

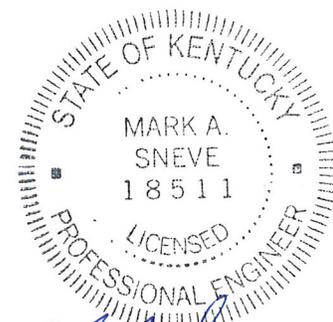
# Report for La Grange, Kentucky

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## La Grange Utilities Commission Regional Wastewater Facility Plan



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**SECTION 1**  
**REGIONAL FACILITY PLAN SUMMARY**

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## 1.01 INTRODUCTION AND BACKGROUND

A Regional Wastewater Facilities Plan (RFP) is a comprehensive plan for the management of wastewater collection and treatment facilities. Planning is intended to define the most appropriate “local” solution to providing wastewater service (collection and treatment) for a defined planning area over a defined period of time. The goal of the plan is to ultimately protect our environment and human health by providing reliable wastewater collection and treatment for areas of greatest need. The RFP is ultimately reviewed and approved by the Kentucky Division of Water (KDOW). KDOW requires a checklist be submitted with the completed RFP, which is attached in Section 12 for reference. The KDOW review and approval process takes from 2 to 4 months to complete. Review and approval consider environmental and state clearinghouse reviews in addition to a technical review.

La Grange is an incorporated city located in Oldham County, Kentucky. La Grange Utilities Commission (LUC) retained Strand Associates, Inc.<sup>®</sup> (Strand) and Derrick Engineering, Inc. (Derrick) to complete a RFP to evaluate its current wastewater conveyance and treatment needs for a 20-year planning period ending in 2030.

## 1.02 PURPOSE OF THE PLAN

The La Grange RFP is a vital step for planning the expansion of the wastewater collection and treatment services in the La Grange Planning Area, shown in Figure 1.02-1.

The main purpose of this RFP is to assemble a long-range plan for providing effective and efficient sanitary sewer service to LUC customers in this rapidly developing planning area. Another purpose is to identify the improvements required and their recommended priority and timing to meet projected customers’ needs in the next 20 years. LUC commissioned this study to evaluate the existing wastewater collection system and treatment facilities, establish sewer service needs, evaluate alternatives, and develop design and construction schedules and budgets for the recommended plan.

LUC entered into an Agreed Order (AO) with the Energy and Environment Cabinet to address compliance concerns raised by the Cabinet. LUC is obligated to prepare and submit this RFP by June 30, 2011, and upgrade its wastewater treatment plant (WWTP) by December 31, 2013.

## 1.03 RECOMMENDED ALTERNATIVE

The recommended alternative for treatment facility improvements includes expansion of the La Grange WWTP to an average daily treatment capacity of 1.9 million gallons per day (mgd) with the existing discharge to an unnamed tributary of Curry’s Fork (Alternative B). The initial recommended design peak hourly flow is 4.2 mgd and the future design peak hourly flow is 6.0 mgd. The preliminary treatment equipment will be provided with the capacity of 8.4 mgd. The existing lagoon will be utilized as an equalization basin to reduce the peak flow to 4.2 mgd in the next phase expansion or 6.0 mgd in the future expansion.

Recommended improvements to the La Grange collection system include three components: (1) The Madison Street Pump Station and Force Main upgrade, (2) The interceptor from the north side of I-71 to the South Pump Station upgrade, and (3) the South Pump Station upgrade. Future expansion of the collection system will include the expansion of the South Pump Station and force main. The recommended improvements are shown on Figure 1.03-1.

#### **1.04 COST OF PROPOSED PLAN**

The construction cost opinion for the La Grange WWTP expansion (0- to 5-year) is \$3,957,000. With construction contingencies and technical services added, the total project cost opinion is \$5,144,000. The total cost opinion for collection system improvements in the 0- to 5-year time frame is \$1,638,000, including construction contingencies and technical services. LUC plans to have these improvements complete by the end of 2013 or the first quarter of 2014.

The LUC will need to arrange a total of \$6,782,000 for funding the proposed 0- to 5-year projects. The LUC could request state grant funds and borrow the rest of the money or possibly obtain a government loan through KIA, the Clean Water state revolving fund (SRF) program, or United States Department of Agriculture (USDA) Rural Development.

If the LUC funds the proposed 0- to 5-year projects with a \$2,000,000 legislative grant and a \$4,800,000 revenue bond issue for 20 years at 4 percent, the debt service will increase by approximately \$355,000 per year. This will require a 38 percent increase in sewer user charges. This will increase the monthly sewer bill for a 4,000 gallon per month customer from \$17.65 to \$24.36.

If no grant funds are available for the improvements, and a \$6,800,000 revenue bond issue at 20 years and 4 percent is used, then debt service will increase by approximately \$500,000 per year. This will require a 54 percent increase in sewer user charges. The monthly bill for a 4,000 gallon per month customer will increase from \$17.65 to \$27.18.

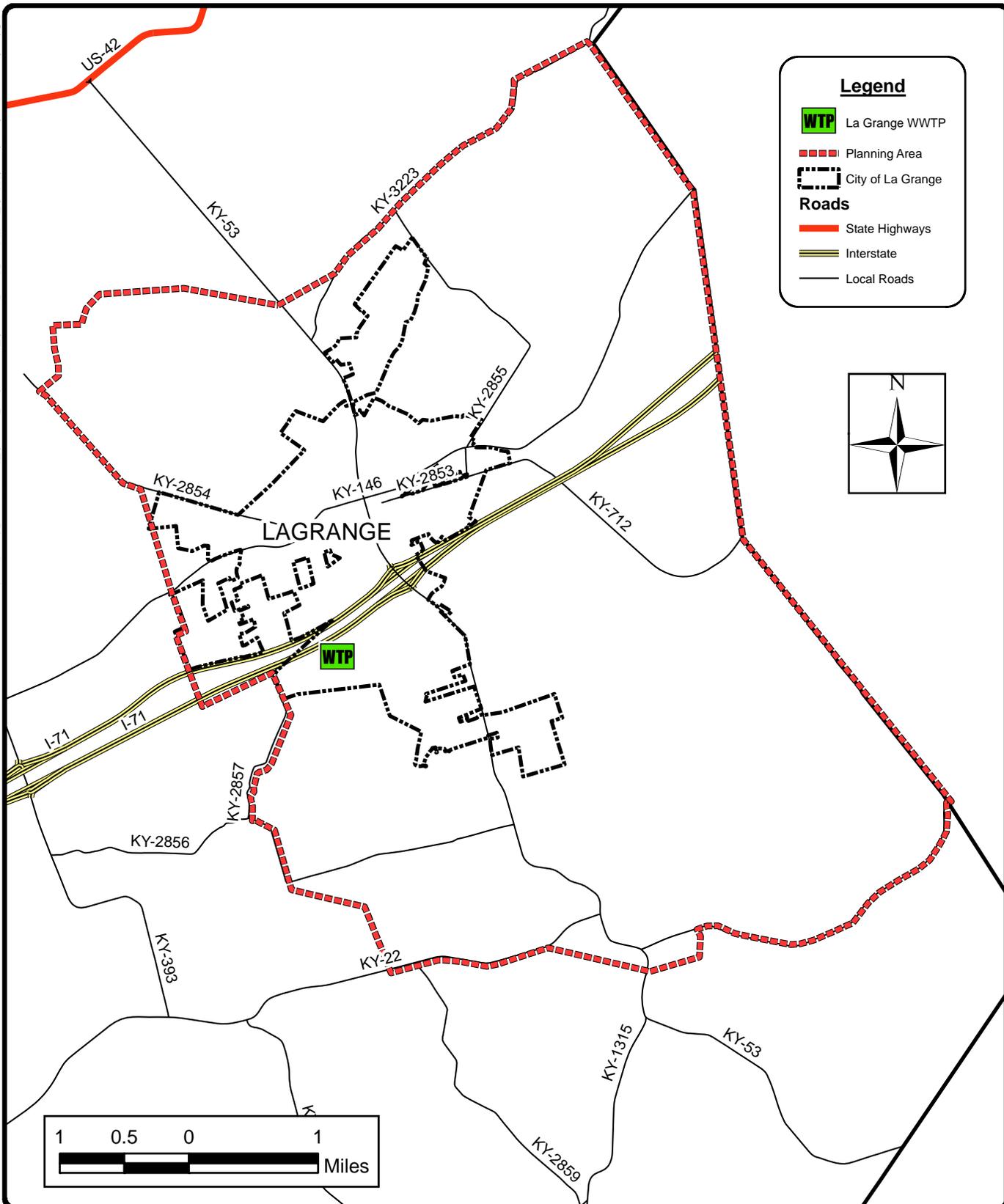
To ease the impact on customers, the LUC intends to implement the required rate increase over three years, in equal annual installments. These rate increases require approval from the La Grange City Council.

#### **1.05 PLANNING AGENCY COMMITMENTS TO IMPLEMENT THE PLAN**

The LUC has the authority to prepare and implement the recommended projects since it addresses the needs within the La Grange Planning Area. All recommended projects will be reviewed and approved by KDOW before the construction permits can be issued. A resolution has been obtained from the Oldham County Fiscal Court for the modified planning area boundary.

## 1.06 SCHEDULE OF IMPLEMENTATION FOR RECOMMENDED PROJECTS

This recommended plan identifies the capital projects required to operate, maintain, and expand the LUC wastewater system and comply with the AO. LUC will begin implementation of the 0- to 5-year projects immediately. The projects identified in the 6- to 20-year phase should proceed as the need arises. Figure 1.06-1 shows the schedule for implementing the recommended projects in the 0- to 5-year period.

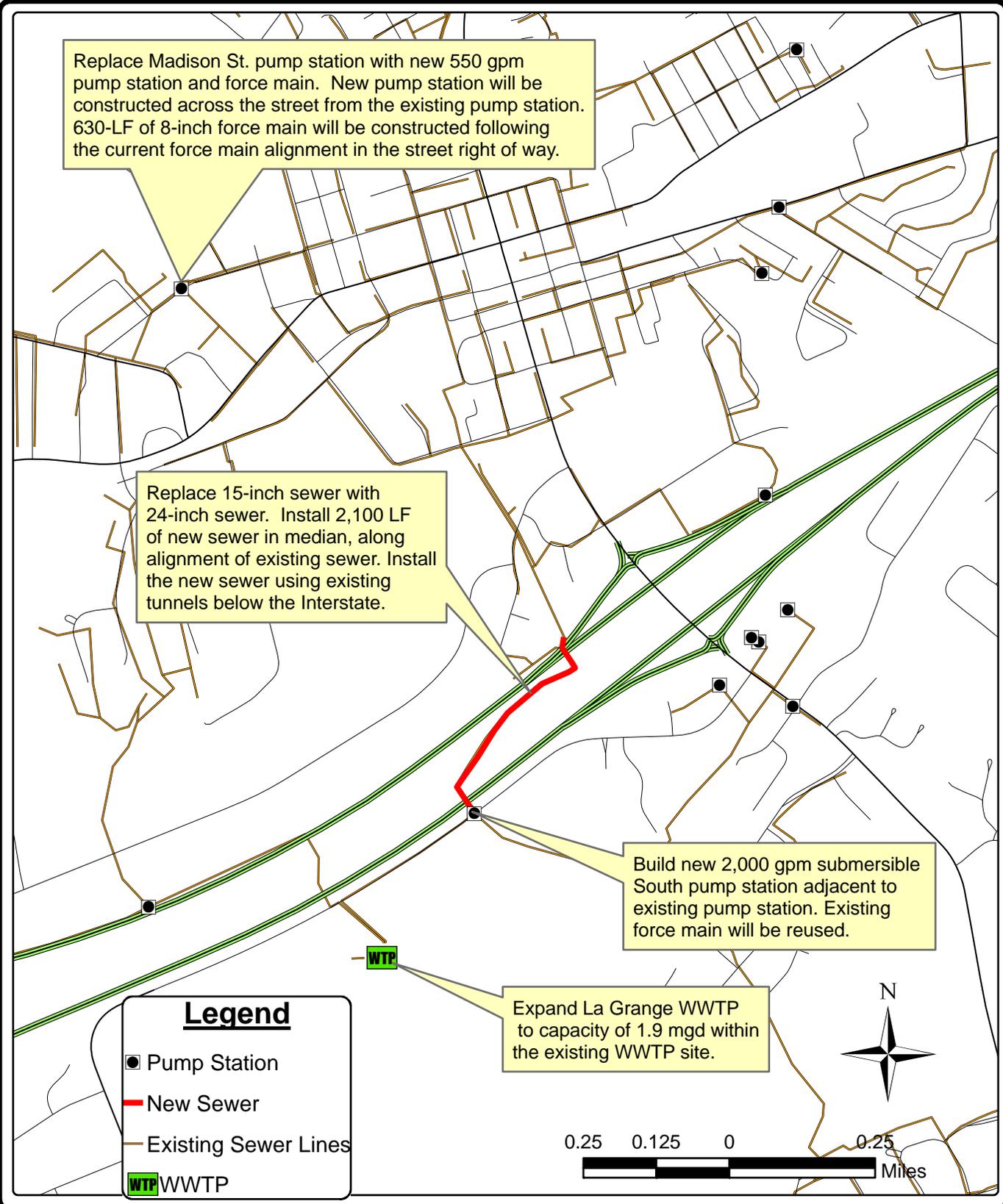


### LA GRANGE PLANNING AREA

LA GRANGE UTILITIES COMMISSION REGIONAL FACILITY PLAN  
LA GRANGE UTILITIES COMMISSION  
LA GRANGE, KENTUCKY



FIGURE 1.02-1  
5-956-016



### RECOMMENDED PLAN (0 TO 5 YEAR)

LA GRANGE UTILITIES COMMISSION REGIONAL FACILITY PLAN  
LA GRANGE UTILITIES COMMISSION  
LA GRANGE, KENTUCKY



FIGURE 1.03-1  
5-956-016

**FIGURE 1.06-1**  
**Implement Schedule for Recommended Projects in the 0 to 5 Year Period.**

Project	Subtask	2011				2012				2013				2014			
		1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
<b>Regional Wastewater Facility Plan Completion and Approval</b>																	
	Final Draft to Public			■													
	Public meeting			■													
	Final Report to KDOW			■													
	Approval Process			■	■												
<b>La Grange WWTP Expansion</b>																	
	Design			■	■	■											
	Approval					■	■										
	Bidding and Award						■	■									
	Construction								■	■	■	■	■				
	Commission													■			
<b>Collection System Improvements</b>																	
	Pump Stations and Interceptors Upgrade																
	Land and Easements			■	■												
	Design				■	■	■										
	Approval						■										
	Bidding							■	■								
	Construction									■	■	■	■				
	Commission													■			

**SECTION 2**  
**STATEMENT OF PURPOSE AND NEED**

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## 2.01 INTRODUCTION

Strand Associates, Inc.<sup>®</sup> (Strand) and Derrick Engineering, Inc. (Derrick) have been authorized by LUC to evaluate current and future wastewater needs within the La Grange Planning Area.

A Regional Wastewater Facility Plan (RFP) is a comprehensive plan for the management of wastewater collection and treatment facilities. The intent of an RFP is to define the most appropriate “local” solution to providing wastewater collection and treatment for a defined planning area over a defined period of time. Typically, the period of time is 20 years; however, other periods of time can be used.

An RFP is required for several reasons; including:

1. A specific request of KDOW.
2. By regulation (401 KAR 5:006, Section 2).
3. As part of an enforcement action (Agreed Order).

A KDOW request could be triggered by a WWTP being over 90 percent of its design capacity or because of a KDOW sponsored watershed initiative. Regulation 401 KAR 5:006, Section 2 requires an RFP or update to an RFP for any of the following reasons:

1. A new regional wastewater treatment plant is proposed.
2. The equivalent population served by an existing WWTP increases by 30 percent or more.
3. The average daily flow design capacity at an existing WWTP increases by over 30 percent.
4. A regional facility applies for a grant from USEPA or a loan from the State Revolving Fund (SRF) program.
5. A regional planning agency considers an RFP to be in its best interest.
6. An existing RFP (formerly called “201 plan”) has not been updated in the last 10 years.

Based on collected data, the La Grange WWTP continually accepts flows and BOD and NH<sub>3</sub>-N loadings at or above the design capacity of the current treatment plant. As La Grange continues to grow, these loadings are going to increase further. The LUC would like to expand the WWTP to adequately treat these loadings.

## 2.02 PURPOSE AND SCOPE OF REPORT

The purpose of this RFP is to ultimately protect the environment and the health of the residents of La Grange by providing reliable, cost-effective wastewater collection and treatment for its customers. This RFP is intended to be a road map the development and evaluation of cost-effective wastewater treatment alternatives for La Grange. Objectives of this plan include:

1. Assessing the condition of the existing collection and treatment systems in La Grange.
2. Providing growth/expansion projections that may be expected in La Grange.
3. Assessing the feasibility of providing wastewater collection systems to areas of need throughout La Grange.
4. Providing solutions to remediate operational or component capacity problems of existing package treatment facilities.
5. Identifying alternatives for treating the anticipated wastewater flows.
6. Evaluating and recommending the most favorable alternatives.
7. Providing guidance for implementation of the recommended alternatives with regard to scheduling and financial considerations.

The La Grange WWTP has reliably met its KPDES permit requirements since 2000. There have only been rare occasions when the plant has discharged concentrations exceeding their permit limits.

Though the plant has historically operated well, continued growth and development in Oldham County and La Grange will create the need for increased capacity at the WWTP. Because some of the waste loadings already exceed the design capacity of the plant, improvements will need to be made to adequately treat future flows. The population of La Grange and Oldham County is growing, further increasing the loadings to the plant. If the capacity of the plant is not expanded, the quality of the receiving stream may degrade adversely impacting the environment.

## 2.03 KDOW CONSIDERATIONS

Since the RFP ultimately needs to be reviewed and approved by the KDOW, this report will follow KDOW guidelines. KDOW requires a checklist to be submitted with the completed RFP. A copy of the checklist is included in Section 12. The KDOW review and approval process takes 2 to 4 months to complete. Review and approval considers environmental and state clearinghouse reviews in addition to a technical review.

LUC entered into an Agreed Order (AO) with the Energy and Environment Cabinet, Division of Enforcement. The AO obligates LUC to complete certain projects on a fixed schedule. Paragraph 7.i requires preparation and submittal of an update to the *La Grange Utilities Commission 201 Regional Plan* by June 30, 2011. This report constitutes the update to the 201 Regional Plan. The AO further requires LUC to upgrade its WWTP to a capacity of 1.9 mgd, per Paragraph 7.k., by December 31, 2013. Until LUC satisfies the AO requirements, it is placed on a Sewer Sanction

(Paragraph 7.g.) that requires authorization from KDOW for extensions to its sewer service. A copy of the Agreed Order (AO) is included in Appendix A.

## 2.04 DEFINE THE PLANNING AREA

The most recent RFP was prepared for La Grange in 1996. The planning area in the 1996 RFP consisted of approximately 13,800 acres in the east central portion of Oldham County, including La Grange, and the unincorporated areas of Ballardsville and Buckner. The CSX Railroad serves as a general boundary separating the two major drainage basins located in the planning area. The area north of the railroad is located within the Ohio River drainage basin. Harrods Creek, a major tributary of the Ohio River, receives an easterly flow from this entire area. The southern portion of the planning area is included in the Salt River drainage basin. The North and South Forks of Currys Fork are located in this area and drain directly into Floyds Fork. The planning area for this RFP has been revised from the planning area defined in the 1996 RFP.

Figure 2.04-1 shows the past and current planning area. Changes to the 1996 planning area resulted from years of discussion with the Oldham County Sewer District (now Oldham County Environmental Authority), the Oldham County Fiscal Court, the Kentucky Division of Water, and LUC. A Memorandum of Understanding (MOU) between Oldham County Sewer District and LUC was formally accepted by the Oldham County Fiscal Court on June 1, 2010. The Oldham County Fiscal Court passed Ordinance KOC 10-830-910 on November 2, 2010, to formalize the acceptance of the Planning Area Change. Copies of these documents are included in Appendix B.

## 2.05 DEFINITIONS AND ABBREVIATIONS

The following abbreviations may be utilized throughout this planning document.

AO	Agreed Order
BOD	Biological Oxygen Demand
cfu	colony forming units
cip	cast iron pipe
csp	concrete sewer pipe
dip	ductile iron pipe
DMR	Discharge Monitoring Report
FEMA	Federal Emergency Management Agency
gpcd	gallons per capita per day
gpd	gallons per day
gpm	gallons per minute
KDOW	Kentucky Division of Water
KPDES	Kentucky Pollutant Discharge Elimination System
KSDC	Kentucky State Data Center
lbs/day	pounds per day
mg/L	milligrams per liter
mgd	million gallons per day

NH <sub>3</sub> -N	ammonia nitrate
NRCS	Natural Resources Conservation Services
O&M	Operation and Maintenance
OCEA	Oldham County Environmental Authority (formerly OCSD)
psi	pounds per square inch
pvc	polyvinyl chloride
RFP	Regional Facilities Plan
SDR	Standard Dimension Ratio
SSO	sanitary sewer overflow
tdh	total dynamic head
TSS	total suspended solids
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
vcp	vitriified clay pipe
WWTP	Wastewater Treatment Plant

## 2.06 REFERENCES

*National Register of Historic Places–Oldham County, Kentucky*,  
[www.nationalregisterofhistoricplaces.com](http://www.nationalregisterofhistoricplaces.com).

*Oldham County Report of Endangered, Threatened, and Special Concern Plants, Animals, and Natural Communities of Kentucky*, Kentucky State Nature Preserves Commission, February 2006.

*Agricultural Statistics, 1909–2004 for Oldham County, Kentucky*, National Agricultural Statistics Service, December 2004.

*Soil Report Oldham County, Kentucky*, United States Department of Agriculture, Soil Conservation Service, Issued 2002.

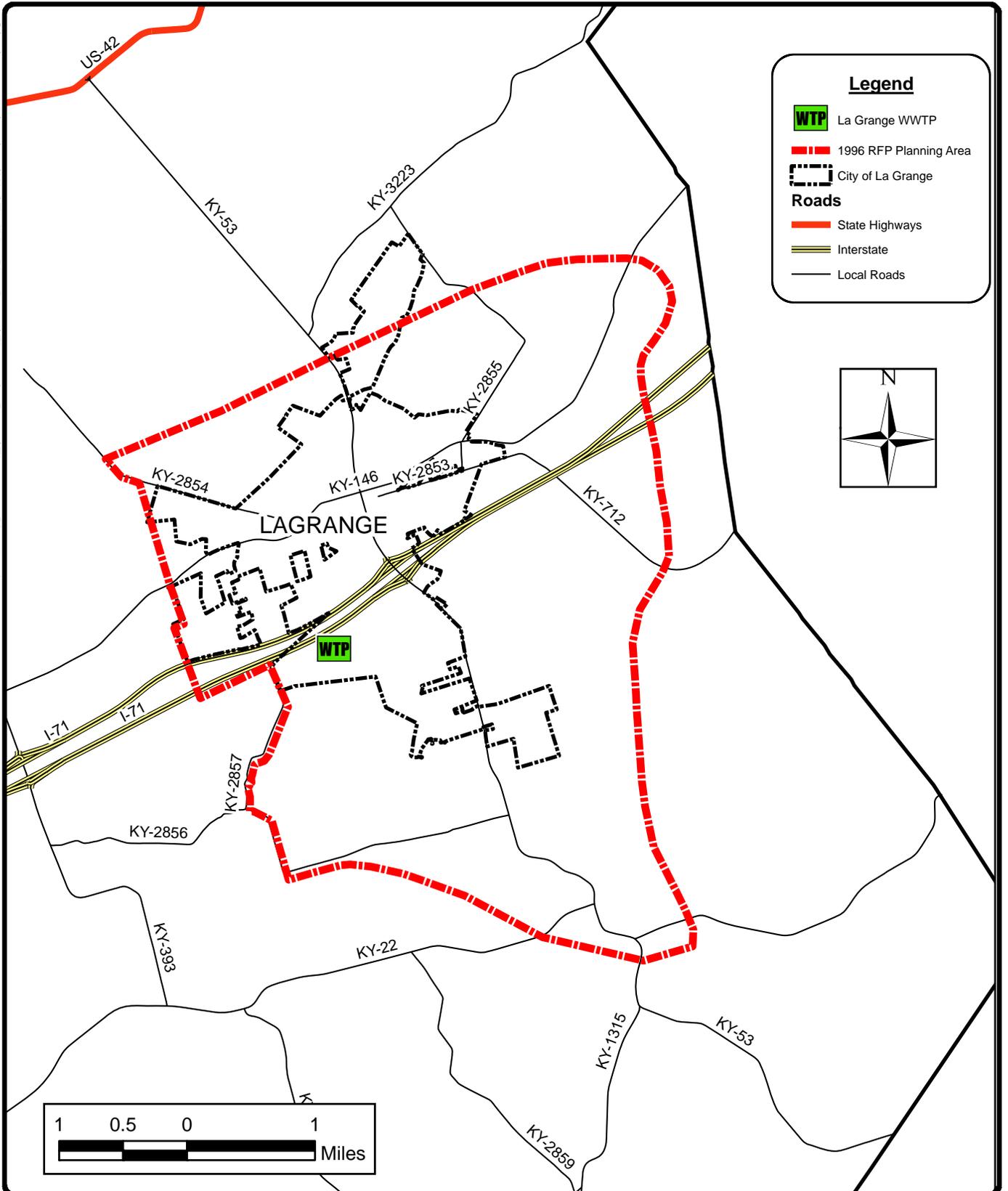
2002-303(d) *List of Waters for Kentucky*, Kentucky Report to Congress on Water Quality, Commonwealth of Kentucky Natural Resources and Environmental Protection Cabinet, Division of Water, January 2003.

*How Many Kentuckians*, 1995 Edition, Kentucky State Data Center, University of Louisville.

*Total Resident Populations 1990-2000 and Middle, Low, and High Projections 2005-2030*, Kentucky State Data Center, The University of Louisville Urban Studies Institute, July 2003.

*201 Facilities Plan*, La Grange, Kentucky, prepared by Schimpeler-Corradino Associates, dated October 1979.

*201 Facilities Plan Update for Wastewater Treatment Facilities*, La Grange, Kentucky, dated August 1996, revised December 1998, prepared by HKB Consulting Engineers, Inc.



### 1996 RFP PLANNING AREA

LA GRANGE UTILITIES COMMISSION REGIONAL FACILITY PLAN  
LA GRANGE UTILITIES COMMISSION  
LA GRANGE, KENTUCKY



FIGURE 2.04-1  
5-956-016

**SECTION 3**  
**PHYSICAL CHARACTERISTICS OF THE PLANNING AREA**

---

### 3.01 INTRODUCTION

La Grange lies in the Outer Bluegrass physiographic region, as shown in the Kentucky Atlas and Gazetteer. The Outer Bluegrass physiographic region is underlain by limestone and bordered by the Ohio River in the north and by the Knobs in the south, west, and east. The Bluegrass physiographic region has been used extensively for pastureland and contains roughly half of Kentucky's population.

### 3.02 PLANNING AREA

Figure 3.02-1 is a map of the existing and proposed La Grange Planning Area boundary. Also shown on this figure is the location of the La Grange WWTP and other package WWTP in the proposed planning area.

### 3.03 GEOLOGY

Based on the United States Geological Survey, the geology around the La Grange consists primarily of Laurel Dolomite and Saluda Dolomite from the Drakes Formation. The bedrock in and around La Grange is considered susceptible to karst formations. Septic systems and direct pipes in karst topography can have a major impact on groundwater quality.

### 3.04 TOPOGRAPHY

Topography can play an important role in collecting and transporting wastewater. The high point in La Grange is at an elevation of 867 feet above mean sea level. The topography in La Grange creates a need for gravity interceptor sewers, pump stations, and force mains in the collection system. There is a natural topographic divide that runs through the city. Water to the north of the divide flows towards the Ohio River and water to the south flows towards Curry's Fork and onto Floyd's Fork ultimately terminating at the Ohio River at a point much farther downstream.

### 3.05 100-YEAR FLOODPLAIN

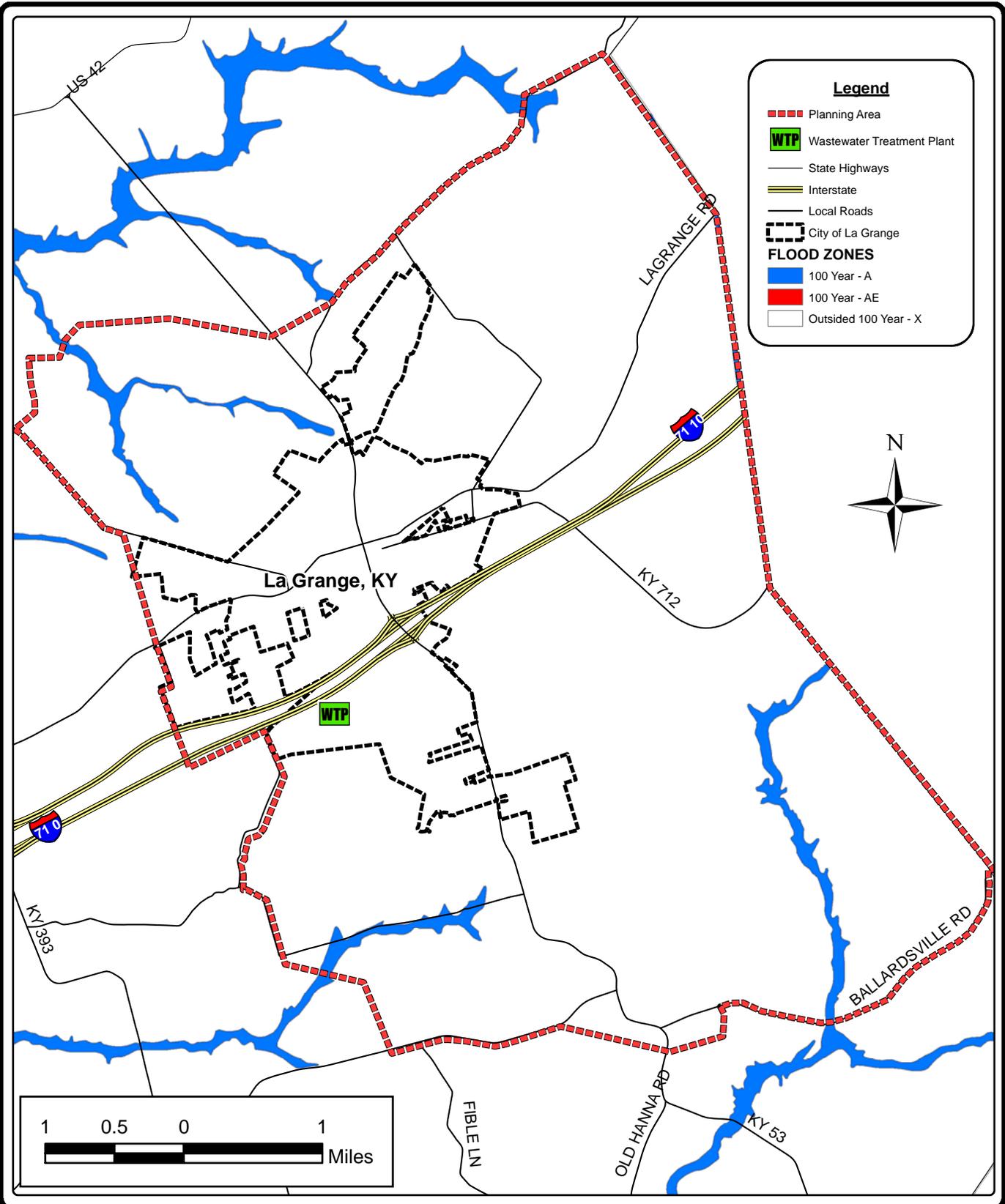
Areas prone to flooding should be identified in the RFP. The established flood zones are shown in Figure 3.05-1. These zones are based on Federal Emergency Management Data (FEMA). Flood Zones A and AE are both 100 year flood areas. Zone X is outside the 100 and 500 year flood limits. Figure 3.05-1 shows that the majority of the La Grange Planning Area lies outside the 100 year flood plain. The existing La Grange WWTP does not lie within the 100 year flood zone. Construction in the 100-year flood plain should be avoided or at least minimized. However, for wastewater collection systems it is essentially unavoidable. Intercepting sewers and pump stations are often constructed within the 100-year flood plain. KDOW allows this, but requires pump stations to be accessible in the 25-year flood. Electrical gear and controls are to be protected to the 100-year flood elevation. Manholes are to be sealed watertight.

### 3.06 LAND USE

The Oldham County Planning Commission is responsible for land use planning within the La Grange Planning Area. Figure 3.06-1 shows the current land use zoning.



