TMDL Review Checklist

State: Hawaii

Waterbodies: Kapa'a Stream (not including Kawainui Marsh or Kawainui Stream)

Pollutant(s): Total Suspended Solids (TSS), Total Nitrogen (TN), Total Phosphorus (TP)

Date of Initial Submission: May 3, 2007

Date Received By EPA: May 7, 2007

Dates of Supplemental Submission(s) and Receipt by EPA: July 12, 2007

EPA Reviewer: Lynn Suer

1. Submittal Letter:
State submittal letter indicates final TMDL(s) for specific water(s)/pollutant(s) were adopted by state and submitted to EPA for approval under 303(d). Acknowledge if any supplemental material was provided and receipt date.

The submittal letter, dated May 3, 2007, was received by EPA on May 7, 2007. The TMDLs for Kapa'a Stream for total suspended solids (TSS), total nitrogen (TN), and total phosphorus (TP) were approved by the Deputy Director of the Hawaii Department of Health on May 3, 2007, and submitted for EPA approval under CWA Section 303(d). The submittal included the TMDL technical report and Appendix A ("Total Maximum Daily Loads of Total Suspended Solids, Nitrogen and Phosphorus in Kapa'a Stream, Kailua, Hawaii"), dated May, 2007. A supplement to Appendix A (Section 10.0 "Loading Capacities and Allocations") was submitted on July 12, 2007.

EPA finds the State's analysis concerning water body impairment associated with total suspended solids (TSS), total nitrogen (TN) and total phosphorus (TP) is reasonable and consistent with the requirements of Section 303(d).

2. TMDLs Included:
The submittal clearly identifies the water segments and pollutants or stressors for which TMDLs were developed. The submittal should include the water segment identifier (e.g., NHD code) for each segment addressed. The submittal should clearly identify the TMDLs adopted for currently 303(d) listed waterbody-pollutant combinations. It should also clarify if TMDLs were adopted for new impairment findings (by waterbody-pollutant combinations) that do not exist on the current 303(d list. If appropriate, the submittal should describe any assessment decisions that may have resulted in non-impairment status for water/pollutant combinations that exist on State's most current 303(d) list.

(TMDL report, pp. 1-1 to 1-4; 3-1 to 3-4)
The TMDL's address TSS, TN and TP, and are set at levels necessary to attain and maintain the applicable water quality standards for Kapa'a Stream. The 2004 303(d) list combines Kapa'a Stream, Kawainui Marsh and Kawainui Stream into a single listing. However, this submittal addresses only Kapa'a Stream. The draft 2006 303(d) and 305(b) Integrated Report lists these three waterbodies separately, and adds the designation "Kapa'a" to the Hawaii Geocode ID for Kapa'a Stream.

The TMDL technical report also provides data indicating metals (except copper) may not exceed hardness-adjusted water quality standards. The analytical detection limit for copper exceeded the standard, so further monitoring and assessment is needed for copper (see item #13 below).

3. Water Quality Standards Attainment: *TMDL and associated allocations are set at levels adequate to result in attainment of applicable water quality standards.*

(TMDL report, p. 1-1 to 1-33)
The TMDLs are designed to implement Hawaii water quality standards (HAR Section 11-54-5.2 for Kapa'a Stream, which is a Class 2 Inland Stream. The applicable standards are based on protection of recreational uses and agricultural and industrial water supplies, as well as propagation of fish and other aquatic life.

The submittal clearly summarizes the applicable water quality standards for TSS, TN, and TP. The standards for each of these pollutants are defined by three numeric criteria – a geometric mean and two exceedance values (2% and 10%) – for each of two seasons, we and dry. Further, when the existing loads are less than the allocated load capacity, the assigned source allocation is the existing load. This approach insures compliance with the anti-degradation policy.

The State reasonably concludes that implementation of the TMDLs, waste load allocations, and load allocations will result in elimination of the adverse effects associated with elevated TSS, TN, and TP, and will bring about attainment of applicable water quality standards.

4. Numeric Target(s): *Submission describes applicable water quality standards, including beneficial uses, applicable numeric and/or narrative criteria. Numeric water quality target(s) for TMDL identified, and adequate basis for target(s) as interpretation of water quality standards is provided.*

(TMDL report, p. 5-1; Appendix A, Section 8)
The TMDL numeric targets are set equal to, or less than, the applicable numeric standards for TSS, TN and TP, which are defined by three numeric criteria for each of two seasons. The targets under baseflow (dry weather) conditions are less than for the 2% and 10% storm event targets, which ensures compliance with seasonal mean standards.

EPA concludes that the State's approach to developing these TMDLs, based on existing numeric water quality standards, is reasonable and protective of beneficial uses of Kapa'a Stream.

