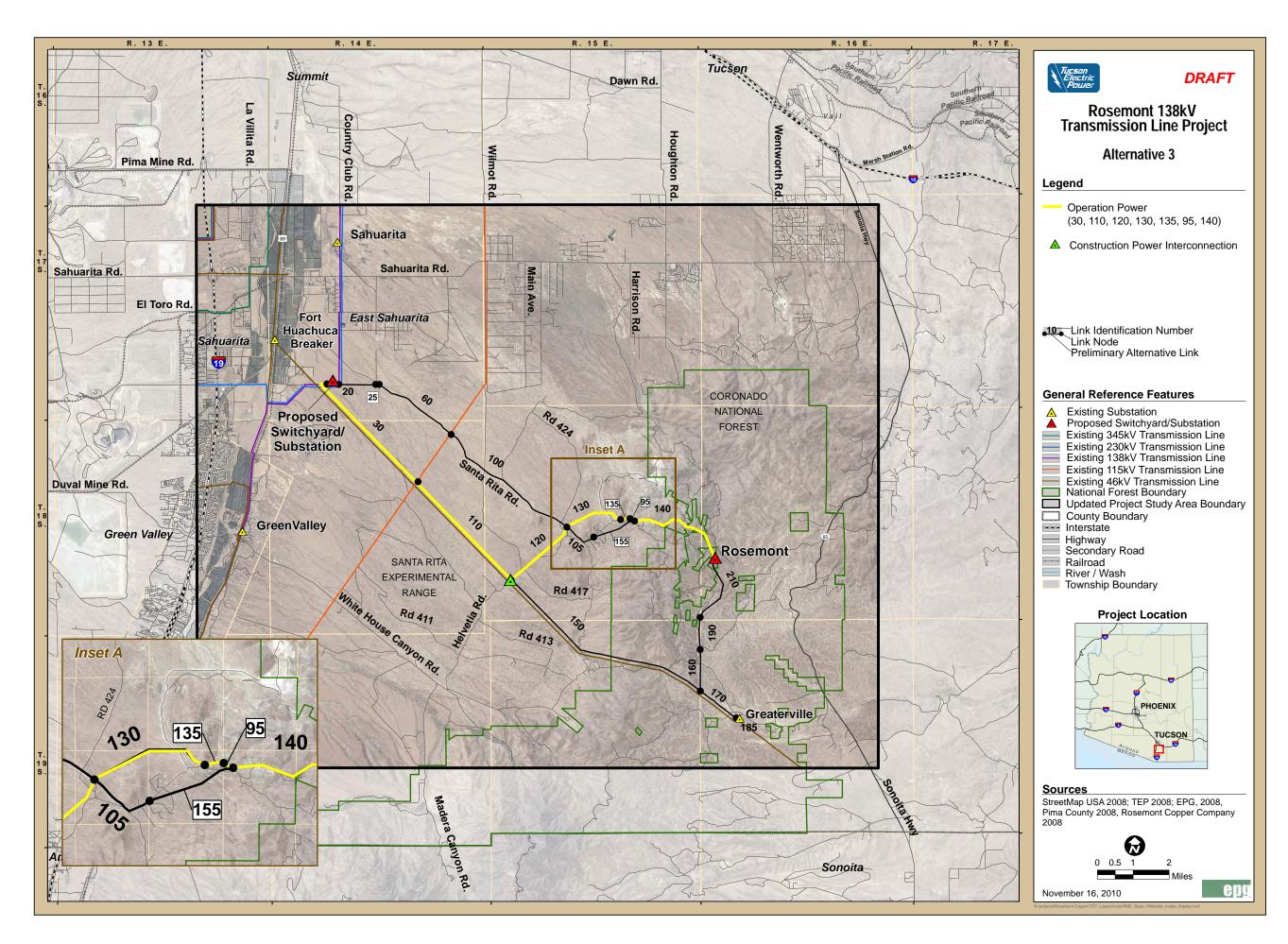
Rosemont 138kV Transmission Line Project

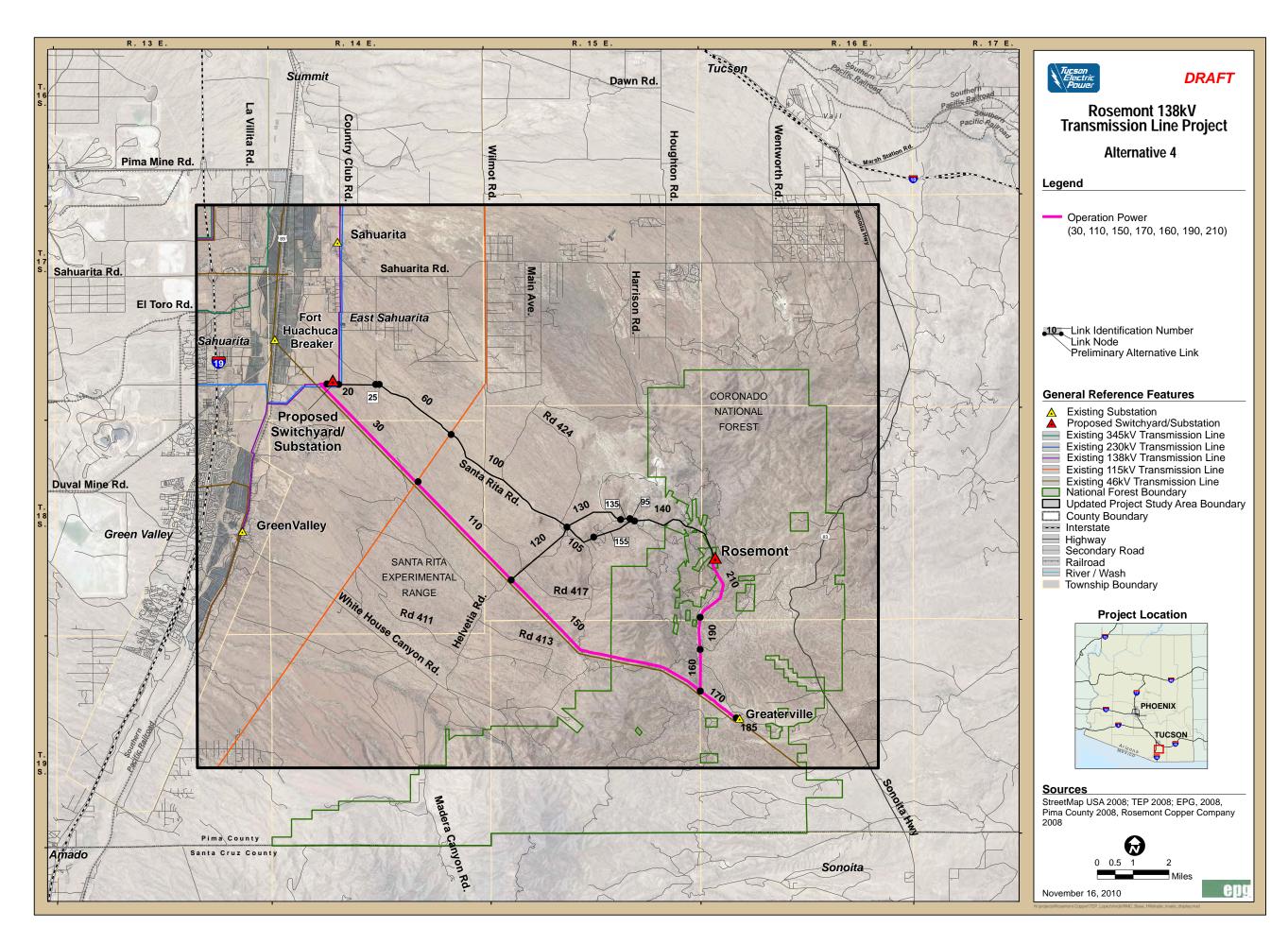
November 17, 2010





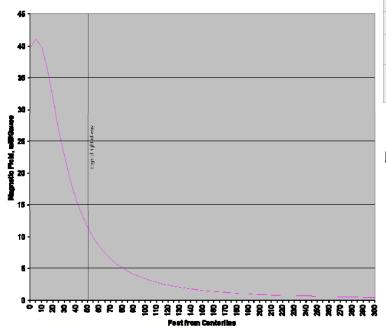


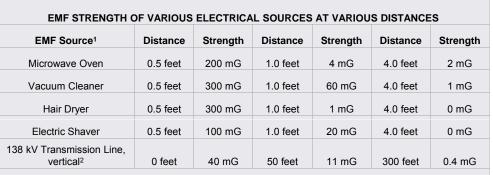




Electric and Magnetic Fields (EMF)

130 kV BMF, Vertical Config





¹ Appliance magnetic field strengths are median values in milliGauss (mG) for typical 60 Hz electric current (source: USNIEHS, DOE 1995)

Magnetic Field

Additional EMF information resources are available from: Environmental Health Information Service: http://www.niehs.nih.gov/health/topics/agents/emf/ World Health Organization: www.who.int/emf





Rosemont 138kV Transmission Line Project

November 17, 2010

² 138kV power-line right-of-way is 100 ft wide, 0 feet values represent directly below the lines at lowest point of sag.

