GOLDEN TRIANGLE INFRASTRUCTURE IMPROVEMENT PLAN

Trumbull County Engineers Office • Trumbull County • Howland Township • Warren City

August 2015

CONTENTS

AECOM would like to thank the following entities as well as all of the local businesses that participated in Golden Triangle Infrastructure Improvement Plan.

- Trumbull County Commissioners
- Trumbull County Engineers Office
- City of Warren
- Howland Township

SECTIONS

APPENDICES

SECTION ONE

INTRODUCTION

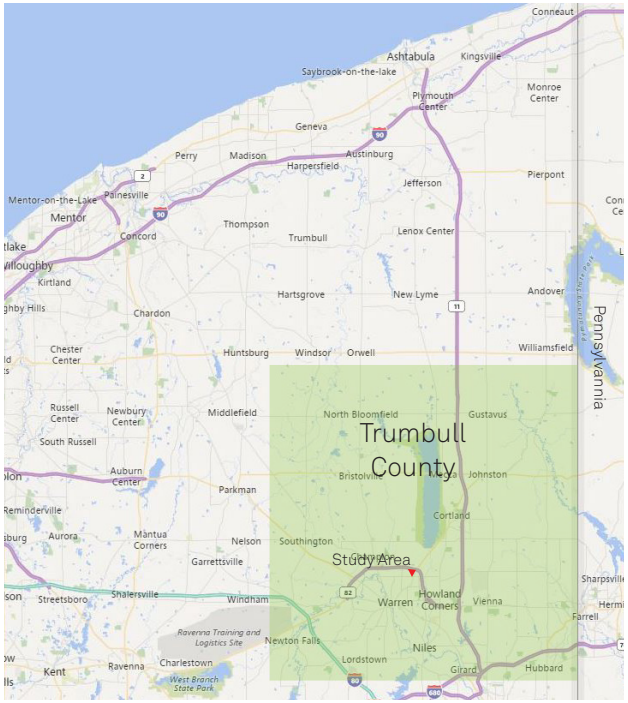


Figure 1. Trumbull County

A Planning Partnership consisting of Howland Township, Warren City, Trumbull County Commissioners, and the Trumbull County Engineer's Office, was awarded an EDA Local Technical Assistance Grant on September 23, 2014. The purpose of the grant is to fund the preparation of an infrastructure improvement plan for an industrial area called the Golden Triangle - an area of approximately 1000 acres located within Trumbull County in parts of both Howland Township and the City of Warren.

As shown in Figure 1, Trumbull County is centrally located in Ohio between the cities of Pittsburgh and Cleveland. The area's proximity to the I-80 and I-76 corridors makes the region a strategic hub in transportation and distribution, and while the northern portion of Trumbull County is largely rural, a cluster of urban centers in the southern portion contains a majority of the county's population and economic base. These centers include the cities of Warren, Niles, and Girard, Lordstown Village, and Howland and Liberty Townships.

The Golden Triangle planning area represents a geographically concentrated group of industries engaged in manufacturing, material processing and warehousing and distribution, with some of the local industries dating back to the early twentieth century. There are over thirty businesses located in the Golden Triangle that increasingly rely on aging infrastructure. While the business needs in the Golden Triangle have changed over time, most public infrastructure components have not. Improvements to roadways, waterlines, and storm sewers have, in many instances, not kept pace with local industry requirements and limit the growth potential of many of the businesses within the planning area.

The purpose of this plan is to work directly with industries and the Planning Partners to identify public infrastructure deficiencies and improvement needs, prepare and cost conceptual engineering solutions to eliminate these deficiencies, and develop strategies to implement needed infrastructure improvements.

Ultimately, the goal of the Golden Triangle Infrastructure Improvement Plan is to achieve the following:

- Preserve existing jobs and create an environment that allows for business expansion
- Better align infrastructure investments with the business needs of the Golden Triangle
- Reduce barriers to innovation and growth
- Facilitate in-fill development of under-utilized property
- Facilitate the adaptive reuse of existing under-utilized structures
- Better position the Golden Triangle Industrial area to compete for federal and state funding
- Attract and leverage private investment
- Build on the assets of the region
- Build on the existing collaborative spirit of the project's planning partners and business community

The following section summarizes the process utilized in the development of the Infrastructure Improvement Plan.

SECTION TWO

THE PLANNING PROCESS

After notification of its grant award, the Planning Partners issued a request for Statement of Qualifications (SOQs) to planning and engineering design firms. Statements of Qualifications from four consulting firms were received, and the Partners conducted interviews, scored each firm, and ranked them in accordance with the evaluation criteria highlighted in the RFQ. URS Corporation (now AECOM, following a recent merger) was selected and entered into a contract agreement with Howland Township in January, 2015. The following activity descriptions summarize the process that was followed in developing the Golden Triangle Infrastructure Improvement Plan.

Study Area Refinement

AECOM and the Planning Partners initialized the planning process by reviewing the location and proximity of key industries within the general area of the Golden Triangle as presented in the grant application. Based on that analysis, the boundaries of the study area were refined and focused on an area of just over 687 acres extending from the intersection of Forest Street and North Park Avenue in the City of Warren to properties fronting on the north side of North River Road, east of the Delphi Packard Electric Plant in Howland Township. (See Figure 2).

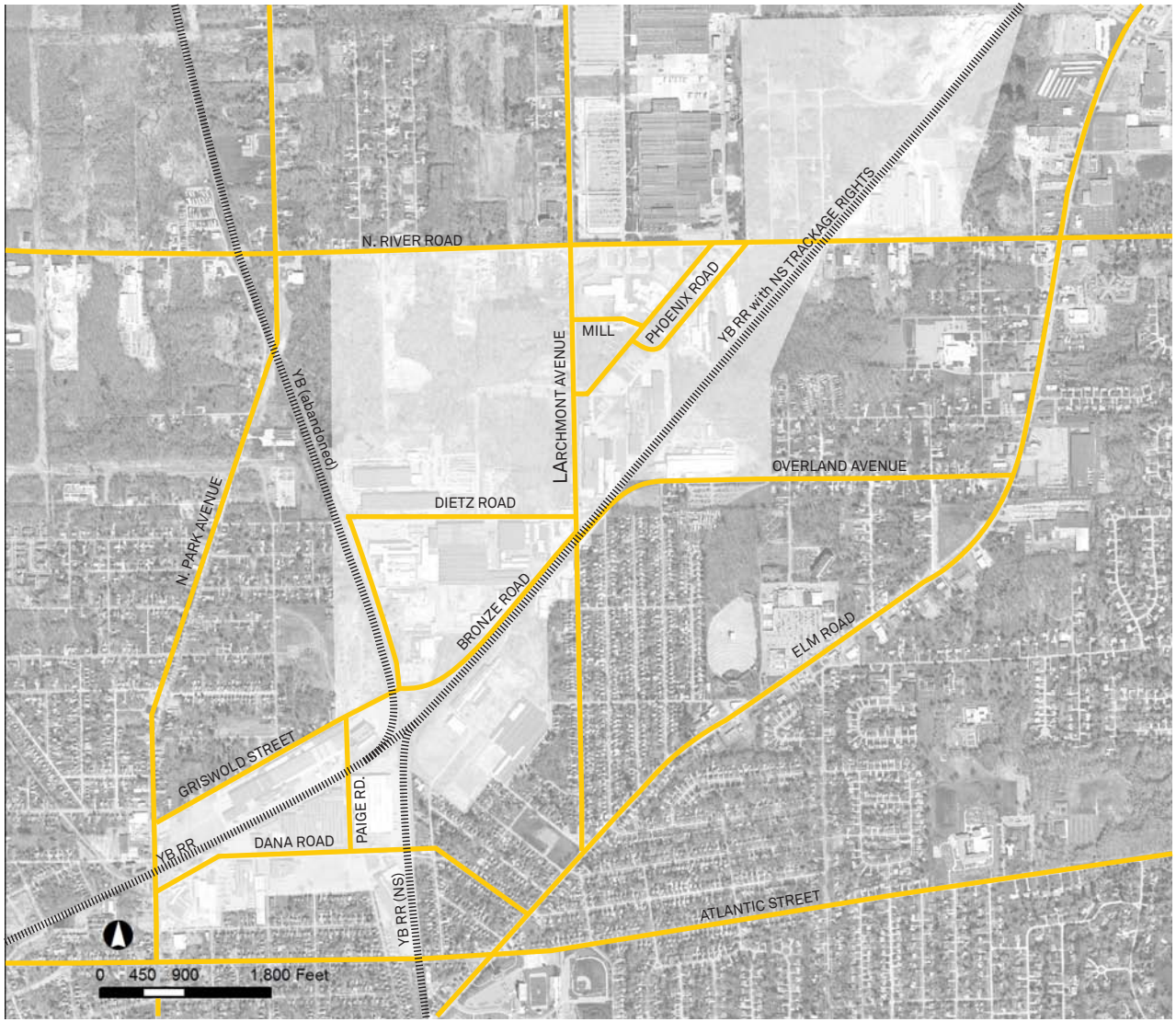


Figure 2. Study Area Refinement

Local Businesses Interviews

It was agreed that the most important method of identifying infrastructure improvement needs was to talk directly with key industry stakeholders within the Golden Triangle study area. Although more time-consuming than other survey techniques, the Planning Partners and consultant team felt that conducting individual interviews had the potential to generate more meaningful feedback about infrastructure functionality and needed improvements. Secondarily, the team felt it would lay the ground work for a collaborative relationship with the businesses, essentially setting the stage for the formation of the Golden Triangle Business Advisory Group. Accordingly, sixteen businesses were selected for individual interviews - ten in Howland Township and six in the City of Warren.

These businesses represented the bulk of the study area's employment base, and after industry contacts were established, twelve individual interviews were arranged by the Planning Partners and conducted during the month of February, 2015. Table 1 contains the business stakeholder's contact and the interview schedule. To encourage a productive dialog with plant leadership, the interview questions were provided to the business in advance of the meeting. Those interview questions can be found in Appendix A, and documentation of individual industry interviews is included in Appendix B.

Business	Contact	Title	Address	Interview Date / Time
Flex Strut	Dale Gebhardt	President	2900 Commonwealth Ave. NE Warren, Ohio 44483	February 10, 2015 11:30 AM
Trumbull Industries	Dennis Parks Sam Miller	General Manager President	400 Dietz Rd. Warren, Ohio 44483	February 10, 2015 2:30 PM
RSL Industries	Bo Campbell Ron Lewkowitz	Plant Manager President	1170 Paige Ave. NE Warren, Ohio 44483	February 10, 2015 3:30 PM
Novelis	Paul Nelson	Plant Manager	390 Griswold St. NE Warren, Ohio 44483	February 12, 2015 10:30 AM
Wheatland Tube	Stefan Vogt	Plant Manager	901 Dietz Rd. NE Warren, Ohio 44483	February 12, 2015 1:00 PM
ADS Machinery	Dale Minton	President	1201 Vine Warren, Ohio 44483	February 12, 2015 3:00 PM
Clark Dietrich	Nathan Jacobs	Plant Manager	1985 North River Rd. Warren, Ohio 44483	February 17, 2015 9:00 AM
Schaefer Equipment	Rich Barnhardt	General Manager	1590 Phoenix Rd. NE Warren, Ohio 44483	February 17, 2015 10:00 AM
Ajax Tocco	Gregg Richley Tom Illencik	Plant Engineer President	1745 Overland Ave. NE Warren, Ohio 44483	February 17, 2015 11:30 AM
Liberty Steel	Philip Lapmardo	Controller	900 Dietz Rd. NE	February 18, 2015 9:00 AM
Concord Steel	Dave Gruber	Plant Manager	1451 Beuna Vista Ave.	February 18, 2015 10:00 AM
Siemens/Primetal	James Guiliani	Safety & Quality Manager	250 Dietz Road NE	February 26, 2015 9:00 AM

Table 1. Stakeholders' Contacts and Interview Schedule

Existing Conditions Analysis

In parallel with the interview process, the consultant team documented and analyzed existing conditions within the study area. Digitized and non-digitized data sources were provided by the City of Warren, Trumbull County, Howland Township, and Eastgate Regional Council of Governments. Digital map layers representing parcel data, ownership, aerial coverage, zoning, and generalized land use were generated along with Infrastructure layers covering waterline and sanitary sewer locations, roadways and rail lines.

Storm water drainage information was documented based on a thorough review and analysis of previous storm water studies prepared for the Golden Triangle Area between 1973 and 2008. Generalized wetlands location information was estimated by assembling GIS data layers from the National Wetlands Inventory, the Ohio Wetlands Inventory, and local soils maps. Because eight of the 12 businesses interviewed cited flooding and stormwater problems as a primary issue, a wetland walk over was subsequently conducted in the northwest portion of the study area to determine the feasibility of establishing a stormwater management program that would reduce flooding within the Golden Triangle.

Detailed existing conditions documentation is included in Section 3 – Existing Conditions.

Regional Economic Conditions and Trends

A range of individual studies and data sources were reviewed by the consultant team to identify economic trends impacting industries operating within the Golden Triangle. The analysis of regional economic conditions and trends supplements industry specific information gathered during stakeholder interviews, and provided additional input regarding potential infrastructure needs as well as future development and redevelopment opportunities within the study area. The results of this analysis are discussed in Section 4 – Regional Conditions and Economic Trends.

Needs Assessment

Based on information obtained during interviews with businesses within the Golden Triangle study area, existing conditions data, and historical information provided by the Planning Partners, a clear picture of location specific infrastructure deficiencies was compiled. This knowledge was then used to identify a range of infrastructure improvements needed to enhance the productivity and expansion potential of local industries as well as improve the overall attractiveness of the Golden Triangle for future industrial investment.

Recommended Infrastructure Improvements

Preliminary engineering and design concepts were developed for infrastructure improvements identified during the needs assessment phase of the planning effort. After the Planning Partners reviewed conceptual design recommendations, they were revised and additional feedback was obtained at a workshop attended by the Golden Triangle Business Advisory Group – a team of industry representatives interviewed in February of 2015, and local public officials. Recommended Infrastructure improvements are presented in Section 5, and include:

- Stormwater detention and wetland enhancements
- Waterline improvements
- Roadway reconstruction, resurfacing, and intersection improvements
- New roadway construction
- Rail crossing improvements
- Rail access improvements
- Lighting and pedestrian access improvements
- District wide wayfinding and signage improvements

With stakeholder agreement on the recommended infrastructure improvements, preliminary construction cost estimates were prepared for each of the proposed improvements.

Implementation

The final section of the plan addresses project priorities and the relative benefits of specific infrastructure improvements, associated institutional coordination requirements, and potential funding sources. Because stakeholders noted that opportunities for growth were often constrained by a lack of skilled labor in the region, approaches to enhance the targeting of workforce development programs to local needs will also be discussed.

SECTION THREE

EXISTING CONDITIONS

As noted in the introduction, the Golden Triangle Study area covers an area of just over 687 acres, and includes land in the north central portion of the City of Warren and portions of Howland Township. This section provides a description of existing conditions within the study area drawing on a variety of existing data sources that include but are not limited to the Trumbull County Engineer's office, City of Warren, Howland Township, Eastgate Regional Council of Governments, Ohio Environmental Protection Agency, U.S. Fish and Wildlife Service, and U.S. Natural Resource Conservation Service.

Land Use and Zoning

As Figure 3 – Existing Land Use clearly indicates, a significant majority of land within the study area is devoted to industrial use. Notable exceptions include single family residential uses in Howland Township confined to deep lots along the west side of Larchmont Avenue between Dietz and North River Roads and thinly developed residential lots on Redwood, Nutley, and Birchwood Avenues, in the northeast corner of the study area north of North River Road. In addition to industrial and residential uses, a limited number of scattered commercial uses, including taverns, auto repair shops, and a landscape service business exist along North River Road and near the intersection of Larchmont and Dietz roads. All of the study area in both Howland Township and the City of Warren is zoned for industrial and manufacturing uses.

Typically, single family residential uses surround the southern half of the study area, south of Dietz Road in the City of Warren. Development densities

Figure 3. Existing Land Use

in the northern half of the study area in Howland Township are significantly lower than those in the City of Warren. These parcels include largely vacant industrial and low density residential land in Warren Township. The 166 acre Delphi Packard Electric Plant site is located just north of the study area on the east side of Larchmont Boulevard in Howland and Bazetta townships.

Underutilized Industrial Land and Abandoned Plant Sites

Throughout the Golden Triangle study area there are a number of large parcels of land that are either undeveloped, or contain abandoned industrial structures. Much the undeveloped land is located in Howland Township and has remained undeveloped because of the presence of wetlands or other constraints to development. This is typified by much of the property located north of the Wheatland Tube plant between the abandoned Youngstown Belt RR (Kmart Spur) to the west and Larchmont Avenue on the east. Abandoned industrial sites within the study area are located primarily in the City of Warren and are shown along with undeveloped industrial property in Figure 4 - Underutilized Industrial Land and Abandoned Plant Sites. While the demolition of at least two of the abandoned facilities, the former Dana Street GE plant and the Ohio Lamp Plant, is nearly complete, other shuttered properties remain standing and include the former Brainard Strapping plant, the Dana Street Delphi plant, the vacant Alcoa plant south of Concord Steel, and Delphi Plant 8.

Figure 4. Underutilized Industrial Land and Abandoned Plant Sites

Soils

Soils types within the Golden Triangle study area are shown in Figure 5 – Area Soils. Project-area soils are mapped as occurring in the Fitchville-Haskins-Sebring Association, which are nearly level to gently sloping, somewhat poorly drained and poorly drained soils formed in medium textured and moderately fine textured lacustrine material and in medium textured to coarse textured glacial outwash over moderately fine textured and fine textured glacial till or lacustrine material.

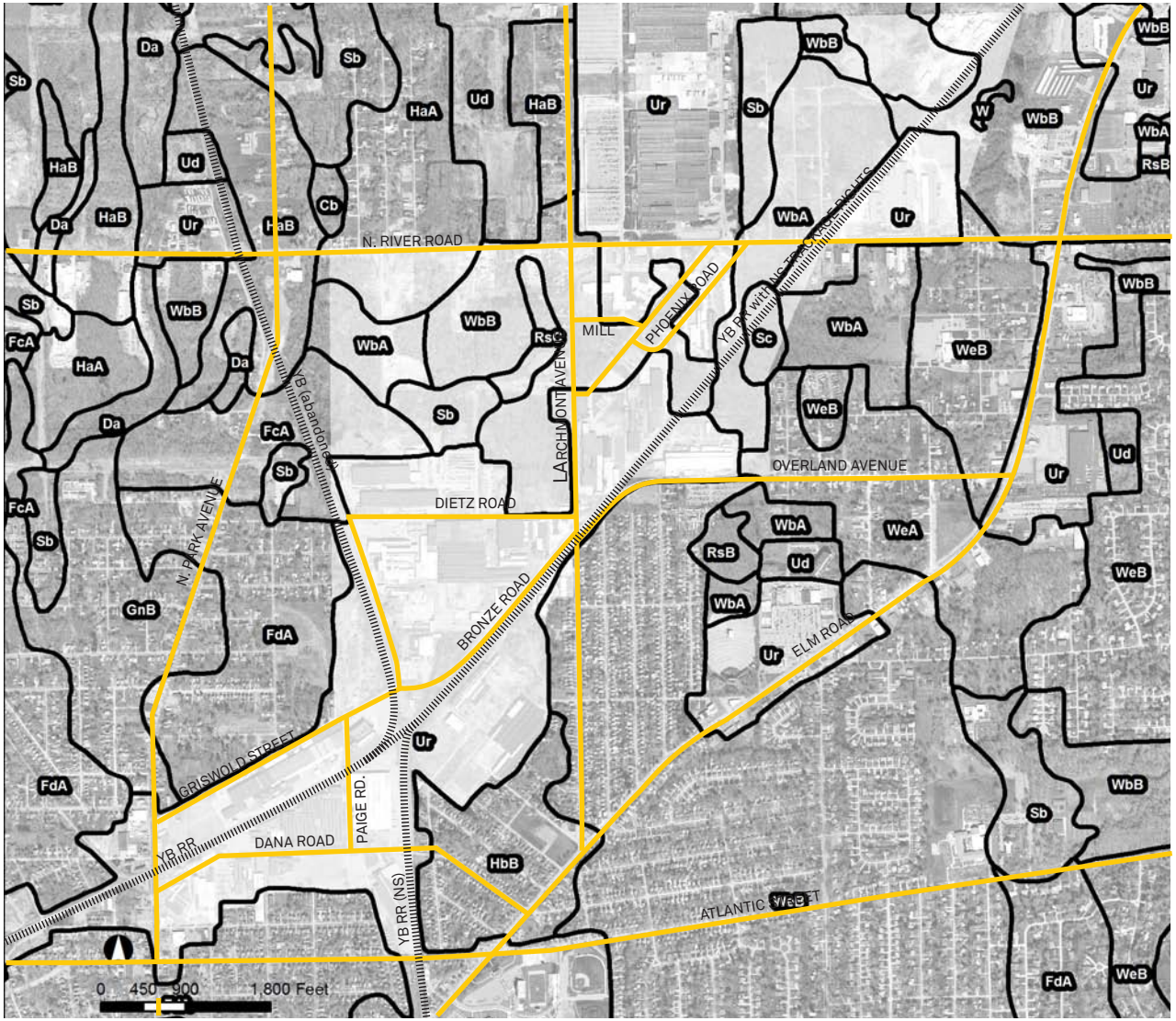


Figure 5. Soils

Topography

Study area topography is shown in Figure 6 – Area Topography. The study area is generally flat, with elevations dropping less than 65 feet from the northeast corner of the study area to the southwest corner and toward the Mahoning River in the City of Warren.

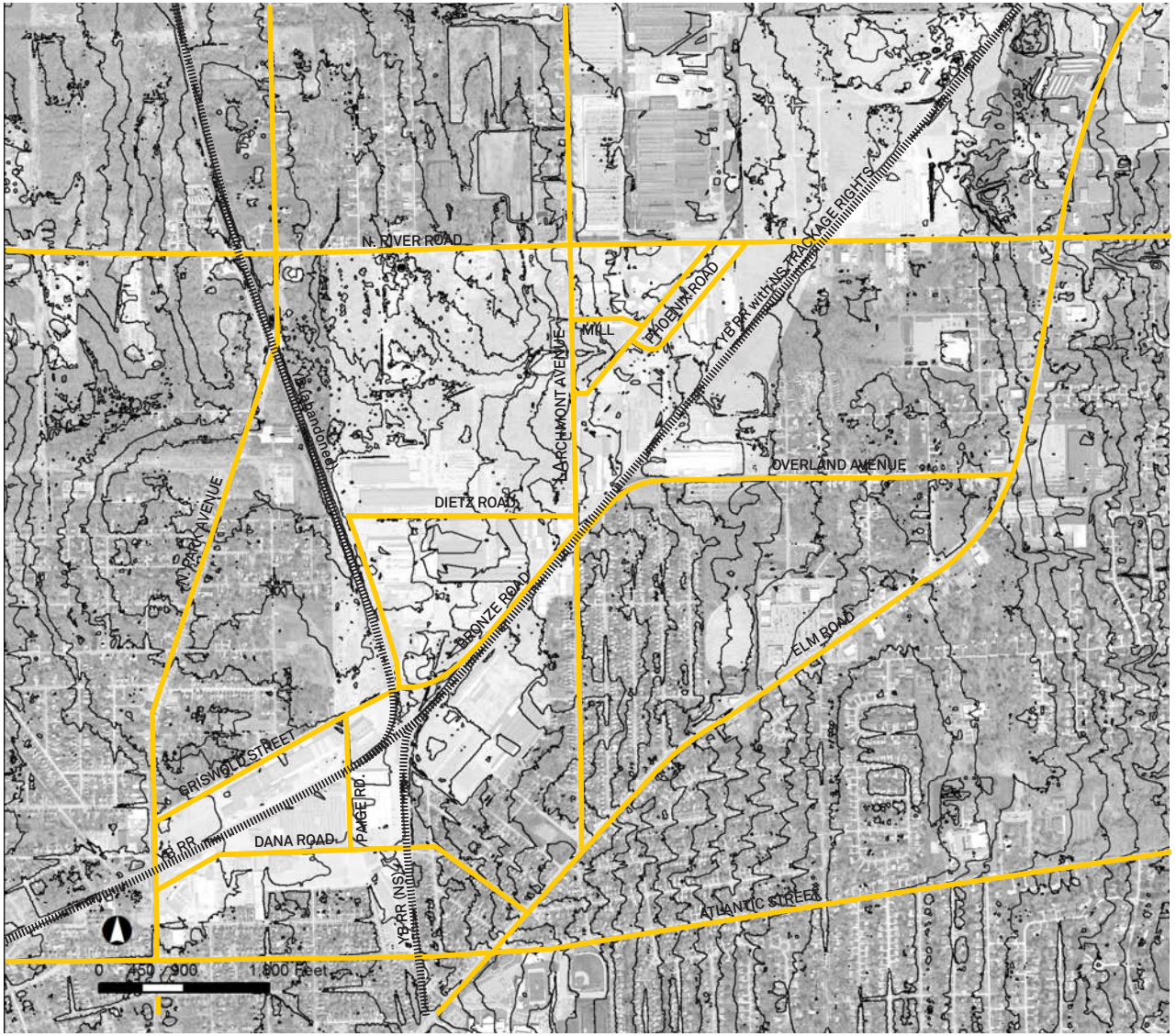


Figure 6. Topography

Wetlands

A generalized characterization of probable wetland locations within the study area is shown in Figure 7 – Potential Wetlands. Probable wetlands shown on Figure 7 are based on an overlay of information contained in the National Wetlands Inventory, the Ohio Wetlands Inventory and hydric soils identified in the NCRS soils map for the area. The presence of wetlands is most relevant in Howland Township, where the greatest percentage of undeveloped industrially zoned land is located. The properties located north of the Wheatland Tube plant were identified in a previous study as the potential location for a storm water detention basin. For that reason, a wetland walkover was undertaken by AECOM in May 2015 to more accurately determine the location of probable wetlands in areas south of North River Road, and north of Dietz Road. The mapped location of probable wetlands based on the wetland walkover are shown in Figure 8 – Probable Wetlands North of Dietz Road, and the wetlands field investigation report for the area is included in Appendix C.

Brownfield Constraints

There is a high concentration of brownfields in Trumbull County's urban areas, which include the Golden Triangle study area. Warren City, Howland Township, Trumbull County, and the Western Reserve Port Authority comprise the Trumbull County Brownfield Coalition. The Coalition applied for and received a $600,000 US EPA Brownfield Assessment Grant. URS (now AECOM) was one of two consultants hired to assist with grant implementation which is underway with completion

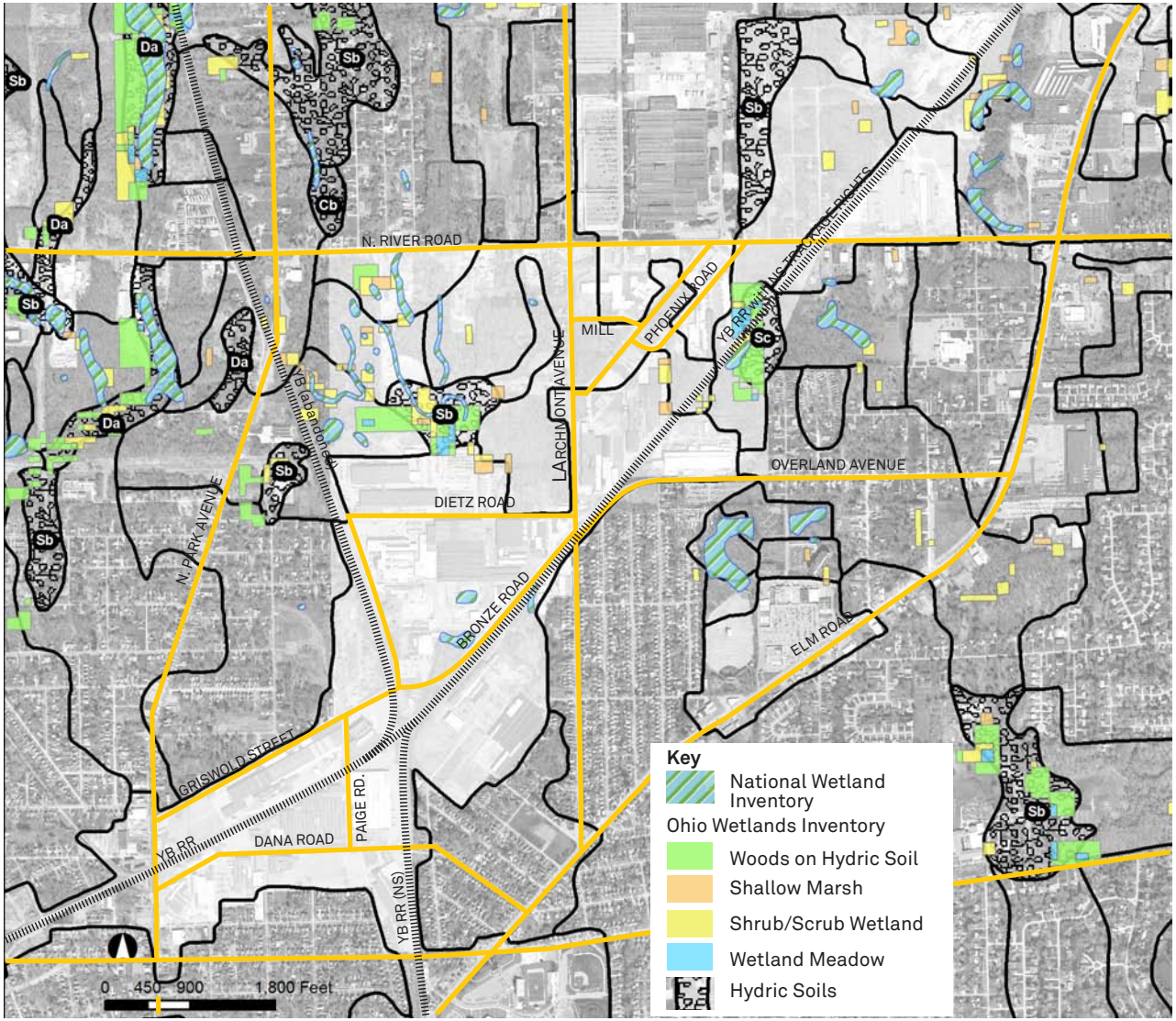


Figure 7. Potential Wetlands

scheduled in 2016. The purpose of the brownfield assessment grant is to inventory, identify, and prioritize development sites. Selected sites will undergo Phase I and Phase II Environmental Assessments in preparation for clean-up. One of two priority sites is located just north of Liberty Steel in the heart of the Golden Triangle Study Area and is undergoing environmental assessments using the US EPA grant funds.

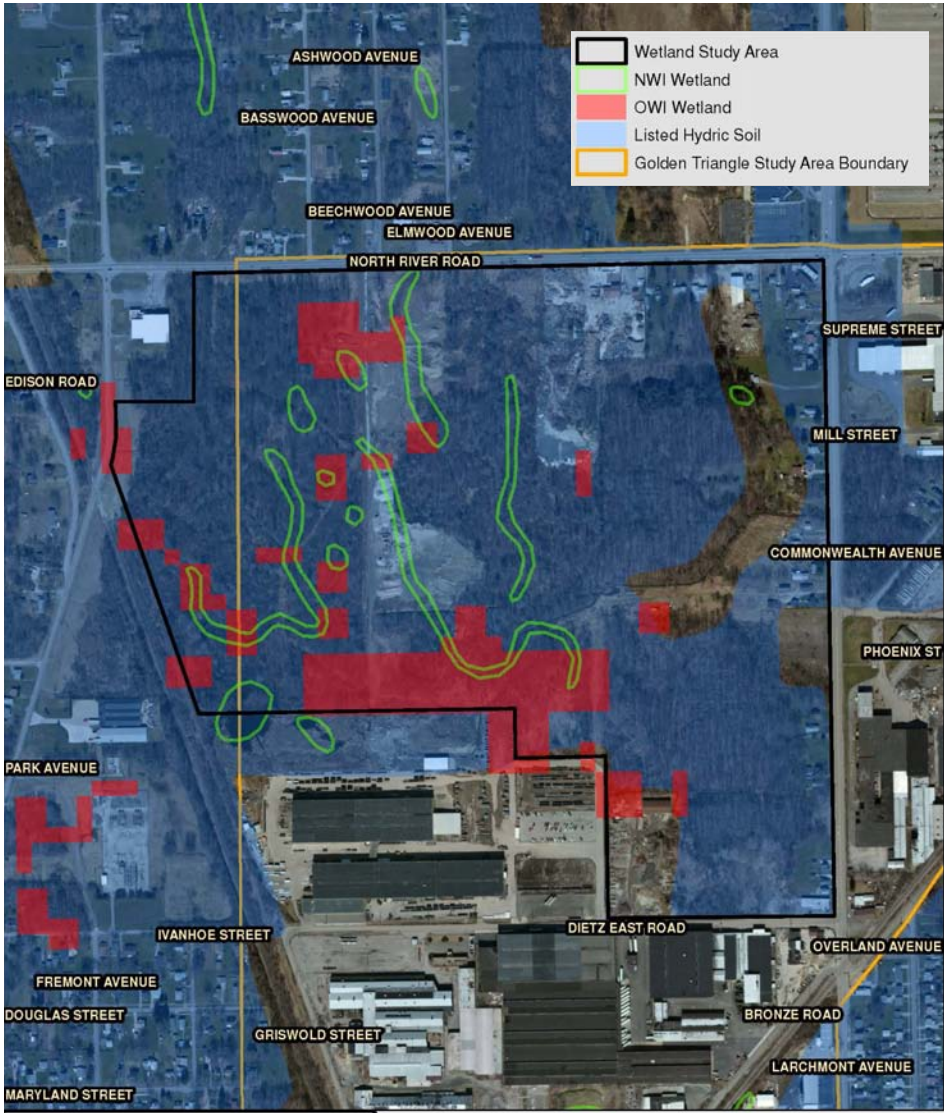


Figure 8. Probable Wetlands North of Dietz Road

Public Infrastructure - Roadways, Rail Lines & Greenways

Figure 9 shows the location of roadways, rail lines, and greenways within and connecting to the Golden Triangle Study Area. Larchmont Avenue is the principal north/ south arterial roadway that connects a majority of the Golden Triangle businesses to the Warren Outerbelt Freeway (State Routes 82 and 5) interchange, immediately north of the study area. Alternative access routes to and from Outerbelt interchanges to the north extend immediately east and west of the study area on Elm Road, a major commercial arterial, to the east, and North Park Avenue, an urban minor arterial to the west. North River Road is the principal east/ west arterial bisecting the north central portion of Study area and is also classified as an urban minor arterial. Other roads carrying a majority of the industrial traffic within the study area include, from south to north; Dana Street, Griswold Street, Bronze Road, Dietz Road, Overland Avenue, and Phoenix Road, and Commonwealth Avenue. With the exception of Larchmont Avenue, a four lane urban collector, roads within the study area consist of two paved directional lanes. Roadway pavement widths vary from 48‘ (Larchmont Ave.) to 20’ (Mill St.) on rights of way that vary in width from 66 ‘ (Larchmont Ave.) to 42’ (Mill St.).

