



CITY OF SAN CLEMENTE

FY 2013-2016 Water Rate Substantiation

DRAFT | October 20, 2015

AGENDA

- 1. Revenue Requirements
- Monthly Fixed Service Rates Calculations
- 3. Commodity Rates Calculations
- 4. Annual Water Rate Adjustments
- Questions and Comments

REVENUE REQUIREMENTS

RATE STUDY AT A GLANCE



Cost of Service & Rate Design

- Cost allocations
- Rate design
 - Rate calculations
 - Customer impact analyses



- Report
- Prop. 218 Notice
- Public Hearing

Financial Plan

- Evaluation of CIP¹ and financing options
- Cash flow analysis for financial sufficiency

FY 2013 Budget

FY 2013 Total

A-B-C= \$14,492,377

Allocation of Revenue Requirements at Current Rates

Revenue Requirements

Revenue to be Recovered from Rates

O&M Expenses		
461 WATER ADMINISTRATION		\$1,220,822
462 WATER PRODUCTION		\$2,118,777
Water Cost		\$7,445,642
463 TRANSMISSION & DISTRIBUTION		\$2,543,492
464 WATER CONSERVATION		\$234,455
465 WATER RECLAMATION Funding		\$188,000
Non-Operating Expenses		
Depreciation Funding		\$2,607,303
Subtotal Revenue Requirements	Α	\$16,358,490
Less		
Other Revenue Sources		
Other Operating Revenues		\$525,402
Non-Operating Revenues		
36858-000-00000 OTHER AGENCY (JRWSS) REVENUE		\$656,500
36850-000-00000 MISCELLANEOUS INCOME		\$5,050
36810-000-00000 WORK ORDERS		\$2,525
Subtotal Other Revenue Sources	В	\$1,189,477
Less		
Adjustments		
Adjustment for Annual Cash Balance		\$676,637
Subtotal Adjustments	С	\$676,637

Adjustments for Annual Cash Balance are funds taken from reserve to offset costs.

Monthly Service Rates and Commodity Rates must recover this remaining revenue requirement.

Cost of Service Allocation Process



Allocation of System Costs to Cost Categories

Peaking Demand

Peaking Demand consists of Max Day and Max Hour Cost Categories.

	Supply	Base	Max Day	Max Hour	B&CS ²	Meter	Conservation	Fire	General	Total
% Cost Allocations										
O&M Cost w/o WS ¹	0.0%	35.2%	26.4%	17.6%	10.4%	2.1%	0.0%	0.0%	8.3%	100.0%
Water Supply Cost	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Conservation Cost	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	100.0%
Capital Cost	0.0%	48.7%	26.0%	5.1%	1.4%	9.6%	0.0%	8.1%	1.0%	100.0%
Water System Cost										
O&M Cost w/o WS ¹	\$0	\$1,415,398	\$1,061,548	\$706,453	\$416,789	\$83,358	\$0	\$0	\$333,431	\$4,016,977
Water Supply Cost	\$7,445,642	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$7,445,642
Conservation Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$422,455	\$0	\$0	\$422,455
Capital Cost	\$0	\$1,270,470	\$679,192	\$133,793	\$37,300	\$249,115	\$0	\$211,815	\$25,618	\$2,607,303
Total Costs	\$7,445,642	\$2,685,868	\$1,740,740	\$840,246	\$454,089	\$332,473	\$422,455	\$211,815	\$359,049	\$14,492,377

RFC functionalized the budget based on industry standards, which are consistent with AWWA M1 Manual.

¹ Operations & Maintenance Cost without Water Supply

² Billing & Customer Service

Allocation of General and Fire

Peaking Demand

	Supply	Base	Max Day	Max Hour	B&CS ¹	Meter	Conservation	Fire	General	Total
Total Costs	\$7,445,642	\$2,685,868	\$1,740,740	\$840,246	\$454,089	\$332,473	\$422,455	\$211,815	\$359,049	\$14,492,377
% Allocation of General & Fire Costs		44%	29%	14%	8%	5%		-100%	-100%	100.0%
General & Fire Cost Re-allocation	\$0	\$253,289	\$164,160	\$79,239	\$42,823	\$31,354	\$0	-\$211,815	-\$359,049	\$0
Required Cost of Service	\$7,445,642	\$2,939,157	\$1,904,900	\$919,485	\$496,912	\$363,827	\$422,455	\$0	\$0	\$14,492,377

The Fire and General categories' costs are combined and reallocated across the five main cost categories, with Base receiving most of the costs.

