



**WATER RESOURCES
& WASTEWATER REPORT**

For

**Waterbury Phase II
Preliminary Plan**

July 2017

JDS-HYDRO

CONSULTANTS, INC.

WATERBURY PHASE II
WATER RESOURCES
&
WASTEWATER REPORT

July 2017

Prepared for:

4-Way Ranch Metropolitan District
P. O. Box 50223
Colorado Springs, CO 80949

Prepared by:

JDS-Hydro Consultants, Inc.
545 East Pike's Peak Avenue, Suite 300
Colorado Springs, CO

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1.0 INTRODUCTION

The purpose of this report is to provide an outline of water supply and wastewater treatment capacity for the proposed Waterbury Phase II in Falcon, CO. There are 235 residential lots within this proposed 80-acre subdivision.

2.0 LAND USES

2.1 *Projected Land Uses:* Lands within the subject area have been planned as residential development. Please refer to the Land Use Exhibit in **Appendix A**.

3.0 WATER NEEDS AND SUPPLY

3.1 *Water Demand:* It is expected that Waterbury Phase II will utilize the following water demands.

Table 3-1 - Summary of Expected Water Demands

# of Units	Use	Annual Demand (@ 0.35 AF/SFE/Year) (AF)	Average Daily Flow (ADF) (GPD)	Maximum Daily Flow (MDF) (@ 2.45 x ADF) (GPD)
235	Residential	82.3	73,428	179,898

3.2 *Water Supply:* The 4-Way Ranch Metropolitan District (4-Way, the District) will provide water to the subject property. The District has a perpetual lease for 800 annual acre-feet of Arapahoe and Laramie-Fox Hills water. A copy of the lease is included in **Appendix B** and is based on two groundwater determinations. Those determinations are 510-BD and 511-BD.

Both the Arapahoe and Laramie-Fox Hills aquifers are determined to be fully non-tributary.

At this time, the District has the following commitments:

Filing 1 (40 developed residential lots, a commercial lot)	- 18.3 AF
Waterbury Phase I (196 residential lots, Rec. Center)	- 70.1 AF
Current Total	- 88.4 AF

The demand anticipated to be added by this development (82.3 acre-feet) would result in a total commitment of 170.7 annual acre-feet which is well under the 800 acre-foot annual capacity.

Please refer to **Appendix C** for the Water Supply Information Summary.

Table 3-2 - Summary of Supply and Existing Commitments

Original Allocation for District #1 (Phase I)				
Land Use	Annual Water Demand (Acre-Feet)	Average Daily Flow (ADF) (GPD)	Maximum Daily Flow (MDF) (@ 2.45 ADF) (GPD)	Peak-Hour Flow (PHF) (@ 1.5 MDF) (GPM)
137 Residential Lots ^{Note 1}	57.5	51,368	125,852	131
36 Commercial Acres ^{Note 2}	8.0	7,135	17,480	18
Subtotals	65.5	58,503	143,332	149

Revised Allocation for District #1 (Waterbury Phases I & II)				
Land Use	Annual Water Demand (Acre-Feet)	Average Daily Flow (ADF) (GPD)	Maximum Daily Flow (MDF) (@ 2.45 ADF) (GPD)	Peak-Hour Flow (PHF) (@ 1.5 MDF) (GPM)
<i>Filing #1</i>				-
40 Residential Lots (Filing #1) ^{Note 1}	16.8	14,998	36,745	38
1 Commercial Lot (6.89 Acres) ^{Note 2}	1.5	1,366	3,346	3
<i>Waterbury Phase I</i>				
196 Residential Lots ^{Note 3}	68.6	61,242	150,043	156
1 Rec. Center (3.19 Acres) ^{Note 2}	1.5	1,366	3,346	3
<i>Waterbury Phase II</i>				
235 Residential Lots ^{Note 3}	82.3	73,428	179,898	187
Subtotals	170.7	152,399	373,377	389

Water Rights (El Paso County 300-Year Supply)	797.0	AF
Anticipated Water Demand	170.7	AF
Difference	626.3	AF