To a large extent, the rail lines dictate the orientation of the Golden Triangle’s industrial road grid. Two Class B railroads, the Youngstown Belt Railroad (YB) and the Warren & Trumbull Railroad (WTRM), both operated under the ownership of Genesee & Wyoming, Inc. (G&Y), pass through the study area,

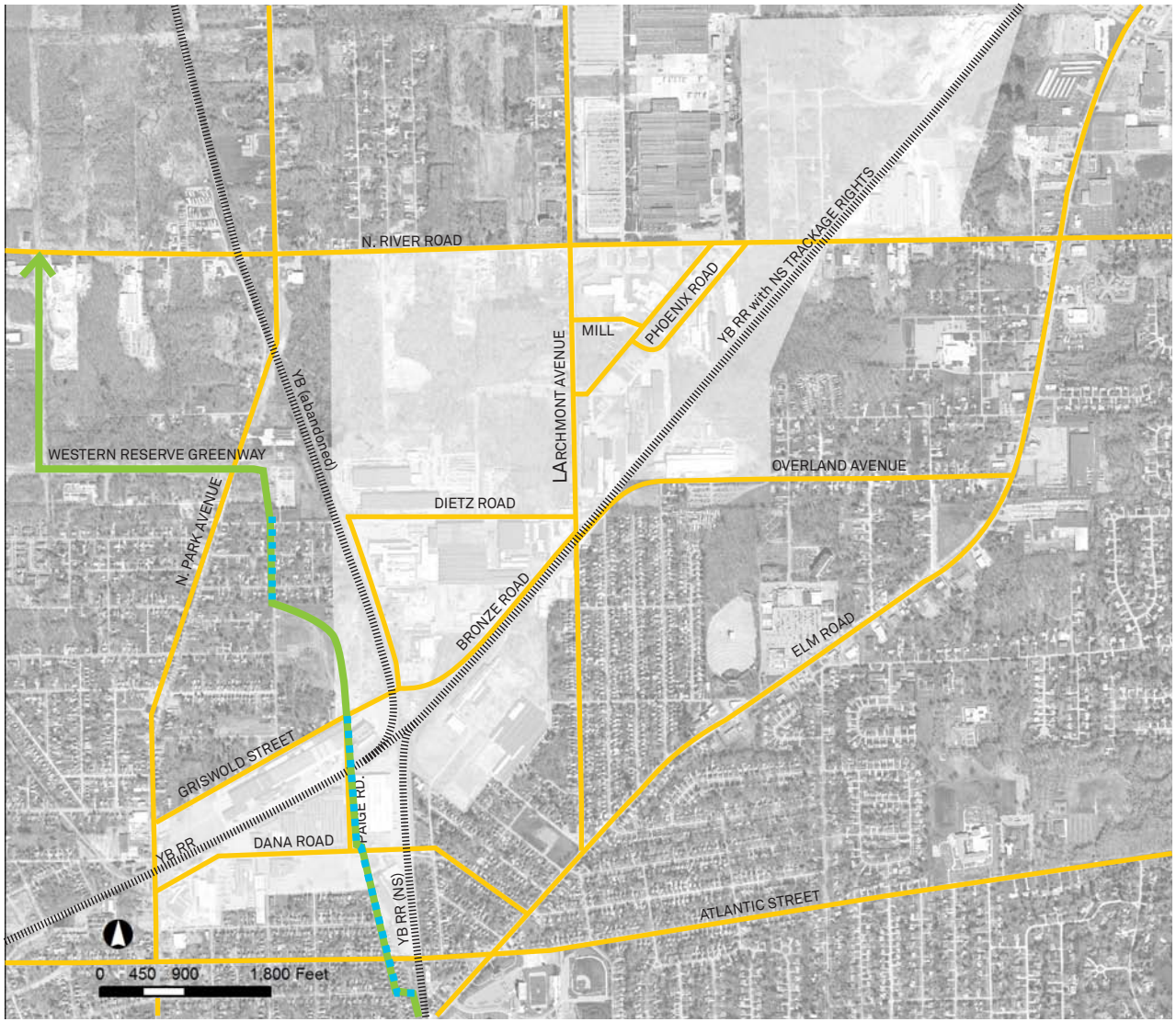


Figure 9. Probable Wetlands North of Dietz Road

serving several of its businesses. The Youngstown Belt RR is a 13-mile short line freight railroad that bisects the study area west to east and to the south, interchanging with the Norfolk Southern, and Warren & Trumbull Railroads. The Warren & Trumbull Railroad is a four mile railroad that interchanges with CSX Transportation and the Norfolk Southern and enters the study area from the west joining the YB south of Griswold Street.

In addition to active rail lines, the abandoned right-of-way and rail bed of a YB spur runs parallel to Griswold Street within the study area, then north to the K-Mart Distribution Center north of the Warren Outerbelt. This line was abandoned in mid 1970, and is now owned by Economic Development Rail Corporation (EDRC), a subsidiary of the Mahoning Valley Economic Development Corporation.

A third transportation component within the study area is a segment of the Western Reserve Greenway, which extends from north of North River Road, west of the study area, to the southern border of the City of Warren at Burton Street. Portions of the greenway trail are paved and separated from vehicular traffic while other segments, including those in the study area, extend along Paige Avenue.

Public Infrastructure - Sanitary Sewers and Water Lines

Figure 10 – Sanitary Sewers and Water Lines, shows the location of sanitary sewers and water lines serving the Golden Triangle Study Area. Both sanitary sewers and water lines within the study area are owned and maintained by the City of Warren. Sanitary sewers flow to the Warren Water

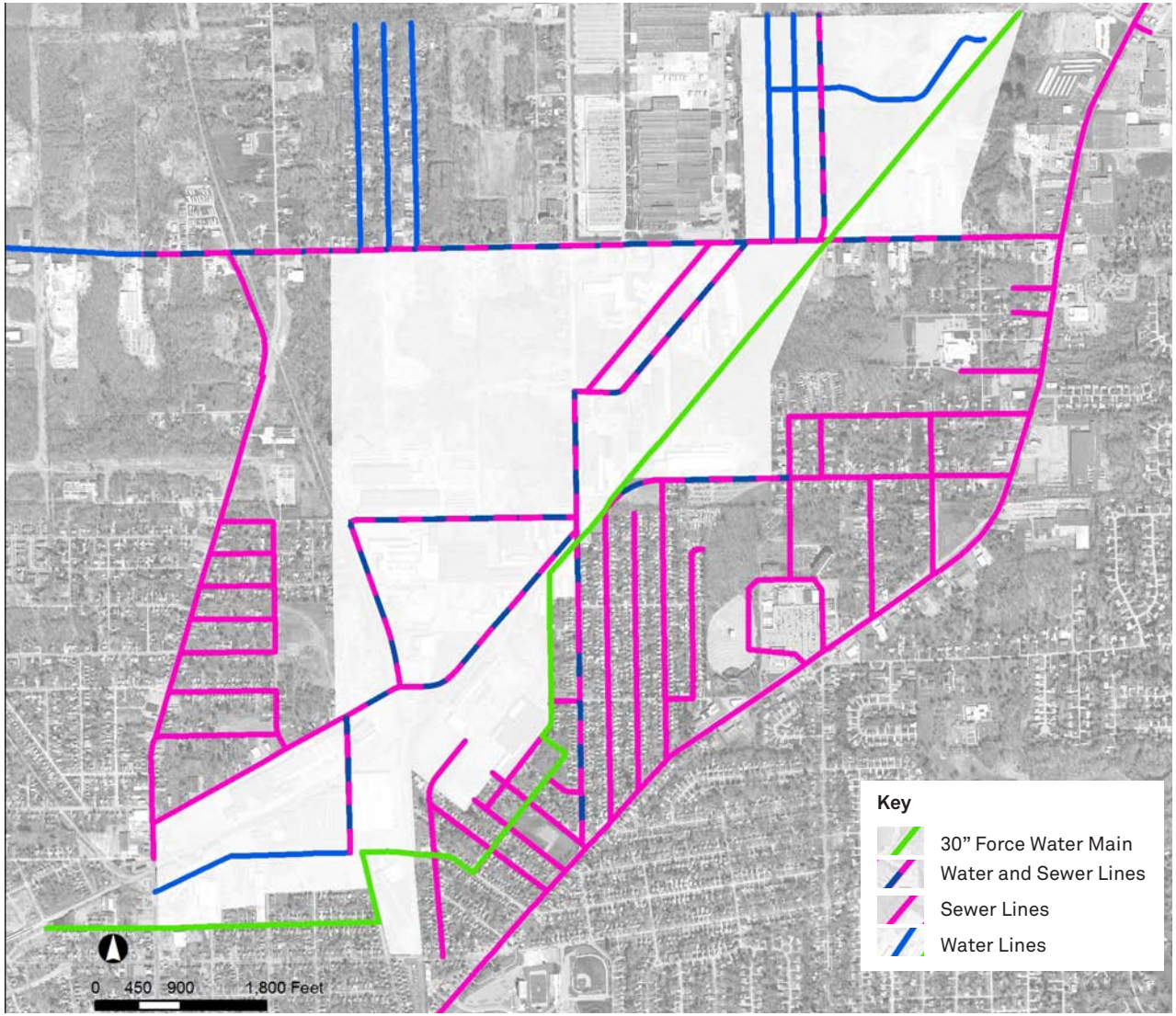


Figure 10. Sanitary Sewers and Water Lines

Pollution Control Facility located at 2323 South Main Street in the City of Warren, and Water lines are supplied by the City of Warren water treatment facility located north of the study area on State Route 5 in Cortland, Ohio.

Public Infrastructure - Storm Drainage

As shown in Figure 11 – Storm Drainage, storm drainage in the Golden Triangle Study Area generally flows from north to south. Major flows are channeled toward Red Run Creek from the Wheatland Tube property north of Dietz road via a 60 " reinforced concrete conduit that runs under Dietz Road. South of Dietz Road, flows continue in a 72" relief storm sewer that runs south to a point just north of Bronze Road where stormwater enters a diversion structure allowing flows to travel west to the Mahoning River via the 84" Comstock storm sewer. During large storm events excess flow passes under Bronze Road through twin 54"culverts into Red Run Creek.

The Golden Triangle Watershed, a sub-area of the Mahoning River Watershed, covers approximately 943 acres and extends as far north as the Warren Outerbelt. Over the past century, the development characteristics in this watershed have changed from undeveloped rural land to an area that is comprised of a mix of residential, commercial and industrial lands. With this development came increased runoff rates accompanied by an increase in the severity and frequency of flooding to downstream lands. Today, the City of Warren maintains the stormwater infrastructure within the golden Triangle Study Area in cooperation with Howland Township and the Trumbull County Engineer's office.

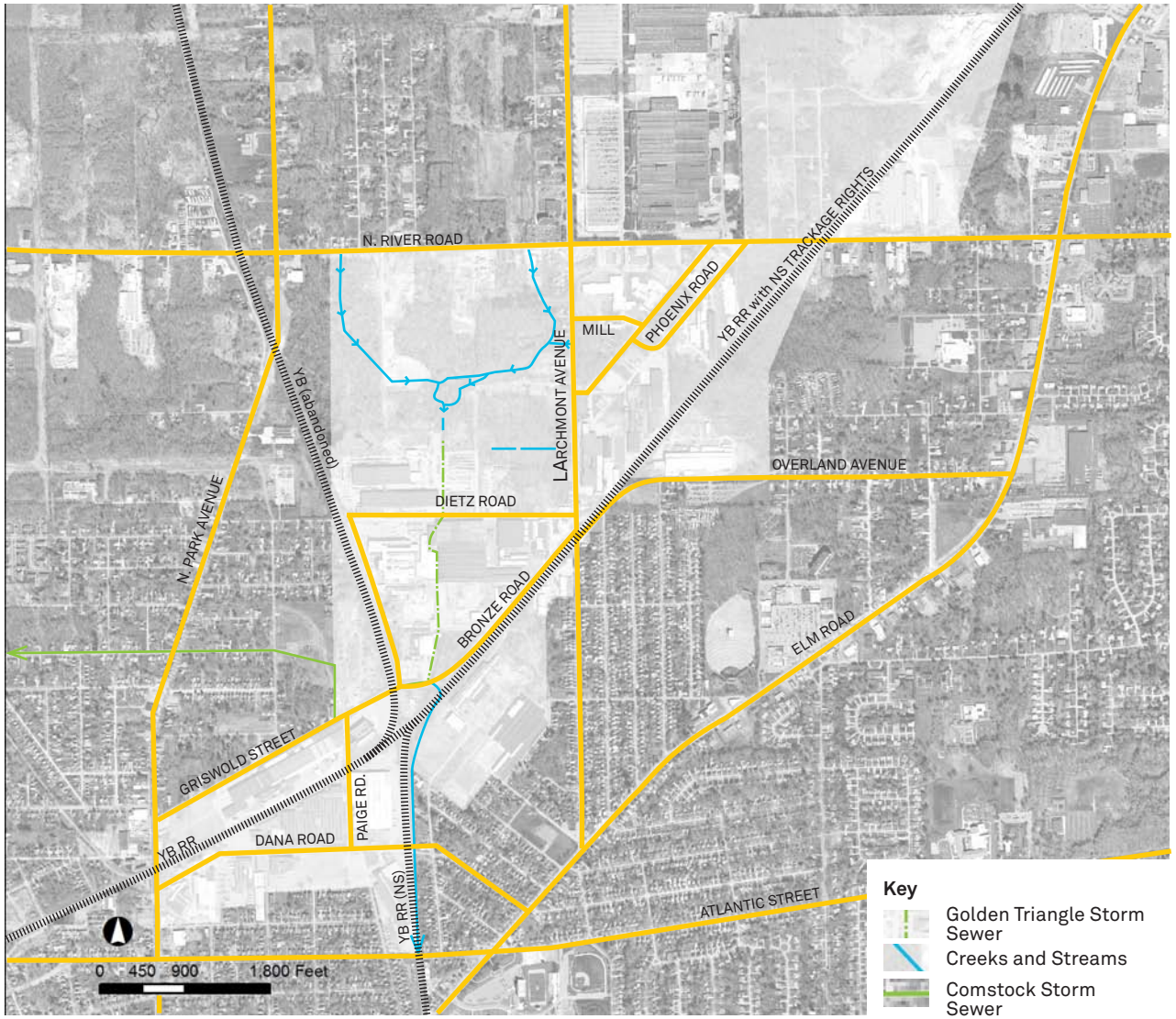


Figure 11. Storm Drainage

Public Infrastructure - Private Utilities

The following are the publicly regulated providers of electrical power, natural gas, cable, telecommunications and broadband services that serve customers in the Golden Triangle Study Area:

- First Energy Corporation – Electrical power supply
- Dominion Gas – Natural Gas supply
- Century Link – Internet, cloud, data, and voice business services
- Time Warner – Cable service for internet, phone, and TV

These services are not provided by the State of Ohio or the three local units of government – Trumbull County, Howland Township and the City of Warren, but are contracted for individually by local business and industry stakeholders. Because the focus of this analysis is on the identification of needed public infrastructure improvements, information regarding private utility distribution systems and networks is not provided in detail comparable to that provided for previously described infrastructure components. It is, however, important to note that FirstEnergy maintains several substations that directly serve business customers in the Golden Triangle Study area, the closest being the 138 kv Ivanhoe substation which sends 23kv of secondary current to industries to the east along Dietz Road. The location of the Ivanhoe substation is shown on Figure – 12 along with surface transportation components.

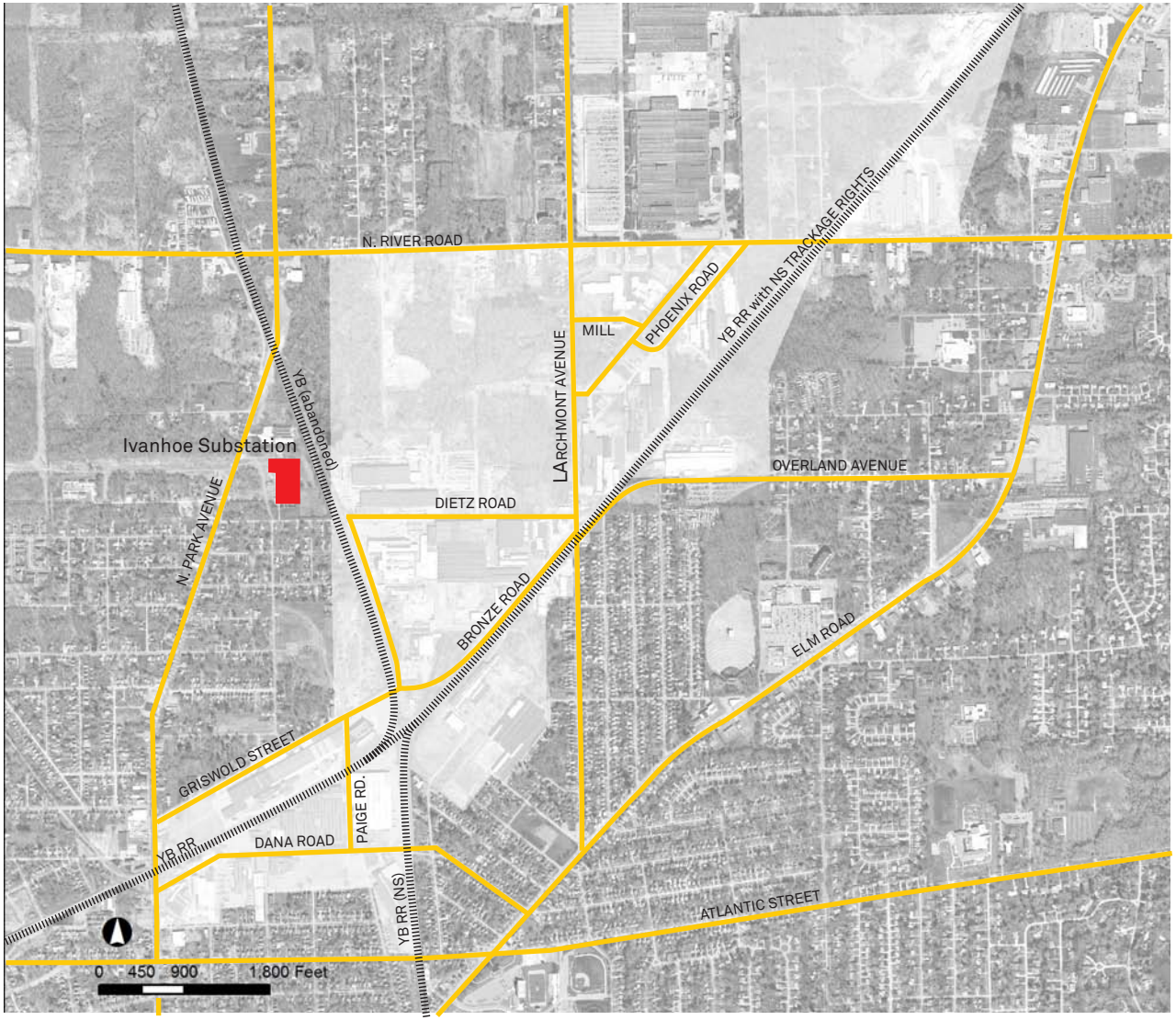


Figure 12. Private Utilities

SECTION FOUR

REGIONAL ECONOMIC TRENDS

According to Ohio Labor Force Information, Current Employment Survey, Annual Averages, (See Table 2 – Total Jobs by industry) total jobs in the Youngstown Warren MSA (Mahoning and Trumbull County in Ohio, and Mercer County in Pennsylvania) declined by 7.5% from 243,100 jobs to 224,900 jobs between 2004 and 2013. During that same period, manufacturing jobs fell from 41,300 to 30,200, a drop of 13.4%. In 2004 Manufacturing Jobs represented 16.9% of the Jobs in the MSA while in 2013, the represented 13.4 % of all jobs. (Source: Ohio Labor Market Information, Current Employment Survey, Annual Averages). Unemployment varied during that same period from a low of 6.1% in 2006 and 2007 to a high of 12.5 during the peak of the Great Recession. These rates were somewhat higher than state and national unemployment rates during the same period when Ohio and the US recorded low rates of 5.4 and 4.6 respectively in 2009 and high rates of 10.2 and 9.6. (See Table 3 – Youngstown – Warren Labor Force Trends). Source: Ohio Labor Market Information, Civilian Labor Force Estimates, Annual Averages.

More recently, however, the Youngstown – Warren Regional Chamber of Commerce reports that overall employment in the Youngstown – Warren MSA has stabilized, and in fact, increased by 1.0 percent from 231,100 jobs to 233,500 jobs, between December 2013 and December 2014. Similarly, manufacturing employment in the MSA has increased by 1.7 % from 29,900 jobs to 30,400 jobs over the same period. (See Table 4 – Selected Economic Indicators, February, 2015) .

Youngstown-Warren MSA	% of Total jobs	2013	2004	10 Year Trend Net Change
Total Jobs	100%	224,900	243,100	-18,200
Construction & Mining	4.3%	9,700	10,500	-800
Manufacturing	13.4%	30,200	41,300	-11,100
Trade, Transportation & Utilities	20.8%	46,800	51,300	-4,500
Information	0.9%	2,000	3,200	-1,200
Financial Activities	3.3%	7,500	9,700	-2,200
Professional & Business Services	10.6%	23,900	18,900	5,000
Educational & Health Services	19.0%	42,800	41,900	900
Leisure & Hospitality	10.1%	22,800	23,300	-500
Other	4.4	9,900	10,800	-900
Government	13.0	29,200	32,200	-3000

Table 2. Total Jobs by Industry

Youngstown Warren MSA Labor Fource Employment 10-Year Trends 2004-2013					
			Unemployment Rate (%)		
Year	Labor Force	Employment	YW-MSA	Ohio	US
2004	279,500	259,200	7.3	6.1	5.5
2005	280,300	261,600	6.7	5.9	5.1
2006	280,300	263,200	6.1	5.4	4.6
2007	276,400	259,700	6.1	5.6	4.6
2008	275,600	255,900	7.2	6.6	5.8
2009	276,700	242,000	12.5	10.2	9.3
2010	272,200	241,300	11.5	10.0	9.6
2011	268,000	242,700	9.4	8.7	8.9
2012	264,800	243,100	8.2	7.4	8.1
2013	263,700	242,000	8.2	7.4	7.4

Table 3. Youngstown- Warren Labor Force Trends

	Reporting Period	Current Period	Last Period	Last Year	Change from Last Month (%)	Change from Last Year (%)
Leading Indicators	Monthly					
National	Mar 15	121.4	121.1	100.9	0.2%	20.3%
Ohio	Nov 14	n/a	n/a	n/a	n/a	n/a
Youngstown-Warren MSA	Nov 14	n/a	n/a	n/a	n/a	n/a
Consumer Confidence Index	Monthly	February-2015	January-2015	February-2014		
National		96.4	103.8	78.3	-7.1%	23.1%
Consumer Price Index	Monthly	February-2015	January-2015	February-2014		
All Items-CPI-U-All Urban Customers						
National		234.722	233.707	234.781	0.4%	-0.0%
Midwest		222.301	221.545	223.493	0.3%	-0.5%
Cleveland Area (closest to YWMSA)	(Bi-Monthly)	218.536	219.992	217.445	-0.7%	0.5%
Employment Outlook Survey	Quarterly	Q2-2015	Q1-2015	Q2-2015		
National		16	16	13	0.0%	23.1%
Ohio		18	11	12	63.4%	50.0%
Youngstown-Warren MSA		8	7	8	14.3%	0.0%
Retail Trade	Monthly	December-2014	November-2014	December-2013		
Estimated Taxable Sales (MSA)		$580,940,400	$579,439,167	$ 550,667,900	.03%	5.5%
Mahoning County (tax collection)		$ 2,807,173	$ 2,826,992	$ 2,670,960	-0.7%	5.1%
Trumbull County (tax collection)		$ 2,113,791	$ 2,076,049	$ 1,963,991	1.8%	7.6%
Columbiana County (tax collection)		$ 1,332,660	$ 1,337,026	$ 1,307,592	-.03%	1.9%
Employment	Monthly	February-2015	January-2015	February-2014		
Youngstown-Warren MSA		233,500	234,400	231,100	-0.4%	1.0%
Mahoning County	13.0	99,500	99,800	93,300	-0.3%	1.2%
Youngstown City		21,100	21,200	20,800	-0.5%	1.4%
Trumbull County		85,100	85,400	84,100	-0.4%	1.2%
Warren City		13,400	13,500	13,300	-0.7%	0.8%
Columbiana County		46,000	46,000	46,000	-0.0%	0.0%
Mercer County	Jan-15	49,179	50,578	49,149	-2.8%	0.1%

Table 4. Selected Economic Indicators: February-2015

	Reporting Period	Current Period	Last Period	Last Year	Change from Last Month (%)	Change from Last Year (%)
Unemployment Rate	Monthly					
National (SA)		5.5	5.7	6.7	-3.5%	-17.9%
Ohio		5.1	5.1	6.2	0.0%	-17.7%
Youngstown-Warren MSA		6.5	7.0	8.2	-7.1%	-20.7%
Mahoning County		6.6	7.1	8.3	-7.0%	-20.5%
Youngstown City		8.0	8.8	10.0	-9.1%	-20.0%
Trumbull County		7.0	7.5	8.8	-6.7%	-20.5%
Warren City		7.7	8.2	10.0	-6.1%	-23.0%
Columbiana County		6.5	7.1	8.0	-8.5%	-18.8%
Mercer County	Jan-15	6.0	4.9	7.1	22.4%	-15.5%
Employment Rate	Quarterly	February-2015	January-2015	February-2014		
Total Jobs		221,700	221,700	219,700	0.0%	0.9%
Natural Resources/Mining/ Construction		7,900	8,200	7,800	-3.7%	1.3%
Manufacturing		30,400	30,400	29,900	0.0%	1.7%
Trade, Transportation, Utilities		47,000	47,000	46,000	0.0%	2.2%
Information		1,900	1,900	1,800	0.0%	5.6%
Financial Activities		7,400	7,400	7,500	0.0%	-1.3%
Professional & Business Services		22,700	22,900	22,300	-0.9%	1.8%
Education & Health Services		41,600	41,600	42,600	0.0%	-2.3%
Leisure & Hospitality		23,200	23,600	22,000	-1.7%	5.5%
Other Services		9,100	9,100	9,300	0.0%	-2.2%
Government		30,500	29,600	30,500	3.0%	0.0%
Construction	Monthly	February -2015	January-2015	February-2014		
Number of Housing Permits		n/a - March 25	9	10	n/a	n/a
Housing Permit Valuation		n/a - March 25	$2,161,000	$2,220,000	n/a	n/a
GM Lordstown Production	Monthly	February -2015	January-2015	February-2014		
Chevy Cruze (rollout Sept 2010) Deliveries		18,301	18,693	21,836	-2.1%	-16.2%

Table 4. Selected Economic Indicators: February-2015 continued

Study Area Industry Characteristics

Detailed profiles of the 12 Golden Triangle Study Area stakeholders are provided in the interview summaries included in Appendix B. There is an overall focus on ferrous and non-ferrous metal processing and fabrication (primarily steel), design, manufacture and refurbishment of steel processing equipment. Also included among the stakeholders are manufacturers of equipment for rail cars, truck frames, counterweights for large cranes, energy tubing for the oil and gas industry, and a large distributor of kitchen, bath, and plumbing supplies.

Markets served include steel manufacturing, the automotive industry, the rail Industry, commercial and residential construction, and the beverage industry. With the exception of Trumbull Industries, which is a major distributor of kitchen and plumbing supplies, it appears that a majority of the industries surveyed, serve national and international markets.

Taken together, the stakeholder industries employ more than 1,600 professional, skilled and semi-skilled workers, representing roughly 80 percent of the workforce in the Golden Triangle Study area. It is also worth noting that more than 50 percent of plants surveyed are not currently working at full production capacity.

Regional Advantages

The Youngstown - Warren MSA economy appears to have stabilized and there is evidence that efforts to diversify the economy are beginning to pay off. The region has excellent interstate highway and rail access to domestic markets and international ports, and is within 500 miles of 55 percent of all U.S. manufacturers and 50 percent of the total US population. The area's low cost of living is also an asset.

Regional Disadvantages

The region continues to struggle with its poor national image – a consequence of the negativity associated with the "rustbelt" label. Unfortunately, there is also clear evidence within the Golden Triangle, that the extent of infrastructure deterioration reinforce the rustbelt image.

Educational attainment averages are below statewide levels, and there is a shortage of skilled labor in critical manufacturing and steel processing industries. This reality was made clear during the stakeholder interview process when over two-thirds of the interviewees spoke of the difficulties they were having finding and hiring qualified skilled workers. The regions labor supply problems can in part be attributed to baby boomer retirements and an insufficient pipeline of young people interested in manufacturing jobs. It is also apparent that there was some disconnect between the study area industries and local institutions and agencies involved in training and workforce development.

Emerging Trends

In the broadest sense, industries currently located within the Golden Triangle Study Area are directly impacted by trends in the national economy – specifically those tied to the steel, transportation, construction and energy industries. Currently, domestic steel making is operating at 70 percent capacity, with steel imports (coils/rods) currently hurting the market for domestic steel, and the strong dollar negatively impacting foreign demand for domestic steel. The long term forecast for basic steel is difficult to project, but it should be emphasized that U.S. steel makers continue to be most efficient, environmentally conscious and safe in the world. Accordingly, the outlook for local industries tied to basic steel remains cautiously optimistic. At present, the post-recession automobile industry recovery is strong, and appears sustainable, which bodes well for area steel processing equipment manufacturers and equipment refurbishing operations. The construction industry continues a slow but measurable recovery from peak recession levels in 2008 and 2009. To the extent that the recovery continues, the outlook for area businesses that supply steel and related products to the residential and commercial construction sectors, is generally positive. Those industries that directly supply energy companies engaged in natural gas and oil production, distribution and refining, (i.e., those associated with the regional "fracking boom") have suffered recently as global energy prices have fallen due to a number of geopolitical factors. The long term demand for natural gas as a cleaner fuel for this country's power plants, along with a continuing push for domestic energy independence, will likely result in a rebound for industry suppliers.

Finally, the potential for new industries entering the region remains strong, with continuing efforts to diversify the local manufacturing and research economy. This is borne out in a research report

prepared by Youngstown State University's Center for Urban and Regional Studies entitled The Mahoning Valley – Cluster Analysis of Current and Emerging Industries in the Region. The goal of the study "was to conduct an industry cluster study of the Mahoning Valley, and in the process, produce the emerging industry clusters that decision makers will rally around to facilitate their growth and competitiveness and innovation". After application of a series of parameters tied to location quotients, including total employment, development cycle trends, and average payroll, two "star" cluster groups associated with a Biomedical/ Biotechnical cluster and a Manufacturing Supercluster emerged for both Mahoning and Trumbull Counties. A third "star" cluster associated with Transportation Equipment Manufacturing, emerged for Trumbull County. It is reasonable to conclude that it is around these clusters that new industrial expansion is likely to emerge within the Golden Triangle.

SECTION FIVE

NEEDS ASSESSMENT AND RECOMMENDATIONS

Golden Triangle Infrastructure Improvement needs are largely determined by the operational requirements and expansion needs of key industries within the Golden Triangle Study Area. Information obtained during in-depth interviews with industry stakeholders, described in Section 2 and summarized in Appendix B, reveal that surface transportation and stormwater management improvements rank among the most critical needs within the Golden Triangle. Table 2 – Stakeholder Based Infrastructure Needs provides a detailed summary of specific needs identified by each of the 12 groups of industry representatives interviewed by AECOM and the Partners. The greatest concentration of businesses with common or shared needs, were those operating on adjoining properties along Dietz Road, near the geographic center of the study area. Here problems associated with truck access and queuing, parking, periodic flooding and water line failures affected, in varying degrees, all of the area industries. While flooding and stormwater management issues intermittently affected other businesses north east and southwest of the Dietz Road core, principal issues again related to truck access and roadway issues. It was also noted by several of the interviewees that trucks frequently faced navigational challenges once they entered the Golden Triangle's narrow, poorly marked roads in portions of the study area.

Business	SIC	Type of Business	Products
Novelis	SIC 3411	Metal Processing	Consumer Products / Beverage Cans
Project Requests	1. Reconstruct Griswold St. 2. Improve intersection radius at Griswold St. and North Park Ave. 3. Address stormwater management issues.		
ADS Machinery	SIC 3540	Design/Mfg. Metal Processing Equipment	Steel Processing
Project Requests	1. Improve access to North Park and/or Elm Rd. 2. Address stormwater management issues		
Ajax Tocco	SIC 3567	Mfg. Heating/Melting Equipment	Auto Industry
Project Requests	1. Improve intersection at Overland and Larchmont 2. Improve lighting on Overland Ave. 3. Create wayfinding signage at key locations.		
Clark Dietrich	SIC 3310	Metal Processing	Commercial Construction
Project Requests	1. Improve shoulders and drainage along N. River Rd. 2. Improve intersection radius at Phoenix Rd. and Larchmont. 3. Provide an additional substation. 4. Improve stormwater management at N. River Rd. Plant.		
FLEX Strut	SIC 3440	Metal Fabricating	Commercial Construction
Project Requests	1. Improve intersection at Mill St. and Larchmont Ave. 2. Repair Mill St. 3. Create wayfinding signage at key locations.		
Liberty Steel	SIC 3460	Steel Processing	Automotive/Lawn & Garden
Project Requests	1. Improve truck access. 2. Address Dietz Rd. stormwater issues. 3. Address Dietz Rd. waterline issues.		
Primetal	SIC 3540	Refurbished Steel Making Equipment	Steel Industry
Project Requests	1. Address Dietz Road stormwater issues. 2. Evaluate Dietz/Griswold "jug handle" turn. 3. Address Dietz Rd. waterline issues.		

