

## **Engineering Department**

*Christine Jamrose, PE, City Engineer/Director of Engineering*

The Engineering Department is responsible for planning, designing, bidding, funding, and managing construction for all public works projects within the City of Mishawaka and review of all private development for conformance with current engineering standards and specifications. The Department also manages the MS4 program, citywide GIS, addressing, traffic signal system, traffic cameras, right of way records, and as-built record drawings for locating right of way infrastructure, such as the City fiber optic system and the sanitary and storm sewer systems.

### **Engineering Staff**

The Engineering Department staff includes the City Engineer/Director of Engineering, Assistant Director of Engineering, Construction Manager, Project Manager, Traffic Manager, MS4 Coordinator, Project Coordinator, Office Manager, Locate/Permit Coordinator, GIS Manager, and GIS Coordinator.

The City Engineer/Director of Engineering is responsible for the day-to-day management of the Engineering Department. The Director is a technical advisor to the City's Municipal Utilities and continually assesses the City's changing needs to develop major and minor public works capital improvement projects. The Director matches future projects with available funding sources and submits applications where required, such as Community Crossings Grant Program, INDOT/Federal Aid programs, Municipal Wastewater and Sewer Departments' funding, and Tax Increment Financing (TIF) District. She manages development of construction plans and specifications for public bidding and construction of public works projects. The Director also serves as the City's representative on the following boards and committees:

- Technical Advisor for 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 Transportation Technical Advisory Committee (TTAC), Michiana Area Council of Governments (MACOG)
- INDOT Certified LPA Employee of Record for Federal Highway Funded Projects

The Assistant Director of Engineering continues to be responsible for reviewing site plans, subdivisions, variances, rezonings, and annexations for private developments to ensure conformance with current engineering standards and specifications including stormwater management, site access, sanitary sewer connection, erosion and sediment control, and overall plan conformity. Additional responsibilities include assisting consultant engineers with design of various public works projects; reviewing construction plans and specifications for improvements of streets, sewers, and drainage; and tracking required project documentation such as permits, testing reports, inspections, material tickets, bonds, and as-built drawings for infrastructure to be perpetually maintained by the City.

The Assistant Director of Engineering also serves as the City's representative on the following committees:

- Member of the Michiana Stormwater Partnership

- Proxy member for the Mayor on the St. Joseph River Basin Commission
- Representative for the Juday Creek Task Force

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

The Project Manager is responsible for overseeing smaller public works projects, the curb and sidewalk program, the summer street-paving program, assigns 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 invoices for consulting services and construction projects. The Project Manager also manages the allocation of funding from multiple funding sources to ensure adequate monies are available to complete smaller local construction projects.

The Traffic Manager oversees the operation of the City's traffic signal management system, including the emergency vehicle preemption system and twenty-one (21) City traffic cameras, and coordinates repairs by the City's maintenance contractor. The Traffic Manager is also responsible for addressing citizen complaints, traffic signal timings, traffic studies, and traffic work orders for installation of traffic signs and markings.

The MS4 Coordinator is responsible for compliance with the IDEM/EPA Rule 5 and Rule 13 requirements. The MS4 Coordinator is the City's coordinator for the City MS4 Program and presents MS4 education programs. The MS4 Coordinator processes approval of erosion control plans and monitors their compliance during and following construction.

The Project Coordinator is responsible for coordinating and maintaining land acquisition documentation and project files, processing purchase orders and payment applications, and processing utility excavation permits and sanitary sewer construction and connection applications and permits. The Project Coordinator is the backup for City address assigning and assists the President of the Board of Public Works and Safety.

The Office Manager is responsible for managing phone and front counter inquiries from the public, maintaining sewer insurance records, assisting in updating the locate database, assisting with excavation permits and sewer permits, and performing other duties as assigned. The Office Manager also serves as the Clerk for the Traffic Commission.

The Locate/Permit Coordinator is responsible for reviewing all locate tickets, updating the locate database, and gathering historic sewer as-built information for distribution to the Sewer Maintenance Department staff to accurately locate the sewer systems in the field. The Locate/Permit Coordinator also issues excavation permits, maintains the City as-built records, and assists with phone and front counter inquiries from the public. As the number of locate tickets continues to increase, the field locating workload could impact the amount of sewer maintenance performed by the Sewer Department; and therefore, monitoring of workload remains a priority to assess the need for potential reconfiguration of responsibilities.

The GIS Manager is responsible for managing the overall citywide GIS technology. This includes maintaining all aspects of the GIS software such as installations, upgrades, applications, and technical support for all City employees utilizing GIS. The GIS Manager also manages the GIS

data servers, administers databases on those servers, assists in interfacing primary GIS software with other software systems, and maintains all base map layers including aerial photography, building outlines, road edges, hydrology, streets, addresses, business locations, and other data layers.

The GIS Coordinator supports the GIS Manager with many aspects of the overall citywide GIS technology including assisting with maintaining all base map layers, providing and maintaining online web-based maps available to the public and for City internal use only, creating mobile map applications for field editing on mobile devices, and performing other related tasks. The GIS Coordinator also maintains the GIS data and map layers of the water distribution system for the Mishawaka Utilities Water Division.

## **Engineering Services**

In addition to engineering public works projects such as curbs, 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, erosion control issues, and restoration of City and public utility projects including follow-up final inspections.

The Department also investigates complaints received from residents throughout the City to resolve concerns within their neighborhoods including local and area-wide drainage, traffic, and parking issues.

A significant responsibility is the underground public works utilities locate service for the City. The facilities located are the sanitary trunk sewers, sanitary sewer lateral connections, storm sewers, fiber optic interconnects, traffic signal control systems, and the ChoiceLight (previously Metronet) shared conduit system. In 2019 over 10,500 locate tickets were processed, resulting in over 2,900 sites which required underground facilities to be located. When these locates are required for an ongoing project, remarking of the facilities is required every 3 weeks.



*Drainage Ditch along Logan Street*

## **Excavation Permits and Sanitary Sewer Connections for 2019**

Engineering ensures contractor and individual compliance with the City of Mishawaka Excavation and Public Works Bonding Ordinances and permitting requirements. The Department issues permits for all excavation within all City public rights of way to ensure protection of the motoring public and the existing infrastructure as well as ensuring proper restoration of all excavations within City rights of way.

Sanitary Sewer connection fees are designed to assess a fee on the developer's site based on the size of the 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, as well as making improvements at the Wastewater Treatment Plant.

