

**EVALUATION OF THE DEMAND FOR INDUSTRIAL USES AND THE
POTENTIAL IMPACTS ON STATE TRUST LAND ADJACENT OR NEAR THE
PROPOSED RED ROCK CLASSIFICATION YARD SITE**

A Report to

THE STATE OF ARIZONA LAND DEPARTMENT

From

GRUEN GRUEN + ASSOCIATES

Urban Economists, Market Strategists, and Land Use/Public Policy Analysts

September 2012

C1310.1



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APPLYING KNOWLEDGE
CREATING RESULTS
ADDING VALUE

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CHAPTER I

INTRODUCTION, FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

INTRODUCTION

This report summarizes the results of the research and analysis completed by Gruen Gruen + Associates (GG+A) to evaluate the potential demand for additional development of industrial space adjoining the proposed Union Pacific Railroad (UPRR) Classification Yard.¹ The field research, interviews with land developers and real estate brokers, and other individuals knowledgeable about industrial development and economic development in Pinal County and the Phoenix Metropolitan Statistical Area (“Phoenix Metro Area”), research about the impacts of other classification yards, and secondary data analysis was directed toward the following:

- Characterizing the composition and trends of the employment and economic bases of Pinal County and the Phoenix Metro area as a whole;
- Identifying the relevant geographic market area within which industrial uses at the Red Rock site of the proposed Classification Yard can be expected to compete for end space users;
- Identifying the locations and amount of existing or proposed competing industrial supply alternatives as well as land designated under comprehensive plans and zoned for industrial uses within the relevant market area;
- Assessing the strengths and weaknesses of the location of the proposed Classification Yard relative to alternative supply options within the identified market area; and
- Gaining an understanding of the industrial space or economic development spillover effects and economic impacts associated with other classification yards and the proposed Classification Yard.

The synthesis of the research and analysis provides a framework for reaching conclusions about the potential demand for the development of industrial uses near the proposed Classification Yard; and the potential positive and negative impacts for other land uses on State Trust land proximate to the proposed Classification Yard.

¹ The authors did not issue this report based on the possibility or probability that an “inland port” would be established in Arizona, nor did they issue this report based on the possibility or probability of the construction of the proposed Interstate 11 highway. Neither issue was raised during the authors’ research, and the certainty of either or both projects coming to fruition likely would not be determined during the probable timeline for disposition of the Classification Yard parcel.



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This report also summarizes the results of the literature review, interviews, and field research conducted by GG+A to identify the potential land use and land value impacts on residential uses induced by the proposed UPRR Classification Yard. The resulting implications for an “impact zone” between the proposed classification yard and residential uses are described. We draw on the findings and conclusions to present some strategic recommendations following the summary of basic findings and conclusions.

BASIC FINDINGS AND CONCLUSIONS

Demand for Industrial Uses and Likely Economic Impacts

The findings and conclusions of this report about the demand for industrial uses at the proposed Red Rock Classification Yard site, and the potential economic impacts and spillover effects summarized below are based on the analysis of employment, business establishment, other economic data, review of real estate inventory and other real estate market data, interviews with leading industrial real estate developers and real estate brokers, and discussions with community and economic development representatives of communities in which other classification yards are located, and review of reports commissioned by UPRR:

- Pinal County’s economic base and real estate inventory has not yet evolved to contain significant agglomerations or locations with a critical mass of spatially concentrated development that help businesses attract and retain labor and operate most cost effectively and productively. Pinal County is not as accessible to major airports, ports, and other major transportation modes and activity centers as other locations in the Phoenix Metro area;
- Pinal County, the broader Phoenix Metro area, and the State of Arizona in general are less preferred locations for rail-oriented logistics, distribution, and wholesale trade activities because of the relatively limited volume of intermodal goods shipped via rail. Intermodal-wholesale commodities originating or terminating in Arizona comprise a very small proportion of overall commodity volumes shipped on the Union Pacific rail network within the State. The largest commodities shipped via UP rail to or from Arizona include bulk items such as metallic minerals, scrap and other metals, and grains.² Most inbound and outbound rail freight within the Phoenix region consists of mineral and resource commodities, raw materials, and agricultural products. Goods destined for the Phoenix market are typically trucked from the ports of Los Angeles and Long Beach because it is less expensive and faster to truck goods that can be delivered within the 11 hours-of-service rule driving limit for property-carrying commercial motor vehicle drivers mandated by the U.S. Department of Transportation Federal Motor Carrier Safety Administration than it is to ship and offload by rail and then truck locally;

² As described in Union Pacific’s *State Fact Sheet* for Arizona, http://www.uprr.com/aboutup/usguide/attachments/state_factsheets/az.pdf. Alternatively, for example, well over 80 percent of commodities originating or terminating on UP rail in California are intermodal-wholesale goods.



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- Industrial uses at the Red Rock site can be expected to primarily compete for end space users with locations within Pinal County including Casa Grande and Eloy. Under General Plan and zoning designations, these locations contain a considerable supply of vacant land to support future industrial development. Casa Grande has 9,860 acres of land designated for employment uses. Approximately 2,000 acres of land in Casa Grande are in industrial parks with about 880 acres of this land fully or partially improved. The Eloy Planning Area alone (which includes the Red Rock site) contains more than 10,700 acres designated for industrial use;
- The competitive disadvantages of the site relative to alternative supply options within the Pinal County market include a limited local labor pool; lack of utility and other infrastructure; and a location further away than competing locations from the juncture of Interstate 8 and Interstate 10 (See Map II-1 page 8 for alternative supply options);
- Using an average annual historic growth rate of 3.3 percent to project future industrial employment results in an estimate of an additional 11,100 industrial jobs added in Pinal County between 2010 and 2040. Using the employment space density assumption of 1,500 square feet per worker and a floor-area ratio of 0.30 produces an estimate of potential land demand within Pinal County between 2010 and 2040 of approximately 1,300 acres of land. If the higher annual growth rate used in the Central Arizona Association of Governments (“CAAG”) Pinal Projections Study completed in 2009 of 6.9 percent is used to project future employment, an additional 38,600 industrial jobs would be added by 2040. Using the same assumptions of 1,500 per square foot of building space per added worker and a floor-area ratio of 0.30 produces an estimate of potential future land demand within Pinal County of 4,400 acres by 2040;
- Given the availability of approximately 2,500 acres of land in six primary industrial parks identified in Eloy and Casa Grande, these existing parks could accommodate all of the demand estimated to apply to an employment growth rate scenario of 3.3 percent or an added 11,100 jobs in economic sectors associated with the use of industrial space and still have approximately 1,200 acres of land for additional subsequent development;
- Under the high CAAG forecast annual rate of employment growth of 6.9 percent or 38,600 added jobs scenario, it would take approximately 17 years to absorb the land in the six existing industrial parks cited above;
- Under the “most likely” growth scenario identified as part of the Pinal Projections Study, total employment is projected to grow at 6.77 percent annually over the 2005 to 2015 period. The forecast jobs-to-housing ratio for Pinal County and the Picacho



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Peak/Red Rock area is far below a reasonable jobs-to-housing ratio so it would be unlikely the forecast housing growth would be achieved without much higher than forecast growth in employment. To put this into perspective, actual total employment from 2005 through September 2011 grew at just over 2.5 percent annually in Pinal County, far below the forecast growth rate;

- Land and building space prices are higher in the preferred Southwest Valley submarket in the Phoenix region. Reasons for this include: a) the proximity of the southwest Phoenix submarket to southern California and the Ports of Los Angeles and Long Beach, meaning that trucks can make the round trip without requiring a federally mandated rest break; b) proximity to the Phoenix household consumer market; c) accessibility to a much larger and deeper pool of skilled and unskilled industrial labor; and d) tighter linkages with other businesses;
- A review of other classification yards (e.g., North Platte, Livonia, North Little Rock, Pine Bluff, and Roseville) indicates that while classification yards can be expected to expand over time to further the operations of railroads, they have not generally induced significant spillover demands for other industrial activities and uses. Some ancillary industrial developments have related to users providing support services to the classification yards. In cases where classification yards have been located close to more dense urban environments with substantially larger industrial bases and other modes of freight transportation (such as the classification yards in North Little Rock and Pine Bluff, Arkansas), heavy industrial land use patterns have evolved in proximity of the yards. The location of these heavy industrial uses was less the result of spillover demand from the classification yards than a reflection of where other heavy industrial land uses could obtain approvals to locate with compatible uses;
- A central part of the explanation of limited on-site industrial space demand, specifically distribution space, and therefore limited economic impact potential, drawn from a review of the TranSystems' report entitled "Evaluation of the Proposed Red Rock Facility" commissioned by Union Pacific relates to:
 - (1) distribution facility users preferring more cost advantageous and productive locations closer than the site to the population concentration in the Phoenix metro area;
 - (2) the Phoenix/Tucson areas are not distribution hubs for inbound consumer products and other high value goods (like the distribution hub of the Inland Empire in Southern California) and any diverted cargo from Southern California ports are likely to be transported in containers moving intact without undergoing a stage of distribution in Phoenix or Tucson;



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(3) outbound freight consists primarily of mineral and resource commodities, as opposed to finished goods produced or assembled in the local area;

(4) imports from Mexico include raw materials or farm products not conducive to requiring industrial and distribution space by the Classification Yard (outbound freight to Mexico also consists of raw or semi-finished products);

(5) the vast preponderance of import cargo entering Arizona occurs by truck, which reflects a variety of cost, speed and other advantages relative to rail for the relatively high value products imported;

(6) potential future import cargo diverted from Southern California ports would “be in international containers moving intact by rail to their final destinations. Cargo in these intact containers would not be bound for Arizona, nor would it create an opportunity for an import distribution center in the Tri-County area;”³ and

(7) most of the cargo (mainly bulk commodities) transported by rail moves “via carload versus intermodal”⁴ and therefore does not generate the need for assembly and distribution space⁵.

