

Name: David Dorn

Agenda Item: B.2 Goal 2.4 | Mauka to Makai Watershed Management

Date Received: 3/11/23 via email

South Maui TMK Acquisition for Watershed and Wetlands Preservation

Dear Planning Department, my name is David Dorn. I have been engaged in several county-sponsored studies of South Maui wetlands and have researched the various South Maui drainage plans and solutions as part of my work with the South Maui Save the Wetlands Hui, the Hawaiian Islands Land Trust (HILT), and the Sierra Club of Maui.

- Kulanihakoi and Waipuilani Gulches are the largest and most flood-prone gulches in South Maui and their remaining open spaces, floodways, and wetlands need to be protected from development. To do this they need to be in Public Ownership.
- The lower gulches include wetlands, streambeds, and riparian zones that form the essential drainage infrastructure between Pi'ilani Highway and the coast.
- These TMKs include wetlands, streams, and riparian areas that are hydrologically connected to our coastal wetlands and provide essential watershed functions.
- SECTION 4. Subsection J of Section 2.82.040, Maui County Code: Protects Areas of riparian zone and floodplain, including flowing, intermittent, or ephemeral streams, and streambeds that are hydrologically connected to wetlands.
- We need to acquire all of the requested TMK Lots to put them into public ownership because they are all essential to our public watershed infrastructure.
- Acquiring these TMKs is the only way to guarantee their preservation: This is the best possible way to provide the level of protection that they need and deserve.

