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# CENTER FOR TRANSPORTATION INFRASTRUCTURE AND SAFETY

## **Rolla West Master Plan**

**Task 2, I-44 Interchange – Sub Consultant  
Services to HNTB**

by

A. Rolufs, H. Baik, E. Strack  
in support of HNTB



**NUTC  
R222**

**A National University Transportation Center  
at Missouri University of Science & Technology**

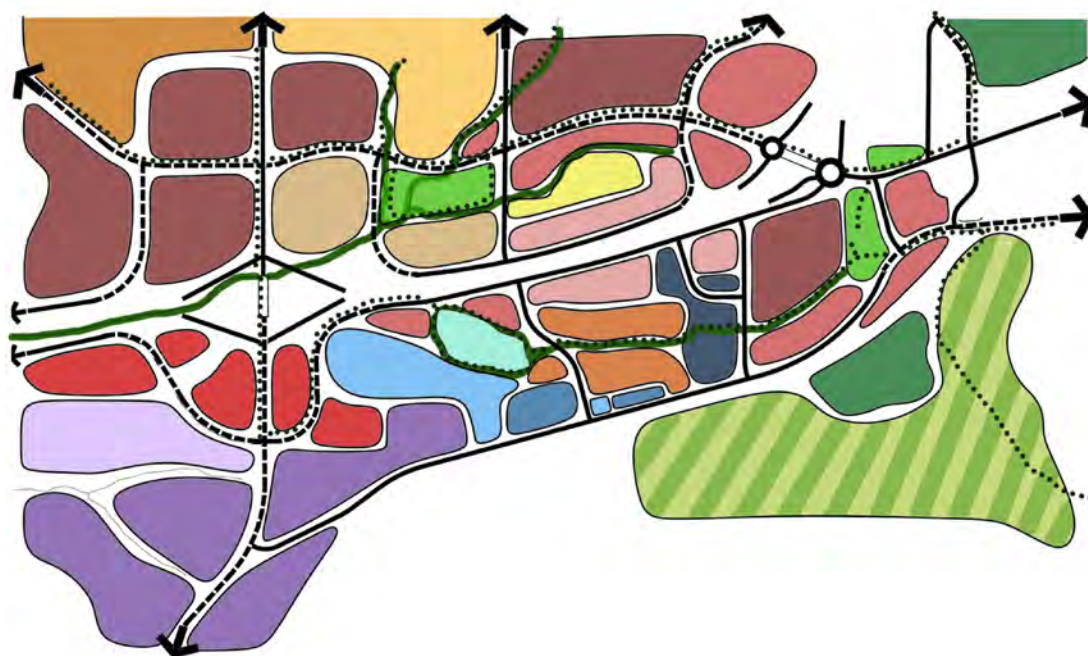
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**Technical Report Documentation Page**

1. Report No.  NUTC R222		2. Government Accession No.		3. Recipient's Catalog No.	
4. Title and Subtitle Rolla West Master Plan Task 2, I-44 Interchange – Sub Consultant Services to HNTB				5. Report Date  August 2008	
				6. Performing Organization Code	
7. Author/s  A. Rolufs, H. Baik, E. Strack in support of HNTB				8. Performing Organization Report No.  00020755	
9. Performing Organization Name and Address  Center for Transportation Infrastructure and Safety/NUTC program Missouri University of Science & Technology 220 Engineering Research Lab Rolla, MO 65409				10. Work Unit No. (TRAIS)	
				11. Contract or Grant No.  DTRT06-G-0014	
12. Sponsoring Organization Name and Address  U.S. Department of Transportation Research and Innovative Technology Administration 1200 New Jersey Avenue, SE Washington, DC 20590				13. Type of Report and Period Covered  Final	
				14. Sponsoring Agency Code	
15. Supplementary Notes					
16. Abstract Provide support to HNTB as they complete the following tasks: data collection, alternatives workshop, identification of funding sources, final plan preparation. A full sub consultant scope of service is attached to this application.					
17. Key Words  Transportation planning			18. Distribution Statement  No restrictions. This document is available to the public through the National Technical Information Service, Springfield, Virginia 22161.		
19. Security Classification (of this report)  unclassified		20. Security Classification (of this page)  unclassified		21. No. Of Pages  49	22. Price

# Rolla West Master Plan



**AUGUST 2008**  
**WORKING DRAFT**

**HNTB**

in association with  
with CM Archer  
Bloomsdale Construction  
Missouri Transportation Institute

# Acknowledgements



Preparation of this Master Plan required the input and efforts of many individuals as well as community officials and the public. This report acknowledges and expresses our appreciation for everyone's efforts.

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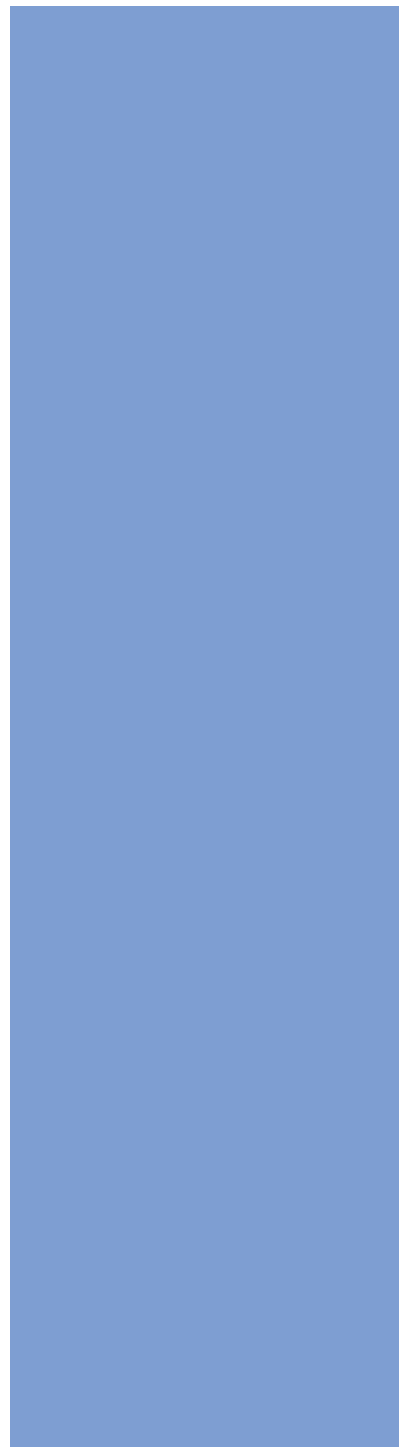
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# Introduction



## Plan Purpose

The purpose of the *Rolla West Master Plan* (Plan) is to outline a long-term comprehensive vision for land use, transportation and infrastructure within the Rolla West Area. This area is primed for new development and will serve most of the future growth needs for Rolla over the next twenty years. The primary issues driving this opportunity for growth and the need for the Plan include the following:

- The extension of City sanitary sewer and water service to Rolla West;
- A potential fifth I-44 interchange that will provide improved access to the Rolla West area and serve as a significant catalyst for future development; and
- Other planned transportation improvements including a future Route 63 Bypass as well as potential transportation improvements, such as the Highway 72 (Ridgeview) extension, that will improve ease of east/west traffic flow.

## Plan Objectives

To address these issues, the City of Rolla commissioned a Master Plan for the Rolla West area. At the onset of the process, the identified plan objectives were as follows:

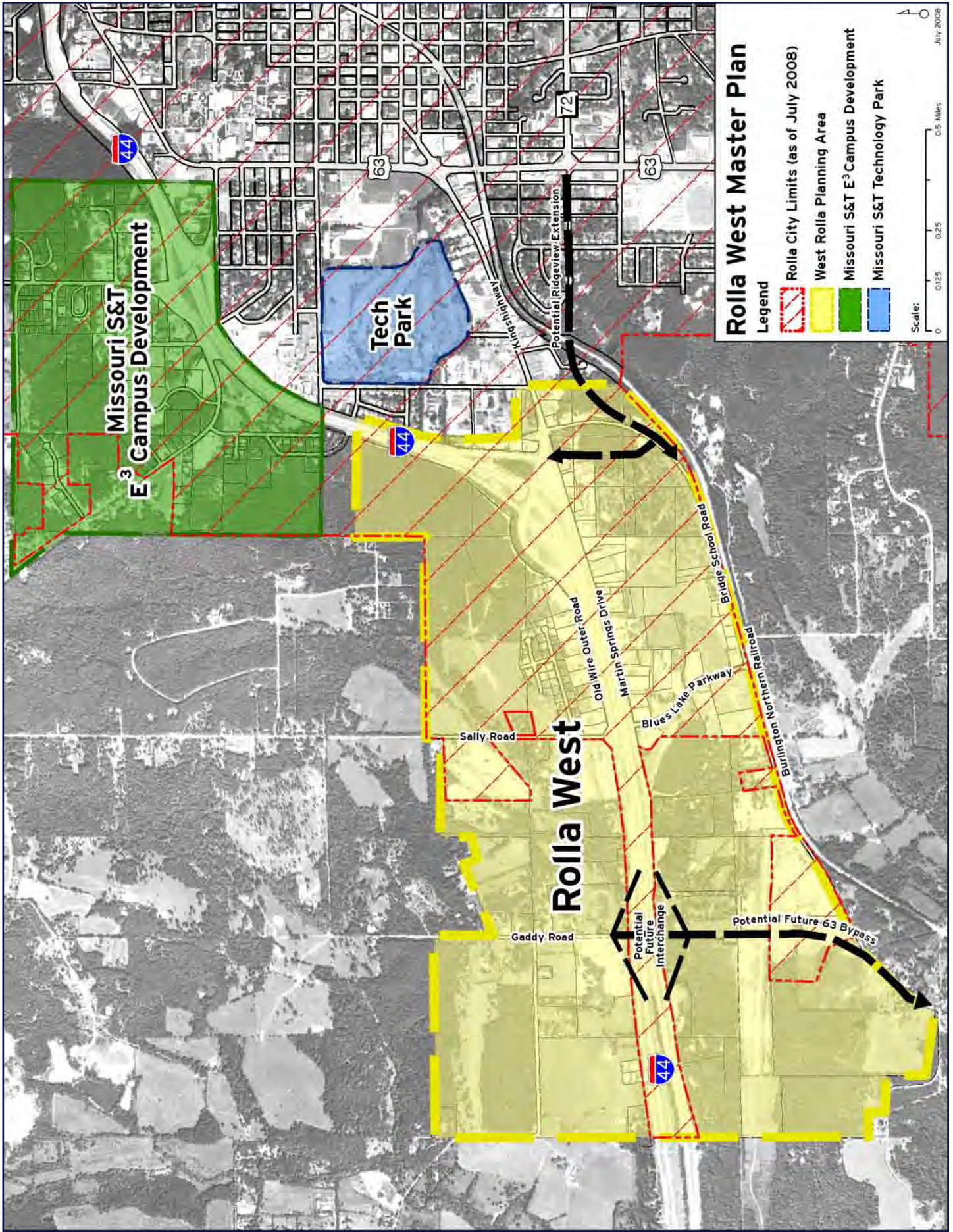
- Identify a comprehensive land use vision for Rolla West;
- Coordinate planning efforts with Missouri University of Science and Technology (Missouri S&T), including the new E<sup>3</sup> Campus and Technology Park;
- Define the necessary transportation and infrastructure improvements to support the land use vision; and
- Determine conceptual costs, applicable funding mechanisms and phasing to maximize future growth opportunities.

## Study Area

The study area, highlighted (yellow) on the following page (see Exhibit 1 on Page 2), is approximately 1,057 acres or 1.65 square miles. In addition to the study area, the Plan will address the Missouri S&T E<sup>3</sup> Campus, shown in green, and connections to the Technology Park, shown in blue. Approximately 50% of the study area is in within incorporated Rolla (incorporated areas are shown in the red hatch on Exhibit 1). The remaining study area is within unincorporated Phelps County and is currently subject to County codes and restrictions.

## Plan Process

Planning is a process by which a community assesses what it is and what it wants to become, and provides an opportunity to make it happen. Specifically, planning guides public policy decisions on land use, infrastructure and public services. In order to be successful, the Plan must address the community's primary issues. Therefore, public participation is essential. The Plan's concepts, direction and final recommendations are the result of an inclusive public process that identifies the area's opportunities and





proactively addresses its challenges. This process included an interactive three-day Community Visioning Workshop and public open house to address the future of the Rolla West area.



## Community Visioning Workshop

Successful, implementable plans are achieved through fair and open public discussions. One of the most critical challenges within the planning process is achieving consensus within a compressed time frame. This means helping the public understand the trade-offs that come with each possible solution, while meeting the unique challenges and constraints specific to the Rolla West area. It also means effectively working with conflicting visions and values by ensuring candid and productive discussions. These challenges were addressed in a carefully planned and open workshop process. Over three days, rather than weeks or months, the project team lead participants including City staff, community leaders, area stakeholders and the community at-large to understand their needs and values and to develop preliminary concepts and ideas for feedback. A public open house was held to encourage wider public input and to solicit feedback on initial ideas and alternatives generated during the workshop. These plan alternatives, developed during the workshop process, were also posted on the City web site with an interactive web log to encourage additional public input. Based upon this input, a preferred plan concept was identified and organized into a cohesive vision, goals and objectives and recommendations.

### Technical Committee

This committee was comprised of members of the consultant team, City staff, utility and service providers as well as representatives from the Missouri Department of Transportation (MoDOT) and provided technical support and guidance to the development of the Plan.

### Community Advisory Committee

This committee represented a mixture of property owners, business owners, public officials, residents and interested citizens and provided local insight and direction to City staff and the consultant team.

## Plan Goals

The following goal statements were based on the issues, concerns and ideas that were identified during the Community Visioning Workshop. These goals represent the purpose that the Plan is designed to achieve. The Plan will:

- Serve as a major catalyst in solidifying the City of Rolla as the center of commerce, education and health care for south central Missouri.
- Provide a balanced mix of uses that meets the needs of Rolla and the region.
- Identify new development that will pay its' share of the costs of City infrastructure, transportation improvements and services that are necessary to serve the area.
- Promote environmentally sensitive development that harmoniously blends within the natural character and scenic quality of the area.
- Encourage quality development that will provide a positive first and last impression of Rolla.
- Provide a system of pedestrian and bicycle connections to serve the area.



Community Visioning Workshop

# Plan Influences

## Natural Conditions

As stated in the *Rolla Comprehensive Plan*, “Rolla residents feel strongly about conserving the area’s natural features, resources and scenic quality.” This sentiment was confirmed through the Rolla West Community Vision Workshop, where participants noted that the natural beauty of the area is what sets Rolla apart from other communities. Preserving the area’s natural features will help maintain Rolla’s identity and desirability as a place to live, work and play.

### Slopes

As illustrated in Exhibit 2, on the following page, the dominant natural feature within the study area is the rolling hills and significant tree stands. Slopes within the study area vary from gradual to extremely steep. For planning purposes, the following rule of thumb for slopes apply:

- 0 to 7% slopes: easily developable.
- 7 to 15% slopes: somewhat difficult in terms of grading and impacts.
- 15 to 30% slopes: extremely expensive with significant impacts.
- Slopes in excess of 30%: generally considered not developable.

