



MARYLAND PARK LAKE DISTRICT

FUTURE LAND USE PLAN

ADOPTED MAY 24, 2016
AMENDED MARCH 24, 2020

comprehensive plan

CITY OF MARYLAND HEIGHTS



SECTION 9.1 - OVERVIEW

MARYLAND PARK LAKE DISTRICT

OVERVIEW



INTRODUCTION

All opportunities come with great responsibility. The first decisions made in the development process establish the direction and quality for subsequent projects. The Maryland Park Lake District represents not only a unique opportunity for the City of Maryland Heights and the region, but also presents a unique set of challenges. The area represents one of the last greenfield “infill” development opportunities within the St. Louis Region. Its greenfield status coupled with significant private-public infrastructure investment and its strategic location in the region make this area highly marketable. While the prospects of a large development area is generally a desirable opportunity for a community, it does come with significant responsibility in balancing the welfare of the community with that of the economic interests of property owners and potential developers.

Given these challenges, the City’s role is to guide development in an efficient, sustainable and responsible manner. The City believes this plan is an opportunity to create a place of destination in the region. Defined by its significant amount of open space, recreational opportunities, hospitality options and ease of access the Maryland Park Lake District is envisioned to attract quality development that results in both added value and character.

OVERVIEW

The Maryland Park Lake District is strategically located between the Missouri River in the west and its bluffs that represent the initial manifestation of the Ozark Plateau in the east, the northern boundary of the area is formed by Interstate 70 and the southern edge is formed by the boundary between the City of Maryland Heights and the City of Chesterfield. It is one of the four primary planning areas in the City (refer to Figure 9.1.1 CITY PLANNING AREAS). The total area of the City is 23.4 square miles with The Maryland Park Lake District containing approximately 54% of the City’s land area or 12.7 square miles (it should be noted that the City’s corporate limits extend to the center of the Missouri River, however for planning purposes the area that lies within The Maryland Park Lake District and the Missouri River has been subtracted from these calculations).

This area draws benefit from its strategic location within the St. Louis region and its proximity to transportation routes; I-70, Missouri Route 141 (Earth City Expressway/ Maryland Heights Expressway) and Missouri Route 364 (Page Avenue Extension). The presence of these roadways and the high level of access to the area provides the first component of development opportunity. The second component was the completion of the Howard Bend Levee that protects the area from a 500-year Missouri River flooding event.

The Howard Bend Levee District (a separate political subdivision from the City) is the responsible entity for this 500-year levee. The levee extends from the Missouri-American Water Treatment Plant in the south to the Riverport levee in the north. Financed by an assessment of property owners within the levee district, the addition of flood plain protection and transportation enhancements have created a situation of “ripeness” in the area. Thus, this plan is largely reactionary to decisions made by other entities and jurisdictions that lie outside the City’s purview.

PLANNING APPROACH

The future land use plan for the Maryland Park Lake District is not a traditional plan with parcel-specific recommendations. Instead, it provides a range of land uses derived from the opportunities and constraints of each planning district together with the vision of the overall plan and each district.

Implementation of the land use plan necessitates the creation of performance standards that guide development and its character in each planning district.

It is the City’s objective to allow property owners in this area to attain the highest and best use of their property while complying with standards designed to ensure high quality development.

For the purposes of these policies, highest and best use is defined as the reasonably probable and legal use of land that is physically possible, appropriately supported, financially feasible, and that results in the highest value. The concept of “highest and best use” is intended to balance the importance of obtaining a high value for individual land owners with the importance of complying with the policies, plans, and regulations of the community, such as those embodied in the plan.

Infrastructure will be planned and developed in a manner that fosters high quality development.

While the City can help facilitate solutions, the provision of infrastructure to serve individual development, including sewer, water and streets, will be the financial responsibility of the developers.

The recommendations within this plan are predicated upon the primary goal of adding both value and character to the community and the Maryland Park Lake District.



MARYLAND PARK LAKE DISTRICT

CITY PLANNING AREAS

WESTPORT

Includes all community commercial, business and light industrial districts east of I-270. It is the business center of the City containing approximately 20 million square feet of commercial space including nearly 4,000 hotel rooms.

EAST RESIDENTIAL

Includes all residential and neighborhood commercial districts, east of I-270 and north of the Dorsett Road Corridor. It contains an older housing stock of approximately 2,700 single-family dwellings and 950 multi-family dwellings.

WEST RESIDENTIAL

Includes all residential, neighborhood and community commercial districts west of I-270. Developed in the last 25 years, the residential distribution is approximately 4,100 single-family dwellings and 4,500 multi-family dwellings.

PLAN NOMENCLATURE

PLANNING AREA OR DISTRICT

An area or section of the City of that shares common planning elements (i.e., land use, socioeconomic characteristics of residents and housing).

PLANNING SUB-DISTRICT

An area or section of a planning area that shares unique and significant planning elements (i.e., zoning, type of development, etc.).

CITY'S ROLE IN THE PLANNING PROCESS

The City recognizes the leadership role it will play in managing growth in the Maryland Park Lake District. However, the City is one of several public agencies influencing the form and intensity of future land development. The way in which the property owners, developers, county, state and federal governments, and other regional agencies come together as partners with the City to plan for this area will be a critical factor in the plan's success.

The City recognizes that its primary responsibility is defining and establishing a development vision for the area; consequently, it must serve as a facilitator and as a catalyst to achieve that vision of development. Through its leadership, management and facilitation roles the City strives to balance the competing public interests of the community with the private interests of land owners, developers and businesses.

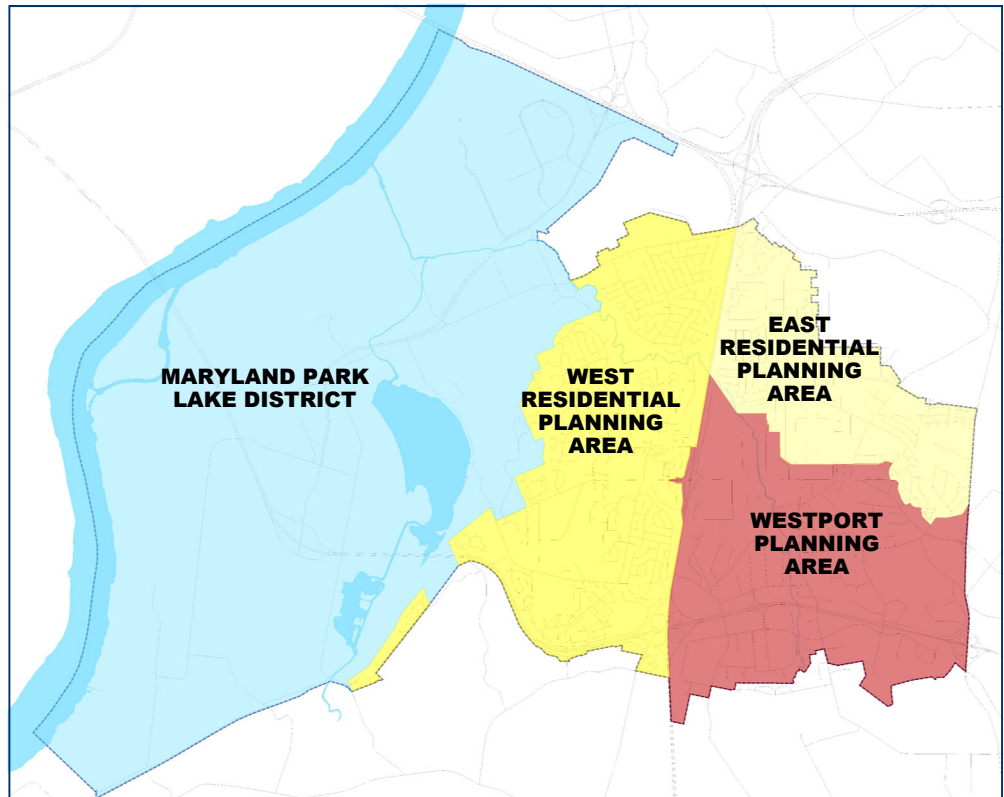


FIGURE 9.1.1 CITY PLANNING AREAS

OVERVIEW



RELATIONSHIP TO THE CITY STRATEGIC PLAN

The City Council maintains a strategic plan to serve as a guide for City policy. This plan has five strategic goals dealing with economic development, transportation, hospitality, fiscal responsibility and quality of life. Evaluated on an annual basis, the Strategic Plan is founded in the City's mission statement and set of organizational core values.

These goals are presented in the context of formulating the future land use plan for the Maryland Park Lake District.

STRATEGIC GOAL: WE WILL ENHANCE AND DIVERSIFY OUR ECONOMIC BASE IN ORDER TO MAKE AVAILABLE QUALITY EMPLOYMENT OPPORTUNITIES, MAINTAIN THE FINANCIAL STRENGTH OF LOCAL GOVERNMENTAL JURISDICTIONS SERVING OUR RESIDENTS, AND IMPROVE THE QUALITY AND APPEARANCE OF OUR COMMUNITY.

The development of the Maryland Park Lake District has the potential to increase the existing commercial base equivalent to the scale of that now existing in the Westport Industrial Planning Area. Enhancing the City's economic base is but one of the underlying objectives driving the land use planning approach in The Maryland Park Lake District.

STRATEGIC GOAL: WE WILL PROVIDE SAFE, EFFICIENT AND ATTRACTIVE TRANSPORTATION SYSTEMS IN ORDER TO INCREASE ACCESS AND MOBILITY FOR THOSE WHO LIVE IN, WORK IN AND VISIT OUR CITY.

The City is committed to funding the construction of regional transportation infrastructure within the City. Evidenced in the construction of the Maryland Heights Expressway (and the financing of its extension in both design and construction) represents a major improvement to the regional transportation network that advances this goal. The Expressway, now Route 141, not only provides regional access to the planning area, but relieves traffic congestion on I-270 and I-70 by providing a north-south connection to Route 364 (Page Avenue Extension).

STRATEGIC GOAL: WE WILL PROVIDE RESPONSIVE, PROACTIVE AND EFFECTIVE ENFORCEMENT OF LAWS AND CODES IN ORDER TO HAVE A SAFE ENVIRONMENT FOR THOSE WHO LIVE IN, WORK IN AND VISIT OUR CITY.

The planning area will include a regulatory process that accounts for safety in all site design aspects. Issues related to natural hazards and their mitigation will be considerations in site design and building construction as well as providing a transportation system that affords effective and efficient access for emergency management agencies.

STRATEGIC GOAL: WE WILL SUPPORT SOUND FISCAL POLICIES AND PRUDENT BUDGETING IN ORDER TO ENSURE THE CONTINUATION OF SUPERIOR MUNICIPAL SERVICES AND OUR LONG-TERM FINANCIAL SUSTAINABILITY.

The planning area will be planned in a manner that promotes "sustainability". Sustainability in this sense equates to development that will last and promotes the efficient delivery of municipal services. Infrastructure needs generated by commercial development need to be financed by the private sector and constructed according to established standards. The design of new infrastructure should consider the

CITY MISSION STATEMENT

THE CITY OF MARYLAND HEIGHTS WILL PROVIDE SUPERIOR MUNICIPAL SERVICES IN A SAFE AND APPEALING SETTING IN ORDER TO ATTRACT AND RETAIN RESIDENTS COMMITTED TO OUR CITY, THRIVING BUSINESSES, AND PREMIER HOSPITALITY VENUES.

CITY CORE VALUES

RESPONSIBILITY

WE WILL MANAGE OUR FINANCIAL AND HUMAN RESOURCES PRUDENTLY AND EFFICIENTLY.

PLANNING

WE REALIZE CHANGE IS INEVITABLE; IT IS OUR RESPONSIBILITY TO PREPARE FOR IT.

BALANCE

WE BELIEVE CONSIDERATION OF THE INTERESTS OF RESIDENTS, BUSINESSES, AND VISITORS ARE IMPORTANT TO OUR FUTURE.

COMMUNICATION

WE EMPHASIZE CLEAR, TIMELY TWO-WAY COMMUNICATION BETWEEN THE CITY AND THOSE WE SERVE.

EQUITY

WE TREAT ALL THOSE RECEIVING CITY SERVICES FAIRLY AND EQUITABLY.

"Growth is inevitable and desirable, but destruction of community character is not. The question is not whether your part of the world is going to change. The question is how."

The Conservation Fund
Edward T. McMahon



maintenance costs of that improvement.

STRATEGIC GOAL: WE WILL ENHANCE OUR IDENTITY AND VISUAL APPEARANCE IN ORDER TO STRENGTHEN OUR POSITION AS A DESIRABLE RESIDENTIAL COMMUNITY, AS A MAJOR COMMERCIAL CENTER AND AS THE HOSPITALITY CENTER OF THE REGION.

This plan will address the importance of a positive image for not only the planning area but the City as a whole. The Maryland Park Lake District presents a unique opportunity for the City to define itself and reflect its personality into the areas development character. The development, design and aesthetic improvements will be planned and evaluated with this positive local and regional image in mind. Waterway features and aesthetic improvements to all public facilities will be an integral component of this plan.

HISTORICAL PLANNING EFFORTS

St. Louis County, in 1969, prepared a Plan that dealt with the entire Missouri River flood plain area within the County. In this plan all future development was based on the premise of constructing a 500-year levee being built from the Missouri River's confluence with the Mississippi southward to the southern limits of Chesterfield.

The land uses projected for the Maryland Park Lake District were that of intensive industrial due to its close proximity to Interstates, railroad, the airport, and the river. In fact, the recommended rate of impervious coverage in the area was 70%. The node surrounding the intersection of Creve Coeur Mill Road and Page Avenue Extension was projected as intensive commercial with a visitor/tourist center and associated hotels. Creve Coeur Park was projected to expand slightly in size. A scenic roadway was proposed on top of the levee system and was seen as an integral linkage from land outside of the levee to land projected within. The river side of the levee was planned for non-structural recreational uses (e.g. hunting, fishing, and boating). The proposed road network was recommended to be built as a parkway system with associated aesthetic improvements. A marina was planned just south of Interstate 70, at the present location of the Hollywood Casino complex. Expansion of the Metropolitan Sewer District facilities was projected as well as expansion of the Water Company. This plan was never implemented, and never progressed past the planning stage.

The City was incorporated in 1985 and adopted its Comprehensive Plan and Zoning Code in 1987. Within the 1987 version of the Comprehensive Plan two growth scenarios were considered in the development of the Land Use Plan for the City:

GROWTH SCENERIO 1: PRIMARY LAND USE PLAN

This scenario assumed that no protective levee would be constructed in the floodplain areas of the City along the Missouri River, with the exception of the Riverport Business Park, and focuses essentially on infill development. New land use expansion would be limited to those remaining vacant parcels within the existing developed area of the City, as well as the redevelopment of some currently underutilized properties. As a result of these constraints, this strategy would result in a relatively low increase in population and expanded employment opportunities over the planning period, as compared to the City's historical trends.

GROWTH SCENARIO 2: FUTURE LAND USE CONCEPT

In this scenario, the construction of a 500-year levee from the Riverport Business Park south, along the Missouri River, is assumed. A further assumption concerns potential development opportunities of regional or national significance, with some possibilities being a dog or horse racing track, a domed sports stadium and a world trade center. This scenario was projected to create demand or need for subsequent projects to serve related interests.

Within this scenario, substantial additional vacant land becomes available for the further expansion of all land use types. The proposed stadium in conjunction with the Riverport development would create spin-off development in the northwestern portion of the area. Construction of a full interchange at the intersection of Earth City Expressway and Page Avenue, along with subsidiary service roads and controlled access points, would create a major development generator in

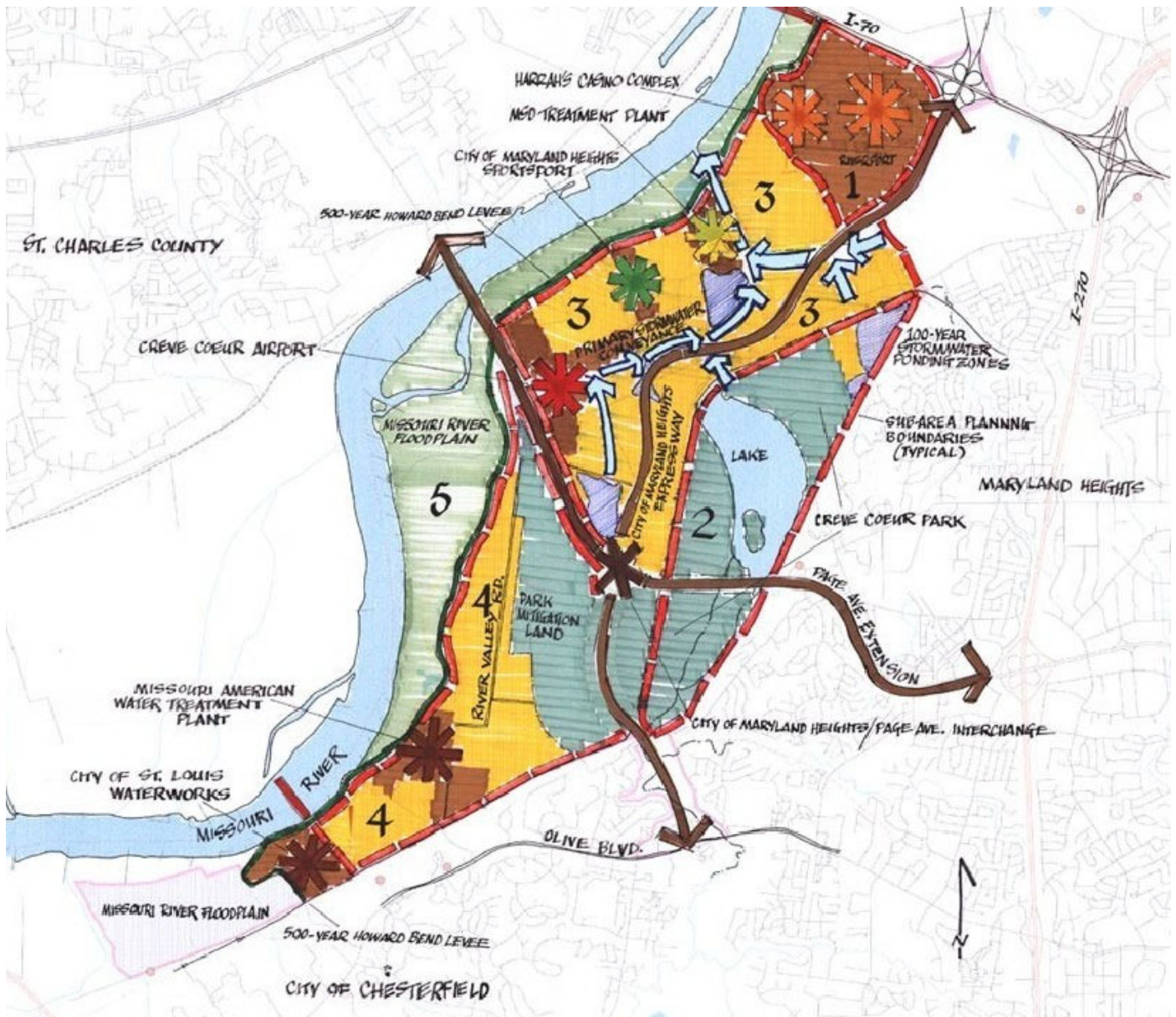
OVERVIEW



the southern portion of the area. As a result of the substantial amount of vacant land that would become available for additional residential development, as well as the significant potential for expanded employment opportunities, this strategy could result in a relatively high growth scenario more in keeping with the City's recent development trends.

2002 FUTURE LAND USE PLAN

In addition to these historical planning efforts, the City amended the Comprehensive Plan in 2002 to deal with the forecasted development of the Maryland Park Lake District. This planning effort was primarily a reaction to two major infrastructure decisions; that of the Howard Bend Levee District to construct their Missouri River 500-year flood protection levee and of the decision of the Missouri Department of Transportation to extend Missouri Route 364 (Page Avenue) into St. Charles County. The 2002 plan established a development vision reflecting approximately 15-18 million square feet of office campus development and expansion of recreational land uses for the area predicated on high quality design, significant amounts of integrated open space, integrated connected transportation improvements and the design of a multi-functional stormwater management system.





PUBLIC MEETINGS

AUGUST 21, 22, 2006
KEY PERSON INTERVIEWS
PRESENTATION TO PLANNING
COMMISSION

SEPTEMBER 12-13, 2006
DISCUSSION OF BACKGROUND MAPS

OCTOBER 3-4, 2006
PRESENTATION OF DEVELOPMENT
ALTERNATIVES

OCTOBER 24-25, 2006
PRESENTATION OF REFINED
ALTERNATIVES

NOVEMBER 14, 2006
PUBLIC HEARING
LAND USE IMPLEMENTATION PLAN

NOVEMBER 28, 2006
PUBLIC HEARING
LAND USE IMPLEMENTATION PLAN

JUNE 28, 2011
PUBLIC HEARING
AMENDMENTS TO CRYSTAL SPRINGS
SUB-PLANNING AREA

FEBRUARY 11, 2015
COMMUNITY FORUM

SEPT. 22 AND OCT. 13, 2016
PUBLIC HEARING
NEW FUTURE LAND USE MAP

"For anything more than the most incremental change to occur, a reinvention of the manner in which all players in the development process talk to one another is imperative. The old model of the financier talking to the developer, who talks to the architect, who talks to the construction professional, who talks to the real estate broker, who talks to the tenant, in that linear a fashion, is counterproductive to the goals of sustainable development. Everyone needs to be communicating with one another simultaneously before a building or development project is actually considered."

- Neal Payton, AIA, LEED AP

2006-2009 PLANNING EFFORTS

The 2006 planning effort was yet another reaction to both infrastructure plans and decisions as well as a response to the marketplace. Progress was made on infrastructure plans and improvements in a more expedited manner than accounted for in the 2002 plan, while feedback from the market place indicated that the prescription for class "A" office space was an unrealistic expectation for the area. These factors necessitated the City's revisiting the 2002 plan for relevancy which culminated in the 2006/2007 planning effort in this area.

The 2006 effort was composed of three policy areas; land use, transportation and stormwater. This effort was more a refinement of the 2002 plan and may even be described as more of an implementation plan in scope. Consistent with the direction contained within the 2002 plan, the City turned its focus on furthering and refining the 2002 plan. Several planning firms were contracted with to aid in planning efforts for the area, they follow:

- Land Use Planning and Regulations: HNTB of Kansas City was contracted to assist in evaluating the 2002 plan and preparing recommendations for policy and regulatory change.
- Transportation Planning: Crawford Bunte Brammeier, the City's transportation consultants were retained to prepare a transportation management plan for the area.
- Stormwater Management: Wenk Associates of Denver, Colorado were retained under a joint contract between the City and the Howard Bend Levee District to prepare the stormwater management plan and regulations for the area.

PUBLIC PARTICIPATION APPROACH

A critical component in the planning process is obtaining and using public input. The Maryland Park Lake District, while representing approximately 40% of the City's land mass, has a limited amount of property owners, and even fewer residents. These property owners, as members of the Howard Bend Levee District, funded the levee construction through a dedicated property tax assessment and will subsequently fund the regional stormwater infrastructure and development. As a directly impacted portion of the community, the planning team determined that these owners should be brought directly into the process (a similar process was followed in the 2002 planning effort).

The approach to obtaining community input was three-fold. The first consisted of interviewing members of the public that were identified as stakeholders in the process. These stakeholders were property owners, developers, public utility representatives and City staff. These interviews provided a key foundation for establishing a realistic approach to future land use and development. These interviews occurred over two days with separate accommodations made for those who were unavailable during those two days.

The second was the traditional approach of workshops with the Planning Commission and interested public. The workshops were facilitated by HNTB. They were held on



regularly scheduled Planning Commission meeting nights. The principal focus of the presentations was to members of the Planning Commission, however, members of the public were afforded opportunities to comment during the workshop.

The third was a workshop at which the presentation was directed to the public with the Commission invited as an interested party, but not the focus of the discussion. The purpose of the second workshop was to afford the public the opportunity to participate outside the setting of a Planning Commission meeting. These meetings were conducted the morning after the Plan Commission workshop providing an enhanced opportunity for members of the public to attend at least one workshop session.

Four workshops occurred between October and November 2006. Both the public and Planning Commission worked through the planning process with the planning team, moving through an examination of resources, determination of constraints and opportunities and development of goals and strategies. The result of these discussions was a refined approach to both future land use and the implementation element in the Maryland Park Lake District.

Subsequent to the adoption of the 2006 Future Land Use Plan, staff has prepared numerous framework documents, conducted workshops, and held public hearings with regard to the future development of the Maryland Park Lake District. Most recently, in the Fall of 2015, a new Future Land Use Map was adopted based in part upon input obtained from the public at the February 11th Community Forum.

comprehensive plan

CITY OF MARYLAND HEIGHTS



SECTION 9.2 - EXISTING CONDITIONS

MARYLAND PARK LAKE DISTRICT

EXISTING CONDITIONS



OVERVIEW

An area's existing conditions provide a framework for the planning process. Components of existing conditions are geographic location, existing land use, transportation, stormwater, utilities, open space and recreational opportunities, wetlands, sensitive species, and historical resources. This section reviews the existing conditions considered in the formulation of the Future Land Use Plan for the Maryland Park Lake District.

As the planning area is an agricultural flood plain, the resource inventory focuses more on the natural environment and infrastructure requirements. The principal elements in the resource inventory are overviewed below.

GEOGRAPHIC LOCATION

The Maryland Park Lake District is an area of approximately 8,100 (8,600 acres when counting areas within the Missouri River) acres that is located between the Missouri River and the Missouri River Bluffs, bounded on the north by Interstate 70 and on the south by the City limits. The area has historically been used for agricultural and recreational uses.

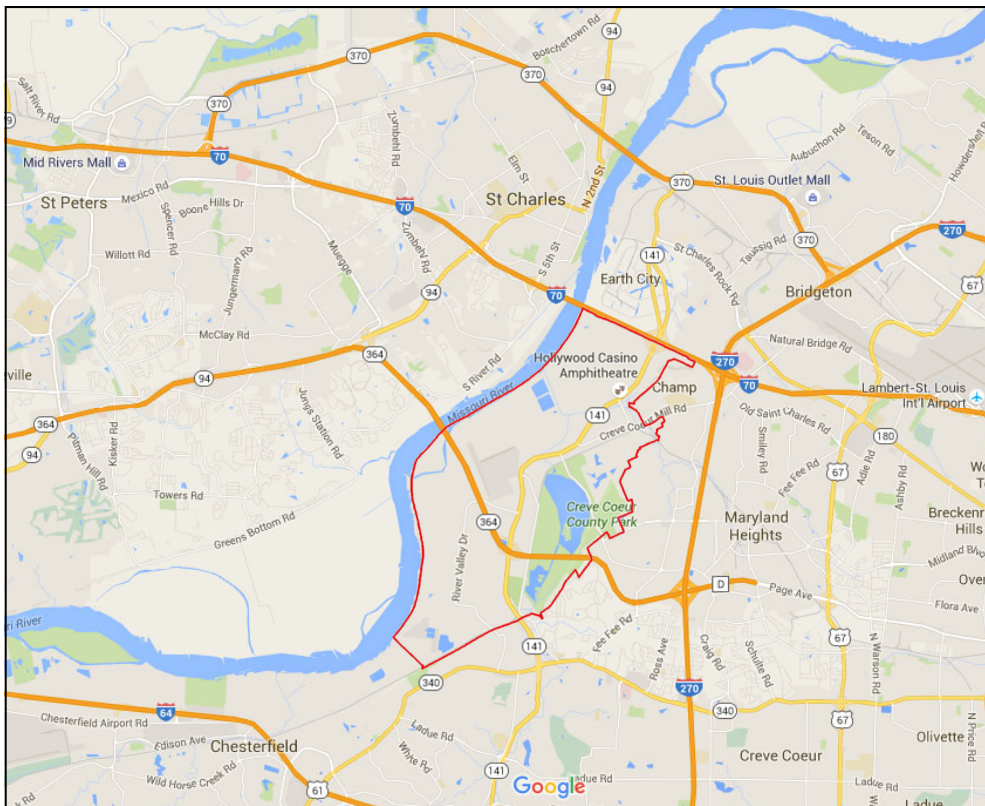


FIGURE 9.2.1: REGIONAL LOCATION—MARYLAND PARK LAKE DISTRICT

RESOURCE DEFINITION

1. Something that can be used for support or help;
2. An available supply that can be drawn on when needed;
3. The ability to deal with a difficult or troublesome situation effectively;
4. Means that can be used to cope with a difficult situation.

EXISTING DEVELOPMENT

RIVERPORT BUSINESS PARK is an office and service park at 70% built out with approximately 1.25 million square feet to be constructed. It contains over 2,770,000 square feet of developed space.

Corporations in the park include, but are not limited to:

- Magellan Behavioral Health Care
- Elsevier
- Scattdecor
- Sun Edison
- United Healthcare

Hospitality/Entertainment

- Dave and Buster's (550 seats)
- Hollywood Casino Amphitheatre (20,000 Seats)
- Holiday Inn Riverport, 175 Rooms
- Wingate Inn, 120 Rooms
- Homewood Suites, 104 Rooms

Harrah's Riverside Planned Development: Nearly 25% developed with a projected 1.5 million square feet of future development; containing approximately 493,000 square feet of developed space.

Hollywood Casino Planned District: Casino and hotel composed of 500 rooms and 120,000 square feet of gaming space, restaurants, and entertainment.



RECREATIONAL FACILITIES

CRYSTAL SPRINGS QUARRY GOLF COURSE

18-Hole Tournament Golf Course, expanded to 18 Holes in 1999; 6,562 yards on championship play. Facility includes full service restaurant - Limestone Bar and Grill (32,320 square feet) and snack bar at driving range.

SPORTPORT

64-acre multi-purpose (soccer, rugby lacrosse, field hockey, shows, recreation league) sports facility with twelve lighted fields (eight grass and four turf) and three unlighted fields, designed to accommodate high school, collegiate and other tournament events.

GOLFPORT

27.7-acres of golf instruction and driving range, with athletic recreational facilities.

LOU FUSZ SOCCER CLUB

Private soccer club located on approximately 40 acres of land within Creve Coeur Park offering training to club membership.

SCOTT GALLAGHER SOCCER CLUB

Private soccer club located on approximately 15 acres of land within Creve Coeur Park offering training to club membership.

OPEN SPACE DEFINITIONS

ACTIVE OPEN SPACE: Land or water areas that are improved and set aside, dedicated, designated, or reserved for recreational facilities and activities, including but not limited to playgrounds, ball fields, swimming pools, court games, and picnic areas.

DEVELOPED OPEN SPACE: Land or water areas substantially free of structures but possibly containing improvements that are part of a development plan or are appropriate for the residents, patrons or tenants of any development.

NATURAL OPEN SPACE: Land and water areas retained for use as passive recreation areas or for resource protection areas in an essentially undeveloped state.

As the “center of gravity” of the St. Louis region has moved west with the development of St. Charles County, this area has gone from being on the edge of the region to being one of the last large assemblages of undeveloped property near the center of the metropolitan area. Given this shift of the region, the area is viewed as a regional “infill” opportunity. Rather than promoting the continued outward growth of the metropolitan region, the development of the Maryland Park Lake District is an opportunity for future regional growth to occur and be captured within the existing metropolitan area.

Because of its strategic location near Lambert St. Louis International Airport, the intersection of I-270 and I-70, and Westport, the Maryland Park Lake District is well positioned as a unique regional development opportunity. However, this area is physically constrained by its topography (internal flooding), and lack of public and private infrastructure (roads, sewer and other utilities).

EXISTING LAND USE

Its attractiveness as a development site is primarily due to its location; near recent business and industrial developments, the presence of air, road and rail transportation and proximity to prime residential areas. The development of Riverport and Earth City Business Parks and Hollywood Casino all demonstrate the attractiveness of this location within the region of this area for a future commercial development.

While the planning area is largely undeveloped, at least in the commercial sense, existing land uses must be considered prior to looking to the future land use. The predominance of agricultural lands together with the substantial recreational uses (both public and private) in the area, shape future land use decisions. Public and quasi-public facilities, such as Creve Coeur Airport, Sportport, MSD and the Missouri-American Water Treatment plants also should be considered.

The planning area is primarily zoned “NU” (Non Urban). As stated in the Zoning Code *“this district is composed of those areas of the City whose principal use is and ought to be agricultural and single-family dwellings on large sized lots”* (Section 25-4.1.A **PURPOSE**). Application of the “NU” zoning designation in this area emanated from the 1987 Comprehensive Plan which states that *“In the absence of a 500-year levee, the Primary Land Use Plan recommends no urban development for this designated flood plain area”*. The balance of the planning area is zoned “PD-M” (Planned District—Manufacturing) and “MXD” (Mixed Use District). Refer to Figure 9.2.3.

