

115 Years

# CAWD Connections



"Protecting your health and the environment"

CONSUMER NEWS FROM YOUR CARMEL AREA WASTEWATER DISTRICT

SPRING/SUMMER 2023

## Weathering the storms

CAWD's advanced emergency planning really paid off during the atmospheric rivers that rocked our coast this winter. Despite rainfall that inundated the treatment plant and put many of our main lines underwater, all equipment operated efficiently and without incident.

"Our backup systems worked perfectly so we did not have to activate third tier, portable generators," said CAWD Collections Supervisor Daryl Lauer. "In fact, our entire collection system performed well during the storms. One preemptive measure we are taking is to install stronger manhole frames with locking lids to keep water out. This greatly lessened the amount of water flowing into the plant." Our six-man maintenance crew worked 12 to 14 hour days and even around the clock during the worst of the storms. They performed precautionary measures to prevent spills and continually monitored backup generators at our seven pump stations during the frequent and prolonged power outages.



When huge waves undermined Scenic Road and exposed sewer lines, CAWD crews responded immediately to prevent a spill onto Carmel Beach. Here, contractors cover the newly installed main line.

## MICROORGANISM OF THE MONTH

STENTOR: THE MICROBE THAT CHANGES ITS MIND



In this color-coded image, Stentor's digestive food vacuoles resemble blobs in a lava lamp. Even a tiny fragment of Stentor can grow into an entirely new organism.

Photo by Dr. Igor Siwanowicz

Sometimes described as the blue whale of the microscopic world, "Stanley" Stentor is 1,000 times longer than most bacteria and 1 billion times the volume. When anchored to the substrate feeding, he stretches out to over 2 mm long and is visible to the naked eye—despite the fact that he is a one-celled animal.

Stentors are one of the higher life forms found at the CAWD wastewater treatment plant. Their presence is a sign that our treatment process is stable and well-oxygenated to support the trillions of microbes that clean our community's wastewater. Stentors had not been well studied, but that (Cont. on page 2)

## Scenic Road undermined

Before heavy rainfall, staff proactively staged bypass equipment at a critical pump station near the lagoon so that wastewater would be safely diverted if flow exceeded capacity. During one of these operations, our supervisor Daryl received an emergency call: massive ocean waves had undermined Scenic Road between Valley View Avenue and Carmelo Street, exposing a main line and leaving a manhole dangerously close to the dropoff to Carmel Beach. Staff responded immediately and installed another bypass to safeguard the environment.

The main line repair was extremely challenging due to saturated sand that required extensive shoring. (Cont. on P. 3)



See a spill? Call CAWD immediately!

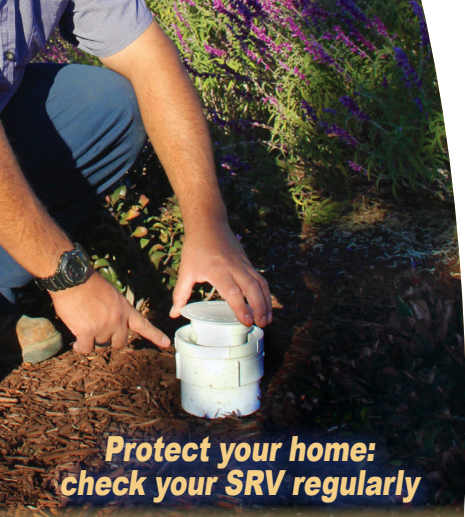
We count on the public to be our eyes and ears out in the community. If you see water flowing out of a manhole cover, in the street, through cracks in the road or sidewalk, or coming out of the sewer relief valve in your yard, it is a serious emergency!

Please contact CAWD at once. We respond to emergencies seven days a week, 24 hours a day, so don't hesitate to call us at 624-1248. After 5 pm, please call Carmel Police at 624-6403, and they will activate a CAWD response.