In 2019, Engineering issued 500 Excavation Permits generating \$13,800 in fees for all categories of excavation, such as telephone, cable, gas, electric, fiber optic, boring, street, sewer, water, and irrigation. This is a decrease in fees from 2018 when \$16,500 was collected from 570 Excavation Permits. In addition, there were 160 Sanitary Sewer Connection and Inspection Permits issued in 2019 that totaled \$205,900 compared to \$169,400 collected from 190 sewer permits in 2018. Though there was a decrease in the number of permits issued for Sewer Connection and Inspection, there was an increase in funds collected, which is directly related to the pace of private property development.

### **Sewer Insurance Program**

The Engineering Department maintains all sewer records and provides administrative assistance to the Sewer Lateral Insurance Program. This program, which began in 1986, protects owners of single-family dwellings from paying catastrophic sewer lateral repair costs. The homeowner is responsible for paying all routine sewer lateral cleaning costs, and if the lateral requires repair, the owner pays the \$250 deductible fee for an owner-occupied home or the \$500 deductible fee for a renter-occupied single-family home. The Sewer Insurance Fund pays all repair costs in excess of the deductible 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 sewer insurance fee for single-family residential dwellings has been \$1.50 per month since 2008, but in March 2019, it was increased to \$2.20 per month to cover the rising costs of repairs.

The fund is also occasionally used to replace existing sewer laterals that are located within sewer main replacement projects to minimize the need to excavate a sewer lateral in a newly reconstructed street. Fees collected in 2019 totaled \$315,000 with expenses of \$367,000. In 2019, the Sewer Maintenance Department received 77 complaints of sewer lateral issues where 77 residents signed up for the Sewer Insurance Program. Of the 77 residents, there were 48 residential contractor repairs performed with an ending balance in the fund of \$11,000. The costs for the sewer lateral repairs ranged from \$250 to \$18,000.

### **Review of Commercial, Industrial, and Residential Developments in 2019**

The City continued to experience steady growth of proposed commercial property and residential developments. One of the larger examples of this growth is the continued development along the Main Street corridor between Edison Lakes Parkway and Douglas Road. Main Street Commons is a three-lot commercial development fronting Main Street between Portillo's and Qdoba. This development is planned to have multiple restaurants and a designated lot for a new office building. Adjacent to this property, between Portillo's and the St. Joseph Regional Medical Center, is a Planned Unit Development (PUD) called Saxon Residences at Edison Lakes. This PUD will include 5 new apartment buildings with approximately 370 units and potential commercial space. The developers for both projects are working through final details with construction expected to begin in 2020.

Other major site development projects approved in 2019 were Urban Air Adventure Park, which is at the former site of the USA Skate Center (3909 N. Main Street), and Generations AdventurePlex, which is adjacent to Cinemark Movies 14 (1018 W. Edison Road). Both of these

developments are indoor children entertainment venues with features such as laser tag, bowling lanes, arcade games, climbing walls, and trampolines.

Residential subdivisions continued to be developed with another section of Reverewood, Savannah Pass at the Forest, and The Fields at Highland, which will be the final phase of Habitat for Humanity Carter Work Project scheduled for September 2020.

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

During 2019, staff prepared for potential construction and post-construction audits by IDEM. While some local entities were audited in 2019, the City was not among them. We anticipate an audit in 2020. We will continue to handle construction and post-construction in accordance with applicable regulations to ensure that the results of a potential audit will be favorable.

The City, through its consultant, has continued to update its adaptive GIS layer to assist developing, storing, and retrieving MS4 program data. The GIS layer was further enhanced to include the locations of industries that have a potential to affect stormwater. The GIS layer will serve as a tool going forward to target areas for enhanced monitoring of illicit discharges and will be a useful screening tool if an illicit discharge is detected. In addition, the Sewer Department has been enhancing the GIS to target maintenance of the City's sanitary and storm sewers. These activities are above and beyond the requirements of our MS4 permit, and at our last good housekeeping audit, IDEM was impressed with the breadth of our sewer maintenance program and the City's integration of GIS with maintenance activities.

The City continued its participation in the Michiana Stormwater Partnership (MSP), which is a consortium of all MS4s within St. Joseph County, to ensure consistent messaging and a pooling of resources. MSP works collectively to implement the public education and outreach programs required by each entity's NPDES permit. The MSP helped plan and co-sponsor a contractor education event in conjunction with the Soil and Water Conservation District. The event occurred in March at the Izaak Walton League.

The City's NPDES permit (5-year term) was renewed for a fourth time in 2019. IDEM is currently working on changes to the MS4 Permit Program, which will impact our approved permit. The revisions will require permit restructuring that may bring changes to the local MS4 programs, including the potential for revised permit requirements. Program efforts throughout 2020 will focus on continuing outreach education, erosion control permitting with construction site monitoring, and educating City staff in making any necessary adjustments to the City's MS4 program that result from program changes made at IDEM.

### **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 2010, which established maintenance requirements and provided 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 to develop upgrades or modifications for implementation the following year. In a continued effort to educate restaurant operators about the City's expectations, the Wastewater, Sewer, and Engineering staff updated and printed an educational pamphlet for distribution with the January 2019 restaurant license renewal. The list of food service establishments that fall under the provisions of the ordinances was reevaluated. As

the program has grown and developed, additional food service establishment types have been identified for inclusion in the program. Those newly identified establishments were included in the registration and education for 2019.

## **Traffic Engineering Services**

### Maintenance and Operation

Engineering is responsible for maintaining the effective use of the City's streets for the motoring public. This includes ensuring that the traffic signals are operating correctly, clearly and consistently displayed, and the City's rights of way are clear of obstructions. The following bullets detail some of these efforts during 2019.

### Traffic Signals

- Total of 63 traffic signals: all cabinets received an annual cleaning to protect the cabinet electronics, which includes replacing air filters and evaluating the winter heat source and battery back-up system
- Completed 122 general traffic signal and luminaire maintenance repairs
- 13 school warning devices
- 2 intersections with four-way red flashers
- 2 intersections with all-way yellow warning flashers
- 6 solar speed limit warning signs
- 7 Main Street and 7 Grape Road intersections north of McKinley Avenue were modernized with LED luminaires
- General repairs and maintenance of guardrail

### Traffic Signage, Pavement Markings, and Dumpster Permits

- 53 work orders issued for traffic signage and pavement markings
- Annual inventory of all traffic control signage near public and private schools including repainting school crosswalks and replacing damaged, faded, or missing signs, which maintains compliance with Federal guidelines as outlined in the Indiana Manual on Uniform Traffic Control Devices for all schools in Mishawaka
- 13 on-street disabled parking spaces were added following recommendation from the Mishawaka Police Traffic Division and approval by the Board of Public Works and Safety
- 6 on-street disabled parking spaces were removed since they were no longer needed
- 40 dumpster permits were issued

### Digital Solar Speed Signage

In 2018, the first of three pairs of digital solar speed signs were added to the City right-of-way located on Main Street between Leyte Avenue and Ardennes Avenue. They are typically installed in pairs, one for each direction of travel. In spring 2019, INDOT completed resurfacing of Lincolnway, which included the City's request to revise the pavement markings to clearly define one lane of travel in each direction and add a center left turn lane. Digital solar speed signs were installed at Baker Street for the eastbound traffic and at Delorenzi Avenue for the westbound traffic.

