

1 Q. PLEASE STATE YOUR NAME AND ADDRESS.

2 A. Dr. Margaret Stumpp, 48 Laenani St., Haiku HI 96708.

3

4 Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY TODAY?

5 A. Because I am an economist and also a small coffee grower affiliated with the Maui Coffee Association, I
6 was asked by the Agriculture Working Group (AWG) to examine the impact of alternative land assessment
7 scenarios on property taxes paid by farms and ranches in Maui County and to present my findings to this
8 Council.

9

10 Q. WHAT ARE YOUR PROFESSIONAL CREDENTIALS?

11 A. I have a BA degree Cum Laude and with distinction in Economics from Boston University (1974), AM
12 (1976) and PhD (1981) degrees in Economics from Brown University. I am currently Senior Advisor to,
13 and a founder of Quantitative Management Associates (QMA), an investment affiliate of Prudential
14 Financial, Inc. With over 50 investment professionals including 21 PhD's, QMA manages over \$100 billion
15 on behalf of a global roster of institutional clients including international sovereign wealth funds, large
16 state pension plans, corporate and union pension plans and retail mutual funds. Some of QMA's
17 investments and institutional clients are, or have been, located in Hawaii. I was QMA's Chief Investment
18 Officer over the 20 year interval between 1993 and 2013 and oversaw all investments and investment
19 research for global equities, bonds, real estate, commodities and many other asset categories.
20 Among many responsibilities over my career, I oversaw asset allocation for Prudential Financial's then \$11
21 billion pension plan; was a member of the Board of Advisors for PRISA (a \$13 billion institutional real
22 estate fund); the Advisory Board of Asian Property Partners (an South East Asian real estate investment
23 fund) and the Advisory Board for ARGUS (a portfolio of European real estate projects) and Pru Timber
24 Fund I (an institutional portfolio of timber properties). I have published a number of scholarly articles on
25 economics, finance and investment management in peer-reviewed journals such as Award Papers in Public
26 Utility Economics; The Journal of Investment Management; The Journal of Portfolio Management; and,
27 The Financial Analysts Journal. In addition to published research, I have addressed numerous investment

28

1 management conferences around the globe and my views have been presented in various print and video
2 media such as on CNBC. During my professional career, I have provided expert testimony on behalf a
3 number of institutions such as AT&T and PWC before many regulatory bodies on a variety of matters
4 involving economics, regulation and finance. I am currently a member of the Research Committee of the
5 Q-Group in finance – an organization consisting of academic and industry experts focusing on the
6 application of quantitative techniques to financial problems. My current emphasis as Senior Advisor is
7 primarily on the application of quantitative methods to investment strategies.

8
9 Q. DO YOU HAVE ANY CONFLICTS OF INTEREST TO DISCLOSE IN THIS MATTER?

10 A. No. I am not receiving any compensation for my testimony or analysis. My testimony is as a Maui resident
11 and do not reflect the interests of QMA, Prudential Financial, or any of our investment clients.

12
13 Q. BEFORE DISCUSSING YOUR ANALYSIS, CAN YOU BRIEFLY REVIEW THE ECONOMIC
14 RATIONALE FOR PREFERENTIAL ASSESSMENTS OF AGRICULTURAL LAND.

15 A. Between 1950 and 1995 all 50 states adopted some form of preferential tax treatment for agricultural
16 property. Although there were a number of motivations for this trend, a primary motivation was a desire to
17 both slow urbanization and improve quality of life by inducing landowners to keep property out of
18 development. The market value of farm land approximately equals the capitalized value of expected
19 agricultural income, often called “use value.” The market value of properties with development potential,
20 however, will generally exceed agricultural use value. It is widely recognized that market value taxation
21 would render agriculture more costly on land with development potential and would, consequently,
22 accelerate both development and urban sprawl. Moreover, recent research has also shown that agricultural
23 spaces add to existing residential values by making communities more desirable to live in. In other words,
24 preferential treatment of agricultural properties can boost the market values of properties in nearby
25 residential areas. Here in Maui County, accelerated development in some key areas can reduce the
26 attractiveness of the islands to tourists, adversely affecting tourism and local employment.

1 In addition to the forgoing, local agriculture on Maui plays a unique security role by protecting residents
2 and guests from potentially serious consequences of disruptions in the transportation of agricultural
3 products to Hawaii.

4
5 Q. ARE YOU AWARE OF ANY TRENDS FOR MUNICIPALITIES TO MOVE AWAY FROM
6 PREFERABLE TAXES FOR AGRICULTURE?

