

Olowalu Town

Traffic Impact Analysis Report

Prepared for:

Olowalu Town, LLC

Prepared by:

Roger D. Dyer, P.E., P.A.

Consulting Transportation Engineer

231 Tollison Road
Seneca, SC 29672



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Introduction, Purpose and Methodology

The Olowalu Town Master Plan is proposing to re-establish the once thriving village of Olowalu, located on the west side of the island of Maui. The subject property encompasses the lower coastal reaches of Olowalu ahupua`a; between the base of the south-west facing slopes of West Maui Mountains and the shoreline of Olowalu, as shown in Figure 1. Olowalu Town will be a small-scale and mixed-use community designed to be a pedestrian-friendly community which will allow residents to live within walking distance of corner stores, schools, parks, employment opportunities, community centers, beaches, and social and civic resources, ultimately reducing reliance on automobiles. The Master Plan is guided by values and principles of sustainability by balancing the needs of Maui's growing population; yet maintaining and respecting our cultural, historical and natural resources.

The new town will be designed to be self-sustaining in that commercial uses will in general be expected to operate to a very large degree based on the anticipated activities of the residents. At the same time, it is expected that the majority of the base of labor needed in the town can come from residents of the town.

A Preliminary Traffic Impact Analysis Report (TIAR) was prepared to support the Draft Environmental Impact Statement (EIS). This Final TIAR was prepared to support the Final EIS. The purpose of this Final TIAR in coordination with the State Department of Transportation (HDOT) is to provide a general assessment of the expected traffic impacts of the proposed project and a general framework for the anticipated traffic and transportation system mitigations that may be needed at full buildout of the project.

The preliminary TIAR reviewed the expected traffic impacts based on existing daily traffic volumes and future traffic volumes which are predicted to occur due to the Olowalu Town project. This final TIAR will concentrate on predicted daily traffic volumes and on more general traffic needs. It will utilize the same general process by providing an assessment of existing conditions, prediction of trip generation, distribution and assignment for the new town, and analysis of future-year traffic volumes and traffic flow conditions.

This report utilizes data from several other TIARs which have been done for other projects on the west side of Maui over the last five years. It also uses information from previous master transportation studies of the island conducted by HDOT in 1997 and 2002, as well as studies done by Maui County.

As noted above, the Final TIAR was prepared to address and incorporate comments received during review of the Draft EIS, including the HDOT. The Final TIAR will address peak hour traffic flows and utilize the methods that are normally employed in standard traffic assessments. This TIAR will also analyze in detail the predicted traffic operations at the access points to Honoapi`ilani Highway. It will assess the need for any mitigation and analyze the need for traffic control measures and devices that may be required for proper functioning of the street system. This final report will not cover all items that may be studied and analyzed due to specific future

refinement of project design when more site specific detailed TIARs will be prepared as the project progresses through the development process.

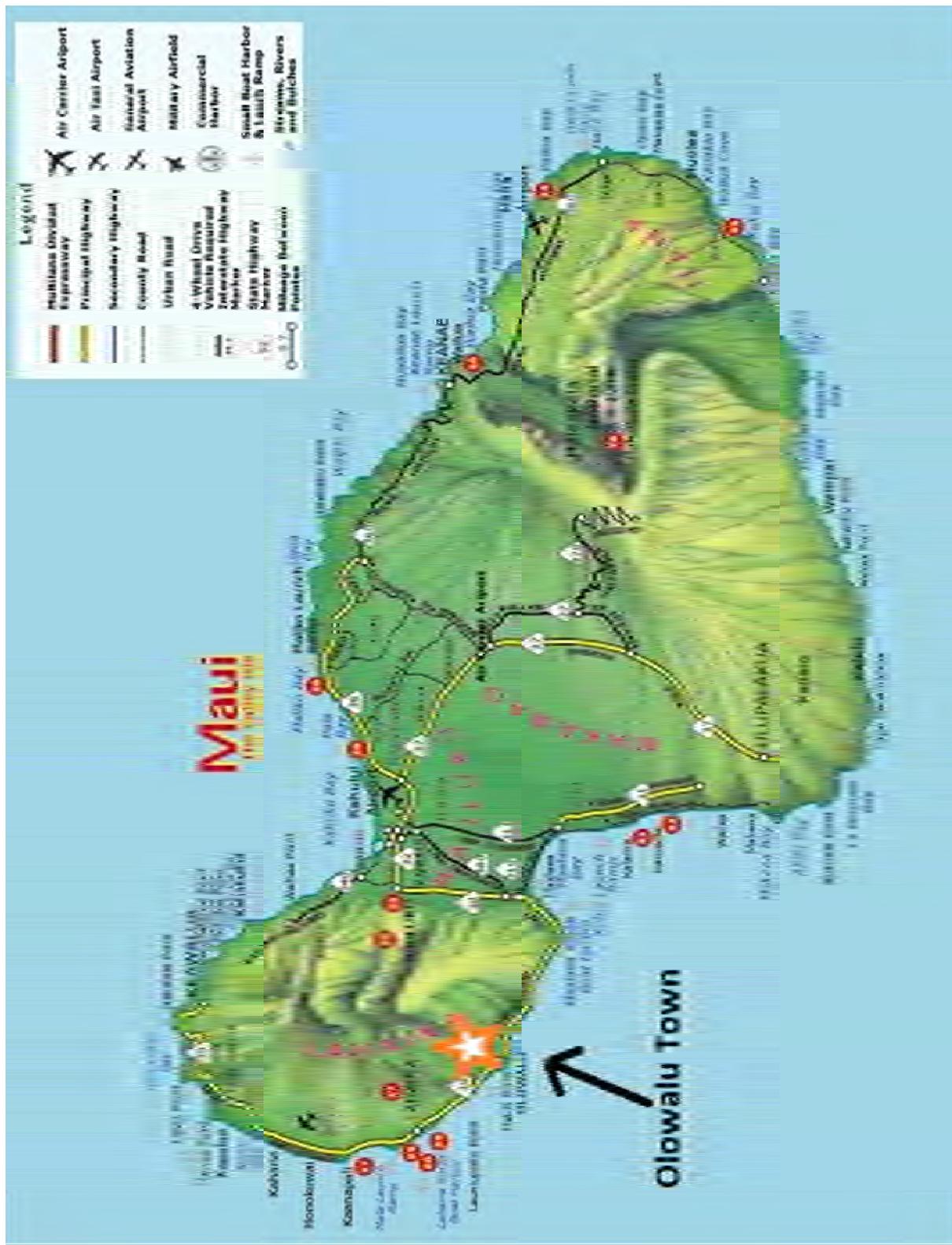
The methods of study employed in this report rely upon daily traffic volumes that exist or will be created by the activities of the proposed Olowalu Town. Analysis of capacity and traffic flow utilizes approaches that were developed by the Florida Department of Transportation, based on the Highway Capacity Manual and as reviewed and concurred with by the HDOT. These methods take into account the peaking that occurs in morning and afternoon hours but they also consider the overall traffic flow on a facility over a 24-hour period. The level of analysis in this final TIAR does not include detailed analysis of all traffic movements at individual intersections which will occur later when more site specific plans are developed.

This report is intended to illustrate that the increase in vehicular traffic along the Honoapi`ilani Highway attributed to Olowalu Town will be successfully mitigated by way of implementing the proposed transportation plan and the related improvements, including the relocation and widening of the segment of Honoapi`ilani Highway which traverses the subject property.

As indicated in Figure 1, the proposed Olowalu Town is located about half-way between the town of Lahaina and Mā`alaea along Honoapi`ilani Highway. It should be noted that the existing roadway would be retained and preserved as part of the interanal street system of the new town. Many of the land uses may be preserved as well so that traffic generated by them would essentially be part of the new town's total traffic.

Due to the complexity of being precise with estimates, it was decided not to attempt to estimate the number of trips that would be eliminated as compared to the total traffic that would be generated by the new town. As a result, the numbers in this report for trip generation would be considered an over estimate since there may be many trips made to existing land uses that will be absorbed by the new town. This may likely include the general store, the manager's house meeting facility, the camp and certain other existing land uses. All told, therefore, we believe we have an estimate of traffic generation that will be conservative on the high side and that actual traffic generation will be less than estimated in this report.

Figure 1 Location of Olowalu Town



Description of Olowalu Town

At final build-out, Olowalu Town will consist of approximately 1,500 residential dwelling units to be built concurrent with appropriate infrastructure in phases spread out over a period of approximately 10 years. There will be a wide variety of single-family and multi-family dwelling types, including houses, apartments, live-work units, cottages, rural homes and farmsteads, to be offered at a wide-range of income levels, including both rental and fee-ownership. A substantial portion of the homes are planned for much-needed affordable housing and senior living.

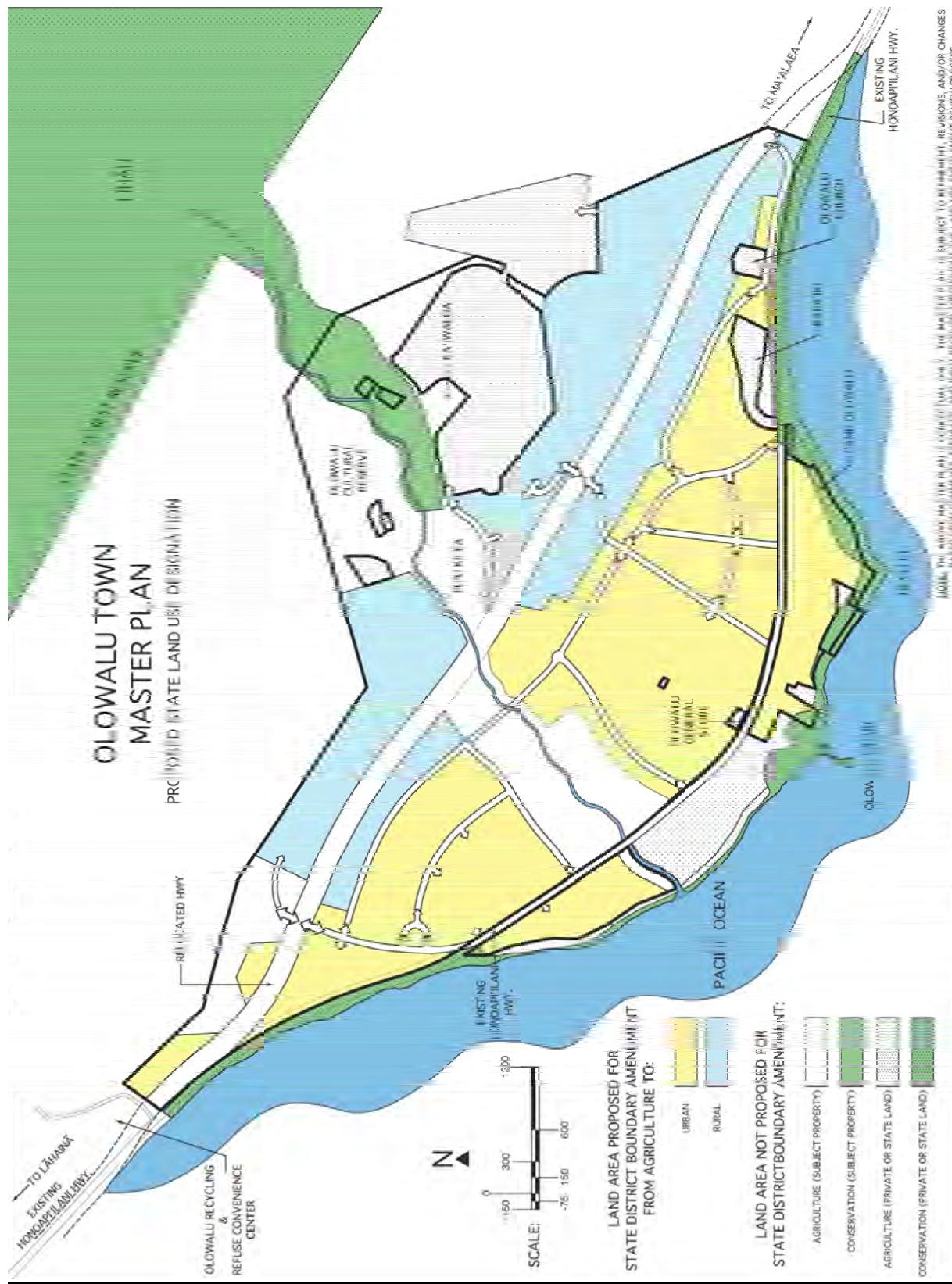
The design of Olowalu Town incorporates smart growth and sustainable land use principles of New Urbanism. As a result, Olowalu Town's spatial layout of land uses, varying density, connective transportation, parks/greenways, civic/social facilities, housing, employment and other land uses are balanced to create a mixed-use community. Neighborhood town centers provide economic sustainability with a range of business and employment opportunities. Olowalu Town is also designed to meet the certification requirements of *Leadership in Energy and Environmental Design for Neighborhood Development* (LEED ND). As such, the Master Plan will be built using strategies aimed at improving performance in regards to energy savings, water efficiency, reducing CO₂ emissions, improved indoor environmental quality, and stewardship of resources and sensitivity to their impacts.

Olowalu Town's proposed infrastructure improvements will be constructed concurrently with the project and will incorporate innovative, efficient, and sustainable technology to minimize adverse impacts upon the natural environment. Olowalu Town's Transportation system includes the corridor for the relocation of the existing high speed/high volume Honoapi`ilani highway away from coastal resources to a new mauka alignment, which will be designed to accommodate mass transit or light rail, if needed in future.

The existing highway corridor with monkey-pod trees will be preserved and converted to low speed/low volume coastal roadway. The project includes an internal roadway network, as well as, an assortment of interconnected greenways and bikeways links throughout the community and supports overall well-being and health of residents; reducing dependency on automobiles.

Additionally, other infrastructure system improvements will require an expansion of both the existing potable and non-potable water system, the likely addition of a second ground water well to supplement the existing well; and an extensive drainage system to capture storm-water runoff. The project will also include the construction of an onsite decentralized wastewater treatment facility, which will include R-1 water storage tank, a constructed vertical flow wetland, and a soil aquifer treatment system. The wastewater treatment facility will produce clean recycled water for irrigation, and thereby eliminate the need for injection wells. The Olowalu Town consists of four general land use categories as defined by the State of Hawai`i Land Use Commission, as shown in Figure 2.

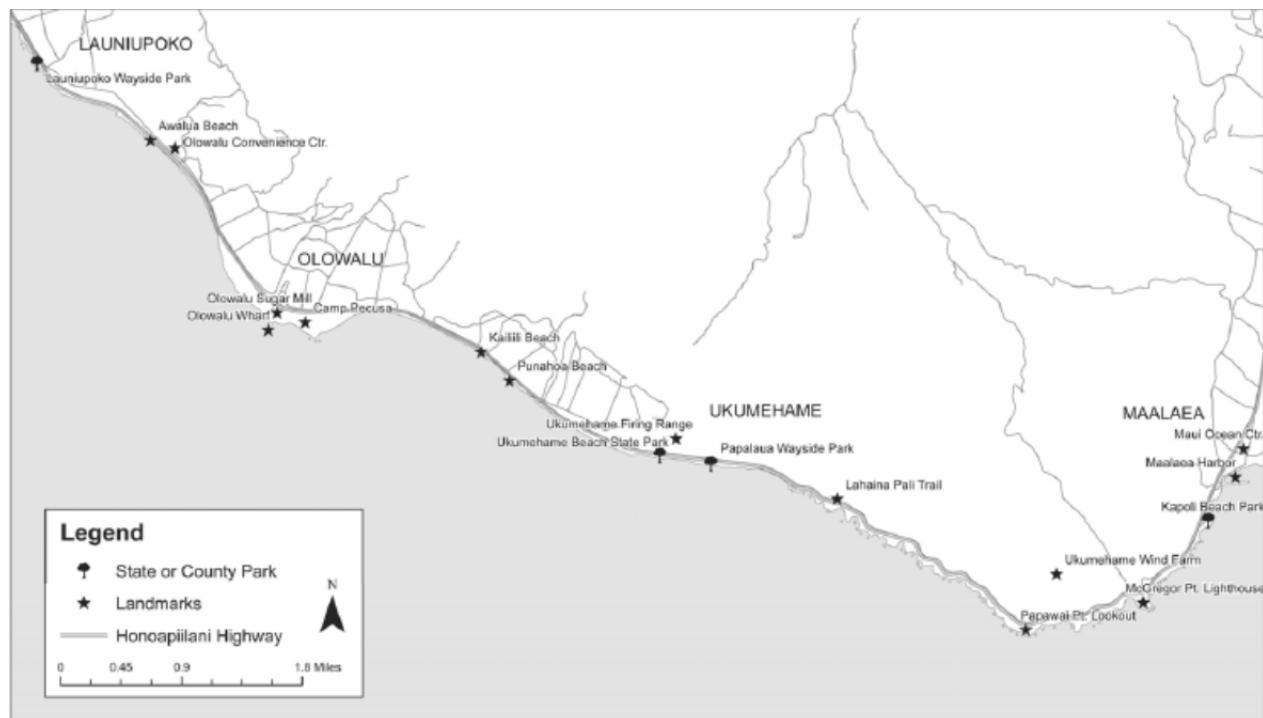
Figure 2 Land Use Categories for Olowalu Town



As shown in the above figure, there are conservation districts, shown in green, along the shore of the Pacific Ocean and in the areas upland to the mauka side of the proposed relocated Route 30. The green areas with the dots delineate the conservation areas which are not part of the subject properties.

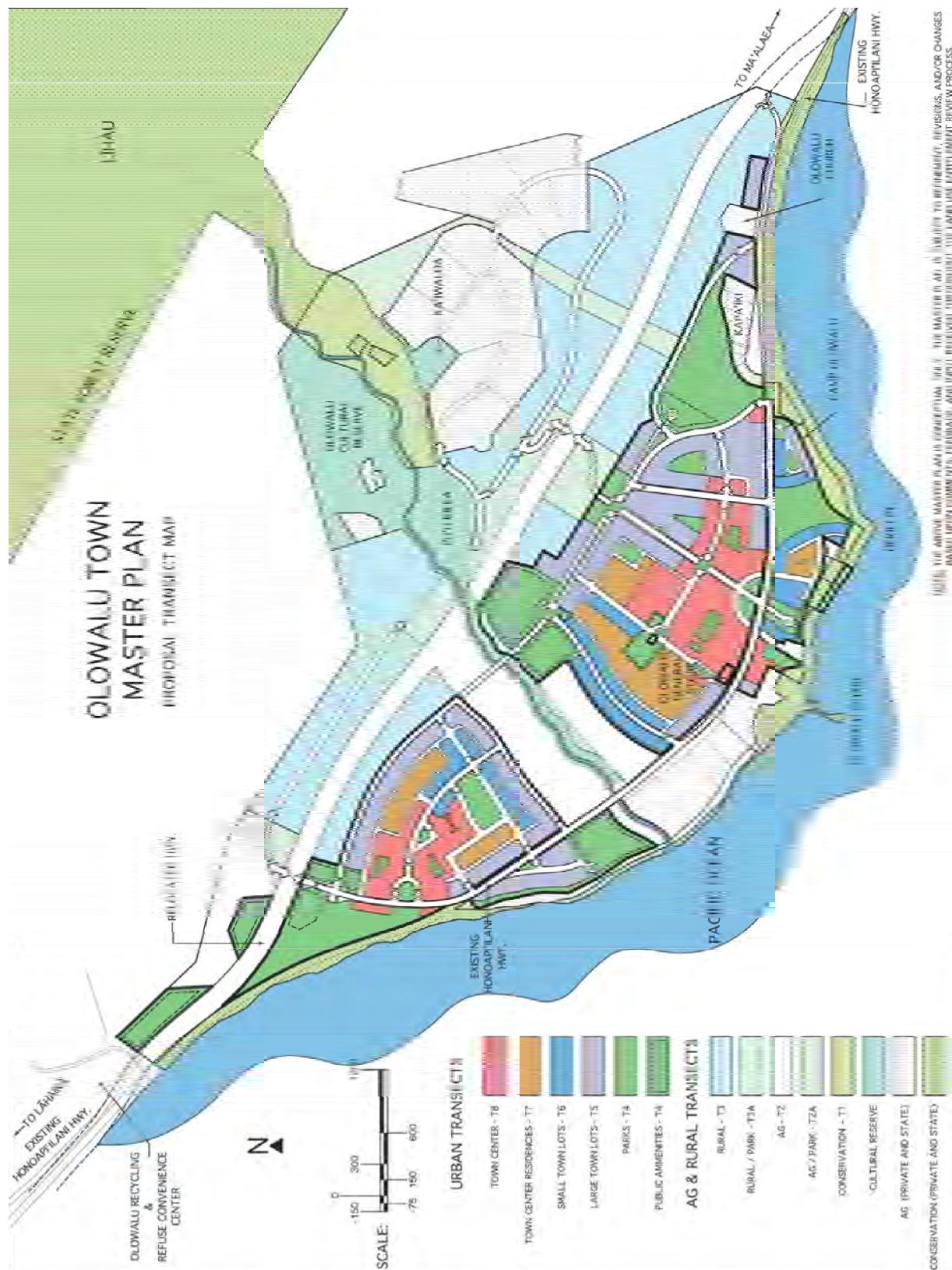
The site for the Olowalu Town includes both rural designations as shown in the blue color and urban areas as shown in the lighter beige color. Agricultural designations which are not proposed for reclassification are shown in white. Agricultural land areas which are not part of the subject properties are shown in the same colors but with dots.

Figure 3 shows the proposed land uses within the Olowalu Town. The sketch below shows major area landmarks.



Area landmarks

Figure 3 Proposed Land Uses in Olowalu Town



As shown in Figure 3 there are generally two neighborhood town centers on either side of Olowalu Stream, with smaller tracts of rural along both sides of the future corridor of the realigned Honoapi`ilani Highway. All the tracts on the mauka side of the future corridor of the realigned Honoapi`ilani Highway are either rural or agricultural lots ranging from $\frac{1}{2}$ to 2 acres.

The urban areas, shown in yellow in Figure 2, will have commercial developments along with a variety of residential units including apartments, townhouses and single-family house. Areas in green along the Pacific Ocean in Figure 3 will contain recreational facilities and include beach access. The street patterns in the urban footprint areas will be modified grids following the principles of new urbanism.

A portion of the overall site will be located mauka of what will be the relocated and improved Honoapi`ilani Highway. There will be small numbers of trips made from the mauka direction of the new highway to and from the bulk of the new town towards the Pacific Ocean. An allowance for this travel pattern is made and will be discussed later in this report.

There will be a connection made between each side of the newly relocated highway that will provide access without entering the highway via a grade separation. This will allow most travel from one side of the highway to the other to be made unencumbered and will lessen impacts to the new roadway. This connection will be useable by motor vehicles as well as bicycles and pedestrians.



View looking north towards Lahaina on approach to Transfer Station access

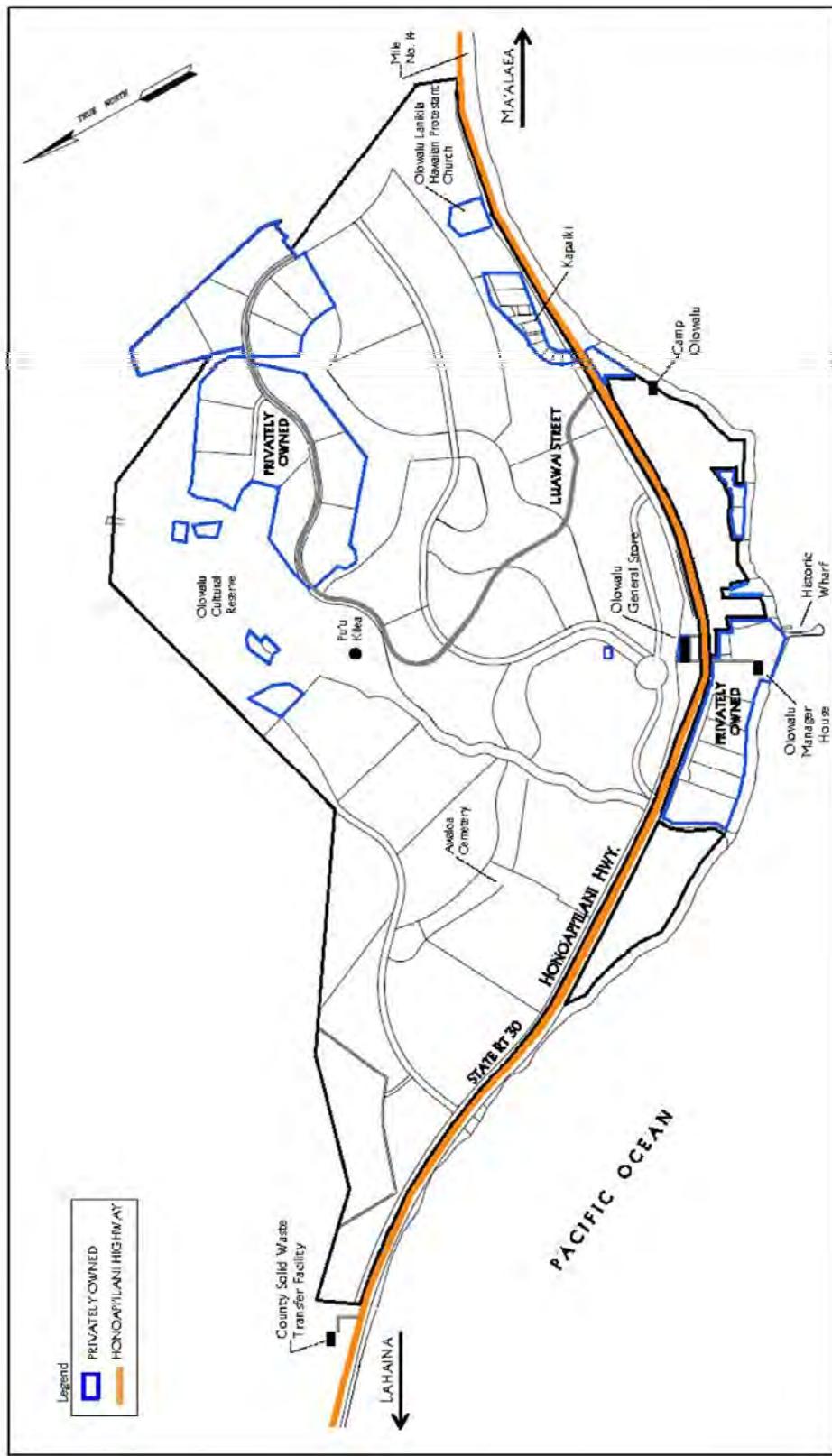
Review of Existing Road and Traffic Conditions

The site of the proposed Olowalu Town is situated on both sides of Honoapi`ilani Highway on the west side of the island of Maui. Honoapi`ilani Highway is the major surface transportation route for the west side of Maui and it provides a connection from the town of Lāhainā to Mā`alaea.

The highway is on the HDOT road system as Route 30. It is classified as a major arterial roadway and it has several different design cross-sections as it winds its way along the Pacific Ocean coastline and inland to Lahaina and Mā`alaea. Within the boundaries of Olowalu Town, the roadway is primarily a two-lane highway with turn lanes in place at intersections and access points.

The site for the proposed project is traversed by approximately 2.6 miles of the existing Honoapi`ilani Highway. Photographs of the roadway are included in the appendices. The following Figure 4 depicts existing conditions with area landmarks shown.

This highway is located in very close proximity to the Pacific Ocean and in some locations its centerline elevation is only a few feet above mean sea level. Due to the high volumes of traffic and its importance as the only connecting roadway on the west side of the island, there are potential issues related to the closeness to the water's edge, especially in time of storms. There are also issues with use of the shoulders and adjacent areas for parking and access to the beach and ocean that impact the overall ability of the roadway to carry the daily volumes required in an efficient manner. Within the appendices are included some parking accumulation data as well as traffic counts and speed surveys made in 2013.

Figure 4 Existing Conditions with Area Landmarks

Trip Generation Methodology

Trip generation for Olowalu Town was estimated using the methods of the Institute of Transportation Engineers (ITE) that are generally endorsed by HDOT and Maui County. The ITE methodology uses tables that relate units of land use to predicted trips into and out a site or development for peak hours of travel and for an entire day. Trips were predicted using the latest version of the ITE Trip Generation, Edition 9.