- The primary industrial use candidates for land adjoining the Classification Yard include price-sensitive heavy manufacturing users (examples of which could include steel, chemical, plastic injection molding, or building material industries) seeking land (and not necessarily land upon which to develop major building space improvements) in a location conducive to industrial processing and production activities that commonly generate nuisances (related to air quality, noise, etc.) not permitted elsewhere in more populated and developed areas of the Phoenix Metro area. Uses such as these can be expected to serve regional, rather than local market areas and may require inbound and/or outbound rail service to transport bulk commodities that are not subject to delivery-time pressures. Demand from such users is likely to be sporadic and therefore, not support the scale of jobs and other economic impacts forecast by Insight Research Corporation in its report entitled “Union Pacific Railroad Proposed Pinal County Rail Freight Classification Yard and Area Industrial Development” commissioned by UPRR; and
- Given the limited rail-served development built to date and employment growth which is likely to be lower than previously forecast, demand for industrial land near or adjacent to the Classification Yard is likely to be at least 20 to 30 years away unless a

³ Evaluation of the Proposed Red Rock Facility, TranSystems, March 31, 2009, Appendix Page 8

⁴ Id. at Appendix Page 17.

⁵ A review of multimodal freight studies prepared for the Arizona Department of Transportation in 2004 and 2007 confirm TranSystems report conclusions regarding freight flows and goods movement in the TriCounty area.



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specific user finds the area an attractive location due to the competitive advantage the infrastructure of a rail yard may offer.

Impact Zone

- An impact zone has been identified as an area within ½ to a mile of the proposed Classification Yard that will experience negative environmental, property value, and other impacts.

RECOMMENDATIONS

Based on a synthesis of the results of the research and analysis presented in this report, we recommend the following:

- Given that (a) robust demand for industrial uses will not likely arise within the next 20 years for the land near the proposed UPRR Classification Yard in Red Rock, (b) we understand Pinal County communities and the County itself generally support the proposed project, and (c) UPRR would like to purchase State Trust land in order to develop the Classification Yard in the near future, it may be prudent and fiscally advantageous to sell the land to UPRR, provided certain conditions described below are met;
- The results of the research and analysis suggest should the State Land Department elect to auction the land, the value should be based on the unique benefits UPRR or another user derives from the site for its use and reflect the potential income the development and operation of the proposed Classification Yard or other use will produce relative to the development costs. The investment valuation from the point-of-view of UPRR or other user will require the user to provide reliable information to identify a residual land value. This requires identifying a reasonable rate of return on the equity investment and the potential cash flows from the development and operation of the proposed Classification Yard or other use.⁶ The valuation should also reflect the scarcity of alternative sites which meet the requirements of UPRR or other user;
- In addition to considering the benefits and uniquely suited nature of the site from the point of view of UPRR or another user, the valuation approach should reflect a land price as a minimum percentage of the total costs of developing the proposed Classification Yard, or other use, and if applicable “user” as opposed to speculative land development sales comparables;
- Disposition of land for the proposed Classification Yard, or another use which generates negative impacts, should be subject to an “impact zone” within which

⁶The residual land value methodology provides an estimate of the amount of money a developer or user could afford to pay for land given the estimated value of the built and occupied element and the cost of creating the development, excluding land costs, assuming a reasonable rate of return.



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feasible mitigation measures should be considered. The cost of mitigations should be borne by UPRR, or other successful bidder. The minimum size and shape of the impact zone should be based on studies of the likely noise and air pollution effects and any other negative environmental impacts associated with the development and operation of the proposed Classification Yard or other proposed land use;

- To the extent the Classification Yard, or other use limits transportation or other infrastructure to other State Trust land, and therefore limits potential development opportunities, severance factors should be considered from a valuation standpoint; and
- When establishing an appropriate disposition value, consider having UPRR or other successful bidder provide infrastructure improvements that facilitate the development of additional uses on other State land to mitigate the negative impact of a Classification Yard or other land use.



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CHAPTER II

**INDUSTRIAL MARKET CONDITIONS
AND SUPPLY OF LAND AND BUILDINGS**

INTRODUCTION

Chapter II presents a review of industrial market conditions and industrial real estate inventory in the Phoenix metropolitan area including Pinal County.

EXISTING INDUSTRIAL SPACE INVENTORY IN PHOENIX METRO AREA

Industrial Market in Phoenix Metro Area

Table II-1 summarizes the existing inventory of all types of industrial space and vacant space by submarket in the Phoenix Metro Area.

TABLE II-1				
Industrial and Warehouse Market Conditions Within Phoenix Metro Area: 1st Quarter 2012				
Submarket	Total Existing Space # Square Feet	Vacant Available Space # Square Feet	Vacancy Rate %	Average Monthly Net Rental Rate \$
Northwest ¹	44,336,908	5,365,670	12.1	0.57
Southwest	62,465,550	7,838,899	12.5	0.43
West Central Phoenix	27,417,004	3,027,875	11.0	0.75
Northeast ²	14,485,214	1,646,700	11.4	0.75
Southeast ³	77,419,340	9,516,469	12.3	0.63
Sky Harbor Airport	45,011,910	5,127,960	11.4	0.51
Pinal County ⁴	2,130,750	266,972	12.5	NA
TOTAL	273,266,676	32,790,545	12.0	
¹ Includes North Glendale, Glendale, Grand Avenue, Deer Valley, and Black Canyon. ² Includes Central Phoenix, Scottsdale Airpark, and Scottsdale. ³ Includes Tempe, Chandler, West Mesa, Gilbert, and East Mesa. ⁴ Includes Casa Grande where most industrial space in Pinal County is located.				
Sources: Cassidy Turley/BRE Commercial, Industrial Market Snapshot, Phoenix, First Quarter 2012; Lee & Associates, Metro Phoenix Industrial Report, First Quarter 2012; Gruen Gruen + Associates.				

The Phoenix Metro Area contains over 273 million square feet of industrial space, out of which warehouse space totals approximately 120.4 million square feet and general industrial space totals 98.0 million square feet. This inventory accounts for about 80 percent of the region's total industrial space. R&D/flex and incubator space account for the remaining 20 percent of



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the region's industrial space. The vacancy rate for warehouse space is 11.1 percent in the Phoenix Metro Area, lower than the vacancy rates for general industrial (11.2 percent), and incubator (14.8 percent) and R&D/flex space (17.3 percent).

The Southeast Phoenix submarket (including Tempe, Mesa, Chandler, and Gilbert and the Southwest submarket (including the cities of Goodyear, Tolleson, Avondale, and Buckeye) contain about one-half of the region's industrial inventory at collectively nearly 140 million square feet of space. Phoenix (including the West Central Phoenix and Sky Harbor Airport area) contains over 72 million square feet of industrial space or one-fourth of the total industrial space in the region. The Pinal County inventory of 2.1 million square feet of industrial space accounts for less than one percent of the total inventory and has the highest percentage of vacant space at 12.5 percent. Net monthly rents are lowest for the Southwest submarket at approximately \$0.43 per square foot for all industrial property types. Pinal County currently represents only a small fraction or less than one percent of the region's industrial space inventory base.

Table II-2 summarizes the existing inventory of warehouse distribution and general industrial (i.e., assembly and manufacturing) space and vacant space by submarket.

TABLE II-2						
Distribution of Warehouse and General Industrial Space by Submarket: 1st Quarter 2012						
Submarket	<i>Warehouse / Distribution</i>			<i>General Industrial</i>		
	Total Space # Sq. Ft.	Vacant Space # Sq. Ft.	Vacancy Rate %	Total Space # Sq. Ft.	Vacant Space # Sq. Ft.	Vacancy Rate %
Northwest ¹	12,373,579	966,609	7.8	19,564,305	2,127,878	10.9
Southwest	50,041,597	5,909,640	11.8	10,025,704	1,682,308	16.1
West Central Phoenix	13,137,680	1,400,518	10.7	12,108,860	1,366,223	11.3
Northeast ²	2,323,563	180,587	7.8	5,824,919	401,761	6.9
Southeast ³	23,350,371	2,494,596	10.7	31,103,867	3,704,975	11.9
Sky Harbor Airport	16,345,295	1,952,065	11.9	18,028,362	1,617,044	9.0
Pinal County ⁴	1,077,410	212,731	19.7	993,770	42,841	4.3
TOTAL	118,649,495	13,116,746	11.1	97,649,787	10,943,030	11.2
¹ Includes North Glendale, Glendale, Grand Avenue, Deer Valley, and Black Canyon. ² Includes Central Phoenix, Scottsdale Airport, and Scottsdale. ³ Includes Tempe, Chandler, West Mesa, Gilbert, and East Mesa. ⁴ Includes Casa Grande where most industrial space in Pinal County is located.						
Sources: Cassidy Turley/BRE Commercial, Industrial Market Snapshot, Phoenix, First Quarter 2012; Gruen Gruen + Associates.						

The Southwest submarket which includes Goodyear, Buckeye, Tolleson, and Avondale is the dominant and preferred warehouse and distribution market in the region with approximately 50 million square feet of space or over 40 percent of the region's warehouse/distribution space.



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Pinal County has an extremely small amount of warehouse and distribution space totaling only 1.1 million square feet of space and the highest vacancy rate in warehouse/distribution space at nearly 20 percent.

The warehouse distribution market historically has been driven by the population growth of the Phoenix area and demand for companies to distribute consumer goods to their local stores. More recently, demand for warehouse distribution space has been stimulated by the development of fulfillment centers to process Internet orders for goods which would not be subject to sales taxes.

