

Welcome

Aloha and thank you for joining today!

**O'ahu Storm Water Utility Study
City and County of Honolulu
Stakeholder Advisory Group Meeting
Monday, May 3, 2021, 4-6:30 pm**



Today's Agenda



Today's Agenda

Time	Topic
4:00-4:10 p.m.	Welcome and Introductions, Agenda Overview
4:10-4:20	Public Comment
4:20 – 5:10	Updates and Reports <ul style="list-style-type: none">• State of Hawaii storm water utility legislation activity• Upcoming Water Environment Federation (WEF) legislative issues webinar• Anticipated City Council consideration of storm water initiatives• Follow the Drop – Malama Maunalua Project• One Water planning
5:10-5:30	Community Outreach, including Neighborhood Board Briefings and Community Meetings
5:30-6:20	Storm Water Strategic Plan <ul style="list-style-type: none">• Overview• Stakeholder Advisory Group input - storm water planning values, vision, and partnerships
6:20 – 6:30	Wrap Up; Next Meeting May 17, 2021, 4:00 – 6:30 PM (planning for virtual)

Tips for Productive Discussions



**Keep input
focused and
concise**



**Commit to everyone
participating equally**

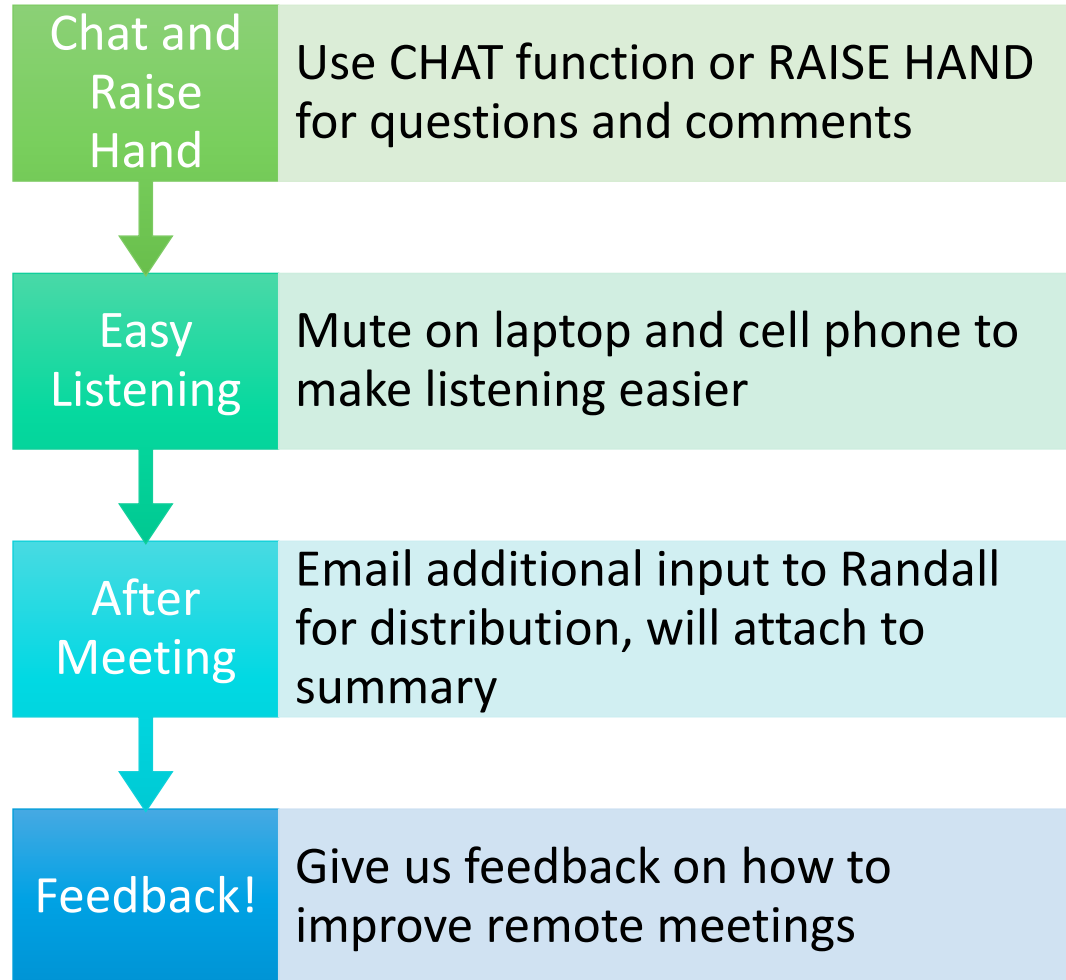


**Listen for understanding –
avoid quick opinions**



**Help identify
solutions**

Our Virtual Meetings



Public Comment



Please Share Your Perspectives!

The public was invited and encouraged to submit comments before this meeting and to observe the meeting. The public is also invited to submit written comments by email or US Mail, preferably by Friday, May 7, 2021. All comments from the public will be distributed to the Stakeholder Advisory Group members and project team.

Email

stormwater@honolulu.gov

US Mail

City and County of Honolulu
Department of Facility Maintenance
Storm Water Quality Branch
1000 Uluohia Street, Suite 212
Kapolei, HI 96707

Mahalo

Updates



Updates

State of Hawaii storm water utility legislation activity

Upcoming Water Environment Federation (WEF) legislative issues webinar

Anticipated City Council consideration of storm water initiatives

Follow the Drop – Malama Maunaloa Project

One Water planning



Updates

State of Hawaii storm water utility legislation activity

Upcoming Water Environment Federation (WEF) legislative issues webinar

Anticipated City Council consideration of storm water initiatives

Follow the Drop – Malama Maunaloa Project

One Water planning



Updates

State of Hawaii storm water utility legislation activity

Upcoming Water Environment Federation (WEF) legislative issues webinar

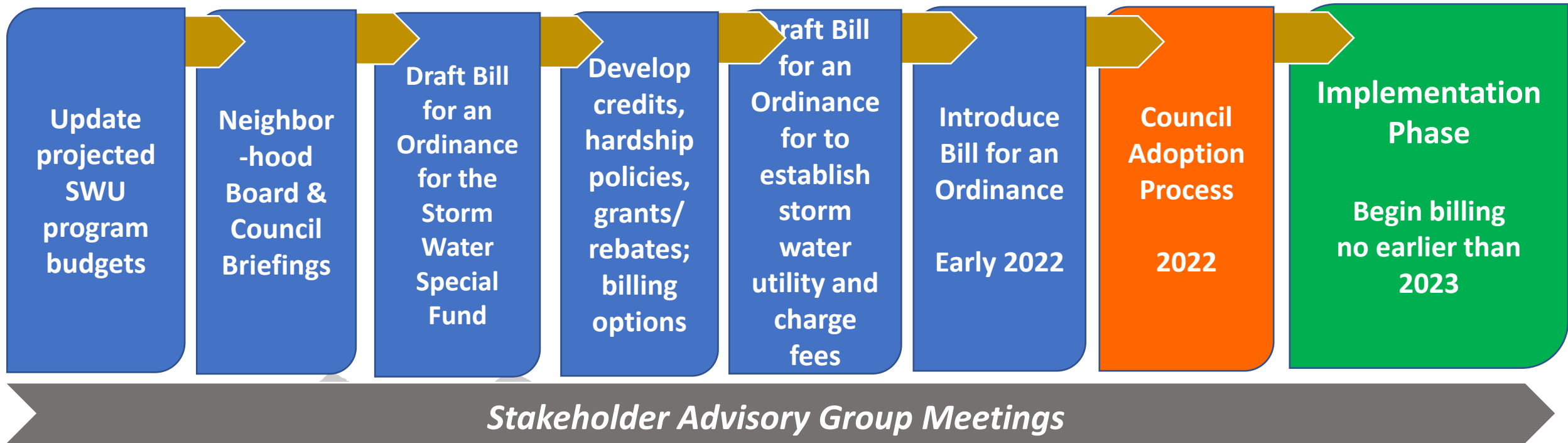
Anticipated City Council consideration of storm water initiatives

