



Chicago Metropolitan Agency for Planning

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Wastewater Committee

Agenda Item No 4.1

Date: December 14, 2011

CMAP Water Quality Review #: 11-WQ-050

Applicant: Village of Grayslake

Re: The Village of Grayslake has requested a transfer of 585 acres from the Northwest Lake Facility Planning Area (FPA) to the Northeast Central Lake 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.

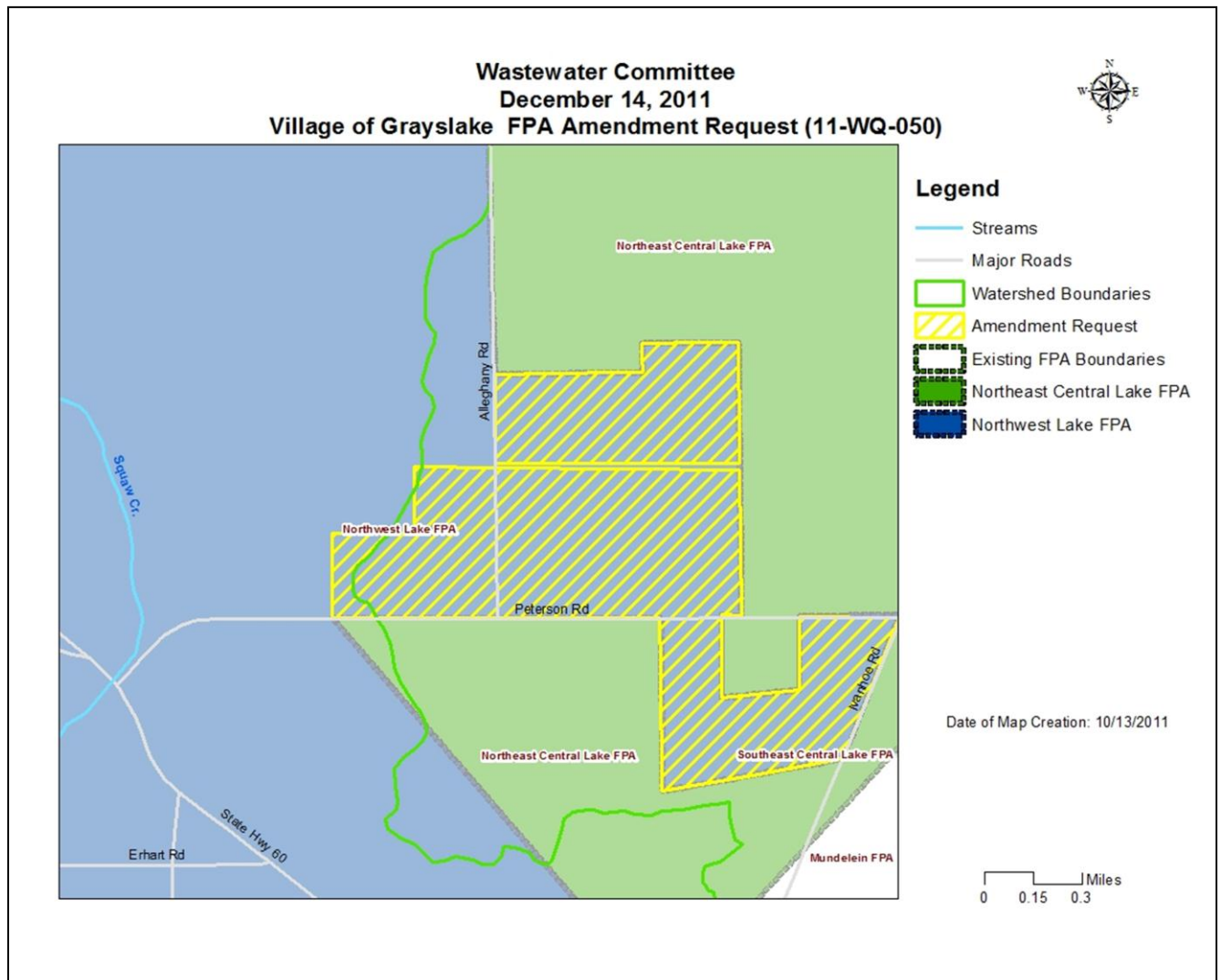
Important Note: CMAP is the designated areawide water quality planning agency and the advisory comprehensive regional planning agency for northeastern Illinois. Therefore, CMAP needs to act as a consensus builder by promoting sound planning principles and practices. Though not specifically required by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



