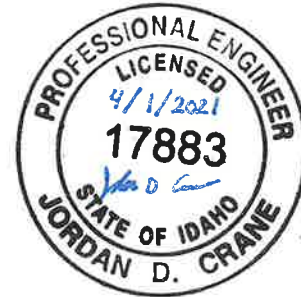




Technical Memorandum

TO: City of Mountain Home – Rich Urquidi
FROM: Jordan Crane, P.E.
DATE: April 1, 2021



SUBJECT: Water Rights Transfer 78273 – City of Mountain Home Irrigated Acres Analysis

BACKGROUND

The City of Mountain Home (City) provides municipal type irrigation for residents within the City's authorized place of use (POU). The City has ten water rights that were consolidated in Transfer No. 78273 (Transfer), six of the water rights are irrigation season rights and are summarized in Table 1. The Transfer limits the six water rights to irrigate a total of 1,061.2 acres. The Transfer also has a condition of approval for these six rights that states:

"Every five (5) years, or more, or less frequently if deemed necessary by the department, the right holder shall submit an analysis, based on a current aerial photo, of the number of acres irrigated for municipal type irrigation within the authorized place of use that are not already covered by Mountain Home Irrigation District or other surface water rights."

TABLE 1: MOUNTAIN HOME IRRIGATION SEASON WATER RIGHTS SUMMARY

Water Right	Priority	Season of Use	Diversion Rate (cfs)	Diversion Rate (gpm)	Diversion Volume (AF)	Irrigation Area Limit (ac)
61-07439	6/10/1981	04/01 - 10/31	3.14	1,409	628.0	157.0
61-02188	2/17/1966	03/15 - 11/15	2.66	1,194	593.7	133.2
61-07151	4/9/1973	04/01 - 10/31	1.14	512	400.0	100.0
61-02167	4/6/1964	04/01 - 11/01	1.97	884	628.0	157.0
61-02210	9/30/1966	04/01 - 11/01	5.35	2,401	1,172.0	293.0
61-07172F	11/19/1973	03/15 - 10/15	2.81	1,261	885.3	221.0
Total	-	-	17.07	7,662	4,307	1,061.2
Transfer Limit	-	-	15.93	7,150	4,305.7	1,061.2

The City has requested the assistance of Keller Associates to perform the aerial photo analysis to calculate the number of irrigated acres within the City's POU.