In addition to the agricultural uses, comprising nearly 40% of the planning area, recreation uses are the next predominant land use. This is due to the presence of Creve Coeur Park, Sportport, Crystal Springs Quarry Golf Course, and Golfport Recreation Center. The District also includes Hollywood Casino, Riverport Business Park, Creve Coeur Airport, MSD Missouri River Treatment Plant and the Missouri-American Water Company Plant. Refer to Figure 9.2.2

EXISTING CONDITIONS

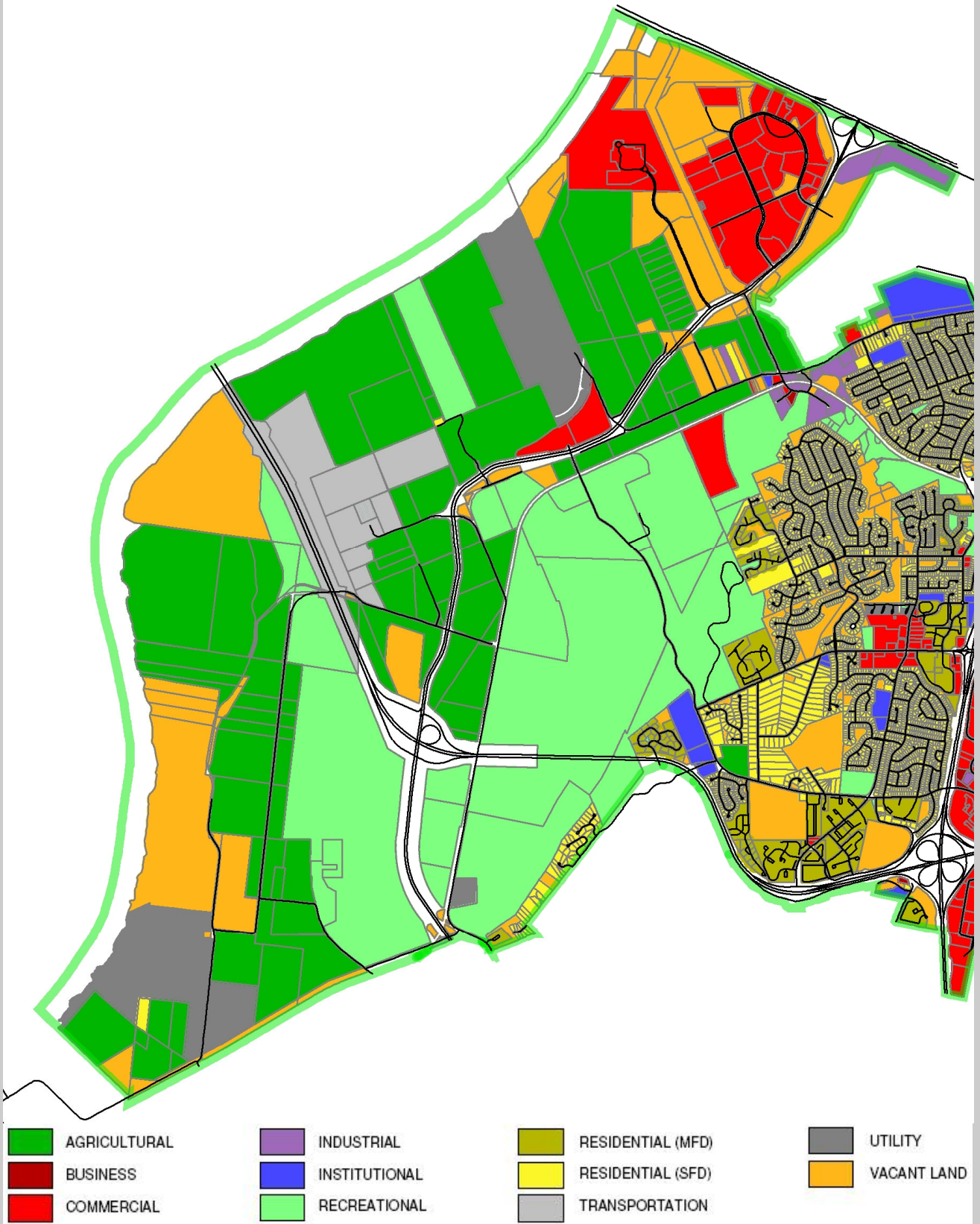
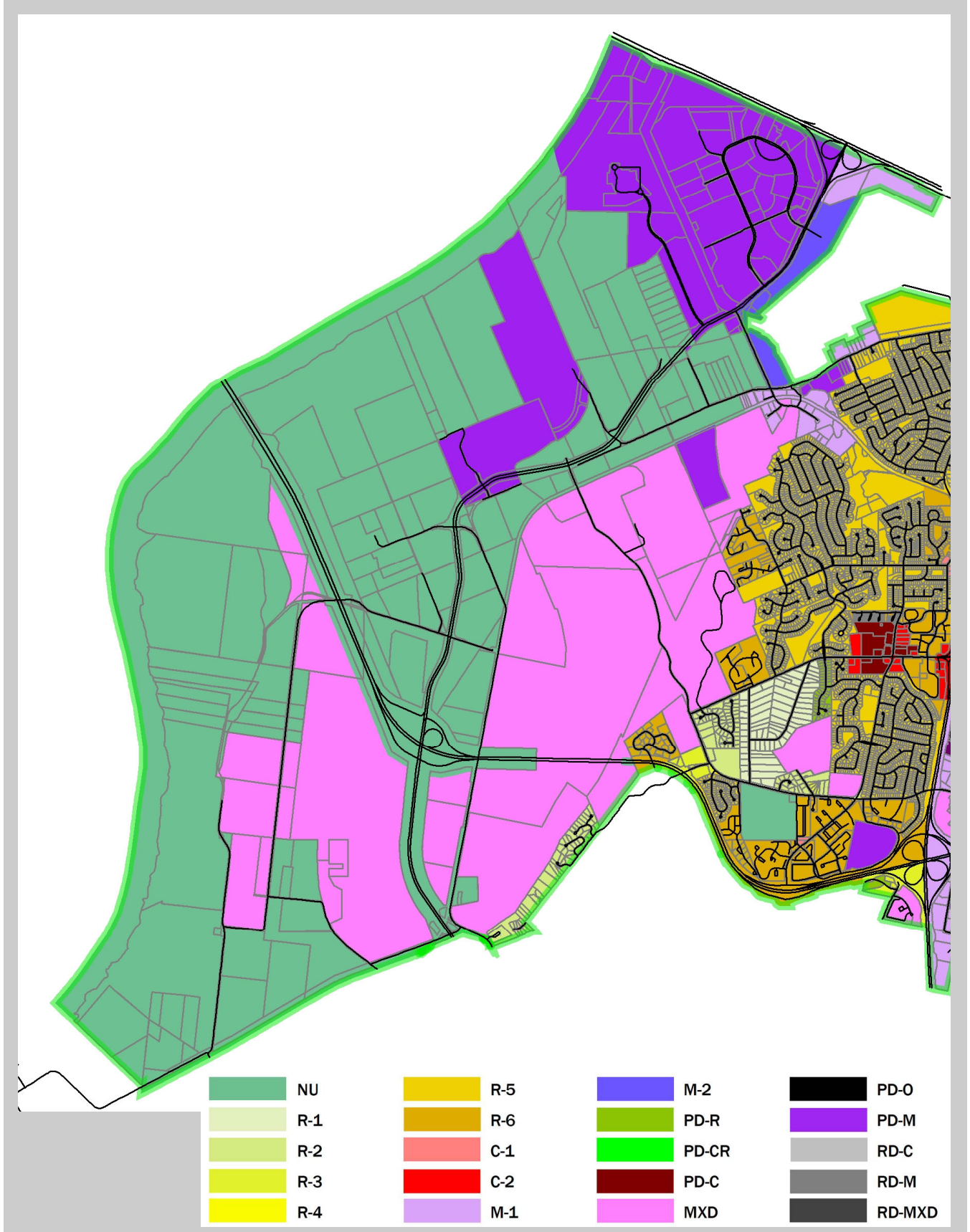


FIGURE 9.2.2: EXISTING LAND USE



MARYLAND PARK LAKE DISTRICT



EXISTING CONDITIONS



TRANSPORTATION SYSTEM

Since Howard Bend is largely undeveloped; roads, sewer and water infrastructure, and stormwater management systems are not in place to serve future development.

Therefore, the resource analysis must deal with what services are absent, planned for and what is available. Future land use will be constrained by the availability and/or the capacity of public infrastructure, so it becomes a critical point of analysis for this land use plan.

The planning area is primarily accessible by three major roadways: I-70, Missouri Route 364, and Missouri Route 141 (Earth City/Maryland Heights Expressway). Missouri Route 141 provides proximate access to the majority of major land tracts uses the planning area. This roadway also connects with Missouri Route 370, and Interstates 64, 44, and 55.

For planning purposes, each interchange/intersection along Route 141 has been classified into a hierarchy: regional, destination, and community. Regional interchanges provide access to longer trip makers into and out of the planning area using regional connections such as Interstates 70 and 270. Destination intersections provide direct access to a major land use (i.e., Hollywood Casino and Hotel, Creve Coeur Airport), but little connectivity to other routes. Community intersections provide local access to the City of Maryland Heights, the City of Chesterfield, and St. Louis County. These characterizations follow:

Regional interchanges:

- Interstate 70 and Route 141; and
- Missouri Route 364 and Route 141.

Destination intersections:

- Route 141 and Riverport Drive (north);
- Route 141 and Riverport Drive (south);
- Route 141 and Casino Center Drive;
- Route 141 and Creve Coeur Mill Road North/MSD Access Road;
- Route 141 and Sportport Road;
- Route 141 and Creve Coeur Mill Road South/Airport Road.

Community intersections:

- Route 141 and Prichard Farm Road;
- Route 141 and Marine Avenue;
- Route 141 and River Valley Drive.

Community access into the planning area is currently available through Creve Coeur Mill Road, Marine Avenue, Hog Hollow Road and River Valley Drive. Four roadways

LEVEL OF SERVICE

A Level-of-Service (LOS) is an "A-B-C-D-E-F" grading system whereby the quality of operation on a street system can be identified. LOS's range from an "A", typified by a free-flow type condition with high operating speeds, to "F", typified by an urban forced-flow type condition with slow and intermittent operating speeds. In the Maryland Park Lake District, LOS "D" is the generally accepted standard, with acceptance of LOS "E" on a case by case basis.

"Continuous planning is needed for the conservation and wise development of our natural resources - both natural and human. With new inventions, new ideals, and new discoveries, no fixed plan, if strictly adhered to, may restrict or our freedom rather than enlarge it...we must constantly make new plans to meet new conditions."

U.S. National Resource Committee,
PLANNING OUR RESOURCES, 1938.



terminate at activity centers: Casino Center Drive, MSD Road, Sportport Drive, and Airport Road. Other than the connections that have been constructed to serve existing developments, very few local circulatory roadways exist in the planning area. Thus, a local street system will need to be constructed, almost in its entirety, to support the development recommendations within this plan.

EXISTING ACCESS MANAGEMENT FOR ROUTE 141

Route 141 is a limited access highway currently maintained by the Missouri Department of Transportation (MoDOT) with access allowed only at its signalized intersections. MoDOT’s access management guidelines recommend a distance of ½ mile (2,640 feet) between two signalized intersections. When these guidelines are applied, only two of the eight existing intersection pairs conform. The roadway was previously under the jurisdiction of St. Louis County. County access management guidelines specify a distance of only one quarter mile (1,320 feet) between signalized intersections. Six of the eight existing intersection pairs conform to these guidelines.

INTERSECTION SPACING REQUIREMENTS			
EXISTING INTERSECTION	DISTANCE BETWEEN INTERSECTIONS (FT)	MEETS COUNTY'S GUIDELINES?	MEETS MoDOTS GUIDELINES?
Riverport Dr. (north) and (south)	2,100	Yes	No
Riverport Dr. (south) and Prichard Farm Rd.	1,050	No	No
Prichard Farm Rd. and Casino Center Dr.	1,050	No	No
Casino Center Dr. and Creve Coeur Mill Rd. /MSD Rd.	4,150	Yes	Yes
Creve Coeur Mill Rd./MSD Rd. and Marine Ave.	1,600	Yes	No
Marine Ave. and Sport Port Dr.	2,500	Yes	No
Sportport Rd. and Creve Coeur Mill Rd./Airport Rd.	1,550	Yes	No
Creve Coeur Mill Rd./Airport Rd. and River Valley Dr.	3,250	Yes	Yes

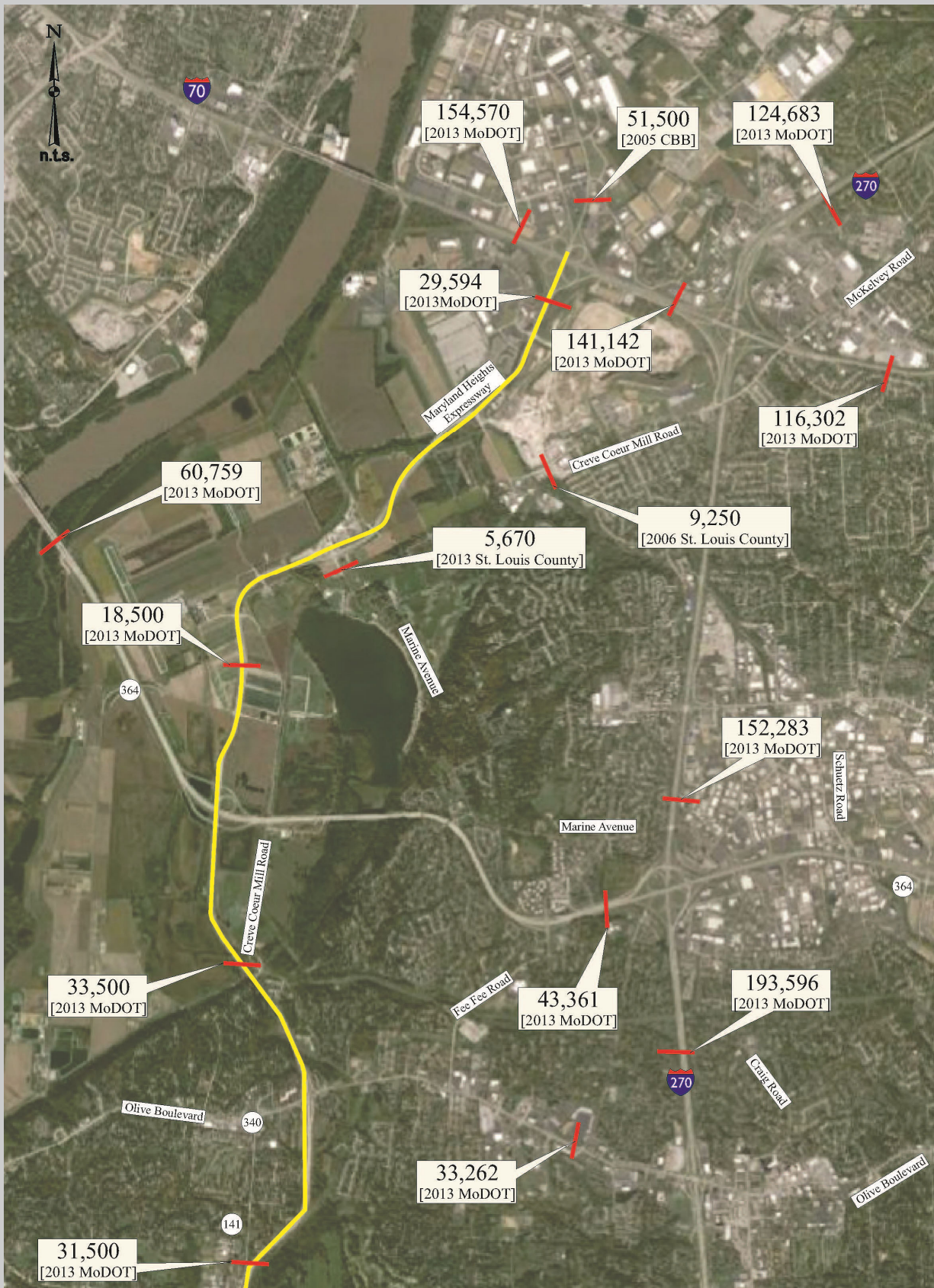
SOURCE: CRAWFORD, BUNTE, BRAMMEIER

EXISTING TRANSIT SERVICES

Metro is the regional transit provider. The MetroBus currently operates five routes that serve the study area. Routes located within the planning area include Route 33: Dorsett-Lackland; Route 34: Earth City; Route 91: Olive Boulevard; Route 94: Page Avenue; and Route 194: Page Avenue Limited. This service offers an equitable transportation alternative to the private automobile while providing benefits to everyone in the form of less congestion and air quality improvement. Transit service affords all individuals – including the elderly, low-income, and disabled – increased levels of access, mobility, and independence. Existing transit service provides a viable alternative to the private automobile; enhancing the planning area’s multi-modal nature.

Currently, there is no light rail service in the planning area. However, Metro has planned a light-rail connection to the Westport industrial area then extending to the Maryland Park Lake District as part of its master plan via the proposed Daniel Boone corridor. Light rail service in the area would help to alleviate traffic congestion in the area as well as produce potential economic development gains. Moreover, the inclusion of light rail would further enhance the planning area’s accessibility to workers and its overall image. As with bus service, light rail would provide an equitable and sustainable means of travel that would decrease the dependency on the private automobile.

EXISTING CONDITIONS



SOURCE: CRAWFORD, BUNTE, BRAMMEIER

FIGURE 9.2.4: AVERAGE DAILY TRAFFIC VOLUMES



FLOOD PROTECTION AND STORMWATER MANAGEMENT

The Maryland Park Lake District is bounded by the Missouri River to the west and northwest, and is crossed by several substantial creeks. The planning area is protected from Missouri River flooding at the 500-year storm level by the Howard Bend Levee District's Missouri River Levee. However, during significant storm events, the planning area experiences internal flooding from flows associated with these creeks that drain an urban watershed estimated at 44 square miles in size. Stormwater management issues are especially critical within the context of this land use plan.

MISSOURI RIVER FLOOD ISSUES

The Missouri River, as gauged at St. Charles just north of the planning area, drains an area of approximately 530,000 square miles. This area encompasses a major portion of central North America. About half of the upstream length of the Missouri has been regulated by main-stem Corps of Engineers reservoirs since 1958. Maximum river stages are available for every water year starting in 1926-27 and for several flood years back to 1844. A flood in 1844 resulted in the highest stage in history, although the 1993 flood stage was almost as high and would have been higher under 1844 conditions as a result of the lack of upstream reservoirs.

The planning area is protected by a 500-year levee financed and constructed by the Howard Bend Levee District (HBLD); a political jurisdiction separate from the City of Maryland Heights. Prior to 2006 the planning area was protected by a series of agricultural levees that were regulated by the HBLD. These agricultural levees would be "topped" intermittently by flooding conditions on the Missouri River. This degree of flooding occurred twice in the early 1990's in conjunction with larger Missouri River flood events. During the 1993 flood event, floodwater elevations exceeded 460 feet in the planning area. The Riverport Business Park is protected by a 500-year levee, constructed in 1986-87. Hollywood Casino is protected by a levee not certified by FEMA, which is characterized by a 500-year protection facing the Missouri River, and 100-year protection elsewhere. Construction on the 500-year Howard Bend Levee began in 2001 and was completed in 2006.

PUBLIC UTILITIES

Utilities are necessary to support the basic needs and requirements of development. The utilities required to support development are sewer, water, electric and natural gas; all of which have various levels of service within the area.

SANITARY SEWER TREATMENT CAPACITY

The Metropolitan Sewer District (MSD) is the service provider for wastewater treatment for the Maryland Park Lake District. The current Missouri River Treatment Plant (located in the Maryland Park Lake District) is designed for treating approximately 28 million gallons per day of wastewater, and serves approximately 150 square miles of Maryland Heights, Chesterfield, and parts of Creve Coeur, Hazelwood, Bridgeton, St. Ann, Ellisville, Ballwin, and unincorporated St. Louis County.

This treatment plant is currently operating at or near capacity. Improvements to the existing plant as well as expansion of the plant capacity are currently budgeted for fiscal year 2007. Infrastructure design and construction costs are currently estimated at over \$53 million. This will accommodate future development within the Missouri River Watershed, including the Maryland Park Lake District.

POTABLE WATER SUPPLY

The Missouri American Water Company will be the provider of potable water for any development within the Maryland Park Lake District. The Water Company has adequate water supply and treatment capabilities to meet any service demands that may be requested by future developments in the study area. The water supply would be provided from



the Missouri American Water - St. Louis County Plant.

The primary criteria for water service to all areas are not based upon particular land use need, but upon adequate pressure and capacity to meet fire protection requirements. These requirements are generally for 1,500 gallons per minute (gpm) at the hydrant with no more than 4 feet head loss per 1-000 feet of length of pipe. The proximity of a 36-inch force main from the water plant, which traverses east to the bluffs, provides adequate capacity to meet these requirements in a 12 inch pipe. However, depending on land use type and fire district protection criteria, a guideline of 3,000 gpm at the hydrant may be required. This would require a 16-inch pipe and is the criteria utilized in Earth City. Water service to the northern study area including Hollywood Casino and Riverport is from 12-inch and 16-inch water mains from Dorsett and McKelvey. This system is connected to the water main system in Earth City.

Missouri American Water Company currently has capacity to treat and pump 217 million gallon per day and has an agreement with the City of St. Louis to purchase an additional 30 mgd if needed for peak demand. Normal demand is 120 to 140 mgd. The City of St. Louis Water Company does not supply water to this area with the exception of additional supply during peak demand via the Missouri American system. Three mains from the City of St. Louis plant (one 70-inch and two 60-inch mains) are used to carry treated water to the city and St. Charles County area. The 72-inch main is located under the Missouri River and services areas of St. Charles County. St. Charles has an agreement with the City of St. Louis for water treatment and supply. The two 60-inch mains proceed east of the City of St. Louis Plant along the railroad tracks and route through a series of easements to the city's Stacey Park Reservoir located near the intersection of Olive and Warson Road (east of Lindbergh). This reservoir services the City of St. Louis.

In the case of both sanitary sewer and potable water supplies, main lines and local service lines are not in place to serve major development in the area. The extension of these lines will be the responsibility of the development community.

ELECTRICAL

Ameren UE provides electrical service to the area. They currently have high tension lines located in the northern portion of the planning area providing service to the Riverport and Hollywood Casino planned districts. Additionally, Ameren UE posses an easement that will allow them to construct the infrastructure to deliver service to the remainder of the planning area. This easement is located along the Ameren Rail Road ROW that is generally located adjacent to and paralleling Creve Coeur Mill Road. This easement is approximately 250 feet in width measured from the edge of the Rail Road ROW. Current capacity exists to serve the low end of short term forecasted development. However, Ameren UE has indicated that a substation will need to be located along their utility easement at a to be determined location between Missouri Route 364 and Creve Coeur Mill Road's intersection with Missouri Route 141.

SURFACE WATER

Primary tributary streams within the project area include Fee Fee Creek, Creve Coeur Creek, Bonhomme Creek and Louiselle Creek. Each of these streams have regulatory floodplains that are inundated during localized storm events, regardless of surface water levels (i.e., river stage) on the Missouri River. Prior to settlement of the floodplain, Fee Fee Creek joined Creve Coeur Creek and drained to the north, in the vicinity of Riverport. However, Fee Fee and Creve Coeur Creeks were channelized to support the agricultural use of the floodplain, and were diverted to their present location just north of the MSD plant. Bonhomme Creek, the third major tributary stream within the project area, forms the southwestern limit of the project area. Like Fee Fee and Creve Coeur Creeks, Bonhomme Creek is a channelized stream that historically flowed within the floodplain to the northeast, before joining the Missouri River. Louiselle Creek is a smaller intermittent tributary that drains a small watershed northeast of Creve Coeur Lake before joining Fee Fee Creek. Within the Missouri River floodplain the lower reaches of each of these streams have been altered by channelization. Additionally, because of their low gradient, they are habitats in which sediments, carried by stormwater from adjacent uplands, are deposited. Consequently, they are of relatively low quality. They do however, represent an important riparian link between the larger bottomland forest of the Missouri River (outside the levee) and the ecological habitats associated with Creve Coeur Lake and the adjacent bluffs.

Creve Coeur Lake represents a significant non-flowing surface water environment within the planning area. It is used for a variety of recreational uses including boating. Additionally, the lake receives runoff from uplands via Creve Coeur Creek and Fee Fee Creek (under very significant unusual stormwater runoff conditions) and is therefore valuable in terms of stormwater detention and storage. It is an aquatic environment that is utilized by a wide variety of aquatic and water-dependent fauna including migratory waterfowl, wading birds, and other wildlife species. Additional open water habitats are present within the mitigation lands that are south and west of Page Avenue extension. This area is coincident with what formerly was Little Creve Coeur Lake. Open water habitats within this area also provide valuable functional support for flood and stormwater detention and waterfowl use.



NATURAL GAS

Laclede Gas Company is the service provider for natural gas in the St. Louis Region. It is assumed that they will extend services into the area to serve future development. Due to security concerns the availability of natural gas in the Maryland Park Lake District could not be confirmed.

NATURAL RESOURCES

An area's natural resources are extremely important when evaluating its development potential. An inventory was conducted for the planning area as part of background research for the 2002 land use plan. Wetlands, stream corridors, natural heritage resources, cultural resources, and sites with potential environmental liability were investigated. Existing mapping, archives, and databases maintained by local, state, and federal agencies were reviewed. These resources will also affect future land use and development decisions.

OPEN SPACE AND PARKS

Approximately 45% of the planning area exists in either open space or park status. Of this 45%, approximately 29% is currently owned by the St. Louis County Parks and Recreation Department in Creve Coeur Park with the remaining 16% falling in lands located outside of the Howard Bend Levee. Given the large presence of open space, this land use theme should be drawn upon to project a theme to the development of the planning area. Connections to these open space areas should be incorporated into future developments and open space incorporated into them.

The Maryland Park Lake District presently includes substantial lands dedicated to recreation use or open space preservation. As previously discussed, the lands in agricultural production were reduced by approximately 25% due to the acquisition by MoDOT as part of the mitigation plan for the extension of Missouri Route 364 (Page Avenue) through Creve Coeur Park. While the acquisition substantially impacted farming activity, recreational land, including natural open space, doubled within the levee protected portion of planning area.

Presently, there are a series of active recreational uses, in addition to Creve Coeur Park, that establish the character of the planning area. These include Crystal Springs Quarry Golf Course and Driving Range, Sportport, Golfport (formerly Creve Coeur Recreation Center), Lou Fusz Soccer Club, Scott Gallagher Soccer Club, and Go Ape treetop adventure course. The alignment of the 500-year levee resulted in the elimination of the Chesterfield Golf Course (18 hole public course). The mitigation acquisition included the Hale Irwin Golf Instructional Center and Driving Range, which was relocated into the Crystal Springs Quarry Golf Course.

The planning area also includes lands that will remain as natural open space on the water-ward side of the 500-year levee. Part of the Missouri River floodplain and floodway, these lands comprise approximately 16% of the planning area. Together with recreation (mitigation) land, over 3,600 acres, approximately 45% of the planning area will remain as natural open space or parkland.

The St. Louis County Parks Department owns approximately 2,300 acres in the Maryland Park Lake District. Based on information from St. Louis County, this includes approximately 1,170 acres of parkland, 330 acres of lake, and 800 acres of mitigation lands. St. Louis County has prepared an extensive Master Plan for Creve Coeur Park which governs its development and use.

WETLANDS

The climate in St. Louis County is characterized by cold winters and long, hot summers. Heavy rains occur mainly in spring and early in summer. Generally, wetlands in the region are seasonally flooded during winter and spring,



EXISTING TRAIL NETWORK

The area has an interconnected trail system (see Exhibit 9.2.5). This system, along with planning efforts of the Great Rivers Greenway District, serves an important role in providing multi-modal connections within the planning area.

Specifically, Creve Coeur Park has a system of trails that follow Creve Coeur Lake and the upper bluffs of the park. The trail system in this area is completely paved with the exception of a short section of the Millard Lake Loop. This system is also connected to the regional trail system via a trail connection along Missouri Route 364 and across the Missouri River that connects with the Katy Trail.

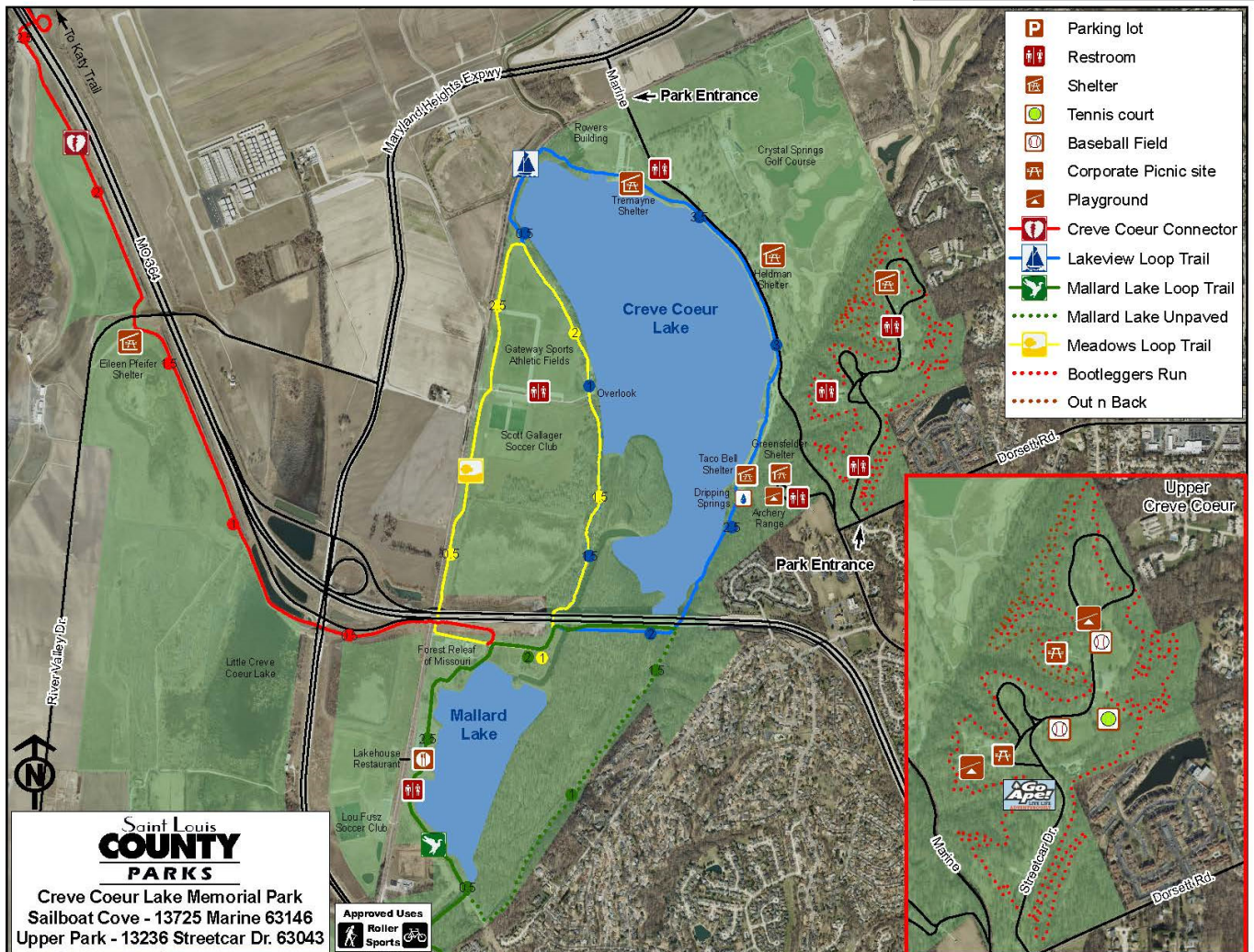


FIGURE 9.2.5: CREVE COEUR PARK TRAIL NETWORK



OPEN SPACE INTEGRATION

Cities and towns across the county have worked hard to improve their quality of life through developing trail systems -connecting individual trail segments to form larger recreation and transportation networks. While the benefits of any trail cannot be discounted, creating linkages among trails multiplies their effect.

These trails and trails networks have been providing opportunities for more people to walk to the store, bike to work, get some exercise, learn about their community, observe local wildlife, and experience the outdoors with their families. For example, the KATY trail that now crosses almost the entire state of Missouri has literally transformed the regions through which it passes, improving the economies of the local towns and providing a wonderful recreational attraction for millions of visitors from the local areas and nationwide. Similarly, major rail-trail corridors are improving the quality of life in Washington State, California, Florida, and Iowa, which include rail-trails, have left lasting legacies in both major and smaller metropolitan areas, and the movement continues. Towns such as Springfield, Missouri, are building trail networks, and Raleigh, North Carolina, has allocated funding for the "missing pieces" in its existing 30-mile system of trails. Denver now boasts a 200-mile network - one of the finest systems in the nation.

The trail and greenway movement has also evolved. While initially the focus was on trails and trail recreation, a new multi objective movement has emerged. Trail advocates now work in partnership with transportation engineers, drainage and flood control officials, ecologists, and open space advocates. We now think in terms of trail and greenway corridors that provide wildlife habitat and movement corridors, open space vistas, places for rivers and streams to meander in more natural landscapes, places to preserve and interpret history and culture, and many other benefits.

Indeed, trails and their associated greenway corridors are increasingly viewed as vital infrastructure, taking their place along with roads, parks, utilities, and storm drainage improvements as important and essential public assets and resources.

The trails movement has spawned a much larger range of benefits that will transform and enhance the urban landscapes of the new century.

Trails for the Twenty-First Century
Rails-To-Trails Conservancy

and become dry by mid-to late summer. Wetlands in the Maryland Park Lake District occur behind natural levees formed by the river, behind constructed levees, on flats, and in sloughs, which are shallow depressions in which water stands throughout the year except in periods of extreme drought. Approximately 356 acres of wetlands occur in small isolated patches over the planning area. In excess of 1,000 additional acres of wetland occur along natural or modified drainage channels.

A variety of wetland types varying in vegetative form (emergent, scrub shrub, forested) and hydrologic regime (seasonally flooded/saturated, temporarily flooded/saturated, etc.) have been found to occur within the planning area. In general, the wetland resources within the Maryland Park Lake District are concentrated in several areas:

- The complex in the upper reaches of Creve Coeur Lake
- The riparian corridors along Fee Fee, Creve Coeur, and Bonhomme Creeks
- The floodplain associated with the Missouri River outside of the proposed 500-year levee.

These resources provide important ecosystem function within the local context and offer valuable wildlife habitat, habitat for fish spawning and reproduction, flood storage and conveyance, shoreline stabilization and erosion control, and water quality enhancement.

Additional wetlands of varying quality are also located in isolated depressions and old channel scars throughout the floodplain. Many of these wetlands are farmed for agricultural row crops. While these wetlands are generally degraded and of low quality, they do represent a resource that has diminished significantly from that which existed prior to human settlement of the area. Consequently, they have a heightened importance in relation to their overall function within the floodplain, and provide intermittent and seasonal stormwater detention, wildlife habitat, water quality enhancement, and groundwater recharge functions.

Wetlands within the planning area are under the jurisdiction of the US Army Corps of Engineers ("the Corps") under the Clean Water Act. Development of any kind that affects these wetlands may be subject to the permitting authority of the Corps under Section 404 of the Act. Farmed wetlands and converted wetlands within the planning area are subject to the jurisdiction of the Natural Resources Conservation Service of the US Department of Agriculture.

SENSITIVE SPECIES

The Missouri River floodplain is a primary waterfowl area in St. Louis County. Large numbers of birds use the Missouri River corridor as a migratory route and return to this area each spring and fall. Nesting populations of blue wing teal, mallard and wood duck are found in the wetlands. The back water areas of the Missouri River, lakes and ponds support largemouth and white bass, crappie, and walleye fisheries. Ponds and lakes are generally stocked with largemouth bass, channel catfish, and bluegill.

The Missouri Department of Natural Resources (MoDNR) and U.S. Fish and Wildlife Service (FWS) were contacted for information regarding threatened and endangered

EXISTING CONDITIONS



species known to occur in the planning area. One federally listed endangered species, the Indian Bat, could inhabit the planning area during the spring and summer. In the spring, female bats establish small maternal colonies in suitable sites within wooded riparian areas, floodplain forests, or upland woods. Maternity roost sites tend to be in dead or dying trees greater than nine inches in diameter and with loose or exfoliating bark. Preferred roost sites are located in forest openings, at the forest edge, or where the tree canopy is sparse, and within 1 km of water.

The FWS identified several sensitive fish species as occurring within the vicinity; the endangered pallid sturgeon, and two candidate species; sturgeon chub and sicklefin chub. The FWS reported that these fish species occur in the Missouri River, especially where there are strong currents and sand or gravel bottoms. It is believed that they use shallow areas around islands and bars, chutes and quiet backwater habitats for spawning.

Bald eagles may occur in the project area and are known to have winter roosts along the Missouri River. They are common winter residents on large rivers and lakes where they fish. The American bittern, a state-listed endangered species, may also inhabit the planning area. The bittern is a secretive bird that inhabits freshwater marshes and marshy lake shores.

HISTORICAL RESOURCES

The area has a long and colorful history. Once serving the purpose of private recreation in the early 1900's by St. Louis's wealthy, it also provided a significant area for those who wished to indulge their vices. Housing makeshift gambling parlors and saloons, the area gained a fairly shady reputation in the early 1900's. However, its most significant historical asset is Creve Coeur Park. Once situated along the western bank of Upper Creve Coeur Creek and the eastern shore of Little Lake, Jacob Studt, Sr. created Upper Creve Coeur Park during the 1880's. Attractions beginning in 1899 were a racetrack, hotel and restaurant, dance hall, riding stable, merry-go-round, boat dock and open air pavilions. Beginning in 1900 and continuing over the next two decades an annual county fair was held at this site. Today only two stable foundations and traces of the race track remain. It is probable that foundations and other remains associated with the recreational facility are below the surface. Artifacts recorded at the site include porcelain, earthenware shards, vase fragments, window glass, bottle glass, cut bone and nails. This site occupies the entire area between Little Lake and the railway line at the southern end of the flood plain portion of the corridor. The site has previously been determined to be potentially eligible to the National Register of Historic Places. National Register eligibility would represent a substantial constraint to a future development proposal that would require any type of Federal approval or permit. Prior to any activity that would disturb the site, consultation with State Historic Preservation Officer (SHPO) within the Missouri Department of Natural Resources, Division of Parks, Recreation and Historic Preservation would be necessary. Construction of the Maryland Heights Expressway in this area would be subject to this regulatory constraint.

RESOURCE INTEGRATION

Within the development of a land use plan, the City must be mindful of its environmental resources as well as the need to respect the history of the hospitality and recreational use of the Maryland Park Lake District. There is a unique opportunity to allow large-scale business and development while maintaining the open space character through preservation or mitigation of environmentally sensitive lands, coordination with existing recreational facilities, and through the use of interconnected pedestrian and bicycle facilities. Through integration of new business development with existing environmental open space resources, the City has an opportunity to create a unique environment that is both more attractive for businesses and workers as well as fulfilling its desire to create a unique high quality business park area.

The management of stormwater, in particular, offers an opportunity to further environmental protection and open space preservation. The design of stormwater conveyance facilities and storage areas should consider ways in which they can be used to improve water quality as well as being integrated as open space resources. Similarly, streets can also be designed to incorporate green spaces through the uses of medians and boulevards.

Wetlands represent a constraint for any proposed development within the project area. Forested wetlands are generally considered to be a more severe constraint than emergent or scrub shrub wetlands due to the long time needed to reestablish a forested community and ecosystem. Fill actions within "waters of the United States" are regulated discharges and require permitting by the U.S. Army Corps of Engineers pursuant to Section 404 of the Clean Water Act. Additionally, such actions also require the issuance of a Water Quality Certification by the Missouri Department of Natural Resources (MDNR) pursuant to Section 401 of the Clean Water Act.

comprehensive plan

CITY OF MARYLAND HEIGHTS



SECTION 9.3 - GOALS & STRATEGIES

MARYLAND PARK LAKE DISTRICT



WHAT HAS CHANGED?

When embarking on any planning document the first question to ask is obvious—why? Why did the community revisit the recommendations that were contained within the 2002/2006 plans? The simple answer is that while communities prepare long range plans typically dealing with 20 year timeframes, these plans realistically are relevant for only periods around three to five years based on changing conditions. The specific reasons were addressed in the previous chapters (namely changes in infrastructure and the market), but these reasons are really changes in the basic plan premises that we must rely on when embarking in a planning process.

