

## Commuter Adjusted Daytime Population on Oahu

How many people stay in an area during typical business hours, and how many workers commute in and out of the area on a typical workday is important information needed for various planning purposes. This brief presents estimates of commuter adjusted daytime population for the island of Oahu. For the estimates, adjustment was made for commuting of workers who include people 16 years and over, employed either full-time or part-time and at work during the reference week. Therefore, movement and daytime population change due to other groups of people such as students, shoppers, and tourists were not included in the adjustment.

The area defined in this brief is based on the Census geography called Census Designated Places (CDPs) on Oahu which are statistical concentrations of population that are identifiable by name but are not legally incorporated under the laws of the state.

*Daytime population* can be estimated by adding to total resident population of an area all in-commuters for work and subtracting all out-commuters for work. Using the 2009-2013 American Community Survey 5 year estimates from the Census Bureau, this brief addresses the questions “*What areas expand or contract during daytime?*”, “*What percentage of workers commute into and out of their area of residency each day?*”

$$\begin{aligned} \text{Daytime Population} \\ = \text{Resident Population} \\ + \text{In-commuters for Work} \\ - \text{Out-commuters for Work} \end{aligned}$$

This brief includes two tables. Table 1 shows commuter adjusted daytime population along with information on the percentage change from resident population and the percentage of workers living and working in the same place. Table 2 shows employment/working resident ratio, which is an indicator of the balance between the number of jobs and the number of workers in an area. An area with a low percentage of workers living and working in the same place would have a large volume of out-commuters, resulting in a large population loss during daytime unless the area offers many work opportunities to draw in-commuters. By the same token, areas with a high percentage of workers living and working in the same place would have less out-

commuters. These areas are more likely to show a moderate to significant increase in daytime population depending on the size of work opportunities offered in the area.

Commuter flow statistics for Oahu show that military bases such as Hickam Housing CDP (73%), Wheeler AFB (66.3%), and Schofield Barracks CDP (36.2%) received a large increase in daytime population due to a large number of in-commuters to the area. Among non-military areas, Ko Olina was the area that experienced the largest daytime population increase. Although the percentage of workers living and working in the same place was low at 8.8%, its population increased by 75.4% during daytime due to incoming commuters as the area offered 2.4 times more jobs than workers residing in the area. Another major non-military area with a large population increase during daytime was Urban Honolulu. Unlike Ko Olina CDP, a majority of workers in Urban Honolulu, 84.1%, lived and worked within the same geographical boundary without needing to commute further. In conjunction with 1.7 times more jobs per worker residing in the area, commuter-adjusted daytime population of Urban Honolulu CDP was 32.8% more than its resident population in the 2009 to 2013 time period.

Contrastingly, many CDPs in Ewa had the largest percentage of population loss during daytime due to workers commuting out to work each day. Population loss during daytime in these areas includes West Loch Estate (-50.6%), Makakilo (-49.5%), Ewa Gentry (-49.3%), Royal Kunia (-46.1%), Ocean Pointe (-42.2%), and Ewa Villages (-40.2%). During the 2009 to 2013 time period, the percentage of workers living and working in the same place was all much lower than 10 percent and the employment to working resident ratio was also very low in these areas.

Unlike most other areas in Ewa, Kapolei CDP experienced a relatively low population loss during daytime despite of a low percentage, 7.1%, of workers living and working in the same place. Daytime population of Kapolei CDP was only 3.1% smaller than its resident population, indicating possibly a significant number of workers moving into the area from adjacent or other residential areas to offset a large number of out-commuters from Kapolei.

More workers living in Windward seem to be employed closer to home. With the exception of Ahuimanu CDP, most Windward areas showed a relatively high percentage of workers living and working in the same place. 26.4% of workers living in Kailua and 18.8% of workers living in Kaneohe was estimated to work within the same geographic boundary with no need to travel further to work. Together with relatively more job opportunities, population loss during daytime was moderate in these areas; Kailua (-19.5%), Waimanalo (-18.3%) and Kaneohe (-17%).

Although the percentage of workers living and working in the same places was not as high as in the areas in Windward, many CDPs in Central Oahu showed a relatively small percentage of population loss during daytime, indicating large in-commuters to the area to offset large out-commuter from the area.