Note 1: Larger Lots at 0.42 AF/Unit

Note 2: Commercial at 0.222 AF/Acre

Note 3: Smaller lots at 0.35 AF/Unit

3.3 *District Supply:* In order to provide the District with adequate supply, the owner of the water rights (Four Way Ranch Partnership/ Spring Creek LLC) has entered into a perpetual lease with the District to supply 239,100 acre-feet of groundwater (797 acre-feet in the El Paso County 300-year development rule) from the Arapahoe and Laramie-Fox Hills aquifers. This reservation provides adequate cushion to absorb this proposed use. The water lease is provided in **Appendix B**.

4.0 WATER SYSTEM FACILITIES

4.1 *Source of Supply (Wells):* Existing water demand is met using an Arapahoe (A) well and a Laramie-Fox Hills (LFH) well. These wells were completed in 2006 and have been in service ever since. Current yields of each well are 95 gpm (gallons per minute) for the Laramie-Fox Hills and 30 gpm for the Arapahoe.

Maximum Daily Demands (MDD) for existing development and proposed development within the District is as follows:

• Existing development	28 gpm
• Waterbury Phase I	107 gpm
• <u>Waterbury Phase II</u>	<u>125 gpm</u>
Total	260 gpm

With the existing source of supply at 125 gpm, the system can nearly meet the MDD of the existing development and Waterbury Phase I. However, new wells must be drilled in order to meet the additional demands of Waterbury Phase II.

4.2 *Water Treatment:* An existing water treatment plant is in place and has been operating since 2007. The facility has a maximum daily capacity just above current well yields at 140 gpm (0.202 million gallons/day, MGD). The facility is currently at 20% capacity with existing development.

The facility includes iron and manganese treatment along with disinfection, and operates under approval of the Colorado Department of Health and Public Environment Public Water System ID #CO-0121111.

4.3 *Water Storage:* The 4-Way Ranch Water System has an existing water storage tank with a 522,000 gallon capacity that has been in service since 2007. This amount of storage has the capability to meet a fire flow requirement of 2,900 GPM for a duration of 3 hours.

The tank site is located on a knoll approximately 1 mile north of the existing water treatment facility.

4.4 *Distribution and Transmission Lines:* For the purpose of fire protection, the subject area would be connected to distribution lines in Waterbury Phase I, as well as a proposed 12” main line east of Phase I to provide a system “loop.”

5.0 WASTEWATER REPORT

5.1 *Projected Wastewater Loads:* Wastewater flows are based on 90% of anticipated indoor use. Maximum Monthly Flows are based on 125% of average daily flows. These are summarized as follows

Table 5-1 - Summary of Expected Wastewater Loads

Water Demands		Wastewater Loads		
# of Units	Indoor Water Use (@ 0.2 AF/SFE/Year) (AF)	Indoor Water Use Average Daily Flow (ADF) (GPD)	Average Daily Flow (ADF) =90% Indoor Use (GPD)	Maximum Monthly Flow (MMF) =125% ADF (GPD)
235	47.0	41,959	37,763	47,204

5.2 *Treatment Facilities:* The 4-Way Metropolitan District has an existing Inter-Governmental Agreement (IGA) with Woodmen Hills Metropolitan District (WHMD) to participate in the existing Woodmen Hills Wastewater Treatment Facility.

The expected loads from this development (and existing commitments from Waterbury Phase I at 31,987 GPD) represent about 5.4 % of the plant permitted capacity of 1,300,000 gal/day.

Existing development in the District is on individual septic systems due to the larger lot sizes. It is not anticipated that the 40 lots (and commercial lot) will be served by a central sewer system.

5.3 *Collection and Pumping Facilities:* The 4-Way Metropolitan District is proposing to develop a wastewater lift station north of the existing water treatment facility. The lift station is being permitted for an average daily flow of 86,000 GPD, but it is being master-planned for future capacity should development in the District increase beyond the initial permitted capacity.

Waterbury Phase I and Phase II represent 81% of the proposed permitted capacity of the lift station.

