



TO: Amanda Cronin, AMP Insights

FROM: Frank Nicholson, P.E., Utility Engineer
Ki Bealey, P.E., Public Works Director

DATE: June 23, 2020

RE: Walla Walla Watershed Partnership 2050 Strategic Plan – City of Walla Walla Water System Data Request

Here are the responses to your June 4, 2020 request for information regarding City water use/sources.

- 1) Municipal out of stream demands?
 - a. Per capita daily demand:
 - i. *Current (2016) – 250 gallons per capita per day (Figure 2.2, City of Walla Walla Draft Water System Plan, June 2019, MurraySmith)*
 - ii. *Future (2028) – 221 gallons per capita per day (Figure 2.2, City of Walla Walla Draft Water System Plan, June 2019, MurraySmith)*
 - b. Total annual demand for the City:
 - i. *Current (2018) – 9,633 acre-feet (Table 2-14, City of Walla Walla Draft Water System Plan, June 2019, MurraySmith)*
 - ii. *Future (2028) – 9,633* acre-feet (Table 2-14, City of Walla Walla Draft Water System Plan, June 2019, MurraySmith)*
* Water loss reduction equal to growth

Table 2-14
System Demand Projections (MGD)

Demand Component	2016	2018	2028	2038	2068
ADD	8.7	8.6	8.6	9.4	12.7
MDD	18.6	18.4	18.4	20.1	27.2
PHD	25.5	25.2	25.2	27.6	37.2

ADD = Average Day Demand MDD = Max Day Demand PHD = Peak Hour Demand

- 2) Source percent by surface water, by groundwater (alluvial vs. basalt)?
 - a. Current (2016)
 - i. *Surface water – 88% (Figure 2.2, City of Walla Walla Draft Water System Plan, June 2019, MurraySmith)*
 - ii. *Ground water, basalt – 12% (Figure 2.2, City of Walla Walla Draft Water System Plan, June 2019, MurraySmith)*
 - b. Future (2028)

- i. Surface water – 80% (Figure 2.2, City of Walla Walla Draft Water System Plan, June 2019, MurraySmith)*
- ii. Ground water, basalt – 20% (Figure 2.2, City of Walla Walla Draft Water System Plan, June 2019, MurraySmith)*

3) Please provide additional data on:

- a. Current ASR water sources
 - i. Mill Creek (surface water)*
- b. Volumes stored annually
 - i. Volumes stored vary wildly. E.g. in 2019, the volume was greatly reduced because the City relied on wells while renovations to the Water Treatment Plant were underway. In 2020, the City relied heavily on groundwater/wells because the surface water transmission main was damaged during the flood.*
 - ii. Under the City's ASR permit, the City can store/inject up to 3,850 acre-feet per year (Table 2, ASR permit R3-30526, June 2016, Department of Ecology)*
 - iii. See Figure 2 (Well #1) and Figure 4 (Well #6) below for amounts (2018-2019 City of Walla Walla ASR Annual Report, January 2020, EA Engineering, Science, and Technology, Inc. PBC)*
- c. Treatment/injection/withdrawal rates
 - i. The water plant is capable of treating 24 million gallons per day*
 - ii. Under the City's ASR permit, the City can recover 2,310 acre-feet per year of the 3,850 acre-feet currently permitted for storage/injection (Table 2, ASR permit R3-30526, June 2016, Department of Ecology)*
 - iii. See Figures 2 (Well #1) and Figure 4 (Well #6) below for amounts (2018-2019 City of Walla Walla ASR Annual Report, January 2020, EA Engineering, Science, and Technology, Inc. PBC)*
- d. Percent source water recovered
 - i. Under the City's ASR permit, the City can recover 60% of the stored water annually*

Figure 2 - Well # 1 (Block I) 2016-2019 Recharge, Recovery and Net Storage Summary