Agency and Public Participation Activities

- Agency briefings
- Stakeholder group meetings
- Field trip
- Public open house meetings
- Community briefings
- Newsletters
- Telephone information line
- Website (TEP)





Rosemont 138kV Transmission Line Project

November 17, 2010

Public Participation Opportunities

- Public open house meetings
- Telephone information line (866) 632-5944
- TEP website: <u>www.tep.com/company/news/rosemont</u>
- Arizona siting committee FAQs website:

www.cc.state.az.us/Divisions/Utilities/Electric/LineSiting-FAQs.asp

- Media briefings
- Comment forms





Rosemont 138kV Transmission Line Project

November 17, 2010

Comments

- Your comments will be reviewed and incorporated into the siting process.
- A court reporter is available tonight to record in writing your verbal comments on the proposed project, if you desire.
- Comments may also be submitted on the comment forms provided at the open house meetings or submitted electronically at the TEP website. Please submit comments by December 6, 2010.





Rosemont 138kV Transmission Line Project

November 17, 2010

TEP Decision Elements

- Purpose and need
- Environmental analysis
- Public/agency input
- Permits
- Engineering analysis
- Ability to obtain right-of-way
- Overall cost





Rosemont 138kV Transmission Line Project

November 17, 2010

Next Steps

- Finalize routes to be carried forward in CEC application
- File CEC application first quarter
 2011





Rosemont 138kV Transmission Line Project

November 17, 2010



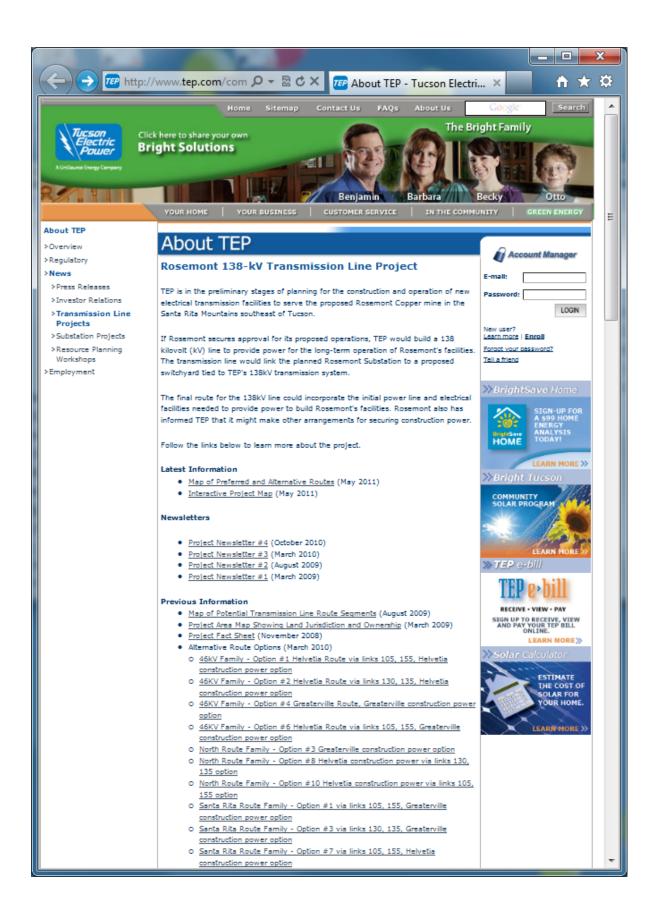


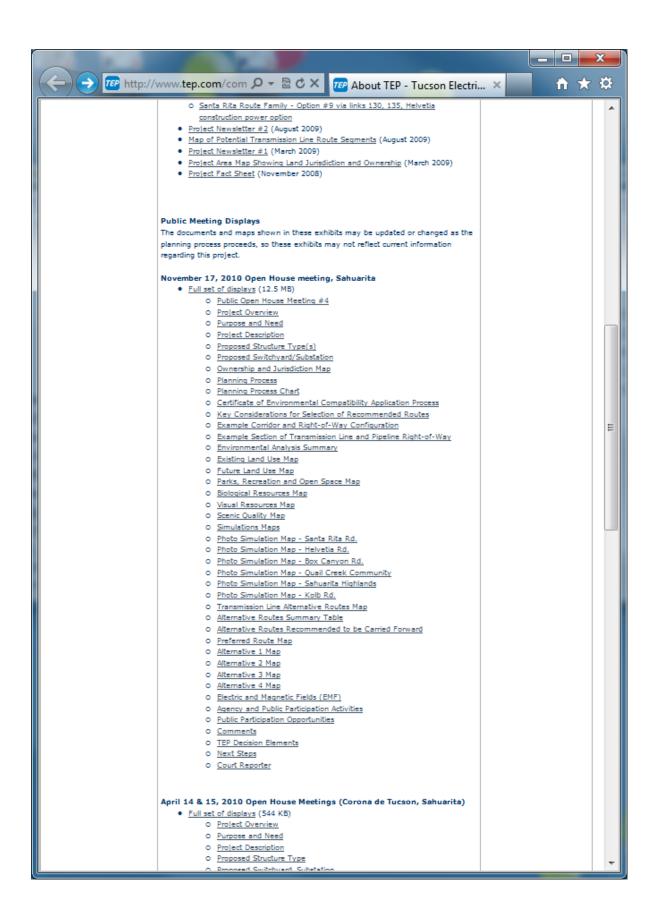


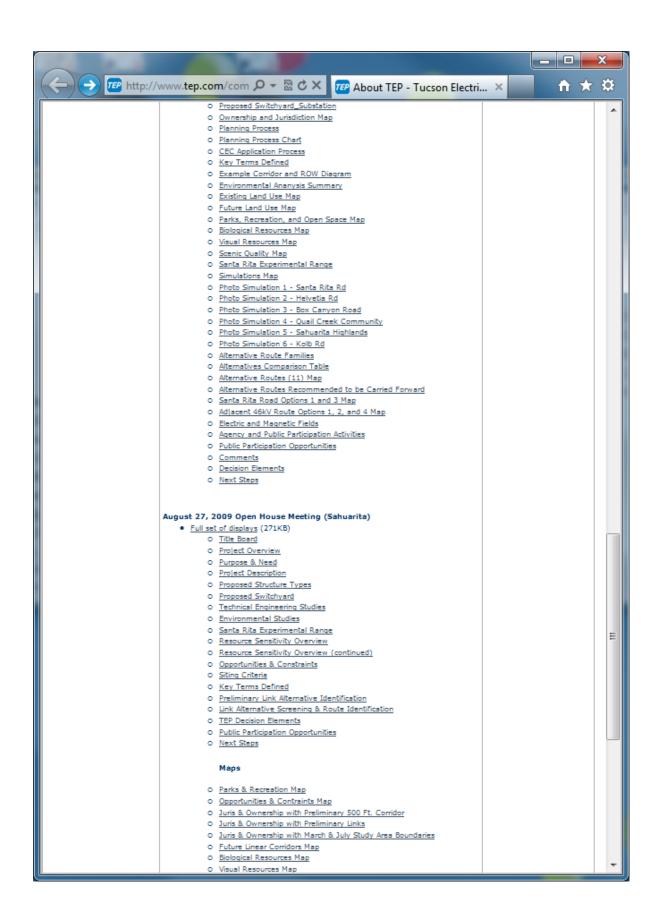
Rosemont 138kV Transmission Line Project

