COLLIER MOSQUITO CONTROL DISTRICT

2024-2025 ANNUAL REPORT

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www.cmcd.org
600 North Road, Naples, FL 34104

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2024-25 Annual Report

Board of Commissioners

Dave Farmer

Seat 1

Term: 2025–2027

Sandra Lee Buxton – Treasurer

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Term: 2023–2027

Ed Brandt – Vice Chair/Secretary

Seat 3

Term: 2023–2027

Reg Buxton – Chair

Seat 4

Term: 2025–2029

Russell Burland

Seat 5

Term: 2025–2029

William Owens

Legal Counsel to the District

MESSAGE FROM EXECUTIVE DIRECTOR PATRICK LINN, MS, MSHAPI

This year, the Collier Mosquito Control District celebrated its 75th anniversary. This isn't the only milestone the District celebrated this year, as the start of the fiscal year also saw our boundaries grow to 730 square miles after the Florida Legislature unanimously approved our expansion efforts. When thinking about the vast area and hundreds of thousands of people we serve today, it is hard to believe that 75 years ago we serviced only six square miles of the City of Naples.

We also welcomed two new commissioners to our board this year. Commissioner Reg Buxton, who also serves as board chair, was sworn in this January. Additionally, following the resignation of Commissioner John Johnson, Commissioner of Agriculture Wilton Simpson appointed Commissioner Dave Farmer. Commissioner Farmer previously served on our board for nearly 20 years. Commissioner Russell Burland was also re-elected to serve another term.

While there was a lot to celebrate this year, we also faced many challenges. The biggest of which was a brutal salt marsh mosquito season. In the worst salt marsh mosquito season in a decade, trillions of mosquitoes came off the coast and wreaked havoc on our community. In June alone, more than 3,000 residents contacted us begging for help. The onslaught was so unprecedented that we even received emergency authorization to treat areas outside of District boundaries to help provide relief for our friends in Everglades City, Plantation Island, Chokoloskee and Copeland. I can't thank our team enough for their wonderful commitment to our mission this year and the difference they made for the residents and visitors we serve.

Looking forward, we updated the District's Master Plan and made great strides toward a sustainable future. The groundwork is set for new facilities here at Naples Airport and to create a footprint at the Immokalee Airport. As the population of our region grows, it is crucial to have two locations to operate from to provide the best possible service for taxpayers. No doubt, the next fiscal year will continue to build on this process, and we hope to be ready to break ground on the first phases of these projects soon.

We are also continuing the process of rejuvenating our aircraft fleet. We anticipate delivery of our first Cessna SkyCourier this spring. Eventually, the District will operate two SkyCouriers, which together will perform the work of our current three aircraft.

As I look back at a year filled with both celebrations and challenges, I am proud to lead such a talented team of professionals. Collier County is a healthier and more comfortable place to live because of the support of our Board of Commissioners and the dedication of our employees. I thank all of you from the bottom of my heart.

-Patrick

MISSION

The mission of the District is to provide valuable service to the community through suppression of both disease carrying and nuisance mosquito populations by and through the safest and most economical means available. The District utilizes a variety of methods (Integrated Mosquito Management) in a manner consistent with the highest level of safety and minimal adverse impact on humans, wildlife, the environment, and non-target organisms.

VISION

Contributing to a healthy, high quality of life in southwest Florida and beyond by upholding public trust, applying sound science, utilizing best practices in mosquito control, economic responsibility, and an enduring search for solutions.

CMCD 75TH ANNIVERSARY

75 Years of Service

This year, the Collier Mosquito Control District celebrated 75 years of serving our local community. The District was originally known as the Naples Mosquito Control District and was founded by the Florida Legislature in 1950. Back then, the District served just six-square miles of the City of Naples. Today, it serves 730 square-miles and includes communities such as Naples, Marco Island, Immokalee, Golden Gate, Ave Maria and others in Collier County. The service area includes about 95% of the population of the county.

When the District began, it operated out of an office at Naples City Hall. In 1990, headquarters moved to its current location at the Naples Airport and now features buildings for administration, vehicle storage, chemical storage and a hangar. The early 1990s also saw a dramatic shift in mosquito control, as the Collier Mosquito Control District was one of the first in the country to champion "Ultra-Low Volume" mosquito control applications. This led to more efficient mosquito control while using a lower volume of treatment materials.

In the past 10 years, the District has continued to innovate mosquito control through an integrated pest management plan. This has included a larger larval mosquito control program and increased education and outreach and education efforts to raise public awareness on how everyone can help fight the bite.

Mosquito control is vital to everyday life in our community. It has been an honor to serve our residents and visitors for the last 75 years, and we look forward to continuing to do so for many years to come.

Figure 1: CMCD staff celebrates the District's 75th anniversary with the local community at the District's annual open house.

Our year *in numbers...*

0.1349 Millage Rate	**$19,404,657** Total Ad Valorum	**63** Total Employees
14,351 Landing Rate Counts	**18,168** Larval Inspections	
5,002 Trap Collections	**3,056,051** Total Mosquitoes Collected	**2,456** Mosquito Pools Tested
16,347 Mosquitofish Distributed	**650,000+** Sterile Males Released	
59,748 Acres Treated with Larvicide	**2,530,416** Acres Treated with Adulticide	

AT A GLANCE

Larvicide Activities			
	FY22-23	FY23-24	FY24-25
Total Acres Treated	**50,670**	**53,505**	**59,748**
% OMRI Usage	**93%**	**87%**	**75%**
VectoBac 12AS	530	3,443	3,029
Altosid SR20	960	30.00	0
Natular SC (OMRI)	24,704	15,360	29,408
BVA 2 Oil	5	15	13
Natular XRT (OMRI)	21	13	4
VectoMax WSP (OMRI)	0	4	11
Sumilarv 0.5G	0	0	0.02
VectoPrime FG	0	1,452	5,327
VectoMax FG (OMRI)	606	17,021	8,384
VectoBac WDG (OMRI)	21,600	14,000	0
Fourstar BTI CRG	2,244	2,166	3,817
Duplex-G	0	0	959
AquaBac 200G (OMRI)	0	0	5,763
Summit BTI	0	0	1,930
Natular G30 (OMRI)	0	0	1,103
Number Missions	**353**	**804**	**856**
Truck Sprayer	63	253	402
Turbine	136	101	49
Side-by-Side/ATV/Argo	35	35	60
Backpack	3	3	12
Manual	77	263	160
Helicopter	29	105	103
Drone	10	42	55

Adulticide Activities			
	FY22-23	FY23-24	FY24-25
Total Acres Treated	**1,345,804**	**2,880,937**	**2,530,416**
% OMRI Usage	**4%**	**4%**	**6%**
Dibrom Concentrate	1,062,817	1,875,061	1,383,930
Duet HD	232,800	856,800	972,640
Merus 3.0 (OMRI)	49,750	118,130	153,137
ReMoa Tri	436	30,923	20,356
Wisdom TC Flowable	0.14	22	352
Number Missions	**85**	**163**	**178**
Fixed Wing	58	113	92
Helicopter	23	45	61
ULV Truck	2	5	12
Backpack	2	2	15

AT A GLANCE

Mosquito Fish			
	FY22-23	FY23-24	FY24-25
Mosquitofish Distributed	2,125	14,450	16,347
Mosquitofish Pickups	54	261	232
New Residents	42	182	148

Surveillance Activities			
	FY22-23	FY23-24	FY24-25
Landing Rate Counts Performed	6,030	11,820	14,351
Total Bites	56,232	102,026	191,672
Trap Collections Performed	3,662	4,496	5,002
Total Mosquitoes Collected	947,396	1,486,042	3,056,051
Mosquito Pools Tested	1,322	1,514	2,456
Inspections Performed	1,115	5,859	18,168
Domestic Inspections Performed	274	557	543
Mosquito Reports	2,660	9,637	5,867

AT A GLANCE

Interns

This year, the District hosted five interns in the Research and Technical Department. Three returning interns joined us for their second year:

Paul Julmice, a Microbiology major at Washington University in St. Louis, contributed to the laboratory and surveillance sections of the Research Department, setting gravid traps and performing disease testing;

Camila Luna, pursuing a degree in Global Public Health and Sociology at New York University, worked in the field validation section on the Sterile Insect Technique (SIT) program and insecticide resistance management, while also conducting an independent research project examining socioeconomic factors and mosquito-borne disease risk in Collier County;

Gabrielle Katz, an Aerospace Engineering student at Embry-Riddle Aeronautical University, supported the Technical Development Department through projects focused on mosquito control drone applications and innovations in 3D printing.

We also welcomed two new interns this year:

Melissa Ramirez, a local student at Florida Southwestern State College, who contributed to the SIT project within the field validation section;

Megan Helge, a Geography major at Jacksonville University, who worked on GIS-related projects and the development of the District's in-house recordkeeping program.

Figure 2: At the end of the summer, CMCD interns gave presentations to staff about what they learned.

AT A GLANCE

Publications

Steele G, Lucas K, Li S. (2025) Evaluation of a bifenthrin-based barrier treatment for controlling *Aedes taeniorhynchus* populations on an isolated barrier island in Collier County Florida. J Am Mosq Control Assoc.

Bales RB, Rosales A, Konieczny O, Li S, Lucas KJ. (2025) Tech and Transit: Advancing Collier Mosquito Control District's Mosquitofish Program. Wingbeats. Summer 2025 Issue.

McDuffie D, Kacinskas S, Li S, Parker-Crockett, Lucas KJ. (2025) Evaluation of ground and aerial ultra-low volume applications using ReMoa Tri against deltamethrin-resistant *Aedes aegypt*i from Collier County, Florida. Trop Med Infect Dis 10: 119.

Estep AS, Sanscrainte ND, Farooq M, Lucas KJ, Heinig RL, Norris EJ, Becnel JJ. (2025) Impact of *Aedes aegypt*i 1016I and 1534C knockdown resistance genotypes on operational interventions. Sci Rep. 15: 10146.

Martin H, Reeves L, Steele G, Rosales A, Heinig R, Lucas KJ. (2024) *Aedeomyia squamipennis*: A new genus and species record for Collier County, Florida. J Am Mosq Control Assoc. 40: 174-177.

Awards

CMCD – CDC CK19-1904, Epidemiology and Laboratory Capacity for Prevention and Control of Emerging Infectious Diseases (ELC), FDACS Subrecipient

Rachel B. Bales (Biologist I, Research Department) – 2024 FMCA James W. Robinson Memorial Award

Atom Rosales (Director of Technical Development, Technical Development Department) – 2024 FMCA James W. Robinson Memorial Award

Isabel Gutierrez (Laboratory Technician I, Research Department) – Southeastern Center of Excellence in Vector-borne Disease DODD Fellowship

Shannen Leahy (Laboratory Technician II, Research Department) – Southeastern Center of Excellence in Vector-borne Disease DODD Fellowship

Suzanne Li (Surveillance and Laboratory Manager, Research Department) – Southeastern Center of Excellence in Vector-borne Disease DODD Fellowship

Daniel Anez (Lead Field Technician, Operations Department) - AMCA Boyd-Ariaz Grass Roots Award

OPERATIONS

Saltmarsh Mosquito Invasion

This summer, we experienced one of the most active saltmarsh mosquito seasons on record after several years of a lull. The surge in saltmarsh mosquito activity was not a matter of chance, it was the result of a perfect convergence of timing, weather, and biology.

After an unusually dry winter, conditions were primed for a population boom. When coastal habitats go extended periods without flooding, saltmarsh mosquito eggs accumulate in the dry marsh soil. These resilient eggs can remain viable for months or even years waiting for the right conditions to hatch.

A storm on May 11–12 brought about 1.5 inches of rainfall to our coastal region. While it didn't seem significant, it was just enough to trigger the hatching of what's known as a seed brood—the first generation of adult mosquitoes emerging from those dormant eggs. These newly emerged mosquitoes quickly laid fresh eggs that settled into the soil, awaiting the next round of rain.

By early June, consistent rainfall combined with seasonal high tides once again flooded the marshes. This second inundation hatched not only the newly laid eggs from May but also older eggs from previous years. The result was explosive: trillions of saltmarsh mosquitoes emerged in a short period, aggressively seeking blood meals.

The situation was intensified by the species' remarkable flight capability. Saltmarsh mosquitoes are powerful fliers, capable of traveling up to 40 miles with the wind. Persistent southeastern winds in June carried swarms from Rookery Bay, Ten Thousand Islands, and even the Everglades directly into Collier County communities.

The outbreak was so severe that the District conducted aerial adulticide treatments over Copeland, Everglades City, and Chokoloskee (communities located outside of the District's boundaries) to provide relief to affected residents. Through this process, the District, Collier County Government, and the City of Everglades City entered into a mutual aid agreement granting emergency authorization for treatments in these areas. CMCD conducted aerial adulticide operations for one month at no cost to the County or the City, delivering much-needed relief from relentless saltmarsh mosquito activity.

With the heightened saltmarsh mosquito activity and District expansion, surveillance needs drastically increased. Landing rate count surveillance increased by 21% and trap collection efforts increased by 11%.