PREMISES

Premises are defined as “...statements that are assumed to be true and from which a conclusion can be drawn”. A planning process is predicated upon premises regarding stated conditions and directions that are generally decided and fixed in outcome. The varying outcomes of a planning process are constructed on the bedrock of these premises. However, when these premises change then a community needs to evaluate the plan and its recommendations for trueness. This is the position that the City is now in.

When the City’s 1987 Comprehensive Plan was written, the status of the proposed 500-year levee for Howard Bend was uncertain. Consequently, two growth scenarios were examined for Howard Bend. The first scenario assumed that no protective levee would be constructed. The second scenario assumed construction of the 500-year levee, and that a substantial amount of vacant land would become available for development. In addition to construction of the 500-year levee, it also assumed construction of a full interchange at the intersection of the Maryland Heights/Earth City Expressway and Page Avenue.

In 2001, the Howard Bend Levee District commenced construction of the 500 year levee. This action prompted the City to undertake the planning effort that created the 2002 amendment to the Comprehensive Plan for this area. Funded through the assessment of property owners, the levee construction was independent of the municipal capital improvement plan. However, it was an infrastructure improvement that had major implications on the future land use in the planning area. While the 1987 Comprehensive Plan assessed the proposed levee as a potential growth strategy, it needed to be re-examined in relation to current development trends.

Several infrastructure premises from the 2002 plan have been completed and have had impact upon development premises, they are:

- Levee completion and certification in April of 2006; and
- Completed construction and opening of Missouri Route 364 (Buzz Westfall Memorial Highway) and Veterans Memorial Bridge; and
- The completion of Missouri Route 141.

Additional transportation system improvements are planned for the area, however they cannot at this point be considered premises as they are largely a reaction to

PLAN PREMISES

Quality of development in this area will affect the regional image of Maryland Heights.

Quality begets quality – if the standard of development is set high from the beginning and maintained at this high level throughout the development process, then additional high quality development will be attracted to the area.

Quality and character beget value – if the Howard Bend area develops a reputation as a first class venue for development creating a sense of place and character then value will be created.

Quality and character create value through all planning and development stages. Subsequently development proposals that create quality and character will add value to individual parcels, and consequently the community as a whole.

This plan and its recommendations and guidelines are intended to make the attainment of high quality development predictable (by setting an expected standard in advance); practical and economically feasible (by permitting flexibility in achieving quality design), and marketable (by recognizing accepted development types).

The public sector must lead by example. The design of improvements in the public realm must be viewed both from the standpoint of functionality as well as aesthetically.

Open space and hospitality uses establish the theme and image of the Maryland Park Lake District. This image should be encouraged, preserved and enhanced.

Systems theory is the “*modus operandi*” of the Maryland Park Lake District and this plan. All things are connected and present influences on other elements; nothing should be considered in isolation.



future land development in the planning area. The design and construction of a regional stormwater conveyance system to manage internal flooding is the other major element of regional infrastructure being planned for the Maryland Park Lake District. These components are critical underlying premises that will influence future land use and development decisions.

PLANNING AND IMPLEMENTATION

Within a multi-level/multi-jurisdictional environment, the City will facilitate development. To accomplish this the City will need to adopt and implement a comprehensive plan for the Maryland Park Lake District that creates a vision for future development, and establishes guidance for the regulatory framework and implementation of that vision.

FLOOD PROTECTION

The Howard Bend Levee District has financed, constructed and will maintain the Missouri River Levee protecting the Maryland Park Lake District from Missouri River 500-year flood events.

STORMWATER MANAGEMENT

While the Howard Bend Levee District is responsible for the finance, design, construction, and maintenance of the regional stormwater conveyance and storage system located within the planning area, the City's role is to ensure that the multi-functional intent of the system is carried through the development process. This partnership of interests remains as a core value throughout the planning and development process.

Siting and rights-of-way of conveyance channels and storage area decisions as part of the regional stormwater management plan will be established by the Howard Bend Levee District and will be designed to manage upland flow for 100-year joint frequency storm event and to serve the multi-functional purpose of creating open space and site amenities. Some land currently in private ownership may be identified for preservation as stormwater conveyance or storage areas; the location of these areas and addressing private property issues is the responsibility of the levee district. Without this regional approach to stormwater management, a substantial amount of property will continue to be constrained for development by an internal flood event.

The conceptual approach to stormwater management (including design parameters) is included in the resource inventory section of this plan. The management plan was developed and submitted to the City by the Howard Bend Levee District. This plan employs a regional approach and utilizes Best Management Practices (BMP's) to develop a multi-functional system of stormwater management. Developers will be responsible for on-site drainage and conveyance to the regional stormwater system.

DEFINITIONS

The dictionary definition of a goal is "the end toward which effort or ambition is directed; aim; purpose." In the planning process, a goal specifies a direction of intended movement, not a location.

Objectives and strategies are operational terms. They are the physical representations of goal concepts, and as such they should be derived from the goals established in the planning process.

IMPLEMENTATION TOOLS

In conjunction with the goals and strategies, a series of implementation tools and techniques were also adopted. They were re-examined and expanded as part of the 2006/2007 planning effort.

"Business and other human endeavors are bound by invisible fabrics of interrelated actions, which often take years to fully play out their effects on each other. Since we are part of that lacework ourselves, it's doubly hard to see the whole pattern of change. Instead, we tend to focus on snapshots of isolated parts of the system, and wonder why our deepest problems never seem to get solved."

Peter Senge, The Fifth Discipline



TRANSPORTATION

Quality development will require both an efficient and effective transportation system. The City has made a sizeable investment in the public transportation system within the planning area. For the area to develop in a coordinated and integrated manner, the transportation system must function holistically. That is, all components of the system should be evaluated on their effect on the system as a whole; certain types of land uses have a greater impact upon the system and consequently, will require varying levels of improvements to the system as a requirement of the regulatory process. The transportation system however, should not only be oriented solely to the automobile, but should accommodate and integrate pedestrian and bikeways and transit (bus and light rail) in both development and design.

PUBLIC UTILITIES

It is in the public interest to assure that adequate public facilities are available at the time that development comes on line. No significant development will be possible in the planning area without adequate provision for wastewater treatment and water supply. The Missouri River treatment plant operated by the Metropolitan St. Louis Sewer District (MSD) is currently at capacity. MSD is in the planning stage for plant expansion to accommodate the increased flows generated by new development. The design and construction of the plant expansion is in their capital improvement budget for fiscal year 2007. It should be noted that this treatment plant serves not only the City of Maryland Heights, but also portions of adjoining municipalities (Chesterfield, Bridgeton, etc.). Future development approval will be contingent on the availability of sanitary sewer.

The Howard Bend Levee District (HBLD) is financing the design and construction of the sanitary sewer pumping station and mains in the Expressway Planning District.

Potable water is available to support future development of the planning area. The provision of water and sewer mains and local service lines will be the responsibility of the developers to fund and construct, pursuant to applicable public standards.

DEVELOPMENT QUALITY

The development in Howard Bend will occur in a manner that creates character and adds value. This will be achieved through applying good design principles to site layout, access, landscaping, architecture, on-site stormwater management, connection to the regional stormwater management system, building scale, massing and orientation and the design and layout of parking. To implement the City's Strategic Plan, as well as the vision of the Comprehensive Plan, development, regardless of the specific land use, must have architectural quality, be integral with both infrastructure and open space, and relate to adjoining land uses.

SUSTAINABLE SOLUTIONS

Development in the Maryland Park Lake District will be evaluated based on its sustainability. It will be required to meet the social, environmental and economic needs of today without reducing the ability of future generations to have their needs met. Put simply, sustainability is the belief that every decision should be made considering the full long-term implications of the choice. This requires acting in a way that simultaneously benefits the social, environmental, and economic well-being of City residents, property owners and that of the development community. Thinking sustainable is an integrated process; many strategies that improve the City's sustainability are interwoven throughout the plan.

There are many ways to improve the sustainability and performance of development. Building energy efficient buildings, creating walkable communities, protecting natural resources and encouraging healthy lifestyles are all ways in which the sustainability of our lifestyles is extended. It is the responsibility of development to adhere to these ideals and it is the role of the city government to take the long-view of these issues and encourage development that furthers it.



DEVELOPMENT GOALS

1. ENCOURAGE A SUSTAINABLE DEVELOPMENT PATTERN THAT ACCOMMODATES AND BALANCES BOTH ECONOMIC GROWTH AND COMMUNITY CHARACTER.
2. REQUIRE DEVELOPMENT TO DESIGN AND BUILD IN CONSIDERATION OF LOCATIONAL AND INFRASTRUCTURE OPPORTUNITIES.
3. PLAN FOR A MIXTURE OF USES AND EXPERIENCES FOCUSED ON HOSPITALITY AND ENTERTAINMENT THAT DRAW BOTH LOCAL RESIDENTS AND REGIONAL VISITORS BY CREATING A PLACE OF DESTINATION.
4. ENHANCE, REINFORCE AND CONNECT TO LOCAL AND REGIONAL OPEN SPACE AND RECREATION FACILITIES.
5. CREATE DEVELOPMENT PATTERNS THAT RESULT IN EFFICIENT CONNECTION TO THE REGIONAL STORMWATER AND TRANSPORTATION SYSTEMS.
6. CREATE DEVELOPMENT PATTERNS THAT UTILIZE THE STORMWATER MANAGEMENT SYSTEM AS A VISUAL, ENVIRONMENTAL AND FUNCTIONAL AMENITY.
7. PROVIDE OPPORTUNITIES FOR EXISTING BUSINESSES TO EXPAND AND GROW WITHIN THE PLANNING AREA.
8. CREATE A DEVELOPMENT PATTERN THAT EFFICIENTLY AND EFFECTIVELY UTILIZES THE TRANSPORTATION SYSTEM AS AN INTEGRATED MULTI-MODAL COMPONENT.

DEVELOPMENT VISION

THE MARYLAND PARK LAKE DISTRICT WILL DEVELOP IN A SUSTAINABLE, COORDINATED AND INTEGRATED MANNER WHILE BALANCING THE INTERESTS OF THE RESIDENTS, LAND OWNERS AND BUSINESSES.

IMPLEMENTATION TOOLS

- Amended zoning and subdivision regulations refining the Planned District process and establishing improved design standards related to site planning and building construction, as well as public facilities.
- Amend zoning and subdivision regulations to require open space set-asides with new development, along with criteria for open space.
- Intergovernmental agreements with St. Louis County Parks and Metropolitan Sewer District to encourage collaboration and multiple use of facilities.
- Creation of a Open Space and Trail opportunity map for the Maryland Park Lake District.
- Intergovernmental agreement between the City, Metropolitan Sewer District and the Howard Bend Levee District for the evaluation of stormwater management systems.
- Require that all development proposals are consistent with the provisions contained within this plan.



DEVELOPMENT STRATEGIES

- Develop design standards that are predicable and reasonable.
- Establish standards for public infrastructure and facilities including roads, pedestrian connections, and streetscapes that are designed to promote both aesthetic and functional quality.
- Prepare and maintain a Future Land Use Map to guide and evaluate land use decisions in the Maryland Park Lake District.
- Enter into an intergovernmental agreement with the Howard Bend Levee District and MSD to ensure regional stormwater system connections are properly designed, reviewed, managed and constructed.
- Work with property owners, developers, the St. Louis County Department of Parks and Recreation, Great Rivers Greenway District, and the Howard Bend Levee District to identify appropriate park, trail and open space connection opportunities.
- Educate the public about the provisions and intent of this plan.
- Evaluate the scale and intensity of development in context of its effect on future development patterns and the image of the City .

“Sustainable development is a strategy by which communities seek economic development approaches that also benefit the local environment and quality of life. It has become an important guide to many communities that have discovered that traditional approaches to planning and development are creating, rather than solving, problems. Where traditional approaches can lead to congestion, sprawl, pollution and resource over-consumption, sustainable development offers real, lasting solutions that will strengthen our future.

Sustainable development provides a framework under which communities can use resources efficiently, create efficient infrastructures, protect and enhance quality of life, and create new businesses to strengthen their economies. It can help us create healthy communities that can sustain our generation, as well as those that follow ours.”

- Smart Communities Network



STORMWATER MANAGEMENT GOALS

1. CONSTRUCT A REGIONAL STORMWATER CONVEYANCE SYSTEM TO MANAGE UPLAND RUNOFF FROM A 100-YEAR JOINT FREQUENCY EVENT.
2. THE STORMWATER MANAGEMENT SYSTEM SHOULD BE BASED ON SOUND ENGINEERING PRACTICE AND ENVIRONMENTALLY SOUND PRACTICES AND POLICIES INCORPORATING BEST MANAGEMENT PRACTICES TO THE MAXIMUM EXTENT POSSIBLE.
3. CREATE VALUE AND CHARACTER FOR THE CITY, PROPERTY OWNERS, AND THE DEVELOPMENT COMMUNITY THROUGH INNOVATIVE DESIGN OF THE STORMWATER MANAGEMENT SYSTEM.
4. IMPACTED WETLANDS WILL BE IDENTIFIED AND APPROPRIATELY MITIGATED WITHIN THE REGIONAL STORMWATER MANAGEMENT SYSTEM.

VISION STATEMENT

THE MARYLAND PARK LAKE DISTRICT WILL UTILIZE STORMWATER MANAGEMENT SYSTEMS THAT ARE REGIONAL IN BOTH APPROACH AND APPLICABILITY, ARE MULTI-FUNCTIONAL IN DESIGN, AND SERVE THE PURPOSES OF STORMWATER MANAGEMENT, OPEN SPACE CREATION AND SITE AND REGIONAL AMENITIES.

IMPLEMENTATION TOOLS

- Develop and adopt guidelines for stormwater management.
- Require development proposals to include a comprehensive stormwater management plan.
- Require new developments to include appropriate Best Management Practices (BMP's).
- Create and enter into an Intergovernmental Agreement between the City, Howard Bend Levee District and Metropolitan Sewer District establishing the process for stormwater management evaluation.

**STORMWATER MANAGEMENT STRATEGIES**

- Collaborate with the Metropolitan Sewer District and the Howard Bend Levee District to regulate development to ensure that adequate storm water detention is provided on site.
- Participate in the permitting process for stormwater management facilities to encourage the use of these improvements for multi-functional community purposes beyond that of just stormwater management.
- Support the development of a network of open spaces that utilize the functional stormwater conveyance system.
- Support the Howard Bend Levee District in the creation, design and use of secondary storm water related channels as water features and amenities for development.
- Collaborate with Howard Bend Levee District and Metropolitan Sewer District to regulate development to ensure that adequate storm water management is provided on site.
- Use Best Management Practices that represent sound engineering practice to the maximum extent practical.
- Develop concepts illustrating how stormwater management can be developed as ancillary uses (trails, parks, habitat) that are "layered" on to the systems primary function of stormwater management.
- Use stormwater management concepts that optimize the value and add character to development proposals.
- Develop concepts that incorporate proposals for regional trails proposed by the Great Rivers Greenway.
- Support proposals that facilitate the enhancement of the Page Avenue mitigation area.
- Develop stormwater facilities that support a diverse aquatic and riparian habitat.
- Emphasize development proposals that include biotechnical, "soft" engineering solutions as a better alternative to traditional stormwater management approaches .
- Encourage facilities that support ecologically based methods for invasive species control.
- Require development to utilize site development practices that maintain and protect the natural resources of the site and region.



OPEN SPACE AND PARKS GOALS

1. THE MARYLAND PARK LAKE DISTRICT WILL INCLUDE A SYSTEM OF CONNECTED LINEAR OPEN SPACES THAT CONNECT PRIVATE DEVELOPMENT TO NEW AND EXISTING OPEN SPACE AND RECREATION FACILITIES.
2. DEVELOPMENT WITHIN HOWARD BEND WILL INCLUDE PUBLIC SPACES AND INTEGRATED OPEN SPACE.
3. PUBLIC SPACES WITHIN PLANNED DISTRICTS WILL BE INTERCONNECTED THROUGH A SERIES OF PEDESTRIAN AND BICYCLE LINKAGES TO THE MAXIMUM EXTENT POSSIBLE.
4. PEDESTRIAN AND BICYCLE FACILITIES WILL BE LINKED TO THE KATY TRAIL THROUGH CREVE COEUR PARK, ROUTE 364 (PAGE AVENUE), PLANNED DEVELOPMENTS AND THE HOWARD BEND LEVEE SYSTEM.
5. THE MARYLAND PARK LAKE DISTRICT WILL CONTINUE TO SERVE AS A REGIONAL DRAW FOR HOSPITALITY RELATED RECREATIONAL LAND USES, INCLUDING RECREATION, SPORTS, AND GAMING.
6. THE AREAS OUTSIDE OF THE 500-YEAR HOWARD BEND LEVEE WILL BE UTILIZED FOR PASSIVE RECREATIONAL OPPORTUNITIES.

OPEN SPACE AND PARKS STRATEGIES

- Develop a Howard Bend Open Space, Pedestrian, and Bicycle Plan as part of the Comprehensive Plan for a network of open spaces, and pedestrian and bicycle interconnection system.
- Prepare a “Pedestrian Catchability Plan” as development occurs focusing on five minute walk times (1/4 mile radius) from development centers.
- Require that development includes interconnected functional open space.
- Establish open space and landscaping requirements for future development within the Maryland Park Lake District.
- Incorporate open space within and along the public rights-of-ways to create parkways adding value and character.
- Collaborate with Great Rivers Greenway, St. Louis County Parks and the Howard Bend Levee District to develop and promote the implementation of open space and regional trails within the planning area.
- Continue to promote recreational activities and facilities in conjunction with the Maryland Heights Convention and Visitors Bureau.

VISION STATEMENT

THE MARYLAND PARK LAKE DISTRICT WILL MAINTAIN ITS STRONG IDENTITY AS A PLACE OF DESTINATION FOR OPEN SPACE AND RECREATIONAL OPPORTUNITIES BY INCLUDING INTEGRATED, CONNECTED REGIONAL AND LOCAL PARKS AND OPEN SPACE INTO FUTURE DEVELOPMENT AND INFRASTRUCTURE.

IMPLEMENTATION TOOLS

- Creation of a pedestrian and bicycle facilities standards for new construction.
- Creation of landscaping requirements for streets within planned developments.
- Develop design standards and guidelines for trails, walkways and bikeways.
- Require development to include integrated and connected open space elements.
- Require infrastructure, both private and public, to include elements of open space.
- Require minimum thresholds for functional open space within development proposals.



PUBLIC UTILITY GOALS

1. THE MARYLAND PARK LAKE DISTRICT WILL BE PROVIDED ADEQUATE DISPOSITION OF WASTEWATER AND BY-PRODUCTS WHILE BALANCING THE NEEDS OF GROWTH, ENVIRONMENT AND PUBLIC HEALTH, SAFETY AND WELFARE TO SERVE THE DEVELOPMENT OF THE AREA.
2. THE MARYLAND PARK LAKE DISTRICT WILL BE PROVIDED WITH ADEQUATE POTABLE WATER WHILE BALANCING THE NEEDS OF GROWTH, ENVIRONMENT AND PUBLIC HEALTH, SAFETY AND WELFARE TO SERVE THE DEVELOPMENT OF THE AREA.
3. THE MARYLAND PARK LAKE DISTRICT WILL BE PROVIDED WITH ADEQUATE ELECTRICAL UTILITIES WHILE BALANCING THE NEEDS OF GROWTH, ENVIRONMENT AND PUBLIC HEALTH, SAFETY AND WELFARE TO SERVE THE DEVELOPMENT OF THE AREA.
4. THE MARYLAND PARK LAKE DISTRICT WILL BE SERVED BY THE TELECOMMUNICATION AND DATA CARRIERS WHILE BALANCING THE NEEDS OF GROWTH, ENVIRONMENT AND PUBLIC HEALTH, SAFETY AND WELFARE TO SERVE THE DEVELOPMENT OF THE AREA.
5. BOTH SANITARY SEWER AND POTABLE WATER WILL MEET ALL APPLICABLE GOVERNMENT STANDARDS FOR SERVICE, INCLUDING FIRE PROTECTION REQUIREMENTS.
6. PROVISIONS FOR THE LAYOUT AND DELIVERY OF UTILITIES MUST CONSIDER THE POTENTIAL IMPACTS ON THE LAYOUT, VALUE AND CHARACTER OF ADJACENT FUTURE DEVELOPMENT OPPORTUNITIES.
7. DEVELOPMENTS SHOULD PROMOTE THE CONSERVATION AND RE-USE OF POTABLE WATER TO THE MAXIMUM EXTENT PRACTABLE.

VISION STATEMENT

THE MARYLAND PARK LAKE DISTRICT WILL DEVELOP IN A MANNER THAT ORDERLY AND EFFICIENTLY PUBLIC UTILITIES THROUGHOUT THE PLANNING AREA.

IMPLEMENTATION TOOLS

- Adopt zoning or subdivision regulation amendments that require adequate public facilities prior to or concurrent with development.
- Require development to address the area of public services to the development.
- Development must coordinate with all applicable public utilities regarding the siting, location and extension of said utilities and provide reasonable accommodations.

**PUBLIC UTILITY STRATEGIES**

- Coordinate with MSD and the Howard Bend Levee District in the evaluation of providing sanitary sewer service to proposed development in both an effective and efficient manner.
- Coordinate with MSD in efforts to reduce noxious odors related to the treatment of sanitary sewerage at the Missouri Treatment Wastewater plant.
- Coordinate with Missouri American Water Company and the Howard Bend Levee District in the evaluation of providing potable water to proposed development in both an effective and efficient manner.
- Encourage the use of low-volume plumbing devices to the maximum extent practical, consistent with the adopted building code.
- Discourage development that does not result in the orderly extension of public utilities.
- Consider the siting and accommodations for public utilities within the context of development proposals.
- Work with Ameren UE to facilitate the appropriate siting and location of utility substation(s).



TRANSPORTATION GOALS

1. THE MARYLAND PARK LAKE DISTRICT WILL INCLUDE FUTURE ROAD IMPROVEMENTS THAT PROVIDE BOTH A LOCAL AND REGIONAL BENEFIT.
2. THE INTERNAL STREET SYSTEM WILL BE COORDINATED AND INTEGRATED, INCLUDING MULTIPLE INTERCONNECTIONS BETWEEN INDIVIDUAL DEVELOPED AREAS, AVOIDING FREESTANDING DEVELOPMENT AREAS UNRELATED TO EACH OTHER.
3. ACCESS TO PLANNED DEVELOPMENTS WILL BE MANAGED TO MAXIMIZE TRAFFIC EFFICIENCY.
4. TRAFFIC WILL BE MANAGED WITHIN THE MARYLAND PARK LAKE DISTRICT SO AS TO AVOID TRAFFIC CONGESTION.
5. TRANSPORTATION IMPROVEMENTS WILL INCLUDE AESTHETIC ENHANCEMENTS THAT ADD CHARACTER AND FURTHER THE IMAGE OF THE AREA.
6. TRANSPORTATION IMPROVEMENTS WILL BE DESIGNED TO INCLUDE MULTI-FUNCTIONAL AND MULTI-MODEL ELEMENTS.

TRANSPORTATION STRATEGIES

- Require new development incorporate an interconnected network of local streets with efficient and adequate connections to the regional system.
- Establish acceptable transportation level of service standards.
- Establish access management principles for development that utilize access as a resource in an efficient manner.
- Establish appropriate regulatory approaches to assure adequate access to the planning area from the regional highway system.
- Require that new development incorporate the transportation system improvements identified in the Comprehensive Plan.
- Require high level and quality aesthetic design standards that create character along roadways.
- Design roads to provide for transit and pedestrian and bike traffic.

VISION STATEMENT

THE MARYLAND PARK LAKE DISTRICT WILL INCLUDE AN INTEGRATED, COORDINATED AND INTERCONNECTED TRANSPORTATION SYSTEM THAT EFFICIENTLY MANAGES TRAFFIC, IS DESIGNED MULTI-MODALLY WITH HIGH AESTHETIC STANDARDS SO AS TO AVOID TRAFFIC CONGESTION AND DISCOURAGE ISOLATED DEVELOPMENT AREAS AND PATTERNS.

IMPLEMENTATION TOOLS

- Develop a Traffic Management Plan to establish the needed transportation improvements for the public and private sectors.
- Amendments to zoning and/or subdivision regulations to incorporate requirements identified in the Traffic Management Plan, such as traffic impact study requirements, level of service standards and access management standards.
- Development proposals must include a Traffic Impact Study.



NATURAL HAZARD MITIGATION GOALS

1. MINIMIZE THE LOSS OF LIFE AND INJURIES THAT COULD BE CAUSED BY NATURAL HAZARDS.
2. ENCOURAGE GROWTH THAT IS COMPATIBLE WITH HAZARD MITIGATION STRATEGIES IDENTIFIED IN THIS PLAN.
3. ENCOURAGE SUSTAINABLE DEVELOPMENT BY PROTECTING DEVELOPMENT FROM NATURAL HAZARDS.
4. ENCOURAGE THE STRENGTHENING OF PUBLIC EMERGENCY SERVICES, ITS INFRASTRUCTURE, FACILITIES, EQUIPMENT, AND PERSONNEL TO NATURAL HAZARDS.
5. DEVELOP A COMMUNITY BASED MITIGATION EFFORT BY BUILDING STRONGER PARTNERSHIPS BETWEEN GOVERNMENT, BUSINESSES, AND THE COMMUNITY.
6. INCREASE PUBLIC AND PRIVATE UNDERSTANDING OF NATURAL HAZARD MITIGATION THROUGH THE PROMOTION OF MITIGATION EDUCATION AND AWARENESS OF NATURAL HAZARDS.
7. ENHANCE EXISTING OR DESIGN NEW POLICIES AND TECHNICAL CAPABILITIES THAT WILL REDUCE THE EFFECTS OF NATURAL HAZARDS.
8. ENHANCE EXISTING TECHNICAL AND GIS DATA AND CAPABILITIES THAT WILL REDUCE THE EFFECTS OF NATURAL HAZARDS.

VISION STATEMENT

THE MARYLAND PARK LAKE DISTRICT WILL DEVELOP IN A MANNER THAT FOSTERS THE REDUCTION THE IMPACTS OF NATURAL HAZARDS THUS PREVENTING THE LOSS OF LIFE AND MINIMIZING ILLNESS AND INJURY RESULTING FROM THESE HAZARDS.

IMPLEMENTATION TOOLS

- Encourage development of a public outreach program that ensures all members of the jurisdiction have access to information on hazards, consequences, and steps to be taken to reduce risk at home and work.
- Encourage businesses, governments and special districts to develop and distribute pertinent hazard mitigation measures for employees and visitors.
- Encourage appropriate jurisdiction agencies to identify all special needs populations in the jurisdiction, and develop a special outreach program for those at risk, and coordinate hazard mitigation measures (including backup power, evacuation and warning plans).
- Encourage development of evacuation plan for all disasters.
- Encourage placement of flash flood warning signs.
- Encourage the development of hazard mitigation measures.
- Participate in the National Flood Insurance Program, Community Rating System (CRS), Hazard Mitigation Plan.
- Encourage the protection and maintenance of natural river and stream channels and corridors.
- Encourage the utilization, design and/or build of systems to detain stormwater in ways to promote infiltration and replicate natural movement of water.



NATURAL HAZARD MITIGATION STRATEGIES

- Raise public awareness concerning hazards, including measures that can be taken to promote mitigation and increase disaster preparedness, response and recovery capabilities.
- Establish an early warning system for natural disasters.
- Decrease occurrence and impact of flooding.
- Reduce or prevent impacts from hazards on public and private properties.
- Develop collaborative hazard mitigation efforts across jurisdictional boundaries.
- Reduce impacts disasters and promote protection of natural resources.
- Encourage the development or amendment of laws so they may more effectively address hazard mitigation.
- Promote the installation of safe rooms and shelters.
- Reduce repetitive losses, especially those caused by flooding.
- Continue to conduct studies assessing flood hazards and risks.
- Reduce the vulnerability of structures and infrastructure to the effects of geologic hazards including landslides, earthquakes, and sinkhole collapse.
- Promote incentives for mitigation planning and actions.
- Support efforts that will assist with the continuity of critical business operations.
- Develop hazard mitigation policies that promote the protection of the environment.
- Form partnerships to leverage and share resources.
- Annually review existing natural hazard programs, plans, and policies to determine their effectiveness and efficiency in reducing risk and vulnerabilities to natural hazards.
- Disseminate useful information about geologic hazards to the general public and development professionals in order to assist in safe, appropriate development in hazard areas.
- Improve public knowledge of hazards and protective measures so individuals can appropriately respond during hazard events.
- As resources allow, develop, and promote outreach strategies designed to educate residents about local hazards, their associated risk and vulnerabilities, and the applicable mitigation actions.
- As resources allow, maintain an ongoing education and outreach effort to educate local officials about the importance of hazard mitigation.
- Increase the community's involvement in the Community Rating System (CRS) program; promoting better floodplain management while offering the incentive of lower flood insurance premiums.
- Promote the gathering and archiving of local data on the types and amount of damages after a natural hazard event.
- Support the development and use of disaster loss reduction related building codes and standards designed to reduce vulnerability and risk to all hazards.
- Improve hazard information, including databases and maps.
- Prepare a local Hazard Mitigation Plan.
- Participate in the Community Rating System (CRS) program.

IMPLEMENTATION TOOLS

- Encourage watershed planning that protect streams against flooding.
- Identify repetitive flood loss properties for buyout purposes; prioritize and implement buyouts.
- Strengthen floodplain regulations.
- Require utilities and communications businesses and developers to install underground electric and communications lines
- Develop and utilize greenways that parallel streams, rivers and stormwater management channels.



comprehensive plan

CITY OF MARYLAND HEIGHTS

SECTION 9.4 - FUTURE LAND USE

MARYLAND PARK LAKE DISTRICT



FUTURE LAND USE OVERVIEW

This section of the plan is an overview of the recommended future land use within the planning area. In this section the reader will find a discussion of land use recommendations and their associated land use definitions providing a common vocabulary for land use evaluation. Specific recommendations for land use are contained in Section 7.5 PLANNING SUB-DISTRICT POLICIES.

The future land use map is not the zoning map, but rather a guide for future land use, identifying preferred future land use patterns. The purpose of the map is to guide the decisions of property owners, developers and public policy makers over the life of the plan. The future land use map is designed to be used in conjunction with the goals and strategies and the development policies of the Maryland Park Lake District Future Land Use Plan. Development investment, infrastructure, and regulatory decisions should enable the Maryland Park Lake District to achieve the vision of this plan and the land uses shown on the map. The Land Use Map only identifies categories of land uses. Other aspects of site design and development, such as inclusion of green space, site layout, infrastructure needs, stormwater requirements, architectural and landscaping requirements, are not portrayed by the map. Other items related to site development are described in the goals and policies of the Maryland Park Lake District Future Land Use Plan and the City's Zoning Code.

The Maryland Park Lake District is broken down into six "Planning Sub-Districts." These sub-districts allow a focused and concise discussion of future land use and development policies. Based on common elements within each district, this approach sets up a simpler framework to address shared land use themes.

MAP DEFINITIONS

A *Land Use map* describes preferred future land uses. It is a guide for development decisions over a period of time.

A *Zoning map* identifies the boundaries of zoning districts. It is a legal document that identifies the current permitted uses of property.

POLICY DEFINITION

A specific statement of principle or of guiding actions that implies clear commitment but is not mandatory. A general direction that a governmental agency sets to follow in order to meet its goals and objectives before undertaking an action program.

PLANNING SUB-DISTRICT DESCRIPTION—AERIAL MAP

PLANNING SUB-DISTRICT # 1: RIVERSIDE:

Generally defined by the existing Hollywood Casino Planned District and the Riverport Business Park Planned Development, this sub-district is partially planned and zoned as Planned District with regulations specifying future land use. The balance of this district is land located on the eastern side of Route 141 and zoned "M-2" (Heavy Manufacturing) and the properties located southwest of the Hollywood Casino site that are zoned "NU".

SUB-DISTRICT SIZE:

1,170 ACRES (14% OF PLANNING AREA)





PLANNING SUB-DISTRICT DESCRIPTION—AERIAL MAP

PLANNING SUB-DISTRICT # 2: CRYSTAL SPRINGS:

This sub-district surrounds Route 141 and includes its intersections with Marine Avenue and Creve Coeur Mill Road. The major developments include the privately owned portion of Crystal Springs Quarry Golf Course and the former West Continental Auto Salvage.

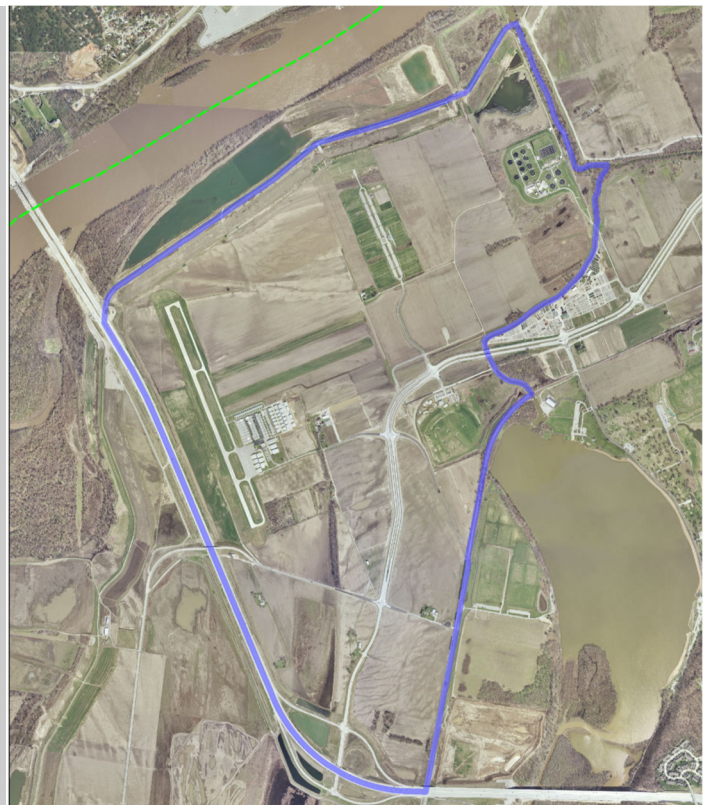
SUB-DISTRICT SIZE:
634 ACRES (8% OF PLANNING AREA)



PLANNING SUB-DISTRICT #3: EXPRESSWAY:

This sub-district surrounds the balance of Missouri Route 141 to its intersection with Missouri Route 364 and includes intersections with River Valley Drive, Sportport/Golfport Drive, Creve Coeur Mill Road and Morgan Road. The major developments in this area are Sportport, Creve Coeur Airport and the MSD Missouri River Treatment Plant.

SUB-DISTRICT SIZE:
1,620 ACRES (20% OF PLANNING AREA)

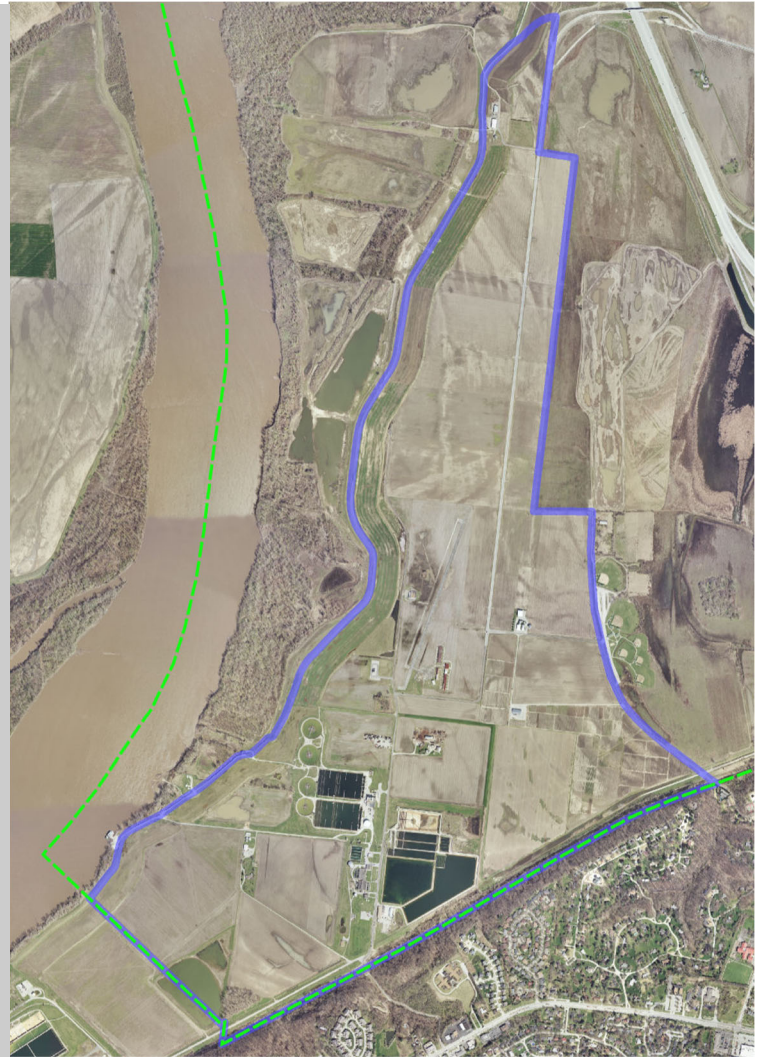




PLANNING SUB-DISTRICT DESCRIPTION—AERIAL MAP

PLANNING SUB-DISTRICT #4: RIVER VALLEY

This sub-district contains the property south of Missouri Route 364, east of the Howard Bend Levee and west of Creve Coeur Park generally surrounding River Valley Drive. The major development in this district is the Missouri American Water Treatment Plant.