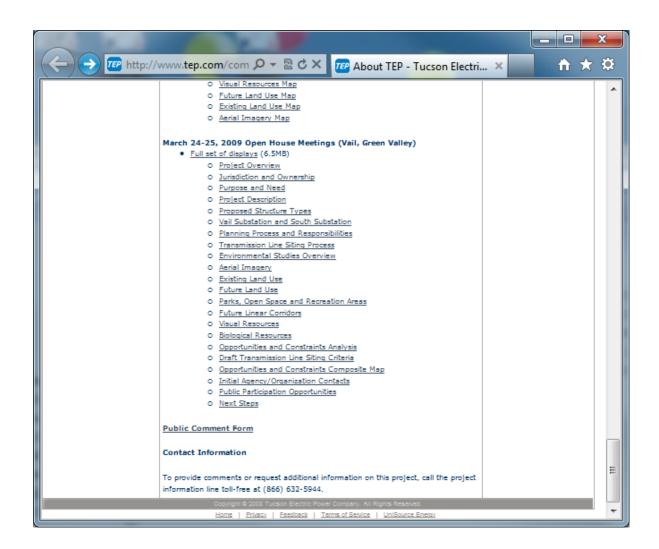
November 17, 2010

Exhibit J-4. Website









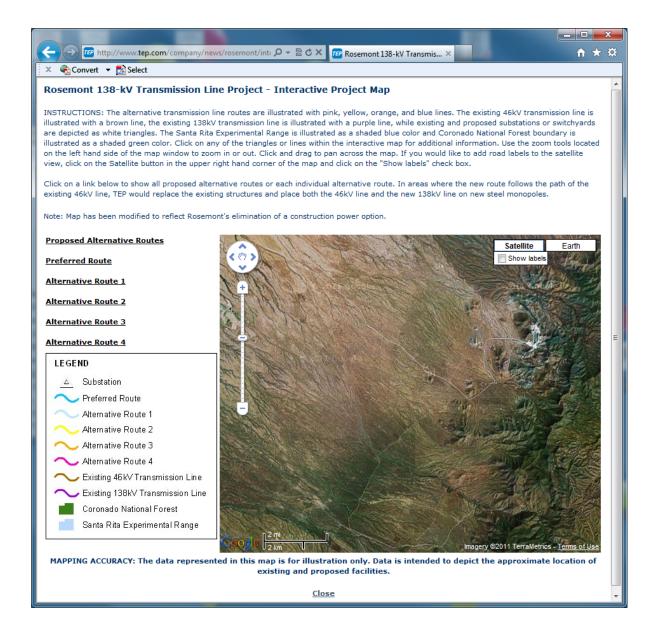


Exhibit J-5. Agency Letters Received



College of Agriculture and Life Sciences Agricultural Experiment Station Forbes Building, Room 314 P.O. Box 210036 Tucson, AZ 85721-0036 Tel: (520) 621-3859 Fax: (520) 621-7196 http://ag.arizona.edu

June 30, 2009

Ruben Ojeda Manager, Right of Way Section Arizona State Land Department 1616 West Adams Phoenix, Arizona 85007

Re: Rosemont Right of Way Alignment

Dear Ruben:

Thank you for meeting with Steve Husman, Jamie Sturgess, Mike Phalen and me at the State Land Department's Tucson office on March 31, 2009. In that meeting we discussed, among other things, the water and power line right of way alignments that Rosemont Copper has proposed for its project.

One of the two alternative alignments called for running the water pipeline along the existing Santa Rita Road alignment within the Santa Rita Experimental Range (the Santa Rita Road Alignment). The second alternative alignment would run along the northern and eastern perimeter boundaries of the Range at its northeast corner (the Northeastern Alignment).

We have carefully considered the two proposals and reviewed them with the University's Range Advisory Committee. In reviewing both alternatives, we have concluded that neither proposed alignment would result in any significant adverse impact to the University's Range operations. However, after completing our review it is the consensus of the University of Arizona Santa Rita Experimental Range and its Range Advisory Committee that the Land Department and Rosemont place the two lines adjacent to the existing Santa Rita Road Alignment. We recognize that the ultimate approval of the two right of way alignments will be determined pursuant to two different processes which could result in different alignments for each, but it is our preference that they be located together in one corridor.

We prefer the Santa Rita Road Alignment because it is an existing, long established roadway corridor running through the Range. Adding these additional rights of way will not significantly change the existing conditions within the Range, or adversely impact the Range facilities or its operations because they will be located adjacent to an existing road right of way corridor. On the other hand, we think that the maintenance access roads that would be constructed along the Northeastern Alignment may attract trespassers who could disrupt the operations of the Range. With the Santa Rita Road Alignment we ask that the eastern most segment of the proposed right of way alignment deviate from the existing Santa Rita Road alignment to avoid adversely impacting two of the Ranges' photo sites located within Section 21. The proposed right of way alignment shown on the enclosed maps reflects the alignment adjustments we requested from Rosemont.

Rosemont also seeks to locate a booster pump station adjacent to the Santa Rita Road Alignment to support its water pipeline. We recognize that the booster pump station is necessary for the proper and efficient operation of the water pipeline. We have requested that Rosemont locate the facility near our existing livestock corral where Santa Rita Road and the



section lines of Sections 7 and 18 intersect because the land in this area of the Range is already disturbed by the corral operations. Placing the booster pump station at this location will have no adverse impact on the operations of the Range.

We also prefer the Santa Rita Road alignment because we believe the development of these rights of way could serve as a catalyst for creating and implementing a dust abatement program for Santa Rita Road, which has been an important, long standing goal of the Range. As you know the road is currently unpaved and the existing car and truck traffic creates a great deal of dust impacting the Range and the surrounding communities. We believe a dust abatement program will greatly benefit the Range and others in the area. Therefore, we ask that the sale of these rights of way be conditioned on Rosemont developing and implementing a dust abatement package for Santa Rita Road. If such a condition was acceptable to the Department and Rosemont, the university would be available to work with both parties in that effort.

In conclusion, it is our recommendation that the Department require Rosemont to amend its pending right of way application in order to select the Santa Rita Road Alignment instead of the Northeastern Alignment current shown in the application and that the Department's approval of the Santa Rita Road Alignment be conditioned on Rosemont doing the following:

- Develop and implement a dust abatement program for Santa Rita Road; (1)
- Locate the rights of way near or adjacent to the north side of Santa Rita Road alignment, and if possible, utilize all or a portion of the existing borrow pit area for the water pipeline right of way;
- Construct a sheep fence along the north side of Santa Rita Road between the waterline right of way and the power line right of way including locked gates at the entrance and exit of the SRER.
- Provide funding for the Range to hire security staff to monitor the water and power line construction and to ensure that the integrity of the Range is respected and maintained during the construction phase and during their initial year of operation.

Thank you for the opportunity to review the matter with your office. Please call me with any questions or comments.

Sincerely,

Colin Kaltenbach, Ph.D.