The Southwest submarket comparative advantages include an ample supply of reasonably priced land and excellent accessibility to freeways, which is especially important for companies delivering goods from the Port of Long Beach and Port of Los Angeles. The ports are within a working day's drive from Phoenix (which permits truck drivers to deliver goods to the Phoenix market and return to the port areas within their mandated driving shift limits). The Southwest submarket is also close to a large labor force in Phoenix and its suburbs, which is especially important to fulfillment centers that need to ramp up employment during peak busy periods such as the holiday season. The Southwest submarket has captured over 900,000 square feet of build-to-suit developments for Dick's Sporting Goods, International Truck, and MiTek Manufacturing. Many warehouse and distribution users deliver consumer goods to their own local stores. For example, Ulta Salon, Cosmetics & Fragrance Inc. occupied 323,000 square feet of space in the Riverside Business Center in Phoenix to distribute products to 17 of its metro area stores⁷. Home Depot signed a lease in the third quarter of 2011 to expand by 400,000 square feet at a facility in Phoenix. Amazon also announced plans last year to build a 1.2 million square foot distribution facility in Phoenix, its fourth facility in the Phoenix area. Macys.com purchased land in the first quarter of 2011 to expand its 600,000-square-foot warehouse in Goodyear, and Home Shopping Network announced plans to build a one million to 1.5 million square foot distribution facility in the Phoenix area⁸. Dick's Sporting Goods announced plans last fall to build a 600,000 square foot fulfillment and distribution center on 60 acres it purchased last year at the PV303 business park in Goodyear. Dick's expects to open in early 2013. Although the Southwest submarket has ample land supply remaining, according to area brokers, not many large rail-served sites remain. According to the economic development manager for Goodyear, the City's major industrial park of approximately 1,600 acres, PV303 is likely to take 15 years or more to build-out but Goodyear has approximately 125 acres of rail-served land available in two locations. Both sites would need rail spurs added. The City also has one existing 735,000-square-foot rail-served industrial building that has 460,000 square feet of space available.

The Phoenix Metro Area contains a smaller amount of general industrial space of approximately 98 million square feet. Of this amount, approximately 53 million square feet is manufacturing space.⁹ Phoenix contains the largest amount of assembly and manufacturing industrial space in the region at approximately 30 million square feet. This space is

⁷ "Mega Warehouses Rise in Phoenix", National Real Estate Investor, September 1, 2007.

⁸ "Phoenix-area industrial property a hot buy", Arizona Republic, October 12, 2011.

⁹ Colliers International Research & Forecast Report, Q1 2012, Industrial, Phoenix.



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concentrated primarily around Sky Harbor Airport. The Southeast submarket also contains a large amount of general industrial space, primarily in Tempe and Chandler, although Tempe is largely built-out. The Northwest submarket has a larger base of assembly and manufacturing space than warehouse space. Pinal County contains an extremely small amount of general industrial space of just under one million square feet.

Industrial Market in Pinal County

Pinal County's industrial space inventory of approximately 2.1 million square feet of space is concentrated primarily within and around Casa Grande, the largest community in Pinal County. Advantages for industrial uses in Casa Grande include the widening of Interstate 10, connectivity to two major interstates (Interstate 8 and Interstate 10), and the double tracking of Union Pacific's rail line which allows companies to move freight further in either direction.

Longer travel distance and truck travel times from Southern California ports explain the limited amount of bulk warehouse and distribution space development in Pinal County. Federal labor laws limit truck driver shifts to 11 hours per day. Trucks originating at the Port of Long Beach, for example, cannot travel to-and-from Pinal County in a single day. Goods originating from Southern California and destined for the Phoenix Metro Area are most cost effectively transported by truck, which is a significant limitation for distribution activities in Pinal County.

About half of the Pinal County industrial space inventory tracked by the real estate brokerage community consists of warehouse/distribution space of about one million square feet. Wal-Mart's 800,000-square-foot distribution center which opened in 2003 to serve both its Phoenix and Tucson markets constitutes 80 percent of the warehouse/distribution space inventory. Propak Logistics (a pallet repair company) leased more than 75,000 square feet at Central Arizona Distribution Center (in the Confluence) in 2009, to serve the Casa Grande and Buckeye operations of Wal-Mart.

Frito Lay, Abbott, Daisy, and Monsanto have also located manufacturing facilities in Casa Grande. Another company, ACO Polymer was attracted to Casa Grande from Ohio to Airport Industrial Park. Its 40,000-square-foot facility opened in 2007 to manufacture polymer concrete drainage systems for commercial and residential markets to eliminate surface water.

According to real estate brokers actively marketing building space and land in Pinal County, heavy industrial users (especially those in the steel, chemical, plastic injection molding, or building material industries) could potentially be attracted to sites with rail service in Pinal County. These kinds of users, however, are likely to be only attracted on a build-to-suit basis given the relatively high cost of installing rail switches and spurs, and limited multi-tenant speculative demand. Heavy industrial users that serve a regional southwest market area and require rail access to import bulk commodities or export finished product are the kinds of users that could find Pinal County locations attractive due to regional accessibility, lower labor costs,



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and lower land prices (when compared to alternatives to the north in urbanized areas of the Phoenix Metro Area). Most prospective users for land and facilities in Pinal County are relatively smaller in size.

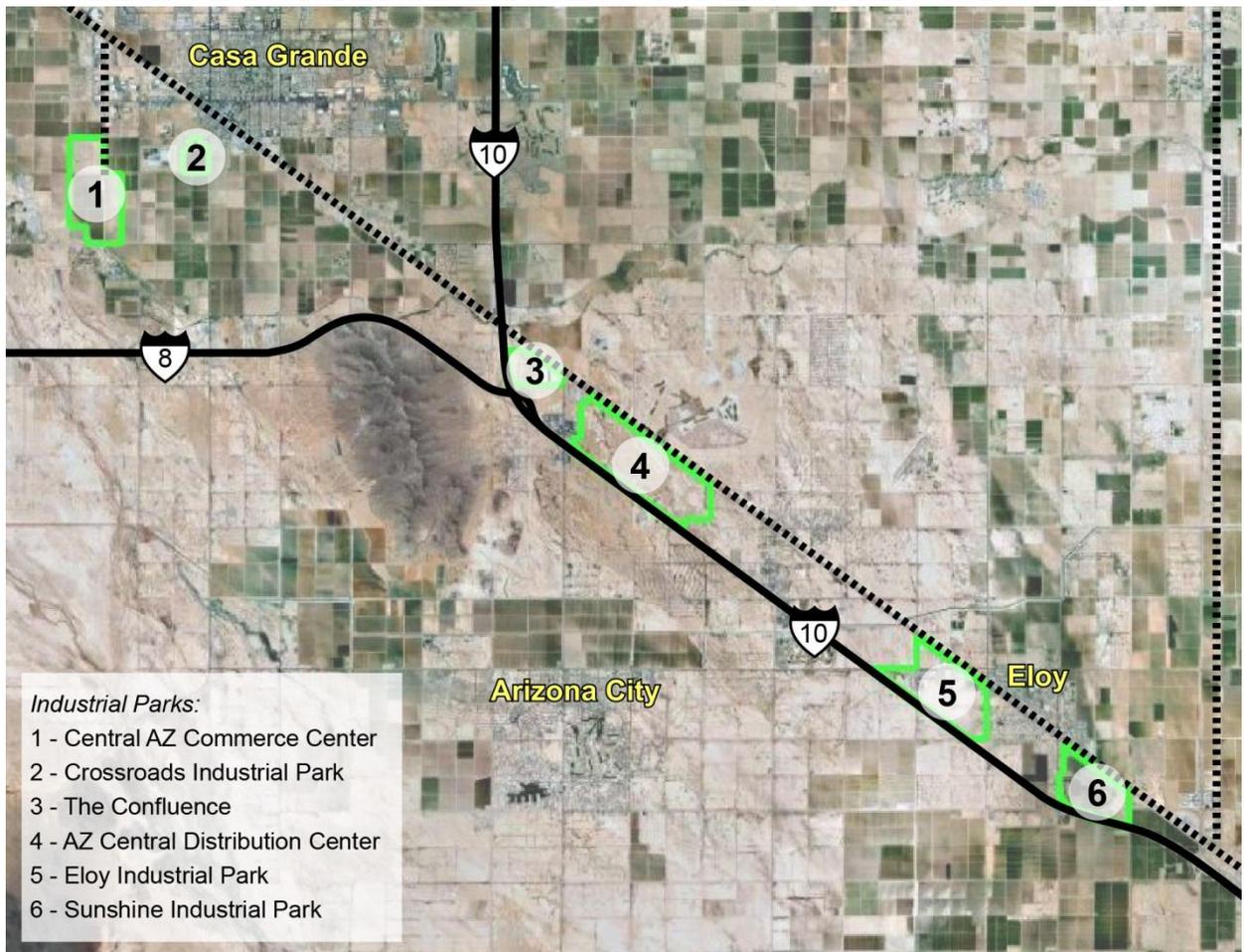
Map II-1 and Table II-3 below summarize the primary supply of planned and entitled industrial parks within Pinal County along the Interstate 10 corridor close to Union Pacific's main rail line.¹⁰

¹⁰ One park not shown on the Table II-3 is the 271-acre Toltec Business Park proposed to be developed on the west side of Interstate 10, northwest of the Eloy Business Park. Another 368 acres on the east side of I-10 across from Pulte's Red Rock Village is owned by Walton Development and planned for future industrial uses, http://www.insidetucsonbusiness.com/news/top_stories/canadian-investors-see-future-logistics-hub-with-marana-and-pinal/article_913e5dd8-cf6b-11e0-9a13-001cc4c002e0.html.



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MAP II-1: INDUSTRIAL PARKS IN PINAL COUNTY ALONG UPRR SUNSET ROUTE



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TABLE II-3

Industrial Parks in Pinal County Along UPRR Sunset Route

Map ID – Name	Total Land # Acres	Available Land Improved # Acres	Available Land Unimproved # Acres	Amount of Space Built # Square Feet	Available Space # Square Feet	Asking Annual Rents Per Square Foot of Building Space	Asking Land Prices Per Sq. Foot	Rail Service Potential
1 - Central Arizona Commerce Park	Phase I – 150 Phase II - 430	120 (fully)	430	0	0			Yes
2 - Crossroads Industrial Park	110	100 (partially)		40,000	0		\$1.90	No
3 - The Confluence	185	20 (partially)		581,000	139,000	\$3.48		No
4 - Arizona Central Distribution Center	1,175	0	1,175	0	0			Yes
5 - Eloy Industrial Park	600	30 (fully) 330 (partially)		NA	70,000	\$3.84	\$1.50	Yes
6 - Sunshine Industrial Park	380	280 (partially)		0	0			Yes
Total	2,920	150 (fully) 730 (partially)	1,605					

Sources: GG+A Interviews; AZ Prospector.