Table 2. Stakeholder Based Infrastructure Needs

Finally, a majority of the industry representatives interviewed indicated that there was a general shortage of skilled labor in the region, constraining the productive capacity of several of the industries. It was also evident that few of the interviewees were aware of existing workforce development programs or initiatives of the Mahoning Valley Manufacturer's Coalition (MVMC) and the region's universities, community colleges, and technical centers.

Business	SIC	Type of Business	Products
Shaffer	SIC 3743/3460	OEM Forging	Rail Car
Project Requests	1. Address stormwater drainage issues involving flows from North and East 2. Improve intersection radius at Phoenix Rd. and Larchmont Ave. 3. Improve lighting on Phoenix Rd.		
Trumbull Industries	SIC 5099	Distribution Center	Kitchen & Bath
Project Requests	1. Improve Dietz Rd. access, pavement, parking and lighting.		
Wheatland Tube	SIC 3317	Manufacturing Pipe	Commercial / Industry Construction / Oil & Gas
Project Requests	1. Resolve truck access and queuing problems (Option 1: alternative Dietz/Larchmont industrial connector). 2. Provide rail access solution. 3. Evaluate and resolve electrical supply and intersection issues. 4. Address Dietz Road stormwater issues.		
Concord Steel	SIC 3443	Manufacturing Steel Plate	Construction Industry
Project Requests	1. Improve access to plant (potentially via Bronze Road connector and railroad crossing). 2. Upgrade power supply.		
RSL Industries	SIC 3132	Glass Door Inserts	Residential Construction
Project Requests	1. Repave/upgrade Dana St. to improve access to / from Elm Rd. 2. Address stormwater drainage issues associated with Red Run open drainage. 3. Evaluate re-establishing rail access.		

Table 2. Stakeholder Based Infrastructure Needs

With a clear understanding of existing conditions, including regional economic trends, translating stakeholder needs into an integrated set of infrastructure improvements is a straightforward process. At the same time, the development framework for retention and expansion of industrial investment in the Golden Triangle also emerges. Figure 12 – Future Land Development, provides a simple illustration of potential industrial expansion and redevelopment zones as well as land needed for stormwater management and wetland conservation.

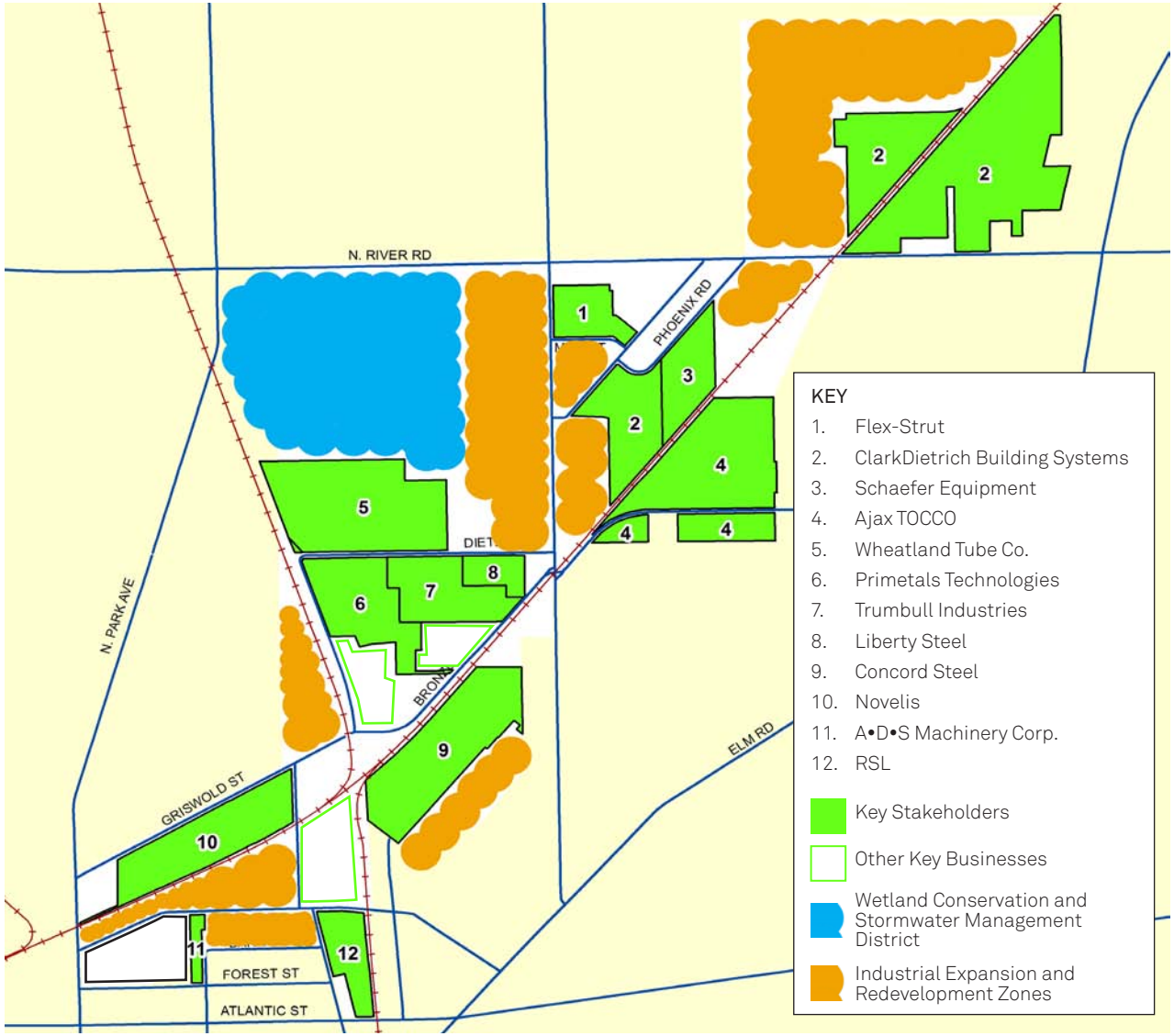


Figure 12. Future Land Development

Figure 13–Infrastructure Improvements shows the location of the full range of recommended infrastructure improvements within the Golden Triangle Study area. The next section, Recommended Infrastructure Improvements, illustrates schematic engineering concepts and/or conceptual site drawings which are presented and described for each of the recommended infrastructure improvements.

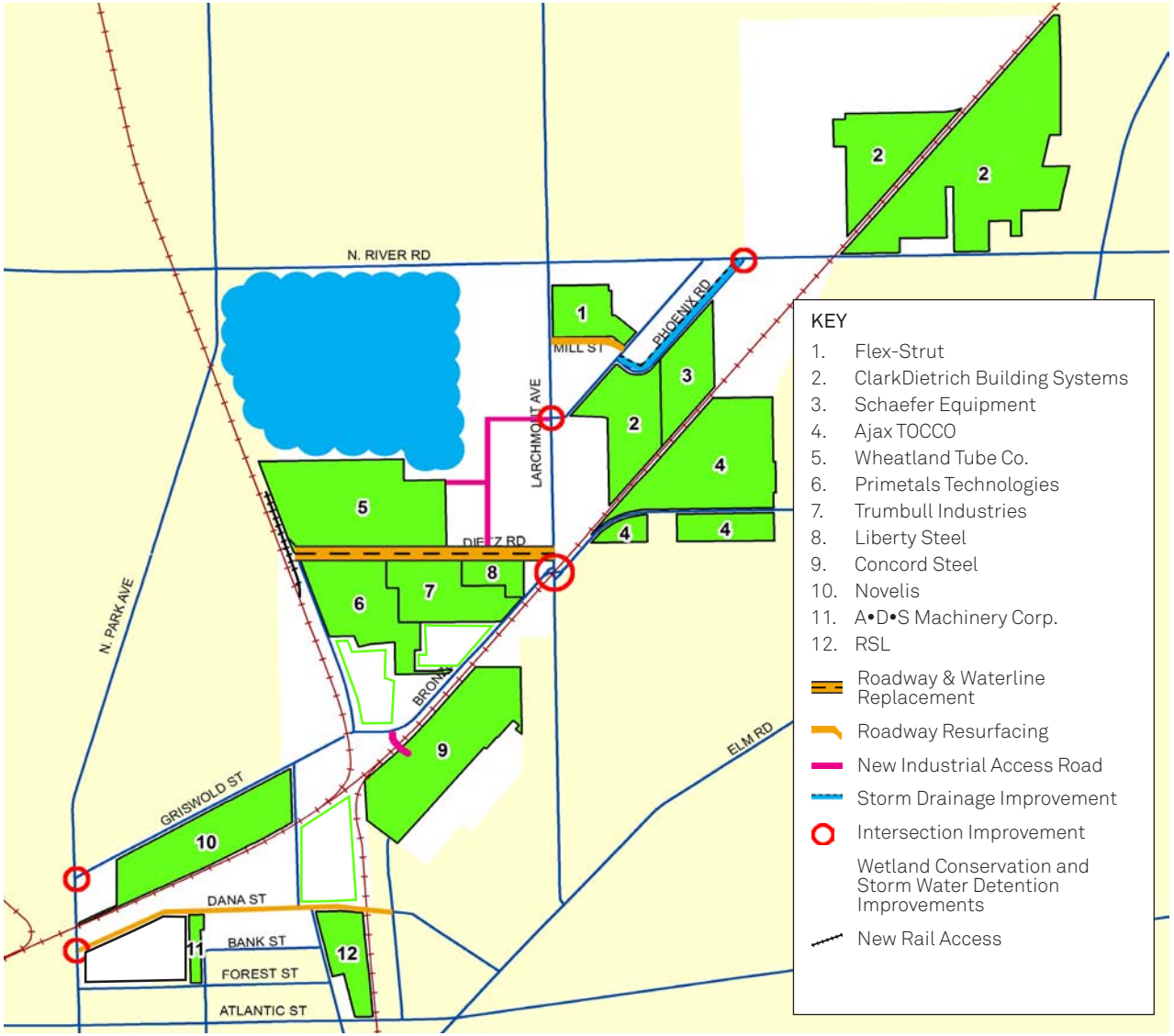
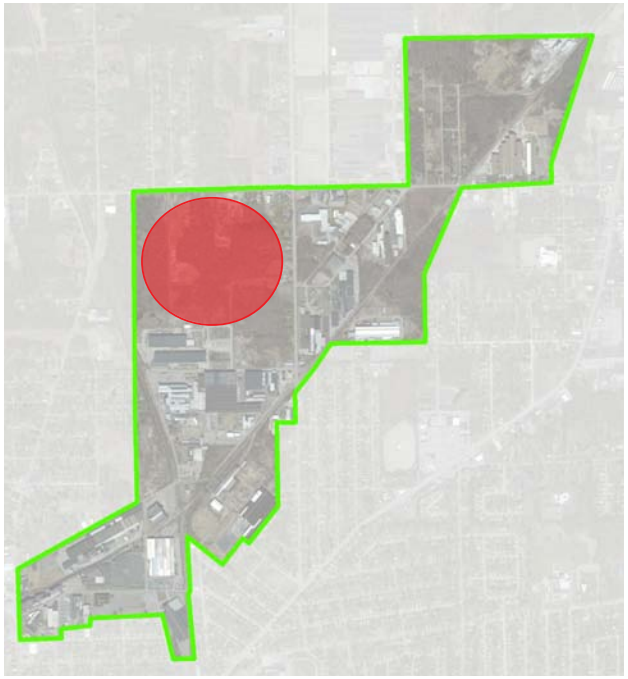


Figure 13. Infrastructure Improvements

SECTION SIX

RECOMMENDED INFRASTRUCTURE IMPROVEMENTS



Recommended Infrastructure Improvements - Stormwater Management and Wetland Enhancement

The 2008 Golden Triangle Drainage Study prepared for the Trumbull County Planning Commission by Thomas Fok and Associates, examined the extent and sources of flooding problems that are described earlier in this report and were reiterated by a majority of the area's industrial stakeholders. The study identified three options to eliminate flooding problems in the Golden Triangle, ultimately recommending that a regional detention pond be constructed in an area generally north of the Wheatland Tube property on Dietz Road, and south

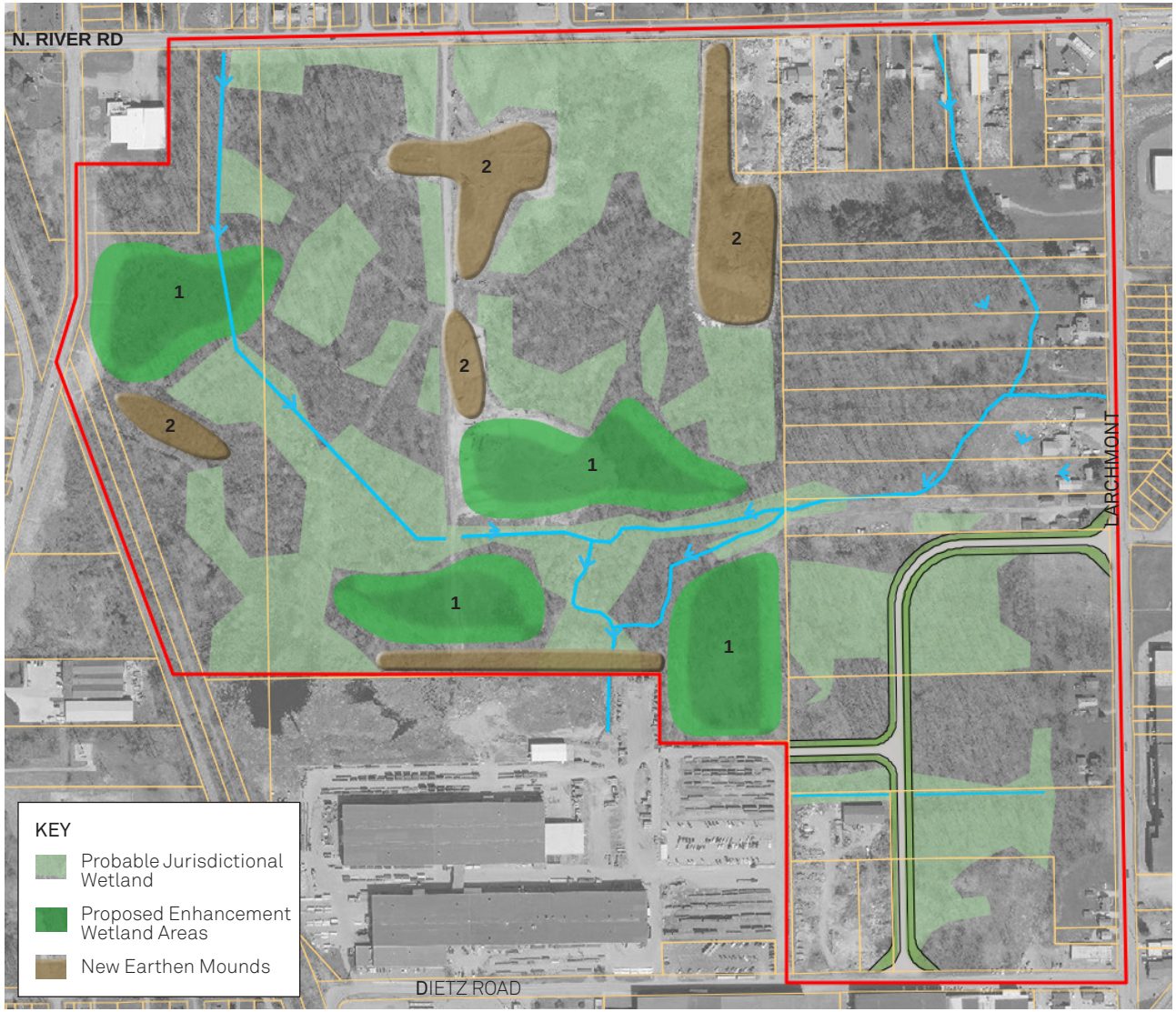


Figure 14. Conceptual Design for Stormwater Management and Wetland Enhancement Improvement

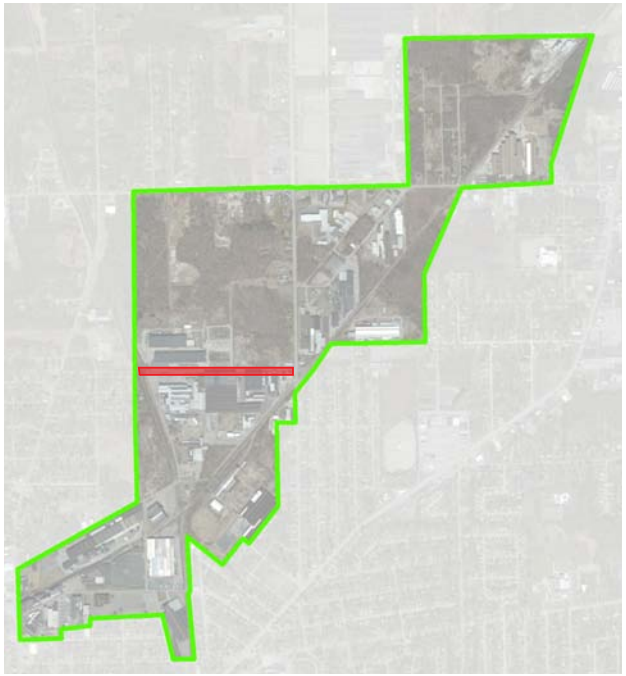
of North River Road. The recommended storage capacity of the regional pond was 5,215,000 cubic feet, which equated to a surface area of 20 + acres, assuming a six foot pond depth. No site based configuration analysis was conducted, but the study did indicate that construction would result in unspecified wetland impacts.

Because the flood prevention benefits of this recommendation remain valid, the AECOM consultant team conducted a wetlands evaluation of the recommended location (see Appendix C) and developed a multi-function solution that both enhances existing wetlands north of Dietz Road and satisfies the stormwater detention requirements needed to significantly reduce future flooding and property damage in the Golden Triangle sub-watershed. Figure 14 presents the conceptual design for a stormwater management and wetland enhancement improvement. The 83 acre study area shown in Figure 12 contains approximately 30 acres of potential jurisdictional wetlands and two stream tributaries that contribute to the larger watershed to the south. In order to provide over 5.2 million cubic feet of storage capacity, non-wetland areas adjacent to the stream tributaries were identified as wetland expansion and restoration zones. Four feasible areas, yielding 20 acres of wetland expansion and stormwater storage were identified. Material removed from the wetland expansion areas would be stored on site, creating earthen mounds to reduce soil removal costs. The existing and new wetland areas would provide a combined 50 acres of stormwater storage for flood relief. Because the area's 30 acres of existing wetlands would not be altered, it is assumed that such a wetland expansion and restoration project could be permitted under a Nationwide Restoration Permit. Preliminary project costs for the stormwater management and wetland enhancement improvements presented in Figure 12 are estimated at $1,676,400, and described in greater detail in Appendix D: Probable Infrastructure Improvement Costs.

Other potential benefits of the concept include the creation of a new 83 acre regional open space resource and nature preserve. The new wetlands could also serve as a potential wetland mitigation source if future development impacts wetlands to the east.

Recommended Storm Water Investigation – Phoenix Road Industrial Area

The area between Phoenix Road and the Youngstown Belt Rail Line is subject to periodic flooding. The stormwater and wetland enhancement recommendations discussed above are not likely to alleviate these problems which have had their greatest impact on the Shaffer Equipment Company. The Trumbull County Engineer's office is aware of the problem, and is prepared to evaluate the public storm drainage infrastructure in the Commonwealth Avenue/Phoenix Road area and make specific recommendations related to storm drainage improvements that may fall within the County's jurisdiction. Costs to make needed improvements in public infrastructure will be determined upon completion of an assessment of the causes of recent flooding.



Roadway Reconstruction, Resurfacing, and Intersection Improvements – Dietz Road Reconstruction and Jug Handle

Four of the study area's 12 stakeholders are located on Dietz Road. Combined, there are over 220 daily truck trips attributable to these businesses, on this short, highly congested, 2,280 foot long industrial roadway. Well over half of these trips are by large flatbed semi-trailer trucks carrying raw steel or finished pipe products for the Wheatland Tube Company. The road was last resurfaced in 2006, but is rapidly deteriorating and in need of reconstruction. Required improvement work includes:

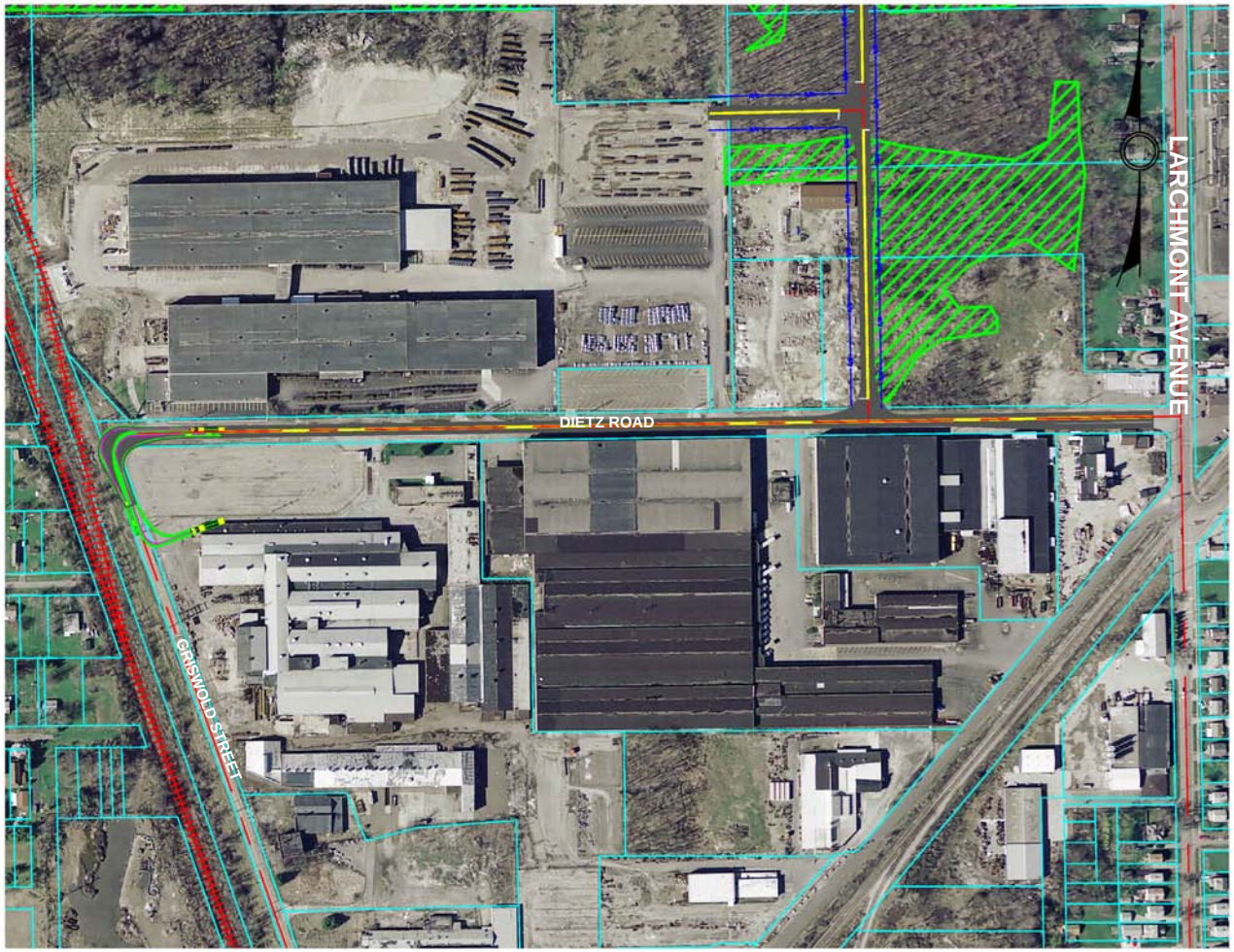


Figure 15. Dietz Road Reconstruction and Jug Handle

- Removal of existing pavement down to subgrade.
- Replacement of all layers of pavement (aggregate base, asphalt concrete base, and asphalt surface and intermediate courses).
- Widening of pavement at the intersection of Dietz Road and Griswold Street to allow semi-trailer trucks to navigate a jug handle, improving the access to the eastbound lane of Dietz Road.
- Replacement of existing Dietz Road water line.

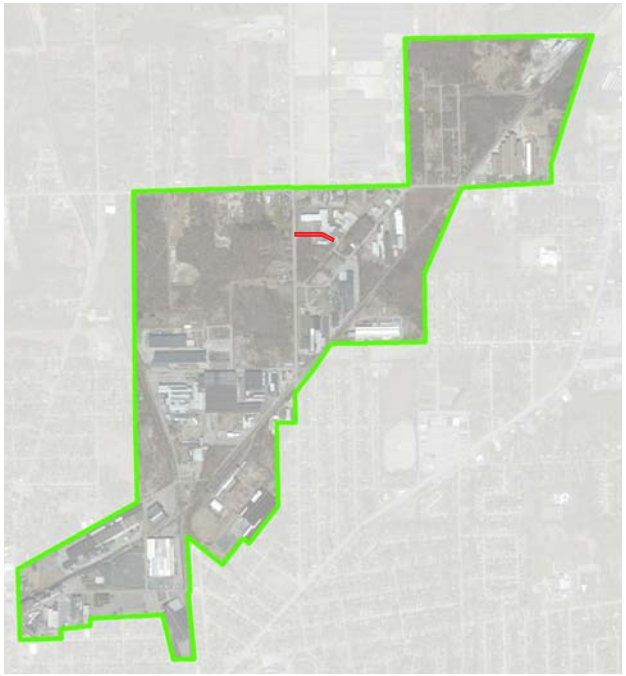
The location of these improvements is shown on Figure 15 – Dietz Road Reconstruction and Jug Handle.

Preliminary project costs for the Dietz Road and waterline improvements, utilizing a 30% contingency factor, are estimated at $1,787,036, and described in greater detail in Appendix D: Probable Infrastructure Improvement Costs.

It should also be noted that the Trumbull County Engineer's office has begun planning for the jug handle improvements at the Dietz/Griswold intersection.

Water Line Improvements – Dietz Road Water Line

Due to industrial stakeholder reports of past waterline failures, It is recommended that the 12 inch Dietz road waterline be replaced during the reconstruction of Dietz Road as shown in Figure 15. Costs for the waterline replacement have been included in the Dietz Road Reconstruction Cost Estimate.



Roadway Reconstruction, Resurfacing, and Intersection Improvements – Mill Street Resurfacing and Larchmont Avenue Intersection Improvements

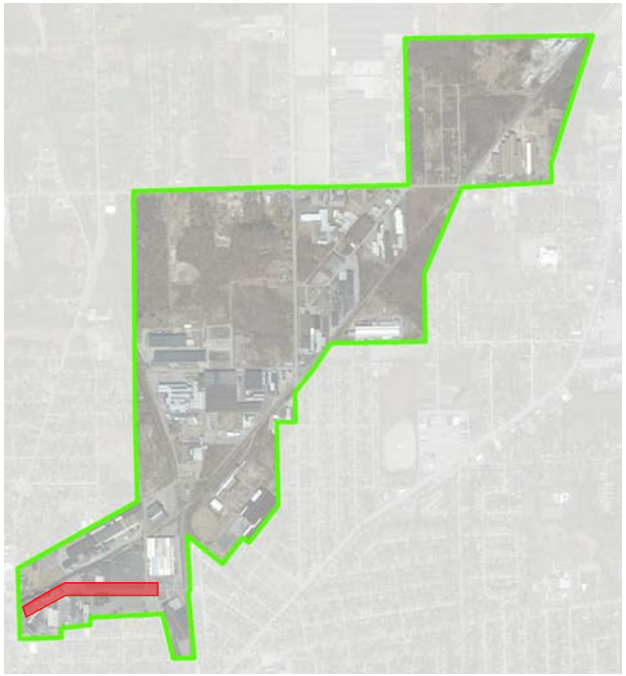
While Mill Street serves multiple businesses in the north central portion of the study area, it serves as the primary access route for Flex-Strut Inc. located on Mill Street near the intersection of Mill Street and Larchmont Avenue. Both its pavement and right-of-way widths are among the narrowest in the Golden Triangle. The turning radius at Larchmont Avenue remains tight for semi-trailer trucks. It is also important to note that only a portion of Mill Street has been dedicated. Recommended improvements

Figure 16. Mill Street Resurfacing and Larchmont Avenue Intersection Improvements

for Mill Street shown on Figure 16 - Mill Street Resurfacing and Larchmont Avenue Intersection Improvements include:

- Milling of asphalt down to base course.
- Application of intermediate and surface asphalt courses.
- Widening of Mill Street access to Larchmont Avenue to allow semi-trailer trucks to complete safe turns as shown on Figure 16.
- Acquisition of new right-of-way to accommodate widening.
- Dedication of Mill street, only partially accepted at this time.

Preliminary project costs for Mill Street improvements, utilizing a 30% contingency factor, and exclusive of right-of-way acquisition costs, are estimated at $257,819, and described in greater detail in Appendix D: Probable Infrastructure Improvement Costs.



Roadway Reconstruction, Resurfacing, and Intersection Improvements – Dana Street Resurfacing and North Park Avenue Intersection Improvements

Dana Street is a major industrial artery in the southwest corner of the Golden Triangle Study Area that provides access to North Park Avenue and the Warren Outerbelt for existing businesses in the area. Abandoned industrial sites currently undergoing demolition activities on the north side of Dana Street should eventually host new industrial development. The current poor condition of Dana Street coupled with the extremely tight turning radius at North Park Avenue currently impede large truck movements in

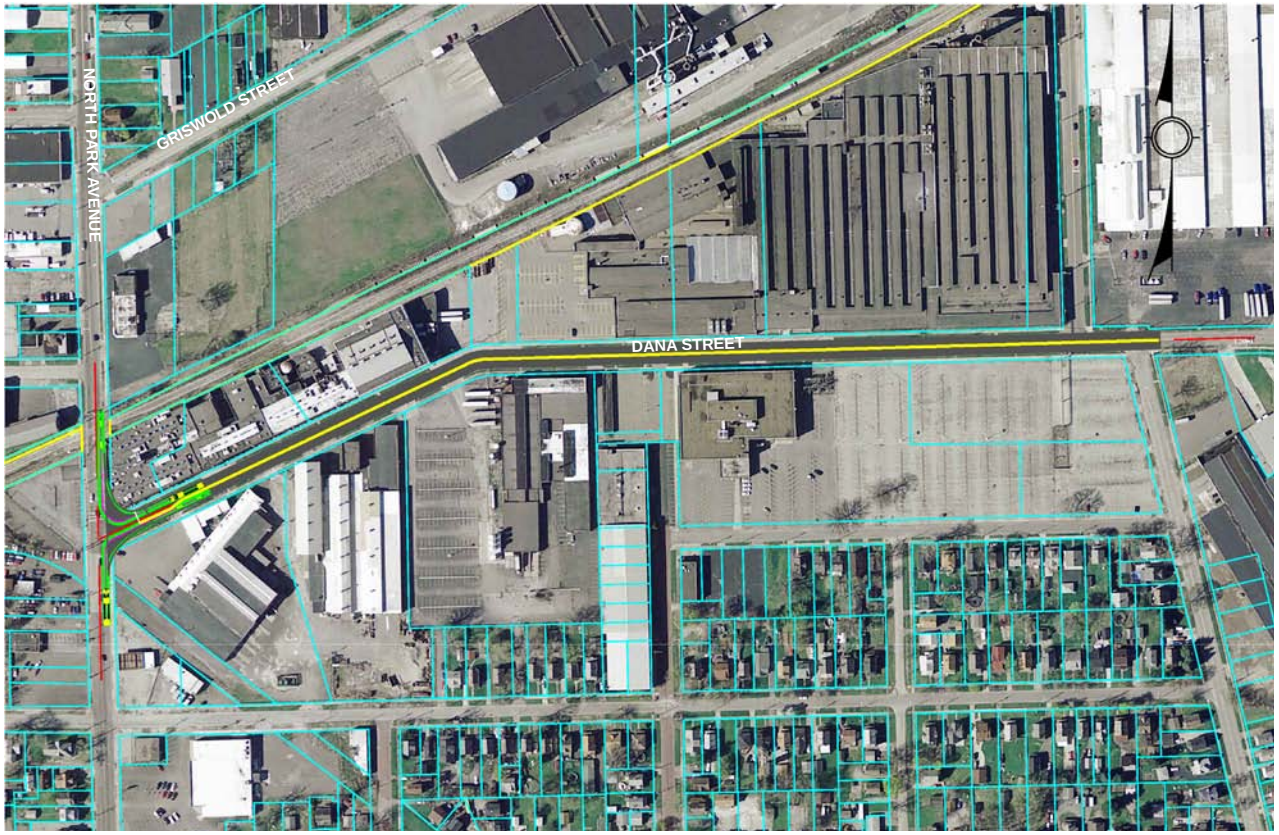
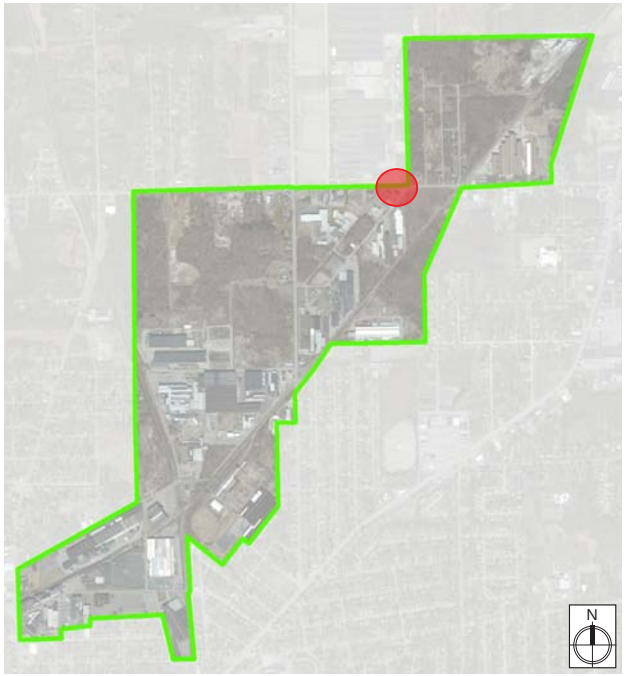


Figure 17. Dana Street Resurfacing and North Park Avenue Intersection Improvements

the area. Recommended improvements for Dana Street shown on Figure 17 - Dana Street Resurfacing and North Park Avenue Intersection Improvements include:

- Milling of asphalt down to base course along Dana Street from the south leg of Paige Avenue to North Park Avenue.
- Application of intermediate and surface asphalt courses.
- Increase turning radii onto North Park Avenue to allow semi-trailer trucks to complete safe turns as shown on Figure 17.
- Acquisition of additional right-of-way at the northeast corner of the Dana/North Park Intersection (at site of former GE Lighting plant, now demolished).

