

Water Demand Report: Thunderhead Beach



April 12, 2024

Mr. Frank Alfone
Mount Werner Water
3310 Clearwater Trail
PO Box 880339
Steamboat Springs, Colorado 80488

**Re: Water Demand Report
Thunderhead Beach – Development Plan, Steamboat Springs, Colorado**

Dear Mr. Alfone:

Landmark Consultants, Inc. (Landmark) is providing this Water Demand Report to accompany the Development Plan application for the Thunderhead Beach project. The objective of our study was to quantify and present Mt. Werner Water with an estimated Equivalent Residential Unit (EQR) value.

That report was prepared using information primarily from the “Water Supply Master Plan, City of Steamboat Springs and Mount Werner Water & Sanitation”, by Applegate Group, Inc. (August 16, 2019), the “2020 Water Distribution and Wastewater Collection Infrastructure Master Plan” by Baseline (April 2021), and the proposed unit mix data provided by the architect. Using the provided information and described references, Landmark determined that the project is expected to generate **212 EQRs**.

Please note that modifications to the proposed project may require an update to that report.

If you have any questions during your review process, feel free to contact us.

Sincerely,

Landmark Consultants, Inc.

Matt Geraci, P.E.

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1.0 INTRODUCTION, LOCATION, AND METHODOLOGY

This letter is an analysis of water demands anticipated for the development proposed at Lot 1, Thunderhead Subdivision, formerly known as Tract D (Thunderhead Parking Lot), together with Tract E (Thunderhead Condominiums) and Tract F (Thunderhead Lodge). This letter includes all the base data, methods, assumptions, and calculations used by Landmark Consultants, Inc. (Landmark).

Landmark prepared this letter in accordance with Section 25-78 of the City of Steamboat Springs Municipal Code for the purpose of quantifying the water demand per the proposal at the time of this letter. This letter may not be used by other parties without the express written consent of Landmark.

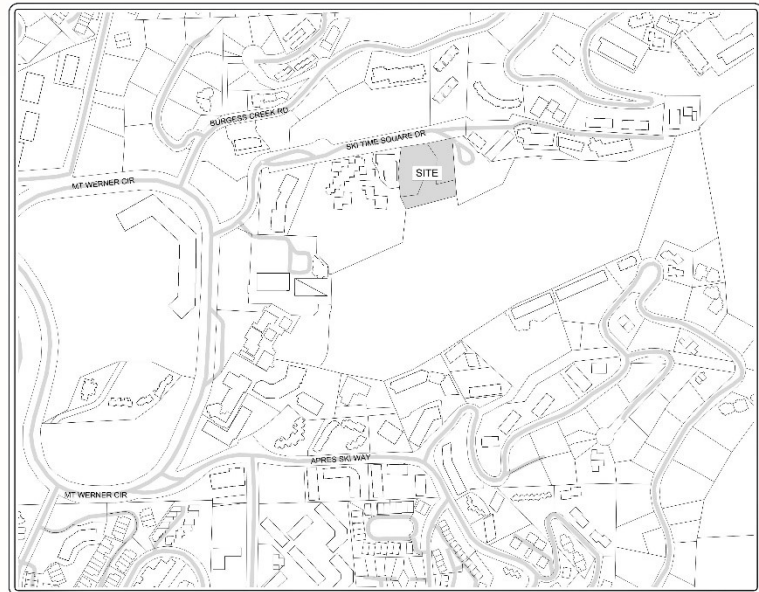


Figure 1- Vicinity Map

The facts and opinions expressed in this letter are based on Landmark's understanding of the project and data gathered from:

- Plans prepared by Landmark
- Plans provided by OZ Architecture (OZ)
- Water Supply Master Plan, City of Steamboat Springs and Mount Werner Water & Sanitation, by Applegate Group, Inc. August 16, 2019 (referred herein as **Master Plan**)
- 2020 Water Distribution and Wastewater Collection Infrastructure Master Plan, Baseline, April 2021
- Water and Wastewater Master Plan Updates, McLaughlin Water, December, 2009
- Mt. Werner Water Water/Sewer System Maps

The subject property is located on Lot 1, Thunderhead Subdivision (Pending Replat). This lot is approximately 2.48 acres and is located in the Southwest $\frac{1}{4}$ of Section 22, Township 6 North, Range 84 West of the 6th Principal Meridian, City of Steamboat Springs, Routt County, Colorado. Specifically, the site is located south of Ski Time Square Drive, between the Torian Plum (Hotel) and T-Bar (Restaurant). Please refer to Figure 1 – Vicinity Map for the subject property location.

