

## **Engineering Department**

*Gary E. West, Director*

The Engineering Department is responsible for planning, designing, bidding, funding and the construction management for all Public Works Projects within the City of Mishawaka and review of all private development and utility companies projects for conformance with Engineering Standards, i.e. stormwater management, sanitary construction and connection, and right-of-way access and improvements. Our office also manages the Traffic Signal System, Traffic Cameras, right-of-way records and As-Built records for locating right-of-way infrastructure, i.e. City fiber-optic system, and the storm and sanitary sewer systems.

### **Engineering Staffing**

The Engineering Department staff includes the Director and Assistant Director of Engineering, a Construction Manager, a Project Manager, a Traffic Manager, and a Project Coordinator as well as an MS-4 Coordinator and two part-time secretaries.

The Director of Engineering is responsible for the day-to-day management of the Engineering Department. The Director also serves as the City's representative on the following boards and committees:

- President of Board of Public Works and Safety/Utility Board
- Technical Advisor & Member, City of Mishawaka Plan Commission
- Technical Advisor & Member, City of Mishawaka Traffic Commission
- Member of the City's Solid Waste Committee
- Member of the Transportation Task Force, St. Joseph County Chamber of Commerce
- Member of the Transportation Technical Advisory Committee, Michiana Area Council of Governments
- Mayor Wood designated the Director of Engineering as Deputy Mayor
- Northern Regional Director of the Indiana Association of City Engineers

The Assistant Director of Engineering conducts all site plan reviews, including stormwater management, site access, sanitary sewer connections, and construction plan reviews. These plan reviews include new residential and industrial subdivisions documenting compliance with stormwater regulations, subdivision infrastructure requirements, sanitary sewer engineering standards, and to ensure that adequate sanitary sewer capacity is available to serve the proposed development. The Assistant Director also:

- reviews stormwater management calculations and plans submitted by developers
- reviews construction plans and specifications for development of

- improvements of public streets, sewers and drainage within proposed subdivisions
- administers the sanitary sewer use ordinance for connection of county residents
  - coordinates with Wastewater Treatment staff, Consultant Lawson-Fisher Associates of South Bend, Indiana, and Bethel College staff in the development and implementation of the MS4 Program. Participates in the MSP, which is the regional MS4 Education Committee with St. Joseph County, City of South Bend, Bethel College, Ivy Tech, and Soil and Water Conservation District.
  - works with consultants to complete design plans and construction cost estimates for various public infrastructure projects. This delegation of responsibilities generates a more timely response to developer, engineer and contractor inquiries while enabling the Director of Engineering to focus on planning, right of way, and funding for future Public Works Projects.

The Construction Manager oversees City construction projects within the two Tax Incremental Financing (TIF) Districts to ensure compliance with construction documents and addresses construction concerns reported by the public.

The Project Manager oversees smaller Public Works projects, the curb and sidewalk program, the summer street paving project, assigns all City addresses in conjunction with the 911 emergency system, and troubleshoots citizen complaints. The Project Manager also shares responsibility with the Project Coordinator for the Department's purchase orders, and processing of claims for consulting services and construction projects. The Project Manager also coordinates the allocation of funding from multiple fund sources to ensure adequate monies are available to complete smaller local construction projects.

The MS-4 Coordinator is responsible for compliance with the IDEM/EPA Rule 5 and Rule 13 and is the City's coordinator for the City MS-4 Program, processing approval of Erosion Control Plans, and assuring their compliance during, and post construction.

Traffic Engineering is responsible for operation and maintenance of all of the 60 City-owned traffic signals, 13 school warning devices, 2 four-way red flashers and 2 yellow warning flashers. The Traffic Manager oversees the operation of the City's traffic signal system and coordinates repairs by the City's maintenance contractor. The Traffic Manager is also responsible for signal timings, traffic studies and traffic work orders for sign installation as well as for the management of emergency vehicle pre-emption systems and twelve City traffic cameras.

The Project Coordinator is responsible for coordinating and maintaining project files and City As-Built records, sanitary sewer construction and connection applications, excavation and sewer permits, sewer insurance records, managing City telephone system repairs and service, and other duties as required.

The Office Manager from the Sewer Maintenance Department splits her time between the Sewer Department and the Engineering Department, which brings efficiency to both departments due to many similar sewer issues in both departments. The Sewer Maintenance Department has assumed the utility locating duties from the Engineering Department for storm and sanitary sewers prior to any excavation in the public right of way. The Sewer Office Manager while in our office reviews Locate e-mails, updates Locate database, gathers historic sewer As-built information for the Sewer staff to locate in the field, and also assists with phone and front counter inquiries from the public. During the period the economy is depressed, the number of locating requests is low compared to the historical high values of the last 15 years. Depending upon the number of locates, they may impact the amount of maintenance work performed by the Sewer Department and may require reconfiguration of responsibilities if requests increase significantly.

In summer of 2011 as project management staff members were out of the office, there were many occasions that only one person was in the office, making it difficult to answer telephones, issue permits and take lunch breaks. The first half of the summer an office staff member from the Mayor's office helped part-time between offices through July. The value of having a regular part-time staff member who understands the operation of the office enables them to proficiently assimilate excavation and sewer permits, process sewer insurance applicants, issue address assignments in addition to answering telephones, and responding to contractors and citizens who walk in the office.

In 2012 we were able to add this temporary part-time for the entire 2012 calendar year which allowed much greater flexibility for full-time staff members who were often working their schedules around office management duties during lunch and illness.

### **Engineering Services**

In addition to engineering public works projects such as curb, sidewalks, street improvements, traffic signals, school warning devices and sanitary and storm sewers, the Department also ensures compliance with job-site safety, maintenance of traffic and erosion control issues. Follow-up inspections ensure proper site restoration.

The Engineering Department also reviews plans for construction of proposed development projects to ensure compliance with developmental guidelines, access, and drainage requirements of the City.

The Department investigates and works to address drainage complaints that are received from residents throughout the City to resolve concerns within their neighborhood including local and area-wide drainage, traffic, and parking issues.



Engineering is responsible for the underground public works utility locate service for the City. The facilities and services located are the sanitary trunk sewers, lateral connections, storm sewers, fiber optic interconnects, traffic signal control systems, and the Metronet shared conduit system.

Engineering ensures contractor and individual compliance with the City of Mishawaka Excavation and Public Works Bonding Ordinances and permitting requirements. Our department issues and tracks excavation and streets cuts for all city streets and public right-of-way. Excavation Permits are important for protecting the motoring public and the existing infrastructure, plus ensuring proper restoration of street cuts. The Engineering Department provides engineering assistance for municipal utility projects on request and on other major public works capital improvement projects.

Our office receives copies of accident reports involving damage to City property, such as guardrails, traffic signs, traffic signals, trees, and other City property for restitution for damaged property through insurance claims or personal payment plans. In 2012, \$3,107.00 was collected for damaged public property at seven locations.

### **Excavation and Sanitary Sewer Connections**

Sanitary Sewer connection fees are designed to assess a fee on a developer's site based on the size of their property and the impact the proposed development will have on the capacity of the sanitary sewer collection system and the Wastewater Treatment Plant. The money collected is used for oversizing and extending sanitary sewers, and improvements at the Wastewater Division.

In 2012 Engineering issued 702 Excavation Permits with fees totaling \$11,930.00 for all categories of excavation i.e. telephone, cable, gas, electric, boring, street, sewer, water, and irrigation. This is an increase from 2011 when \$10,875.00 was collected from 717 Excavation Permits. In addition, there were 109 Sanitary Sewer Connection and Inspection Permits obtained in 2012 that totaled \$137,180.59 versus \$63,126.35 collected from 107 permits in 2011.