Preliminary project costs for the Dana Street improvements, utilizing a 30% contingency factor, and exclusive of right-of-way acquisition costs, are estimated at $733,684, and described in greater detail in Appendix D: Probable Infrastructure Improvement Costs.



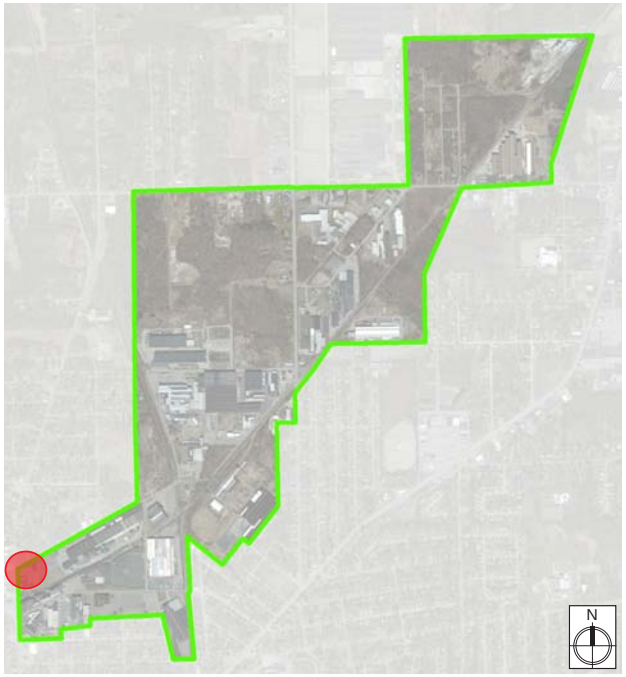
Roadway Reconstruction, Resurfacing, and Intersection Improvements – Phoenix Road and North River Road Intersection Improvements

Trucks servicing industries in the Phoenix/ Commonwealth /Mill Street area currently have difficulty negotiating the acute turning angle to and from the west on North River Road. To remedy this problem recommended improvements at the intersection are shown on Figure 18 - Phoenix Road and North River Road Intersection Improvements include:

Figure 18. Phoenix Road and North River Road Intersection Improvements

- Realignment of Phoenix Road to improve approach angle at North River Road.
- Widening of the intersection to allow semi-trailer trucks to complete safe turns as shown on Figure 18.
- Acquisition of additional right-of-way from the parking area in the southwest corner of the Phoenix/North River Road intersection.

Preliminary project costs for the intersection improvements, utilizing a 30% contingency factor, and exclusive of right-of-way acquisition costs, are estimated at $184,690, and described in greater detail in Appendix D: Probable Infrastructure Improvement Costs.



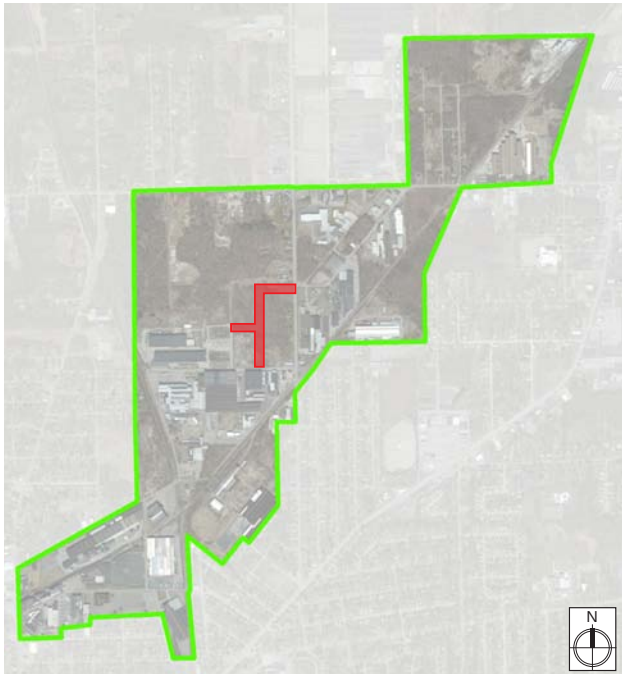
Roadway Reconstruction, Resurfacing, and Intersection Improvements – Griswold Street and North Park Avenue Intersection Improvements

Griswold Street, like Dana Street, is another major industrial artery in the southwest corner of the Golden Triangle Study Area that provides access to North Park Avenue and the Warren Outerbelt for existing businesses in the area. The tight turning radius at North Park Avenue currently impedes large truck movements in the area. Recommended improvements for Mill Street shown on Figure 19 – Griswold Street and North Park Avenue Intersection Improvements include:

Figure 19. Griswold Street and North Park Avenue Intersection Improvements

- Widening of the intersection to allow semi-trailer trucks to complete safe turns as shown on Figure 19.
- Acquisition of additional right-of-way from the northeast corner of the Griswold /North Park Avenue Intersection.

Preliminary project costs for the intersection improvements, utilizing a 30% contingency factor, and exclusive of right-of-way acquisition costs, are estimated at $129,837 and described in greater detail in Appendix D: Probable Infrastructure Improvement Costs.



New Roadway Construction – Larchmont/ Dietz Industrial Access Road

As noted in earlier, truck traffic congestion and on-street queuing and parking represent serious problems on Dietz road. The situation is exacerbated by the large volumes of Wheatland Tube Co. truck traffic that stage and circulate throughout the area. This problem can largely be alleviated by providing an alternative route for truck traffic traveling between Dietz Road and Larchmont Avenue. The proposed industrial access road could offer multiple benefits to area truck traffic by providing direct access to Wheatland Tube from Larchmont Avenue as well as an alternative route to Larchmont Avenue

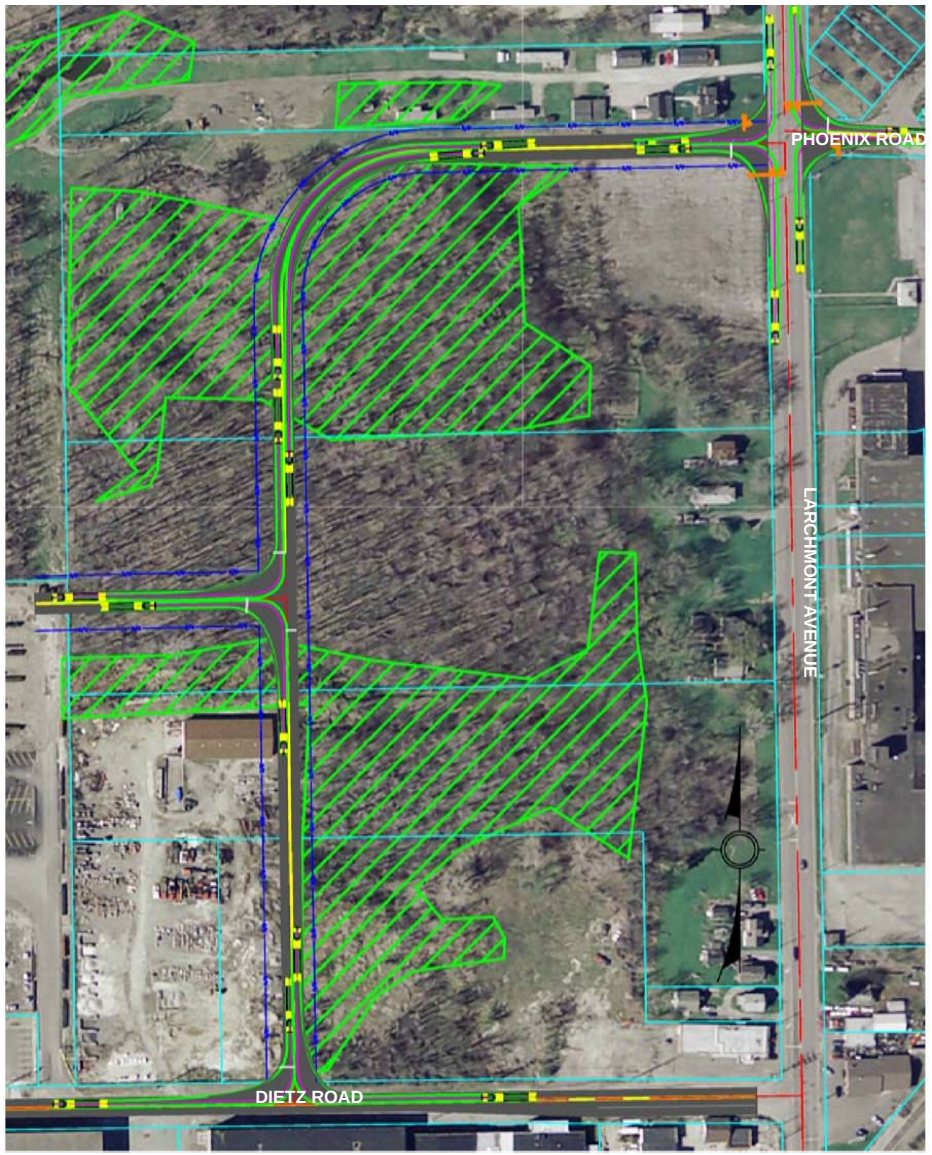
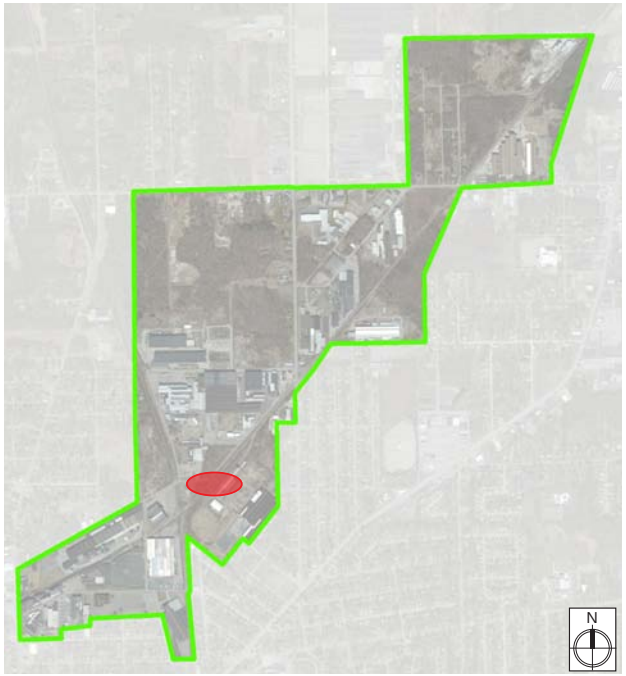


Figure 20. Larchmont/Dietz Industrial Access Road

for other businesses located near the eastern end of Dietz Road. To the extent that wetland impacts can be minimized, the proposed road would also create access to new industrial development sites north of the eastern end of Dietz Road. The proposed industrial access road, with a new entry road to Wheatland Tube is shown in Figure 20. The following are attributes of the access road:

- Construction of a new roadway with two 14' lanes on a 70' wide right-of-way to accommodate 53' long semi-trailer trucks per ASHTO WB -67 standards.
- Final alignment based on minimizing wetland impacts.
- All intersection turns designed to meet ASHTO WB-67 standards.
- Intersection to be widened at Phoenix Road to allow safe turns for semi-trailer trucks.
- New right-of-way required for entire project including intersection widening at Phoenix Road.
- New traffic signal at Larchmont Avenue/access road/Phoenix Road intersection.

Preliminary project costs for the new industrial access road, utilizing a 30% contingency factor, and exclusive of right-of-way acquisition costs, are estimated at $1,983,821 and described in greater detail in Appendix D: Probable Infrastructure Improvement Costs.



New Roadway Construction – Concord Steel Access Road

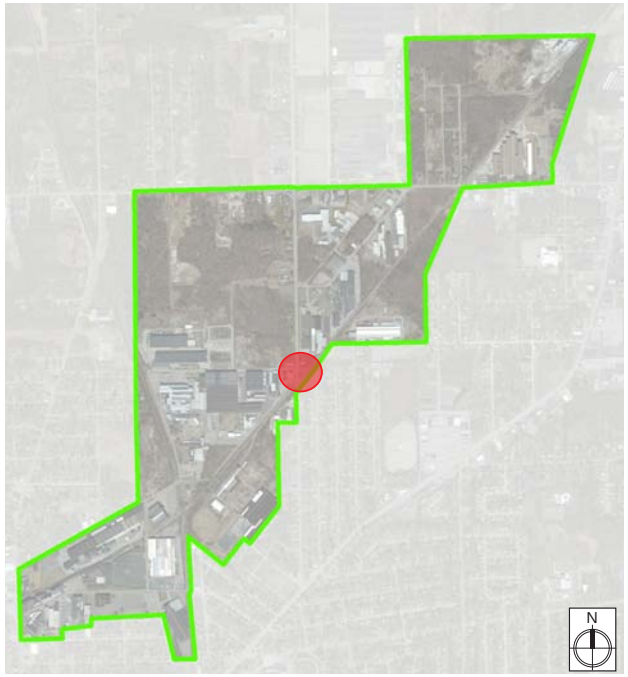
At the present time two significant industrial properties in the southeast quadrant of the Golden Triangle, Concord Steel and the former Alcoa plant are surrounded by residential neighborhoods to the south and east, and separated from the remainder of the Golden Triangle by the Youngstown Belt Railroad tracks to the north. Primary access to this 40+ acre block of industrial land is along Buena Vista Avenue – a relatively narrow residential street in the City of Warren. To address the isolation of this area and eliminate the need for trucks to navigate narrow residential streets to access arterial roads,

Figure 21. Concord Steel Access Road

the construction of a Bronze Road connector across the YB Railroad is recommended and shown in Figure 21 – Concord Steel Access Road. The following are attributes of the access road:

- Two 16' lanes connecting Bronze Road to the Concord Steel property.
- At grade YB RR crossing with crossing signals and adequate entry lengths to avoid truck queuing in rail safety areas.
- Wide radius entry and exit lanes at the Bronze Road intersection.
- New right-of-way and rail crossing approvals required.

Preliminary project costs for the new Concord Steel access road, utilizing a 30% contingency factor, and exclusive of right-of-way acquisition costs, are estimated at $1,117,599 and described in greater detail in Appendix D: Summaries of Probable Infrastructure Improvement Costs.



Rail Crossing and Roadway Improvements – Youngstown Belt RR at Larchmont Avenue

The Youngstown Belt Rail Line crosses Larchmont Avenue immediately south of the Larchmont/Dietz Road intersection and at the junction of Bronze Road and Overland Avenue, which run parallel to the railroad tracks on the north and south sides of the rail right-of-way. The result of this awkward confluence is a confusing, potentially dangerous intersection, where critical northbound Bronze Road traffic is not permitted to turn left onto Larchmont Avenue forcing either illegal left turns or U-turns on the Overland side of the intersection. To remedy this

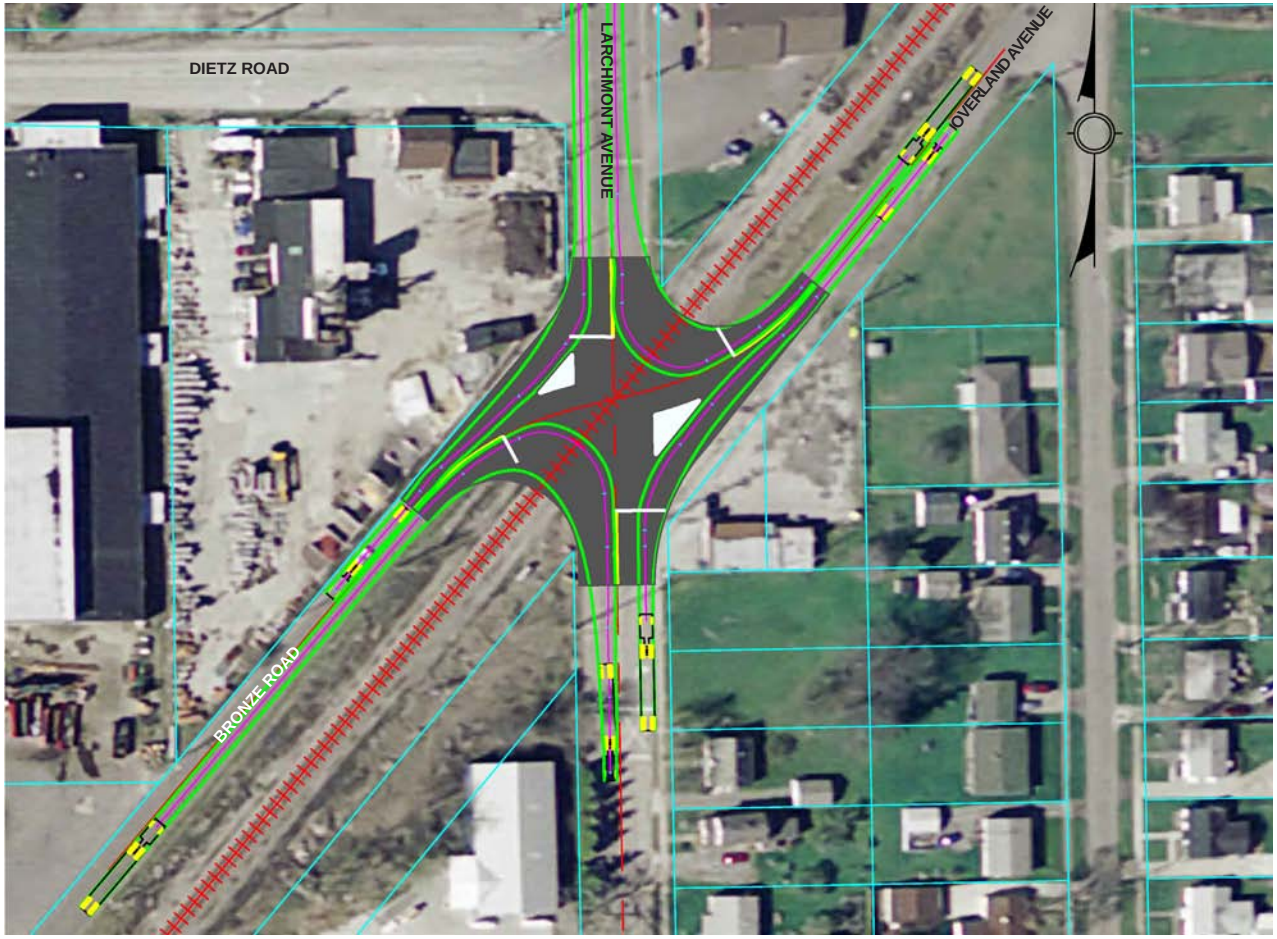
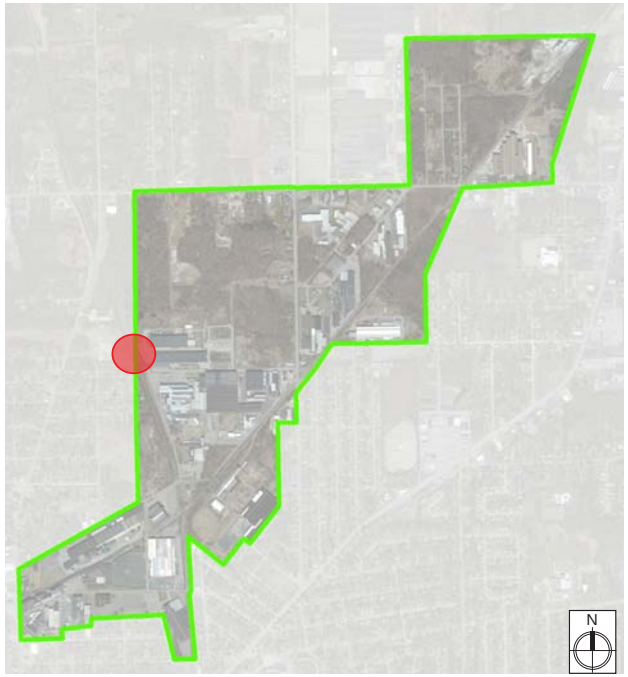


Figure 22. Youngstown Belt RR at Larchmont Avenue

problem recommended improvements are shown on Figure 22 and include:

- An alignment reconfiguration to better connect Bronze Road and Overland Avenue roadways.
- Widening of the intersection to accommodate semi-trailer truck turning movements, including permitted left turns onto northbound Larchmont Avenue.
- Reconstruction of traffic islands.
- Relocation of railroad crossing gates.
- Modification of Dietz Road traffic signal to be timed and coordinated with railroad crossing gates and warning signals.

Preliminary project costs for the rail crossing and roadway improvements, utilizing a 30% contingency factor, are estimated at $1,149,194 and described in greater detail in Appendix D: Probable Infrastructure Improvement Costs.



Rail Access Improvements – Wheatland Tube Railway Siding

Wheatland Tube has expressed interest in establishing rail access at its Dietz Road plant. The now abandoned Youngstown Belt line (K-Mart Spur) that runs parallel to Griswold Street could be reactivated just north of Dietz Road for enough distance to install a rail siding to serve Wheatland Tube at the western end of its plant. With reactivation of the spur parallel to Griswold Avenue, rail cars could then travel south to the active Youngstown Belt mainline at the crossover just north of the Thermalink plant on Dana Street. The establishment of a siding for Wheatland Tube

Figure 23. Wheatland Tube Railway Siding

has been a topic of discussion between MVEDC's Economic Development Rail Corporation, and appears to be an implementable improvement as shown in Figure 24. Preliminary project costs for the Wheatland Tube rail siding, utilizing a 30% contingency factor, are estimated at $1,460,566 and described in greater detail in Appendix D: Probable Infrastructure Improvement Costs.

Wayfinding and Signage Improvements

Unfortunately, the visual character of the Golden Triangle is marred by the presence of abandoned factories and a generally rundown industrial landscape. The dated road layout and lack of coherent signage exacerbate the problem and make it difficult for visitors to confidently navigate and easily locate destinations within the study area, despite the widespread use of in-vehicle GPS based navigational aids. A number of stakeholders, when prompted, realized that there was a very real need for wayfinding and signage improvements within the Golden Triangle. In addition to its practical advantages, a system of unified district wide signage could also significantly enhance the overall "branding" of the district as a desirable place to locate or expand. Toward that end, Figure 24– Wayfinding and Signage Plan, illustrates the type of signage that could be introduced in the area along with a logotype example and the identification of key signage location points.

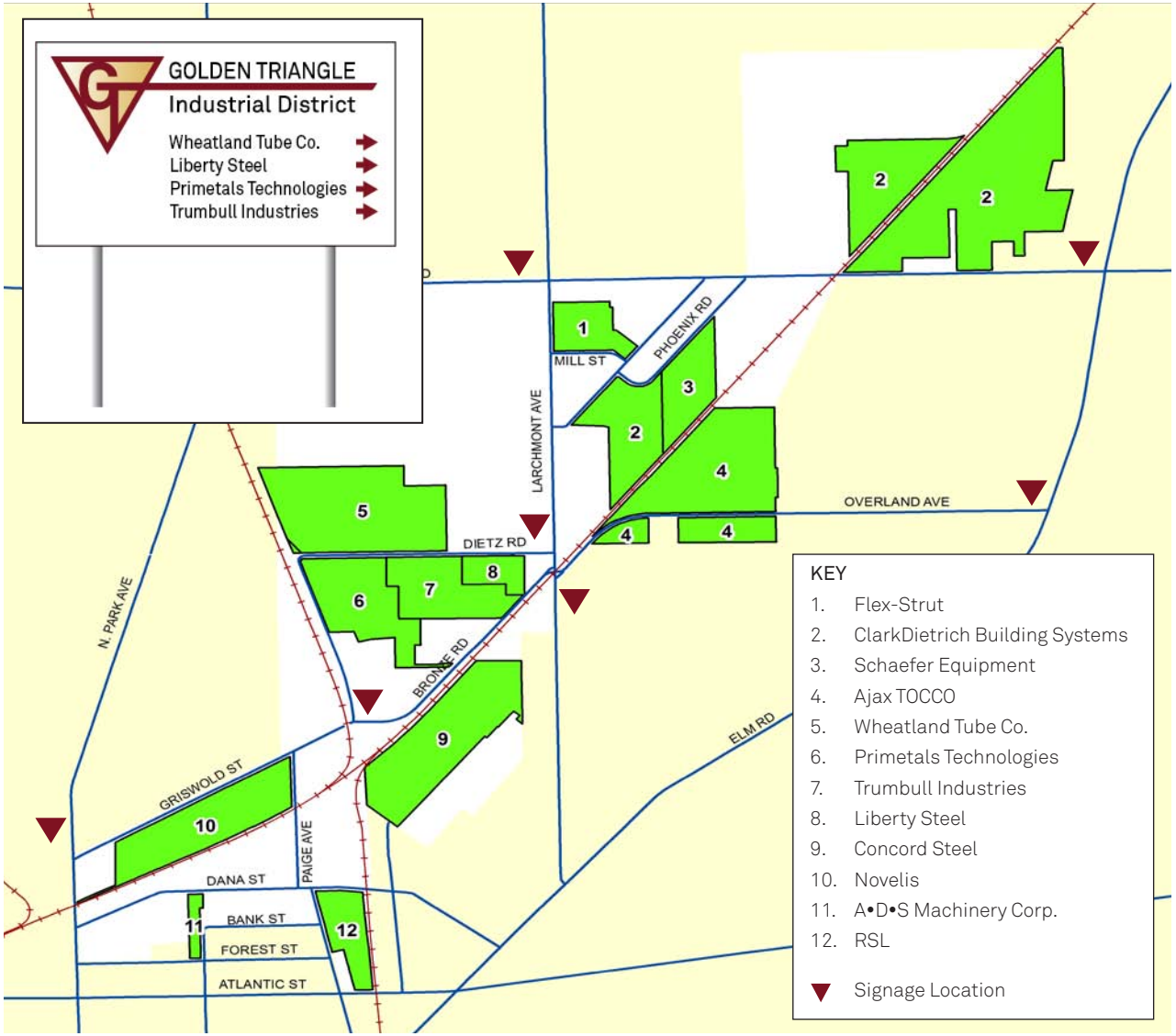


Figure 24. Wayfinding and Signage Plan

Other Improvements

The Infrastructure improvements described in this section are, by no means, a complete listing of all of the Golden Triangle's needs. There are numerous other smaller projects, including lighting improvements on Overland Avenue and Dietz Road, the installation of new substations to accommodate plant expansion plans, and signage to improve pedestrian safety at employee areas. Recognizing this reality, this section has focused on satisfying what are believed to be the Golden Triangle Study Area's most critical infrastructure improvement needs.

SECTION SEVEN

IMPLEMENTATION

Implementation of the infrastructure improvement projects described in the previous section will require the continued close support and collaboration of all of the local partners involved in planning efforts to date. In addition to public officials and representatives of Trumbull County, Howland Township, and the City of Warren, participation of the Eastgate Council of Governments, the Mahoning Valley Economic Development Corporation, and most importantly selected Golden Triangle business representatives, will be essential to the achievement of implementation goals. Toward this end, an immediate first step will involve the formal establishment of a Golden Triangle Business Advisory Group, composed of local study area businesses, the Planning Partners, and selected public officials whose function will be to oversee the implementation process.

Prioritizing the recommended project specific infrastructure improvements requires the application of a number of criteria, involving the analysis of costs, benefits, project complexity, and time to complete. This being said, in the end, none of the recommended improvements can be neglected.

The improvements can best be categorized according to their complexity, cost, and extent of benefit. In general, the more complex projects tend to have the highest cost, a larger number of beneficiaries, and the longest timelines to completion. This category includes Stormwater Management and Wetland Enhancements north of Dietz Road, the Larchmont/Dietz Industrial Access Road, and Dietz Road Reconstruction and Water Line Improvements. In addition to their comparable cost, the first two projects involve a similar critical path, especially if they are to be developed concurrently. Steps prior to actual construction include but are not necessarily limited to:

- Identify wetlands within the project areas and determine their boundaries using the procedures outlined in the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northeast and Northcentral Area (Regional Supplement) (U.S. Army Corps of Engineers, 2012).
- Obtain agreements from multiple property owners to acquire land for stormwater improvements and rights-of-way for new roadways.
- Obtain wetland Permits – Nationwide Permit (best case), Individual Permit (worse case)
- Coordinate wetland impact mitigation plans if the projects are to be developed concurrently.
- Apply for funds and obtain final funding agreements for design and construction of final improvements.
- Prepare land surveys.
- Prepare final monitoring and management plans for wetland enhancement areas.
- Select project delivery method (design/bid/build, design-build, CM at risk, etc.)
- Prepare final plans and specifications for construction.

Because it is assumed that Dietz Road reconstruction and waterline improvements will not involve wetland impacts, and right-of-way

acquisition will not be required or will be minimal, the time line is impacted less by external agency reviews and approvals beyond those involved in seeking and obtaining funding approvals. There are, however, significant issues with respect to the maintenance of traffic that must be carefully evaluated and planned for, given the high daily volumes of heavy truck traffic that supply and support the five businesses that rely on Dietz Road for access to Larchmont Avenue and Griswold Road.

Two other recommended Infrastructure improvements, the Rail Crossing and Roadway Improvements at the Youngstown Belt Railroad and Larchmont Avenue, and the New Access Road between Bronze Road and Concord Steel both represent mid-range improvements from a cost standpoint. They are unique, however, in that they both involve roadway crossings at the Youngstown Belt RR where the Norfolk Southern RR has trackage rights. While the Larchmont crossing already exists, and is simply being modified, the crossing between Bronze Road and Concord Steel will require full coordination with both the Youngstown Belt and Norfolk Southern Railroads. Again, beyond the time and cost involved in seeking and obtaining funding for the projects, railroad coordination and approvals will likely add both time and complexity to both projects. In addition, for the Concord Steel Access Road, property acquisition will be required between Bronze Road, rail rights-of-way, and the Concord Steel property.

The rest if the roadway projects, specifically those involving resurfacing and/or intersection improvements with limited right-of-way acquisition requirements, fall near the lower end of the construction cost spectrum and are relatively straight forward from an implementation standpoint.

One improvement is unique from a variety of perspectives. The proposed Wayfinding and Signage Plan offers unique benefits to virtually all businesses in the Golden Triangle at what can only be presumed to be at a very reasonable cost. The key to its implementation is linked to the creation of a self-funding business association, like the Golden Triangle Business Advisory Group, to support the development and funding of a districtwide signage program.

Obviously, the key to implementing the recommended Infrastructure improvements lies in capturing needed project funding. Table 5 – Potential Project Funding Sources, presents the full spectrum of funding sources and their applicability to the individual infrastructure improvements described in Section 6 of this plan.

In addition to project specific implementation steps, the following institutionally based implementation steps for public sector partners and private sector businesses should be given full consideration:

- Formally request that the Golden Triangle Improvement Projects be incorporated in the Region's CEDs, Long Range Transportation Plan, and the Comprehensive or Capital Improvement Plans of the County, City, and Township.
- Coordinate the formation of a Golden Triangle Public-Private Partners Working Group. Specific actions include the following:
  - Establish a one-stop partner organization that provides business, employment and training services to job seekers and employers.
  - Provide job search tools, information on training and supportive services, and workshops.
  - Offer recruitment services for employers and assist with workforce education and training needs.
  - Include local career centers, Kent State Trumbull, Youngstown State University and the Eastern Gateway Community College in the Golden Triangle Working Group.
- Assist with Special Improvement District formation under Ohio Revised Code 1710. Specific actions include the following:
  - Through Public Sector Partners, advocate for and assist with the creation of a Special Improvement District within the boundaries of Golden Triangle Target Area for the purposes of developing and implementing plans for public improvements and public services that benefit the district.
- Conduct a regionwide survey addressing business clustering, and develop a clustering implementation strategy with economic

development professionals. Specific actions include the following:

- Identify a NAICS code for each business located within the Golden Triangle.
- Design and distribute a questionnaire to each business to identify other industry types listed within the primary metal manufacturing subcluster.
- Identify the potential to for cross-collaboration across regionally based businesses.
- Engage development professionals in Trumbull County to attract businesses to the area through a variety of grant programs and financial incentives offered through economic development agencies and professionals working for Trumbull County.

It is the belief of this study's Planning Partners that the thoughtful execution of these implementation steps will result in the achievement of the goals set forth in the introduction of this document – specifically: to preserve existing jobs and create an environment that allows for business expansion, to better align infrastructure investments with the business needs of the Golden Triangle, to reduce barriers to innovation and growth, and to enhance the collaborative spirit of the project's Planning Partners and business community.

