The Facilities Master Plan was completed in 2004 and identified the need for improvements to the City of Ann Arbor’s Wastewater Treatment Plant (WWTP). The required renovations include rehabilitation of existing structures, upgrading of primary and secondary wastewater treatment processes, and replacement of aging facilities with new facilities. These renovations will allow the City of Ann Arbor to meet future flow and loading demands as well as regulatory requirements. The current WWTP has a design capacity of 29.5 million gallons per day (mgd) and consists of an older West Plant (constructed in the 1930s) and a newer East Plant (constructed in the late 1970s).

The City of Ann Arbor retained Malcolm Pirnie (an engineering firm that specializes in the study, design, and construction management of wastewater treatment plants) to design these improvements. The Facilities Renovations Project was divided into Phase I and Phase II Projects. Phase I included design and construction services for demolition of two existing structures. Phase II is the larger of the two projects and includes rehabilitation of the East Plant and demolition and reconstruction of the West Plant. Both phases are summarized below.

**Facilities Renovations Project – Phase I**

Phase I of the Facilities Renovations Project included:

- Demolition of the Storage Building.
- Demolition of the Reaeration Tank.
- Relocation of utilities prior to demolition.
- Electrical work to isolate the East Plant power from the Solids Handling Building.
- Installation of a waste activated sludge (WAS) line to convey sludge to the Solids Handling Building.

The Phase 1 Project was completed in March 2011.
Facilities Renovations Project – Phase II

The design phase of the project consists of the East Plant modifications, West Plant demolition and reconstruction, and electrical and site work.

Phase II Scope of Work

East Plant modifications include:

- Rehabilitation of the East Plant aeration system including new blowers, new air piping, new diffused aeration system, new mixers, and reconfiguration of the tank flow patterns.
- Modification of the East Electrical/Blower Building including removal of the standby generators and electrical gear, installation of a new wastewater sampler room within this building, and replacement of the East Plant return activated sludge (RAS) pumps.
- Electrical improvements to the East Plant Primary Building.
- Miscellaneous repairs to the secondary clarifiers.
- Conversion and rehabilitation of the Dechlorination Building to the Tertiary Filter Blower Building.
- Construction of the new East Plant Ferric Building.
- Concrete repair and gate repair throughout the East Plant.
- Replacement of the old belowground boiler piping.

West Plant demolition includes:

- Demolition of six digester tanks, primary and secondary clarifiers, aeration tanks, the Administration Building, a portion of the old chlorine contact tank, the Chlorine Building, flow splitting structures, the Fabrication Shop, the Machinery Building, the West Plant Blower Building, a storm water outfall structure, a chemical storage tank farm and old flocculation basins.

West Plant reconstruction includes the design and construction of:

- Primary clarifiers
- The West Plant Primary Building
- Aeration tanks
- Secondary clarifiers
- The West Plant Secondary Building
- The Administration Building
- An electrical building for the Raw Sewage Lift Station
- An influent splitter/flow monitoring station
- The West Plant Ferric Building
- A storm water pumping and discharge facility
Electrical and site work includes:

- Replacement of the existing 4.8-kV power distribution system with a 13.2-kV power distribution system plant-wide.
- A new Central Electrical Building.
- Replacement of existing standby generators with new generators located within the Central Electrical Building.
- Rerouting of existing site utilities.
- Upgrading and reconfiguration of the existing storm water system.
- Upgrading of the existing earthen embankment to meet Federal Emergency Management Agency (FEMA) standards for certification.
- Relocation of DTE Energy power transmission lines.
- Installation of new roadways throughout the plant.
- Upgrading of the existing supervisory control and data acquisition (SCADA) system.

Phase II Timeline

Project Milestones

The Phase II Project is under construction. The following is a timeline of the key project milestones to date:

- A contract with Walsh Construction was executed and the notice to proceed for construction of the Facilities Renovations Project was issued on June 8, 2012.
- The West Plant start-up and commissioning began in October 2015.

Regulatory Milestones

Important regulatory compliance elements of the Facilities Renovations Project included submittal of the site plan application and completion of the permitting process through Ann Arbor Township, Washtenaw County, the State of Michigan, and FEMA.

