MEMORANDUM

Date: March 9, 2011

To: The Honorable Chairman and Members
Pima County Board of Supervisors

From: C.H. Huckelberry
County Administrator

Re: **Proposed Rosemont Mine – Three-dimensional Model for Public Education, Unknown Mitigation, Comparatively Low Tax Rates and High Profitability**

Introduction

Recently, the Arizona Builder's Alliance (ABA) announced its support for the proposed Rosemont Mine. In their announcement, they highlighted the short-term impacts – the need for jobs and the significant capital investments that will be made by the proposed mine. The long-term ramifications, however, have been largely overlooked in the ABA's position. The huge impacts this mine would have over the natural landscape and waterways must be recognized and weighed in any real discussion. The County recently commissioned a three-dimensional model of the area to illustrate the significant impacts of the Rosemont Mine.

The three-dimensional model will be on display in the very near future: first on the First Floor of the Administration Building and then throughout various locations within the community. This model provides the observer an opportunity to visualize the location and extent of the proposed Rosemont mining operation – the pit as well as the tailings and waste piles and how Rosemont's Mine Plan of Operations will impact significant lands of the United States within the Coronado National Forest. Attachment 1 outlines the extent of the model. The model covers a significant portion of the northern portion of the Coronado National Forest and shows the mining location with respect to Mount Wrightson, Madera Canyon, Corona de Tucson, State Route 83 (the Sonoita Highway) and Interstate 10. Attachment 2 includes a photograph of the model. US Forest Service staff viewed the model on March 7, verified it is an accurate portrayal of Rosemont's Mine Plan of Operations and would like to make use of the model at future public meetings. In addition, US Forest Service staff will be providing pit geology colors so we can paint the inside of the pit. They also agreed to review the two-dimensional display that will accompany the model.

The purpose of this memorandum is to underscore why Rosemont's proposed mine will have significant unmitigated impacts on the community. A mine of this scale at this location would undermine a conservation ethic this community has consistently upheld at the polls since the 1970s, which is directly linked to the long-term economic health of our region.

While various mitigation measures have been suggested, much uncertainty remains at this time – whether any of the suggested measures will be implemented or required. Rosemont's concern that mitigation proposals may have negative cost implications is not a reasonable argument against them considering the profitability they themselves are estimating. In addition, the tax rates and revenues from mining continue to significantly lag behind that of other sectors, a fact that continues to burden our homeowners.

<u>The Mine is Located on Sensitive and Significant Natural and Cultural Resources</u>

Unlike other mines in Pima County, the site proposed in Rosemont's Mine Plan of Operations for waste disposal is predominantly on National Forest lands. An analysis of the site clearly indicates there are significant resource losses associated with using the site for waste disposal. The direct impacts alone are huge. Over 18 miles of streams and waterways would be obliterated, including the high-elevation headwaters of Davidson Canyon. The mine's disposal of waste and tailings would completely fill whole valleys, effectively eliminating Barrel, Wasp and other watersheds enjoyed by many residents of Pima County. When combined with the mile-wide pit, over 4,000 acres of wildlife habitat would be destroyed – either dug up or buried.

People instill cultural significance on the natural landscape through historic events, cultural traditions and religious beliefs. This is especially the case with Indian Tribes, a number of whom regard the Santa Rita Mountains as a traditional cultural landscape. To the Tohono O'odham, for example, *Ce:wi Duag,* the Santa Rita Mountains, are important for the plants, animals, springs, ancestral homes, ancestral burials and ancestral religious places that are embedded within this natural landscape, all of which have tremendous present day cultural and religious importance to the Tohoho O'odham. The proposed Rosemont Mine is at such an enormous vertical and horizontal scale that it will eviscerate *Ce:iw Duag*, effectively destroying this unique traditional cultural place. The San Carlos Apaches, Mescalero Apaches, Chiricahua Apaches and the Hopis all have similar concerns with respect to their traditional cultural landscapes and important ancestral places within the Santa Rita Mountains. There simply is no adequate measure that can mitigate the destructive and permanent impact of the proposed Rosemont Mine to this important and unique traditional cultural landscape.

To get an idea of the size of the area that would be impacted by the proposed mine, Attachment 3 superimposes the pit, waste and tailings area on the City of Tucson. If superimposed on the urban area, the east/west extent of the pit, waste, tailings, and plant operations extend from Interstate 10 on the west to Tucson Boulevard on the east and from Pima Street on the north to 22nd Street on the south. In addition, Attachment 4 is an aerial photograph of the mining activities that currently exist in the Green Valley area – both the

Sierrita Mine and the Mission Mine. The Silverbell Mine is inserted. The proposed Rosemont Mine is shown with the location of the pit and waste and tailings pile accurately located on the aerial photograph.

