ANGOLA WATER MAIN EXTENSION

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INTRODUCTION

In August 2021, the TDA company was introduced to the project of a potential water main extension stretching from the existing water tank on 450 W CR 300N to Pokagon State Park. The project was first introduced by Tom Selman (Angola Water Superintendent) and Amanda Cope (Angola's City Engineer). The goal of this extension is to supply water to Pokagon State Park, so they do not have to keep using their own water system, while also providing the adequate amount of chlorine.

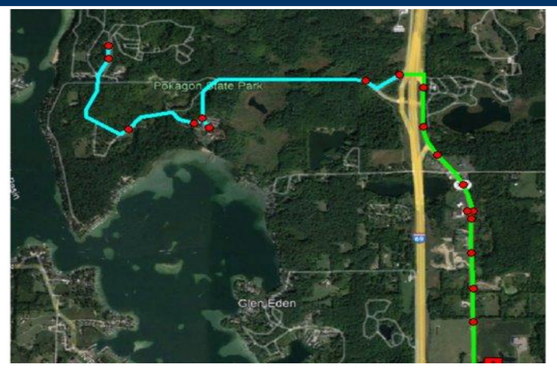
PRIMARY MAIN LINE

The primary path of the extension will cover three significant sites, including: the Ramada Inn/6 Autumns Restaurant, Potawatomi Inn/ Conference Center, and the campground within the park. The line will run along SR 127 from the tank on W CR 300N and under I-69 towards going west to reach Pokagon State Park. This path is pictured in the image at the bottom right.

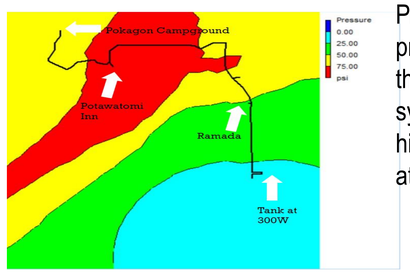
After calculating the demands for the primary water line, the results were that 58,000 gallons per day are needed for the three sites listed previously.

All demand calculations were sourced from the 327 Indiana Administrative Code.

HYDRAULIC MODELING



Pictured is the modeled water main extension with 12" pipe in green and 8" pipe in blue



Pictured is the pressures throughout the system at its highest demand at 9AM

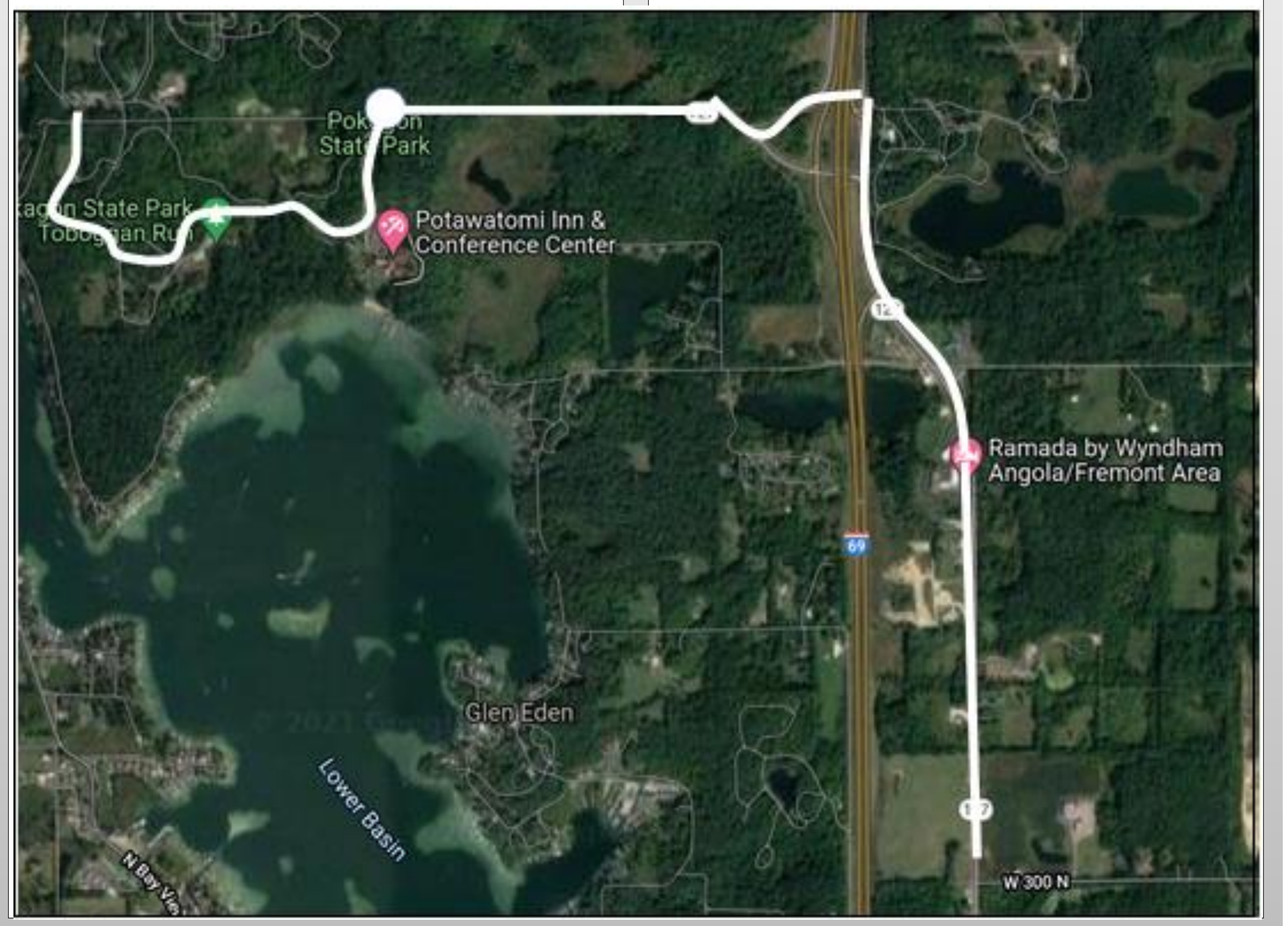
ALTERNATIVE EXTENSIONS

TDA evaluated an extension, mentioned by Tom Selmon, that would run along the stretch of SR 127 from where the line crosses I-69. This will lead up to Fremont to provide water to the Holiday, Quality, and Comfort Inns that are near SR 120. This demand came to just over 23,000 gpd (gallons per day).

Another aspect TDA needed to consider was the growth of the City of Angola. This topic led to TDA estimating a new subdivision somewhere near the primary main line extension. Using averages of local subdivisions, TDA was able to estimate how many lots would be in a new neighborhood. An EPA water use average of 300 gallons per day for an average household was used. A development of 60 house on 20 acres would results in 18,000 gpd required.

CHLORINE MODELING

Text



NEEDED FIRE FLOW

All these non-residential connections require a needed fire flow (NFF) analysis. This is simply the amount of water that needs to be accessible over a certain duration and at least 20 psi consistently. The Insurance Services Office (ISO) published a guide to calculated these values, which range from 3500 gpm (gallons per minute) to 6750 gpm. These NFFs lead to a minimum of a three-hour duration.