

SECTION 2 **BACKGROUND**

2.1 NSR PURPOSE AND SCOPE

New or innovative technologies may provide a high level of waste disposal efficiency with few residuals, reducing the dependence on landfilling and incineration. The NSR uses the available information on new and innovative technologies and assesses the applicability of such technologies for diverting refuse currently being sent to the Waimanalo Gulch Landfill for disposal.

2.2 EVALUATION METHODOLOGY

The step-by-step technology evaluation process in this study is shown in a block diagram, which is enclosed as Figure 2-1. As shown, the task is performed by first gathering the data on the City's refuse management system and its requirements and objectives. Next a model of the City's refuse management system is developed (see Section 3). This model includes the physical facilities, recycled (diverted) waste streams and material processing rates at key facilities. Using this model, the cost of the key system elements is obtained for use in the technology evaluation studies.

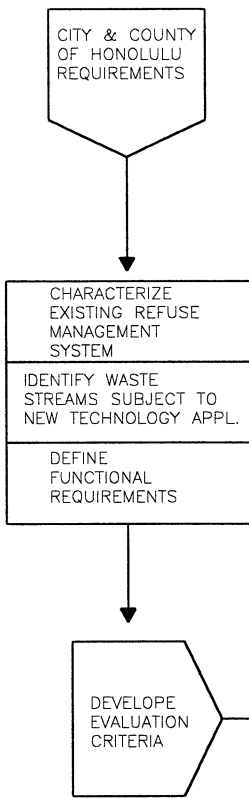
Evaluation of technologies is initiated by conducting a survey of the available systems. Next a first-tier screening process is used to narrow down technologies to seven most feasible options (see Section 4). These options are subjected to a second-tier screening and are evaluated against the City's requirements and objectives (see Section 5). The second-tier screening produced a set of three short-listed technologies for detailed evaluation.

Each of the short-listed technologies is incorporated into an integrated waste management facility (see Section 6). Each facility uses one or more of the short-listed technologies as its main component, but the facility also includes other unit operations that would be needed for a total and complete integration of the technology within the existing City refuse management system. A pre-conceptual design package is developed and presented for each of the integrated facilities. This includes a system integration block diagram, a facility functional block flow diagram, and a facility plot plan. The pre-conceptual characterization of the options also includes the functional, operational and performance aspects of the overall facility and its key unit operations. Based on the pre-conceptual characterization of the facilities, rough order of magnitude (ROM) capital and operating costs for each of the alternatives are developed.

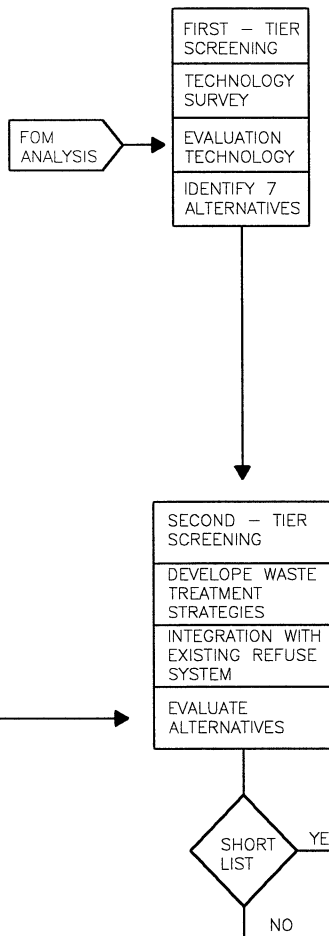
The last step of the study encompassed a technical and economic review of the facilities that were based on the short-listed technologies. The review covered the following aspects:

- Application to the existing system
- Existing system changes required
- Project development activities and estimated duration
- Milestones
- Prior experience
- Permitting
- Operational reliability
- Implementation barriers and incentives
- Diversion capability
- Economic feasibility

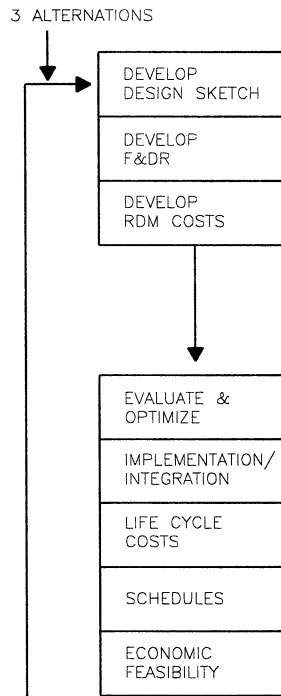
DATA ACQUISITION



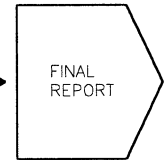
TECHNOLOGY SCREENING



EVALUATION OF SHORT LISTED TECHNOLOGY



RECOMMENDATION



FOM = FIGURE OF MERIT.

FIGURE 2-1 NEW SYSTEMS RESEARCH EVALUATION DIAGRAM

ATG INC.
47375 FREMONT BOULEVARD
FREMONT, CA 94538

**CITY & COUNTY
OF HONOLULU
NEW SYSTEMS RESEARCH**

UNLESS SPECIFIED OTHERWISE, THE GIVEN SCALE IS VALID WHEN DRAWING IS 11"x17"