

# The Northwest Plan

Lawrence-Douglas County Planning Commission  
Recommendation of Approval - December 18, 1996

## Table of Contents

INTRODUCTION .....	1
Purpose of the Plan	
Policy Framework	
Planning Goals and Objectives	
LAND USE .....	6
In General - Growth Management	
Residential Land Use	
Commercial Land Use	
Industrial and Employment-Related Land Use	
Public and Semi-Public Land Use	
CIRCULATION .....	9
Arterials	
Collectors	
Bicycle and Pedestrian Transportation	
PARKS & OPEN SPACE .....	12
Neighborhood, Community & Natural Area Parks	
OTHER MUNICIPAL SERVICES .....	13
Sewer	
Water	
Drainage	
Flood Plain Management	

**RESOLUTION NO. 5868**

**A RESOLUTION APPROVING THE NORTHWEST PLAN AS A GUIDE FOR LAND USE AND DEVELOPMENT IN AN AREA BOUNDED ON THE SOUTH BY HIGHWAY 40/W. 6TH STREET, ON THE EAST BY FOLKS ROAD (1100 E), ON THE NORTH BY COUNTY ROUTE 438/FARMERS TURNPIKE, AND ON THE WEST BY E 900 ROAD.**

**WHEREAS, the Lawrence City Commission directed the Lawrence-Douglas County Metropolitan Planning Commission to prepare a development plan for the area; and,**

**WHEREAS, the plan was prepared, and the Planning Commission conducted a public hearing on the plan on November 20, 1996; and,**

**WHEREAS, the Planning Commission unanimously approved the Northwest Plan and forwarded it with a recommendation for concurrence to the City Commission on December 18, 1996; and,**

**WHEREAS, the City Commission did receive the Planning Commission's recommendation, discuss and approve the Northwest Plan on January 7, 1997;**

**NOW, THEREFORE, BE IT RESOLVED BY THE GOVERNING BODY OF THE CITY OF LAWRENCE, KANSAS:**

**Section 1. The City Commission endorses the Northwest Plan's recommendations and conceptual land use map as a guide for land use and development in the area, to be used to supplement the general land use information in both the Western Development Plan and Horizon 2020, the comprehensive land use plan.**

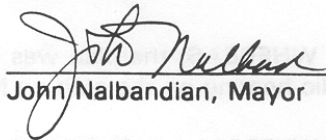
**Section 2. By endorsement of the conceptual land use map, the Commission is indicating that the map is a conceptual representation of land use in the area and is intended only to lend general illustrative support for the written recommendations. In recognition of the lawful requirements for the consideration and adoption of zoning and land use regulations, endorsement of the map is for the purpose of establishing general planning guidance and is not intended and shall not be used to pre-judge the merits of future requests for zoning or land use requests by individual property owners in the area.**

**Section 3. The City Commission strongly encourages property owners and developers in the plan's area to follow the spirit and intent of the plan in the planning and development of property. All land use applications in the area shall be reviewed for conformance with the plan.**

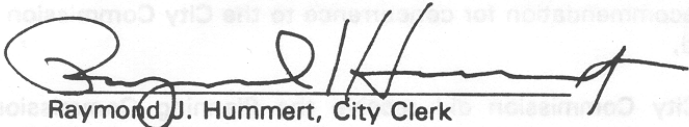
Section 4. The Northwest Plan is attached to this Resolution and is hereby incorporated as if fully set out herein.

Section 5. Nothing in this Resolution shall be interpreted to amend Horizon 2020, the comprehensive land use plan, adopted by Ordinance No. 6884.

ADOPTED this 20th day of January, 1997.

  
John Nalbandian, Mayor

ATTEST:

  
Raymond J. Hummert, City Clerk

## **Introduction**

---

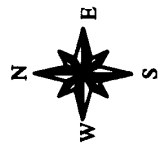
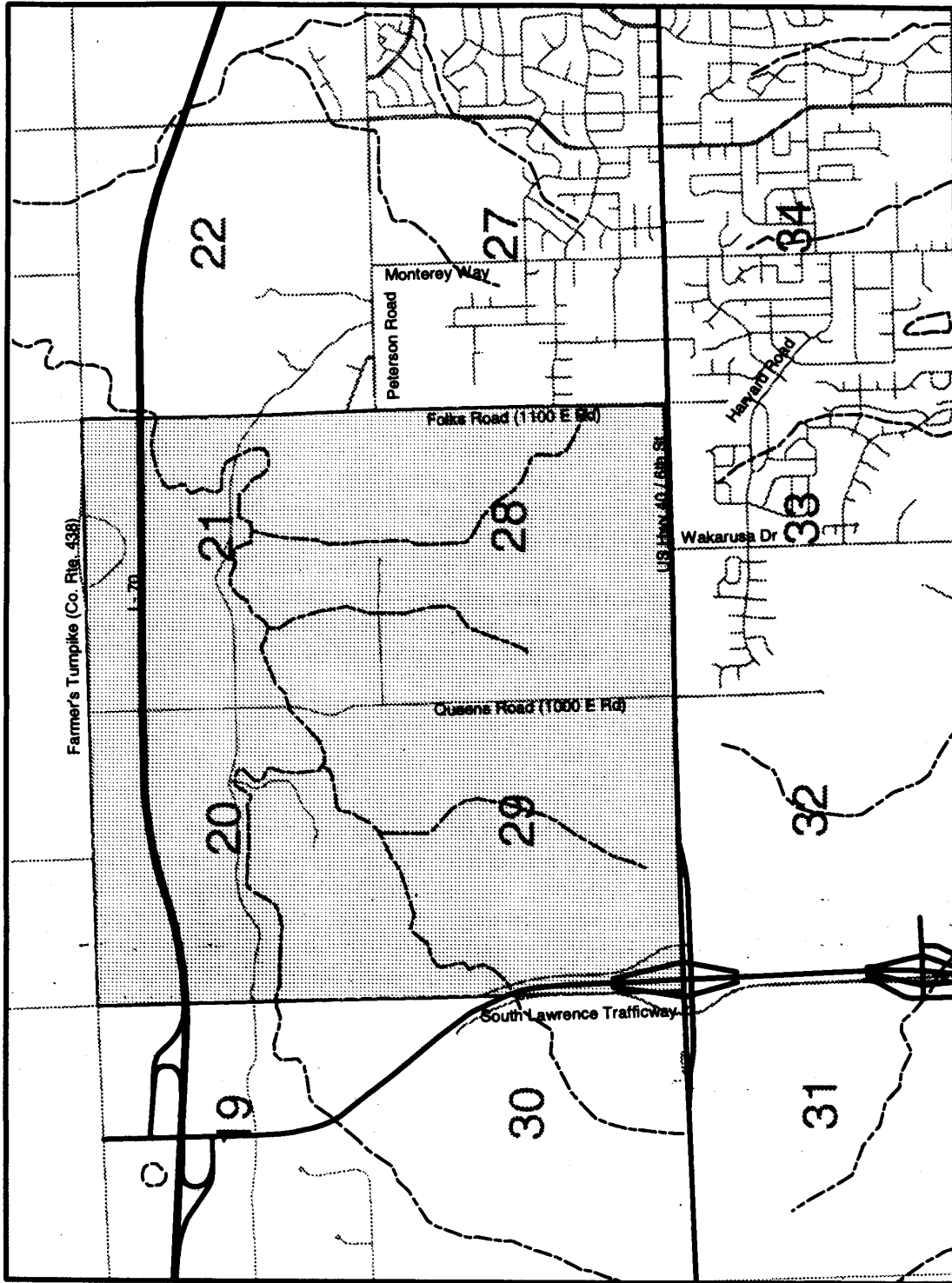
The boundaries of the northwest planning area are County Route 438/Farmers Turnpike on the north; U.S. Highway 40/Sixth Street on the south; Folks Road on the east; and East 900 Road on the west. The study area contains the four square miles of sections 20, 21, 28 and 29, or approximately 2560 acres. Maps of the planning area and real estate parcels are attached.