The force main from the lift station would be an 8-inch line that extends westerly along Stapleton to an existing manhole near Meridian Ranch Boulevard where it would connect to the existing Woodmen Hills system.

6.0 WASTEWATER TREATMENT INFORMATION

6.1 Woodmen Hills System:

The Woodmen Hills Metropolitan District (WHMD) has committed to serve the subject property with wastewater treatment.

Additionally, WHMD has commenced construction (as of June 2017) of a new facility that is expected to be online in August 2018. This requirement for a new treatment facility was driven not by hydraulic loading, but by changes in effluent parameters (discharge limitations).

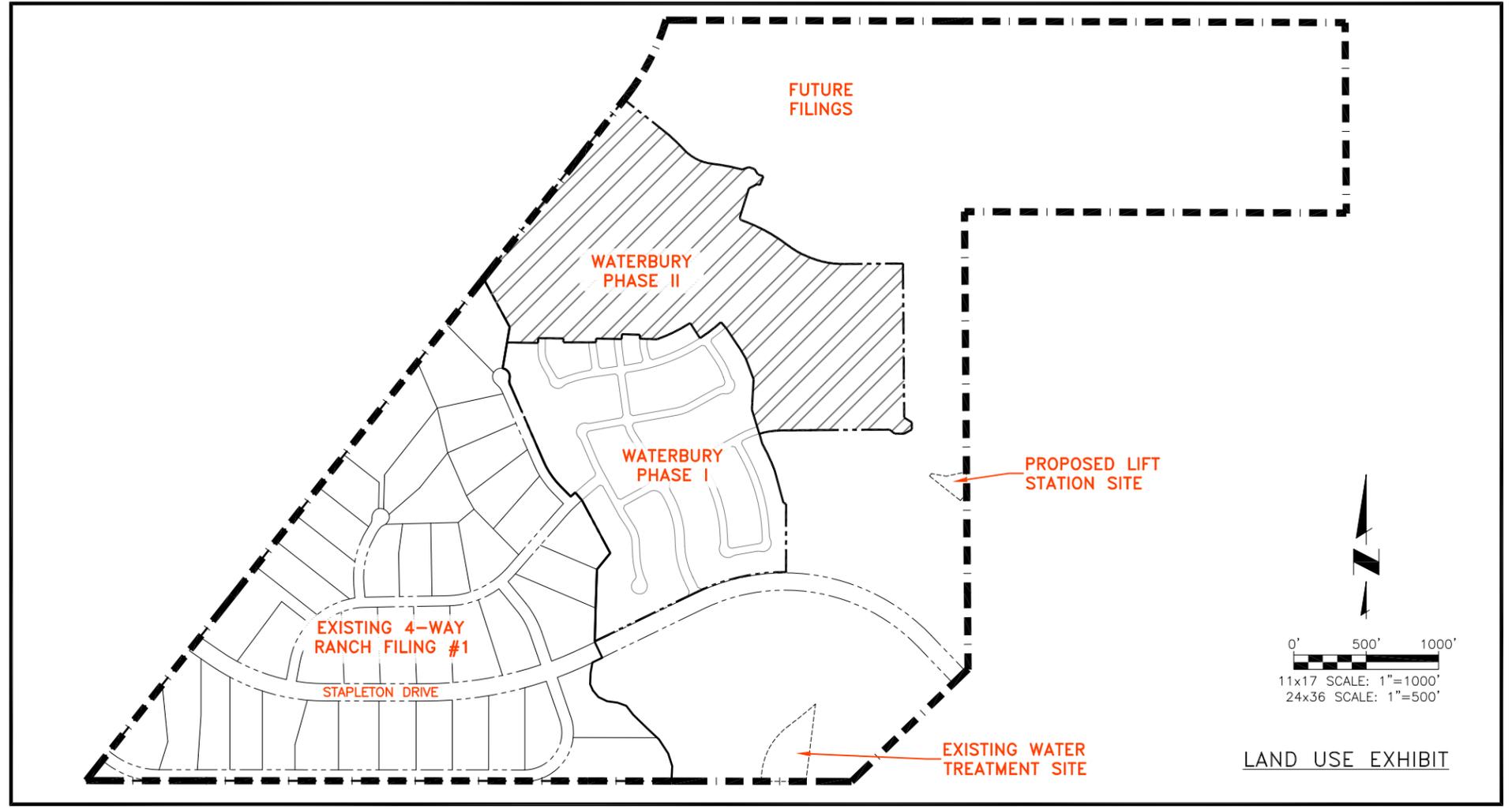
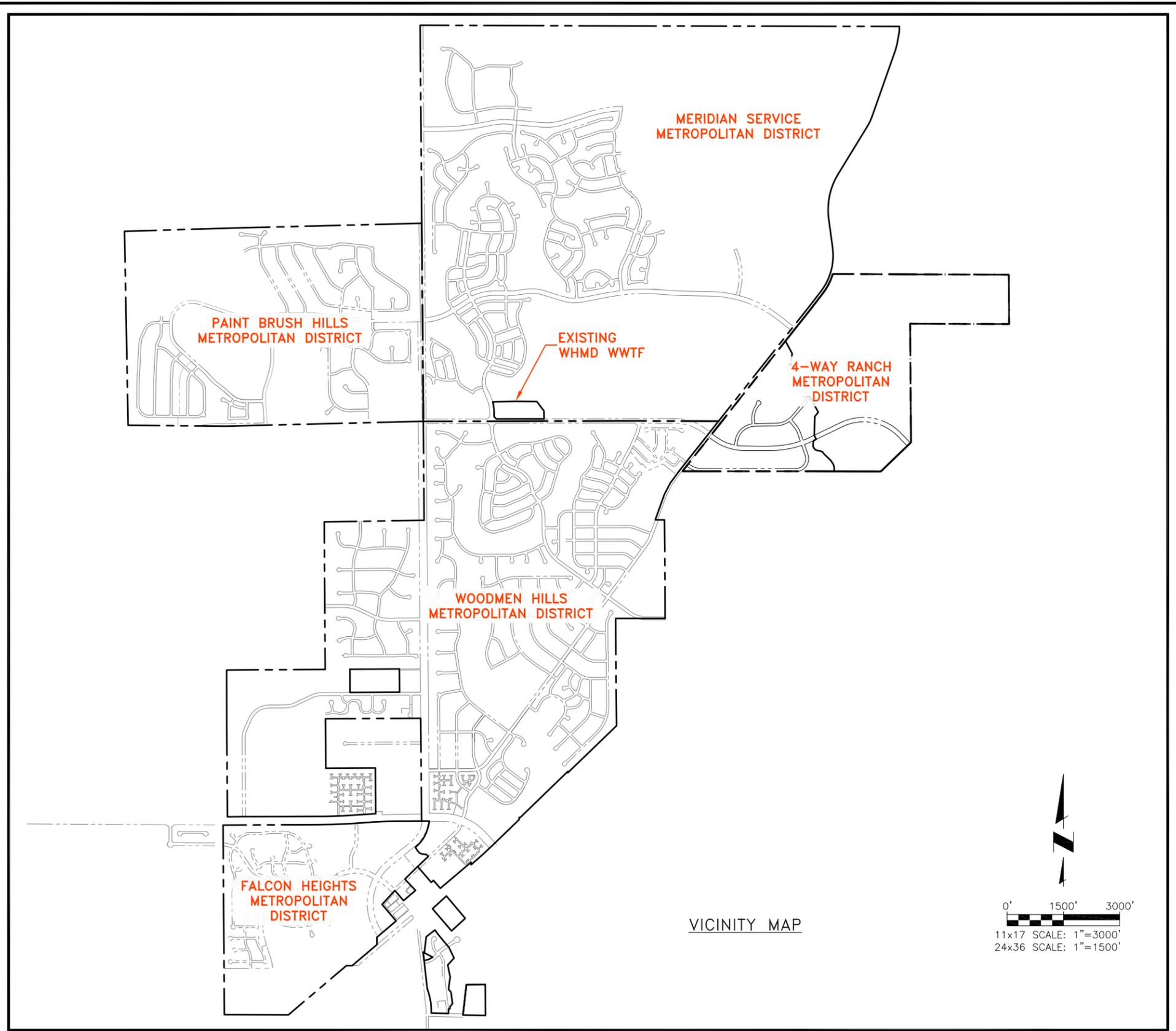
6.2 Required Off-Site Improvements and Constraints:

- The 4-Way Ranch Metropolitan District will be responsible for all off-site improvements which will include but are not limited to:
 - Piping and pumping to the WHMD plant.
 - Wastewater metering at the lift station
- Design of all on-site and off-site facilities (including lift station and force mains) will be subject to WHMD approvals and inspections.
- The District shall meet the terms of all applicable wastewater regulations of WHMD in terms of quantity and quality.
- Woodmen Hills will become the Operator in Responsible Charge (ORC) of the 4-Way Ranch wastewater system.
- 4-Way Ranch is participating in funding portions of the new WHMD wastewater treatment facility.

6.3 Conclusions:

The 4-Way Ranch Metropolitan District will provide water and wastewater service to this proposed development (refer to **Appendix E** for a commitment letter), while Woodmen Hills has committed to provide treatment for this subject filing under the conditions described in the existing Inter-Governmental Agreement.

Appendix A



A
of A

Project No.: 136.18
Scale: AS NOTED
Date: 07/12/17
Design: RMM
Drawn: RMM
Check: JPM
Revised:

**WATERBURY PHASE II
 PRELIMINARY PLAN
 LAND USE EXHIBIT**

APPENDIX A

JDS-HYDRO CONSULTANTS, INC.
 545 EAST PIKES PEAK AVENUE, SUITE 300
 COLORADO SPRINGS, COLORADO 80903
 (719) 227-0072

Appendix B

**AMENDMENT
TO
FIRST AMENDED WATER RIGHTS LEASE**

This Amendment to First Amended Water Rights Lease (“Amendment”) is entered into effective as of the 8th day of October, 2012, between Four Way Ranch, a Colorado general partnership, and Spring Creek, LLC, a Colorado limited liability company (collectively, “Lessor”), and 4-Way Ranch Metropolitan District No. 1, a political subdivision and quasi-municipal corporation of the State of Colorado (“Lessee” or the “District”).

RECITALS

WHEREAS, the Lessor and the Lessee have entered into the First Amended Water Rights Lease dated June 14, 2006, regarding a lease of 220 annual acre feet of certain ground water rights to the District (the “2006 Water Lease Agreement”); and

WHEREAS, poor economic conditions have impacted the rate of development within the District, and consequently the District has not needed nor paid for the leased water rights as provided for in the 2006 Water Lease Agreement; and

WHEREAS, the District’s original development projections have been modified to accommodate additional and more dense residential and commercial development within its boundaries; and

WHEREAS, the Lessor and the Lessee now desire to modify the 2006 Water Lease Agreement to accommodate the additional development within the District, and adjust the “take or pay” schedule to one which is more reasonably in line with the projected development and use of water;

NOW, THEREFORE, in consideration of the above recitals, the terms and provisions contained herein, and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties agree as follows:

COVENANTS AND AGREEMENTS

1. Lease of Water Rights: Paragraph 1 of the 2006 Water Lease Agreement is hereby modified to correct the description of the Leased Water Rights:

Lease of Water Rights. Lessor hereby leases to Lessee, and Lessee hereby leases from Lessor, a portion of the Lessor's Water Rights described as 80,100 acre-feet of a total amount of 261,469 acre-feet of ground water from the Arapahoe aquifer adjudicated by July 22, 2004 Colorado Ground Water Commission Findings and Order in Determination No. 511-BD, and 159,000 acre-feet of a total amount of 242,850 acre-feet of ground water in the Laramie-Fox Hills aquifer adjudicated by the July 22, 2004 Colorado Ground Water Commission Findings and Order in Determination No. 510-BD (“Leased Water Rights”). The Leased Water Rights are for the sole and exclusive use of the Lessee under the terms of this Lease. This Lease is for a total of 239,100 acre feet of ground water from the Arapahoe

and Laramie-Fox Hills aquifers as set forth above and is intended to provide a water supply to the Lessee for its service area meeting El Paso County requirements for a 300 year water supply with a maximum annual demand by the Lessee of 800 annual acre feet. The Leased Water Rights include Lessor's rights to the use of said ground water under the terms of their respective Ground Water Determinations. The Leased Water Rights may not be withdrawn at any greater rate than a maximum annual appropriation of 267 annual acre feet from the Arapahoe aquifer and 533 annual acre feet from the Laramie-Fox Hills aquifer, except in consideration of water banking allowed by law ("Maximum Annual Appropriation"). The amount of the Leased Water Rights is not based upon the acreage of the District Service Area lying within the Overlying Property.

2. Lease Payments. Paragraph 4 of the 2006 Water Lease Agreement titled "Lease Payments" is hereby modified as follows:

Lease Payments.

a. Unit Rental Amount. Rent due under the terms of this Lease shall be an annual amount of \$250.00 per annual acre foot as adjusted below in the future ("Unit Rental Amount") for the Maximum Annual Appropriation of 800 annual acre feet under the Leased Water Rights.

b. 2006-2012 Lease Payment Obligation. The Lessor and the Lessee agree that as of the date of this Amendment, the District has not made any lease payments to the Lessor for the Leased Water Rights due to unforeseen economic circumstances. Pursuant to the 2006 Lease Agreement, the District has accrued an obligation to pay the Lessor the amount of \$74,733, pursuant to the schedule shown on Attachment 1, which includes payment for 90 acre feet of the Leased Water Rights plus accrued interest at the rate of 5% on the incremental amounts through October 8, 2012 (the "2006-2012 Lease Payment Obligation"). The District acknowledges the 2006-2012 Lease Payment Obligation and further acknowledges that such obligation shall continue to accrue interest at the rate of 7%, compounded semi-annually, until paid.

c. Deferred Take or Pay Obligation. The Lessee's obligation for the payment of rent shall be deferred until such time as there have been issued building permits by El Paso County Regional Building Department for construction of 100 single family residential units within the District's boundaries, and the District has received payment on a total of 100 residential single family equivalent water taps. Upon the occurrence of this event, the Lessee's deferred payment obligation shall commence under a minimum phasing of 15 annual acre feet per year and continuing thereafter until December 31, 2030, at which time the rent for the full 800 annual acre feet shall be due ("Minimum Rent"). The obligation for payment of rent shall be on a "take or pay" basis for the Minimum Rent as phased in during the course of the Lease, whether or not Lessee actually diverts and uses the Leased Water Right. If Lessee uses more water than under the Minimum Rent phased amount, then Lessee shall pay for that additional water at the Unit Rental

FOUR WAY RANCH, a Colorado general partnership

By: Linda Johnson-Conne
Linda Johnson-Conne, General Partner

By: Tracy Lee
Tracy Lee, General Partner

STATE OF COLORADO)
)ss.
COUNTY OF El Paso)

The foregoing instrument was acknowledged before me this 18 day of October, 2012 by Linda Johnson-Conne as General Partner of Four Way Ranch, a Colorado general partnership.

Witness my hand and official seal.

My commission expires: 6-8-2015



Maricel Rivera
Notary Public

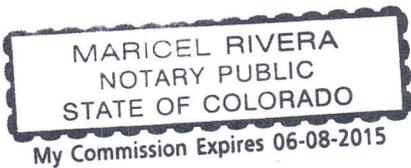
STATE OF COLORADO)
)ss.
COUNTY OF El Paso)

The foregoing instrument was acknowledged before me this 18 day of October, 2012 by Tracy Lee as General Partner of Four Way Ranch, a Colorado general partnership.

Witness my hand and official seal.

