APPENDIX F

WATER SUPPLY ASSESSMENT

CITY OF NEWMAN

WATER SUPPLY ASSESSMENT REPORT FOR MASTER PLAN AREA 3

DRAFT

JULY 2013

NV5

BEYOND ENGINEERING

CITY OF NEWMAN

WATER SUPPLY ASSESSMENT REPORT FOR MASTER PLAN AREA 3

DRAFT

JULY 2013

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DRAFT

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Cities and counties with large development projects are required by SB 610 (Part 2.10, Division 6 of the California Water Code enacted in 2001) to prepare a Water Supply Assessment Report (WSAR). The purpose of this legislation is to ensure that adequate water is, or will be, available to accommodate a proposed large development. While an Urban Water Management Plan (UWMP) evaluates water demand at a programmatic level for the entire service area of an urban water supplier, a WSAR evaluates the specific water needs of a proposed project in relation to existing, present, and future water demand and supply within a service area. UWMPs are required for municipalities with 3,000 or more connections or supplying 3,000 or more acre-ft/yr. The City of Newman (City) is not required to prepare an UWMP because it does not meet that criterion. This WSAR will evaluate the projected water needs for planned development described in the *Northwest Newman Master Plan Description and Proposed Analysis* [1]. Figure 1 shows the location of the proposed development in the City. The WSAR includes a review of water supply, water rights, and delivery contracts. This WSAR is intended to be included in the CEQA documents for the Northwest Newman Master Plan. The City Council adopted this WSAR on _____, and a copy of the Resolution (No. _____) is included in Appendix A.

1.0 INTRODUCTION

The City, founded in 1888, is located in Stanislaus County near Interstate 5. The City limits encompass over 2 square miles with a population of approximately 10,300. Additional information concerning the City population, climate/precipitation, and mechanism for financing water system infrastructure are provided below.

1.1 Current/Projected City Population

From 2000 to 2010 the population in Newman increased from 7,093 to 10,224 [2]. The City is assumed to grow at an annual rate of 3.1 percent. Table 1 is a summary of the population projections for the City based on this assumption.

TABLE 1
POPULATION PROJECTIONS 2010 – 2030 [1]
CITY OF NEWMAN

Year	2010[a]	2013	2015	2020	2025	2030	2035
Population	10,224	11,205	11,910	13,874	16,162	18,828	21,932

[a] 2010 population from 2010 US Census data.

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FIGURE 1

CITY OF NEWMAN
WATER SUPPLY ASSESSMENT REPORT
FOR MASTER PLAN AREA 3

VICINITY MAP

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1.2 Climate/Precipitation

The climate in Newman is characterized by mild winters and hot summers. According to data from the California Irrigation Management Information System station in Paterson (#161), the average annual precipitation is 10.3 inches, 85% of which occurs from November through April. Temperatures during the winter usually drop into the forties at night and occasionally fall below the freezing point. Snow is rare. In the summer, temperatures rise above 100 degrees. The days are typically hottest between 4 and 5 p.m., and temperatures cool off noticeably in the evenings.

The climate has significant influence on water demands in the City. Winters are characterized by relatively low water demands, while the summers have substantially higher demands. Landscape irrigation in the summer is a major contributor to the higher summer demands.

1.3 Connection Fees for Water System Infrastructure

The goal of the connection fees for water is to provide adequate financing for water facilities required to implement the City's General Plan. The fees are used to finance the planning, design, construction, and inspection of water supply and distribution system projects.

Residential connection fees are $1,035.00 for each single-family residence, and $690.00 for each unit of multi-family residence connected to the system. Commercial and industrial service connections are charged a sum determined by the City in proportion to the projected amount of water used.

In addition to the connection fee, a parcel that abuts on or can be served by an existing water main constructed by or at the expense of the City, for which the parcel did not pay its proportionate cost of installation, shall be charged $10.50 for each front foot of 6-inch pipeline, and $12.50 per front foot of 8-inch pipeline.

2.0 EXISTING AND PLANNED WATER SOURCES

A description of the existing and planned groundwater, surface water, and water conveyance facilities is provided in this section. The water utility system is a self-supporting City enterprise. The water utility is responsible for operation, maintenance, and repair of the City's water treatment and distribution system, as well as the quality of delivered water. Newman's water utility system was purchased from the Newman Water Works Company in 1963. Since purchasing the system, the City has systematically improved and upgraded this infrastructure.

In addition to the City's existing well field, the City is working to secure a source of surface water from the Central California Irrigation District (CCID).