The Mine Plan of Operations proposes to eliminate the natural topography and soils that support habitat diversity across the landscape, including many of the natural, oak-studded hillsides that characterize the scenic views as one rises up toward the Sonoita plains. The post-mining landform would have extraordinarily steep side slopes that cannot be effectively revegetated and a mesa devoid of the beauty and complexity of the existing land. The new slopes would be similar to the waste disposal slopes of existing mining operations near Green Valley; hence, the reclamation proposed by Rosemont is almost meaningless. The waste disposal site, slopes, size and location are clearly evident and quite prominent in the three-dimensional model of the Mine Plan of Operations.

Further, the resulting open pit would be left essentially as excavated and allowed to deteriorate into a perpetual mine pit lake of unknown toxicity. The pit would create a 2,000-foot deep hole in the aquifer that would capture and evaporate the natural recharge that currently flows from the Santa Rita Mountains toward Upper Cienega Creek, Empire Gulch, Box Canyon and Davidson Canyon for thousands of years. The pit depth is significant. Attachment 5 is a cross-section of the open pit with specific reference to known features of the Tucson skyline, including A Mountain and the Unisource Tower. In the long term, the excavation could create instability resulting in slope failures in the pit and in the adjacent, remaining portion of the Santa Rita Mountains. Various factors, including redistribution of weight from the pit to the waste disposal areas, could also induce local seismicity (earthquakes).

<u>Unknown or Little Commitment to Mitigation</u>

In our initial discussions with Rosemont almost five years ago, many mitigation measures or alternatives were suggested. From the beginning, Pima County proposed that Rosemont provide the same proportion of mitigation that would be required from residential developers seeking a rezoning. This would amount to approximately 8,800 acres of land conservation based on the area Rosemont proposes to impact in the Mine Plan of Operations. Our suggestions have been largely, if not completely, ignored. Rosemont has also made its own proposals. Called "Community Commitments" on their website, these include a $25 million endowment for the preservation of open space and other community needs and conservation easements over 2,000 acres after the mine is closed, which is ironic, since there would be little private land left to conserve.

A certain level of mitigation will actually be required, but we are discovering the requirements may be extremely limited in scope and, therefore, of little real benefit. The US Army Corps of Engineers' required mitigation is limited to direct and indirect impacts to Waters of the United States and may include conserving in perpetuity land already owned by Rosemont. We are told the Forest Service cannot require offsite mitigation such as this. However, we have also proposed backfilling the pit with the waste material to minimize the long-term impacts on the land and aquifer. The Forest Service could choose to select this mitigation measure as, or along with, the preferred alternative.

While many mitigation measures have been suggested by many interested parties, including Rosemont, what will actually happen is largely unknown at this time. We will not know what alternatives or mitigation measures have been accepted or rejected by the Forest Service, or for what reasons, until we see the administrative draft of the Environmental Impact Statement (EIS). While the three-dimensional model currently contains inserts for the no-action alternative and the Mine Plan of Operations, new inserts can be commissioned to assist the public and decision-makers in considering other alternatives and mitigation measures that may be proposed.

Rosemont's July 2007 Mine Plan of Operations, the proposed action being evaluated by the Forest Service, unfortunately does not include any of these mitigation proposals. Rosemont's 2009 Feasibility Study, which examines whether the mine is technically and economically feasible, also does not include any of these mitigation proposals, including the costs of such. Rosemont has shown little interest in real and measurable mitigation.

Financial Analysis

Based on the Rosemont 2009 Feasibility Study, the cost to develop the mine is almost $1 billion.[1] In addition, the annual expected operating and maintenance cost over the 21-year life of the mine is $3.7 billion. Another $1 billion is listed as the cost for shipping, refining and smelting. And, half a billion is estimated for "royalties and taxes." Note "royalties" here does not mean payments to the Federal Government for the value of extracting a public resource – but payments to investors who have already purchased shares. The total cost associated with the mining operation is $6.2 billion. If simply the value of copper is used to value the mine, forgetting the economic return and benefits that will accrue from the extracted molybdenum, silver and gold, the profitability of the mine varies somewhat and is reflective of and tracks the price of copper. The economic analysis used in the Feasibility

[1] Page 117, Rosemont Copper Project Updated Feasibility Study, Amended March 17, 2009.

Study uses three copper prices: a long-term copper value of $1.85 per pound, a base case 60/40 split of $2.47 per pound and a 36-month average of $3.14 per pound[2].

