



Cody Winchester

Climate Change

Introduction to Cody Winchester

- ▶ Environmental & Land Use Planner
- ▶ 6 years of professional experience in Hawai`i
- ▶ Specializes in Disaster Management and Community-Based Resiliency Planning

Greenhouse Effect

- ▶ Naturally occurring trapping of heat in the earth's atmosphere that is radiated back to earth
- ▶ Human activities generate additional GHGs, enhancing build-up of atmospheric radiation and causing earth's temperature to rise.

California Emissions Estimator Model

- ▶ Land use emissions computer model designed to provide a uniform platform to quantify potential criteria pollutant and greenhouse gas (GHG) emissions associated with both construction and operations from a variety of land use projects.
- ▶ The model quantifies direct emissions from construction and operation activities (including vehicle use), as well as indirect emissions, such as GHG emissions from energy use, solid waste disposal, vegetation planting and/or removal, and water use.
- ▶ The model identifies mitigation measures to reduce criteria pollutant and GHG emissions along with calculating the benefits achieved from measures chosen by the user.

Sources of Emissions from HoKua Place

- ▶ Greenhouse gas emissions that may be generated by construction of HoKua Place
- ▶ GHGs resulting from occupancy of HoKua Place
- ▶ GHGs from conversion of agricultural to urban land

Construction Generated GHG

- ▶ 10 year construction period
- ▶ Primary source of emissions is construction activity
- ▶ 7,745 MT CO₂ Eq total construction, amortized over 30 yrs, 258 MT CO₂ Eq annually
- ▶ Mitigation measures

Occupancy Generated GHG

- ▶ Project will generate 7,380 MT CO₂ Eq annually, including operational emissions, amortized construction emissions
- ▶ Primary source of emissions from energy consumption due to household activities, air conditioning, transportation, solid waste generation and collection

Land Use Change GHG

- ▶ Primary source of emissions is removal of existing vegetation
- ▶ Possible to achieve net gain in carbon sequestration by planting trees and landscaping

Climate Change Mitigation

- ▶ Promote higher density development near job centers - HoKua Place will emphasize multi-family units within walking distance of Kapaa Town.
- ▶ Reduce carbon footprint - will increase landscaping and grass covered detention basins to encourage carbon sequestration
- ▶ Multi-modal transportation connection to promote walking or bicycling to Kapaa Town
- ▶ Support reduction in emissions from local energy production - 4 acre solar farm in Ag lots produces 1.18 MW of electricity annually

Historic Seal Level Rise

- ▶ Sea level rise is inevitable outcome of global warming
- ▶ Rate of sea level rise varies among the islands of Hawai`i
- ▶ NOAA records for Nawililwili tidal station 1955-2019: rise of 0.56 feet over 100 years

Impact of Sea Level Rise on HoKua Place

- ▶ Intergovernmental Panel on Climate Change Representative Concentration Pathways.
- ▶ Most likely scenario is 0.5 feet rise by 2030, 1.1 feet by 2050, 2.0 feet by 2075, 3.2 feet by 2100.
- ▶ HoKua Place is 55 feet to 130 feet above MSL = NOT vulnerable to sea level rise or flooding
- ▶ Provision of water, wastewater, and other utility services to HoKua Place should consider potential sea level rise

Sea Level Rise Mitigation Measures

- ▶ Dedicate land under Kapaa Bypass Road to State DOT and construct connector road between Bypass Road and Olohena Road.
- ▶ Maintain flow of stream along western boundary and install greenbelts and natural detention basins to reduce impervious surfaces in HoKua Place.
- ▶ Sea level rise will not adversely affect HoKua Place's well site.
- ▶ HoKua Place contributions to County wastewater system could include elevating or waterproofing pump stations and other facilities to protect from flooding.
- ▶ HoKua Place energy conservation measures and adjacent solar farm could reduce capacity of electrical infrastructure to serve the Project.
- ▶ HG Kauai acknowledges ongoing resilience planning efforts of State DOT, County of Kauai, KIUC and others to address critical system vulnerabilities due to SLR in Kapaa community, and will cooperate in these efforts.