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Of the 2,920 acres in the six industrial parks summarized above on Map II-1 and Table II-3 approximately 2,500 acres of land or 85 percent of the total land still remains available for development. Of those 2,500 acres, only 150 acres are fully improved with on-site utility, roadway, and rail improvements. Approximately 700 additional acres of land within these parks may contain some level of improvements, but the sites are not truly shovel-ready.

The Central Arizona Commerce Park, located in Casa Grande, is planned for 580 acres of industrial uses in two phases. According to one area active broker, only 120 acres is currently shovel-ready in the park with existing rail access and on-site improvements. Approximately 30 acres of Phase I have been sold, but no building space has been constructed. Sun Metals purchased approximately 20 acres in the park intending to develop a car shredding facility. The company was subsequently acquired and the project has been mothballed. Interest from prospective users in the land available at the Commerce Park has been limited.

Just east of the Central Arizona Commerce Park is the 110-acre Crossroads Industrial Park. The park adjoins the Wal-Mart distribution center described above and does not provide rail access. Ten acres of land was sold to Pepsico a few years ago and then in 2010, Monsanto bought the 40,000-square-foot Pepsi distribution center for \$4 million (the building was built in 2009 but never occupied by Pepsi) for research related to seed research and cotton breeding programs. Monsanto expects to employ 50 people at this facility.

The Confluence Industrial Park at the nexus of Interstate 8 and Interstate 10 was originally planned as a 185-acre multi-tenant park. In 2007, Trammel Crow developed a 580,000-square-foot high-cube distribution building which is currently 75 percent occupied with tenants such as Abbott Labs, Mid-State Services, and Propak Logistics (cited above as locating here because of the presence of Wal-Mart). Abbott leases 200,000 square feet at one end of building and Mid-States Services, a distributor of goods to the prison system located in Pinal County, recently signed a lease to occupy 114,000 square feet of building space. Plans to develop additional multi-tenant distribution facilities at the Confluence have been terminated. Ritchie Bros., a Canadian-based industrial auction company, recently purchased 100 acres in the Confluence for display of heavy industrial equipment along the freeway frontage. Ritchie Bros. plans to open its facility during the summer of 2013 with 20-25 full time employees that could increase to 75 employees for auction weeks. The company expects to attract Mexican customers and build up its Tucson market from its location at the junction of Interstate 8 and Interstate 10.

The Arizona Central Distribution Center is a planned 1,200-acre rail-served industrial site between Interstate 10 and the UPRR Sunset Route Line. According to marketing materials from CB Richard Ellis, rail service agreements are reportedly in-place with UPRR. The long-term viability and development of the Arizona Central Distribution Center is very speculative, given the lack of interest for rail-served sites has arisen to date and that substantial infrastructure improvements will be required. UPRR allows for rail spurs but does not fund the construction of rail spurs.



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The Eloy Industrial Park contains approximately 600 total acres of land and 350 acres of vacant land, most with the potential for rail access. Users attracted to the Eloy Industrial Park have been heavy manufacturers. The asking price for the partially improved land is \$10 million or approximately \$1.50 per square foot. The site has rail easements in place, but the spur has not yet been extended. Only 20 acres of fully-improved rail-served land within the park is currently available. A recently vacated 70,000-square-foot manufacturing facility on approximately 15 acres is also available for sale or lease. The building has a large outdoor yard and crane that served the prior owner, but prospective users who need yard and crane facilities have not been interested in locating in Casa Grande or Eloy.

Just south of the Eloy Industrial Park is the planned Sunshine Industrial Park consisting of approximately 380 acres in total. National Gypsum purchased a 100-acre site in 2007 with plans to build a wallboard plant. With proximity to nearby raw inputs and rail freight access, the planned facility would have served the construction and homebuilding industry throughout the southwest region (the plant has not yet been built). The remaining 280 acres of land in the park provide potential for rail access.

In addition, the Gila River Indian Reservation north of Casa Grande contains three existing industrial parks. The largest, Lone Butte Industrial Park, contains 820 acres and sits adjacent to Interstate 10 and State Route 202 and offers nearly 170 acres for ground lease development. Available sites range in size from three to 17 acres. Most of the park's more than 50 tenants are manufacturers and assemblers and include an RV dealer and an explosive devices company. Yulex, a rubber products manufacturer headquartered in Maricopa, announced last year that it would build a new factory on a five-acre site in the park.

FUTURE SUPPLY OF INDUSTRIAL LAND

Other land in the planning areas of Casa Grande and Eloy designated for employment or industrial uses totals over 17,000 acres. In addition to the approximately 2,500 acres identified in planned industrial parks shown above in Table II-3, Casa Grande has an additional 7,860 acres identified in the planning area for employment uses around Thornton Road and along the UPRR, around the Casa Grande airport and near the intersection of Interstate 10 and Interstate 8. Eloy has designated on its land use map approximately 10,700 acres for industrial use of which 980 acres is accounted for in the two industrial parks shown above in Table II-3.

INDUSTRIAL SPACE RENTS AND INDUSTRIAL LAND PRICES

Industrial land prices are low in Pinal County. According to industrial brokers marketing properties and projects in the area, non-rail improved land may sell for as little as \$0.50 per square foot up to \$1.00 for small sites. For larger sites, improved industrial land may sell for \$1.50 per square foot up to nearly \$3.00 per square foot for rail-served fully improved sites. Industrial rents average around the mid \$3.00 per square foot range in the Confluence in Casa Grande and Eloy Industrial Park in



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Eloy, the only parks with available built space.

Table II-4 below summarizes a sample of industrial land sales in Eloy and Casa Grande although few sales have occurred over the past several years.

TABLE II-4			
Pinal County Industrial Land Sales			
	Parcel Size # Acres	Sale Date	Sale Price \$ Per Square Foot
Sunshine Industrial Park – National Gypsum Site <i>Eloy</i>	113	Oct 2006	0.65
Eloy Industrial Park <i>Eloy</i>	18 10 179	Mar 2002 Mar 2004 May 2006	0.74 0.86 0.49
The Confluence <i>Casa Grande</i>	185	Jan 2006	1.25
Ritchie Bros. Site <i>Casa Grande</i>	108	Nov 2010	1.81
Wal-Mart Distribution Center <i>Casa Grande</i>	125	Aug 2002	0.24
Central Arizona Commerce Park (Lot 21 – SWM Recycling) <i>Casa Grande</i>	17	Dec 2008	4.64
Sources: Pinal County Assessor; Pinal County Recorder; Gruen Gruen + Associates.			

The most recent large transaction has been the Ritchie Bros. acquisition of over 100 acres in Casa Grande in the planned Confluence industrial park. County deed records indicate the property was purchased for approximately \$1.80 per square foot in late 2010. To put this in perspective, Dicks Sporting Goods recently purchased 60 acres in Goodyear for a reported price of \$2.21 per square foot.

Prior to developing the multi-tenant distribution center adjacent to the Ritchie Bros. site, Trammel Crow purchased 185 acres of land for approximately \$1.25 per square foot in 2006 for its Confluence park. Although occurring nearly 10 years ago, Wal-Mart paid only \$0.25 per square foot for the 125 acres of land it acquired to build its distribution center in Casa Grande. In late 2008, a 17 acre lot in the planned Central Arizona Commerce Park was sold for over \$4.50 per square foot. Our interview with a broker that has marketed the park indicated that the land had been fully improved with all utilities and rail infrastructure.

Our review of sale records and interviews both suggest that land prices in Eloy are lower than those in Casa Grande. County records indicate that National Gypsum (which has yet to build its facility) purchased over 100 acres in the planned Sunshine Industrial Park in Eloy for \$0.65 per square foot



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or less than \$30,000 per acre. Although no sales have occurred in the past five years, partially improved industrial sites in the Eloy Industrial Park have also sold at extremely low prices generally ranging from \$0.50 per square foot for larger sites and up to \$0.75-\$0.85 per square foot for smaller sites.



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CHAPTER III

THE STRUCTURE OF THE PINAL COUNTY ECONOMIC BASE

INTRODUCTION

Chapter III reviews the economic base of Pinal County and the Phoenix metropolitan area and describes the make-up of the county relative to the larger metropolitan area.

ECONOMIC BASE OF PINAL COUNTY AND THE PHOENIX METRO AREA

The small industrial base developed in Pinal County reflects the size and make-up of the economic and employment bases of the Pinal County relative to the Phoenix Metro Area.

MAKE-UP OF REGIONAL ECONOMIC ACTIVITY AND GROWTH

Table III-1 shows according to data from the Bureau of Economic Analysis, adjusted for inflation, Gross Domestic Product (GDP)¹¹ in the Phoenix Metropolitan Area between 2001 and 2010 grew by approximately 25 percent from \$139 billion in 2001 to \$173 billion in 2010.

TABLE III-1				
Real GDP Within the Phoenix Metropolitan Area: 2001-2010¹				
Industry Sector:	2001 \$	2001 %	2010 \$	2010 %
Ag, Mining & Utilities	4.2	3.0	5.1	2.9
Construction	11.3	8.2	8.1	4.7
Manufacturing	12.3	8.9	16.9	9.7
Wholesale Trade	9.0	6.5	12.8	7.4
Retail Trade	11.2	8.1	14.1	8.1
Transportation & Warehousing	3.4	2.5	4.6	2.6
Information	3.9	2.8	5.8	3.4
Financial Activities	35.5	25.6	45.9	26.5
Professional & Business Services	16.0	11.5	19.3	11.1
Education & Healthcare	8.6	6.2	14.7	8.5
Leisure, Hospitality & Other Services	9.3	6.7	9.9	5.7
Government	13.9	10.0	16.3	9.4
TOTAL	138.8	100.0	173.4	100.0
¹ Real GDP estimates presented in billions of 2005 dollars.				
Sources: Bureau of Economic Analysis; Gruen Gruen + Associates.				

As summarized above in Table III-1, the traditional industrial space-using sectors of manufacturing,

¹¹ Gross Domestic Product is the market value of all final goods and services produced within the Phoenix Metropolitan Statistical Area.