5. Source Analysis: *Point, non-point, and background sources of pollutants of concern are described, including the magnitude and location of sources. Submittal demonstrates all significant sources have been considered.*

(TMDL report, Chapters 3-5)
The submittal provides a clear description of point and non-point sources in 12 sub-basins tributary to Kapa'a Stream, utilizing all available water quality data for Kapa'a Stream related to TSS, TN, and TP.

Sub-basin D, which is eroded by off-road vehicular traffic, contributes storm runoff loads of TSS and TP that are in excess of the relative area proportion of the sub-basin. During wet weather, the landfill areas contribute significantly to the loads of TSS, TP and TN. During the dry season the relatively small loadings of these three pollutants are entirely from highway and road areas.

EPA concludes that all significant sources of TSS, TP, and TN have been considered in the source analysis for the TMDLs.

6. Loading Capacity Linkage Analysis: *Submittal describes relationship between numeric target(s) and identified pollutant sources. Submittal clearly identifies loading capacity. For each pollutant, describes analytical basis for conclusion that sum of allocations and margin of safety does not exceed the loading capacity of the receiving water(s).*

(TMDL report, Chapter 5, Appendix A)
The submittal defines the linkage between point and non-point sources (within 12 sub-basins) and ambient stream water quality using a modeling approach, which calculates baseflow and pollutant load contributions, based on land use areas. The results are calibrated with existing (2001-2002) water quality data for Kapa'a Stream. Mass-based load capacities are calculated for a variety of flow conditions.

EPA concludes that the State's analysis sufficiently describes the link between the numeric targets and the pollutant sources to Kapa'a Stream. Mass balance calculations relating stream flows and pollutant concentrations in Kapa'a Stream to pollutant sources are described in Chapter 5 and Appendix A. Loading capacities are presented in Tables 6.2-6.3, and the methodology for calculating these is explained in Appendix A, Section 10.0.

EPA concludes that the sum of allocated loads will not result in exceedances of loading capacities in the receiving waters for any of the pollutants of concern.

7. TMDL and Allocations:
TMDL—Submittal identifies the total allowable load, which is set equal to or less than the loading capacity. TMDL is expressed in terms of mass-based, concentration-based or other equivalent approaches that are consistent with federal requirements. If TMDL has seasonal features then please describe. TMDLs and allocations should be expressed in terms of daily time steps. If the TMDL and/or allocations are also expressed in terms other than mass loads per day, the submittal explains why it is reasonable and appropriate to express the TMDL in those terms.

Allocations—Submittal identifies appropriate wasteload allocations for all point sources and load allocations for all non-point sources. Allocations are expressed in terms of mass-based, concentration-based or other equivalent approaches, the submittal explains why it is reasonable and appropriate to express in those terms.

TMDL or Loading Capacity

(TMDL report pp. 6-4 to 6-9)
The calculated load capacities are allocated to the tributary sub-basin sources (e.g., landfill, forest/brush) in proportion to the existing load from the source. Allocations are calculated for each pollutant under each of six conditions (baseflow, 10%, and 2% storm events for both dry and wet weather). Load source categories were then consolidated into: 1) loads from and allocations to areas that include facilities that are currently regulated or should be regulated by NPDES permits (point sources), and 2) loads from and allocations to remaining areas that don't include any NPDES-regulated facilities (non-point).

The TMDLs for the identified point and non-point sources are expressed as mass loads per day. The loadings were calculated such that the sum of all the loadings to the receiving water would not cause an exceedance of TMDL numeric targets. Load reductions required to achieve these TMDLs are also presented.

EPA concludes that the sum of the allowable loads from each of the tributary sub-basin sources will not exceed the loading capacity of the receiving water. The existing sources include both point and non-point sources.

Wasteload Allocations for Point sources
If point sources are present, submittal identifies existing NPDES permits by name and number. More discussion of point sources in watershed. If no point sources are present, wasteload allocations are zero.

(TMDL report, pp. 6-10 to 6-17)
The technical report identifies waste load allocations for point sources, and includes existing NPDES permits by name and number, as follows:

Permittee/Facility	Permit Number	Permit Type
Hawaii Dept. of Transportation, Highways Division	HI S000001	Phase 1 MS4
City & County of Honolulu, Departments of Environmental Services, Facilities Maintenance, Design & Construction, Planning & Permitting	HI S000002	Phase 1 MS4
Ameron Hawaii/Kapa'a Quarry	HI 0020796	I-MAJ
City & County of Honolulu, Department of Environmental Services/Kapa'a Sanitary Landfill and Transfer Station	HI 0021563	I-MIN
City & County of Honolulu, Department of Environmental Services/Kalaheo Landfill	HI R50A532	NGPC-B
Industrial Park tenants	N/A	NGPC-B
Various Permittees	N/A	NGPC

MS4 = Municipal Separate Storm Sewer System (Phase 1 = large, Phase 2 = Small)
NGPC = Notice of General Permit Coverage (B = Industrial Stromwater)
I = Individual (MAJ = Major; MIN = Minor)

Load Allocations for Nonpoint sources
Discussion of non-point sources. If no non-point sources are present, then load allocations are zero.