S:\05\951--1000\956\005\Wrd\Facilities Plan Report\Figures for Report\Fig. 3.04-1 - 100 Year Flood Plain Limits.mxd



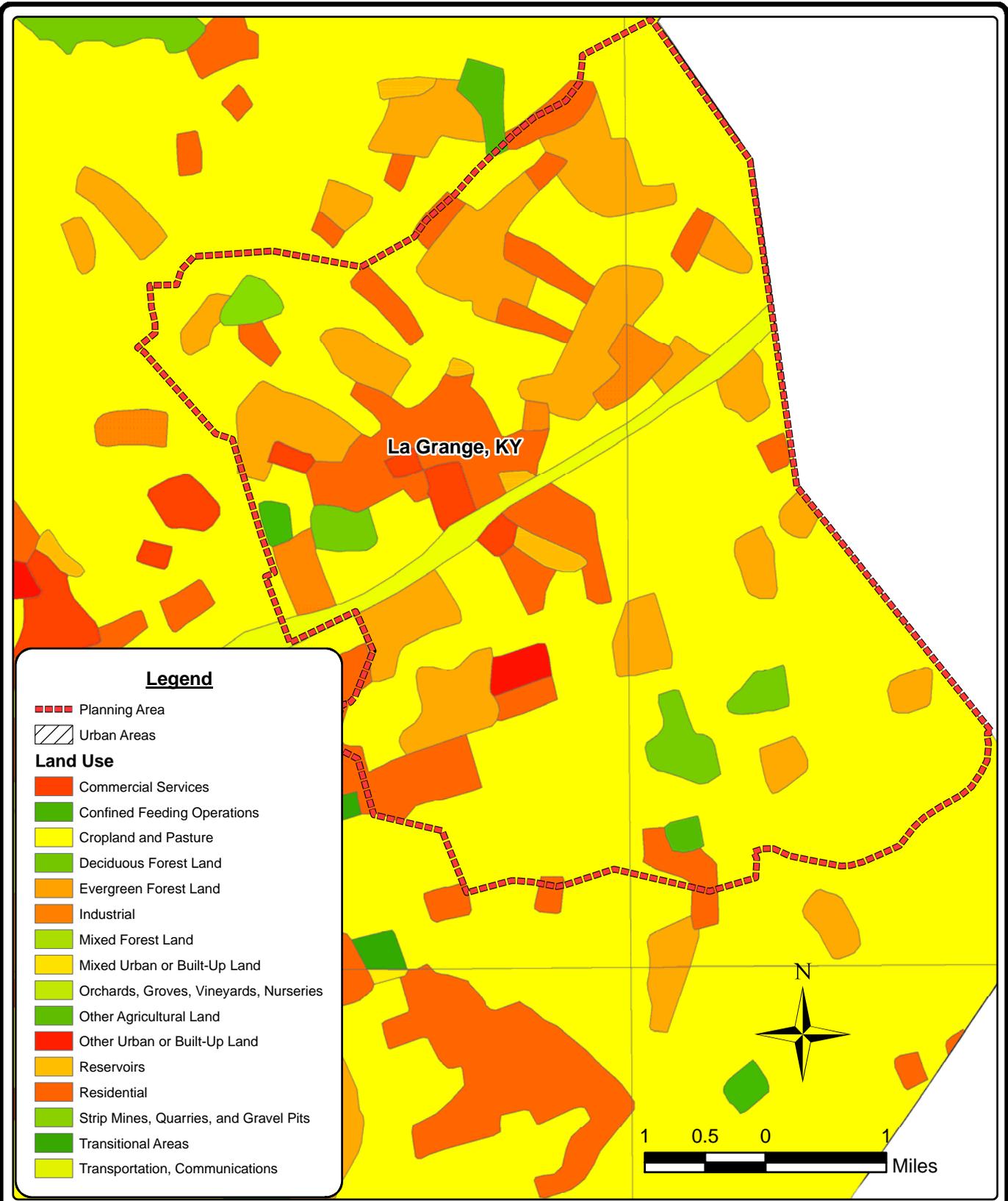
### 100-YEAR FLOODPLAIN

LAGRANGE UTILITIES COMMISSION REGIONAL FACILITY PLAN

LAGRANGE UTILITIES COMMISSION  
LAGRANGE, KENTUCKY



FIGURE 3.05-1  
5-956-016



### LAND USE MAP

LA GRANGE UTILITIES COMMISSION REGIONAL FACILITY PLAN  
LA GRANGE UTILITIES COMMISSION  
LA GRANGE, KENTUCKY



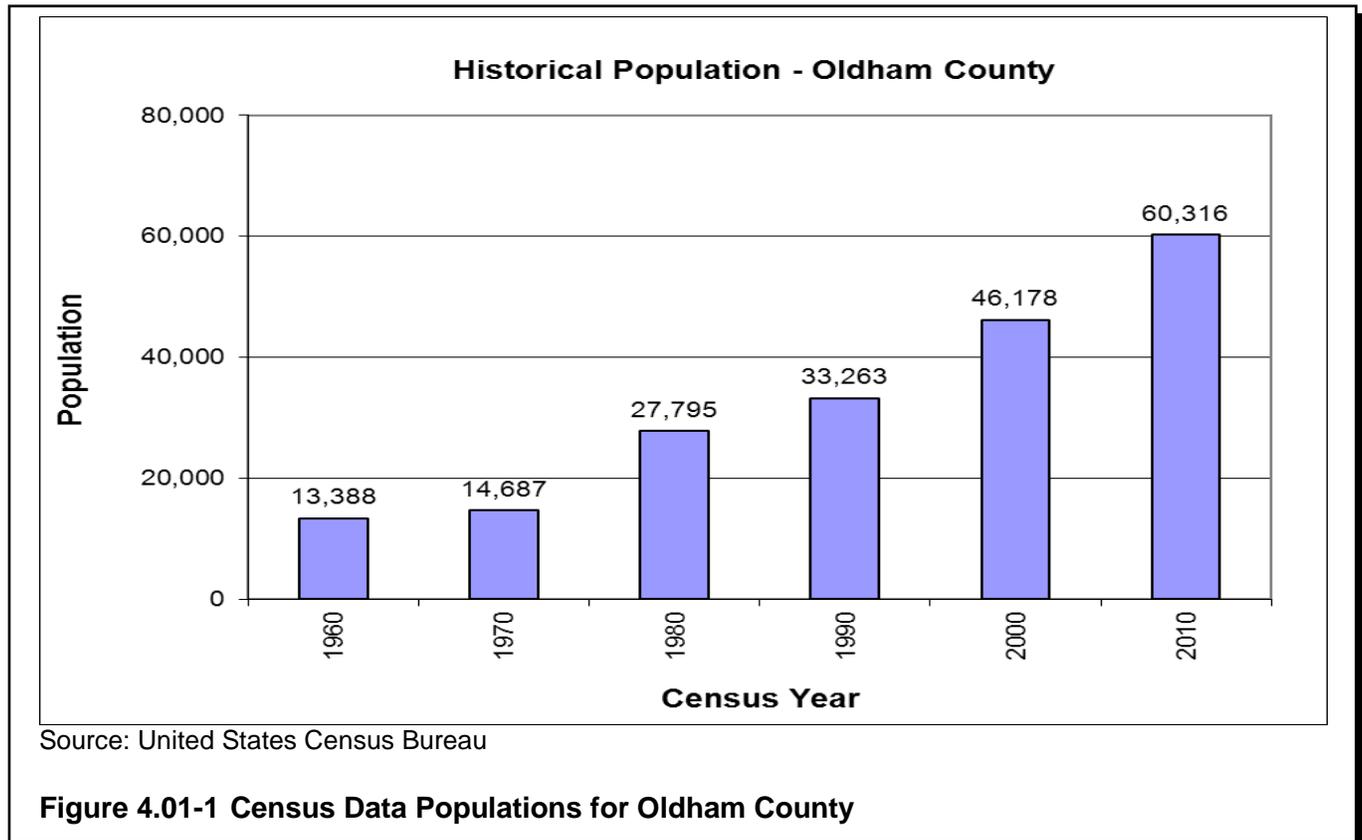
FIGURE 3.06-1  
5-956-002

**SECTION 4**  
**SOCIOECONOMIC CHARACTERISTICS OF THE PLANNING AREA**

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#### 4.01 HISTORICAL POPULATION DATA

Using census data from the United States Census Bureau, past population history for Oldham County can be summarized. Since 1970, a sharp increase in population was noted. Historical Oldham County population data is presented graphically in Figure 4.01-1.



Although, the overall population in Oldham County has increased steadily in the last 4 decades, the population per household has declined. The Kentucky State Data Center (KSDC) provides data for household population, number of households, and the population per household. The population per household information from the KSDC shows a decline from 2.47 to 2.41 from 2000 to 2010.

According to the KSDC, La Grange had 5,676 people in the year 2000 and 8,082 people in the year 2010.

#### 4.02 POPULATION PROJECTION

##### A. Sewer Service Expansion Plan

Known and proposed developments are tracked by LUC. LUC anticipates extending sewer service to an additional 2,059 new connections during the next 20 years. These additional connections include existing residents not connected to the sewer system and proposed developments.

Table 4.02-1 lists the sewer service expansion plan for the next 20 years by development area. The proposed number of people per household unit for single family homes was obtained from the KSDC projections for Kentucky. Two people per condominium, patio home, or apartment unit was assumed.

Household Type	Service Area Name	Build-out Number of Units	Projected Sewer Connections <sup>2</sup>	Number of people per unit	Projected Additional Population
Single Family Houses <sup>1</sup>	Artisan Fields	71	53	2.4	128
	Artisan Park	36	27		65
	Cherrywood Place, Section 5 and 6	80	60		144
	Deer Meadows	100	75		180
	Fish Hawk Reserve	346	260		623
	Massie School Road	263	197		473
	Seasons	20	15		36
	Summit Parks	192	144		346
	Wolf Lake	145	109		261
Condominiums or Patio Homes	Cherry Glen	310	233	2.0	465
	Fish Hawk Reserve	516	387		774
	Oliver Square	28	21		42
	Reibel Property	40	30		60
	Villages @ L'Esprit	132	99		198
Apartments	Autumn Trace	212	159	2.0	318
	Fish Hawk Reserve	86	65		129
	Mallory Taylor	48	36		72
	Villages @ L'Esprit	120	90		180
<b>Total Additional Population</b>			<b>2,059</b>		<b>4,493</b>

<sup>1</sup>Projection from Kentucky State Data Center

<sup>2</sup>Assumed 75 percent of the build-out will have sewer connection in 20-year plan period.

**Table 4.02-1 La Grange Utilities Commission Sewer Service Expansion Plan**

B. Projected Population

The total projected population in the planning area is significantly higher than the existing La Grange population. Table 4.02-2 presents the projected population to be served in the planning area for the next 20 years.

Sewer Service	Population
Existing Population (2010 Census)	8,082
Projected Additional Population (Table 4.02-1)	4,493
<b>Total Population Projection</b>	<b>12,575</b>

**Table 4.02-2 Population Projection for LUC Planning Area**

### 4.03 INDUSTRIAL AND COMMERCIAL USER PROJECTION

In 2006, the Oldham County Economic Development Authority, Inc. (OCEDA) estimated a flow of 456,940 gpd from the Economic Development Campus over the next 20 years. There is only one commercial customer located in the OCEDA Economic Development Campus with the average usage of 72,400 gallon per month. Additional connections have been stalled because of current economic conditions. This RFP will assume capacity required for the build-out of the OCEDA campus remains at 456,940 gpd, as originally projected.

### 4.04 ECONOMIC IMPACT ON THE COMMUNITY

La Grange is currently under a sewer sanction that prohibits LUC from expanding sewers to serve new customers. This sanction will prevent the City from growing and would negatively impact the local economy. Expanding the wastewater treatment plant and sewer system will allow the City to invite new residents and industries to relocate to the area, including the OCEDA campus. The AO obligates LUC to expand their WWTP to 1.9 mgd to address capacity needs. The cost of improvements and expansion will be significant and will require LUC to increase user rates to finance the investment.

**SECTION 5**  
**EXISTING ENVIRONMENT IN THE PLANNING AREA**

---

## 5.01 INTRODUCTION

The assessment of environmental characteristics in the LaGrange Planning Area is a portion of the RFP. This RFP will provide LUC with a plan for providing cost-effective wastewater collection, treatment and disposal for areas within their planning area. Current and future needs for LaGrange will be considered. To effectively plan for these future needs, it is crucial to understand the environmental setting of the area. Excerpts from past La Grange RFPs concerning the existing environment are included in Appendix C.

## 5.02 PHYSIOGRAPHY

La Grange lies in the Outer Bluegrass physiographic region, as shown in the Kentucky Atlas and Gazetteer. The Outer Bluegrass physiographic region is underlain by limestone and bordered by the Ohio River in the north, and by the Knobs in the south, west, and east. The Bluegrass physiographic region has been used extensively for pastureland and contains roughly half of Kentucky's population.

### A. Topography

Topography can play an important role in collecting and transporting wastewater. The high point in La Grange resides at an elevation of 867 feet above mean sea level. The topography in La Grange creates a need for gravity interceptor sewers, pump stations, and force mains in the collection system. There is a natural topographic divide that runs through the city. Water to the north of the divide flows towards the Ohio River and water to the south flows towards Curry's Fork and onto Floyd's Fork ultimately terminating at the Ohio River at a point much further downstream.

### B. Geology

Based on the United States Geological Survey, the geology around LaGrange consists primarily of Laurel Dolomite and Saluda Dolomite from the Drakes Formation. The bedrock in and around LaGrange is considered susceptible to karst formations. Septic systems and direct pipes in karst topography can have a major impact on groundwater quality.

### C. Soils

The majority of the soils in the La Grange Planning Area are silty loam that is not considered desirable for on-site systems such as septic/subsurface disposal. The silty loam soils have very slow percolation rates. The quality of the soil in an area relative to use in on-site disposal of wastewater is very important when considering wastewater facilities. Additionally, there is shallow bedrock throughout La Grange that is another geological feature not considered desirable for on-site wastewater treatment systems. Figure 5.02-1 shows the soils map for La Grange screened for suitability of on-site wastewater disposal. Septic system absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Excessive permeability, a high water table, shallow depth to bedrock, karst formations, and flooding negatively affect the proper absorption of the effluent. There must be acceptable unsaturated soil material beneath the absorption field to filter the effluent effectively. Unsatisfactory performance of septic system absorption fields, including excessively slow absorption of effluent, surfacing of effluent, and hillside seepage, can detrimentally impact public

health as effluent can then become part of runoff. Groundwater can also be polluted if karst formations are near, if highly permeable sand and gravel or fractured bedrock is less than 4 feet below the base of the absorption field, if site slope is excessive, or if the water table is near the surface.

### 5.03 HYDROLOGY

Hydrology is the scientific study of the properties, distribution, use, and circulation of all the water of the earth and its atmosphere. This includes such factors as precipitation, groundwater and surface water storage and flow, and evaporation. The following addresses such factors in the vicinity of the planning area.

#### A. Precipitation

The average annual precipitation in La Grange, Kentucky is 39.86 inches per year. The average annual snowfall is 14.6 inches per year. There are about 126 days per year that have recordable precipitation (defined as 0.01 inches or more).

#### B. Groundwater

The Laurel Dolomite and Drakes Formation surrounding the La Grange Planning Area have varying potential for groundwater yield and quality. The Laurel Dolomite typically forms ledges and cliffs along streams. Groundwater from this formation can be obtained at a rate from 100 to 500 gallons per day and is hard. The Drakes formation surrounding La Grange is also along large streams and cliffs. Groundwater from this formation can be obtained at a rate of 100 to 500 gallons per day and is hard but usually good quality.

#### C. Surface Water

There are numerous water bodies within the La Grange Planning Area. The most notable of these are Crystal Lake and Curry's Fork. Curry's Fork originates just north of LaGrange and ultimately joins Floyd's Fork.

### 5.04 WATER QUALITY AND STREAMS AND LAKES IN PLANNING AREA

The 305(b) report and 303(d) list originate from the Clean Water Act. These reports are submitted to Congress to provide water quality information in an area and define water bodies considered impaired, respectively. Oldham County has three stream segments and one lake listed in the 305 (b) report to Congress. None of these stream segments lie directly in the La Grange Planning Area. Curry's Fork, however, has an impaired stream segment in the southwestern portion of the county. While this segment does not lie within the planning area, the North and South Forks of Curry's Fork are in the planning area and ultimately feed into the impaired stream segment. An illustration of the impaired water bodies in Oldham County relative to the planning area is given in Figure 5.04-1.

## 5.05 WETLANDS

The definition of a wetland is an area that is inundated by surface or ground water with a frequency sufficient to support, and under normal circumstances does support a prevalence of vegetation or aquatic life that requires saturated soil conditions for growth and reproduction. Wetlands generally include swamps, marshes, bogs, and similar areas such as sloughs, potholes, wet meadows, river overflows, mud flats, and natural ponds. Construction in wetlands should be avoided as special permitting would be required. The locations of wetlands are shown in Figure 5.05-1. No wetland areas are expected to be impacted by proposed alternatives developed in this facilities plan.

## 5.06 AIR QUALITY

Utilizing the Air Quality Index as an indication of air quality, in 2003 Oldham County had good air quality on 89 percent of the days and moderate air quality on 10 percent of the days, and unhealthful air quality for sensitive populations on 1 percent of the days. In 1999, the total emissions of all criteria air pollutants was 21,360 tons. In 1999, Oldham County was ranked 9th in the state of Kentucky for exposure to criteria air pollutants, and ranked 7th out of all counties for health risks from criteria air pollutants. Future expansions of the LaGrange WWTP and its collection system are not anticipated to adversely affect the Air Quality in the planning area.

## 5.07 WASTELOAD ALLOCATION FOR EXISTING FACILITIES

La Grange WWTP discharges into an unnamed tributary of North Fork. The North and South Forks flow into the Curry's Fork impaired stream segment at the southern portion of the Oldham County. Curry's Fork ultimately joins Floyd's Fork, which listed on the 305(b) report for nonsupport of aquatic life and swimming due to organic enrichment, low dissolved oxygen, nutrients, and pathogens. The 1997, TMDL report entitled, *Development of an Ultimate Oxygen Demand (UOD) TMDL for Floyds Fork and its Tributaries*, will be considered in establishing effluent limitations for any new or expanding treatment facilities impacting the Floyds Fork.

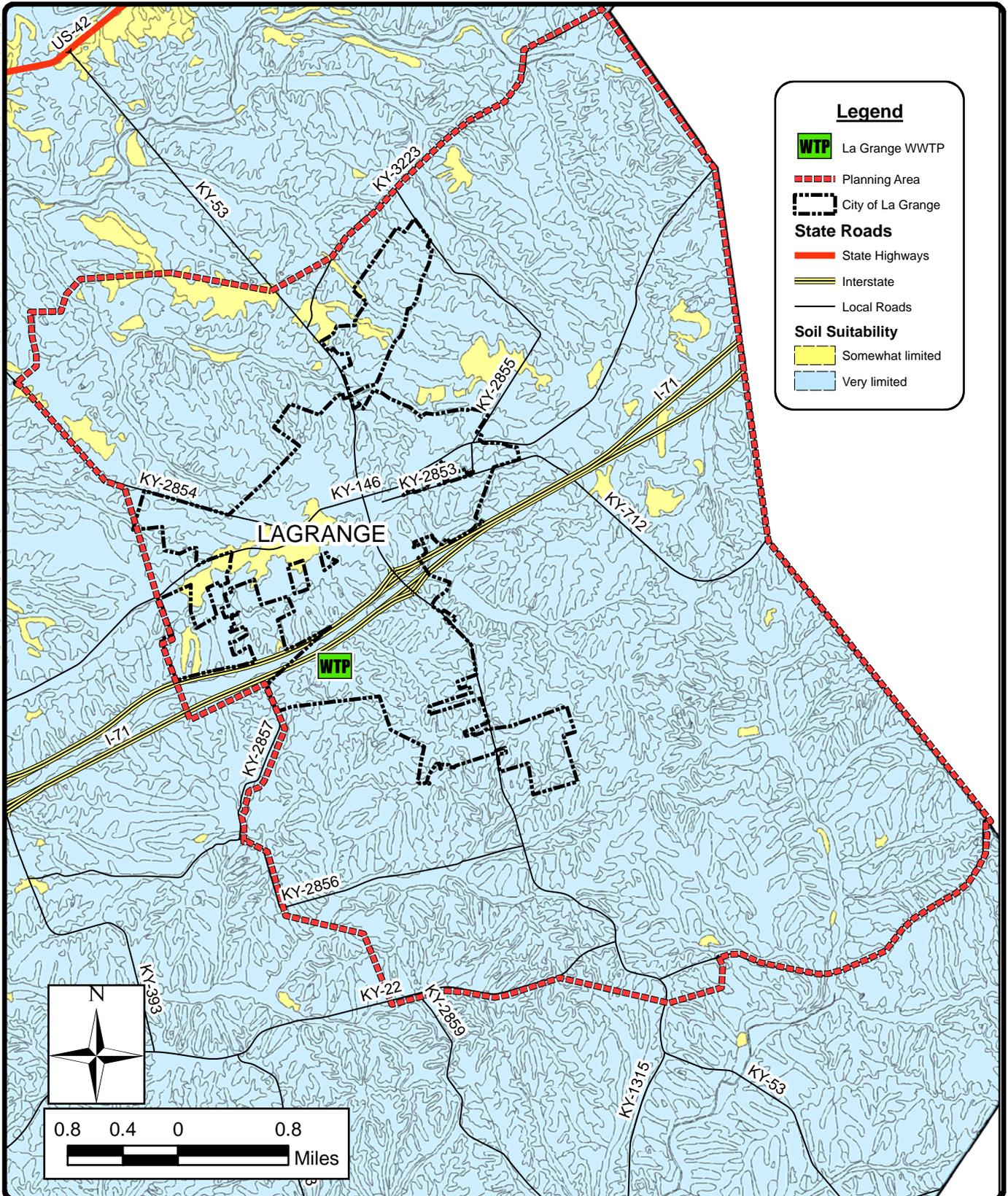
## 5.08 BIOLOGICAL

No significant impacts to the plant and animal communities are anticipated because of the implementation of wastewater collection and treatment system improvements. Oldham County hosted four species considered to be endangered. The first was the Gray Bat (*Myotis grisescens*), the second was the Louisville Crayfish (*Orconectes jeffersoni*), the third was the Sedge Sprite (*Nehalennia irene*), and the fourth was Bachman's Sparrow (*Aimophila aestivalis*). No plants found in Oldham County were considered endangered. Future expansions of the LaGrange WWTP and its collection system are not anticipated to adversely affect endangered plants and species in the planning area.

## 5.09 CULTURAL

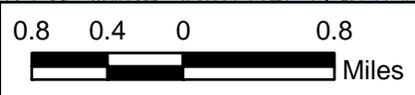
La Grange has several historically and architecturally significant sites including the D.W. Griffith House, the McMahan House, Russell Court, the Reuben Sale House, and the William Woolfolk House. No significant impacts to the historically, architecturally, or archaeologically sensitive areas are anticipated because of the implementation of wastewater collection and treatment system improvements.

S:\05\9561-1\000\956\005\Wrd\Facilities Plan Report\Figures for Report\Fig. 3.02-1 - On Site Septic Soil Suitability



**Legend**

- La Grange WWTTP
- Planning Area
- City of La Grange
- State Roads**
- State Highways
- Interstate
- Local Roads
- Soil Suitability**
- Somewhat limited
- Very limited

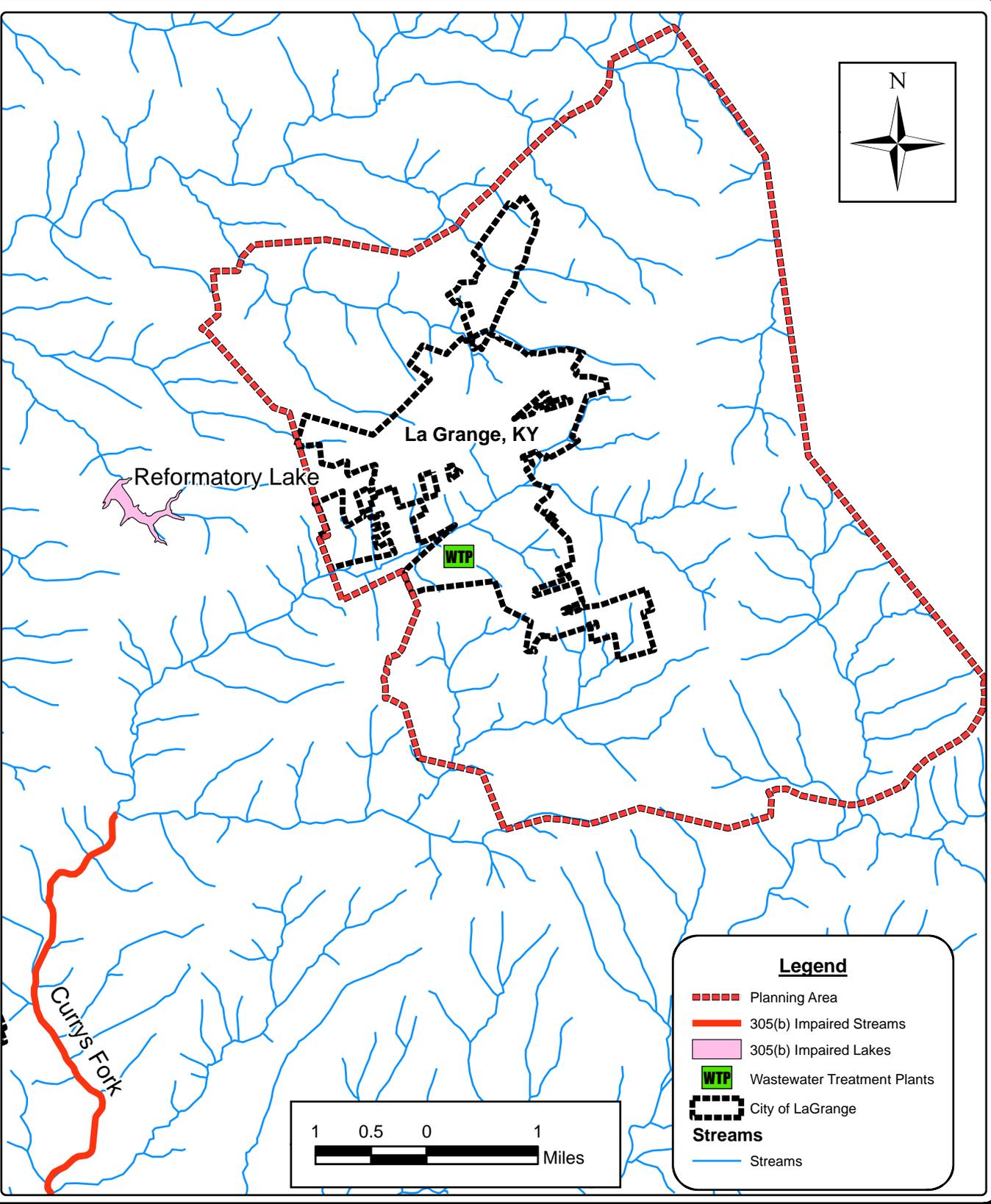


**SOIL SUITABILITY MAP**

**LA GRANGE UTILITIES COMMISSION REGIONAL FACILITY PLAN  
 LA GRANGE UTILITIES COMMISSION  
 LA GRANGE, KENTUCKY**

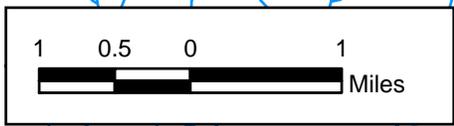


**FIGURE 5.02-1  
 5-956-015**



**Legend**

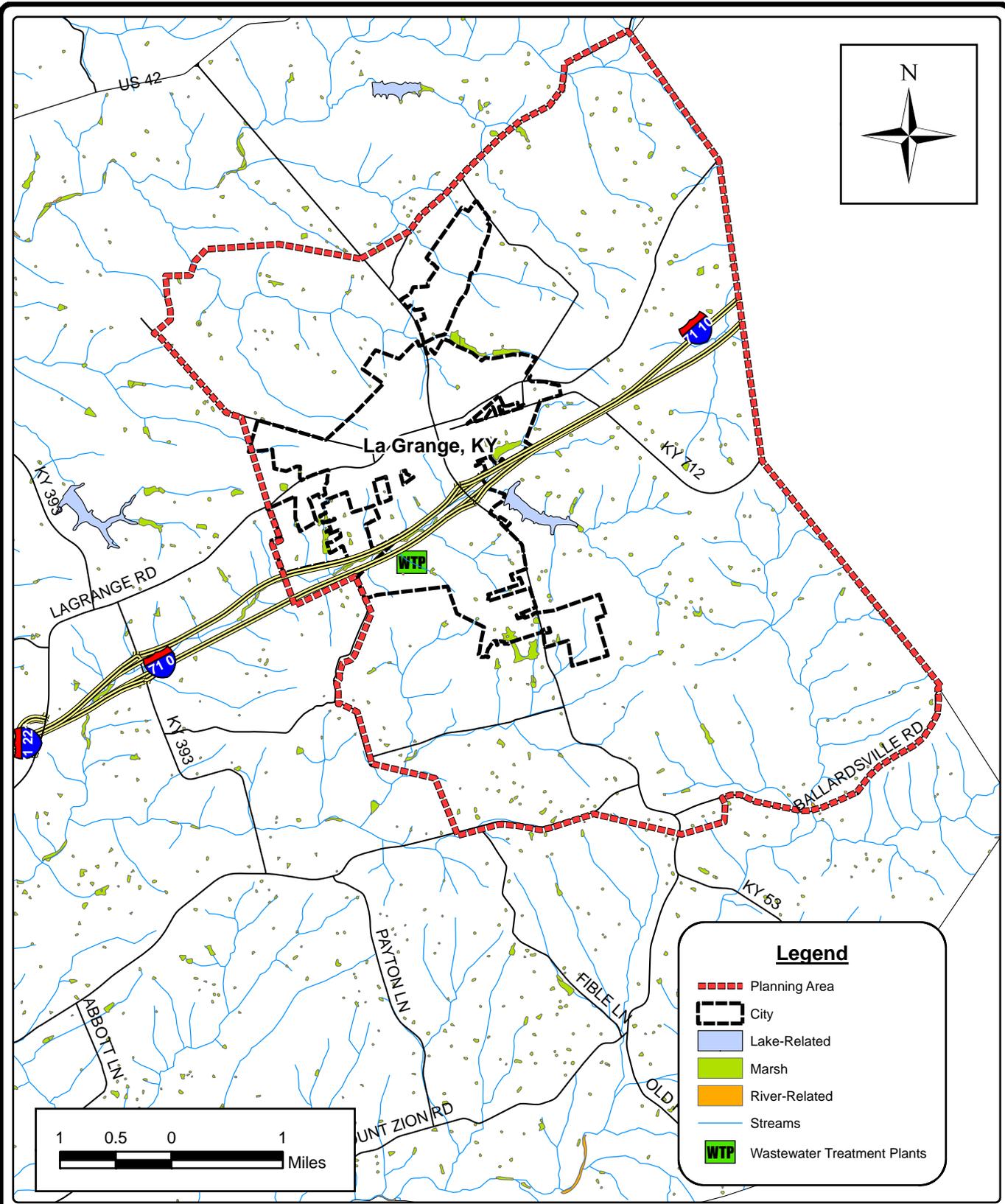
- Planning Area
- 305(b) Impaired Streams
- 305(b) Impaired Lakes
- WTP Wastewater Treatment Plants
- City of LaGrange
- Streams
- Streams



**IMPAIRED WATER BODIES**  
**LA GRANGE UTILITIES COMMISSION REGIONAL FACILITY PLAN**  
**LA GRANGE UTILITES COMMISSION**  
**LA GRANGE, KENTUCKY**



**FIGURE 5.04-1**  
**5-956-016**



### WETLANDS

#### LAGRANGE UTILITIES COMMISSION REGIONAL FACILITY PLAN

#### LAGRANGE UTILITIES COMMISSION LAGRANGE, KENTUCKY



FIGURE 5.05-1  
5-956-016

**SECTION 6**  
**EXISTING WASTEWATER SYSTEM**

---

## 6.01 BACKGROUND

This section will examine existing wastewater facilities in the planning area describe the method and efficiency of wastewater treatment at the existing La Grange WWTP.

## 6.02 ON-SITE DISPOSAL

On-site septic systems in the planning area often fail because of the unfavorable soil and geologic conditions discussed in Section 5.02. There are only a few septic systems within the LaGrange City Limits. However there are several hundred septic systems within the planning area and outside the La Grange City Limits. The largest concentration of these septic systems is in the Crystal Lake Area on the southeast side of the City. No records are available on the number of these systems that have failed or are failing. When the County Health Department is notified of a failed system, an order is issued to repair or replace the system. There are no know straight pipe discharges in the planning area.

## 6.03 EXISTING TREATMENT PLANTS

There are four WWTPs in the La Grange Planning Area. Three of these are package treatment plants and the regional La Grange WWTP, which provides wastewater treatment service to the planning area.

The La Grange WWTP was built in 1984 and has received improvements in 1995 and 2007. The La Grange WWTP is the regional treatment facility for those residing within the City of La Grange as well as a few areas outside the city limits.

The La Grange WWTP is an activated sludge-type plant with mechanical bar screen, grit removal, one oxidation ditch with secondary clarifiers, postaeration, effluent flow measurement, and UV disinfection. Once the wastewater has been processed through this treatment facility, the plant effluent is discharged into a tributary draining into the North Fork of Curry's Fork.

The La Grange WWTP utilizes an extended aeration process with return activated sludge (RAS) to treat wastewater. The plant has a rated average daily flow capacity of 0.775 mgd with a peak hourly flow capacity of 2.3 mgd. In 1995, the WWTP was improved with a new influent screening structure and a new 1.59 million gallons facultative lagoon with synthetic liner and floating aerators. Two new secondary clarifiers were constructed in 2007 along with the new UV disinfection. A site layout and flow schematic of the existing La Grange WWTP is shown in Figure 6.03-1.

The major process components of the La Grange WWTP were analyzed for their compliance with the accepted design criteria (Recommended Standards for Wastewater Facilities, Board of State and Provincial Public Health and Environmental Managers) for current conditions and for their ability to meet the next phase expansion flows and loadings. These rated capacities were determined by comparing the size and configuration of the existing units with the recommended loading limitations from accepted design standards. Following is a list of process components and their status within the existing facility.

A. Mechanical Bar Screen

With the addition of a facultative lagoon in 1995, a screening structure was also constructed. This screening structure splits the flow between the facultative lagoon and the 1984 constructed headworks structure. Preliminary treatment is performed by one mechanically cleaned bar screen. The process is intended to remove untreatable screenings materials, which consist of large solids such as plastic bags, and debris from the influent wastewater influent flow to protect the downstream process equipment. The opening of the mechanical screen is 1/2 inch. There is no screenings washing or compacting provided. The screening materials are collected in a barrel before disposal in a landfill. The mechanically cleaned bar screen performs well under low flow conditions. However, the screen experiences some maintenance issues and does not perform well during high flow periods when the approach velocity through the screen is excessive. Excessive velocity causes a large amount of debris push through screen and creates some problems at the downstream process. The manual bar screen is used as an emergency bypass screen when excessive flows are realized and has openings spaced at 1-inch. A new headworks structure is proposed to be constructed in the next expansion. The proposed headworks structure will include a fine mechanically cleaned screen, grit removal, influent flow measurement, and the ML splitter box. The ML splitter box will divide the ML flow between the new oxidation ditch and the existing oxidation ditch. Provision for flow diversion to future biological phosphorus removal tanks is also anticipated in the new headworks structure.

B. Influent Samples

The plant operator currently samples influent flow with an automatically operated sampler provided in the 2007 plant improvements. The sample location is immediately after the influent bar screens. The sampler is programmed to collect the samples on a time basis. This sampling procedure will likely remain sufficient for current and future wastewater flows.

C. Facultative Lagoon

An improvement to the plant in 1995 resulted in the construction of a 1.59 million gallon facultative lagoon to serve as primary treatment and dampen the peak flow to the treatment plant. The lagoon has been in operation for 16 years. A portion of the influent flow is split at the screening chamber and travels to the existing headworks with the remainder entering the facultative lagoon. The lagoon currently has three floating aerators that provide oxygen to aid the BOD removal and minimize odors. The lagoon can be used as an equalization basin or taken offline when the new oxidation ditch is constructed. A pump station will be required to return wastewater to the WWTP if the lagoon is converted to the equalization basin.

D. Influent Flow Measurement

The influent flow is measured in the headworks using a Parshall flume with a 6-inch throat. The Parshall flume is currently inadequate for measuring influent flows. The Parshall flume was installed in 1984 and has been in operation for 27 years. The peak instantaneous influent flow to the La Grange WWTP occasionally exceeded the capacity of the existing 6-inch Parshall flume, which is limited to 2.53 mgd. A 12-inch Parshall flume is proposed in the next expansion.

E. Grit Removal Channels

There are two grit channels in the 1984 headworks structure. The flow velocity in the grit channel is approximately 1.0 foot per second, which allows grit to settle and be removed. Maintaining the grit channel is labor intensive. The grit channel is not functioning well during the high flows. A new grit removal chamber is proposed for the next expansion.

F. Influent Comminutor

There is one comminutor residing in the existing headworks structure downstream of the grit removal channels, which has been in operation since 1984. The comminutor utilizes a scissor action to reduce the size of debris in the wastewater stream. The existing comminutor does an adequate job handling existing low flows. During the high flow periods, the comminutor becomes a bottleneck and creates some hydraulic issues in the influent channel. The comminutor is not needed if fine screening equipment is provided.

G. Oxidation Ditch

The oxidation ditch, in operation since 1984, allows the facility to be operated as a complete mix extended aeration process. The oxidation ditch has a hydraulic detention time of 24 hours at a flow of 0.775 mgd and is designed to accept a loading of 12 lbs BOD/day/1000 ft<sup>3</sup>. It contains two rotors that serve as primary mechanical aerators for the ditch. Because of the age of these primary aerators and the increase in the BOD loadings to the oxidation ditch, two supplemental aerators were provided in 2007 to provide more oxygen. The ditch also contains an effluent weir box with a rotating weir gate. The ditch is currently operating at its capacity. To handle the additional flows and loadings to the La Grange WWTP, a second oxidation ditch will need to be constructed.

H. Final Clarifiers

Two 65-foot-diameter clarifiers were constructed in 2007 to settle the ML from the oxidation ditch. The clarifiers are designed to handle a peak hourly flow of 6.6 mgd. Only one clarifier is utilized for the current flows at the La Grange WWTP. The clarifiers are operating well, and no new clarifiers will be proposed in the next expansion.

I. Return Activated Sludge Pump Station

The RAS pump station includes two submersible pumps located between the two 65-foot-diameter clarifiers. Each RAS pump is designated to a clarifier. The RAS pumps are also designed to pump the waste activated sludge (WAS) for the sludge wasting. Each RAS pump is capable of delivering up to 1,000 gpm RAS flow back to the oxidation ditch. The RAS pumps were sized for the anticipated average daily flow of 1.9 mgd and will be adequate for the next expansion. An uninstalled spare pump was provided to replace a RAS pump if one is taken out for service. The existing RAS force main is proposed to be rerouted to the new headworks structure in the next expansion.

J. Postaeration

The fine bubble diffuser postaeration system was added to the La Grange WWTP during the 2007 improvements. The system was designed with the capacity of 8.4 mgd effluent peak hourly flow. The system is functioning well and is adequate for the next expansion. In addition to the fine bubble diffuser system, a cascade aerator was provided at the end of the effluent structure in the 2007 to allow the La Grange Utilities Commission to meet the dissolved oxygen limitation during the low flow periods without utilizing the postaeration blowers.

K. Effluent Flow Measurement

Effluent flow measurement is provided immediately upstream of the UV disinfection in the effluent structure. An ultrasonic transducer is calibrated to measure the flow rate by measuring the depth of water flowing through the 24-inch Parshall flume. Flow measurement with the existing 24-inch flume is not as accurate during the low flow periods. It is suggested a 12-inch nested flume be provided to improve the flow measurement accuracy in the next expansion.