Table 1 shows the predicted total daily single use trips for the Olowalu Town. As indicated in Table 1, it is estimated that the Olowalu Town would generate approximately 28,764 trips per day at full buildout. This would include all trips within the town and to and from the Town via Honoapi'ilani Highway. Table 1 shows the predicted single-use trips that would be generated by the Olowalu Town at full buildout, taking into account the ITE trip generation rates. This table does not take into account internal community capture. The nature of the new town is that the commercial and retail developments that will occur will be integral to the town, with a large percentage of the ability of the commercial areas existence being a direct result of the residential components of the town. Therefore it is expected that none of the businesses will rely upon traffic from outside the town, but rather will rely upon customers and employees who will live within the new town. Further analysis of community capture including designation of internal and external trips will be made in a subsequent section. The detailed printouts a spreadsheet used for trip generation calculations are provided in the appendices.

Table 2 shows the predicted total a.m. peak hour trips for Olowalu Town. As indicated in Table 2, it is estimated that Olowalu Town will generate approximately 1,671 trips in the a.m. peak hour at full buildout. This would include all trips within the town and to and from the Town via Honoapi'ilani Highway. Further analysis of community capture including designation of internal and external trips will be made in a subsequent section. This table does not take into account internal community capture. The nature of the new town is that the commercial and retail developments that will occur will be integral to the town, with a large percentage of the ability of the commercial areas existence being a direct result of the residential components of the town. Therefore it is expected that none of the businesses will rely upon traffic from outside the town, but rather will rely upon customers and employees who will live within the new town. Further analysis of community capture including designation of internal and external trips will be made in a subsequent section. The detailed printouts a spreadsheet used for trip generation calculations are provided in the appendices.

Table 3 shows the predicted total p.m. peak hour trips for Olowalu Town. As indicated in Table 3, it is estimated that Olowalu Town will generate approximately 2,582 trips in the p.m. peak hour at full buildout. This would include all trips within the town and to and from the Town via Honoapi'ilani Highway. Further analysis of community capture including designation of internal and external trips will be made in a subsequent section. This table does not take into account internal community capture. The nature of the new town is that the commercial and retail developments that will occur will be integral to the town, with a large percentage of the ability of the commercial areas existence being a direct result of the residential components of the town. Therefore it is expected that none of the businesses will rely upon traffic from outside

the town, but rather will rely upon customers and employees who will live within the new town. Further analysis of community capture including designation of internal and external trips will be made in a subsequent section. The detailed printouts a spreadsheet used for trip generation calculations are provided in the appendices.



View looking southward on approach to intersection at Transfer Station

Table 1 Summary of Daily Trip Generation for Olowalu Town

ITE Code	Land Use	# Units	Unit	Unit Convert	Trip Rate Per Unit	Total Trips	Directional Distr.		Trip Generation	
							In	Out	In	Out
110	Gen. Light Industrial	26.0	KSF	1000	6.97	181	0.5	0.5	91	91
210	Single Family Homes	523	DU	1	9.52	4,979	0.5	0.5	2,489	2,489
220	Apartment	260	DU	1	6.65	1,729	0.5	0.5	865	865
220	Apartment	593	DU	1	6.65	3,943	0.5	0.5	1,972	1,972
230	Condo/ Townhouse	174	DU	1	5.81	1,011	0.5	0.5	505	505
310	Hotel	58	Room	1	8.17	474	0.5	0.5	237	237
417	Regional Park	77.0	Acre	1	4.57	352	0.5	0.5	176	176
520	Elem School	300	Students	1	1.29	388	0.5	0.5	194	194
590	Library	5.0	KSF	1000	56.24	281	0.5	0.5	141	141
710	General Office	60.0	KSF	1000	11.03	662	0.5	0.5	331	331
730	Govt Office Building	15.0	KSF	1000	68.93	1,034	0.5	0.5	517	517
732	US Post Office	5.0	KSF	1000	108.19	541	0.5	0.5	270	270
820	Shopping Center	114.0	KSF	1000	42.70	4,868	0.5	0.5	2,434	2,434
820	Shopping Center	125.0	KSF	1000	42.70	5,338	0.5	0.5	2,669	2,669
944	Gasoline/ Service Station	20	Fuel. Pos.	1000	168.56	3,371	0.5	0.5	1,686	1,686
Totals						29,152	0.5	0.5	14,576	14,576

Table 2 Summary of A.M. Peak Hour Trip Generation for Olowalu Town

ITE Code	Land Use	# Units	Unit	Unit Convert	Trip Rate Per Unit	Total Trips	Directional Distr.		Trip Generation	
							In	Out	In	Out
110	Gen. Light Industrial	26.0	KSF	1000	0.92	24	88%	12%	21	3
210	Single Family Homes	523	DU	1	0.75	392	25%	75%	98	294
220	Apartment	260	DU	1	0.51	133	20%	80%	27	106
220	Apartment	593	DU	1	0.51	302	20%	80%	60	242
230	Condo/ Townhouse	174	DU	1	0.44	77	17%	83%	13	64
310	Hotel	58	Room	1	0.53	31	59%	41%	18	13
417	Regional Park	77.0	Acre	1	0.15	12	57%	43%	7	5
520	Elem School	300	Students	1	0.45	136	80%	20%	74	61
590	Library	5.0	KSF	1000	1.04	5	71%	29%	4	2
710	General Office	60.0	KSF	1000	1.56	94	88%	12%	82	11
730	Govt Office Building	15.0	KSF	1000	5.88	88	84%	16%	74	14
732	US Post Office	5.0	KSF	1000	8.23	41	52%	48%	21	20
820	Shopping Center	114.0	KSF	1000	0.96	109	62%	38%	68	42
820	Shopping Center	125.0	KSF	1000	0.96	120	62%	38%	74	46
944	Gasoline/ Service Station	20	Fuel. Pos.	1000	12.16	243	51%	49%	124	119
Totals						1,806			692	979

Note: To account for trips made to the mauka direction of the anticipated relocated Honoapi`ilani Highway it was necessary to make some assumptions as to travel between the two sides of the town. Since the amount of development on the mauka side is small compared to the development on the makai side, it was decided to assign a small number of trips that would exit or enter from the mauka side. The amount used for the a.m. and p.m. peak hours was set at 20 vehicles for each movement or a total of 60 vehicles entering the mauka side and 60 vehicles leaving the mauka side, equally divided between the two directions on Honoapi`ilani Highway and the other side of the roadway. These vehicles were calculated as baseline adds to the future nobuild condition. In essence they represent a slight overestimation since the amounts were not deducted from the overall trip generation due to the difficulty in assigning small percentages to the large number of land uses. It is felt this method provides an overly conservative view of traffic impacts since actual numbers will likely be less than shown in the tables for the a.m. and p.m. peak hours. It was felt this level of precision was appropriate for this study but it can be addressed in greater detail with subsequent updates of the study as required by HDOT.

Table 3 Summary of P.M. Peak Hour Trip Generation for Olowalu Town

ITE Code	Land Use	# Units	Unit	Unit Convert	Trip Rate Per Unit	Total Trips	Directional Distr.		Trip Generation	
							In	Out	In	Out
110	Gen. Light Industrial	26.0	KSF	1000	6.97	25	12%	88%	3	22
210	Single Family Homes	523	DU	1	9.52	523	63%	37%	329	194
220	Apartment	260	DU	1	6.65	161	65%	35%	105	56
220	Apartment	593	DU	1	6.65	368	65%	35%	239	129
230	Condo/ Townhouse	174	DU	1	5.81	90	67%	33%	61	30
310	Hotel	58	Room	1	8.17	35	51%	49%	18	17
417	Regional Park	77.0	Acre	1	4.57	15	45%	55%	7	8
520	Elem school	300	Students	1	0.15	45	80%	20%	22	23
590	Library	5.0	KSF	1000	56.24	37	48%	52%	18	19
710	General Office	60.0	KSF	1000	11.03	89	17%	83%	15	74
730	Govt Office Building	15.0	KSF	1000	68.93	18	31%	69%	6	13
732	US Post Office	5.0	KSF	1000	108.19	56	51%	49%	29	27
820	Shopping Center	114.0	KSF	1000	42.70	423	48%	52%	203	220
820	Shopping Center	125.0	KSF	1000	42.70	464	48%	52%	223	241
944	Gasoline/ Service Station	20	Fuel. Pos.	1000	168.56	277	50%	50%	139	139
Totals						2,627			1,393	1,189

Note: To account for trips made to the mauka direction of the anticipated relocated Honoapi`ilani Highway it was necessary to make some assumptions as to travel between the two sides of the town. Since the amount of development on the mauka side is small compared to the development on the makai side, it was decided to assign a small number of trips that would exit or enter from the mauka side. The amount used for the a.m. and p.m. peak hours was set at 20 vehicles for each movement or a total of 60 vehicles entering the mauka side and 60 vehicles leaving the mauka side, equally divided between the two directions on Honoapi`ilani Highway and the other side of the roadway. These vehicles were calculated as baseline adds to the future nobuild condition. In essence they represent a slight overestimation since the amounts were not deducted from the overall trip generation due to the difficulty in assigning small percentages to the large number of land uses. It is felt this method provides an overly conservative view of traffic impacts since actual numbers will likely be less than shown in the tables for the a.m. and p.m. peak hours. It was felt this level of precision was appropriate for this study but it can be addressed in greater detail with subsequent updates of the study as required by HDOT.

Allocation of Trips Generated to Internal Community Capture

It is expected that the new town will support a large component of retail and commercial activity based on its own population. In addition, there will be large amounts of trips made to and from the proposed recreational areas and to and from the governmental offices and other land uses. The following Table 4 shows the proportional allocation of trips generated by the individual land uses in the town. This table was used to apportion the total trips generated so as to identify trips that would be made internal to the town without any travel on Honoapi`ilani Highway. The remaining trips would then be the trips that would enter or leave the town to and from Honoapi`ilani Highway.

A significant effort was made to develop a methodology for internal and community capture for this project. Extensive research was undertaken and a report was prepared by Mr. John Edwards, P.E. This report and other information are included in the appendices, numbers 6, 7 and 8.

Table 4 Internal Community Capture of Trips in Olowalu Town

ITE Code	Land Use	Proportion of Trips Internal to Olowalu Town	Proportion of Trips External to Olowalu Town
110	Gen. Light Industrial	30%	70%
210	Single Family Homes	45%	55%
220	Apartment	45%	55%
220	Apartment	45%	55%
230	Condo/ Townhouse	45%	55%
310	Hotel	10%	90%
417	Regional Park	50%	50%
520	Elem School		
590	Library	90%	10%
710	General Office	30%	70%
730	Govt Office Building	85%	15%
732	US Post Office	95%	5%
820	Shopping Center	75%	25%
820	Shopping Center	75%	25%
944	Gasoline/ Service Station	95%	5%

As seen in Table 4, the percentages of trips allocated to the individual land uses in the new town vary from 10% to 95%. For example, the proportion of trips shown as being internal to the town for the general light industrial land use is seen to be 30%. This means that we are assuming that 30% of the trips generated to and from the general light industrial land uses would be made to or from other land uses within the new town. The remaining 70% of the trips would then have to be made externally to or from the town onto or from Honoapi'ilani Highway. Other land uses have different percentages of internal or community capture trips. For example, it is expected that virtually all trips to and from the post office would be made internally, with only 5% being made to or from areas outside the new town. This means that

just 5% of the single use trips to and from the post office facility would be made to or from Honoapi`ilani Highway. It would seem logical that the vast majority of trips to the post office would be made by local residents and businesses. It would not seem reasonable that many trips would be made to or from the post office by residents not living within the town. Post offices are of course available in the nearest residential communities that are about 6 miles away in either direction on Honoapi`ilani Highway. The 85% value for internal or community capture for the government office building would reflect the fact that the government offices would provide services needed by residents of the town. This might include police or fire services or general government services. Again, it would not be expected that these services would be as likely to be needed by non-residents of the town but this would also allow for as many as 15% to be made by employees who may reside in other areas.



View looking south towards intersection at Ehehene Street

It was also assumed that trips that would be made to and from the new town on Honoapi`ilani Highway for the various single land uses in the town could also be made by drivers that might already be on Honoapi`ilani Highway. Essentially these would be passby made by vehicles already on Honoapi`ilani Highway. The following Table 5 shows the values assigned to reflect the trips made externally into or from the new town by drivers already on Honoapi`ilani Highway. Again, as with Table 4, these values vary based on the land use and they reflect the potential that the new external trips would represent diversions from other locales by drivers already using Honoapi`ilani Highway.

Table 5 Passby Trips from/to Olowalu Town on Honoapi`ilani Highway

ITE Code	Land Use	Proportion of Trips To/from Olowalu Town already on Honoapi`ilani Highway	Proportion of Trips To/from Olowalu Town Not already on Honoapi`ilani Highway
110	Gen. Light Industrial	20%	80%
210	Single Family Homes	20%	80%
220	Apartment	20%	80%
220	Apartment	20%	80%
230	Condo/Townhouse	20%	80%
310	Hotel	20%	80%
417	Regional Park	20%	80%
520	Elem School	80%	20%
590	Library	20%	80%
710	General Office	20%	80%
730	Govt Office Building	50%	50%
732	US Post Office	80%	20%
820	Shopping Center	80%	20%
820	Shopping Center	80%	20%
944	Gasoline/Service Station	90%	10%

The factors from Tables 4 and 5 were then used to apply to the trip generation data in Tables 1, 2 and 3 to account for internal or community capture and for passby or diverted trips on Honoapi`ilani Highway. The results of the application of the internal capture and passby rates for trip generation are shown in Tables 6, 7 and 8.

Table 6 shows the daily predicted trips for the new town at full buildout. Table 7 shows the predicted a.m. peak hour trips and Table 8 shows the predicted p.m. peak hour trips for the new town in relation to its connection to what will be the new and relocated Honoapi`ilani Highway.

Table 6 Trips for New Olowalu Town on Daily Basis

ITE Code	Land Use	Total Trips	Total Trip Generation		Internal Community Capture		Total Trips		Proportion of External Trips on Honoapi`ilani Highway		Apportioned Trips on Honoapi`ilani Highway		External Trips on Honoapi`ilani Highway	
			In	Out	In	Out	Internal	External	New	Passby	New	Passby	In	Out
110	Gen. Light Industrial	181	91	91	0.30	0.70	54	127	0.80	0.20	101	25	51	51
210	Single Family Homes	4,979	2,489	2,489	0.45	0.55	2,241	2,738	0.80	0.20	2,191	548	1,095	1,095
220	Apartment	1,729	865	865	0.45	0.55	778	951	0.80	0.20	761	190	380	380
220	Apartment	3,943	1,972	1,972	0.45	0.55	1,775	2,169	0.80	0.20	1,735	434	868	868
230	Condo/ Townhouse	1,011	505	505	0.45	0.55	455	556	0.80	0.20	445	111	222	222
310	Hotel	474	237	237	0.10	0.90	47	426	0.80	0.20	341	85	171	171
417	Regional Park	352	194	194	0.90	0.10	348	39	0.80	0.20	31	8	15	15
520	Elem School	388	141	141	0.90	0.10	253	28	0.80	0.20	22	6	11	11
590	Library	281	331	331	0.30	0.70	199	463	0.80	0.20	371	93	185	185
710	General Office	662	517	517	0.85	0.15	879	155	0.50	0.50	78	78	39	39
730	Govt Office Building	1,034	270	270	0.95	0.05	514	27	0.20	0.80	5	22	3	3
732	US Post Office	541	2,434	2,434	0.75	0.25	3,651	1,217	0.20	0.80	243	974	122	122
820	Shopping Center	4,868	2,669	2,669	0.75	0.25	4,003	1,334	0.20	0.80	267	1,068	133	133
820	Shopping Center	5,338	1,686	1,686	0.95	0.05	3,203	169	0.10	0.90	17	152	8	8
944	Gasoline/ Service Station	3,371	91	91	0.30	0.70	54	127	0.80	0.20	101	25	51	51
	Totals	29,152	14,576	14,576	0.63	0.37	18227	10537	0.64	0.36	6718	3819	3359	3359

As seen in Table 6, it is predicted that there would be 3,359 new trips into the new Olowalu Town from Honoapi`ilani Highway on a daily basis and 3,359 new trips out of the new Olowalu Town on a daily basis. The total traffic into and out of the new Olowalu Town on a daily basis is predicted to be 10,538, or 5,269 trips in and 5,269 trips out. Therefore, there would be 3,820 trips into and out of the town total that were from vehicles already on Honoapi`ilani Highway. In summary, the net daily effect of traffic added due to trips generated by the land uses in the new town would be as follows in Table 7.

Table 7 Net Summary Effect of Trips Generated by Olowalu Town on Daily Basis

Classification	Type	In	Out	Total
Internal to Town Only				18,227
External to/from Honoapi`ilani Highway	New	3,359	3,359	6,718
	Passby	1,910	1,910	3,820
	Total	5,269	5,269	10,538

Table 8 Trips for New Olowalu Town for A.M. Peak Hour

ITE Code	Land Use	Total Trips	Total Trip Generation		Internal Community Capture		Total Trips		Proportion of External Trips on Honoapi`ilani Highway		Apportioned Trips on Honoapi`ilani Highway		External Trips on Honoapi`ilani Highway	
			In	Out	In	Out	Internal	External	New	Passby	New	Passby	In	Out
110	Gen. Light Industrial	24	21	3	0.30	0.70	7	17	0.80	0.20	13	3	15	2
210	Single Family Homes	392	98	294	0.45	0.55	177	216	0.80	0.20	173	43	54	162
220	Apartment	133	27	106	0.45	0.55	60	73	0.80	0.20	58	15	15	58
220	Apartment	302	60	242	0.45	0.55	136	166	0.80	0.20	133	33	33	133
230	Condo/ Townhouse	77	13	64	0.45	0.55	34	42	0.80	0.20	34	8	7	35
310	Hotel	31	18	13	0.10	0.90	3	28	0.80	0.20	22	6	16	11
417	Regional Park	12	7	5	0.90	0.10	6	6	0.80	0.20	5	1	3	2
520	Elem School	135	74	61	0.90	0.10	122	14	0.80	0.20	11	3	7	6
590	Library	5	4	2	0.30	0.70	5	1	0.80	0.20	0	0	0	0
710	General Office	94	82	11	0.85	0.15	28	66	0.50	0.50	52	13	58	8
730	Govt Office Building	88	74	14	0.95	0.05	75	13	0.20	0.80	7	7	11	2
732	US Post Office	41	21	20	0.75	0.25	39	2	0.20	0.80	0	2	1	1
820	Shopping Center	109	68	42	0.75	0.25	82	27	0.20	0.80	5	22	17	10
820	Shopping Center	120	74	46	0.95	0.05	90	30	0.10	0.90	6	24	19	11
944	Gasoline/ Service Station	243	124	119	0.30	0.70	231	12	0.80	0.20	1	11	6	6
	Totals	1806	766	1040	0.58	0.42	973	698	0.73	0.27	510	188	255	443

As seen in Table 8, it is predicted that there would be 255 trips into the new Olowalu Town from Honoapi`ilani Highway in the a.m. peak hour and 443 trips out of the new Olowalu Town in the a.m. peak hour. There would be 188 trips made by drivers already on Honoapi`ilani Highway and 510 that were not already using the road. In summary, the net effect of traffic added due to trips generated by the land uses in the new town in the a.m. peak hour would be as follows in Table 9.

Table 9 Net Summary Effect of Trips Generated by Olowalu Town in A.M. Peak Hour

Classification	Type	In	Out	Total
Internal to Town Only				973
External to/from Honoapi`ilani Highway	New	186	324	510
	Passby	69	119	188
	Total	255	443	698

Table 10 Trips for New Olowalu Town for P.M. Peak Hour

ITE Code	Land Use	Total Trips	Total Trip Generation		Internal Community Capture		Total Trips		Proportion of External Trips on Honoapi`ilani Highway		Apportioned Trips on Honoapi`ilani Highway		External Trips on Honoapi`ilani Highway	
			In	Out	In	Out	Internal	External	New	Passby	New	Passby	In	Out
110	Gen. Light Industrial	25	3	22	0.30	0.70	8	18	0.80	0.20	14	4	2	16
210	Single Family Homes	523	329	194	0.45	0.55	235	288	0.80	0.20	230	58	181	106
220	Apartment	161	105	56	0.45	0.55	73	89	0.80	0.20	71	18	58	31
220	Apartment	368	239	129	0.45	0.55	165	202	0.80	0.20	162	40	131	71
230	Condo/ Townhouse	90	61	30	0.45	0.55	41	50	0.80	0.20	40	10	33	16
310	Hotel	35	18	17	0.10	0.90	3	31	0.80	0.20	25	6	16	15
417	Regional Park	15	7	8	0.90	0.10	8	8	0.80	0.20	6	2	3	4
520	Elem School	45	22	23	0.90	0.10	41	5	0.80	0.20	4	1	2	2
590	Library	37	18	19	0.30	0.70	33	4	0.80	0.20	3	1	2	2
710	General Office	89	15	74	0.85	0.15	27	63	0.50	0.50	50	13	11	52
730	Govt Office Building	18	6	13	0.95	0.05	15	3	0.20	0.80	1	1	1	2
732	US Post Office	56	29	27	0.75	0.25	53	3	0.20	0.80	1	2	1	1
820	Shopping Center	423	203	220	0.75	0.25	317	106	0.20	0.80	21	85	51	55
820	Shopping Center	464	223	241	0.95	0.05	348	116	0.10	0.90	23	93	56	60
944	Gasoline/ Service Station	277	139	139	0.30	0.70	264	14	0.80	0.20	1	12	7	7
	Totals	2627	1393	1189	0.62	0.38	1630	997	0.65	0.35	652	345	555	441

As seen in Table 10, it is predicted that there would be 555 trips into the new Olowalu Town from Honoapi`ilani Highway in the a.m. peak hour and 441 trips out of the new Olowalu Town in the a.m. peak hour. There would be 345 trips made by drivers already on Honoapi`ilani Highway and 652 that were not already using the road. In summary, the net effect of traffic added due to trips generated by the land uses in the new town in the a.m. peak hour would be as follows in Table 11.

Table 11 Net Summary Effect of Trips Generated by Olowalu Town in P.M. Peak Hour

Classification	Type	In	Out	Total
Internal to Town Only				1630
External to/from Honoapi`ilani Highway	New	361	291	652
	Passby	194	150	345
	Total	555	441	996

Additional Scenario Review for Hawai`i DOT

At the request of the HDOT, an additional scenario was reviewed. In this scenario, the HDOT requested that an analysis be made that limited internal community capture to 25%. Therefore an additional set of trip generation numbers with 25% internal community capture and the remaining 75% being external to the new town was developed. Detail printouts of the calculations are provided in the appendices. The following Table 12 provides a summary of the scenario as requested by HDOT for trip generation. As can be noted this scenario as requested by HDOT shows a substantial increase in external trips. The owners and developers of this project, as well as the project traffic engineer, believe that the predictions in our Tables 1 – 11 present an accurate picture of anticipated trip generation. Nonetheless, at the request of HDOT, the scenario depicted in Table 12 will be analyzed.

Table 12 Summary of Predicted Trip Generation for Scenario Requested by HDOT

Time Period	Total Single Use Trips from ITE Trip Generation Data	Internal Community Capture at 25%	Resulting External Trips at 75%	Trips Entering Town	Trips Exiting Town
Daily	29,152	7,288	21,864	10,932	10,932
A.M. Peak Hour	1,806	452	1,354	519	734
P.M. Peak Hour	2,627	657	1,970	1,045	892

Background Traffic Growth

Several studies were made available which analyzed traffic growth trends on Honoapi'ilani Highway and in the west Maui area. Data from these studies are included in the appendices.

Based on a review of available data, it was decided that an annual traffic volume growth rate of approximately 1% would be appropriate for Honoapi'ilani Highway, resulting in a total growth of 9% between 2015 and full buildout of the Olowalu Town in 2024. This 9% growth rate was applied to the existing through traffic volumes on Honoapi'ilani Highway to derive future year traffic volumes without the Olowalu Town project in place.

The current average annual daily traffic on Honoapi'ilani Highway was estimated with a 24-hour machine traffic count made in February 2013. This data from 2013 was updated using the 1% annual increase for 2 years. Therefore the background growth shown from 2013 to the full buildout in 2024 was taken to be 11%.

Studies have indicated there are approximately 5% trucks with 3 axles or more in the traffic stream on Honoapi'ilani Highway. Using the assumption of 5% trucks, the count made in February of 2013 indicates a daily traffic volume of 25,810. This count was made slightly north of the solid waste transfer station which is just beyond the northern boundary of the proposed Olowalu Town site. Assuming the growth rate of 11% from 2013 to 2024, the background traffic volume growth on Honoapi'ilani Highway would be 2,840 vehicles resulting in an average daily traffic volume of 28,650 in the future year of 2024 without the project in place.

Traffic Analysis in Year 2024 without Olowalu Town Project

A brief analysis was made of the traffic flow on Honoapi'ilani Highway in the year 2024 without the project in place. This analysis assumed the background traffic volume growth would continue, resulting in a total increase of 9% in the daily traffic volumes on Honoapi'ilani Highway. The analysis assumed that all peak hour and directional factors and truck factors remained the same. The results of the use of the Highplan software are given in Figure 6. As noted in Figure 6, the volume to capacity ratio would increase to 0.73 and the level of service when considering speed would be at an E. The volume to capacity ratio of 0.73 indicates there would be the ability to add more traffic to the roadway on a daily basis, although peak hour traffic speeds would continue to decrease.

Additional information on the Highplan software and its outputs is available in the appendices. See Figure 7 for existing 24-hour traffic volumes on Honoapi'ilani Highway and Figure 8 for the predicted traffic volumes in the year 2024 without the project in place.

This project is unique in that the existing major roadway will be relocated and revised significantly with the development of the Olowalu Town. So, it is not as meaningful as it would normally be to compare the existing or future no build traffic conditions to the build condition, since there is going to be a marked change in the roadway with the coming of the new town. Leaving the existing road as is or in an improved condition without building the town is not an option and the road improvements only occur with the development of the town.

Figure 6 Output from Highplan Software for Honoapi'ilani Highway for Year 2024 without Project in Place

HIGHPLAN 2012 Conceptual Planning Analysis

Project Information

Analyst	RDD	Highway Name	HP Hwy	Study Period	Kother
Date Prepared	4/22/2011 1:23:21 PM	From	Transfer Center	Analysis Type	Two-Lane Segment
Agency	F&W	To	Mile Marker 14	Program	HIGHPLAN 2012
Area Type	Rural Undeveloped	Peak Direction	Northbound	Version Date	12/12/2012
File Name	C:\2000 - Olowalu New Town\HighPlan Analysis\Highplan Future NO Build as rural undev 0909.xhp				
User Notes	Daily future without project				

Highway Data

Roadway Variables			Traffic Variables				
Segment Length	2.600	Median	Yes	AADT	28650	PHF	0.930
# Thru Lanes	2	Left Turn Impact	No	K	0.070	% Heavy Vehicles	5.0
Terrain	Level	Pass Lane Length	N/A	D	0.535	Base Capacity	1700
Posted Speed	45	% NPZ	100	Peak Dir. Hrly. Vol.	1073	Local Adj. Factor	1.00
Free Flow Speed	50	Class	1	Off Peak Dir. Hrly. Vol.	933	Adjusted Capacity	1785

LOS Results

v/c Ratio	0.65	Density	N/A	PTSF	89.3	ATS	32.9	% FFS	65.8
FFS Delay	97.2	LOS Thresh. Delay	97.2	Service Measure	PTSF	LOS	E		

Service Volumes

Note: The maximum normally acceptable directional service volume for LOS E in Florida for this facility type and area type is 1500 veh/h/in.

Lanes	A	B	C	D	E
Hourly Volume In Peak Direction					
1	*	*	130	490	1660
2					
3					
4					
Lanes	Hourly Volume In Both Directions				
2	*	*	250	920	3110
4					
6					
8					
Lanes	Annual Average Daily Traffic				
* 2	*	*	3600	13200	44500
Cannot be achieved based on					
on					

Trip Distribution

Trips were distributed based on the existing pattern of traffic on Honoapi'ilani Highway and trip data available from a recent update of the Maui Long Range Transportation Plan (MLRTP). The MLRTP update was prepared for HDOT by a consulting firm utilizing the TransCad model. This model predicts trip generation using equations for production and attraction of trips for the traffic analysis zones (TAZs) established for the island. The gravity model distributes trips to and from the TAZs using a complicated algorithm.

The study established some 400 TAZs for the island, as indicated in materials in the appendices. The model then assigns trips to the existing (and proposed) network of streets using equations that take into account the capacity of the street network and anticipated speeds on the network.

