



Wastewater Committee

Agenda Item No 4.1

Date: October 8, 2014

CMAP Water Quality Review #: 14-WQ-022

Applicant: City of Lockport

Re: The City of Lockport as requested a transfer of 97.9 acres from a non Facility Planning Area (FPA) to the Lockport FPA.

Based on the policies and recommendations of the *Areawide Water Quality Management Plan for Northeastern Illinois*, the *Illinois Water Quality Management Plan*, local government and agency comments, comments received from various interested and affected parties, and staff's analysis, staff recommends a recommendation of "*Support*" for the proposed amendment request.

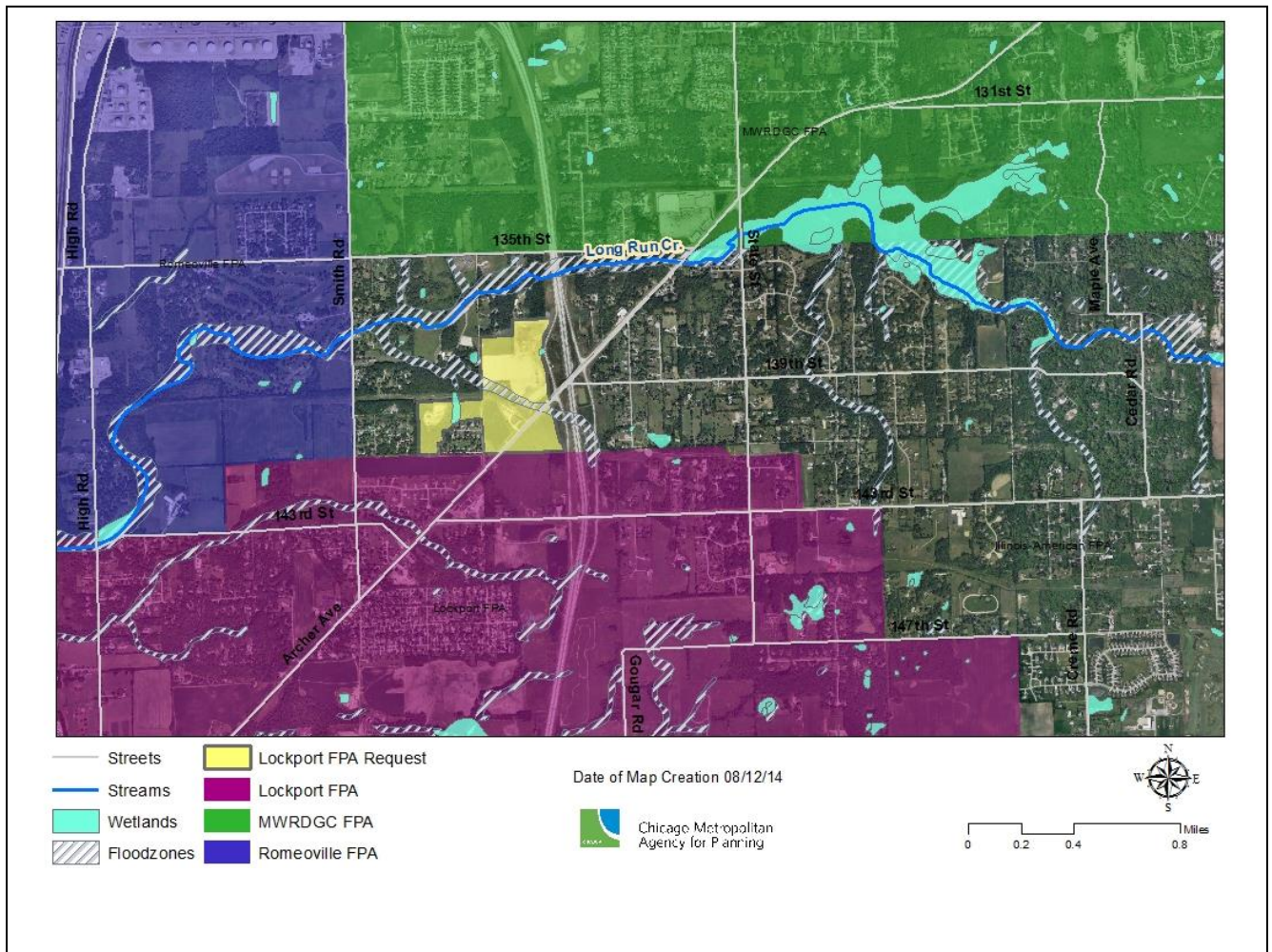
Important Note: CMAP is the designated areawide water quality planning agency and the advisory comprehensive regional planning agency for northeastern Illinois. Therefore, CMAP needs to act as a consensus builder by promoting sound planning principles and practices. Though not specifically required by the Illinois Environmental Protection Agency (IEPA), Criteria Nos. 6 – 9 specifically address CMAP's regional role and promote sound planning.



