

# WHAT IS THE NEXUS BETWEEN AFFORDABLE HOUSING AND THE PRICE OF WATER FROM THE POUUDRE?

NOCO HOUSING NOW

NOVEMBER 8, 2019



***“WATER WILL FLOW UPHILL TO MONEY”***

*- UNKNOWN WHO ORIGINATED THE QUOTE*

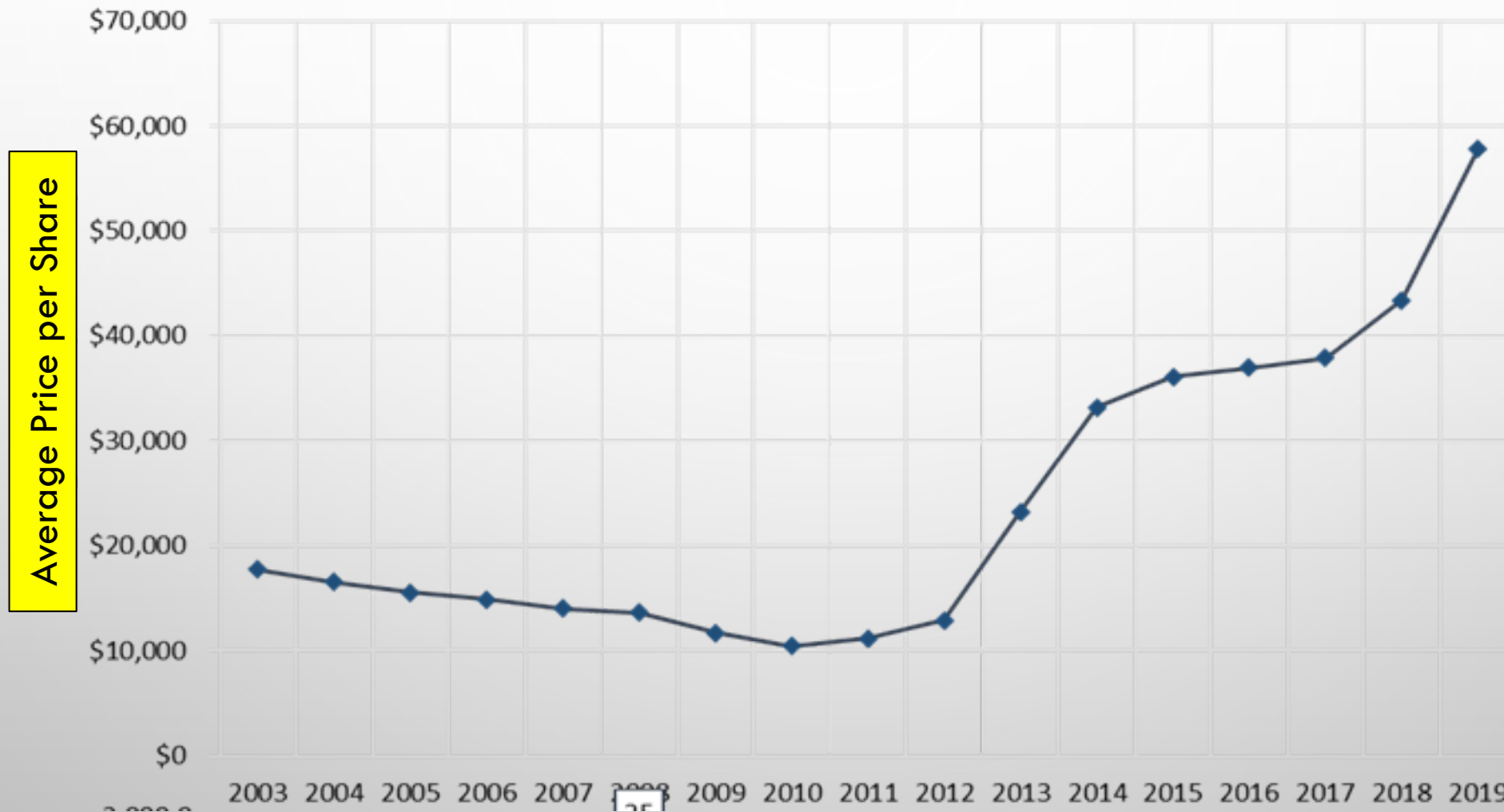
## TOPICS DISCUSSED TODAY

- WATER AS A FUNCTION OF THE COST OF A HOME
- WATER AS A FUNCTION OF THE COST OF A PROJECT
- LARGER MACRO ISSUES AFFECTING AFFORDABILITY
- WHAT CAN WE DO ABOUT IT?