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wholesale trade, and transportation and warehousing comprised approximately 25 percent of the region's economic activity in 2001. In 2001, real GDP in the manufacturing sector totaled approximately \$12 billion representing just less than nine percent of total GDP in the Phoenix region. Wholesale trade and transportation and warehousing activity, collectively, also accounted for approximately nine percent of regional GDP. GDP in manufacturing and wholesale trade sectors has grown marginally since 2001. As a proportion of regional GDP, industrial activities grew by about two percentage points between 2001 and 2010. Among industrial sectors, the volume of economic activity (or market value of goods produced) in the manufacturing sector in Phoenix grew the strongest over the period. The industrial space using sectors comprised nearly 35 percent of the region's economic activity in 2010.

The economic base of the Phoenix Metro Area continues to be dominated by services, including professional and business services and financial activities which constitute 52 percent of regional GDP. Consistent with national trends, the education and healthcare sector experienced the largest increase in volume of economic activity having grown from \$8.6 billion in 2001 to \$14.7 billion in 2010. The education and healthcare sector experienced the largest upward shift of any sector of 2.3 percentage points to 8.5 percent of total regional GDP.

THE PINAL COUNTY EMPLOYMENT BASE

Table III-2 below summarizes nonfarm employment by industry sector within Pinal County from 2001 through 2010.



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TABLE III-2

Total Nonfarm Employment in Pinal County¹

	2001 #	2006 #	2010 #	Change #	Average Annual Growth Rate %
Forestry, Mining & Utilities	2,214	1,900	2,305	91	0.4
Construction	2,393	4,189	2,805	412	1.8
Manufacturing	3,038	4,083	3,581	543	1.8
Wholesale Trade	1,202	877	1,302	100	0.9
Retail Trade	5,572	7,365	7,368	1,796	3.2
Transportation & Warehousing	755	1,171	1,829	1,074	10.3
Information	370	429	807	437	9.1
Financial Activities	2,463	3,969	5,119	2,656	8.5
Professional & Business Services	4,568	5,354	7,688	3,120	6.0
Education & Healthcare	3,823	5,167	6,579	2,756	6.2
Leisure & Hospitality	3,569	5,173	5,906	2,337	5.8
Other Services	2,744	3,627	4,110	1,366	4.6
Government	16,418	18,060	20,812	4,394	2.7
TOTAL NONFARM	49,129	61,364	70,211	21,082	4.0
¹ Includes self-proprietor employment and other nonfarm jobs not typically included in UI-based payroll employment estimates.					
Sources: Bureau of Economic Analysis, <i>CA25N Total full-time and part-time employment by NAICS industry</i> ; Gruen Gruen + Associates.					

In 2001, Pinal County contained approximately 49,000 jobs. Total nonfarm employment grew off this small employment base at four percent annually over the 2001 to 2010 period as approximately 21,000 jobs were added within the County. Government employment comprised 33 percent of total employment in 2001. While still representing the largest share of employment in any sector, and increasing by nearly 4,400 jobs, by 2010, government employment totaled nearly 30 percent of total Pinal County employment. Growth in financial activities and professional and other services accounted for 80 percent of employment growth that occurred over the period. Much of this employment growth related to the housing boom prior to the Great Recession. Construction employment has significantly declined since 2006 as has manufacturing employment.

Employment in traditional industrial space-using sectors of manufacturing, wholesale trade, and transportation and warehousing grew from approximately 5,000 jobs in 2001 to 6,700 jobs in 2010 or on average about 190 jobs per year (or an annual average rate of 3.3 percent). Of the 6,700 jobs in these three sectors, slightly more than half were in the manufacturing sector. Employment in the transportation and warehousing sector grew at a high rate of 10.3 percent, albeit off an extremely small base of 755 jobs in 2000 to 1,829 jobs or still only 2.6 percent of total employment in 2010.



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Table III-3 shows that even with the employment growth described above, the employment base of Pinal County comprises less than three percent of the total employment base of Maricopa County, Pima County, and Pinal County.

Pinal County's Share of the Regional (Maricopa, Pinal, and Pima) Employment Base			
	2001 %	2010 %	Shift 2001-2010 Percentage Points
Forestry, Mining & Utilities	10.9	9.5	(1.0)
Construction	1.3	2.0	0.7
Manufacturing	1.6	2.5	1.1
Wholesale Trade	1.3	1.3	0.0
Retail Trade	2.1	2.5	0.4
Transportation & Warehousing	1.1	2.4	1.3
Information	0.7	2.0	1.3
Financial Activities	1.0	1.4	0.4
Professional & Business Services	1.2	1.7	0.5
Education & Healthcare	1.8	1.9	0.1
Leisure & Hospitality	1.6	2.3	0.7
Other Services	2.3	3.0	0.7
Government	5.6	6.2	0.6
TOTAL NONFARM	2.1	2.6	0.5
Sources: Bureau of Economic Analysis, <i>CA25N Total full-time and part-time employment by NAICS industry</i> ; Gruen Gruen + Associates.			

Pinal County represents only a small fraction of the regional manufacturing base with only 2.5 percent of regional manufacturing employment. According to *County Business Pattern* data, two-thirds of manufacturing firms within Pinal County are engaged in food, nonmetallic mineral, or primary and fabricated metal production. These subsectors collectively represent about 80 percent of the County's manufacturing job base.



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CHAPTER IV

**THE PRIMARY MARKET AREA FOR INDUSTRIAL USES AND
FUTURE DEMAND FOR INDUSTRIAL LAND IN THE PRIMARY MARKET AREA**

INTRODUCTION

Chapter IV describes the primary market area for industrial uses within Pinal County, the types of users attracted, the competitive position of Pinal County and the proposed Classification Yard to attract industrial users, and an estimate of land demand absorption based on forecast employment growth.

THE RELEVANT PRIMARY GEOGRAPHIC MARKETS

The interviews and review of supply tenanting trends indicate that the primary geographic market area within which industrial land and building space at the site of the proposed Classification Yard would compete primarily includes sites located elsewhere in Pinal County; particularly those in Casa Grande and Eloy along the Interstate 10 corridor adjoining Union Pacific's main rail line.

The site, and Pinal County market generally, would not compete for logistics, distribution, and light industrial uses which tend to prefer locations, including rail-served locations, in the Southwest Valley generally situated south of Interstate 10, north of Lower Buckeye Road, and between 35th Avenue and 107th Avenue. Land and buildings within this core distribution and light manufacturing space market area compete for internal relocations and expansions that make up the preponderance of demand for space. These internal sources of demand to the Southwest submarket will not typically consider locations within Pinal County.

A much smaller proportion of demand within the Phoenix Metro Area originates from larger users considering multiple regions for major industrial facilities such as fulfillment centers. For example, a potential fulfillment center user considering locations in the Phoenix Metro Area may also consider locations in Reno, Las Vegas, Salt Lake City, and markets within Texas as well as other locations within the State of Arizona such as Tucson. To cite one specific example, after considering locations in the west and southwest, Target opened in 2009 a distribution center of approximately 1,000,000 square feet of space for a fulfillment center to serve customers west of the Mississippi River in Tucson primarily because of access to Interstate 10 (freight is primarily transported by truck and accessibility to the Los Angeles market is critical); proximity to Tucson International Airport; and a skilled workforce, including a large source of part-time, seasonal student workers with the University of Arizona and Pima Community College. The lack of sales tax on Internet orders was another important factor in inducing Target to locate its Internet order direct to customers fulfillment distribution center in Tucson.¹²

¹² See for example, the July 10, 2011 Arizona Republic article on the following link, which describes the shifts in location patterns for fulfillment centers related to the State of California enacting a law requiring out-of-state retailers to collect sales taxes on purchases made via the Internet. The article also explains the dynamics underlying location preferences for distribution centers: "Michael Haenel,



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TYPES OF INDUSTRIAL SPACE USERS ATTRACTED TO PINAL COUNTY

Industrial space users attracted to locations in Pinal County typically perform food processing, plastics, metal, or building material-related manufacturing activities. Examples of such firms attracted to Casa Grande and Eloy, for example, include Frito Lay, Daisy (dairy products), Otto Plastics, Pittsburgh-Des Moines Steel (operates from a 80,000-square-foot facility on 20 acres of land in Eloy), Cemex, and Republic Plastics. North American Lubricants, a Scottsdale-headquartered manufacturer of oil products for the automotive and machinery industries announced plans last year to build an oil blending facility on an approximately 10 acre site in Casa Grande in the Central Arizona Commerce Park. Many of these users serve regional Southwest market areas beyond the Phoenix area (e.g. Las Vegas, Albuquerque, Tucson, and El Paso) and require rail access to ship bulk commodities.

For the reasons described above, few large distribution-oriented users have located in Pinal County. As indicated previously, Wal-Mart, which operates the only major distribution center in Pinal County (a cold-storage food distribution facility), selected its location in Casa Grande because of geographic centrality to both the Phoenix and Tucson consumer markets.

The Confluence development built in 2007, the only modern, multi-tenant distribution facility in Pinal County was built in anticipation of warehousing needs and related truck-loaded freight traffic coming from Mexico via Interstate 10 but this logistical pattern has not materialized. Instead of continuing development as a multi-tenant industrial park as originally conceived, remaining undeveloped land within the Confluence development was sold to Ritchie Bros. Auctioneers as a site for its equipment auctions. The key requirement was a large land site with direct interstate frontage with access to Tucson and Phoenix.