Granting Agency:	United States/Ohio Environmental Protection Agency						
			Surface Water Improvement Fund (SWIF)	Water Pollution Control Loan Fund (WPCLF)	Water Resource Restoration Sponsor Program (WRRSP)	Drinking Water Assistance Fund; Drinking Water State Revolving Loan Fund; Green Project Reserve	Water Supply Revolving Loan Account (WSRLA)
Improvement	Preliminary Construction Cost Estimate (Does not include Property Acquisition Costs)	Eligible Sponsor	Last RFP due 4/11/14	Nominations due 8/31/2015	Nominations due 7/31/2015-requires sponsor	Nominations due 8/31/2015 Green Project Reserve requires additional application form	Nominations for Project Priority List due by March 1, 2015
Stormwater Detention/Wetland Enhancement	$1,700K	Trumbull County Howland Township					
New Industrial Access Road - Dietz to Larchmont + Larchmont/Phoenix Intersection Improvements	$1,700K	Trumbull County Howland Township					
Larchmont/Bronze/Overland Rail Crossing	$1,200K	Trumbull County City of Warren					
Dietz Rd. Reconstruction + Waterline replacement	$1,800K (includes Jug Handle)	Trumbull County City of Warren					
Primetals Jug Handle to Dietz Rd.	(see above)	Trumbull County					
Access Rd - Bronze Rd. to Concord Steel + Alcoa Property	$1,100K	Trumbull County City of Warren					
Dana Street Resurfacing + N. Park Intersection Improvements	$734K	City of Warren					
Griswold St/N. Park Intersection Improvements	$186K	City of Warren					
Mill St. Resurfacing + Larchmont Intersection Improvement	$258K	Trumbull County Howland Township					
Phoenix Rd./N. River Rd. Intersection Improvement	$185K	Trumbull County Howland Township					
Wheatland Tube Rail Siding	$1,460K	Private MVEDC					
Districtwide Signage and Wayfinding Program		Trumbull County Howland Township City of Warren					
Misc. Lighting and Pedestrian Crossing improvements		Trumbull County Howland Township City of Warren Private Utilities					

Table 5. Potential Funding Sources

Granting Agency:	Eastgate Regional Council of Governments								
			EDA Public Works and Economic Adjustment Assistance	Appalachian Regional Commission	Ohio Statewide Urban Congestion Mitigation Air Quality Program	ODOT Transportation Alternatives Program	Eastgate Surface Transportation Program	Ohio Public Works Commission - District 6 - Clean Ohio Green Space Conservation Fund	Ohio Public Works Commission - District 6 - SCIP, LTIP, Small Government and Emergency Programs
Improvement	Preliminary Construction Cost Estimate (Does not include Property Acquisition Costs)	Eligible Sponsor	FY2015 Funding Cycle 2 - March, 2015 and Funding Cycle 3 - June, 2015	Next Round 2016	Next Round March 2017	Applications Due 8/31/2015. Next Round 2017.	Open Cycle	Pre-applications due November 2015	8/31/2015
Stormwater Detention/Wetland Enhancement	$1,700K	Trumbull County Howland Township	■					■	
New Industrial Access Road - Dietz to Larchmont + Larchmont/Phoenix Intersection Improvements	$1,700K	Trumbull County Howland Township	■	■	■	■			■
Larchmont/Bronze/Overland Rail Crossing	$1,200K	Trumbull County City of Warren	■		■		■		
Dietz Rd. Reconstruction + Waterline replacement	$1,800K (includes Jug Handle)	Trumbull County City of Warren	■	■					■
Primetals Jug Handle to Dietz Rd.	(see above)	Trumbull County	■	■					■
Access Rd - Bronze Rd. to Concord Steel + Alcoa Property	$1,100K	Trumbull County City of Warren	■	■					■
Dana Street Resurfacing + N. Park Intersection Improvements	$734K	City of Warren	■	■	■		■		■
Griswold St/N. Park Intersection Improvements	$186K	City of Warren	■	■	■		■		■
Mill St. Resurfacing + Larchmont Intersection Improvement	$258K	Trumbull County Howland Township	■	■	■		■		■
Phoenix Rd./N. River Rd. Intersection Improvement	$185K	Trumbull County Howland Township	■	■	■		■		■
Wheatland Tube Rail Siding	$1,460K	Private MVEDC	■						
Districtwide Signage and Wayfinding Program		Trumbull County Howland Township City of Warren	■	■					
Misc. Lighting and Pedestrian Crossing improvements		Trumbull County Howland Township City of Warren Private Utilities	■	■		■			

Table 5. Potential Funding Sources (continued)

Granting Agency:	Ohio Department of Transportation						Ohio Office of Budget & Management	Ohio Department of Natural Resources
			ODOT Jobs and Commerce Economic Development Program	ODOT Ohio Rail Development Commission Grant and Loan Programs	ODOT HSIP	USDOT Tiger	State Capital Budget	Ohio Division of Wildlife Wetland Restoration Program/Private Lands Biologist
Improvement	Preliminary Construction Cost Estimate (Does not include Property Acquisition Costs)	Eligible Sponsor	Open Cycle	Open Cycle	Open Cycle	RFP announced in Spring	Contact Youngstown-Warren Regional Chamber for more information-Fall 2015 accepting applications for economic development	Open Cycle
Stormwater Detention/Wetland Enhancement	$1,700K	Trumbull County Howland Township				■	■	■
New Industrial Access Road - Dietz to Larchmont + Larchmont/Phoenix Intersection Improvements	$1,700K	Trumbull County Howland Township	■			■	■	
Larchmont/Bronze/Overland Rail Crossing	$1,200K	Trumbull County City of Warren	■	■	■	■	■	
Dietz Rd. Reconstruction + Waterline replacement	$1,800K (includes Jug Handle)	Trumbull County City of Warren	■			■	■	
Primetals Jug Handle to Dietz Rd.	(see above)	Trumbull County	■			■	■	
Access Rd - Bronze Rd. to Concord Steel + Alcoa Property	$1,100K	Trumbull County City of Warren	■			■	■	
Dana Street Resurfacing + N. Park Intersection Improvements	$734K	City of Warren	■			■	■	
Griswold St/N. Park Intersection Improvements	$186K	City of Warren	■			■	■	
Mill St. Resurfacing + Larchmont Intersection Improvement	$258K	Trumbull County Howland Township	■			■	■	
Phoenix Rd./N. River Rd. Intersection Improvement	$185K	Trumbull County Howland Township	■			■	■	
Wheatland Tube Rail Siding	$1,460K	Private MVEDC	■	■		■	■	
Districtwide Signage and Wayfinding Program		Trumbull County Howland Township City of Warren				■	■	
Misc. Lighting and Pedestrian Crossing improvements		Trumbull County Howland Township City of Warren Private Utilities				■	■	

Table 5. Potential Funding Sources (continued)

Granting Agency:	Ohio Development Services Agency						U.S. Economic Development Administration	
			Roadwork Development Fund - 629 Account	Community Development Block Grant Economic Development Grant	Community Development Block Grant Revolving Loan Fund	Rapid Outreach Grant Program	Trade Adjustment Assistance for Firms	"POWER" Initiative
Improvement	Preliminary Construction Cost Estimate (Does not include Property Acquisition Costs)	Eligible Sponsor	Open Cycle	Open Cycle	Open Cycle	Open Cycle	Open Cycle	FY2017 will be announced in early 2017
Stormwater Detention/Wetland Enhancement	$1,700K	Trumbull County Howland Township				■		■
New Industrial Access Road - Dietz to Larchmont + Larchmont/Phoenix Intersection Improvements	$1,700K	Trumbull County Howland Township	■	■	■	■	■	■
Larchmont/Bronze/Overland Rail Crossing	$1,200K	Trumbull County City of Warren		■	■	■	■	■
Dietz Rd. Reconstruction + Waterline replacement	$1,800K (includes Jug Handle)	Trumbull County City of Warren	■	■	■	■	■	■
Primetals Jug Handle to Dietz Rd.	(see Above)	Trumbull County	■	■	■	■	■	■
Access Rd - Bronze Rd. to Concord Steel + Alcoa Property	$1,100K	Trumbull County City of Warren	■	■	■	■	■	■
Dana Street Resurfacing + N. Park Intersection Improvements	$734K	City of Warren	■	■	■	■	■	■
Griswold St/N. Park Intersection Improvements	$186K	City of Warren	■	■	■	■	■	■
Mill St. Resurfacing + Larchmont Intersection Improvement	$258K	Trumbull County Howland Township	■	■	■	■	■	■
Phoenix Rd./N. River Rd. Intersection Improvement	$185K	Trumbull County Howland Township	■	■	■	■	■	■
Wheatland Tube Rail Siding	$1,460K	Private MVEDC		■	■	■	■	■
Districtwide Signage and Wayfinding Program		Trumbull County Howland Township City of Warren		■	■	■		■
Misc. Lighting and Pedestrian Crossing improvements		Trumbull County Howland Township City of Warren Private Utilities		■	■	■		■

Table 5. Potential Funding Sources (continued)

APPENDIX A

INTERVIEW QUESTIONS

Stakeholder Interview Questions for Key Golden Triangle Industries

1. What is the principal focus of your operations here in the City of Warren/Howland Township, e.g., manufacture of finished goods, material handling/processing, research and development, etc.?
2. Are you headquartered here in the City of Warren/Howland Township? If not, where are your headquarters?
3. How long have you been operating in City of Warren/Howland Township?
4. Approximately how many full time workers/ staff are employed at your operations here in the City of Warren/Howland Township?
5. Where are your principal suppliers located, what type of materials/equipment do they typically supply, and what modes of transportation do they rely on?
6. What is the frequency of material/equipment deliveries?
7. Who makes up your customer base, where are they located, and what modes of transportation do you rely on?
8. Do you plan to expand your operations within the next 12 to 36 months?
9. What specific infrastructure deficiencies, if any, currently adversely impact your operations, e.g. roadway layout/pavement condition , poor rail access, inadequate parking, drainage problems, water supply and/or sanitary sewer issues, electric utility deficiencies, limited broadband internet access, etc.?
10. What infrastructure improvements would facilitate the expansion of your local operations.
11. What overall economic trends most directly influence your industry?
12. What aspects of the local and regional economy most directly influence your operations here in City of Warren/Howland Township?

APPENDIX B

INTERVIEW RESPONSES

Stakeholder Interview Response - Flex Strut

Interview Date: 2-10-15

Local Address: 2900 Commonwealth Ave. N.E., Warren, OH 44483

Interviewees: Dale H. Gebhardt, PE, President and General Manager; Dale C. Gebhardt, PE, V.P. Operations; Mark A. Marini, V.P. Sales

Type of Business: An OEM manufacture metal strut channel framing Systems and concrete inserts for commercial and high rise residential applications involving mechanical, electrical supply, HVAC and refrigeration systems. National/international client base.

Ownership Structure: Private local ownership

Other Operations: None mentioned

Business History: Building originally occupied by Van Huffle Tube, Flex-Strut started in 1994 with 12,000 s.f. and expanded four times, most recently to 32,000 s.f. in 2011.

Total Local Employees (FTEs): 77 operating in three shifts – largely AM w/approx.6 in PM

Skill Level: Skilled and semi-skilled

Truck Utilization/Shipping & Receiving: Average 12 Trucks a day: 3 steel coil trucks in to receiving, 2 trucks shipping to end users, 3 trucks shipping to powder coaters, (assume rest are box trucks)

Expansion Plan / Requirements: In general, Flex-Strut is Impacted somewhat by commercial construction trends. Future Expansion could take place in the direction of the Leff Electric business on N. River Road. The parcel is owned by Flex-Strut and leased to Leff. While not mentioned as an expansion site, there could be value in acquiring the abandoned gas station parcel at the corner of N. River Rd. and Larchmont Ave. to improve access and visibility, There is currently an easement behind the old gas station property.

Infrastructure Issues/ Improvements Needed

Roadway Access/Parking: Better access to Commonwealth Ave. is needed improvements can be covered by ARC Grant). Trailer trucks accessing Warren Pump can block roads by parking on Commonwealth. Mill Street needs to be repaved, and the turning radius at Mill Street and Larchmont Ave is too tight for larger trucks but improvements should be covered by ARC Grant funds. Property across the street could be acquired for additional parking.

Rail Access: N/A

Stormwater Drainage: Flex-Strut has on site stormwater detention pond. No mention of flooding problems. Any drainage issues will be addressed on Commonwealth.

Sanitary Sewers: No issues noted

Water Supply: Currently have a 2" Warren City waterline that ties in on Phoenix, however, water service extension north along Larchmont is needed.

Gas supply: Supply is O.K. – 3 to 4" line is more than adequate, and the main connection located near the plant's newest addition near Larchmont.

Electrical Supply/Distribution: Electrical supply is good and backed up by an emergency diesel generator. Experienced power outages biweekly however less frequent within last year. Diesel generator installation may be the reason the disruptions were alleviated.

Phone/Cable/Internet: Have installed a fiber optic line (in coordination with First Energy) that enters the site from the location of the abandoned gas station via an easement that ends at Larchmont/ North River Road.

Other Comments: Flex-Strut received workforce development funds for recent hires and worked with the Trumbull One Stop to hire the last 8 to 10 employees. Signage locating the plant site appears near the intersection of Mill Street and Larchmont. Flex-Strut has had an issue with rooftop units freezing up.

Stakeholder Interview Response - Trumbull Industries

Interview Date: 2-10-15

Local Address: 400 Dietz Rd., Warren, OH 44482

Interviewees: Samuel Miller, V.P.; Dennis Parks, General Manager – Master Distribution Center

Type of Business: National distribution Center for kitchen & bath products + some light manufacturing for sewer and water components as well as wood and stone fabrication.

Ownership Structure: Private local ownership

Other Operations: Operate a business to business showroom on Meridian Rd., in Youngstown, OH

Business History: Not discussed

Total Local Employees (FTEs): About 200 FTEs, with 70 % on the day shift.

Skill Level: Not discussed (assume shipping and receiving personnel + skilled labor on the manufacturing side).

Truck Utilization/Shipping & Receiving: As a distribution center, there is a large amount of truck traffic generated on site: 30 to 50 trucks in a daily shipping/receiving cycle. There are major problems with truck traffic.

Expansion Plan / Requirements: The K-mart distribution center was mentioned as an option. Trumbull Industries needs additional outside storage, parking for trucks and employees, and relief from heavy truck congestion on Dietz Rd. from neighboring industries (primarily Wheatland Tube).

Infrastructure Issues/ Improvements Needed

Roadway Access/Parking : Serious problem with heavy truck traffic on Dietz Rd. Dietz is too narrow, pavement and berms are in poor condition, and lighting is inadequate.

Rail Access: N/A

Stormwater Drainage: None Mentioned

Sanitary Sewers: No problems noted

Water Supply: No Problems noted

Gas Supply: No Problems noted

Electrical Supply/Distribution: Have a backup generator, but mentioned that occasionally problems occur off site, e.g., a truck hits a utility pole and power is lost.

Phone/Cable/Internet: Have a T-1 and T-3 line plus fiber option connection, but internet is still slow. They are looking to open an e-commerce site (they do a lot of business with Amazon) and are interested in locating internet servers onsite.

Other Comments: Trumbull Industries is seeking an urban setting designation to obtain a NFA letter from EPA. Visitor parking is across Dietz adjacent to Wheatland Tube.

Stakeholder Interview Response - RSL Industries/Champion Injection Molding, Inc.

Interview Date: 2-10-15

Local Address: 1170 Paige Ave., Warren, OH 44483

Interviewees: Ron Lewkowitz, President; Bo Campbell, Plant Manager

Type of Business: Manufacture door glass inserts and frames for residential applications. Have in-house design staff where 20% of product is decorative and 80% is considered commodity product.

Ownership Structure: Headquartered in New Jersey

Other Operations: Headquarters and additional manufacturing in New Jersey, other facilities in Atlanta, GA and Dallas, TX. (verify)

Business History : Founded in 1964

Total Local Employees (FTEs): 47 + 32 employees working 10 hours a day, 4 days/week.

Skill Level: Semi-skilled

Truck Utilization/Shipping & Receiving : Missing data on truck volumes. Trucks do have problems entering the facility.

Expansion Plan / Requirements: Plan to renovate exterior walls of production space to improve energy efficiency, and could utilize additional warehousing space and need more office space.

Infrastructure Issues/ Improvements Needed

Roadway Access/Parking: Dana St. is not seen as wide enough with too many potholes. Employees used to park at the south end of the building but crime associated with the surrounding neighborhood caused relocation of the lot to the north end of the building.

Rail Access: Could utilize a rail spur off the rail line running along the eastern edge of the property.

Stormwater Drainage: Red Run drainage opens up in the vicinity of the building – need to further evaluate potential impacts.

Sanitary Sewers: No Issues noted

Water Supply: Water supply not adequate for fire suppression. Water currently comes from an 8" line on Dana St., but plant manager indicates there is a 12" main on Paige coming from Atlantic St.

Gas supply: No issues noted

Electrical Supply/Distribution: Electrical supply adequate

Phone/Cable/Internet: No issues noted

Other Comments: Exterior of plant is very deceiving – almost looks abandoned, despite high production levels within the main building. The plant sits very tightly on its parcel which is narrows to the south. The large vacant Delphi surface parking lot lies directly west of the northern third of the RSL property.

Stakeholder Interview Response - Novelis

Interview Date: 2-12-15

Local Address: 390 Griswold St.NE, Warren, OH 44483

Interviewees: Paul Nelson, Plant Manager; Julie Harman, Human Resources Leader

Type of Business: Aluminum Finishing plant that coats and trims aluminum coils to be used in the stamping of beverage cans.

Ownership Structure: Owned by Aditya Birla, headquartered in India

Other Operations: Novelis Can is headquartered in Atlanta, GA and has a production and sales footprint that spans 11 countries.

Business History: Building was formerly occupied by Bridgeport Brass. Aluminum processing has been on site for 50 years, with previous ownership by Alcan.

Total Local Employees (FTEs): 86 employees; 22 on day shift with staff (salaried?) of 30, rest on other shifts.

Skill Level: Skilled and semi-skilled

Truck Utilization/Shipping & Receiving : Receive 7,000 Lb. to 40,000 Lb. Coils on 10 trucks (average) daily via Jaro Trucking. Finished aluminum coils leaving plant average 20 trucks/day. Gross vehicle weight is approx. 80,000 inbound, and 50,000 outbound.

Expansion Plan / Requirements: No expansion plans mentioned. Currently, total annual plant output is 150 million Lbs. of finished coils. Current plant covers 381,000 s.f.

Infrastructure Issues/ Improvements Needed

Roadway Access/Parking: Griswold Road is in poor condition and needs to be reconstructed. Trucks currently exit the plant to the southwest on Griswold, then turn north on N. Park Ave. to N. River Rd where they access the Larchmont/Rt. 82 Interchange. Improvements at N. Park and Griswold for a better turning radius would alleviate some issues.

Rail Access: No mention of rail Access

Stormwater Drainage: Red Run drainage ditch needs to be addressed. There have been stormwater problems in the past, but problems seem to have been resolved.

Sanitary Sewers: No problems noted

Stakeholder Interview Response - Wheatland Tube/JMC Steel Group

Interview Date: 2-12-15

Local Address: 901 Dietz Rd. NE, Warren, OH 44483

Interviewees: Stefan Vogt, Plant Manager; John Caldwell, Director, Human Resources; Cheri Schubert, Human Resources Manager

Type of Business: Manufacturer of Schedule 40 pipe, fire sprinkler pipe, fracking pipe (energy tube) and conduit shells; plant makes, tests, coats and threads their pipe and distributes throughout North America.

Ownership Structure: Owned by JMC Steel group headquartered in Chicago, IL; Wheatland Tube headquartered in Sharon, PA

Other Operations: (See above)

Business History: Details not provided

Total Local Employees (FTEs): 153 hourly, 23 salaried; operating 24hrs/day five to six days/week.

Skill Level: Semi-skilled, skilled and professional

Truck Utilization/Shipping & Receiving : 80 to 100 inbound coil trucks per day averaging 50,000 – 80,000 GVW; Average 50 outbound trucks daily between 8:00 AM and 7:00 PM (busiest between 10:00AM and 4:00 PM).

Expansion Plan / Requirements: Need additional laydown storage areas to the north of their plant. Need to improve/expand truck queuing areas and parking areas – currently creating severe access problems for other industries on Dietz Road.

Infrastructure Issues/ Improvements Needed

Roadway Access/Parking: Need to improve/expand truck queuing/staging areas and parking areas – currently creating severe access problems for other industries on Dietz Road. Problem needs to be evaluated as part of an analysis of all industry parking and circulation problems on Dietz Rd. Roadway too narrow with pavement and berms in poor condition. Alternative truck assess from Larchmont, north of Dietz merits investigation. Must also evaluate timing of roadway improvements given seasonal peaks of industries on Dietz. Wheatland Tube is busiest in spring and summer. A lack employee parking was noted, and discussion included potential for utilizing sanitary sewer easement as an alternate access point.

Rail Access: Rail access is desired but not currently available. Rail line that used to go to the Kmart distribution center no longer active, but should be evaluated as an option. Need to work with the Mahoning Valley Economic Development Corp. MVEDC on the solution. Products are currently transferred via rail in Akron, Ohio.

Stormwater Drainage: Drainage can be an issue – wetlands impact drainage and development options along the north edge of the Wheatland property.

Sanitary Sewers: No issues

Water Supply: Several water main breaks have occurred on Dietz Rd. (need to review with Bob Davis).

Use self-contained water circulation system.

Gas supply: No Issues noted

Electrical Supply/Distribution: A line failed in the fall of 2014, voltage fluctuates in the summer and there is an apparent lack of switching capacity in the area. Wheatland does not have a backup generator.

Phone/Cable/Internet: May have fiber optic line – IT contact is Denny Brasso. Cell phone service is bad (carrier not noted) and internet is slow.

Other Comments: Wheatland Tube is the largest industry interviewed, and shares infrastructure challenges with Siemens, Liberty Steel, and Trumbull Industries. Wayfinding for truck traffic is needed.

Stakeholder Interview Response - ADS Machinery

Interview Date: 2-12-15

Local Address: 1201 Vine Ave., NE, Warren, OH 44482

Interviewees: Dale C. Minton, President

Type of Business: Designers and manufacturers of engineered flat-rolled metal processing equipment.

Ownership Structure: Private local ownership

Other Operations: N/A

Business History: Founded by Present owner's father in 1956 to support local steel industry which has since declined dramatically. ADS has been in the present building since 1975

Total Local Employees (FTEs): 25 FTE's, down from 85 at the 1990's peak when there was a high volume of export work

Skill Level: High skilled machinists, technicians, and design engineers

Truck Utilization/Shipping & Receiving : Receive all sizes of trucks (average, 2 per day) at a single drive-in bay located mid-building at the intersection of Vine Ave. and Bank St. ADS ships finished machinery weighing up to 50 tons to metal processing clients nationally

Expansion Plan / Requirements: If business picks up, could expand onto industrially zoned residential properties west of the south end of the current building. Most of the lots are owned by ADS. Existing facility fits tightly on its parcel.

Infrastructure Issues/ Improvements Needed

Roadway Access/Parking: Bank Street and Paige Ave. appear adequate for present truck volumes, but are narrow and slice through residential neighborhoods before connecting to either Elm Rd. or N. Park Ave then up to Rt. 82

Rail Access: N/A

Stormwater Drainage: Some problems in past, but not a major concern.

Sanitary Sewers: No problems noted

Water Supply: No problems noted

Gas supply: No problems noted

Electrical Supply/Distribution: No problems noted

Phone/Cable/Internet: No problems noted

Other Comments: Own small brick structure on the east side of Vine Ave., the business is highly specialized and tied to the custom fabrication of very large scale steel making equipment. Lack of skilled trades appear to be a real constraint to the business.

Stakeholder Interview Response - Clark Dietrich

Interview Date: 2-17-15

Local Address: 1985 N. River Rd., NE, Warren, OH 44483

Interviewees: Nathan Jacobs, Plant Manager

Type of Business: Products are all a variation on steel. Local plant is unique, involving processing master coils, cold reduction, welding and slit coils. Do not coat products. Operate as 2 plants locally and distribute nationwide (LTL small packaging – almost like Amazon). Firm does some exporting.

Ownership Structure: Headquartered in Westchester, OH where purchasing, executive, and IT, etc. offices are located.

Other Operations: Second local plant, (Warren West) on Phoenix Ave., focuses primarily on roll forming. 13 plants nationally, in CA, TX, IL and other states.

Business History: Started in the late '70s, and was purchased by Bill Dietrich in the early 80s. In the late '80s /early '90s went into building products, with a major expansion in 1993. In 2003, Clark Dietrich purchased Unimast.

Total Local Employees (FTEs): N. River Rd. (Warren East) - 99 hourly/20 salaried; Phoenix Ave. (Warren West) – 60 hourly/20 salaried. Plants work three shifts, five days a week.

Skill Level: Semi-skilled/skilled/professional

Truck Utilization/Shipping & Receiving : N. River Rd. plant handles between 50 and 60 trucks/day – some small, some large, some carrying master coils. Phoenix Ave. plant typically receives 4 to 5 trucks and has 12 to15 outbound trucks. Truck access (coils in) is working well. Trucks do occasionally queue on N. River Rd. Trucks come from both Larchmont and Elm to access Rt. 82 interchanges. Only common carriers are used – no company trucks. Coils come from all over the country (Cleveland, Baltimore, Alabama) and Clark Dietrich is a major buyer of secondary coils.

Expansion Plan / Requirements: Commercial construction drives the business and currently operating at 50% to 60% vs. historical trends. Plan to add a coating line in the next three years. This won't alter the N. River Rd. Plant footprint, but will result in 10 – 12 additional hires. Looking at relocation options at the Phoenix Rd. plant. Can't expand at Phoenix Ave., and the building is a series of small boxes, not suited for production. Could sell, could lease, could use as an equipment warehouse. Also looking at the far northern end of the Delphi building.

Infrastructure Issues/ Improvements Needed

Roadway Access/Parking: Larchmont just re-done and working well. Ditch line along N. River Rd. is rough, shoulder is short and soft, and needs to be improved. The turning radius at Larchmont and Phoenix is a challenge. Truck weights are high – up to 80,000 lbs. GVW.

Rail Access:Rail access enters three bays at the N. River Rd. Plant, and no issues were noted. There is now a preference for shipping by truck, given speed and competitive rates.

Stormwater Drainage: West side of N. River Rd facility drains toward Larchmont. $2M was spent on drainage and pavement, but flooding remains an issue along the RR tracks. Catch Basins are also decaying along N. River Rd.

Sanitary Sewers: Addition of a coating line (see expansion) will require wastewater treatment (industrial pre-treatment?)

Water Supply: No problems noted – will supply be adequate with addition of coating line.

Gas supply: A new coating process will substantially increase natural gas demands. An additional supply needed – working with gas co.

Electrical Supply/Distribution: Electrical load will double, requiring second substation stepping current down from 23KV.

Phone/Cable/Internet: Century Link just brought in a big fiber optic line on River Rd. and connection is desired. Clark Dietrich operates a cloud based system. May choose to function with fiber optic line, Cable and old T-1.

Other Comments: Addition of coating line and changes at Phoenix Ave. Plant are fairly significant changes.

Stakeholder Interview Response - Schaefer Equipment

Interview Date: 2-17-15

Local Address: 1590 Phoenix Rd. NE, Warren, OH 44483

Interviewees: Richard A. Barnhart, General Manager; Martin J. Franko, Plant Engineer/Supervisor

Type of Business: Schaefer Equipment is an OEM forging company that serves the rail car market, manufacturing brake rigging foundations for rail cars, with sales in 150 countries. There are six rail car manufacturers in NAFTA and all are supplied by Schaefer.

Ownership Structure: Owned by Wabtec, a global supplier to the rail and transit industry, headquartered outside of Pittsburgh, PA

Other Operations: 50 manufacturing plants employing 12,000

Business History: Schaefer has been part of the forging industry since 1914, started in current building in 1935, was acquired by Wabtec in 2006 which acquired Westinghouse Air Brake in 1999. The Warren plant building was built around 1900.

Total Local Employees (FTEs): Currently at 70 FTE, down from a high of 140 and up from a low of 17 – on average, a stable industry. Run two shifts, Mon – Fri.

Skill Level: Skilled labor – Wabtec big on 6 sigma/ lean. Non-union plant, paying high wages for the area.

Truck Utilization/Shipping & Receiving : Limited discussion of shipping or receiving. Ship $30M per year – Typically handle 6-7 trucks daily (receiving/ shipping)

Expansion Plan / Requirements: The rail car industry is cyclical and the plant is currently running at 35% capacity. It was noted that Wabtec could move a division to the Warren plant and there is enough building space and land to expand.

Infrastructure Issues/ Improvements Needed

Roadway Access/Parking: The tight turning radius at N. River Rd. and Phoenix Ave – eastbound to south on Phoenix, is a problem. There is also a need for better lighting.

Rail Access: Do not use rail at this time.

Stormwater Drainage: Serious stormwater drainage problems experienced in the past – storm sewer at the road is not large enough. Footer drains in the office building collapsed, flows come from east across Litco property, have an 8”line but it should be larger. ARC grant on Commonwealth could relieve the problem.

Sanitary Sewers: No problems noted

Water Supply: No problems – have 2 separate systems (potable and process water)

Gas supply: No problems noted

Electrical Supply/Distribution: Switched to 24 KV in 2009 and now have plenty of capacity. Have experienced some voltage drops – FirstEnergy must be held to task re: problems at the Ivanhoe sub-station.

Phone/Cable/Internet: DSL through phone lines is a problem. Have fiber optic line (managed through corporate)

Other Comments: Wayfinding improvements and the establishment of a sense of identity are needed. Sourcing skilled labor a problem.

Stakeholder Interview Response - Ajax Tocco

Interview Date: 2-16-15

Local Address: 1745 Overland Ave. NE, Warren, OH 44483

Interviewees: Thomas M. Illencik, P.E., President; Gregg Richley, CSHM, Plant Engineer

Type of Business: A job shop manufacturing highly engineered, specialized industrial heating and melting products, largely for the auto industry and forge shops.

Ownership Structure: Owned by Park Ohio, based in Cleveland.

Other Operations: Total of six locations in the U.S., with Global sales locations in Germany, Japan, UK, France, Korea, Mexico

Business History: Began in 1914 as The Ohio Crankshaft Co. (ToCCo) utilizing the magnathermic process. Current building used to build Sherman Tanks during WWII.

Total Local Employees (FTEs): 450 FTEs locally; 1,400 Nationally. Plant runs on a single day shift.

Skill Level: Skilled and professional labor, plant includes a $2M R&D lab.

Truck Utilization/Shipping & Receiving : Trucks enter and exit the plant via Overland Ave. to Elm Rd. Trucks entering from Larchmont must contend with the tight intersection and RR tracks at Overland. Trucks circulate counter clockwise around the plant loading/unloading at three bays on the north side of the building.

Expansion Plan / Requirements: Plan covers 200,000 s.f. and no plans for the expansion of production facilities was mentioned. Interest in establishing a jobs aligned trade was discussed. Where this was to be located was not discussed.

Infrastructure Issues/ Improvements Needed

Roadway Access/Parking: Poor lighting on Overland was mentioned and there is generally a problem when trucks enter from the east (Elm) then have to reverse direction to circulate around the docs on the north side of the building.

Rail Access: There is an operational rail spur that enters the western end of the building. Rail is one of many variables that may influence expansion. Currently ship $30M to India and $50M to China (presumably rail to Atlantic ports). No problems were noted.

Stormwater Drainage: No stormwater issues noted.

Sanitary Sewers: The plant has experienced sanitary sewer back-ups 2 or 3 times in the past 3 or 4 years.

Water Supply: Problems mentioned, but no specifics

Gas supply: No problems noted

Electrical Supply/Distribution: No problems noted

Phone/Cable/Internet: Currently re doing fiber optic line

Other Comments: Wayfinding signage, unified identity, and general beautification. Also expressed interest in HUB zone.

Stakeholder Interview Response - Liberty Steel

Interview Date: 2-18-15

Local Address: 900 Dietz Rd. Warren, OH 44483

Interviewees: Phillip Lapmardo, Controller, Liberty Steel Stamping Division

Type of Business: Steel processing plant – stamping and slitting. Since 1998, have supplied finished goods for the truck/lawn and garden market. Truck chassis are a big part of that business.

Ownership Structure: Privately owned by the Weller Family

Other Operations: Headquartered in North Jackson, OH, with plants in Hubbard, N.Jackson and Lordstown, OH + Saltillo, Mexico.

Business History: Founded in 1965 by the Weller Brothers

Total Local Employees (FTEs): About 100 FTEs + 35 temps, working on 2 – 12 hr. shifts.

Skill Level: Skilled and semi-skilled

Truck Utilization/Shipping & Receiving : Main steel suppliers come from Cleveland and Pittsburgh. Approx. 12 steel haulers in/8 out + 15 – 20 box trucks daily. Generally, trucks come from Larchmont and enter the plant from the rear on Bronze Rd, exiting through slot between Trumbull Ind. and west side of Liberty Steel. Also enter a bay at the west end of plant off of Dietz. Stacking of trucks is infrequent.

Expansion Plan / Requirements: Current 145,000 s.f. plant is tight on the property, wedged between Trumbull Ind. and Trumbull Cement on the corner of Larchmont and Dietz. Changes are coming..... looking at buying the 8+ acres across Dietz for a new warehouse, office space, and employee and visitor parking to eliminate on street parking. Warehouse could be 89,000 – 90,000 s.f. The company undergoing reorganization. There will be two separate operations: Warren/Lordstown will be Liberty Steel Industries and North Jackson/Hubbard locations will be Liberty Steel. Price for land is agreed to at present, but need to complete ESA and demo and remediate three residential structures. Hoped for timing is Spring '15.

Infrastructure Issues/ Improvements Needed

Roadway Access/Parking: (See above) Truck access is tight and parking for all vehicles is limited.

Rail Access: Used to have rail, but no longer needed.

Stormwater Drainage: Storm water has run through buildings, tied mostly to lack of maintenance at the inlet. All issues relate to the Red Run storm sewer that runs through the Dietz Rd. properties (see prior studies).

Sanitary Sewers: None mentioned – focus was on storm drainage.

Water Supply: Water lines are old and broke twice last year.

Gas supply: Use gas for heating – no problems noted.

Electrical Supply/Distribution: Liberty has its own substation, no electrical supply issues noted.

Phone/Cable/Internet: Phone service is poor/Fiber optic line installed.

Other Comments: Scrap steel theft is a problem. Significant labor supply issues –can't find trained press operators, use three different temp agencies, but do train tool & die makers in-house.

Stakeholder Interview Response - Concord Steel

Interview Date: 2-18-15

Local Address: 1451 Buena Vista Ave., Warren, OH 44483

Interviewees: Dave Gruber

Type of Business: Process steel 200,000 to 300,000 lbs. of steel plate in the manufacture of counterweights for elevators and large cranes.