L. Effluent Sampling

Presently grab samples are collected one day each week by plant operators. Grab samples are currently collected at the UV effluent weir upstream of the cascade aerator. It is suggested that the future grab samples will be taken at the plant effluent outfall, downstream of the cascade aerator. The effluent composite samples are collected by an automatic, refrigerated sampler. The composite samples are taken at the outlet of the effluent Parshall flume. The automatic sampler is programmed to collect samples either based on time or based on the flow (flow pacing). There is no change anticipated for the automatic sampler in the future expansion.

M. Disinfection

A UV disinfection system was provided in the 2007 improvements. The existing UV disinfection system has a peak flow capacity of 4.2 mgd. The UV system peak flow capacity can be increased to 8.4 mgd by adding more lamps. The UV effluent weir will be replaced with the control gate if the effluent peak flow exceeds 2.1 mgd. There is no need to expand the UV disinfection system if the peak hourly effluent flow is less than 4.2 mgd. The UV disinfection system will be expanded in the future, when the design peak hourly flow exceeds 4.2 mgd.

N. Excess Flow Clarifiers

The two existing 34-foot-diameter clarifiers constructed in 1984 are utilized as excess flow clarifiers. These clarifiers were taken offline after the construction of new clarifiers in 2007. The excess flow clarifiers can handle a peak hourly flow of 1.8 mgd. These clarifiers are set up to accept only the ML flow from the existing oxidation ditch. These clarifiers will be kept in the next phase expansion.

O. Sludge Handling

Sludge is wasted to the sludge holding tanks with the RAS pumps. Each sludge holding tank has a volume of 47,400 gallon. The sludge is pumped from the sludge holding tanks to the belt filter press for dewatering. There were four existing sludge drying beds available to be used if the belt filter press is out of service. After dewatering, biosolids are moved into a dumpster and disposed in a landfill by a private contractor. There are no major modifications proposed to the sludge handling system in the next expansion.

P. Flood Protection

The La Grange WWTP is not located in the 100-year floodplain.

Q. Electrical Service

The main electrical service to the La Grange WWTP was replaced in the 2007 improvements and is anticipated to be adequate for the proposed expansion. Additionally, a new emergency generator was also provided in the 2007 improvements. The 2007 generator is designed with the anticipated capacity to handle all the electrical loads of the existing equipment and equipment provided in the proposed expansion.

R. Laboratory

A small process control laboratory is provided at the LaGrange WWTP. Permit compliance samples are sent to Beckmar Laboratory for analysis of CBOD, TSS, ammonia, and fecal coliform. The results from Beckmar Laboratory are used in the KPDES monthly report.

Table 6.03-1 summarizes the unit process design criteria and the rated capacity of the existing La Grange WWTP.

Process	Number of Units	Design Criteria	Rated Capacity
Mechanical Bar Screen	1	1/2-inch openings	3.6 mgd
Manual Bar Screen	1	1-inch openings	1.82 mgd
Facultative Lagoon	1	DO >1 mg/L 1.25 cfm/1000 gallons	1.59 Mgal
Influent Flow Meter	1	6-inch Throat Parshall Flume	2.53 mgd
Oxidation Ditch (775,000 gallons existing)	1	OLR = 12 lbs/d/1000 cu-ft HRT = 24 Hours (0.775mgd) HRT = 8 hrs 21 mins (2.3 mgd) MLSS=3000 mg/L	0.775 mgd (ADF)
Final Clarifiers (65-foot diameter)	2	Surface Settling Area = 6,636 ft <sup>2</sup> SSR = 350 gpd/ft <sup>2</sup> at 2.3 mgd PHF SLR = 11.7 lbs/day/ft <sup>2</sup> (0.775 mgd + 0.775 mgd RAS) SLR = 26.1 lbs/day/ft <sup>2</sup> (2.3 mgd + 1.16 mgd RAS)	6.6 mgd (PHF)
Excess Flow Clarifiers (34-foot diameter)	2	Surface Settling Area = 1,815 ft <sup>2</sup>	1.8 mgd
RAS/WAS Pumps	2	50-150% of future ADF (1.9 mgd)	1,000 gpm each
Post Aeration	1	7.0 mg/L	8.4 mgd
Effluent Flow Measurement	1	24-inch Parshall flume	21.4 mgd
UV Disinfection	1	Low pressure, high intensity 2 UV banks for channel 5 UV modules per bank 65% UV transmittance @ 253.7nm	4.2 mgd
Sludge Holding Tanks	2	Air Rate = 15 SCFM/1000 cu-ft	95,000 gallons
Belt Filter Press	1	600-900 lbs/hour	
Sludge Drying Beds	4	9,123 ft <sup>2</sup>	

**Table 6.03-1 Unit Process Design Criteria and Capacity of Existing La Grange WWTP**

**6.04 EXISTING COLLECTION AND CONVEYANCE SYSTEM**

The existing wastewater collection system served by the La Grange WWTP consists of mostly gravity sewer lines in diameters of 8-inch up to 15-inch. Most sewers are 8-inch diameter, with only the interceptors being larger. Pipe materials are both clay and PVC plastic. Three neighborhoods, Bon Air, Horton Road, and La Grange Acres are served by pressure sewers with approximately 300 individual grinder pumps. There are also 23 pumping stations in the collection system as listed in Table 6.04-1. All are duplex pump stations, except for the South Station, which is a triplex station. Most pump station force mains are PVC plastic and range in size from 2-inch up to 12-inch. A map of the existing wastewater collection system is shown in Figure 6.04-1.

<b>Pump Station</b>	<b>Capacity</b>
North	1800 gpm
South	1200 gpm
Madison Street	377 gpm
Jericho Road	200 gpm
Lakeside	80 gpm
Pear Orchard	80 gpm
Cracker Barrel	170 gpm
Clifford Lane	180 gpm
Woodland Lakes	180 gpm
Button Lane	180 gpm
Super America	95 gpm
Prestwick	80 gpm
Falcon Ridge	78 gpm
Majestic Woods	80 gpm
Springhouse #1	175 gpm
Springhouse #2	80 gpm
Lakeview Center	28 gpm
Artisan Park	150 gpm
Milestone Village	136 gpm
Eagles Landing	96 gpm
Jillian Place	85 gpm
Chilewich Apts.	96 gpm
Summit Parks	380 gpm

**Table 6.04-1 Existing Pump Stations**

## 6.05 BIOSOLIDS DISPOSAL

The screenings and grit collected at the La Grange WWTP is disposed in a landfill along with the dewatered biosolids. The scum collected at the clarifiers is pumped to the sludge holding tanks for dewatering along with the biosolids. The WWTP does not accept any septage waste.

The sludge generated at the WWTP is wasted to the two sludge holding tanks, which were constructed in 1984. The sludge holding tanks also receive scum collected by the clarifiers. The wasted sludge and scum is aerated for a short period before dewatering by the belt filter press. The sludge holding tanks appear to be operating well under current conditions. LUC wants to reduce the sludge holding time to a minimum to minimize the odor associated with sludge handling process.

A belt filter press is currently utilized for dewatering sludge from the sludge holding tanks. The press can dewater approximately 600 to 900 pounds of sludge each hour. The existing belt filter press is adequate for the current operation. An additional belt filter press may be needed in the future when the sludge production at the plant is increased.

Four sludge drying beds were constructed in 1984 at the La Grange WWTP. The sludge drying beds allow the sludge to be dewatered for landfilling. Since the installation of the belt filter press, the sludge drying beds are available if needed, but not used otherwise.

LUC currently employs a private company to haul biosolids to a landfill. After dewatering with a belt filter press, the biosolids are moved into a dumpster with a front end loader. When the dumpster is full, the contractor hauls the biosolids to a landfill.

## 6.06 TREATMENT PLANT OPERATION, MAINTENANCE, AND COMPLIANCE

This Facilities Plan utilizes data collected from January 2008 through December 2010 to evaluate the WWTP performance except the effluent total phosphorus data. The effluent total phosphorus has been monitored and reported since January 2010 because of the new KPDES permit phosphorus limitation. Monthly discharge monitoring reports (DMR) are used in the evaluation. Table 6.06-1 illustrates the La Grange WWTP KPDES permits limits and performance in the last three years. A full copy of the La Grange WWTP KPDES permit is included in Appendix D.

Parameters	Influent Average <sup>1</sup>	Effluent Average <sup>1</sup>	Capacity/Permit Limits
Flow, mgd	---	0.848	0.775
CBOD <sub>5</sub> , mg/L	220	6	20
TSS, mg/L	120	6	30
NH <sub>3</sub> -N, mg/L	25	0.3	4
E. Coli, N/100 mL	---	13	130
Total Phosphorus <sup>2</sup> , mg/L	---	1.0	1.0
DO mg/L	---	9.1	7 mg/L Minimum
pH	---	7.4	6 - 9

<sup>1</sup>Operational Data from Jan 2008 to Dec 2010 except Total Phosphorus.  
<sup>2</sup>Total Phosphorus Data from Jan 2010 to Dec 2010.

**Table 6.06–1 Summary of La Grange WWTP Performance**

Overall, the La Grange WWTP performs exceptionally well (BOD, TSS, NH<sub>3</sub>-N and *e. Coli* removal) even through the flow to the WWTP has often exceeded the rated capacity. No violation of these limits occurred during the three evaluated years. LUC started using chemical to precipitate phosphorus since January 2010 as a result of the new KPDES permit requirement. The new KPDES permit requires 1.0 mg/L total phosphorus effluent at the La Grange WWTP. At the beginning of 2010, the total phosphorus effluent concentration often exceeded the effluent limit requirements. However, the operator was able to reduce the effluent total phosphorus level to be within compliance for the second half of 2010.

### 6.07 COLLECTION SYSTEM OPERATION, MAINTENANCE, AND COMPLIANCE

The La Grange wastewater collection system is operated and maintain by the 11 person staff of the LUC. Occasionally, local contractors or factory service technicians are used for major repairs that are beyond the capability of the LUC staff. During normal weather conditions, including typical annual rainfall events, there are no known sanitary sewer overflows in the system, other than infrequent overflows caused by line blockage or pump station breakdowns.

**6.08 IMPROVEMENTS NEEDS**

The La Grange WWTP has several processes in need of improvement because of age, current parameters and limits. Table 6.08-1 describes improvement needs for the various processes at the WWTP.

Structure/Process	Needs for Expanded Design
Manual Bar Screen	Requires upgrade or replacement to handle future peak flow above 3.6 mgd.
Mechanical Bar Screen	Requires upgrade or replacement to handle future peak flow above 1.8 mgd.
Grit Channels	Requires upgrade or replacement to handle future peak flow above 2.3 mgd.
Facultative Lagoon	Recommended to be taken off-line to serve as an equalization basin only.
Influent Flow Meter	Requires larger flume with capacity to measure the future peak flows above 2.5 mgd.
Oxidation Ditch	Requires an additional ditch to handle future design loadings and provide redundancy.
Final Clarifiers	Existing clarifiers are adequate.
RAS/WAS Pumps	Existing RAS pumps are adequate.
UV Disinfection	Will need to be expanded to provide disinfection for flows above 4.2 mgd.
Sludge Holding Tanks	Existing sludge holding tanks are adequate.
Belt Filter Press	Existing belt filter press are adequate with longer run times.
Sludge Drying Beds	Existing sludge drying beds are adequate.
Effluent Flow Meter	Need a 12-inch nested flume to improve flow measurement accuracy.

**Table 6.08-1 La Grange WWTP Summary of Required Modifications**

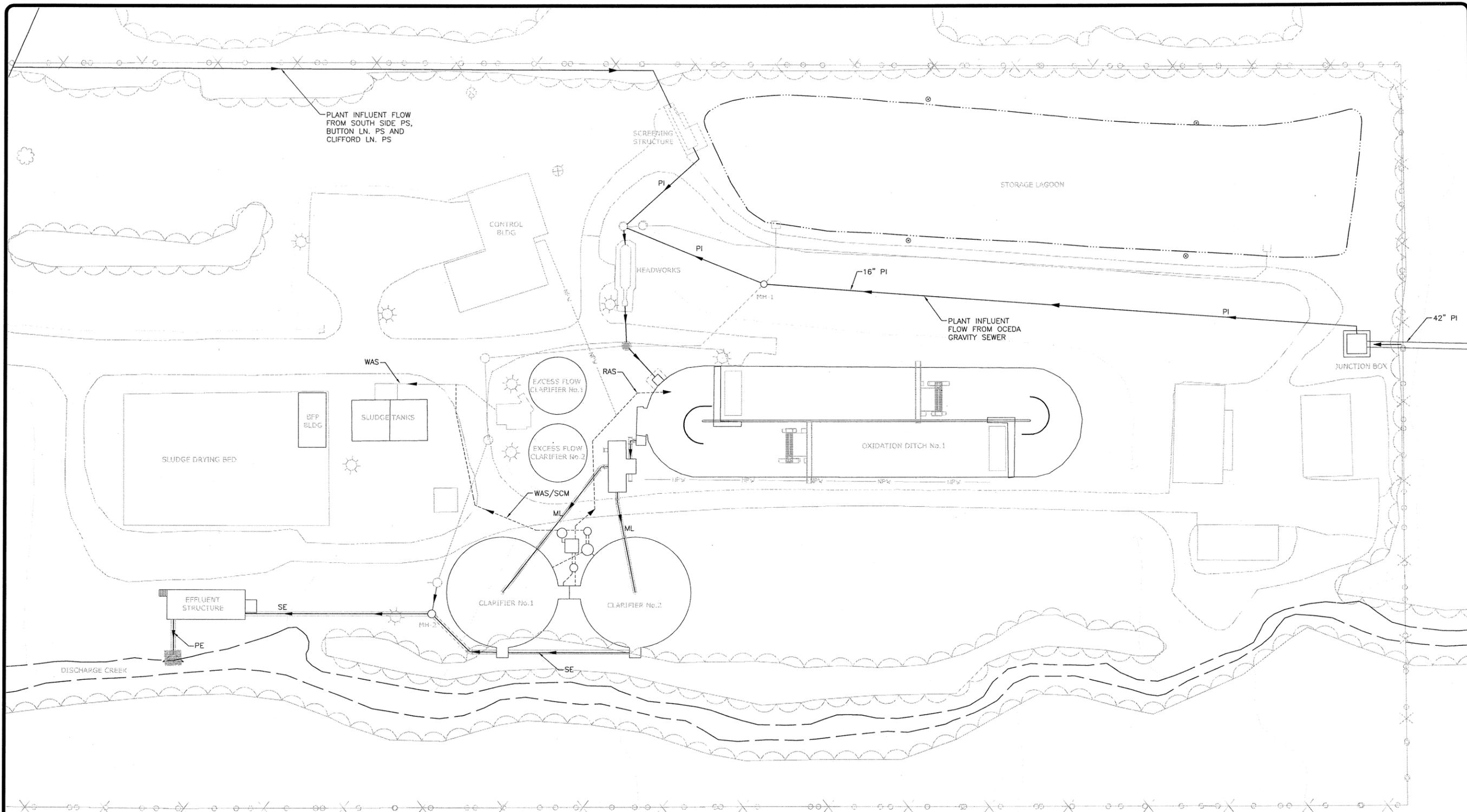
**6.09 INDUSTRIAL DISCHARGE**

La Grange WWTP currently receives flow from one industrial customer.

**6.10 INFILTRATION AND INFLOW**

Extraneous water entering the sewer system through infiltration from groundwater sources and through inflow from direct connections reduces the available capacity of sewer systems and treatment facilities to transport and treat domestic and industrial wastewater. A limited sewer system evaluation survey (SSES) was performed by Howard K. Bell, Consulting Engineers in 1995. A 1993 survey showed that an increase of about 0.275 mgd can be expected for every inch of rain fall. This is about 35 percent of the design flow at the WWTP. In 1994, segments of the sewer system were inspected and cleaned. Additionally, an equalization basin was constructed to handle this surge in flow and reduce organic loadings. The 1995 limited SSES gave further

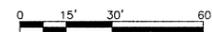
rehabilitation recommendations with some of the recommendations being completed in 1999. The Regional Facilities Plan prepared in 1996 identified that infiltration and inflow continues to be a significant problem. LUC has an ongoing program, as funds and manpower permit, to locate and eliminate sources of excessive infiltration and inflow. Its AO obligates LUC to be proactive in this responsibility.



**FLUID ABBREVIATIONS**

A	- AIR	PW	- POTABLE WATER
D	- DRAIN	R	- RECYCLE
FE	- FILTER EFFLUENT	RAS	- RETURN ACTIVATED SLUDGE
FI	- FILTER INFLUENT	RW	- RAW WASTEWATER
ML	- MIXED LIQUOR	SCM	- SCUM
NPW	- NON-POTABLE WATER	SA	- SAMPLE
PE	- PLANT EFFLUENT	SE	- SECONDARY EFFLUENT
PI	- PLANT INFLUENT	SPD	- SUMP PUMP DISCHARGE
PS	- PLANT SANITARY SEWER	V	- VENT
STS	- STORM SEWER	WAS	- WASTE ACTIVATED SLUDGE

**EXISTING - LA GRANGE WASTEWATER TREATMENT PLAN**



—— WASTEWATER FLOW  
 - - - - - SLUDGE FLOW

NO.	REVISIONS	DATE:

DATE: DECEMBER, 2006  
 DES BY: CHK BY: MAS  
 RECORD DRAWING  
 BY: DATE: CONTRACTOR:

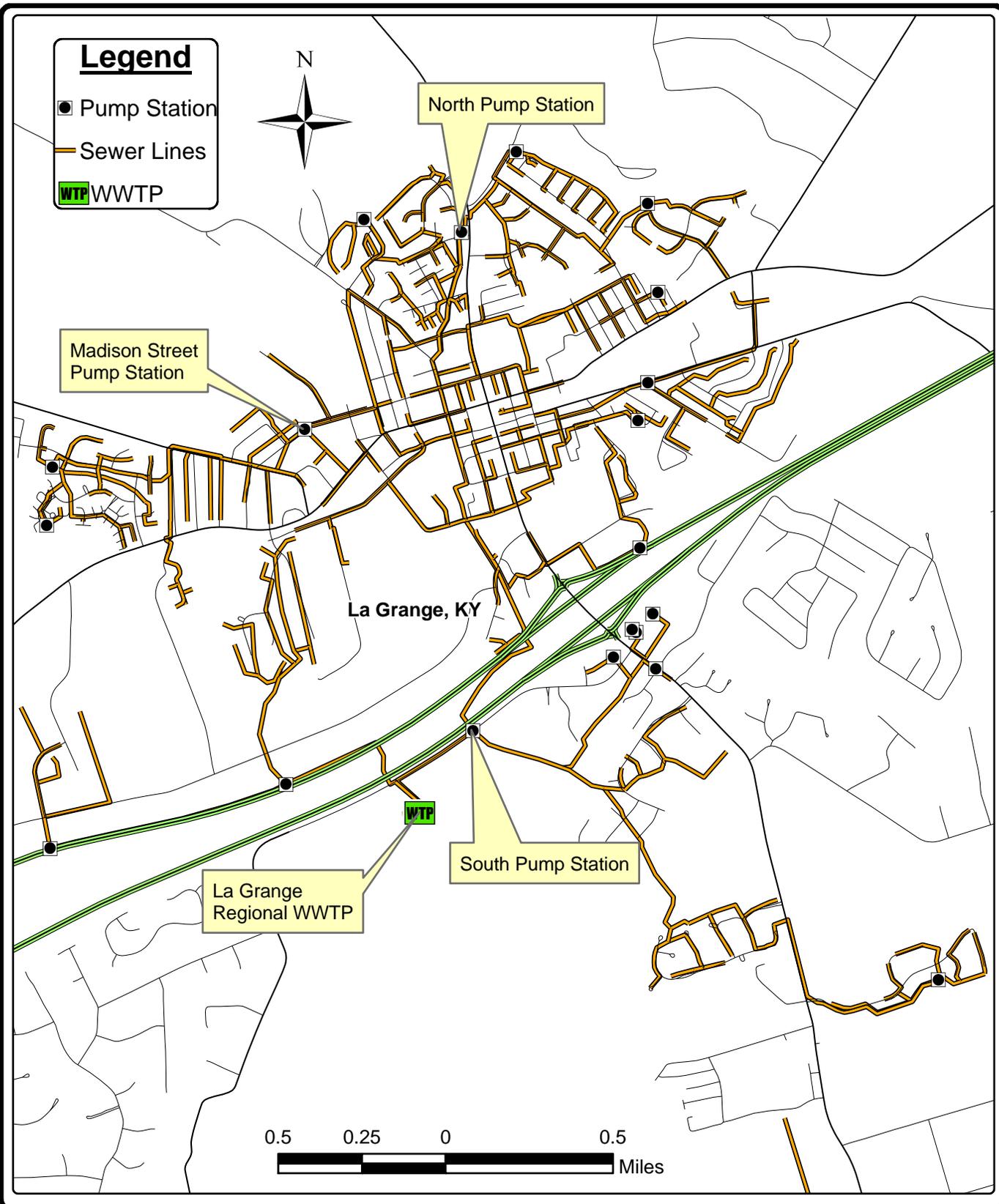
**LA GRANGE WASTEWATER TREATMENT PLANT  
 EXISTING SITE LAYOUT AND WASTEWATER FLOW**

LA GRANGE UTILITIES COMMISSION  
 LA GRANGE WTP FACILITIES PLAN  
 COUNTY OF OLDHAM, KENTUCKY



**FIGURE No. 6.03-1**  
 JOB NO. 5-956.016

S:\05\951--1000\956\005\Wrd\Facilities Plan Report\Figures for Report\Fig. 3:XX-X-P.S. and Sewer Lines



**EXISTING COLLECTION AND CONVEYANCE SYSTEM**

**LA GRANGE UTILITIES COMMISSION REGIONAL FACILITY PLAN  
LA GRANGE UTILITIES COMMISSION  
LA GRANGE, KENTUCKY**



**FIGURE 6.04-1  
5-956-016**

**SECTION 7**  
**WASTE LOADS AND FLOW FORECASTS**

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**7.01 EXISTING WASTEWATER FLOWS**

Plant operation records for the period from January 1, 2008, to December 31, 2010, were reviewed to assess the existing flow at the La Grange WWTP. Table 7.01-1 summarizes the historical flows for the last three years.

Year	Average Effluent Flow (mgd)	Maximum Effluent Flow (mgd)	Peak Factor
2008	0.800	2.565	3.2
2009	0.910	2.156	2.4
2010	0.833	2.436	2.9

**Table 7.01-1 Historic La Grange WWTP Flows**

According to LUC, approximately 66 percent of wastewater received at the La Grange WWTP is from residential sources and 34 percent is from industrial, commercial and institutional sources. For the year 2010, the equivalent residential flow was 550,000 gpd and the industrial and commercial flow was 283,000 gpd.

**7.02 PROJECTED DAILY WASTEWATER FLOWS**

A. Projected Residential Wastewater Flows

Projected daily wastewater flows generated within the proposed service areas for the 20-year planning period are presented in Table 7.02-1. The projected average daily flows were computed by multiplying the equivalent projected population by 100 gallons per person per day. The peak hourly flow in million gallons per day was computed using a historical highest peak factor in the last three years. Flow volume for generation of future residential wastewater was based on information obtained from *Recommended Standards for Wastewater Facilities*, 1990 Edition (Ten State Standards), which states “the sizing of wastewater facilities receiving flows from new wastewater collection systems shall be based on an average daily flow of 100 gallons per capita day plus wastewater flow from industrial plants and major institutional and commercial facilities unless waste use data or other justification upon which to better estimate flow is provided.” This approach is “intended to cover normal infiltration for systems built with modern design techniques.” The projected flows computed in each development area will be used to determine the total residential flow to the La Grange WWTP.

The projected residential wastewater flow to the La Grange WWTP for the 20-year plan period is presented in Table 7.02-1. Sixty-six percent of the average daily flows to La Grange WWTP were assumed as existing residential wastewater flow.

	Equivalent Population	Average Daily Flow (gpd)	Peak Factor	Peak Hourly Flow (gpd)
Existing Residential Flows		550,000	3.2	1,760,000
Artisan Fields	128	12,800	3.2	40,896
Artisan Park	65	6,500	3.2	20,736
Cherrywood Place, Section 5 & 6	144	14,400	3.2	46,080
Deer Meadows	180	18,000	3.2	57,600
Fish Hawk Reserve	1,525	152,500	3.2	488,000
Massie School Road	473	47,300	3.2	151,488
Seasons	36	3,600	3.2	11,520
Summit Parks	346	34,600	3.2	110,592
Wolf Lake	261	26,100	3.2	83,520
Cherry Glen	465	46,500	3.2	148,800
Oliver Square	42	4,200	3.2	13,440
Reibel Property	60	6,000	3.2	19,200
Villages @ L'Esprit	378	37,800	3.2	120,960
Autumn Trace	318	31,800	3.2	101,760
Mallory Taylor	72	7,200	3.2	23,040
<b>Total Projected Residential Flows</b>		<b>999,000</b>		<b>3,198,000</b>

**Table 7.02-1 Projected Residential Wastewater Flows**

**B. Projected Industrial and Commercial Wastewater Flows**

Existing industrial and commercial flows to the La Grange WWTP are estimated at about 34 percent of the total wastewater flow. In the year 2010, industrial and commercial flow to the La Grange WWTP was estimated at 283,000 gpd.

Future industrial and commercial flows to the La Grange WWTP were estimated and reserved by the Oldham County Economic Development Authority, Inc. The reserved flow for industrial and commercial development was 456,940 gpd. This reserved flow is used in establishing the projected industrial and commercial flow for the 20-year plan period. The projected industrial and commercial wastewater flow is presented in Table 7.02-2.

	Average Daily Flow (gpd)	Peak Factor	Peak Hourly Flow (gpd)
Existing Industrial and Commercial Flows	283,000	3.2	906,000
OCEDA Oldham Reserve Development	457,000	3.2	1,462,000
<b>Total Projected Industrial and Commercial Flows</b>	<b>740,000</b>		<b>2,368,000</b>

**Table 7.02-2 Projected Industrial and Commercial Wastewater Flows**

C. Total Projected Wastewater Flows

In addition to the residential and industrial/commercial projected wastewater flows, the flow projections for the La Grange WWTP include capacity for three package treatment plants that can be eliminated in the future. The existing capacity of these package treatment plants is listed in Table 7.02-3. Table 7.02-3 also presents the projected peak hourly flow for the La Grange WWTP.

	Average Daily Flow (gpd)	Peak Hourly Flow (gpd)
Projected Residential Wastewater Flow	999,000	3,198,000
Projected Industrial and Commercial Wastewater Flow	740,000	2,368,000
Green Valley Package Treatment Plant	30,000	96,000
Cedar Lake Lodge Package Treatment Plant	20,000	64,000
Oldham Woods Package Treatment Plant	100,000	320,000
<b>Total Flow Projection</b>	<b>1,889,000</b>	<b>6,000,000</b>

**Table 7.02-3 Total Wastewater Flow Projection for La Grange WWTP**

Initially, peak flows to the La Grange WWTP will be much lower than the projected flows. Most of the flow to the La Grange WWTP will be from the South Pump Station. The South Pump Station is proposed to expand to a capacity to 2,000 gpm or 2.88 mgd. Therefore the peak hourly flow to the La Grange WWTP is estimated at 4.2 mgd initially.

Figure 7.02-1 shows the portions of the La Grange Planning Area anticipated to be served in the 0- to 5-year, 6- to 10-year, and 11- to 20-year time horizons.

**7.03 THE PROPOSED DESIGN CAPACITY OF THE LA GRANGE WWTP**

The La Grange WWTP is proposed to be expanded to handle the projected flows and loadings. The proposed average daily flow is 1.9 mgd and the proposed peak hourly flow is 4.2 mgd. The proposed influent loadings are based on the proposed flow and 110 percent of the average pollutant influent concentrations from January 2008 to December 2010. The proposed design capacity for the La Grange WWTP Phase 1 expansion and future expansion is summarized in Table 7.03-1.

Parameter	Flow (mgd)	Concentration (mg/L)	Loading (lbs/d)
<i>DESIGN FLOWS</i>			
Average Daily Flow	1.9	-----	-----
Peak Hourly Flow (influent)	8.4	-----	-----
Equalization Peak Hourly Flow (Phase 1 Expansion)	4.2	-----	-----
Equalization Peak Hourly Flow (Future Expansion)	6.0	-----	-----
<i>DESIGN LOADINGS</i>			
CBOD <sub>5</sub>		240	3,800
TSS		150	2,380
NH <sub>3</sub> -N		30	480
Phosphorus		7	110

**Table 7.03-1 Proposed Phase 1 and Future Design Capacity of the La Grange WWTP**

**7.04 THE WASTE LOAD ALLOCATION OF THE PROPOSED WWTP**

The La Grange service area is rapidly growing and a prompt expansion of the La Grange WWTP is paramount. A letter was sent to KDOW on August 27, 2010, to request waste load allocations (WLA) for an expanded La Grange WWTP with a future average daily capacity of 1.9 mgd. KDOW responded by using the pollutant load of the existing Floyds Fork TMDL to calculate the limitations for an expanded treatment facility. The proposed waste load allocation results in substantially more stringent effluent limitations for the existing discharge location of mile point 0.13 of unnamed tributary to mile point 9.35 of North Curry’s Fork. The waste load allocation correspondence is included in Appendix E.

Additionally, a waste load allocation for a potential discharge to the Ohio River was requested. The effluent limitations for an Ohio River discharge are less stringent than those for a North Curry’s Fork discharge. The anticipated effluent limits for the proposed La Grange WWTP expansion to 1.9 mgd at both discharge locations are listed in Table 7.04-1.

Parameter	Loading (lb/day)	Quality or Concentration (mg/L)			
	Monthly Average	Monthly Average	Weekly Average	Daily Minimum	Daily Maximum
Design Flow (1.90 mgd)	-----	Report	Report	-----	-----
<b>ANTICIPATED NORTH CURRY'S FORK DISCHARGE EFFLUENT LIMITS<sup>1</sup></b>					
CBOD <sub>5</sub>	127	8	-----	-----	-----
TSS	475	30	-----	-----	-----
<i>E. coli</i> (Geometric Mean)	-----	130 colonies per 100 mL	240 colonies per 100 mL	-----	-----
NH <sub>3</sub> -N <sup>2</sup>					
Summer	32	2	-----	-----	-----
Winter	63	4	-----	-----	-----
Dissolved Oxygen	-----	-----	-----	7.0	-----
Total Phosphorus (as P)	16	1.0	-----	-----	-----
Total Nitrogen	-----	Monitor	Monitor	-----	-----
pH	-----	-----	-----	6.0	9.0
<b>ANTICIPATED OHIO RIVER DISCHARGE EFFLUENT LIMITS<sup>1</sup></b>					
CBOD <sub>5</sub>	475	30	-----	-----	-----
TSS	475	30	-----	-----	-----
<i>E. coli</i> (Geometric Mean)	-----	130 colonies per 100 mL	240 colonies per 100 mL	-----	-----
NH <sub>3</sub> -N <sup>2</sup>					
Summer	317	20	-----	-----	-----
Winter	317	20	-----	-----	-----
Dissolved Oxygen	-----	-----	-----	2.0	-----
Total Phosphorus (as P)	-----	Monitor	Monitor	-----	-----
Total Nitrogen	-----	Monitor	Monitor	-----	-----
pH	-----	-----	-----	6.0	9.0

<sup>1</sup>Based on Wasteload Allocation Letter (see Appendix E).

<sup>2</sup>Summer limitations apply from May 1 through October 31 of each year. Winter limitations apply from November 1 through April 30 of each year.

**Table 7.04-1 Anticipated KPDES Effluent Limitations–La Grange WWTP**





## 8.01 INTRODUCTION

This section will present wastewater treatment alternatives available for the population within the La Grange Planning Area. Various alternatives will be identified and those deemed the most appropriate will be evaluated on a cost-effective basis including a present worth evaluation of capital and O&M costs. Additionally, nonmonetary factors will be considered for each alternative to determine which alternative is the most suitable.

## 8.02 SCREENING OF ALTERNATIVES

The La Grange WWTP was planned to undergo improvements in two parts. The first part was completed in 2007, which included construction of an influent junction box to bring wastewater in from the Eden Park Business campus, supplemental aeration in the oxidation ditch, new final clarifiers, and a new ultraviolet disinfection system. The second part or Phase 1 expansion will expand the WWTP average daily flow capacity to 1.9 mgd.

KDOW's reliability and redundancy criteria will be considered in evaluating alternatives.

Three alternatives have been developed for the La Grange WWTP to handle future anticipated flows and loads. The alternatives determined to be the most suitable for the La Grange WWTP are as follows:

- No Action Alternative.
- Expansion of the existing WWTP and continuing to discharge effluent to the Curry's Fork.
- Expansion of the existing WWTP and construct conveyance infrastructure to discharge effluent to the Ohio River.

Regionalization was considered early in the planning effort. Partnering with the Oldham County Environmental Authority was evaluated; however, a mutually agreeable arrangement to consolidate wastewater treatment could not be reached.

LUC has worked very aggressively at optimizing the operation of its existing WWTP. Through the 2007 improvements project, the Commission addressed two primary operational concerns, adequate final clarification and disinfection. The current WWTP is operated successfully at flows higher than it was intended to treat. The current plant operation is considered optimized.

## 8.03 WASTEWATER TREATMENT ALTERNATIVES

Three alternatives are being developed for the La Grange WWTP. This section gives more detailed information about each of the alternatives to be evaluated.

A. Alternative A–No Action Alternative

The “No Action” alternative does not require additional sewers, pumping stations, or expansion of the existing WWTP nor does it provide for anticipated growth in the La Grange Planning Area. The alternative would include maintaining the present wastewater treatment, collection and conveyance without the needed improvements. The advantage of this alternative is no construction expenditure and no environmental impact for the direct effects of construction of new facilities. However, this alternatives fails to address the current need to plan for population growth, provide capacity for the Eden Park business park (OCEDA campus), or address the agreed order and the sewer sanction from KDOW. Therefore, this “No Action” alternative is not a viable alternative and will not be considered further.

B. Alternative B–Expand Existing La Grange WWTP and Discharge into North Curry’s Fork

Alternative B includes expanding the existing WWTP while maintaining the existing discharge location to an unnamed tributary of North Curry’s Fork. Phase 1 of this alternative is proposed with a design capacity of 1.9 mgd average daily flow and a peak hourly flow of 4.2 mgd. Future expansion would be completed to allow the WWTP to accept the influent peak hourly flow up to 8.4 mgd (before equalization). Figure 8.03-1 illustrates the site layout and flow schematic of Phase 1 plant expansion for Alternative B.

To expand the existing LaGrange WWTP to 1.9 mgd average daily flow and 4.2 mgd peak hourly flow, the following improvements will be required:

1. All wastewater influent flow will be rerouted to enter the WWTP at the junction box, constructed in the 2007 improvements.
2. The existing facultative lagoon will be converted to an equalization basin to reduce the influent peak hourly flow from 8.4 mgd to 4.2 mgd. A new pump station to fill/drain the basin is required.
3. A new headworks structure with fine screening and grit removal will be provided.
4. A new 1.1-million gallon oxidation ditch will be constructed to accommodate increased organic loadings to the WWTP.
5. The existing RAS pump station, which was constructed in the 2007 improvements is adequate for the proposed plant. However, the existing RAS force main will be rerouted to the new discharge location at the effluent of new headworks structure.
6. Miscellaneous improvements throughout the WWTP such as new nonpotable water system, effluent flume insert, a UV control gate, and site grading will be included.

The future expansion of Alternative B will allow the LaGrange WWTP to accept the higher influent peak hourly flow up to 8.4 mgd (6 mgd equalization flow). Following are additional improvements considered in the future expansion:

1. New effluent filter system will be provided to polish the effluent water. New filter feed pump station will be included.
2. The UV disinfection system will be expanded to accommodate the higher peak flows.

Table 8.03-1 presents the design criteria for the Alternative B expansion and the capacity of the treatment processes in Phase 1 (initial) and future expansion of the La Grange WWTP.