SUB-DISTRICT SIZE:
996 ACRES (12% OF PLANNING AREA)

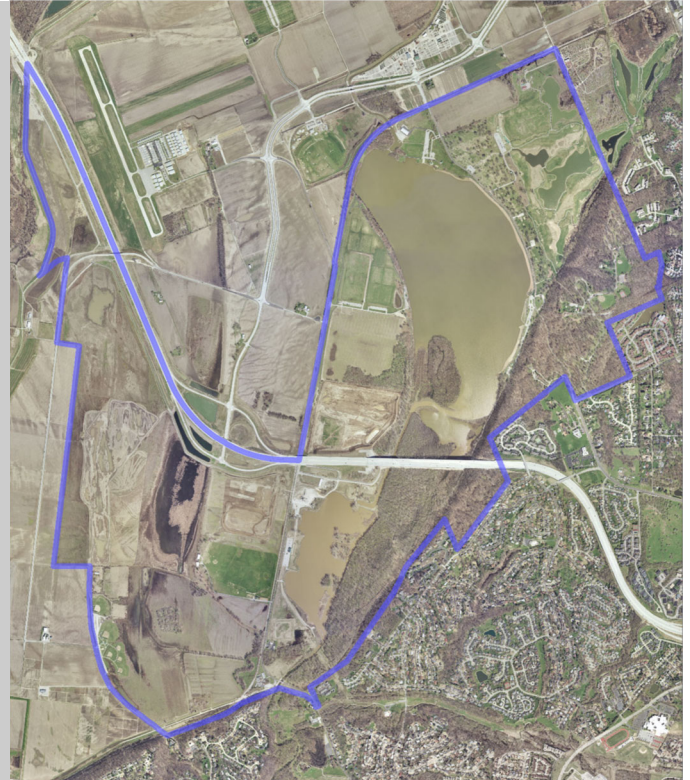


PLANNING SUB-DISTRICT DESCRIPTION AND GRAPHICS

PLANNING SUB-DISTRICT #5: CREVE COEUR LAKE

All of this planning sub-district is within the bounds of Creve Coeur Park. The future land use is directed by the County Park Master Plan and implemented by an “MXD” Mixed Use District Ordinance. This district is separate from, but integrated with, the land use plan for the planning area. Portions of this district are leased from St. Louis County to private recreational providers. These developments include the back nine holes of Crystal Springs Quarry Golf Course, Lou Fusz Soccer Club, Scott Gallagher Soccer Club, the Creve Coeur Lake House, and Go Ape.

SUB-DISTRICT SIZE:
2,374 ACRES (29% OF PLANNING AREA)



PLANNING SUB-DISTRICT #6: MISSOURI RIVER:

This sub-district is comprised of lands outside (west of) the proposed 500-year levee, this sub-district includes all lands in the Missouri River floodway and/or flood plain that are expected to remain undeveloped with the exception of passive recreational land uses.

SUB-DISTRICT SIZE:
1,314 ACRES (16% OF PLANNING AREA)

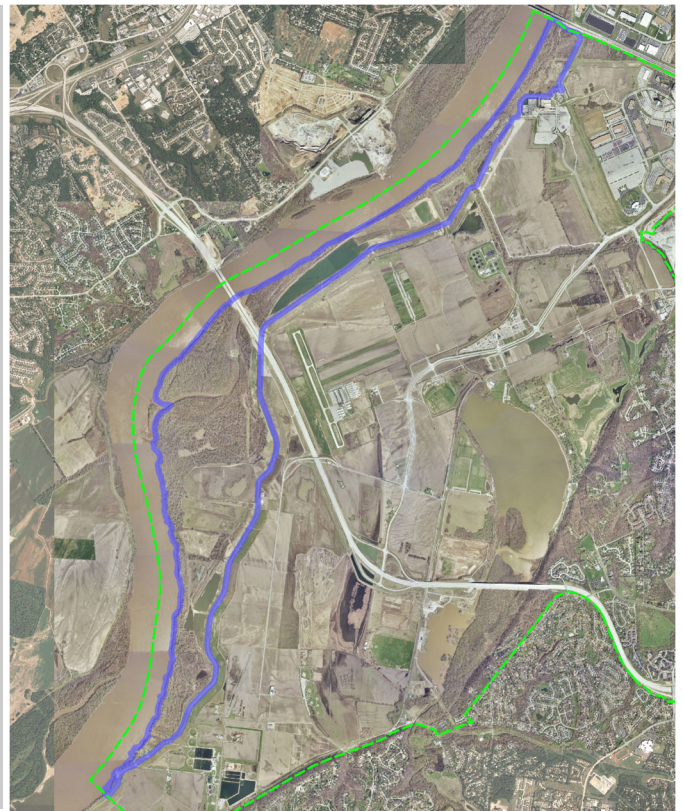




TABLE 9.4.A: LAND USE ACCEPTABILITY MATRIX

LAND USE CATEGORY	RIVERSIDE PLANNING SUB-DISTRICT	CRYSTAL SPRINGS PLANNING SUB-DISTRICT	EXPRESSWAY PLANNING SUB-DISTRICT	RIVER VALLEY PLANNING SUB-DISTRICT	CREVE COEUR LAKE PLANNING SUB-DISTRICT	MISSOURI RIVER PLANNING SUB-DISTRICT
SINGLE FAMILY RESIDENTIAL	❑	❑	❑	❑	❑	❑
MULTI-FAMILY RESIDENTIAL	❑	○	○	❑	❑	❑
MIXED-USE	●	●	●	❑	❑	❑
SERVICE RETAIL	○	○	○	○	○	❑
REGIONAL RETAIL	❑	❑	○	❑	❑	❑
ENTERTAINMENT	●	○	○	❑	❑	❑
OFFICE CAMPUS	●	●	●	○	❑	❑
OFFICE FLEX	○	●	●	○	❑	❑
OFFICE DISTRIBUTION	❑	❑	●	●	❑	❑
LIGHT INDUSTRIAL	❑	●	○	●	❑	❑
RECREATION	○	●	○	○	●	○
INSTITUTIONAL	○	○	○	○	❑	❑
AGRICULTURE	○	○	○	○	❑	❑

● ACCEPTED

The proposed use is acceptable and its purpose, location, design, and effect should be fostered and supported in the District. Development must still conform to applicable regulations.

○ CONDITIONALLY ACCEPTED

The proposed use is likely to be acceptable, provided that the applicable design guidelines, mitigation techniques, and performance standards are implemented as set forth in the Zoning Code.

❑ DISCOURAGED

The proposed use is likely to be rejected or denied because it is not in compliance with the future land use policies of the Maryland Park Lake District. While applicants will be dissuaded from proposing discouraged uses, consideration of these uses is dependent on the applicant’s ability to demonstrate mitigating or compensating measures for the project’s impact. These measures, when incorporated into the site plan, must result in a substantial gain in overall quality of development in the district.

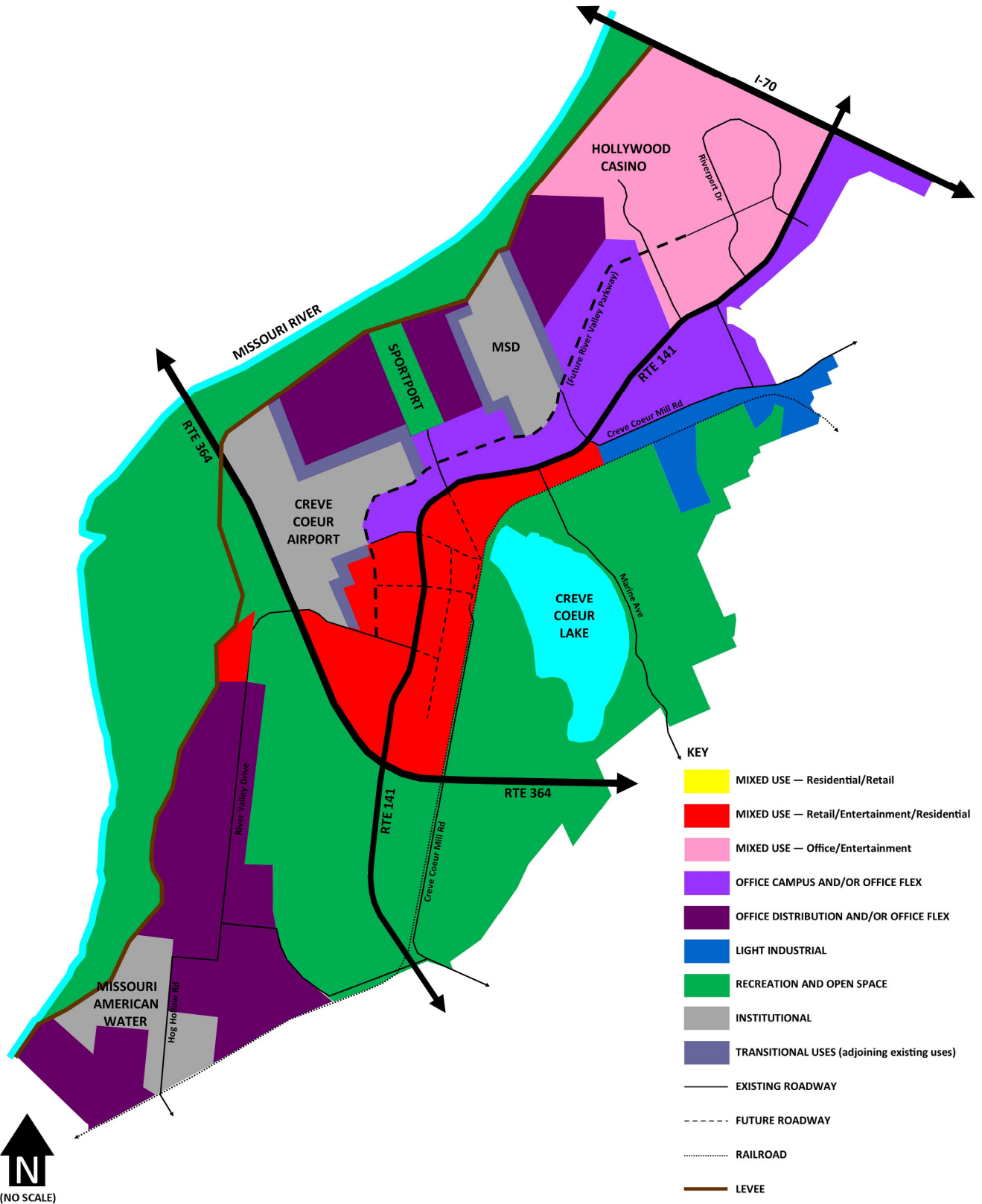


FIGURE 9.4.1: MARYLAND PARK LAKE DISTRICT FUTURE LAND USE MAP



LAND USE DEFINITIONS

SINGLE-FAMILY RESIDENTIAL



PURPOSE: TO CREATE HIGH QUALITY NEIGHBORHOODS THAT INCLUDE A RANGE OF HOUSING OPTIONS FOR PEOPLE IN ALL STAGES OF LIFE WITH INTEGRATED PUBLIC AND OPEN SPACE.

CHARACTERISTICS: INCLUDES DETACHED DWELLINGS, ATTACHED DWELLINGS (VILLAS), ROW HOUSES AND SUPPORTING FEATURES INCLUDING, BUT NOT LIMITED TO, PARKS, PLAYGROUNDS, WALKWAYS/BIKEWAYS, AND OTHER FUNCTIONAL OPEN SPACE AREAS.

DEVELOPMENT SIZE: 40+ acres

DENSITY: 4 to 8 Dwelling Units per Acre

CRITERIA FOR DESIGNATION:

- Location within the River Valley Sub-Planning District; and/or
- Located within a mixed-use development under the following criteria:
 - Single-family dwellings are functionally and aesthetically integrated with compatible buildings and uses within the development;
 - Single-family dwellings are buffered from incompatible uses within or adjacent to the development;
 - Single-family dwellings will not adversely affect or conflict with adjacent uses or impede the development of surrounding property;
 - Single-family dwellings in mixed-use developments outside the River Valley Sub-District consist of attached units a minimum of two-stories in height;
 - Adequate and integrated public and private facilities, such as roads, sidewalks, walkways, utilities, stormwater management, open space, landscaping, parking, and circulation, are provided or will be provided;
 - Open space areas are accessible to and integrated with adjacent commercial or business uses rather than freestanding.
 - There is safe and efficient access for the anticipated traffic levels.

DEVELOPMENT GUIDELINES

- Encourage a range of unit types within each project that results in a diversity of housing opportunities not only in form, but in price range.
- Discourage housing types to be clustered in such a manner that creates the perception of income differences.
- Encourage architectural details that establish and enhance the neighborhood's character.
- Encourage building materials that provide visual interest and texture to a building.
- Encourage front yard features to be designed as part of the public realm, enhancing both the visual quality of the road system and walkability.
- Encourage pedestrian connectivity within the project and to adjoining properties through sidewalks and walkways.
- Encourage functional common ground areas that provide places to residents to gather, play, exercise, and/or relax.
- Encourage the use of "green" infrastructure and energy efficient building materials and design.

SINGLE-FAMILY EXAMPLES





LAND USE DEFINITIONS

MULTIFAMILY RESIDENTIAL, COMMUNITY ■

PURPOSE: TO PROVIDE FOR A RESIDENTIAL COMMUNITY THAT CREATES A MIX OF UNIT TYPES IN APPROPRIATE LOCATIONS BY SUPPORTING VARIETY AND OPTIONS IN LIVING ENVIRONMENTS WHILE PROTECTING AND IMPROVING THE COMMUNITY’S PROPERTY VALUES.

CHARACTERISTICS: STRUCTURES DESIGNED TO ACCOMMODATE SEVERAL UNRELATED HOUSEHOLDS. MULTIFAMILY COMMUNITIES INCLUDE GARDEN APARTMENTS, TOWNHOUSES, ROW-HOUSES, MID RISE AND HIGH RISE APARTMENT BUILDINGS, SECOND-STORY (OR HIGHER) RESIDENTIAL UNITS OVER COMMERCIAL SPACE, AND RESIDENTIAL CONDOMINIUMS AS WELL AS THE NECESSARY DEVELOPMENT COMPONENTS TO SUPPORT THE DEVELOPMENT AS A COMMUNITY.

DEVELOPMENT SIZE: 20 acres or dependent on integration into Mixed Use District

DENSITY: 8-20 Dwelling Units per Acre (DUA)

CRITERIA FOR DESIGNATION:

- Location within: Crystal Springs, Expressway, or River Valley Sub-Districts, or
- Located within a mixed use development that meets the following criteria:
 - The proposed use is consistent with the Future Land Use Plan;
 - The proposed use will not be detrimental to the public health, safety, or general welfare;
 - The proposed use can be constructed in a manner that addresses the potential flood hazards on or adjacent to the site;
 - The proposed use will not adversely affect or conflict with adjacent uses or impede the development of surrounding property;
 - Adequate public and private facilities, such as infrastructure (roads, stormwater management, open space), landscaping, parking, and circulation, are provided or will be provided for the proposed use;
 - Availability or future availability of transit connections and the design of transit-oriented development;
 - There is safe and efficient access for the anticipated traffic levels.

DEVELOPMENT GUIDELINES

- Architectural elements, such as colonnades, canopies, walkways, lighting standards, street furniture and variety in building materials, together with building massing and form, should create human scale;
- Residential buildings are expected to include porches, varied rooflines and varied façade depths to create variety and individuality of dwelling units within the complex;
- Freestanding garages and/or carports shall be designed to be integral with the building design or sited so as to avoid long monotonous rows of garage doors and building walls.

MULTI-FAMILY EXAMPLES





CHARACTERISTICS

Garden apartments, townhouses, and mid-rise and high-rise apartment buildings.

TRAITS AFFECTING DESIGN APPROACH

- Access from secondary routes
- Importance of image and landscape setting
- Use of outdoor spaces for passive recreation activities
- Small to medium sized parking, perimeter parking interspersed with, and in proximity to medium to small footprint buildings

SITE PLANNING RECOMMENDATIONS

1. Develop PCS and ODS system as an integral part of site planning process; incorporate stormwater elements as buffers to adjacent incompatible uses as appropriate
2. Develop PCS/ODS as site amenities to add image, and identity, and recreational value; plan for multi-use above the 2-5 year storm level in conveyance/storage areas

RECOMMENDATIONS FOR CONVEYANCE / STORAGE / TREATMENT

3. Use flow attenuation, surface swales and localized BMP's to pre-treat parking runoff.
4. Locate WQ wetland treatment to pre-treat runoff into ponds as applicable
5. Direct roof runoff to localized PLD's

PCS - Primary Collection System
 ODS - On-Site Drainage System
 BMP's - Best Management Practices
 WQ - Water Quality
 PLD's - Porous Landscape Detention

SOURCE: WENK ASSOCIATES AND HOWARD BEND LEVEE DISTRICT



OFFICE CAMPUS



PURPOSE: TO PROVIDE OPPORTUNITIES FOR CORPORATE AND REGIONAL OFFICES AND ACCESSORY USES IN A WELL-DESIGNED AND INTEGRATED CAMPUS SETTING

CHARACTERISTICS: LARGE-SCALE EMPLOYMENT CENTERS AND A MIX OF SINGLE/MULTIPLE TENANT OFFICE BUILDINGS; MAY INCLUDE SOME INSTITUTIONAL AND PUBLIC/QUASI-PUBLIC USES SUCH AS HOSPITAL/MEDICAL OR GOVERNMENT OFFICES; PERSONAL SERVICE AND ACCESSORY USES INCLUDING RESTAURANTS, LOCAL RETAIL, HOTEL/MOTEL; MULTI-STORY BUILDINGS; INTEGRATED SITE DESIGN TO ENCOURAGE WALKABILITY, CONNECTIONS TO PARKS AND TRAILS SYSTEM AND INCLUDING PUBLIC OPEN SPACES.

DEVELOPMENT SIZE: Minimum project size is typically 15 acres.

BUILDING SIZE: Overall building sizes typically range from 100,000 - 250,000 square feet; typical building footprints range from 30,000 square feet to 50,000 square feet for multiple story buildings.

CRITERIA FOR DESIGNATION:

- Access to existing or proposed public facilities and infrastructure such as roads, stormwater, and sewer to serve buildings and occupants;
- Location at planning area gateways (Riverside Sub-District and Expressway Sub-District), along major corridors, and at highway interchanges;
- Capable of building and site design to minimize environmental impacts, including low impact developments or Leadership in Energy and Environmental Design (LEED) standards;
- Adjacent to employment-supportive land uses, including mixed-use, entertainment, and retail.

DEVELOPMENT GUIDELINES

- Promote building designs, systems and practices that are sustainable and adoptable to multiple uses in the interest of extending the building life cycle;
- Minimum amount of open space should be 35%;
- Architectural elements, such as colonnades, canopies, walkways, lighting standards, street furniture and variety in building materials, together with building massing and form, should create human scale;
- Provide gateway features and design elements along public ROW;
- Majority of the frontage occupied primarily by building;
- Integrated open space in coordination with stormwater management system designed as a site amenity;
- Provide the usability and connectivity of the pedestrian environment by enhancing internal access within the campus, providing access to the public realm of the street and/or open space features.

OFFICE CAMPUS EXAMPLES





CHARACTERISTICS

Office Campus: Large-scale employment centers and mix of single/multiple tenant office buildings; may include some institutional and public/quasi-public uses; cohesive site design to encourage walkability and connection to parks and trails systems.

Multi-Use: Dense, compatible mix of detail, residential, recreation and employment and (office/retail) activities. Broad mix of uses with compatibility ensured through site design; integrated pedestrian circulation throughout site and to surrounding uses.

TRAITS AFFECTING DESIGN APPROACH

- Generally bounded by Page Avenue / Maryland Heights Expressway
- Emphasis on outdoor pedestrian environments
- Importance of image and visibility
- Small to large building foot prints organized around pedestrian spaces and parking

PCS CHANNEL DESIGN REQUIREMENTS

High Importance

- When located adjacent to buildings and primary and secondary access routes

Medium Importance

- When located in parking lots, building service areas, or along service entry routes.

Low Importance

- Not applicable

SITE PLANNING RECOMMENDATIONS

- 1 Avoid locating PCS channels at the site perimeters except in service areas; orient PCS channels perpendicular to primary and highly visible roads to enhance building visibility.
- 2 Minimize building set backs to consolidate landscape areas; consolidate landscape perimeter islands and buffers to allow integration of water storage and treatment.
- 3 Orient building public spaces, patios and entrances to overlook ponds; create multi-functional open spaces above 5-year event level in PCS and ODS.

RECOMMENDATIONS FOR CONVEYANCE / STORAGE / TREATMENT

- 4 Use flow attenuation, surface swales and localized BMP's to pre-treat parking runoff.
- 5 Locate WQ wetland treatment / PLD to screen blank building facades, service areas, and perimeter parking
- 6 Direct roof runoff to localized PLD's

SOURCE: WENK ASSOCIATES AND HOWARD BEND LEVEE DISTRICT



OFFICE FLEX

PURPOSE: TO PROVIDE LOCATIONS FOR OFFICE FLEX BUILDINGS THAT ALLOW OPPORTUNITIES FOR MULTIPLE BUSINESS USES IN CONJUNCTION WITH SIMILAR SURROUNDING OFFICE FLEX USES.

CHARACTERISTICS: OFFICE SPACE IN COMBINATION WITH TECHNOLOGY, RESEARCH AND DEVELOPMENT, RETAIL, AND/OR CLEAN, INDOOR FABRICATION/ASSEMBLY USES; ALL USES CONTAINED WITHIN STRUCTURE; LIMITED NUMBER OF EMPLOYEES. OFFICE FLEX GENERALLY DOES NOT INVOLVE THE PRIMARY STORAGE OR DISTRIBUTION OF MATERIALS, WHICH MAY BE INCLUDED AS AN ACCESSORY USE THAT INCLUDES APPROPRIATE SCREENING AND MITIGATION OF LOADING DOCKS AND OTHER RELATED SITE ELEMENTS.

DEVELOPMENT SIZE: Minimum project size is typically 15 to 50 acres.

BUILDING SIZE: Building sizes typically range from 10,000 - 50,000 square feet.

CRITERIA FOR DESIGNATION:

- Identify as buffer use between higher/more intensive uses (i.e., office campus) and office distribution/industrial uses;
- May front either Missouri Route 141 or River Valley Parkway when applicable design standards are met;
- Must have, or be able to provide sufficient infrastructure (road, water, sewer, stormwater) capacity;
- Office uses should be located along the “public” face of the structure facing public ROW or the publicly oriented portion of the development;
- Should be in proximity to service retail;
- Architectural design and associated characteristics should primarily be reflective of office development types (i.e. variety of architectural materials, etc.).

DEVELOPMENT GUIDELINES

- Promote building designs, systems and practices that are sustainable and adaptable to multiple uses in the interest of extending the building life cycle;
- Minimum amount of open space should be 35%;
- Architectural elements, such as colonnades, canopies, walkways, lighting standards, street furniture and variety in building materials, together with building massing and form, should create human scale;
- Provide gateway features along public ROW;
- Frontage occupied primarily by building;
- Integrate open space into stormwater management system designed as a site amenity.

OFFICE FLEX EXAMPLES





CHARACTERISTICS

Small to medium floor plate buildings, large areas of truck and auto loading, circulation, and parking surrounding each building; low density of employees and visitors

TRAITS AFFECTING DESIGN APPROACH

- High visibility from Maryland Heights Expressway and proposed collector streets
- Provision for employee break areas

PCS CHANNEL RECOMMENDATIONS

High Importance

- Building frontages along Maryland Heights Expressway and buildings
- Project primary entries

Medium Importance

- Areas adjacent to individual unit entries
- Side and rear parcel edges adjacent to local streets and frontages of adjacent projects

Low Importance

- Interior side and rear project limits

SITE PLANNING RECOMMENDATIONS

- 1 Minimum building setbacks, consolidate landscape buffers and islands to all allow multiple use as BMPs and flow attenuation
- 2 Provide adequate buffering and screening of storage, circulation and parking as an integral part of conveyance, storage, and treatment; locate large conveyance, storage and treatment at project side and rear limits
- 3 Locate ponds and refined landscape areas for employee usage at project entries as an integral part of conveyance and storage, and to enhance project identity
- 4 Locate large conveyance, storage, and treatment not designed as a landscape amenity at rear and side property limits or as interior of buffer
- 5 Rout of roof runoff through landscape islands at building perimeters for treatment and flow attenuation

SOURCE: WENK ASSOCIATES AND HOWARD BEND LEVEE DISTRICT



OFFICE DISTRIBUTION



PURPOSE: TO PROVIDE FOR LOCATIONS FOR COMBINED OFFICE AND DISTRIBUTION FACILITIES

CHARACTERISTICS: BUSINESS SERVICES, WAREHOUSING, DISTRIBUTION CENTER; TYPICALLY A PLANNED PARK OR CAMPUS DEVELOPMENT; LIMITED NUMBER OF EMPLOYEES; MAY INCLUDE WHOLESALE USES WITH DISTRIBUTION BUT WITHOUT A LOCAL RETAIL OUTLET; ALL USES CONTAINED WITHIN STRUCTURE; LOADING DOCKS SCREENED FROM PUBLIC VIEW.

DEVELOPMENT SIZE: Minimum project size is typically 25 to 50 acres.

SITE SIZE: Minimum site size is typically 5 to 10 acres.

BUILDING SIZE: Typical building square footage range between 50,000 and 250,000 square feet.

CRITERIA FOR DESIGNATION:

- Must have or provide sufficient infrastructure (road, water, sewer, stormwater) capacity;
- Sufficient land area for internal roadway network that can accommodate large over the road trucks;
- Access to a major roadway through a connector street; Office Distribution may not have direct access to or front on Route 141 or River Valley Parkway.

DEVELOPMENT GUIDELINES

- Architectural design to incorporate design features that create visual relief and shadow into the façade; articulation of building entrances as visual features and focal points; and allows for variety in building surface materials;
- Gateway features utilized along public ROW;
- Integrated open space in coordination with stormwater management system designed as a site amenity;
- Provide connections to the open space system;
- Adequate screening of loading docks from the public ROW.

OFFICE DISTRIBUTION EXAMPLES





LIGHT INDUSTRIAL



PURPOSE: TO PROVIDE OPPORTUNITIES FOR CLEAN, INDOOR RESEARCH, DEVELOPMENT, ASSEMBLY, MANUFACTURING, WAREHOUSING, AND DISTRIBUTION, ALONG WITH SUPPORTIVE GOODS AND SERVICES AT LOCATIONS THAT ALLOW FOR MODERATE TRANSPORTATION IMPACTS

CHARACTERISTICS: ALL USES CONTAINED INDOORS; MAY INCLUDE LIMITED SCREENED OUTDOOR STORAGE; NO EXTERNAL NOISE, EMISSIONS, LIGHT, OR ODORS; LIMITED NUMBER OF EMPLOYEES; LIGHT TO MODERATE TRUCK TRAFFIC AND LOADING.;

DEVELOPMENT SIZE: 25 TO 100 ACRES

BUILDING SIZE: Typical gross floor area of 50,000 to 250,000 square feet.

CRITERIA FOR DESIGNATION:

- Must have or provide sufficient infrastructure (road, water, sewer, stormwater) capacity;
- Access to a major roadway through a connector street; Light Industrial may not have direct access to or front on Route 141;
- Sufficient land area for internal roadway network that can accommodate large over the road trucks;
- Development may be permitted to exceed 250,000 square feet subject to an impact assessment on surrounding land uses, development and viewsheds.

DEVELOPMENT GUIDELINES

- Architectural design to incorporate design features that create visual relief and shadow into the façade; articulation of building entrances as visual features and focal points; and allows for variety in building surface materials;
- Integrated open space in coordination with stormwater management system designed as a site amenity;
- Provide connections to the open space system;
- Adequate screening of loading docks from the public ROW.

LIGHT INDUSTRIAL EXAMPLES





CHARACTERISTICS

Large scale, large floor plate buildings with singular or multiple tenants. Large truck loading, storage, and parking areas surrounding buildings

TRAITS AFFECTING DESIGN APPROACH

- Typically in low visibility areas
- Low density of employees

PCS CHANNEL DESIGN REQUIREMENTS

High Importance

- N/A

Medium Importance

- Buildings fronting on primary access routes, building entry areas.

Low Importance

- Site rear and side lot edges, storage and loading areas

SITE PLANNING RECOMMENDATIONS

- 1 Uses PCS channels with screening plantings to buffer adjacent uses, especially at Development Type edges bordering the mitigation area and other Development Types
- 2 Minimize building setbacks; consolidate landscape areas to incorporate ODS and on-site BMPs to screen blank walls and parking.
- 3 Locate ponds, multi-functional landscape areas adjacent to building entries
- 4 Incorporate consolidated ODS and BMPs into building layout to isolate fragmented storage and treatment.
- 5 Incorporate sand filters and porous pavements in low use/low visibility areas if storage and treatment requirements cannot be met through other means.
- 6 Incorporate porous landscape detention in landscape islands to separate and screen uses and blank facades.

SOURCE: WENK ASSOCIATES AND HOWARD BEND LEVEE DISTRICT



SERVICE RETAIL



PURPOSE: TO PROVIDE FOR LOCAL AND COMMUNITY RETAIL DEMAND GENERATED BY SURROUNDING LAND USES

CHARACTERISTICS: RETAIL, RESTAURANT AND PERSONAL SERVICE BUSINESSES THAT OFFER CONVENIENT ACCESS FOR EMPLOYEES AND VISITORS OF NEARBY DEVELOPMENT; PRIMARY TRADE AREA FOR SERVICE RETAIL IS THREE TO SIX MILES.

DEVELOPMENT SIZE: Minimum project size is typically 5 acres.

BUILDING SIZE: 10,000 to 50,000 square feet, individual building footprints tend not to exceed 50,000 square feet.

CRITERIA FOR DESIGNATION:

- Located along collector street or higher;
- May be located within office or industrial district as part of a larger development;
- Contains a variety of businesses and services at various scales, does not include large scale retail (“big-box”) uses;
- Ability to provide vehicle and pedestrian connections to surrounding uses;
- Compatible with surrounding neighborhood;
- Integrated into adjacent uses.

DEVELOPMENT GUIDELINES

- Architectural elements, such as colonnades, canopies, walkways, lighting standards, street furniture and variety in building materials, together with building massing and form, should create human scale;
- Gateway features utilized along public ROW;
- Frontage occupied primarily by building;
- Integrated open spaces;
- Stormwater management designed as a site amenity and integrated into the open space system;
- Buildings that derive their image solely from applied treatments that express corporate identity are discouraged.

SERVICE RETAIL EXAMPLES





REGIONAL RETAIL



PURPOSE: TO PROVIDE OPPORTUNITIES FOR REGIONAL AS WELL AS LOCAL RETAIL AND SERVICE DEMAND AT A DESTINATION SITE WITH PROXIMITY TO MANY USERS AND ACCESSIBILITY LOCALLY AND REGIONALLY

CHARACTERISTICS: INTENSITY MAY RANGE FROM SMALLER SCALE TO LARGE-SCALE RETAIL AND MAY INCLUDE A COMBINATION OF USE SIZES; NO RESIDENTIAL USES; MIX OF AUTO-ORIENTED AND PEDESTRIAN ORIENTED USES; OFTEN INCLUDES PAD SITES ALONG MAJOR ROADWAYS FOR CONVENIENCE GOODS, RESTAURANTS AND SERVICES. THE PRIMARY TRADE AREA FOR REGIONAL RETAIL IS FIVE TO FIFTEEN MILES.

DEVELOPMENT SIZE: Minimum project size is typically 35 to 50 acres.

BUILDING SIZE: 10,000 to 100,000 square feet, individual building footprints tend not to exceed 100,000 square feet (buildings may be larger when integrating multiple tenants into a single structure).

CRITERIA FOR DESIGNATION:

- Interchange or intersection of arterial streets or higher;
- High visibility location;
- May include ancillary office uses but no residential uses;
- Must have or provide for sufficient infrastructure (road, water, sewer, stormwater) capacity;
- Sufficient land area for internal roadway network.

DEVELOPMENT GUIDELINES

- Present an integrated connected appearance;
- Designed to front on access roads with parking primarily located behind the buildings, presenting frontage development at 60% occupied by building;
- Facades should be articulated to reduce the massive scale and the uniform appearance of large retail buildings; provide visual interest; introduce human scale elements along the walkways fronting the building;
- Building design and entrances should be designed to reduce walking distances from parking lots and facilitate pedestrian access;
- Signage consolidated and integrated into the architecture;
- Stormwater management and open space will be integrated into the development and utilized as a multi-functional site amenity;
- Parking areas should promote safe, convenient and efficient access for vehicles and pedestrians.

REGIONAL RETAIL EXAMPLES





ENTERTAINMENT



PURPOSE: TO PROVIDE OPPORTUNITIES FOR ENTERTAINMENT AND HOSPITALITY USES IN PROMINENT ACCESSIBLE LOCATIONS THAT COMPLIMENT AND ENHANCE EXISTING ENTERTAINMENT USES.

CHARACTERISTICS: STATE- LICENSED GAMING FACILITIES; HOTELS/MOTELS; RESTAURANTS; SPECIALTY RETAIL; ENTERTAINMENT AND HOSPITALITY USES; RECREATION-ORIENTED USES; ADMINISTRATIVE SERVICES; CONVENTION AND EXHIBITION SPACES.

DEVELOPMENT SIZE: Typically 25 to 50 acres.

BUILDING SIZE: 10,000 to 100,000 square feet, individual building footprints tend not to exceed 100,000 square feet (buildings may be larger when integrating multiple tenants into a single structure).

CRITERIA FOR DESIGNATION:

- Adjacent to existing entertainment uses;
- Access to either Missouri Route 141 or River Valley Parkway;
- Must have or provide sufficient infrastructure (road, water, sewer, stormwater) capacity;
- Sufficient land area for internal roadway network;
- Connections to and integration with adjacent uses.

DEVELOPMENT GUIDELINES

- Present an integrated connected appearance;
- Designed to front on access roads with parking primarily located behind the buildings, presenting frontage development at 60% occupied by building;
- Facades should be articulated to provide human scale and the reduce the uniform appearance of large scale buildings and provide visual interest;
- Building design and entrances should be designed to reduce walking distances from parking lots and facilitate pedestrian access;
- Signage consolidated and integrated into the architecture;
- Stormwater management and open space will be integrated into the development and utilized as a multi-functional site amenity;
- Parking areas should promote safe, convenient and efficient access for vehicles and pedestrians.

ENTERTAINMENT EXAMPLES





MIXED USE



PURPOSE: TO PROVIDE FOR A DENSE, COMPATIBLE MIX OF RETAIL, RESIDENTIAL, COMMERCIAL BUSINESS AND HOSPITALITY LAND USES.

CHARACTERISTICS: BROAD MIX OF USES WITH COMPATIBILITY ENSURED THROUGH SITE DESIGN; INTEGRATED PEDESTRIAN CIRCULATION THROUGHOUT SITE AND TO SURROUNDING USES; BUILDING SIZE AND USE INTENSITY CAN VARY ACROSS DEVELOPMENT; CAN BE TOURIST AND/OR RECREATION ORIENTED; GENERAL AND SPECIALTY RETAIL; MIX OF MULTIFAMILY HOUSING TYPES; OPEN SPACES AND PUBLIC SPACES; SEEN AS A CATALYST FOR HIGH QUALITY DEVELOPMENT; USEFUL IN CREATING COMPACT DEVELOPMENT NODES CENTERED ON PLAZA'S AND OTHER PUBLIC SPACES.

