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Existing & Proposed Water Distribution System Appendix D

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The existing and proposed components of the water system were evaluated in detail and are included in the 2009 Water Master Plan prepared by Kellogg Brown & Root, Inc. and adopted by the Town Council on May 4, 2009. In 2015 and 2020, the Town adopted updates to the 2009 Water Master Plan based on water demands, demographics, future land uses, and growth projections. This document provides details about the Town's system based on the 2009 Water Master Plan and the 2015 and 2020 updates. The 2009 Water Master Plan Update and the 2015 and 2020 Water Master Plan Amendments provide additional details about the Town's system and are incorporated herein by reference for all purposes allowed by law. The following components of the water system have been evaluated:

- Water Supplies
- Ground Storage
- Elevated Storage
- Pumping Stations
- Distribution System

TCEQ (Texas Commission on Environmental Quality)

Chapter 290 of the Texas Commission of Environmental Quality Rules and Regulations, "Public Drinking Water," mandates the minimum requirements for water systems operation in the State of Texas.

The minimum requirements are as follows:

- Total Storage – Equal to 200 gallons per connection.
- Elevated Storage – Equal to 100 gallons per connection.
- Pressure – Minimum pressure under normal conditions should exceed 35 psi while pressure during extremes may not drop below 20 psi.
- Pumping – each pressure plane must have two or more pumps capable of delivering two gallons per minutes (GPM) per connection (a capacity of 1000 gallons per minute), and the ability to supply peak demands, whichever is less.

Water Supplies

The Town of Flower Mound obtains its treated water from the Upper Trinity Regional Water District (UTRWD) and the City of Dallas Water Utilities Department (DWU). Water is supplied from the UTRWD at the Stonehill Pump Station and from DWU at the Pintail Pump Station.

The Town currently is contracted for 11 million gallons a day (MGD) from Dallas Water Utilities (DWU) and is contracted with the Upper Trinity Regional Water District (UTRWD) for 30 MGD. Under its current contract with the UTRWD, the Town of Flower Mound is required to take a minimum of 3.7 MGD. During the winter months (November-May) water from the UTRWD is used to meet morning peak demands. The remaining daily demand is met with DWU water supplied from the Pintail Pump Station. The Town of Flower Mound attempts to maximize its use of DWU water because of its lower cost.

Ground Storage

The Town of Flower Mound currently has a combined 21 million gallons (MG) of ground storage located at its three pumping stations, Stonehill (10MG), Pintail (6 MG), and Stonecrest (5MG). An additional 5 MG is planned for future construction at Stonecrest bringing the total

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available storage to 26 MG.

In order to balance supply rates with pumping rates, it is recommended that the Town continue to store approximately half of the daily demand in ground storage. Currently the Town has 10 MG of ground storage available at the Stonehill Pump Station, 6 MG available at Pintail Pump Station, and 5 MG available at Stonecrest Pump Station for a total of 21 MG. Combined with elevated storage and future construction of a 5 MG ground storage tank at Stonecrest, the system will be able to store 50% of the maximum daily demand in 2040. The total storage will also satisfy TCEQ regulations requiring the system to provide a minimum of 200 gallons of storage per connection.

Elevated Storage

The Town currently has three elevated storage tanks in operation: Bruton Orand, Waketon, and Freeman. These tanks provide 5.5 MG of storage. The Freeman tank has the ability to not only serve the western portion of the Town, but due to its height has the ability to serve the eastern portion of the Town if either of the other two tanks needs to be serviced.

The Texas Commission on Environmental Quality (TCEQ) Chapter 290 requires a minimum of 100 gallons of elevated storage per connection. With the current 5.5 MG of storage available, the Town's system has the capacity to serve up to 55,000 water connections. As of December 2019, the Town served 24,039 connections. The regulation does not account for the operational use of the elevated tanks, so the actual capacity of the elevated storage may be less than the 55,000 connections depending on future land uses.

Pumping Stations

The Town currently supplies treated water from three pumping stations, Stonehill, Pintail, and Stonecrest. The Stonehill pump station has a firm capacity of 28,000 gallons per minute (gpm), Pintail pump station has a firm capacity of 13,000 gpm, and Stonecrest pump station has a firm capacity of 12,000 gpm. Stonecrest will have an ultimate firm capacity of 24,000 gpm once phases two and three are complete. The Lusk Lane booster pump station has been decommissioned.

Distribution System

The Town's water system is divided into two pressure planes, east and west. The west pressure plane is served by the Freeman elevated storage tank and will be served by the Stonecrest pump station. The east pressure plane, which operates at a lower pressure plane elevation, is served by the Stonehill and Pintail pump stations and the Bruton Orand and Waketon elevated storage tanks. In previous years, the pressure plane has had a natural divide. Pressure reducing valves will likely be necessary to maintain that divide in the future.

Previously it was thought that a third pressure plane may be created for the Lakeside area due to higher pressures. This was evaluated and due to the existing developments in this area and previously designed water suppression systems it was not feasible to lower the pressure in this area.

A network of pipes delivers water from the pump stations that receive water from the Town's water providers. Water is conveyed from the Stonehill Pump Station by a 30-inch diameter

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waterline along Justin Road and a 20-inch diameter waterline along Valley Ridge Blvd. A 30-inch diameter line along Dixon Lane then carries water to the west side of the Long Prairie District. Water is conveyed from Pintail Pump Station by a 30-inch diameter waterline along Flower Mound Road. The transmission main then reduces to a 24-inch diameter and then to a 20-inch diameter west of Long Prairie. Water is conveyed south of Flower Mound Road by a 16-inch diameter waterline along Long Prairie Road and a 20-inch diameter waterline along Gerault Road.

The Stonehill and Pintail Pump Station transmission systems are connected by two transmission mains that run north and south: a 16-inch diameter waterline that runs along Bridlewood Blvd. and a 20-inch diameter waterline along Morriss Road.

A 20-inch diameter transmission line carries water along Cross Timbers Rd. from Morriss Rd. to the west side of the Town and ends west of the Tour18 area.

Denton Creek Reuse Water Master Plan

The Town has adopted the Denton Creek Reuse Water Master Plan prepared by Kimley-Horn and Associates, Inc. to meet the Town's reuse water system infrastructure needs. The Reuse Water Master Plan document provides a strategic plan for the Town's reuse water distribution system within certain areas of the Town. The document serves as a planning tool for current and future needs by projecting reuse water system demands, identifying the resulting required infrastructure, and developing a list of recommended capital improvements.

Lakeside Reuse Water Master Plan

The Town has adopted the Lakeside Reuse Water Master Plan prepared by Alan Plummer Associates, Inc. to meet the Town's reuse water system infrastructure needs. The Reuse Water Master Plan document provides a strategic plan for the Town's reuse water distribution system within certain areas of the Town. The document serves as a planning tool for current and future needs by projecting reuse water system demands, identifying the resulting required infrastructure, and developing a list of recommended capital improvements.