2.1 Description of Existing Facilities

Groundwater has historically been the only source of potable water supply for the City. Groundwater is currently pumped from four active wells. The size, depth, and pumping capacity of existing wells are provided in Table 2. All water supplies are chlorinated at the wellhead,

prior to being discharged to the City's distribution system. Water supply facilities also include a 100,000-gallon elevated storage tank located at the Well 1R site and water pipelines up to 12 inches in diameter. The location of existing water system facilities is shown in Figure 2. Note that only large diameter pipelines are shown on the figure for clarity.

TABLE 2
WELL CHARACTERISTICS [3]
CITY OF NEWMAN

Well	Date Drilled	Well Diameter, in	Casing Depth, ft	Perforated Intervals, ft	Motor Size, hp	Pump Output, gpm	VFD Equipped	Emergency Power
1R	1994	16	645	340-620	150	1,800	Yes	Yes
5	1969	14	450	162-450	100	1,000	No	No
6	1990	16	500	150-230 365-385 430-480	100	1,500	Yes	Yes
8	2004	16	485	180-480	300	2,500	Yes	No

2.2 Groundwater

As noted earlier, groundwater has historically been the only source of potable water for the City. Currently, groundwater is provided through four operational wells, which withdraw water from the alluvial deposits underlying the City. Groundwater in the vicinity of the City is also used by the Central California Irrigation District (CCID) as well as private domestic and irrigation wells. CCID utilizes groundwater to supplement their surface water supplies.

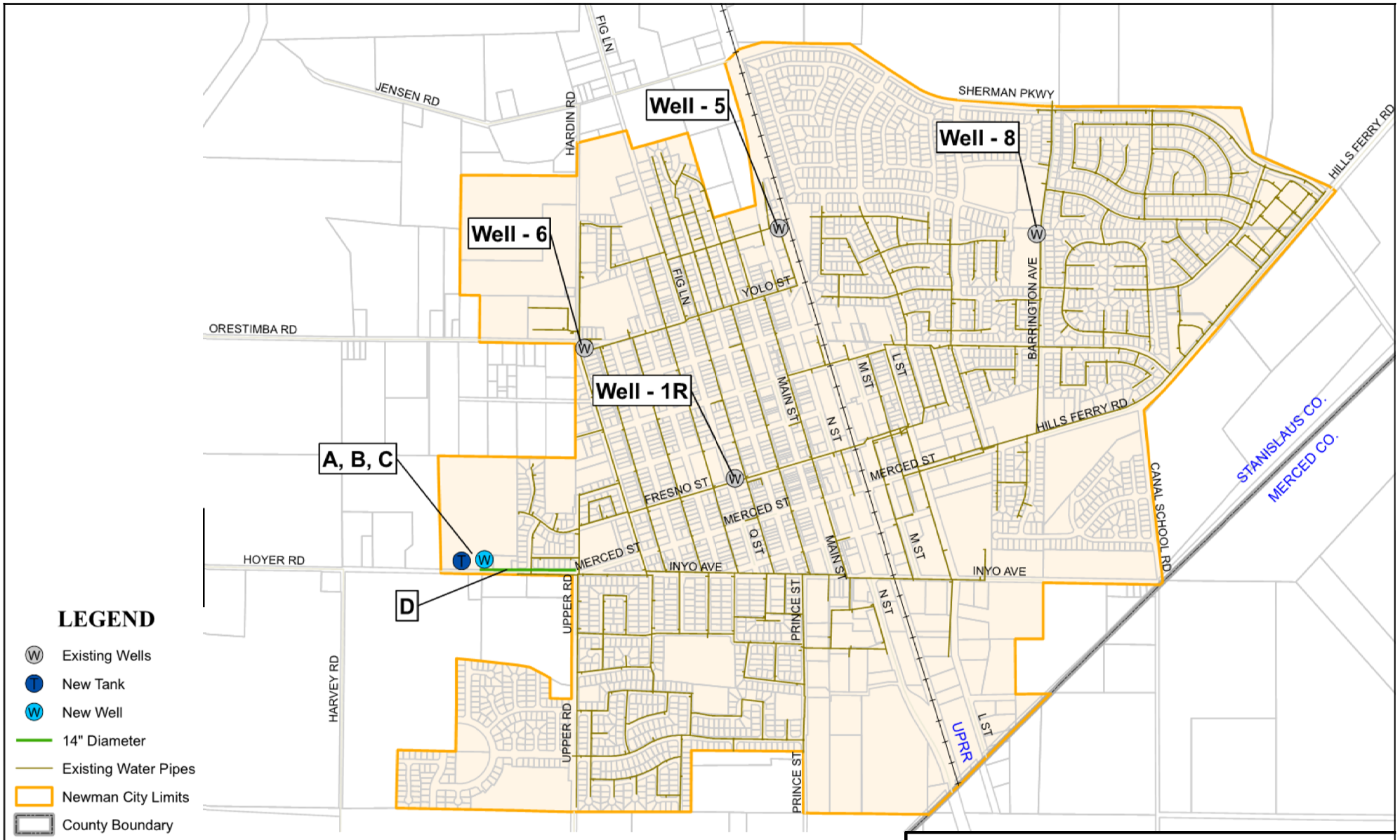
The base of the usable aquifer near Newman is at a depth of approximately 900 feet. Groundwater becomes too saline for potable use below this depth. A major confining bed, the Corcoran or E-Clay, is present beneath much of the western San Joaquin Valley, including the Newman vicinity. The E-Clay divides the usable aquifer into a shallow unconfined aquifer and a deep confined aquifer. The top of the E-Clay ranges from 220 to 275 feet below ground surface near the City, and is generally thicker near Highway 33. [4]

