1. Executive Summary

1.1. Purpose

This plan has been created in conjunction with the City of Napoleon to comply with Ohio Environmental Protection Agency (OEPA) Director's Final Findings and Orders, dated July 25, 2000 (see Appendix A), specifically Order #8 which reads;

> "Within thirty-six (36) months from the first day of January immediately following the effective date of these Orders, Respondent shall develop and submit a Combined Sewer System Long Term Control Plan. The goal of the plan is that discharges from combined sewer overflows shall not cause or significantly contribute to violations of water quality standards, including toxicity impacts on stream biota, or impairment of designated uses of the waters of the state, including, without limitation, the Maumee River and Oberhaus Creek."

As stated above, the goal of the plan is that discharges from combined sewer overflows shall not cause or significantly contribute to violations of water quality standards. Using the presumptive approach, this goal may be accomplished by the elimination of unnecessary Combined Sewer Overflows (CSOs) from the system, as well as additional projects and improvements to reduce the occurrence at the remaining CSOs to no more than four (4) events per year.

This plan is fully coordinated with the Wastewater Treatment Plant and Collection System Comprehensive Plan (Vol. 2) that focuses on the removal of Sanitary Sewer Overflows (SSOs). The schedule of improvements presented within both plans are closely linked. This represents significant efforts by the City of Napoleon to systematically reduce the frequency of CSO events on the combined collection system, reduce the water quality impacts on the Maumee River and Oberhaus Creek throughout the course of the projects caused by such CSO events and provide additional capacity for future growth of the system.

The findings and proposed improvements of this Long Term Control Plan (Vol. 1), as well as those within the Wastewater Treatment Plant and Collection System Comprehensive Plan (Vol. 2), were developed through the cooperative efforts of the

City of Napoleon and R.D. Zande & Associates, Inc. based upon the data available and legislation in effect at the time of preparation of these plans, a storm water management model (SWMM) of the collection system, flow metering, analysis of such flow monitoring and continuous input from City staff. It is the intent of the City of Napoleon to develop each of the projects presented within these reports within the proposed schedules provided. The City will also continue to refine the detailed design and execution of the individual projects as additional data is gathered and analyzed.

1.2. Conclusions

The structure of the City of Napoleon collection system is such that much of the separated system flows through the combined system before discharging to the WWTP. As defined within the Wastewater Treatment Plant and Collection System Comprehensive Plan (Vol. 2), it is imperative that the significant separated systems within the City be removed from the combined system. This will be accomplished through a series of studies and projects defined within the Comprehensive Plan (Vol. 2). Also, improvements must be made on the combined system to reduce the number of overflow events that occur annually on the system, ensure that all flows discharged to the Maumee River from the wastewater treatment plant (WWTP) receive a minimum of primary equivalent treatment and disinfection and overflow events that do occur do not cause or significantly contribute to violations of water quality standards.

Based upon these points, it is critical that the City of Napoleon approach the modifications to the combined collection system with three (3) primary objectives:

- Convey and treat all flows from the separated system and the vast majority of flows entering the combined system. It is the ultimate goal of the program presented within this report to limit the potential number of CSO events on the collection system to no more than four (4) per year.
- Disconnect the separated system from the combined. This will reduce the potential for detrimental impacts caused by CSO events.

- Modify the WWTP to ensure full primary and secondary equivalent treatment and disinfection of all separated sanitary influent at the facility and a minimum of primary equivalent treatment and disinfection of all combined influent reaching the facility.

As a result of the completion of the proposed improvements included within this report and the Wastewater Treatment Plant and Collection System Comprehensive Plan (Vol. 2), all SSOs will be eliminated, the CSOs currently located on the Oberhaus Creek will be closed, CSO events discharging to the Maumee River will be limited to no more than four (4) events per year, all separated flows will receive full primary and secondary treatment and all combined flows reaching the plant will receive a minimum of primary equivalent treatment and disinfection.