### **Sewer Insurance Program**

The Engineering Department maintains all sanitary and storm sewer records and provides administrative assistance to the Sewer Lateral Insurance Program. This program that began in 1986 protects single family residents from paying catastrophic sewer lateral repair costs. The homeowner is responsible for paying all routine sewer lateral cleaning costs, and if the line cannot be opened, the homeowner pays the \$250 deductible fee for the sewer lateral repair. The Sewer Insurance Fund pays all costs in excess of the \$250 that are required for the repair of a private sewer lateral connection from the foundation wall of the home to the trunk sewer main. The costs of removal and replacement of public streets, curbs and sidewalks as a result of the repair are included. The monthly fee for residential sewer insurance was increased to \$1.50 per month in 2008.

The fund is also used to replace existing sewer laterals that are located within sewer main replacement projects to minimize the need to repair a sewer lateral in a newly reconstructed street. Money collected in 2012 totaled \$222,871 with expenses of \$150,402. In 2012, the Sewer Department received 292 complaints of sewer problems where 54 residents signed up for the Sewer Insurance Program. Of the 54 residents, there were 35 residential contractor repairs performed with an ending balance in the fund of \$228,857.

A summary of the 2012 Sewer Insurance Program is provided below:

Date Initiated	Job Number	Address	Action Taken	Total Cost	Work Completed
1/12/12	1166	410 W Lawrence St	Line opened, no guarantee	\$471	1/13/12
2/6/12	1167	121 W Russ St	Contractor repaired	\$1,258	2/10/12
2/8/12	1168	121 W Battell St	Incomplete	incomplete	2/8/12
2/8/12	1169	620 N Wenger	Contractor repaired	\$4,225	2/17/12
2/9/12	1170	1113 Liberty Dr	Contractor lined lateral	\$5,695	2/25/12
2/20/12	1171	604 Jackson St	Incomplete	\$471	2/29/12
2/21/12	1172	1302 E Seventh St	Contractor repaired	\$2,285	2/23/12
3/16/12	1173	725 Fairmount Ave	Contractor lined lateral	\$2,550	3/24/12
3/21/12	1174	626 Studebaker St	Contractor lined lateral	\$6,205	4/4/12
3/23/12	1175	2659 Castine Walk	Contractor repaired	\$1,530	4/21/12
3/26/12	1176	1013 Jackson St	Line opened, no guarantee	\$0	4/9/12
4/3/12	1177	617 Benton St	Contractor repaired	\$6,745	8/11/12
4/5/12	1178	134 W Broadway	Line opened, guarantee provided	\$0	4/6/12
4/11/12	1180	2807 Ewing Ave	Contractor repaired	\$2,170	4/12/12
4/16/12	1181	2321 LLW West	Contractor repaired	\$27,137	6/15/12
5/1/12	1182	2338 Normandy Dr	Contractor repaired	\$1,342	5/2/12
5/21/12	1183	1501 Panama St	Contractor repaired	\$2,963	6/7/12
5/29/12	1184	230 E Lowell Ave	Contractor repaired	incomplete	5/29/12
6/14/12	1185	301 N State St	Line opened, guarantee provided	\$435	6/15/12
6/14/12	1186	2114 Milburn Blvd	Incomplete	\$0	6/29/12
7/31/12	1187	217 Monmoor Ave	Contractor repaired	\$2,256	8/8/12
8/2/12	1188	2519 N Main St	Contractor lined lateral	\$3,055	10/5/12
8/2/12	1189	803 W Grove St	Contractor repaired	\$2,495	8/11/12
8/2/12	1190	1216 Union St	Line opened, no guarantee	\$235	8/6/12
8/6/12	1191	123 Indiana Ave	Line opened, guarantee provided	\$358	8/8/12
8/7/12	1192	132 W Battell St	Line opened, no guarantee	\$358	8/7/12
8/1/12	1193	924 W Jefferson Blvd	Contractor repaired	\$3,076	8/15/12
8/17/12	1194	2534 Ewing Ave	Line opened, no guarantee	\$839	8/22/12
8/17/12	1195	212E Sixteenth St	Contractor repaired	\$1,586	8/21/12
9/10/12	1196	1904 Cove Pl	Contractor repaired	\$3,021	9/11/12
9/18/12	1197	918 Homewood Ave	Line opened, no guarantee	\$0	9/18/12
10/1/12	1198	137 Strathmoor Ave	Contractor repaired	\$1,952	10/2/12
10/2/12	1199	426 N Mason St	Contractor lined lateral	\$5,373	11/16/12
10/2/12	1200	2102 Lincolnway East	Line opened, no guarantee	\$358	10/4/12
10/4/12	1201	127 S Walnut St	Contractor lined lateral	\$8,463	11/2/12
10/9/12	1202	435 W Battell St	Contractor lined lateral	\$2,118	10/19/12
10/10/12	1203	822 S Main St	Contractor lined lateral	\$3,820	10/16/12
10/16/12	1204	114 E Edgar Ave	Line opened, guarantee provided	\$716	10/16/12
10/17/12	1205	321 St Joseph Ct	Contractor repaired	\$5,107	12/28/12
10/22/12	1206	1221 S West St	Contractor repaired	\$935	11/12/12
10/22/12	1207	512 E Jefferson Blvd	Contractor repaired	\$1,488	12/17/12
11/1/12	1208	1605 Sarah St	Contractor repaired	\$4,334	11/2/12
11/5/12	1209	512 W Broadway	Contractor repaired	\$4,257	11/9/12
11/5/12	1210	2119 Lynn St	Contractor repaired	\$2,265	11/7/12
11/19/12	1211	2716 Schumacher Dr	Contractor repaired	\$4,319	11/27/12
11/26/12	1212	1034 E Fourth St	Line opened, no guarantee	\$353	11/26/12
11/27/12	1213	554 W Tenth St	Contractor repaired	\$1,842	12/14/12
11/30/12	1214	137 Manchester Dr	Contractor repaired	\$3522	12/1/12
11/30/12	1215	349 S Capital Ave	Line opened, guarantee provided	\$353	11/30/12
12/12/12	1216	606 Eisenhower Dr	Line opened, no guarantee	\$1,443	12/13/12
12/13/12	1217	504 Hendricks St	Line opened, no guarantee	\$727	12/17/12
12/18/12	1218	718 E Fourth St	Line opened, no guarantee	\$962	12/18/12
12/18/12	1219	320 N Elder St	In progress	\$0	12/18/12
12/27/12	1220	855 Lincolnway East	Contractor repaired	\$3,524	12/27/12

## **Industrial, Commercial and Residential Developments**

Just two Developers submitted sanitary sewer main modifications of previously approved improvements and/or extensions in 2012; these developments, Stonebridge Villas and Toscana Park, intended this infrastructure to be constructed for private use and maintenance. The City experienced mostly rehabilitation of existing sites with a few new commercial and residential homes constructed in existing subdivisions. A few examples of new commercial development projects are Davita Dialysis (1420 Trinity Place), Physician Urgent Care (505 W. Cleveland Road), Panda Express (4906 Grape Road), Golden Corral (135 Douglas Road), and Cheddar's (4914 N. Main Street).

## **MS4 (Municipal Separate Storm Sewer System)**

On October 30, 2012, the MS4 program submitted its second biennial report. The report is a comprehensive overview of program activities over the period from July 1, 2010 through June 30, 2012. IDEM acknowledged receipt of the report on October 30, 2012 and the program is awaiting feedback from the IDEM Stormwater program.

In November of 2011, the MS4 program underwent its second in a series of three audits of the program. This audit focused on the management of our construction site run-off program. In preparation for the audit, MS4 procedures were evaluated and streamlined. The City implemented a new tracking program for stormwater pollution prevention plans (SWPPPs) and worked closely with an outside engineering firm to develop the capability to integrate SWPPP information into our GIS. As part of the audit, the IDEM inspector requested to visit two of the City's open Rule 5 construction projects and the single private Rule 5 construction project that was open at the time. City personnel worked diligently to ensure that the City's projects were complying with local and State regulations. The overall result of the audit was favorable as none of our program areas received an unsatisfactory rating. However, as with any regulatory inspection of a comprehensive program, the inspector found a few documentation items that need to be addressed. During 2012, the City continued addressing the concerns by revising Erosion Control Standards and working with IDEM to implement the required changes.



