

4.0 RECOMMENDATIONS

4.1 Short Term – 5 years

There are three alternatives to consider for the short term solution of replacing LCC with a suitable treatment and disposal system. With regards to the County's expense, Alternative 2c is the cheapest. Only eight County properties with confirmed LCCs require replacement with septic tank system. However, Alternative 2c will not offer a solution to many confirmed or unconfirmed private or State properties along Mamane Street with LCCs. Due to the lack of open land space, some of these property owners will be faced with a difficult if not impossible task of replacing their LCCs with a suitable treatment and disposal system.

With Alternative 2a, the County will receive sewer use fees to offset the cost of constructing and maintaining the wastewater system, and the life cycle cost for Alternative 2a becomes more attractive. However, there will be insufficient reserve treatment capacity to connect all of Honokaa's public schools to the proposed Alternative 2a WWTP. Furthermore, key issues such as effluent limitations, lack of electrical power, and difficulty accessing the existing plant site are major engineering challenges to overcome with Alternative 2a.

Alternative 2b will also produce revenue to offset the overall life cycle cost estimate, but unlike Alternative 2a, Alternative 2b will replace majority of the LCCs on County, State and privately owned properties.

After considering the dilemma of implementing the cheapest solution in Alternative 2c and factoring the effluent limitation issues with Alternative 2a, the recommended courses of action for the short term recommendation is **Alternative 2b**:

1. Design and Construct Proposed WWTP Alternative 2b:
 - a. Design and construct a new 200,000 gpd mechanized secondary treatment plant.
 - b. New WWTP site and property will be required.
 - i. The old sugar mill properties and the adjacent pasture lands are among the potential site for the new WWTP (See Figure 4-1). The County is expected to purchase the necessary property for the WWTP.
 - ii. Approximately 5-8 acres is required. The amount of land will depend on the existing structures that will be difficult to demolish, accessibility for road and utilities, and the slope of the terrain. Additional 2-3 acres may be required if Alternative 3 option is implemented.

- iii. These potential sites already provides paved road access, potable water supply, and more importantly, utility electrical supply.
 - c. New seepage pits/injection wells are required.
 - d. The existing disinfection system is not required but will be planned for a future project.
 - e. Stabilized and dewatered waste sludge will be hauled to and disposed at a West Hawaii municipal landfill.
2. Design and Construct Proposed Collection System Alternative 2b:
- a. Perform flow monitoring and TV inspections of the existing collection system and WWTP. This task should be performed as part of a Due Diligence evaluation prior to transferring ownership of the existing State wastewater system to the County.
 - b. Design and construct Mamane Street trunk sewer line from Ohelo Street to Lehua Street. Connect to existing sewer manhole in the intersection of Mamane Street and Lehua Street.
 - c. Design and construct Pakalana Street sewers from Kamani Street to the proposed Mamane Street sewer.
 - d. Design and construct interim pump station for the County and State properties, which include the police and fire stations.
 - e. Design and construct sewer line connecting the County park facilities with the proposed Mamane trunk sewer.
 - f. Replace 40 linear feet of the existing 8-inch Lehua interceptor to remove the hydraulic bottleneck within the system.
 - g. Obtain necessary easements.
 - h. Transfer ownership of the existing State owned wastewater system to the County at no extra cost to the County. The cost estimates in Table 3-9 assumes that the State will transfer the wastewater system at no cost to the County.
 - i. Landowners along the proposed sewer routes must connect to the County sewer system and must pay a monthly sewer usage fee (See Appendix I).

4.2 Long Term: 5 to 50 years

The County is not required by any law or standards to expand the wastewater system beyond the short term recommendation of Alternative 2b. The 50 year long term recommendation is optional and will be implemented by the County upon the availability of design and construction funds.

The 50-year long term recommendation is to eventually sewer the entire Honokaa town to the extent possible as shown in Figure 4-1. This recommendation will remove majority of the estimated 625 cesspools¹ from discharging raw wastewater into the ground. It is recommended that Alternative 3 be implemented in phases. Alternative 3 will include work performed under Alternatives 2a and 2b.

The long term solution for the WWTP is to expand the Alternative 2b proposed new WWTP from 200,000 gpd to 700,000 gpd.

The recommended courses of action for the optional long term recommendation are to implement the design and construction of the Alternative 3 in the following phases. The optional design and construction duration is shown for each phase. This optional duration should only be used for future capital improvement budgets and not as the schedule for implementation.