One of the results of this effort is the development of a trip table that indicates the number of trips to and from each TAZ on the island. This table was used in developing the trip distribution used in this study and detail printouts are available in the appendices.

Available traffic counts on Honoapi'ilani Highway indicate the direction of traffic flow by hour of the day nearby the project site. This information was used as background information in determining the distribution of trips.

Trips were distributed using information from the Maui LRTP and a review of the trip length frequency curves from the latest update of the island's LRTP. By analyzing this data and by being aware of the location of various traffic generators on the island, distribution values for each land use were developed.

The trip distribution pattern for external trips shows trips that would leave Olowalu Town to travel to or from the north (Lahaina and beyond) or the central and south portions of Maui. The following Table 13 shows the distribution of trips generated for each land use in the Olowalu Town.

Table 13 Trip Distribution for New External Trips Generated in Olowalu Town

ITE Land Use Code	Land Use Description	Percentage on Honoapi'ilani Hwy To/from Lahaina	Percentage on Honoapi'ilani Hwy To/from Ma'alea
730	Government Office Building	46%	54%
110	General Light Industrial	58%	42%
590	Library	54%	46%
520	Elementary School	54%	46%
415/417	Regional Park with Beach	46%	54%
310	Hotel	72%	28%
732	United States Post Office	54%	46%
230	Condominium/Townhouse	60%	40%
944	Gasoline/Service Station	50%	50%
220	Apartments	60%	40%
210	Single-Family Detached Housing	60%	40%
820	Commercial Retail	60%	40%
710	General Office	60%	40%
Total	All Land Uses	60%	40%

A similar process was used for pass-by or diverted trips to and from Olowalu Town that would be added to traffic on Honoapi'ilani Highway. The following Table 4 shows the distribution of pass-by trips for the various land uses in Olowalu Town.

Table 14 Trip Distribution for Passby Trips Generated to and from Olowalu Town

ITE Land Use Code	Land Use Description	Percentage on Honoapi'ilani Hwy To/from Lahaina	Percentage on Honoapi'ilani Hwy To/from Ma'alea
730	Government Office Building	46%	54%
110	General Light Industrial	58%	42%
590	Library	54%	46%
520	Elementary School	54%	46%
415/417	Regional Park with Beach	46%	54%
310	Hotel	72%	28%
732	United States Post Office	54%	46%
230	Condominium/Townhouse	60%	40%
944	Gasoline/Service Station	50%	50%
220	Apartments	60%	40%
210	Single-Family Detached Housing	60%	40%
820	Commercial Retail	60%	40%
710	General Office	60%	40%
Total	All Land Uses		

Traffic Assignment

Trips were assigned to the three proposed access points to the Olowalu Town, based on the general preliminary site development plan. Assumptions were made as to the selection of the point of access that made the most sense for drivers leaving or entering the new town in comparison to the location of the individual land uses.

Trips from the residential and commercial components of Olowalu Town were assigned mostly to the two primary access points along the relocated Honoapi'ilani Highway. These two access points are expected to be designed as non-signalized intersections with the use of median U-turns in an arrangement generally known as the "Michigan U-turn." The design has been called the "O-turn" to refer to Olowalu Town. The "Michigan U-turn" frequently utilizes traffic signals, however it is expected that the "O-turns" will operate with U-turns required for all left turns

out of the site (after a right turn), for left turns into the site and for straight-through movements from one side of Honoapi'ilani Highway to the other.

It is generally envisioned that no traffic signals will be required for through traffic along the new Honoapi'ilani Highway and that traffic control for vehicles entering or leaving Olowalu Town will be via stop signs or yield signs. The third access point planned is a right-in/right-out access point on the southern end of the site, which will have limited use compared to the other two major access points.

Trip assignments were made to each of the three proposed access points based on the number of residential units and the square footage of commercial and other space planned for Olowalu Town, including the proposed recreational areas. The amount of trips generated by the mauka side of Honoapi'ilani Highway will be very small in comparison to the total trips generated by the entire site and will have a relatively small impact on traffic flow. In addition, there is a connector road planned to link the mauka and makai sides that will allow for traffic flow without the need to utilize either of the "O-turns." This connector should minimize the trips that would be made through the "O-turns."

The Wintass software program was used to assign trips to the street network with trips allocated based on the distribution data described earlier and the allocation of trips to the three proposed access points. Generally, trips were allocated by land use to the most logical access point, depending upon the direction of travel away from Olowalu Town. These trips are only for travel external to Olowalu Town. Overall, a small percentage of trips were assigned to the proposed right-in/right-out access point that will be located on the southern end of the project. The remaining trips were allocated to the two major access points that will operate as the "O-turns." The following Table 15 shows the general allocation of trips to the three access points.

Table 15 Allocation of External Trips to Proposed Olowalu Town Access Points

Access Point	Percentage of External Trips Entering and Exiting Olowalu Town	Comments
O-turn 1	35%	Values vary slightly for individual land uses
O-turn 2	58%	Values vary slightly for individual land uses
RIRO	7%	Assumes fewer entries than exits due to location and design of access point.

It was assumed that new trips generated to and from the site would be apportioned as 60% to and from the Lahaina direction and 40% to and from the Mā`alaea direction. For the passby and/or diverted trips already on Honoapi'ilani Highway, the trips were apportioned based on the existing traffic flow in the a.m. and p.m. peak hours. So, these trips were apportioned at 60% to and from Lahaina in the a.m. peak hour with the remaining 40% to and from Mā`alaea. For the p.m. peak hour the volumes are virtually the same in each direction on Honoapi'ilani Highway, so these trips were apportioned at 50% to and from Lahaina and 50% to and from Mā`alaea. See Table 16.

Table 16 Apportioning of Trips Generated by Olowalu Town by Peak Hour

Time Period	New Trips		Passby/Diverted Trips	
	To/from Lahaina	To/from Mā`alaea	To/from Lahaina	To/from Mā`alaea
A.M. Peak Hour	60%	40%	60%	60%
P.M. Peak Hour	60%	40%	50%	50%

Detailed percentage values for each land use for each access point and direction of travel are provided in the appendices, however the overall average was used as indicated in Table 16 due to the complexity of the town and the uncertainty relating to temporal changes as the town develops.

As noted earlier with Tables 2 and 3, this analysis does not include detailed estimation of travel from the mauka side to and from the makai side of the Olowalu Town. The amount of land development on the mauka side of Honoapi'ilani Highway compared to the makai side is very low, so that a very small percentage of trips will be made from one side to the other and these would be essentially internal trips.

To address this, a nominal amount of left turns, right turns and crossing movements at 20 each per each peak hour were added to the predicted traffic volumes. This would equate to about 1,000 trips per day total into and out of the mauka side of the new town.

This analysis also does not address the internal trips made from the mauka side to the makai side of Honoapi'ilani Highway via a connector that does not require access to Honoapi'ilani Highway.

Development of Future Traffic Data

Traffic volumes were predicted for the future development of the entire Olowalu Town using the Wintass software mentioned earlier. This software takes existing traffic volumes and adds background growth and trips that are assigned to the street network at each node and for each turning movement. This preliminary TIAR focuses only on the total daily traffic volumes for the proposed Olowalu Town. Trip generation for the Olowalu Town included new external trips that would use Honoapi'ilani Highway either for entry to or exit from Olowalu Town. It also included the allocation of pass-by trips that would have already been on Honoapi'ilani Highway. The following schematic Figure 6 shows the street network with the Olowalu Town in place, not including a proposed internal connector from the mauka side to the makai side of Honoapi'ilani Highway.

As discussed earlier, a background growth factor of 9% was used to account for growth in traffic on Honoapi'ilani Highway without the Olowalu Town being in place. This factor was applied to all traffic movements on Honoapi'ilani Highway that would exist without Olowalu Town. Trips were allocated as indicated in Tables 1 – 5. Detailed printouts from the Wintass software are included in the appendices.

Figure 7 provides a schematic diagram showing the existing average daily traffic volumes on Honoapi'ilani Highway for the study network. Figure 8 shows the predicted traffic volumes on Honoapi'ilani Highway in the year 2024 without the project in place. Figure 9 shows the new trips added to the street network with Olowalu Town in place at its full buildout in the year 2024, with the relocated and widened Honoapi'ilani Highway in place. Figure 10 shows the total traffic volumes on the street network at full buildout of the Olowalu Town in the year 2024 with the background growth of 11%. Again, Figure 10 includes the relocation of Honoapi'ilani Highway mauka of the existing highway along with its widening to four lanes.

Figure 7 Existing Traffic Volumes on Honoapi'ilani Highway

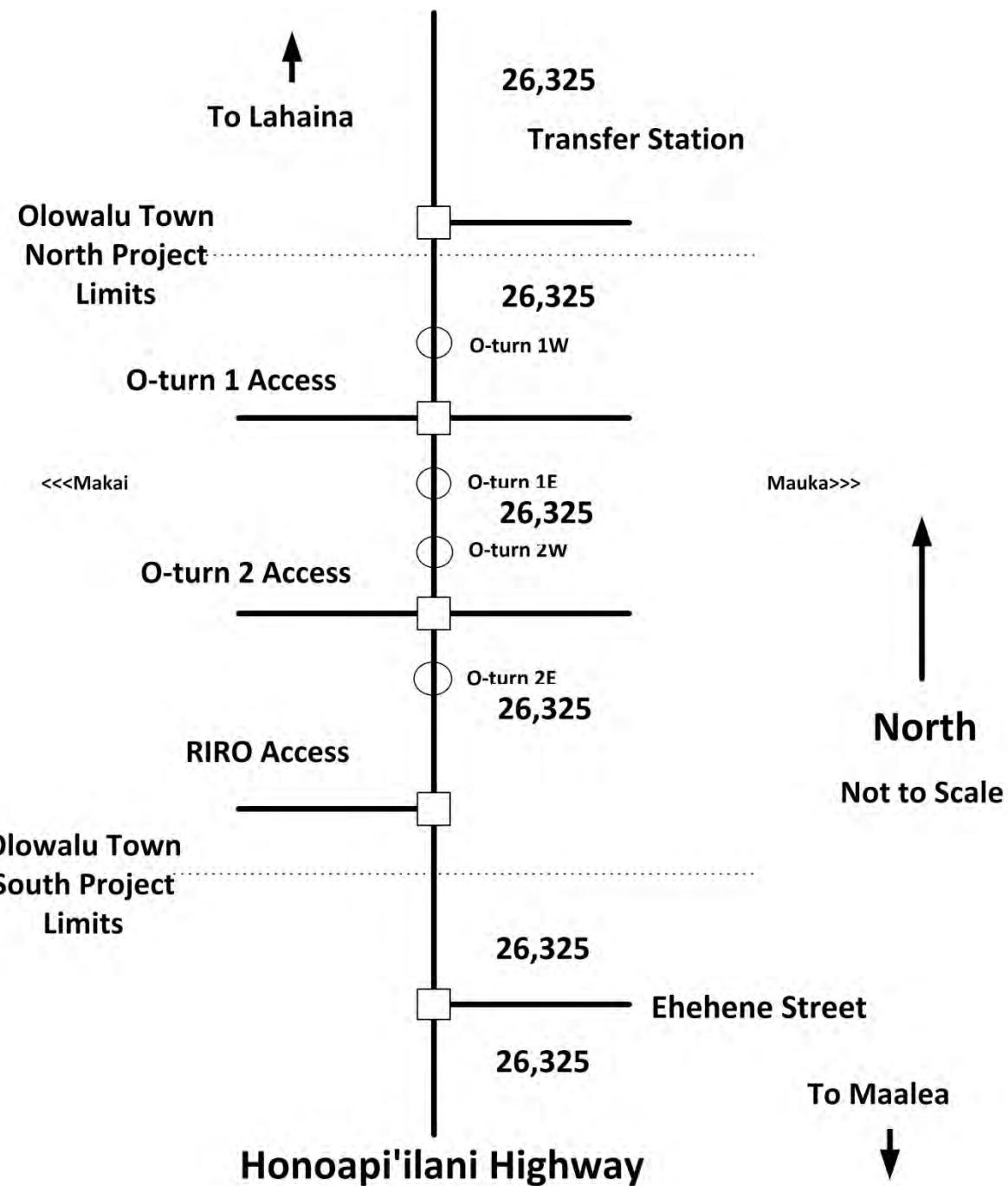


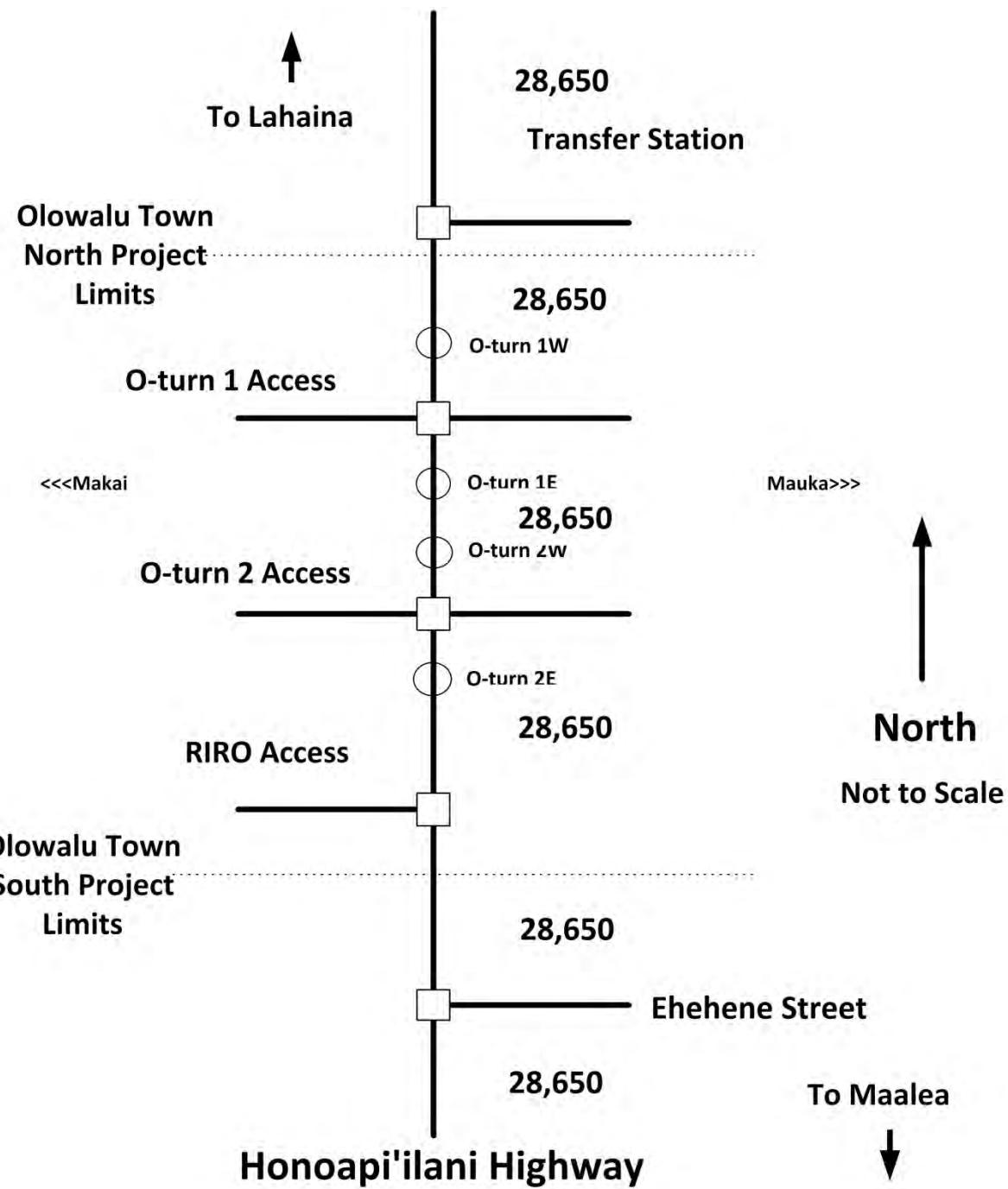
Figure 8 Future Year 2024 Traffic Volumes without Project on Honoapi'ilani Highway

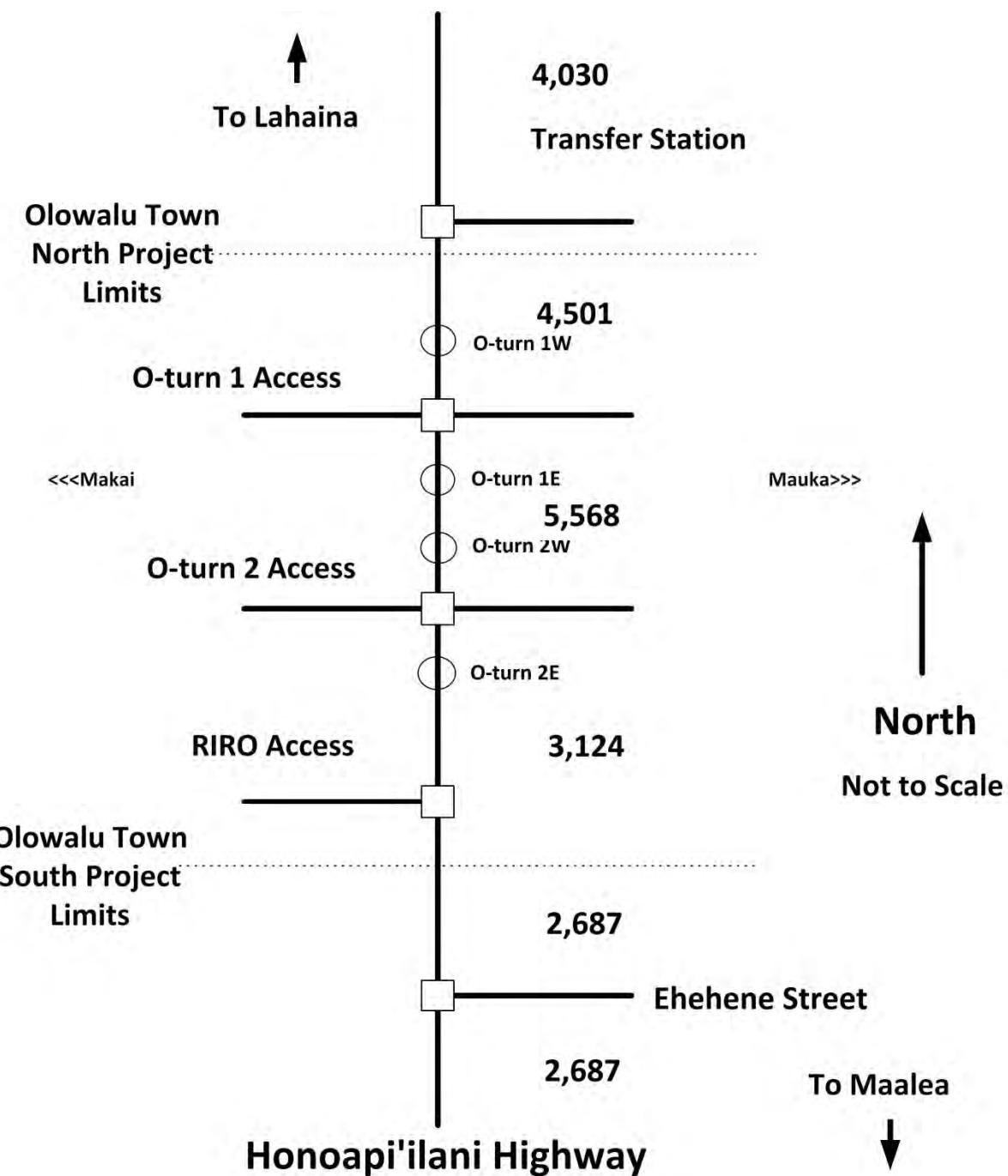
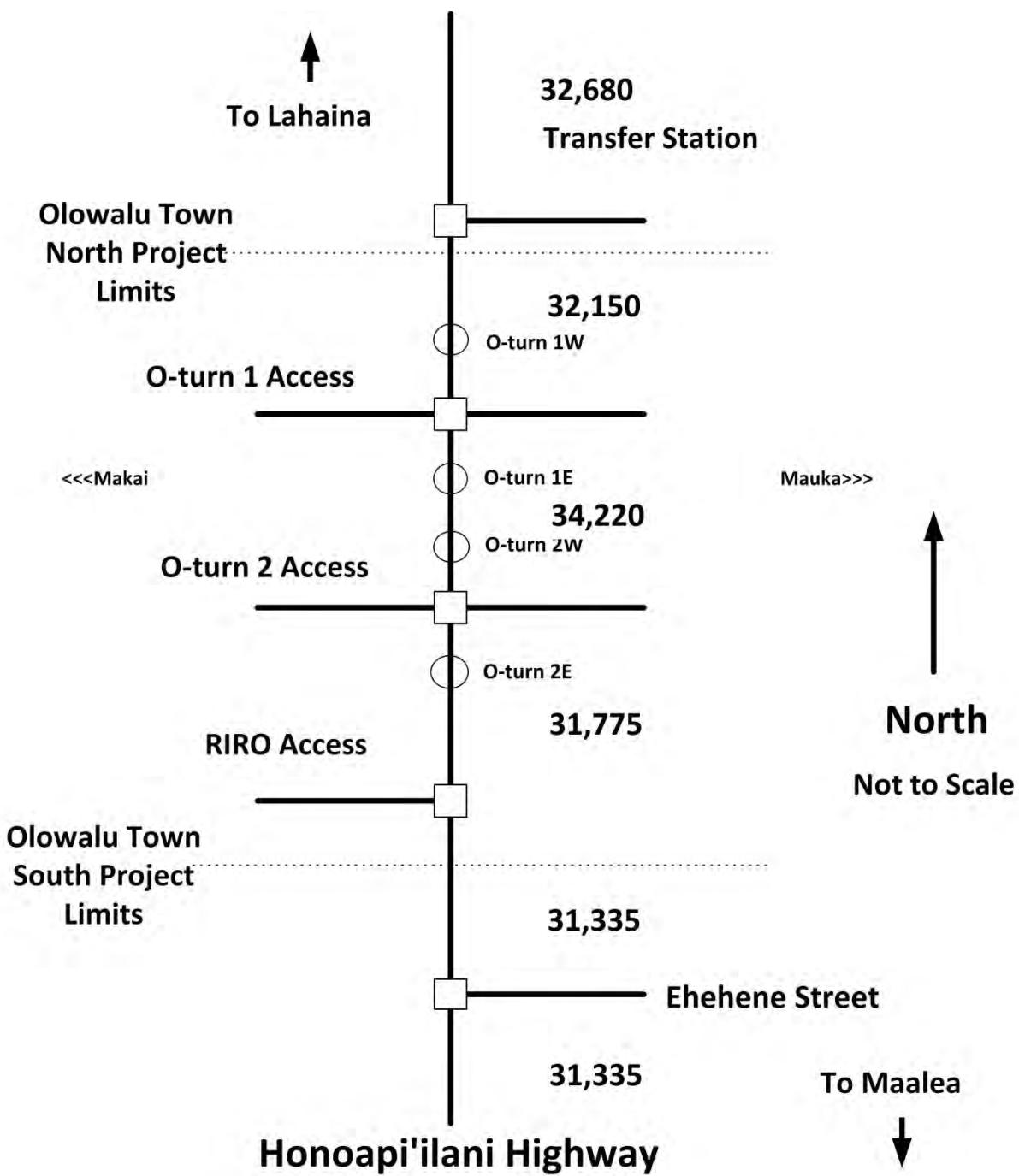
Figure 9 Traffic Added from Olowalu Town Project

Figure 10 Olowalu Town Study Network Traffic with Full Buildout of Project in Place

Future Roadway Network

The following Figure 11 shows the conceptual design of the O-turns for the relocated Honoapi'ilani Highway (Route 30). As shown in the Figure 11, the roadway will be widened to four lanes with two through lanes plus necessary acceleration and deceleration lanes in each direction.

Access to Olowalu Town will be via three new intersections. Two of the intersections will operate with the modified “Michigan U-turn,” named the “O-Turn.” The remaining access point will be a right-in/right-out connection with only a limited amount of traffic predicted to use it.

As shown in Figure 11, the “O-Turn” would have a deceleration lane and a stacking lane for right turns into each new access point. For right turns from the “O-Turn,” a driver simply makes a right turn and uses an acceleration lane to reach highway speed.

For left turns out of Olowalu Town to go to Lahaina, a driver makes a right turn and then moves to the left lane and enters a left turn deceleration and stacking area and then makes a U-turn to go north.

For left turns into Olowalu Town from the Ma'alea direction, the reverse maneuver is made, with a left turn followed by a U-turn, then with travel to the south followed by a right turn into Olowalu Town. Detailed analysis using Synchro and its SimTraffic module was used in TIAR to assess detailed traffic operations for the peak hours.

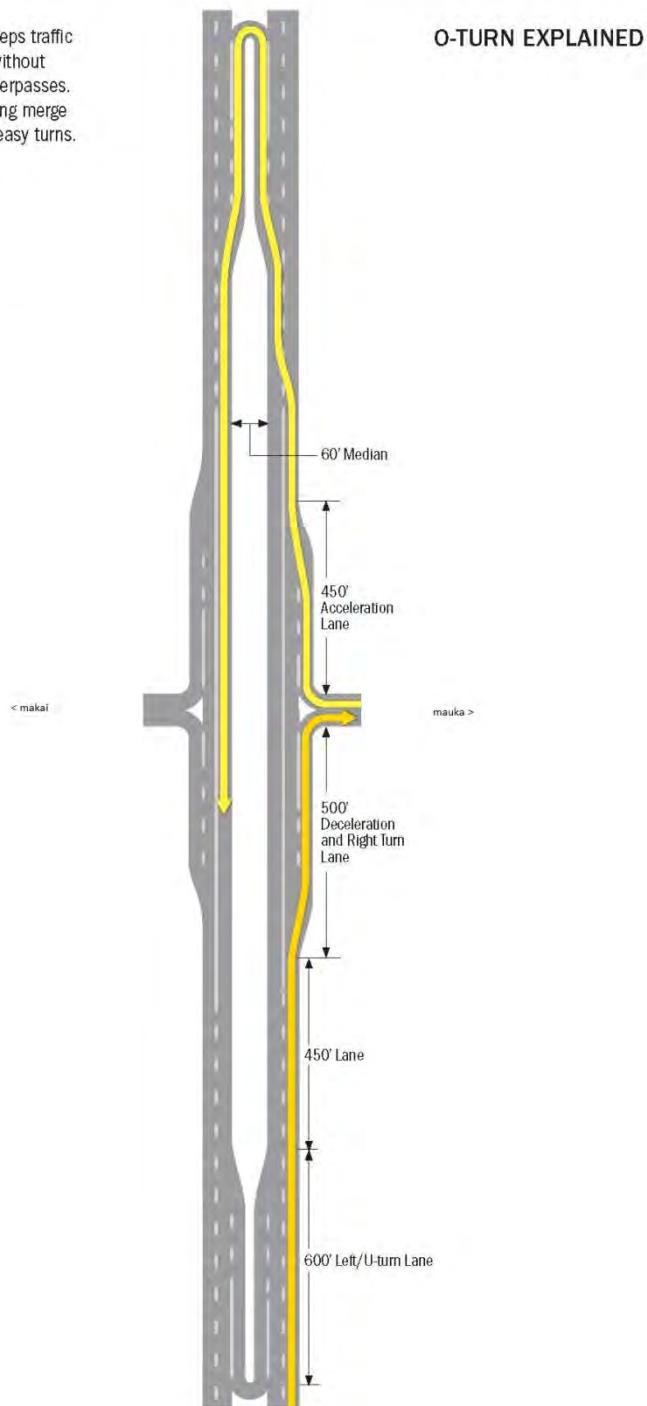
Based on preliminary reviews it appears the future traffic volumes predicted for the various movements at the “O-Turns” on a daily basis are well within the expected capacity of the design for an acceptable level of service.

Figure 11 Anticipated Roadway Connections for O-Turns on Relocated Honoapi'ilani Highway**Olowalu Town PRELIMINARY STUDIES FOR POTENTIAL HIGHWAY LOCATIONS**

The Olowalu O-turn keeps traffic flowing continuously without stoplights or over/underpasses. The design features long merge lanes which allow for easy turns.

How the O-Turn Works

The Olowalu Turn or O-Turn works by preventing drivers from making left turns across traffic. Drivers safely take a U-turn with the help of merge lanes and enter into the flow of traffic going in the reverse direction. Then, by merging to the right lane, drivers may turn right and reach their destination. Meetings with the Department of Transportation have been productive and they have been receptive to these innovative ideas.

