

AGRICULTURE, DIVERSIFICATION, ENVIRONMENT, AND PUBLIC TRANSPORTATION COMMITTEE

Council of the County of Maui

MINUTES

December 4, 2025

Online Only via Teams

CONVENE: 9:07 a.m.

PRESENT: VOTING MEMBERS:

Councilmember Gabe Johnson, Chair
Councilmember Shane M. Sinenci, Vice-Chair
Councilmember Tom Cook, Member
Councilmember Alice L. Lee, Member (Out 11:02 a.m.)
Councilmember Tamara Paltin, Member (Out 11:59 a.m.)
Councilmember Nohelani U‘u-Hodgins, Member

EXCUSED: VOTING MEMBERS:

Councilmember Yuki Lei K. Sugimura, Member

STAFF:

Ellen McKinley, Legislative Analyst
Kasie Apo Takayama, Senior Legislative Analyst
Criselda Paranada, Committee Secretary
Megan Moniz, Legislative Attorney
Lenora Dinneen, Council Services Assistant Clerk
Ryan Martins, Council Ambassador

Residency Area Offices

Roxanne Morita, Council Aide, Lāna‘i Residency Area Office
Mavis Oliveira-Medeiros, Council Aide, East Maui Residency Area Office
Keomailani Hirata, Council Aide, Molokai Residency Area Office
Christian Balagso, Council Aide, West Maui Residency Area Office
Buddy Almeida, Council Aide, Makawao-Ha‘ikū-Pā‘ia Residency Area Office
Bill Snipes, Council Aide, South Maui Residency Area Office
Chaelin Ryu, Council Aide, South Maui Residency Area Office

ADMIN.:

Michael Petersen, Deputy Director, Department of Environmental Management (ADEPT-1(11))
Cecile Powell, Environmental Protection and Sustainability Division Manager, Department of Environmental Management (ADEPT-1(11))
William Jay, Environmental Program Specialist, Department of Environmental Management (ADEPT-1(11))
Kristie Wrigglesworth, Deputy Corporation Counsel, Department of the Corporation Counsel (All)
Adrian Reifsnyder, Deputy Corporation Counsel, Department of the Corporation Counsel (All)
Kapo‘no‘ai Molitau, Director, Department of ‘Ōiwi Resources (ADEPT-1(11))
John Stufflebean, Director, Department of Water Supply (All)

**AGRICULTURE, DIVERSIFICATION, ENVIRONMENT, AND PUBLIC TRANSPORTATION
COMMITTEE MINUTES
Council of the County of Maui**

December 4, 2025

Jade Rojas-Letisi, Director, Office of Economic Development, Office of the Mayor
(ADEPT-1(11))

Jordan Hart, Executive Assistant, Office of Recovery, Department of
Management (ADEPT-1(11))

OTHERS: Andrea Buckman, Executive Director, Uhiwai O Haleakalā (ADEPT-1(11))
CJ Elizares, Cultural Practitioner, Protect Kaho‘olawe ‘Ohana (ADEPT-1(11))
Paul Higashino, Restoration Manager, Kaho‘olawe Island Reserve Commission
(ADEPT-1(11))
Akua Po, Owner, Po Brothers Inc.; Board Member, Uhiwai O Haleakalā
(ADEPT-1(11))
Elama Farm, President, Ka ‘Ohana O Kahikinui (ADEPT-1(11))
Dr. John Helly (ADEPT-1(12))

Testifiers

Testifier 1 (The Royal House of Hawai‘i) (ADEPT-1(11))

Hina Kneubuhl (ADEPT-1(11))

Jasee Law (ADEPT-1(11))

James Langford (ADEPT-1(11))

Richard Kekiwi (ADEPT-1(11))

(30+) additional attendees

PRESS: *Akakū: Maui Community Television, Inc.*

CHAIR JOHNSON: . . .*(gavel)*. . . Aloha. Will the Agriculture, Diversification, Environment, and Public Transportation Committee meeting for December 4, 2025. The time is now 9:07 a.m. Members, in accordance with the Sunshine Law, if you’re not in the Council Chamber, please identify by name who, if anyone, is in the room, vehicle, or workspace with you today. Minors do not need to be identified. Also, please see the last page of the agenda for information on meeting connectivity, and remember to silence all cell phones. Good morning, everyone. I look forward to chairing a productive meeting. I’m Gabe Johnson, your Committee Chair. And also joining us today are Vice-Chair Shane Sinenci. Aloha, Councilmember.

VICE-CHAIR SINENCI: Hey, aloha kakahiaka. I’m here at my home office. I’m here by myself, and there’s no testifiers in Hāna, Chair.

CHAIR JOHNSON: Thank you for that. Let’s move on to Council Chair Alice Lee. Aloha, Councilmember. Good morning.

COUNCILMEMBER LEE: Good morning, Chair Johnson. Aloha kākou. Looking forward to your meeting, and there’s no one here at my home office besides my little kitty. Thank you.

**AGRICULTURE, DIVERSIFICATION, ENVIRONMENT, AND PUBLIC TRANSPORTATION
COMMITTEE MINUTES
Council of the County of Maui**

December 4, 2025

CHAIR JOHNSON: Okay. Thanks for that info. And next we have, in the Chambers, Councilmember Tom Cook. Aloha, Councilmember.

COUNCILMEMBER COOK: Aloha. Good morning. And currently, there's no testifiers, and the Internet is working at the South Maui Office.

CHAIR JOHNSON: Wow, we're 2 and 0 today. All right. Now we've got to move on to Councilmember Paltin. Aloha, Councilmember. I love the Christmas vibe you got back there.

COUNCILMEMBER PALTIN: Aloha kakahiaka kākou. Streaming live and direct from my kitchen table. There's nobody else in the house. The canine is downstairs.

CHAIR JOHNSON: Okay. And Councilmember Yuki Lei Sugimura is excused today. And of course, we have with us virtually Committee Member Nohelani U'u-Hodgins. Aloha, Councilmember.

COUNCILMEMBER U'U-HODGINS: Good morning, Chair. Good morning, everyone. I am also at my private residence. I have one adult male with me, Makoa U'u-Hodgins, and then I have my minor daughter as well. But I am here, and I'm excited for your meeting. Thank you.

CHAIR JOHNSON: Okay. Welcome, welcome, and good morning. Of course, our Non-Voting Committee Members, Councilmember Rawlins-Fernandez, is always welcome. And we are now...from the Administration, we have plenty of folks today, as you can see. We've got the Department of Environmental Management, Deputy Director Michael Peterson; Environmental Protection and Sustainable Division Manager Cecile Powell, along with William Jay. We have, from the Department of Management, Office of Recovery, Executive Assistant Jordan Hart. From the Department of 'Ōiwi Resources, we have Director Kaponō'ai Molitau. From the Department of Water Supply, Director John Stufflebean. Office of the Mayor, the Office of Economic Development, we have Chentelle Rowland. And from Corporation Counsel, we have Kristie Wrigglesworth, Deputy Corporation Council; and Adrian Reifsnyder, Deputy Corporation Counsel. On our Committee Staff, we have Ellen McKinley, Legislative Analyst; Kasie Apo Takayama, Senior Legislative Analyst; from...Megan Moniz, Legislative Attorney; and Criselda Paranada, our Committee Secretary; and Ms. Lei Dinneen, our Assistant Clerk. Today, on our agenda, Members, we have two items, very important items. I'm really excited to learn more about them. We have ADEPT-1(1) [sic], Reviving the Nāulu Cloud Bridge, and ADEPT-1(12), Aquifer Mapping and Long-Term Monitoring of Water Resources on Maui. These items are informationally only, and no legislative action will be taken today. Thank you, Members and Administration, for being here today. Thank you for our presenters. Let's begin with public testimony on all items on the agenda, although public testimony is also welcome after the presentations of each item as well. So, Staff, do we have any...any testifiers? Okay. Just give me a moment and I'll read some guidelines here. Oral testimony via phone or video conference will be accepted, in addition to

**AGRICULTURE, DIVERSIFICATION, ENVIRONMENT, AND PUBLIC TRANSPORTATION
COMMITTEE MINUTES
Council of the County of Maui**

December 4, 2025

in-person testimony. Individuals wishing to testify in person may sign up with a Staff member at the entrance of the Chamber. For those joining the meeting via Microsoft Teams, those wishing to testify can let Staff know by using the raise-your-hand function if you wish to testify. Once you've been added to the testifier log, Staff will lower your hand. Testifiers wanting to provide video or audio testimony should have joined the online meeting via the TinyURL link, or by calling into the phone number noted on today's agenda. Written testimony is encouraged and can be submitted via the eComment link at mauicounty.us/agendas. Oral testimony is limited to three minutes per item. If you're still testifying beyond that time, you will hear a second timer go off after 30 seconds, and I'll kindly ask you to complete your testimony. We ask that you state your full name and organization, but if you prefer to testify anonymously, Staff will identify you and refer to you as testifier. Please also indicate this agenda item or items that you're testifying on. Once you're done testifying, if you don't...if you...or if you do not wish to testify, you can view the meeting on *Akakū* Channel 53, Facebook Live, or mauicounty.us/agendas. Thank you all for your cooperation. The Chair will maintain decorum at all times. Any person who behaves in a manner that disrupts, disturbs, or impedes the orderly conduct of any Council meeting can, at the discretion of the presiding officer and a majority of present Councilmembers, be ejected or banned from the Council meetings, or, if participating remotely, muted, or dropped from the meeting. Examples of disruptive behavior include heckling, shouting, use of profanity, threatening or slanderous remarks made to any Member of the Council, Staff, or general public. Committee Members, I'll now proceed with oral testimony. Staff have been monitoring individuals joining today's meeting by phone and by video, and we will do our best to take each person in an orderly fashion. So, Staff, will you please call the first testifier?

MS. APO TAKAYAMA: Yes, Chair. The first testifier is The Royal House of Hawai'i, to be followed by Hina Kneubuhl.

CHAIR JOHNSON: Okay. Royal House?

. . . BEGIN PUBLIC TESTIMONY AT BEGINNING OF MEETING. . .

TESTIFIER 1: Aloha.

CHAIR JOHNSON: Aloha.

TESTIFIER 1: This is The Royal House of Hawai'i, and I'm speak...I'm speaking to you you...to you guys as an allodial land tenant, descendant, and holder under Hewahewa Nui. And...and so, there's six items, right? Am I correct?

CHAIR JOHNSON: Oh, there's only two items.

TESTIFIER 1: Oh, there's two items? Okay. Sorry, I stay reading the agenda too at the same time, because like it's...it's like confusing a little bit with the numbering. But

**AGRICULTURE, DIVERSIFICATION, ENVIRONMENT, AND PUBLIC TRANSPORTATION
COMMITTEE MINUTES
Council of the County of Maui**

December 4, 2025

the first one...the first one is for...so I'm looking at the agenda, it's like giving me like six like different links to provide testimony on. So...

CHAIR JOHNSON: Uh-oh, did we lose you? Oh, no.

TESTIFIER 1: *(Audio interference)* ...view and approval for --

CHAIR JOHNSON: Okay.

TESTIFIER 1: -- proposed reconstruction plans. Oh, no, that's number 2, yeah. Oh, no, number 1.

COUNCILMEMBER PALTIN: That might be the Cultural Resource Commission, or a different meeting. Does it say Maui County Agriculture...

TESTIFIER 1: Oh, so...yeah, Resource Commission.

COUNCILMEMBER PALTIN: Oh, yeah, that's a different meeting.

TESTIFIER 1: Oh, no way.

CHAIR JOHNSON: Sorry.

COUNCILMEMBER PALTIN: Different link. Yeah.

CHAIR JOHNSON: We...we got a little bit --

TESTIFIER 1: Oh, my gosh.

CHAIR JOHNSON: -- of an Internet --

TESTIFIER 1: Okay. Anyway, I can still speak though.

CHAIR JOHNSON: -- issue, but go ahead.

TESTIFIER 1: I'm speaking to you all as a...yeah, a land...allodial land tenant holder and descendant, and I saw...this is about...so you guys just said this is about the rejuvenation of the clouds or something, right?

CHAIR JOHNSON: Yeah, the Nāulu Cloud Bridge.

TESTIFIER 1: Okay. So, I'm wondering if any of the land descendants were contacted because it's all allodial titled and royal patented, and there's Hawai'i Revised Statute 172-11. The lands are supposed to be returned to the descendants, if it was even sold, or if it's...the title is trying to be changed, or whatever it may be. And yeah,

**AGRICULTURE, DIVERSIFICATION, ENVIRONMENT, AND PUBLIC TRANSPORTATION
COMMITTEE MINUTES
Council of the County of Maui**

December 4, 2025

I know...because I know of many descendants, many of the royal patents over there on that side in the ahupua'a area. That's where a majority of the Kānaka people...

CHAIR JOHNSON: Oh, did we lose you again? How long you want to recess for?

TESTIFIER 1: *(Audio interference)* ...and we haven't been contacted at all, and yeah, I'm just wondering if --

CHAIR JOHNSON: Okay.

TESTIFIER 1: -- the descendants were called anyway.

CHAIR JOHNSON: Okay.

TESTIFIER 1: And yeah, I'll speak later. I'm just going to do this testimony for now, but I'm going to do my testimony after again.

CHAIR JOHNSON: Okay. Let me see --

TESTIFIER 1: Mahalo.

CHAIR JOHNSON: -- if we have any clarifying questions. I don't see any hands for clarifying questions, so thank you for your testimony.

UNIDENTIFIED SPEAKER: Thank you.

CHAIR JOHNSON: Staff, will you ask for the next testifier?

MS. APO TAKAYAMA: Chair, the next testifier is Hina Kneubuhl.

CHAIR JOHNSON: Okay. *(pause)* Hina Kneubuhl, if you're ready to testify, you could...

MS. KNEUBUHL: Oh, aloha.

CHAIR JOHNSON: Oh, there we go. Aloha.

MS. KNEUBUHL: Aloha nui kākou. 'O wau kēia 'o Hina Puamohala Kneubuhl. I was born and raised here on Maui. I come from Waipoli on the slopes of Haleakalā, and I've spent most of my life on this mountain. And I just came today in strong support of this project. Thank you guys so much for putting this on the docket, and hearing this, and being willing to consider this kind of a project. It means a lot to me that we've come to this place today. There's been so much damage that's done to the 'āina, all the way from the very top of the mountain all the way out to Kaho'olawe itself. So, any work that we do that restores that system that is the Nāulu Cloud is maika'i, is so maika'i, and so necessary for the generations coming after us. We are living on a planet that...where desertification is spreading rapidly in many places, and I think

**AGRICULTURE, DIVERSIFICATION, ENVIRONMENT, AND PUBLIC TRANSPORTATION
COMMITTEE MINUTES
Council of the County of Maui**

December 4, 2025

that we think we're immune from that here in Hawai'i, but we're not. We can see it happening. It's happening on Molokai. It's happened on Kaho'olawe. It's happening in Kihei and...and Lahaina. And fighting against that by doing restoration work is one of the smartest and most culturally-aligned things that we can possibly do to look after our 'āina, and the generations coming after us. I have been an intern twice at the Auwahi Restoration Project [sic]. I have family from Kaupō, and I have seen firsthand how if you exclude the weeds, and you plant the native plants and you give them the conditions to grow, they will thrive, and they will grow. And these kind of projects truly can be a success. It just requires us to get behind them, and give them what they need. So, although I came sort of last minute today without knowing all the details of the project, I know that anything that helps the Nāulu Cloud to be restored, restores not only the 'āina and the wai, the ua, but it restores parts of us as Kānaka, and it allows us to maintain that connection. A green belt stretching from Leeward Haleakalā all the way out to Kaho'olawe is something...filled with native plants is something that only serves to strengthen all of our cultural connections. All of those plants are incredibly important for cultural uses as much as they are for being on the 'āina to draw the clouds, and to help the rain to come again. I deeply believe that this is possible, and I really appreciate the vision of the people behind it. And thank you so much for your support today.

CHAIR JOHNSON: Okay. Thank you so much for your testimony, Hina. Let's see if we have any clarifying questions. We do have one from Councilmember Paltin.

COUNCILMEMBER PALTIN: Thank you, Chair.

MS. KNEUBUHL: Yes.

COUNCILMEMBER PALTIN: Thank you, Ms. Kneubuhl. I was wondering if you could clarify what you said about the desertification. This is not something that you think that desal would solve?

MS. KNEUBUHL: I think...I don't know a lot about desal, and you're talking about desalination of water, correct?

COUNCILMEMBER PALTIN: Correct.