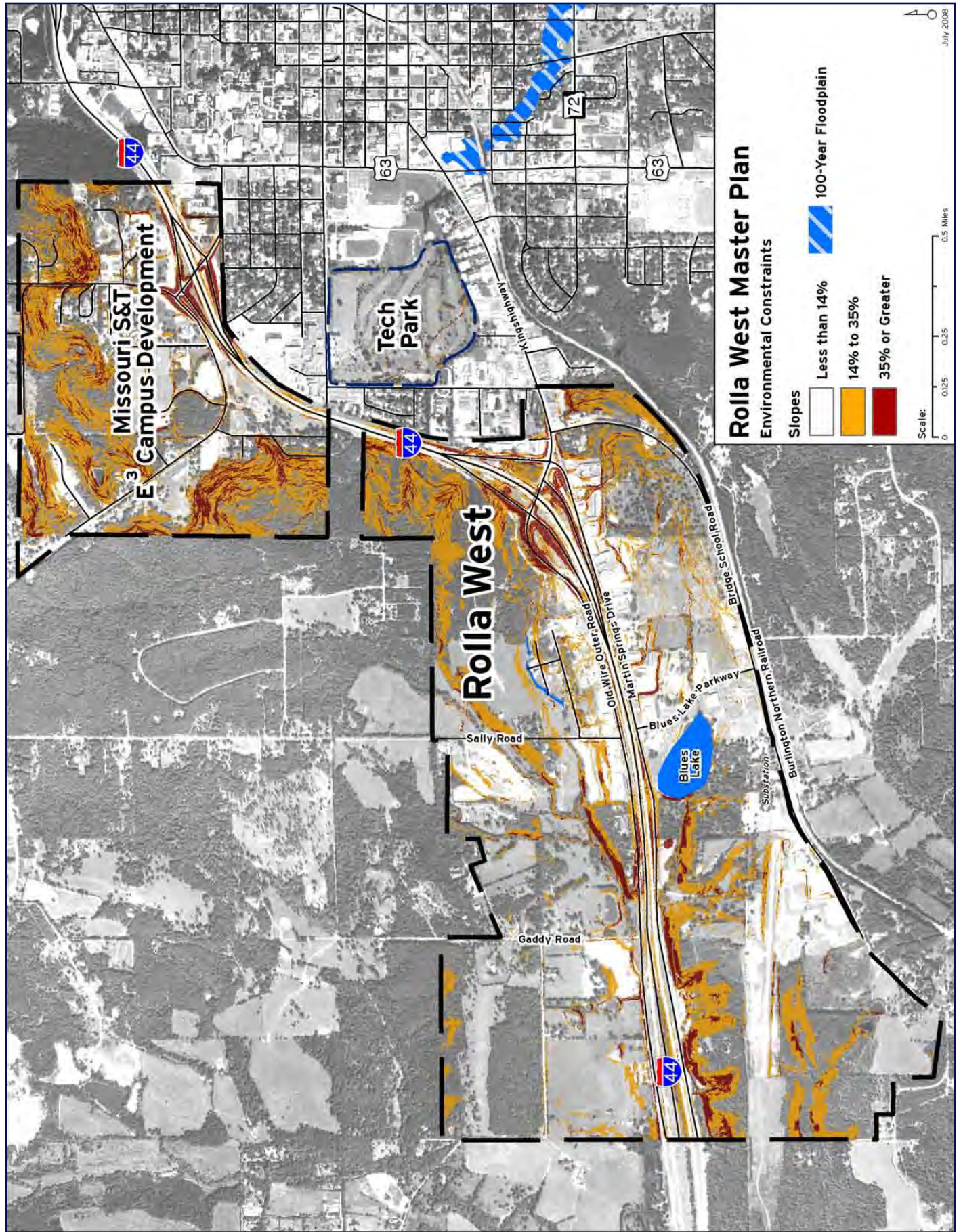
Any significant future development, including provisions for future road connections and a new interchange will require altering the natural landscape through grading which will include cutting into hillsides and/or the filling of valleys and low areas. To preserve the natural character of the area, future development plans should retain as much of the natural topography as possible. Hillsides with significant tree stands, vegetation and natural wildlife habitats should be retained. If these areas are impacted, the development should investigate potential mitigation including but not limited to replacing displaced trees and vegetation where practical. Additionally, where practical, scenic view sheds should be preserved.

### 100-Year Floodplain and Drainage Areas

The 100-year floodplain is the portion of the drainage basin which is within the one-percent annual chance floodplain. Development in the 100-year floodplain may be appropriate if adequate measures are taken to protect the development from the flood hazards. Currently, the only area within the Rolla West area in the 100-year floodplain is a small drainage area that runs through the residential subdivision in the north central portion of the study area. South of I-44, Blues Lake was created as a regional detention area and captures a majority of the storm runoff within the southern portion of the study area. The floodplain and other natural drainage areas should be protected and enhanced through a system of open space corridors and trails that serve as a buffer to environmentally sensitive areas from adjacent development as well as provide opportunities for green belts and pedestrian linkages.



Exhibit 2: Environmental Constraints



## Existing Land Use Patterns

Exhibit 2, on the following page, provides a graphic illustration of the existing land use patterns in the Rolla West area. Descriptions for each of these areas is included below.

### Industrial

Royal Canin operates a pet food plant located in the southwestern portion of the study area along Bridge School Road. This plant is currently one of the largest employers in Phelps County and plans are underway for potential expansion.

### Commercial/Office

A majority of the commercial/office uses are concentrated along the frontage roads parallel to I-44 (Old Wire Road to the north and Martin Springs Drive to the south). Major uses along these frontage roads include hotels, restaurants, commercial services and office uses. Blues Lake Road, which connects Bridge School Road to Martin Springs Drive, supports a wide range of commercial/office uses and is planned for future business park.

### Medical/Office

St. Johns Clinic is a planned three-story 108,000-square foot facility intended to consolidate medical services in one location. An additional 43,00-square foot facility will provide physical and occupational therapy, sleep laboratory endoscopy, pain management procedures, home medical supply and ambulatory surgery center. The facility will also provide expanded space for all existing Rolla primary care and specialty providers. St. Johns will serve as a major catalyst for new development within the area and will support existing and new medical/office uses between Martin Springs Drive and Bridge School Road including the Bond Clinic (a cancer research and treatment center).

### Single-Family Residential

There is a small single-family residential enclave north of Old Wire Road behind the hotel.

### Multi-Family Residential

There are no existing multi-family uses within the study area. However, there are existing apartment complexes and student housing in the area surrounding the new E<sup>3</sup> Campus.

### Vacant/Rural/Agriculture

These uses comprise almost 70 percent of all land within the study area. A majority of the property within the study area, especially within unincorporated Phelps County, is in large-tracts.

### Other Notable Land Uses

- The Rolla Downtown Airport: Privately owned and operated airfield.
- Missouri S&T Mines: This is a demonstration area for mining technology including safety and rescue techniques.
- Mark Twain National Forest and Ranger Station: Located on the east side of the study area, this park is home to several structures on the National Register of Historic Places.
- Camp Hallecek: The general area was home to a Civil War Encampment.
- Missouri Department of Transportation (MoDOT) Maintenance Facility.
- Buehler Park.



Existing Martin Springs Drive

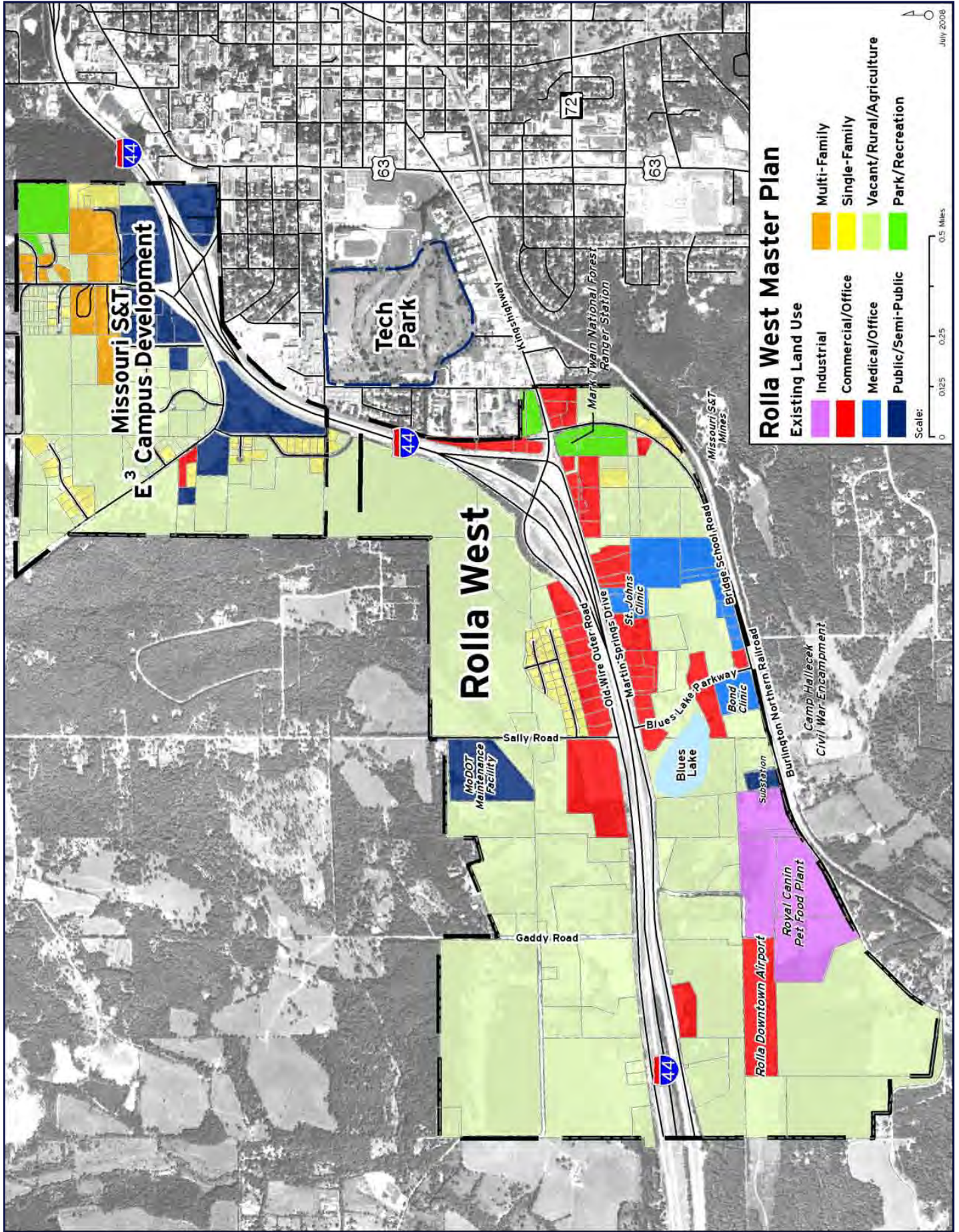


Existing Single-Family Residence



Existing Rural Character

Exhibit 3: Existing Land Use





## **Existing Infrastructure**

Rolla West's growth is heavily dependent on the provision of adequate infrastructure and capacity to support future development. This infrastructure includes provisions for the a sanitary sewer system, potable drinking water, natural gas and electricity. As shown in Exhibit 4, a majority of the study area is served by sanitary sewer, domestic water and natural gas.

### **Sanitary Sewer**

Exhibit 2 illustrates the existing sanitary sewer line coverage in Rolla West. A main sewer trunk line runs throughout the entire study area along I-44 with several branch lines extending north and south to serve existing development in the eastern portion of the study area. The City's current waste water system is supported by user fees. The current user fee is \$2.30 per 1,000 gallons, a rate that is below the average paid throughout Missouri. The City currently maintains three treatment facilities. The Southwest Water Treatment Facility, located on Martin Springs Drive, serves the study area and has a capacity of .60 MGD (million gallons per day). This treatment plant will be able to manage the anticipated growth within the Rolla West area.

### **Electric System**

The Rolla Municipal Utilities (RMU) is owned by the City of Rolla and provides electric service for residential and commercial customers within the corporate limits of Rolla. RMU will support the development of Rolla by increasing the capacity and area coverage of transmission lines as needed.

### **Domestic Water**

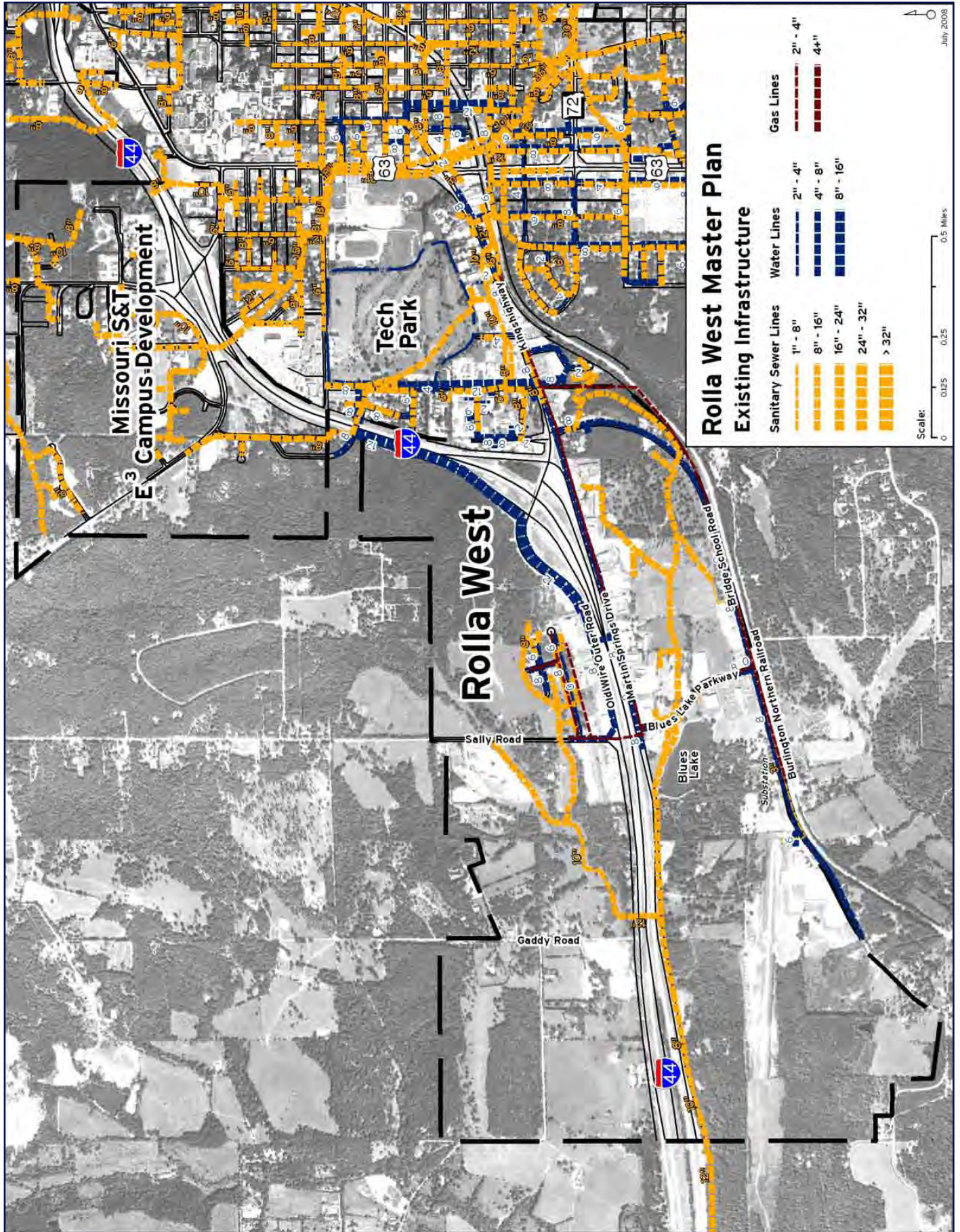
Rolla has access to a more than sufficient supply of high quality underground water. Exhibit 2 illustrates the existing domestic water line coverage in Rolla West. The RMU water system currently has a well capacity of 13.5 MGD with a total storage capacity of 6.95 MG. All wells have fluoridation and chlorination treatment equipment. RMU serves 5,761 residential meters (residential uses consume an average of 1.04 MGD) representing 41 percent of total consumption. There are 834 commercial meters which use an average of 1.14 MGD or 45 percent of total consumption. UMR and other entities use the remaining 14 percent. Total consumption averages 2.52 MGD. RMU can provide approximately five times the current average daily water usage.

The water distribution system could be expanded to 9,330 residential meters, an increase of almost 62 percent above current demand. This existing capacity will be able manage the anticipated growth within the study area.

### **Natural Gas**

Ameren UE provides natural gas service to Rolla. Most of the City is served through the "City Gate" located at North US 63 near the City limits. Exhibit 2 illustrates the existing gas line coverage in Rolla West. Ameren UE does not anticipate any capacity problems for maintaining Rolla's service levels and providing service to Rolla West.

Exhibit 4: Existing Infrastructure





## Regional and Local Access

The study area is bisected by I-44. The interchange that presently serves the study area is at Kingshighway on the east side of the study area. A fifth interchange for I-44 is planned to serve the west-central portion of the study area. This new interchange will provide a major catalyst for future development within the Rolla West area.

US 63 is a major north-south route that connects Jefferson City and I-70 to the north and Arkansas to the south. Currently, US 63 is four-lane north of Jefferson City, two-lane between Jefferson City and Rolla, and four-lane south of Rolla. MoDOT is currently studying the potential to widen this section of US 63 to four-lanes between Jefferson City and Rolla. The preferred alternative from the 2002 US 63 Bypass Environment Statement (EIS) is for the bypass to use I-44 and the new fifth interchange through a new alignment in the western portion of Plan Area that would connect back to existing US 63 south of Rolla.

