

100 Years

# CAWD Connections



"Protecting your health and the environment"

CONSUMER NEWS FROM YOUR CARMEL AREA WASTEWATER DISTRICT

SPRING/SUMMER 2014

*Protecting people and the environment*

## CAWD gets kudos for Collections

We always knew that Carmel could be proud of its local wastewater district—and now we have the award to prove it: in February at a special award dinner held in Aptos, our five-person collection crew received the Collection System of the Year award for the Monterey Bay section, given by the California Water Environment Association (CWEA).

The CWEA is the premier wastewater industry association in California, dedicated to excellence in wastewater treatment. They have provided statewide training and certification since 1927. CAWD was chosen based on a comprehensive on-site inspection and peer evaluation of our safety and maintenance records, training programs, regulatory compliance and best management practices. Daryl Lauer, CAWD Collection Superintendent, attributes the award to the teamwork and dedication of his fellow staff members.

"We are not out to win awards. . . . our goal is always focused on performing our duties to the highest standard for our community," said Daryl. "But it is gratifying to have your peers in the industry tell you that you're doing a good job!" Daryl himself was twice-honored by the CWEA in 2012 when he won the Collection System Person of the Year award for the Monterey Bay section, as well as the statewide "Golden Pick," a prestigious life achievement award that recognized his contributions as past-president and collection representative of our local CWEA chapter. "When we go about our daily duties we are very aware that everything we do is to protect the health and safety of people in our community, our water quality, and our beautiful natural environment," said Daryl. "It's something we take very seriously."



**WE'VE GOT YOUR BACK!** CAWD's award-winning collections crew includes Collections Superintendent Daryl Lauer (center) and inspectors (from left) Barry Blevins, Mark Napier, Andrew Millington and Robert Bowman.

### Sewer backup? Call CAWD!

If you have a backup call us immediately day or night, seven days a week, at 624-1248, or 624-6403 if it is after-hours. We will determine if the problem is in the main line (our problem) or the lateral line (your responsibility). To prevent backups into your home keep the sewer relief valve in your yard clear of debris and in good working order. Call us for a free inspection—we're happy to help!



## MICROORGANISM OF THE MONTH

### MEET "LOUIE" LACRYMARIA OLOR!



"Louis" *Lacrymaria olor* is one of many species of microorganisms that thrive in CAWD's wastewater treatment system, helping us transform what you flush into clean water for discharge back into the environment. Louie feeds on smaller microbes, who in turn eat the harmful bacteria in our wastewater. *Lacrymaria* has earned the poetic name "Tear of the Swan" because when contracted he is tear-shaped, and when he stretches out his neck he can have the silhouette of a swan—or a microscopic Loch Ness monster, depending on your point of view.

In fact, Louie's amazing ability to stretch would put comic book hero Elastigirl to shame. Although *Lacrymaria* is approximately 100 microns in length, it can quickly extend to 1,200 microns to find and capture prey. The neck itself stretches to 50 times its own length—on a human scale that's like being able to send your head skyward 70 feet into the air! But Louie's neck is much more flexible than that. Just imagine: you are watching your favorite TV show when someone calls you from the yard. Instead of leaving your comfy chair you could just stretch your neck through the hallway, turn into the kitchen, and head out the back door. Depending on how big your house is, you could even go out the gate and back in the front door to look over your own shoulder at the TV! Cells just aren't supposed to be able to operate that way and nobody is entirely sure how Louie does it. (Cont. on page 2)



**SWAN OR LOCH NESS MONSTER? Shapeshifter *Lacrymaria olor* uses its super-elastic neck to capture prey, which helps clean our wastewater at the CAWD plant.**



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**Your stellar  
CAWD plant  
Did you know ... ?**

CAWD was the first sewage treatment plant built on the Monterey Peninsula, and is one of the oldest sanitary districts in California. It was formed as the Carmel Sanitary District 106 years ago in 1908—eight years before Carmel was incorporated.

CAWD has one of the most sophisticated plants in the country due to our cutting edge Microfiltration/Reverse Osmosis system, which allows Pebble Beach golf courses to use 100 percent recycled water for irrigation. The project was a cooperative effort between CAWD, Pebble Beach Community Services District (PBCSD), Pebble Beach Company and the Monterey Peninsula Water Management District.

We receive about 1.4 million gallons of wastewater each day, which travels below 1,500 manholes through 84 miles of pipeline and seven pump stations. Our crew cleans the entire pipeline every year to prevent spills, using remote control cameras to video the complete system.