MS. KNEUBUHL: I don't know where we are at with having that kind of technology available to us here in Hawai'i. I know that either way, we have to put aside the 'āina, we have to plant the plants, and maybe we get those going with water that is desalinated, or R-1 water, or some kind of water that, you know, allows us to help that. Probably not a lot of it is going to get watered because that's not how large-scale restoration works. But I really don't think that we can desalinate our way out of increasing desertification. That is not going to solve our problems, I don't believe. I think that we need to do large-scale restoration, and I think that that's what's really going to draw the moisture and hold it, and we have to physically reconstruct that...that green corridor and...and that bridge that is the Nāulu Cloud that is celebrated in song and

**AGRICULTURE, DIVERSIFICATION, ENVIRONMENT, AND PUBLIC TRANSPORTATION
COMMITTEE MINUTES
Council of the County of Maui**

December 4, 2025

story by our ancestors. It's a phenomena that they have observed for hundreds and hundreds of years, and they know how it works. And so, yeah, we have to rebuild that.

COUNCILMEMBER PALTIN: Thank you.

MS. KNEUBUHL: 'Ae. Mahalo.

CHAIR JOHNSON: Thank you. Let's see if any other clarifying questions for our testifier. Thank you so much, Ms. Kneubuhl, for your testimony. Appreciate it. Staff, will you call the next testifier, please?

MS. APO TAKAYAMA: Yes, Chair. The next testifier, and currently the last signed up, is the individual calling in with the last four digits, 6659. And you may need to press star-6 to unmute.

CHAIR JOHNSON: Star-6 to unmute.

MS. KNOX: Aloha. This is Robin Knox. Can you hear me?

CHAIR JOHNSON: Loud and clear, Ms. Knox.

MS. KNOX: Oh, great. Thank you so much. Aloha mai, Committee Chair and Members. Mahalo for allowing these important presentations for consideration. I commend you for looking for ways to mālama our water resources. It's especially heartening to see all the relevant departments there, including DEM, today. With regard to the aquifer mapping, modeling, and monitoring, it is essential. Often you may hear people say they don't like studies, they want actions, but actions can be ill-advised if not grounded in reality, like knowledge of rainfall, aquifer location and bounds, water levels, and water quality. Some of the information you'll see presented today demonstrates the folly of making decisions about sustainable yield without this understanding. Already we are overpumping wells and causing salination of freshwater resources. I support expanding the scope of this study island-wide. South Maui, in particular, already has a large number of wells, and more planned for the Wailea 670 project and Kamaole Aquifer, which has a very limited sustainable yield, and many aquifer-dependent ecosystems along the coastline. A lot of people may not be familiar with the concepts of monitoring, modeling, and adaptive management, but these modeling systems help us define and understand how the system functions, and it gives us a management tool that only gets better over time because every time we do the monitoring, it improves. Our...our current system of water resources management is reactive. We implement management measures only after negative impacts have occurred. Having the mapping, modeling, and monitoring system will allow decisions to be proactive by predicting what the impacts of withdrawals would be before making a decision. So, I encourage this also to be expanded to our surface water systems as well. There's only one water, and our surface water management affects groundwater, and vice versa. Lastly, water

**AGRICULTURE, DIVERSIFICATION, ENVIRONMENT, AND PUBLIC TRANSPORTATION
COMMITTEE MINUTES
Council of the County of Maui**

December 4, 2025

resource discussions often have a tendency to focus on human usage. We must also protect our ecosystems by maintaining adequate groundwater flows to wetlands, springs, and loko i'a. The groundwater protects the aquifers from salt intrusion at the coast, and the punawai provide cooler water refuge for fisheries and the loko i'a, which is increasingly important with the higher climate...hotter climate. So, I support the landscape scale restoration and reforestation. That is actually the only method that brings more freshwater into our hydrologic systems. I'll repeat that. That is the only method that actually brings more freshwater into our systems. To take care of all of our water needs, landscape-scale nature-based solutions are best. We have to take care of not only the needs of humans, but also the needs of nature. Mahalo nui.

CHAIR JOHNSON: Thank you, Ms. Knox, for your testimony. Let's see if we have any clarifying questions. We don't have any, so thank you once again for your testimony. Staff, will you call the next testifier, please?

MS. APO TAKAYAMA: Chair, we see that the Royal House of Hawai'i is raising their hand, but we're still in the first...on that opening.

CHAIR JOHNSON: Right.

MS. APO TAKAYAMA: So, if they would like to testify on the second item --

CHAIR JOHNSON: Okay.

MS. APO TAKAYAMA: -- they can. And then I also see an individual who's approached the podium.

CHAIR JOHNSON: Okay. Let's see if...Royal House was here first, if you don't mind, Jasee Law.

MR. LAW: Go ahead.

CHAIR JOHNSON: Royal House, if you don't mind just sticking to the...the other item instead of the first item. Is that okay? Can you speak on that? Three minutes?

TESTIFIER 1: Oh, I was going to say, where can you find the agendas, if that's possible? Because it's not loading.

CHAIR JOHNSON: Okay. I can help you with that, but did you want to testify on anything? Otherwise, I'll just give you that information. It's maucounty.us/agenda is where you'll find that at.

TESTIFIER 1: Yeah, I'm on there, but it's not showing. I'm looking at the calendar for today with all the meetings for today. It's not popping up.

**AGRICULTURE, DIVERSIFICATION, ENVIRONMENT, AND PUBLIC TRANSPORTATION
COMMITTEE MINUTES
Council of the County of Maui**

December 4, 2025

CHAIR JOHNSON: Okay. Well, you...I'm sorry. It's...the Internet has been funky, but that...that's where it is, maucounty.us/agendas. Look on the ADEPT Committee of 12/4/2025, and that's where you should be able to find it. Did you want to speak on this?

TESTIFIER 1: But I'll sign up for --

CHAIR JOHNSON: Okay.

TESTIFIER 1: -- do the next one, though.

CHAIR JOHNSON: Okay. Okay.

TESTIFIER 1: Yeah.

CHAIR JOHNSON: Thank you so much. We're going to move on to Jasee Law then.

MR. LAW: Good morning --

CHAIR JOHNSON: Good morning.

MR. LAW: -- Luna Ho'omalulu Johnson. I was kind of interested in what this...this Nāulu Cloud Bridge, the I Ka Pi'o 'Ōpua 'I Nāulu is ADEPT-1(11). That sounds like something like one of those fantasy movies and stuff, but I...I really appreciate whoever did the...and welcome everybody to the Council Chambers. It's very exciting that you guys are here. I stay in Waiakoa Kula Uka, and I'm right on the edge of this. I looked at the...the press packet there. And to The Royal House of Hawai'i, I really appreciate you guys coming in here and testifying and...and grounding everybody. And I hope you stay tuned because I think even you will learn something from this. Okay. I've been here 12 years, and I've been looking for you guys. And like I said, I'm up in Kula, and I go to the community...Kula Community Association meetings. I don't know if you guys are familiar with that, but I haven't had much traction with them. They put me on the recycling committee, but I haven't had much traction with that either. And I appreciate Mr. Cook being here because my represent...he's a close associate of my representative, Yuki Lei Sugimura. And she's...I hope she's watching. She's probably doing something very important.

CHAIR JOHNSON: Okay.

MR. LAW: And I...and I looked at the packet outside, and I really appreciate...and I encourage everybody, stay tuned because this...the presentation is going to be really extraordinary. And I appreciate...I kind of know a little bit of the territory up there, Mr. Johnson, and I know your limahana has a lot to do with what's going on here. And since I feel comfortable with you, and you can cut me off if you want to, but I've been trying to get some community stuff going on up there.

**AGRICULTURE, DIVERSIFICATION, ENVIRONMENT, AND PUBLIC TRANSPORTATION
COMMITTEE MINUTES
Council of the County of Maui**

December 4, 2025

CHAIR JOHNSON: All right. Well, let's stick with this very important agenda, Jasee Law.

MR. LAW: The only community guys --

CHAIR JOHNSON: I know you know me.

MR. LAW: -- I know is the churches, and they're not helping much at all.

CHAIR JOHNSON: Okay. Thanks for that. Any clarifying questions from [sic] our testifier? Seeing none. Thank you so much. All right. Staff, we have one more testifier. I think it's James Langford. Mr. Langford, you're going to testify today? Okay.

MR. LANGFORD: Yes. Aloha.

CHAIR JOHNSON: Aloha.

MR. LANGFORD: Thank you so much. What a fascinating meeting that you guys are doing, Chair, and...and everyone, and Council peeps. So, there is a way to produce water without having to do a huge desalinization on the smaller scale for about the cost of a water meter connection that'll produce 30 gallons a day in our 60 percent humidity average coming in around .002-gallon cost. So, I've posted that on the Facebook in today's meeting, and...and the link for The Royal House of Hawai'i as well. So, that can help your math, and those grants are easier to achieve with the USDA and the CDBG, et cetera, on those scales because you're not going up against...well, you know how the process works. So, the smaller multiples with matching funds seems to...to unlock water in a way that can honor the existing needs for the Hawaiians and everything, you know, that comes after that. So, cool. So, that information will...it'll give you cards so that you can see the apples and apples comparison of how water...how the military would generate water in the desert in a 1 percent/2 percent environment. Well, we're blessed to have 62, and it would also help building the clouds. It's the same...it's technology that I believe our ali'i would use through...I'm sorry, the concept of hi'iaka, or lightning to protect the air and the resources from destruction. So, that would be a cultural tie-in for...for you folks too. So, okay, I hope that math works out for you --

CHAIR JOHNSON: Okay.

MR. LANGFORD: -- and I'm available. Yes, sir.

CHAIR JOHNSON: Thank you, Mr. Langford, for your testimony. Members, any clarifying questions for Mr. Langford? Seeing none. Thank you once again for your testimony. Staff, do we have any other testifiers?

MS. APO TAKAYAMA: Staff has not received any further requests for testimony at this time. Anyone would like to testify, please raise your hand or click on the...by clicking the

**AGRICULTURE, DIVERSIFICATION, ENVIRONMENT, AND PUBLIC TRANSPORTATION
COMMITTEE MINUTES
Council of the County of Maui**

December 4, 2025

raise-your-hand button and pressing star-5 via phone. Would you like me to do a last call?

CHAIR JOHNSON: Okay.

MS. APO TAKAYAMA: Last call for testimony...three, two, one. Chair, seeing no individuals wishing to testify.

CHAIR JOHNSON: Okay. Members, seeing there's no more individuals wishing to testify, I will now proceed with the agenda.

. . . END PUBLIC TESTIMONY AT BEGINNING OF MEETING . . .

ITEM 1(11): REVIVING THE NĀULU CLOUD BRIDGE

CHAIR JOHNSON: And that is ADEPT-1(1) [*sic*], Reviving the Nāulu Cloud Bridge. Members, the rain follows the forest. As we know from historical deforestation and the resulting historic droughts and water shortages, no trees equals no rain. The Nāulu Cloud Bridge, which we will hear about today, is one example. This important cloud bridge once stretched like a constant banner connecting the mountains of Kaho'olawe and Haleakalā. After the damage to Kaho'olawe by military bombings and the clearing of forest from Haleakalā's slopes, the Nāulu Cloud Bridge has disappeared. And as the cloud cover left, so do the rains. But as the rain, koa, or shrines linked from 'Ulupalakua to Kaho'olawe by ceremony show, there is hope for healing if we look at this holistically and recognize the indigenous knowledge of our natural systems and our human place within them. If we consciously steward the land and restore our trees and forests, there is hope that the cloud cover will grow as well and bring life-giving rains that are so needed. This is a generational, historical undertaking. To help us learn more, I have invited Andrea Buckman, Executive Director of Uhiwai O Haleakalā, an organization working with landowners on Leeward Haleakalā to assess landscapes and implement site-specific reforestation plans. Ms. Buckman and her team are boots on the ground, and help provide public and private resources to reverse deforestation. Her presentation team includes CJ Elizares, a cultural practitioner with Protect Kaho'olawe 'Ohana; Dr. Jonathan Price, a professor of geography at the University of Hawai'i at Hilo, and for the Waikoloa Dryland Forest Initiative; Paul Higashino, Restoration Manager for the Restoration Program of the Kaho'olawe Island Reserve Commission; and Akua Po, owner of Po Brothers Incorporated, a long-time resident of Kahikunui [*sic*] Homestead, and a board member of Uhiwai O Haleakalā; and Elama Farm, President of Ka 'Ohana 'O Kahikinui. I've also invited Lance DeSilva from the Department of Land and Natural Resources to provide comments from...for...as our State DLNR Maui Branch Forest Program Manager. Members, if there's no objections, I would like to designate as resource persons under Council Rule 18(A), given their expertise in reforestation and efforts to revive the Nāulu Cloud Bridge, the folks that I just mentioned.

**AGRICULTURE, DIVERSIFICATION, ENVIRONMENT, AND PUBLIC TRANSPORTATION
COMMITTEE MINUTES
Council of the County of Maui**

December 4, 2025

COUNCILMEMBERS: No objections.

CHAIR JOHNSON: Thank you so much. All right. Mister...Ms. Buckman, thank you for being here. Please introduce your team and commence with your presentation. The floor is yours.

MS. BUCKMAN: Mahalo. Aloha mai kākou. My name is Andrea Buckman. I'm the Executive Director for Uhiwai. I'm really grateful for the opportunity to be here. I'm really grateful for the initiative that the Council has put forth. I'm really proud of our...our County leadership at this point, and excited to share with you some of the work we're doing on the forest...in the forest, and hopefully we can help provide a solution that Maui really needs. I have some really key partners here, and this...this initiative is huge. It's going to take so many more than us, but with the time we had today, I've brought some...

CHAIR JOHNSON: Ms. Buckman, can you take the mic and bring it a little bit closer?

MS. BUCKMAN: Sure.

CHAIR JOHNSON: If you could share your voice with us. Thank you.

MS. BUCKMAN: Sure. Is that better? Yeah. . . .*(laughing)*. . . Okay. So I have CJ Elizares. I've...I've known CJ For many years, starting...I think I met him at the rain ceremony at Pu'u Māhoe many years ago. I've known him from voyaging, and most recently doing restoration and collaboration with the team at Mākena. My board member here, Akua Po, is a leader in our community, small business owner, and he's been kind of by my side as a resident of Kahikinui, trying to, you know, resettle a remote homestead. And he's seen a lot of the struggles we've had as a conservation entity, and been a longtime partner, and I'm grateful for his leadership on the board. I have Elama Farm. He's now the president of Ka 'Ohana o Kahikinui, so they're a strong community partner. They're the...the board that represents the residents that live out in Kahikinui, and I think you'll see later, that's a key project site that I believe will be central to this initiative. And then, of course, Paul Higashino, he is one of my kumu, and people I've learned from in over 15, 20 years on Maui doing this...this restoration work, so I'm really honored to be at the table with him and have his expertise, and be able to really collaborate with him in a meaningful way. So, we each have a...a portion in this, and I look forward to sharing with you. CJ is going to start us off with setting the...the context.