A. REQUEST SUMMARY

The Village of Grayslake has requested a transfer of 585 acres from the Northwest Lake Facility Planning Area (FPA) to the Northeast Central Lake FPA. The request is part of a 641 acre development site called Cornerstone and is owned by Lake County Land Holdings, LLC and being developed by The Alter Group. The North Shore Sanitary District (NSSD) Gurnee wastewater treatment plant will service the amendment request. The amendment is located in Lake County, Freemont Township, Sections 2, 3, 10, and 11.

Map of FPA Boundary Amendment Area





RELATIONSHIP TO RECOMMENDED CRITERIA FOR FACILITY PLAN AMENDMENTS

In the mid 1970's the Northeast Central Lake FPA encompassed approximately 32 square miles extending from I-94 on the east, west to Hainesville Road, and from Illinois 132 on the north, south to Casey Road. Major population centers in the FPA included the Villages of Grayslake, Third Lake, Hainesville, and western Gurnee and Waukegan. Major population centers in the FPA also included unincorporated areas of Highland Lake and Wildwood. The three major wastewater treatment agencies within the FPA included the Village of Grayslake, the Gages Lake Sanitary District, and the Lake County Department of Public Works (LCDPW).

The NIPC Regional Wastewater Plan called for the the elimination of the Grayslake and Gages Lake Sanitary District plants and the construction of an intercepting sewer to the North Shore Sanitary District Gurnee wastewater treatment plant in order to serve a then forecasted population of 21,300 for the year 1990.

Today, the Northeast Central Lake FPA is located in Northeast Lake County. The County of Lake contracts directly with various municipalities and sanitary districts to accept and convey wastewater for ultimate treatment at the regional facility owned and operated by the North Shore Sanitary District.



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 Village of Grayslake is requesting an FPA Amendment for the Northeast Central Lake FPA to serve the 585 parcel amendment area that is part of the Cornerstone Development. Wastewater service will be provided to the amendment area through construction of 4,000 feet of 14” forcemain and one lift station. Wastewater flows are proposed to be conveyed through the Village of Grayslake’s sanitary sewer (Lake County Northeast Central Interceptor System), the Lake County regional interceptor sewer, and treated at the North Shore Sanitary District (NSSD) WWTP. On site collection sewers will be provided by the development with eventual ownership transferred to the Village of Grayslake.</p> <p>Currently, the Village of Grayslake has an agreement with Lake County for wastewater disposals for the amendment area. Wastewater service for the Northeast Central Lake FPA is provided by the North Shore Sanitary District (NSSD) – Gurnee Wastewater treatment plant (WWTP). Sludge generated from the WWTP process is dewatered at the WWTP and transferred to the Zion WWTP where it is dried and then sent to a landfill.</p> <p>The NSSD WWTP is the regional treatment plant for the Northeast Central Lake FPA. The WWTP was constructed to a design average flow (DAF) capacity of 23.6, and the current average wastewater flow is approximately 15 mgd. The amendment request will generate 0.9 million gallons per day of wastewater flow upon full buildout.</p> <p>The NSSD WWTP operates under NPDES Permit No. IL0035092, which expired on November 30, 2011. As required, the permittee has submitted authorization to renew its NPDES Permit. The WWTP also operates an excess flow facility in compliance with NPDES Permit No. IL0035092. Excess flows receive full treatment. The wastewater treatment plant is not included on either the IEPA critical review list or restricted status list. Based on the flow and effluent data summary provided by the applicant, it would appear the NSSD has been meeting the requirements established in the facility’s current NPDES permit. The permit has the following limits:</p> <table border="1" data-bbox="245 1665 1240 1850"> <thead> <tr> <th colspan="3">Load Limits lbs/day DAF (DMF)</th> </tr> <tr> <th></th> <th>Monthly Average</th> <th>Daily Maximum</th> </tr> </thead> <tbody> <tr> <td>CBOD₅</td> <td>1968 (3936)</td> <td>3936 (7873)</td> </tr> <tr> <td>Suspended Solids</td> <td>2362 (4724)</td> <td>4724 (9448)</td> </tr> </tbody> </table>	Load Limits lbs/day DAF (DMF)				Monthly Average	Daily Maximum	CBOD ₅	1968 (3936)	3936 (7873)	Suspended Solids	2362 (4724)	4724 (9448)	
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Dissolved Oxygen	Shall not be less than 6 m/L	
pH	Shall be in the range of 6 to 9 Standard Units	
Fecal Coliform	Daily Maximum Shall not exceed 400 per 100 mL (May-October)	
<u>Ammonia Nitrogen</u>		
Apr-May/Sept-Oct	394 (787)	1811 (3622)
June-August	335 (669)	2303 (4606)
November-Feb.	492 (984)	1457 (2913)
March	413 (827)	1457 (2913)