CAWD provides services for 11,000 people within the District, plus treatment and disposal for 4,500 people in Del Monte Forest via contract with PBCSD.



**Carmel Area  
Wastewater  
District**

3945 Rio Road Carmel, CA 93923  
831 . 624 . 1248

**Free 24-hour sewer back-up service:**  
Call 624-1248, or 624-6403 after-hours.  
*If water is backing up in your tub or toilet it is an emergency. Call us immediately day or night.*

CAWD is a special district dedicated to protecting public health and the environment with the cost-effective collection and treatment of wastewater and the return of clean water to the environment.



*We welcome the public to attend CAWD board meetings, held the fourth Thursday of each month at 9 am at the CAWD office.*

**Board of Directors**

Greg D'Ambrosio Charlotte Townsend  
Susan Paboojian Ken White  
Robert Siegfried

**General Manager, Barbara Buikema**

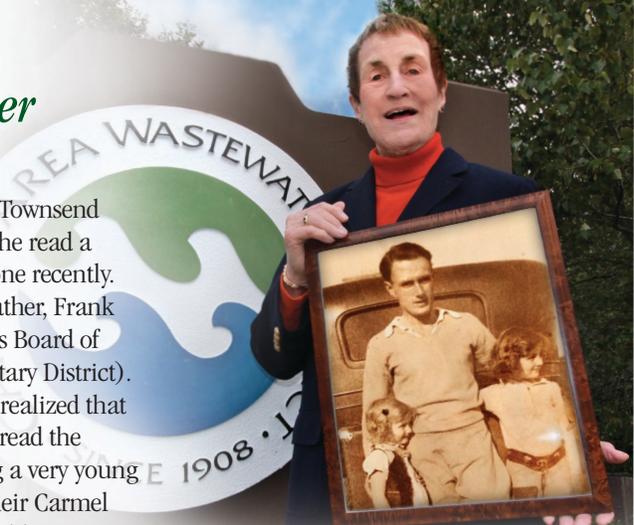
## Surprise father-daughter legacy on CAWD Board

Longtime CAWD Board Member Charlotte Townsend couldn't have been more surprised when she read a historical snippet published in the Pine Cone recently. It reported that 75 years ago in 1938 her father, Frank Townsend, was up for reelection on CAWD's Board of Directors (then known as the Carmel Sanitary District). Charlotte, who grew up in Carmel, hadn't realized that she was filling her father's shoes until she read the article, but it prompted a memory of being a very young child and overhearing him talking with their Carmel Point neighbors about the local sewage problem.

"At that time Carmel's sewage drained through a box of beach sand," said Charlotte. "Everyone was concerned about it."

The historical snippet also reported that the Carmel Sanitary District had successfully applied for a Works Progress Administration (WPA) grant to build the first wastewater treatment plant in Carmel, an endeavor in which Charlotte's father must have been involved. Construction on the plant began in 1939 thanks to the WPA grant, which was part of President Roosevelt's New Deal, started during the Great Depression.

Charlotte herself is a legend at CAWD, being the first woman elected to our Board in 1975, and, remarkably, serving over 30 years and counting (she took a short hiatus when she served as mayor of Carmel from 1982-1986). Charlotte has also served as President of the California Association of Sanitation Agencies and the Special Districts Association of Monterey County, as well as with many other civic and environmental groups.



**LEGACY OF SERVICE** CAWD Board member Charlotte Townsend with a childhood photo of herself (on right) with her sister and father, Frank Townsend, who served on our board in the 1930s.

**Right: Single "primary" cilia that extend from olfactory cells allow us to detect odors. Below: The long neck of *Lacrymaria* makes a right turn while hunting prey. Image shows the long cilia on the microbe's head.**



### Microorganism (From front page)

*Lacrymaria* is a ciliate—a protozoan with large numbers of hair-like cilia that it uses to swim and sweep food into its mouth. Louie has spirals of cilia down his body that he uses to propel himself, as well as much longer cilia around his head/mouth. He can attach his body to a substrate and send his head out scouting for food, rapidly lunging his neck in all directions. When he makes contact with a smaller ciliate he swallows it whole, making his neck look like a skinny snake with a giant egg inside. He will also tear chunks off of large microbes that are too big for him to swallow. (To see amazing video, search "*Lacrymaria*" on YouTube or scan the QR code below with your smart phone app.) If Louie's head gets severed while extended it shoots off and continues swimming for awhile before gradually disintegrating. But don't worry—the wound immediately closes and in a matter of minutes Louie produces a new head and continues feeding!