7 A. No, I am not.

8
9 Q. PLEASE SUMMARIZE THE FINDINGS OF YOUR RESEARCH.

10 A. With the exception of assessing agricultural property at market value, most alternatives to current land
11 assessments (such as increasing current assessed values by CPI inflation since they were first established;
12 moving to NASS assessments; or, using either Hawaii County or Oahu's assessment methodologies) will
13 increase Maui County tax revenues by modest amounts – increases that would be mostly borne by large
14 agricultural operations.

15
16 Moving to market value assessments on the other hand would have material consequences. It would
17 increase taxes on Maui County agricultural land by more than \$19 million with sizable increases in
18 property taxes for agricultural enterprises of all types and sizes.

19
20 Q. BASED UPON YOUR EXPERIENCE AND ANALYSIS, DO YOU HAVE ANY
21 RECOMMENDATIONS FOR THIS COMMISSION?

22 A. Yes, I do. I believe that moving to market value assessments for agricultural properties would be a
23 mistake. Both economic theory and peer-reviewed published studies indicates that increases in land taxes
24 can accelerate development. Because market values are highest in areas that are on the fringes of
25 development, properties with expansive views, commercial attractiveness, or properties with ocean access
26 would be most induced to shift away from agriculture.

1 Q. CAN YOU DESCRIBE THE ANALYSES YOU CONDUCTED?

2 A. Maui County makes available several extracts from their property tax database for public use on its web
3 site. These database extracts include assessed value, land classification and tax data for each Maui TMK.
4 Using this data I was able to identify 4,620 agricultural properties in August 2015 comprising 282,576
5 acres of agricultural land classified by land use (e.g., Diversified Agriculture, Sugar, Pasture, etc.). I then
6 examined the impact of alternative assessment approaches on each properties tax bill; calculated the impact
7 on aggregate Maui County property tax billings. I also calculated the impact of each scenario on farms
8 grouped by size, neighborhood and property use. I excluded some properties such as County Owned land,
9 some non-profit organizations, properties with missing, or conflicting data, and those that had tax bills that
10 I could not reconcile with current statutory rates.

11
12 I considered 5 alternative agricultural assessment approaches. Specifically:

- 13 1. Increasing all assessed values by CPI inflation since 1965 (all assessments rise by 750%);
- 14 2. Applying average NASS (National Agricultural Statistics Service) valuations to corresponding Maui
15 county ag land;
- 16 3. Applying the Hawaii County assessment rates to Maui county ag land;
- 17 4. Applying the Oahu assessment approach to Maui county ag land;
- 18 5. Value all Maui county ag land at current market value.

19
20 Summary results from these studies is shown in attached Stumpp_Exhibit #1. More detailed results for
21 each study is attached as Stumpp_Exhibit #2.

22
23 Q. DO YOUR FINDINGS REPRESENT A PRECISE ACCOUNTING OF THE EFFECTS OF EACH
24 ALTERNATIVE?

25 A. No. First, it's important to emphasize that these are studies of hypothetical assessment approaches intended
26 to show the approximate impact of changes in assessment policy. None of these scenarios represents a
27 specific proposal of the AWG. It's also important to emphasize that this is not a formal accounting and is

28

1 not intended to replace a more comprehensive study by the County Tax Assessor. However, the results
2 include the vast majority of agricultural properties and I believe that they are reasonable approximations of
3 findings that would be obtained from more comprehensive accountings. Finally, it's important to note that
4 some property owners will respond to higher agricultural rates in various ways, such as by selling their land
5 for development, or by formally dedicating their land to agriculture. A more comprehensive analysis
6 would incorporate estimates of these effects. However, doing so was beyond the scope of my study.
7

8 Q. CAN WE DRAW ANY BROAD CONCLUSIONS FROM YOUR RESEARCH?

9 A. Yes. Assessment approaches that result in proportional increases in current assessments (such as increasing
10 all assessments by CPI inflation since 1965) have modest revenue and distributional effects.
11

12 To understand this, we can examine more closely the impact of adjusting all agricultural property
13 assessments for inflation since 1965. Adjusting for the increase in the CPI-U would increase all valuations
14 by approximately 750%. Despite this seemingly large increase in assessed land values, the tax bill for
15 many small farms (e.g., less than 3 acres) would be small, or zero. This occurs for three reasons:

- 16 1. Because property taxes for small enterprises are often dominated by the home site valuation
17 (home sites, typically between 0.25 and 1.0 acres, are generally assessed at market value and
18 therefore unaffected by changes in agricultural assessments).
- 19 2. Many very small farms without home sites (those under 2 acres) are often taxed at minimum
20 rates (i.e. \$250) – tax levels that are not breached even when agricultural land is assessed at
21 much higher rates.
- 22 3. Initial assessments made in 1965 were relatively low and even surprisingly large increases in
23 these rates do not create a large increase in tax bills for small farms.