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## Protect your home: check your SRV regularly

The sewer relief valve (SRV) in your yard prevents sewage from entering your home during a main line backup by diverting it into your yard. Make sure your SRV is in good working order and free of obstructions, especially after storms when fallen branches might block flow. Call us for a free inspection and we'll show you how to check this simple device. If you have wastewater backing up into your home or yard it is an emergency—please call us immediately! Our friendly, professional crew is on call 24 hours a day, 365 days a year.

**Free 24-hour sewer hotline**  
8 am-5 pm: call us at 624-1248  
after 5 pm: call Carmel Police  
at 624-6403 to activate a  
CAWD response.



**Carmel Area  
Wastewater  
District**

3945 Rio Road Carmel, CA 93923  
(831) 624-1248 • CAWD.org

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.

**Board meetings:** last Thursday of the month at 9 am at the CAWD office; masks and proof of vaccination required, or attend via the zoom link at CAWD.org.

### Board of Directors

Greg D'Ambrosio Kevan Urquhart  
Michael Rachel Ken White  
Robert Siegfried

**General Manager,** Barbara Buikema

"Bug of the Month" © Anne Muraski 2023



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## "Connisewer Quiz" answers

Congrats to CAWD customers Barbara Sherman and Jill Petker, winners of our newsletter quiz contest—they each received a \$50 gift certificates to their favorite Carmel restaurant! Read on for interesting facts about your District:

1. Which of these breakthroughs has saved the most lives?

A. Antibiotics B. Water chlorination **C. Toilets/sanitary sewers** D. Pasteurization

While antibiotics, water chlorination, and pasteurization have saved hundreds of millions of lives, toilets and sanitary sewers are credited with saving 1 billion lives before antibiotics were even in use. Sadly, according to the Center for Disease Control and Prevention, 3.6 billion people—nearly half the world's population—still do not have access to safe sanitation in their home.

2. Approximately how much wastewater does CAWD clean each day?

**A. 1.2 million gallons** B. 550,000 gallons C. 2.5 million gallons D. 700,000 gallons

3. Which of these does not happen at the CAWD treatment plant?

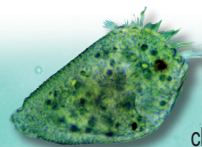
A. Sampling incoming wastewater regularly to determine COVID-19 levels B. Transforming methane into electricity C. Recycling wastewater to irrigate Pebble Beach golf courses

**D. Recycling personal wipes to be made into traffic cones**

CAWD was one of the first in our region to collect samples for coronavirus testing, beginning in July, 2020 (view reports at CAWD.org). CAWD uses methane, a treatment plant byproduct, to power microturbines that heat our plant's digesters, which saves electricity. CAWD's sophisticated microfiltration/reverse osmosis system turns wastewater into pristine recycled water to irrigate Pebble Beach golf courses.



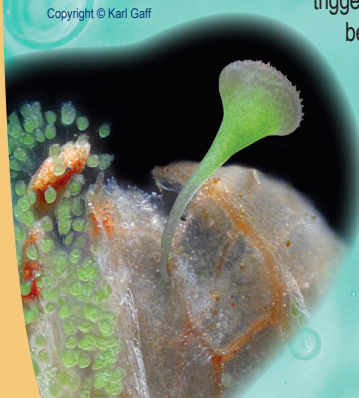
**CAWD's microfiltration/reverse osmosis system recycles wastewater to irrigate Pebble Beach golf courses, which saves potable water, decreases pumping of the Carmel River, and reduces outfall to the ocean. See back page for more ways we protect the river, lagoon, and ocean.**



**When on the move, Stentor contracts into a much smaller pear shape, beating its cilia to swim and escape predators.**

**Below: Dubbed the blue whale of the microworld, Stentor towers over a colony of Vorticella, which are also ciliates.**

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## Microorganism (Cont. from front page)

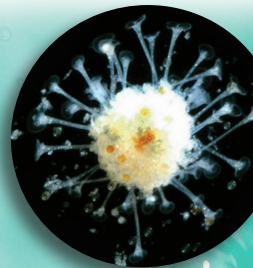
changed when researchers discovered that they have amazing powers of regeneration. If Stanley loses his mouth, tail, or any of his parts he can grow them back in eight to nine hours. In fact, a single Stentor can be divided into 64 to 100 pieces (according to different sources), and each piece will produce an entirely new Stentor!