These signs act as a traffic calming measure and bring attention to the new pavement configuration. Before the end of 2019, a third set of digital solar speed signs were installed on Dagoon Trail near

the Blair Hills office for eastbound traffic and near George Wilson Park for westbound traffic. The total City investment was \$29,500 for both locations.

#### Traffic Studies, Modifications, and Traffic Commission

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

Requests are received for additional four-way stops, time limited parking, and restricted parking which require a recommendation by the Traffic Commission and, in many instances, action by the Mishawaka Common Council before implementation. A thorough investigation and, in some instances, a study is completed to determine the merits of each request. These studies are then presented to the Traffic Commission for review and recommendation to the Common Council. Upon adoption of an Ordinance by the Mishawaka Common Council, the Engineering Department issues a work order to install the modified signage or pavement markings. In 2019, the City did not receive any formal requests requiring consideration by the Traffic Commission.

#### **GIS (Geographic Information Systems)**

Geographic Information Systems, or GIS, is a computer technology that uses data in relation to location, smart mapping technology. It is estimated that 80-90 percent of all information kept by local governments has geographic location associated with it. The GIS staff oversees and coordinates the City's use of the software, databases, and all related information through interaction with City Departments; processes work performed in the field; maintains relationships with other agencies such as South Bend, St. Joseph County, and MACOG; and provides convenient visually oriented information for City employees, residents, and businesses to utilize.

One of the primary responsibilities of the GIS staff is to maintain all aspects of GIS software and coordinate base mapping data such as aerial photography, building outlines, road edges, hydrology (bodies of water), streets, addresses, business locations, and many other data layers. This includes trouble-shooting when problems with GIS and related software are encountered. It also involves the interfacing of the primary GIS software with other software systems for permitting, inspection management, and other Department-specific applications. All web-related GIS applications involve creating and maintaining GIS maps provided for the public as well as for field capabilities by City Departments, such as utility locating, entering real-time data in the field, and other uses of mapping data lookup. There are currently 16 online web maps available to the public and an additional 13 online web maps for internal City use only. This involves overseeing the supporting GIS data so the online web maps provide current graphics and data. Many Department-specific maps, which are accessed from City employee workstations, have been created and maintained by the GIS staff as well.

The GIS staff also coordinates Mishawaka's interagency projects such as providing City streets, addresses, and business locations to the St. Joseph County Public Safety Answering Point (PSAP) and providing updated residential addresses to the U.S. Census Bureau.

### GIS Projects

In 2019, the GIS staff completed an overall citywide GIS software upgrade to ArcGIS version 10.6.1. This upgrade was necessary in continuing to provide City Departments with consistent and reliable use of their GIS data. All servers and databases were updated along with individual workstations to the new version. Other projects completed, beyond the normal daily tasks and responsibilities of the GIS staff, were as follows:

- Upgraded GraniteNET sewer video inspection software to integrate with GIS and improved methodology for managing inspection videos and data
- Updated aerial photography to 2019 imagery provided by MACOG
- Provided streets, addresses, and business locations to the St. Joseph County Public Safety Answering Point (PSAP) to be incorporated into the new Motorola Computer Aided Dispatch software
- Created a mobile application for collecting data on pavement surface conditions to better prioritize repaving schedules
- Created a mobile application for collecting hydrant flow data
- Added new map features for public viewing including traffic alerts, summer street paving, cured in place pipe (CIPP) locations, and designated truck routes in the City

The GIS staff will continue to coordinate GIS software installation and troubleshooting on all internal workstations, assist individual Department GIS editors with various issues, and collaborate with all City Departments to improve their mapping capabilities.

### **Construction Projects**

Engineering is responsible for plan development and construction management of public works projects. These construction projects are funded from several sources. In 2019 projects under construction were funded with Wastewater bond revenues, Tax Increment Financing (TIF), Cumulative Sewer, Redevelopment CDBG, Local Road and Street, Sewer Maintenance, and INDOT/FHWA Funds. Construction completion in 2019 totaled approximately \$12.4 million. Specific details of the 2019 construction projects are highlighted in the following sections. In addition, projects that were in the design and land/easement acquisition phases during 2019 are also discussed with intent of future construction.



### **TIF Construction Projects**

#### Douglas Road Phase II, including Veterans Parkway and Northeast Well Field utility access

The City's recent annexation, subsequent acquisition of the Juday Creek Golf Course, and plans for the proposed Northeast Well Field emphasized the need for improvements to Douglas Road from the existing County two-lane configuration. Due to the magnitude of utility coordination, a phased approach to the project was necessary. Phase I construction was complete in June 2018 and included utility extensions, stormwater management accommodating the sensitive nature of Juday Creek, and subgrade preparation with a total City investment of \$1.3 million. Phase II construction commenced in June 2018 for Douglas Road and Veterans Parkway. Douglas Road



*Douglas Road Phase II*

improvements included a five-lane concrete street with two travel lanes in each direction, a center left turn lane, concrete curb and sidewalk, street lighting, and multiple buried utility corridor conduits. Veterans Parkway, which will provide access to the proposed Northeast Well Field and water treatment facility, includes one lane in each direction and protected left turn lanes incorporated with landscaped islands, a bridge over Juday

Creek, water main, stormwater management, street lighting, gravity sanitary sewer main, and associated forcemain for future lift station. At the close of 2019, the improvements to Douglas Road and Veterans Parkway were substantially complete with the exception of asphalt surface and associated pavement markings for Veterans Parkway. Final completion is anticipated late spring of 2020 with a total City investment of \$6.5 million.

#### *Fourth Street Improvements – Phase II*

As a continuing effort to reduce combined sewer overflow (CSO), Fourth Street from Laurel Street to Merrifield Avenue was fully reconstructed in 2018. In addition to the full depth pavement, storm sewer was installed allowing for the separation of the stormwater flows from the sanitary sewer lines. A small step in green infrastructure was included with the new storm sewer; pervious pavers were installed on the upstream sides of the storm inlets to catch water for treatment/percolation and slow the discharge to the storm system. We will monitor the performance of the pervious paver in the coming years.