Ownership Structure: Owned by LB Steel, headquartered in Harvey, Illinois

Other Operations: Main plant in Harvey, IL, Plant in Topeka, KS.

Business History: Began business as Concord Steel 25 years ago.

Total Local Employees (FTEs): Currently 25 – 30, working 2 partial shifts. Employment is down from a high of 111 workers.

Skill Level: Semi-skilled

Truck Utilization/Shipping & Receiving : Daily truck traffic = 10 trucks in/10 trucks out – typically flatbed trucks carrying loads between 44,000 and 50,000 lbs.

Expansion Plan / Requirements: Presently the plant has excess capacity – any expansion would be internal and would involve the addition of equipment and employees.

Infrastructure Issues/ Improvements Needed

Roadway Access/Parking: Plant is at the end of a narrow dead end road through some older residential development. Access is remote and poorly marked. Direct access from Bronze Rd. could be created with a RR crossing. This would also provide better access to the old Alcoa plant now owned by Gearmar Property Inc.

Rail Access: A rail spur currently exists.

Stormwater Drainage: The RR embankment to the north of the plant creates some flooding problems.

Sanitary Sewers: No problems noted.

Water Supply: Waterlines are OK, and there is no process water involved in plant operations.

Gas supply: Concord is served by an on-site gas well.

Electrical Supply/Distribution: Power supply is nearly maxed out and will need a new substation when plant starts using plasma cutters in the steel plate fabrication process. A generator currently backs up power supply for computer systems.

Phone/Cable/Internet: No problems noted

Other Comments: Have labor supply problem (e.g., drug test challenges).Concord Steel is a union shop where machinists and welders are trained internally.

Stakeholder Interview Response - Siemens/Primetal

IInterview Date: 2-26-15

Local Address: 20 Dietz Rd. NE, Warren, OH 44483

Interviewees: James J. Giuliani, Safety & Quality Manager, Metallurgical Services

Type of Business: Refurbish steel making equipment – work primarily with large bearings and bearing boxes. 80% of business focuses on repair and refurbishment of steel making equipment. as well as monitoring performance throughout the life cycle of the equipment Also manufacture new products onsite when necessary and monitor performance throughout the life cycle of the equipment. Also manufacture new products onsite when necessary.

Ownership Structure: Owned by JV – 51% Mitsubishi/49% Siemens, headquartered in UK.

Other Operations: Alphretta, GA; Cannonsburg, PA; Wooster, MA

Business History: Originally American Welding, shutdown in the 80's, then purchased by Grant Oakes and run as Service Guide. Oakes'son sold to Siemens in July, 2012. Siemens spun the plant off to the JV in Jan., 2015, now called Primetals USA.

Total Local Employees (FTEs): 10,000 FTEs worldwide, total of 1,400 in four plants (above); 106 locally split between Cortland machine shop and Warren.

Skill Level: Skilled – no engineering in Warren, just manufactring with heavy focus on quality

management and EH &S.

Truck Utilization/Shipping & Receiving : They have 5-6 deliveries/day. Primetal has their own trucking co. w/4 drivers.

Expansion Plan / Requirements: Plant is currently at 60% capacity, expansion would take place into existing bays within the current plant's footprint. Car and truck sales are the market drivers for the business. Heat treating is currently done in Cortland, but Primetal may install a heat treating furnace in the future.

Infrastructure Issues/ Improvements Needed

Roadway Access/Parking: Trucks are the #1 issue at the plant. Trucks travel east to Larchmont and have serious site distance problems because Ivanhoe is in sub-standard condition. They have looked at creating a "jug handle exit out of the west end of their parking lot, looping around across the Griswold St. ROW then back east on Dietz. Roads were designed when 50' trailers were the standard. Longer trailers now present problems. Concern was expressed over employee access and safety pertaining to the truck congestion on Dietz. On average, 5 to 6 trucks access the facility daily with an 8 to 10 maximum.

Rail Access: Rail is not needed.

Stormwater Drainage: Stormwater issues have persisted. The Red Run runs under the N.E. corner of the building. The old American Welding headquarters building was flooded and has extensive mold contamination, but will be remain on the site. The storm drainage study commissioned by Grant Oakes is still available for review, but was never implemented..

Sanitary Sewers: No mention of sanitary sewer issues.

Water Supply: Water lines are old and develop leaks when flushed.

Gas supply: No problems with gas supply.

Electrical Supply/Distribution: Except for IT, no backup generator, but otherwise, no problems with electrical supply.

Phone/Cable/Internet: No Problems mentioned.

Other Comments: Always looking for good machinists and welders, Jim Guiliani is on trade school boards. AECOM did Eh&S audits for Siemens. AECOM contact is Ken Beechley in the Atlanta Office. Administrative-type building on premise is not used due to mold from flooding.

Roadway Access/Parking: Plant is at the end of a narrow dead end road through some older residential development. Access is remote and poorly marked. Direct access from Bronze Rd. could be created with a RR crossing. This would also provide better access to the old Alcoa plant now owned by Gearmar Property Inc.

Rail Access: A rail spur currently exists.

Stormwater Drainage: The RR embankment to the north of the plant creates some flooding problems.

Sanitary Sewers: No problems noted.

Water Supply: Waterlines are OK, and there is no process water involved in plant operations.

Gas supply: Concord is served by an on-site gas well.

Electrical Supply/Distribution: Power supply is nearly maxed out and will need a new substation when plant starts using plasma cutters in the steel plate fabrication process. A generator currently backs up power supply for computer systems.

Phone/Cable/Internet: No problems noted

Other Comments: Have labor supply problem (e.g., drug test challenges).Concord Steel is a union shop where machinists and welders are trained internally.

APPENDIX C

WETLANDS REPORT

AECOM
1375 Euclid Avenue
Suite 600
Cleveland, Ohio 44115
www.aecom.com

216 622 2400 tel
216 622 2428 fax

Memorandum

Subject	Golden Triangle Project - Wetlands/Waters Field Walkover
From	Philip J. Renner, AECOM
Date	May 7, 2015

AECOM has conducted a wetlands/waters field investigation in general accordance with methodologies set forth in the 1987 Manual and recent U.S. Army Corps of Engineeers (USACE) regulatory guidance, including the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0) (Regional Supplement)* (USACE 2011). This investigation does not constitute a full wetlands/waters delineation and assessment. All wetland and stream boundaries and locations are estimated based on cursory field observations as well as background resources. However, the estimated wetland boundaries were surveyed through the use of a global positioning system (GPS) receiver capable of sub-meter accuracy.

Site Description

The Study Area is located in Trumbull County, Ohio. The area covered is generally bounded by Rail Lines to the west, Dietz Road to the south, Larchmont Avenue to the east, and North River Road to the north; The Wheatland Tube property was not included in the field walkover. The coordinates for the approximate center of the Study Area are 41.2623°N, 80.8074°W. A Study Area Location Map is included as **Figure 1**. This area is included on the Champion, Ohio 7.5 Minute Topographic Quadrangle (USGS 1997). The topography of the Study Area ranges from approximately 900- to 920-feet above mean sea level. The Study Area is in the 'Mahoning River below Duck Creek to above Mosquito Creek' watershed (14-digit Hydrologic Unit Code 05030103050020) (NRCS 2015). None of the Study Area lies within a mapped 100-year floodplain (ODNR 2001). The Study Area is generally dominated by mixed mesophytic forest, with significant areas of herbaceous vegetation, as well as residential and industrial land-uses.

Methodology

Office Review Methodology

The existing sources utilized for the desktop investigation included: the United States Geological Survey (USGS) Twinsburg, Ohio (USGS 1996) 7.5 minute series topographical quadrangle, soil datasets acquired from the National Resources Conservation Service's (NRCS) Web Soil Survey (NRCS 2015); the United States Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) for Ohio (USFWS 2015); and the Ohio Wetland Inventory (OWI) for Trumbull County (ODNR 1991).

Field Methodology – Wetlands

A wetland/waters field investigation was conducted in May 2015. Potential wetland and stream areas were identified and their boundaries estimated in general accordance with the procedures outlined in the USACE *Regional Supplement* (USACE 2011). The Study Area was surveyed by walking multiple transects in order to encounter potential wetlands and streams. Following these methods, cursory observations of wetland hydrology, hydrophytic vegetation, and hydric soil indicators were used to estimate the location and boundary of wetland area.

Soils were examined by excavating a soil pit with a shovel approximately 12 to 20 inches below the ground surface. The exposed soil profile was examined for characteristics using hydric soil criteria described in the National Technical Committee for Hydric Soils *Field Indicators of Hydric Soils in the United States* (USDA 2010). the hue, value, and chroma of the matrix and mottles of moist soils were assessed by using the *Munsell Soil Color Chart* (Kollmorgen Instrument Corporation 1994).

The hydrology criterion in the *Regional Supplement* requires that an area exhibit one primary indicator of wetland hydrology or at least two secondary indicators of wetland hydrology. Primary indicators include standing water or saturated soils, water marks on trees, drift lines, water-stained leaves, and oxidized root zones surrounding living roots. Secondary wetland hydrology indicators include drainage patterns, microtopographic relief, presence of crayfish burrows, and sparsely vegetated concave surfaces. Additional secondary signs of hydrology include visible saturation on aerial photography and a positive FAC-neutral test (see below) (USACE 2011).

Dominant vegetation for each community was determined by estimating dominant species in the tree, sapling, shrub, herb, and woody vine strata. An indicator status of obligate wetland (OBL), facultative wetland (FACW), facultative (FAC), facultative upland (FACU) and/or upland (UPL) has been assigned to each plant species on the *U.S. Army Corps of*

Engineers National Wetlands Plant List (USACE 2014). An area has hydrophytic vegetation when, under normal circumstances, more than 50 percent of the composition of the dominant species from all strata is OBL, FACW, and/or FAC species.

Potential wetlands within the Study Area were classified according to the USFWS *Classification of Wetlands and Deepwater Habitats for the United States* (Cowardin et al 1979). Wetland classifications are based upon hydrophytic vegetation type and dominance found within the delineated wetland, and include the following classification types: palustrine emergent (PEM), palustrine scrub-shrub (PSS), palustrine forested (PFO), palustrine open-water (POW), or a combination of these classifications (Cowardin et al 1979).

The estimated wetland boundaries were surveyed through the use of a Global Positioning System (GPS) receiver capable of sub-meter accuracy (model GeoXH handheld, Trimble, Sunnyvale, CA). The potential wetlands areas were identified by number, and correspond to the wetlands illustrated on the wetland and stream location map (*e.g.,* W-PJR-001, W-PJR-002, etc). The wetland boundaries were recorded as polygons and the wetland areas were calculated using the shapefile properties utility in ArcMap.

Ohio Rapid Assessment Method

The general concepts of the Ohio Environmental Protection Agency's (Ohio EPA) *Ohio Rapid Assessment Method, Version 5.*0 (ORAM) (Mack 2001) were used via best professional judgement to estimate the quality of each potential wetland and preliminarily place each wetland into a Category (Category 1 = lowest, Category 3 = highest). The scoring sheets (field forms) for individual wetlands were not completed; wetland categories were generally estimated based on professional judgement.

Federal Jurisdiction of Wetlands

The Clean Water Act (U.S. Congress, 1972, amended 1977) makes it unlawful to discharge dredged or fill materials into "navigable waters" without a permit (33 U.S.C. S1311(a)). "Navigable waters" are defined as "the waters of the United States, including the territorial seas." The USACE, which issues permits for discharge of dredged material or fill into navigable waters, interprets "waters of the United States" to include not only traditionally navigable waters, but tributaries of such waters and wetlands "adjacent" to such waters and tributaries. "Adjacent" is defined as wetlands "bordering, contiguous [to] or neighboring" waters of the United States even when they are "separated from [such] waters...by man-made dikes...and the like." The United States Supreme Court has ruled on a case (Rapanos *et ux*. v. United States) challenging the USACE jurisdiction over several wetlands that drain via man-made ditches into navigable waters. In a split decision, the case

was returned to the U.S. 6th Circuit Court of Appeals. The opinion of note on this case was written by Justice Kennedy, who did not agree completely with either the three judge plurality or the three judge dissent. He concluded that a water or wetland is subject to regulations pursuant to Section 404 of the Clean Water Act if it possesses a "significant nexus" to waters that are navigable or could reasonably be so made. He directed the USACE to better define "a significant nexus" to establish the framework for inquiry. The rationale for the USACE jurisdiction over wetlands under the Clean Water Act is that wetlands perform critical functions for physical and chemical integrity of waterways such as pollutant trapping, flood control and runoff storage. In contrast, when wetland impacts on navigable waters are insubstantial, jurisdiction cannot be awarded based on the Clean Water Act. Further guidance was issued by the USACE in early June of 2007. In addition, a bill was signed into law by Governor Taft (Ohio House Bill 231) giving the Ohio EPA authority to regulate and permit impacts to isolated wetlands. Therefore, in an attempt to establish the level of jurisdictional authority, the hydrology of each wetland within the project area was evaluated to define whether or not individual wetlands should be considered adjacent or isolated.

Threatened and Endangered Species

Concentrations of federally protected Indiana bat (*Myotis sodalis*) and northern long-eared bat (*Myotis septentrionalis*) potential habitat trees were noted, if found; however, individual potential habitat trees were not identified or located. Potential habitat trees are defined in the USFWS *2015 Range-Wide Indiana Bat Summer Survey Guidelines* (USFWS 2015) as possessing the following characteristics:

- Dead trees and snags with peeling bark, split trunks and/or branches, and cavities, which may be used as maternity roost areas;
- Live trees with exfoliating bark, such as shagbark hickory (*Carya ovata*) and oaks (*Quercus spp.*);
- Stream/riparian corridors, wetlands, and upland woodlots, which provide forage sites.

Results

Office Review

According to the Champion, Ohio USGS topographic quadrangle (see Figure 1), the Study Area is traversed by two streams. In addition, a wetland area is shown in the western portion of the Study Area (USGS 1997).

According to the soil dataset acquired from the National Resources Conservation Service's (NRCS) Web Soil Survey, the project area is underlain by eight distinct soil types. A list of the mapped soil types is provided in Table 1. Five of the soil units that underlie the project area are listed as hydric on the National Hydric Soils List (NRCS 2014). A map showing the soil types mapped at the project area is included as Figure 2.

Table 1: Soil Survey Results

Symbol	Soil Name	Hydric Rating[1]	Acreage Within Study Area
FcA	Fitchville-Urban land complex, 0 to 2 percent slopes	7	14.88
HaA	Haskins loam, 0 to 2 percent slopes	10	20.78
HaB	Haskins loam, 2 to 6 percent slopes	0	7.92
RsC	Rittman silt loam, 6 to 12 percent slopes	0	9.49
Sb	Sebring silt loam	85	13.06
Ur	Urban land	0	8.01
WbA	Wadsworth silt loam, 0 to 2 percent slopes	8	22.36
WbB	Wadsworth silt loam, 2 to 6 percent slopes	8	59.59

[1]All Soils with a Hydric rating greater than 0 are also listed in the 2014 National Hydric Soils List (NRCS 2014).
Source: Natural Resource Conservation Service (NRCS). 2015. Web Soil Survey. http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx

According to the USFWS NWI, eleven wetland polygons are mapped within the Study Area. The locations of these wetland areas is illustrated in Figure 3. Table 2 provides an overview of these wetland polygons, including their classification codes, vegetation types, and acreage within the Study Area.

According to the OWI, several wetland areas are located throughout the Study Area. This is illustrated in Figure 4. These wetland areas include woods on hydric soil, shrub/scrub wetlands, shallow marsh, and wet meadows.

Table 2: National Wetland Inventory Results

Wetland Classification Code	Wetland Vegetation Type	Acreage Within Study Area
PEM1/UBF	Freshwater Emergent Wetland	0.48
PEM1C	Freshwater Emergent Wetland	0.12
PFO1/SS1C	Freshwater Forested / Shrub Wetland	0.33
PFO1/SS1C	Freshwater Forested / Shrub Wetland	0.28
PSS1/EM1C	Freshwater Forested / Shrub Wetland	0.16
PSS1/EM1C	Freshwater Forested / Shrub Wetland	0.09
PSS1/EM1C	Freshwater Forested / Shrub Wetland	0.07
PSS1/EM1C	Freshwater Forested / Shrub Wetland	1.82
PSS1/EM1C	Freshwater Forested / Shrub Wetland	1.66
PSS1/EM1C	Freshwater Forested / Shrub Wetland	0.96
PSS1/EM1C	Freshwater Forested / Shrub Wetland	1.26

Source: U.S. Fish & Wildlife Service (USFWS). 2015. National Wetlands Inventory Online Mapper. U.S. Department of the Interior. http://www.fws.gov/wetlands/Data/Mapper.html

Field Investigation

This wetland/waters field walkover was conducted on May 1, 2015. Several potential wetland areas and streams were identified within the Study Area. These are displayed on Figure 5. These potential wetland areas were identified while walking transects through the Study Area. The field results were then compared to the NWI, OWI, and aerial imagery in order to estimate the boundaries of potential wetland and wetland complexes. Four streams were identified within the Study Area. Each of these streams was flowing during the walkover. Due to the presence of flowing water, as well as their location within the landscape, draining several large wetland areas, these streams are likely to be considered perennial.

The identified potential wetland areas are typically dominated by palustrine forested (PFO) vegetation, with the exception of four palustrine emergent (PEM) wetlands. Due to the extent of streams and ditches within and bordering the Study Area, these wetland areas will likely fall under the jurisdiction of the USACE. These wetlands will likely be considered low- to mid-range Category Two wetlands when assessed with the ORAM. This is due to a combination of positive and negative factors, including: significant coverage of invasive species; presence of current/historical impacts to habitat, substrate, and hydrology; moderate-quality forested and shrub communities; and moderate-to-good habitat development. A table showing the acreage and estimated category of these areas is included as Table 3.

Table 3: Potential Wetland Summary

Wetland Name	Vegetation Type	Estimated Category	Estimated Acreage
Wetland A	PFO/PEM	Category Two	4.5
Wetland B	PFO/PEM	Category Two	5.0
Wetland C	PEM	Category One	0.3
Wetland D	PFO/PSS/PEM	Category Two	13.4
Wetland E	PEM	Category One	0.2
Wetland F	PFO	Category Two	0.5
Wetland G	PFO/PEM	Category Two	1.7
Wetland H	PFO/PEM	Category Two	0.7
Wetland I	PEM	Category One	1.5
Wetland J	PEM	Category One	0.5
Wetland K	PEM/PSS/PFO	Category Two	7.1
Wetland L	PEM/PSS	Category Two	1.7
Wetland M	PFO	Category Two	2.1
Wetland N	PFO	Category One	0.4

This wetland/waters walkover does not represent a completed wetland delineation and assessment. Wetland boundaries, ORAM categories, and vegetation types are all preliminary and subject to change in the event of a detailed site investigation and water resource delineation and assessment.

Threatened and Endangered Species

Clusters of potential Indiana bat habitat were not identified during the site investigation. However, several potential roost trees were observed during the site investigation, and were not marked or recorded, as per the requirements of the scope of work.

Conclusion

A wetlands/waters walkover site investigation was performed on May 1, 2015. Several potential wetland areas and streams were observed throughout the Study area. The approximate boundaries of these features were estimated based on field observations and background resources. Based on this information, these features are likely to be considered federally-jurisctional, Category Two wetland areas. This wetland/waters walkover does not represent a completed wetland delineation and assessment. Wetland boundaries, ORAM categories, and vegetation types are all preliminary and subject to change in the event of a detailed site investigation and water resource delineation and assessment.

References

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and Deepwater habitats of the United States. Office of Biol. Services, U.S. Fish and Wildlife Service, Washington, D.C. 103 p.

Kollmorgen Instrument Corporation. 1994. Munsell soil color charts. Revised Edition. Newburgh, New York.

Mack, John J. 2001. Ohio Rapid Assessment Method for Wetlands v. 5.0, User's Manual and scoring forms. Ohio EPA Technical Report WET/2001-1. Ohio Environmental Protection Agency, Division of Surface water, 401/Wetland Ecology Unit, Columbus, Ohio.

Natural Resource Conservation Service (NRCS). 2015. Ohio 14-Digit Subwatersheds. Accessed April 29, 2015. <http://www.nrcs.usda.gov/wps/portal/nrcs /main/oh/technical/>

Natural Resource Conservation Service (NRCS). 2015. Web Soil Survey. Accessed May 5, 2015. <http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>

Ohio Department of Natural Resources (ODNR). 1991. Ohio Wetlands Inventory – Trumbull County. Accessed May 5, 2015. < http://www2.ohiodnr.gov/geospatial/map-services>

Ohio Department of Natural Resources (ODNR). 2001. 100-Year Flood Hazard Areas – Trumbull County. Accessed May 5, 2015. < http://www2.ohiodnr.gov/geospatial/map-services>

Rapanos et ux. v. United States. 2006. U.S. Supreme Court website. <http://www.supremecourtus.gov/>

SWANCC v. U.S. Army Corps of Engineers, et al. 2001. US Supreme Court website. <http://www.supremecourtus.gov/>

United States Department of Agriculture, Natural Resources Conservation Service. 2010. Field Indicators of Hydric Soils in the United States, Version 7.0. L.M. Vasilas, G.W. Hurt, and C.V. Noble (eds.). USDA, NRCS, in cooperation with the National Technical Committee for Hydric Soils.

U.S. Geological Survey (USGS). 1997. Topographic Quadrangle Maps (7.5-Minute Series). Champion, Ohio Quadrangle.

U.S. Army Corps of Engineers (USACE). 2011. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0), ed. J. S. Wakeley, R. W. Lichvar, C. V. Noble, and J. F. Berkowitz. ERDC/EL TR-12-1. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

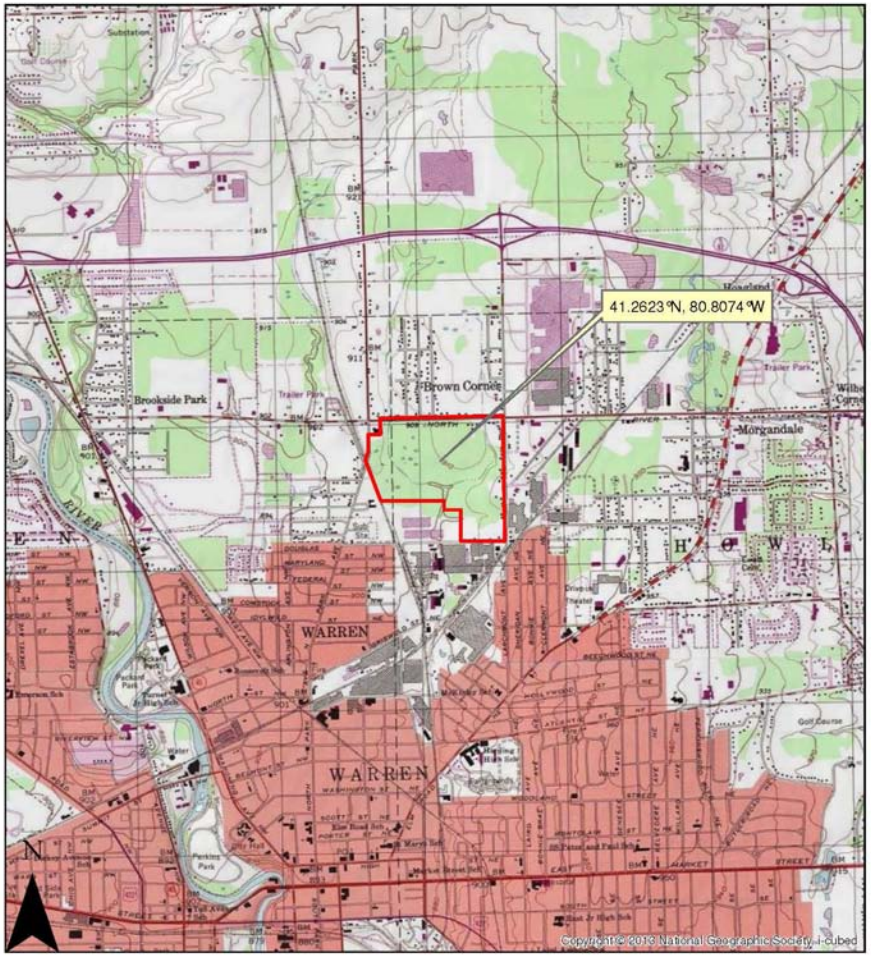
U.S. Army Corps of Engineers (USACE). 2014. National Wetland Plant List, version 3.2. Accessed May 1, 2015. <http://wetland_plants.usace.army.mil/> U.S. Army Corps of Engineers Engineer Research and Developlent Center. Cold Regions Research and Engineering Laboratory, Hanover, NH.

U.S. Congress. 1972 (amended 1977, 1987). 33 U.S.C. § 1251 et seq., U.S. Clean water Act. United States Congress.

U.S. Fish & Wildlife Service (USFWS). 2015. National Wetlands Inventory Online Mapper. U.S. Department of the Interior. Accessed May 5, 2015. <http://www.fws.gov/wetlands/Data/Mapper.html>

U.S. Fish and Wildlife Service (USFWS). 2015. 2015 Range-Wide Indiana Bat Summer Survey Guidelines.

FIGURES

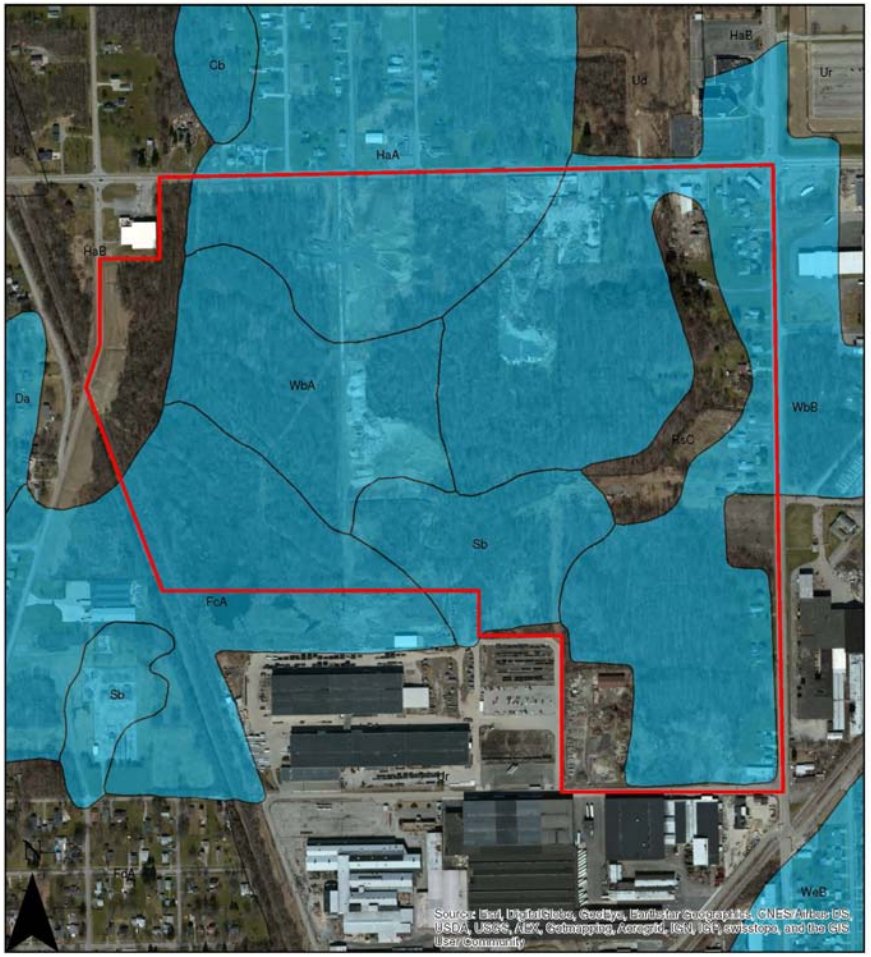


Study Area

Figure 1
Study Area Location Map

Golden Triangle Wetlands/Waters Walkover
Howland Township, Trumbull County, Ohio
Champion, Ohio 7.5 Minute USGS Quad.

AECOM



Study Area
Listed Hydric Soil
Non-Hydric Soil
0 250 500 1,000 Feet
Data Source: NRCS Web Soil Survey
<http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>

Figure 2
Study Area Soil Survey Map

Golden Triangle Wetlands/Waters Walkover
Howland Township, Trumbull County, Ohio
Champion, Ohio 7.5 Minute USGS Quad.

AECOM

Study Area
NWI Wetland

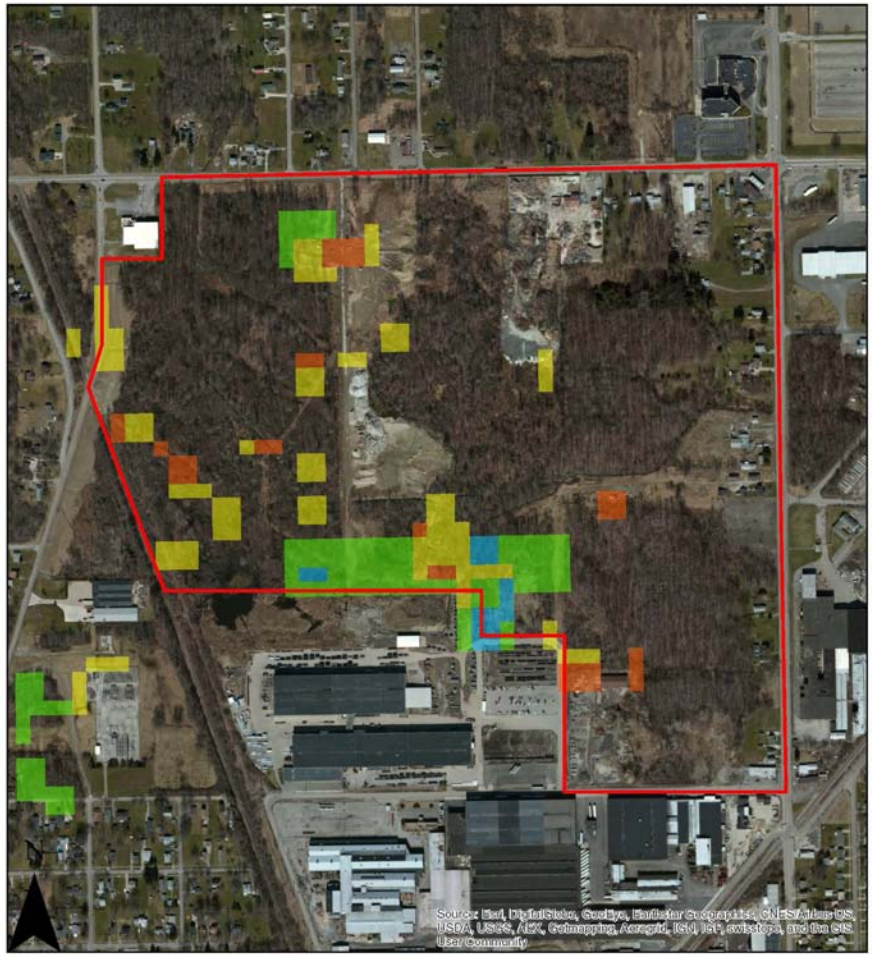
0 250 500 1,000 Feet

Data Source: National Wetlands Inventory Online Mapper
< http://www.fws.gov/wetlands/Data/Mapper.html>

Figure 3
Study Area National Wetland Inventory Map

Golden Triangle Wetlands/Waters Walkover
Howland Township, Trumbull County, Ohio
Champion, Ohio 7.5 Minute USGS Quad.

AECOM



Study Area
Woods on Hydric Soil
Shallow Marsh
Shrub/Scrub Wetland
Wet Meadow

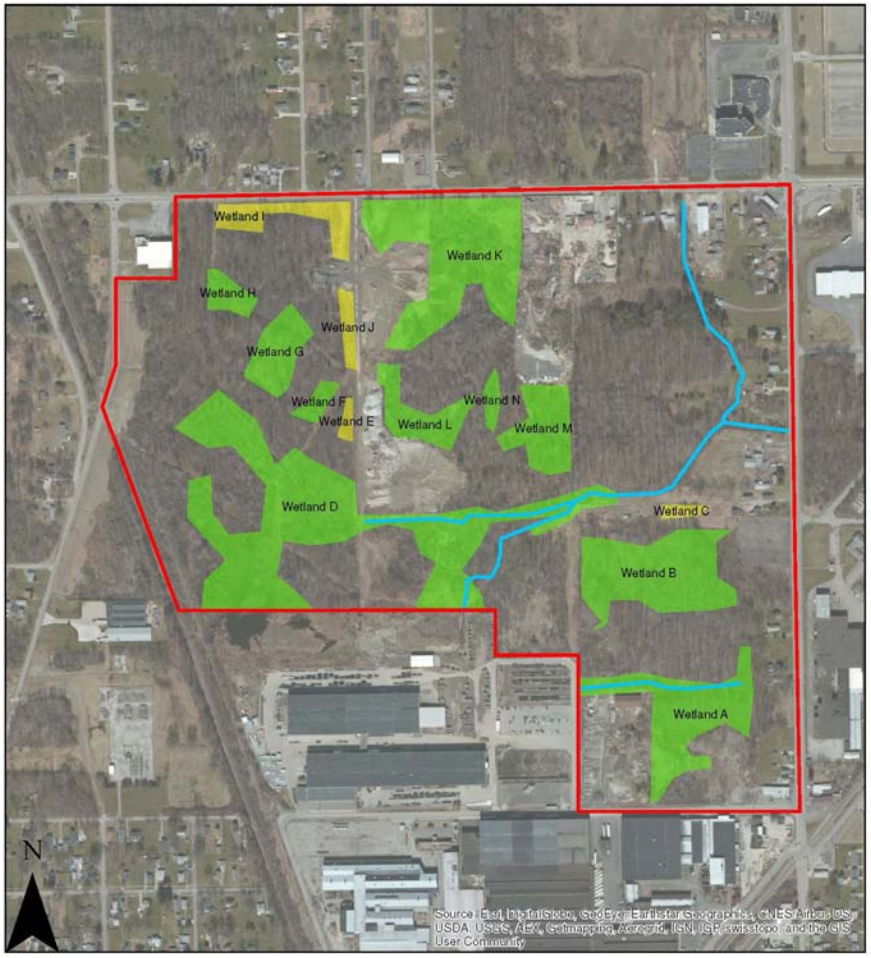
0 250 500 1,000 Feet

Data Source: Ohio Wetlands Inventory – Trumbull County
< http://www2.ohiodnr.gov/geospatial/map-services>

Figure 4
Study Area Ohio Wetland Inventory Map

Golden Triangle Wetlands/Waters Walkover
Howland Township, Trumbull County, Ohio
Champion, Ohio 7.5 Minute USGS Quad.

