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10:DEV/0137

November 19, 2010

Memo to: Katherine P. Kealoha, Director
Office of Environmental Quality Control

From: Karen Seddon
Executive Director

Draft Environmental Impact Statement for the Villages of Leiali'i
TMK 4-5-21:03, 04, 05, 13, 21, 22, AND 4-5-28:70
Lahaina, Maui, Hawai'i

The Hawaii Housing Finance & Development Corporation (HHFDC) respectfully requests the publication of a notice of availability for the above document in the December 23, 2010 issue of OEQC's *The Environmental Notice.*

Please find enclosed a completed OEQC Publication Form, one (1) hard copy of the EISPN, and a compact disc containing the document in PDF format for your use.

Should you have any questions or comments, please contact Stan S. Fujimoto of HHFDC at 587-0541 or Sue Sakai of Belt Collins Hawaii at 521-5361.

Enclosures:
OEQC Publication Form
Draft EIS
One (1) Compact Disc

VILLAGES OF LEIALIʻI AFFORDABLE HOUSING DRAFT ENVIRONMENTAL IMPACT STATEMENT

LAHAINA, MAUI, HAWAIʻI

TMK 4-5-21:03, 04, 05, 13, 21, 22, AND 4-5-28:70

Prepared for:

Hawaii Housing Finance & Development Corporation (HHFDC)

Prepared by:

Belt Collins Hawaii Ltd.

HHFDC
Hawaii Housing Finance & Development Corporation

November 2010

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TABLE OF CONTENTS

ACRONYMS AND ABBREVIATIONS xi

CHAPTER ONE
INTRODUCTION AND SUMMARY

1.1 Project Profile 1-1
1.2 Project Overview 1-2
1.3 Location 1-3
1.3.1 Project Parcels and Tax Map Key Map 1-4
1.3.2 Access to the Project Site 1-4
1.4 Project Background 1-8
1.4.1 Earlier Plans and Legal Issues 1-8
1.4.2 Environmental Studies of the Project Site 1-11
1.5 Purpose and Need for the Project 1-11
1.6 Statement of Project Objectives 1-13
1.7 Purpose of This Environmental Impact Statement Document 1-13
1.8 Relationship to Land Use Policies 1-14
1.9 Required Permits and Approvals 1-15
1.10 Summary of Alternatives 1-17
1.11 Summary of Potential Impacts and Mitigation 1-19
1.12 Summary of Secondary and Cumulative Impacts 1-30
1.13 Summary of Irreversible and Irretrievable Commitments of Resources 1-30
1.14 Summary of Unresolved Issues 1-31

CHAPTER TWO
DESCRIPTION OF THE PROPOSED ACTION

2.1 Background Information 2-1
2.1.1 Regional Setting 2-1
2.1.2 Location 2-3
2.1.3 Ownership 2-5
2.1.4 Surrounding Uses 2-5
2.1.5 Description of the Property 2-6
2.1.6 State Land Use District 2-6
2.1.7 County Land Use 2-6
2.1.7.1 Draft Maui Island Plan 2-6
2.1.7.2 West Maui Community Plan 2-10
2.1.7.3 Maui County Zoning 2-12
2.2 Master Plan Process and Design Principles 2-12

2.3 Alternative Land Use Concepts 2-23
2.3.1 Concepts One and Two 2-24
2.3.2 Concept Three 2-27
2.3.3 Phasing 2-35
2.4 HHFDC's RFP Process 2-38
2.4.1 HHFDC Evaluation Criteria 2-38
2.4.2 Relationship Between the Developer and HHFDC 2-39
2.4.3 Other Project Considerations Contained in the HHFDC RFP 2-39
2.4.3.1 Energy and Design Considerations 2-39
2.4.3.2 Infrastructure, Maintenance and Coordination Considerations 2-41
2.4.3.3 Permits and Approvals 2-42
2.5 Preliminary Project Costs 2-42