Today, a majority of local Rolla traffic will access Rolla West from Kingshighway. Unfortunately, major congestion issues at the Kingshighway/US 63 intersection are an issue for east-west traffic through the area. An option to address this issue included a potential Highway 72 extension that would connect to Kingshighway just east of I-44. This concept was included in the 2002 EIS. However, based upon additional input from MoDOT, the City is looking at other options, including extending Highway 72/Ridgeview Road west and connecting to Bridge School Road.

## Market Considerations

An economic supply and demand analysis was completed for Rolla to gauge the potential for future development within Rolla West. A summary of this analysis is included below:

- Approximately 68% of all retail and restaurant sales in Phelps County happen in Rolla; while Rolla has just 42.5% of the county's population. Rolla also captures 23.8% of retail sales in the seven county region; while Rolla encompasses only 10.3% of that region's population. Clearly, Rolla is the center of retail activity in south central Missouri.
- Rolla maintains a significant negative retail opportunity gap, indicating that the City is drawing in a substantial amount of consumers from outside its market area.
- Based upon the economic analysis, an estimate of an additional 1,057,000 square feet of retail space could be accommodated.
- Types of retail uses that are undeserved within Rolla include food and beverage stores, general merchandise stores and motor vehicle and parts dealers.

For a complete review of this analysis, please refer to "*The Status of Retail Development in Rolla and Phelps County, Missouri*," by Development Strategies Inc., August 17, 2007.



# Alternatives



Preparing conceptual land use alternatives is an exercise designed to identify potential future outcomes. Based on input received at the Community Vision Workshop, three alternatives were prepared for Rolla West to test the issues and plan goals. These alternatives represented distinctive and divergent future land use possibilities. These alternatives addressed land uses and development patterns, density distribution and policy implications. Key characteristics for each alternative are summarized on the following pages. Through the public input process, which included a public open house as well as input through the City web site, these alternatives were blended and modified to create a preferred future land use map. The final preferred plan forms the basis for the Land Use Plan and policies which are detailed in the next chapter.

## Alternative 1

### Key Characteristics:

- Improvements to the Kingshighway interchange and extension of Kingshighway to the north side of the study area. This new Kingshighway section will have the character of a parkway with an adjacent pedestrian/bicycle trail.
- A combination of retail and big-box retail on the north side of the Kingshighway interchange.
- A park with a detention area west of Sally Road.
- Mixed use residential north of the new park which will include a range of residential densities and product types.
- Extension of Highway 72/Ridgeview Road west to Bridge School Road.
- Hospitality (hotel, restaurants, etc) and big-box retail on the south side of the Kingshighway interchange.
- An entertainment district between St. Johns Clinic and ancillary medical offices and the Blues Lake office park.
- A pedestrian/bicycle trail along a greenway that connects the Mark Twain National forest, the new entertainment district and Blues Lake.
- Big-box retail north of the new fifth interchange.
- Highway commercial south of the new fifth interchange.
- Industrial south of the highway commercial along a new Highway 63 Bypass.
- Industrial/commercial as a transition area between the Blues Lake office park and Royal Canin.

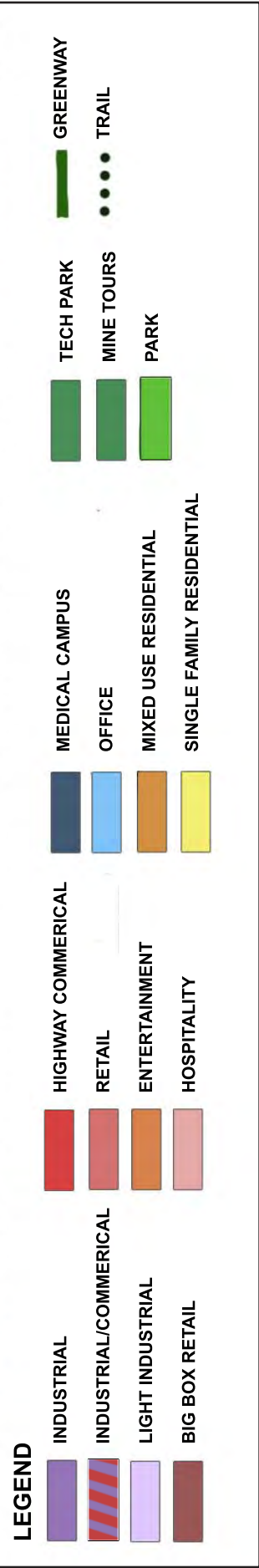
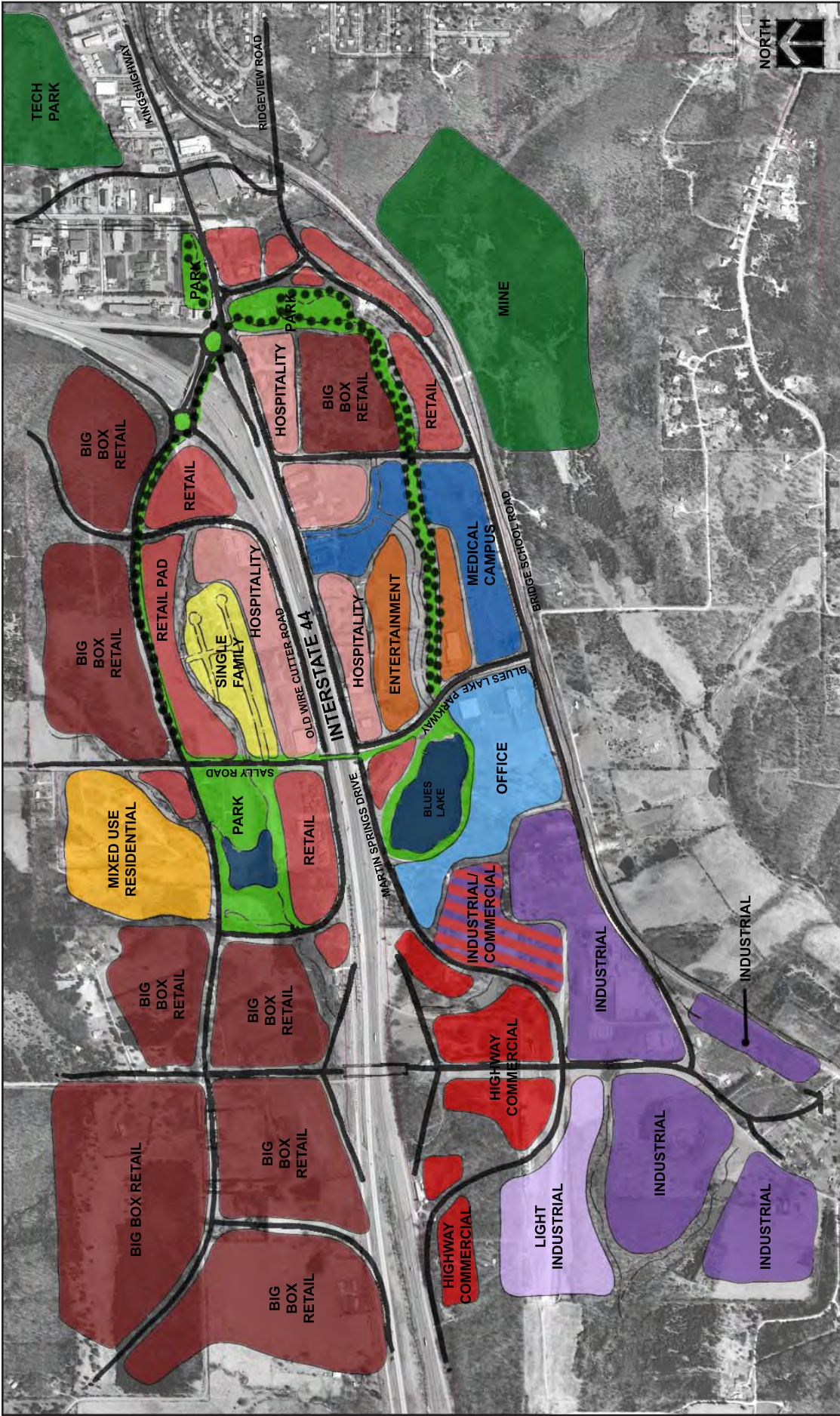
### Priorities:

1. Highway 72/Ridgeview Road extension to Bridge School Road
2. Kingshighway interchange improvements
3. Fifth interchange.



Community Visioning Workshop  
Alternatives Discussion

Exhibit 5: Alternative 1



# Alternative 2



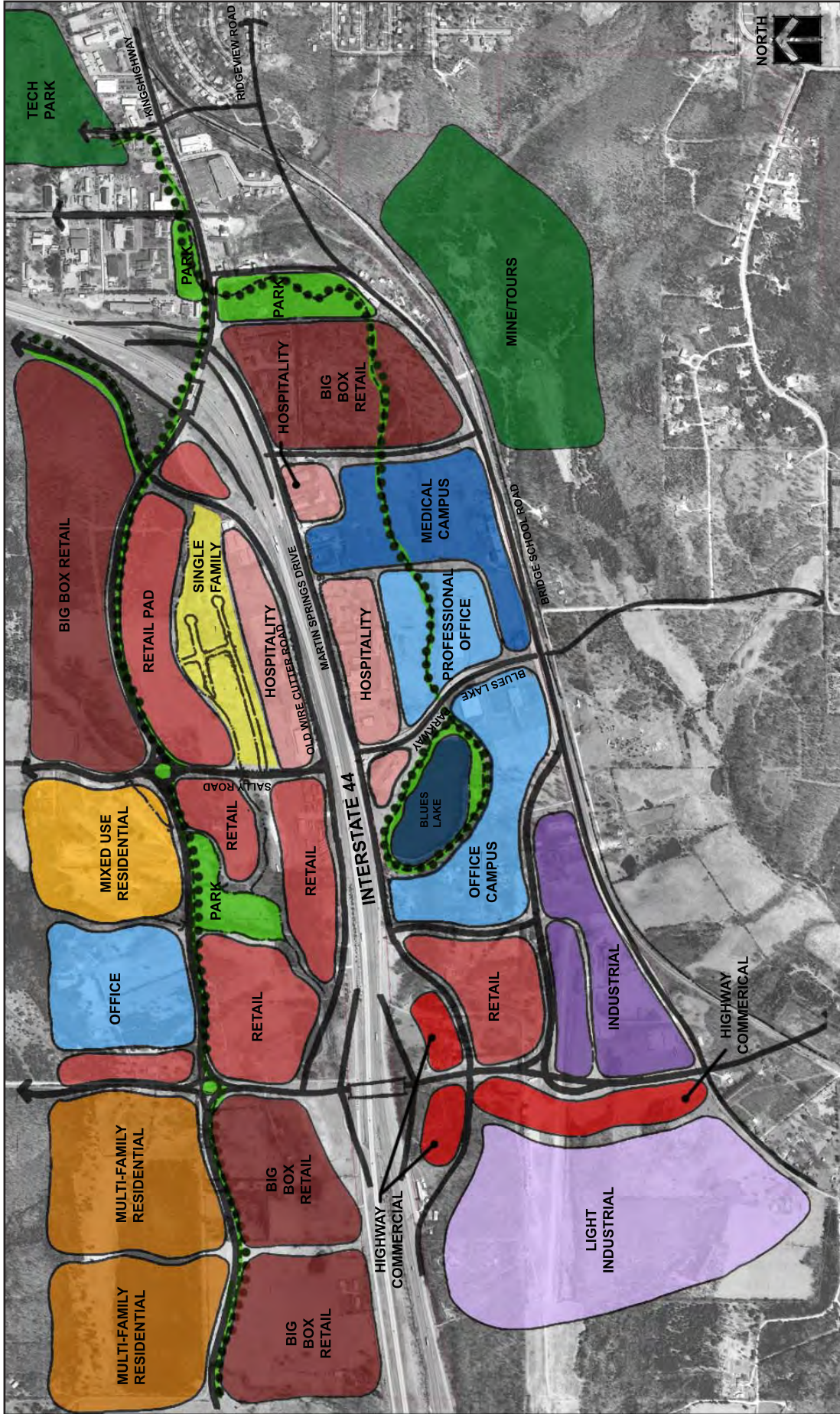
## Key Characteristics:

- Improvements to the Kingshighway interchange and extension of Kingshighway to the north side of the study area. This new Kingshighway section will have the character of a parkway with an adjacent pedestrian/bicycle trail.
- Inline retail south of the Kingshighway extension to serve as a buffer between the existing single-family residential and proposed big-box retail to the north.
- A park west of Sally Road surrounding by retail fronting Sally Road, Gaddy Road and I-44.
- Mixed use residential, office and retail north of the new park.
- Extension of Highway 72/Ridgeview Road west to Bridge School Road is critical to facilitating development in Rolla West, especially south of I-44.
- Big-box retail on the south side of the Kingshighway interchange extending all the way south of Bridge School Road. Significant development south of I-44 will provide the financial catalyst to construct the future fifth interchange.
- Existing hospitality areas remain along Old Wire Road and Martin Springs Drive.
- An expanded medical campus area around the St. Johns Clinic.
- Office/campus surrounding Blues Lake and Blues Lake Parkway.
- A pedestrian/bicycle trail along a greenway that connects the Mark Twain National forest, the new entertainment district and Blues Lake.
- Big-box retail north of the new fifth interchange.
- Multi-family residential north of the big-box to serve as a transition to the residential areas.
- Highway commercial and retail south of the new fifth interchange.
- Highway commercial and light industrial east of a new US 63 Bypass
- Royal Canin industrial area expands to meet future needs.
- Missouri S&T Mine area is open to tours to demonstrate new mine technologies, safety and rescue techniques.

## Priorities:

1. Highway 72/Ridgeview Road extension to Bridge School Road
2. Fifth interchange
3. Kingshighway interchange improvements

Exhibit 6: Alternative 2



LEGEND

	INDUSTRIAL		OFFICE		TECH PARK		GREENWAY
	LIGHT INDUSTRIAL		MIXED USE RESIDENTIAL		MINE TOURS		TRAIL
	BIG BOX RETAIL		MULTI-FAMILY RESIDENTIAL		PARK		
	HIGHWAY COMMERCIAL		SINGLE FAMILY RESIDENTIAL				
	RETAIL						
	ENTERTAINMENT						
	HOSPITALITY						
	MEDICAL CAMPUS						

# Alternative 3



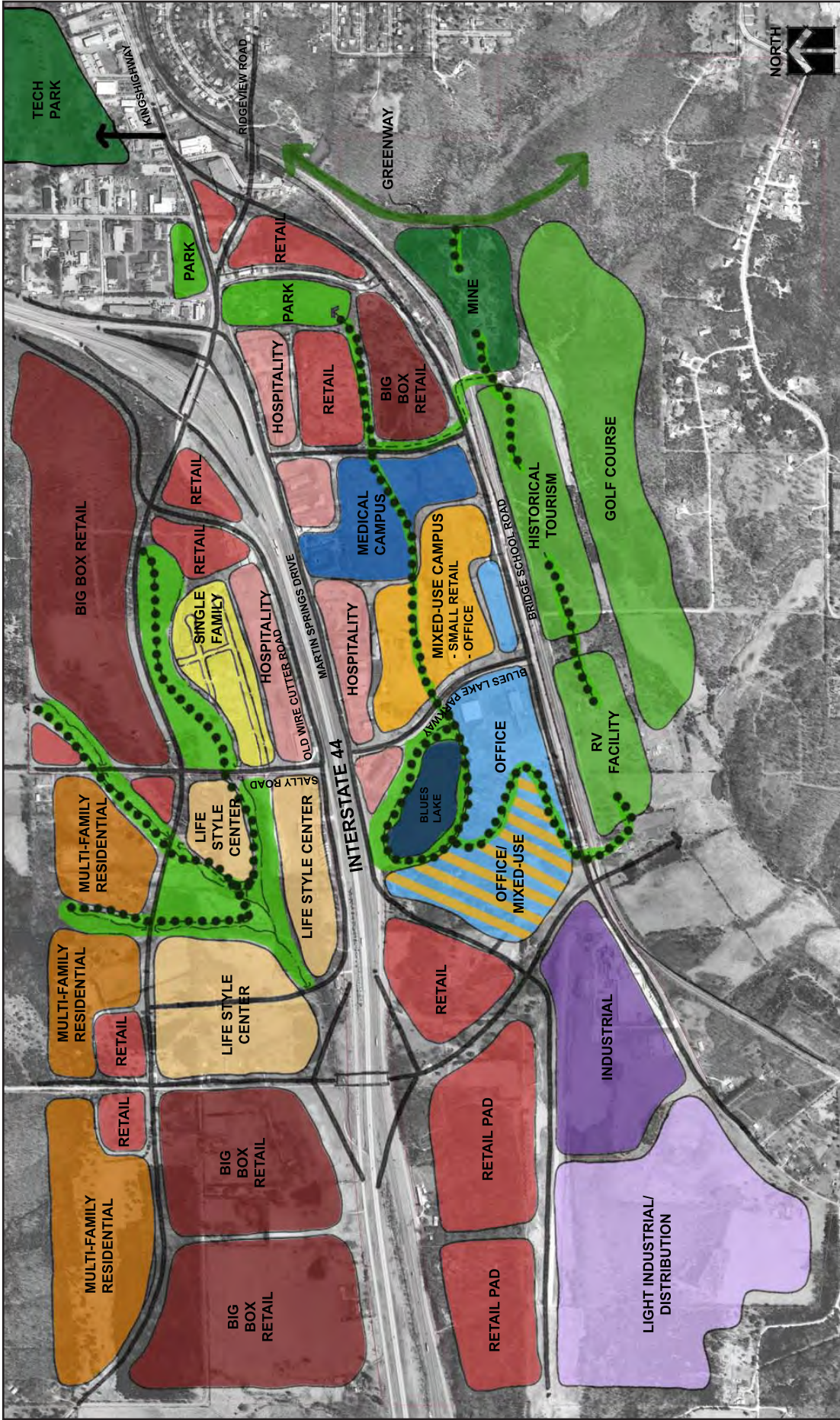
## Key Characteristics:

- Improvements to the Kingshighway interchange and extension of Kingshighway to the north side of the study area.
- Retail pad sites and big-box north of the Kingshighway interchange.
- Expanded green/open space to buffer existing single-family residential area with the new retail pad and big-box. All green/open space buffers will include a connected pedestrian/bicycle trail.
- A lifestyle center (a mixed use commercial development that combines the traditional retail functions of a shopping center with the leisure amenities and specialty services not found typical commercial centers) between Sally Road and Gaddy Road. This center will attract uses and services not currently provided in Rolla.
- Multi-family residential north of the Kingshighway extension with retail pads at the intersections.
- Bog-box retail north of the new fifth interchange.
- Extension of Highway 72/Ridgeview Road extends north west connecting to the Kingshighway interchange.
- A new greenway and trail along the ridgeline bordering the southeast portion of the study area.
- A combination of retail and big-box retail south of the Kingshighway interchange. Existing hospitality areas remain along Old Wire Road and Martin Springs Drive.
- An expanded medical campus area around the St. Johns Clinic.
- Mixed-use campus between St. Johns Clinic and Blues Lake Parkway. This area would allow a medical offices as well as ancillary retail including but not limited to drug stores, convenience retail, restaurants, etc.
- Office and office/mixed use west of Blues Lake and Blues Lake Parkway.
- Retail pads south of the new fifth interchange.
- Royal Canin industrial area expands to meet future needs.
- Light industrial area to the west of Royal Canin.
- Missouri S&T mine area is open to tours to demonstrate new mine technologies, safety and rescue techniques.
- Historic tourism area to attract visitors to the Camp Hallecek Civil War encampment.
- A high-end recreational vehicle facility west of Camp Hallecek.
- Potential golf course to the south of Camp Hallecek.
- A pedestrian/bicycle trail along a greenway that connects the Mark Twain National forest, big-box retail, medical campus, Blues Lake as well as Camp Hallecek and the recreational vehicle facility.

## Priorities:

1. Highway 72/Ridgeview Road extension to Bridge School Road
2. Fifth interchange
3. Kingshighway interchange improvements

Exhibit 7: Alternative 3



**LEGEND**

- INDUSTRIAL
- RETAIL
- OFFICE/ MIXED USE
- SINGLE FAMILY
- GREENWAY
- TRAIL
- INDUSTRIAL
- HOSPITALITY
- MIXED USE CAMPUS
- TECH PARK
- BIG BOX RETAIL
- MEDICAL CAMPUS
- MULTI-FAMILY RESIDENTIAL
- MINE TOURS
- PARK
- HIGHWAY COMMERCIAL
- OFFICE
- LIFE STYLE CENTER

# Land Use Plan



This chapter provides a guide for future development within the Plan Area which balances protection of the area's natural character and infrastructure considerations with the need to improve economic conditions. The land use recommendations represent the community's desire to promote quality development that will meet Rolla's growth needs for the next twenty years. Both community leaders and the public recognize the importance of economic development in providing amenities and jobs for residents as well as a solid tax base for services and infrastructure.

## Guiding Principles

### **1. Fiscally Sustainable Development**

New development within Rolla West must pay for its' self, that is, not rely on general City funds to pay for new roads and infrastructure upgrades. Currently, there is no funding identified in the Capital Improvements Program (CIP) for additional infrastructure for the area. Therefore, City revenues generated within the area must sustain all improvements and services provided to the area.

### **2. Economic Growth**

New development within Rolla West will support a majority of the growth needs for the City over the next twenty years and serve as a major catalyst in solidifying the City of Rolla as the center of commerce, education and health care for south central Missouri.

### **3. Quality Development**

Rolla West will serve as a gateway to the City. New development within Rolla West should be of a high quality to provide a positive first and last impression.

### **4. Scenic Quality and the Natural Environment**

New development should retain as much of the natural topography, existing tree stands and natural vegetation as possible. Where practical, scenic view sheds should be protected and enhanced.

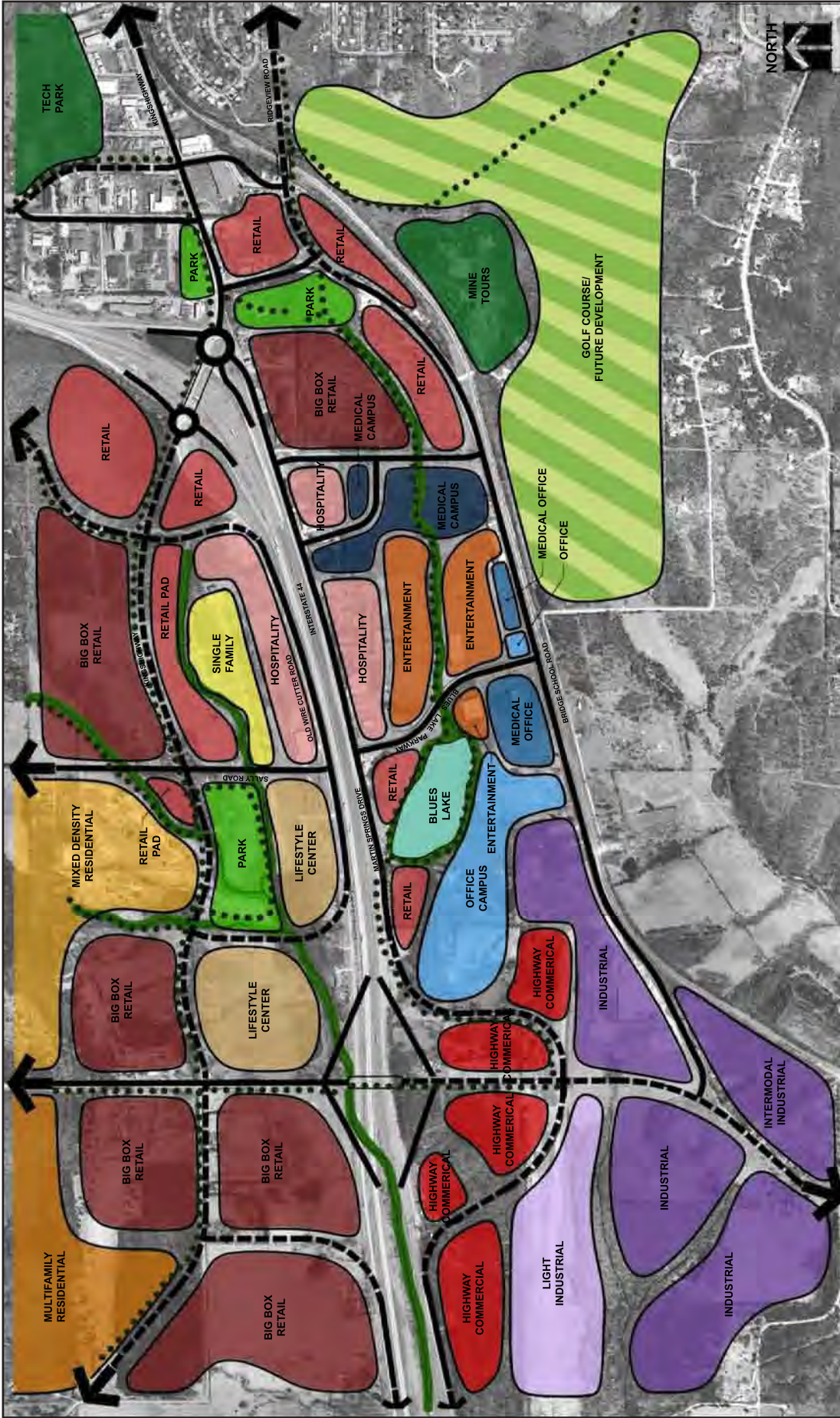
### **5. Walkable Development**

New development should be connected and accessible through an integrated network of pedestrian and bicycle trails. These connections should not only occur within the study area, but also provide connections to adjacent areas including the Missouri S&T Main Campus, E3 Campus, Tech Park as well as neighborhoods in east Rolla.

## Land Use Plan Map Description

Upon adoption, the Rolla West Land Use Plan Map (on the following page) will serve as a guide for development decisions within the Rolla West area. The land use designations are for planning purposes. The land use plan and categories may correspond to certain zoning districts, but do not represent zoning or a change to existing zoning. Plan classifications may be amended through the Plan amendment process. Zoning designations remain as currently recorded and show how the property may currently be used. Zoning may be changed only through the appropriate rezoning process, which includes a public hearing related to the specific property. The land use categories and definitions are described on the proceeding pages.

Exhibit 8: Future Land Use Map



**LEGEND**

	INDUSTRIAL		ENTERTAINMENT		LIFESTYLE CENTER		MINE TOURS		EXISTING ROADS
	LIGHT INDUSTRIAL		HOSPITALITY		MIXED DENSITY RESIDENTIAL		GOLF COURSE / FUTURE DEVELOPMENT		PROPOSED ROADS
	BIG BOX RETAIL		MEDICAL CAMPUS		MULTIFAMILY RESIDENTIAL		PARK		GREENWAY
	HIGHWAY COMMERCIAL		MEDICAL OFFICE		SINGLE FAMILY RESIDENTIAL				TRAIL
	RETAIL		OFFICE		TECH PARK				



# Land Use Categories and Definitions

The following land use descriptions serve as a guide for future growth and development within Rolla West by outlining recommended uses and densities for each category. The land use designations are for planning purposes and do not represent a change to existing zoning.



## Industrial

Industrial uses comprise approximately 114 acres accounting for 14 percent of the plan area (excluding open space, right-of-way, etc). Allows businesses featuring industrial processing, manufacturing, heavy truck traffic, excessive noise, potentially noxious uses and outdoor storage. These uses are the least compatible with residential developments and should be encouraged to locate where such uses already occur.

- **Primary Uses**
  - Heavy manufacturing
  - Processing
  - Large-scale warehousing
  - Distribution
  - Outdoor storage
  - Salvage
  - Mining/mineral extraction
- **Secondary Uses**
  - Light manufacturing
- **Recommended Density**
  - No maximum density
- **Required Infrastructure**
  - Access to central sewer
  - Access to an adequate water supply
  - Access to I-44 and/or future US 63 Bypass and the Burlington Northern Santa Fe Railroad (BNSF) rail line.
  - Wide turn bays and access improvements for trucks. A traffic study will be required to determine the need for intersection controls and needed improvements to the parallel road network

## Light Industrial

Light industrial uses comprise approximately 35 acres accounting for four percent of the plan area (excluding open space, right-of-way, etc). These areas are intended to serve small-scale and non-polluting industries as well as industrial-related business parks and offices.

- **Primary Uses**
  - Small-to-medium scale warehousing
  - Industrial-related office parks
- **Secondary Uses**
  - Limited related commercial and service uses such as truck stops, service stations, convenience stores, etc.
- **Recommended Density**
  - Maximum Floor to Area Ratio (FAR): 0.5
- **Required Infrastructure**
  - Access to central sewer
  - Access to I-44 and/or future US 63 Bypass or major arterial road
  - Designated turn lanes and access improvements along highways and/or arterial roads. A traffic study will be required to determine the need for intersection controls and needed improvements to the parallel road network



Royal Canin Pet Food Plant



Light Industrial Examples



Big Box Examples



Highway Commercial Example

## Big Box Retail

Big box retail and associated uses comprise approximately 173 acres accounting for 21 percent of the plan area. These large-scale commercial uses are intended to provide goods and services on a regional scale. Uses typically include anchor big-box stores with accessory commercial pads.

- **Primary Uses:**
  - Includes regional retail anchors (usually a national chain) that provide a variety of general merchandise, grocery, apparel, appliances, household goods, hardware, etc.
- **Secondary Uses:**
  - Complimentary retail including with sit-down restaurants, drive-through restaurants, specialty stores, banks, drug stores, service stations, convenience stores, general services, professional office, etc.
- **Recommended Density**
  - Maximum FAR: 0.35
  - The anchor store and associated retail/office pad sites should be at least a combined 150,000 square feet
- **Required Infrastructure**
  - Access to gravity sewer
  - Access to I-44 or an improved arterial road
  - A traffic study will be required to determine access improvements such as turn lanes, intersection controls, etc.
  - Minimum 4-foot pedestrian path with landscape buffer and pedestrian lighting from parking areas to buildings
  - Minimum 8-foot pedestrian connection from the development to the nearest sidewalk/trail

## Highway Commercial

Highway commercial uses comprise approximately 43 acres accounting for five percent of the plan area. These areas are intended to accommodate commercial services which are accessible by automobiles and trucks, require extensive outdoor storage or display areas as well as extensive parking and loading areas.

- **Primary Uses:**
  - Truck stops and service stations
  - Sit down and fast food restaurants
- **Secondary Uses:**
  - General commercial services
  - Auto dealerships
  - Farm/machinery implements
- **Recommended Density**
  - Maximum FAR: 0.25
- **Required Infrastructure**
  - Access to gravity sewer
  - Access to I-44 or future US 63 Bypass
  - A traffic study will be required to determine access improvements such as turn lanes, intersection controls, etc.

## Retail

Retail uses comprise approximately 57 acres accounting for seven percent of the plan area. These areas are intended to accommodate a wide-range of small-scale commercial and office development. Uses may include commercial retail, professional office and services.

- **Primary Uses:**
  - Convenience retail uses such as coffee shops, movie rentals, banks, drug stores, service stations, specialty shops, etc.
  - Personal services including barber, hair salon, dry cleaners, photo studios, etc.
  - Sit-down restaurants
- **Secondary Uses:**
  - Small-scale professional and office services
- **Recommended Density**
  - Maximum Floor to Area Ratio: 0.20
  - Individual uses should be between 5,000 and 50,000 square feet
- **Required Infrastructure**
  - Access to gravity sewer
  - Access to an improved arterial or collector road
  - A traffic study will be required to determine access improvements.
  - Minimum 4-foot pedestrian path with landscape buffer and pedestrian lighting from parking areas to buildings

## Entertainment

Entertainment uses comprise approximately 25 acres accounting for three percent of the plan area. These areas provide an opportunity for entertainment-oriented uses that are currently undeserved within Rolla and the surrounding region.

- **Primary Uses:**
  - Museum, theater, skating rink, bowling alley, etc.
- **Secondary Uses:**
  - Sit-down restaurants
  - Clubs, bars, etc.
  - Specialty retail
- **Recommended Density**
  - Maximum Floor to Area Ratio: 0.20
  - Individual uses should be between 5,000 and 25,000 square feet
- **Amenities**
  - District-themed site furniture
  - Development connected to greenway and trail network
- **Required Infrastructure**
  - Access to gravity sewer
  - Access to an improved arterial road
  - Minimum 4-foot pedestrian path with landscape buffer and pedestrian lighting from parking areas to buildings
  - Minimum 8-foot pedestrian connection from the development to the nearest sidewalk/trail



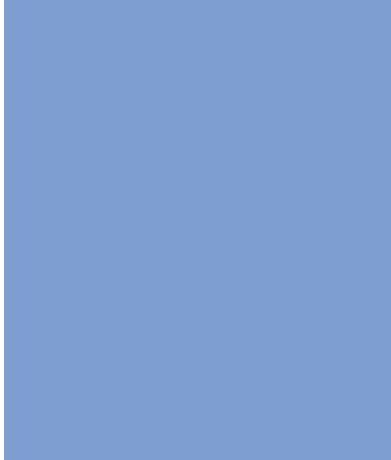
Retail Example



Entertainment Examples



Hospitality Example



St. Johns Clinic Ground-breaking

## Hospitality

Hospitality uses comprise approximately 31 acres accounting for four percent of the plan area (excluding open space, right-of-way, etc). These areas have excellent visibility to I-44 providing excellent opportunities for lodging, associated retail and service uses.

