EXECUTIVE SUMMARY

PDG has prepared this Combined Sewer System Long-Term Control Plan on behalf of the Village of Columbus Grove. This Long-Term Control Plan submittal to the Ohio EPA does fulfill a requirement of the Village's NPDES permit along with state and federal regulations. PDG's objective was to evaluate and justify the most efficient and cost effective alternative for complying with Ohio's CSO Strategy.

In regard to options, the Village's wastewater plant has no significant additional capacity to entertain transport, store, and treat back into the WWTP. However, Columbus Grove is presently performing a Wet Weather Stress Test in order to get Ohio EPA approval to maximize flow into its plant during wet weather periods. In reviewing the existing plant, it became apparent that the Village needs to consider some equipment improvements to maintain and continue to effectively treat the wastewater it receives. Table 15 lists the description of work to be completed at an estimated cost of $1,277,200. These improvements should be evaluated independent of any LTCP option that is pursued.

Several alternatives were evaluated, including total separation of sanitary and storm sewers. Taking all things into account including, but not limited to, the Village's philosophy, proposed land use projections, antidegradation issues, alternative costs, and timing of the alternative projects brought PDG to the conclusion that the best approach for Columbus Grove would be to reduce the total number of CSO structures, install a new transportation sewer to the treatment plant area, treat wet weather flows per approved stress test through the existing wastewater treatment plant with the remainder of the waters passing through primary settling and disinfection before discharging to the creek. Its $4.173 million cost is less than all other alternatives studied – even the separation of sewer cost of $7.487 million.

The recommended approach of an additional transport sewer, primary settling with disinfection, and appropriate ancillary equipment will take approximately 18 months to build after proper EPA and funding protocols and approvals. These approvals are estimated to take 30 to 36 months after this Long-Term Control Plan is approved.

Phased Sanitary Sewer Separation Program - Alternative No. 1

Taking all things into account, but not limited to the magnitude of a sanitary sewer separation project for both the Village and its residents, the fact that the wastewater treatment facility also requires some capital improvements, the financial capabilities of the Village and available funding sources, the Village's approach for the separation project is estimated to take ten (10) years upon Ohio EPA approval of the LTCP.

Therefore, Table 3 illustrates a proposed schedule of events for a ten (10) year completion period. The sanitary sewer separation project will be constructed in four (4) phases with a ten (10) year completion date. Each of the four (4) phases will be completed every 2.5 years (30 months).

TABLE 3
PHASED SANITARY SEWER SEPARATION
PROPOSED SCHEDULE OF EVENTS (10 YEARS)

No.	Task	No. of Months After Approval of Long-Term Control Plan by Ohio EPA
PHASE 1		
1	Prepare and submit appropriate funding applications to complete the project	2
2	Upon receiving affordable planning and construction funding, begin design of the proposed improvements	4
3	Complete funding applications along with engineering design and submit to funding agencies and to Ohio EPA for review and approval	12
4	Receive funding agency's and Ohio EPA's approval for construction	14
5	Start construction Phase 1	18
6	Complete construction Phase 1	30
PHASE 2		
1	Prepare and submit appropriate funding applications to complete the project	32

TABLE 3 PHASED SANITARY SEWER SEPARATION PROPOSED SCHEDULE OF EVENTS (10 YEARS)		
No.	Task	No. of Months After Approval of Long-Term Control Plan by Ohio EPA
2	Upon receiving affordable planning and construction funding, begin design of the proposed improvements	34
3	Complete funding applications along with engineering design and submit to funding agencies and to Ohio EPA for review and approval	42
4	Receive funding agency's and Ohio EPA's approval for construction	44
5	Start construction Phase 2	48
6	Complete construction Phase 2	60
PHASE 3		
1	Prepare and submit appropriate funding applications to complete the project	62
2	Upon receiving affordable planning and construction funding, begin design of the proposed improvements	64
3	Complete funding applications along with engineering design and submit to funding agencies and to Ohio EPA for review and approval	72
4	Receive funding agency's and Ohio EPA's approval for construction	74
5	Start construction Phase 3	78
6	Complete construction Phase 3	90
PHASE 4		
1	Prepare and submit appropriate funding applications to complete the project	92
2	Upon receiving affordable planning and construction funding, begin design of the proposed improvements	94

TABLE 3 PHASED SANITARY SEWER SEPARATION PROPOSED SCHEDULE OF EVENTS (10 YEARS)		
No.	Task	No. of Months After Approval of Long-Term Control Plan by Ohio EPA
3	Complete funding applications along with engineering design and submit to funding agencies and to Ohio EPA for review and approval	102
4	Receive funding agency's and Ohio EPA's approval for construction	104
5	Start construction Phase 4	108
6	Complete construction Phase 4	120

Construction and project costs will increase every year due to inflation. If the Village elects to complete the project over a 10 year period, the total project cost is estimated to increase an additional $387,753. This increase is based on a three (3%) percent annual inflation rate. The Village's total estimated 10 year project cost is $7,875,233 versus $7,487,480 as illustrated on Table 1.