*Fourth Street Improvements – Phase II*

All sanitary sewer laterals and water services were replaced within the public right of way. Laurel Street from Third Street to Fourth Street was also reconstructed and a sanitary sewer was constructed to separate the sanitary and storm flows. Both street sections also included new concrete curbs, gutters, and sidewalk. Though we had good progression of the project in 2018, the quantity, age, and size of the various buried utilities made this project a challenge; and therefore, it was necessary to suspend construction for winter weather. Construction in 2019 included replacement of water services and sanitary laterals, replacement of selected curb, and rehabilitation of pavement on Laurel Street between Third Street and Lincolnway and on Third Street from Laurel Street to Cedar Street. The total City investment was \$1.1 million.

#### *Ironworks Plaza Improvements*

Ironworks Plaza is a multi-use facility north of Mill at Ironworks development along the St. Joseph River Race in Beutter Park with connections to Battell Park and Central Park utilizing the pedestrian bridge and Riverwalk. The Plaza is being developed in phases.

Phase I is establishing the extensive infrastructure necessary for Ironworks Plaza and the surrounding development including a new 72-inch storm sewer outfall to the St. Joseph River; sanitary sewer connection; water supply; electrical, fiber optic, phone, and cable utilities; additional parking areas; and beautification along the river including a fishing area. Phase I will be completed prior to the 2020 summer events with an anticipated City investment of \$4.7 million.



*Ironworks Plaza Improvements – Fishing Area*

Phase II includes restroom facilities and a Biergarten with a shade structure and furnishings for relaxing. Phase II will also be complete prior to the 2020 summer events with an anticipated City investment of \$2.2 million. Phase III will include a vegetated winding mist path for summer walks which will convert to an ice-skating ribbon in the winter, a multi-use building with a café, an event stage, and public art including interactive sculptures. The facilities and architecture will celebrate the history of Mishawaka and bring it to the future making the area a centerpiece for all to enjoy in the heart of the City. Phase III is currently planned for 2023.



*Ironworks Plaza Improvements - Biergarten*

### *Elmwood Avenue Realignment*

The City partnered with the developer of the parcels on the west side of Bremen Highway which allowed the reconfiguration of Elmwood Avenue to utilize the existing traffic signal at Bremen Highway and Meijer Drive. The developer committed to granting the required right of way and sharing in the construction costs. Therefore, the City commenced with construction of the realignment including utility extensions, storm sewer, full depth asphalt pavement, concrete curb and gutter, an added right turn lane on Bremen Highway, street lighting, and upgrading the existing traffic signal. Construction was complete in 2019 with a total City investment of \$900,000 and interest has already been expressed in further commercial development along Bremen Highway.



*Elmwood Avenue Realignment*

## **2019 TIF Design and Study Projects**

### *Cedar Street from Mishawaka Avenue to Edgewater Drive (Mishawaka Ave. Phase III)*

Cedar Street is Phase III of the Mishawaka Avenue area projects, which the design progressed to 95% complete in 2016. The project is impacted by the adjacent Cedar Street Central Service Facility rehabilitation. The City facility was demolished in 2017, and in 2019 the brown field requirements and associated process has slowed. The Cedar Street project may be programmed for construction once the rehabilitation has progressed. At that time the project will include sewer

separation, street reconstruction, concrete curb, sidewalk, and digital solar speed signs with an estimated City investment of \$1.35 million.

*Twelfth Street, Phase III (Dodge Avenue to Campbell Street)*

Just as Twelfth Street Phases I and II were selected by INDOT/FHWA to receive 80% funds matched to the City's 20% funds for construction and construction observation, Phase III was also selected in 2018 as a viable project to receive these funds in the future. The project engineering commenced in summer 2018 with survey work, and design was well underway throughout 2019. The project will include a widened Twelfth Street from its present two lanes to three lanes. This expansion includes a continuous center left turn lane, new storm sewer, concrete curb and gutters, and 8-foot multi-use pathway. The INDOT/FHWA process also requires deliberate design, environmental study, and right of way acquisition milestones that will span until 2024 or 2025 when the start of construction has been programmed into the INDOT/FHWA system. The total investment for construction is estimated to be \$7.8 million.

*Cedar Street Bridge Widening*

The City, with concurrence from St. Joseph County, is making plans to widen the Cedar Street Bridge over the St. Joseph River. The bridge widening will allow for the expansion of the Riverwalk across Cedar Street and will serve as a connection between the Riverwalk on the north side of the river with the proposed Riverwalk along the south side of the river. In addition to the widening, the work on the bridge will include replacement of the bridge rails. The bridge lighting will be replaced such that it is consistent with current City street lighting standards and provide accent lighting to improve the aesthetics of the bridge.

The project will also make provisions for an overlook in the southwest corner of the bridge. Trail connections at the north end of the bridge and a pedestrian actuated signal at the north end of the bridge will allow for the safe crossing of Cedar Street at Edgewater Drive. The construction portion of project was selected to be a Federal Aid project where 80% will be funded by INDOT/FHWA and a local match from the City will fund the remaining 20%. Currently bidding for construction is scheduled for October 2023 with an estimated total construction cost of \$4.3 million.

*Bendix Pond / Beiger Street / Byrkit Avenue Storm Drainage Study*

A storm drainage study for the area bounded by Byrkit Avenue, Twelfth Street, Downey Avenue, and the Norfolk Southern railroad, which includes Bendix Pond and its outfall system, Beiger Street, and Byrkit Avenue, was substantially complete in 2019. Bendix Pond receives water from the Laing Ditch watershed and outlets into the Roosevelt Avenue storm sewer, which discharges into the St. Joseph River. During extreme wet weather events, water surface elevations within Bendix Pond can cause flooding of the adjacent properties. Beiger Street and Byrkit Avenue are currently served by an existing combined sewer system. The existing 60-inch combined sewer in Byrkit Avenue is in the final two phases of being converted to a storm sewer as part of the original Linden Area Long Term Control Plan. Improvement of the Beiger Street corridor from Twelfth Street to the railroad is planned pending funding. The study evaluated options for drainage improvements to address the stormwater needs of the area. At the close of 2019, the study identified a promising and economic option to provide conveyance of Bendix Pond overflow and Beiger Street storm drainage to the converted Byrkit Avenue storm sewer. The study recommendations will be finalized in 2020.

### *Partial Raceway Reconstruction and Main Street Widening*

To facilitate the beautification and development of the island between the St. Joseph River and the River Race formerly used for industry, a plan is being developed to bring utilities to the island. To create additional land for development, a portion of the River Race will be enclosed. The project will include development of a water feature utilizing the River Race. The Riverwalk will continue to travel along the island. Main Street will be widened as part of the master plan for downtown traffic flow allowing an added left turn lane at the intersection of Main Street and Front Street to accommodate vehicular access to the island.