390011620000 Acres - 7.001

390620190000 Acres - 2.4162

390011640000 Acres - 3.335

390011490000 Acres - 5.773

390590010000 Acres - 2.142

390340270000 Acres - 0.94

390580610000 Acres - 1.088

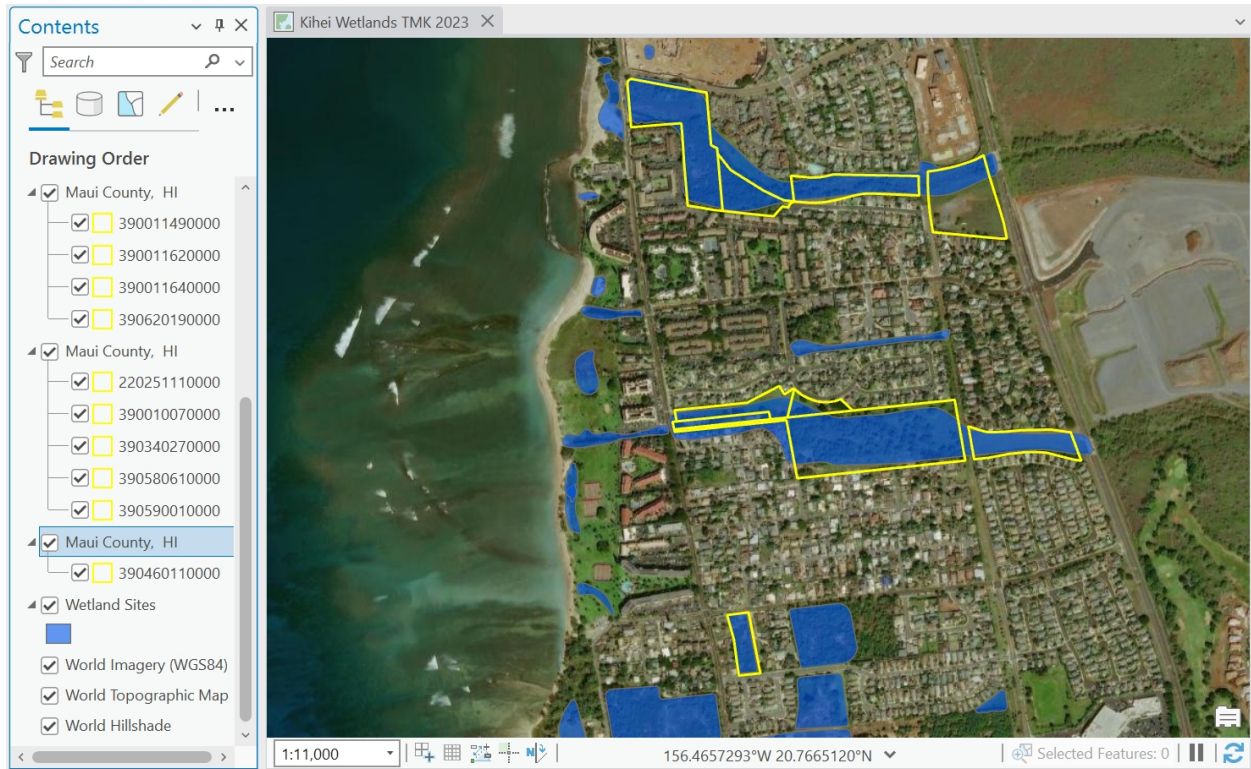
390010070000 Acres - 12.952

220251110000 Acres - 3.1067 (County-owned)

390460110000 Acres - 1.531

Regards,

David Dorn



The South Maui Community Plan must make it a requirement to acquire these particular TMKs and to deliberately preserve these two major gulches:

We cannot rely on the Wetlands Bill or the pending Gulch Setback rules alone to preserve these essential areas. These major gulches are essential to Kīhei’s future and need to be put into public ownership. This should have been done many years ago. The acquisition of these essential watershed lands now will be correcting a long-standing deficiency. As long as these TMKs remain in private ownership their fate is uncertain.

We have seen Community Plans, Island Plans, and Zoning laws, being overridden many times in the past. We recently saw a large rezoning in Waiehu to allow the construction of affordable homes in a watershed flood zone. Those lands were also classified as “Important agricultural lands” that should have been preserved for that purpose. But those rules failed to protect them from development. That is why we must take the extra step of land acquisition to protect these essential areas from future challenges.

Acquiring these TMKs is necessary to protect Kihei from worsening flooding, and they need to be preserved: These lands are an important part of all of the Drainage Plans that address Kihei's Flooding problems. If we lose any more of these lands to development there is little chance of us ever managing our flooding problems. We need to save these lands for now and for the benefit of future generations. These are key lands vital to the watershed that cannot be replaced once they are lost.

These Lands are more important to the watershed than just being wetlands:

These lands are far more important as essential drainage infrastructure, far beyond their designation as wetlands. Wetland definitions can change, and the as-yet-unproduced “wetland map overlays” might be inadequate or could be challenged. So the question is not whether these gulches fit into one wetland definition or another, But how important are they to the overall function of our watershed? Their importance is essential for maintaining the current level of drainage services, and their crucial role in all of the future flooding mitigation plans is undeniable.

We need to protect this natural Infrastructure now or we will get concrete channels:

If we do not preserve these Gulch Areas as natural Infrastructures such as wetlands and open spaces now, then the engineers at DPW will execute their plan to create concrete channels in the natural streams, and make artificial flood channels. With everything we know about this plan, we definitely do not want the Final Kihei Drainage Master Plan 2022 to go ahead in its present form. It would be absolutely devastating to the natural areas, and will increase flooding problems, and cause untold damage to our nearshore waters.

We are one step away from the Final-Kihei-Drainage-Plan becoming a reality. Do not trust anyone's “superficial assurances” that this plan is “not the final engineering plan”. This FKDMP is the Final completed plan that the DPW will try to implement as soon as they find funding. That is unless we say no and come up with better alternatives.

Maui County Digital Zone maps, Show these Wetlands as Residential Zoned.

Under the current zoning, these gulches and wetlands are not protected from development. According to the Digital Zoning maps, they are zoned as residential, and they are not protected from development. According to the map, even the County-owned drainageway in Waipuilani Gulch is not zoned as “county-owned” or “open space” and could be developed.