24 As a consequence, the impact of changing assessments on the typical small farm is fairly small even when
25 all assessments are increased by 750%. Most of the burden of higher assessments would fall on larger
26 agricultural operations (those with more than 15 acres) and they would bear almost all of the \$1.2 million
27 increase in aggregate tax bills. Some very large operations would experience increases in their annual tax
28

1 bills exceeding \$10,000. A very small number of small and mid-sized farms (less than 15 acres), however,
2 would experience tax increases of between \$2,000 and \$4,000.

3 Because there are many small farms (with low, or zero tax increases) and only a few large ones
4 (experiencing larger tax increases), even a 750% increase in assessed land values would generate very little
5 additional property tax revenue for Maui County.

6
7 Q. DID YOU FIND SIMILAR RESULTS FOR OTHER ASSESSMENT APPROACHES?

8 A. Yes, I did. Increasing assessment rates to reflect NASS (National Agricultural Statistical Service)
9 averages; Applying Hawaii County tax rates to Maui County property; or, use of Oahu's assessment
10 approach all generated modest increases in tax receipts with most of the increase falling on larger
11 properties. Of these three alternatives, using Oahu's approach generated the most increase in tax receipts
12 (\$3.8 million), assuming no changes in property dedication.

13 Results for market value assessments, however, were materially different from the status quo resulting in
14 over \$19 million in additional taxes.

15
16 Q. WHY IS THE IMPACT OF SHIFTING TO MARKET VALUE ASSESSMENTS DIFFERENT FROM
17 OTHER ALTERNATIVES?

18 A. Because land values in some areas of Maui have increased dramatically since initial assessments in 1965,
19 agricultural assessments for most areas are currently well below market value. The typical current
20 agricultural assessment is approximately \$200 per acre --far below the median market value of over
21 \$300,000 per acre. Even increasing assessed values by CPI inflation since 1965 (750%) would still leave
22 many assessments substantially below market value.

23 Additionally, market values vary widely by property and location. Consequently, market value
24 assessments would cause some valuations to increase substantially, while others would remain
25 comparatively unchanged. For example, Stumpp_Exhibit #3 shows that taxes on the average small farm in
26 the County's Pelekunu -Halawa area -- where there are 147 small agricultural entities -- would increase by
27 only 2.5%, while the 140 small agricultural entities in the Kula area would experience average tax increases

1 of over 140%. Taxes on small agricultural properties in the band between Spreckelsville and Maalea would
2 increase by over 500%. Put differently, farmers in areas most susceptible to development would face the
3 sharpest increases and property owners would be the most incentivized to develop or sell. A table showing
4 the disparate effects across many of the County's neighborhoods is shown in Stumpp Exhibit#3.

5
6 Q. COULD THE COUNTY LOWER AGRICULTURAL TAX RATES TO OFFSET THE IMPACT OF
7 MARKET VALUE ASSESSMENTS?

8 A. Clearly, that would help reduce the overall burden. However, even if tax rates were reduced by 90%, some
9 small sub-2 acre properties would experience annual tax increases of nearly \$2,000, while some properties
10 between 2 and 5 acres would experience nearly \$5,000 increases. Simply put, there would be a material
11 change in taxes for a number of small farms with potential for development.

12
13 Q. WOULD MARKET VALUE BASED ASSESSMENTS INDUCE MORE PROPERTY HOLDERS TO
14 DEDICATE THEIR PROPERTIES TO AGRICULTURE, THEREBY REDUCING REVENUES TO THE
15 COUNTY, BUT ALSO ENSURING THESE PROPERTIES ARE USED FOR AGRICULTURAL IN THE
16 FUTURE?

17 A. It's likely that some property owners would respond to market-value assessments by dedicating their land
18 to agricultural purposes in order to obtain preferential tax treatment. At present, only 5% of all diversified
19 agriculture land, and only 2% of land among farms with less than 1 acre is dedicated for 10 years
20 (dedication values are higher for very large farms and for Sugar properties). I have not attempted to model
21 the potential response to higher tax rates. However, I find that the greatest impact of moving to market
22 value assessments would be among properties with the greatest development potential. It seems probable
23 that owners of those properties would be least interested in restricting their property by dedication.
24 The expected increase in tax revenues would decline proportionally with the percentage of property owners
25 who decide to dedicate. For example, the \$19 million increase in taxes under market value assessments
26 would be roughly halved if 50% of property owners decided to dedicate. The increase would fall below \$1
27 million if all owners of agricultural land decided to dedicate.