AECOM



Study Area
Potential Stream
Potential Wetland (PEM)
Potential Wetland (PFO)

0 250 500 1,000 Feet

Potential resouce boundaries are estimated based on field observations and background resources.This walkover does not constitute a wetland delineation.

Figure 5
Potential Water Resource Map

Golden Triangle Wetlands/Waters Walkover
Howland Township, Trumbull County, Ohio
Champion, Ohio 7.5 Minute USGS Quad.

AECOM

PHOTOGRAPHIC RECORD

AECOM

PHOTOGRAPHIC LOG
GOLDEN TRIANGLE PROJECT

Client Name:	Site Location:
Howland Township	Trumbull County, Ohio

Photo No. 1.
Date: 5/1/2015
Description: Representative view of potential palustrine emergent wetland area in the southeast section of the Study Area.

Photo No. 2.
Date: 5/1/2015
Description: Representative view of potential palustrine forested wetland area in the eastern section of the Study Area.

AECOM

PHOTOGRAPHIC LOG
GOLDEN TRIANGLE PROJECT

Client Name:	Site Location:
Howland Township	Trumbull County, Ohio

Photo No. 3.
Date: 5/1/2015
Description: Intermittent stream flowing into culvert.

Photo No. 4.
Date: 5/1/2015
Description: Representative view of intermittent stream in eastern section of the Study Area.

AECOM

PHOTOGRAPHIC LOG
GOLDEN TRIANGLE PROJECT

Client Name:	Site Location:
Howland Township	Trumbull County, Ohio

Photo No. 5.
Date: 5/1/2015
Description: Representative view of potential palustrine forested wetland in western section of Study Area.

Photo No. 6.
Date: 5/1/2015
Description: Representative view of potential palustrine forested wetland area in western section of the Study Area.

AECOM

PHOTOGRAPHIC LOG
GOLDEN TRIANGLE PROJECT

Client Name:	Site Location:
Howland Township	Trumbull County, Ohio

Photo No. 1.
Date: 5/1/2015
Description: Representative view of potential palustrine emergent wetland area in the southeast section of the Study Area.

Photo No. 2.
Date: 5/1/2015
Description: Representative view of potential palustrine forested wetland area in the eastern section of the Study Area.

APPENDIX D

PROBABLE INFRASTRUCTURE IMPROVEMENT COSTS

					Date Prepared		6-Jul-15
Preliminary Project Cost Estimate: Construction + Engrg					Page		1
PROJECT: Golden Triangle Stormwater Wetland					BASIS FOR ESTIMATE		
Howland Township, Ohio						Code A (No design completed	
					X	Code B (Preliminary design)	
						Code C (Final design)	
		ESTIMATOR	TE		PROJECT NO.		
	QUANTITY		LABOR & MATERIAL		SUBTOTAL		
	NO. UNITS	UNIT MEAS.	PER UNIT	TOTAL	PER UNIT	TOTAL	TOTAL COST
Mobilization	1	LS	$15,000	15,000			$15,000
Temp Const Sign	1	EA	$1,000	1,000			$1,000
Layout, Const Staking	1	LS	$5,000	5,000			$5,000
Clearing	1	LS	$15,000	15,000			$15,000
Erosion Control	1	LS	$15,000	15,000			$15,000
Topsoil Stripping & Stockpiling	16000	CY	$5	80,000			$80,000
Excavation/On Site Disposal	110000	CY	$8	880,000			$880,000
Topsoil Spreading	16000	CY	$5	80,000			$80,000
Erosion Mat	10000	SY	$3	30,000			$30,000
Temp Seeding	50000	SY	$1	50,000			$50,000
Wetland Seeding, 20 ac	100000	SY	$1	100,000			$100,000
Native Grass Seeding	50000	SY	$1	50,000			$50,000
wetland perennials	1400	EA	$15	21,000			$21,000
Tree Planting, 1"	300	EA	$100	30,000			$30,000
Boundary Markers	40	EA	$50	2,000			$2,000
Construction Subtotal							$1,374,000
10% Contingency							$137,400
Construction Total							**$1,511,400**
ENGINEERING COSTS							
Topo and Bndy Survey							$20,000
Wetland Delin/Nat. Permit							$20,000
Plans and Specs							$75,000
Hydraulic Modeling							$10,000
Bidding and Const Support							$25,000
Public Education							$10,000
Meetings/Grant Admin							$5,000
Engineering Subtotal							**$165,000**
Project Total							**$1,676,400**
			AECOM				

AECOM

SUMMARY OF PROBABLE CONSTRUCTION COSTS - PRE-DESIGN
DIETZ ROAD RECONSTRUCTION AND JUG HANDLE

Prepared by: Stanley Kosilesky Jr., EI
Checked by: Mike Woodring, PE, CPESC

1375 Euclid Avenue, Suite 600, Cleveland, OH 44115-1808
08/06/15
Client: Howland Township
Howland Township, OH

REF. NO.	ITEM	PROJECT QUANTITY	DESCRIPTION	UNIT	UNIT PRICE (2015)	PROJECT COST
			ROADWAY			
1	201	LUMP	CLEARING AND GRUBBING	LS	$ 10,000.00	$ 10,000.00
2	202	7,000	PAVEMENT REMOVED	SY	$ 10.00	$ 70,000.00
3	203	800	EXCAVATION	CY	$ 14.00	$ 11,200.00
4	203	500	EMBANKMENT	CY	$ 18.00	$ 9,000.00
					SUBTOTAL	**$ 100,200.00**
			EROSION CONTROL			
5	832	1	STORM WATER POLLUTION PREVENTION PLAN	LS	$ 10,000.00	$ 10,000.00
6	832	16,000	EROSION CONTROL	EACH	$ 1.00	$ 16,000.00
					SUBTOTAL	**$ 26,000.00**
			DRAINAGE			
7	605	5000	6" BASE PIPE UNDERDRAINS	FT	$ 8.00	$ 40,000.00
8	611	1	INLET ADJUSTED TO GRADE	EACH	$ 600.00	$ 600.00
9	611	4	MANHOLE ADJUSTED TO GRADE	EACH	$ 550.00	$ 2,200.00
10	SPECIAL	300	MISCELLANEOUS METAL	LB	$ 2.00	$ 600.00
11	895	1	MANUFACTURED WATER QUALITY STRUCTURE, TYPE 1	EACH	$ 25,000.00	$ 25,000.00
					SUBTOTAL	**$ 68,400.00**
			PAVEMENT			
12	252	100	FULL DEPTH PAVEMENT SAWING	FT	$ 3.00	$ 300.00
13	301	1,900	ASPHALT CONCRETE BASE, PG64-22	CY	$ 150.00	$ 285,000.00
14	304	1,300	AGGREGATE BASE	CY	$ 45.00	$ 58,500.00
15	407	800	TACK COAT	GAL	$ 2.25	$ 1,800.00
16	407	500	TACK COAT FOR INTERMEDIATE COURSE	GAL	$ 2.25	$ 1,125.00

AECOM

SUMMARY OF PROBABLE CONSTRUCTION COSTS - PRE-DESIGN
DIETZ ROAD RECONSTRUCTION AND JUG HANDLE

Prepared by: Stanley Kosilesky Jr., EI
Checked by: Mike Woodring, PE, CPESC

1375 Euclid Avenue, Suite 600, Cleveland, OH 44115-1808
08/06/15
Client: Howland Township
Howland Township, OH

REF. NO.	ITEM	PROJECT QUANTITY	DESCRIPTION	UNIT	UNIT PRICE (2015)	PROJECT COST
17	441	350	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (446), PG64-22	CY	$ 165.00	$ 57,750.00
18	441	400	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, (448)	CY	$ 185.00	$ 74,000.00
19	452	300	8" NON-REINFORCED CONCRETE PAVEMENT, CLASS QC1	SY	$ 50.00	$ 15,000.00
					SUBTOTAL	**$ 493,475.00**
			WATER WORK			
20	638	2300	WATER WORK, MISC.:	FT	$ 175.00	$ 402,500.00
					SUBTOTAL	**$ 402,500.00**
			SANITARY			
21	611	2	MANHOLE ADJUSTED TO GRADE	EACH	$ 550.00	$ 1,100.00
					SUBTOTAL	**$ 1,100.00**
			TRAFFIC CONTROL			
22	630	1	SIGNING, MISC.:	LS	$ 10,000.00	$ 10,000.00
23	642	1	PAVEMENT MARKING, MISC.:	LS	$ 10,000.00	$ 10,000.00
					SUBTOTAL	**$ 20,000.00**
			TRAFFIC SIGNALS			
24	632	1	SIGNALIZATION, MISC.:	LS	$ 15,000.00	$ 15,000.00
					SUBTOTAL	**$ 15,000.00**
			MISCELLANEOUS			
25	614	LUMP	MAINTAINING TRAFFIC	LS	$ 50,000.00	$ 50,000.00
26	619	9	FIELD OFFICE, TYPE B	MNTH	$ 2,000.00	$ 18,000.00
27	623	LUMP	CONSTRUCTION LAYOUT STAKES AND SURVEYING	LS	$ 15,000.00	$ 15,000.00
28	624	LUMP	MOBILIZATION	LS	$ 40,000.00	$ 40,000.00

AECOM

SUMMARY OF PROBABLE CONSTRUCTION COSTS - PRE-DESIGN
DIETZ ROAD RECONSTRUCTION AND JUG HANDLE

Prepared by: Stanley Kosilesky Jr., EI
Checked by: Mike Woodring, PE, CPESC

1375 Euclid Avenue, Suite 600, Cleveland, OH 44115-1808
08/06/15
Client: Howland Township
Howland Township, OH

REF. NO.	ITEM	PROJECT QUANTITY	DESCRIPTION	UNIT	UNIT PRICE (2015)	PROJECT COST
					SUBTOTAL	$ 123,000.00
Estimated Project Subtotal						**$1,249,675**
Contingency (30%)						**$374,903**
Estimated Project Total						**$1,624,578**
Construction Engineering (10%)						**$162,458**
Total Combined Probable Construction Cost						**$1,787,036**

This Statement of Probable Construction Costs does not include the estimate or costs for any compensible utility relocations, subgrade stabilization/subgrade improvements, Right of Way Acquisition and Acquistion Services, nor does it include Inflation for the year of construction.

Statements of Probable Construction Costs prepared by AECOM represent AECOM's judgment as a design professional familiar with the construction industry. It is recognized, however, that neither AECOM nor the Owner has control over the cost of labor, materials, or equipment nor over the Contractor's methods of determining bid prices or other competitive bidding, market, or negotiating conditions. Accordingly, AECOM cannot and does not warrant or represent that proposals, bids or actual construction costs will not vary from any Statement of Probable Construction Cost or other estimates or evaluations prepared by AECOM.

AECOM

1375 Euclid Avenue, Suite 600, Cleveland, OH 44115-1808

SUMMARY OF PROBABLE CONSTRUCTION COSTS - PRE-DESIGN
MILL STREET RESURFACING AND LARCHMONT AVENUE INTERSECTION IMPROVEMENTS

08/06/15
Client: Howland Township
Howland Township, OH

Prepared by: Stanley Kosilesky Jr., EI
Checked by: Mike Woodring, PE, CPESC

REF. NO.	ITEM	PROJECT QUANTITY	DESCRIPTION	UNIT	UNIT PRICE (2015)	PROJECT COST
			ROADWAY			
1	201	LUMP	CLEARING AND GRUBBING	LS	$ 10,000.00	$ 10,000.00
2	202	450	PAVEMENT REMOVED	SY	$ 10.00	$ 4,500.00
3	202	100	CURB REMOVED	FT	$ 5.00	$ 500.00
4	202	2	CATCH BASIN REMOVED	EACH	$ 400.00	$ 800.00
5	202	1	INLET REMOVED	EACH	$ 500.00	$ 500.00
6	203	120	EXCAVATION	CY	$ 14.00	$ 1,680.00
7	203	120	EMBANKMENT	CY	$ 18.00	$ 2,160.00
					SUBTOTAL	**$ 20,140.00**
			EROSION CONTROL			
8	832	1	STORM WATER POLLUTION PREVENTION PLAN	LS	$ 5,000.00	$ 5,000.00
9	832	3,000	EROSION CONTROL	EACH	$ 1.00	$ 3,000.00
					SUBTOTAL	**$ 8,000.00**
			DRAINAGE			
10	605	400	6" BASE PIPE UNDERDRAINS	FT	$ 8.00	$ 3,200.00
11	611	60	15" CONDUIT, TYPE B	FT	$ 75.00	$ 4,500.00
12	611	2	CATCH BASIN, NO. 3A	EACH	$ 2,400.00	$ 4,800.00
13	611	3	CATCH BASIN ADJUSTED TO GRADE	EACH	$ 600.00	$ 1,800.00
14	611	1	INLET, NO. 2-6	EACH	$ 3,200.00	$ 3,200.00
15	SPECIAL	200	MISCELLANEOUS METAL	LB	$ 2.00	$ 400.00
					SUBTOTAL	**$ 17,900.00**
			PAVEMENT			
16	252	250	FULL DEPTH PAVEMENT SAWING	FT	$ 3.00	$ 750.00
17	254	1,350	PAVEMENT PLANING, ASPHALT CONCRETE	SY	$ 2.50	$ 3,375.00
18	301	200	ASPHALT CONCRETE BASE, PG64-22	CY	$ 150.00	$ 30,000.00

AECOM

1375 Euclid Avenue, Suite 600, Cleveland, OH 44115-1808

SUMMARY OF PROBABLE CONSTRUCTION COSTS - PRE-DESIGN
MILL STREET RESURFACING AND LARCHMONT AVENUE INTERSECTION IMPROVEMENTS

08/06/15
Client: Howland Township
Howland Township, OH

Prepared by: Stanley Kosilesky Jr., EI
Checked by: Mike Woodring, PE, CPESC

REF. NO.	ITEM	PROJECT QUANTITY	DESCRIPTION	UNIT	UNIT PRICE (2015)	PROJECT COST
19	304	140	AGGREGATE BASE	CY	$ 45.00	$ 6,300.00
20	407	200	TACK COAT	GAL	$ 2.25	$ 450.00
21	407	125	TACK COAT FOR INTERMEDIATE COURSE	GAL	$ 2.25	$ 282.00
22	441	100	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (446), PG64-22	CY	$ 165.00	$ 16,500.00
23	441	125	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, (448)	CY	$ 185.00	$ 23,125.00
24	609	350	CURB, TYPE 6	FT	$ 20.00	$ 7,000.00
					SUBTOTAL	**$ 87,782.00**
			TRAFFIC CONTROL			
25	630	1	SIGNING, MISC.:	LS	$ 5,000.00	$ 5,000.00
26	642	1	PAVEMENT MARKING, MISC.:	LS	$ 5,000.00	$ 5,000.00
					SUBTOTAL	**$ 10,000.00**
			MISCELLANEOUS			
27	614	LUMP	MAINTAINING TRAFFIC	LS	$ 25,000.00	$ 25,000.00
28	619	3	FIELD OFFICE, TYPE A	MNTH	$ 1,500.00	$ 4,500.00
29	623	LUMP	CONSTRUCTION LAYOUT STAKES AND SURVEYING	LS	$ 15,000.00	$ 15,000.00
30	624	LUMP	MOBILIZATION	LS	$ 10,000.00	$ 10,000.00
					SUBTOTAL	**$ 54,500.00**
Estimated Project Subtotal						**$198,322**
Contingency (30%)						**$59,497**
Estimated Project Total						**$257,819**

AECOM

1375 Euclid Avenue, Suite 600, Cleveland, OH 44115-1808

SUMMARY OF PROBABLE CONSTRUCTION COSTS - PRE-DESIGN
MILL STREET RESURFACING AND LARCHMONT AVENUE INTERSECTION IMPROVEMENTS

08/06/15
Client: Howland Township
Howland Township, OH

Prepared by: Stanley Kosilesky Jr., EI
Checked by: Mike Woodring, PE, CPESC

REF. NO.	ITEM	PROJECT QUANTITY	DESCRIPTION	UNIT	UNIT PRICE (2015)	PROJECT COST
Construction Engineering (10%)						**$25,782**
Total Combined Probable Construction Cost						**$283,601**

This Statement of Probable Construction Costs does not include the estimate or costs for any compensible utility relocations, subgrade stabilization/subgrade improvements, Right of Way Acquisition and Acquistion Services, nor does it include Inflation for the year of construction.

Statements of Probable Construction Costs prepared by AECOM represent AECOM's judgment as a design professional familiar with the construction industry. It is recognized, however, that neither AECOM nor the Owner has control over the cost of labor, materials, or equipment nor over the Contractor's methods of determining bid prices or other competitive bidding, market, or negotiating conditions. Accordingly, AECOM cannot and does not warrant or represent that proposals, bids or actual construction costs will not vary from any Statement of Probable Construction Cost or other estimates or evaluations prepared by AECOM.

AECOM

SUMMARY OF PROBABLE CONSTRUCTION COSTS - PRE-DESIGN
DANA STREET RESURFACING AND NORTH PARK INTERSECTION IMPROVEMENTS

Prepared by: Stanley Kosilesky Jr., EI
Checked by: Mike Woodring, PE, CPESC

1375 Euclid Avenue, Suite 600, Cleveland, OH 44115-1808
08/06/15
Client: Howland Township
Howland Township, OH

REF. NO.	ITEM	PROJECT QUANTITY	DESCRIPTION	UNIT	UNIT PRICE (2015)	PROJECT COST
			ROADWAY			
1	201	LUMP	CLEARING AND GRUBBING	LS	$ 10,000.00	$ 10,000.00
2	202	760	PAVEMENT REMOVED	SY	$ 10.00	$ 7,600.00
3	202	1,200	WALK REMOVED	SF	$ 2.00	$ 2,400.00
4	202	275	CURB REMOVED	FT	$ 5.00	$ 1,375.00
5	202	4	CATCH BASIN REMOVED	EACH	$ 400.00	$ 1,600.00
6	203	120	EXCAVATION	CY	$ 14.00	$ 1,680.00
7	203	120	EMBANKMENT	CY	$ 18.00	$ 2,160.00
8	608	1,025	4" CONCRETE WALK	SF	$ 5.00	$ 5,125.00
9	608	80	CURB RAMP	SF	$ 13.75	$ 1,100.00
					SUBTOTAL	**$ 33,040.00**
			EROSION CONTROL			
10	832	1	STORM WATER POLLUTION PREVENTION PLAN	LS	$ 5,000.00	$ 5,000.00
11	832	7,000	EROSION CONTROL	EACH	$ 1.00	$ 7,000.00
					SUBTOTAL	**$ 12,000.00**
			DRAINAGE			
12	605	350	6" BASE PIPE UNDERDRAINS	FT	$ 8.00	$ 2,800.00
13	611	80	15" CONDUIT, TYPE B	FT	$ 75.00	$ 6,000.00
13	611	4	CATCH BASIN, NO. 3A	EACH	$ 2,400.00	$ 9,600.00
14	611	10	CATCH BASIN ADJUSTED TO GRADE	EACH	$ 600.00	$ 6,000.00
15	611	7	MANHOLE ADJUSTED TO GRADE	EACH	$ 550.00	$ 3,850.00
16	SPECIAL	1200	MISCELLANEOUS METAL	LB	$ 2.00	$ 2,400.00
					SUBTOTAL	**$ 30,650.00**
			PAVEMENT			
17	252	300	FULL DEPTH PAVEMENT SAWING	FT	$ 3.00	$ 900.00
18	254	8,850	PAVEMENT PLANING, ASPHALT CONCRETE	SY	$ 2.50	$ 22,125.00

AECOM

SUMMARY OF PROBABLE CONSTRUCTION COSTS - PRE-DESIGN
DANA STREET RESURFACING AND NORTH PARK INTERSECTION IMPROVEMENTS

Prepared by: Stanley Kosilesky Jr., EI
Checked by: Mike Woodring, PE, CPESC

1375 Euclid Avenue, Suite 600, Cleveland, OH 44115-1808
08/06/15
Client: Howland Township
Howland Township, OH

REF. NO.	ITEM	PROJECT QUANTITY	DESCRIPTION	UNIT	UNIT PRICE (2015)	PROJECT COST
19	301	200	ASPHALT CONCRETE BASE, PG64-22	CY	$ 150.00	$ 30,000.00
20	304	140	AGGREGATE BASE	CY	$ 45.00	$ 6,300.00
21	407	800	TACK COAT	GAL	$ 2.25	$ 1,800.00
22	407	500	TACK COAT FOR INTERMEDIATE COURSE	GAL	$ 2.25	$ 1,125.00
23	441	400	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (446), PG64-22	CY	$ 165.00	$ 66,000.00
24	441	475	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, (448)	CY	$ 185.00	$ 87,875.00
25	452	300	8" NON-REINFORCED CONCRETE PAVEMENT, CLASS QC1	SY	$ 50.00	$ 15,000.00
26	609	350	CURB, TYPE 6	FT	$ 20.00	$ 7,000.00
					SUBTOTAL	$ 238,125.00
			WATER WORK			
27	638	18	VALVE BOX ADJUSTED TO GRADE	EACH	$ 250.00	$ 4,500.00
					SUBTOTAL	$ 4,500.00
			SANITARY			
28	611	5	MANHOLE ADJUSTED TO GRADE	EACH	$ 550.00	$ 2,750.00
					SUBTOTAL	$ 2,750.00
			TRAFFIC CONTROL			
29	630	1	SIGNING, MISC.:	LS	$ 10,000.00	$ 10,000.00
30	642	1	PAVEMENT MARKING, MISC.:	LS	$ 10,000.00	$ 10,000.00
					SUBTOTAL	$ 20,000.00
			TRAFFIC SIGNALS			
31	632	1	SIGNALIZATION, MISC.:	LS	$ 75,000.00	$ 75,000.00
					SUBTOTAL	$ 75,000.00

AECOM

1375 Euclid Avenue, Suite 600, Cleveland, OH 44115-1808

SUMMARY OF PROBABLE CONSTRUCTION COSTS - PRE-DESIGN
DANA STREET RESURFACING AND NORTH PARK INTERSECTION IMPROVEMENTS

08/06/15
Client: Howland Township
Howland Township, OH

Prepared by: Stanley Kosilesky Jr., EI
Checked by: Mike Woodring, PE, CPESC

REF. NO.	ITEM	PROJECT QUANTITY	DESCRIPTION	UNIT	UNIT PRICE (2015)	PROJECT COST
			MISCELLANEOUS			
32	614	LUMP	MAINTAINING TRAFFIC	LS	$ 50,000.00	$ 50,000.00
33	619	6	FIELD OFFICE, TYPE B	MNTH	$ 2,000.00	$ 12,000.00
34	623	LUMP	CONSTRUCTION LAYOUT STAKES AND SURVEYING	LS	$ 15,000.00	$ 15,000.00
35	624	LUMP	MOBILIZATION	LS	$ 20,000.00	$ 20,000.00
					SUBTOTAL	$ 97,000.00
Estimated Project Subtotal						**$513,065**
Contingency (30%)						**$153,920**
Estimated Project Total						**$666,985**
Construction Engineering (10%)						**$66,699**
Total Combined Probable Construction Cost						**$733,684**

This Statement of Probable Construction Costs does not include the estimate or costs for any compensible utility relocations, subgrade stabilization/subgrade improvements, Right of Way Acquisition and Acquistion Services, nor does it include Inflation for the year of construction.

Statements of Probable Construction Costs prepared by AECOM represent AECOM's judgment as a design professional familiar with the construction industry. It is recognized, however, that neither AECOM nor the Owner has control over the cost of labor, materials, or equipment nor over the Contractor's methods of determining bid prices or other competitive bidding, market, or negotiating conditions. Accordingly, AECOM cannot and does not warrant or represent that proposals, bids or actual construction costs will not vary from any Statement of Probable Construction Cost or other estimates or evaluations prepared by AECOM.

AECOM

SUMMARY OF PROBABLE CONSTRUCTION COSTS - PRE-DESIGN
PHOENIX ROAD AND NORTH RIVER ROAD INTERSECTION IMPROVEMENTS

Prepared by: Stanley Kosilesky Jr., EI
Checked by: Mike Woodring, PE, CPESC

1375 Euclid Avenue, Suite 600, Cleveland, OH 44115-1808
08/06/15
Client: Howland Township
Howland Township, OH

REF. NO.	ITEM	PROJECT QUANTITY	DESCRIPTION	UNIT	UNIT PRICE (2015)	PROJECT COST
			ROADWAY			
1	201	LUMP	CLEARING AND GRUBBING	LS	$ 5,000.00	$ 5,000.00
2	202	925	PAVEMENT REMOVED	SY	$ 10.00	$ 9,250.00
3	202	1	CATCH BASIN REMOVED	EACH	$ 400.00	$ 400.00
4	203	150	EXCAVATION	CY	$ 14.00	$ 2,100.00
5	203	100	EMBANKMENT	CY	$ 18.00	$ 1,800.00
					SUBTOTAL	**$ 18,550.00**
			EROSION CONTROL			
6	832	1	STORM WATER POLLUTION PREVENTION PLAN	LS	$ 5,000.00	$ 5,000.00
7	832	2,000	EROSION CONTROL	EACH	$ 1.00	$ 2,000.00
					SUBTOTAL	**$ 7,000.00**
			DRAINAGE			
8	605	400	6" BASE PIPE UNDERDRAINS	FT	$ 8.00	$ 3,200.00
9	611	20	15" CONDUIT, TYPE B	FT	$ 75.00	$ 1,500.00
10	611	1	CATCH BASIN, NO. 6	EACH	$ 2,300.00	$ 2,300.00
11	611	1	MANHOLE ADJUSTED TO GRADE	EACH	$ 550.00	$ 550.00
12	611	1	SPECIAL - DRAINAGE	LS	$ 10,000.00	$ 10,000.00
13	SPECIAL	200	MISCELLANEOUS METAL	LB	$ 2.00	$ 400.00
					SUBTOTAL	**$ 17,950.00**
			PAVEMENT			
14	252	400	FULL DEPTH PAVEMENT SAWING	FT	$ 3.00	$ 1,200.00
15	301	250	ASPHALT CONCRETE BASE, PG64-22	CY	$ 150.00	$ 37,500.00
16	304	175	AGGREGATE BASE	CY	$ 45.00	$ 7,875.00
17	407	100	TACK COAT	GAL	$ 2.25	$ 225.00
18	407	75	TACK COAT FOR INTERMEDIATE COURSE	GAL	$ 2.25	$ 169.00

AECOM

SUMMARY OF PROBABLE CONSTRUCTION COSTS - PRE-DESIGN
PHOENIX ROAD AND NORTH RIVER ROAD INTERSECTION IMPROVEMENTS

Prepared by: Stanley Kosilesky Jr., EI
Checked by: Mike Woodring, PE, CPESC

1375 Euclid Avenue, Suite 600, Cleveland, OH 44115-1808
08/06/15
Client: Howland Township
Howland Township, OH

REF. NO.	ITEM	PROJECT QUANTITY	DESCRIPTION	UNIT	UNIT PRICE (2015)	PROJECT COST
19	441	45	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (446), PG64-22	CY	$ 165.00	$ 7,425.00
20	441	55	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, (448)	CY	$ 185.00	$ 10,175.00
					SUBTOTAL	$ 64,569.00
			WATER WORK			
21	638	2	VALVE BOX ADJUSTED TO GRADE	EACH	$ 250.00	$ 500.00
					SUBTOTAL	$ 500.00
			TRAFFIC CONTROL			
22	630	1	SIGNING, MISC.:	LS	$ 5,000.00	$ 5,000.00
23	642	1	PAVEMENT MARKING, MISC.:	LS	$ 5,000.00	$ 5,000.00
					SUBTOTAL	$ 10,000.00
			MISCELLANEOUS			
24	614	LUMP	MAINTAINING TRAFFIC	LS	$ 10,000.00	$ 10,000.00
25	619	3	FIELD OFFICE, TYPE A	MNTH	$ 1,500.00	$ 4,500.00
26	623	LUMP	CONSTRUCTION LAYOUT STAKES AND SURVEYING	LS	$ 5,000.00	$ 5,000.00
27	624	LUMP	MOBILIZATION	LS	$ 4,000.00	$ 4,000.00
					SUBTOTAL	$ 23,500.00
Estimated Project Subtotal						**$142,069**
Contingency (30%)						**$42,621**
Estimated Project Total						**$184,690**

AECOM

1375 Euclid Avenue, Suite 600, Cleveland, OH 44115-1808

SUMMARY OF PROBABLE CONSTRUCTION COSTS - PRE-DESIGN
PHOENIX ROAD AND NORTH RIVER ROAD INTERSECTION IMPROVEMENTS

08/06/15
Client: Howland Township
Howland Township, OH

Prepared by: Stanley Kosilesky Jr., EI
Checked by: Mike Woodring, PE, CPESC

REF. NO.	ITEM	PROJECT QUANTITY	DESCRIPTION	UNIT	UNIT PRICE (2015)	PROJECT COST
Construction Engineering (10%)						**$18,469**
Total Combined Probable Construction Cost						**$203,159**

This Statement of Probable Construction Costs does not include the estimate or costs for any compensible utility relocations, subgrade stabilization/subgrade improvements, Right of Way Acquisition and Acquistion Services, nor does it include Inflation for the year of construction.

Statements of Probable Construction Costs prepared by AECOM represent AECOM's judgment as a design professional familiar with the construction industry. It is recognized, however, that neither AECOM nor the Owner has control over the cost of labor, materials, or equipment nor over the Contractor's methods of determining bid prices or other competitive bidding, market, or negotiating conditions. Accordingly, AECOM cannot and does not warrant or represent that proposals, bids or actual construction costs will not vary from any Statement of Probable Construction Cost or other estimates or evaluations prepared by AECOM.

AECOM

1375 Euclid Avenue, Suite 600, Cleveland, OH 44115-1808

SUMMARY OF PROBABLE CONSTRUCTION COSTS - PRE-DESIGN
GRISWOLD STREET AND NORTH PARK AVENUE INTERSECTION IMPROVEMENTS

08/06/15
Client: Howland Township
Howland Township, OH

Prepared by: Stanley Kosilesky Jr., EI
Checked by: Mike Woodring, PE, CPESC

REF. NO.	ITEM	PROJECT QUANTITY	DESCRIPTION	UNIT	UNIT PRICE (2015)	PROJECT COST
			ROADWAY			
1	201	LUMP	CLEARING AND GRUBBING	LS	$ 5,000.00	$ 5,000.00
2	202	350	PAVEMENT REMOVED	SY	$ 10.00	$ 3,500.00
3	202	650	WALK REMOVED	SF	$ 2.00	$ 1,300.00
4	202	325	CURB REMOVED	FT	$ 5.00	$ 1,625.00
5	203	120	EXCAVATION	CY	$ 14.00	$ 1,680.00
6	203	75	EMBANKMENT	CY	$ 18.00	$ 1,350.00
7	608	900	4" CONCRETE WALK	SF	$ 5.00	$ 4,500.00
8	608	80	CURB RAMP	SF	$ 13.75	$ 1,100.00
					SUBTOTAL	**$ 20,055.00**
			EROSION CONTROL			
9	832	1	STORM WATER POLLUTION PREVENTION PLAN	LS	$ 5,000.00	$ 5,000.00
10	832	2,000	EROSION CONTROL	EACH	$ 1.00	$ 2,000.00
					SUBTOTAL	**$ 7,000.00**
			DRAINAGE			
11	605	350	6" BASE PIPE UNDERDRAINS	FT	$ 8.00	$ 2,800.00
12	611	2	MANHOLE ADJUSTED TO GRADE	EACH	$ 550.00	$ 1,100.00
13	611	1	SPECIAL - DRAINAGE	LS	$ 10,000.00	$ 10,000.00
13	SPECIAL	200	MISCELLANEOUS METAL	LB	$ 2.00	$ 400.00
					SUBTOTAL	**$ 14,300.00**
			PAVEMENT			
14	252	300	FULL DEPTH PAVEMENT SAWING	FT	$ 3.00	$ 900.00
15	301	175	ASPHALT CONCRETE BASE, PG64-22	CY	$ 150.00	$ 26,250.00
16	304	125	AGGREGATE BASE	CY	$ 45.00	$ 5,625.00

AECOM

SUMMARY OF PROBABLE CONSTRUCTION COSTS - PRE-DESIGN
GRISWOLD STREET AND NORTH PARK AVENUE INTERSECTION IMPROVEMENTS

Prepared by: Stanley Kosilesky Jr., EI
Checked by: Mike Woodring, PE, CPESC

1375 Euclid Avenue, Suite 600, Cleveland, OH 44115-1808
08/06/15
Client: Howland Township
Howland Township, OH

REF. NO.	ITEM	PROJECT QUANTITY	DESCRIPTION	UNIT	UNIT PRICE (2015)	PROJECT COST
17	407	75	TACK COAT	GAL	$ 2.25	$ 169.00
18	407	50	TACK COAT FOR INTERMEDIATE COURSE	GAL	$ 2.25	$ 113.00
19	441	35	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (446), PG64-22	CY	$ 165.00	$ 5,775.00
20	441	40	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, (448)	CY	$ 185.00	$ 7,400.00
21	452	30	8" NON-REINFORCED CONCRETE PAVEMENT, CLASS QC1	SY	$ 50.00	$ 1,500.00
22	609	350	CURB, TYPE 6	FT	$ 20.00	$ 7,000.00
					SUBTOTAL	**$ 54,732.00**
			WATER WORK			
23	638	1	VALVE BOX ADJUSTED TO GRADE	EACH	$ 250.00	$ 250.00
					SUBTOTAL	**$ 250.00**
			TRAFFIC CONTROL			
24	630	1	SIGNING, MISC.:	LS	$ 5,000.00	$ 5,000.00
25	642	1	PAVEMENT MARKING, MISC.:	LS	$ 5,000.00	$ 5,000.00
					SUBTOTAL	**$ 10,000.00**
			MISCELLANEOUS			
26	614	LUMP	MAINTAINING TRAFFIC	LS	$ 10,000.00	$ 10,000.00
27	619	3	FIELD OFFICE, TYPE A	MNTH	$ 1,500.00	$ 4,500.00
28	623	LUMP	CONSTRUCTION LAYOUT STAKES AND SURVEYING	LS	$ 5,000.00	$ 5,000.00
29	624	LUMP	MOBILIZATION	LS	$ 4,000.00	$ 4,000.00
					SUBTOTAL	**$ 23,500.00**
Estimated Project Subtotal						**$129,837**

AECOM

1375 Euclid Avenue, Suite 600, Cleveland, OH 44115-1808

SUMMARY OF PROBABLE CONSTRUCTION COSTS - PRE-DESIGN
GRISWOLD STREET AND NORTH PARK AVENUE INTERSECTION IMPROVEMENTS

08/06/15
Client: Howland Township
Howland Township, OH

Prepared by: Stanley Kosilesky Jr., EI
Checked by: Mike Woodring, PE, CPESC

REF. NO.	ITEM	PROJECT QUANTITY	DESCRIPTION	UNIT	UNIT PRICE (2015)	PROJECT COST
Contingency (30%)						**$38,951**
Estimated Project Total						**$168,788**
Construction Engineering (10%)						**$16,879**
Total Combined Probable Construction Cost						**$185,667**

This Statement of Probable Construction Costs does not include the estimate or costs for any compensible utility relocations, subgrade stabilization/subgrade improvements, Right of Way Acquisition and Acquistion Services, nor does it include Inflation for the year of construction.

