Consumer news from your Carmel Area Wastewater District

Spring/Summer 2016

"Protecting your health

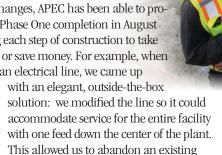
Construction update

### Plant renovation on schedule and under budget!

We are happy to report that as we enter our tenth month of construction CAWD's Capital Improvement Projects 15-year Master Plan is on schedule, under budget, and we are well on our way to providing our community maximum return on its investment.

"The careful analysis we conducted to create an accurate, detailed site design is really paying off," said Drew Lander, CAWD Principal Engineer. "It helped us get a reliable bid over \$1 million below our estimate, and we've had very few changes to the original design during construction. If this pattern continues we will complete Phase One under budget."

We have built a very positive working relationship with Anderson Pacific Engineering Contractors (APEC) of Santa Clara, who submitted the lowest responsible bid of \$13.9 million for our \$15 million Phase One project. With so few design changes, APEC has been able to proceed without interruption and currently we are on track for Phase One completion in August 2017. CAWD and APEC are evaluating the site design during each step of construction to take advantage of any options that add value, are more efficient, or save money. For example, when an underground obstacle was going to delay installation of an electrical line, we came up



line, which saved time and the expense of

upgrading the older line in the future.

"That is a huge added value we are getting without additional cost," said Drew. "Working closely with our contractors we've been able to add value like this throughout the plant." In addition, when APEC discovers unseen issues with electrical or other equipment as they tear down infrastructure, they are addressing and improving the systems as they go, at a fraction of the cost of hiring and mobilizing an outside service. Here are just a few milestones we've achieved so far: (cont. on page 3)



amazing. all-female **Bdelloid** has a vacuum on her head, crushing jaws in her chest, eves to sense light, a foot and toes-all stuffed into 1000 cells!

### MEET "BDESIREE" BDELLOID ROTIFER

There's a couple reasons why we named the bdelloid rotifer "Bdesiree Bdelloid." First of all, the "B" in bdelloid is silent, so you can pronounce this bug of the month as "Desiree Delloid." Second, since bdelloids were first discovered 300 years ago no males have been found, hence the female name.

Desiree lives everywhere: in bird baths, streams, moss—and at the CAWD treatment plant where she helps clean our

wastewater and balance bio-oxygen levels. She uses twin rings of beating, hair-like cilia on her head to create a powerful vortex that draws bacteria and microbes down into her chest where powerful jaws crush them. Under the microscope Desiree looks like a giant street sweeper amongst her smaller peers. (cont. on P. 2)

**BUILDING VALUE** FOR OUR COMMUNITY Working closely with our partners, we are analyzing the site plan for the upgrade during each stage of construction. As a result, we have been able to add value and efficiency throughout the plant over and above the original design, giving our community the highest return on its investment. Here, our stellar contractors, Anderson Pacific Engineering, work on our new **Hypochlorite Building while** CAWD Principal Engineer **Drew Lander (right) and Patrick Treanor. Project** Engineer with Kennedy/ Jenks Consultants, check site plans.



### View our plant upgrade master plan

Click on the financial tab at CAWD.org to find our Capital Improvement Projects 15-year Master Plan.

All American Mailing **GIA9** 

827/624-1248 Carmel, CA 93923 3945 Rio Road Carmel Area Wastewater District



### Got questions? Call Irene!

We'd like to introduce you to our new Administrative Services Coordinator, Irene Bryant. She comes to us with an

extensive background in business and office management, with skills in human resources, payroll, accounting, and employee benefits. She has worked in private and public industries, such as California Public Agency Insurance Services, and, most recently, the Santa Cruz County Office of Education.

As part of our efficient four-person administrative team, Irene wears many hats including human resources, board secretary, and office manager. When you call or drop by our offices Irene is there to make sure you reach the right person, whether you have a backup or want a free inspection of your sewer relief valve.

"I'm excited to be working in a friendly office with such a close-knit team," Irene said. "We all support each other and want to provide great service to our ratepayers." Irene recently moved to the area, and as an outdoor enthusiast she appreciates all the local beauty. "Everyone has been so welcoming," she said. "I'm very happy to be a new resident of Carmel-by-the-Sea!

"If you have questions about your sewer system, fees, plumbing permits, or the treatment plant, please give us a call," said Irene. "We're here to help and put your mind at ease!"