The majority of the northwest area is included in the planning area boundaries of the Western Development Plan, but only a narrow portion of the southern parts of sections 28 and 29 was anticipated to develop. Other areas were never anticipated to develop when the plan was prepared. Because of the recent location of the city's second high school in the area and the opening of the South Lawrence Trafficway's interchange at Sixth Street, conditions have changed such that development is now possible. Land owners, in fact, have submitted requests for annexation and zoning of land and for site plan approval of development projects along the north side of U.S. Highway 40. Because portions of the area seem prime for urbanization, many of the policies of Plan '95, the existing comprehensive plan, and the Western Development Plan, which guide development would now seem to apply.

However, in addition to the above-stated trends, and over the course of the same few years, new general and comprehensive plans covering land use, transportation, sewer and other utilities, storm water drainage, and parks have been developing; and some of these plans are now complete. These plans will guide the future growth and development of the City of Lawrence and Douglas County. The plans ascertain community values and needs and articulate them into goals and policy statements. Therefore, because the northwest area will develop during the planning periods of these plans, land use in this area should be guided by them. And, therefore, no new policies are recommended. This plan does not include the background studies which can be found by referencing the general plans mentioned here.

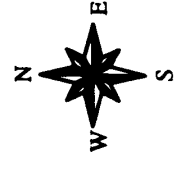
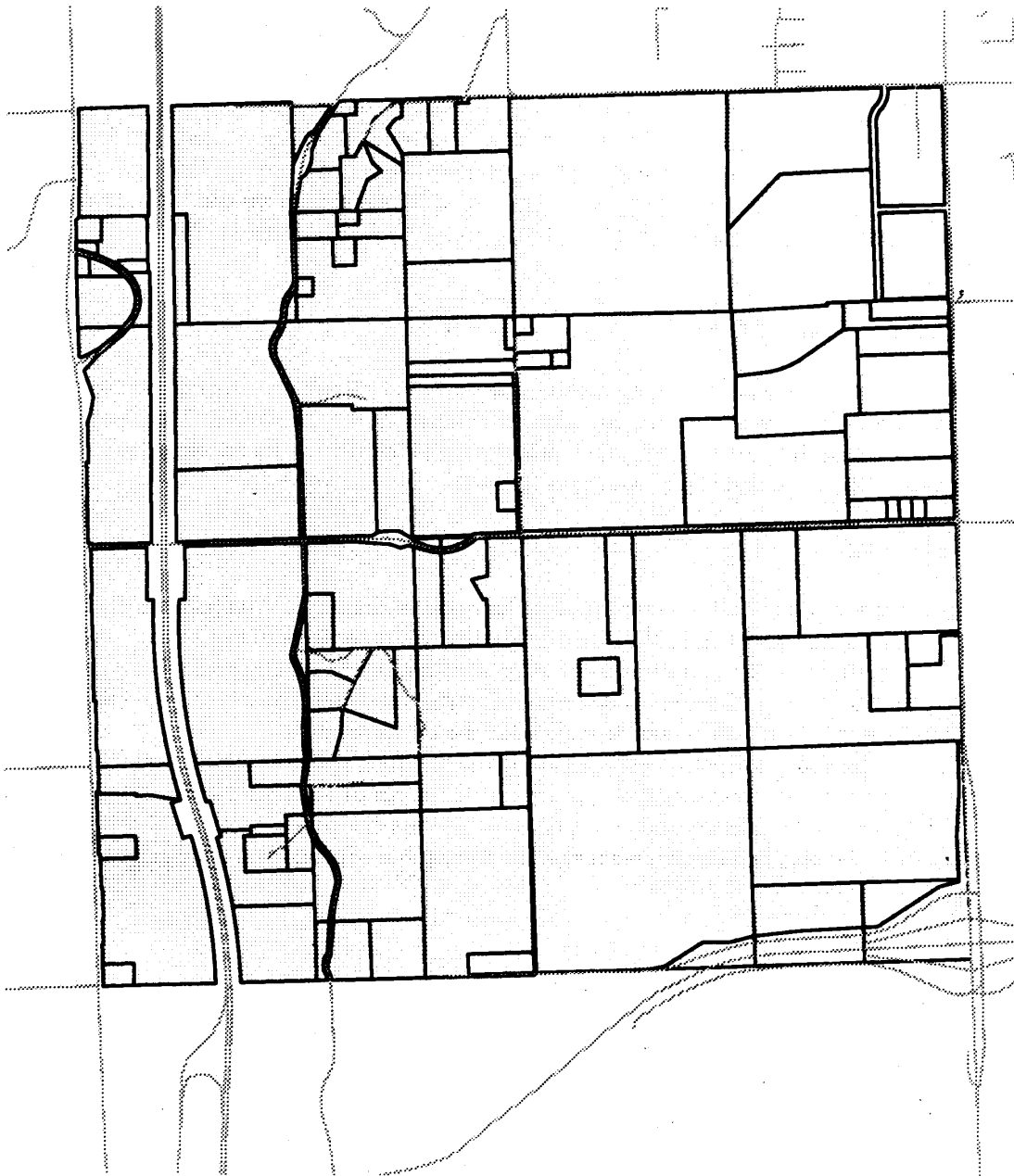
### Purpose of the Plan

The purpose of the northwest plan is to portray how the planning area relates to its larger setting in terms of land use, circulation, open space, natural resources, and visual form. As development is designed, proposed, and expanded in the area, the plan is to be used to create a safe, convenient, predictable, satisfying and aesthetically pleasing living and working environment which compliments and preserves the special environmental features of the area. Because land use was not fully portrayed in the Western Development Plan for this area, a primary goal of the plan is the development of a set of objectives that outline appropriate land use in the area. The plan does not amend or replace policies of the comprehensive plan. It remains consistent with the comprehensive plan by allowing the policies of the comprehensive plan guide decision-making on development proposed in the area.