## NOTES:

- DIFFERENT CITIES AND POTABLE WATER SERVICE PROVIDERS HAVE DIFFERENT POLICIES AND DEDICATION RATES
- EXAMPLES TODAY ASSUME A DEVELOPER BRINGING 100% OF THE “WET” WATER TO SERVE A PROJECT
- MOST MUNICIPAL WATER VALUATIONS / CASH-IN-LIEU RATES TRACK VERY SIMILAR TO THE PRICE OF COLORADO BIG THOMPSON PROJECT (CBT) SHARES. HOWEVER THESE ADJUSTMENTS CAN LAG A COUPLE YEARS.
- POLICY CHANGES REGARDING WATER DEDICATION HAVE A SIGNIFICANT IMPACT ON HOMEBUILDING.

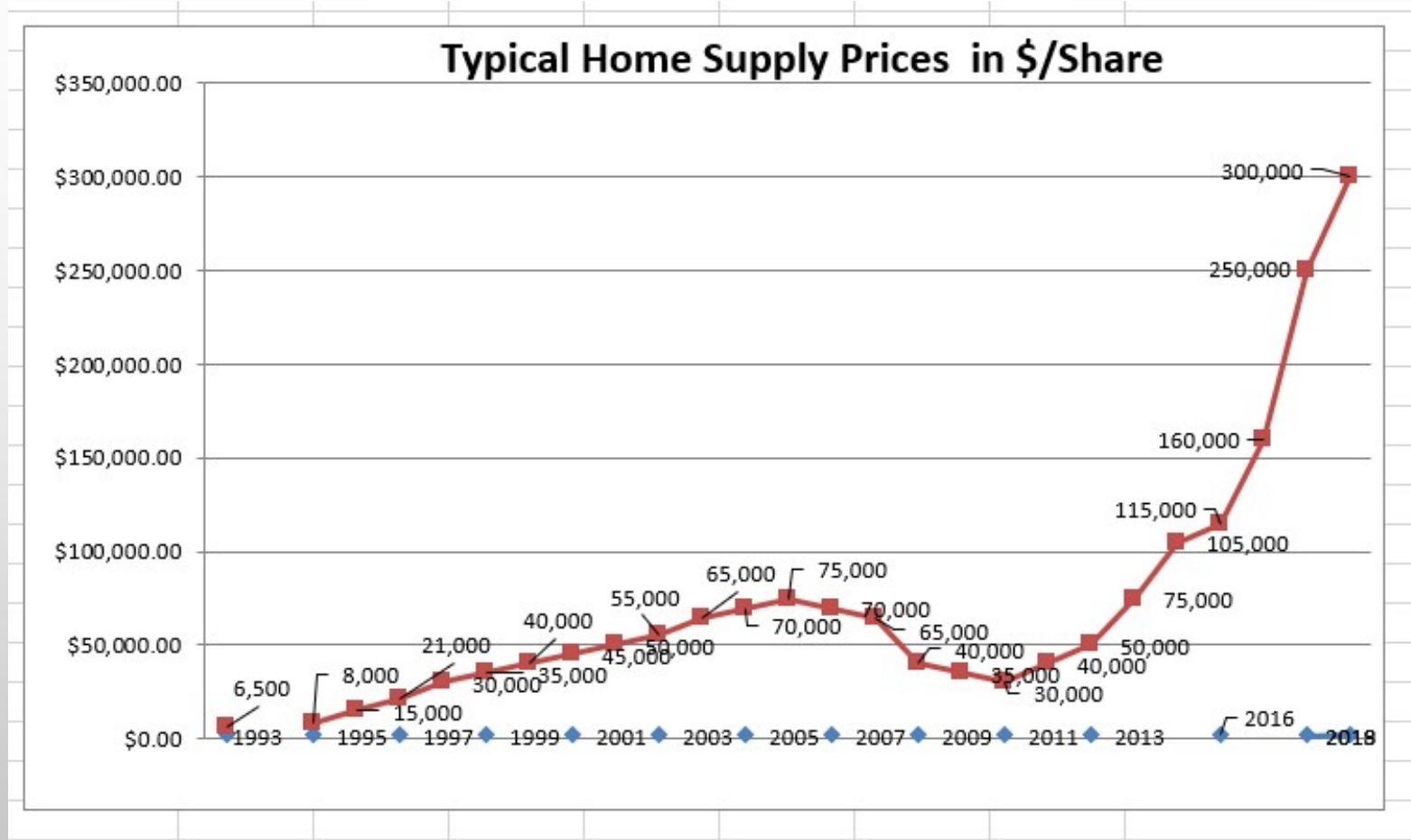
# HISTORIC CBT PRICING



Source: WestWater Research, LLC

# HISTORIC CONSOLIDATED HOME SUPPLY PRICING

Average Price per Share



# DEFINITION'S FOR TODAY'S DISCUSSION

- **CASH-IN-LIEU POLICY**
  - A policy by which the Development community can purchase water necessary to serve the project from the provider of potable water.
- **“WET WATER” DEDICATION POLICY**
  - A policy by which the Development community has to go into the open market and buy the necessary water to serve a project.

# ASSUMPTIONS FOR TODAY'S DISCUSSION

- **PRICE OF CBT SHARE \$55,000**
  - This equals a per Acre-Foot value of \$78,571 (\$55,000 per Share / 0.7 AF Yield)
- **AVERAGE SINGLE-FAMILY HOME NEEDS TO DEDICATE .45 AF**
  - This is an average across the whole project and dedication can change based on product type
    - The above example includes project irrigation water
  - Dedication policies are different across all municipalities and can change the above rate
- **LOT SIZE IN THIS EXAMPLE IS 40' X 90' OR 3,600 SQUARE FEET**
- **HOME SIZE IN THIS EXAMPLE IS 1,600 SQUARE FEET**
- **3 BEDROOM, 2.5 BATHS, 2-CAR ATTACHED GARAGE, 9' UNF. BASEMENT**