MR. ELIZARES: Oh, yeah, first time looking at these slides. Thank you guys. Yeah, so we can just look at the picture on the left...oh, aloha kakahiaka, everybody. If you look on the picture on the left, and you can see that was taken from...from an airplane on one of our flights back, and it shows Kaho'olawe in the foreground and Maui in the background. I really love this picture, which made me really look out the window that day because it really shows all of the pieces that create this Nāulu Cloud. It also

**AGRICULTURE, DIVERSIFICATION, ENVIRONMENT, AND PUBLIC TRANSPORTATION
COMMITTEE MINUTES
Council of the County of Maui**

December 4, 2025

recognizes the other cloud banks and cloud bridges that are coming off of Maui. For this picture, you can see the Alenuihaha Channel on the right, the slide where the words are, and the wind comes off of that channel. Everybody knows the Nāulu wind that comes off of that channel, but in the back there, it comes off and comes up Kaupō and pushes the evaporation off of the surface of the ocean onto the land. The heat from the land in Kaupō and Kahikinui drives it up the...the steep cliffs of Palikū, and it starts to congregate...the water starts to congregate as a...as a cloud, and then it comes over to the Honua'ula, where it meets at Pu'u Makua at about 6,000 feet elevation, and that's the right side of the cloud. The left side of this picture, you can see the kualono coming from Pi'iholo. You can see how it comes from Ukiukiu, another cloud bridge that comes across the isthmus of Maui. You can see a shorter cloud, if you can recognize where Kihei, Kula Kai is in there, and that's Kūlanihāko'i, another cloud bridge. Anyway, those clouds and those water vapors being pushed by the moa'e winds through the Central Valley comes up against the kualono, across Kula, and meets again at Pu'u Makua. We have ceremonies at Pu'u Māhoe, on Kaho'olawe, and in many other areas in Honua'ula to recognize kāne, which is simply all of these winds, clouds, rains, the plants, and most importantly for this is heat. And at Pu'u Māhoe, we call the cloud down, so...and recognize all of its powers, make it heavier, offer it ho'okupu, and call it down so it doesn't fly over Kaho'olawe. Pu'u Māhoe is at 2,222 feet, real easy to remember. Kaho'olawe is about 1,600 feet in elevation. So, if the cloud stays high, which it has been doing because there's nothing to grab onto...well, there is now. I think we'll get into that later. It'll miss Kaho'olawe as a whole. Now, Nāulu, what we're talking about today is just a small part. It is Kalei Nāulu—is the larger name of this cloud bridge—which goes past Kaho'olawe. It goes over to Lāna'i, it goes over to Molokai, and then returns back to Maui. But we're talking about this restoration effort here on Maui because that is the...the beginnings of this cloud, taking care of what we know as Kaupō Gap. Kaupō, Kahikinui, Honua'ula as a whole, the channels that surround it, and then even into the central valley of Maui. All of those things contribute to this. The cultural end is not very different, is not different from the scientific, and these are all the same things. We're just...we're talking about all the same things. The sanctification of this cloud, the sacredness of this cloud comes because we recognize this as life. If we keep on saying water is life, then we need to recognize these things as such. And the...we're going to show some of the work that we're doing to...that honors this cloud. Next slide. All right. Now, these pictures are from Kaho'olawe, and waiaka is...is a reflection. It's a reflection of this cloud and who we are as people. We have all of these ahu or ko'a standing up in different spaces. The...the pictures are from Kaho'olawe now, one from Hakioawa, and the other one at Pu'u Moa'ula Nui. And that's another ko'a. So, that's the receiving ko'a, ka Ipu a Kāne on Kaho'olawe from the previous slide we had, the Nāulu ko'a at 'Ulupalakua. And that we encourage the exchange. And I'm running out of...I went over the...the time that I told Andrea I would take. But what we just wanted to highlight is that everybody at this table here and many other people in the...in the community are these ko'a. We are these ahu that are doing our work. And we're all trying to...to do what we can in our spaces. I, for instance, work in the lower dryland forests of Honua'ula, whereas I don't know what Andrea guys do up in the...up in the mountain above the clouds. But we're trying to, just like this bridge,

**AGRICULTURE, DIVERSIFICATION, ENVIRONMENT, AND PUBLIC TRANSPORTATION
COMMITTEE MINUTES
Council of the County of Maui**

December 4, 2025

figure out connectivity between our different organizations, our different works, and how we can make a continuous bridge not only in the sky with the clouds and the water, but through our networking and collaboration as partners on land, as people, and as conservationists, I guess, if you want to be that. Okay. That's all I get.

MS. BUCKMAN: Mahalo. You know, I love learning. It's never going to stop. And I was taking notes as he's speaking, you know. So, I...I just am so grateful for the opportunity to collaborate with all these people, and hopefully with many more. Thank you so much. So, I first started back in 2004. I was working as a researcher at a college, I studied tropical ecology and conservation, working for Pacific Whale Foundation. I was volunteering up in the mountain. Thank goodness I met Dr. Art Medeiros and started volunteering, and then worked doing whale research for a couple years, and then was able to get...to get hired full time I think in 2007. So, this is all I know. This is what I know and what I do, and I still know nothing. I'm just enamored with this work. It's always a challenge, and it's always inspiring, and I'm...I'm dedicated to it. But at the beginning, some of these things that really inspired me, Auwahi's a wahi pana, learning about what sacred places are, what that...what that truly means. One becomes many, the concept of adaptive radiation, how...how unique and special so many species here are. They're only found here on the entire planet, and the...the ways that they colonized, and arrived here, and then became these unique and diverse assemblages is...is fascinating. Where rigor overlaps with relevance. That's kind of where we look at that role between science and understanding and community. How much do we study versus how much do we do. Learning that Leeward Haleakalā is the epicenter of extinction in the Pacific. We have lost more than any other region in the Hawaiian Islands in terms of biodiversity. So, that's pretty sobering, and humbling, and hopefully inspiring. Uncle Rene Sylva—more better we try something, we already know what happens when we try nothing. I will always be inspired by that. When you think you know, you have no idea. The more we learn, the more we hone our skills, things are changing so fast. We have to stay present with the land and keep...stay humble so we can continue. Kahikinui, auwahi ka makani. This is just an image of basically what Auwahi started as. Art designed it as a square so you could see it. It started as ten acres in '23. You can really see that you can convert degraded pasture land and really decimated native forest back to a native-dominated ecosystem. You can do it. It takes a lot of work, a lot of volunteers, a lot of community, a lot of diligence. Starting small is important, but it's possible. This set the stage for many larger scale restoration projects on Maui, and also has been inspiring for projects across the pae 'āina and across the world. It's a globally-acknowledged site I was fortunate enough to be able to learn from. So, right now, on Leeward Haleakalā, about 5 percent of our native forest is all that's left. Mōhala i ka wai ka maka o ka pua. We know that if we don't have water, we don't have flowers, we don't have happiness, we don't have health, we don't have abundance. So, we're looking at 5 percent. Some of the threats and challenges that we face are erosion with that loss of forest cover. The sediment is sheeting off into the nearshore waters and disrupting reefs, disrupting economic systems, disrupting roadways. Introduced unmanaged animals like axis deer, pigs. On the picture on the left, you can see a couple of pigs got into one of our fences and just did a huge amount

**AGRICULTURE, DIVERSIFICATION, ENVIRONMENT, AND PUBLIC TRANSPORTATION
COMMITTEE MINUTES
Council of the County of Maui**

December 4, 2025

of destruction. We turned that into a positive and started planting into that area because they dug up the soil for us. But ultimately, you're constantly looking at threats. Those...those animals are too much for our native ecosystems. They didn't,...the plants didn't evolve to defend against these types of threats and this type of...of pressure. So, unmanaged animals is a...is a huge problem. Fire, drought, invasive grasses. You're probably very familiar with that. It's a cycle, right? So, the more fire that we have, the more invasive species come in, especially fire and drought-adapted grasses. Most of those were introduced from Africa to be fodder for cattle. So, that was because they thrive in full sun and dry areas. So, they happen to be fire-adapted too. And then the more fires we have, the further those things are spreading up into the native forest. And then you get a picture on the right. You get a storm right after a fire and you see, you know, that's probably tons of sediment. If you can see the tiny truck in the top left, that's tons of sediment flowing right into the ocean in Kahikinui. So, you know, we can have meetings, we bring people together. This is an example of that, I think, after the fire in 2016, and it keeps happening over and over and over again. We're not doing enough fast enough. So, et cetera. Storms, winds, suppression of seed bank, pathogens. We have Rapid 'Ohi'a Death. We've seen it decimate over 80 percent of Hawai'i Island's 'ohia forest. It has been detected on Maui a couple of times. It's something we have to stay vigilant for. The storms...the picture on the right to me is heartbreaking. A kumu koa tree just twisted and...and broken down by the wind. The...the more our forests are...are lost, the more the lack of understory is there, the more winds come in. Those winds are bringing the pathogens like rapid 'ohia death. So, the less stability there is in the forest, it's just more and more exposed and less resilient. But there are some good things. So, that...that forest that's left, that's what we started being tasked with protecting. So, there's still a lot of things, and...and we need to hold on to what we can. So, we started building fences from Auwahi, the 10 acres, 20 acres, 50 acres to Kahikinui. This is a 4,000-acre project site. We have to fly in, fly in these materials. It's hours of time. It's very dangerous. We get to see some beautiful places, but building the fences is very expensive, very hard, then they have to be maintained. But that's what has to come first. You have to exclude the animals and create a...create a...draw a line in the sand, you know, where you're going to start protecting something and hold space for that. We have to build work sites, campsites, to make it safe, as comfortable as we can. That takes a lot of work. We have four of these in the mountain. We develop restoration techniques. You know, we're planting in erosion scars, trying to figure out what's going to survive. We're planting in some areas we have deeper soils, deeper soils also means more weeds. So, every site is different. As much as I learned at Auwahi, it does not apply to anywhere else. Everything is very site-specific. I mean, I use every...everything I learned there, but every site has its own threats, its own amounts of remnant forest, its own weeds. So it's like a...there's no playbook. Over time, Auwahi was 2000...in...in 2004, 10 acres. By 2019, we had over 12,700 acres fenced. And this isn't just us, of course, this is partners across including the National Park, the State of Hawai'i, and private landowners doing their own work. The partnership landscape was set at 3,500 feet and above because that's the headwaters of the watersheds. That's where these landowners dedicated space to hold for future water and cultural economic resources. We're also part of a bigger system. On Maui,

**AGRICULTURE, DIVERSIFICATION, ENVIRONMENT, AND PUBLIC TRANSPORTATION
COMMITTEE MINUTES
Council of the County of Maui**

December 4, 2025

we have three watershed partnerships. Also, there's Pu'u Kukui Watershed, there's South Maui Water...South Maui Watershed Partnership Group. There are a lot more, and it...it's growing. And even across the state now, over 2.2 million acres are held in dedication to watershed restoration through the Watershed Partnerships Program. So, it's a really innovative and collaborative effort that is a voluntary alliance between all these different types of landowners. It enables people to work across TMKs and address issues like fire, and weeds, and things that don't stop at your fence line or your boundary...really allows us to look at things on an ecological level. So, what is Uhiwai? Like CJ mentioned, the slide on the left is something I was playing with after I did a workshop with Papakū Makawalu, and just trying to overlay the cultural understanding of the water cycle with a scientific framework. And it's...it's more than aligned. And the...the Hawaiian perspectives are even more in-depth, and more comprehensive, and intricate, and intimate. It's...it was really fascinating. So, it took me a couple years to figure out the name for the nonprofit, and uhiwai is the dark descending mist. It's the mist that comes in pretty much every day. You folks get to look at Haleakalā from over here. It's really nice to get to see it from a different angle. And you...you notice that cloud almost every day. So, that's the descending mist. And there's a beautiful song by Nathan Aweau that compares this to the hug of a loved one, this...this mist that envelops, and it...it's there, it's consistent, it's nurturing. Uhiwai is also our team. We had to exit our former situation under University of Hawai'i. You know, having fiscal sponsors over all these different years, working under government agencies, working independently, became to be what seemed to me like the best solution...to have more freedom to work with our community, to have more freedom to access funds that you...you can't get by working under fiscal sponsorship. So, has a lot of challenges, and I've learned a lot more than I even want to about it, but I'm really grateful that we're here now, and we have a lot...a lot still to learn. But Uhiwai's also our people, our board, our volunteers, all the partners that make it work. We can run through some of this stuff quicker, but we've been able to secure more money, bigger grants, purchase vehicles in a timely manner, hold leases, hold rights-of-entry that enable us to access funding to help incentivize work on a lot of the private lands. Now, looking at this map, these are kind of all the resources and the areas that we work in. So, it's very spread out. It's a lot of space. It's a huge task. And we're...we're honored to be a part of it. So, I'm just going to go through each...sorry, each of these sites quickly as they relate to, as CJ said, the Nāulu Cloud, it comes together over the tip of right where Pu'u Māhoe is. And so, this is exactly where this landscape sits. So, starting at Pu'u O Kali, this is on Department of Hawaiian Home Lands, 236 acres. This is some of the last and best wiliwili forest left on Maui. Populations of endangered species, there are archeological sites in there. And I think it's central to kind of, as Hina mentioned, making sure that the...the belt of restoration not only stays at that former watershed level of 3,500 feet and up, but that we really consider and work towards connecting areas that we have access to, and that are protected down all the way to the coastline across to Kaho'olawe. Ka'ono'ulu Ranch is another partner. They've done a ton of work to remove wattle and fence off areas. You can see, you know, a lot of you are familiar with the catastrophic flooding that happens sometimes, and the erosion and sediment that comes down slope. So, they're tasked with an immense amount of wattle, which is an invasive

**AGRICULTURE, DIVERSIFICATION, ENVIRONMENT, AND PUBLIC TRANSPORTATION
COMMITTEE MINUTES
Council of the County of Maui**

December 4, 2025

acacia. Sadly, it's a relative of koa. So, we look at replacing that, acacia replacement, you know, getting rid of one and putting in another, but that's going to be a huge amount of work. And with a single species dominating an area, there's...there's not a lot of understory. So, all that rainwater just sheets off, pulls the soil with it, doesn't recharge aquifers, and it is detrimental. Waiohuli, this is a pretty new project. Private landowner we're excited to work with. We've got a lot of planting. We're going to start here. 'Ulupalakua Ranch, they're a founder of the partnership as well. They've been a leader from the very beginning, establishing a wahi, allowing Art and all the different partners to come and...and do a trial plot there, but they want to do more. They really want to do more. And actually, I found this picture this morning. This was in 2014. I was actually flying in the helicopter to work and took that picture. So, I needed one, and it...it was on this very day in 2014. So, I was grateful for that. And it was a good reminder of the things that we still want to do. There's a lot of projects that still need to be completed or started. DT Fleming Arboretum at Pu'u Māhoe. Uncle David's here today. He's just a precious resource and fearless leader managing this critically-important area. It's a refuge for many unique...unique endemic native species. And he allows so much education and engagement. It's really a beautiful place that I'm just beginning to...to work with again and understand. And so, I'm really grateful for that. We had a group of KS students come up, a group from the Kea Lani. It's just a really...it's nice to have an accessible location with such special ecological treasures that we can share. Kanaio Natural Area Reserve. We work with the State here, mostly controlling baconia right now. It's one of the worst weeds on that slope. So, we've killed baconia across over 119 acres so far in that Natural Area Reserve. 'Ahihi Kina'u is an area that we have a right-of-entry to, but we don't work down there yet. But I think it's something that, should this initiative really be taken on, we'd like to do more work there, and support the State's efforts and leadership in that area. It's again, just visually, you can see that it's central to this whole initiative. DHHL Kahikinui, you're going to hear about that a little bit more, but this is the heart of what's left of Leeward Haleakalā. This is where the best remaining intact forest is. It's on Hawaiian Home Lands. They have an entire moku that's...that's within Department of Hawaiian Home Land's ownership, so it's a huge opportunity. 4,500 acres fenced. We're working in smaller units right now. You'll hear more about that later. Nākula Natural Area Reserve is next over. That's...that's an area that has been central to developing restoration techniques. We built this small one-acre fenced area, the square here, to develop different planting spacing for Koa Na 'Ā'ali'i. I think we did that in like 2007. And then after that, the NAR was built. And so, you can see just behind that, the forest starting to fill in. Now it's even filled in more. You can really tell the difference between inside and outside the fences. It's inspiring. Kahikinui Forest Reserve is next, to the east. This is in that area. It's...it's even more degraded, and you can clearly see how much actual, just natural regeneration comes in. There's a lot of planting that goes on here too. And we have to keep adding biodiversity in places that are so eroded like this, but it really does make a difference. Even within five years, this type of revegetation can be accomplished. Nu'u Mauka, Andy Graham is also a board member. He's one of the...the strongest leaders in...in conservation on Maui. I believe he took on building a huge fence in probably the most rugged, difficult terrain I've ever seen, and hiked in, and worked in.

**AGRICULTURE, DIVERSIFICATION, ENVIRONMENT, AND PUBLIC TRANSPORTATION
COMMITTEE MINUTES
Council of the County of Maui**

December 4, 2025

He's really inspiring and supportive. And he's also given us a nursery, a greenhouse, allowed us to develop a seed farm here. Despite all the challenges, he maintains positivity and belief that it's important that we do this work, and everybody plays a role. We're really involved in outreach. That's something I'm proud of with Uhiwai. We really stay tight with our community, and we've been able to...to do more and more with...with the amazing team that I have. Some of them are in the audience right now. I'm really grateful to work with each and every one of them. And it's been fun to see the things that we do now. I mean, a golf tournament? I was...I'm terrible at golf. I never thought that'd be something we participate in, but it's been really fun to be a part of that. We've...we've done some dinners with Mākena, art projects. We have MEO Youth Services come up. This top picture was a group of college students from Aotearoa that came to learn from us. So, we're just really grateful to have the...the freedom to engage with our community. Education's essential for us. I just had a baby. She flew in my belly until six months pregnant when I could barely zip up my flight suit. So, she's going to be another warrior for the mountain, but my family are all educators and public servants. And it's...this is very strongly important to me, and it's really important to our team too. And we're really proud to work with...with our students. I think that's the most important thing...one of the most important things we can do. We've also been able to work with some private businesses. KIA Hawai'i, they developed some of the best top-notch technology to assess ungulate populations using heat-sensing cameras. They can really detect each...you know, each number of individual types of species. And they were able to get that meat able to be fit for public consumption. They're, I think, the only company still in Maui that's able to do that, to take wild meat, and have it approved by Department of Health, and made available to the community. So, they're turning an invasive species into a resource. And even more so after the Lahaina fires, they started the Holo 'Ai program that we're blessed to be able to support. And we provide, I think...I think, by the end of 2024, it was over 16,000 pounds of deer. That's all from...harvested mostly from Leeward Haleakalā, and removing a threat from our ranchers and our agricultural producers and our forests, and turning that into free food for the community.