 Plan area

# The Northwest Area - Real Estate Parcels



Lawrence-Douglas County Metropolitan Planning Office  
October 10, 1996

## Policy Framework

Although the current comprehensive plan is Plan '95, a new comprehensive plan, Horizon 2020, is adopted by the Planning Commission and is ready for adoption by the city and county commissions. Based on this, this plan suggests that Horizon 2020 serve as the overall planning guide and policy upon which this plan is founded. In addition to Horizon 2020, guiding policy is also obtained in other adopted, or soon to be adopted, physical element plans. Together these plans serve as the general “umbrella” policies under which the northwest area will be guided. Listed, these plans are:

- Horizon 2020, The Comprehensive Plan for the City of Lawrence and Unincorporated Douglas County, Lawrence-Douglas County Metropolitan Planning Office, May 22, 1996.
- Transportation 2020, Lawrence-Douglas County Metropolitan Planning Commission, 1995.
- Wastewater Facility Master Plan, City of Lawrence, Black and Veatch, 1995.
- Water Master Plan Update, City of Lawrence, Black and Veatch, 1995.
- Stormwater Management Master Plan, City of Lawrence, Burns and McDonnell, 1996.
- Comprehensive Plan for Parks and Recreation, City of Lawrence, 1994.

## Planning Goals and Objectives

During the northwest planning process, certain goals and objectives, consistent with the above-stated policy references, were identified to guide planning in the northwest area. They are intended not to conflict with the above-stated policy references. (If conflict is found, the policy references will guide.) The goals and objectives are as follows:

### In General

1. Sections 20 and 21 are planned to be left rural in character. Although the plan area is within the Urban Growth Area as defined by Horizon 2020, sections 20 and 21 are to reflect remaining rural in character during the life of this plan or until endorsed otherwise. The extension of major public streets and sewers is discouraged. Annexation into the city is also discouraged.
2. Sections 28 and 29 should be planned as the urbanized area.
3. Direct higher intensive land uses toward Sixth Street and the South Lawrence Trafficway but direct lower intensive land uses toward the north of sections 28 and 29. This downward gradation of intensity should apply to all land use categories.
4. All planning and development shall be compatible with adopted policies and regulations.

### Land Use

1. The southern section line of sections 20 and 21 should be the demarcation line between rural residential and single family land use, rather than a line that roughly follows topography.
2. Any commercial use should be located at arterial street intersections.
3. A variety of housing types and costs is encouraged in the southern part of sections 28 and 29. Single family residential is encouraged in the central and northern parts of sections 28 and 29.

- Planning of neighborhoods should follow the neighborhood planning concept.
4. Sections 20 and 21 should continue being rural in character. Any residential use should be very low density according to guidelines set in Horizon 2020.
  5. Definitions of land use and densities, such as, but not limited to, gross density, net density, very low density residential, low density residential, and medium density residential should conform to Horizon 2020.
  6. It is recommended that the city acquire more park land in the plan area.

#### Transportation

1. Circulation shall be planned and developed in accordance with current adopted transportation plans and policies.
2. Land use and transportation should be designed to coordinate with each other.
3. Sixth Street is promoted as a 4-5 lane major arterial with few crossing intersections, one being at Wakarusa Drive.
4. Wakarusa Drive is recommended to be extended north, traversing between sections 20 and 21, along present Queens Road.
5. Different modes of transportation are encouraged.
6. N 1750 Rd. is recommended as a rural collector street rather than an arterial as designated in Transportation 2020.

#### Utilities

1. All utilities are encouraged to be buried in the urbanized areas.
2. Sewers should be installed according to existing sewer plans and policies.

#### Storm Drainage

1. It is recommended that the Storm Water Management Master Plan be updated to include this plan area's drainage basin.
2. Development should be compatible with current storm drainage plans, policies, and regulations.
3. Sediment and flooding impacts on downstream areas caused by upstream development should be minimized.

#### Environment

1. The floodplain should be defined using the most current floodplain (FEMA) maps.
2. Environmentally sensitive areas, as defined in Horizon 2020, apply in the area, and zoning approvals and subdivision and site plan reviews shall take them into consideration.
3. The land use map does not depict actual environmental conditions, and one should refer to the comprehensive plan for guidance on environmental condition maps, studies, and policies.

## **Land Use**

---

It is the intent of this plan that the policies of Horizon 2020 govern urban land use development in the northwest plan area. Together, Horizon 2020 and this plan shall guide zoning approvals and subdivision and site plan reviews. Proposed land use is portrayed on the attached map. The map also shows major streets proposed in the area and parks. It does not attempt to depict existing environmental conditions.

### In General - Growth Management

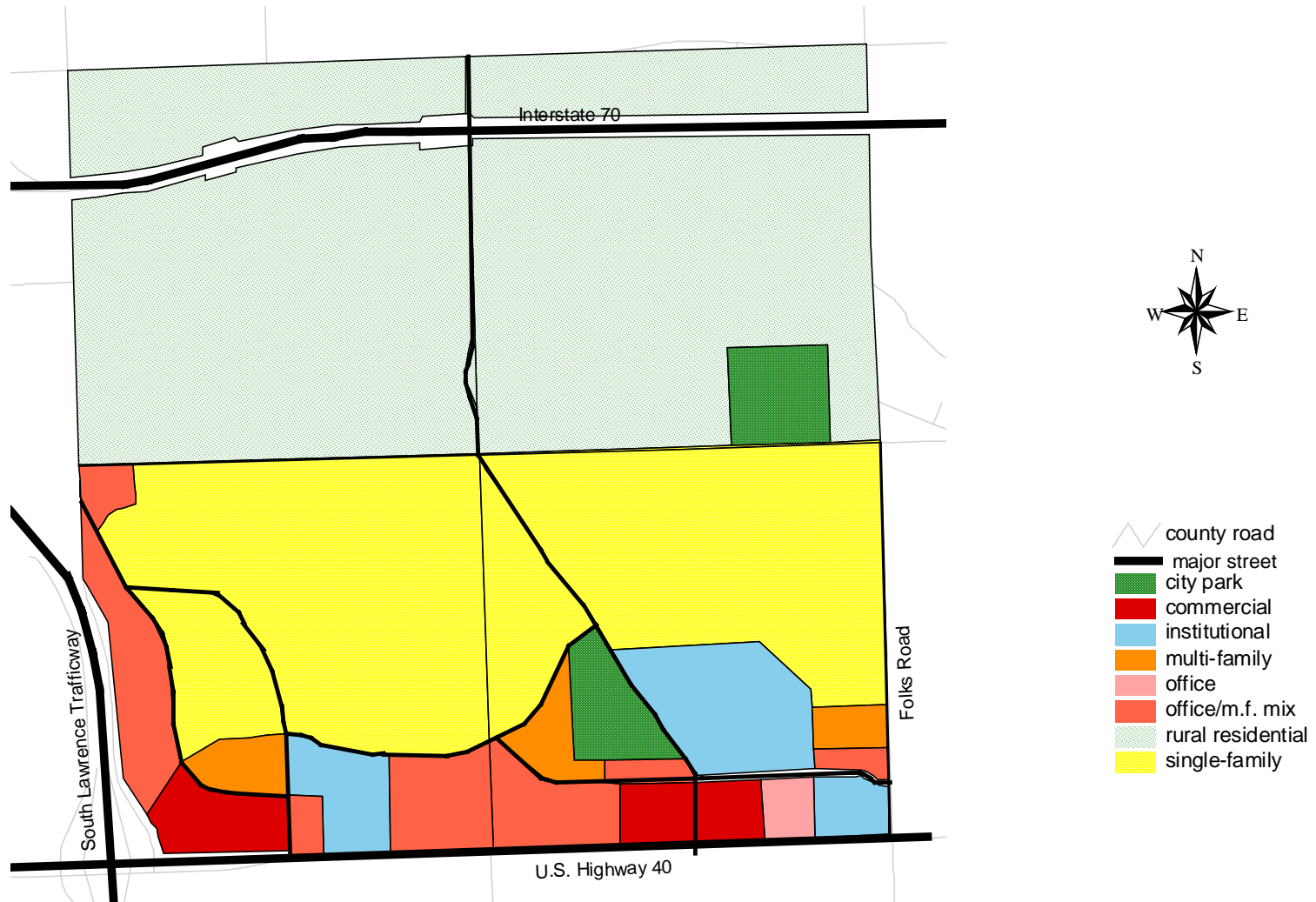
As defined in Horizon 2020, the plan area is in the Urban Growth Area and requires residential lots be a minimum of 5 acres and prohibits nonresidential development until the area can be served with municipal services. This policy is particularly relevant to sections 20 and 21 of the plan area. Under the Wastewater Facility Master Plan, the sanitary sewer system is now designed to serve sections 28 and 29 of the plan area. Approval of development in sections 28 and 29 locations requires the availability and construction of sanitary sewers. Other services, such as water and fire protection, may not yet adequately serve all of sections 28 and 29. Development approval shall be granted in sections 28 and 29 as such services are available.

