

## BALLVILLE TOWNSHIP

The township is located in the south central area of Sandusky County and the 2010 census stated that 5,985 people live in the unincorporated portions of the Township. The total land area is 33.9 square miles at an elevation of 646 feet. The southern part of the city of Fremont is located in northern Ballville Township. There are 176.5 people/square miles which does not include the City of Fremont.

Additional demographic and population projections for Ballville Township are as follows:

	2010 Census	Square Mile	Population/ Square Mile	MHI	LMI %
Ballville Township	5,985	33.9	176.5	\$60,000	26.1

	2010 Population	2010 Estimated Water Demand (100 gpcd)	2010 Estimated Water Demand/ Square Mile	2030 Population Estimate**	2030 Estimated Water Demand (100 gpcd)	2030 Estimated Water Demand/ Square Mile
Ballville Township*	5,985	598,500 gpd	17,654 gpd	5,632	563,200 gpd	16,614 gpd
* Does not include the southern portion of the City of Fremont						
** Ohio Department of Development - Sandusky County Projected Rate of Change - .059% to 2030						

To assist the township in capitalizing on economic growth, Township Trustees highlighted SR 53 from US 6 south to SR 12 as a growth corridor. The area at the intersection of US 6 and SR 53 is also highlighted as a future growth area. As mentioned in the section on Sandusky Township, Ballville is also cooperating on an extension of water and sewer to the west along Hayes Avenue. Cole Road continues to see residential development of both single lots and residential subdivisions.<sup>1</sup>

Groundwater Resources - Ballville Township includes three (3) different water bearing formations. The eastern third of the township is in a thick clay till interbedded with lenses of sand and gravel. Water supply is in the underlying aquifer at depth of less than 200 feet. There are two (2) ODNR test wells and one industrial well with yields between 500 to 1,000 gpm.

The central third of the township is also in a carbonate aquifer with yields between 100 to 500 gpm at approximately 300 feet in depth. Groundwater yields in the western third of the township are lower and range between 5 to 25 gpm with one industrial well which produces 100 gpm. Depth to bedrock in the central and western portions of the township range between 2 to 47 feet as compared to 80 to 90 feet in the eastern area. The raw water quality for test wells H and I are listed as follows:

	Test Well H	Test Well I
Depth (feet)	163	108
Bedrock (feet)	92	95
Yield (gpm)	1,000	500
Hardness (mg/l)	1,080	1,230
Iron (mg/l)	1.3	2.2
Calcium (mg/l)	282	375
Dissolved Solids (mg/l)	1,430	1,570
Sulfates (mg/l)	876	878
Hydrogen Sulfide (mg/l)	0.2	0.3

Areas within Ballville Township could provide a groundwater supply for a regional water treatment facility.

Surface Water Resources - The Sandusky River flows north up to and through the City of Fremont. The Sandusky River currently provides water for the City of Fremont’s public water treatment plant.

Public Water Systems - The City of Fremont provides potable water to areas south of their corporation boundaries in Ballville Township. Fremont’s raw water supply storage is located in northwestern portion of Ballville Township and the treatment plant is located at 1113 Tiffin Street, Fremont, Ohio 43420. The treatment process includes settling followed by lime softening, recarbonation, disinfection, and fluoridation. The treatment plant is designed for a daily flow of 14.0 mgd and the current average daily flow is at 6.25 mgd. The City of Fremont would appear to have

water treatment capacity for additional growth in Ballville Township. There are also twenty-two (22) private public water systems in the Township.

Wastewater Treatment Systems - Currently there are two (2) public and two (2) private wastewater treatment systems that discharge to the waters of the State of Ohio by means of individual NPDES permits. The City of Fremont owns and operates a 7.6 mgd secondary treatment facility that discharges to the Sandusky River. The Sandusky County Board of Commissioners owns and operates a 20,000 gpd treatment facility that provides secondary treatment for the Westwood Subdivision and this plant discharges to a tributary of Muskellunge Creek. The two privately owned facilities are Culligan of Northwest Ohio located at 507 Tiffin Street which discharges to Minnow Creek and Fremont Baptist Temple located at 1150 South County Road 198 which discharges into an unnamed tributary to Ferguson Ditch

Proposed Water Service

Nine (9) transient non-community water systems located in Ballville Township received Notice of Drinking Water Violations which required actions to correct. The violations included Total Coliform Maximum Contaminant Level Exceedances and Failure to Sample Drinking Water for Total Coliforms. The transient non-community water systems with violations are listed as follows:

- Loyal Order of Moose
- Casa Fiesta
- Connor Park Maintenance Building
- Dr. DeFrance Office
- Michael E. Grills, D.O.
- Thurston Zwir American Legion Post 121
- Memorial Hospital Medical Boulevard
- Wolf Creek Picnic Area
- Sachs AMLC

The Lutz Elementary School which is a non-transient non-community water system in 2008 exceeded a lead action level.