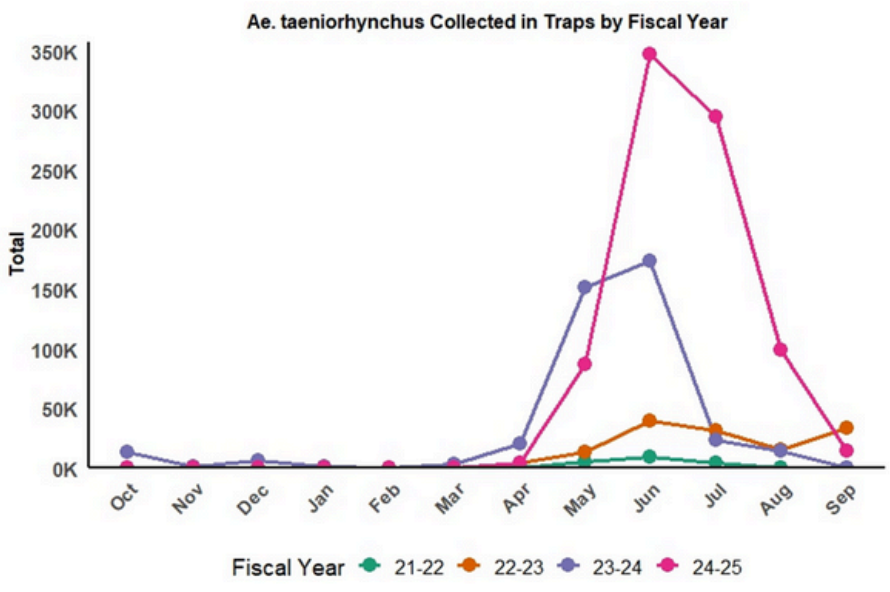


Figure 3: *Aedes taeniorhynchus* collections for Fiscal Year (FY) 21-22, 22-23, 23-24 and 24-25.

OPERATIONS

Surveillance Efforts

With the District's expansion and an exceptionally active mosquito season, surveillance operations intensified significantly. Landing rate count surveillance rose by nearly 20%, with a 61% increase in mosquitoes detected during these counts. Larval inspections more than tripled from 5,859 in FY 23–24 to 18,168 in FY 24–25, reflecting the District's improved data recording practices and data-driven decision making when determining larvicide treatment needs.

Larvicide Applications

The District experienced an 11% overall increase in larvicide applications, expanding coverage from 53,505 acres to 59,748 acres. Coastal larviciding efforts covered 3,800 acres, a 78% increase from the previous year, driven by exceptionally high saltmarsh mosquito activity. Freshwater granular applications also rose significantly, with more than 23,000 acres treated, representing a 27% increase compared to last year. Wide-area larvicide applications to control mosquitoes breeding in containers of standing water remained steady, with nearly 30,000 acres treated with the Districts Buffalo Turbines.

Several new products were incorporated into the District's larvicide arsenal during FY24–25, including Sumilarv 0.5G, Duplex-G, and Aquabac 200G (OMRI-listed). Sumilarv 0.5G is an effective insect growth regulator (IGR) targeting mosquito larvae in manmade habitats, primarily storm drains. Duplex-G combines an IGR with Bacillus thuringiensis israelensis (Bti) and has proven highly effective in the District's drone operations due to its uniform, spherical granule structure. Aquabac 200G is an organic, single-brood Bti formulation effective against a broad range of mosquito larvae. However, due to a nationwide shortage of organic corncob—a key ingredient used in OMRI-labeled formulations—the District also incorporated Summit Bti Granular to maintain operational continuity and ensure larval control efforts remained uninterrupted.

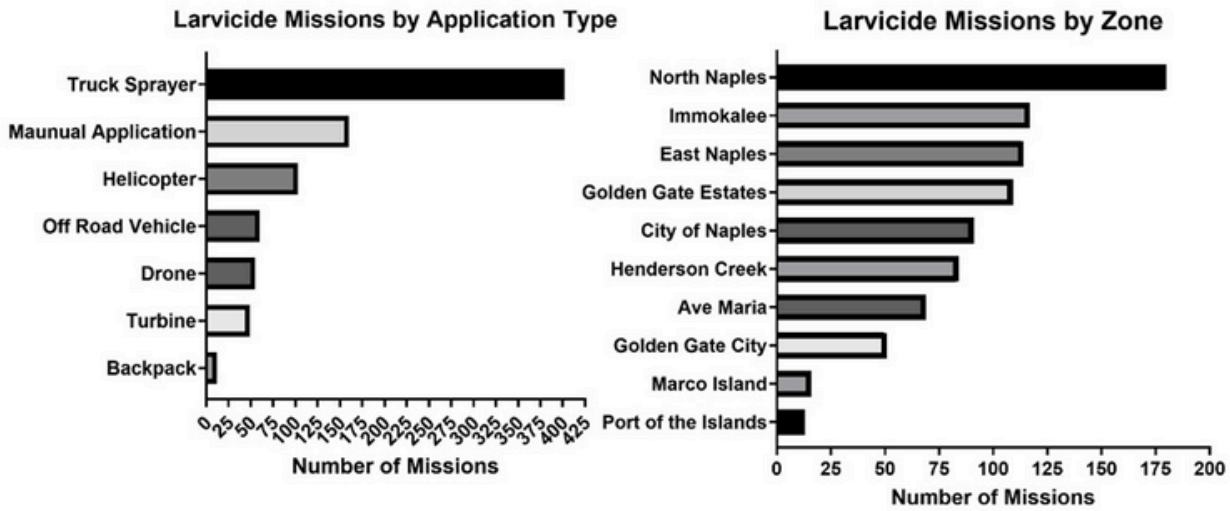


Figure 4: Larvicide applications by application type and zone.

OPERATIONS

Aerial Adulticide Applications

During FY 24–25, the District experienced another notable increase in aerial adulticide operations, conducting 178 missions in response to heightened saltmarsh mosquito activity. Throughout this period, Dibrom Concentrate treatments covered more than 1.3 million acres, utilizing a total of 4,970 gallons of product. Despite the intense mosquito season, this represented a 26% reduction in Dibrom usage compared to the previous year. In contrast, Duet HD usage increased by 13%, treating 972,600 acres with approximately 6,000 gallons.

The District's Bell 407 helicopter was equipped with Merus 3.0, a botanical-based adulticide. Merus 3.0 usage increased by 30% from the previous year, treating 153,100 acres with 990 gallons. Additionally, the District continued its use of ReMoa Tri, primarily applied via the District's ULV truck fleet, treating 20,350 acres with 119 gallons of product.

Culex nigripalpus and *Aedes taeniorhynchus* remained the primary targets of adulticide treatments this year. The majority of missions occurred in Marco Island and Port of the Islands targeting *Aedes taeniorhynchus* (31%), and in Ave Maria and Immokalee, where operations focused on *Culex nigripalpus* (23%).

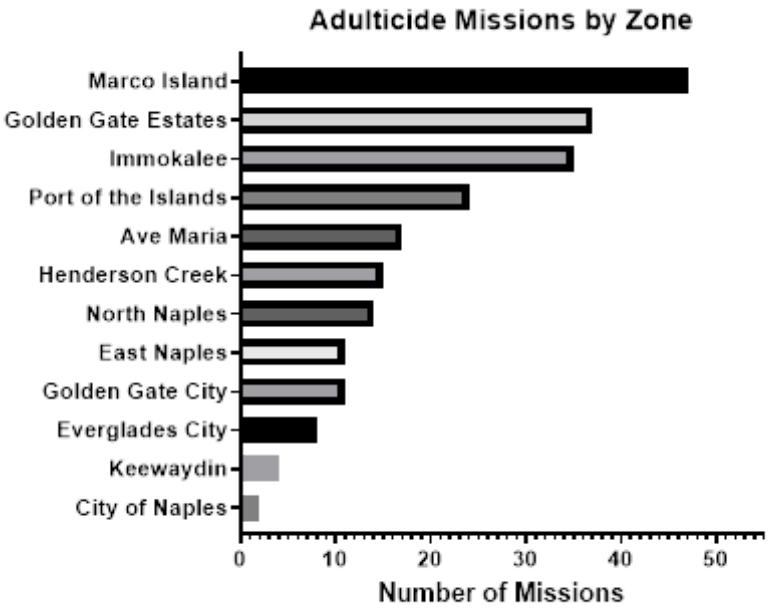


Figure 5: Adulticide applications by zone.

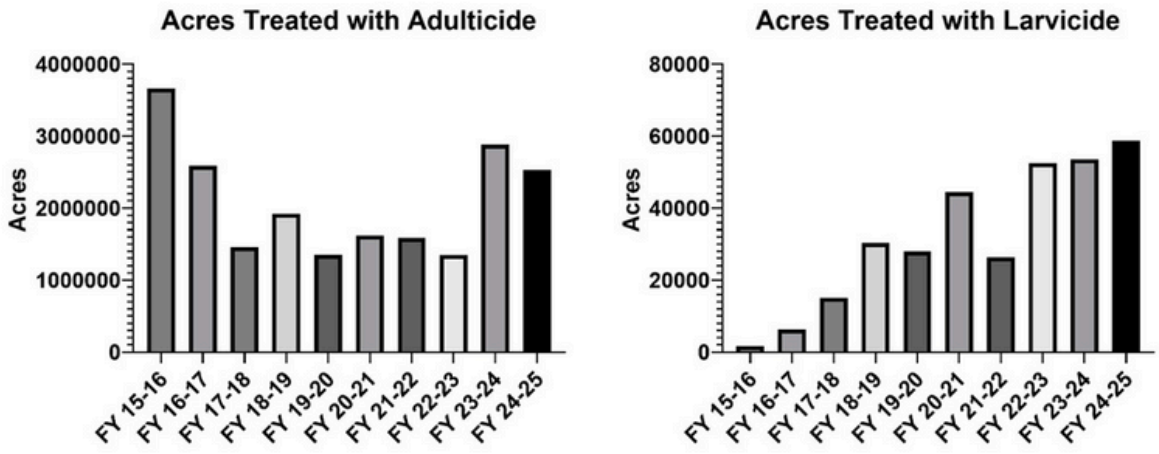


Figure 6: Acres treated by adulticide and larvicide for the past 10 fiscal years.

OPERATIONS

Barrier Treatment Applications

This year, the District launched its residential barrier treatment program for communities in Keewaydin and Port of the Islands. These areas are particularly vulnerable to saltmarsh mosquitoes, which emerge from coastal habitats in large broods and can travel up to 60 miles as adults from Collier County's state and federal public lands. Because the District does not conduct mosquito control operations on these public lands, it is challenging to target this species at the larval stage. As a result, control efforts must focus on the adult mosquitoes as they move into populated areas. Barrier treatments provide a practical and effective solution in these circumstances. Applied by CMCD field technicians, the residual treatments create a protective barrier that both repels and kills adult mosquitoes in locations where traditional aerial or ground control methods are less feasible. Each treatment is applied directly to vegetation and shaded areas around properties and remains effective for up to six weeks, offering extended protection and improved outdoor comfort for residents.

Barrier treatment applications were conducted on several properties on Keewaydin Island as well as throughout the entire Port of the Islands community during May, June, and July. These operations required close coordination among the Operations, Technical Development, and Research departments to ensure proper product handling, field efficacy, and adherence to human health and environmental safety standards. Additionally, the program was implemented with a resident-focused approach, allowing property owners the option to decline participation in barrier treatment applications.

District Safety Program Reaches New Heights

The District's Safety Program is flourishing more than ever under the leadership of Nathan Rhodes-Zambrana, MPH, Logistics and Safety Coordinator. This year, the District unveiled several exciting additions to the program, beginning with the launch of its first-ever In-Service Training.

This new initiative replaced the costly and often unrelatable annual OSHA training, offering instead a more relevant and engaging program tailored to the District's specific operations. The comprehensive training included important training topics required by statute, focusing on chemical use and safety, spill response, adverse incident management, integrated mosquito management, field identification of mosquitoes, surveillance practices, and data retention, among others. Staff members who participated were able to earn Continuing Education Units (CEUs) applicable toward their Public Health Pest Control Licenses.

In addition, the District launched a Safety Campaign featuring weekly informative emails and postings that covered essential topics such as wildlife safety, aircraft safety, and field hydration. These initiatives demonstrate the District's ongoing commitment to ensuring a safe, informed, and well-prepared workforce.

Figure 7: Annual hangar safety meeting.

OPERATIONS

Drum Processing Leads to Operational Solutions
This year, the District implemented new measures for handling used Duet HD and Merus 3.0 drums prior to their return, as required by new federal regulations related to transporting used drums. The updated requirements introduced a labor-intensive triple-rinsing process to ensure compliance and safety before shipping. While the new procedure enhanced environmental standards, it also increased staff exposure to large quantities of the chemical and rinsate, created more chemical waste, required extended processing times, and demanded a coordinated team effort to complete each batch of drums.

With the quantities used by CMCD, District leadership determined that this processing requirement added undue exposure risk for staff. As a result, the District transitioned from 30-gallon drum containers to 275-gallon totes. Implementing the use of totes required some adjustments to handling and loading procedures, but the change has proven to be significantly safer and more efficient for staff overall.

Figure 8: Drum processing required by new federal regulations.

New Hires and Promotions
Daniel Anez, Jorge Puente, Brett Lowe and McCoy Ward were promoted to Lead Field Technicians.