### Residential Land Use

Horizon 2020 recommends an alternative residential land use for this area. In cases due to the presence of forest, slopes and natural drainage ways, a very-low density residential category with 1 or fewer dwelling units per acre is appropriate in the area intended to be annexed and served by municipal services. The Northwest Plan recommends a downward grading of land use intensity as development approaches the northern section lines of sections 28 and 29, where the presence of woods and slopes is greatest, and where a very-low density residential land use would best be applied.

Further south, in the central portions of sections 28 and 29, conventional single family residential is planned. Multiple family residential land uses (duplex through multi-unit apartments) is primarily planned only in the southern portions of sections 28 and 29. Multiple family land use in the context of this plan should be limited to medium density, 15 dwelling units per acre, or lower. Multiple family adjacent to single family land use should be the lowest density multifamily, such as duplex town homes. Horizon 2020 goals and policies on appropriate transition methods between different housing types and land use densities and intensities shall apply (particularly section IV, B, Goal 6, Policy 6.1 and IV, C, Goal 3, Policy 3.1). Multiple family residential land uses located along the South Lawrence Trafficway (SLT) shall adhere to the downward grading of land use intensity policy proposed in this Northwest Plan.

# The Northwest Area Proposed Land Uses



Note: Actual environmental conditions which place constraints on development are not shown on this map. Refer to the comprehensive plan for guidance on environmental condition maps, studies and policies.

Lawrence-Douglas County Metropolitan Planning Office  
October 2, 1996

## Commercial Land Use

The plan reiterates the goal of Horizon 2020 to terminate the lineal (strip) commercial development along West Sixth Street, west of Monterey Way, by planning commercial land uses only at the intersections of West Sixth Street and Wakarusa Drive and West Sixth Street and the South Lawrence Trafficway.

## Industrial and Employment-Related Land Use

Industrial land use is not recommended in the plan area. Office and office-research land uses are. Although Horizon 2020 does not specifically designate locating these uses in the plan area, it does recommend that office and office-research uses are appropriate at the gateways to the community. The southwest portion of the plan area is a new gateway to the community with the opening of the South Lawrence Trafficway. Horizon 2020 encourages office and office-research uses of high quality development “...at major entrances to the city to present a pleasing community appearance”. These developments should “...include aesthetic amenities such as landscaped plazas, open spaces and pedestrian areas which emulate a unified and organized ‘campus’ setting.”

## Public and Semi-Public Land Use

Institutional land uses are included within this category of land use. Institutional land uses include governmental or quasi-governmental facilities, schools, churches, hospitals and other public and semi-public lands. Parks and open space may be public land uses, and are discussed in a later section.

Often, it is difficult to project the need for institution space. The proposed land use map indicates areas reserved for institutions planned at this time. If conditions change, office land use would be an appropriate substitute. In addition, Horizon 2020 states that residential areas are “...appropriate for many public and semi-public uses, provided access and buffering are considered in their location”.

## Circulation

---

Transportation 2020 is the comprehensive, long range transportation plan for the metropolitan area. The plan designates streets according to their functional classification, or their primary purpose. (See the attached street classification map.) The classification system can be described as a hierarchy from the lowest order, local streets, that serve to provide direct access to adjacent property; to collectors, which generally take traffic from local streets to higher order arterials; to arterials, which allow traffic flow through the entire urban area. Freeways and expressways are the highest classified streets designed with limited access to provide the highest degree of mobility to serve large traffic volumes with long trip lengths.

In the plan area, Interstate 70 is designated a freeway and the South Lawrence Trafficway is designated as an expressway. The interchange at Interstate 70 and the Trafficway, with the interchange at the Trafficway and Sixth Street to the south, will provide motorists a new gateway to Lawrence.

### Arterials

Arterials planned and designated in the plan area include Sixth Street, County Route 438 (Farmer's Turnpike), Wakarusa Drive extended north and northwest via Queens Road, and a portion of N 1750 Road. Although this plan is not intended to conflict with Transportation 2020, it does recommend N 1750 Road be redesignated as a collector instead of an arterial.

Sixth Street is classified as a principal arterial. Horizon 2020 describes the purpose of a principal arterial of being of great importance “...as they connect major traffic generators such as the central business district to other major activity centers....Since movement, not access, is the primary function, access management is essential to preserve capacity and enhance safety”. As early as 1988, in an interlocal agreement between the County and City, it was recognized that “...direct access for the development adjacent to the Trafficway and to 6th Street, west of Wakarusa Drive, shall be by frontage or intersection roads to be paid for by the owners of new development”, and individual driveway curb cuts onto 6th Street, west of Wakarusa Drive, was to be prohibited.

The policy was reiterated in interlocal agreement dated February 15, 1993, as: “...the County and City agree that 6th Street shall develop as a limited access roadway with access only at its intersection with arterial or collector streets and with frontage and intersection roads paid for by the owners of new development.” That agreement also called for the aggressive pursuit of state funding for improvements to 6th Street.

Transportation 2020 designates improvements to 6th Street as a priority. According to the improvement project application submitted for state funding on September 26, 1996, the “...project would reconstruct the existing two lane roadway to a four lane arterial street with a landscaped median, and protected left-turn bays at designated full-access intersections.”