Coarse-grained deposits in the shallow aquifer are generally located within the lower 100 feet of the shallow aquifer, near the E-Clay. Shallow aquifer deposits are finer near Highway 33. Sand and gravel deposits are uncommon in the deep aquifer. In general, deep aquifer deposits are coarsest immediately beneath the E-Clay and become finer with depth. City wells withdraw groundwater from both the shallow and deep aquifers. [4]

The shallow aquifer is recharged by the deep percolation of irrigation return flow, canal seepage, and seepage from Orestimba Creek. Due to low rainfall and high evaporation rates, direct recharge is minor. The deep aquifer is recharged from groundwater inflow from the southwest and downward leakage through the E-Clay. Groundwater discharges from the shallow and deep aquifers through pumping and outflow to the northeast in the case of the shallow aquifer and to the north and west in the deep aquifer. [4]

Groundwater above 900 feet below ground surface near the City is suitable for potable use. Ethylene dibromide (EDB) has been detected in Well 4 in excess of the MCL of 0.02 part per billion (ppb). The City no longer uses this well as a source of potable water. The EDB contamination is believed to have been caused by a fuel spill near the well, and is highly localized. Groundwater east and northeast of Newman is has relatively high concentrations of iron and salinity. This groundwater is the less appropriate for development of a potable water source. [4]

Except for two periods of drought, a slight increase in water level was observed from the early 1960s to the late 1990s. This increase indicates that the aquifers are not in a condition of overdraft. However, increased pumping without accompanying recharge has the potential to increase the depth to water in adjacent areas and increase pumping lifts in existing wells. An analysis indicates that the aquifers in the vicinity of the City can produce 7,500 acre-feet per year (ac-ft/yr, 2,400 million gallons per year (MG/yr)) without causing poor quality groundwater located east and northeast to migrate to City wells. [4]



A = FUTURE 1,700 GPM WATER SUPPLY WELL
B = FUTURE 1 MG WATER STORAGE TANK
C = FUTURE 4,500 GPM BOOSTER PUMP STATION
D = FUTURE 1,100 FEET OF 14-INCH PIPELINE

NOTE:
[1] THE LOCATION OF WELL SITE IS APPROXIMATE AND NOT INTENDED TO IDENTIFY PARTICULAR PARCELS
[2] EXISTING ELEVATED TANK LOCATED AT WELL 1R SITE.

ECO:LOGIC Engineering
City of Newman Water Master Plan

FIGURE 2

CITY OF NEWMAN
WATER SUPPLY ASSESSMENT REPORT
FOR MASTER PLAN AREA 3

CITY WATER FACILITIES

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Historic Groundwater Pumping

Table 3 is a summary of the annual groundwater production by the City and CCID from 1989 to 2012. CCID operates several wells near the City. CCID groundwater production typically increases when surface water supplies become less available. The amount of groundwater pumped by private irrigation and domestic wells is not known.