### *Traffic Signal Interconnect Study (Main/Church Street from Fourth Street to Broadway)*

In conjunction with the raceway reconstruction and associated redevelopment of the island, the new developments in the central business district west of Main Street, and the continued interest of the area shown by developers, a traffic study that included generating a computer traffic model of the City system was conducted during 2019 for the Main/Church Street corridor. Consideration was given to two scenarios with the goal of successfully moving the north-south through traffic while still allowing the local traffic to exit/enter the corridor safely. The limits of the model were Fourth Street on the south and Broadway on the north. Both scenarios modeled adding a traffic signal at the intersection of Front Street and Main Street.

The first scenario modeled the effects of the new traffic signal without making any changes to the current corridor configuration. The second scenario considered the effects of the new traffic signal in addition to making three changes to the current configuration: removing the traffic signal at the intersection of Church Street and Main Street, reconfiguring the center medians on Main Street and Church Street to prohibit left turns (except for northbound traffic on Church Street) due to the removal of the traffic signal, and replacing the traffic signal at the intersection of Main Street and First Street with an all-way stop.

Interestingly, the modeling showed that both scenarios would be equally successful in the short term. The second scenario showed better success in the long term. However, with the proposed repurposed use of the Liberty Mutual building, the area being considered has been expanded, and this additional consideration is now being studied with an anticipated completion in 2020.

### *Various Sites in Downtown Mishawaka*

There are proposed parking improvements on First Street and Hill Street, which are components of a master plan to create a vibrant downtown district in Mishawaka. With the formerly vacant properties being transformed into residential and commercial space, downtown parking is at a premium. These street improvement projects take steps to create additional public parking around these developments. Parking on First Street from West Street to Hill Street will increase from 13 to 34 spaces. Parking on Hill Street from First Street to Front Street will increase from 28 to 50 spaces. Both sections are planned to increase the number of designated ADA parking spaces as well as address the existing sidewalk ramps at those intersections. In particular, the Hill Street improvements will carry the streetscape theme present on Hill Street to the north. The widened walkways, lighting, and boulevard-feel will serve residents, business owners, and downtown visitors alike.

## Public Works Projects

### Community Crossings Matching Grant

The City was awarded a \$572,850 matching grant in grant round 2019-1, which the City utilized during the 2019 construction season to repair curb and patch, mill, and overlay Grape Road from McKinley Avenue to Edison Road and Edison Lakes Parkway from Main Street to Main Street. The street was milled 2 inches and resurfaced with full depth patching as required throughout the project limits. New grooved inlaid wet dry bead thermoplastic pavement markings were placed and a pedestrian crossing was installed at Grape Road and Catalpa Drive. This project was completed in 2019 with a total City investment of \$1.1 million.



*Community Crossings – Edison Lakes Parkway*

In conjunction with this project, a new multi-use 8-foot path was installed along the west side of Grape Road between McKinley Avenue and Imus Drive. Completion of this path is anticipated in early 2020. The path was funded by TIF with a total City investment of \$400,000.



*Community Crossings – Grape Road Path*

In October 2019, the City was awarded a \$427,150 Community Crossings Matching Grant 2019-2 for the 2020 construction season. In 2020 this grant will fund repaving Grape Road from Indian Ridge Boulevard to State Road 23 and University Drive from Grape Road to Main Street.

### Summer Street Paving Program

The pavement rating system (PASER) which was updated in 2019, is used in prioritizing street repairs. The Engineering Department coordinated an additional 26,000 linear feet of street milling, resurfacing, replacement of handicap ramps, and pavement markings for various streets. The pavement was milled from curb to curb to remove 1½ to 2 inches to retain as much curb exposure as possible, increase drainage, and wedge and level for a smoother surface. Milling expenses totaled \$222,000, wedge and level/resurfacing totaled \$679,000, and pavement markings totaled \$22,000. The City's summer street paving program investment of \$786,000, plus \$137,000 of funds made available from a previously earmarked project that was tabled, brought the 2019 total City pavement investment to \$923,000.

The progress we have made in street paving was also assisted by the Sewer Department. When drainage improvements were necessary, most noticeably on Cedar Road between Lincolnway and Bay Char Court, the Sewer Department facilitated the drainage improvements, and the Engineering Department completed the improvements with resurfacing with pavement.

Street Name	From	To
Battell Street	Cedar Street	50 feet east of Maple Street
Beacon Court	Bennington Drive	Dead End
Bennington Drive	200 feet east of Darien Court	150 feet east of Beacon Drive
Bridgeton Drive	Bennington Drive	Dead End
Byrkit Avenue	North of Club Blvd	Mishawaka Avenue
Castine Walk	Prescott Drive	Prescott Drive
Cedar Road	Lincolnway East	North 520 feet
Clay Street	Mishawaka Avenue	Lawrence Street
Conner Drive	632 Conner Drive	813 Conner Drive
Day Road	East City Limits	280 feet east of Savannah Pass
Eighth Street	Main Street	Union Street
Fifth Street	Capital Avenue	West to Dead End
Handlebar Road	Blair Hills Drive	Dead End
Hodson Avenue	York Road	Fifth Street
Hodson Avenue	Alley south of Lincolnway East	Third Street
Hook Road	Handlebar Road	Dead End
Laurel Street	Lincolnway East	Third Street
Liberty Drive	Broadway	Grove Street
Lindahl Drive	Harding Avenue	Dead End
Logan Street	Lincolnway West	RR tracks south of Fourth Street
Lovechio Drive	625 Lovechio Drive	819 Lovechio Drive
McKinley Avenue	Miracle Lane	Charlotte Street
Merrifield Avenue	Melody Downs Entrance	North 300 feet
Mishawaka Avenue	Logan Street	Calhoun Street
Oakland Avenue	Cottage Avenue	Cassell Avenue
Orchard Court	Merrifield Avenue	Niles Avenue
Prescott Drive	Lexington Boulevard	Lexington Boulevard
Providence Court	Providence Drive	Dead End
Rodich Drive	Tripple Drive	Zappia Drive
Third Street	Walnut Street	East to Dead End
Third Street	Beiger Street	Virgil Street
Tripple Drive/Stefan Drive	Douglas Road	5719 Stefan Drive

### Alley Paving Program

The 2019 alley paving program surfaced 2,960 linear feet of alleys for an investment of \$75,000. A field inspection of each alley is conducted to determine the feasibility of paving 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 apply dust palliative to the paved alley for many years. There are approximately 48.5 total miles of alley that are open to the public, and a significant number of these have been paved by this program. In 2019 ten alleys were surfaced with this program.