Revenue Offset

Cost Categories	COS ³ for FY 2013	Revenue Offset Adjustment	Adjusted for Revenue Offset
Water Supply	\$7,445,642		\$7,445,642
Base	\$2,939,157	\$656,500	\$3,595,657
Peaking ¹	\$2,824,385		\$2,824,385
B&CS ²	\$496,912		\$496,912
Meter	\$363,827		\$363,827
Conservation	\$422,455		\$422,455
Revenue Offsets		-\$656,500	-\$656,500
Total	\$14,492,377	\$0	\$14,492,377

\$656,500 is identified as "Other Agency (JRWSS) Revenue," which is non-rate revenue. It can be used for specific policy options.

¹ Peaking (\$2,824,385) = Max Day (\$1,904,900) + Max Hour (\$919,485)

² Billing & Customer Service

³ Cost of Service

7% Rate Adjustment Adopted in FY 2013

Required COS ¹	Status Quo	Adjusted
Water Supply	\$7,445,642	\$7,777,923
Base	\$3,595,657	\$3,898,339
Peaking	\$2,824,385	\$3,115,247
B&CS ²	\$496,912	\$548,085
Meter	\$363,827	\$401,294
Conservation	\$422,455	\$422,455
Rev Offset	-\$656,500	-\$656,500
Total	\$14,492,377	\$15,506,843

7% increase on rates based on the financial plan.

¹ Cost of Service

² Billing & Customer Service

Cost of Service Analysis

Required COS ¹	FY 2013	Monthly Fixed	Commodity
Water Supply	\$7,777,923		x
Base	\$3,898,339	х	x
Peaking	\$3,115,247	х	x
B&CS ²	\$548,085	х	
Meter	\$401,294	х	
Conservation	\$422,455		x
Rev Offset	-\$656,500		x
Total	\$15,506,843		

The total Revenue Requirement is allocated to the Monthly Fixed and Commodity Rates.

¹ Cost of Service

² Billing & Customer Service

FY 2013 Revenue Requirements

Monthly Fixed Charges

Commodity Rates

Cost Categories	2013 Requirements (From COS analysis + Rev Adjustments) [A+B+C+D+E+F]	Fixed Charges [A]	Water Supply [B]	Delivery [C]	Peaking Costs [D]	Conservation [E]	Rate Incentives [F]
Water Supply	\$7,777,923		\$7,777,923				
Base	\$3,898,339	\$921,839		\$2,976,500			
Peaking	\$3,115,247	\$1,561,247			\$1,554,000)	
B&CS ¹	\$548,085	\$548,085					
Meter	\$401,294	\$401,294					
Conservation	\$422,455					\$422,455	
Rev Offset	-\$656,500						-\$656,500
Total	\$15,506,843	\$3,432,465	\$7,777,923	\$2,976,500	\$1,554,000	\$422,455	-\$656,500

The total Revenue Requirement is distributed across six different components (A-F).

MONTHLY FIXED SERVICE RATES CALCULATIONS

Revenue Requirements

Monthly Fixed Charges

Cost Categories	2013 Requirements (From COS¹ analysis + Rev Adjustments) [A+B+C+D+E+F]	Fixed Charges [A]	Water Supply [B]	Delivery [C]	Peaking Costs [D]	Conservation [E]	Rate Incentives [F]
Water Supply	\$7,777,923		\$7,777,923				
Base	\$3,898,339	\$921,839		\$2,976,500			
Peaking	\$3,115,247	\$1,561,247			\$1,554,000		
B&CS ²	\$548,085	\$548,085					
Meter	\$401,294	\$401,294					
Conservation	\$422,455					\$422,455	
Rev Offset	-\$656,500						-\$656,500
Total	\$15,506,843	\$3,432,465	\$7,777,923	\$2,976,500	\$1,554,000	\$422,455	-\$656,500

¹⁴

Equivalent Meter Units

Staff provided RFC the Meter Ratios.