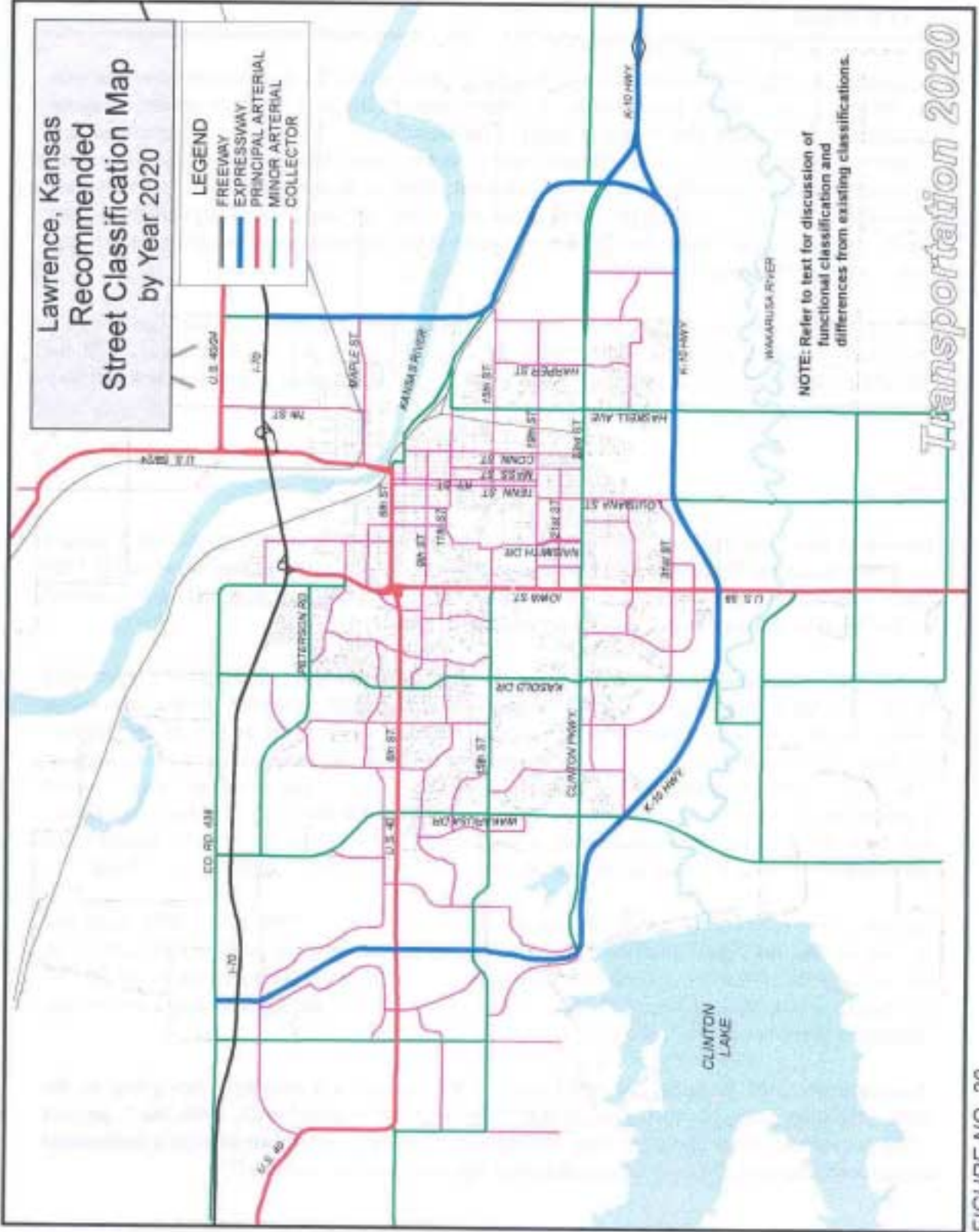


FIGURE NO. 30

## Collectors

Collectors planned and designated in the plan area include Folks Road (E 1100 Rd), a southern portion of Queens Road (E 1050 Rd), and Overland Drive. An extended collector system west of Overland Drive to serve higher intensity land uses immediately north of Sixth Street and along the South Lawrence Trafficway is also planned. (This plan supplements land uses proposed in the South Lawrence Trafficway Corridor Land Use Plan.) Although this plan is not intended to conflict with Transportation 2020, it recommends an alignment of the north-south collector street that intersects Sixth Street between Wakarusa and the South Lawrence Trafficway at mid-section of section 29 as indicated on the Northwest Area Proposed Land Use map.

Collectors will be required in the single family neighborhoods in the central parts of the plan area. According to Horizon 2020, they are encouraged to be designed as short and discontinuous as possible to discourage through traffic. Although there is difficulty planning the location of collectors in the single family neighborhood areas, they will be needed to provide for internal circulation and as connectors to commercial areas, schools, and parks.

Local streets are designed in accordance with development regulations of the City and at the time of subdivision or site plan submission.

## Bicycle and Pedestrian Transportation

Bicycle paths which are being constructed in conjunction with the South Lawrence Trafficway include a bike path from Clinton Parkway to N 1750 Road. With the exception of the facilities under construction, there are no existing bicycle facilities or on-street lanes in the plan area. However, there is extensive recreational bicycle use on County Route 438 and other roads north of the Turnpike.

Transportation 2020 differentiates between on-road bicycle facilities, which are designated as "City Routes", and off-road recreational facilities. The following street sections in and near the plan area are designated as appropriate for on-road "City Routes":

- In any planned improvement of U.S. 40 Highway/W. 6th Street west of Wakarusa Drive, construction of a separate multi-use path south of and parallel to the street is recommended;
- Streets north of U.S. 40 Highway/W. 6th Street, to allow bicycle access to Free State High School;
- County Route 438; Wakarusa Drive; and, Monterey Way.

In addition to "City Routes", Transportation 2020 recommends development of a multi-use recreational path to meander through the Baldwin Creek drainage area to reflect natural features and drainageway alignment. Possible locations for pathways are between parks in and around the area, between parks and schools, and along or within the sloped tributary drainageways leading to Baldwin Creek and the floodplain.

## **Parks and Open Space**

---

Both Horizon 2020 and the Comprehensive Plan for Parks and Recreation provide recommendations and standards for park and recreation land. Both documents emphasize the need for neighborhood park, community park, and natural area park acquisitions.

According to Horizon 2020, neighborhood parks are intended to serve approximately 1,500-2,000 households, and community parks should be provided for each 5,000 households. Neighborhood parks “...*should be located within convenient walking distance for most neighborhood residents*” and “*consider and maximize opportunities for bicycle and pedestrian connections to areas surrounding the site*”. Larger parks “...*should be located closer to major streets and in locations which are not disruptive to neighborhood living environments.*”

In the Comprehensive Plan for Parks and Recreation, the neighborhood park standard is defined as 3-14 acres in size, serving up to 7000 persons and within ½ mile of walking distance “...*with access free of natural and traffic barriers*”. Community level parks are described as being 15-100 acres in size, serving up to 20,000 persons and be within 1 and ½ miles of the service population. Natural area parks are defined as being resource-based rather than population-based, i.e., “*Natural Area Parks are typically developed more to preserve or feature a significant natural resource than to be close to population centers*”.