CHAPTER THREE
DESCRIPTION OF THE AFFECTED NATURAL ENVIRONMENT, POTENTIAL IMPACTS, AND MITIGATION MEASURES

3.1 Climate 3-1
3.1.1 Existing Conditions 3-1
3.1.2 Potential Impacts and Mitigation Measures 3-1
3.2 Geology and Topography 3-2
3.2.1 Existing Conditions 3-2
3.2.2 Potential Impacts and Mitigation Measures 3-2
3.3 Groundwater, Hydrology, Surface Water and Drainage 3-3
3.3.1 Existing Conditions 3-3
3.3.2 Potential Impacts and Mitigation Measures 3-6
3.4 Soils and Agriculture Potential 3-8
3.4.1 Existing Conditions 3-8
3.4.2 Potential Impacts and Mitigation Measures 3-14
3.5 Natural Hazards 3-15
3.5.1 Earthquakes 3-15
3.5.2 Volcanic Hazards 3-16
3.5.3 Tsunami Inundation 3-17
3.5.4 Hurricanes 3-17
3.6 Man-Made Hazards 3-19
3.6.1 Existing Conditions 3-19
3.6.2 Potential Impacts and Mitigation Measures 3-19
3.7 Terrestrial Flora 3-19
3.7.1 Existing Conditions 3-19

3.7.2 Potential Impacts and Mitigation Measures 3-21
3.8 Avifauna and Terrestrial Fauna 3-21
3.8.1 Existing Conditions 3-21
3.8.2 Potential Impacts and Mitigation Measures 3-22

CHAPTER FOUR
DESCRIPTION OF THE EXISTING HUMAN ENVIRONMENT, POTENTIAL IMPACTS, AND MITIGATION MEASURES

4.1 Archaeological and Historic Resources 4-1
4.1.1 Existing Conditions 4-1
4.1.2 Potential Impacts and Mitigation Measures 4-4
4.2 Cultural Resources 4-5
4.2.1 Existing Conditions 4-5
4.2.2 Potential Impacts and Mitigation Measures 4-5
4.3 Roadways and Traffic 4-6
4.3.1 Background 4-6
4.3.2 Traffic Study Assumptions and Scope 4-7
4.3.3 Existing Roadway System Conditions 4-9
4.3.3.1 Traffic Counts 4-9
4.3.3.2 Level of Service Methodology 4-10
4.3.3.3 Findings - Existing Traffic Conditions 4-10
4.3.4 Future Traffic Conditions without the Project 4-12
4.3.4.1 Areawide Traffic Growth and Cumulative Development Projects 4-12
4.3.4.2 Baseline Street System Improvements 4-13
4.3.4.3 Cumulative Base Traffic Volumes Without the Project 4-14
4.3.5 Future Traffic Conditions With the Project 4-15
4.3.5.1 Project Trip Generation 4-15
4.3.5.2 Summary of Potential Impacts at Study Intersections 4-18
4.3.5.3 Proposed Mitigation Measures at Study Intersections 4-23
4.3.5.4 Street Segment Traffic Impact Analysis 4-25
4.3.6 Summary and Conclusions 4-26
4.4 Transit and Non-Automotive Transportation 4-27
4.4.1 Existing Conditions 4-27
4.4.2 Future Without Project 4-28
4.4.3 Future With Project 4-28
4.5 Noise 4-30
4.5.1 Existing Conditions 4-30
4.5.2 Potential Impacts and Mitigation Measures 4-30