Table 1. Commuter Flow and Daytime Population by CDPs on Oahu\*

|                    | <b>Daytime population change due to commuting<br/>(% of resident population)</b> | <b>Commuter Adjusted Daytime Population</b> | <b>Resident Population</b> | <b>% Workers living &amp; working in the same place</b> |
|--------------------|--|---|----------------------------|---|
| Ko Olina           | 75.4%  | 3,451                                       | 1,967                      | 8.8%  |
| Hickam Housing     | 73.0%  | 13,039                                      | 7,538                      | 38.3%   |
| Wheeler AFB        | 66.3%  | 4,019                                       | 2,416                      | 14.3%   |
| Schofield Barracks | 36.2%  | 24,687                                      | 18,126                     | 60.9%   |
| Urban Honolulu     | 32.8%  | 452,331                                     | 340,639                    | 84.1%   |
| Haleiwa            | 2.6%   | 3,916                                       | 3,817                      | 25.2%   |
| Laie               | 1.7%   | 5,749                                       | 5,654                      | 60.5%   |
| Kaneohe Station    | -1.1%  | 10,317                                      | 10,434                     | 44.1%   |
| Wahiawa            | -1.8%  | 16,959                                      | 17,268                     | 21.0%   |
| Kapolei            | -3.1%  | 15,024                                      | 15,501                     | 7.1%  |
| Kahuku             | -7.5%  | 2,335                                       | 2,524                      | 23.2%   |
| Halawa             | -8.5%  | 12,965                                      | 14,164                     | 7.4%  |
| Waianae            | -9.3%  | 11,495                                      | 12,680                     | 21.2%   |
| Waimalu            | -11.7%   | 11,946                                      | 13,529                     | 6.6%  |
| Aiea               | -17.0%   | 7,519                                       | 9,057                      | 8.8%  |
| Kaneohe            | -17.0%   | 28,543                                      | 34,386                     | 18.8%   |
| Waimanalo          | -18.3%   | 4,669                                       | 5,718                      | 14.7%   |
| Kailua             | -19.5%   | 32,038                                      | 39,803                     | 26.4%   |
| Waipahu            | -21.7%   | 31,324                                      | 40,015                     | 11.7%   |
| Hauula             | -22.2%   | 2,840                                       | 3,649                      | 14.1%   |
| Makaha             | -22.4%   | 6,452                                       | 8,312                      | 5.9%  |
| Pearl City         | -24.1%   | 36,232                                      | 47,724                     | 13.8%   |
| Waipio             | -24.6%   | 8,734                                       | 11,580                     | 3.5%  |
| Ewa Beach          | -26.0%   | 10,814                                      | 14,606                     | 8.4%  |
| Kahaluu            | -27.3%   | 3,440                                       | 4,733                      | 13.4%   |
| Nanakuli           | -27.7%   | 8,697                                       | 12,028                     | 7.6%  |
| Waimanalo Beach    | -29.5%   | 3,204                                       | 4,542                      | 7.5%  |
| Waialua            | -32.5%   | 2,494                                       | 3,697                      | 7.3%  |
| Mililani Town      | -32.9%   | 18,939                                      | 28,214                     | 10.1%   |
| Maili              | -32.9%   | 5,817                                       | 8,666                      | 4.5%  |
| Pupukea            | -34.4%   | 3,425                                       | 5,224                      | 21.9%   |
| East Honolulu      | -35.8%   | 31,790                                      | 49,523                     | 14.3%   |
| Heeia              | -36.9%   | 2,918                                       | 4,625                      | 6.8%  |
| Ewa Villages       | -40.2%   | 4,341                                       | 7,254                      | 9.2%  |
| Whitmore Village   | -41.7%   | 2,889                                       | 4,955                      | 3.8%  |
| Ocean Pointe       | -42.2%   | 5,631                                       | 9,750                      | 3.6%  |
| Waikele            | -42.8%   | 4,416                                       | 7,719                      | 2.5%  |
| Mililani Mauka     | -44.8%   | 11,790                                      | 21,350                     | 6.5%  |
| Iroquois Point     | -44.9%   | 1,924                                       | 3,490                      | 5.1%  |
| Royal Kunia        | -46.1%   | 7,997                                       | 14,845                     | 4.5%  |
| Ewa Gentry         | -49.3%   | 11,044                                      | 21,764                     | 4.3%  |
| Makakilo           | -49.5%   | 9,413                                       | 18,631                     | 3.5%  |
| Waipio Acres       | -49.6%   | 2,493                                       | 4,942                      | 2.9%  |
| West Loch Estate   | -50.6%   | 3,048                                       | 6,176                      | 3.5%  |
| Ahuimanu           | -50.9%   | 4,282                                       | 8,715                      | 7.5%  |