Follow the Drop – Malama Maunaloa Project

One Water planning



Anticipated Process



Updates

State of Hawaii storm water utility legislation activity

Upcoming Water Environment Federation (WEF) legislative issues webinar

Anticipated City Council consideration of storm water initiatives

Follow the Drop – Malama Maunaloa Project

One Water planning



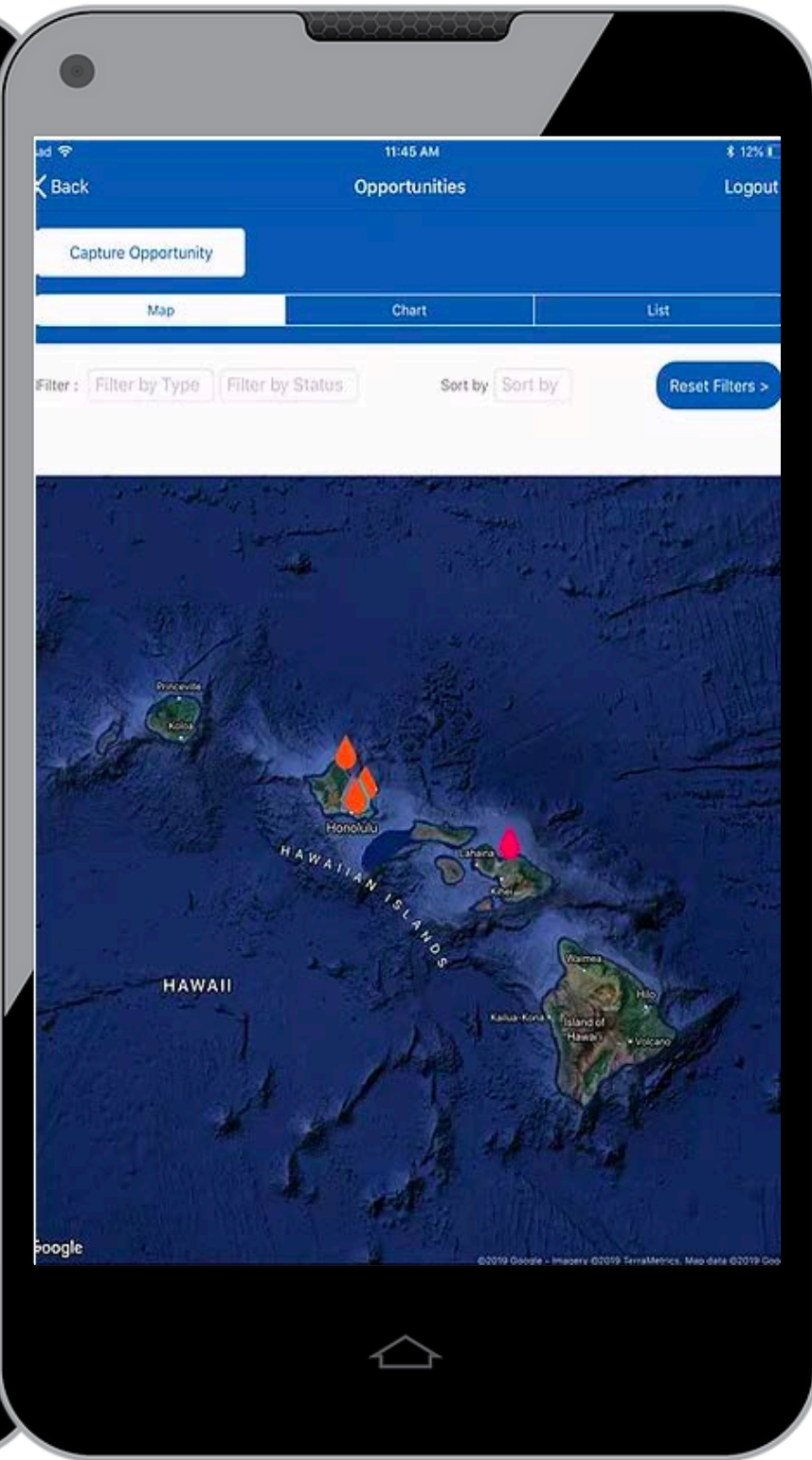
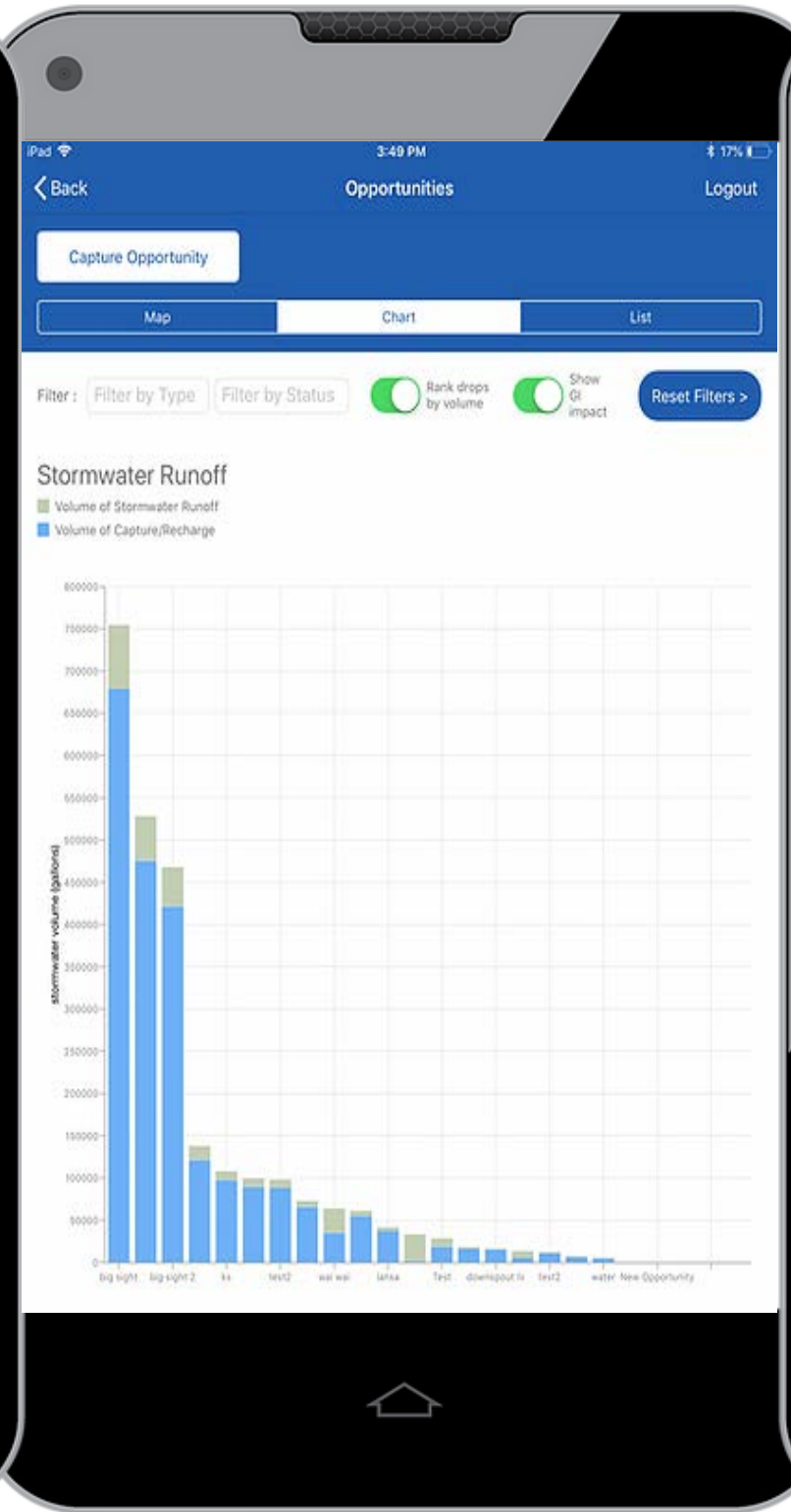
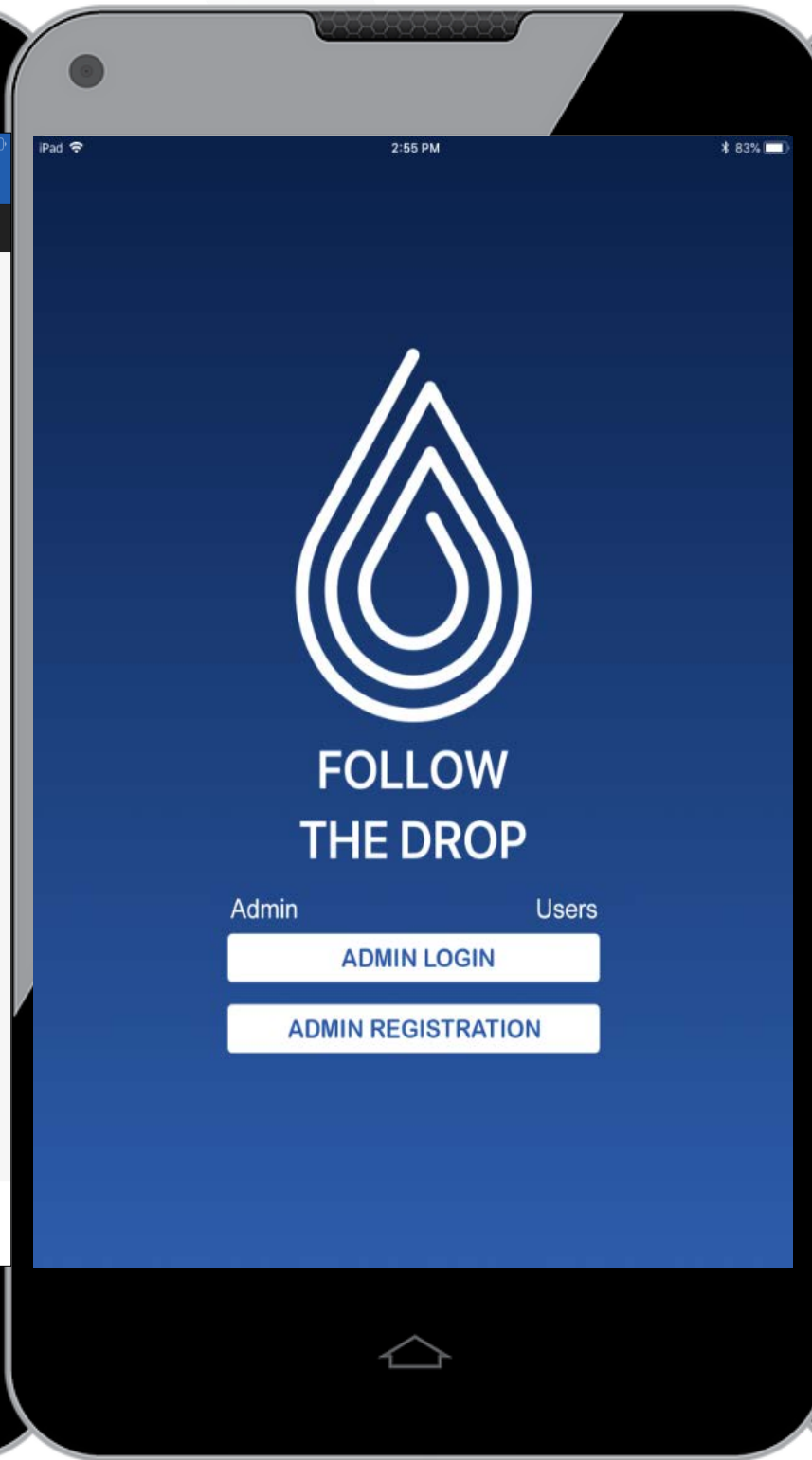
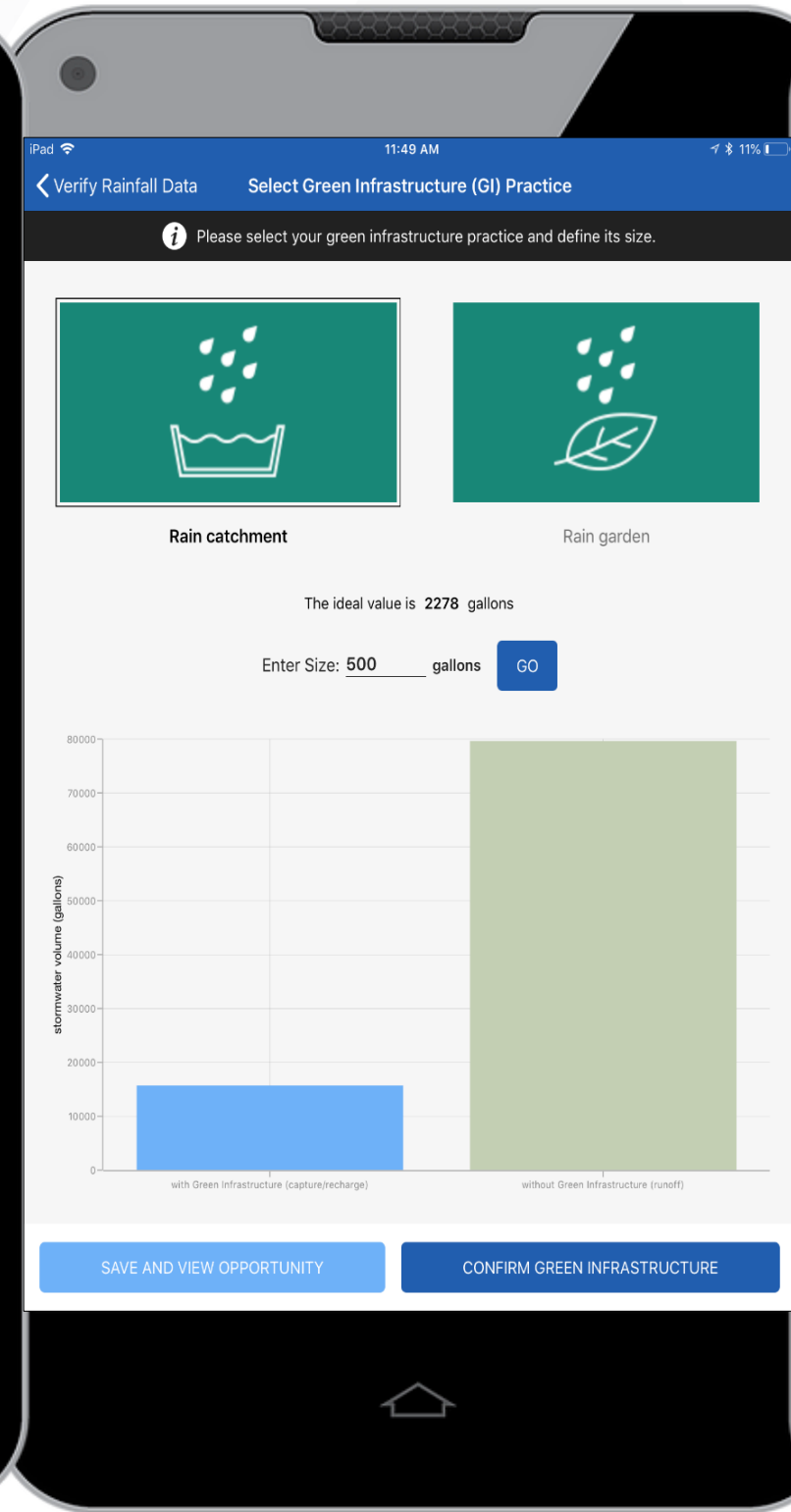
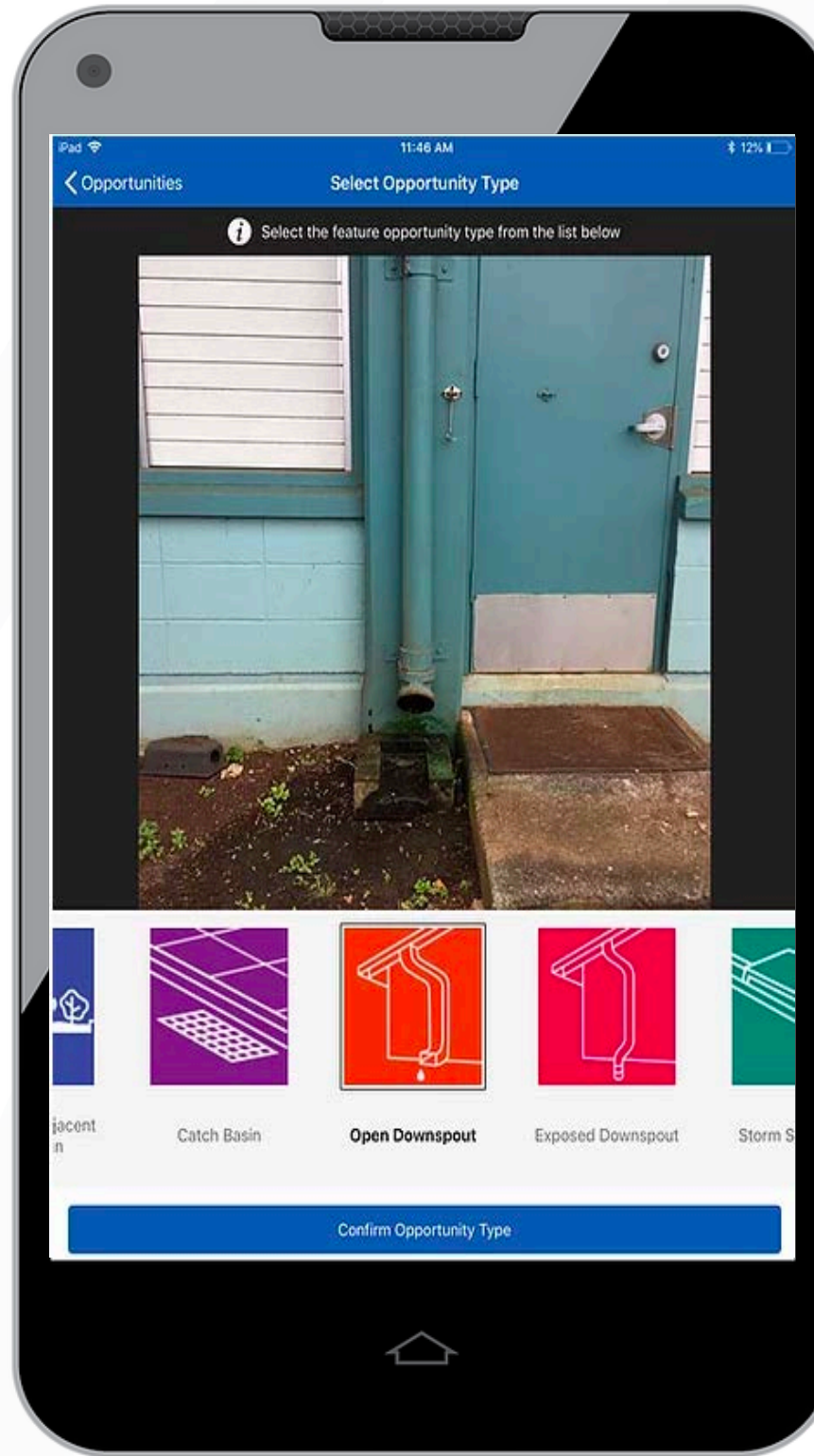


City and County of Honolulu DFM Pilot FY 20-21



FOLLOW THE DROP™

MOBILE & DATA PLATFORM

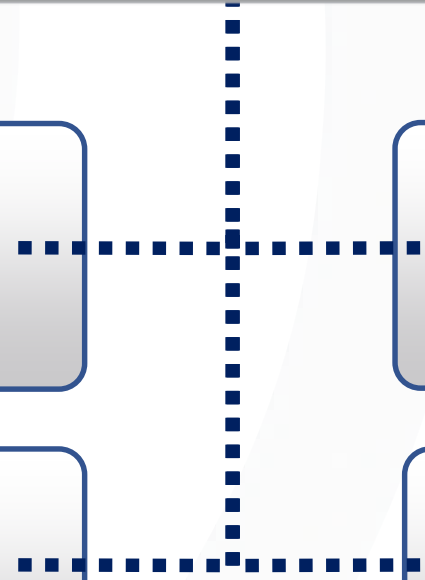


Community Engagement

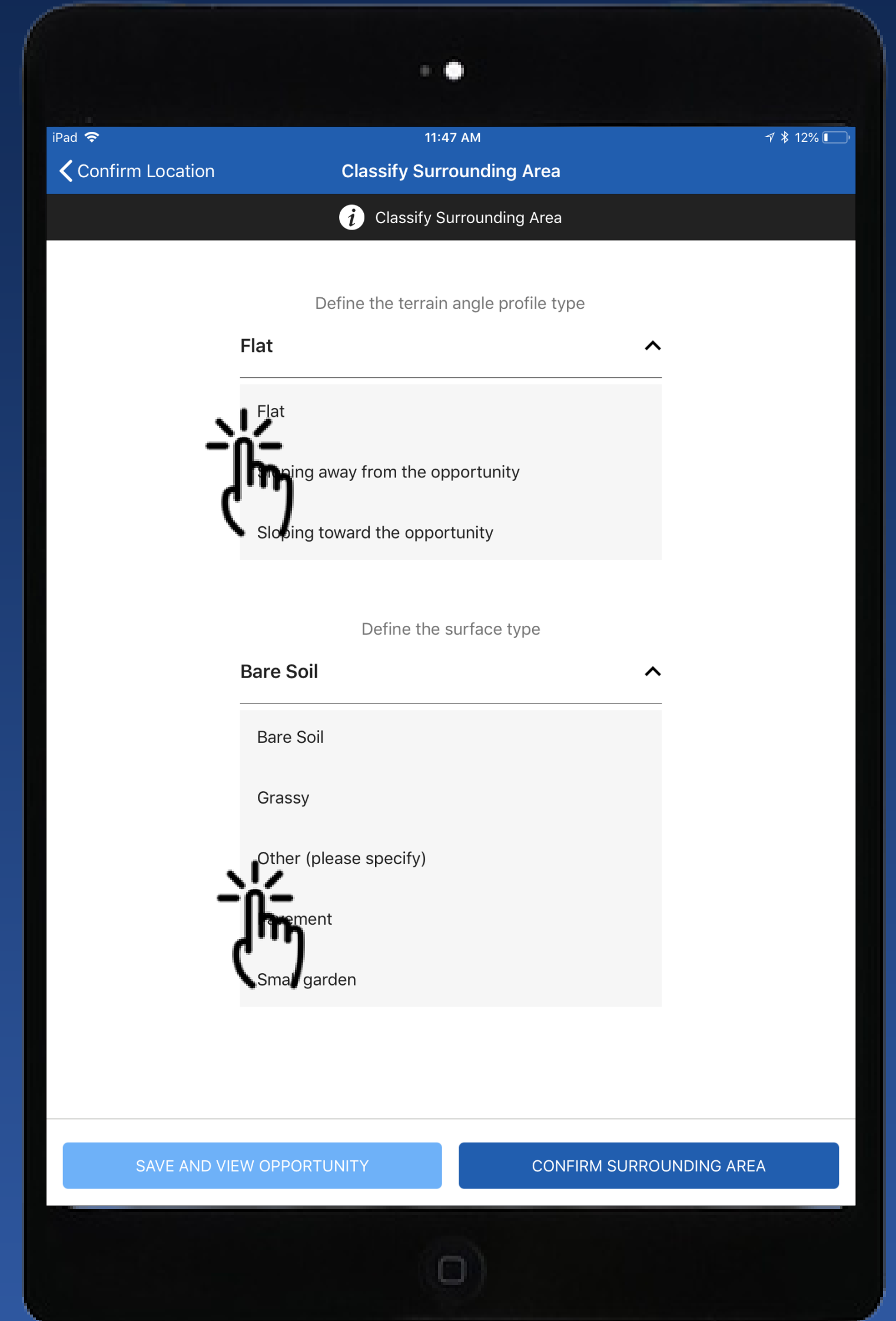
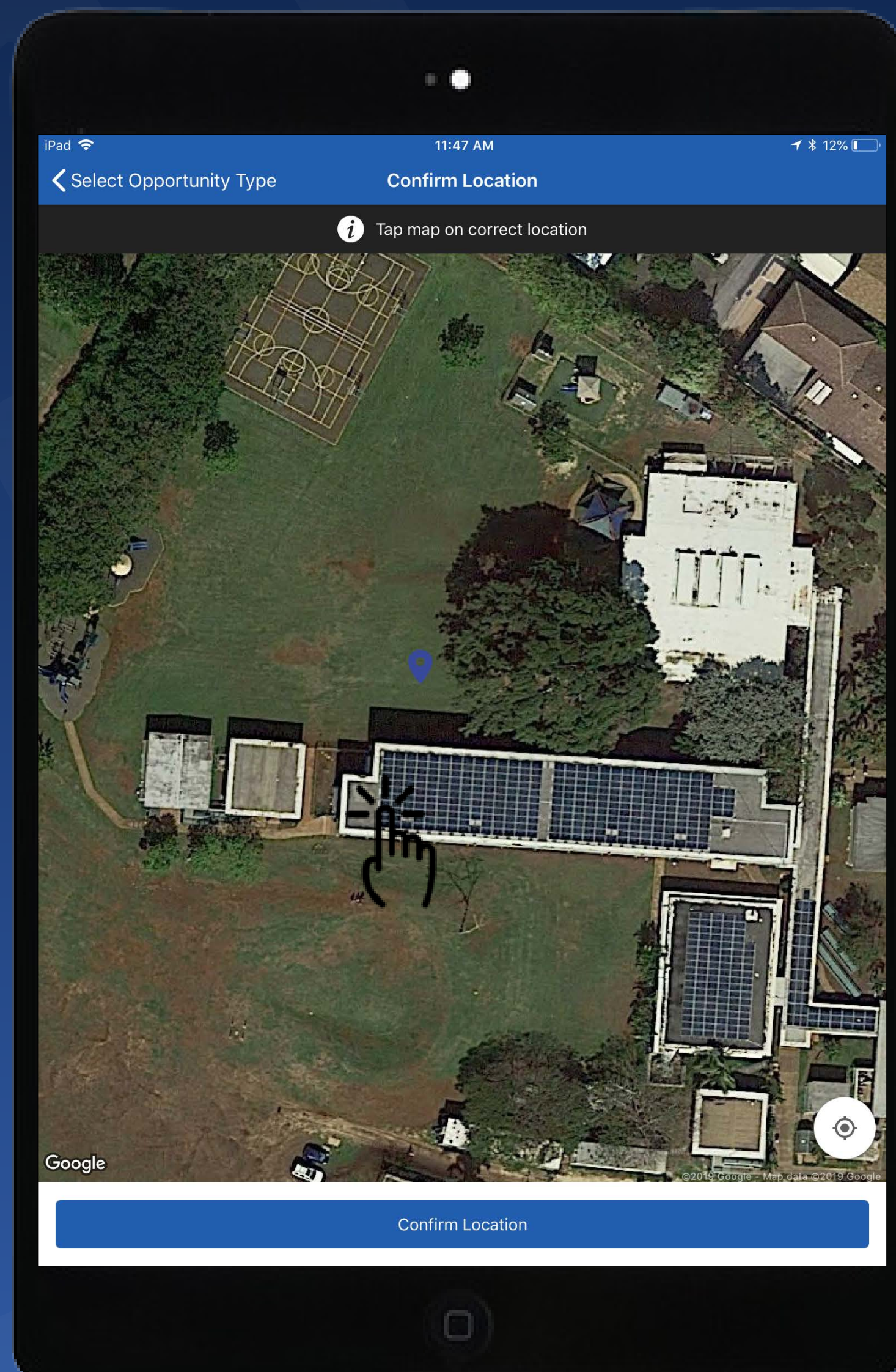
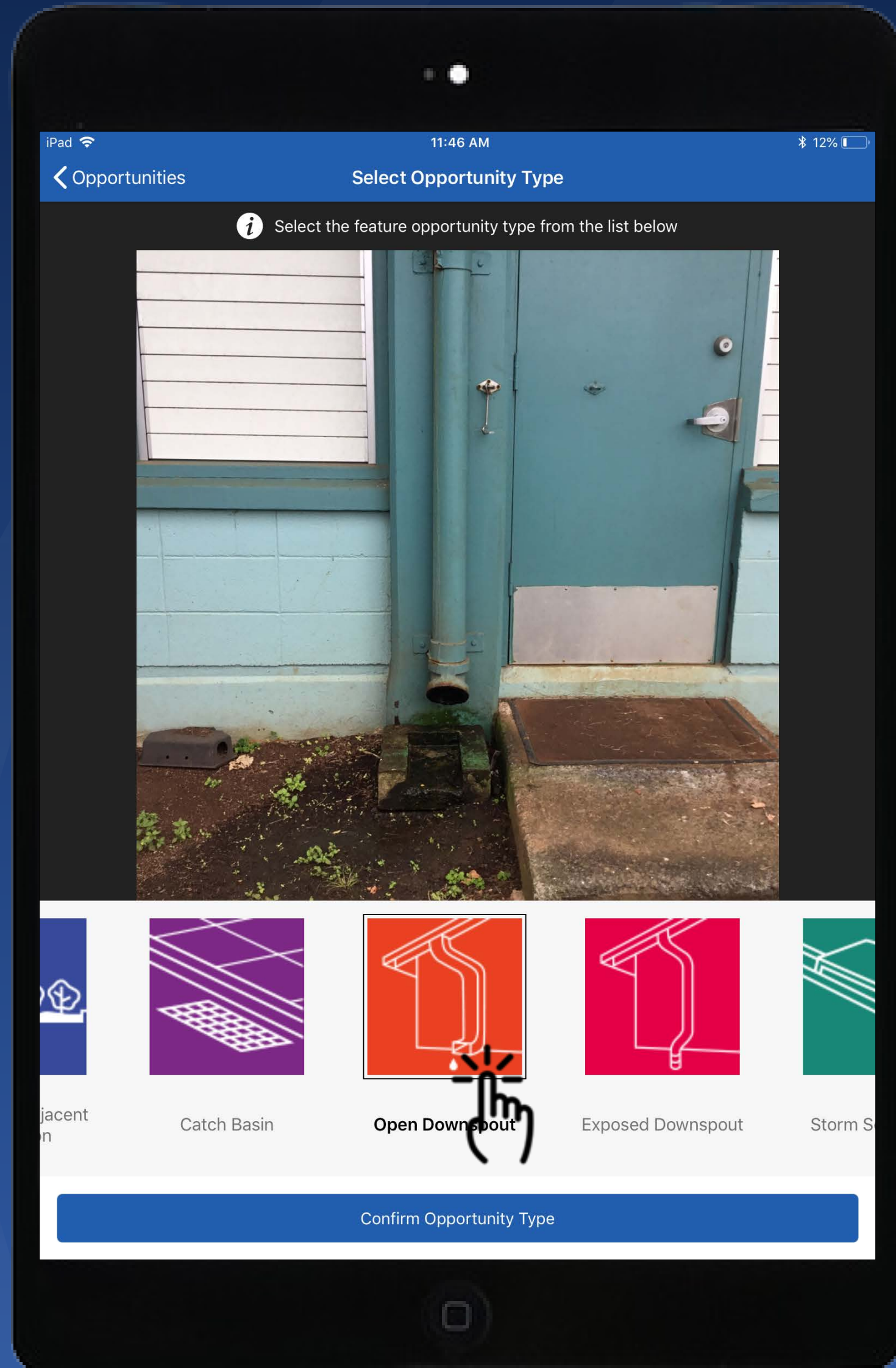
Tracking Maintenance