1.3. Proposed Improvements

According to the USEPA CSO Control Policy an implementation schedule "may be phased based on the relative importance of adverse impacts upon water quality standards and designated uses, priority projects identified in the long-term plan, and on a permittee's financial capability." The financial capability analysis examines the financial impact of wastewater and overflow controls on individual households and calculates the permittee's debt, socioeconomic and financial conditions. The guidance also suggests that additional data may be presented to present a complete picture of a community's financial situation.

The total cost of all capital improvements identified within this Long Term Control Plan, including contingencies and technical services is $5,858,000 (2004). The total estimated cost of these improvements and those within the Wastewater Treatment Plant and Collection System Comprehensive Plan (Vol. 2), including contingencies and technical services, is $33,490,000 (2004).

R.D. Zande staff has recently completed a review of the financial capabilities of the City of Napoleon through the USEPA Affordability Analysis. Based upon current

data, it is our opinion that the City is currently an "unusually high burden" municipality. A summary of the Affordability Analysis is included in Chapter 6 of this report and copies of the worksheets are included in Exhibit 1. Additionally, a copy of an Affordability Analysis Report prepared by Dr. William Bogart, Ph.D., is provided in Exhibit 2. The data provided by Dr. Bogart further shows that the City of Napoleon is an exceptional case for consideration.

Based upon the Affordability Analysis of the City of Napoleon wastewater collection and treatment systems, it is proposed that a phased program of capital improvement projects and additional detailed investigations be completed over a 20-year timeframe. The City of Napoleon will continue with the current projects already underway within the City and develop additional sewer separation projects in the north-central portions of the City. The projects currently underway include the Hilltop Lane Sanitary Sewer Improvements, West Clinton Storm Sewer Improvements and Monroe Street Storm Sewer Improvements. The City has also applied for Ohio Public Works Commission (OPWC) funding related to the design and construction of a sewer separation project on Dodd Street, between Scott and Lagrange Streets. The capital improvement projects defined within this report will be performed as noted in the schedule provided in Section 1.4 below.

The City of Napoleon will continue the implementation of the Nine (9) Minimum Controls for CSO Abatement, as defined in the USEPA CSO Control Strategy. These controls are:

1. Proper operation and maintenance programs for the sewer system and CSO points.

2. Maximum use of the collection system for storage of wet weather flow prior to allowing overflows.

3. Review and modification of pretreatment program to minimize the impact of non-domestic discharges from CSOs.

4. Maximization of flow to the POTW for treatment.

5. Prohibition of dry weather overflows.

6. Control of solid and floatable materials in CSO discharges.

7. Required inspection, monitoring and reporting of CSOs.

8. Pollution prevention programs that focus on reducing the level of contaminants in CSOs.

9. Public notification for any areas affected by CSOs, especially beach areas and areas where contact recreation occurs.

Finally, the City of Napoleon has already begun the implementation of a schedule of incremental sanitary sewer rate increases to generate additional revenues to aid in financing the proposed capital improvement projects and investigations. The initial rate increases within the ordinance included a 3.5% increase in 2003, 4.0% for 2004 and 4.5% for 2005. Based on current costs, including an annual increase of 4%, and taking into consideration debt service for the proposed projects within the first five (5) years of the plan the City will need to re-examine the proposed rate increase slated for 2005 and consider raising that increase in the sewer rates to a range of 15% to 20%, with additional smaller increases each year from 2006 to 2010. This is based on assuming that the total cost of all projects is being financed at an interest rate of 6% over 20 years.

A review and analysis of the City's sewer fund revenues will be completed on an annual basis to determine if and when additional increases will be required. Currently, the City of Napoleon water and sewer rates equate to roughly 1.13% of the median household income of the residents.

For each of the above capital improvement projects and those developed from the additional investigations noted within the Comprehensive Plan, the City will apply for financial assistance through a combination of grant and loan programs. A summary of potential funding programs is included within this report.