- **Primary Uses:**
  - Lodging including hotels, motels, etc.
  - Conference centers
- **Secondary Uses:**
  - Complimentary retail uses such as copy center, office supply, etc.
  - Sit-down and fast food restaurants
  - Service stations
- **Recommended Density**
  - No maximum density for hotels or motels
  - Maximum Floor to Area Ratio: 0.25 for other retail and office uses
- **Required Infrastructure**
  - Access to gravity sewer
  - Access to an improved arterial
  - Minimum 4-foot pedestrian path with landscape buffer and pedestrian lighting from parking areas to buildings
  - Minimum 8-foot pedestrian connection from the development to the nearest sidewalk/trail

## Medical Campus

Medical campus uses comprise approximately 16 acres accounting for approximately two percent of the plan area (excluding open space, right-of-way, etc). This area will accommodate future St. Johns Clinic expansion and other medium-to-large scale medical-related office and ancillary uses in a “campus” setting.

- **Primary Uses:**
  - Medical clinics
- **Secondary Uses:**
  - Medical-related offices, services and retail including but not limited to drug stores, medical supplies, etc.
- **Amenities**
  - Access to park and open space areas
  - Development connected to greenway and trail network
- **Recommended Density**
  - No maximum density
- **Required Infrastructure**
  - Minimum 4-foot pedestrian path with landscape buffer and pedestrian lighting from parking areas to buildings
  - Minimum 8-foot pedestrian connection from the development to the nearest sidewalk/trail

## Medical Office

Medical office uses comprise approximately 10 acres accounting for one percent of the plan area (excluding open space, right-of-way, etc). These areas will accommodate small-to-medium scale medical-related office and clinics.

- **Primary Uses:**
  - Small-scale medical-related offices and clinics
- **Secondary Uses:**
  - Medical-related retail including but not limited to drug stores, medical supplies, etc.
- **Recommended Density**
  - Maximum Floor to Area Ratio: 0.25 (Excludes the existing Bond Clinic)
  - Individual uses should be between 5,000 and 35,000 square feet
- **Required Infrastructure**
  - Minimum 4-foot pedestrian path with landscape buffer and pedestrian lighting from parking areas to buildings
  - Minimum 8-foot pedestrian connection from the development to the nearest sidewalk/trail

## Lifestyle Center

Lifestyle center uses comprise approximately 34 acres accounting for four percent of the plan area (excluding open space, right-of-way, etc). The lifestyle center is a concept that combines the traditional retail functions of a shopping center with the boutique retail and specialty services not found typical commercial centers. Additionally, unlike typical shopping centers, lifestyle centers tend to be smaller with greater architectural detail and amenities such as plazas, parks and trails.

- **Primary Uses:**
  - Specialty or boutique retail
  - Professional services
  - Upscale sit-down restaurants
- **Secondary Uses:**
  - Mixed-density residential (see next page for definition) as part of a larger Planned Unit Development (PUD) that includes some of the identified primary uses
- **Recommended Density**
  - Maximum Floor to Area Ratio: 0.20
  - Individual uses should be between 5,000 and 25,000 square feet
- **Amenities**
  - Wide (8-foot or greater) sidewalks
  - Upscale themed street furniture
  - Quality architectural details
- **Required Infrastructure**
  - Access to gravity sewer
  - Access to an improved arterial road
  - A traffic study will be required to determine access improvements.
  - Minimum 4-foot pedestrian path with landscape buffer and pedestrian lighting from parking areas to buildings
  - Minimum 8-foot pedestrian connection from the development to the nearest sidewalk/trail



Medical Office Example



Lifestyle Center Examples



Mixed-Density Example



Multi-Family Example



Single-Family Example

## Mixed-Density Residential

Mixed-density residential uses comprise approximately 50 acres accounting for six percent of the plan area (excluding open space, right-of-way, etc). Allows a mix of detached and attached residential development with a wide variety of densities and housing types.

- **Primary Uses:**
  - Detached single-family residences
  - Attached residences including but not limited to town homes, duplexes, triplexes, fourplexes, etc.
- **Secondary Uses:**
  - Permitted accessory structures including ancillary units (also know as “granny flats” or garage apartments
  - Complimentary neighborhood-scale retail uses as part of a PUD.
  - Institutional uses including schools, parks, libraries, churches, etc.
- **Recommended Density**
  - 6 to 12 dwelling units per acre.
- **Required Infrastructure**
  - Access to gravity sewer
  - Paved internal roads with curb, gutter and a minimum 4-foot sidewalk on both sides of the road

## Multi-Family Residential

Multi-family residential uses comprise approximately 43 acres accounting for five percent of the plan area (excluding open space, right-of-way, etc). These uses are intended to provide for future housing needs through the construction of a wide variety of attached residential development.

- **Primary Uses:**
  - Apartment buildings
- **Secondary Uses:**
  - Complimentary neighborhood-scale retail uses as part of a PUD.
  - Institutional uses including schools, parks, libraries, churches, etc.
- **Recommended Density**
  - 4 to 20 dwelling units per acre.
- **Required Infrastructure**
  - Access to gravity sewer
  - Access to an improved arterial or collector road
  - Minimum 4-foot pedestrian path with landscape buffer and pedestrian lighting from parking areas to buildings

## Single-Family Residential

Single-family residential uses comprise approximately 12 acres accounting for one percent of the plan area (excluding open space, right-of-way, etc). However, single-family uses are identified on the periphery of the plan area as a transition between rural uses in the County.

- **Allowed Uses:**
  - Single-family detached residences
- **Secondary Uses:**
  - Permitted accessory structures
- **Recommended Density**
  - 3 to 5 dwelling units per acre
- **Required Infrastructure**
  - Access to gravity sewer
  - Paved internal roads with curb, gutter and a minimum 4-foot sidewalk on at least one side of the road

## Golf Course/Future Development

Golf course/future development uses comprise approximately 164 acres accounting for 20 percent of the plan area (excluding open space, right-of-way, etc). This is a transitional area in the southeast portion of the study area that lacks a connected street network and a grade-separated or controlled access across the BNSF rail line. This area will likely remain rural within the short-term, however, future opportunities exist for a golf course and/or single-family neighborhoods.

- **Allowed Uses:**
  - Golf course
  - Single-family residential on larger lots
- **Recommended Density**
  - 1 to 2 dwelling units per acre
- **Required Infrastructure**
  - Access to gravity sewer
  - Controlled or grade-separated connection across the BNSF rail line and/or an improved connection to an existing east-west collector.
  - Paved internal roads with curb, gutter and a minimum 4-foot sidewalk on at least one side of the road

## Mine Tours

The mine tours area is approximately 21 acres accounting for three percent of the plan area (excluding open space, right-of-way, etc). This experimental mine is currently owned and operated by Missouri S&T as a teaching resource use by faculty, students and approved visitors to demonstrate mining technology including safety and rescue techniques. At some point in the future, upon the University's approval and discretion, this area has the opportunity to be open to the public as an attraction.

- **Primary Uses:**
  - Mining and mineral extraction
  - University-related classrooms and offices
- **Secondary Uses:**
  - Visitors center
- **Required Infrastructure**
  - Controlled or grade-separated connection across the BNSF rail line.



Golf Course Example



Missouri S&T Mine

## E<sup>3</sup> Campus Development

The E<sup>3</sup> “E-Cubed” Campus Development is aimed at promoting and demonstrating eco-friendly technologies. Missouri S&T is creating an Energy, Environment, and Education (E<sup>3</sup>) Campus Development to demonstrate the ground breaking energy and environmental research underway at the university, while providing hands-on education opportunities for students. The E<sup>3</sup> Campus area is on university-owned property on the west side of the Route E and I-44 interchange. This campus has excellent visibility from I-44. Major anchor projects include an on-site hydrogen generation/storage/dispensing station for hydrogen fueled and plug-in hybrid electric vehicles, and a wind turbine to supply energy to the Missouri State Highway Patrol Troop I Headquarters. The E<sup>3</sup> Campus Development is intended to compliment offices planned at the University Technology Park. A conceptual master plan for the E<sup>3</sup> Campus Development is illustrated on the following page. Descriptions of the major uses are described below.

### E<sup>3</sup> Alternative Energy Education and Student Design Center

This center will combine a world-class Student Design Center (where nearly 500 Missouri S&T students engage in nationally competitive, hands-on projects in areas related to energy efficiency and environmental sustainability) with an alternative energy education center designed to educate the general public through hands-on energy and environmental displays. Complimentary uses within this area may include a boutique hotel and ancillary campus-related retail.

### Hydrogen (H<sub>2</sub>) Project Area

The Hydrogen (H<sub>2</sub>) Project area includes the hydrogen fueling station which is one component of a research project which will help develop hydrogen fuel technology, while also addressing issues surrounding a transition to hydrogen. These issues include public perception, permitting, safety standards, education and training, infrastructure development and community communications. The H<sub>2</sub> Project Area will also include a renewable power park (solar photovoltaics/wind/hydrogen fuel cell), EcoCAR garage and a LEED (Leadership in Energy and Environmental Design) Certified Transit Depot building made from used shipping containers.

### Solar Village

This area will serve as a demonstration area for solar homes built by Missouri S&T students participating in the Department of Energy Solar Decathlon Competition. Three existing solar homes will be relocated to the Solar Village, while all future Solar Decathlon Competition homes will be constructed on-site in the village. Students who have participated in the construction of the solar homes can compete for the chance to live in the Solar Village. Because the village is on campus, this counts as Campus Approved Housing for Freshman and Sophomore students who are required to live on campus.



Proposed Transit Building and Hydrogen Refueling Station



Solar Homes under construction



## Green Student Housing

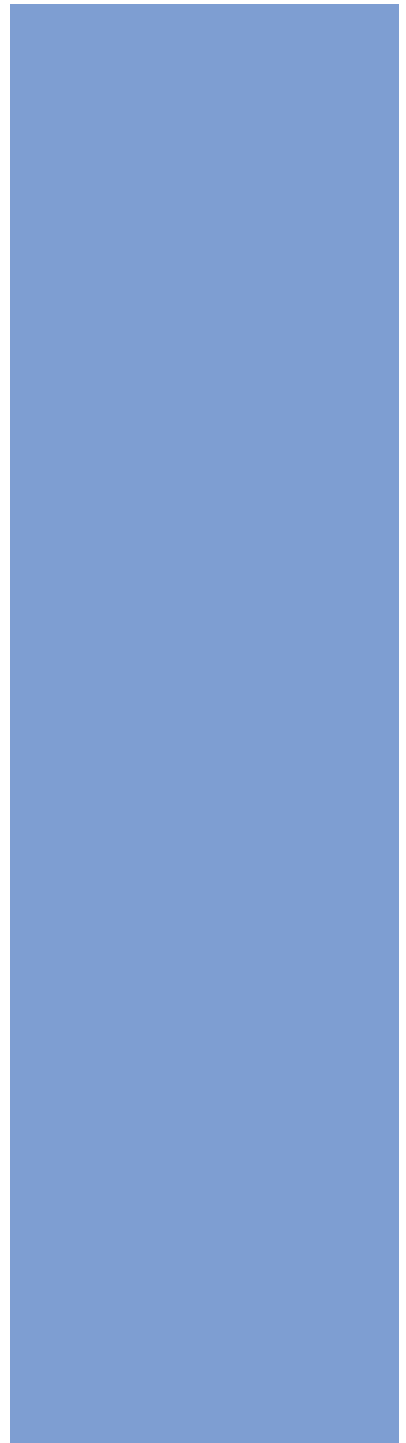
This is an area with existing student housing made up of fraternities, and student apartments. In the future, as these buildings are renovated and/or replaced, opportunities to incorporate green building principles and alternative energy sources will be encouraged.

## Green Hotel and Convention Center

This is envisioned to be a “green” hotel and convention center which will provide opportunities to demonstrate green building techniques while attracting eco-friendly meetings and conventions. This hotel will also serve as a signature building and primary gateway to the E<sup>3</sup> Campus.














## Retail

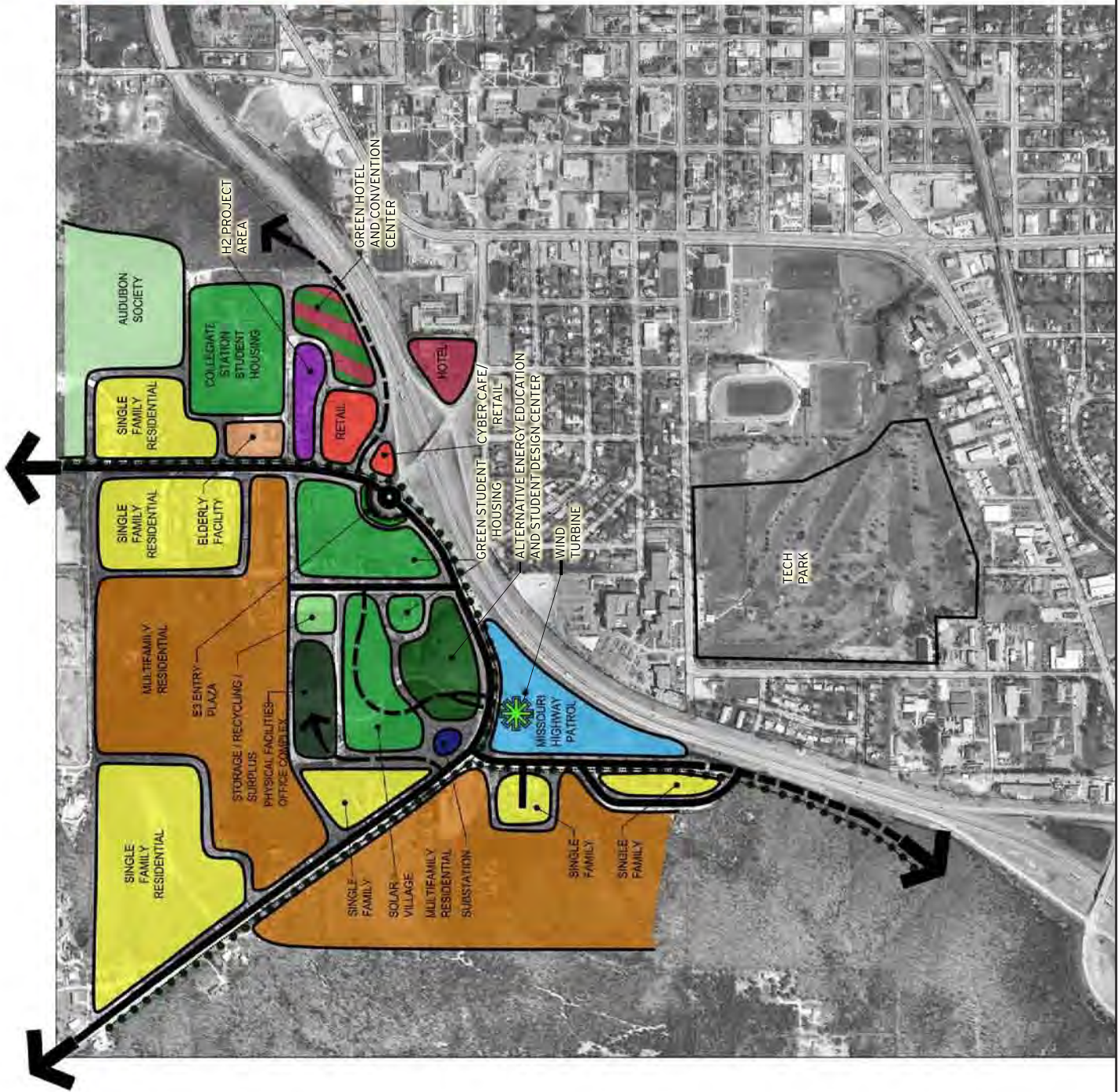
This retail area will serve the E<sup>3</sup> Campus Development area and surrounding neighborhoods. Retail uses should incorporate green building techniques and should be campus oriented. Preferred uses include convenience retail, small grocery store, service station, book store, coffee shop, restaurant, etc.