IDEM has indicated that it will likely conduct its final audit of the current NPDES permit term sometime in 2013. The audit is expected to focus on the detection and elimination of illicit discharges to our storm sewer system. In 2011, Department of Engineering personnel attended a workshop by IDEM to assist in preparation for the upcoming audit, which was originally anticipated to occur in 2012. The City has GPS located the City's

stormwater outfalls, created an adaptive GIS layer, and sampled at several dry weather outfalls to characterize the nature of discharge.

The City continued its participation in the Michiana Stormwater Partnership (MSP), which is a consortium of MS4s within St. Joseph County. To ensure consistent messaging and to pool resources, the MSP works collectively to implement the public education and outreach programs required by each entity's NPDES permit. Additionally, the City continued its partnership with St. Joseph County for SWPPP reviews.

The City is in the final year of its second 5-year NPDES permit term. An application for renewal of the current permit is due at the end of 2013. Program efforts throughout 2013 will focus on preparation of the renewal in addition to preparation for the anticipated audit of the illicit discharge detection and elimination program.

### **Fats, Oils, and Grease (FOG)**

The Common Council approved revisions to the Sewer Use Ordinance to cover fats, oils, and grease (FOG) in the summer of 2010. These changes established maintenance requirements and provides a regulatory framework for recovering costs incurred by the City to deal with problem facilities. The program is evaluated at the end of each calendar year so that any necessary modifications can be implemented the following year. The FOG program was further refined at the end of 2011 to omit a registration fee for restaurants that were deemed to be a minimal impact to the municipal sewer system. Restaurants may fall under this category if they are merely storefronts that reheat and serve entirely on disposable paper products, such as concession stands or mall kiosks. The results of this modification were observed throughout 2012, and because of the success of this modification, it was maintained as a facet of the program in the future. Regarding these changes and City's expectations, the Wastewater, Sewer, and Engineering staff prepared a pamphlet for distribution to restaurants renewing their licenses for 2013.

### **Traffic Engineering Services**

Traffic Engineering is responsible for the operation and maintenance of 60 city-owned traffic signals. In addition, there are 13 school warning devices, two four-way red and two yellow warning flashers under the responsibility of Traffic Engineering. Traffic Engineering received several requests for additional or modified signage through the Mishawaka Police Department, concerned motorists, and citizens. All requests are investigated by Engineering. In 2012, these requests resulted in the issuance of 41 work orders for the installation or modification of signage and pavement markings.

#### *Traffic Signal and Flasher Maintenance*

In 2012 one hundred seventy seven (177) traffic signal repairs were completed. Also maintained were luminaries, guardrails and all 60 signal cabinets. The Engineering

Department also resolved numerous 4-way flash problems involving the resetting of traffic controllers and conflict monitors.

### *Signage*

New sign retro-reflectivity standards were adopted by the Federal Highway Administration (FHWA). These changes were established for the aging population to promote safety while providing sufficient flexibility for agencies to choose a compliance method that best fits their specific conditions.

### **Indiana Safe Routes to School Program**

The purpose of these projects, funded from INDOT's SRTS Program, is to provide school aged children a healthy and safe route to walk or bike to school. Working collectively with school officials, parents, and the Mishawaka Police Department, it is our intent to design a safe route that is well maintained so that children will walk or bike to and from school. The City of Mishawaka is an all walk-on school system with minimal bus transportation for the students. Each school within Mishawaka has been examined to identify a safe route for that particular school. A different elementary school is targeted each year throughout the life of this program.

Specifically, sidewalk improvements will be performed along the route most utilized by the students to access schools and includes ADA-compliant curb ramps, replacement of deteriorated sidewalks, signage, pavement markings at crosswalks, and provide educational materials to the children in connection with the DARE officers of Mishawaka. In 2010, the City received a grant for Emmons School and in 2011 for Battell School. The design of the project for Battell School was completed in the spring of 2012 and 95% of the construction for this project was completed before winter stalled construction in 2012. The few remaining sections will be completed in spring of 2013. Each of these grants ranged between \$225,000.00 and \$250,000.00.

The City also applied for a SRTS grant for Beiger School for 2013 construction to continue these improvements; however the City was not selected. The City will continue to apply for this program in the future and incorporate these improvements in conjunction with other City projects.

### **School Signage**

Every year the Engineering Department inventories all traffic control signage near public and private schools. This process involves replacing damaged, faded or missing signs and repainting school crosswalks. This enables Engineering to maintain safe and effective traffic control signage that follows the Federal guidelines as outlined in the Indiana Manual on Uniform Traffic Control Devices for all schools in Mishawaka.

### **Traffic Studies and Activities**

Requests for four-way stops, time limit parking, restricted parking, etc. require a recommendation by the Traffic Commission and in many instances, action by the Mishawaka Common Council before implementation. The Engineering Department conducts a thorough investigation to determine the merits of each request. These studies are then presented to the Traffic Commission for review and recommendation and to the Common Council. Upon adoption of an Ordinance by the Mishawaka Common Council, the Engineering Department issues a work order to install the appropriate signage.

The Engineering Department issued 22 dumpster permits in 2012. The Engineering Department also received requests for additional signage from the Street Department and the Mishawaka Police Department in various neighborhoods. Speed limit signs were added at Barrows Court and Cottage Avenue, along with No Trucks signage at Milburn Blvd, Bennington Drive and Seventeenth Street. There were also requests for no parking signs, do not block driveway, and cross traffic does not stop signage.

The Engineering Department continues to work with the Mishawaka City Police Department to resolve truck problems. With several streets closed, or in various stages of repair (Main Street phase IV) during the 2012 construction year, excessive truck traffic occurred on non-truck route streets. Police enforcement assisted in curbing these truck problems in residential areas.

MACOG (Michiana Area Council of Governments) partners with the City to gather traffic count data for various Mishawaka locations. This data assists in documenting changes in traffic volumes and may possibly be used to justify changes in infrastructure.

A CMAQ grant was approved in 2009 to modernize the traffic signals on Church/Union Street from Linconway (SR933) to Dagoon Trail. Construction for this closed-loop traffic signal central control system is scheduled to begin during the 2013 construction season for this corridor.

During the 2012 construction season two new signalized intersections were added to the City's system. These include Dagoon Trail and Logan Street, which was funded by INDOT's Highway Safety Improvements Program (HSIP). The intersection of Harrison Road and Bennington Road was reconstructed and signalized to provide access to the new Fire Station No. 4. Also during the 2012 construction season, the Engineering Department began deploying a new traffic monitoring system called Centracs. This system will provide a more sophisticated system to better manage traffic flow in the Grape Road corridor, Main Street corridor, and McKinley Avenue corridor. This system will continue to be added to other corridors as we upgrade those intersections. Once completed Centracs will have the ability to make slight timing alterations to signals based on traffic flow and volume. The goal of Centracs is to allow traffic to flow more efficiently with less stopping time.

### **Disabled Parking Approvals**

With the assistance of the Mishawaka Police Traffic Division, the Engineering Department coordinates the application process for designated disabled parking spaces on public streets. In 2012 the Board of Public Works and Safety approved the designation of 8 new disabled parking spaces and the removal of 10 spaces that were no longer required.

### **Construction Projects**



Engineering is responsible for plan development and construction management. Often times these construction projects are funded from several sources. In 2012 projects under construction were funded with Long Term Control Funds, Tax Incremental Funds, Cumulative Sewer, Redevelopment CDBG Funds, Local Road and Street Funds, and INDOT including SRTS Grant, HSIP, and LPA Funds. Construction projects in 2012 totaled approximately \$16.3 million. Specific details of the 2012 construction projects are highlighted in the following sections. In

addition, projects that were in the design and land/easement acquisition phase during 2012 are also discussed with intent of 2013 construction.