Alternative B–Expand the existing WWTP with a North Curry’s Fork discharge				
Process	No. of Units	Design Criteria	Phase 1 Project Capacity	Future Project Capacity
Average Daily Flow			1.9 mgd	1.9 mgd
Influent Peak Hourly Flow			8.4 mgd	8.4 mgd
Equalized Peak Hourly Flow			4.2 mgd	6.0 mgd
Mechanical Bar Screen	1	1/4-inch openings	8.4 mgd	8.4 mgd
Manual Bar Screen	1	1-inch openings	8.4 mgd	8.4 mgd
Grit Removal	1		8.4 mgd	8.4 mgd
Facultative Lagoon	1	Convert to Equalization basin	Reduce PHF to 4.2 mgd	Reduce PHF to 6 mgd
Influent Flow Meter	1	12-inch Parshall Flume	10.4 mgd	10.4 mgd
Existing Oxidation Ditch (800,000 gallons existing)	1	OLR = 15 lbs/d/1000ft <sup>3</sup> HRT = 24 Hours	1.9 mgd	1.9 mgd
New Oxidation Ditch (1,100,000 gallons)	1	OLR = 15 lbs/d/1000ft <sup>3</sup> HRT = 24 Hours		
Final Clarifiers	2	SOR = 900 gpd/ft <sup>2</sup> SLR = 32.6 lb/d/ft <sup>2</sup>	4.2 mgd	6.0 mgd
RAS/WAS Pumps	2	50-150% of 1.9 mgd	2.9 mgd	2.9 mgd
Tertiary Filter Feed Pump Station	2	4,200 gpm with VFD	Not Included	6.0 mgd
Tertiary Filters	2	5 gpm/ft <sup>2</sup>	Not Included	6.0 mgd
Nonpotable Water System	2	200,000 gpd usage	150 gpm @ 65 psi (each)	150 gpm @ 65 psi (each)
Postaeration Tank	1	7.0 mg/L DO	8.4 mgd	8.4 mgd
Effluent Flow Measurement	1	12-inch flume nested in existing 24-inch Parshall flume	10.4 mgd	10.4 mgd
UV Disinfection	2	Low pressure, High intensity 2 UV banks/channel 3 UV modules/bank 65% transmittance @ 253.7nm	4.2 mgd	Expand to 6.0 mgd

**Table 8.03-1 Alternative B–Unit Process Design Criteria**

D. Alternative C–Expand Existing La Grange Utilities Commission WWTP and Discharge into Ohio River

Alternative C includes expanding the WWTP capacity to 1.9 mgd average daily flow and pumping the effluent to the Ohio River for discharge. Figure 8.03-2 illustrates a potential force main alignment for pumping effluent from the WWTP to the Ohio River. Figure 8.03-3 is a site layout and flow schematic of the La Grange WWTP for Alternative C.

The design criteria for the remainder of the WWTP is identical to Alternative B except there will be no tertiary filtration process. This is the result of less stringent discharge limits for the Ohio River. The design criteria and cost information is included for a pump station and force main for conveying the plant effluent to the Ohio River for discharge.

The following treatment process improvements are required for Phase1 of Alternative C:

1. All wastewater influent flow will be rerouted to enter the treatment plant at the junction box constructed in the 2007 improvements.
2. The existing facultative lagoon will be converted to an equalization basin to reduce the influent peak hourly flow from 8.4 mgd to 4.2 mgd. A new pump station to fill/drain the basin is required.
3. A new headworks structure with fine screening and grit removal will be provided.
4. A new 1.1-million-gallon oxidation ditch will be constructed to accommodate increased organic loadings to the WWTP.
5. The existing RAS pump station, which was constructed in the 2007 improvements, is adequate for the proposed plant. However, the existing RAS force main will be rerouted to the new discharge location at the effluent of new headworks structure.
6. The new effluent pump station and force main will be constructed to convey the plant effluent to the Ohio River for discharge.
7. Miscellaneous improvements throughout the WWTP such as new nonpotable water system, effluent flume insert, a UV control gate, and site grading will be included.

The future expansion of Alternative C will allow the LaGrange WWTP to accept the higher influent peak hourly flow up to 8.4 mgd. Following are additional improvements considered in the future expansion:

1. The UV disinfection system will be expanded to accommodate the higher peak flows.
2. The effluent pump station will be upgraded to convey higher peak flows to the Ohio River.

Table 8.03-2 presents the design criteria for the Alternative C expansion and the capacity of the treatment processes in phase 1 (initial) and future expansion of the La Grange WWTP.

Alternative C–Expand the existing WWTP with a Ohio River discharge				
Process	No. of Units	Design Criteria	Initial Project Capacity	Future Project Capacity
Average Daily Flow			1.9 mgd	1.9 mgd
Influent Peak Hourly Flow			8.4 mgd	8.4 mgd
Equalized Peak Hourly Flow			4.2 mgd	6.0 mgd
Mechanical Bar Screen	1	1/4-inch openings	8.4 mgd	8.4 mgd
Manual Bar Screen	1	1-inch openings	8.4 mgd	8.4 mgd
Grit Removal	1		8.4 mgd	8.4 mgd
Facultative Lagoon	1	Convert to Equalization basin	Reduce PHF to 4.2 mgd	Reduce PHF to 6 mgd
Influent Flow Meter	1	12-inch Parshall Flume	10.4 mgd	10.4 mgd
Existing Oxidation Ditch (800,000 gallons existing)	1	OLR = 15 lbs/d/1000ft <sup>3</sup> HRT = 24 Hours	1.9 mgd	1.9 mgd
New Oxidation Ditch (1,100,000 gallons)	1	OLR = 15 lbs/d/1000ft <sup>3</sup> HRT = 24 Hours		
Final Clarifiers	2	SOR = 900 gpd/ft <sup>2</sup> SLR = 32.6 lb/d/ft <sup>2</sup>	4.2 mgd	6.0 mgd
RAS/WAS Pumps	2	50-150% of 1.9 mgd	2.9 mgd	2.9 mgd
Postaeration Tank	1	7.0 mg/L DO	8.4 mgd	8.4 mgd
Effluent Flow Meter	1	12-inch flume nested in existing 24-inch Parshall flume	10.4 mgd	10.4 mgd
UV Disinfection	2	Low pressure, High intensity 2 UV banks/channel 3 UV modules/bank 65% transmittance @ 253.7nm	4.2 mgd	Expand to 6.0 mgd
Non-potable Water System	2	200,000 gpd usage	150 gpm @ 65 psi	150 gpm @ 65 psi
Effluent Pump Station and Force Main	3	1,400 gpm per pump, 30” force main and approx. 11 miles long	3 pumps with total capacity of 4.2 mgd	4 pumps with total capacity of 6.0 mgd

Table 8.03-2 Alternative C–Unit Process Design Criteria

**8.04 PROJECTED COSTS**

**A. Phase 1 La Grange WWTP Expansion Probable Construction Cost**

The overall wastewater treatment Alternatives B and C previously discussed are evaluated in Table 8.04-1 with respect to the costs associated with each alternative. Monetary evaluations were conducted for the two Phase 1 alternatives to determine the least cost alternative based on the present worth of the projected construction cost and annual operation and maintenance cost. The total project cost includes 7 percent for general conditions, such as bonds and insurance, and 30 percent for contingencies and technical service. Table 8.04-1 presents the Phase 1 probable construction cost for the two evaluated alternatives. The detailed opinion of probable construction cost for each alternative is included in Appendix F. All costs were generated in first quarter 2011 dollars.

<b>Phase 1 LaGrange WWTP Expansion</b>	<b>Construction Cost Opinion<sup>2</sup></b>	<b>Total Project Cost<sup>1,2</sup></b>
Alternative B: Expand the La Grange WWTP to 1.9 mgd with existing discharge location.	\$3,957,000	\$5,144,000
Alternative C: Expand the La Grange WWTP to 1.9 mgd with Ohio River discharge.	\$11,442,000	\$14,875,000

<sup>1</sup>Includes 7% Bonds and Insurance plus 30% Construction Contingency and Technical Services.  
<sup>2</sup>First Quarter 2011 dollars.

**Table 8.04-1 Opinion of Probable Cost for the Phase 1 Expansion of La Grange WWTP<sup>2</sup>**

**B. Future La Grange WWTP Expansion Probable Construction Cost**

Table 8.04-2 presents the probable construction cost for the future expansion of the LaGrange WWTP according to each evaluated alternative. The detailed opinion of construction cost for each alternative is included in Appendix F. All costs were generated in first quarter 2011 dollars.

<b>Future LaGrange WWTP Expansion</b>	<b>Construction Cost Opinion<sup>2</sup></b>	<b>Total Project Cost<sup>1,2</sup></b>
Alternative B: Expand the La Grange WWTP to 1.9 mgd with existing discharge location.	\$987,000	\$1,283,000
Alternative C: Expand the La Grange WWTP to 1.9 mgd with Ohio River discharge.	\$251,450	\$327,000

<sup>1</sup>Includes 7% Bonds and Insurance plus 30% Construction Contingency and Technical Services.  
<sup>2</sup>First Quarter 2011 dollars.

**Table 8.04-2 Opinion of Probable Cost for the Future Expansion of La Grange WWTP<sup>2</sup>**

It was assumed the future expansion of La Grange WWTP will happen ten years after the Phase 1 expansion. The analysis utilizes the effective structural life of 40 years and equipment and electrical instrumentation effective life of 20 years. The planning period was assumed to be 20 years and the discount rate of 5 percent was used for the present worth calculation.

C. La Grange WWTP Expansion Operation and Maintenance Cost

O&M costs used prior were considered as they differ among the two expansion alternatives.

Since the horsepower and equipment cost differ with each alternative, these two factors were considered independently for the each alternative. Electrical costs were assumed to be \$0.05 per kWh, while the equipment maintenance costs were assumed to be 7 percent of the installed equipment cost. Labor costs were assumed to be \$35 per hour (including benefits and vacation). It is assumed that two operators or 4,000 hours of labor each year would be needed in Alternatives B and C. Table 8.04-3 presents the opinion of probable O&M cost for the expansion alternatives at La Grange WWTP.

	<b>Alternative B</b>	<b>Alternative C</b>
Electrical Cost	\$302,000	\$348,000
Equipment Maintenance Cost	\$227,000	\$202,000
Labor Cost	\$140,000	\$140,000
Chemical Cost	\$80,000	
Increase in Sludge Production Cost	\$20,000	
<b>Total Annual WWTP O&amp;M Cost</b>	<b>\$769,000</b>	<b>\$690,000</b>

**Table 8.04-3 Opinion of Probable WWTP O&M Cost of Alternatives**

Alternative B includes chemical addition for phosphorus removal. The addition of chemical to precipitate phosphate will increase the sludge volume. The sludge volume would increase by an estimated 10 percent of sludge production over operation of a WWTP without chemical phosphorus removal. The cost of chemical addition and the cost of additional sludge generation are considered in the Alternative B annual O&M cost.

The significance of chemical costs and additional sludge generation may prompt La Grange Utilities Commission to operate the La Grange WWTP in a mode that encourages enhanced biological phosphorus uptake and reduces the chemical addition and chemical sludge generation. The proposed design recommends the flexibility to allow this feature to be added in the future.

D. Present Worth Cost-Effective Analysis

Table 8.04-4 summarizes a cost-effective analysis (total present worth) for the two proposed alternatives to expand the La Grange WWTP.

La Grange WWTP Phase 1 Expansion Costs		Alternative B	Alternative C
	Structure, Building, Piping	\$2,761,000	\$12,244,000
	Equipment and Electrical Instrumentation	\$2,383,000	\$2,630,000
	Subtotal Phase 1 Construction Cost	<b>\$5,144,000</b>	<b>\$14,874,000</b>
La Grange WWTP Future Expansion Costs (Year 10)			
	Structure, Building, Piping	\$430,900	\$78,000
	Equipment and Electrical Instrumentation	\$852,900	\$249,000
	Subtotal Future Construction Cost	\$1,283,800	\$327,000
	Present Worth of Future Construction Cost	<b>\$788,000</b>	<b>\$201,000</b>
Salvage Values			
	Salvage Value in 20 years	(\$2,130,000)	(\$6,305,000)
	Present Worth of Salvage Value	<b>(\$803,000)</b>	<b>(\$2,376,000)</b>
O&M Costs			
	Annual O&M Cost	\$769,000	\$690,000
	Present Worth of O&M for 20 years	<b>\$9,584,000</b>	<b>\$8,599,000</b>
	<b>Total Present Worth<sup>1</sup></b>	<b>\$14,713,000</b>	<b>\$21,298,000</b>

<sup>1</sup>20 years, 5% discount rate.

**Table 8.04-4 Total Present Worth of La Grange WWTP Expansion Alternatives**

Overall, Alternative B costs the least because the original design included most of the features necessary for expansion. Alternative C yields the highest cost because of the significant cost of the effluent pump station and force main.

### 8.05 EVALUATION OF NONMONETARY FACTORS

The cost-effective analysis in Section 8.04 considers only cost implications of each alternative. In addition to monetary costs, other factors should be considered in evaluating alternatives. These factors are often called nonmonetary factors and they can influence the selection of an alternative. The nonmonetary factors considered are ability to implement, environmental impact, engineering evaluation, public support, and regionalization.

The two alternatives are compared with respect to these factors in the following discussion. Table 8.05-1 presents an overview of this nonmonetary evaluation.

Nonmonetary Factor	Alternative B–Expand existing WWTP and discharge to Currys Fork	Alternative C–Expand existing WWTP and discharge to Ohio River
Ability to Implement	+1	0
Environmental Impact	+1	-1
Engineering Evaluation	+1	+1
Public Support	+1	+1
Regionalization	0	+1
<b>Total</b>	<b>+4</b>	<b>+2</b>

Note: “+1” indicates alternative is favorable with respect a given evaluation factor, “0” indicates a neutral ranking, and “-1” indicates alternative is unfavorable with respect a given evaluation factor.

**Table 8.05-1 Evaluation of Nonmonetary Factors**

A. Ability to Implement

Alternative B is judged most favorable in the ability to implement because it can be placed within the existing La Grange WWTP site. Alternative C is judge neutral in the ability to implement because of the long effluent force main. The effluent force main in Alternative C will need to cross the interstate 71 and the railroad to reach the discharge point at the Ohio River and will create more coordination issues during the construction. Easements for the effluent force main will also be an issue to consider.

B. Environmental Impact

Alternative B is judged most favorable in the environmental impact because it will be constructed within the existing site and will have minimal impact to the environment. The measures for Alternative B will be easily taken during the construction to minimize noise, dust, truck traffic, and stormwater runoff. However, environmental impact of Alternative C will be more significant because of the long force main construction mostly resulting from the stormwater runoff and archaeological and biological concerns. Therefore, Alternative C was judged negative for environmental impact issues.

C. Engineering Evaluation

The same design criteria were used for developing and evaluating the treatment processes for both alternatives. Both alternatives were judged reliable, and there are no significant differences in engineering issues between them.

D. Public Support

The public has supported providing sewer and wastewater treatment throughout the planning area. A public meeting will be arranged with interested citizens to hear their input and recommendations. No significant difference in public support between the two alternatives is anticipated. The public hearing is required as a part of the RFP. The Louisville Water Company has expressed concern over a new outfall to the Ohio River since its water treatment plant is located downstream. A letter from the Louisville Water Company encouraging LUC to select Alternative B is included in Appendix E.

E. Regionalization

The existing La Grange WWTP site has adequate land available for the future expansion. There is no significant difference between the two alternatives in terms of the future expansion or the ability to provide for future regionalization. Alternative C may allow sharing of capacity in the effluent force main with Oldham County Environmental Authority.

## 8.06 RECOMMENDED WWTP ALTERNATIVE

Based on the monetary and nonmonetary evaluations, Alternative B, expand the La Grange WWTP to 1.9 mgd and discharge into the unnamed tributary of North Curry's Fork, is the recommended alternative. This alternative has the lowest capital cost, lowest present worth cost, and best nonmonetary features.

## 8.07 PUMP STATION, FORCE MAIN, AND INTERCEPTOR SEWER UPGRADES

There are three components of the La Grange sewer collection system at or near capacity during peak flow conditions: 1) the Madison Street Pump Station and force main; 2) the interceptor sewer from the north side of I-71 to the South Pump Station; and 3) the South Pump Station. These three facilities will need to be upgraded in capacity, to avoid sanitary sewer overflows, if the community continues to grow.

The existing 350 gpm Madison Street Pump Station is proposed to be replaced with a new 550 gpm duplex pump station. The pumps will be sized for a future increase in capacity to 1000 gpm. The new pump station will be across Madison Street from the existing pump station. Part of the existing pump station force main is 6-inch and the remainder is 8-inch. The 630 feet of 6-inch force main will be replaced with a new 8-inch force main. The pump station upgrade cost opinion is \$256,000 as shown in Table 8.07-1.

Construction Items	Cost
Wet well and valve vault	\$50,000
Excavation	20,000
Site piping	15,000
Pumps and controls	60,000
Control building	15,000
Force main upgrade	30,000
Telemetry	15,000
Engineering, etc.	51,000
<b>Total Cost Opinion</b>	<b>\$256,000</b>

**Table 8.07-1 Madison Street Pump Station Replacement**

The existing 15-inch interceptor sewer from the north side of I-71 to the South Pump Station on the south side of I-71, has a capacity of 2200 gpm. This interceptor will be replaced with a new 24-inch interceptor with a capacity of 6800 gpm. The interceptor upgrade cost opinion is \$694,000 as shown in Table 8.07-2.

Construction Items	Cost
Install 350-foot 24-inch PE in existing tunnel @ \$600 per linear foot.	\$210,000
1,750-foot 24-inch PVC sewer @ \$140 per linear foot	245,000
10 5-foot manholes @ \$5,000 each	50,000
Temporary pumping	50,000
Engineering, etc.	139,000
<b>Total Cost Opinion</b>	<b>\$694,000</b>

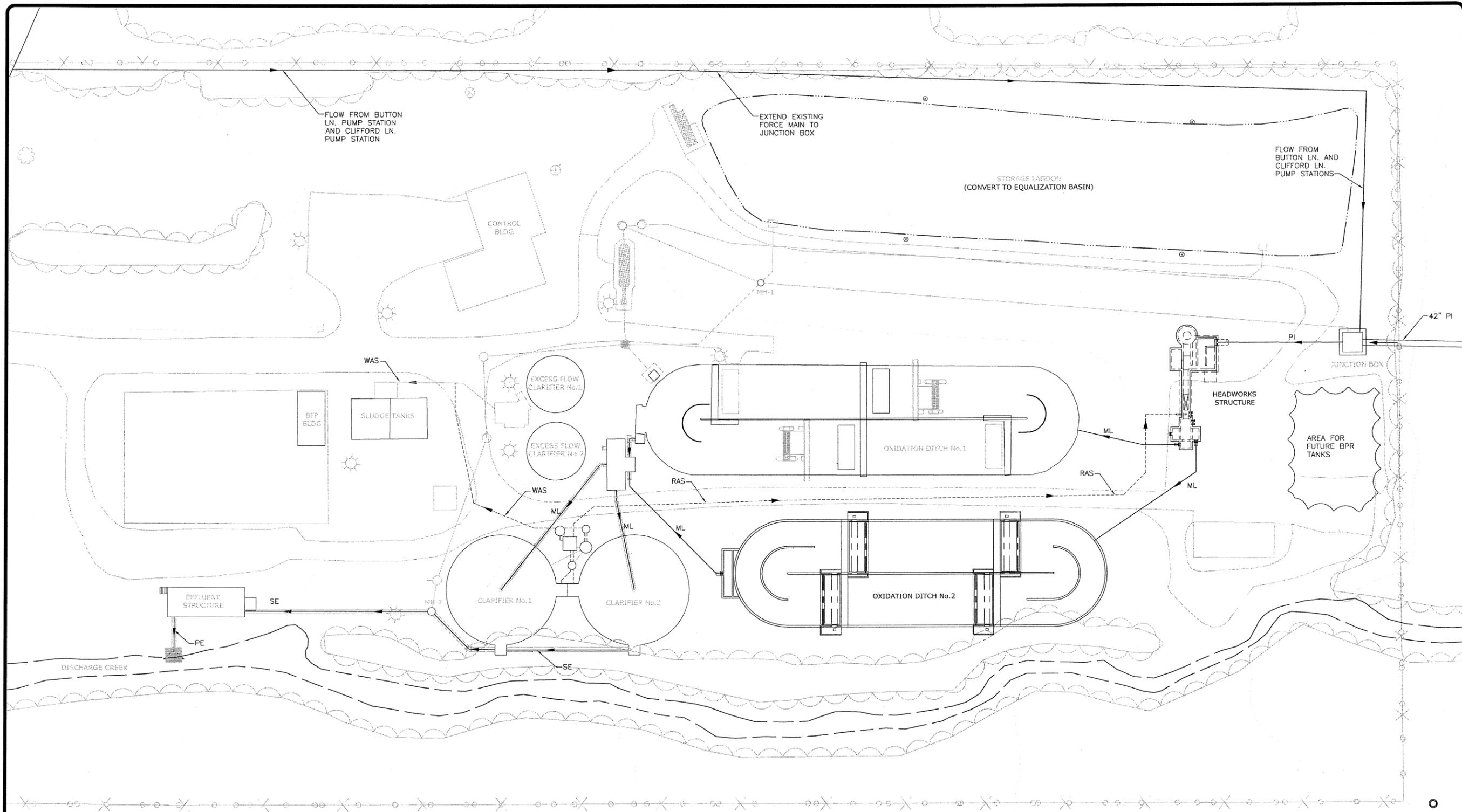
**Table 8.07-2 I-71 Interceptor Upgrade**

The existing South Pump Station has a current capacity of 1200 gpm. It will be replaced with a new triplex pump station, adjacent to the existing pump station, with a capacity of 2000 gpm. The existing 12-inch force main will be used with the new pump station. At some future date a new parallel 16-inch force main will also be built. At that time, the South Pump Station pumps will be modified to increase the pumps capacity to 5700 gpm. The cost opinion for the new South Pump Station is \$688,000 as shown in Table 8.07-3.

Construction Items	Cost
Wet well and valve vault	\$110,000
Excavation	30,000
Station pumping	75,000
Pumps and controls	190,000
Electrical	20,000
Control building	30,000
Site work	15,000
Generator	80,000
Engineering, etc.	138,000
<b>Total Cost Opinion</b>	<b>\$688,000</b>

**Total 8.07-3 South Pump Station Replacement**

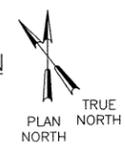
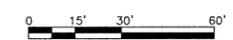
Total cost opinion for the above pump station, force main, and interceptor upgrades is \$1,638,000. It is planned to have these improvements completed by 2014. The locations of the proposed upgrade projects are shown on Figure 8.07-1.



**FLUID ABBREVIATIONS**

A	-	AIR	PW	-	POTABLE WATER
D	-	DRAIN	R	-	RECYCLE
FE	-	FILTER EFFLUENT	RAS	-	RETURN ACTIVATED SLUDGE
FI	-	FILTER INFLUENT	RW	-	RAW WASTEWATER
ML	-	MIXED LIQUOR	SCM	-	SCUM
NPW	-	NON-POTABLE WATER	SA	-	SAMPLE
PE	-	PLANT EFFLUENT	SE	-	SECONDARY EFFLUENT
PI	-	PLANT INFLUENT	SPD	-	SUMP PUMP DISCHARGE
PS	-	PLANT SANITARY SEWER	V	-	VENT
STS	-	STORM SEWER	WAS	-	WASTE ACTIVATED SLUDGE

**ALTERNATIVE B - LA GRANGE WWTP SITE LAYOUT FOR 1.9 MGD EXPANSION**  
 (EXISTING DISCHARGE TO UNNAMED TRIBUTARY OF NORTH CURRY'S FORK)



NO.	REVISIONS	DATE:

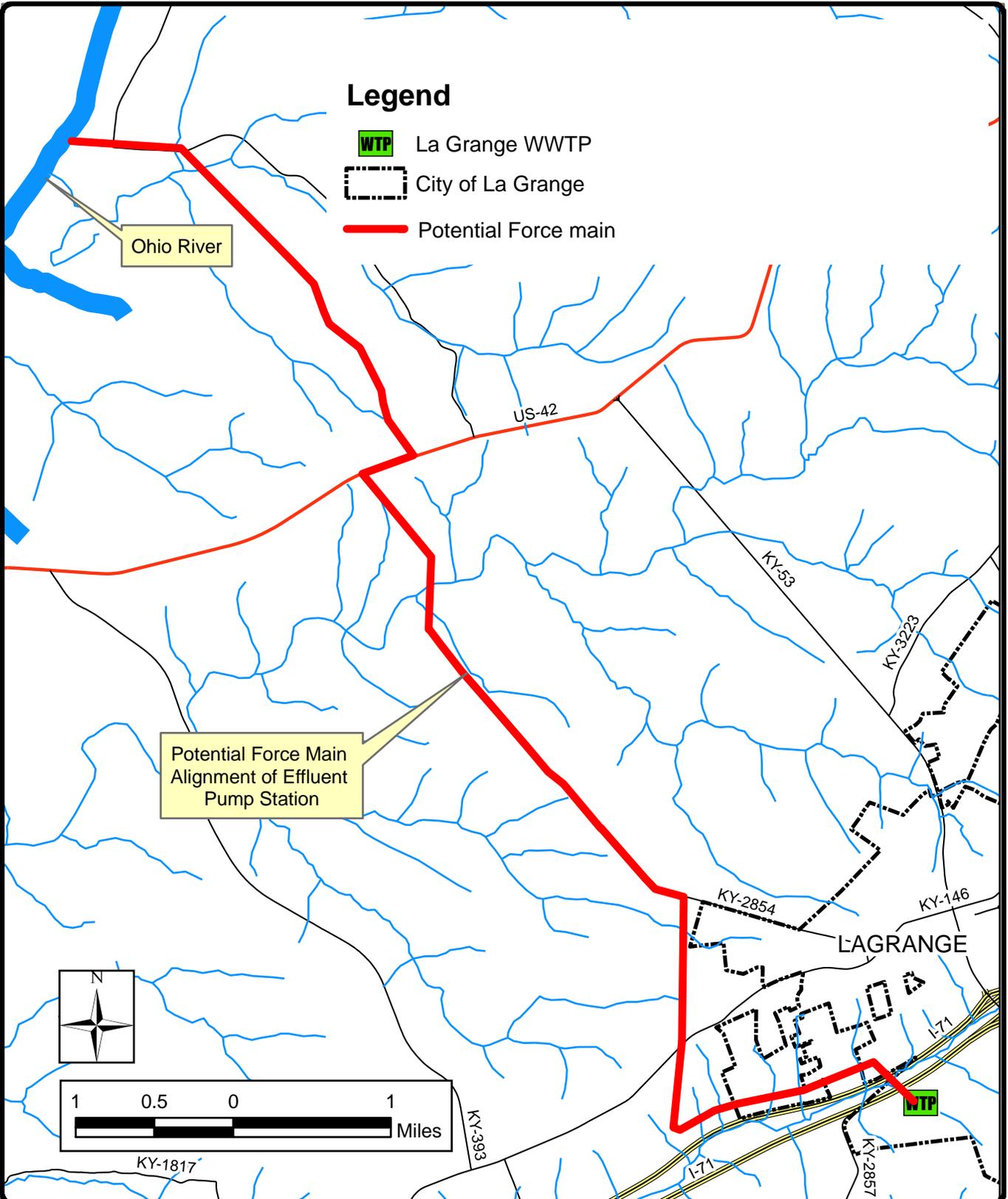
DATE: DECEMBER, 2006  
 DES BY: CHK BY: MAS  
 RECORD DRAWING  
 BY: DATE: CONTRACTOR:

**LA GRANGE WWTP SITE LAYOUT PLAN  
 FOR EXPANSION TO 1.9 MGD**

LA GRANGE UTILITIES COMMISSION  
 LA GRANGE WWTP FACILITIES PLAN  
 COUNTY OF OLDHAM, KENTUCKY



**FIGURE No.**  
**8.03-1**  
 JOB NO. 5-956.016



**ALTERNATIVE C - POTENTIAL FORCE MAIN ALIGNMENT**  
**LA GRANGE UTILITIES COMMISSION REGIONAL FACILITIES PLAN**  
**LA GRANGE UTILITIES COMMISSION**  
**LA GRANGE, KENTUCKY**



**FIGURE 8.03-2**  
**5-956-016**



**SECTION 9**  
**CROSS-CUTTER CORRESPONDENCE AND MITIGATION**

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### **9.01 UNITED STATES FISH AND WILDLIFE SERVICE REVIEW**

A letter was sent to the United States Fish and Wildlife Service (USFWS) on June 22, 2011, requesting a review of the significant concerns for local fish and wildlife resources or habitat with the proposed projects. A copy of the letter sent to the USFWS is included in Appendix G.

### **9.02 KENTUCKY DEPARTMENT OF FISH AND WILDLIFE RESOURCE REVIEW**

A letter was sent to the Kentucky Department of Fish and Wildlife Resources (KDFWR) on June 22, 2011, requesting a review of the significant concerns for local fish and wildlife resources or habitat with the proposed projects. A copy of the letter sent to the KDFWR is included in Appendix G.

### **9.03 KENTUCKY HERITAGE COUNCIL REVIEW**

A letter was sent to the Kentucky Heritage Council (KHC) on June 22, 2011, requesting a review of the significant cultural or historical concerns with the proposed projects. A copy of the letter sent to the KHC is included in Appendix G.

### **9.04 UNITED STATES ARMY CORPS OF ENGINEERS REVIEW**

A letter was sent to the United States Army Corps of Engineer (USACE) on June 22, 2011, requesting a review of the significant concerns for wetlands and other jurisdictional interests for the proposed projects. A copy of the letter sent to the USACE is included in Appendix G.

### **9.05 NATURAL RESOURCE CONSERVATION SERVICE REVIEW**

A letter was sent to the Natural Resource Conservation Service (NRCS) on June 22, 2011, requesting its review of significant concerns over agricultural resources as a result of the recommended plan. A copy of the letter sent to NRCS is included in Appendix G.

### **9.06 KENTUCKY CLEARINGHOUSE REVIEW**

In addition to the agencies listed above, the KDOW will prepare a State Planning and Environmental Assessment Report (SPEAR) that is distributed to the following agencies:

- Kentucky Department of Public Health
- Kentucky Division for Air Quality
- Kentucky Division of Forestry
- Kentucky Division of Waste Management
- Kentucky Division of Waste Water
- Kentucky State Clearinghouse
- Kentucky Geological Survey

Comments received from these agencies will be considered in approval of the RFP.



## 10.01 RECOMMENDED PLAN

The recommended plan will be discussed in short-term (0 to 5 years) and long-term (6 to 20 years) phases. Recommendations and anticipated costs will be discussed in detail below.

### A. Years 0 to 5

The following projects are anticipated to begin construction in the 0- to 5-year time frame. Figure 10.1-1 shows the recommended plan improvements in the 0 to 5 year time frame.

#### 1. La Grange Regional WWTP Expansion

The La Grange WWTP will be expanded to an average daily treatment capacity of 1.9 mgd and equalization peak hourly flow capacity of 4.2 mgd with the existing discharge to unnamed tributary of Curry's Fork (Alternative B). Alternative B was recommended because it has the lowest capital and present worth costs among the alternatives considered. The construction cost opinion for the project is \$3,957,000. Once the construction contingencies and technical services are added, the opinion of probable cost is \$5,144,000. The WWTP expansion is scheduled to be complete by December 31, 2013, in accordance with the Agreed Order.

#### 2. La Grange Collection System Improvements

Improvements to the La Grange collection system in years 0 to 5 will include three components: (1) The Madison Street Pump Station and Force Main upgrade, (2) The interceptor from the north side of I-71 to the South Pump Station upgrade, and (3) the South Pump Station upgrade.

The total cost opinion for the above pump station, force main, and interceptor upgrades is \$1,638,000, including contingencies and technical services. These improvements are planned to be completed by 2014. The locations of the proposed collection system improvement projects are shown on Figure 10.01-1.

### B. Years 6 to 20

#### 1. La Grange WWTP Expansion

The second phase expansion of Alternative B will allow the LaGrange WWTP to treat the higher peak hourly flow (6 mgd equalization flow). The future expansion of La Grange WWTP will include the upgrade of the equalization pump station, the addition of the effluent filters (if needed), and the upgrade of the UV disinfection process. The construction cost opinion for the future expansion project is \$987,000. Once the construction contingencies and technical services are added, the opinion of probable cost is \$ 1,283,000.

## 2. La Grange Collection System Improvements

A new 16-inch force main for the South Pump Station will be built at a future date as additional capacity is required. The new force main will parallel the existing force main. At that time, the South Pump Station pumps will be modified to increase the pumping capacity to 5700 gpm.

### 10.02 ENVIRONMENTAL IMPACTS

Expansion of the La Grange WWTP will have minimal impact on the environment since the construction activities will occur within the existing WWTP site and on previous disturbed land. Proactive measures for the La Grange WWTP expansion will be taken during the construction to minimize noise, dust, truck traffic, and stormwater runoff. Additional requirements for the project resulting from cross-cutter agencies and the clearinghouse will be implemented.

The proposed pump stations will be constructed next to the existing pump stations on previous disturbed soil. The proposed Madison Street force main and South Pump Station interceptor will parallel the existing force main and interceptor on previously disturbed land. Construction of pump stations, force mains, and interceptor will have minimal impact to the environment in the La Grange area. Proactive measures for the collection system improvements will be taken during the construction to minimize noise, dust, truck traffic, and stormwater runoff. Additional requirements for the project resulting from cross-cutter agencies and the clearinghouse will be implemented.

### 10.03 INSTITUTIONAL STRUCTURE

LUC has the authority to prepare and implement this RFP since it addresses the needs within the La Grange Planning Area. A resolution has been obtained from the Oldham County Fiscal Court for the modified planning area boundary.

### 10.04 FUNDING PLAN

To upgrade the LaGrange WWTP and upgrade pump stations and interceptor sewers, as outlined in Section 8, the LUC will need to arrange for \$6,782,000 in project funding. The LUC will request state funds of \$2,000,000 from the Kentucky Legislature. If this legislative grant is forthcoming, it will be necessary for LUC to borrow additional matching funds of \$4,782,000. La Grange could issue revenue bonds or possibly obtain a government loan through Kentucky Infrastructure Authority, the Clean Water SRF program, or USDA Rural Development. If no grant funds are made available, the entire \$6,782,000 project cost will have to be borrowed. During the next two years, La Grange will further investigate sources of funding. For planning purposes, it is assumed that La Grange will borrow either \$4,800,000 or \$6,800,000 through a 20-year revenue bond issue at an interest rate of 4 percent.

**10.05 USER CHARGE**

The current LUC sewer user charge rates are shown in Table 10.05-1. A 4,000 gallon per month sewer customer in La Grange currently pays a monthly sewer bill of \$17.65.

Monthly Water Use (gallons)	Customer Category			
	Residential		Commercial/Multi-user	
	Inside City	Outside City (10% higher)	Inside City	Outside City (10% higher)
Minimum	7.36	8.10	8.49	9.34
First 1,000	1.70	1.88	-----	-----
Next 1,000	2.15	2.38	-----	-----
Next 13,000	3.22	3.54	-----	-----
Over 15,000	2.26	2.49	-----	-----
Rate per 1,000 gal.	-----	-----	3.28	3.61

**Table 10.05-1 Existing Sewer User Charges**

For the current year, sewer revenue is budgeted to be \$932,550, which is expected to just cover current costs of operations, maintenance, replacement, and existing debt service costs for the sewer utility. For the next few years it is projected that operation, maintenance, replacement, and existing debt service costs will remain level. Likewise, it is anticipated that sewer revenue will not increase unless rate increases are adopted.

