3.5: Wastewater Treatment and Reuse

The General Plan recognizes the significance of wastewater treatment and reuse as essential components of the County's comprehensive water management strategy. Adequate sewer systems are vital to maintain public health and protect the environment. As communities generate wastewater through various sources such as residential, commercial, and industrial activities, effective treatment is necessary to remove harmful pollutants and contaminants before the water is discharged back into the environment. Improperly treated wastewater can have detrimental effects on marine ecosystems, coastal waters, and freshwater resources, jeopardizing both human and ecological health.

An adequate system minimizes contamination of both the groundwater supply and coastal waters, beaches, and waterborne recreational areas and is not a visual and odor nuisance. Land development plans for resort-residential complexes located in shoreline areas pose a potential water quality problem for adjacent near-shore waters. Adequate treatment facilities are essential prerequisites for development.

Wastewater reuse, also known as water recycling or reclaimed water, involves treating wastewater to a level suitable for non-potable uses. Reusing treated wastewater provides an opportunity to conserve precious freshwater resources and reduce the strain on existing water supplies. For Hawai'i Island, where freshwater resources are limited and vulnerable to climate change impacts, the implementation of wastewater reuse projects becomes vital for ensuring water sustainability. By implementing appropriate treatment processes, treated wastewater can be used for a range of purposes, including irrigation of agricultural lands, landscape irrigation, industrial processes, and groundwater recharge. This practice helps meet non-drinking water needs, reducing the reliance on freshwater sources for non-potable purposes and leaving more available for essential uses like drinking water.

The County operates municipal sewerage in Hilo, Papaikou, Kapehu, Pepe'ekeo, and Kealakehe. The remaining communities are served by private wastewater treatment facilities or individual facilities, such as cesspools or septic tanks. In 2017, the Hawai'i State Legislature passed Act 125, mandating that all Hawai'i's cesspools be replaced by 2050. Cesspools are substandard sewage disposal systems as they do not treat wastewater. According to the latest report on the Hawai'i Cesspool Hazard Assessment and Prioritization Tool, Hawai'i Island contains an estimated 48,596 cesspools. Sewerage disposal system designs must be examined with the particular region in mind. Of critical importance in an examination of sewerage disposal for a community is the cost of the system, including construction and operation costs. These costs vary with the characteristics of each area.

The Safe Drinking Water Act of 1974 (PL 93-523) legislated the protection of all aquifers or portions of aquifers currently serving as drinking water sources and any other aquifer capable of yielding consumable water. This mandate was based on a national concern for the quality of the groundwater and the increasing evidence of contamination of this valuable resource.

In 1976, the State Legislature enacted Act 84, relating to safe drinking water, which requires the State Department of Health (DOH) to establish an underground injection control program to protect the quality of the State's

underground sources of drinking water. Because of the importance of groundwater as a source of municipal water supplies, the underground injection control program is considered a beneficial approach in the identification of aquifers that should be protected from subsurface disposal of wastewater through injection wells.

The protection of these aquifers is established by designating areas currently being used or will be used in the future for drinking water supply. The Underground Sources of Drinking Water (USDW) will be protected from pollution by prohibiting the construction of new injection wells that may pollute the USDW. Injection wells are allowed in exempted areas. The boundary lines between the USDW and the exempted areas have been developed. Under Chapter 62, Wastewater Systems, the DOH adopted a 1,000-foot setback of wastewater systems from all public drinking water wells and springs.

In compliance with the Federal Water Pollution Control Act Amendments of 1972 (Public Law 92-500), the DOH and the County jointly prepared the Water Quality Management Plan for Hawai'i County in 1978 and subsequently updated the plan in 1980. In 1979, the County Council adopted the plan through a resolution to serve as the planning guide for the development of regional waste treatment systems and the control of non-point sources of pollution. To implement the management plan, the County has prepared facility plans for various areas on the island. Facility plans are developed by the County to satisfy a requirement for the application of loans from the State to develop wastewater treatment facilities. The facility plans identify problems, potential solutions, and costs.

In 1985, the State Legislature enacted Act 282, Relating to Environmental Quality, which reassigns the County, effective July 1, 1987, or upon receipt of State funds, to assume complete administration and implementation for the regulation of sewerage and wastewater treatment system programs.