### Northern Ballville Township

The planning area consists of the northern portion of Ballville Township that is in direct proximity to the City of Fremont. Currently Ballville Township is served by individual groundwater wells. The City of Fremont in 2003 authorized a Water District Study that included areas in Ballville, Sandusky, and Rice Townships. The study's intent was to prepare an effective and workable plan for providing potable water service to critical areas of the township.

The Northern Ballville Township Area represents approximately 3,840 acres of low density housing and based on the 2000 Census of the 6,395 residents in the entire township, approximately 4,000 (65%) are located in this planning area.

The Northern Ballville Township Planning Areas's projected average daily flow based on a population of 4,000 was estimated at 400,000 gpd. Consideration also has to be given to maximum daily demands and maximum hourly demands.

A computer model of the proposed planning area water system was completed using a WaterCad computer program. This program allows data to be entered concerning pipe size, length, and condition; high service pumps, storage tanks, elevations, and projected flow data.

This model utilizes hydrant flow test data provided by the City. By running the computer model with this flow information, the computer program can then evaluate and determine appropriate waterline size in order to meet distribution system requirements.

It should be noted that in a complex system with several variables that it is not always possible to duplicate actual field results. The goal of this process is to create a model that will produce results that are reasonably close to actual field results. Although the results may not match exactly, this process works very well for evaluating proposed improvement. As such, the distribution modeling should be used only as a guide for selecting waterline sizes, locations, along with any additional storage improvements.

The computer model analyzed the available flow based on a residual pressure of 20 psi at selected fire hydrant locations. Required fire flows are determined by the type of building construction and

total floor area in square feet. Table A-1 lists the amount of water required to be available for fire fighting purposes for two hour durations with domestic consumption at the 24 hour maximum rate. Available fire flows were then determined by the model and then compared to minimum fire flows as listed in Table A-1.

TABLE A-1 MINIMUM FIRE FLOWS		
Classification	Needed Fire Flow	Duration (hours)
One- and Two-Family Dwellings	500 - 1,000 gpm	2
Small Commercial	1,500 - 2,000 gpm	2
Medium Commercial and Industrial	2,000 - 3,000 gpm	3
Large Commercial and Industrial	3,500 gpm	3
Note: The above-listed fire flows are dependent on type of building construction material, total floor area of structure, and distances between structures.		

A County Regional Water Facility Master Plan completed in 1974 along with a County Comprehensive Water and Sanitary Sewer General Plan completed in 1997 recommended the extension of water distribution lines into Ballville Township and to purchase water from the City of Fremont. The areas to be served were the Hayes Avenue Area, north and south of the River along with the Timpe Road Area.

The City of Fremont also completed a Water Distribution Study in 1997 that investigated the capability of the City's water distribution system to meet current water usage demands and determine necessary improvements to distribute projected water demands which included the Northern Ballville Service Area. The suggested water distribution improvements from the 1997 Water Distribution Study have been incorporated into this distribution model. The criteria used for the development of this distribution system was based on a service area larger than our current planning area. The proposed water distribution system would service areas east, south, and west of the proposed immediate planning area.

The proposed Northern Ballville Service Area that was modeled and evaluated in the 2003 Water District Study has been reduced in size at this time to include areas south of the City corporation

limits to Cole Road, east to Buchanan Road, and west to the Sandusky River. Plate A-1 from the Fremont Area Water District Study illustrates the proposed water distribution improvements necessary to serve the Northern Ballville Township Planning Area with potable water and minimum residential fire protection.

