

# market.

BOOK 4

## Market Assessment

tennessee valley authority

Muscle Shoals Reservation  
adaptive re-use study  
Conditions/Market/Planning/Implementation

July 31, 2009  
*Revised August 25, 2009*

LORD • AECK • SARGENT  
ARCHITECTURE



TENNESSEE VALLEY AUTHORITY | JULY 2009

## **EXECUTIVE SUMMARY OF CONCLUSIONS & RECOMMENDATIONS**

Market Feasibility Evaluation of Development  
Opportunities for a Variety of Land Uses at the  
Tennessee Valley Authority Muscle Shoals Site in  
Northern Alabama

# BACKGROUND

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## **Report Preparation**

Todd LaRue, Principal  
Erica Champion, Senior Consultant  
Dave Pierce, Senior Associate

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## **Critical Assumptions and General Limiting Conditions**

Our conclusions are based on our analysis of the information available from our own sources and from the client as of the date of this report. We assume that the information is correct, complete, and reliable.

We made certain assumptions about the future performance of the global, national, and local economy and real estate market, and on other factors similarly outside either our control or that of the client.

Please see the final three slides of this presentation for the full version of the critical assumptions and general limiting conditions.

# BACKGROUND & OBJECTIVES

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## Background

RCLCO was retained by Lord Aeck Sargent as part of a multidisciplinary team to conduct a preliminary test of the development opportunity for a variety of candidate land uses at the Muscle Shoals site.

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## Objectives

For the candidate land uses:

Assess the site characteristics and location relative to the development potential;

Understand the underlying demand fundamentals for candidate land uses via socioeconomic trends, development trends, and economic development efforts in the local area and region;

Determine the key target market audiences fueling demand for candidate land uses;

Survey the competitive landscape to understand supply conditions in the market place; and

Provide initial/ preliminary development conclusions regarding the likely market success for each land use.

# METHODOLOGY

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## Site Analysis

Identify levels of opportunity and potential positioning through attributes of site and relationship to market.

Local and regional access and visibility

Character and type of surrounding developments

Proximity of regional attractions/destinations, services, and employment

Planned and proposed improvements to surrounding areas

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## Market Depth

Understand target markets and supportable units and/or square feet based on current and future market growth and demonstrated demand.

Evaluate existing and projected local and regional economic and demographic composition and growth to understand key target markets that will fuel demand for candidate land uses at the site

Determine the magnitude of demand for each of the land uses based on the existing size and projected growth of the key target markets

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## Competitive Market Analysis

Understand opportunities in the market in relationship to competitive supply.

Evaluate a sample of competitive and comparable new and existing product and/ or projects of each candidate land use

Determine the potential supportable types of product and the correlating estimated number of units or square footage of each land use at the site

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## Recommendations/Market Position

Advise on critical success factors for the development, creating a set of recommendations that responds to the analysis undertaken

## Overview of Conclusions and Recommendations

# THE GREATEST OPPORTUNITY FOR REDEVELOPMENT OF THE TVA RESERVATION WILL BEGIN WITH THE CREATION OF AN R&D CAMPUS

- ▶ ***The TVA Reservation should be redeveloped in multiple districts that blend and mix land uses which are anchored by a research and development employment campus that can accommodate a significant level of highly skilled employment***
- ▶ ***As a major R&D campus, the reservation will draw the employment and households needed to support the development of residential, retail, hospitality, and other uses at the site***
- ▶ ***In order to transform the site into a major research and development campus with national draw, the campus should have a primary focus on innovation in the energy industry, leveraging the history of the site and legacy of the TVA***
  - A multitude of other industries/ disciplines can also be accommodated at the employment campus, particularly highly-skilled professional services and highly-skilled manufacturing
  - These can be supporting industry or an industry that is not related to energy
- ▶ ***It is important to note that the land plan should be flexible enough to respond to unique opportunities that are difficult to quantify and therefore not considered in this analysis***

# SUSTAINABILITY SHOULD BE A CORNERSTONE OF THE RESERVATION REDEVELOPMENT

- ▶ ***Development that is driven by sustainability principals is more than just a trend, it is becoming a standard***
  - With so many developers actively using “green” and sustainable development principals to differentiate their projects, this is a movement being broadly implemented today making it necessary to compete in the near future, especially on a national level
- ▶ ***Sustainability is defined not only as the use of environmentally-friendly planning and execution of development, but also creating a place that is supportable from a market demand perspective***
  - Delivering more residential, retail, office, or other land uses (supply) than demand in the market place can absorb will lead to high vacancies, eroding the sense of place and potential for long-term success
- ▶ ***A focus on green building and employment will increase the potential for site development to qualify for public funding, grants and other types of financing***
  - Currently available are brownfield conversion grants, federal stimulus funding earmarked for clean energy technology research, among other incentives and funds for green-related development and activities



# THE APPLICATION OF SUSTAINABILITY IN DESIGN AND EXECUTION WILL MAXIMIZE THE CHARACTER AND APPEAL OF PROJECTS AT THE SITE

- ▶ ***A focus on sustainability is critical for morphing perceptions of the site and maximizing the character and place that is created with the redevelopment***
  - Green development of the site can help combat lingering negative perceptions of the Reservation due to known contamination
  - Preservation of the historic character of the site – existing street grid, and to the extent possible, historic buildings – will give the development a more authentic feel and differentiate the character of the project in a way that is difficult to replicate with a greenfield development
  - Creative treatment of environmentally sensitive areas (i.e., contaminated or otherwise undevelopable areas) into open space will transform challenging aspects of the site into assets
    - Plentiful open space is an appealing amenity to both potential residents as well as employers that are concerned about providing an appealing work environment
  - Delivering a master plan that mixes land uses in a walkable format will make amenities of park space, open space, retail, and other conveniences/ assets immediately accessible to all users at the site

# THE OPPORTUNITY HAS BEEN INVESTIGATED UNDER THREE DIFFERENT SCENARIOS

- ▶ ***Steady-State Moderate Growth (Scenario 1):*** Growth in the Shoals area will continue at the same demonstrated pace as posted over the past few decades
  - Through 2030, only the rail car facility will add a volume of new jobs that surpasses employment growth in the Shoals over the past 40 years
- ▶ ***Aggressive Steady-State Growth (Scenario 2):*** The impact of the rail car facility will be more dramatic, bringing a greater employment and household growth than demonstrated in the past
  - This scenario is unlikely, given the type of employment created by the rail car facility and historical precedence of job and household growth in the area
- ▶ ***TVA Reservation Redevelopment is a Catalyst for Economic Growth (Scenario 3):*** The Reservation is converted into a research and development campus that focuses on promoting energy innovation and attracts other industries, as well
  - Additional supporting employment can be significant because white collar energy-related jobs have a higher likelihood of spurring other professional support and specialized manufacturing jobs
  - *We believe that this scenario can be achieved if the timing is right and the appropriate and strategic partnerships and funding are pursued*

# A SUMMARY EXPLANATION OF UNDERLYING ASSUMPTIONS DRIVING DIFFERENT SCENARIOS

SCENARIO	1: MODERATE STEADY-STATE	2: AGGRESSIVE STEADY-STATE	3: TVA SITE AS A CATALYST
DESCRIPTION	Employment and households will continue to grow at a rate similar to historical rate	The rail car facility will have a significant multiplier effect, precipitating higher household and job growth	<b><i>The TVA Reservation will become a new, specialized and high-tech employment core</i></b>
SOURCE	• RCLCO, Economy.com	• Economy.com	• RCLCO
ASSUMPTIONS:	<ul style="list-style-type: none"> <li>• Similar to growth since 1990 and before</li> <li>• Rail car facility does not have a significant impact beyond direct jobs created</li> </ul>	<ul style="list-style-type: none"> <li>• Rail car facility spurs significant level of indirect jobs</li> <li>• Site can overcome lack of interstate access</li> <li>• More employees located outside of the Shoals and in two-job households</li> </ul>	<ul style="list-style-type: none"> <li>• The industry necessary to become a research and development campus can be attracted</li> <li>• White collar jobs will spur significant indirect jobs</li> <li>• More employees located outside of the Shoals and in two-job households</li> </ul>
2009 – 2030			
AVG ANNUAL MSA JOB GROWTH:	436	720	<b>993</b>
AVG ANNUAL MSA NEW HOUSEHOLDS:	383	385	<b>555</b>

# CONVERTING THE RESERVATION TO AN EMPLOYMENT CAMPUS WILL RESULT IN THE GREATEST OPPORTUNITY FOR DEVELOPMENT AT THE SITE

## Total Development Supportable at the Site Through 2030

SCENARIO Development Opportunity at the TVA Reservation	1: MODERATE STEADY-STATE	2: AGGRESSIVE STEADY-STATE	3: TVA SITE AS A CATALYST
OFFICE/ INDUSTRIAL	<b>400K SF Total</b>  125K SF Office 275K SF Flex <sup>1</sup> & Industrial	<b>680K SF Total</b>  230K SF Office 450K SF Flex <sup>1</sup> & Industrial	<b>3.2 Million SF Total</b>  <b>70 – 80% Office/ Flex</b> <b>20 – 30% Industrial</b> (Retain existing structure as appropriate for character, condition, and potential use)
RETAIL	<b>120K SF</b>	<b>200K SF</b>	<b>325K SF</b>
ENTERTAINMENT	<b>Limited</b>	<b>Up to 30K</b>	<b>50 – 85K SF</b>
HOSPITALITY	<b>170 Keys</b>	<b>175 Keys</b>	<b>275 Keys</b>
RESIDENTIAL (Only SFD was studied and is presented)	<b>600-650 units</b>	<b>700-750 units</b>	<b>1,100-1,200 units</b>

<sup>1</sup> Flex space is employment serving space designed to be versatile and may include a mix of research and development, quasi-retail sales, industrial processing, specialized assembly, or high tech space (e.g., information, call centers, back-office reconciliation or support services).

# CANNIBALIZATION OF EXISTING SPACE IS NOT ASSUMED TO BE AN OPPORTUNITY FOR DEVELOPMENT AT THE SITE

- ▶ *In keeping with the TVA's core principal of economic development, all development opportunity is based on new demand from employment or household growth starting in 2009*
- ▶ *Cannibalization, or "building a better mouse trap," was not considered a viable strategy, as this is economic displacement –moving economic vitality from an existing space to a new development*

# TO BE SUCCESSFUL, THE EMPLOYMENT CAMPUS MUST COME FIRST, MAJOR RETAIL SHOULD COME LAST

## Phase 1

### ***Begin implementation and execution of R&D campus***

- ▶ Pursue strategic public and private partnerships
  - ▶ Educational institutions, state of Alabama, federal agencies, large corporations
- ▶ Seek large corporations or agencies to locate or commit to the campus
- ▶ Start constructing the campus

## Phase 2

### ***Once momentum for R&D campus is established***

- ▶ With frontage on busy thoroughfares, hospitality component(s) may be introduced
- ▶ Additional office and flex space can be developed
- ▶ Residential can be phased in
  - ▶ SFD
  - ▶ Apartments
- ▶ Small-scale, internally-serving retail and dining can be delivered to support employees and residents on the site

## Phase 3

### ***Significant retail or mixed-use districts should be delivered after other uses are established and stabilized***

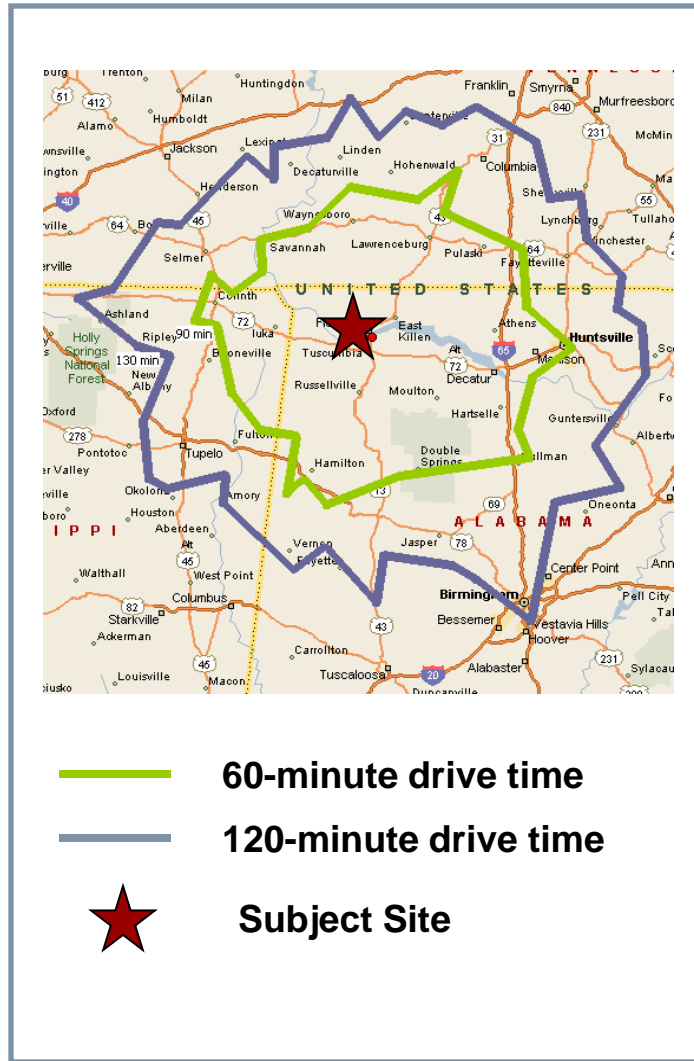
- ▶ Having demand generators in place is critical to mixed-use or large-scale retail success
  - ▶ The majority of total anticipated employees on-site should be in place
- ▶ The site should be established as a destination in advance of large-scale retail being delivered

# KEY QUESTIONS

## How do the site's characteristics and location influence the opportunity for redevelopment?

- ▶ What are the current economic and demographic conditions of the area?
- ▶ To what degree is the redevelopment of the Reservation into an R&D employment campus expected improve the employment and household growth outlook for the Shoals area?
- ▶ What is the opportunity for the development of office and other employment-serving space at the site?
- ▶ What is the opportunity for residential development at the site?
- ▶ What is the opportunity for retail development at the site?
- ▶ What is the opportunity for hospitality development at the site?

# THE SITE HAS A GOOD LOCATION IN THE SHOALS AREA, BUT DIFFICULTY CONNECTING TO BROADER REGION



## Location Strengths:

- ▶ The site is bound on three sides by high traffic thoroughfares
- ▶ The RTJ Shoals golf course, new Marriott, and local airport with commercial service, among other assets, are proximate to the site
- ▶ A variety of potential strategic partners are located near the site
  - Expand on efforts of International Fertilizer Development Center (“IFDC”) located at the site
  - Leverage one or more of the higher education facilities nearby
  - Leverage area special interest groups/ initiatives

## Location Challenges:

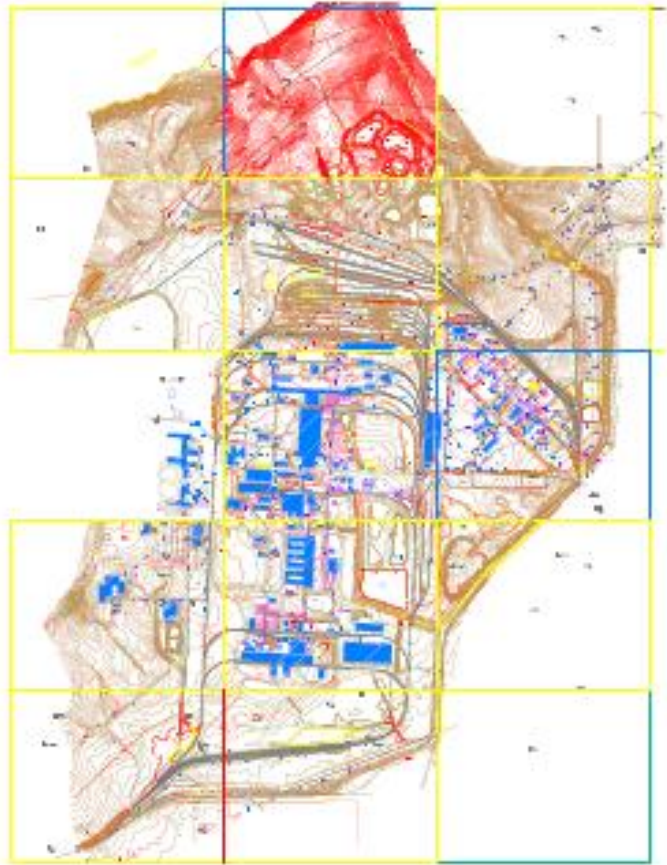
- ▶ Lack of interstate access poses logistical challenges and limits manufacturing opportunity
- ▶ Although Huntsville and Birmingham are within two hours drive time, without direct interstate connectivity, the Shoals area is outside of these two major cities’ spheres of influence
- ▶ Utilization of the site’s river frontage is somewhat limited
- ▶ Established retail corridors are not immediately adjacent to the site, and retail development is currently sufficient enough to satisfy existing demand as aging retail buildings sit vacant