EQUIVALENT RESIDENTIAL UNIT (EQR) METHODOLOGY

The Master Plan uses the Equivalent Residential Unit (EQR) method as a standard unit of measurement for equating water demands and wastewater flows for different user categories. The assigned water demand value per EQR has been the subject of recent studies conducted on behalf of Mount Werner

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Water & Sanitation District and the City of Steamboat Springs. Per the Master Plan, 187 gpd per EQR reflects the current unit demand for the District.

The correlation of proposed Land-Uses to EQRs was based on values that first appeared in the “Water and Wastewater Master Plan Updates” by McLaughlin Water (December, 2009) and were referenced in the Master Plan. These are shown in Figure 2:

Figure 2 – EQR by Land-Use:

Type	EQR Units
Single Family Residence	1.00
Single Family Estate	1.50
Multi-Family (2 Bedroom)	0.85
Multi-Family (3 Bedroom)	1.05
Multi-Family (4 Bedroom)	1.25
Mobile Homes	1.00
Commercial	4.44/acre
Industrial	2.13
Parks/Open Space	Site Specific

The Project is a mixed-use building in the G-2 Zone District. This zone district is intended to provide areas for resort-oriented, high-intensity commercial uses and high-density residential and lodging to complement and support the Steamboat Springs Base Area. The Development Plan proposes the following uses:

Figure 3 – Proposed Uses:

DP - PROPOSED USES	
ENTITLEMENT USE TYPE	GROSS AREA
ADMIN/FRONT OF HOUSE	7,369 SF
BUILDING SERVICES (BACK OF HOUSE, CIRCULATION, SERVICE, ETC)	73,942 SF
COMMERCIAL - RETAIL	13,467 SF
HOTEL	22,541 SF
HOTEL AMENITY	14,255 SF
PARKING GARAGE	83,849 SF
SELLABLE RESIDENTIAL (SEE BREAKDOWN)	231,396 SF
GROSS TOTAL SQUARE FEET	446,819 SF

DP - DWELLING UNIT SCHEDULE	
UNIT TYPE	# OF KEYS
1 BED	17
2 BED	53
3 BED	40
4 BED	9
LOCKOFF	64
Grand total	183

DP - HOTEL UNIT SCHEDULE	
NAME	# OF UNITS
HOTEL	40
Grand total	40

DP - PARKING BREAKDOWN		
LEVEL	TYPE	PARKING SPACES
LEVEL P2	STANDARD	91
LEVEL P2	TANDEM	11
LEVEL P2	VALET	12
LEVEL P1	VALET	5
LEVEL P1.5	ACCESSIBLE	3
LEVEL P1.5	STANDARD	65
LEVEL P1.5	VALET	19
LEVEL 1	ACCESSIBLE	2
LEVEL 1	STANDARD	41
LEVEL 1	VALET	8
LEVEL 1	VAN ACCESSIBLE	2
		259

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The Water Demand Calculations are shown in the Appendix. Using the provided information and described references, Landmark determined that the project is expected to generate **212 EQRs**.

LIMITATIONS

This study is intended to estimate anticipated future treated water demands that could result from full buildout for the proposed Project in order for Mt. Werner Water and the City of Steamboat Springs to evaluate existing infrastructure capacities and review future capital improvements. It does not account for inflow and infiltration.

Landmark's assumptions, recommendations and opinions are based on the information described herein – discrepancies may exist. If any of the data is found to be inaccurate or the proposed site plan is changed, Landmark should be contacted to review this report and make any necessary revisions.

The data, opinions, and recommendations of this report are applicable to the specific design elements and location that is the subject of this report. This report is not applicable to any other design elements or to any other locations. Any and subsequent users accept all liability resulting from any use or reuse of the data, opinions, and recommendation without the prior written consent of Landmark Consultants, Inc.