Vice Dean and Director

cc. Jamie Hogue

Jamie Sturgess

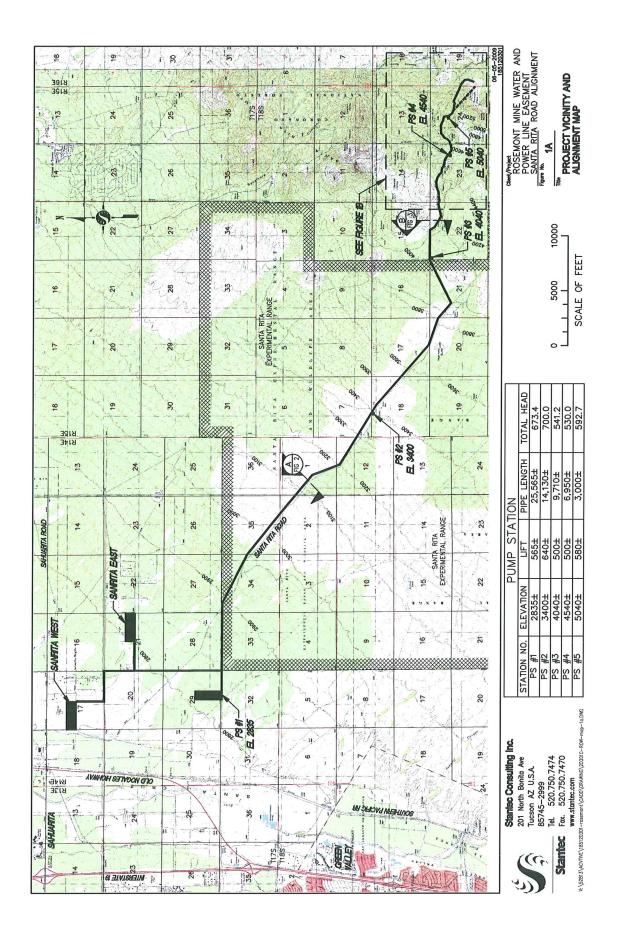
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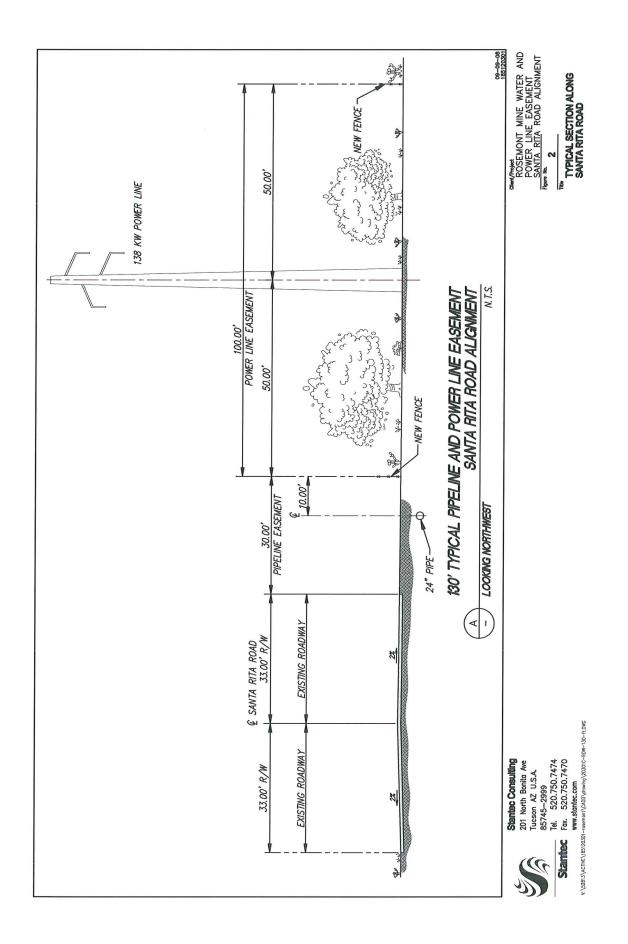
Michael Phalen

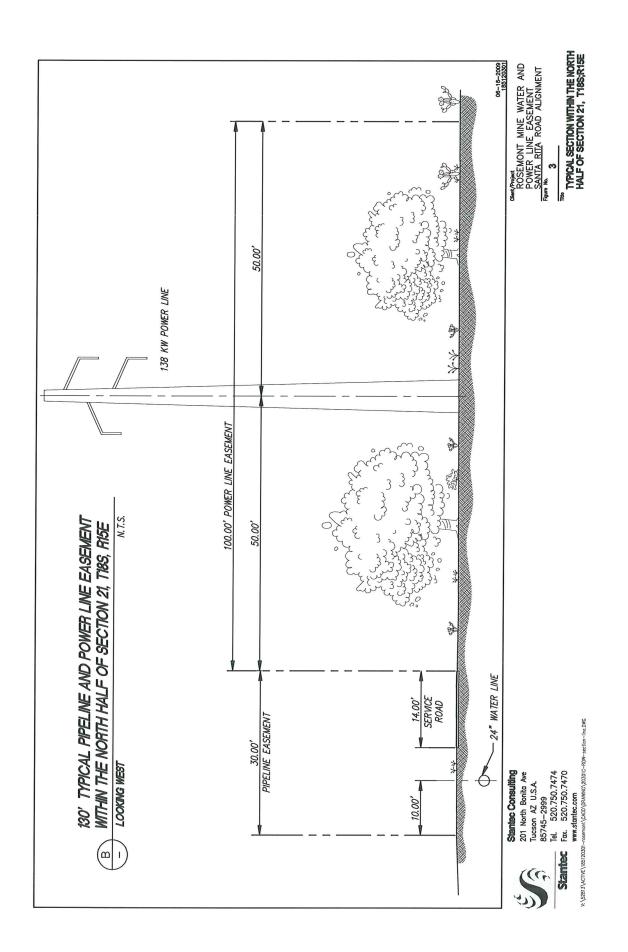
Steve Husman

Mitch McClaran

Enclosures









Janice K. Brewer Governor

Maria Baier State Land Commissioner

August 3, 2009

Rosemont Copper Company c/o Michael J. Phalen Fennemore Craig, P.C. 3003 North Central Ave. Suite 2600 Phoenix, AZ 85012

Re: Right-of-Way Application No. 14-112157

Dear Michael,

The Department recently received a letter from the University of Arizona, through Colin Kaltenbach, Ph.D., Vice Dean and Director of the College of Agriculture and Life Science, regarding your client's right-of-way application. I have enclosed a copy of the letter and the enclosed maps for your review. As you know, the alignment of Rosemont Copper Company's current right-of-way application runs along the perimeter of the University's Santa Rita Experimental Range located southeast of Sahuarita, Arizona. In his letter, Dr. Kaltenbach requests that the Department consider a right-of-way alignment that differs from the alignment Rosemont Copper Company applied for in its Right-of-Way Application No. 14-112157. Specifically, the request is that the Department run the right-of-way along the existing Santa Rita Road alignment instead of along the perimeter of the Range.

The Department has reviewed the University's request and has determined its proposed alternative right-of-way alignment is the most appropriate under the circumstances. The Department requests that Rosemont Copper Company consent to the Department's recommendation that the alignment contained in Right-of-Way Application No. 14-112157 be amended in order to comply with the University's direction. We understand that by agreeing to accommodate the University's request that Rosemont Copper Company may need to adjust those segments of its right-of-way application that are located outside the boundaries of the Santa Rita Experimental Range to conform to the proposed new alignment within the Range. The Department is prepared to work with Rosemont Copper Company on adjustments to those other rights-of-way segments in order to accommodate the University's request.

If the proposed change to the right-of-way alignment is acceptable to Rosemont Copper Company, please provide me with a letter confirming that position as well as new exhibits and/or maps that depict the change and the Department will amend the right-of-way application file accordingly. Rosemont Copper Company will not be required to submit any separate, formal

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August 3, 2009 Rosemont Copper Company c/o Michael J. Phalen Page 2 of 2

application form to the Department to amend the right-of-way application. If the amended right-of-way alignment triggers changes to other segments of Rosemont Copper Company's right-of-way alignment located outside of the Range, please provide us with the necessary details of your proposal and we will make the necessary changes to the right-of-way application file at the same time.

Thank you for your attention to this matter.

Sincerely,

Ruben Ojeda

Manager, Right-of-Way Section

Enclosures – UofA letter and maps

cc: Jamie L. Hogue, ASLD Deputy Commissioner Jim Adams, Director, ASLD Real Estate Division



10, 20, 2000 11.1

College of Agriculture and Lle Sciences Agricultural Experiment Station

Forbes Building, Room 314 P.O. Box 210036 Tucson, AZ 85721 Tel: (520) 621-3859 Fax: (520) 621-7196 www.ag.arizona.edu

September 29, 2009

Ruben Ojeda Manager, Right of Way Section Arizona State Land Department 1616 West Adams Phoenix, Arizona 85007

> Re: Rosemont Right of Way Alignment

Dear Ruben:

It has come to our attention that interested stakeholders in the Rosemont 138kV transmission line have proposed that the line be located along the existing 46kV transmission line as opposed to the Santa Rita Road alignment that we proposed in our letter of June 30, 2009.

We have reviewed this proposal and, primarily for the reasons given earlier, still prefer the Santa Rita Road Alignment.

Please call me with any questions or comments.

Sincerely,

Colin Kaltenbach, PhD Vice Dean and Director

cc. Jamie Hogue Jamie Sturgess Michael Phalen Steve Husman / Mitch McClaran

Arizona's First University - Since 1885.



College of Agriculture and Life Sciences Agricultural Experiment Station Forbes Building, Room 314 P.O. Box 210036 Tucson, AZ 85721-0036 Tel: (520) 621-3859 Fax: (520) 621-7196 http://ag.arizona.edu

> **CPU** DEC 18 2009

December 16, 2009

Ruben Ojeda Manager, Right of Way Section Arizona State Land Department 1616 West Adams Phoenix, Arizona 85007

Re: 138Kv Transmission Line Project and Temporary 46Kv Line, SRER

Dear Ruben:

We are aware that the Rosemont 138Kv Transmission Line Project, which traverses the Santa Rita Experimental Range (SRER), has three potential alternatives for providing power to the proposed Rosemont Mine. In addition, we recently learned of a proposal to locate a temporary 46Kv line to provide power for construction of the proposed mine.