Scientists at UCSF are trying to figure out how Stanley knows which parts are missing so he can repair himself. They hope to apply his regenerative powers to humans. When the research team sequenced Stentor's genome, they were amazed to discover that the microbe stores hundreds of thousands of genome copies inside itself, as compared to humans who only store two copies in each cell. Having so many copies spread throughout the cell may help Stanley regenerate missing parts, no matter where the injury occurs.

### What to do, what to do . . .

Researchers at Harvard found that when they introduced an irritant (microplastics) in the vicinity of Stentor, the microbe appeared to "change its mind," trying out various tactics of evasion instead of exhibiting a set, triggered response that you might expect from a microorganism. Initially, most Stentors would bend away from the irritant and reverse the direction of their beating cilia to move it out of the area. When the irritant did not go away, many would contract into a ball to protect themselves, until finally making the "decision" to detach and swim away. This is much more autonomous behavior than you would expect from a single-celled organism with no brain or central nervous system!

Scientists believe that Stentor's behavior might shed light on how the human immune system operates, how embryos develop, or how cancer cells mutate. The amazing and mysterious Stentor is showing us that "simple" single-celled organisms are not so simple after all.



**A colony of anchored Stentors stretches out to filter feed on bacteria.**

## How do we stack up to other utilities?

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



**gas/electricity**  
\$375



**cell phone**  
\$180



**Cable bundle**  
\$160



**water**  
\$140



**CAWD proposed sewer fee**  
\$89.08

## Storms *(Cont. from page one)*

CAWD Principal Engineer Rachel Lather and Daryl brainstormed an elegant solution which saved time and money: the repair would reverse the direction of wastewater flow and use gravity to send it to an alternate main line on an adjacent street. Construction was completed in 10 days, and we expect to receive FEMA funding to cover the cost. Staffed worked closely with the owners of the five homes who temporarily lost sewer service during the emergency. Due to their home's location, Jim and Anita Guyette were the most impacted. CAWD workers installed an ejector pump to restore service so they could move back into their home during the repair.

"The district did an extraordinary job under very difficult circumstances," said Jim. "Daryl kept us informed, and Rachel and Barbara [CAWD General Manager Barbara Buikema] also contacted us personally. They all deserve a lot of credit for their great planning, communication, and execution which got us through the crisis."

## Holding down the fort

While the collections crew worked out in the field, our operations staff safeguarded the treatment plant. When the Carmel River runs high, an earthen berm directs flow across our access road into the lagoon. This protects the plant from flooding, but temporarily prevents access. As waters began to rise in January, we moved all service vehicles out of the plant; Superintendent Ed Waggoner and three other key employees prepared to stay overnight. They took turns sleeping so they could monitor all operations continuously. During a three-day period in January, plant intake increased over threefold from the usual 1.2 million gallons per day to 4 million gallons per day. *We commend all our dedicated employees whose perseverance got us through the storms!*



**CAWD SPIRIT** We salute our dedicated CAWD Collections team for going above and beyond this storm season. Their skill and can-do attitude kept our community's wastewater collections system running efficiently with no spill incidents despite torrential rain that submerged the system, prolonged power outages, and a storm surge that exposed coastal sewer lines.