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28

Q. SOME CONTEND THAT, AS A WAY TO REDUCE PROPERTY TAXES, SOME INDIVIDUALS ABUSE AGRICULTURAL VALUATIONS BY ENGAGING IN MINIMAL SCALE AGRICULTURE ON PRIMARILY RESIDENTIAL PROPERTIES. WOULD MOVING TO MARKET VALUE BASED ASSESSMENTS AMELIORATE THIS ISSUE?

A. As I noted earlier, valuations for most very small farms (say, less than 2 acres) are already dominated by home site valuations, which are generally assessed at market value. Preferential assessments for the small amounts of remaining agricultural land on such largely residential properties have only a relatively modest impact on total Maui County property tax receipts. Moving to market valuations, however, will have a material impact on taxes owed by all small farmers, regardless of the intensity of land use. Thus, while market value assessments might reduce what some might argue is an abuse of the system, it would also materially affect small entities who farm for a living. If tax abuse is concern, a far less distortive alternative to major tax changes would be for the County to target property inspections.

Q. DO YOU HAVE ANY CONCLUDING REMARKS?

A. Only this. Economists uniformly agree that prices determined in a competitive market result in the most efficient allocation of goods and resources. Agricultural land valuation however is one exception to this prescription. Because agriculture presents important external benefits to local populations, all 50 states have decided that the appropriate action is to tax agriculture at preferential rates. Assessing land at market value will accelerate the incentives for Maui property holders to develop their land. This can have adverse consequences on food security, quality of life and property valuations and employment in Maui County.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes, it does. Thank you.

Summary of Study Results.

1. Most alternatives to current assessments have modest effects on Maui Co. revenues, mostly raised from a few large operations.
2. Shifting to market value assessments would have a large impact on tax revenues and also have material effects on farms and ranches of all sizes.

Table 1
Summary of Various Alternatives to Current Agricultural Assessments
August 2015

Assessment Methodology	Total Increase in Maui Co. Agricultural Property Tax Bills (\$millions)	Tax Increase For		Distributional Effects
		Median 1-2 Acre Farm	Median >100 Acre Farm	
1 Increase All Assessments by Inflation since 1965	1.2	\$10	\$930	Increase mostly falls on large farms
2 Use NASS Average Valuation Rates	1.2	\$0	\$0	Increase mostly falls on large farms
3 Use Hawaii County Valuation Rates	1.3	\$0	\$950	Increase mostly falls on large farms
4 Use Oahu Agricultural Valuation Rates	3.8	\$30	\$4,360	Increase mostly on mid and large farms
5 Assess All Agricultural Land At Market Value	19.0	\$960	\$16,110	Large increases across all farms

Alternative #1: Increase all assessed values by CPI inflation since 1965.¹

1. Average assessments increase by about 44%².
2. The median change in taxes is zero.
3. However, there are distributional effects. No one's tax bill declines. Some large property holders experience large increases.

Table 1
Average Impact of Increasing Current Assessed Values by CPI Inflation
Agricultural Use Properties Only
August 2015

Farm/Ranch Size	Average Net Assessed Land Value	Average Assessment Change	New Average Net Assessed Land Value	New Total Net Taxable Value	Total Acres	Change in Taxes (\$)			Number of Farms / Ranches
	\$	\$	\$	\$	Acres	Min	Median	Max	Number
0 to 1 Acres	120,567	1,029	121,596	252,230	507	0	0	20	893
1 to 2 Acres	119,192	3,828	123,020	308,576	1,572	0	10	3720	1,017
2 to 5 Acres	100,832	5,136	105,967	266,325	3,117	0	0	2160	958
5 to 15 Acres	75,661	8,848	84,509	233,440	7,293	0	0	210	862
15 to 100 Acres	82,522	82,068	164,590	272,691	22,199	0	0	86,350	633
Above 100 Acres	358,282	644,560	1,002,843	1,492,628	247,888	0	930	57,660	257
Average	115,804	50,857	166,662	335,854	282,576	0	0	86,350	4,620

¹ A basket of consumer goods prices, as measured by CPIU has risen by 750% since 1965. Other inflation measures, such as the GDP deflator have increased at different rates.