The NSSD WWTP currently discharges treated wastewater to the DesPlaines River. According to the NPDES Permit, the segment of the DesPlaines River into which the WWTP discharges has been given a biological stream classification rating of "C" by the Illinois Department of Natural Resources' (IDNR) stream rating system^a. Data used for this biological stream classification are based on species diversity and integrity ratings. The DesPlaines River has been classified as an "impaired waterbody" by the IEPA. Therefore, it is included on the Illinois Section 303 (d) list. In the 2008 Illinois Integrated Water Quality Report, the impairment level of the DesPlaines River is listed as impaired for aquatic life, fish consumption, and primary contact recreation. Potential causes for impairment for the DesPlaines River include fecal coliform, chloride, total phosphorus, and mercury. Potential sources of impairment include urban runoff/storm sewers, municipal point source discharges, contaminated sediment, and unknown sources. A TMDL has not been conducted for the waterbody. <http://www.dupagerivers.org/waterqualitystatus.html>

The Village of Grayslake provided a Central Range Sanitary Sewer Master Plan, dated June 2006. The plan was developed to analyze the capacity of the Village's existing wastewater collection system to serve future development. As part of the planning process, the Village has taken an active approach to reduce inflow and infiltration that enters its sanitary sewer system by replacing or lining older sewer lines and manholes.

In an effort to improve both water quality and quantity, the applicant was asked to evaluate potential opportunities to reuse the treated plant effluent for landscape watering. The applicant's engineer, in a letter dated November 9, 2011 responded that reuse of treated effluent would not be cost effective and would require construction of a new pump station and over 9 miles of new pipeline to convey the treated effluent from the plant back to the point of use. This option was dismissed due to the amount of infrastructure needed to implement wastewater reuse and the costs associated with it. It is recommended that the Village work with the local golf course to take at least a portion of its treated effluent during the appropriate time of year. The disposal of a portion of the wastewater will not only benefit the golf course but it will reduce the total phosphorus loading to the DesPlaines River.



