



October 20, 2016

Joe Fowler, Chief Planner
 Douglas County Department of Community Development
 Transmission sent via email: jfowler@douglas.co.us

**RE: Franktown Village Planned Development, ZR2012-008
 N ½ Section 2, T8S, R66W, 6th P.M.
 Water Division 1, Water District 8**

Dear Mr. Fowler,

We have reviewed the additional information provided on August 23, 2016 and September 28, 2016 regarding the above referenced proposal to subdivide 106.92 acres into 286 dwelling units, business and commercial use lots, parks and open space; 62.68 acres will be reserved for residential uses, 16.77 acres for business and town center space, and 27.47 acres for parks, open space, and future right-of-way parcels.

This office previously commented on this referral on June 11, 2014. Since our last review of this proposal, the number of residential units has been reduced from 341 units to 286 units. The previous referral also proposed to supply water to a school, which is no longer a part of the proposal.

Water Supply Demand

According to information provided by the Franktown Business Area Metropolitan District (“District”), the total water demand is 244.82 acre-feet, comprised of the components listed in Table 1.

Table 1: Franktown Village Planned Development water supply demand

Feature	Quantity	SFE Demand	Demand Total Acre-feet/yr
Single Family Residential	286 units	286	214.50
Business and Town Center	180,000 sq ft	27.0	20.25
Irrigation of commercial space, open space, parks, schools and other uses	4.02 acres	0	10.07
Existing School	0	0	0
Total demand			244.82



This analysis uses the assumptions of 0.75 acre-foot per residential Single Family Equivalent (SFE) (detached individual unit is equivalent to 1 SFE), 2.5 acre-feet per irrigated acre, and 0.75 acre-feet per 1 SFE, which is equivalent to 6,695 square feet of building space. This office has no objection to the Applicant's assumed demand, but if the county requires or prefers that the Applicant use a higher number for planning purposes, that information must be provided prior to further evaluation of the water supply plan.

Based on these assumptions, the total project demand is 244.82 acre-feet per year. However, the applicant has proposed to include a 5 percent safety factor, 12.24 acre-feet per year, in the demand calculation. Including this safety factor, the applicant is proposing to dedicate 257.06 acre-feet of water per year to this development.

Source of Water Supply

The proposed water supply is a central water system to be constructed and operated by the Franktown Business Area Metropolitan District. A letter of commitment was provided by the District on June 27, 2013 on the condition that the properties within the District dedicate their Denver Basin water rights to the District. The proposed source of water for the District consists solely of Denver Basin ground water. Sewer is proposed to be provided by the Pinery Water and Wastewater District.

According to a report by Bishop-Brogden and Associates (BBA Report), dated September 27, 2016, the water supply will consist of Denver basin water from the Denver, Arapahoe, and Laramie-Fox Hills aquifers available under several parcels. Specifically, the applicant will use the water underlying the subject property, a portion of which was adjudicated in Division 1 Water Court case nos. 95CW288 and 97CW278, the water underlying Carroll Parcel A - Planned Development Area, and a portion of the water underlying Carroll Parcel A - Outside Planned Development Area. Case no. 95CW288 adjudicated the water underlying both portions of the Carroll property and adjudicated a plan for augmentation; case no. 15CW3059 amended the augmentation plan adjudicated in case no. 95CW288. See Figure 1 from the BBA Report (attached) for the location of the three parcels.

The amount of water available from these sources is outlined in BBA Report Tables 1-3, attached. The report determined that 232.18 acre-feet of water per year is available underlying the development property. This calculation included 13.64 acres of the development property that does not have an adjudication of the Denver Basin water underlying the property. Until such time as a decree is entered by the water court for the 13.64 acres, the actual amount of water available to the Applicant for this portion of the property is unknown. The State Engineer's Office will not be able to determine if the proposed water supply will be adequate to serve the proposed uses within the subdivision until such time as the District can demonstrate ownership of an adequate amount of decreed water to satisfy the subdivision water requirements.



Re-evaluating the amount of water available underlying the development parcel without the water underlying the 13.64 acres referenced above, the Applicant has 216.11 acre-feet of water available per year as shown in Table 2.

Table 2: Water available underlying development parcels excluding undecreed water

Parcel	Town Village Parcel			Carroll Parcel A - Development Area	Total
	95CW288 AF/yr	97CW278 AF/yr	13.64 acres (undecreed) AF/yr		
Denver (NT)	35	4.8	0	37.46	77.26
Arapahoe (NT)	37.8	5	0	51.57	94.37
Laramie-Fox Hills (NT)	19.92	1.1	0	23.46	44.48
Total excluding undecreed water	92.72	10.9	0	112.49	216.11

Using only the water available underlying the development property, the Applicant would not have enough water to meet the proposed demand by 40.95 acre-feet per year.