Travis Hayden was hired as Field Technician I.

Miguel Gaspar was hired as Field Technician II.

RESEARCH

Insecticide Resistance Monitoring

In FY 24-25, the field validation team conducted resistance testing on a total of 18 populations that were collected from various locations within the District. Each population was tested against key active ingredients used in the District's adulticide formulations. These active ingredients include pyrethrins, sumithrin, and naled.

Among the populations tested, six distinct mosquito species were represented, covering both nuisance and potential disease vector species. This included nuisance species such as *Aedes taeniorhynchus* and *Psorophora columbiae*, along with disease vector species *Aedes aegypti*, *Aedes albopictus*, *Culex quinquefasciatus*, and *Culex nigripalpus*. Consistent with previous years, pyrethroid (pyrethrins and sumithrin) resistance was identified in *Aedes aegypti* and *Culex quinquefasciatus* populations.

Further, the second round of ground-ULV (Ultra Low Volume) trials as well as the first-ever aerial trials using ReMoa Tri was completed, with results published as a special issue in the Journal of Tropical Medicine and Infectious Disease. This study further demonstrated the effectiveness of ground and aerial applications of ReMoa Tri against pyrethroid-resistant *Aedes aegypti* under semifield conditions. These findings offer promising insights into alternative treatment options for managing mosquito populations with known resistance, providing a valuable tool in the District's integrated mosquito management strategy.

These tests are required by label regulations and are critical for monitoring resistance trends, ensuring the efficacy of adulticides, and informing targeted mosquito control strategies to protect public health across the District.

Tracking the Efficacy of Larvicide Applications

The field validation team is continuing to perform backchecks for larval numbers following treatments to validate the efficacy of the District's larvicide missions. All backchecks were conducted within seven days of treatment to accurately assess post-treatment efficacy. Over the last fiscal year, post-treatment counts were completed for a total of 90 larvicide missions, with results indicating that our larvicide applications are exceedingly effective in reducing larval production. Based on these data, we can confidently conclude that our larvicide missions achieve 98% effictiveness in targeting mosquito larvae and successfully maintaining reduced mosquito numbers across the District.

Sterile Insect Technique

In FY 24–25, we completed a pilot study evaluating the efficacy of releasing RadSource sterile male *Aedes aegypti* mosquitoes in Golden Gate City. This study explored innovative methods aimed at controlling *Aedes aegypti* populations, which are known for their resistance to conventional control strategies and their potential to transmit disease. Approximately 1,000 sterile male mosquitoes were released per acre.

Following the evaluation of our results, we observed no significant reduction in adult *Aedes aegypti* populations, fecundity, or embryogenesis. Although population suppression was not achieved, the study allowed us to refine our operational procedures for this control method and identify key limitations that may have influenced the outcome.

Figure 9: CMCD staff release the first sterile males in Golden Gate City.

RESEARCH

Expanding Surveillance Efforts

As the District expanded into new areas that had not been previously surveyed, an additional laboratory technician was hired to manage the increased workload. This included more adult mosquito surveillance, disease testing, and oversight of the BG-Counters.

To support these efforts, six new trap sites were added to the District's surveillance network this year. This season also turned out to be one of the busiest mosquito years in nearly a decade, fueled by a significant population surge of saltmarsh mosquitoes.

Despite the challenges, the laboratory team successfully completed all mosquito identification and disease testing within three days of trap collection, ensuring timely data for operational decision-making. In total, 5,002 trap collections were completed this fiscal year, which is a 10% increase from last year. While that may not seem like a large jump, the total number of mosquitoes collected doubled, rising from 1.5 million in FY 23–24 to over 3 million in FY 24–25.

Arbovirus Surveillance

Arboviral activity remained a significant concern in FY 24–25, with locally transmitted cases of Dengue virus continuing to spread across Florida, Oropouche virus outbreaks emerging in Cuba, and Chikungunya activity reported in several countries around the world.

To better prepare for both existing and emerging mosquito-borne disease treats, CMCD sunset its previous Mosquito-Borne Disease Response Policy (with Board approval) and implemented a new Mosquito-Borne Disease Response Plan SOP. This multifaceted response protocol is designed to adapt to various threat levels and vector genera, allowing for greater operational flexibility depending on the specific disease and mosquito species involved.
In anticipation of potential Oropouche virus response, members of the research team expanded their expertise by completing Dodd Short Courses on Culicoides identification and receiving on-site training from the Florida Medical Entomology Laboratory. This training focused on detailed Culicoides species identification and trap modifications for targeted collections.

While there were several travel-related cases of mosquito-borne illnesses reported during FY 24–25, there were no locally transmitted cases of arbovirus detected in Collier County.

A total of 2,456 mosquito pool samples were tested as part of the District's arboviral surveillance program, a 47% increase from the previous year. Of these, 303 pools were screened for Dengue, Chikungunya, and Zika viruses, while 2,153 pools were tested for West Nile virus (WNV), Eastern Equine Encephalitis virus (EEEV), and St. Louis Encephalitis virus (SLEV). No arboviral activity was detected in local mosquito populations during the fiscal year.

Travel-Related Diseases CY 24	Dengue	Chikungunya	Oropouche	Malaria
Florida	911	11	103	68
Collier County	19	0	1	1

Figure 10: Travel-related disease transmission in 2024 as reported by the Florida Department of Health

RESEARCH

Advancing Malaria Detection Efforts

Following last year's malaria outbreak in Sarasota County, the District took the opportunity to review its response strategies and identify ways to strengthen *Anopheles* mosquito and malaria surveillance. The research team began developing a new laboratory test designed to detect Plasmodium (the parasite that causes malaria) in mosquitoes using PCR. The goal of this project was to create a test that could be seamlessly integrated into the District's existing mosquito disease testing program.

In collaboration with the CDC Centers of Excellence in Vector-borne Disease and Sarasota County Mosquito Management Services, we developed a non-pathogenic synthetic sample to simulate an infected mosquito, allowing our team to safely test and refine the new detection process. The results were encouraging: the parasite's genetic material was consistently detected in different mosquito tissue samples, confirming that the testing method works reliably under most conditions.

However, the team also discovered areas for improvement. Some samples produced less accurate results or false positives, highlighting the need for additional adjustments before the method can be used in routine disease surveillance.

This work became even more relevant in June 2025, when Collier County reported its first travel-related malaria case since 2017. The District's continued research ensures that it remains prepared to detect and respond quickly should malaria ever appear in local mosquito populations.

Improving Barrier Treatment Strategies

In FY 24–25, Biologist Gabby Steele, completed a comprehensive two-year study testing the effectiveness of residual barrier sprays on private parcels on Keewaydin Island. The results of this research were published this year in the Journal of the American Mosquito Control Association.

The Keewaydin study found that Wisdom TC Flowable, a commonly used barrier spray, remained effective for two to three weeks before its performance declined, though traces of the product could last up to six weeks. However, field data showed that while the product successfully adhered to foliage, it did not significantly reduce mosquito biting activity or overall mosquito numbers on the island.

These findings gave the District valuable insight into the limitations of traditional barrier treatments and informed important strategy updates. In 2025, the District revised its approach by expanding the area treated. Instead of spraying only a narrow strip of vegetation, treatments were applied to all foliage around properties located more than 30 feet from waterways, while carefully avoiding pollinator plants to protect beneficial insects.

Working closely with the Technical Development and Operations Departments, Gabby Steele launched a new study to evaluate the effectiveness of this modified barrier treatment approach in residential settings. Data analysis is currently underway, and findings from this research will help refine future mosquito control strategies across the District.

RESEARCH

Mosquitofish Program

In FY 24-25, the Mosquitofish Program, led by Biologist Rachel Bales, distributed over 16,000 fish to 232 residents across the District. Fish were provided through two main distribution methods, scheduled appointments and community outreach events using the Mosquitofish Van, expanding both the reach and impact of the program. Residents request fish through the District's Mosquitofish Request Webform, which connects directly to the Fish Manager web app for scheduling, tracking, and reporting. Using this system, Rachel distributed 9,000 fish through scheduled weekly appointments. From May through August, Rachel hosted 10 Mosquitofish Van giveaway events across Collier County parks and local organizations. Using the Fish Van, she expanded the program's reach by bringing these natural predators directly to residents, making fish more accessible to the public. Through these events, an additional 7,000 fish were distributed as part of the program's total.

Rachel continues to work closely with the Technical Development Department, let by Atom Rosales to refine the Mosquitofish Distribution Dashboard and integrate mosquitofish into the District's in-house data management platform. Through weekly meetings, they've successfully added fish as a treatment option for the Operations Department and enhanced the dashboard's data collection tools. These improvements have been instrumental in identifying seasonal and spatial trends in fish demand and guiding future distribution events.

Rachel and Atom's work on streamlining our mosquitofish distribution workflow has revolutionized how we bring fish to residents and earned them the James W Robinson Memorial Award at the 2025 Florida Mosquito Control Association annual meeting. In addition, Rachel published an article highlighting the technical advancements made in the CMCD mosquitofish program for the Mosquito Control Trade publication Wingbeats.

Figure 11: CMCD Commissioner Russell Burland with a supply of mosquitofish.

Figure 12: Local news coverage of CMCD's mosquitofish program.

RESEARCH

Host–Bloodmeal Analysis Collaborations

In FY 24–25, the Research Department continued its collaboration with Dr. Larry Reeves at the Florida Medical Entomology Laboratory to study the blood-meal host relationships of Collier County mosquitoes, with a particular focus on the West Nile virus vector, *Culex nigripalpus*. Understanding which animals these mosquitoes feed on helps the District better assess disease transmission risks and refine control strategies.

In August 2025, Collier County was included in an applied science grant from the Florida Department of Agriculture and Consumer Services as a partner of the Reeves Lab. This funding supports the continuation of blood-fed mosquito collections and bloodmeal analyses through July 2026. During FY 24–25, CMCD sent over 700 bloodmeal samples to Dr. Reeves for genetic analysis to determine which hosts the mosquitoes had fed upon. The analysis of these samples is currently ongoing.

Additionally, the Research Department began a new collaboration with Dr. Amy Vittor and Dr. Caleb Stica at the University of Florida to investigate mosquito population dynamics across agricultural and public lands landscapes. This project also includes testing collected mosquitoes for endemic and emerging arboviral diseases, such as West Nile, Eastern Equine Encephalitis and Everglades viruses. A pilot study is now underway in which CMCD is setting and collecting traps at 15 selected sites. Mosquitoes gathered from these sites will be sent to the Vittor Lab for bloodmeal analysis and disease testing. This study will provide the District with important information on the risk of mosquito-borne disease to agricultural workers and those living in close proximity to pubic lands.

New Hires and Promotions

Shannen Leahy joined the District as a Laboratory Technician II.

Isabel Guttierez joined the District as a Laboratory Technician I and later moved to field validation as a Field Validation Technician I.

Gabriella Steele, MS, Biologist I, was promoted to Biologist II.

Sara Kacinskas, Field Validation Technician I, was promoted to Public Outreach and Education Specialist.

Figure 13: CMCD Biologist Gabriella Steele swarmed by salt marsh mosquitoes while working in the field.

TECHNICAL DEVELOPMENT

From FieldSeeker to VectorView: Revolutionizing District Data Systems

The Technical Development Department worked on overhauling its geographic information systems (GIS) to enhance and streamline surveillance, laboratory, treatment and inventory data. The District had previously used the FieldSeeker GIS software purchased from Frontier Precision. However, the growth of the District necessitated improvements to accommodate new activities and to support data-driven decision-making through continued innovation. Thus, the Technical Development team designed and implemented a new in-house GIS platform to accommodate the unique data needs of the District.

These efforts resulted in the creation of VectorView, a web-based GIS consisting of both mobile and desktop components for collecting, managing, and visualizing the District's surveillance and control activities. The project began by working closely with the Operations and Research departments to understand the scope of their duties and technical requirements for streamlining them. Based on these discussions, a new, tailored geodatabase was designed with fields and relationships that can anticipate the District's future data needs. Then, hundreds of thousands of historical records were cleaned, transformed, and imported into the new system to ensure continuity. The focus on the user-interface side was ensuring straightforward field use and accessible web applications and visualization tools. To aid in field data collection, ArcGIS Field Maps and Survey123 were configured to allow field staff to record trap collections, larval inspections, and human landing counts. Built on the custom VectorView database, "parent" locations such as trap and inspection locations appear in Field Maps with pop-ups customized using the Arcade programming language. These popups include hyperlinks to Survey123 forms. The links pass shared ID, which allow for seamless connection between apps and facilitate the creation of activity records that are securely tied to their field locations.

On the office side, collected survey data is instantly available on a variety of operational dashboards and web apps. These allow office staff to monitor mosquito counts in the field, aiding in planning treatments, interacting with the public, or protecting public health. The numerous data tools are consolidated for display on a custom web application developed using the ArcGIS API for JavaScript.