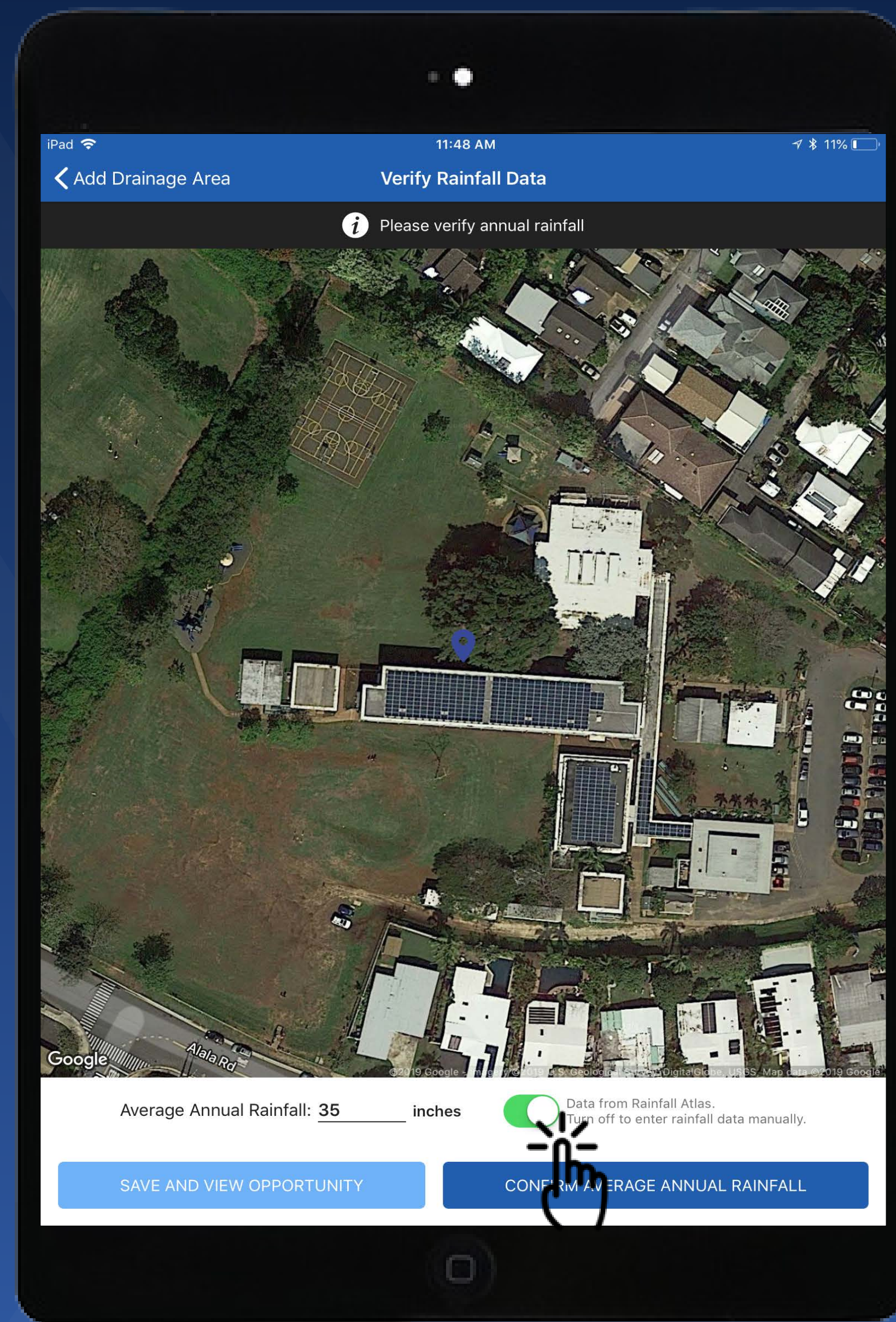
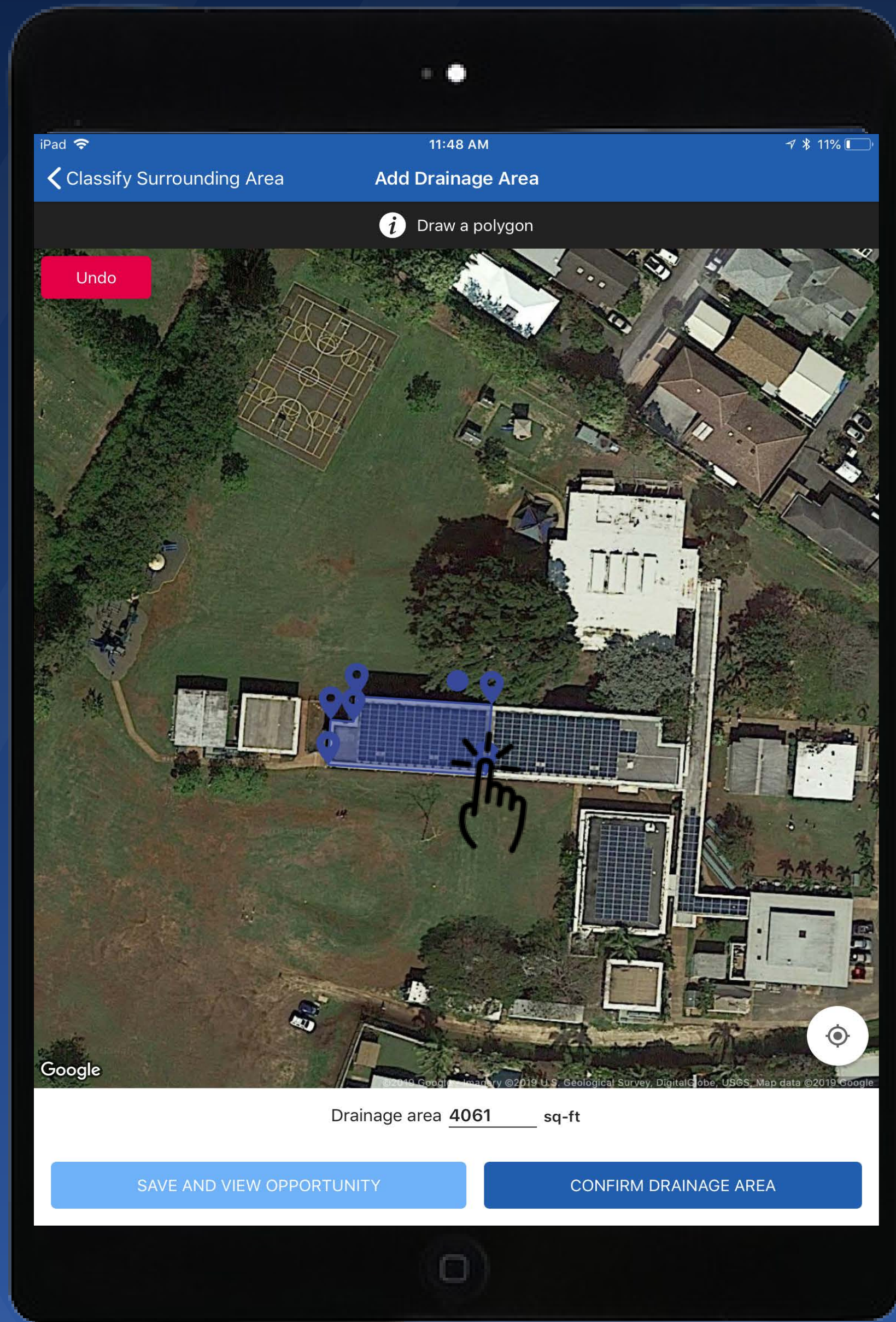
Asset Management

Data & Metrics




USER / PROPERTY OWNER






iPad 11:49 AM 11%
 < Verify Rainfall Data Select Green Infrastructure (GI) Practice

i Please select your green infrastructure practice and define its size.



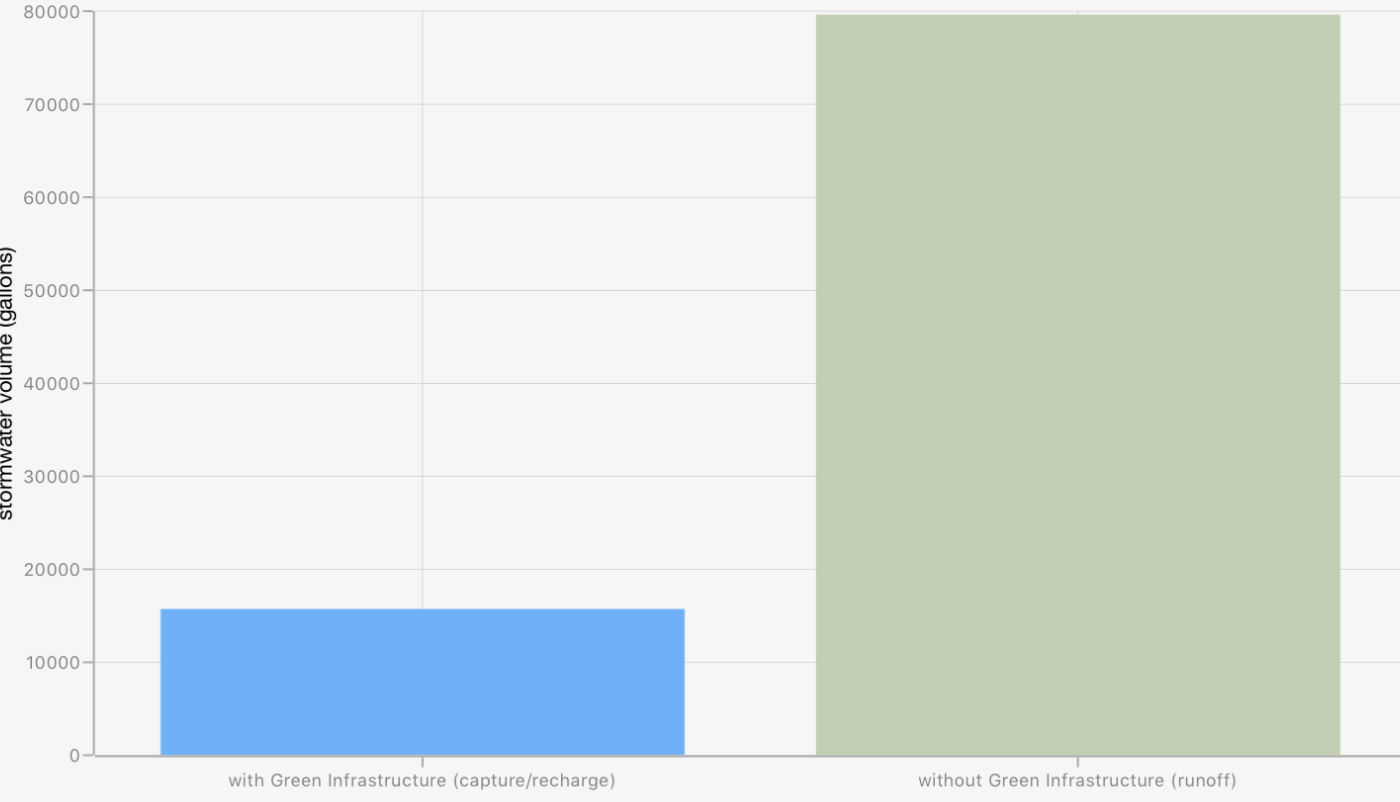
Rain catchment



Rain garden

The ideal value is 2278 gallons

Enter Size: gallons **GO**




Scenario	Stormwater Volume (gallons)
with Green Infrastructure (capture/recharge)	~15,000
without Green Infrastructure (runoff)	~78,000

SAVE AND VIEW OPPORTUNITY


CONFIRM GREEN INFRASTRUCTURE

< Verify Rainfall Data Select Green Infrastructure (GI) Practice

i Please select your green infrastructure practice and define its size.