## CARMEL AREA WASTEWATER DISTRICT PROPOSED BUDGET

July 1, 2023-June 30, 2024

### Sources of Cash \$25,717,730

Sewer User Fees	Capital Reserve Fund	PBCSD* Fees	Property Taxes	Reclamation Project	Interest Income/Other
\$10,561,010	\$8,112,397	\$3,021,705	\$2,600,000	\$817,428	\$605,190

41.1%

31.5%

11.7%

10.1%

3.2%

2.4%



After many years of careful fiscal planning, the District will use \$8 million of its reserve funds this year to finance several sewer main line replacement projects. These large capital projects are necessary to help bring our collections system up to Central Coast Regional Water Quality Control Board standards. As you drive around town, you'll see that several projects are already underway to protect human health and the environment.

\* Pebble Beach Community Services District

### Uses of Cash \$25,717,730

Capital Projects	Operations & Maintenance	Reclamation Project	Debt Service
\$15,650,570	\$9,036,252	\$817,428	\$213,480

60.9%

35.1%

3.2%

0.8%



Our detailed assessments show that we need to spend \$11 million on our community's treatment plant, and \$66 million on our collection system over the next 15 years to keep it safe and reliable. Ratepayers will see annual, incremental fee increases to fund rehabilitation. As a self-supporting, nonprofit agency, CAWD depends on user fees to fund infrastructure and maintenance. As a nonprofit agency, CAWD's goal is always to match revenues to expenses.





**In memory of  
Charlotte Townsend**  
February 21, 1925 - October 31, 2022

We are saddened by the loss of our longtime CAWD Board Member, Charlotte Townsend. Charlotte is a legend at CAWD. In 1975 she was the first woman elected to our board, where she served until her passing: an amazing 43 years of service. She took a brief hiatus while serving as the mayor of Carmel from 1982 to 1986.

Charlotte also served as president of the California Association of Sanitation Agencies and the Special Districts Association of Monterey County, and is known for her service with many other civic and environmental groups such as the Carmel Library Board, Carmel Citizens Committee (predecessor to the Carmel Residents Association), and the local chapters of the League of Women Voters, the Sierra Club, and the Audubon Society, among others.

Charlotte was fiercely dedicated to giving back to her community. She expressed this during a 2014 interview for the CAWD newsletter: "Carmel was a wonderful place to grow up, and I began to appreciate that even more once I started traveling," said Charlotte. "I've always wanted to help preserve what we have here for the future, to help protect the health of our community, and its natural environment."

We salute you Charlotte: you have accomplished your bold mission with flying colors.

*[Editor's note: New Board Member Kevan Urquhart was appointed on December 6, 2022 to fill Charlotte's vacant seat.]*

## Caring for the Carmel lagoon

Like most treatment plants in coastal cities, CAWD's was built near sea level so that gravity could efficiently transport wastewater for cleansing. Given our location adjacent to the Carmel River Lagoon and one mile from the ocean, environmental stewardship is something we take very seriously. When water levels in the lagoon were critically low during past historical droughts, we worked with regulatory agencies so that treated water could supplement the lagoon, which saved threatened Carmel River steelhead. Here are a couple of ways CAWD is currently working to safeguard this beautiful natural area for wildlife and people.

### Safeguarding against spills

CAWD continues to work with the Big Sur Land Trust and Monterey County as the Carmel River Floodplain Restoration and Environmental Enhancement Project (CRFREE) moves toward the construction phase. The project is designed to restore floodplain habitat and reduce flood risk for property owners. CAWD's engineering analysis of the project revealed that increased water velocity could cause a potentially devastating debris strike to CAWD's 180-foot-long outfall and sewage pipeline on the south arm of the lagoon. To prevent sewage spills into the wetland and Carmel Bay, CAWD made sure that the cost of undergrounding the line was included in the project grant application; this also ensured that our ratepayers will not have to shoulder all the expense.

FEMA is expected to award the \$26 million grant for the project in June, of which \$8 million is slated for the CAWD undergrounding to safeguard the lagoon and ocean. We expect construction to begin in 2025, timed to avoid wildlife breeding and nesting periods.