Meter Size	# of Meters [A]	Meter Ratio [B]	EMUs [A * B]
% in.	0	1.00	0
¾ in.	0	1.00	0
1 in.	15,590	1.00	15,590
1½ in.	349	2.25	784
2 in.	877	3.36	2,943
3 in.	29	6.52	189
4 in.	19	9.85	187
6 in.	10	18.91	189
Total	16,874		19,883

The Equivalent Meter Units (EMUs) for each meter size are calculated by multiplying the number of meters per meter size by that meter size's meter ratio. This converts the meters of different sizes to the equivalent number of 1 inch meters.

Calculation of EMU Cost of Service

		B&CS ¹	Meter	Capacity ²	Total
1	Required Cost of Service	\$548,085	\$401,294	\$2,483,086	\$3,432,465
2	Units of Service (EMUs / year)	19,883	19,883	19,883	19,833
3	Equivalent Meter Unit (EMU) Cost of Service (\$/month)	\$2.30	\$1.69	\$10.41	\$14.40

$$Unit\ cost\ of\ service(3) = \frac{Required\ Cost\ of\ Services\ (1)}{Units\ of\ Service(2)\ *\ 12\ months}$$

FY 2013 Monthly Fixed Rates

Meter Size	EMUs¹ [A]	Monthly Fixed Rate [B]	Monthly Fixed Rate [A*B]
% in.	1.00	\$14.40	\$14.40
¾ in.	1.00	\$14.40	\$14.40
1 in.	1.00	\$14.40	\$14.40
1½ in.	2.25	\$14.40	\$32.36
2 in.	3.36	\$14.40	\$48.34
3 in.	6.52	\$14.40	\$93.95
4 in.	9.85	\$14.40	\$141.92
6 in.	18.91	\$14.40	\$272.32

COMMODITY RATES CALCULATIONS

Components of Commodity Rates

Water Supply

Local water variable costs, purchased water costs

Delivery Cost

Remaining cost of delivering water to customer

Peaking Cost

Peaking cost of capital improvement

Conservation

Water conservation program costs

Rate Incentives

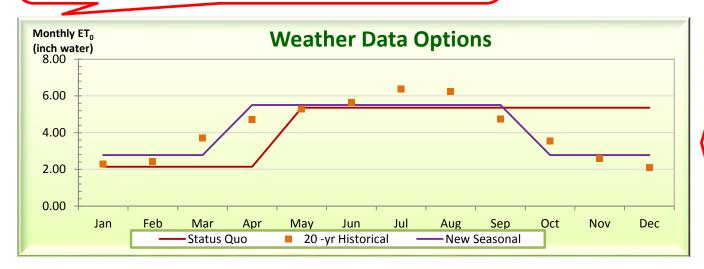
Nonoperating unrestricted revenues to provide affordability for essential use

FY 2013 Commodity Rate Usage Allocations

Tier	Water Supply	Delivery	Conservation	Rate Incentive	Peaking
Tier 1	Groundwater + MWDOC	X		X	
Tier 2	MWDOC	Х			Х
Tier 3	Supplemental	Х	х		XX
CII	Groundwater + MWDOC + Supplemental	х	х	X	X

Season Definition Revision

EvapoTranspiration (ET) is the loss of water to the atmosphere due to evaporation and transpiration. It indicates how much water is needed for healthy plants.



Under FY 2012 season definitions (red line), the City's season definitions significantly differed from the 20-year historical average weather (orange squares) in April, October, November, and December.

Season Definitions	FY 2013
Winter	October – March
Summer	April - September

Seasons were redefined for FY 2013 to better align with the City's historical weather conditions.

FY 2013 Tier Definitions

Tier Definitions by Customer Class	Tier Levels	Winter	Summer
Single Family Residential	Tier 1	0 – 9	0 – 9
(ccf ³ /month)	Tier 2 ¹	10 – 14	10 – 19
Single Family Res Large Lot	Tier 1	0 – 9	0 – 9
(ccf/month)	Tier 2 ²	10 – 19	10 – 28
Multi-Family Residential	Tier 1	0 – 6	0 – 6
(ccf / unit / month)	Tier 2	7 – 9	7 – 10
Multi-Family Res Master Metered	Tier 1	0 – 6	0 – 6
(ccf / unit / month)	Tier 2	7 – 9	7 – 10
Irrigation	Tier 1	0 - 0.0463	0 - 0.0918
(ccf/month)	Tier 2	0.0464 - 0.1853	0.0919 – 0.3673

Notes:

- 1. Tier 1 is considered adequate water for essential indoor water use or ultra-efficient outdoor use.
- 2. Tier 2 is efficient outdoor use.
- 3. Tier 3 (not shown) is for use exceeding 100% of the seasonal allocations.
- 4. Irrigation ranges are for 100sq.ft. of irrigable land and based on evapotranspiration data.