CHAIR JOHNSON: Ms. Buckman, we...we have three more speakers. So, are you close to wrapping up?

MS. BUCKMAN: Okay.

CHAIR JOHNSON: Okay.

MS. BUCKMAN: Yes.

CHAIR JOHNSON: Thank you.

MS. BUCKMAN: Details matter. We've got over 80,000 plants we're going to plant. And this is our...our slide about some of our costs. This work is expensive. It's remote, helicopter time, seedlings. So, we're looking at one...one camping trip to go camp in the mountain is \$30,000 with a crew of six, helicopter time and seedlings. So prices

**AGRICULTURE, DIVERSIFICATION, ENVIRONMENT, AND PUBLIC TRANSPORTATION
COMMITTEE MINUTES
Council of the County of Maui**

December 4, 2025

keep going up, and I just want to be straightforward about, you know, as much as a nonprofit can do to cut corners and be economically responsible. It's just very expensive work if you want it done right. And the long-term maintenance and everything that's also involved. So hopefully we can talk more about that, but I'm going to pass it on to Akua. He is on our board, and he has just a few other things to share.

MR. PO: Aloha kakahiaka, everyone. My name is Akua Po. As Andrea mentioned, I am a board member of Uhiwai, and a very long-term resident of Kahikinui. I've been out there since I was a little kid, and I've watched the progression of the reforestation efforts. But before I go into this, I just want to give a quick emphasis as to how important it is that we do this. Some of the photos that you saw show the barren grassland with a small fenced enclosure next to it that's thick and lush with native plant life. The uhiwai that Andrea...Andrea mentioned, that cloud that collects on the mountain, it doesn't necessarily rain in the open areas. But when you stand underneath these trees, the old koas that are still there and the new ones that are planted, ground, pouring water, where outside of the tree in the open grassland area, it's bone dry. So, all of these different areas that Andrea pointed out are a small contribution to the greater picture of reviving this cloud, right? The more trees we have, the more water falls, the better for the land. It's as simple as that. But my...my portion of this is really to emphasize, as a small business owner and someone that lives in that elevation where the clouds come, to make this happen, we need immediate resources to work, you know, for...for us to produce a viable amount of native plants to propagate and put in the mountain...we need water at the baseyard. You know, we need electricity. We need a large functioning green and shade house. And all of these things require stable funding, and long-term leases to know that we can continue this work to make it viable. Every small thing that we do will contribute to the bigger goal. You know, like she said, this is a multigenerational goal to restore the Nāulu Cloud, but I truly believe that by taking it one small step at a time, you know, through all of these different groups, all of our collaborated effort, we can achieve it. So, we appreciate anyone's support. We appreciate the Council having us here today. And I just want to say that it can be done, you know...you can literally see the water falling in the areas where we plant the trees. So, that's my portion, you guys. Mahalo, everybody.

CHAIR JOHNSON: Thank you, Mr. Po.

MR. FARM: Aloha mai...aloha mai kākou. I'm Elama Farm, president of Ka 'Ohana O Kahikinui. I'm here today in support of Uhiwai and their reforestation efforts. I'm also here to highlight a little bit about our community, to give you perspective of residents that live in the Nāulu restoration...part of the restoration area, and to give you a perspective on our mindset as independent homesteaders. We are descendants of Hawaiian Home Land pioneers dedicated to protecting and restoring our moku. I always have to pay tribute to the founders of Kahikinui, the ones that pushed to...to open up the 'āina for us, many generations of us to benefit from. So, always mahalo to the Kahikinui pioneers. To give you perspective, we...we have a very

**AGRICULTURE, DIVERSIFICATION, ENVIRONMENT, AND PUBLIC TRANSPORTATION
COMMITTEE MINUTES
Council of the County of Maui**

December 4, 2025

independent mindset because we're so remote. We have completed three County grants. We've received a fourth. And I wanted to give a mahalo to Yuki Lei Sugimura for always being very supportive of...of our community. To give you an example of what we do, we have such a strong volunteer base. With \$25,000, we were able to enclose this community center. Next. And here's a small picture of...of volunteers. The \$25,000 was 100 percent just for materials, and then all the labor is free. And this is...this is pretty much how we approach all our projects. I'm going to highlight...you know, what we're going after is a...is an independent water source. And this is a fog drip project that's been many years in the making. But right now, it's at our doorstep. We have all the money to facilitate construction and implementation. We bought 90 percent of the materials. This...this structure here is a 24 by 24 receptacle where water tanks are in this structure. And this will receive the fog drip once it's installed. And this was through a DHHL grant and a County grant. So, this...this phase, Phase 1, is completed, we're currently working on Phase 2. We recently received...we're part of a Maui Hikina Cohort, Holani Hana, and we received \$150,000 from them. So, we're...we're earmarked and geared up to...to do construction, and we're just waiting for a few administrative things from DHHL. Here's a schematic of an overland. It's kind of hard to see, but the...on the bottom left is the fog drip catchment area. And it's...there's a 1,000-foot elevation between the structure...the water tank structure and the catchment area. And it'll have an overland pipeline of a few thousand feet of pipe that'll go towards the...the water tank structure. Data shows...we have a weather station there, and on an optimum day, we can collect 2,000 gallons of water per day. We're also working on a DLNR fire mitigation corridor in collaboration with them. The proposal is to build a fire corridor from our main gate out towards Kaupō, a 300-foot-wide buffer too, and then we're going to put grazing animals in the corridor to address fire mitigation. This all leads us to supporting an Uhiwai reforestation project. Then that's...we're...we're looking at our Kahikinui moku, and the area on the top left in purple is 4,500 acres. So, we have a tremendous opportunity to restore a huge portion of our mountain. And we're approaching this through a western lens and a cultural lens as we...we view our moku in a way like as a konohiki would. And it's our responsibility to restore our moku and restore our watershed. And this all will affect us directly by having us have a sustainable pure water source. Also, like in the recent fire in August of this past year, that area circled in red highlights the density. This is a cultural sitemap of different cultural archaeological studies that's been done in Kahikinui. So, the area in red, you can see how dense the...the cultural sites are in that area. This next slide is a little hard to see, but this is like a photogrammetry aerial view of Kahikinui and where the fire was. The areas in blue are bulldozed paths. And...and if you blow up the photo, you would be able to see all the historic structures in this area and...and near misses, and unfortunately, sites that were destroyed. So, as...as a community, we're taking a stance to protect our community through buffer zones and...and fire breaks, but also not allowing any future bulldozers to come into this area because we need to protect it. Sorry, lastly, just to break up the ice a little bit, this guy might look a little familiar, but as you know, Episode 1 for *Chief of War* was filmed in Kahikinui. Mahalo.

CHAIR JOHNSON: Wow, that's fascinating. Well, okay, that was great. Is there any more?

**AGRICULTURE, DIVERSIFICATION, ENVIRONMENT, AND PUBLIC TRANSPORTATION
COMMITTEE MINUTES
Council of the County of Maui**

December 4, 2025

MS. BUCKMAN: Now, it's Paul Higashino . . . *(inaudible)*. . . from Kaho'olawe.

CHAIR JOHNSON: Okay. We have about five more minutes. So, if we can move this along.

MR. HIGASHINO: So, Andrea, if we can go to the slides really...well, really fast. Again, I'm Paul Higashino, Kaho'olawe Island Reserve Commission. I've been working out there since...first time 1978, worked for a contractor for the military. And the...the amount of change I've seen on Kaho'olawe has been tremendous. And everyone contributes the destruction of the island to the military. The island was gone before that. The cattle, the goats, the sheep. You know, again, sheep, cattle, goats introduced 1793. The last one was removed 1993, so 200 years. And if we can't get to my slides, I think what I want to focus and emphasize on is that, you know, what happened to Kaho'olawe is happening to all the other islands, and it will. I look at Kahikinui. I look at, you know, from the deer on...on Maui from nine...in 1959, Pu'u Koli'i. Now we're what, 100...150,000? And when I first went to Kaho'olawe in 1978, the high water mark after heavy rains on the beaches was goat pellets. And, you know, I'm sure that will be happening soon in many of our beaches for the tourists...or, you know, where we like to, you know, go to and have...you know, take our families. And, you know, yeah, I can't overstress the importance of the animals on our islands. Again, once we lose our watersheds, we lose everything. As far as Kaho'olawe, it was a bombing range for 50 years by the U.S. Military. Every type of ordnance has been dropped on it. So, some of the activities we do out there are very limited. You know, we do support the cultural practices, the Protect Kaho'olawe 'Ohana, and other groups that come out. We support the opening and closing of Makahiki. And as CJ talked about early, the Ipu a Kāne, the rain ceremonies that we've been conducting on the island since 1997. We have three rain ko'as out there--Ipu a Kāne, Lihau'ula, and Lepua. So, our ceremonies are typically done...are done in every October. A lot of the...all of the plants that we use on Kaho'olawe are native-based, or native plants, or Polynesian-based canoe plants. One of the biggest challenges for us is the hard pan of the island of 28...28,000 acres-plus...well 13,000 is just like asphalt. And with this potential funding that we may be getting to reestablish the Nāulu Cloud Bridge, most of our area will be in areas where we cannot dig holes at all. So, it's...it's actually pretty easy planting without digging. Again, these areas, the level of ordnance clearance was just surface. So, there's still a lot of ordnance...well, potential ordnance underground. So, that's some of our limitation. Just go through the slides really fast. . . *(inaudible)*. . . bombing range. Go to the next one, Andrea.

CHAIR JOHNSON: I think Staff is working on that.

MR. HIGASHINO: Okay. Okay.

CHAIR JOHNSON: So...

MR. HIGASHINO: Kaho'olawe, we're a State commission under the DLNR. Keep...keep going. 28,600 acres. You know, we...the cultural importance of the island. Artifacts, the

**AGRICULTURE, DIVERSIFICATION, ENVIRONMENT, AND PUBLIC TRANSPORTATION
COMMITTEE MINUTES
Council of the County of Maui**

December 4, 2025

adze quarry, we support a lot of cultural activities. The Hōkūleʻa, the Polynesian Voyaging Society, military use of the island. You know, I think what helped us, you know, we came up with different plans, a use plan for the island. What...what areas are we going to, you know, focus on and for clearance? What areas are we going to use? Okay. Next. That's the level of clearance. Yellow is surface cleared, red are uncleared. Green are the only areas that we can, you know, dig in. Okay. Risk management plan...you know, how to minimize risk on the island. Because besides the bombs on the island--next--it's getting people there. That's how we get people to the island. Landing craft...on a landing craft, we...we take the volunteers out to Kahoʻolawe and staff. And with that, next. We have a base camp. We provide all our own...supply our own energy out there, photovoltaics, produce our own water. We are able...we run...keep volunteers safe and housed out there. Okay. The different plans that we do have on the island, the ocean plan, restoration, cultural plan. Cultural plan, again, supporting Native Hawaiian practices. Makahiki, the Ipu a Kāne rain ceremonies. The ocean program, monitoring and protecting our ocean resources. And some of the erosion now that we have to deal with, the mass amounts of runoff after heavy rains. Wind erosion. And that's a lot of the area that, you know, the potential funding we're looking for would be trying to bring back, or plant those type of areas. We have facilities on the...we have a water catchment. Right now, we are working with the County on developing a water development plan for the island. You know, native plants. You know, there's a lot more plants that we do use besides that handful. Okay. And again, just, you know, creating the cloud bridge, you know. The Haleakalā off in the distance. And just, you know, some of the results of our planting where this area, we could not dig at all, but fairly successful. Again, using the resources that we have out there. What did the Polynesians use? What did people from centuries ago do to establish plants in difficult areas? A pile of rocks. And again, just some of the other areas that we worked in by throwing out rocks, throwing out seed and, you know, occasional water, watering, walking away. And some of the monitoring we do to measure our results, soil erosion, water infiltration rates into restored or planted and nonplanted areas. We're measuring sediment and turbidity around the island after our work areas. Okay. Biggest thing is fire on the island right now. The 2020 fires burned the island about 10,000 acres. Again, we're working with DOFAW. They're helping us put in fire aprons to protect our infrastructure on the island...rock aprons around our key infrastructure. So, okay. So, so far, about 25,000 volunteers over the last 30 years, roughly. About half a million plants. We've only hit a few bombs. None have gone off, fortunately, yet. Okay.

CHAIR JOHNSON: Okay.

MR. HIGASHINO: And the future. Okay. Thank you. Mahalo.

CHAIR JOHNSON: Thank you so much, Mr. Higashino. Well, it was...is it...that's the end of the presenters for now, yeah, Miss...Ms. Buckman?

MS. BUCKMAN: I had one more presenter that couldn't be here.

**AGRICULTURE, DIVERSIFICATION, ENVIRONMENT, AND PUBLIC TRANSPORTATION
COMMITTEE MINUTES
Council of the County of Maui**

December 4, 2025

CHAIR JOHNSON: Okay.

MS. BUCKMAN: I have just a couple slides from Dr. Jon Price about some of the science-based direction --

CHAIR JOHNSON: Sure.

MS. BUCKMAN: -- of the restoration. Do I have a few minutes?

CHAIR JOHNSON: Okay. We'll try to make it a little quicker so we can get through our agenda.

MS. BUCKMAN: Basically Dr. Jon Price works for UH Hilo. He's been a longtime colleague and collaborator. He will be available as a resource to the Council, and is a...going to be a partner for us in all this restoration work for...for years to come. Thank you. So...okay. Perfect. So, these slides are...are some of the things he's...he's prepared. He looks at climate change restoration on Hawai'i Island. He is, like I said, a professor at UH Hilo. So, this looks at rainfall right now. And if you see the area we're looking at, it's all in the orange for the most part. So, this is extremely dry. These are millimeters of water. So, extremely, extremely dry. Very difficult to restore, even in...you know, even when you do have access to water, it's very difficult. This is the cloud cover though. So, what we were trying to...what we would like to continue developing in partnership with him is to really look at the cloud cover. And if you look at this, in that same area, it's very high level precipitation. So, we have a lot of access to water, like through fog drip interception, which is how koa evolved, which is how most of our leeward rainforest or ecosystems get their rain and their water. So, you know, we were just going to continue to look at these maps and try to hone our restoration in order to best utilize the cloud cover and help focus areas of restoration so it will benefit the cloud system the most.

CHAIR JOHNSON: Okay. Thank you. Let's see if Mr. DeSilva is on...is on the call from DLNR. Mr. DeSilva, are you here?

MS. MCKINLEY: Chair, we haven't seen him.

CHAIR JOHNSON: Okay. Well, you know, of course, they're always welcome to join us, but right now, I just want to...before we move forward, I want to talk about...you know, my office initiated this...this Committee meeting, of course, and reached out to Andrea to find out how we can recreate the Nāulu Cloud Bridge, and are very appreciative of the team that she's pulled together. I look forward to working with her. And I think this is where we need to be investing, and I'm...I'm planning to plant the seed for next year's budget. So, Members, in case you're wondering, look forward to this being, you know, a part of our budget discussions. So, I just wanted to thank you guys for your excellent presentations, and we're going to move on to the Administration. We have a lot of folks here from the Administration, so we're just going to start with Deputy

**AGRICULTURE, DIVERSIFICATION, ENVIRONMENT, AND PUBLIC TRANSPORTATION
COMMITTEE MINUTES
Council of the County of Maui**

December 4, 2025

Director Petersen. Any comments on the slide, on the Nāulu Cloud Bridge, on any things on this topic?

MR. PETERSEN: Thank you...thank you, Chair.

CHAIR JOHNSON: Thank you.

MR. PETERSEN: Ms. Buckman, some amazing work. It's a daunting task when you look at some of these maps, and amazing work has been done, but so much more to do. So, congratulations to what has been done, and your team has done some excellent work there, definitely. Something that resonated with me, Mr. Elizares said is, you know, talking about bridges, not only the cloud bridge, but bridging people and organizations, that was something that really hit home for me. And, you know, talking about the magnitude of this project, not one person, or not one organization, not even just the County can get something like this done. So, you know, looking forward...DEM is looking forward to supporting and doing what we can to support your organization, and many of the organizations here. I'll turn it over to Cecile and William if you have anything else you want to add.

CHAIR JOHNSON: Sure. Cecile, William, from Department of Environmental Management and Sustainability Division, do you guys have any opening remarks?

