

Southwest Licking Community
Water and Sewer District

Water and 208 Wastewater
Master Plan
Jersey and St. Albans Townships

June 2012

Project No. 14577618

URS

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Section One

Executive Summary

1 Executive Summary

This document is the water and wastewater master plan and presents alternatives and recommendations for Sewer District No. 9 in Jersey and St. Albans Townships in Licking County. Areas of anticipated growth in these townships are along the SR 161 highway corridor, which was recently expanded from two lanes to four. The proposed service area was previously identified in an agreement between the Licking County Commissioners and the Southwest Licking Community Water and Sewer District (SWL). Areas of anticipated growth along the SR 161 corridor include the interchange with SR 310, the interchange with SR 37, and certain areas in western Jersey Township (excluding the Columbus FPA area). This report therefore primarily focuses on growth and development in those areas. **In addition to providing water and wastewater master plan alternatives, this report serves as the 208 planning document for Jersey and St. Albans Townships in accordance with Ohio EPA requirements.** A summary of the alternatives evaluated in this report is as follows:

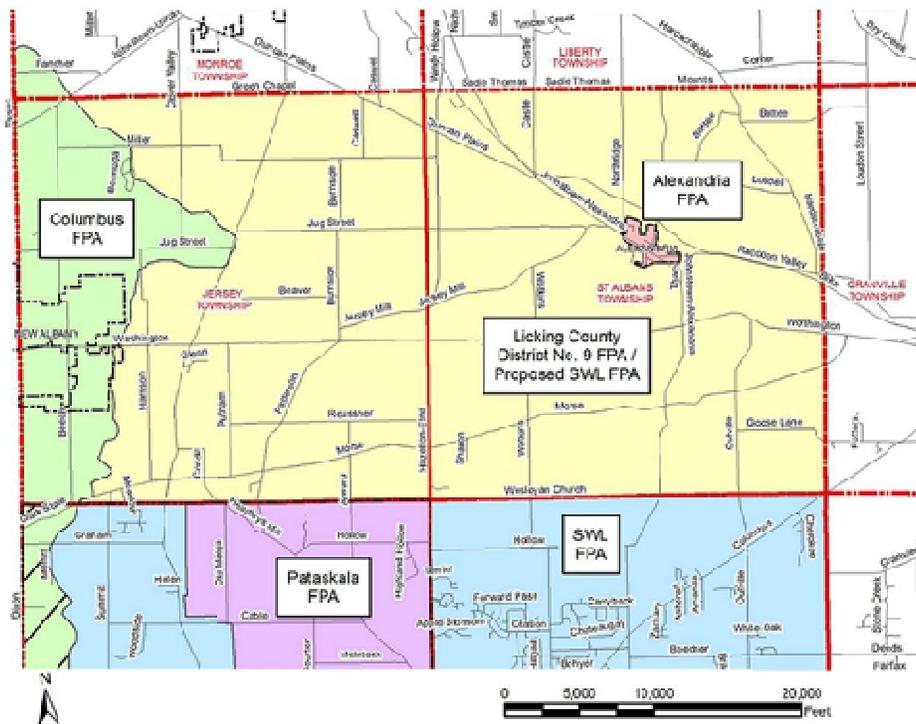
Water Master Plan	Wastewater Master Plan
Alt 1A, 1B, 1C: Water service from SWL	Alt 1: Treatment at SWL Facility
Alt 2A, 2B: Water service from SWL & Pataskala	Alt 2: Treatment at Pataskala Facility
Alt 3: Water service from Johnstown	Alt 3: Treatment at Johnstown Facility
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Alt 5: Water service from Columbus	Alt 5: Treatment at Columbus Facility
Alt 6A & 6B: Water Service from new WTP	Alt 6: Treatment at Alexandria & New WWTP

Based on evaluations of the alternatives, recommendations for the 20-year water and wastewater master plan projects are described as follows:

- **Water Master Plan:** The proposed plan includes construction of a new groundwater treatment plant near the Village of Alexandria. Phase 1 of the project proposes to serve either the SR 161 & SR 37 interchange (including the Village of Alexandria) or the SR 161 & SR 310 interchange. The order of service is contingent upon the areas growth and water and sewer demands. Phase 2 would then serve the interchange not served by Phase 1; and Phase 3 proposes to extend service to areas of western Jersey Township. Total project costs of all phases are estimated at approximately \$14 million and the 20-year present worth is estimated at approximately \$22.4 million.
- **Wastewater Master Plan:** In addition to master planning alternatives, this section of the document outlines and provides information required to request that SWL lock-in the Licking County District Number 9 facilities planning area. The proposed plan includes expanding the Alexandria WWTP and construction of a new WWTP. Phase 1 of the project proposes to expand the Alexandria WWTP to 160,000 gpd and serve the SR 161 & SR 37 interchange and surrounding area including the Village of Alexandria. Phase 2 consists of extending service to the

SR 161 & SR 310 interchange and construction of a new 460,000 gpd WWTP; and Phase 3 consists of extending service to areas of western Jersey Township. Total project costs for all phases are estimated at approximately \$16.1 million and the 20-year present worth is estimated at approximately \$29.5 million.

SWL intends to provide water and wastewater service to the Licking County District Number 9 facilities planning area, and is requesting to lock-in the service area to begin further utilities planning and development. A map of the requested lock-in District Number 9 facilities planning area is shown below:



2 Introduction

2.1 Project Purpose and Scope

Areas within central Ohio, including Licking County, have experienced substantial residential and commercial growth in recent years. Water and wastewater utilities in the area are continually upgraded and constructed to meet increasing demand, yet many areas remain unserved by utilities and are subsequently undeveloped. An area currently served by very limited water and sewer utilities which has anticipated residential and commercial development is the State Route (SR) 161 corridor in Licking County which traverses Jersey and St. Albans Townships. SR 161 was recently expanded from two lanes to four between New Albany and Granville, making the area more favorable for development. However, lack of water and wastewater infrastructure along this corridor is one of the primary factors inhibiting further development.

This report presents water and wastewater master planning alternatives and recommendations for the Jersey and St. Albans Townships. The Licking County Commissioners created Sewer District No. 9 comprised of Jersey, Monroe, and St. Albans Townships in 2002. In 2006, the State Water Quality Management Plan recommended that a comprehensive regional plan for sewer collection and treatment be created due to the highway improvements to SR 161. To accommodate this, the Licking County Commissioners signed an agreement with Southwest Licking Community Water and Sewer District (SWL) to be the Designated Management Agency for Jersey and St. Albans Townships. SWL currently owns and operates water and wastewater utilities in Licking County south of the Jersey and St. Albans Townships, and may have the opportunity to lock-in these areas for future water and wastewater service. The Licking County Commissioners agreement with SWL was signed December 21, 2010, and provides the primary basis for water and wastewater planning along the 161 corridor presented in this report. A copy of the agreement is provided in Appendix A of this report. The key points of the agreement are summarized as follows:

- The agreement establishes the “161 Service Area”, which presents the anticipated areas of development in the Jersey and St. Albans Township. The agreement also presents a map of the 161 Service Area.
- The agreement specifies that SWL shall provide water and wastewater services to the 161 Service Area, and that other public or private service providers may not provide service to the area without coordination through SWL. SWL shall operate and maintain all of the utilities.
- The agreement specifies that SWL shall be responsible for billing water and wastewater users, and the rates must be the same as the rates which are charged to users in the current SWL service area.
- The agreement is effective for 20-years after the date of execution (December 21, 2030), after which point it may be renewed for an additional 20 years.

Other documents reviewed to establish service areas, population projections, land use, and water and wastewater flows include: Comprehensive Plans for Jersey and St. Albans Townships, previous SWL master plans and utility studies, and census data. However, the Agreement between the Licking County Commissioners and SWL is the primary reference document for establishing the service area along the SR 161 Corridor.

In addition to providing water and wastewater master planning, this report outlines a 208 Plan for SWL to serve the areas in the Licking County District Number 9 Facilities Planning Area (FPA) with sanitary sewers. For all water and wastewater planning alternatives, a 20-year planning period was considered. Alternatives for various water and wastewater services presented in this report include: population and development projections, preliminary waterline and sewer alignments, assessment of existing water and wastewater treatment facilities, new water and wastewater treatment facilities, cost estimating, and present worth analyses.

Section 3 of this report defines the project planning area. This includes developing population and growth projections and subsequent water demands and wastewater flows. Section 4 outlines alternatives for the water master plan and Section 5 outlines alternatives for the wastewater master plan (and 208 planning).

2.2 Water Master Plan

Section 4 of this report evaluates feasible alternatives for supplying water to the developing areas. Anticipated water demands through the 20-year planning period are projected to be 620,000 gpd which includes the Village of Alexandria. The alternatives first explore providing water from an existing water utility; namely SWL, the City of Pataskala, the Village of Johnstown, the Village of Granville, and the City of Columbus / City of New Albany. Following the evaluation of an existing utility providing water service, the option of a new water treatment plant to serve the developing areas is investigated. This option includes two types of water treatment plants; a reverse osmosis facility and a conventional filtration and ion exchange facility.

For all alternatives that are considered feasible, cost estimates, annual operation expenses, and 20-year present worth analyses are performed. Additionally, conceptual layouts of the distribution system and new water treatment plants are provided. The distribution system layouts include preliminary waterline alignments, approximate locations of elevated storage tanks and booster stations, and other necessary information for preliminary planning.

2.3 Wastewater Master Plan

Section 5 of this report evaluates feasible alternatives for providing wastewater collection and treatment services for the developing areas. Anticipated wastewater flows through the 20-year planning period are projected to be 575,000 gpd for alternatives that do not include service for the Village of Alexandria and 620,000 gpd that do include service for the Village of Alexandria. The alternatives first explore providing wastewater treatment at an existing water utility; namely SWL, the City of Pataskala, the Village of Johnstown, the Village of Granville,

and the City of Columbus/City of New Albany. Following the evaluation of an existing utility providing wastewater treatment service, the option of a new wastewater treatment plant in conjunction with treatment at the Village of Alexandria WWTP is investigated.

For all alternatives that are considered feasible, cost estimates, annual operation expenses, and 20-year present worth analyses are performed. Additionally, conceptual layouts of the wastewater collection systems and new wastewater treatment plants are provided. The collection system layouts include preliminary sewer alignments, approximate locations of pump stations and forcemains, and other necessary information for preliminary planning.

Section Three

Project Planning Area and Future Growth

3 Project Planning Area and Future Growth

3.1 Planning Area and Planning Period

The focus of this report is to provide master planning alternatives for water and wastewater service in areas of Jersey and St. Albans Townships, which is also known as the Licking County District Number 9 Facilities Planning Area (FPA). With the exception of the Village of Alexandria, this area is currently not served by centralized public water or sewer utilities. This is a key factor inhibiting substantial commercial and residential growth in the area. A location map of Jersey and St. Albans Townships and surrounding FPA boundaries is presented in Figure 3-1.

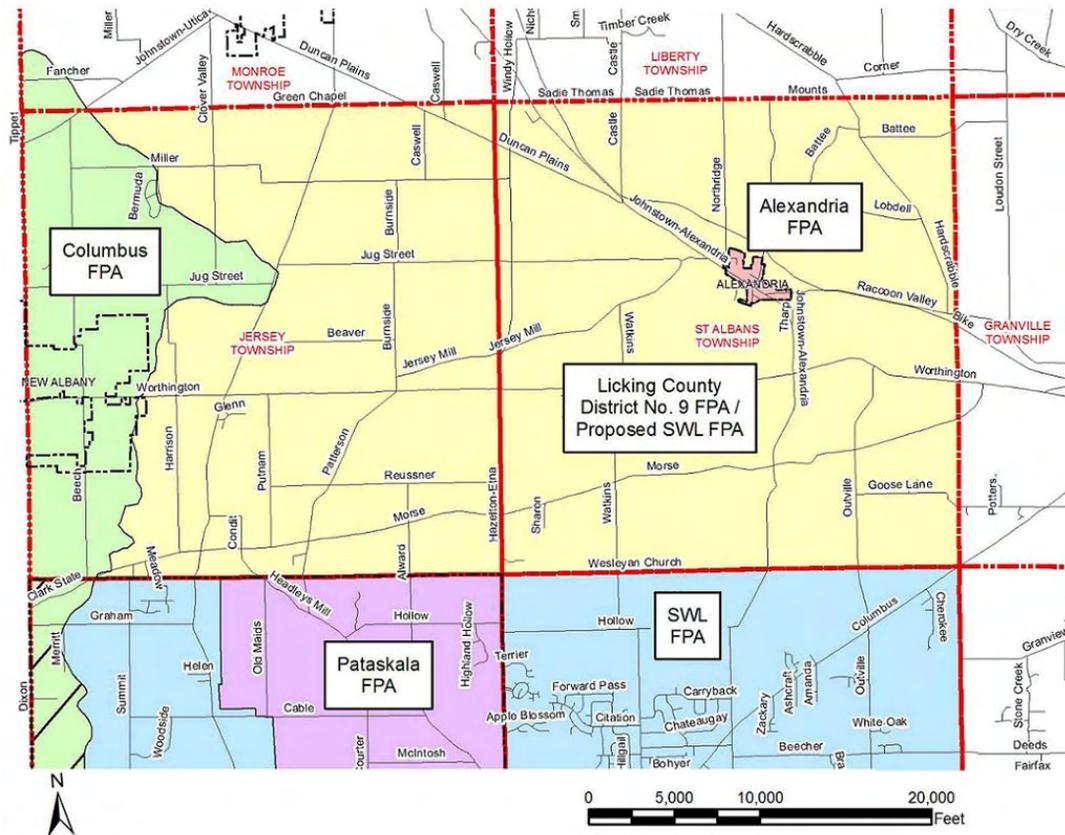


Figure 3-1 Project Planning Area Map

SR 161 was recently expanded from two lanes to a limited access four-lane highway between the City of New Albany and the Village of Granville. This highway widening and new

interchanges are expected to result in considerable development along the corridor. Areas of development within the District Number 9 FPA are expected to be the areas generally surrounding the intersection of SR 161 (Worthington Road) and SR 310 (Hazelton-Etna Road), the intersection of SR 161 and SR 37 (Johnstown-Alexandria Road or York Road), and areas in western Jersey Township along SR 161 excluding the City of New Albany. Specific areas to be serviced are identified in the agreement between the Licking County Commissioners and SWL, which is provided in Appendix A and discussed further in this report. Developers have been in contact with Licking County in recent years regarding bringing commercial and residential development to these areas. Therefore, any new planned utilities will consider these areas as the primary development areas. Less aggressive growth will be considered for surrounding and more rural areas, but provisions for growth will be provided. In general, this plan establishes alternatives for water and wastewater service areas along the SR 161 corridor.

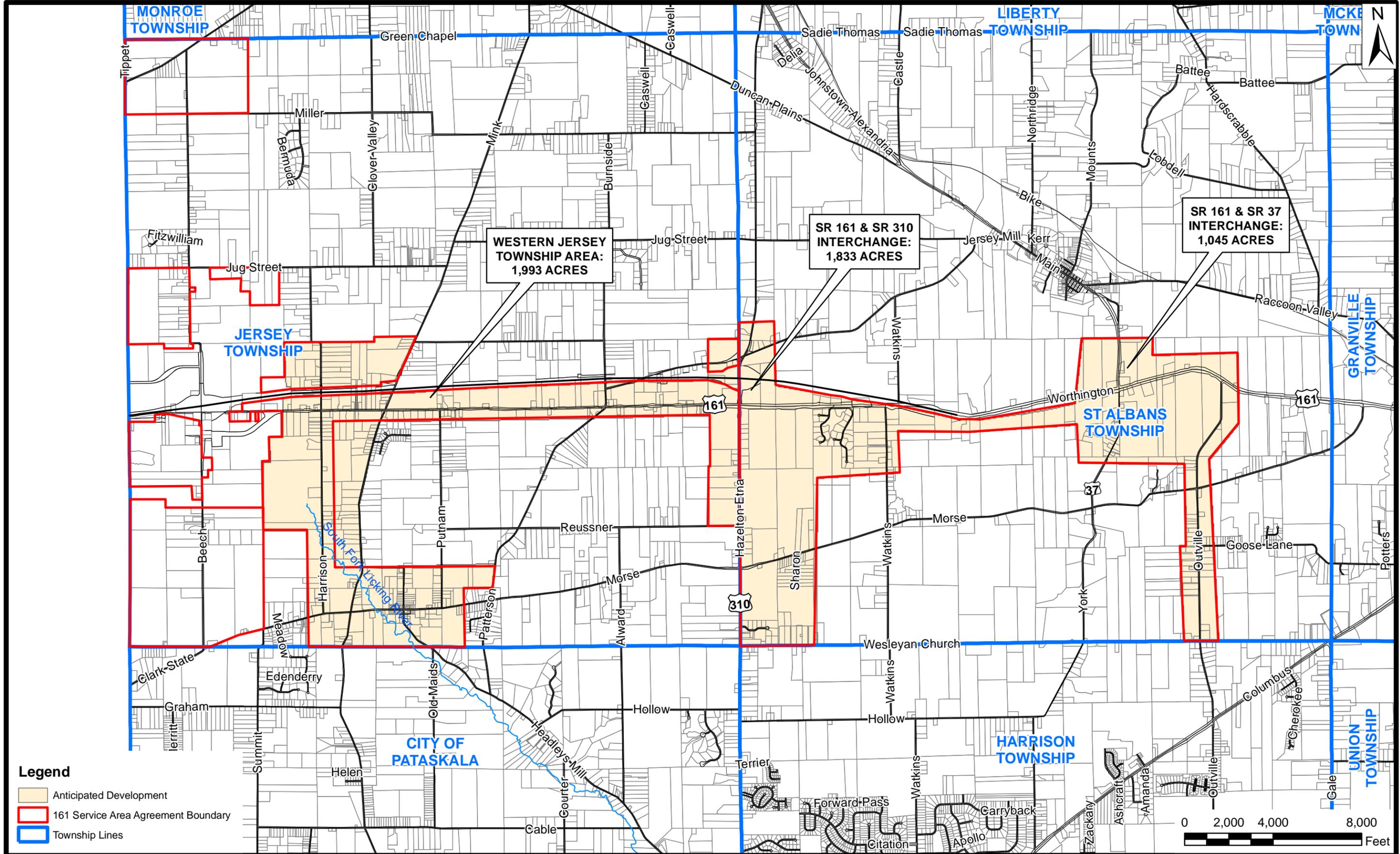
The service area established in the agreement between SWL and the County Commissioners was used as the primary document for the service area presented within this water and wastewater master planning effort. This figure is included in Appendix A. The proposed service area can generally be broken into three primary sub-areas, namely:

- The SR 161 & SR 37 Interchange (and surrounding areas)
- The SR 161 & SR 310 Interchange (and surrounding areas)
- Areas of Western Jersey Township excluding the Blacklick drainage basin areas (Columbus FPA)

There are some additional areas contiguous to the service area boundary that is included in the analysis herein due to the ease of service from an engineering and service standpoint. These areas can be serviced as part of a particular phase of a project. The projections and cost estimates herein include these contiguous areas where applicable.

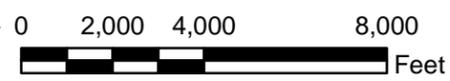
Figure 3-2 presents the service area established in the Agreement and identifies approximately how much acreage is available for development in the three previously described sub-areas.

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Legend

- Anticipated Development
- 161 Service Area Agreement Boundary
- Township Lines



REVISIONS			
NO.	BY	DATE	REMARKS

DES _____
 DWN _____
 CND _____

LICKING COUNTY, OHIO
**SOUTHWEST LICKING COMMUNITY WATER & SEWER DISTRICT
 WATER AND WASTEWATER MASTER PLAN**

**PROJECTED AREAS OF DEVELOPMENT
 IN JERSEY AND ST. ALBANS TOWNSHIPS**

DATE November 22, 2011

Figure 3-2

To assist with projections of water demand and wastewater flows resulting from future development, the Comprehensive Plans for Jersey and St. Albans Townships were obtained through the Licking County Planning Commission for review of existing and projected land use. Although the agreement between SWL and the Licking County Commissioners provides the primary outline of the SR 161 Service Area, the agreement does not specifically address future growth in terms of residential and commercial development. Therefore, these Comprehensive Plans are beneficial for determining land use areas and subsequent water demands and wastewater flows. Other existing records (including Census data from 1990, 2000, and 2010) were reviewed as part of population projections efforts.

Water and wastewater alternatives presented in this report are considered to have a planning period of 20 years beginning in 2012. Therefore, all population and development projections are considered for a planning period of 2012 to 2032. To establish projected water demands and wastewater flows, the growth within the townships is divided into two categories: residential and commercial/light industrial growth. These future projections are described in the following sections.

3.2 Residential Growth

Residential growth within Jersey and St. Albans Townships is anticipated during the 20-year planning period, particularly if some commercial and light industrial development first occurs. Census data from the years 1990, 2000, and 2010 were collected to assess trends in population growth. Table 3-1 summarizes the growth that has occurred in these areas (and surrounding areas) in recent years.

Table 3-1 Summary of 20-Year Population Changes in Key Areas

Area	1990 Pop.	2000 Pop.	2010 Pop.
Jersey Township	2,404	2,841	2,740
St. Albans Township	2,149	2,060	2,446
Village of Alexandria	478	Not Available	517
City of New Albany	1,621	3,711	7,724
City of Pataskala	3,046	10,249	14,962
Village of Johnstown	3,198	3,440	4,632
Licking County	128,300	145,491	166,492

As shown in Table 3-1, the population in Licking County townships and communities has increased fairly steadily over the last 20 years. Jersey Township experienced a population loss from 2000 to 2010, but grew beyond the 1990 population according to the 2010 census.

Population in St. Albans Township dropped slightly from 1990 to 2000, but increased considerably in the last 10 years. The population trends in Licking County and the communities within have generally been positive in recent years and it is assumed that a similar population trend will be experienced within the next 20 years. Figure 3-3 provides an extrapolation of the population growth for Jersey and St. Albans Townships through the year 2032.

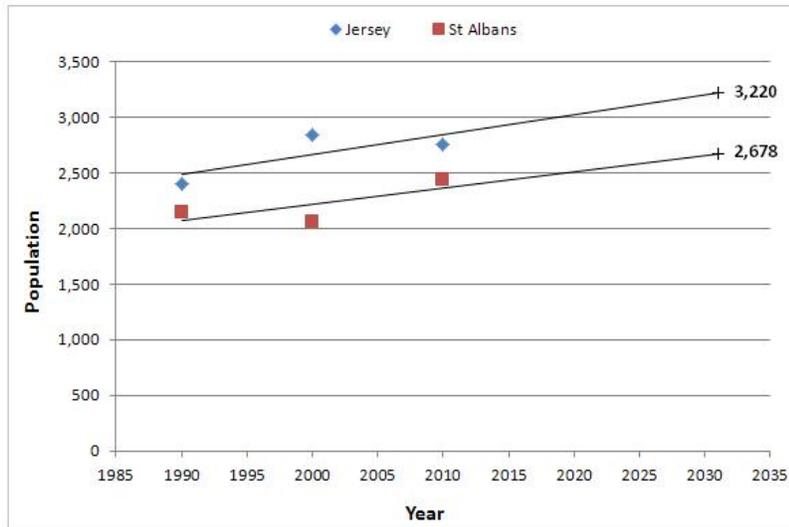


Figure 3-3 Extrapolation of Jersey and St. Albans Township Populations

Note that the population in Jersey and St. Albans townships reported in the previous censuses would primarily be considered rural residential, as major subdivisions and dense residential areas generally do not exist in the Townships. Therefore, the population extrapolation shown in Figure 3-3 is primarily indicative of rural residential areas only. Light- or medium-density residential development along the SR 161 corridor will be considered separately from the rural residential growth. It is assumed that very few of the rural residential areas would be served by central water and wastewater facilities since it is generally not economically viable to extend utilities to individual users in these rural areas. These areas typically have private wells and onsite (septic) wastewater facilities. For the purposes of this report, it is assumed that only 2 percent of this projected population would be served by central water and wastewater facilities. These could potentially be areas that are still considered rural residential, but are close enough to the new utilities serving the developing areas that tying into the utilities would be feasible. Note that this is only rural residential, and further consideration for water and wastewater is given to new residential development later in this section.

Assuming 2 percent of the rural residential population is served by central water and wastewater utilities, this correlates to a served population of 66 people in Jersey and 54 people in St. Albans. A value of 100 gallons per capita per day (gpcd) is used for water demand and wastewater flow. This results in a total water and wastewater flow of 12,000 gpd from rural

residential properties. Water demand and wastewater flow volumes typically vary slightly, since not all of the potable water supplied to a customer is returned to the sanitary sewer. However, infiltration and inflow into the sanitary sewer can help counterbalance this flow difference. For the purposes of this report, it is assumed that water demand and wastewater flow volumes are the same. This is also applicable to the commercial and light industrial developments described in Section 3.3.

In addition to the rural residential areas, there are some low- to medium-density residential areas that may develop around the commercial areas. This is considered to be a portion of the area established in the previously presented Figure 3-2.

To estimate the water demand and wastewater flows generated from the future residential development, several assumptions are made. It would not be reasonable to assume that 100% of the available acres will be developed for residential use by the end of the 20-year planning period. Therefore, a partial development percentage is assumed for each of the three areas. For these residential areas, the average daily water demand and average daily wastewater flow are both assumed to be 500 gallons per acre of developed area per day (gpad).

The final residential area to consider is the Village of Alexandria, which currently has its own wastewater collection and treatment system and is provided water by the Village of Granville. SWL and URS met with the Village of Alexandria in July 2011 to discuss the possibility of SWL providing both water and wastewater services for the Village. Overall, the Village appeared to be interested in SWL providing services – particularly water service. Therefore, all of the water and some of the wastewater alternatives include service provided for the Village of Alexandria. Of course, at the time of this report, no agreement between Alexandria and SWL regarding water and wastewater services has been made. The population of Alexandria is slightly over 500 people, and the average daily wastewater flow and water demand is approximately 40,000 gpd (slightly under 100 gpcd). The Village already has fairly dense housing within its limits, and little growth is expected during the design period. For the purposes of this report, the water demand and wastewater flow for the Village of Alexandria will be increased by an additional 5,000 gpd, resulting in an average daily flow of 45,000 gpd.

The assumed percent development and subsequent water demand and wastewater flow from the residential areas is presented in Table 3-2.

Table 3-2 Estimated Residential Water Demands and Wastewater Flows

Area Description	Available Acreage	Percent Residential Developed	Developed Residential Acreage	Unit Flow (gpda)	Total Flow (GPD)
Rural Residential	-	-	-	-	12,000
SR 161 & SR 37	1,032	16%	165	500	83,000
SR 161 & SR 310	1,833	7%	128	500	64,000
Western Jersey Twp.	1,993	8%	159	500	80,000
Alexandria	-	-	-	-	45,000
Total Estimated Residential Flow (GPD)					284,000

3.3 Commercial and Light Industrial Growth

Portions of the service area along the SR 161 corridor are anticipated to experience commercial and light industrial growth. To estimate the water demand and wastewater flows generated from the future commercial and light industrial development, several assumptions are made. It would not be reasonable to assume that 100% of the available acres will be developed by the end of the 20-year planning period. Therefore, a partial development percentage is assumed for each of the three areas. For these commercial and light industrial areas, the assumed average daily water demand and average daily wastewater flow were both assumed to be 800 gpda. The assumed percent development and subsequent water demand and wastewater flow from the commercial and light industrial areas is presented in Table 3-3.

Table 3-3 Estimated Commercial/Light Industrial Water Demands and Wastewater Flows

Area Description	Available Acreage	Percent Commercial Developed	Developed Commercial Acreage	Unit Flow (gpda)	Total Flow (GPD)
SR 161 & SR 37	1,032	15%	155	800	124,000
SR 161 & SR 310	1,833	9%	165	800	132,000
Western Jersey Twp.	1,993	5%	100	800	80,000
Total Estimated Commercial Flow (GPD)					336,000

3.4 Summary of Water Demands and Wastewater Flows

In the previous sections, water demand and wastewater flows were developed for Jersey and St. Albans Townships to consider commercial/industrial and residential growth. Table 3-4 presents a summary of the anticipated water demands and wastewater flows through the planning period of 2032.

Table 3-4 Summary of Anticipated Water Demands and Wastewater Flows

Area Description	Residential Flow (gpd)	Commercial Flow (gpd)	Total Flow (gpd)
SR 161 & SR 37	83,000	124,000	207,000
SR 161 & SR 310	64,000	132,000	196,000
Western Jersey Twp.	80,000	80,000	160,000
Rural Residential	12,000	-	12,000
Village of Alexandria	45,000	-	45,000
Total Estimated Average Daily Water & Wastewater Flow			620,000

The projected water demand and wastewater flow of 620,000 gpd presented in Table 3-4 are based on the 20-year design period. Alternatives that do not consider the Village of Alexandria (estimated flow contribution of 45,000 gpd) will consider a flow of 575,000 gpd. These flows are used as the basis of design for preliminary sizing of water and wastewater infrastructure described in the respective master plans within this report. Because this flow would not be experienced at the beginning of the planning period, most of the master planning alternatives involve scenarios in which water and wastewater infrastructure and treatment facilities are constructed in phases. Phased construction of the utilities can be much more economically feasible as the area continues to grow and more customers are added.

4 Water Master Plan

4.1 Introduction

Section 4 presents the water master plan alternatives and recommendations for Jersey and St. Albans Townships along the SR 161 corridor. Alternatives include water service from existing treatment facilities surrounding the Townships and from new facilities. Preliminary layouts and cost estimates for new waterlines, booster stations, elevated storage tanks, and treatment facilities are included with the alternatives.

4.2 Existing Water Utilities

Areas surrounding Jersey and St. Albans townships have existing water utilities operated by municipalities including SWL, the City of Pataskala, the Village of Johnstown, the Village of Granville, and the City of Columbus. Although Jersey and St. Albans Townships are generally surrounded by water utilities, there is very little service within them. Two exceptions to this are the City of New Albany (western area of Jersey Township) which is served by the City of Columbus, and the Village of Alexandria, (eastern-central area of St. Albans Township) which is served by the Village of Granville. Descriptions of these water utilities are provided in the following Sections.

4.2.1 Southwest Licking Water Utilities

SWL owns and operates a WTP designated as the York Road Water Treatment Plant which is located on Zellers Lane just off of York Road in Pataskala. The WTP supplies a water distribution system serving Etna Township, Harrison Township, and parts of the City of Pataskala. This service area is generally to the north of Interstate 70 and to the south of State Route 16. The water system also has interconnection points with Fairfield County and the Jefferson Water and Sewer District. The existing SWL water distribution system extends to SR 16, which is located to the south of St. Albans Township and could be a potential tie-in point to supply water to the developing areas surrounding the SR 161 and SR 37 interchange.

The York Road WTP has a current design capacity of 2.3 MGD, and is considered to be not expandable beyond that size. If expansion at the York Road WTP were required, it would likely involve construction of a new treatment facility adjacent to the existing one and a new wellfield. Groundwater from an adjacent wellfield provides raw water to the WTP, and the treatment train consists of iron/manganese oxidation and filtration, ion exchange softening, and chlorine disinfection. Recent (year 2011) Monthly Operating Reports (MORs) from the York Road WTP were reviewed to assess the average and peak flows experienced at the facility, which are summarized in Table 4-1.