TABLE 3
HISTORICAL GROUNDWATER PUMPING
CITY OF NEWMAN

Year	City of Newman Groundwater Production, MG	CCID Groundwater Production[a], MG	Total Groundwater Production, MG
1989	313	329	643
1990	400	592	992
1991	331	783	1,114
1992	376	812	1,187
1993	402	343	745
1994	478	823	1,301
1995	493	176	669
1996	512	1,014	1,527
1997	543	898	1,441
1998	472	66	539
1999	574	1,086	1,660
2000	593	738	1,332
2001	644	972	1,616
2002	664	1,295	1,959
2003	698	741	1,439
2004	755	1,070	1,825
2005	833	456	1,289
2006	865	0	865
2007	922	2,037	2,959
2008	861	1,237	2,098
2009	786	1,289	2,075
2010	723	53	776
2011	746	559	1,305
2012	850	1,682	2,532

[a] Total production for CCID Wells 2, 3, 36, and 42.

2.3 Planned Water Sources

The *City of Newman Water Master Plan* (Water Master Plan) [3] describes planned water facilities to meet future demands in the City. The City is in the process of securing a surface water supply to be delivered from the California Aqueduct through an agreement with CCID. Raw water delivered from the aqueduct will be treated at a facility to be constructed and operated

by the City. The planned treatment facility will be located on Shields Road near the CCID canal [3]. The planned treatment facility will be located on Shields Road near the CCID canal [3]. The surface water treatment plant will be designed to meet the maximum 30-day average water demand. Peak demands will be met with groundwater from existing and future wells. It is anticipated that additional wells will be constructed before the surface water system reaches full capacity. The Water Master Plan recommends constructing a storage tank and booster pump station with the first new production well.

Groundwater supplies are assumed to be the firm capacity of the City's well field. The firm capacity is defined as the capacity of the well field with the largest well out of service. For example, the existing well field has a total of four wells with a combined capacity of 6,800 gallons per minute (gpm, 9.8 million gallons per day (MGD)). The capacity of the largest well is 2,500 gpm. The firm capacity of the existing well field is therefore 4,300 gpm (6.2 MGD).

2.4 Recycled Water

The City currently does not use recycled water and does not have plans to use recycled water in the future.

2.5 Summary of Water Supply Sources

The Water Master Plan describes required water system improvements based on water demand, expressed as equivalent dwelling units (edus). One edu is equal to 500 gallons per day (gpd). For reference, the 2012 groundwater production of 850 MG is equivalent to 4,658 edus. The facility staging described in the Water Master Plan is based on supplying maximum day demands. The water supply staging recommended in the Water Master Plan is presented in Table 4.

TABLE 4
WATER SUPPLY FACILITY STAGING [3]
CITY OF NEWMAN

	WTP		Groundwater		Total	Maximum
EDU	Incremental Capacity, MGD	Total Capacity, MGD	Incremental Capacity, MGD	Total Capacity, MGD	Supply Capacity, MGD	Day Demand, MGD
5,600	--	0	--	6.2	6.2	7.6
5,800	--	0	2.4	8.6	8.6	7.8
7,400	6	6	--	8.6	14.6	10.0
10,800	3	9	--	8.6	17.6	14.6
13,400	3	12	--	8.6	20.6	18.1
15,200	--	12	2.4	11.0	23.0	20.5
17,000	3	15	--	11.0	26.0	23.0
19,200	3	18	--	11.0	29.0	26.0
21,000	--	18	2.4	13.4	31.4	29.0
23,000	3	21	--	13.4	34.4	31.1

In order to ensure that the City can meet maximum day demands, the facility staging described in Table 4 will provide water supplies in excess of average annual demand projections. Water

supply facility staging described in Table 4 will be used in this assessment to project City water supplies.

3.0 PROJECTED WATER DEMANDS

A summary of land use and project water demands for the proposed development in Master Plan Area 3 is provided in this section. The water demand factors that serve as the basis for the demand projections are also described below.

3.1 Water Demand Factors

Recommended water demand factors are presented in the *City of Newman Water Master Plan* [3] for residential, multi-family residential, commercial, and industrial land uses. The demand factors, listed in Table 5, are provided as gallons per day (gpd) per connection. The proposed development includes residential, commercial, school, and park land uses. A unit count is provided only for the proposed residential development. Other proposed land use is quantified only by the area of the land use.

TABLE 5
WATER DEMAND FACTORS [3]
CITY OF NEWMAN

Land Use	Recommended Land Use, gpd/connection
Residential	500
Multi-Family Residential	1,400
Commercial	1,700
Industrial	9,500

Land use and water demand data provided in the *City of Newman Water Master Plan* was used to determine area-based demand factors for proposed business park, community commercial, professional office, park, and school land uses. Area-based demand factors are determined by dividing the water demand for a land use by the area of the land use. The *City of Newman Water Master Plan* lists more land use categories than categories for water demand. Similar land use categories were combined to compare to water demands. For example, the Elementary/Middle School, High School and Other, Public Buildings, and Recreation and Parks land use areas listed in the master plan were combined and compared to the Public water demand listed in the master plan. The determination of the recommended area-based demand factors based on data from the *City of Newman Water Master Plan* is summarized in Table 6.