As we understand it, one alternative for the 138Kv line is to follow the existing Santa Rita Road through the SRER. The other two alternatives are to either locate along the northern boundary of the SRER, or locate along the existing 46Kv line that traverses (NW-SE) the SRER and is located south of the Santa Rita Road.

We have again reviewed the alternatives for the permanent 138Kv line, and remain committed to our preference for the alignment along Santa Rita Road as articulated in letters to you dated June 30, 2009 and September 29, 2009.

There appear to be two alternatives for the temporary 46Kv line, one from the existing Greaterville substation located to the southeast of the proposed mine, and a second that would extend the existing 46Kv line on the SRER.

Utilization of the existing 46Kv line through the SRER, requires a link (labeled Link 120) that will traverse north across the SRER from the existing 46Kv line to the Santa Rita Road.



We find that the proposed location for routing the Link 120 would negatively impact four (4) long-term repeat photography locations, five (5) long-term research study areas, twenty (20) long-term permanent vegetation transects, one (1) long-term livestock exclosure area and one (1) livestock watering facility. Accordingly, we strongly oppose the proposed routing for Link 120 and favor bringing construction power (46Kv line) from the Greaterville Substation.

Thank you for the opportunity to review the matter with your office. Please call me with any questions or comments.

Sincerely,

Colin Kaltenbach, PhD. Vice Dean and Director

cc. Vanessa Hickman
Jamie Sturgess
Michael Phalen
Steve Husman
Mitch McClaran

Lauren Weinstein, EPG, Inc

Mainback



Forest Service Coronado National Forest Nogales Ranger District 303 Old Tucson Road Nogales, Arizona 85621 Phone (520) 281-2296 FAX (520) 281-2396

File Code: 1950/2800

Date: July 23, 2010

Lauren Weinstein Principal Environmental Planning Group (EPG) 4141 North 32nd Street Suite 102 Phoenix, AZ 85018



Dear Ms. Weinstein,

We appreciate the opportunity to comment on the various alternative routes to provide power to the proposed Rosemont Mine project. We are not ready to identify which is our preferred route at this time but offer the following:

North Route Family Options #8 and #10, Santa Rita Road Family Options #7 & #9 and Adjacent 46kV Family Option #1 & #2 would have similar effects to the Forest. Each option proposes a utility line on Forest System lands from Helvetia to the proposed Rosemont mine project area utilizing segment 140. Most of segment 140 would occur on patented land with limited sections occurring on National Forest System lands. The most notable being effects to Forest viewsheds.

All options except for the Adjacent 46kV Family – Option #4 funnels through Helvetia from one direction or another. We concur with the idea of co-locating the proposed utility line with the proposed water line to reduce the ground disturbance footprint.

North Route Family Option #3, Santa Rita Road Family Options #1,& #3 and Adjacent 46kV Family Option #4 & #6 would utilize segments 160, 170, 190 and 210 for construction power. Up to now the Forest understood segments 160, 190 and 210 would only be for temporary construction power and would be removed after construction and segment 150 would remain to supply backup power through the Greaterville substation to Fort Huachuca. There has been discussion about possibly keeping segments 160, 190 and 210 in place as back-up power from the proposed mine from the Greaterville sub-station.

The Forest's preference is to have the minimum amount of utility lines on the Forest. Therefore if segments 160, 190 and 210 are retained for backup power to the mine and Fort Huachuca then the Forest would ask for segment 150 which runs through Box Canyon to be removed as it appears this line would no longer be necessary.

Retaining segments 160, 190 and 210 as back-up power for Rosemont mine instead of relying solely on back-up generators is preferred for air quality management as it would reduce the need to run generators that would add exhaust emissions to the air. However, the additional lines would have adverse visual impacts.





Knowing 138kV lines are fairly reliable the Forest asked Tucson Electric Power (TEP) to estimate the probability of needing back-up power for the Rosemont mine project and was provided the following table:

138 kV	Forced Outages / 100milles per year	Average Service Availability Index
2007	1.955	0.999
2008	3.631	0.999
2009	3.611	0.997
2010 YTD	0.000	1.000

Based on the service availability index it appears probable that the proposed Rosemont mine would have reliable power 99.8% of the time and thus would need limited back-up power during the expected life of the project.

We recommend minimizing the need for new roads by constructing new powerlines near existing roads, except when this would result in greater impacts. An example would be segments 160 and 190. To reduce the visual obtrusiveness it is recommended to consider placing the line just to the west of the proposed line in side canyons that run north-south along the section boundary lines between Sections 12 and 7 and Sections 1 and 6 to reduce the visibility of the utility line. The canyon bottoms vary from about 75 to 400 feet in elevation change from the ridgelines.

None of the Route Family Options are located in a wetland, floodplain, municipal watershed, or riparian area on the Forest. They are not located in a Class I air quality area or a non-attainment area for air quality. Effects to watershed and air resources would be negligible. During construction, there would be dust and soil displacement, and the potential for accelerated erosion along the corridor. Best Management Practices for surface erosion control would need to be implemented.

With regard to archaeological sites and heritage resources, when an alternative is selected, a complete "Class III" inventory will be needed with sites located, recorded, and evaluated for National Register eligibility. Eligible sites would then be subject to archaeological testing and data recovery.

In general, there appears to be a small number of sites on Forest System Lands that could be affected by the different routes shown on their maps. There is a relatively dense concentration of larger, more complex sites in the vicinity of the Greaterville substation. If line 170 is improved then sites there in the Area of Potential Effect will need to be evaluated.

Again, from an archeological perspective, looking off Forest, it would be preferred to preserve what remains of Helvetia to the extent possible. Helvetia could be affected by each route that uses segments 95, 135, 140 and 155 (EPG Map, Inset B). Also, segment 100 would pass quite close to Huerfano Butte, a prominent landmark which members of the Tohono O'odham and Pascua Yaqui have indicated as an important traditional cultural place. Thus, from a cultural resource perspective, Adjacent 46kV Family – Option #4 route would by the preferred route. However, the Adjacent 46kV Family – Option #4 route is the least preferred for visual impacts. The Forest could provide more detailed comments particularly to the possible effects to heritage, soils, watershed and visual resources if it could be displayed where the utility line would likely be and where utility poles would likely be placed within the 1,000 ft. corridor

Also, is the maintenance schedule for Segment 150 known? Is it likely the 46kV line will need to be replaced and access routes re-opened prior to when any of the proposed routes would be constructed?

Sincerely,

KENT C. ELLET District Ranger



Town of Sahuarita

Planning & Zoning Department

October 7, 2009

Jaime Wood Environmental Planning Group 4141 North 32nd Street Suite 102 Phoenix, Arizona 85018

RE: Rosemont 138kV Transmission Line

Dear Ms. Wood:

The Town of Sahuarita is providing the following comments regarding the switchyard proposed and the transmission line segments proposed to serve the Rosemont Mine with the 138kV Transmission Line planned for a site east of Town limits. For the record, the Town does not support the larger Rosemont Mine project currently under NEPA review but recognizes that TEP is obligated to serve the user.

- The Town recommends the proposed poles that will be replaced along the existing 46kV transmission line be as low as possible in order to maintain the current scenic view along Line Segments 30, 110 and 150.
- The Town prefers the existing 46kV transmission line alignment that is located east of the Town of Sahuarita; the route includes Line Segments 30, 110, 150, 160 & 190.
- It is strongly recommended that the existing easements along roadway alignments adjacent to Line Segments 160 & 190 be used for the proposed 138kV line in order to minimize disturbance to animal and plant life.
- The Town requests a map for the project that outlines the footprint, location and necessary infrastructure needed for the proposed switchyard at the intersection of Line Segment 20 and 30.
- The Town encourages co-location on proposed 138kV poles to serve the future areas east of Town limits in order to prevent further disturbance of natural open space.