MS. POWELL: Aloha. Thank you, Deputy. Thank you, Chair. Yes. We are very excited to partner with, and we have partnered with some folks already to reestablish this cloud bridge. It's interesting how so many different organizations and grantees are...play small parts in the big picture of what is needed to make this big venture happen. And we're here for the long haul. EP&S has been growing. Our team is 13 strong now, and we are getting well-oiled, machined, and ready for the next year's grant season. And a lot of the Sustainability Grants--Wetland Restoration Grants and Green Grants--coincide with our Climate Action Resiliency Plan. That is going to be updated here soon to include, you know, these types of projects with water resources and natural protection of...of this project, and other ones like it. Okay. Thanks.

CHAIR JOHNSON: Thank you so much. Okay.

MR. JAY: Hello, everybody. I don't have too much to add to what Cecile already provided. It's been a pleasure to meet a lot of you today so far. I will say that in...you know, and thank you, Andrea, for providing your presentation. As many of you might all know, the Climate Action Resiliency Plan was adopted, put into County Code back in 2022. It looks like we're updating it about every five years. And part of what was placed in the ordinance through the County was including Native Hawaiian knowledge and practices, which is something that needs to be integrated and at the forefront, as well as rooting things in the best available science. So, I appreciate your presentation where it combines those two together. And so, I mean, hopefully, the people that are updating this Climate Action Resiliency Plan in the coming year will talk to people like

**AGRICULTURE, DIVERSIFICATION, ENVIRONMENT, AND PUBLIC TRANSPORTATION
COMMITTEE MINUTES
Council of the County of Maui**

December 4, 2025

you, watershed partnerships, and so forth. I'm very curious to read the...the science behind what you've developed to date. That's all I really have to add though.

CHAIR JOHNSON: Okay. Thank you, Mr. Jay. Appreciate that. Let's move on to Mr. Hart. Any comments from the Department of Management or Office of Recovery? And just to let everybody know in advance, I'm going to call on Director Molitau after you, and then Director Stufflebean so we can just get . . .(inaudible). . .

MR. HART: Aloha, Chair and Members. Thank you very much. Thank you very much to all the presenters. It was a lot of great information. The Office of Recovery does have two projects in the Lahaina Long-Term Recovery Plan that...that relate to this. They're not...they're not directly in the Honua'ula area, but they're abutting in the Kula moku, and also in Lahaina. There's a revegetating and reforestation of Lahaina and Kula, and there's a Hawaiian watershed planning within the Lahaina and Kula mokus. And so, we're preparing to pursue those, and I look forward to collaborating and working with all of you as we pursue those.

CHAIR JOHNSON: Yeah.

MR. HART: Mahalo.

CHAIR JOHNSON: Yeah, and I'll also add that, you know, my office and myself, I like collaborating with the departments and working with you...with everybody here at this table so we can all, you know, not work in silos, and one team, one dream, right? Okay. Let's move on to Director Molitau. Any comments from the...from the Department of 'Ōiwi Resources? Good morning, Director.

MR. MOLITAU: 'Ae, welina mai ke aloha iā kākou a pau e 'ākoakoa pū mai nei i kēia kakahiaka. Aloha nō. On behalf of the Department of 'Ōiwi Resources, thank you very much for the presentation. I will say this...this presentation and this conversation reminds me of a conversation of my time with Kaho'olawe Island Reserve Commission alongside with Paul Higashino of the amount of years that this conversation has been happening, and the amount of work that is entailed. You...if you know Paul, he is one that...that is...is an amazing land steward, and...and a person that is fundamental in...in the reforestation and planting of...of an 'āina. And so, when we talk about...about this particular conversation of bringing back Nāulu Cloud bank, and that particular manifestation from one cultural perspective, I would...I would highly, highly suggest from...from this 'ōiwi lens that we look at oli, and we look at traditional chants and oratory of history as a roadmap that can continue to help bring...bring this cloud bank down with...with the needed spaces of forest that needs to not only be brought down from the mauna, but also brought...brought up from makai. And so, when we're thinking about bringing...bringing this particular cloud bridge back in...in a long lengthy conversation, I think both go hand in hand. So, looking at Honua'ula, both from a mauna perspective down as well as a makai perspective up is...is something that I would like to include in the conversation. Mahalo nui.

**AGRICULTURE, DIVERSIFICATION, ENVIRONMENT, AND PUBLIC TRANSPORTATION
COMMITTEE MINUTES
Council of the County of Maui**

December 4, 2025

CHAIR JOHNSON: Well said, Director Molitau. Really appreciate your comments. Okay. Let's move on to Director Stufflebean. He just turned his camera on. Any comments from the Department of Water Supply, Director? Good to see you.

MR. STUFFLEBEAN: Good morning. Good to see you. Yes. This is very, very interesting. I...I did like to comment about...about taking advantage of the wisdom from both the cultural perspective and the western perspective, and blending those together, and making the best solutions. So, that was great. This is a really good complement. As you know, we do...about 4 percent of our budget goes to watershed restoration and watershed protection. And, you know, we can't do it in this area because there's no access to any of our current water supplies. So, this is a great... (*audio interference*)

CHAIR JOHNSON: Oh, shoot. Uh-oh.

MR. STUFFLEBEAN: ...that are connected to. Oh, are you losing me?

CHAIR JOHNSON: One...one moment, Director. I got a little Internet issue. It seems...

MR. STUFFLEBEAN: Okay.

CHAIR JOHNSON: I think...can everybody hear us? Everybody else online? You guys can? Okay. I think we're good to go. Please continue. Beg...beg your pardon, Director.

MR. STUFFLEBEAN: Oh, no worry. I was almost done. I just...I just say that, you know, again, I think it's a great complement to the work that we're doing in the watersheds that are connected to our...to our water system. So, we're supportive and look forward to seeing some positive results. You know, I would add that I do think that the watershed protection work and restoration work that we're doing is probably the most important thing that we are doing, but it's just...it's just longer term than the other stuff. So, thank you.

CHAIR JOHNSON: That's right. Well said, Director. Exactly. Okay. So, we also have, from OED, Chentelle Rowland, if she's on the call? We were curious about her comments from OED and how we can develop our kama'aina economy to include green jobs that will support the reviving of the Nāulu Cloud Bridge. Ms. Rowland, are you on the call?

MS. MCKINLEY: Chair, we don't see her right now.

CHAIR JOHNSON: Okay. All right. Well, all right. Let's move on. I think that's everybody. I didn't miss any departments or anybody. I don't see that I missed anyone. We're going to move on to public testimony just for ADEPT-1(1) [*sic*]. At this time, if there's anyone wishing to testify on this item, please use your raise-your-hand function, and you will be called upon to testify. Staff, is there anyone wishing to testify?

MS. APO TAKAYAMA: Chair, the only individual currently signed to testify is Richard Kekiwi.

**AGRICULTURE, DIVERSIFICATION, ENVIRONMENT, AND PUBLIC TRANSPORTATION
COMMITTEE MINUTES
Council of the County of Maui**

December 4, 2025

CHAIR JOHNSON: Mr. Kekiwi, are you ready to testify? *(pause)*

. . . BEGIN PUBLIC TESTIMONY FOR ADEPT-1(11) . . .

MR. KEKIWI: Aloha. My name is Richard Kekiwi. I'm a lineal descendant of the backside. I'm just here as a community member. I say lineal descendant of the backside because my grandpa, my great-grandpa was from Kaupō. My great-grandma was from Mākena. So, all 'Ulupalakua. I was raised on the ranches, Ka'ono'ulu, 'Ulupalakua. But I'm just here to speak for myself. And I didn't graduate college, so this is experience, not expertise. But in 2009, I graduated. There was seven natural area reserves at the time. We added Nākula in there, and then I was there. I got the opportunity to be there in the very beginning and see all of that. When we first started, we started with the 420, we called it. It was 428 acres. That's the historic forest. We fenced that off first, eradicated the animals, started out planting from there, and then we just expanded. I don't know how many hundred thousand plants were put up there, but hundreds of thousands of plants were put up there. Recently, I had the opportunity to go back to that area and walk the fences. And it was just so beautiful, like seeing these triple overhead koas that we planted. And it was all grassland when I first went there, hundreds of thousands of goats. And just...you could smell the nitrogen coming out of the soil. And just like to know that we did it, we like made a difference. I...I teared up. I cried. So, I just want to say, I support Kahikinui restoration and reforestation. And with this initiative, you guys have the opportunity to do more than I could in 16 years. So, thank you guys. Thank you, Gabe, for starting this. And I believe that Kahikinui is that missing link. There's Hanawī, has all this moisture. We bring that moisture around the mountain, it will shoot across to Kaho'olawe. From Kaho'olawe, it'll go to Lāna'i. It'll go to Molokai. It'll reach Pu'u Kukui. It's all one, you know? And thank you guys for this consideration. That's all I got to say.

CHAIR JOHNSON: Let me see if we have any clarifying questions from our Members, but I don't. But I really appreciate your testimony. Thank you so much.

MR. KEKIWI: Thank you, guys.

CHAIR JOHNSON: Well said.

MR. KEKIWI: I'll write something too.

CHAIR JOHNSON: Okay. Great. Staff, do we have any other testifiers?

MS. APO TAKAYAMA: Chair, James Langford signed up for this item as well.

CHAIR JOHNSON: Mr. Langford?

**AGRICULTURE, DIVERSIFICATION, ENVIRONMENT, AND PUBLIC TRANSPORTATION
COMMITTEE MINUTES
Council of the County of Maui**

December 4, 2025

MR. LANGFORD: Hi. I up-- . . .*(inaudible)*. . . I updated the...some grants for the projects being presented today on the Facebook page. And they should help actualize another 2.5 million for these projects, if possible.

CHAIR JOHNSON: Great.

MR. LANGFORD: And the...yeah, yes, sir.

CHAIR JOHNSON: Thank you for that. Any clarifying questions, Members? I see none. Thank you for your testimony, Mr. Langford. Staff, do we have any more testifiers?

MS. APO TAKAYAMA: Chair, Staff has not received any further request for testimony. Would you like us to do a last call?

CHAIR JOHNSON: Last call for any testifiers? Seeing none. Members, any objections to...I will now close public testimony for this item. Any objections, members?

COUNCILMEMBERS: No objections.

. . . END PUBLIC TESTIMONY FOR ADEPT-1(11) . . .

CHAIR JOHNSON: Okay. Let's proceed with this agenda. We're going to jump into discussion here. I propose three minutes per Councilmember for each round of discussion. How about we do one round, and then we'll take a quick recess for morning...morning break. So, Vice-Chair Sinenci, first round of questions, three minutes.

VICE-CHAIR SINENCI: Mahalo, Chair. And mahalo for all of the presentations and the presenters today. I did miss a little bit while I had some Internet issues, but great work. And just to...mahalo for the update, just to see the progress through...throughout the year. So, mahalo for all you...you guys' perseverance and...and continuation in your conservation work. And I think sometimes when...you know, what is...when we think about our identity as, you know, Maui Nui, I mean, conservation work is a big part of it. So, again, mahalo for...for keeping up the fight. As...as legislators, we do attend a lot of conferences outside of the State, and so one of the people that we do meet is the REPI Program, and I was wondering if any of the work with...I believe, REPI is with the military, if anyone works with them.

CHAIR JOHNSON: Anyone here on the panel has ever worked with the REPI and the military folks? I don't see...oh, they're...they're shaking their head no, so...

VICE-CHAIR SINENCI: Oh, okay. And then...

MR. HIGASHINO: . . .*(inaudible)*. . . I think with the military, I've worked with some of them on the...the Schofield, Kapua Kawelo that manages the Army Environmental Program,

**AGRICULTURE, DIVERSIFICATION, ENVIRONMENT, AND PUBLIC TRANSPORTATION
COMMITTEE MINUTES
Council of the County of Maui**

December 4, 2025

Schofield, West Range, Makua, and other military lands. I've had quite a bit of work experience on all military lands in Hawai'i, many years ago, Pohakuloa, West Range, Kauailoa, Schofield Barracks, so familiar with many of their lands. A lot has changed in 49, 50 years. So, you know, again, I do have contact with, you know, the Kapua Kawelo that manages Army environmental areas on a typically monthly basis on different topics.

COUNCILMEMBER PALTIN: That one is Department of Defense, I think.

VICE-CHAIR SINENCI: Yeah, and...and I only bring it up, Chair, is because they...I think one of their projects is working with one of the nonprofits along the Haleakalā slope.

CHAIR JOHNSON: Okay.

VICE-CHAIR SINENCI: But for Mr. Paul, as far as Kaho'olawe and the KIRC, do...do we still receive funding for the cleanup of Kaho'olawe?

MR. HIGASHINO: There's no funding for the Kaho'olawe UXO cleanup at this time. You know, we're still on the books. Any UXO that's found by us is the responsibility of the military to take care of. But at this time, there's no active clearance of the area. All of our staff are trained, access (*phonetic*) guides...you know, not EOD status, but just how to recognize, how to...what to record, how to avoid any type of ordnance. Yeah. Yeah.

CHAIR JOHNSON: Okay.

VICE-CHAIR SINENCI: Okay. Thank you for that. Thank you, Chair.

CHAIR JOHNSON: All right. Thank you, Councilmember. Let's move on to Committee...Committee Member U'u-Hodgins, followed by Councilmember Cook.

COUNCILMEMBER U'U-HODGINS: Thank you, Chair. I'm not too sure if I have any questions, only because that was a lot of information. All of it was so good and so interesting. I guess my question is for you. I'm assuming you're having this on the agenda because you're going to have them as one of your budget priorities in a few months, which I'm super...I'm assuming. We can't really discuss it, but I'm just going to assume. I'm super stoked about it. I think this is great. I'm actually looking--since I'm sitting next to my bookshelf--at Nā Mea Kahiko o Kahikinui, which is the sites of archaeology since it was discussed there. My husband was a contributing author in here. So, he's going to be super stoked that I'm reading this right now. But other than that, I really don't have any questions. And thank you for having this on your agenda.

CHAIR JOHNSON: Of course. Thank you, Councilmember. Okay. Let's move on to Councilmember Tom Cook, followed by Chair Lee.

**AGRICULTURE, DIVERSIFICATION, ENVIRONMENT, AND PUBLIC TRANSPORTATION
COMMITTEE MINUTES
Council of the County of Maui**

December 4, 2025

COUNCILMEMBER COOK: Thank you, Chair. My battery died, so I'm not online, but I'm here. And I'm looking forward to the break so I can plug it in. I'm...I just want to thank everybody. I want to thank you, Chair. I want to thank everybody here. This is, without a doubt, the most pleasant, positive, cool, wonderful Council meeting that I've experienced in a long time. And the fact that the collaboration and cooperation of everybody, I mean, I get chicken skin. Planting trees is a big thing for me. I've planted a lot of trees in my life. And that old Chinese proverb, you know, when's the best time to plant a tree? 20 years ago. What's the next best time? Today. I...I would hope and encourage more before-and-after photos, like a picture's worth a thousand words. And to capture people's imagination, and to get them emotionally involved when you show pictures of this is what it looked like in 15 years ago. And then you get testimonies from our young blood, from the bruddahs who had actually grown up and experienced it. So, for me, for the West Maui...South Maui representative, the opportunity to have been working with Michael Reyes from Mālama Haleakalā, the fact that the three ranches are collaborating, nonprofit, to be, you know, very willing land stewards who recognize their kuleana to...to work with and enrich the land. All the grazing, a lot of...and a lot of things have gone bad, and we have the opportunity to fix it. Tova Callender from the Ridge to Reef project. They're doing really good work. I'm a retired contractor, carpenter by trade. My...my passion is to basically be able to do flood mitigation in North...in South Maui, especially in North Kihei. Capture the floodwater, major retention...detention terraces, recharge the aquifer, having stormwater storage, and then utilizing the R-1 water. Mālama Haleakalā working...got a tentative commitment, 500,000 gallons a day would be available for a three-million-gallon reservoir that Haleakalā Ranch guys said a 1,000-foot elevation. And, you know, appropriate use of bulldozers, excavators, and stuff to do the civil work, and working with the sensitivity for the replanting and whatnot. But anyway, I'm all in.

CHAIR JOHNSON: Yeah.

COUNCILMEMBER COOK: I'm stoked. Finally, I'm stoked. We get to do something together, and it's...we owe it to our kids. I'll just...my boy Kamalei has a property on Awalau that I had the good fortune to buy when I was young. And the trees we planted with soil conservation are like this. I planted them two years before he was born. He's 49. Him and his...my grandson. So, it's not just talk. My heart's in it.

CHAIR JOHNSON: Yeah.