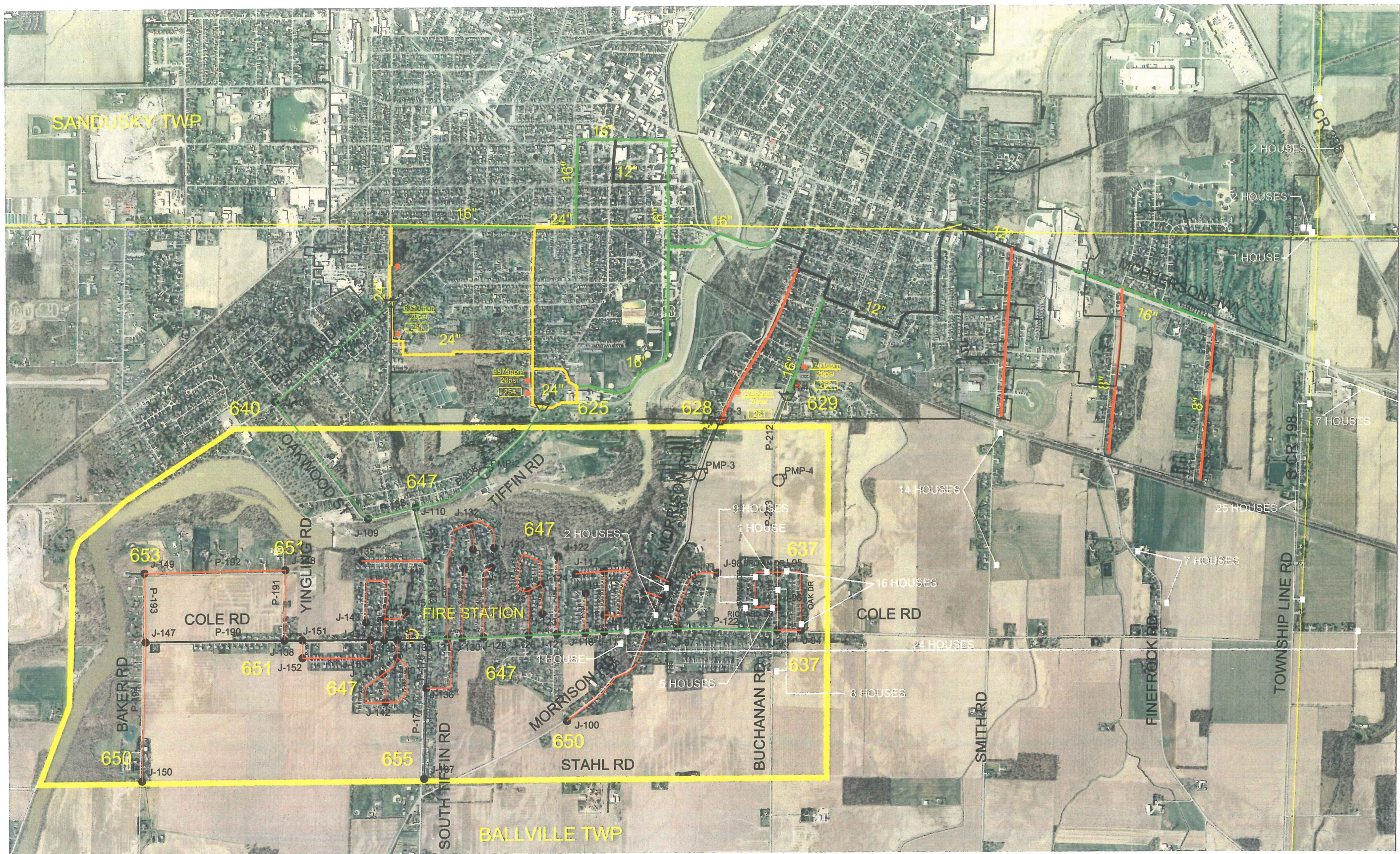
The Northern Ballville Service Area proposed water distribution improvements included four (4) connection locations to the City of Fremont. Each of the four (4) connection locations was modeled to determine available fire flows and static pressure to the planning area. Estimated construction and project costs are identified in Table A- 2. Criteria used for the development of the distribution model was based on the following:

1. Available static pressure and fire flows from the City of Fremont
2. Projected daily peak demand of 530,026 gpd (368 gpm)

NORTHERN BALLVILLE TOWNSHIP PLANNING AREA PROJECTED AVERAGE AND PEAK DAILY FLOWS		
Current Population	Average Daily Flow (100 gpcd)	Peak Daily Flow (2.0)
2,227	222,700 gpd	445,400 gpd
Projected Population	Projected Average Daily Flow (100 gpcd)	Projected Peak Daily Flow (2.0)
2,650	265,013 gpd	530,026 gpd

Current population based on actual house count and 2000 census data that suggested 2.56 people/household. Projected population based on 2013 Sandusky County Comprehensive Plan (19%).

3. Minimum fire protection flow rate of 500 gpm at 20 psi.



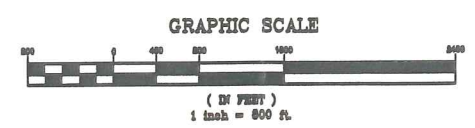
**LEGEND**

- PLANNING AREA
- 8" WATERLINE
- 10" WATERLINE
- 12" WATERLINE
- 16" WATERLINE
- 24" WATERLINE
- FIRE HYDRANT
- 255 FIRE HYDRANT ID NUMBER
- 1234gpm  
20psi FIRE HYDRANT FLOW TEST RESULT
- CORPORATION LINE
- TOWNSHIP LINE

- DISTRIBUTION MODEL LEGEND**
- J-99 JUNCTION NODE

**ESTIMATED PROPOSED WATERLINE QUANTITIES**

8"	42,080'
10"	12,052'
12"	0'
16"	18,764'
24"	4,400'



REFERENCE:  
ACAD DWG  
R. HEYMAN  
1/16/04

JOB #1190-026  
FILE ANALYSIS.DWG

**NORTHERN BALLVILLE TOWNSHIP  
PROPOSED DISTRIBUTION SYSTEM**



PLATE A-1



**FREMONT AREA  
WATER DISTRICT STUDY**

**POGGE MEYER DESIGN GROUP, INC.**  
ENGINEERS + ARCHITECTS + PLANNERS

Estimated construction costs for water services are listed as follows:

