

Kennedy/Jenks Consultants

18 June 2003

Memorandum

To: Ms. Tina Johnson, General Manager
Twentynine Palms Water District

From: Lynn M. Takaichi/Kristine McCaffrey

Subject: Technical Analysis in Support of Capital Impact Fees (Capital Facility Charges)
Twentynine Palms Water District
K/J 024715.00

In accordance with our agreement dated 3 September 2002, we have prepared a technical analysis to support the District's Capital Impact Fees. Our analysis is based on information provided by the District and conformance to the requirements of Government Code 66000 through 66024.

Background

The Twentynine Palms Water District (District) utilizes groundwater to supply approximately 3,300 AF/yr of potable water to its customers. The District's 1992 Water Facilities Master Plan projected that the District's water demands would increase to approximately 4,680 AF/yr in 2015, an increase of 40 percent over 1990 water demands. The District needs to construct additional water facilities, including wells, pipelines, pump stations, and reservoirs in order to meet the increase in demand.

Under AB 1600 (Government Code 66000 through 66024), connection fees, such as the District's Capital Impact Fees, must be developed based on an established incremental impact that new developments have on available capacity. To accommodate this requirement, the costs of existing and proposed facilities must be segregated by their benefits to new or existing users. This cost to benefit nexus is the fundamental criterion of AB 1600. Additionally, the term connection fee is no longer appropriate terminology due to the adoption of AB 1600. This bill renamed the connection fee to Capital Facility Charge (CFC) and specified that CFCs must be used for capital expansions and cannot be used for operating expenses. In addition, a capital facility charge often includes the value of a new customer's purchase of capacity in a utility's existing facilities.

For the purpose of establishing the District's CFC, the water system is separated into two components, primary and secondary infrastructure. The following defines these two components:

- **Primary Infrastructure:** This component includes wells, reservoirs, water treatment plants, large transmission pipelines, and booster stations. For the purpose of this report, "primary" transmission pipeline is defined as 12-inch-diameter (and larger) pipeline. The impact of new or larger service connections on the primary infrastructure is primarily based on the water flow of that new or enlarged service.

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- **Secondary Infrastructure:** This component includes fire hydrants and water distribution pipelines, typically 2-, 6-, 8-, and 10-inch pipelines that provide a connection to the customers' property. For the purpose of this report, "secondary" (distribution) pipelines are those with diameters of less than 12 inches. The impact of new and larger service connections for the secondary infrastructure is primarily based on lineal footage of installed pipelines required to provide a service connection to the overall water system.

Current Capital Facility Charges

The District's current CFC is based solely on the meter size. These CFCs are presented in Table 1.

TABLE 1
CURRENT WATER CAPITAL FACILITY CHARGES

Meter Size	Capacity Facility Charges (\$)
5/8"	998.00
1"	2,495.00
1.5"	4,990.00
2"	7,984.00
Fire line	None
All other meter sizes	\$49.90/gallon per minute rating of the meter

The District desires to separate its CFC into two components (Primary Capital Facility Charge and Secondary Capital Facility Charge) to address the costs of primary and secondary infrastructure based on meter size and linear footage of the property, respectively. The primary objective of this analysis is to provide the technical foundation for the District's CFC.

Primary Capital Facility Charges

All new, enlarged and/or expanded service connections are charged a Primary Capital Facility Charge (PCFC) that is based on the flow rate required by the service. This demand on the primary water system is based on the size of the water meter. The amount of the PCFC is defined as the greater of:

1. The actual cost to provide the required primary infrastructure; or,
2. A calculated fee that is based on the amount of capacity that the new, enlarged, and/or expanded service is utilizing from the existing system.

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Actual cost includes, but is not limited to, the cost of new wells, reservoirs, treatment plants, booster stations, and/or transmission mains, and is charged when there is no or only partial primary infrastructure available to the required service or when there is inadequate capacity in the existing system to provide the required water flow for the new or expanded service. Actual cost may include the cost of new and/or enlarged/expanded primary infrastructure.