Rain catchment



Rain garden

The ideal value is 39 sq-ft

Enter Size: sq-ft **GO**

Impervious area treated or removed: sq-ft

Annual fee credit: \$ sq-ft



Scenario	Stormwater Volume (gallons)
with Green Infrastructure (capture/recharge)	~13,500
without Green Infrastructure (runoff)	~19,500

SAVE AND VIEW OPPORTUNITY

CONFIRM GREEN INFRASTRUCTURE

iPad 4:51 PM 84%
 Opportunities Logout
 Opportunities for
 Map Chart List
 Filter: Sort by

of Hawaii at Manoa
 University of Hawaii - Student Housing Services
 Hale Aloha Lehua
 Kanewai Community Park
 Sheriff Center
 Hawaiian Humane Society
 Kapiolani Blvd
 Google

< Select Green Infrastructure (GI) Practice Opportunities Logout
 Capture Opportunity
 Map Chart List
 Filter: Rank drops by volume Show GI impact

Stormwater Runoff

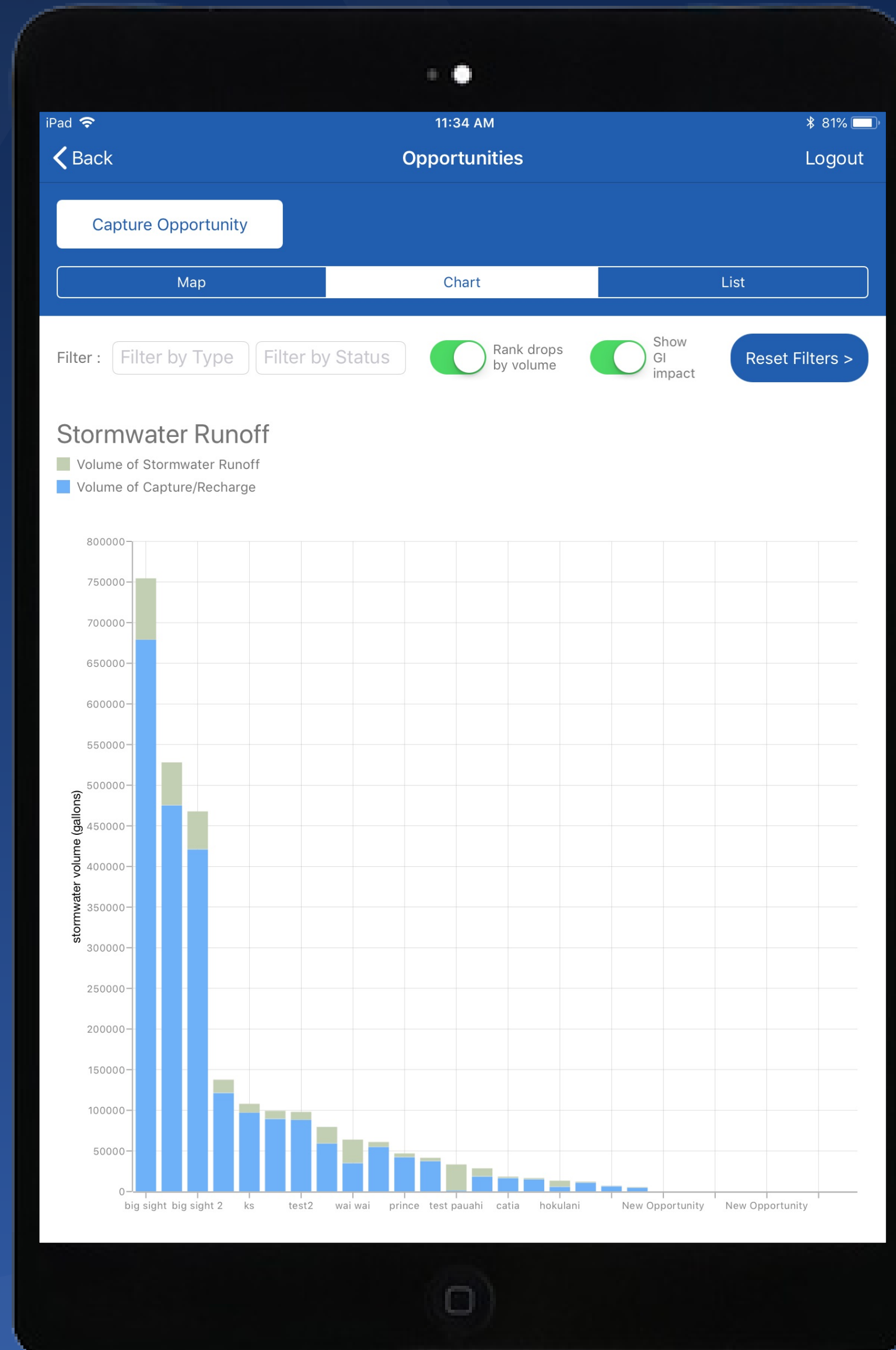
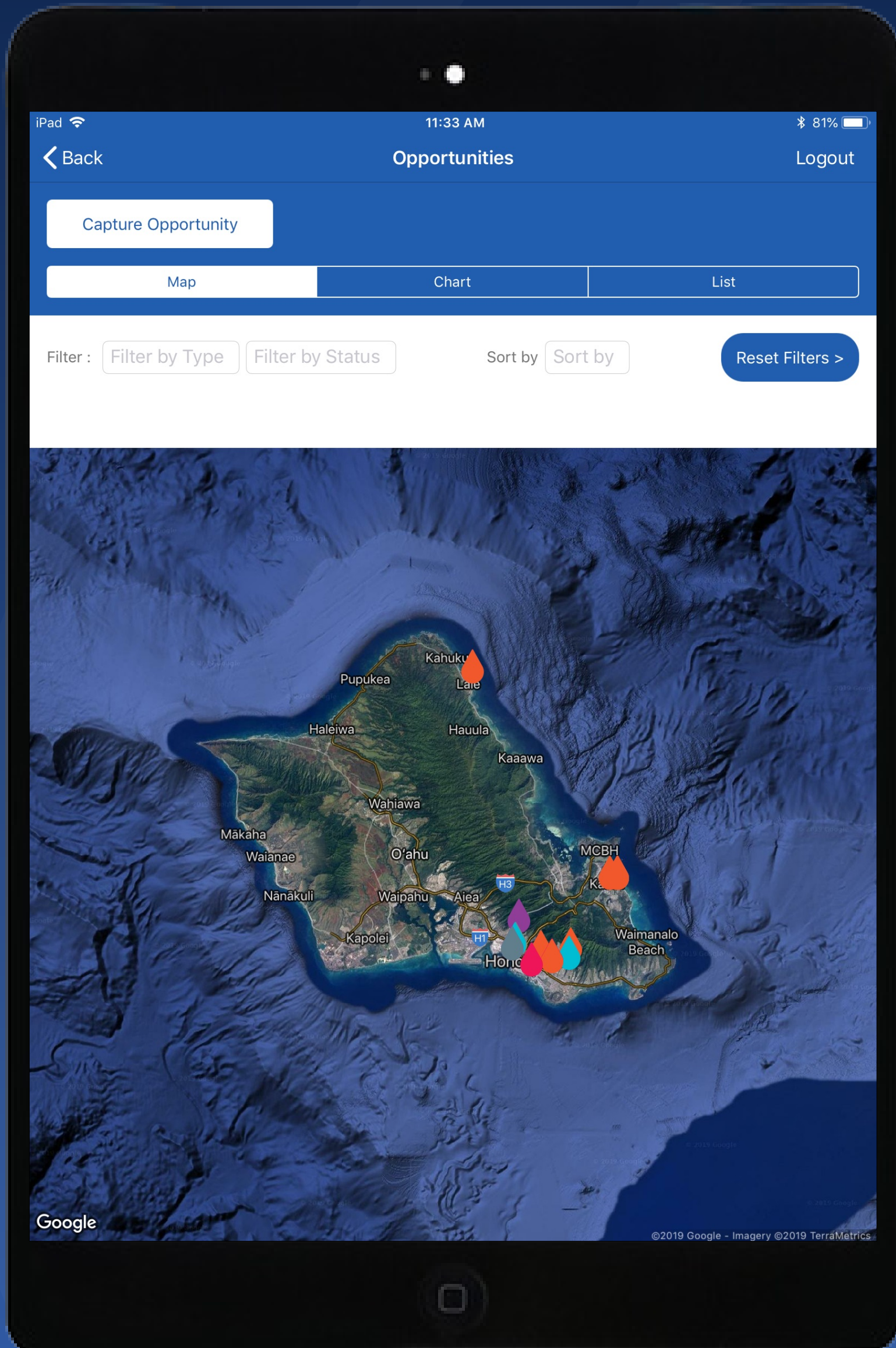
■ Volume of Stormwater Runoff
 ■ Volume of Capture/Recharge

Practice Opportunity	Volume of Stormwater Runoff (gallons)	Volume of Capture/Recharge (gallons)
New Opportunity	~58,000	~26,000
New Opportunity	~52,000	~26,000
New Opportunity	~51,000	~25,000
test	~32,000	~26,000

iPad 4:52 PM 84%
 Opportunities Logout
 Opportunities for
 Map Chart List
 Filter: Sort by

Image	Name and Type	Status
	Itsy Bitsy Spider pipe Open Downspout	Draft >
	The mystery pipe Exposed Downspout	Draft >
	popcorn bridge Culvert	Draft >
	Catch Basin	Draft >

ADMINISTRATOR VIEW

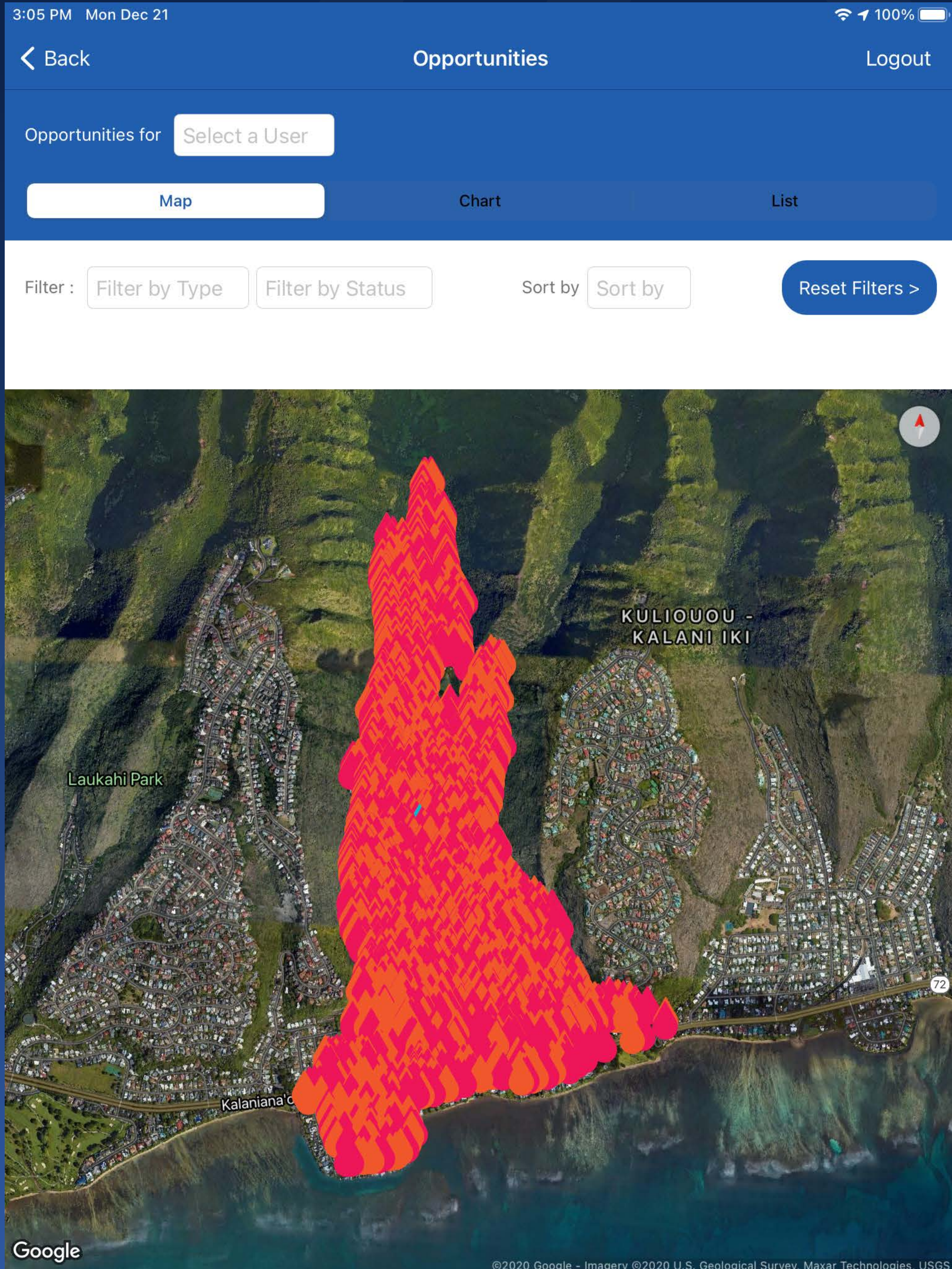


This screenshot shows a list of opportunities. The table has columns for 'Image', 'Name and Type', and 'Status'. Each row includes a small image of a person's feet, the name and type of the opportunity, and its current status.

Image	Name and Type	Status
	test Open Downspout	Submitted >
	hub3 Open Downspout	Approved >
	New Opportunity Catch Basin	Approved >
	test town Culvert	Installed >
	test Curbs with Adjacent Vegetation	Maintained >

FOLLOW THE DROP: CCH FY 20-21 SCOPE

- BWS & DFM Incentive Program Facilitation
- Stormwater Runoff Assessment for Aina Haina
- Customize Follow the Drop Software
- Pilot Follow the Drop (with Malama Maunaloa) with the Selected Community (Aina Haina)
- Green Workforce Development (NGICP training)



DIVIDED WATERSHED:

- 16 RESIDENTIAL QUADRANTS (1781 TMKS)
- COMMERCIAL (18 TMKS)
- SCHOOLS/NONPROFITS (33 TMKS)
- DATA COLLECTED FOR ANALYSIS TO COMPARE OPTIMAL GSI VS. RAIN BARRELS