The increase in construction and project costs could actually be offset by being able to secure additional grants for a phased project versus a single project. This is due to the fact that the Village can re-apply through the same grant programs for each of the four (4) phases. A further discussion on financing sources and options for the 10 year schedule follows this section.

The Village of Columbus Grove presently has four (4) combined sewer overflows as previously illustrated on Plate 1. The level of impact to the Plum Creek is based on the number of overflow occurrences, duration of discharge, volume of discharge and pollutants.

The suggested phased sewer separation has therefore been based on a general review of monthly operating reports and discussion with Village personnel and is listed as follows:

Phase Sewer Separation:

Phase 1 - CSOs 4 and 5 (Construction 2010)

8" sanitary sewer 14,700 lineal feet

61 manholes

180 service laterals

Total Estimated Project Costs $1,805,440

Phase 2 - CSOs 4 and 5 (Construction 2012)

8" sanitary sewer 11,518 lineal feet

10" sanitary sewer 2,082 lineal feet

53 manholes

180 service laterals

Total Estimated Project Costs $1,787,084

Phase 3 - CSOs 4 and 5 (Construction 2015)

8" sanitary sewer 12,272 lineal feet

10" sanitary sewer 3,028 lineal feet

68 manholes

180 service laterals

Total Estimated Project Costs $2,136,390

Phase 4 - CSOs 2 and 3 (Construction 2017)

8" sanitary sewer 9,157 lineal feet

10" sanitary sewer 2,967 lineal feet

15" sanitary sewer 1,876 lineal feet

50 manholes

180 service laterals

Total Estimated Project Costs $2,146,319

Plate 2 illustrates each of the areas for the proposed phased sanitary sewer separation program.

SUMMARY AND RECOMMENDATIONS

Summary

This CSO Long-Term Control Plan provided a general review of Ohio's Combined Sewer Overflow Strategy along with developing sanitary collection system alternatives for meeting current National Pollutant Discharge Elimination System (NPDES) requirements.

Two (2) long term control alternatives were developed and analyzed. Alternative No. 1 proposed a phased construction of a new separated sanitary sewer system which consists of constructing approximately 57,600 lineal feet of conventional gravity sewers at an estimated cost of $7,936,226. Alternative No. 2 included the construction of some storm and sanitary separation with storm water pumping and retention at an estimated cost of $3,314,887. Both alternatives will require some wastewater treatment capital improvements. These improvements will allow the Village to meet current effluent permit requirements.

Recommendations

Based on the preliminary findings of this report and on-going discussions with Village and Ohio EPA officials, the Village of Columbus Grove has elected as their combined sewer long-term strategy, Alternative No. 1 - the construction of a new separated sanitary sewer system which consists of constructing approximately 57,600 lineal feet of conventional gravity sewers.

Alternative No.1 - Sanitary Sewer Separation will be phased over a ten (10) year period with each phase being completed every 2.5 years. The Village's goal for completing the sanitary sewer separation project is to eliminate all overflows from occurring and to reduce the impact of storm-related waters that are currently being treated at the wastewater treatment plant.

During the ten (10) year phased separation, the Village will consider additional storm sewer improvements (current combined system) as deemed necessary and will also complete residential inspections in order to assure that storm water is directed into the storm system and not into the new sanitary system.

Upon the completion of each phase which will include the construction of new service laterals thus removing clean water connections, the Village will continue to monitor all remaining overflows as required in their NPDES permit.

