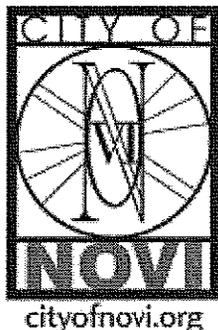


MEMORANDUM



TO: MARK SPENCER, AICP; PLANNER
BRIAN COBURN, PE; SENIOR CIVIL ENGINEER

FROM: BEN CROY, PE; CIVIL ENGINEER

SUBJECT: REVIEW OF IMPACT ON PUBLIC UTILITIES
ELEVEN MILE AND BECK STUDY AREA

DATE: APRIL 9, 2009

The Engineering Division has reviewed the Eleven Mile and Beck study area as requested by the Planning Division. The request consists of approximately 193 acres located north and south of Eleven Mile Road, between Beck and Wixom Roads in Sections 17 and 20. This analysis is based on the potential uses of the property as shown on the attached figure provided by the Planning Division, but excludes the 'Proposed School Property' and 'Proposed Park'.

The study area involves numerous parcels currently master planned either R-A, R-1, R-3, RT or OSC. The study is exploring the potential for Office or RM-1 uses in the area. The proposed study area was analyzed by comparing the utility demand under the existing or master planned zoning (which ever is more intense) with the demand of the two proposed uses. Additionally, the potential for a 5-acre area designated as a convalescent home was explored.

Given the multiple zoning designations throughout this study area, a change to Office or RM-1 will have varying effects. For example, an Office use throughout the study area would result in approximately the same demand as the existing permitted uses because the increases and decreases in demand over the area happen to result in the same overall average. However, a change in demand would be realized if only portions of the area were to allow the Office use. Similarly, an RM-1 use throughout the study area would approximately double the demand of the existing permitted uses. However, only rezoning some parcels to RM-1 would affect the demand.

The following table helps illustrate the impact of rezoning from one use to another:

<i>CHANGE IN UTILITY DEMAND</i>			
Existing Zoning or Master Planned Zoning	Proposed Zoning		
	OFFICE	RM-1	CONV. HOME
RT	-42%	19%	67%
RA	250%	613%	900%
OSC	0%	104%	186%
R-3	4%	111%	196%
R-1	70%	245%	385%

The table shows that, with the exception of RT, the rezoning of any parcel within the study area to either Office or RM-1 would result in a higher utility demand, some substantially higher. The addition of a convalescent home would further increase the demand; however, assuming only 5-acres would be designated for this use, the overall impact would be relatively minor.

Water System

All of the parcels in the study area could be served by an existing 16-inch water main along the Wixom Road, Eleven Mile Road and Beck Road frontages.

The City's water model indicates rezoning the entire study area to the most intense use, RM-1, would have a slight impact to the water system (1.5 psi drop in pressure). This is due to the size, location and looping of the water mains in this area of the City.

Sanitary Sewer

The properties fronting on Wixom Road would be served by the 12-inch sewer on the west side of Wixom Road. The properties fronting on Beck Road would be served by the 18-inch sewer on the west side of Beck Road. The remaining parcels fronting only on Eleven Mile could be served by a sewer extension along Eleven Mile from Beck Road, or by the 21-inch sewer along the northern limits of some of the parcels.

Based on the information provided we can estimate that rezoning the entire study area to the most intense use, RM-1, would have a significant impact on the sanitary sewer system, using an additional ~5% of the City's peak discharge capacity. A mixture of Office and RM-1 would result in a varying impact (refer to above table). Additional sanitary sewer design information would be required to determine if any system upgrades are required to the local sanitary network to accommodate the increased sanitary sewer flow. This added flow would impact the Lanny's bypass pump station which was recently installed to relieve previous capacity concerns in this district.

Summary

Rezoning to RM-1 would have the greatest impact to the utility demand for this study area, approximately doubling the demand if zoned entirely RM-1. The rezoning would not have a large impact on the water system, but depending on the mix of Office and RM-1, a zoning change for this study area could have a noticeable impact on the sanitary sewer system, increasing the peak sanitary discharge from the City.

The increase in the peak discharge is notable because the City is currently seeking opportunities to resolve the limit on its contractual sanitary sewer capacity at its outlet to Wayne County. Additional contractual capacity (estimated to be 1.0 cfs, or a 5% increase, based on the information provided) will be needed to serve the increased density proposed for this study area.