Table 1. Rosemont Profit Forecast

Copper Price Per Pound	Total Pounds of Copper – 21 Years	Gross Revenues	Costs	Profit
$1.85	4,495,179,400	$ 8,316,081,890	$6,212,935,000	$ 2,103,146,890
2.47	4,495,179,400	11,103,093,118	6,212,935,000	4,890,158,118
3.14	4,495,179,400	14,114,863,316	6,212,935,000	7,901,928,316
4.59	4,495,179,400	20,632,873,446	6,212,935,000	14,419,938,446

Over the 21-year life of the mine, Rosemont predicts it will produce 4.5 billion pounds of copper.[3] Table 1 indicates Rosemont's profit forecast based on the three copper prices used in the Feasibility Study, as well as a current price. The price of copper on February 8, 2011, was $4.59 per pound.[4] This equates to a total extracted value of $20.6 billion. Subtracting the actual cost to produce this copper yields a profit of $14.4 billion. Based on copper prices alone, the breakeven cost of the mine is supported with copper just above $1.38 per pound. The financial analysis in the Feasibility Study indicates the mine is profitable and has a payback period varying from 2.3 to 5 years.[5] Clearly, this proposed mine is highly profitable, making full and complete mitigation easily achievable, if desired or required.

The Economically Feasibility of Mitigation

The costs in the Feasibility Study do not include mitigation costs. It is, however, an interesting exercise to add in the cost of some of the suggested mitigation measures to see how much they impact profitability. This is not just a trivial task. The Forest Service may dismiss mitigation measures or alternatives because they may find them not to be economically feasible. If they do, they will have to provide adequate documentation in the administrative record justifying the decision. Already, Rosemont has stated that something like partial and/or full backfilling of the pit with waste material currently slated to remain mostly on National Forest land may have negative cost implications for the project.

[2] Pages 13, 14, Rosemont Copper Project Updated Feasibility Study, Amended March 17, 2009.
[3] Page 107, Rosemont Copper Project Updated Feasibility Study, Amended March 17, 2009, copper tons multiplied by 2,204.6 pounds in a metric ton.
[4] COMEX, www.metalprices.com.
[5] Pages 114, 115, Rosemont Copper Project Updated Feasibility Study, Amended March 17, 2009.

During one of the Cooperating Agency meetings, a cost estimate of $90 million was given for backfilling six percent of the waste material into the pit. If we add this to the cost of establishing a $25 million endowment, we arrive at $115 million. Table 2 below indicates how this may impact the projected profit. Even at $1.85 a pound, it would be hard to argue that a reduction in profit from $2.1 billion to $1.98 billion would make the project uneconomical.

Table 2. Rosemont Profit Forecast with Endowment and Six Percent Backfilling.

Copper price per pound	Total Pounds of Copper – 21 Years	Gross Revenues	Cost	Profit
$1.85	4,495,179,400	$ 8,316,081,890	$6,327,935,000	$ 1,988,146,890
2.47	4,495,179,400	11,103,093,118	6,327,935,000	4,775,158,118
3.14	4,495,179,400	14,114,863,316	6,327,935,000	7,786,928,316
4.59	4,495,179,400	20,632,873,446	6,327,935,000	14,304,938,446

Although a cost estimate was not given for 100 percent backfill, a rough estimate based on the price tag associated with the six percent estimate could put it at $1.5 billion. It should actually be less than this due to lower transportation costs per unit mass because the distance diminishes as the pit is filled. Table 3 indicates how this may impact the projected profit. This may reduce their profit to just over $600 million if copper was at $1.85 a pound. However, if the price of copper averages just $4.00 per pound, their profit is over $10 billion. Mining projects in sensitive locations such as this should require a higher level of mitigation, and therefore should only go forward if copper prices remain high. Given the expected high profitability Rosemont can certainly afford much more mitigation than they have offered.

Table 3. Rosemont Profit Forecast with 100 Percent Backfilling.

Copper Price Per Pound	Total Pounds of Copper – 21 Years	Gross Revenues	Costs	Profit
$1.85	4,495,179,400	$ 8,316,081,890	$7,712,935,000	$ 603,146,890
2.47	4,495,179,400	11,103,093,118	7,712,935,000	3,390,158,118
3.14	4,495,179,400	14,114,863,316	7,712,935,000	6,401,928,316
4.59	4,495,179,400	20,632,873,446	7,712,935,000	12,919,938,446

The cost to fill the pit at $1.5 billion does not have a significant impact on their profit at present copper prices and has continuing positive economic impact due to prolonging jobs beyond their forecast period of 21 years.

Do Arizona Taxpayers Receive a Fair Return for the Extraction of Minerals by Rosemont?

Recently, there was an article in the *Arizona Daily Star* referencing a suggestion from business leaders to a group of southern Arizona legislators that additional tax revenues should be generated from copper producing companies in our state[6]. Using the economic, price and cost information from Rosemont's Feasibility Study, the total state severance and property taxes to be paid by Rosemont over the projected 21-year life of the mine is $166 million, based on a copper price of $2.47 per pound.[7] Is this amount fair and proportionate to the economic return or profit Rosemont will receive from the mining operation? The taxes paid of $166 million are equal to 3.4 percent of the projected profit if copper prices were at $2.47 per pound. This percentage drops dramatically at the present price of copper at $4.59 per pound. This tax rate can then be compared with what would have been an equivalent sales tax based on the existing State sales tax of 6.6 percent.