COUNCILMEMBER COOK: And every single one of you, the sharing and the diversity is awesome. So, I don't really have any questions . . . *(timer sounds)*. . . because you did a really good presentation. I mean, it's epic. And I did get a chance to go up a Haleakalā Ranch tour and see the koas planting, and the description of the, I guess, mono carpet...monocrop style they tried that didn't really work out. Now doing independent with the koa trees. And a lot of good things happening. I think we just have to be patient, keep our hearts open, and pray.

**AGRICULTURE, DIVERSIFICATION, ENVIRONMENT, AND PUBLIC TRANSPORTATION
COMMITTEE MINUTES
Council of the County of Maui**

December 4, 2025

CHAIR JOHNSON: Yeah. Well, it's going to take a big investment to do some of the things, and they're not going to happen tomorrow. That's the whole point. But, you know, it's helping our kid's kid's kids, right.

COUNCILMEMBER COOK: Those of us who are blessed with children --

CHAIR JOHNSON: Yeah.

COUNCILMEMBER COOK: -- can see the future through their eyes.

CHAIR JOHNSON: Amen to that. Okay. Let's move on to Chair Lee, followed by Councilmember Paltin.

COUNCILMEMBER LEE: Thank you, Chair Johnson. I, too, am very grateful and appreciative of this effort, this wide range of resources coming together in partnership and cooperation. And it's...it's enlightening and encouraging to see, considering we don't always see this type of cooperation in other areas. But this is great, you know, everybody trying to work together for the community's benefit. Unfortunately, I'm not going to be able to see the second presentation. I didn't realize the meeting would run this long. I have an appointment at 11:00. But I'm sure I can catch up with your notes later on. Thank you.

CHAIR JOHNSON: All right. Thank you, Chair Lee. Let's move on to Councilmember Paltin.

COUNCILMEMBER PALTIN: Thank you, Chair. I think my questions might be for Mr. Farm, is that the Ka 'Ohana O Kahikinui, about the fog drip. Clarification, was it \$100,000 to make 1,000 gallons a day? And can that be recreated in any ecosystem?

CHAIR JOHNSON: Mr. Farm?

MR. FARM: Shoot, I'm sorry, I'm...I'm not sure what the question is. Our...our data shows that we can collect 2,000 gallons a day on an optimum day. And then the money that I highlighted was just to address installation of our fog drip...fog drip system.

COUNCILMEMBER PALTIN: And like could that be done in Wahikuli or is it specific to Kahikinui?

MR. PO: So, if I may, I can answer your question briefly. I've been involved in the water catchment project since, I want to say, 2018 was when Dr. James Juvik from UH first came over to reintroduce a grant that was actually originally written in '99. But to answer your question, the fog catchment is a very elevation-specific project. Generally, above 4,000 feet is where you find it more effective. Even higher, between 4 and 6,000 feet is the most effective range to create fog drip, as well as somewhere that has prevailing trade winds. Because the system works through the uhiwai cloud being blown through the fog nets where the water will collect and drip into gutters that can

**AGRICULTURE, DIVERSIFICATION, ENVIRONMENT, AND PUBLIC TRANSPORTATION
COMMITTEE MINUTES
Council of the County of Maui**

December 4, 2025

run down. So, this system can be applied in many different locations on Maui, but again, it's all elevation and wind-dependent.

COUNCILMEMBER PALTIN: Do you have the schematics and...of how...how...how it's built?

CHAIR JOHNSON: Mr. Po?

MR. PO: I do not have it with me, but we do have that information available.

COUNCILMEMBER PALTIN: Okay. Thank you. And then the other question I had was...shoot, I forgot what the meat process was called that allows the deer meat to be certified. Was it by sight or camera?

CHAIR JOHNSON: Ms. Buckman? Or, I'm sorry, I'm not sure. I thought it was Ms. Buckman, but anybody can respond to that.

MS. BUCKMAN: I...I believe they went through a process with the State veterinarian and Department of Health to be certified. Their whole team had to be trained and certified. I'm not entirely sure exactly how it works, but I know it was a very lengthy...lengthy process to go through with Department of Health, and took a lot of training. And you have to have the timing. The animals have to be killed and processed within a very quick amount of time, so there's some limitations to it. But I could connect to...or KIA Hawai'i would be the best. Maui Nui Venison could answer those questions in more detail.

COUNCILMEMBER PALTIN: Okay. And then my other question, I think, is for Mr. Higashino, is...Kawelo is your son? I think I had him for a junior lifeguards.

MR. HIGASHINO: Yes, he's my son. . . .(laughing). . . And also one of the main grasses we plant on Kaho'olawe.

COUNCILMEMBER PALTIN: Nice, nice. That wasn't my question, but I just was curious. Is there like a constant...I never went to Kaho'olawe. Is there like a constant presence there, like somebody lives there at all times and is continuing the work, like rotating, or whether that's somebody's address?

MR. HIGASHINO: You know, right now, our Honokanai'a Base Camp, you know, because of limited funding, it's not fully staffed all the time. So, you know, with additional funding, you know, we could increase the presence of people on island. Typically before, in a good year, we could take about 800 . . .(timer sounds). . . to 1,000 volunteers out to island. But because of our cutbacks, and reduction in staff and monies, we're down to about 400 or 500 volunteers a year. We still, you know, again, take out the public, whoever waits on our waitlist and, you know, follows through with all the...follows through with all the paperwork.

CHAIR JOHNSON: Hmm. Okay.

**AGRICULTURE, DIVERSIFICATION, ENVIRONMENT, AND PUBLIC TRANSPORTATION
COMMITTEE MINUTES
Council of the County of Maui**

December 4, 2025

COUNCILMEMBER PALTIN: Thank you. I heard the bell. I had one more question, but I can wait until the next round.

CHAIR JOHNSON: Okay. I'll...I'll go next, and then we'll go for a second round by hand raise. So, you know, Members and everybody here, this...this type of project, this type of work is not cheap. But if we don't do it, the cost is even more expensive. So, I guess I'm trying to prep the...the Council and the administrators that when we...when I put in a priority for this type of work, it's not going to be a small ask. It's going to be in the millions. Understand what we're trying to do here. Because you're trying to change...untie the knots of just mismanagement for years and years, and the compounding of just not taking care of the 'āina. If we would have done it in the beginning, it would have been a whole lot cheaper. But here we are in 2025, trying to untie the knots of the past, and it's going to cost some money. Understand that. But if we don't do anything, it's going to cost so much more. So, I saw that Jade had jumped on the call. Ms. Rojas, are...are you still here? Did I see you on the call? Okay. Miss...there...there she is. Aloha, Director. I...I wanted to ask you in regards to the office, you know, OED. Some of the jobs that you guys are focused on for economic diversity are very important healthcare jobs and everything. But how about the green jobs? These folks in conservation, you know, the...the green-collar jobs that I...I used to do when I was...worked in the wildlife technician with Pūlama Lāna'i. How is OED addressing those type of...that type of industry, you know, the green-collar jobs?

MS. ROJAS-LETISI: Thank you for the question, Chair. And aloha, Councilmembers. So, this actually falls perfectly within our Workforce Innovation and Opportunity Act, or the WIOA program that we have. It's actually a Federal mandate that's passed through the State, which we administer through the County. And so, these green jobs specifically would fall into that. They are considered emerging and in-demand jobs under the Federal definitions of the program. So, when we talk about multiple different types of jobs, right, like the conservation and land management technicians, native ecosystems, restoration workers, GIS and environmental monitoring specialists, sustainable construction and green infrastructure jobs, along...and as well, the cultural resource management positions. So, all of the WIOA supports the training in these high-growth sectors, absolutely. And then we're also working with the Federal REPI grant too. And I think that this project would fall into those programs that they...they could qualify for them.

CHAIR JOHNSON: Thank you, Director Rojas-Latisi. That's...that's a good point you made about the REPI because Councilmember Sinenci was asking that question as well. So, thank you so much for your response. Members, we're going to go to the second round. And I know Councilmember Paltin had a second round, but you know, just by raise of hands, but go ahead, Councilmember Paltin.

COUNCILMEMBER PALTIN: Thank you, Chair. For Mr. Higashino as well, is it true that the aquifer--the water table on Kaho'olawe--is cracked?

**AGRICULTURE, DIVERSIFICATION, ENVIRONMENT, AND PUBLIC TRANSPORTATION
COMMITTEE MINUTES
Council of the County of Maui**

December 4, 2025

MR. HIGASHINO: You know, the...the fact that, you know, just the groundwater on Kaho'olawe, you know, it's true that the lack of it, or being able to find it, it's just the devastation that's done to the island by the feral animals removing the vegetation, not allowing infiltration or percolation of the water after a heavy rain. I know there's been talk about certain military activities to crack the cap rock, but I'm...I'm not too sure. I'm not...I don't have any evidence on that. But again, it's just being able to...you know, what I understand of water systems, you know, the recharge, if you're not getting anything percolating down and, you know, running off, you know, the possibility are not eliminated, but they're reduced, it's less. You know, a lot of our...some of our work with Department of Health Clean Water Branch, we're looking at, you know, recharge of certain areas, mainly places that we do plant, you know, how fast does the water go down compared to areas that we don't plant, the hard pan. You know, trying to get samples like that or data like that to show that, you know, long-term restoration efforts, long-term of protecting, covering the soil will or may in time recharge or add more water to the ground table.

COUNCILMEMBER PALTIN: And are you able to do like any composting over there to make the ground less hard? And I guess, you know, the areas where you weren't able to clear below the surface and you can't dig to plant a tree, if the tree roots go down that way, is that a danger for the --

MR. HIGASHINO: You know...

COUNCILMEMBER PALTIN: -- ordinances to explode?

CHAIR JOHNSON: Mr. Higashino?

MR. HIGASHINO: The...you know, we do do composting on a limited basis. A lot of it's sometimes the time and material...I mean, the time and effort on island. Do you put it making something, staying in base camp, doing it, or do you get the people out, educating, showing them to people and planting? A lot of the techniques that we do use on Kaho'olawe, I tell people, we didn't develop it. It's things that people have been doing for centuries to slow down the Gobi Desert, to slow down the Sahara Desert. You know, many examples in Hawai'i, the Kohalas, Kahikinui, Manuka on the Big Island, planting in mounds, how Hawaiians survived in harsh, dry, rocky systems. So, it's...you know, how do you balance? Make all your stuff so you don't have to buy it, or buy the material, ship it to the island, and then get the people out there, hands...you know, boots on the ground, hands, you know, doing...you know . . .(timer sounds). . . doing the work.

CHAIR JOHNSON: Hmm. Okay.

COUNCILMEMBER PALTIN: And then just for . . .(inaudible). . .

**AGRICULTURE, DIVERSIFICATION, ENVIRONMENT, AND PUBLIC TRANSPORTATION
COMMITTEE MINUTES
Council of the County of Maui**

December 4, 2025

MR. HIGASHINO: I think with that too, you know, invite the Council to come out to...you know, to see the island, and, you know, experiences of, you know, the responsibility that all of us have to try to restore it and to bring it back for the people of Hawai'i.

CHAIR JOHNSON: Well, you don't have to invite us twice. We'll be...we'll be on that boat. Okay. Councilmember Paltin, are you good?

COUNCILMEMBER PALTIN: Just the one about the...is it possible that roots could go down and trigger the unexploded ordnances?

MR. HIGASHINO: Hopefully not. . . *(laughing)*. . . I mean, you know, anything, the fact that a UXO didn't go off, people say it's a dud...you know, something didn't trigger it, something didn't turn, something didn't connect. You know, again, I'm not military EOD. I don't know the ins and outs of all of them, but I'm not going to take the chance. You know, I want to be able to do a regular shaka with both hands and not...

CHAIR JOHNSON: . . . *(laughing)*. . . All right. Well...yeah. Members, I...I appreciate this. We got another item on the agenda, this is really good discussion. I...you saw everybody here who gave great presentations. We can certainly reach out for you for more discussion. I hate to end the discussion right now because it's so good and important, but we do have another item on the agenda. I want to thank you all for your time. And if the Members want to, they'll...I'm sure they'll reach out to you and continue this discussion, but at this time, Members, if there's no objection, I will defer this item.

COUNCILMEMBERS VOICED NO OBJECTIONS (excused: YLS).

ACTION: DEFER pending further discussion.

CHAIR JOHNSON: Okay. I suggest we take about a ten-minute recess. Members, are you okay with ten minutes? All right. So, the time is now 11:02. At 11:12, the ADEPT Committee will come back from its recess with a different item agenda. Mahalo. . . *(gavel)*. . .

RECESS: 11:02 a.m.

RECONVENE: 11:15 a.m.

ITEM 1(12): AQUIFER MAPPING AND LONG-TERM MONITORING OF WATER RESOURCES ON MAUI

CHAIR JOHNSON: . . . *(gavel)*. . . Today, we have ADEPT-1(12), Aquifer Mapping and Long-Term Monitoring of Water Resources on Maui. Members, water is life. Unfortunately, the amount we know about this life-giving resource does not reflect its importance. Where do our aquifers stretch exactly? How much water can be sustainably yielded? At what levels are brackish, or salty, or fresh? These are

**AGRICULTURE, DIVERSIFICATION, ENVIRONMENT, AND PUBLIC TRANSPORTATION
COMMITTEE MINUTES
Council of the County of Maui**

December 4, 2025

questions which we do not have a comprehensive, accurate, and up-to-date information on. Having this data is needed to properly plan and prioritize our water use for agriculture and development now and for generations to come. Dr. John Helly proposes an innovative solution to our problem of missing data. Using airborne magnetic imagery, he can do an MRI of sorts that will show us what is happening underground in our aquifers. I have invited him today to tell us more about his proposal. Dr. Helly is an affiliate...is affiliated with San Diego Supercomputer Center and Scripps Institution of Oceanography, University of California San Diego, a special consultant in the State of California Department of Water Resources, and a member of the County of Maui Board of Water Supply. Members, if there's no objections, I'd like to designate Dr. Helly as a resource person under Council Rules 18(A), given his expertise in aquifer mapping and monitoring of water resources. Any objections, Members?

COUNCILMEMBERS: No objections.

CHAIR JOHNSON: Thank you, Members. Dr. Helly, thank you for being here, and please proceed with your presentation.

MR. HELLY: Thank you, Chair Johnson. Thank you, Members, for your attention. I appreciate the opportunity to talk to you about water resources, and water in general. Are we good? *(pause)* This is an AEM project, that's a convenient acronym for airborne electromagnetic imaging. And we're focusing on West Maui, although what I'm going to talk about is applicable really anywhere in the world that there's groundwater issues. And the project itself, the large purpose of the project is to develop a new water resource modeling and monitor...monitoring and management framework based on characterization of our groundwater aquifers, and to expand the existing modeling capabilities that are currently and historically in use involving the USGS, the County, Department of Water Supply, the State, and the University of Hawai'i. And the goal is to support adaptive management of water resources. This is an initiative advanced by Deputy Director Kahahane at the...at CWRM. And we...we believe that this project will contribute substantially to that, and even be a pathfinder in many ways. The goal is to standardize the...our approach to it, both Statewide and with Maui as an initial value, by standing up a long-term operational model that provides decision support to our partners initially, and then ultimately to any member of the State or any...the water community throughout the State that has an interest in this. But also, and...and I don't want this to be lost, and what I'll show you subsequently, the goal is to also establish a long-term training program for professional staff and students, both through the University and in the municipal State/Federal agencies in Hawai'i with knowledge of Hawai'i resources and peculiarities, but to make that a longstanding institutional asset and program. So, I'll focus on that, but I also want to highlight it at the outset. This is the big picture. It's got a bunch of different pieces here. I'm going to start at the bottom...or actually, I'm going to start on the upper right. That's the goal, is to make sure water comes out of our taps in a reliable way. And it proceeds that way by the function of and the services of water utilities. But in order for these water utilities to do their job, and