# THE SITE IS WELL-SUITED FOR A LARGE-SCALE MASTER PLANNED DEVELOPMENT ANCHORED BY AN EMPLOYMENT CAMPUS

- ▶ *At more than 1,350 total acres, the size of the site presents a unique opportunity for a well-planned, large-scale development with multiple districts phased over a longer-term timeframe*
- ▶ *The site has a unique and rich history and is known for energy production (TVA & Wilson Dam) which can be transformed into the focus of a research and development park*
- ▶ *The site boasts significant existing infrastructure that could attract a developer or end-user to the site because significantly less capital investment will be required (in comparison to a greenfield site):*
  - Security infrastructure in place is nearly “turn-key”, allowing for easy transformation to a highly secure environment
  - The mix of existing buildings have the potential to serve unique and specialized functions
    - Large warehouses can become sound stages for movie production
    - Large facilities designed to safely house chemicals and reactive substances can serve specialized manufacturing or R&D purposes
    - Existing laboratories can be utilized as R&D facilities for new users
    - Existing maintenance and warehousing facilities could have new industrial-use applications
    - Architecturally interesting buildings dating back to early 1900’s can potentially be converted to creative class office space, residential lofts, or retail/ dining such as coffee shops, cafes, or brew pubs, depending on the condition of the buildings
  - An existing road and sidewalk network is in place
  - The site boasts other unique assets, such as an existing water treatment facility
  - Highly utilized walking trails on TVA property north of Reservation Road connect the site to the river

# SITE CHALLENGES MAY BE BEST OVERCOME WITH A GREEN, EMPLOYMENT-CENTRIC DEVELOPMENT



- ▶ The land and buildings on it will likely require significant investment which may require rents/ sales prices beyond which the market will bear
  - A variety of public funding and financing mechanisms exist and could be used to bridge the development cost gap
  - As a green brownfield redevelopment that aims to bring significant employment to the area, the project will have an increased probability of securing these types of funds
- ▶ Leading redevelopment of the site with employment-serving space is “low hanging fruit,” as employment is already housed at the site
  - A superiorly executed and environmentally-sound employment campus can help those familiar with the history of the site ‘forget’ about the significant contamination known to have plagued the site in the past
- ▶ Areas of the site permanently contaminated and requiring TVA monitoring can be turned into open space and other natural amenities, blending seamlessly into a green development
- ▶ A highly-educated workforce will be more likely to accept higher density residential product, which will yield more units per acre to among which remediation can be distributed, keeping the remediation cost per unit and home price lower

# KEY QUESTIONS

- ▶ How do the site's characteristics and location influence the opportunity for development?

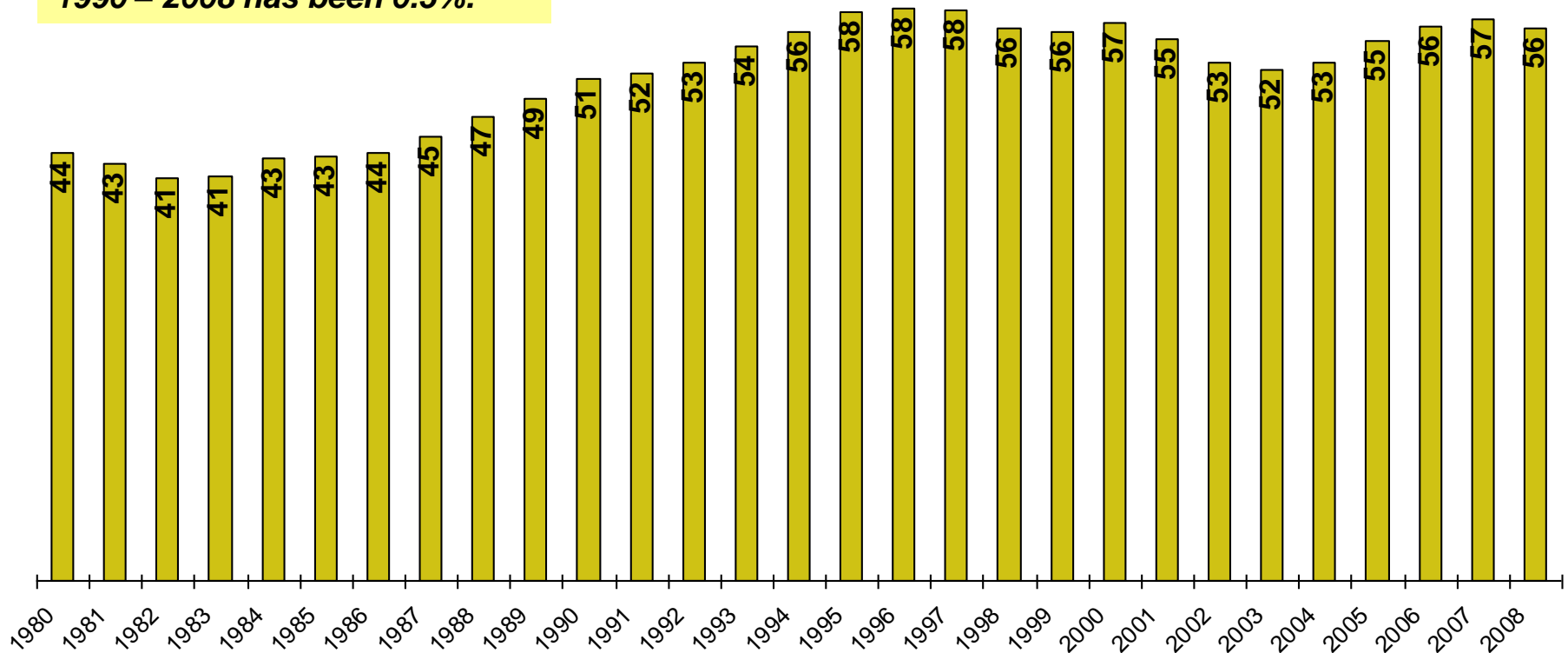
## ▶ What are the current economic and demographic conditions of the area?

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# EMPLOYMENT GROWTH HAS BEEN RELATIVELY FLAT IN THE SHOALS AREA SINCE 1980

TOTAL EMPLOYMENT (THOUSANDS OF JOBS)  
FLORENCE-MUSCLE SHOALS MSA 1980 - 2008

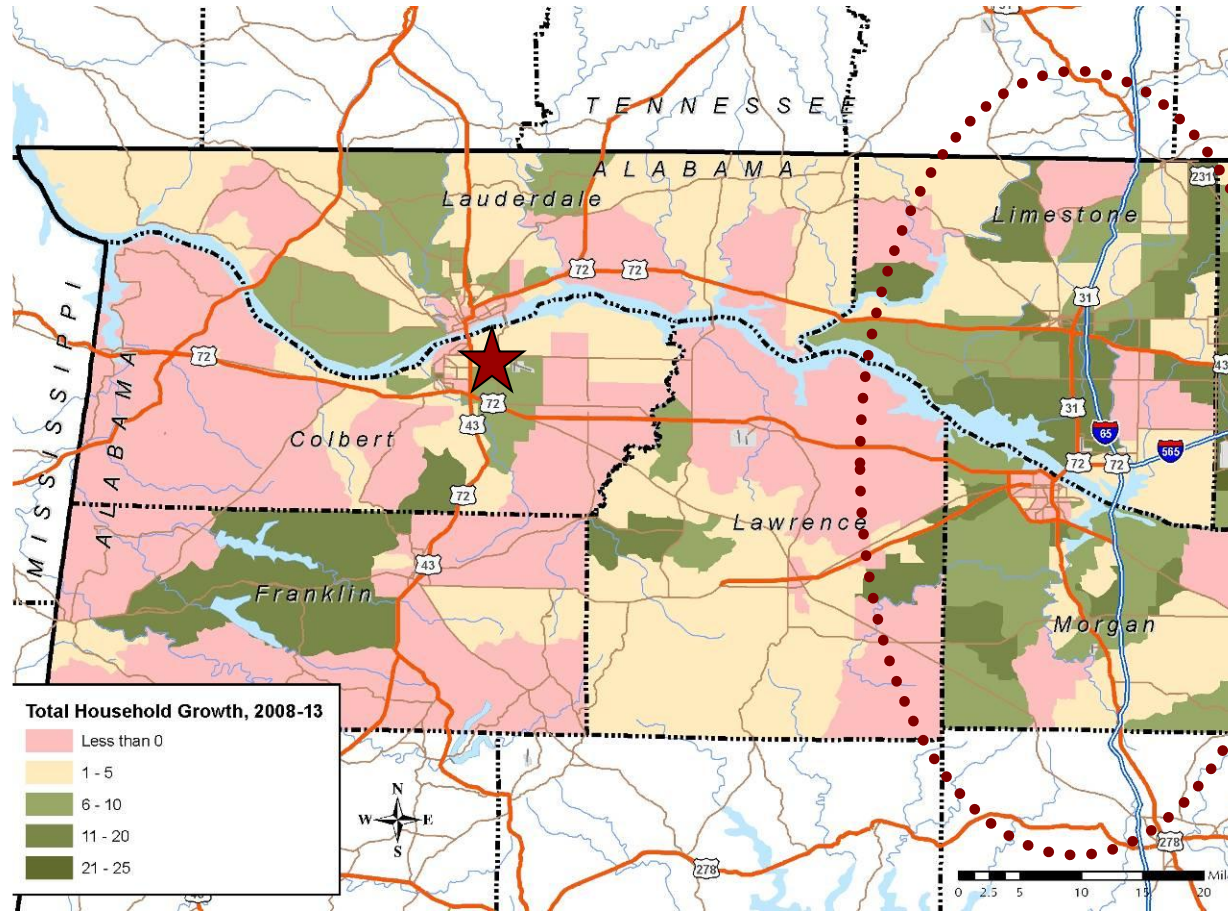
*The compound annual  
employment growth rate from  
1990 – 2008 has been 0.5%.*



1 Florence-Muscle Shoals MSA is defined as Colbert & Lauderdale Counties in Alabama.  
SOURCE: Economy.com

# WITH RELATIVELY FLAT CHANGE IN EMPLOYMENT, THE SHOALS IS A LOWER GROWTH AREA THAN LOCATIONS MORE PROXIMATE TO THE I-65 CORRIDOR

## Total Household Growth 2008 - 2013



*The Florence-Muscle Shoals MSA gained only 50 households from 2000 to 2008. Going forward, the MSA is expected to grow at an annual rate of about 215 households, or 0.4%, through 2013.*

*In comparison, the Huntsville MSA is expected to grow at an annual rate of 1.7% and the Birmingham MSA is expected to grow at a rate of 1% annually through 2013.*

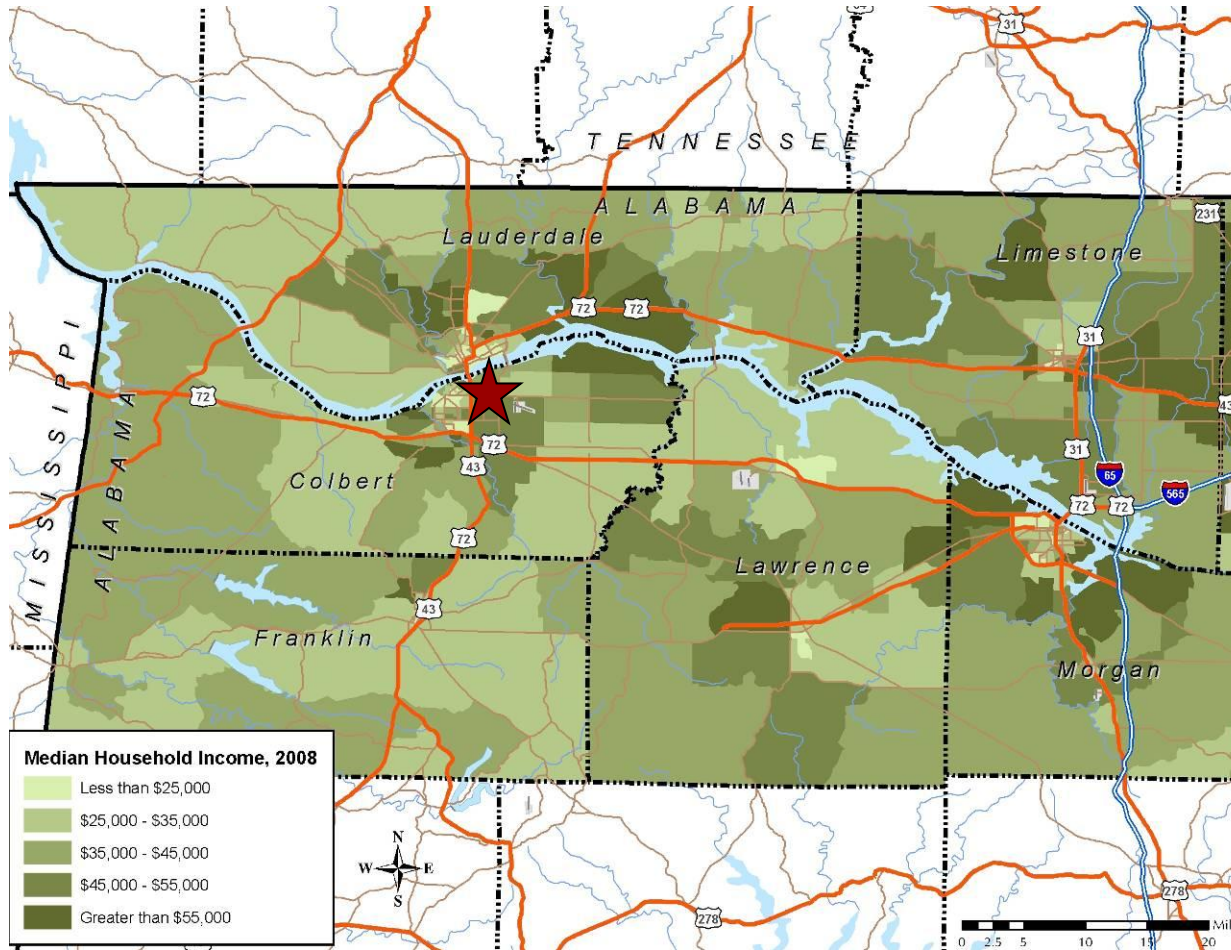
 **Subject Site**

SOURCE: Claritas



# AND HAS RELATIVELY MODEST INCOMES

## Median Household Income 2008



*This map illustrates that most incomes near the site are below \$45k.*

*2008 Median Household Income for the Florence-Muscle Shoals MSA is \$39,000.*

*This is compared to Birmingham, with a median income of \$49,000 and Huntsville with a median income of \$54,000.*

 **Subject Site**

SOURCE: Claritas

# KEY QUESTIONS

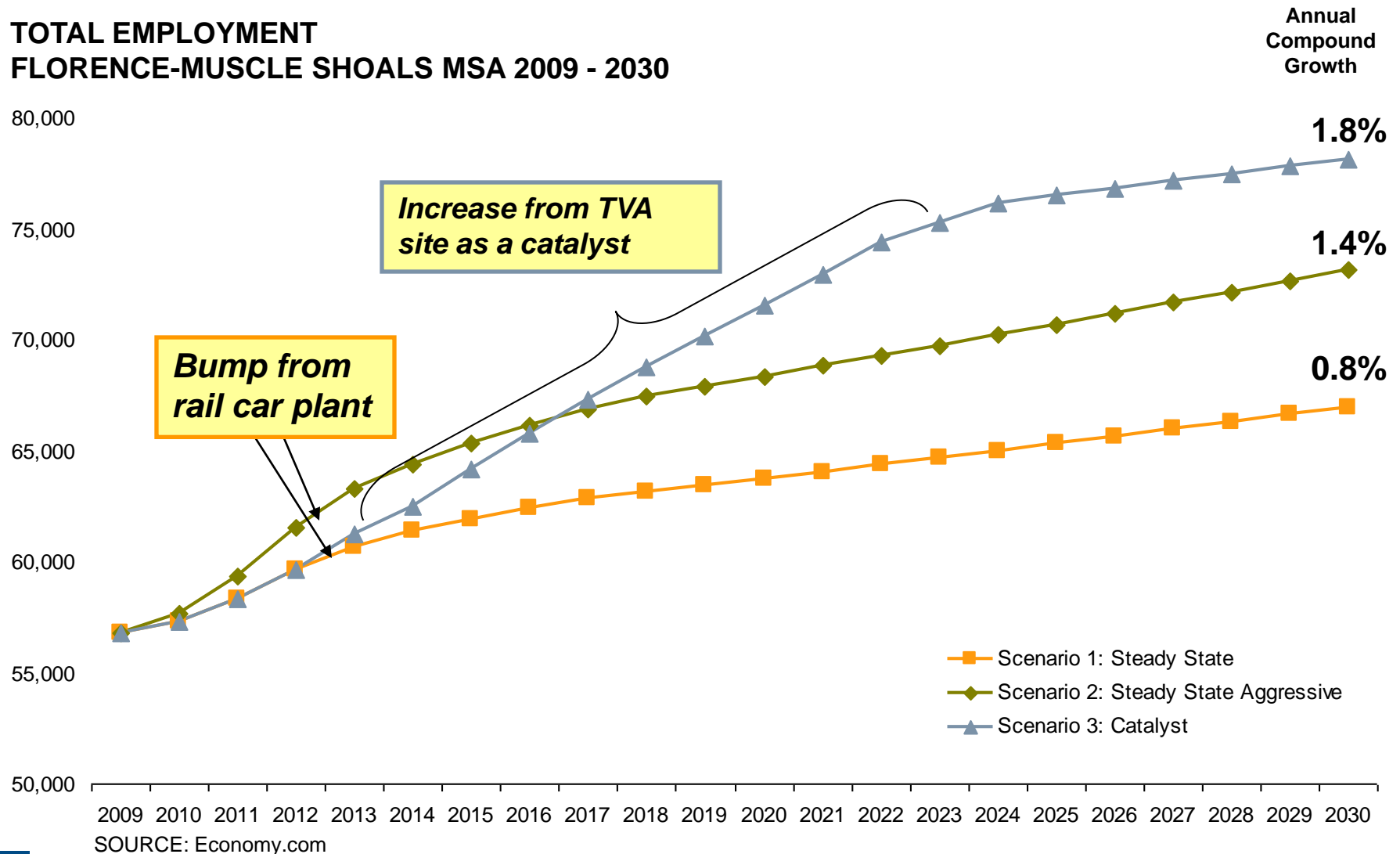
- ▶ How do the site's characteristics and location influence the opportunity for redevelopment?
- ▶ What are the current economic and demographic conditions of the area?