### 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 121,800 linear feet of new curb and sidewalk has been shared by the City and its residents. Additionally, several areas of sidewalk and curb were replaced due to drainage issues, trip hazards, or damages. This year a total of \$308,000 was invested in neighborhoods on curb and sidewalk improvements.

### Curb and Sidewalk – Community Development Block Grant

The Department of Redevelopment received a 2019 Federal Grant for curb and sidewalk improvements within the low to moderate income census tracts. With these funds, a separate project was bid as performance (design/build) to replace 3,960 linear feet of curb and sidewalk to meet the current ADA standards and install new handicap ramps. The improvements began in the fall of 2019 and will be completed in the spring of 2020. The improvement area is along Third Street from Byrkit Avenue to the first alley east of Virgil Street and Virgil Street from Fourth Street to Third Street. The estimated cost is \$281,000.

### **Long Term Control Plan Projects**

In 2014, the City of Mishawaka entered into a Consent Decree with the United States Environmental Protection Agency (U.S. EPA), the United States Department of Justice (U.S. DOJ), and the Indiana Department of Environmental Management (IDEM) regarding the City's Long Term Control Plan (LTCP). The LTCP has the goal of reducing the combined sewer overflows (CSOs) to the St. Joseph River to zero during a typical year. The Consent Decree identifies specific projects that must be completed within an agreed upon timeframe in order to reach the goal of zero overflows. As the City advanced the planning and design associated with the projects required under the Consent Decree, it was determined in 2017 that the cost to construct the deep tunnel projects was unaffordable, created economic hardship for the citizens of Mishawaka, and resulted in no appreciable benefit to water quality in the St. Joseph River. The City, with its official notice as of November 2017, began the intricate process of renegotiating the Consent Decree with the U.S. EPA, U.S. DOJ, and IDEM. The details of progress from the regulation perspective are fully outlined within the report from the Wastewater Division.

The specific projects proposed as alternatives to the original Consent Decree and currently under the umbrella of renegotiation are affordable, achieve the proposed renegotiation level of control, still protect the City's interest regarding long-term growth, focus on neighborhood improvements, and ultimately meet the needs of the City's citizens. The proposed alternative projects have Linden Area elements and north-east growth elements from the original Consent Decree, but also include the West Street area and smaller conveyance elements. The renegotiation continues to evolve with plan refinement. In good faith, the City will continue to progress projects that are common in both the original and proposed alternative LTCP that are in the best interest of its citizens. We are confident that the alternative plan is good for Mishawaka, and the Mayor has endorsed the plan going forward to be known as the Sewer Separation and Neighborhood Revitalization Plan (see Exhibit A).

### Linden Area – Long Term Control Plan

The Linden Area sewer separation is an element of the original Long Term Control Plan (LTCP), which includes the area south of the St. Joseph River roughly bounded by Merrifield Avenue, Fourth Street, and Roosevelt Avenue. The recommended plan consists of three main components: rehabilitating the existing combined sewer system to act as a separated sanitary sewer system, constructing a new separate storm sewer systems including a new storm outfall to the St. Joseph River, and converting the existing combined sewers in Byrkit Avenue (from Sixth Street to Linden Avenue), Indiana Avenue (from Linden Avenue to Joseph Street), and Joseph Street (from Indiana Avenue to CSO 015) to storm sewers. The proposed improvements can be divided into four major geographic elements: the Eberhart Stormwater Outfall and Storm Sewer Improvements, the Roosevelt Storm Sewer Improvements, the CSO 015 Storm Sewer Improvements in the Crawford Park area, and the Byrkit Combined Sewer Conversion. However, these are further broken down into several phases to complete the entire system over several years.

The first of the Linden Area construction projects began in 2016 with Division A – Phase I. Division A – Phase II, Division B, and Division C were completed in 2017. Divisions N & P were completed in 2018. Linden Area Divisions A, B, and C were necessary to provide a storm outlet for the anticipated improvements from the second phase of Twelfth Street, from Downey Avenue to Campbell Street, constructed in 2019.

Division M, which connects Division C to Division N, was designed throughout 2019 as Twelfth Street Phase II was being constructed. Due to the extensive area included in Division M, the project will be divided into multiple phases. The first construction phase will be bid in March 2020 and will extend north under the railroad from Fifth Street and connect to the sanitary sewer at Mason Street and Fourth Street. The second section of Phase I will be bid in summer 2020 and will include Fifth Street, Byrkit Avenue, Campbell Street, and Sixth Street. Exhibit B shows the phasing of Division M, and Exhibit C shows the magnitude of the area served by these Linden Area improvement projects.

### Crawford Park Connector Sewer

The Linden Area Study also identified significant deficiencies in the conveyance system between Niles Avenue and the combined sewer overflow in Crawford Park, CSO 14. As the efforts expended in 2017 and 2018 to determine alternatives for the LTCP, a solution was determined for the overflows of the manhole within Crawford Park if the City were not held to the goal of zero overflows during the typical year. This solution was to add a new parallel 72-inch sewer conveyance through Crawford Park to the existing 48-inch and construct a relocated CSO control structure at the river. If the City is required to adhere to the goal of zero overflows, the 72-inch conveyance can be continued. Construction commenced in October 2019 starting with the replacement of the existing combined sewer outfall at the river. The construction will continue into 2020 with the installation of 450 feet of new 72-inch sanitary sewer within Crawford Park, rerouting of the existing 48-inch sanitary sewer, and installing two concrete diversion structures. The project also includes the milling and resurfacing



*Crawford Park Connector Sewer*

of Niles Avenue between Mishawaka Avenue and Lincolnway East. Project completion is anticipated for fall 2020 with an estimated City investment of \$3.7 million.

## **Wastewater Funds**

### Milburn Boulevard Area – Somerset Avenue and Logan Street

Two more street sections within the Milburn Area were completed in 2019. One section was Somerset Avenue from Sixth Street to Delaware Street. Somerset Avenue received full depth pavement replacement, concrete curb, sidewalk, storm sewer, and water and sanitary lateral service replacements. The other section included Logan Street from Dragoon Trail to Milburn Boulevard.



*Milburn Boulevard Area – Logan Street*

Logan Street was rebuilt from Dragoon Trail to Eleventh Street adding sanitary and storm sewer systems along with rehabilitating the storm drainage ditch. Logan Street from Eleventh Street to Milburn Boulevard was milled and resurfaced, and storm drainage was reestablished on Logan Street at Ninth Street.

The traffic signals were improved at the intersections with Dragoon Trail and Milburn Boulevard. The total City investment was \$1.7 million. Providing funding is available, the remaining blocks in the Milburn Area (Russell Avenue, Geyer Avenue, and Hubbard Avenue) are programmed for completion in 2020 and 2021.