Table 4. Rosemont Tax Forecast.

Taxes as a Percentage of Profits	Copper Price Per Pound	Profits (Billons)	Tax Revenues (Millions)
3.4	$2.47	$4.89	$166

Of the $166 million in severance and property taxes projected to be paid by Rosemont over the life of the mine, $100 million is for severance taxes. Arizona's severance tax rate is 2.5 percent and is applied to 50 percent of the difference between the gross value of production and production costs[8]. If instead the profits of copper mining at $2.47 per pound were taxed at the State sales tax rate of 6.6 percent, the taxes paid by Rosemont would be $323 million, or more than three times those projected under current tax laws. At the current price of copper, the taxes paid would be significantly higher: $952 million.

Table 5. Sales Tax Example.

Taxes as a Percentage of Profits	Copper Price Per Pound	Profits (Billons)	Tax Revenues (Millions)
6.6	$2.47	$ 4.89	$323
6.6	4.59	14.42	952

[6] Business Groups Seek AZ Tax Action, *Arizona Daily Star*, December 17, 2010.
[7] PAGE 117, total severance tax and total property tax for base case 60/40 split scenario – copper price at $2.47.
[8] 2010 Joint Legislative Budget Committee Tax Handbook – Severance Tax on Metalliferous Minerals.

Of the $166 million in severance and property taxes projected to be paid by Rosemont over the life of the mine, $66 million is for property taxes. The property values of mines are centrally assessed by typically using an income approach to value. The valuation of mines differs from other properties in that the value of the resource diminishes over time as the resource is recovered and sold. We do not know what assumptions were used to develop the estimate of $66 million of property taxes over the life of the mine. However, dividing $66 million by the total estimated profits with copper at $2.47 per pound equates to an effective tax of 1.35 percent. Commercial, industrial and mine properties in Pima County have typically paid about 2 percent of their value in property taxes. There is no reason why Rosemont would differ. Therefore, the resulting property tax revenues should be almost one third higher based on the copper price of $2.47 per pound, and more than four times higher at current copper prices.

Table 6. Property Tax Example.

Taxes as a Percentage of Profits	Copper Price Per Pound	Profits (Billons)	Tax Revenues (Millions)
1.35	$2.47	$ 4.89	$ 66.0
2.00	2.47	4.89	97.8
2.00	4.59	14.42	288.4

Given the value of this proposed mine is embedded in the assets of the nation's taxpayers who receive nothing in return, Rosemont could and should pay far more in taxes than they are now required to pay. Fairness and tax equity demands it. However, this State is proceeding in just the opposite direction. The Governor recently signed a bill that will phase down the property tax assessment ratios for commercial, industrial and mine properties from 20 percent to 18 percent, in half-percent increments, beginning in Tax Year 2013/14. This continues the tradition of shifting the burden of paying taxes for the costs of public services and infrastructure to our homeowners – a situation that has been, and continues to be, unfair.

In addition, our County Assessor has raised questions regarding the centrally assessed values conveyed by the Arizona Department of Revenue for ASARCO and Freeport McMoRan mining operations. Sahuarita School District, which last year experienced a near 33 percent decrease in value ($625 million) as low copper prices at year-end 2008 affected centrally assessed values for ASARCO and Freeport McMoRan copper mining operations in the school district, increased this year by only three percent even though copper prices significantly recovered from year-end 2008 levels.

Economic Development Benefits are Limited as Compared to Impacts

Rosemont Copper has been extolling their economic benefits should the Rosemont copper ore deposit be extracted, processed and smelted into various metal compounds, including copper, silver, gold and molybdenum. These metal commodities have great value based on the present commodities market, which has many of these metals selling at record levels.

The economic benefits to local communities are modest when compared to other job and income-producing activities. By Rosemont's own economic studies, it will create an average of 406[9] direct new jobs paying an average annual wage of $59,000[10]. This compares to a similar economic activity of Roche/Ventana Medical Systems relocating and expanding its operations to Oro Valley where 500 jobs with an average annual wage of $75,000 are being created.

The difference in these two economic activities is primarily in their impacts to the natural environment. Rosemont's mining operation will devastate 4,400 acres of natural habitat within the Santa Rita Mountains in area enjoyed by many who live and visit our region. Roche's expansion, on the other hand, of more than equivalent economic benefits and jobs and salary to the region, will impact an area within Oro Valley that is already disturbed and designated to encourage such activities.