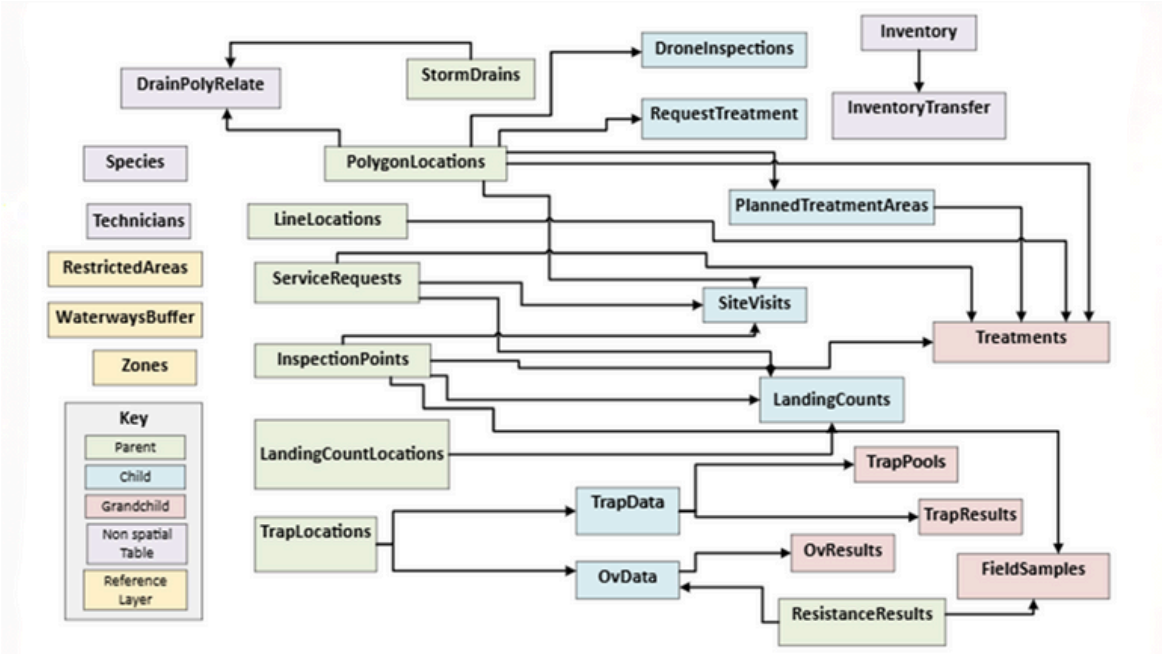


Figure 14: The District's "VectorView" relational geodatabase schema encompassing all surveillance and control activities performed by field and lab technicians. Arrows indicate one-to-many cardinality from parent to child layer.

TECHNICAL DEVELOPMENT

Flight Records

The District's flight records were successfully transitioned from the older Microsoft Access Database into the District's ArcGIS Online platform. This project was undertaken because Microsoft ended support for the software and the difficulties with adjusting and improving flight ticket data entry given the aging software's limitations. Because the new system leverages the District's current organizational subscription to ArcGIS Online, there were no new costs associated with its implementation.

The new system leverages Survey123, Experience Builder, and a custom Microsoft PowerAutomate workflow which streamlines entry of flight ticket aircraft values and automatically updates the related master aircraft maintenance values, such as hobbs, engine times, landings, and cycles. Many quality-of-life improvements were made based on recommendations from pilots for entering flight tickets. For example, filtered choice lists were implemented so that only fields relevant for each aircraft type and mission type are shown—this results in fewer data entry errors and more robust record-keeping.

Additionally, the flight ticket report has undergone a complete makeover, with concisely formatted data tables, bolded section headers, and removal of unnecessary fields. Flight ticket entries also trigger an automated email to Technical Development personnel to ensure any issues are detected and resolved quickly.

LiDAR Project

The department continued with efforts in its light-detection-and-ranging (LiDAR) project, performing LiDAR collections in various saltmarsh habitats. The Inspired Flight 1200A drone and YellowScan Mapper remained a reliable combo for collecting drone-based LiDAR. The purpose of the collections was to experiment with different flight and collection parameters, such as flight speed, altitude, and evaluate the feasibility of ground-control points within a mangrove forest.

Post-data collection, different classification algorithms provided by the CloudStation Pro and ArcGIS Pro were also experimented with for ground classification and generation of digital elevation models (DEMS). LiDAR data consists of millions of individual data points, called point clouds, where the LiDAR's laser was able to penetrate and receive a return on the onboard sensor. The classification stage applies various techniques for categorizing each point cloud based on the object, such as ground, vegetation, and building. The final processing stage involves generation an elevation model using filtered grounded points which reveals the bare topography of the habitat to investigate the association of elevation with *Aedes taeniorhynchus* oviposition preferences. Most of the department's LiDAR efforts were focused on figuring out ideal processing parameters for refinement of treatment areas, such that only areas most likely to produce mosquitoes are treated, instead of the entire area.

Validating potential *Aedes taeniorhynchus* breeding sites through Egg shelling

In collaboration with the Technical Development Department, the Lab and Surveillance team carried out egg shelling on soil samples collected from potential *Aedes taeniorhynchus* breeding sites. These sites were identified using LiDAR technology. Soil samples were taken from the study site, Windstar, and taken back to the lab for processing. The egg shelling method was performed by bleaching the soil to identify the dark Ae. taeniorhynchus eggs lying within the soil. While no eggs were found during this study, observations made from sampling and further investigation of the location yielded more information on environmental factors to consider when identifying breeding sites, such as the potential for waste and pesticide runoff from nearby businesses or organizations (golf course). These observations will help us refine our breeding site selection criteria for future egg shelling experiments.

TECHNICAL DEVELOPMENT

Figure 15. 3D printed tools for various CMCD departments.

3D Printing Innovations

The department's 3D printing capabilities have benefited almost all departments across the district, from Aviation and Communications to Research and Operations. With CAD software and the Raise 3D and BambuLab printers, TD staff can quickly design and produce custom parts that are expensive or unavailable otherwise. For example, grate dippers were designed in-house using CAD to allow field technicians to inspect storm drains without having to lift heavy grates.

TECHNICAL DEVELOPMENT

Operational Expansion of Drone-Based Larvicide Applications

This year, the District was awarded a second CDC Epidemiology and Laboratory Capacity for Prevention and Control of Emerging Infectious Diseases (ELC) grant as an FDACS subrecipient. This grant allowed for the purchase of a second PV40X drone, enhancing our capacity to perform larvicide applications using drone technology. The Technical Development Department benefited from increased personnel and the purchase of new drones in FY 24-25, leading to more acres treated than in all previous years combined.

The acquisition of two PrecisionVision 40X (PV40X) drones significantly augmented the districts larvicide operations. Previously, the Hylio AG-110 treatment drone could only carry about 10 pounds of granular material per load and was prone issues that forced mission cancellations. Now, the 40-pound capacity of the PV40X models greatly increases the efficiency of drones as an application method. Less time is spent weighing product, reloading, and changing batteries, allowing more acres to be treated per mission.

In addition to carrying out larvicide missions, Technical Development staff have also streamlined the processes for scouting drone treatment areas as well as evaluating application efficacy. The department proactively identify suitable drone areas and treatments by identifying mosquito larvae or setting traps. After applications, treatment efficacy is confirmed and documented with larval inspections. Another novel addition for drone larvicide operations was the integration of Duplex G which uses methoprene and Bti for dual-action control. Field data has indicated up to three weeks of control post-treatment.

Drone Training with Operations

The department worked with the Operations department to assist select field technicians with acquiring their Part 107 Remote Pilot Certificate. Bodie Ward, Jacob Chappa, and Robert Mershon successfully completed the Technical Development's in-house drone training program and acquired their remote pilot certificates. These efforts are to increase the accessibility of small mapping and inspections drones to support mosquito surveillance.

New Hires and Promotions

Olivia Konieczny joined the District as a GIS Specialist.

Joseph Bonaccorsi joined the District as a UAS Pilot.

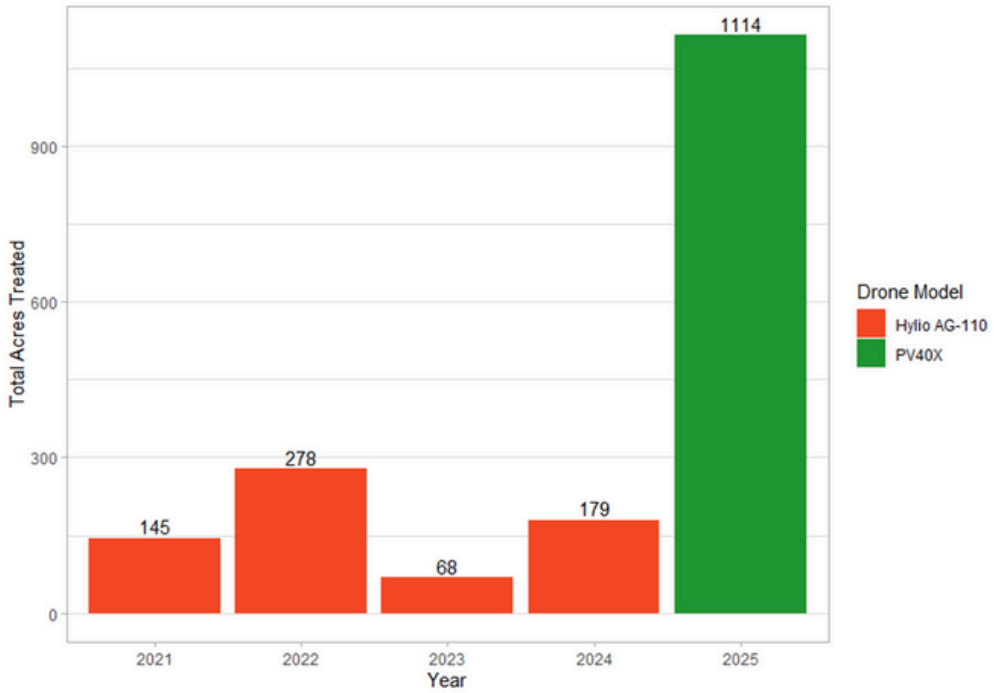


Figure 16: Acres treated per year by drone model.

FLIGHT & AIRCRAFT MAINTENANCE

Flight

While the 2025 salt marsh mosquito season got a little bit of a late start, the year ended up being one of the busiest on record due to the overwhelming influx of mosquitoes in the late spring and early summer.

John Dow was added to the pilot team at the beginning of the fiscal year and quickly passed all his public health licensing for pesticide application. He also completed his initial training for flying MD500, of which the District has two of.

Training continues to be a priority this year. All pilots received helicopter night vision goggle training to meet the growing demand for nighttime adulticiding missions in helicopters. Mike Berkitsch, Derrick Klein, Scot Hendricks and John Delk attended MD500 refresher training at MD Helicopters in Mesa, AZ. Kevin Dunleavy, Derrick Klein and Mike Berkitsch attended Bell407GXI refresher training at the Bell Training Academy in Dallas, TX. These trainings help pilots hone their craft and keep this skills current for flying District helicopters.

Initial preparations have begun for the anticipated SkyCourier. A desktop simulator was purchased to familiarize the pilots with systems, checklists and procedures prior to attending formal training increasing efficiency.

We attended the FMCA Fly-In this spring, which provided training for CEU's for pilots and mechanics who maintain spray systems and load control materials during missions.

New Hires and Promotions

John Dow joined the District as a Pilot.

Jose Hidalgo was promoted to Director of Aircraft Maintenance. He replaces Mark Prince who retired after 20 years of service.

Dave Forman was promoted to Lead Mechanic for helicopter maintenance.

Aviation Maintenance

This year, some of our mechanics participated in various training exercises to help them take care of our aircraft. Dave Forman completed a three-week Bell407GXI field maintenance course. This course covers everything a technician needs to know about the aircraft including the main rotor drive systems, powerplant (installation and rigging as related to the airframe), fuel system, tail rotor drive system, tail rotor, hydraulic systems, flight controls, electrical systems, and more. Simon Crawford attended the Cessna 408 Maintenance & Avionics course to prepare for the deliver of our new airplane in the spring of 2026.

We also had two appraisers look at the Twin Otter and gave us what they feel is good market value for the sale of the Twin Otter. $6 million is what our board of commissioners voted on as the sale price.

The Cessna Sky Courier is on track for an April 24, 2026 delivery. We are currently configuring the Cessna for spraying applications. Tanks and cradles for mosquito control treatments are currently being manufactured so that we can install them upon delivery of the aircraft.

One of our helicopters is getting an air conditioning system installed that allows pilots to larvicide with aircraft doors on. This minimizes the flight crew and helicopter interior from unnecessary exposure to granular dust while field loading the helicopter.

Figure 17: Director of Aircraft Maintenance Mark Prince celebrates his retirement after 20 years of service.

IT & FACILITIES MAINTENANCE

Information Technology

This year, we updated our security posture with new security event and incident management tools for networking scanning and monitoring. The District received a cybersecurity grant that helped makes this project possible.

We are in the early stages of test driving a program called “Co-Pilot” to determine if it is a viable AI solution to help with some everyday tasks.

We implemented a password vault system to help maintain strong passwords across all recourses the District uses. This is also valuable, because if employees leave the District credentials are not lost for essential programs and websites.

Due to the annual threat of hurricanes, we updated all District iPhones to allow for satellite texting during times of emergency.