Table 4-1 Summary of Water Demands at York Road WTP (2011)

Month (2011)	Avg. Day (MGD)	Max Day (MGD)	Min. Day (MGD)
January	1.00	1.30	0.79
February	0.98	1.11	0.75
March	1.00	1.14	0.86
April	0.96	1.13	0.79
May	1.04	1.28	0.83
June	1.04	1.27	0.88
July	1.07	1.36	0.81

As seen in Table 4-1, the average daily flow experienced at the York Road WTP has remained fairly consistent at approximately 1.0 MGD for the summer and winter months in the year 2011. This indicates there may be capacity available if water service from this facility is considered as part of a regional alternative.

SWL has several water storage tanks, most of which are located to the south within Etna and Harrison Townships. However, one elevated tank of interest is the Outville Tank, which has a storage capacity of 400,000 gallons and an overflow elevation of 1,300 feet. This tank is close enough to the SR 161 and SR 37 interchange (and the Village of Alexandria) to provide adequate storage and pressure. The elevation of these areas is approximately 1,000 feet, indicating that over 100 psi may be available if this system remains in the same pressure zone. The elevation near the SR 161 and SR 310 interchange is closer to 1,200 feet, which would require a booster station if service from this tank is desired.

4.2.2 City of Pataskala Water Utilities

The City of Pataskala is located south of the Jersey and St. Albans Townships and could potentially provide water service to the SR 161 and SR 310 interchange. The City operates two water treatment facilities: an older WTP located just south of the downtown area and a new WTP located southeast of town on Refugee Road just east of Watkins Road. Hydraulic limitations in the City's existing storage and distribution system require that both plants remain operational to meet demands.

The older WTP was originally constructed in 1955 and has undergone updates/expansions in 1965, 1985, and 2002, and has a rated capacity of 1.2 MGD. The overall condition of the plant is fair considering its age. Groundwater is the raw water source and treatment at the plant consists of iron removal via aeration/filtration, softening via ion exchange, and chlorine disinfection. The new WTP was constructed in 2007, has a design capacity of 0.875 MGD, and is

expandable to 2.6 MGD. Similar to the older WTP, groundwater from an adjacent wellfield provides raw water, and the treatment train consists of iron removal via oxidation/filtration, softening via ion exchange, and chlorine disinfection.

According to the 2010 Pataskala Utility Study Update prepared by W.E. Stilson Consulting Group, the two treatment plants collectively produce an average daily flow of 0.79 MGD. With a combined plant capacity of 2.07 MGD (and further expansion available), the actual demand is below the capacity, indicating that surplus water is potentially available.

The City of Pataskala has four elevated water storage tanks, two of which are located in a lower pressure zone and not considered viable for use in serving Jersey and St Albans Townships. The two higher-pressure zone tanks which could potentially serve Jersey and St. Albans Townships are located adjacent to each other and have capacities of 200,000 gallons and 500,000 gallons. The exact overflow elevation was not available, but appears to be approximately 1,370 feet based on hydraulic modeling performed by W.E. Stilson Consulting Group. This tank could therefore have similar hydraulic benefits as the SWL-owned Outville Road tank.

4.2.3 Village of Johnstown Water Utilities

The Village of Johnstown owns and operates a WTP located on Mink Street, which is located a little over one mile north of the northern border of Jersey Township. The plant has a design capacity of 1.0 MGD, and currently experiences a daily demand of approximately 0.5 MGD. Therefore, spare capacity may be available at this WTP if it is not already dedicated to future growth in the Village. Groundwater provides raw water to the plant, and the treatment train consists of lime softening, pH stabilization, filtration, and chlorine disinfection.

The Village has a 1,000,000 gallon elevated water storage tank located near downtown Johnstown (approximately 1.5 miles from the northern border of Jersey Township), and has a hydraulic grade elevation of 1,300 feet. This tank is likely close enough to the northern and western areas of Jersey Township to provide adequate storage and pressure, should those areas require service. The elevation along the SR 161 and SR 310 interchange is approximately 1,200 feet, indicating that a booster station would be necessary to serve this area. If service were continued east to SR 37, adequate pressure would be available without a second booster station.

4.2.4 Village of Granville Water Utilities

The Village of Granville owns and operates a WTP located on Palmer Lane, which is on the south side of downtown Granville. Granville currently supplies the Village of Alexandria with approximately 40,000 gpd of treated water via a waterline that runs along Raccoon-Valley Road. This waterline could serve as a potential tie-in point if the Village of Granville is willing to supply additional water to the area. Alexandria has a 100,000 gallon standpipe with an overflow elevation of 1,106 feet. This tank

would therefore not provide adequate pressures to the SR 161 & SR 37 interchange area. The Village of Granville's WTP was constructed in 1969 and has a maximum treatment capacity of 2.0 MGD. The WTP currently experiences a daily demand of approximately 0.7 MGD. Therefore, spare capacity may be available at this WTP if it is not already dedicated to future growth in the Village. However, the WTP is aged and does require some capital improvements to expand its useful life. Groundwater is the raw water source, and the treatment train consists of lime softening, pH stabilization, filtration, and chlorine disinfection.

4.2.5 City of Columbus / City of New Albany Water Utilities

The City of Columbus is located to the west of Jersey Township and currently provides water to the City of New Albany. Therefore, if a connection to this utility were desired, it would likely be within the City of New Albany, which is located in Jersey Township. However, because of existing contracts, the City of New Albany can only serve areas within its corporate limits. Therefore, New Albany would need to annex the projected developing areas to provide water service from Columbus.

The City of Columbus and its immediate surrounding areas are served by several WTPs. The northeast section of Columbus which could potentially serve Jersey and St. Albans Townships is supplied water from the Hap Cremean WTP, which is located on Morse Road east of Interstate 270. Constructed in 1969, the Hap Cremean WTP has a treatment capacity of 130 MGD, and currently experiences a daily demand of approximately 80 MGD. Major upgrades and treatment equipment replacement is planned to occur at the Hap Cremean plant within the next five years. Surface water from the Hoover Reservoir provides raw water to the plant, and the treatment train currently consists of screening, pre-sedimentation, lime softening, pH stabilization, filtration, and chlorine disinfection.

4.3 Projected Service Area

As described in Section 3 of this report, the projected service area through the 20-year planning period is the areas generally following the SR 161 corridor including areas surrounding the SR 37 interchange, the SR 310 interchange, and the areas of western Jersey Township excluding the City of New Albany. These areas were previously shown on Figure 3-2. It is assumed that this total land area would not be 100% developed by the end of the 20-year planning period. Therefore, percentages of development were assigned to the individual areas. These percentages were summarized in Tables 3-2 and 3-3. The projected service area also includes a small portion of the areas which are considered rural residential.

4.4 Projected Water Demands

In Section 3, water demands were determined based on standard values for unit water usage. This included 100 gpcd for rural residential, 500 gpad for light residential development, and 800 gpad for commercial and light industrial areas. Where available (Village of Alexandria),

existing water usage data was used. Table 3-4 previously summarized the individual water demand areas for the future developed areas along the SR 161 corridor, and the total average daily water demand was determined to be 620,000 gpd at the end of the 20-year planning period.

4.5 Water Supply Alternatives: Tying into Existing Water Utilities

One option for supplying finished water to the developing areas is to tie into an existing water utility and SWL act as the Management Agency. With this option, the water supplier would meter water usage and bill SWL accordingly. One advantage of this is initial project costs can be relatively low, as a new WTP does not need to be constructed. Of course, additional costs would be incurred with construction of distribution lines or other infrastructure as necessary (booster pumps, storage tanks, etc.), and costs incurred by the water provider. The feasibility of tying into existing water utilities to serve the developing areas is discussed in the following sections.

4.5.1 Alternative 1A: Service from SWLCWSD: Option A

Alternatives 1A, 1B, and 1C all propose that SWL serve the developing areas from water supplied by the existing York Road WTP. The key difference in the sub-alternatives is which order the developing areas (SR 161 & SR 37 interchange, SR 161 & SR 310 interchange, and western Jersey) are served. That is, if the master plan was to be implemented in Phases, one of the sub-alternatives could be implemented first; depending on which area develops first.

Alternative 1A proposes that service be provided to the SR 161 & SR 37 interchange as part of Phase 1 (including the Village of Alexandria). This would be accomplished with a connection to the existing 12-inch SWL waterline located at the intersection of SR 16 and Outville Road. Phase 1 of Alternative 1A would include a new 12-inch waterline that follows Outville Road north to SR 161 and then heads west to the SR 37 interchange. The Village of Alexandria would also be served as part of the first phase of construction of this waterline, which includes extending an 8-inch waterline north along SR 37 to the southeast side of Alexandria. The elevations and hydraulic grade from the existing Outville tank indicate the pressures at the SR 161 & SR 37 interchange would be at least 100 psi. Since SWL is at a much higher pressure zone than Alexandria, the water supply to the Alexandria tank would require a hydraulic control valve to prevent overflow of Alexandria's 112,000-gallon standpipe. The hydraulic control valve would need to be configured such that it would open and close based on pre-set high and low pressure set-points. Configuring the set-points on the valve in this way would effectively fill and drain the standpipe and promote tank turnover. A further review of the hydraulics is necessary prior to implementation, and it is possible that the Alexandria standpipe could be eliminated.

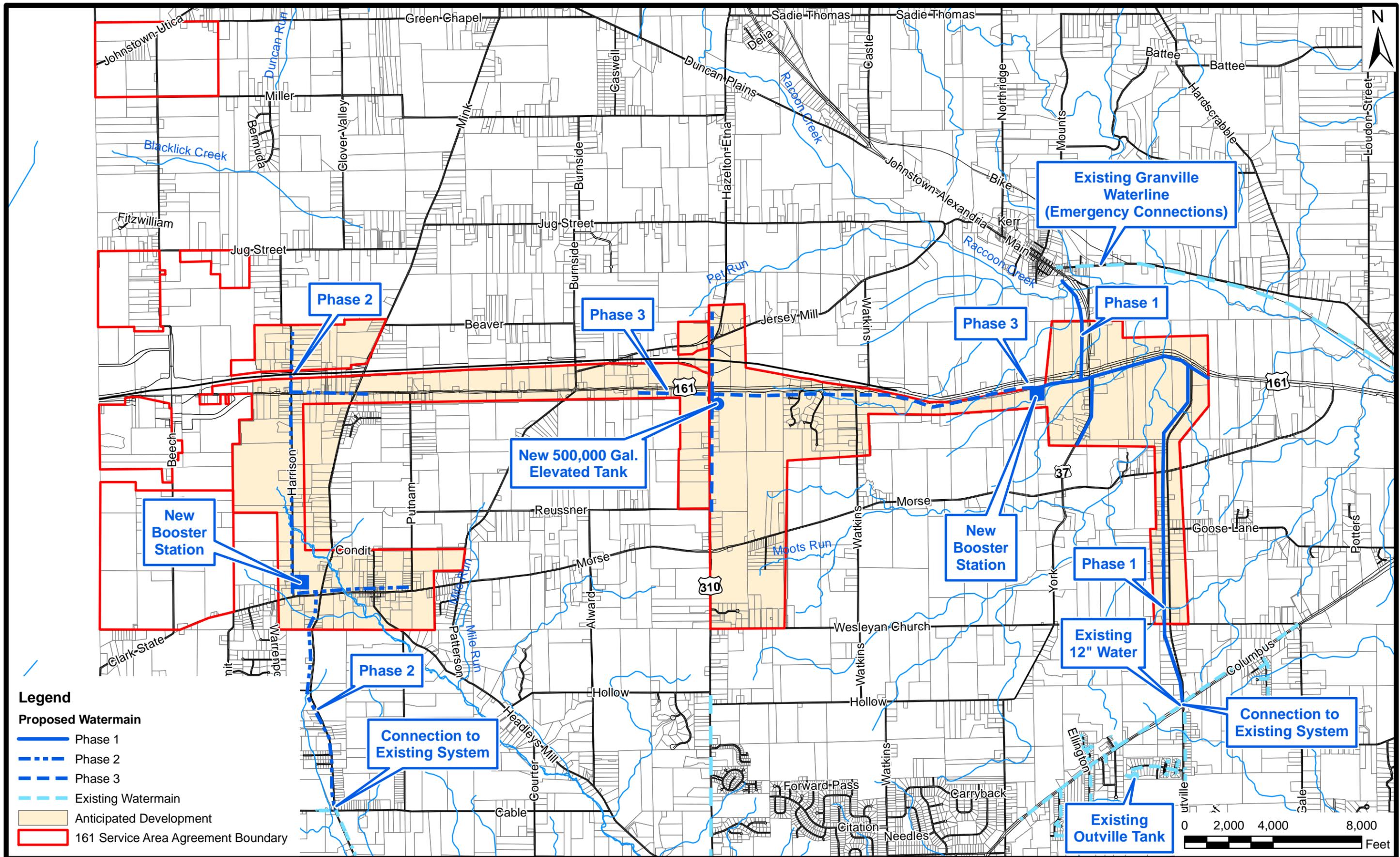
Phase 2 of Alternative 1A proposes to serve the areas of western Jersey Township via a connection to the 8-inch SWL waterline along Mink Street near Cable Road. This area is essentially fed from the Prologis tower, which is a 1,000,000 gallon tank

with an overflow elevation of 1,240.5'. Some areas of western Jersey Township are at an elevation of approximately 1,200, indicating pressures below 20 psi would be experienced in this area. Most areas of western Jersey Township are at a lower elevation and would experience pressures between 40 and 50 psi, which is still considered low. Because of this, a small booster station would be required. An elevated tank may eventually be warranted, but since flows are low in this area, no elevated tank is included with this phase.

Phase 3 of this alternative involves providing service to the SR 161 & SR 310 interchange. To accomplish this, it is proposed to extend the Service from Phase 1, which includes extending a new 12-inch waterline west along SR 161. The elevation at Phase 3 is approximately 200 feet higher than Phase 1, indicating that a new booster station and pressure zone is required. It is recommended to also construct a new 500,000 gallon elevated storage tank near the SR 161 & SR 310 interchange as part of this Phase.

Figure 4-1 presents the conceptual layout of this alternative. This includes the approximate waterline alignment, location of the booster station and elevated tank, and the sequencing of the three phases.

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Legend

Proposed Watermain

- Phase 1
- - - Phase 2
- · - · Phase 3
- - - Existing Watermain
- Anticipated Development
- 161 Service Area Agreement Boundary



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LICKING COUNTY, OHIO
**SOUTHWEST LICKING COMMUNITY WATER & SEWER DISTRICT
 WATER AND WASTEWATER MASTER PLAN**

**WATER SUPPLY ALTERNATIVE 1
 CONNECTION TO SWL WATER SYSTEM**

DATE November 22, 2011

Figure 4-1

Cost estimates for Phases 1, 2, and 3 of Alternative 1A are presented in Table 4-2. In the Table (and for all water system cost estimates), an additional project cost of 45% is added. This includes 15% for construction contingencies, 15% for engineering, 10% for construction administration, and 5% for mobilization/demobilization.

Table 4-2 Cost Estimate for Water Supply Alternative 1A

Item Description	Unit	Quantity	Unit Cost	Total Cost
Phase 1 - Service to SR 161 / SR 37 Interchange & Alexandria				
12-inch Waterline	LF	22,000	\$50	\$1,100,000
8-inch Waterline	LF	4,500	\$40	\$180,000
Stream & Road Crossings (Minor)	EA	14	\$8,000	\$112,000
Jacking & Boring Costs	LS	1	\$150,000	\$150,000
Traffic Maintenance	MILE	5.0	\$3,500	\$18,000
Phase 1 Construction Subtotal				\$1,560,000
Additional Project Costs	45%			\$702,000
Phase 1 Project Total				\$2,262,000
Phase 2 - Service to Western Jersey Township				
8-inch Waterline	LF	30,000	\$40	\$1,200,000
Small Water Booster Station	LS	1	\$175,000	\$175,000
Stream & Road Crossings (Minor)	EA	11	\$8,000	\$88,000
Jacking & Boring Costs	LS	1	\$150,000	\$150,000
Traffic Maintenance	MILE	5.7	\$3,500	\$20,000
Phase 2 Construction Subtotal				\$1,633,000
Additional Project Costs	45%			\$735,000
Phase 2 Project Total				\$2,368,000
Phase 3 - Service to SR 161 / SR 310 Interchange				
12-inch Waterline	LF	26,000	\$50	\$1,300,000
Elevated Water Storage Tank	GAL	500,000	\$2.75	\$1,375,000
Water Booster Station	LS	1	\$225,000	\$225,000
Stream & Road Crossings (Minor)	EA	6	\$8,000	\$48,000
Jacking & Boring Costs	LS	1	\$150,000	\$150,000
Traffic Maintenance	MILE	4.9	\$3,500	\$17,000
Phase 3 Construction Subtotal				\$3,115,000
Additional Project Costs	45%			\$1,402,000
Phase 3 Project Total				\$4,517,000
Phase 1, 2, & 3 Totals				
Phase 1, 2, & 3 Construction Total				\$6,308,000
Phase 1, 2, & 3 Total Project Estimate				\$9,147,000

A present worth analysis for this alternative was performed. For the annual operation and maintenance (O&M) costs, the SWL water rate of \$6.97 per 1,000 gallons was

used (valid for volumes over 40,000 gallons per month). This cost per gallon is assumed to cover all SWL expenses associated with necessary waterline repairs and routine maintenance, personnel salaries and benefits, office costs, treatment and distribution costs, interest on debt retirement, services such as engineering and contractors, emergency funds, and all other incidental costs incurred by SWL.

Annual costs vary for each phase depending on the water demand. The flows corresponding to each phase were determined previously in individual areas along the SR 161 corridor and are summarized in Table 3-4. The flows corresponding to each phase of this alternative are as follows:

- Phase 1 (SR 161 & 37, Alexandria) average daily flow: 256,000 gpd
- Phase 2 (Western Jersey) average daily flow: 164,000 gpd
- Phase 3 (SR 161 & 310) average daily flow: 200,000 gpd

The present worth analysis assumes the 20-year design period and 5% interest, and is presented in Table 4-3.

Table 4-3 20-Year Present Worth for Alternative 1A

Cost Description	Cost	20-Year Present Worth
Phase 1 - Service to SR 161 / SR 37 Interchange & Alexandria		
Phase 1 Project Cost	\$2,262,000	\$2,262,000
Annual Costs for Phase 1	\$651,000	\$8,113,000
Phase 1 20-Year Present Worth		\$10,375,000
Phase 2 - Service to Western Jersey Township		
Phase 2 Project Cost	\$2,368,000	\$2,368,000
Annual Costs for Phase 2	\$417,000	\$5,197,000
Phase 2 20-Year Present Worth		\$7,565,000
Phase 3 - Service to SR 161 / SR 310 Interchange		
Phase 3 Project Cost	\$4,517,000	\$4,517,000
Annual Costs for Phase 2	\$509,000	\$6,343,000
Phase 3 20-Year Present Worth		\$10,860,000
Total Project 20-Year Present Worth		\$28,800,000

4.5.2 Alternative 1B: Service from SWLCWSD: Option B

This alternative is similar to Alternative 1A; with the key difference being instead of providing water service to the SR 161 & SR 37 interchange as Phase 1, it proposes to provide service to western Jersey Township as Phase 1. Phase 2 of the project proposes to provide water service to the SR 161 and SR 37 interchange, and Phase 3

proposes to provide water service to the SR 161 & SR 310 interchange. The means of providing water service to the developing areas is the same for Alternatives 1A and 1B. That is, all waterline locations, booster stations, elevated storage tanks, connection points, etc. are the same. Note that Alternatives 1A and 1B both propose to serve the SR 161 & SR 310 interchange as Phase 3. The conceptual layout of the water system improvements are the same as presented in Figure 4-1: with the exception that Phase 1 and Phase 2 are reversed.

Cost estimates for Phases 1, 2, and 3 of Alternative 1B are also the same as the corresponding phases of Alternative 1A, and are summarized below:

- Phase 1 (Western Jersey) total project cost: \$2,368,000
- Phase 2 (SR 161 & 37, Alexandria) total project cost: \$2,262,000
- Phase 3 (SR 161 & 310) total project cost: \$4,517,000
- Alternative 1B total project cost: \$9,147,000

Similarly, the 20-year present worth analyses for Alternative 1B are the same as the corresponding Phases of Alternative 1A, and are summarized below:

- Phase 1 20-year present worth: \$7,565,000
- Phase 2 20-year present worth: \$10,375,000
- Phase 3 20-year present worth: \$10,860,000
- Alternative 1B 20-year present worth: \$28,800,000

4.5.3 Alternative 1C: Service from SWLCWSD: Option C

This alternative is similar to Alternatives 1A and 1B; with the key difference being water is provided to the SR 161 & SR 310 interchange as Phase 2 instead of Phase 3. Phase 1 of this project therefore requires service to the SR 161 & SR 37 interchange, and Phase 3 of this project includes service to the western Jersey Township area. The means of providing water service to the developing areas is the same for Alternatives 1A, 1B, and 1C. That is, all waterline locations, booster stations, elevated storage tanks, connection points, etc. are the same. The conceptual layout of the water system improvements are the same as presented in Figure 4-1: with the exception that Phase 2 and Phase 3 are reversed.

Cost estimates for Phases 1, 2, and 3 of Alternative 1C are also the same as the corresponding phases of Alternatives 1A and 1B, and are summarized below:

- Phase 1 (SR 161 & 37, Alexandria) total project cost: \$2,262,000
- Phase 2 (SR 161 & 310) total project cost: \$4,517,000
- Phase 3 (western Jersey) total project cost: \$2,368,000
- Alternative 1C total project cost: \$9,147,000

Similarly, the 20-year present worth analyses for Alternative 1C are the same as the corresponding Phases of Alternatives 1A and 1B, and are summarized below:

- Phase 1 20-year present worth: \$10,375,000
- Phase 2 20-year present worth: \$10,860,000
- Phase 3 20-year present worth: \$7,565,000
- Alternative 1C total present worth: \$28,800,000

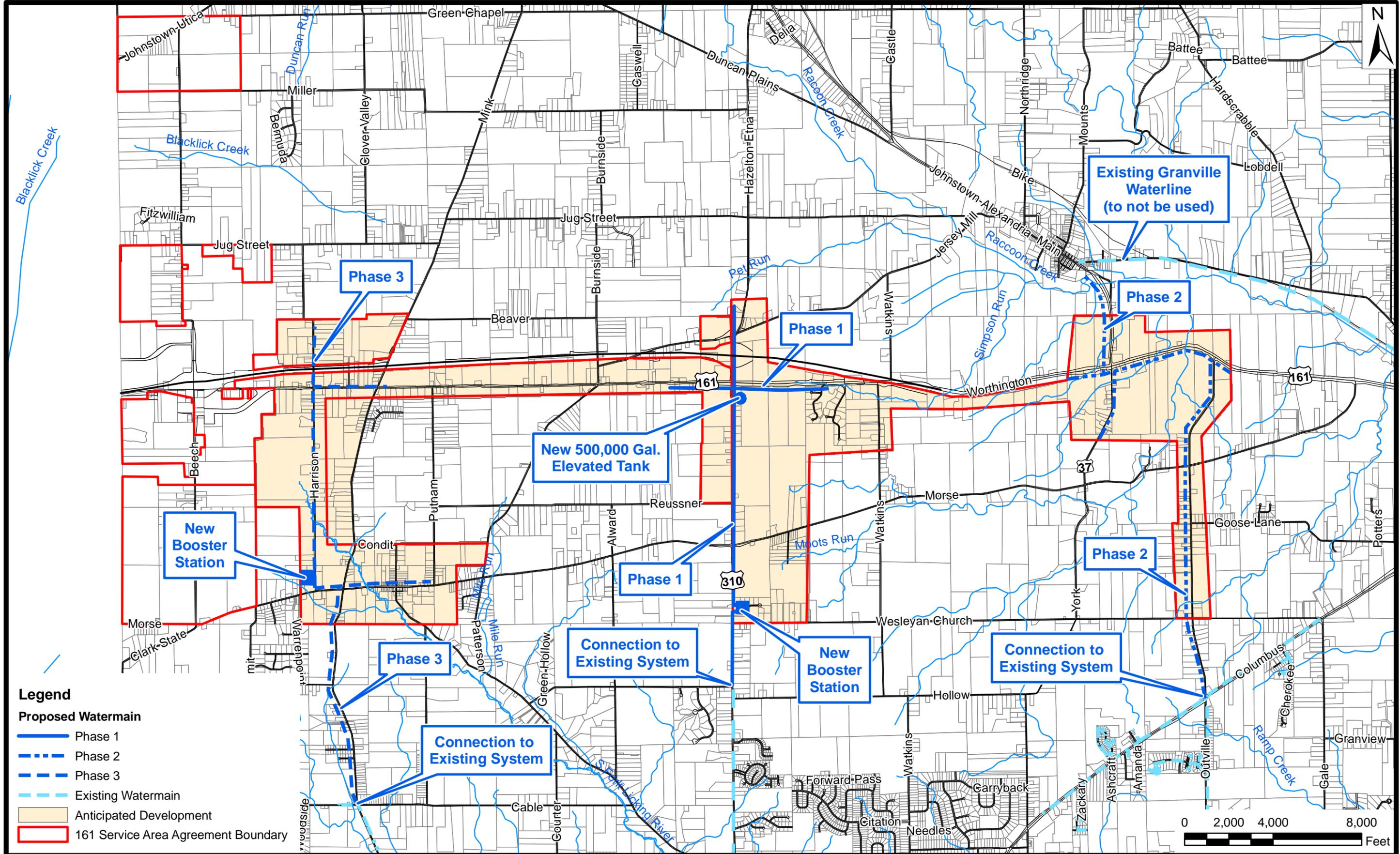
4.5.4 Alternative 2A: Service from SWLCWSD and City of Pataskala: Option A

Alternatives 1A, 1B, and 1C all proposed to provide service to the SR 161 & SR 310 interchange as Phase 2 or Phase 3. This is primarily due to the lack of SWL waterlines within reasonable proximity of the interchange and the inability to service the interchange without first serving the SR 161 & SR 37 interchange. Alternatives 2A and 2B were therefore developed to provide water service to the SR 161 & SR 310 interchange as Phase 1.

Alternative 2A and 2B propose that the City of Pataskala supplies water to the SR 161 & SR 310 interchange, and SWL provide water service to the SR 161 & SR 37 interchange and western Jersey Township. Pataskala has a waterline located on SR 310 on the northern area of the City, which is proposed to be utilized in this alternative. Although the City would physically be supplying water to the interchange, SWL would act as the utility provider through an agreement with Pataskala. SWL and Pataskala currently have an agreement in which if Pataskala serves a SWL utility, SWL is obligated to supply an equal volume of water to Pataskala. Therefore, the developing areas at the SR 161 & SR 310 interchange could be served by Pataskala as long as SWL provides an equal volume of water to Pataskala's distribution system. Additional coordination with the City would be appropriate to ensure sufficient water supply could be provided.

Phase 1 of Alternative 2A includes a new 12-inch waterline that would be extended from the north side of the City of Pataskala's distribution system, and follows SR 310 north to the SR 161 interchange. A booster station and 500,000 gallon elevated storage tank are also included with this Alternative. Phase 2 of Alternative 2A is the same as Phase 1 of Alternative 1A: which includes extending a 12-inch waterline along Outville Road to the SR 161 & SR 37 interchange (including the Village of Alexandria). Phase 3 of this Alternative is the same as Phase 2 of Alternative 1A: which includes providing service to western Jersey Township via the SWL waterline located on Mink Street and a new booster station. Figure 4-2 presents the conceptual layout of this alternative. This includes the approximate waterline alignment, location of the booster stations and elevated tank, and the sequencing of the three phases.

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Legend

- Proposed Watermain**
- Phase 1
 - - - Phase 2
 - · - · - Phase 3
 - - - Existing Watermain
 - Anticipated Development
 - 161 Service Area Agreement Boundary



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LICKING COUNTY, OHIO
**SOUTHWEST LICKING COMMUNITY WATER & SEWER DISTRICT
 WATER AND WASTEWATER MASTER PLAN**

**WATER SUPPLY ALTERNATIVE 2
 CONNECTION TO
 SWL & PATASKALA WATER SYSTEMS**

DATE November 22, 2011

Figure 4-2

Cost estimates for Alternative 2A were developed and are presented in Table 4-4. Note that estimates for Phases 2 and 3 were previously developed in Alternative 1.

Table 4-4 Cost Estimate for Water Supply Alternative 2A

Item Description	Unit	Quantity	Unit Cost	Total Cost
Phase 1 - Service to SR 161 / SR 310 Interchange				
12-inch Waterline	LF	26,000	\$50	\$1,300,000
Water Booster Station	LS	1	\$225,000	\$225,000
Elevated Water Storage Tank	GAL	500,000	\$2.75	\$1,375,000
Stream & Road Crossings (Minor)	EA	6	\$8,000	\$48,000
Jacking & Boring Costs	LS	1	\$150,000	\$150,000
Traffic Maintenance	MILE	4.9	\$3,500	\$17,000
Phase 1 Construction Subtotal				\$3,115,000
Additional Project Costs	45%			\$1,402,000
Phase 1 Project Total				\$4,517,000
Phase 2 - Service to SR 161 / SR 37 Interchange & Alexandria				
12-inch Waterline	LF	22,000	\$50	\$1,100,000
8-inch Waterline	LF	4,500	\$40	\$180,000
Stream & Road Crossings (Minor)	EA	14	\$8,000	\$112,000
Jacking & Boring Costs	LS	1	\$150,000	\$150,000
Traffic Maintenance	MILE	5.0	\$3,500	\$18,000
Phase 2 Construction Subtotal				\$1,560,000
Additional Project Costs	45%			\$702,000
Phase 2 Project Total				\$2,262,000
Phase 3 - Service to Western Jersey Township				
8-inch Waterline	LF	30,000	\$40	\$1,200,000
Small Water Booster Station	LS	1	\$175,000	\$175,000
Stream & Road Crossings (Minor)	EA	11	\$8,000	\$88,000
Jacking & Boring Costs	LS	1	\$150,000	\$150,000
Traffic Maintenance	MILE	5.7	\$3,500	\$20,000
Phase 3 Construction Subtotal				\$1,633,000
Additional Project Costs	45%			\$735,000
Phase 3 Project Total				\$2,368,000
Phase 1, 2, & 3 Totals				
Phase 1, 2, & 3 Construction Total				\$6,308,000
Phase 1, 2, & 3 Total Project Estimate				\$9,147,000

As seen in the Table, the total project costs for Alternative 1 and Alternative 2 are actually estimated to be the same. A present worth analysis for this alternative was performed. For the annual operating costs, the SWL water rate of \$6.97 per 1,000 gallons was used (valid for volumes over 40,000 gallons per month). This is the same annual cost as Alternative 1, since this Alternative proposes that SWL supply water

to Pataskala which in turn supplies water to the developing areas. This cost per gallon is assumed to cover all expenses associated with necessary waterline repairs, personnel salaries and benefits, and other routine maintenance or incidental costs incurred by SWL.

Annual costs vary for each phase depending on the water and wastewater flow. The flows corresponding to each phase were determined previously in individual areas along the SR 161 corridor and are summarized in Table 3-4. The flows corresponding to each phase of this alternative are as follows:

- Phase 1 (SR 161 & 310) average daily flow: 200,000 gpd
- Phase 2 (SR 161 & 37, Alexandria) average daily flow: 256,000 gpd
- Phase 3 (western Jersey) average daily flow: 164,000 gpd

The present worth analysis assumes the 20-year design period and 5% interest, and is presented in Table 4-5. Note that the present worth values for the corresponding service areas have been previously developed in Alternative 1 and the 20-year present worth is the same.