The following is a timeline of the key regulatory milestones to date:

- The preliminary Storm Water Management Plan was approved by the Washtenaw County Water Resource Commissioner on March 1, 2010.
- The Preliminary Site Plan application and Natural Features Impact Statement were approved during the Ann Arbor Township Planning Commission meeting on March 1, 2010.
- The Final Storm Water Management Plan was approved by Washtenaw County on September 8, 2010.
- FEMA approved the Conditional Letter of Map Revision (CLOMR) application and notified the City on October 8, 2010.
• The Final Site Plan application was approved by Ann Arbor Township on December 6, 2010.

Funding Milestones

The following dates are key milestones regarding the State Revolving Fund (SRF) application, S2 Grant, and Water Pollution Control Tax Exemption Application:

• Malcolm Pirnie and the City of Ann Arbor submitted SRF application Parts I, II and III on November 29, 2011; January 6, 2012; and February 17, 2012, respectively.
• The City of Ann Arbor prepared and approved the Tentative Contract Award to Walsh Construction on February 17, 2012.
• On March 12, 2012, the Michigan Department of Environmental Quality (MDEQ) issued the Order of Approval for the SRF loan.
• The SRF loan closing occurred on April 10, 2012.
• The Notice of Award was issued to Walsh Construction on April 13, 2012.
• The MDEQ approved the S2 grant amount of $256,136 on October 28, 2011.
• On October 13, 2011, the State Tax Commission approved the application and issued a tax exemption certificate.