Source: DBEDT Calculation using the 2009-2013 American Community Survey 5-year estimates from the U.S. Census Bureau

\*Statistics for a small geographic area may subject to large margin of errors.

Table 2. Employment/Working Resident Ratio by CDPs on Oahu\*

|                    | <b>Total Population</b> | <b>Total workers living in the place (R)</b> | <b>Total workers working in the place (W)</b> | <b>Employment/Working Resident Ratio (W/R)</b> |
|--------------------|-------------------------|--|---|--|
| Wheeler AFB        | 2,416                   | 935  | 2,538   | 2.7  |
| Hickam Housing     | 7,538                   | 3,363  | 8,864   | 2.6  |
| Ko Olina           | 1,967                   | 1,045  | 2,529   | 2.4  |
| Schofield Barracks | 18,126                  | 8,512  | 15,073  | 1.8  |
| Urban Honolulu     | 340,639                 | 171,087                                      | 282,779                                       | 1.7  |
| Haleiwa            | 3,817                   | 1,765  | 1,864   | 1.1  |
| Laie               | 5,654                   | 2,332  | 2,427   | 1.0  |
| Kaneohe Station    | 10,434                  | 6,191  | 6,074   | 1.0  |
| Wahiawa            | 17,268                  | 7,941  | 7,632   | 1.0  |
| Kapolei            | 15,501                  | 7,811  | 7,334   | 0.9  |
| Kahuku             | 2,524                   | 1,149  | 960   | 0.8  |
| Halawa             | 14,164                  | 7,154  | 5,955   | 0.8  |
| Waimalu            | 13,529                  | 7,264  | 5,681   | 0.8  |
| Waianae            | 12,680                  | 4,850  | 3,665   | 0.8  |
| Kaneohe            | 34,386                  | 17,504                                       | 11,661  | 0.7  |
| Aiea               | 9,057                   | 4,589  | 3,051   | 0.7  |
| Kailua             | 39,803                  | 20,247                                       | 12,482  | 0.6  |
| Waimanalo          | 5,718                   | 2,295  | 1,246   | 0.5  |
| Waipio             | 11,580                  | 6,219  | 3,373   | 0.5  |
| Waipahu            | 40,015                  | 18,480                                       | 9,789   | 0.5  |
| Pearl City         | 47,724                  | 23,272                                       | 11,780  | 0.5  |
| Ewa Beach          | 14,606                  | 6,181  | 2,389   | 0.4  |
| Hauula             | 3,649                   | 1,259  | 450   | 0.4  |
| Kahaluu            | 4,733                   | 1,998  | 705   | 0.4  |
| Mililani Town      | 28,214                  | 14,305                                       | 5,030   | 0.4  |
| Pupukea            | 5,224                   | 2,752  | 953   | 0.3  |
| Makaha             | 8,312                   | 2,750  | 890   | 0.3  |
| Waialua            | 3,697                   | 1,772  | 569   | 0.3  |
| East Honolulu      | 49,523                  | 25,313                                       | 7,580   | 0.3  |
| Heeia              | 4,625                   | 2,427  | 720   | 0.3  |
| Waikele            | 7,719                   | 4,668  | 1,365   | 0.3  |
| Waimanalo Beach    | 4,542                   | 1,755  | 417   | 0.2  |
| Nanakuli           | 12,028                  | 4,365  | 1,034   | 0.2  |
| Ewa Villages       | 7,254                   | 3,636  | 723   | 0.2  |
| Ocean Pointe       | 9,750                   | 5,008  | 889   | 0.2  |
| Mililani Mauka     | 21,350                  | 11,488                                       | 1,928   | 0.2  |
| Royal Kunia        | 14,845                  | 7,836  | 988   | 0.1  |
| Iroquois Point     | 3,490                   | 1,782  | 216   | 0.1  |
| Maili              | 8,666                   | 3,234  | 385   | 0.1  |
| Ahuimanu           | 8,715                   | 5,010  | 577   | 0.1  |
| Whitmore Village   | 4,955                   | 2,323  | 257   | 0.1  |
| Ewa Gentry         | 21,764                  | 11,892                                       | 1,172   | 0.1  |
| West Loch Estate   | 6,176                   | 3,338  | 210   | 0.1  |
| Makakilo           | 18,631                  | 9,789  | 571   | 0.1  |
| Waipio Acres       | 4,942                   | 2,598  | 149   | 0.1  |