Table 4-5 20-Year Present Worth for Alternative 2A

Cost Description	Cost	20-Year Present Worth
Phase 1 - Service to SR 161 / SR 310 Interchange		
Phase 1 Project Cost	\$4,517,000	\$4,517,000
Annual Costs for Phase 1	\$509,000	\$6,343,000
Phase 1 20-Year Present Worth		\$10,860,000
Phase 2 - Service to SR 161 / SR 37 Interchange & Alexandria		
Phase 2 Project Cost	\$2,262,000	\$2,262,000
Annual Costs for Phase 2	\$651,000	\$8,113,000
Phase 2 20-Year Present Worth		\$10,375,000
Phase 3 - Service to Western Jersey Township		
Phase 3 Project Cost	\$2,368,000	\$2,368,000
Annual Costs for Phase 3	\$417,000	\$5,197,000
Phase 3 20-Year Present Worth		\$7,565,000
Total Project 20-Year Present Worth		\$28,800,000

4.5.5 Alternative 2B: Service from SWLCWSD and City of Pataskala: Option B

This alternative is similar to Alternatives 2A; with the key difference being water is provided to western Jersey Township as Phase 2 instead of Phase 3. Phase 1 is therefore still service to the SR 161 & SR 310 interchange by Pataskala, and Phase 3 is service to the SR 161 & SR 37 interchange. The means of providing water service to the developing areas is the same for Alternatives 2A and 2B. That is, all waterline

locations, booster stations, elevated storage tanks, connection points, etc. are the same. The conceptual layout of the water system improvements are the same as presented in Figure 4-2: with the exception that Phase 2 and Phase 3 are reversed.

Cost estimates for Phases 1, 2, and 3 of Alternative 2B are also the same as the corresponding phases of Alternative 2A, and are summarized below:

- Phase 1 (SR 161 & 310) total project cost: \$4,517,000
- Phase 2 (Western Jersey) total project cost: \$2,368,000
- Phase 3 (SR 161 & 37, Alexandria) total project cost: \$2,262,000
- Alternative 2B total project cost: \$9,147,000

Similarly, the 20-year present worth analyses for Alternative 2B are the same as the corresponding Phases of Alternative 2A, and are summarized below:

- Phase 1 20-year present worth: \$10,860,000
- Phase 2 20-year present worth: \$7,565,000
- Phase 3 20-year present worth: \$10,375,000
- Alternative 2B 20-year present worth: \$28,800,000

4.5.6 Alternative 3: Village of Johnstown

Water service from the Village of Johnstown was investigated as Alternative 3. Phase 1 of Alternative 3 includes a new 12-inch waterline that would be extended from the southern area of the Village of Johnstown's distribution system. The new waterline would follow Clover Valley Road to SR 161 to serve the western area of Jersey Township. Elevations in this area are such that additional boosting is not required. However, the distance is great enough to warrant an elevated storage tank in the area. Therefore, a 250,000 gallon tank is proposed as part of Phase 1. Phase 2 of the project proposes to extend the 12-inch waterline east along SR 161 to the SR 310 interchange. A booster station and 500,000 gallon elevated storage tank are also included with this phase. Phase 3 of Alternative 3 includes extending a 12-inch waterline east along SR 161 to the SR 37 interchange. An 8-inch waterline from this area would also serve the Village of Alexandria. Cost estimates for all three phases were generated and are presented in Table 4-6.

Table 4-6 Cost Estimate for Water Supply Alternative 3

Item Description	Unit	Quantity	Unit Cost	Total Cost
Phase 1 - Service to Western Jersey Township				
12-inch Waterline	LF	38,000	\$50	\$1,900,000
Storage Tank	GAL	250,000	\$2.75	\$688,000
Stream & Road Crossings (Minor)	EA	11	\$8,000	\$88,000
Jacking & Boring Costs	LS	1	\$150,000	\$150,000
Traffic Maintenance	MILE	7.2	\$3,500	\$25,000
Phase 1 Construction Subtotal				\$2,851,000
Additional Project Costs	45%			\$1,283,000
Phase 1 Project Total				\$4,134,000
Phase 2 - Service to SR 161 / SR 310 Interchange				
12-inch Waterline	LF	25,000	\$50	\$1,250,000
Booster Station	LS	1	\$225,000	\$225,000
Storage Tank	GAL	500,000	\$2.75	\$1,375,000
Stream & Road Crossings (Minor)	EA	5	\$8,000	\$40,000
Jacking & Boring Costs	LS	1	\$150,000	\$150,000
Traffic Maintenance	MILE	4.7	\$3,500	\$17,000
Phase 2 Construction Subtotal				\$3,057,000
Additional Project Costs	45%			\$1,376,000
Phase 2 Project Total				\$4,433,000
Phase 3 - Service to SR 161 / SR 37 Interchange & Alexandria				
12-inch Waterline	LF	24,000	\$50	\$1,200,000
8-inch Waterline	LF	4,500	\$40	\$180,000
Stream & Road Crossings (Minor)	EA	9	\$8,000	\$72,000
Jacking & Boring Costs	LS	1	\$150,000	\$150,000
Traffic Maintenance	MILE	5.4	\$3,500	\$19,000
Phase 3 Construction Subtotal				\$1,621,000
Additional Project Costs	45%			\$729,000
Phase 3 Project Total				\$2,350,000
Phase 1, 2, & 3 Totals				
Phase 1, 2, & 3 Construction Total				\$7,529,000
Phase 1, 2, & 3 Total Project Estimate				\$10,917,000

As seen in Table 4-6, the project cost estimates to supply water from Johnstown are substantially higher (\$1.8 million) compared to Alternatives 1 and 2. In addition to these initial project costs, the annual operation costs would be very high due to Johnstown charging a prevailing water rate and SWL maintaining the system. Unless Johnstown could substantially reduce their water rates, this alternative is considered too high in both capital and operating costs to be viable.

4.5.7 Alternative 4: Village of Granville

Alternative 4 proposes that the Village of Granville supply water to the developing areas. In this Alternative, Granville would supply water at a fixed rate and SWL would maintain the waterlines and associated utilities. Granville currently has an 8-inch waterline which extends to the Village of Alexandria. URS and SWL met with Granville to determine if the Village is capable and willing to provide water services. Although no agreement has been made between SWL and Granville, the Village seemed generally interested in providing water to the developing areas. A copy of the meeting minutes regarding service from Granville is provided in Appendix B.

Phase 1 of this project would consist of tying into the existing 8-inch waterline near SR 37 and extending to the south to serve the SR 161 & 37 interchange. A booster station at the tie-in point is required, as the existing pressure feeding the Alexandria tank is too low for commercial development at the interchange. With a new pressure zone, a new 500,000 gallon elevated storage tank is recommended as part of Phase 1. The tank is also recommended as the 8-inch waterlines is considered undersized for this application, and an elevated tank would help mitigate the smaller capacity.

Phase 2 of this project includes a new 12-inch waterline extending west on SR 161 to the SR 310 interchange. Due to topography, a new booster station and 500,000 gallon elevated water storage tank is also required with this phase. Phase 3 of this project includes extending a 12-inch waterline to the west along SR 161 to the western areas of Jersey Township near the. No additional booster stations or elevated storage tanks are deemed necessary as part of Phase 3. Cost estimates for all three phases are presented in Table 4-7.

Table 4-7 Cost Estimate for Water Supply Alternative 4

Item Description	Unit	Quantity	Unit Cost	Total Cost
Phase 1 - Service to SR 161 / SR 37 Interchange & Alexandria				
12-inch Waterline	LF	19,000	\$50	\$950,000
Booster Station	LS	1	\$225,000	\$225,000
Storage Tank	GAL	500,000	\$2.75	\$1,375,000
Stream & Road Crossings (Minor)	EA	8	\$8,000	\$64,000
Jacking & Boring Costs	LS	1	\$150,000	\$150,000
Traffic Maintenance	MILE	3.6	\$3,500	\$13,000
Phase 1 Construction Subtotal				\$2,777,000
Additional Project Costs	45%			\$1,250,000
Phase 1 Project Total				\$4,027,000
Phase 2 - Service to SR 161 / SR 310 Interchange				
12-inch Waterline	LF	27,000	\$50	\$1,350,000
Booster Station	LS	1	\$225,000	\$225,000
Storage Tank	GAL	500,000	\$2.75	\$1,375,000
Stream & Road Crossings (Minor)	EA	8	\$8,000	\$64,000
Jacking & Boring Costs	LS	1	\$150,000	\$150,000
Traffic Maintenance	MILE	5.1	\$3,500	\$18,000
Phase 2 Construction Subtotal				\$3,182,000
Additional Project Costs	45%			\$1,432,000
Phase 2 Project Total				\$4,614,000
Phase 3 - Service to Western Jersey Township				
8-inch Waterline	LF	34,000	\$40	\$1,360,000
Stream & Road Crossings (Minor)	EA	8	\$8,000	\$64,000
Jacking & Boring Costs	LA	1	\$150,000	\$150,000
Traffic Maintenance	MILE	6.4	\$3,500	\$23,000
Phase 3 Construction Subtotal				\$1,597,000
Additional Project Costs	45%			\$719,000
Phase 3 Project Total				\$2,316,000
Phase 1, 2, & 3 Totals				
Phase 1, 2, & 3 Construction Total				\$7,556,000
Phase 1, 2, & 3 Total Project Estimate				\$10,957,000

As seen in Table 4-7, the project cost estimates to supply water from Granville are substantially higher (\$1.8 million) compared to Alternatives 1 and 2. In addition to these initial project costs, the annual operation costs would be very high due to Granville charging a prevailing water rate and SWL maintaining the system. Unless Granville could substantially reduce their water rates, this alternative is considered too high in both capital and operating costs to be viable.

4.5.8 Alternative 5: City of Columbus / New Albany

Water service from the City of Columbus was investigated as Alternative 5. Specifically, the water would actually be provided through the City of New Albany with an agreement between New Albany and SWL, as New Albany is currently provided water from the City of Columbus. URS and SWL met with New Albany to discuss the possibility of providing water to the developing areas, and a copy of the meeting minutes is provided in Appendix B. Unfortunately, this alternative is considered to not be viable as it would involve the City of New Albany annexing the developing areas in Jersey and St. Albans Townships in addition to Columbus allowing that area to be serviced through new contracts with New Albany.

4.6 Alternative 6: New Water Treatment Facility and Water Supply

In lieu of an existing WTP supplying finished water to the developing areas, a viable alternative may be to construct a new WTP to meet water demands. Preliminary alternatives for a new WTP are outlined in this section.

4.6.1 Raw Water Sources

Prior to establishing sites for a new WTP or treatment alternatives, a review of the available raw water within Licking County was performed. To assist with this, the report entitled “Ground Water and Surface Water Supply Potential of the Raccoon Creek Valley Licking County, Ohio” prepared by Metcalf & Eddy in 1991 was obtained and reviewed. The report was generated to assess the feasibility of the City of Columbus using Raccoon Creek or the surrounding aquifers to supply raw water. The findings of the report indicated that the water resources are inadequate for such high demands (scenarios involved 5 MGD groundwater demand). However, the demands required for this master planning area are considerably smaller.

The report generally ruled out surface water as a raw water supply as this would require construction of a reservoir. An upground reservoir is suitable for flat areas, and the terrain in Licking County would likely create difficulties in selecting a reservoir site. Regarding groundwater, there does appear to be several favorable areas within the aquifer along Raccoon Creek. The report and ODNR-generated groundwater resources maps indicate that there are areas which can potentially yield 200 to 500 gpm (290,000 to 720,000 gpd) per well. These areas are located within the aquifer near the Village of Alexandria, which is in close proximity of the SR 161 and SR 37 interchange. Therefore, raw water supply for a new WTP is proposed to be groundwater from this aquifer. With an anticipated water demand of 620,000 gpd during the 20-year design period, several wells located in this aquifer should provide an adequate supply of raw water.

Specific water quality data from this aquifer was not available at the time of this report. However, approximations of water quality constituents can be made based on existing groundwater quality data in Central Ohio. The primary constituents of

concern for groundwater in this area would be iron and hardness. Manganese may also be a constituent of concern, but this cannot be determined without first drilling and testing. Iron levels can often range from less than 1 mg/L to above 2 mg/L, and hardness can often range from 500 to 700 mg/L as CaCO₃. Of course, it would not be unexpected for those constituents to fall outside of those ranges as well. For the purposes of this Report, it will be assumed that raw water iron concentrations will be 1 mg/L and raw water hardness will be 600 mg/L as CaCO₃.

SWL is currently moving forward with exploratory drilling, well site investigations, and Ohio EPA approval of a potential wellfield site. This process will be used to determine the actual location of the wells, acceptable groundwater yield, and groundwater quality. For the purposes of this report, the wellfield is expected to be located in the areas of the anticipated higher-yield aquifer near the Village of Alexandria. Figure 4-3 (presented later in this section) identifies the location of a potential wellfield, as well as a potential location of a treatment facility and other water utility improvements discussed in the following sections.

4.6.2 New Treatment Facility Location

There are many viable options for the location of a new WTP. Some factors to consider in selection of a new WTP site are proximity of both the raw water source and finished water supply points, being located outside of a floodplain, accessibility for larger vehicles (chemical supply, treatment equipment, etc.), and proximity of a reliable electrical power supply.

Upon review of potential treatment facility sites, it was decided to locate the facility on the wellfield site. It is often advantageous to locate a WTP in proximity to the supply wells for purposes of communication between the WTP and the wells, in addition to maintenance issues with the wells and supply line. This location is also favorable as it is located between the SR 161 interchanges with SR 37 and SR 310 – indicating that either interchange could be served as part of Phase 1 or Phase 2. The primary disadvantage with this alternative is that the two interchanges are at two different pressure zones. However, this problem can be easily resolved by either providing two sets of high service pumps or serving the higher pressure zone as Phase 1.

4.6.3 Treatment System Requirements

For any water treatment alternative, the system shall be capable of meeting the anticipated water demands for the newly developed areas as well as all water quality standards set forth by the OEPA and SWL. This includes maintaining finished water iron levels below 0.3 mg/L, turbidities under 0.3 NTU, and operating at acceptable hardness ranges less than 150 mg/L as CaCO₃. Although groundwater quality results at the proposed wellfield site were not available at the time of this report, an extensive review of all potential contaminants will need to be reviewed prior to

finalizing the design of any WTP. This includes contaminants such as arsenic, nitrates, barium, hydrocarbons, and other potential contaminants.

As described in Chapter 3, the anticipated average daily flow at the end of the 20-year planning period estimated as 620,000 gpd. The WTP capacity should be sized to meet peak capacity and a peaking factor of approximately 2.0 was selected based on projected future land use which includes light commercial and residential development. The design capacity of the WTP is therefore recommended to be 1.25 MGD.

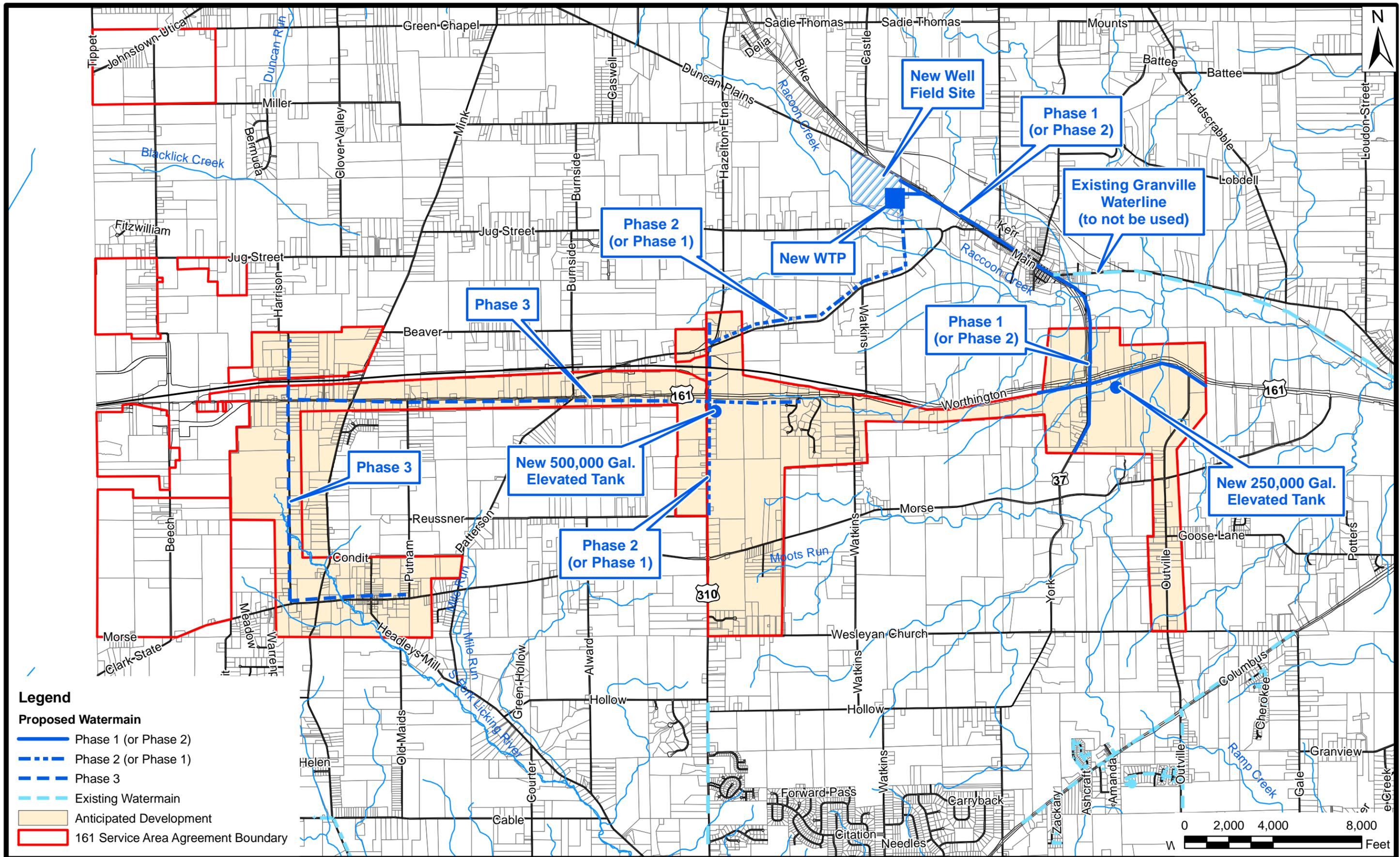
4.6.4 Additional Project Costs with New Treatment Facility

In addition to the project costs associated with the new WTP, additional project cost will be incurred for new waterlines and related water infrastructure required for a reliable water supply. Similar to the water supply alternatives, the distribution line construction can be broken into separate phases. Since the proposed WTP is located between the SR 161 interchanges with SR 310 and SR 37, either one could be serviced as part of Phase 1 or Phase 2. New elevated storage tanks are proposed for both interchanges: namely a 250,000 gallon tank for the SR 161 & SR 37 interchange and a 500,000 gallon tank for the SR 161 & SR 310 interchange.

Phase 3 of this alternative includes serving the areas of Western Jersey Township by extending a new 8-inch waterline to the west along SR 161 from the 310 interchange. The 500,000 gallon elevated storage tank would provide adequate pressures to these areas, and no additional booster stations or storage tanks are recommended with Phase 3.

Figure 4-3 presents the conceptual layout of Alternative 6. This includes the approximate waterline alignment, locations of the elevated tanks, WTP, wellfield, and the sequencing of the three phases. Note that Phases 1 and 2 are interchangeable, and are indicated as such on the Figure.

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Legend

Proposed Watermain

- Phase 1 (or Phase 2)
- - - Phase 2 (or Phase 1)
- · · Phase 3
- - - Existing Watermain
- Anticipated Development
- 161 Service Area Agreement Boundary



REVISIONS			
NO.	BY	DATE	REMARKS

DES _____
 DWN _____
 CND _____

LICKING COUNTY, OHIO
**SOUTHWEST LICKING COMMUNITY WATER & SEWER DISTRICT
 WATER AND WASTEWATER MASTER PLAN**

**WATER SUPPLY ALTERNATIVE 6
 NEW TREATMENT FACILITY**

DATE November 22, 2011

Figure 4-3

Cost estimates for the three phases were generated and are presented in Table 4-8. Although Phases 1 and 2 may be constructed in either order, for the purposes of this cost estimate, service to SR 161 & SR 37 (including Alexandria) is considered to be Phase 1 and service to SR 161 & SR 310 is considered to be Phase 2. This cost estimate does not include the costs associated with the new WTP and wellfield, which is covered in the following sections.

Table 4-8 Distribution System Cost Estimate for Alternative 6

Item Description	Unit	Quantity	Unit Cost	Total Cost
Phase 1 - Service to SR 161 / SR 37 Interchange & Alexandria				
12-inch Waterline	LF	25,000	\$50	\$1,250,000
Storage Tank	GAL	250,000	\$2.75	\$688,000
Stream & Road Crossings (Minor)	EA	10	\$8,000	\$80,000
Jacking & Boring Costs	LS	1	\$150,000	\$150,000
Traffic Maintenance	MILE	4.7	\$3,500	\$17,000
Phase 1 Construction Subtotal				\$2,185,000
Additional Project Costs	45%			\$983,000
Phase 1 Project Total				\$3,168,000
Phase 2 - Service to SR 161 / SR 310 Interchange				
12-inch Waterline	LF	29,000	\$50	\$1,450,000
Storage Tank	GAL	500,000	\$2.75	\$1,375,000
Stream & Road Crossings (Minor)	EA	9	\$8,000	\$72,000
Jacking & Boring Costs	LS	1	\$150,000	\$150,000
Traffic Maintenance	MILE	5.5	\$3,500	\$19,000
Phase 2 Construction Subtotal				\$3,066,000
Additional Project Costs	45%			\$1,380,000
Phase 2 Project Total				\$4,446,000
Phase 3 - Service to Western Jersey Township				
8-inch Waterline	LF	34,000	\$40	\$1,360,000
Stream & Road Crossings (Minor)	EA	8	\$8,000	\$64,000
Jacking & Boring Costs	LS	1	\$150,000	\$150,000
Traffic Maintenance	MILE	6.4	\$3,500	\$23,000
Phase 3 Construction Subtotal				\$1,597,000
Additional Project Costs	45%			\$719,000
Phase 3 Project Total				\$2,316,000
Phase 1, 2, & 3 Totals				
Phase 1, 2, & 3 Construction Total				\$6,848,000
Phase 1, 2, & 3 Total Project Estimate				\$9,930,000

Since SWL will be operating and maintaining the distribution system, additional O&M costs will be incurred. These include maintenance of the waterlines, tanks, and other additional SWL costs (including partial employee salaries). These estimated annual O&M costs are presented in Table 4-9. Not included in the table are the

O&M costs associated with the WTP operation, which is covered in the following sections.

Table 4-9 Distribution System O&M Cost Estimate for Alternative 6

Item Description	Unit	Quantity	Unit Cost	Total Cost
Phase 1 - Service to SR 161 / SR 37 Interchange & Alexandria				
Waterline Maintenance	mile	4.73	\$800	\$4,000
Storage tank maintenance	LS	1	\$3,000	\$3,000
Additional SWL expenses	LS	1	\$20,000	\$35,000
Annual Interest on Debt Retirement	Percent	3.5	\$65,000	\$65,000
Phase 1 Annual O&M Expenses				\$107,000
Phase 2 - Service to SR 161 / SR 310 Interchange				
Waterline Maintenance	mile	5.49	\$800	\$4,000
Storage tank maintenance	LS	1	\$3,000	\$3,000
Additional SWL expenses	LS	1	\$20,000	\$20,000
Annual Interest on Debt Retirement	Percent	3.5	\$90,500	\$90,500
Phase 3 O&M Expenses				\$118,000
Phase 3 - Service to Western Jersey Township				
Waterline Maintenance	mile	6.44	\$800	\$5,000
Additional SWL expenses	LS	1	\$20,000	\$20,000
Annual Interest on Debt Retirement	Percent	3.5	\$47,000	\$47,000
Phase 3 O&M Expenses				\$72,000
Phase 1, 2, & 3 Totals				
Phase 1, 2, & 3 Annual O&M Expenses Total				\$225,000

4.6.5 Treatment Alternative 6A: Reverse Osmosis Treatment System

A treatment technology that is growing in popularity in the midwest for both iron removal and softening is reverse osmosis (RO) membrane treatment. RO has some advantages over conventional treatment as both filtration (including iron removal) and softening can be accomplished with one treatment process. For smaller systems, the RO equipment is available through several manufacturers as packaged systems, complete with instrumentation and all ancillary equipment for a functioning system. This also results in a relatively small building footprint. Disadvantages of a RO system include a higher energy costs for operation and disposal of the concentrate (or waste stream).

The overall treatment system for Alternative 6A is proposed to consist of two RO skids with 8-inch diameter membrane elements (membrane area assumed to be 400 square feet per element) and a bypass stream to produce a total treated water capacity of 1.25 MGD (868 gpm) with both skids running. Therefore, one RO skid could meet the anticipated average day demand 0.62 MGD. Adequate space will be provided in the building for a third future RO skid. This third RO skid could be

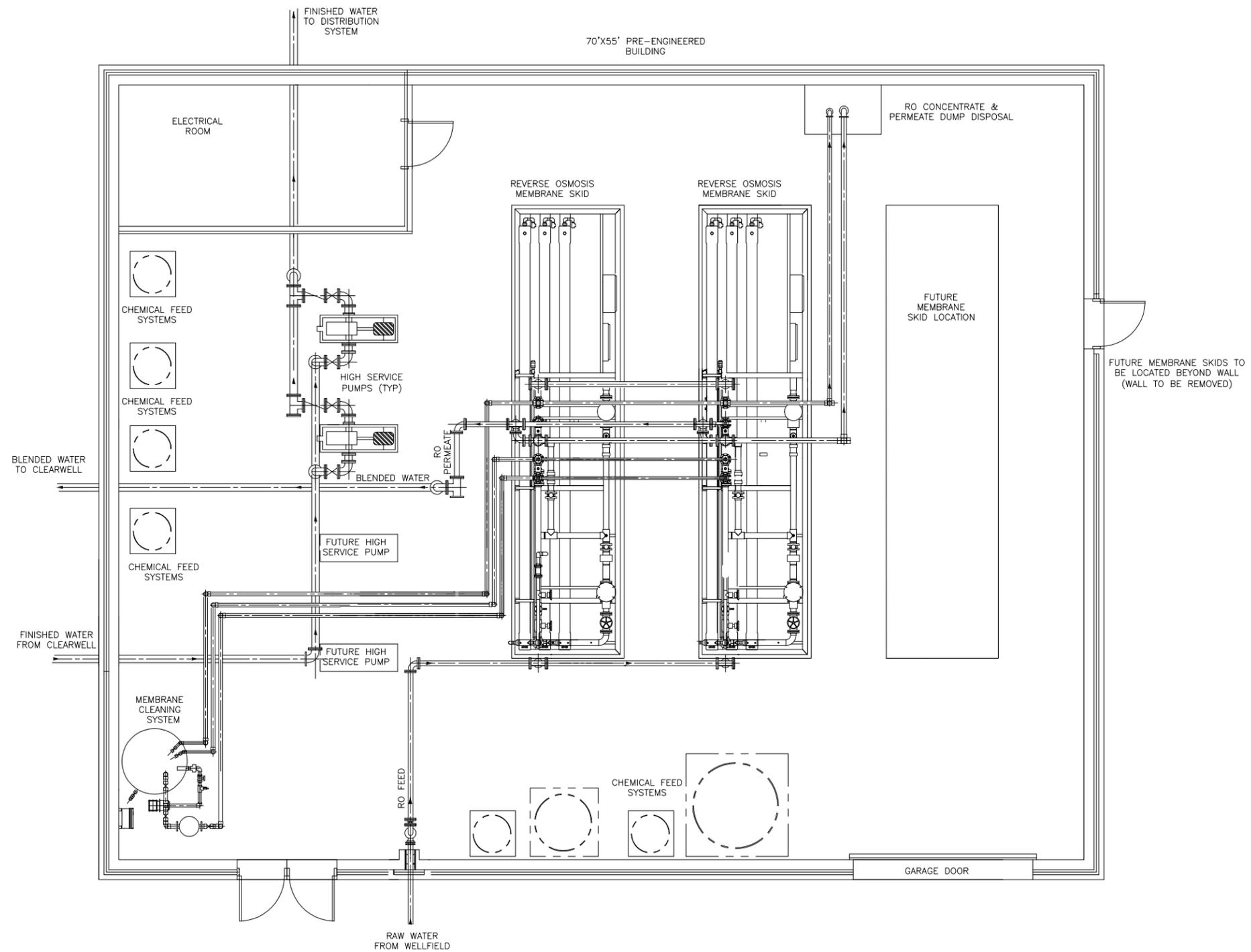
installed during a future expansion and would allow the WTP to produce 1.25 MGD with one skid out of service. Additional equipment and processes associated with Alternative 6A include two above-ground bolted steel clearwells, each with an effective storage volume of 100,000 gallons, high service pumps, a membrane cleaning system, and chemical feed systems for the following chemicals: antiscalant, sodium hydroxide, sulfuric acid, corrosion inhibitor, fluoride, and sodium hypochlorite. The preliminary RO WTP design parameters are summarized in Table 4-10.

Table 4-10 Summary of Alternative 6A Design Parameters

Parameter Description	Unit	Value
Finished Water Max Capacity	MGD / gpm	1.25 / 868
Number of RO skids	#	2
Desired finished water hardness	mg/L as CaCO ₃	130
RO bypass flow	MGD / gpm	0.27 / 187
RO feed flow per skid	MGD / gpm	0.61 / 424
Design membrane recovery	Percent	80
RO permeate flow per skid	MGD / gpm	0.49 / 340
RO concentrate flow per skid	MGD / gpm	0.12 / 84
RO skid array	-	8:4 x 7 long
Membrane flux	gal/day/SF	14.6

With the proposed blending ratio, the raw water iron concentration needs to be under approximately 1.3 mg/L to maintain a finished after iron concentration below the Ohio EPA's secondary MCL standard of 0.3 mg/L. Therefore, if raw water iron levels are much higher than 1 mg/L, an iron removal process in the RO bypass flow may be necessary. Once actual raw water quality data is obtained (if this alternative is selected), the design parameters can be refined accordingly. A preliminary layout of the proposed RO WTP is provided in Figure 4-4.

PLOT INFO: J:\PROJECTS\14577618\WATER\DRAWINGS\WATER PLANT LAYOUT.DWG 11/18/11 10:16AM LTS: 1 PSLTS: 1



CONCEPTUAL PLANS

© 2011 URS	
DRAWN JKK	DATE 11/22/11
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SCALE 1/4" = 1'-0"	

ALTERNATIVE 6A
REVERSE OSMOSIS
WTP LAYOUT

SOUTHWEST LICKING COMMUNITY
WATER & SEWER DISTRICT
WATER AND WASTEWATER
MASTER PLAN



FIGURE 4-4

CONCEPTUAL USE ONLY

One issue to consider with RO treatment systems is the method of disposal of the residual, or concentrate stream. In the case of this WTP, the design concentrate volume to dispose of is 168 gpm at a peak WTP capacity of 1.25 MGD. Daily volumes of RO concentrate at the average anticipated plant production of 0.62 MGD is approximately 121,000 gpd. RO concentrate is typically either discharged to a receiving stream (such as Raccoon Creek) via a valid NPDES permit, or directed to a sanitary sewer. Although a direct discharge is still common, recent surface water regulations enforced by the Ohio EPA have made this more difficult, as the RO concentrate stream is high in total dissolved solids. However, for a WTP of this size and a receiving stream such as Raccoon Creek, a direct surface water discharge will likely be permitted. Therefore, for the purposes of this report, it is assumed that the RO concentrate will be discharged to Raccoon Creek.