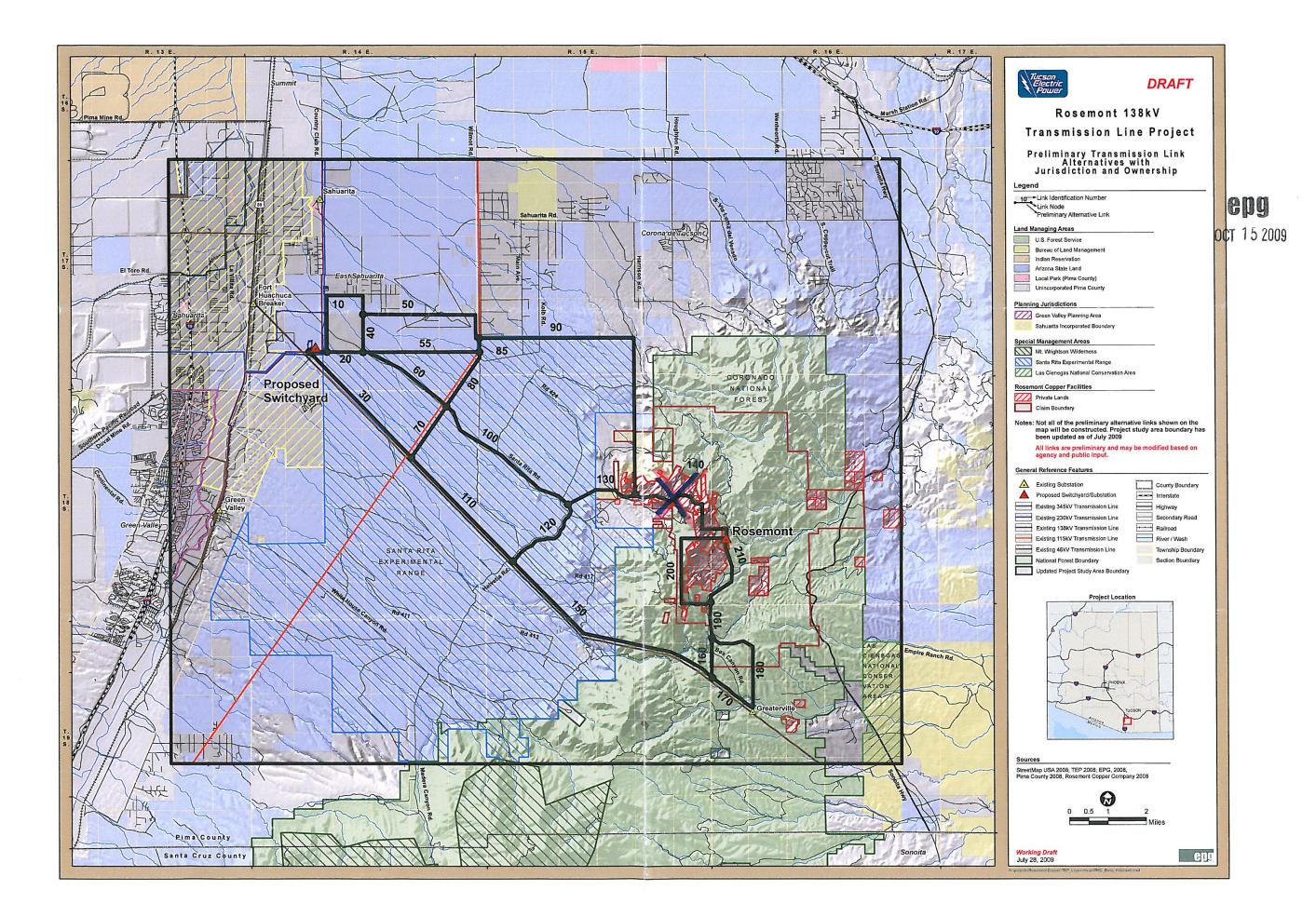
If you have any questions or would like to discuss the comments provided, please contact me or Orlanthia Henderson at 520-822-8852.

Sincerely,

Sarah S. More, FAICP Planning & Zoning Director

Town of Sahuarita

375 W. Sahuarita Center Way • Sahuarita, AZ 85629 • www.ci.sahuarita.az.us





PIMA COUNTY BOARD OF SUPERVISORS

130 W. CONGRESS STREET, 11TH FLOOR TUCSON, ARIZONA 85701-1317

TELEPHONE (520) 740-8126 FAX (520) 884-1152 E-MAIL: district5@pima.gov WEBSITE: www.district5.pima.gov

3.24.09

KEITH BAGWELL EXECUTIVE ASSISTANT

ANDREA ALTAMIRANO
SPECIAL STAFF ASSISTANT

ANNA HARPER SPECIAL STAFF ASSISTANT

EVANGELINA OUIHUIS

SPECIAL STAFF ASSISTANT
ISABEL SEGOVIA
SPECIAL STAFF ASSISTANT

EPG Inc. 4141 N. 32nd St., Suite 102 Phoenix, Ariz. 85018-9960

March 20, 2009

To Whom it May Concern:

I write to put on the record my opposition to the installation of an electric-power transmission line from any Tucson Electric Power Co. facilities to the site of a proposed Rosemont Copper Mine in the Santa Rita Mountains foothills southeast of Tucson.

My opposition to the proposed open-pit mine is based primarily on the severe environmental degradation it would entail as Pima County strives to maintain key elements of the unique Sonoran Desert habitat that drew here so many of the county's residents and that continues to fuel much of our critical tourism industry.

Scraping a path through pristine parts of this desert area, vital for the survival of numerous unique and rare animal and plant species, to erect another electric power line would further degrade the area's habitat values and should not be allowed to occur.

The Pima County Board of Supervisors, of which I am chairman, has passed four resolutions, attached, in opposition to the Rosemont Mine proposal, and to actions attendant to its development that also are environmentally destructive.

The Rosemont site itself is in an area Pima County has identified as containing important ecosystems that are desirable to the county for protection. Its downstream impacts would be devastating to both the county's Cienega Creek Natural Preserve and to its tributary, Davidson Canyon, which is state-recognized as Outstanding Waters.

The Rosemont Mine proponents want to pump ground water and move Central Arizona Project water from the canal to other sites, altering and negatively impacting our precious regional water supplies.

This proposal to transmit electric power over and through sensitive desert habitats, across washes and canyons, and into forested areas to serve the mine's needs promises further habitat loss and environmental degradation. It should be rejected.

Richard Elías

Since

Chairman, Pima County Board of Supervisors

cc: Members of the Arizona Corporation Commission

NOT PRINTED AT GOVERNMENT EXPENSE

RESOLUTION NO. 2007-_15

RESOLUTION OF THE PIMA COUNTY BOARD OF SUPERVISORS OPPOSING THE PROPOSED ROSEMONT MINE

WHEREAS, Augusta Resource Corporation submitted a draft plan of operations to the U.S. Forest Service on July 31, 2006 to develop the Rosemont Mine on private and Forest Service land within the Santa Rita Mountains south of Tucson; and

WHEREAS, Augusta's July 31, 2006 plan of operations was not accepted by the U.S. Forest Service due to insufficient information; and

WHEREAS, Pima County provided comments on the July 31, 2006 plan of operations to the U.S. Forest Service and to Augusta stating five performance criteria that should be met by any mining or development project proposed for such a location; and

WHEREAS, these five performance criteria address concerns in the areas of conformance to the County's Comprehensive Land Use Plan, Conservation Lands System, and Sonoran Desert Conservation Plan, prevention of water quality and quantity impacts, concurrent reclamation, visual impacts, and an environmental enhancement endowment; and

WHEREAS, the U.S. Forest Service via the National Environmental Policy Act will be required to take into account consistency with local land use plans, which in this case is the Pima County Comprehensive Land Use Plan including the Conservation Lands System; and

WHEREAS, Pima County is preparing an application for a Section 10 permit pursuant to the Federal Endangered Species Act via the U.S. Fish and Wildlife Service, and the land proposed for mining contains important ecosystems desired for protection; and

WHEREAS, the typical legacy left behind from prior and existing mines places undue costs and adverse impacts on the tax payers of Pima County with few local tax benefits, and is therefore unacceptable; and

WHEREAS, a recent study of 70 Environmental Impact Statements for modern-era hard rock mines found that water quality impacts from hard rock mines are consistently underestimated and therefore the mitigation is consistently inadequate; and

WHEREAS, water quality impacts to Davidson Canyon and Cienega Creek would be detrimental to rare riparian habitat along the creeks, the endangered species within the creeks, and the high quality water supply to the Tucson Basin; and

WHEREAS, Augusta has not yet shown how the Rosemont Mine will conform to the Clean Water Act, Stormwater and Section 404 permit requirements for the deposition of dredge and fill materials in waters of the United States; and

WHEREAS, a recent geological survey of the site brings into question the stability of the high wall natural rock formations above the proposed mining pit; and

WHEREAS, the County has questioned the validity of Augusta's Forest Service mining claims due to the fact that the claims are not proposed to be mined for the recovery of valuable minerals, but are instead proposed to be used as a dumping ground for waste produced from mining on Augusta's private land, thereby invalidating the legal foundation of the original claims; and

WHEREAS, Augusta has not yet proved that it has valid Forest Service mining claims; and

WHEREAS, the information Augusta has provided the County to date leaves many questions unanswered and is insufficient to determine if and how Augusta would be able to meet the five performance criteria outlined by the County to address the negative impacts associated with the proposed Rosemont Mine.