² The median assessment increase is less than the 750% inflation because total net land assessments include other elements such as homesite, primary site, exemptions and waste land, none of which are being changed.

Alternative #1: Increase all assessed values by CPI inflation since 1965 (cont).

Aggregate land assessments for agricultural properties increase by approximately 44%, or by \$235M.

Total property tax billings increase by 19%, or \$1.2M, the vast majority of which comes from parcels exceeding 100 acres.

Table 1-a
Aggregate Impact of Increasing Current Assessed Values by CPI Inflation
Agricultural Use Properties Only
August 2015

Farm/Ranch Size	Total Net Assessed Land Value	Total Assessment Change	New Total Net Assessed Land Value	New Total Net Taxable Value	Total Acres	Total Change in Tax Billings
	\$	\$	\$	\$	Acres	\$
0 to 1 Acres	107,666,200	918,944	108,585,144	225,241,244	507	2,040
1 to 2 Acres	121,218,000	3,893,520	125,111,520	313,822,020	1,572	11,620
2 to 5 Acres	96,596,800	4,920,000	101,516,800	255,139,200	3,117	11,150
5 to 15 Acres	65,220,000	7,627,029	72,847,029	201,225,029	7,293	15,680
15 to 100 Acres	52,236,700	51,948,754	104,185,454	172,613,354	22,199	235,510
Above 100 Acres	92,078,600	165,651,987	257,730,587	383,605,487	247,888	945,090
Total	535,016,300	234,960,232	769,976,532	1,551,646,332	282,576	1,221,090

Alternative #2: Apply NASS valuations to Maui County agricultural properties³

1. No impact on the medial tax bill for any parcel size;
2. Small swings in property tax collections from some small and mid-sized properties.
3. Material distributional effects among larger properties.

Table 2
Average Impact of Using NASS Assessment Methodology by Parcel Size
Agricultural Use Properties Only
August 2015

Farm/Ranch Size	Average Net Assessed Land Value	Average Assessment Change	New Average Net Assessed Land Value	New Total Net Taxable Value	Total Acres	Change in Taxes (\$)			Number of Farms / Ranches
	\$	\$	\$	\$	Acres	Min	Median	Max	Number
0 to 1 Acres	120,567	2,156	122,723	253,357	507	-10	0	40	893
1 to 2 Acres	119,192	4,265	123,457	309,013	1,572	-10	0	80	1,017
2 to 5 Acres	100,832	6,578	107,410	267,767	3,117	-330	0	160	958
5 to 15 Acres	75,661	11,599	87,260	236,191	7,293	-10	0	490	862
15 to 100 Acres	82,522	32,070	114,592	222,693	22,199	-6,600	0	2,910	633
Above 100 Acres	358,282	669,967	1,028,250	1,518,036	247,888	-760	0	74,860	257
Average	115,804	46,546	162,351	331,543	282,576	-6,600	0	74,860	4,620

³ Average NASS rates are \$6,000/acre for Diversified Ag; \$15/acre Pasture; \$4,392 Sugar; \$5,435 Pineapple.

Alternative #2: Apply NASS valuations to Maui County agricultural properties (cont.)

1. \$215M, or 40%, increase in aggregate assessed values;
2. \$1.2M, or 18%, increase in tax billings for agricultural land.

Table 2-a
Aggregate Impact of Using Hawaii County Assessment Methodology by Parcel Size
Agricultural Use Properties Only
August 2015

Farm/Ranch Size	Total Net Assessed Land Value	Total Assessment Change	New Total Net Assessed Land Value	New Total Net Taxable Value	Total Acres	Total Change in Tax Billings
	\$	\$	\$	\$	Acres	\$
0 to 1 Acres	107,666,200	1,925,066	109,591,266	226,247,366	507	4,330
1 to 2 Acres	121,218,000	4,337,389	125,555,389	314,265,889	1,572	13,170
2 to 5 Acres	96,596,800	6,301,548	102,898,348	256,520,748	3,117	15,110
5 to 15 Acres	65,220,000	9,998,231	75,218,231	203,596,231	7,293	27,370
15 to 100 Acres	52,236,700	20,300,165	72,536,865	140,964,765	22,199	98,540
Above 100 Acres	92,078,600	172,181,624	264,260,224	390,135,124	247,888	1,003,420
Total	535,016,300	215,044,022	750,060,322	1,531,730,122	282,576	1,161,940

Alternative #3: Use Hawaii County assessment approach for Maui County Agricultural Properties⁴

1. Small impacts on small and mid-sized Ag properties.
2. Small impact on the median large property. However, some distributional effects.

