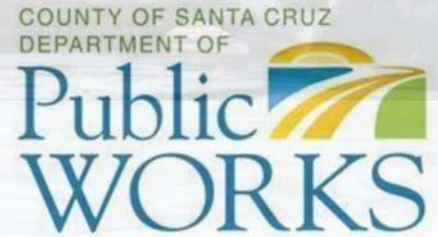


DPW QUARTERLY NEWSLETTER

*Building communities from the ground up.
Striving to protect the health, safety and welfare of the
public by providing essential services for daily life.*



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MEASURE UP

Beau Hawksford, Zero Waste Analyst

For this article, I was going to write about our brand new scale at the Ben Lomond Transfer Station, and how it will improve upon our safety and efficiency by allowing us to accurately load our transfer trucks with refuse before heading down to the Monterey Regional Waste Management District (MRWMD) in Marina. However, all I have been able to think about is our departments' response to the CZU fire.

Our staff was working around the clock to assist the community in this time of need. When Ben Lomond was evacuated, and the transfer station had to close for a period of time, our staff was deployed to many areas of the County including the Emeline Warehouse to assist with donations coming in for evacuees. We assisted the City of Santa Cruz by allowing their garbage/recycling collection vehicles to use Buena Vista while their landfill was closed due to the evacuations. Ahead of the evacuations being

lifted, we staffed the transfer station, including a few Sundays, to accommodate our franchise hauler, Green-Waste who was working relentlessly to assist CalFire and residents alike with the mounting trash.

We assisted with ensuring that food did not go to waste from the Resource Center either, and our Program and Outreach staff went above and beyond to deliver meals to people as they began to repopulate the San Lorenzo Valley. We work with an amazing group of people that work diligently to provide excellent service to our community, and I am grateful for the work that our DPW family does on a daily basis.

At the end of the day, much like how our new scale at the Ben Lomond Transfer Station assists us in ensuring our transfer trucks are safer on the road by creating a balanced load, our staff in DPW are there to help balance the turmoil that a disaster brings with it by working towards ensuring that our County's vital infrastructures are safe.



ROAD OPERATIONS ENGINEERING

Casey Carlson, Senior Civil Engineer

Aside from our core functions, Road Operations Engineering will often shift gears to address the most pressing road needs of the moment, much of our efforts in 2019 were devoted to emergency storm damage repair, organizing repairs to 8 different damage sites. Many new techniques were explored in these projects, including a Geoweb underdrain to relieve drainage under a road from a natural spring, polyurethane foam injection to compact weakened soil and fill voids under roads left by failing culverts, flexible fish baffles, and two new culvert lining techniques including spray-applied concrete and pre-formed steel liners. We picked one of these projects to share with you in more detail in this article.

Project Example - Capitola Road at Arana Gulch:

In March of 2019 our drainage maintenance crews alerted us to a failing headwall at the inlet side of the double-84" culvert system that carries Arana Creek under Capitola Road, upon subsequent investigation we discovered much more extensive damage at the outlet side of the culvert – we encountered a 15' deep cave at the outlet end which extended under the sidewalk, bike lane, and roadway. Any conventional repair using a wall would have required closure and demolition of a large part of the roadway to provide safe working room for wall construction. Aside from the great expense of this approach, Capitola Road is a Principal Arterial route serving over 15000 vehicles per day as well as a large volume of bike and pedestrian traffic, closure of this road would have caused major disruption. Given this set of conditions we began exploring an approach that would allow us to repair the undermining before collapse could occur.

During initial discussions with the project Contractor, Don Chapin, a concept was developed to employ stacked rip-rap boulders at the outlet end to build up grade incrementally, using slurry backfill at each level to fill a portion of the void and lock-in the rip-rap. This approach was achievable because workers could place the rip rap at a distance using a long-reach excavator so that worker safety was not put at risk. This approach used widely available materials and provided long term armoring against future damage. To address failures inside the storm drain pipes, we chose to use a lining product called Infrasteel – a ½" thick steel liner which was brought to the site in sections, welded together, and pushed into the old pipe. Upon installation of the Infrasteel liner, grout was injected to fill voids between the liner and the old pipes. To address damage to the inlet headwall, a new concrete headwall was constructed slightly upstream of the damaged headwall. We worked with Infrasteel to create angles in the pipe liner sections to turn a corner and make the new headwall flush with the channel.