## **2019 LPA Construction Project (20% Local Match)**

### Twelfth Street, Phase II (Campbell Street to Downey Avenue)

Construction was scheduled to start in August 2018; however, due to utility relocations, construction was delayed until April 2019. The project is 800 feet short of one mile long and widened Twelfth Street from two lanes to three lanes including a continuous center left turn lane. Byrkit Avenue was also reconstructed from Twelfth Street to Eighth Street. In addition, new concrete curb and gutter, storm sewer, and street lighting were installed, and the traffic signal at Byrkit Avenue and Twelfth Street was upgraded.

This project was originally scheduled to span two construction seasons; however, we encountered much more difficult construction due to utilities, groundwater, and unfortunately the public's lack of obeying construction traffic control. It became apparent that it would not be safe to keep the one lane open to traffic to use during construction.



*Twelfth Street (Campbell to Downey)*

The City chose to close Twelfth Street, which afforded the unique opportunity to perform multiple construction elements concurrently instead of independently. This sequencing resulted in multiple savings that enabled the project to be completed in one construction season and ultimately saving funds that allowed the pavement limits to be extended on Byrkit Avenue from original termination point of Eleventh Street north to Eighth

Street. The street was fully opened to traffic by Thanksgiving Day 2019. There are a few final clean-up components to be completed in early 2020 while open to traffic. The Twelfth Street construction is funded through the Federal Aid Program where 80% is funded by INDOT/FHWA and the remaining 20% is funded by a local match from the City. The estimated total investment is \$6.1 million where the City's match is \$1.2 million.