Table 3
Average Impact of Using Hawaii County Assessment Methodology by Parcel Size
Agricultural Use Properties Only
August 2015

Farm/Ranch Size	Average Net Assessed Land Value	Average Assessment Change	New Average Net Assessed Land Value	New Total Net Taxable Value	Total Acres	Change in Taxes (\$)			Number of Farms / Ranches
	\$	\$	\$	\$	Acres	Min	Median	Max	Number
0 to 1 Acres	120,567	1,465	122,032	252,666	507	0	0	30	893
1 to 2 Acres	119,192	3,000	122,191	307,748	1,572	0	0	60	1,017
2 to 5 Acres	100,832	4,885	105,716	266,074	3,117	-330	0	110	958
5 to 15 Acres	75,661	9,632	85,293	234,223	7,293	0	0	320	862
15 to 100 Acres	82,522	30,380	112,902	221,003	22,199	-7,590	0	1,940	633
Above 100 Acres	358,282	823,656	1,181,938	1,671,724	247,888	0	950	66,610	257
Average	115,804	53,734	169,538	338,731	282,576	-7,590	0	66,610	4,620

⁴ \$4,000/acre for Diversified Ag, Pineapple and Sugar. \$400 for pasture.

Alternative #3: Use Hawaii County Assessment Approach (cont.)

1. Aggregate ag land assessed values rise by \$248M or, 46%.
2. Aggregate tax billings for agricultural land rise by \$1.3M, or 21%.

Table 3-a

Aggregate Impact of Using Hawaii County Assessment Methodology by Parcel Size
Agricultural Use Properties Only
August 2015

Farm/Ranch Size	Total Net Assessed Land Value	Total Assessment Change	New Total Net Assessed Land Value	New Total Net Taxable Value	Total Acres	Total Change in Tax Billings
	\$	\$	\$	\$	Acres	\$
0 to 1 Acres	107,666,200	1,308,073	108,974,273	225,630,373	507	2,870
1 to 2 Acres	121,218,000	3,050,721	124,268,721	312,979,221	1,572	9,120
2 to 5 Acres	96,596,800	4,679,382	101,276,182	254,898,582	3,117	10,650
5 to 15 Acres	65,220,000	8,302,508	73,522,508	201,900,508	7,293	18,430
15 to 100 Acres	52,236,700	19,230,471	71,467,171	139,895,071	22,199	70,000
Above 100 Acres	92,078,600	211,679,540	303,758,140	429,633,040	247,888	1,208,910
Total	535,016,300	248,250,696	783,266,996	1,564,936,796	282,576	1,319,980

Alternative #4: Apply the Oahu modified market valuation approach to Maui agricultural property.⁵

1. Moving to market assessments with an \$8,000/acre assessed value cap causes most properties to be assessed at the cap because market value exceeds the cap for most parcels.
2. Dedication has little impact for small and mid-sized properties because (a) few owners dedicate and (b) a 95%-99% reduction from market value often results in valuations in the neighborhood of \$8,000/acre.
3. Most of the impact is on large farms/ranches – primarily those with low current assessments relative to market value, or the cap.
4. Very small farms are often taxed at minimums (\$250/year), so changes in assessments have very little impact.

Table 4
Average Impact of Modified Market Value Assessment by Parcel Size
Agricultural Use Properties Only
August 2015

Farm/Ranch Size	Average Net Assessed Land Value	Average Assessment Change	New Average Net Assessed Land Value	New Total Net Taxable Value	Total Acres	Change in Taxes (\$)			Number of Farms/Ranches
	\$	\$	\$	\$	Acres	Min	Median	Max	Number
0 to 1 Acres	120,567	4,217	124,784	255,418	507	0	0	50	
1 to 2 Acres	119,192	11,213	130,405	315,961	1,572	0	30	110	1,017
2 to 5 Acres	100,832	22,743	123,575	283,933	3,117	-240	0	250	958
5 to 15 Acres	75,661	55,978	131,639	280,570	7,293	0	140	670	862
15 to 100 Acres	82,522	207,124	289,646	397,747	22,199	-5,610	810	4,220	633
Above 100 Acres	358,282	2,066,965	2,425,248	2,915,033	247,888	-2,900	4,360	367,520	257
Average	115,804	161,803	277,607	446,800	282,576	-5,610	30	367,520	4,620

⁵ Market value assessments and reductions of: 99% for diversified ag; 97% for pineapple & sugar; 95% for pasture if the land is dedicated (regardless of dedication term). Agricultural land valuations are capped at \$8,000/acre.