To address this gap, the BBA Report indicated that the applicant would designate 24.98 acre-feet of water from the portion of the Carroll Parcel that is outside the development area to the development (assuming an available supply of 232.18 acre-feet from the development property). The water available from the Carroll Parcel - Outside Planned Development Area is provided in Table 3.

Table 3: Water available underlying Carroll Parcel - Outside Planned Development Area

Aquifer	Outside Development Area total water available AF/yr (80.46 acres)	Water dedicated to augmentation in 15CW3059 AF/yr	Water available for dedication AF/yr	Water to be dedicated to development AF/yr
Denver (NT)	27.34	0.00	27.34	8.32
Arapahoe (NT)	37.63	0.00	37.63	11.45
Laramie-Fox Hills (NT)	23.54	6.42	17.12	5.21
Total	88.50	6.42	82.09	24.98

Due to the increased supply gap caused by the exclusion of the nondecreeed water underlying the Applicant's property, the applicant's annual water supply remains 15.97



acre-feet short of being able to meet the development's water demand. The Applicant has indicated that they may apply for a well permit so that the undecreed water may be quantified, but has not yet applied for a well permit. Until such a time as the undecreed water is quantified through the issuance of a well permit pursuant to Section 37-90-137(4), C.R.S. and Findings of the State Engineer, or the applicant obtains a Water Court decree for the currently undecreed water, the shortage of 15.97 acre-feet of water proposed for use in the development is considered an insecure source of water supply.

It appears that the District does not yet have infrastructure developed. Due to the undeveloped nature of the District, the creation of infrastructure to this development will create system losses that do not appear to have been accounted for in the water supply report. The Applicant must demonstrate that the water supply is sufficient after accounting for the system losses.

The Applicant should be aware that the requirement that Denver Basin water rights be withdrawn from the land subject to each individual adjudication may result in a requirement that the District drill wells on multiple properties so that they may withdrawal the entire water supply proposed or this development. The Applicant should demonstrate that the proposed water supply infrastructure supports the requirement that the Applicant's municipal wells can be dispersed within the District.

The proposed source of water for this subdivision is a bedrock aquifer in the Denver Basin. The State Engineer's Office does not have evidence regarding the length of time for which this source will be a physically and economically viable source of water. According to 37-90-137(4)(b)(I), C.R.S., "Permits issued pursuant to this subsection (4) shall allow withdrawals on the basis of an aquifer life of one hundred years." Based on this allocation approach, the annual amounts of water referenced in Tables 2 and 3 are equal to one percent of the total amount, as determined by rules 8.A and 8.B of the Statewide Nontributary Ground Water Rules, 2 CCR 402-7. Therefore, the water may be withdrawn in those annual amounts for a maximum of 100 years.

Water in the Denver Basin aquifers is allocated based on a 100-year aquifer life under the provisions of C.R.S. 37-90-137(4)(b)(I). For planning purposes the county should be aware that the economic life of a water supply based on wells in a given Denver Basin aquifer may be less than the 100 years indicated due to anticipated water level declines. Furthermore, the water supply plan should not rely solely upon non-renewable aquifers. Alternative renewable water resources should be acquired and incorporated in a permanent water supply plan that provides future generations with a water supply.

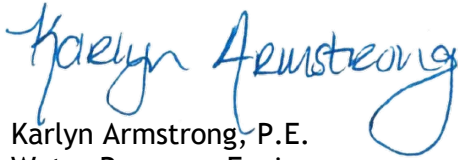
State Engineer's Office Opinion

Pursuant to Section 30-28-136(1)(h)(I), C.R.S., the State Engineer's Office has not received enough information to render an opinion regarding the potential for causing material injury to decreed water rights, or the adequacy of the proposed water supply.



Should you have any questions, please contact me.