Of the projects recommended as a priority in the Comprehensive Plan for Parks and Recreation, the following would apply in the plan area: natural area acquisition, neighborhood and community park property acquisition, protected bike trail development, public landscape features, and right-of-way improvements along city entrances. The Parks Plan places a small portion of section 21 and most of section 28 in its proposed community park service area, and it recognizes that the west and northwest parts of the City are lacking both neighborhood and community parks. It also indicates that there is support for including natural areas in the park system.

Based on the standards and areas of priority, this plan recommends natural area acquisition in sections 20 and 21 to include wooded slope, riparian and floodplain lands. It also recommends additional neighborhood and community park land acquisition in sections 28 and 29. In addition, a network of recreational pedestrian/bicycle trails should be planned within the area in conjunction with acquisition of additional parkland and open space. The component on Circulation also mentions this.

## **Other Municipal Services**

---

The principal factor in determining where urban growth will occur is the availability of sanitary sewer service. Without sewers, land uses must be more dispersed to allow the use of an individual septic system for the disposal of sanitary waste. Sewers and other services planned in the plan area are discussed.

### Sanitary Sewers

A comprehensive study of the City's wastewater collection and treatment system was completed by Black & Veatch Engineers in Spring, 1995. The plan area lies in the Baldwin Creek drainage basin, which is primarily unserved by sanitary sewers. The Wastewater Facility Master Plan identifies two distinct sanitary sewer service area sub-basins for the plan area, BC-1 and BC-2. The smaller of these, BC-1, is delineated as Sections 28 and 29 immediately north of U.S. 40 Highway. Sections 20 and 21 in the plan area would be entirely within the sub-basin designated as BC-2.

The Wastewater Facility Master Plan, approved by the City in 1995, recommends the following phasing of improvements:

- To accommodate development of Free State High School in the southeast quarter of section 28, constructing a small package lift station and force main in sub-basin BC-1 and pumping the effluent southward to existing WR-2 (Wakarusa River) interceptors in the area south of W. 6th Street, just east of Wakarusa Drive.
- To accommodate additional development in the BC-1 sub-basin, phasing additional improvements in two stages. Stage 1 improvements would consist of constructing a pumping station and force main with a capacity of 3.7 million gallon/per day (mgd) in Section 28. Effluent would be pumped to a new 21 inch main that will connect to an existing sewer in Yankee Tank Creek Sub-basin YTC-2. Stage 2 improvements would consist of constructing a 2.3 mgd pumping station and force main, to convey flows from the west half of the BC-1 Sub-basin (Section 29) to the 21 inch main in YTC-2.
- As a result, the YTC-2 sub-basin is identified as an area which will require construction of a relief sewer by the year 2009.
- The Wastewater Facility Master Plan does not include sections 20 and 21 because the necessity for sanitary sewer service in that area is forecast to occur beyond the planning period (through the year 2020) of the plan.

Because sanitary sewers are designed to flow by gravity, the collection mains are placed in low-lying areas such as creek channels. Pump stations are built at the maximum extent of the channel so that they serve the mains for their entire reach. Construction of the mains requires major clearing of vegetation and excavation of deep trenches. It is recommended, however, that extreme care be taken to minimize damage to environmental features when the mains and lift stations are constructed. The proposed locations of the Stage 1 and Stage 2 pump stations and force mains are shown in the plan. (See attached sewer map.) Force mains would generally follow the south branches of Baldwin Creek, which lie in sections 28 and 29; the pump stations would be constructed toward the northern edge of each section.

### Water

The unincorporated part of the study area south of the Kansas Turnpike is currently within the service area of Douglas County Rural Water District (RWD) No. 1. Six-inch water mains are extended along U.S. 40 Highway/W. 6th Street and north-south section line roads; a four-inch line is extended along N 1750 Road; and two-inch lines serve individual houses or groups of houses in the study area. The area north of the turnpike is within the service area of Douglas County Rural Water District No. 6. The water district has a six-inch water main which runs along County Route 438.

The existing rural water district lines are of adequate size for the provision of water service to agricultural and rural residential uses. They are not adequate to provide the volumes or pressure needed for fire protection. The policy of the City of Lawrence is to provide water service, adequate for fire protection, once property is annexed into the City. In accordance with State Statutes, rural water districts are compensated for the loss of any facilities, such as water meters or water lines, when the City annexes part of their service area.

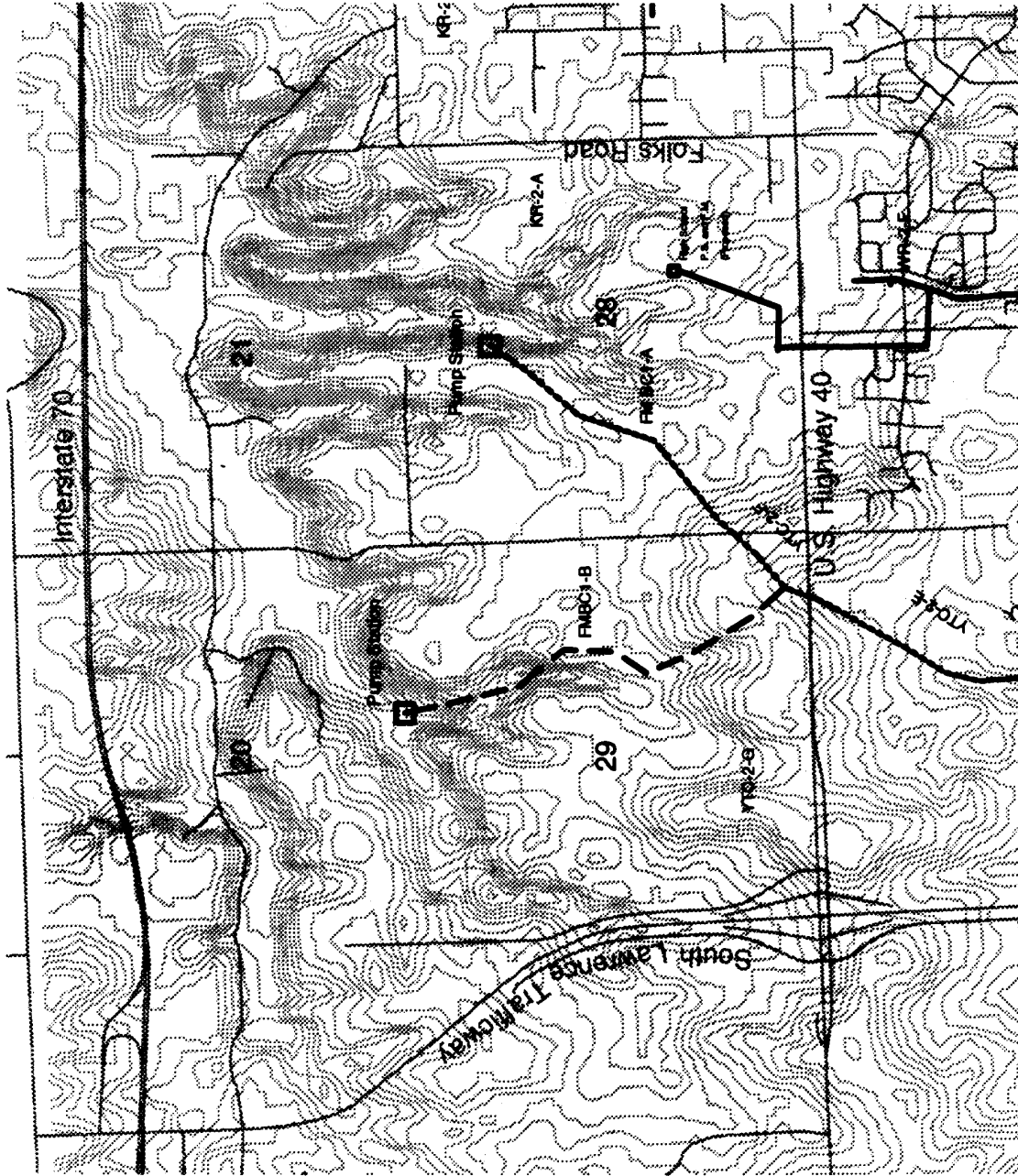
There is an existing 12 inch City water line on the north side of U.S. 40/W. 6th Street, which currently extends one half mile west of E 1100 Road (Folks Road). Plans for construction of the Lawrence Free State High School call for an 8 inch City water line to be extended north and east from W. 6th Street to loop with a new 12 inch line which would be extended approximately 800 feet north in the right-of-way of E 1100 Road (Folks Road).