4.6 Air Quality 4-32
4.6.1 Existing Conditions 4-32
4.6.2 Potential Impacts and Mitigation Measures 4-33
4.7 Visual Resources 4-34
4.7.1 Existing Conditions 4-34
4.7.2 Potential Impacts and Mitigation Measures 4-35
4.8 Infrastructure and Utilities 4-37
4.8.1 Roadway System 4-37
4.8.1.1 Existing Conditions 4-37
4.8.1.2 Proposed Roadway System 4-37
4.8.1.3 Potential Impacts and Mitigation Measures 4-40
4.8.2 Drainage Facilities 4-41
4.8.2.1 Existing Conditions 4-41
4.8.2.2 Proposed Drainage System 4-43
4.8.3 Water Supply and Storage Facilities 4-51
4.8.3.1 Existing Conditions 4-51
4.8.3.2 Proposed Water System 4-51
4.8.3.3 Potential Impacts and Mitigation Measures 4-58
4.8.4 Wastewater Collection, Treatment, and Disposal Facilities 4-59
4.8.4.1 Existing Conditions 4-59
4.8.4.2 Proposed Wastewater System 4-59
4.8.4.3 Potential Impacts and Mitigation Measures 4-65
4.8.5 Reclaimed Water Facilities 4-66
4.8.5.1 Existing Conditions 4-66
4.8.5.2 Proposed Reclaimed Water System 4-66
4.8.5.3 Potential Impacts and Mitigation Measures 4-72
4.8.6 Solid Waste 4-73
4.8.6.1 Existing Conditions 4-73
4.8.6.2 Proposed Solid Waste Collection System 4-73
4.8.6.3 Potential Impacts and Mitigation Measures 4-74
4.8.7 Electrical, Telephone, and Cable Systems 4-76
4.8.7.1 Maui Electric Company 4-76
4.8.7.2 Hawaiian Telcom and Oceanic Time Warner 4-80
4.8.7.3 Costs 4-80
4.8.7.4 Potential Impacts and Mitigation Measures 4-81
4.9 Socio-Economic Conditions 4-82
4.9.1 Existing Socio-Economic Conditions 4-82
4.9.2 Potential Socio-Economic Impacts 4-87
4.9.2.1 Future Socio-Economic Conditions Without the Project (No Action Alternative) 4-87
4.9.2.2 Future Socio-Economic Conditions With the Project 4-88

4.9.2.3 Summary - Impacts of the Alternatives On Socio-Economic Conditions 4-97
4.10 Public Facilities 4-98
4.10.1 Public Safety 4-100
4.10.1.1 Existing Conditions 4-100
4.10.1.2 Potential Impacts 4-100
4.10.2 Education 4-101
4.10.2.1 Existing Conditions 4-101
4.10.2.2 Potential Impacts 4-101
4.10.3 Recreation 4-102
4.10.3.1 Existing Conditions 4-102
4.10.3.2 Potential Impacts 4-103
4.10.4 Medical Facilities 4-105
4.10.4.1 Existing Conditions 4-105
4.10.4.2 Potential Impacts 4-106
4.10.4.3 Summary - Impacts of the Alternatives on Public Facilities 4-107

CHAPTER FIVE
RELATIONSHIP OF THE PROPOSED ACTION TO LAND USE PLANS, POLICIES, AND CONTROLS FOR THE AFFECTED AREA

5.1 The Land Use Law 5-1
5.2 Hawai'i State Plan 5-6
5.3 State Functional Plans 5-28
5.4 Hawai'i Water Code 5-29
5.4.1 State of Hawai'i Water Plan 5-29
5.4.2 State Underground Injection Control Program 5-30
5.5 State Environmental Policy 5-30
5.6 State Environmental Impact Statement Requirements Significance Criteria 5-33
5.7 Federal Laws and Controls 5-36
5.7.1 Coastal Zone Management Act (HRS Chapter 205A) 5-36
5.7.2 Federal Emergency Management Agency National Flood Insurance Program 5-39
5.8 Maui County Plans and Controls 5-40
5.8.1 Maui County General Plan: The Countywide Policy Plan 5-40
5.8.2 Draft Maui Island Plan 5-43
5.8.3 West Maui Community Plan 5-47
5.8.4 Water Availability Policy 5-48

CHAPTER SIX
ALTERNATIVES

6.1 The "No Action" Alternative 6-1
6.2 Alternative Locations 6-2
6.3 The Alternative of Postponing Action 6-2
6.4 Revising the Project to Fit the Draft Maui Island Plan's Urban Growth Boundaries 6-3

CHAPTER SEVEN
CONTEXTUAL ISSUES

7.1 Relationship Between Short-Term Uses and Maintenance of Long-Term Productivity (Sustainability Analysis) 7-1
7.2 Irreversible and Irretrievable Commitments of Resources 7-1
7.3 Cumulative and Secondary Impacts 7-3
7.4 Offsetting Considerations of Governmental Policies 7-4
7.5 Unresolved Issues 7-4