While the economic equivalents of the two activities are similar, the natural resource environmental impacts of the two are dramatically and demonstratively dissimilar. Rosemont has chosen to concentrate on the economic benefits to the community but has largely ignored the impacts to natural landscape, wildlife and streams. These direct impacts are both significant from their order of magnitude (equivalent to 6.5 square miles of urbanized Tucson); and they are completely irreversible, which means the natural resources, once destroyed, are lost forever and cannot be replaced, duplicated or restored.

While I am sure those advocating for Rosemont because of jobs are doing so with good intentions, consideration must be given to the long-term effects of this mine proposal on our economy and way of life. If the proposed Rosemont mine were to displace only one percent of the travel and tourism-related spending in the region, the economic loss would be greater than the entire annual payroll of the mine.[11]

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[9] Page 2, An Assessment of the Economic Impacts of the Rosemont Copper Project, Arizona Department of Mines and Mineral Resources, Seidman Research Institute, W.P. Carey School of Business, November 2009.

[10] http://www.rosemontcopper.com/economics.html. Accessed February 10, 2011.

[11] Mining's Potential Economic Impacts in the Santa Rita and Patagonia Mountains Region of Southeastern Arizona. Josef E. Marlow, PhD, Sonoran Land Institute and Resource Economist.

Summary

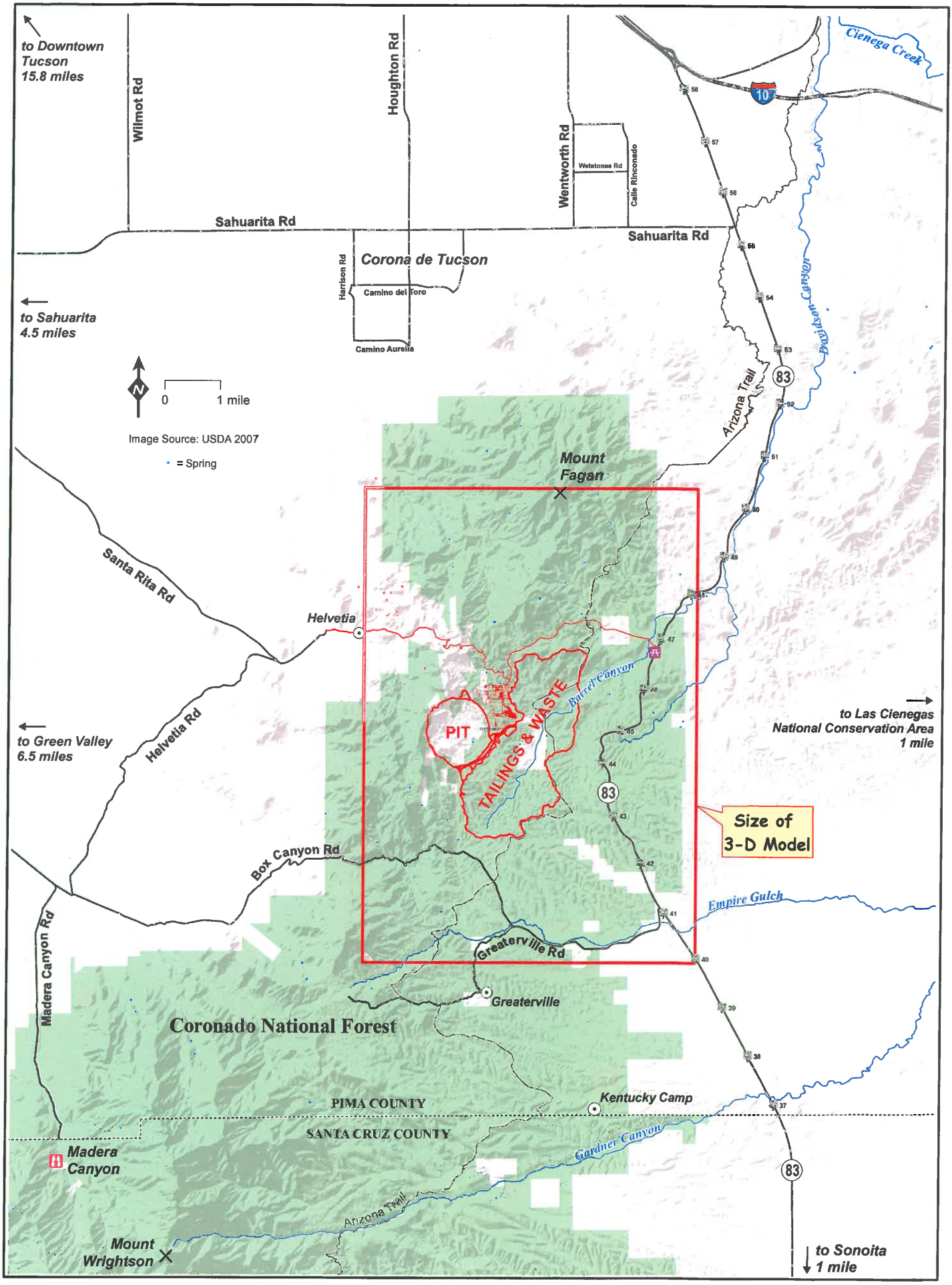
Although election results are only one way to measure the values and views of a community, they do provide an indicator as to what a community desires. This community has consistently voted for conservation of our natural and cultural resources for over 30 years. Any mine proposal of this magnitude in this location is inconsistent with this ethic. To date, any mitigation proposed by Rosemont is essentially meaningless and costs relatively nothing compared to their projected profits. National, state and local taxpayers who essentially own the mineral assets being mined are not being fairly compensated through taxation of the mining operation. The proposal as now made by the mining interests should fail.