Sincerely,



Karlyn Armstrong, P.E.
Water Resource Engineer

Cc: Subdivision File 23507



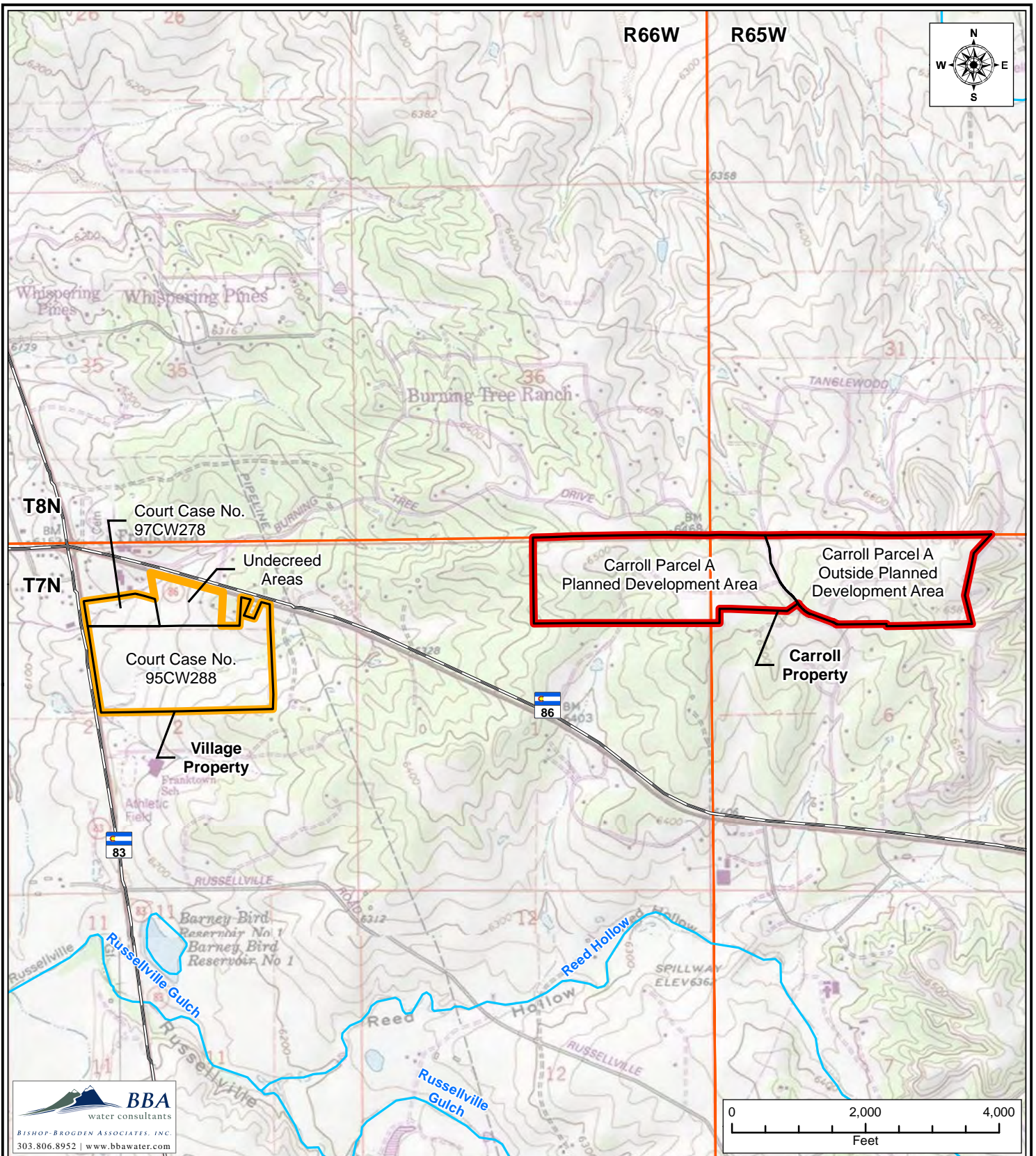


FIGURE 1
Franktown Villages
Planned Development
General Location Map

Date: 9/14/2016 | Job No. 9832.00

Legend

- Decreed Areas
- Village Property
- Carroll Property

Data Source: Douglas County Assessor, CDSS, CDOT, USGS, BLM

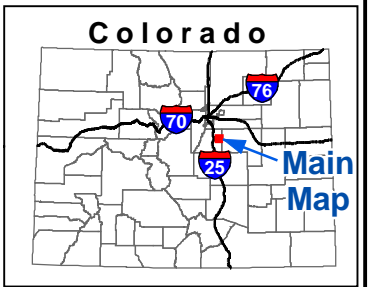


Table 1

Franktown Villages Planned Development

Summary of Nontributary Denver Basin Water Rights

Carroll Property (Parcel A)

Aquifer	Legal Status	Carroll Parcel A Planned Development Area						Carroll Parcel A Outside Planned Development Area			
		95CW288 Parcel A		95CW288 Parcel A		Dedicated for Augmentation in 15CW3059		Dedicated for Augmentation in 15CW3059		Available	
		Entitlement (af/yr)	Area (ac)	Area (ac)	Entitlement (af/yr)	Entitlement (af/yr)	Entitlement (af/yr)	Area (ac)	Entitlement (af/yr)	Entitlement (af/yr)	Entitlement (af/yr)
Denver	NT	64.8	190.73	110.27	37.46	0	37.46	80.46	27.34	0	27.34
Arapahoe	NT	89.2	190.73	110.27	51.57	0	51.57	80.46	37.63	0	37.63
Laramie-Fox Hills	NT	55.8	190.73	110.27	32.26	8.80	23.46	80.46	23.54	6.42	17.12
Total	---	209.8	---	---	121.30	8.80	112.49	---	88.50	6.42	82.09

Notes:

Legal Status, Entitlements and Areas based on Court Case No. 95CW288 and surveying information provided by the client.