Basis for the Primary Capital Facility Charge

According to District policy, the PCFCs are based on the cost of the capital improvement projects planned for the next five-year planning period. The purpose of PCFC is to recover the cost of new capital improvement projects to accommodate future growth. Table 2 lists the District's capital improvement projects associated with the next five-year planning period. The list of projects was developed based on projects recommended in the 1992 Water Facilities Master Plan and discussions with District staff. The total estimated cost of these future primary capital improvement projects is \$3,905,000 (2002 dollars). A partial grant funding of \$1,539,155 can be applied to the cost of these projects, which offsets the total project cost of the primary capital facility charges. The total project cost of the primary facility charges is therefore \$2,365,845. This cost is 100 percent allocated to future customers.

TABLE 2
 CAPITAL FACILITY CHARGE PROJECTS

Pressure Zone	Project Description	Total Estimated Cost (2002 dollars)	Percent Allocation to Future Customers	Basis of Allocation
2400	Construct 1.0 MG reservoir, 2 booster pump stations (1 on site and 1 on Lupine) and 16,200 ft of 12" pipeline.	\$1,200,000	100%	For pressure zone, 2400 no existing deficiency was indicated in the 1992 Water Facilities Master Plan
2400	Construct approximately 10,000 ft of 12" water transmission main in Two Mile Road from Sunrise Road to Mesa (Secondary Lear Source).	\$200,000	100%	For pressure zone, 2400 no existing deficiency was indicated in the 1992 Water Facilities Master Plan.

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Pressure Zone	Project Description	Total Estimated Cost (2002 dollars)	Percent Allocation to Future Customers	Basis of Allocation
2260	Construct a 2.0 MG reservoir to provide domestic and fire flow demands for 2260 pressure zone and correct elevation difference between Donnell and Hansen. Construct a 3.0 MG pump station to serve Pressure Zone 2260 on Adobe Road between Homestead Road and Manana Drive (150 HP).	\$1,430,000	100%	For pressure zone, 2260 no existing deficiency was indicated in the 1992 Water Facilities Master Plan.
N/A	Construct a second well at the fluoride treatment plant.	\$300,000	100%	Capital program expenditure entirely benefiting future customers.
N/A	Improvements of 12-inch pipelines in Lear Area.	\$275,000	100%	Capital program expenditure entirely benefiting future customers.
N/A	Future arsenic treatment of existing wells.	\$500,000	100%	EPA requirement for future water treatment that would be utilized to serve future customers.
	Total Project Costs	\$3,905,000		
	Grant Funding	\$1,539,155		
	Project Costs Allocated Towards Primary Capital Facility Charges	\$2,365,845		

Based on the total water usage of District customers for fiscal year 2001/2002 (i.e. from July 1, 2001 through June 30, 2002) which was 1,328,327 hundred cubic feet per year or 3,639.25 hundred cubic feet per day (2,722,160 gallons per day [GPD]), and on the average use of 400 GPD per equivalent dwelling unit (EDU) assumed in the 1992 Water Facilities Master Plan, the estimated number of current EDUs is 6,805. An EDU (one equivalent meter) is assumed to use a 5/8- or 3/4-inch meter. According to the District's 1992 Water Facilities Master Plan, the projected number of EDUs in 2015 is 10,439. Accordingly, the estimated increase in number of EDUs or equivalent meters is 3,634. Based on the primary capital improvement projects estimated cost of \$2,365,845, PCFC per EDU or equivalent meter is \$651.00. PCFCs for larger meter sizes can be based on equivalent meter ratios as recommended in the publication of the

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American Water Works Association titled "AWWA C700, Standard for Cold-Water Meters – Displacement Type, Bronze Main Case". These charges are presented in Table 3.