1.4. Proposed Schedule

As noted previously, it is recommended that the implementation of the proposed capital improvement projects within the City of Napoleon be completed over a 20-year timeframe. This timeframe was developed based on a start date of the first day of January following the approval of this Combined Sewer System Long Term Control Plan. For the purposes of this report, it is assumed that the schedule will begin January 1, 2005.

Each of the proposed projects in this Long Term Control Plan will have a positive impact on one (1) or more CSOs and SSOs on the system, resulting in either a reduction in the frequency or volume of the events. After each capital improvement project is completed, the affected CSOs and SSOs will be further analyzed for the possibility of constructing a weir or other mechanism to further reduce the frequency and volume of overflows, while preventing other problems from occurring within the collection and treatment systems. The following is a list of the proposed capital improvement projects for the City of Napoleon for this Long Term Control Plan, along with the estimated start and end years:

Table 1.1
Combined Sewer System Project Schedule

Project	Begin Year	End Year	Estimated Cost (2004)
Dodd and Yeager Sewer Separation Project – Phase I	2004	2005	$225,000
Reiser Street CSO Replacement Project	2006	2006	$120,000
Dodd and Yeager Sewer Separation Project – Phase II	2017	2018	$500,000
WWTP CSO Treatment Facility	2019	2020	$4,503,000
East Riverview Interceptor Improvements	2024	2025	$341,000
Fillmore Street Sanitary Sewer Improvements	2024	2025	$169,000

Table 1.2, below, provides a listing of the projects proposed with the Wastewater Treatment Plant and Collection System Comprehensive Plan (Vol. 2) to eliminate the

existing SSOs on the City of Napoleon collection system. It is important to examine these proposed projects in conjunction with those proposed for this Long Term Control Plan. The SSO removal projects will not only result in the elimination of unauthorized overflows to the Maumee River, but also reduce the detrimental impacts (flow rates and concentrations) of the separate system on CSO events.

Table 1.2
WWTP & Collection System Project Schedules

Project	Begin Year	End Year	Estimated Cost (2004)
Hilltop Lane Sanitary Sewer Improvements (Close West Riverview & Wayne Park SSO)	2004	2004	$60,000
West Clinton Street Storm Sewer Improvements (Close Clinton & Sheffield SSO)	2004	2004	$40,000
Glenwood Avenue SSO Elimination Projects			
West Lift Station Replacement	2004	2005	$348,000
West Riverview Interceptor I/I Reduction Study	2005	2006	$175,000
I/I Reduction Projects (from study)	2007	2015	$2,625,000
West Riverview Interceptor Replacement (Glenwood to Haley)	2010	2011	$594,000
Haley Avenue SSO Elimination Projects			
Haley Avenue Interceptor I/I Reduction Study	2005	2006	$85,000
Woodlawn Avenue Sewer Separation (Clinton to Haley)	2006	2007	$360,000
West Washington Street Sanitary Sewer Replacement	2008	2007	$455,000
I/I Reduction Projects (from study)	2008	2016	$2,050,000
West Riverview Pumping Station			
West Riverview Pumping Station, Equalization Basin & 24" Sewer Extension	2020	2021	$2,144,500
Avon Place Sanitary Sewer Extension	2020	2021	$124,500
Close Glenwood SSO	2021	2021	N/A
Close Haley Avenue SSO	2021	2021	N/A
South Side SSO Elimination Project			
East Maumee Interceptor	2004	2005	$418,000
South Perry Street Pumping Station	2004	2005	$248,000