A. REQUEST SUMMARY

The City of Lockport has requested a transfer of 97.9 acres from a non Facility Planning Area (FPA) to the Lockport FPA. The area is requested to serve proposed developments and was previously annexed into Lockport. The area is located near the intersection of 143rd Street and Smith Road.

Map of FPA Boundary Amendment Site





RELATIONSHIP TO RECOMMENDED CRITERIA FOR FACILITY PLAN AMENDMENTS

The following amendments have been considered by the Illinois Environmental Protection Agency (IEPA) for the Lockport FPA since the adoption of the *Area Water Quality Management Plan* and the *Illinois Water Quality Management Plan*.

Review No.	Action	From FPA	To FPA
82-WQ-098	New WWTP	---	---
83-WQ-006	Boundary Change	---	Lockport
95-WQ-052	Boundary Change	---	Lockport
96-WQ-006	WWTP Expansion	---	---
02-WQ-018	FPA Boundary Change	Lockport	
06-WQ-217	Boundary Change	Joliet	Lockport



Review Criteria and Staff Analysis	Results																														
<p>1. <i>“The proposed facility amendment must be designed to meet the State of Illinois water quality standards for the receiving waters and the appropriate discharge standards or must receive a variance from the Illinois Pollution Control Board.”</i></p>	<p>Consistent</p>																														
<p>The City of Lockport is requesting an FPA amendment in accordance with its jurisdictional boundary agreement with the Villages of Romeoville, Homer Glen and Lemont. The amendment request will primarily serve a proposed commercial development. Existing land use within the subject is commercial with some agricultural and residential. Future land use is commercial.</p> <p>The subject parcel would be served by a newly constructed lift station and forcemain that will connect to an existing sanitary sewer on 143rd Street. Wastewater discharges would be treated at Lockport’s Bonnie Brae Forest Manor Sewage Treatment Plant (STP).</p> <p>The STP was constructed to a design average flow (DAF) capacity of 2.26 million gallons per day (MGD). Its design maximum flow is 6.98 MGD. Recent flow data from the STP indicates the current average daily flow of the three low-flow months is 0.36 MGD, which indicates current excess capacity of the plant is 1.90 MGD. Therefore, the Bonnie Brae Forest Manor STP has the excess capacity needed to service the additional 0.07 MGD forecasted flows. The STP utilizes a conventional activated sludge process and includes aerobic digesters, primary clarifiers, aeration tanks and final clarifiers. The facility is not listed on the IEPA’s critical review list or restricted status lists.</p> <p>Lockport’s Bonnie Brae Forest Manor STP operates under NPDES Permit No. IL0029611, which expires January 31, 2015. The permit requires monitoring for total phosphorus and total nitrogen. Based on the flow and effluent data summary provided by the applicant, it would appear the STP meets the requirements established in the facility’s current NPDES permit. The permit has the following limits:</p> <table border="1"> <thead> <tr> <th colspan="3" style="background-color: #800080; color: white;">Load Limits lbs/day DAF (DMF)</th> </tr> <tr> <th style="background-color: #d3d3d3;">Parameter</th> <th style="background-color: #d3d3d3;">Monthly Average</th> <th style="background-color: #d3d3d3;">Daily Maximum</th> </tr> </thead> <tbody> <tr> <td style="background-color: #d3d3d3;">CBOD₅</td> <td>188 (582)</td> <td>377 (1164)</td> </tr> <tr> <td style="background-color: #d3d3d3;">Suspended Solids</td> <td>226 (699)</td> <td>452 (1397)</td> </tr> <tr> <td style="background-color: #d3d3d3;">Ammonia Nitrogen</td> <td></td> <td></td> </tr> <tr> <td style="background-color: #d3d3d3;">April-May/Sept.-Oct.</td> <td>21 (64)</td> <td>55 (169)</td> </tr> <tr> <td style="background-color: #d3d3d3;">June-August</td> <td>15(47)</td> <td>55(169)</td> </tr> <tr> <td style="background-color: #d3d3d3;">Nov.-Feb</td> <td>41 (128)</td> <td>87 (268)</td> </tr> <tr> <td style="background-color: #d3d3d3;">March</td> <td>28 (87)</td> <td>72 (221)</td> </tr> <tr> <td style="background-color: #d3d3d3;">Phosphorus</td> <td colspan="2">Monitor Only</td> </tr> </tbody> </table>	Load Limits lbs/day DAF (DMF)			Parameter	Monthly Average	Daily Maximum	CBOD ₅	188 (582)	377 (1164)	Suspended Solids	226 (699)	452 (1397)	Ammonia Nitrogen			April-May/Sept.-Oct.	21 (64)	55 (169)	June-August	15(47)	55(169)	Nov.-Feb	41 (128)	87 (268)	March	28 (87)	72 (221)	Phosphorus	Monitor Only		
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<p>Total Nitrogen</p> <p>pH</p> <p>Fecal Coliform</p>	<p>Monitor Only</p> <p>Shall be in the range of 6 to 9 Standard Units</p> <p>Daily Maximum shall not exceed 400 per 100 mL (May through October)</p>	