# HOUSE EXAMPLE:

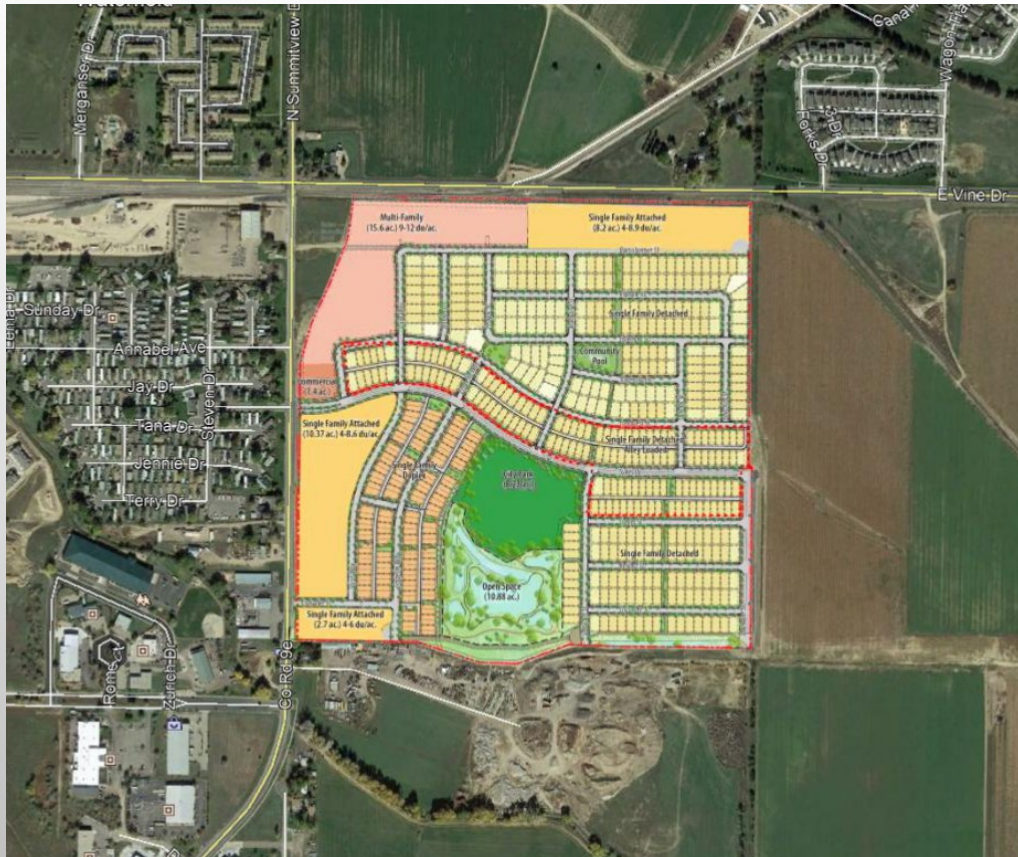


# WATER COST AS A FUNCTION OF HOUSE PRICE

Cost Category	Cost
Land (Paper Lot)	\$25,000
Land (Lot Construction)	\$ 55,000
<b>Raw Water</b>	<b>\$ 35,357</b>
Permits & Fees	\$ 45,057
Hard Construction Costs – Materials and Labor	\$ 199,724
Real Estate Commissions (6%)	\$ 26,190
Closing Costs (1%)	\$ 4,365
Interest	\$ 7,489
Loan Fees	\$ 1,852
Soft Costs (Ins. / Overhead / Etc.)	\$ 14,949
Builder Profit	\$ 21,549
<b>Sales Price</b>	<b>\$ 436,510</b>

**\$160,414**  
Before a  
shovel is put in  
the ground

# WATER COST AS A FUNCTION OF PROJECT



## **Mosaic Community (SEC of Timberline and Vine - FC)**

870 Total Units on 148 Acres

- Townhomes / Traditional Single Family / Condos / Small Detached Single-Family Homes

### **Water Needs**

870 Total Units at .45 AF/Unit = 392 AF Needed for Project

392 AF = 560 CBT Units (0.7 AF / Unit)

**Acquisition Price of CBT = \$30,800,000**

**\$208,108 / Ac for Water vs. \$40,000/Ac for Real Estate**

**Water is 5X the price of the Real Estate!!!**

# WATER COST AS A FUNCTION OF IRR

## Hypothetical Community Analysis

Acres in Project	100
Units per Acre	4
Total Units	400
Acq. Price per Acre	\$ 50,000
Water Required per unit (AF)	0.45
Entitlement Costs per unit	\$1,750
Cost of CBT	\$ 55,000
Acre Feet needed for Project	180
CBT units needed	257
Acquisition Costs of CBT	\$ 14,142,857
Lot Construction Cost	\$ 55,000

## Hypothetical Community Product Mix

Product Mix	% of Product	Total Phase 1 Lots	Total Phase 2 Lots
Townhomes	25%	50	50
Duplex	25%	50	50
50' Lots	25%	50	50
60' Lots	25%	50	50

## Hypothetical Community Lot Sales

Product Mix	Finished Lot Price	Water Cost per Lot	Total Lot Sales Price
Townhomes	\$65,000	\$ 35,357	\$95,357
Duplex	\$80,000	\$ 35,357	\$110,357
50' Lots	\$90,000	\$ 35,357	\$120,357
60' Lots	\$100,000	\$ 35,357	\$130,357