Alternative #4: Apply the Oahu modified market valuation approach to Maui agricultural property (cont).

1. Total assessments rise by 140%.
2. Property tax billings on agricultural use land rise by \$3.8 million – mostly affecting larger operations.

Table 4-a
Aggregate Impact of Modified Market Value Assessment by Parcel Size
Agricultural Use Properties Only
August 2015

Farm/Ranch Size	Total Net Assessed Land Value	Total Assessment Change	New Total Net Assessed Land Value	New Total Net Taxable Value	Total Acres	Total Change in Tax Billings
	\$	\$	\$	\$	Acres	\$
0 to 1 Acres	107,666,200	3,765,555	111,431,755	228,087,855	507	7,550
1 to 2 Acres	121,218,000	11,403,612	132,621,612	321,332,112	1,572	31,030
2 to 5 Acres	96,596,800	21,788,179	118,384,979	272,007,379	3,117	44,240
5 to 15 Acres	65,220,000	48,253,087	113,473,087	241,851,087	7,293	141,190
15 to 100 Acres	52,236,700	131,109,292	183,345,992	251,773,892	22,199	616,470
Above 100 Acres	92,078,600	531,210,017	623,288,617	749,163,517	247,888	3,001,960
Total	535,016,300	747,529,742	1,282,546,042	2,064,215,842	282,576	3,842,440

Alternative #5: Use market valuation for all Maui agricultural property (assumes no increase in dedication).

1. Substantial increases in tax bills for all farm sizes. No tax bills decline.
2. The average land assessment increases by over 750%, or \$825M.
3. The median tax bill rises by \$1,580/year.
4. Substantial re-distributive effects with the largest percentage increases occurring for land that has proportionally increased the most in value since 1965. These distributional effects persist even if tax rates are reduced across the board to dampen the aggregate impact.

Table 5
Average Impact of Market Value Assessments by Parcel Size
Agricultural Use Properties Only
August 2015

Farm/Ranch Size	Average Net Assessed Land Value	Average Assessment Change	New Average Net Assessed Land Value	New Total Net Taxable Value	Total Acres	Change in Taxes (\$)			Number of Farms / Ranches
	\$	\$	\$	\$	Acres	Min	Median	Max	Number
0 to 1 Acres	120,567	114,186	234,753	365,387	507	0	210	5,760	893
1 to 2 Acres	119,192	311,875	431,067	616,623	1,572	0	960	18,400	1,017
2 to 5 Acres	100,832	530,303	631,135	791,492	3,117	0	1,770	46,150	958
5 to 15 Acres	75,661	827,593	903,254	1,052,184	7,293	0	3,230	32,080	862
15 to 100 Acres	82,522	1,327,407	1,409,929	1,518,030	22,199	0	5,910	58,620	633
Above 100 Acres	358,282	5,218,330	5,576,613	6,066,398	247,888	0	16,110	367,520	257
Average	115,804	827,255	943,060	1,112,252	282,576	0	1,580	367,520	4,620

Alternative #5: Use market valuation for all Maui agricultural property (assumes no increase in dedication).

1. Aggregate assessed net land values increase by over 700%
2. Tax bills increase by over 300%, or by \$19million.

Table 5-a
Aggregate Impact of Market Value Assessments by Parcel Size
Agricultural Use Properties Only
August 2015

Farm/Ranch Size	Total Net Assessed Land Value	Total Assessment Change	New Total Net Assessed Land Value	New Total Net Taxable Value	Total Acres	Total Change in Tax Billings
	\$	\$	\$	\$	Acres	\$
0 to 1 Acres	107,666,200	101,968,122	209,634,322	326,290,422	507	349,990
1 to 2 Acres	121,218,000	317,176,800	438,394,800	627,105,300	1,572	1,197,080
2 to 5 Acres	96,596,800	508,030,210	604,627,010	758,249,410	3,117	2,166,440
5 to 15 Acres	65,220,000	713,384,738	778,604,738	906,982,738	7,293	3,297,820
15 to 100 Acres	52,236,700	840,248,327	892,485,027	960,912,927	22,199	4,370,270
Above 100 Acres	92,078,600	1,341,110,896	1,433,189,496	1,559,064,396	247,888	7,631,650
Total	535,016,300	3,821,919,093	4,356,935,393	5,138,605,193	282,576	19,013,250

Impact of market value assessments on property taxes by neighborhood for agricultural properties of 5 acres, or less.