### **Northwest TIF Projects**

#### *Main Street, Phase VI -Ardennes to Day*

In 2011, the initial project limits of Main Street from Ardennes Avenue north to Edison Road/Edison Lakes Parkway were expanded to include the section of Main Street from Edison north to Day Road. Specifically, the existing storm sewer was found to be in poor condition and undersized within the original project limits and a new storm sewer would be needed to serve the project improvements. This provided the flexibility to include additional pavement from the Main Street between Edison and Day Road. This project includes a center left turn lane, extension of storm trunk sewer from Ardennes north to Day Road, relocation of deceleration lanes, and numerous utility relocations.

Additional right-of-way was required due to the construction of the center left turn lane. Consultants completed right-of-way requirements and identified land owners for acquisition. Legal descriptions, plats, and land acquisition was mostly completed in 2011 with the exception of a few parcels which were finalized before construction in summer 2012. Construction was phased over two construction seasons due to the extensive utility relocations.



Work completed during 2012 includes full depth concrete pavement, asphalt pavement, and widening to five lanes with right turn lanes throughout. Storm sewer was replaced the entire length of the 0.77 mile-long project. Utility relocation, lighting, traffic signal, and miscellaneous sanitary sewer replacement were included. CIPP sanitary sewer rehabilitation was also performed within the project limits. Work scheduled for 2013 includes structural lining of the sanitary manholes between Edison and Ardennes, construction of a new eastbound right turn lane at the intersection of Edison and Main, and asphalt resurfacing at the intersections of Day and Main and Edison and Main. When complete in 2013, the final cost is estimated to be \$ 5.5 million.

*First and Hill Street Improvements (Main Junior High Apartments)*

The conversion of the former Mishawaka High School Building into apartments for senior living was the focus of the Community Redevelopment Department in early 2011. In conjunction with this senior living center project, it became apparent that new utilities were required and therefore Hill Street and First Street were identified as the new corridor to serve sanitary sewer, storm sewer and water to the facility. In addition, on-street parking was slightly reconfigured and included new street pavement and sidewalk since sections were in poor condition. Therefore in early summer of 2011, W.R. Armstrong was contracted to design the utility improvements in addition to reconfiguring the pavement, concrete curb and gutter, and sidewalk within the existing right-of-way of Hill Street from Lincolnway to First Street and First Street from West Street to Spring Street. These improvements were split into two phases of construction.



Specifically in the fall of 2011, John Boettcher Excavating submitted the low quote to install the first phase of utilities which included 140 lineal feet of new 8-inch gravity sanitary sewer within Hill Street extended from First Street's existing gravity sewer and temporary pavement patch. The second phase of the Improvement Project was initiated in spring of 2012 and was awarded to C& E Excavating with substantial completion end of 2012.

The second phase of construction consisted of asphalt and concrete pavement, concrete curbing, concrete drive approaches and sidewalks, storm and sanitary sewers, water main, and street lighting for First Street from Spring Street to West Street and Hill Street from Lincolnway to the Front Street traffic circle. West Street from Lincolnway to First Street reconstruction was added to the contract since sanitary sewer issues were discovered within West Street. In addition, the City took advantage of the reconstruction and included a new 36-inch storm trunk sewer to ultimately provide some storm relief south of Lincolnway. Therefore, a third phase of the project, scheduled for 2013, will consist of

the reconstruction of West Street from First Street to Front Street including the continuation of the 36-inch storm trunk sewer and outlet structures into the St. Joseph River. The infrastructure investment in the central business district for phase 2 was \$1,196,165.

#### *Battell Street Storm Sewer and CSO 016 Erosion Repair*

Completion of this project is scheduled for the spring of 2013. Work in 2012 included the installation of a 36-inch combined storm sewer outletting into the St. Joseph River near Battell Street and Merrifield Avenue intersection. Also included in the project scope is the abandonment of a 24-inch storm sewer and an 18-inch combined sewer, installation of a mechanically stabilized embankment, temporary and permanent steel piling, and rip rap for erosion control. Construction operations will also include pavement and curb restoration at the intersection of Merrifield Avenue and Battell Street. Currently the project is 75% complete with an estimated project cost of \$191,860.



#### *River Crossing No. 2 Biofilter*

This project constructed a Biofilter odor treatment facility for River Crossing No. 2 discharge. Specifically, it is to treat the sewer main discharge gases. Two large concrete cells are lined with a specialized air distribution manifold covered by 5 feet of hardwood-chip media. The wood chips are kept moist and serve as a substrate for bacteria growth which provides odor treatment of the gases generated in the sewer and distributed through the manifold and into the media. The project was initiated and completed in 2012 for an investment of \$464,249.

#### *Battell Community Center Parking*

This project is located along the west side of Marion Street to the northeast of the intersection of Main Street and Broadway Boulevard. Twenty-two on-street parking spaces were created within the existing right-of-way using concrete pavement with new curbing, sidewalk, and lighting. It was awarded to Rieth-Riley Construction with a total cost of \$68,984.

#### *Hospice Site Infrastructure*

This project involves the construction of the infrastructure surrounding the Center for Hospice facility currently under construction and provides an alternative access to Central Park from Cedar Street. A new road (Comfort Place) will be constructed from

Cedar Street to service the facility. Pine Street and Madison Avenue will be reconstructed along with the roadways and parking areas in Central Park. New water main and storm sewer will be installed throughout the project. New sanitary sewer has been installed on Comfort Place and existing sanitary sewer will be rehabilitated with Cured in Place Pipe Lining, manholes will be rehabilitated and new service laterals installed. All existing overhead utilities will be relocated underground. Construction began in October 2012 and is scheduled for completion by July 2013. The estimated investment is \$1,525,618.

### *2012 Design Projects for University Drive Service Area*

The University Drive Lift Station Upgrade and Forcemain Reroute design was completed in 2012. This lift station's existing 6-inch forcemain currently terminating in the Juday Creek Lift Station service area will be rerouted to Douglas Road, Holy Cross Lift Station Service Area, through a new 12-inch HDPE forcemain. The forcemain corridor is approximately 5,000 linear feet extending from University Drive under the Toll Road and parallel to the east City Limits terminating in Douglas Road's 18-inch gravity sewer main. Easement acquisition is complete for the forcemain corridor. Completing this construction with an estimated cost of \$1.4 million will provide additional capacity in the Juday Creek Lift Station Service Area, which includes the Main and Grape Road sewer main corridors, and utilize the full design capacity of the University Drive Station. The service area for the University Drive Station incorporated the area bounded by Capital Avenue at the east City limit. The Golata, 1<sup>st</sup> Source, and Memorial parcels were annexed into the City in 2008, 2011, and 2012 respectively. Development interest in these parcels is renewing with land owners dedicating right-of-way for street and utilities construction. Therefore, it is prudent to provide additional sanitary sewer capacity for the impending private development of the Fir Road Connector corridor.

In addition, the Fir Road Connector between Capital Avenue and Fir Road was designed in 2012 as a parkway similar to the Edison Lakes Parkway and Holy Cross Parkway Corridors. This is a 4,000 lineal foot parkway connecting with the Capital Avenue signalized intersection (Toll Road Exit 83) at the east and Fir Road at the west in line with the Grande Vista intersection. (See Exhibit A.) The project will include concrete pavement, concrete curb, landscape islands, water main, storm and sanitary sewer mains with an estimated investment of \$6.5 million.

University Drive and Fir Road Intersection Upgrade design is at 95% complete and currently in the land acquisition phase. The project includes additional turn lanes on Fir Road at the intersection with University Drive, new lane transition to the improved intersection at Cleveland and Fir Road completed by the County in 2011, and signal upgrade. Construction is anticipated in 2014 with an investment estimated at \$1.5 million.

### *Third Street from Cedar Street to Wenger Avenue: Design*

The Project includes construction of a separated storm sewer, rehabilitated sanitary

sewer, new concrete curb and sidewalk, and pavement with an estimated cost of \$2.7 million. This project is in anticipation of the future LTCP, specifically the 78-inch to 120-inch storage tunnel proposed for Fourth Street corridor. The surrounding streets and alleys will realize additional pressure through the prolonged construction of the LTCP storage tunnel and therefore have prioritized these improvements for 2013 construction.