# WATER COST AS A FUNCTION OF IRR - 100% WET

IRR: 7%								
Cash Outflows	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL	
Land Acquisition	\$ 5,000,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 5,000,000	
Water Acquisition	\$ 14,142,857	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 14,142,857	
Project Approvals (Ent.)	\$ 700,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 700,000	
Development Construction	\$ -	\$ 11,000,000	\$ -	\$ -	\$ 11,550,000	\$ -	\$ 22,550,000	
<b>Total Outflows</b>	<b>\$ 19,842,857</b>	<b>\$ 11,000,000</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 11,550,000</b>	<b>\$ -</b>	<b>\$ 42,392,857</b>	
Cash Inflows	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL	
Townhome Sales	\$ -	\$ -	\$ 5,017,857	\$ -	\$ -	\$ 5,268,750	\$ 10,286,607	
Duplex Sales	\$ -	\$ -	\$ 5,767,857	\$ -	\$ -	\$ 6,056,250	\$ 11,824,107	
50' Lots Sales	\$ -	\$ -	\$ 6,267,857	\$ -	\$ -	\$ 6,581,250	\$ 12,849,107	
60' Lots Sales	\$ -	\$ -	\$ 6,767,857	\$ -	\$ -	\$ 7,106,250	\$ 13,874,107	
<b>Total Inflows</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 23,821,429</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 25,012,500</b>	<b>\$ 48,833,929</b>	
Annual Cashflow	\$ (19,842,857)	\$ (11,000,000)	\$ 23,821,429	\$ -	\$ (11,550,000)	\$ 25,012,500	\$ 6,441,071	
Cummulative Cashflow	\$ (19,842,857)	<b>\$ (30,842,857)</b>	\$ (7,021,429)	\$ (7,021,429)	\$ (18,571,429)	\$ 6,441,071	<b>\$ 6,441,071</b>	

# WATER COST AS A FUNCTION OF IRR – NO WATER

IRR: 13%								
Cash Outflows	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL	
Land Acquisition	\$ 5,000,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 5,000,000	
Water Acquisition	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Project Approvals	\$ 700,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 700,000	
Development Construction	\$ -	\$ 11,000,000	\$ -	\$ -	\$ 11,550,000	\$ -	\$ 22,550,000	
<b>Total Outflows</b>	<b>\$ 5,700,000</b>	<b>\$ 11,000,000</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 11,550,000</b>	<b>\$ -</b>	<b>\$ 28,250,000</b>	
Cash Inflows	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL	
Townhome Sales	\$ -	\$ -	\$ 3,250,000	\$ -	\$ -	\$ 3,412,500	\$ 6,662,500	
Duplex Sales	\$ -	\$ -	\$ 4,000,000	\$ -	\$ -	\$ 4,200,000	\$ 8,200,000	
50' Lots Sales	\$ -	\$ -	\$ 4,500,000	\$ -	\$ -	\$ 4,725,000	\$ 9,225,000	
60' Lots Sales	\$ -	\$ -	\$ 5,000,000	\$ -	\$ -	\$ 5,250,000	\$ 10,250,000	
<b>Total Inflows</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 16,750,000</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 17,587,500</b>	<b>\$ 34,337,500</b>	
Annual Cashflow	\$ (5,700,000)	\$ (11,000,000)	\$ 16,750,000	\$ -	\$ (11,550,000)	\$ 17,587,500	\$ 6,087,500	
Cummulative Cashflow	\$ (5,700,000)	<b>\$ (16,700,000)</b>	\$ 50,000	\$ 50,000	\$ (11,500,000)	\$ 6,087,500	<b>\$ 6,087,500</b>	

# WATER COST AS A FUNCTION OF IRR – 50% WATER

IRR: 9%								
Cash Outflows	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL	
Land Acquisition	\$ 5,000,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 5,000,000	
Water Acquisition	\$ 7,071,429	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 7,071,429	
Project Approvals	\$ 700,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 700,000	
Development Construction	\$ -	\$ 11,000,000	\$ -	\$ -	\$ 11,550,000	\$ -	\$ 22,550,000	
<b>Total Outflows</b>	<b>\$ 12,771,429</b>	<b>\$ 11,000,000</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 11,550,000</b>	<b>\$ -</b>	<b>\$ 35,321,429</b>	
Cash Inflows	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL	
Townhome Sales	\$ -	\$ -	\$ 4,133,929		\$ -	\$ 4,384,821	\$ 8,518,750	
Duplex Sales	\$ -	\$ -	\$ 4,883,929		\$ -	\$ 5,172,321	\$ 10,056,250	
50' Lots Sales	\$ -	\$ -	\$ 5,383,929		\$ -	\$ 5,697,321	\$ 11,081,250	
60' Lots Sales	\$ -	\$ -	\$ 5,883,929		\$ -	\$ 6,222,321	\$ 12,106,250	
<b>Total Inflows</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 20,285,714</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 21,476,786</b>	<b>\$ 41,762,500</b>	
Annual Cashflow	\$ (12,771,429)	\$ (11,000,000)	\$ 20,285,714	\$ -	\$ (11,550,000)	\$ 21,476,786	\$ 6,441,071	
Cummulative Cashflow	\$ (12,771,429)	<b>\$ (23,771,429)</b>	\$ (3,485,714)	\$ (3,485,714)	\$ (15,035,714)	\$ 6,441,071	<b>\$ 6,441,071</b>	