▶ **To what degree is the redevelopment of the Reservation into an R&D employment campus expected improve the employment and household growth outlook for the Shoals area?**

- ▶ What is the opportunity for the development of office and other employment-serving space at the site?
- ▶ What is the opportunity for residential development at the site?
- ▶ What is the opportunity for retail development at the site?
- ▶ What is the opportunity for hospitality development at the site?

# REDEVELOPING PART OF THE SITE AS A LARGE-SCALE R&D PARK WILL BE A CATALYST, BRINGING ROBUST EMPLOYMENT GROWTH TO THE SHOALS AREA

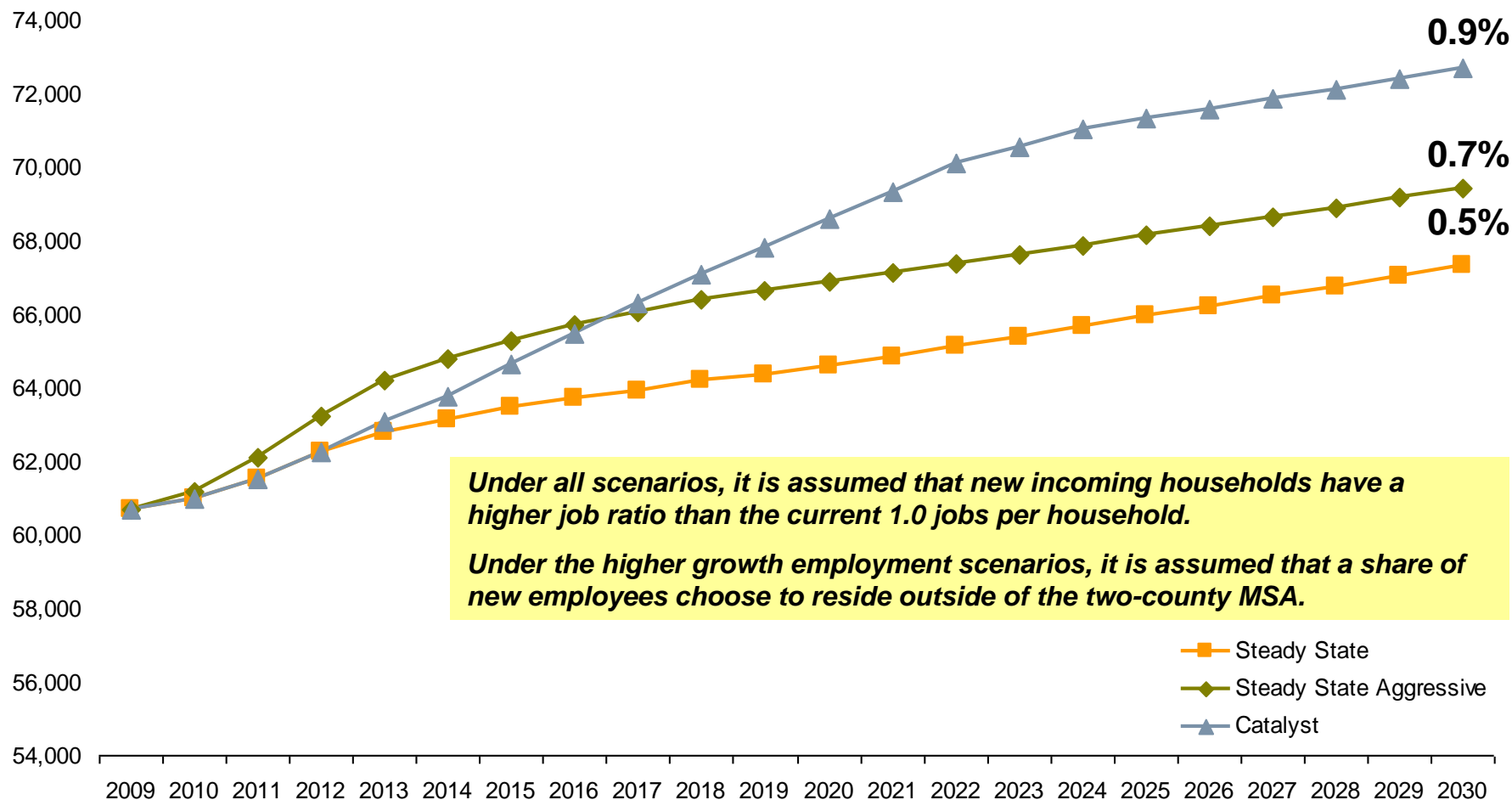
## TOTAL EMPLOYMENT FLORENCE-MUSCLE SHOALS MSA 2009 - 2030





# DRIVEN BY EMPLOYMENT GROWTH, THE AREA WILL ADD NEARLY 7,000 MORE HOUSEHOLDS WITH THE TVA CATALYST DEVELOPMENT THAN WITHOUT

## HOUSEHOLD GROWTH FLORENCE-MUSCLE SHOALS MSA 2009 - 2030



06.25.2009

# KEY QUESTIONS

- ▶ How do the site's characteristics and location influence the opportunity for redevelopment?
- ▶ What are the current economic and demographic conditions of the area?
- ▶ To what degree is the redevelopment of the Reservation into an R&D employment campus expected improve the employment and household growth outlook for the Shoals area?

▶ **What is the opportunity for the development of office and other employment-serving space at the site?**

- ▶ What is the opportunity for residential development at the site?
- ▶ What is the opportunity for retail development at the site?
- ▶ What is the opportunity for hospitality development at the site?

# OFFICE WILL LIKELY CONTINUE TO LOCATE IN THE HISTORICALLY PREFERRED FLORENCE OFFICE CORES UNLESS THERE IS A COMPELLING DRAW AT THE SITE

## MAJOR CONCENTRATIONS OF OFFICE & FLEX/ INDUSTRIAL SPACE

### Downtown Florence

The historic downtown has the area's only high rise office. Much of the space is Class A or rehabilitated creative space.

### Avalon Avenue

Although most office is scattered in Colbert County, there is a high concentration of a mix of office types along Avalon Avenue; the predominant style of new office is strip or outparcel. A former mall now houses a Walgreens call center.

### Florence – Mall Area

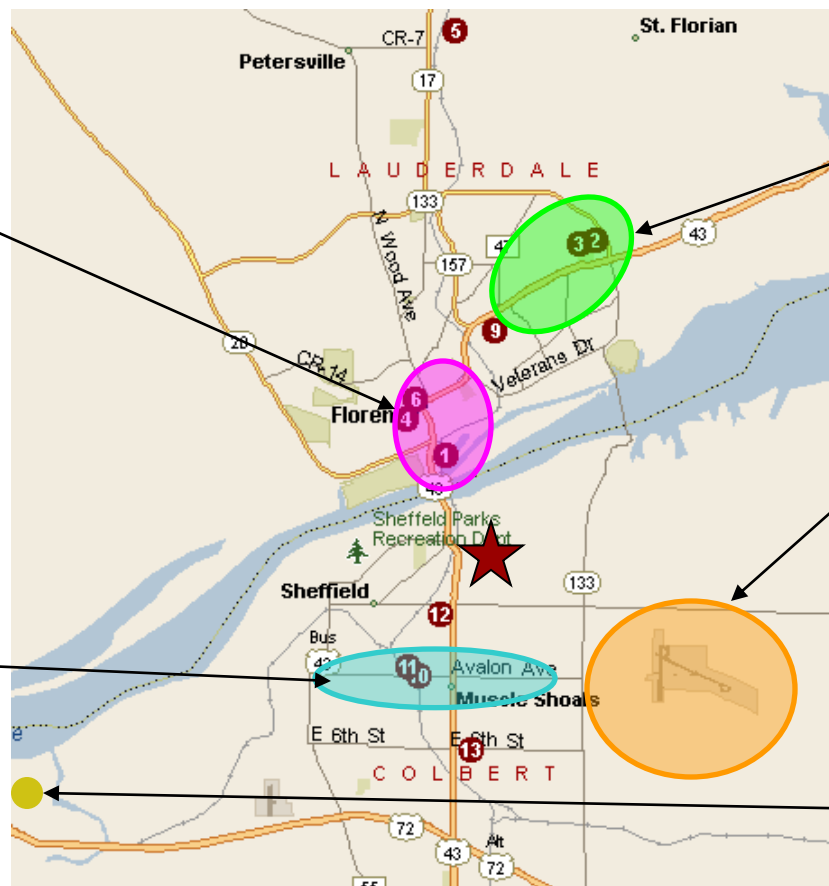
Most of the new office space in Florence is located near the regional mall. This space is exclusively low rise and tends to be outparcel or strip-style office.

### Airport

A special "zone"<sup>1</sup> has been designated in the airport area to attract flex and industrial space. This initiative has been successful to date.

### National Steel Car Railcar Manufacturing Facility

To open later this year, this facility will employ 1,800, earning the status of the largest new employer to the MSA in over 40 years.

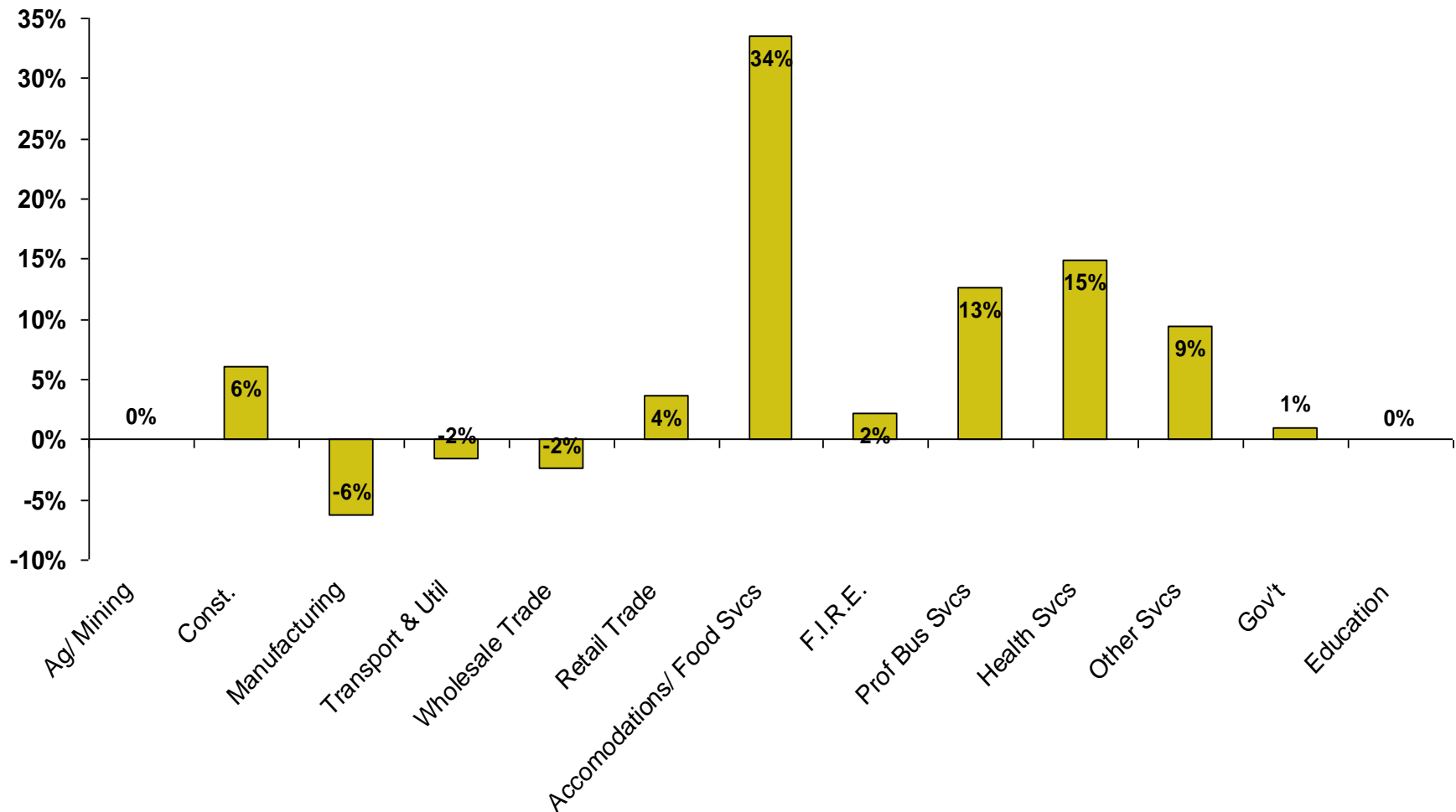


1

It is understood that local area officials have specifically targeted their efforts at attracting new employers/ businesses to the industrial park at the airport. There are no officially and specifically designated incentives in place for the industrial park at the airport.