A1

AVG ANNUAL RAINFALL:
55 INCHES

AVG BLDG ROOF AREA: 2500 sq ft

TOTAL SW VOLUME:
6,284,000 GALLONS

TOTAL SW CAPTURED WITH OPTIMUM GSI:
5,641,000 GALLONS

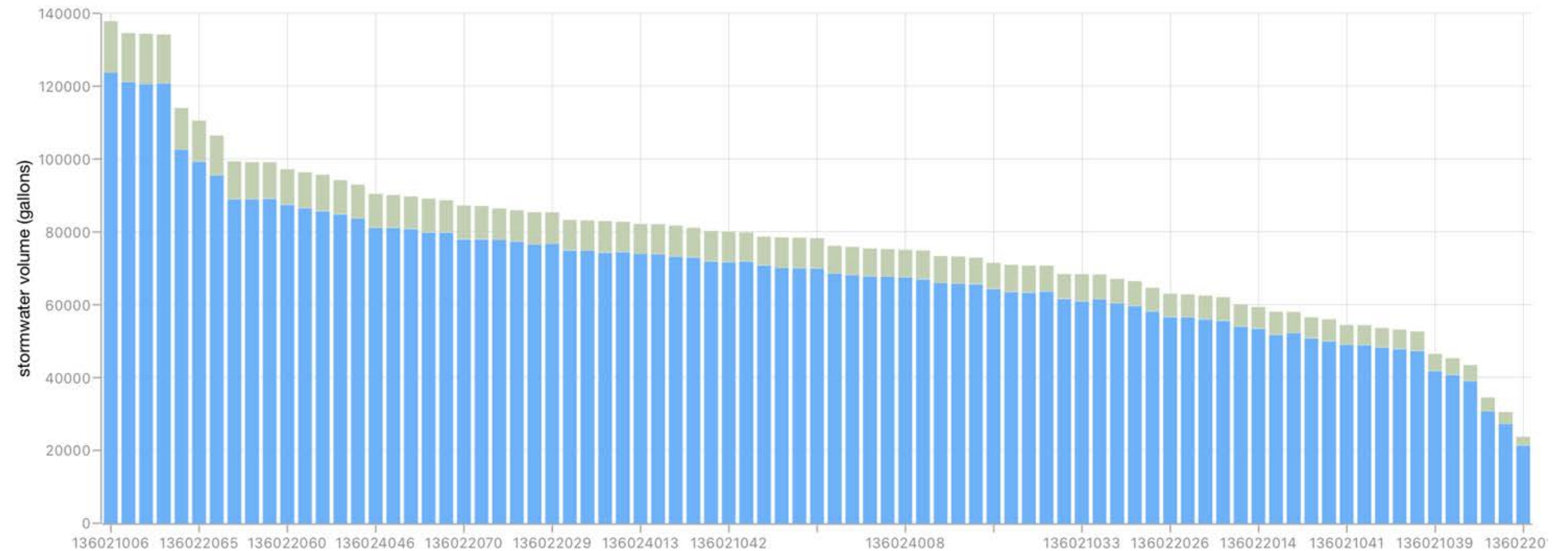
OR

TOTAL SW CAPTURED WITH RAIN BARRELS:
205,000



Stormwater Runoff

- Volume of Stormwater Runoff
- Volume of Capture/Recharge





Schools/Nonprofits

AVG ANNUAL RAINFALL:
32 INCHES

AVG BLDG ROOF AREA: 7300 sq ft

TOTAL SW VOLUME:
5,764,000 GALLONS

TOTAL SW CAPTURED WITH OPTIMUM GSI*:
5,186,000 GALLONS

OR

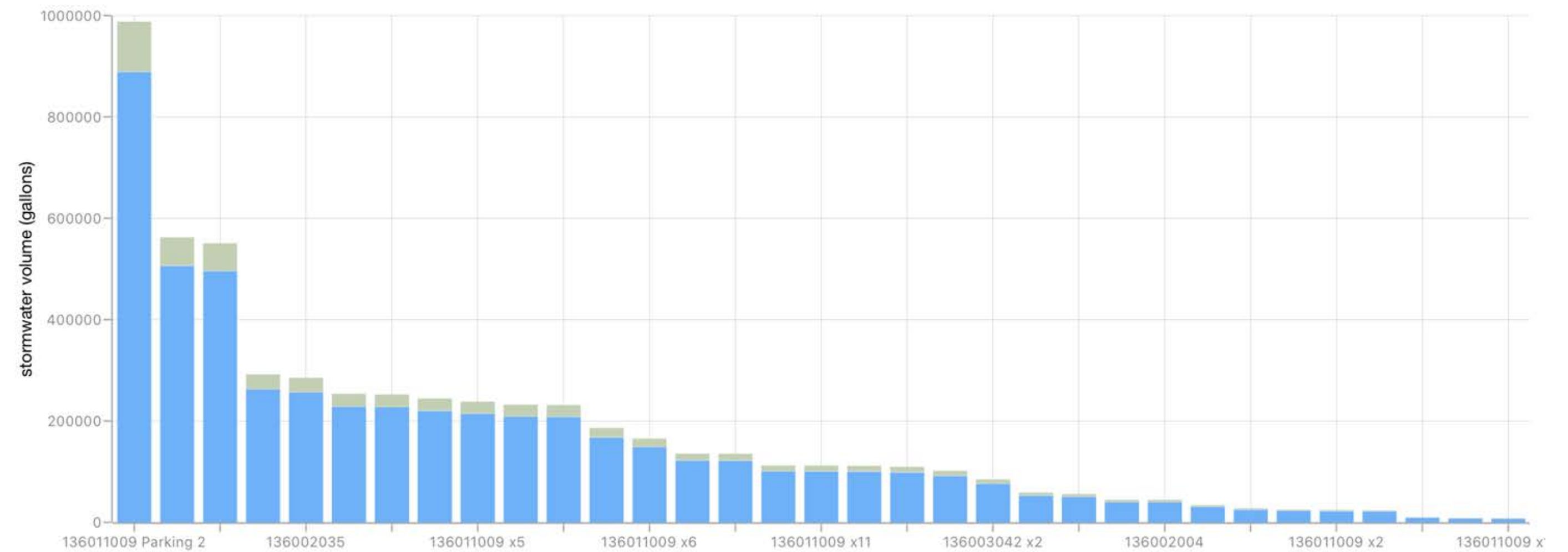
TOTAL SW CAPTURED WITH RAIN BARRELS:
36,000

*PARKING AREAS AND ROOFS



Stormwater Runoff

- Volume of Stormwater Runoff
- Volume of Capture/Recharge





Commercial

AVG ANNUAL RAINFALL:
31 INCHES

AVG BLDG ROOF AREA: 17100 sq ft

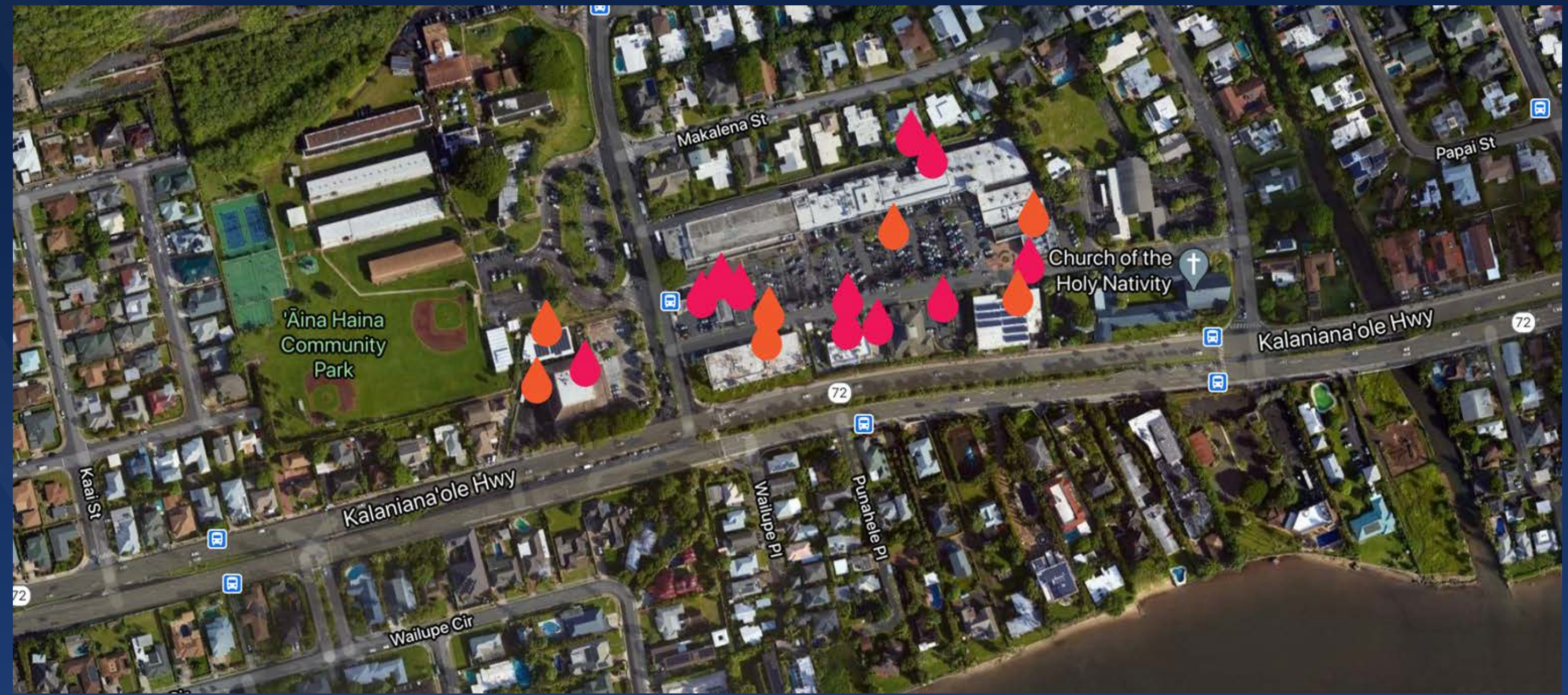
TOTAL SW VOLUME:
5,682,000 GALLONS

TOTAL SW CAPTURED WITH OPTIMUM GSI*:
5,112,000 GALLONS

OR

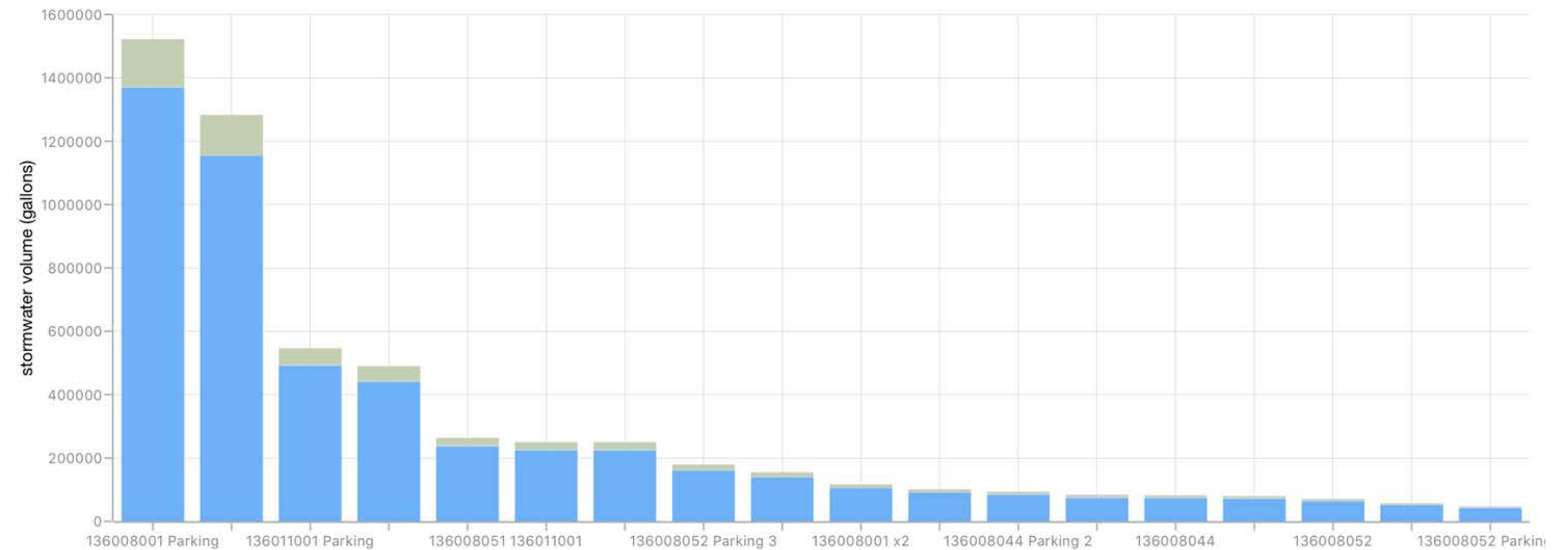
TOTAL SW CAPTURED WITH RAIN BARRELS:
345,000

* PARKING AREAS AND ROOFS



Stormwater Runoff

■ Volume of Stormwater Runoff
■ Volume of Capture/Recharge



< Back

Opportunities

Logout

Opportunities for

Map











Chart

List

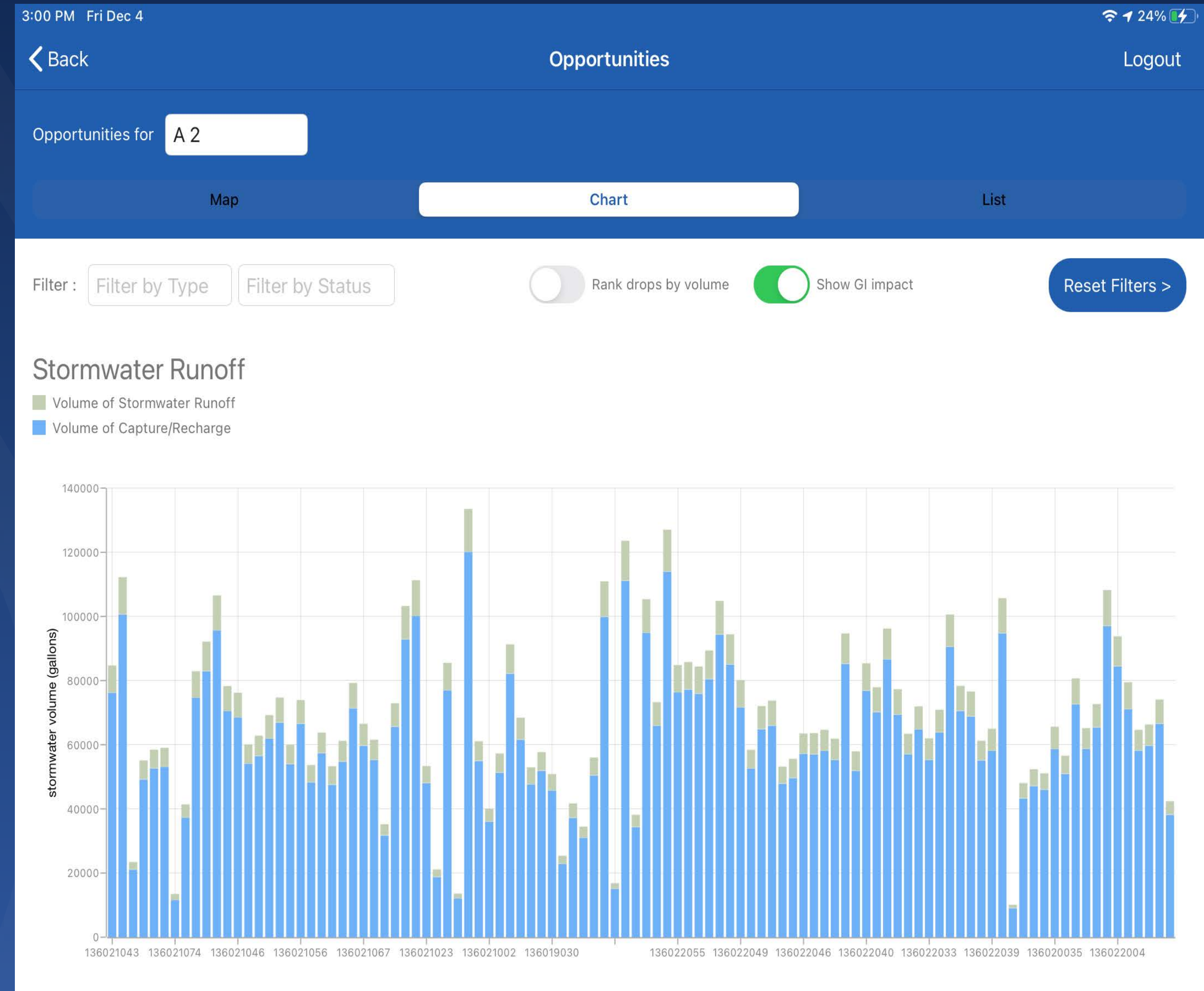
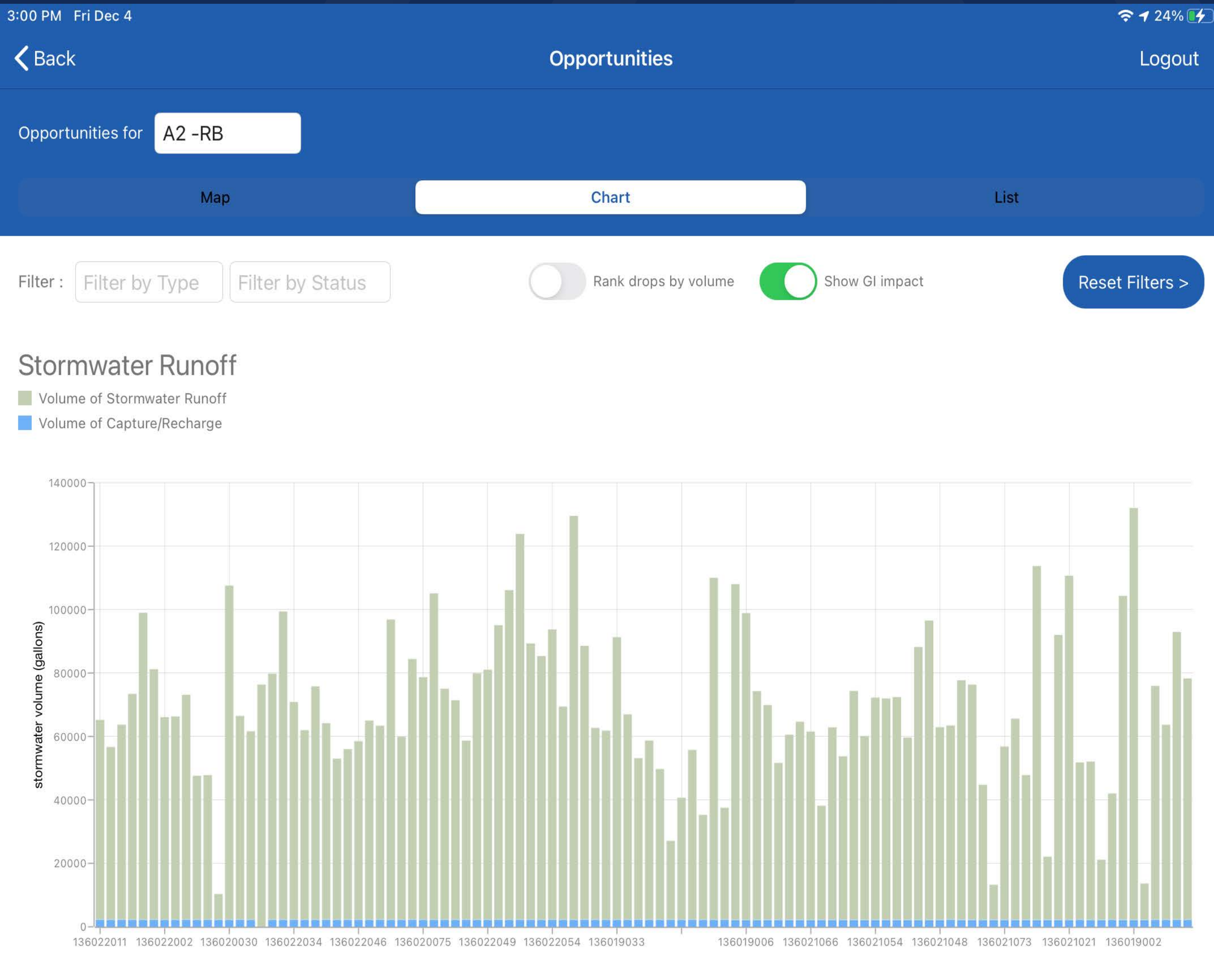
Filter :