# LARGER MACRO ISSUES

COLORADO'S POPULATION IS EXPECTED TO EXCEED 8,000,000 BY 2050. AN ADDITIONAL 2,500,000 IN THE NEXT 30 YEARS.

7 OF THE 10 FASTEST GROWING COMMUNITIES IN COLORADO ARE IN NORTHERN WATER'S SERVICE AREA

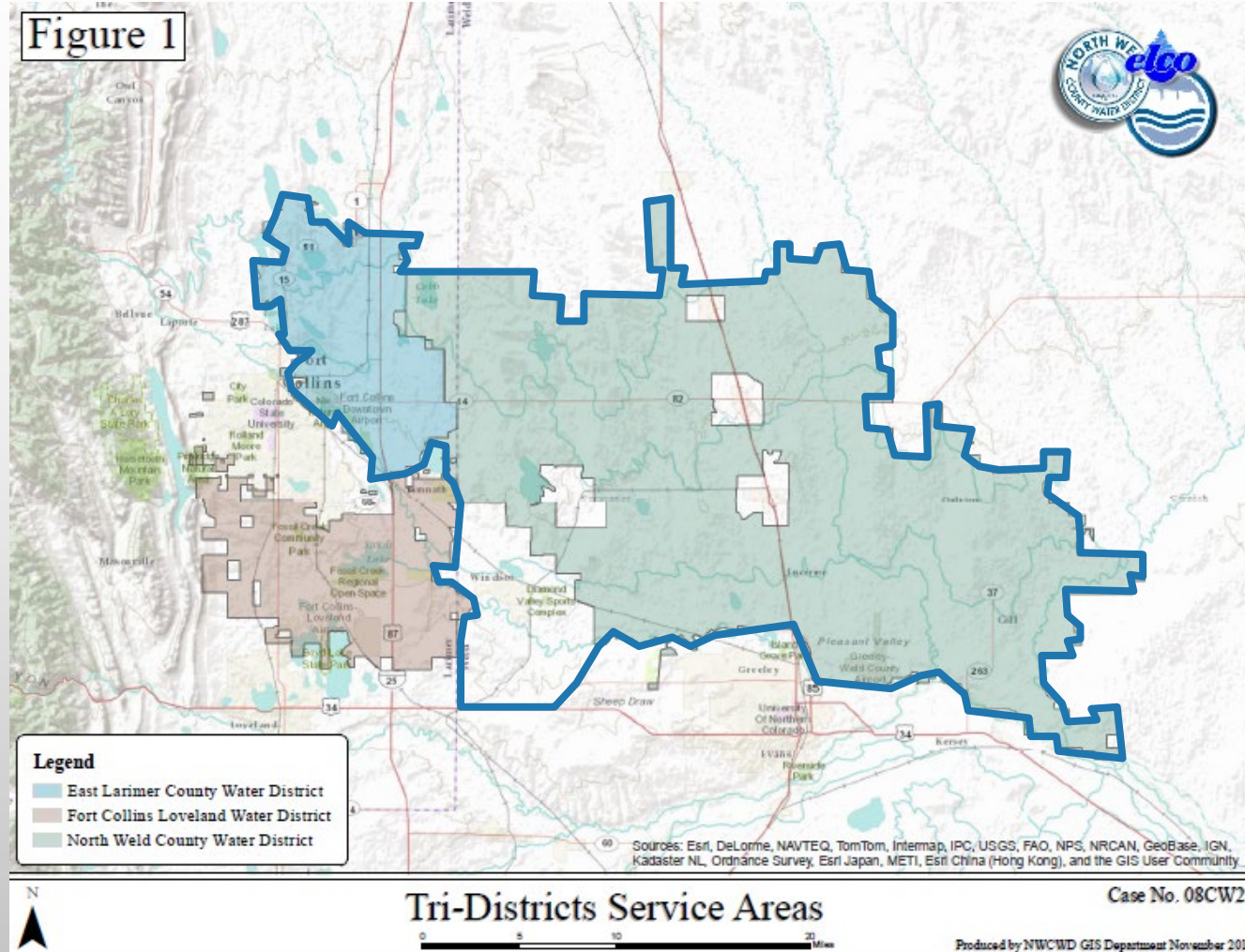
COMPETITION IS STIFF. WE HAVE SEEN THE MARKET CHANGE DRAMATICALLY OVER THE LAST COUPLE YEARS. BUILDERS ARE COMPETING WITH LOCAL MUNICIPALITIES, SOUTH WELD COUNTY BUILDERS AND MUNICIPALITIES, AND METRO AREA MUNICIPALITIES FOR THE SAME POUDDRE RIVER RIGHTS.