¹ Provides 2,600 sq.ft. of landscape area

² Provides 5,000 sq.ft. of landscape area

³ ccf = hundred cubic feet

FY 2013 Revenue Requirements

			Commodity Rates				
Cost Categories	2013 Requirements (From COS¹ analysis + Rev Adjustments) [A+B+C+D+E+F]	Fixed Charges [A]	Water Supply [B]	Delivery [C]	Peaking Costs [D]	Conservation [E]	Rate Incentives [F]
Water Supply	\$7,777,923		\$7,777,923				
Base	\$3,898,339	\$921,839		\$2,976,500			
Peaking	\$3,115,247	\$1,561,247			\$1,554,000		
B&CS ²	\$548,085	\$548,085					
Meter	\$401,294	\$401,294					
Conservation	\$422,455					\$422,455	
Rev Offset	-\$656,500						-\$656,500
Total	\$15,506,843	\$3,432,465	\$7,777,923	\$2,976,500	\$1,554,000	\$422,455	-\$656,500

Water Supply Sources

- Three sources of supply have been identified:
 - Groundwater: \$124/ AF¹
 - » 620 AF are available.
 - » Allocated between CII and Water Budget based on historical water use:
 - > 9% to CII (56 AF)
 - 91% to Water Budget (564 AF)
 - Imported Water (MWDOC²): \$874/AF
 - » 8,714 AF are available.
 - » Allocated between CII³ and Water Budget based on historical water use:
 - 9% to CII (782 AF)
 - 91% to Water Budget (7,933 AF)
 - Supplemental Water: \$2,230/AF
 - » Quantity available as needed.
 - » Based on the cost of recycled water.

²⁴

Water Supply Sources

			Allocation of W Quantity to Cust	
Water Supply Sources	Unit Cost	Quantity Available	CII (Commercial/Institutional/Industrial)	Water Budgets (Residential & Irrigation)
Groundwater	\$0.29 / ccf ¹ (\$124/AF ²)	270,072ccf (620AF)	24,225ccf (56AF)	245,847ccf (564AF)
MWDOC ³ Blended Including Fixed and Variable Costs	\$2.01/ccf (\$874/AF)	3,796,031ccf (8,714AF)	Up to 340,504ccf (782AF)	Up to 3,455,527ccf (7,933 AF)
Supplemental	\$5.12/ccf (\$2,230/AF)	As needed		

Unit Costs provided by staff.

¹ ccf = hundred cubic feet

² AF = acre feet

³ MWDOC = Municipal Water District of Orange County

Budgeted Water Demand in Tiers

Water Sales (ccf¹)	Budgeted Demand [A]	Demand + Loss (4.36%) [B=A*(1+4.36%)]
Water Budget		
Tier 1	2,137,416	2,230,608
Tier 2	953,261	994,824
Tier 3	327,865	342,160
CII ² - Uniform	359,606	375,284
Total	3,778,148 ccf	3,942,875 ccf

²⁶

Water Supply Unit Rates

		Total Demand	Groundwater	MWDOC¹ Blended	Supplemental	Unit Rate (\$/ccf)
1	Unit Cost		\$0.29 / ccf ² [A]	\$2.01 / ccf [C]	\$5.12 / ccf [E]	
2	Water Budget (in ccf)	[G]	[B]	[D]	[F]	[H]
3	Tier 1	2,230,608	245,847	1,984,761	0	\$1.83
4	Tier 2	994,824	0	994,824	0	\$2.01
5	CII ³ – Uniform (in ccf)	375,284	24,225	340,504	10,555	\$1.99

CII Unit Rate =
$$\frac{A*B+C*D+E*F}{G}$$
 = H

Notes:

- 1. Unit Rate is rounded up to the nearest cent.
- 2. Tier 3 set at Supplemental Rate to send the true value of next marginal water costs.