*Main Street Whitetopping from Indian Ridge Boulevard to University Drive: Design*

Design was initiated late 2012 for whitetopping Main Street from Indian Ridge Boulevard north to University Drive. This method of pavement is constructed of a thin layer of 6-inch thick concrete pavement surface installed over existing pavement that is milled to accommodate the proposed design thickness. The design will take into consideration the Toll Road Bridge approaches and may need to be thickened to withstand bridge movement. It is anticipated the design will be completed in early 2013 and project construction scheduled for summer of 2013.

*Church/Union between LW and Norfolk and Southern Railroad*

The Church/Union/Main Corridor (Phase 3) project was designed in 2012 and was expanded to continue the Church/Union 5-lane section south from First Street to Seventh Street. It will include upgrades to the Penn-Central Railroad Overpass. The pavement section will include four through lanes and one center left turn lane. The addition of the center left turn lane will allow vehicles traveling on Church Street to make left turns at the Fourth Street, Third Street and Lincoln Way intersections, alleviating congestion in this vital corridor of the City. South of Fourth Street, a 3 foot shelf will be placed at the back of curb to facilitate snow removal under the Penn-Central Railroad Overpass. The existing concrete pavement will be replaced including repair of the underpass underdrains allowing the original 54-inch storm trunk line to be used in place. Lighting and landscaping will be incorporated into the design. Traffic signals at the intersections of Third Street and Lincoln Way will be replaced and the signal at Fourth Street will be modernized as a part of this project. Construction is anticipated for 2013. (See Exhibit B.)

**South TIF Projects**

*Bremen Highway Whitetopping*

This project was the City's first design and pavement construction project using the method and materials of Whitetopping. The Project was awarded to Rieth-Riley Construction and included milling the 500 linear feet of existing asphalt surface south of Dagoon Trail, construction of a thin 4-inch concrete whitetopping surface, pavement markings, maintaining traffic, and other miscellaneous work. The total project investment was \$121,024.

*Bremen Highway South Gateway*

In 2010 Abonmarche Consultants was selected to prepare a conceptual study for the improvement of the section of Bremen Highway from the US 20 Bypass north to Ireland Road. The ultimate goal was to develop a concept that would allow the road way to be widened to two lanes in each direction with a center left turn lane to accommodate the traffic within the corridor plus allow for construction of landscaped medians within the section to enhance the aesthetics of the South Gateway into the City.

As a result of the preliminary study it was determined that adequate right of way existed within the corridor to accommodate the proposed improvement project. The study also revealed that to handle the increased stormwater runoff from the roadway, a subsurface soils investigation would need to be completed. The subsurface soils investigation that was completed in the summer of 2012 indicated that the soils were heavy, with a limited ability to effectively percolate stormwater.

Based upon the limited percolation of the soils, it was determined that an analysis of the Meijer Retention Basin would be necessary to determine its current capacity plus additional storage needed for runoff from the expanded roadway pavement. Upon completion the drainage study the engineers recommended that a larger culvert be installed under Bremen Highway and that the Meijer Basin be expanded. This drainage project will be ready to bid early in 2013 at an estimated cost of \$675,000.

With drainage improvements designed and ready to bid, the final design for widening of Bremen Highway and the Southern Gateway Project, (see Exhibit C), can be completed and ready to bid in spring of 2013. The Project construction cost is estimated as \$2,210,000 and anticipated to be completed by November of 2013.

## Public Works Projects

### Summer Street Paving Program

The Engineering Department assisted in prioritizing and overseeing 34,000 lineal feet of street milling and resurfacing project. The summary of the Summer Street material bid prices are detailed in the table below:

Materials	Reith Riley Construction Company, Inc.			
Description	Qty	Unit	Unit Price	Extension
<b>Bituminous Materials:</b>				
Hot Mix Asphalt Pavement, Surface 9.5MM	4,000	TON	\$50.00	\$200,000.00
Hot Mix Asphalt Pavement, Surface 9.5MM Polymer Modified	4,000	TON	\$50.00	\$200,000.00
Hot Mix Asphalt Pavement, Surface 9.5MM - Type B Limestone	1500	TON	\$65.00	\$97,750.00
HMA Surface - Alley Paving (2")	200	TON	\$36.00	\$7,200.00
HMA Surface - Alley Paving (2")	400	TON	\$75.00	\$30,000.00
HMA Surface Patching - Local Streets	400	TON	\$75.00	\$30,000.00
HMA Surface Patching - High Volume	500	TON	\$80.00	\$40,000.00
HMA Pavement, Surface - Type B.F. Slag	1000	TON	\$80.00	\$80,000.00
HMA Pavement, Intermediate 19MM	250	TON	\$51.00	\$12,750.00
HMA Pavement, Intermediate 19MM FOB	100	TON	\$40.00	\$4,000.00
HMA Pavement, Intermediate, 9.5MM	100	TON	\$35.00	\$3,500.00
HMA Pavement, Base 25MM	200	TON	\$35.00	\$7,000.00
HMA Pavement, Base 25MM FOB	100	TON	\$30.00	\$3,000.00
Bituminous Material Tack	20	TON	\$1.00	\$20.00
Bituminous Material Crack Pouring FOB	2,000	GAL	no bid	\$0.00
Bituminous Material Dust Palliative FOB	2,000	GAL	no bid	\$0.00
Bituminous Patch Material FOB	500	TON	\$75.00	\$37,500.00
Emulsified Asphalt FOB	20,000	GAL	no bid	\$0.00
<b>AGGREGATE:</b>				
Course Aggregate #73 stone or slag	150	TON	\$21.00	\$0.00
Course Aggregate #73 stone or slag FOB	150	TON	\$15.00	\$0.00
Course Aggregate #73 Gravel	150	TON	\$15.00	\$0.00
Course Aggregate #73 Gravel FOB	150	TON	\$9.00	\$0.00
Course Aggregate #11 or #12 LS or Slag Chips	150	TON	\$26.00	\$0.00
Course Aggregate #11 or #12 LS or Slag FOB	150	TON	\$20.00	\$0.00
Fine Aggregate #23 or #24	150	TON	\$20.50	\$0.00
Fine Aggregate #23 or #24 FOB	150	TON	\$4.50	\$0.00
<b>ROTO-MILLING:</b>				
Contractor Retain Materials 0"-2"	15,000	SYD	\$2.25	\$33,750.00
Contractor Retain Materials 2"-4"	500	SYD	\$2.30	\$1,150.00
Contractor Retain Materials 4"-6"	500	SYD	\$2.40	\$1,200.00
City Retain Materials 0"-2"	15,000	SYD	\$2.30	\$34,325.00
City Retain Materials 2"-4"	500	SYD	\$2.40	\$1,175.00
City Retain Materials 4"-6"	500	SYD	\$2.50	\$1,200.00
<b>MISCELLANEOUS ITEMS:</b>				
Street Excavation	300	TON	\$10.00	\$3,000.00
Bituminous Curbs	500	LF	\$8.00	\$4,000.00
<b>TOTAL BID:</b>				<b>\$832,520.00</b>

The following table summarizes the streets that were resurfaced in 2012. All streets were either edge milled 6 feet along the curb line, or the entire surface was milled to a depth of 1 to 1 ½-inches to retain as much curb exposure as possible.