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

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 Michael Rachel

General Manager, Barbara Buikema

"Bug of the Month" @ Anne Muraski 2001-2016

### Your award-winning CAWD

As a CAWD customer, you can rest assured that the experts at your treatment plant are safely cleaning our community's wastewater. Three of these experts were recognized this year by their peers in the California Water Environment Association as the best in the Monterey Bay Section, a large area extending from Morgan Hill to King City. Congratulations go to:



TOP NOTCH TEAM CAWD honorees, from left: Daryl Lauer, Collections Superintendent: Trevor Holland, Lab Analyst: and Ralph Stevens, Maintenance Superintendent.

Supervisor of the Year: Daryl Lauer, CAWD

Collections Superintendent, empowers employees with his contagious positive attitude. Under his guidance CAWD received the Collection System of the Year award in 2013 and 2014. He was also twice-honored in 2012 when he received the Collection System Person of the Year award, and the "Golden Pick," a prestigious, statewide lifetime achievement award. Daryl is a Director and past president of our CWEA chapter and he volunteers as a local youth softball coach.

**Laboratory Person of the Year:** Trevor Holland, Lab Analyst, embodies an ethic of leadership and service at CAWD and in the community. His lab analysis ensures efficiency throughout the plant, and he's used his considerable computer science skills to automate our data collection, saving time and money. Trevor is always on top of the latest industry developments, and is a founder of a Science Based Career Exploring program for our local Boy Scouts.

**Electrical/Instrumentation Person of the Year:** *Ralph Stevens, Maintenance Superintendent,* is known as a great listener, motivator, and manager. His 30 years of experience has been invaluable during our plant rehabilitation. Ralph knows how a piece of equipment works just by looking at it, and is always finding ways to enhance reliability and efficiency. He volunteers on the CWEA Board of Directors and shares his expertise by teaching Maintenance Mechanics classes throughout California.

### Microorganism (from front page)

Bdelloids got a lot of press recently after scientists finally confirmed the non-existence of males. While many animals can reproduce asexually from time to time, it is unheard of to find one that has abandoned sex altogether. While asexual reproduction is normal for bacteria, simple microbes and plants, it is extremely rare in multicellular animals, so much so that the preeminent evolutionary biologist Maynard Smith called the mere existence of bdelloids "an evolutionary scandal." Without the genetic diversity from two parents, asexual life forms were thought to be short-lived, driven extinct by the quickly evolving parasites and pathogens that prey upon them.

Yet Desiree is a conquering Amazon among microbes, undermining long-held beliefs that sexual reproduction is superior. Although celibate, Desiree has managed to survive 80 million years and diversify into 460 species. She is extremely resistant to pathogens and amazingly hardy, able to withstand ten times the radiation a human can survive. Also, instead of dying when she dries out, she waits in suspended animation for water to reappear. Even nine years later she can "wake up" when rehydrated, repair her DNA, and go about business as usual in a matter of hours as if nothing had happened!

While most Bdelloids swim or crawl, Floscularia ringens stays in one place. She makes dense pellets out of the detritus she collects, and uses them as "bricks" to build her tubular home.

#### **Move over Darwin**

So how has Desiree evolved these superhero powers without the adaptive edge of parental DNA? Molecular biologists were stunned to find that 10 percent of genes in the bdelloid genome were from about 500 other life forms including bacteria, algae, and fungi- entirely differ kingdoms of life! It appears that bdelloids can incorporate genetic fragments from their food and surroundings, and then pass those genes down to their daughters. When Desiree rehydrates after being in a dried state she uses stray bits of genetic material around her as patches to rebuild her shattered DNA. These spare parts may perform the same functions they did for their original owners, like repairing DNA, breaking down carbohydrates, and providing immune defense.

To sum up, times are a changing in evolutionary biology. The latest research shows that horizontal gene transfer is an active player in evolution for many life forms, making Darwin's natural selection only part of the story. A 2015 Cambridge study concluded that numerous and perhaps even all animals incorporate foreign genes, including humans who have as many as 145 genes that have jumped into our genome from bacteria, single-celled organisms, and viruses. Perhaps this recent reshuffling is not so surprising when you consider that all life forms share a common ancestor that lived about 1.6 billion years ago. That's why 50 percent of our DNA is the same as a banana's, and 60 percent the same as a fruit fly's, and 90 percent for a cat! Everything is connected . . .