We assisted the Technical Development Department to create a dedicated server for data reporting. This gives District employees a more detailed and efficient way to report daily activities and record data from the field.

Finally, we continue to require that all employees participate in annual cybersecurity training to protect District resources from potential attacks. This includes regular tests, such as mock phishing emails.

Facilities Maintenance

As the District continues to prepare for a sustainable future, the facilities maintenance department worked directly with architect and engineering firms to assist in preparing the District’s Master Plan. This plan is crucial in planning for an overhaul of our facilities at the Naples Airport and future facilities at the Immokalee airport that will help us serve the community for years to come.

We are continuing to evaluate the feasibility of implementing hybrid and electric technologies in District vehicles. We also overhauled the requirements for using District vehicles in order to ensure that they are kept clean and up-to-date on all required maintenance. This includes recording the mileage every time a vehicle is driven and performing monthly inspections on all District vehicles. Through the platform Fleetio, employees are able to meet this obligations digitally, which also helps ensure accurate record keeping of their use.

This year also included the following projects that ensure that employees are able to effectively do their jobs for the citizens we serve:

- Built a helicopter trailer to replace an older one.
- Purchased and outfitted new trucks for operations and research.
- Built CO2 tank racks for research trucks.
- Repaired granular larvicide tank on helicopter.
- Replaced drive motor and auger on larvicide loader trailer for helicopter.
- Kept up on routine maintenance for all buildings in Naples and Immokalee.

Figure 18: CMCD Field Technician Daniel Anez inputs field data using new software.

EXTERNAL AFFAIRS

Overview

This year, the Department of Communications was renamed to the Department of External Affairs to more accurately capture the outreach efforts of the team. Through the District's education program, outreach events and social media efforts, the Department of External Affairs reached tens of thousands of residents.

Highlights

- CMCD's education program reached more than 5,300 students in Collier County schools. This program is designed enhance students' scientific education while learning about the natural ecosystem that they are growing up in.
- This year marked the District's 75th anniversary, and we celebrated with an open house that hosted more than a dozen community partners. Close to 500 residents attended this year's open house for an inside look at our facilities and operations.
- This year, CMCD greatly increased its presence on social media to proactively inform the community of mosquito control treatments and valuable information about how individuals can help keep themselves, their property, and their families safe from the threats posed by mosquitoes. This led to:
  - 700,000 views on Facebook
  - 7,000 Facebook interactions
  - 1,000 new Facebook followers

Figure 19: CMCD field technicians demonstrate how we trap mosquitoes at the annual Open House.

Treatment Notification System

The District provides the option for all residents to receive advanced notification of mosquito control treatments once they are scheduled. Our treatment notification system was custom-built for the District. However, as more people signed up for notifications, the system proved unreliable, and it would have been costly to upgrade to meet the current needs. Instead, we looked to vendors who already specialize in mass notifications for a solution.

Making this change to has greatly increased reliability and proved to be the right choice for the District. The new service also allows residents to easily update their notification preferences and provides for two-way communication. This has allowed residents to reply directly to ask questions about mosquito control or report mosquito issues in their area. This has proven to be a great tool to upgrade treatment notifications and better communicate with the residents we serve.

EXTERNAL AFFAIRS

Professional Development

The District participates in several conferences and meetings each year that promote the mosquito control industry and provides the opportunity to learn from industry leaders from around the state and country.

District employees also frequently give presentations at these events to showcase the work that CMCD is doing to advance the science of mosquito control. This has allowed the District to position itself as an industry leader.

The District participated in the following:

- Florida Mosquito Control Association Annual Meeting (November)
- FMCA Annual Fly-in (January)
- FMCA Dodd short courses (February)
- American Mosquito Control Association Annual Meeting (March)

Figure 20: CMCD traveled to Tallahassee in February as part of FMCA's annual advocacy day during the 2025 legislative session.

Advocacy

As an independent special district, we are our own unit of local government. However, our priorities can also be intertwined with federal, state and other local governments. Participating in advocacy opportunities is crucial to ensuring that the District has the resources and support to fulfill its mission. This year, the District presented in front of the Naples Airport Authority board to layout our long-term Master Plan and seek their support. We also met with every Collier County Commissioner and many locally-elected municipal leaders to educate them on how we serve the community and make sure they know that we are also a resource for them and their constituents.

Advocacy extends far beyond the local level. We also participated in FMCA's Tallahassee Days and AMCA's Washington Days to advocate for mosquito control in front of both state and federal leaders. This proved very successful in securing funding for mosquito control programs and advancing sound legislation that allows mosquito control programs to continue with their critical duty of protecting public health and comfort.

Figure 21: Florida State Representation Yvette Benarroch visits CMCD for a tour and to learn more about how we serve the community.

HUMAN RESOURCES

Overview

The Human Resources Department supports the District's mission through strategic workforce management, compliance oversight, employee relations, and professional development initiatives. Core functions include recruitment and retention, classification and compensation, benefits administration, employee training, and policy development. HR remains committed to aligning human capital strategy with the District's operational needs and long-term objectives.

From late 2024 through 2025, the Human Resources Department continued to advance modernization efforts across the District, emphasizing efficiency, engagement, and employee wellbeing. The final quarter of 2024 established a strong foundation for the year ahead, with the successful onboarding of new hires, the launch of the Vitality wellness platform, progress on the ADP recruitment module, and improved processes for commissioner orientation. Entering 2025, HR built on these accomplishments by expanding recruitment initiatives, launching the first fully electronic Open Enrollment, and reinforcing a culture of recognition and development. This year marked the full operationalization of the recruitment platform and electronic onboarding process, expansion of wellness programs, and enhancement of employee engagement through recognition and events. Recruiting remained strong, internal promotions supported continuity, and benefits planning focused on maintaining value and affordability for employees and retirees.

Training & Development

Through collaboration with Inspire Big Dreams and the Future Makers Coalition, twenty-three supervisors and key employees completed an advanced Supervisor Training Program. The $100,000 grant-funded initiative focused on leadership development, communication, and employee engagement. Courses included Active Listening, Communicating Meaningful Work, Uncovering Strengths and Hidden Abilities, Ignite Coaching Communication, Impactful Strategies for Difficult Conversations, and Delivering Effective Feedback. These sessions have strengthened management capabilities and improved cross-departmental collaboration.

Benefits & Wellness Overview

The District's partnership with Brown & Brown and the launch of the Vitality platform elevated CMCD's wellness and benefits programs. Vitality participation remained high through a series of creative challenges promoting physical activity and mental health. Employees and retirees alike embraced the program, fostering a lasting culture of wellness. HR also achieved a major milestone with the District's first electronic Open Enrollment, which simplified enrollment and improved accuracy through the ADP Benefits Portal.

Employee Recognition & Service Milestones

CMCD recognized numerous employees for their years of service, professional growth, and achievements throughout FY 2024–2025. Highlights included promotions, milestone anniversaries, and the retirement of long-serving team members such as Mark Prince, whose two decades of leadership in Aircraft Maintenance were celebrated. These recognitions embody the District's appreciation for dedication, teamwork, and excellence in service.

Looking Ahead – FY 2025–2026

The Human Resources Department will continue building on this year's accomplishments through ongoing modernization, leadership development, and engagement initiatives. Priorities include completing full digital HR archiving, implementing the Student Loan Forgiveness Program pending Board approval, expanding supervisor and leadership training, maintaining competitive benefits, and strengthening succession planning. These initiatives will ensure CMCD remains an employer of choice, fostering a workplace where employees are supported, valued, and inspired to serve the public with excellence.

HUMAN RESOURCES

Year in Review: October 2024 – February 2025

The 2024–2025 fiscal year was a period of growth, innovation, and continued modernization within the Human Resources Department. Each month reflected new achievements and steady progress toward our strategic goals. In October, the District focused on strengthening its workforce with several key hires, including Pilot Johnny Dow, and welcomed new Laboratory Technicians Shannen Leahy and Isabel Gutierrez to complete staffing in the Research Department. HR advanced modernization by finalizing the ADP recruitment module and preparing for the launch of the Vitality wellness platform. Remote operations were successfully managed during hurricanes Helene and Milton, maintaining continuity of essential services.

By November, recruitment efforts gained momentum with the addition of Field Technicians Miguel Gaspar and Travis Hayden. HR also improved commissioner onboarding and launched Vitality, achieving rapid engagement. Participation in job fairs at Florida Gulf Coast University helped expand CMCD's visibility among local talent.
In December, HR expanded the internship program and facilitated onboarding for incoming commissioners Reg Buxton and Russell Burland. Vitality participation rose from 0% to 58% within two weeks of launch. The District also participated in the Lorenzo Walker Technical College Job Fair, promoting aviation and mosquito control careers. The month concluded with recognition of long-term service and leadership milestones.

January marked the full activation of the ADP recruitment platform, digitizing the hiring and onboarding process. Four employees were promoted to Field Technician Lead, strengthening operations. HR also introduced the first Vitality challenge, achieving 63% employee participation within 90 days.

In February, succession planning began for the upcoming retirement of Director of Aircraft Maintenance Mark Prince. Recruitment and onboarding plans were initiated, and HR prepared for electronic document storage. The Healthy Heart Challenge launched under the Vitality program, and the District hosted its annual Service Anniversary Luncheon honoring major milestones.

Figure 22: CMCD employees are recognized at the annual Service Anniversary Luncheon

HUMAN RESOURCES

Year in Review: March – September 2025

March continued with several hiring initiatives, including seasonal truck drivers and interns for Research and Technical Development. The internal recruitment for Director of Aircraft Maintenance concluded, and HR participated in FGCU's H.E.L.P. Job Fair. The Department began digitizing archived HR records to improve security and access.

In April, HR finalized the promotion of Jose Hidalgo as Director of Aircraft Maintenance and welcomed the return of summer interns. The department participated in the CMCD Open House to promote career opportunities and collaborated with the CFO on HR budgeting. ADP Broadcast and Survey tools were implemented to enhance internal communication.

May brought two new interns and the expansion of the OPS truck driver program. The Vitality Mental Health Awareness Challenge encouraged mindfulness and well-being. HR recognized employee anniversaries, celebrating long-term contributions to the District's mission.

By June, HR began preparations for the District's first electronic Open Enrollment, integrating the ADP Benefits Portal to simplify processes. A benefits review highlighted strong healthcare literacy and engagement across the workforce, supported by ongoing Vitality challenges.

In July, HR focused on benefits renewal and honored the retirement of Mark Prince, whose 20 years of dedicated service were recognized through a formal Board resolution. The Summer Sizzle Challenge encouraged continued participation in the Vitality program, while HR began developing the 2025–2026 health insurance package. August celebrated the promotion of Sara Kacinskas to Public Outreach and Education Specialist, following a successful recruitment process. Summer interns concluded their programs with presentations highlighting their accomplishments. HR worked with Brown & Brown on benefits renewal, maintaining competitive offerings and preparing for the electronic Open Enrollment launch.

In September, HR initiated recruitment for new laboratory technicians and participated in job fairs at FSW campuses in Collier and Lee counties. On September 15, the District launched its first electronic Open Enrollment through ADP, an achievement that streamlined the process and symbolized CMCD's continued modernization.

Figure 23: CMCD employees recruit students at FGCU's annual job fair.

FINANCE & ADMINISTRATION

Overview

The Finance & Administration team completed several key projects this year while also serving as the frontline for interacting with the public. They responded to more than 4,200 service requests, helping ensure timely communication and effective resolution for citizen inquiries.

The Department implemented a few new systems, including a new contract management system and new purchasing card system. These systems are designed to replace outdated processes with ones that increase efficiency and accessibility. The new purchasing cards also improved financial oversight. The last piece of these processes changes are a new asset inventory management process, which creates clearer categorization and accountability across departments.

In addition to these systems, the Department played a large role in advancing the District's Master Plan. This includes leading coordination with the architectural and engineering teams through the competitive bidding process, overseeing the development of plans for a new facility at the Naples Airport and lease negotiations with both the Naples Airport Authority and Immokalee Regional Airport.

As always, the biggest project was completing the annual budgeting process. This included incorporating a comprehensive straw budget to identify potential cost savings and improve financial forecasting.

Figure 24: Members of the finance team working the kids activity table at CMCD's annual open house.

FINANCE & ADMINISTRATION

Revenue Comparison

The District maintained strong interest earnings on District bank accounts, driven by the continued delay in expenditures related to capital outlay projects. With the expansion of our boundaries, we stopped receiving payments from areas outside of the District who received services under an interlocal agreement. Revenue is anticipated to grow in Fiscal Year 2025-2026 due to an increase an ad valorem revenue due to a millage-neutral millage rate and the sale of one airplane.