**AGRICULTURE, DIVERSIFICATION, ENVIRONMENT, AND PUBLIC TRANSPORTATION
COMMITTEE MINUTES
Council of the County of Maui**

December 4, 2025

that's...a water utility is something like the Department of Water Supply, or Hawai'i Water Service, or any of the other six or seven different water utilities throughout West Maui, and I'll keep referring to West Maui as an example. How that water is provided goes all the way back to the lower left of this cartoon, which shows rain coming into Pu'u Kukui in this notional example. The rain flows down through the volcano, pools up in various aquifers. There's a lot of unknown...there are a lot of unknowns about the nature and extent of these aquifers. And the project itself, the airborne electromagnetic mapping, or imaging, is a...is a project to focus on characterizing those aquifers using helicopters to fly an instrument that zigzags in that mapping pattern that is shown in the cartoon by sending a signal down into the earth like an MRI-type sensor, and returning data that is then forwarded into a modeling and analysis capability that lets us predict and monitor the sustainable resources that we have that are both being recharged or not, and the degree to which pumping affects our ability to have a reliable water supply. So, this is the big picture. I'm going to come back to it. Some of the data from the groundwater wells are shown at the top. I'll talk a little bit more about those time series plots. I refer to them as...as we get along here. This is just meant to give you an introduction to the overview of the project. So, the imaging works by a sensor that hangs beneath the helicopter. You see it here as a little cone depicted below these cartoon helicopters. It's not quite a circle, but it's approximately like that. It's about a 20 to 30-meter-wide antenna, and it sends out electromagnetic waves like radio, and it goes down into the volcanic rock to about 500 meters, stimulates the rock electrically and the water of various kinds--whether it's fresh or salt or brackish--and they have different kinds of electromagnetic responses. And because of that, we are able to measure that response and turn it into data. And the project itself now is constituted by these six agency partners, or project partners, I should say. 'Āina Ho'okupu O Kīlauea, we refer to fondly as AHK. There are three folks on Kaua'i who are part of the initial project team. We have CWRM now, Deputy Director Ciara Kahahane and Ryan Yamamada...or Imata rather, who's our Hydrology Program Manager, and Maui's Department of Water Supply Director, John Stufflebean. UH Mānoa representatives, Dr. Amir Haroon, who's a geophysicist; Dr. Xiaolong Geng, who is a modeler. We have the Pacific Island Water Science Center folks from the USGS through Dr. Stephen Zahniser, and some industry...at least one industry contact through Blue Rock LLC, Eric Eldred. And this is not meant to be exclusive or limiting, this is our nucleus to start with. So, our problem statement, and this focuses on West Side Maui, is that we're heavily dependent on over-pumped groundwater. We know that precipitation is decreasing. Our supplemental water...surface water is erratic and diminishing. And this leads to declining water quantity and water quality, as everyone more or less realizes now, I believe. We're faced with no new housing without water. We have no additional potable water without more rain, desalination, or what's referred to as R-0. Most of you have heard of R-1 and know what R-1 is...it's recycled water. R-0 is recycled, but also qualified for potable use. It's equivalent to the kind of water that astronauts use in outer space. In the meantime, our only choices really, in the short term, are to reallocate our existing resources. And those reallocation decisions and sustainable limits need information that doesn't exist at the moment. So, how do you make these decisions without understanding aquifer conditions? Historically, the

**AGRICULTURE, DIVERSIFICATION, ENVIRONMENT, AND PUBLIC TRANSPORTATION
COMMITTEE MINUTES
Council of the County of Maui**

December 4, 2025

exploitation of groundwater in Maui has been quite extensive. There is...this is a map of all the, I guess, known to CWRM, in the sense that these are red dots and green dots that are the well locations and the surface water diversion locations throughout Maui in the history that's recorded by CWRM. Not all of these wells in West Maui are currently active. I'll show you a currently active set. But this gives you an idea of the intense development of groundwater throughout the island, and doesn't reflect the rest of the County, of course, but this also reflects the limits of our knowledge. Stearns and MacDonald...

CHAIR JOHNSON: Oh, Doctor?

COUNCILMEMBER PALTIN: I can't hear.

CHAIR JOHNSON: Yeah.

MR. HELLY: Did you lose it?

CHAIR JOHNSON: Hold on.

COUNCILMEMBER PALTIN: Cannot hear nothing.

CHAIR JOHNSON: How about now? Can you guys hear us?

MR. HELLY: Aloha.

CHAIR JOHNSON: Okay.

MR. HELLY: Can hear or no?

CHAIR JOHNSON: We might...

COUNCILMEMBER PALTIN: Now, I just heard you.

MR. HELLY: Okay.

CHAIR JOHNSON: Okay. How about, Councilmember Sinenci, I saw you...can you hear us? Everybody's got thumbs up. I don't know what's going on with the Internet, but I think we can continue if everybody can hear us.

MR. HELLY: Where did you...where did you lose me, I guess?

CHAIR JOHNSON: Just like a second ago.

MR. HELLY: Okay.

CHAIR JOHNSON: Yeah.

**AGRICULTURE, DIVERSIFICATION, ENVIRONMENT, AND PUBLIC TRANSPORTATION
COMMITTEE MINUTES
Council of the County of Maui**

December 4, 2025

MR. HELLY: So, this is...this is an old map from Stearns and MacDonald. It's the authoritative geological reference. Things really haven't changed since 1942 in our geologic knowledge, but we've continued to drill wells throughout the island nonetheless. This is a cross section through the West Maui Mountains showing the ocean on the left, which is the...the channel out toward the Pailolo Channel. And on the other side, you can see Waikapū. But the...this depicts the stratification of the volcano in the green layers. And the red layers are things that are called dykes, which are vertical chunks or vertical streams of basalt rock that come up from the volcanic center in terms of magma. And they create barriers to water flow. So, the water flows from mauka to makai, and gets trapped in these rocks. The problem we have in West Maui is, we have a bit of...we have a crisis of over pumping. And you can see that in these data. On the left-hand side, this is salt level, and the different concentrations for the various pumps. So, this is, I think, 23 wells throughout West Maui. For example, here are Kā'anapali Wells. They're operated by the Hawai'i Water Service. So, there's a mixture here of wells that are operated by both the County Department of Water Supply and private water systems. And the problems that we face are the red line indicates where there's an acceptable threshold for drinking water, potable water. And the...when the lines exceed that...when the time series lines, the colored lines that are not red exceed that red line, that's when there's a problem, and the water can't be directly consumed by humans safely. So, what can we do about this water scarcity? We need to know more about where the water is, and what's sustainable to extract. And that requires a long-term water monitoring program, which we do not have. The current methods are inadequate, and they lack sufficient data. And the well data, while it's important and currently collected by the...the State, it's not sufficient. There's more needed about what's going on in the wells, but you cannot build enough wells...monitor wells or instrumented wells, you can't build enough to really understand what's going on in a way that we need to. A solution to that is the airborne electromagnetic imaging approach. It's a...provides key missing information, and combined with well data on an ongoing monitoring basis, the way it's currently collected, as well as an intensified program, and combined with the AEM-based modeling provides the best solution to the...to the problem. And that's not just best solution in Maui, it's the best solution in the world. So, here's an example of what AEM and modeling can achieve. And this is an example from Hawkes Bay, New Zealand that flew the same instrument that we're planning on flying here on Maui. And it flies from mauka to makai. So, if you can see this cursor on the left here...so this is a upland mauka in New Zealand down to the ocean through Hawkes Bay, if you're familiar with any of that area. And what the model was able to generate through the data provided by the AEM sensor is where there's fresh water and where the water is flowing within this volcanic terrain. Remember that New Zealand is also a volcanic island nation. So, if we look at what we're planning to do with just respect to West Maui, this is what we've been scoping currently. The current project scope is West Maui. Our goal is to connect the dots by flying the helicopter over this terrain in a jigsaw pattern...or rather, mowing the lawn pattern is a better way to look at it. Connecting those dots and developing that into a three-dimensional image, which is similar to the one I just showed you for

**AGRICULTURE, DIVERSIFICATION, ENVIRONMENT, AND PUBLIC TRANSPORTATION
COMMITTEE MINUTES
Council of the County of Maui**

December 4, 2025

Hawkes Bay. I'll show you a representation that's pertinent to West Maui in a moment. But the...there are areas that we can't fly, and that's due to the FAA flight restrictions of not being able to fly over heavily-populated areas with an instrument hanging below a helicopter...or an aircraft of any type, really. And our preliminary budget estimate to do this has a nonrecurring cost of about \$2-1/2 million in the first year, with a recurring cost that goes on indefinitely into the future to support the monitoring program of about half a million dollars. So, the goal here is to fly the helicopter instrument once, collect the data that tells us the structure of the aquifers, their interconnectivity, and where they're located, and then to monitor that resource over time, using well data and other ground-based instruments that the University of Hawai'i has actually developed recently. I'm not going to go into those in this presentation, but there...there is more to the story than what I'm just telling you here today. This shows you West Maui from kind of somewhere out in the middle of the channel, high up looking down at Pu'u Kukui here. Here's Kahului in the background. And these data that are the colored vertical streams--I don't know how well you can see this in the computer image--are the data observations that come from the helicopter. And then we can calculate cross sections, and that's what this shows here. I actually have an animation of this, which I'm prepared to show you, but I don't want to interrupt the presentation because we may get hung up in Internet stuff that will distract at the moment. We can come back to it if there's time. But the color coding of these streams are the lithology of the rocks. So, it tells us which...what layers correspond to what types of rocks. And those different layers have different hydraulic properties, they're referred to as. They conduct the water more or less effectively. And how those rocks are connected define the aquifer structures. And so, a lot of cartoons that you see typically envision, or give the impression that there's a kind of a water lake underneath Maui, or anywhere that has this kind of island structure, when it's really much more like a sponge. So, the...if you imagine a sponge sitting in your kitchen sink, and you run water on it, the sponge will saturate, but it'll accumulate in the spaces and voids within your spun...and if you...sponge. And if you stuck a straw into the sponge, that's really what groundwater wells are doing within the volcanic rock. This is the working schedule that we have planned for this project. We have, we believe, the funding in hand to start this for a total of close to \$3 million between funding on the Island of Kaua'i through the NGO AHK, which I referred to earlier, plus additional funding, which we depend on from the Department of Water Supply through Director Stufflebean. And he can comment on that, I'm sure, himself. But the plan is to fly the helicopter missions in 2026, and the bulk of the cost comes from the flight time for the helicopter. But once that helicopter data acquisition is done flying Maui and Kaua'i, then we...and currently...concurrently, with the acquisition of those data, we can do model development. So, the helicopter data will be collected during the first few quarters of 2026. We'll have the deliverables completed by the beginning of 2027. The QA/QC for those data will take about two years as we go through the modeling process and understand where there's a need for clarification of the data that have been collected or ambiguities that have to be resolved. And then the model results, meaning the results that we can use to manage pumping operations and to do predictions about what water resources are available to us, will begin to appear the end of 2027 based on this schedule. And then we can

**AGRICULTURE, DIVERSIFICATION, ENVIRONMENT, AND PUBLIC TRANSPORTATION
COMMITTEE MINUTES
Council of the County of Maui**

December 4, 2025

shift into a long-term monitoring and operations mode in the green, which would just extend indefinitely into the future, involving CWRM, the County, the NGO on Kaua'i, and hopefully their local water agencies, as well as the USGS. Our expected results are sustainable and adaptive pumping limits. So, the well diagrams or plots that I showed you earlier that show well pumping operations that exceed potable limits should be able to be maintained operationally below those limits in an ongoing way. And it will also tell us the best and worst places for future wells if there are any. One of the concerns people have expressed is that this is a water discovery project, and it's not the primary focus. Our primary focus is to understand what exists and how to best manage it. Given the intensity of water development historically on Maui, it would be surprising if there are undiscovered water resources. Of course, it's a possibility that can't be ruled out, but it would be a surprise, at least to me. So, what we're talking about is an ongoing monitoring, modeling, and decision-making process that allows us to judiciously allocate water for current and future social activities, and also to provide, again, the professional opportunities for future generations through education, training, and employment through the university program in cooperation with the State agencies and with the Federal agencies. We've only focused so far on the West Side...West...West Maui rather, and in particular on the west side of West Maui, but there's a natural and easy extension once the helicopter and the instrument are here. Obviously, we're going to fly Kaua'i as well. It would be a relatively straightforward extension to fly the rest of the island. You can see the well development throughout the rest of East Maui and the South/Central area, as well as the Hāna areas. We could do that. It takes money, and it'd be about \$2 million, probably, to fly the rest of Maui, given what we know about the West Side planning we've done. So, to summarize, this is just the first slide that I had. We want to develop a new monitoring and management water resource framework. We do...we started by characterizing the aquifers so we get a better handle on what we know and don't know. We expand our current modeling capabilities to take advantage of those data, and then we support the adaptive management approach being undertaken at the State and presumably at the County levels, and then standardize this in a way that can be institutionalized through professional and educational opportunities for future generations. Thank you. That's the end of my presentation.

CHAIR JOHNSON: Okay.

MR. HELLY: I have the animation that I can show you if we care to see that.

CHAIR JOHNSON: Sure. You want to set it up right now? We're going to...

MR. HELLY: Whatever...whichever way you want to go.

CHAIR JOHNSON: Yeah, let's...let's see if we can see it.

MR. HELLY: All right.

**AGRICULTURE, DIVERSIFICATION, ENVIRONMENT, AND PUBLIC TRANSPORTATION
COMMITTEE MINUTES
Council of the County of Maui**

December 4, 2025

CHAIR JOHNSON: We'll pray to the Internet gods that it works, and if not, we'll jump right into...

MR. HELLY: Okay. Very good. Well, so far so good. This is the animation, and let me see if I can find the thing that opens it up. Picture-in-picture, no. Yes. Okay. I'm reluctant to go too far out here, but what you're seeing is the cross section that I showed you earlier in the static image crossing through the data that would be collected by the helicopter, and if I interrupt it, I can stop it. Just about now. And that cross section is a vertical cross section through the volcano, which shows both the permeable and the nonpermeable layers. Right now, the data are made up based on the lithology data that I have from the Mahinahina Deep Monitor Well. It's the only well we have with this kind of information at the moment. There are a number of other...all the drillers' logs, which provide similar, but not reliable information. But this gives you an idea of what we'll be able to understand that we don't now, which is, if you imagine these...the light blue line, if it looks that way to you, within this cross section, this would delineate the actual freshwater resources that we have in the aquifers, give us the integrated view of these cross sections, which show us the distribution and shape of the aquifers, and allow us to understand and model the consequences of additional pumping, or the levels of intensity of pumping that affect the salt concentration in the water that we extract. So, I'll stop there.

CHAIR JOHNSON: Okay. Thank you...thank you, Doctor, for your excellent presentation. I want to see if we can get some comments from the Administration. Director Stufflebean, are you on the call? We're going to turn off this share screen.

MR. STUFFLEBEAN: Yes, I am.

CHAIR JOHNSON: Okay. Director, floor is yours.

MR. STUFFLEBEAN: Sure. Yeah, I've been working with, or listening, mostly, to John for quite a few months on this, and, you know, it is...it has some very exciting potential. You know, he's identified the problem exactly correctly, which is that...that we have...the aquifers here on...on Maui tend to be very heterogeneous. You know, it isn't like other aquifers I've been in other places. It's like...it's like a big bowl of sand, so it's kind of the same no matter where you are. But here, it's very different, and...as you move across the aquifer because of the way the...the...the rock was deposited very, you know, haphazardly from the volcanic explosions and eruptions. So...so, you know, and so the fact that you can't put enough wells in to really understand what's going on a thorough basis. So, remote monitoring is a...is a great idea. You know, I'm...I'm totally supportive of seeing if we can make this work. You know, it is really CWRM's responsibility to do this, but I'm totally willing to do what we can to help. And, you know, as the...as the water utility, it would be extremely valuable information for us to have. So...so, we're supportive. Thank you.

CHAIR JOHNSON: All right. Thank you, Director Stufflebean. Okay. Let's move on to public testimony for just ADEPT-1(12). At this time, if you're...if there's anyone

**AGRICULTURE, DIVERSIFICATION, ENVIRONMENT, AND PUBLIC TRANSPORTATION
COMMITTEE MINUTES
Council of the County of Maui**

December 4, 2025

wishing to testify on this item, please use the raise-your-hand function and you'll be called upon to testify. Staff, is there anyone wishing to testify?

MS. APO TAKAYAMA: No, Chair. The individual who was originally signed up has left the call.

CHAIR JOHNSON: Okay. Members, seeing there are no more individuals wishing to testify, I'll now close public testimony for this item. Any objections, Members?

COUNCILMEMBERS: No objections.

. . . CLOSE PUBLIC TESTIMONY FOR ADEPT-1(12) . . .

CHAIR JOHNSON: Thank you. Let's proceed with this agenda. ADEPT-1(12), Aquifer Mapping and Long-Term Monitoring of Water Resources on Maui. I propose three minutes per Councilmember for each round of discussion. And we'll just go down the same route, and that would be Vice-Chair Sinenci, Councilmember Nohelani U'u-Hodgins, Tom Cook, Council Chair Lee, Councilmember Paltin, and myself. And I'm hearing an echo. Got it? Okay. Councilmember Sinenci? *(pause)* Oh. Oh, hold on a minute, Councilmember Sinenci. You're on mute. And just to let you know, same thing as before, this might be one of my priorities. I don't know why it keeps echoing.

VICE-CHAIR SINENCI: Okay. Thank you. Can you hear me now?

CHAIR JOHNSON: Right when I tried to speak.