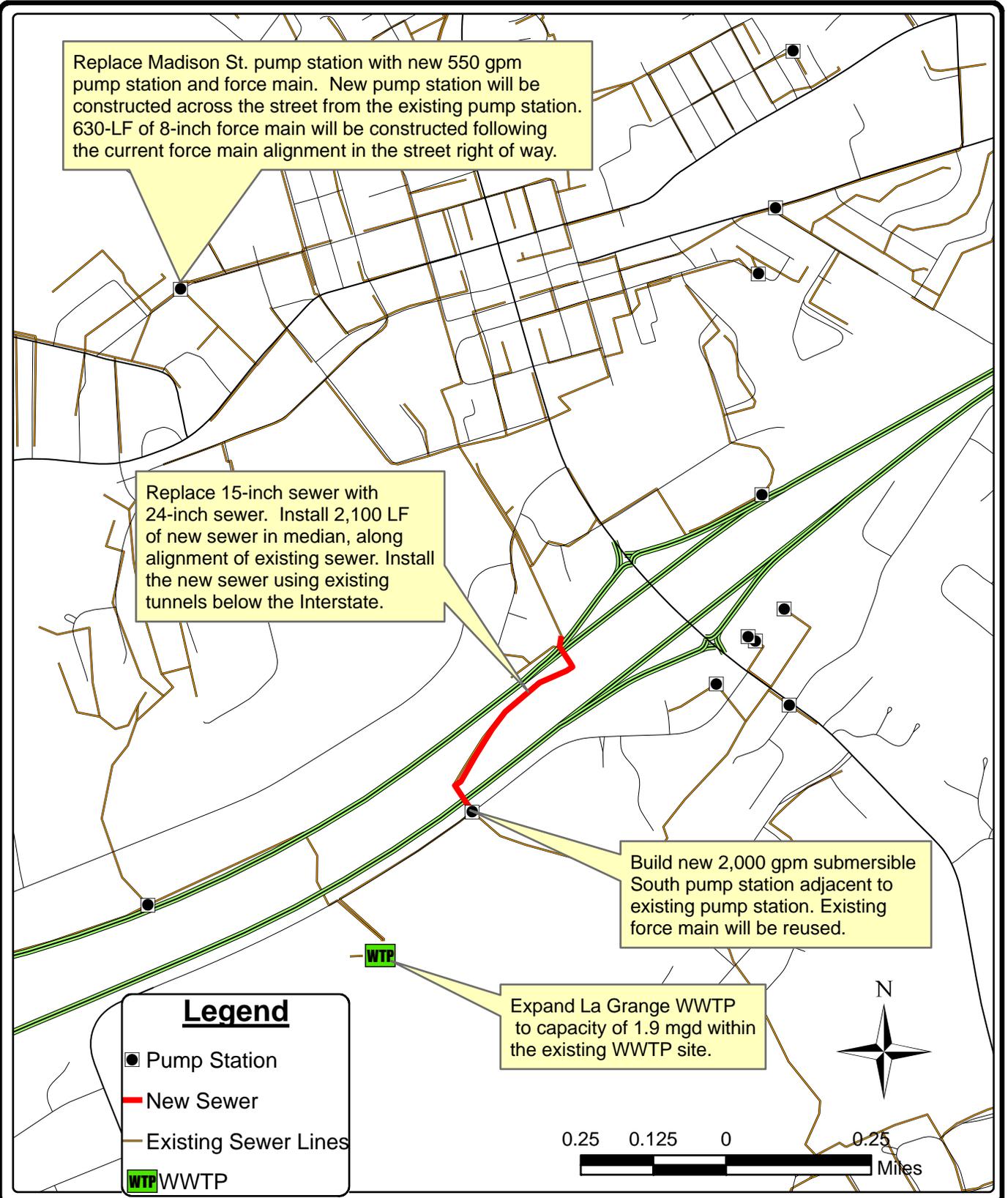
If the LUC funds the improvements outlined in Section 8 with a \$2,000,000 legislative grant and a \$4,800,000 revenue bond issue for 20 years at 4 percent, the debt service will increase by approximately \$355,000 per year. This will require a 38 percent increase in sewer user charges. This will increase the monthly sewer bill for a 4,000 gallon per month customer from \$17.65 to \$24.36.

If no grant funds are available for the improvements, and a \$6,800,000 revenue bond issue at 20 years and 4 percent is used, the debt service will increase by approximately \$500,000 per year. This will require a 54 percent increase in sewer user charges. The monthly bill for a 4,000 gallon per month customer will increase from \$17.65 to \$27.18.

To ease the impact on customers, the LUC intends to implement the required rate increase over three years in equal annual installments. These rate increases require approval from the La Grange City Council.

## 10.06 IMPLEMENTATION SCHEDULE

This recommended plan identifies the capital projects required to operate, maintain, and expand the LUC wastewater system and comply with the Agreed Order. LUC will begin implementation of the 0- to 5-year projects immediately. The projects identified in the 6- to 20-year phase should proceed as the need arises. Figure 10.06-1 shows the schedule for implementing the recommended projects in the 0- to 5-year period.



**RECOMMENDED PLAN (0 TO 5 YEAR)**

**LA GRANGE UTILITIES COMMISSION REGIONAL FACILITY PLAN  
LA GRANGE UTILITIES COMMISSION  
LA GRANGE, KENTUCKY**



**FIGURE 10.01-1  
5-956-016**

FIGURE 10.06-1

Implement Schedule for Recommended Projects in the 0 to 5 Year Period.

Project	Subtask	2011				2012				2013				2014			
		1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
<b>Regional Wastewater Facility Plan Completion and Approval</b>																	
	Final Draft to Public			■													
	Public meeting			■													
	Final Report to KDOW			■													
	Approval Process			■	■												
<b>La Grange WWTP Expansion</b>																	
	Design			■	■	■											
	Approval					■	■										
	Bidding and Award						■	■									
	Construction								■	■	■	■	■				
	Commission												■				
<b>Collection System Improvements</b>																	
	Pump Stations and Interceptors Upgrade																
	Land and Easements			■	■												
	Design				■	■	■										
	Approval						■										
	Bidding							■	■								
	Construction								■	■	■	■	■				
	Commission												■				



## 11.01 PUBLIC HEARING

The approval process for this RFP involves conducting a Public Hearing on the Plan. Citizen comments on the draft plan will be accepted during a 30-day comment period. LUC will address these comments and deliver a final plan to the KDOW for review, comment, and approval.

A public hearing is planned for September 2011, to allow time for comments to be received from Cross-Cutter agencies. The hearing will present the findings of this RFP including its impact to users.

An advertisement for the public hearing will be published in the Oldham Era and posted to the KDOW Public Notice Web site.

The 30-day public comment period will run from September XX, 2011 to October XX, 2011.

The following public participation documents will be included in Appendix H.

1. Copy of the newspaper advertisement.
2. Attendance sheets from the public hearing.
3. Copy of summary report given at the public hearing.
4. Record of public hearing.
5. Copy of public comments and response summary.



## 12.01 COMPLETENESS CHECKLIST AND FORMS

This section includes the completeness checklist from the *Kentucky Division of Water Regional Facility Plan Guidance*, dated 2011. The checklist documents the location of key information within the plan as required by 401 KAR 5:006.

The checklist is included on the following pages.

**APPENDIX A  
AGREED ORDER**

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COMMONWEALTH OF KENTUCKY  
ENERGY AND ENVIRONMENT CABINET  
DIVISION OF ENFORCEMENT  
CASE NO. DOW 100157

**FILED**  
DEC 02 2010  
Office of Administrative Hearings

IN RE: La Grange Waste Water Treatment Plant  
2515 New Moody Lane  
La Grange, Kentucky 40031  
Agency Interest No. 3347  
Activity ID No. ERF 20010001

**AGREED ORDER**

\*\*\*\*\*

WHEREAS, the parties to this Agreed Order, the Energy and Environment Cabinet (hereinafter "Cabinet") and the La Grange Utilities Commission (hereinafter LUC), state:

**STATEMENTS OF FACT**

1. The Cabinet is charged with the statutory duty of enforcing KRS Chapter 224 and the regulations promulgated pursuant thereto.
2. LUC owns and operates a sewage system, as that term is defined in KRS 224.01-1(25), comprised of sewage collection lines (hereinafter "collection system") and a wastewater treatment plant (hereinafter "facility") that provides sewage service to the residents of La Grange, in Oldham County, Kentucky.
3. LUC holds Kentucky Pollutant Discharge Elimination System (KPDES) Permit No. KY0020001, issued by the Cabinet's Division of Water (DOW) on November 16, 2009.
4. On June 10, 2010, an authorized representative of the Cabinet identified the following violations of KRS 224, and the regulations promulgated pursuant thereto at the facility described in paragraph 2 above:
  - a. 401 KAR 5:015, Section 2 – failure to report an overflow/bypass which

resulted in pollution to the waters of the Commonwealth;

- b. 401 KAR 5:065, Section 2(1) – failure to report an overflow/bypass to the Cabinet in a timely manner; and
- c. 401 KAR 5:065, Section 2(1) – failure to conduct flow proportional sampling as required by the facility permit.

5. On June 15, 2010, the Cabinet issued LUC a Notice of Violation (NOV) for the violations described in paragraph 4 above.

6. Representatives of LUC participated in an administrative conference on June 30, 2010, to address the previously noted NOV and admitted all the violations described in this Agreed Order.

**NOW THEREFORE**, in the interest of settling all civil claims and controversies involving the violations described above, the parties hereby consent to the entry of this Agreed Order and agree as follows:

**REMEDIAL MEASURES**

- 7. a. At all times, LUC shall report to the Cabinet all spills, bypass discharges, upset condition discharges or other releases of substances from its facility identified above which would result in or contribute to the pollution of the waters of the Commonwealth, including emergency and accidental releases, in accordance with KRS 224.01-400, and 401 KAR 5:065. LUC shall make its primary reports of the above discharges or releases by telephone to the Louisville Regional Office's telephone number, 502-429-7122 during normal working hours. During off hours, LUC shall call the Cabinet's 24-hour notification telephone number, 800-928-2380 or 502-

564-2380;

- b. At all times, LUC shall provide for proper operation and maintenance of its sewage collection system and facility in accordance with and 401 KAR Chapter 5 and KPDES Permit No. KY0020001;
- c. By June 30, 2011, LUC shall develop and submit to the Division of Enforcement (DENF) for DOW review and acceptance an Inflow/Infiltration Rehabilitation Project (Project) plan to identify and correct Inflow/Infiltration (I/I) within LUC's sewage collection system.

The Project shall:

- Identify all significant sources of I/I into the collection system;
- Contain a compliance schedule and description of corrective actions to be undertaken for correcting all cost effective sources of I/I into the collection system; and
- Contain updated, detailed maps, sketches and schematic diagrams of the current collection system.

If DOW does not accept the written Project, modifications to the plan, including the compliance schedule contained therein, shall be made in accordance with DOW comments. The modified Project shall be resubmitted to DENF within thirty (30) days of receipt of the aforementioned comments from DOW. LUC shall initiate the I/I corrective actions in accordance with the written Project and its approved

compliance schedule not later than one year from the date of DOW's approval. If DOW does not accept the written Project, modifications to the plan, including the compliance schedule contained therein, shall be made in accordance with DOW comments. The modified Project shall be resubmitted to DENF within thirty (30) days of receipt of the aforementioned comments from DOW. LUC shall initiate the I/I corrective actions in accordance with the Project and its approved compliance schedule. LUC shall complete the rehabilitation or modifications set forth in the accepted Project no later than three (3) years from the execution of this Agreed Order.

d. By June 30, 2011, LUC shall develop and submit to DOW for review and approval, a Capacity, Management, Operations and Maintenance (CMOM) self-assessment plan with the following goals:

- Prevent overflows from the sanitary sewer to the extent possible and practicable;
- Manage the assets of LUC inclusive of personnel and equipment to affect a regular maintenance program and be able to respond to emergency overflows of the collection system;
- Develop a system to assess and prioritize maintenance, rehabilitation and replacement activities for the portions of the collection system under operational control of LUC;

- Through effective management, develop and enforce appropriate ordinances that will enhance the performance of the collection system;
  - LUC shall update and implement the CMOM ninety (90) days after receipt of comments/guidance from the Division of Water; and
  - Following implementation of the CMOM, and by December 15 each year thereafter, LUC shall submit annual updates of the CMOM to DOW.
- e. By June 30, 2011, LUC shall submit a Sanitary Sewer Overflow Plan (SSOP) to the Cabinet for review and approval. The SSOP shall include:
- a map of the entire collection system, including the location of any known sanitary sewer overflows (SSOs);
  - Frequency of overflows;
  - Estimate of the annual volume of overflows;
  - Type of overflow (manhole, pump station, overflow pipe, etc.);
  - Receiving stream for the overflow;
  - Immediate area of overflow and downstream land use, including potential for public health concerns;
  - A description of any previous (within the last 5 years), current, or proposed rehabilitation or construction work to remediate or eliminate overflows;
  - A schedule for the elimination of overflows;

- A plan that addresses LUC's approach to eliminating any sources of private I/I, such as down spouts, sump pumps, roof drains, and other illegal connections to the system. The plan shall include a method of enforcement for violations, a schedule to address existing illegal connections, and a plan to prevent future connections; and
- LUC shall actively enforce its Sewer Use Ordinance.

The Cabinet shall review the SSOP and notify LUC of any deficiencies in writing. Failure to develop an acceptable SSOP after three (3) notices of deficiency from the Cabinet shall constitute a violation of this Agreed Order.

f. By June 30, 2011, LUC shall develop and submit a Sewer Overflow

Response Protocol (SORP) to the Cabinet for review and approval. The SORP shall include, but not be limited to:

- An overflow response procedure (designated responders for LUC, response times, cleanup methods, etc.);
- A public advisory procedure;
- A regulatory agency notification procedure; and
- A manhole and pump station inspection schedule

The Cabinet shall review the SORP and notify LUC of any deficiencies in writing. Failure to develop an acceptable SORP after three (3) notices of deficiency from the Cabinet shall constitute a violation of this Agreed

Order.

- g. For the duration of this Agreed Order, there shall be a sewer sanction imposed on LUC. This sanction prohibits sewer line extensions and plumbing connections, with the exception of single family dwellings. No sanctioned activity may occur except in the case of a sewer sanction exemption granted by DOW. LUC may request exemptions to this sanction on a case-by-case basis utilizing a Sewer Sanction Exemption Request Form which will be furnished to LUC. In order to ensure compliance, the Cabinet will evaluate each exemption request and will approve or deny such request consistent with the KPDES permit, 401 KAR Chapter 5, the terms of this Agreed Order and any amendments to this Agreed Order. Service to commercial, retail, multi-family or industrial establishments on existing lines shall require prior written approval. Service to single family dwellings on existing sewer lines is automatically exempted. If an exemption is granted for a sewer line extension, plans and specifications for the extension shall be approved by the DOW. After construction of the project LUC shall not allow wastewater flow in the new line until construction has been certified by a registered engineer as being completed per the approved plans and specifications;
- h. Pursuant to the terms and conditions of the permit, LUC shall:
- By December 31, 2010, develop and implement a Best Management Practices (BMP) Plan;

- Immediately commence with 24 hour composite flow proportional sampling for the parameters noted in the permit; and
  - By December 31, 2010, and pursuant to 401 KAR 5:037, LUC shall submit a site specific Groundwater Protection Plan (GPP).
- i. By June 30, 2011, LUC shall update its 201 Regional Plan to reflect its current boundaries, waste load allocations, and any other information required by DOW;
  - j. By August 1, 2011, and in conjunction with the April 1, 2010, Memorandum of Understanding with the Oldham County Sewer District, LUC shall accept and treat the sanitary waste from the Green Valley Apartments located at 301 Lakewood Drive, La Grange, Ky;
  - k. By December 31, 2013, and contingent upon LUC obtaining the funds, LUC shall have increased the facility design capacity from 0.775 Million Gallons per Day (MGD) to 1.9 MGD to adequately treat the sanitary flow generated within its collection system;
  - l. From the execution date, and for the duration of this Agreed Order, LUC shall submit quarterly progress reports to the Louisville Regional Office and DENF;
  - m. All submittals from LUC required by the terms of this Agreed Order shall be submitted to:

Division of Enforcement  
Attention: Assistant Director  
300 Fair Oaks Lane  
Frankfort, KY 40601

- n. By December 31, 2013, LUC shall be in compliance with KRS 224, and the regulations promulgated pursuant thereto, KPDES Permit No. KY0020001, and this Agreed Order.

**CIVIL AND STIPULATED PENALTIES**

8. LUC shall pay the Cabinet a civil penalty in the amount of three thousand five hundred dollars (\$3,500) for the violations described above. The amount of the civil penalty shall be tendered by LUC to the Cabinet with the return of this signed Agreed Order.

9. LUC shall pay the Cabinet a stipulated penalty in the amount of five thousand dollars (\$5,000) within fifteen (15) days of mailing of written notice from the Cabinet for failure to comply with any remedial measure noted in paragraph 7 herein. This penalty is in addition to, and not in lieu of, any other penalty that could be assessed. The stipulated penalty will be waived upon termination of this Agreed Order, if LUC has complied with all requirements of paragraph 7.

10. If LUC believes the request for payment of a stipulated penalty is erroneous or contrary to law, LUC may request a hearing in accordance with KRS 224.10-420(2). A request for hearing does not excuse timely payment of the penalty. If an order is entered pursuant to KRS 224.10-440 that excuses payment, the Cabinet will refund the payment. Failure to make timely payment shall constitute an additional violation.

11. Payment of a civil or stipulated penalty shall be by cashier's check, certified check, or money order, made payable to "Kentucky State Treasurer" and sent to the attention of Assistant Director, Division of Enforcement, Department for Environmental Protection, 300 Fair Oaks Lane, Frankfort, Kentucky 40601. Note "DOW 100157" on the instrument of payment.

## MISCELLANEOUS PROVISIONS

12. This Agreed Order addresses only those violations specifically described above. Other than those matters resolved by entry of this Agreed Order nothing contained herein shall be construed to waive or to limit any remedy or cause of action by the Cabinet based on statutes or regulations under its jurisdiction and LUC reserves its defenses thereto. The Cabinet expressly reserves its right at any time to issue administrative orders and to take any other action it deems necessary that is not inconsistent with this Agreed Order, including the right to order all necessary remedial measures, assess penalties for alleged violations, or recover all response costs incurred, and LUC reserves its defenses thereto

13. This Agreed Order shall not prevent the Cabinet from issuing, reissuing, renewing, modifying, revoking, suspending, denying, terminating, or reopening any permit to LUC. LUC reserves its defenses thereto, except that LUC shall not use this Agreed Order as a defense.

14. LUC waives its right to any hearing on the matters admitted herein. However, failure by LUC to comply strictly with any or all of the terms of this Agreed Order shall be grounds for the Cabinet to seek enforcement of this Agreed Order in Franklin Circuit Court and to pursue any other appropriate administrative or judicial action under KRS Chapter 224, and the regulations promulgated pursuant thereto.

15. The Agreed Order may not be amended except by a written order of the Cabinet's Secretary or his designee. LUC may request an amendment by writing the Director of the Division of Enforcement at 300 Fair Oaks Lane, Frankfort, Kentucky 40601 and stating the

reasons for the request. If granted, the amended Agreed Order shall not affect any provision of this Agreed Order unless expressly provided in the amended Agreed Order.

16. The Cabinet does not, by its consent to the entry of this Agreed Order, warrant or aver in any manner that LUC's complete compliance with this Agreed Order will result in compliance with the provisions of KRS Chapter 224, and the regulations promulgated pursuant thereto. Notwithstanding the Cabinet's review and approval of any plans formulated pursuant to this Agreed Order, LUC shall remain solely responsible for compliance with the terms of KRS Chapter 224, and the regulations promulgated pursuant thereto, this Agreed Order and any permit and compliance schedule requirements.

17. LUC shall give notice of this Agreed Order to any purchaser, lessee or successor in interest prior to the transfer of ownership and/or operation of any part of its now-existing facility occurring prior to termination of this Agreed Order, shall notify the Cabinet that such notice has been given, and shall follow all statutory and regulatory requirements for a transfer. Whether or not a transfer takes place, LUC shall remain fully responsible for payment of all civil penalties and response costs and for performance of all remedial measures identified in this Agreed Order.

18. The Cabinet agrees to allow the performance of the above-listed remedial measures by LUC to satisfy LUC's obligations to the Cabinet generated by the violations described above.

19. The Cabinet and LUC agree that the remedial measures agreed to herein are facility-specific and designed to comply with the statutes and regulations cited herein. This Agreed Order applies specifically and exclusively to the unique facility referenced herein and is inapplicable to any other site or facility.

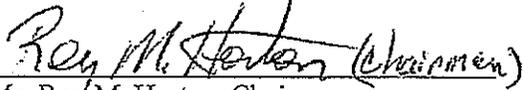
20. Compliance with this Agreed Order is not conditional on the receipt of any federal, state, or local funds.

21. This Agreed Order shall be of no force and effect unless and until it is entered by the Secretary or his designee as evidenced by his signature thereon. If this Agreed Order contains any date by which LUC is to take any action or cease any activity, and the Secretary enters the Agreed Order after that date, then LUC is nonetheless obligated to have taken the action or ceased the activity by the date contained in this Agreed Order.

#### TERMINATION

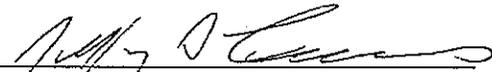
22. This Agreed Order shall terminate upon LUC's completion of all requirements described in this Agreed Order. LUC may submit written notice to the Cabinet when it believes all requirements have been performed. The Cabinet will notify LUC in writing of whether it intends to agree with or object to termination within sixty days of such notice. The Cabinet reserves its right to enforce this Agreed Order, and LUC reserves its right to file a petition for hearing pursuant to KRS 224.10-420(2) contesting the Cabinet's determination.

AGREED TO BY:

  
Mr. Roy M. Horton, Chairman  
La Grange Utilities Commission

10-15-10  
Date

APPROVAL RECOMMENDED BY:

  
Jeffrey A. Cummins, Assistant Director  
Division of Enforcement

11/15/10  
Date

  
Mary Stephens, Attorney Manager  
Office of General Counsel  
Water Legal Section

11-18-10  
Date

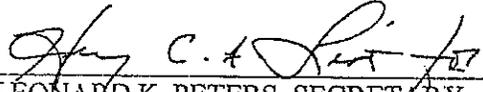
  
C. Michael Haines, General Counsel  
Energy and Environment Cabinet

11-19-10  
Date

ORDER

Wherefore, the foregoing Agreed Order is entered as the final Order of the Energy and Environment Cabinet this 2<sup>nd</sup> day of December, 2010.

ENERGY AND ENVIRONMENT CABINET

  
LÉONARD K. PETERS, SECRETARY

**APPENDIX B**  
**PLANNING AREA CORRESPONDENCE**

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Attn: Mary Ellen

# The Oldham Era

204 S. First Street  
P.O. Box 5  
La Grange, KY 40031  
(502) 222-7183 • Fax: (502) 222-7194

## AFFIDAVIT OF PUBLICATION

I, Lora A. Cable, do hereby certify that I hold the position of Reader Services Manager of The Oldham Era in La Grange, Oldham County, Kentucky and in such position have the responsibility for the publication of a legal advertisement for the Amendment by Fiscal Court for Ordinance KOC 10-830-910 in said newspaper concerning the publication of advertising and that the attached advertisement has been published in all editions of said newspapers on the following dates:

October 21st, 2010

Signed: Lora A. Cable

Lora A. Cable/Reader Services Manager

Subscribed and sworn before me in my presence this

20th day of December, 2010

Mary Ellen  
Notary Public

My commission expires the 11th day of Sept., 2012



## PUBLIC NOTICE

OLDHAM COUNTY FISCAL COURT  
ORDINANCE KOC. \_10-830-910

AN ORDINANCE AMENDING FISCAL COURT ORDINANCE KOC 96-830-26 RELATING TO THE OLDHAM COUNTY SANITATION DISTRICT AND LAGRANGE UTILITIES COMMISSION SERVICE AREAS.

The 2nd reading/public hearing of the above ordinance is scheduled to be held in the Fiscal Court Room located on the 2nd floor of the Fiscal Court Building, 100 West Jefferson Street on November 2, 2010 at 2PM. All interested parties are hereby notified that a copy of the proposed ordinance is available in its entirety for public inspection in the Judge Executive's office during regular business hours and HYPERLINK "http://www.oldhamcounty.net" www.oldhamcounty.net.

Duane Murner  
Oldham County Judge-Executive

502 100SD  
File

COMMONWEALTH OF KENTUCKY  
OLDHAM COUNTY  
ORDINANCE NO. KOC 10-830-910

\*\*\*\*\*

AN ORDINANCE AMENDING FISCAL COURT ORDINANCE 96-830-26 BY REPEAL AND REPLACEMENT OF THE PROVISION THAT DESCRIBES THE EXCEPTION FROM THE SERVICE AREA OF THE OLDHAM COUNTY SANITATION DISTRICT (NOW ENVIRONMENTAL DISTRICT) OF A CERTAIN PORTION OF OLDHAM COUNTY WITHIN THE CORPORATE LIMITS OF THE CITY OF LAGRANGE THAT IS BEING SERVED BY THE CITY OF LAGRANGE UTILITIES COMMISSION.

\*\*\*\*\*

WHEREAS, Oldham Fiscal Court has the authority pursuant to the provisions of KRS Chapters 67, 100, and other applicable law to amend ordinances; and,

WHEREAS, in 1996 acting within the authority granted to it by KRS 220, the Oldham Fiscal Court did establish a Sanitation District by operation of Oldham County Ordinance: 96-830-26, said District comprising the boundary of Oldham County, Kentucky save certain portions of the Cities of Pewee Valley and La Grange; and,

WHEREAS, the City of La Grange has requested this ordinance be amended to more accurately describe the portion Oldham County within the City of La Grange and outside the boundary of the Sanitation District and the Fiscal Court finds that it desirable to do so for the benefit of the persons within that area; and,

WHEREAS, Oldham Fiscal Court did advertise and conduct a hearing on the requested amendment to the Oldham County Ordinance relating to the boundary of the Sanitation District, and Fiscal Court having voted to grant requested amendment at it's regular meeting conducted November 2, 2010.

NOW, THEREFORE, BE IT ORDAINED BY THE FISCAL COURT OF THE COUNTY OF OLDHAM, COMMONWEALTH OF KENTUCKY, THAT:

The following language is hereby deleted from page 2, paragraph 4:

The District boundaries shall follow and be the same as those of Oldham County and include all territory therein, except that the cities of LaGrange and Crestwood shall not be included as part of or within the District boundaries. The following provisions are hereby added to this Ordinance, placing it as paragraph 4 of page 2, and shall read as follows:

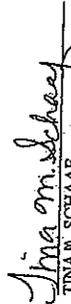
Further, Service area of Oldham County Sanitation District, now known as Oldham County Sewer District, shall not include the LaGrange Utilities Commission wastewater facilities planning and sewer service area, which encompasses the City of LaGrange corporate limits, and as described in the April, 2010 memorandum of understanding (attached hereto) between LaGrange Utilities Commission and Oldham County Sewer District, approved by Fiscal Court resolution on June 1, 2010.

This ordinance shall become effective upon its passage and advertisement according to law.

Dated this 2<sup>nd</sup> day of November, 2010.

  
DIANE MURNEY  
Oldham County Judge/Executive

ATTEST:

  
TINA M. SCHAAF  
Oldham County Fiscal Court Clerk

## MEMORANDUM OF UNDERSTANDING

### LaGrange Utilities Commission and Oldham County Sewer District

This memorandum of understanding is accepted this \_\_\_\_ day of \_\_\_\_\_, 2010 by and between LaGrange Utilities Commission (LUC), and Oldham County Sewer District, (OCSD).

#### **PURPOSE**

- A. LUC owns and operates a collection, transport and treatment system to manage wastewater within a 201 facilities planning and service area (hereinafter referred to as LUC's "Planning Area") which has been approved by the Division of Water, and includes the City of LaGrange corporate limits and contains areas outside the corporate limits.
- B. OCSD regulates wastewater collection and operation of the Green Valley sewage treatment plant near the City of LaGrange corporate limits and within the LUC Planning Area.
- C. Both LUC and OCSD desire to economically pursue cooperative actions necessary to eliminate the Green Valley sewage treatment plant and assure that OCSD pays the same per-customer share of LUC's operation, maintenance and replacement costs as is paid by LUC's other wastewater customers.
- D. OCSD desires that LUC treat wastewater from the Green Valley system and LUC agrees to assist in this endeavor and furnish said treatment at the LUC regional treatment plant.
- E. The terms of this agreement apply only to the Green Valley system, and cannot be extended to any other situation without the written consent of both OCSD and LUC.

Whereas, LUC and OCSD mutually agree to this memorandum of understanding which sets forth respective duties, rights, covenants, and obligations of each party with respect to the Green Valley wastewater system. Now therefore, in consideration of mutual covenants and conditions contained herein and for other good and valuable consideration, the receipt, mutuality and sufficiency of all of which is hereby acknowledged by parties hereto, LUC and OCSD each agree as follows below.

#### **SECTION 1 - OCSD OBLIGATIONS**

OCSD covenants and agrees to accomplish the following obligations:

- A. By proper ordinance of Oldham County Fiscal Court and by formal action by OCSD's board of directors, OCSD will within \_\_\_\_ days after the date of this document relinquish to LUC the portion of OCSD's wastewater service and facilities 201 planning area (excluding the customers (service connections) of the Lakewood Valley sewage treatment plant as they exist on the date above written) necessary to allow the expanded LUC Planning Area shown in Exhibit 1.
- B. Within \_\_\_\_ days after the date of this document, furnish signed original letters and formal resolutions of authority from both OCSD board of directors and Oldham Fiscal Court to the Kentucky Division of Water supporting and approving the expanded LUC Planning Area.
- C. Within a five year period from the date above written, and if requested by LUC, convey free and clear title to all facilities, customers and income of Green Valley wastewater system to LUC upon a mutually acceptable financial arrangement, considering OCSD debt allocation attributed to it.

- D. In accordance with LUC standard specifications and at no cost to LUC design and construct a sewage pump station, force main and flow metering system (which will be owned and operated by LUC at LUC's expense) to convey wastewater from the Green Valley service area to LUC's collector system in GlenEagles Estates subdivision at a mutually agreed location.
- E. Cooperate fully with LUC in order to accomplish the obligations set out in this memorandum of understanding.

## SECTION 2 - LUC OBLIGATIONS

LUC covenants and agrees to accomplish the following obligations:

- A. Treat wastewater flow from Green Valley at the unit rate specified herein (adjusted annually), which shall include operation, maintenance and replacement cost, debt service and sewer connection fees equally distributed to all customers connected to LUC's system.
- B. Provide at LUC's expense adequate capacity at its wastewater treatment plant, contingent upon approval from the Kentucky Division of Water.
- C. Adopt and use the Kentucky Uniform System of Accounting and Cost-Based Rates (KUSoA) and assure that rates and charges for services are based upon the actual cost of providing such service.
- D. Perform and/or cause to be performed at LUC's expense all necessary acts to plan, supervise and manage wastewater treatment including, but not limited to professional services, equipment and/or materials.
- E. Obtain at LUC's expense all necessary permits, licenses and approvals from the appropriate federal, state, and/or local governmental entities.
- F. Comply at LUC's expense with all applicable federal and state statutes, executive orders, regulatory requirements, and policies relating to planning, supervising and managing the system.
- G. Make available to OCSD for review and copying during regular business hours all records needed by OCSD to verify compliance with all applicable laws and regulations and the terms of this agreement.
- H. Cooperate fully with OCSD in order to accomplish obligations set out herein.

## SECTION 3 - Service Charges

LUC shall until \_\_\_\_\_, 2011 charge OCSD \$2.10 per 1,000 gallons of metered flow to collect, transport and treat wastewater generated from the Green Valley system.

This service charge will, at the same time as LUC's other rates, be increased annually by a minimum of 2½ %. Any change in the unit treatment rate above this fixed annual increase shall not exceed the same percent increase approved by the LaGrange City Council for LUC's other wastewater customers, and is subject to OCSD review and approval, which approval shall not be unreasonably withheld. In addition to the annual increase, once every 5 years the rate will be reviewed and adjusted so the rate is based upon the actual cost of providing the service. All billing will be on a monthly basis like all customers connected to the LUC system.

This memorandum sets forth the entire understanding of parties with respect to obligations stated above, and may be modified only by a written instrument duly executed by each of the parties hereto. In witness whereof, the parties hereto have caused this memorandum to be executed by their respective duly authorized officers as of the day and year above written.

**LAGRANGE UTILITIES COMMISSION:**

By: \_\_\_\_\_

Title: Chairman

**ATTEST**

By: \_\_\_\_\_

Title: \_\_\_\_\_

**OLDHAM COUNTY SEWER DISTRICT:**

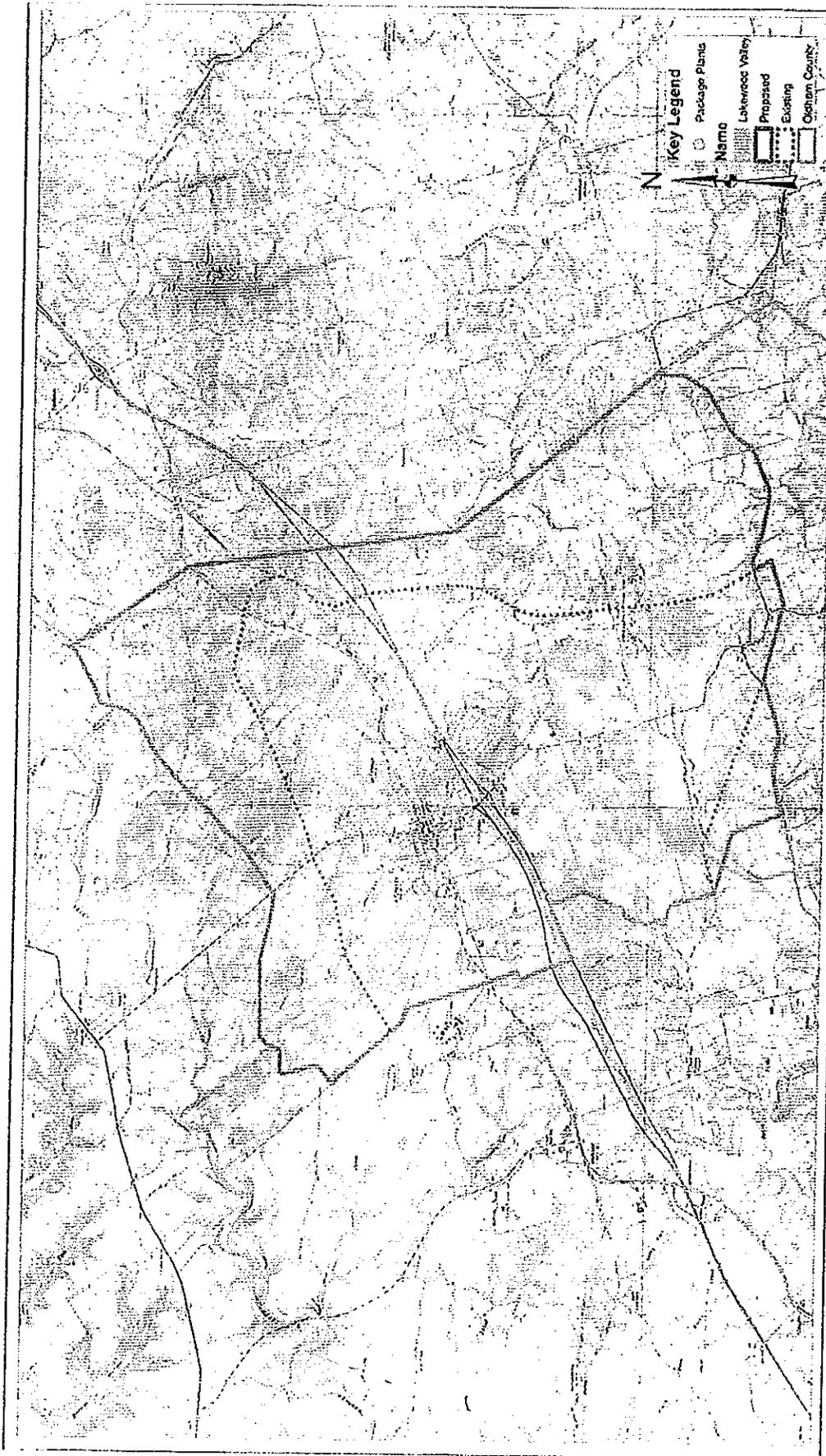
By: *Arace R. Harrod*

Title: Chairman

**ATTEST**

By: \_\_\_\_\_

Title: \_\_\_\_\_



**Key Legend**

- Package Plants
- Name
- ▭ Lakewood Valley
- ▭ Proposed
- ▭ Existing
- ▭ Oglethorpe County



**La Grange Utilities  
Wastewater Facilities Planning Area**

**Existing and Proposed Planning Areas**

Drawn by: [Name]  
Date: [Date]

EXHIBIT 1

**APPENDIX C**  
**EXCERPTS FROM PAST FACILITIES PLANS**

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# 201 BACHMANN'S PLAN

**LA GRANGE,  
KENTUCKY**

**SCHIMPELER-CORRADINO ASSOCIATES  
LOUISVILLE, KENTUCKY**

**October 1979**

### III. NATURAL ENVIRONMENT INVENTORY

### III. NATURAL ENVIRONMENT INVENTORY

#### A. INTRODUCTION

The physical characteristics of the land within the LaGrange 201 area affect the types of development that can occur in the area, the intensity at which the area can be developed, and the spatial distribution or development patterns that can result from these constraints. This chapter of the 201 plan describes the study area by identifying its geographical and environmental components. Its purpose is to provide a data base that can be used in land use analysis, water quality modeling, infiltration/inflow analysis, generation and evaluation of alternatives, and environmental assessment. The chapter is divided into the following sections:

- B. Planning Area, generally describing the study area, its political and hydrologic boundaries, and its receiving waters and streamflow characteristics.
- C. Geophysical Description, including information on climate, topography, soils, geology, groundwater, and floodplains.
- D. Sensitive Environmental Areas, identifying critical areas, such as wooded areas, steep slopes, and historic and archaeological sites, that may place constraints on certain types or intensities of development.
- E. Water Quality Standards, describing the standards currently applicable in the study area.
- F. Present Ambient Air Quality, describing the standards currently applicable in the study area.