Even if Pinal County's economic base and labor force evolves to improve the potential for higher technology manufacturing uses and activities, the area around the proposed Classification Yard would not be conducive to such uses because of air quality and vibration issues. More likely types of sources of demand include price sensitive, heavy manufacturing uses requiring relatively little building space relative to land area, and needing separation from residential areas. Manufacturers who need to ship freight via rail from outside the Phoenix or Tucson areas might find the Classification Yard site an advantageous location due to (a) freight transportation cost savings and efficiencies and (b) possible economies of scale related to rail infrastructure development.

executive vice president of industrial properties at Cassidy Turley BRE Commercial in Phoenix, said e-commerce providers' decision to locate in the West Valley had less to do with where their products were going and more to do with where they came from. Nearly all consumer goods shipped to the southwestern U.S. from Asia arrive via ship at either of two ports, Los Angeles or Long Beach, Calif., Haenel said. From there, goods are transported by truck to regional distribution centers, where they are stored until a customer orders each product online. Therefore, it saves both time and fuel costs to place the distribution centers as close as possible to the West Coast, he said.”
<http://www.azcentral.com/business/articles/2011/07/10/20110710arizona-distribution-center.html>



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**COMPETITIVE POSITION OF PINAL COUNTY
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The field research, interviews, and market supply reconnaissance suggest the following competitive advantages apply to the area around the proposed Classification Yard and Pinal County:

- Large amounts of contiguous land area including potential for rail access;
- Low land prices; and
- Accessibility to Interstate 10 which provides transportation linkages to the east into New Mexico and Texas and to the west into California and Interstate 8, which provides transportation linkages to the west into California.

Primary disadvantages of Pinal County as an industrial location include:

- A shortage of “shovel-ready” industrial land (because of limited demand and high infrastructure costs);
- Limited existing utility infrastructure (pipes) for water and sewer, in many places;
- Greater distance and travel time from Southern California ports and markets than locations within well established, preferred Phoenix Metro Area submarkets;
- Lack of proximity to Sky Harbor International Airport in Phoenix;
- Less access to a significant concentration of a highly-skilled workforce than the well-established, preferred locations in the Phoenix Metro Area;
- Locations in the County tend not to have tight linkages with firms operating in the well-established, preferred Phoenix submarkets; and
- Consistent with the disadvantages cited above, and an insufficiently developed labor pool, Pinal County’s economic base and real estate inventory has not yet evolved to contain significant agglomerations or locations with a critical mass of spatially concentrated development that help businesses attract and retain labor and operate most cost effectively and productively.



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FORECAST OF ORDER-OF-MAGNITUDE LAND ABSORPTION

Table IV-1 shows an estimate of future employment in industrial-space using sectors based on two differing growth rate assumptions: (1) historic growth rates realized between 2001 and 2010; and (2) growth rates estimated for the Central Arizona Association of Governments in the Applied Economics CAAG 2009 socioeconomic projections. The projection of additional industrial workers is then translated into an estimate of potential future land demand based on assumptions about employment space densities and an average floor-area ratio.¹³

TABLE IV-1		
Industrial Land Demand for Pinal County: 2010 to 2040		
	Average Annual Employment Growth Rate	
	<u>3.3%¹</u>	<u>6.9%²</u>
Industrial Jobs Added ³ (number of workers)	11,100	38,600
Total Land Demand ⁴ (number of acres)	1,300	4,400
¹ Historic annual growth rate in industrial-space using sectors between 2001 and 2010. ² Annual growth rate used in Applied Economics CAAG 2009 Pinal Projections Study, October 2, 2009, based on “most likely” regional growth. ³ Manufacturing, wholesale trade, and transportation/warehousing sectors. Figures have been rounded. ⁴ An employment density of 1,500 square feet per worker and floor-area-ratio of 0.30 results in an estimate of nine jobs per acre.		
Sources: Bureau of Economic Analysis, <i>CA25N Total full-time and part-time employment by NAICS industry</i> ; Applied Economics, Central Arizona Association of Governments 2009 Pinal Projections Study, October 2, 2009; Gruen Gruen + Associates.		

Using an average annual historic growth rate of 3.3 percent to project future industrial employment results in an estimate of an additional 11,100 industrial jobs added in Pinal County between 2010 and 2040. Using the employment space density assumption of 1,500 square feet per worker and a floor-area ratio of 0.30 produces an estimate of potential land demand within Pinal County between 2010 and 2040 of approximately 1,300 acres of land. If the higher annual growth rate used in the CAAG Pinal Projections Study completed in 2009 of 6.9 percent is used to project future employment, an additional 38,600 industrial jobs are projected to be added by 2040.¹⁴ Using the same assumptions of 1,500 per square foot of building space per added worker and a floor-area ratio

¹³ Floor-area-ratio is the ratio of gross building space to gross land area upon which the building and other improvements (i.e. parking, circulation) are constructed.

¹⁴ Based on the findings of the market reconnaissance and analysis of the employment and economic base of Pinal County and the Phoenix Metro Area, and considering the performance of the forecast relative to actual figures, the CAAG Pinal Projections Study employment forecast may not be achieved. The forecast jobs-to-housing ratio for Pinal County and the Picacho Peak/Red Rock area is below a reasonable jobs-to-housing ratio so that it would be unlikely the forecast housing growth would be achieved without much higher than forecast growth in employment.



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of 0.30 produces an estimate of potential future land demand within Pinal County of 4,400 acres by 2040.

Given the availability of approximately 2,500 acres of land in just the six industrial parks identified in Map II-1 and Table II-3, these existing parks could accommodate all of the demand estimated to apply to an employment growth rate scenario of 3.3 percent or an added 11,100 jobs in economic sectors associated with the use of industrial space and still have approximately 1,200 acres of land for additional subsequent development.

Even assuming a high annual rate of employment growth of 6.9 percent or 38,600 added jobs scenario, it would take approximately 17 years to absorb the land in the six existing industrial parks cited above. The significantly higher amount of land allocated for industrial uses in Pinal County than the 4,400 acres of land associated with the CAAG Pinal Projections Study growth assumptions suggests an intensely competitive industrial land market will tend to keep industrial land prices low for the foreseeable future.

Under the “most likely” growth scenario identified as part of the Pinal Projections Study, total employment is projected to grow at 6.77 percent annually over the 2005 to 2015 period. As summarized below in Table IV-2, actual total employment from 2005 through September 2011 grew at only 2.5 percent annually.

TABLE IV-2	
Comparison of Actual to Projected County Growth Rates	
	Pinal County Average Annual Growth Rates %
<i>Actual 2005-2011</i> Total Employment ¹	2.53
<i>Projected 2005-2015</i> ² Total Employment	6.77
¹ From January 2005 through September 2011.	
² Based on “most likely” growth scenario identified in the Pinal County Projections Study.	
Sources: U.S. Census Bureau, Population Estimates Program; Arizona Department of Administration, Quarterly Census of Employment & Wages; Central Arizona Association of Governments 2009 Pinal Projections Study, October 2, 2009; Gruen Gruen + Associates.	

Local employment has not expanded at short-term rates projected.



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CHAPTER V

**CHARACTERISTICS OF EXISTING UNION PACIFIC
RAILROAD CLASSIFICATION YARDS AND SPILLOVER ACTIVITY**

CASE STUDIES OF CLASSIFICATION YARDS

To obtain perspective on potential spillover land use effects of classification yard development and operations, GG+A interviewed representatives of five communities in which UPRR classification yards operate. The communities include:

- North Platte, Nebraska;
- Livonia, Louisiana;
- Roseville, California;
- Pine Bluff, Arkansas; and
- North Little Rock, Arkansas.

Table V-1 summarizes the general characteristics of the classification yards included in the review.

TABLE V-1					
Characteristics of Classification Yards Studied					
	Yard Size (# acres)	When Originally Built	Last Expanded / Rebuilt	Rail-Served Industrial Development	Subsequent Residential Development
Bailey Yard <i>North Platte, NE</i>	2,850	1800's	Late 1980's	No	Yes – Minimal
J.R. Davis Yard <i>Roseville, CA</i>	915	1905	1999	No	Yes – Major
Livonia Yard <i>Livonia, LA</i>	500	1995	Future Plans	No	No
Little Rock Yard <i>North Little Rock, AR</i>	300	Early 1900's	Future Plans	Yes – Moderate	No
Pine Bluff Yard <i>Pine Bluff, AR</i>	250	1955	Unknown	Yes – Moderate	No
Sources: Union Pacific website; GG+A Interviews.					

Below, we synthesize the results of our interviews which primarily focused on the impacts on land near the classification yards, including local industrial activity generated, nearby residential land use



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patterns, and land use conflicts attributed to the classification yards.

Spillover Industrial Activity

The feedback we obtained about spillover industrial development was consistent. The five classification yards in Table V-1 have not induced substantial spillover industrial activity; and in cases where industrial development has occurred adjacent to the yards, the nature of such development has been oriented to classification yard support services or heavy manufacturing with similar impacts. Few distribution-related activities have been attracted to the classification yard locations.

In North Platte, Nebraska, the site of UPRR's largest classification yard, very few industrial uses have located near the yard. According to the City Manager and Development Director, the adjoining uses support the on-going operations of the classification yard and the maintenance and repair of rail cars and tracks. The absence of ancillary industrial development relates at least partially to rail traffic volumes on the Union Pacific rail line that bisects North Platte, which is reportedly the busiest stretch of rail in the world. The location is not conducive to industrial users that need rail access and spurs to ship bulk freight.

UPRR operates a newer classification yard in Livonia, Louisiana (approximately 25 miles west of Baton Rouge). Livonia is somewhat similar to the Red Rock site in that the surrounding area is rural and undeveloped and contains a limited population and labor base. A Town official of the community indicated that the nearly 20-year-old yard has not stimulated the development of industrial space or land anywhere within the community. The yard was built to serve the oil and chemical industries in Texas and the Gulf Coast¹⁵ (liquid and dry chemicals and petroleum products are the two largest commodities shipped to and from Louisiana on the Union Pacific, respectively). The classification of chemical and oil freight at the site has not, however, resulted in the development of commodity processing plants or other manufacturing facilities that utilize those raw inputs.

Similarly, the J.R. Davis Yard in Roseville, California (a suburb of Sacramento) has not induced nearby industrial development. Industrial land use patterns have evolved directly north of the yard, but these developments have been unrelated to classification yard operations. None of the industrial uses (many with outdoor storage requirements) utilize rail service to ship goods. The Administrative Analyst with the City's Planning and Redevelopment Department indicated that these uses have located near the classification yard primarily as compatible land uses, not because they derive any advantage from proximity to the yard.