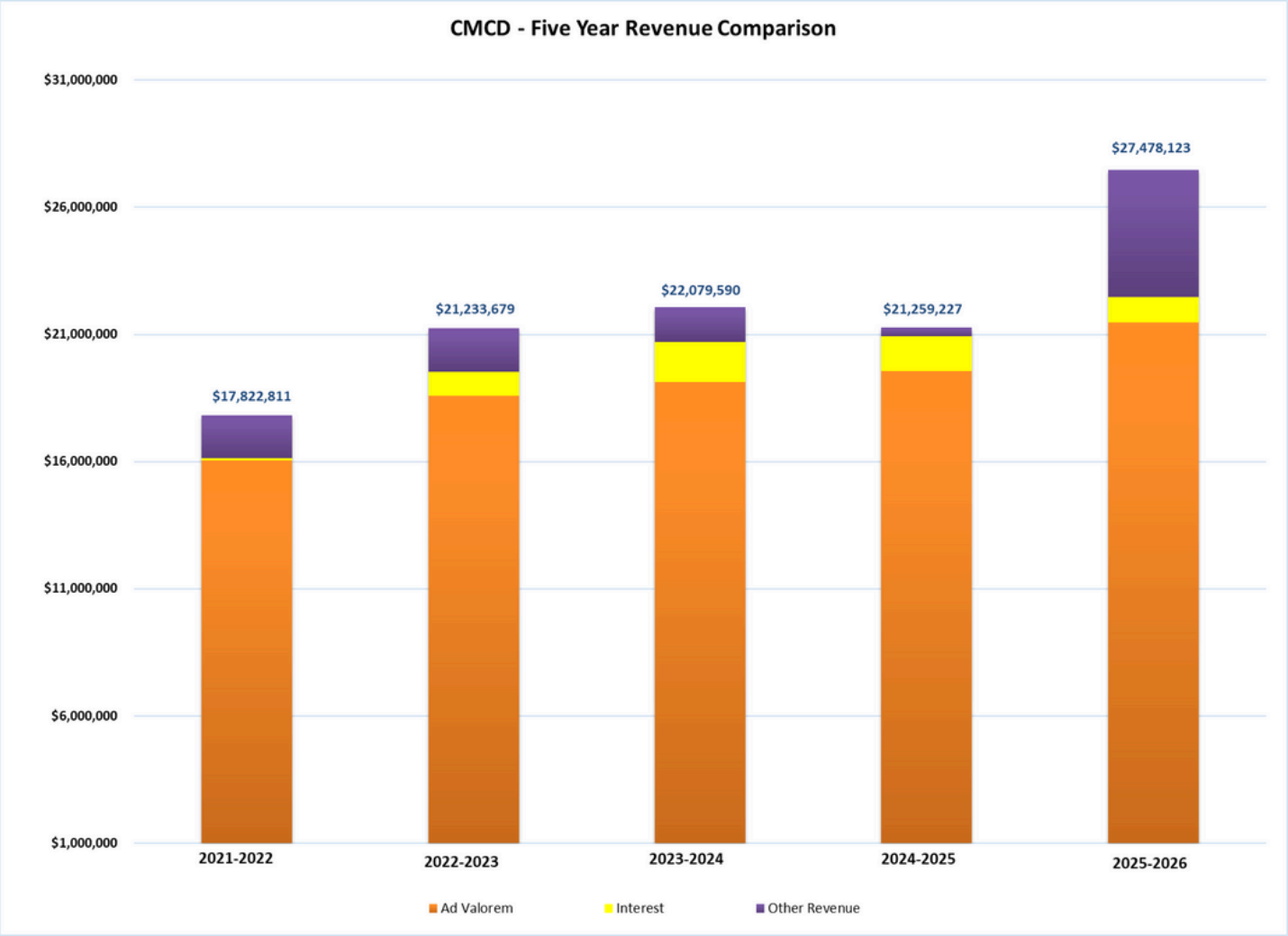


Figure 25: Comparison of revenue over the last five years.

FINANCE & ADMINISTRATION

Five-Year Expenditure Comparison

This year, the District saw an increase in personnel and employee benefit costs, which continues investment in experienced personnel to meet the workforce needs to go along with our area's population growth and increased District boundaries.

We also experienced a significant increase in operational expenditures due to an exceptionally active mosquito season. This lead to an increase in consumption of key resources, including treatment materials, fuel, and laboratory and entomological supplies.

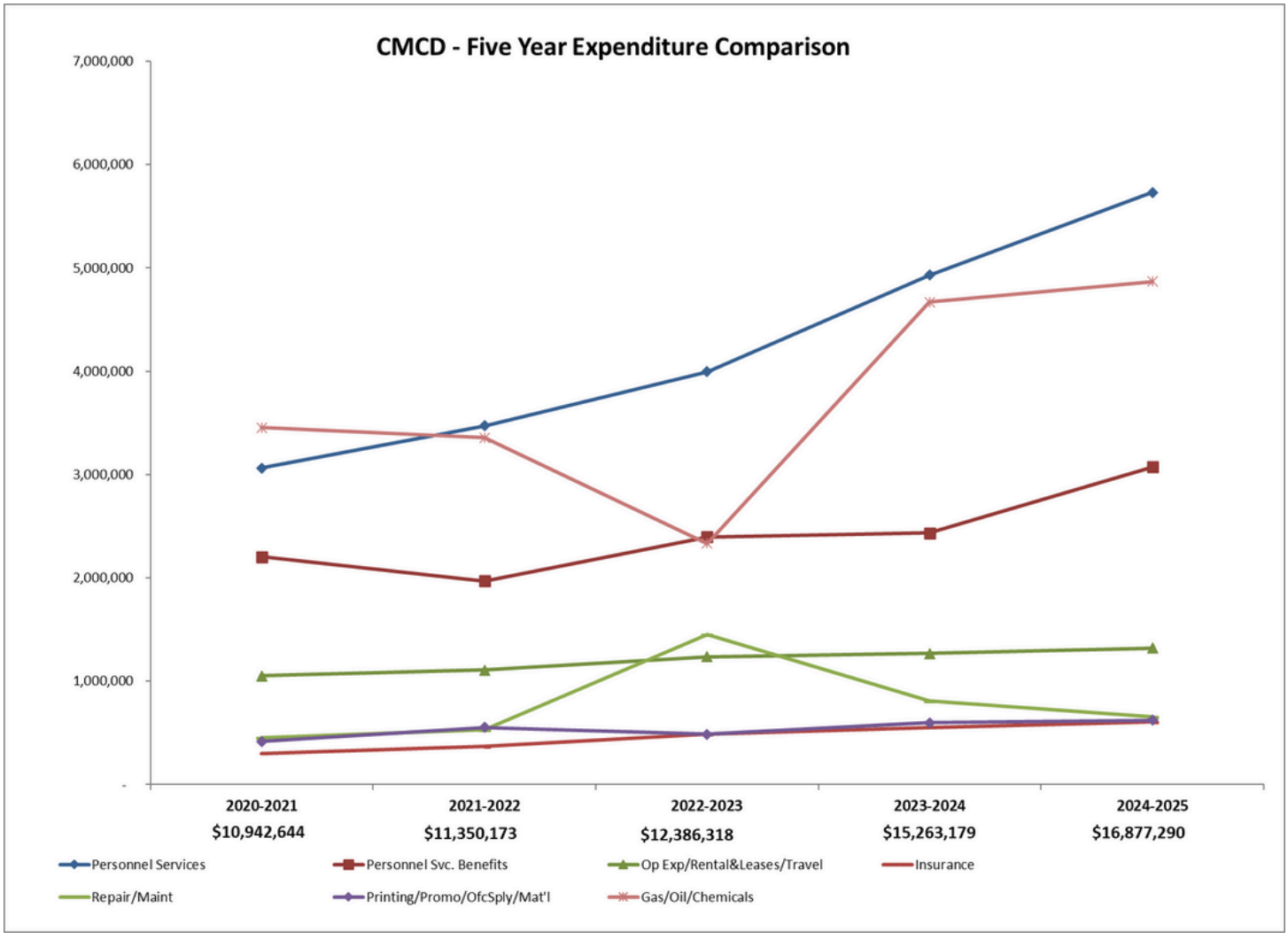
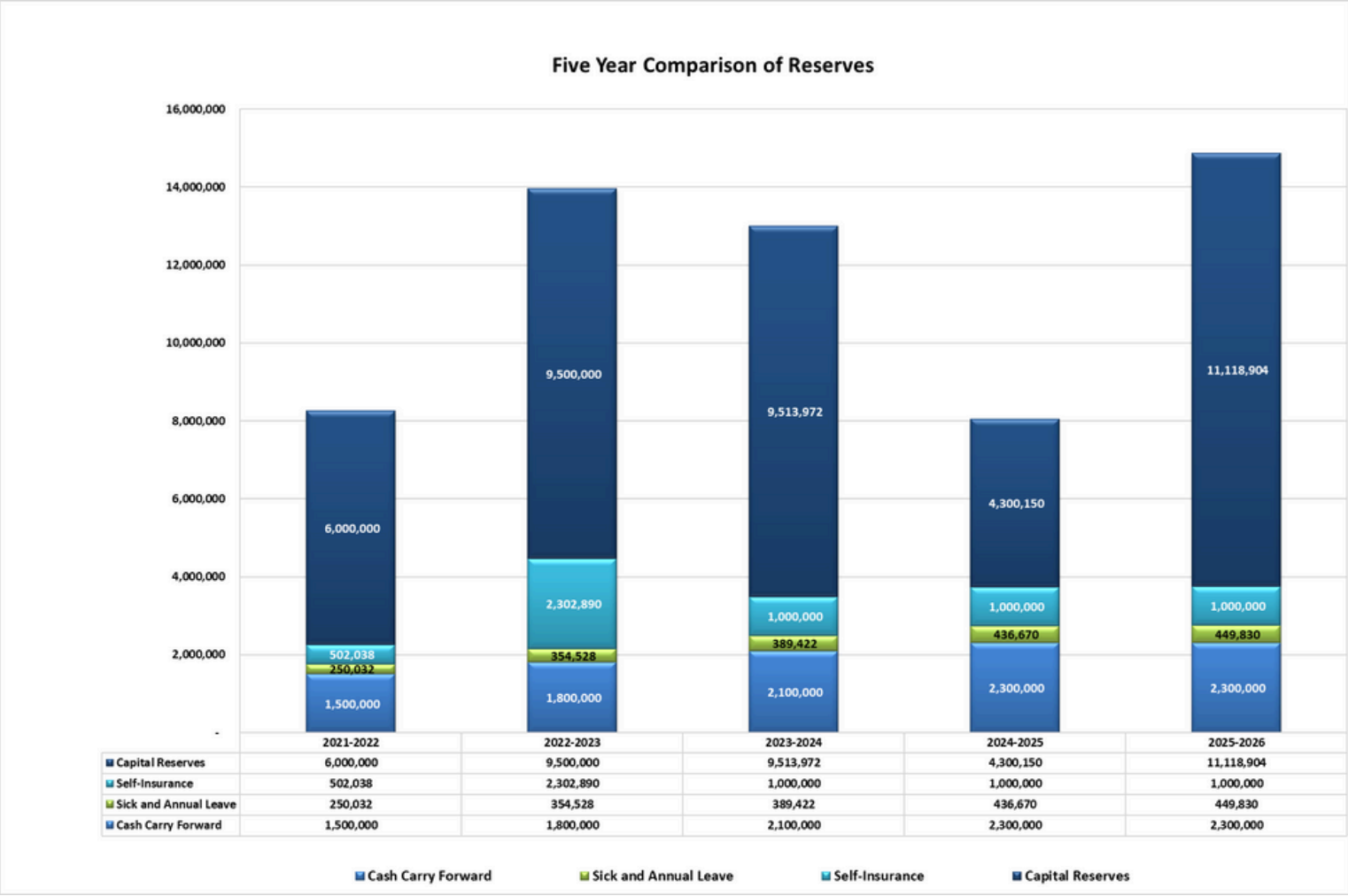


Figure 26: Comparison of expenditures over the last five years.

FINANCE & ADMINISTRATION

Five-Year Comparison – Reserves

Fiscal Year 2024-2025 saw a reduction in reserves to maintain liquidity in anticipation of capital project expenditures during the year, including new infrastructure development and aerial fleet rejuvenations. A replenishment of these reserve funds is planned for the next fiscal year to strategically support ongoing and future capital projects through proactive financial planning.