Sort by

[Reset Filters >](#)

Image	Name and Type	Status	
			
	136004015 x4 Exposed Downspout	Draft	>
	136008044 Parking 1 Exposed Downspout	Draft	>
	136018071 Exposed Downspout	Draft	>
	136018121 Open Downspout	Draft	>
	136011001 Exposed Downspout	Draft	>
	136011007 x3 Open Downspout	Draft	>
	136020044 Exposed Downspout	Draft	>
	136003007 Exposed Downspout	Draft	>
	136022061		

RAIN BARRELS VS. OPTIMUM GSI



SUMMARY OF DATA COLLECTED

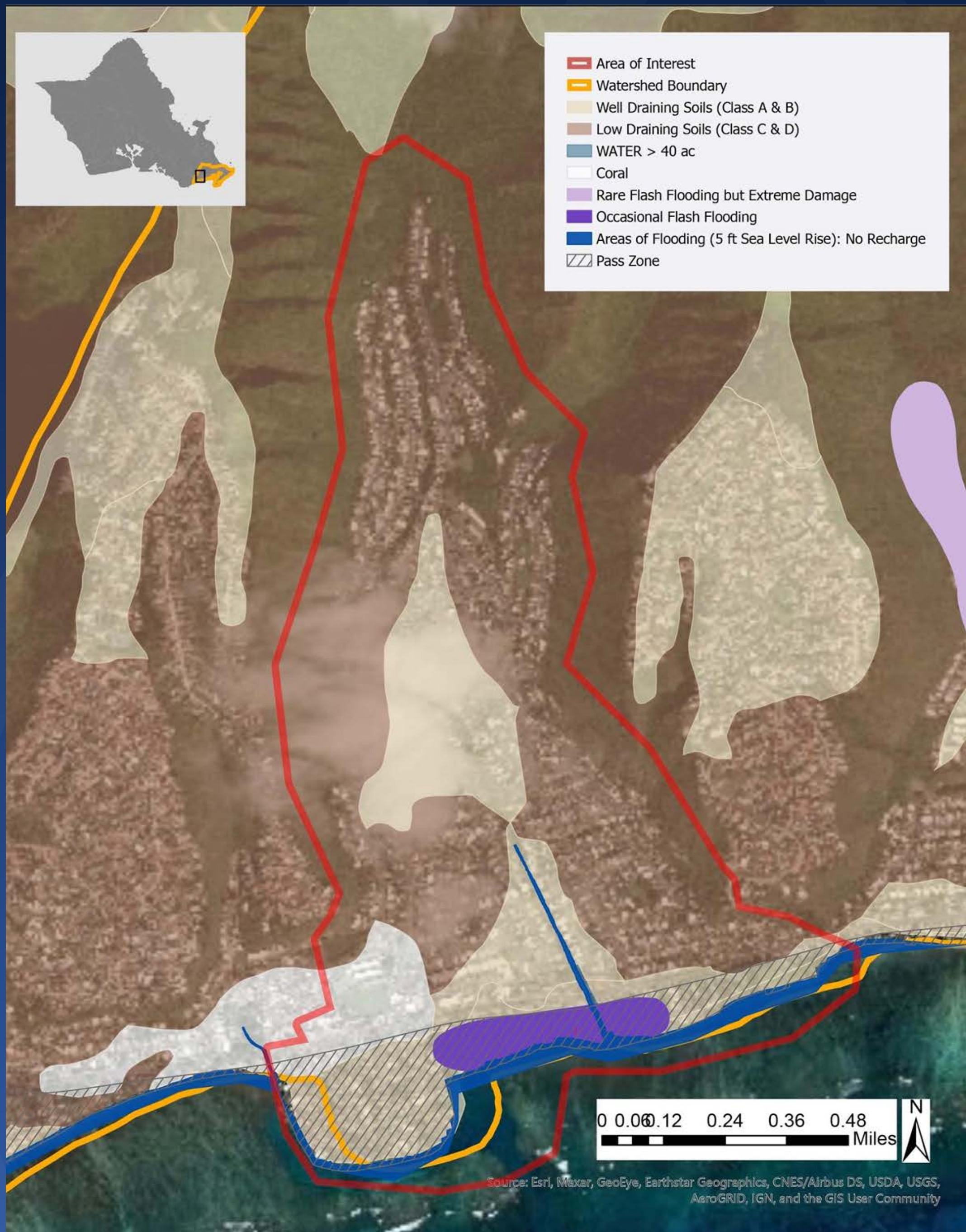
	Total	Residential	Commercial	School/NP
Total Roof Area Drainage Area	5,820,270	5,170,965	323,682	325,622
Average Roof Area Drainage Area		2,905	17,982	9,867
Average Annual Stormwater Utility Fee (based on roof)		\$169	\$996	\$423
Average Annual Stormwater Utility Fee (based on parking lot)		na	1,087	1,048
Total Annual Stormwater (Gallons)	118,275,445	106,830,034	5,681,620	5,763,791
Average Property Roof Size Annual Stormwater (Gallons)		60,017	315,646	174,660
Optimum GSI installed (WQV 1"-24 Storm) ~90% Captured				
Total Annual Stormwater Runoff Captured (Gallons)	105,724,417	95,426,461	5,112,344	5,185,613
Average Annual Stormwater Runoff Captured (Gallons)		53,610	284,019	157,140
Average Annual Stormwater Utility Fee Credit (based on roof)		\$101	\$598	\$254
Average Annual Stormwater Utility Fee Credit (based on parking lot)		na	\$652	\$629
Rain Barrel (50 Gal) ~3% Captured				
Total Annual Stormwater Runoff Captured (Gallons)	3,034,208	1,349	2,997,058	35,801
Average Annual Stormwater Runoff Captured (Gallons)		1,349	374,632	1,432
Average Annual Stormwater Utility Fee Credit (based on roof)		\$4.66	\$4.66	\$4.66
Average Annual Stormwater Utility Fee Credit (based on parking lot)		na	na	na

COMMERCIAL PROPERTIES (OPTIMUM GSI)

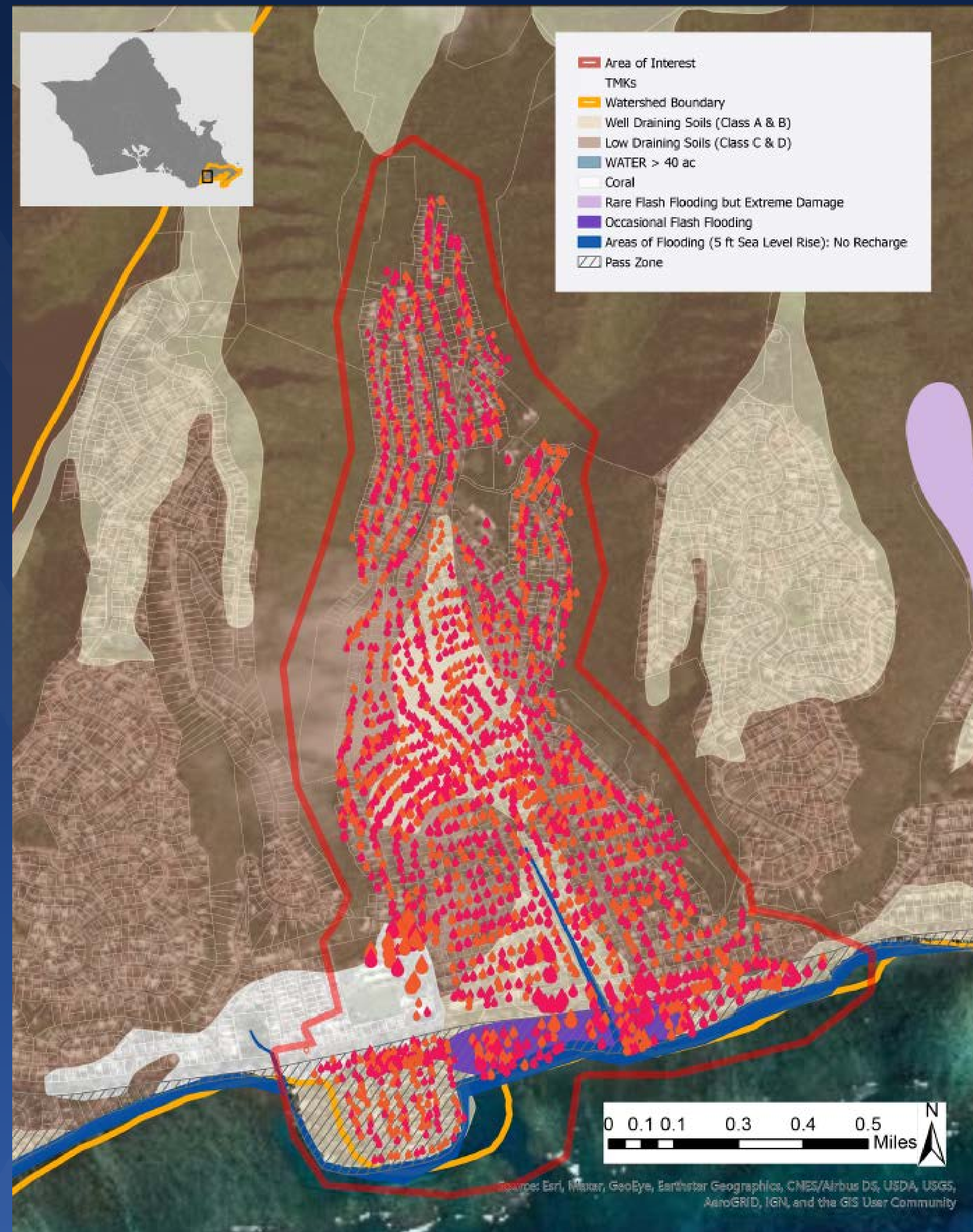
TMK	Drainage Area (Sq Ft)		GSI	Rain Catchment Tank Size (gallons)	Rain Garden Area (SqFt)	Total Annual Stormwater Runoff Captured (gallons)	Annual Stormwater (gallons)	%Captured	Monthly SWU Fee	Annual SWU Fee	Annual SWU Fee Credit
136008001	71,574		Rain Garden	0	3199	1,155,608	1,284,201	90%	\$347	\$4,166	\$2,499
136008001	6,744		Rain Catchment	3783	0	105,489	117,228	90%	\$33	\$393	\$236
136008044	4,743		Rain Garden	0	212	74,190	82,446	90%	\$23	\$276	\$166
136008050	14,399		Rain Catchment	8077	0	225,228	250,272	90%	\$70	\$838	\$503
136008051	15,199		Rain Catchment	8526	0	237,748	264,179	90%	\$74	\$885	\$531
136008052	4,090		Rain Garden	0	182	63,691	71,091	90%	\$20	\$238	\$143
136011001	14,410		Rain Catchment	8083	0	225,395	250,462	90%	\$70	\$839	\$503
136011010	5,817		Rain Catchment	3263	0	90,989	101,108	90%	\$28	\$339	\$203
Total Roof	136,975			31,732	3,593	2,178,338	2,420,986		\$664	\$7,972	\$4,783
Average	17,122			3,967	449	272,292	302,623		\$83	\$996	\$598
136008001 Parking Area 1	87,665		Rain Catchment	49179	0	1,371,360	1,523,761	90%	\$425	\$5,102	\$3,061
136008001 Parking Area 2	27,364	115,029	Rain Garden	0	1223	441,797	490,979	90%	\$133	\$1,593	\$956
136008044 Parking Area 1	4,601		Rain Catchment	2580	0	71,944	79,967	90%	\$22	\$268	\$161
136008044 Parking Area 2	5,428	10,029	Rain Catchment	3045	0	84,910	94,350	90%	\$26	\$316	\$190
136008050 Parking Area 1	4,821	4,821	Rain Garden	0	215	75,240	83,792	90%	\$23	\$281	\$168
136008051 Parking Area 1	3,303	3,303	Rain Catchment	1853	0	51,671	57,416	90%	\$16	\$192	\$115
136008052 Parking Area 1	2,741		Rain Garden	0	122	42,694	47,641	90%	\$13	\$160	\$96
136008052 Parking Area 2	8,958		Rain Catchment	5025	0	140,123	155,705	90%	\$43	\$521	\$313
136008052 Parking Area 3	10,337	22,036	Rain Garden	0	462	161,678	179,680	90%	\$50	\$602	\$361
136011001 Parking Area 1	31,490	31,490	Rain Catchment	17665	0	492,590	547,343	90%	\$153	\$1,833	\$1,100
Total Parking Area	186,707			79,347	2,022	2,934,005	3,260,634		\$906	\$10,866	\$6,520
Average	18,671	31,118		7,935	202	293,401	326,063		\$91	\$1,087	\$652

SCHOOLS/NONPROFITS (OPTIMUM GSI)

TMK	Drainage Area (Sq Ft)		GSI	Rain Catchment Tank Size (gallons)	Rain Garden Area (SqFt)	Total Annual Stormwater Runoff Captured (gallons)	Annual Stormwater (gallons)	%Captured	Monthly SWU Fee	Annual SWU Fee	Annual SWU Fee Credit
136002004	2,563		Rain Catchment	1438	0	40,099	44,557	90%	\$12	\$149	\$90
136002035	16,431		Rain Garden	0	734	256,864	285,600	90%	\$80	\$956	\$574
136003042	6,537		Rain Catchment	3667	0	98,956	109,966	90%	\$32	\$380	\$228
136005077	14,172		Rain Catchment	7950	0	228,838	254,288	90%	\$69	\$825	\$495
136005092	31,726		Rain Garden	0	1418	496,231	551,451	90%	\$154	\$1,846	\$1,108
136011009	559		Rain Catchment	313	0	9,291	10,335	90%	\$3	\$33	\$20
136003042	5,064		Rain Catchment	2840	0	76,639	85,183	90%	\$25	\$295	\$177
136003042	6,073		Rain Catchment	3406	0	91,913	102,148	90%	\$29	\$353	\$212
136002004	514		Rain Catchment	288	0	8,031	8,941	90%	\$2	\$30	\$18
136002004	6,440		Rain Catchment	3612	0	100,721	111,937	90%	\$31	\$375	\$225
136005077	3,293		Rain Catchment	1847	0	53,165	59,089	90%	\$16	\$192	\$115
136002035	1,987		Rain Catchment	1114	0	31,064	34,536	90%	\$10	\$116	\$69
136011009	1,381		Rain Catchment	774	0	22,976	25,545	90%	\$7	\$80	\$48
136011009	6,061		Rain Catchment	3399	0	100,896	112,139	90%	\$29	\$353	\$212
136011009	13,244		Rain Garden	0	592	220,537	245,052	90%	\$64	\$771	\$462
136011009	3,233		Rain Catchment	1813	0	50,556	56,194	90%	\$16	\$188	\$113
136011009	479		Rain Catchment	268	0	7,473	8,323	90%	\$2	\$28	\$17
136011009	1,348		Rain Garden	0	60	22,352	24,941	90%	\$7	\$78	\$47
136011009	12,529		Rain Catchment	7028	0	208,620	231,825	90%	\$61	\$729	\$438
136011009	12,565		Rain Garden	0	561	208,989	232,494	90%	\$61	\$731	\$439
136011009	12,905		Rain Catchment	7239	0	214,883	238,781	90%	\$63	\$751	\$451
136011009	9,527		Rain Catchment	5344	0	149,018	165,590	90%	\$46	\$554	\$333
136011009	1,532		Rain Garden	0	68	25,332	28,342	89%	\$7	\$89	\$53
136011009	10,098		Rain Garden	0	451	168,011	186,851	90%	\$49	\$588	\$353
136011009	1,300		Rain Catchment	729	0	21,640	24,061	90%	\$6	\$76	\$45
Total Roof	181,561			53,069	3,884	2,913,094	3,238,170		\$881	\$10,567	\$6,340
Average	7,262			2,123	155	116,524	129,527		\$35	\$423	\$254
136002004 Parking Area 1	32,389	32,389	Rain Catchment	18170	0	506,672	562,982	90%	\$157	\$1,885	\$1,131
136002035 Parking Area 1	2,564	2,564	Rain Catchment	1438	0	40,099	44,561	90%	\$12	\$149	\$90
136003042 Parking Area 1	8,070		Rain Garden	0	360	121,919	135,744	90%	\$39	\$470	\$282
136003042 Parking Area 2	6,684	14,754	Rain Catchment	3749	0	101,169	112,428	90%	\$32	\$389	\$233
136005077 Parking Area 1	7,587		Rain Catchment	4256	0	122,507	136,137	90%	\$37	\$442	\$265
136005077 Parking Area 2	14,093	21,680	Rain Catchment	7906	0	227,571	252,858	90%	\$68	\$820	\$492
136011009 Parking Area 1	15,794		Rain Garden	0	706	263,006	292,229	90%	\$77	\$919	\$552
136011009 Parking Area 2	56,881	72,674	Rain Garden	0	2542	889,577	988,683	90%	\$276	\$3,310	\$1,986
Total Parking Area	144,061			35,519	3,608	2,272,519	2,525,621		\$699	\$8,384	\$5,031
Average	18,008	28,812		4,440	451	284,065	315,703		\$87	\$1,048	\$629



Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

FOLLOW THE DROP: CCH FY 20-21

- BWS & DFM Incentive Program Facilitation
- Stormwater Runoff Assessment for Aina Haina
- Customize Follow the Drop Software
- Pilot Follow the Drop (with Malama Maunaloa) with the Selected Community (Aina Haina)
- Green Workforce Development NGICP

SOFTWARE UPDATES

GOALS:

- Prioritize updates to align with the future SWU credit program and serve as credit application for the SWU's customers.
- Align updates coordinated with incentive program development timeline

FOLLOW THE DROP: CCH FY 20-21 SCOPE

- BWS & DFM Incentive Program Facilitation
- Stormwater Runoff Assessment for Aina Haina
- Customize Follow the Drop Software
- Pilot Follow the Drop (with Malama Maunaloa) with the

Selected Community (Aina Haina): Summer 2021?