My commission expires: 6-8-2015

[SEAL]



Maricel Rivera
Notary Public

ATTACHMENT 1

4 Way Ranch Metropolitan District First Amended Water Rights Lease Lease Payments Due

For the Period from December 31, 2006 through October 8, 2012

	<u>Annual Minimum Phasing Acre feet</u>	<u>Cumulative Phasing Acre feet</u>	<u>Annual Fee per Acre foot</u>	<u>Amount Owed</u>	<u>Amount Paid</u>	<u>Amount Unpaid</u>	<u>5.00% Interest</u>	<u>Cumulative Amount Owed</u>
6/30/2007	15	15	250.00	1,875.00		1,875.00		1,875.00
12/31/2007				1,875.00		1,875.00	47.26	3,797.26
6/30/2008	15	30	250.00	3,750.00		3,750.00	94.67	7,641.93
12/31/2008				3,750.00		3,750.00	192.62	11,584.55
6/30/2009	15	45	250.00	5,625.00		5,625.00	287.23	17,496.78
12/31/2009				5,625.00		5,625.00	441.01	23,562.80
6/30/2010	15	60	250.00	7,500.00		7,500.00	584.23	31,647.03
12/31/2010				7,500.00		7,500.00	797.68	39,944.71
6/30/2011	15	75	250.00	9,375.00		9,375.00	990.41	50,310.12
12/31/2011				9,375.00		9,375.00	1,268.09	60,953.21
6/30/2012	15	90	250.00	11,250.00		11,250.00	1,519.66	73,722.86
10/8/2012							1,009.90	74,732.76
12/31/2012								
TOTALS				<u>67,500.00</u>	<u>-</u>	<u>67,500.00</u>	<u>7,232.76</u>	

Cumulative Phasing capped at 220 acre feet
Interest rate on unpaid fees is assumed at 5% compounded semi-annually.

Appendix C

WATER SUPPLY INFORMATION SUMMARY

Section 30-28-133(d), C.R.S. requires that the applicant submit to the County, "Adequate evidence that a Water supply that is sufficient in terms of quantity, quality, and dependability will be available to ensure an adequate supply of water"