To keep construction costs down, SWL has indicated that the facility can have limited features. This includes no administration or office areas, no restroom, a pre-engineered metal building, a gravel access drive, and other cost saving measures. The preliminary layout indicates the associated equipment is estimated to fit in a building with approximate dimensions of 70' x 55'. A construction and project cost estimate for this proposed WTP is presented in Table 4-11.

Table 4-11 Cost Estimate for Alternative 6A WTP

Item Description	Unit	Quantity	Unit Cost	Total Cost
Well pumps, casing, accessories	EA	3	\$80,000	\$240,000
8-inch raw water piping	LF	1,500	\$40	\$60,000
Site clearing and earthwork	LS	1	\$50,000	\$50,000
Yard Piping	LS	1	\$40,000	\$40,000
Site access drive	LS	1	\$25,000	\$25,000
Concrete slab / foundation	CY	135	\$750	\$101,000
Pre-engineered building & accessories	SF	3,850	\$100	\$385,000
Chemical Feed Systems	EA	6	\$20,000	\$120,000
Membrane skid	EA	2	\$325,000	\$650,000
Membrane cleaning system	LS	1	\$35,000	\$35,000
High Service Pumps	EA	2	\$40,000	\$80,000
Process piping and valves	LS	1	\$175,000	\$175,000
100,000 gal steel clearwell	LS	2	\$225,000	\$450,000
Instrumentation /Electrical Service	LS	1	\$385,000	\$385,000
Generator	EA	1	\$100,000	\$100,000
CONSTRUCTION SUBTOTAL				\$2,896,000
Hydrogeological investigation / drilling	LS			\$60,000
Surveying	LS			\$8,000
Geotechnical Work	LS			\$12,000
Piloting Testing (if required)	LS			\$65,000
Additional Project Costs	45%			\$1,303,000
TOTAL PROJECT COST ESTIMATE				\$4,344,000

The total project costs, including the Alternative 6A WTP estimated cost and the Phase 1, 2, and 3 water distribution system costs are presented in Table 4-12.

Table 4-12 Total Project Cost Estimate for Alternative 6A

Cost Description	Estimated Cost
New RO WTP Project Costs	\$4,344,000
Water Distribution: Phase 1 Project Costs	\$3,168,000
Water Distribution: Phase 2 Project Costs	\$4,446,000
Water Distribution: Phase 3 Project Costs	\$2,316,000
Alternative 6A Total Project Costs	\$14,274,000

Annual O&M costs for the RO WTP were developed to assess present worth. The annual O&M costs assume the plant is operating at the 20-year design flow of 620,000 gpd. In addition to the physical costs of operating the WTP, additional costs are considered including personnel, interest on the debt retirement, and other incidental SWL expenses. Annual O&M expenses are directly related to how much water the WTP produces. The annual O&M costs for the total flow of 620,000 gpd are presented in Table 4-13. Proportional costs for the three Phases are also included Table 4-13.

Table 4-13 Annual O&M Costs for Alternative 6A WTP

Item Description	Unit	Quantity	Unit Cost	Total Cost
Electricity: Well Pumps	kWh	226,000	\$0.12	\$27,120
Electricity: RO Feed Pumps	kWh	261,000	\$0.12	\$31,320
Electricity: High Service Pumps	kWh	151,000	\$0.12	\$18,120
Electricity: Miscellaneous	kWh	15,000	\$0.12	\$1,800
Chemicals: Antiscalant	lb	3,720	\$2.80	\$10,400
Chemicals: Sodium Hydroxide	lb	18,900	\$1.90	\$35,910
Chemicals: Chlorine	lb	3,800	\$1.50	\$5,700
Chemicals: Sulfuric Acid	lb	350	\$2.00	\$700
Chemicals: Fluoride	lb	1,900	\$1.25	\$2,400
Chemicals: Corrosion Inhibitor	lb	1900	\$1.50	\$2,850
Membrane Cleaning (once per year)	LS	1	\$12,000	\$12,000
Membrane Replacement Fund	LS	1	\$14,000	\$14,000
Cartridge Filter Replacement	LS	1	\$2,800	\$2,800
Employee - Partial Salary and Benefits	LS	1	\$40,000	\$40,000
Additional SWL Annual Costs	LS	1	\$50,000	\$50,000
Annual Interest on Debt Retirement	Percent	3.5	\$88,400	\$88,400
Miscellaneous Maintenance and Repairs	LS	1	\$30,000	\$30,000
"Emergency Fund" Budget	LS	1	\$7,500	\$7,500
ANNUAL O&M COST AT 620,000 GPD				\$381,000
PHASE 1 ANNUAL O&M COSTS (256,000 GPD)				\$157,000
PHASE 2 ANNUAL O&M COSTS (200,000 GPD)				\$123,000
PHASE 3 ANNUAL O&M COSTS (164,000 GPD)				\$101,000

A present worth analysis for this alternative was performed. This present worth analysis includes capital and annual expenses associated with both the water distribution system and WTP. The assumed flows for Phase 1, 2, and 3 are 256,000 gpd, 200,000 gpd, and 164,000 gpd, respectively. The present worth analysis assumes the 20-year design period and 5% interest, and is presented in Table 4-14.

Table 4-14 20-Year Present Worth for Alternative 6A

Cost Description	Cost	20-Year Present Worth
Phase 1 - Service to SR 161 / SR 37 Interchange & Alexandria		
WTP Total Project Cost	\$4,344,000	\$4,344,000
WTP Phase 1 Annual O&M Cost	\$157,000	\$1,957,000
Phase 1 Water System Project Costs	\$3,168,000	\$3,168,000
Phase 1 Water System O&M Costs	\$107,000	\$1,333,000
Phase 1 20-Year Present Worth		\$10,802,000
Phase 2 - Service to SR 161 / SR 310		
WTP Phase 2 Annual O&M Cost	\$123,000	\$1,533,000
Phase 2 Water System Project Costs	\$4,446,000	\$4,446,000
Phase 2 Water System O&M	\$118,000	\$1,471,000
Phase 2 20-Year Present Worth		\$7,450,000
Phase 3 - Service to Western Jersey Twp.		
WTP Phase 3 Annual O&M Cost	\$101,000	\$1,259,000
Phase 3 Water System Project Costs	\$2,316,000	\$2,316,000
Phase 2 Water System O&M	\$72,000	\$897,000
Phase 3 20-Year Present Worth		\$4,472,000
Total Project 20-Year Present Worth		\$22,724,000

4.6.6 Treatment Alternative 6B: Conventional Filtration and Ion Exchange System

Treatment Alternative 6B proposes construction of a new WTP which utilizes conventional oxidation/filtration for iron removal and ion exchange (IX) softening. The existing SWL York Road plant utilizes this type of treatment, so SWL personnel are already familiar with the process. Similar to Alternative 6A, the iron filter and softening systems are available as packaged systems through a number of manufacturers to help reduce project costs.

The overall treatment system is proposed to consist of two induced draft-type filters each with a design capacity of 435 gpm and 30 minutes of detention time for iron removal and filtration. Following the filters, water would be pumped to the IX softening system, which also includes a bypass to achieve a finished water hardness of approximately 130 mg/L as CaCO₃. The IX system is proposed to consist of three individual vessels and a complete brine system. The size of the IX vessels is determined based on two of the three vessels in service, as brine regenerations are regularly required. Other features of the plant include chemical feed systems, two above-ground bolted steel clearwells each with a total storage capacity of 100,000 gallons, and high service pumping. The finished water peak capacity of the WTP in this alternative is proposed to be 1.25 MGD. A summary of the design parameters is presented in Table 4-15.

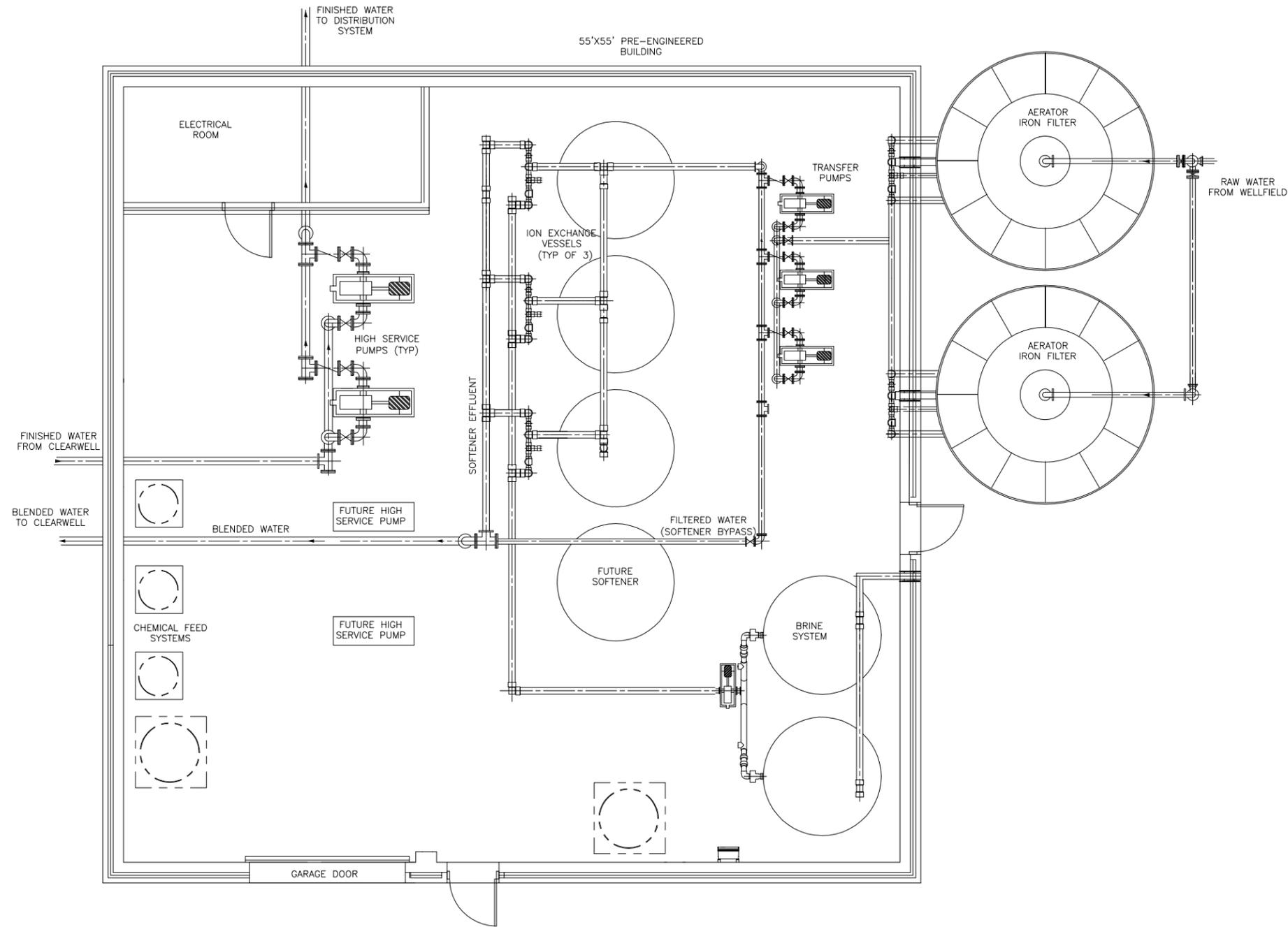
Table 4-15 Summary of Design Parameters for Conventional WTP

Parameter Description	Unit	Value
Finished Water Max Capacity	MGD / gpm	1.25 / 868
# Filters / Filter Diameter	# / ft	2 / 14'-0"
Design Filter Loading Rate	gpm/sf	3.0
Filter Detention Time	min	30
Desired Finished Water Hardness	mg/L as CaCO ₃	130
# IX Vessels / Vessel Diameter	# / ft	3 / 7'-6"
Design IX Loading Rate	gpm/sf	7.7
IX System Bypass Flow	MGD / gpm	0.27 / 189
IX Effluent Flow	MGD / gpm	0.98 / 678

Waste generated from the WTP is proposed to be directed to the sanitary sewer. This waste includes iron filter backwash and softener regeneration waste. Since filter backwash is very high in suspended solids, and softener regeneration waste is extremely high in dissolved solids, it is not anticipated this waste could be discharged directly to Raccoon Creek. The water efficiency of conventional plants is considerably higher than RO treatment plants, and a waste stream of approximately 3 to 5% of the finished water flow can be expected. For the purposes of this report, a 96% efficiency is assumed, resulting in a waste stream volume of 25,000 gpd at the 20-year planning period average water demand of 620,000 gpd. This waste stream is proposed to be directed the sanitary sewer.

To keep construction costs down, SWL has indicated that the facility can have limited features. This includes no administration or office areas, no restroom, a pre-engineered metal building, a gravel access drive, and other cost saving measures. The preliminary layout indicates the associated equipment will fit in a building with approximate dimensions of 55' x 55'. A preliminary layout of the proposed conventional WTP is provided in Figure 4-5.

PLOT INFO: JOHN_KRINKS L:\PROJECTS\14577618\WATER\DRAWINGS\WATER PLANT LAYOUT.DWG 11/18/11 10:17AM LTS: 1 PSLTS: 1



CONCEPTUAL PLANS

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 DRAWN JKK DATE 11/22/11
 CHECKED JKK JOB NO 14577618
 SCALE 1/4" = 1'-0"

ALTERNATIVE 6B
CONVENTIONAL
WTP LAYOUT

SOUTHWEST LICKING COMMUNITY
WATER & SEWER DISTRICT
WATER AND WASTEWATER
MASTER PLAN

URS

FIGURE 4-5

CONCEPTUAL USE ONLY

A cost estimate for the proposed Alternative 6B WTP is presented in Table 4-16.

Table 4-16 Cost Estimate for Alternative 6B WTP

Item Description	Unit	Quantity	Unit Cost	Total Cost
Well pumps, casing, accessories	EA	3	\$80,000	\$240,000
8-inch raw water piping	LF	1,500	\$40	\$60,000
Site clearing and earthwork	LS	1	\$50,000	\$50,000
Yard Piping	LS	1	\$40,000	\$40,000
Site access drive	LS	1	\$25,000	\$25,000
Concrete slab / foundation	CY	115	\$750	\$86,000
Pre-engineered building & accessories	SF	3,025	\$100	\$303,000
Chemical Feed Systems	EA	3	\$20,000	\$60,000
Iron Filter System	LS	1	\$490,000	\$490,000
Ion Exchange & Brine System	LS	1	\$450,000	\$450,000
Transfer Pumps	EA	3	\$20,000	\$60,000
Process waste pump station	LS	1	\$80,000	\$80,000
High Service Pumps	EA	2	\$40,000	\$80,000
Process piping and valves	LS	1	\$175,000	\$175,000
100,000 gal steel clearwell	LS	2	\$225,000	\$450,000
Instrumentation /Electrical Service	LS	1	\$385,000	\$385,000
Generator	EA	1	\$100,000	\$100,000
CONSTRUCTION SUBTOTAL				\$3,134,000
Hydrogeological investigation / drilling	LS			\$60,000
Surveying	LS			\$8,000
Geotechnical Work	LS			\$12,000
Additional Project Costs	45%			\$1,410,000
TOTAL PROJECT COST ESTIMATE				\$4,624,000

The total project costs, including the estimated WTP cost and the Phase 1, 2, and 3 water distribution system improvements are presented in Table 4-17. Like Alternative 6A, Phases 1 and 2 may be constructed in either order. However, for the purposes of this cost estimate, service to SR 161 & SR 37 is considered to be Phase 1 and service to SR 161 & SR 310 is considered to be Phase 2.

Table 4-17 Total Project Cost Estimate for Alternative 6B

Cost Description	Estimated Cost
New Conventional WTP Project Costs	\$4,624,000
Water Distribution: Phase 1 Project Costs	\$3,168,000
Water Distribution: Phase 2 Project Costs	\$4,446,000
Water Distribution: Phase 3 Project Costs	\$2,316,000
Alternative 6B Total Project Costs	\$14,554,000

Annual O&M costs for the conventional WTP were developed to assess present worth. The annual O&M costs assume the plant is operating at the 20-year design flow of 620,000 gpd. In addition to the physical costs of operating the WTP, additional costs are considered including personnel, interest on the debt retirement, and other incidental SWL expenses. The annual O&M costs for the conventional WTP are presented in Table 4-18.

Table 4-18 Annual O&M Costs for Alternative 6B WTP

Item Description	Unit	Quantity	Unit Cost	Total Cost
Electricity: Well Pumps	kWh	198,000	\$0.12	\$23,760
Electricity: IX Feed Pumps	kWh	34,000	\$0.12	\$4,080
Electricity: High Service Pumps	kWh	151,000	\$0.12	\$18,120
Electricity: Miscellaneous	kWh	20,000	\$0.12	\$2,400
Chemicals: Chlorine	lb	3,800	\$1.75	\$6,650
Chemicals: Fluoride	lb	1,900	\$1.50	\$2,850
Chemicals: Corrosion Inhibitor	lb	1900	\$1.75	\$3,325
Salt Costs	Ton	925	\$130	\$120,250
Employee - Partial Salary and Benefits	LS	1	\$40,000	\$40,000
Additional SWL Annual Costs	LS	1	\$50,000	\$50,000
Annual Interest on Debt Retirement	Percent	3.5	\$94,100	\$94,100
Miscellaneous Maintenance and Repairs	LS	1	\$30,000	\$30,000
"Emergency Fund" Budget	LS	1	\$7,500	\$7,500
ANNUAL O&M COST AT 620,000 GPD				\$403,000
PHASE 1 ANNUAL O&M COSTS (256,000 GPD)				\$166,000
PHASE 2 ANNUAL O&M COSTS (200,000 GPD)				\$130,000
PHASE 3 ANNUAL O&M COSTS (164,000 GPD)				\$107,000

A present worth analysis of this alternative was performed. This present worth analysis includes capital and annual expenses associated with both the water distribution system and WTP. A present worth analysis for Phases 1, 2, and 3 was performed, with the assumed flows being 256,000 gpd and 200,000 gpd, and 164,000 gpd respectively. The present worth analysis assumes the 20-year design period and 5% interest, and is presented in Table 4-19.

Table 4-19 20-Year Present Worth for Alternative 6B

Cost Description	Cost	20-Year Present Worth
Phase 1 - Service to SR 161 / SR 37 Interchange & Alexandria		
WTP Total Project Cost	\$4,624,000	\$4,624,000
WTP Phase 1 Annual O&M Cost	\$166,000	\$2,069,000
Phase 1 Water System Project Costs	\$3,168,000	\$3,168,000
Phase 1 Water System O&M Costs	\$107,000	\$1,333,000
Phase 1 20-Year Present Worth		\$11,194,000
Phase 2 - Service to SR 161 / SR 310		
WTP Phase 2 Annual O&M Cost	\$130,000	\$1,620,000
Phase 2 Water System Project Costs	\$4,446,000	\$4,446,000
Phase 2 Water System O&M	\$118,000	\$1,471,000
Phase 2 20-Year Present Worth		\$7,537,000
Phase 3 - Service to Western Jersey Twp.		
WTP Phase 3 Annual O&M Cost	\$107,000	\$1,333,000
Phase 3 Water System Project Costs	\$2,316,000	\$2,316,000
Phase 2 Water System O&M	\$72,000	\$897,000
Phase 3 20-Year Present Worth		\$4,546,000
Total Project 20-Year Present Worth		\$23,277,000

4.7 Evaluation of Water Supply Alternatives

This section provides an evaluation of the previously described water supply alternatives. Comparisons are made on factors including initial project costs, present worth analysis, and advantages and disadvantages of each alternative. A total of ten alternatives were developed, which can be described as follows:

- Alternative 1A: Water supplied from SWL water utility: Option A
- Alternative 1B: Water supplied from SWL water utility: Option B
- Alternative 1C: Water supplied from SWL water utility: Option C
- Alternative 2A: Water supplied from SWL and City of Pataskala: Option A
- Alternative 2B: Water supplied from SWL and City of Pataskala: Option B
- Alternative 3: Water supplied from Village of Johnstown water utility
- Alternative 4: Water supplied from Village of Granville water utility
- Alternative 5: Water supplied from City of Columbus/New Albany water utility
- Alternative 6A: Water supplied from a new RO WTP
- Alternative 6B: Water supplied from a new conventional WTP

A summary of the individual project costs, annual costs, and 20-year present worth analyses is presented in Table 4-20.

Table 4-20 Financial Comparison of Water Supply Alternatives

Alternative	Water Supply	Project Cost	Annual Cost	20-Yr Present Worth
1A, 1B, 1C	SWL	\$9,147,000	\$1,577,000	\$28,800,000
2A, 2B	SWL & Pataskala	\$9,147,000	\$1,577,000	\$28,800,000
3	Johnstown	Not considered viable		
4	Granville	Not considered viable		
5	Columbus	Not considered viable		
6A	New WTP - RO	\$14,274,000	\$678,000	\$22,724,000
6B	New WTP - IX	\$14,554,000	\$700,000	\$23,277,000

As seen in Table 4-20, Alternatives 1 and 2 have the lowest total project cost and Alternative 6A has the lowest 20-year present worth (6B has a similar present worth). Financial considerations are not the only factor to account for when evaluating these alternatives. The following paragraphs describe the advantages and disadvantages of the Alternatives.

Alternative 1 – SWL: One advantage of this alternative is it does not rely on other water utilities for supply of water. Complications with contracts, varying rates, available water, and other problems may occur if another water utility is relied upon for water service. Another clear advantage is the low initial project cost when comparing to Alternative 6. Lastly, this alternative offers the advantage of being able to serve either the SR 161 and SR 37 interchange or the areas of western Jersey Township first, as the phases are independent of each other.

A disadvantage of this alternative is it does have a considerably higher present worth value compared to Alternative 6. The present worth is based on a value of \$6.97 per 1,000 gallons provided (SWL current rate for water service over 40,000 gal per month). This rate assumes all O&M associated with the new water distribution system. It may be the case that SWL can in fact provide water at a rate below this. If this is the case, the present worth could be reduced considerably – even below options that consider a new WTP. However, it is assumed that SWL will require improvements to their existing water infrastructure to reliably supply the SR 161 corridor. This cost is assumed to be covered by the water billing rate. Another disadvantage is the SR 161 & SR 310 interchange cannot be service as part of the first Phase, as it relies on water from the SR 161 & SR 37 interchange. Overall, this option should be considered a viable – but it should be noted that improvements to the existing water system will be required eventually with this alternative.

Alternative 2 – SWL & Pataskala: One advantage of this alternative is the low initial project cost (same as Alternative 1). Additionally, this alternative has the flexibility of serving any of

the three phases in any order. In this case, the SR 161 & SR 310 interchange can be served first, whereas with Alternative 1 it could not. This alternative relies on the City of Pataskala to serve the SR 161 & SR 310. Contractual issues between Pataskala and SWL may eventually arise, causing problems with water supply costs and reliability. However, Pataskala and SWL already have an agreement in regards to supplying water, which can help in negotiations of a new service contract. Another disadvantage of this alternative is the high 20-year present worth. The same scenarios discussed in the Alternative 1 disadvantages are present in this alternative as well, and improvements to the existing distribution system will eventually be required. Overall, this option should be considered a viable, but may not be as favorable as Alternative 1 due to maintaining water service agreements with Pataskala.

Alternative 3 – Johnstown: This alternative is considered to be too high in both initial project costs and annual costs. Furthermore, a contract between Johnstown and SWL for water service does not exist. For these reasons, this alternative is not considered viable.

Alternative 4 – Granville: Similar to Alternative 3, the initial project and annual operating costs are too high for this alternative to be considered viable. Granville would need to reduce their water service charge substantially for this option to become viable.

Alternative 5 – New Albany / Columbus: This alternative is considered to not be viable as it would involve the City of New Albany annexing the developing areas in Jersey and St. Albans Townships in addition to Columbus allowing that area to be serviced through new contracts with New Albany.

Alternative 6A – New RO WTP: The primary advantage to this option is it presents a low 20-year present worth. It also does not rely on outside water utilities to service the area, as SWL would own and operate the WTP. Another advantage is the water infrastructure would all be new, and there would be no need to upgrade the existing SWL waterlines or WTP.

The primary disadvantage of this alternative is the high initial project cost due to construction of a new WTP. With a new WTP, SWL would need to operate two plants, which may be labor intensive. The 20-year present worth is lower than previous alternatives as the annual O&M expense does not have an absolute correlation to the volume of water produced (as described in the previous alternatives). Some factors, such as electricity and chemical use correlate to water usage, but others do not. These include SWL incidental and overhead expenses. It is possible that all of these expenses were not captured. For instance, additional SWL staff beyond that which was assumed in this report may be required to operate the new WTP and distribution system. Addition of such expenses can drive the 20-year present worth to values similar to or even beyond the previous alternatives. However, it is still very possible that the annual O&M associated with a new WTP could be considerably less than the current SWL O&M expense. Regardless, the 20-year present worth values for all viable alternatives are relatively close, and it would not be prudent to rule out or move forward with an option based on the 20-year present worth value as the sole factor.

Alternative 6B – New Conventional WTP: The primary advantage to this option is it presents a very low 20-year present worth (similar to Alternative 6A). It also does not rely on outside water utilities to service the area, as SWL would own and operate the WTP. Like alternative 6A, new water infrastructure eliminates the need for improvements to the existing

SWL waterlines and WTP. Although the estimated costs for the RO WTP are estimated to be slightly less than the conventional WTP, the conventional filtration / IX WTP may be beneficial, as SWL currently operates a WTP using the same process. The disadvantages of this Alternative include a high initial project cost and a second WTP that SWL would need to operate. Lastly, the same discussion presented in Alternative 6A can be presented here: additional costs not assumed in this alternative may be incurred, resulting in a higher 20-year present worth.

4.8 Proposed Water Master Plan

Primarily because of the lowest 20-year present worth, it is proposed that SWL pursue construction of a new WTP. The choice of whether the treatment technology is RO or conventional IX should be the selection of SWL. Each system is considered to have very similar construction and operating costs and the district should choose the process which they prefer. A possible project implementation schedule is presented in Table 4-21.

Table 4-21 Possible Project Implementation Schedule

Project Task	Begin Date	End Date
WTP and Phase 1 water system design	January 2013	September 2014
WTP and Phase 1 system bidding	October 2014	December 2014
WTP and Phase 1 water system construction	January 2015	December 2015
Phase 2 water system design	June 2017	April 2018
Phase 2 water system bidding	May 2018	July 2018
Phase 2 water system construction	August 2018	May 2019
Phase 3 water system design	June 2021	April 2022
Phase 3 water system bidding	May 2022	July 2022
Phase 3 water system construction	August 2022	August 2023

Of course, this preliminary schedule will change based on a number of variables. The primary variable is when the demand for water service is present at the anticipated developing areas. Project funding can also drive many of the proposed project tasks as well.

5 Wastewater Master Plan

5.1 Introduction

This Section presents the wastewater master plan alternatives and recommendations for Jersey and St. Albans Townships. The Licking County Commissioners created Sewer District No. 9 comprised of Jersey, Monroe, and St. Albans Townships in 2002. Since Sewer District No. 9 is not a separate functioning agency, Licking County is the Designated Management Agency for Jersey, Monroe, and St. Albans Townships. In 2006 the Water Quality Management Plan recommended that a comprehensive regional plan for sewer collection and treatment be created due to the improvements to SR 161. The improved highway corridor is expected to spur development in the area which currently has no sewer infrastructure. The Licking County Commissioners have an agreement with the SWL to be the Designated Management Agency to Jersey and St. Albans Townships, which was previously discussed in Sections 2 and 3 of this report, and serves as the basis for the proposed service area through the 20-year planning period. A copy of the agreement is provided in Appendix A. This Section will identify sewer service alternatives for these townships. For the 20-year planning period, a particular emphasis is placed on the SR 161 corridor.

Alternatives include sewer service from either existing treatment facilities within or outside the Townships as well as new wastewater treatment facilities. Anticipated customers of the sewer system are expected to be commercial/industrial, light residential and some of the rural residential customers located near the collection system. Preliminary layouts and cost estimates for new sewer lines, forcemains, pump stations, and treatment facilities are included in the alternatives. Projected wastewater flows from the anticipated development of commercial/light industrial and residential growth along the SR 161 corridor were previously discussed in Section 3.

5.2 Current Service Area

Sewer District No. 9 is located on the west side of Licking County and includes Jersey, Monroe and St. Albans townships. Refer to Figure 3-1 for an overall township map including the FPA boundaries. On SR 161, this service area is about halfway between the City of Newark and the I-270 outer belt of the City of Columbus. SR 161 was recently upgraded to a four-lane limited access highway, and development can be expected along this highway if sewer infrastructure becomes available. The area along SR 161 in Jersey and St. Albans townships has rolling hills and is currently used for farmland and rural residential development.

Areas surrounding the Jersey and St. Albans townships have existing wastewater districts operated by municipalities including SWL, the City of Pataskala, the Village of Johnstown, the Village of Granville, and the City of Columbus. Even though the Jersey and St. Albans Townships are generally surrounded by wastewater districts and service providers, there is very little service within the Townships. Two exceptions to this are the City of New Albany

(western area of Jersey Township) which is serviced by the City of Columbus, and the Village of Alexandria, (eastern-central area of St. Albans Township) which own and operate their own collection system and WWTP. Descriptions of these wastewater districts and service providers are provided in the following Sections.

5.3 Existing Wastewater Utilities

This Section provides descriptions and assessments of the existing sewer districts and treatment facilities in the areas surrounding the Jersey and St. Albans Townships.

5.3.1 Southwest Licking Water and Sewer District

SWL owns and operates a WWTP designated as the Southwest Licking Water and Sewer District Regional Wastewater Treatment Plant which is located on Gale Road south of Refugee Road in Harrison Township. The WWTP currently receives wastewater from a collection system serving Etna Township, Harrison Township, and areas of the City of Pataskala. This WWTP service area is generally north of Interstate 70 and south of State Route 16. The existing SWL wastewater collection system extends to SR 16 which is located to the south of St. Albans Township. This collection system could be a potential tie-in point for the wastewater system serving the developing areas surrounding the SR 161 and SR 37 interchange.

The SWL WWTP has a permitted capacity of 4.3 MGD and currently operates at a typical day demand of approximately 2.5 MGD. The facility operates two treatment trains: an oxidation ditch built in 1994 (designated as the “old plant”); and an extended aeration reactor that was part of 2004 upgrades (designated as the “new plant”). Headworks improvements will be needed to achieve the 4.3 MGD design capacity. Treatment plant processes include influent pumping; mechanical screening; extended aeration (new plant); oxidation ditch (old plant); secondary clarification; post aeration; and ultraviolet disinfection. MORs for 2011 were collected and the resulting reported flow is presented in Table 5-1.