# WITHOUT A CATALYST DRAWING HIGHLY-SKILLED JOBS TO THE AREA, EMPLOYMENT GROWTH IS EXPECTED TO BE CONCENTRATED IN NON-OFFICE USING INDUSTRIES

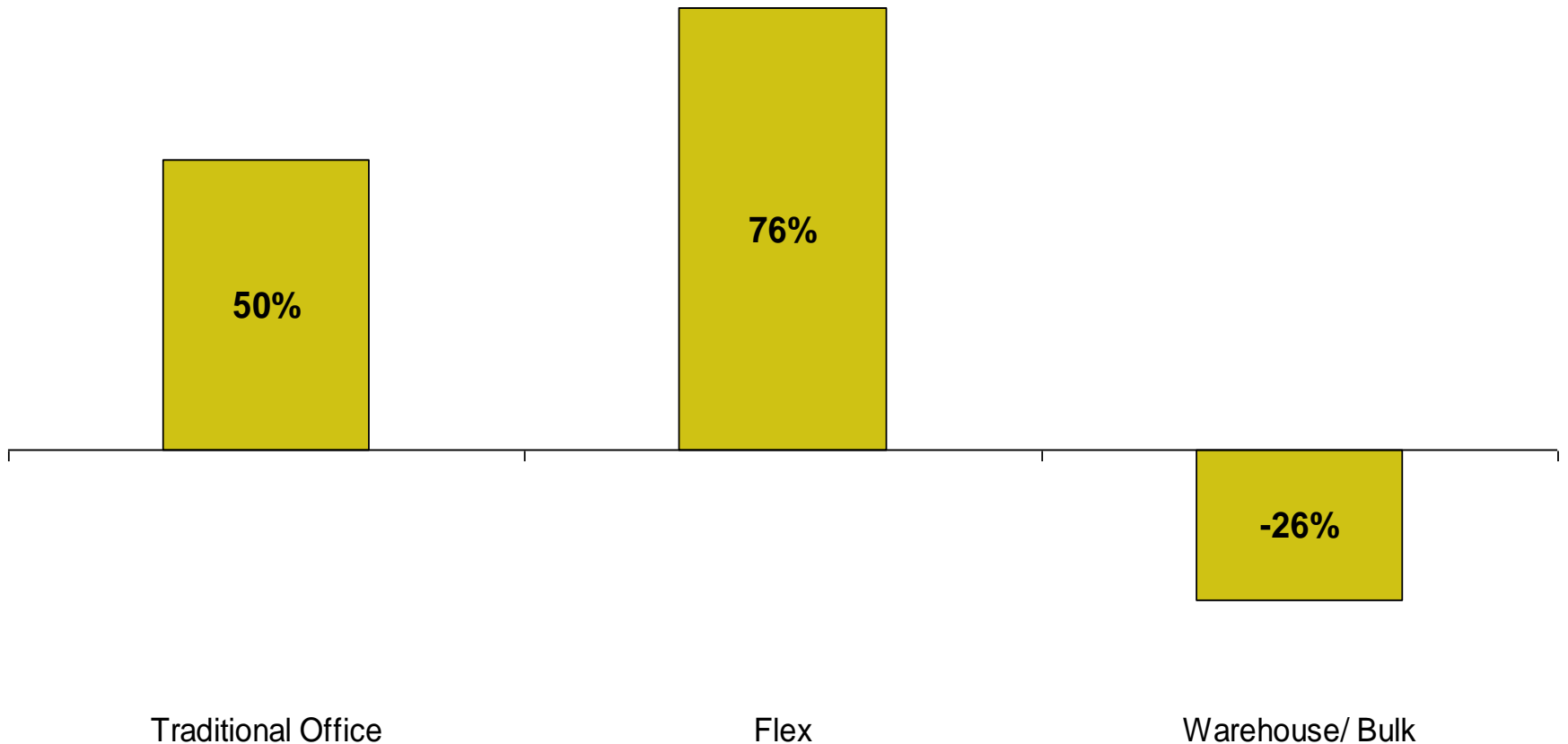
% SHARE OF TOTAL EMPLOYMENT GROWTH BY INDUSTRY  
FLORENCE-MUSCLE SHOALS MSA 2009 - 2030



SOURCE: Economy.com

# THE GREATEST DEMAND WILL BE FOR FLEX SPACE, DEMAND FOR WAREHOUSE SPACE WILL DECLINE

SHARE OF TOTAL SPACE DEMANDED BY NEW EMPLOYMENT GROWTH  
FLORENCE-MUSCLE SHOALS MSA 2009 - 2030



SOURCE: RCLCO, Economy.com

# AN R&D PARK CAN SERVE AS AN ANCHOR TO THE SITE REDEVELOPMENT PLAN AND ACT AS A CATALYST, DRAWING QUALITY EMPLOYMENT GROWTH TO THE AREA AND SITE

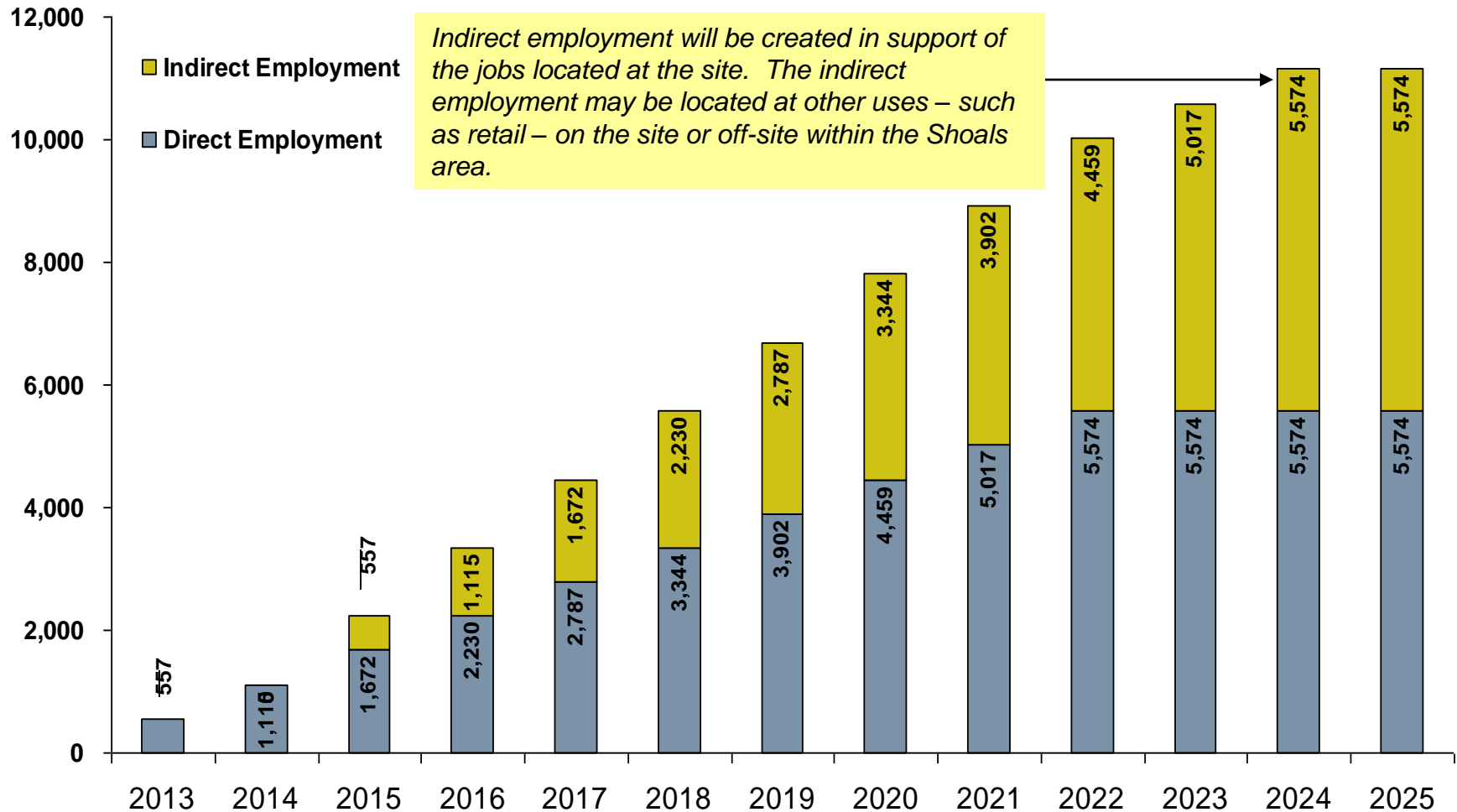
- ▶ **Create a large-scale research & development park that focuses on innovation in energy as the core discipline, reaching out nationally and internationally to employers/ corporations that can bring highly-skilled jobs**
  - The scale and magnitude of a planned mega site will give employers and industries a reason to be interested in the site
  - Although energy should be the core discipline, the site can host a variety of other employment types: other R&D, movie industry, high tech or specialized assembly, creative and professional services, among others
- ▶ **Devote at least 25% of site acreage to employment-serving space to accommodate as many as 5,575 jobs at the site<sup>1</sup> and an estimated additional 5,575 jobs in the surrounding area over a twenty-year time horizon**
  - To be consistent with the existing character of the Shoals area development, keep FAR below 0.25
- ▶ **Existing research parks indicate that it is possible to draw this magnitude of employment within a similar time frame**
  - University of Arizona Science and Tech Park
  - Red River Valley Research Corridor
  - Cummings Research Park
- ▶ **New employment brought to the site and greater Shoals area will add a significant number of new households, fueling demand for residential, retail, entertainment, and hospitality at the site**

<sup>1</sup> Not inclusive of employment at other land uses on the site, such as retail and hospitality

**FAR = Floor to Area Ratio; the gross built square footage of building floor space divided by the gross square footage of the site it is built on.**

# THE SITE HAS THE POTENTIAL TO ACCOMMODATE AS MANY AS 5,575 JOBS BY 2025

ESTIMATED POTENTIAL DIRECT (IN OFFICE/ FLEX SPACE AT THE TVA SITE) & INDIRECT EMPLOYMENT, 2013 - 2025



# EXAMPLES OF LARGE-SCALE R&D CAMPUSES DRAWING SIGNIFICANT EMPLOYMENT

## UNIVERSITY OF ARIZONA SCIENCE & TECH PARK

### ***University of Arizona Science & Tech Research Park – Southeast Tucson, AZ***

- ▶ Total Acres of 1,345
- ▶ When acquired in 1994 from IBM, the park had only 2 tenants and 1,200 employees
- ▶ Currently the campus consists of 2 million + square feet of office, laboratory, and R&D space
- ▶ Today more than 7,000 employees are located at the park, a total new employment growth exceeding 5,500 since 1994
- ▶ This project has created more than 7,000 indirect jobs (2x jobs multiplier)

**SOURCE:** University of Arizona Science & Tech Park,  
Association of University Research Parks



#### ***Relevance:***

- Illustrates that a single-purpose site can be converted to an employment campus serving multiple disciplines
- Indicates the potential for attracting significant jobs on-site and inducing indirect jobs (multiplier effect) within a 15 year time frame



# EXAMPLES OF LARGE-SCALE R&D CAMPUSES DRAWING SIGNIFICANT EMPLOYMENT

## RED RIVER VALLEY RESEARCH CORRIDOR

### ***Red River Valley Research Corridor – North Dakota***

- ▶ Initiative launched in 2002 by Senator Dorgan<sup>1</sup> and deployed via a public partnership by State politicians, University of North Dakota & North Dakota State University
- ▶ This corridor currently consists of two major anchors totaling 110 acres
  - University of North Dakota Research & Tech Park, and North Dakota State University Research Technology Park, each totaling 55 acres
- ▶ Disciplines include energy, nanotechnology, health, industrial/ manufacturing, and agriculture
- ▶ 10,600 direct (on-site) and indirect (off-site) jobs have been created by the park since 2002, this is expected to double by 2020



#### ***Relevance:***

- Located in a non-major metropolitan area, similar to the TVA Reservation
- An example of the broad diversity of industries that can be housed at an employment campus – including energy, agriculture, and manufacturing
- Illustrates the potential to attract and induce significant jobs within a 20-year horizon

1

SOURCE:

The UND Research Park has been in place since 1990  
Red River Valley Research Corridor, University of North Dakota, North Dakota State University

# EXAMPLES OF LARGE-SCALE R&D CAMPUSES DRAWING SIGNIFICANT EMPLOYMENT

## CUMMINGS RESEARCH PARK

### *Cummings Research Park – Huntsville, AL*

- ▶ Currently managed primarily by the City of Huntsville; the University of Alabama in Huntsville Foundation, Brown Engineering, and the State of Alabama are also key players
- ▶ Initiated in 1962; nearly 2,800 acres added since 1982
- ▶ The park is a hub of aeronautical industry employment and supports a variety of other industries
- ▶ Currently the second largest research park in the US, fourth largest in the world
- ▶ Current Statistics:
  - 3,845 acres
  - 9.5 million square feet
  - 25,000 employees
  - 285 companies



#### **Relevance:**

- An example that is located in Alabama, in an area that was, at inception, very rural
- Illustrates the potential to leverage a specialization to heavily impact total employment in an area and become a major hub for that industry
  - (Huntsville: space research; Muscle Shoals: possibly energy)
- Huntsville is now synonymous with NASA and space research

# IMPLEMENTATION OF THE R&D CAMPUS SHOULD CAPITALIZE ON THE SITE LEGACY & EXISTING ASSETS

- ▶ ***A focus on energy will appropriately capitalize on the TVA legacy as a pioneer in energy-generation and economic development***
  - The globally-recognized brand will help draw interest from large corporations, agencies, and institutions and reduce the risk that could be perceived with making an investment in a partnership or the early phase of a new employment campus
  - Leveraging an existing brand, image, or known set of capabilities is easier than trying to build a new one
- ▶ Use existing infrastructure and buildings to attract other employers and industry
  - Rehabbed historic buildings will lend well to creative class and smaller professional services employers
  - Large, sound proof buildings could serve film or music-making disciplines
  - Laboratories, security infrastructure, and other specialized facilities on-site could be attractive to corporations with high-tech or high-sensitivity disciplines

# OTHER IMPLEMENTATION RECOMMENDATIONS FOR MAKING THIS POTENTIAL A REALITY

- ▶ ***Pursue strategic partnerships with public organizations, universities and the state***
  - Private industry partnerships with public agencies, federal labs, and universities are a large macrotrend in innovation
  - Time is of the essence, start building relationships now
- ▶ ***Create an enterprise or similar zone providing incentives for businesses locating at the site***
- ▶ ***Capitalize on the energy focus of the park to try to attain federal stimulus funds and other public grants/ funds to offset the development costs***
- ▶ ***Create a master plan for the site to communicate the vision of the TVA Reservation redevelopment to a multitude of different parties, regardless of discipline or role (e.g., elected officials, executives, local planners, public)***
- ▶ ***Utilize place-making and sustainability principals, thoughtfully design the campus to maximize employer, prospective user, appeal***
  - Many employers have been increasingly attracted to locations with natural settings and amenities such as trails, as they recognize that employee retention and productivity are tied to employee wellness
  - Employment space with small-scale retail, hospitality, and residential adjacent will be attractive amenities for employers looking to provide a convenient environment that offers shopping and dining options nearby, lodging for employees (short-term) and business associates/ clients, and housing (e.g., apartments) for longer-term, but temporary employees

# DEMAND FOR SPACE BY NON-ENERGY RELATED INDUSTRIES WILL LIKELY BE GREATEST FROM SHORT-SLEEVE WHITE COLLAR EMPLOYMENT<sup>1</sup>

- ▶ ***Interviews with local economic development officials indicate that short-sleeve white collar employment is the most likely to locate at the site***
  - There has been increasing interest in the Shoals area from site selection scouts looking for back-office support operation and call center locations
  - The existing security infrastructure at the site could be very attractive for users with more sensitive-industry back-office operations, such as data warehousing
- ▶ ***The site's existing facilities can be used to attract highly-specialized research and development or manufacturing companies that are similar or related to those currently located at the site***
  - Leverage the history of fertilizer research, including existing IFDC, on the site
  - Interest in the site has been expressed by helicopter manufacturers, among other specialized manufacturers

<sup>1</sup> Short-sleeve white collar employment is moderate-income professional employment that tends *not* to be located in Class A or Class B office space, but rather flex space. Examples include call centers, "back-office" support services (such as a bank reconciliation center), tech and information companies, R&D centers, light industrial and distribution facilities (such as a computer assembly center), etc.

# POTENTIAL FOR MOVIE INDUSTRY-RELATED DEMAND DIFFICULT TO QUANTIFY, BUT MAY PRESENT UPSIDE

- ▶ ***Existing large, bulk space buildings are candidates for conversion to movie sound stages, interest has already been expressed by the movie industry***
  - Newly passed State of Alabama movie industry incentives will help to convert interest on the part of the industry into demand/ usage
  - Supporting industries, such as small production studios, digital or graphics services could likely follow
  - Movie industry employment would not be a large indirect employment-creating force – supporting services would likely create small levels of employment – but would demand large quantities of existing space
  - Potential space demanded by the movie industry is not included in this analysis

# LACK OF INTERSTATE ACCESS LIMITS MANUFACTURING OPPORTUNITY, BUT RAIL ACCESS MAY OVERCOME THE CHALLENGE

- ▶ ***Most large supply component manufacturing plants require interstate proximity in site selection***
- ▶ ***Decatur, immediately off of Interstate 65, has a high volume of this type of industry; we expect that this area to the east will continue to be chosen over the Shoals***
- ▶ ***However, the Shoals area has a new emphasis on rail-related manufacturing that can possibly be exploited***
  - The area was able to compete for the location for the new National Steel Car railcar manufacturing plant because of its strong rail access
  - Manufacturing companies seeking to control costs in an economic environment with volatile oil prices may be influenced to choose rail over truck distribution