TABLE A-2 OPINION OF COSTS - REVISED AS OF 2014 WATERLINE IMPROVEMENTS NORTHERN BALLVILLE TOWNSHIP SERVICE AREA					
Item No.	Description	Quantity	Unit	Unit Cost	Cost
1	24" Diameter Waterline, Installed Complete	4,400	L.F.	\$80	\$352,000
2	24" Diameter Valve with Manhole, Installed Complete	2	Each	\$10,900	\$21,800
3	16" Diameter Waterline, Installed Complete	18,764	L.F.	\$58	\$1,088,312
4	16" Diameter Valve with Manhole, Installed Complete	10	Each	\$7,900	\$79,000
5	Sandusky River Crossing	260	L.F.	\$435	\$113,100
6	10" Diameter Waterline, Installed Complete	12,052	L.F.	\$45	\$542,340
7	10" Diameter Valve with Valve Box, Installed Complete	8	Each	\$2,200	\$17,600
8	8" Diameter Waterline, Installed Complete	42,080	L.F.	\$40	\$1,683,200
9	8" Diameter Valve and Valve Box, Installed Complete	25	Each	\$1,450	\$36,250
10	Fire Hydrant with Watch Valve, Installed Complete	103	Each	\$3,000	\$309,000
11	Waterline Connection into Existing Waterline Installed Complete with Tee, Valve, and Valve Box	4	Each	\$8,700	\$34,800
12	3/4" Service Line, Includes Meter and Pit (60% Participation)	522	Each	\$1,200	\$626,400
13	Restoration	1	L.S.	\$426,900	\$426,900
14	Miscellaneous, Includes Mobilization, Bonds, Video Traffic, Maintenance, and Administrative Costs	1	L.S.	\$45,000	\$45,000
	<b>SUBTOTAL</b>				\$5,375,702
	Contingencies (10%)				\$537,570
	<b>TOTAL OPINION OF CONSTRUCTION COST</b>				\$5,913,272
	Other Fees (20%) Legal, Design, Engineering, Financing, Construction Observation, Testing, Interest During Construction, and Review Fees				\$1,075,140
	<b>TOTAL OPINION OF PROBABLE COSTS</b>				\$7,525,983
	Note: Fire hydrants located approximately every 500 feet in high density populated areas and every 1,000 feet in sparsely populated areas. The 2003 Water District Study estimate was revised to reflect 2014 construction costs.				



#### Critical Sewage Areas:

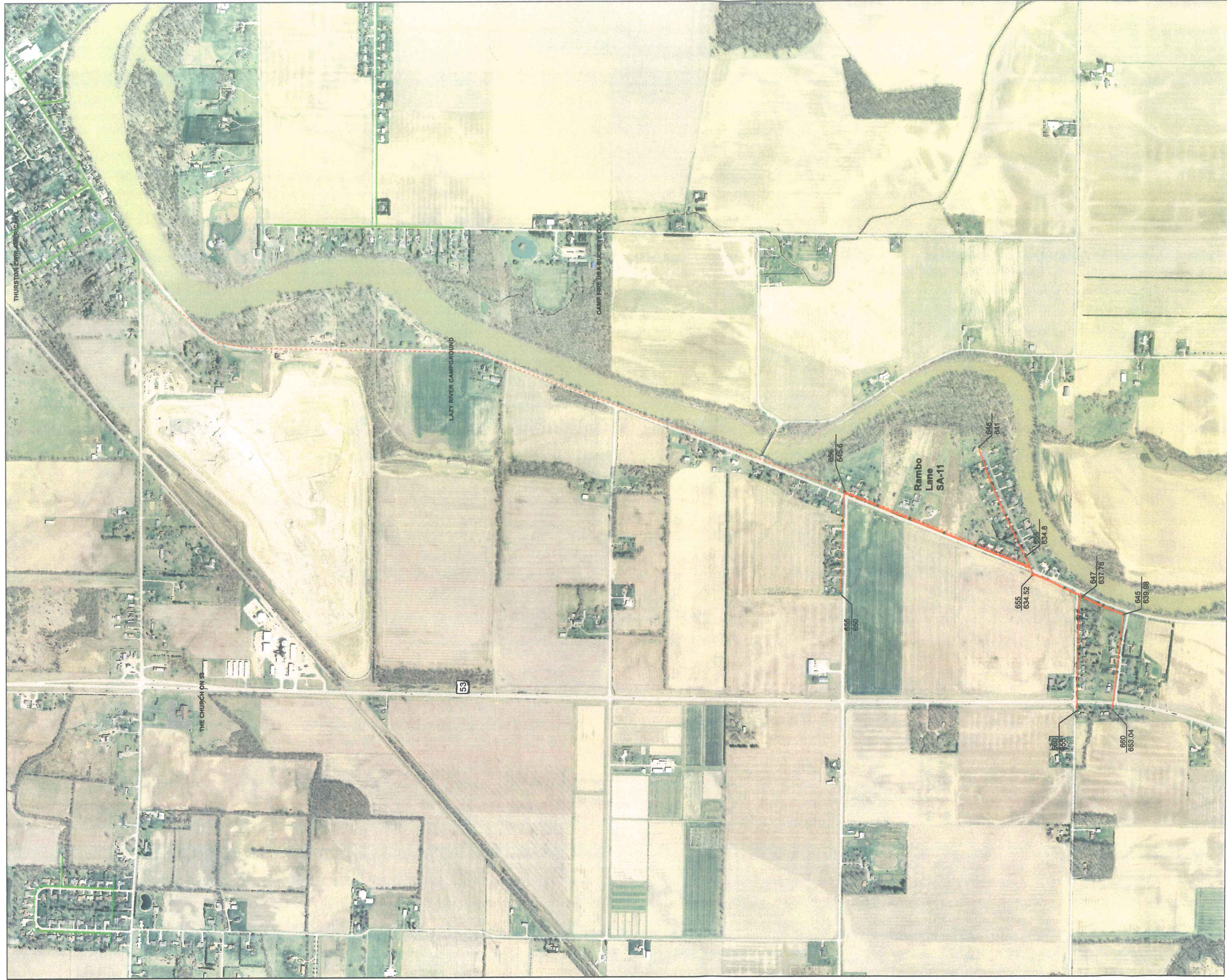
The Sandusky County Health Department, Ohio EPA, and TMACOG has identified Critical Sewage Areas which would include failed or failing onsite sewage systems. System failures could lead to surface and/or groundwater contamination or public health nuisances. These areas have been determined to be places where onsite sewage problems cannot be solved by conventional system upgrade or replacement. These areas became a priority for the Health Department and Ohio EPA to conduct sanitary surveys and general plans for providing public sanitary collection system and treatment alternatives.