TABLE 3
PRIMARY AND SECONDARY CAPITAL FACILITY CHARGES

Water Meter Size	Equivalency Factor ^(a)	Primary Capital Facility Charges	Secondary Capital Facility Charges
5/8"	1	\$651.00	\$25.42 per foot of frontage
1"	2.5	\$1,628.00	\$25.42 per foot of frontage
1 1/2"	5	\$3,255.00	\$25.42 per foot of frontage
2"	8	\$5,208.00	\$25.42 per foot of frontage
3"	16	\$10,416.00	\$25.42 per foot of frontage
4"	25	\$16,275.00	\$25.42 per foot of frontage

Note:

- (a) The equivalency factor reflects the different meter capacities for different sizes, per the American Water Works Association (AWWA) Manual M-1. Safe maximum operating capacities for 5/8-, 1-, and 1 1/2-inch meters were obtained from AWWA C700-95, Standard for Cold-Water Meters - Displacement Type, Bronze Main Case. Safe maximum operating capacities for 2-, 3- and 4-inch type meters were obtained from AWWA C701-02, Standard for Cold-Water Meters - Compound Type.

Secondary Capital Facility Charges

All new, enlarged and/or expanded service connections are charged a Secondary Capital Facility Charge (SCFC). The amount of this SCFC is defined as the greater of:

1. The actual cost to provide the required secondary infrastructure; or,
2. A calculated fee that is based on the linear footage of the property requiring new and/or enlarged/expanded service.

Actual cost includes, but is not limited to, the cost of the fire hydrants and/or a distribution pipeline and is charged when there is no or only partial secondary infrastructure available to the required service or when there is inadequate capacity in the existing system to provide the required water flow for the new or expanded service. Actual cost may include the cost of new and/or enlarged/expanded secondary infrastructure. If fire hydrants and/or a distribution pipeline are required, the SCFC is based on the cost of extending the existing distribution system in such a manner that the resulting expanded distribution pipeline transverses at least one complete side of the property requiring water service. Property that has participated in the Annexation of Assessment District #4 is not required to extend a required distribution pipeline in such a manner that the resulting expanded pipeline transverses one side of the property.

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Additionally, property that has participated in the annexation of Assessment District #4 is not subject to any SCFCs.

If the subject parcel currently has water service, no SCFC will be charged for impact on the secondary infrastructure. The new and/or enlarged/expanded service is obligated to pay for the actual cost of upgrading the distribution pipeline to provide the required additional water flow. Credit is not given for an existing pipeline that is to be replaced with a larger one.

Basis for the Secondary Capital Facility Charge

The District's SCFC includes two elements: (1) the appropriate share of capital cost of secondary pipelines, and (2) fire hydrant cost. These costs are allocated according to the front footage of the property seeking new or expanded service.

To establish the SCFC, the District's existing secondary infrastructure was evaluated. Because the District has not developed a detailed asset inventory, the length of the District's secondary pipelines (2-, 6-, 8- and 10-inch pipelines) at ultimate development were measured from maps provided by the District. The total length of these pipelines is 1,479,278 linear feet (LF). The ultimate number of EDUs (66,013 EDUs) was determined by dividing the projected total demand (26,405,250 gpd) with the average use of 400 gpd per EDU assumed in the 1992 Water Facilities Master Plan. Therefore, 22.4 LF of secondary pipelines per EDU are estimated to be required at ultimate development. For the purpose of this analysis, the capital cost of an 8-inch pipeline is utilized as the basis for the SCFC. This estimated cost is \$65 per lineal foot. Therefore, the first component of the secondary capital facility charge is equal to \$1,456 per EDU.

The average spacing of the water hydrants within the District's residential service area is 660 feet according to District staff. (The water hydrant spacing is 330 feet in commercial service areas of the District.) Based on the 22.40 lineal feet of secondary pipelines per EDU and hydrant spacing of 660 feet, there are 29 EDUs, on average, served by each hydrant at ultimate development. According to District staff, the estimated capital cost of each hydrant is \$2,000. Therefore, the hydrant component of the SCFC is \$69 per EDU. Together, the pipeline and hydrant components of the SCFC total \$1,525 per EDU. Based on information provided by the District, the average front footage of an EDU is 60 feet; therefore the recommended SCFC is \$25.42 per foot of frontage. The recommended SCFCs are presented in Table 3.