**The Carmel River Lagoon and wetland is a vital migration route for threatened steelhead and is used by over 300 species of birds, such as the great blue heron (inset). You can see the top of the CAWD pump station in the foreground.**



**BRIDGE TO EVERYWHERE** CAWD's footbridge is the only Carmel River crossing west of Highway One, and is the key to connecting Carmel-by-the-Sea to state and regional parks south of the river.

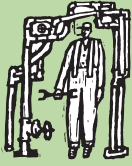
### Enhancing access and raising awareness

As reported in our last issue, CAWD is spearheading a community walking path project to connect trails from Carmel-by-the-Sea to state and regional parklands south of the Carmel River. The key to the project is the CAWD-owned, circa-1938 footbridge over the Carmel River, the only river crossing west of Highway One. The bridge and an out-of-commission wooded access road to the plant would provide connection to existing parks and trails, as well as provide a site for educational signage about native wildlife and wetlands.

The "Carmel Area Bridge to Everywhere" project would create a pathway that begins at the Mission Trail nature preserve on Rio Road, skirts Larson Field by the Carmel Mission, crosses the CAWD footbridge, and continues to the Carmel River Lagoon and CRFREE

trails. It would provide connection to Palo Corona Regional Park, Hatton Canyon Trail, Carmel River State Beach, Carmel Point and Scenic Road Walkway, Monastery Beach, Point Lobos State Natural Reserve, and the in-progress California Coastal Trail.

This amazing opportunity to connect some of the most magnificent natural sites in our area—all without having to purchase land—will require the cooperation of many entities such as California State Parks, the City of Carmel-by-the-Sea, Big Sur Land Trust, and the Diocese of Monterey, to name a few. Currently we are meeting with stakeholders, agencies, and public officials to create partnerships, garner support, and seek grant funding and donations to make this exciting project a reality. To learn more about the Bridge to Everywhere project, please visit CAWD.org.



## 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, suspended solids, and biochemical oxygen demand (BOD)**.

**Flow** is the amount of liquid wastewater—at CAWD this is about 1.3 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 landfill. 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 to 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. These tanks are like giant aquariums of microscopic animals. Much of the plant's equipment and infrastructure are there to keep our hardworking microbes happy and healthy.



**Carmel Area Wastewater District**  
3945 Rio Road  
Carmel, CA 93923  
(831) 624-1248 ■ CAWD.org

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### Board of Directors

Greg D'Ambrosio  
Michael Rachel  
Robert Siegfried  
Kevan Urquhart  
Ken White

**General Manager**  
Barbara Buikema

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

Thursday, June 29, 2023, 9:00 am  
Carmel Area Wastewater District  
3945 Rio Road, Carmel CA 93923

**Zoom link: scroll to the bottom of the CAWD.org homepage**

On June 29, 2023, at 9:00 am, 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.

After three years of operation during the pandemic, at long last CAWD has been able to loosen safety protocols at the treatment plant. However, we will continue weekly sampling of our community's wastewater influent as long as is necessary to provide the Monterey County Health Department and the public with vital data on current COVID-19 levels. While operations are back to normal, spiraling costs and delays in our supply chains are not. We are feeling the same inflationary pressures that we know our ratepayers are experiencing. Power and chemicals, our costliest budget items, continue to escalate. In addition, our property and liability insurance has increased by 14% due to the national insurance markets. These are just a few of the many cost increases we must absorb for basic supplies and services to keep the plant running.



**CAWD's circa-1930s digester was demolished in January to make way for new construction. We were able to get an amazing 85 years of service from the structure by converting it to a sludge holding tank after it had outlived its useful life.**

Our long-term 15-year capital improvement plan prioritizes \$11 million in projects to maintain the treatment plant, and \$66 million to replace or rehabilitate aging sewer lines, for a total of \$77 million. This budget reflects the realities of operating during a period of continual change. As always, we prioritize rehabilitation and retrofitting over replacement of equipment and infrastructure, when it is the most cost-effective option. We will continue to apply for any and all available state and/or federal funding, but we must be prepared if that grant money does not come through.

