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INTERNAL MEMORANDUM

To: John Davy, Chairman, El Dorado Hills APAC  
From: Alastair, APAC voting member.  
Subject: Marble Valley – Water Availability

Purpose

The purpose of this memorandum to EDH-APAC is to:

- a) Examine the documentation prepared for the Village of Marble Valley Specific Plan Draft Environmental Impact Report May 2024 regarding the supply and demand of potable water for the project,
- b) Review the EID documents asserting the sufficiency, availability and sustainability of water for projects in the El Dorado Hills (EDH) area, and
- c) Present an analysis of EID data tables referring to the supply and demand of water in El Dorado Hills (EDH) area.

The ensuing document is prepared for El Dorado Hills Area Planning Council (APAC) for their consideration in commenting on the Marble Valley DEIR. As such it is a personal and informal memorandum and not presented as a formal commissioned document.

Foreword

I apologize in advance for the document's length, detail and extensive use of tables and graphs to qualify the points I wish to underscore. The following documents were reviewed:

- DEIR, Water Supply Assessment, Tully & Young, October (2021)
- Valley of Marble Valley Specific Plan, DEIR, May, 2024: Other Considerations, Impact Analysis.
- BAE Memorandum, November 2023
- EID's Urban Water Master Plan 2020, Chapters: 2 Water Service and System Description, 3 Water Supply, 4 Water Use, 5 Water System Reliability.
- Tully & Young Memorandum, May 2014 (19-1670 G 216 of 360)
- El Dorado Water Supply Assessment for Central El Dorado Specific Plan, August 2013.

The Marble Valley DEIR document constantly refers to past EID studies now between 11 and 5 years old, which to my mind brings into question the validity of the statements made in the DEIR itself.

On the 11<sup>th</sup> June last in the Planning Department's presentation in Cameron Park of Marble Valley and Lime Rock Valley, the proponents' leaflets on Water Supply said: "Based on these estimates from the EID's Urban Water Management Plan (UWMP-2020) there would be sufficient water supply for the proposed project, as well as other planned developments". It is that assertion I wish to qualify in this document.

Methodology

I attempted to reconstruct the many tables presented by EID throughout the documents into Excel tables to clearly show both historical (2015-2020) and projected (2020-2040) data so that one may quantify the basis of the assertions made as to adequacy of water availability for future projects in EDH.

All data was taken from the referenced documents above. However, it was incredibly difficult to link the many tables referenced into a logical array. Accordingly, I had to make some assumptions to present an array of data from 2015 to 2040 in a logical manner.

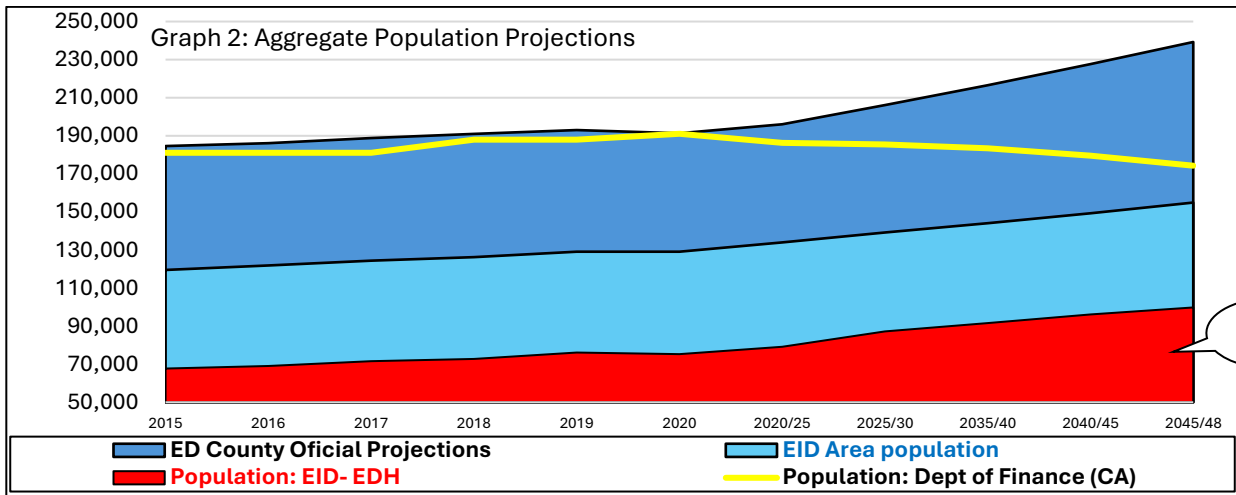
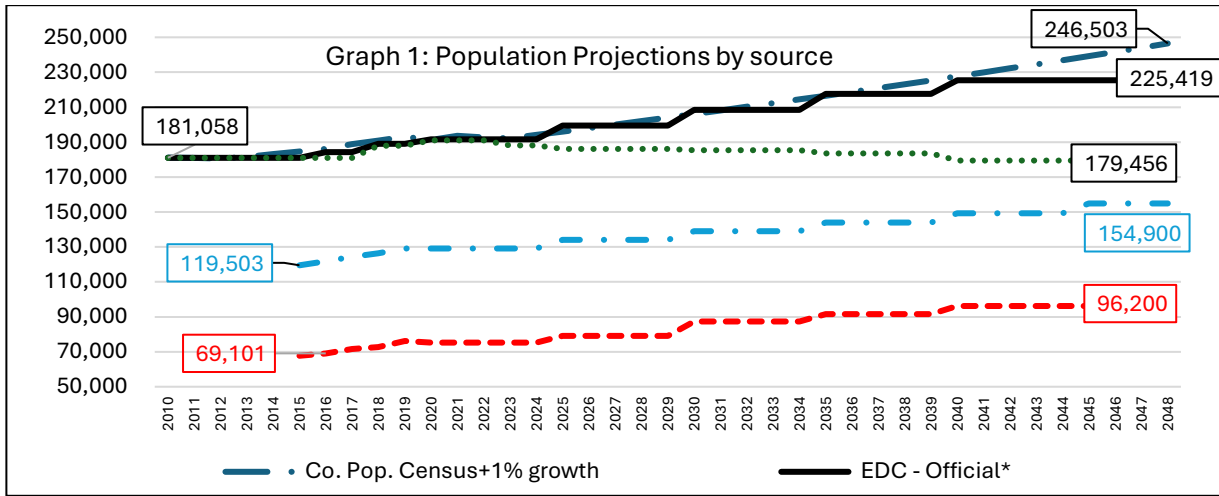
Particular attention was given to EDH's "pipeline\*" of active and future projects undergoing the CEQA process in the County Planning website (projects in your area) to construct a nexus between residential units and acre feet of water to be supplied. See Exhibit A. (\*Land developers generally refer to projects in the pipeline, to identify for planning purposes the number of residential units and commercial development for a given area).

All EID documents reviewed from 2013 to 2024 were internally consistent and factually referenced. They are sound documents. The problem arose when attempting to combine the data in each into summary tables on both supply and demand of water. This data is presented in Exhibit 1 > 6.