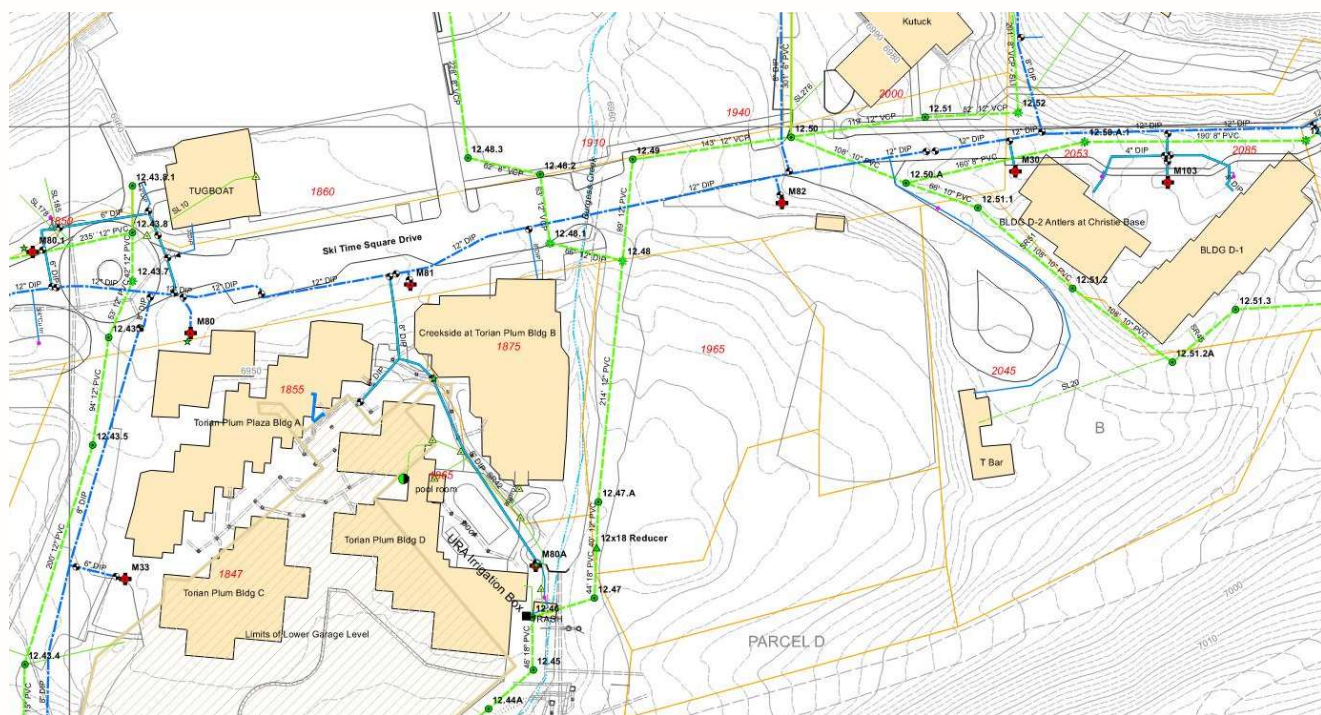
Landmark Consultants, Inc. has no responsibility for construction means, methods, techniques, sequences, or procedures, or for safety precautions or programs in connection with the construction, for the acts or omissions of the contractor, or any other person performing any of the construction, or for the failure of any of them to carry out the construction in accordance with the Final Construction Drawings and Specifications.

The only warranty or guarantee made by Landmark Consultants, Inc. in connection with the services performed for this project is that such services are performed with the care and skill ordinarily exercised by members of the profession practicing under similar conditions, at the same time, and in the same or similar locality. No other warranty, expressed or implied, is made or intended by rendering such services or by furnishing written reports of the findings.



Appendix

WATER SYSTEM MAP





CIVIL ENGINEERS | SURVEYORS

**141 9th Street ~ P.O. Box 774943
Steamboat Springs, Colorado 80477
(970) 871-9494
www.LANDMARK-CO.com**

PROJECT 2633-003; Thunderhead Beach

DESIGNER E. Griepentrog

DATE 4/12/2024

LOCATION Steamboat Springs, CO

Thunderhead Beach

Water Usage Calculations

Assumptions based on City of Steamboat Springs and Mount Werner Water & Sanitation District Water Supply Master Plan (August 16, 2019)

WATER DEMAND CALCULATIONS

Description/ Land Use	Assigned EQR Value ³	Acres	Units	Equivalent Residential Units (EQR)	Assumptions:				Calculations:		
					Assumed Demand ⁴	Average Day	Max Day ¹	Max Hour ²	Average Day	Max Day	Max Hour
					(gal /day /EQR)	(gpm/EQR)	(gpm/EQR)	(gpm/EQR)	(gpm)	(gpm)	(gpm)
Hotel Units	0.85	N/A	40	34	187	0.13	0.31	0.62	4	11	21
Lockoff	0.85	N/A	64	54	187	0.13	0.31	0.62	7	17	34
1 Bedroom Units	0.85	N/A	17	14	187	0.13	0.31	0.62	2	5	9
2 Bedroom Units	0.85	N/A	53	45	187	0.13	0.31	0.62	6	14	28
3 Bedroom Units	1.05	N/A	40	42	187	0.13	0.31	0.62	5	13	26
4 Bedroom Units	1.25	N/A	9	11	187	0.13	0.31	0.62	1	4	7
Commercial ⁵	4.44	2.50	N/A	11	187	0.13	0.31	0.62	1	3	7
N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
TOTAL =				212					28	66	94

¹Assumed Max Day peaking factor is 2.4 times the Average Day

²Assumed Max Hour is 2.0 times Maximum Day

³Values from Water and Wastewater Master Plan Updates, McLaughlin Water, December 2009. These were referenced in the 2019 Water Supply Master Plan.