TABLE 6
AREA-BASED DEMAND FACTORS
CITY OF NEWMAN

Land Use	Area[a], ac	Water Demand[b], gpd	Average Daily Demand, gpd/ac	Recommended Water Demand Factor, gpd/ac
Commercial	30.7	--	--	--
Commercial/Industrial	4.3	--	--	--
Office	2.3	--	--	--
Total Commercial	37.3	180,200	4,831	4,900
Elementary/Middle Schools	42.8	--	--	--
High Schools and Other	54.0	--	--	--
Public Buildings	4.9	--	--	--
Recreation and Parks	22.3	--	--	--
Total Public	124	240,000	1,935	2,000

[a] From Table 3-1 of the *City of Newman Water Master Plan* [3].
[b] From Table 3-10 of the *city of Newman Water Master Plan* [3].

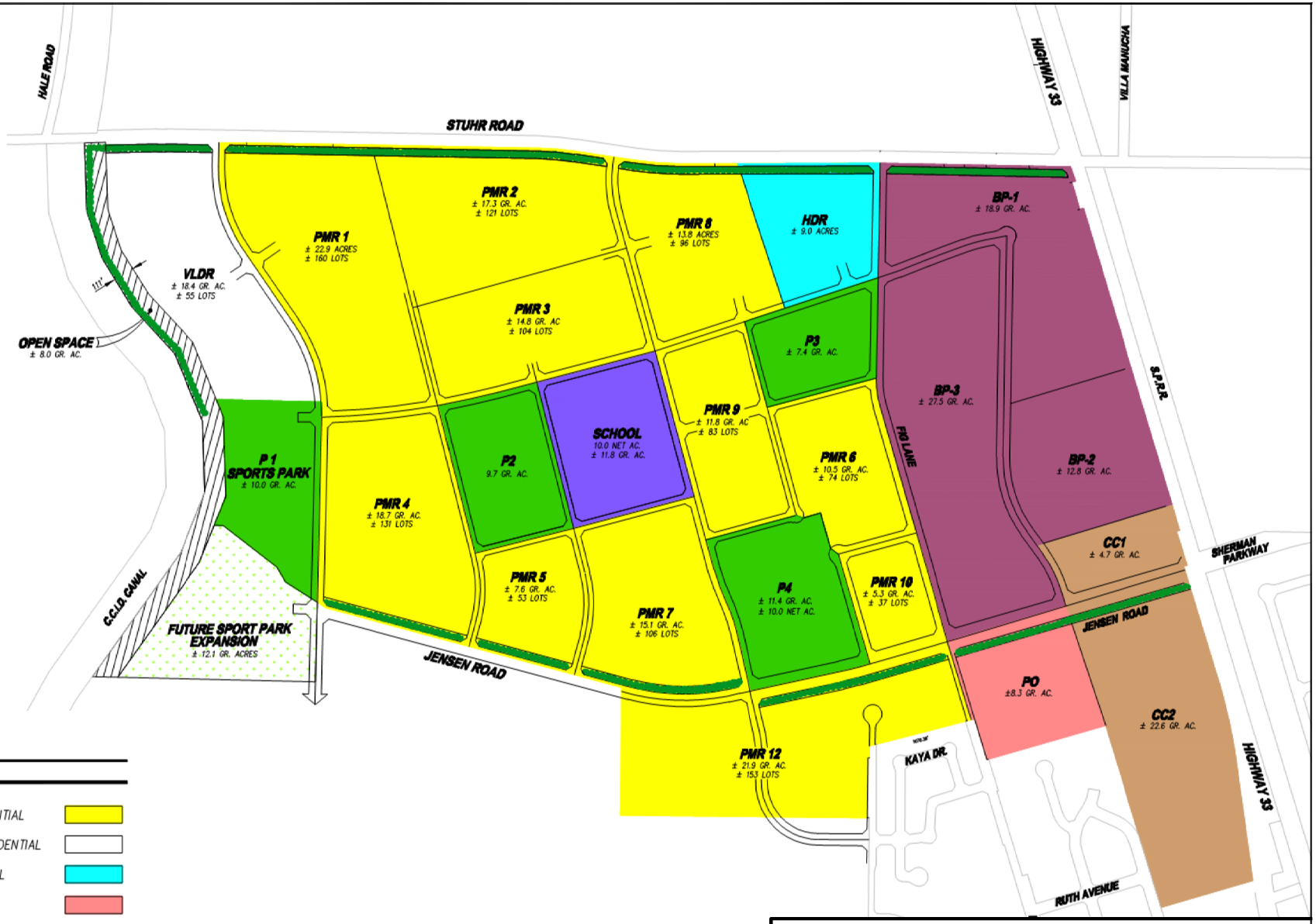
The area-based demand factors calculated in Table 6, as well the residential demand factor of 500 gpd/edu described in the *City of Newman Water Master Plan* were used to develop the demand factors used to estimate the water demand of the proposed project. Demand factors used to estimate the water demand for the proposed development are presented in Table 7.