Table 5-1 Effluent Flow at the SWL WWTP in 2011

Month	Average Day (MGD)	Max Day (MGD)
January	1.95	3.15
February	2.54	4.19
March	2.50	4.78
April	2.76	4.21
May	2.81	5.26
June	2.08	2.69

Based on the year 2011 MOR data, it is evident that the WWTP will reach its capacity within the 20-year planning period. The reports show that there were four consecutive months that the average flows coming into the plant exceeded 2.5 MGD. With proposed system expansion discussed in this report, the SWL WWTP will have to be expanded near the end of the planning period (2032).

Additional modifications to enhance capacity will include a new fine screen, grit removal, and greater capacity for ultraviolet disinfection treatment. The extended aeration reactor capacity provided in the 2004 upgrade will be converted to aerobic digesters and sludge holding tanks. For the purposes of this report, it is assumed that these plant improvements will be constructed by the time the developing areas are serviced by new wastewater collection infrastructure.

5.3.2 City of Pataskala

The City of Pataskala owns and operates a WWTP located on Shawnee Loop–South, in Pataskala, and discharges into the South Fork Licking River. This WWTP is located south of the Jersey and St. Albans Townships and could potentially provide wastewater service for the SR 161 & SR 310 interchange. The WWTP currently receives wastewater from a collection system servicing the majority of the City of Pataskala. This service area is generally broken up into two halves; the eastern half of the collection system flows by gravity to the City’s Eastside pump station located just west of the WWTP and the western half flows by gravity to the City’s Creek Road pump station located just north of the WWTP. The existing City of Pataskala wastewater collection system primarily consists of 8-inch sewers, many of which are located downtown. For this reason, it appears that tying into the City’s existing collection system from areas of St. Albans and Jersey Townships along the SR 161 corridor would be difficult.

The WWTP was originally constructed in 1967, expanded in 1989, and has a design capacity of 1.1 MGD. The overall condition of the plant is fair, with common maintenance and repair items that should eventually be addressed. A study conducted by W.E. Stilson in the year 2010 concluded that the WWTP has hydraulic capacity issues that result in overflows of the plant’s oxidation ditch. Inadequate sludge digestion facilities and sludge storage are a few of the issues that currently exist at this facility. Therefore, the plant is considered to be at capacity. However, construction is currently underway to improve the existing WWTP hydraulic capacity to meet peak flows of 4.6 MGD. Improvements to the facility include influent screening, a gravity sludge thickener tank, aerobic digesters, and various other site improvements and process controls. The improvements should be completed before new sewer infrastructure is provided in the developing areas. Therefore, treatment at this WWTP is considered to be a viable option – if a means of conveyance to the facility could be implemented.

5.3.3 Village of Johnstown

The Village of Johnstown owns and operates a WWTP located on West Jersey Street in Johnstown, and discharges to Raccoon Creek. The plant has a design capacity of 1.2 MGD, and currently experiences a daily demand of approximately 0.5 MGD. Capacity may be available if not already dedicated to future growth in the Village of Johnstown. The treatment process for the WWTP includes influent pumping, mechanical screening, vortex grit removal, sequence batch reactors, UV disinfection, and post-aeration. The collection system for this WWTP is generally located within the Village corporate limits. The Johnstown WWTP is located relatively far from the anticipated developing areas. Therefore, conveying flow to this facility may not be economically viable.

5.3.4 Village of Granville

The Village of Granville owns and operates a WWTP located at 456 South Main Street in Granville that discharges to Raccoon Creek. The plant has a design capacity of 1.2 MGD, and currently experiences an average daily flow of approximately 0.4 MGD. Capacity may be available if not already dedicated to future growth in the Village of Granville. The treatment process for the WWTP includes influent pumping, screening, conventional activated sludge, secondary clarifiers, disinfection, and post-aeration. The collection system for this WWTP is generally located within the Village corporate limits.

5.3.5 City of Columbus / New Albany

The City of Columbus operates two wastewater treatment plants, Jackson Pike and Southerly. The City of Columbus also collects wastewater from 22 contracting suburban communities (including New Albany), which flows to one of these two plants. Most of the flows from the northwestern area of Franklin County are conveyed to the Jackson Pike WWTP. The Southerly WWTP treats flow from the northeastern and eastern sections of Franklin County. The Jackson Pike WWTP was originally constructed in 1935 is located on Route 104 on the south side of Columbus. Treatment plant processes include screening; grit removal, clarification, activated sludge, disinfection, post aeration, and anaerobic digestion. The plant has a design capacity of 68 MGD with a peak treatment capacity of approximately 102 MGD. In 2005, the average daily flow was 79.5 MGD.

The Southerly Wastewater Treatment Plant was built in 1967 and is the larger of the two serving the Columbus metropolitan area. The plant is located on Route 23 in Lockbourne, and discharges into the Scioto River. Treatment plant processes include screening, grit removal, clarification, activated sludge, disinfection, post aeration, and anaerobic digestion. The plant has a design capacity of 114 MGD, and can handle a peak flow of 330 MGD. Average flows treated at the southerly WWTP are generally around 100 MGD.

5.3.6 Village of Alexandria

The Village of Alexandria owns and operates a WWTP located approximately 500 feet southeast of Granville Road and State Route 37 in Alexandria. This WWTP discharges to Raccoon Creek. The WWTP receives wastewater from approximately 500 customers in the Village and the service area is generally located within the Village corporate limits. The WWTP has a design capacity of 80,000 gpd and currently experiences a daily flow of approximately 40,000 gpd. Capacity may be available if not already dedicated to future growth in the Village of Alexandria. This plant is designed for future expansion that will increase the capacity to 160,000 gpd.

Although the current or future expansion capacity of the Village's WWTP is by no means adequate to receive the full 20-year planning period design flow of 620,000 gpd, this is considered a viable option for short-term planning. The plant could be expanded and operated until it reaches capacity, at which point another treatment alternative could be implemented. These alternatives are developed further within this report. The Village has recently signed a letter of intent with the USDA and the district for SWL to assume ownership and operational control of the WWTP and collection system. A copy of this letter is provided in Appendix D.

5.4 Evaluation of Sewer Conditions

The majority of Jersey and St. Albans townships is rural residential and unincorporated. Residents within these townships generally use on-site systems, such as septic tanks. The exceptions to the on-site systems include the Village of Alexandria and the City of New Albany, which both have centralized sewer systems.

The Village of Alexandria has a new sanitary sewer collection system that was constructed in 2006. This collection system is therefore in very good condition. The collection system is mostly 8-inch sewers that would generally not be used for new development. Because of these small pipe sizes, most of the new development in the area would have to bypass the collection system and be conveyed directly to the WWTP.

Due to the recent rapid growth within the City of New Albany, the majority of the New Albany collection system is relatively new and in good condition. The City of New Albany's collection system ties into the City of Columbus, which is located to the west of New Albany. Therefore, wastewater flows generated in the Jersey and St. Albans Townships would need to be directed through New Albany's system. Although the City of New Albany's sanitary collection system is generally in good condition and sized for adequate capacity, the collection system on the northeast side of Columbus (in the Blacklick drainage basin) is considered to be at capacity, making this option less viable.

Furthermore, most of Jersey and St. Albans Townships are located outside of the current contract service area provided to New Albany by the City of Columbus. Modification of this service area would require a new or amended service agreement or an annexation by New Albany before sewer service could be extended to the Townships. Such service may be located

outside of the Columbus FPA boundary which would require Ohio EPA approval prior to extending service.

The SWL and City of Pataskala's collection systems are located to the south of the Jersey and St. Albans Townships. The SWL tie-in point appears to have hydraulic limitations, since the sewers and forcemains experience size reductions and capacity issues as they proceed further downstream to the WWTP. Therefore, downstream sewer and pump station improvements are likely needed prior to extending service to the Townships.

5.5 Need for Additional Sewer Service

Since the improvements of SR 161 were completed, Licking County has identified this corridor as a potential opportunity for future development and growth. A centralized sewer system is critical for allowing development and growth in this area. By servicing the SR 161 corridor through Jersey and St. Albans Townships with a centralized system, future development will be benefited. Without a centralized wastewater system, little or no development can be expected along the corridor and interchanges unless on-site or packaged treatment facilities approved by the Ohio EPA are provided. Any rural residential development close to the system will have the option to tie into the system in accordance to the prescriptions set forth by the State Water Quality Management Plan (WQMP).

5.6 Projected Service Area

As described in Section 3 of this report, the projected service area through the 20-year planning period is the areas generally following the SR 161 corridor including areas surrounding the SR 37 interchange, the SR 310 interchange, and the areas of Jersey Township along SR 161 approaching the City of New Albany (not including the Columbus FPA boundaries). These areas were previously shown on in Figure 3-2 and are also identified in the agreement between the Licking County Commissioners and SWL which is provided in Appendix A. It is assumed that this total land area would not be 100% developed by the end of the 20-year planning period. Therefore, percentages of development were assigned to the individual areas. These percentages were summarized in Tables 3-2 and 3-3. The projected service area also includes a small portion of the areas which are considered rural residential.

5.7 Projected Wastewater Demands

As previously discussed in Section 3, wastewater flows are estimated to be approximately the same as water demands for the area, which were determined based on standard values for unit water usage. These wastewater flow rates are based on unit flow assumptions of 100 gpcd for rural residential, 500 gpad for light residential development, and 800 gpad for commercial and light industrial areas. Table 3-2 in Section 3 previously described the individual wastewater system areas for the future developed areas along the SR 161 corridor. The total average daily wastewater flow was determined to be 620,000 gpd at the end of the 20-year planning period. However, some of the wastewater alternatives do not include service to the Village of Alexandria, which reduces the 20-year projected wastewater flow to 575,000 gpd.

5.8 Wastewater Treatment Prescriptions

Future wastewater improvements shall be guided by the approved facilities and the general prescriptions. Any alternatives presented in this Section shall follow the prescriptions addressed in the State Water Quality Management Plan for Jersey and St. Albans Townships. The list of Generic Prescriptions for Wastewater Treatment from the State WQM Plan can be found at <http://www.epa.ohio.gov/dsw/mgmtplans/208Final2006Plan.aspx>. The list of general prescriptions that apply to the Licking County communities are as follows:

- All discharging systems shall meet effluent limits designed to attain the more stringent of: a) all applicable water quality standards, including anti-degradation requirements; and b) where applicable, best available demonstrated control technology for new sources discharging sanitary wastewater, best available technology, or secondary treatment.
- The construction of new, or the replacement of existing, sewage treatment systems or non-discharging on-lot sewage treatment systems for semi-public, private, or industrial entities shall not be permitted where a public sewer is available. Such facilities may be permitted where sewers are not available, on the condition that they will be required to tap in when public sewers become available.
- New or replacement home sewage treatment systems (HSTS) shall not be permitted where a public sewer is available. Where sewers are not available new or replacement HSTS may be permitted if applicable sanitary codes administered by the Licking County Health Department or local health department are followed, on the condition that the HSTS will be required to tap in when public sewers become available.
- The Licking County Commissioners (or a sewer district under ORC 6119) are responsible for sewage collection and treatment in unincorporated communities. Where sewers are not available, approval of individual home sewage treatment systems (HSTS) is the responsibility of the County health department or local health department and shall follow applicable sanitary codes.
- Where sewers are not available, on-lot sewage treatment systems for semi-public, private, or industrial entities may be installed if permitted by Ohio EPA or, if the Board of Health of a City, County, or General Health District has permitting authority for small systems (less than 1,000 gallons per day), permitted by the County Health Department. General Health District means a health district of the combined townships and villages in each county.
- The County Commissioners under ORC 6117 have authority for central sewers and sewage treatment in all unincorporated areas; when unsanitary conditions exist Ohio EPA may require that the County Commissioners fix the problem.
- Ohio EPA will only approve the installation of new wastewater collection and treatment systems to serve a new or existing housing development provided the applicant has submitted an acceptable plan documenting how the system will be

managed, maintained and operated. An acceptable plan could include the choice to turn management, maintenance and operation over to an existing management agency listed in this 208 Plan, or the choice of contracting with a competent private professional wastewater services company. An unacceptable plan might include the choice to have an inexperienced or poorly qualified entity, individual, or homeowners' association assume sole responsibility for system management, maintenance and operation.

5.9 Wastewater Treatment Alternatives: Treatment at Existing Facilities

The following wastewater collection and treatment alternatives for the SR 161 highway corridor in Jersey and St. Albans consider treatment at one of the previously described WWTPs. The wastewater alternatives have been developed to determine the most cost-efficient method of constructing a collection system to convey the anticipated wastewater flows to existing facilities. Each wastewater system alternative was developed to meet projected commercial, light industrial, and residential growth along the SR 161 corridor. The existing and future projected wastewater flows discussed in previous sections were used to evaluate and size the alternatives and to develop an acceptable phasing approach to keep the costs to an affordable rate for the customers serviced.

5.9.1 Alternative 1: SWL Regional Facility

Alternative 1 proposes to collect the wastewater generated from the developing areas and convey it to the SWL Regional Facility. There may be hydraulic limitations in the existing SWL collection system at the end of the 20-year planning period, as well as some WWTP capacity issues. Those issues and improvements would need to be addressed separately as they arise. This alternative does not propose to collect and treat wastewater generated by the Village of Alexandria, resulting in a 20-year planning period average daily wastewater flow of 575,000 gpd.

Similar to the water master planning alternatives, this alternative can be broken into separate phases to help reduce initial project capital costs. Additionally, all three phases are independent of one another, meaning that any phase could be constructed first. This is slightly different than the water master planning, as some phases needed to be constructed prior to implementing a future phase. Therefore, with a total of three phases, there are a total of six possible implementation options for Alternative 1. Table 5-2 presents a summary of the possible implementation matrix.

Table 5-2 Combination of Phase Implementations for Alternative 1

Option	Phase 1 Service	Phase 2 Service	Phase 3 Service
1	SR 161/37 Interchange	SR 161/310 Interchange	Western Jersey Twp.
2	SR 161/37 Interchange	Western Jersey Twp.	SR 161/310 Interchange
3	SR 161/310 Interchange	SR 161/37 Interchange	Western Jersey Twp.
4	SR 161/310 Interchange	Western Jersey Twp.	SR 161/ 37 Interchange
5	Western Jersey Twp.	SR 161/37 Interchange	SR 161/310 Interchange
6	Western Jersey Twp.	SR 161/310 Interchange	SR 161/37 Interchange

Although there are six combinations of phase implementation, for the purposes of this report, the following will be the assumed implementation schedule:

- Phase 1: Service to SR 161 & SR 37
- Phase 2: Service to SR 161 & SR 310
- Phase 3: Service to areas in western Jersey Township

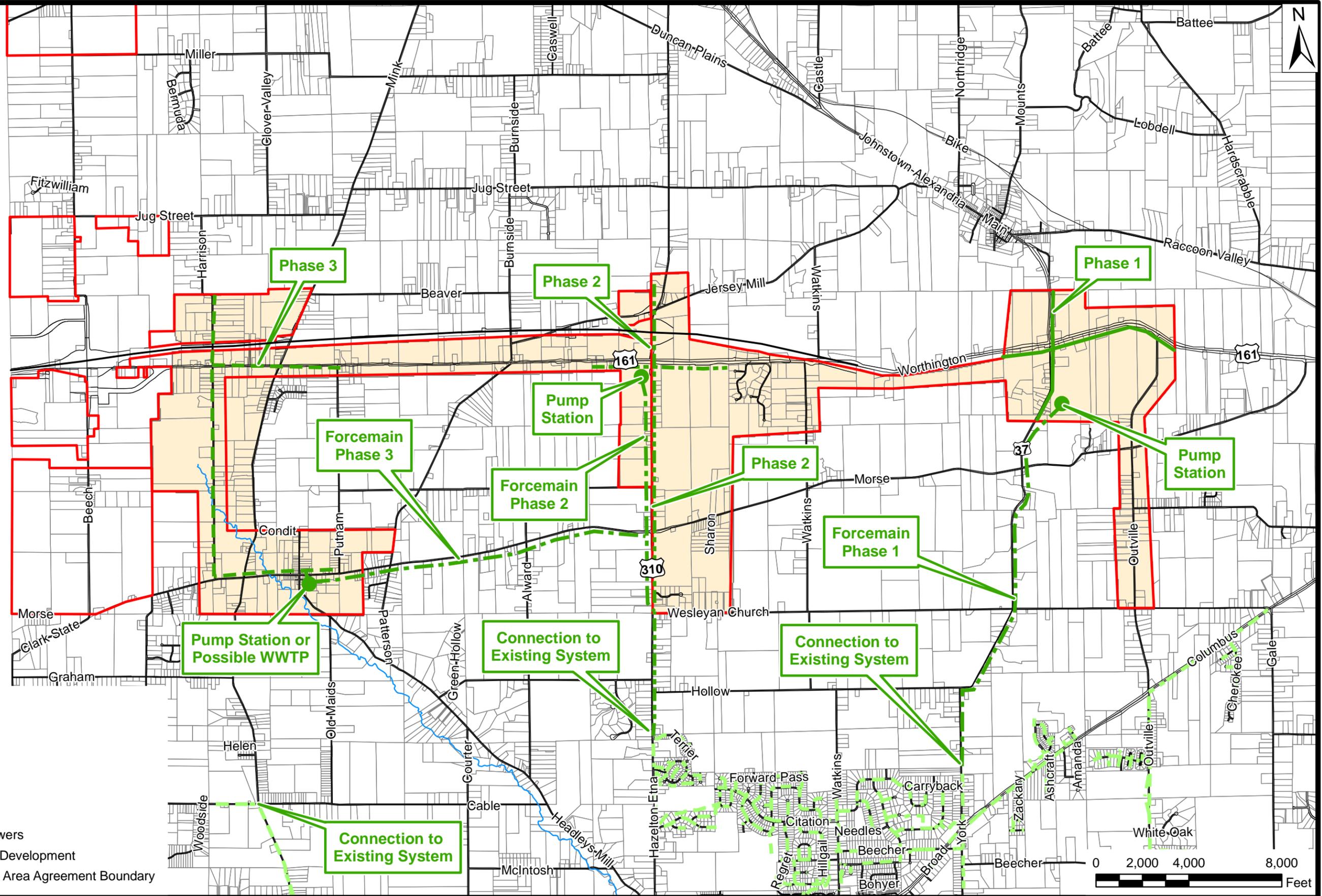
Phase 1 of this alternative proposes to service the area surrounding the SR 161 & SR 37 interchange. This would include a small network of 12-inch sanitary sewers (developers would be responsible for a portion of sewers) and a pump station with an 8-inch forcemain to convey sewage to the 10-inch SWL sewer on York Road south of Hollow Road.

Phase 2 of this project involves servicing the SR 161 & SR 310 interchange. Initial construction of the phase will consist of a gravity sewer on SR 310 just north of Wesleyan Church road which will connect to the existing SWL gravity sewer in that area. A gravity sewer then flowing north along SR 310 to a new pump station near the SR 161 interchange is proposed. This pump station will also serve as the centralized pump station for other gravity sewers surrounding the interchange. From the pump station, a new 8-inch forcemain will convey sewage south to the gravity system at Wesleyan Church Road.

Phase 3 of this alternative includes servicing the areas of western Jersey Township. The improvements consist of a network of 12-inch sanitary sewers and a pump station. The existing sewers to the south (near the existing Mink North Pump Station) were evaluated, and it was determined that this portion of the collection system is already near capacity and cannot handle increased flows. Therefore, it is proposed to direct the sewage via a pump station east along Morse Road to the Phase 2 improvements. If significant departure from the anticipated flows occurs, a new regional WWTP should be considered that can handle much of the flows contiguous with New Albany. A full evaluation of a new treatment plant in this area is not being conducted due to unknown development and Jersey Township's desire to remain rural.

Figure 5-1 presents the conceptual layout of this alternative. This includes the approximate sewer and forcemain alignment, location of the pump stations, and the sequencing of the three phases.

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Legend

Proposed Sewers

- Phase 1
- - - - Phase 2
- . - . Phase 3
- - - - Forcemain
- . - . Existing Sewers
- Anticipated Development
- 161 Service Area Agreement Boundary



REVISIONS			
NO.	BY	DATE	REMARKS

DES _____
 DWN _____
 CND _____

LICKING COUNTY, OHIO
**SOUTHWEST LICKING COMMUNITY WATER & SEWER DISTRICT
 WATER AND WASTEWATER MASTER PLAN**

**WASTEWATER ALTERNATIVE 1
 WASTEWATER TREATMENT AT SWL FACILITY**

DATE November 22, 2011

Figure 5-1

Cost estimates for all three phases were generated and are presented in Table 5-3. In the Table (and for all wastewater collection system cost estimates), an additional project cost of 45% is added. This includes 15% for construction contingencies, 15% for engineering, 10% for construction administration, and 5% for mobilization/demobilization.

Table 5-3 Cost Estimate for Wastewater Alternative 1

Item Description	Unit	Quantity	Unit Cost	Total Cost
Phase 1 - Service for SR 161 / SR 37 Interchange				
12-inch Sewer	LF	13,000	\$60	\$780,000
Manholes	EA	33	\$2,600	\$85,800
Pump Station	LS	1	\$180,000	\$180,000
8-inch forcemain	LF	16,000	\$35	\$560,000
Stream & Road Crossings (Minor)	EA	14	\$8,000	\$112,000
Jacking & Boring Costs	LS	1	\$150,000	\$150,000
Traffic Maintenance	MILE	5.5	\$3,500	\$19,000
Phase 1 Construction Subtotal				\$1,886,800
Additional Project Costs	45%			\$849,000
Phase 1 Project Total				\$2,735,800
Phase 2 - Service for SR 161 / SR 310 Interchange				
12-inch Sewer	LF	20,000	\$60	\$1,200,000
Manholes	EA	50	\$2,600	\$130,000
Pump Station	LS	1	\$180,000	\$180,000
8-inch forcemain	LF	11,000	\$35	\$385,000
Stream & Road Crossings (Minor)	EA	5	\$8,000	\$40,000
Jacking & Boring Costs	LS	1	\$150,000	\$150,000
Traffic Maintenance	MILE	3.8	\$3,500	\$13,000
Phase 2 Construction Subtotal				\$2,098,000
Additional Project Costs	45%			\$944,000
Phase 2 Project Total				\$3,042,000
Phase 3 - Service for Western Jersey Twp.				
12-inch Sewer	LF	22,000	\$60	\$1,320,000
Manholes	EA	55	\$2,600	\$143,000
Pump Station	LS	1	\$180,000	\$180,000
8-inch forcemain	LF	14,000	\$35	\$490,000
Stream & Road Crossings (Minor)	EA	10	\$8,000	\$80,000
Jacking & Boring Costs	LS	1	\$150,000	\$150,000
Traffic Maintenance	MILE	6.8	\$3,500	\$24,000
Phase 3 Construction Subtotal				\$2,387,000
Additional Project Costs	45%			\$1,074,000
Phase 3 Project Total				\$3,461,000
Phase 1, 2, & 3 Totals				
Phase 1, 2, & 3 Construction Total				\$6,371,800
Phase 1, 2, & 3 Total Project Estimate				\$9,238,800

For the annual operation and maintenance (O&M) costs, the SWL sewer rate of \$10.18 per 1,000 gallons was used. This cost per gallon is assumed to cover all SWL expenses associated with necessary sewer repair and routine maintenance, personnel salaries and benefits, office costs, treatment and collection costs, existing collection system and WWTP improvements, interest on debt retirement, services such as engineering and contractors, emergency funds, and all other incidental costs incurred by SWL.

Annual costs vary for each phase depending on the wastewater flow. The flows corresponding to each phase were determined previously in individual areas along the SR 161 corridor and are summarized in Table 3-4. The flows corresponding to each phase of this alternative are as follows:

- Phase 1 average daily flow: 211,000 gpd
- Phase 2 average daily flow: 200,000 gpd
- Phase 3 average daily flow: 164,000 gpd

The present worth analysis assumes the 20-year design period and 5% interest, and is presented in Table 5-4.

Table 5-4 20-Year Present Worth for Wastewater Alternative 1

Cost Description	Cost	20-Year Present Worth
Phase 1 - Service for SR 161 / SR 37 Interchange		
Phase 1 Project Cost	\$2,735,800	\$2,735,800
Annual Costs for Phase 1	\$784,000	\$9,770,000
Phase 1 20-Year Present Worth		\$12,505,800
Phase 2 - Extension to SR 161 / SR 310 Interchange		
Phase 2 Project Cost	\$3,042,000	\$3,042,000
Annual Costs for Phase 2	\$743,000	\$9,259,000
Phase 2 20-Year Present Worth		\$12,301,000
Phase 3 - Extension to Western Jersey Twp		
Phase 3 Project Cost	\$3,461,000	\$3,461,000
Annual Costs for Phase 3	\$609,375	\$7,594,000
Phase 3 20-Year Present Worth		\$11,055,000
Total Project 20-Year Present Worth		\$35,861,800

Note that there are six possible combinations of phase implementation. Because of this, the 20-year present worth values for individual phases can move, but the total project 20-year present worth will remain constant.

5.9.2 Alternative 2: City of Pataskala

Wastewater service provided by the City of Pataskala was taken into consideration. However, because of the lack of sewer infrastructure near any of the three phases, and because of the small diameter sewers present in the City, it was deemed infeasible. Furthermore, if sewage was to be conveyed to Pataskala, the new sewer alignments would literally go through existing SWL sewer lines. If the option of using existing SWL lines is available, it is much more economically feasible – both in terms of capital construction (reduced new sewer costs) and annual expense. Regarding annual expense, Pataskala’s out of town sewer rate is \$12.34 per 1,000 gallons, compared to the SWL rate of \$10.18 per 1,000 gallons, resulting in a very high 20-year present worth. Because of these reasons, this is not considered a viable option.

5.9.3 Alternative 3: Village of Johnstown

Treatment via the Village of Johnstown’s WWTP was investigated as Alternative 3. Phase 1 of Alternative 3 includes service western area of Jersey Township, which would involve a network of gravity sewers and a pump station with a 10-inch forcemain to convey sewage to the Village’s WWTP. Note that this pump station must be constructed with the ability to convey the 20-year flow from all three phases, and that the phases are not independent of each other. Phase 2 involves service to the SR 161 & SR 310 interchange, and includes a network of gravity sewers and a 15-inch interceptor from the service area to the pump station proposed as part of Phase 1. Phase 3 of this alternative provides service to the SR 161 & SR 37 interchange, and includes a network of sewers and a pump station with an 8-inch forcemain to pump sewage to the 15-inch interceptor constructed as part of Phase 2. Cost estimates for all three phases are presented in Table 5-5.

Table 5-5 Cost Estimate for Wastewater Alternative 3

Item Description	Unit	Quantity	Unit Cost	Total Cost
Phase 1 - Service for Western Jersey Twp.				
12-inch Sewer	LF	17,000	\$60	\$1,020,000
15-inch Sewer	LF	6,000	\$75	\$450,000
Manholes	EA	58	\$2,600	\$150,000
Pump Station	LS	1	\$180,000	\$180,000
10-inch forcemain	LF	25,000	\$40	\$1,000,000
Stream & Road Crossings (Minor)	EA	16	\$8,000	\$128,000
Jacking & Boring Costs	LS	1	\$150,000	\$150,000
Traffic Maintenance	MILE	9.1	\$3,500	\$32,000
Phase 1 Construction Subtotal				\$3,110,000
Additional Project Costs	45%			\$1,400,000
Phase 1 Project Total				\$4,510,000
Phase 2 - Service for SR 161 / SR 310 Interchange				
15-inch Sewer	LF	17,000	\$75	\$1,275,000
12-inch Sewer	LF	9,000	\$60	\$540,000
Manholes	EA	65	\$2,600	\$169,000
Stream & Road Crossings (Minor)	EA	8	\$8,000	\$64,000
Jacking & Boring Costs	LS	1	\$150,000	\$150,000
Traffic Maintenance	MILE	4.9	\$3,500	\$17,000
Phase 2 Construction Subtotal				\$2,215,000
Additional Project Costs	45%			\$997,000
Phase 2 Project Total				\$3,212,000
Phase 3 - Service for SR 161 / SR 37 Interchange				
12-inch Sewer	LF	13,000	\$60	\$780,000
Manholes	EA	33	\$2,600	\$85,000
Pump Station	LS	1	\$180,000	\$180,000
6-inch forcemain	LF	14,000	\$30	\$420,000
Stream & Road Crossings (Minor)	EA	12	\$8,000	\$96,000
Jacking & Boring Costs	LS	1	\$150,000	\$150,000
Traffic Maintenance	MILE	5.1	\$3,500	\$18,000
Phase 3 Construction Subtotal				\$1,729,000
Additional Project Costs	45%			\$778,000
Phase 3 Project Total				\$2,507,000
Phase 1, 2, & 3 Totals				
Phase 1, 2, & 3 Construction Total				\$7,054,000
Phase 1, 2, & 3 Total Project Estimate				\$10,229,000

The estimated cost for this alternative is considerably higher (over \$1 million higher) than Alternative 1. In addition to these initial project costs, the annual operation costs would be very high due to Johnstown charging their prevailing wastewater rates

and SWL maintaining the system. Due to high costs, Alternative 3 is not considered viable.

5.9.4 Alternative 4: Village of Granville

Alternative 4 proposes to convey wastewater from the developing areas to the Village of Granville's WWTP. Phase 1 of Alternative 4 includes servicing the SR 161 & SR 37 interchange and running a new 18-inch gravity sewer to the Village of Granville. Note that this sewer must be constructed with the ability to convey the 20-year flow from all three phases, and that the phases are not independent of each other. The interceptor sewer alignment would generally follow Raccoon Creek. Phase 2 of Alternative 4 includes service to the SR 161 & SR 310 interchange, which would involve a network of gravity sewers and a 15-inch interceptor along SR 161 directed to the 18-inch interceptor constructed as part of Phase 1. Phase 3 of this alternative includes service to western Jersey Township, which would involve a network of gravity sewers and a pump station with a 6-inch forcemain to convey sewage to the 15-inch interceptor constructed as part of Phase 2. The Village of Alexandria is not considered to tie into the sewer system for this alternative. Cost estimates for all three phases are presented in Table 5-6.

Table 5-6 Cost Estimate for Wastewater Alternative 4

Item Description	Unit	Quantity	Unit Cost	Total Cost
Phase 1 - Service for SR 161 / SR 37 Interchange				
18-inch Sewer	LF	26,000	\$85	\$2,210,000
12-inch Sewer	LF	6,000	\$60	\$360,000
Manholes	EA	15	\$2,600	\$39,000
Stream & Road Crossings (Minor)	EA	16	\$8,000	\$128,000
Jacking & Boring Costs	LS	1	\$150,000	\$150,000
Traffic Maintenance	MILE	6.1	\$3,500	\$21,000
Phase 1 Construction Subtotal				\$2,908,000
Additional Project Costs	45%			\$1,309,000
Phase 1 Project Total				\$4,217,000
Phase 2 - Service for SR 161 / SR 310 Interchange				
15-inch Sewer	LF	17,000	\$75	\$1,275,000
12-inch Sewer	LF	8,000	\$60	\$480,000
Manholes	EA	63	\$2,600	\$163,000
Stream & Road Crossings (Minor)	EA	8	\$8,000	\$64,000
Jacking & Boring Costs	LS	1	\$150,000	\$150,000
Traffic Maintenance	MILE	1.5	\$3,500	\$5,000
Phase 2 Construction Subtotal				\$2,137,000
Additional Project Costs	45%			\$962,000
Phase 2 Project Total				\$3,099,000
Phase 3 - Service for Western Jersey Twp.				
12-inch Sewer	LF	22,000	\$60	\$1,320,000
Manholes	EA	55	\$2,600	\$143,000
Pump Station	LS	1	\$180,000	\$180,000
6-inch forcemain	LF	15,000	\$30	\$450,000
Stream & Road Crossings (Minor)	EA	9	\$8,000	\$72,000
Jacking & Boring Costs	LS	1	\$150,000	\$150,000
Traffic Maintenance	MILE	7.0	\$3,500	\$25,000
Phase 3 Construction Subtotal				\$2,340,000
Additional Project Costs	45%			\$1,053,000
Phase 3 Project Total				\$3,393,000
Phase 1, 2, & 3 Totals				
Phase 1, 2, & 3 Construction Total				\$7,385,000
Phase 1, 2, & 3 Total Project Estimate				\$10,709,000

The estimated construction cost for this alternative is considerably higher (\$1.5 million higher) than Alternative 1. In addition to the initial project costs, the annual operation costs would be very high due to Granville charging a prevailing wastewater rate and SWL maintaining the system. Due to the high costs associated with this, Alternative 4 is not considered viable option.