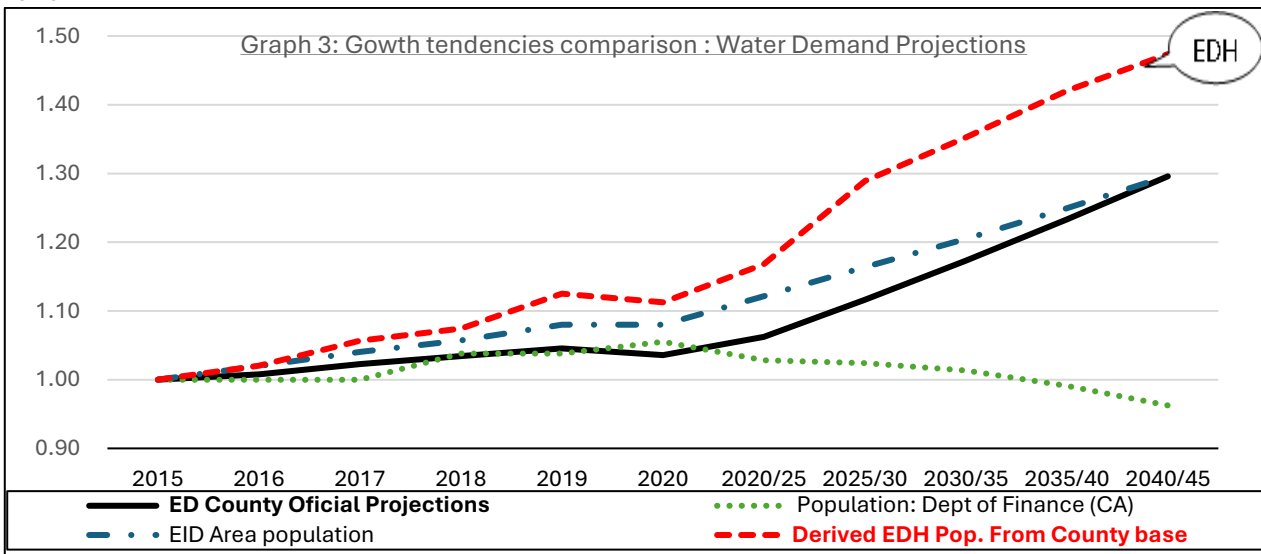
### SECTION ONE - WATER DEMAND

#### Population

In general terms, the demand for water is said to be based on population growth for El Dorado County. The graph below gives the population – historic and projected - for each area within the County.

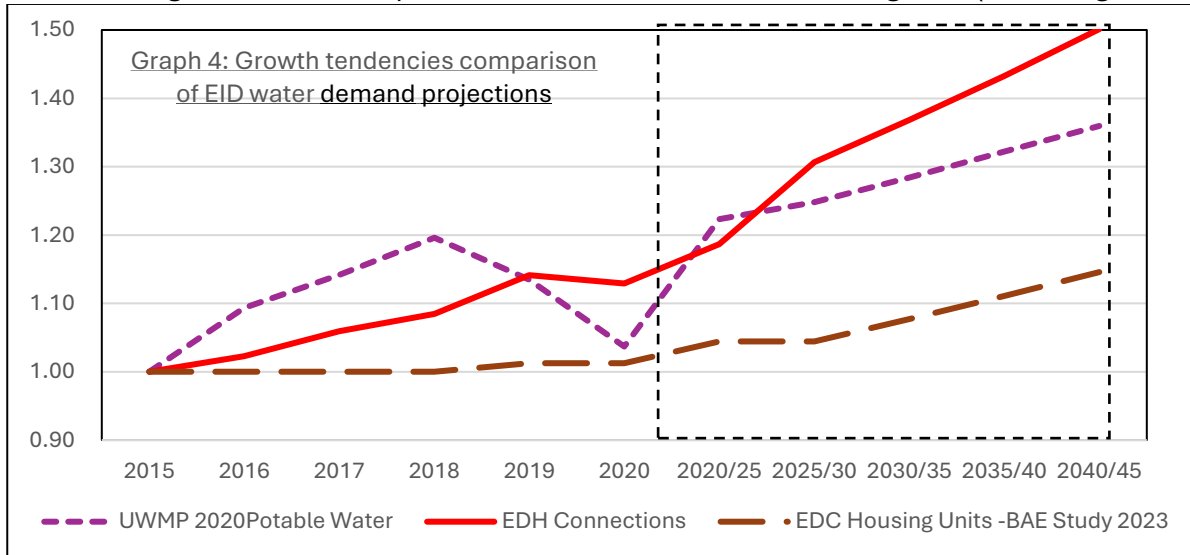


In projecting demand, it is necessary to measure the tendency (of growth) for each area referenced with base 100=2015 .....

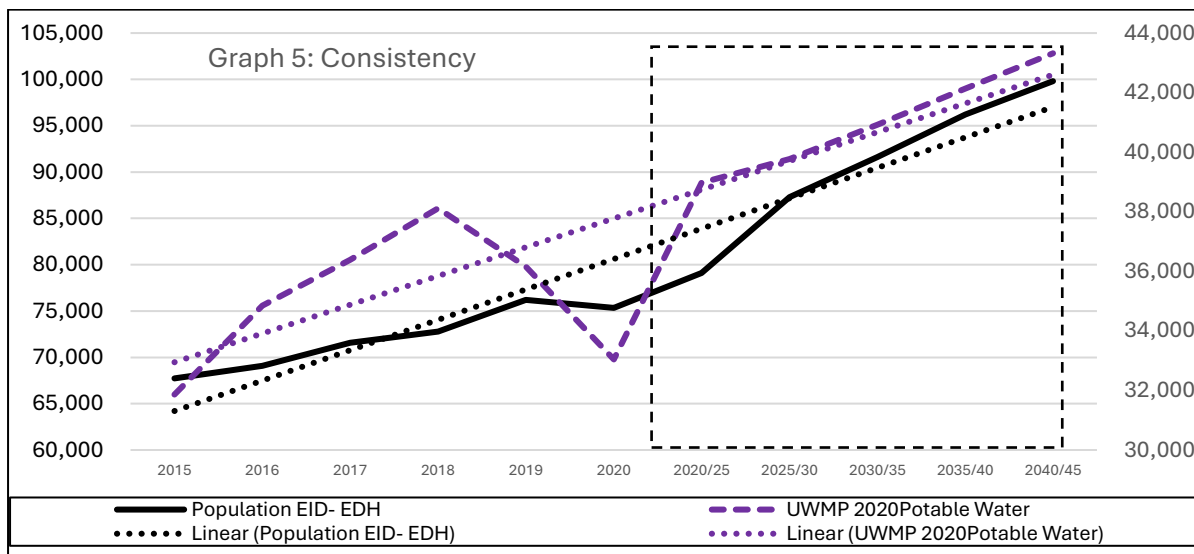


One should note that given County population data, EDH is to grow at a much faster rate than other areas. It is this projection I use in determining EDH area’s growth in residential units.

Graph 4 shows EID’s growth criteria for potable water, connections and housing units (according to BAE).



By visual inspection – given that both graphs 3 & 4 are on the same base 1.00 scale -one may conclude that, depending on what projection is taken, the resulting prediction shall be different. Fortunately, one set of data that - visually – gives one comfort, as indicated in graph 5. Both the EID “official” population projection and the UWMP potable demand projection have a similar slope.