CHH/mjk

Attachments

c: Nicole Fyffe, Executive Assistant to the County Administrator
Jan Lesher, Executive Assistant to the County Administrator
Suzanne Shields, Director, Regional Flood Control District
Sam Negri, Communications Director
Julia Fonseca, Environmental Planning Manager
Linda Mayro, Manager, Cultural Resources
Diana Durazo, Special Staff Assistant to the County Administrator

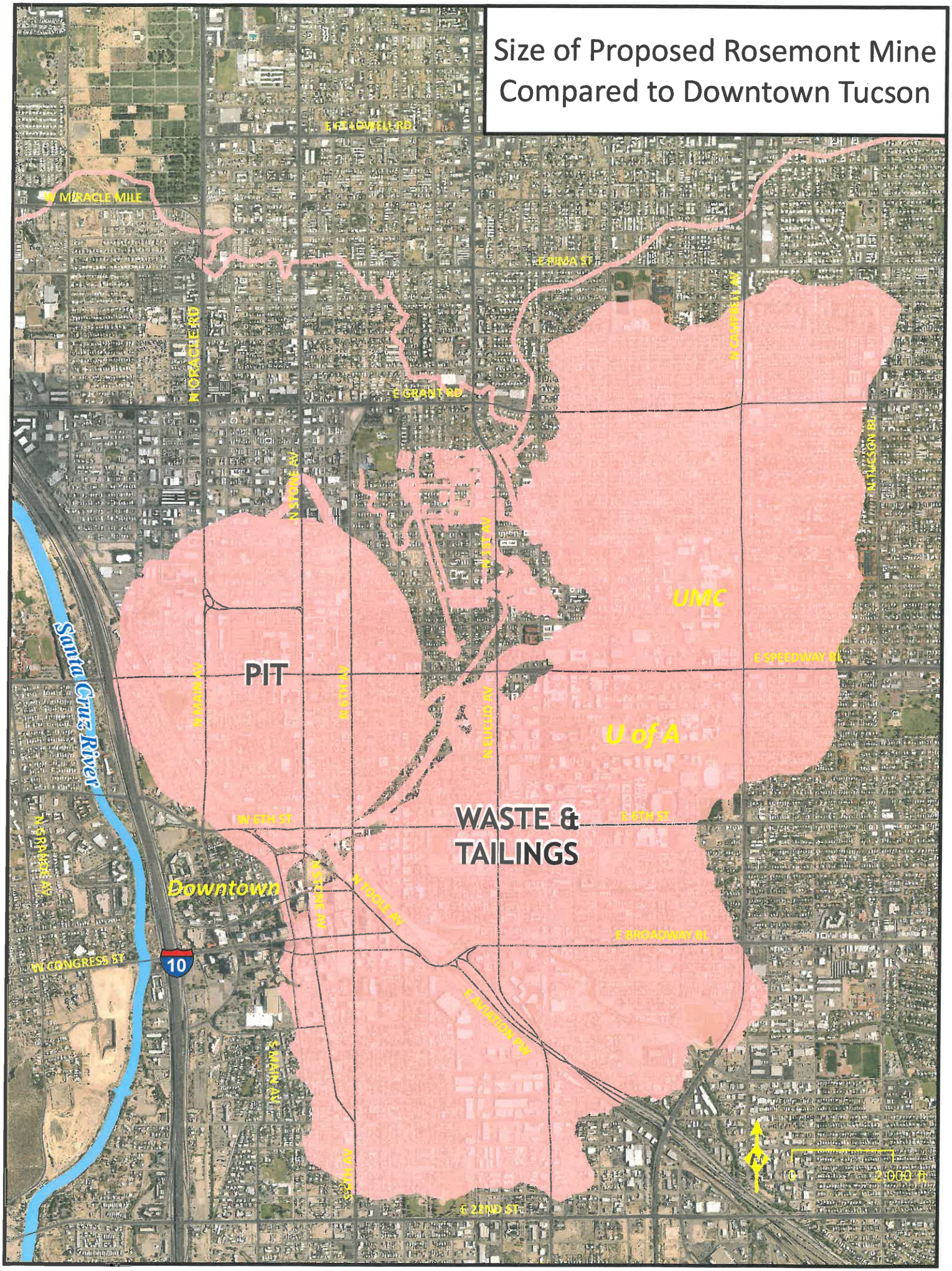
ATTACHMENT 1


to Downtown Tucson 15.8 miles
Wilmot Rd
Houghton Rd
Wentworth Rd
Wetstones Rd
Calle Rinconado
Sahuarita Rd
Sahuarita Rd
Corona de Tucson
Harrison Rd
Camino del Toro
Camino Aurelia
to Sahuarita 4.5 miles
0
1 mile
Image Source: USDA 2007
= Spring
Cienega Creek
Pantano Canyon
Arizona Trail
Mount Fagan
Santa Rita Rd
Helvetia
Helvetia Rd
to Green Valley 6.5 miles
PIT
TAILINGS & WASTE
Barrel Canyon
to Las Cienegas National Conservation Area 1 mile
Size of 3-D Model
Box Canyon Rd
Empire Gulch
Greaterville Rd
Greaterville
Madera Canyon Rd
Coronado National Forest
PIMA COUNTY
SANTA CRUZ COUNTY
Kentucky Camp
Gardner Canyon
Madera Canyon
Arizona Trail
Mount Wrightson
to Sonoita 1 mile

