



## Providing Open Area: the Costs to Hotels

Jeanmarie Foy, Gary R. Vieth, and Linda J. Cox

Department of Natural Resources and Environmental Management

Hawaii's visitors like open, tropical settings. Policies to increase the amount of open area, especially in Waikiki, have been passed by lawmakers. In 1976, for example, the Waikiki Special Design District (WSDD) was set up to provide "landscaped open spaces to offset the high-density ambience and contribute to a lush tropical setting." But the WSDD had limited impact because much of the available space was quickly developed before it took effect. Subsequently, another program was set up to give tax credits to new hotels and other projects that provide more landscaped open areas in Waikiki.

When hotel owners make decisions to provide open area, they look at the costs and benefits of their actions. Sometimes, however, public policies do not take the same costs or benefits into account. Our studies, reported here, estimate and compare the costs for a hotel to provide open area in Waikiki, on Maui, and on the Big Island (Hawaii). These cost estimates are the first step in analyzing this issue. The next step is to estimate benefits, and this will be reported in a second publication. The cost and benefit estimates will then be combined in a third publication to identify the optimal investment in open area.

### Hotel and resort open area

Hotel land can be either developed or used as open area. "Developed area" includes all buildings and parking lots. "Open area" is undeveloped space; it is the area remaining after deducting the developed area from the hotel's total land area. A survey conducted by Frank Eastwood in 1999 indicated that, on average, the total-land areas and open-land areas of hotels differ among the three locations studied (Waikiki, Maui, and Hawaii). Total, open, and developed areas per hotel are shown in Figure 1. A hotel in Waikiki typically has 1.54 acres of land, with 26 percent of it open area. Hotels on Maui and Hawaii average 19.94 and 21.65 acres of land, respectively. On both islands, an average of 49 percent of the hotel land is open area.

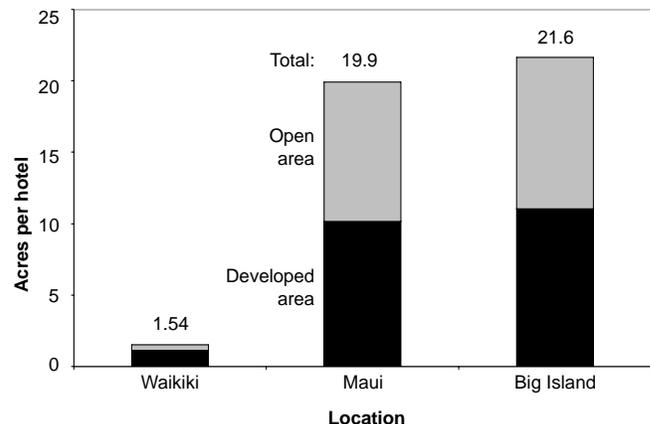
### Cost of open area

The total cost of a hotel's open area includes both the maintenance (upkeep) cost and the opportunity cost of the land. Maintenance cost is the amount of money that must be spent to care for the open area. This includes landscaping, renovation, and day-to-day care costs including all purchased and rented inputs such as labor, materials, plants, and overhead. We used estimates of maintenance costs from another study\*. Adjusted for inflation, these estimates reveal an annual maintenance cost for landscaped open area of \$10,900 per acre, or \$0.25 per square foot.

Maintenance cost varies with the type of open area. To keep things simple, we used the cost for landscaped open area for all types of hotel open area. This figure is the highest cost among all the types of open area. The data did not vary by location, so the same figure was used for all three locations.

The opportunity cost of the land is the value of using the same land for something else. If the hotel land is not used for open area, it can be used for buildings. The opportunity cost of using land as open area is the income that it could have earned in another use. Hotel and resort land in Hawaii is assessed for property tax purposes at its value in

Figure 1. Average developed, open, and total land area per hotel in three locations in Hawaii.



\*Cox, L.J., J.R. Hollyer, and D.M. Schug. 1991. An economic profile of Hawaii's landscape services. CTAHR Res. Extension Series 128.

the “highest and best use.” Thus assessed values are estimates of the opportunity cost of hotel and resort open space.

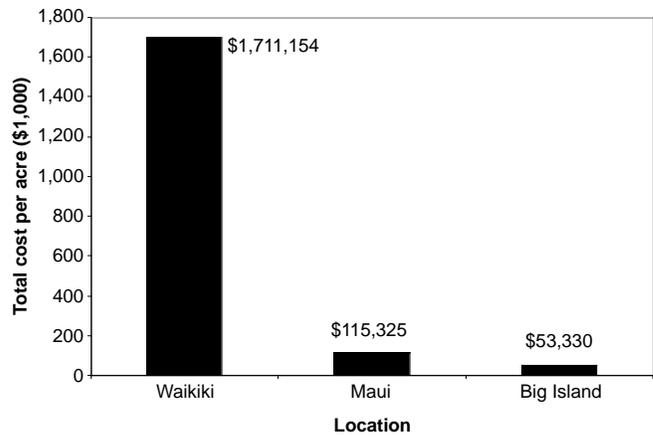
The assessed value of the hotel/resort land class came from the Real Property Division, Department of Budget and Fiscal Services, City and County of Honolulu, with the cooperation and permission of Maui County and Hawaii County. The value was transformed into a yearly cost using an 8% interest rate and is an estimate of the opportunity cost of hotels providing land for open area. The opportunity cost of using land for open area for a hotel in Waikiki is thus calculated to be \$1,700,234 per acre per year, much higher than on Maui (\$104,405) or on Hawaii (\$42,410).

The total cost of providing open area is equal to the cost of the land resource needed plus the cost of establishing and tending it. The total cost (maintenance plus opportunity costs) of providing open area is much higher for hotels in Waikiki than for those on Maui or Hawaii (Figure 2). Maintenance cost ranges from 0.64% of total cost in Waikiki to 9.47% on Maui and 20.48% on the Big Island (Figure 3). The opportunity cost of land in Hawaii is greater than the maintenance cost. Thus a hotel owner’s decision to provide more open area depends heavily on the opportunity cost of land.

**Discussion**

Hotels on Maui and the Big Island have a higher proportion of their total land in open area than hotels in Waikiki. They also have much larger open areas in terms of acreage. Based on the cost of providing open area, this is expected. Programs to encourage hotel owners to provide more open areas, especially in Waikiki, must consider the size of these costs. The opportunity cost of the land in Waikiki, over \$1,700,000 per acre per year, is likely so

**Figure 2. Average total cost of open area per hotel in three locations in Hawaii.**



high that any incentive for hotels to invest in more open area would be more costly than policy-makers are willing to accept. Because the opportunity cost of land is lower on Maui and the Big Island, hotels there are expected to be more willing to invest in open area, with smaller incentives needed.

The estimated cost of providing open area appears to explain the current levels observed at hotels. However, when hotel owners make decisions about providing open area, they consider the expected benefits as well as the costs. A more complete picture, including the benefits, is needed before appropriate policies can be developed. And finally, the optimal balance between costs and benefits needs to be determined so that policy goals can be shaped to encourage investment in open area. Analysis of these issues will appear in subsequent publications.

**Figure 3. Relation of maintenance cost and opportunity cost for hotel open area in three locations in Hawaii.**

