CITY OF ELMHURST

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MEMORANDUM

TO: James Grabowski
City Manager

FROM: Cori Tiberi
Asst. Director of Public Works

RE: City Improvements and Stormwater Policy Update

DATE: May 7, 2014

The City of Elmhurst hired Christopher B. Burke Engineering (CBBEL) to develop a comprehensive flood plan in response to the widespread flooding experienced throughout the City during the summer of 2010. CBBEL studied ten (10) flood prone areas and proposed drainage improvements including increasing storm sewer sizes, constructing relief sewers, creating flood storage in open space, providing flood storage underground and increasing pumping rates of existing stormwater pumping stations.

In addition, CBBEL recommended modifications to current stormwater practices required by the City to improve the performance of the stormwater collection system and to prevent flood damages. To improve the function of the storm sewer system, CBBEL recommended that the following revisions be made to the City Ordinance: specify a maximum allowable impervious percentage per lot, remove the requirement of directly connecting sump pumps and downspouts to the storm sewer, and require redevelopments with deeper basements to provide mitigation for displaced groundwater storage volume. CBBEL also recommended that all new construction in flood prone areas be elevated to at least two feet above the identified high water elevation.

Many of the public stormwater improvement projects identified in the Comprehensive Flood Plan involve the use of District 205 or Elmhurst Park District property. Conceptual plans for the public improvements were developed and shared with District 205, the Park District and the community. The City, District 205 and the Park District continue to participate in intergovernmental meetings to review, prioritize and to try to advance these important public stormwater improvement projects.

A Flood Task Force comprised of residents was created by the City to review the engineering and technical analysis and to assist with the creation of the final Comprehensive Flood Plan. The

City's Public Works and Buildings Committee was charged with reviewing the Task Force and Comprehensive Flood Plan recommendations.

In 2013, the City Council approved a 5 year Capital Expenditure Budget providing $9M for stormwater improvements and flood mitigation projects. The budget also included approximately $9M for the construction of the Southwest Elmhurst Wet Weather Control Facility. In addition, the budget included storm sewer, sanitary sewer and general infrastructure maintenance/ improvement projects.

The City's Public Works and Buildings Committee has completed review and evaluation of the following items:

1) The Committee approved RJN for engineering services to design sanitary improvements for southwest Elmhurst. Included in that report is a project which provides additional conveyance and storage of sanitary flow out of southwest Elmhurst to a detention facility near the Elmhurst Wastewater Treatment Plant. The Southwest Elmhurst Wet Weather Control Facility project includes two forcemains, an additional sanitary sewer on Jackson Street, Jackson and Saylor Sanitary lift station improvements and the construction of a 2 million gallon storage facility. This project was publicly bid, contracts approved and is currently under construction.

2) The Committee approved a contract extension with CBBEL after the April 2013 storm event to study three (3) additional flood prone areas.

3) The Committee recommended a new single family home stormwater management policy that requires new construction to provide volumetric storage for additional stormwater runoff generated by the development. Sump pumps and downspouts will not be allowed to directly connect to the storm sewer. Mitigation for deeper basements was determined not to be required as the ground water tables are generally 8 to 10 feet deep. The City Council approved the new single family home stormwater management policy on May 5, 2014.

4) The Development, Planning and Zoning is reviewing a maximum percent impervious lot coverage ordinance of 60%. The allowable maximum percent impervious lot coverage will be determined by the Development, Planning and Zoning Committee.

5) The City Council temporarily suspended the rear yard drain program during the 2014 winter months. The Public Works and Buildings Committee reviewed the mechanics of the current rear yard drain program and created a new Storm Sewer Extension Program with a decision flow chart to determine if/when a direct connection may be allowed and to encourage stormwater management alternatives such as rain gardens, dry wells, permeable pavers, etc. Participation in the City's cost share program is contingent on meeting the requirements identified in the flow chart. All storm sewer connections must be reviewed and permitted using this flow chart.

6) As part of the Storm Sewer Extension Program, the City will cost share with residents to install stormwater management alternatives (rain gardens, dry wells, infiltration systems, etc.) to address local drainage problems and reduce direct connections to the storm sewer.

7) The Committee created a policy to review all City owned public surface parking lots for incorporation of stormwater management alternatives and best management practices prior to resurfacing the parking lot.

8) The Committee continues to review flood proofing techniques and methods for private property flood protection.

9) The Committee approved RJN to perform a pilot study program for investigation of inflow and infiltration (I&I) sources in southwest Elmhurst. Private sector flow reduction was a recommendation of the Comprehensive Plan. RJN is in Phase II of the field investigations, a final report is due in August 2014.

10) The Committee approved a Long Term Flow Monitoring Project. RJN Group installed 5 flow meters in various locations in the City to monitor flows during rain events. This allows the City to continue to study the performance of the City system during rain events.