- Includes using app with community
- Survey user experience and support CCH incentive program outreach (& coordinate with UH student survey?)

Questions/Discussion



REDUCE | REUSE | RECHARGE

Lauren Roth Venu - Founder & CEO | lauren@3R-water.com | 3R-water.com

Updates

State of Hawaii storm water utility legislation activity

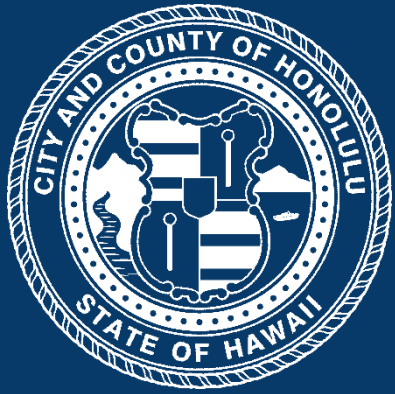
Upcoming Water Environment Federation (WEF) legislative issues webinar

Anticipated City Council consideration of storm water initiatives

Follow the Drop – Malama Maunaloa Project

One Water planning

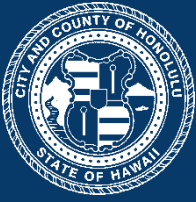




Resilient O'ahu

City and County of Honolulu
Office of Climate Change,
Sustainability and Resiliency





Mandate from O'ahu Voters

The Office of Climate Change, Sustainability and Resiliency is a Charter-mandated City office created to respond to climate change, resilience, and other sustainability challenges.



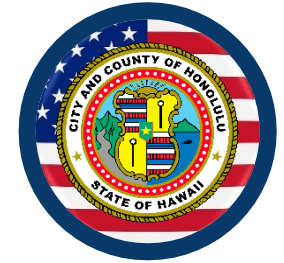
**Green
City Operations**



**Reduce Climate
Emissions & Impact**



**Promote Resilient
Communities**



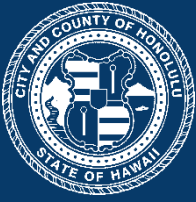
**Coordinate with
Federal & State Agencies**



**Ensure Sustainable
City Plans & Policies**



**Facilitate Climate
Change Commission**



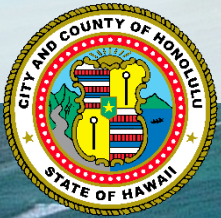
Resolution 19-233

Guiding policy document for the City

Ola

O'AHU
RESILIENCE
STRATEGY





Resilience Action 31



**Action 31:
Establish a Storm Water
Enterprise Fund to Better
Finance Water Management**

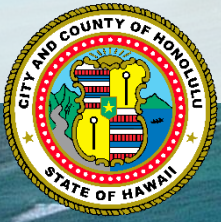
**Stormwater Fee/Utility
Development and adoption of a GI Program/Plan**



Photo Credit: Resilience Office

Photo Credit: Department of Facility Maintenance





Resilience Action 28

Action 28: **Chart a Climate Resilient Future** **by Creating and Implementing** **a Climate Adaptation Strategy**

- (1) Vulnerability assessment for City infrastructure
- (2) ID climate-driven risks to critical infrastructure, assets, and populations
- (3) Evaluation/ranking of risks to ID near-term threats
- (4) Mitigation plans to protect core infrastructure and assets
- (5) Coordination of adaptation options across multiple departments and shared infrastructure needs
- (6) Recommendation for Capital Improvement Projects and funding vehicles to address shared solutions
- (7) Key recommendations for land use and policy changes to reduce risk exposure to climate change impacts

+One Water

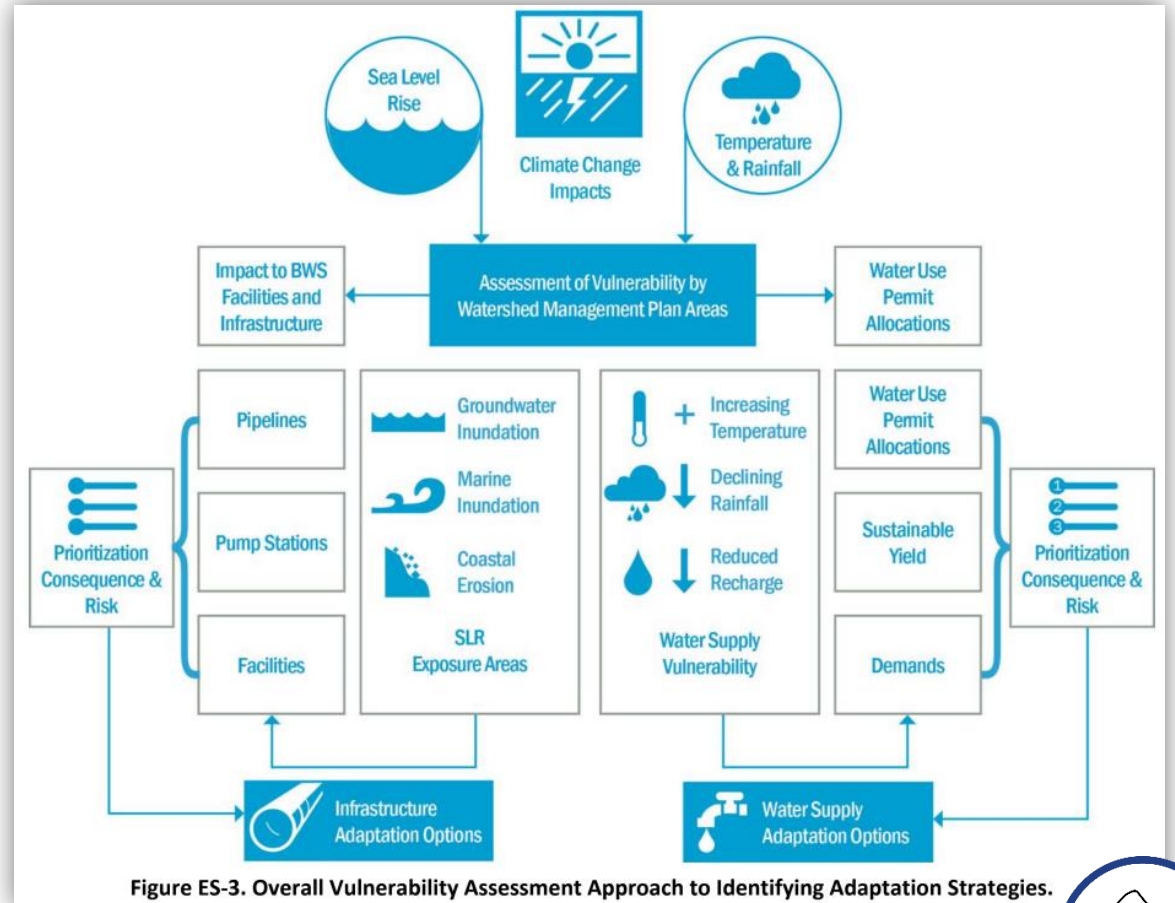
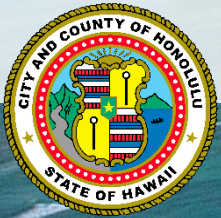


Figure ES-3. Overall Vulnerability Assessment Approach to Identifying Adaptation Strategies.

Graphic Credit: Board of Water Supply





Implementing New Climate Practices

Implementation

Implementing Resilience for O‘ahu

Producing a strategy is not the end of thinking about resilience –it’s the beginning.

- Functional Plans
- Stormwater Utility
- Integrated Infrastructure Planning & One Water
- Infrastructure Resilience Design Review
- Longer-term Capital and Financial Plans
- Hazard Mitigation Plan and CIP Alignment

Normalize
Organize
Operationalize

The Key Components for Action:



New Policies



Budget Alignment

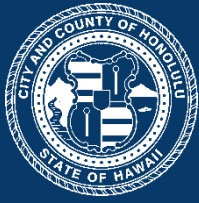


Resilient Projects



City-Community Partnerships

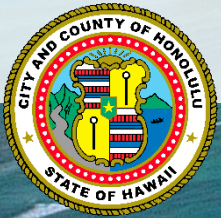




Ordinance 20-47

Resilience Office Duties & Responsibilities



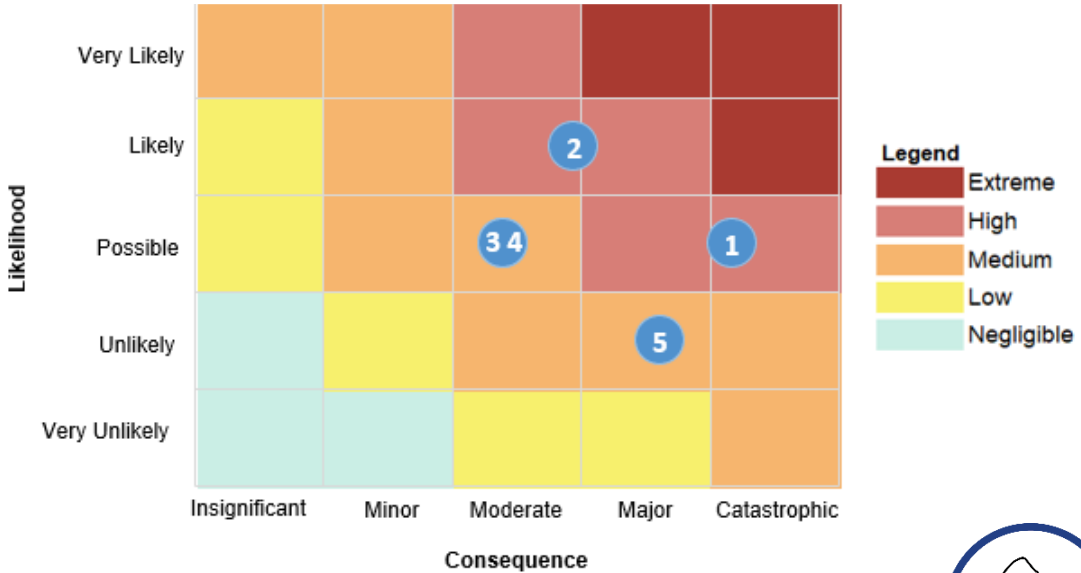
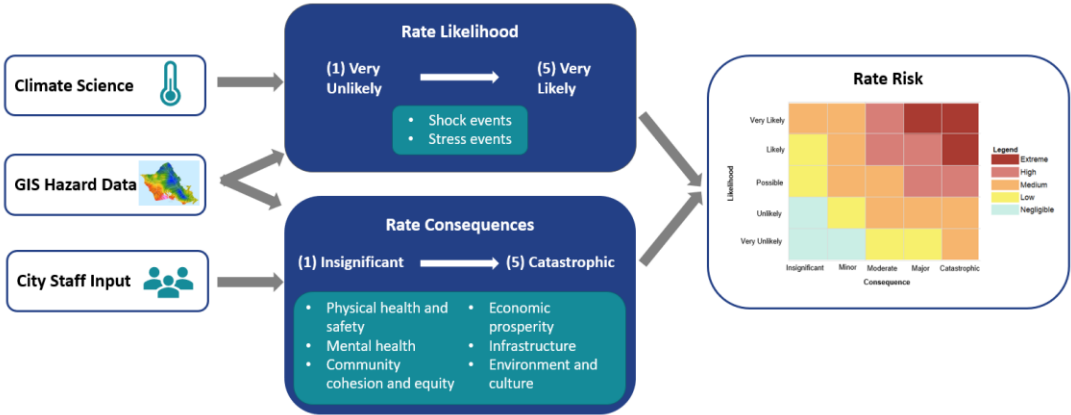


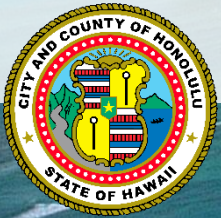
Climate Ready O'ahu

Climate Risk Assessment

- Shock events:** Likelihood is measured by the expected frequency of the hazard over a 30-year time period (e.g., 2020-2050).
- Stress events:** Likelihood is measured by the probability that a critical threshold—a defined tipping point at which significant

Climate Hazard	Scenario	Current Rating (Score)	2050 Rating (Score)
1 Sea level rise and coastal erosion	Sea level rise and associated coastal erosion on a trajectory to 3.2 feet by 2100 with impacts due to high tides and/or coastal hazard events decades in advance	Medium (9.3)	High (14.0)
2 Increase in temperature	Increase in average annual temperature of 2.7°F to 4.5°F contributing to heat waves	Medium (6.9)	High (13.8)
3 “Rain bomb” (tie)	Significant rain event with 4 inches of rain/hour	Medium (5.8)	Medium (8.7)
4 Decrease in precipitation (tie)	Leeward side of island becomes up to 60% drier contributing to droughts	Medium (5.8)	Medium (8.7)
5 Hurricane	Landfall of a major hurricane with storm surge, rainfall, and high winds	Low (4.1)	Medium (8.2)





Climate Costs



Recreation/Community Facilities

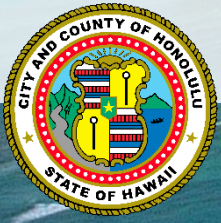


Private Residences/Public Resources



Businesses/Redevelopment

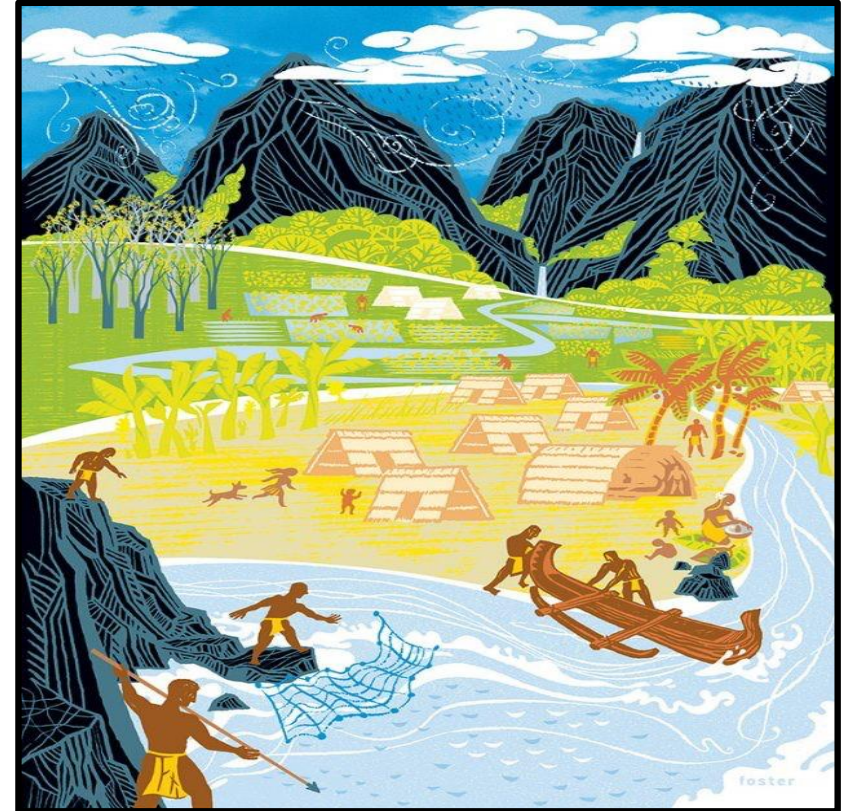




One Water Climate Adaptation Policy

One Water Ordinance

- Outlines policies, principles and procedures
 - MOU to define collaborative work
 - CCSR coordinate on regular basis
 - Focus on critical infrastructure, investment plan
 - 2050 and 2100 timeline
- Annual Reporting

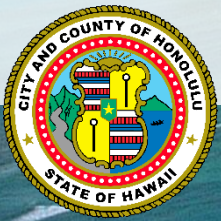


Ahupua'a- a section of mountain, valley, and sea.