Hayes Avenue/State Route 53 (SA-15), and Timpe/Township Line/Cole Roads (SA-16), and Rambo Lane (SA-11) are all listed as Critical Sewage Areas.

#### Proposed Sanitary Sewer Service

Findings and orders were issued on December 10, 2007 to the Sandusky County Commissioners for the unsewered areas of Hayes Avenue (SA-15) and Timpe Road (SA-16). The area consists of approximately sixty-four (64) residences and businesses. Residences in these two areas have inadequate or failing on-site sewage disposal systems which discharge raw or partially treated sewage indirectly through storm sewers or field tiles. East State Street Sanitary Sewer Improvement - Phase 1 (Grandview lift Station Replacement) was completed in 2013 and Hayes Avenue Sanitary Sewer Improvements - Phase 1 was completed in 2014. The County has both the East State Street Sanitary Sewer Improvement - Phase 2 (Timpe Road Area) and Hayes Avenue Sanitary Sewer Improvement - Phase 2 ready for construction in 2015 to address the Ohio EPA Findings and Orders. Both areas are in Sandusky County Sewer District No. 1 and in the City of Fremont's 208 Planning Area.

Other areas surrounding the Timpe Road area include homes on Finefrock Road, East State Street, and south along Township Line Road to the railroad. Approximately 105 residences along with a church and Christian Academy and apartments are located in these areas and are listed as Critical Sewage Areas. This area is in the Sandusky County Sewer District No. 1 and in the City of Fremont's 208 Planning Area.



- SA 11 Proposed Pump Station
- SA 11 Proposed Manhole
- SA 11 Proposed Sanitary
- ..... SA-11 Proposed Forcemain



D. HEYMAN  
4/27/2014  
PDG JOB# 3185-039  
FILE: SA\3185\039\PLATE 12.MXD

**CRITICAL AREA- SA-11  
BALLVILLE TOWNSHIP  
SANDUSKY COUNTY, OHIO  
PLATE A-2**

**SANDUSKY COUNTY  
COMPREHENSIVE WATER & SEWER  
GENERAL PLAN**



The Rambo Lane (SA-11) Critical Sewage Area which includes Roth Road and Level Drive totals approximately 40 residences. An area north which includes residents on South River Road and Havens Station Road consists of about 25 residents which should be included in the planning area. The Rambo Lane area is in the Sandusky County General Sewer District and in the City of Fremont's 208 Planning Area.