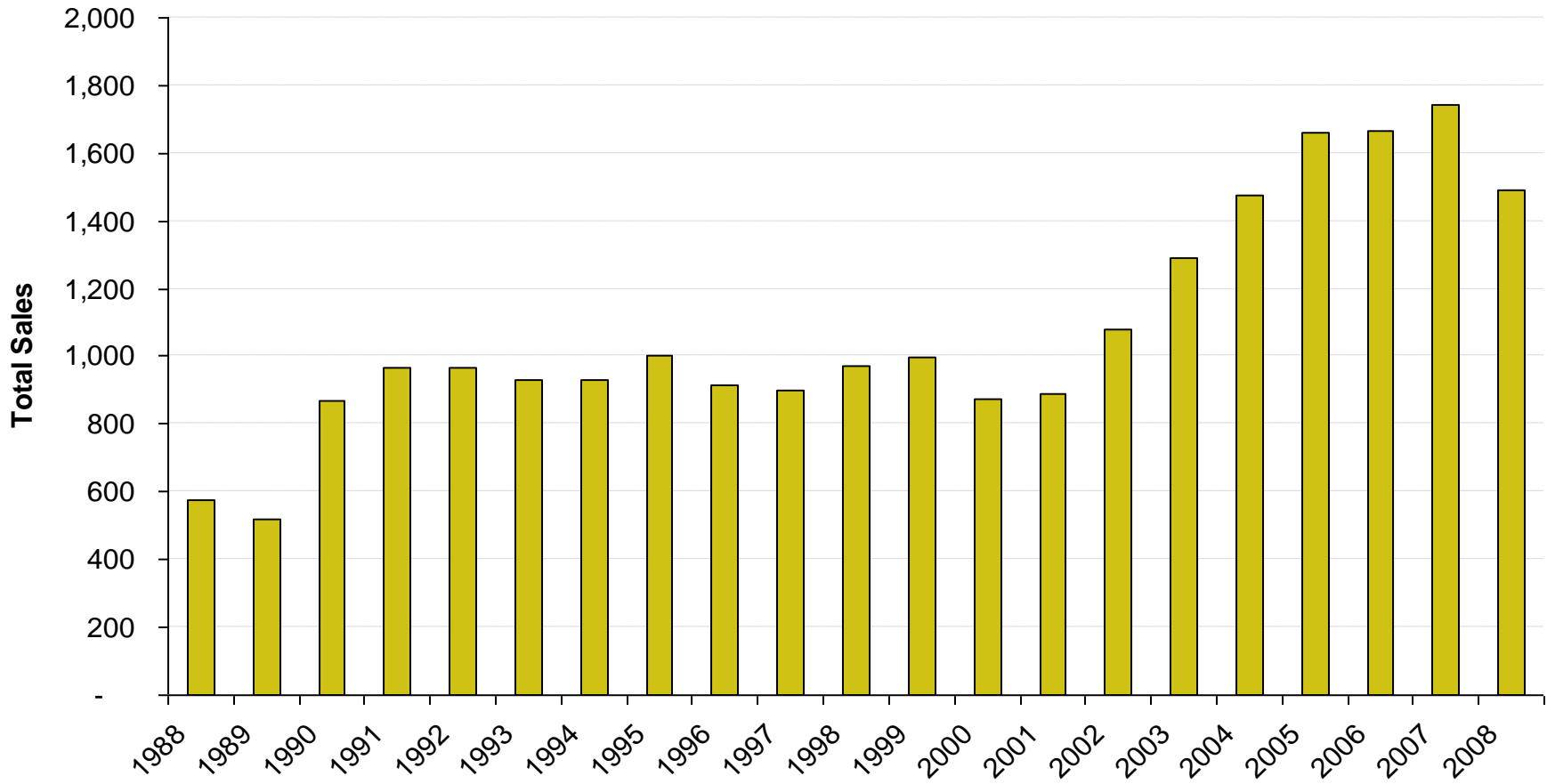
# KEY QUESTIONS

- ▶ How do the site's characteristics and location influence the opportunity for redevelopment?
- ▶ What are the current economic and demographic conditions of the area?
- ▶ To what degree is the redevelopment of the Reservation into an R&D employment campus expected improve the employment and household growth outlook for the Shoals area?
- ▶ What is the opportunity for the development of office and other employment-serving space at the site?
- ▶ **What is the opportunity for residential development at the site?**
- ▶ What is the opportunity for retail development at the site?
- ▶ What is the opportunity for hospitality development at the site?



# THE SHOALS HAS SEEN A NOTICEABLE INCREASE IN SALES SINCE 2001, HOWEVER THE AREA REMAINS A SMALL-VOLUME MARKET

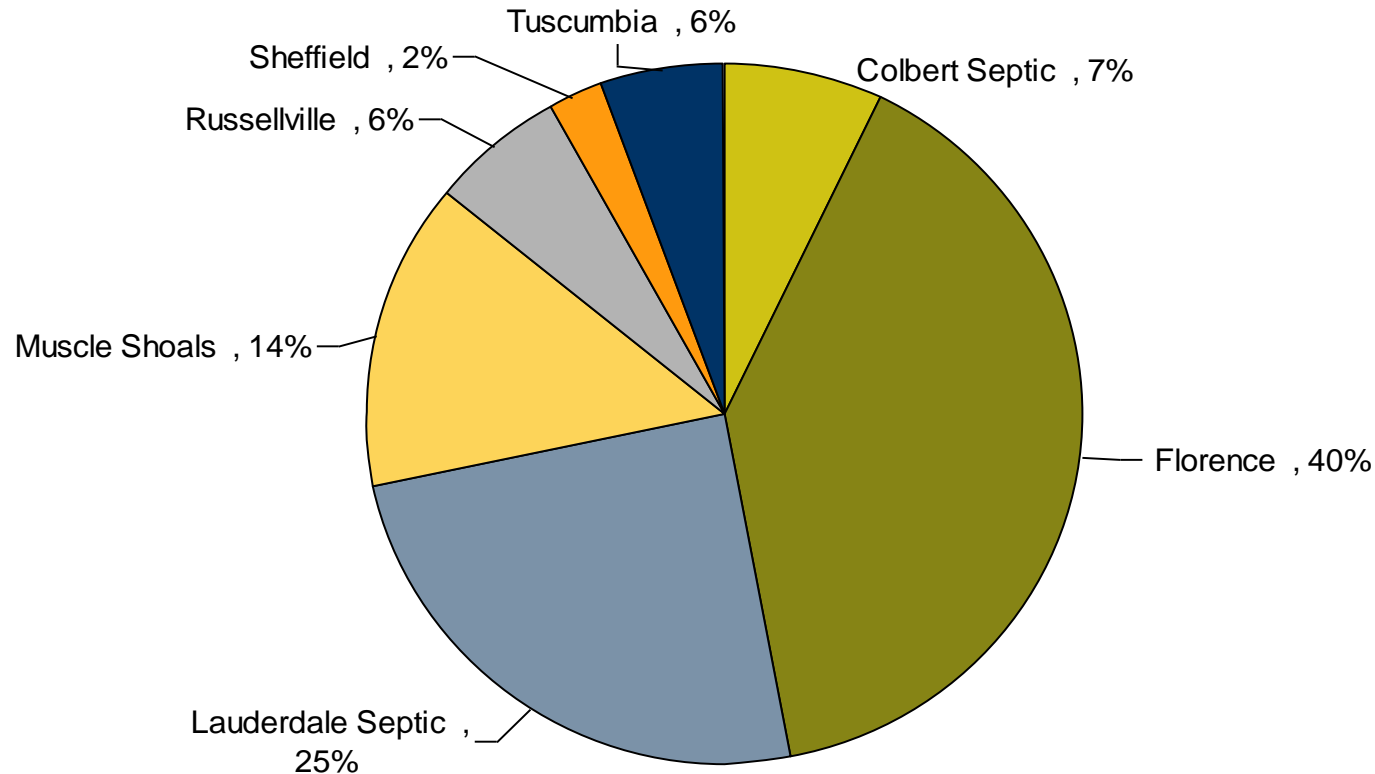
**Total Home Sales, Florence-Muscle Shoals  
MSA, 1988 - 2008**



SOURCE: Alabama Center for Real Estate

# LAUDERDALE COUNTY HAS SEEN MUCH OF THE RECENT NEW RESIDENTIAL ACTIVITY

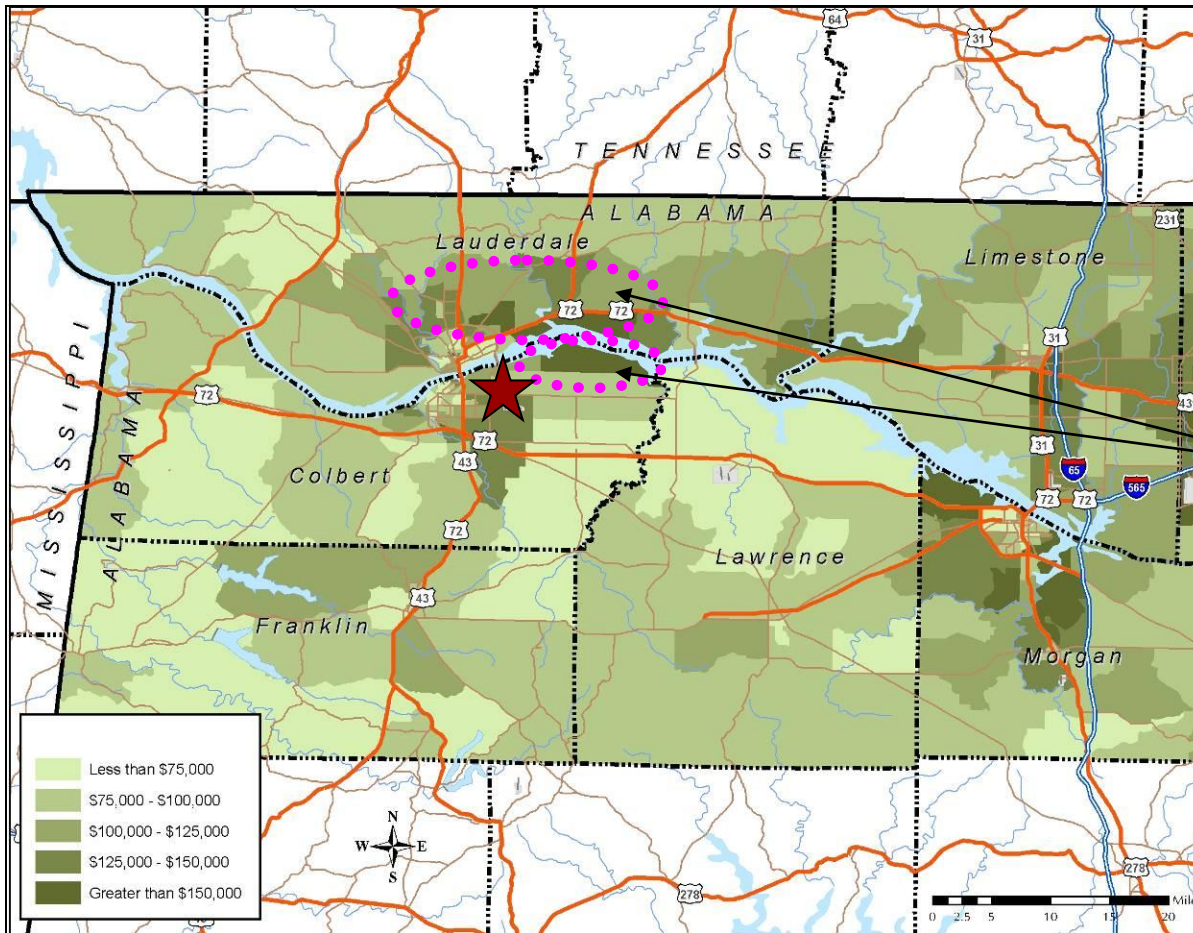
**Estimated Housing Starts, Florence-Muscle Shoals MSA  
2007-2008**



SOURCE: Alabama Center for Real Estate

# SUBJECT SITE IS NOT LOCATED IN A TRADITIONALLY HIGH-VALUE RESIDENTIAL AREA

Median Home Value, 2008



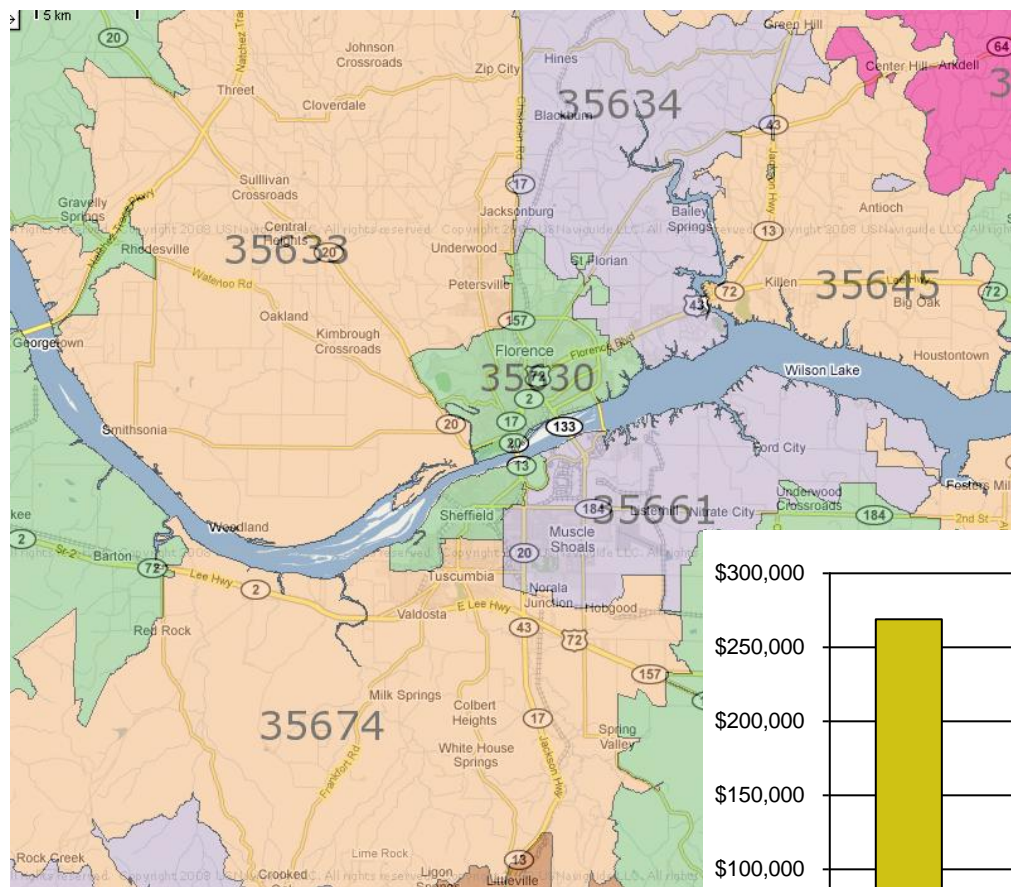
*Florence and the southern bank of Lake Wilson in Muscle Shoals are home to most of the higher-priced homes in the area*



**Subject Site**

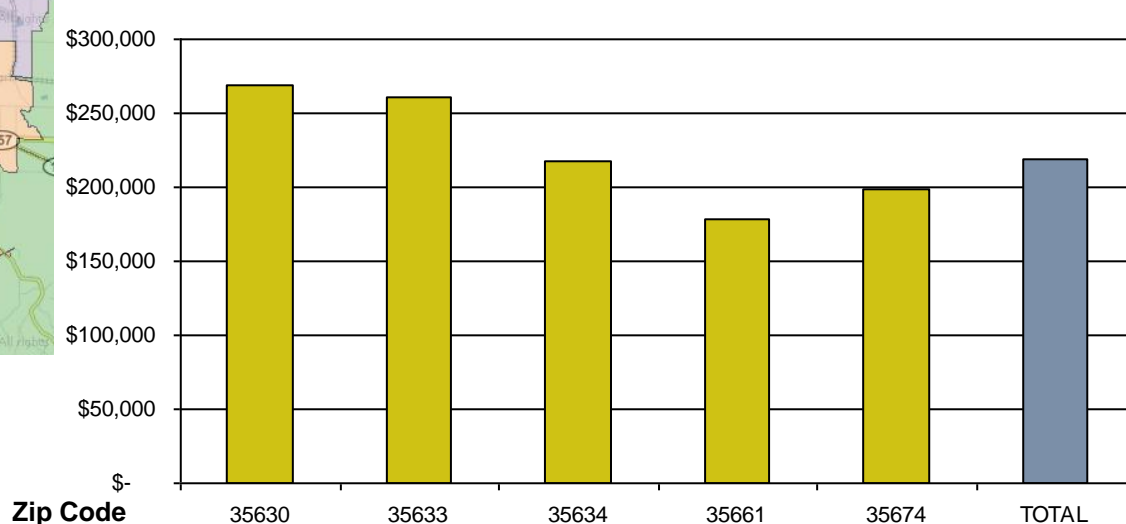
SOURCE: Claritas

# ACTIVE LISTINGS PAINT A SIMILAR PICTURE: HIGHER-END HOUSING IS LOCATED IN LAUDERDALE



- Florence zips have highest average listing price
- Muscle Shoals has lowest average price