TIMING: While mixed use is the preferred development type in some areas of Howard Bend, it is an emerging development type and may take time to reach build-out and maturity. As development takes place in the Maryland Park Lake District, plans for conditionally encouraged uses, such as regional retail, in mixed use areas will be reviewed to ensure that building layout, infrastructure patterns, and potential connections to public transit can be adapted easily in the future to maximize potential mixed use developments. Early uses on a mixed use site should not preclude future possibilities, and public infrastructure and rights-of-way should be planned accordingly.

DEVELOPMENT SIZE: Typically 40 to 100 acres

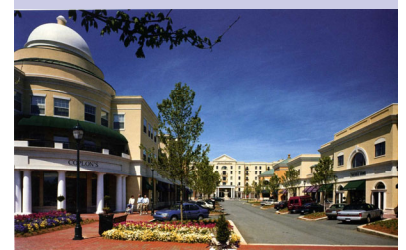
CRITERIA FOR DESIGNATION:

- Access to Missouri Route 141;
- Connection between open/space active recreation and other uses;
- Must have or provide sufficient infrastructure (road, water, sewer, stormwater) capacity;
- Sufficient land area for internal roadway network;
- Increased access to the transportation network;
- Access to alternative modes of transportation;
- Promotes a sense of community and place;
- Provide increased access and connection to public places and open space.

DEVELOPMENT GUIDELINES

- Mixed-use developments should create an inviting and attractive destination for local residents and region wide users. Buildings, and spaces between buildings, should be designed and oriented to create safe, pleasant, and active environments;
- The development's circulation system should promote efficient movement of vehicles in a clear and well-defined manner that minimizes conflicts with pedestrians and bicycles. Pedestrian users should find that public spaces and gathering places are clearly identified and easy to access and locate;

MIXED USE EXAMPLES





- Landscaped areas should be used to frame and soften structures, to define site functions, to enhance the quality of the environment, and to screen undesirable views. Landscaping should work with buildings and surroundings to make a positive contribution to the aesthetics and function of both the specific site and the area;
- Visitors and residents should be able to locate and identify major attributes of the development through a unified signage concept;
- Visitors and residents should find that the development provides the best possible design to protect their personal safety and safety of their property.



Retail/Mixed-Use/Entertainment Development Type

CHARACTERISTICS

Retail: Large to small floor plate service and retail buildings surrounded by large parking areas; service and delivery access from secondary access routes, primary visitor access from primary and secondary access.

Multi-Use: medium to small floor plate buildings with a mix of residents and visitors; small to large parking areas with integrated service and delivery access.

Entertainment: Destination, linked, small to large floor plate buildings, surrounded by parking

TRAITS AFFECTING DESIGN APPROACH

- Generally bounded by Page Avenue / Maryland Heights Expressway
- Emphasis on outdoor pedestrian environments
- Importance of image and visibility
- Small to large building foot prints organized around pedestrian spaces and parking

PCS CHANNEL DESIGN REQUIREMENTS

High Importance

- When located adjacent to buildings primary and secondary frontages and primary and secondary access routes

Medium Importance

- When located in parking lots, building service areas, or along service entry routes.

Low Importance

- Not applicable

SITE PLANNING RECOMMENDATIONS

- 1 *IP PCS or large ODS channels are required on primary or secondary access perimeters, develop ponds manicured, multi-use landscape areas orient patios, building entries and frontages on PCS to create a unique identity and image*
- 2 *Develop internal channels as an integral part of retail environment (i.e.- San Antonio River Walk).*
- 3 *Minimize building setbacks to strengthen retail identity; consolidate landscape islands and integrate PCS, ODS, and BMPs*

RECOMMENDATIONS FOR CONVEYANCE / STORAGE / TREATMENT

- 4 *Use flow attenuation, surface swales and localized BMP's to pre-treat parking runoff; locate BMPs in*
- 5 *Locate WQ wetland treatment / PLD to screen blank building facades, service areas, and perimeter parking*
- 6 *Direct roof runoff to localized PLD's*

SOURCE: WENK ASSOCIATES AND HOWARD BEND LEVEE DISTRICT



INSTITUTIONAL

PURPOSE: PROVIDE NECESSARY CIVIC ACTIVITY TO A COMMUNITY, THESE USES TYPICALLY INCLUDE GOVERNMENTAL, EDUCATIONAL AND CULTURAL ACTIVITIES. LOCATED THROUGHOUT THE COMMUNITY, INSTITUTIONAL LAND USES TAKE A VARIETY OF FORMS FROM SINGLE BUILDINGS TO CAMPUSES.

CHARACTERISTICS: ALLOWS FLEXIBILITY IN DEVELOPMENT FOR MAJOR, MULTI-FUNCTIONAL INSTITUTIONAL USES THAT SERVE THE GREATER COMMUNITY. MANAGE THE EXPANSION OF MAJOR INSTITUTIONAL USES TO PREVENT UNNECESSARY IMPACTS ON ESTABLISHED NEIGHBORHOOD AREAS. PRESERVE THE AVAILABILITY OF SITES FOR CIVIC FACILITIES TO ENSURE THAT FACILITIES ARE ADEQUATE FOR POPULATION GROWTH. PROMOTE CIVIC USES THAT ARE ACCESSIBLE AND USEABLE FOR THE NEIGHBORHOOD RESIDENT AND MAINTAIN STABILITY OF TYPES OF PUBLIC USES IN THE NEIGHBORHOOD. MAY INCLUDE HOUSING FACILITIES THAT ARE ACCESSORY TO A CIVIC USE, SUCH AS STUDENT DORMITORIES RECOGNIZE SUITABLE AREAS FOR PUBLIC USES, SUCH AS HOSPITALS AND SCHOOLS, THAT WILL MINIMIZE THE IMPACTS TO RESIDENTIAL AREAS.

TIMING:

DEVELOPMENT SIZE: 5 - 25 ACRES

BUILDING SIZE: 25,000 - 75,000 SQUARE FEET

CRITERIA FOR DESIGNATION:

- An existing civic use that is likely or encouraged to redevelop into a different land use should NOT be designated as civic;
- Civic uses that are permitted throughout the city, such as day care centers and religious assembly, should not be limited to only the civic land use designation.

DEVELOPMENT GUIDELINES:

- Promote building designs, systems and practices that are sustainable and adoptable to multiple uses in the interest of extending the building life cycle;
- Minimum amount of open space should be 35%;
- Architectural elements, such as colonnades, canopies, walkways, lighting standards, street furniture and variety in building materials, together with building massing and form, should create human scale;
- Provide gateway features and design elements along public ROW;
- Majority of the frontage occupied primarily by building;
- Integrated open space in coordination with stormwater management system designed as a site amenity;
- Provide the usability and connectivity of the pedestrian environment by enhancing internal access within the campus, providing access to the public realm of the street and/or open space features.

INSTITUTIONAL EXAMPLES





TRANSPORTATION

The ability of the Maryland Park Lake District to fully develop depends on adequate access and transportation system capacity provided to the area. This Transportation Plan provides the foundation for determining transportation needs and improvements required to provide adequate access and capacity into the planning area.

As development occurs, each development will be required to perform a Transportation Impact Study (TIS), which will be guided by this transportation plan. Transportation Impact Studies will consider the capacity, operations, safety, and sustainability of all applicable modes of transportation (e.g., automobile, trucks, walking, bicycling, and public transportation) with and without the proposed development. These studies will identify the forecasted trips associated with each proposed phase of development and will identify improvements necessary to mitigate transportation impacts resulting from the proposed development.

The number of trips that would be generated by the proposed land uses will be based upon the current version of Trip Generation, published by the Institute of Transportation Engineers (ITE). Where applicable, person trips should be considered and a pass-by/common trip reduction may be applied. Pass-by and common trips are attracted to developments, but are not new to the roadway system. Pass-by trips are specifically those trips that are temporally diverted from their route to a commercial site (such as a bank, service station, etc.) and then continue in the same direction as their original travel. Common trips are those that are part of a “linked” tour. An example would be a shopping trip with an incidental stop at a bank in the same center. The consideration of additional development scenarios to account for future background growth or other proposed developments may also be required in the development of trip forecast scenarios.

The Transportation Impact Study will consider the sufficiency of the transportation system to accommodate anticipated future travel patterns and demands. Items should be considered such as (but not limited to): physical design characteristics such as design speed, sight distance, lane configurations/widths, pavement condition, and presence/condition of shoulders; driveway/access configurations, spacing, and locations; bicycle and pedestrian accommodations such as sidewalks/trails, trail connections, crosswalks, pedestrian signals, mid-block crossings, and bicycle facilities; connections to and accommodations of the regional public transportation system; and traffic control and devices including intersection configuration/control, signing, striping, on-street parking restrictions and speed limits. Study data, assumptions, calculations, methodologies, results, and recommendations will be submitted for review along with any electronic analysis files.

Proposed transportation improvements will be reviewed and evaluated on an incremental basis as development occurs and is reviewed. Transportation improvements should be designed and constructed to provide a high level of connectivity to other developments (both existing and future), local/regional trail systems, and public transportation facilities. Based upon previous studies it is likely that 175,000 to 325,000 new trips would be generated by the full build-out of planning

TRANSPORTATION POLICIES

1. All new development will require a traffic impact study.
2. New development will reflect the guidance provided in this plan for transportation.
3. New developments will be required to provide the maximum level of connectivity possible regarding current and future developments and the trail system.
4. Improvements to the transportation network will be reviewed and evaluated on an incremental basis as development occurs and is reviewed.
5. Access to developments will be required to provide its fair share of infrastructure improvements on an incremental basis.



CBB

Crawford Bunte Brammeier, the City's transportation consultant's provided the research, methodology and overall background for the transportation discussion and subsequent recommendations.



area. As such, transportation improvements and enhancements are required to support the development envisioned within the planning area. Each development will be required to provide a fair share of infrastructure improvements on an incremental basis.

REQUIRED IMPROVEMENTS

Transportation improvements will be required to support the future development in the Maryland Park Lake District. A description of transportation issues and improvement guidelines (including implementation and the general timing of the improvements) are presented in this plan. Some of the transportation improvements will not be necessary immediately, as the planning area will likely take 30 to 50 years to fully develop. The improvements have been put into three categories: Short, Mid, and Long-Term Improvements. Additionally a graphic is included illustrating the locations and generalized timeframes for improvements.

SHORT-TERM IMPROVEMENTS

COLLECTOR ROADWAY BETWEEN I-70 AND WATERWORKS ROAD (RIVER VALLEY PARKWAY)

Providing a north-south collector roadway running parallel to Missouri Route 141 (Maryland Heights Expressway) from I-70 to Waterworks Road (through Riverport Business Park) is a key improvement toward achieving the access and mobility goals of this plan. This work was documented in a concept plan which was adopted by the Maryland Heights Planning and Zoning Commission on June 27, 2006 as an amendment to the city's Transportation Element of the Comprehensive Plan.

This roadway ultimately will have four through lanes (two in each direction) and turn lanes at intersections. Although the facility will be designed with some level of access control, it would be primarily designed to provide access to developments within the planning area. Therefore, recommended access control measures should be commensurate with those of a collector roadway. This roadway is planned to be integrated with the regional stormwater conveyance plan (refer to Section 5.2B Stormwater). The roadway will take the form of a parkway, with the regional storm water conveyance system running along the right-of-way, thereby enhancing the aesthetic appearance and feel of the parkway adding value and character to serviced development.

Benefits

River Valley Parkway will support several of the planning area's transportation goals including:

1. Providing multiple interconnections to integrate land uses in the planning area.
2. Avoiding freestanding development areas that are unrelated to each other.
3. Maximizing traffic efficiency.

REQUIRED IMPROVEMENTS

Many of the transportation improvements will not be necessary immediately, as the planning area will likely take 30 to 50 years to fully develop. The improvements have been put into three categories: Short, Mid, and Long-Term Improvements.

SHORT-TERM IMPROVEMENTS: Need to be commenced immediately and continue as development proceeds. These are:

1. Extension of Maryland Heights Expressway to Route 340 (Olive Blvd.)
2. Route 141 Connection
3. River Valley Parkway
4. Maryland Heights Expressway expansion from 4 to 6 lanes
5. Waterworks Road and Maryland Heights Expressway connection
6. Walkways and bikeways

MID-TERM IMPROVEMENTS: Need to be constructed as the development matures (likely within ten to twenty five years). These are:

1. River Valley Parkway/Missouri Route 364 interchange
2. Baxter Road extension
3. Bus circulator

LONG-TERM IMPROVEMENTS: Need to be implemented to facilitate the full build-out of the planning area. They are:

1. Earth City Expressway/River Valley Parkway/I-70 improved interchange
2. Metrolink service



4. Avoiding traffic congestion.
5. Providing for desirable aesthetic design.

This roadway will provide a common corridor through the planning area and tie the various land uses together. Its implementation will eliminate the “cul-de-sac” pattern that is typical of poorly planned developments that quickly become functionally obsolete. It also relieves traffic congestion by providing a way to traverse within the planning area on a “local” roadway; thus preserving the Expressway’s regional character and capacity. The collector roadway and its connections will create multiple travel route options, allowing traffic to spread out across the transportation system. This flexibility not only augments system capacity, but it also translates into increased access for emergency providers thus enhancing safety.

Alignment of River Valley Parkway at River Valley Drive

The River Valley Parkway Alignment Study completed by CBB in 2008 recommended the “selected” alignment in which River Valley Parkway formed a continuous, north-south route parallel to the Expressway and connected via the River Valley Drive Connector. An “optional” alignment was also identified that teed River Valley Parkway into River Valley Drive. The “optional” alignment was ultimately chosen by the city since 1) the “optional alignment provides a reasonable level of connectivity and congestion relief, 2) the “optional” alignment has less encroachment on existing property boundaries, 3) the reduction in development levels supported by the “optional” alignment versus the “selected” alignment, approximately the final 10% of opportunity in the planning area, was not significant enough to justify its negative impacts on adjacent property.

Trigger

The River Valley Parkway extension should be constructed along with adjoining developments, as a primary part of their access plan. Initially the roadway could be built as a two or three-lane facility with right-of-way preserved for the future expansion of the roadway to four-lanes with a median and left-turn lanes. Consideration should be given to widening to a four-lane facility with a median and left-turn lanes when traffic volumes dictate the need, which is generally 10,000 - 12,000 vehicles per day (vpd) or when the peak hour level of service reaches LOS “D”.

WIDEN MISSOURI ROUTE 141 TO SIX-LANES BETWEEN HARRAH’S AND RIVER VALLEY DRIVE

Missouri Route 141 (Maryland Heights Expressway) will eventually need to be widened to six-lanes between Harrah’s Casino and River Valley Drive. Although the Expressway currently has four lanes between Harrah’s and River Valley Drive, it was designed to be widened to six lanes in the future. The additional capacity that the widening of Missouri Route 141 would create would help to preserve the regional function of the expressway while allowing for local uses (i.e. the development of the planning area).

Benefits

The major benefit of the widening of the expressway is the additional capacity that

“The automobile as an object has been our industrial civilizations most significant product Its side effects in terms of mass consumption are enormous. The infrastructures of the land and the urban environment have suffered from a radical upheaval, the historical city centres have been jeopardized by it, the whole system of transporting goods and people has been revolutionized and even our vision of things has been transformed, both subjectively in our mode of perception and objectively in changes to the landscape.

—Vittorio Gregotti, 1978



SOURCE: CRAWFORD, BUNTE, BRAMMEIER

FIGURE 9.4.7: AVERAGE DAILY TRAFFIC VOLUMES



would be created at the signalized intersections along Missouri Route 141. The additional capacity would promote improved Levels of Service and traffic efficiency.

Issues

The primary issue to widen the expressway is cost. However, the right-of-way has already been acquired and much of the grading has already been completed for this widening, which will greatly reduce overall project cost.

Trigger

Consideration should be given to widen the expressway to six-lanes when peak hour operating conditions reach LOS “D” or “E”, generally consistent with traffic volumes of 35,000-45,000 vpd.

IMPROVEMENTS TO MISSOURI ROUTE 141 INTERSECTIONS AND INTERCHANGES

The Missouri Route 141 intersections and interchanges between Creve Coeur Mill Road and Water Works Road will require improvements as a part of ongoing development in the planning area. The interchange at Missouri Route 141/Missouri Route 364 is currently experiencing capacity and operational issues during peak periods. Morning commuter peak queues extend from the eastbound off-ramp onto Missouri Route 364, at times to the Missouri River. Evening commuter peak queues spill back on northbound Missouri Route 141, at times past Water Works Road. Other intersections are at or nearing capacity.

Improvements to existing intersections will be necessary to accommodate additional development. Examples of improvements that have been considered in the past and that may benefit the roadway system include:

- Improvements to the Interchange at Missouri Route 364/Missouri Route 141
- Lengthening and/or Adding Turning Lanes at Intersections
- Widening Side Street Approaches
- Traffic Signal System Improvements
- Respacing of Traffic Signals
- New Interchange at Missouri Route 141/Water Works Road
- New Interchange/Grade Separation of Missouri Route 141 at River Valley Drive

Benefits

As development occurs, improvements at these junctions will be critical to provide an appropriate level of capacity along Missouri Route 141 and provide access into the area. These improvements should be designed and constructed in such a way to promote interconnectivity within the planning area and, to the extent possible, remove traffic from Missouri Route 364 and Missouri Route 141, providing a longer function life from these facilities.

Issues

There are significant constraints for many of these improvements. Much of the right-of-way along this corridor is constrained by the Creve Coeur Memorial Park mitigation area, Creve Coeur Park, the Creve Coeur Airport, proposed development plans, the existing railroad, City of St. Louis waterlines, and the Missouri River bluffs. Design studies are needed to identify the most feasible and cost effective improvement options.



Trigger

Improvements should be constructed as a part of ongoing development, as is required to maintain the functionality of the local and regional transportation system. Intersection and traffic signal improvements could be constructed along with some developments as a part of their primary part of their access plan. Larger improvements (such as new interchanges, interchange improvements, and grade separations) may require the financial support of more than one development. In that case each development should be required to provide a fair share of funding to support the overall project. The specific nature and timing of each improvement should be determined through the Transportation Impact Study Process.

WALKWAYS AND BIKEWAYS

The inclusion of pedestrian and bicycle facilities into the planning area will serve as an important piece in the overall success of the area. The Comprehensive Plan includes several goals related to the development of walkways and bikeways. The Plan seeks to implement a system of walkways and bikeways which 1) serve developments, 2) provide connectivity between developments, and 3) provide connectivity and integration with the regional trail and public transportation systems.

Benefits

Walkways can provide many benefits to an area. First, a well-planned local system of pedestrian and bicycle facilities that connects to a regional system can help enhance the marketability and perception of a community. Moreover, such facilities can help improve a company's image. Companies that build projects with well planned and executed pedestrian amenities, conservation and open space benefits, stand a better chance of being recognized as environmentally-friendly which may help facilitate a better public-image. Walkways and bikeways can also help to enhance floodplains, wetlands, and other types of conservation areas as amenities. Finally, trails help to promote physical activity, fitness, and health. The planning area's system will be unique in that it will connect to several regional trails including the Katy and Centennial Trails. These connections are likely to result in some commuters choosing bicycle as their preferred mode of travel.

Issues

Such facilities are sometimes met with opposition by local neighborhoods. However, the planning area is largely a "greenfield" development of commercial nature, so public opposition should not be an issue. Resultantly, there should be no major issues to implementing walkways and bikeways in the planning area.

Trigger

The inclusion of walkways and bikeways into the area is most easily completed at the inception of development. This would likely include creating the system incrementally as development occurs in conjunction with other infrastructure implementation.

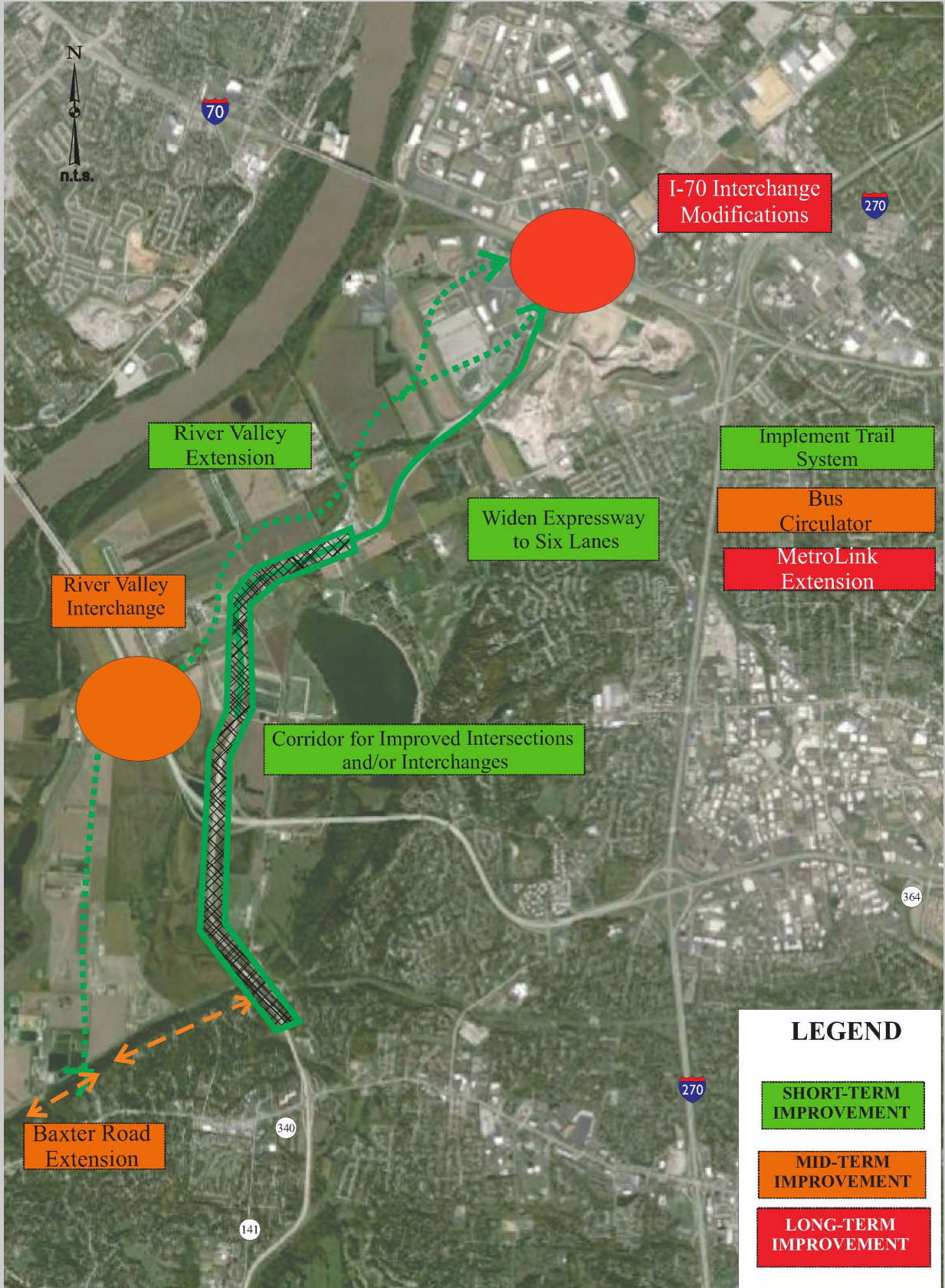
EXTEND EXISTING METROBUS LINES

New developments should consider accessibility to the region's public transportation system. Currently MetroBus serves Riverport and Earth City with Bus Route 34. Additionally, Bus Routes 33 and 98 serve the area near Dorsett Road and I-270. Transportation Impact Studies should coordinate with the Bi-State Development Agency in order to consider extending public transportation routes to serve new developments as they occur.

Benefits

Provision of access to the regional Public Transportation System would result in:

- Congestion reduction
- Environmental pollutant reduction



SOURCE: CRAWFORD, BUNTE, BRAMMEIER

FIGURE 9.4.8: HOWARD BEND TRANSPORTATION IMPROVEMENTS



- Equitable means of travel

Issues

The primary issues with extending existing bus routes or adding new bus routes is cost and ensuring that adequate levels of demand exist. The Bi-State Development Agency should be consulted to determine feasibility enhancements to the public transportation system in the planning area.

Trigger

All new developments should consider accessibility to the region's public transportation system.

MID-TERM IMPROVEMENTS

RIVER VALLEY DRIVE INTERCHANGE

An interchange at River Valley Drive/Missouri Route 364 could become important as the planning area builds-out. This interchange would relieve a great deal of pressure from Missouri Route 364 / Missouri Route 141 interchange and Missouri Route 141 / River Valley Drive intersection. Although this project would provide an immediate benefit to the planning area, it is considered a "mid-term improvement" for two reasons. First, this improvement will not be required until much of the planning area's development is already in place. Second, "short-term improvements" such as the River Valley Drive extension (River Valley Parkway) should be put into place before this interchange is constructed.

Benefits

An interchange at River Valley Drive and Missouri Route 364 would help to increase the accessibility of the planning area. This interchange would also play a large role in relieving traffic on Missouri Route 141. The areas that would benefit the most from this interchange would be 1) developments near the Missouri Route 364/Missouri Route 141 interchange (including a possible regional retail component) and 2) developments in the River Valley District. Without this interchange, a primary route for entering the River Valley District would be to travel north on the Expressway to the River Valley Drive intersection and then cross back over Missouri Route 364 to access this area. An interchange at Missouri Route 364 and River Valley Drive could likely take 15,000-25,000 vpd off this segment of the expressway.

Issues

Some of the potential issues in the construction of an interchange between River Valley Drive and Missouri Route 364 include:

- Environmental (some of the interchange's footprint would fall in wetland mitigation areas created for the Missouri Route 364 project)
- Cost
- MoDOT approval (a typical interchange design would not allow sufficient spacing from Missouri Route 141 interchange; thus a modified interchange form, such as a modified split-diamond interchange, would probably be required).

Due to these issues the ability to gain approvals for such improvements may be challenging and time-consuming.

Trigger

This improvement will likely be necessary when a substantial level of development is realized in the district (e.g., possibly a retail component located near the Missouri Route 364/Missouri Route 141 interchange).



BAXTER ROAD EXTENSION

St. Louis County has previously explored a potential new roadway extending from existing Baxter Road to the southern portion of the planning area, possibly connecting to the Expressway. This extension of Baxter Road was considered as a means of reducing traffic congestion, specifically along Missouri Route 340 (Olive Boulevard). This project is not active at this time, but would allow alternative access to the south portion of the district and should remain as mid-term improvement to improving access to the district.

Benefits

An extension of Baxter Road would provide several benefits; regionally and locally. First, the extension would provide better access to the southern part of the planning area. Additional access points to the planning area would help to alleviate traffic on the existing access roads. The extension of Baxter Road would also help to relieve the traffic conditions at the interchange of Missouri Route 141 and Missouri Route 340.

Issues

Some of the issues that may be involved in the extension of Baxter Road include:

- Purchase of land/cost
- Right-of-way constraints
- The St. Louis County water plant
- Other environmental issues

Trigger

Any extension of Baxter Road would likely be initiated by an initiative by the City of Chesterfield and St. Louis County.

BUS CIRCULATOR

A local transit circulator, similar to the St. Charles SCAT system, Forest Park Trolley, or that used on the Washington University Campus, could be implemented in the planning area to provide alternative means of travel within the planning area. A transit circulator could provide a relatively low cost method of transit in the area. The bus circulator could serve development in the district and could also serve to act as a feeder system if light rail was extended to the planning area. The combination of light rail and bus service may prove necessary in order to provide access to the regional public transportation system and reduce congestion.

Benefits

The inclusion of a bus circulator without light rail service can provide many benefits including:

- Congestion reduction
- Environmental pollutant reduction
- Equitable means of travel

The inclusion of a bus circulator with the expansion of the light rail system to the planning area would include the above benefits as well as a complimentary service that may help to increase ridership and regional mobility.



Issues

The primary issues with the addition of bus service to the planning area are cost and ensuring that adequate levels of demand exist. The costs associated with this alternative would include capital costs (purchase of a vehicle), operation, maintenance, and contracting with an operator. One vehicle would likely cost roughly \$100,000, while operation and maintenance (depending on the hours of operation) could cost roughly \$100,000 annually. MoDOT solicits bids for transit vehicles for public service providers, which is funded through the STP process with the local sponsors providing a 20% match. The sponsor is required to fund the operating costs.

Trigger

The inclusion of bus service to the area would be necessary once it was determined that the demand for the service is sufficient to justify the annual operating expenses. It may also be necessary to include bus service if light rail service is extended to the area. The bus service would then act as a service “feeder” for transit riders to access more specific sites within the planning area.

LONG-TERM IMPROVEMENTS

EARTH CITY EXPRESSWAY/RIVER VALLEY DRIVE EXTENSION/ I-70 INTERCHANGE

The segment of Missouri Route 141 (Earth City Expressway) south of I-70 will experience increased levels of traffic congestion as development in the planning area occurs. This is due to the fact that Earth City Expressway is the only way to access the planning area from I-70. However, it may be possible at some point in the future to provide additional capacity by tying directional movements between the River Valley Drive Extension and I-70/Earth City Expressway interchange as a part of a future project to replace the existing I-70/Earth City Expressway interchange. This would create an alternative route for access into the planning area.

Benefits

An I-70/Earth City Expressway interchange with direct connections to the proposed River Valley Drive Extension would help to reduce future congestion on the Expressway. As previously noted, currently the only way to access the planning area from I-70 is the interchange with Earth City Expressway. A revised interchange configuration that allows for direct connections to the proposed River Valley Drive Extension would likely result in a significant diversion of traffic off of Earth City Expressway north of Harrah's and would also create better access to the northern end of the planning area.

Issues

There are three primary issues that may arise in this improvement.

- The proposed connections would likely have to thread between existing Riverport buildings to reach I-70. It may be possible to thread this connection through Riverport's parking areas and replace the lost parking with structured parking. Safe pedestrian accommodations may also be required to connect the Amphitheater with its parking areas.
- Cost
- FHWA/MoDOT approval; a typical interchange design would not allow sufficient spacing within the Earth City Expressway/I-270/70/St. Charles Rock Road interchange complex; thus a modified interchange form would be required. The standard process may take several years for design and agency approvals.

Trigger

The modification of the I-70/Missouri Route 141 interchange to allow for direct connections to the proposed River Valley



Drive Extension would help to reduce future congestion on the Expressway. It may be most efficient to tie this improvement into future reconstruction efforts by MoDOT. Previous planning studies have noted the need to conduct design studies to determine the most feasible and cost effective improvements at the I-70/Missouri Route 141 interchange to accommodate additional development in the Maryland Park Lake District.

METROLINK EXTENSION

Description

Currently, there is no light rail service in the planning area. However, Metro does have a light-rail connection to West Port and the planning area included as part of its master plan. The proposed Daniel Boone corridor would extend from Clayton and the Cross County MetroLink extension to west St. Louis County with a Westport station location. Light rail service in the area would help to alleviate traffic congestion in the area as well as produce potential economic development gains.

Benefits

The addition of a region transit service into the area can have several benefits. Some of the benefits include:

- Reduction in congestion
- Increase access opportunities
- Equitable means of travel

Issues

The primary issues that arise with the inclusion of light rail service include:

- Cost
- Potential public opposition
- Right-of-way acquisition

Trigger

The inclusion of the light rail system into the planning area will be made more attractive and cost effective if the required right-of-way is already set aside. Even so, the implementation of such a project would be regional in nature, completed by St. Louis County, Bi-State Development Agency or the East-West Gateway Council of Governments.



STORMWATER MANAGEMENT SYSTEM - OVERVIEW

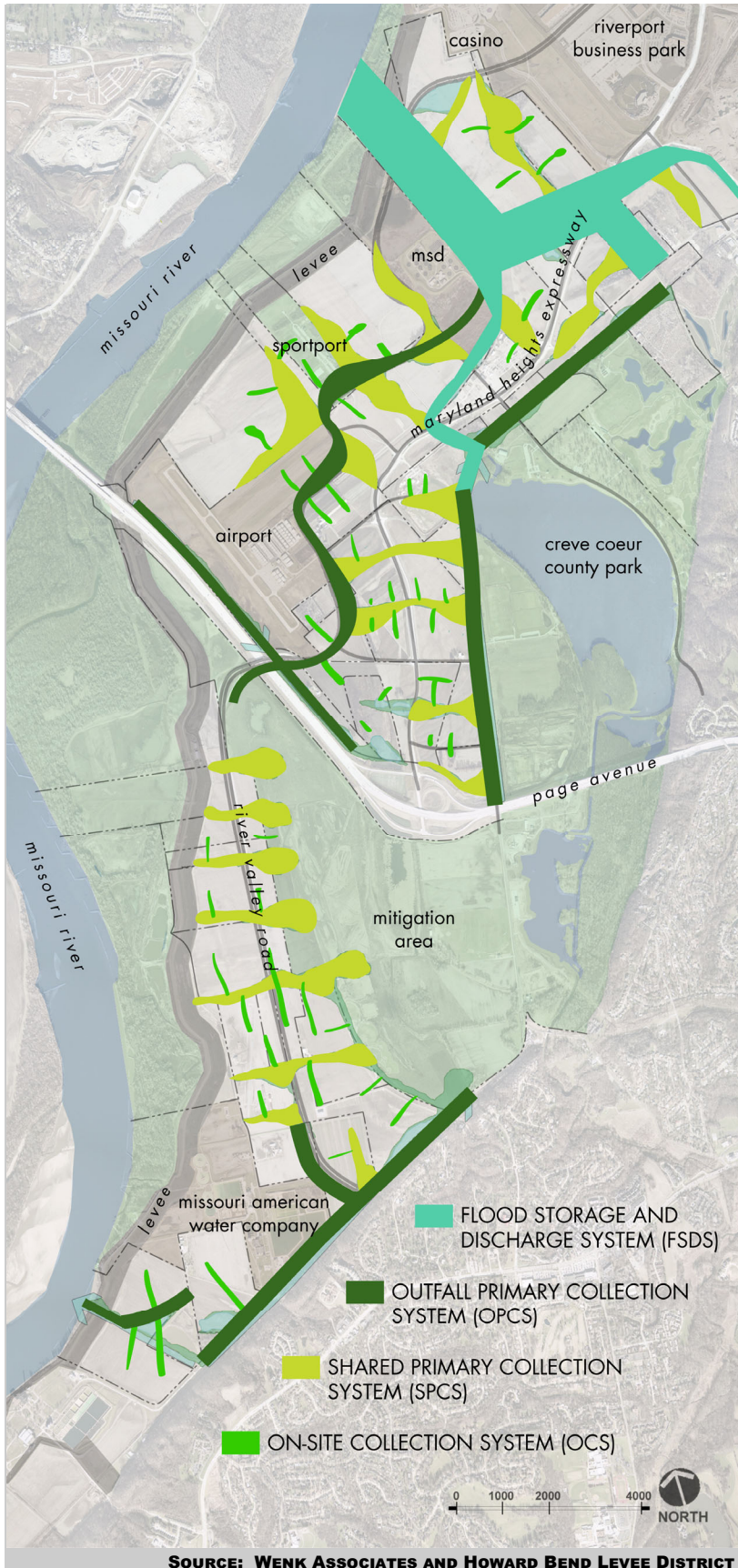
This document presents the framework and implementation guidelines for stormwater management within the Maryland Park Lake District. The design of the system and its approach was based upon the stormwater management vision contained within the 2002 Land Use Plan of multi-functional design and it is also based upon the preliminary engineering studies completed by Horner & Shifrin, the Howard Bend Levee District's engineering consultant. The components of the stormwater system have been developed to be multi-functional and to add value to various development parcels and the District. A key consideration is the manner in which the stormwater conveyance system can help to shape and reinforce desirable development patterns and become a key part of the community's parks and open space network.

This plan was developed through a process that included consultation and collaboration with property owners, Levee District board members, development consultants, and the District's engineer. While this approach was created by the Levee District's consultant, Wenk Associates, collaboration with the City, the City's planning consultants, the planning commission, and the public were critical in establishing an approach to the systems design. Additionally, the St. Louis County parks department staff has been involved in planning work directly related to trails and stormwater management proposals that have a direct effect on Park properties.

The approach taken to stormwater management in the area is one that may be new to the St. Louis region but is being used elsewhere in the country as a means to not only manage stormwater, but also to add character and value to adjoining properties. The system is designed multi-functionally serving the purposes of stormwater management and the creation of an integrated system of open space. Utilization of these design elements will undoubtedly add value and create character within the development of Howard bend and will establish the Maryland Park Lake District as a place of destination and desirability.

"The nation behaves well if it treats the natural resources as assets which it must turn over to the next generation increased, and not impaired in value."