Estimated construction costs for sanitary sewer services are listed as follows:

TABLE A-3 BALLVILLE TOWNSHIP CRITICAL AREA SA-11 (RAMBO LANE AREA) CONVENTIONAL GRAVITY AND LOW PRESSURE SEWERS					
Item No.	Description	Quantity	Unit	Unit Cost	Cost
1	8" Gravity Sanitary Sewers	8,470	L.F.	\$65	\$550,550
2	6" Sanitary Laterals	61	Each	\$1,300	\$79,300
3	Manholes	25	Each	\$3,500	\$87,500
4	1.5" Service Line	11	Each	\$450	\$4,950
5	Grinder Pump	11	Each	\$7,200	\$79,200
6	Flushing Connection	1	Each	\$750	\$750
7	Asphalt Pavement Replacement	265	S.Y.	\$40	\$10,600
8	Driveway Replacement	637	S.Y.	\$45	\$28,665
9	Seeding, Mulching, & Rest.	1	L.S.	\$25,000	\$25,000
10	Storm Sewer Replacement	250	L.F.	\$11	\$2,750
11	Preconstruction Video	1	L.S.	\$2,500	\$2,500
12	Traffic Maintenance	1	L.S.	\$7,500	\$7,500
13	Mobilization and Bonds	1	L.S.	\$27,000	\$27,000
	<b>SUBTOTAL</b>				\$906,265
	Contingencies (10%)				\$90,627
	<b>TOTAL OPINION OF CONSTRUCTION COST</b>				\$996,892
	Other Fees (20%) Legal, Design, Engineering, Financing, Construction Observation, Testing, Interest During Construction, and Review Fees				\$181,253
	<b>TOTAL OPINION OF PROBABLE COSTS</b>				\$1,178,145
	Notes: Project estimate assumes no rock excavation required and abandonment of septic tanks is the responsibility of the homeowner				



- SA-18 Proposed Grinder Pump
- SA-18 Proposed Manhole
- SA-18 Proposed Forcemain
- SA-18 Proposed Sanitary
- Existing Gravity Sewers
- Existing Forcemain



D. HEYMAN  
4/27/2014

PDG JOB# 3185-039

FILE: S:\3185\039\PLATE 13.MXD

CRITICAL AREAS - SA-16 AND SA-18  
BALLVILLE, GREEN CREEK AND SANDUSKY TOWNSHIPS  
SANDUSKY COUNTY, OHIO  
PLATE A-3

**SANDUSKY COUNTY  
COMPREHENSIVE WATER & SEWER  
GENERAL PLAN**



**POGEMEYER  
DESIGN GROUP**

Estimated construction costs for sanitary sewer services are listed as follows:

TABLE A-4 BALLVILLE TOWNSHIP CRITICAL AREA SA-16					
Item No.	Description	Quantity	Unit	Unit Cost	Cost
1	12" Sewer Pipe	9,800	L.F.	\$85	\$833,000
2	8" Sewer Pipe	2,842	L.F.	\$65	\$184,730
3	Manholes	35	Each	\$3,500	\$122,500
4	Service Laterals	51	Each	\$1,100	\$56,100
5	Asphalt Pavement Replacement	73	S.Y.	\$40	\$2,920
6	Connection to Existing Pump Station	1	L.S.	\$5,000	\$5,000
7	Grinder Pumps	3	Each	\$7,500	\$22,500
8	Force Main, 1 ½"	1,000	L.F.	\$20	\$20,000
9	Pump Station	1	L.S.	\$95,000	\$95,000
10	Force Main, 3"	2,400	L.F.	\$28	\$67,200
11	Driveway Replacement	352	S.Y.	\$45	\$15,840
12	Stream Crossing	3	Each	\$14,500	\$43,500
13	Preconstruction Video	1	L.S.	\$2,500	\$2,500
14	Traffic Maintenance	1	L.S.	\$7,500	\$7,500
15	Mobilization and Bonds	1	L.S.	\$27,000	\$27,000
	<b>SUBTOTAL</b>				\$1,505,290
	Contingencies (10%)				\$150,529
	<b>TOTAL OPINION OF CONSTRUCTION COST</b>				\$1,655,819
	Other Fees (20%) Legal, Design, Engineering, Financing, Construction Observation, Testing, Interest During Construction, and Review Fees				\$301,058
	<b>TOTAL OPINION OF PROBABLE COSTS</b>				\$1,956,877

Estimated construction costs for sanitary sewer services on Timpe Road are listed as follows:

TABLE A-5 BALLVILLE TOWNSHIP TIMPE ROAD					
Item No.	Description	Quantity	Unit	Unit Cost	Cost
1	8" Sewer Pipe	2,842	L.F.	\$65	\$184,730
2	Manholes	7	Each	\$3,500	\$24,500
3	Service Laterals	38	Each	\$1,100	\$41,800
4	Asphalt Pavement Replacement	27	S.Y.	\$40	\$1,080
5	Driveway Replacement	240	S.Y.	\$45	\$10,800
6	Preconstruction Video	1	L.S.	\$2,000	\$2,000
7	Traffic Maintenance	1	L.S.	\$3,500	\$3,500
8	Mobilization and Bonds	1	L.S.	\$13,500	\$13,500
	<b>SUBTOTAL</b>				\$281,910
	Contingencies (10%)				\$28,191
	<b>TOTAL OPINION OF CONSTRUCTION COST</b>				\$310,101
	Other Fees (20%) Legal, Design, Engineering, Financing, Construction Observation, Testing, Interest During Construction, and Review Fees				\$56,382
	<b>TOTAL OPINION OF PROBABLE COSTS</b>				\$366,483