NOW, THEREFORE, UPON MOTION DULY MADE, SECONDED AND CARRIED, BE IT RESOLVED THAT:

- 1. The Pima County Board of Supervisors opposes Augusta Resource Corporation's proposed Rosemont Mine.
- 2. Pima County will continue to actively comment on any future plan of operations submitted for Rosemont Mine, including during any formal review by the U.S. Forest Service per the National Environmental Policy Act.
- 3. The Pima County Board of Supervisors hereby supports the withdrawal of all Pima County natural reserve parks from mineral entry, as well as Federal lands included in National Parks, Monuments, and Forests within Pima County.
- 4. The Pima County Board of Supervisors hereby supports the inclusion of these lands (Rosemont) for conservation purposes into the National Forest Federal Land and Water Conservation Funds.
- 5. The Pima County Board of Supervisors requests the Arizona Congressional Delegation initiate the permanent withdrawal from mining and mineral exploration all federal lands within the Santa Rita Mountains area of the Coronado National Forest.

J-404

Passed by the Board of Supervisors of Pima County, this 16th day of January, 2007.

Chairman, Pima County Board of Supervisors

JAN 1 6 2007

APPROVED AS TO FORM:

Deputy County Attorney

RESOLUTION NO. 2007- 33

RESOLUTION OF THE PIMA COUNTY BOARD OF SUPERVISORS TO WITHDRAW AREAS FROM MINING AND MINERAL EXPLORATION

WHEREAS, filling of mining claims, trespass, mineral extraction, and mineral exploration activities have become a significant threat to our conservation of natural landscapes, wildlife, water resources, and public health; and

WHEREAS, within the last two years, the County has had to commit taxpayer resources to opposing mineral exploration and mineral extraction activities on or adjacent to County natural reserves including Rancho Seco, Six Bar Ranch, Oracle Ridge properties, Bar V Ranch, and Cienega Creek; and

WHEREAS, the County has expended over \$50 million in County bond funds to purchase these properties for conservation; and

WHEREAS, these properties were purchased by Pima County to conserve federally endangered and threatened species, and prevent the future listing of vulnerable species as endangered or threatened; and

WHEREAS, even portions of the County's Tucson Mountain Park are still open to mineral entry and were subject to exploratory activities in the 1980s; and

WHEREAS, the Board of Supervisors passed Resolution 2007-15 on January 16, 2007 opposing the proposed Rosemont Mine in the Santa Rita Mountain Range of the Coronado National Forest, and requesting the withdrawal of certain areas from mineral entry; and

WHEREAS, the Board of Supervisors passed Resolution 2005-124 on June 7, 2005 opposing mining within County reserves and biologically sensitive areas; and

WHEREAS, rapid population growth throughout Arizona, combined with significant tourism and economic development that is dependent on the natural beauty of this State, make the State incompatible with current mining practices and mining laws; and

WHEREAS, current mining practices and mining laws have resulted in inadequate and under-funded mitigation and reclamation in connection with mining activities; and

WHEREAS, inadequate and under-funded mitigation and reclamation have resulted in irreversible impacts to our native fish and wildlife, impacts to water quality and quantity, and visual blight; and

WHEREAS, the taxpayers of this County see few local tax benefits from mining and are instead left with the undue burden associated with air, water and visual pollution from previous mining activities; and

WHEREAS, mining has lead to public health concerns in Pima County, including impacts to ground water in and around the mines in Green Valley, and on Bureau of Land Management land known as Saginaw Hill; and

Page 1 of 2

WHEREAS, in the case of Saginaw Hill, the Bureau of Land Management is left with the expense of assessing the public health impacts from mining activities that occurred historically on the property and remediating such impacts in order to protect public health; and

WHEREAS, 1,299,600 acres of Federal lands in Pima County, made up of the Ironwood Forest National Monument, Organ Pipe National Monument, Saguaro National Park, Las Cienegas National Conservation Area, Buenos Aires National Wildlife Refuge, Cabeza Prieta National Wildlife Refuge, Goldwater Gunnery Range, Pusch Ridge Wilderness Area, Rincon Wilderness Area, Mt. Wrightson Wilderness Area, Baboquivari Peak Wilderness Area, and Coyote Mountain Wilderness Area are already closed to mineral entry subject to existing valid rights at the time of designation; and

WHEREAS, withdrawing from mineral entry the federal lands within the Santa Rita Mountain Range of the Coronado National Forest in Pima County, excluding the Mt. Wrightson Wilderness Area which is already closed to mineral entry, would close an additional 52,000 acres to mineral entry; and

WHEREAS, withdrawing from mineral entry the remaining federal lands within the Coronado National Forest in Pima County, excluding wilderness areas and the Santa Rita Mountain Range, would close an additional 186,000 acres to mineral entry.

NOW, THEREFORE, UPON MOTION DULY MADE, SECONDED AND CARRIED, BE IT RESOLVED THAT:

- The Pima County Board of Supervisors hereby requests that the Arizona Congressional Delegation initiate the permanent withdrawal, from mining and mineral exploration, of all federal lands within the Santa Rita Mountain Range of the Coronado National Forest in Pima County.
- The Pima County Board of Supervisors hereby requests that the Arizona Congressional Delegation initiate the permanent withdrawal, from mining and mineral exploration, of the remaining federal lands within the Coronado National Forest in Pima County.
- 3. The Pima County Board of Supervisors hereby requests that the Arizona Congressional Delegation initiate the permanent withdrawal, from mining and mineral exploration, of all County-owned natural reserves where the federal government owns the subsurface mineral rights.

Passed by the Board of Supervisors of Pima County, this 20th day of February, 2007.

Chairman, Pima County Board of Supervisors

ATTEST:

Clerk of the Board of Supervisors

APPROVED AS TO FORM:

Deputy County Attorney

Page 2 of 2

Resolution No. 2007- 78

RESOLUTION OF THE PIMA COUNTY BOARD OF SUPERVISORS SUPPORTING THE USE OF NATIONAL FOREST SERVICE'S LAND AND WATER CONSERVATION FUNDS FOR ACQUISTION OF CRITICAL HABITAT IN PIMA COUNTY

WHEREAS, the National Forest Federal Land and Water Conservation Fund Act of 1965, as amended (16 U.S.C. 4601), authorizes the United States Congress to appropriate funding to the United States Fish and Wildlife Service for acquisition of land for National Wildlife Refuges as otherwise authorized by law; and

WHEREAS, the Endangered Species Act of 1973, as amended (16 U.S.C. 1534) authorizes the use of funds appropriated under the Land and Water Conservation Fund Act to acquire land, waters or interests therein for the conservation of fish, wildlife and plants, including those that are listed as endangered or threatened species; and

WHEREAS, in 1985 the United States Fish and Wildlife Service acquired the Buenos Aires Ranch, and it became a National Wildlife Refuge for conservation of native grasslands and habitat for pronghoms, masked bobwhite quail and other native species; and

WHEREAS, in 2000, the United States Congress authorized the creation of the Las Cienegas National Conservation Area, also known as the Empire-Cienega Resource Conservation Area, for conservation of several endangered species and unique southwestern habitats including cienegas, riparian areas, and semi desert grasslands; and

WHEREAS, on January 9, 2007, the Pima County Board of Supervisors approved Resolution Number 2007-10, authorizing County staff to apply to purchase the development rights on State Trust Land known as the Buenos Aires Inholdings; and

WHEREAS, there is an increasing need to conserve water resources in the Arivaca Basin, which supports much of the Buenos Aires National Conservation Area, and protect the critical habitat and water resources of the Arivaca Cienega, by acquiring private lands for sustainable resource management and conservation; and

WHEREAS, on January 9, 2007, the Pima County Board of Supervisors approved Resolution Number 2007-11, authorizing County staff to apply to purchase the development rights on State Trust Land within Davidson Canyon; and

WHEREAS, on January 16, 2007, the Pima County Board of Supervisors approved Resolution Number 2007-15, supporting the acquisition of public and private lands associated with the proposed Rosemont Mine for purposes of conservation and for the protection of Cienega Creek and Davidson Canyon, using National Forest Federal Land and Water Conservations Funds; and

WHEREAS, it is in the best interests of the residents of Pima County that critical southwestern habitat and water resources be preserved through acquisition, by an appropriate governmental agency, of lands, water rights, and interests therein, in the Arivaca Cienega and Rosemont areas, for sustainable resource management and conservation.