**Exhibit 9: E<sup>3</sup> Campus Development**

**LEGEND**

	UTILITIES
	PUBLIC / SEMI-PUBLIC
	H2 PROJECT AREA
	GREEN HOTEL/ CONVENTION CENTER
	STUDENT HOUSING
	E <sup>3</sup> CAMPUS
	RETAIL
	MULTI-FAMILY RESIDENTIAL
	ELDERLY FACILITY
	SINGLE FAMILY RESIDENTIAL
	EXISTING ROADS
	PROPOSED ROADS
	TRAIL



# Transportation



## **Transportation Recommendations**

The transportation recommendations balance the need for a safe and efficient transportation system with the desire to utilize public improvements to support development opportunities. Improvements to the existing transportation system are described in the text below and illustrated in Exhibit 10. Associated conceptual cost estimates are summarized in Table 1. A more detailed breakdown of the conceptual cost estimates, including key assumptions, is included in the Appendix at the end of this document. Currently, there is no funding identified in the Rolla Capital Improvements Program (CIP) for major transportation improvements identified within this Plan. As a general rule, new development within the Plan Area must “pay for itself” and not rely on the general city funds. Potential funding sources, such as a Community Improvement District, have been identified in the Implementation Section of this document.

## **Interstate and Highway Access and Improvements**

Quality interstate and highway access is critical to the long-term viability of Rolla maintaining and enhancing its status as the economic and cultural center of South Central Missouri. This is especially true for Rolla West, which will have two interchanges within the study area along I-44 (an existing interchange at Kingshighway and a planned future fifth interchange in the western portion of the Plan Area). Despite excellent interstate access, participants noted that Rolla West needs improved access to I-44 and US 63.

## **Improvements to the Kingshighway Interchange**

The Kingshighway interchange provides access to I-44 from Kingshighway (Business 44). Kingshighway connects the frontage roads Old Wire Road to the north and Martin Springs Drive and Bridge School Road to the south. Based upon improvements to the future Plan Area road network identified during the Community Visioning Workshop (and described within this section) as well as potential improvements associated with I-44, the I-44 and Kingshighway interchange will need to be improved in the future when warranted or when necessitated by other proposed road improvements. Previous studies of the Highway 72 extension estimated that the interchange would warrant improvements within the next 10 years. The I-44 and Kingshighway Interchange will be an important catalyst to the development of the Plan Area west of I-44. The preferred concept identified at the Community Visioning Workshop is to extend Kingshighway (which currently ties into Old Wire Road) north and west to serve future development in the north portion of the Plan Area. Improvements would also be needed on the south side as Martin Springs Drive and Bridge School Road are upgraded. One concept identified during the Community Visioning Workshop is to tie the arterial frontage road connections into I-44 through a series of roundabouts at the ramp terminals. Further study and coordination with MoDOT is needed to determine the extent of actual improvements to this interchange.

### Future Fifth I-44 Interchange

The future fifth I-44 interchange will serve a key catalyst for the ultimate development of Rolla West. Additionally, the fifth interchange will provide the ability to serve a future US 63 Bypass to the south, significantly reducing congestion along existing US 63 through Rolla. The US 63 Bypass must be built in concert with the fifth interchange. It should also be noted that MoDOT is currently studying a major reconstruction of I-44 through lanes. One alternative being considered is truck only lanes. This would have an impact on the type of interchange that is constructed.

### US 63 Bypass

US 63 is a major north-south route that connects Jefferson City and I-70 to the north and Arkansas to the south. Currently, US 63 is four-lane north of Jefferson City, two-lane between Jefferson City and Rolla, and four-lane south of Rolla. MoDOT is currently studying the potential to widen this section of US 63 to four-lanes between Jefferson City and Rolla. Due to land acquisition costs and potential impacts to existing businesses through Rolla, MoDOT is considering several options for US 63 through Rolla including a potential US 63 bypass. To date, the preferred option is for the bypass to use I-44 and the new fifth interchange through a new alignment in the western portion of Plan Area that would connect back to existing US 63 south of Rolla.

Proposed US 63 Bypass Alternative



### Highway 72/Ridgeview Extension

Today, a majority of local Rolla traffic will access Rolla West using Kingshighway. However, the Kingshighway and US 63 currently experiences undesirable congestion and safety levels. In addition, the 3-lane Kingshighway corridor from US 63 to I-44 experiences high traffic demand and slow moving traffic with difficulty for motorists to access the highway. This congestion along Kingshighway is a major issue for east-west traffic through the area.

An improvement to address this issue was identified in the US 63 Bypass Environmental Impact Statement (EIS) Record of Decision and was part of the Preferred Strategy adopted by MoDOT in 2002. The improvement was a new 4-lane roadway that would connect US 73 and State Route 72 on the east with I-44 on the west. The preferred option developed during the Community Visioning Workshop is to extend Highway 72/Ridgeview Road from US 63 southwest to connect to Bridge School Road. This would provide a more indirect route to I-44, however, it would improve traffic flow to Rolla West with less disruption to Kingshighway businesses. This improvement would provide congestion relief along Kingshighway and provide better ease of flow to Rolla West. A majority of participants commented at this Workshop that the Highway 72 Extension was as important to the future success of Rolla West as the construction of the fifth interchange. Further study is needed to determine an alignment and detailed costs and impacts associated with this new alignment.



## Arterial Roads

Arterial roads will carry the bulk of traffic through the Plan Area. Existing and planned arterial roads within the study area include Bridge School Road, Blues Parkway, Martin Springs Drive, Old Wire Road, Kingshighway Extension, Sally Road and Gaddy Road. New construction and/or major improvements to each of these roads is described on the following pages.

### Martin Springs Drive and Extension

Martin Springs Drive is the south 2-lane frontage road along I-44 that currently connects the Kingshighway interchange on the east side of the Plan Area to the proposed future fifth interchange on the west side of the Plan Area and a future US 63 bypass south of the interchange. Martin Springs Drive currently runs west of the Rolla Airport and curves south connecting to a future Bridge School Road extension. The proposed Martin Springs Extension will run west of Blue's Lake and curve south of the proposed fifth interchange connecting to a new US 63 bypass alignment providing access to the new interchange. Existing Martin Springs Drive and the new extension will be 3-lanes with a 5-foot sidewalk. Because Martin Springs Drive is within MoDOT right-of-way, the City will need to coordinate all improvements with MoDOT.

### Bridge School Road and Extension

Bridge School Road is currently a 2-lane road that extends from Kingshighway west along the south edge of the Plan Area and eventually curves north connecting into Martin Springs Drive. The proposed Bridge School Extension will curve north of the Royal Canin Plant, connecting into the proposed US 63 Bypass providing access to the new interchange, and curving northwest connecting into Martin Springs Drive. Bridge School Road and extension will be 3-lanes with a 5-foot sidewalk.

### Blues Lake Parkway

Blues Lake Parkway, located just east of Blues Lake is currently a 2-lane road that connects Martin Springs Drive to Bridge School Road. Blues Lake Road was recently completed and is not proposed to be improved in the future.

### Old Wire Road

Old Wire Road is currently a 2-lane frontage road along the north side of I-44 that currently connects the Kingshighway interchange on the east side of the Plan Area to the proposed fifth interchange on the west side of the Plan Area. Old Wire Road currently runs west of the proposed interchange connecting into County Road 8160 to the west of the Plan Area. Old Wire Road will remain on its current alignment but will be improved to 3-lanes with a 5-foot sidewalk. Because Old Wire Road is within MoDOT right-of-way, the City will need to coordinate all improvements with MoDOT.

### Kingshighway Extension

Currently, the Kingshighway interchange ties into Old Wire Road to the north of I-44. The Kingshighway Extension is a new road that will provide access to future developments in the northern portion of the Plan Area and will connect the existing Kingshighway interchange to an improved Gaddy Road



which will provide access to the future fifth interchange. The new road extension will be designed and right-of-way acquired for 5-lanes with a 5-foot sidewalk. However, initially, a 3-lane section is likely to be build as an initial phase construction.

### **Sally Road**

Sally Road (also known as County Road 8110) is currently a 2-lane county road. This road is proposed to be improved to 3-lanes with new curb and gutter.

### **Gaddy Road**

Gaddy Road (also known as County Road 8130) is currently a 2-lane county road. This road is proposed to be improved to 3-lanes with new curb and gutter. Near the future interchange area, Gaddy Road will be 4-lanes. However, right-of way will be acquired for all as development occurs for construction of 5-lanes as part of a long-term US-63 Bypass connection to the north.

### **Collector Roads**

These roads “collect” and distribute traffic from developments and neighborhoods to arterial roads and are the responsibility of adjacent developers. It is recommended that a system of collectors be built to provide connections from local neighborhoods to arterials or highways.

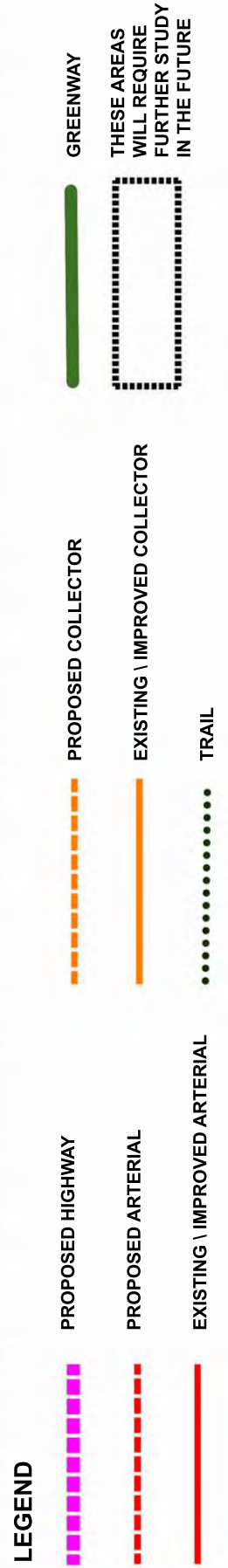
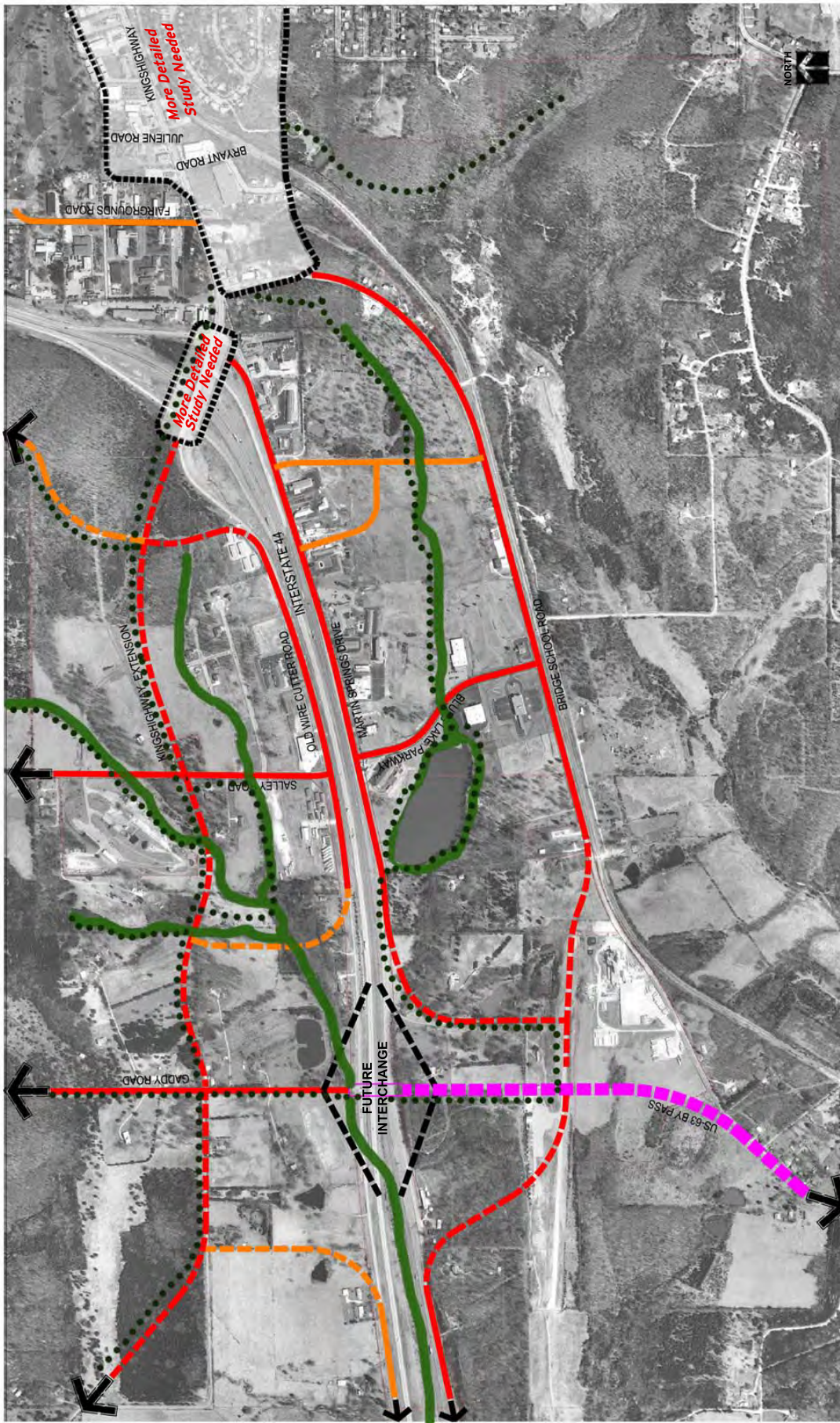
### **Local Roads**

Local roads provide access within neighborhoods and are the responsibility of the developer. It is recommended that the future local roads be designed to connect to existing and planned neighborhoods. Interconnectivity between adjacent neighborhoods and developments can help alleviate traffic congestion on arterials and collectors as well as provide improved level of service for emergency vehicles. Cul-de-sacs and closed subdivisions with a single point of entry/egress are discouraged.

### **Trail/Greenway**

As shown in the Future Land Use Map and Future Road Network Map, a series of trails/greenways are recommended along creeks and low-lying areas to provide pedestrian connections throughout the Plan Area. Hiking and biking trails are also proposed to be constructed within the right of way of the future Kingshighway Extension and Gaddy Road. These trails will provide opportunities for future pedestrian connections as the West Rolla Development matures. Throughout the public workshop process the creation of future pedestrian trails and greenways was given a high priority by the public and stakeholders.

Exhibit 10: Future Road Network





## Summary of Conceptual Cost Estimates

The table below summarizes conceptual cost estimates for the proposed transportation improvements. A more detailed breakdown of these conceptual costs are included in the Appendix at the end of this document.

**Table 1: Summary of Conceptual Road Improvement Costs**

Roadway Descriptions	Roadway Total
Bridge School Road (Improved to 3 lane )	\$4,845,000.00
Kingshighway/Extension (4 lanes on the new ROW extension)	\$6,682,200.00
Martin Springs Drive (Improved to 3 lane )	\$4,276,200.00
Old Wire Cutter Road (Improved to 3 lane )	\$4,362,200.00
Sally Road (Improved to 3 lane w/ new culverts)	\$1,722,600.00
Gaddy Road (Build to 3 lanes plan for 5 lane ROW w/ new culvert)	\$4,478,900.00
<b>Subtotal Roadway Network Costs</b>	<b>\$26,367,100.00</b>

Proposed 5th interchange	
5th Interchange (I-44 and Gaddy Road) low estimate	\$15,000,000.00
5th Interchange (I-44 and Gaddy Road) high estimate	\$20,000,000.00
<b>Total Costs (low estimate)</b>	<b>\$41,367,100.00</b>
<b>Total Costs (high estimate)</b>	<b>\$46,367,100.00</b>

(\*) Unit costs include 20% contingency; design & construction administration; and assume asphalt pavement cost is \$75 per ton installed.

(\*\*) See assumptions outlined on cover sheet of this opinion.

(\*\*\*) All costs are based conceptual plan improvements in 2008 construction costs



# Implementation



## Implementation Tasks

Implementation of the Rolla West Master Plan is dependent upon the following three critical tasks:

- Plan adoption by the City of Rolla;
- Implementation of a successful annexation strategy; and
- Financing Mechanisms

## Plan Adoption and Use

Upon adoption by the Rolla City Council and Planning Commission, the Master Plan will serve as the official long-term guide for the Rolla West area. As such, the Master Plan will be consulted by public officials including the City Council, the Planning Commission and City staff when considering development proposals, updating land use regulations, outlining work programs, preparing annual budgets, and reviewing progress toward meeting identified goals. The Master Plan will also be used to guide residents, land owners, project applicants and other parties concerning land planning and community development objectives within this area.