⁴Demand per EQR varies per Study and is subject to change based on trends. 186 per EQR from Water Supply Master Plan

⁵Commercial includes Front of House, Back of House, Amenities, and Retail for this project

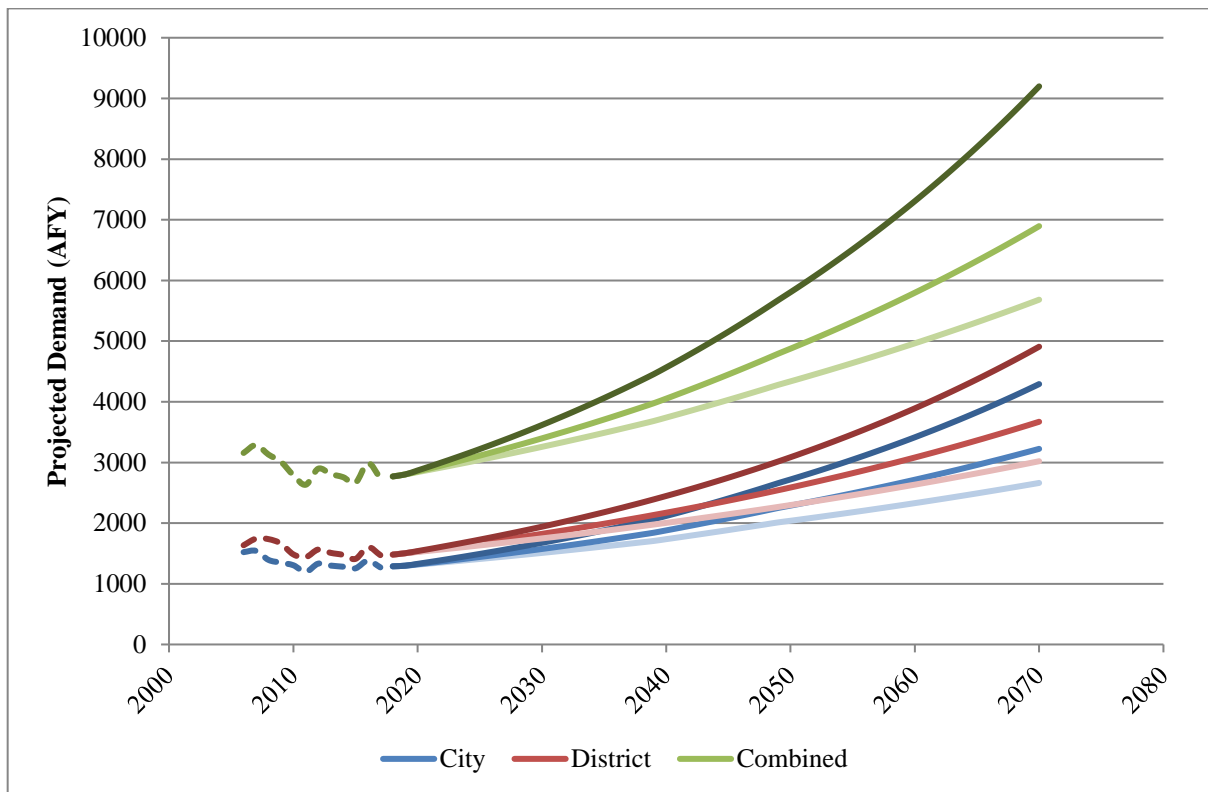


FIGURE 27. PROJECTED DEMAND WITH SCALED EQR BY ANNUAL POPULATION (EQR-A).²⁰

EQR-B

Demands projected using the EQR B method described previously (i.e., assume EQRs grow at a constant rate based on the 2006 to 2008 average annual increase) were developed by multiplying the projected EQRs by the current (2017) EQR unit demand. Current unit demand was 185 gpd per EQR for the City, 187 gpd per EQR for the District and 186 per EQR for combined. Steamboat II demands for the EQR-B method were added based on the same assumptions described above for the EQR-A method. Resulting EQR-A demand projections are summarized in Figure 28.

²⁰ Various shades of one particular color represent projected demands based on the low, medium, and high population projections. Further detail is provided in Appendix B.