<p>Lockport's Bonnie Brae Forest Manor STP currently discharges treated wastewater into Fiddyment Creek. The Creek, in the location where the STP discharges, has a zero cfs 7Q10 low flow. The stream segment of Fiddyment Creek receiving discharge is classified as an impaired waterbody by the IEPA. It also included on the Illinois Section 303(d) list. Fiddyment Creek impairment is for aquatic life. Potential causes of the aquatic life impairment are Total Phosphorus and sedimentation/siltation.</p>		
2.	<p><i>"The population and employment for which the proposed amendment is designed must fall within the twenty year forecast most recently adopted by the Commission for the facility planning area or the Commission may agree to adjustments within the regional forecast total."</i></p>	Consistent
<p>The applicant projects a total population equivalent of 655 by the year 2033 which will generate a wastewater flow of 65,500 gpd. CMAP's 2040 population forecast equivalent for Lockport's municipal limits is 99,602, with an employment population of 23,552. Lockport's population projections fall well within CMAP's forecasts.</p>		
3.	<p><i>"The applicant must demonstrate that the unit of local government granting zoning to the project formally accept financial responsibility for the wastewater treatment system in the event of a system malfunction or failure. Such acceptance must be in the form of a resolution from the unit of government granting zoning."</i></p>	Not Applicable
<p>The requested amendment does not involve the construction, operation or modification of a privately-owned treatment facility.</p>		
4.	<p><i>"The proposed amendment should not reduce the effectiveness of the water quality improvement strategy contained in the original plan, either for point or nonpoint source control."</i></p>	
<p><u>Point Source Impacts</u> (See analysis under Criterion #1)</p>		Consistent
<p><u>Nonpoint Source Impacts</u> The amendment request is subject to the both Will County's and Lockport's nonpoint source ordinances. These ordinances have provisions for stormwater management, soil erosion and sediment control and floodplain management. The request is also subject to the Lockport's stream and wetland protection ordinance. These ordinances are generally consistent with CMAP's model ordinances with the following exceptions:</p>		



<p>Stormwater Management</p> <ul style="list-style-type: none"> • The ordinance does not prohibit detention in the floodway. However, this activity is restricted and requires special design practices when allowed. • The ordinance does not prohibit the direct discharge of undetained stormwater into wetlands. However, this activity is restricted and requires special design practices when allowed. <p>Stream and Wetland Protection</p> <ul style="list-style-type: none"> • The ordinance does not designate a minimum 75 foot setback zone from the edge of identified wetlands and water bodies in which development is limited to the following types of activities: minor improvements like walkways and signs, maintenance of highways and utilities and part and recreational area development. • Require adequate mitigation measures for approved wetland and water body modifications, including 1.5 to 1 acreage replacement for destroyed wetlands, maintenance and monitoring for at least 5 years, and full restoration of natural wetland or waterbody functions. <p>There is one floodplain within the amendment area. However, there are two wetlands within the amendment area including a fresh water forested/shrub wetland and a freshwater pond wetland. The applicant must follow all pertinent local, county and federal floodplain regulations for wetlands and floodplains within the amendment area. Lockport’s amendment application noted that the request will not require or result in the modification (i.e. filling, dredging, channelization, disposal or similar activity) of any lake, stream, wetland or floodplain area.</p> <p>The applicant requested an Illinois Department of Natural Resources (IDNR) Endangered Species Protection and Natural Areas Preservation Review for the project site. IDNR’s Ecocat Ecological Compliance Assessment Tool terminated its consultation since it determined that there is no record of threatened or endangered protected resources in the vicinity of the project site. However, termination of this consultation does not imply IDNR’s authorization or endorsement or substitute for detailed site and field surveys required for environmental assessments.</p>	
<p>5. <i>“The proposed amendment should not adversely affect the cost-effectiveness of the Areawide Water Quality Management Plan for meeting water quality standards in the facility planning areas as a whole.”</i></p>	<p>Consistent</p>
<p>The applicant examined three wastewater treatment alternatives including:</p> <ol style="list-style-type: none"> 1. On-site wastewater treatment 2. Land application 	