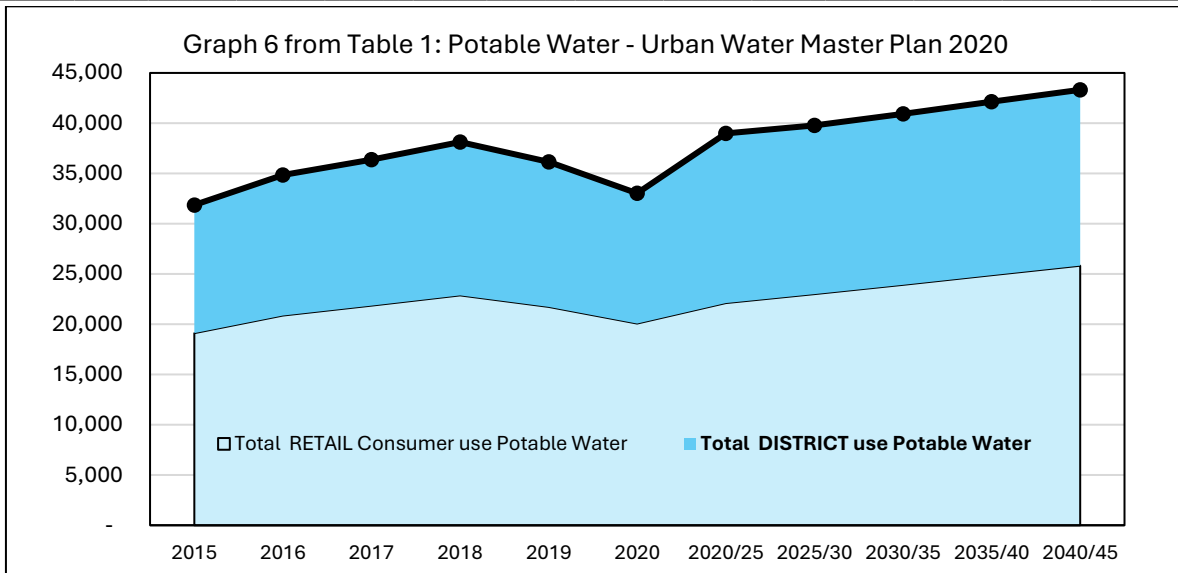


**UWMP 2020 Projections: Table 1**

Urban Water Master Plan 2020	2015	2016	2017	2018	2019	2020	2020/25	2025/30	2030/35	2035/40	2040/45
EDH Consumer use Potable Water	9,570	10,197	11,099	11,385	11,078	12,220					
West + East service areas	9,544	10,675	10,743	11,472	10,635	7,850					
<b>Total Retail Consumer use Potable W</b>	<b>19,114</b>	<b>20,872</b>	<b>21,842</b>	<b>22,857</b>	<b>21,713</b>	<b>20,070</b>	<b>22,110</b>	<b>23,010</b>	<b>23,910</b>	<b>24,880</b>	<b>25,820</b>
City Pville+ditc+other+recycle	1,830	2,047	2,060	2,200	2,039	1,505	4,240	4,240	4,240	4,240	4,240
<b>Other+Ag.potb.+Loss</b>	<b>10,919</b>	<b>11,923</b>	<b>12,477</b>	<b>13,057</b>	<b>12,403</b>	<b>11,465</b>	<b>12,630</b>	<b>12,520</b>	<b>12,770</b>	<b>13,010</b>	<b>13,260</b>
<b>Total DISTRICT use Potable Water</b>	<b>31,863</b>	<b>34,842</b>	<b>36,379</b>	<b>38,114</b>	<b>36,156</b>	<b>33,040</b>	<b>38,980</b>	<b>39,770</b>	<b>40,920</b>	<b>42,130</b>	<b>43,320</b>

This table is a composite of several EID tables in the UWMP 2020

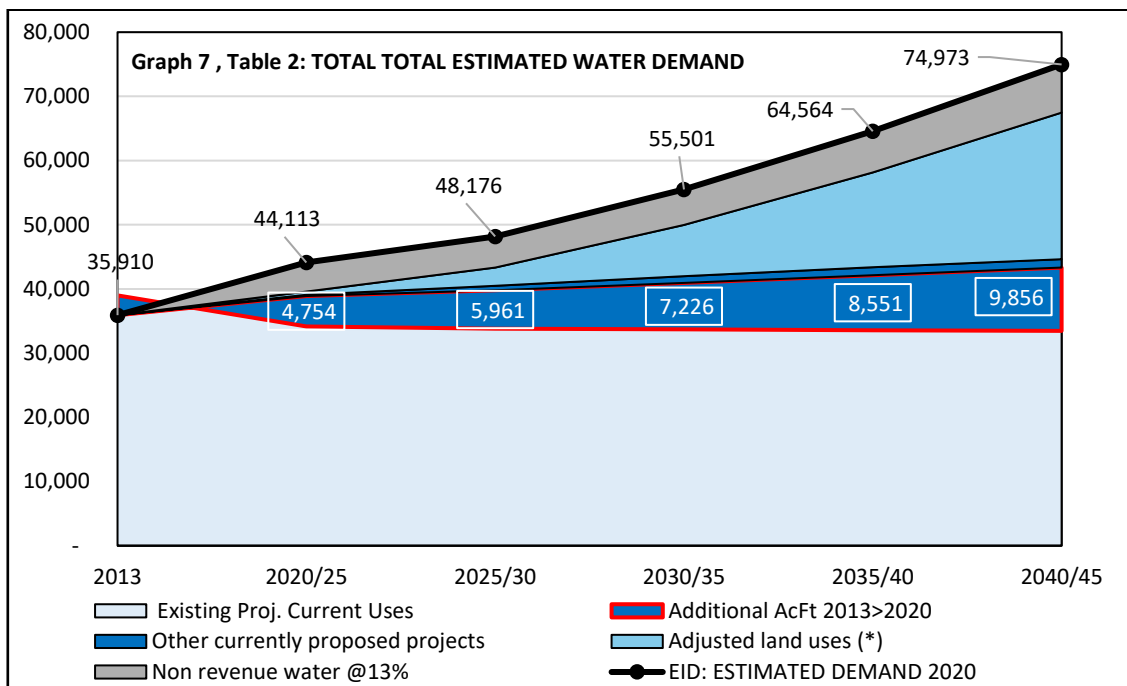
Graph 6 below is comprised of above data lines: Total Retail Consumer Potable Water (61% of total in 2020) and Total District Potable Water to give EIDs aggregate potable water demand.



EID's Projected Aggregate Demand - Table 2 in ac. ft.

Water Supply Asst Table 3-2(2013)	(FINAL) ESTIMATED WATER DEMAND					
Table 3-1, pg 3-8	2013	2020/25	2025/30	2030/35	2035/40	2040/45
Existing Proj. Current Uses	38,984	34,154	33,809	33,694	33,579	33,464
Other currently proposed projects	0	163	696	1,052	1,272	1,332
Adjusted land uses	0	514	2,853	7,975	14,718	22,830
Non revenue water @13%	0	4,528	4,857	5,554	6,444	7,491
<b>TOTAL Ac.Ft. DEMAND (2013)</b>	<b>38,984</b>	<b>39,359</b>	<b>42,215</b>	<b>48,275</b>	<b>56,013</b>	<b>65,117</b>
Dif: UWMP 2020 (-) Demand 2013	(3,074)	4,754	5,961	7,226	8,551	9,856
<b>EID: ESTIMATED DEMAND 2020</b>	<b>35,910</b>	<b>44,113</b>	<b>48,176</b>	<b>55,501</b>	<b>64,564</b>	<b>74,973</b>
<b>EDH: ESTIMATED DEMAND 2020</b>	<b>10,313</b>	<b>12,669</b>	<b>13,836</b>	<b>15,940</b>	<b>18,543</b>	<b>21,532</b>

Note, the table was constructed from information given by EID in various reports and aggregated by me. It is not an EID (or Tully) table.