<https://www.mauicounty.gov/DocumentCenter/View/127982/Maui-Island-Digital-Zoning-Map-3>

Protecting Kihei’s Major Gulches:

The Ultimate Goal of the Community Plan should be to Acquire all of the undeveloped Gulch lands makai of Piilani Highway to preserve the drainageways and mitigate future flooding. These are the primary gulches of the watershed, and the Lower sections between Piilanai Highway and the ocean should be **acquired and preserved in perpetuity** to protect watershed functionality. These gulches should include: Waiakoa, Kulanihakoi, Waipuilani, Keokea, and Waimahaihai.

WETLANDS RESTORATION AND PROTECTION BILL, RESOLUTION NO. 21-171, was adopted by the Council of the County of Maui, State of Hawaii, on the 5th day of November, 2021.

SECTION 4. Subsection J of Section 2.82.040, Maui County Code

2. The committee must advise the mayor to authorize the county to acquire land containing wetlands, by negotiated acquisition or by eminent domain, or to seek execution of a conservation easement to restore or protect wetlands after evaluating the following criteria for restoration or protection:

2.D. “Areas of riparian zone and floodplain, including flowing, intermittent, or ephemeral streams, and streambeds”.

2.G. “Areas where there is surface or subsurface water that is hydrologically connected to wetlands”.

(Source: <https://www.mauicounty.gov/DocumentCenter/View/130397/Reso-21-171>)

Kulanihakoi Gulch Summary:

- Catchment Area: 14.7 square miles,
- Tributary gulches flow into Kulanihakoi gulch giving it a total length of 10.3 Miles.
- Flows at Kulnihakoi Bridge are 10,086 CFS during a Q100 storm.
- The Final Drainage Master Plan wants to increase this amount to 18,683 cfs.
- Kulanihakoi Bridge Max capacity is 20,200 cfs. (only 7.8% more than the max projected flow). The Floodplain extends 2,500 feet inland along the gulch.
- Kulanihakoi Gulch, already overtops its banks during heavy rainstorms.

KULANIHAKOI GULCH DETAILS:

Catchment Area: 14.7 square miles,

Tributaries: Many tributary gulches flow into Kulanihakoi gulch, Kaipoiioi GI, Kaonoulu GI, Naalae GI, Kaakaulua G.

Total Combined Gulch Length: is 54,385 feet (10.3 Miles)

Q100 Flows: Flows at Kulnihakoi Bridge are 10,086 CFS during a Q100 storm.

The Final Kihei Drainage Master Plan wants to increase this amount to almost double that amount to 18,683 cfs.

The Kulanihakoi Bridge Max capacity: The Kulanihakoi Bridge's max capacity is 20,200 cfs. (That is only 7.8% more than the max projected Q100 flow)

The Floodplain extends 2,500 feet inland along the gulch: The 1-percent annual chance floodplain extends from Hoonani Street to Kenolio Street and is approximately 2,500 feet inland along Kulanihakoi Gulch. (The gulch is only 2,850 long to the Piilani Highway Bridge).

Table 4.2.5 Kulanihakoi Bridge Capacity

	Flow (cfs)	Water Surface Elevation (ft)	* Freeboard (ft)	Remark
Bridge Capacity	20,200	26.1	2.0	Estimated
(P) Kihei DMP Q ₁₀₀	18,683	25.6	2.4	Estimated
As-Built Plan Q ₁₀₀	13,100	24.0	4.1	As-Built Plan Data
(Ex) Kihei DMP Q ₁₀₀	10,086	23.1	5.0	Estimated
As-Built Plan Q ₅₀	9,685	23.0	5.1	As-Built Plan Data

* based on the bridge low chord elevation of 28.1 feet (as-built plan data)

WAIPUILANI GULCH SUMMARY:

Catchment Area: 14.54 square miles.

Gulch Length: 3.08 miles

Waipuilani Bridge Capacity at Piilani Hwy: 11,200 cfs

Q100 at Piilani Bridge: 8,089 cfs

Makai Catchment: 7,259 acres

Runoff along SKR: 8,120 cfs

Waipuilani Culvert at South Kihei Road: (1-10'x2' and "sheetflow").