O-TURN EXPLAINED

Analysis of Impacts of Olowalu Town Project

As seen in Figure 10, the predicted average daily traffic volumes on Honoapi'ilani Highway with the Olowalu Town in place at its full buildout will vary from 31,335 to about 34,220. With the proposed Olowalu Town project, there will be a relocation of Honoapi'ilani Highway and widening to provide for two through lanes in each direction for the extent of the project. South of the project, the roadway would return to its current status with one through lane in each direction plus turn lanes at intersections. A review was made of the general overall impacts of Olowalu Town by analyzing the predicted ADTs versus the daily capacity of the roadway. To achieve this preliminary analysis, the methods of the Florida Department of Transportation (FDOT) were used. The FDOT methodology is based on the Highway Capacity Manual (HCM) which is published by the Federal Highway Administration (FHWA) as well as extensive research in the state of Florida on capacity of highway facilities. The software modules available from FDOT include Highplan, which provides estimated daily capacities for highway facilities such as Honoapi'ilani Highway. While Honoapi'ilani Highway in its current state does have direct access, the number of access points is limited and their approach volumes are quite low. All major intersections have turn lanes in place. Generally, Honoapi'ilani Highway operates more like a controlled access highway rather than an arterial street. Therefore it appears to be appropriate to use the Highplan software to estimate capacity of Honoapi'ilani Highway. Additional information on the Highplan software is provided in the appendices.

Figure 12 shows the output from the Highplan software for Honoapi'ilani Highway with the relocation and widening in place with the buildout of the new town. As indicated in Figure 12, the estimated daily maximum capacity for Honoapi'ilani Highway is approximately 55,500. For the portion of Honoapi'ilani Highway south of Olowalu Town with its current status of two through lanes and turn lanes, the estimated maximum daily capacity is shown to be 33,300.

The following Table 17 shows the predicted daily capacities and ADTs without and with the Olowalu Town project in place at its potential full buildout in the year 2024. As seen in Table 6, the widened and relocated Honoapi'ilani Highway will have more than adequate capacity to handle the existing traffic plus the background growth of 9% plus the new traffic added from the Olowalu Town.

At the junction of the widened and relocated section to the existing section, the level of service will reduce to E but the calculations indicate the total capacity will not be exceeded at full buildout of the Olowalu Town. As seen in the appendices and Figures 12 the predicted overall average speed for the portion of Honoapi'ilani Highway south of Olowalu Town is approximately 29 mph, while the predicted speed in the relocated and widened segment of the highway is approximately 45 mph. The speeds in the proposed relocated and widened segment assume a design free-flow speed of 50 mph with a posted speed limit of 45 mph. See the appendices for detailed program outputs.

Figure 12 Output from Highplan Software with Relocated and Widened Honoapi'ilani Highway in Place at Full Buildout of Olowalu Town

Project Information

Analyst	RDD	Highway Name	HP Hwy	Study Period	Kother
Date Prepared	4/22/2011 1:23:21 PM	From	Transfer Center	Analysis Type	Multilane Segment
Agency	F&W	To	Mile Marker 14	Program	HIGHPLAN 2012
Area Type	Rural Developed	Peak Direction	Northbound	Version Date	12/12/2012
File Name	C:\2000 - Olowalu New Town\HighPlan Analysis\Highplan analysis for 4 lanes 20150411.xhp				
User Notes	Daily future with project in 4 lane section				

Highway Data

Roadway Variables			Traffic Variables			
Segment Length	5.000	Median	No	AADT	8000	PHF
# Thru Lanes	4	Left Turn Impact	No	K	0.095	% Heavy Vehicles
Terrain	Level	Pass Lane Length	N/A	D	0.575	Base Capacity
Posted Speed	50	% NPZ	N/A	Peak Dir. Hrly. Vol.	437	Local Adj. Factor
Free Flow Speed	55	Class	3	Off Peak Dir. Hrly. Vol.	323	Adjusted Capacity

LOS Results

v/c Ratio	0.13	Density	4.8	PTSF	N/A	ATS	55.0	% FFS	100.0
FFS Delay	0.0	LOS Thresh. Delay	27.3	Service Measure	Density	LOS	A		

Service Volumes

Note: The maximum normally acceptable directional service volume for LOS E in Florida for this facility type and area type is 1850 veh/h/in.

Lanes	A	B	C	D	E
	Hourly Volume In Peak Direction				
1					
2	540	1260	1980	2580	3030
3	810	1890	2970	3870	4550
4	1080	2520	3960	5160	6060
Lanes	Hourly Volume In Both Directions				
2					
4	940	2200	3450	4490	5270
6	1410	3290	5170	6740	7920
8	1880	4390	6890	8980	10540
Lanes	Annual Average Daily Traffic				
* 2					
Cannot be achieved based on	4	9900	23200	36400	47300
6	14900	34700	54500	71000	83400
8	19800	46300	72600	94600	111000

**Table 17 Capacity, ADTs and Levels of Service for Honoapi'ilani Highway
In Full Buildout Year of 2024**

Segment of Honoapi'ilani Highway	Daily Maximum Capacity(1)	Predicted ADT	Volume to Capacity Ratio	Predicted LOS(Based on daily volume)(2)	Comments
North of Transfer Station	55,500	32,680	0.59	D	
Transfer Station to O-turn 1	55,500	33,150	0.60	D	
O-turn 1 to O-turn 2	55,500	34,220	0.62	D	
O-turn 2 To RIRO	55,500	31,775	0.57	D	
RIRO to Existing Roadway	55,500	31,775	0.57	D	
Existing Roadway South of Olowalu Town Project	33,300	31,335	0.94	E	Under capacity on daily basis

(1) From Highplan calculations. See appendices for detailed outputs and information on Highplan.

(2) Note: Based on hourly peak volumes, LOS is C.

Analysis of Peak Hour Traffic Operations

An analysis was made of peak hour traffic operations at full buildout of the Olowalu Town in the year 2024 using the methods of the Highway Capacity Manual and the Synchro software package including its SimTraffic simulation model. This software provides estimates of traffic congestion measures including delays and queue lengths.

Analysis was made for the a.m. and p.m. peak hours for weekday. A review of queuing was made as well for both peak hours using the SimTraffic simulation module. Peak hours were determined based on existing traffic flow data collected in February, 2013 on a typical weekday. Based on data collected and the expectation of traffic generation by the site, it was decided the hours reviewed would be 7:00 to 8:00 a.m. and 4:00 to 5:00 p.m. since these hours would also tend to coincide with the peak hours of traffic generation for the new town.

Because of the complexity of the proposed network, it was decided that the SimTraffic module of Synchro provided the best tool for analysis of predicted traffic flows. For each analysis done, there were a total of five runs made with the model. Subsequent results posted in tables and figures are based on the summary averages of the five runs. This was done to help insure a quality data set for comparison of data for various alternatives.

The primary measure of traffic flow quality for the study used the concept of Level of Service (LOS) as defined by the HCM. Generally, for intersections the concept of LOS relates the quality of traffic flow to the delay time experienced by drivers. The HCM provides guidance on the use of the concept of level of service for streets and intersections. A tiered system has been established to describe traffic flow and congestion as related to observed and measured or predicted operational values. For intersections the measure is stopped time delay.

The following figure provides the HCM criteria for LOS for intersections. As noted, the LOS varies from “A” to “F”, with the quality of traffic service declining as the levels move from “A” towards “F”. With declining LOS, the ability to travel at the desired speed is inhibited by other vehicles either adjacent, opposite or in front of a driver.

Generally, in an urban area, it is expected that LOS D will be prevalent and be accepted in the morning and afternoon peak hours for most traffic movements. So, any traffic movements with LOS E or worse would need to be reviewed closely to determine if any changes or improvements could be made to move the LOS to an acceptable level. On heavily traveled streets such as Honoapi’ilani Highway, it is not uncommon for side street left turn movements to have LOS D or E due to the difficulty in making the maneuver. In some cases, LOS E may be considered acceptable if the volume of traffic experiencing the LOS E is low and/or if the impacts of mitigating the LOS E are not reasonable due to cost, disruption of natural resources or other reasons. Generally, efforts were made to avoid any movements having LOS E or to minimize the overall impacts however, there are some side street left turn movements where the cost of improving the LOS E is not reasonable and/or where it would have an undue effect on the major traffic flows on the arterial highway.

Table 18 below indicates LOS and the thresholds of delay:

Table 18 Levels of Service for Intersections

Level of Service	Signalized Intersections	Non-signalized Intersections
	Vehicular Delay (Seconds)	Vehicular Delay (Seconds)
A	< 10	<10
B	10 – 20	10 - 15
C	20 – 35	15 - 25
D	35 – 55	25 - 35
E	55 – 80	35 - 50
F	> 80	> 50

Level of service is graded from A to F to indicate increasing congestion, longer delays and greater limitation in mobility to drivers. Normally, level of service D is considered acceptable at intersections in an urban area. This means that if average delays are less than 55 seconds per vehicle for a particular approach at a traffic signal, then the level of service is considered acceptable. Similar statements can be made for non-signalized intersections, for example that LOS is C if the average delay is less than 25 seconds. Level of service E is generally considered to be “capacity.” Level of service F indicates a condition where the capacity has been exceeded and extremely long lines of traffic can develop, if there is sufficient demand volume.

Alternatives Analyzed

As indicated before the proposed plan for the relocated an improved Honoapi'ilani Highway was considered the base for the analysis. This plan, as discussed on page 38, would provide a divided arterial highway with a central landscaped median. Access to the new town would be via three points to the makai side of the highway to the major portion of the town. One of these points would be a restricted right-in/right-out or “RIO” access, allowing right turns in from the southbound direction from Lahaina and right turn exits from the town towards Mā'alaea. No access would be allowed via left turns into or from the town. Any movements into the town from the south would have to be made via another access point followed by internal connections to the RIO. Left turns from the part of the town with RIO access would have to be made via internal connection to another of the two points of access.

The two major points of access would be via a modified “Michigan left turn.” With this system entries from the south would be made via a U-turn followed by a right turn into either of the two access points. Entries from the north, as well as those that make the U-turn from the south, would then be via right turns into the town. With this system, no traffic signals would be

needed. Left turns from the town to go to the north would make a right turn and then make the U-turn at the selected location to then reverse direction of travel. These locations for U-turns are noted on the sketches and in the software printouts as “O-turns” (for Olowalu turns).

In addition, at the request of HDOT, a system was analyzed that provided full traffic signal control at each of the two major points of access, along with the RIRO under stop control. The two signals would be fully-actuated and coordinated with each other in an attempt to minimize unnecessary stops and delay and maintain reasonable traffic speeds. One of the results of this analysis was to compare the recommended O-turns to the method with typical traffic signals.

There are also other alternatives to the full traffic signals that were requested for review by HDOT. These would include using the typical “Michigan left” which employs traffic signals for crossing movements at the side streets but not for left turns into or out of the side streets, which in this case would access the new town. Also, there is an option to provide signal control of left turn movements into and from the town, but not for crossing maneuvers. These two additional options were reviewed and the results are included in the appendices as separate pieces of analysis if signals were indeed considered as necessary for the access plan. All previous reviews and public input on this project have indicated the desire to not have any traffic signals on Honoapi’ilani Highway.

Further, the HDOT has requested that another scenario regarding internal or community capture be analyzed. Under this scenario, the internal or community capture would be limited to 25% with the remaining 75% of trips being generated to and from the town from outside the town. This would of course greatly increase the amount of additional new traffic on Honoapi’ilani Highway. This scenario was analyzed and will be discussed separately as the HDOT scenario.

Results of Traffic Analysis

Detailed printouts from the SimTraffic module of Synchro are included in the appendices for all alternatives reviewed.

The following Table 19 shows a comparison of the overall results for the entire network for the O-turns and full traffic signal options for the base scenario using the internal community capture ratio recommended in this study. As discussed earlier in this report, the resulting internal community capture ratios for this scenario are as follows in Table 19.

Table 19 Internal/Community Capture Ratios for Olowalu Town

Time Period	Internal/Community Capture Ratio	External Trip Ratio
Daily	0.64	0.36
A.M. Peak Hour	0.61	0.39
P.M. Peak Hour	0.62	0.38

As seen in Table 19, there is a slight variability in the internal community capture based on the peak hour of the day, due to the nature of the trip generation of the land uses.

The HDOT scenario has a summary of internal community ratios as shown in Table 20.

Table 20 HDOT Scenario for Internal/Community Capture Ratios for Olowalu Town

Time Period	Internal/Community Capture Ratio	External Trip Ratio
Daily	0.25	0.75
A.M. Peak Hour	0.25	0.75
P.M. Peak Hour	0.25	0.75

Obviously the HDOT scenario for internal community capture results in a much higher volume of trips made to and from the externalities of the town. The resulting differential in trips into and out of the town to and from Honoapi'ilani Highway is shown in Table 21.

Table 21 Differential in Trips to and from Olowalu Town With HDOT Scenario for Internal/Community Capture

Time Period	Using Olowalu Town Recommended Internal/Community Capture Ratio	Using HDOT Requested Internal/Community Capture Ratio
Daily	1.00	2.56
A.M. Peak Hour	1.00	2.44
P.M. Peak Hour	1.00	2.48

In other words, the HDOT scenario will essentially increase trips to and from the town via Honoapi'ilani Highway by a factor of 2.56 for the full day with an increase of 2.44 for the a.m. peak hour and 2.48 for the p.m. peak hour.

The authors support and defend the recommended internal capture methodology and results as discussed further in the appendices. While perhaps no one can precisely predict the actual internal community capture for the new town, we are confident that our methodology and resulting capture rates as shown in Table 19 are accurate based on what is planned for the town. The basic design of the town itself including its purposed and the formulation of the town itself lends itself to the higher rate of internal capture we have developed and which we recommend. Nonetheless the additional analysis was made at the request of HDOT and is included in this report.

**Results of Analysis of Traffic Flow Conditions at Full Buildout of Olowalu Town
with Recommended Internal Community Capture**

The following Table 22 provides a summary of the overall results of the analysis of traffic flow at the a.m. and p.m. peak hours for the base scenario for the O-turn and traffic signals options.

**Table 22 Summary of Overall Traffic Flow Measures for Base Scenario
For Options with O-turns and Traffic Signals for A.M. Peak Hour**

Measure	O-Turns	Signals	Differential (Signals /O-turns)	Comments
Total delay in hours	13.9	28.4	2.04	Much more delay with signals
Average speed in mph	27	34	1.26	Increase in overall speeds
Total stops	908	1887	2.08	Many more stops with signals
Delay in sec per vehicle	16.6	36.4	2.19	Much more delay with signals
Arterial speeds northbound	41	36	0.88	Slightly lower speed with signals
Arterial speeds southbound	29	36	1.24	Higher speeds with signals
Fuel used (gal)	146.4	136.9	0.94	No major difference
CO emissions(g)	40,713	74,821	1.87	More with signals
NOx emissions(g)	5,772	10,281	1.78	More with signals
HC emissions(g)	2,100	2,915	1.39	More with signals

The following Table 23 provides a summary of the overall results of the analysis of traffic flow at the a.m. and p.m. peak hours for the base scenario for the O-turn and traffic signals options.

Table 23 Summary of Overall Traffic Flow Measures for Base Scenario
For Options with O-turns and Traffic Signals for P.M. Peak Hour

Measure	O-Turns	Signals	Differential (Signals /O-turns)	Comments
Total delay in hours	50.6	66.1	1.31	More delay with signals
Average speed in mph	24	29	1.21	Higher speeds with signals
Total stops	1,814	3,851	2.12	Many more stops with signals
Delay in sec per vehicle	44.3	62.6	1.41	More delay with signals
Arterial speeds northbound	37	36	0.97	Slightly lower speed with signals
Arterial speeds southbound	29	27	0.93	Slightly lower speed
Fuel used(gal)	209.9	196.0	0.94	No major difference
CO emissions(g)	61,364	112,032	1.83	More with signals
NOx emissions(g)	8,387	14,580	1.74	More with signals
HC emissions(g)	3,065	4,315	1.41	More with signals

SimTraffic Analysis of O-turn Scenario for Peak Hours

The following Table 24 provides detail results for the intersections in the network for the a.m. and p.m. peak hours.

Table 24 Traffic Flow Measures with Recommended Internal Capture with O-turns

Location	Move-ment	A.M. Peak Hour				P.M. Peak Hour			
		Speed	Delay	LOS	95%Q(ft)	Speed	Delay	LOS	95%Q(ft)
Transfer Station	NBD	28	2.5	A		28	2.9	A	
	SBD	29	0.2	A		29	0.2	A	
	WBD	NA	8.7	A	10		14.4	B	24
O-Turn 1W	NBD Lt	23	2.6	A	11	22	2.7	B	22
	NBD	27	0.3	A		27	1.1	A	6
	SBD	29	1.0	A		29	1.7	A	2
	WBD Lt	NA	2.1	A	50		4.2	A	64
Olowalu Access 1	SBD	28	0.4	A		28	0.6	A	
	SBD Rt	23	2.2	A		23	2.0	A	
	NBD	28	0.8	A		28	0.9	A	
	EBD Rt	NA	1.8	A	22		2.1	A	55
	Wbd	NA	0.7	A			4.2	A	5
O-Turn 1E	SBD	27	3.2	A	21	26	1.7	A	27
	SBD Lt	23	1.4	A	10	22	3.7	A	17
	EBD Lt	11	1.8	A	54		2.2	A	58
	NBD	28	1.2	A		28	1.3	A	3
O-Turn 2W	NBD Lt	24	3.2	A	25	23	3.6	A	45
	NBD	28	1.2	A		27	1.4	A	0
	SBD	29	0.8	A	3	28	1.2	A	5
	WBD Lt	NA	1.8	A	54		3.3	A	73
Olowalu Access 2	SBD	28	0.7	A		28	0.9	A	
	NBD	28	0.7	A		28	0.7	A	
	EBD	NA	2.2	A	41		3.0	A	104
	Wbd	NA	0.8	A	8		0.8	A	13
O-Turn 2E	SBD Lt	21	2.8	A	31		3.3	A	7
	SBD	25	1.5	A	67	25	1.9	A	50
	EBD Lt	NA	1.9	A	66		2.7	A	70
	NBD	28	1.6	A	10	28	1.7	A	4
RIRO	SBD	29	0.6	A		28	1.3	A	44
	SBD Rt	20	1.4	A		26	0.2	A	
	EBD	NA	0.5	A			0.6	A	
2-1Merge(19)	SBD	27	1.3	A		15	14.6	B	
Merge(21)	SBD	27	1.4	A		10	30.2	D	
Ehehene Street	SBD	27	4.3	A		27	5.5	A	
	SBD Lt	22	11.8	B	16	21	17.1	C	16
	NBD	27	2.1	A		26	3.1	A	22
	WBD	NA	57.0	F	29	>200	F		70

As seen in Table 24, the base traffic network and control plan with O-turns generally works well at both the a.m. and p.m. peak hours for virtually all movements in the network. The main line movements on Honoapi'ilani Highway are shown to have LOS A based on estimated delay. The predicted traffic queues do not affect the mainline through traffic on Honoapi'ilani Highway according to the Synchro SimTraffic runs.

At the intersection of Honoapi'ilani Highway at the Transfer Station, the LOS for the left turns from the Transfer Station are shown to be at B with queues not exceeding one vehicle in either hour studied. The LOS on the mainline of Honoapi'ilani Highway are shown to be at A for both directions and each peak hour. The average speeds are shown to be 42 to 43 mph.

At the O-turn 1W, which is the location west of the Olowalu Access 1, again the LOS for the mainline through movements are shown to be at A for both directions and for each hour. The U-turn movement coming from the south, noted as WBD Lt in the table are shown to be 5.2 seconds in the a.m. peak hour and 34.1 seconds for the p.m. peak hour for an LOS of D, which is of course very reasonable. During the p.m. peak hour, the estimated 95th % queue length for this U-turn movement is 111 feet, or 5 vehicles, which again is very reasonable.

At the Olowalu Access 1, the exit from the town which would be right turns out eastbound is shown to be very low at 1.4 and 2.7 seconds for the a.m. and p.m. peak hours with queues of one vehicle in the a.m. peak hour and seven vehicles in the p.m. peak hour.

At the O-turn 1E, which is the location east of the Olowalu Access 1, again the mainline through movements are shown to have speeds of 34 and 32 southbound and 38 and 37 northbound for the a.m. and p.m. peak hours. The O-turn for traffic leaving the Olowalu Access 1 to go north towards Lahaina is predicted to be 32.7 seconds which is still an LOS D with an estimated queue of 104 feet or five vehicles in the a.m. peak hour, which is very reasonable.

At the O-turn 2W, which is west of Olowalu Access 2, the left turn WBD is the U-turns being made from the south to travel to enter Olowalu Access 2 in the p.m. peak hour. This movement is shown to have a predicted queue of 119 feet or 5 vehicles with delay times of 61.2 seconds. For the northbound left turn off of Honoapi'ilani Highway, the predicted delay is 186.8 seconds with a queue of 791 feet or 32 vehicles. So, this movement would have some queueing for the O-turn being made from the south to eventually enter Olowalu Access 2. However, the SimTraffic module does not show any effects of the queueing for the O-turns on the mainline through traffic on Honoapi'ilani Highway. There would be sufficient storage for this stacking.

At the Olowalu Access 2, there no significant issues with queuing or congestion seen at either peak hour.

AT the O-turn 2E, the eastbound left turn which is the O-turn movement for traffic to go northward on Honoapi'ilani Highway, the predicted delay is 49.2 seconds with LOS F and a queue of 140 feet or six vehicles in the p.m. peak hour. Again, the SimTraffic model does not show any effects of this queuing on the mainline through traffic on Honoapi'ilani Highway.

At the Access 3 RIRO the estimated queues for the exits from the town are shown to be at two vehicles or less in both peak hours.

At Eehene Street, the predicted LOS for the side street is shown to be at F for the a.m. and p.m. peak hours due to the difficulty of making left turns onto Honoapi'ilani Highway. However, this affects only a very small volume of traffic and these vehicles could make a right turn and then an O-turn and be able to travel southbound. So, it would be possible to prohibit left turns at Eehene Street and eliminate this issue. There would be only a very few drivers needed to make such a maneuver, although they would need to travel about $\frac{1}{2}$ mile to make the U-turn.

SimTraffic Analysis of Traffic Signals Scenario for Peak Hours

An analysis was made of the a.m. and p.m. peak hours at full buildout of the Olowalu Town with traffic signals provided at the two main access points to the town, as requested by HDOT, with the results shown in Table 25.

Table 25 Traffic Flow Measures for Recommended Internal Capture with Traffic Signals

Location	Move- ment	A.M. Peak Hour				P.M. Peak Hour			
		Speed	Delay	LOS	95%Q(ft)	Speed	Delay	LOS	95%Q(ft)
Transfer Station	NBD	38	5.3	A	0	38	5.7	A	0
	SBD	43	0.4	A	27	42	0.7	A	23
	WBD	NA	18.4	C	10	NA	47.8	E	19
Olowalu Access 1	NBD Lt	15	54.6	E	65	15	52.4	D	79
	NBD	30	13.4	B	266	29	14.5	B	289
	SBD Lt	29	13.2	D	31	26	20.5	C	36
	SBD	34	10.3	B	172	30	17.1	B	321
	EBD Lt	NA	44.7	D	101	NA	47.7	D	113
	EBD Th	NA	32.4	C	35	NA	34.1	C	38
	EBD Rt	NA	1.1	A	16	NA	1.5	A	39
	WBD Lt	NA	49.9	F	54	NA	50.5	D	64
	WBD Th	NA	48.4	E	50	NA	49.5	D	48
	WBD RT	NA	1.2	A	50	NA	1.1	A	48
Olowalu Access 2	NBD Lt	11	51.0	D	72	12	45.8	D	111
	NBD	28	10.9	B	225	28	11.4	B	253
	SBD Lt	22	27.5	C	39	18	39.3	D	59
	SBD	31	13.0	B	185	25	22.8	C	363
	EBD Lt	NA	41.9	D	104	NA	54.3	E	170
	EBD Th	NA	32.3	D	152	NA	36.0	D	33
	EBD Rt	NA	1.4	A	21	NA	2.1	A	57
	WBD Lt	NA	46.9	D	43	NA	44.1	D	42
	WBD Th	NA	53.3	D	33	NA	48.9	D	42
	WBD RT	NA	0.7	A	33	NA	0.8	A	7
RIRO Access 3	NBD	42	0.9	A	0	42	0.9	A	0
	SBD Th	36	3.8	A	0	32	7.0	A	0
	SBD Rt	30	5.2	A	0	28	6.9	A	0
	EBD	NA	4.7	A	33	NA	12.5	B	40
Ehehene Street	NBD	40	1.8	A	0	34	2.6	A	0
	SBD Lt	33	8.7	A	9	20	24.9	C	15
	SBD	41	2.4	A	0	40	2.9	A	95
	WBD	NA	63.2	F	20	NA	>200	F	41

As seen in Table 25, there are generally good LOS and reasonable delays with traffic signals in place at both the a.m. and p.m. peak hours for the entire study network. There are only a few movements with LOS worse than D shown. At the Transfer Station, the left turn exit shows LOS E in the p.m. peak hour. This is problematic due to the large volumes of traffic on Honoapi'ilani Highway. At Erehene Street, the LOS is F for the p.m. peak hour for the westbound left turn traffic due to the high volumes of traffic on Honoapi'ilani Highway. As discussed earlier it may be possible to prohibit this maneuver and force a U-turn at the signal at the first major access to Olowalu Town at Access 2. This might be appropriate for the low volume of left turns from Erehene Street onto Honoapi'ilani Highway. Queues shown are reasonable and would not appear to affect through movements on Honoapi'ilani Highway and vice versa. However these predicted queues should be taken into account when designing the length of the left and right turn lanes on the approaches to the intersections under this scenario.

In summary, the option with signals does show reasonable traffic flow measures, although as seen in Tables 24 and 25, the overall operations appear to be better with the O-turns than with the plan that would require traffic signals.

Results of Analysis Traffic Flow Conditions at Full Buildout of Olowalu Town with HDOT Internal Community Capture

A review was made of the expected traffic operations at full buildout assuming the internal community capture is limited to 25%, as requested by HDOT. The following Table 26 shows some of the pertinent traffic flow measures for the overall network with the O-turns in place and with the internal capture limited to 25% for the a.m. peak hour.

**Table 26 Summary of Overall Traffic Flow Measures for HDOT 25% Internal Capture Scenario
For Options with O-turns and Traffic Signals for A.M. Peak Hour**

Measure	O-Turns	Signals	Differential (Signals /O-turns)	Comments
Total delay in hours	20.7	51.9	2.28	Significant increase
Average speed in mph	26	30	1.15	Moderate increase in speed
Total stops	895	3415	3.31	Large increase in stops
Delay in sec per vehicle	18.4	25.4	1.24	Significant increase in delay
Arterial speeds northbound	27	34	1.21	Noticeable increase in speeds
Arterial speeds southbound	27	33	1.13	Slight increase
Fuel consumed(gal)	178.3	179.1	0.97	No significant difference
CO emissions(g)	57,517	98,186	1.75	Significantly more CO emissions
NOx emissions(g)	7,954	12,537	1.64	Significantly more NOx emissions
HC emissions(g)	2,885	3,602	1.32	Noticeable increase in HC emissions

As seen in Table 26, there would still be reasonable traffic operations in the a.m. peak hour with the internal capture limited to 25% as requested by HDOT. In comparing Tables 25 and 26, it is seen that the traffic operations would be significantly worse with the HDOT internal capture of 25%, although traffic operations are shown to be acceptable when looking at the overall network. Tables 27 and 28 show a comparison of overall traffic flow measures for the network with the recommended internal capture and with the HDOT requested internal capture of 25%. Detailed printouts of individual intersections in the system are provided in the appendices for further review.

The following Table 27 shows some of the pertinent traffic flow measures for the overall network with the O-turns in place and with the internal capture limited to 25% for the p.m. peak hour.