#### B. PLANNING AREA

##### 1. Political Boundaries

The study area encompasses approximately 13,800 acres in the east central portion of Oldham County, Kentucky (Figure III-1). The area includes the city of LaGrange, the county seat (Figure III-2), and the unincorporated areas of Ballardsville and Buckner. The city of Louisville is located approximately twenty-four miles southwest of LaGrange.

##### 2. Hydrological Boundaries

The Louisville and Nashville (L&N) Railroad serves as a general boundary separating the two major drainage basins located in the study area. These drainage basins, defined by surface water drainage patterns, are shown in Figure III-3.

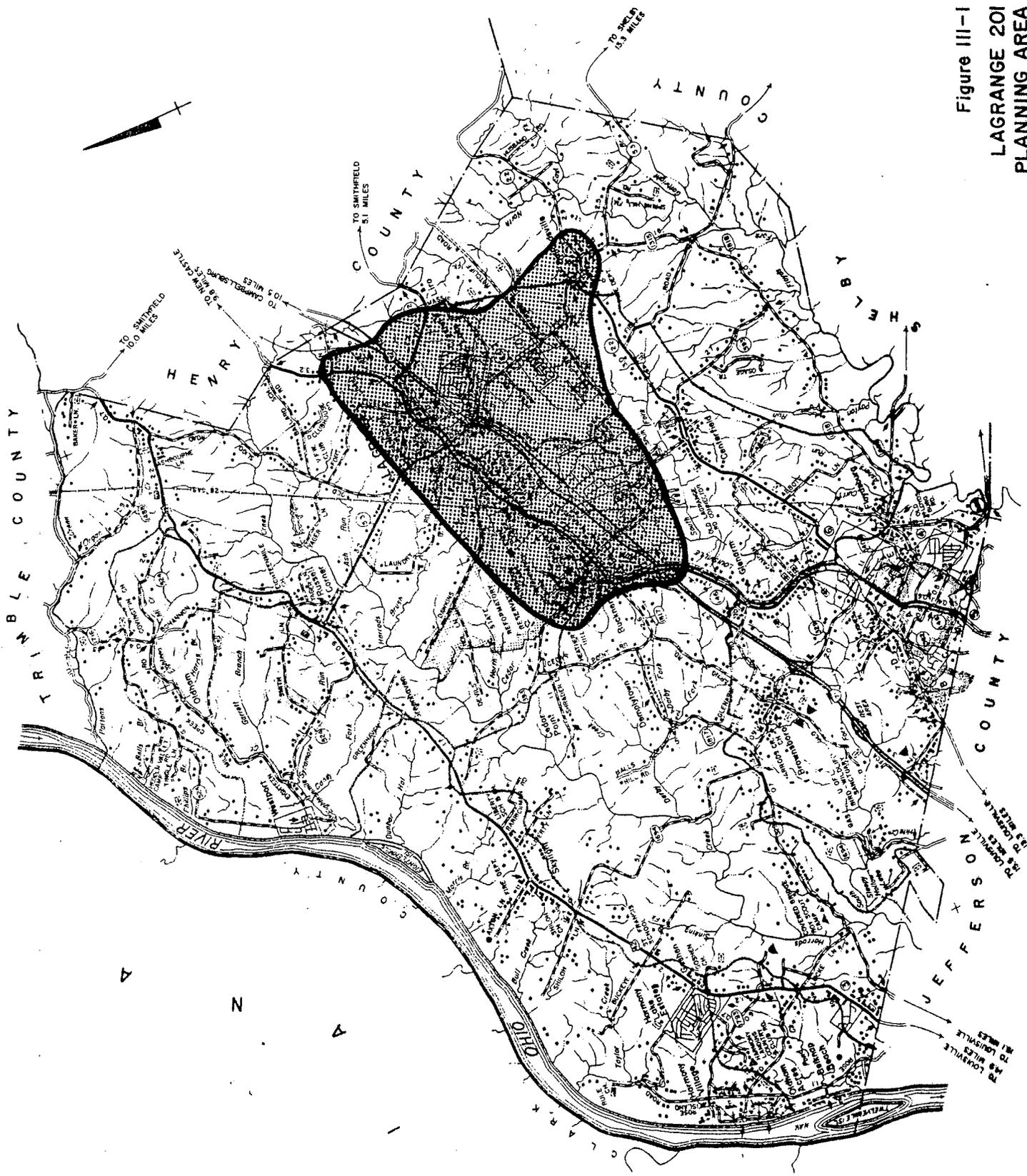


Figure III-1  
LAGRANGE 201  
PLANNING AREA

Source: Kentckiana Regional Planning and Development Agency.

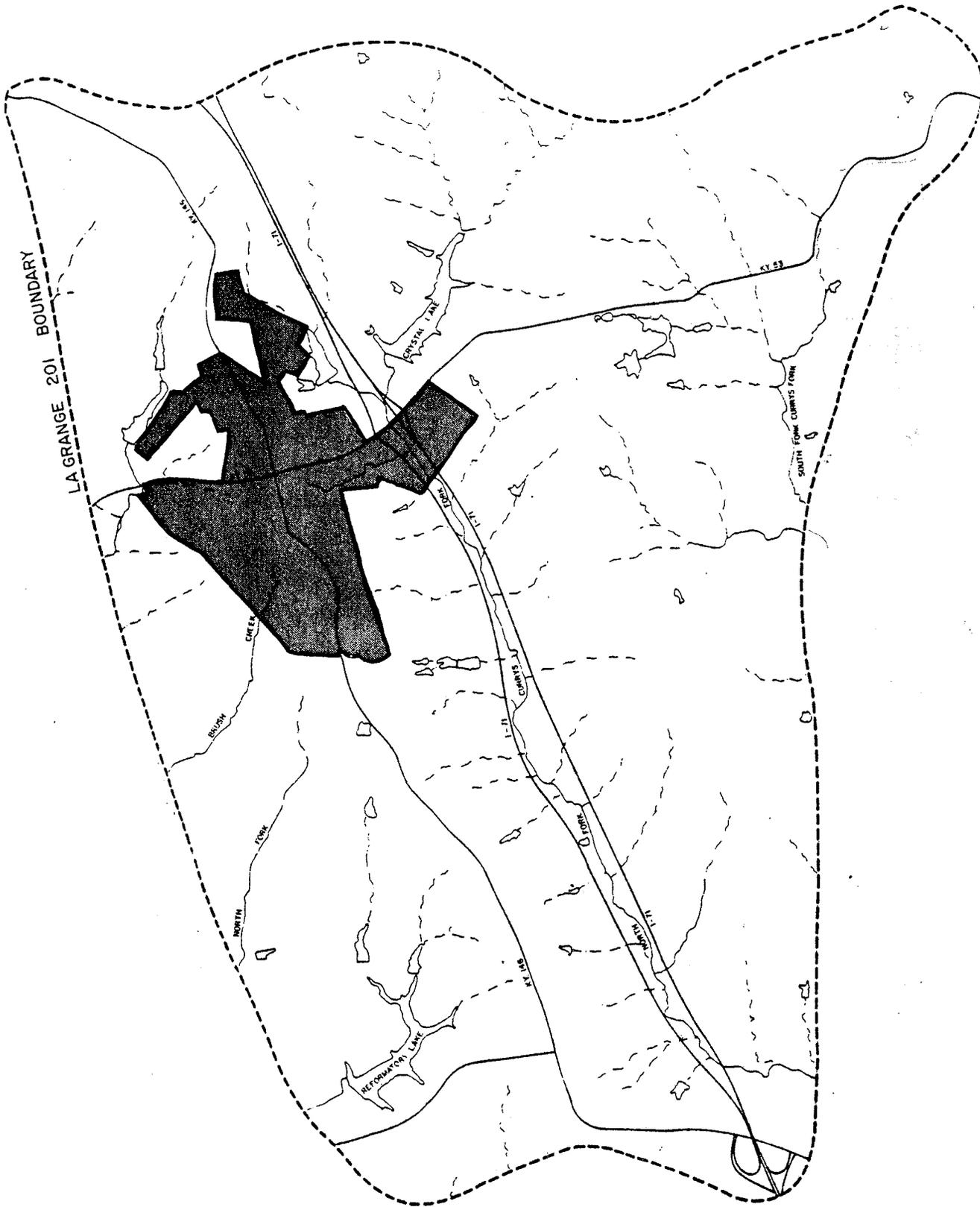


Figure III-2  
LAGRANGE CITY LIMITS

Source: Kentuckiana Regional Planning and Development Agency.

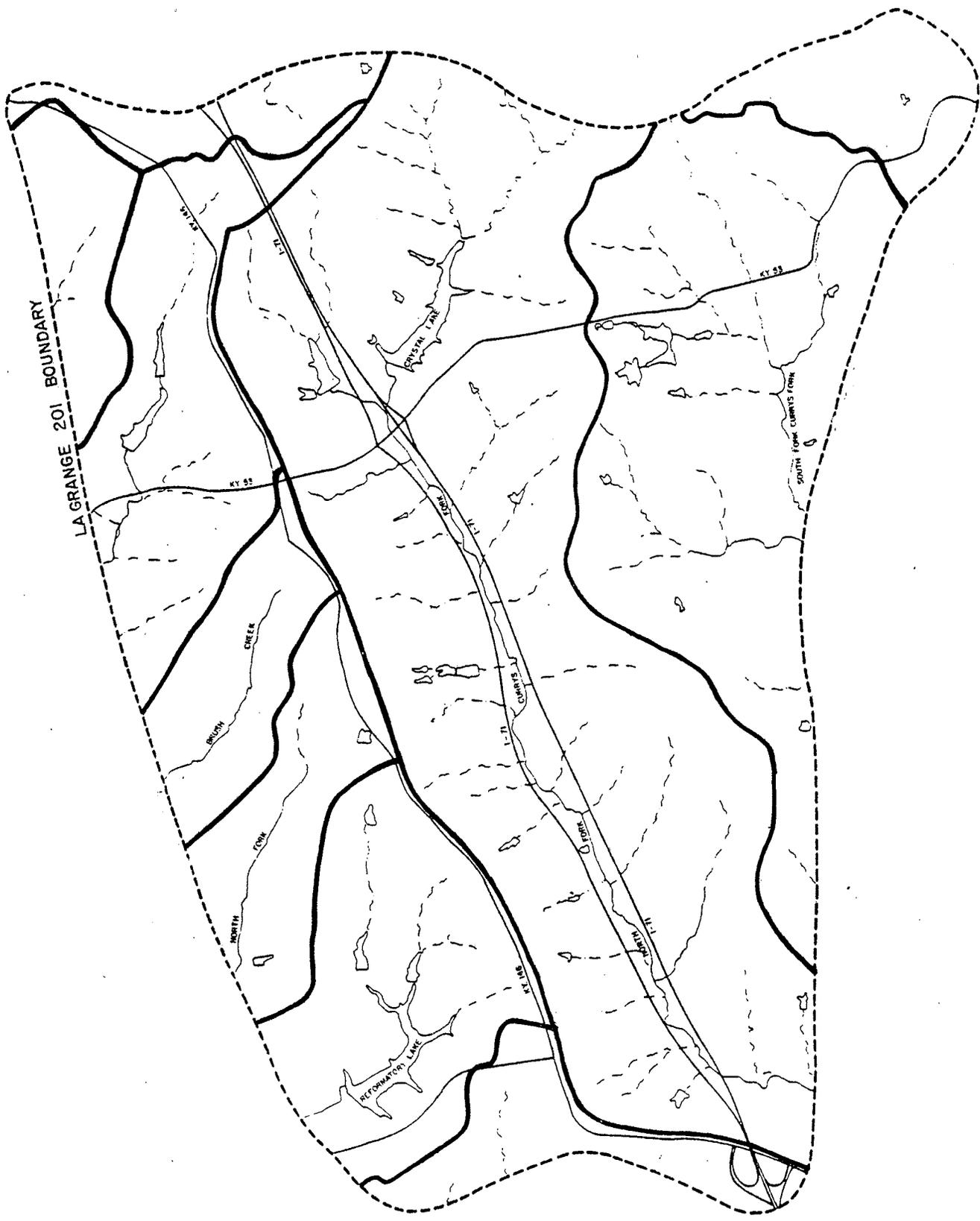


Figure III - 3  
HYDROLOGICAL BOUNDARIES

Source: Kentuckiana Regional Planning and Development Agency.

The area north of the railway lies within the Ohio River drainage basin. Harrods Creek, a major tributary of the Ohio River, receives an easterly flow from this entire area (approximately 4,930 acres, or 36% of the study area). Minor creeks within the study area that drain into Harrods Creek include Cedar Creek, Brush Creek, Ash Run, and Darby Creek.

The southern portion of the study area is included in the Salt River drainage basin. The North and South Forks of Currys Fork are located in this area, and drain directly into Floyds Fork, a major tributary of the Salt River. Approximately 8,850 acres of the study area are within the Salt River basin (see Table III-1).

There are four major lakes or impoundments in the study area; two in each river basin. Reformatory Lake and the LaGrange reservoir flow into Cedar Creek and Brush Creek, respectively, and then into Harrods Creek. Crystal Lake and the L&N Lake are both located at LaGrange, and flow into North Fork, Currys Fork, and then Floyds Fork.

### C. GEOPHYSICAL DESCRIPTION

#### 1. Climate and Topography

The climate of the 201 area varies because of its position in midlatitudes, in the path of cyclonic and anticyclonic storms. The temperature varies generally with the seasons; winters are moderately cold and summers are quite warm. Thunderstorms with high intensities of rainfall are common during the spring and summer months. Precipitation is therefore nonseasonal, and varies from year to year and month to month. March generally has the greatest monthly rainfall and October the least; annual rainfall averages 43 inches. The prevailing wind has a southerly component with an average velocity of under ten miles per hour. Normal monthly temperatures and precipitation are as follows:

<u>Month</u>	<u>Temperature (°F)</u>	<u>Precipitation (inches)</u>
January	33.3	3.53
February	35.8	3.47
March	44.0	5.05
April	55.9	4.10
May	64.8	4.20
June	73.3	4.05
July	76.9	3.76
August	75.9	2.99
September	69.1	2.94
October	58.1	2.35
November	45.0	3.33
December	35.6	3.34

The topography of the area consists generally of small rolling hills, with most of the area in the 750 to 850 feet elevation range. The lowest elevation (700 feet) is in the west-central portion of the study area along the North Fork of Curry Fork; elevations of 900 to 920 feet are found along the eastern edge of the area.

TABLE III-1  
DRAINAGE BASINS

Basin	Drainage Area (Acres)
<u>Ohio River (Harrods Creek)</u>	
Darby Creek	485
Cedar Creek	1,230
North Fork Cedar Creek	690
Brush Creek	535
Brush Creek (LaGrange area)	1,260
Ash Run	365
Harrods Creek	<u>365</u>
Subtotal	4,930
 <u>Salt River (Floyds Fork)</u>	
North Fork Currys Fork	5,725
South Fork Currys Fork	2,590
Floyds Fork	<u>535</u>
Subtotal	8,850
Total	13,780

Source: Kentuckiana Regional Planning and Development Agency.

## 2. Soils and Geology

The 201 area is composed of three soil associations or groups of soils, as shown in Figure III-4. The general descriptions and characteristics of each soil association are given in Table III-2. The Beasley-Nicholson-Fairmount association covers sixty-four percent of the study area, including its entire eastern edge and south-central portion. Infiltration into the sewer system is potentially high because of the moderate soil depth (4 to 8 feet to bedrock) and high water table (1 1/2 to 5 feet to groundwater).

The Crider-Beasley-Corydon association comprises thirty-one percent of the area including the entire northwestern part of the area, the Reformatory grounds, and most of the sewered area in LaGrange. This soil poses moderate septic tank limitations because of its slow permeability and depth to groundwater (3 to 6 feet).

The Crider-Corydon association is situated in the north-central and southwestern portions of the study area and covers five percent of the land. Its relatively deep depth to bedrock and groundwater, and its moderate permeability rate yields only a slight limitation to septic tanks and medium potential for infiltration.

The geologic structure of the area is sharply divided along the North Fork of Currys Fork. Upper Ordovician formations are prominent south of the creek, while Silurian rocks dominate the northern landscape. A thin band of Quaternary alluvium is also present along the banks of Currys Fork (see Figure III-5).

## 3. Groundwater

The relatively shallow depth between the groundwater table and the surface will present potential infiltration/inflow problems for existing and future sewer systems. Most of the area's groundwater resources are found in a network along the streams. These areas, as noted in Figure III-6, produce between 100 and 500 gallons of water per day. The water is hard and, depending on site location and well depth, may contain salt or hydrogen sulfide.

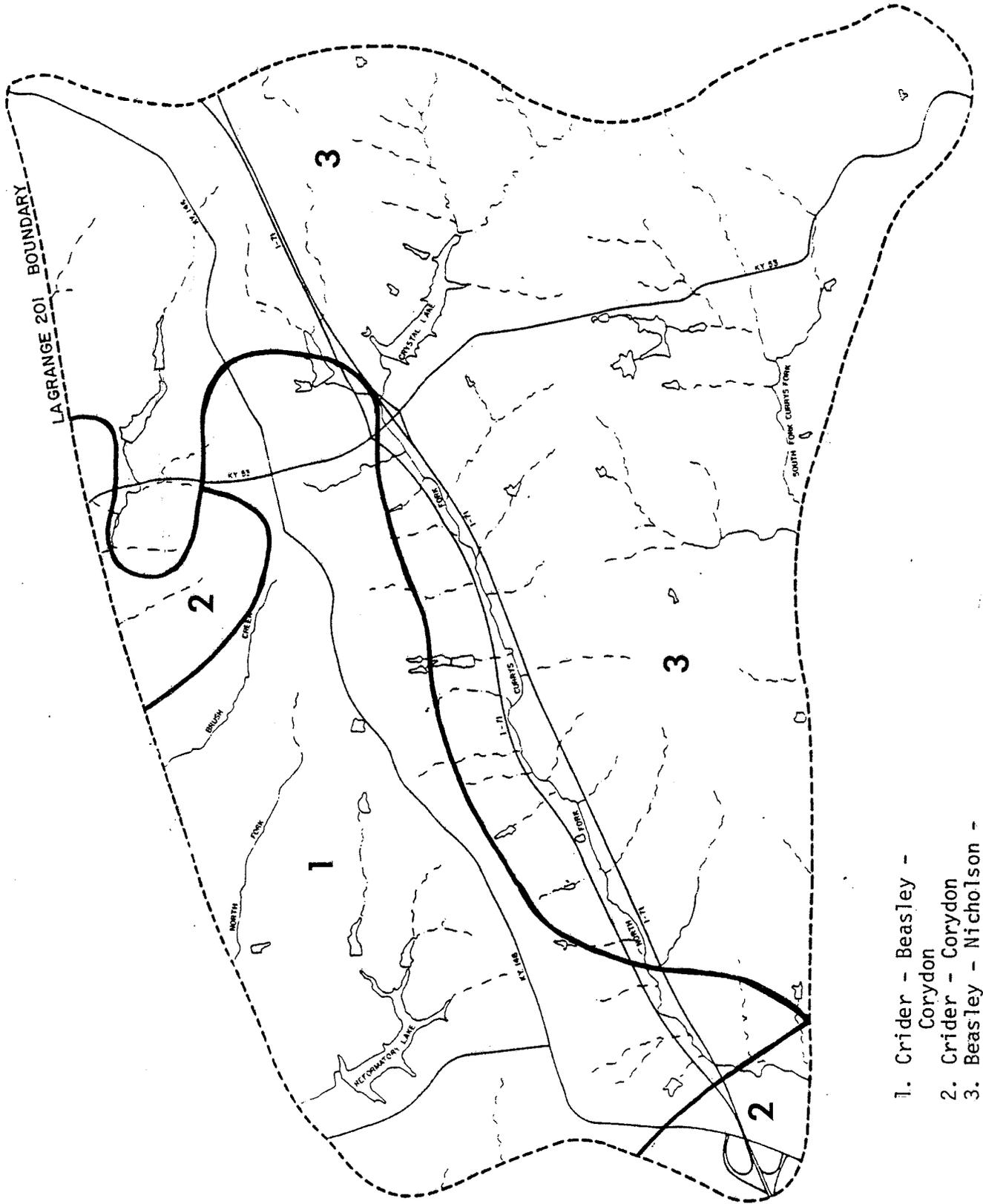
## 4. Floodplains

Minor flooding occurs in Oldham County along the Ohio River, Floyds Fork, and Harrods Creek. Portions of Currys Fork also are inundated during a 100-year flood, but these areas are located below I-71, and include only about 1,000 feet in the extreme southwest corner of the study area.

## D. SENSITIVE AREAS

### 1. Land Use

Major agricultural and recreational areas should be considered as potential impact areas. These areas are identified in the land use plan in



1. Crider - Beasley - Corydon
2. Crider - Corydon
3. Beasley - Nicholson - Fairmount

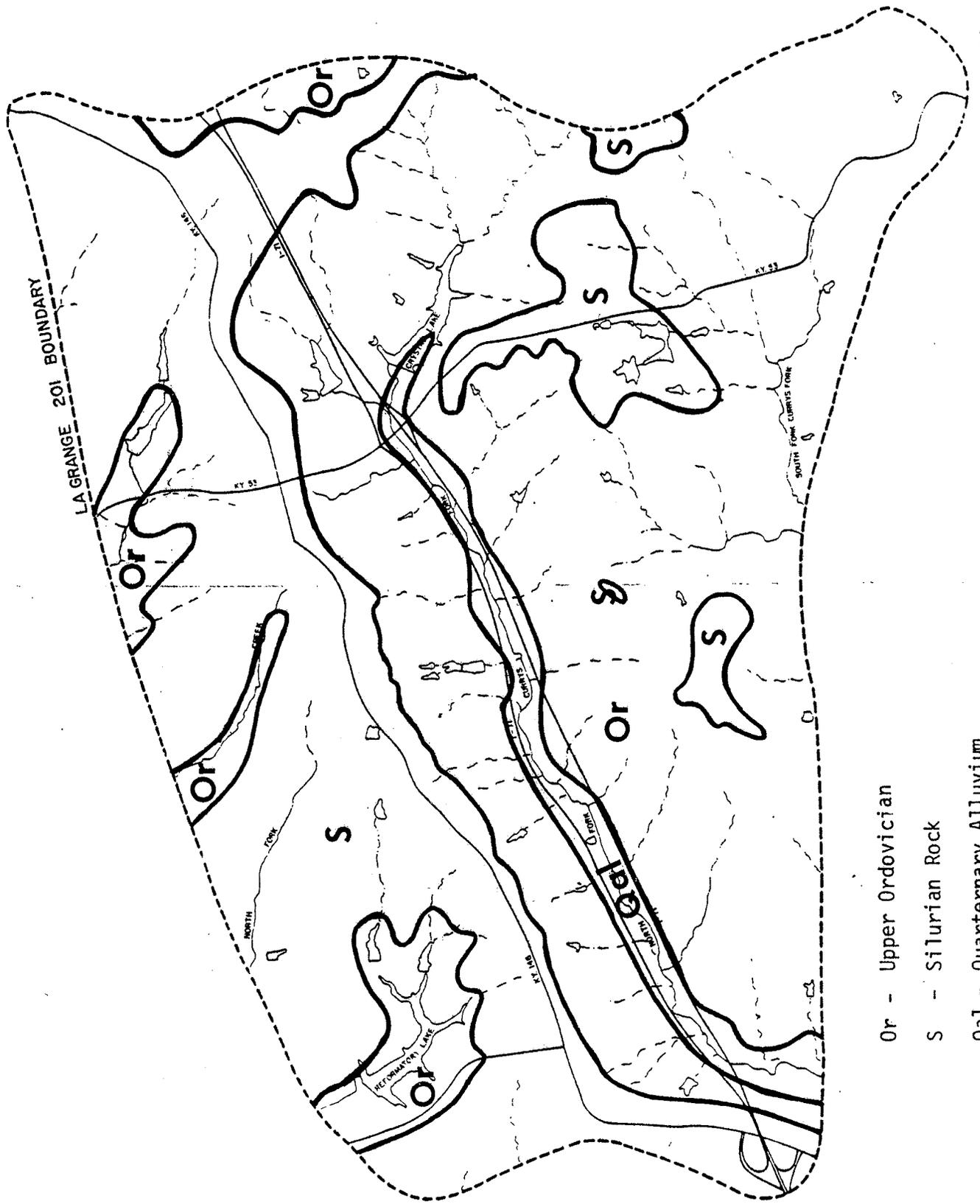
Figure III-4

TABLE III-2

## DESCRIPTIONS AND CHARACTERISTICS OF SOIL ASSOCIATIONS

Soil Association	General Description	Depth to Bedrock (Feet)	Depth to Groundwater (Feet)	Permeability (Inches/Hour)	Infiltration Potential	Limitations to Septic Tanks
1. Crider - Beasley-Corydon	Level to sloping, well drained, silty loam over silty clay.	5' to 12'	3' to 6'+	Slow (0.05 - 0.2)	Medium-High	Moderate
2. Crider - Corydon	Level to sloping, well drained, silty loam over silty clay.	5' to 12'	4' to 6'+	Slow (0.05 - 0.2)	Medium-High	Slight
3. Beasley - Nicholson - Fairmount	Level to sloping, well drained, silty loam over silty clay.	4' to 8'+	1 1/2' to 5'+	Slow (0.05 - 0.2)	Medium-High	Moderate

Source: U. S. Department of Agriculture, Soil Conservation Service.



Or - Upper Ordovician

S - Silurian Rock

Qa1 - Quaternary Alluvium

Figure III-5  
GEOLOGY



Chapter IV. This land use plan also identifies areas for future development (residential, commercial, and industrial) that should be considered for future sewer service.

## 2. Wooded Areas

Wooded areas are shown in Figure III-7. These areas were determined through the use of U.S. Geological Survey quadrangle maps, LANDSAT imagery, and aerial photographs. The rural countryside has several large stands of trees throughout the area, offering a scenic drive along the interstate. These wooded areas, however, are not significant habitats for wildlife, but may contain rare or sensitive trees. Any construction program in these areas should avoid any unnecessary disturbance of trees.

## 3. Steeply Sloping Areas

Data from the Regional Growth Suitability Plan by KIPDA, and maps from the U.S. Department of Agriculture's Soil Conservation Service (MIAD Maps) were used to identify areas with slopes greater than 20 percent. As shown in Figure III-8, the northern edge of the study area is the only area with a large concentration of steeply sloping land. A low potential for sewer-ing exists in these areas because of high erosion factors and construction cost constraints.

## 4. Historic and Archaeological Sites

Two structures in the study area are listed on the National Register of Historic Places; the Oldham County Courthouse, and the D.W. Griffith House, home of the noted American filmmaker. Both are located in LaGrange.

The Rob Morris House, also located in LaGrange, is included in the Survey of Historic Sites in Kentucky and is being considered for placement on the National Register.

There is one recorded archaeological site in the LaGrange 201 area; other unrecorded sites may exist, but are unknown at this time since the area has not been fully investigated.

## 5. Other Sensitive areas

The construction of sewer lines could disturb waterlines, pipelines, telephone cables, and other underground utilities, as well as the natural areas mentioned above. Detailed engineering plans should be designed to avoid any unnecessary disturbance of these sensitive areas during the construction phase.

## E. WATER QUALITY STANDARDS

One of the primary goals of the Federal Water Pollution Control Act Amendments of 1972 (P.L. 92-500) is that:



Source: U.S. Department of Agriculture, Soil Conservation Service.  
 Map Information and Display System (MIAD).  
 U.S. Geological Survey; LANSAT.  
 Aerial Photography.

Figure III-7  
 WOODED AREAS

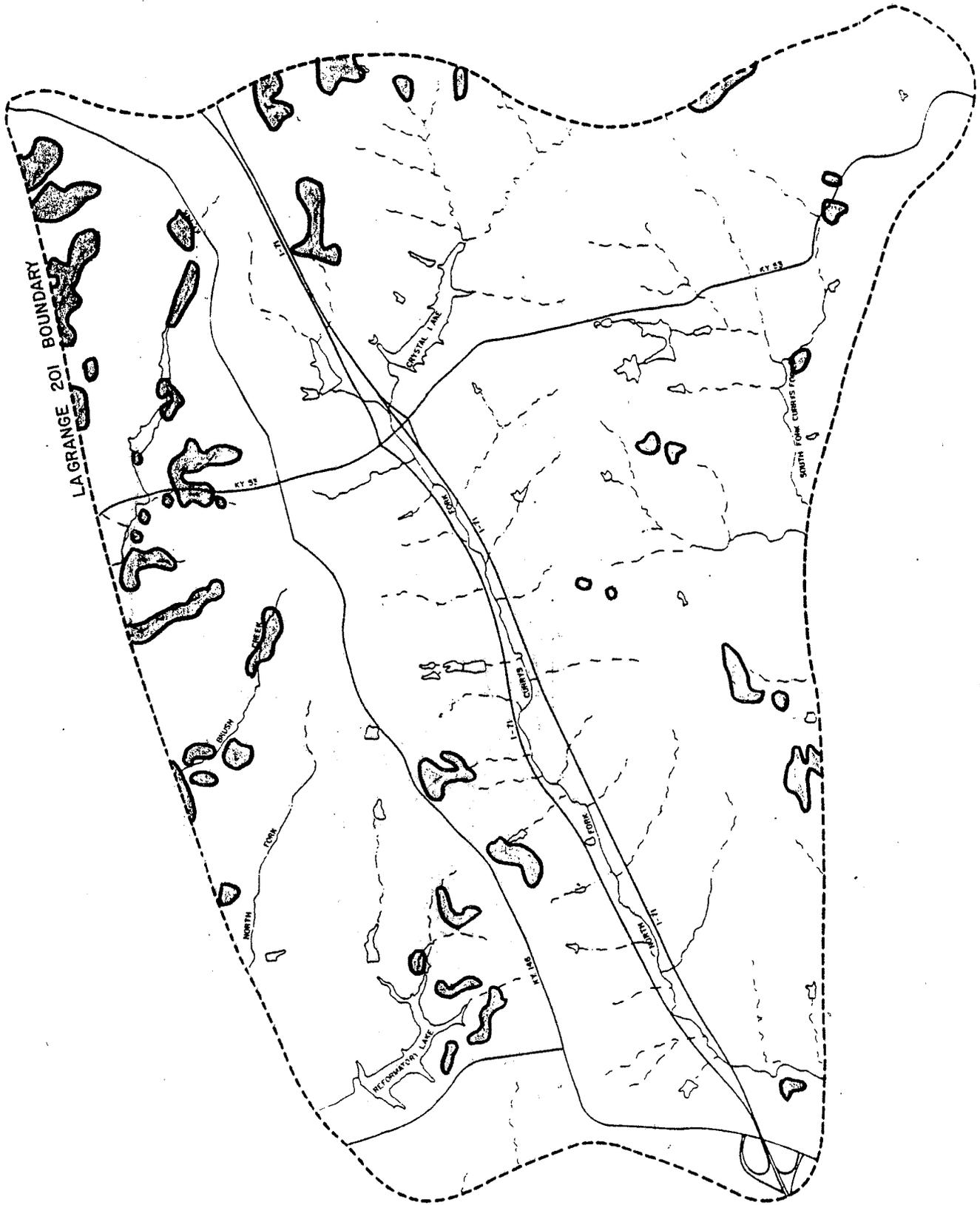


Figure III-8  
STEEPLY SLOPING AREAS

Source: KIPDA Regional Growth Suitability Plan.  
U.S. Department of Agriculture, Soil Conservation District.  
Map Information and Display System (MIAD).

"Wherever attainable, an interim goal of water quality be achieved by July 1, 1973 which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water."

Generally, the current water quality standards are:

- Dissolved Oxygen: 5.0 mg/l
- Temperature: 5°F increase above natural
- pH 5.0 - 9.0 (maximum range)  
6.5 - 8.3 (body-contact waters)
- Coliform Bacteria

Without body contact:

Fecal: 2,000/100 ml (average)  
4,000/100 ml (maximum)

With body contact:

Fecal: 200/100 ml (average)  
400/100 ml (maximum)

Total: 10,000/100 ml

The U.S. Environmental Protection Agency (EPA) has primary responsibility for implementing the Act and for assuring that water quality standards are met and maintained. The agency is required to establish national effluent limitations and performance standards for all sources of water pollution. An effluent limitation is the maximum amount of a pollutant that may legally be discharged into a body of water.

The law requires all publicly-owned waste treatment plants to provide a minimum of secondary treatment by July 1, 1983. Currently, "best practicable" treatment has been determined to be identical with "secondary treatment", and is defined as:

- 85 percent BOD<sub>5</sub> removal with chlorination
- Biochemical oxygen demand  
30 mg/l (monthly average)
- Suspended solids  
30 mg/l (monthly average)
- Fecal coliform bacteria  
200/100 ml (monthly geometric average)
- Hydrogen ion concentration (pH)  
6.0 - 9.0

Deadlines established by law require industries to use "best practicable" technology to control water pollution by July 1, 1977, and "best available"

technology by July 1, 1983. The EPA is in the process of producing guidelines specifying effluent limitations consistent with "best practicable" and "best available" treatment for industries. In addition, any industry that discharges its wastes into a municipal treatment plant must pretreat its effluent so that the industrial pollutants do not interfere with operation of the plant or pass through the plant without adequate treatment. The EPA is also currently formulating industry pretreatment guidelines.

#### F. PRESENT AMBIENT AIR QUALITY

This project's primary impact on air quality will be on levels of suspended particulates, for which the Kentucky air quality standard (annual geometric mean) is  $75 \text{ ug/m}^3$ . The latest annual (April, 1978 - March, 1979) geometric mean, obtained from the State Air Pollution Control Monitoring Division, for the LaGrange monitoring station was  $53 \text{ ug/m}^3$ .

201 FACILITIES PLAN UPDATE  
FOR WASTEWATER TREATMENT FACILITIES  
LaGRANGE, KENTUCKY

August 1996

Revised December 1998



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### III. NATURAL ENVIRONMENT INVENTORY

#### A. INTRODUCTION

The physical characteristics of the land within the LaGrange 201 area affect the types of development that can occur in the area, the intensity at which the area can be developed, and the spatial distribution or development patterns that can result from these constraints. This section of the report provides updated information on the location and geophysical description of the planning area, sensitive environmental areas, and water quality standards.