Objective 24

Planned and developed municipal sewer capacity is expanded to serve our Urban Growth Areas and reduce sewage-related impacts on water quality.

Policies

24.1 A Sewerage Study for All Urban Areas, including appropriate water quality management strategies, shall be completed and used as guides for the general planning of sewerage disposal systems.

24.2 Private treatment systems shall be installed by land developers for major resorts and other developments along shorelines and sensitive higher inland areas, except where connection to nearby treatment facilities is feasible and compatible with the County's long-range plans, and in conformance with State and County requirements.

24.3 Immediate steps shall be taken to designate treatment plant sites, sewerage pump station sites, and sewer easements according to the facility plans to facilitate their acquisition.

24.4 The county shall obtain State and Federal funds to finance the construction of proposed sewer systems and improve existing systems.

24.5 Plans for wastewater reclamation and reuse for irrigation and biosolids composting (remaining solids from the treatment of wastewater are processed into a reusable organic material) shall be utilized where topographically feasible and needed for landscaping purposes.

Wastewater and Environmental Quality Prioritization

24.6 Pollution shall be prevented, abated, and controlled at levels that will protect and preserve public health and wellbeing through the enforcement of appropriate Federal, State, and County standards.

24.7 Ensure municipal wastewater systems serve designated Urban Growth Areas with the capacity to accommodate projected population growth.

~~24.8~~ Average Daily Flow (ADF) for residential shall be 70 gallons per day per capita within any dwelling. For commercial and industrial uses (for example laundromats, food or beverage processing plants, et cetera)-the ADF must be calculated based on the type of fixtures, number of fixtures, usage, and occupancy.

24.9 The Department of Environmental Management and the Planning Department shall coordinate priorities before the adoption of any new wastewater development or land use plans.

24.10 Prioritize developing a multipronged approach to wastewater infrastructure funding, including proactively seeking grant funding for wastewater system expansion, improvements, and new development.

24.11 Ensure wastewater fees reflect actual costs for service, maintenance, and future improvements.

24.12 Ensure that wastewater systems and improvements are designed and functioning to maximize system efficiencies, prevent accidental leaks or spills, and provide sanitary, reliable wastewater treatment that is not negatively impacting natural resources.

One Water-Recycled Water Expansion

24.13 Strive for an integrated approach to stormwater and wastewater, and water resource management that is comprehensive and as efficient as possible.

24.14 Encourage on-site water reuse solutions for large developments.

24.15 Encourage and incentivize the collection of rainfall for non-potable use.

24.16 Prioritize the use of gray water in areas connected to county water and not connected to county wastewater.

Priority Actions

Wastewater and Environmental Quality Prioritization

24.a Prioritize areas…Establish community sewer districts, also known as facility community districts.

24.b Review, assess, and amend codes relating to sewer connection requirements (§21-5, 21-6, 23-85, and 25-2-46) to ensure wastewater issues and requirements are addressed in a consistent, sustainable, and socially equitable way. CODE AMENDMENT

24.c Develop a wastewater master plan with a clear prioritization method for wastewater system expansions and improvements based on criteria involving land use, projected growth, social equity, and environmental factors. PROJECT

24.d Develop plans to improve, connect, or develop new wastewater systems in unsewered urban coastal communities. PROJECT

24.e Perform a study to assess individual wastewater systems (IWS) in unsewered urban growth areas to assess the rate of failures/negative impacts, determine rates of large capacity cesspools still in use, and develop plans to improve, connect, or develop new wastewater systems for unsewered urban communities. PROJECT

24.f Proactively seek opportunities for public-private partnerships for wastewater development. PROJECT

24.g Facilitate the use of infrastructure improvement districts and other types of localized funding mechanisms to fund improvements. PROJECT

24.h In collaboration with the Department of Health Wastewater Branch, amend HCC, Section 23-85(a) to extend the minimum distance required for subdivisions to connect to existing sewer systems. The recommended requirement is: “sewer lines shall be installed where the subdivision is within one thousand three hundred twenty lineal feet (1/4 mile) of the existing sewer system.” CODE AMENDMENT