THE END OF CBT? THERE ARE 310,000 SHARES IN THE SYSTEM. IN 2019, 30% OF THOSE SHARES ARE IN AGRICULTURAL USE AND 70% ARE IN MUNICIPAL AND INDUSTRIAL USE. NORTHERN WATER ESTIMATES THAT 20% OF IT'S SHARES WILL ALWAYS BE IN AGRICULTURAL USE. THAT LEAVES 31,000 SHARES LEFT TO SATISFY GROWTH.

**WE CAN ALWAYS RE-CREATE NEW LOTS, WE CANNOT RECREATE NEW WATER.**



# DISTRICTS/CITIES REQUIRING “WET” WATER DEDICATION



## HOW DO WE ADDRESS THE ISSUE?

- Dedication Policies should be reviewed to see if they are still accurate based on today's use
  - Population has increased, but water use had not kept pace
  - Dedication policies are too conservative

# DEDICATION POLICY EXAMPLES? – SAME HOUSE AS EARLIER

## PROVIDER #1 (FIXED RATE PER LOT):

**ALLOTMENT:** 90,000 GALLONS

**WATER REQUIRED TO BE TURNED OVER:** .3867 AF OR 126,006 GALLONS

**GALLON'S DEDICATED OVER ALLOTMENT:** 36,006 GALLONS OR 40% MORE THAN ALLOTTED

**HOUSE USE:** ~65,000 GALLONS

## PROVIDER #2 (CALCULATION BASED ON LOT SIZE AND BEDROOMS):

**WATER REQUIREMENT:** 119,000 GALLONS

**HOUSE USE:** ~65,000 GALLONS

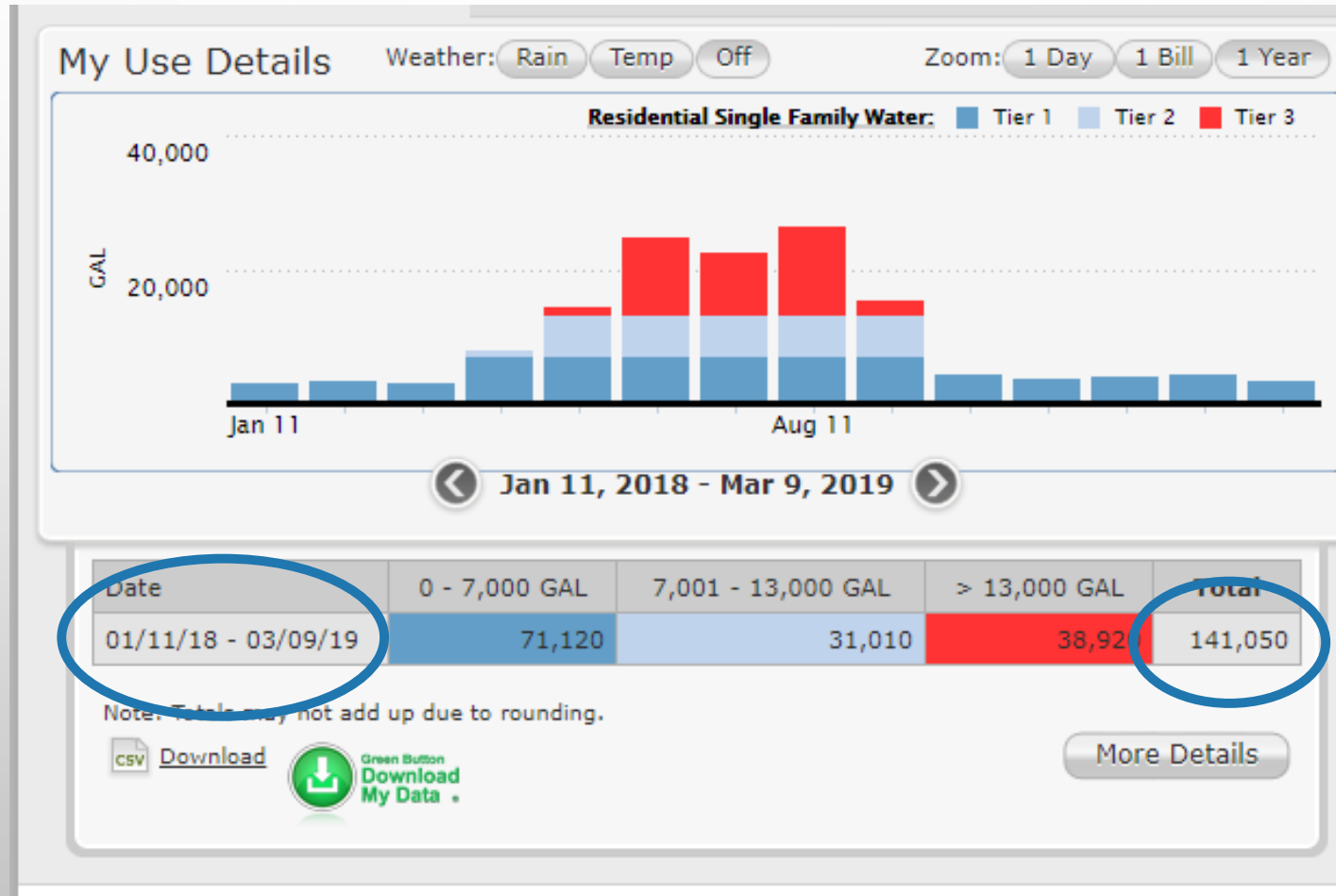