**Table 27 Summary of Overall Traffic Flow Measures for HDOT 25% Internal Capture Scenario
For Options with O-turns and Traffic Signals for P.M. Peak Hour**

Measure	O-Turns	Signals	Differential (Signals/O-turns)	Comments
Total delay in hours	131.7	163.9	1.24	Significantly more
Average speed in mph	19	21	1.11	Slightly better
Total stops	5795	6599	1.14	Somewhat more stops
Delay in sec per vehicle	88.0	116.4	1.32	Significantly more
Arterial speeds northbound	34	34	1.00	No change
Arterial speeds southbound	29	18	0.62	Noticeable decline
Fuel consumed(gal)	271.1	256.7	0.95	Slightly better
CO emissions(g)	80,329	130,019	1.62	Significantly more
NOx emissions(g)	10,327	16,199	1.57	Significantly more
HC emissions(g)	3,688	4,829	1.31	Significantly more



View looking north towards intersection at Ehehene Street

Table 28 Traffic Flow Measures with HDOT 25% Internal Capture with O-turns

Location(node)	Move- ment	A.M. Peak Hour				P.M. Peak Hour			
		Speed	Delay	LOS	95%Q(ft)	Speed	Delay	LOS	95%Q(ft)
Transfer Station	NBD	28	3.0	A	0	27	3.3	A	0
	SBD	29	0.2	A	0	29	0.3	A	8
	WBD Lt	NA	14.6	B	10	NA	17.9	C	21
O-Turn 1W	NBD Lt	22	2.9	A	25	16	0.7	A	165
	NBD	27	1.2	A	15	26	0.8	A	81
	SBD	29	1.2	A	3	28	2.1	A	13
	WBD Lt	NA	2.8	A	59	7	9.2	A	78
Olowalu Access 1	SBD	28	0.1	A	0	28	0.8	A	0
	SBD Rt	23	0.1	A	0	23	3.3	A	0
	NBD	28	0.9	A	0	28	1.0	A	7
	EBD Rt	NA	3.0	A	92	NA	6.7	A	199
	Wbd	NA	0.6	A	5	NA	0.6	A	5
O-Turn 1E	SBD	25	2.2	A	32	24	3.3	A	63
	SBD Lt	21	5.0	A	57	20	5.9	A	45
	EBD Lt	NA	2.6	A	68	NA	2.2	A	69
	NBD	28	1.4	A	4	28	1.5	A	14
O-Turn 2W	NBD Lt	23	3.4	A	40	10	36.5	A	426
	NBD	27	1.4	A	15	26	2.4	A	326
	SBD	29	1.0	A	3	28	1.8	A	14
	WBD Lt	NA	2.2	A	70	NA	10.4	B	82
Olowalu Access 2	SBD	28	0.6	A	0	28	1.1	A	28
	SBD Rt	23	2.8	A	0	21	5.2	A	0
	NBD	27	0.7	A	0	27	0.7	A	0
	EBD	NA	0.6	A	148	NA	11.2	B	332
	Wbd	NA	0.7	A	7	NA	0.8	A	8
O-Turn 2E	SBD Lt	19	3.9	A	39	14	10.8	B	217
	SBD	23	2.4	A	0	16	9.4	A	235
	EBD Lt	NA	2.6	A	74	NA	4.4	A	79
	NBD	28	1.8	A	9	28	1.8	A	14
RIRO(17)	SBD	29	0.2	A	0	26	56.6	E	751
	SBD Rt	26	0.0	A	0	25	3.7	A	358
	EBD	NA	0.6	A	0	NA	0.6	A	8
2-1Merge (19)	SBD	27	1.5	A	0	5	76.4	A	0
Merge (21)	SBD	27	1.7	A	0	7	50.4	A	0
Ehehene Street	SBD	27	4.6	A	0	27	5.5	A	0
	SBD Lt	21	17.8	A	11	9	118.3	B	21
	NBD	27	0.8	C	0	24	5.3	A	0
	WBD	NA	90.1	F	32	NA	>200	F	115

Table 29 Traffic Flow Measures with HDOT 25% Internal Capture with Traffic Signals

Location	Move- ment	A.M. Peak Hour				P.M. Peak Hour			
		Speed	Delay	LOS	95%Q(ft)	Speed	Delay	LOS	95%Q(ft)
Transfer Station	NBD	37	5.8	A	0	37	5.7	A	0
	SBD	43	0.5	A	0	41	0.6	A	0
	WBD	NA	7.0	A	9	NA	>200	F	19
Olowalu Access 1	NBD Lt	15	55.3	F	83	17	45.1	E	125
	NBD	27	17.7	C	309	28	16.4	B	313
	SBD Lt	25	23.9	C	38	24	24.6	C	73
	SBD	30	16.2	C	224	25	26.1	D	433
	EBD Lt	NA	41.2	E	171	NA	102.8	F	249
	EBD Th	NA	26.6	D	35	NA	37.1	E	32
	EBD Rt	NA	1.8	A	50	NA	5.2	A	116
	WBD Lt	NA	50.6	F	58	NA	49.8	E	55
	WBD Th	NA	44.2	E	48	NA	49.6	E	48
	WBD RT	NA	1.1	A	48	NA	1.2	A	48
Olowalu Access 2	NBD Lt	12	45.4	E	115	13	43.7	D	198
	NBD	26	14.2	B	263	28	11.7	B	258
	SBD Lt	19	36.9	E	59	16	48.9	E	74
	SBD	27	18.9	C	234	18	42.5	D	458
	EBD Lt	NA	47.4	E	226	NA	207.1	E	486
	EBD Th	NA	27.2	D	34	NA	73.9	F	899
	EBD Rt	NA	2.5	A	82	NA	8.5	A	532
	WBD Lt	NA	48.2	E	44	NA	48.1	E	46
	WBD Th	NA	51.2	F	44	NA	45.2	E	37
	WBD RT	NA	0.7	A	44	NA	0.7	A	37
RIRO Access	NBD	42	0.9	A	0	42	0.9	A	0
	SBD Th	33	5.5	A	0	14	43.4	E	863
	SBD Rt	30	5.1	A	0	13	41.1	E	880
	EBD	NA	8.4	A	49	NA	41.5	E	70
2 lane/4 lane Transition	NBD	40	1.2	A	0	39	1.5	A	0
	SBD	29	8.3	A	174	6	104.4	F	1214
Ehehene Street	NBD	40	2.1	A	0	33	6.4	A	0
	SBD Lt	28	18.7	C	10	13	57.2	F	13
	SBD	41	2.7	A	0	40	2.8	A	0
	WBD	NA	58.0	F	19	NA	>200	F	132

Review of Predicted Speeds with Various Scenarios At Full Buildout of Olowalu Town

Further review was made of the predicted speeds in the study network with the base and HDOT scenarios with O-turns and with signals in place for comparison of the alternative access plans and levels of trips added to Honoapi`ilani Highway.

The following Table 30 shows the predicted speeds with the recommended internal capture with the O-turns in place.

**Table 30 Predicted Speeds from SimTraffic for Study Network for Olowalu Town
With Recommended Internal Capture and O-turns in Place**

Street Reference	A.M. Peak Hour		P.M. Peak Hour	
	Northbound	Southbound	Northbound	Southbound
	Speeds	Speeds	Speeds	Speeds
Transfer Station	28	29	28	29
O-turn 1W	27	29	27	29
Olowalu Town Access 1	28	28	28	28
O-turn 1E	28	27	28	26
O-turn 2W	28	29	27	28
Olowalu Town Access 2	28	28	28	28
O-turn 2E		25		25
RIRO	27	29	26	28
Merge Southbound		27		15
Junction 2-lane/4-lane	28	27	28	10
Ehehene Street	27	27	26	27

As seen in Table 30 the speeds are generally lower in the afternoon peak hour, particularly in the southbound direction, due to the congestion at the merge from two to one southbound lane. However, the speeds shown would be considered very reasonable and very acceptable for a four lane arterial in a developing area with the volumes of traffic predicted for the highway. If the new highway were considered to be a multi-lane highway with average speeds of 28 mph, then the LOS for the highway would range from C to E based on the density of the highway. However, due to the access points on the highway, the facility cannot be strictly considered as a multilane highway. If the facility is considered more like a Class II urban arterial street with typical free flow speeds of 40mph, then the overall LOS based on speeds of approximately 28 mph would be C. Since the location is currently somewhat remote to developed areas, it is difficult to pin down a specific facility type for the new relocated highway. Based on anticipated traffic flow, we feel the classification as a urban arterial street would be more appropriate, but with a lower free flow speed of 40 mph.

The following Table 31 shows the predicted average speeds in the study network if traffic signals were in place instead of the O-turns with the recommended internal capture rate.

Table 31 Predicted Speeds from SimTraffic for Study Network for Olowalu Town With Recommended Internal Capture and Signals in Place

Street Reference	A.M. Peak Hour Speeds		P.M. Peak Hour Speeds	
	Northbound	Southbound	Northbound	Southbound
Transfer Station	39	45	39	44
Olowalu Town Access 1	31	35	30	30
Olowalu Town Access 2	29	32	29	26
RIRO	43	38	43	34
Merge Southbound	39	35	39	11
Junction 2-lane/4-lane	41	34	40	27
Ehehene Street	42	42	40	41

As seen in Table 31, the speeds are generally comparable between the options with O-turns and signals and would be acceptable for a four-lane arterial in a developing area. There is shown to be a reduction in speeds with the signals in place as compared to the O-turns at the merge in the southbound direction in the p.m. peak hour. Again, assuming the facility would be considered more like an urban Class II arterial street, based on the speeds varying from 29 to 41, the LOS would be mostly B and C, but with a F at the merge point in the southbound direction.

The following Table 32 shows the predicted speeds with the HDOT limited internal capture of 25% with the modified O-turns in place.

Table 32 Predicted Segmental Speeds in Study Network with O-Turns in Place at Full Buildout with HDOT 25% Internal Capture

Street Reference	A.M. Peak Hour Speeds		P.M. Peak Hour Speeds	
	Northbound	Southbound	Northbound	Southbound
Transfer Station	28	29	27	29
O-turn 1W	27	29	26	28
Olowalu Town Access 1	28	28	28	28
O-turn 1E	28	25	28	24
O-turn 2W	27	29	26	28
Olowalu Town Access 2	27	28	27	28
O-turn 2E	28	23	28	16
RIRO	27	29	28	6
Merge Southbound	26	27	28	5
Bend Southbound	28	27	26	7
Junction 2-lane/4-lane	26	23	26	9
Bend point node	26	11	26	11
Ehehene	27	27	24	27

As seen in Table 32, the speeds would be somewhat lower with the HDOT internal capture ratio of 25 with the O-turns in place for both the a.m. and p.m. peak hours. In the a.m. peak hour most of the segments would have speeds between 25 and 30 mph, except for the southbound direction as the transition is made from 2 to 1 southbound lane. This occurs also in the p.m. peak hour with the effects extending further upstream to approximately the Olowalu Town Access 2. This is because of the significant added volume due to the restriction on the internal capture to 25%. It is interesting to note that the speeds are basically the same once passing Ehehene Street in the southbound direction at either peak hour. This is a function of the capacity of the one lane southbound, and simply shows the queues at the lane drop and merge extending further to the north. In comparing Tables 31 and 33, it is seen there is a substantial decrease in speeds on Honoapi`ilani Highway, owing to the larger volumes of traffic created to and from the highway with the lower rate of internal capture of a maximum of 25%.

Table 33 shows the predicted average speeds in the study network if traffic signals were in place instead of the O-turns with the HDOT internal capture rate of 25%.

Table 33 Predicted Segmental Speeds in Study Network with Traffic Signals in Place at Full Buildout with HDOT 25% Internal Capture

Street Reference	A.M. Peak Hour Speeds		P.M. Peak Hour Speeds	
	Northbound	Southbound	Northbound	Southbound
Transfer Station	38	45	39	42
Olowalu Town Access 1	27	31	28	26
Olowalu Town Access 2	26	29	28	19
RIRO	43	37	43	15
Merge Southbound	39	29	38	6
Junction 2-lane/4-lane	40	32	39	27
Ehehene Street	41	41	34	41

As seen in Table 33, the predicted speeds with signals in place instead of the O-turns are generally similar. The speeds in the southbound direction at the merge from two to one southbound lane are also shown to be low in both the a.m. and p.m. peak hours. Speeds are more consistent throughout the corridor with the O-turns than with signals with the HDOT internal capture rate in effect.



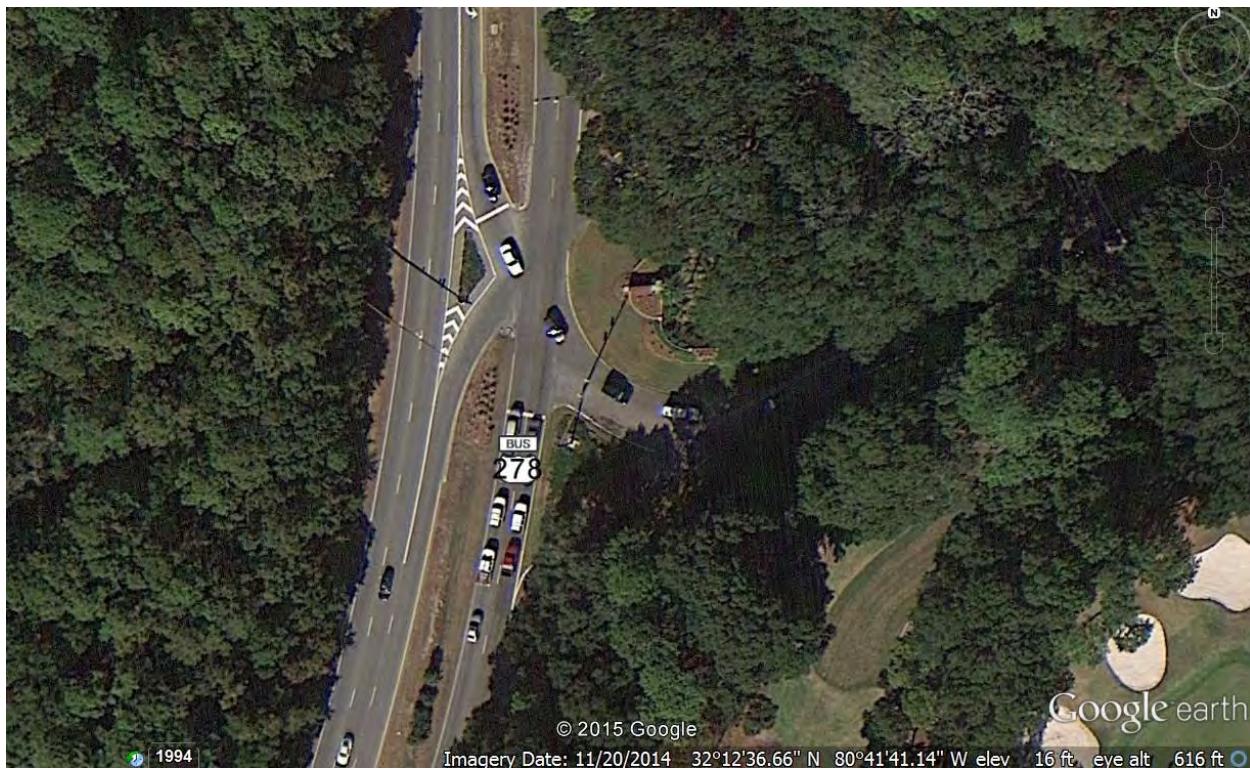
View looking south at Olowalu Store

Conclusions

Based on a review of the preliminary development plan for Olowalu Town and a review of the traffic data for daily 24-hour traffic volumes and daily 24-hour trip generation, the following conclusions are made:

1. The new Olowalu Town would generate about 29,152 trips per day if all land uses are considered separately using ITE trip generation rates.
2. Based on our review of ITE methodology and the island wide master transportation model, the recommended internal community capture is expected to be approximately 63%, meaning that only 37% of the trips generated by the new town will be trips external to the town on a daily basis. It is expected that 42% of the trips would be external as to origin or destination in the a.m. peak hour and that 38% would be external as to origin or destination in the p.m. peak hour.
3. The predicted trips into and out of the new town to and from Honoapi'ilani Highway are expected to be 698 in the a.m. peak hour and 996 in the p.m. peak hour.
4. The recommended relocation of Honoapi'ilani Highway as a divided arterial highway with very limited access should be able to satisfactorily handle the expected volumes of traffic on a daily and peak hour basis, based on calculations provided in this report. It is expected a posted speed limit of 45 mph would be appropriate, given the nature of the highway and its anticipated traffic volumes. However, it may be necessary to design the highway for a higher speed, depending upon HDOT requirements and anticipated funding sources that might include federal funds.
5. The recommended modified Michigan U-turn access plan, generally referred to as the O-turns, can work effectively for the a.m. and p.m. peak hours, as shown in the tables provided that show HCM traffic flow results for the base scenario.
6. The recommended modified Michigan U-turn access plan, generally referred to as the O-turns, can work acceptably for the a.m. and p.m. peak hours, as shown in the tables provided that show HCM traffic flow results for the scenario requested by HDOT with a limitation of 25% for internal community capture of trips generated. This scenario would require some modifications to the roadway plan but the predicted speeds, delays and queues should be acceptable even with the higher entering and exiting traffic volumes as indicated in the tables that show traffic flow measures. The SimTraffic module runs show a reduction in speeds in the southbound direction due to the drop of a lane in that direction in both the a.m. and p.m. peak hours, as expected.
7. The HDOT requested access plan with full traffic signals at the two major access points to the town on Honoapi'ilani Highway would work well with the predicted traffic volumes from the base scenario at the a.m. and p.m. peak hours.

8. The HDOT requested access plan with full traffic signals at the two major access points to the town on Honoapi'ilani Highway would work acceptably with the predicted traffic volumes from the HDOT scenario having a limitation of 25% internal community capture at the a.m. and p.m. peak hours. With this option, it was necessary to revise slightly the lane configuration of the relocated Honoapi'ilani Highway to allow for reasonable modeling of traffic flow with the SimTraffic simulation module. It is felt the modifications would better reflect lane usage by drivers on Honoapi'ilani Highway.
9. There are some alternative treatments that could be considered in lieu of the full traffic signals as suggested by HDOT. The option to install a scissors-type signal with no control for the northbound direction on Honoapi'ilani Highway but signal control for the other approaches has been shown to be very acceptable for the a.m. and p.m. peak hours with the base scenario of trip generation. Even with the HDOT limitation of 25% internal community capture, this option is shown to be acceptable at the a.m. and p.m. peak hours. See photo of existing scissors-type signal below and sketch in appendices.



Aerial view of scissors-type signal in place on US Route 278 in Hilton Head, SC. Note that only one direction of traffic on US278 is required to stop at the signal. Exits from the side street to the left accelerate and merge with traffic on US278. AADT on US278 is between 25,000 and 30,000.

Recommendations

Based on a review of the data analyzed in this report and the above conclusions, the following recommendations are made:

- 1) The proposed access plan should be approved with the O-turns. The design of the O-turns should include the following general concepts:
 - A. For both O-turns there should be channelized right turns exiting the town on both sides of Honoapi'ilani Highway for traffic entering from both makai and mauka of the highway. There should acceleration lanes in conformance to HDOT standards associated with the channelized right turns.
 - B. For both O-turns there should be channelized right turns for traffic entering the town both makai and mauka of the highway with deceleration lanes. These should have added lanes into the town so as to allow free flow off the highway. At some point there would need to be tapers down to the expected internal roadway design.
 - C. At the U-turn locations in each direction in each O-turn, there should be acceleration lanes for traffic entering Honoapi'ilani Highway that would then merge over to enter the right turn deceleration lanes to enter the town.
 - D. The O-turns, including the actual locations for U-turns should be designed to accommodate trucks as per HDOT standards.
 - E. Adequate signing for the new town should be provided to provide advice of destinations for drivers on Honoapi'ilani Highway. It will be necessary to distinguish between the portions of the town makai and mauka of the highway with names or a naming convention to be determined. This is needed so as to eliminate confusion for first-time visitors to the town so that they get into the proper deceleration lane for travel into the correct O-turn both makai and mauka of the highway.
 - F. Provisions should be made to include technology and accommodations for a "smart highway" in the design phase. This might include the provision of video cameras and other detection devices that could be part of an HDOT or island operated traffic center in the future. Provisions for potential underground conduit should be considered in the utility plan development process.
 - G. Provisions for adequate roadway lighting should be considered early in the design process.

- H. Provision for pedestrian facilities along Honoapi'ilani Highway should be considered early in the design process. While it is anticipated the town plan will include a grade separated access from makai of the highway to mauka of the highway, there should also be considerations given to the possibility of pedestrian and bicycle crossings of the highway to and from the town and/or along any pathways adjacent to the highway in the future. This effort will need to take into account any HDOT standard policies for non-motorized traffic facilities and amenities.
- 2) A staging plan will be required for the future for the anticipated building of the new highway and for the transition from the existing highway to the new divided highway facility.
 - 3) There should be consideration of a staging plan wherein one O-turn may be built at a time with some sort of temporary access for the other location(s). Additional study would be needed at some point in the future for this possible scenario. Generally this would be covered in the HDOT stipulation for an update of this report every three years.
 - 4) There should be some consideration to the possible removal of the RIRO if the O-turns are going to be the access plan. This is due to the close proximity of the RIRO to the O-turn location on the south side of the Olowalu Town Access 2. If the RIRO were removed it would provide a longer distance for stacking for the O-turn as well as longer acceleration lane lengths. Since the volume using the RIRO is so low, it is expected the net effect on the other two main access points would be negligible. This option can be reviewed further as the development takes shape. It may be desirable to retain a RIRO further south as an emergency access only.

List of Appendices

1. Additional Development Plan Information
2. Traffic Count Information
3. Traffic Speed Information
4. Trip Distribution Information
5. Trip Assignment and Urban Transportation Demand Model Information
6. Traditional Neighborhood Design Information
7. Internal and Community Capture Information
8. Analysis of Recommended Internal Capture Plan (Mr. John Edwards, P.E.)
9. O-turn and Michigan U-turn Information
10. Florida D.O.T. Highway Capacity Tables
11. Highplan Software Runs for Existing and Future Conditions
12. SimTraffic Runs for Base Scenario with O-Turns for A.M. Peak Hour
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19. SimTraffic Runs for HDOT Internal Capture Scenario with Signals for P.M. Peak Hour
20. Schematic of Alternative Signal Conceptual Design

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PREPARED FOR:

**MR. BILL FRAMPTON
OLOWALU TOWN LLC
2073 Wells Street, Suite 201
Wailuku, Hawaii 96793**

EFFECTIVE DATE: May 1, 2011

**ASSESSMENT OF ECONOMIC AND FISCAL IMPACTS,
OLOWALU TOWN MASTER PLAN DEVELOPMENT,
OLOWALU, ISLAND OF MAUI, HAWAII**



June 14, 2011

10-9106B

Mr. Bill Frampton
OLOWALU TOWN LLC
2073 Wells Street, Suite 101
Wailuku, Hawaii 96793

Re: An Assessment of Economic and Fiscal Impacts for the proposed Olowalu Town Master Plan Development in Olowalu, Island and County of Maui

Dear Mr. Frampton

In accordance with your request, we have analyzed the proposed Olowalu Town Master Plan Development in Olowalu, District of Lahaina, Island and County of Maui, in order to provide a study of its potential economic and fiscal impacts. This *counseling report*, and the conclusions herein, is based on the on-site inspection of the property, a study of current political and economic conditions, and a historical review of the real estate market in the West Maui region.

The subject consists of approximately 635 acres of land and is currently zoned State Agricultural District. The proposed project is identified as Olowalu Town and will be located along Honoapiilani Highway between Maalaea and Lahaina. Olowalu Town will be a community comprised of residential uses, commercial and civic uses, parks and recreation sites, agricultural uses, and a cultural preserve.

At full build-out, Olowalu Town is expected to be comprised of approximately 1,500 living units, including single-family, multi-family and live-work units, together with up to 300,000 square feet of commercial and civic space. Within the 1,500 living units, on-site affordable housing units will also be included in compliance with the County of Maui's Residential Workforce Housing Policy.

The focus of this assignment essentially has three parts: (1) to define and delineate the subject and its market area; (2) to identify and analyze potential economic impacts with regard to the project; and (3) identify and analyze potential fiscal impacts with regard to the project.

The following report presents a narrative review of the assessment and our analysis of data along with other pertinent materials on which this report is predicated. It contains data and exhibits gathered in our investigations, and will include a description of the analytical process and our conclusions, as of May 1, 2011.

Mr. Bill Frampton

June 14, 2011

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Thank you for allowing us the opportunity to work on this interesting assignment.

Respectfully submitted,
ACM Consultants, Inc.

Glenn K. Kunihisa, MAI, CRE
Certified General Appraiser,
State of Hawaii, CGA-039
Expiration: December 31, 2011

Dominic J. Suguitan
Certified General Appraiser,
State of Hawaii, CGA-576
Expiration: December 31, 2011

DRAFT

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EXHIBITS

- Exhibit A Copy of County of Maui Residential Workforce Housing Policy
 Exhibit B Selected Pages from County of Maui 2010 Affordable Sales Price Guidelines

ADDENDA

- Definitions
 Limiting and Contingent Conditions
 Qualifications of the Consultant

PART I – INTRODUCTION

A. EXECUTIVE SUMMARY

Background

The proposed Olowalu Town Master Plan Development is located on both sides of Honoapiilani Highway in Olowalu, Island and County of Maui. The subject is primarily zoned State Agricultural District and consists of approximately 635 acres of land. The project, which is still in its preliminary planning stage, will consist of approximately 1,500 residential units, including single-family, multi-family and live-work units; passive parks and open space, such as cultural preserves, neighborhood parks, and archaeological sites; active parks/community services, such as coastal parks, community centers, schools and police/fire facilities; up to 300,000 square feet of commercial space (inclusive of live-work and civic uses); and, an on-site wastewater treatment facility. Potable water for the project will be provided by a private water well. According to the Developer, the proposed land use is as follows:

Proposed Land Use	Acreage
Urban Residential/Commercial	290 acres
Rural Residential	170 acres
Agricultural	160 acres
Conservation	<u>15 acres</u>
	Total: ± 635 acres

Preliminary plans call for 400 to 800 single-family units, 600 to 900 multi-family/apartment units, and 150 to 200 live-work units. The Developer has estimated an 8- to 10-year build out for Olowalu Town.

Study Objectives

ACM Consultants, Inc. has been retained by Olowalu Town LLC to assess the potential economic and fiscal impacts related to this proposed project. In particular, the Consultants studied economic trends and demographics, and supply and demand factors for residential and commercial properties. Residential properties included single-family residences, single-family house lots, and condominium/apartment units. Commercial properties included vacant developable lots as well as improved properties. In the process, they gathered as much information as possible on real estate activity on Maui while focusing on the West Maui, Central Maui, and the South Maui market.

The objectives of the economic and fiscal impact assessment were as follows: (1) to define and delineate the subject and its market area; (2) to identify and analyze potential economic impacts with regard to the project; and (3) identify and analyze potential fiscal impacts with regard to the project.

Conclusion

The development of this project will generate significant expenditures by the developer of this subdivision, in addition to the eventual homeowners. These investments are expected to favorably impact the Maui economy on a broad scale, and in a multitude of ways.

- Site work and infrastructure construction for this project will immediately infuse capital into the Maui economy. Numerous consultants will be involved in the initial planning stages, and the construction trades will benefit from the job creation of this project.
- Advertising for the project and marketing of the units will benefit graphic artists, advertising companies, newspapers, real estate sales agents, escrow companies, etc.
- Individual site development will again result in additional work for engineers, architects, material suppliers, equipment rentals and sales, landscaping companies, and other related industries.
- The new housing units will have an indirect affect on retail businesses, restaurants and service establishments as the expanded work force purchases goods and services. This should pass through the entire community, causing a ripple effect and increase the amount of capital flowing through Maui.
- Upkeep of the residential, commercial and light industrial buildings will also translate into work for maintenance companies, painting companies, real estate management and leasing groups, etc.
- Fiscal benefits of this development will include increases in real estate taxes and various fees collected by the County of Maui, as well as additional conveyance tax, income tax and general excise tax inflow for the State of Hawaii.

SUMMARY OF ECONOMIC IMPACTS

From Development Activities

Total Construction Expenditures	\$394,125,000
Total Indirect Sales	\$495,809,250
Total Employment	4,040 jobs
Total Payroll	\$189,656,381
Total Residents Supported	9,310 residents
Total Households Supported	2,970 units
Total Excise Tax	\$28,422,000

At Full Build-Out

Annual Taxable Property Values	\$52,500,000
Annual Property Tax Revenue	\$969,000
In-Migrant Residents	224 residents
Annual In-Migrant Resident County Expenditures	\$(641,000)
Annual In-Migrant Resident General Excise Tax	\$141,000
Annual In-Migrant Resident State Expenditures	\$(1,459,000)

SUMMARY OF FISCAL IMPACTS, COUNTY OF MAUI

Net Annual Revenues at Full Build-Out	\$327,000
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SUMMARY OF FISCAL IMPACTS, STATE OF HAWAII

Cumulative Net Revenues from Development	\$45,862,000
Net Annual Revenues at Full Build-Out	\$(994,000)

B. PURPOSE OF THE REPORT

The purpose of this report, as of May 1, 2011, is to generate an economic and fiscal impact assessment with respect to the proposed Olowalu Town Master Plan Development.