The water system can be expanded to serve the area. The City of Lawrence recently acquired property north of U.S. highway 40 and west of Queens Road for an elevated water tank facility. This tank should serve the needs of the planning area as it is developed with urban land uses.

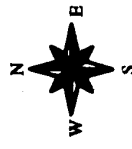
### Drainage

The Baldwin Creek drainage basin lies in the north central part of Douglas County, and encompasses approximately 5,470 acres (approximately 8.5 square miles). The basin is bounded on the south by a major ridge line (the Kanwaka ridge) that generally follows U.S. 40 Highway/ West 6th Street and extends approximately 1 mile west of the South Lawrence Trafficway and one-quarter mile south of U.S. 40 at its southwestern-most extent.

# Wastewater Facilities Master Plan for the Northwest Area



Wastewater Facilities  
Existing  
Phase I Improvements  
Phase II Improvements



Source: Black & Veatch Consulting Engineers, 1995  
October 14, 1996

The basin contains two sub-basins. The smaller of the two sub-basins has a land area of 1,270 acres and includes most of sections 28 and 29. It lies immediately north of U.S. 40 Highway/W. 6th Street and is bounded on the west by the right-of-way of the South Lawrence Trafficway. Land in this sub-basin drains northward toward the main channel of Baldwin Creek, which begins in the middle of sections 20 and 21 and drains northeastward toward the Kansas River. (Drainage is indicated on the attached slope map, where contour lines 'point' upstream.) The creek channel and the associated floodplain broadens and flattens as the creek approaches the Kansas River. (See also the attached map depicting floodplain.)

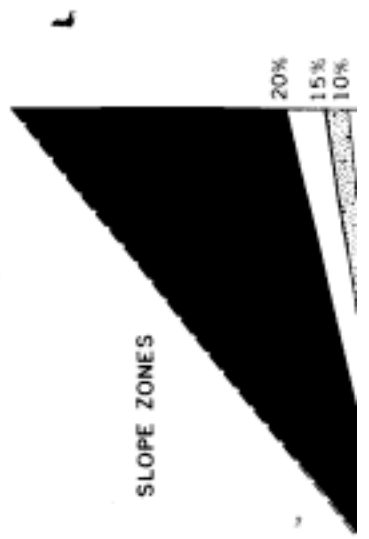
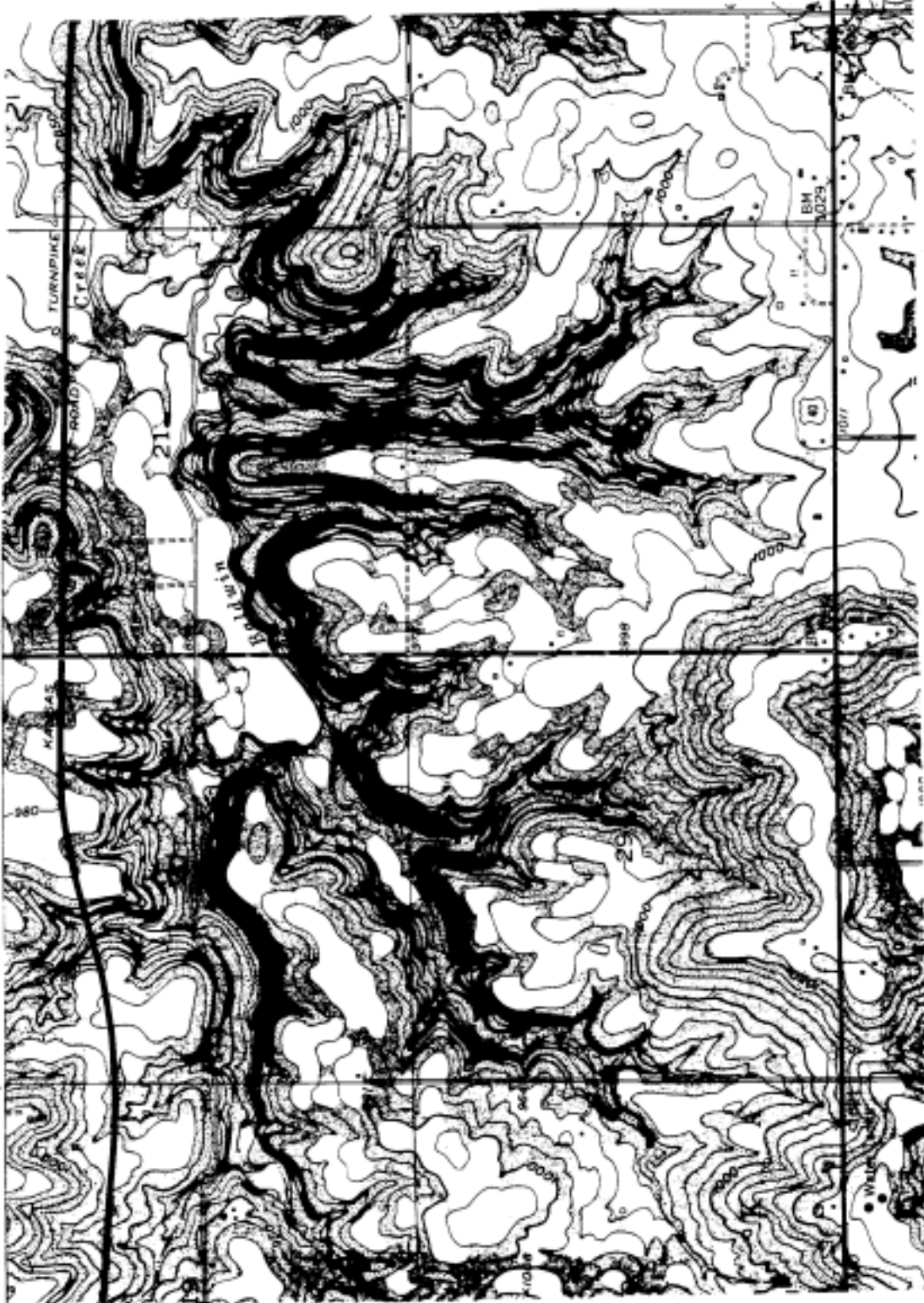
The second sub-basin of Baldwin Creek is a much more expansive land area with approximately 4,200 acres. It lies southwesterly and northerly of the smaller sub-basin, extending southwesterly beyond the west leg of the South Lawrence Trafficway and northward to Lakeview Lake. This sub-basin drains from southwest to northeast toward the Kansas River.