NOW, THEREFORE, UPON MOTION DULY MADE, SECONDED AND CARRIED, BE IT RESOLVED THAT:

- 1. The Pima County Board of Supervisors supports the acquisition of land, waters or interests therein for the conservation of southwest habitat including cienegas, riparian areas, and semi desert grasslands, especially those habitats associated with the Buenos Aires National Wildlife Refuge and the Empire-Cienega Resource Conservation Area.
- 2. The Pima County Board of Supervisors supports the acquisition by the United States Fish and Wildlife Service, or other appropriate federal agency, of these lands (Arivaca Cienega and Rosemont), using National Forest Federal Land and Water Conservation Funds.
- 3. The Pima County Board of Supervisors hereby requests the Arizona Congressional Delegation to initiate legislation to authorize funds for acquisition of these lands, water resources and interests therein.

Passed by the Board of Supervisor April , 2007.	s of Pima County, this day of
	Chairman, Pima County Board of Supervisors
ATTEST: The Hodochian Clerk of the Board	APPROVED AS TO FORM: Deputy County Attorney

2

1100000

RESOLUTION NO. 2007- 321

RESOLUTION OF THE PIMA COUNTY BOARD OF SUPERVISORS REGARDING THE PROPOSED CENTRAL ARIZONA PROJECT (CAP) PIPELINE FOR COMMUNITY WATER COMPANY OF GREEN VALLEY

WHEREAS, on January 16, 2007, and after review of the July 31, 2006 Rosemont Mine Plan of Operations, the Pima County Board of Supervisors approved Resolution No. 2007-15 opposing the proposed Rosemont Mine.

WHEREAS, Resolution No. 2007-15 called for the permanent withdrawal of Coronado National Forest lands and Pima County Reserve lands from mining and mineral exploration.

WHEREAS, Pima County submitted comments dated July 31, 2006 and July 11, 2007 to the US Forest Service on the Rosemont Mine Plan of Operations questioning the hydrological impacts of the proposed wells in the Sahuarita area.

WHEREAS, Pima County's requests for a validity exam of Rosemont's claims have been rejected by the Forest Service.

WHEREAS, the Arizona Department of Water Resources standards of review to determine whether new wells increase damage to surrounding land or other water users in Active Management Areas appear not to apply to Rosemont's mineral extraction well permit.

WHEREAS, Rosemont has applied for one mineral extraction withdrawal permit for the proposed mine and a second well is being tested.

WHEREAS Pima County called for extensive groundwater modeling to assess the impacts of these wells on an area that is already extremely over drafted.

WHEREAS, the Farmers Investment Company (FICO), by way of a letter dated October 30, 2007, has stated objection to the issuance of one of the mineral extraction well permits, Application No. 59-215979.0000, due to the potential that the water pumping could cause an addition 150 feet of drawdown during a 20-year period and could cause a migration of a sulfate plume from mining operations west of FICO property.

WHEREAS, on October 2, 2007, a report was provided to the Board of Supervisors which found that:

- 1. The aguifer in the Sahuarita-Green Valley area is being over drafted
- The area is in need of sustainable water supply options, including the construction of infrastructure to deliver CAP water
- 3. Water supply infrastructure is needed to provide renewable water for all water use sectors in the area, including municipal, agriculture, turf and metal mining
- A collaborative process that would provide an opportunity for water use sectors to participate in construction of water delivery infrastructure for the Sahuarita-Green Valley area is needed.

WHEREAS, on October 25, 2007, Community Water Company of Green Valley made public a Letter of Intent between Community Water Company of Green Valley and Augusta Resource Corporation that describes a proposal for the construction and operation of a Water Delivery System to transport and recharge Central Arizona Project (CAP) water in the service area of Community Water Company of Green Valley.

WHEREAS, Augusta Resources Corporation would have first priority for the utilization of the proposed Water Delivery System and recharge design capacity for 15 years from the initial operation of the Water Delivery System.

WHEREAS, the proposed water delivery system would be used to store CAP water and generate credits in an area distant from the mineral extraction wells and mining activities at the proposed Rosemont mine.

WHEREAS, Community Water Company of Green Valley provides municipal water service to approximately 18,000 residents in Pima County.

WHEREAS, Community Water Company of Green Valley is a water utility regulated by the Arizona Corporation Commission.

WHEREAS, Arizona Corporation Commission is holding a Special Open Meeting on Wednesday, December 5, 2007 at 1:00 p.m. for the purpose of public comment on the Proposed CAP Water Pipeline.

NOW, THEREFORE, UPON MOTION DULY MADE, SECONDED AND CARRIED, BE IT RESOLVED THAT:

- 1. Pima County attend the Special Open Public meeting to be held by the Arizona Corporation Commission on December 5, 2007.
- 2. The following issues will be raised at the Special Open Meeting
 - a. Pima County supports the direct use of CAP water for mining versus the use of ground water.
 - b. There appears to be no requirement that Augusta Resource Corporation funding will be committed to the pipeline extension if the mine is not permitted.
 - c. The funding obligations or other commitments for the pipeline expansion must have been made by mid-November, which did not allow any collaboration by any other parties on the project.
 - d. The CAP pipeline proposal meets less than ten percent of the projected water use of the area in 2015.
 - e. If built as a single-purpose pipeline, the proposed CAP pipeline would reduce the opportunities for later expansions.
 - f. The proposed CAP pipeline would not address the impacts of groundwater depletion upon existing users caused by the proposed mineral extraction wells.
 - g. The proposed agreement advantages Augusta Resources Corporation.
- 3. The Board direct staff to take the following actions:
 - a. Facilitate and assist Green Valley municipal providers, as well as existing mine and agricultural water users to cooperate in the extension and financing of a CAP Pipeline to provide both direct use of CAP renewable water supplies, as well as recharge of same.
 - b. Initiate State legislation to enable the Arizona Department of Water Resources to require impact studies before issuance of mineral extraction well permits.
 - c. Continue to support the initiation in Federal legislation to withdraw lands in the Coronado National Forest and Pima County reserves from mining and mineral exploration.
 - d. Continue to support a validity exam of the Rosemont mining claims due to concerns regarding the profitability of mineral located in the US Forest Claims.

Passed by the Board of Supervisors of Pima County, this 4th day of December , 2007.

Chairman, Pima County Board of Supervisors

APPROVED AS TO FORM:

ARIZONA ARIZONA

PIMA COUNTY BOARD OF SUPERVISORS

RAY CARROLL COUNTY SUPERVISOR DISTRICT 4

130 WEST CONGRESS, 11th FLOOR TUCSON, ARIZONA 85701-1317 (520) 740-8094 (520) 740-2721 FAX

September 3, 2009

Ed Beck, Director of Siting Tucson Electric Power Company P.O. Box 711, UE 108 Tucson, AZ 85702

Re: Rosemont 138 kV Transmission Line Project Public Hearing

Dear Mr. Beck:

The purpose of this letter is to request that Tucson Electric Power hold a public hearing on the above referenced project. I suggest that this hearing be held in the 4th quarter of 2009 as part of the Task 4 activities outlined in your Project Newsletter #2, dated August, 2009.

Several of my constituents, as well as representatives of civic organizations interested in this project, have asked for this hearing.

While I think you have done an excellent informational job with your fist two public open house meetings, many people – including myself – feel that a single presentation, followed by public input, will give you a better understanding of the public sentiment surrounding the proposed routes for your transmission lines.

As far as location is concerned, I would be satisfied with whatever venue you chose; however, I would encourage you to look at the Vail/Corona de Tucson area. This would give you an opportunity to reach residents on the north and east sides of your study area since your Green Valley and Sahuarita open house meetings reached residents on the west and south sides of the area.

Thank you for your attention to this matter. I look forward to hearing from you.

Sincerely,

Ray Carroll

C: Gayle Hartmann, President, Save the Scenic Santa Ritas Mike Carson, President, Empire Fagan Coalition Charlotte Cook Elizabeth Webb Larry Lucero, Tucson Electric Power Co.