- Theodore Roosevelt



SOURCE: WENK ASSOCIATES AND HOWARD BEND LEVEE DISTRICT

ELEMENTS OF THE REGIONAL STORMWATER MANAGEMENT SYSTEM

The conceptual stormwater management system is comprised of four types of conveyance and storage. From largest to smallest in scale, this system includes the following components:

The River Flood Protection System: Consists of the 500-year levee, flood walls, seepage protection berm, and outlet gates. This system has been completed by the District and has made development feasible in the project area. Hence, the stormwater management system does not address this system.

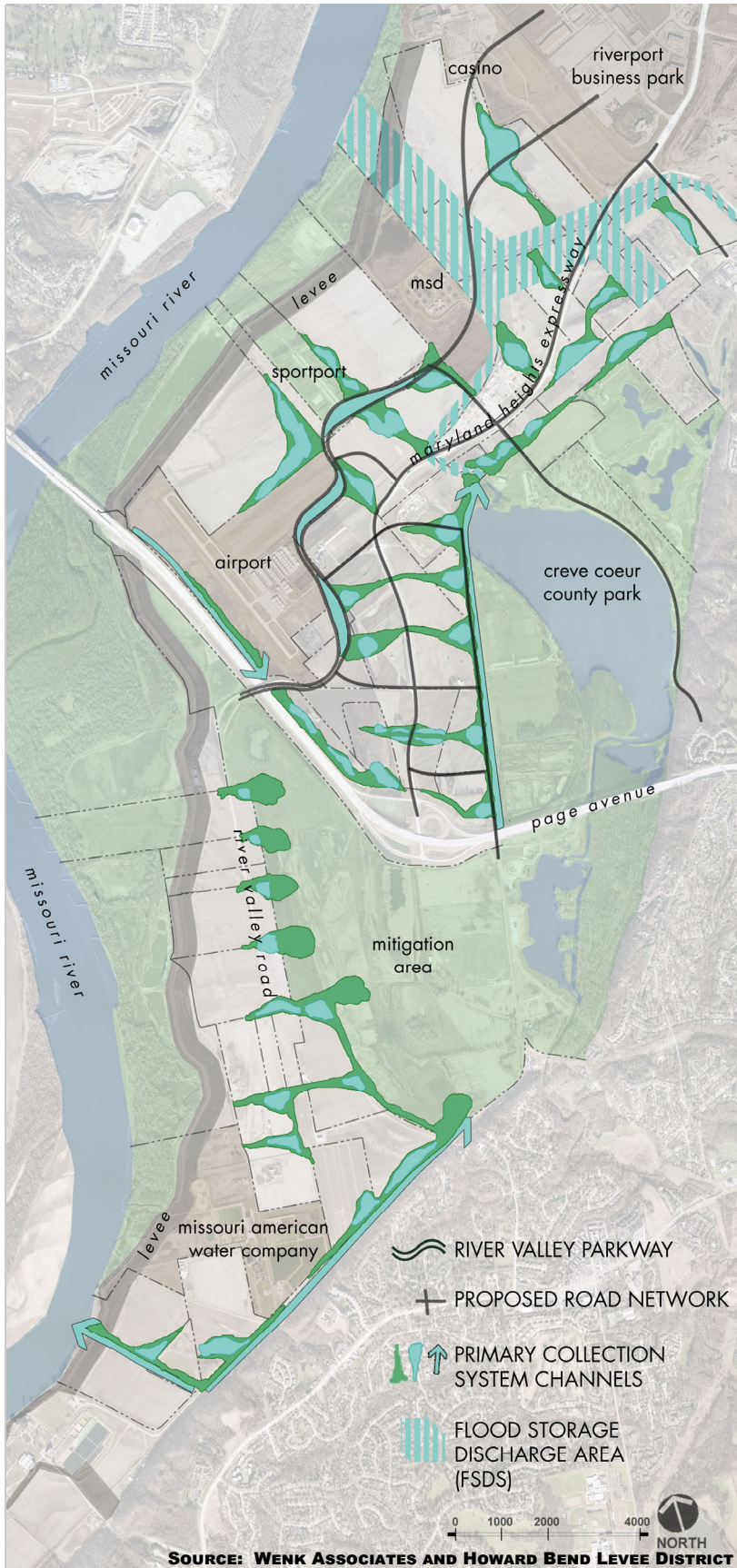
The Flood Storage and Discharge System (FSDS): Consists of Creve Coeur Creek, Fee Fee Creek, and Louisselle Creek; the flank levees along the creeks; Creve Coeur Lake; and the gated outlet culvert through the 500-year levee to the Missouri River. The Flood Storage and Discharge System accommodates upland runoff as well as local runoff and provides the outlet for all discharges to the river.

The Primary Collection System (PCS): collects runoff from developing parcels and conveys their associated stormwater to the flood storage and discharge system. There are two subsets to the system:

1. **Outfall Primary Collection System (OPCS):** This portion of the PCS is directly connected to the FSDS and typically provides contiguous, connected stormwater management for large parcels, or a number of smaller parcels. Because it is contiguous and connected, it can function as an integral part of the regional open space and park uses proposed for the FSDS. In addition to its primary stormwater management functions, the PCS will also provide fill material for development sites.
2. **Shared Primary Collection System (SPCS):** This portion includes localized outfalls that are entirely within larger parcels or that serve as the interface between smaller parcels.

The On-Site Drainage System (OSDS): includes site specific solutions that serve individual development parcels in the District and conveys resulting runoff to the Primary Collection System or directly to the Flood Storage and Discharge System. Specific OSDS's rely on the land use and the location of the parcel.

FIGURE 9.4.10: STORMWATER PROTECTION SYSTEM DIAGRAM



SOURCE: WENK ASSOCIATES AND HOWARD BEND LEVEE DISTRICT

APPROACH TO THE STORMWATER MANAGEMENT SYSTEM

An approach relying primarily on consolidated storage, conveyance, and treatment, supplemented by on-site facilities, was selected as the most appropriate approach to stormwater management within the planning area. With this approach, a greater efficiency, roughly a ten percent reduction, in land area required for storage is possible. Additionally, this approach utilizes the State Road 364 mitigation area for stormwater storage. Within consolidated facilities, this approach presents distinctly different opportunities for incorporating the preferred approach for areas north of State Route 364 and south of State Route 364.

Area North of State Route 364: A consolidated system in the area north of State Route 364 will be created through the development of a parkway (referred to as the River Valley Parkway) that integrates a collector road (refer to Section 6.3.1.4: TRANSPORTATION) with the regional stormwater conveyance, storage, and treatment in the median. Additionally, the integrated parkway concept supports transportation planning recommendations for the area through the development of a collector roadway extending from the Riverport Business Park to Waterworks Road. The Parkway provides adjacent development with higher visibility, an identifiable address, and creates a landscape that enhances the value and character of adjacent parcels.

The alignment of secondary channels perpendicular to the Parkway and to Missouri Route 141 allows for maximum exposure of future development to both the Parkway and the Expressway. The Secondary Channels also provide for important cross connections for local trails between the Missouri River levee regional trail and trails within Creve Coeur Park. The outfall channel along Creve Coeur Mill Road will allow for the creation of an open space buffer between the Park and anticipated loading and service areas for future development along the Expressway. This buffer allows for an important trail link between the Fee Fee Creek corridor and State Road 364 trails.

Area South of State Route 364: Stormwater requirements for the area south of State Route 364 are considerably different than for the area to the north. Because the area is constrained by the Missouri River levee and the State Route 364 mitigation area, it forms a long narrow series of parcels linked by River Valley Road, generally paralleling the Missouri River levee. Stormwater must be conveyed from the River levee in an easterly direction to the State Route 364 mitigation area, which serves as the area's outfall.

There are two exceptions to this pattern at the south end of the area. East of the Missouri American Water Treatment Plant, portions of the development area drain to a conveyance along the edge of the bluff. The areas west and south of the treatment plant drain directly into the Missouri River. East of the plant, portions of the area drain into a small Shared Primary Collection System that outfalls into the State Route 364 mitigation area. The outfalls into the mitigation area serves two purposes: removing stormwater from development and providing needed water to mitigation lands within Creve Coeur Park.

Because of the areas configuration, the stormwater network is much more localized, lacking the hierarchy that is characteristic of the area North of State Route 364. Because the mitigation area requires additional sources of water to develop wetlands, only water quality capture volumes will be required for developments in the area east and north of the treatment plant. Larger volumes may be conveyed into the mitigation area. As parcels develop, owners will be required to construct stormwater storage facilities in the mitigation area that enhance the habitat of the area as part of the PCS system.



SYSTEM WIDE POLICIES FOR MULTIPLE USE

The following general policies and guidelines are intended to apply to all components of the stormwater management system.

COMPLIANCE AND COMPATIBILITY WITH REGULATIONS AND CURRENT PLANNING CONTEXT

- Policy #1:** Improvements shall comply with all applicable MSD, State, and Federal standards and guidelines regarding stormwater management and water quality.
- Policy #2:** The Howard Bend District Storm Water Master Plan prepared by Horner and Shifrin constitutes the basis for policies and guidelines that integrate stormwater management systems with proposed development.
- Policy #3:** These policies and guidelines are compatible with, and will become an integral part of, land use and site planning recommendations prepared for the District by the City.

POLICIES FOCUSED ON CREATING “MULTIPLE BENEFIT” STORMWATER SYSTEMS

- Policy #4:** Runoff rates and volumes should be reduced to more closely match natural conditions. Increased runoff associated with development can be environmentally harmful, causing erosion in stream systems and generating greater pollutant loading downstream. A variety of techniques, including fragmenting and reducing impervious areas, and using landscape or other pervious areas to slow runoff and promote infiltration, should be incorporated into the system.
- Policy #5:** Stormwater quality management and flood control should be integrated within the system. Both stormwater quality treatment and flood control detention goals can be accomplished within the same land area through a coordinated design approach.
- Policy #6:** The HBLD and the City will coordinate efforts to develop a “multiple use” stormwater system that simultaneously provides water quality treatment, recreational opportunities, and environmental responsibility. To maximize efficiency of land use and provide the greatest value, the system should exhibit the following characteristics:
- Land areas included in the stormwater system should be made available to the public by the HBLD and private land owners for a range of active and passive recreational uses, open space, and trails.
 - Ecologically and bio-technically based engineering practices should form the basis for storm channel design. The system should be designed to maintain required levels of stormwater storage and treatment in a manner that allows for a reasonable level of biological diversity.
 - The District should support and promote the creation of multi-functional facilities. For example, wildlife habitat should be created as part of stormwater management and water quality treatment facilities. Trails should function in dual roles as facility maintenance access roads where feasible.
- Policy #7:** Stormwater quality facilities that enhance the site, the community, and the environment, should be encouraged. Gardens, plazas, rooftops, and even parking lots function as amenities and provide visual interest while performing stormwater quality functions and reinforcing urban design goals. The integration of water quality features and associated landforms, walls, landscape, and materials can reflect the standards and patterns of a neighborhood and help to create lively, safe, and pedestrian-oriented districts.
- Policy #8:** Stormwater quality needs should be considered early in the design process. When included in the initial planning for a project, opportunities to integrate stormwater quality facilities into a site can be fully realized.
- Policy #9:** The entire site should be considered when planning for stormwater quality treatment. Often, stormwater qual-



ity and flood detention are dealt with only at the low corner of the site and ignored on the remainder of the project. In this “end-of-pipe” approach, all the runoff volume is concentrated at one point and it can be difficult to fit the required detention into the space provided, necessitating the use of more costly mechanical systems.

Policy #10: Sustainable facilities that can be safely maintained should be key considerations in the design process. Stormwater quality facilities must be properly and consistently maintained to function effectively and ensure long-term viability and public acceptance of these facilities.

Policy #11: Facilities should be designed with public safety in mind. One of the highest priorities is to protect public health, safety, and welfare. Stormwater facilities must be designed and maintained in a manner that do not pose health or safety hazards to the public, with respect to public access or to mosquito/West Nile virus concerns. Safety benches will be utilized on permanent ponds that are easily accessed by the public, rather than using fencing. Structures required as part of the stormwater system will be designed to minimize vertical drop offs, avoiding the need for fencing, railings, and other typically employed barriers.

SYSTEMIC POLICIES AND IMPLEMENTATION GUIDELINES

The biological viability and ecological diversity of the primary system is important system-wide, and principles and practices described elsewhere in this report should be uniformly adhered to. The importance of the primary systems visual qualities, and the opportunity for recreational use varies greatly depending on its location, and on the proposed land use. However, the design of these systems should further the concepts of multi-functionality and low impact naturalized designs, staying away from traditional “structured” approaches. The following design guidelines apply for different PCS channel types.

POLICIES AND IMPLEMENTATION GUIDELINES - OUTFALL PRIMARY COLLECTION SYSTEM (OPCS)

This portion of the PCS is directly connected to the Flood Storage and Discharge System. It provides a continuous, connected stormwater management system that can expand and enhance regional open space.

- Publicly accessible multi-use and regional trails should be accommodated as part of the stormwater system maintenance road network.
- Habitat areas, and localized passive parks, should be provided.

POLICIES AND IMPLEMENTATION GUIDELINES - SHARED PRIMARY COLLECTION SYSTEM (SPCS)

This portion of the PCS includes localized outfalls that convey stormwater from large parcels or serve as combined conveyances for smaller parcels to the PCS. This portion of the system will often be entirely within larger parcels, or will serve as the interface between smaller parcels.

- A local and/or regional trail corridor should be provided.
- Private recreation and park facilities should be provided.

Specific portions of the system vary greatly in importance for their potential to support the enhancement of the image and open space qualities of the area. The relative importance of the channels is based on their visibility from major roadways such as the proposed River Valley Parkway, Missouri Route 141, or on their proximity to land use types where image is important, or where there are significant densities of residents, visitors, or workers.

The importance of the visual quality, aesthetics, and the multi-use potential of the conveyances are ranked high, medium, or low depending on the presence of the factors such as those described above. Of universal importance is the need to maintain ecologically diverse and biologically healthy permanent ponds, if required or desired, to minimize the potential



for mosquito habitat. A description of high, medium, and low importance areas follows.

HIGH IMPORTANCE

- Conveyances adjacent to, or visible from the public rights-of-ways, including the proposed River Valley Parkway, Missouri Route 141 and State Route 364.
- Conveyances along or adjacent to proposed internal roadways at the fronts of retail, office, mixed-use/retail/entertainment, and multi-family development types.
- Conveyances within multi-family, office, and retail/mixed-use/entertainment areas where buildings front on the conveyances or where there are high concentrations of visitors or workers.

MEDIUM IMPORTANCE

- Conveyances along secondary circulation routes, in parking areas, and along loading and service areas in multi-family, office campus, and retail/mixed-use/entertainment development types.
- Conveyances along the primary access routes for light industrial/office distribution development types.

LOW IMPORTANCE

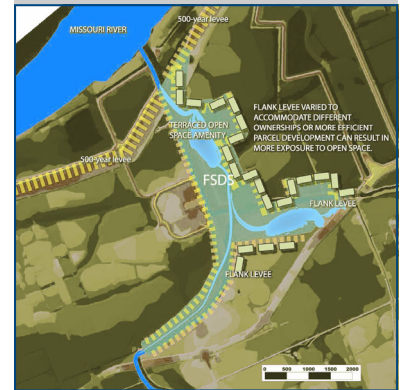
- Conveyances within or backing on to light industrial/office distribution development types.
- Conveyances along retail/mixed-use/entertainment loading and delivery areas

The area's Primary Collection System plays an important role in extending the trail and open space network. Equally important is the role of the Missouri River levee in providing an important link in the regional trail network being developed by Great Rivers Greenway. The Great Rivers Greenway's long-term vision for the area includes a trail network linked to the County and regional systems. This hierarchy of trails will provide an amenity for employees, residents, and visitors of the area. It will allow for, and encourage, bicycle commuting.

The accompanying Trail Concept Plan is intended to illustrate the potential system. Specific trail corridor alignments and locations are shown as minimum implementation requirements, and will be determined as more specific development plans for the area are proposed.

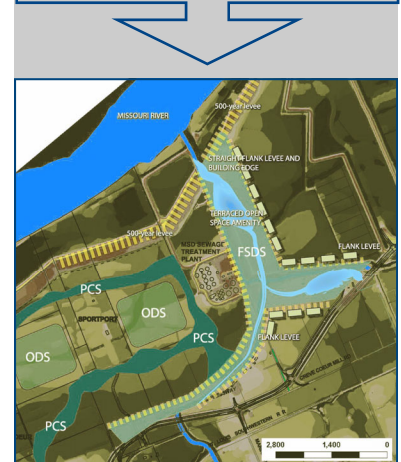
LEEVE ALIGNMENTS

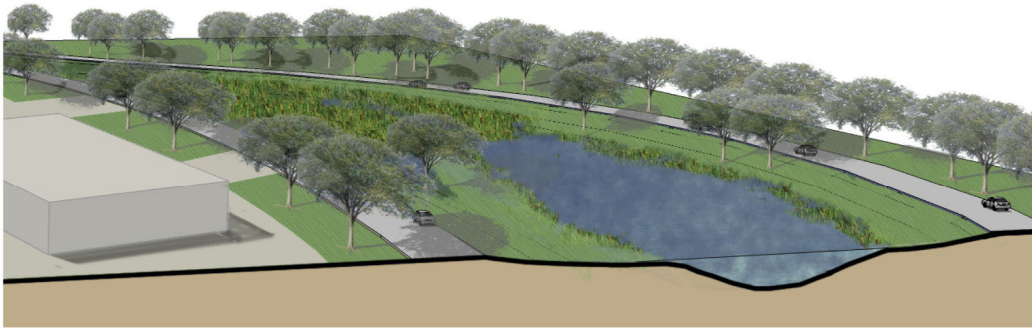
The following figures illustrates alternative levee alignments of the water storage and conveyance area along Creve Coeur Creek that accomplishes flood control, recreation, and habitat restoration objectives.



Levee edges that are planned in conjunction with the development planning for adjacent parcels can provide for the required stormwater storage.

Layout of the flank levees without consideration for the development potential of adjacent parcels, could limit its potential value as a flood storage and open space amenity.





High Importance

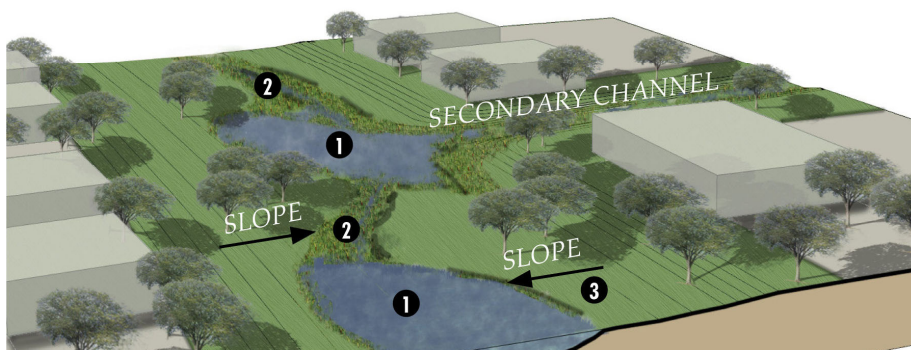
- Design roadway, conveyance and storage, and landscape/aesthetics as an integrated whole.
- Side slopes vary.
- Integrate sediment traps into less visible landscape areas.
- Limit permanent pool areas; provide lining as required to maintain permanent water levels and avoid seasonal drying
- Maintain channel/storage capacity

Medium/Low Importance

- Not applicable

SOURCE: WENK ASSOCIATES AND HOWARD BEND LEVEE DISTRICT

FIGURE 9.4.12: OUTFALL PRIMARY COLLECTION SYSTEM (PCS)



- 1 *Locate permanent pools at areas of flow concentration and limit pool size to minimize seasonal drying*
- 2 *Concentrate frequent storm flows to allow multiple use of channel bottom and to minimize mosquito breeding areas*
- 3 *Maximize storage/conveyance capacity while maintaining positive drainage on side slopes*

High Importance

- Integrate design of conveyance and storage into project and building entries; locate water quality treatment and frequently inundated areas on less visible portions of a site
- Maintain appropriate width/depth channel proportion to the greatest degree possible

Medium/Low Importance

- Maintain appropriate side slopes in more visible areas when possible
- Integrate conveyance and detention into parking and roadway landscape concepts

Low Importance

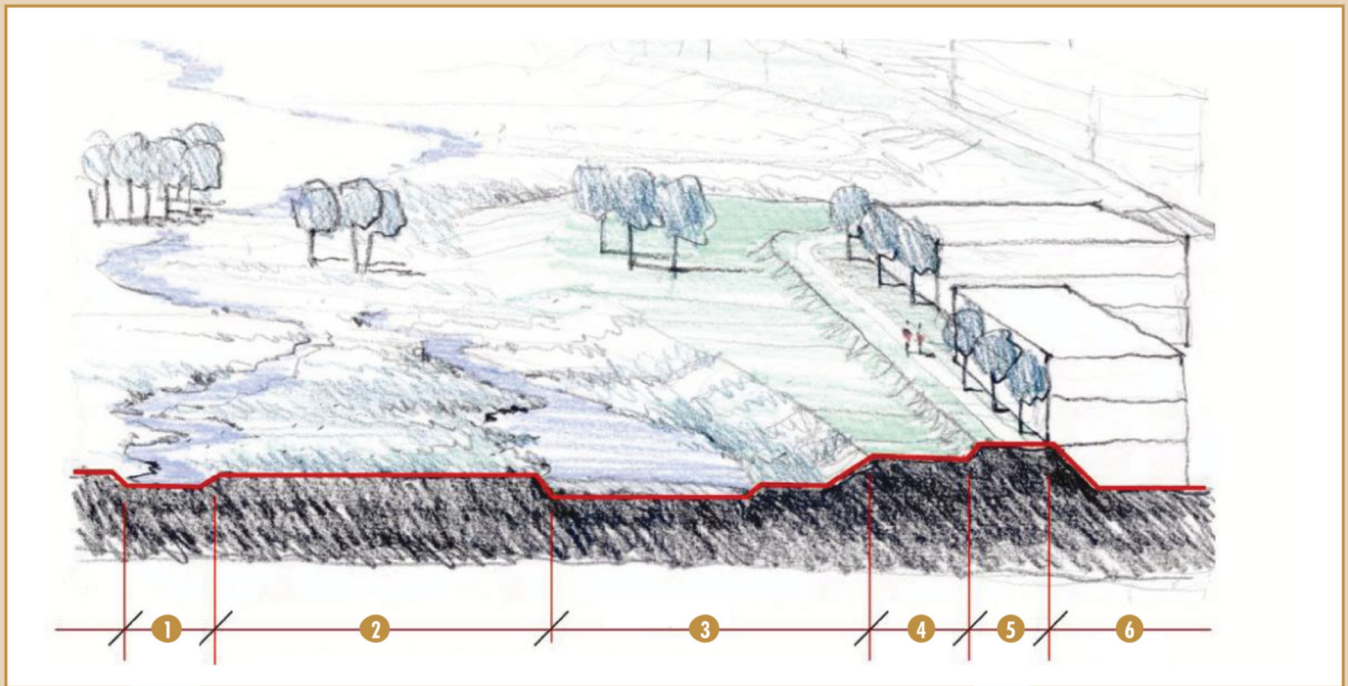
- Not applicable

SOURCE: WENK ASSOCIATES AND HOWARD BEND LEVEE DISTRICT

FIGURE 9.4.13: SHARED PRIMARY COLLECTION SYSTEM (SPCS)



HOWARD BEND LEVEE DISTRICT POLICIES AND IMPLEMENTATION GUIDELINES



- | | |
|--|---|
| <ul style="list-style-type: none"> 1 Introduce sinuosity into the creek alignment to stabilize the banks and to promote habitat diversity. 2 Terrace the storage area bottom to create meadows, wetlands, and riparian areas. Diverse landscape types function as part of a water quality treatment system and provide diverse wildlife habitats. 3 Ponds | <ul style="list-style-type: none"> 4 Manicured pocket parks above the five-year flood level. 5 Recreational and maintenance trails on top of the flank levee. 6 Buildings built into flank levee overlooking the open space. |
|--|---|

SOURCE: WENK ASSOCIATES AND HOWARD BEND LEVEE DISTRICT

FIGURE 9.4.14: POLICIES AND IMPLEMENTATION GUIDELINES

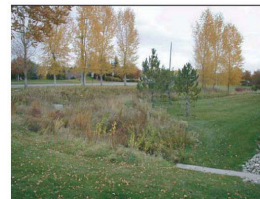
- The District supports significant public access for active and/or passive recreation, and regional and local trails. The trails may be part of the levee District maintenance road access network, or may be independent of maintenance roads. Where appropriate, provision will be made for limited recreational uses on terraces above the five-year flood level.
- Stabilization of creeks will be accomplished primarily through biotechnical means.
- The development of storage capacity will incorporate off-channel wetland, riparian, and upland habitats. Water quality capture volumes from adjacent parcels may be accommodated in this area to enhance wetland habitat potential.
- As appropriate, wetland banking areas will be incorporated for mitigation of off-site wetland impacts as part of the open space area.
- The levee alignments will be determined, to the degree possible, as an integral part of planning for the adjacent parcels to promote stronger connections between adjacent development and proposed open space uses of the area.



1 MINIMIZE BUILDING SETBACKS
-Create consolidated landscape & open spaces that serve a stormwater function



2 ORIENT BUILDINGS TO STORMWATER SYSTEMS
-Develop systems as an amenity



3 AVOID BACKING BUILDINGS ON STORMWATER SYSTEMS
-When unavoidable, screen with infiltration amenities



4 PONDS/ SOIL "BORROW" PITS
-Locate in highly visible areas as open space amenities



5 STORM WATER STORAGE
-Develop less frequently flooded storage as parks that create a campus setting



6 STORMWATER INTEGRATION
-Integrate stormwater treatment, conveyance and storage into landscape areas to minimize runoff and conserve buildable land

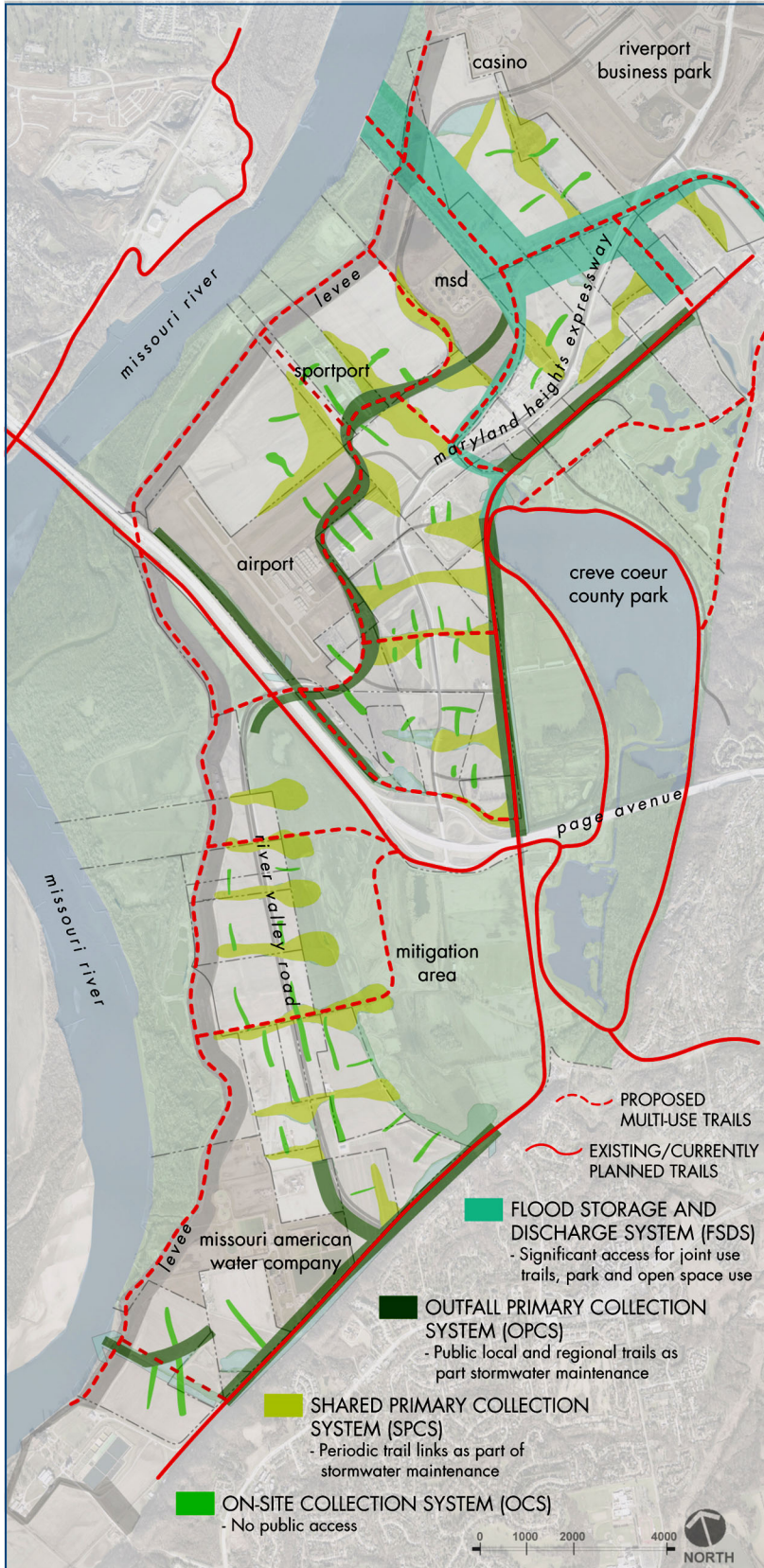


7 GREEN ROOFS
-incorporate green roofs to reduce stormwater storage and conveyance requirements



8 POROUS PAVEMENT
-Incorporate porous pavement to reduce stormwater storage and conveyance requirements

FIGURE 9.4.15: PROTOTYPICAL SITE PLAN



SOURCE: WENK ASSOCIATES AND HOWARD BEND LEVEE DISTRICT

STORMWATER & TRAIL POLICIES AND IMPLEMENTATION GUIDELINES

Multiple use trails will comply with City and County trail design standards.

The maximum distance between trail links connecting Creve Coeur Park and the River levee will be approximately 1 mile.

All designated multiple use trails shown on the Trail Concept Plan will be made accessible to the general public.

comprehensive plan

CITY OF MARYLAND HEIGHTS



SECTION 9.5 - PLANNING SUB-DISTRICT POLICIES

MARYLAND PARK LAKE DISTRICT



OVERVIEW AND APPROACH - PLANNING SUB-DISTRICT POLICIES

The planning approach to the Maryland Park Lake District is comprehensive in both scope and application. The goals and strategies apply on a planning area-wide basis. When fully developed, the planning area should contain a sustainable diverse mix of land uses, necessary infrastructure and an integrated system of open spaces, a formula that will add both value and character to the City.

To further delineate planning policies in the Maryland Park Lake District, six planning sub-districts were identified; each sharing common characteristics, but characteristics (i.e. different topography, land use, infrastructure [future and present] and locational aspects) that distinguish each from the others. For example, land use policy issues for publicly owned park areas such as Creve Coeur Park differ from the issues facing privately owned land. Similarly, land with adjacency to Missouri Route 141 will face different development constraints than land not directly adjacent to Route 141. The same applies to transportation and stormwater constraints which vary over the 8,100 acres within the Planning Area.

The variety of natural features and topography, access, infrastructure, and other physical conditions necessitate the crafting of a planning approach that addresses diversity. Therefore, the breakdown of the planning area into smaller, more distinctive planning sub-districts is a necessity for planning purposes. The identification of smaller areas allows for strategies and recommendations to be tailored to the individual needs of particular geographic areas. The selection of these district boundaries was also influenced by man-made features, such as the levee, highways and existing developments.

The geography, proposed infrastructure, and existing land use patterns within the Maryland Park Lake District set up six distinct planning sub-districts:

RIVERSIDE	RIVER VALLEY
CRYSTAL SPRINGS	CREVE COEUR LAKE
EXPRESSWAY	MISSOURI RIVER

This breakdown allows a focused discussion of land use policies based on unique characteristics, constraints and opportunities for each district. Once the planning sub-district boundaries were determined, a vision statement was prepared to guide the approach to future land use.

Recommendations for each of these planning sub-districts are outlined in the following sections. These recommendations begin with a description of the planning issues facing each sub-district followed by a summary “*vision*” for the sub-district, and an indication of appropriate future land uses. Development policies are then identified for the sub-district, which are intended to guide both the City and property owners in considering future development options and requests. Development policies should be viewed as a complement to the Goals and Strategies providing the next level of guidance for the responsible and orderly development of land.

POLICY DEFINITION

A specific statement of principle or of guiding actions that implies clear commitment but is not regulatory in nature. A policy is also a general direction that a governmental agency sets to follow in order to meet its goals and objectives before undertaking an action program.

VISION DEFINITION

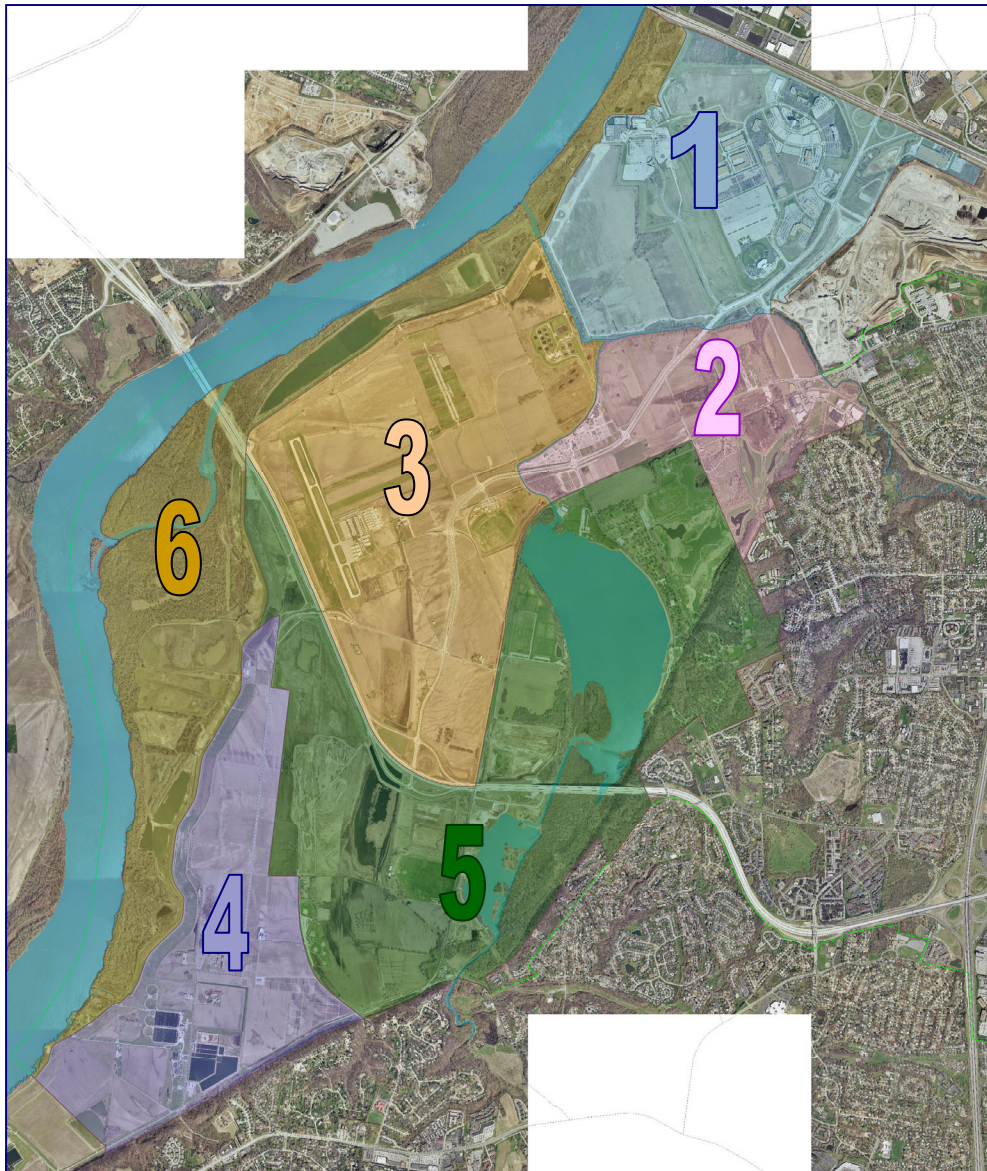
The dictionary defines a vision as “*An Image of the future we seek to create*”. A vision statement describes in graphic terms where the goal-setters want to see themselves in the future. It may describe how they see events unfolding over 10 or 20 years if everything goes exactly as planned.