The City of Lawrence completed its Stormwater Management Master Plan in 1996, which generated policy governing storm water management. Basically, the policy requires an engineering study to assure drainage systems are designed for the 10-year return period peak flow with overflow channels sufficient enough to convey the 100-year peak flow. Overflow channels are to be covered by drainage easements with land use restrictions, and natural channels are encouraged to remain in their original location. Detention is required where buildings in the drainage basin downstream from the proposed development are frequently flooded during storm events, or where the required engineering study indicates the proposed development would cause flooding of downstream structures not previously affected. Although this plan recommends updating the Stormwater Management Master Plan to include the Baldwin Creek drainage basin, the policy would govern lands in the plan area as they are incorporated.

### Floodplain Management

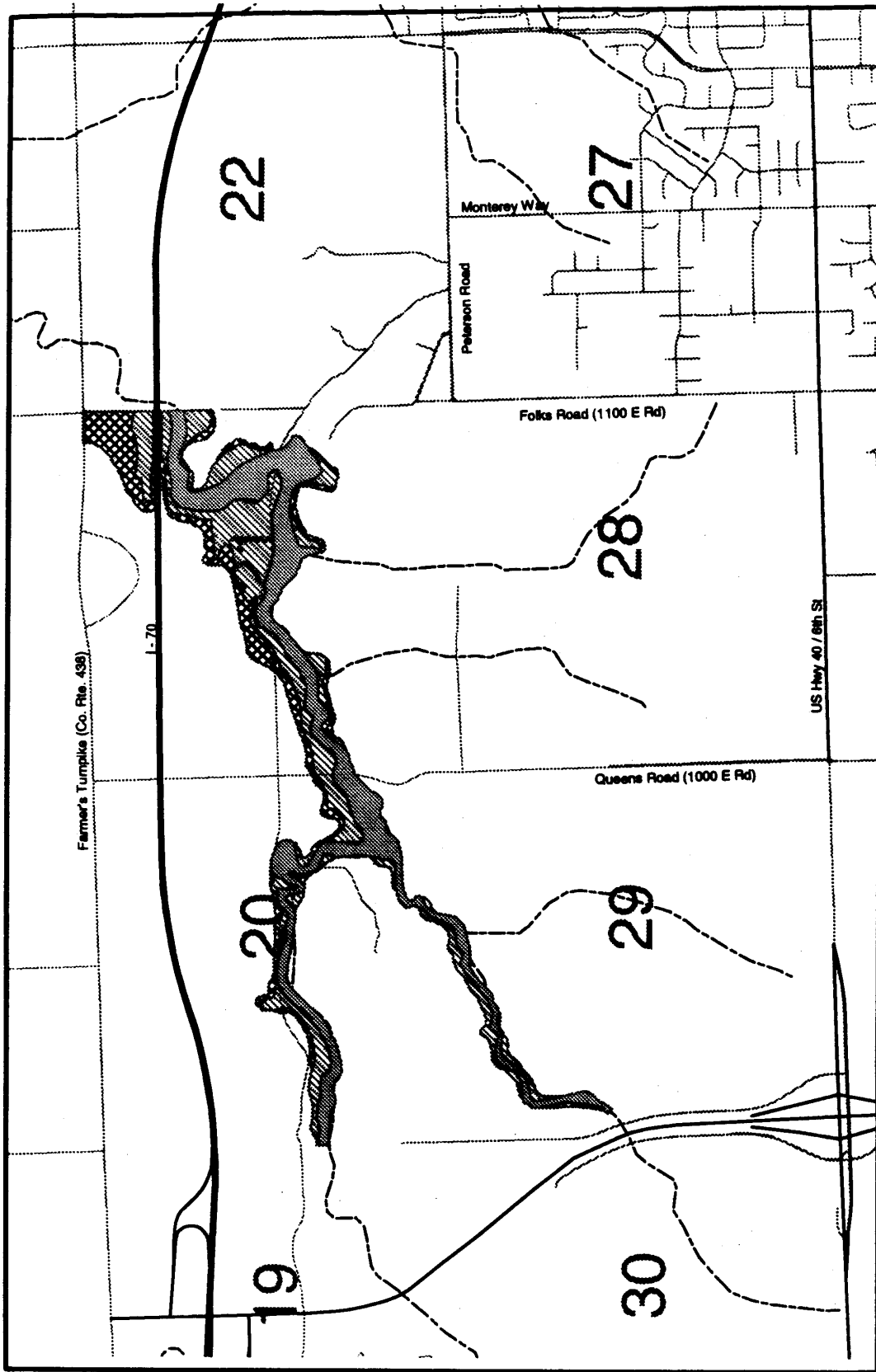
Location of areas subject to 100 and 500-year floods must be obtained from flood boundary maps prepared by the Federal Emergency Management Agency (FEMA). Both, the City and County have adopted floodplain regulations designed to protect persons and property from hazards caused by flood waters. According to the regulations, the provisions are designed to:

- Prohibit the placement of fill, materials, and structures which would obstruct flood flows and decrease the storage capacity of the regulatory floodway
- Require structures in the regulatory floodplain and public utilities vulnerable to floods be provided with flood protection at the initial construction stage.
- Protect individuals from the purchase of lands rendered unsuitable for intended uses by their proximity to the regulatory flood elevation.
- Minimize public expenditures for flood control projects and damage to public improvements within the regulatory floodplain.
- Maintain property values adjacent to the floodplain and minimize flood blight areas.
- Assure eligibility for property owners in the Federal Flood Insurance Program.



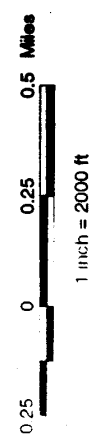
UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

# SLOPE MAP



**Federally Designated Flood Boundaries**

-  100 year floodway
-  100 year floodway fringe
-  500 year flood boundary



Lawrence-Douglas County Metropolitan Planning Office  
 October 10, 1996