Phase II Construction Status

• The West Plant secondary clarifiers are complete.
• The West Plant Storm Water Pump Station is complete.
• The Central Electrical Building is complete.
• The new Administration Building is complete.
• The new West Plant aeration tanks, Blower Building and Primary Building are complete.
• The Raw Sewage Lift Station Electrical Building is complete.
• The West Plant primary clarifiers are complete.
• The Influent Splitter Flow Monitoring and Control Station is complete.
• The Maintenance Building improvements are complete.
• The Retention Building modifications are complete.
• Electrical reconfiguration in the Retention Building is complete.
• Site work continues with the storm collection system including swales, rain gardens, and detention ponds.
• Permanent paving is complete throughout the West Plant.
• The entrance road paving from the west end of the plant access road bridge to Old Dixboro Road is complete.
• The East Plant Blower Building renovations are complete.
• The three new East Plant blowers are installed and operational.
The installations of East Plant primary clarifiers PC-E1, PC-E2, PC-E3 and PC-E4 mechanisms and appurtenances are complete.
The installations of East Plant secondary clarifiers SC-E1, SC-E2, SC-E3 and SC-E4 mechanisms and appurtenances are complete.
The installations of the launder covers for East Plant secondary clarifiers are complete.
The East Plant primary clarifiers and East Flow Splitter Structure electrical work is complete.
The Tertiary Filter Building blowers, substation, and piping installation are complete.
Electrical reconfiguration in the Raw Sewage Lift Station is complete.
The MCCs timing delay reconfiguration for the screw pumps in the Raw Sewage Lift Station is complete.
The new gas detection system in the Screen & Grit Building is complete.
The site wide restoration of masonry and concrete repairs are complete.
The Administration Building has received the Certificate of Occupancy and is substantially complete.
The West Plant start-up, Performance Testing, and Operational Demonstrations for West Plant Train W-1 and W-2 are complete.
West Plant Trains W-1 and W-2 are substantially complete.
The East Plant demolition work for all Trains is complete.
The East Blower Building interior demolition work is complete.
The East Blower Building phase II (blowers #7 & #8) demolition and removal are complete.
The East Plant Trains E-1, E-2, E-3, and E-4 RAS/WAS piping and pumps installations are complete. The E-1, E-2, E-3, and E-4 RAS pumps have been powered and started up. The WAS pumps WASP-E1 and E2 are installed and have been started up.
Electrical renovations in the East Blower Building are complete.
The East Blower Building sampler room is constructed and painted.
The East Blower Building sampler room electrical and controls is ongoing.
The East Blower Building sampler room plumbing, ceiling, lighting, HVAC, and temperature controls are complete.
The East Plant Aeration Tanks E1 through E4 structural work and protective slurry coating installations are complete.
The East Plant Aeration Tanks 1, 2, 3, & 4 mechanical and electrical work are complete.
The installation of HVAC work for the East Blower Building is complete.
The East Primary Building electrical modifications are complete.
The new chlorine tablet feeder in the Retention Building is installed and has been commissioned.
The slide gates and actuators for PC-E1, PC-E2, PC-E3, and PC-E4 have been installed at the East Flow Splitter Structure.
Demolition of the parshall flume in the East Flow Splitter Structure is complete.
The East Aeration Tank new deck lighting installation is complete.
The East Aeration Tanks AT-E1, AT-E2, AT-E3 and AT-E4 handrail installations are complete.
The East Flow Splitter Structure handrail installation is complete.
Project Site sidewalk installation is complete.
The recoating of interior submerged RAS and Aeration Drain piping for the East Aeration Tanks AT-E1, AT-E2, AT-E3 and AT-E4 is complete.
The start-up of the East Plant Trains E-1, E-2, E-3, and E-4 is complete.
The East Plant Trains demolition is complete.
The East Plant Performance Testing and Operational Demonstrations for the East Plant Trains E-1, E-2, E-3 and E-4 are complete.
East Plant Trains E-1, E-2, E-3, and E-4 are substantially complete.
The East Primary Clarifiers bridges, center columns, and feed wells are reconditioned and installed.
The Secondary Clarifiers bridges, drives, and center columns are reconditioned and installed.
The existing electrical equipment in the East Blower Building has been demolished and removed.
The demolition of existing electrical conduit and raceways in the East Blower Building are complete.
The temporary power feeds to the East Plant have been demolished and removed.
The demolition of the 30" crossover piping in the East Aeration Tank AT-E3 is complete.
The construction of walls for the East Aeration Tanks is complete.
The installation of positive displacement blower air (PDBA) piping for the East Aeration Tanks is complete.
The installations of RAS/WAS piping for the East Aeration Tanks and East Blower Building phases are complete.
The extension of the effluent trough walls for the East Secondary Clarifiers are complete.
The installations of weirs and baffles for the East Plant Clarifiers are complete.
The HVAC openings and masonry rework for the East Primary Building and East Blower Building are complete.
• The translucent panel installations for the East Blower Building are complete.
• The concrete infills for demolished equipment pads are complete throughout the Project Site.
• The diffuser piping installation for all East Aeration Tanks is complete.
• The temporary earth retention installation and excavation for the East Junction Chamber is complete.
• The 60" piping is installed to the East Junction Chamber.
• The East Junction Chamber is complete.
• The East Junction Chamber sluice gates are installed and started up.
• The East Plant roadway paving is complete with miscellaneous repairs remaining.
• The Thickener access road and primary roadway modifications are complete.
• The East Blower Building sampler room equipment, piping and casework installations are ongoing.
• The East Primary Building HVAC changes are ongoing.
• The Screen & Grit beam replacement and lintel repair is complete.
• The underdrain modifications for the revised storm water features are complete.
• The East Blower Building and East Primary Building painting is complete.
• The installation of the sound curtains and insulation for the blowers and piping in the East Blower Building is complete.
• The door replacement for exterior doors throughout the Plant and Screen & Grit Building overhead doors is ongoing.
• The replacement of the painted air valves for the West Plant and East Plant is complete.
• The site landscaping is ongoing and nearing completion.
• The installation of underdrains for the grass swales is ongoing.
• The installation of underdrains for the zero-net runoff areas are complete.
• The lead abatement for the East Aeration Tunnel beams is complete.
• The East Aeration Tunnel beams scheduled for replacement have been replaced.
• The painting of the East Aeration Tunnel beams and East Plant aeration pumps bases is complete.
• The coating and resurfacing of the Retention Building corridor is complete.
• The handrail installation for the Project is complete.
• The replacement roofing systems for the existing buildings has started.
• The execution of the remaining punch list items is ongoing.
The current contractual final completion date for this project is September 19, 2017.

Work progression aerial photos are presented below. For more information on this project, please contact Chris Englert at: cenglert@a2gov.org
Photo taken October 19, 2016 – East Plant Trains E1 & E2 Operational

Photo taken October 19, 2016 – East Aeration Tanks E1 & E2
Photo taken October 19, 2016 – East Secondary Clarifiers E1 & E2

Photo taken October 19, 2016 – East Plant Secondary Treatment Process E1 & E2