<b>2012 Street Resurfacing Summary</b>			
Street Name / Section	Length		
Beacon Drive – Bennington Drive to Harrison Road	750	Homewood Avenue – Beiger Street to Home Street	700
Blair Hills Court	200	Lawrence Street – Cedar Street to Maple Street	1150
Broadway – Willow Street to Merrifield Avenue	550	Liberty Drive – Jefferson Blvd to Railroad Tracks	600
Brook Avenue – 150 feet south of Marshall Drive	150	Longhorn Drive – at Forest Edge 150 feet each direction	300
Brook Avenue – York Street to Fifth Street	500	Lexington Blvd – Harrison Road to Providence Drive	450
Cassell Avenue	975	Marshall Drive – Capital Avenue to Stickler Court	400
Chestnut St – Lowell Ave to alley south of Russ Ave	1000	Merrifield Avenue – 5th Street to 9th Street	1550
Clover Road – LaSalle Street to Jefferson Blvd	1900	Merrifield Avenue – 9th Street to 12th Street	1050
Cottage Avenue – Harding Avenue to Behney Ave	700	Oakside Avenue – Lincolnway East to Railroad tracks	800
Dawes Place	325	Prairie Avenue – Lincolnway East to Fourth Street	800
Day Road – Park Place on the west to Winding Brook	1800	Ridge Road – 200 feet off of Terry Lane and 100 feet off of Harding Avenue	300
Deepwood Court	200	Roosevelt Avenue – Linden Avenue to Homewood Ave	350
Deepwood Avenue – Merrifield Ave to Acorn Lane	900	Ruth Street – State Road 23 north to City Limits	400
Delorenzi Avenue – Linden Ave to Homewood Ave	300	Seventeenth Street – Union Street to O’Conner Street	1125
Downey Avenue – Ninth Street north 950 feet	950	South Street – Tenth Place – Penn Avenue	1100
Dudley Drive – Bennington Drive to Shelton Drive	775	Stickler Court – Marshall Drive to Dead End	200
Elder Street - Norton Court to Railroad Tracks	275	Studebaker – Mishawaka Avenue to Prospect Drive	1000
Fairmount Avenue – Liberty Drive west 200 feet	200	Terry Lane – Vistula to Land’s End Lane	1100
Fifth Street - Merrifield Avenue east 200 feet	200	Third Street – Downey Avenue to Hodson Avenue	700
Grape Road – State Road 23 north to City Limits	1000	Third Street – Oakside Avenue east 150 feet	150
Grove Street – Cedar Street to Elm Street	350	Tremont Drive – Lexington Blvd to Hampton Road	1200
Grove Street – Liberty Drive to Ann Street	500	Webster Street – Mishawaka Avenue to Grove Street	425
Harding Avenue – Vistula Avenue to Cottage Avenue	2150	Wenger Street – Grove Street to 150 feet south of Prospect Avenue	450
Home Street – Linden Avenue to Homewood Avenue	300	Willow Street – Marion Street to Battell Street	750

<b>Total Linear Feet</b>	<b>34,000</b>
<b>Total Cost of Resurfacing</b>	<b>\$443,068</b>
<b>Total Cost of Milling</b>	<b>\$258,662</b>
<b>Grand Total for Summer Street Paving Program</b>	<b>\$701,731</b>

### **Alley Paving Program**

The Alley Paving Program pays half of costs of paving alleys, with residents who request their alley be paved paying half the cost. Typically, a field inspection of the alley is conducted to determine the feasibility of paving the alley. A list of all property owners adjacent to the alley is obtained from the County Assessor's Office and is provided to a designee of the property owners who is responsible for collecting the per linear foot assessment from each property owner along the alley. The residents along the alley benefit from this work because of the reduction of the dirt and dust generated by traffic. The Street Department also benefits by not having to grade or oil the paved alley for many years. There are 256,178 LF or 48.52 total miles of alley that are open to the public, and a significant number of these have been paved by property owners. In 2012 no alleys were paved; however there is interest shown for 2013.

## **Curb and Sidewalk Program**

Instituted in 1986, this program encourages single-family homeowners to repair or replace deteriorated public curb and sidewalks adjacent to their property and provides for a 50/50 split of the repair cost of curbs, sidewalks and drive approaches between the homeowner and the City. Since the beginning of this program, the cost for reconstruction of approximately 86,625 LF of new curb and sidewalk has been shared by the City and its residents. This year a total of \$92,418 was spent in neighborhoods on curb and sidewalk improvements.

## **Sidewalks/ADA Transition Plan**

In 2011, the City of Mishawaka completed the self-evaluation of all City facilities outside of the public right-of-way (ROW), including programs and procedures, and prepared a Transition Plan that outlines the necessary steps to be fully compliant with the requirements of Title II of the ADA. The City will strive to include annual budgetary allotments to make required improvements that will eventually make the various City facilities fully accessible. Emphasis will be given to the improvements that most impact the ability of persons with disabilities to access facilities or programs. In addition to City facilities, the self-evaluation reviewed existing City policies and procedures within each department. Following this review, recommendations were made to improve accessibility of programs for each department.

It is the goal of the City to make facilities for all services, programs and activities fully accessible within 30 years, though this will be largely dependent on a number of economic factors and future changes to the ADA Accessibility Guidelines (ADAAG) or other unforeseen requirements that would necessitate additional improvements to City facilities. The results of the self-evaluation identified a number of barriers at City facilities. The estimated cost to correct these deficiencies is \$3,536,000, plus costs for improvements within the public ROW. The degree to which these barriers limited accessibility and their priority for corrective action was subjectively categorized as “high”, “medium”, or “low”. The actual implementation schedule, budgeting, and prioritization is up to the administration and is likely to be impacted by complaints, new regulations and requirements, and availability of funding. The City Common Council adopted the plan April 2<sup>nd</sup> of 2012.

Throughout 2012, the City completed the self evaluation of the public right-of-way portion, including approximately 1,300 intersections, ranking condition and design of handicap ramps, and completed a separate self-evaluation and transition plan regarding the public right-of-way infrastructure. The 2012 Transition Plan for City infrastructure within the public right-of-way will be available for public comment January 2013. The actual implementation schedule, budgeting, and prioritization is up to the administration and is likely to be impacted by complaints, new regulations and requirements, and availability of funding. A draft report to the City Common Council will be presented for approval and adoption in March of 2013.

## **Bennington Drive Extension**

With the improvements along Capital Avenue, Twelfth Street/Harrison Road and Construction of new Fire Station No. 4, it was found desirable that Bennington Drive be extended for a total length of 737 feet north of Harrison Road. The primary objective of this extension was to access the new Fire Station #4 also under construction in 2012. The recreational facilities in Hums Park impacted with the extension were replaced in-kind. This included shifting the football field and basketball court slightly north and construction of a new volleyball court and shelter/restroom building. The existing parking was replaced and provided pedestrian access to the school parking lot and fire station training/visitor parking lot. In addition, the intersection of Harrison Road and Bennington Road was signalized and interconnected with fiber optic. The City investment was \$728,801.



## **Lincolnway East Emergency Repair and 2012 Cured in Place Pipe Lining (CIPP)**

As part of the City's ongoing efforts to improve and maintain the Sewer System, the Sewer Department, during their routine inspections, identifies main line sewers which are need in of repair. In 2012, open-cut excavation was utilized to remove and replace a piece of pipe under Lincolnway East, which had a significant hole in it. Additionally, this section of pipe was rehabilitated with CIPP. Eight other sections of pipe identified as critical were slated for main line CIPP, manhole rehabilitation and void remediation. The bids came in under estimate so a ninth pipe segment was added. The total project investment was \$410,670. All work was completed in 2012 except the void remediation at two sites.

## **Merrifield Avenue Sidewalk and Curb Installation Project**

Merrifield Avenue from Sixth Street to Ninth Street had existing curb along the west side of the street. With construction of the Penelope Apartments senior living center north of Kroger, it was appropriate to construct new curb and sidewalk along the east side of the road including the required drainage improvements and curb-ramp upgrades in this 800 foot long project area. The sidewalk now ties the shopping area located on the northeast corner of Merrifield and Twelfth Street to the residential area to the north. The contractor for this project was Walsh & Kelly, Inc. with a contract amount of \$197,285.26. This project was completed in the fall of 2012.

In addition to the sidewalk constructed within this project, the Redevelopment Department had funds available for sidewalk and curb improvements within low to moderate income neighborhoods. Three locations were identified that met the required

criteria. These funds replaced the deteriorated curb and sidewalk along the east side of Merrifield Avenue from Sixth Street to Fifth Street, Merrifield Avenue along the west side from Fifth Street to the railroad tracks, and both sides of Fifth Street from Merrifield Avenue to the east approximately 500LF along the residential area. Approximately 3,000 linear feet of curb and sidewalk was installed in addition to the initial project limits with an investment of \$60,000.