C. INTENDED USE OF THE REPORT

The intended use or function of this report is to provide potential economic and fiscal information and real estate market data to our client to be used in the entitlement process for the Olowalu Town Master Plan Development.

D. SCOPE OF THE REPORT

The Consultant has agreed to provide a current economic and fiscal impact assessment of this project by (1) defining and delineating the market area; (2) identifying and analyzing potential economic impacts with regard to the project; and (3) identifying and analyzing potential fiscal impacts with regard to the project. The assessment will be developed and prepared in conformity with, and subject to, the requirements of the Code of Professional Ethics and the Standards of Appraisal Practice of the Appraisal Institute, and the Uniform Standards of Professional Appraisal Practice.

E. STATEMENT OF COMPETENCY

ACM Consultants, Inc. (formerly ACM Real Estate Appraisers, Inc.) has been actively involved in the real estate appraisal and consulting business since 1982. Our business emphasis has focused mainly on the research, consultation and valuation of residential and commercial properties located within the State of Hawaii. The company considers itself competent to conduct an economic and fiscal impact assessment for a proposed master plan development in Olowalu, Island and County of Maui.

**F. EXTRAORDINARY ASSUMPTIONS
AND HYPOTHETICAL CONDITIONS**

As of May 2011, the subject was still in the preliminary stages of planning. A land use map from the Developer provided a visual indication of the proposed layout of the project district. Several discussions were held with the Developer to better understand the housing products and complementary land uses planned for the subject. The Consultant is not liable for any changes in the project plan past this date, nor for information that has not been released or communicated to the Consultant.

The Consultant has no control over economic conditions and other international events that could have an affect upon Hawaii's economy and the Maui real estate market. As a result, this report has not made any assumptions regarding potential conflicts with other nations, or global external factors affecting economic conditions here.

Estimated construction costs, multipliers, tax rates, interest rates, earnings estimates, demographic information and per capita government expenditures were utilized by the Consultant in determining the economic and fiscal impacts of this proposed residential subdivision. These figures and statistics were obtained through conversations with those active in the construction industry, in addition to the review of various construction budgets, demographic and governmental reports. This consulting report has been based on the assumption that all information gleaned from third party sources is accurate for analytical purposes.

All conclusions in this counseling report have been stated in 2010 dollars, rounded to the nearest \$1,000. In doing so, the Consultant has assumed that all construction costs, multipliers, tax rates, interest rates, earnings estimates, demographic information and per capita government expenditures will remain constant throughout the build-out period. Although the cyclical nature of the real estate market would undoubtedly produce varied annual assessments and impacts, for the purposes of this report, they have been reported as unweighted averages. Furthermore, total category impacts may not equate to the sum of the respective sub-categories due to rounding.

The counseling report is also subject to standard "Limiting and Contingent Conditions" located in the pages following.

G. CONFIDENTIALITY PROVISION

The contents of this economic and fiscal impact assessment are confidential. Release of this counseling report by ACM Consultants, Inc. is limited to you and for your preparation and submission of an Environmental Impact Statement for the proposed Wai'ale Master Plan Development. The intended users of this report include A&B Properties, Inc. and the appropriate government agencies to which this report will be submitted. Any further release of this report, or portions herein, is strictly prohibited and you shall accept the risk and liability for any such release without the previous written consent of ACM Consultants, Inc. Further, you shall indemnify and defend ACM Consultants, Inc., and its individual consultants/appraisers, from any claims arising out of any such unauthorized disclosure.

H. CERTIFICATION

The undersigned does hereby certify that except as otherwise noted in this appraisal report:

1. The Consultants' compensation is not contingent upon the reporting of a predetermined value or direction in value that favors the cause of the client, the amount of the value estimate, the attainment of a stipulated result, or the occurrence of a subsequent event.
2. The Consultants have no present or prospective interest in the property that is the subject of this report, and no personal interest or bias with respect to the parties involved. Any "Estimate(s) of Market Value" in the consulting report is not based in whole or in part upon the race, color, or national origin of the prospective owners or occupants of the properties in the vicinity of the property appraised.
3. The Consultants have personally inspected the property, and are signatories of this Certification.
4. To the best of the Consultants' knowledge and belief, all statements of fact and information in this report are true and correct, and the Consultants have not knowingly withheld any significant information.
5. No other person provided significant professional assistance to the person(s) signing this report.
6. The reported analyses, opinions and conclusions are limited only by the reported assumptions and limiting conditions, and are the Consultants' personal unbiased professional analyses, opinions and conclusions.
7. All analyses, opinions and conclusions were developed, and this report has been prepared, in conformity with the Uniform Standards of Appraisal Practice.
8. This counseling report is subject to and in conformance with the Code of Professional Ethics and Standards of Professional Conduct of the Appraisal Institute. The analyses, opinions and conclusions of this counseling report have been made in conformity with, and is subject to, the requirements of Title XI of the Federal Financial Institutions Reform, Recovery, and Enforcement Act of 1989.

9. This counseling report is to be used only in its entirety and no part is to be used without the whole report. All conclusions and opinions concerning the real estate are set forth in the counseling report were prepared by the Consultants whose signatures appears on the counseling report. No change of any item in the counseling report shall be made by anyone other than the Consultants, and the Consultants shall have no responsibility for any such unauthorized change.
10. The Appraisal Institute, of which the Consultants are members, has a legal right to review this report.
11. The qualifications of the Consultants, including completed educational requirements of their candidacy are located in the Addendum to this report. Any member signing the report has completed the requirements of the Appraisal Institute's continuing education program.

ACM Consultants, Inc.

Glenn K. Kunihsa, MAI, CRE
Certified General Appraiser,
State of Hawaii, CGA-039
Expiration: December 31, 2011

Dominic J. Suguitan
Certified General Appraiser,
State of Hawaii, CGA-576
Expiration: December 31, 2011

I. LIMITING AND CONTINGENT CONDITIONS

- 1) This is a Counseling Report which is intended to comply with the reporting requirements set forth under Standards Rule 5 of the Uniform Standards of Professional Appraisal Practice for a Counseling Report. The information contained in this report is specific to the needs of the client and for the intended use stated in this report. The Consultant is not responsible for unauthorized use of this report.

This report has not been prepared for federally-related mortgage financing purposes, and has not been prepared in compliance with the requirements of Title XI of the Federal Financial Institutions Reform, Recovery, and Enforcement Act of 1989.

- 2) No responsibility is assumed for legal or title considerations. Title to the property is assumed to be good and marketable unless otherwise stated in this report.
- 3) The property analyzed is free and clear of any or all liens and encumbrances unless otherwise stated in this report.
- 4) Responsible ownership and competent property management are assumed unless otherwise stated in this report.
- 5) The information furnished by others is believed to be reliable. However, no warranty is given for its accuracy.
- 6) All engineering is assumed to be correct. Any plot plans and illustrative material in this report are included only to assist the reader in visualizing the property.
- 7) It is assumed that there are no hidden or unapparent conditions of the property, subsoil, or structures that render it more or less valuable. No responsibility is assumed for such conditions or for arranging for engineering studies that may be required to discover them.
- 8) It is assumed that there is full compliance with all applicable federal, state, and local environmental regulations and laws unless otherwise stated in this report.
- 9) It is assumed that all applicable zoning and use regulations and restrictions have been complied with, unless a nonconformity has been stated, defined, and considered in this counseling report.

- 10) It is assumed that all required licenses, certificates of occupancy or other legislative or administrative authority from any local, state, or national governmental or private entity or organization have been or can be obtained or renewed for any use on which the value estimates contained in this report are based.
- 11) Any sketch in this report may show approximate dimensions and is included to assist the reader in visualizing the property. Maps and exhibits found in this report are provided for reader reference purposes only. No guarantee as to accuracy is expressed or implied unless otherwise stated in this report. No survey has been made for the purpose of this report.
- 12) It is assumed that the utilization of the land and improvements is within the boundaries or property lines of the property described and that there is no encroachment or trespass unless otherwise stated in this report.
- 13) The Consultant is not qualified to detect hazardous waste and/or toxic materials. Any comment by the Consultant that might suggest the possibility of the presence of such substances should not be taken as confirmation of the presence of hazardous waste and/or toxic materials. Such determination would require investigation by a qualified expert in the field of environmental assessment. The presence of substances such as asbestos, urea-formaldehyde foam insulation, or other potentially hazardous materials may affect the value of the property. The Consultant's value estimate is predicated on the assumption that there is no such material on or in the property that would cause a loss in value unless otherwise stated in this report. No responsibility is assumed for any environmental conditions, or for any expertise or engineering knowledge required to discover them. The Consultant's descriptions and resulting comments are the result of the routine observations made during the analysis process.
- 14) Unless otherwise stated in this report, the subject property is evaluated without a specific compliance survey having been conducted to determine if the property is or is not in conformance with the requirements of the Americans with Disabilities Act. The presence of architectural and communications barriers that are structural in nature that would restrict access by disabled individuals may adversely affect the property's value, marketability, or utility.
- 15) Any proposed improvements are assumed to be completed in a good workmanlike manner in accordance with the submitted plans and specification.

- 16) The distribution, if any, of the total valuation in this report between land and improvements applies only under the stated program of utilization. The separate allocations for land and buildings must not be used in conjunction with any other appraisal and are invalid if so used.
- 17) Possession of this report, or a copy thereof, does not carry with it the right of publication. It may not be used for any purpose by any person other than the party to whom it is addressed without the written consent of the consultant, and in any event, only with property written qualification and only in its entirety.
- 18) Neither all nor any part of the contents of this report (especially any conclusions as to value, the identity of the Consultant, or the firm with which the Consultant is connected) shall be disseminated to the public through advertising, public relations, news sales, or other media without prior written consent and approval of the Consultant.

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PART II – DESCRIPTION OF THE PROPOSED DEVELOPMENT

A. LAND USE

The proposed Olowalu Town Master Plan Development is located on both sides of Honoapiilani Highway in Olowalu, Island and County of Maui. The subject is primarily zoned State Agricultural District and consists of approximately 635 acres of land. The project, which is still in its preliminary planning stage, will consist of approximately 1,500 residential units, including single-family, multi-family and live-work units; passive parks and open space, such as cultural preserves, neighborhood parks, and archaeological sites; active parks/community services, such as coastal parks, community centers, schools and police/fire facilities; up to 300,000 square feet of commercial space (inclusive of live-work and civic uses); and, an on-site wastewater treatment facility. Potable water for the project will be provided by a private water well. According to the Developer, the proposed land use is as follows:

Proposed Land Use	Acreage
Urban Residential/Commercial	290 acres
Rural Residential	170 acres
Agricultural	160 acres
Conservation	<u>15 acres</u>
	Total: ± 635 acres

Preliminary plans call for 565 single-family units, 785 multi-family/apartment units, and 150 live-work units. The Developer has estimated an 8- to 10-year build out for Olowalu Town.

B. UNIT TYPES

Preliminary plans called for approximately 300 single-family units and approximately 450 multi-family units. For purposes of this analysis, the typical single-family unit is assumed to include three bedrooms with an average living area of about 1,200 square feet, and the typical multi-family unit is assumed to include two bedrooms and about 750 square feet.

C. AFFORDABLE PRICE UNITS

Based on the current County of Maui Workforce Housing Ordinance, the subject will be required to offer 50 percent of its proposed 1,500 housing units as on-site affordable units. The current Workforce Housing Ordinance also specifies the following minimum affordable housing unit allocation:

Gap Income (141 to 160% of Maui median income)	20 percent
Above Moderate Income (121 to 140%)	20 percent

Moderate Income (101 to 120%)	30 percent
Below Moderate Income (81 to 100%)	30 percent

Based on the Workforce Housing Ordinance, approximately 375 affordable housing units would be required. The developer has proposed to provide 750 affordable units. For purposes of this analysis, the following breakdown of 750 affordable units has been assumed. The actual allocation will be based on discussions and agreement with the Maui County Department of Housing and Human Concerns.

Single-Family & Multi-Family

Gap Income	150 units (20 percent)
Above Moderate Income	150 units (20 percent)
Moderate Income	225 units (30 percent)
Below Moderate Income	225 units (30 percent)
Total Affordable Single-family Housing Units	750 units

D. COMMERCIAL/INDUSTRIAL COMPONENT

Based on preliminary plans, the Olowalu Town Master Plan Development will feature approximately 300,000 square feet of Commercial space, including neighborhood commercial, light industrial and village mixed-use. While some of the economic and fiscal impacts attributed to the development of these areas have been estimated, other impacts are more difficult to account for.

For example, at full build-out, there would be additional revenue to the State of Hawaii in the form of conveyance taxes, should commercial or industrial condominium units be constructed. However, this would not be the case if leasable multi-tenant structures were built. Furthermore, the general excise tax to be paid from ongoing sales within these projects cannot be accurately gauged, without knowing the tenant mix. A retail business would likely have gross revenue very different from a professional office user. Another example might be a light industrial space utilized for storage versus a wholesale distribution warehouse. Many of these factors will be determined by future market conditions. As a result, this analysis has conservatively limited its focus to those primary areas of economic impact, with emphasis on the Olowalu Town Master Plan Development's residential component.

PART III – ECONOMIC IMPACTS OF THE PROPOSED DEVELOPMENT

A. ECONOMIC IMPACTS RELATED TO DEVELOPMENT ACTIVITIES

Construction of the Subdivision Improvements

The Developer has estimated that vertical construction costs for the single-family units to be approximately \$150 per square foot and about \$175 per square foot for the multi-family units. Research of projects offering similar entry level housing units revealed this range to be reasonable. On average, the typical three-bedroom single-family unit will have approximately 1,200 square feet of living area, while the living area for the typical two-bedroom multi-family unit will average approximately 750 square feet. Vertical construction expenditures for the 1,500 proposed housing units totaled approximately \$226,125,000. It should be noted that this figure included the residential component of the “live/work” units in the Village Mixed-Use area.

Other estimated vertical construction costs from the Developer were as follows: \$75,000,000 for the neighborhood commercial and village mixed use areas; \$50,000,000 for the internal roadways and utilities; and \$15,000,000 for the wastewater treatment facility and R-1 transmission line; \$18,000,000 for the new highway and bridge; \$5,000,000 for parks improvements; and, \$5,000,000 for a small-scale renewable energy system. The construction expenditures for the Olowalu Town Master Plan Development totaled approximately \$394,125,000.

Indirect Sales

Development and construction activities will also generate indirect sales, through the supply of goods and services to the various construction companies, in addition to the families of their employees. By the same token, these suppliers and their families will purchase goods and services from other companies. This chain reaction continues over and over, with some of the revenues leaking out of Hawaii's economy with each cycle. Based on State economic multipliers, off-island indirect sales were estimated at about \$291,652,500 over the term of the project. Meanwhile, Maui indirect sales were estimated at about \$204,156,750 over the term of the project. Indirect sales attributed to the development totaled approximately \$495,809,250.

Direct and Indirect Employment

New job opportunities created by this development will start with the design and entitlement process, employing architects, engineers, surveyors, and land use planners. Site work, road work and the installation of utility and drainage lines typically utilize heavy equipment operators, tractor-trailer drivers and utility personnel. Vertical construction of the housing units, commercial buildings, village

mixed-use projects and light industrial facilities will employ masons, carpenters, sheet metal workers, roofers, drywall installers, plumbers, electricians and painters. Finish work will require cabinet makers, carpet and tile installers, interior decorators, and landscapers. Application of State economic multipliers resulted in a forecasted annual average of 158 jobs directly related to the construction of this development.

The increase in construction will also create the need for supplementary companies to strengthen their labor force. These jobs may be from building supply companies, hardware stores, equipment rental companies, and shipping/warehousing companies. In addition, the construction laborers and their families will patronize local goods and services providers. Grocers, restaurants, service stations, auto repair shops, financial institutions, recreational venues, medical facilities and personal care businesses could be considered potential companies that would need to bolster their employee count. Based on State economic multipliers, indirect jobs on Maui were forecasted to average 162 jobs annually, resulting in an estimated annual average of 319 Maui jobs directly and indirectly tied to the development of the project. Meanwhile, indirect employment on Oahu could possibly add an average 85 jobs per year. Employment attributed to the development totaled approximately 4,040 jobs over the term of the project.

Direct and Indirect Payroll

Payroll directly related to the development of the project was estimated to be \$9,219,258 per annum, based on statistics gleaned from the State of Hawaii Department of Labor and Industrial Relations (DLIR) and job counts determined in the previous section. It should be noted that most construction positions are expected to be filled by Maui laborers.

Indirect Maui payroll came out to about \$6,111,737 per year, while indirect Oahu payroll was around \$3,634,643 annually. Total direct and indirect payroll attributed to the development of the subject was forecasted to be close to \$189,656,381 over the term of the project.

Population Supported by Project Development

Statistical information obtained from the DLIR indicated Maui residents supported by construction jobs attributed to this development are forecasted to average of 373 residents per year, while residents supported by indirect jobs may amount to an average of 383 residents per year.

Oahu residents supported by indirect jobs created by this development were estimated to average 175 residents per year. In

all, approximately 9,310 residents on Maui and Oahu will potentially be supported by the development of this project.

Housing for Supported Population

Statistical information obtained from the DLIR indicated Maui housing units supported by construction jobs attributed to this development are forecasted to average 118 units per year, while housing units supported through indirect jobs would average about 121 units per year.

Oahu housing units supported through indirect jobs created by this development were estimated to average 59 units per year. In all, about 2,970 housing units on Maui and Oahu will potentially be supported by the development of this project. It should be noted that this category does not necessarily represent additional housing units needed for direct and indirect employees, but indicates the potential number of households that would be financially linked to monies earned by such workers.

B. ECONOMIC IMPACTS AT FULL BUILD-OUT

Property Values at Full Build-Out

For this analysis, the average **market value** for the single-family units (600 units) was estimated at \$470,000, while the average **market value** for the multi-family units (900 units) was estimated at \$290,000. Based on the unit breakdown provided by the Developer, the total property value of the 1,500 units, at full build-out was estimated at approximately \$543,000,000. With an estimated 300,000 square feet of potential commercial space in the project, the estimated total property value, based on \$175 per square foot, calculates to \$52,500,000.

Long Term Employment

In addition to construction related employment, the commercial and industrial components will provide long term employment opportunities. At full build-out this could result in approximately 850 jobs just in the commercial and industrial sectors within the project. It is recognized that not all of these jobs would be new, since existing Maui businesses could be relocating to the project.

PART IV – FISCAL IMPACTS, COUNTY OF MAUI

A. FISCAL IMPACTS RELATED TO DEVELOPMENT ACTIVITIES

Development Activities

Typically, the County accumulates revenue from developments in the form of fees, such as for building permits and impacts attributed to the development. In this case, fee revenue would be generated from the construction of the overall Olowalu Town Master Plan Development, as well as from the subsequent development of the individual project lots.

Net Taxable Value, Project Housing Units

The Olowalu Town Master Plan Development will feature approximately 600 three-bedroom single-family units and 900 two-bedroom multi-family units. For this analysis, approximately 85 percent of the single family units and 75 percent of the multi family units were assumed to be owner occupied. Accordingly, about 315 market and affordable single-family units and 428 market and affordable multi-family units will be owner-occupied. As such, these homeowners would qualify for the County of Maui homeowner exemption, which currently stands at up to \$300,000 per qualified housing unit. The single-family unit owners would be able to claim a \$300,000 exemption. Meanwhile, the multi-family unit owners would be exempt for \$275,000, or the full value of their property, only owing the County of Maui minimum tax (currently at \$150 per year). After deduction of the homeowner exemptions, the net taxable value of the project, including commercial property values, amounted to approximately \$215,912,000.

B. FISCAL IMPACTS AT FULL BUILD-OUT

At full build-out, County revenue would primarily be generated in the form of real property taxes. As previously discussed, the net taxable value of the project was determined to be about \$215,912,000. Residential owner-occupants who qualify for the County homeowner exemption are assessed at PITT Code 900 (Homeowner). Currently, this tax class has a mill rate of \$2.00 per \$1,000 of assessed value. The tax obligation for the owner-occupied single-family units was calculated at \$263,000 per year. The unoccupied and renter-occupied single-family units will be assessed at PITT Code 100 (Improved Residential). Currently, this tax class has a mill rate of \$5.00 per \$1,000 of assessed value. The tax obligation for the unoccupied and renter-occupied single-family units amounted to close to \$118,000 per year.

As previously discussed, the owner-occupied multi-family units will be fully exempt, but still pay the \$150 minimum annual property tax. Thus, the tax obligation for the owner occupied multi-family units amounted to about \$117,000 per year. Meanwhile, the unoccupied

and renter-occupied multi-family units will be assessed at PITT Code 200 (Apartment). Currently, this tax class has a mill rate of \$5.00 per \$1,000 of assessed value. The tax obligation for the unoccupied and renter-occupied multi-family units was forecasted at \$173,000 per year. The tax obligation for the commercial spaces amounted to \$328,125. The total estimated annual real property tax attributed to the residential and commercial portion of the project is estimated at \$999,000 per year at full build-out.

The Olowalu Town Master Plan Development is slated to be built on the following State of Hawaii Tax Map Keys: (2) 4-8-03, Parcels 005, 071, 072, 084, 098 through 117, 124 and 124. According to the County of Maui Real Property Tax Division, the Developer currently pays approximately \$30,972 in property taxes for these parcels. This amount was deducted from the annual revenues at full build-out, as the County will no longer receive this income. The resulting net real property tax revenue at full-build out was estimated to be about \$969,000 annually.

County of Maui annual expenditures at full build-out were considered to be for general services, infrastructure maintenance and public safety. This would also include upkeep of public recreational facilities, such as the parks to be provided by the project. Assuming that the majority of the development's future residents already live on Maui, some of these expenses would be incurred by the County no matter where they live. As such, there would not necessarily be an additional cost to the County for each resident moving into the Olowalu Town Master Plan Development. Based on demographic statistics for West Maui, it was estimated that the Olowalu Town Master Plan Development will have approximately 4,471 residents. For the purposes of this analysis, it was assumed that 95 percent will be already living on Maui, with the remaining 5 percent, or about 224 residents, being in-migrant residents. The additional cost to the County attributed to these in-migrant residents was estimated to be \$599,000 per year, plus debt service of \$43,000 per year.

Thus, the net revenue attributed to the project, at full build-out, was estimated to be negative \$327,000 per year. It should be noted that since this project will consist mostly of owner-occupant workforce housing units, its property tax base is significantly reduced by the homeowner exemptions. Furthermore, the County of Maui's property tax system is structured in a way that owner-occupant subdivisions such as the subject are essentially subsidized by revenue received from other property classes. The majority of Maui's property tax revenue is generated by time share, hotel/resort, industrial and commercial properties, which have substantially higher mill rates.

PART V – FISCAL IMPACTS, STATE OF HAWAII

A. FISCAL IMPACTS RELATED TO DEVELOPMENT ACTIVITIES

Although the State of Hawaii will recognize revenue from the project through various taxes, including Conveyance Tax, and Personal Income Tax, this analysis will focus on the Excise Tax as the primary additional revenue source.

Excise tax is based on two rates, 4.166 percent for final sales and 0.5 percent for intermediate sales. The cumulative tax expectancy for final sales amounted to about \$25,514,647, while intermediate sales should be close to \$2,907,332. Excise tax attributed to the development totaled approximately \$28,421,979.

B. FISCAL IMPACTS AT FULL BUILD-OUT

At full build-out, State revenue would be generated by Personal Income Tax, Excise Tax, and Other Revenues. Similar to the previous section, this analysis has focused on Excise Tax. In this case, the Excise Tax to be received from in-migrant residents was estimated to be \$141,000 per year.

Annual expenditures to the State were expected to be from services to residents, and debt service attributed to general improvements. It has been estimated for this analysis that the Olowalu Town Master Plan Development will have 224 in-migrant residents, in addition to 34 in-migrant students. At full build-out, the additional students are estimated to increase cost to the State by about \$415,000 per year. At the same time, annual expenditure for services from in-migrant residents was forecasted at approximately \$961,000 and annual general improvement debt service came out to close to around \$83,000. Examples of services to residents include operation of civic, health and social services; as well as maintenance to highways, parks and recreational areas. General improvement debt service was based on typical per-capita figures currently carried by residents in Hawaii. Total annual expenditure at full build-out attributed to in-migrant residents was approximately \$1,459,000. When deducted from the total annual revenues from the previous paragraph, the net annual revenue at full build-out was forecasted to be negative \$994,000.

The negative net annual revenue at full build-out was primarily attributed to the household income levels within this subdivision. Since The Olowalu Town Master Plan Development will be geared toward the workforce market segment, annual household income is expected to be on the lower side of the range. As excise tax estimates were based on percentages of household income, it is not surprising that total annual revenues were outpaced by total annual expenditures. In

general, State services to workforce residential communities are subsidized by revenues received from the visitor industry, businesses and communities with higher annual household incomes.

Furthermore, as previously discussed, this assessment has not considered all of the potential impacts from the commercial, village mixed-use and industrial areas upon full build-out. There will need to be a significant number of employees for these areas, which would increase State's personal income tax revenues. Granted, many of these positions would be filled by those already in the workforce, yet those coming of working age and transplants from off-island would also be potential employees. With regard to general excise tax, some sales generated by the subject's commercial, village mixed-use and industrial areas may take away from sales of existing businesses. However, new sales will also contribute to the amount of general excise tax collected by businesses.

PART VI – REFERENCES

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EXHIBITS

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EXHIBIT A
Copy of County of Maui
Residential Workforce Housing Policy

Chapter 2.96

RESIDENTIAL WORKFORCE HOUSING POLICY

Sections:

- 2.96.010 Purpose.**
- 2.96.020 Definitions.**
- 2.96.030 Applicability.**
- 2.96.040 Residential workforce housing requirements.**
- 2.96.050 Residential workforce housing credits.**
- 2.96.060 Residential workforce housing restrictions--ownership units.**
- 2.96.070 Residential workforce housing restrictions--rental units.**
- 2.96.080 Residential workforce housing agreement.**
- 2.96.090 Applicant selection process--ownership units.**
- 2.96.100 Applicant selection process--rental units.**
- 2.96.110 Review requirements.**
- 2.96.120 Rules.**
- 2.96.130 Property assessment value.**
- 2.96.140 Incentives.**
- 2.96.150 Qualified housing providers.**

2.96.010 Purpose.

The purpose of this chapter is to enhance the public welfare by ensuring that the housing needs of the County are addressed. The council finds that there is a critical shortage of affordable housing, making home acquisition by the majority of County resident workers extremely difficult, and creating a shortage of affordable rental units. The resident workforce is leaving the County in search of affordable housing, and new employees are being deterred by the high cost of living. To maintain a sufficient resident workforce in all fields of employment, and to ensure the public safety and general welfare of the residents of the County, resident workforce housing needs must be addressed. It is the intent of this chapter to encourage the provision and maintenance of residential workforce housing units, for both purchase and rental, to meet the needs of income-qualified households for the workforce, students, and special housing target groups. (Ord. 3418 § 1 (part), 2006)

2.96.020 Definitions.

Whenever used in this chapter, unless a different meaning clearly appears from the context:

"Community land trust" means a nonprofit organization that acquires land that:

1. Is held in perpetuity;
2. Is primarily for conveyance under a long-term ground lease for the creation of dwelling units that shall be sold or rented to applicants within the income-qualified groups established by this chapter; and
3. Retains an option to purchase any dwelling unit at a price determined by formula that is designed to ensure that the dwelling unit remains affordable in perpetuity.

"Council" means the Maui County council.

"Density bonus" means a density increase over the otherwise allowed residential density

under the applicable zoning and land use designation, without the need for further council approval, subject to enabling legislation.

"Department" means the department of housing and human concerns.

"Director" means the director of housing and human concerns, County of Maui.

"Disabled" means a person who is determined, by a medical doctor, to have a physical, mental, or emotional impairment that:

1. Is expected to be of long-continued and indefinite duration;
2. Substantially impedes his or her ability to live independently; and
3. Is of such a nature that the ability to live independently could be improved by more suitable housing conditions.