11) The Committee approved the Fats Oils and Greases (FOG) guidance document to limit the wastes that can contribute to corrosion of the sanitary system.

The City's Public Works and Buildings Committee will be reviewing the following items:

1) Prioritization of the public stormwater projects.

2) Private property flood protection and possible City cost share program.

3) Buy-outs in flood prone areas.

4) Requirement for alternative stormwater management for existing residential properties proposing impervious improvements (additions, patios, garages, etc.).

5) Review of existing direct connections to the City storm sewer.

6) Develop and implement a systematic plan to identify and eliminate inflow and infiltration sources to the sanitary system.

7) Develop a program to provide incentives to homeowners to disconnect all sources of inflow from the sanitary sewer.

The City's Development, Planning and Zoning Committee will be reviewing the following items:

1) Allowable percent impervious on a buildable lot.

2) Minimum side yard setbacks on a new single family residence.

In addition to the many City policy and program changes, Public Works staff has completed many small improvements and implemented new administrative procedures to reduce flooding and improve drainage. The following is a list of work completed since the summer of 2010 floods:

Storm Water Related Items:

Engineering staff requires all new home construction in known flood prone areas to be elevated to at least two feet above the high water elevation as determined by the XP-SWMM model created by CBBEL. Additional flood protection measures are also encouraged for new home construction in flood prone areas (monolithic window wells).

A list was created for advance street sweeping in problem areas before predicted storms to reduce the amount of debris clogging inlets.

Public Works staff will stay late or come in on overtime to monitor predicted rainfall events over 2 inches.

Kenmore Storm Sewer Improvements:
Inlets were added at the low point on Kenmore Avenue to assist with the collection of stormwater. Total project $14,265

Parker Street Relief Storm Sewer:
A storm sewer was installed in Parker Street to help alleviate flooding conditions at the intersection of Geneva and Belden. The new storm sewer functions as a relief overflow during heavy rain events.
Total project $ 21,414

Spring Road Storm Sewer Improvements:
Additional inlets were added at the low point of Spring Road between McKinley and Crescent. The additional inlets assist with the collection of stormwater and minimize water on the roadway. This work was completed in the Spring Road roadway improvement project.

Levee Certification:
As part of the levee certification process, the Elmhurst levee was carefully inspected and repairs were made to deficiencies identified. Application for Certification is pending with FEMA.
Total project $615,000

Howard Ave. - Two inlets were added at Lake Street/ Frontage Road and another two inlets were added at the low point between Lake Street and Armitage Avenue to assist with the

collection of stormwater. Four new inlets have curb box style frame and grates. Round open lids on existing inlets at low point were swapped out for curb box style frame and grates. The curb box frame and grate aids in maintaining drainage when the lower grate is covered with leaves. Total project cost $13,500

Lake Street Scissors Ramp/ I-290 Interchange Improvements (IDOT Project) - The size of the box culvert under Lake Street east of York Street was increased, increasing capacity. The paved ditches were cleaned in the detention basins on the west side of York Street from Lake Street to Crestview.

City staff worked with Arlington Cemetery and Elm Lawn Cemetery to improve drainage through the cemeteries. This storm water conveyance system has both open and closed sections and is located on private property. City staff will continue to work with the Cemetery to ensure this conveyance system is functioning.

City staff removed debris from the channel of the ditch at the east side of Crestview Park. This channel conveys storm water from a closed storm sewer system.

The City of Elmhurst has completed several improvements to reduce street flooding on Pine Street. High capacity inlets were installed and open grates were added to some storm sewer manholes to improve drainage during rain events.

High capacity inlets were installed on Cottage Hill south of St. Charles to increase the amount of water entering the storm sewer system instead of sheet flowing to the intersection of Cottage Hill and Seminole. Church windows were cut out of inlets at the intersection. The existing curb inlet along Seminole at Cottage Hill was replaced with a new/longer open box structure to significantly increase inlet capacity.

Church windows were cut out of inlets at the northeast and southeast corners of Comstock and Garden. High capacity inlet grates were installed on Garden between Comstock and Gladys.

Repairs were made to the 66" diameter storm sewer at the intersection of Jackson Street at Hawthorne.

Repairs were made to the 60" diameter storm sewer at the dead end of Sunnyside (McKinley right-of-way).

City Staff contracted for the clearing of overgrown vegetation and minor ditch regrading on the south side of the Fay Avenue right-of-way between Glenview and Garden Avenue. This work will improve stormwater conveyance to the Forest Preserve.

Storm sewer inlets were added at the following locations during Contract Paving to reduce street flooding: 2010: NWC Walnut/Second (1), 2012: Webster, east of Laurel (1), 2013: 608 Armitage (1)

Church windows were removed from all inlets in problem areas (Parkside, Pine, Washington, etc.).