(TMDL report, pp. 6-12 to 6-17)
Facility areas of permitted dischargers (above) are assumed to contribute (via infiltration and percolation) to the groundwater that provides baseflow to Kapa'a Stream. Thus, these facility areas are considered non-point sources of baseflow (dry weather) volume and quality are assigned non-point source load allocations for dry weather conditions.

The remaining non-point source areas for both baseflow and storm event conditions are forest/brush and eroded areas in Sub-basins A, C, D, E, G, and J, and the landfill areas in Sub-basins J and K that are not within the NPDES-regulated area. Key implementation mechanisms will include controlling off-road vehicle traffic and repairing areas damaged by this traffic, as well as integrating point and non-point source management measures in areas where commingling of these occurs, such as along freeways and in the landfill area. The submittal also suggests augmenting dry weather stream flow with a source of high quality water such as the water in Ameron's main quarry floor pit, in order to achieve TMDL numeric targets.

EPA concludes the State's approach of setting the TMDLs and allocations is appropriate for the waters and pollutants of concern and consistent with the provisions of CWA and federal regulations. See 40 CFR 130.2(i).

8. Margin of Safety: *Submission describes explicit and/or implicit margin of safety for each pollutant.*

(TMDL report, pp. 6-9 to 6-10)
The submittal utilizes the existing water quality standards and implicit margins of safety. Several factors contribute to margins of safety. For example, in the event-averaged streamflow and water quality calculations, an estimated time of runoff concentration is included, but stream segment travel (or retention) times are ignored.

Similarly, a conservative approach is used to determine the actual times that the 10% and 2% water quality standards are exceeded. The calculations rely on a 24-hour minimum timeframe of recorded rainfall, even though the actual durations of rainfall, runoff, increased streamflow and pollutant loadings are less than 24 hours. The overall result is conservatism in the calculation of load capacities and their allocations.

EPA considers this a permissible and appropriate way of dealing with uncertainty concerning the relationships between TMDLs, WLAs, LAs and water quality conditions.

9. Seasonal Variations and Critical Conditions: *Submission describes method for accounting for seasonal variations and critical conditions in the TMDL(s).*

(TMDL Report, pp. 5-1 to 5-22)
The submittal develops TMDLs for six conditions (baseflow, 2% and 10% storm events for both wet (November – April) and dry (May – October) seasons. The numeric water quality targets selected for the 10% and 2% rainfall events are the water quality standards not to be exceeded more than 10% and 2% of the time, respectively, while the baseflow conditions are calculated to satisfy the geometric mean water quality standard for each of the two seasons.

EPA concludes that the state's analysis adequately accounts for the seasonal variations in critical conditions by establishing TMDLs and allocations that vary in response to differences in flow conditions.

10. Public Participation: *Submission documents provision of public notice and public comment opportunity; and explains how public comments were considered in the final TMDL(s).*

(TMDL Report, pp. 7-1 to 7-22)
The State provided adequate opportunities and notification for public comment on the TMDLs through direct mailings and broadcasts via website and email. The report was distributed in electronic and paper formats for public review and a public meeting held on November 15, 2006. Written public comments received by December 6, 2006 were reviewed and a consolidated response was mailed directly to each commenter. The public comments and the State's responses are included in the submittal.

11. Technical Analysis: Submission provides appropriate level of technical analysis supporting TMDL elements.

The technical analysis supporting the TMDLs included considerations of available water quality and flow data, detailed descriptions of watershed sub-basins and sources, and utilizes a methodology for calculating load capacities and TMDLs that is conceptually sound.

EPA concludes the State was reasonably diligent in its technical analysis of TSS, total nitrogen and total phosphorus in Kapa'a Stream.

12. Reasonable Assurances: *If wasteload allocations are made less stringent based on inclusion of load allocations that reflect nonpoint source reductions, submission describes how there are reasonable assurances necessary nonpoint source reductions will occur.*

NOT APPLICABLE

13. Other: *table for clarifying submittal for TMDL waterbody-combinations for corresponding 303(d) listing, new impairment findings or non-impairment findings.*

TMDLS for 303d list *Waterbodies (delineation) & pollutant/surrogate(s)* *(specific segment name(s), ID # if known, etc.)*	**Listed year** *(most recent listed year)*
Kapa'a Stream (not including Kawainui Marsh or Kawainui Stream) – TSS, Total N, Total P	2004
TMDLS for new impairments *Waterbodies (delineation) & pollutant/surrogate(s)*	N/A
TMDLS not needed = non-impairment but on 303d list *Waterbodies (delineation) & pollutant/surrogate(s)*	**Listed year**
Kapa'a Stream – metals	2004