

## MEMO

Date: February 23, 2022

To: Casey Ballard, Aurora Water

From: Melinda Lundquist, P.E.

RE: Fairfield Townhomes – Utility Conformance Letter

The Fairfield Townhomes project located within Development Area J (DA-J) per the Painted Prairie Subdivision Filing No. 1 Public Improvement Plan. DA-J has been subdivided into 2 lots per the **Painted Prairie Subdivision Filing No. 5 Plat**. The Fairfield Townhomes site, Lot 2, Block 1 of the Filing No. 5 Plat, is proposing 206 single family attached units and an amenity center. The adjacent parcel, Prose Painted Prairie, Lot 1, Block 1 of the Filing No. 5 Plat, is proposing 312 residential apartment units. **Per the Painted Prairie – Master Utility Report (MUR)**, approved April 2020, DA-J assumed 18.2 acres were to be residential apartments and 10 acres were to be an office use. The water demand of both proposed sites was evaluated for conformance with the approved Painted Prairie – Master Utility Report to ensure DA-J will be within assumed demands when developed.

### The Standards and Specifications Regarding Water, Sanitary Sewer and Storm Drainage

**Infrastructure** requires a water demand of 101 average gallons per capita per day and 2.77 people per unit for residential use while the master utility report assumed average daily water demand of 122 gallons per day per unit for the apartments. An assumed demand of 122 gallons per day per unit was utilized for Lot 1, Block 1, and an assumed demand of 101 gallons per capita per day was utilized for Lot 2, Block 1. The Lot 1, Block 2 amenity center, 16,799 square feet as shown in the conceptual site plan displayed in the Appendix, assumes a commercial water demand 1,500 gallons per day per acre. The calculations of the water demand for both lots, displayed in the Appendix, is shown in the table below as well as a comparison to the assumed demand in the MUR.

Development Area	Units	Average Day (gpm)	Max Day (gpm)	Max Hour (gpm)
Lot 1, Block 1	312	26.43	74.01	118.95
Lot 2, Block 1	206	40.42	113.18	181.91
TOTAL:	518	66.86	187.20	300.86
DA-J (MUR)	-	66.25	185.47	298.10

When comparing the water demand from the master utility report to the demands calculated in this memo, the proposed layout of both lots will generate 0.61 gallons per minute more than what was accounted for in the **Painted Prairie – Master Utility Report**. However, this is within 1 percent of the anticipated flow for all scenarios. This is within a reasonable tolerance given standard demands are conservative being that they are based on the same demands used for years. Now, water fixture units are more environmentally conscious and have low flow fixtures which will generate less of a demand. In my professional engineer opinion, since this increase in flow is within an acceptable tolerance, an amendment to the **Painted Prairie – Master Utility Report** is not necessary.

**The Standards and Specifications Regarding Water, Sanitary Sewer and Storm Drainage Infrastructure** requires a sanitary sewer demand of 68 average gallons per day per capita and 2.77 people per unit for residential use. For a commercial use, a sanitary sewer demand of 1,500 gallons per day per acre is required. The master utility report assumed this same demand. The calculations of the sanitary demand for both lots, displayed in the Appendix, is shown in the table below as well as a comparison to the assumed demand in the MUR.

Development Area	Units	Average Day Flow (gpd)	Peak Daily Flow (gpd)	Peak Day Flow with Infiltration (gpd)	Peak Day Flow with Infiltration (cfs)
Lot 1, Block 1	321	58,768	235,073	240,950	0.37
Lot 2, Block 1	206	39,381	157,523	161,461	0.25
TOTAL:	518	98,149	392,598	402,411	0.62
DA-J (MUR)	-	135,753	543,010	556,585	0.88

When comparing the sanitary sewer demand, both sites will generate 0.26 cubic feet per second less than what is allowed by the master utility report. This conveys that the development of both Lot 1, Block 1 and Lot 2, Block 1 will be in conformance with **Painted Prairie – Master Utility Report** for sanitary sewer demands.

References:

1. **Painted Prairie – Master Utility Report**, CVL Consultants of Colorado, Inc, February 2020.
2. **Standards and Specifications Regarding Water, Sanitary Sewer and Storm Drainage Infrastructure**, City of Aurora, 2020.

# Appendix