Note: Adjusted land Uses do NOT include those projects undergoing CEQA (since 2013)

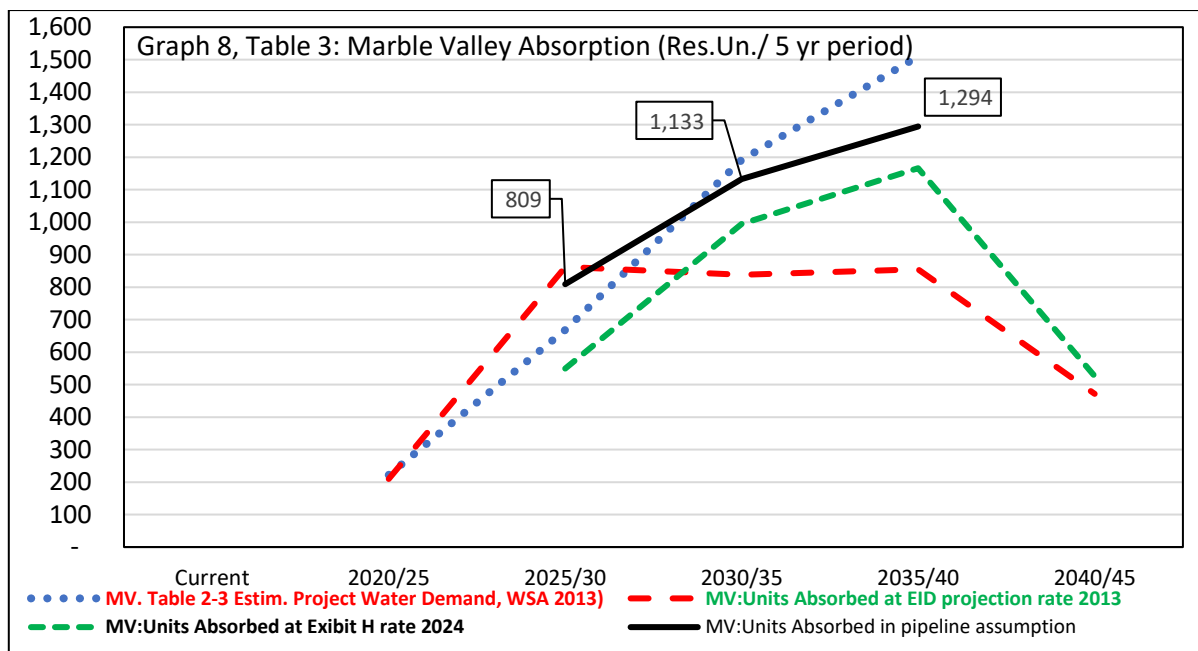
## SECTION TWO: PIPELINE ANALYSIS

### Marble Valley Absorptions

It appears that Marble Valley has projected – either stated in units or implied in acre feet- various absorptions rates as shown in Table 3 & Graph 8, below.

(\*) Absorption refers to the number of units sold during a defined period (year) within a specific market area.)

Table 3 - Marble Valley	Current	2020/25	2025/30	2030/35	2035/40	2040/45	TOTAL
MV. Table 2-3 Estim. Project Water Demand, V		222	669	1,192	1,510		3,593
MV:Units Absorbed at EID projection rate 2013		210	862	838	855	471	3,236
MV:Units Absorbed at Exhibit H rate 2024			549	995	1,166	526	3,236
<b>MV:Units Absorbed in pipeline assumption</b>			<b>809</b>	<b>1,133</b>	<b>1,294</b>		<b>3,236</b>



I point out these various Marble Valley absorptions to show the difference between EID’s projections and mine for Marble Valley. The observation I make is the absorption changes over time over eleven years. In short, I doubt that the projection in Exhibit H reflects Marble Valley LLC’s expectations, because if true their IRR/ NPV would be very low. In short, Marble Valley’s water demand should reflect their expected absorption based on a market study that would also predict EID’s water demand expectations.

### Projected Absorption in residential units (see Exhibit 7).

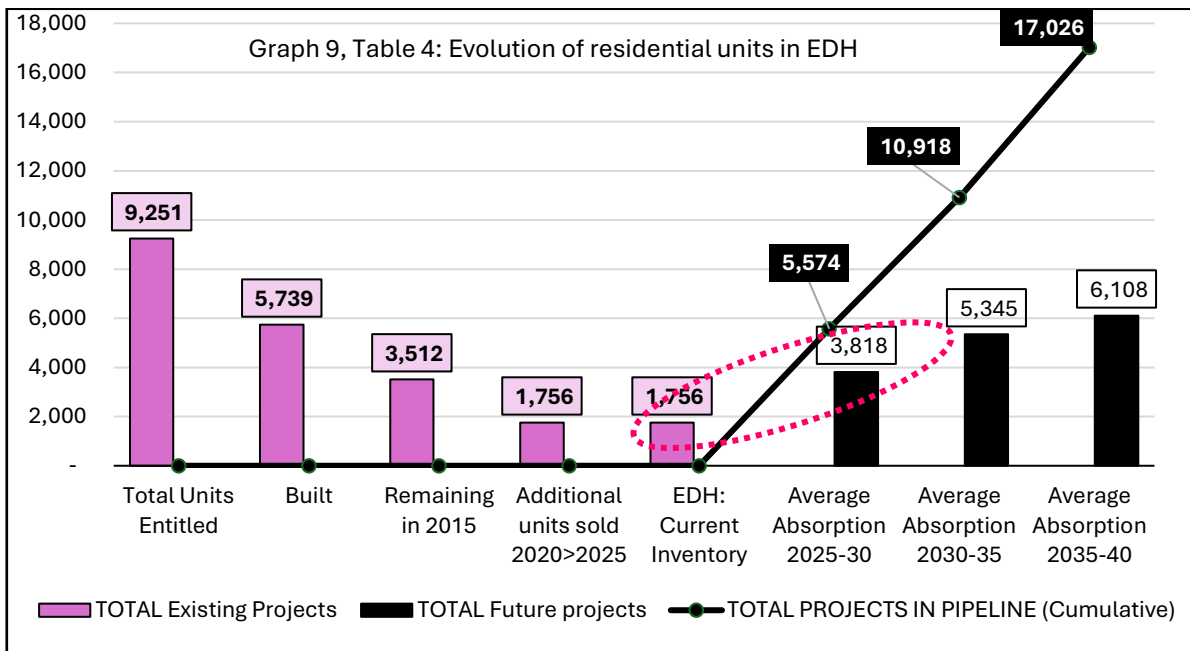
A critical difference between my pipeline projection for the EDH area and those stated, or implied, in EID Studies, is the absorption of residential units over time. EID projects project by population growth and translates that growth into units and acres to project acre feet of water. (Table 2-3 Estimated Project Water Demand, Water Supply Assessment 2013).

The key difference between EID’s water demand projections and mine, is that my predictor variable for demand is in the residential unit. While EID’s demand is predicted using an average factor of 0.674\* ac. ft. per dwelling unit. (Note: I obtained this ratio based on \*Table 2-3- Marble Valley, Water Supply Assessment 2013).