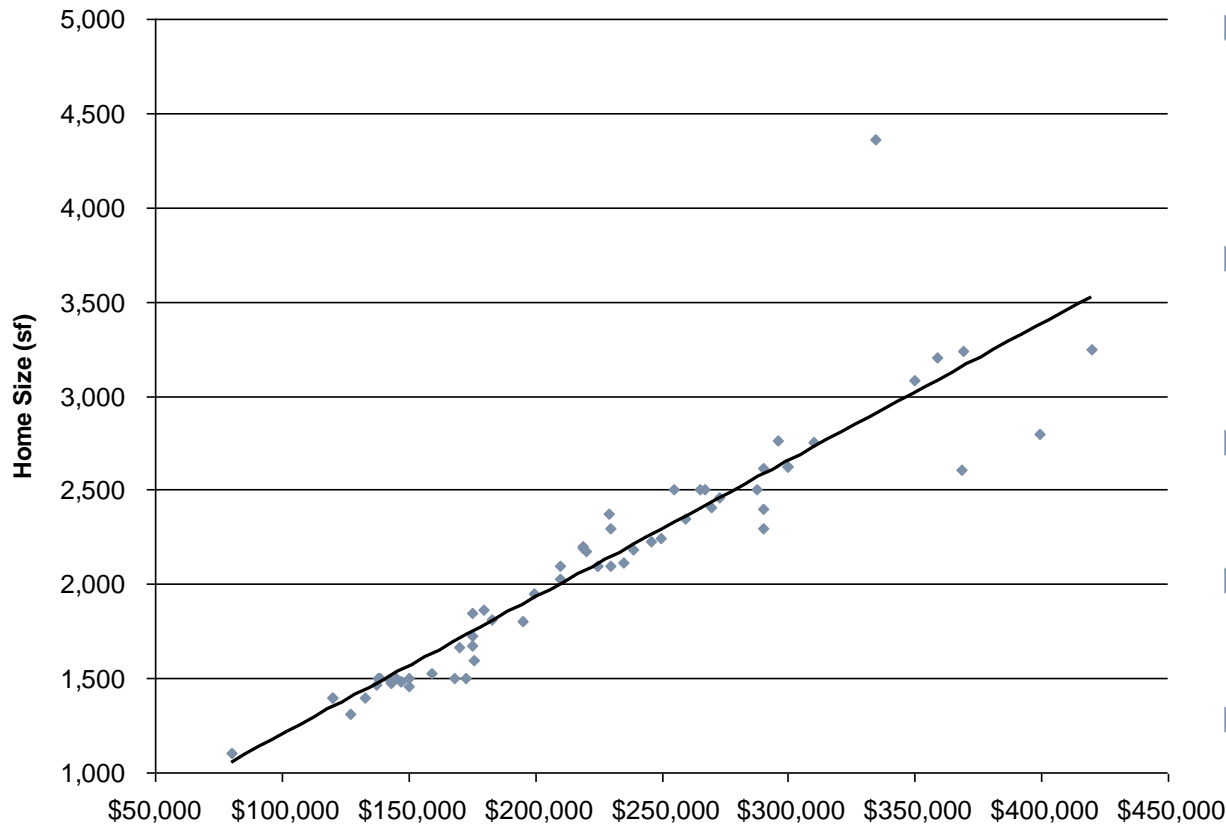
**Average Listing Price, March 2009**



SOURCE: US Naviguide, Realtor.com

# PRODUCT OFFERING IN THE MARKET IS NOT VERY DIVERSE, WITH MOST HOMES POSITIONED SIMILARLY

## Summary of Active MLS Listings March 2009

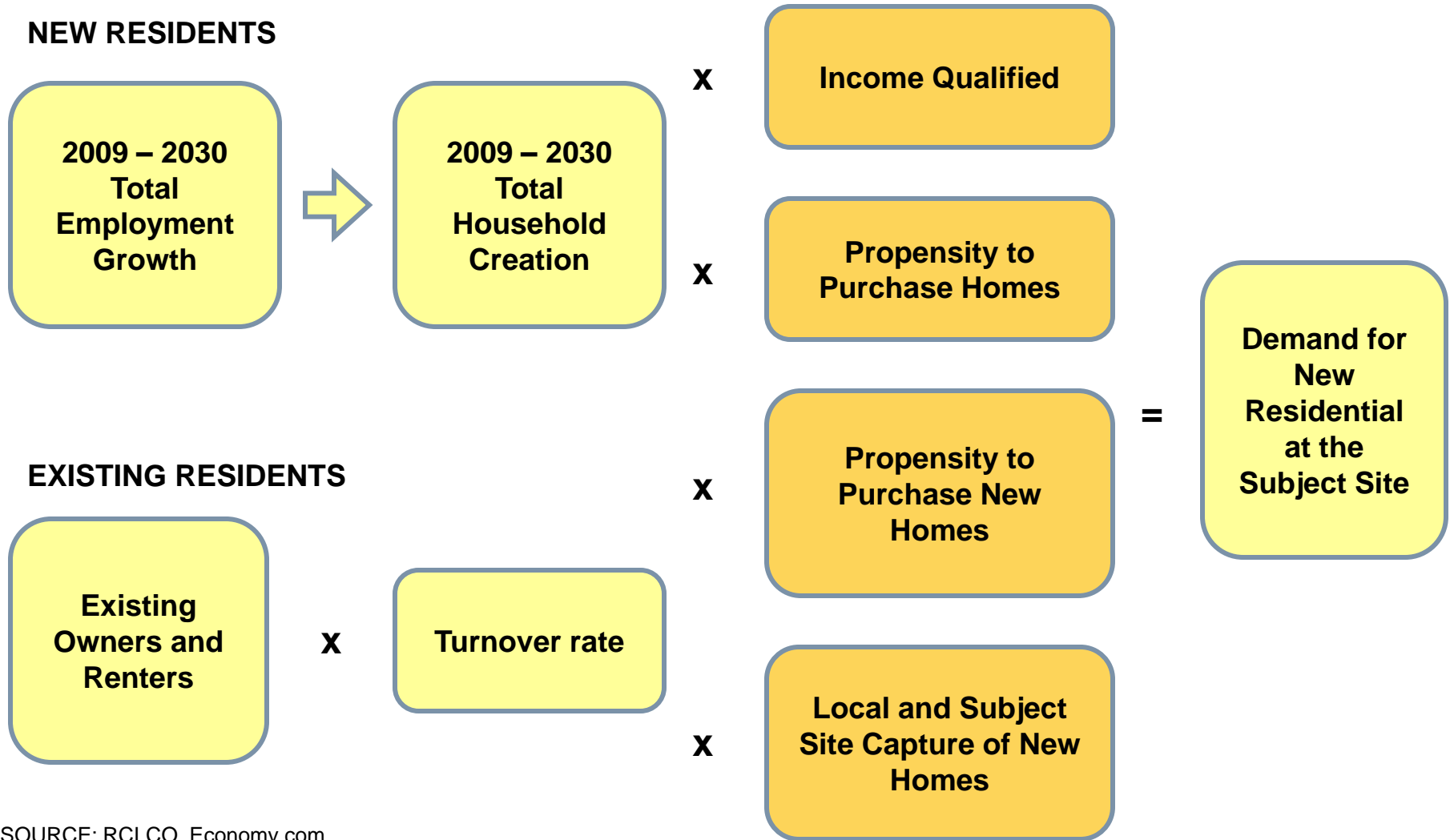


SOURCE: Realtor.com

- ▶ Actively selling homes generally range in price from \$125,000 to \$400,000, with a median of \$219,000
- ▶ Homes range in size from 1,400 sf to 3,500 sf, with a median of 2,100
- ▶ The average home is listed for \$103/sf
- ▶ The median lot size is just over a  $\frac{1}{4}$  acre
- ▶ Subdivisions tend to be small with few amenities

# METHODOLOGY FOR ESTIMATING FUTURE DEMAND FOR RESIDENTIAL

## NEW RESIDENTS



SOURCE: RCLCO, Economy.com

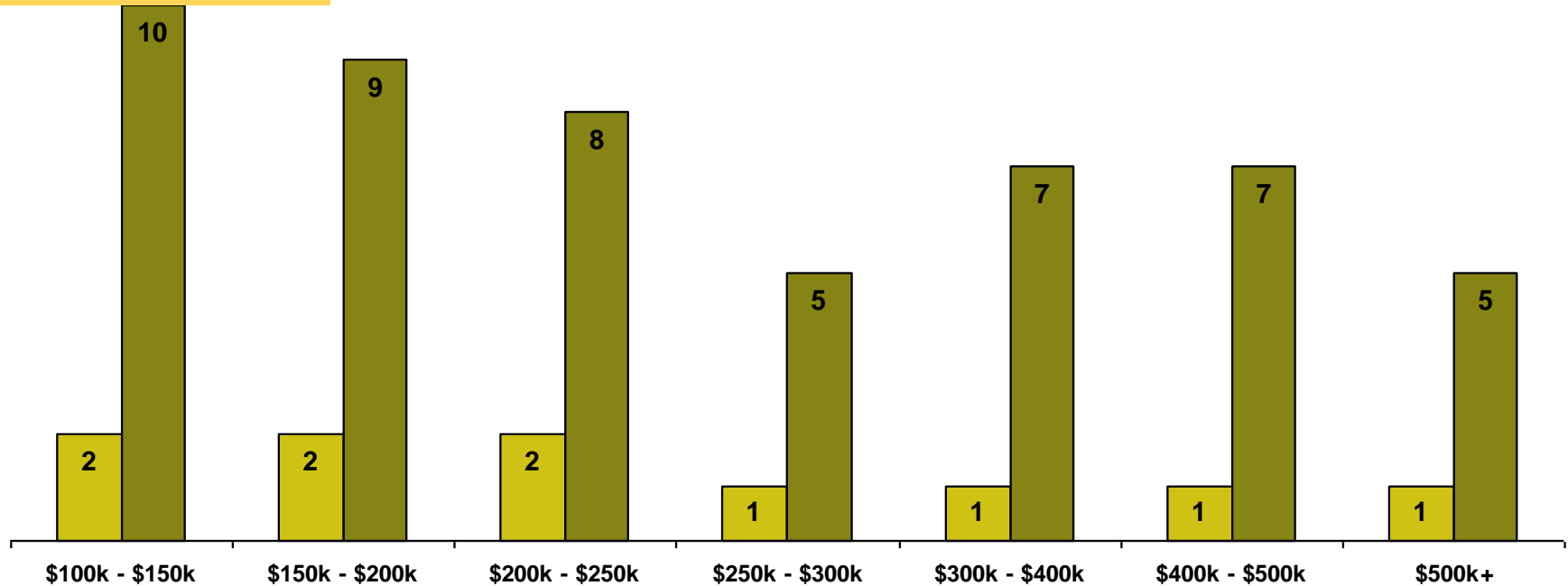
# LARGELY VALUE-ORIENTED, THERE IS DEMAND FOR APPROXIMATELY 1,200 RESIDENTIAL UNITS AT THE SITE OVER A 20-YEAR HORIZON

## ESTIMATED ANNUAL DEMAND FOR RESIDENTIAL AT THE TVA SITE

60 Units/ Year  
x 20 Years =  
1,200 Total Units

*Residential development would have to concentrated primarily at lower price bands. Over 50% of the potential demand is for homes priced under \$250,000, a sizeable portion of which is for homes in the low \$100s.*

■ Attached  
■ Detached



SOURCE: RCLCO



# EMPLOYMENT AT THE SITE IMPROVES THE OPPORTUNITY FOR SUCCESSFUL RESIDENTIAL DEVELOPMENT

- ▶ ***Development of the site into a major employment core (coupled with extensive environmental remediation) will help site overcome existing locational and perception challenges***
- ▶ ***Skilled and professional employees brought to the site and greater area will likely be more accepting of higher density residential, as it tends to be more preferred among college-educated buyers***
- ▶ ***Utilizing sustainability principals as a basis for design, an opportunity exists to deliver a more unique and sophisticated community and greater variety of product type to the market:***
  - Deliver a variety of residential products that are more dense, with a portion integrated with retail
    - Higher density will yield a greater volume of units to diffuse cost of remediation
    - Apartments, although not studied in this analysis, could provide housing for short-term researchers and students in the area and would work well mixed with retail in a town center format
    - Offset dense development with ample open and park space
  - Configure the land plan to be pedestrian-friendly, providing residents and residences:
    - Connectivity to the trail system along the river
    - Connectivity (pedestrian and vehicular) to concentration of employment on the site
    - Amenities and retail within walking distance
- ▶ ***Given the value-oriented nature of the market, deliver competitively priced product in order to compete with other residential in the market***
  - To meet the market where demand is concentrated, most product should be priced under \$200,000

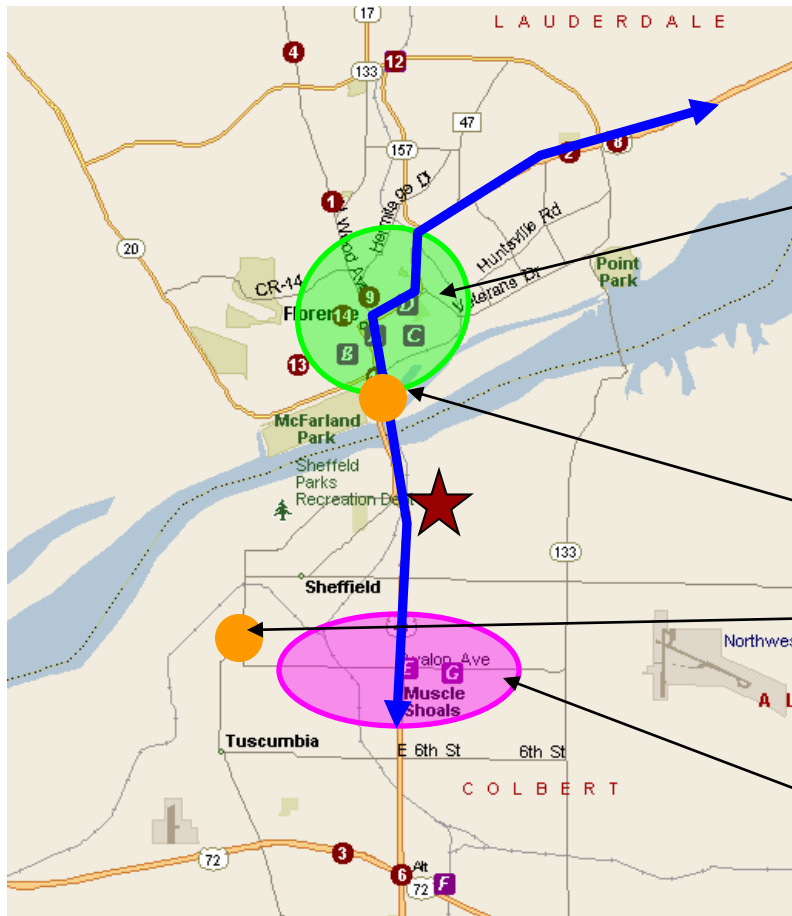


# KEY QUESTIONS

- ▶ How do the site's characteristics and location influence the opportunity for redevelopment?
- ▶ What are the current economic and demographic conditions of the area?
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- ▶ What is the opportunity for the development of office and other employment-serving space at the site?
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- ▶ **What is the opportunity for retail development at the site?**
- ▶ What is the opportunity for hospitality development at the site?

# THE SITE IS LOCATED IN BETWEEN THE CONCENTRATION OF RETAIL IN MUSCLE SHOALS AND FLORENCE, WITH FRONTAGE ON THREE MAJOR THOROUGHFARES IN THE AREA

## MAJOR CONCENTRATIONS OF RETAIL SPACE



SOURCE: RCLCO



**Subject Site**

### Florence – Mall Area

The greatest concentration of retail is clustered around the regional mall, near US 43/ US 72 and Cox Creek Parkway. This is the primary location of Power Center retail, big box discount retail, and other ancillary retail.

### TVA Site

Although bound by significant thoroughfares, the TVA site lacks adjacency to concentrations of retail.