### **Delorenzi Avenue Improvements**

The 200 block of south Delorenzi Avenue located between Third Street and Fourth Street had no existing curb and was constantly flooding. To correct this, new curb, sidewalk and drive approaches were constructed. Due to this project being within a five year time of travel for the Well Head Protection Program, the addition of 4 new drywells were also approved by the Mishawaka Water Department Well Head Protection Specialist. The existing inlets were removed from the sanitary sewer system and redirected to these new drywells. Approximately 1,020 linear feet of curb and sidewalk were installed. These improvements were completed in late fall of 2012. The street will be milled and overlaid in the spring of 2013. The cost was shared by both the Redevelopment Department and Engineering Public Works funds that totaled approximately \$40,000.

### **Ballard Avenue**

The sidewalk on Ballard Avenue from Lincolnway East to Vistula Road is used by many pedestrians accessing Twin Branch Park and school. More specifically, this is located along the west side of Twin Branch Park and across from Twin Branch Elementary School. Due to deterioration, both the curb and sidewalk were replaced along the east side from Lincolnway East to Vistula Road. Approximately 650 linear feet of curb and sidewalk were replaced at a cost of \$32,500.

### **Rose Park Sidewalk**

Within Rose Park the construction of approximately 1,000 linear feet of sidewalk was constructed to connect the remodeled restroom facility, north to Fifteenth Street and south to Sixteenth Street. This investment totaled \$37,000.

### **West Lawrence Street**

Sidewalk along the south side of the 100 block of West Lawrence Street was replaced due to severe deterioration. Due to the condition and the need for the handicapped residents located within this block to have access, 350 linear feet of walk was replaced at a cost of \$12,250.

### **Mason Street and Victoria Street**

Due to deterioration and tree roots uplifting the sidewalk in this area, 400 linear feet of various sections of sidewalk were replaced for a total cost of \$14,000.

## **Long Term Control Plan Projects**

The City's Long Term Control Plan (LTCP) was designed to improve wastewater treatment and the sewer collection system to reduce wet weather sewer overflows from 50 per year in 2008 to less than 1 per year upon the plan's complete implementation. Improvements were previously completed at the Wastewater Treatment Plant and our focus is now directed to the collection system, which diverts 50 million gallons of combined sewer overflow (CSO) to the St Joseph River annually. 2010 construction concentrated on the Milburn Sections A, B, C, D, E, and F of the collection system. 2011 concentrated on the Milburn cured in place pipe (CIPP) lining rehabilitation, design of Milburn Section "G" and the additional Section "J-Phase I". Both 2011 and 2012 concentrated on finalizing the Storage Tunnel sizing master plan in relation to constructability. 2012 concentrated on constructing Milburn Section "G" and "J-Phase I", designing "J-Phase II", and design of Wilson Boulevard Area with redirection of four CSOs to River Crossing 3.

## **Milburn Boulevard Area Sewer Improvement Projects**

The first element of LTCP identified was the Milburn Area which is bounded by Logan Street, Ironwood Drive, Dragoon Trail/Panama Street and the St. Joseph River. This area is 348 acres with approximately 1,300 residents. The projects involved a design of a new separate storm system while utilizing the existing combined sewer as the sanitary sewer system after either cured in place pipe (CIPP) lining rehabilitation or replacement. A new underdrain system was included to protect homes from foundation issues resulting from sealing the ground water from the historical outlet it found from the deteriorated sewer system. The following table details each of the areas, which is scheduled for completion by 2015 with adequate funding. An estimated eight construction projects, each costing approximately \$2 to \$3.5 million, were necessary to complete the entire area. Main line CIPP Phases I and II were completed in spring of 2012. This included the rehabilitation of the Biosolids force main from the WWTP to the Biosolids Facility. During lateral investigations in the Phase I & II CIPP projects, it was determined the laterals also required rehabilitation or replacement. This work has been broken down into multiple phases/projects. Phase I and II Lateral Lining include all laterals under previously rehabilitated pavement. Divisions J, K and M include the final inlet separation and surface restoration of the neighborhood as well as lateral replacements in these areas.

## Milburn Boulevard Area Improvement Projects

Division Name	Project Description	Schedule/Status
Div. A, Ph I: Lincolnway, (Family Children's Center to Alabama St.) and Sixth St. (Meridian to Alabama St.)	60" Storm outfall at river for new storm sewers and 18" underdrain in Alabama, Lincolnway and Sixth St. Includes 72" & 24" borings under RR, new curb, pavement, and portions of sidewalk for Alabama and Sixth St. Lincolnway pavement was completed with INDOT project and funding	Completed Spring 2009
Div. A, Ph II, Lincolnway, (Byerly to Alabama)	New 30" storm sewer, underdrain, replaced sanitary sewer, new curb. Lincolnway pavement was completed with INDOT project and funding.	Completed Fall 2008
Div. B, Southwest I	New 30" storm sewer, 18" underdrain, sanitary lining, new curb and gutter for Milburn and Delaware, new curb for portions of Geyer and Russell. All new pavement.	Completed Fall 2010
Div. C, Meridian/Panama	New 30" storm sewer, 18" underdrain, sanitary lining, new curb and gutter for Panama from Logan to Reddick, new straight curb for Meridian from Panama to Sixth St. All new pavement.	Completed Fall 2010
Div. D, Southwest II	New 30" storm sewer, 18" underdrain, sanitary lining, curb and gutter for Milburn and Delaware, new curb for portions of Hubbard and Russell. All new pavement	Completed Fall 2010
Div. E, Dale from Sixth St to Panama / Delaware from Dale to Reddick.	New 30" storm sewer, 18" underdrain, sanitary lining, curb and gutter for Panama from Grand to Reddick, new straight curb for Dale from Panama to Sixth St. All new pavement.	Completed Fall 2010
Div. F, Eastern	New 24" & 30" storm sewer, 18" underdrain, sanitary lining, curb and gutter for Milburn and Delaware, new straight curb for Burdette from Milburn to Panama. All new pavement.	Completed 2010
Div. G, River Avenue Area	New storm sewer, new sanitary main, lateral replacement, new curb and gutter, new sidewalk and new pavement on River, Strathmoor, Middleboro, Monmoor, Byerly Court and Russell. Separation of the storm inlets on the north side of Lincolnway. Lining of the sanitary main on Lincolnway and Roy's Drive. Replacement of the Middleboro Lift Station force main and rehabilitation of the old force main. Upgrade of the Middleboro Lift Station.	Construction started 2012, to be complete 2013. Middleboro Lift Station upgrade still under design.
Div. H, Central Section	New storm sewer, 18" underdrain, sanitary lining, curb and gutter for Milburn and Delaware, new straight curb for portions of Sixth St. and Panama. All new pavement.	Completed Fall 2010
Div. J – Phase I & Phase II	New storm sewer, lateral replacement, new curb & gutter, new sidewalk and new pavement on Carlton & Reddick in Phase I. Phase II will include Grand, Berlin, Middleboro and Cleveland.	Phase I bid & completed in 2012. Phase II TBD
Div. K	New Storm sewer, lateral replacement, new curb & gutter, new sidewalks and new pavement on portions of Hubbard, Russell, Alabama, Jackson & Burdette not improved on other divisions.	Schedule TBD
Div. L	New storm sewer, lateral replacement, new curb and gutter, new sidewalks and new pavement on portions of Geyer, Queensboro, Somerset, Meridian and Hendricks not improved in other division.	TBD
Milburn CIPP Main Line Lining - Phases I and II	Main line sanitary sewer linings for Divisions A, B, D, E, F, H and streets not disturbed in previous projects.	Completed Spring 2012
Milburn CIPP Lateral Lining – Phase I and II.	Lateral lining for Divisions A, B, C, D, E, F and H.	Phase I bid 2012, complete 2013. Phase II bid 2013, complete 2014
Milburn – Lincolnway Lateral Lining	Rehabilitation or replacement of all on laterals on Lincolnway West from the 1400 block to the 2200 block. A challenging endeavor on a major 4 land arterial road with sewer depths up to 20' and requiring traffic to be maintained at all times.	Completed in 2012.