Source: U.S. Census Bureau, 2009-2013 American Community Survey 5-year estimates

\*Statistics for a small geographic area may subject to large margin of errors.

Figure 1. Daytime Population Change Due to Commuting (as Percentage of Resident Population) by CDPs on Oahu

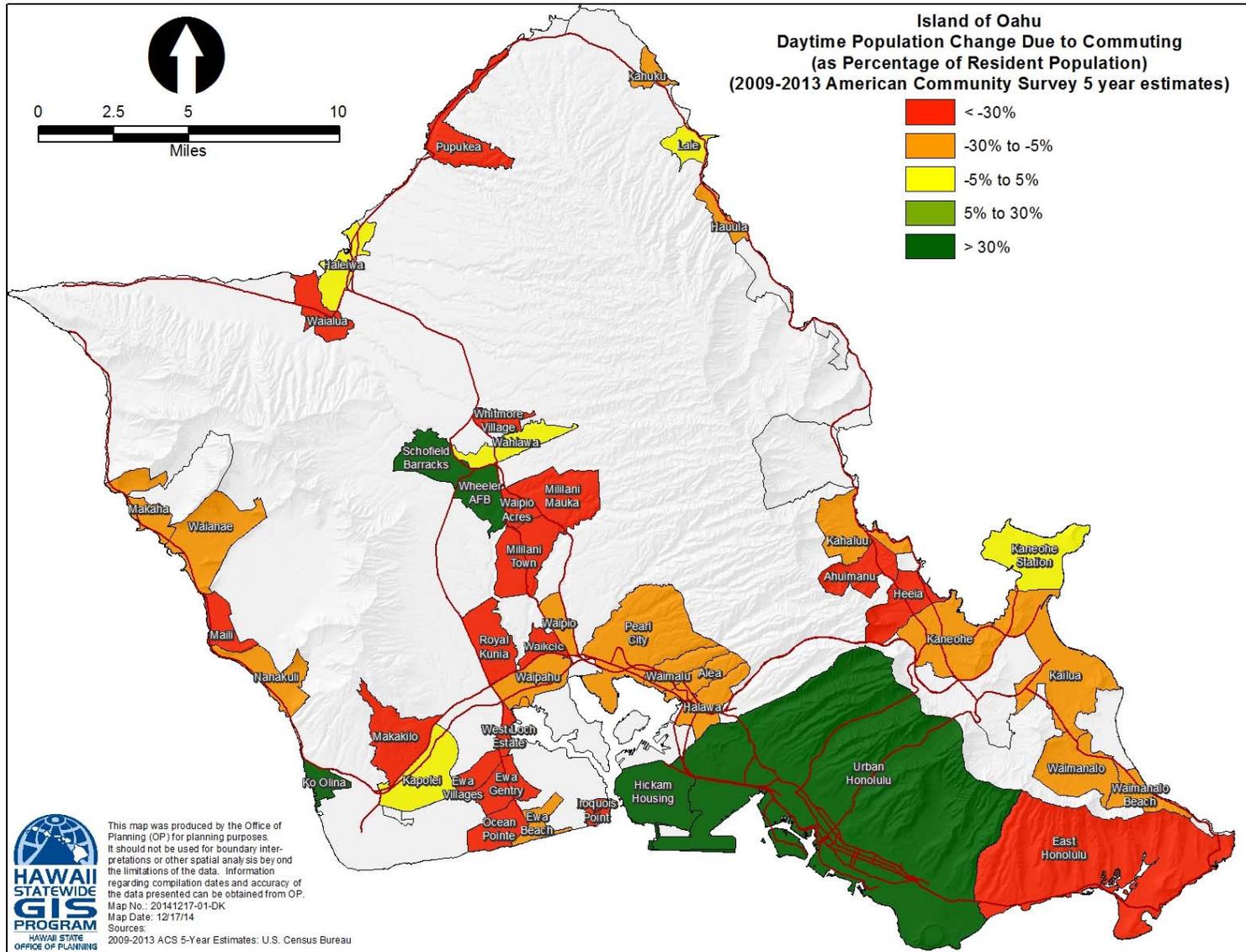


Figure 2. Workers Who Lived and Worked in the Same Place (as Percentage of Working Residents) by CDPs on Oahu