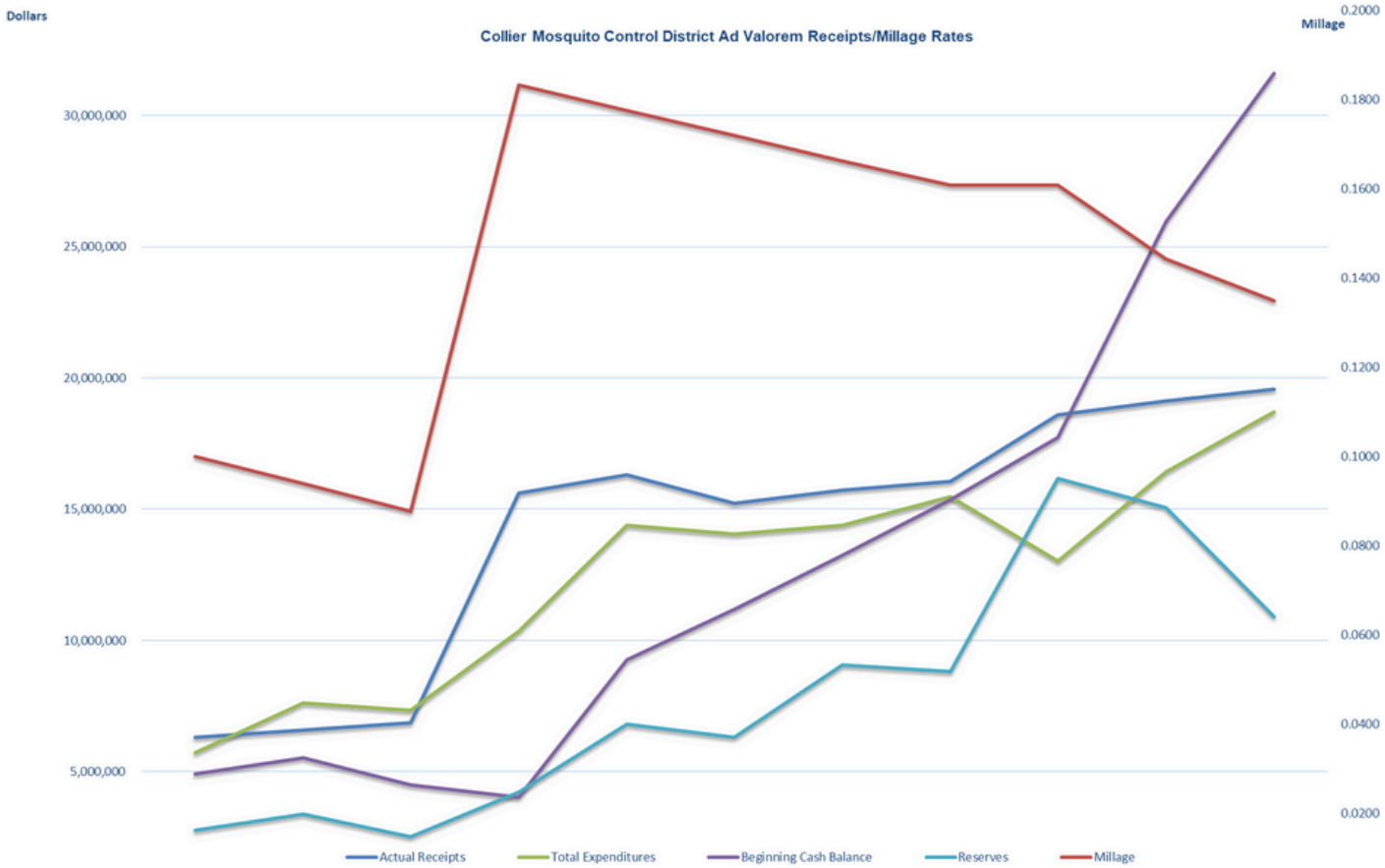
	2021-2022	2022-2023	2023-2024	2024-2025	2025-2026
Capital Reserves	6,000,000	9,500,000	9,513,972	4,300,150	11,118,904
Self-Insurance	502,038	2,302,890	1,000,000	1,000,000	1,000,000
Sick and Annual Leave	250,032	354,528	389,422	436,670	449,830
Cash Carry Forward	1,500,000	1,800,000	2,100,000	2,300,000	2,300,000

Figure 27: Five-year comparison of CMCD's reserve accounts

FINANCE & ADMINISTRATION

Millage Chart Highlights

For this fiscal year, the District maintained the millage rate at the rolled-back rate, resulting in tax revenue collections equivalent to those of the previous year. The ongoing reduction in reserves aligns with anticipated expenditures associated with the District's Capital Improvement Plan. This sustained investment in operations and infrastructure reflects a continued commitment to achieving long-term goals and advancing the District's strategic plan.



	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25
Actual Receipts	6,313,522	6,578,718	6,864,081	15,604,803	16,309,766	15,235,352	15,710,294	16,058,848	18,583,779	19,126,357	19,565,110
Total Expenditures	5,710,663	7,624,381	7,332,051	10,355,905	14,385,530	14,059,896	14,400,118	15,468,628	13,010,535	16,407,424	18,701,000
Beginning Cash Balance	4,924,755	5,532,559	4,486,896	4,018,926	9,267,824	11,192,060	13,254,109	15,363,320	17,717,503	25,940,647	31,612,814
Reserves	2,764,794	3,385,905	2,526,764	4,227,638	6,802,709	6,298,425	9,064,177	8,801,280	16,158,320	15,049,838	10,904,204
Millage	0.1001	0.0940	0.0878	0.1832	0.1775	0.1720	0.1662	0.1609	0.1609	0.1443	0.1349

Figure 28: Five-year comparison of CMCD's millage rate and receipts

GOALS & PERFORMANCE MEASURES

Goals and Performance Measures

Continued on Next Page

Ref #	Goal	Goal Met?	Comments
Department	**Administration**		
ADMIN-FINANCE-1	Research software platforms for management of contracts and agreements; Implement adopted platform.	Yes	
ADMIN-FINANCE-2	Streamline the budgeting process and increase transparency by and through frequent engagement with Commissioners.	Yes	
ADMIN-FINANCE-3	Complete bidding process for a continuing contract with Architect and Engineering firms.	Yes	
ADMIN-FINANCE-4	Facilitate the creation of a masterplan to include the construction of a new Multipurpose building at the Naples Airport Authority.	Ongoing	Ongoing - Awaiting approval from City of Naples City Council
ADMIN-FINANCE-5	Establish a new lease term with the Naples Airport Authority.	Ongoing	Ongoing - Awaiting approval from City of Naples City Council
ADMIN-FINANCE-6	Implement a departmental training program in conjunction with Human Resources.	Yes	
ADMIN-FINANCE-7	Implement new system to better distinguish the different types of assets.	Yes	
ADMIN-FINANCE-8	Create and implement standards of operations (SOPs) for cross-departmental tasks.	Yes	
ADMIN-FINANCE-9	Investigate potential for new organization-wide implementation of requisition software.	Yes	
ADMIN-HR-1	Implement an employee performance management system (i.e., employee evaluation process).	Yes	
ADMIN-HR-2	Create an SOP for the implemented employee evaluation process.	Yes	

Ref #	Goal	Goal Met?	Comments
ADMIN-HR-3	Train all supervisors on employee evaluation process.	Yes	
ADMIN-HR-4	Revise Employee Handbook to meet current standards, laws, and statutes for new and existing policies and procedures.	Yes	
ADMIN-HR-5	Standardize a District-wide training and development program.	Yes	
ADMIN-HR-6	Establish a student loan forgiveness program.	Ongoing	Working with General Counsel and will need BOC approval.
ADMIN-HR-7	Increase District visibility by attending local career fairs.	Yes	
ADMIN-IT-1	Assist in planning for expanded IT infrastructure systems to support facility expansions.	Yes	
ADMIN-IT-2	Upgrade servers to Windows Server 2022 and procure necessary hardware.	Yes	
ADMIN-IT-3	Update remaining desktops to Windows 11.	Yes	
ADMIN-IT-4	Evaluate enhancement opportunities for District's current cyber security posture.	Yes	
ADMIN-IT-5	Upgrade the traffic-monitoring software/server.	Yes	
ADMIN-IT-6	Upgrade hardware and technologies for all District departments.	Yes	

Ref #	Goal	Goal Met?	Comments
Department	**Communications**		
COMM-PR-1	Increase social media following by 15% on each social media platform we use.	Yes	
COMM-PR-2	Pitch at least two TV news stories per month among all of our local TV stations, spreading out the requests between stations so each station goes a few weeks without hearing from us. Major news (ex. District expansion) will be pitched to all stations.	Yes	
COMM-PR-3	Obtain at least one print story per quarter in the Naples Daily News. Submit one op-ed per quarter to the NDN.	Yes	
COMM-PR-4	Appear in Spanish language news (Noticias/Telemundo/radio/print) at least once per quarter.	Yes	
COMM-PR-5	Promote the District's treatment notification system with the goal of increasing the number of users by 7,500.	No	Added 2,500 new sign-ups.
COMM-EDU-1	Reach a total of 10,000+ students in classroom and summer camp environments.	Yes	
COMM-EDU-2	Expand classroom program to include high schools.	Yes	
COMM-EDU-3	Increase the number of public outreach events we participate in by 10%.	Yes	
COMM-EDU-4	Set up tours with at least 10 new community groups that haven't toured our facility in the last year.	Yes	
COMM-EDU-5	Increase open house attendance by at least 10%.	No	Achieved a 7% increase.

Ref #	Goal	Goal Met?	Comments
COMM-EDU-6	Give a presentation to every new HOA that joins our District should expansion become official.	No	Disinterest of HOA during the summer, and wanted to wait until “season” when more seasonal residents were present.
Department	**Facilities Maintenance**		
FAC-1	Work directly with Administration and Architect/Engineering firm(s) to prepare a CMCD Master Plan.	Yes	
FAC-2	Continue evaluation, availability, and cost/benefit of hybrid/electric technologies in District vehicles.	Ongoing	
FAC-3	Construct a new helicopter trailer to replace rusting/aging/smaller version(s).	Yes	
FAC-4	Work directly with Finance, ED, Architect/Engineers, and other departments, as appropriate, to meet facility and transportation needs as the District fleet grows and ages.	Ongoing	
Department	**Aviation Maintenance**		
HGR-AM-1	Succession planning/secure replacements for DOM and Aircraft Records Management Specialist (both retiring).		
HGR-AM-2	Continue purge of surplus and outdated parts & equipment: Skyvan, spray equipment, Wingman.		
HGR-AM-3	Further evaluate needs for Bell 407 special tooling and purchase as required.		
HGR-AM-4	Continue working toward standardization of aerial fleet using Marco pumps.		

Ref #	Goal	Goal Met?	Comments
HGR-AM-5	(Multi departmental) Evaluation of performance of Twin Otter (at CMCD) since purchase (three years on): Dispatchability, reliability, ease of obtaining parts and support, quantify problems and problem areas, draft list of desired changes for next ship.		
HGR-AM-6	Discuss findings with Aevex (formerly Ikhana) regarding: options for changes, timeline, revised estimates for pricing.		
HGR-AM-7	Explore technologies and options for updates/upgrades to fixed-wing aerial application platforms.		
HGR-AM-8	Explore changing maintenance tracking program to a more user friendly and efficient program.		
HGR-AM-9	Continue to evaluate Cessna Sky Courier as possible replacement for the Twin Otter and Skyvans (fleet upgrade) and develop timeline.		
Department	**Flight**		
HGR-FLT-1	Coordinate with and provide feedback to Operations on spray block modifications to improve productivity, efficacy, and safety.	Yes	
HGR-FLT-2	Research and plan new spray blocks commensurate with District expansion.	Yes	
HGR-FLT-3	Identify and address needed training to ensure pilot proficiency in all aircraft during entire scope of District mission-centered missions.	Yes	

Ref #	Goal	Goal Met?	Comments
HGR-FLT-4	Systematically provide pilot-in-command opportunities for lower-time/experienced pilots.	Yes	
HGR-FLT-5	Train pilots to become dual rated in airplanes and/pr helicopters, as needed.	Yes	
HGR-FLT-6	Send two pilot to attend Bell 407XGI recurrent training and two pilots to attend MD500 initial or recurrent training.	Yes	
HGR-FLT-7	Research the pros and cons of the Cessna Sky Courier and contact current operators for their opinions.	Yes	
HGR-FLT-8	Visit Cessna/Textron facility in Kansas for thorough tour and test flight of Sky Courrier.	Yes	
Department	**Operations**		
OPS-1	Extend surveillance coverage through the addition of new landing rate count locations, larval hot spots, and trap sites in the newly expanded District boundaries.	Yes	
OPS-2	Enhance container-inhabiting mosquito species surveillance in “hot spot” neighborhoods.	Yes	
OPS-3	Integrate barrier treatments into operational use, and investigate its use in Keewaydin, Port of the Islands and recreational facilities.	Yes	
OPS-4	Fully integrate ReMoa Tri into operational use for control of a variety of mosquito species.	Yes	

Ref #	Goal	Goal Met?	Comments
OPS-5	Investigate the use of Merus 3.0 to control *Mansonia* spp. using a target vs. wide-area approach in the areas around Ave Maria.	No	Due to high *Aedes taeniorhynchus* season N579LB/Merus 3.0 resources were utilized along the coast instead.
OPS-6	Integrate more single-brood larvicides and mosquitofish usage into District operations.	Yes	
OPS-7	Assign one field technician to complete Part 107 remote pilot's license.	Yes	
Department	**Research**		
RSH-1	Evaluate efficacy of barrier treatments for mosquito control on Keewaydin island.	Yes	
RSH-2	Perform mesocosm trials to evaluate efficacy of various larvicidal products.	Ongoing	Took time to optimize collection method, unable to collect enough for trials before due date.
RSH-3	Create a comprehensive Naled resistance map for *Ae. aegypti.*	Yes	
RSH-4	Increase insecticide resistance monitoring by testing key target species and source locations.	Yes	
RSH-5	Evaluate utilizing BG-Counters for treatment justification.	Ongoing	Experimented with different wats of formatting and analyzing the data with different programs.
RSH-6	Continue analysis of spatiotemporal patterns in host usage of *Culex nigripalpus,* and expand study to *Anopheles* spp.	Yes	
RSH-7	Complete field evaluations of ReMoa Tri efficacy against resistant *Ae. aegypti* populations.	Yes	

