



## Wastewater Committee

**CMAP Water Quality Review #: XXXX**

**Applicant: Village of XX**

Re: The Village of XX requests a transfer of 970 acres from the XX FPA to the XX FPA in Will County, Illinois. The request includes a wastewater treatment plant expansion that will increase the Village's design average flow from 0.5 MGD to 2.0 MGD. The request will allow the Village of XX to provide sewer service within the proposed amendment area.

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. This recommendation is contingent upon the Village of XX adopting adequate nonpoint source ordinances that are consistent with CMAP's model ordinances.

Review Criteria and Staff Analysis	Results
<p>1. <i>“The households for which the proposed amendment is designed should utilize the long range plan forecasts most recently produced and adopted by CMAP. CMAP staff may agree to harmonize regional and local forecasts as provided in the Water Quality Management Plan Amendment Process and Procedures Manual.”</i></p>	<p><b>Consistent</b></p>
<p>The Village’s application projects the amendment area will include 1,139 residential (PE), including 410 homes at 2.775 PE per household and 970 employment population equivalents. The total PE forecasted is 2,109 generating an average daily flow of 210,900 gpd of wastewater upon full buildout (Year 2040). CMAP’s 2040 household population equivalent forecast for the Village’s municipal limits is 10,593. The Village’s population projections of 2,109 PE falls well within CMAP’s forecasts 2040 population forecasts.</p>	
<p>2. <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><b><u>Nonpoint Source Control Ordinances</u></b></p> <p>The Village is proposing that the entire requested amendment area will be developed for residential and commercial uses. Development of the requested amendment area will likely result in impacts to wetlands, floodplains and waterways.</p> <p>The National Wetland Inventory map indicates the presence of 3 wetlands within the requested amendment area. The Federal Emergency Management Agency Flood Insurance Rate Maps indicate that there are 2 Zone A (100-year) floodplains within the requested amendment area. One of these floodplains is isolated depressions and one is associated with an unnamed tributary to the XX River.</p> <p>The amendment area is subject to the Village’s stormwater management, soil erosion and sediment control, floodplain management, and stream and wetland protection ordinances. While this ordinance is generally consistent with respect to stormwater management, soil erosion and sediment control and floodplain management, there are significant deficiencies with respect to stream and wetland protection.<sup>1</sup> Due to the numerous surface waterbodies as well as sensitive natural features (including threatened and endangered species), development of the requested amendment area will require great care to avoid damage to these resources. The deficiencies are even more significant in light of these sensitive environmental resources. Therefore, adequate protection of streams, wetlands and floodplains is critical during development of the requested amendment area.</p> <p>In situations where significant discrepancies occur or where the applicable ordinances are clearly inadequate, any recommendation of support is contingent upon the adoption and enforcement of adequate nonpoint source ordinances that are consistent with the CMAP’s model ordinances. As such, the applicant should provide a village or city council resolution stating its intent to adopt such ordinances. Documentation regarding a status of this request should be forwarded to CMAP within six months following its approval. To date, the applicant has provided a resolution stating its intent to adopt such ordinances.</p>	<p><b>Support Contingent Upon Adoption of Applicable Ordinances</b></p>

<sup>1</sup> Per the *Water Quality Management Plan Amendment Process and Procedures* manual, only amendment requests within Will County are required to provide information addressing non-point source control requirements.

**Water Conservation**

As part of an amendment request, an applicant should consider CMAP’s Model Water-Use Conservation Ordinance and demonstrate the steps it has taken to reduce water consumption. Village XX confirmed that it has established a landscape irrigation schedule between the months of April through October that allows landscape irrigation only on Wednesday and Saturdays at odd numbered addresses and Thursdays and Sundays at even numbered addresses. The Village expressed further interest in reducing water and provided a sample water conservation ordinance, comparable to CMAP’s Water Conservation Ordinance for staff’s review. CMAP applauds the Village’s efforts to meet regional and local objectives to address sustainable water use.

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**Water Reuse**

The applicant evaluated the use of a lagoon wastewater treatment system coupled with a spray irrigation system. The treatment system would consist of screening, aerated lagoon treatment, winter storage lagoons, filtration disinfection, and a land application distribution system.

The applicant ruled out implementation of a non-discharging system because it is not a cost-effective option. However, an alternative to purchasing the property would be to consider existing land uses that would benefit from wastewater reuse in the area. For instance, the XX Golf Course is just south of the proposed FPA amendment area. Wastewater reuse with spray irrigation on a golf course would not only eliminate the additional wastewater to be treated and released at the existing WWTP, it also would significantly reduce and possibly eliminate the stress on the existing sources of irrigation water the golf course currently utilizes.

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In conclusion, the proposed approach to provide sanitary sewer service to the amendment area by conveying the wastewater to the wastewater treatment plant appears to meet the current State of Illinois’ water quality standards. However, near future changes in standards, namely more stringent nutrient standards could require the area served by WWTP to consider reducing nutrient loads to the facility. Given the reasonably good potential that land application of wastewater could be secured in the amendment area at a reasonable cost, the applicant should continue to consider implementing land application of wastewater in this area into the future.