TABLE 7
DEMAND FACTORS USED TO DETERMINE PROJECT WATER DEMANDS
CITY OF NEWMAN

Land Use	Demand Factor
Residential	500 gpd/du
Business Park	4,900 gpd/ac
Community Commercial	4,900 gpd/ac
Professional Office	4,900 gpd/ac
Elementary School	2,000 gpd/ac
Parks	2,000 gpd/ac
Trails, Open Space	0 gpd/ac
Roads	0 gpd/ac

3.2 Projected Water Demands for Master Plan Area 3

Table 8 includes the land use summary and resulting water demands for the proposed Master Plan Area 3 development. The land use plan for the Master Plan Area 3 development is shown in Figure 3. In addition to residential units of various densities, the Master Plan Area 3 includes commercial development, a 400-student elementary school, park, and various land uses without an associated water demand.



LEGEND

MASTER PLAN BOUNDARY	
PMR PLANNED MIXED RESIDENTIAL	
VLDR VERY LOW DENSITY RESIDENTIAL	
HDR HIGH DENSITY RESIDENTIAL	
PO PROFESSIONAL OFFICE	
CC COMMUNITY COMMERCIAL	
BP BUSINESS PARK	
POP SCHOOL/PUBLIC/QUASI-PUBLIC	
P RECREATION AND PARKS	
POTENTIAL LEVEE SETBACK AREA	

GROSS LAND USE AREAS ARE TO C/L OF ST. (EXCLUDES PROP. R/W AREA FOR JENSEN RD., STUHR RD. AND HWY 33 ALONG WITH 40' WIDE TRAIL AREA DEDICATION)

FIGURE 3

CITY OF NEWMAN
WATER SUPPLY ASSESSMENT REPORT
FOR MASTER PLAN AREA 3

PROPOSED LAND USE

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A 10-acre expansion to the proposed sports park is envisioned to the south of the plan area. While this expansion is outside the plan area, it is included in this assessment because it is a foreseeable expansion of the plan area.

TABLE 8
MASTER PLAN AREA 3 LAND USE AND WATER DEMAND
CITY OF NEWMAN

Land Use	Designation	Area, ac	Units, edu	Demand Factor, gpd/du	Demand Factor, gpd/ac	Average Day Demand, gpd
Non-Residential Land Use						
Business Park	BP	59.2	0	--	4,900	290,080
Community Commercial	CC	27.3	0	--	4,900	133,770
Professional Office	PO	8.3	0	--	4,900	40,670
Non-Residential Subtotal		*94.8*	*0*	--	--	*464,520*
Residential Land Use						
High Density Residential	HDR	9.0	180	500	--	90,000
Planned Mixed Residential	PMR	159.7	1,118	500	--	559,000
Very Low Density Residential	VLR	18.4	55	500	--	27,500
Residential Subtotal		*187.1*	*1,353*	--	--	*676,500*
Other Uses						
Parks	--	37.1	0	--	2,000	74,200
Elementary School[a]	--	10.0	0	--	2,000	20,000
Trails/Open Space	--	8.4	0	--	0	0
Major Roads	--	23.6	0	--	0	0
Other Uses Subtotal		*79.1*	*0*	--	--	*94,200*
Total Plan Quantities		**361.0**	**1,353**	**--**	**--**	**1,235,220**
Park Expansion		10	0	--	2,000	20,000

[a] The elementary school will serve 400 students.

3.3 Summary of Projected Water Demands

Table 9 summarizes projected water demands in five year increments for the City. The 2012 water demand (850 MG) was used as the baseline demand. For planning purposes, the City assumes an annual growth of 3.1 percent. Water demand is assumed to increase at the same rate. Increases in water demand other than those associated with the Master Plan Area 3 development are shown in Table 9 as "Other Future Development". The Master Plan Area 3 development is assumed to be built at a constant rate, and completed by 2025. The growth rate during this period is greater than 3.1 percent.