### Historic Downtowns: Florence & Tuscumbia

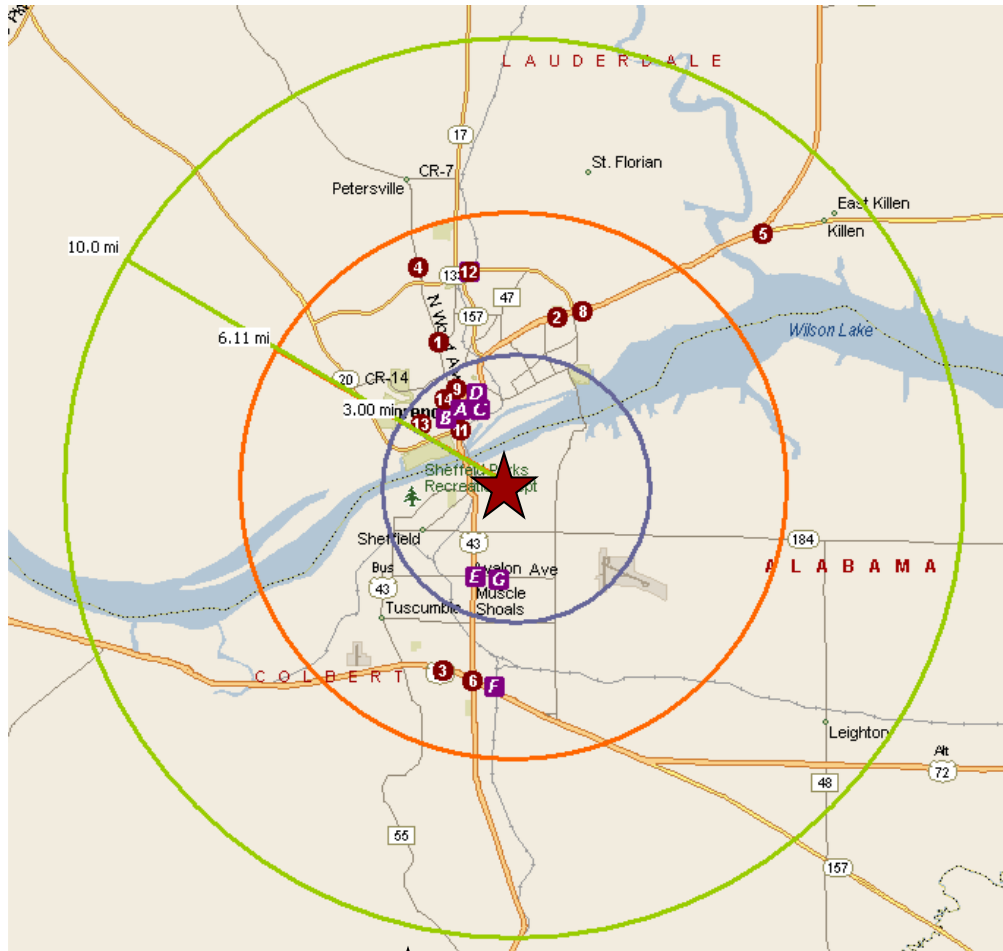
Downtown Florence, terminating on UNA's campus is a thriving center of dining, office and shopping. After significant revitalization investment, Downtown Tuscumbia is an up and coming area offering dining and boutiques.

### Muscle Shoals Retail

Retail in Muscle Shoals is concentrated along US 43/ US 72 near Avalon Avenue. While some new retail has come online in recent years, like the new Lowe's, much of the aging space is vacant.

# DEMAND FOR RETAIL IS ASSESSED UTILIZING TYPICAL RETAIL TRADE AREAS

## RETAIL TRADE AREA



**Subject Site**

*Typical trade areas were utilized, as that is the market sizing a retail developer would use to define the primary market area(s).*

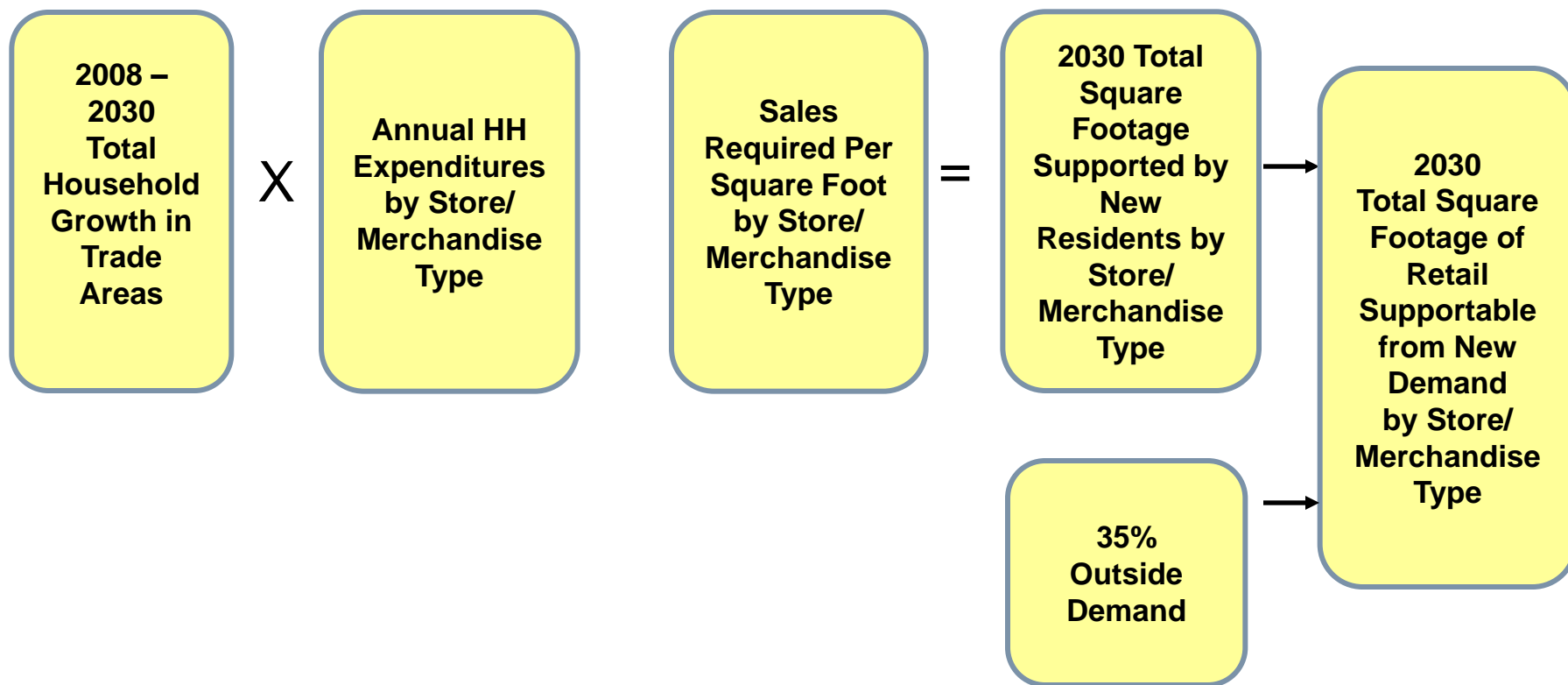
*It appears that retail demand in the area is satisfied, as there is no retail expenditure leakage (leakage = expenditures by Shoals residents in other areas because demand is not satisfied by local offerings).*

*In fact, 35% of retail sales expenditures in the Shoals area comes from outside of the 10-mile trade area, which was factored into future demand analyses.*

- 3-Mile Radius from the Site
- 6-Mile Radius from the Site
- 10-Mile Radius from the Site

# METHODOLOGY FOR DETERMINING DEMAND FOR RETAIL IN THE SHOALS AREA

## RETAIL DEMAND 2008-2030

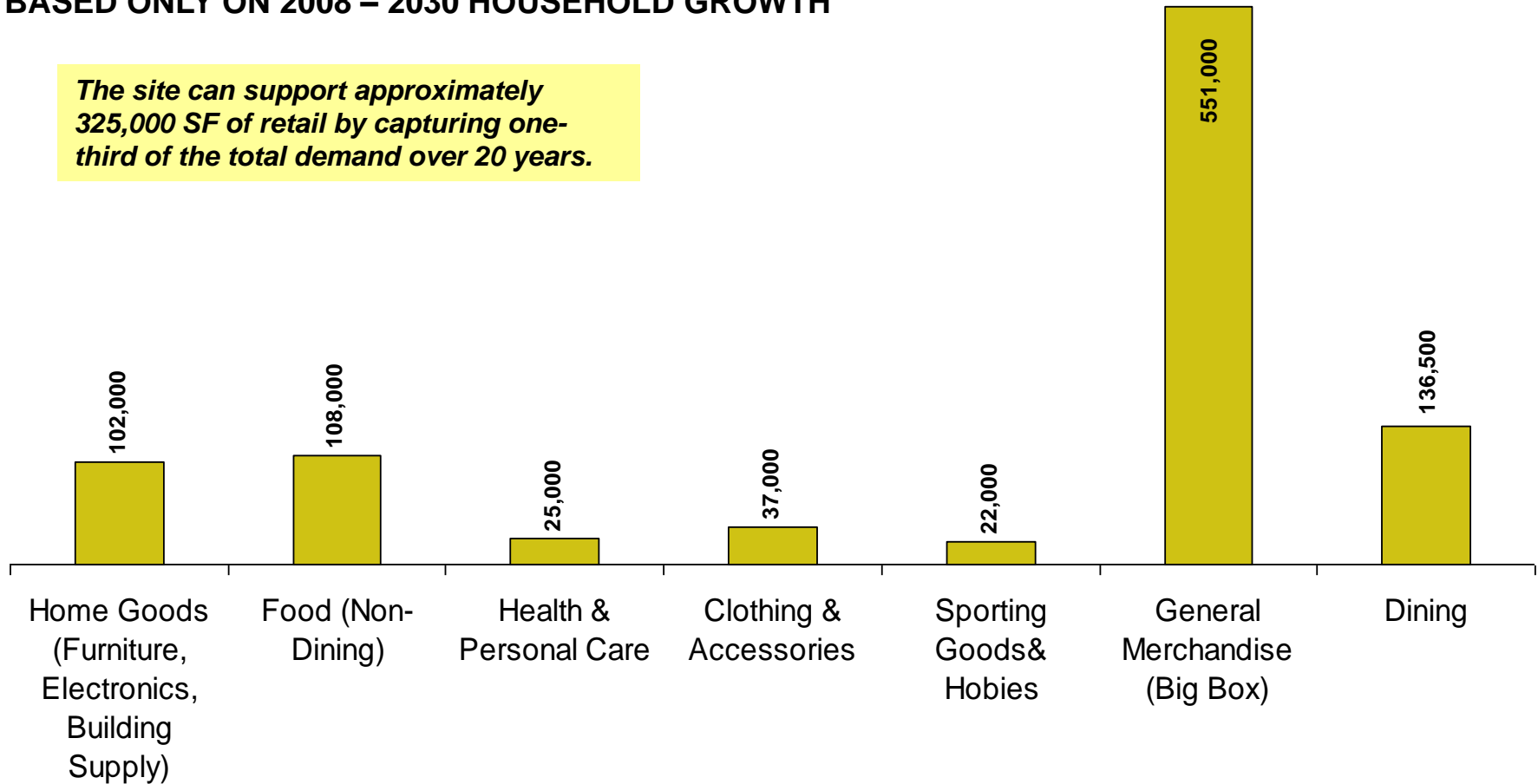


*Retail demand in the area is being met by current supply, so additional demand will only be supported by new households unless TVA wishes to cannibalize existing retail centers.*

# RETAIL DEMAND IS CONCENTRATED IN GENERAL MERCHANDISE (BIG BOX RETAIL) AND DINING

ESTIMATED TOTAL NEW RETAIL DEMAND  
BASED ONLY ON 2008 – 2030 HOUSEHOLD GROWTH

*The site can support approximately  
325,000 SF of retail by capturing one-  
third of the total demand over 20 years.*



NOTE: Total Demand also includes consideration for demand that will come from outside the trade area (See Appendix IV-4 through IV-6).

SOURCE: RCLCO, ESRI

# SUPPORT FOR ENTERTAINMENT BASED ON OVERALL RETAIL DEMAND

- ▶ ***Given the site location and characteristics, the most logical entertainment-related land use is entertainment retail***
  - Examples include: bowling alleys, movie theaters, music venues, mini golf, skating rink
- ▶ ***RCLCO case studies suggest that between 15% and 30% of retail GLA<sup>1</sup> in a development can be entertainment retail, depending on the urbanity and incomes of a market***
- ▶ ***325,000 square feet of retail will generate the critical mass, or foot traffic, necessary to support a sizable portion of entertainment retail at the site***
  - Foot traffic will emanate from residents and employees on site, as well as students and tourists
- ▶ ***We estimate that 50,000 – 85,000 square feet of entertainment retail is supportable at the site***



1

GLA = gross leasable area, or total square footage.

# INTRODUCE BOTH SMALL-SCALE, INTERNALLY-SERVING AND LARGE-SCALE RETAIL COMPONENTS AT THE SITE

## ▶ ***Small-scale, internally-serving retail can be phased in with residential and office/ flex space***

- This will provide an attractive amenity to employers and residents looking for convenience shopping and dining options on-site
- Small-scale space will likely thrive when configured as a ground-level retail for office, where residential-serving retail may work as ground level in apartments, or a small, free-standing retail node (<15,000 SF)

## ▶ ***Large-scale retail be delivered in the final phase of development, after most of the employment campus is filled and the site has been established as a destination***

- It is important to note that current retail demand is satisfied. Demand for 400,000 square feet (325,000 of retail + 75,000 square feet of entertainment retail) is a 20-year demand number not expected to be fully-realized until 2030.
- ▶ ***Large-scale retail should have visibility on a major thoroughfare and designed in a town center format, integrated with office and residential and entertainment***
  - Although the majority of demand is for big box retail, the retail center can still be executed in a more unique, town center format
    - Many of the largest department stores and typical co-tenant junior anchors have footprints that work very well in a mixed-use format, including Wal-Mart, Target, PetSmart, Staples, and grocers
  - This will create a well-rounded and sustainable district of development, resembling the mix of uses in Downtown Florence and Downtown Tusculumbia, historical town centers still thriving today

# APPLY SUSTAINABILITY PRINCIPALS TO THE DESIGN AND DEVELOPMENT OF RETAIL

- ▶ ***Retail should not be isolated in a single purpose district or concentrated in one area***
  - Retail will thrive more if it is integrated with other uses
    - When mixed and/ or adjacent to residential and employment-serving space, retail can infuse extra energy and life into a development node or district and vice-versa
    - The scale of retail suggested will be made possible by employees and residents located on the site; adjacency to these demand generators will improve patronage by the users and increase overall viability
- ▶ ***Open space, parks, mature trees and other natural features should be incorporated into the layout of the retail***
- ▶ ***Trails throughout the development should connect all other uses to the retail node(s)***
- ▶ ***Retailers or retail developers seeking LEED certification for stores or buildings should be pursued***
  - Many national retailers are incorporating more LEED certified stores into their portfolio, with some committing to build all new stores to LEED certification standards
    - Big box retailers such as Target, Wal-Mart, Best Buy, Office Depot and many grocers have made such a commitment
    - Retail developers have started integrating features like green roofs into their center design
    - Even fast food franchises like McDonalds have jumped on the bandwagon



# KEY QUESTIONS

- ▶ How do the site's characteristics and location influence the opportunity for redevelopment?
- ▶ What are the current economic and demographic conditions of the area?
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- ▶ What is the opportunity for residential development at the site?
- ▶ What is the opportunity for retail development at the site?

▶ **What is the opportunity for hospitality development at the site?**

# ALL QUALITY, BRANDED HOTELS IN THE AREA ARE PERFORMING WELL

## HOTELS SURVEYED



*The accepted industry standard for “healthy” hotel performance is 65% occupancy.*

*Hotels surveyed in the area are performing well, with an average occupancy of 73% and Average Daily Rate (“ADR”) of \$75.*

*Florence hotels are performing the best, with most performing above 70% occupancy.*

KEY	HOTEL NAME
1	Days Inn Muscle Shoals
2	Best Western Fairwinds Inn
3	Holiday Inn
4	Hampton Inn & Suites Florence/Downtown
5	Coldwater Inn
6	Marriott Shoals Hotel & Spa
7	Hampton Inn Florence-Midtown
8	Jameson Inn