Palmer Ditch Pumping Station Control Modifications	2004	2005	$25,000
South Side Interceptor I/I Reduction Study	2006	2007	$190,000
I/I Reduction Projects (from study)	2013	2019	$2,280,000
Close West Maumee & Graceway SSO	2015	2015	N/A
Oberhaus Interceptor			
Kenilworth Area I/I Removal Projects (from URS study)	2006	2024	$7,490,000
Oberhaus Interceptor I/I Reduction Study	2011	2012	$125,000
I/I Reduction Projects (from study)	2013	2019	$1,500,000
VanHyning Interceptor			
VanHyning Interceptor I/I Reduction Study	2014	2016	$105,000
I/I Reduction Projects (from study)	2017	2023	$1,260,000
East Riverview Interceptor			
East Riverview Interceptor I/I Reduction Study	2014	2016	$60,000
I/I Reduction Projects (from study)	2018	2020	$240,000
Front Street Interceptor			
Front Street Interceptor I/I Reduction Study	2016	2017	$25,000
I/I Reduction Projects (from study)	2021	2022	$150,000
WWTP Improvements			
Separated Collection System Equalization Basin	2023	2024	$4,026,000
Front Street Interceptor and Palmer Ditch Force Main Relocation	2024	2025	$419,000

Additionally, all of the proposed projects, including those presented within both Volumes are represented in matrix format in Table 1.3 and graphically in Figure 1. It is estimated that the City of Napoleon will invest nearly $1,000,000 per year for each of the next 20 years in its combined and separated collection systems, with some years far exceeding that amount. The proposed order of these improvements was developed based upon three (3) primary factors. These factors are:

- The immediacy of positive impacts on the Maumee River and its tributaries;
- The ability to address existing deficiencies within the collection system; and
- The debt burden that the City of Napoleon and its customers can sustain.