The Plan should be consulted by City staff, the Planning Commission and the City Council when considering development proposals and updating land use regulations within the Rolla West area. The Plan should be used as a resource for residents, land-owners and project applicants concerning land planning and community development objectives. Additionally, City staff and public officials should use this document to guide future Capital Improvement Plan (CIP) considerations in the area. The Plan should be reviewed annually and revised as specific actions are achieved and new strategies are identified. The Plan recommendations should be reviewed periodically when new circumstances or changing conditions warrant reconsideration.

## Annexation Strategy

Annexation is the process by which a city extends its municipal services, regulations, voting privileges and taxing authority to new territory. Because of the fiscal implications of annexation, the costs of providing municipal services should be estimated and weighed against the anticipated revenues of areas proposed for annexation. Performing a fiscal impact analysis does not mean that only areas with positive cash flow should be annexed. There will be instances when health, safety, environmental, or other factors will override fiscal considerations and an area may need to be annexed despite its fiscal impact. As a policy, future annexation proposals should benefit existing residents of the city. Ideally, annexation should occur concurrently with development. However, the City may consider annexing strategic areas to coordinate future roadway and infrastructure improvements and to maximize the future development potential of the area. Currently, the portions of the Plan Area fronting I-44 are within the City limits. However, the City may consider annexing the areas around the future fifth interchange and future US 63 Bypass. This should be completed as soon as a definitive footprint is identified for the interchange and centerline established for the US 63 Bypass.



## Financing Mechanisms

The City should ensure that current revenue rates are adequate and/or seek alternative revenue sources or financing mechanisms. Presented below are potential options for funding the capital budget shortfalls. To develop fair, practical and efficient ways to increase revenues, it is recommended that attention be paid to the following characteristics of each: equity, economic development, adequacy, ease of administration and legal feasibility.

### Community Improvement District (CID)

Missouri Statutes, “Sections 67.1400 et seq., RSMo,” authorize the creation of Community Improvement Districts (CID). The purpose of a CID is to raise money to provide improvements to a specific area. A CID may be established as either a political subdivision or as a not for profit corporation. If the CID is established as a political subdivision, it is governed by a board of directors that, as specified in the petition, is either elected by the qualified voters in the district or appointed by the City. If the CID is a not-for-profit corporation, the directors are selected in accordance with the provisions of Chapter 355 of the Missouri Statutes.

Missouri Statutes provide a CID with a variety of enumerated powers, including the authority to construct, reconstruct, install, repair, maintain, and equip public improvements including parks and streets. The improvements in a CID organized as a political subdivision or a not for profit corporation may be funded by the imposition of special assessments. If the CID is a political subdivision, the improvements may also be funded by a real property tax levied within the district after approval by a majority of the qualified voters within the district.

### Transportation Development District

Missouri Statutes, “Sections 238.207 et seq., RSMo,” authorize the City to create Transportation Development Districts (TDDs). The statutorily-stated purpose of TDDs are to fund, promote, plan, design, construct, improve, maintain, and operate one or more transportation projects or to assist in such activity.

TDDs are created by submission of a petition to the circuit court from either 50 registered voters in each county in the district, by owners of real property in the district, or by the City Council. The petition must identify the district’s boundaries, each proposed project, and a proposal for funding the projects. After receipt of a petition and a hearing to determine that the petition complies with the law, the circuit court enters a judgment certifying the questions regarding creation of the district, projects to be developed, and proposed funding for voter approval. If a simple majority of registered voters or property owners included in the district boundaries (depending on the type of petition submitted to request creation of the district) vote in favor, the TDDs are created. If the issue fails, it cannot be resubmitted to the voters again for two years. Once created, TDDs are considered a separate political subdivision of the state with powers such as condemnation, the power to contract with parties, to lease or purchase real or personal property and to sue and be sued.

### Tax Increment Financing District (TIF)

The basic concept behind TIF is that the redevelopment of the area approved as a redevelopment district will increase the equalized assessed valuation of the property, thereby generating new revenues to a city that can be used to pay for specified costs of a redevelopment project. These costs may include construction of public facilities within a redevelopment area. Property taxes and other revenues generated by the exist-



ing development in a legislatively defined redevelopment district are frozen when the redevelopment is approved by the City Council and the increased property tax and a portion of other revenues generated by the new development are captured and placed in a special fund to pay for the costs of redeveloping the area. Those new property tax revenues are the source of the term “increment,” and they are also referred to as “payments in lieu of taxes” (PILOTs).

In addition to the PILOTs, the development may also capture up to 50% of certain locally imposed taxes (commonly referred to as economic activity taxes or “EATS”) such as local sales, franchise taxes and utility taxes and local earnings taxes to fund project costs. Certain new state revenues (one-half of general state sales tax or one-half of state individual income tax withheld from new employees in the redevelopment area) generated by a redevelopment project may be captured under limited circumstances where the area is blighted and is located in either an enterprise zone, federal empowerment zone, or a central business district or urban core area with at least one 50 year old building and that suffers from 20 year pattern of declining population or property tax revenue. State statutes also authorize bonds to be issued that are paid from the PILOTs and EATs generated in the redevelopment area.

### **Impact Fees**

Impact fees can be defined as new growth’s fair share of the cost to provide necessary capital facilities. Impact fees have been used to address the costs of many different types of facilities, including water supply, wastewater treatment, roads, schools, open space and parks, government facilities, public safety and storm water management. While developers have traditionally provided project specific infrastructure improvements, impact fees address the costs of needed system improvements.

### **Excise Tax**

Similar to impact fees, excise taxes are often used to fund new infrastructure and services necessitated by new growth. This revenue mechanism has greater flexibility than impact fees because it is a tax, rather than a development exaction that must withstand a rational nexus and direct benefit test.

### **Special Assessment**

Special assessments are an old and widely used financing method where the cost of a facility such as a road improvement is allocated fully or partially against benefited property. Typical methods of assessment include the lot method, in which each lot (or equivalent) pays an equal share; the area method, in which costs are allocated in proportion to the area/front footage of each property; and based on assessed value.

### **Developer Exactions**

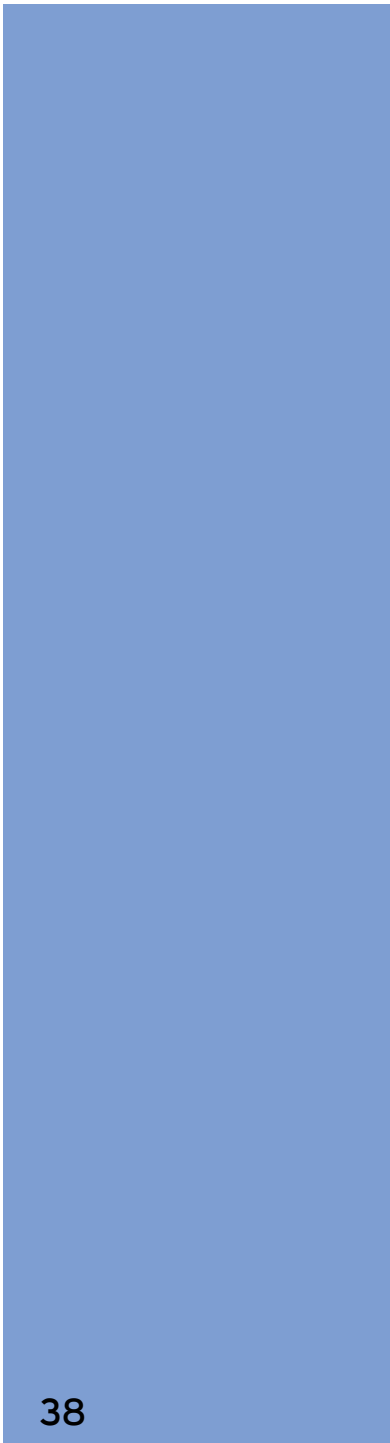
Exactions are developer funded, in-kind contributions of land, facilities, or services that are demanded as a condition of development approval. Negotiated agreements between the developer and the local jurisdiction traditionally include off-site infrastructure, such as roads, water and sewer lines and site contributions.

### **Special Taxing Districts**

A special taxing district, sometimes also known as a municipal service district (MSD), permits the additional taxation of property owners within certain geographic boundaries, to fund additional special services provided within the service district. Revenues raised by an MSD can be used to pay for both capital improvements and operating expenses. Depending on State law, the municipal service district may be managed



by the municipal government or by an autonomous governing body with the power to levy taxes and borrow funds. MSD's can be organized around a variety of different services and facilities, such as ambulance and police services, trash removal, sewage, management, beautification, and recreation.



# Appendix



## Cost Estimates for Proposed Transportation Improvements

This opinion of probable construction cost is intended to provide preliminary, order of magnitude, costs to construct the proposed street extensions and improvements. Unit costs listed in the summary table are derived from individual cost opinions for each street. Individual opinions are divided into costs for new street extensions, and costs for widening and improvements, including widening existing or rebuilding existing streets. Major cost items such as large culverts and major utility relocations have been identified in the individual street cost opinions. The following assumptions apply to this opinion:

### **General Cost Estimate Assumptions:**

- Right-of-way acquisition for new streets and for widening existing streets is not included in these estimates.
- Milling unit price includes the cost of trucking and disposal of cuttings from site.
- “Widening of Existing Pavement” unit price based on \$12.00 for the aggregate base and \$21.00 for 5-inch bituminous pavement mixture.
- “Storm Sewer RCP” unit price based on 24” RCP.
- “Precast Drop Inlets” based on two per 300 linear feet of road.
- Includes street lighting (poles, conduit, wiring, etc.) as indicated. Does not include primary distribution system or transformers.
- Linear grading unit costs allow minor grading to flatten and straighten existing alignments and new streets. No mass excavation is included.
- Design and construction administration fees are included in each individual estimate.
- All streets except Kingshighway are 40-foot wide, back to back of curb, with a 24-foot concrete curb and gutter on either side. Pavement thickness is per City of Rolla Standard Plans.
- All streets include a 5-foot wide concrete walk on one side.
- Asphalt paving unit costs are based on expected future asphalt costs of \$75 per ton.
- Includes signalized intersections at: Future St. Johns Boulevard and Bridge School Road, Blues Lake Parkway and Bridge School Road, Gaddy Road Extension and Bridge School Road, Old Wire Road and Kingshighway Extension, Sally Road and Kingshighway Extension, Gaddy Road and Kingshighway Extension, Martin Springs Drive and Gaddy Road and Old Wire Road, and Gaddy Road and Martin Springs Drive, and Gaddy Road and Martin Springs Drive.
- Does not include the cost of utility extensions for water, sanitary sewer, electric, communications or natural gas into the project area.

### **Kings Highway Extension Cost Estimate Assumptions:**

- Does not include improvements to the Kingshighway overpass and off-ramps. Does not include traffic signals and intersection improvements for the intersections at Kingshighway and Martin Springs Drive; Kingshighway and Bridge School Road; Kingshighway and future Highway 72 extension; interstate ramps and Kingshighway and Fairgrounds road.



### **Kings Highway Extension Cost Estimate Assumptions:**

- Assumes 52-foot wide, back to back of curb.
- Does not include mass excavation east of existing interchange. Future developer is expected to grade Kingshighway alignment with adjoining development.
- Includes construction of a new culvert east of Sally Road.

### **Bridge School Road Cost Estimate Assumptions:**

- “Relocate Existing Hydrants” based on assuming one hydrant per 300 linear feet of road.
- “Relocate Overhead Electric” based on 1,800 linear feet at \$28 per linear foot.
- “5-foot Concrete Sidewalk” is to be on one side of road and replace the existing sidewalk that will be removed during the widening of Bridge School Road.
- Does not include right-of-way acquisition or improvements to the intersection with Kingshighway.
- Includes new storm drainage system.
- Assumes a complete reconstruction of the existing street.

### **Martin Springs Drive Cost Estimate Assumptions:**

- There is an existing storm drainage system along the south side of the street (approximately 4,000 linear feet). Includes new storm drains on the north side of the street (approximately 5,800 linear feet) and along part of the south side (approximately 1,700 linear feet).
- Includes 19 “Precast Drop Inlets” on the north side and 6 inlets on the south side.
- Assumes widening existing street.

### **Old Wire Road Cost Estimate Assumptions:**

- Includes replacing existing drive entrances. Unit cost is \$10 per square foot.
- Includes new storm drainage system.
- Assumes widening existing street.

### **Sally Road Cost Estimate Assumptions:**

- “Utilities Relocate” based on relocating 2,700 linear feet of overhead electric at \$28 per linear feet.
- “Culvert Extension” quantities based on lengthening an existing 30-foot culvert an additional 30-feet.
- “Culvert Replacement” quantities based on replacing an existing culvert located approximately 0.3 mile north of the intersection of Sally Road and Old Wire Road.
- Assumes a complete reconstruction of the existing street.

### **Gaddy Road Cost Estimate Assumptions:**

- “Culvert Replacement” quantities based on replacing an existing culvert located approximately 100 feet north of the intersection of Gaddy Road and Old Wire Road.
- “5” Bituminous Base & 1 3/4” BP-1 Pavement” unit price based on \$21.00 for 5-inch bituminous pavement mixture and \$7.50 for 1 3/4-inch Pavement.
- Does not include cost of new ramps and overpass, nor signalized intersection for ramps.
- Includes signalized intersection for outer road connections.

**Table 2: Conceptual Road Improvement Costs**

Proposed Rolla West Transportation Improvements Preliminary Opinion of Probable Costs										
Item	Roadway Description	Unit	Qty.	New ROW Improvements		Unit	Qty.	Existing ROW Improvements		Roadway Total
				Unit Price	Total			Unit Price	Total	
1	Bridge School Road (Improved to 3 lane )	LF	7,500	\$646.00	\$4,845,000	LF	0	\$0.00	\$0.00	\$4,845,000.00
2	Kingshighway / Extension (4 lanes on the new ROW extension) (No Mass Grading, Provided by Developer(s))	LF	8,600	\$777.00	\$6,682,200	LF	0	\$0.00	\$0.00	\$6,682,200.00
3	Martin Springs Drive (Improved to 3 lane )	LF	4,600	\$511.00	\$2,350,600	LF	5,800	\$332.00	\$1,925,600.00	\$4,276,200.00
4	Old Wire Road (Improved to 3 lane )	LF	5,800	\$509.00	\$2,952,200	LF	3,000	\$470.00	\$1,410,000.00	\$4,362,200.00
5	Sally Road (Improved to 3 lane w/ new culverts)	LF	0	\$0.00	\$0.00	LF	2,700	\$638.00	\$1,722,600.00	\$1,722,600.00
6	Gaddy Road (Build to 3 lanes plan for 5 lane ROW w/ new culvert)	LF	3,800	\$720.00	\$2,736,000	LF	2,900	\$601.00	\$1,742,900.00	\$4,478,900.00
<b>SUBTOTAL ROADWAY NETWORK COSTS</b>					<b>\$19,566,000.00</b>			<b>\$6,801,100.00</b>		<b>\$26,367,100.00</b>
<b>Proposed 5th Interchange</b>										
7	5th Interchange (I-44 and Gaddy Road) low estimate									\$15,000,000.00
	5th Interchange (I-44 and Gaddy Road) high estimate									\$20,000,000.00
<b>TOTAL COSTS (High Estimate)</b>										<b>\$41,367,100.00</b>
<b>TOTAL COSTS (High Estimate)</b>										<b>\$46,367,100.00</b>

(\*) Unit costs include 20% contingency; design & construction administration; and assume asphalt pavement cost is \$75 per ton installed.

(\*\*) See assumptions outlined on cover sheet of this opinion.

(\*\*\*) All costs are based conceptual plan improvements in 2008 construction costs

**Table 3: Bridge School Road Replacement  
Opinion of Probable Cost Breakdown**

Improvements include replacing approximately 5,500 lineal feet of existing roadway with a 40' commercial roadway with sidewalk on one side, and curb & gutter on both sides. Also, extending the road 2,000 lineal feet with a sidewalk on one side, and curb & gutter on both sides.