Table 8 and Graph 8 show the evolution of residential units in the EDH area. The short term 2025-30 period is critical due to the 1756 net units in 2020/25 plus 3818 units projected to be absorbed to give a significant inventory of 5574 units by 2030, presuming an annual sales rate of 1115 units a year. This rate suggests that each of the eighteen (18) projects in the EDH area must sell an average of 62 units per year; very aggressive. However, EID has no option other than to plan for this extraordinary pipeline.

Note: I have not added an estimate for commercial, industrial and landscape water demand that could be 30%\* more to arrive at the Equivalent Dwelling Unit (EDU) that is used for projecting water demand. (\* Table 2-3- MV Water Supply Assessment 2013). The actual demand projection could be understated by as much as 30%. I chose not to add this factor because the forecast is dire enough as it is.

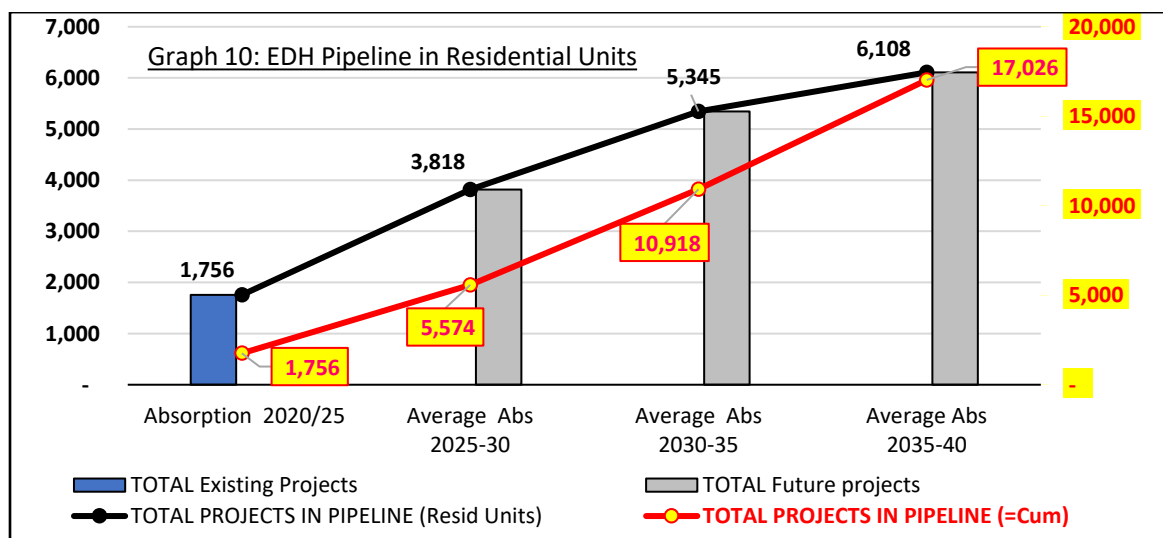
Table 4: Currently approved projects in the EDH Area	Total Units Entitled	Built	Remaining in 2015	Additional units sold 2020>2025	EDH: Current Inventory	Average Absorption 2025-30	Average Absorption 2030-35	Average Absorption 2035-40	"PIPELINE" TOTAL RES. UNITS
TOTAL Existing Projects	9,251	5,739	3,512	1,756	1,756	-	-	-	1,756
TOTAL Future projects						3,818	5,345	6,108	15,270
<b>TOTAL PROJECTS IN PIPELINE</b>	<b>9,251</b>	<b>5,739</b>	<b>3,512</b>	<b>1,756</b>	<b>1,756</b>	<b>3,818</b>	<b>5,345</b>	<b>6,108</b>	<b>17,026</b>
<b>TOTAL PROJECTS IN PIPELINE (Cumulative)</b>						<b>5,574</b>	<b>10,918</b>	<b>17,026</b>	



The 2025/30 absorption period is particularly important for EID to determine with greater accuracy because it is “the” variable that determines – as we shall see – EDH’s deficit of water supply in the short run.

Pipeline Analysis

In developer speak the number of residential units existing and approved for a given area is “the pipeline” and crucial to determine. This is one set of data EID has not undertaken. All EID studies refer to “projects in your area” (County Website) in the entitlement (CEQA) process. There is no attempt to establish the pipelines impact on supply of water. **Note: It is the – red- “cumulative” pipeline used to compare with EID data.**

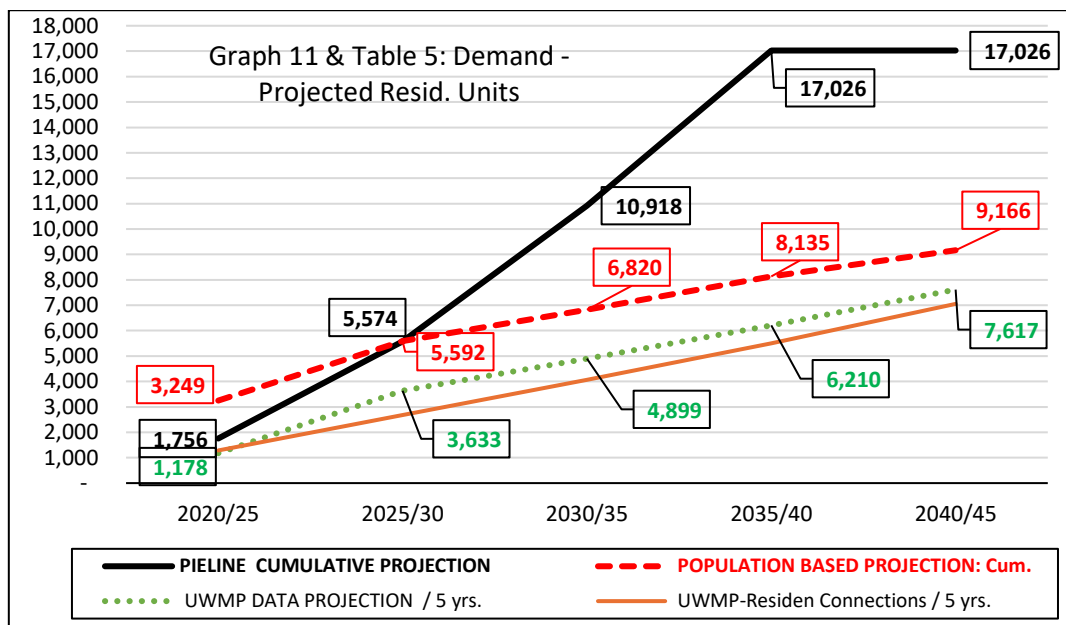


**EDH Water Demand Projections**

Using the same factor per dwelling unit as EID for UWMP data (0.674 ac. ft. per dwelling unit) one can compare the Projects in the Pipeline in the EID area in Table 5 and Graph 11 below.

**Table 5: Cumulative Residential Units**

<b>PROJECTIONS : Cumulative</b>	<b>2020/25</b>	<b>2025/30</b>	<b>2030/35</b>	<b>2035/40</b>	<b>2040/45</b>
PIELINE CUMULATIVE PROJECTION	1,756	5,574	10,918	17,026	17,026
POPULATION BASED PROJECTION: Cum.	3,249	5,592	6,820	8,135	9,166
UWMP DATA PROJECTION / 5 yrs.	1,178	3,633	4,899	6,210	7,617
UWMP-Residen Connections / 5 yrs.	<b>1,285</b>	<b>2,683</b>	<b>4,068</b>	<b>5,506</b>	<b>7,054</b>



Note, the difference between my pipeline absorption and EID’s is significant.