Nature's

tiniest jaws:

of a bdelloid

rotifer.

the impressive

crushing trophi

What looks like a smiling face is actually the two toes and retracted foot of a bdelloid rotifer. Toe glands produce an adhesive animal while she feeds.



### 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



\$104

water \$65



CAWD proposed sewer fee \$54

### Renovation (from front page)

—Pile driving was completed in December to support our new digesters, transformer pad, and other structures. We thank all our neighbors within earshot for their patience!

—Our electrical master control panel is now installed, and our new transformer will be delivered in May. Our electrical system is the backbone of our facility and we have been replacing deteriorating electrical lines throughout the plant. These energy-saving upgrades will reduce operational costs in all areas of the plant.

—Our new stormwater pump station is now in operation. All stormwater runoff is delivered to the headworks for processing, making the plant totally self-contained and preventing any muddy runoff from entering the environment.

—Construction of our new Hypochlorite Building is well underway, with foundation and frame in place. Liquid sodium hypochlorite will replace toxic chlorine gas previously used in the final disinfection process. This safer alternative will save money on specialized safety equipment and hazardous chemical training which will no longer be needed. Our old chlorine gas building will be renovated for offices and storage.

As Phase One continues we are already planning for Phase Two of the upgrade, which includes rehabilitation of our existing primary digester, a second screw press to dewater biosolids, and other backup equipment and systems to ensure continual operation during power outages and maintenance. At the same time, we must also maintain our 84 miles of sewer main which deliver wastewater to the plant. We are now conducting survey work to replace our oldest lines in Carmel Woods, first installed 60 to 80 years ago. With our ratepayers as partners, we are creating a safe and reliable wastewater treatment system to protect human health, our precious environment, and our local economy, now and for future generations.

SAVING ENERGY AND MONEY
A crane lowers one of three master
control panels which will distribute
power throughout the treatment
plant from our new transformer. The
equipment meets the latest OSHA
safety requirements, and is part of
our energy-saving electrical upgrades.
Instead of building new housing for the
upgraded mechanical control center,
we repurposed the second floor of an
existing office building to save money
on construction costs.



#### CARMEL AREA WASTEWATER DISTRICT PROPOSED BUDGET

July 1, 2016-June 30, 2017

				o a i y	1, 2010 0	uı
	S	ources o				
Sewer User Fees \$6,436,201 35.4%	Capital Reserve Fund \$4,557,168 25.1%	\$18,157, PBCSD* Fees \$4,009,648 22%	Approxim Reserves CAWD's \$ Projects remaining covered is paid for Services	ately \$15 mill is helping to 40 million Ca 15-Year Maste 3 \$25 million i by user fees, o r by Pebble Be District, per o	Interest Income/Other \$303,813  1.7%  Ion in Capital fund Phase One pital Improveme r Plan. The n projects must one third of whice each Community ur agreement to tetwater treatme	ents be ch y
	* Pahhla F	Reach Community	v Services Distric			

### Uses of Cash \$18,157,565

Capital	Operations &	Reclamation	Debt	
Projects	Maintenance	Project	Service	
\$10,996,267	\$6,436,385	\$506,100	\$218,813	
60.6%	35.4%	2.8%	1.2%	





As the plant renovation progresses, ratepayers will see annual, incremental fee increases to cover funding of Phase Two and Three. As a self-supporting, nonprofit agency, CAWD depends on user fees to fund replacement of infrastructure, as well as maintenance costs. Our goal is always to match revenues to expenses, leaving no profit.



### Do you know the location of your sewer relief valve?

Your sewer relief valve (SRV), also called a backflow prevention valve, is the metal "mushroom" or pipe that protrudes from the ground in your yard, extending up from the lateral line that connects your house to the main sewer line. If the main line backs up, your SRV prevents sewage from backing up into your home by releasing it into the yard instead. This simple, inexpensive piece of equipment is required by law and can save tens of thousand of dollars in property damage—but only if it is working properly.

Check your SRV regularly to make sure it is operational and clear of obstructions, especially after storms when falling branches and erosion can cause malfunctions. If you hire a gardener, make sure they know that SRVs should not be covered with soil—the overflow point must be a minimum of four inches above the ground.

If you need to replace your SRV or lateral line you must obtain a permit from the District, which will ensure correct installation. To work properly, SRVs must be installed at an elevation that is lower than the lowest plumbing fixture in the house. They should not be enclosed in a concrete utility box or covered with anything.