Entitlements for the Carroll Parcel A Planned Development Area and the Carroll Parcel A Outside Planned Development Area based on a pro-rata calculation based on the total Parcel A area and the survey information.

Amounts Dedicated for Augmentation based on Court Case No. 15CW3059, the total reservation of 18.7 acre-feet/year and a pro-rata calculation based on the previous ground water dedications detailed in Court Case No. 95CW288 for Parcel A (4420 acre-feet, 81.4%) and for Parcel B (1010 acre-feet, 18.6%) and the areas associated with the Carroll Parcel A Planned Development Area and the Carroll Parcel A Outside Planned Development Area.

Available Entitlements equal the Entitlements minus the amounts Dedicated for Augmentation.

af/yr = acre-feet per year.

ac = acres.

NT = nontributary.

Table 2

Franktown Villages Planned Development

Summary of Nontributary Denver Basin Water Rights

Village Area

Aquifer	Legal Status	Court Case No. 95CW288				Court Case No. 97CW278				Undeclared Area			Total Available Entitlement (af/yr)	
		95CW288		Dedicated for Augmentation in 15CW3059		97CW278		Dedicated for Augmentation in 97CW278		Undeclared Area (ac)	Saturated Thickness (ft)	Specific Yield		Undeclared Supply (af/yr)
		Entitlement (af/yr)	Area (ac)	Entitlement (af/yr)	Area (ac)	Entitlement (af/yr)	Area (ac)	Entitlement (af/yr)	Area (ac)					
Denver	NT	35	82.28	0	35.00	4.8	11	0	4.8	13.64	251	0.17	5.82	45.62
Arapahoe	NT	37.8	82.28	0	37.80	5.0	11	0	5.0	13.64	271	0.17	6.28	49.08
Laramie-Fox Hills	NT	23.4	82.28	3.48	19.92	3.1	11	2	1.1	13.64	189	0.15	3.87	24.89
Total	---	96.2	---	3.48	92.72	12.9	---	2	10.9	---	---	---	15.97	119.59

Notes:

Legal Status, Entitlements and Areas based on Court Case Nos. 95CW288 and 97CW278 for decreed parcels.

Amount Dedicated for Augmentation in 15CW3059 based on the total reservation of 18.7 acre-feet/year and a pro-rata calculation

based on the previous ground water dedications detailed in Court Case No. 95CW288 for Parcel A (4420 acre-feet, 81.4%) and for Parcel B (1010 acre-feet, 18.6%).

95CW288 Available Entitlement equals the 95CW288 Entitlement minus the amount Dedicated for Augmentation in 15CW3059.

97CW278 Available Entitlement equals the 97CW278 Entitlement minus the amount Dedicated for Augmentation in 97CW278.

Undeclared Area equals the difference between the decreed areas and the surveyed Village area of 106.92 acres.

Saturated Thickness determined using the State of Colorado's Hydrobase Aquifer Determination Tool.

Specific Yield based on statutory and decreed values.

Undeclared Supply equals the Undeclared Area times the Saturated Thickness times the Specific Yield divided by 100 years.

af/yr = acre-feet per year.

ac = acres.

NT = nontributary.

Table 3

Franktown Villages Planned Development

Summary of Total Nontributary Ground Water Associated with the Carroll (Parcel A) and Village Property Areas

Aquifer	Legal Status	Carroll Property		Village Area			Total Including Supplies Within Development Area Only (af/yr)	Total Including Supplies Outside Development Area (af/yr)
		Parcel A Planned Development Area (af/yr)	Parcel A Outside Planned Development Area (af/yr)	95CW288 Parcel B (af/yr)	97CW278 (af/yr)	Undeclared (af/yr)		
Denver	NT	37.46	27.34	35.00	4.8	5.82	83.08	110.42
Arapahoe	NT	51.57	37.63	37.80	5.0	6.28	100.65	138.28
Laramie-Fox Hills	NT	23.46	17.12	19.92	1.1	3.87	48.35	65.47
Total	---	112.49	82.09	92.72	10.90	15.97	232.08	314.17

Notes:

Summary of Total Nontributary Ground Water based on the assumptions presented in Table 1 and Table 2.

af/yr = acre-feet per year.

ac = acres.

NT = nontributary.