1. NAME OF DEVELOPMENT AS PROPOSED		<u>Waterbury Phase II</u>	
2. LAND USE ACTION		<u>Preliminary Plan</u>	
3. NAME OF EXISTING PARCEL AS RECORDED			
SUBDIVISION		FILING	BLOCK
<u>See Above</u>	<u>N/A</u>	<u>N/A</u>	Lot <u>N/A</u>
4. TOTAL ACREAGE	<u>80</u>	5. NUMBER OF LOTS PROPOSED	<u>235</u>
PLAT MAPS ENCLOSED		<input checked="" type="checkbox"/> YES <u>See Submittal</u>	
6. PARCEL HISTORY - Please attach copies of deeds, plats, or other evidence or documentation. (In submittal package)			
A. Was parcel recorded with county prior to June 1, 1972?		<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	
B. Has the parcel ever been part of a division of land action since June 1, 1972?		<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	
If yes, describe the previous action			
7. LOCATION OF PARCEL - Include a map delineating the project area and tie to a section corner. (In submittal)			
_____ 1/4 OF _____ 1/4 SECTION <u>28, 29</u>		TOWNSHIP <u>12</u>	
		<input type="checkbox"/> N <input checked="" type="checkbox"/> S	
		RANGE <u>64</u> <input type="checkbox"/> E <input checked="" type="checkbox"/> W	
PRINCIPAL MERIDIAN: <input checked="" type="checkbox"/> 6TH <input type="checkbox"/> N.M. <input type="checkbox"/> UTE <input type="checkbox"/> COSTILLA			
8. PLAT - Location of all wells on property must be plotted and permit numbers provided.			
Surveyors plat		<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	
		If not, scaled hand-drawn sketch <input type="checkbox"/> YES <input type="checkbox"/> NO <u>N/A</u>	
9. ESTIMATED WATER REQUIREMENTS - Gallons per Day or Acre Foot per Year		10. WATER SUPPLY SOURCE	
HOUSEHOLD USE # *	<u>235</u> of units <u>73,428</u> GPD <u>82.3</u> AF	<input checked="" type="checkbox"/> EXISTING <input checked="" type="checkbox"/> DEVELOPED	<input type="checkbox"/> NEW WELLS
COMMERCIAL USE #	<u>0.0</u> Gr. Ac. <u>0</u> GPD <u>0.0</u> AF	WELLS SPRING	Proposed Aquifers - (Check One)
IRRIGATION # **	_____ acres _____ GPD _____ AF	<u>64017-F (Existing)</u>	<input type="checkbox"/> Alluvial <input type="checkbox"/> Upper Arapahoe
STOCK WATERING #	_____ of head _____ GPD _____ AF	<u>64018-F (Existing)</u>	<input type="checkbox"/> Upper Dawson <input checked="" type="checkbox"/> Lower Arapahoe
OTHER	_____ Multi-fam _____ GPD _____ AF	<u>TBD</u>	<input type="checkbox"/> Lower Dawson <input checked="" type="checkbox"/> Laramie Fox Hills
TOTAL	<u>73,428</u> GPD <u>82.3</u> AF	<u>TBD</u>	<input type="checkbox"/> Denver <input type="checkbox"/> Dakota
* Based on 0.35 Acre-Foot/Unit/Year		<input type="checkbox"/> Other	
** Irrigation included in Residential Uses		<input type="checkbox"/> Other	
		<input type="checkbox"/> MUNICIPAL	WATER COURT DECREE CASE NUMBERS
		<input type="checkbox"/> ASSOCIATION	
		<input type="checkbox"/> COMPANY	
		<input checked="" type="checkbox"/> DISTRICT	<u>Determinations</u>
		NAME <u>4-Way Ranch Metro. Dist. #1</u>	<u>510-BD</u>
		LETTER OF COMMITMENT FOR SERVICE <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	<u>511-BD</u>
11. ENGINEER'S WATER SUPPLY REPORT <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO If yes, please forward with this form. (This may be required before our review is completed)			
12. TYPE OF SEWAGE DISPOSAL SYSTEM <u>Central Sewer System</u>			
<input type="checkbox"/> SEPTIC TANK/LEACH FIELD		<input checked="" type="checkbox"/> CENTRAL SYSTEM - DISTRICT NAME: <u>4-Way Metropolitan District #1</u>	
<input type="checkbox"/> LAGOON		<input type="checkbox"/> VAULT - LOCATION SEWAGE HAULED TO:	
<input type="checkbox"/> ENGINEERED SYSTEM (Attach a copy of engineering design)		<input type="checkbox"/> OTHER:	

Appendix D



July 14, 2017

RE: Water/Wastewater Service Commitment for the Waterbury Subdivision

To Whom It May Concern:

This request for Water/Wastewater Service Commitment for residential development lies on approximately 80 acres of land, roughly 1/2-mile northwest of the intersection of Stapleton Road and U.S. Highway 24.

The 4-Way Metropolitan District #1 (The District) was formed in November of 2005, and has entered into an agreement with a contiguous District, Woodmen Hills Metropolitan District, for wastewater treatment service. We have calculated the water and wastewater needs as follows:

Annual Water Supply	82.3 Acre-Feet
Average Daily Wastewater Flows	37,763 gal/day

The 4-Way Ranch system includes source of supply, treatment, storage, and water rights sufficient to supply the needs of the proposed residential development.

The 4-Way Ranch Metropolitan District hereby commits to providing water and wastewater service to the above described development area in the volumes listed above.

If you have any questions, please do not hesitate to contact me.

Sincerely yours,

4-Way Metropolitan District #1

A handwritten signature in blue ink that reads "Peter R. Martz".

Peter Martz
Chairman of the Board

Cc: John McGinn, District Engineer
Amy Folsom, El Paso County Attorney
Gene Cozzolino, Woodmen Hills Metropolitan District