Water Availability Assessment

In addition to the PCFCs and SCFCs, the District levies a Water Availability Assessment on property within the District to which water service is made available. The Assessment is imposed to defray the expense of providing, operating and maintaining the overall District system. The property owner is required to pay his or her fair share of certain costs of the overall system which will form an integral part of the facilities which will be extended for water connections to the property. The Assessment is based on the area of the parcel.

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There are certain properties that annexed to the District as part of Assessment District #4 that were not subject to the Assessment, i.e. those properties designated as "Fire Only". In addition, properties recently annexed to the District have not been subject to the Assessment. When these property owners request water service they will become subject to the Assessment, in addition to which, as an additional component of the PCFCs and the SCFCs, the District is interested in charging these newly annexed property owners an amount to cover the Assessment they would have been paying if their property had always been subject to the Assessment or within the District's boundaries. District counsel has indicated that this is an acceptable approach so long as the following analysis is done at the time the amount is calculated.

The amount of this additional component is not required to be the entire amount that the property owners would have been paying for the Assessment over many years if the property had always been within the District. The District may determine at its reasonable discretion, with the assistance of its consulting engineer, what the amount should be in order for such property owners to pay their proportionate share of the cost of providing, operating and maintaining the overall District system. This additional component would be calculated to be equal to the amount that would have been imposed for the Assessment for a 15-year period.

Other Charges

Service installation fees for labor, materials and equipment are charged for all meter installations, although these costs are not included in the capital facility charge calculations presented in this analysis. Other administrative fees and/or facility fees may be charged to customers requesting water service on an individual basis, and these fees were not taken into account in the development of capital facility charges.

Recommendations

The proposed capital facility charges are designed to recover capital costs associated with providing water service to new or expanded users. The District's capital facility charge is divided into two components, Primary Capital Facility Charges and Secondary Capital Facility Charges. Based on the analysis presented in this report, the recommended Primary Capital Facility Charge and Secondary Capital Facility Charge are summarized in Table 3. Please note that the District may impose charges that are lower than the recommended charges at its discretion.

TWENTYNINE PALMS WATER DISTRICT
ANALYSIS OF CAPITAL IMPACT FEES
JUNE 2003

Lot Size: 60Ft X 120Ft with 5/8" Meter

	Proposed With Water Annexation	Proposed W/O Water Annexation	Current	Lear Original AD #4	Cooper Original AD #4
Primary Fee	650	650	998	N/A	N/A
Secondary Fee	360	360	-	N/A	N/A
Back Assess.	450	-	-	N/A	N/A
Installation	616	616	616	N/A	N/A
Total	2,076	1,626	1,614	N/A	N/A

Lot Size: 100Ft X 220Ft with 5/8" Meter

	Proposed With Water Annexation	Proposed W/O Water Annexation	Current	Lear Original AD #4	Cooper Original AD #4
Primary Fee	650	650	998	N/A	N/A
Secondary Fee	600	600	-	N/A	N/A
Back Assess.	450	-	-	N/A	N/A
Installation	616	616	616	N/A	N/A
Total	2,316	1,866	1,614	N/A	N/A

Lot Size: 200Ft X 220Ft with 5/8" Meter

	Proposed With Water Annexation	Proposed W/O Water Annexation	Current	Lear Original AD #4	Cooper Original AD #4
Primary Fee	650	650	998	486	486
Secondary Fee	1,200	1,200	-	749	549
Back Assess.	450	-	-	-	-
Installation	616	616	616	150	150
Total	2,916	2,466	1,614	1,385	1,185

Lot Size: 330Ft X 330Ft with 5/8" Meter

	Proposed With Water Annexation	Proposed W/O Water Annexation	Current	Lear Original AD #4	Cooper Original AD #4
Primary Fee	650	650	998	486	486
Secondary Fee	1,980	1,980	-	1,872	1,373
Back Assess.	630	-	-	-	-
Installation	616	616	616	150	150
Total	3,876	3,246	1,614	2,508	2,009