DEVELOPMENT GUIDELINES

Development guidelines establish the general character that is expected to be present in a proposed development. These guidelines along with land use will establish the baseline for evaluation of development proposals within the planning area.

“Men perish because they cannot join the beginning with the end.”

- ALCAMAEON



PLANNING DISTRICTS

The Maryland Park Lake District has the following Planning Sub-Districts:

1. Riverside
2. Crystal Springs
3. Expressway
4. River Valley
5. Creve Coeur Lake
6. Missouri River

FIGURE 9.5.1: PLANNING SUB-DISTRICTS

TABLE 9.5.A: PLANNING SUB-DISTRICT ACREAGE

PLANNING SUB-DISTRICT	ACRES	PERCENTAGE
Riverside	1,169	14.4%
Crystal Springs	634	7.8%
Expressway	1,619	20.0%
River Valley	996	12.3%
Creve Coeur Lake	2,374	29.3%
Missouri River	1,314	16.2%
Total	8,107	100.0%



DEVELOPMENT QUALITY

While ensuring both an economically productive pattern of development for the City and providing increased value to land owners is important, it is also critical that the City require that the Maryland Park Lake District area develop in such a way that it enhances both the regional image of the City and the needs of the overall community. This plan presents recommendations designed to add both value and character to the planning area. Development proposals in the form of rezoning petitions will be expected to address the following general questions regarding its impacts:

- Does the development improve Maryland Heights' image?
- Does the development provide a needed amenity to the community?
- Does the development adhere to the goals and strategies established in the plan?
- Does the development contribute to the financial well being and stability of the City?
- Does the developments design add character to the area and the City?

The first component that furthers development quality is “quality begets quality”; high quality development sets a tone that attracts additional high quality development. In fact, the historical development approach taken in Riverport Business Park is a positive precedent for the City to follow. While it is desirable for the remaining portion of the Maryland Park Lake District to develop with at least the same base quality as Riverport in office and distribution areas, it is envisioned that improved standards, planning of infrastructure improvements and inclusion of amenities will attract even higher quality development, in which architecture, landscape and urban design are fully integrated across developments and the planning area.

“Quality” is a difficult concept to define, especially when it relates to real estate development. Quality and character are often thought of as subjective ideas that on the surface appear difficult to quantify and seem intangible. However, the fact that subjective concepts cannot always be quantified does not mean that fair, reasonable, effective standards cannot be established. It is well demonstrated that design standards related to land use, public facilities, site planning, building configuration, materials and orientation, landscaping, pedestrian facilities, signage, lighting, and other aspects of public and private development can be established and development character can achieve a certain level of “quality”. At the same time, these standards must be administered efficiently and consistently without creating uncertainty and undue delay in the development review process.

However, the responsibility for quality does not solely rest within the private sector. It is equally important that the City apply the same high standards for the public realm as those to which private development is held. The way in which streets are designed, development is integrated with public pedestrian facilities and open spaces and public properties are maintained and operated are critical to community character.

“Streetscape” standards are particularly important: street landscaping, lighting, traffic control devices, signage, the location of utility lines and other public infrastructure can be designed to achieve an overall aesthetic image, in addition to serving functional

SYSTEMS THINKING

The approach of systems thinking is fundamentally different from that of traditional forms of analysis. Traditional analysis focuses on the separation of the individual pieces of what is being studied; in fact, the word “analysis” actually comes from the root meaning “to break into constituent parts.” Systems’ thinking, in contrast, focuses on how the thing being studied interacts with the other constituents of the system—a set of elements that interact to produce behavior—of which it is a part. This means that instead of isolating smaller and smaller parts of the system being studied, systems thinking works by expanding its view to take into account larger and larger numbers of interactions as an issue is being studied. This results in sometimes strikingly different conclusions than those generated by traditional forms of analysis, especially when what is being studied is dynamically complex or has a great deal of feedback from other sources, internal or external.



purposes.

When considering the future character of this area, it is important to recognize that there is substantial public investment in the area that has begun to establish an image. The City has already made a substantial investment in the area by spending approximately \$46 million on regional transportation improvements and committing an additional \$15+ million to future regional transportation improvements. Specifically, Creve Coeur Park, Hollywood Casino, Riverport Business Park and others have created a regional identity for this area as a venue for entertainment, hospitality and recreation. This image should be preserved, emphasized and capitalized upon even as large-scale development is encouraged. Future development should complement and expand on this theme.

GENERAL DEVELOPMENT POLICIES

There are a number of general policies that are applicable to any developable site within the Maryland Park Lake District regardless of what planning district the site is located within. These policies work with the Maryland Park Lake District Future Land Use Map, and are applicable across the five planning sub-districts that support development.

DETERMINATION OF USES:

- New development should incorporate a mix of uses combined with support and accessory uses as necessary. For example, the Maryland Park Lake District should develop with office, office flex, office distribution, and retail uses, and may also include some specific types of support, retail, personal services and/or multifamily residential.
- Appropriate land uses should be determined based on consideration of the overall Maryland Park Lake District, and cannot be determined based solely upon isolated consideration of a specific site.
- All applicants will need to demonstrate compliance with this Plan and Future Land Use Map and then meet the required developmental design guidelines prior to approval.
- Developments should be larger in scale than single small developments, should include assemblage of multiple parcels, thereby benefiting from economy of scale and opportunities to integrate versus fragment.

CONNECTIONS:

- Integrated connections to the regional stormwater system and either Missouri Route 141 or the River Valley Parkway are a prerequisite in the consideration of development proposals.
- Where possible, all development must connect, or provide future provisions for the connection to the existing or planned open space, park and trail system. Where this is not deemed possible, development proposals must include an internal walkability plan.

RESIDENTIAL USES:

- Single family detached residential development is only acceptable as provided herein.
- Multifamily residential development is a conditionally accepted land use wherever it is identified on the Future Land Use Map except when integrated into mixed use development where it is encouraged.

RETAIL AND MIXED USES:

- Where large scale retail is identified on the Maryland Park Lake District Future Land Use Map, it is considered a conditionally acceptable use.
- Service retail is a conditionally acceptable use wherever it is identified on the Maryland Park Lake District Future Land Use Map.



- Mixed use development is an encouraged use wherever it is identified on the Maryland Park Lake District Future Land Use Map. Retail, commercial and multifamily uses are permitted in a mixed use district, but any single use should only comprise no more than 60-70% of the overall mix.
- Where the Future Land Use Map shows a mix of uses not labeled “mixed use”, such as office distribution/light industrial, either of the uses identified in the mix are appropriate for development, based on its corresponding level of encouragement.

LOCATION AND LOT SIZE:

- Office flex and office distribution uses may be permitted in areas identified for light industrial uses.
- The allowable size of any use will be determined based on:
 - Lot size
 - Infrastructure (available or to be constructed)
 - Size and scale of surrounding uses
 - Character of development area
 - Visual impact of the use on adjoining properties, developments and the public right-of-way.

PUBLIC SERVICES:

- As development takes place within the Maryland Park Lake District, it will be necessary to provide public services such as police, fire, and EMT. Developers will work with the City and public service providers to determine the appropriate service area and locations for these uses based on individual and overall land use patterns.

TRANSPORTATION:

- Development will be required to complete a traffic impact study.
- Development must provide for the accommodation of required transportation improvements.
- Development must provide adequate levels of connectivity within the street network avoiding isolated clusters of development.
- Development must provide a road system that is sustainable and easily maintained.
- Streets, both public and private, will be designed to provide for multi modal transportation options.
- Streets, both public and private, will be designed in a manner that create a sense of place and add character to the public realm.
- New development will be consistent with transportation recommendations set forth in the Comprehensive Plan.

STORMWATER MANAGEMENT:

- Stormwater management systems will be designed in a multi-functional and integrated manner.
- Stormwater management systems will be designed and utilized as a site amenity.
- Stormwater management systems will be designed in a manner that adds character and enhances the public viewshed.



STORMWATER, TRANSPORTATION AND LAND USE

PUBLIC UTILITIES:

- Adequate public utilities must be provided for proposed developments.
- Development proposals must consider the accommodation of public utility infrastructure.

This plan includes transportation and stormwater infrastructure planning recommendations. All three categories – land use, transportation, and stormwater - are interrelated and must work together in a holistic manner.

Within this relationship, there are potential requirements and restrictions included in each component that will impact the others. There are basic requirements, such as the design and construction of the River Valley Parkway and the design and connection of the regional stormwater system, each of which has a relationship and an impact upon land use. An example is the development of a certain square footage of office uses will require the construction of a number of supporting roadways and potentially a segment of the River Valley Parkway with integrated stormwater and open space. In some instances, the development would be contingent on the construction of the identified infrastructure improvements. For example, the build-out of the regional retail and mixed use districts may be contingent on the construction of an interchange at the River Valley Parkway and State Route 364.

Any development proposed in the Maryland Park Lake District must reflect the recommendations contained within this plan for all three policy areas and accurately include site planning related to these triggers and restrictions. As development moves from a “greenfield environment” to a suburban or urban density, the amount of required private investment in providing infrastructure is expected to increase. This development will place higher demand upon the requirements of those systems. The City will work with developers, land owners and community and public agencies to establish timeframes and responsibilities for these improvements.

The remainder of this section will outline the future development recommendations and guidelines for each planning sub-district. These guidelines form the basis for evaluating development proposals and establishing appropriate regulatory standards.

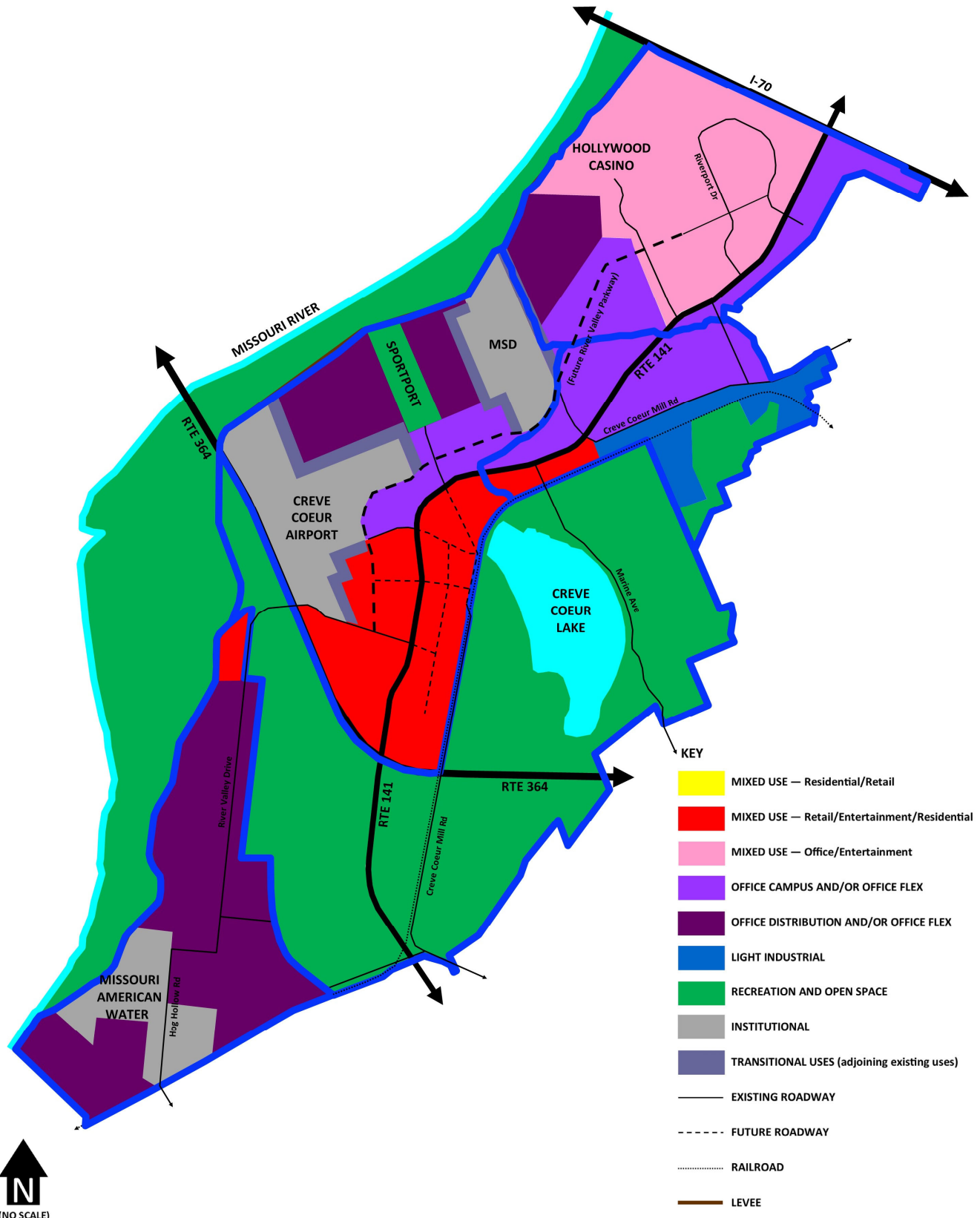


FIGURE 9.5.2: MARYLAND PARK LAKE DISTRICT FUTURE LAND USE MAP



RIVERSIDE PLANNING SUB-DISTRICT

The Riverside Planning Sub-District is defined by the Riverport Business Park and Hollywood Casino Complex, as well as its relationship with I-70 and Missouri Route 141. While still under development, the character and pattern of development within the sub-district is established by these regionally significant planned developments. The remainder of the district is zoned “M-2” Heavy Industrial District (essentially the portion of the quarry and landfill located in the City) and “NU” Non-Urban. The sub-district makes up about 14% of the Maryland Park Lake District.

The quality and type of uses found here are the general benchmarks for development in other sub-districts. Similarly, many of the development tools that will be applied in other sub-districts, such as design review, have emanated from the City’s experience in managing development in this district. Both the Riverport Business Park and Hollywood Casino Planned Districts are still developing. Future build out of these planned developments is approximately 6 million square feet (approximately 3 million square feet is approved and remains to be constructed). The balance of Riverport can be completed without the regional infrastructure being completed throughout the rest of the planning area as sewer and water mains, as well as the stormwater management system, is in place. Hollywood’s levees were constructed on the landward side of the

RIVERSIDE PLANNING SUB-DISTRICT VISION

THE RIVERSIDE DISTRICT WILL SERVE AS A REGIONAL DESTINATION FOR OFFICE CAMPUS, ENTERTAINMENT AND HOSPITALITY TYPE USES. DEVELOPMENT WILL OCCUR AT A HIGH INTENSITY LEVEL AND WILL INCORPORATE QUALITY ARCHITECTURAL ELEMENTS, PEDESTRIAN LINKAGES, CREATION OF PUBLIC SPACES AND AMENITIES.

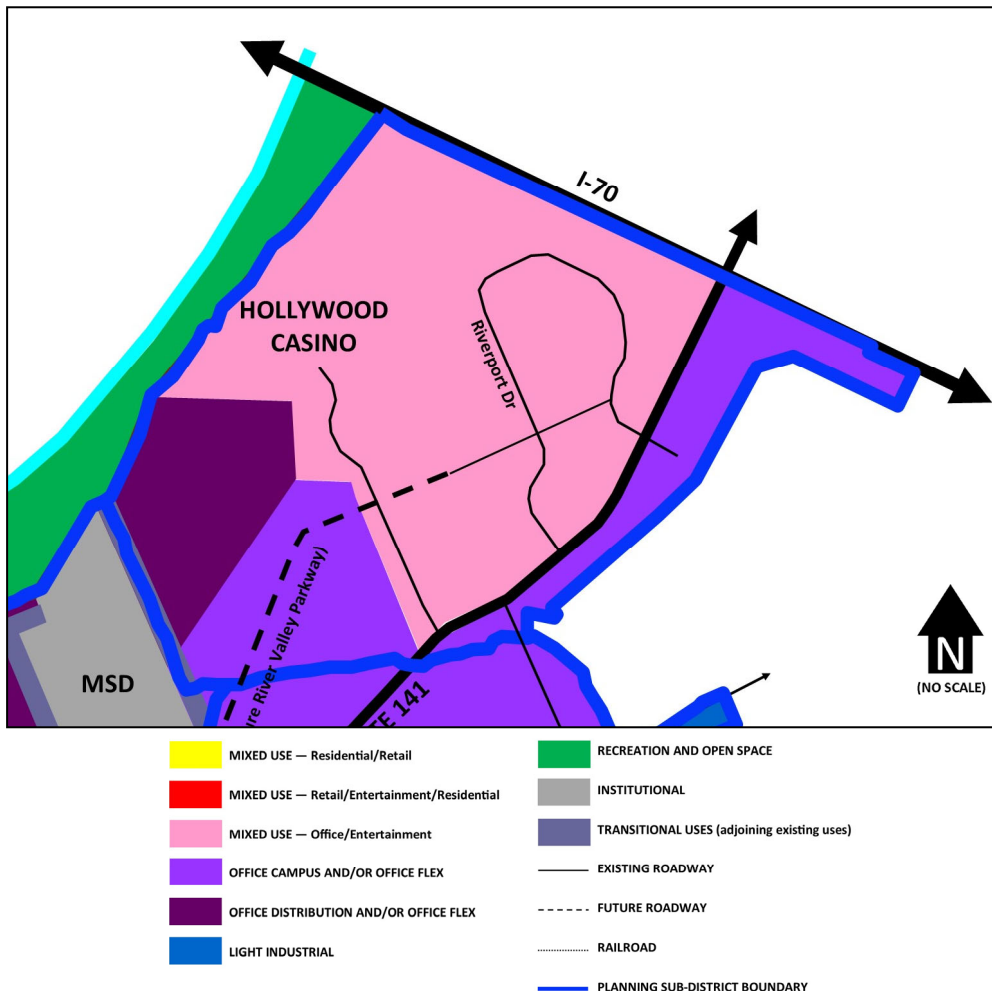


TABLE 9.5.B: RIVERSIDE PLANNING SUB-DISTRICT LAND USE ACCEPTABILITY MATRIX

LAND USE CATEGORY	ACCEPTABILITY LEVEL
SINGLE FAMILY RESIDENTIAL	❑
MULTI-FAMILY RESIDENTIAL	❑
MIXED-USE	●
SERVICE RETAIL	○
REGIONAL RETAIL	❑
ENTERTAINMENT	●
OFFICE CAMPUS	●
OFFICE FLEX	○
OFFICE DISTRIBUTION	❑
LIGHT INDUSTRIAL	❑
RECREATION	○
INSTITUTIONAL	○
AGRICULTURE	○

FIGURE 9.5.3: RIVERSIDE PLANNING SUB-DISTRICT FUTURE LAND USE



existing river levee system, around Hollywood's property, and tie into the Riverport 500-year levee on the south side at Fee Fee Creek. The interior levee was constructed to protect the Hollywood Casino property from both a Missouri River flood, should the Howard Bend levee fail, and the interior flooding potential from Fee Fee and Creve Coeur Creeks. It should be noted, however, that the regional stormwater conveyance system being planned by the Howard Bend Levee District will place a flank levee along the creeks creating a large area of open space to be utilized within future developments. Hollywood manages its internal stormwater from the drainage area defined by the present alignment of the levees.

Ample water supply is available from Missouri American Water Company to serve development. The MSD Missouri River Treatment Plant, which serves a large area in addition to the Maryland Park Lake District, is at capacity. The expansion of this facility is presently being designed. The sanitary sewer collection is in place for Riverport Business Park, no additional constraints on development are assumed within either the Hollywood or Riverport developments.

The Fee Fee Creek corridor has importance as both a regional stormwater conveyance channel and as a linear open space corridor. The improvements to this floodway will incorporate environmental and open space amenities. The planned configuration of the stormwater conveyance system along the frontage of the Hollywood Casino Planned District may preclude the future development of the lands east of the Expressway.

RIVERSIDE DEVELOPMENT VISION

The Riverside Sub-District will serve as a regional destination for office campus, entertainment and hospitality type uses. Development will occur at a high intensity level and will incorporate quality architectural elements, pedestrian linkages, and the creation of public spaces and amenities.

RIVERSIDE DEVELOPMENT CONSIDERATIONS

As new development occurs in the Riverside sub-district, specific consideration will need to be given to the following issues:

- Impacts of the MSD Missouri River Treatment Plant on development with respect to location, compatibility of uses, long term expansion and noxious odors.
- Multi-modal connectivity of projects and uses through automobile, pedestrian, and bicycle routes.
- Potential future pedestrian movement on site and between developments.
- Appropriate design standards for entrance and gateway structures fronting Missouri Route 141.
- The Howard Bend Levee District establishing a funding mechanism for the provision of regional stormwater conveyance along Fee Fee Creek and Creve Coeur Creek.
- Potential amphitheater redevelopment impacts on transportation and surrounding uses.

RIVERSIDE GENERAL POLICIES

The sub-district functions not only as the northern gateway to the Maryland Park Lake District but as a primary gateway to the City, therefore subsequent development within this area should follow the high standards of quality identified in this plan. Because this sub-district is a major destination for both local and regional residents and tourists, uses within the sub-district should provide easy integrated access. Sites should be designed with clear access points. These policies work with and support the Future Land Use Map.

- In areas not zoned or within a planned district, appropriate land uses should be consistent with the Future Land Use Plan and cannot be determined based solely upon consideration of a specific site.



- Any development proposal will need to prove consistency with this plan prior to consideration, and meet the requirements of the Maryland Heights Zoning Code and any applicable design guidelines prior to approval.
- The Future Land Use Map identifies the encouraged development pattern for this area. Other land uses (identified as “Conditionally Acceptable”) may be considered provided that the land uses: demonstrate need and add value to the area; are found to further the Goals and Strategies of this plan; are consistent with the guidance provided in this plan; and any associated development issues can be mitigated.

RIVERSIDE SPECIFIC POLICIES

- New development should incorporate hospitality and entertainment uses and a mix of uses currently established within the Riverport and Hollywood Planned Districts. Some support and/or accessory uses may be necessary to support the integrated development of the area.
- Office campus uses are appropriate and encouraged in this planning sub-district. Office campuses can extend the corporate character established by Riverport and extend that into the Maryland Park Lake District along the Missouri Route 141 and the future River Valley Parkway.
- The expansion of the Hollywood Casino Planned District as a mixed use entertainment and specialty retail district is encouraged.
- Development must connect to, and be integrated within, the regional stormwater management system.
- Development must connect to Missouri Route 141 or future River Valley Parkway.
- All development must connect to existing parks and trail systems where practical. Walkability at the planned development level is a priority.
- Multi-modal connections between planned developments and other districts are required.
- Developments in this area should utilize gateway type architectural elements.



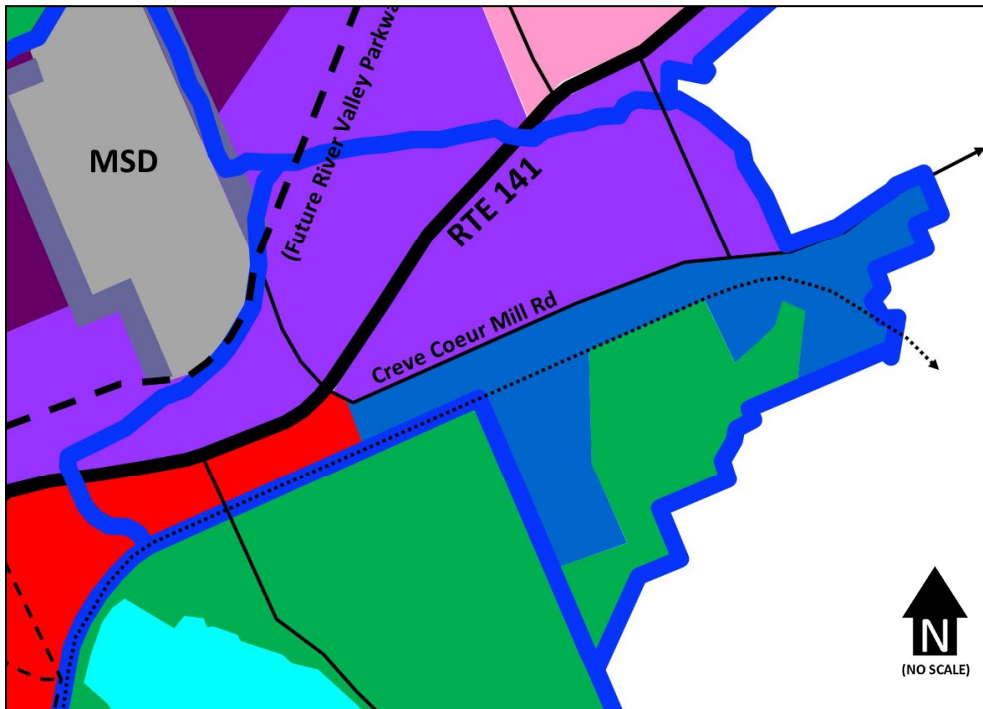
CRYSTAL SPRINGS PLANNING SUB-DISTRICT

The Crystal Springs Planning District is located along Missouri Route 141, Creve Coeur Mill Road and Marine Avenue. This district provides excellent frontage opportunities for new development and contains several opportunities for redevelopment in the planning area. This district contains approximately 6% of the land in the planning area.

The presence of the intersection of the Missouri Route 141 and Marine Avenue presents one of the most attractive intersections in the planning area with Creve Coeur Park to the east. The opportunities in this area are present in the form of mixed use with a focus on retail, office campus and/or office flex, along with the established light industrial and recreational development pattern.

CRYSTAL SPRINGS PLANNING SUB-DISTRICT VISION

THE CRYSTAL SPRINGS PLANNING SUB-DISTRICT WILL SERVE AS A REGIONAL DESTINATION FOR HIGH QUALITY, LOWER INTENSITY USES FOCUSING ON OFFICE CAMPUS, OFFICE FLEX, AND MIXED USE.



- MIXED USE — Residential/Retail
- RECREATION AND OPEN SPACE
- MIXED USE — Retail/Entertainment/Residential
- INSTITUTIONAL
- MIXED USE — Office/Entertainment
- TRANSITIONAL USES (adjoining existing uses)
- OFFICE CAMPUS AND/OR OFFICE FLEX
- EXISTING ROADWAY
- OFFICE DISTRIBUTION AND/OR OFFICE FLEX
- FUTURE ROADWAY
- LIGHT INDUSTRIAL
- RAILROAD
- PLANNING SUB-DISTRICT BOUNDARY



TABLE 9.5.C: CRYSTAL SPRINGS SUB-DISTRICT LAND USE ACCEPTABILITY MATRIX

LAND USE CATEGORY	ACCEPTABILITY LEVEL
SINGLE FAMILY RESIDENTIAL	◻
MULTI-FAMILY RESIDENTIAL	◯
MIXED-USE	●
SERVICE RETAIL	◯
REGIONAL RETAIL	◻
ENTERTAINMENT	◯
OFFICE CAMPUS	●
OFFICE FLEX	●
OFFICE DISTRIBUTION	◻
LIGHT INDUSTRIAL	●
RECREATION	●
INSTITUTIONAL	◯
AGRICULTURE	◯



CRYSTAL SPRINGS DEVELOPMENT VISION

The Crystal Springs Planning District should encourage diversity of design within a unified theme. Proposed development plans should address building massing, orientation and materials; relationship of buildings to the public right-of way; mix of uses; street level activity; integration of trails and open space; creation and protection of view sheds; vehicular parking, access, and circulation; and others.

CRYSTAL SPRINGS FUTURE LAND USE CHANGE

Currently, nine holes of the Crystal Springs Golf Course are in private ownership. In the future, should this land be sold for other use(s), (this land area has limited access to the major transportation network) lower intensity type land uses would be recommended, and multi-family residential uses would be discouraged, but not prohibited in this area. Areas closest to Missouri Route 141 may be appropriate for service retail uses that support the multi-family residential uses or that directly support park uses.

CRYSTAL SPRINGS PREDEVELOPMENT CONSIDERATIONS

This district exhibits some constraints which must be examined prior to considering a development proposal, as critical additions to existing stormwater and flood control infrastructure may change development patterns within the district:

The Howard Bend Levee District is constructing a series of flank levees and other flood control improvements along the Creve Coeur and Fee Fee Creeks, which border the district along the north. This new internal flood control will allow a portion of this district to be removed from its current flood plain designation. In addition, much of the regional stormwater conveyance system runs through the district, impacting and dividing its land area. Although the net acreage available for development is substantial, the district is effectively subdivided into separate developable areas, partially due to the configuration of this conveyance system. This suggests the need to identify development “clusters,” creating a challenge in integrating these development clusters as envisioned in the goals and strategies for this plan. Lastly, certain existing land uses such as Crystal Springs Quarry Golf Course and the former auto salvage yard will influence future land uses, and this existing development presents some constraints to development.

CRYSTAL SPRINGS LINKAGES

Interconnection between districts and development clusters should be created in the process of planning for infrastructure through placement of sidewalks and street trees in greenways along arterial roads, designation of pedestrian and bike trails, use of water conveyance channels and placement on levee rights-of-way. These features will encourage maximum use of alternative forms of movement and will afford access to open space and recreational areas without having to utilize the automobile.

CRYSTAL SPRINGS GENERAL DEVELOPMENT POLICIES

- Appropriate land uses should be determined based on consideration of the overall Maryland Park Lake District, and cannot be determined based solely upon consideration of a specific site.
- Any development proposal will need to prove consistency with this plan prior to consideration, and meet the requirements of the Maryland Heights Zoning Code and any applicable design guidelines prior to approval.
- The Future Land Use Map identifies the encouraged development pattern for this area. Other land uses (identified as “Conditionally Accepted”) may be considered provided that the land uses: demonstrate need and add value to the



area; are found to further the Goals and Strategies of this plan; are consistent with the guidance provided in this Plan; and any associated development issues can be mitigated.

- Prior to development, adequate public facilities must be in place. It is the responsibility of the owner/developer to provide such public facilities and to demonstrate that they will be available at time of occupancy.

CRYSTAL SPRINGS SPECIFIC DEVELOPMENT POLICIES

- Development should include mixed use, office flex, and service retail type land uses.
- Light Industrial is a conditionally accepted use within the sub-district because of its potential adverse impacts on adjoining properties. Each proposed light industrial use or development should be examined on its own merits.
- For Crystal Springs, light industrial buildings should have a typical gross floor area of 10,000-50,000 square feet.
- Outdoor storage may be acceptable as an incidental accessory use to light industrial development. However, outdoor storage as a principal use within this planning sub-district is unacceptable.
- All development must be integrated and connected to the regional stormwater management system.
- All development must connect either to Missouri Route 141 or Creve Coeur Mill Road.
- Public safety must be considered when adding at-grade roadway crossings over the existing rail line.
- Connectivity to the regional transportation network must be provided, particularly for any development proposals related to the existing Crystal Springs Quarry Golf Course.
- All development must connect to existing parks and trail systems where practical. If these connections are not practical, the future accommodations must be made.
- Multi-modal connections between planned developments and other districts are encouraged. A key theme should be the creation of a pedestrian orientation for the area, while accommodating vehicular traffic in a safe and efficient manner.
- Development fronting the public and private ROWs should be oriented to the ROW.
- Parking should be designed and integrated into the site so as not to be the dominant visible development feature from the ROW.
- Provisions must be incorporated for the inclusion of mass transit when it becomes available.
- The City will encourage the private redevelopment of the 47 acre former auto salvage yard with higher valued land uses supporting adjoining development.



EXPRESSWAY PLANNING SUB-DISTRICT

The Expressway Planning Sub-District has the highest long-term potential for development. It is the largest planning sub-district in the Maryland Park Lake District, containing approximately 20% of the land area. Moreover, the district incorporates as its spine the region's outer-belt arterial highway – Missouri Route 141. Route 141 provides regional access to the planning area, and to this sub-district in particular. The sub-district includes three at-grade intersections along Route 141 – at River Valley, Creve Coeur Airport Road, and Sportport Road.

EXPRESSWAY PLANNING SUB-DISTRICT VISION

THIS SUB-DISTRICT WILL BE THE PREMIER BUSINESS CENTER IN THE ST. LOUIS REGION, CONTAINING A DIVERSE MIX OF SUSTAINABLE LAND USES.

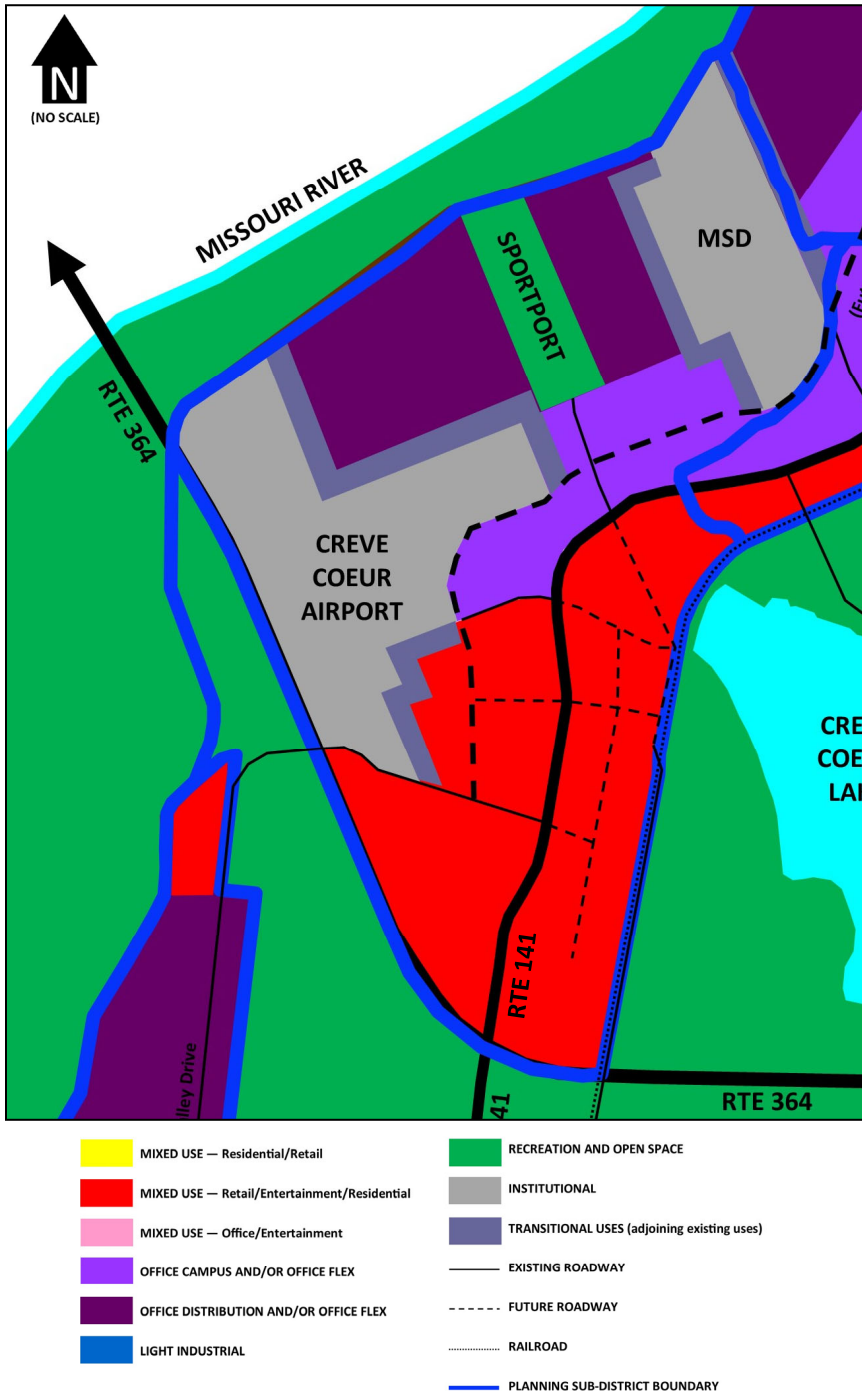


TABLE 9.5.D: EXPRESSWAY PLANNING SUB-DISTRICT LAND USE ACCEPTABILITY MATRIX

LAND USE CATEGORY	ACCEPTABILITY LEVEL
SINGLE FAMILY RESIDENTIAL	☐
MULTI-FAMILY RESIDENTIAL	○
MIXED-USE	●
SERVICE RETAIL	○
REGIONAL RETAIL	○
ENTERTAINMENT	○
OFFICE CAMPUS	●
OFFICE FLEX	●
OFFICE DISTRIBUTION	●
LIGHT INDUSTRIAL	○
RECREATION	○
INSTITUTIONAL	○
AGRICULTURE	○

FIGURE 9.5.5: EXPRESSWAY PLANNING SUB-DISTRICT FUTURE LAND USE



The proposed regional stormwater conveyance system runs through the sub-district, integrated within the River Valley Parkway. This future infrastructure will impact future development more than any other district. Although the net acreage available for development is substantial, it is effectively subdivided into separate developable areas, due to the anticipated configuration of these improvements. However, development will gain from this amenity as it effectively reduces the quantity of needed on-site detention thereby leaving more net acreage available for development. Lastly, certain existing land uses such as MSD's treatment facility will influence future land uses, and such existing development presents some constraints to development.