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<p>Recommendations:</p> <ul style="list-style-type: none"> The applicant should continue to evaluate options for land application of a portion for the treated wastewater to reduce the point source loads into the Des Plaines River. 																						
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>Anticipated buildout of the amendment request is expected to occur over 12 years. The applicant provided the following population estimates:</p> <table border="1"> <thead> <tr> <th></th> <th>Number of Households</th> <th>Density</th> <th>Number</th> <th>By Year</th> </tr> </thead> <tbody> <tr> <td>Current</td> <td>3</td> <td>2.8</td> <td>8</td> <td></td> </tr> <tr> <td>Forecasted</td> <td>801</td> <td>2.8</td> <td>2,243</td> <td>2024</td> </tr> <tr> <td>Employment</td> <td></td> <td></td> <td>9,000</td> <td>2024</td> </tr> </tbody> </table> <p>In May of 2010, the Village of Grayslake participated in CMAP's 2040 forecast discussions utilizing Future View, a GIS-based population and employment projections tool. During these discussions, the Village of Grayslake identified the amendment area as an area for future growth. CMAP's 2040 population projection for the Village of Grayslake includes 12,669 households and an employment future service area growth of 22,361. The amendment area's population projections fall well within CMAP's forecasts. As such, Staff issues a finding of consistent with this criterion based on CMAP's 2040 population forecasts.</p>			Number of Households	Density	Number	By Year	Current	3	2.8	8		Forecasted	801	2.8	2,243	2024	Employment			9,000	2024	
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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>	Consistent																				
<p>Point Source Impacts (See analysis under Criterion #1)</p> <p>As summarized in Criterion # 1, the receiving water for the current WWTP discharge, the DesPlaines River is an impaired water body and it is on the 303(d) list. Currently, the existing</p>																						



NPDES Permit does not include a total phosphorus limit. As such, the applicant should consider alternative disposal options for the treated effluent (i.e. golf course irrigation), as well as, other means for reducing the nutrient load in the point discharge (i.e. discharge to wetlands for polishing) that will reduce the total phosphorus loading to the DesPlaines River.

Nonpoint Source Impacts

There are nineteen wetlands within vicinity of the amendment area. All of the on-site wetlands, except two areas in the northeast portion of the property will be impacted by the amendment request. Wetland disturbances will be permitted by the U.S. Army Corps of Engineers and Lake County and mitigated as required.

One floodplain exists within the vicinity of the amendment request. All floodplain impacts will be permitted by the Illinois Department of Natural Resources (IDNR) and Lake County and mitigated as required.

The Village of Grayslake has adopted the Lake County Watershed Development Ordinance that applies to management of stormwater, wetlands and streams, and other special management areas within the Village limits including the proposed amendment area. The Village of Grayslake also complies with its own floodplain management ordinance. These ordinances are generally consistent with the CMAP model ordinance. However, there are several discrepancies from the checklist in Section E of the application as noted below.

Lake County Stormwater Management Ordinance

- The ordinance does not prohibit detention in the floodway. However, while detention is not explicitly prohibited it is not listed as an appropriate use in the floodway.

Lake County Soil Erosion and Sediment Control Ordinance

- The ordinance does not have a provision to prohibit on-stream detention unless it provides regional stormwater storage. However, it does provide requirements that on-stream detention provide a watershed benefit and a Volume Safety Factor.

Lake County Stream and Wetland Protection Ordinance

- 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 activities: minor improvements like walkways and signs, maintenance of highways and utilities, and park and recreational area development. However, the



<p>ordinance does have buffer requirements ranging from 30 to 100 feet depending on quality criteria in which development is limited to those activities.</p> <p>The Illinois Historic Preservation Agency determined that no significant historic, architectural, or archaeological resources are located in the project area in letters dated September 7, 2006 and October 3, 2007.</p> <p>The Illinois Department of Natural Resources, in a letter dated October 3, 2011, determined that there are no State-listed threatened or endangered species in the vicinity of the project location.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> The Village should amend its ordinances to include the provisions cited above as current deficiencies in the ordinances. A copy of the revised ordinances should be provided to CMAP upon completion. 	
<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>	Consistent
<p>Currently there are no existing wastewater sewer/interceptors or treatment facilities within the amendment area. The applicant provided three treatment alternatives and cost evaluations associated with each. The alternatives evaluated included the following:</p> <ul style="list-style-type: none"> <u>Alternative No. 1</u>: Construct new facilities to connect to the Northeast Central Regional Interceptor. <u>Alternative No. 2</u>: New WWTP for 9000 PE <u>Alternative No. 3</u>: Land Application System <p>As part of the cost evaluation for Alternative No. 3, the applicant prepared a general cost estimate for the land application alternative that included capital costs to purchase land, lagoons and a treatment plant, and an irrigation system. Projected cost estimates for the land alone totaled \$45,000. Additionally, costs for the irrigation system totaled \$2,500,000 while costs for the lagoons and treatment plant totaled \$5,000,000. The applicant dismissed this alternative since the estimated total cost for a land application is \$52,500,000 and sufficient land is not available within the geographical area of the development to provide a land application system.</p> <p>Capital costs were developed for Alternative 2 and estimated to be \$11,000,000. This alternative was dismissed.</p>	