 **SUBJECT SITE**

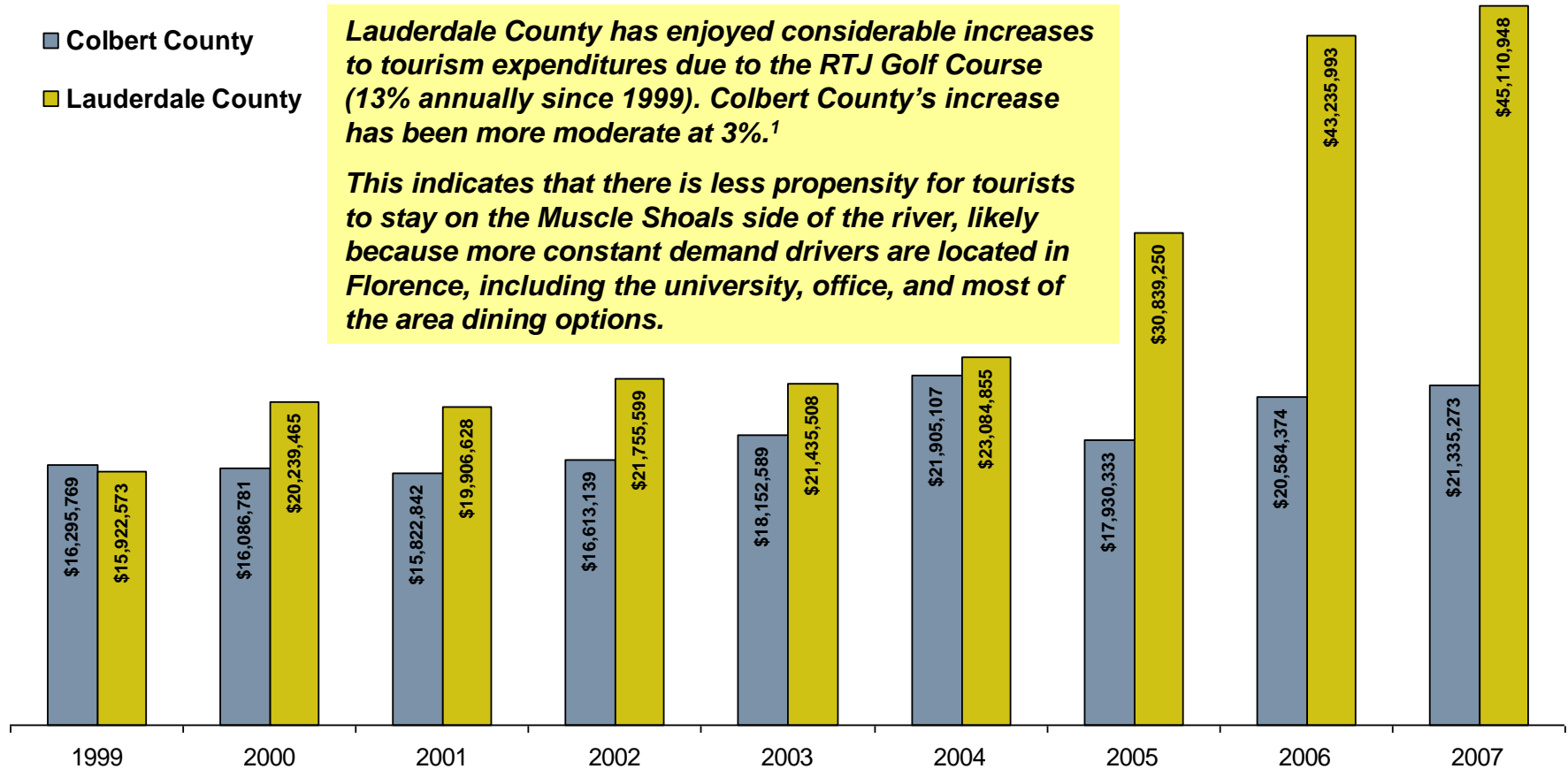
# TOURISM GROWTH HAS BEEN QUITE MODERATE FOR COLBERT COUNTY; ROBUST FOR LAUDERDALE

## ANNUAL TOURISM EXPENDITURES 1999 - 2007

■ Colbert County  
■ Lauderdale County

*Lauderdale County has enjoyed considerable increases to tourism expenditures due to the RTJ Golf Course (13% annually since 1999). Colbert County's increase has been more moderate at 3%.<sup>1</sup>*

*This indicates that there is less propensity for tourists to stay on the Muscle Shoals side of the river, likely because more constant demand drivers are located in Florence, including the university, office, and most of the area dining options.*



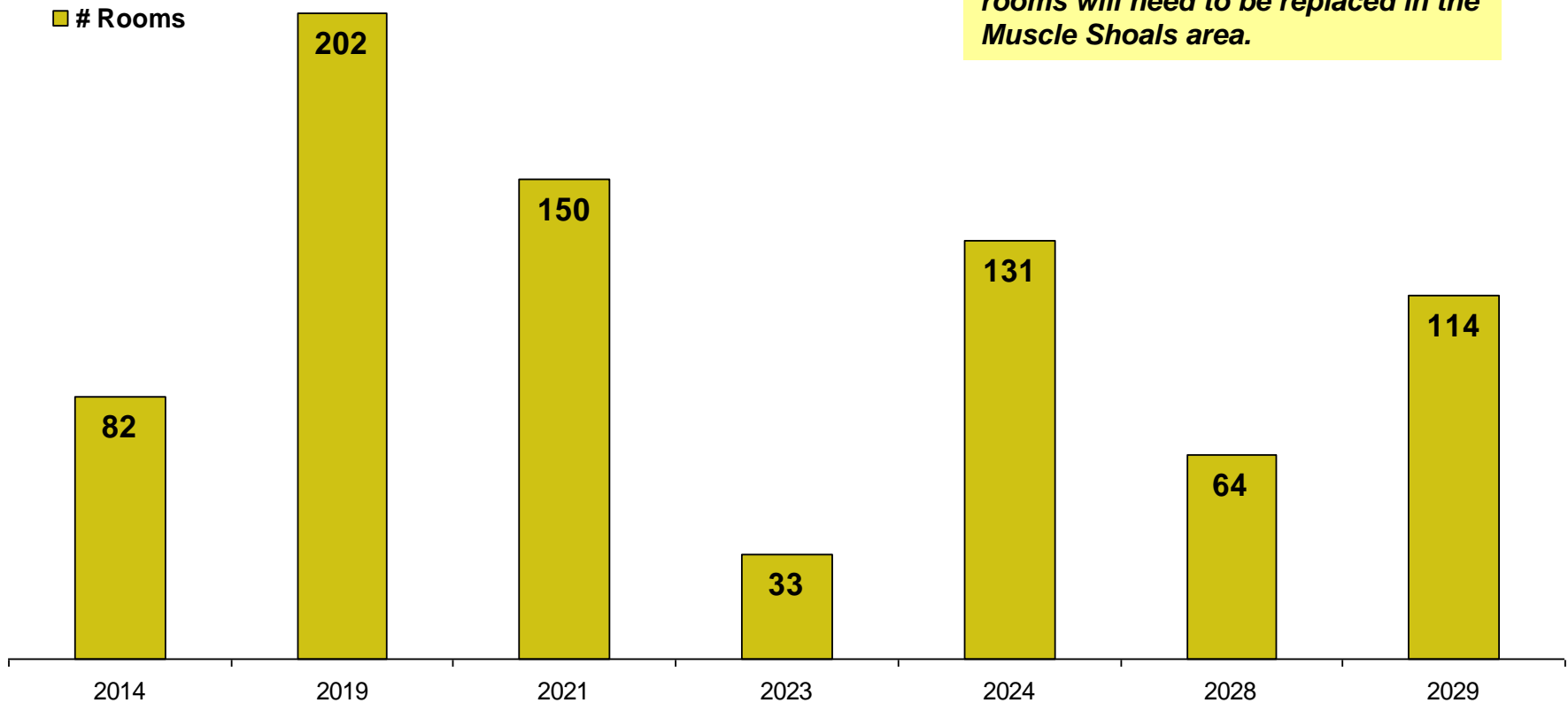
1 Expenditure figures include inflation.

SOURCE: Alabama Department of Tourism

# A SIGNIFICANT NUMBER OF ROOMS REQUIRE REPLACEMENT IN COMING YEARS

## EXPECTED NUMBER OF ROOMS BY YEAR OF OBSOLESCENCE Through 2030

*By 2030, it is estimated that 776 rooms will need to be replaced in the Muscle Shoals area.*

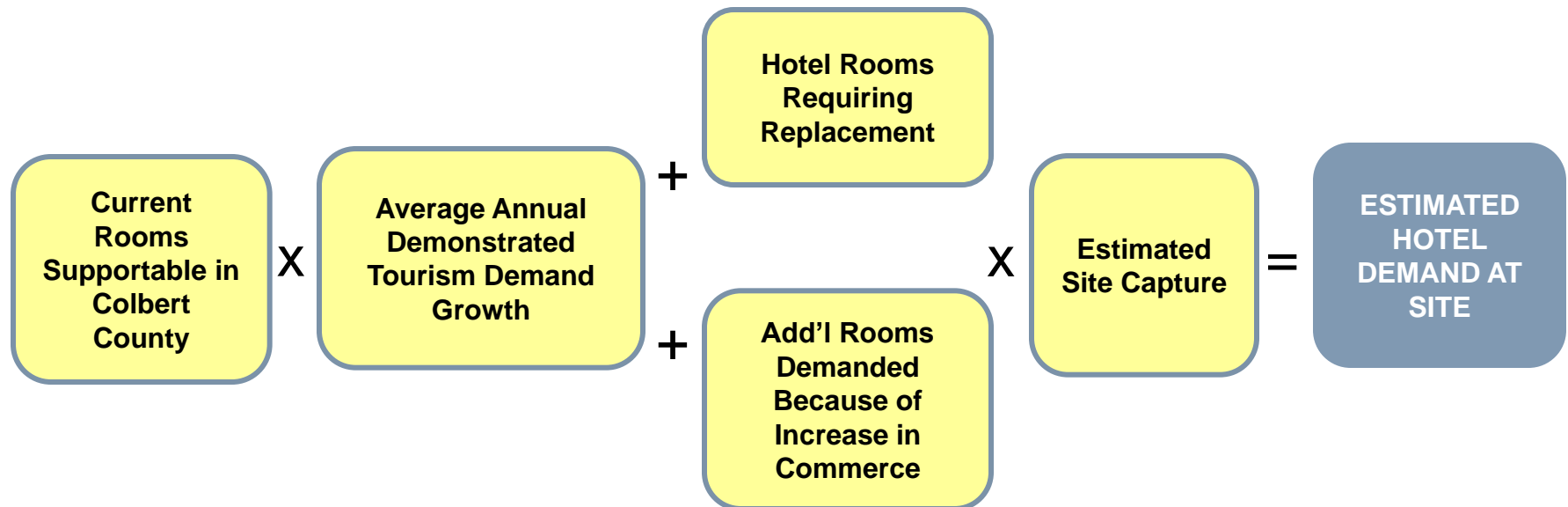


1 Assumes a 39-year life, as defined by Generally Accepted Accounting Principals.

SOURCE: Smith Travel Data

# METHODOLOGY FOR DETERMINING DEMAND FOR HOTEL ROOMS AT THE SITE

## HOTEL DEMAND 2008 - 2030



# THE EMPLOYMENT CAMPUS AND OTHER SITE DEVELOPMENT WILL BE A DESTINATION COMPELLING TOURISTS TO STAY ON-SITE

## ESTIMATED HOTEL DEMAND AT THE SITE BASED ON NEW DEMAND & ROOM OBSOLESCENCE FROM 2008 – 2030

Total Hotel Rooms Supportable by Tourism Increase	70
+ Hotel Rooms Needing to be Replaced Due to Obsolescence	776
+ Additional Hotel Rooms Supportable Due to Increased Demand from Employment Located on Site	72
Total New Hotel Rooms Demanded	918
x Site Capture %	30%
<b>Total Hotel Rooms Supportable at the Site</b>	<b>275</b>
<b>Potential Conference Center Space Supportable at the Site (100 SF per Room)</b>	<b>27,500</b>

*It is important to note that although the employment on site is crucial for generating sufficient demand to support a hotel(s), lodging and conference facilities located in the development will also be an important amenity to businesses, as well as residents and retail.*

*Additionally, tourists staying in hotels on-site will also likely patronize retail and dining on-site, providing critical support for these uses.*

## Overview of Conclusions and Recommendations

# REDEVELOPMENT SHOULD BE ANCHORED BY AN R&D CAMPUS AND INTEGRATE A VARIETY OF LAND USES

## *Land Use Mix:*

### ▶ ***Employment-Serving Space: Up to 3.2 million square feet***

- Execute primarily in a research and development campus format with a focus on innovation in energy-related disciplines; include additional space for other industries, professional services, and specialized manufacturing

### ▶ ***Residential: Up to 1,200 for-sale units, as well as other product types not studied***

- Deliver a variety of higher-density (than conventional) housing types – both for-sale and for-rent, and integrated with other land uses when possible and appropriate
- Offset density with ample open space and providing walkable connectivity to other development districts and amenities on the site

### ▶ ***Retail & Entertainment: Up to 325,000 square feet of retail, Up to 85,000 square feet of entertainment***

- Integrate small-scale retail into employment and residential areas
- Develop large-scale retail in the latter phases of development, locate for visibility on major thoroughfares, mix vertically or horizontally with residential and town center office space

### ▶ ***Hospitality:***

- Deliver one or two hotels, depending on the size and class, at any stage of the development
- Locate for visibility on major thoroughfares



# DESIGN AND IMPLEMENTATION SHOULD BE DRIVEN BY SUSTAINABILITY PRINCIPALS

- ▶ ***Use the environmentally-friendly design and execution of the Reservation redevelopment to change existing negative perceptions of the site that are a result of former site uses known to have caused contamination***
- ▶ ***Implement a land plan that incorporates passive and active open space, parks, and other green space to create a unique natural environment and transforms site challenges (i.e., undevelopable wetlands and contaminated areas) into assets***
  - Such a land plan will create an unique development for the area with an atmosphere that is attractive to employers and employees, residents, retail patrons, and tourists
- ▶ ***Create pedestrian connections to all land uses via trails and sidewalks, making all amenities within the development accessible to all users***
- ▶ ***Seek green developers and users/ tenants that will use environmentally-friendly materials and practices***
- ▶ ***Leverage the sustainable and green focus to secure federal funds and other public financing and grants to help offset the cost of development***
- ▶ ***Create a land plan that is flexible enough to respond to opportunities that are difficult to quantify and, thus, have not been considered in this analysis***

# CRITICAL ASSUMPTIONS

Our conclusions are based on our analysis of the information available from our own sources and from the client as of the date of this report. We assume that the information is correct, complete, and reliable.

We made certain assumptions about the future performance of the global, national, and local economy and real estate market, and on other factors similarly outside either our control or that of the client. We analyzed trends and the information available to us in drawing these conclusions. However, given the fluid and dynamic nature of the economy and real estate markets, as well as the uncertainty surrounding particularly the near-term future, it is critical to monitor the economy and markets continuously and to revisit the aforementioned conclusions periodically to ensure that they stand the test of time.

We assume that the economy and real estate markets are close to bottoming out for the current cycle, and that they will grow at a stable and moderate rate starting in 2010, more or less in a straight line on average for the duration of the analysis period (to 2020 and beyond). However, history tells us that stable and moderate growth patterns are not sustainable over extended periods of time, and that the economy is cyclical and that the real estate markets are typically highly sensitive to business cycles. Further, it is very difficult to predict when the current economic and real estate downturns will end, and what will be the shape and pace of growth once they are recovered.

With the above in mind, we assume that the long term average absorption rates and price changes will be as projected, realizing that most of the time performance will be either above or below said average rates.

Our analysis does not take into account the potential impact of future economic shocks on the national and/or local economy, and does not necessarily account for the potential benefits from major "booms," if and when they occur. Similarly, the analysis does not necessarily reflect the residual impact on the real estate market and the competitive environment of such a shock or boom. Also, it is important to note that it is difficult to predict changing consumer and market psychology.

# CRITICAL ASSUMPTIONS

For all the reasons outlined, we recommend the close monitoring of the economy and the marketplace, and updating this analysis as appropriate.

Further, the project and investment economics should be “stress tested” to ensure that potential fluctuations in revenue and cost assumptions resulting from alternative scenarios regarding the economy and real estate market conditions will not cause failure.

In addition, we assume that once the current cycle is over, the following will occur in accordance with current expectations:

- Economic, employment, and household growth.
- Other forecasts of trends and demographic and economic patterns, including consumer confidence levels.
- The cost of development and construction.
- Tax laws (i.e., property and income tax rates, deductibility of mortgage interest, and so forth).
- The availability and cost of capital and mortgage financing for real estate developers, owners and buyers, at levels present in the market before the most recent run up (i.e., early 2000s levels).
- Competitive projects will be developed as planned (active and future) and that a reasonable stream of supply offerings will satisfy real estate demand.
- Major public works projects occur and are completed as planned.

Should any of the above change, this analysis should probably be updated, with the conclusions reviewed accordingly (and possibly revised).

# GENERAL LIMITING CONDITIONS

Reasonable efforts have been made to ensure that the data contained in this study reflect accurate and timely information and are believed to be reliable. This study is based on estimates, assumptions, and other information developed by RCLCO from its independent research effort, general knowledge of the industry, and consultations with the client and its representatives. No responsibility is assumed for inaccuracies in reporting by the client, its agent, and representatives or in any other data source used in preparing or presenting this study. This report is based on information that to our knowledge was current as of the date of this report, and RCLCO has not undertaken any update of its research effort since such date.

Our report may contain prospective financial information, estimates, or opinions that represent our view of reasonable expectations at a particular time, but such information, estimates, or opinions are not offered as predictions or assurances that a particular level of income or profit will be achieved, that particular events will occur, or that a particular price will be offered or accepted. Actual results achieved during the period covered by our prospective financial analysis may vary from those described in our report, and the variations may be material. Therefore, no warranty or representation is made by RCLCO that any of the projected values or results contained in this study will be achieved.

Possession of this study does not carry with it the right of publication thereof or to use the name of "Robert Charles Lesser & Co." or "RCLCO" in any manner without first obtaining the prior written consent of RCLCO. No abstracting, excerpting, or summarization of this study may be made without first obtaining the prior written consent of RCLCO. This report is not to be used in conjunction with any public or private offering of securities or other similar purpose where it may be relied upon to any degree by any person other than the client without first obtaining the prior written consent of RCLCO. This study may not be used for any purpose other than that for which it is prepared or for which prior written consent has first been obtained from RCLCO.