### Cilia: we all depend on it

Given our common ancestry with microbes, it's not surprising that all mammals also possess cilia. The beating of cilia keeps our airways clear, propels sperm and keeps fluid moving deep in our brains. In addition, a single, non-moving or "primary" cilia can be found on every cell of our bodies where it acts as a sensory antenna for each cell. For example, the primary cilia on our retinal cells detect light, and those on our olfactory cells detect odors.

Like some other microbes, when conditions won't support life *Lacrymaria* doesn't die. Instead, he goes dormant and waits for better times in a state of suspended animation. If he starts to dry out or encounters too much heat, cold, or oxygen loss he can actually reorganize his cell structure, turning himself into a tiny blob of protoplasm and genetic material encased in a thick protective cell wall. Months or years later, when it rains or warms up, he can reverse the process, reform his special body parts, and emerge to feed again.



For amazing videos of Louie, search YouTube for "*Lacrymaria*," or scan the QR code below.



**When *Lacrymaria* attaches to a surface it can stretch its neck even further—up to 50 times longer than the neck itself!**



## How do we stack up to other utilities?

Approximate monthly utility cost comparison for a typical California family of four



gas/electricity  
\$187



cell phone  
\$180



cable  
\$104



water  
\$45



CAWD proposed sewer fee  
\$42.86

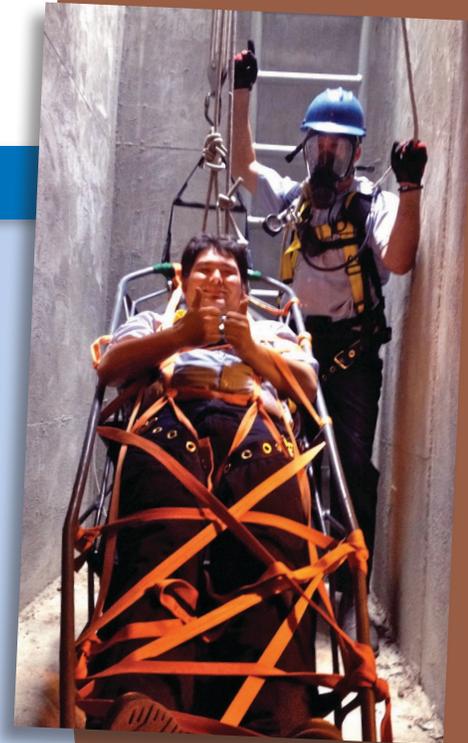
## CAWD staff: ready for any emergency

Wastewater treatment operators must work with potent chemicals, and they routinely enter confined spaces to perform maintenance and repairs. As part of CAWD's rigorous safety program, all our operations and collections staff receive special training in hazardous materials response and confined space rescue—and now we have an emergency response trailer on-site that can be immediately deployed to any location throughout the District. The trailer contains HAZMAT suits with breathing apparatus, chemicals to neutralize spills and decontaminate responders and victims, and extraction equipment including rope and pulley systems. While the possibility of accidents is extremely small due to CAWD's numerous precautionary measures and fail-safes, ongoing training provides another layer of protection and self-sufficiency.

“Our employees know that if they injured themselves or lost consciousness in a manhole or wet well their fellow workers would be there immediately to rescue them,” said CAWD Safety and Regulatory Compliance Administrator Joe Gregory. “Having our own on-site capabilities means that response time is immediate, which is especially important when you're working with toxic chemicals. Our team knows how to contain and neutralize spills quickly.”

CAWD's safety training keeps us in regulatory compliance, minimizes workman's compensation costs by preventing injuries, and provides a vital safety net for our employees and our community. In the event of major earthquakes, floods or other disasters CAWD personnel can deploy equipment and join local emergency responders in rescue efforts. With that in mind, CAWD is hosting a multi-agency hazardous waste/confined space training at our treatment plant this summer which will be attended by local fire and police personnel.

“Sharing resources and expertise increases efficiency and benefits local residents,” said Joe. “We're looking forward to building more partnerships in the community with this cooperative effort.”



CAWD Senior Operator Christian Schmidt prepares to hoist his fellow worker Michael Hooks to safety using a pulley system during one of CAWD's confined space rescue trainings. CAWD's safety training and equipment protects workers, keeps us in regulatory compliance, and provides rescue services for our community in the event of major disasters.