Lot Size: 330Ft X 660Ft with 5/8" Meter

	Proposed With Water Annexation	Proposed W/O Water Annexation	Current	Lear Original AD #4	Cooper Original AD #4
Primary Fee	650	650	998	486	486
Secondary Fee	1,980	1,980	-	3,744	2,746
Back Assess.	930	-	-	-	-
Installation	616	616	616	150	150
Total	4,176	3,246	1,614	4,380	3,382

**TWENTYNINE PALMS WATER DISTRICT
ANALYSIS OF CAPITAL IMPACT FEES
JUNE 2003**

Lot Size: 100Ft X 220Ft with 1" Meter

	Proposed With Water Annexation	Proposed W/O Water Annexation	Current	Lear Original AD #4	Cooper Original AD #4
Primary Fee	1,625	1,625	2,495	N/A	N/A
Secondary Fee	600	600	-	N/A	N/A
Back Assess.	450	-	-	N/A	N/A
Installation	703	703	703	N/A	N/A
Total	3,378	2,928	3,198	N/A	N/A

Lot Size: 200Ft X 220Ft with 1" Meter

	Proposed With Water Annexation	Proposed W/O Water Annexation	Current	Lear Original AD #4	Cooper Original AD #4
Primary Fee	1,625	1,625	2,495	1,248	1,248
Secondary Fee	1,200	1,200	-	749	549
Back Assess.	450	-	-	-	-
Installation	703	703	703	200	200
Total	3,978	3,528	3,198	2,197	1,997

Lot Size: 330Ft X 330Ft with 1" Meter

	Proposed With Water Annexation	Proposed W/O Water Annexation	Current	Lear Original AD #4	Cooper Original AD #4
Primary Fee	1,625	1,625	2,495	1,248	1,248
Secondary Fee	1,980	1,980	-	1,872	1,373
Back Assess.	630	-	-	-	-
Installation	703	703	703	200	200
Total	4,938	4,308	3,198	3,320	2,821

Lot Size: 330Ft X 660Ft with 1" Meter

	Proposed With Water Annexation	Proposed W/O Water Annexation	Current	Lear Original AD #4	Cooper Original AD #4
Primary Fee	1,625	1,625	2,495	1,248	1,248
Secondary Fee	1,980	1,980	-	3,744	2,746
Back Assess.	930	-	-	-	-
Installation	703	703	703	200	200
Total	5,238	4,308	3,198	5,192	4,194

TWENTYNINE PALMS WATER DISTRICT
ANALYSIS OF CAPITAL IMPACT FEES
JUNE 2003

Lot Size: 200Ft X 220Ft with 2" Meter

	Proposed With Water Annexation	Proposed W/O Water Annexation	Current	Lear Original AD #4	Cooper Original AD #4
Primary Fee	5,200	5,200	7,984	N/A	N/A
Secondary Fee	1,200	1,200	-	N/A	N/A
Back Assess.	450	-	-	N/A	N/A
Installation	1,438	1,438	1,438	N/A	N/A
Total	8,288	7,838	9,422	-	-

Lot Size: 330Ft X 330Ft with 2" Meter

	Proposed With Water Annexation	Proposed W/O Water Annexation	Current	Lear Original AD #4	Cooper Original AD #4
Primary Fee	5,200	5,200	7,984	N/A	N/A
Secondary Fee	1,980	1,980	-	N/A	N/A
Back Assess.	630	-	-	N/A	N/A
Installation	1,438	1,438	1,438	N/A	N/A
Total	9,248	8,618	9,422	-	-

Lot Size: 330Ft X 660Ft with 2" Meter

	Proposed With Water Annexation	Proposed W/O Water Annexation	Current	Lear Original AD #4	Cooper Original AD #4
Primary Fee	5,200	5,200	7,984	N/A	N/A
Secondary Fee	1,980	1,980	-	N/A	N/A
Back Assess.	930	-	-	N/A	N/A
Installation	1,438	1,438	1,438	N/A	N/A
Total	9,548	8,618	9,422	-	-