Don't know how to check your SRV? Please call our friendly and helpful CAWD Collections team and we will show you how, as well as perform a free inspection. Also, if you ever have water backing up anywhere in your home or yard it is an emergency—call us immediately, day or night. We will assess the blockage free of charge and determine whether it is in the main line (our problem) or the lateral line (your responsibility). We are here to help. Please call us at 624-1248, or at 624-6403 after hours.

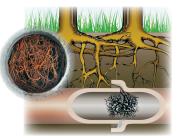
### What you should know about your sewer system

### 1. We are all partners in maintaining a safe sewer system

CAWD maintains 84 miles of sanitary sewer line, but the other half of our community's sewer system are lateral lines coming from privately owned homes and businesses. Property owners are responsible for the entire length of their lateral line including the connection to the main sewer line. We count on each other to keep the system functioning properly to protect human health and the environment.

### 2. The majority of sewage spills are from privately owned lateral lines

Sewage can end up in the ocean when blocked or cracked laterals cause spills that enter the storm drain, which is separate from the sewage system and leads directly to the ocean. During the rainy season massive amounts of stormwater can enter cracked laterals, taxing the system and causing spills.



Root tendrils seek out water and easily penetrate joints and cracks in old clay and iron pipes, causing blockages.

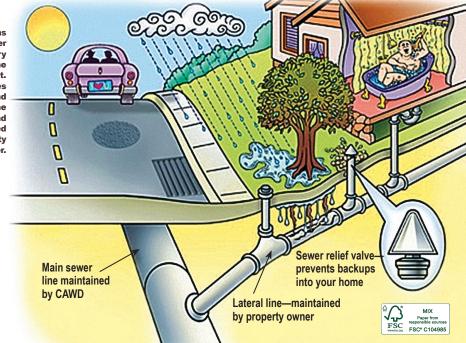
### 3. Tree roots, fats, oils, grease, and "flushable" products cause sewage spills, blockages, and backups

Tree roots, age, and earth settlement damage pipes, especially the old, jointed clay and cast iron variety predominant in the Carmel area. Personal wipes, tampons, kitty litter, facial tissue etc. accumulate on tree roots to cause back-ups. These solids do not decompose and must be separated out and trucked to the landfill, increasing sewer fees and wasting energy—it's best to put them in the trash in the first place. Egg shells, grease and coffee grounds from in-sink garbage disposals form a cement-like mixture that sticks to pipes and roots. Compost kitchen scraps or put them in the garbage.

### 4. Regular inspection and maintenance of your lateral line and sewer relief valve protects the environment and your pocketbook

Along with your sewer relief valve (see sidebar) your lateral line is one of the most vital pieces of equipment you have to protect your home. If your toilet gurgles, most likely roots are clogging your line. Call a sewer contractor as soon as possible to prevent total blockage and costly repairs. Old laterals near large trees may need to be augured out frequently to remove roots. Clay and iron pipes which have not yet collapsed can be upgraded without trenching your yard using a pipebursting method—this leaves the old pipe in the ground and replaces it with a seamless, root-resistant PVC plastic pipe. *Together, we can protect property and the sewer system we all share, as well as human health, wildlife and the environment. For more information visit CAWD.org, or call 624-1248 for a free brochure on preventing backups.* 

CAWD maintains
the public sewer
lines that carry
wastewater to the
treatment plant.
Private lateral lines
connect homes and
businesses to the
main sewer line and
must be maintained
by each property
owner.





# 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 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 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 ■ 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 of Directors**

Greg D'Ambrosio Michael Rachel Robert Siegfried Charlotte Townsend Ken White

General Manager Barbara Buikema

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

Thursday, June 23, 2015, 9:00 am Carmel Area Wastewater District 3945 Rio Road, Carmel, CA 93923

On June 23, 2016, 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 plan to rehabilitate the CAWD treatment plant. Currently, we are one-third of the way through Phase One construction of our Capital Improvement Projects 15-year Master Plan, with total completion slated for the end of August 2017. We are able to perform this work to secure out community's future thanks to extensive planning, analysis, and—most importantly—the support of our customers. If you are a newcomer to CAWD services, please know that we initiated this process in 2012 by engaging Kennedy/Jenks Consulting Engineers to assess the condition of our facility and prioritize a rehabilitation plan. As Phase One proceeds we are simultaneously planning Phase Two, as well as



main sewer line replacements needed over the next 15 years to keep our Collection System in good working order.