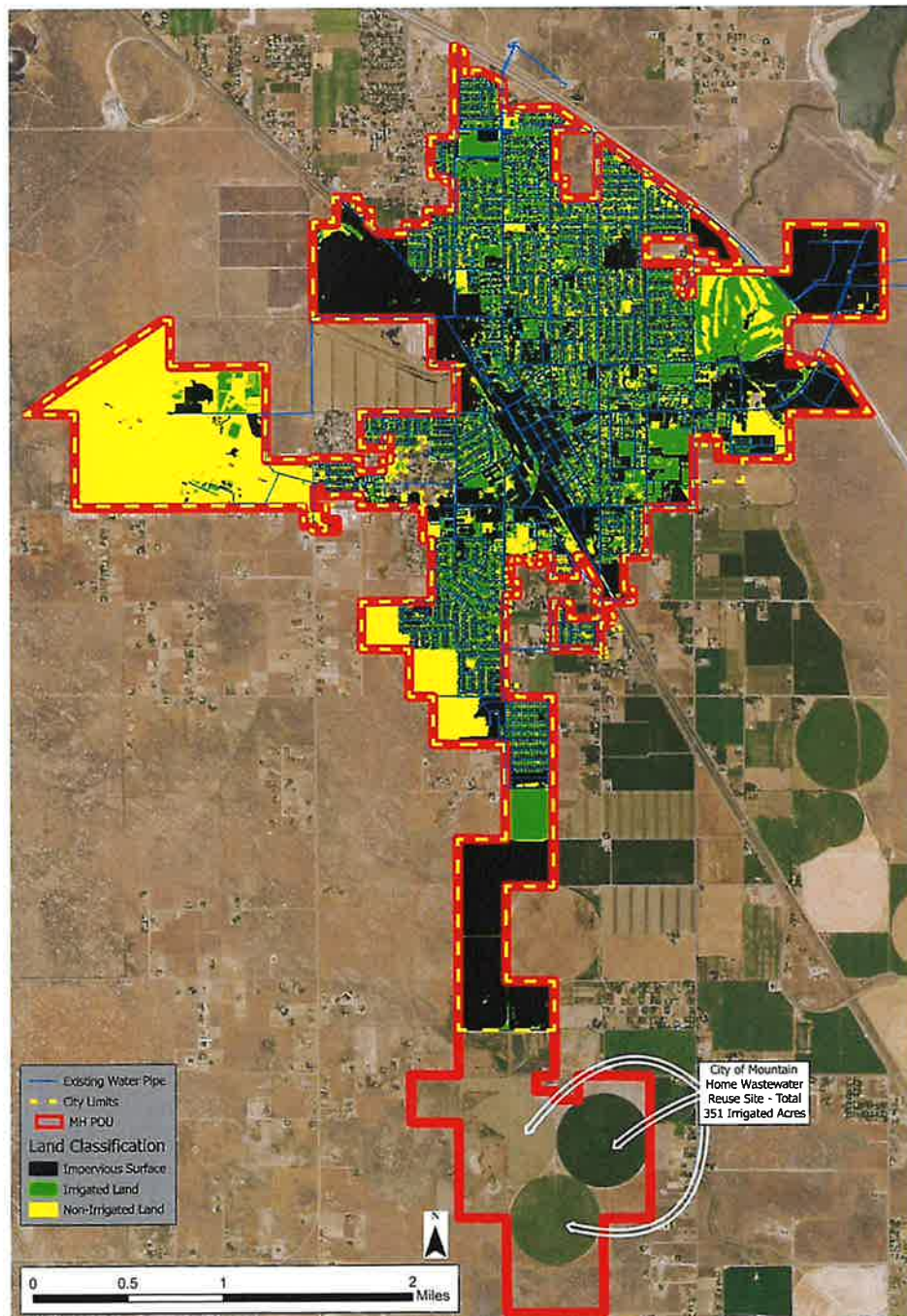
ANALYSIS

In this analysis, the City's POU was separated into two areas: area within City limits, and area outside of City limits. A 4-color band aerial image containing near-infrared data from the National Agriculture Imagery Program from 2019 was used to calculate the number of irrigated acres within City limits. Classification tools within ESRI's GIS Pro were used with the aerial image to classify the land into irrigated areas and non-irrigated areas. The classification was checked visually in several locations and was hand checked in a single location for area calculation accuracy. Visual inspections confirmed the classification was accurate, and the hand calculation check was within 0.15% of the classification area results. Figure 1 shows the land classification from the aerial image, a full-size figure is provided in Attachment A.



The irrigated area outside of City limits within the City's POU is the wastewater reuse site where the total irrigated area is known, and the aerial image classification method was not needed in this location. This site is irrigated with treated wastewater from the City's wastewater storage lagoons (which originates from the City's potable water production wells) as well as supplemental irrigation water from a groundwater well that is also included as a point of diversion (POD) in the Transfer. There are currently 351 irrigated acres at the reuse site.

FIGURE 1: AERIAL IMAGE CLASSIFICATION WITHIN CITY LIMITS





The total irrigated acres within the City's limits calculated from the aerial image land classification and known irrigated acres of the reuse site outside of City limits is presented in Table 2. It should be noted that a portion of the City's POU in City limits is overlapping with the Mountain Home Irrigation District (MHID) POU. The majority of the MHID within the City limits receives 100% of their irrigation from the City, and all areas within this City limits (including the golf course) receive 100% of their irrigation water during periods when MHID water is not available, which is a frequent occurrence during the late summer months.

TABLE 2: NUMBER OF IRRIGATED ACRES WITHIN MOUNTAIN HOME POU

Location	Irrigated Land (acre)
Irrigated Area Within City Limits	966
Irrigated Area Outside City Limits	351
Total	1,317

In 2014, Brockway Engineering performed the previous irrigated acreage analysis. This previous analysis reported an irrigated area of 924 acres. This analysis was completed prior to the Transfer and likely did not include the City's reuse site. The irrigated area within City limits has increased as growth within the City has occurred and will continue to increase with anticipated growth in future years.

CONCLUSION

Transfer No. 78273 limits the total irrigated area of the City's irrigation rights to 1,061.2 acres. The total irrigated acreage in the City's POU exceeds the transfer limit. The City needs all six irrigation season rights to support municipal type irrigation throughout the City's POU. The City has additional year-round rights that can help supplement irrigation and water demands.

Attachment A