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<p>The applicant's selected alternative was chosen because it is the most cost effective, does not require construction of new facilities, agreements for wastewater service are already in place, and the existing wastewater facilities have capacity to serve the amendment area.</p> <p>The capital cost for the applicant's selected alternative totaled \$2,376,000. This includes \$2,070,000 for pumping states, \$162,000 for inspection/construction management, and \$144,000 for project management/design.</p> <p>The application states that costs for the collection sewers will be funded with a Local Developer Contribution. The application also states that the connection fee is waived for the Cornerstone Development. A monthly bill for users will be \$81.90.</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>	Consistent
<p>Lake County is the designated management agency for both the existing Northwest Lake FPA and the Northeast Central Lake FPA. Lake County, in a letter dated October 5, 2011 endorsed its support for the amendment request. Additionally, the Village of Grayslake, under Resolution No. 803, endorsed submittal of the amendment application.</p>	
<p>7. <i>"The proposed amendment should not adversely affect adjoining units of government."</i></p>	Consistent
<p>The amendment request is the result of years of extensive planning. As such, substantial support from the County, local units of government, adjacent municipalities, school districts and park districts and fire prevention districts have been obtained for the request. Letters of support have been received from the following entities:</p> <ul style="list-style-type: none"> • Fremont School District 79 (October 14, 2011) • Mr. David B. Stolman, Lake County Board Chairman (October 5, 2011) • Grayslake Community High School District 127 (October 24, 2011) • Grayslake Fire Protection District (October 12, 2011) • Lake County Farm Bureau (October 19, 2011) • Mundelein High School- District 120 (October 14, 2011) • Round Lake Park District (October 18, 2011) • State Senator Suzi Schmidt (October 13, 2011) • Grayslake Park District (October 14, 2011) 	
<p>8. <i>"The proposed amendment should be consistent with other county and regional or state policies,</i></p>	Consistent



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<p><i>such as the Governor’s Executive Order #4 on the preservation of agricultural land.”</i></p> <p><u>Grayslake Comprehensive Plan</u></p> <p>The amendment area was annexed to the Village of Grayslake on March 2, 2010 and effective December 20, 2010. The current landuse for the amendment request is agricultural. The amendment area is currently zoned Mixed Use by the Village of Grayslake, with residential, commercial, retail, office/light industrial, and office components. Surrounding landuses include single family, agricultural, wetland, and industrial.</p> <p>The development will serve as an economic hub for the central Lake County region. It will provide 120 acres of ponds and openspace and will provide a walkable, conservation-oriented community for its residents. The amendment area was identified within the most recent Grayslake Comprehensive Plan as Planned Office Industrial.</p> <p><u>Regional Comprehensive Plan</u></p> <p>The amendment request is part of the proposed Central Lake County Corridor and was identified as a part of a major capital priority project within CMAP’s GO TO 2040 Regional Comprehensive Plan. This project is designed to reduce congestion which drags regional productivity, improve mobility, and generate economic benefits.</p> <p><u>Agricultural Protection</u></p> <p>The Illinois Department of Agriculture, in a letter dated October 14, 2011, voiced no concerns on the proposed amendment request.</p>	
<p>9. <i>“Consideration will be given to evidence of municipal or county zoning approval and commencement of development activity prior to Areawide Water Quality Management Plan adoption in January 1979.”</i></p>	<p>Not Applicable</p>

^a : Illinois Department of Natural Resources. *Integrating Multiple Taxa in a Biological Stream Rating System*, Illinois. <http://dnr.state.il.us/orc/biostrmratings/> (accessed December 8, 2011). IDNR’s Biological Stream Classification rating system has been updated and enhanced. The present rating system is based a stream’s diversity, integrity, and biological significance.