EXPRESSWAY DEVELOPMENT VISION

The Expressway Planning Sub-District will create an appearance that combines diversity of design within a unified theme. Around the airport environs and northwest area, office and business services and office distribution centers are envisioned to be the dominant land use pattern. Proposed development plans should address building massing, orientation and materials; relationship of buildings to the public right-of way; mix of uses; street level activity; integration of trails and open space; creation and protection of view sheds; vehicular parking, access, and circulation; and others.

EXPRESSWAY LINKAGES

Interconnection between districts and development clusters should be created in the process of planning for infrastructure through placement of sidewalks and street trees in greenways along arterial roads, designation of pedestrian and bike trails, use of water conveyance channels and placement on levee rights-of-way. These features will encourage maximum use of alternative forms of movement and will afford access to open space areas without getting in the car and driving to them.

EXPRESSWAY PREDEVELOPMENT CONSIDERATIONS

As new development occurs in the Expressway Sub-District, specific consideration will need to be given to the following issues:

- Potential for MSD property land swap with adjacent owner(s).
- Determining impact of Sportport on the hospitality industry and its subsequent role within the region and City and potential redevelopment options.
- Potential for additional uses on airport property.
- Integration of impacts from the current airport use into overall planning process.
- Impacts of voluntary sale of airport by owners.
- Partnership with the Howard Bend Levee District and MSD regarding water quality and treatment issues.
- Connectivity of projects and uses through automobile, pedestrian, and bicycle routes.
- Potential future pedestrian movement on site, between developments and to adjacent recreational facilities.
- Appropriate design standards for gateway structures and structures fronting Missouri Route 141 and River Valley Parkway.
- Integration and/or screening of adjacent uses.

**EXPRESSWAY GENERAL DEVELOPMENT POLICIES**

- Appropriate land uses should be determined based on consideration of the overall Maryland Park Lake District, and cannot be determined based solely upon consideration of a specific site.
- Any development proposal will need to prove consistency with this plan prior to consideration and meet the requirements of the Maryland Heights Zoning Code and any applicable design guidelines prior to approval.
- The Future Land Use Map identifies the encouraged development pattern for this area. Other land uses (identified as “Conditionally Encouraged”) may be considered provided that the land uses: demonstrate need and add value to the area; are found to further the Goals and Strategies of this plan; are consistent with the guidance provided in this plan; and any associated development issues can be mitigated.
- Prior to development, adequate public facilities must be in place. It is the responsibility of the owner/developer to provide such public facilities and to demonstrate that they will be available at time of occupancy.

EXPRESSWAY SPECIFIC DEVELOPMENT POLICIES

- The Missouri Route 141 corridor and the edges near Creve Coeur Park should include mixed use with an emphasis on retail and entertainment with or without integrated residential uses.
- Office campus uses are highly encouraged in this sub-district.
- Development fronting on either or both of Missouri Route 141 and/or the future River Valley Parkway should be oriented to the ROW; integrating “front door” finish as an important element of overall character of the district and the Maryland Park Lake District.
- Parking should be designed and integrated into the site so as not to be the dominant visible development feature from the ROW.
- Redevelopment of the Creve Coeur Airport should be examined in context of adjacent development.
- All development must be integrated and connected to the regional stormwater management system.
- All new development must connect to either Missouri Route 141 or the future River Valley Parkway.
- All development must provide connections to the parks and open space system.
- All development must provide multi-modal connections between planned developments and other adjacent districts.
- All development must create and include provisions for pedestrian orientation, while accommodating vehicular traffic in an efficient manner.



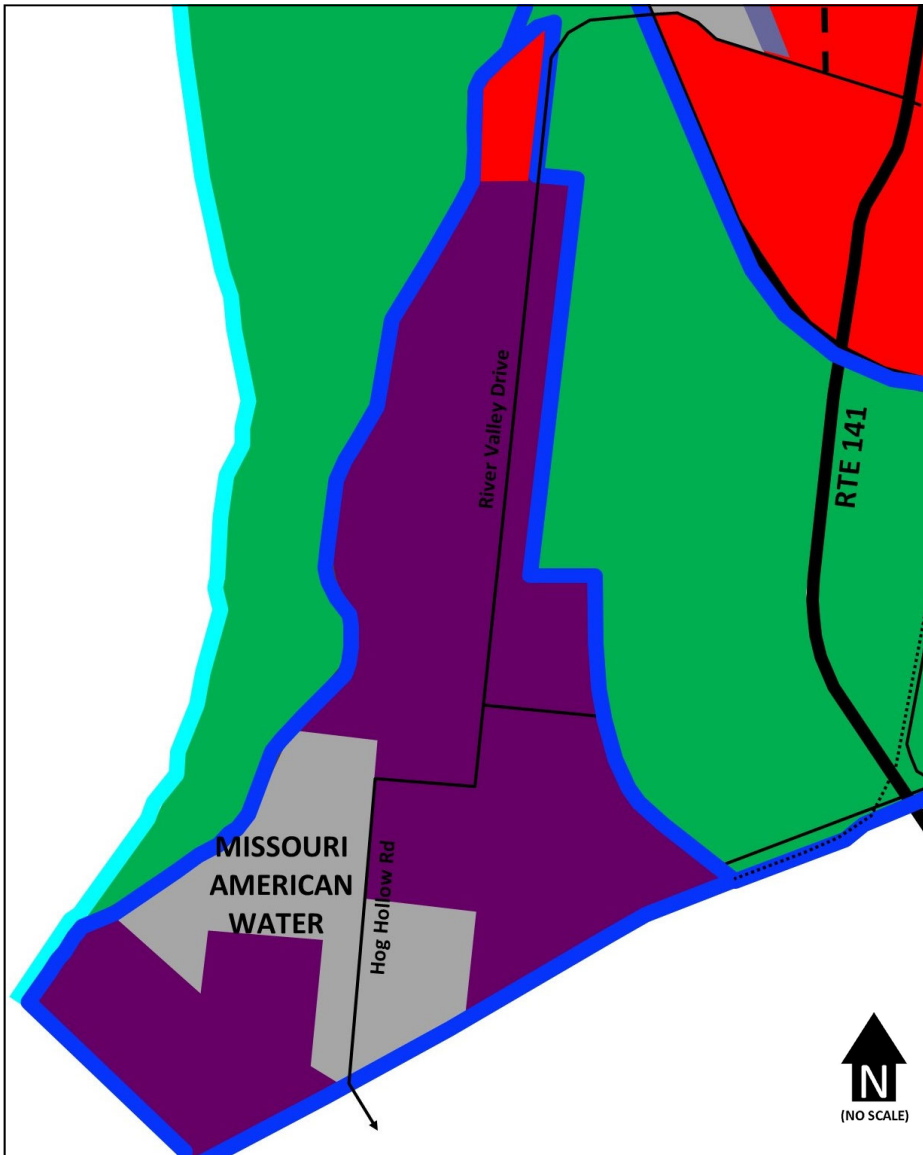
RIVER VALLEY SUB-DISTRICT

The River Valley Sub-District is located at the southern end of the Planning Area, furthest from the highway system. The district makes up approximately 12% of the Maryland Park Lake District.

The primary constraint to development in this planning district as been access to the regional road network. Historically, River Valley Drive was the single collector road in this district. Because of the lower traffic requirements for office-warehouse and service

RIVER VALLEY SUB-DISTRICT VISION

THIS DISTRICT WILL CONSIST OF HIGH QUALITY, BUT LOWER INTENSITY OFFICE DISTRIBUTION AND BUSINESS SERVICE CENTERS WITH INTEGRATED ARCHITECTURAL AND SITE DESIGN.



- MIXED USE — Residential/Retail
- RECREATION AND OPEN SPACE
- MIXED USE — Retail/Entertainment/Residential
- INSTITUTIONAL
- MIXED USE — Office/Entertainment
- TRANSITIONAL USES (adjoining existing uses)
- OFFICE CAMPUS AND/OR OFFICE FLEX
- EXISTING ROADWAY
- OFFICE DISTRIBUTION AND/OR OFFICE FLEX
- FUTURE ROADWAY
- RAILROAD
- PLANNING SUB-DISTRICT BOUNDARY

TABLE 9.5.F: RIVER VALLEY PLANNING DISTRICT LAND USE ACCEPTABILITY MATRIX

LAND USE CATEGORY	ACCEPTABILITY LEVEL
SINGLE FAMILY RESIDENTIAL	◻
MULTI-FAMILY RESIDENTIAL	◻
MIXED-USE	◻
SERVICE RETAIL	◯
REGIONAL RETAIL	◻
ENTERTAINMENT	◻
OFFICE CAMPUS	◯
OFFICE FLEX	◯
OFFICE DISTRIBUTION	●
LIGHT INDUSTRIAL	●
RECREATION	◯
AGRICULTURE	◯

FIGURE 9.5.12: RIVER VALLEY PLANNING DISTRICT FUTURE LAND USE



districts, the local two-lane roads can be made serviceable through these improvements until such time as market pressure or the planned extension of the Maryland Heights Expressway opens up more local streets in the area. With the completion of the Expressway, the district has improved accessibility for high-traffic generating development.

The River Valley sub-district is the single district where a large amount of unconstrained contiguous land (800 acres) is available that is generally free of stormwater constraints. It is expected that interim lower-density uses, such as agriculture and recreation, will continue to be feasible in this area in the short-term, but as development and market demand continues to grow, it is expected that the market pressures will open up this area to high quality business uses. Of course, in the event that there is developer interest in the near future, the area could be developed according to the policies described herein. It should be noted that, if the private market wants to proceed with the type of development envisioned in the Plan at any time, in the near or long-term, it would seek and probably obtain the private funds and public support for the necessary infrastructure upgrades.

RIVER VALLEY DEVELOPMENT VISION

This district will consist of high quality, but lower intensity office distribution and business service centers with integrated architectural and site design. Development will contain significant amounts of open space, that where locationally possible, will be integrated with stormwater management and thus connecting to Creve Coeur Park.

RIVER VALLEY PREDEVELOPMENT CONSIDERATIONS

As new development occurs in the River Valley sub-district, specific consideration will need to be given to the following issues:

- Providing a buffer to the Missouri American Water treatment plant.
- Incorporating service retail as an accessory use development.
- Connectivity of projects and uses through automobile, pedestrian, and bicycle routes.
- Connectivity to Creve Coeur Park and other recreational facilities.
- Appropriate design standards for entrance features and structures fronting River Valley Parkway and the Maryland Heights Expressway.
- Integration and/or screening of adjacent uses.
- Appropriate land uses should be determined based on consideration of the overall Howard Bend Planning Area, and cannot be determined based solely upon consideration of a specific site.
- Any development proposal will need to prove consistency with this plan prior to consideration, and meet the requirements of the Maryland Heights Zoning Code and any applicable design guidelines prior to approval.

RIVER VALLEY GENERAL DEVELOPMENT POLICIES

- The Future Land Use Map identifies the encouraged development pattern for this area. Other land uses (identified as “Conditionally Encouraged”) may be considered provided that the land uses: demonstrate need and add value to the area; are found to further the Goals and Strategies of this plan; are consistent with the guidance provided in this plan; and any associated development issues can be mitigated.
- Prior to development, adequate public facilities must be in place. It is the responsibility of the owner/developer to provide such public facilities and to demonstrate that they will be available at time of occupancy.



- The River Valley sub–district should create an appearance that combines diversity of design within a unified theme.
- Proposed development plans should address building massing, orientation and materials; relationship of buildings to the public right-of way; mix of uses; street level activity; integration of trails and open space; creation and protection of view sheds; vehicular parking, access, and circulation; and others.
- All new development must be integrated and connected to the regional stormwater system.
- All development must provide for connections to the open space and parks system.
- All development must provide multi-modal connections between planned developments and other adjacent districts.
- All development must provide multi-modal considerations, while accommodating vehicular traffic in an efficient manner.

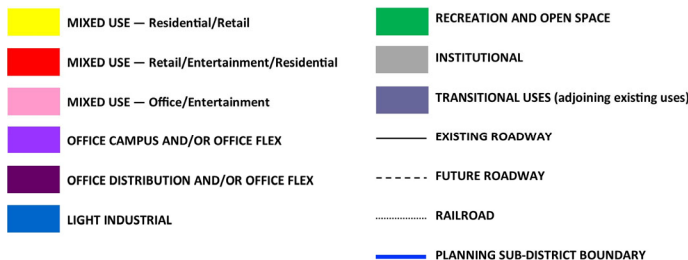
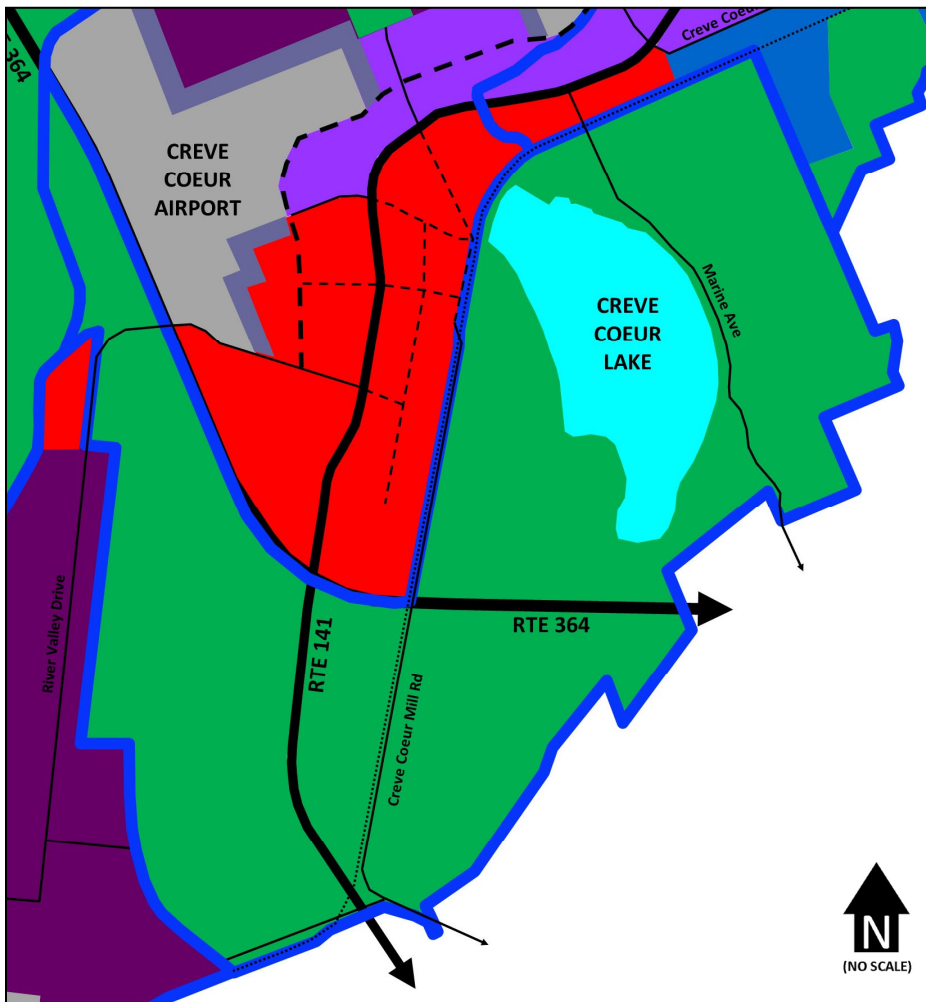


CREVE COEUR LAKE PLANNING SUB-DISTRICT

The Creve Coeur Lake Sub-District is unique in the Maryland Park Lake District in that it is owned and managed almost in its entirety by the St. Louis County Department of Parks and Recreation. This planning sub-district encompasses nearly twenty percent of the Maryland Park Lake District. Creve Coeur Park supports both active and passive recreation uses, including a walking and biking loop around Creve Coeur Lake, picnic areas, and a disc golf course. Athletic fields are leased to clubs, organizations and the City of Maryland Heights for soccer, flag football, softball/baseball and polo. In 2001, the Crystal Springs Quarry Golf Course was expanded by nine holes through the long-term lease of parklands. The park is home to the St. Louis Rowing Club, Lou Fusz Soccer Club, Scott Gallagher Soccer Club, and Go Ape treetop adventure course.

CREVE COEUR LAKE PLANNING SUB-DISTRICT VISION

THE CREVE COEUR LAKE SUB-DISTRICT WILL CONTINUE AS A MAJOR REGIONAL DESTINATION FOR A VARIETY OF ACTIVE, AND PASSIVE RECREATION USES, SOME OF WHICH ARE UNIQUE TO THE REGION, AND ALL OF WHICH ARE SUPPORTIVE OF THE CITY'S HOSPITALITY INDUSTRY.



LAND USE CATEGORY	ACCEPTABILITY LEVEL
SINGLE FAMILY RESIDENTIAL	□
MULTI-FAMILY RESIDENTIAL	□
MIXED-USE	□
SERVICE RETAIL	○
REGIONAL RETAIL	□
ENTERTAINMENT	□
OFFICE CAMPUS	□
OFFICE FLEX	□
OFFICE DISTRIBUTION	□
LIGHT INDUSTRIAL	□
RECREATION	●
INSTITUTIONAL	□
AGRICULTURE	□

FIGURE 9.5.7: CREVE COEUR LAKE PLANNING SUB-DISTRICT FUTURE LAND USE



St. Louis County Parks received approximately 1,100 acres of land as part of the mitigation from the construction of Route 364 (Page Avenue Extension) through the park. To manage this additional open space, the county prepared a master plan and coordinated the rezoning of the park with the City to an “MXD” Mixed-Use District. The plan includes the continuation of existing recreational uses and the expansion of athletic fields. The county plan also calls for more aggressive recreational programming, including a skateboard park, which will provide a recreational resource unique to the region. As presently understood, the county plan is consistent with the City’s recreation plans for the area.

The Creve Coeur Lake Sub-District incorporates a major portion of the regional stormwater management system, including the lake itself, Little Creve Coeur Lake, Creve Coeur Creek, and extensive water storage lands. The eastern edge of the district incorporates the bluffs and is one of the few points where the Maryland Park Lake District lies adjacent to a residential area.

CREVE COEUR LAKE DEVELOPMENT VISION

The Creve Coeur Lake Planning Sub-District will continue to function as a major regional destination for a variety of active, and passive recreational uses, some of which are unique to the region, and all of which are supportive of the City’s hospitality and entertainment industry.

CREVE COEUR LAKE LINKAGES

The trail system will attract usage by office and commercial tenants from adjoining districts. Pedestrian and bicycle linkages from adjoining districts should be encouraged as an enhancement to the overall quality of development and marketability in the entire planning area. The development of these linkages should preclude the need to drive to the Creve Coeur Lake Sub-District in order to use its trail system. Pedestrian and bicycle linkages should be achieved through combinations of walking paths, separate bike trails, and on-street bicycle facilities. Designated on-street bicycle facilities include bicycle lanes and bicycle routes.

CREVE COEUR LAKE GENERAL DEVELOPMENT POLICIES

The potential for support of the hospitality industry will be further strengthened with the establishment of linkages to the Expressway Planning Sub-District and its regionally significant Sportport Soccer Complex.

- Appropriate land uses should be determined based on consideration of the overall Maryland Park Lake District, and cannot be determined based solely upon consideration of a specific site.
- Any development proposal will need to prove consistency with this plan prior to consideration, and meet the requirements of the Maryland Heights Zoning Code and any applicable design guidelines prior to approval.
- The Future Land Use Map identifies the encouraged development pattern for this area. Other land uses (identified as “Conditionally Encouraged”) may be considered provided that the land uses: demonstrate need and add value to the area; are found to further the Goals and Strategies of this plan; are consistent with the guidance provided in this plan; and any associated development issues can be mitigated.

**CREVE COEUR LAKE SPECIFIC DEVELOPMENT POLICIES**

- Prior to development, adequate public facilities must be in place. It is the responsibility of the owner/developer to provide such public facilities and to demonstrate that they will be available at time of occupancy.
- Provide both physical and signage-based connections to adjacent districts. Uses and developments within and adjacent to the district should be welcoming to visitors and designed to be compatible with the surrounding environment.
- Encourage selective accessory commercial uses such as snack bars and restaurants, provided they are subordinate to recreation and open space features.
- Encourage active and unique recreation facilities.
- Encourage and require adequate parking to support planned uses. Parking facilities should have a low environmental and storm water impact, with alternatives to traditional paving, such as pervious surfaces encouraged. Peak traffic demands related to special events should be managed, addressing the location of parking as well as ingress and egress.

RIVER VALLEY SPECIFIC DEVELOPMENT POLICIES

- All new development must be integrated and connected to the regional stormwater system.
- Multi-modal connections between other sub-districts are encouraged.

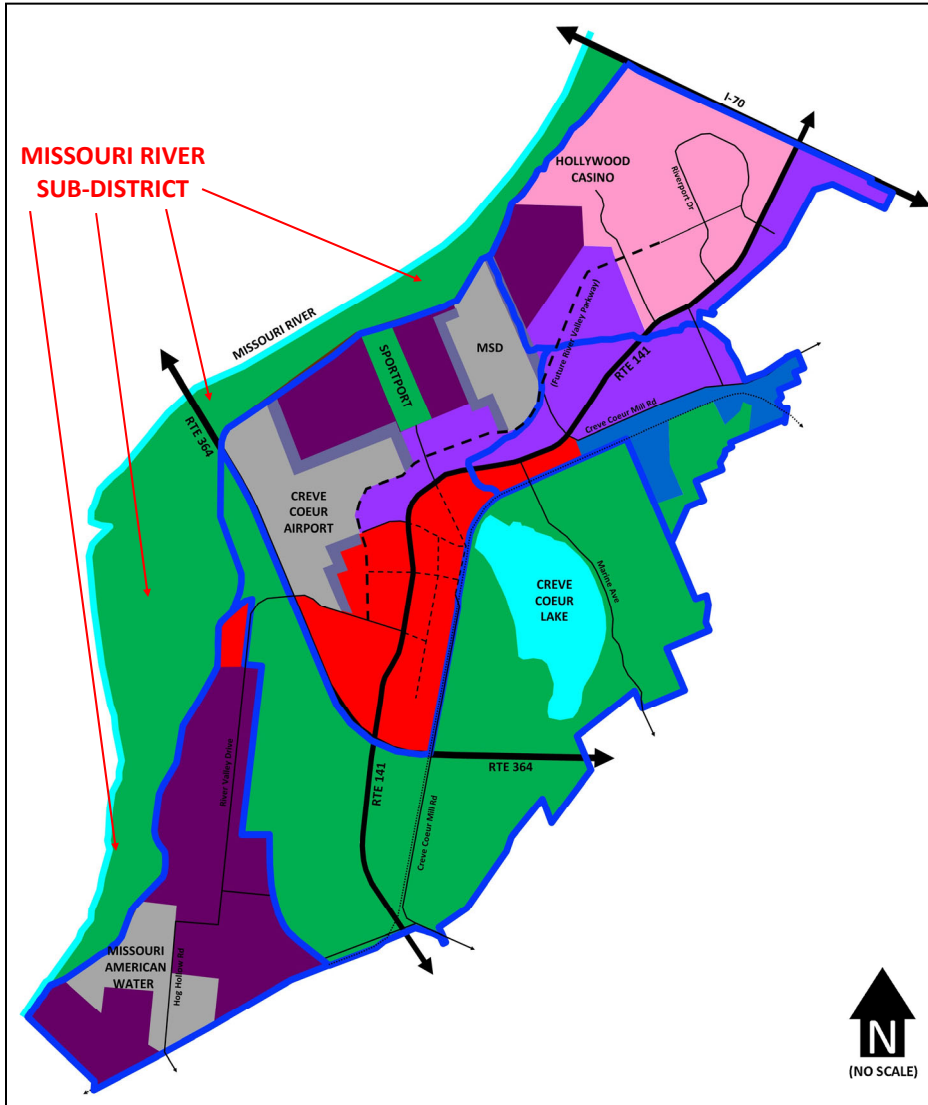


MISSOURI RIVER PLANNING SUB-DISTRICT

The Missouri River Planning Sub-District is the only planning district that will be outside the 500-year levee. The land area between the levee and the Missouri River is either in its natural state or is used for agriculture. It comprises 16% of the Maryland Park Lake District. The sub-district is located entirely within either the regulated floodway or the flood plain; as a result, the lands that are actively farmed are often flooded. It is rich in wildlife habitat, and is often used for local hunting activities. It was also the location of borrow pits for the construction of the 500-year levee.

MISSOURI RIVER PLANNING SUB-DISTRICT VISION

THIS PLANNING SUB-DISTRICT WILL REMAIN AS OPEN SPACE, AND WILL BE INCORPORATED INTO THE EVOLVING REGIONAL NETWORK OF OPEN SPACES TO BECOME AN INTEGRAL COMPONENT OF THE CONFLUENCE GREENWAY. CHANGES WILL BE ENCOURAGED THAT EXPAND THE NATURAL CHARACTER OF THE AREA; NOT EXPANDED ACTIVE AGRICULTURAL USES. IMPORTANT VIEWSHEDS WILL BE PRESERVED. LOW IMPACT ACCESS TO THE PUBLIC IN SUCH A WAY THAT THE ENVIRONMENTAL INTEGRITY OF THE AREA IS MAINTAINED AND PRIVATE PROPERTY RIGHTS ARE RESPECTED.



- MIXED USE — Residential/Retail
- RECREATION AND OPEN SPACE
- MIXED USE — Retail/Entertainment/Residential
- INSTITUTIONAL
- MIXED USE — Office/Entertainment
- TRANSITIONAL USES (adjoining existing uses)
- OFFICE CAMPUS AND/OR OFFICE FLEX
- EXISTING ROADWAY
- OFFICE DISTRIBUTION AND/OR OFFICE FLEX
- FUTURE ROADWAY
- LIGHT INDUSTRIAL
- RAILROAD
- PLANNING SUB-DISTRICT BOUNDARY

TABLE 9.5.HG MISSOURI RIVER PLANNING SUB-DISTRICT LAND USE ACCEPTABILITY MATRIX	
LAND USE CATEGORY	ACCEPTABILITY LEVEL
SINGLE FAMILY RESIDENTIAL	❑
MULTI-FAMILY RESIDENTIAL	❑
MIXED-USE	❑
SERVICE RETAIL	❑
REGIONAL RETAIL	❑
ENTERTAINMENT	❑
OFFICE CAMPUS	❑
OFFICE FLEX	❑
OFFICE DISTRIBUTION	❑
LIGHT INDUSTRIAL	❑
RECREATION	◯
INSTITUTIONAL	❑
AGRICULTURE	❑

FIGURE 9.5.8: MISSOURI RIVER PLANNING SUB-DISTRICT FUTURE LAND USE

**MISSOURI RIVER DEVELOPMENT GUIDELINES**

Although new development will not occur in the Missouri River Sub-District, specific consideration will still need to be given to the following issues:

- Providing access to natural spaces.
- Potential locations for wetlands mitigation for other districts.
- Continuation of maintenance for agricultural users.
- Development of passive recreational uses.

comprehensive plan

CITY OF MARYLAND HEIGHTS



SECTION 9.6 - IMPLEMENTATION

MARYLAND PARK LAKE DISTRICT



COMPREHENSIVE PLAN IMPLEMENTATION

The Comprehensive Plan is a set of policies intended to guide land use decisions and development while coordinating other City plans, decisions, and regulations. The Comprehensive Plan has no legal basis or legislative authority in regulating development but rather provides the guidance in the form of policies and regulations that provide the nexus to the Zoning Code and other regulations.

The following section discusses some of the tools and techniques for implementing the policies and objectives of the Future Land Use Plan. The City presently utilizes some of the implementation tools, which therefore may only require review for consistency with the plan. Other implementing actions may be pursued by the City to further the implementation of the Plan. These may include actions that expand on and develop adopted policies, and that may be formally adopted later as part of the plan.

REGULATORY STANDARDS AND DESIGN GUIDELINES

Regulatory measures to implement the Plan must be adopted as legal instruments in the form of ordinances. Administrative actions and decisions of the City also should be based on implementing the goals and policies of the Plan. Appropriately used and enforced, regulations prove one of the most valuable implementation tools available. Regulations focused on development standards are of vital importance in guiding the physical development aspects of the Land Use Plan. The zoning code, development regulations, and building codes are but a few examples of the regulatory tools that are available.

The City should create, amend, and adopt the appropriate revisions to the City's Zoning Code to create the mechanism for the use of a "Planned District" as specifically outlined within this plan. A series of related and connected planned developments should be created on a case by case basis, arising from specific development requests and proposals in accordance with the planning policies and guidelines contained within this Plan.

Development plans should include development standards, urban design guidelines, and open space requirements specifically designed to meet the recommendations of this Plan. Planned Districts should function as the vehicles for development used when property owners or developers are interested in proposing specific development plans. These developments should only be proposed when and if the appropriate infrastructure improvements are completed and the plans should be interconnected with other development as well as within itself. The Planned District should also provide for the evaluation of stormwater management review, traffic management, traffic impact, access management, design criteria, functional open space integration, and level of service standards.

PARTNERSHIP OPPORTUNITIES

Opportunities to provide partnerships should be advanced to the maximum extent practical. These partnerships represent not only efficient public policy but responsible public policy. These partnering opportunities follow:

1. ST. LOUIS COUNTY PARKS

The City should continue to work in collaboration with the St. Louis County Department of Parks to review and evaluate future development opportunities within the park. Continued partnering opportunities should be maintained and cultivated focusing on the development of the open space and trail system and recreational program sharing opportunities with the City and the Maryland Park Lake District.

2. PROPERTY OWNERS/HOWARD BEND LEVEE DISTRICT/MISSOURI DEPARTMENT OF NATURAL RESOURCES

The City should encourage the development of a "wetland mitigation bank" that would provide for the replacement of wetlands that have been impacted by development. Additionally, the City should continue to cultivate its leadership



role in guiding the design and development of the regional stormwater management system.

3. METROPOLITAN SEWER DISTRICT/PROPERTY OWNERS/DEVELOPERS

The City should collaborate with MSD regarding potential land swap opportunities that would provide benefit to the planning area by adding additional developable property with higher visibility in the planning area while ensuring the expansion needs of the Missouri River treatment plant are met.

4. GREAT RIVERS GREENWAY/ST. LOUIS COUNTY PARKS/HOWARD BEND LEVEE DISTRICT

The City should participate in the planning and development of a regional trail system that will expand on existing walkways and bikeways within Creve Coeur Park, extend the Missouri River Greenway system along the levee and provide connection opportunities for the Centennial Greenway. This trail system should include internal and local development linkages with the Park, as well as connections to the Katy Trail and proposed developments.

5. MISSOURI-AMERICAN WATER COMPANY/ST. LOUIS COUNTY HIGHWAY DEPARTMENT

The City should mutually investigate local roadway alternatives to provide improved access to the River Valley Planning District including the elimination of through traffic at the Missouri American Water Company.

CONTINUED PLANNING EFFORTS

The planning effort does not conclude with the adoption of the Comprehensive Plan but rather creates the need for further plans to address the general guidance contained within. An overview of these future planning efforts follow:

1. TRAFFIC AND CORRIDOR MANAGEMENT PLAN

The City should develop and adopt a Corridor Management Plan for Route 141 and the River Valley Parkway and the associated street network. The Management Plan will assure that the street network is developed and managed in a way that corresponds with the aesthetic and functional goals and policies outlined within this plan. While a portion of this has been completed and incorporated within this plan, additional recommendations will be needed regarding the following:

- Interconnection standards of the street network, both regionally and locally.
- Level of Service (LOS) standards for future commercial.
- Access management standards for the roadway system.
- Internal circulation guidelines, development access and interconnection between planned development districts.
- Development of mass transit systems to serve the projected employment base with the Maryland Park Lake District.
- Alternate transportation management programs to mitigate peak hour congestion.

2. OPEN SPACE AND PARKS PLAN

The City should create and adopt an Open Space and Parks Plan specifically designed for the Maryland Park Lake District. This Plan should provide recommendations for the provision, allocation and management of open space and its associated amenities. The Plan should also contain specific recommendations for the provision and connection of pedestrian and bicycle facilities and their inclusion into new roadway construction and the stormwater management system.



TRANSPORTATION

The implementation of the Transportation Plan requires:

1. The continuation of the intergovernmental cooperation between the regional agencies (St. Louis County, MoDOT, East/West Gateway, etc.) and the City.
2. The establishment of regulatory tools that ensure the transportation goals are met.
3. The creation of Improvement Districts to provide the funding for the required infrastructure.
4. The continuous monitoring of the roadway network to maintain safe and efficient movement of traffic within the Maryland Park Lake District.

APPROPRIATE REGULATORY MEASURES

The developer should be responsible for the construction of the infrastructure improvements needed to support the development. Accordingly, the City needs to specify the appropriate roadway improvement requirements based upon the scale and nature of the project in each Planned District ordinance.

FUNDING MECHANISMS

The planning area has many funding mechanisms available to fund the required improvements contained within this plan. Options include allocating some portion of the tax revenue received through taxes to fund these projects.

One funding mechanism that may be employed is the use of local finance initiatives. One example of a local finance initiative would be the use of a Transportation Development District (TDD). TDD's may be created to act as the entity responsible for developing, improving, maintaining, or operating one or more projects relative to the transportation needs of the area in which the District is located. Funds generated through the use of TDD's may be used for roadways, interchanges, intersections, bridges, traffic signals, mass transit, or other improvements. A similar initiative, a Community Improvement District (CID), could be used to fund a wider range of public improvements and their maintenance. Both TDD's and CID's impose additional property or sales taxes within the District itself, not citywide.

Another local finance initiative that could be used is the development of Local Option Economic Development Sales Tax. The use of a Local Option Economic Development Sale Tax was approved by the Missouri General Assembly in 2005. These taxes allow citizens to approve an additional sales tax dedicated exclusively for certain economic development initiatives in their municipality. Funds generated from a Local Option Economic Development Sales Tax can be used for projects directly related to long-term economic preparation, such as land acquisition, installation of infrastructure for industrial or business parks, water and wastewater treatment capacity, street extensions and for matching state or federal grants related to such long-term projects.

This list of funding mechanisms does not represent the only options that may be utilized in funding future improvements for the planning area. New and innovative funding mechanisms may become available in the future. The funding mechanisms provided within this plan are meant to be a starting point for the funding of the improvements that will be necessary due to the full build-out of the planning area.

SHARING THE RESPONSIBILITY

In order for the successful development of the planning area, a great deal of coordination will be required. The City will continue to facilitate relationships with many agencies. Some agencies that will play a key role in this process include the Missouri Department of Transportation (MoDOT), St. Louis County, and local municipalities. These relationships can help foster the notion that the development of the transportation system in Howard Bend not only provides a benefit to the city, but also the St. Louis region.



TRANSPORTATION

RESERVE IMPROVEMENTS

If the planning area develops at intensity higher than expected, additional improvements may help to alleviate congestion on the roadway network. It is important to note that given the current land use planning efforts, these improvements do not appear to be necessary.

- Retrofit of the Missouri Route 141 to a Freeway

The character of the Maryland Heights expressway could be changed such that it becomes a freeway with grade separated interchanges instead of intersections. This would increase the capacity of Route 141 but would also limit access from the Expressway. In addition, as a retrofit project the costs would probably be very high due to right-of-way impacts.

- Enhance McKelvey Road Connection with Possible Interchanges on I-270 and/or I-70

McKelvey Road could potentially be enhanced in order to provide an additional way to access the planning area. A potential interchange with I-270 and/or I-70 would also provide an additional method of accessing the planning area.

Some of the potential benefits of this improvement would be that McKelvey Road would act as a reliever route for Missouri Route 141 and the improvement would create another way to access planning area. The issues involved with this improvement would likely include cost, obtaining FHWA and MoDOT approval, and minimizing impacts to neighborhoods.

- Enhanced Connection via Dorsett Road and Marine Avenue

Dorsett Road and Marine Avenue could be enhanced to provide an addition access route for the area. This would involve measures to increase the capacity of the roadways to handle to increase in volume. This improvement would serve to relieve other routes that access the planning area. However, this strategy would have profound impacts to Creve Coeur Park, and would probably not be politically feasible.