#### B. PLANNING AREA

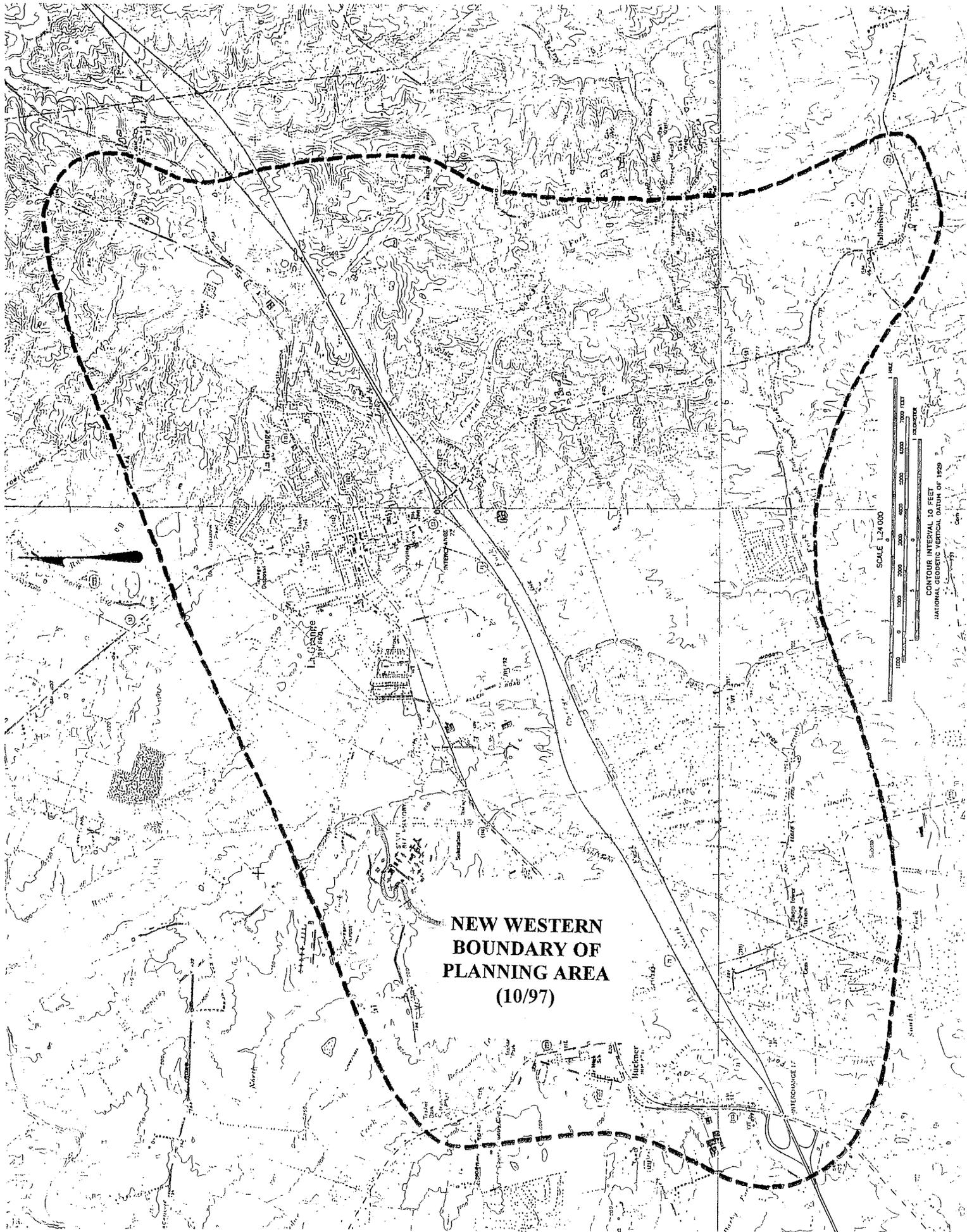
The planning area is unchanged from the original 201 facilities plan. The planning area encompasses approximately 13,800 acres in the east central portion of Oldham County, Kentucky (Figure III-1). The area includes the City of LaGrange, the county seat, and the unincorporated areas of Ballardsville and Buckner. Louisville is located approximately 24 miles southwest of LaGrange.

The CSX Railroad serves as a general boundary separating the two major drainage basins located in the planning area. These drainage basins, defined by surface water drainage patterns, are shown in Figure III-2.

The area north of the railroad lies within the Ohio River drainage basin. Harrods Creek, a major tributary of the Ohio River, receives an easterly flow from this entire area (approximately 4,950 acres, or 36% of the planning area). Minor creeks within the planning area that drain into Harrods Creek include Cedar Creek, Brush Creek, Ash Run, and Darby Creek.

The southern portion of the planning area is included in the Salt River drainage basin. The North and South Forks of Currys Fork are located in this area, and drain directly into Floyds Fork, a major tributary of the Salt River. Approximately 8,850 acres of the planning area are within the Salt River basin.

There are four major lakes or impoundments in the planning area; two in each river basin. Reformatory Lake and the LaGrange reservoir flow into Cedar Creek and Brush Creek, respectively, and then into Harrods Creek. Crystal Lake and the L&N Lake are both located at LaGrange, and flow into North Fork, Currys Fork, and then Floyds Fork.



**FIGURE III-1**  
**LAGRANGE PLANNING AREA**

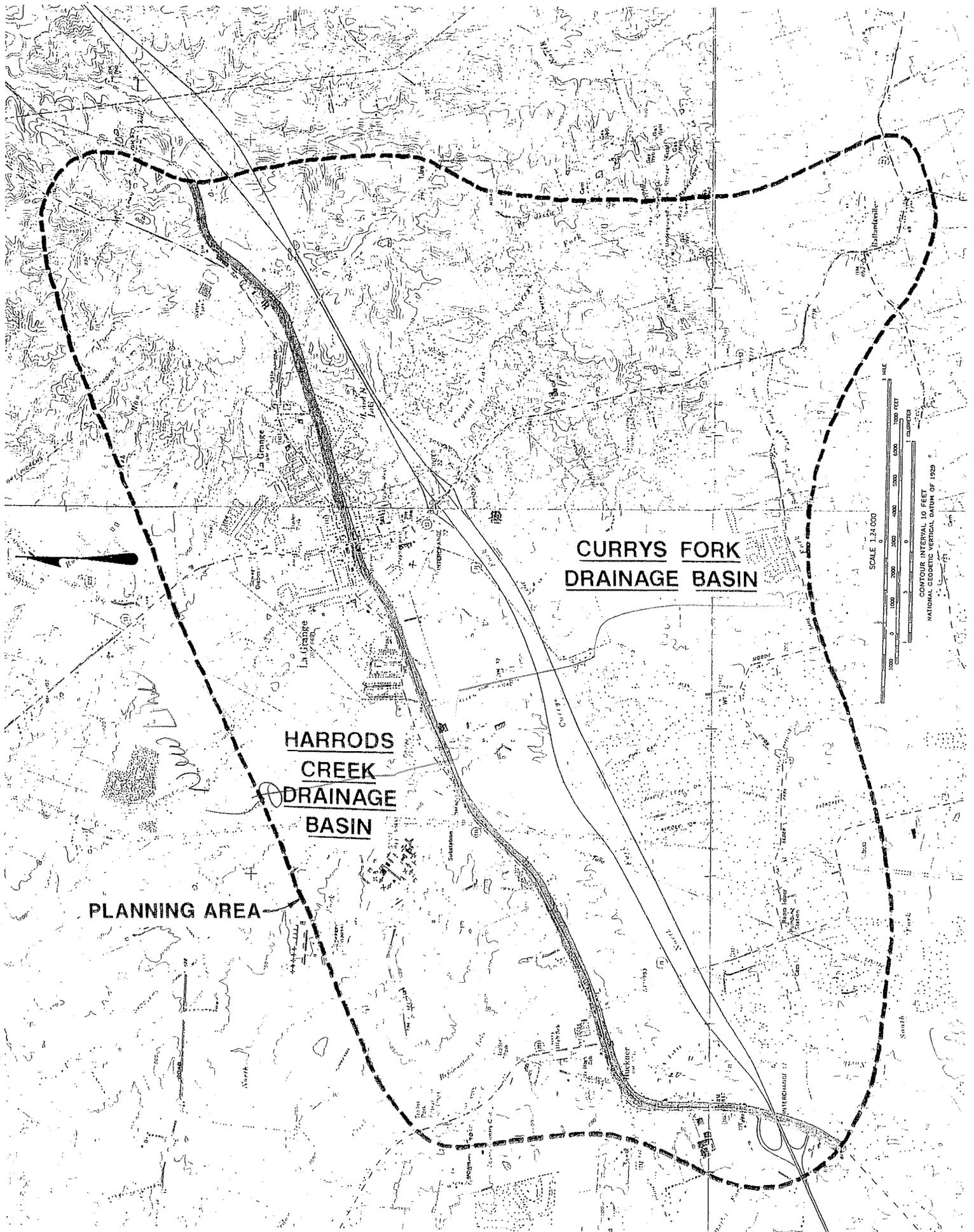


FIGURE III-2  
MAJOR DRAINAGE BASINS

*3 sheets OCAP  
Screen  
what does  
3M Top 7  
show.*

The recently completed draft of the Oldham County Action Plan (OCAP) developed jointly by Oldham County Fiscal Court and the Louisville and Jefferson County Metropolitan Sewer District (MSD) covers three distinct priority areas. The purpose of the study was to produce a wastewater management alternative that addressed regional wastewater disposal needs. The plan identified three priority areas. LaGrange and Buckner are included in Priority Area C. Priority Area C boundary is fairly contiguous to the 201 Planning Area with these exceptions: in the northeast it was compressed and in the south and west it was expanded. In the northeast the area between the intersection of KY 146 and Fort Pickens Road and Span Lane was excluded. In the west, the boundary was expanded from the intersection of the 201 boundary and KY 393 to follow KY 393 to the northwest to Shrader Lane and Cedar Point Road. From there it continues south along Cedar Point Road to the I-71 and KY 146 interchange. On the south it was expanded from the I-71 and KY 146 interchange to KY 22 at Centerfield and follows KY 22 to Ballardsville.

The main differences between OCAP and this 201 update appear to be the inclusion of the area west of Buckner in the Priority Area C boundary. Neither the 201 update nor OCAP proposes wastewater collection or treatment facilities in the Centerfield and Ballardsville areas. The area northeast of LaGrange has no facilities proposed. Land use and alternatives will be addressed in later sections of this update. Figure III-3 shows the Planning Area and OCAP LaGrange and Buckner Priority Area C.

### C. GEOPHYSICAL DESCRIPTION

There have been no significant changes in climate and topography, soils and geology, groundwater, and floodplains since the completion of the original 201 facilities plan.

### D. SENSITIVE AREAS

#### 1. Land Use

Changes in land uses that have occurred since the original 201 facilities plan are addressed in Chapter IV.

#### 2. Wooded Areas

Changes in wooded areas that have occurred since the original 201 facilities plan are addressed in Chapter IV.

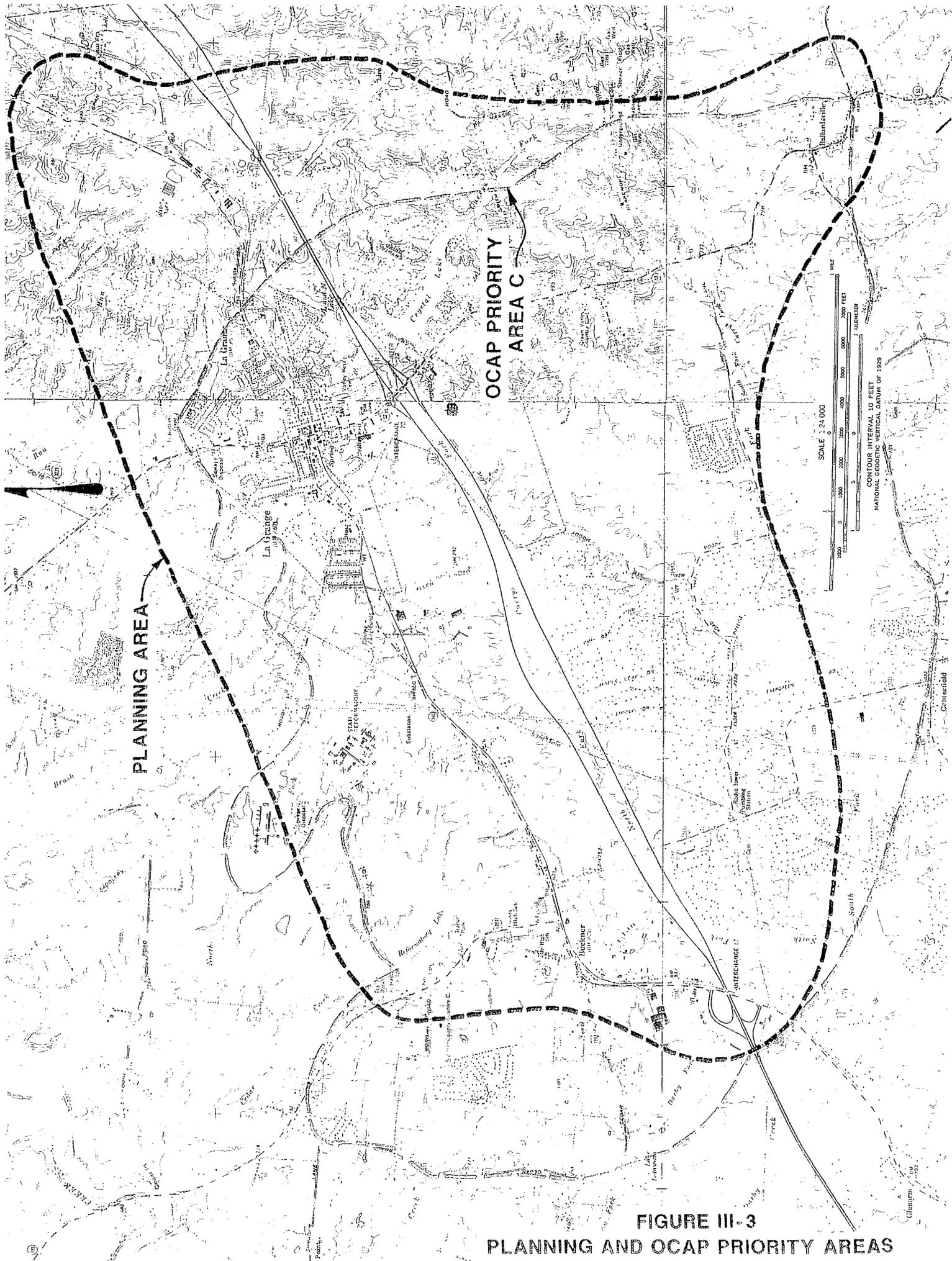


FIGURE III-3  
 PLANNING AND OCAP PRIORITY AREAS

3. Steeply Sloping Areas

No significant changes have occurred.

4. Historic and Archaeological Sites

There have been no significant changes since the original 201 facilities plan.

5. Other Sensitive Areas

The other sensitive areas addressed in the original 201 facilities plan were underground utility lines which could be damaged by sewer construction. No significant changes have occurred.

E. WATER QUALITY STANDARDS

Current Kentucky Pollutant Discharge Elimination System (KPDES) permit requirements for the LaGrange Wastewater Treatment Plant are:

Parameter	Monthly Average
Biochemical Oxygen Demand (BOD5)	20 mg/l
Total Suspended Solids (TSS)	30 mg/l
Fecal Coliform Bacteria, N/100	200
Ammonia (as N)	4 mg/l (summer) 10 mg/l (winter)
Dissolved Oxygen (DO)	Not less than 7 mg/l
Total Residual Chlorine (TRC)	0.019 mg/l

*A stream  
on 303D  
List!*

A copy of the KPDES Permit is included as Appendix A.



# KPDES



## KENTUCKY POLLUTANT DISCHARGE ELIMINATION SYSTEM

# PERMIT

PERMIT NO.: KY0020001  
AI NO.: 3347

### AUTHORIZATION TO DISCHARGE UNDER THE KENTUCKY POLLUTANT DISCHARGE ELIMINATION SYSTEM

Pursuant to Authority in KRS 224,

City of LaGrange Utilities Commission  
203 South Walnut Street  
LaGrange, Kentucky 40031

is authorized to discharge from a facility located at

LaGrange STP  
2515 New Moody Lane  
LaGrange, Oldham County, Kentucky

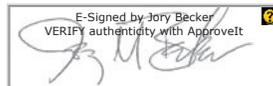
to receiving waters named

UT to North Fork of Curry's Fork at mile point 0.13.

in accordance with effluent limitations, monitoring requirements and other conditions set forth in Parts I, II, III, and IV hereof. The permit consists of this cover sheet, and Part I 2 pages, Part II 1 pages, and Part III 2 pages, and Part IV 3 pages.

This permit shall become effective on January 1, 2010.

This permit and the authorization to discharge shall expire at midnight, December 31, 2014.



November 16, 2009  
Date Signed

\_\_\_\_\_  
Sandra L. Gruzesky, Director  
Division of Water

A1. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on the effective date of this permit and lasting through the term of this permit, the permittee is authorized to discharge from Outfall serial number: 001 - Sanitary Wastewater (Design Flow = 0.775MGD)

Such discharges shall be limited and monitored by the permittee as specified below:

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS			MONITORING REQUIREMENTS		
	(lbs/day) Monthly Avg.	Daily Max.	Other Units (Specify) Monthly Avg.	Measurement Frequency	Sample Type	
Effluent Flow (MGD)	Report	Report	N/A	Continuous	Recorder	
Influent Flow (MGD)	Report	Report	N/A	Continuous	Recorder	
Effluent CBOD <sub>5</sub> (mg/l)	129	194	20	1/Week	24 Hr Composite	
Influent CBOD <sub>5</sub> (mg/l)	Report	Report	Report	1/Week	24 Hr Composite	
Percent Removal CBOD <sub>5</sub> (%)	Report	Report	85 or greater	1/Month	Calculated	
Effluent TSS (mg/l)	194	291	30	1/Week	24 Hr Composite	
Influent TSS (mg/l)	Report	Report	Report	1/Week	24 Hr Composite	
Percent Removal TSS (%)	Report	Report	85 or greater	1/Month	Calculated	
Ammonia Nitrogen (as mg/l N)						
May 1 - October 31	26	39	4.0	1/Week	24 Hr Composite	
November 1 - April 30	65	97	10	1/Week	24 Hr Composite	
<i>Escherichia Coli</i> (N/100 ml)	N/A	N/A	130	1/Week	Grab	
Dissolved Oxygen (mg/l) (minimum)	N/A	N/A	Not less than 7.0	1/Week	Grab	
pH (standard units)	N/A	N/A	6.0 (min)	1/Week	Grab	
Total Phosphorus (mg/l)	N/A	N/A	1.0	1/Week	24 Hr Composite	
Total Nitrogen (mg/l)	N/A	N/A	Report	1/Week	24 Hr Composite	

The abbreviation CBOD<sub>5</sub> means Carbonaceous Biochemical Oxygen Demand (5-day).  
The abbreviation TSS means Total Suspended Solids.

The abbreviation N/A means Not Applicable.

The effluent limitations for CBOD<sub>5</sub> and TSS are Monthly (30 day) and Weekly (7 day) Averages.

The effluent limitations for *Escherichia Coli* are thirty (30) day and seven (7) day Geometric Means.

Total Nitrogen is to be reported as the summation of the analytical results for Total Nitrates, Total Nitrites, and Total Kjeldahl Nitrogen.

There shall be no discharge of floating solids or visible foam or sheen in other than trace amounts.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location: nearest accessible point prior to discharge to or mixing with the receiving waters or wastestreams from other outfalls.

PART I  
Page I-2  
Permit No.: KY0020001  
AI No.: 3347

B. SCHEDULE OF COMPLIANCE

The permittee shall achieve compliance with all requirements on the effective date of this permit.

PART II  
Page II-1  
Permit No.: KY0020001  
AI NO.: 3347

**STANDARD CONDITIONS FOR KPDES PERMIT**

This permit has been issued under the provisions of KRS Chapter 224 and regulations promulgated pursuant thereto. Issuance of this permit does not relieve the permittee from the responsibility of obtaining any other permits or licenses required by this Cabinet and other state, federal, and local agencies.

It is the responsibility of the permittee to demonstrate compliance with permit parameter limitations by utilization of sufficiently sensitive analytical methods.

The permittee is also advised that all KPDES permit conditions in KPDES Regulation 401 KAR 5:065, Section 1 will apply to all discharges authorized by this permit.

**PART III**

OTHER REQUIREMENTS

A. Reporting of Monitoring Results

Monitoring results obtained during each monitoring period must be reported on a preprinted Discharge Monitoring Report (DMR) Form that will be mailed to you. The completed DMR for each monitoring period must be sent to the Division of Water at the address listed below (with a copy to the appropriate Regional Office) postmarked no later than the 28th day of the month following the monitoring period for which monitoring results were obtained.

Division of Water  
Louisville Regional Office  
9116 Leesgate Road  
Louisville, Kentucky 40222-5084  
ATTN: Supervisor

Division of Water  
Surface Water Permits Branch  
Permit Support Section  
200 Fair Oaks Lane  
Frankfort, Kentucky 40601

B. Reopener Clause

This permit shall be modified, or alternatively revoked and reissued, to comply with any applicable effluent standard or limitation issued or approved under 401 KAR 5:050 through 5:086, if the effluent standard or limitation so issued or approved:

1. Contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
2. Controls any pollutant not limited in the permit.

The permit as modified or reissued under this paragraph shall also contain any other requirements of KRS Chapter 224 when applicable.

C. Sludge Disposal

The disposal or final use of sewage sludge generated during the treatment of domestic sewage in a treatment works shall be disposed of in accordance with federal requirements specified in 40 CFR Part 503 and state requirements specified in Division of Waste Management regulations 401 KAR Chapter 45.

D. Certified Operators

This wastewater system shall be operated under the supervision of a Class II Kentucky Certified Operator who shall be reasonably available at all times. All other operators employed by the system shall hold a Kentucky Certificate or shall be in the process of obtaining a Kentucky Certificate. The certificates of each operator shall be prominently displayed on the wall of the system office.

F. Outfall Signage

The permittee shall post a permanent marker at all discharge locations and/or monitoring points. The marker shall be at least 2 feet by 2 feet in size and a minimum of 3 feet above ground level with the Permittee Name and KPDES permit and outfall numbers in 2 inch letters. For internal monitoring points the marker shall be of sufficient size to include the outfall number in 2 inch letters and shall be posted as near as possible to the actual sampling location.

G. Necessity to Develop and Implement a Pretreatment Program

POTWs which meet one or more of the following criteria are required to develop, submit for approval, and implement specific Pretreatment Program Requirements.

A POTW or combination of POTWs operated by the same authority, with a total design flow greater than five (5) million gallons per day (MGD) and receiving from industrial users which pass through interfere with the operation of the POTW, or are otherwise subject to pretreatment standards.

A POTW with a design flow of five (5) MGD or less shall develop a pretreatment program if the cabinet determines that the nature or volume of the industrial wastewater, treatment process upsets, violation of the POTW effluent limitations, contamination of municipal sludge or other circumstances warrant to prevent interference with the POTW or pass through.

The permittee shall conduct annual sewer user surveys to determine if conditions warrant the development and implementation of a pretreatment program. An annual report listing the industrial users, the manufacturing processes, the nature and volume of flow and any problems caused by the users shall be submitted no later than December 31 of each year, unless otherwise specified by the Division of Water.

H. Prohibited Discharges

**The following are prohibit from being discharged to the POTW.**

Pollutants which create a fire or explosion hazard in the publicly owned treatment works (POTW);

Pollutants which will cause corrosive structural damage to the POTW, but in no case, discharges with a pH lower than 5.0;

Solid or viscous pollutants in amounts which will cause obstruction to the flow in sewers, or other interference with operation of the POTW;

Any pollutant, including oxygen demanding pollutants (BOD<sub>5</sub>, etc.), released in a discharge at such a volume or strength as to cause interference in the POTW;

Heat in amounts, which will inhibit biological activity in the POTW, but in no case, heat in such quantities that the influent to the sewage treatment works exceeds 104° F (40° C);

Petroleum oil, non-biodegradable cutting oil, or products of mineral oil origin in amounts that will cause interference or pass-through;

Pollutants which result in the presence of toxic gases, vapors, or fumes within the POTW in a quantity that may cause acute worker health and safety problems; and,

Any trucked or hauled waste except, at discharge points designated by the POTW.

## PART IV

### BEST MANAGEMENT PRACTICES

#### SECTION A. GENERAL CONDITIONS

1. Applicability

These conditions apply to all permittees who use, manufacture, store, handle, or discharge any pollutant listed as: (1) toxic under Section 307(a)(1) of the Clean Water Act; (2) oil, as defined in Section 311(a)(1) of the Act; (3) any pollutant listed as hazardous under Section 311 of the Act; or (4) is defined as a pollutant pursuant to KRS 224.01-010(35) and who have ancillary manufacturing operations which could result in (1) the release of a hazardous substance, pollutant, or contaminant, or (2) an environmental emergency, as defined in KRS 224.01-400, as amended, or any regulation promulgated pursuant thereto (hereinafter, the "BMP pollutants"). These operations include material storage areas; plant site runoff; in-plant transfer, process and material handling areas; loading and unloading operations, and sludge and waste disposal areas.

2. BMP Plan

The permittee shall develop and implement a Best Management Practices (BMP) plan consistent with 401 KAR 5:065, Section 2(10) pursuant to KRS 224.70-110, which prevents or minimizes the potential for the release of "BMP pollutants" from ancillary activities through plant site runoff; spillage or leaks, sludge or waste disposal; or drainage from raw material storage. A Best Management Practices (BMP) plan will be prepared by the permittee unless the permittee can demonstrate through the submission of a BMP outline that the elements and intent of the BMP have been fulfilled through the use of existing plans such as the Spill Prevention Control and Countermeasure (SPCC) plans, contingency plans, and other applicable documents.

3. Implementation

If this is the first time for the BMP requirement, then the plan shall be developed and submitted to the Division of Water within 90 days of the effective date of the permit. Implementation shall be within 180 days of that submission. For permit renewals the plan in effect at the time of permit reissuance shall remain in effect. Modifications to the plan as a result of ineffectiveness or plan changes to the facility shall be submitted to the Division of Water and implemented as soon as possible.

4. General Requirements

The BMP plan shall:

- a. Be documented in narrative form, and shall include any necessary plot plans, drawings, or maps.
- b. Establish specific objectives for the control of toxic and hazardous pollutants.
  - (1) Each facility component or system shall be examined for its potential for causing a release of "BMP pollutants" due to equipment failure, improper operation, natural phenomena such as rain or snowfall, etc.

(2) Where experience indicates a reasonable potential for equipment failure (e.g., a tank overflow or leakage), natural condition (e.g., precipitation), or other circumstances which could result in a release of "BMP pollutants," the plan should include a prediction of the direction, rate of flow, and total quantity of the pollutants which could be released from the facility as result of each condition or circumstance.

- c. Establish specific Best Management Practices to meet the objectives identified under paragraph b of this section, addressing each component or system capable of causing a release of "BMP pollutants."
- d. Include any special conditions established in part b of this section.
- e. Be reviewed by plant engineering staff and the plant manager.

5. Specific Requirements

The plan shall be consistent with the general guidance contained in the publication entitled "NPDES Best Management Practices Guidance Document," and shall include the following baseline BMPs as a minimum.

- a. BMP Committee
- b. Reporting of BMP Incidents
- c. Risk Identification and Assessment
- d. Employee Training
- e. Inspections and Records
- f. Preventive Maintenance
- g. Good Housekeeping
- h. Materials Compatibility
- i. Security
- j. Materials Inventory

6. SPCC Plans

The BMP plan may reflect requirements for Spill Prevention Control and Countermeasure (SPCC) plans under Section 311 of the Act and 40 CFR Part 151, and may incorporate any part of such plans into the BMP plan by reference.

7. Hazardous Waste Management

The permittee shall assure the proper management of solid and hazardous waste in accordance with the regulations promulgated under the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1978 (RCRA) (40 U.S.C. 6901 et seq.) Management practices required under RCRA regulations shall be referenced in the BMP plan.

8. Documentation

The permittee shall maintain a description of the BMP plan at the facility and shall make the plan available upon request to NREPC personnel. Initial copies and modifications thereof shall be sent to the following addresses when required by Section 3:

Division of Water  
Louisville Regional Office  
9116 Leesgate Road  
Louisville, Kentucky 40222-5084  
ATTN: Supervisor

Division of Water  
Surface Water Permits Branch  
Permit Support Section  
200 Fair Oaks Lane  
Frankfort, Kentucky 40601

9. BMP Plan Modification

The permittee shall amend the BMP plan whenever there is a change in the facility or change in the operation of the facility which materially increases the potential for the ancillary activities to result in the release of "BMP pollutants."

10. Modification for Ineffectiveness

If the BMP plan proves to be ineffective in achieving the general objective of preventing the release of "BMP pollutants," then the specific objectives and requirements under paragraphs b and c of Section 4, the permit, and/or the BMP plan shall be subject to modification to incorporate revised BMP requirements. If at any time following the issuance of this permit the BMP plan is found to be inadequate pursuant to a state or federal site inspection or plan review, the plan shall be modified to incorporate such changes necessary to resolve the concerns.

SECTION B. SPECIFIC CONDITIONS

Periodically Discharged Wastewaters Not Specifically Covered By Effluent Conditions

The permittee shall include in this BMP plan procedures and controls necessary for the handling of periodically discharged wastewaters such as intake screen backwash, meter calibration, fire protection, hydrostatic testing water, water associated with demolition projects, etc.



STEVEN L. BESHEAR  
GOVERNOR

**ENERGY AND ENVIRONMENT CABINET**  
DEPARTMENT FOR ENVIRONMENTAL PROTECTION  
DIVISION OF WATER  
200 FAIR OAKS LANE  
FRANKFORT, KENTUCKY 40601  
[www.kentucky.gov](http://www.kentucky.gov)

LEONARD K. PETERS  
SECRETARY

November 16, 2009

John M. Bennett, Jr., P.E. Director  
LaGrange Utilities Commission  
203 South Walnut Avenue  
LaGrange, Kentucky 40031

Re: LaGrange Wastewater Treatment Plant  
KPDES No.: KY0020001  
AI No.: 3347  
Oldham County, Kentucky

Dear Mr. Bennett:

Your comments concerning the above-referenced draft permit have been reviewed and responses prepared in accordance with Kentucky Pollutant Discharge Elimination System (KPDES) regulation 401 KAR 5:075, Section 12. The comments have been briefly described below and our responses to those comments follow:

- COMMENT 1:** Chlorine disinfection has been replaced with ultraviolet disinfection therefore LaGrange Utilities Commission requests removal of the total residual chlorine requirements from the permit.
- RESPONSE 1:** The fact sheet and permit have been modified to reflect this change.
- COMMENT 2:** The description of the existing pollution abatement facilities is inaccurate and the facility site layout on page 11 of the fact sheet is out of date.
- RESPONSE 2:** Corrections of these items have been made consistent with the information provided.

**RESPONSE TO COMMENTS**

KPDES Permit No: KY0020001

AI No.: 3347

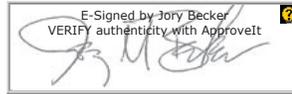
Page 2

Any person aggrieved by the issuance of a permit final decision may demand a hearing pursuant to KRS 224.10-420(2) within thirty (30) days from the date of the issuance of this letter. Any demand for a hearing on the permit shall be filed in accordance with the procedures specified in KRS 224.10-420, 224.10-440, 224.10-470, and the regulations promulgated thereto. The request for hearing should be submitted in writing to the Energy and Environment Cabinet, Office of Administrative Hearings, 35-36 Fountain Place, Frankfort, Kentucky 40601 and the Commonwealth of Kentucky, Energy and Environment Cabinet, Division of Water, 200 Fair Oaks Lane, Frankfort, Kentucky 40601. For your record keeping purposes, it is recommended that these requests be sent by certified mail. The written request must conform to the appropriate statutes referenced above.

If you have any questions regarding these responses, please contact Larry Sowder, KPDES Branch, at (502) 564-8158, extension 4924.

Further information on procedures and legal matters pertaining to the hearing request may be obtained by contacting the Office of Administrative Hearings at (502) 564-7312.

Sincerely,

An e-signature box containing a handwritten signature and the text "E-Signed by Jory Becker" and "VERIFY authenticity with ApproveIt".

Sandra L. Gruzesky, Director  
Division of Water

SLG:JMB:LJS

**APPENDIX E**  
**WLA CORRESPONDENCE**

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Waterfront Plaza  
Suite 710  
325 West Main Street  
Louisville, KY 40202  
Phone: 502-583-7020  
Fax: 502-583-7026

**Office Locations**

Madison, WI  
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Columbus, IN  
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Cincinnati, OH  
Phoenix, AZ

[www.strand.com](http://www.strand.com)

August 27, 2010

Mr. Courtney Seitz  
Kentucky Division of Water  
200 Fair Oaks Lane  
Frankfort, KY 40601

RECEIVED

AUG 30 2010

SWPB

Re: LaGrange Utilities Commission (KPDES KY0020001)  
Wasteload Allocation

Dear Mr. Seitz:

The Kentucky Division of Water provided a Wasteload Allocation (WLA) for the expansion of the LaGrange WWTP to 1.9 mgd dated August 24, 2006. On behalf of the LaGrange Utilities Commission, we are requesting an updated WLA for the following two conditions:

1. Expand to 1.9 mgd with continued discharge to North Curry's Fork (Tributary to Floyds Fork).
2. Expand to 1.9 mgd with a new outfall to the Ohio River located between river mile 580 and 584.

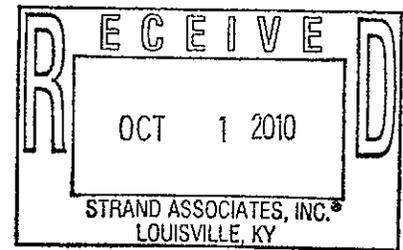
This request is necessary for us to proceed with the Facilities Plan Update. LaGrange Utilities Commission is in the process of entering into an Agreed Order with the Division of Enforcement and this update must proceed on an aggressive schedule. Thank you in advance for your prompt reply.

Sincerely,

STRAND ASSOCIATES, INC.<sup>®</sup>

Mark A. Sneve, P.E.

c: John Bennett, P.E., Director  
Dave Derrick, P.E., Derrick Engineering



STEVEN L. BESHEAR  
GOVERNOR

ENERGY AND ENVIRONMENT CABINET  
DEPARTMENT FOR ENVIRONMENTAL PROTECTION  
DIVISION OF WATER  
200 FAIR OAKS LANE  
FRANKFORT, KENTUCKY 40601  
www.kentucky.gov

STRAND ASSOCIATES, INC.\*  
LOUISVILLE, KY  
LEONARD K. PETERS  
SECRETARY

September 27, 2010

Mark A. Sneve, P.E.  
Strand Associates, Incorporated  
Waterfront Plaza  
Suite 710  
325 West Main Street  
Louisville, Kentucky 40202

Re: Update of Preliminary Limits  
KPDES No.: KY0020001  
City of La Grange Wastewater Treatment  
Plant (WWTP)  
Oldham County, Kentucky

Dear Mr. Sneve:

This is in response to your August 27, 2010 letter, requesting an update to effluent limitations provided for the subject facility in Division of Water (DOW) correspondence dated August 24, 2006. In addition, effluent limitations for potential discharge to the Ohio River are requested. The design capacity of the expanded WWTP will be 1.9 MGD. Discharge will be to either the existing outfall at mile point 0.13 of an unnamed tributary to mile point 9.35 of North Curry's Fork, segment 12028, or between mile points 580 and 584 of the Ohio River, segment 08205.

Effluent limitations applicable to the subject facility are stated below. The requirements for discharge to the UT of North Curry's Fork are essentially the same as those provided in DOW correspondence dated August 24, 2006, and subsequently updated in DOW correspondence dated August 22, 2008. It should be noted that the Reliability Classification has been changed from Grade 1 to Grade C based on updated reliability requirements specified in 401 KAR 5:005, Section 13.

Discharge to an Unnamed Tributary of North Curry's Fork

Design Capacity = 1.9 MGD

	<u>May 1 - October 31</u>	<u>November 1 - April 30</u>
CBOD <sub>5</sub>	8 mg/l	8 mg/l
Total Suspended Solids	30 mg/l	30 mg/l
Ammonia Nitrogen	2 mg/l	4 mg/l
Dissolved Oxygen	7 mg/l	7 mg/l
Total Residual Chlorine	0.019 mg/l	0.019 mg/l
Total Phosphorus	1 mg/l	1 mg/l
Total Nitrogen	Monitor (mg/l)	Monitor (mg/l)

Reliability Classification = Grade C

Discharge to the Ohio River 1/

Design Capacity = 1.9 MGD

	<u>May 1 - October 31</u>	<u>November 1 - April 30</u>
BOD <sub>5</sub>	30 mg/l	30 mg/l
Total Suspended Solids	30 mg/l	30 mg/l
Ammonia Nitrogen	20 mg/l	20 mg/l
Dissolved Oxygen	2 mg/l	2 mg/l
Total Residual Chlorine	0.019 mg/l	0.019 mg/l
Total Phosphorus	Monitor (mg/l)	Monitor (mg/l)
Total Nitrogen	Monitor (mg/l)	Monitor (mg/l)

Reliability Classification = Grade C

1/ If this alternative is chosen, please contact the WLA Coordinator so that a site inspection can be arranged to confirm the viability of the discharge site.

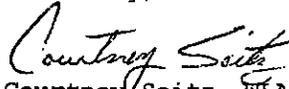
In addition to the above limits, the monthly average and maximum weekly average values of Escherichia coli shall be at or below 130 colonies per 100 milliliters or 240 colonies per 100 milliliters, respectively, the year around. Additional effluent limitations and water quality standards are contained in the Division of Water Regulations.

These preliminary design effluent limits are valid for one (1) year from the date of this letter and are subject to change as a result of additional information which may be presented during the public notice phase of the KPDES permitting process. As such, there is no guaranteed issuance of a permit. These preliminary effluent limits are contingent upon the validity, accuracy, and completeness of the data and information provided.

This letter does not approve the design details of the treatment system and does not authorize construction of these facilities. The design should be included in the plans and specifications for the treatment system.