UPRR's classification yard in Pine Bluff, Arkansas, originally built in the 1950's as part of the Cotton Belt rail network, is situated approximately two miles northeast of the Pine Bluff's urban core (as shown on Map V-1 below). The City of Pine Bluff's Development Director indicated that heavy industrial uses have developed in the vicinity, generally between the classification yard and a canal

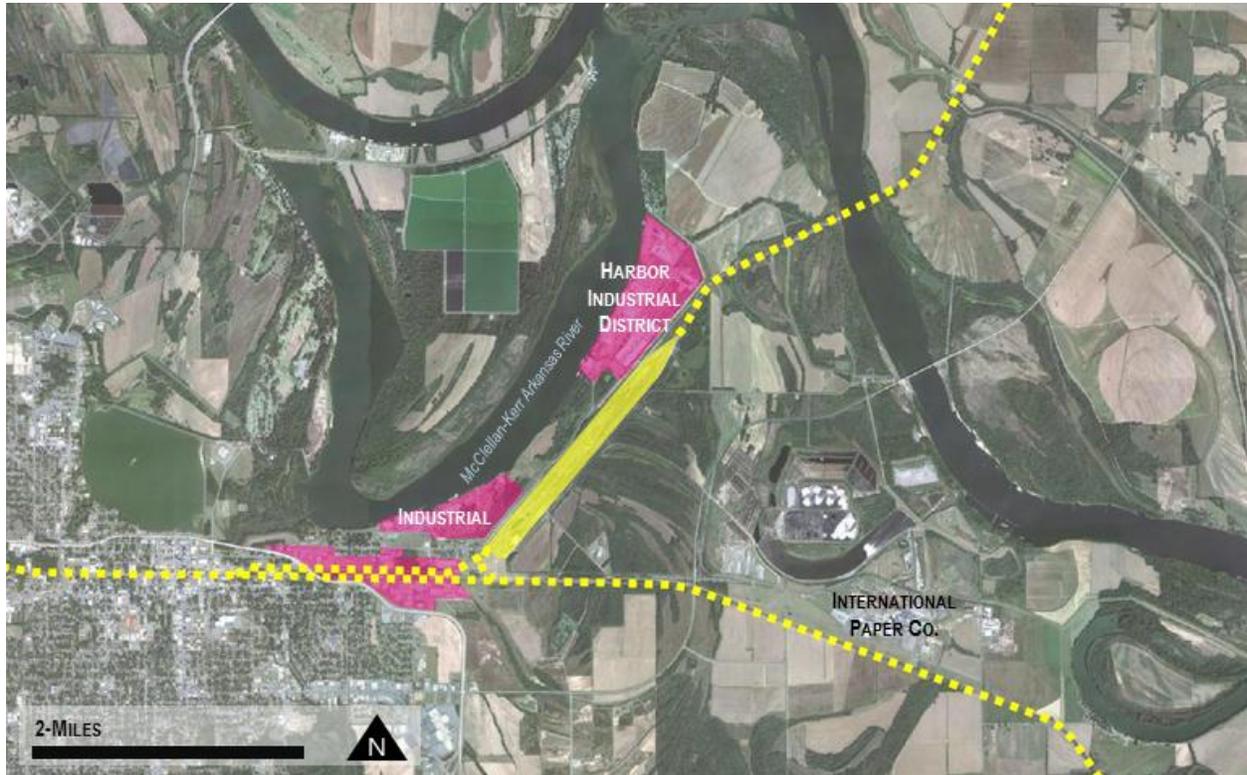
¹⁵ "At Livonia, an early payoff – classification yard," Railway Age, Feb 1995.



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branching off the Arkansas River. A 370-acre rail-served heavy industrial park (the Harbor Industrial District) and a large paper mill operated by International Paper Company are the two primary developments served by rail. Both developments, like the yard itself, occurred decades ago. Allied Tube, a manufacturer of electrical piping products, recently vacated 500,000 square feet of industrial space in the Harbor Industrial District.¹⁶ Our interview suggests that the presence of the classification yard itself was not the primary impetus for the attraction of manufacturing and milling activities to northeast Pine Bluff.

MAP V-1: PINE BLUFF CLASSIFICATION YARD



Rail service is offered through both UPRR and BNSF railroads (via reciprocal switching and barge shipping and trans-loading services) at the Port of Pine Bluff. The Port is adjacent to the classification yard. Interstate 530 is situated a half-mile south of the southern end of the classification yard. This location provides for multiple modes of freight transportation. Unlike Pinal County, Pine Bluff includes a rich manufacturing history and a large industrial base that has evolved in part because of access to nearby natural resources (such as timber) and agricultural production.¹⁷ The industrial labor base within five miles of the yard is also considerably larger than that of the proposed Red Rock location.

Similar industrial development patterns have also occurred near UPRR's classification yard in North Little Rock, which in addition to freight classification activities, also includes the largest heavy

¹⁶ Jefferson County Alliance website.

¹⁷ City of Pine Bluff Economic and Community Development,
<<http://www.pbecd.com/brownfields/>>



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locomotive repair and maintenance shop (270,000 square feet of covered shop space) on the Union Pacific rail network. The Community Development Director indicated that larger rail-served industrial uses attracted have included a Comex facility, coal storage facilities, building material yards, a metal recycling plant, and a railroad tie manufacturing facility.



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CHAPTER VI

**POTENTIAL RESIDENTIAL LAND USE AND LAND VALUE
IMPACTS OF THE PROPOSED RED ROCK CLASSIFICATION YARD**

INTRODUCTION

This chapter summarizes nature of land use conflicts and negative externalities associated with rail freight/classification yard facilities drawn from a literature review and interviews with community representatives of the five classification yards referred to in the prior chapter.

**NATURE OF LAND USE CONFLICTS AND NEGATIVE
EXTERNALITIES ASSOCIATED WITH RAIL FREIGHT FACILITIES**

A report by the Transportation Research Board (“TRB”), *Integrating Freight Facilities and Operations with Community Goals*, recognizes the complexity of mitigating negative freight facility impacts relating to:

- Safety and security;
- Traffic flow and congestion;
- Air quality and the environment;
- Noise, excessive light, and vibrations; and
- Land use and land value.¹⁸

As the TRB acknowledges, “there is no ‘one size fits’ all solution for making freight operations and facilities good neighbors within their communities.”¹⁹ Inclusion of buffer zones to establish physical separation between rail freight facilities and nonindustrial uses is recognized as one of many measures to mitigate land value, noise, and vibration impacts and to reduce the potential for serious land use conflicts.²⁰ Sound walls and berms and whistle-free “quiet zones” are cited as frequently-used alternatives to physical distance-based buffer zones.

Noise pollution is commonly reported as the primary source of conflict between residential uses and freight rail yards and traffic. A report to the Western Governors Association on railroad efficiency and community livability whose task force canvassed 126 communities on western rail lines (including the Arizona communities of Flagstaff, Kingman, Tucson, Wickenburg, Williams, and Winslow) identified the primary environmental concerns associated with rail traffic related to visual

¹⁸ National Cooperative Highway Research Program (NCHRP). (2003). NCHRP Synthesis 320: Integrating Freight Facilities and Operations with Community Goals. Washington, DC.

¹⁹ NCHRP, p 1.

²⁰ NCHRP, p 16.



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and noise impacts²¹. Our interviews with representatives of five communities in which UPRR classification yards currently operate confirm this reported finding.

Residential Land Use Patterns in Vicinity of Classification Yards Surveyed

Residential land use patterns in the vicinity of the classification yards surveyed vary considerably. Communities such as North Platte and North Little Rock are quintessential “railroad towns”. The classification yard in Roseville is located in a much more urban and built-out area than Pinal County. These classification yards have existed in some capacity for more than a century, and they employ a considerable number of workers which reside in each community. In North Platte, for example, UPRR reportedly employs about 2,700 local residents to operate the yard.

The Development Director of North Platte indicated that some residential development has occurred recently close to the classification yard (between approximately one-quarter mile and one-mile south). The housing developed has generally been of higher quality and price than much of the community’s housing stock. Historically, residential growth in North Platte has occurred on the west side of the community closest to the classification yard. This relates to the availability of developable residential land. UPRR owns a non-uniform buffer surrounding the classification yard itself. The Development Director indicated that the buffer generally approximates one-quarter mile in some places, while no buffer exists on the eastern edge of the yard which bisects the core of the city.

In Roseville, considerable residential development has occurred directly adjacent to the classification yard during the past 20 years. Little if any buffer exists between the UPRR right-of-way and major single family subdivisions situated on the south side of the classification yard. The Administrative Analyst with the City’s Planning and Redevelopment Department indicated that housing built in this area has typically been of much lower quality than other new housing built throughout the community. Our interview and familiarity with Roseville suggest that residential land constraints, periods of robust growth and housing demand, and the relative “affordability” of vacant land adjacent to the classification yard explain the evolution of nearby residential land use patterns. These patterns have resulted in frequent conflicts and complaints related to noise and air quality among area residents. Roseville, for example, has a staff person specifically designated to serve as the liaison between community residents and UPRR.

Both Roseville and North Platte had reportedly established “quiet zone” agreements with UPRR to reduce nuisances related to horn blowing of trains but these mitigation measures have been removed because they do not comply with federal safety laws.

Residential developments have not occurred adjacent to the yards in any of the other three communities we interviewed. Although some housing does exist within one mile of the Livonia, North Little Rock, and Pine Bluff yards, our interviews indicate that this housing existed prior to development of the classification yards or that it was developed in concert to serve to house the

²¹ Transportation Futures, Rail Efficiency and Community Livability, A Report to the Western Governors’ Association Task Force on Transportation Futures, by the Working Group on Railroad Efficiency & Community Livability, August 1998.



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workforce for the classification yards. These areas are not generally land constrained and provide ample opportunities for residential development to occur in more appropriate locations. Our interviews suggest that relatively few conflicts have arisen in these locations.

Even rail yards with very limited housing within a one-mile radius, such as the UPRR classification yard in Livonia, Louisiana, stimulate concerns and complaints related to noise. Based on our interviews, additional concerns and conflicts have typically related to the transport of hazardous materials and the safety of at grade rail crossings on roadways providing access to both the yards and proximate residential areas.