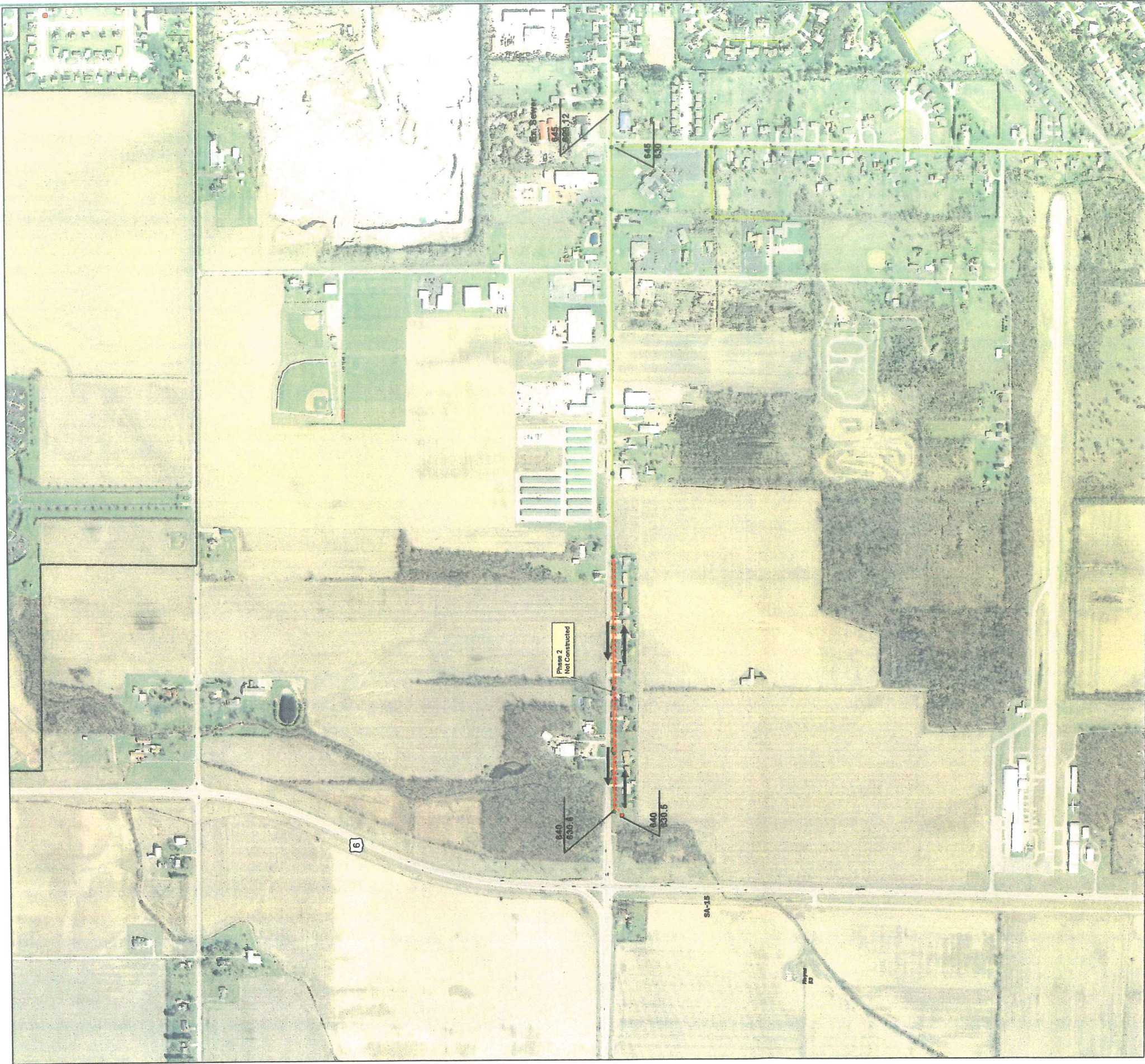
Estimated construction costs for sanitary sewer services on Finefrock Road are listed as follows:

TABLE A-6 BALLVILLE TOWNSHIP FINEFROCK ROAD					
Item No.	Description	Quantity	Unit	Unit Cost	Cost
1	8" Sewer Pipe	2,916	L.F.	\$65	\$189,540
2	Manholes	8	Each	\$3,500	\$28,000
3	Service Laterals	25	Each	\$1,100	\$27,500
4	Asphalt Pavement Replacement	27	S.Y.	\$40	\$1,080
5	Driveway Replacement	160	S.Y.	\$45	\$7,200
6	Preconstruction Video	1	L.S.	\$2,000	\$2,000
7	Traffic Maintenance	1	L.S.	\$3,500	\$3,500
8	Mobilization and Bonds	1	L.S.	\$13,500	\$13,500
	<b>SUBTOTAL</b>				\$272,320
	Contingencies (10%)				\$27,232
	<b>TOTAL OPINION OF CONSTRUCTION COST</b>				\$299,552
	Other Fees (20%) Legal, Design, Engineering, Financing, Construction Observation, Testing, Interest During Construction, and Review Fees				\$54,464
	<b>TOTAL OPINION OF PROBABLE COSTS</b>				\$354,016