ATTACHMENT 2

ATTACHMENT 3

Size of Proposed Rosemont Mine Compared to Downtown Tucson



ATTACHMENT 4

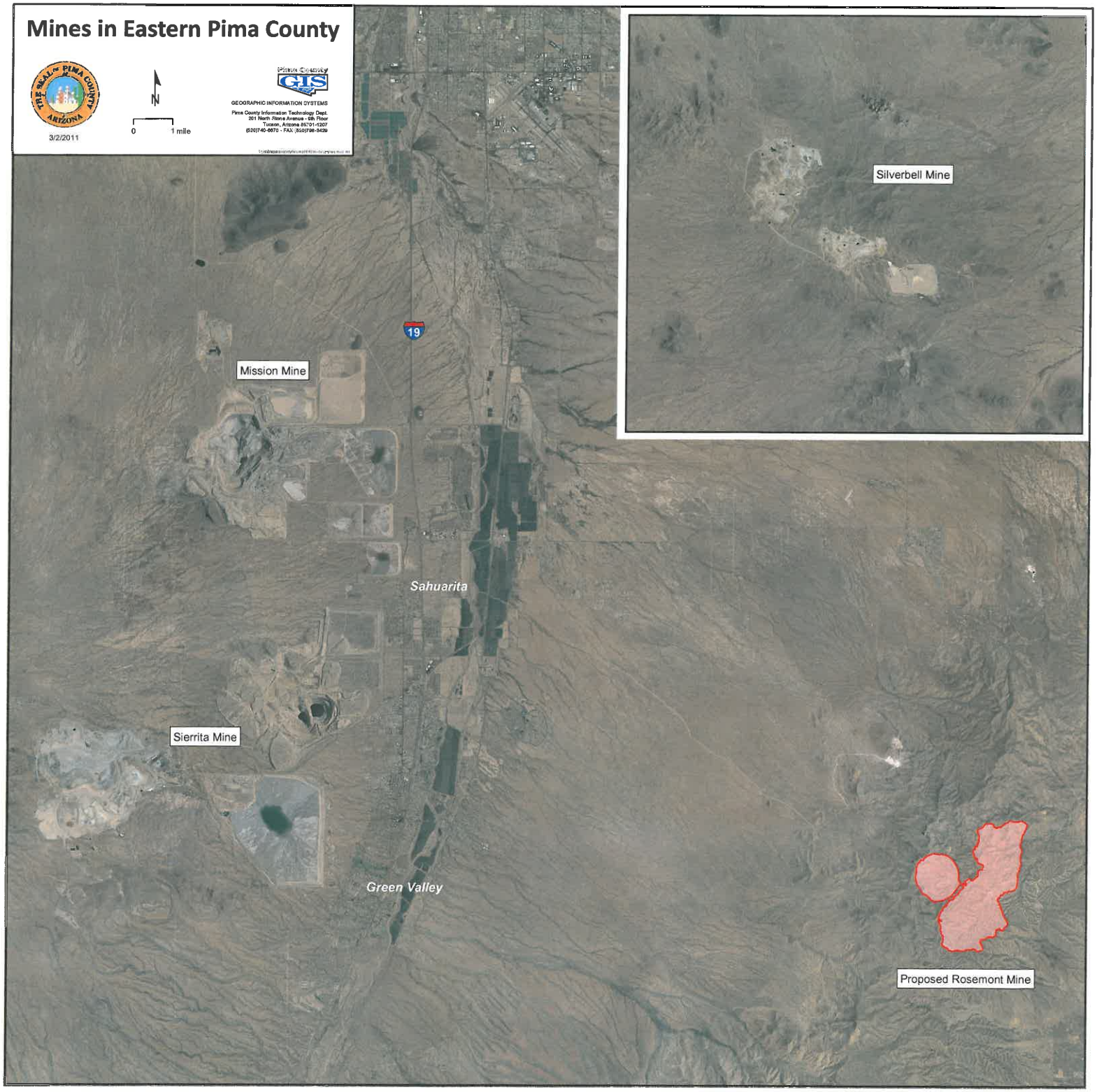
Mines in Eastern Pima County

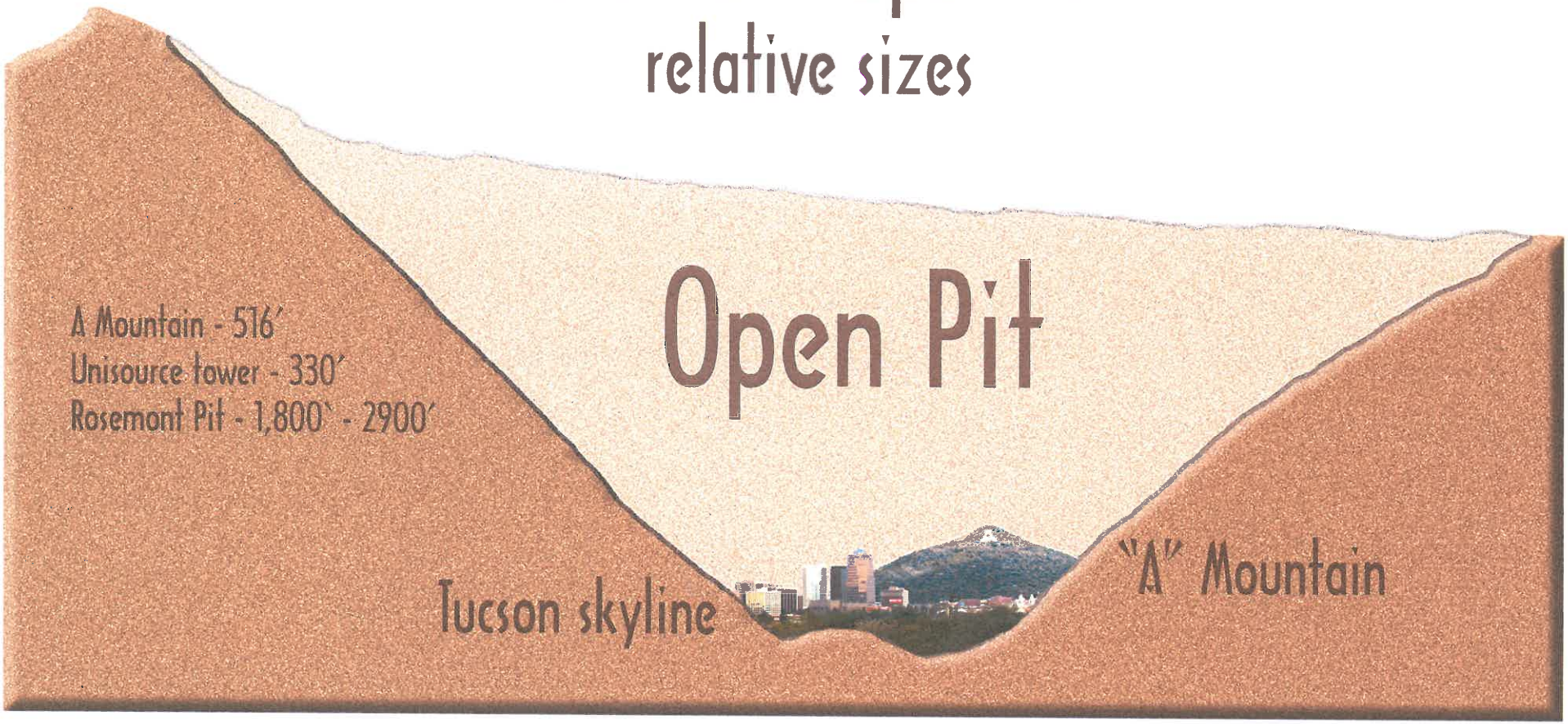
3/2/2011

N

0 1 mile

GEOGRAPHIC INFORMATION SYSTEMS
Pima County Information Technology Dept.
201 North Stone Avenue - 6th Floor
Tucson, Arizona 85701-1207
(520)740-5670 - FAX: (520)798-3429



ATTACHMENT 5

Rosemont Open Pit
relative sizes