Statements of Probable Construction Costs prepared by AECOM represent AECOM's judgment as a design professional familiar with the construction industry. It is recognized, however, that neither AECOM nor the Owner has control over the cost of labor, materials, or equipment nor over the Contractor's methods of determining bid prices or other competitive bidding, market, or negotiating conditions. Accordingly, AECOM cannot and does not warrant or represent that proposals, bids or actual construction costs will not vary from any Statement of Probable Construction Cost or other estimates or evaluations prepared by AECOM.

AECOM

1375 Euclid Avenue, Suite 600, Cleveland, OH 44115-1808

SUMMARY OF PROBABLE CONSTRUCTION COSTS - PRE-DESIGN
NEW INDUSTRIAL ACCESS ROAD BETWEEN DIETZ ROAD AND LARCHMONT AVENUE AND PHOENIX ROAD
AND LARCHMONT INTERSECTION IMPROVEMENTS
Prepared by: Stanley Kosilesky Jr., EI
Checked by: Mike Woodring, PE, CPESC

08/06/15
Client: Howland Township
Howland Township, OH

REF. NO.	ITEM	PROJECT QUANTITY	DESCRIPTION	UNIT	UNIT PRICE (2015)	PROJECT COST
			ROADWAY			
1	201	LUMP	CLEARING AND GRUBBING	LS	$ 50,000.00	$ 50,000.00
2	202	550	PAVEMENT REMOVED	SY	$ 10.00	$ 5,500.00
3	202	300	CURB REMOVED	FT	$ 5.00	$ 1,500.00
4	202	1	CATCH BASIN REMOVED	EACH	$ 400.00	$ 400.00
5	202	1	INLET REMOVED	EACH	$ 500.00	$ 500.00
6	203	1500	EXCAVATION	CY	$ 14.00	$ 21,000.00
7	203	400	EMBANKMENT	CY	$ 18.00	$ 7,200.00
					SUBTOTAL	**$ 86,100.00**
			EROSION CONTROL			
8	832	1	STORM WATER POLLUTION PREVENTION PLAN	LS	$ 40,000.00	$ 40,000.00
9	832	15,000	EROSION CONTROL	EACH	$ 1.00	$ 15,000.00
					SUBTOTAL	**$ 55,000.00**
			DRAINAGE			
10	605	5000	6" BASE PIPE UNDERDRAINS	FT	$ 8.00	$ 40,000.00
11	611	40	15" CONDUIT, TYPE B	FT	$ 75.00	$ 3,000.00
11	611	1	CATCH BASIN, NO. 6	EACH	$ 2,300.00	$ 2,300.00
12	611	1	INLET, NO. 2-6	EACH	$ 3,200.00	$ 3,200.00
13	611	1	MANHOLE ADJUSTED TO GRADE	EACH	$ 550.00	$ 550.00
14	611	1	SPECIAL - DRAINAGE	LS	$ 100,000.00	$ 100,000.00
15	SPECIAL	400	MISCELLANEOUS METAL	LB	$ 2.00	$ 800.00
16	895	1	WATER QUALITY TREATMENT	LS	$ 50,000.00	$ 50,000.00
					SUBTOTAL	**$ 199,850.00**
			PAVEMENT			
17	252	750	FULL DEPTH PAVEMENT SAWING	FT	$ 3.00	$ 2,250.00
18	301	2,225	ASPHALT CONCRETE BASE, PG64-22	CY	$ 150.00	$ 333,750.00

AECOM

1375 Euclid Avenue, Suite 600, Cleveland, OH 44115-1808

SUMMARY OF PROBABLE CONSTRUCTION COSTS - PRE-DESIGN
NEW INDUSTRIAL ACCESS ROAD BETWEEN DIETZ ROAD AND LARCHMONT AVENUE AND PHOENIX ROAD
AND LARCHMONT INTERSECTION IMPROVEMENTS
Prepared by: Stanley Kosilesky Jr., EI
Checked by: Mike Woodring, PE, CPESC

08/06/15
Client: Howland Township
Howland Township, OH

REF. NO.	ITEM	PROJECT QUANTITY	DESCRIPTION	UNIT	UNIT PRICE (2015)	PROJECT COST
19	304	1,500	AGGREGATE BASE	CY	$ 45.00	$ 67,500.00
20	407	900	TACK COAT	GAL	$ 2.25	$ 2,025.00
21	407	500	TACK COAT FOR INTERMEDIATE COURSE	GAL	$ 2.25	$ 1,125.00
22	441	400	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (446), PG64-22	CY	$ 165.00	$ 66,000.00
23	441	450	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, (448)	CY	$ 185.00	$ 83,250.00
24	609	350	CURB, TYPE 6	FT	$ 20.00	$ 7,000.00
					SUBTOTAL	**$ 562,900.00**
			WATER WORK			
25	638	1	FIRE HYDRANT REMOVED AND RESET	EACH	$ 2,500.00	$ 2,500.00
					SUBTOTAL	**$ 2,500.00**
			LIGHTING			
26	625	1	LIGHTING, MISC.:	LS	$ 100,000.00	$ 100,000.00
					SUBTOTAL	**$ 100,000.00**
			TRAFFIC CONTROL			
27	630	1	SIGNING, MISC.:	LS	$ 15,000.00	$ 15,000.00
28	642	1	PAVEMENT MARKING, MISC.:	LS	$ 20,000.00	$ 20,000.00
					SUBTOTAL	**$ 35,000.00**
			TRAFFIC SIGNALS			
29	632	1	SIGNALIZATION, MISC.:	LS	$ 25,000.00	$ 25,000.00
					SUBTOTAL	**$ 25,000.00**
			MISCELLANEOUS			
30	614	LUMP	MAINTAINING TRAFFIC	LS	$ 50,000.00	$ 50,000.00

AECOM

1375 Euclid Avenue, Suite 600, Cleveland, OH 44115-1808

SUMMARY OF PROBABLE CONSTRUCTION COSTS - PRE-DESIGN
NEW INDUSTRIAL ACCESS ROAD BETWEEN DIETZ ROAD AND LARCHMONT AVENUE AND PHOENIX ROAD
AND LARCHMONT INTERSECTION IMPROVEMENTS
Prepared by: Stanley Kosilesky Jr., EI
Checked by: Mike Woodring, PE, CPESC

08/06/15
Client: Howland Township
Howland Township, OH

REF. NO.	ITEM	PROJECT QUANTITY	DESCRIPTION	UNIT	UNIT PRICE (2015)	PROJECT COST
31	619	9	FIELD OFFICE, TYPE B	MNTH	$ 2,000.00	$ 18,000.00
32	623	LUMP	CONSTRUCTION LAYOUT STAKES AND SURVEYING	LS	$ 25,000.00	$ 25,000.00
33	624	LUMP	MOBILIZATION	LS	$ 40,000.00	$ 40,000.00
					SUBTOTAL	$ 133,000.00
Estimated Project Subtotal						**$1,199,350**
Contingency (30%)						**$359,805**
Estimated Project Total						**$1,559,155**
Construction Engineering (10%)						**$155,916**
Total Combined Probable Construction Cost						**$1,715,071**

This Statement of Probable Construction Costs does not include the estimate or costs for any compensible utility relocations, subgrade stabilization/subgrade improvements, Right of Way Acquisition and Acquistion Services, nor does it include Inflation for the year of construction.

Statements of Probable Construction Costs prepared by AECOM represent AECOM's judgment as a design professional familiar with the construction industry. It is recognized, however, that neither AECOM nor the Owner has control over the cost of labor, materials, or equipment nor over the Contractor's methods of determining bid prices or other competitive bidding, market, or negotiating conditions. Accordingly, AECOM cannot and does not warrant or represent that proposals, bids or actual construction costs will not vary from any Statement of Probable Construction Cost or other estimates or evaluations prepared by AECOM.

AECOM

SUMMARY OF PROBABLE CONSTRUCTION COSTS - PRE-DESIGN
CONCORD STEEL ACCESS ROAD TO BRONZE ROAD

Prepared by: Stanley Kosilesky Jr., EI
Checked by: Mike Woodring, PE, CPESC

1375 Euclid Avenue, Suite 600, Cleveland, OH 44115-1808
08/05/15
Client: Howland Township
Howland Township, OH

REF. NO.	ITEM	PROJECT QUANTITY	DESCRIPTION	UNIT	UNIT PRICE (2015)	PROJECT COST
			ROADWAY			
1	201	LUMP	CLEARING AND GRUBBING	LS	$ 25,000.00	$ 25,000.00
2	203	900	EXCAVATION	CY	$ 14.00	$ 12,600.00
3	203	500	EMBANKMENT	CY	$ 18.00	$ 9,000.00
					SUBTOTAL	**$ 46,600.00**
			EROSION CONTROL			
4	832	1	STORM WATER POLLUTION PREVENTION PLAN	LS	$ 15,000.00	$ 15,000.00
5	832	7,000	EROSION CONTROL	EACH	$ 1.00	$ 7,000.00
					SUBTOTAL	**$ 22,000.00**
			DRAINAGE			
6	605	750	6" BASE PIPE UNDERDRAINS	FT	$ 8.00	$ 6,000.00
7	611	1	SPECIAL - DRAINAGE	LS	$ 75,000.00	$ 75,000.00
					SUBTOTAL	**$ 81,000.00**
			PAVEMENT			
8	301	375	ASPHALT CONCRETE BASE, PG64-22	CY	$ 150.00	$ 56,250.00
9	304	250	AGGREGATE BASE	CY	$ 45.00	$ 11,250.00
10	407	150	TACK COAT	GAL	$ 2.25	$ 338.00
11	407	100	TACK COAT FOR INTERMEDIATE COURSE	GAL	$ 2.25	$ 225.00
12	441	75	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (446), PG64-22	CY	$ 165.00	$ 12,375.00
13	441	100	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, (448)	CY	$ 185.00	$ 18,500.00
					SUBTOTAL	**$ 98,938.00**
			LIGHTING			
14	625	1	LIGHTING, MISC.:	LS	$ 30,000.00	$ 30,000.00
					SUBTOTAL	**$ 30,000.00**

AECOM

SUMMARY OF PROBABLE CONSTRUCTION COSTS - PRE-DESIGN
CONCORD STEEL ACCESS ROAD TO BRONZE ROAD

Prepared by: Stanley Kosilesky Jr., EI
Checked by: Mike Woodring, PE, CPESC

1375 Euclid Avenue, Suite 600, Cleveland, OH 44115-1808
08/05/15
Client: Howland Township
Howland Township, OH

REF. NO.	ITEM	PROJECT QUANTITY	DESCRIPTION	UNIT	UNIT PRICE (2015)	PROJECT COST
			RETAINING WALL			
15	610	1	SPECIAL - RETAINING WALL, MISC.:	LS	$ 100,000.00	$ 100,000.00
					SUBTOTAL	$ 100,000.00
			TRAFFIC CONTROL			
16	630	1	SIGNING, MISC.:	LS	$ 15,000.00	$ 15,000.00
17	642	1	PAVEMENT MARKING, MISC.:	LS	$ 15,000.00	$ 15,000.00
					SUBTOTAL	$ 30,000.00
			TRAFFIC SIGNALS			
18	632	1	SIGNALIZATION, MISC.:	LS	$ 100,000.00	$ 100,000.00
					SUBTOTAL	$ 100,000.00
			RAILROAD			
19	690	1	SPECIAL - MISC.: RAILWAY GRADE CROSSING	LS	$ 200,000.00	$ 200,000.00
					SUBTOTAL	$ 200,000.00
20	614	LUMP	MAINTAINING TRAFFIC	LS	$ 20,000.00	$ 20,000.00
21	619	9	FIELD OFFICE, TYPE B	MNTH	$ 2,000.00	$ 18,000.00
22	623	LUMP	CONSTRUCTION LAYOUT STAKES AND SURVEYING	LS	$ 15,000.00	$ 15,000.00
23	624	LUMP	MOBILIZATION	LS	$ 20,000.00	$ 20,000.00
					SUBTOTAL	$ 73,000.00
Estimated Project Subtotal						**$781,538**
Contingency (30%)						**$234,461**

AECOM

1375 Euclid Avenue, Suite 600, Cleveland, OH 44115-1808

SUMMARY OF PROBABLE CONSTRUCTION COSTS - PRE-DESIGN
CONCORD STEEL ACCESS ROAD TO BRONZE ROAD

08/05/15
Client: Howland Township
Howland Township, OH

Prepared by: Stanley Kosilesky Jr., EI
Checked by: Mike Woodring, PE, CPESC

REF. NO.	ITEM	PROJECT QUANTITY	DESCRIPTION	UNIT	UNIT PRICE (2015)	PROJECT COST
Estimated Project Total						**$1,015,999**
Construction Engineering (10%)						**$101,600**
Total Combined Probable Construction Cost						**$1,117,599**

This Statement of Probable Construction Costs does not include the estimate or costs for any compensible utility relocations, subgrade stabilization/subgrade improvements, Right of Way Acquisition and Acquistion Services, nor does it include Inflation for the year of construction.

Statements of Probable Construction Costs prepared by AECOM represent AECOM's judgment as a design professional familiar with the construction industry. It is recognized, however, that neither AECOM nor the Owner has control over the cost of labor, materials, or equipment nor over the Contractor's methods of determining bid prices or other competitive bidding, market, or negotiating conditions. Accordingly, AECOM cannot and does not warrant or represent that proposals, bids or actual construction costs will not vary from any Statement of Probable Construction Cost or other estimates or evaluations prepared by AECOM.

AECOM

SUMMARY OF PROBABLE CONSTRUCTION COSTS - PRE-DESIGN
RSL INDUSTRIES RAILWAY SPUR

Prepared by: Stanley Kosilesky Jr., EI
Checked by: Mike Woodring, PE, CPESC

1375 Euclid Avenue, Suite 600, Cleveland, OH 44115-1808
08/06/15
Client: Howland Township
Howland Township, OH

REF. NO.	ITEM	PROJECT QUANTITY	DESCRIPTION	UNIT	UNIT PRICE (2015)	PROJECT COST
			ROADWAY			
1	201	LUMP	CLEARING AND GRUBBING	LS	$ 10,000.00	$ 10,000.00
2	202	760	PAVEMENT REMOVED	SY	$ 10.00	$ 7,600.00
3	202	1,200	WALK REMOVED	SF	$ 2.00	$ 2,400.00
4	202	275	CURB REMOVED	FT	$ 5.00	$ 1,375.00
5	202	4	CATCH BASIN REMOVED	EACH	$ 400.00	$ 1,600.00
6	203	120	EXCAVATION	CY	$ 14.00	$ 1,680.00
7	203	120	EMBANKMENT	CY	$ 18.00	$ 2,160.00
8	608	1,025	4" CONCRETE WALK	SF	$ 5.00	$ 5,125.00
9	608	80	CURB RAMP	SF	$ 13.75	$ 1,100.00
					SUBTOTAL	**$ 33,040.00**
			EROSION CONTROL			
10	832	1	STORM WATER POLLUTION PREVENTION PLAN	LS	$ 5,000.00	$ 5,000.00
11	832	7,000	EROSION CONTROL	EACH	$ 1.00	$ 7,000.00
					SUBTOTAL	**$ 12,000.00**
			DRAINAGE			
12	605	350	6" BASE PIPE UNDERDRAINS	FT	$ 8.00	$ 2,800.00
13	611	80	15" CONDUIT, TYPE B	FT	$ 75.00	$ 6,000.00
13	611	4	CATCH BASIN, NO. 3A	EACH	$ 2,400.00	$ 9,600.00
14	611	10	CATCH BASIN ADJUSTED TO GRADE	EACH	$ 600.00	$ 6,000.00
15	611	7	MANHOLE ADJUSTED TO GRADE	EACH	$ 550.00	$ 3,850.00
16	SPECIAL	1200	MISCELLANEOUS METAL	LB	$ 2.00	$ 2,400.00
					SUBTOTAL	**$ 30,650.00**
			PAVEMENT			
17	252	300	FULL DEPTH PAVEMENT SAWING	FT	$ 3.00	$ 900.00
18	254	8,850	PAVEMENT PLANING, ASPHALT CONCRETE	SY	$ 2.50	$ 22,125.00

AECOM

SUMMARY OF PROBABLE CONSTRUCTION COSTS - PRE-DESIGN
RSL INDUSTRIES RAILWAY SPUR

Prepared by: Stanley Kosilesky Jr., EI
Checked by: Mike Woodring, PE, CPESC

1375 Euclid Avenue, Suite 600, Cleveland, OH 44115-1808
08/06/15
Client: Howland Township
Howland Township, OH

REF. NO.	ITEM	PROJECT QUANTITY	DESCRIPTION	UNIT	UNIT PRICE (2015)	PROJECT COST
19	301	200	ASPHALT CONCRETE BASE, PG64-22	CY	$ 150.00	$ 30,000.00
20	304	140	AGGREGATE BASE	CY	$ 45.00	$ 6,300.00
21	407	800	TACK COAT	GAL	$ 2.25	$ 1,800.00
22	407	500	TACK COAT FOR INTERMEDIATE COURSE	GAL	$ 2.25	$ 1,125.00
23	441	400	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (446), PG64-22	CY	$ 165.00	$ 66,000.00
24	441	475	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, (448)	CY	$ 185.00	$ 87,875.00
25	452	300	8" NON-REINFORCED CONCRETE PAVEMENT, CLASS QC1	SY	$ 50.00	$ 15,000.00
26	609	350	CURB, TYPE 6	FT	$ 20.00	$ 7,000.00
					SUBTOTAL	$ 238,125.00
			WATER WORK			
27	638	18	VALVE BOX ADJUSTED TO GRADE	EACH	$ 250.00	$ 4,500.00
					SUBTOTAL	$ 4,500.00
			SANITARY			
28	611	5	MANHOLE ADJUSTED TO GRADE	EACH	$ 550.00	$ 2,750.00
					SUBTOTAL	$ 2,750.00
			TRAFFIC CONTROL			
29	630	1	SIGNING, MISC.:	LS	$ 10,000.00	$ 10,000.00
30	642	1	PAVEMENT MARKING, MISC.:	LS	$ 10,000.00	$ 10,000.00
					SUBTOTAL	$ 20,000.00
			TRAFFIC SIGNALS			
31	632	1	SIGNALIZATION, MISC.:	LS	$ 75,000.00	$ 75,000.00
					SUBTOTAL	$ 75,000.00

AECOM

SUMMARY OF PROBABLE CONSTRUCTION COSTS - PRE-DESIGN
RSL INDUSTRIES RAILWAY SPUR

Prepared by: Stanley Kosilesky Jr., EI
Checked by: Mike Woodring, PE, CPESC

1375 Euclid Avenue, Suite 600, Cleveland, OH 44115-1808
08/06/15
Client: Howland Township
Howland Township, OH

REF. NO.	ITEM	PROJECT QUANTITY	DESCRIPTION	UNIT	UNIT PRICE (2015)	PROJECT COST
			MISCELLANEOUS			
32	614	LUMP	MAINTAINING TRAFFIC	LS	$ 50,000.00	$ 50,000.00
33	619	9	FIELD OFFICE, TYPE B	MNTH	$ 2,000.00	$ 18,000.00
34	623	LUMP	CONSTRUCTION LAYOUT STAKES AND SURVEYING, AS PER PLAN	LS	$ 15,000.00	$ 15,000.00
35	624	LUMP	MOBILIZATION	LS	$ 20,000.00	$ 20,000.00
					SUBTOTAL	$ 103,000.00
Estimated Project Subtotal						**$519,065**
Contingency (30%)						**$155,720**
Estimated Project Total						**$674,785**
Construction Engineering (10%)						**$67,479**
Total Combined Probable Construction Cost						**$742,264**

This Statement of Probable Construction Costs does not include the estimate or costs for any compensible utility relocations, subgrade stabilization/subgrade improvements, Right of Way Acquisition and Acquistion Services, nor does it include Inflation for the year of construction.

Statements of Probable Construction Costs prepared by AECOM represent AECOM's judgment as a design professional familiar with the construction industry. It is recognized, however, that neither AECOM nor the Owner has control over the cost of labor, materials, or equipment nor over the Contractor's methods of determining bid prices or other competitive bidding, market, or negotiating conditions. Accordingly, AECOM cannot and does not warrant or represent that proposals, bids or actual construction costs will not vary from any Statement of Probable Construction Cost or other estimates or evaluations prepared by AECOM.

AECOM

SUMMARY OF PROBABLE CONSTRUCTION COSTS - PRE-DESIGN
WHEATLAND TUBE RAILWAY SIDING ACCESS

Prepared by: Stanley Kosilesky Jr., EI
Checked by: Mike Woodring, PE, CPESC

1375 Euclid Avenue, Suite 600, Cleveland, OH 44115-1808
08/06/15
Client: Howland Township
Howland Township, OH

REF. NO.	ITEM	PROJECT QUANTITY	DESCRIPTION	UNIT	UNIT PRICE (2015)	PROJECT COST
			ROADWAY			
1	201	LUMP	CLEARING AND GRUBBING	LS	$ 10,000.00	$ 10,000.00
2	202	760	PAVEMENT REMOVED	SY	$ 10.00	$ 7,600.00
3	202	1,200	WALK REMOVED	SF	$ 2.00	$ 2,400.00
4	202	275	CURB REMOVED	FT	$ 5.00	$ 1,375.00
5	202	4	CATCH BASIN REMOVED	EACH	$ 400.00	$ 1,600.00
6	203	120	EXCAVATION	CY	$ 14.00	$ 1,680.00
7	203	120	EMBANKMENT	CY	$ 18.00	$ 2,160.00
8	608	1,025	4" CONCRETE WALK	SF	$ 5.00	$ 5,125.00
9	608	80	CURB RAMP	SF	$ 13.75	$ 1,100.00
					SUBTOTAL	**$ 33,040.00**
			EROSION CONTROL			
10	832	1	STORM WATER POLLUTION PREVENTION PLAN	LS	$ 5,000.00	$ 5,000.00
11	832	7,000	EROSION CONTROL	EACH	$ 1.00	$ 7,000.00
					SUBTOTAL	**$ 12,000.00**
			DRAINAGE			
12	605	350	6" BASE PIPE UNDERDRAINS	FT	$ 8.00	$ 2,800.00
13	611	80	15" CONDUIT, TYPE B	FT	$ 75.00	$ 6,000.00
13	611	4	CATCH BASIN, NO. 3A	EACH	$ 2,400.00	$ 9,600.00
14	611	10	CATCH BASIN ADJUSTED TO GRADE	EACH	$ 600.00	$ 6,000.00
15	611	7	MANHOLE ADJUSTED TO GRADE	EACH	$ 550.00	$ 3,850.00
16	SPECIAL	1200	MISCELLANEOUS METAL	LB	$ 2.00	$ 2,400.00
					SUBTOTAL	**$ 30,650.00**
			PAVEMENT			
17	252	300	FULL DEPTH PAVEMENT SAWING	FT	$ 3.00	$ 900.00
18	254	8,850	PAVEMENT PLANING, ASPHALT CONCRETE	SY	$ 2.50	$ 22,125.00
19	301	200	ASPHALT CONCRETE BASE, PG64-22	CY	$ 150.00	$ 30,000.00

AECOM

SUMMARY OF PROBABLE CONSTRUCTION COSTS - PRE-DESIGN
WHEATLAND TUBE RAILWAY SIDING ACCESS

Prepared by: Stanley Kosilesky Jr., EI
Checked by: Mike Woodring, PE, CPESC

1375 Euclid Avenue, Suite 600, Cleveland, OH 44115-1808
08/06/15
Client: Howland Township
Howland Township, OH

REF. NO.	ITEM	PROJECT QUANTITY	DESCRIPTION	UNIT	UNIT PRICE (2015)	PROJECT COST
20	304	140	AGGREGATE BASE	CY	$ 45.00	$ 6,300.00
21	407	800	TACK COAT	GAL	$ 2.25	$ 1,800.00
22	407	500	TACK COAT FOR INTERMEDIATE COURSE	GAL	$ 2.25	$ 1,125.00
23	441	400	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (446), PG64-22	CY	$ 165.00	$ 66,000.00
24	441	475	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, (448)	CY	$ 185.00	$ 87,875.00
25	452	300	8" NON-REINFORCED CONCRETE PAVEMENT, CLASS QC1	SY	$ 50.00	$ 15,000.00
26	609	350	CURB, TYPE 6	FT	$ 20.00	$ 7,000.00
					SUBTOTAL	**$ 238,125.00**
			WATER WORK			
27	638	18	VALVE BOX ADJUSTED TO GRADE	EACH	$ 250.00	$ 4,500.00
					SUBTOTAL	**$ 4,500.00**
			SANITARY			
28	611	5	MANHOLE ADJUSTED TO GRADE	EACH	$ 550.00	$ 2,750.00
					SUBTOTAL	**$ 2,750.00**
			TRAFFIC CONTROL			
29	630	1	SIGNING, MISC.:	LS	$ 10,000.00	$ 10,000.00
30	642	1	PAVEMENT MARKING, MISC.:	LS	$ 10,000.00	$ 10,000.00
					SUBTOTAL	**$ 20,000.00**
			TRAFFIC SIGNALS			
31	632	1	SIGNALIZATION, MISC.:	LS	$ 75,000.00	$ 75,000.00
					SUBTOTAL	**$ 75,000.00**
			MISCELLANEOUS			
32	614	LUMP	MAINTAINING TRAFFIC	LS	$ 50,000.00	$ 50,000.00

AECOM

SUMMARY OF PROBABLE CONSTRUCTION COSTS - PRE-DESIGN
WHEATLAND TUBE RAILWAY SIDING ACCESS

Prepared by: Stanley Kosilesky Jr., EI
Checked by: Mike Woodring, PE, CPESC

1375 Euclid Avenue, Suite 600, Cleveland, OH 44115-1808
08/06/15
Client: Howland Township
Howland Township, OH

REF. NO.	ITEM	PROJECT QUANTITY	DESCRIPTION	UNIT	UNIT PRICE (2015)	PROJECT COST
33	619	9	FIELD OFFICE, TYPE B	MNTH	$ 2,000.00	$ 18,000.00
34	623	LUMP	CONSTRUCTION LAYOUT STAKES AND SURVEYING, AS PER PLAN	LS	$ 15,000.00	$ 15,000.00
35	624	LUMP	MOBILIZATION	LS	$ 20,000.00	$ 20,000.00
					SUBTOTAL	$ 103,000.00
Estimated Project Subtotal						**$519,065**
Contingency (30%)						**$155,720**
Estimated Project Total						**$674,785**
Construction Engineering (10%)						**$67,479**
Total Combined Probable Construction Cost						**$742,264**

This Statement of Probable Construction Costs does not include the estimate or costs for any compensible utility relocations, subgrade stabilization/subgrade improvements, Right of Way Acquisition and Acquistion Services, nor does it include Inflation for the year of construction.

Statements of Probable Construction Costs prepared by AECOM represent AECOM's judgment as a design professional familiar with the construction industry. It is recognized, however, that neither AECOM nor the Owner has control over the cost of labor, materials, or equipment nor over the Contractor's methods of determining bid prices or other competitive bidding, market, or negotiating conditions. Accordingly, AECOM cannot and does not warrant or represent that proposals, bids or actual construction costs will not vary from any Statement of Probable Construction Cost or other estimates or evaluations prepared by AECOM.

AECOM

SUMMARY OF PROBABLE CONSTRUCTION COSTS - PRE-DESIGN
PHOENIX ROAD DRAINAGE IMPROVEMENTS

Prepared by: Stanley Kosilesky Jr., EI
Checked by: Mike Woodring, PE, CPESC

1375 Euclid Avenue, Suite 600, Cleveland, OH 44115-1808
08/06/15
Client: Howland Township
Howland Township, OH

REF. NO.	ITEM	PROJECT QUANTITY	DESCRIPTION	UNIT	UNIT PRICE (2015)	PROJECT COST
			ROADWAY			
1	201	LUMP	CLEARING AND GRUBBING	LS	$ 10,000.00	$ 10,000.00
2	203	250	EXCAVATION	CY	$ 14.00	$ 3,500.00
3	203	150	EMBANKMENT	CY	$ 18.00	$ 2,700.00
					SUBTOTAL	**$ 16,200.00**
			EROSION CONTROL			
4	832	1	STORM WATER POLLUTION PREVENTION PLAN	LS	$ 5,000.00	$ 5,000.00
5	832	3,000	EROSION CONTROL	EACH	$ 1.00	$ 3,000.00
					SUBTOTAL	**$ 8,000.00**
			DRAINAGE			
6	611	1	SPECIAL - DRAINAGE	LS	$ 150,000.00	$ 150,000.00
					SUBTOTAL	**$ 150,000.00**
			MISCELLANEOUS			
7	614	LUMP	MAINTAINING TRAFFIC	LS	$ 10,000.00	$ 10,000.00
8	619	9	FIELD OFFICE, TYPE A	MNTH	$ 1,500.00	$ 13,500.00
9	623	LUMP	CONSTRUCTION LAYOUT STAKES AND SURVEYING, AS PER PLAN	LS	$ 7,500.00	$ 7,500.00
10	624	LUMP	MOBILIZATION	LS	$ 10,000.00	$ 10,000.00
					SUBTOTAL	**$ 41,000.00**
Estimated Project Subtotal						**$215,200**
Contingency (30%)						**$64,560**
Estimated Project Total						**$279,760**

AECOM

SUMMARY OF PROBABLE CONSTRUCTION COSTS - PRE-DESIGN
PHOENIX ROAD DRAINAGE IMPROVEMENTS

Prepared by: Stanley Kosilesky Jr., EI
Checked by: Mike Woodring, PE, CPESC

1375 Euclid Avenue, Suite 600, Cleveland, OH 44115-1808

08/06/15
Client: Howland Township
Howland Township, OH

REF. NO.	ITEM	PROJECT QUANTITY	DESCRIPTION	UNIT	UNIT PRICE (2015)	PROJECT COST
Construction Engineering (10%)						**$27,976**
Total Combined Probable Construction Cost						**$307,736**

This Statement of Probable Construction Costs does not include the estimate or costs for any compensible utility relocations, subgrade stabilization/subgrade improvements, Right of Way Acquisition and Acquistion Services, nor does it include Inflation for the year of construction.

Statements of Probable Construction Costs prepared by AECOM represent AECOM's judgment as a design professional familiar with the construction industry. It is recognized, however, that neither AECOM nor the Owner has control over the cost of labor, materials, or equipment nor over the Contractor's methods of determining bid prices or other competitive bidding, market, or negotiating conditions. Accordingly, AECOM cannot and does not warrant or represent that proposals, bids or actual construction costs will not vary from any Statement of Probable Construction Cost or other estimates or evaluations prepared by AECOM.

AECOM
Wheatland Tube Rail Siding
By: REZ 8/5/15
Checked By: SK
*The following cost estimate does not have any cost associated with Railroad Signal Work, ROW Acquisition, Utility Relocates or Traffic Signals.

ITEM	ITEM UNIT COST	UNIT	QUANTITY	ITEM COST
CLEARING AND GRUBBING	$4,000.00	ACRE	3	$12,000.00
EXCAVATION	$18.00	CU YD	5000	$90,000.00
EMBANKMENT	$15.00	CU YD	5000	$75,000.00
SEEDING	$3,000.00	ACRE	2	$6,000.00
TEMPORARY PERIMETER EROSION BARRIER	$3.00	LFT	2200	$6,600.00
PIPE CULVERTS / DRAINAGE	$50.00	LFT	400	$20,000.00
INLET AND PIPE PROTECTION	$175.00	EACH	4	$700.00
TEMPORARY DITCH CHECKS	$165.00	LFT	120	$19,800.00
SUBBALLAST	$35.00	TON	2600	$91,000.00
RAILROAD TRACK REMOVAL	$30.00	TFT	240	$7,200.00
RAILROAD TRACK	$200.00	TFT	1960	$392,000.00
RAILROAD TRACK TURNOUTS	$120,000.00	EACH	2	$240,000.00
SWITCH POINT DERAILS	$50,000.00	EACH	2	$100,000.00
TIMBER CROSSINGS	$500.00	TFT	40	$20,000.00
			SUB TOTAL	$1,080,300.00
MOBILIZATION (4% OF SUB TOTAL)				$43,212.00
SUB TOTAL (WITHOUT CONTINGENCY)				$1,123,512.00
CONTINGENCY - 30%				$337,053.60
*TOTAL COST WITHOUT ITEMS MENTIONED ABOVE				$1,460,565.60

Prepared by: AECOM • 1375 Euclid Avenue • Cleveland, Ohio • 44115 • 216.622.2400 • www.aecom.com