**Maintaining Water Quality**

The Village’s WWTP treatment process includes: influent flow and waste loading measurement; preliminary treatment consisting of a raw sewage grinder, raw sewage pumps, raw sewage fine screen, bypass bar rack; secondary treatment consisting of oxidation ditches and secondary clarifiers; chlorine contact tank/dechlorination tank; post-aeration; and final effluent flow and waste load monitoring. Waste activation sludge from the secondary clarifiers is aerobically digested and land applied to agricultural land.

The WWTP discharges into the XX Creek, which is a zero-flow stream during dry months upstream from the treatment plant. XX Creek is not listed as an impaired waterway on the *Illinois 2013 Section 303(d) List*. The Creek is listed as a *Biologically Significant Illinois Stream* (Illinois Natural History Survey, 1992).

XX Creek is a high quality stream that fully supports aquatic life. The Illinois Department of Natural Resources has classified the stream as a Class B stream. Based on studies done in

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<p>1998 and 2013, the stream has Index of Biological Integrity (IBI) values of 42 to 56. The Illinois EPA has given XX Creek its highest priority for protection efforts. Increases in ammonia and nitrates, phosphorus and dissolved oxygen can negatively impact water quality as well as the ability of a waterbody to fully support its indigenous species.</p> <p>The expanded WWTP would include a phosphorus limit of 1 mg/L. The Village also proposed that the remaining concentration limits (dissolved oxygen, ammonia-nitrogen, pH, etc.) will remain the same. In addition, the WWTP will include a special condition that requires design, construction, and operation of a secondary treatment system to reduce total nitrogen and monitor the level of total nitrogen (a denitrification process) in the effluent after expansion. The special condition will not impose a numerical nitrogen standard. The Village hopes to hold total nitrogen loading to the XX Creek constant, if not reduce it through this treatment process, thereby maintaining or possibly even improving water quality.</p> <p><b><u>Regional Green Infrastructure Protection</u></b></p> <p>Approximately 15% (147 acres of the 980 acre requested amendment area) of the Village’s amendment request is identified within the regional green infrastructure network. The majority of the identified area exists along the eastern border of the amendment area. To ensure protection of the 147 acres identified in the network, the applicant provided a copy of its existing conservation design ordinance, which includes protection strategies designed to permit higher density development in exchange for protecting lands with sensitive areas. These protections will ensure protection of the regional green infrastructure network.</p>	<p><i>Consistent</i></p>
<p>3. <i>“The proposed amendment should not adversely affect adjoining units of government.”</i></p>	<p><i>Consistent</i></p>
<p>The amendment request is consistent with Intergovernmental Agreements from the Villages of XXX, XXX and XXX. Staff received letters in support of the amendment from each Village.</p>	
<p>4. <i>“The proposed amendment should be consistent with other county and regional or state policies.”</i></p>	
<p><b><u>Livable Communities</u></b></p> <p>The applicant provided a statement describing how the proposed amendment promotes livability. The proposed development places an emphasis on compact and contiguous development, filling in between existing developments where possible and developing in a logical and rational pattern that maximizes use of existing and future infrastructure, while still maintaining sufficient open space and protecting sensitive environmental features. The Village’s proposal also includes installation of efficiency lighting technology to reduce energy demands at the WWTP. The Village’s efforts are consistent with this particular element of Criterion Number 4 and with objectives of the regional comprehensive plan, Go To 2040.</p> <p><b><u>Energy Efficiency and Wastewater</u></b></p> <p>The applicant conducted a free energy assessment with the Illinois Department of Economic Opportunity Efficiency Program for its wastewater treatment plant in an effort to reduce energy costs and usage at the facility’s administrative buildings, pump stations and wastewater facility. The assessment included several potential energy reducers: replace lighting technology with higher efficiency lighting technology; replace the effluent pumping system; replace low efficiency motors with high efficiency motors; and install high efficiency blowers with automated process controls. The assessment included an estimated cost to implement each recommendation and the total simple payment (years).</p> <p>The analysis included an overview summary of the WWTP’s existing equipment, estimated</p>	<p><i>Consistent</i></p> <p><i>Consistent</i></p>

operational hours and annual energy usage within a 12 month period from January 20XX to December 20XX.

Based on findings from the assessment, the Village further investigated the feasibility of investment in higher efficiency lighting technology to reduce the WWP’s electric demand use. Upgrades would consider using LEDs fixtures to reduce maintenance costs saving an estimated \$3,650 per year. The Village is currently working with the Illinois Clean Energy to secure funding and incentives to implement this improvement. The Village’s efforts are consistent with the goal of Go To 2040 to “manage and conserve energy and resources.”

**County Land Resource Management Plan**

The Will County *Land Resource Management Plan* identifies the Village of XX as Town Form.

The Town Form of development includes larger communities such as Braidwood, Wilmington, Elwood, Peotone, and Beecher (compared to Hamlets) that are generally found in the southern half of Will County. Unlike their counterparts in the northern half of the County – the Urban Community Form – Towns are more geographically independent. They are typically surrounded by Agricultural or Rural Areas, rather than adjoining municipalities or Suburban Areas. (page 15)

The County has submitted a letter indicating that the requested amendment is consistent with the County’s Land Resource Management Plan.

**Agricultural Areas**

The Illinois Department of Agriculture submitted a letter to Staff stating that they would not object to the City’s request to transfer 980 acres of land from the XX FPA into the XX FPA.

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