Full rear yard drain program completed every year. Rear yard drains help alleviate nuisance flooding on private properties. The requirements/criteria for the new storm sewer extension program will be implemented.

The City contracted with Allied Waste to provide storm damage clean up and neighborhood dumpster collection locations after flood events.

Inspected, repaired and maintained 128 flap gates & outfalls for the annual program.

Sanitary Sewer Related Items:

City Council increased City participation from $3,000 to $5,000 in the overhead sewer program and increased the budget amount in an effort to protect as many homes as possible from sanitary back-ups during intense weather events.

City Council approved reimbursement for private property protection from sanitary backups through the installation of a check valve. City participation is 50% up to $3,000.

A light was installed on the lift station of Saylor and Jackson to indicate when the pumps are running.

WWTP staff stays after hours if storms are predicted to monitor pumping stations.

City crews found and completed a point repairs on the sanitary sewer on Cambridge; on the Washington Street sanitary sewer; on collapsed Olive Street sanitary sewer; on St Charles Road, just east of Kenmore Avenue; on the Parkside sanitary sewer.

City crews repaired storm and sanitary sewer defects that were identified during the smoke testing performed by RJN Group. City crews completed 97 repairs.

City crews found and rerouted water main that was going through a storm sewer manhole at Pine & First St.

City crews cleaned and televised the storm & sanitary sewers on Webster. Residents had concerns that there was a problem with the sewers in this area. Staff is working with IDOT to investigate the possibility of modifying the detention area adjacent to St. Charles to help alleviate flooding on Webster.

Sanitary Sewer cleaning:
Pipeview completed a multi-year sewer cleaning contract. In 2010/11 they cleaned 11,000 feet of 24" and larger sanitary sewer in various locations in the city.

City crews cleaned and televised 15,000 feet of large diameter sanitary sewer lines in 2012.

National Power Rodding (City Contractor) – cleaned and televised 61,000 feet of 24 inch and larger sanitary sewers in 2012.

Phase I-Indiana St. Relief Sanitary Sewer:
A relief sanitary sewer line was installed on Indiana St. to reduce sanitary sewer overflows in residential yards and basements. Total project $130,000

Phase II- Indiana St. Relief Sanitary Sewer (2014 Budget):
This project is to remove an undersized section in the sanitary sewer. The project will replace approximately 680 feet of 8" diameter sewer with a new ten inch sanitary on Indiana St.
Budget for project $175,000

Atrium Sanitary Force Main Replacement Project:
The project included engineering, design and construction to replace 1,400 feet of eight inch force main in Eldridge Park. Total project $825,000

2013 Private Sector Flow Reduction Project:
RJN Group inspected 368 sump pumps to identify buildings where storm sewer connections to the sanitary sewer exist. Phase II inspections will include dye testing buildings to verify connections to the storm or sanitary sewers.

In 2013, 12 sanitary point repairs were completed. Locations of the repairs: 780 Colfax, 888 Cambridge, 193 Orchard, 355 Highview, 343 Kenmore, 487 Cottage Hill, 484 Cottage Hill, 240 E. Third, 440 Poplar, 450 Hill, 410 Arlington, 600 Mitchell.

South West Wet Weather Control Facility:
This project will include improvements to the Saylor and Jackson lift station, a wet weather control facility, the installation of an 18 inch wet weather forcemain and a new 10 inch dry weather forcemain to replace the existing forcemain on Saylor Street, and increasing the size of the existing 18" Jackson sanitary sewer to 24" diameter. These improvements will provide protection for a 25 year storm event for southwest Elmhurst. The dry weather forcemain was installed in the fall of 2013. The remaining portions of the project will be constructed during the summer of 2014.

Maintenance Information:

	2010	2011	2012	2013	2014 *to date*
Sanitary Lining	~22,500 ft in basin 15	26,000 ft in basins 23, 24 & 26	22,000 ft in basin 20	23,000 ft in basin 22	
Root cut, cleaned flushed	46,968 ft in basins 23, 24 & 26	72,913 in basins 20 & 22	75,421 ft	64,000 ft	665 ft
Television Inspection	Sanitary: 55,061 ft	Sanitary: 77,282 ft	Sanitary: 88,267 ft	Sanitary: 87,000 ft Storm: 22,000ft	Sanitary: 1,705 ft Storm:375ft
Root cut/root inhibitor treatment			Sanitary: 20,900 ft	Sanitary: 9,345 ft Storm: 80 ft	
Flushed				Storm: 12,000	Storm: 375ft
Cleaned	Basins 23, 24 & 26	Basins 20 & 22		Basin 11, 18 and 19	