*Image courtesy of Matt Foster
published by Maui Nō Ka 'Ōi*

<https://mauimagazine.net/about-us/>

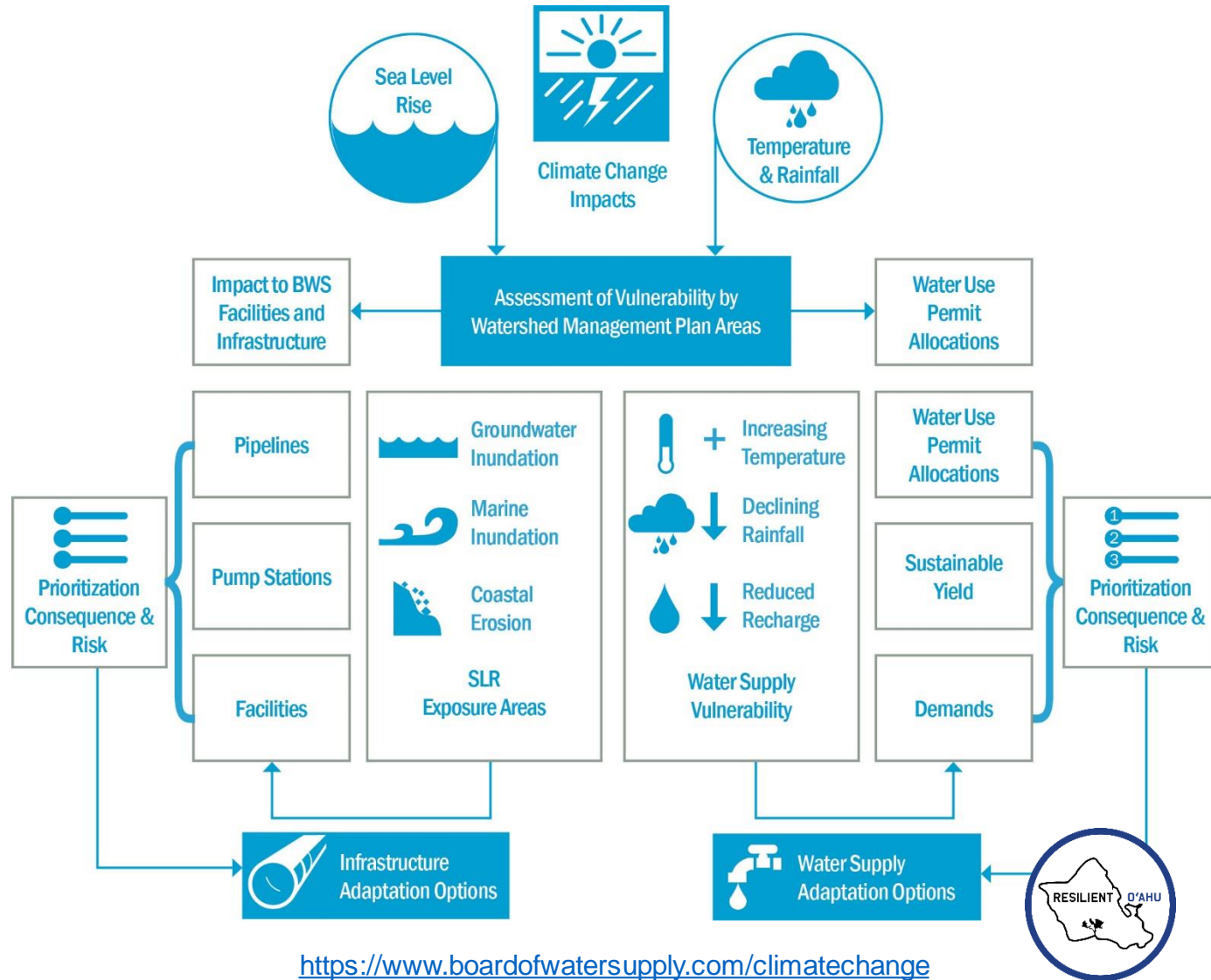


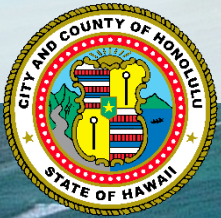


One Water Climate Adaptation Policy

One Water Ordinance

- Proactive adaptation for city infrastructure systems
- Defines One Water as
 - Integrated resource planning and implementation
 - Freshwater, wastewater and stormwater
 - Long-term resilience and reliability, meeting both community and ecosystems needs
- Calls on 8 departments
 - DPP, DDC, DTS, ENV, DPR, DFM, BWS, CCSR (but not limited to)





One Water Climate Adaptation Policy

One Water Ordinance

- Siloed for a reason
 - Not meant to have all core competencies brought to collaboration
- Not another plan
 - Integrate with existing planning frameworks
 - Integrate and inform current project and CIP programs
 - Goal is implementation of resilient infrastructure, projects
 - Shared vision for Honolulu's future resilient infrastructure



Projects



Policies



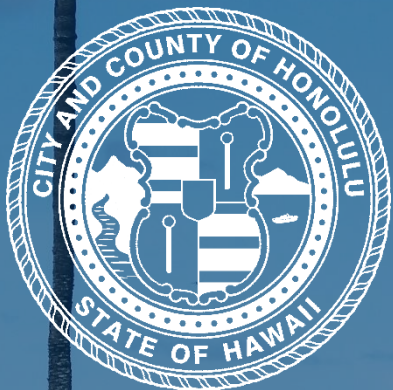
Plans



Locations



Mahalo!



Follow us at:



ResilientOahu.org



[@ResilientOAHU](https://www.facebook.com/ResilientOAHU)



[@ResilientOAHU](https://www.instagram.com/ResilientOAHU)



[@ResilientOAHU](https://twitter.com/ResilientOAHU)

COMMUNITY OUTREACH & ENGAGEMENT UPDATE



Mauka to Makai Expo

Mahalo Claire Tamamoto



[One'ula](#) Beach Park, Lion's Club, 2012

[One'ula](#) Beach Park, Lion's Club, 1977

Neighborhood Board Briefings

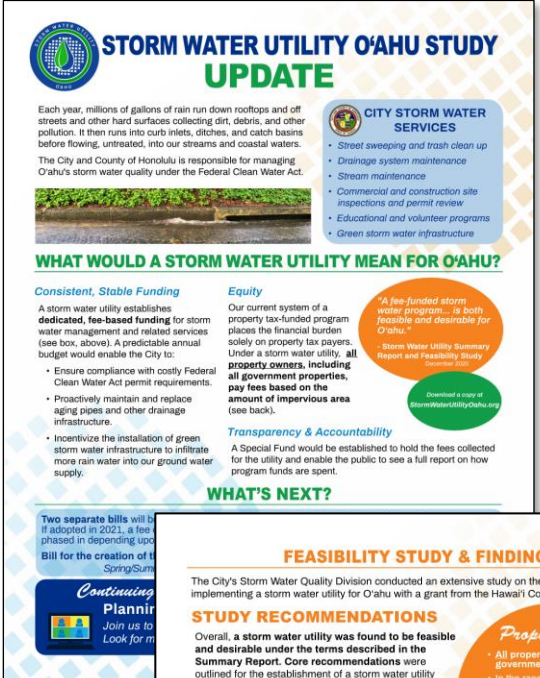
- **Storm Water Utility Updates @ April/May Meetings**

- 18 of 31 meetings completed to date
- Most virtual; 5 in-person

- **Feedback / Q&A**

- Revenue neutrality
- Mix of support and concern
- Appreciative of information

- **Storm Water Planning Meeting Info**



STORM WATER UTILITY O'AHU STUDY UPDATE

Each year, millions of gallons of rain run down rooftops and off streets and other hard surfaces collecting dirt, debris, and other pollution. It then runs into curb inlets, ditches, and catch basins before flowing, untreated, into our streams and coastal waters. The City and County of Honolulu is responsible for managing O'ahu's storm water quality under the Federal Clean Water Act.

CITY STORM WATER SERVICES

- Street sweeping and trash clean up
- Drainage system maintenance
- Stream maintenance
- Commercial and construction site inspections and permit review
- Educational and volunteer programs
- Green storm water infrastructure

WHAT WOULD A STORM WATER UTILITY MEAN FOR O'AHU?

Consistent, Stable Funding
A storm water utility establishes dedicated, fee-based funding for storm water management and related services (see box, above). A predictable annual budget would enable the City to:

- Ensure compliance with costly Federal Clean Water Act permit requirements.
- Proactively maintain and replace aging pipes and other drainage infrastructure.
- Incentivize the installation of green storm water infrastructure to infiltrate more rain water into our ground water supply.

Equity
Our current system of a property tax-funded program places the financial burden solely on property tax payers. Under a storm water utility, all property owners, including all government properties, pay fees based on the amount of impervious area (see back).

Transparency & Accountability
A Special Fund would be established to hold the fees collected for the utility and enable the public to see a full report on how program funds are spent.

WHAT'S NEXT?

Two separate bills will be introduced in 2021, a fee-based bill for the creation of the Storm Water Utility and a bill for the creation of the Storm Water Utility. **Continuing Planning** Join us to Look for more information.

Download a copy of StormWaterUtilityOahu.org



FEASIBILITY STUDY & FINDINGS

The City's Storm Water Quality Division conducted an extensive study on the feasibility of implementing a storm water utility for O'ahu with a grant from the Hawaii Community Foundation.

STUDY RECOMMENDATIONS

Overall, a storm water utility was found to be feasible and desirable under the terms described in the Summary Report. Core recommendations were outlined for the establishment of a storm water utility through input from the Stakeholder Advisory Group on the results of the technical studies.

Proposed Fees

- All properties, including government properties, pay.
- In the range of \$4.45/month per 1,000 SF of impervious area.
- A single-family home with the median amount of impervious area would pay around \$177/month before credits.
- Opportunities to obtain credits available to all properties.

Technical Studies
Five technical studies were conducted and informed the core recommendations. These studies included a cost of service study (i.e., the cost for providing storm water management on O'ahu), program budget, rate analysis, impervious area analysis (using aerial imagery), and rate structure options.

Community & Stakeholder Engagement
A Stakeholder Advisory Group representing a cross section of local communities, interests, and perspectives played a vital role in guiding the study process. All agendas, presentation materials, and meeting summaries are posted at StormWaterUtilityOahu.org.

Two rounds of community and stakeholder meetings (in-person and virtual) were held in February and May of 2020. Comments and feedback were collected throughout this process.

Themes from community meeting feedback and public comments are described in the Summary Report.

Reduce the Runoff. Keep Storm Water on Site

As a property owner, you can take action today to reduce and prevent storm water runoff by installing green storm water infrastructure. Popular projects include rain barrels, rain gardens, and permeable pavement. Many actions may be eligible for future credits under the storm water utility, if adopted.

Find more information on StormWaterUtilityOahu.org

Storm Water Planning Virtual Community Meetings

Central O`ahu	Mon, May 24, 7pm
East Honolulu	Wed, May 26, 7pm
Primary Urban Center	Thur, May 27, 12n
Ko`olau Poko	Tues, June 1, 7pm
North Shore	Wed, June 2, 7pm
`Ewa	Thur, June 3, 7pm
Primary Urban Center	Mon, June 7, 7pm
Ko`olau Loa	Tue, June 8, 7pm
Wai`anae	Wed, June 9, 7pm



Storm Water Planning Meeting Outreach

- E-Newsletter
- Flyer Distribution (digital & print)
 - Neighborhood Board members
 - Storm Water contacts
 - **Stakeholder Advisory Group!**
- Ads
 - Facebook
 - Spectrum
 - North Shore News
 - Star Advertiser (web)

ENVISIONING O'AHU'S STORM WATER FUTURE



Join a Storm Water Planning Virtual Community Meeting

How can O'ahu's storm water management services be improved to meet the challenges of the next 50+ years?

What are the primary storm water concerns in your community?

How can we transform storm water from a nuisance into a resource?

Attend the meeting for your area or any other being held island-wide.

Central O'ahu	Mon, May 24, 7pm	Register here
East Honolulu	Wed, May 26, 7pm	Register here
Primary Urban Center	Thur, May 27, 12n	Register here
Ko'olau Poko	Tues, June 1, 7pm	Register here
North Shore	Wed, June 2, 7pm	Register here
'Ewa	Thur, June 3, 7pm	Register here
Primary Urban Center	Mon, June 7, 7pm	Register here
Ko'olau Loa	Tue, June 8, 7pm	Register here
Waīanae	Wed, June 9, 7pm	Register here




Registration is optional. Links to each meeting will be available at bit.ly/StormWaterPlanning

Accessibility
To request special assistance for participation in this event call 768-3248 or email cleanwater@honolulu.gov.

Storm Water Quality Division
Department of Facility Maintenance
CITY AND COUNTY OF HONOLULU

Storm Water Planning Website



Envisioning O'ahu's Storm Water Future

Envisioning O'ahu's Storm Water Future

O'ahu's storm water system is one of the City and County of Honolulu's most important, but least recognized, infrastructure systems. To protect our island waters and ocean the City is developing a comprehensive Storm Water Master Plan to guide and inform its storm water management programs and investments over the next 50+ years. Your input is needed to help shape these essential public services!

STORM WATER STRATEGIC PLAN



VISION FOR THE FUTURE ...FORWARD THINKING



- Vision, Values and Mission Statement
- Stakeholder Feedback and Public Engagement
- Roadmap and Framework
- Organizational Structure
- Short and Long-Term Actionable Items
- Adaptive Management

STORM WATER MASTER PLAN

(50+ Years)



Storm Water Planning Community Meeting Agenda

Objective: Solicit ideas, concerns, core values for the Storm Water Master Plan

- Welcome *(5 min)*
- Storm Water Planning Overview *(25 min)*
- Existing | Future Storm Water Quality Efforts *(20 min)*
- Visioning/Input *(20 min)*
- Wrap-up *(10 min)*

Stakeholder Advisory Group Input



Storm Water Utility Core Values



CLEAN WATER

Managing storm water runoff
Improved water quality
Pollution prevention



HEALTHY & SAFE ENVIRONMENT

Conservation mauka to makai
Clean stream channels
Protecting ocean waters



COMMUNITY INVOLVEMENT

Deciding how funds are spent
Ensuring accountability
Meeting community needs




SHARED RESPONSIBILITY

Everyone pays a fair share
Everyone can get credits
Everyone makes a difference

Storm Water Planning Survey

- Link in chat
- Survey results
- Survey feedback
- Will be available to community members outside of meetings

Storm Water Planning Survey




Welcome to Storm Water Planning Survey for the City and County of Honolulu Storm Water Quality Division. The information from this survey will be incorporated into a strategic plan to guide future investments in City storm water management and related programs.

1. District Area*

Please select the area where you reside based on the map below

District Area Map



The map displays the island of Oahu divided into several colored districts: North Shore (green), Wai'anae (dark blue), Ewa (light green), Central O'ahu (yellow), Primary Urban Center (orange), Ko'olau Loa (light blue), Ko'olau Paha (medium green), and East Honolulu (teal).

Survey Results & Additional Values Discussion



Breakout Discussion

What activities and programs would you prioritize in the storm water master plan to reduce water pollution & capture/reduce rainwater runoff?

Current City Storm Water Management Activities



Future City Storm Water Management Activities



Proactive Infrastructure
Repair & Replacement



Enhanced Education & Involvement



Urban Forestry &
Tree Maintenance



Mauka Conservation



Water Recapture
Incentives



Green
Infrastructure Grants



Workforce Development
Programs



Enhanced City
Storm Water Activities

Breakout Discussion

What activities and programs would you prioritize in the storm water master plan to reduce water pollution & capture/reduce rainwater runoff?

Breakout Discussion Sharing

three items highlighted from each group



Partnership Opportunities

Reminder: Share potential partner organizations with us!



Mapping Input Tool

The screenshot displays the 'Stormwater Public Commenting' web application interface. The top navigation bar includes the application title and a 'Test' label. Below the navigation bar is a search bar with the placeholder text 'Find address or place'. The main map area shows a street grid in Honolulu, with various colored overlays representing different stormwater issues. A legend on the left side of the map is organized into three sections:

- Drop a Pin/Point to Add Comment:**
 - Red dot: Drain Blockage
 - Blue dot: Erosion Area
 - Green dot: Flooding
 - Purple dot: Trash Accumulation
- Draw a Line to Add Comment:**
 - Red line: Drain Blockage
 - Blue line: Erosian Area
 - Green line: Flooding
 - Purple line: Sewer Overflow
 - Orange line: Trash Accumulation
- Draw a Polygon to Add Comment:**
 - Red polygon: Absorption Areas
 - Blue polygon: Flooding Area
 - Green polygon: Rainwater Capture Opportunities

A 'Polygon Add Comments' dialog box is open over the map, showing the following information:

- Comment Type: Rainwater Capture Opportunities
- Comment: (empty field)
- Edited by: ssaephanG70 on Friday at 1:20 PM
- Buttons: [Zoom to](#) and a three-dot menu.

Strategic Plan Timeline



Wrap Up





Next Advisory Group Meeting

February 8

May 3

August 2

November 15

Mahalo

**Please stay safe and well,
See you in August**

