



Executive Summary

City Council Workshop

AGENDA ITEM: Water Study

PREPARED BY: Jacob Schillander, City Administrator

RECOMMENDED ACTION: Discussion

Summary:

This summary confirms that Maple Plain's water system can support both its own planned growth and the Medina Apartments development without requiring major upgrades.

Key Capacity Metrics:

Metric	Value
Treatment Capacity	1.0 million gallons/day
Total Storage	495,000 gallons
Maple Plain Max Daily Demand	643,000 gallons
Medina Apartments Max Daily Demand	89,500 gallons
Combined Max Daily Demand	733,000 gallons

Fire Flow & Pressure:

All hydrants in Maple Plain and Medina meet or exceed minimum fire flow standards for residential use at 1,000 gpm. Commercial and Industrial use typically assumes 3,500 gpm for sufficient capacity, but all uses should be verified with ISO for each specific situation as it varies by usage and building type and materials. Maple Plain averages 2,600 gpm fire flow with 63 psi pressure, while Medina Apartments show 2,000 gpm fire flow with 74 psi pressure.

Why Medina Shows Higher Fire Flow & Pressure:

- Medina is located near the southeast corner of Maple Plain, at a lower elevation than most of town, resulting in higher static pressure.
- The Medina Apartments are a new development with modern infrastructure, including optimized watermain sizing and hydrant spacing.
- System modeling for Medina was conducted under maximum daily demand with elevated tower levels, boosting pressure and flow.
- Fire flow availability is highest closest to the water source and is correlated to the size of mains leading to the hydrants. Newer, larger pipes with multiple connections (looping) are associated with the highest available fire flow areas. Fire flows decrease as distance from source increases due to friction losses in the pipes and other demands are removed to supply existing users.

Storage & Turn-over:

Existing storage meets recommendations for Maple Plain and Medina scenarios, balancing fire flow and winter turn-over requirements. No additional tank is needed unless Independence's development proceeds.

Conclusion:

Maple Plain's water infrastructure is sufficient to support its own growth and the Medina Apartments project of up to 100 units. No upgrades or additional storage are required for these scenarios.

It is my recommendation, however, that we require either the City of Medina or the Developer to install Meters at the three connection points, this is an estimated cost of \$200,000.00 The City of Maple Plain would bill the City of Medina based off those meter reads for water usage. Doing this ensures that when Medina reads their meters, we can compare the water provided to the water used to make sure there are no leaks or deficiencies.

Furthermore, I recommend that we create a new agreement with the City of Medina, I have worked on some language and have Legal reviewing it.