**SECTION THREE: WATER SUPPLY**

Exhibits 8>10 give the background to Table 10 below and highlights the water availability per period. EID and its consultants have updated the availability constantly depending on the infrastructure improvements made. However, I note that many supply figures (from 2015 to 2024) are couched with caveats. To make any water supply predictions for 2025/35 period this data must be assessed again today with realistic completion dates rather than caveats designed to cover oneself.

**Table 6: Water Supply for EID Area**

<b>EID AREA - SUPPLY</b>	<b>In Use</b>	<b>Ac. Feet</b>	<b>Long term</b>	<b>Very Long</b>	<b>TOTAL</b>
Sub Total Existing Contracts	23,000	27,190	17,000	-	<b>67,190</b>
Sub Total Planned	-	-	7,500	30,000	<b>37,500</b>
Recycled water	2,800	-	-	-	<b>2,800</b>
<b>TOTAL Acre Feet</b>	<b>25,800</b>	<b>27,190</b>	<b>24,500</b>	<b>30,000</b>	<b>107,490</b>
<b>CUMULATIVE SUPPLY</b>	<b>25,800</b>	<b>52,990</b>	<b>77,490</b>	<b>107,490</b>	
<b>EDH CUMULATIVE SUPPLY</b>	<b>7,410</b>	<b>15,219</b>	<b>22,255</b>	<b>30,871</b>	

Note that the table is consistent with the totals given by EID in their public service infrastructure: EID MSR & SOI Update pages 7-16.

**EDH Water Supply**

Unfortunately, EID does not give – or I could not find– EDH’s supply broken out from the above table. I developed a ratio from EID’s 2019 supply breakdown where I determined that EDH uses 28.7% of EID total supply. The table below summarizes my assumptions:

- EDH takes 42.1% of the EID total supply, Table 11.

	<b>Tota EID</b>		<b>EDH</b>	<b>Other + P'ville</b>	<b>Est+West+otr</b>
	<b>Acre Feet</b>	<b>100.0%</b>	<b>42.1%</b>	<b>17.4%</b>	<b>40.5%</b>
<b>Sub Total Residential area</b>	<b>14,684</b>	<b>55.9%</b>	8,926	-	5,758
<b>Sub Total ommer +Ldsc+Tf</b>	<b>3,225</b>	<b>12.3%</b>	2,015	-	1,210
Sub Total Ag	<b>3,803</b>	14.5%	137	-	3,666
Sub Total P'ville + other	<b>4,571</b>	17.4%	-	4,571	-
<b>Total Usage 2019</b>	<b>26,283</b>	<b>100.0%</b>	<b>11,078</b>	<b>4,571</b>	<b>10,634</b>

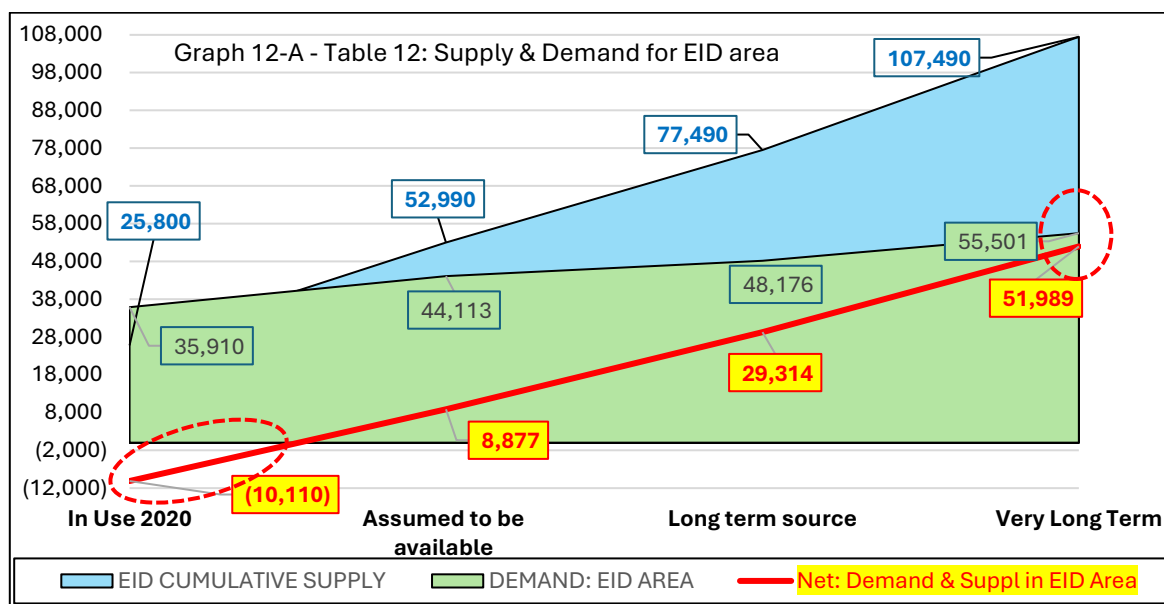
- Where (residential takes 55.9% of total plus 12.3% for commercial uses etc. to give EDH a total of 68.2%; that when multiplied by 42.1%-acre feet of water share, gives a **factor of 28.7%** representing EDH's share of total EID water supply.

I detail this assumption because it is critical in determining the supply and demand estimate for the EDH area. Neither Tully & Young nor the Proponent (Marble Valley LLC) make this distinction. It is only with this desegregation can anyone make the necessary **nexus** with EID's acre feet projections and the EDH pipeline. The positive supply availability statements made rely exclusively on EID's total supply to reach their availability supply statements regarding EDH. I maintain that this is erroneous because it is not that EID Area has a problem of water supply, but EDH as an area within EID that does.