TABLE 1.3

CITY OF NAPOLEON

COMBINED SEWER SYSTEM LONG TERM CONTROL PLAN AND WASTEWATER TREATMENT PLANT AND COLLECTION SYSTEM COMPREHENSIVE PLAN

PROJECT SUMMARY MATRIX

PROJECT NAME	TYPE		TOTAL PROJECT COST	PROJECT END-YEAR ESTIMATED COST																				
	CSO	SSO		2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Hilltop Lane Sanitary Sewer Improvements		X	**$60,000**	$60,000																				
Dodd & Yeager Sewer Separation Phase I	X		**$225,000**	$225,000																				
West Clinton Street Storm Sewer Improvements		X	**$40,000**	$40,000																				
West Lift Station Replacement		X	**$348,000**		$348,000																			
East Maumee Interceptor		X	**$418,000**		$418,000																			
South Perry Street Pumping Station		X	**$248,000**		$248,000																			
Palmer Ditch Pumping Station Control Modifications		X	**$25,000**		$25,000																			
Reiser Street CSO Replacement	X		**$120,000**			$120,000																		
West Riverview Interceptor I/I Reduction Study		X	**$175,000**			$175,000																		
West Riverview Interceptor I/I Reduction Projects		X	**$2,625,000**				$525,000		$525,000		$525,000		$525,000		$525,000									
Haley Avenue Interceptor I/I Reduction Study		X	**$85,000**			$85,000																		
Haley Avenue Interceptor I/I Reduction Projects		X	**$2,050,000**					$410,000		$410,000		$410,000		$410,000		$410,000								
Woodlawn Avenue Sewer Separation		X	**$360,000**				$360,000																	
West Washington Sanitary Sewer Replacement		X	**$455,000**						$455,000															
South Side Interceptor I/I Reduction Study		X	**$190,000**				$190,000																	
South Side Interceptor I/I Reduction Projects		X	**$2,280,000**										$570,000		$570,000		$570,000		$570,000					
West Riverview Interceptor Replacement (Glenwood to Haley)		X	**$594,000**								$594,000													
Oberhaus Interceptor I/I Reduction Study		X	**$125,000**									$125,000												
Oberhaus Interceptor I/I Reduction Projects		X	**$1,500,000**										$375,000		$375,000		$375,000		$375,000					
VanHyning Interceptor I/I Reduction Study		X	**$105,000**													$105,000								
VanHyning Interceptor I/I Reduction Projects		X	**$1,260,000**														$315,000		$315,000		$315,000		$315,000	
Kenilworth Area I/I Removal Projects (from URS study)		X	**$7,500,000**			$750,000		$750,000		$750,000		$750,000		$750,000		$750,000		$750,000		$750,000		$750,000	$750,000	
East Riverview Interceptor I/I Reduction Study		X	**$60,000**													$60,000								
Front Street Interceptor I/I Reduction Study		X	**$25,000**														$25,000							
East Riverview Interceptor I/I Reduction Projects		X	**$240,000**															$120,000		$120,000				
Dodd & Yeager Sewer Separation Phase II	X		**$500,000**															$500,000						
WWTP CSO Treatment Facility	X		**$4,503,000**																	$4,503,000				
West Riverview Pumping Station, EQ Basin & 24" Sewer Extension		X	**$2,144,500**																		$2,144,500			
Avon Place Sanitary Sewer Extension		X	**$124,500**																		$124,500			
Front Street Interceptor I/I Reduction Projects		X	**$150,000**																			$150,000		
WWTP Separated System Equalization Basin		X	**$4,026,000**																				$4,026,000	
Front Street Interceptor & Palmer Ditch Force Main Relocation		X	**$419,000**																					$419,000
East Riverview Interceptor Improvements	X		**$341,000**																					$341,000
Fillmore Street Sanitary Sewer Improvements	X		**$169,000**																					$169,000
Annual Total				**$325,000**	**$1,039,000**	**$1,130,000**	**$1,075,000**	**$1,160,000**	**$980,000**	**$1,160,000**	**$1,119,000**	**$1,285,000**	**$1,470,000**	**$1,160,000**	**$1,470,000**	**$1,325,000**	**$1,285,000**	**$1,370,000**	**$1,260,000**	**$5,373,000**	**$2,584,000**	**$900,000**	**$1,065,000**	**$4,026,000**	**$929,000**
Cumulative Total				**$325,000**	**$1,364,000**	**$2,494,000**	**$3,569,000**	**$4,729,000**	**$5,709,000**	**$6,869,000**	**$7,988,000**	**$9,273,000**	**$10,743,000**	**$11,903,000**	**$13,373,000**	**$14,698,000**	**$15,983,000**	**$17,353,000**	**$18,613,000**	**$23,986,000**	**$26,570,000**	**$27,470,000**	**$28,535,000**	**$32,561,000**	**$33,490,000**

The Ohio EPA, in the development of the Director's Final Findings, recognized the direct relationship between the separate and combined systems and Orders and all parties must continue to recognize the symbiotic relationship between the two (2) systems. The projects proposed within this Long Term Control Plan (Vol. 1) and Wastewater Treatment Plant and Collection System Comprehensive Plan (Vol. 2) will provide benefits each to the other.

DODD & YEAGER SEPARATION PROJECT PHASE II

DODD & YEAGER SEPARATION PROJECT PHASE I

FILLMORE STREET SANITARY SEWER IMPROVEMENTS

EAST RIVERVIEW INTERCEPTOR PROJECT

WWTP CSO TREATMENT FACILITY PROJECT

WWTP WET WEATHER SEPARATED FLOW EQUALIZATION PROJECT

HALEY AVE. SSO ELIMINATION PROJECT

REISER ST. CSO RECONSTRUCTION PROJECT

SOUTH SIDE SSO ELIMINATION PROJECT

WEST RIVERVIEW PUMPING STATION PROJECT

GLENWOOD AVENUE SSO ELIMINATION PROJECTS

RED = COMBINED SEWER SYSTEM LONG TERM CONTROL PLAN PROJECT

GREEN = WWTP & COLLECTION SYSTEM COMPREHENSIVE PLAN PROJECT

0 320 640 960

SCALE IN FEET

FIGURE 1

PROPOSED PROJECT MAP

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