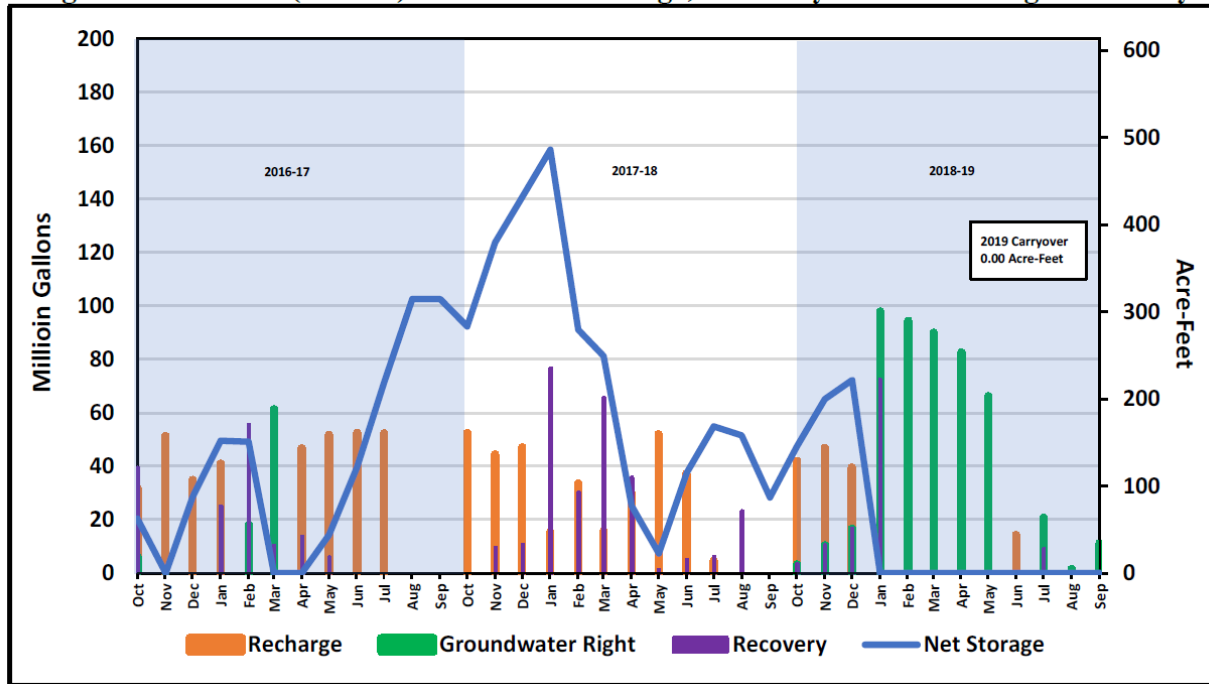
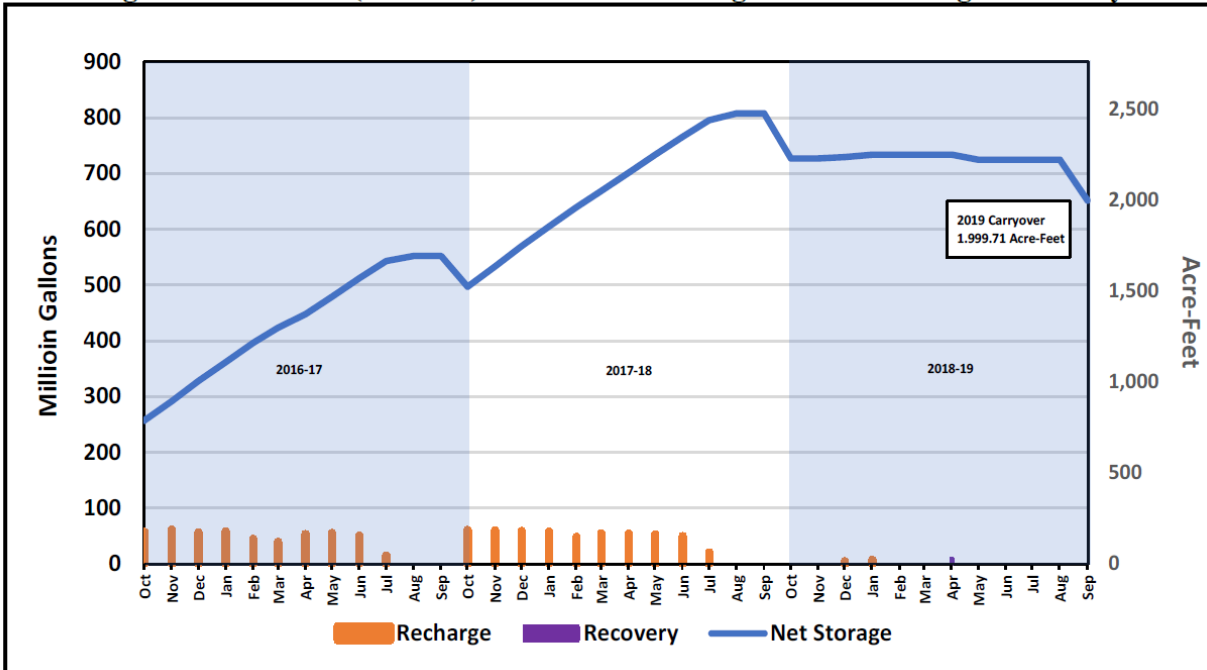


Figure 4 - Well # 6 (Block II) 2016-2018 Recharge and Net Storage Summary



- 4) Please provide additional data on peak month summer demand.
 - i. The peak months (from water plant/well production data)
 - 1. July 2019, 492 MG (1509 acre-feet)