5.9.5 Alternative 5: City of Columbus / New Albany

Treatment via the City of Columbus (through the City of New Albany) was explored as Alternative 5. Although the City of New Albany's sanitary collection system is generally in good condition and sized for adequate capacity, the collection system on the northeast side of Columbus (in the Blacklick drainage basin) is considered to be at capacity, making this option less viable.

Furthermore, most of Jersey and St. Albans Townships are located outside of the current contract service area provided to New Albany by the City of Columbus. Modification of this service area would require a new or amended service agreement or annexation into New Albany before sewer service could be extended to the Townships. Such service may be located outside of the Columbus FPA boundary which would require Ohio EPA approval prior to extending service. For these reasons, Alternative 5 is not considered a feasible alternative.

5.9.6 Alternative 6: Village of Alexandria and New Facility

Alternative 6 proposes to utilize the Village of Alexandria's WWTP and a new WWTP (to be constructed as part of this alternative) to treat wastewater from the developing areas. The Alexandria WWTP is currently rated for 80,000 gpd and is expandable to 160,000 gpd. Flows exceeding 160,000 gpd are proposed to be directed to the new WWTP, which would be rated for a design flow of 460,000 gpd (combined treatment capacity of 620,000 gpd). The wastewater generated from the Village of Alexandria would therefore be included in this alternative, which is estimated to be 45,000 gpd for the 20-year planning period. This alternative includes SWL taking ownership of the Alexandria collection system and WWTP. Therefore, SWL would also need to assume the Village's remaining loans. The Village obtained a \$200,000 Ohio Public Works loan and a \$1.6 million USDA loan to fund the initial project. At the time of this report, approximately \$1.7 million of the original loans still remain in principal, which SWL would need to assume. This cost will be included in the estimated project cost.

Phase 1 of this alternative proposes to expand the Alexandria WWTP to the 160,000 gpd capacity and serve the SR 161 & SR 37 interchange with a network of sewers and a 15-inch gravity sewer directed to the WWTP's influent pump station. This Phase would therefore serve that interchange up to a flow of approximately 115,000 gpd and the Village of Alexandria (to meet the WWTP's capacity of 160,000 gpd).

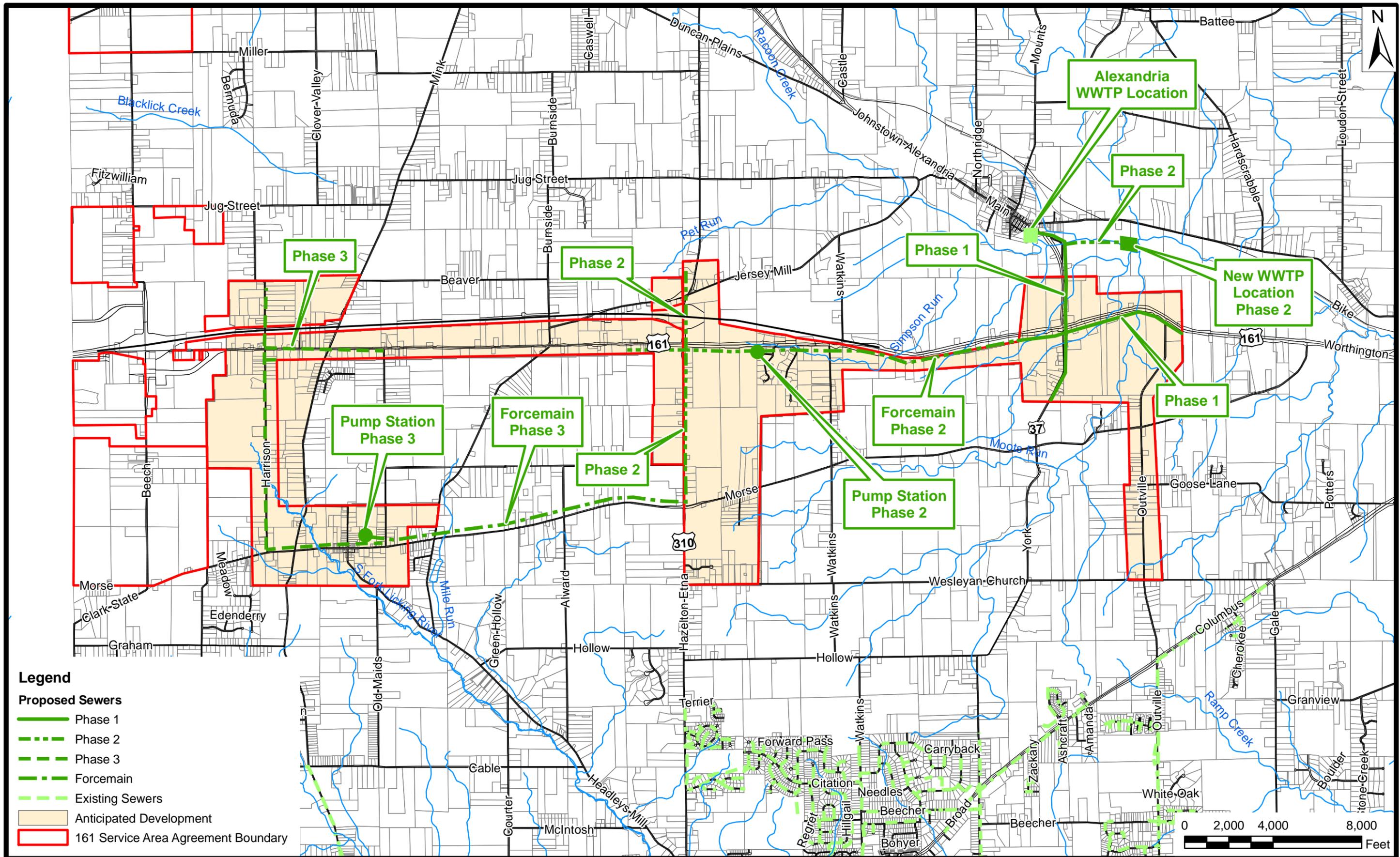
Phase 2 of this alternative involves constructing a new WWTP which will receive flows diverted away from the Alexandria WWTP. This can be accomplished by constructing a regulator structure to split flows between the Alexandria WWTP and the new WWTP facility. The specific location of the new WWTP is not yet determined. However, it should be located in the general area of the SR 161 & SR 310 interchange and the existing Alexandria WWTP. Phase 2 also includes providing service to the SR 161 & SR 310 interchange area. This includes a network of gravity

collection sewers and a pump station with an 8-inch forcemain which follows SR 161 to the SR 37 interchange to direct sewage to the Phase 1 improvements.

Phase 3 of this alternative proposes to provide service to the western areas of Jersey Township, which involves a network of gravity sewers and a pump station and 6-inch forcemain to convey sewage to the SR 161 & SR 310 regional pump station constructed as part of the Phase 2 improvements.

Figure 5-2 presents the conceptual layout of the collection system portion of this alternative. The figure includes the location of the gravity sewers, collection system, pump station and forcemain, location of the existing Alexandria WWTP, approximate location of the new WWTP, and the sequencing of the three phases.

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Legend

Proposed Sewers

- Phase 1
- · - · - Phase 2
- - - - - Phase 3
- · - · - Forcemain
- · - · - Existing Sewers
- Anticipated Development
- 161 Service Area Agreement Boundary



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LICKING COUNTY, OHIO
**SOUTHWEST LICKING COMMUNITY WATER & SEWER DISTRICT
 WATER AND WASTEWATER MASTER PLAN**

**WASTEWATER ALTERNATIVE 6
 WASTEWATER TREATMENT AT ALEXANDRIA
 AND NEW FACILITY**

DATE November 22, 2011

Figure 5-2

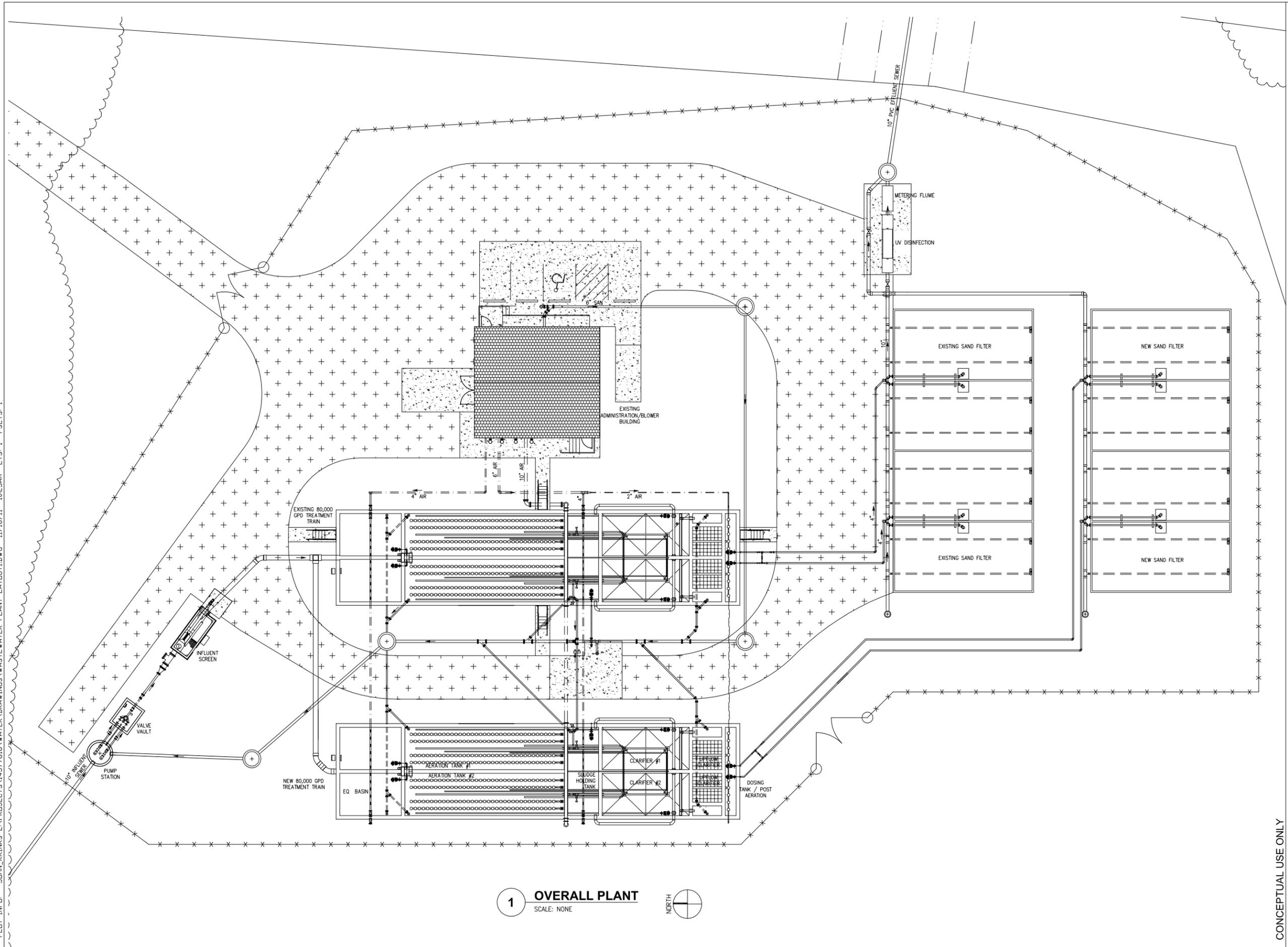
A total project cost estimate for all three Phases of the collection system (not including the WWTP improvements) for this alternative was developed, and is presented in Table 5-7.

Table 5-7 Collection System Cost Estimate for Wastewater Alternative 6

Item Description	Unit	Quantity	Unit Cost	Total Cost
Phase 1 - Service for SR 161 / SR 37 Interchange				
18-inch Sewer	LF	6,000	\$85	\$510,000
15-inch Sewer	LF	3,000	\$75	\$225,000
12-inch Sewer	LF	8,000	\$60	\$480,000
Manholes	EA	43	\$2,600	\$111,800
Stream & Road Crossings (Minor)	EA	8	\$8,000	\$64,000
Jacking & Boring Costs	LS	1	\$150,000	\$150,000
Traffic Maintenance	MILE	3.2	\$3,500	\$11,000
Phase 1 Construction Subtotal				\$1,551,800
Additional Project Costs	45%			\$698,000
Phase 1 Project Total				\$2,249,800
Phase 2 - Service for SR 161 / SR 310 Interchange				
15-inch Sewer	LF	6,000	\$75	\$450,000
12-inch Sewer	LF	9,000	\$60	\$540,000
Manholes	EA	38	\$2,600	\$98,000
Regulator Structure	LS	1	\$15,000	\$15,000
Pump Station	LS	1	\$180,000	\$180,000
8-inch Forcemain	LF	12,000	\$35	\$420,000
Stream & Road Crossings (Minor)	EA	9	\$8,000	\$72,000
Jacking & Boring Costs	LS	1	\$150,000	\$150,000
Traffic Maintenance	MILE	5.1	\$3,500	\$18,000
Phase 2 Construction Subtotal				\$1,943,000
Additional Project Costs	45%			\$874,000
Phase 2 Project Total				\$2,817,000
Phase 3 - Service for Western Jersey Twp.				
12-inch Sewer	LF	21,000	\$60	\$1,260,000
Manholes	EA	53	\$2,600	\$137,000
Pump Station	LS	1	\$180,000	\$180,000
6-inch forcemain	LF	15,000	\$30	\$450,000
Stream & Road Crossings (Minor)	EA	9	\$8,000	\$72,000
Jacking & Boring Costs	LS	1	\$150,000	\$150,000
Traffic Maintenance	MILE	6.8	\$3,500	\$24,000
Phase 3 Construction Subtotal				\$2,273,000
Additional Project Costs	45%			\$1,023,000
Phase 3 Project Total				\$3,296,000
Phase 1, 2, & 3 Totals				
Phase 1, 2, & 3 Construction Total				\$5,767,800
Phase 1, 2, & 3 Total Project Estimate				\$8,362,800

Part of Phase 1 of Alternative 6 includes expanding the existing Alexandria WWTP to the design expansion capacity of 160,000 gpd. This involves constructing a parallel treatment train next to the existing WWTP of equal capacity. A conceptual layout of the expanded Alexandria WWTP is presented in Figure 5-3.

PLDT INFO: J:\PROJECTS\14577618\WATER\DRAWINGS\WASTEWATER PLANT LAYOUT\DWG 11/18/11 10:23AM LTS: 1 PSLTS: 1



1 OVERALL PLANT
SCALE: NONE



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SCALE NONE	

ALTERNATIVE 6
ALEXANDRIA WWTP
EXPANSION

SOUTHWEST LICKING COMMUNITY
WATER & SEWER DISTRICT
MASTER PLAN



FIGURE 5-3

CONCEPTUAL USE ONLY

The cost estimate to expand the Alexandria WWTP to 160,000 gpd is presented in Table 5-8.

Table 5-8 Alexandria WWTP Expansion Cost Estimate

Item Description	Unit	Quantity	Unit Cost	Total Cost
80,000 GPD Package WWTP	LS	1	\$1,300,000	\$1,300,000
Site Piping	LS	1	\$60,000	\$60,000
New Blower and Piping	LS	1	\$15,000	\$15,000
Additional Sitework	LS	1	\$25,000	\$25,000
Electrical / Controls	LS	1	\$75,000	\$75,000
Total Construction Estimate				\$1,475,000
Additional Project Costs	45%			\$664,000
Total Project Cost Estimate				\$2,139,000

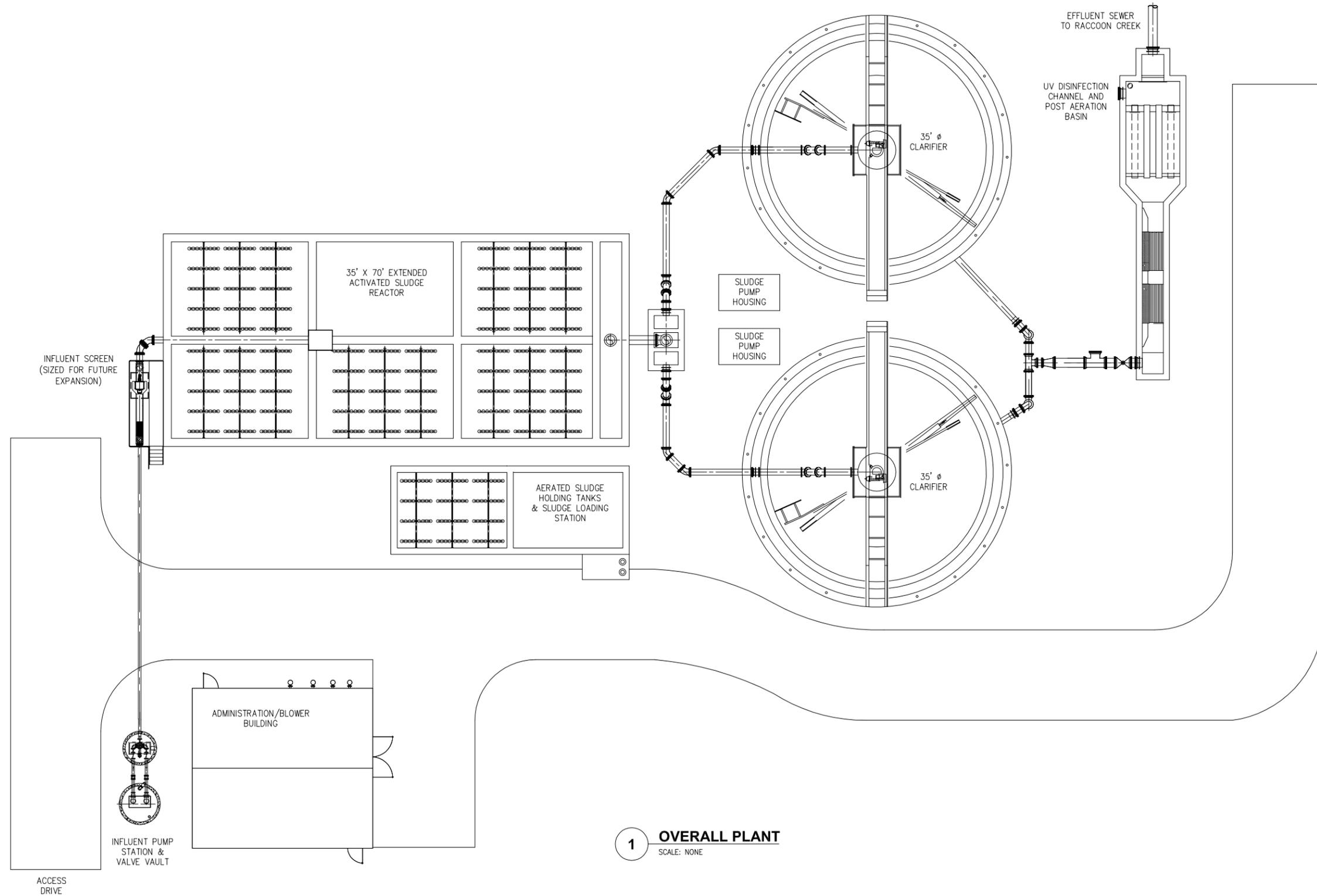
Regarding the new WWTP, several types of WWTPs were given consideration to be constructed as part of Phase 2 of this alternative. Sequence batch reactors and vertical loop reactors are typically used when the overall plant footprint is limited and can be high in capital costs. This is not assumed to be the case for the proposed location, so those options were not considered. Membrane bioreactors are relatively high in capital and operational costs and typically are used when a pristine effluent is required. They can also be maintenance intensive so they are not considered viable for this alternative. Lagoon systems are better suited for smaller-capacity facilities and are also not considered. Extended aeration plants are also better suited for smaller capacities but could be considered viable for this alternative. Conventional activated sludge WWTPs are often the lowest cost option for WWTPs of varying size if suitable land is available. Considering all of these factors, it is proposed to construct a conventional activated sludge WWTP. The style can be either conventional tanks or an oxidation ditch style, as little cost difference is expected when comparing one system to the other. The initial plant capacity is proposed to be 460,000 gpd and the system would include influent pumping, screening, activated sludge reactors (or oxidation ditch), secondary clarifiers, UV disinfection, and aerated sludge holding. It is not proposed to construct sludge handling/digestion facilities for a facility of this initial flow size, although sludge handling facilities should be constructed once the plant begins to reach its 20-year design capacity. A summary of the design parameters for the new WWTP is presented in Table 5-9.

Table 5-9 Summary of Design Parameters for New WWTP

Parameter Description	Unit	Value
Design Flow	GPD	460,000
Peak Hour Factor	-	2.5
Aeration Tank Organic Loading	lb BOD/1000 ft ³	40
Aeration Tank Size	gal	145,000
Aeration Tank Dimensions	L x W x SWD (ft)	70 x 35 x 8
Number of Circular Clarifiers	Ea.	2
Clarifier Diameter	Feet	35
Surface Overflow Rate @ Peak	gpd/ft ²	1,200
Sludge holding tank storage	Days	30

Regarding the new WWTP location, there are several factors to consider. The WWTP should be located within reasonable proximity of a receiving stream and the proposed regulator structure. Raccoon Creek would most likely be the receiving stream as opposed to a tributary to Raccoon Creek due to discharge regulations and minimum stream flow requirements. It is also beneficial to locate the WWTP near an existing road to help reduce costs associated with site access and utilities. Considering these factors, the new WWTP is proposed to be located to the east of SR 37 near Raccoon Creek. Land owners in this area have not been contacted regarding land procurement, but would need to be pursued should SWL consider this option. This proposed location is identified in the collection system layout presented previously in Figure 5-2. A preliminary layout of the proposed 460,000 gpd WWTP is presented in Figure 5-4.

PLDT INFO: JOHN_KRINKS L:\PROJECTS\14577618\WATER\DRAWINGS\WASTEWATER PLANT LAYOUT1.DWG 11/18/11 10:24AM LTS: 1 PSLTS: 1



1 OVERALL PLANT
SCALE: NONE

CONCEPTUAL PLANS

© 2011 URS	
DRAWN JKK	DATE 11/22/11
CHECKED JKK	JOB NO 14577618
SCALE NONE	

ALTERNATIVE 6
NEW WWTP
LAYOUT

SOUTHWEST LICKING COMMUNITY
WATER & SEWER DISTRICT
WATER AND WASTEWATER
MASTER PLAN

URS

FIGURE 5-4

CONCEPTUAL USE ONLY

The estimated cost for the new WWTP is presented in Table 5-10.

Table 5-10 Cost Estimate for New WWTP

Item Description	Unit	Quantity	Unit Cost	Total Cost
Influent Pump Station & Pumps	LS	1	\$170,000	\$170,000
Influent Screen and Channel	LS	1	\$150,000	\$150,000
Aeration Basin Concrete	CY	220	\$650	\$143,000
Aeration Basin Equipment & Piping	LS	1	\$250,000	\$250,000
Clarifier Concrete	CY	155	\$650	\$101,000
Clarifier Drive & Equipment	EA	2	\$110,000	\$220,000
UV Disinfection System and Channel	LS	1	\$150,000	\$150,000
Post Aeration Basin and Equipment	LS	1	\$60,000	\$60,000
Aerated Sludge Holding Tank	LS	1	\$120,000	\$120,000
RAS / WAS Pumps & Piping	LS	1	\$135,000	\$135,000
Site Piping	LS	1	\$200,000	\$200,000
Sitework, Drive, Fencing, Etc.	LS	1	\$275,000	\$275,000
Blowers and Controls	EA	3	\$30,000	\$90,000
Blower / Administration Building	SF	800	\$130	\$104,000
Electrical and Controls	LS	1	\$400,000	\$400,000
Utility Service	LS	1	\$50,000	\$50,000
Generator	LS	1	\$55,000	\$55,000
CONSTRUCTION SUBTOTAL				\$2,673,000
Additional Project Costs	45%			\$1,203,000
TOTAL PROJECT COST ESTIMATE				\$3,876,000

The total project cost estimate associated with Alternative 6; including expansion of Alexandria's WWTP, assuming Alexandria's loan, all three phases of the new collection system sewers and forcemains, and construction of a new WWTP is presented in Table 5-11.

Table 5-11 Total Project Cost Estimate for Wastewater Alternative 6

Cost Description	Estimated Cost
Phase 1 - Service for SR 161 / SR 37 Interchange	
Collection System	\$2,249,800
Alexandria WWTP Expansion	\$2,139,000
Alexandria Debt	\$1,700,000
Phase 1 Estimated Cost	\$6,088,800
Phase 2 - Extension to SR 161 / SR 310 Interchange	
Collection System	\$2,817,000
New Treatment Facility	\$3,876,000
Phase 2 Estimated Cost	\$6,693,000
Phase 3 - Extension to Western Jersey Twp	
Collection System	\$3,296,000
Phase 3 Estimated Cost	\$3,296,000
Total Estimated Project Cost	\$16,077,800

Annual estimated O&M expenses for Alternative 6 were developed. This includes operation of the entire collection system (including Alexandria) and both WWTPs. Annual costs vary for each phase depending on the wastewater flow and are also limited by the Alexandria WWTP capacity in Phase 1. The flows corresponding to each phase of this alternative are as follows:

- Phase 1 average daily flow: 160,000 gpd
- Phase 2 average daily flow: 296,000 gpd
- Phase 3 average daily flow: 164,000 gpd

The estimated annual O&M expenses associated with Phase 1, 2, and 3 of Alternative 6 are presented in Table 5-12.

Table 5-12 Annual O&M Expense for Wastewater Alternative 6

Item Description	Unit	Quantity	Unit Cost	Total Cost
Phase 1 - Service for SR 161 / SR 37 Interchange				
Sewer Maintenance	mile	3.22	\$2,000	\$6,000
Interest on Debt Retirement	Percent	3.50%	\$124,000	\$124,000
Additional SWL Expenses	LS	1	\$60,000	\$60,000
Miscellaneous Repairs / Expenses	LS	1	\$10,000	\$10,000
WWTP Operation	kGAL	58,400	\$2.25	\$131,000
Phase 1 Annual O&M Expenses				\$331,000
Phase 2 - Service for SR 161 / SR 310 Interchange				
Sewer Maintenance	mile	2.84	\$2,000	\$6,000
Interest on Debt Retirement	Percent	3.50%	\$136,000	\$136,000
Additional SWL Expenses	LS	1	\$60,000	\$60,000
Miscellaneous Repairs / Expenses	LS	1	\$10,000	\$10,000
WWTP Operation	kGAL	108,040	\$2.25	\$243,090
Phase 2 Annual O&M Expenses				\$455,000
Phase 3 - Service for Western Jersey Twp.				
Sewer Maintenance	mile	3.98	\$2,000	\$8,000
Pump Station Maintenance	LS	1.00	\$8,000	\$8,000
Interest on Debt Retirement	Percent	3.50%	\$67,000	\$67,000
Additional SWL Expenses	LS	1	\$60,000	\$60,000
Miscellaneous Repairs / Expenses	LS	1	\$10,000	\$10,000
WWTP Operation	kGAL	59,860	\$2.25	\$135,000
Phase 3 Annual O&M Expenses				\$288,000
Phase 1, 2, & 3 Total Annual O&M Expense				\$1,074,000

A present worth analysis for the three Phases was performed and is presented in Table 5-13. The analysis assumes the 20-year design period and 5% interest.

Table 5-13 20-Year Present Worth Analysis for Wastewater Alternative 6

Cost Description	Cost	20-Year Present Worth
Phase 1 - Service for SR 161 / SR 37 Interchange		
Phase 1 Project Cost	\$6,088,800	\$6,088,800
Annual Costs for Phase 1	\$331,000	\$4,125,000
Phase 1 20-Year Present Worth		\$10,213,800
Phase 2 - Extension to SR 161 / SR 310 Interchange		
Phase 2 Project Cost	\$6,693,000	\$6,693,000
Annual Costs for Phase 2	\$455,000	\$5,670,000
Phase 2 20-Year Present Worth		\$12,363,000
Phase 3 - Extension to Western Jersey Twp		
Phase 3 Project Cost	\$3,296,000	\$3,296,000
Annual Costs for Phase 3	\$288,000	\$3,589,000
Phase 3 20-Year Present Worth		\$6,885,000
Total Project 20-Year Present Worth		\$29,461,800

5.10 Evaluation of Alternatives

This section provides an evaluation of the previously described wastewater collection and treatment alternatives. Comparisons are made on factors including initial project costs, present worth analysis, and advantages and disadvantages of each alternative. A total of six alternatives were considered, which can be described as follows:

- Alternative 1: Wastewater service provided by SWL
- Alternative 2: Wastewater service provided by City of Pataskala
- Alternative 3: Wastewater service provided by Village of Johnstown
- Alternative 4: Wastewater service provided by Village of Granville
- Alternative 5: Wastewater service provided by City of Columbus/New Albany
- Alternative 6: Wastewater service provided by Village of Alexandria and new WWTP

Of these alternatives, only alternatives 1 and 6 were considered viable. A summary of the individual project costs, annual costs, and 20-year present worth analyses of the two feasible alternatives is presented in Table 5-14.

Table 5-14 Financial Comparison of Feasible Wastewater Alternatives

	Alternative	Project Cost	Annual Cost	20-Yr Present Worth
1	SWL	\$9,238,800	\$2,136,528	\$35,861,800
6	Alexandria & New WWTP	\$16,077,800	\$1,074,000	\$29,461,800

As seen in Table 5-14, Alternative 1 has a substantially lower total project costs compared to Alternative 6, but has a much higher operating cost and subsequently a higher 20-year present worth. Financial considerations are not the only factor to account for when evaluating these alternatives. The following paragraphs describe some of the advantages and disadvantages of the Alternatives.

Alternative 1 – SWL: The primary advantage of this alternative is it offers a considerably lower initial project cost compared to Alternative 6. Another major advantage of this Alternative is it has the flexibility to allow any of the three phases to be constructed in any order. This can be very beneficial because it is not currently known which areas of Jersey and St. Albans Townships will develop first. Alternative 6 does not have this kind of flexibility due to the location of the existing and proposed treatment facilities. This Alternative also offers advantages over the alternatives that were ruled infeasible due to financial reasons because it does not rely on other utilities for the treatment of wastewater. Complications with contracts, varying rates, available capacity, and other problems may occur if another wastewater utility is relied upon for service.