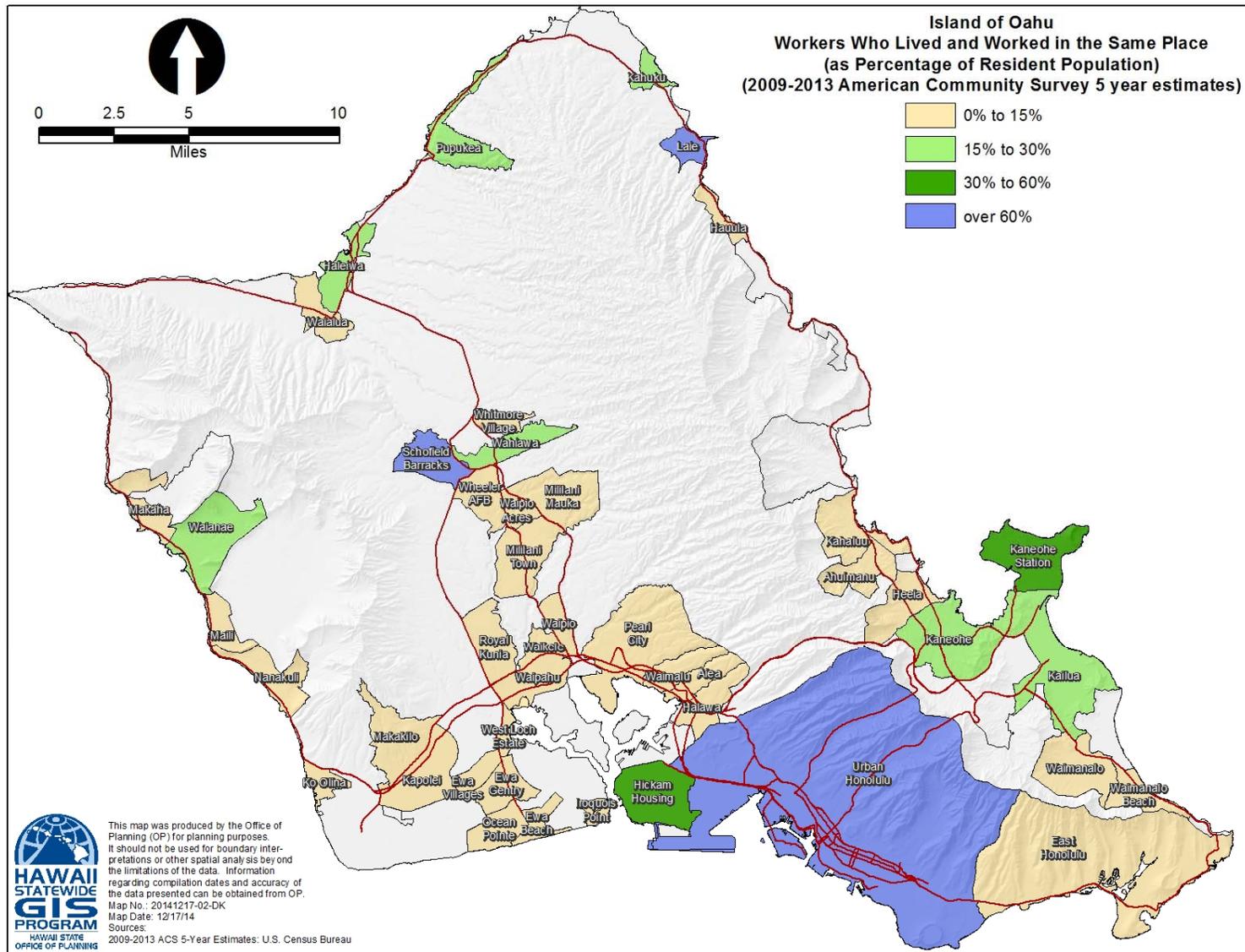
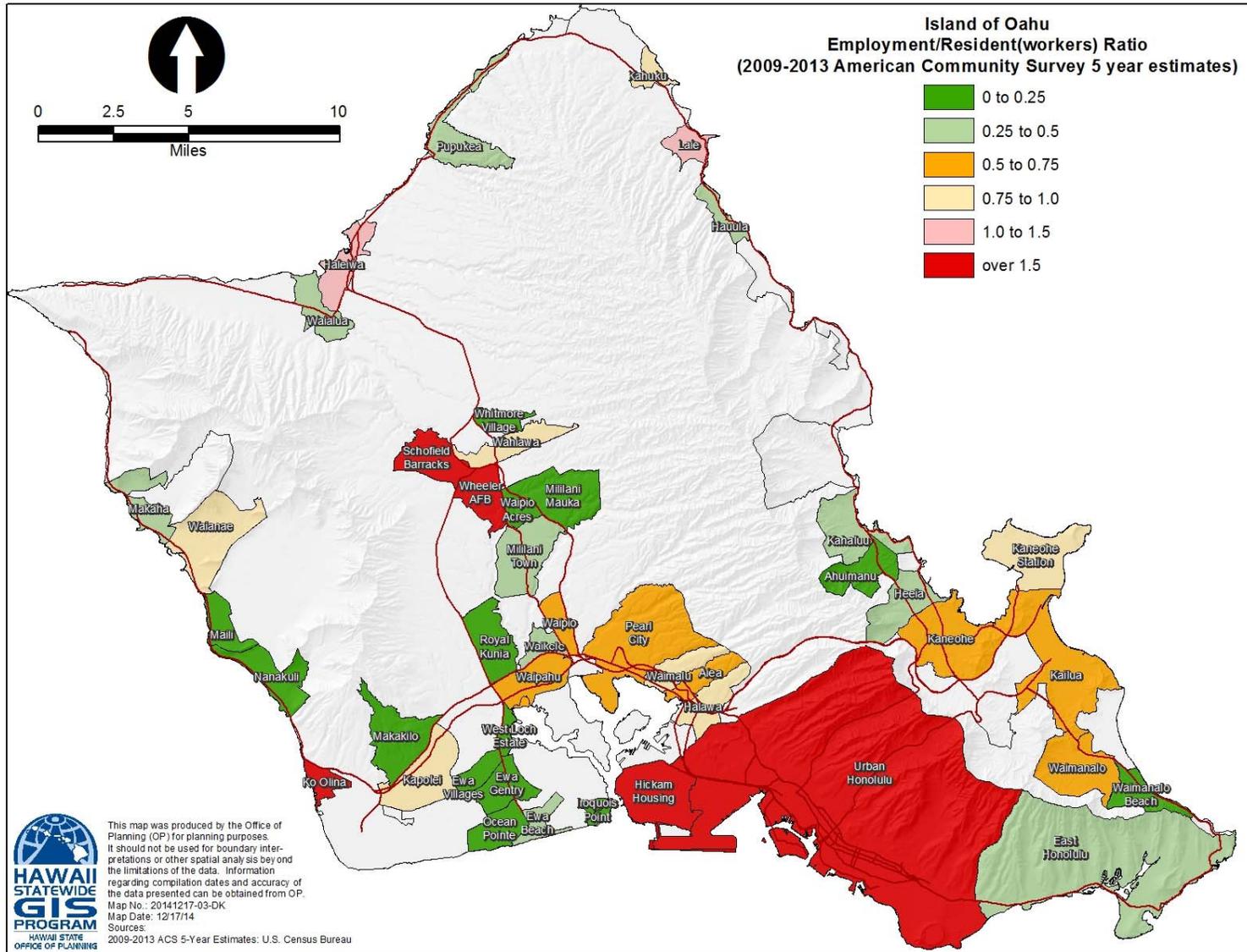


Figure 3. Employment/ Working Residents Ratio by CDPs on Oahu



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