The task ahead of us is significant, but to protect human health, the environment, and the local economy our community must have an efficient sewage treatment plant and collection system. Every treatment facility needs constant rehabilitation and replacement to remain safe and effective. As the saying goes, "Nothing lasts forever," but our master plan goes far beyond merely replacing worn out equipment—it is also takes full advantage of new technologies to save energy and money so that ratepayers receive

the highest value possible for their investment. For example, your District is choosing equipment upgrades that streamline processes throughout the plant, and we're improving safety by converting from toxic chlorine gas to sodium hypochlorite in our final disinfection phase.

Besides plant rehabilitation, maintaining our sewage treatment system takes continual, careful assessment of many complex factors. Climate change and sea level rise is a reality and we are planning to protect our critical systems throughout the District so your service continues uninterrupted. We're analyzing what impacts the County Causeway Project in the Carmel River Lagoon will have on our infrastructure, and we may need to relocate our pump station at Calle la Cruz. And while the plant sits nearly 3,000 feet back from the beach, with changing conditions we can no longer assume that this is an adequate buffer zone.

Our beautiful community deserves a safe and reliable sewage treatment facility. As local property owners with drains and toilets, we have all been benefiting from the investment of residents and business owners who came before us, who helped build the plant that has served us well for so many years. We have also benefited from Clean Water Act grants which helped pay for major plant upgrades in the 1980s, but that money is no longer available so we must now take care of ourselves. To fund today's plant rehabilitation we've adopted a responsible pay-as-yougo fiscal strategy, rather than saddling future generations with debt and failing infrastructure. Residential is by far our largest customer category. We are proposing an additional \$5.97/month on your property tax bill. That is the equivalent of a 12.46% increase—not insignificant by any means—but we think an additional \$71.64/year is a good value to help ensure the long term sustainability of our community's vital wastewater treatment system.

Our rehabilitation plans are ambitious and long range—but they have been exhaustively analyzed and are being repeatedly evaluated every step of the way to provide maximum benefit. In the spirit of maintaining full transparency, we intentionally are not asking for a multi-year rate plan—instead we will update you annually on our progress, and let you know precisely what we are doing with your money. As always, CAWD's main goal is to protect public health and the environment in the most cost-effective manner possible. You can view our long-term capital plan at CAWD.org, and we invite you to contact us with any questions. Together, we are taking action now to ensure the future of 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 at 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, Principal Accountant, at (831) 624-1248.

### Carmel Area Wastewater District Proposed Sewer Rate Increases for 2016-2017

User Categories	2015-16 Annual Rates	2016-17 Proposed Rates	Percentage of Change
Bakery (each location)	\$ 2,369.08	\$ 2,487.40	4.99%
Bar (each location)	\$ 981.04	\$ 1,049.60	6.99%
Beauty Salon (each location)	\$ 819.78	\$ 867.32	5.80%
Business/Govt./Retail (1-10 employees = one unit)	\$ 355.02	\$ 391.92	10.39%
Camera/Photo (each location)	\$ 515.96	\$ 540.98	4.85%
Church/Synagogue/Mission (each location)	\$ 546.72	\$ 582.88	6.61%
Convalescent Hospital (per bed)	\$ 295.10	\$ 309.56	4.90%
Dental Office (per dentist)	\$ 561.02	\$ 588.36	4.87%
Gym/Health Spa (each location)	\$ 699.50	\$ 752.92	7.64%
Hotel/Motel (per room)	\$ 295.60	\$ 320.50	8.42%
Laundromat (per machine)	\$ 676.40	\$ 727.10	7.50%
Laundry (each location)	\$ 2,514.96	\$ 2,691.76	7.03%
Market (each location)	\$ 1,143.46	\$ 1,200.06	4.95%
Medical Office (per physician)	\$ 283.18	\$ 299.62	5.81%
Residential/Minimum vacant (each location)	\$ 575.46	\$ 647.14	12.46%
Restaurants (per seat/meal)	\$ 46.98	\$ 49.36	5.06%
School (per population)	\$ 23.88	\$ 26.84	12.39%
Service Station (per pump)	\$ 1,830.54	\$ 1,940.98	6.03%
Supermarket (each location)	\$ 15,350.08	\$ 16,915.86	10.20 %
Special User (each location)	\$ 548.60	\$ 594.48	8.36%
Veterinary Office (each location)	\$ 1,406.20	\$ 1,496.16	6.40%
Vet Hospital/Boarding (each location)	\$ 4,017.72	\$ 4,277.74	6.47%