## **Wilson Boulevard Area**

Design consultants completed a Topographic Survey for the redirection of the Wilson Boulevard four CSOs to river crossing 3 in late 2011. Flow monitoring, utility relocation coordination, and preliminary design were completed in early 2012. This enabled the final design to advance including sanitary sewer rerouting, manhole rehabilitation, sanitary sewer CIPP, new storm sewer, water main upgrade, new combined trunk sewer, and new concrete curb, sidewalk and pavement. Full construction plans and specifications were 80% complete at end of 2012. The project is scheduled for bidding in spring of 2013 and is anticipated to be completed in one construction season.

## **Phasing and Implementation Plan for Remaining LTCP Elements**

The preliminary engineering was completed in 2011 for the major elements of the LTCP. However, it was determined that the several elements initially identified in the study required modification due to high groundwater, existing infrastructure conflicts, grade limitations, and overall maintainability issues. Therefore, the following table outlines the phasing with brief descriptions of the revised Recommendation and Implementation Plan.

## Long Term Control Plan - Recommendation and Implementation Plan

Location	Project	Description	Capital Cost Estimate <sup>1</sup> (\$Millions)	Size <sup>2</sup>	Start Date <sup>3</sup>	End Date <sup>4</sup>
Milburn Boulevard Area	Division G	Sewer separation and rehabilitation of the area south of the St. Joseph River, bounded by Ironwood, River Ave, and Lincolnway Ave.	2.6	N/A	2011	Dec 2026
Wilson Boulevard Area	Wilson Boulevard	Parallel interceptor to redirect flows from CSO 004, 005, 006, 007, and 008 and consolidate into one overflow location at River Crossing RC-4. Upgrade RC-4 if needed based upon flow monitoring upon completion of interceptor. Closure of RC-3.	5.0	N/A	Oct 2011	Dec 2020
River Center CSO 009	Fourth St. Storage/Conveyance Tunnel (Phase I)	Storage/Conveyance Sewer from Main St. to the WWTP	22.6	96"-120"	Feb 2012	Dec 2020
	Fourth St. Storage/Conveyance Tunnel (Phase II)	Storage/Conveyance Sewer from Merrifield Ave. to Main St.	18.7	72"-120"	Dec 2014	Dec 2022
	Fourth St. Storage/Conveyance Tunnel (Phase III)	Storage/Conveyance Sewer from Fourth Street to Merrifield Park (Linden Ave.)	5.7	60"-84"	Dec 2015	Dec 2023
East Area	Linden Area Sewer Separation (Phase I)	Sewer separation of approximately 152 acres north of Lincolnway East between Merrifield Park and Roosevelt Ave.	4.8	N/A	Dec 2014	Dec 2028
	Linden Area Sewer Separation (Phase II)		4.8	N/A	Dec 2016	Dec 2028
	Linden Area Sewer Separation (Phase III)		4.8	N/A	Dec 2018	Dec 2028
	Linden Area Sewer Separation (Phase IV)		4.8	N/A	Dec 2020	Dec 2028
	Alley Conveyance Sewer from Capital Ave. to Merrifield Ave.	Conveyance from the outfall of the Mariellen Lift Station to the storage/conveyance sewer along Merrifield Ave. at Fourth St.	5.8	30"-48"	Dec 2015	Dec 2028
	Northeast River Crossing to Merrifield Park (Linden Ave.)	Conveyance sewer which intercepts flow from the Daisy Road Lift Station Forcemain/Northeast River Crossing	2.3	42"-48"	Dec 2021	Dec 2029
Central Park Area	Daisy Road Lift Station, Forcemain, and RC-5 (Phase I)	Lift Station with 15.8 MGD capacity.	9.3	18"-24"	Jan 2021	Dec 2027

<sup>1</sup> Capital cost includes 20% contingency and 20% engineering, admin, and legal costs. ENR 8000

<sup>2</sup> The final facilities will be sized within the stated ranges to achieve zero overflows during the typical year (1992). The sizes shown were preliminarily determined by subbasin flow monitoring during preliminary design of each project component.

<sup>3</sup> Engineer under contract to design the facility.

<sup>4</sup> Facility is operational.

## **LPA Construction Projects (20% Local Match)**

### *Twelfth/Harrison Road Reconstruction*

In 2009 the City identified the Twelfth Street Corridor from Union Street to Blackberry Road, as needing upgrades to carry the increased traffic volumes through the corridor. Structurepoint Consulting Engineering was selected to prepare an environmental impact study and a location study for the entire corridor of Twelfth Street. The environmental impact report was approved in 2010 which enabled the City to program this eastern phase, from Lexington to Blackberry Road, for Federal funding through MACOG. Due to the construction costs for these phases, the City will continue to seek Federal funding for subsequent phases.

The Indiana Department of Transportation's improvements along Capital Avenue, including an underpass with the Norfolk-Southern Railroad, were scheduled to be completed late in 2012 and have been delayed to fall of 2013 due to various construction issues. The location study identified the improvements along East Twelfth Street (Lexington – Blackberry, Phase I), which would consist of widening to 38 feet to include the addition of center turn lane from Lexington Drive to the intersection of Blackberry Road, for a total length of approximately 5,200 feet. The design of the project was completed in 2012 and the R/W acquisition is ongoing at this time due to one parcel requiring condemnation. Due to this condemnation process and the Federal funding timeline, construction is estimated to begin late fall of 2013. The project is scheduled for completion in 2014 with an estimated construction cost of \$6.3 million.

## Long Range Projects

<u>Project</u>	<u>Completion Date</u>	<u>Est. Cost</u>
<b><u>Northwest TIF Area</u></b>		
West St. Storm Relief Sewer – LWW to Eighth St.	Aug 2014	\$2,450,000
Division Street to Catalpa Extension	Nov 2014	\$1,657,500
Catalpa Extension – Division to Filbert Road	Nov 2014	\$607,500
McKinley Widening – Division Street to Went St.	Oct 2015	\$1,622,500
McKinley Widening – Cedar Street to Fir Road	Nov 2017	\$2,145,000
McKinley Overpass Over CN RR – Design/RW/Permits	July 2015	\$9,575,000
McKinley Overpass Over CN RR – Construction	Aug 2018	\$18,850,000
<b><u>South Side TIF</u></b>		
Bremen Highway – Eutzler Drain & Meijer Basin Improvement	Aug 2013	\$475,000
Bremen Highway South Gateway – US 20 Bypass to Ireland	Oct 2013	\$2,550,000
<b><u>LPA Projects (FHWA w/ 20% Local Share)</u></b>		
Twelfth/Harrison Improvements – Lexington to Blackberry Rd	Nov 2014	\$6,292,657
<b><u>LTCP Projects</u></b>		
WWTP Tunnel Control Structure and Facility Integration	July 2016	\$3,225,000
Baker St. Storage/Conveyance Tunnel Phase I – LWW to Fourth	Oct 2017	\$2,250,000
Fourth St. Storage/Conveyance Tunnel Phase II – Baker to Main	Jan 2019	\$9,475,000



**FIRROAD-  
CONNECTOR**  
FIRRD TO CAPITAL AVE

**-PROPOSED ROADWAY PLAN  
WITH LANDSCAPED MEDIAN**



**EXHIBIT**

**A**



## CHURCH / UNION PHASE III

FOURTH TO SEVENTH STREET

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- CONCEPTUAL  
ROADWAY IMPROVEMENT  
AND PLANTING PLAN



**DLZ**  
ENGINEERS • ARCHITECTS • SCIENTISTS  
PLANNERS • SURVEYORS

EXHIBIT

B



## **BREMEN HIGHWAY**

US 20 BYPASS TO IRELAND ROAD

- CONCEPTUAL ROADWAY IMPROVEMENT PLAN
- PLANTED MEDIAN

 **ABONMARCHE**  
Confidence by Design

**EXHIBIT B**

**EXHIBIT C**