VICE-CHAIR SINENCI: Mahalo for the presentation.

CHAIR JOHNSON: Go ahead.

VICE-CHAIR SINENCI: Yeah. So, for this type of technology, it would just kind of locate where the aquifers are instead of trying to, you know, guess where they're at?

CHAIR JOHNSON: Dr. Helly?

VICE-CHAIR SINENCI: And...and to see, I guess, how much freshwater or saltwater is in them?

MR. HELLY: That's correct. So, the...the data that I get back...

CHAIR JOHNSON: Hold on. Just a minute. Councilmember Sinenci, do you have another device on? We're getting echo.

VICE-CHAIR SINENCI: No, but the fan was on.

**AGRICULTURE, DIVERSIFICATION, ENVIRONMENT, AND PUBLIC TRANSPORTATION
COMMITTEE MINUTES
Council of the County of Maui**

December 4, 2025

CHAIR JOHNSON: Okay.

VICE-CHAIR SINENCI: Are you still getting the echo?

CHAIR JOHNSON: Yeah.

MR. HELLY: We'll try.

VICE-CHAIR SINENCI: Am I on twice?

CHAIR JOHNSON: We're going to have Councilmember Sinenci mute every time he's not talking. That's...that's recommended. That's...sorry, Shane.

MS. APO TAKAYAMA: Councilmember Sinenci, do you mind muting when you're not speaking?

CHAIR JOHNSON: Maybe you have two windows open. I don't know. Anyways, he's muted. So...

MR. HELLY: Well, let me try and answer the question. I think I understand it...if you can hear me. The...I assume you can still hear me. Okay. The instrument sends energy down and gets back a pulse. So, we get a bunch of profiles. Those profiles can be integrated together to...to create a picture, a three-dimensional picture, showing exactly where the freshwater is, the extent of it, where the boundary is with the impermeable volcanic rock around it. So, from that, we can calculate the volumes of those...of that water supply, and we can create...calculate the interconnectivity, and then use those data in a three-dimensional model, conventional models that the USGS has developed and uses widely in other places in order to calculate where the water flows to and from, as well as the consequences of pumping operations on those water volumes, and on the intrusion by seawater into the freshwater resource itself.

VICE-CHAIR SINENCI: And then do we see the same type of...because we have volcanic rock, do...can we see the same type of aquifer collapse, like some of the other areas on the mainland?

CHAIR JOHNSON: Dr. Helly?

MR. HELLY: That's an interesting question. There's a lot of subsidence in the Central Valley of California, for example, and in the southwest of the United...of the continental U.S. We don't experience that here because we don't have sedimentation the same way that they do, so that the rock itself provides a lot of structure. There may be areas that do collapse because they're of marginal integrity and the water somehow contributes to their structural integrity. I don't think that would generally be the case, and it might even be a rare exception for it to ever occur. But they're not the same kind of

**AGRICULTURE, DIVERSIFICATION, ENVIRONMENT, AND PUBLIC TRANSPORTATION
COMMITTEE MINUTES
Council of the County of Maui**

December 4, 2025

conditions that we have. So, if we deplete a volume here, if we pump fresh water exhaustively from an area, our problem is that seawater comes in to replace it.

VICE-CHAIR SINENCI: Okay. Thank you. Thank you, Chair.

CHAIR JOHNSON: Thank you, Councilmember. Okay. Let's move on to Councilmember U'u-Hodgins, followed by Councilmember Cook.

COUNCILMEMBER U'U-HODGINS: Thank you, Chair. For right now, I have no questions either. Thank you for the presentation. I look forward to seeing this on your budget priorities.

CHAIR JOHNSON: Okay. Sounds good. Councilmember Cook, followed by...well, Councilmember Paltin.

COUNCILMEMBER COOK: Thank you, Doctor. Is there a consensus on rates of recharge? I assume it would vary...it would vary greatly depending upon the terrain, and the porosity of the soil, and whatnot. But I've heard that it takes centuries, years, days. So, could you give, from your experience with Hawaiian soils, what...how recharges [sic] works?

MR. HELLY: Sure. I base this on USGS reports that I've read, not on direct firsthand experience, and the literature that I've read about it. The Hawaiian terrain is complicated, obviously, by the stratification. So, we get rainfall at the surface, let's say, from Pu'u Kukui. It percolates down through this dyke structure and toward the ocean. The recharge rate near the surface--and by the near the surface, I mean the first tens of meters into the groundwater aquifers, when it gets down toward makai--it gets down low enough to pool up, so to speak. Then there's mixing below that, which is much slower, on the order of 60 to 90 years, depending upon how it's measured, where it's measured, and how much rain there's been, and how much is taken upstream as well through pumping. But then there's water below that that we don't really know much about, and certainly not in Maui, which probably moves on geologic time scales, which is more like 10,000 years. So, there's a hierarchy, a stratification of recharge, which is short-term, but still measured in years from a meaningful groundwater resource point of view. Although streamflow at the surface is a reflection of groundwater, so that happens, you know, within days sometimes, but that's very shallow, if...if even penetrating at all. But then as you go down, the time constant changes, it gets longer and longer. My understanding is that we're talking about decades to centuries of the water resources that we've been taking, and that the plantations have been taking for 150 years.

COUNCILMEMBER COOK: So, let me put it in the context for South Maui, where we get a tremendous amount of floodwaters from Upcountry. The recharge on...from Kula Kai, basically the mountain, you get Kona weathers, but in general, it's a very low rainfall.

MR. HELLY: Right.

**AGRICULTURE, DIVERSIFICATION, ENVIRONMENT, AND PUBLIC TRANSPORTATION
COMMITTEE MINUTES
Council of the County of Maui**

December 4, 2025

COUNCILMEMBER COOK: But you get a tremendous amount of water from the ridgeline coming down. The...the idea of basically doing major detention, terraces and basins to capture the floodwater, that type of thing, say at 2,000 feet elevation, will that impact the...will that be recharge? . . .(timer sounds). . . And is it like my lifetime or somebody else's lifetime?

CHAIR JOHNSON: Dr. Helly?

MR. HELLY: Recharge...intentional recharge like that, sometimes referred to as water banking, depends on where you do it. So, if you're doing it in an area that's highly permeable, it'll happen in a short time. It'll happen...for example, Tulare Lake in California had a tremendous flood in 2017, and I think extending into 2018 water years, where there was a lake that appeared that historically had been present, but had also been not present for quite a long time, on the order of 100 years, I think. But it reappeared because of the flood condition. That water disappeared within a year or two by intentional, you know, recharge, and also natural percolation and evaporation. So, it depends on where you put a recharge detention basin, and what the underlying geology is. You probably don't want to put it down in a very low-lying area where the water table is already high because you're not going to get any recharge, or you're going to lose the freshwater resource to mixing. So, probably that's a key consideration in the south central.

COUNCILMEMBER COOK: So...so like at a 2,000-foot elevation?

MR. HELLY: I don't know the...I don't know the right number. I don't want to put a number on it because I don't think...I don't know enough. We could fly this instrument and try and understand the structure of that area better, and I think that we'd come up with a better answer.

COUNCILMEMBER COOK: Thank you, sir.

MR. HELLY: Yeah.

CHAIR JOHNSON: Okay. Let's move on to Councilmember Paltin.

COUNCILMEMBER PALTIN: Thank you, Chair. So, first question, we wouldn't...if we had this data from like the AEM, we wouldn't need like a guy like Tom Nance telling us where to place the wells because we'd see like where the water is and how saline it is. Is that accurate to say?

CHAIR JOHNSON: Dr. Helly?

MR. HELLY: What Tom Nance uses to...the things that I...the studies that I've seen that he's done, he...he collects the sa...a similar type of data using a single point source or a small number. So, he puts antennas out in the field and, you know, will cover a

**AGRICULTURE, DIVERSIFICATION, ENVIRONMENT, AND PUBLIC TRANSPORTATION
COMMITTEE MINUTES
Council of the County of Maui**

December 4, 2025

particular area. What...and that's...that's a valuable thing. I've looked at those data, in particular for West Maui, and we've looked at the depth...what's called depth of penetration of his signals down to about...we estimate they could go to about 300 meters. This...which is about...about 1,000 feet. This instrument will go to 500 meters, and allow us to characterize the bottom layers of the volcanic strata much more completely. But also, in a way that Tom can't do, or Mr. Nance--I don't know him personally, I shouldn't refer to him by first name--is we can fly an area synoptically in a short period of time, get data of better quality over a broader area at a higher resolution than you can achieve by walking around and putting instruments out in the field. So, this helicopter will fly flight lines that are separated by about 100 meters, more or less getting a continuous stream of profiles, where the Nance-type instrument would get one profile, you know, at each location. So, in a course of a few weeks --

COUNCILMEMBER PALTIN: And then --

MR. HELLY: -- hopefully, we would --

COUNCILMEMBER PALTIN: -- since I'm on --

MR. HELLY: -- be able to do the entire --

COUNCILMEMBER PALTIN: -- limited time --

MR. HELLY: -- West Side volcano.

COUNCILMEMBER PALTIN: -- I wanted to also ask about...the initial 2.5 mil seems like it would be for the mapping with the helicopter, and then the .5 mil for maintenance. How does that work? Like as water gets taken out, you use the 2.5 as the base...the data collected with the 2.5 million shot as the baseline, and then you calculate how much is being pumped and the salinity levels? You only need to fly one time? How is the .5 mil utilized for maintenance?

MR. HELLY: Yes --

CHAIR JOHNSON: Dr. Helly?

MR. HELLY: -- the helicopter flight is a one-time thing. You could, of course, fly it subsequently for scientific interest or other reasons, but it's not necessary. The plan is that you fly at one time, that gives you the container structure, if you like, the reservoir structure. And then we monitor that reservoir structure by single point instruments, analogous to Tom Nance's . . .(*timer sounds*). . . type measurement, but also through measurements in the wells. The...I'll elaborate this a little bit. The deep monitor well in Mahinahina is the only one that goes from surface to the sea, and it's designed for monitoring. It's not designed for production. Production wells do not...cannot be instrumented. You can't make measurements in them because they

**AGRICULTURE, DIVERSIFICATION, ENVIRONMENT, AND PUBLIC TRANSPORTATION
COMMITTEE MINUTES
Council of the County of Maui**

December 4, 2025

tend...they're generally blocked, or measurements would interfere with the production and just doesn't work. The USGS, because of its work in Red Hill, has come up with instruments that can take advantage of some types of production wells, and basically do an NMR, or a different kind of horizontal imaging by lowering the instrument down the borehole. So, we're optimistic that with the helicopter data as the baseline, as you say, then in the indefinite future, we can start to take advantage of some of these more modern techniques for exploiting the wells themselves.

MR. STUFFLEBEAN: Chair?

CHAIR JOHNSON: We have Director Stufflebean.

MR. STUFFLEBEAN: So, I just want to add that...that this will not put Tom Nance out of business for . . . *(inaudible)*. . .

COUNCILMEMBER PALTIN: Oh, I don't mind, I don't care.

MR. STUFFLEBEAN: No, this...what this will do, though, is, I think, in my opinion, would provide them additional information, very valuable information, to help them do their job better. Thank you.

CHAIR JOHNSON: Okay. Are you finished?

COUNCILMEMBER PALTIN: And then...

CHAIR JOHNSON: Oh, go ahead.

COUNCILMEMBER PALTIN: So, when you...you have the deep monitoring well, the pumpage *(phonetic)* data, and the information from this, how does that help you calculate what a daily sustainable yield is for any given well --

CHAIR JOHNSON: Dr. Helly?

COUNCILMEMBER PALTIN: -- or aquifer?

MR. HELLY: Right. So, the...so you get the three-dimensional structure. That gives us a three-dimensional mesh, it's referred to, for the modeling. Then the recharge estimate comes from the kinds of studies that the USGS has already done conventionally. There was one published just two years...two years ago, an update. That provides what are called initial and boundary conditions for the surface conditions. So, it tells us how the model...how...how nature behaves. And that is used to drive the model to set...we...we use the term drive the model, the three-dimensional mesh, by recharge. And then we monitor the model predictions as we run it forward through time for prediction by what we see in the wells. So, by...that's where the adaptive management part comes through here. Because it's an iterative process, we make a prediction,

**AGRICULTURE, DIVERSIFICATION, ENVIRONMENT, AND PUBLIC TRANSPORTATION
COMMITTEE MINUTES
Council of the County of Maui**

December 4, 2025

make measurements based on the well performance, and then we adapt the modeling predictions based on the feedback from those measurements.

CHAIR JOHNSON: Okay. The bell rang, Councilmember Paltin.

COUNCILMEMBER PALTIN: . . .*(inaudible)*. . .

MR. HELLY: Okay. Sorry.

COUNCILMEMBER PALTIN: Oh, didn't hear it.

CHAIR JOHNSON: I'll do a second round if you need them, but I'd like to ask a couple questions as well. Dr. Helly, you know, the...the idea of the helicopter is...is fascinating to me, and that it's already being done. Has...has anybody been looking at drones instead of helicopters? Is that...is that an option on the table?

MR. HELLY: Yeah, drones were an obvious desirability. The problem is that the instrument package weighs about 1,200 pounds.

CHAIR JOHNSON: Oh.

MR. HELLY: So, you really need a helicopter to fly it.

CHAIR JOHNSON: Okay.

MR. HELLY: Similar kinds of instruments are flown on fixed-wing aircraft, but they're really designed for much larger areas like the outback of Australia.

CHAIR JOHNSON: Okay. The...I want to ask a little bit about the...the actual numbers you were saying. Correct me if I'm wrong, 500 meters is a typical well, is that...

MR. HELLY: The 500...the 500 meters is a maximum depth of penetration of the instrument.

CHAIR JOHNSON: Okay. And what...how...how deep do our wells typically go, the production?

MR. HELLY: Well, the deep monitor well goes to about just under 1,300 feet.

CHAIR JOHNSON: Oh, okay. So, the Mahina Deep Water Well [*sic*] is just under 1,300 feet, you say? All right. And so, this...this should be able to...the...the...the apparatus, the AEM, I think it's called, right? That should be able to find water sources that...that our regular wells are tapping into, right? And all of the...the dykes, you say, the interconnectivity between the two, is that...is that monitored as well?

MR. HELLY: So, as...so when we're...when the...when the instrument's flying close to the ocean, close to sea level, it'll penetrate, obviously, say...let's say 500 meters down. So,

**AGRICULTURE, DIVERSIFICATION, ENVIRONMENT, AND PUBLIC TRANSPORTATION
COMMITTEE MINUTES
Council of the County of Maui**

December 4, 2025

1,600 feet or so. When you...or actually more like 1,800 feet, but the...as you move mauka, you're...that you're moving into a greater elevation.

CHAIR JOHNSON: Sure.

MR. HELLY: So, you're still only going to get that layer --

CHAIR JOHNSON: Okay.

MR. HELLY: -- down to 500 meters. But we're hopeful that we can see the dyke structure as we move mauka. One of the problems we have in...in flying the helicopter is that the valleys that are of greatest interest are very narrow and difficult to fly a helicopter in, not just because the instrument hanging below it, but also because of the wind. So, we don't know how much of that we're going to be able to sample, but the goal is to sample as much as we can because the important streams go up into those valleys.

CHAIR JOHNSON: Yeah, very important. Well...okay. Thank you for your time, and thank you for your presentation. Let me see if there's a need for a second round. Otherwise, Members, I think that takes us to the end. Any...any second round questions? Okay. Seeing none. I want to thank you once again for your time and your presentation, and thank Director Stufflebean for working with you because it's really interesting stuff. And once again, Members, we're softening you up for a budget ask. So, be...be ready for, you know, if that comes around. And then you can always reach out to Dr. Helly on...on your own time and if you have any more questions. Thank you for all your hard work in your...with this Committee. Members, if there's any objections, I'll...I'll defer this item.

COUNCILMEMBERS VOICED NO OBJECTIONS (excused: AL, TP, and YLS).

ACTION: DEFER pending further discussion.

CHAIR JOHNSON: Okay. Does that take us to the end of the agenda, Staff? That's at the end of the agenda, Members. It's 12:01, and the ADEPT Committee is now adjourned. . . .(gavel). . .

ADJOURN: 12:01 p.m.

**AGRICULTURE, DIVERSIFICATION, ENVIRONMENT, AND PUBLIC TRANSPORTATION
COMMITTEE MINUTES
Council of the County of Maui**

December 4, 2025

CERTIFICATION

I, Daniel Schoenbeck, hereby certify that pages 1 through 51 of the foregoing represents, to the best of my ability, a true and correct transcript of the proceedings. I further certify that I am not in any way concerned with the cause.

DATED the 7th day of January 2026, in Wailuku, Hawai'i



Daniel Schoenbeck