There are some disadvantages of this alternative. Further review of the collection system hydraulic capacity from the proposed tie-in points to the existing system is required, since there appears to be some hydraulic limitations. If this is the case, additional cost will be incurred to make this a feasible alternative. Since these costs are assumed to be covered by the sewer rates utilized in the 20-year present worth, this subsequently makes the 20-year present worth higher than Alternative 6. It can often be advantageous to construct new infrastructure in lieu of upgrading aging and existing infrastructure. Lastly, the Village of Alexandria is not served as part of this alternative, which results in a loss of the immediate customer base and guaranteed revenue from the Village customers.

Alternative 2 – Pataskala: This alternative was ruled out primarily due to the difficulty of conveying sewage to the City’s WWTP, which is located on the south side of the City. Most of the sewer lines within the City are smaller capacity (8-inch) sewers and therefore considerable upgrades involving interceptor sewers or a forcemain through the City would be required. The alignment of the new lines would also go literally right through existing SWL sewer lines. If SWL sewers are available, it is favorable to utilize these, as SWL is acting as the sewer authority in this Licking County Sewer District No. 9. Annual costs would also be high, as the City of Pataskala’s out of City rates are considerably higher than those charged by SWL. Lastly, the Village of Alexandria is not served as part of this alternative, which would result in a loss of the immediate customer base and guaranteed revenue from the Village customers.

Alternative 3 – Johnstown: This alternative was ruled out for several reasons. Initial project costs are high due to the distance between Johnstown and the SR 161 corridor. Two of the three phases propose to convey sewage uphill via forcemains, which creates greater expenses and maintenance efforts. Additionally, although Johnstown would be providing wastewater treatment services for the developing areas, it is assumed that the Village would not maintain and cover operating costs associated with the collection system. SWL would therefore be responsible for operating and maintaining the system. Therefore, in addition to capacity charges incurred by Johnstown, SWL would need to cover operation and maintenance expenses, resulting in a very high annual operating cost and subsequent 20-year present worth. For these reasons, Alternative 3 is not considered a viable option.

Alternative 4 – Granville: This alternative was ruled out for reasons similar to Alternative 3. This alternative has a very high project cost primarily because of the distance between the Village and the SR 161 corridor. Although Granville would be providing wastewater treatment services for the developing areas, it is assumed that the Village will not maintain and cover operating costs associated with the collection system. SWL would be responsible for operating and maintaining the system. Therefore, in addition to capacity charges incurred from Granville, SWL would need to cover operation and maintenance expenses, resulting in a very high annual operating cost. For these reasons, Alternative 4 is not considered a viable option.

Alternative 5 – New Albany / Columbus: Most of Jersey and St. Albans Townships are located outside of the current contract service area provided to New Albany by the City of Columbus. Modification of this service area would require a new or amended service agreement or annexation before sewer service could be extended to the Townships. Such service may be located outside of the Columbus FPA boundary which would require Ohio EPA approval prior to extending service. Additionally, the collection system on the northeast

side of Columbus (in the Blacklick drainage basin) is considered to be at capacity. For these reasons, Alternative 5 is not considered a feasible alternative

Alternative 6 – Alexandria and New WWTP: There are several advantages to this alternative which deem it favorable. The fact that new infrastructure is being constructed eliminates the need for improvements to existing infrastructure; including improving both sewer hydraulic capacities and the WWTP capacity. Because of the lower maintenance and improvement requirements with the new infrastructure, the 20-year present worth is considerably lower than Alternative 1. The Village of Alexandria would also be served as part of Phase 1, resulting in an immediate customer base and subsequent revenue. SWL would have ownership and control of all collection and treatment facilities, eliminating problems commonly associated with other utility providers. The Village and SWL are working cooperatively on an agreement to implement this or a similar alternative.

The primary disadvantage of this alternative is the very high capital cost. Cost estimates indicate that this alternative is nearly double that of Alternative 1 in capital costs. Additionally, if this alternative were selected, SWL would be responsible for operating three regional facilities instead of one. Although these costs were considered in the present worth analysis, the effort of operating the facilities may be more than what is desirable for the district. Another key disadvantage of this alternative is it does not provide the flexibility of developing the phases in any order.

5.11 Proposed Wastewater General Plan

Primarily because of the lowest 20-year present worth, it is proposed that SWL pursue Alternative 6, which involves expansion of the Alexandria WWTP and construction of a new WWTP along with the associated collection sewers and pump station/forcemain to service the SR 161 corridor. A possible project implementation schedule is presented in Table 5-15.

Table 5-15 Possible Project Implementation Schedule

Project Task	Begin Date	End Date
Alexandria expansion & Phase 1 design	January 2013	September 2014
Phase 1 WWTP & collection system bidding	October 2014	December 2014
Phase 1 WWTP & collection system construction	January 2015	December 2015
New WWTP & Phase 2 design	June 2018	April 2019
Phase 2 WWTP & collection system bidding	May 2019	July 2019
Phase 2 WWTP & collection system construction	August 2019	May 2020
Phase 3 collection system design	June 2023	April 2024
Phase 3 collection system bidding	May 2024	July 2024
Phase 3 collection system construction	August 2024	August 2025

Of course, this preliminary schedule will change based on a number of variables. The primary variable is when the demand for wastewater service is present at the anticipated developing areas. Project funding can also drive many of the proposed project tasks.

6 Project Summary and Conclusions

6.1 Water Master Plan

Due to the benefits of the lowest 20-year present worth, it is proposed to implement Alternative 6 for the water master plan. This includes construction of a new wellfield and groundwater treatment plant located near Raccoon Creek northwest of Alexandria. Specific locations of the WTP and wellfield can be finalized if SWL chooses to pursue this option. Phase 1 of the project can either serve the SR 161 & SR 37 interchange and the Village of Alexandria, or the SR 161 & SR 310 interchange and the Village of Alexandria. Phase 2 would consist of extending water service to the 161 interchange which is not served with Phase 1. Phase 3 of this alternative consists of extending water service to western Jersey Township. Total project costs are estimated at approximately \$14 million and the 20-year present worth is estimated at approximately \$22.7 million. Two options for the type of WTP were presented: a reverse osmosis WTP and a conventional filtration/ion exchange WTP. Although the costs are similar, the conventional filtration/ion exchange WTP is estimated to be slightly higher in both capital and annual operating expenses. However, the choice of which type of WTP to be implemented should ultimately be the decision of the District.

6.2 Wastewater Master Plan

Due to the benefits of the lowest 20-year present worth, it is proposed to implement Alternative 6 for the wastewater master plan. This includes expanding the Alexandria WWTP and construction of a new WWTP for treatment of the wastewater generated in the developing areas along the SR 161 corridor. Phase 1 of the project proposes to expand the Alexandria WWTP to 160,000 gpd and serve a portion of the SR 161 & SR 37 interchange and the Village of Alexandria. Phase 2 consists of extending service to the SR 161 and SR 310 interchange and the surrounding areas. Phase 2 also involves construction a new 460,000 gpd WWTP to provide treatment for flows exceeding the Alexandria WWTP capacity. Phase 3 consists of extending service to western Jersey Township which includes a pump station and forcemain. In the case that more substantial development occurs in western Jersey Township, another regional WWTP may be warranted, which was not developed in this report. Total initial project costs are estimated at approximately \$16.1 million and the 20-year present worth is estimated at approximately \$29.5 million.

6.3 Financing Options

There are several possible financing options available for this project. The State of Ohio considers SWL a 6119 regional water and sewer district under the Ohio Revised Code, thus enabling the district the opportunity to apply for various State and Federal Funding programs. A combination of grants, low (or no) interest loans, use of existing SWL funds, and possible financial assistance from developers could be obtained to assist with financing. Many funding

agencies determine grant amounts and interest rates based on the household income for the area. Descriptions of individual programs are provided in the following sections.

6.3.1 Ohio Public Works Commission

The Ohio Public Works Commission (OPWC) has established a program that provides financing to public entities for infrastructure capital improvement projects. Local subdivisions (water and sewer districts, cities, villages, communities, townships, counties, etc.) in Ohio are eligible for funding through this program. The financial assistance can be in the form of a grant or a loan. Interest rates on the loans can vary between 0% and 3% and are determined by the OPWC District Integrating Committee. Credit enhancement grants are also readily available to pay interest incurred during construction of the project.

6.3.2 USDA/Rural Development

The United States Department of Agriculture / Rural Development (USDA/RD) provides financing to small communities and developing areas for water and wastewater projects. Financing terms are dependent on the Median Household Income of the area. Unless an acceptable income survey has been performed, the USDA/RD will use the income figure from the 2010 U.S. Census. Loans for water and wastewater improvements can be made for up to 40 years with an annual interest rate dependent on the Median Household Income (MHI) for the area. The interest rate typically varies between 2.5% and 4.0%.

USDA/RD awards a combination of grant and loan funding to reduce debt service cost for residential-sized customers to where the monthly user charge per household is considered reasonable. Prior to award of a loan, the USDA must first review and approve a preliminary engineering report and an engineering agreement. The applicant is also responsible for performing an assessment of the environmental impact as it relates to the project. Because of the high demand for USDA funds, applications for funding should be submitted in the very early stages of the project.

6.3.3 Ohio Water Development Authority

The Ohio Water Development Authority (OWDA) offers a loan program to finance the planning, design, and construction of water and wastewater projects. The repayment period for construction loans can extend up to 25 years. Interest rates are approximately equal to current market rates. There is also an OWDA five-year loan for the planning and design of water and wastewater facilities. This planning loan can be rolled over into an OWDA construction loan or paid in full when construction begins on the project. The current (September, 2011) OWDA market interest rate is 4.27%, although the Community Assistance loan rate is 2% if the project is deemed eligible for this rate. The OWDA is also currently in the planning stages for

establishing a lower interest rate/longer term program for water and wastewater projects.

6.3.4 Ohio Department of Development: CDBG Water & Sewer Competitive Program

The Ohio Department of Development, Office of Local Government Services, offers Community Development Block Grant (CDBG) water and sanitary sewer program funds on a competitive basis. The primary goal of the CDBG program is to provide funds for low-to-moderate-income communities for safe and reliable drinking water and proper disposal of sanitary waters. In order to qualify for these funds, a low-to-moderate household income percentage of 51% or greater must be documented. That is, over half of the households in the proposed service area of the project need to be considered as low-to-moderate income. It is not likely that the project area would be 51% or greater low-to-moderate income and therefore, these funds would not be available for the SWL project.

6.3.5 TIF, JEDD, and CEDA Alternatives

Other financing options could include a Tax Increment Financing (TIF), a Joint Economic Development District (JEDD), or a Cooperative Economic Development Authority (CEDA). A TIF is available to local governments in Ohio to finance public infrastructure improvements. A TIF works by locking in the taxable worth of real property at the value it holds at the time the authorizing legislation was approved. Payments derived from the increased assessed value of any improvement to that property beyond the initial worth are put in a separate fund to finance the construction of the utility improvements defined in the TIF legislation.

A JEDD or CEDA involves a contract between one or more corporations and/or one or more local subdivisions (water and sewer districts such as SWL, cities, villages, communities, townships, counties, etc.) to facilitate economic development. This cooperation takes the form of tax revenue sharing among municipalities and is often considered to be mutually beneficial. Prior to SWL forming JEDD legislation with a corporation or township, public hearings would be held. This process can take several months prior to being becoming law and submitted to the Ohio Department of Development.

6.4 Financing Strategy

Once the recommended projects in this report have been approved by SWL and priorities are established, specific funding strategies can be established for each project. Timing and project schedules will also be considered as the funding strategies are developed. Often times, a combination of funding programs are used on a particular project. All available funding sources should be aggressively pursued for the SWL project.

Appendix A

**Agreement between Licking County
Commissioners & SWLCWSD**

**AGREEMENT BETWEEN THE BOARD OF COUNTY COMMISSIONERS
OF LICKING COUNTY AND THE SOUTHWEST LICKING
COMMUNITY WATER AND SEWER DISTRICT
FOR THE PROVISION OF WATER AND WASTEWATER SERVICES**

This Agreement is made pursuant to Resolution No. _____ passed and approved by the Board of County Commissioners of Licking County, Ohio ("COUNTY"), on _____, 2010 and pursuant to Resolution No. 10 071 passed and approved by the Southwest Licking Community Water and Sewer District, Licking County, Ohio ("DISTRICT"), on December 21, 2010.

Whereas, the DISTRICT is a regional water and sewer district organized under Chapter 6119 of the Ohio Revised Code. The territory of the DISTRICT, as determined by the Licking County Court of Common Pleas in its entry dated October 31, 1989, includes unincorporated portions of Harrison, Etna, and Lima Townships in Licking County, Ohio. This territory is referred to below as the "DISTRICT Service Area". The DISTRICT Service Area is depicted in attached Exhibit A; and,

WHEREAS, the DISTRICT owns and operates a public wastewater system and a public water system that currently provide wastewater and water services (collectively, "utility services") to consumers in the DISTRICT Service Area; and,

WHEREAS, the County and District are desirous of entering into an Agreement delineating Water and Wastewater Service areas within the boundaries of the COUNTY and outside the boundaries of the DISTRICT Service Area, and outlining the parameters under which Water and Wastewater Services may be provided within those newly delineated service areas; and;

WHEREAS, the DISTRICT and the COUNTY have concluded that specific areas in Jersey and St. Albans Townships are likely to require centralized utility services in the near

future. This area is referred to below as the "161 Service Area". The 161 Service Area is depicted on the attached Exhibit B; and,

WHEREAS, the DISTRICT and the COUNTY have determined that the DISTRICT currently has the capability to provide wastewater and water service in the 161 Service Area. Further, the DISTRICT and the COUNTY have determined that the COUNTY currently does not have the capability to provide wastewater and water service in the 161 Service Area in a more timely and less expensive manner than the DISTRICT; and,

WHEREAS, the COUNTY desires that the DISTRICT provide wastewater and water service to the 161 Service Area on the terms set forth in this Agreement.

NOW, THEREFORE, in consideration of the foregoing, and the mutual covenants and agreements set forth herein, the COUNTY and DISTRICT agree as follows:

1. Except as the DISTRICT and the COUNTY may subsequently agree otherwise in writing, the parties agree that the DISTRICT shall provide wastewater and water service to prospective users located within the 161 Service Area.
2. The parties agree that they shall fully cooperate with and assist each other in providing such services. If, at any time, the parties become aware of a need for utility services in the 161 Service Area, the DISTRICT and the COUNTY shall confer for the purpose of assisting in the coordination (together with the Planning Commission, if necessary, and the developer or other person(s) who is requesting the provision of centralized utility services) of the planning and construction of sanitary sewers, water mains, and associated appurtenances necessary and appropriate for the provision of utility services to prospective customers within the 161 Service Area (referred to collectively as "utility improvements", and separately as "wastewater improvements" and "water supply improvements" respectively). The parties further agree that the DISTRICT shall be the exclusive provider of water and sanitary sewer services to the 161 Service Area, unless the DISTRICT determines in its own sole discretion that it cannot provide

water and/or sanitary services to the prospective customer. If the DISTRICT so determines, it may provide services pursuant to Section 7 below.

3. Each of the parties may, but is not required by this Agreement to, perform or pay for the design, construction, installation, permitting or other aspects of the utility improvements. All wastewater improvements in the 161 Service Area shall be owned by the DISTRICT and thereafter operated and maintained by the DISTRICT. Existing residential dwellings shall not be required to connect to the DISTRICT'S water or wastewater systems unless the Licking County Health Department requires a property owner to connect pursuant to the Health Department's own rules and regulations or Ohio law. Sanitary sewer transmission force mains will not be considered as available for forced connection to the system.

4. The COUNTY may design, construct or install utility improvements within the 161 Service Area only with the DISTRICT'S consent. The COUNTY shall not contract with another public or private service provider to design, construct or install water and sanitary sewer services within the 161 Service Area. If the DISTRICT and COUNTY agree and the COUNTY does construct and/or install utility improvements, the COUNTY shall transfer ownership of the utility improvements to the DISTRICT within thirty (30) days of the date on which services become available for use and hook-up to the customer, and the customer shall be a customer of the DISTRICT. In the event that the COUNTY constructs and/or installs the utility improvements, or contributes financially to the construction and/or installation of the utility improvements (the "County Project Costs"), the parties shall enter into one or more reimbursement agreements, as necessary, outlining allocation of assessments, connection fees, and/or user charges to reimburse the full amount of the County Project Costs. It is the intention of the parties hereto that the County be fully reimbursed for all of the County Project Costs.

5. Pursuant to R.C. 5709.78, the COUNTY may adopt a resolution implementing a tax increment financing ("TIF") arrangement for any portion of the 161 Service Area, declaring the increase in assessed value of the parcels of real property to be a public purpose and exempt from real property taxation (the "County TIF Resolution"). Any service payments made in lieu of taxation in accordance with the provisions of the County TIF Resolution will be first applied to

reimbursement of any County Project Costs outlined in Section 3, and then subsequently applied as outlined in the resolution.

6. By execution of this Agreement, the COUNTY hereby grants the DISTRICT the authority in the 161 Service Area to administer, implement, and enforce the provisions of this Agreement, the "Southwest Licking Community Water and Sewer District Rules and Regulations", the "Southwest Licking Community Water and Sewer District Construction and Materials Specifications", the "Southwest Licking Community Water and Sewer District Deposit, Fee, and Charge Schedule", and other applicable laws, resolutions, regulations, permits, and orders adopted or issued by the DISTRICT, the Ohio Environmental Protection Agency, the United States Environmental Protection Agency, and other governmental entities having jurisdiction over wastewater and water systems (collectively referred to as "applicable legal requirements"), as they may be amended from time to time.

7. In the event that further actions by the COUNTY are necessary or appropriate to enable or assist the DISTRICT hereunder, the COUNTY shall pass such resolutions and take such other actions as may reasonably be necessary for the DISTRICT to provide the wastewater and water services contemplated herein, or comply with applicable legal requirements. In addition, upon request by the DISTRICT, the COUNTY shall assist the DISTRICT in obtaining all easements and rights-of-way, including permits to occupy county road rights-of-way, necessary for the construction and maintenance of utility improvements in the 161 Service Area. Such easements shall conform to the "Southwest Licking Community Water and Sewer District Rules and Regulations".

8. The DISTRICT shall, at its own cost and expense, operate and maintain its wastewater treatment and collection systems and water treatment and distribution systems in the 161 Service Area. The DISTRICT shall be responsible for billing its customers in accordance with the DISTRICT'S rate schedule; as such schedule may be amended from time to time. The DISTRICT shall inspect its own customers' connections to the wastewater system and water distribution system, and shall charge inspection fees in accordance with its own rate schedule.

9. The DISTRICT may contract with other public entities for the provision of water and sewer services to ensure the most reliable and economically achievable services may be provided in the 161 Service Area.

10. After the execution of this Agreement, the DISTRICT and COUNTY shall establish a non-voting sewer and water advisory committee consisting of one representative from each of the following political subdivisions: St. Albans Township; Jersey Township; the District; and the County. The established committee shall meet at regular intervals as the membership shall determine and shall be responsible for making recommendations for future expansions of the 161 Service Area. Any future expansion of the 161 Service Area may only be accomplished by a written amendment to this agreement signed by both parties hereto. The DISTRICT shall solely be permitted hereunder to design and construct water and/or wastewater projects within the 161 Service Area at its own initiative, regardless of whether a project has been recommended by the advisory committee or requested by a developer or property owner.

11. Nothing herein shall be construed as creating any personal liability on the part of any officer or agent of the DISTRICT or the COUNTY, nor shall it be construed as granting any rights or benefits hereunder to anyone that is not a party hereto.

12. This Agreement shall be effective upon the date of execution by both parties. This Agreement will continue for an initial twenty (20) year term, and may be renewed for an additional twenty (20) year term upon mutual consent of the parties hereto. Either party may terminate this agreement, or any renewal hereto, upon providing one (1) year written notice of intent to terminate to the other party in accordance with Paragraph 18, subject to the following:

a. If, at the time of the receipt of the notice of termination, the DISTRICT has already entered into a contract for the design or construction of a water and/or wastewater project, the terms of this Agreement shall survive and be enforceable by either party as to such water and/or wastewater project until the project is completed and placed in service. If, at the time of the receipt of the notice of termination, the DISTRICT has already entered into a contract for the design of a water and/or wastewater project, the terms of this Agreement shall survive and be enforceable by either party as to such water and/or wastewater project for a period of three (3) years. If, at the end of the aforementioned three (3) year period, the District has not

begun construction of such water and/or wastewater project, the District will not have any interest in the completion or operation of the project, and the territory intended to be served by the project will revert to the County.

b. Any water and/or wastewater facilities already constructed and placed in service in the 161 Service Area shall remain the property of the DISTRICT and the customers connected to such facilities shall remain the customers of the DISTRICT following termination of the Agreement.

c. Any funding arrangements made by the COUNTY pursuant to this Agreement for the design and/or construction of a water and/or wastewater project pursuant to the terms of this Agreement, including but not limited to special assessments imposed by the COUNTY on property owners within the 161 Service Area, or any public or private loans or grants obtained by or provided by the COUNTY for purposes of designing and/or constructing a water or wastewater project, shall survive the termination of this Agreement and shall be enforceable by the DISTRICT against the COUNTY until such grant, loan, special assessment or other funding arrangement is fully retired.

13. This Agreement shall, in all respects, be subordinate to the provisions of any special assessment legislation, indenture of mortgage, trust agreement, trust indenture agreement, bond agreement, loan agreement or other financing agreement, which may be entered into by either party to secure bonds, notes or other financing to pay the cost, or a portion thereof, of constructing the facilities contemplated by this Agreement.

14. This Agreement shall be binding on the successors of the parties. Except as provided in Section 7 above, neither party may assign, sublet or transfer any part of its interest in this Agreement without written consent of the other party.

15. If any portion of this Agreement proves to be invalid or unconstitutional, the same shall not be held to invalidate or impair the validity, force or effect of any other portion of this Agreement unless it clearly appears that such other portion is wholly or necessarily dependent for its operation upon the portion so held invalid or unconstitutional.

16. The waiver by either party of a breach or violation of any provision of this Agreement shall not operate or be construed to be a waiver of any subsequent breach thereof.

17. This Agreement contains the entire agreement of the parties, and no other statement, written or oral, is a part of this Agreement. This Agreement may not be modified orally, but only by agreement in writing signed by both parties.

18. The Agreement shall for all purposes be construed and enforced under and in accordance with the Laws of the State of Ohio. Further, the parties agree to submit to the jurisdiction of, and agree that the venue is proper in the Licking County Common Pleas Court.

19. The DISTRICT and the COUNTY shall each be responsible for its own costs and expenses, including but not limited to legal and expert witness fees, that may accrue as a result of judicial, administrative or other proceedings resulting from, involving or otherwise associated with the Agreement. Unless the DISTRICT and COUNTY agree otherwise in writing, it is the intent of the parties that if such a proceeding involves only one of the parties or substantially affects the interest of only one of the parties, and the other party decides not to intervene or otherwise participate in it, the involved party shall pay all cost associated therewith.

20. Notices required or authorized by this Agreement shall be addressed to:

If to COUNTY: Licking County Commissioners
 20 S. 2nd Street
 Newark, Ohio 43055

If to DISTRICT: Southwest Licking Community Water and Sewer District
 Board of Trustees
 P.O.Box 215
 Etna, Ohio 43018

21. Nothing contained in this Agreement shall be construed so as to limit the authority of the DISTRICT under Chapter 6119 of the Ohio Revised Code or other provisions of Ohio law, or of the COUNTY under Chapter 6117 or other provisions of Ohio law, including but not limited to, the right of the DISTRICT and COUNTY to levy taxes and assessments, or engage in other forms of financing as each entity deems necessary or appropriate.

22. This Agreement is the joint work product of the parties and, in the event of any ambiguities, no inferences shall be drawn against either party.

IN WITNESS WHEREOF, the parties hereto have made and executed this Agreement this 21 day of December, 2010.

**BOARD OF COUNTY COMMISSIONERS
LICKING COUNTY, OHIO**

**BOARD OF TRUSTEES
SOUTHWEST LICKING COMMUNITY
WATER AND SEWER DISTRICT**

By: Timothy E Bell
By: Brad Feightner
By: Doug

By: Melvin Hite
By: Mary Kay Fairall
By: David W. Holt

APPROVED AS TO FORM:

By: Eric Fox
Eric Fox, Assistant Prosecuting Attorney
Licking County, Ohio

By: Bobbie Corley O'Keefe
Bobbie Corley O'Keefe, Counsel for
Southwest Licking Community
Water and Sewer District

Exhibit B - 161 Service Area



Legend
161 Service Area



Licking County Water District - St. Albans and Jersey Township
Southwest Licking Community Water and Sewer District (SWLCWSD) Provider Area

Prepared By: Licking County Area Transportation Study & Licking County Planning Commission
Data Source: Licking County/SWLCWSD
Disclaimer: This map provides a graphic representation only. Printed: December, 2010

Appendix B

Meeting Minutes



277 West Nationwide Boulevard
Columbus, OH 43215-2566
Telephone: (614) 464-4500
Facsimile: (614) 464-0588
Architects, Engineers & Planners

PROJECT MEETING REPORT

LOCATION: Granville Village Hall
MEETING DATE: August 30, 2011 @ 9:00 a.m.

BY: Kerry Hogan
ISSUE DATE: September 27, 2011

ATTENDEES: URS: Kerry Hogan
SWL: Don Rector
Granville: Steve Stilwell, Alison Terry, Erik Holmquist
PROJECT: SWL Water / Wastewater Master Plan
JOB NO.: URS: 14577618
RE: Meeting with Granville

COPIES: Attendees, Mike Frommer (URS), Jeff Kerr (URS), John Krinks (URS), Central Files #5.2

THE FOLLOWING REPRESENTS MY UNDERSTANDING OF THAT WHICH SHOULD BE RECORDED. IF CHANGES SHOULD BE MADE, PLEASE FORWARD PROMPTLY SO THAT AN ACCURATE RECORD CAN BE MAINTAINED FOR THE BENEFIT OF ALL.

The meeting was held at the Granville Village Hall from 8:30 to 10:00 am to initiate discussions between SLWCWSD and the Village of Granville, update current activities being planned in Jersey and St Albans Townships to the west of the Village of Granville, discuss the 208 planning procedures as it relates to the Jersey and St Albans Township areas, and SWLCWSD plans for the expanded service to these townships, for both water and wastewater services. The meeting initially included Alison Terry (Granville Planning Director) and Erik Holmquist (Wastewater Superintendent). Steve Stilwell (Granville Village Manager) later attended the meeting at 9:15. The following represents a brief summary of the items discussed:

1. Introduction to SWLCWSD

- Don Rector gave a brief overview of the SWLCWSD including how and why the district was formed, current facilities owned by the District, current service areas, and proposed plans for additional water and sewer services to St Albans Township.
- Don explained the County by agreement authorized the District to provide water and wastewater services to Jersey and St Albans Township. We reviewed the Western Licking County Sanitary Sewer Planning Areas map developed by MORPC and the SWLCWSD Wastewater Planning map (copies attached) to illustrate the area being investigated and planned.
- We are currently in the planning stage developing a master plan for facilities that will become part of the 208 plan for the area.

2. Introduction to Granville

- Steve Stilwell is the Village Manager for Granville. In his absence, Alison and Erik gave us a brief summary of the Village of Granville demographics, water system condition and capacity, and wastewater system condition and capacity. They explained the efforts the Village has taken over the years to plan for responsible development, having recently completed an update to the Village's planning documents.
- The Village has seen slower growth over the last couple of years.

3. SWLCWSD 208 Planning

- We discussed some detail of 208 planning in general and the purpose of the District's planning efforts.
- The District is planning to serve portions of St Albans Township in Licking County just west of the Village of Granville.
- There are no plans by the District to serve areas within the corporate limits of the Village of Granville. Don asked whether the Village would like any specific water or sewer services for the Village or in surrounding St Albans Township.
- SWLCWSD has a wastewater treatment facility rated at 4.3 MGD and currently treats 2.0 MGD.
- SWLCWSD has a water treatment facility rated at 2.3 MGD and currently treats 1.2 MGD.
- SWLCWSD has 18 employees and facilities in Pataskala, Etna Township, Harrison Township and portions of other townships.
- Service to Jersey and St Albans Townships is currently being planned and Don would like to know if Granville had any expansion plans into the township area that may require services. There are no plans currently by the Village.
- The Village currently operates their own wastewater treatment facility rated by OEPA at 0.911 MGD capacity. They currently treat about 0.325 MGD in the summer and about 0.450 MGD in the fall – spring time frame when Denison University is in session. The last plant upgrade was in 1986.
- The Village currently operates their own water treatment facility rated by OEPA at 2.0 MGD capacity. They currently supply about 0.5 MGD in the summer and about 0.6 MGD in the fall – spring time frame when Denison University is in session. The last plant upgrade was in 1969. The plant is a lime soda softening plant. It needs some improvement due to age.
- The Village of Alexandria uses about 40,000 gpd of water from Granville. They have requested that be increased to 80,000 gpd recently.
- The Granville rates are currently \$5.00 per 1,000 gallons for sewer and \$3.55 per 1,000 gallons for water. The Village is currently performing a rate study to determine what the rates should be and what the increases should be over the next five years.
- The rate to Alexandria is surcharged 1.3 times the Granville rate, according to Erik.
- We discussed the potential for a backup water supply source to Granville for emergency use. The Village may be interested if the opportunity arises.
- There was also discussion of the Village providing water to SWLCWSD for service to the SR 37 and SR 310 interchanges off SR 161.

4. General

- Don expressed interest in providing water and wastewater services to the Granville area if needed in the future. Don also expressed interest in purchasing water from Granville for service in St Albans Township.
- Steve expressed interest in working with the District but noted that some Granville officials and residents are proponents of no growth or slow growth, and avoiding urban sprawl. The Village moves very slowly when it comes to development and water/sewer services. The Village is adequately served at this time and doesn't see a need for additional services.
- Steve will discuss with Village Council and others at the Village to gauge their opinion of working with SLWCWSD on services to the area. He needs thirty days to discuss and get feedback. The upcoming election may have an impact on this time frame. He noted he could get different answers from Council before and after the election.
- Don and Steve will continue to maintain contact with each other.

END OF MINUTES



277 West Nationwide Boulevard
Columbus, OH 43215-2566
Telephone: (614) 464-4500
Facsimile: (614) 464-0588
Architects, Engineers & Planners

PROJECT MEETING REPORT

LOCATION: SWLCWSD Administration Bldg **MEETING DATE:** August 17, 2011 @ 9:00 a.m.

BY: Kerry Hogan **ISSUE DATE:** September 27, 2011

ATTENDEES: URS: Kerry Hogan **PROJECT:** SWL Water / Wastewater Master Plan
SWL: Don Rector **JOB NO.:** URS: 14577618
New Albany: Joe Stefanov **RE:** Meeting with New Albany

COPIES: Attendees, Mike Frommer (URS), Jeff Kerr (URS), John Krinks (URS), Central Files #5.2

THE FOLLOWING REPRESENTS MY UNDERSTANDING OF THAT WHICH SHOULD BE RECORDED. IF CHANGES SHOULD BE MADE, PLEASE FORWARD PROMPTLY SO THAT AN ACCURATE RECORD CAN BE MAINTAINED FOR THE BENEFIT OF ALL.