FKDMP-2022 proposes to Dewater the Waipuilani Gulch with a diversion Channel:

The Final-Kihei-Drainage-Master-Plan-2022, proposes to build a diversion that would divert 8,089 cfs into Kulanihakoi Gulch. This diversion would destroy the wetlands downstream, on both gulches. By dewatering the Waipuilani Gulch Wetlands, and by overwhelming the Wetlands of Kulanihakoi gulch with floodwater. This proposed diversion would also increase flooding problems on South Kihei Road, and in surrounding neighborhoods, and it would increase the amount of stormwater runoff entering the ocean. We cannot let this happen!

Vital Importance of Coastal Wetlands in Hawaii:

“In the Hawaiian Islands, coastal wetlands represent a critical interface between terrestrial and ocean zones with a vital importance in terms of economic, cultural, and environmental values. As described by Mitsch and Gosselink [1], coastal wetlands naturally purify water from sediments and contaminants, transform nutrients, slow down the flow of freshwater from the mountains to the ocean, and provide suitable habitats both for flora and fauna, including a decrease in greenhouse emission through carbon sequestration processes and micro-climate mitigation”.

<https://www.mdpi.com/2306-5338/7/4/86>

Ephemeral Headwater streams and riparian areas are essential for the function and health of our coastal wetlands.

“Headwaters convey water into local storage compartments such as ponds, shallow aquifers, or river banks and into regional and alluvial aquifers. These local storage compartments are important sources of water for baseflow in rivers. The ability of streams to keep flowing even during dry periods typically depends on the delayed (lagged) release of local groundwater, also referred to as shallow groundwater, originating from these water sources, especially in areas with shallow groundwater tables and pervious subsurfaces. Connectivity Report at 1-7.

All tributary streams, including perennial, intermittent, and ephemeral streams, are physically, chemically, and biologically connected to downstream rivers via channels and associated alluvial deposits where water and other materials are concentrated, mixed, transformed, and transported. Connectivity Report at 1-3, 1-6, 6-1.

(Scientists Comments on Connectivity of Streams and Wetlands to Downstream Waters: Docket ID No. EPA-HQ-OA-2013-0582)

References:

<https://www.mauicounty.gov/DocumentCenter/View/138600/Final-Kihei-DMP-Report-Complete-2022-12>

<https://www.mauicounty.gov/DocumentCenter/View/130397/Reso-21-171>

<https://www.mauicounty.gov/DocumentCenter/View/127982/Maui-Island-Digital-Zoning-Map-3->

<https://qpublic.schneidercorp.com/Application.aspx>

<https://savethewetlands.org/kulanihakoi-gulch-stream/>

<https://savethewetlands.org/kaonoulu-kulanihakoi-wetlands/>

<https://savethewetlands.org/waipuilani-gulch/>

<https://www.khon2.com/news/7-rescued-during-flash-flooding-on-maui-threat-of-heavy-rain-isnt-over-yet/>

https://www.epa.gov/sites/default/files/2015-03/documents/ephemeral_streams_report_final_508-kepner.pdf

<https://www.nwf.org/~media/PDFs/Water/Scientist%20Letter%20Comments%20on%20EPA%20Connectivity%20Report%20addl%20scientists%2012%2013%2013.pdf>

<https://www.trcp.org/2023/01/04/epa-restores-clean-water-act-protections-streams-wetlands/>

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Citations:

Ghazal, K.A.; Leta, O.T.; El-Kadi, A.I.; Dulai, H. Impact of Coastal Wetland Restoration Plan on the Water Balance Components of Heeia Watershed, Hawaii. *Hydrology* **2020**, *7*, 86. <https://doi.org/10.3390/hydrology7040086>

Levick, L., J. Fonseca, D. Goodrich, M. Hernandez, D. Semmens, J. Stromberg, R. Leidy, M. Scianni, D. P. Guertin, M. Tluczek, and W. Kepner. 2008. The Ecological and Hydrological Significance of Ephemeral and Intermittent Streams in the Arid and Semi-arid American Southwest. U.S. Environmental Protection Agency and USDA/ARS Southwest Watershed Research Center, EPA/600/R-08/134, ARS/233046, 116 pp.