3. Conventional wastewater treatment

As part of Alternative No. 1, on-site wastewater treatment systems were proposed to provide wastewater service for each user within the development. According to the Natural Resources Conservation Service (NRCS) soil survey, soils in the area are classified as “very limited” and not conducive to on-site sanitary treatment. As such, the applicant dismissed this alternative. Cost estimates to implement this option were not developed since hydrologic conditions would prohibit this alternative.

Alternative No. 2 evaluated the use of a land application system which would include using Lockport’s Homer Glen STP to treat and disinfect water before it is land applied. It would include constructing a pump station and forcemain from the treatment plant location to the application site; purchasing spray irrigation equipment; purchasing land for the application site; and, establishing a buffer area.

Similar to Alternative No. 1, the land application alternative was dismissed due to “very limited” soils within the amendment area, as classified by the NRCS. This alternative was considered more land intensive than conventional wastewater treatment. Lockport also determined that annual operation and maintenance (O & M) costs would increase and possible impacts to groundwater and surface water may occur if treated wastewater was over applied during inclement weather.

The applicant contended that when compared to a land application system, conventional treatment generally produces higher quality effluent and reduces the overall impact to the receiving stream since it is monitored with an NPDES Permit. While staff acknowledges the applicant’s argument, overall benefits of a land application system should not be minimized. Unlike a conventional wastewater system, a land application system utilizes anaerobic and aerobic processes that results in high quality reclaimed water. It eliminates direct discharge to surface waterbodies, reduces physical-habitat and flow alterations and improves low dissolved oxygen levels in surface waterbodies, aids the groundwater recharge process and replenishes drinking water sources for many local communities.

The applicant did not evaluate opportunities for reuse of the treated wastewater for landscape watering from the amendment request.

The applicant’s selected alternative includes the construction of a lift station and force main that will connect to an existing sanitary sewer. Wastewater from the site would be transported to and treated at the Lockport’s Bonnie Brae Forest Manor’s STP. Supplemental information provided indicates costs associated with this alternative includes:



<i>Description</i>	<i>Cost</i>	
Lift Station	\$370,000	
Force Main	\$300,000	
Design Engineering	\$100,000	
Construction Engineering	\$70,000	
O& M	\$420,000	
Total	1,260,000	
<p>The total monthly estimated cost connection per household is \$6,000 with an estimated per monthly household fee of \$58.17. Commercial users will be assessed a connection fee of \$1,000 P.E. plus \$1 per square foot of building space. The monthly service fee would be \$5.54 per 1000 gallons with an annual increase.</p>		
<p>6. <i>“The proposed amendment should have the endorsement of the designated management agency for wastewater treatment and substantial support by the municipalities within the affected facility planning area.”</i></p>	<p>Consistent</p>	
<p>On April 26, 2014, Lockport’s Mayor and City Council authorized submittal of the application to CMAP for consideration as part of Resolution No. 14-039.</p>		
<p>7. <i>“The proposed amendment should not adversely affect adjoining units of government.”</i></p>	<p>Consistent</p>	
<p>The amendment request is consistent with Intergovernmental Agreements from the Villages of Lemont, Homer Glen and Romeoville. Staff received letters in support of the amendment from each Village.</p>		
<p>8. <i>“The proposed amendment should be consistent with other county and regional or state policies, such as the Governor’s Executive Order #4 on the preservation of agricultural land.”</i></p> <p>The Illinois Department of Agriculture voiced no objection to the FPA amendment request in a letter dated August 12, 2014.</p>	<p>Consistent</p>	
<p>9. <i>“Consideration will be given to evidence of municipal or county zoning approval and commencement of development activity prior to Area-wide Water Quality Management Plan adoption in January 1979.”</i></p>	<p>Not Applicable</p>	