Residential portions of the planned development are anticipated to be built-out in seven to ten years. Buildout of non-residential portions of the planned development is expected to occur in ten years. For purposes of this analysis, it is assumed that proposed residential and non-residential development begins in 2015. Residential development is assumed to occur at a steady rate over a seven-year period. Non-residential development is assumed to occur at a

steady state over a ten-year period. Future development in other parts of the City is assumed not to occur until the planned development is built out.

As summarized in Table 9, total average annual demand for the City will reach 1,765 MG/yr in the 2035, equivalent to 9,673 edus. This value will be compared to available water supply in the subsequent report section.

TABLE 9
SUMMARY OF NORMAL YEAR ANNUAL WATER DEMAND (MG/YR)
IN FIVE YEAR INCREMENTS
CITY OF NEWMAN

Demand	2015	2020	2025	2030	2035
Existing City (2012)[a]	850	850	850	850	850
Future Development					
Master Plan Area 3[b]	52	314	451	451	451
Other Future Development[c]	0	0	0	215	464
Total Demand	**902**	**1,164**	**1,301**	**1,515**	**1,765**
Total EDUs[d]	**4,944**	**6,379**	**7,128**	**8,303**	**9,673**

[a] Existing City demand based on 2012 water production [3].
[b] See Table 8.
[c] Water demands are assumed to increase by 3.1 percent, proportionate to the assumed population growth, except when the growth due the Master Plan Area 3 development is greater than 3.1 percent.
[d] One edu is equal to 500 gpd.

It is important to note that the water demand projections in Table 9 assume a constant per capita water use and do not account for future water conservation efforts in the City. Because of recent and future water conservation legislation will reduce future water use, the demands in Table 9 are considered conservative.

The projected number of edus listed in Table 9 can be used in conjunction with Table 4 to identify future facilities that will have to be constructed to meet projected demands:

- Prior to 2020: one 1,700-gpm well, storage tank, and booster pump station.
- Prior to 2030: water treatment plant with 6 MGD capacity.

It is important to note that the projected water demands in Table 9 are based assumptions of citywide and Master Plan Area 3 growth. The facilities listed above will be required sooner if development occurs at a faster rate than assumed. Conversely, facility construction can be delayed if development is slower than assumed.

3.4 Summary of Water Conservation Practices

The City water use ordinance includes water conservation requirements, including prohibiting landscape watering between 1 pm and 6 pm from April through September [5].

For purposes of this analysis, City water demands are assumed to remain constant during a drought, which is a conservative assumption. Municipalities generally observe water conservation during water shortages due to voluntary actions of community members.

4.0 ANALYSIS OF WATER SUPPLY RELIABILITY

In this section, the City's groundwater and surface water supplies previously identified are analyzed. The sources are identified for their availability during normal, single, and multiple dry years as determined by the Department of Water Resources' Sacramento Valley Water Hydrologic Classifications. The three separate hydrologic conditions considered are described as follows:

Normal year: This is a year when average rainfall has been received. During a normal year, the water availability from some sources may be less than the allocated amount.

Single dry year: This is a solitary dry or critical dry year and may be the first year of a multiple year drought.

Multiple dry years: This is a series of four consecutive dry and/or critical dry years.

4.1 Groundwater

The availability of groundwater in the vicinity of the City is described in *Update on Groundwater Conditions in the Vicinity of the City of Newman, California* [4]. The report notes that, except for periods of drought, groundwater elevations have increased slightly from the early 1960s to the late 1990s, indicating that groundwater production is less than the safe yield of the aquifer.

Decreases in groundwater levels during periods of drought indicate that the aquifer is being temporarily overdrawn. This may be an acceptable short-term condition during periods of drought. Surface water sources may be dramatically reduced during multiple dry years, in which case, groundwater sources may be used to make up surface water source reductions. For purposes of this analysis, groundwater supply is considered 100 percent reliable during normal, single dry, and multiple dry years.

4.2 Surface Water

The City is working towards securing a surface water source from the California Aqueduct from CCID. It is assumed that surface water supplied by CCID will be an allocation from the State Water project, otherwise known as Table A Water. Table A Water is less reliable than groundwater. Reliability information provided by DWR indicates that 64 percent of the allocation can be expected during normal years, 63 percent during single dry years, and 33 percent during multiple dry years.