Table 1

Percentage Change in Average Tax Bill Under Market Value Assessments for Agricultural Properties ≤ 5 acres
By Neighborhood
August 2015

NEIGHBORHOOD	AVERAGE PARCEL ACRES	NUMBER OF PARCELS	AVG CHANGE IN TAXES
PELEKUNU-WAILAU-HALAWA	0.9	147	2.5%
POHAKUPILI-MOAKEA-KEOPUKALOA NO ACCESS	0.6	30	4.8%
UALAPUE	0.3	11	9.0%
SHORELINE & ALONG KAHAKALOA STREAM	1.2	28	10.6%
CLIFFS OF KAHAKULUOA & MALUHIA CNTRY	1.7	15	17.4%
MAUNALOU SUBD.	0.8	13	20.7%
MAKAPUU TO WAKIU	2.9	11	37.5%
KAWELA PLANTATION	1.4	12	41.1%
LAUNIAPOKO	2.7	19	42.3%
KEOPUKALOA TO MOANUI	1.8	57	46.9%
HALEHAKU ACRES/KULOLI SUBD/STUBBS SUBD	1.2	29	47.1%
AG KULEANAS - HONOKALA ROAD	1.3	25	56.0%
KULA NANI ESTATES 2-2-010	1.3	15	56.8%
LAUNIUPOKO 2 ACRE UNDERGRND UTIL.	0.9	31	57.9%
ALL ZONE 1 - CONS LOTS (NON-FOREST RSVS)	1.8	32	58.3%
NON CONF AG (+/- 1 AC) MOPUA ST	0.7	23	58.4%
KULA GLEN (PULEHU RD) 2-3-060	1.5	32	65.5%
KULA 200	1.3	39	66.7%
GOOD ACCESS W/ UTILITIES	1.8	113	71.9%
KEANAE - WAILUA	1.4	122	75.6%
KULA RURAL 1/2 TO 1 ACRE/ NON CONFORM AG	0.7	51	77.4%
HANA TOWN TO MAKAALAE	2.5	38	78.0%
HANA AG PARK	3.3	35	79.1%
PAU HANA ESTATES	1.5	59	80.5%
WAILUKU COUNTRY ESTATES	1.6	99	86.4%
GENERAL AG LOTS	1.8	22	88.7%
NON-CONF AG LOTS (+/- 1 ACRE)	0.7	14	90.8%
KEAWANUI/KAPUALEI = AG HBU	1.4	25	103.7%
`OMA`OPIO & PULEHU/NUI, BELOW KULA RD	2.3	68	104.1%
MAUI RANCH EST/ TAKITANI FARM LOTS	1.7	35	106.0%
HAIKU HILL, HAIKU CTRY EST	1.7	16	107.4%
SOUTH HANA GENERAL AG	2.3	64	109.7%

PAVED W/ UTILITIES	2.0	379	111.7%
KULA RURAL >1 ACRE	2.0	154	118.7%
GENERAL AG (2441/2481)	2.2	131	122.2%
HUELO - CHURCH ROAD	1.8	65	124.6%
NON-CONG AG (+/-1.0 AC) HUELO RD	0.7	14	126.5%
BELOW LOWER KULA RD - NAALAE & CALASA	2.0	53	126.7%
KALUAAHA & HALAWA/ RURAL NON OCEAN	1.9	14	128.2%
KULA GENERAL 2+ ACRES AG	2.5	91	141.4%
KULA SOUTH GENERAL AG	2.7	53	151.2%
NON-CONFORMING AG (+/- 1.0 AC) HANA HWY	0.7	14	153.5%
HAIKU KOKOMO ROAD	2.3	14	171.1%
KAANAPALI COFFEE SUBD	4.5	28	175.0%
AG - NO UTILITIES POOR ACCESS	3.2	28	187.7%
EAST HANA SHORELINE	1.9	18	223.0%
SCATTERED AG LOTS	2.4	23	227.5%
NON CONFORMING SMALL AG LOTS	0.9	22	242.0%
GENERAL AG (2541/2547/2581)	1.7	31	307.7%
AG KULEANAS - HANA HWY	1.8	15	322.5%
KAMAOLE UPPER - THOMPSON RD PASTURES	2.6	96	355.7%
PUUIKI TO KOALI RURAL INT LOTS	1.8	14	385.8%
SPREKS THRU MAALAEA/KIHEI	2.2	14	570.3%