TABLE A-7  
 COUNTRY CLUB ESTATES (COUNTY ROAD 198) AREA - SA-18  
 CONVENTIONAL GRAVITY, LOW PRESSURE, PUMP STATION, AND FORCE MAIN

Item No.	Description	Quantity	Unit	Unit Cost	Total Cost
1	10" Gravity Sanitary Sewers	2,382	L.F.	\$75	\$178,650
2	6" Sanitary Laterals	1	Each	\$1,300	\$1,300
3	Manholes	7	Each	\$3,500	\$24,500
4	Asphalt Pavement Replacement	19	S.Y.	\$40	\$760
5	Driveway Replacement	268	S.Y.	\$45	\$12,060
6	Storm Sewer Replacement	300	L.F.	\$11	\$3,300
7	1 ½" Service Line	1,300	L.F.	\$12	\$15,600
8	3" Force Main	200	L.F.	\$13	\$2,600
9	Grinder Pump	15	Each	\$7,200	\$108,000
10	Flushing Connection	3	Each	\$750	\$2,250
11	12" Steel Casing Pipe	120	L.F.	\$250	\$30,000
12	Seeding, Mulching, & Rest.	1	L.S.	\$20,000	\$20,000
13	Preconstruction Video	1	L.S.	\$2,000	\$2,000
14	Traffic Maintenance	1	L.S.	\$3,500	\$3,500
15	Mobilization and Bonds	1	L.S.	\$20,000	\$20,000
	<b>SUBTOTAL</b>				\$424,520
	Contingencies (10%)				\$42,452
	<b>TOTAL OPINION OF CONSTRUCTION COST</b>				\$466,972
	Other Fees (20%) Legal, Design, Engineering, Financing, Construction Observation, Testing, Interest During Construction, and Review Fees				\$84,904
	<b>TOTAL OPINION OF PROBABLE COSTS</b>				\$551,876
	Notes: Project estimate assumes no rock excavation required and abandonment of septic tanks is the responsibility of the homeowner				





- Existing Sanitary MH
- SA-15 Proposed PS
- SA-15 Proposed Sanitary
- - - SA-15 Proposed FM
- Existing Gravity Sewers



D. HEYMAN  
4/27/2014  
PDG JOB# 3105-019  
FILE: S:\3185\0391  
PLATE 14  
ISA-15.MXD

**CRITICAL AREA - SA-15  
BALLVILLE AND SANDUSKY TOWNSHIPS  
SANDUSKY COUNTY, OHIO  
PLATE A-4**

**SANDUSKY COUNTY  
COMPREHENSIVE WATER & SEWER  
GENERAL PLAN**



Estimated construction costs for sanitary sewer service are listed as follows:

TABLE A-8 HAYES AVENUE (SA-15) CONVENTIONAL GRAVITY SEWERS					
Item No.	Description	Quantity	Unit	Unit Cost	Cost
1	8" Gravity Sanitary Sewers	4,350	L.F.	\$65	\$282,750
2	6" Sanitary Laterals	36	Each	\$1,300	\$46,800
3	Manholes	12	Each	\$3,500	\$42,000
4	Asphalt Pavement Replacement	86	S.Y.	\$40	\$3,440
5	Driveway Replacement	655	S.Y.	\$45	\$29,475
6	Seeding, Mulching, & Rest.	1	L.S.	\$25,000	\$25,000
7	Storm Sewer Replacement	950	L.F.	\$11	\$10,450
8	6" Diameter Force Main	1,780	L.F.	\$30	\$53,400
9	Pump Station	1	Each	\$150,000	\$150,000
10	Preconstruction Video	1	L.S.	\$2,500	\$2,500
11	Traffic Maintenance	1	L.S.	\$7,500	\$7,500
12	Mobilization and Bonds	1	L.S.	\$27,000	\$27,000
	<b>SUBTOTAL</b>				\$680,315
	Contingencies (10%)				\$68,032
	<b>TOTAL OPINION OF CONSTRUCTION COST</b>				\$748,347
	Other Fees (20%) Legal, Design, Engineering, Financing, Construction Observation, Testing, Interest During Construction, and Review Fees				\$136,063
	<b>TOTAL OPINION OF PROBABLE COSTS</b>				\$884,410
	Notes: Project estimate assumes no rock excavation required and abandonment of septic tanks is the responsibility of the homeowner				