1. Design and Construct WWTP Phase 1 (5-10 years):
 - a. Design ADWF 350,000 gpd.
 - b. Design PWWF 1.74 mgd.
 - c. Obtain open land near the abandoned sugar mill factory.
 - d. Screening facility
 - e. Expand the Alternative 2b WWTP to 350,000 gpd.
 - f. Seepage pit disposal system
 - g. Convert existing ponds to facultative sludge lagoons.
 - i. Include method to remove inert sludge and lagoon supernatant (excess rainwater).
2. Design and Construct Collection System Phase 1: (10 to 20 years):
 - a. Design ADWF: 211,800 gpd
 - b. Design PWWF: 1.06 mgd
 - c. Continue using the existing Lehua sewer line.
 - d. Capacity of the existing Lehua sewer: 806,100 gpd
 - e. Expand Mamane trunk tributary area:
 - i. This will remove many of the downtown and State and County properties from using cesspools.
 - f. Camp 8 trunk tributary area.
 - g. Plumeria trunk tributary area.
 - h. Lehua trunk tributary area.
 - i. Landowners within the proposed tributary areas must connect to the County sewer system and must pay a monthly sewer usage fee (See Appendix I).
3. Design and Construct Collection System Phase 2: (20 to 30 years)
 - a. Combined Items 2 and 3 Design ADWF: 335,000 gpd.
 - b. Combined Items 2 and 3 Design PWWF: 1.55 mgd
 - c. Design and construct proposed Maile Interceptor to the new plant site.
 - d. Design and construct proposed Lehua Interceptor which connects to the proposed Maile Interceptor.
 - e. Maile trunk tributary area.
 - f. Pakalana trunk tributary area.
 - g. Landowners within the proposed tributary areas must connect to the County sewer system and must pay a monthly sewer usage fee (See Appendix I).
4. Design and Construct WWTP Phase 2 (25 to 30 years):

- a. Design ADWF 700,000 gpd.
- b. Design PWWF 3.49 mgd.
- c. Expand WWTP from 350,000 gpd to 700,000 gpd.
- d. Disinfection system: UV disinfection or chlorination system satisfying R2 recycled water quality.
- e. Effluent reuse system:
 - i. Area 3 – 73 acres required.
 - ii. Effluent pump station and force main.
 - iii. Chlorination system for algae control.
 - iv. 2-day effluent storage reservoir.
 - v. Automatic spray irrigation system.
- 5. Design and Construct Collection System Phase 3 (35 to 50 years):
 - a. Hamakua Ditch trunk tributary area.
 - b. Haina trunk tributary area.
 - c. Mauna Loa trunk tributary area.
 - d. Ocean View trunk tributary area.
 - e. Lower Maile trunk tributary area.
 - f. Landowners within the proposed tributary areas must connect to the County sewer system and must pay a monthly sewer usage fee (See Appendix I).

4.3 Project Schedule – Short Term LCC conversion

The preliminary schedule for implementing the short term recommendation of Alternative 2b is as follows:

Table 4-1: Preliminary Schedule for Alternative 2b

Task	Start Date	End Date
Preliminary Engineering Report	August 2005	February 2006
Environmental Assessment	February 2006	June 2006
Design	August 2006	August 2007
Bidding/Contract Phase	August 2007	March 2008
Construction	March 2008	November 2009
EPA Deadline		September 2010






EXISTING WASTEWATER TREATMENT PLANT

PROPOSED ALTERNATE WWTP SITES FOR MECHANIZED PLANT

POWER PLANT SITE

LOWER MAILE TRUNK TRIBUTARY AREA

HAINA TRUNK TRIBUTARY AREA

-  ALTERNATIVE 2A
-  ADDED ALTERNATIVE 2B AREA
-  ALTERNATIVE 3

UIC LINE

Lehua Street

EXIST SEWERLINE

LEHUA TRUNK TRIBUTARY AREA

MAILE TRUNK TRIBUTARY AREA

CAMP 8 TRUNK TRIBUTARY AREA

PAKALANA TRUNK TRIBUTARY AREA

PLUMERIA TRUNK TRIBUTARY AREA

Pakalana Street

Mamalahoa Highway

OCEAN VIEW TRUNK TRIBUTARY AREA

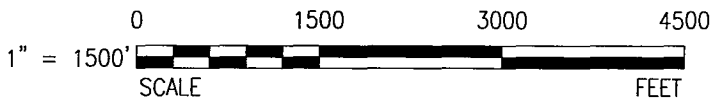
MAMANE TRUNK TRIBUTARY AREA

HAMAKUA DITCH TRUNK TRIBUTARY AREA

MAUNA LOA TRUNK TRIBUTARY AREA

PROPOSED TRIBUTARY AREAS

SCALE: 1" = 1500'



M&E Pacific, Inc.

METCALF & EDDY | AECOM

DAVIES PACIFIC CTR, STE 1900 • 841 BISHOP ST, HONOLULU, HAWAII 96813

Figure 4-1
HONOKAA WASTEWATER PER
PROPOSED TRIBUTARY AREAS AND WWTP SITES

October 17, 2005

PLOT DATE: January 23, 2006 @ 04:45:01 pm

PNR/PLM/E: F:\Projects\DWI\Locality of Hawaii\Local environmental management\62007\701_Honokaa_Loc_Plan\Loc_Plan\DWI\DWI.dwg, 2/2/06 10:46:59 am

5.0 PERMITS

5.1 Permits

The project may be subject to the following construction related permits:

1. NPDES Stormwater, Construction Dewatering, and Hydrotesting Permits.
2. Underground Injection Control (UIC) Permit.
3. Building Permits.
4. Grading Permit.
5. Excavation Permit.
6. Pressure Vessel and Boiler Permit.
7. Fuel Storage Tank Permit.
8. Wastewater Management Permit.

Design and construction approval from DOH is required prior to any improvements to the existing wastewater facility. The County is required to apply for a General Permit⁷ from DOH prior to the startup of the expanded facility.