## CARMEL AREA WASTEWATER DISTRICT PROPOSED BUDGET

July 1, 2014-June 30, 2015

### Sources of Cash \$15,083,491

Sewer user fees	PBCSD* fees	Draw on reserves	Reclamation project	Property taxes	Interest income/Other
\$5,194,671	\$3,325,667	\$3,308,686	\$1,491,890	\$1,457,768	\$304,809

34.4%

22.0%

21.9%

10.0%

9.7%

2.0%



CAWD has a longstanding reputation for keeping sewer rates as low as possible while at the same time ensuring the health and safety of residents and the environment. As much of our plant equipment is 30 years old or more, rate increases are now necessary to upgrade the plant and keep our wastewater treatment system safe and reliable. Throughout the upgrade CAWD will continue to ensure that our community receives the best value for every ratepayer dollar.

\* Pebble Beach Community Services District

### Uses of Cash \$15,083,491

Operations & Maintenance	Capital projects	Reclamation project	Debt service
\$5,458,227	\$8,883,510	\$516,945	\$224,809

36.2%

58.9%

3.4%

1.5%





## CAWD timeline

**1908** Carmel Sanitary District formed, providing a rudimentary community treatment system that trickled through beach sand.

**1939** Primary treatment plant constructed with Works Progress Administration (WPA) grant under President Roosevelt's New Deal during the Great Depression. We still use one of the original digesters as a holding tank.

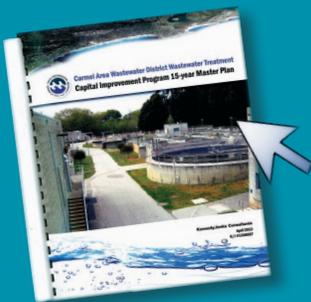
**1950s** Construction of a new digester and heater room upgraded the processing of sewage solids.

**1970s** Secondary plant constructed. Most of these aging systems are still in use today and need replacement/rehabilitation as part of our 15-year Master Plan.

**1980s** Major upgrade doubled CAWD systems and created the treatment plant that exists today. Environmental Protection Agency grants via the Clean Water Act paid for 75 percent of capital costs.

**1990-2008** District changes name to "Carmel Area Wastewater District." Tertiary and reverse osmosis/microfiltration system installed to provide irrigation water for golf courses. These reclamation projects were totally funded by Pebble Beach Company.

**2013-2027** CAWD 15-year upgrade of secondary plant to improve efficiency, safeguard human health, and protect the environment.



### View our 15-year Master Plan online

Click on the financial tab at [CAWD.org](http://CAWD.org) to find our Capital Improvement Program 15-year Master Plan. While you're there, check out tips on preventing sewer backups, or see a breakdown of exactly how your sewer fees are allocated. [CAWD.org](http://CAWD.org) is your resource for everything sewer related!

# CAWD renovation forges ahead

CAWD's 15-Year Capital Improvement Program is proceeding on schedule and on budget, with 60 percent of the design completed as we go to press. We will continue to test and evaluate proposed design elements throughout the summer and fall so we can start the bidding process for Phase One in January, with construction slated to begin in spring 2015. Phase One includes high priority projects that will ensure the reliability of operations at the plant. Unlike other service providers, CAWD cannot shut down for repairs and maintenance.

"Sewer users create a continuous flow into the plant, and our biological and chemical processes are all dependent upon one another," explains Plant Superintendent Jim Pinkevich. "We need reliable back-up systems and energy sources throughout our facility to continue operating during the frequent power outages in our area, and to perform regular repairs and maintenance."



**CAWD is pilot testing a new, highly efficient screw press that produces lighter biosolids that will cost less to truck out of the plant. The unit needed for the plant is approximately three times larger than the test model shown here.**

### Squeezing the most out of every dollar



**The CAWD upgrade will help ensure the safety of the Carmel River Lagoon and Wetlands, as well as Carmel Bay, a designated Area of Special Biological Significance.**

Our electrical system is the heart of our facility, needed to operate our blowers, motors and aeration systems, but much of it is over 30 years old and well past its useful life—especially in the corrosive environment of the plant. As with all our systems, we are rehabilitating electrical equipment instead of replacing it whenever it is cost effective. For example, we have determined that our main power grid can still meet the needs of our community for many years with an upgrade alone. However, much of our plant equipment cannot be repaired because parts are no longer available. That is the case with most of our computerized control centers located throughout the plant. These connect to our main SCADA network and provide around-the-clock, real-time monitoring and coordination for our entire treatment process. Our SCADA system is crucial because if a problem in one of our interconnected systems is not corrected immediately it can quickly effect the integrity of the entire plant.