Item No.	Description	Qty	Unit	Unit Price	Total	
<b>Demolition</b>						
1	Demo of Existing Roadway	5,500	LF	\$15.00	\$82,500.00	
<b>Pavement</b>						
2	Linear Grading	2,000	LF	\$60.00	\$120,000.00	
3	Subgrade Preparation	24,500	SY	\$3.00	\$73,500.00	
4	Type 1 Aggregate Base (16" thick)	30,000	SY	\$12.00	\$360,000.00	
5	1 3/4" Surface Course Bituminous Pavement	30,000	SY	\$7.50	\$225,000.00	
6	5" of Bituminous Base Pavement	30,000	SY	\$21.00	\$630,000.00	
7	2' Concrete Curb & Gutter	15,000	LF	\$20.00	\$300,000.00	
<b>Drainage</b>						
8	Storm Sewer RCP	8,625	LF	\$60.00	\$517,500.00	
9	Precast Drop Inlets	51	EA	\$3,000.00	\$153,000.00	
<b>Utilities</b>						
10	Relocate Existing Hydrants	19	EA	\$2,500.00	\$47,500.00	
11	Relocate Overhead Electric	1	LS	\$50,400.00	\$50,400.00	
12	Standard Street Lighting	7,500	LF	\$40.00	\$300,000.00	
13	Signalized Intersection	3	EA	\$175,000.00	\$525,000.00	
<b>Miscellaneous</b>						
14	5' Concrete Sidewalk	7,500	LF	\$30.00	\$225,000.00	
15	Drive Entrances	11	EA	\$3,850.00	\$42,350.00	
16	Seed & Mulch	15,000	LF	\$2.00	\$30,000.00	
					SubTotal =	\$3,681,750
					Contingency (20%) =	\$736,350
					Construction Subtotal =	\$4,418,100
					Design Engineering (5.5%) =	\$242,996
					Bidding & Construction Engineering (75% of Design) =	\$182,247
					<b>Opinion of Probable Project Cost =</b>	<b>\$4,843,342</b>
General Note: Does not include right-of-way acquisition or improvements to the intersection with Kingshighway.						
					Roadway Length	7,500
					Cost Per Foot	\$646

**Table 4: Kingshighway Extension  
Opinion of Probable Cost Breakdown**

Extend Kingshighway approximately 8,600 L.F. Roadway will be 52-ft back-of-curb to back-of-curb, with 2-ft wide curb & gutter. The roadway will have asphaltic cement pavement and all necessary storm water appurtenances.

Item No.	Description	Qty	Unit	Unit Price	Total	
<b>Pavement</b>						
1	Linear Grading and Subgrade Preparation	8,600	LF	\$80.00	\$688,000.00	
2	Type 1 Aggregate Base (16" Thick)	45,867	SY	\$12.00	\$550,404.00	
3	1 3/4" Surface Course Bituminous Pavement	45,867	SY	\$7.50	\$344,002.50	
4	5" of Bituminous Base Pavement	45,867	SY	\$21.00	\$963,207.00	
5	2' Concrete Curb & Gutter	17,200	LF	\$20.00	\$344,000.00	
<b>Drainage</b>						
6	24" Class III RCP	9,900	LF	\$50.00	\$495,000.00	
7	Precast Drop Inlets	58	EA	\$3,000.00	\$174,000.00	
8	Culvert Construction	240	LF	\$1,500.00	\$360,000.00	
<b>Utilities</b>						
9	Standard Street Lighting	8,600	LF	\$40.00	\$344,000.00	
10	Signalized Intersection	3	EA	\$175,000.00	\$525,000.00	
<b>Miscellaneous</b>						
11	5' Concrete Sidewalk	8,600	LF	\$30.00	\$258,000.00	
12	Seed & Mulch	17,200	LF	\$2.00	\$34,400.00	
					SubTotal =	\$5,080,014
					Contingency (20%) =	\$1,016,003
					Construction Subtotal =	\$6,096,016
					Design Engineering (5.5%) =	\$335,281
					Bidding & Construction Engineering (75% of Design) =	\$251,461
					<b>Opinion of Probable Project Cost =</b>	<b>\$6,682,758</b>
General Note: Does not include Right of Way acquisition or improvements to Kingshighway off ramps, overpass, or intersection with Bridge School Road.						
					Roadway Length (ft)	8,600
					Cost Per Foot	\$777



**Table 5: Martin Springs Drive Extension**  
**Opinion of Probable Cost Breakdown**

Extend Martin Springs Drive approximately 4,600 L.F. Roadway will be 40-ft back-of-curb to back-of-curb, with 2-ft wide curb & gutter. The roadway will have asphaltic cement pavement and all necessary storm water appurtenances.

Item No.	Description	Qty	Unit	Unit Price	Total
<b>Pavement</b>					
1	Linear Grading and Subgrade Preparation	4600	SY	\$60.00	\$276,000.00
2	Type 1 Aggregate Base (16" Thick)	18,400	SY	\$12.00	\$220,800.00
3	1 3/4" Surface Course Bituminous Pavement	18,400	SY	\$7.50	\$138,000.00
4	5" of Bituminous Base Pavement	18,400	SY	\$21.00	\$386,400.00
5	2' Concrete Curb & Gutter	4,600	LF	\$20.00	\$92,000.00
<b>Drainage</b>					
6	24" Class III RCP	5,290	LF	\$60.00	\$317,400.00
7	Precast Drop Inlets	32	EA	\$3,000.00	\$96,000.00
8	Culvert Construction	60	LF	\$1,500.00	\$90,000.00
<b>Miscellaneous</b>					
9	5' Concrete Sidewalk	4,600	LF	\$30.00	\$138,000.00
10	Seed & Mulch	9,200	SY	\$2.00	\$18,400.00
				SubTotal =	\$1,773,000
				Contingency (20%) =	\$354,600
				Construction Subtotal =	\$2,127,600
				Design Engineering (6.0%) =	\$127,656
				Bidding & Construction Engineering (75% of Design) =	\$95,742
				<b>Opinion of Probable Project Cost =</b>	<b>\$2,350,998</b>
				Roadway Length (ft)	4,600
				Cost per Foot	\$511

General Note: Does not include right-of-way acquisition

**Table 6: Martin Springs Drive Improvements**  
**Opinion of Probable Cost Breakdown**

Improvements include widening approximately 5,800 lineal feet to 40' commercial roadway w/ curb & gutter. Existing sidewalk and gutter on south side to remain (approx. 4,000 LF)

Item No.	Description	Qty	Unit	Unit Price	Total
<b>Pavement</b>					
1	Linear Grading & Subgrade Preparation	5,800	LF	\$30.00	\$174,000.00
2	Widening of Existing Pavement	8,630	SY	\$33.00	\$284,790.00
3	1 3/4" Surface Course Bituminous Pavement	23,200	SY	\$7.50	\$174,000.00
4	2' Concrete Curb & Gutter	7,600	LF	\$20.00	\$152,000.00
5	Milling of Existing Pavement	14,590	SY	\$2.00	\$29,180.00
<b>Drainage</b>					
6	Storm Sewer RCP	5,500	LF	\$60.00	\$330,000.00
7	Precast Drop Inlets	24	EA	\$3,000.00	\$72,000.00
<b>Utilities</b>					
8	Signalized Intersection	1	EA	\$175,000.00	\$175,000.00
<b>Miscellaneous</b>					
9	5' Concrete Sidewalk	1,800	LF	\$30.00	\$54,000.00
				SubTotal =	\$1,444,970
				Contingency (20%) =	\$288,994
				Construction Subtotal =	\$1,733,964
				Design Engineering (6.25%) =	\$108,373
				Bidding & Construction Engineering (75% of Design) =	\$81,280
				<b>Opinion of Probable Project Cost =</b>	<b>\$1,923,616</b>
				Roadway Length	5,800
				Cost Per Foot	\$332

General Note: Does not include right-of-way acquisition

**Table 7: Old Wire Road Extension**  
**Opinion of Probable Cost Breakdown**

Extend Old Wire Road approximately 5,800 L.F. Roadway will be 40-ft back-of-curb to back-of-curb, with 2-ft wide curb & gutter. The roadway will have asphaltic cement pavement and all necessary storm water appurtenances.

Item No.	Description	Qty	Unit	Unit Price	Total
<b>Pavement</b>					
1	Linear Grading and Subgrade Preparation	5,800	SY	\$60.00	\$348,000.00
2	Type 1 Aggregate Base (16" Thick)	23,200	SY	\$12.00	\$278,400.00
3	1 3/4" Surface Course Bituminous Pavement	23,200	SY	\$7.50	\$174,000.00
4	5" of Bituminous Base Pavement	23,200	SY	\$21.00	\$487,200.00
5	2' Concrete Curb & Gutter	11,600	LF	\$20.00	\$232,000.00
<b>Drainage</b>					
6	24" Class III RCP	6,670	LF	\$60.00	\$400,200.00
7	Precast Drop Inlets	40	EA	\$3,000.00	\$120,000.00
<b>Miscellaneous</b>					
8	5' Concrete Sidewalk	5,800	LF	\$30.00	\$174,000.00
9	Seed & Mulch	11,600	LF	\$2.00	\$23,200.00
				SubTotal =	\$2,237,000
				Contingency (20%) =	\$447,400
				Construction Subtotal =	\$2,684,400
				Design Engineering (5.75%) =	\$154,353
				Bidding & Construction Engineering (75% of Design) =	\$115,765
				<b>Opinion of Probable Project Cost =</b>	<b>\$2,954,518</b>
				Roadway Length (ft)	5,800
				Cost Per Foot	\$509

General Note: Right of Way acquisition not included in cost estimate.

**Table 8: Old Wire Road Improvements**  
**Opinion of Probable Cost Breakdown**

Improvements include widening approximately 3,000 lineal feet to 40' commercial roadway w/ curb & gutter on both sides, and sidewalk on one side.

Item No.	Description	Qty	Unit	Unit Price	Total
<b>Pavement</b>					
1	Linear Grading & Subgrade Preparation	3,000	LF	\$30.00	\$90,000.00
2	Widening of Existing Pavement	4,670	SY	\$33.00	\$154,110.00
3	1 3/4" Surface Course Bituminous Pavement	12,000	SY	\$7.50	\$90,000.00
4	2' Concrete Curb & Gutter	6,000	LF	\$20.00	\$120,000.00
5	Milling of Existing Pavement	7,330	SY	\$2.00	\$14,660.00
<b>Drainage</b>					
6	Storm Sewer RCP	6,900	LF	\$60.00	\$414,000.00
7	Precast Drop Inlets	20	EA	\$3,000.00	\$60,000.00
<b>Miscellaneous</b>					
8	5' Concrete Sidewalk	3,000	LF	\$30.00	\$90,000.00
9	Drive Entrances	7	EA	\$3,850.00	\$26,950.00
				SubTotal =	\$1,059,720
				Contingency (20%) =	\$211,944
				Construction Subtotal =	\$1,271,664
				Design Engineering (6.25%) =	\$79,479
				Bidding & Construction Engineering (75% of Design) =	\$59,609
				<b>Opinion of Probable Project Cost =</b>	<b>\$1,410,752</b>
				Roadway Length	3,000
				Cost Per Foot	\$470

General Note: Right of Way acquisition not included in cost estimate.

Table 9: Gaddy Road Extension  
Opinion of Probable Cost Breakdown

Extend Gaddy Road approximately 3,800 L.F. Roadway will be 40-ft back-of-curb to back-of-curb, with 2-ft wide curb & gutter. The roadway will have asphaltic cement pavement and all necessary storm water appurtenances.

Item No.	Description	Qty	Unit	Unit Price	Total	
<b>Pavement</b>						
1	Linear Grading and Subgrade Preparation	3,800	SY	\$60.00	\$228,000.00	
2	Type 1 Aggregate Base (16" Thick)	15,200	SY	\$12.00	\$182,400.00	
3	1 3/4" Surface Course Bituminous Pavement	15,200	SY	\$7.50	\$114,000.00	
4	5" of Bituminous Base Pavement	15,200	SY	\$21.00	\$319,200.00	
5	2' Concrete Curb & Gutter	7,600	LF	\$20.00	\$152,000.00	
<b>Drainage</b>						
6	24" Class III RCP	4,370	LF	\$60.00	\$262,200.00	
7	Precast Drop Inlets	26	EA	\$3,000.00	\$78,000.00	
8	Culvert Construction	70	LF	\$1,500.00	\$105,000.00	
<b>Utilities</b>						
9	Standard Street Lighting	3,800	LF	\$40.00	\$152,000.00	
10	Signalized Intersection	2	EA	\$175,000.00	\$350,000.00	
<b>Miscellaneous</b>						
11	5' Concrete Sidewalk	3,800	LF	\$30.00	\$114,000.00	
12	Seed & Mulch	3,800	SY	\$2.00	\$7,600.00	
					SubTotal =	\$2,064,400
					Contingency (20%) =	\$412,880
					Construction Subtotal =	\$2,477,280
					Design Engineering (6.00%) =	\$148,637
					Bidding & Construction Engineering (75% of Design) =	\$111,478
					<b>Opinion of Probable Project Cost =</b>	<b>\$2,737,394</b>
					Roadway Length (ft)	3,800
					Cost Per Foot	\$720

General Note: Right of Way acquisition and interstate overpass not included in cost estimate. Includes signals at off-ramps.

Table 10: Gaddy Road Improvements  
Opinion of Probable Cost Breakdown

Improvements include widening approximately 2,900 lineal feet to 40' commercial roadway w/ curb & gutter and sidewalks on both sides.

Item No.	Description	Qty	Unit	Unit Price	Total	
<b>Pavement</b>						
1	Linear Grading & Subgrade Preparation	2,900	LF	\$38.00	\$110,200.00	
2	16" of Type 1 Aggregate Base	11,600	SY	\$12.00	\$139,200.00	
3	5" Bituminous Base & 1 3/4" BP-1 Pavement	11,600	SY	\$28.50	\$330,600.00	
4	2' Concrete Curb & Gutter	5,800	LF	\$15.00	\$87,000.00	
5	Demolition of Existing Pavement	6,770	SY	\$6.00	\$40,620.00	
<b>Drainage</b>						
6	Storm Sewer RCP	3,335	LF	\$60.00	\$200,100.00	
7	Precast Drop Inlets	19	EA	\$3,000.00	\$57,000.00	
8	Culvert Replacement	60	LF	\$1,500.00	\$90,000.00	
<b>Miscellaneous</b>						
9	5' Concrete Sidewalk	5,800	LF	\$30.00	\$174,000.00	
10	Utility Relocate	1	LS	\$81,200.00	\$81,200.00	
					SubTotal =	\$1,309,920
					Contingency (20%) =	\$261,984
					Construction Subtotal =	\$1,571,904
					Design Engineering (6.25%) =	\$98,244
					Bidding & Construction Engineering (75% of Design) =	\$73,683
					<b>Opinion of Probable Project Cost =</b>	<b>\$1,743,831</b>
					Roadway Length	2,900
					Cost Per Foot	\$601

General Note: Right of Way acquisition not included in cost estimate.



Table 11: Sally Road Improvements  
Opinion of Probable Cost Breakdown

Improvements include widening approximately 2,700 lineal feet to 40' commercial roadway w/ curb & gutter. Sidewalks on both sides and overlay 6" on existing chip & seal road. Replace existing sidewalk on east side.

Item No.	Description	Qty	Unit	Unit Price	Total
<b>Pavement</b>					
1	Linear Grading & Subgrade Preparation	2,700	LF	\$38.00	\$102,600.00
2	16" of Type 1 Aggregate Base	10,800	SY	\$12.00	\$129,600.00
3	5" Bituminous Base and 1 3/4" BP-1 Pavement	10,800	SY	\$28.50	\$307,800.00
4	2' Concrete Curb & Gutter	5,400	LF	\$20.00	\$108,000.00
5	Demolition of Existing Pavement	7,050	SY	\$6.00	\$42,300.00
<b>Drainage</b>					
6	Storm Sewer RCP	3,105	LF	\$60.00	\$186,300.00
7	Precast Drop Inlets	20	EA	\$3,000.00	\$60,000.00
8	Culvert Extension	30	LF	\$1,000.00	\$30,000.00
9	Culvert Replacement	60	LF	\$1,500.00	\$90,000.00
<b>Miscellaneous</b>					
10	5' Concrete Sidewalk	5,400	LF	\$30.00	\$162,000.00
11	Utilities Relocate	1	LS	\$75,600	\$75,600.00

SubTotal = \$1,294,200  
 Contingency (20%) = \$258,840  
**Construction Subtotal = \$1,553,040**  
 Design Engineering (6.25%) = \$97,065  
 Bidding & Construction Engineering (75% of Design) = \$72,799  
**Opinion of Probable Project Cost = \$1,722,904**

Roadway Length 2,700  
 Cost Per Foot \$638

General Note: Right of Way acquisition not included in cost estimate.