Results of Hedonic Price Studies on the Effects of Proximity to Railroad Facilities

Although not specifically addressing classification yards, Professor David Clark of Marquette University constructed a hedonic price model to test whether local housing markets and housing prices are influenced by proximity to at grade rail crossings and freight rail lines²². The analysis covering a 10-year period in two Ohio communities was directed to estimating the effects of Conrail's decision to ignore whistle bans enacted by local municipalities. Before testing for noise pollution related specifically to train whistle blowing, Clark concluded that an increase in one additional active rail line within one-quarter mile of a residential property lowers its value by approximately 2.1 to 2.8 percent. Professor Clark estimated that within one-half mile of a grade crossing at which horns were blown, values declined by as much as 17.4 percent. Within one-half mile of a grade crossing at which whistle bans remained in effect (i.e. no horns were sounded at crossing), property values were only eight percent lower.²³ Although the findings of the study did yield a statistically significant negative association between residential property values and proximity to freight railroad tracks and crossings, Clark concluded that the action taken by Conrail to ignore whistle bans resulted only in a temporary impact on residential property values; and not surprisingly, that "home prices in the vicinity of train crossings appear to reflect the likelihood that train whistles will be used sometime in the future, even if they are not currently being blown."²⁴

Simons and Jaouhari conducted a similar hedonic study of freight rail activity and single family property values in 2004²⁵. The results of the study indicate that smaller-sized homes located within 750 feet of freight railroad tracks experience a value loss of \$3,800 to \$5,800 per unit or five to seven

²² Hedonic price models use multiple regression analysis to statistically control for the attributes that comprise the "housing bundle". Researchers use the hedonic price modeling approach to identify and explain variations in property values as a function of differences in the levels and combinations of structural, neighborhood, accessibility and amenity characteristics of houses. Hedonic pricing models permit researchers to estimate the marginal contribution (implicit prices) of each of the attributes to the total price or value of a house.

²³ David E. Clark, "Ignoring Whistle Bans and Residential Property Values: A Hedonic Housing Price Analysis," Federal Railroad Administration, Report No. FRA-1999-6439-2, p 1.

²⁴ Clark, p 2.

²⁵ Robert A. Simons and Abdellaziz El Jaouhari, "The Effect of Freight Railroad Tracks and Train Activity on Residential Property Values," *The Appraisal Journal*, Summer 2004.



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percent (results for larger-sized homes were not statistically significant at high confidence levels). In some circumstances, proximity to at grade rail crossings was found to further reduce single family property values by approximately five percent. Simons and Jaouhari draw two key conclusions with respect to residential property values and proximity to freight railroad activity:

1. When simply considering geographic proximity to freight rail lines, the “lack of a consistent declining pattern [by distance] implies that markets perceive a zonal rather than gradient effect for this negative amenity;”²⁶ and
2. The volume of rail traffic, and not just proximity to the traffic, “makes a difference in the sale price of residential properties.”²⁷

The results of the hedonic model improved substantially by accounting for train trip counts. The results indicate, for example, that if a “\$100,000 house were located near a freight train track, and the daily train count were to increase from 10 trains per day to 30 trains per day, this would imply a reduction in value of \$5,000 or 5%.”²⁸

The results of these two hedonic studies suggest that an increase in freight traffic associated with the proposed Classification Yard and the commensurate increase in noise pollution (among other negative externalities) can be expected to negatively affect the value of adjacent land for residential use. It should be noted, however, that noise-related externalities already exist to some degree because existing grade crossings are already present along the UPRR rail line and Interstate 10 also produces noise and air quality-related disamenities.

RESIDENTIAL SEPARATION DISTANCES

Because Interstate 10 already tracks parallel to the proposed Classification Yard, in addition to the active UPRR rail line, separation from potential residential land may be necessary irrespective of whether UPRR is permitted to develop its proposed Classification Yard.

Discussions with community development directors in five communities where UPRR has an existing classification yard indicate that residential development has in most cases not occurred close (i.e., less than one mile) to the classification yard. In those communities where residential development has occurred near a classification yard (i.e., either very little separation exists or up to one-quarter mile to one mile distance) residents have complained about noise from blowing train horns.

BASIC CONCLUSION DRAWN FROM REVIEW AND INTERVIEWS ABOUT POTENTIAL ZONE OF LAND IMPACTED

The literature review and interviews with representatives of communities with UPRR classification yards suggest that the proposed Classification Yard will negatively impact a zone of land (“impact

²⁶ Simons and Jaouhari, p 230.

²⁷ Simons and Jaouhari, p 223.

²⁸ Simons and Jaouhari, p 233.

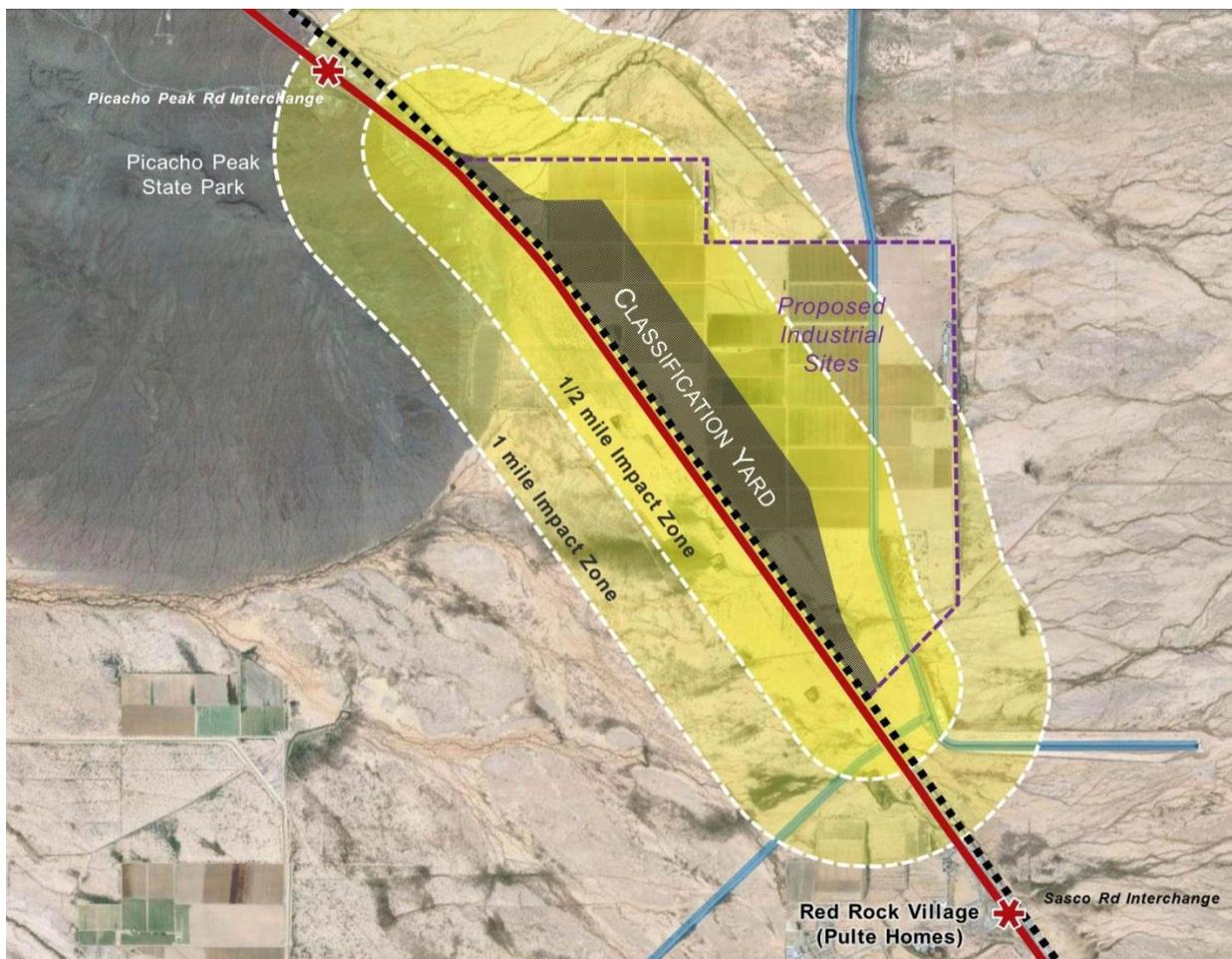


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zone”). The minimum size and shape of the impact zone should be identified based on studies of the likely noise and air pollution effects and land use conflicts. Based on the literature review and interviews, with respect to noise, light, and vibration nuisances, we suspect that the impact zone may comprise a 1/2 mile distance around the site. Negative impacts potentially associated with sightlines or views may not be as significant a factor as would otherwise be the case given that our site inspections suggest that the Interstate 10 traffic and existing rail line are already visible from much of the surrounding land.

As shown on Map VI-1 below, based on the proposed site plans provided to GG+A, the land proposed for potential industrial uses (to the east of the Classification Yard) would encompass a large proportion of a one-mile area around the site. An impact zone of 1/2 - mile is also shown on the map.

MAP VI-1
0.5-1.0 MILE “IMPACT ZONES” AROUND PROPOSED CLASSIFICATION YARD



Note: Illustrative map, not to scale



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We would note that the currently developed portions of Pulte's Red Rock Village sit just beyond one mile south of the proposed southern boundary of the Classification Yard.



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Gruen Gruen + Associates (GG+A) is a firm of economists, sociologists, statisticians and market, financial and fiscal analysts. Developers, public agencies, attorneys and others involved in real estate asset management utilize GG+A research and consulting to make and implement investment, marketing, product, pricing and legal support decisions. The firm's staff has extensive experience and special training in the use of demographic analysis, survey research, econometrics, psychometrics and financial analysis to describe and forecast markets for a wide variety of real estate projects and economic activities.

Since its founding in 1970, GG+A has pioneered the integration of behavioral research and econometric analysis to provide a sound foundation for successful land use policy and economic development actions. GG+A has also pioneered the use of economic, social and fiscal impact analysis. GG+A impact studies accurately and comprehensively portray the effects of public and private real estate developments, land use plans, regulations, annexations and assessments on the affected treasuries, taxpayers, consumers, other residents and property owners.

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