Should you have any questions regarding this correspondence, please contact me at (502) 564-8158, extension 4914 or E-mail at Courtney.Seitz@ky.gov.

Sincerely,



Courtney Seitz, WLA Coordinator  
Wet Weather Section  
Surface Water Permits Branch  
Division of Water

CS:cs

c: Compliance and Technical Assistance  
Branch, Louisville Section  
Division of Water Files



June 23, 2011

Mr. John Bennett  
LaGrange Utilities Commission  
203 S. Walnut St.  
La Grange, KY 40031

RE: Lagrange Regional Wastewater Facility Plan

Dear Mr. Bennett:

Some time ago we met to discuss the Lagrange Utilities Commission's plans to finalize plans for the subject project.

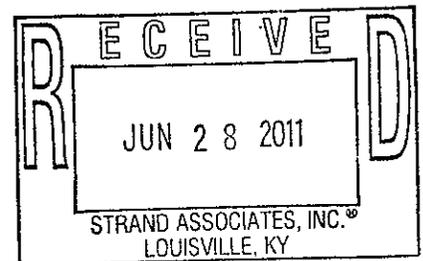
I wish to provide input regarding your Alternative C: Discharge to Ohio River. Specifically, I would ask that you consider other alternatives available to you before pursuing a plan that would increase wastewater discharges to the Ohio River. Although they obviously exist today, we would never advocate additional wastewater discharges upstream of our raw water intakes.

If you would like to discuss this, or if you have questions, please contact me at 502-569-3641.

Sincerely,

James H. Brammell, PE, PLS  
Vice President and Chief Engineer

Cc: Mark Sneve, Strand Associates





**LA GRANGE UTILITIES COMMISSION**  
**PRELIMINARY OPINION OF PROBABLE CONSTRUCTION COST**  
**PREPARED BY STRAND ASSOCIATES**

PROJECT: *LaGrange Facilities Plan*  
 DATE OF OPINION: *5-Apr-11*  
**ALTERNATIVE B - 1.9 mgd PHASE 1 EXPANSION AND DISCHARGE TO CURRYS FORK**  
 ALL COST IN APRIL 2011 DOLLARS

DESCRIPTION	Units	Unit Price	Installation Markup	Quantities	Cost
<b>Facultative Lagoon</b>					
Concrete (bottom slab)	CY	\$430	1.00	83	\$35,700
Concrete Wall	CY	\$660	1.00	54	\$35,600
Liner Reattachments	LS	\$20,000	1.00	1	\$20,000
Drain Pipe	LS	\$10,000	1.00	1	\$10,000
Equalization Pump Station	LS	\$15,000	1.00	1	\$15,000
Equalization Pumps	EA	\$12,000	1.35	2	\$32,400
Return Flow Structure	LS	\$10,000	1.00	1	\$10,000
Control Gates	EA	\$6,000	1.35	2	\$16,200
Aerators	EA	\$15,000	1.35	3	\$60,800
Electrical and Controls	LS	20%	1.00	1	\$28,880
					<b>Subtotal</b>
					\$265,000
<b>Headworks</b>					
Influent Pipe Extension to MH-1 (8-inch)	LF	\$75	1.00	90	\$6,800
Excavation and Backfill	LS	\$20,000	1.00	1	\$20,000
Influent Line (42-inch)	LF	\$140	1.00	20	\$2,800
Mechanical Bar Screen and Washer (8.4 mgd)	EA	\$141,000	1.35	1	\$190,400
Manual Bar Screen	EA	\$3,000	1.35	1	\$4,100
Grit Collection Equipment	EA	\$70,000	1.35	1	\$94,500
Grit Pumps	EA	\$15,000	1.35	2	\$40,500
Grit Washing Equipment	EA	\$40,000	1.35	1	\$54,000
Concrete (slab)	CY	\$430	1.00	40	\$17,200
Concrete (walls)	CY	\$660	1.00	60	\$39,600
Circular Concrete Grit Chamber	CY	\$720	1.00	37	\$26,600
Parshall Flume	EA	\$5,000	1.35	1	\$6,800
Tread-Plate	LS	\$40,000	1.00	1	\$40,000
Handrails	LS	\$24,000	1.00	1	\$24,000
Electrical and Controls	LS	20%	1.00	1	\$112,100
					<b>Subtotal</b>
					\$679,000
<b>Oxidation Ditches</b>					
Excavation and Backfill	LS	\$220,000	1.00	1	\$220,000
Concrete (slab)	CY	\$430	1.00	1090	\$468,700
Concrete (walls)	CY	\$700	1.00	364	\$254,800
Concrete (curve walls)	CY	\$800	1.00	180	\$144,000
Access Bridges	LS	\$30,000	1.00	2	\$60,000
Aeration Mixers in Existing OD	EA	\$66,000	1.35	4	\$356,400
Aeration Mixers in New OD	EA	\$85,000	1.35	4	\$459,000
Adjustable weir gate	EA	\$8,000	1.35	1	\$10,800
Electrical and Controls	LS	10%	1.00	1	\$197,370
					<b>Subtotal</b>
					\$2,171,000
<b>Effluent Structure</b>					
12-inch Parshall Flume Insert	LS	\$5,000	1.35	1	\$6,800
Flow Calibration	LS	\$2,000	1.00	1	\$2,000
					<b>Subtotal</b>
					\$9,000
<b>Disinfected Effluent Water Pumping Station</b>					
DEW Pump Station	LS	\$15,000	1.00	1	\$15,000
DEW Pumps	EA	\$11,000	1.35	2	\$29,700
Valves	LS	\$8,000	1.35	1	\$10,800
Hydropneumatic Tank	EA	\$8,000	1.35	1	\$10,800
Electrical and Controls	LS	20%	1.00	1	\$8,940
					<b>Subtotal</b>
					\$75,000
<b>MISCELLANEOUS</b>					
Yard Piping	LS	8%	1.00	1	\$234,800
Site Work	LS	3%	1.00	1	\$88,000
Misc metals	LS	2%	1.00	1	\$58,700
HVAC & Plumbing	LS	2%	1.00	1	\$58,700
Painting	LS	2%	1.00	1	\$58,700
					<b>Subtotal</b>
					\$499,000

SUBTOTAL CONSTRUCTION COST = \$3,698,000  
 General Conditions (7%) = \$259,000  
**PROJECTED CONSTRUCTION COST = \$3,957,000**  
 Contingencies and Technical Services (30%) = \$1,187,000  
**TOTAL PROJECT COST = \$5,144,000**

**LA GRANGE UTILITIES COMMISSION**  
**PRELIMINARY OPINION OF PROBABLE CONSTRUCTION COST**  
**PREPARED BY STRAND ASSOCIATES**

PROJECT: *La Grange Facilities Plan*  
 DATE OF OPINION: 5-Apr-11  
**ALTERNATIVE B - FUTURE EXPANSION AND DISCHARGE TO CURRYS FORK**  
 ALL COST IN APRIL 2011 DOLLARS

DESCRIPTION	Units	Unit Price	Installation Markup	Quantities	Cost	
<b>Tertiary Filters System</b>						
Filter Feed Pump Station	LS	\$30,000	1.00	1	\$30,000	
Filter Feed Pumps	EA	\$25,000	1.35	3	\$101,300	
Piping and Valves	LS	\$20,000	1.00	1	\$20,000	
Filter Building Concrete Pad	CY	\$430	1.00	45	\$19,400	
Effluent Filters	LS	\$213,000	1.35	1	\$287,600	
Filter Building	SF	\$75	1.00	1200	\$90,000	
Electrical and Controls	LS	10%	1.00	1	\$45,830	
					<b>Subtotal</b>	<b>\$594,000</b>
<b>Process Return Flow Pump Station</b>						
Precast Concrete Wet Well and Vault	LS	\$5,000	1.35	2	\$13,500	
Influent Pipe	LF	\$80	1.00	120	\$9,600	
Return Pumps	EA	\$16,000	1.35	2	\$43,200	
Electrical and Controls	LS	20%	1.00	1	\$13,260	
					<b>Subtotal</b>	<b>\$80,000</b>
<b>Effluent Structure</b>						
Upgrade the UV system	LS	\$90,000	1.35	1	\$121,500	
					<b>Subtotal</b>	<b>\$122,000</b>
<b>MISCELLANEOUS</b>						
Yard Piping	LS	8%	1.00	1	\$63,600	
Site Work	LS	3%	1.00	1	\$23,900	
Misc metals	LS	2%	1.00	1	\$15,900	
HVAC & Plumbing	LS	1%	1.00	1	\$8,000	
Painting	LS	2%	1.00	1	\$15,900	
					<b>Subtotal</b>	<b>\$127,000</b>

SUBTOTAL CONSTRUCTION COST	=	\$922,000
General Conditions (7%)	=	\$64,500
PROJECTED CONSTRUCTION COST	=	\$987,000
Contingencies and Technical Services (30%)	=	\$296,000
<b>TOTAL PROJECT COST</b>	<b>=</b>	<b>\$1,283,000</b>

LA GRANGE UTILITIES COMMISSION  
 PRELIMINARY OPINION OF PROBABLE CONSTRUCTION COST  
 PREPARED BY STRAND ASSOCIATES

PROJECT: *LaGrange Facilities Plan*  
 DATE OF OPINION: 5-Apr-11  
**ALTERNATIVE C - 1.9 mgd PHASE 1 EXPANSION AND DISCHARGE TO OHIO RIVER**  
 ALL COST IN APRIL 2011 DOLLARS

DESCRIPTION	Units	Unit Price	Installation Markup	Quantities	Cost
<b>Headworks</b>					
Facultative Lagoon					
Concrete (bottom slab)	CY	\$430	1.00	83	\$35,700
Concrete Wall	CY	\$660	1.00	54	\$35,600
Liner Reattachments	LS	\$20,000	1.00	1	\$20,000
Drain Pipe	LS	\$10,000	1.00	1	\$10,000
Equalization Pump Station	LS	\$15,000	1.00	1	\$15,000
Equalization Pumps	EA	\$12,000	1.35	2	\$32,400
Return Flow Structure	LS	\$10,000	1.00	1	\$10,000
Control Gates	EA	\$6,000	1.35	2	\$16,200
Aerators	EA	\$15,000	1.35	3	\$60,800
Electrical and Controls	LS	20%	1.00	1	\$28,880
					<b>Subtotal</b>
					\$265,000
<b>Headworks</b>					
Influent Pipe Extension to MH-1 (8-inch)	LF	\$75	1.00	90	\$6,800
Excavation and Backfill	LS	\$20,000	1.00	1	\$20,000
Influent Line (42-inch)	LF	\$140	1.00	20	\$2,800
Mechanical Bar Screen and Washer (6.4 mgd)	EA	\$141,000	1.35	1	\$190,400
Manual Bar Screen	EA	\$3,000	1.35	1	\$4,100
Grit Collection Equipment	EA	\$70,000	1.35	1	\$94,500
Grit Pumps	EA	\$15,000	1.35	2	\$40,500
Grit Washing Equipment	EA	\$40,000	1.35	1	\$54,000
Concrete (slab)	CY	\$430	1.00	40	\$17,200
Concrete (walls)	CY	\$660	1.00	60	\$39,600
Circular Concrete Grit Chamber	CY	\$720	1.00	37	\$26,600
Parshall Flume	EA	\$5,000	1.35	1	\$6,800
Tread-Plate	LS	\$40,000	1.00	1	\$40,000
Handrails	LS	\$24,000	1.00	1	\$24,000
Electrical and Controls	LS	20%	1.00	1	\$112,100
					<b>Subtotal</b>
					\$679,000
<b>Oxidation Ditches</b>					
Excavation and Backfill	LS	\$220,000	1.00	1	\$220,000
Concrete (slab)	CY	\$430	1.00	1090	\$468,700
Concrete (walls)	CY	\$700	1.00	364	\$254,800
Concrete (curve walls)	CY	\$800	1.00	180	\$144,000
Access Bridges	LS	\$30,000	1.00	2	\$60,000
Aeration Mixers in Existing OD	EA	\$66,000	1.35	4	\$356,400
Aeration Mixers in New OD	EA	\$85,000	1.35	4	\$459,000
Adjustable weir gate	EA	\$8,000	1.35	1	\$10,800
Electrical and Controls	LS	10%	1.00	1	\$197,370
					<b>Subtotal</b>
					\$2,171,000
<b>Effluent Structure</b>					
12-inch Parshall Flume Insert	LS	\$5,000	1.35	1	\$6,800
Flow Calibration	LS	\$2,000	1.00	1	\$2,000
					<b>Subtotal</b>
					\$9,000
<b>Disinfected Effluent Water Pumping Station</b>					
DEW Pump Station	LS	\$15,000	1.00	1	\$15,000
DEW Pumps	EA	\$11,000	1.35	2	\$29,700
Valves	LS	\$8,000	1.35	1	\$10,800
Hydropneumatic Tank	EA	\$8,000	1.35	1	\$10,800
Electrical and Controls	LS	20%	1.00	1	\$8,940
					<b>Subtotal</b>
					\$75,000
<b>Effluent Pumping Station and Force Main</b>					
Effluent Pump Station	LS	\$40,000	1.00	1	\$40,000
Effluent Pumps	EA	\$35,000	1.35	3	\$141,800
20-inch Class 250 DI Force Main	LF	\$112	1.00	60000	\$6,720,000
VFDs	EA	\$14,000	1.35	3	\$56,700
Electrical and Controls	LS	20%	1.00	1	\$36,360
					<b>Subtotal</b>
					\$6,995,000
<b>MISCELLANEOUS</b>					
Yard Piping	LS	\$234,800	1.00	1	\$234,800
Site Work	LS	\$88,000	1.00	1	\$88,000
Misc metals	LS	\$58,700	1.00	1	\$58,700
HVAC & Plumbing	LS	\$58,700	1.00	1	\$58,700
Painting	LS	\$58,700	1.00	1	\$58,700
					<b>Subtotal</b>
					\$499,000

SUBTOTAL CONSTRUCTION COST	=	\$10,693,000
General Conditions (7%)	=	\$749,000
PROJECTED CONSTRUCTION COST	=	\$11,442,000
Contingencies and Technical Services (30%)	=	\$3,433,000
<b>TOTAL PROJECT COST</b>	<b>=</b>	<b>\$14,875,000</b>

**LA GRANGE UTILITIES COMMISSION**  
**PRELIMINARY OPINION OF PROBABLE CONSTRUCTION COST**  
**PREPARED BY STRAND ASSOCIATES**

PROJECT: *LaGrange Facilities Plan*  
DATE OF OPINION: 5-Apr-11  
**ALTERNATIVE C - FUTURE EXPANSION AND DISCHARGE TO OHIO RIVER**  
ALL COST IN APRIL 2011 DOLLARS

DESCRIPTION	Units	Unit Price	Installation Markup	Quantities	Cost	
<del>Effluent Structure</del>						
Upgrade the UV system	LS	\$90,000	1.35	1	\$121,500	
					<b>Subtotal</b>	<b>\$122,000</b>
<del>Effluent Pumping Station Upgrade</del>						
Effluent Pumps	EA	\$35,000	1.35	1	\$47,300	
Valves and Piping	LS	\$5,000	1.00	1	\$5,000	
VFDs	EA	\$14,000	1.35	1	\$18,900	
Electrical and Controls	LS	20%	1.00	1	\$9,460	
					<b>Subtotal</b>	<b>\$81,000</b>
<del>MISCELLANEOUS</del>						
Yard Piping	LS	8%	1.00	1	\$16,200	
Site Work	LS	3%	1.00	1	\$6,100	
Misc metals	LS	2%	1.00	1	\$4,000	
HVAC & Plumbing	LS	1%	1.00	1	\$2,000	
Painting	LS	2%	1.00	1	\$4,000	
					<b>Subtotal</b>	<b>\$32,000</b>

SUBTOTAL CONSTRUCTION COST	=	\$235,000
General Conditions (7%)	=	\$16,450
<b>PROJECTED CONSTRUCTION COST</b>	<b>=</b>	<b>\$251,450</b>
Contingencies and Technical Services (30%)	=	\$75,440
<b>TOTAL PROJECT COST</b>	<b>=</b>	<b>\$327,000</b>

## PRESENT WORTH OF TREATMENT PLANT EXPANSION ALTERNATIVES

Discount rate = 5.00%  
 Period = 20 yr

Phase 1 WWTP Expansion Construction Costs	Alternative B	Alternative C
Structure, Building, Piping	\$2,761,000	\$12,244,000
Equipment and Instrumentation	\$2,383,000	\$2,630,000
Subtotal Capital Cost	\$5,144,000	\$14,874,000
<b>Salvage Values</b>		
Salvage Value in 20 years	(\$1,380,500)	(\$6,122,000.00)
Present Worth of Salvage Value	(\$520,000)	(\$2,307,000)
<b>O&amp;M Costs</b>		
Annual O&M Cost	\$670,000	\$644,000
Present Worth of O&M for 20 years	\$8,350,000	\$8,026,000
<b>Total Phase 1 Expansion Present Worth</b>	<b>\$12,974,000</b>	<b>\$20,593,000</b>

Future WWTP Expansion Construction Costs	Alternative B	Alternative C
Structure, Building, Piping	\$430,900	\$78,000
Equipment and Instrumentation	\$852,900	\$249,000
Subtotal Capital Cost	\$1,283,800	\$327,000
<b>Present Worth of Future Construction Costs</b>	<b>\$788,000</b>	<b>\$201,000</b>
<b>Salvage Values</b>		
Salvage Value in 20 years	(\$749,625)	(\$183,000)
<b>Present Worth of Salvage Value</b>	<b>(\$283,000)</b>	<b>(\$69,000)</b>
<b>O&amp;M Costs</b>		
Annual O&M Cost	\$99,000	\$46,000
<b>Present Worth of O&amp;M for 20 years</b>	<b>\$1,234,000</b>	<b>\$573,000</b>
<b>Total Future Expansion Present Worth</b>	<b>\$1,739,000</b>	<b>\$705,000</b>

Total WWTP Expansion Costs	Alternative B	Alternative C
Present Worth of Total Expansion Costs	\$5,932,000	\$15,075,000
<b>Salvage Values</b>		
Present Worth of Salvage Value	(\$803,000)	(\$2,376,000)
<b>O&amp;M Costs</b>		
Present Worth of O&M for 20 years	\$9,584,000	\$8,599,000
<b>Total Future Expansion Present Worth</b>	<b>\$14,713,000</b>	<b>\$21,298,000</b>

**APPENDIX G**  
**CROSS-CUTTER LETTERS**

---



Waterfront Plaza  
Suite 710  
325 West Main Street  
Louisville, KY 40202  
Phone: 502-583-7020  
Fax: 502-583-7026

**Office Locations**

Madison, WI  
Joliet, IL  
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June 22, 2011

Mr. James Gruhala  
U.S. Fish and Wildlife Service  
KY Ecological Services Field Office  
330 West Broadway, Room 265  
Frankfort, Kentucky 40601

Re: La Grange Utilities Commission (LUC)  
La Grange Regional Facility Plan

Dear Mr. Gruhala:

Strand Associates, Inc.<sup>®</sup> and Derrick Engineering, Inc. are assisting the LUC with preparation of the La Grange Regional Wastewater Facility Plan. The plan recommends sewer related construction projects over the next 20-year time horizon. The recommended improvements in years 0 to 5 are shown on Figure 10.01-1. The proposed projects include replacement of two pump stations, 2100 feet of gravity sewer and 630 feet of force main within the existing collection system and an expansion of their existing wastewater treatment plant.

We are not aware of any threatened or endangered species that would be impacted by the proposed projects. Most construction activities will occur on the existing wastewater treatment plant site or adjacent to existing infrastructure on previous disturbed lands.

Please review the proposed projects and reply with any concerns over local fish and wildlife resources that may be affected. Should you have any questions concerning this matter, please do not hesitate contact me at (502) 583-7020.

Sincerely,

STRAND ASSOCIATES, INC.<sup>®</sup>

Mark A. Sneve, P.E.

cc: John M. Bennett, P.E., LUC  
Dave Derrick, P.E., Derrick Engineering, Inc.  
File

Enclosure: Figure 10.01-1 – Recommended Plan (Year 0-5)

S:\1051951-1\1001956\005\Wdf\Facilities Plan Report\Figures for Report\Fig. 3-XX-X-P-S and Sewer Lines

Replace Madison St. pump station with new 550 gpm pump station and force main. New pump station will be constructed across the street from the existing pump station. 630-LF of 8-inch force main will be constructed following the current force main alignment in the street right of way.

Replace 15-inch sewer with 24-inch sewer. Install 2,100 LF of new sewer in median, along alignment of existing sewer. Install the new sewer using existing tunnels below the Interstate.

Build new 2,000 gpm submersible South pump station adjacent to existing pump station. Existing force main will be reused.

Expand La Grange WWTP to capacity of 1.9 mgd within the existing WWTP site.

**Legend**

- Pump Station
- New Sewer
- Existing Sewer Lines
- WTP WWTP



**RECOMMENDED PLAN (0 TO 5 YEAR)**  
**LA GRANGE UTILITIES COMMISSION REGIONAL FACILITY PLAN**  
**LA GRANGE UTILITIES COMMISSION**  
**LA GRANGE, KENTUCKY**

**STRAND**  
ASSOCIATES, INC.  
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FIGURE 10.01-1  
5-956-016



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June 22, 2011

Ms. Layna Thrush, Project Manager  
Regulatory Branch (South)  
U.S. Army Corp of Engineers  
P.O. Box 59  
Louisville, Kentucky 40201

Re: La Grange Utilities Commission (LUC)  
La Grange Regional Facility Plan

Dear Ms. Thrush:

Strand Associates, Inc.<sup>®</sup> and Derrick Engineering, Inc. are assisting the LUC with preparation of the La Grange Regional Wastewater Facility Plan. The plan recommends sewer related construction projects over the next 20-year time horizon. The recommended improvements in years 0 to 5 are shown on Figure 10.01-1. The proposed projects include replacement of two pump stations, 2100 feet of gravity sewer and 630 feet of force main within the existing collection system and an expansion of their existing wastewater treatment plant.

We are not aware of any impacts to wetlands as the result of the proposed projects. Most of construction activities will occur on existing wastewater treatment plant site or adjacent to existing infrastructure on previous disturbed lands.

Please review the proposed projects and reply with any concerns over wetlands that may be affected and other ACOE permitting jurisdictions. Should you have any questions concerning this matter, please do not hesitate contact me at (502) 583-7020.

Sincerely,

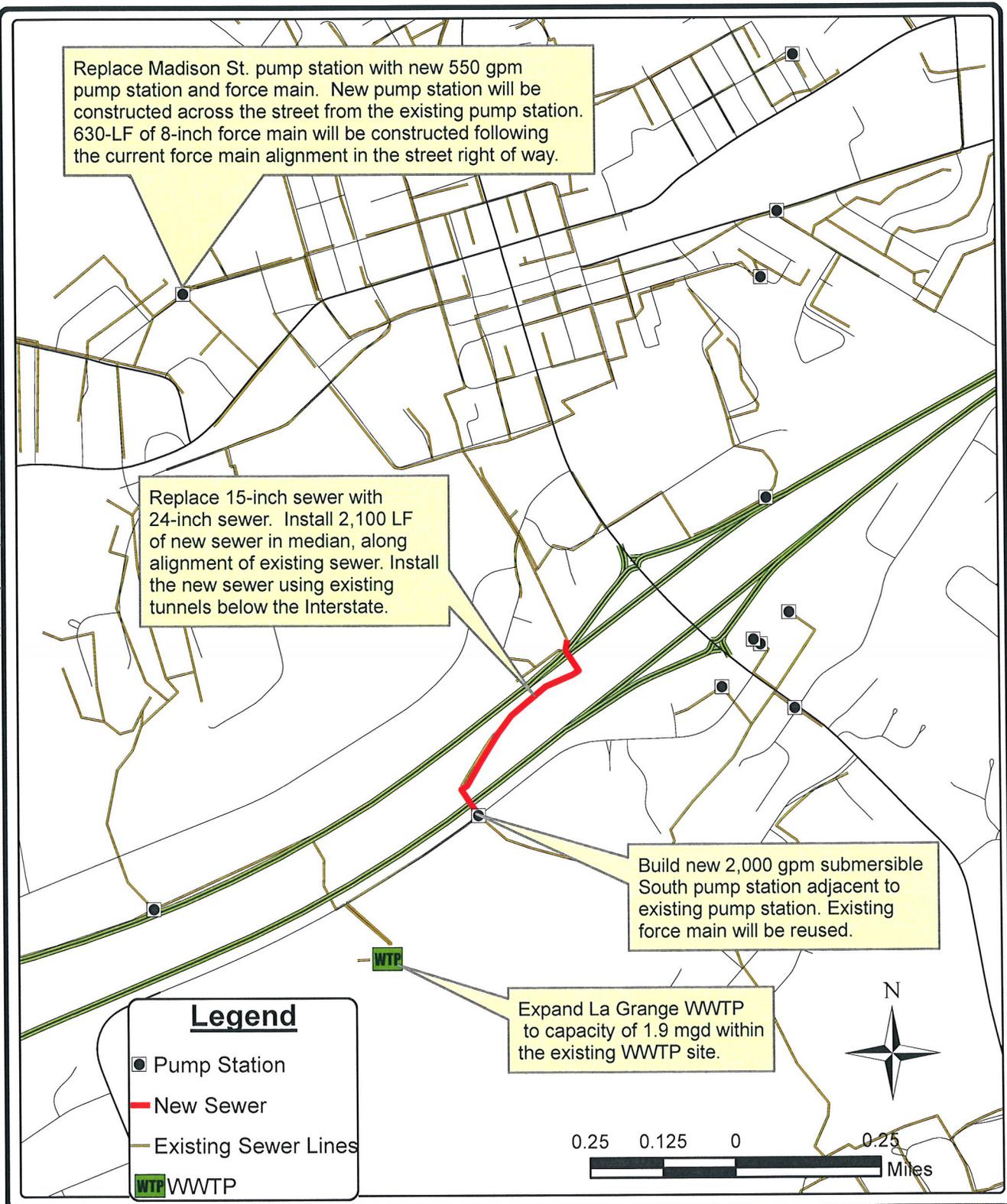
STRAND ASSOCIATES, INC.<sup>®</sup>

Mark A. Sneve, P.E.

cc: John M. Bennett, P.E., LUC  
Dave Derrick, P.E., Derrick Engineering, Inc.  
File

Enclosure: Figure 10.01-1 – Recommended Plan (Year 0-5)

S:\051951-1\0001956\005\Wwdf\Facilities Plan Report\Figures for Report\Fig. 3.XX-X-P-S. and Sewer Lines



**RECOMMENDED PLAN (0 TO 5 YEAR)**

**LA GRANGE UTILITIES COMMISSION REGIONAL FACILITY PLAN  
LA GRANGE UTILITIES COMMISSION  
LA GRANGE, KENTUCKY**



**FIGURE 10.01-1  
5-956-016**



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Phoenix, AZ

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June 22, 2011

Ms. Karen Woodrich  
Natural Resource Conservation Service  
771 Corporate Drive, Suite 210  
Lexington, Kentucky 40503

Re: La Grange Utilities Commission (LUC)  
La Grange Regional Facility Plan

Dear Ms. Woodrich:

Strand Associates, Inc.<sup>®</sup> and Derrick Engineering, Inc. are assisting the LUC with preparation of the La Grange Regional Wastewater Facility Plan. The plan recommends sewer related construction projects over the next 20-year time horizon. The recommended improvements in years 0 to 5 are shown on Figure 10.01-1. The proposed projects include replacement of two pump stations, 2100 feet of gravity sewer and 630 feet of force main within the existing collection system and an expansion of their existing wastewater treatment plant.

We are not aware of any agricultural resources that would be impacted by the proposed projects. Most construction activities will occur on the existing wastewater treatment plant site or adjacent to existing infrastructure on previous disturbed lands.

Please review the proposed projects and reply with any concerns over agricultural resources that may be affected. Should you have any questions concerning this matter, please do not hesitate contact me at (502) 583-7020.

Sincerely,

STRAND ASSOCIATES, INC.<sup>®</sup>

Mark A. Sneve, P.E.

cc: John M. Bennett, P.E., LUC  
Dave Derrick, P.E., Derrick Engineering, Inc.  
**File**

Enclosure: Figure 10.01-1 – Recommended Plan (Year 0-5)

S:\051951-1\0001956\005\Wdr\Facilities Plan Report\Figures for Report\Fig. 3-XX-X-P-S. and Sewer Lines

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Replace 15-inch sewer with 24-inch sewer. Install 2,100 LF of new sewer in median, along alignment of existing sewer. Install the new sewer using existing tunnels below the Interstate.

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**Legend**

- Pump Station
- New Sewer
- Existing Sewer Lines
- WTP WWTP

N



0.25 0.125 0 0.25 Miles



**RECOMMENDED PLAN (0 TO 5 YEAR)**

**LA GRANGE UTILITIES COMMISSION REGIONAL FACILITY PLAN**  
**LA GRANGE UTILITIES COMMISSION**  
**LA GRANGE, KENTUCKY**



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**FIGURE 10.01-1**  
5-956-016



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June 22, 2011

Mr. Mark Dennen  
Executive Director and State Historic Preservation Officer  
Kentucky Heritage Council  
300 Washington Street  
Frankfort, Kentucky 40601

Re: La Grange Utilities Commission (LUC)  
La Grange Regional Facility Plan

Dear Mr. Dennen:

Strand Associates, Inc.<sup>®</sup> and Derrick Engineering, Inc. are assisting the LUC with preparation of the La Grange Regional Wastewater Facility Plan. The plan recommends sewer related construction projects over the next 20-year time horizon. The recommended improvements in years 0 to 5 are shown on Figure 10.01-1. The proposed projects include replacement of two pump stations, 2100 feet of gravity sewer and 630 feet of force main within the existing collection system and an expansion of their existing wastewater treatment plant.

We are not aware of any impacts to local historical or archeological resources as the result of the proposed projects. Most of construction activities will occur on existing wastewater treatment plant site or adjacent to existing infrastructure on previous disturbed lands.

Please review the proposed projects and reply with any concerns over local historical or archeological resources that may be affected. Should you have any questions concerning this matter, please do not hesitate contact me at (502) 583-7020.

Sincerely,

STRAND ASSOCIATES, INC.<sup>®</sup>

Mark A. Sneve, P.E.

cc: John M. Bennett, P.E., LUC  
Dave Derrick, P.E., Derrick Engineering, Inc.  
File

Enclosure: Figure 10.01-1 – Recommended Plan (Year 0-5)

S:\05\951-1\0001956\005\Wwdf\Facilities Plan Report\Figures for Report\Fig. 3-XX-X-P S. and Sewer Lines

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**Legend**

- Pump Station
- New Sewer
- Existing Sewer Lines
- WTP WWTP



**RECOMMENDED PLAN (0 TO 5 YEAR)**

**LA GRANGE UTILITIES COMMISSION REGIONAL FACILITY PLAN**  
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**STRAND ASSOCIATES, INC.<sup>®</sup>**  
ENGINEERS

**FIGURE 10.01-1**  
**5-956-016**



June 22, 2011

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Cincinnati, OH  
Phoenix, AZ

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Mr. Wayne L. Davis  
Kentucky Fish and Wildlife Service  
#1 Sportsman's Lane  
Frankfort, Kentucky 40601

Re: La Grange Utilities Commission (LUC)  
La Grange Regional Facility Plan

Dear Mr. Davis:

Strand Associates, Inc.<sup>®</sup> and Derrick Engineering, Inc. are assisting the LUC with preparation of the La Grange Regional Wastewater Facility Plan. The plan recommends sewer related construction projects over the next 20-year time horizon. The recommended improvements in years 0 to 5 are shown on Figure 10.01-1. The proposed projects include replacement of two pump stations, 2100 feet of gravity sewer and 630 feet of force main within the existing collection system and an expansion of their existing wastewater treatment plant.

We are not aware of any threatened or endangered species that would be impacted by the proposed projects. Most construction activities will occur on the existing wastewater treatment plant site or adjacent to existing infrastructure on previous disturbed lands.

Please review the proposed projects and reply with any concerns over local fish and wildlife resources that may be affected. Should you have any questions concerning this matter, please do not hesitate contact me at (502) 583-7020.

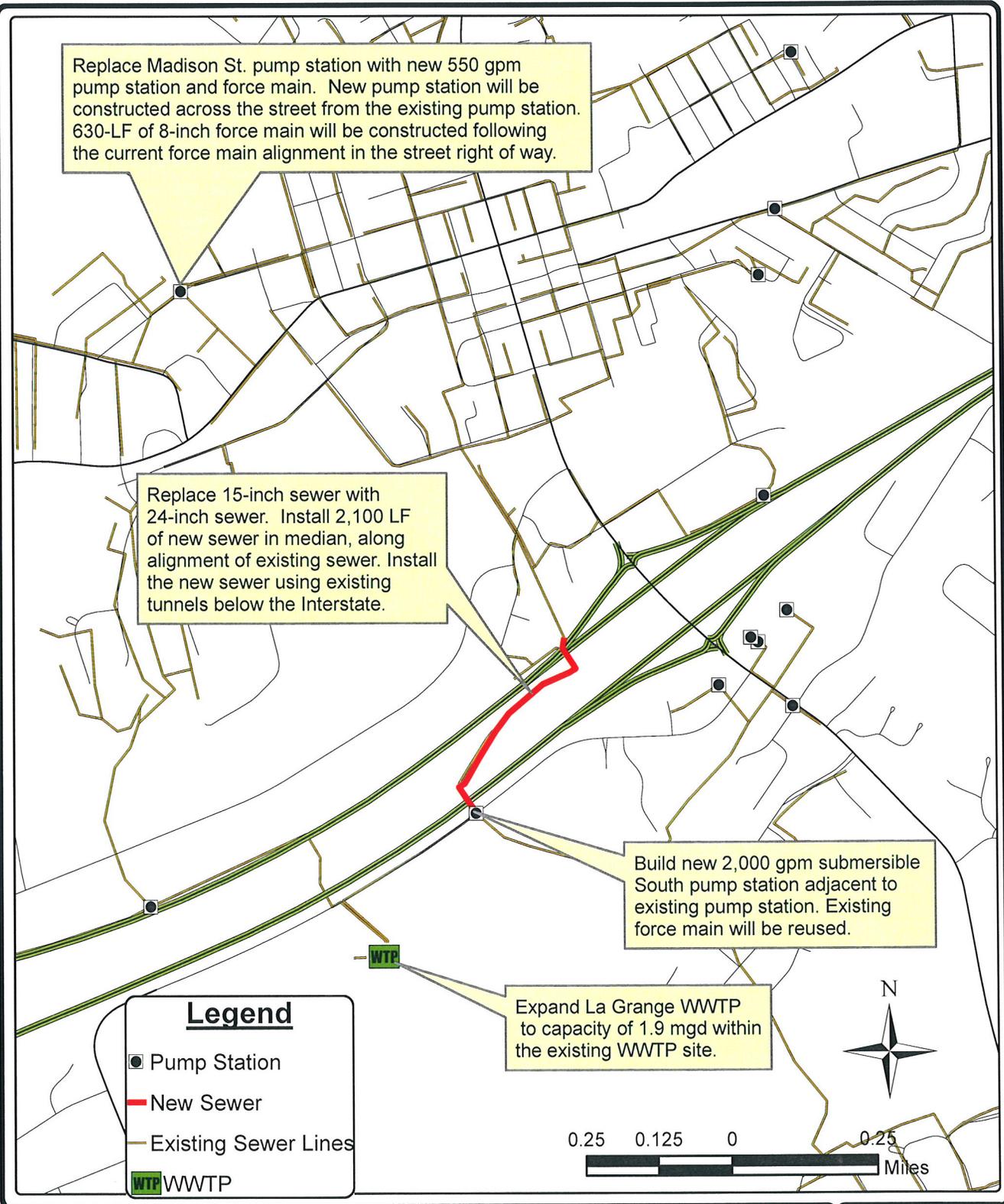
Sincerely,

STRAND ASSOCIATES, INC.<sup>®</sup>

Mark A. Sneve, P.E.

cc: John M. Bennett, P.E., LUC  
Dave Derrick, P.E., Derrick Engineering, Inc.  
**File**

Enclosure: Figure 10.01-1 – Recommended Plan (Year 0-5)



**RECOMMENDED PLAN (0 TO 5 YEAR)**

**LA GRANGE UTILITIES COMMISSION REGIONAL FACILITY PLAN  
LA GRANGE UTILITIES COMMISSION  
LA GRANGE, KENTUCKY**



**FIGURE 10.01-1  
5-956-016**