"Division" means the housing division of the department of housing and human concerns, County of Maui.

"Elderly" means a person who has attained the age of sixty-two years.

"Employed" means working for compensation in the County for any number of hours.

"Homeless" means:

1. An individual or family who lacks a fixed, regular, and adequate nighttime residence; or
2. An individual or family who has a primary nighttime residence that is:
 - a. A supervised shelter designed to provide temporary living accommodations; or
 - b. A place not designed for or ordinarily used as sleeping accommodations for human beings.

"HUD" means the United States Department of Housing and Urban Development.

"Improved land" means land that has necessary infrastructural improvements to support a public use project or a use density of at least a single-family or a two-family residential building per acre, in conformity with state and County zoning laws and building permit requirements.

"Lot" means any improved or unimproved land that has been subdivided.

"Median family income" means the middle income in a series of incomes ranked from smallest to largest as determined by HUD for the County, or as adjusted by the department, for Hana, Lanai, and Molokai.

"Off-site" means any area outside the boundaries of the development within the community plan area.

"On-site" means the area on, or within the boundaries of, the approved development within the community plan area.

"Prevailing interest rate" means the average interest rate of two mortgage lenders in the County, acceptable to the director, for a thirty year fixed loan with no discount points.

"Qualified housing provider" means a community land trust, nonprofit agency, or other private or public organization, agency, or entity authorized and designated by the department in accordance with section 2.96.150 to own, develop, construct, administer, operate or otherwise provide residential workforce housing required under this chapter.

"Resident" means a person who meets one of the following criteria:

1. Currently employed in the County;
2. Retired from employment in the County, having worked in the County immediately prior to retirement;
3. A full-time student residing in the County;
4. A disabled person residing in the County who was employed in the County prior to becoming disabled;
5. The parent or guardian of a disabled person residing in the County;
6. A spouse or dependent of any such employee, retired person, student, or disabled person residing in the County; or
7. In the event of the death of the employee, retired person, student, or disabled person, the spouse or dependent of any such person residing in the County.

"Residential workforce housing unit" means a unit or lot to be sold or rented to residents within one of the following income groups as established by the department:

1. "Very low income," which are those households whose gross annual family income is fifty percent or less of the area median income as established by HUD, or as adjusted by the department, for Hana, Lanai, and Molokai;
2. "Low income," which are those households whose gross annual family income is more than fifty percent, but not more than eighty percent of the area median income as established by HUD, or as adjusted by the department, for Hana, Lanai, and Molokai;
3. "Below-moderate income," which are those households whose gross annual family income is more than eighty percent, but not more than one hundred percent of the area median income as established by HUD, or as adjusted by the department, for Hana, Lanai, and Molokai;
4. "Moderate income," which are those households whose gross annual family income is more than one hundred percent, but not more than one hundred twenty percent of the area median income as established by HUD, or as adjusted by the department, for Hana, Lanai, and Molokai;
5. "Above-moderate income," which are those households whose gross annual family income is more than one hundred twenty percent, but not more than one hundred forty percent of the area median income as established by HUD, or as adjusted by the department, for Hana, Lanai, and Molokai; and
6. "Gap income," which are those households whose gross annual family income is more than one hundred forty percent, but not more than one hundred sixty percent of the area median income as established by HUD, or as adjusted by the department, for Hana, Lanai, and Molokai.

"Special housing target group" means a group of residents that can be demographically defined as having a special or unique housing need, including but not limited to, the elderly, homeless, and disabled.

"Unimproved land" means land not classified as "improved land."

"Wait list area" means Hana, Lanai, Maui (excluding Hana), or Molokai. (Ord. No. 3719, § 1, 2010; Ord. 3512 § 1, 2007; Ord. 3418 § 1 (part), 2006)

2.96.030 Applicability.

A. Any development, including the subdivision of land and/or the construction of single-family dwelling units, two-family dwelling units, multifamily dwelling units, or hotels, as defined in section 19.04.040 of this code, whether constructed at one time or over several years, shall be subject to this chapter upon final subdivision or building permit approval, whichever is applicable and occurs first, if it will result in the creation of the following:

1. Five or more dwelling units, excluding farm labor dwellings or a second farm dwelling, as defined in section 19.04.040 of this code; provided that, such farm labor dwelling or farm dwelling is in full compliance with chapter 205, Hawaii Revised Statutes, and is not part of a condominium property regime, as set forth in chapter 514A, Hawaii Revised Statutes;
2. Five or more new lots;
3. A combination of dwelling units and new lots totaling five or more;
4. Three or more lodging, dwelling, or time share units in a hotel;
5. A conversion of one or more hotel units to dwelling units or time share units; or
6. Any hotel redevelopment or renovation project that increases the number of lodging or dwelling units in a hotel.

B. Exemptions. This chapter shall not apply to any development that falls into one or more of the following categories:

1. A development subject to an affordable housing requirement, evidenced by an executed affordable housing agreement with the County, currently in effect and approved prior to the effective date of this chapter;
2. A development subject to a change in zoning condition that requires affordable or residential workforce housing, unless the condition expressly allows for the application of the affordable housing or residential workforce housing policy set forth herein;
3. A subdivision granted preliminary subdivision approval prior to the effective date of this chapter;
4. A building permit application submitted prior to the effective date of this chapter;
5. A family subdivision, for immediate family members, as described in sections 18.20.280.B.1 and B.2 of this code; or
6. A development by a government entity; a project pursuant to section 201H-H, Hawaii Revised Statutes; a community land trust; or an affordable housing project with more than the residential workforce housing units, in-lieu fees, or in-lieu land required by section 2.96.040 of this chapter, as approved by the director.

C. Adjustment.

1. A developer of any development subject to this chapter may appeal to the council for a reduction, adjustment, or waiver of the requirements based upon the absence of any reasonable relationship or nexus between the impact of the development and the number of residential workforce housing units or in-lieu fees/land required.
2. Any such appeal shall be made in writing and filed with the County clerk prior to final subdivision approval or issuance of a building permit for the development, whichever is applicable. Any such appeal shall administratively stay the processing of the development's subdivision or building permit, whichever is applicable, until a decision on the appeal is rendered. The appeal shall set forth in detail the factual and legal basis for the claim of reduction, adjustment, or waiver, and the developer shall bear the burden of presenting substantial evidence to support the appeal, including comparable and relevant

technical information.

3. The council, or if the appeal is assigned to a council committee, the council committee, shall convene a meeting within forty-five days of the County clerk's receipt of the appeal, to consider the appeal. The council shall approve or disapprove the appeal by resolution within forty-five days from the date the developer has concluded its presentation of evidence supporting the appeal in a council or committee meeting.
4. If the council or a council committee has not convened a meeting within forty-five days of the County clerk's receipt of the appeal, or if the council does not approve or disapprove the appeal by resolution within forty-five days from the date the developer has concluded its presentation of evidence at the council or council committee meeting, the appeal, as submitted by the developer, shall be deemed approved by the council.
5. If a reduction, adjustment, or waiver is granted by the council, any subsequent substantive change or modification in use within the development, as determined by the director, shall invalidate the reduction, adjustment, or waiver previously granted. (Ord. 3546 § 1, 2008; Ord. 3418 § 1 (part), 2006)

2.96.040 Residential workforce housing requirements.

A. Prior to final subdivision approval or issuance of a building permit for a development subject to this chapter, the department shall require the developer to enter into a residential workforce housing agreement that requires the following:

1. Where the residential workforce housing requirement is satisfied exclusively through the provision of on-site units:
 - a. When more than fifty percent of the dwelling units and/or new lots in the development are offered for sale for less than \$600,000, at least twenty-five percent of the total number of units and/or lots shall be sold or rented to residents within the income-qualified groups established by this ordinance; or
 - b. When fifty percent or more of the dwelling units and/or new lots in the development are offered for sale for \$600,000 or more, at least fifty percent of the total number of units and/or lots shall be sold or rented to residents within the income-qualified groups established by this ordinance.
 2. Where the residential workforce housing requirement is satisfied through the provision of off-site units:
 - a. When more than fifty percent of the dwelling units and/or new lots in the development are offered for sale for less than \$600,000, then the number of off-site residential workforce housing units due shall be equal to fifty percent of the total number of on-site market rate units; or
 - b. When fifty percent or more of the dwelling units and/or new lots in the development are offered for sale for \$600,000 or more, then the number of off-site residential workforce housing units due shall be equal to fifty percent of the total number of on-site market rate units.
 3. When three or more new lodging, dwelling, or time share units in a hotel are created, or when there is a conversion of one or more hotel units to dwelling units or time share units, or when any hotel redevelopment or renovation project increases the number of lodging or dwelling units in the hotel, or when five or more new dwelling units for rental purposes are created, then forty percent of the total number of new, additional and/or converted units shall be sold or rented to residents within the income-qualified groups established by this ordinance.
- B. The requirement may be satisfied by one or a combination of the following, which shall be determined by the director and stated in the residential workforce housing agreement:

1. Offer for sale, single-family dwelling units, two-family dwelling units, or multi-family dwelling units as residential workforce housing within the community plan area;
2. Offer for rent, multi-family dwelling units within the community plan area. A developer may partner with a nonprofit organization or community land trust on a specific affordable project to either construct new multi-family dwelling units or renovate existing nonhabitable multi-family dwelling units, paying an amount that represents the difference in unit costs for a family of four at one hundred percent and one hundred forty percent of median income pursuant to HUD affordable sales price guidelines as adjusted by the department by wait list area. The developer's requirement shall be deemed satisfied upon receipt of payment. Moneys shall be deposited into the affordable housing fund;
3. In lieu of directly selling or renting units pursuant to subsection B.1 or B.2, the developer may convey such units to a qualified housing provider subject to department approval pursuant to section 2.96.150; or
4. In lieu of providing residential workforce housing units, the residential workforce housing requirement may be satisfied by payment of a fee, by providing improved land, or by providing unimproved land. Any fee must be approved by council resolution. Any donation of land must be approved by the council pursuant to section 3.44.015 of this code.
 - a. The in-lieu fee per unit for sale/ownership units shall be equal to thirty percent of the average projected sales price of the market rate dwelling units and/or new lots in the development. The in-lieu fee per unit for hotel, time share, converted or rental units shall be an amount that represents the difference in unit costs for a family of four at one hundred percent and one hundred sixty percent of median income pursuant to HUD affordable sales price guidelines, or as adjusted by the department, for Maui, Lanai, and Molokai. The in-lieu fee shall be designated in the residential workforce housing agreement, and be secured by a lien on the units if not paid before the units are constructed or converted. The in-lieu fee shall accrue to the affordable housing fund, which shall be established in the County budget for the purpose of enhancing and supporting housing needs and programs of income-qualified households and special housing target groups; and
 - b. The value of the improved land shall not be less than the in-lieu fee that would otherwise have been required under this chapter. The value of the unimproved land shall be at least equal to twice the value of the improved land. The in-lieu land shall be used to address the housing needs of income-qualified households and special housing target groups. Such land shall have a minimum lot size of six thousand square feet or the minimum lot size allowed by the applicable zoning, whichever is greater. Such land must be acceptable to the department and may be used by the County or others approved by the County to develop residential workforce housing, resource centers for the homeless, day care centers for seniors, or other public use projects that address the housing needs of income-qualified households and special housing target groups. (Ord. No. 3719, § 2, 2010; Ord. 3438 § 1, 2007; Ord. 3418 § 1 (part), 2006)

2.96.050 Residential workforce housing credits.

A. Credits may be given under the following circumstances:

1. One residential workforce housing credit shall be given for every single-family dwelling unit, two-family dwelling unit, or multifamily dwelling unit constructed in excess of the residential workforce housing required by section 2.96.040 of this chapter; and
2. One residential workforce housing credit shall be given for every ten market rate units

- that contain a deed restriction requiring an owner to occupy the unit for a minimum of three years, and share with the County fifty percent of any profits realized from a sale of that unit within the three-year owner-occupancy period.
- B. The credit must be used in the same community plan area in which the unit was constructed.
 - C. The credit must be applied toward the same type of unit constructed.
 - D. The credit must be used for the same income group in which the credit was earned, when the credit is earned by constructing more residential workforce housing units than required.
 - E. The credit must be used for the "gap income" group when the credit is earned by creating a deed restriction.
 - F. The credit may be used for a future development, but may not be used for an affordable housing or residential workforce housing unit owed at the time the credit is given. (Ord. 3418 § 1 (part), 2006)

2.96.060 Residential workforce housing restrictions--ownership units.

- A. Ownership units shall be subject to this chapter for twenty-five years from the initial sale of the unit.
- B. Unless an exemption is granted by the director, the percentage of ownership units within each income group shall be as follows:
 1. Thirty percent of the ownership units shall be for "below-moderate income" residents;
 2. Thirty percent of the ownership units shall be for "moderate income" residents;
 3. Twenty percent of the ownership units shall be for "above-moderate income" residents; and
 4. Twenty percent of the ownership units shall be for "gap income" residents.
- C. Timing of Completion.
 1. Residential workforce housing units shall be made, available for occupancy either before or concurrently with market rate units at the same ratio required of the development; and
 2. Certificates of occupancy shall not be issued and/or final inspections shall not be passed for the market rate units unless certificates of occupancy are issued and/or final inspections are passed for the residential workforce housing units concurrently or sooner.
- D. Deed Restrictions.
 1. The unit must be owner-occupied;
 2. The unit must remain affordable for twenty-five years from the initial sale, with the owner notifying the department upon a decision to sell; and
 3. Under special circumstances an owner of a residential workforce housing unit may appeal to the department for a waiver of the owner-occupancy deed restriction; these circumstances would include, but are not limited to, assignment to active duty military or short-term contracts for off-island employment.
- E. Sales Price—Single-Family Dwelling Units. The sales price of a new single-family dwelling unit shall be set by the department, at the time the developer is ready to market the unit, using the following guidelines:
 1. A down payment of five percent shall be assumed;
 2. The prevailing interest rate shall be used;
 3. The price of a one-bedroom unit shall be based upon seventy percent of the median income of the wait list area, adjusted to the respective target income group;
 4. The price of a two-bedroom unit shall be based upon eighty-five percent of the median income of the wait list area, adjusted to the respective target income group;
 5. The price of a three-bedroom unit shall be based upon one hundred percent of the median income of the wait list area, adjusted to the respective target income group;

6. The price of a four-bedroom unit shall be based upon one hundred fifteen percent of the median income of the wait list area, adjusted to the respective target income group; and

7. Applicants in each income group shall be assumed to pay no more than thirty percent of the gross annual income of the highest percentage in the applicant's group.

F. Sales Price—Two-Family or Multifamily Dwelling Units. The sales price of a new two-family or multifamily dwelling unit shall be ninety percent of the price of a single-family dwelling unit, as established in subsection E of this section.

G. Resale Price. The maximum resale price shall be established by the department using the following guidelines:

1. An appraisal of the property shall be required before occupancy;
2. A second appraisal shall be required upon a decision to sell the unit; and
3. Twenty-five percent of the difference between the two appraisals shall be added to the owner's purchase price.

H. Foreclosures.

1. The County shall have the first option to purchase the unit; and
2. If the County does not exercise its right to purchase, the units may be offered at an affordable price, set by the director, with the same deed restrictions. (Ord. 3418 § 1 (part), 2006)

2.96.070 Residential workforce housing restrictions--rental units.

A. Rental units shall be subject to this chapter for the life of the unit, as determined by a building inspector with the development services administration of the department of public works and environmental management.

B. Unless an exemption is granted by the director, the percentage of rental units within each income group shall be as follows:

1. One-third of the rental units shall be for "very low income" and "low income" residents;
2. One-third of the rental units shall be for "below-moderate income" residents; and
3. One-third of the rental units shall be for "moderate income" residents.

C. Timing of Completion.

1. Except when the developer is partnering with a nonprofit organization or community land trust as allowed in section 2.96.040.B.2 of this chapter, residential workforce housing units shall be made available for occupancy either prior to or concurrently with market rate units at the same ratio required of the development. Certificates of occupancy shall not be issued and/or final inspections shall not be passed for the market rate units unless certificates of occupancy are issued and/or final inspections are passed for the residential workforce housing units concurrently or sooner; and

2. When the developer is partnering with a nonprofit organization or community land trust, the payment to the nonprofit organization or community land trust must be made prior to final subdivision approval or issuance of a building permit for the market rate units. The residential workforce housing units must be constructed within three years of the date the certificates of occupancy are issued and/or the final inspections are passed for the market rate units.

D. Vacancies. Any rental unit vacancy must be filled by an applicant in the appropriate income group to better maintain an equal distribution of rentals across the "very low income" and "low income," "below-moderate income," and "moderate income" groups.

E. Deed Restrictions.

1. The rental unit must remain affordable for the life of the unit;
2. The owner must notify the department upon a decision to sell the rental development;

and

3. Any new owner must comply with the deed restrictions.

F. Rental Rates. The monthly rental rates shall be set by the department based on HUD income limits.

G. Foreclosures.

1. The County will have the first option to purchase the rental development; and
2. If the County does not exercise its right to purchase, the rental development may be sold with the same deed restrictions. (Ord. 3418 § 1 (part), 2006)

2.96.080 Residential workforce housing agreement.

A. Before final subdivision approval or issuance of a building permit, the developer shall enter into a residential workforce housing agreement that sets forth the detailed terms and conditions of compliance with the residential workforce housing policy, including but not limited to:

1. Sales or rental periods for the residential workforce housing units, which specify procedures for the release of units from the residential workforce housing requirements should units not be sold or rented following the expiration of the sales or rental periods;
2. Identification of the number, type, and location of units;
3. Designation of units for specific income and/or special housing target groups;
4. Marketing process for the residential workforce housing units;
5. Eligibility of income-qualified households;
6. Provision for residential workforce housing credits, as applicable;
7. Payment of in-lieu fees or provision of in-lieu land; and
8. Resale restrictions, which may include buy-back provisions, shared equity, and encumbrances.

B. The residential workforce housing agreement shall be recorded with the bureau of conveyances of the State of Hawaii or the land court of the State as the case may be, so that the terms and conditions of the agreement run with the land and bind and constitute notice to all subsequent grantees, assignees, mortgagees, lienors, and any other persons who claim an interest in such property. The agreement shall be enforceable by the County by appropriate action at law or suit in equity, against the developer, its successors, and assignees. (Ord. 3418 § 1 (part), 2006)

2.96.090 Applicant selection process--ownership units.

A. Wait List Procedure.

1. The developer, its partner, or its management company shall establish wait lists of interested applicants by development;
2. Prior to initiating the wait list, the developer, its partner, or its management company shall publish in at least five issues of a newspaper of general circulation within the County, a public notice that shall contain all information that is relevant to the establishment of the wait list. The public shall also be informed in a like manner, of any decision that would substantially affect the maintenance and use of the wait list; and
3. Selection for purchase shall be made by a lottery administered by the developer, its partner, or its management company and overseen by the department, subject to the applicant meeting the eligibility criteria established in subsection B of this section.

B. Eligibility Criteria. In order to be eligible for a residential workforce housing unit, an applicant must meet the following criteria:

1. Be a citizen of the United States or a permanent resident alien who is a resident of the

County;

2. Be eighteen years of age or older;
3. Have a gross annual family income (not to include the income of minors) which does not exceed one hundred sixty percent of the County's area median income as established by HUD, or as adjusted by the department, for Hana, Lanai, and Molokai. Initial determination for compliance with the maximum gross annual family income provision shall be made by the developer, its partner, or its management company for the initial sale of residential workforce housing units, on the basis of the information provided on the ownership application. The ownership application will be completed when a specific unit is being considered. Final determination for compliance with the maximum gross annual family income provision shall be made by the prospective lender at the time the applicant's income verification data is received;
4. Have assets that do not exceed one hundred sixty percent of the County's area median income as established by HUD, or as adjusted by the department, for Hana, Lanai, and Molokai. Assets shall include all cash, securities, stocks, bonds and real property. Real property shall be valued at fair market value less liabilities on such real property;
5. For a period of three years before the submittal of the ownership application, have not had an interest of fifty percent or more in real property in fee or leasehold in the United States, where the unit or land is deemed suitable for dwelling purposes, unless the applicant is selling an affordable unit and purchasing a different affordable unit that is more appropriate for the applicant's family size; and
6. Pre-qualify for a loan with the applicant's choice of lender.

C. Notification of Change. Each applicant shall be responsible for notifying the developer, its partner, or its management company in writing of any changes in mailing address, telephone number, fax number, and/or e-mail address. If an applicant fails to properly notify the developer, its partner, or its management company of such changes and the developer, its partner, or its management company is unable to contact the applicant, the developer, its partner, or its management company shall remove the applicant's name from the wait list.

D. Selection Priority.

1. Residents on the wait list shall receive first priority for the available units. Nonresidents on the wait list may purchase a residential workforce housing unit once the wait list has been exhausted of all residents;
2. The developer, its partner, or its management company may do a mass mailing of housing applications to applicants on the wait list;
3. The residential workforce housing units must be offered to residents in the order in which their names were drawn in the lottery, provided that there is a unit available in the income group for which they qualify. Nonresidents will be offered residential workforce housing units in the order in which their names were drawn in the lottery; and
4. In the event that units are not sold within the first ninety days after they are offered for sale, and the developer has made a good faith effort, as determined by the director, to contact and qualify applicants on the wait list, the sale of remaining units shall be conducted as follows:
 - a. For the next ninety-day period, units shall be offered for sale to the next-higher income preference group, at the original sales price. For example, units targeted for families earning up to one hundred twenty percent of the median income may be sold to families earning up to one hundred forty percent of the median income. All other eligibility criteria shall apply;
 - b. Units shall be offered to the next higher income group every ninety days until the units are sold or there are no more income groups available;
 - c. Units shall then be offered to nonresidents on the wait list in the order in which their

names were drawn in the lottery, for the next ninety-day period, provided that the applicant's income is within the residential workforce housing income groups; and d. Any units that remain unsold may be offered at market rate without deed restrictions. Upon the sale of the unit, the County shall receive fifty percent of the difference between the original sales price of the unit and the actual market rate sales price, for deposit into the affordable housing fund. In this event, the developer shall still be deemed to have satisfied the requirement for producing a residential workforce housing unit.

5. The developer shall submit copies of the following information to the department to verify the sale of residential workforce housing units to eligible buyers:
 - a. Applicant's completed ownership application;
 - b. Executed sales contract;
 - c. Pre-qualification notice from lender;
 - d. All signed federal and state tax returns used to determine eligibility, or any other documents used to determine eligibility by the lender; and
 - e. Escrow company's settlement statement.
6. An owner of a residential workforce housing unit that is being resold must sell the unit to an income-qualified household and notify the department of the sale. The department shall verify the sales price. (Ord. 3418 § 1 (part), 2006)

2.96.100 Applicant selection process--rental units.

A. Wait List Procedure.

1. The developer, its partner, or its management company shall establish wait lists of interested applicants by rental development;
2. Prior to initiating the wait list, the developer, its partner, or its management company shall initiate the wait list process by publishing in at least five issues of a newspaper of general circulation within the County, a public notice that shall contain all information that is relevant to the establishment of the wait list. The public shall also be informed in a like manner, of any decision that would substantially affect the maintenance and use of the wait list; and
3. Selection for rental units shall be made by a lottery administered by the developer, its partner, or its management company and overseen by the department, subject to the applicant meeting the eligibility criteria established in subsection B of this section.

B. Eligibility Criteria. The eligibility criteria for rentals shall be established on a project-by-project basis by the director in the following manner:

1. If the project is receiving federal and/or state assistance, the applicable federal and/or state eligibility criteria shall apply; and
2. If the project is not receiving federal and/or state assistance, all eligibility criteria in section 2.96.090.B of this chapter shall apply, except for section 2.96.090.B.6 of this chapter.

C. Notification of Change. Each applicant shall be responsible for notifying the developer, its partner, or its management company in writing of any changes in mailing address, telephone number, fax number, and/or e-mail address. If an applicant fails to properly notify the developer, its partner, or its management company of such changes and the developer, its partner, or its management company is unable to contact the applicant, the applicant's name shall be removed from the applicable wait list.

D. Selection Priority.

1. Residents on the wait list shall receive first priority for the available units. Nonresidents on the wait list may rent a residential workforce housing unit once the wait list has been

- exhausted of all residents.
2. The developer, its partner, or its management company may do a mass mailing of housing applications to applicants on the wait list.
 3. The residential workforce housing units shall be offered to residents in the order in which their names were drawn in the lottery, provided that there is a unit available in the income group for which they qualify. Nonresidents will then be offered residential workforce housing units in the order in which their names were drawn in the lottery, provided that there is a unit available in the income group for which they qualify.
 4. The developer, its partner, or its management company shall submit copies of the following information to the department to verify the rental of residential workforce housing units to eligible renters:
 - a. Applicant's completed final rental application;
 - b. Executed rental lease; and
 - c. All signed federal and state tax returns used to determine eligibility, or any other documents used to determine eligibility by the developer, its partner, or its management company.
 5. The developer, its partner, or its management company shall maintain a wait list for the development after all of the units are rented, which shall be used to fill any vacancy.
 6. Any rental unit vacancy shall be filled by an applicant in the same income group as the original tenant to maintain an equal distribution of rentals across the "very low income" and "low income," "below-moderate income," and "moderate income" groups.
 7. An owner of a residential workforce housing rental development intending to sell the development shall notify the department in writing prior to the closing of the sale, and shall provide documentation to the department that the prospective new owner acknowledges and is aware of the terms, conditions, and restrictions encumbering the development as set forth in section 2.96.070. (Ord. 3546 § 2, 2008; Ord. 3418 § 1 (part), 2006)

2.96.110 Review requirements.

- A. The council shall review this chapter every two years.
- B. The director shall provide an annual report to the council on the status of the housing policy that shall include the following:
 1. The number of units built for sale and rent, categorized by number of bedrooms, income group, and sales price if for sale;
 2. The number of purchasers who resold units, categorized by number of bedrooms, income group, and sales price; and
 3. The number of developers, their partner(s), or their management companies maintaining a wait list, and the number of applicants on each wait list.
- C. For rental developments, the developer, its partner, or its management company shall submit an annual report of rental units to the department that includes the following:
 1. The tenant's move-in date; and
 2. The income group of the tenant or family. (Ord. 3418 § 1 (part), 2006)

2.96.120 Rules.

The director shall adopt administrative rules to implement this chapter, pursuant to chapter 91, Hawaii Revised Statutes, within one hundred eighty days after the effective date of the ordinance codified in this chapter. (Ord. 3418 § 1 (part), 2006)

2.96.130 Property assessment value.

The annual tax assessed value, as determined by the County, will take into account the limited resale value of the residential workforce housing property. (Ord. 3418 § 1 (part), 2006)

2.96.140 Incentives.

- A. For developments subject to this chapter, and under the jurisdiction of the development services administration of the department of public works and environmental management, decisions on permits will be made by all departments within sixty days of the date the permit application is deemed complete by the development services administration. Decisions on permits that require review by any outside agency will be made within thirty days of receipt by the development services administration of the last approval from an outside agency; provided, that decisions on applications that require special management area permit review, or environmental review pursuant to chapter 343, Hawaii Revised Statutes, shall be issued within ninety days of completion of the applicable review.
- B. For developments subject to this chapter, and if applicable, the council will schedule the initial meeting for such application within six months of the referral to the appropriate committee. The council will vote to approve or deny the application within one year of the referral to committee.
- C. Developments that include on-site residential workforce housing units may be entitled to a density bonus, subject to enactment of enabling legislation. (Ord. 3418 § 1 (part), 2006)

2.96.150 Qualified housing providers.

Where the department determines that such an agreement will further the purposes of this chapter, the department shall enter into an agreement, on a project-by-project basis, with a qualified housing provider. Such an agreement may provide, without limitation, that the qualified housing provider shall:

- A. Receive, own, manage, rent, operate and sell residential workforce housing units provided by developers pursuant to section 2.96.040 of this chapter;
- B. Enter into agreements with developers pursuant to section 2.96.040.B.2 of this chapter, subject to the department's approval, pursuant to which residential workforce housing units are developed, constructed, renovated, or otherwise made available to satisfy the purposes of this chapter;
- C. Receive land and in-lieu fees provided by developers pursuant to section 2.96.040.B.4 of this chapter;
- D. Receive disbursements from the affordable housing fund and other funds provided for the purposes of this chapter; and/or
- E. Administer the selection processes under sections 2.96.090 and 2.96.100 of this chapter, subject to the department's oversight.
 - 1. Where a qualified housing provider receives, owns, develops, rents, operates or sells residential workforce housing units, such units shall be rented or sold to applicants qualified under this chapter, as set forth in the qualified housing provider's agreement with the department;
 - 2. Selection of purchasers or renters for a qualified housing provider's units shall be made in accordance with sections 2.96.090 and 2.96.100 of this chapter or with other selection processes permitted under the qualified housing provider's agreement with the department;
 - 3. All qualified housing provider rentals or sales shall be on terms, conditions and

restrictions set forth in the agreement, which shall be at least as restrictive as the terms, conditions and restrictions applicable to developer rentals or sales under this chapter, and may be more restrictive; and

4. All qualified housing provider agreements shall require detailed reports to the department, on no less than an annual basis, of the qualified housing provider's implementation of, and compliance with, the agreement. This report shall include an annual financial audit. (Ord. 3418 § 1 (part), 2006)

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EXHIBIT B

**Selected Pages from County of Maui
2010 Affordable Sales Price Guidelines**

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ADDENDA

DEFINITIONS

The purpose of this Glossary is to assist the reader in understanding specific terminology used in this report.