### SECTION FOUR: SUPPLY & DEMAND

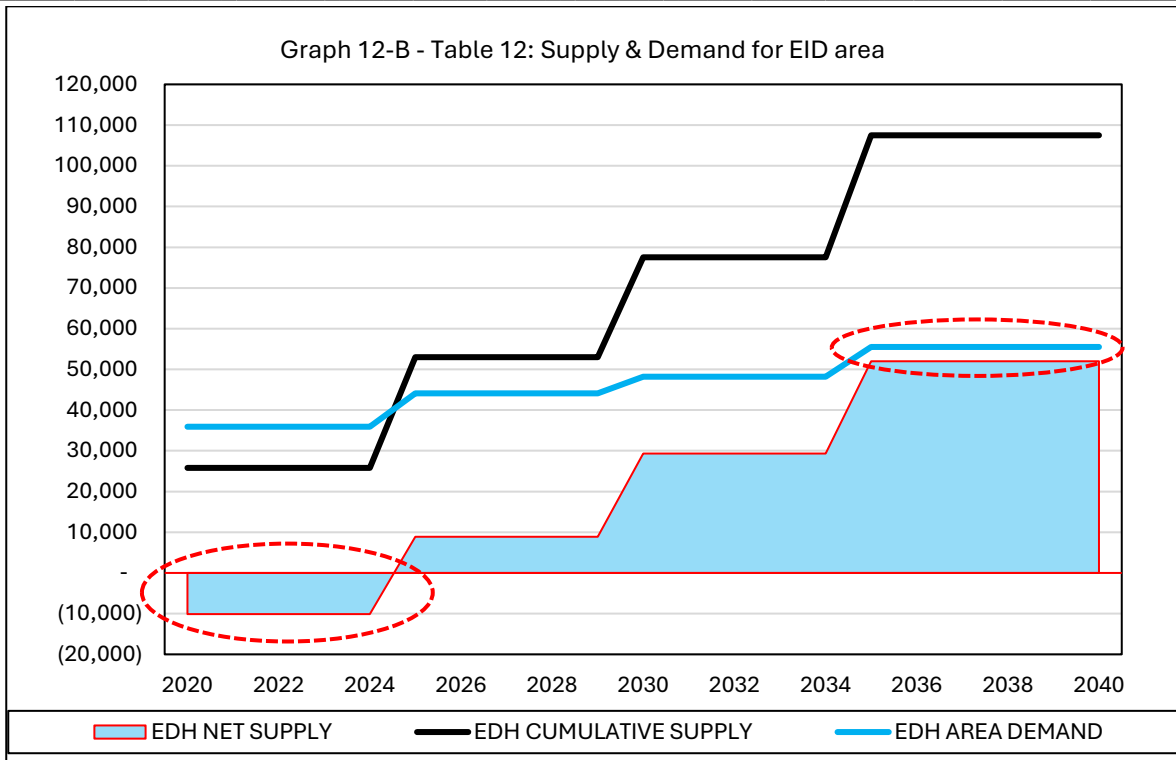
Supply & demand for the EID area (Table 12).

SUPPLY & DEMAND for EID area (in Ac.Ft)	In Use 2020	Assumed to be available	Long term source	Very Long Term
EID CUMULATIVE SUPPLY	25,800	52,990	77,490	107,490
DEMAND: EID AREA	35,910	44,113	48,176	55,501
<b>Net: Demand &amp; Suppl in EID Area</b>	<b>(10,110)</b>	<b>8,877</b>	<b>29,314</b>	<b>51,989</b>



Maybe viewing the data in a different graph (12-B) shall illustrate EID's overall supply and demand situation better showing a small deficit in the 2020/25 period largely because of the net water demand of approved projects in the area. The data also shows that in the very long term the S&D balance is "thin".

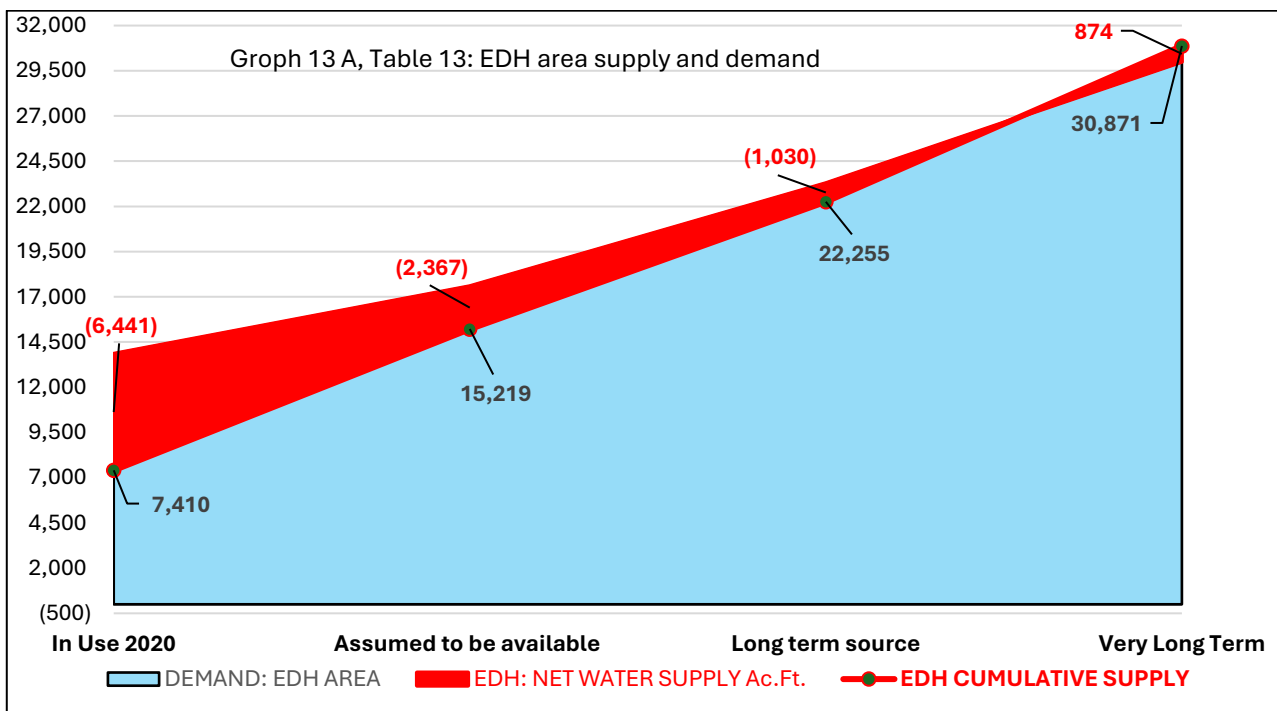


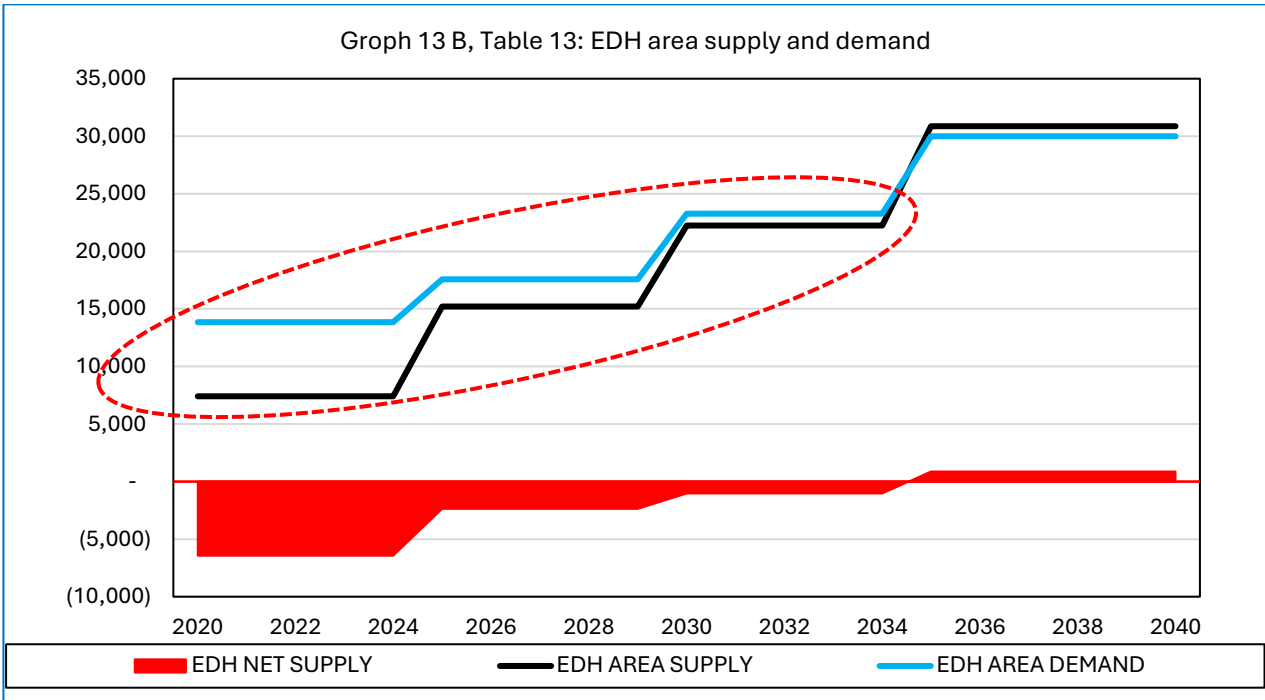


Conclusion: The EID area is not particularly threatened by a deficit of supply except possibly in the short run. However, this is largely dependent on the current net demand situation, that given the coarseness of the demand data derived requires better market data.