Ref #	Goal	Goal Met?	Comments
RSH-8	Expand mosquitofish program for operational use.	Yes	
RSH-9	Use eggshell sampling to validate LiDAR data from coastal larvicide locations to develop a model of *Aedes taeniorhynchus* oviposition sites.	Yes	
RSH-10	Develop in-house disease testing protocols for pathogen detection, prioritizing Plasmodium.	Yes	

Ref #	Goal	Goal Met?	Comments
Department	**Technical Development**		
TD-1	Continue augmenting drone larvicide treatments (number and acreage) via proactive inspections by Technical Development personnel.	Yes	
TD-2	Investigate “proof-of-concept” and compliance requirements of drone-based adulticiding within the District. Phase 1, year one: Initiate a review of the regulatory framework and drafting a comprehensive report on use-case scenarios.	Yes	
TD-3	Increase the accessibility of small mapping and inspection drones for use by the Operations Department. Phase 1, year one: Provide training for select field technicians to acquire Part 107 licenses and offer instruction on the operation of small mapping/inspection drones.	Yes	
TD-4	Develop and validate a predictive model of mosquito production sites by analyzing District-collected LiDAR data. 1) Employ data to refine treatment polygons for rotary-wing larvicide missions. Employ data to refine treatment polygons for rotary-wing larvicide missions, 2) Evaluate additional coastal larvicide locations for LiDAR data acquisition and continue to refine model of *Aedes taeniorhynchus* oviposition sites.	Yes	

Ref #	Goal	Goal Met?	Comments
TD-5	Continue growth of scope and quantity of 3-D printing services for departments as able.	Yes	
TD-6	Support Operations Department with surveillance in district expansion areas by providing remote-sensing data, including drone imagery, satellite, and LiDAR.	Yes	
TD-7	Transition the District's flight records retention from the current Microsoft Access database to the District's ArcGIS Online (AGOL) platform.	Yes	

Ref #	Standard	Measure	Standard Met?	Comments
Department	**Administration**			
ADMIN-FINANCE-1	Maintain a balanced budget during FY 2024-2025 in accordance with 5E-13 regulations.	Submit the Mosquito Control Monthly Report – Local Funds for the previous month to the Board of Commissioners for approval at public meetings, and submit to the Department of Agriculture and Consumer Services (DACS) before the last day of each month.	Yes	
ADMIN-FINANCE-2	Ensure effective financial planning for FY 2025-2026 in accordance with 5E-13 regulations.	Present the Detailed Work Plan Budget for Arthropod Control and the Annual Certified Budget for Arthropod Control to the Board of Commissioners for approval during a public meeting, and submit both documents to DACS by the specified deadlines.	Yes	
ADMIN-FINANCE-3	Maintain a high standard for internal control to ensure compliance with Generally Accepted Accounting Principles (GAAP) requirements.	Achieve an audit report free of material misstatements from an independent audit firm annually.	Yes	
ADMIN-HR-1	Maintain accurate staffing levels to ensure mission readiness.	Target staffing percentage at 90%.	Yes	
ADMIN-HR-2	Ensure all employees receive annual regulatory training.	Achieve a 95% completion rate for all mandatory training programs annually.	Yes	
ADMIN-HR-3	Provide comprehensive employee benefits and wellness programs to support overall health and well-being.	Attain a 90% employee participation rate in wellness programs annually.	Yes	

Ref #	Standard	Measure	Standard Met?	Comments
Department	**Communications**			
COMM-1	Proactively inform District residents of all truck and aerial treatments before they are performed.	Post at least 90% of our missions on social media (some missions may be scheduled with short notices) and send out notifications to residents who have signed up to receive them for 100% of missions.	Yes	
COMM-2	As a trusted community partner, CMCD is committed to being an active member of the community and providing as much education and information as possible to our residents and visitors.	Perform or participate in at least 20 community outreach events per year (parades, open house, setting up at events hosted by other organizations, HOA presentations, etc.).	Yes	
COMM-3	Teach the science of mosquito control in the classroom to help Collier's students better understand the ecology of where they live and teach them skills to protect themselves from mosquito bites.	Ensure CMCD educators teach lessons in K, 2nd, 5th and 7th grade classrooms which closely align with at least one Florida education standard.	Yes	
Department	**Facilities Maintenance**			
FAC-1	Utilize maintenance management systems for vehicle maintenance.	Implement and monitor the usage of Fleetio to ensure all vehicle maintenance activities are recorded, tracked, and completed on schedule.	Yes	

Ref #	Standard	Measure	Standard Met?	Comments
FAC-2	Encourage feedback from staff regarding facilities and vehicle maintenance needs, and identify opportunities for improvement.	A representative from Facilities Maintenance attends each safety meeting and supervisors meeting to solicit and collect feedback from staff regarding maintenance needs and recommendations.	Yes	
FAC-3	Identify the critical areas of facilities maintenance such as cleanliness, safety and equipment needs.	Conduct regular departmental meetings with facilities maintenance staff to identify, document, and prioritize areas requiring maintenance attention.	Yes	
Department	**Aviation Maintenance**			
HGR-AM-1	Calibrate all aerial adulticide application equipment in accordance with 5E-13.0331(5) regulations.	All aerial adulticide application equipment is calibrated either once annually, or as required by label directions or manufacturer directions, whichever requires calibration more frequently, to ensure application of accurate and uniform dosages in accordance with labeling specifications. Calibrations are properly documented for each aircraft.	Yes	
HGR-AM-2	Calibrate all aerial larvicide application equipment annually.	All aerial larvicide application equipment is calibrated at least once annually to ensure application of the correct particle size and accurate and uniform dosages in accordance with labeling specifications. Calibrations are properly documented for each aircraft.	Yes	

Ref #	Standard	Measure	Standard Met?	Comments
HGR-AM-3	Maintain aircraft dispatchability as close to 100% as possible.	Maintain detailed records of all mission cancellations due to mechanical issues with aircraft or product application systems.	Yes	
Department	**Flight**			
HGR-FLT-1	Ensure all fixed-wing and rotary aerial applicators are equipped with the Aerial Category on their Public Health Pest Control (PHPC) license in accordance with 5E-13.040.	Require all fixed-wing and rotary aerial applicators to obtain the PHPC license with the Aerial Category within 3 months of hire, and provide opportunities so that all PHPC license holders with the Aerial Category maintain continued competency through the acquisition of aerial continuing education units.	Yes	
HGR-FLT-2	Pilots in Command will maintain currency in each aircraft category they are rated in.	The Chief Pilot completes annual currency checks in the fixed wing aircraft in accordance with Airman Certification Standards. Annual rotor-wing currency is accomplished through Bell, MD, or another similar vendor.	Yes	
HGR-FLT-3	Ensure accurate record keeping in accordance with 5E-13.0371 after each flight.	After each flight the Pilot in Command completes the necessary documentation and saves it into the record keeping system to be kept on file for at least 3 years.	Yes	

Ref #	Standard	Measure	Standard Met?	Comments
Department	**Operations**			
OPS-FLD-1	Calibrate all truck mounted adulticide application equipment in accordance with 5E-13.0331(5) regulations.	All truck mounted adulticide application equipment is calibrated either once annually, or as required by label directions or manufacturer directions, whichever requires calibration more frequently, to ensure application of the correct particle size and accurate and uniform dosages in accordance with labeling specifications. Calibrations are properly documented for each unit.	Yes	
OPS-FLD-2	Calibrate all truck mounted larvicide application equipment annually.	All truck mounted larvicide application equipment is calibrated at least once annually to ensure application of the correct particle size and accurate and uniform dosages in accordance with labeling specifications. Calibrations are properly documented for each unit.	Yes	
OPS-FLD-3	Respond to property inspection requests in a timely manner.	Average time to field rectification is within 3 working days (72 h) of receipt for property inspection requests.	Yes	3 d (74.19 hr); high volume of property inspection requests due to *Aedes taeniorhynchus* population numbers and surveillance platform transition resulted in delayed response times and closeout dates in Q3 and Q4.

Ref #	Standard	Measure	Standard Met?	Comments
OPS-FLD-4	Respond to high larval production sites within 7 days of inspection.	Time to larvicide application is within 7 days (depending on instar) post inspection for 90% of inspections.	Yes	100% larvicide applications within 7 d
OPS-FLD-5	Perform adult mosquito surveillance within 24 hr post application (post-counts).	Time to post-count surveillance is within 24 hr post application for 90% of adulticide applications.	Yes	98%-100% adulticide applications have post-counts within 24 hr
OPS-SAF-1	Ensure effective operational planning for FY 2025-2026 in accordance with 5E-13 regulations.	Present the Integrated Mosquito Management Plan to the Board of Commissioners for approval at a public meeting, and submit the approved plan to DACS by the designated deadline.	Yes	
OPS-SAF-2	Maintain sufficient chemical inventory and track all chemical usage in accordance with 5E-13 regulations.	Submit the Monthly Activity Report for the previous month to the Board of Commissioners for approval at a public meeting, and submit to DACS before the last day of each month.	Yes	
OPS-SAF-3	Review the Pesticide Discharge Management Plan to ensure compliance with the Clean Water Act (CWA) and 62-621.300(8) regulations.	Review and update the Pesticide Discharge Management Plan annually, with the updated plan signed by the Executive Director.	Yes	
OPS-SAF-4	Review the Chemical Emergency Response Plan to ensure compliance with SARA Title III of 1986.	Review and update the Chemical Emergency Response Plan annually, and review the plan with staff during in-house training events.	Yes	

Ref #	Standard	Measure	Standard Met?	Comments
OPS-SAF-5	Review the Adverse Incident Response Plan to ensure compliance with the Federal Insecticide, Rodenticide and Fungicide Act (FIFRA) and 62-621.300(8).	Review and update the Adverse Incident Response Plan annually, and review the plan with staff during in-house training events.	Yes	
OPS-SAF-6	Ensure all full-time applicators and loaders are licensed for Public Health Pest Control (PHPC) in accordance with 5E-13.040.	Require full-time pesticide applicators and loaders to obtain the PHPC license within 12 months of hire, and provide opportunities so that all PHPC license holders maintain continued competency through the acquisition of public health and core continuing education units.	Yes	
OPS-SAF-7	Ensure all pesticide applicators and loaders receive in-house training covering topics defined in 5E-13.039(2).	Require all applicators and loaders to attend a minimum of 2 in-house training events annually, such as the Annual Chemical Safety Training (OSHA HAZWOPER) and the Annual Hangar Safety Meeting.	Yes	
OPS-SAF-8	Establish an in-house Safety Committee to ensure the safety and occupational health of all district staff.	Conduct and document a safety inspection quarterly by the Safety Coordinator or designee, and hold quarterly Safety Committee meetings to address and rectify any safety concerns at the District.	Yes	

Ref #	Standard	Measure	Standard Met?	Comments
Department	**Research**			
RCH-LAB-1	Annually review Treatment Threshold Values.	By February 1st of each year, review and update Treatment Threshold Values using data collected from the previous three years.	Yes	
RCH-LAB-2	Perform arbovirus testing of mosquito pools within 3 working days (72 h) of trap collection.	Document time to conduct arbovirus testing of mosquito pools to show completion within 3 working days (72 h) of trap collection.	Yes	2 d (39.6 hr)
RCH-LAB-3	Perform operational trap identification within 3 working days (72 h) of trap collection.	Document time to trap closeout after trap collection to show completion within 3 working days (72 h).	Yes	2 d (37.92 hr)
RCH-VAL-1	Perform insecticide resistance monitoring to ensure effectiveness of control materials in accordance with labeling specifications and industry best practices.	Ensure that resistance testing (CDC Bottle Bioassay) includes major mosquito species present in the District, with particular focus on those known to transmit mosquito-borne diseases.	Yes	
RCH-VAL-2	Perform larval mosquito surveillance within 7 days post larvicide application (backchecks).	Document time to backcheck surveillance falls within 7 days post application for 90% of aerial larvicide applications (excluding pretreatments).	Yes	100% backchecks within 7 d
Department	**Technical Development**			
TD-1	Ensure all staff utilizing drones are FAA Certified Remote Pilots per 14 CFR Part 107.	Require all staff utilizing drones to obtain their Remote Pilot certification within 6 months of hire, and ensure formalized training is received and documented for any new Unmanned Aircraft System (UAS) platform acquired by the District.	Yes	

Ref #	Standard	Measure	Standard Met?	Comments
TD-2	Ensure all UAS aerial applicators are equipped with the Aerial Category on their Public Health Pest Control (PHPC) license in accordance with 5E-13.040	Require all UAS aerial applicators to obtain the PHPC license with the Aerial Category within 6 months of hire, and provide opportunities so that all PHPC license holders with the Aerial Category maintain continued competency through the acquisition of aerial continuing education units.	Yes	
TD-3	Leverage light-detection-and-ranging (LiDAR) data to refine and optimize treatment polygons for rotary-wing larvicide missions—ensuring precise targeting of mosquito production sites and effective mosquito management.	Perform LiDAR collections for 4 coastal larvicide locations and refine (if necessary) the treatment polygon to target mosquito-prone areas.	No	Ongoing project, with plan to collect LiDAR for Delnor-Wiggins, Pelican Bay, and Anchorage in Q2 2025. Currently coordinating with Delnor-Wiggins State Park land manager for UAS mapping date/time.

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