## PROVIDER #3 (FIXED RATE PER LOT):

**WATER REQUIREMENT:** 62,563 GALLONS

**WATER REQUIRED TO BE TURNED OVER:** .4 CBT UNITS OR 91,238 GALLONS

**GALLON'S DEDICATED OVER ALLOTMENT:** 28,675 GALLONS OR 45% MORE THAN ALLOTTED

# DEDICATION POLICY EXAMPLES? – PAT'S HOUSE (4 BED. – 10,000 SF LOT)



# DEDICATION POLICY EXAMPLES? – PAT'S HOUSE (4 BED. – 10,000 SF LOT)

PROVIDER #1 (FIXED RATE PER LOT):

**ALLOTMENT:** 144,000 GALLONS

**WATER REQUIRED TO BE TURNED OVER:** .6188 AF OR 201,636 GALLONS

**GALLON'S DEDICATED OVER ALLOTMENT:** 57,636 GALLONS OR 40% MORE THAN ALLOTTED

**HOUSE USE:** ~141,050 GALLONS

PROVIDER #2 (CALCULATION BASED ON LOT SIZE AND BEDROOMS):

**WATER REQUIREMENT:** 234,012 GALLONS

**HOUSE USE:** ~141,050 GALLONS

PROVIDER #3 (FIXED RATE PER LOT):

**WATER ALLOTMENT:** 175,634 GALLONS

**WATER REQUIRED TO BE TURNED OVER:** 1.08 CBT UNITS OR 246,343 GALLONS

**GALLON'S DEDICATED OVER ALLOTMENT:** 70,709 GALLONS OR 40% MORE THAN ALLOTTED

## HOW DO WE ADDRESS THE ISSUE?

- Water dedication should be looked at as a total project and contingencies and safety factors applied globally instead of across each individual lot
- How can ATM's (Alternative Transfer Method's) be utilized to create a "new" supply of water for municipal use
- Encourage use of non-potable irrigation where feasible
  - Requires a Metro-District to utilize this tool

THANK YOU!