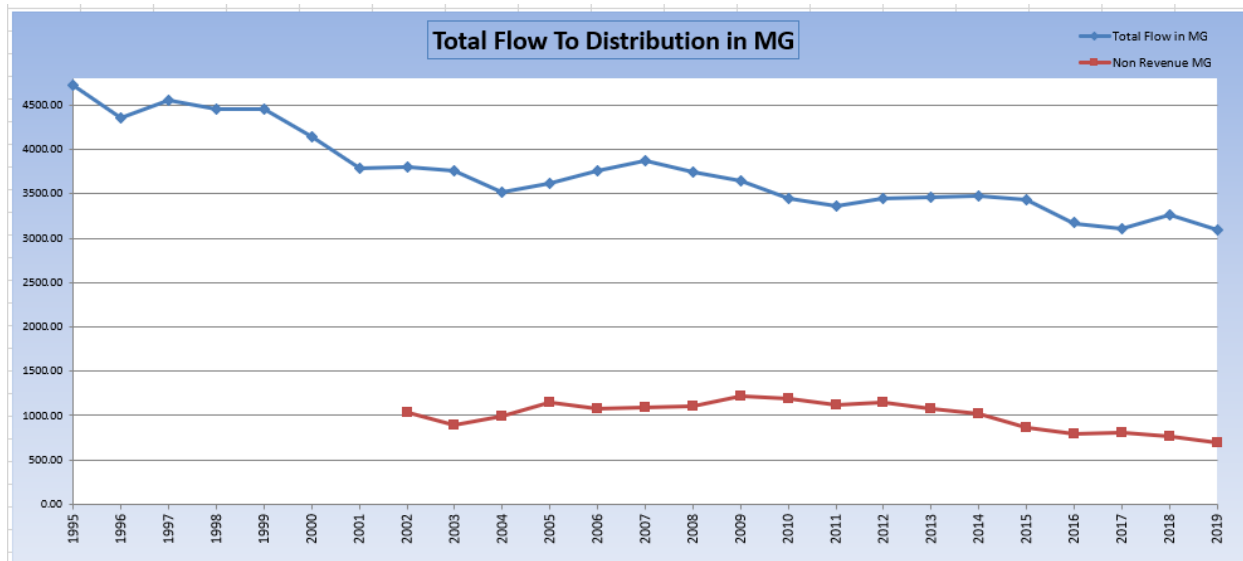
2. July 2018, 522 MG (1601 acre-feet)
 3. July 2017, 509 MG (1562 acre-feet)
 4. Aug 2016, 465 MG (1427 acre-feet)
 5. July 2015, 534 MG (1639 acre-feet)
- ii. Historical annual water demand is listed below (Table 2-9, City of Walla Walla Draft Water System Plan, June 2019, MurraySmith):

Table 2-9
Historical Water Demand

	2011	2012	2013	2014	2015	2016	2017	Average
ADD (MGD)	9.2	9.4	9.5	9.5	9.4	8.7	8.5	9.2
MDD (MGD)	20.6	20.1	20.0	19.1	19.2	18.5	20.0	19.6
PHD (MGD)	25.9	26.2	27.7	27.6	27.4	25.4	27.9	26.9

ADD = Average Day Demand MDD = Max Day Demand PHD = Peak Hour Demand

- 5) Describe the status of municipal water conservation programs?
- i. See the attached Water Loss Control Action Plan (Appendix F, City of Walla Walla Draft Water System Plan, June 2019, MurraySmith)
- 6) Where have water conservation savings occurred and where are they planned? Through which mechanisms?
- i. Overall reduction in water loss of 513 million gallons over the past 10-years (from 1.2 billion gallons lost in 2009 down to 687 million gallons in 2019)
 - ii. The planning mechanism is the City's Water Loss Control Action Plan cited above (Appendix F, City of Walla Walla Draft Water System Plan, June 2019, MurraySmith)
 - iii. Efforts/programs include:
 1. Internal and external leak detection and repair (approximately 150 leaks/year)
 2. Waterline replacement (approximately \$3.6M/year; 1-1.5 miles/year)
 3. Service line replacements (approximately 250/year)
 4. Implemented Advanced Metering Infrastructure (AMI) and replaced all 11,000 distribution system meters with near real-time monitoring (\$5M; 2018)
 5. Abandoning old steel/redundant waterlines (on-going)
 6. Pressure management (irrigation/non-irrigation seasons)
 7. Customer leak notifications (nearly 2,000 in the first year – powered by the AMI system)
 8. Water conservation tips (email, website, UB)
- 7) Where are their opportunities to conserve additional municipal “water?”
- i. Since 1995, the City of Walla Walla has grown in population but has reduced water usage by 35% (-1.6 billion gallons):



- ii. *Replacing old leaking steel water mains and service lines represents the best opportunity to save water. The City has been aggressively pursuing replacements since 2010, however waterline replacement costs are in the \$250-\$350 per foot range. With roughly 80 miles of steel waterline remaining to be replaced, the total cost of replacement is in the range of \$100M-\$150M (in today's dollars). At \$3.6M/year, the replacement schedule will exceed 40 years (not accounting for inflation).*
- iii. *Conservation is another area of opportunity, but the city has to address failing infrastructure no matter what.*