The meeting was held at the SWLCWSD Administration offices from 9:00 to 11:00 am to initiate discussions between SWLCWSD and the City of New Albany, update on current activities being planned in Jersey and St Albans Townships and the City of New Albany, discuss the 208 planning procedures as it relates to the New Albany area, and SWLCWSD plans for the expanded service area near New Albany, for both water and wastewater services. The following represents a brief summary of the items discussed:

1. Introduction to SWLCWSD

- Don Rector gave a brief overview of the SWLCWSD including how and why the district was formed, current facilities owned by the District, current service areas, current staffing and financial summary of the District, and proposed plans for additional services.
- Don explained the County by agreement authorized the District to provide water and wastewater services to Jersey and St Albans Township. We showed Joe the wastewater planning map (copy attached) to illustrate the area being investigated and planned.
- We are currently in the planning stage developing a master plan for facilities that will become part of the 208 plan for the area.

2. Introduction to New Albany

- Joe Stefanov is the City Manager for New Albany. He briefly explained the make-up of New Albany government and the efforts they have taken over the years to control development and set high standards for development.
- The New Albany Company is a big player in the City and controls most of the development land. They continue to purchase additional land for future development.
- Joe said the City has much land available for development within its current limits. But they continue to annex land that fits the City's goals.

3. SWLCWSD 208 Planning

- We discussed more detail of 208 planning in general and the purpose of the District's planning efforts.

- The District is planning to serve portions of Jersey Township in Licking County which approaches the City of New Albany.
- There are no plans to serve areas within the City of New Albany. Don asked Joe to consider whether the City wants any specific water or sewer services in Jersey Township that the City wishes to grow toward in the future.
- We discussed the potential for a backup water supply source to New Albany for emergency use. Joe and Don thought that would be a good idea if details could be worked out.
- We discussed wastewater services to areas of Jersey Township as well. The City has an agreement with the City of Columbus for the provision of water and wastewater services. The agreement states Columbus will be the service provider to New Albany within its corporate limits. The current 208 plan provides for Columbus serving New Albany within the Blacklick Creek watershed as delineated in the 208 plan. There may be the option of SWLCWSD providing water and/or wastewater services to areas east of the City of New Albany outside of the Blacklick Creek 208 planning boundary, if the City were to grow to the east.

4. General

- Don expressed interest in providing water and wastewater services to New Albany if needed.
- Joe also expressed interest but at this time, the City is adequately served. Joe will discuss with City Council and others at the City.
- Don and Joe agreed to continue to maintain contact with each other.
- Don gave us a tour of the SWLCWSD water plant. Don and Joe agreed to get together again in the future to tour the wastewater plant as well.

END OF MINUTES

MEETING NOTES

Project: SWL Water / wastewater master planning, URS No. 14577618

Meeting Purpose: Discuss with the Village of Alexandria the possibility of SWL owning, and/or operating and/or maintaining the Villages water and wastewater systems.

Meeting Date: July 13, 2011, 11:15 AM

Meeting Location: Bob Evans Restaurant, Granville, OH

Meeting Attendees: John Krinks (URS), Don Rector (SWL), Timothy Bubb (Licking County Commissioner), Bob Brown (Alexandria Council), Scott Hutchinson (Alexandria Council)

NOTICE: The topics discussed during this meeting are to be considered conceptual ideas for preliminary planning purposes and are not to be considered for implementation.

- SWL and URS provided a general overview of the project pertaining to water and wastewater master planning for the 161 corridors, particularly in the areas of the SR 37 and SR 310 interchanges. Maps of water and wastewater utilities were reviewed and a discussion of options for water and wastewater supply and treatment were discussed. The viable options for water discussed include service from Johnstown and construction of a new plant near Alexandria. A viable option for wastewater treatment is considered to be expansion of the Alexandria plant and treatment there, which was the primary focus of the meeting.
- Alexandria stated the wastewater budgets are not in considerable trouble, and the sewer rates generally balance out the operating and loan expenses. The wastewater system is about 5 years old. However, Alexandria citizens feel the sewer rates are high, and would be interested in lower rates.
- The Alexandria wastewater plant has a design capacity of 80,000 gpd, and is currently operating at approximately half capacity. The design expansion allows for a 160,000 gpd capacity, though there is additional area to the west for further expansion beyond that.
- The wastewater treatment plant is currently operated by the Johnstown wastewater staff. If SWL were to take over the plant, it would be operated by SWL.
- Alexandria currently owns and maintains its own water distribution system – though water is supplied by Granville. Alexandria claims the rates are high, and wishes to have the option of being served water at lower rates.
- Alexandria stated almost all of their water system funds are gone, with only about \$4,000 left in the bank. Most of the water funds have recently gone to tap repairs. The water distribution system is about 30 years old. Alexandria hires local contractors to repair the water system.
- A brief discussion of new water plant location was held. SWL indicated the property to the west of Alexandria (as previously discussed with URS) was a viable option – both with land acquisition and potential water availability.
- In general, Alexandria would be very interested in SWL taking over both the water and wastewater system – specifically if SWL could offer rates that were equal to or less than the

current ones. SWL stated that the rates throughout the district are a flat rate, and rates are not higher for specific areas. SWL feels that it could offer lower water and sewer rates than the current ones.

- Alexandria appeared to only be interested in SWL if they were to take over both the water and the wastewater systems. They generally seem to be more interested in someone taking over the water system, as it is in worse condition (financially and physically).
- SWL stated they would generate some costs for services for both water and wastewater in the Village and get water and sewer rates to them for review. The rates will be reviewed by URS prior to discussing with the Village.

END OF NOTES



277 West Nationwide Boulevard
 Columbus, OH 43215-2566
 Telephone: (614) 464-4500
 Facsimile: (614) 464-0588
Architects, Engineers & Planners

PROJECT MEETING REPORT

LOCATION:	OEPA Central Office	MEETING DATE:	August 3, 2011 @ 1:30 p.m.
BY:	Kerry Hogan	ISSUE DATE:	September 27, 2011
ATTENDEES:	URS: Kerry Hogan, Mike Frommer SWL: Don Rector OEPA: John Owen, Beth Bailik, Suzanne Matz, Mike Galloway	PROJECT:	SWL Water / Wastewater Master Plan
		JOB NO.:	URS: 14577618
		RE:	OEPA 208 Planning Meeting w/ Dan Dudley & Staff

COPIES: Attendees, Mike Frommer (URS), Jeff Kerr (URS), John Krinks (URS), Central Files #5.2

THE FOLLOWING REPRESENTS MY UNDERSTANDING OF THAT WHICH SHOULD BE RECORDED. IF CHANGES SHOULD BE MADE, PLEASE FORWARD PROMPTLY SO THAT AN ACCURATE RECORD CAN BE MAINTAINED FOR THE BENEFIT OF ALL.

The meeting was held at the Central Office of Ohio EPA from 1:30 to 3:00 pm to discuss the 208 planning requirements, current 208 Plan revisions being proposed, and SWLCWSD plans for the expanded service area and 208 lock-in procedures, specifically for wastewater services. The following items were discussed:

1. Update to 208 Plan
 - OEPA is currently doing an update by end of December with the plan to be sent to the Governor by January 2012.
 - This covers 208 Planning updates for Upper Scioto Basin.
 - MORPC has been granted funds to provide data for Central Ohio that could be incorporated into the 208 Plan update.
 - The OEPA has not received any current update or 208 Planning request from MORPC as of today.
 - MORPC Plan should be completed in September.
 - SLWSD Plan should be completed in September-October timeframe but may not be part of 208 Plan update being proposed.

2. Reynoldsburg Annex Issues/Areas near Reynoldsburg
 - Discussed Lock-in of service area near Reynoldsburg.
 - Reviewed maps with OEPA including the draft MORPC map (Western Licking County Sanitary Sewer Planning Areas) and URS Figure #1 (Southwest Licking Facility Planning Area) – Copies Attached.
 - Reynoldsburg sewers overlapping SWLCWSD sewers were noted to all in attendance.
 - SWLCWSD is proposing a lock-in request to protect sewers in the ground and future sewer service areas.
 - We explained why lock-in is necessary and benefits of lock-in.
 - Ohio EPA agreed we must eliminate the duplication of services if possible to avoid waste of public dollars and maintain a revenue source to pay for installed facilities.

- Etna Township is a supporter of SWLCWSD and lock-in is necessary to address the Township growth plans.
 - County is a supporter of the SWLCWSD as well.
 - Taylor Road needs sewers badly. Much of the area is currently served by failing on-site systems. The District doesn't want to invest dollars unless the area is locked-in to avoid waste of public funds.
 - It was noted that financial issues are very strong arguments to present in the lock-in request.
 - SWLCWSD noted that they don't care have significant issues with annexation unless services are taken away from the District as part of the annexation.
 - It was noted that design issues, sizes, locations, etc. are very important to lock-in.
 - The District has met with Reynoldsburg in the past on some of these issues.
 - The District will be meeting with Reynoldsburg to discuss the above in more detail and attempt to work out agreement on service areas and lock-in areas.
3. Jersey and St Albans Townships
- We provided maps of the Facility Planning Area and the Wastewater System Planning Map (attached Figures) in detail.
 - OEPA does not have concern for taking over the Alexandria plant
 - The SWLCWSD are currently in talks to discuss the possibility of the District taking over their plant and/or system.
 - The District may also consider an agreement on WWTP operations.
 - The 161 corridor is seen as a growth corridor and the County has granted the District by agreement to service part of the area.
 - Jersey and St Albans Townships want to grow responsibly and the District is working closely with them.
 - We reviewed the 208 Plan requirements for this area and initial proposed service options.
 - By contract with Licking County, the SWLCWSD is Designated Management Agency (DMA) for Jersey and St. Albans Townships.
 - SWLCWSD can lock-in the service area (FPA) as the DMA.
4. SWLCWSD 208 Planning Work Schedule
- Currently proposing to complete all planning work and submit to OEPA by in October.
 - Proposing to submit 2 separate documents for the above mentioned areas.
 - Jersey and St Albans in detailed Report.
 - Reynoldsburg/Etna in Letter Report.
 - OEPA advised that both areas could be submitted in same report – possibly identified by separate chapters.

END OF MINUTES

Executive	As Passed by the House	As Passed by the Senate	As Reported by Conference Committee
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	Fiscal effect: May reduce some public notice costs and expedite some foreclosures.	Fiscal effect: Same as the House.	Fiscal effect: Same as the House.
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LOGCD16 County Sewer District Contracts

No provision.	R.C. 6103.04, 6117.05 Expands the scope of the contracting authority of a county sewer district by: (1) authorizing a board of county commissioners to convey, by mutual agreement, to a municipal corporation any part of water supply or sanitary facilities of the sewer district that are connected to facilities of the municipal corporation; and (2) authorizing a board to convey, by mutual agreement, to a municipal corporation water supply or sanitary facilities acquired or constructed by a county for the service of property located in the district that are also located in the municipal corporation or within an area that is incorporated as, or annexed to, the municipal corporation.	R.C. 6103.04, 6117.05, 6119.061 Replaces the House provisions with new provisions that are structured differently but that achieve the same substantive effect.	R.C. 6103.04, 6117.05, 6119.061 Same as the Senate.
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No provision.

Declares that whenever any portion of a regional water and sewer district is incorporated as, or annexed to, a municipal corporation, the area incorporated or annexed remains under the jurisdiction of the district for purposes of the acquisition, construction, or operation of a water resource project until the project's completion or abandonment.

Same as the Senate.

Executive

As Passed by the House

As Passed by the Senate

As Reported by Conference Committee

No provision.

No provision.

Establishes new contracting authority for regional water and sewer districts regarding the conveyance of water resource projects to municipal corporations.

Same as the Senate.

LOCCD31 Sanitary District for the Reduction of Biting Arthropods

No provision.

No provision.

R.C. 6115.321

Establishes procedures for the exclusion of a municipal corporation from the territory of a sanitary district established solely for the reduction of biting arthropods by allowing a question on the removal to placed on the general election ballot. Requires the county auditor to remove any assessment on real property that applies to the district that is due on or after January 1 or July 1, whichever is earlier, following a vote in favor of removal from the district. Prohibits the county treasurer from collecting any such assessments.

R.C. 6115.321

Replaces the Senate provision with one that authorizes the legislative authority of a municipal corporation or a board of township trustees to submit a petition for exclusion to the applicable court of common pleas.

No provision.

No provision.

No provision.

Requires the clerk of the court of common pleas to send notice to all municipal corporations and townships in the district of any petition to withdraw, and allows for the legislative authority or board of township trustees of any such municipal corporation or township to submit written objections to the withdrawal within 30 days.

No provision.

No provision.

No provision.

Requires that after 30 days, the court either issue a decree excluding the petitioner from the district if the court receives written objections from less than 60% of the

Appendix C

Newspaper Articles

New Albany trades tax receipts for Columbus water, sewer

By Doug Caruso and Quan Truong

Tuesday September 27, 2011 5:38 AM

Comments: 0

5



Columbus and New Albany have reached a development deal that will allow the suburb to grow by about a third in return for sending a share of new income taxes back to the big city.

The Columbus City Council approved legislation last night to extend water and sewer lines to about 2,400 acres on the eastern edge of New Albany in Licking County.

In return, Columbus is to receive 26 percent of New Albany income taxes generated by businesses that locate there and a one-time, \$6,000-per-acre fee as development occurs, said Michael Stephens, a deputy development director for Columbus.

Piecemeal annexations from Jersey Township to New Albany already have started, with 135 acres approved by Licking County commissioners and township trustees, said New Albany spokesman Scott McAfee.

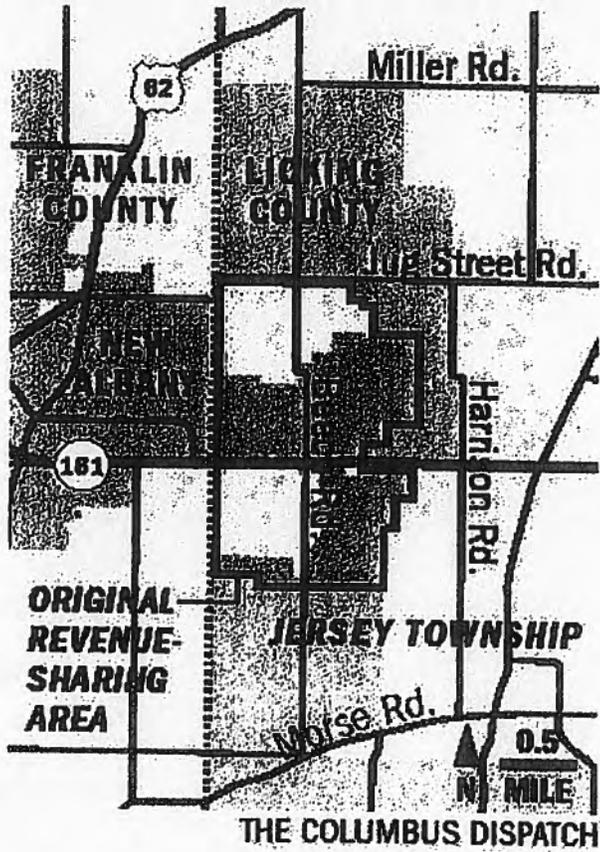
The remainder of the 2,400 acres can be annexed over decades.

"We're forecasting way out," McAfee said. "(Licking County) is aware that our intentions are to make the service area larger than that."

It's similar to a 2001 deal in which Columbus agreed to extend sewer and water service to 1,600 acres that New Albany planned to annex in western Licking County. But the terms are better for Columbus this time. Under the original agreement, Columbus received a one-time payment of \$1,250 per acre, Stephens said, and 15 percent of the income taxes generated.

Columbus has received about \$2 million in one-time payments but has not received any of the income taxes because the 2001 agreement delayed those payments until total payroll in the area reached \$15 million per year. He said Columbus expects to begin receiving payments next year.

New revenue-sharing area



New Albany pushes out

As the city annexes Licking County land, farmers brace for change

By **Quan Truong**
THE COLUMBUS DISPATCH

Among the stretches of cornfields and open land, a bulldozer rests on mounds of dirt along the Rt. 161 corridor near Beech Road.

Every day, Becky Dodderer watches the progress from her house.

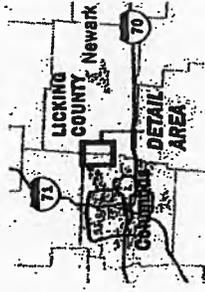
"Instead of watching corn grow, I'm watching factories grow," she said. "I don't know what it's going to bring me."

Dodderer was born into farm life, and it has been her livelihood for 72 years.

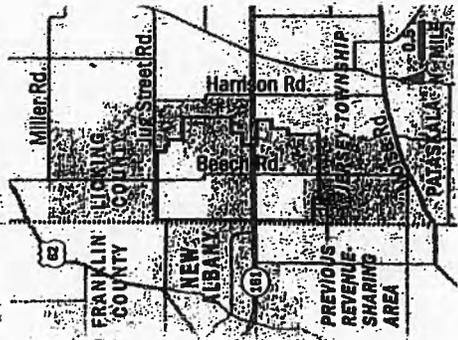
Her mother's farm, which spanned about 200 acres along old Rt. 161, has long been divided up

Farmland fate

A deal struck last week will let New Albany expand farther into Licking County. Columbus will extend sewer and water lines into 2,400 acres in exchange for a share of the taxes that will be generated.



NEW REVENUE-SHARING AREA



among various developers. The future of her farm, 100 acres at Beech Road and Jug Street, hangs in limbo. Dodderer knows what might be coming.

The construction of the four-lane Rt. 161 expressway five years ago fueled predictions that the small, close-knit communities in the area would grow into hotbeds of commercial activity.

While the recession held off the activity to the east in St. Albans Township's Rt. 310 corridor, something different was happening to the west — something that has defied expectations during an

See **NEW ALBANY**, Page A4

Vapor worries close 2 rec-center gyms

By **Doug Caruso**
THE COLUMBUS DISPATCH

Columbus closed gyms at two city recreation centers yesterday after tests found potentially dangerous levels of mercury vapor seeping from their synthetic floors.

Contamination at the Far East and Marion Franklin recreation centers was higher than the federal Centers for Disease Control and Prevention consider to be safe for residences and schools, but lower than the cutoff for workplaces or

commercial buildings, said Terri Leist, a spokeswoman for Columbus Recreation and Parks.

Recreation centers fall into the second category, she said, but officials closed the gyms because children play there.

"The ones at higher risk are children or pregnant women," she said. The Far East Community Center is at 1826 Lattimer Dr., and the Marion Franklin Community Center is at 2801 Lockbourne Rd.

See **GYMS** Page A4

Gyms with mercury vapor

Vapors of mercury have been detected in gyms at six Columbus recreation centers; two of the gyms will close temporarily and the floors will be replaced.



▲ Gyms closed because of mercury vapor:

1. Far East
 2. Marion Franklin
- ▲ Mercury found to be within safe limits; gyms will remain open:
3. Berliner
 5. McDonald
 4. Big Run
 6. Willis

THE COLUMBUS DISPATCH

By **Encarnacion Pyle**
THE COLUMBUS DISPATCH

The latest revelations about NCAA violations in Ohio State University's beleaguered football program put the campus on zero-tolerance rule-breaking — not that the campus has bigger problems in its compliance program, President E. Gordon Gee said last night.

"We are the poster child for compliance, and whenever we discuss possible infraction, we resolve a report it to the NCAA, no matter minor the violation. That's what have done here," Gee said after his annual fall address to the faculty. Gee also backed athletic director Gene Smith.

"I think we are blessed to have an extraordinarily talented athletic director who has proven his mettle through an extraordinarily tough

See **GEE**, Page A4

'FRACKING' DEBATE

Wayne foresees drilling rights to be bid out

By **Spencer Hunt**
THE COLUMBUS DISPATCH

A plan to auction oil and gas rights in Ohio has brought the debate, "fracking" to the Wayne National Forest.

The U.S. Bureau of Land Management plans to lease out 3,302 acres in the Wayne, most of it

▲ Map of Nelsonville in Athens County, to the high potential drilling bidders during a Dec. 14 mineral rights auction sites | A4

It's part of a larger plan to lease a total of 20,000 acres.

Licking court drawn into maomonic-homoc case

NEW ALBANY

FROM PAGE A1

economic slump.

'Monster' or 'growth engine'?

In the past 10 years, New Albany's population has grown from 3,700 to 7,700. Its village status was bumped up to city, and ambitious commercial plans brought in a 3,000-acre business park. Since 2009, it has added 3,500 jobs — 2,500 that are new to the state.

"You're dealing with a city that has the resources and capability to bring in businesses ... we're not used to seeing this in central Ohio," said Licking County Commissioner Doug Smith. "It's overwhelmed a lot of people. And, unfortunately, that's a byproduct of development."

New Albany recently entered a development part-

nership with Columbus, trading tax receipts in exchange for water and sewer lines into about 2,400 acres on the western edge of Licking County. About 135 of those acres are to be annexed from Jersey Township later this year. "I was shocked when I saw it was 2,400 acres," said Jersey Township Trustee Jim Endsley. "A lot of people feel a monster is coming in our direction and eating up our township."

At the same time, he said it's better to work with New Albany and stay a part of the discussion than be left out altogether. Despite reservations from rural residents, Licking County officials are excited about New Albany's success. "We're all going to be beneficiaries of this type of growth," Smith said. "New Albany is a very well-planned community, and I think it's

going to continue migrating eastward. I know these are words some folks don't want to hear, but that is going to happen at some point."

From an economic standpoint, few can argue the benefits. The annexations don't completely remove the land from Jersey Township, so it becomes a dual jurisdiction. That means the township and county get portions of property taxes.

New Albany would receive the income taxes — a fraction would go to Columbus for the water- and sewer-line deal and a chunk for the school district in Licking County. And because it is not residential development, the district gets revenue without adding any students.

That sort of uptick, said Licking County Commissioner Jim Bubb, can turn central Ohio into a "growth engine."

"We're right east of Columbus, and this county has a lot of room. I think we're prime for growth."

She said she doesn't know whether to continue investing in her farm. She's unsure whether she'd even sell her 100-acre property, where she raises Black Angus cattle and grows corn and soybeans.

"You don't know whether to spend money on fixing things or if you'll look around tomorrow and it'll be bulldozed," she said. "And really, I might be dead before they approach me."

All area residents and officials know is that change is on the way. "There'll be development, eventually, all the way to Granville, which will continue into Newark," Smith said. "In the bigger picture, when all of this is completed, it will be a far different community."

qtruong@dispatch.com

Waiting in Ilmbo

The change won't happen overnight. The remainder of the 2,400 acres likely will involve piecemeal annexations over the next decade or two, said New Albany spokesman Scott McAfee. "At this point, it's long-term planning."

A large chunk of it — including the first 135 to be annexed later this year — is owned by the New Albany Co. Endsley estimated that 10 to 12 other landowners would fall into that area.

Although the water and sewer services come from Columbus, New Albany would have to pay for the extension from Morse Road. When the lines will go into the ground depends on finances and commitments

HOMES

FROM PAGE A1

\$145,000 for new houses built by Centex in Canal Winchester. When they later told Centex about the magnetized joists, Centex said that was not covered under the limited warranty included in their sales contracts.

By signing the contracts, the buyers agreed to waive claims for repairs except those specifically mentioned in a separate document, which was available for inspection at a separate location and not before or at the time they bought the houses. The couples sued in 2007.

Both the Franklin County Common Pleas Court in 2009 and the 10th District Court of Appeals in 2010 ruled in Centex's favor, citing the wording of the sales contract. "The couples' attorney told the justices that a jury should have the opportunity to hear the homeowners' case. No matter what his clients signed, homebuilders still have an underlying duty to construct a house in a 'workmanlike manner,'" Edwards said. "Even if the builder's responsibility to the buyers can be waived, they were never told they were giving something up, he added. "Not one citizen in the state of Ohio believes that if

MORE ON 10TV

For more on the court battle over Centex's "magnetized" homes and the liability waivers their buyers signed — watch *Dispatch* reporter David Eggert on WBNS-10TV between 6:30 and 7 this morning, or go to 10TV.com.



they go in and sign a contract ... they have nothing," Edwards said. "That is, in my opinion, against the public policy of the state of Ohio."

But Centex's attorney, Michael Long, urged justices to trust the free market. "When people buy new

homes from builders and they are told what you are getting are express warranties and you should read them, they can go read those warranties. ... They can walk away from the deal."

Long said the contract still requires the builder to fix more than 100 other specified defects.

Because the suit was dismissed before a trial could be held, it remains unclear exactly how the joists became magnetized. Justices tried to find out yesterday with questions to the attorneys, but they did not learn much on that point. Long called the case unique and downplayed any

notion that magnetized homes are common. He said commercial buildings have steel joists and higher levels of magnetization, but without the problems reported by the Canal Winchester residents. Edwards said he thinks there are other homeowners out there like his clients, who he said will never be able to sell their homes because of the magnetic joists. The couples were not in the courtroom for the arguments. The National Association of Home Builders and Ohio Home Builders Association have filed briefs with the court supporting Centex. deggert@dispatch.com

Memoranda, ... 614-888-8888 rd of Thanks, ... 614-888-8888 dings, other ebrations, ... 614-888-4992

IRRECTION POLICY

Dispatch strives to be fair and uria. The newspaper corrects significant errors of fact brought he attention of the editors. If you k an error has been made, call -461-5271. Corrections will be ted below.

IRRECTIONS

ie Franklin County Board of itions will be open for early g before the Nov. 8 election t 8 a.m. to 6 p.m. on weekdays t for Oct. 11, when the hours be 8 a.m. to 9 p.m. Because of irect information provided to ublishing listed a different. ing time. Because of a report- ession, a story on Page B1 of ideo's Metro & State section incomplete.

e dedication date for the ture fountain in Goodale Park il to be determined; tentatively, w will be sometime in mid- mber. Because of an editor's , a photo caption on Page B3 ideo's Metro & State section ined incorrect information.

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Licking County Commissioners OK annexation to New Albany

12:47 PM Aug 25 2011

NEWARK -- The Licking County Commissioners approved on Thursday an expedited annexation of 135.5 acres from Jersey Township to the city of New Albany.

The land, just east of Beech Road and south of the Ohio 161-Beech Road interchange, will become part of New Albany Business Park East, according to city officials.

The business park includes a new beauty and personal care campus north of the interchange, where eight companies have already agreed to locate.

Jack Reynolds, of the Columbus law firm Smith and Hale, said 24 Jersey Township property owners signed the petition seeking annexation to New Albany.

"It will be annexed in the hope to be developed in the very near future," Reynolds said. "There was a desire to get it into the city and make it available."

Reynolds said he does not know what company or companies may be interested in developing the property.

The township and city entered into an annexation agreement to expedite the annexation process, which requires the commissioners approval and does not allow an appeal for the parties involved.

The city of New Albany can accept the annexed property after 60 days, or likely in early November, Reynolds said.

The land is adjacent to 893 acres south of Ohio 161 that New Albany annexed in 2001.

"This annexation is about planning for the next business development phase in Licking County," said Scott McAfee, spokesman for the city of New Albany. "The annexation process really started in 2009, long before any known businesses. This annexation is the same, long-term planning, so that we're ready for the next phase."

Initially, the annexation was to include 180 acres, but Reynolds said only 135 acres were needed immediately. The remaining

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45 acres may be sought at a later date, he said.

The entire business park, which includes Franklin County's medical campus, research and information campus, Water's Edge Development, and other companies not part of a campus group, will occupy more than 205,000 square feet of building space on 2,000 acres, from east of Beech Road to west of New Albany Road.

The eight companies committed to the Beauty and Personal Care Campus are: Accel, Knowlton Development, Vee Pak, Alene Candles, Jeyes, Axium Plastics, Anomatic and Sonoco.

Kent Mallett can be reached at (740) 328-8545 or kmallett@newarkadvocate.com

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Appendix D

Letter of Intent between Alexandria and SWLCWSD

VILLAGE OF ALEXANDRIA

P. O. Box 96
Alexandria, OH 43001

LETTER OF INTENT

Southwest Licking Community Water and Sewer District
P. O. Box 215
Etna, OH 43018

USDA Rural Development
21330 State Route 676, Suite A
Marietta, OH 45750

Ohio Public Works Commission
65 East State Street, Suite 312
Columbus, OH 43215

Park National Bank
P. O. Box 3500
Newark, OH 43058-4762

Subject: Transfer of ownership of the Village of Alexandria Water and/or Sanitary Sewer System to the Southwest Licking Community Water and Sewer District by sale, joint operation, or any other method as approved by all parties involved.

This letter confirms the intent of the Village of Alexandria ("VILLAGE") to negotiate a method of transfer of water and sanitary sewer system ("WATER AND SEWER SYSTEM") to the SOUTHWEST LICKING COMMUNITY WATER AND SEWER DISTRICT ("DISTRICT") subject to the following conditions:

- (a.) Acceptance by USDA of that amount as payment in full of all of the VILLAGE'S obligations to USDA;
- (b.) the transfer of the remaining VILLAGE debt to the Ohio Public Works Commission ("OPWC") for the WATER AND SEWER SYSTEM to the DISTRICT;
- (c.) the VILLAGE will cease to provide water and sewer service upon the consummation of the transactions and within the timeframe set forth in an Agreement, which will be drafted to cover the transactions, and upon that cessation the DISTRICT will provide water and sewer services to the territory currently served by the VILLAGE;

- (d.) the VILLAGE will petition to be included with the DISTRICT water and sewer service area as part of the "161 Service Area" with Licking County.

The VILLAGE agrees to enter into immediate and exclusive good faith discussions with the DISTRICT and USDA to negotiate the Agreement within the following parameters:

1. Entry into the Agreement is subject to approval by each of the VILLAGE, DISTRICT, USDA, PARK NATIONAL BANK and OPWC provided, (a) that the approval of USDA may occur after execution of the Agreement, (b) that the Agreement shall not be effective until approved by USDA, and (c) the Agreement shall be deemed void in the event USDA fails or refuses to approve the Agreement within thirty (30) days of execution by the DISTRICT and the VILLAGE.
2. The VILLAGE shall permit the DISTRICT and USDA and their advisors such access to the VILLAGE's properties, books, records and personnel as is necessary to enable the DISTRICT and USDA to carry out a due diligence review and the VILLAGE will comply with all reasonable due diligence requests of the DISTRICT and USDA.
3. Any transaction between the VILLAGE, the DISTRICT, and USDA is conditioned upon the satisfaction of certain conditions including, but not limited to, the following:
 - (i.) Negotiation and execution of a mutually acceptable Agreement containing among other things, reasonable covenants, conditions, representations and warranties among the parties in form and substance satisfactory to each of them;
 - (ii.) Compliance with all applicable laws; and
 - (iii.) Receipt of all necessary third party consents and regulatory and governmental approvals required to be obtained before or after closing.
4. The DISTRICT and the VILLAGE will each bear its own reasonable costs and expenses in connection with the transaction contemplated herein.

Except for paragraphs 2 and 4, and the obligation to negotiate in good faith to attempt to reach the Agreement, neither this letter of intent nor the terms hereof constitute a legally binding Agreement. Except as aforesaid, this letter of intent is solely to facilitate negotiations between the VILLAGE, the DISTRICT, USDA, PARK NATIONAL BANK and OPWC with respect to the proposed acquisition of the WATER AND SEWER SYSTEM by the DISTRICT.

Sincerely,

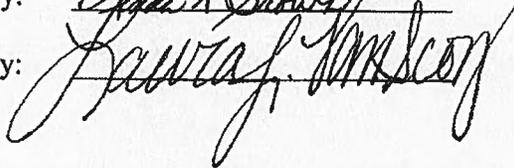
THE VILLAGE OF ALEXANDRIA

By:



Linda K. Brown, Village Administrator

By:



Laura J. VanScoy, Fiscal Officer