¹ MWDOC = Municipal Water District of Orange County

² ccf = hundred cubic feet

³ CII = Commercial/Institutional/Industrial

Water Supply Component

Tier	FY 2013 Commodity Rate [A+B+C+D+E]	Water Supply [A]	Delivery [B]	Peaking Cost [C]	Conservation [D]	Rate Incentive [E]
Residential/Irrigation Potable						
Tier 1	\$2.36	\$1.83	\$0.79	\$0.00	\$0.00	-\$0.26
Tier 2	\$3.86	\$2.01	\$0.79	\$1.06	\$0.00	\$0.00
Tier 3	\$8.30	\$5.12	\$0.79	\$1.33	\$1.06	\$0.00
CII ¹						
Uniform	\$3.31	\$1.99	\$0.79	\$0.57	\$0.22	-\$0.26

The Water Supply rates calculated in the previous slides become a portion of the adopted Commodity Rates.

Delivery, Conservation, and Rate Incentive Components

Tier	FY 2013 Commodity Rate [A+B+C+D+E]	Water Supply [A]	Delivery [B]	Peaking Cost [C]	Conservation [D]	Rate Incentive [E]
Residential/Irrigation Potable						
Tier 1	\$2.36	\$1.83	\$0.79	\$0.00	\$0.00	-\$0.26
Tier 2	\$3.86	\$2.01	\$0.79	\$1.06	\$0.00	\$0.00
Tier 3	\$8.30	\$5.12	\$0.79	\$1.33	\$1.06	\$0.00
CII ¹						
Uniform	\$3.31	\$1.99	\$0.79	\$0.57	\$0.22	-\$0.26

Next, the Delivery, Peaking Cost, Conservation, and Rate Incentive components (B-E) are calculated based on the different tiers' responsibility for each component.

Rate Component Calculations

Delivery, Conservation and Rate Incentives

		Delivery	Conservation	Rate Incentive
1	Required Cost of Service	\$2,976,500	\$422,455	-\$656,500
2	Units of Service (ccf ¹)	3,778,148	399,786	2,497,022
3	Unit Cost of Service (\$/ccf)	\$0.79	\$1.06	-\$0.26

$$Unit\ cost\ of\ service(3) = \frac{Required\ Cost\ of\ Services\ (1)}{Units\ of\ Service(2)}$$

Allocation of Units of Service for each Component:

- 1. Delivery: All usage by all tiers.
- Conservation: Inefficient Usage (399,786) = 100% Usage in Tier 3 (327,865)+ 20% CII Usage (20%* 359,606 = 71,921)
- 3. Rate Incentives: Essential Usage (2,497,022) = 100% Indoor Usage [Tier 1] (2,137,416) + 100% CII Usage (359,606)

Conservation Unit Rate

		Conservation Rate Component
1	Unit Cost of Service	\$1.06 / ccf ¹
2	CII ² Conservation Units of Service	71,921
3	CII Conservation Rev. Req. (Row 1 x Row 2)	\$76,236
4	Total CII Usage	359,606
5	CII Conservation Unit Rate (\$/ccf) (Row 3 / Row 4)	\$0.22

	Conservation Unit Rate (\$/ccf)		
Water Budget			
Tier 1	\$0.00		
Tier 2	\$0.00		
Tier 3	\$1.06		
CII - Uniform	\$0.22		

¹ ccf = hundred cubic feet

² CII = Commercial/Institutional/Industrial

Rate Components

Delivery, Conservation and Rate Incentives

	Delivery Unit Rate (\$/ccf¹)	Conservation Unit Rate (\$/ccf)	Rate Incentive Unit Rate (\$/ccf)
Water Budget			
Tier 1	\$0.79	\$0.00	-\$0.26
Tier 2	\$0.79	\$0.00	\$0.00
Tier 3	\$0.79	\$1.06	\$0.00
CII ² - Uniform	\$0.79	\$0.22	-\$0.26

Rate Component Distribution

- 1. All tiers pay the same Delivery Rate as they all contribute to this cost.
- 2. Tier 3 pays the full Conservation rate because it is considered excessive water use. It is assumed 20% of CII usage is excessive. The cost is distributed evenly across all CII usage because the specific excessive use cannot be determined.
- 3. Tier 1 and CII both receive the rate incentive.