Even with these fiscal challenges, CAWD remains committed to reducing the impact of customer rate increases as much as possible. Last year, residential customers saw a 14.63% increase, which helped us manage inflationary costs. This year, the increase is less than half that amount, down to a 6.26% residential increase. Nobody likes higher fees, including the CAWD staff and board members who live in the district, but we must continue to maintain our treatment facility and collection system. It is our responsibility to pass down to the next generation the same protections and safeguards we have enjoyed, thanks to our predecessors. To that end, we are proposing an additional \$5.25 per month on residential property tax bills, our largest customer category. The total \$63.00 increase for 2023-24 will help ensure the long-term sustainability of the Carmel area wastewater system.

With continued careful planning, we should be able to maintain our “pay-as-you-go” policy, which we have used for the past 24 years. This policy allows us the freedom to maintain and build our system in a way that best meets the community's needs, un beholden to loan covenants and without adding borrowing expenses to user fees. As a self-supporting, nonprofit agency, our goal is to match revenues to expenses, and get the most value out of every ratepayer dollar. We are committed to meeting our permit guidelines, preventing sewer overflows, and protecting public health and the environment in the most cost-effective way possible.

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 in writing.

Property owners may file a written and signed protest against the proposed increase with the CAWD Board of Directors 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 posted 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.

*We will continue to update you on improvements to our community’s wastewater system, and we invite you to review our long-term capital plan at CAWD.org. Please feel free to contact us at 624-1248 should you have any questions.*

### **Carmel Area Wastewater District Proposed Sewer Rate Increases for 2023-2024**

<b>User Categories</b>	<b>2022-23 Annual Rates</b>	<b>2023-24 Proposed Rates</b>	<b>Percentage of Change</b>
Bakery (each location)	\$ 3,743.88	\$ 3,853.88	2.94%
Bar (each location)	\$ 1,579.64	\$ 1,704.12	7.88%
Beauty Salon (each location)	\$ 1,331.32	\$ 1,444.18	8.48%
Business/Govt./Retail (1-10 employees = one unit)	\$ 612.48	\$ 662.46	8.16%
Camera/Photo (each location)	\$ 799.14	\$ 858.52	7.43%
Church/Synagogue/Mission (each location)	\$ 887.94	\$ 963.18	8.47%
Convalescent Hospital (per bed)	\$ 472.38	\$ 509.74	7.91%
Dental Office (per dentist)	\$ 914.52	\$ 1,000.64	9.42%
Gym/Health Spa (each location)	\$ 1,161.50	\$ 1,259.26	8.42%
Hotel/Motel (per room)	\$ 477.64	\$ 514.96	7.81%
Laundromat (per machine)	\$ 1,143.94	\$ 1,244.64	8.80%
Laundry (each location)	\$ 3,968.94	\$ 4,210.40	6.08%
Market (each location)	\$ 1,840.42	\$ 1,901.28	3.31%
Medical Office (per physician)	\$ 440.50	\$ 440.50	0.00%
Residential/Minimum vacant (each location)	\$ 1,005.94	\$ 1,068.96	6.26%
Restaurant (per seat/meal)	\$ 74.40	\$ 77.06	3.58%
School (per population)	\$ 42.24	\$ 46.02	8.95%
Service Station (per pump)	\$ 2,947.48	\$ 3,170.58	7.57%
Supermarket (each location)	\$ 25,502.46	\$ 26,379.08	3.44%
Special User (each location)	\$ 916.18	\$ 993.94	8.49%
Veterinary Office (each location)	\$ 2,288.84	\$ 2,465.16	7.70%
Vet Hospital/Boarding (each location)	\$ 6,511.88	\$ 7,013.56	7.70%