Appraisal	(noun) the act or process of developing an opinion of value; an opinion of value (adjective) of or pertaining to appraising and related functions such as appraisal practice or appraisal services.
Cash Equivalent	A price expressed in terms of cash, as distinguished from a price expressed totally or partly in terms of the face amounts of notes or other securities that cannot be sold at their face amounts.
Counseling	Providing competent, disinterested, and unbiased advice and guidance on diverse problems in the broad field of real estate; may involve any or all aspects of the business such as merchandising, leasing, management, acquisition/disposition planning, financing, development, cost-benefit studies, feasibility analysis, and similar services. Counseling services are often associated with evaluation, but they are beyond the scope of appraisal.
Discounting	A procedure used to convert periodic incomes, cash flows, and reversions into present value; based on the assumption that benefits received in the future are worth less than the same benefits received now.
Extraordinary Assumption	An assumption, directly related to a specific assignment, which, if found to be false, could alter the consultant's opinions or conclusions. Extraordinary assumptions presume as fact otherwise uncertain information about physical, legal, or economic characteristics of the subject property; or about conditions external to the property such as market conditions or trends; or about the integrity of data used in an analysis. An extraordinary assumption may be used in an assignment only if: <ul style="list-style-type: none">• It is required to properly develop credible opinions and conclusions;• The consultant has a reasonable basis for the extraordinary assumption;• Use of the extraordinary assumption results in a credible analysis; and• The consultant complies with the disclosure requirements set forth in USPAP for extraordinary assumptions.
Fair Value	The cash price that might reasonably be anticipated in a current sale under all conditions requisite to a fair sale. A fair sale means that buyer and seller are each acting prudently, knowledgeably, and under no necessity to buy or sell-, i.e., other than in a forced or liquidation sale. The consultant should estimate the cash price that might be received upon exposure to the open market for a reasonable time, considering the property type and local market conditions. <i>When a current sale is unlikely-i.e., when it is unlikely that the sale can be completed within 12 months-the consultant must discount all cash flows generated by the property to obtain the estimate of fair value.</i> These cash flows include, but are not limited to, those arising from ownership, development, operating, and sale of the property. The discount applied shall reflect the consultant's judgment of what a prudent, knowledgeable purchase under o necessity to buy would be willing to pay to purchase the property in a current sale.

Fee Simple Estate	Absolute ownership encumbered by any other interest or estate, subject only to the limitations imposed by the governmental powers of taxation, eminent domain, police power, and escheat.
Hawaiian Terms	The Hawaiian words "mauka" and "makai" are commonly used in the islands as indicators of direction. The word "mauka" means toward the mountain, and "makai" means toward the ocean.
Highest and Best Use	The reasonably probable and legal use of vacant land or an improved property, which is physically possible, appropriately supported, financially feasible, and that results in the highest value. The four criteria the highest and best use must meet are legal permissibility, physical possibility, financial feasibility, and maximum profitability.
Highest and Best Use of Land or a Site as Though Vacant	Among all reasonable, alternative uses, the use that yields the highest present land value, after payments are made for labor, capital, and coordination. The use of a property based on the assumption that the parcel of land is vacant or can be made vacant by demolishing any improvements.
Highest and Best Use of Property as Improved	The use that should be made of a property as it exists. An existing improvement should be renovated or retained as is so long as it continues to contribute to the total market value of the property, or until the return from a new improvement would more than offset the cost of demolishing the existing building and constructing a new one.
Hypothetical Condition	That which is contrary to what exists, but is supposed for the purpose of analysis. Hypothetical conditions assume conditions contrary to known facts about physical, legal, or economic characteristics of the subject property; or about conditions external to the property, such as market conditions or trends; or about the integrity of data used in an analysis. A hypothetical condition may be used in an assignment only if: <ul style="list-style-type: none"> • Use of the hypothetical condition is clearly required for legal purposes, for purposes of reasonable analysis, or for purposes of comparison; • Use of the hypothetical condition results in a credible analysis; and • The consultant complies with the disclosure requirements set forth in USPAP for hypothetical conditions
Leased Fee Interest	An ownership interest held by a landlord with the rights of use and occupancy conveyed by lease to others. The rights of the lessor (the leased fee owner) and the lessee are specified by contract terms contained within the lease.
Leasehold Interest	The interest held by the lessee (the tenant or renter) through a lease transferring the rights of use and occupancy for a stated term under certain conditions.
Market Rent	The most probable rent that a property should bring in a competitive and open market reflecting all conditions and restrictions of the specified lease agreement including term, rental adjustment and revaluation, permitted uses,

use restrictions, and expense obligations; the lessee and lessor each acting prudently and knowledgeably, and assuming consummation of a lease contract as of a specified date and the passing of the leasehold from lessor to lessee under conditions whereby:

- Lessee and lessor are typically motivated.
- Both parties are well informed or well advised, and acting in what they consider their best interests.
- A reasonable time is allowed for exposure in the open market.
- The rent payment is made in terms of cash in United States dollars, and is expressed as an amount per time period consistent with the payment schedule of the lease contract.
- The rental amount represents the normal consideration for the property leased unaffected by special fees or concessions granted by anyone associated with the transaction.

Market Value

The major focus of most real property appraisal assignments. Both economic and legal definitions of market value have been developed and refined. Continual refinement is essential to the growth of the appraisal profession.

The most widely accepted components of market value are incorporated in the following definition:

"The most probable price, as of a specified date, in cash, or in terms equivalent to cash, or in other precisely revealed terms, for which the specified property rights should sell after reasonable exposure in a competitive market under all conditions requisite to a fair sale, with the buyer and seller each acting prudently, knowledgeably, and for self-interest, and assuming that neither is under undue duress."

Market value is defined in the Uniform Standards of Professional Appraisal Practice (USPAP) as follows:

"A type of value, stated as an opinion, that presumes the transfer of a property (i.e., a right of ownership or a bundle of such rights), as of a certain date, under specific conditions set forth in the definition of the term identified by the consultant as applicable in an appraisal."

The following definition of market value is used by agencies that regulate federally insured financial institutions in the United States:

"The most probable price which a property should bring in a competitive and open market under all conditions requisite to a fair sale, the buyer and seller each acting prudently and knowledgeably, and assuming the price is not affected by undue stimulus. Implicit in this definition is the consummation of a sale as of a specified date and the passing of title from seller to buyer under conditions whereby:"

- Buyer and seller are typically motivated;
- Both parties are well informed or well advised, and acting in what they consider their best interests;
- A reasonable time is allowed for exposure in the open market;
- Payment is made in terms of cash in U.S. dollars or in terms of financial arrangements comparable thereto; and

- The price represents the normal consideration for the property sold unaffected by special or creative financing or sales concessions granted by anyone associated with the sale.

**Prospective Market Value
Upon Completion
of Construction**

The prospective future value of a property on the date that construction is completed, based upon market conditions forecast to exist as of the completion date.

Prospective Value Opinion

A forecast of the value expected at a specified future date. A prospective value opinion is most frequently sought in connection with real estate projects that are proposed, under construction, or under conversion to a new use, or those that have not achieved sellout or a stabilized level of long-term occupancy at the time the appraisal report is written.

Report

Any communication, written or oral, of an appraisal, appraisal review, or appraisal consulting service that is transmitted to the client upon completion of an assignment. The types of written reports listed below apply to real property appraisals:

Self-Contained Appraisal Report: A written appraisal report prepared under Standards Rule 2-2(a) of the Uniform Standards of Professional Appraisal Practice. A self-contained appraisal report sets forth the data considered, the appraisal procedures followed, and the reasoning employed in the appraisal, addressing each item in the depth and detail required by its significance to the appraisal and providing sufficient information so that the client and the users of the report will understand the appraisal and not be misled or confused.

Summary Appraisal Report: A written report prepared under Standards Rule 2-2(b) or 8-2(b). A summary appraisal report contains a summary of all information significant to the solution of the appraisal problem. The essential difference between a self-contained appraisal report and a summary appraisal report is the level of detail of presentation.

Restricted Appraisal Report: A written report prepared under Standards Rule 2-2(c), 8-2(c), or 10-2(b). A restricted use appraisal report is for client use only. The restricted use appraisal report should contain a brief statement of information significant to the solution of the appraisal problem.

**Uniform Standards
of Professional
Appraisal Practice**

Current standards of the appraisal profession, developed for consultants and the users of appraisal services by the Appraisal Standards Board of The Appraisal Foundation. The Uniform Standards set forth the procedures to be followed in developing an appraisal, analysis, or opinion and the manner in which an appraisal, analysis, or opinion is communicated. They are endorsed by the Appraisal Institute and by other professional appraisal organizations.

LIMITING AND CONTINGENT CONDITIONS

ACM Consultants, Inc.

1. The property is appraised as though free and clear of any or all liens and encumbrances unless otherwise stated in this report. The Consultant will not be responsible for matters of a legal nature that affect either the property being appraised or the title to it. The Consultant assumes that the title is good and marketable, and therefore, will not render any opinions about the title.
2. Legal descriptions referenced in the report were obtained from public documents from the State of Hawaii, Bureau of Conveyances, or were furnished by the client, and were assumed to be correct.
3. It is assumed that all applicable zoning and use regulations and restrictions have been complied with, unless a nonconformity has been stated, defined, and considered in this appraisal report.
4. It is assumed that all required licenses, certificates of occupancy or other legislative or administrative authority from any local, state, or national governmental or private entity or organization have been or can be obtained or renewed for any use on which the value estimates contained in this report are based.
5. It is assumed that the utilization of the land and improvements is within the boundaries or property lines of the property described and that there is no encroachment or trespass unless otherwise stated in this report. Responsible ownership and competent property management are assumed unless otherwise stated in this report.
6. The Consultant has inspected as far as possible, by observation, the land and the improvements; however, it was not possible to personally observe conditions beneath the soil or hidden structurally or by other components. The appraisal assumes that there are no hidden, unapparent, or apparent conditions of the property site, subsoil, or structures or toxic material which would render it more or less valuable. The Consultant and firm have no responsibility for any such conditions or for any expertise or engineering to discover them. All mechanical components are assumed to be in operable condition and status standard for properties of the subject type. Conditions of heating, cooling, ventilation, electrical and plumbing equipment is considered to be commensurate with the conditions of the balance of the improvements unless otherwise stated. No judgment may be made by us as to adequacy of insulation, type of insulation, or energy efficiency of the improvements or equipment, and no representations are made herein as to these matters unless specifically stated and considered in the report.
7. Information provided by third parties including government agencies, financial institutions, realtors, buyers, sellers, property owners and others and contained in this report were obtained from sources considered reliable and believed to be true and correct. However, no warranty is assumed for possible misinformation.
8. All engineering is assumed to be correct. Any plot plans and illustrative material in this report are included only to assist the reader in visualizing the property. Any sketch in this report may show approximate dimensions and is included to assist the reader in visualizing the property. Maps and exhibits found in this report are provided for reader reference purposes only. No guarantee as to accuracy is expressed or implied unless otherwise stated in this report. No survey has been made for the purpose of this report.
9. The Consultant is not qualified to detect hazardous waste and/or toxic materials. Any comment by the Consultant that might suggest the possibility of the presence of such substances should not be taken as confirmation of the presence of hazardous waste and/or toxic materials. Such determination would require investigation by a qualified expert in the field of environmental assessment. The presence of substances such as asbestos, urea-formaldehyde foam insulation, or other potentially hazardous materials may affect the value of the property. The Consultant's value estimate is predicated on the assumption that there is no such material on or in the property that would cause a loss in value unless otherwise stated in this report. No responsibility is assumed for any environmental conditions, or for any expertise or engineering knowledge required to discover them. The Consultant's descriptions and resulting comments are the result of the routine observations made during the appraisal process.
10. If analysis contained in this appraisal involves partial interests in real estate, the value of the fractional interest plus the value of all other fractional interests may or may not equal the value of the entire fee simple estate considered as a whole.
11. Unless otherwise stated in this report, the subject property is appraised without a specific compliance survey having been conducted to determine if the property is or is not in conformance with the requirements of the Americans with Disabilities Act. The presence of architectural and communications barriers that are structural in nature that would restrict access by disabled individuals may adversely affect the property's value, marketability, or utility.
12. Possession of this report, or a copy thereof, does not carry with it the right of publication. It may not be used for any purpose by any person other than the party to whom it is addressed without the written consent of the Consultant, and in any event, only with proper written qualification and only in its entirety.
13. The Consultant(s) or those assisting in preparation of the report will not be asked or required to give testimony in court or hearing because of having made the appraisal, in full or in part, nor engage in post appraisal consultation with client or third parties except under separate and special arrangement and at additional fee. If testimony or deposition is required because of subpoena, the client shall be responsible for any additional time, fees, and charges regardless of issuing party.
14. Neither all nor any part of the contents of this report (especially any conclusions as to value, the identity of the Consultant, or the firm with which the Consultant is connected) shall be disseminated to the public through advertising, public relations, news sales, or other media without prior written consent and approval of the Consultant.

ACCEPTANCE OF, AND/OR USE OF THIS APPRAISAL REPORT BY CLIENT OR ANY THIRD PARTY CONSTITUTES ACCEPTANCE OF THE ACM CONSULTANTS, INC., CERTIFICATION, LIMITING AND CONTINGENT CONDITIONS. CONSULTANT LIABILITY EXTENDS ONLY TO STATED CLIENT, NOT SUBSEQUENT PARTIES OR USERS OF ANY TYPE, and the total liability of Consultant(s) and firm is limited to the amount of fee received by Consultant.

PROFESSIONAL QUALIFICATIONS

Glenn K. Kunihisa, MAI, CRE



STATE LICENSING

State Certified General Appraiser,
State of Hawaii, License No. CGA 39, July 17, 1991
Expiration: December 31, 2011

PROFESSIONAL AFFILIATIONS

Member, Appraisal Institute, MAI Designation, Hawaii Chapter No. 67
Member, The Counselors of Real Estate, CRE Designation, Hawaii Chapter
Member, International Right of Way Association
Member, National Association of Realtors, Maui Board of Realtors

PROFESSIONAL INVOLVEMENT

Past President – Hawaii Chapter of the Appraisal Institute – 2009
Hawaii Chapter Chair – The Counselors of Real Estate - 2011
Education Committee Chairperson – Hawaii Chapter of the Appraisal Institute – 2004 and 2005
Former Committee Member - Multiple Listing Service (MLS) – Realtors Association of Maui

COMMUNITY AFFILIATIONS

St. Anthony Parish School Board
Board Member 1995 to 2008
Board President 1997 and 1998

Alii Community Care, Inc. – A non-profit health care corporation
Board Member 2004 to 2006

EMPLOYMENT

President
ACM Consultants, Inc.
May, 1997 to present

Previously associated with the following:

ACM, Real Estate Appraisers, Inc. - 1986 to 1997
A&B Commercial Company; a division of Alexander & Baldwin, Inc. - 1979 to 1985
Bank of Hawaii - 1976 to 1979

GENERAL EDUCATION

University of Hawaii at Manoa
Master of Business Administration (MBA) - Executive MBA Program V, 1988
Bachelor of Business Administration (BBA), 1976
Iolani School, 1971

LEGAL & CONSULTING

Qualified as an expert witness in the Second Circuit Court of the State of Hawaii
Qualified as an expert in testimony to the State Land Use Commission
Experienced in real estate arbitration assignments in the State of Hawaii

APPRAISAL EDUCATION

Appraisal Institute

**Seminar Appraisal Curriculum Overview (2-day general)
Honolulu, Hawaii – July 2010**

Professional Qualifications

Page 2

Seminar	<i>Online Valuation of Green Residential Properties</i> Chicago, Illinois – July 2010
Seminar	<i>Hotel Valuation</i> Honolulu, Hawaii – February 2010
Seminar	<i>Online Small Hotel/Motel Valuation</i> Chicago, Illinois – November 2009
Seminar	<i>Business Practices and Ethics</i> Honolulu, Hawaii – September 2009
Seminar	<i>Hawaii Lands, Historical Review</i> Lihue, Hawaii – August 2009
Seminar	<i>Appraisal Challenges: Declining Markets and Sales Concessions</i> Cambria, California – October 2008
Course	<i>7-Hour National USPAP Update Course</i> Honolulu, Hawaii – September 2008
Course	<i>Online 7-Hour National USPAP Equivalent Course</i> Chicago, Illinois – October 2007
Course	<i>Valuation of Conservation Easements</i> Denver, Colorado – October 2007
Seminar	<i>Uniform Standards for Federal Land Acquisitions ("Yellow Book")</i> <i>Practical Applications for Fee Appraisers</i> Honolulu, Hawaii – December 2006
Seminar	<i>California Conservation Easements</i> Sacramento, California – November 2005
Course 400	<i>7-Hour National USPAP Update Course</i> Honolulu, Hawaii – October 2005
Seminar	<i>Case Studies in Limited Partnership and Partial Interest Valuation</i> Honolulu, Hawaii – May 2005
Seminar	<i>Appraisal Consulting: A Solutions Approach for Professionals</i> Honolulu, Hawaii – February 2005
Seminar	<i>Real Estate Finance, Value and Investment Performance</i> Honolulu, Hawaii – February 2005
Seminar	<i>Fannie Mae Residential Presentation</i> Honolulu, Hawaii - July 2004
Seminar	<i>Subdivision Analysis</i> Chicago, Illinois - August 2003
Seminar	<i>Supporting Capitalization Rates</i> Chicago, Illinois - August 2003
Seminar	<i>The Technology Assisted Appraiser</i> Chicago, Illinois - August 2003
Seminar	<i>Scope of Work: Expanding Your Range of Services</i> Chicago, Illinois - August 2003
Course 400	<i>National Uniform Standards of Professional Practice</i> Honolulu, Hawaii - May 2003
Course 420	<i>Business Practices and Ethics</i> Honolulu, Hawaii - May 2003
Seminar	<i>The Private Conservation Market</i> Honolulu, Hawaii - July 2002
Seminar	<i>Finance Reporting Valuations Parts I and II</i> Honolulu, Hawaii - July 2002
Seminar	<i>Future of Appraisal Profession from a Global Perspective</i> Honolulu, Hawaii - July 2002

Professional Qualifications

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Seminar	<i>Appraisal Office Management</i> Honolulu, Hawaii - July 2002
Course 540	<i>Report Writing</i> Denver, Colorado - December 2000
Seminar	<i>Partial Interests: Theory and Case Law</i> Las Vegas, Nevada - July 2000
Seminar	<i>Easement Valuation</i> Las Vegas, Nevada - July 2000
Seminar	<i>Bridging the Gap: Marketability Discounts for Real Estate Interests</i> Las Vegas, Nevada - July 2000
Course 430	<i>Standards of Professional Practice, Part C</i> Honolulu, Hawaii - September 1999
Seminar	<i>Litigation Skills for the Appraiser: An Overview</i> Honolulu, Hawaii - May 1998
Seminar	<i>Special Purpose Properties</i> Honolulu, Hawaii - September 1997
Seminar	<i>Highest and Best Use Applications</i> Honolulu, Hawaii - September 1997
Seminar	<i>Detrimental Conditions</i> Honolulu, Hawaii - July 1997
Seminar	<i>The Appraiser As Expert Witness</i> Honolulu, Hawaii - August, 1995
Seminar	<i>How to Appraise FHA-Insured Property</i> Los Angeles, California - January, 1995
Seminar	<i>Understanding Limited Appraisals and Reporting Options</i> Honolulu, Hawaii - August, 1994
Seminar	<i>Valuation of Leasehold Interests</i> Honolulu, Hawaii - May, 1993
Seminar	<i>Valuation of Leased Fee Interests</i> Honolulu, Hawaii - May, 1993
Seminar	<i>Valuation Considerations: Appraising Non-Profits</i> Boston, Massachusetts - July, 1992
Seminar	<i>Americans With Disabilities Act</i> Boston, Massachusetts - July, 1992
Seminar	<i>Valuation in Today's Capital and Financing Markets</i> Honolulu, Hawaii - June 1992
Seminar	<i>Arbitration Principles, Procedures and Pitfalls</i> Honolulu, Hawaii - June, 1992
Seminar	<i>Institutional Real Estate in the 1990's</i> Honolulu, Hawaii - June, 1992
Seminar	<i>FIRREA and its Impact on Appraisers</i> Honolulu, Hawaii - June, 1992
Course 410/420	<i>Standards of Professional Practice, Parts A & B</i> Honolulu, Hawaii - April, 1991

The American Society of Farm Managers and Rural Appraisers, Inc.

Professional Qualifications

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Maui Coastal Land Trust

Society of Real Estate Appraisers

- | | |
|------------|--|
| Course 101 | <i>Introduction to Appraising Real Property</i>
Dallas, Texas – 1987 |
| Course 102 | <i>Applied Residential Property Valuation</i>
Honolulu, Hawaii - July 1990 |
| Course 201 | <i>Principles of Income Property Appraising</i>
Chicago, Illinois, 1987 |
| Course 202 | <i>Applied Income Property Valuation</i>
San Diego, California - 1988 |
| Seminar | <i>Professional Practice and the Society of Real Estate Appraisers</i>
Honolulu, Hawaii - 1988 |
| Seminar | <i>Appraisal Standards Seminar - Federal Home Loan
Bank Board Guidelines, Regulations and Policies</i>
Honolulu, Hawaii - April, 1988 |
| Seminar | <i>Appraisal Standards Seminar - Federal Home Loan
Bank Board Guidelines, Regulations and Policies</i>
Honolulu, Hawaii - April, 1988 |

American Institute of Real Estate Appraisers

- | | |
|---------|--|
| Seminar | <i>Rates, Ratios and Reasonableness</i>
Honolulu, Hawaii - 1989 |
| Seminar | <i>Discounted Cash Flow Analysis</i>
Honolulu, Hawaii - 1989 |
| Seminar | <i>Highest and Best Use</i>
Honolulu, Hawaii - 1989 |
| Seminar | <i>Capitalization Overview - Part A</i>
Honolulu, Hawaii - 1990 |
| Seminar | <i>Capitalization Overview - Part B</i>
Honolulu, Hawaii - 1990 |
| Seminar | <i>Accrued Depreciation</i>
Honolulu, Hawaii - 1990 |

International Right of Way Association

- | | |
|------------|--|
| Course 410 | <i>Reviewing Appraisals in Eminent Domain</i>
San Diego, California – February 2011 |
| Course 101 | <i>Appraisal</i>
Las Vegas, Nevada - October 1998 |
| Course 101 | <i>Negotiation</i>
Las Vegas, Nevada - October 1998 |

National Business Institute, Inc.

- Seminar *Commercial Real Estate Leasing In Hawaii***
Honolulu, Hawaii - 1989

American Arbitration Association

- Seminar *Real Estate Dispute Resolution - Mediation and Arbitration***
Kahului, Maui, Hawaii - October, 1990

PROFESSIONAL QUALIFICATIONS
of
Dominic J. Suguitan

STATE LICENSING

State Certified General Appraiser,
State of Hawaii, License No. CGA-576, April 17, 1995
Expiration: December 31, 2011

ASSOCIATION MEMBERSHIPS

General Associate Member - Appraisal Institute

Realtor-Appraiser, National Association of Realtors, Maui Board of Realtors, Inc.

EXPERIENCE AND EDUCATION

Employment

Vice President, Commercial Division
ACM Consultants, Inc. (formerly ACM, Real Estate Appraisers, Inc.)
April, 1991 to present

Previously associated with the following:

Yamaguchi & Yamaguchi, Inc.
Real Estate Appraisers and Consultants

General Education

University of Hawaii at Manoa
Bachelor of Arts Degree, Communications, 1990

Maui Community College, 1985-86

Baldwin High School, 1985

Appraisal Education

Appraisal Institute Courses

“Appraising the Single Family Residence”
Honolulu, Hawaii - January, 1991

“Foundations of Real Estate Appraisal”
Honolulu, Hawaii - February, 1991

Course 1BA – “Capitalization Theory & Techniques, Part A”
San Jose, California - July, 1992.

Course 1BB – “Capitalization Theory & Techniques, Part B”
San Jose, California - July, 1992.

Appraisal Qualifications

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Course I410 – “Standards of Professional Practice, Part A (USPAP)”
Honolulu, Hawaii - April, 1993

Course II420 – “Standards of Professional Practice, Part B (USPAP)”
Honolulu, Hawaii - April, 1993.

Course II430 – “Standards of Professional Practice, Part C (USPAP)”
Honolulu, Hawaii - September, 1999.

Course I400 – “7-Hour National USPAP Update Course”
Honolulu, Hawaii - May, 2003.

Course II420 – “Business Practices and Ethics”
Honolulu, Hawaii - May, 2003

“Online 7-Hour National USPAP Equivalent Course” – Online Course
Chicago, Illinois – November, 2005

Course 520 – “Highest & Best Use and Market Analysis”
Seattle, Washington – September 2006

“Online 7-Hour National USPAP Equivalent Course” – Online Course
Chicago, Illinois – November, 2007

“Online 7-Hour National USPAP Equivalent Course” – Online Course
Chicago, Illinois – September, 2009

“Online Business Practices and Ethics” – Online Course
Chicago, Illinois – November, 2009

Appraisal Institute Seminars

“Data Confirmation and Verification Methods” - Seminar
Honolulu, Hawaii - October, 1995

“Residential Property Construction and Inspection” - Seminar
Honolulu, Hawaii - October, 1995

“Appraisal of Retail Properties” - Seminar
Honolulu, Hawaii - May, 1996

“Detrimental Conditions in Hawaii” - Seminar
Honolulu, Hawaii - July, 1997

“Special Purpose Properties” - Seminar
Honolulu, Hawaii - September, 1997

“Highest and Best Use Applications” - Seminar
Honolulu, Hawaii - September, 1997

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"Appraising From Blueprints and Specs" - Seminar
Honolulu, Hawaii - May, 1998

"New Industrial Valuation" - Seminar
Honolulu, Hawaii - October, 1998

"Eminent Domain & Condemnation Appraising" - Seminar
Honolulu, Hawaii - October, 1998

"Online Analyzing Operating Expenses" – Online Seminar
Chicago, Illinois - September, 2001

"Real Estate Disclosure" - Seminar
Honolulu, Hawaii - October, 2001

"Online Internet Search Strategies for R.E. Appraisers" – Online Seminar
Chicago, Illinois - October, 2001

"Online Valuation of Detrimental Conditions in Real Estate" – Online Seminar
Chicago, Illinois - December, 2001

"The Appraisal Institute Commercial Database & AppraiserLoop, Part I" - Seminar
Honolulu, Hawaii - July, 2002

"Statistical Analysis Using the Database, Part I" - Seminar
Honolulu, Hawaii - July, 2002

"The Aftermath: Our World Post-Sept 11" - Seminar
Honolulu, Hawaii - July, 2002

"Statistical Modeling & GIS: Applications for Income Properties" - Seminar
Honolulu, Hawaii - July, 2002

"Real Estate Finance, Value and Investment Performance" – Seminar
Honolulu, Hawaii – February, 2005

"Introduction to GIS Applications for Real Estate Appraisal" – Online Seminar
Chicago, Illinois – August, 2005

"Online Small Hotel/Motel Valuation" – Online Seminar
Chicago, Illinois – October, 2005

"Hawaii Lands, Historical Review"
Kahului, Hawaii – September, 2009

"Online Real Estate Finance Statistics and Valuation Modeling" – Online Seminar
Chicago, Illinois – October, 2009

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Society of Real Estate Appraisers

Course 101 – “Introduction to Appraising Real Property”

Tempe, Arizona - June, 1991

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