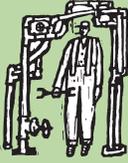
Phase One also includes a new digester, which breaks down sewage sludge into compost. We will be tearing down a circa-1930 digester, and rehabilitating one built roughly 35 years ago to serve as a back-up system. We are also pilot testing a new, low-maintenance screw press for our digested biosolids which is much more efficient at removing liquids than our existing belt press, which is obsolete and slated for demolition. The screw press uses dramatically less energy and produces much lighter biosolids which will decrease hauling costs. Our priority is efficiency and energy conservation, and we are analyzing cost saving potential on all levels, from solar panels to motion sensor lighting.

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— Sewer rate notice inside! —

Carmel Area  
Wastewater District  
3945 Rio Road  
Carmel, CA 93923  
831.624.1248





## How does CAWD set sewer rates?

CAWD's rate model was devised by the State Water Resources Control Board. It allocates costs based on **flow**, **biochemical oxygen demand (BOD)** and **suspended solids**.

**Flow** is the amount of liquid wastewater—at CAWD this is about 1.4 million gallons each day. A large cost of flow is for the energy needed to continually pump the water to the headworks where it then gravity feeds through the rest of the plant during treatment.

**Suspended Solids** are the particles of matter left in wastewater after heavier solids have settled out. When wastewater enters the plant it is screened at the headworks to remove large debris—this goes to the land-fill. Then the water goes to a clarifier where larger particles settle to the bottom. This sludge gets pumped to a digester that turns it into compost. The remaining particles in the water are the suspended solids that must be consumed by the billions of microorganisms we propagate to clean our wastewater.

**Biochemical Oxygen Demand** is the amount of oxygen consumed by the microorganisms that eat bacteria and clean our wastewater. The more concentrated the wastewater, the more oxygen we need to support the microbes. More oxygen means more cost to run the large blowers which aerate the water in our secondary treatment tanks, which are like giant aquariums of microscopic animals. Much of the plant's equipment and infrastructure are there to keep our hardworking "bugs" happy and healthy.



**Carmel Area Wastewater District**  
3945 Rio Road  
Carmel, CA 93923  
831 . 624 . 1248

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### Board of Directors

Greg D'Ambrosio  
Susan Paboojian  
Robert Siegfried  
Charlotte Townsend  
Ken White

### General Manager

Barbara Buikema

## — Proposition 218 Notification — Notice of Public Hearing on Proposed Sewer Rate Increase

**Thursday, June 26, 2014, 9:00 am**  
**Carmel Area Wastewater District**  
**3945 Rio Road, Carmel, CA 93923**

On June 26, 2014, at 9:00 a.m., or as soon thereafter as the matter may be taken up, the Carmel Area Wastewater District (CAWD) Board of Directors will hold a public hearing prior to the adoption of its sewer rates. The hearing will be held at the District offices located at 3945 Rio Road, Carmel, CA 93922.

The District remains fully committed and focused on our ongoing treatment plant rehabilitation. We initiated this process in 2012 by engaging Kennedy/Jenks Consulting to assess the condition of our facility and prioritize a rehabilitation plan. It was a long and comprehensive analysis which resulted in our present Capital Improvement Program 15-year Master Plan totaling \$30 million. Currently the design is 60 percent completed and we expect to request bids beginning in January 2015. Construction should begin in spring of that year and last for 24 months.



**Although the CAWD plant keeps a low profile hidden off Highway One, it is of paramount importance to the health of our community, as well as our environment, tourist economy, and general quality of life. The CAWD renovation will ensure that we continue to have safe, efficient wastewater treatment now and for future generations.**

a shifting hillside near the Carmel River Lagoon and Wetlands, as well as our force main that crosses the lagoon. With the potential of flooding from Monterey County's Highway One causeway project, we need to upgrade the force main to withstand fast-moving floodwaters and protect the wetland area.

Why do we need to renovate and increase rates right now? Our community's treatment plant had its last major overhaul over 30 years ago, funded by Clean Water Act grant money. All of us who have lived in this community for any length of time have benefited from this federal money, as well as from funds collected from ratepayers before us who helped finance the upgrade. Grant money for local capital projects is nearly non-existent in our current economy and has been for quite some time, so we have to adopt either a "pay-as-you-go" or debt strategy to maintain a reliable wastewater treatment system. We think the best strategy is pay-as-you-go so that we don't burden the next generation of Carmelites.