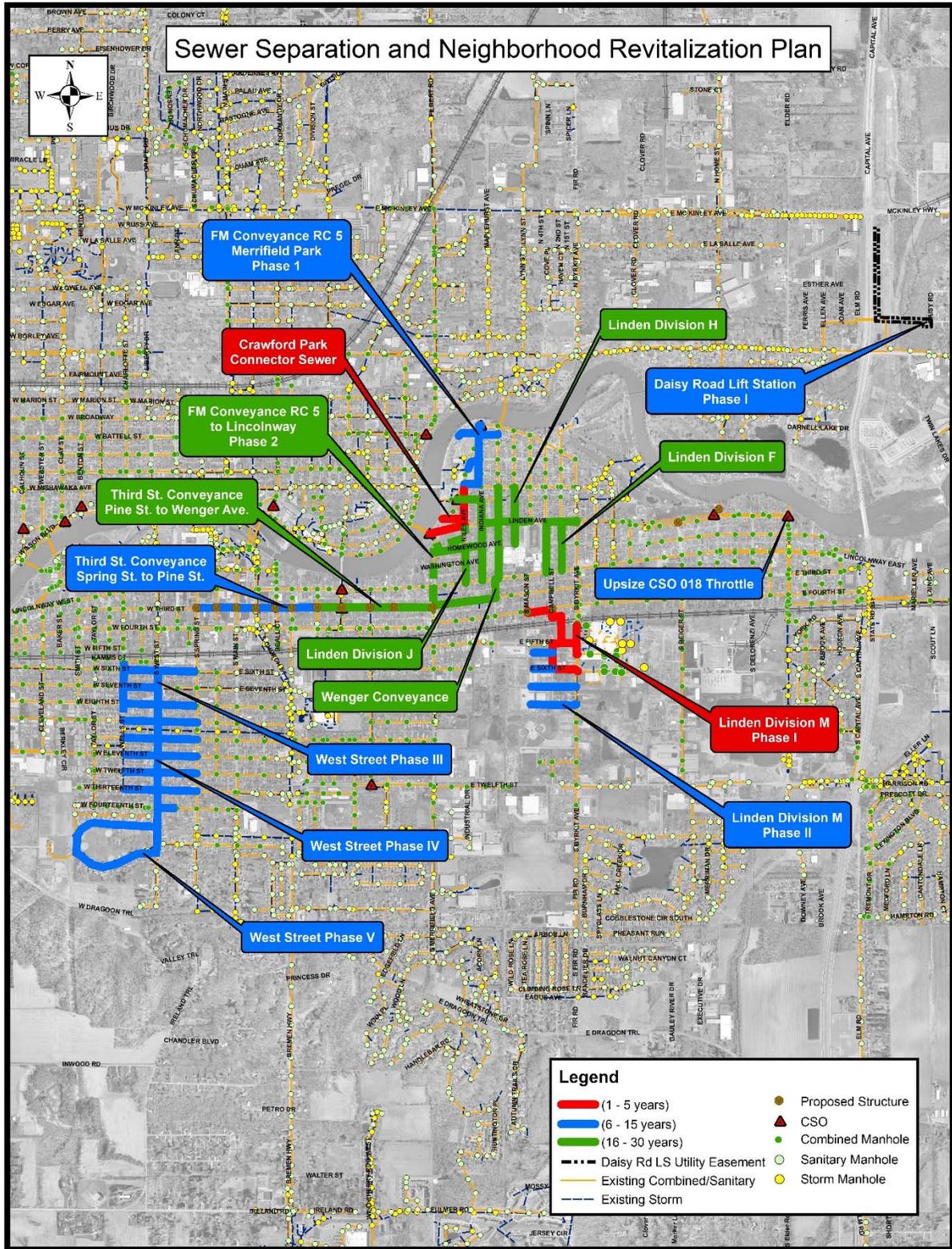


Exhibit A –Sewer Separation and Neighborhood Revitalization Plan

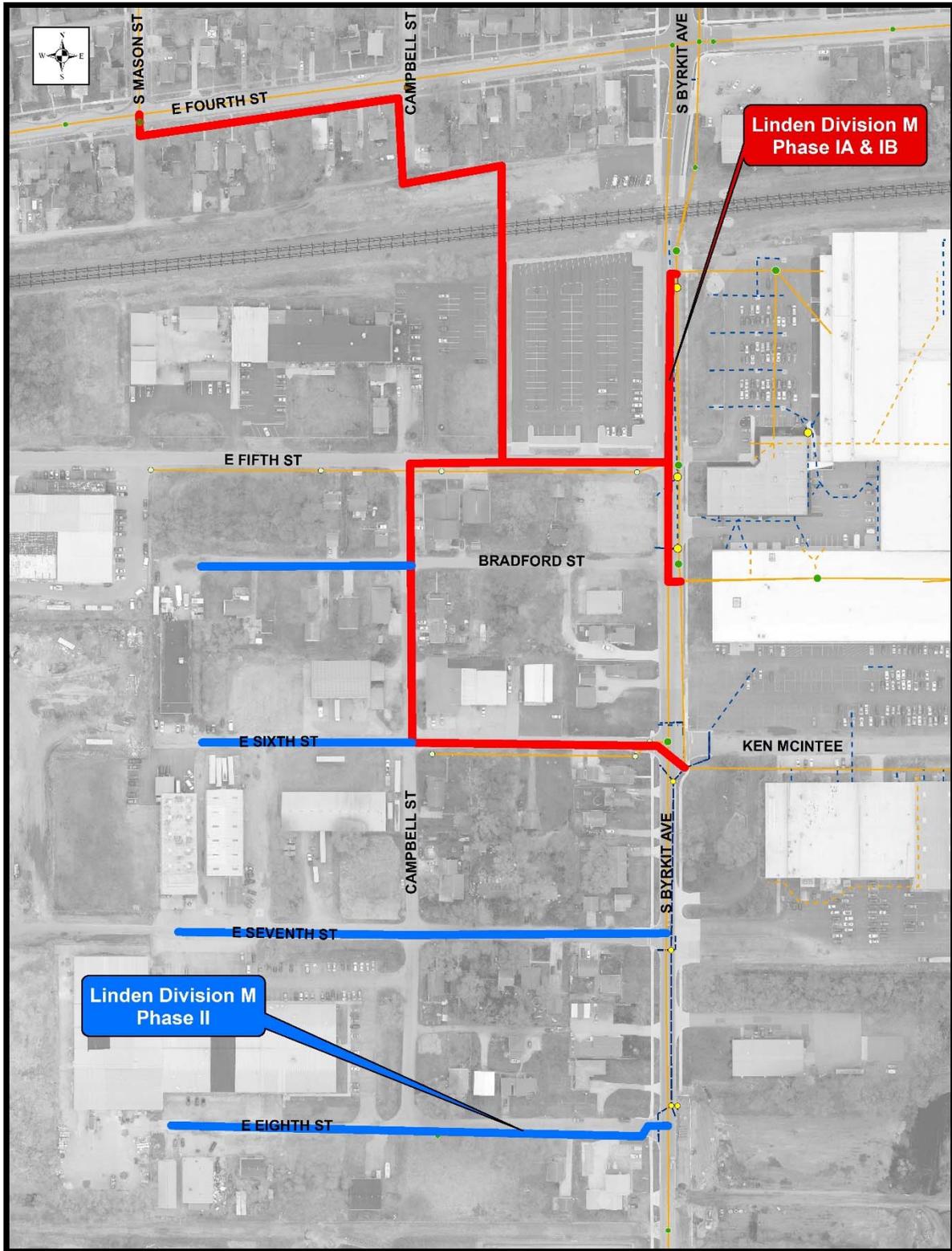


Exhibit B – Linden Area, Division M

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 Date: 2/18/2020 Time: 11:35:59 AM Author: User: jhansen

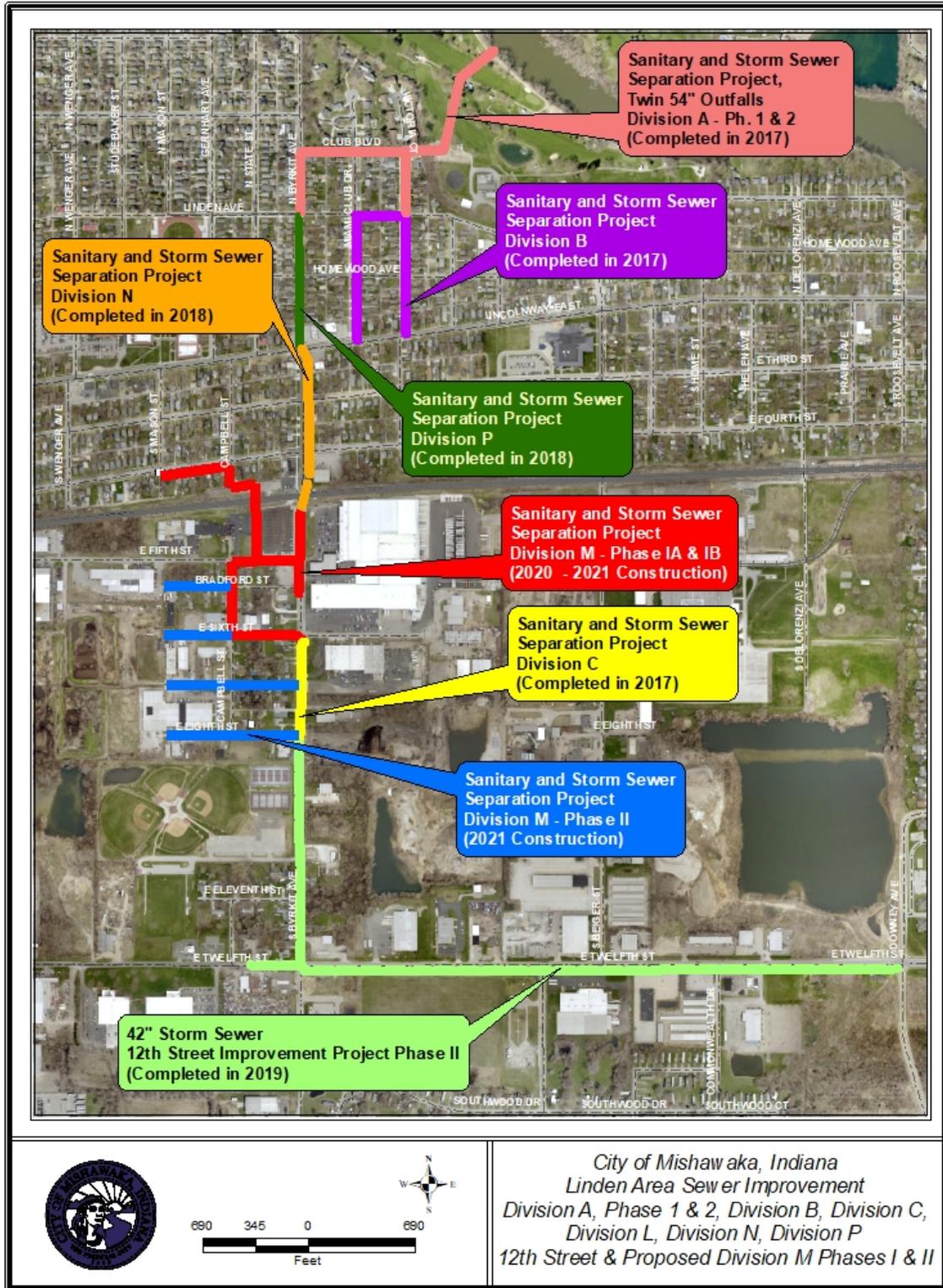


Exhibit C – Linden Area, completed and future phases