Fish passage was a major concern on this project, the outlet end had been significantly down-cut from its original grade resulting in a loss of fish passage in a fish bearing stream. Therefore, we incorporated fish passage elements into our repair approach, forming fish pools into our rip rap armoring on the downstream end. We first worked with our in-house fisheries biologist and staff at NMFS (National Marine Fisheries Service) to vet the concept, then worked with fluvial geomorphologist consultant CBEC to determine the general design for approval by the various permitting agencies. We retained CBEC's services during construction to work on-site with the contractor to field fit the fish pools. 5 pools were constructed in total, each splashing down to the next to allow fish to jump each pool to ascend from the creek to the pipe. CBEC determined that the slope of the existing culvert pipe was not ideal for fish passage and at their recommendation we installed a product called Flexi-Baffles. These flexible fish baffles create pools of water within the culvert for fish passage at low-flow, but which push down during high flow conditions prevent debris accumulation in the pipe. We worked closely with our project biologist during construction to observe dewatering operations and monitor for water quality and wildlife protection. The Project Biologist conducted daily water quality testing while we worked within the channel. A total of 20 steelhead were rescued from the site during the dewatering phase and released downstream.

Despite the challenges presented by this site, the project was a great success. Traffic for all users was maintained throughout project work, the new pipe liner has a 100-year lifespan, the new inlet headwall is a much better configuration for the channel, and the outlet structure armors the culvert system against future downcutting of the channel. We are particularly proud of our fish passage work on this project. The care we put into consideration of fish passage is a great example of the kind of environmental stewardship that can be achieved in these types of projects while also meeting the needs of pedestrians, cyclists, and the motoring public.



DPW PROJECT MANAGERS

Travis Cary, Director of Capital Projects

I am very pleased to report that the DPW Capital Projects Division is now fully staffed with three full time Project Managers! Damon Adlao, Nicole Steel, and Rob Tidmore bring a wealth of knowledge and experience to the County and are busy working to deliver a diverse set of projects throughout the County, including new construction and remodeling of six County libraries, facility renovations and new recreation building for the Juvenile Hall, remodeling of the Animal Shelter, and environmental review and design for the Rail Trail project, just to name a few! The team is also coordinating several master planning efforts for Roads, Sanitation, and Solid Waste that will lead to facility and efficiency improvements for DPW and Sanitation operations.

Damon Adlao is a licensed Landscape Architect and has worked as a project manager on public projects for about 14 years which includes work at the County, Midpeninsula Regional Open Space District, and UCSC. He has an undergraduate degree from UCSC in anthropology and a master's degree in landscape architecture from UC Berkeley. Prior to his career as a project manager, Damon worked as an archaeologist, in construction, and as a designer. He is married with two kids and in his spare time enjoys coaching his kids' sports, surfing, mountain biking, and art.

Nicole Steel is a registered Landscape Architect who has lived in Santa Cruz for the last twenty years after receiving her degree from Cal Poly, SLO. Prior to joining the Capital Projects team with DPW, she worked at a local landscape architecture firm managing a multitude of projects. She has always most enjoyed working on public and institutional projects that add value to our community and is excited to now be taking on the role of Project Manager for the County. She is hoping none of her three daughters directly benefit from her current projects at Juvenile Hall.

Rob Tidmore joined the County in April. He previously worked for the City of San Jose, San Francisco Public Works, and in the private sector as a licensed Landscape Architect on a variety of projects. Rob became interested in landscape architecture as a Peace Corps volunteer in The Gambia where he developed agroforestry projects with local farmers and saw the value of using plants and design to shape the environment and improve people's lives. Prior to the Peace Corps, he built trails in Yosemite, Olympic and Mt. Rainier National Parks. Rob has a master's in landscape architecture from UC Berkeley and a bachelor's in environmental geology from Bucknell University. Outside of work Rob enjoys biking, surfing, skiing, and planning adventures on maps of the Sierras. Fun fact: Rob's mom called it correctly at age 15 when she told him he should be a landscape architect. Like most 15-year-old boys, he brushed her off; Mom's laughing now.





DPW UPDATES



It's that time of year again from October 1st until October 31st, when we kick-off our Combined Giving program. Santa Cruz County continues to support our non-profit organizations such as **United Way**, **Health Charities**, **EarthShare** and the **Arts Council of Santa Cruz** who year by year continue to work hard to positively impact our community, one of the ways you can invest in your community is to contribute to any one of these organizations.

QUOTE OF THE MONTH

“ He who has a ‘why’ to live for can bear any ‘how’. ”

-Frankl

NEW EMPLOYEES

Edwin Chavez
Parking Attendant

PROMOTIONS

Steven Scott
Public Works Maintenance
Worker III

Jennifer Buckley
Engineering Tech III

Michael MacMahon
Public Works Maintenance
Worker II

Timothy Willbanks
Public Works Maintenance
Worker II

Brian Ridpath
Sanitation Maintenance
Worker II

Isaac Munoz
Sanitation Maintenance
Worker II

Maury Galipeaux
Electrical Instrumentation Supervisor

Albert Eslit
Public Works Manager
Disposal Sites

RETIREES

Michael Torrecillas

Carol Tran

Michael Reilly