The Capital Improvement Program 15-year Master Plan is an ambitious, long-term undertaking, but it is one that is simply necessary to retain an efficient facility that complies with regulatory codes. Our rehabilitation plans have been exhaustively vetted by engineers, financial analysts and your elected CAWD Board to ensure that our beautiful and unique

Concurrent with our plant assessment we have also been evaluating our aged collection system, including video analysis of our entire 84 miles of sewer main, collected via remote control camera. Our long-term replacement plan for the system will triage areas by severity of defects and age of the line, most of which is old-style clay pipe which is vulnerable to deterioration and root intrusion. Based upon best engineering standards and practices, we are planning on approximately \$500 thousand per year for rehabilitation and replacement to ensure the reliability of our collection system. Projects currently in the design stage include a rehabilitation of the Carmel Meadows line that runs along

community has a safe and reliable sewage treatment system. For residential customers—our largest category—we are proposing an additional \$4.23 per month on your property tax bill. That is the equivalent of a 10.97 percent increase. We believe that an additional \$50.76 per year is a good value to ensure the long term sustainability of the Carmel wastewater system that we all depend upon. As with all our endeavors, our main renovation goal is to protect public health and the environment in the most cost effective manner possible. We are dedicated to using every ratepayer dollar to best advantage for our community.

The procedural requirements of Proposition 218 require that the District provide a notice of the proposed rate schedule to all property owners of record forty-five (45) days prior to holding a public hearing. In order for the increase to “not take effect,” a majority of the property owners are required to file opposition to the increase. Property owners may file a written and signed protest against the proposed increase with the Board of Directors of Carmel Area Wastewater District (CAWD) at or before the close of the public hearing. To be valid, a protest must be in writing even if you plan to attend the public hearing. Email protests cannot be formally considered. Each written protest must include the parcel owner’s name, service address, assessor’s parcel number for the parcel served, and the parcel owner’s signature. Only one protest will be counted per parcel. If you own more than one parcel, you may file a single protest, but it must identify each parcel you own. The protest must be signed by the property owner(s). If the signer(s) is not shown on the last equalized assessment roll of Monterey County as the owner(s) of the property, the signer(s) must provide written evidence of ownership of said property. For your convenience we have included a protest form on our website, CAWD.org. At the hearing, the Board of Directors shall hear all protests and tabulate the ballots.

Protests should be mailed or delivered to the same address as the hearing location. For further detailed information regarding the proposed rate plan, please call James Grover, CAWD Principal Accountant, at (831) 624-1248.

### **Carmel Area Wastewater District Proposed Sewer Rate Increases for 2014-2015**

<b>User Categories</b>	<b>2013-14 Annual Rates</b>	<b>2014-15 Proposed Rates</b>	<b>Percentage of Change</b>
Bakery (each location)	\$ 1,885.36	\$ 2,198.30	16.60%
Bar (each location)	\$ 724.30	\$ 864.82	19.40%
Beauty Salon (each location)	\$ 601.98	\$ 717.46	19.18%
Business/Govt./Retail (1-10 employees = one unit)	\$ 274.94	\$ 311.50	13.30%
Camera/Photo (each location)	\$ 382.04	\$ 456.96	19.61%
Church/Synagogue/Mission (each location)	\$ 401.46	\$ 478.50	19.19%
Convalescent Hospital (per bed)	\$ 217.94	\$ 260.20	19.39%
Dental Office (per dentist)	\$ 408.88	\$ 485.80	18.81%
Gym/Health Spa (each location)	\$ 514.08	\$ 612.82	19.21%
Hotel/Motel (per room)	\$ 232.94	\$ 260.68	11.91%
Laundromat (per machine)	\$ 493.92	\$ 587.30	18.91%
Laundry (each location)	\$ 1,884.96	\$ 2,262.74	20.04%
Market (each location)	\$ 872.22	\$ 1,053.90	20.83%
Medical Office (per physician)	\$ 216.50	\$ 247.18	14.17%
Residential/Minimum vacant (each location)	\$ 463.46	\$ 514.32	10.97%
Restaurants (per seat/meal)	\$ 35.90	\$ 43.36	20.78%
School (per population)	\$ 17.46	\$ 20.76	18.90%
Service Station (per pump)	\$ 1,504.86	\$ 1,619.06	7.59%
Supermarket (each location)	\$ 14,639.80	\$ 14,152.08	-3.33%
Special Users (each location)	\$ 402.96	\$ 480.32	19.20%
Veterinary Offices (each location)	\$ 1,039.90	\$ 1,242.32	19.47%
Vet Hospital/Boarding (each location)	\$ 3,416.82	\$ 3,549.50	3.88%