Supply & demand for the EDH area (Table 13)

EDH AREA: SUPPLY & DEMAND (in	In Use 2020	Assumed to	Long term	Very Long
EDH CUMULATIVE SUPPLY	7,410	15,219	22,255	30,871
DEMAND: EDH AREA	13,851	17,586	23,285	29,997
<b>EDH: NET WATER SUPPLY Ac.Ft.</b>	<b>(6,441)</b>	<b>(2,367)</b>	<b>(1,030)</b>	<b>874</b>





The data suggests that on a local - EDH -level the supply and demand situation appear in a deficit of supply, not only in the short run, but also in the medium and long term.

**Sensitivity Analysis**

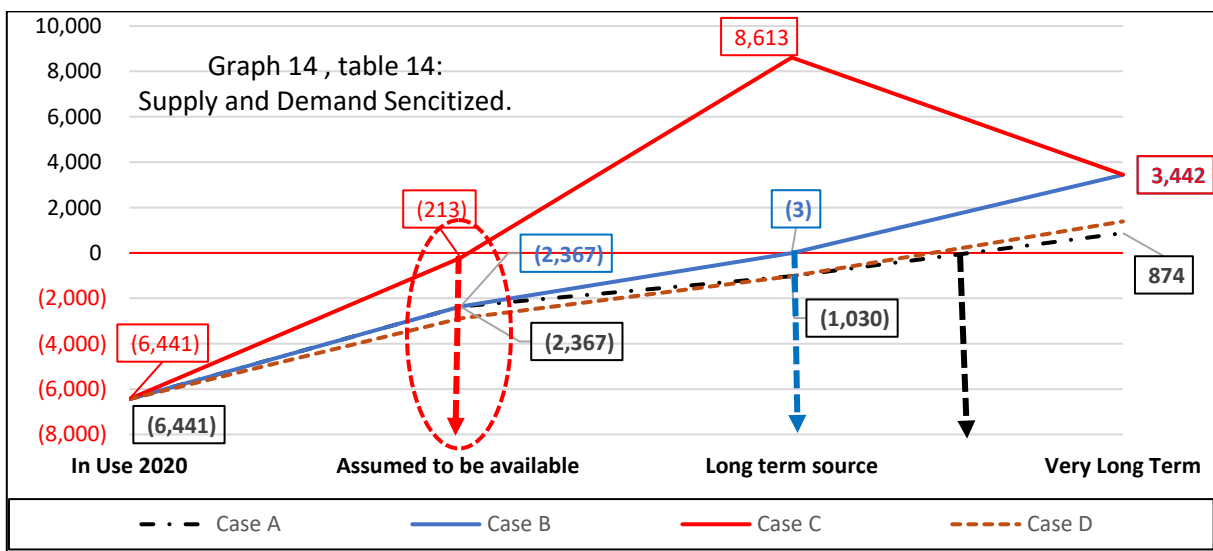
This study would be incomplete unless a sensitivity analysis were conducted on the two of the most sensitive variables to assess the severity of supply and demand imbalance:

- For water supply, which in this case is dependent on EID’s capital investment program to secure the water right in Exhibits 8 & 9; and
- the predicted absorption of residential units in the EDH area – particularly in the short run.

Table 14: Variables sensitized (in red).

EDH Area	In Use 2020	Assumed to be available	Long term source	Very Long Term	Base Case	Average Absorption 2025-30	Average Absorption 2030-35	Average Absorption 2035-40	Average Absorption 2035-40	AcFt brought forward "assumed available" 2025-30
Case A	(6,441)	(2,367)	(1,030)	874		25%	35%	40%	0%	
Case B	(6,441)	(2,367)	(3)	3,442		25%	25%	25%	25%	
Case C	(6,441)	(213)	8,613	3,442		25%	25%	25%	25%	37500 ac.ft. planned.
Case D	(6,441)	(2,881)	(1,030)	1,388		30%	30%	35%	5%	37500 ac.ft. planned.

I modified the absorption to benefit the overall availability of water and in one case brought forward Permit 2112 (Warren Act) 17000 ac. Ft.+ CVP Contract- Fazio 7500 ac. Ft. Below the results graphed for the EDH area:



As the arrows show, no matter what, EDH has an imbalance of supply of water, particularly in the short run.

Summary:

Given the positive assertion that: “there is sufficient water to cover the needs of all EDH projects” in general and Marble Valley and Lime Rock Valley Specific Plans, in particular; is false.

The main issue of imbalance in the medium and long term is the certainty of water rights secured and capital improvements achieved, see Exhibit 8 & 9. It is beyond my ability and the scope of this work to make any qualifying remark other than to say; I am uncomfortable with the caveats made in memoranda qualifying EID’s water availability. To quote one such caveat\*: “The water rights applications and environmental analysis are still pending”. And “the District cannot predict whether or when El Dorado Water Reliability Project may be approved”. Indeed, the Tully and Young Memo of May 30, 2014, is rife with caveats that are now eleven ten years old.

Admittedly EID has achieved much since 2013, however, to continue to write long memos and outdated references in the Marble Valley DEIR underscoring the water rights secured and capital improvements made, it is imperative that a fresh review of these critical issues are factually reviewed, and if possible, qualified by a concrete probability (0 to 100) to give a measure of credibility as to water supply.

(\*MSR & SOI Update (final) Public -Service & Infrastructure, page 7-16 in reference to 2010 EDWPA’s environmental report).

## **SECTION FIVE: CONCLUSION**

At this point, all I can say to EDH-APAC is: “Houston we have a problem”. The fact that 17000 units are planned in the EDH area should give anyone reason to question the availability of water for such a fantastic, planned demand.

Throughout the DEIRs from 2013 to 2024 there are statements concluding that there “is” sufficient water to attend Marble Valley’s (and Lime Rock’s) potable water needs. I suggest that this is not true for the EDU area.

I sustain that APAC make the following comment on the Marble Valley DEIR 2024:

Regarding Appendix B - Consistency with the El Dorado County General Plan in objective 5.2.1.2 and 5.2.1.4:  
The attached memorandum forwarded by an APAC Member suggests that:

➤ The Project Consistency statement made that there “is” sufficiency of water is not true.

And as a recommendation state:

➤ The County must insist that the proponent, Marble Valley LLC have a full and proper update of the SB 610 Water Supply Assessment of August 2013 by Tully & Young updated prior to proceeding with any hearing by the Planning Commission for such a project.