¹ ccf = hundred cubic feet

² CII = Commercial/Institutional/Industrial

Peaking Rate Calculations

		Peaking Costs
1	Required Cost of Service	\$1,554,000
2	Units of Service (ccf ¹)	1,474,234
3	Unit Cost of Service (\$/ccf)	\$1.06

Units of Service:

- Peaking Usage (1,474,234)= 100% Tier 2 (953,261) + 100% Tier 3 (327,865) + 54% CII² Usage (359,606 * 54% = 193,108)

 - Peaking CII Usage estimated based on usage analysis

CII Peaking Rate Calculations

		Conservation Rate Component
1	Unit Cost of Service	\$1.06 / ccf ¹
2	CII ² Peaking Units of Service	193,108
3	CII Peaking Rev. Req. (Row 1 x Row 2)	\$204,695
4	Total CII Usage	359,606
5	CII Peaking Unit Rate (\$/ccf) (Row 3 / Row 4, rounded up to the nearest cent)	\$0.57

The CII Peaking Rate is calculated by dividing the revenue required for the peaking units of service by the total CII usage. As with Conservation, this is to distribute the cost evenly across all CII usage.

¹ ccf = hundred cubic feet

² CII = Commercial/Institutional/Industrial

Peaking Rate Calculations Summary

	Peaking Factors
Max Day	1.75
Max Hour	2.95
Average Peaking	2.35
Max Hour / Average Peaking	2.95 / 2.35 = 1.255

	Peaking Unit Rate (\$/ccf ¹)	Notes
Water Budget		
Tier 1	\$0.00	No Peaking
Tier 2	\$1.06	Average Peaking
Tier 3	\$1.33	Peak Hour, 1.255x above average peaking (Tier 2)
CII ² - Uniform	\$0.57	CII peaking rate

¹ ccf = hundred cubic feet

² CII = Commercial/Institutional/Industrial

FY 2013 Commodity Rates

Tier	FY 2013 Commodity Rate [A+B+C+D+E]	Water Supply [A]	Delivery [B]	Peaking Cost [C]	Conservation [D]	Rate Incentive [E]
Residential/Irrigation Potable						
Tier 1	\$2.36	\$1.83	\$0.79	\$0.00	\$0.00	-\$0.26
Tier 2	\$3.86	\$2.01	\$0.79	\$1.06	\$0.00	\$0.00
Tier 3	\$8.30	\$5.12	\$0.79	\$1.33	\$1.06	\$0.00
CII ¹						
Uniform	\$3.31	\$1.99	\$0.79	\$0.57	\$0.22	-\$0.26

ANNUAL WATER RATE ADJUSTMENTS

Water Revenue Annual Adjustments

Effective Date	Water Revenue Adjustment
August 1, 2012	7%
August 1, 2013	6%
August 1, 2014	6%
August 1, 2015	4%

The City adjusted revenues according to the above table. Adjustments apply to both monthly and commodity rates.

Monthly Fixed Rate Annual Adjustments

Fiscal Year	FY 2013	FY 2014	FY 2015	FY 2016
Percent Increase	7.0%	6.0%	6.0%	4.0%
Meter Size				
5/8	\$14.40	\$15.26	\$16.17	\$16.81
3/4	\$14.40	\$15.26	\$16.17	\$16.81
1	\$14.40	\$15.26	\$16.17	\$16.81
1 1/2	\$32.36	\$34.30	\$36.35	\$37.80
2	\$48.34	\$51.24	\$54.31	\$56.48
3	\$93.95	\$99.58	\$105.55	\$109.77
4	\$141.92	\$150.43	\$159.45	\$165.82
6	\$272.32	\$288.65	\$305.96	\$318.19

Commodity Rate Annual Adjustments

Fiscal Year	FY 2013	FY 2014	FY 2015	FY 2016
Percent Increase	7.0%	6.0%	6.0%	4.0%
Tier				
Tier 1	\$2.36	\$2.50	\$2.65	\$2.75
Tier 2	\$3.86	\$4.09	\$4.33	\$4.50
Tier 3	\$8.30	\$8.79	\$9.31	\$9.68
CII Uniform	\$3.31	\$3.50	\$3.71	\$3.85

QUESTIONS AND COMMENTS