4.3 Summary of Water Supply Availability

This section contains a determination of the water supply availability. As previously described, the amount of water entitled to the City is expected to increase due to the construction of new water facilities, including a well, storage tank, booster pump station, and securing a surface water source through CCID. As described above, groundwater is assumed to be 100 percent reliable during normal, single dry, and multiple dry years. The future surface water source is assumed to be as reliable as State Water Project Table A Water.

The projected water allocation for the City is described in Table 10. Projected water supply during normal, single dry, and multiple dry years are provided in Tables 11 through 13.

TABLE 10
WATER SUPPLY ALLOCATIONS (MG/YR)
CITY OF NEWMAN

	Allocation, MG/yr				
Sources of Supply	**2015**	**2020**	**2025**	**2030**	**2035**
Groundwater	2,263	3,139	3,139	3,139	3,139
Surface Water	0	0	0	2,190	2,190
Total	**2,263**	**3,139**	**3,139**	**5,329**	**5,329**

TABLE 11
WATER SUPPLY DURING NORMAL YEAR (MG/YR)
CITY OF NEWMAN

		Normal Year Supply				
Sources of Supply	**Reliability**	**2015**	**2020**	**2025**	**2030**	**2035**
Groundwater	100%	2,263	3,139	3,139	3,139	3,139
Surface Water	64%	0	0	0	1,402	1,402
Total	**--**	**2,263**	**3,139**	**3,139**	**4,541**	**4,541**

TABLE 12
WATER SUPPLY DURING SINGLE DRY YEAR (MG/YR)
CITY OF NEWMAN

		Single Dry Year Supply				
Sources of Supply	**Reliability**	**2015**	**2020**	**2025**	**2030**	**2035**
Groundwater	100%	2,263	3,139	3,139	3,139	3,139
Surface Water	63%	0	0	0	1,380	1,380
Total	**--**	**2,263**	**3,139**	**3,139**	**4,519**	**4,519**

TABLE 13
WATER SUPPLY DURING MULTIPLE DRY YEAR (MG/YR)
CITY OF NEWMAN

		Multiple Dry Year Supply				
Sources of Supply	**Reliability**	**2015**	**2020**	**2025**	**2030**	**2035**
Groundwater	100%	2,263	3,139	3,139	3,139	3,139
Surface Water	33%	0	0	0	723	723
Total	**--**	**2,263**	**3,139**	**3,139**	**3,862**	**3,862**

5.0 COMPARISON AND DETERMINATION OF SUFFICIENT SUPPLY

This section compares projected water demand to available water supply during normal, single, and multiple dry years. As shown in Table 14, Newman has sufficient water to meet its customers' needs through 2035, including the proposed Master Plan Area 3 development, if water supply facilities consistent with the Water Master Plan are constructed. The required water supply facilities are:

- Prior to 2020: one 1,700-gpm well, storage tank, and booster pump station.
- Prior to 2030: water treatment plant with 6 MGD capacity.

The City has recently issued a request for proposals for the construction of a new well, storage tank, and booster pump station.

TABLE 14
SUMMARY OF PROJECTED WATER DEMAND VERSUS AVAILABLE SUPPLY DURING NORMAL, SINGLE DRY, AND MULTIPLE DRY YEARS (MG/YR)
CITY OF NEWMAN

	Normal Year		Single Dry Year		Multiple Dry Year	
Year	Available Supply	Projected Demand	Available Supply	Projected Demand	Available Supply	Projected Demand
2015	2,263	902	2,263	902	2,263	902
2020	3,139	1,164	3,139	1,164	3,139	1,164
2025	3,139	1,301	3,139	1,301	3,139	1,301
2030	4,541	1,515	4,519	1,515	3,862	1,515
2035	4,541	1,765	4,519	1,765	3,862	1,765

6.0 REFERENCES

[1] Lamphier-Gregory, Inc., *Northwest Newman Master Plan Description*. March 2013.

[2] United States Census Bureau, *State and County Quick Facts, Newman (City), California*, http://quickfacts.census.gov/qfd/states/06/0651140.html, accessed June 2013

[3] Eco:Logic Consulting Engineers, *City of Newman Water Master Plan*. March 2008

[4] Kenneth D. Schmidt and Associates, *Update on Groundwater Conditions in the Vicinity of the City of Newman, California – Draft Report*. July 2001.

[5] City of Newman, Ordinance 11.05.030

Appendix A

City Council Resolution No. _____ Adopting Water Supply Assessment Report

Resolution will be added once the Water Supply Assessment Report is approved.