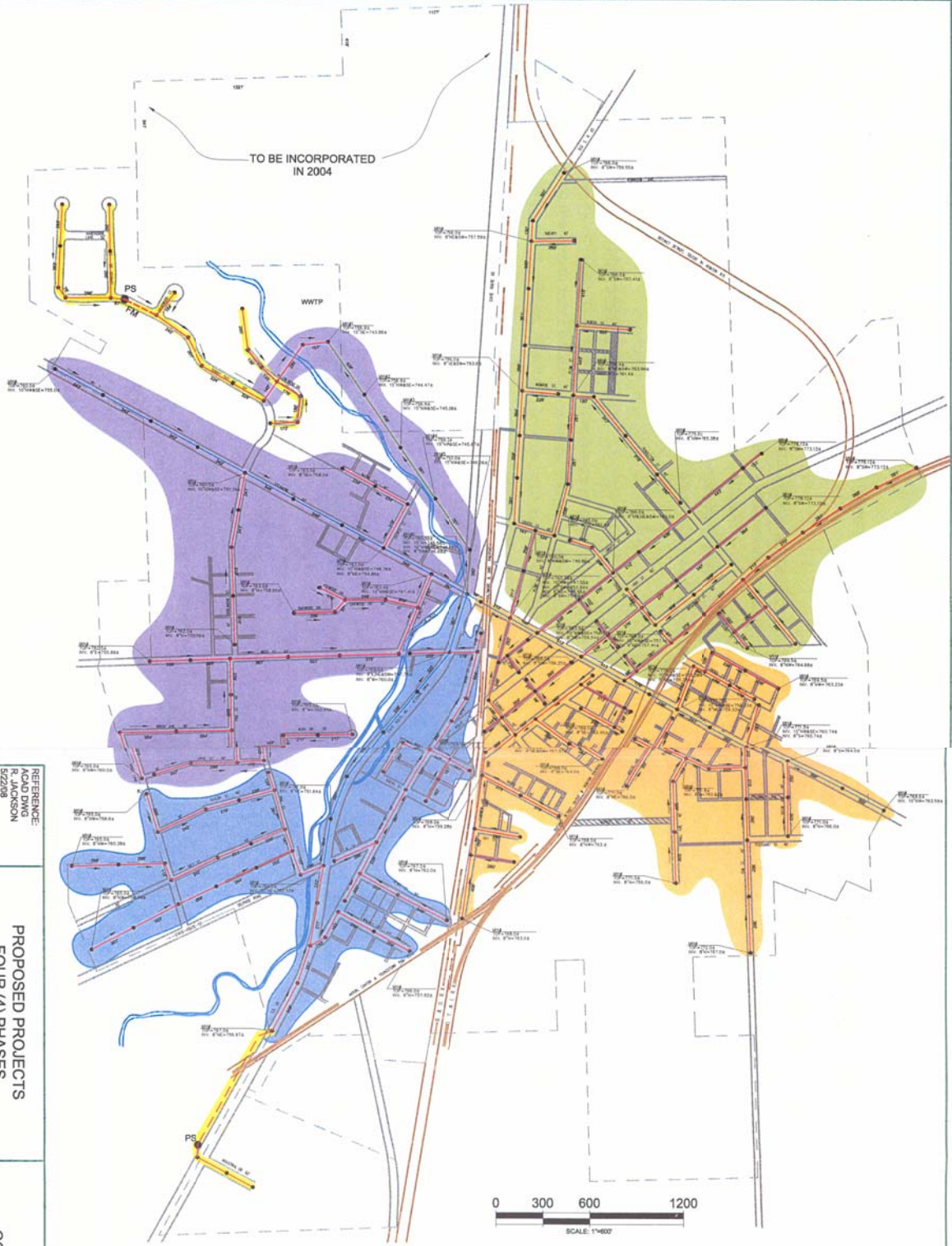
The Village as part of their agreement to separate sewers requests the following from Ohio EPA:

1. Sanitary Sewer Separation - Phased 10 years
2. Interim effluent limits (NPDES) during the ten (10) year separation period.
3. Remove effluent loading limits (NPDES) during the ten (10) year separation period.
4. No sludge capacity increase during the interim permit period.

The Village agrees to complete a Wastewater Treatment General Plan within twelve (12) months of the effective date of the new NPDES permit. The General Plan will evaluate the following:

1. Wastewater treatment improvements necessary to meet Interim Permit limits, if needed.
2. Wastewater treatment improvements (alternatives) necessary to meet both current and projected effluent discharge limits along with sludge storage and treatment. The proposed improvements will be based on reduced average and peak flows along with nutrient removal.
3. Develop a compliance schedule for both short-term and long-term effluent permit requirements.

   Short-term - Improvements during (if required) interim permit period.
   Long-term - Improvements after 10 year sanitary sewer separation



REFERENCE:
ACAD DWG
R. JACKSON
5/22/06

JOB #1410-030
FILE: SEPARATION PHASES.DWG

PROPOSED PROJECTS
FOUR (4) PHASES

PLATE TWO

VILLAGE OF
COLUMBUS GROVE

LONG-TERM CONTROL PLAN

POGGEMEYER
DESIGN GROUP

PHASE 1

8" SANITARY SEWER	14,700	LF
MANHOLE	61	EA
LATERAL REPLACEMENT	175	EA

PHASE 2

8" SANITARY SEWER	11,518	LF
10" SANITARY SEWER	2,082	LF
MANHOLE	53	EA
LATERAL REPLACEMENT	175	EA

PHASE 3

8" SANITARY SEWER	12,272	LF
10" SANITARY SEWER	3,028	LF
MANHOLE	68	EA
LATERAL REPLACEMENT	175	EA

PHASE 4

8" SANITARY SEWER	9,157	LF
10" SANITARY SEWER	2,967	LF
15" SANITARY SEWER	1,876	LF
MANHOLE	50	EA
LATERAL REPLACEMENT	175	EA