CHAPTER EIGHT
REFERENCES 8-1

CHAPTER NINE
EISPN MAILING LIST AND COMMENT LETTERS 9-1

LIST OF FIGURES

Figure 1-1 Location Map 1-5
Figure 1-2 Project Location Map 1-6
Figure 1-3 Lahaina Regional Map 1-7
Figure 2-1 Maui Island Map 2-4
Figure 2-2 State Land Use District Map 2-7
Figure 2-3 Lahaina North Planned Growth Area, Draft *Maui Island Plan* 2-9
Figure 2-4 West Maui Community Plan Designation 2-11
Figure 2-5 Land Zoning Map 2-13
Figure 2-6a Land Use Concepts One and Two Walkable Neighborhoods 2-15
Figure 2-6b Land Use Concept Three Walkable Neighborhoods 2-15
Figure 2-7a Land Use Concepts One and Two Roadway Circulation 2-17
Figure 2-7b Land Use Concept Three Roadway Circulation 2-17
Figure 2-8a Land Use Concepts One and Two Pedestrian Circulation 2-18
Figure 2-8b Land Use Concept Three Pedestrian Circulation 2-18
Figure 2-9a Land Use Concepts One and Two Bicycle and Trail Circulation 2-19
Figure 2-9b Land Use Concept Three Bicycle and Trail Circulation 2-19

Figure 2-10a Land Use Concepts One and Two Bus Transit Circulation 2-20
Figure 2-10b Land Use Concept Three Bus Transit Circulation 2-20
Figure 2-11a Land Use Concepts One and Two Open Space 2-22
Figure 2-11b Land Use Concept Three Open Space 2-22
Figure 2-12a Land Use Plan Concept One 2-25
Figure 2-12b Land Use Plan Concept Two 2-26
Figure 2-12c Land Use Plan Concept Three 2-28
Figure 3-1 Existing Drainage Basins 3-5
Figure 3-2 Soil Types 3-10
Figure 3-3 Agricultural Lands of Importance 3-12
Figure 3-4 Soil Productivity According to Land Study Bureau 3-13
Figure 3-5 Tracks of Major Tropical Storms 3-18
Figure 4-1 Project Site Archaeological Site Locations 4-3
Figure 4-2 Study Area and Analyzed Locations 4-8
Figure 4-3 Existing Peak Hour Traffic Volumes 4-11
Figure 4-4 Cumulative Base Traffic Volumes at Analyzed Intersections, 2028 4-16
Figure 4-5 Cumulative Base Traffic Volumes at Analyzed Intersections, 2036 4-17
Figure 4-6 Lahaina Historic District 4-36
Figure 4-7 Off-site Road System 4-38
Figure 4-8 Existing Drainage Conditions 4-42
Figure 4-9 Developed Drainage Conditions for Concepts One and Two 4-44
Figure 4-10 Developed Drainage Conditions for Concept Three 4-45
Figure 4-11 Proposed Drainage System – Land Use Concepts One and Two 4-48
Figure 4-12 Proposed Drainage System – Land Use Concept Three 4-49
Figure 4-13 Existing Water System 4-52
Figure 4-14 Proposed Water System 4-54
Figure 4-15 Off-Site Sewer System 4-61
Figure 4-16 On-Site Sewer System – Concepts One and Two 4-63
Figure 4-17 On-Site Sewer System – Concept Three 4-64
Figure 4-18 Off-Site Reclaimed Water System 4-68
Figure 4-19 On-Site Reclaimed Water System – Concepts One and Two 4-70
Figure 4-20 On-Site Reclaimed Water System – Concept Three 4-71
Figure 4-21 Electrical System Alternate Concept Land Use Plans One and Two 4-78
Figure 4-22 Electrical System Alternate Concept Land Use Plan Three 4-79
Figure 6-1 Urban Growth Boundary and Planned Growth Area Within the Villages of Leiali‘i 6-5

LIST OF TABLES

Table 1-1 Alternative Concept Plans – Housing Unit Totals 1-3
Table 1-2 Project Parcels 1-4
Table 1-3 Projected Housing Need by Income Group, to 2015 1-12
Table 1-4 Required Permits and Approvals 1-16
Table 1-5 Alternative Concepts: Phase A 1-18
Alternative Concepts: Phase B 1-18
Alternative Concepts: Both Phases 1-19

Table 1-6 Summary of Potential Impacts and Mitigation Measures for All Alternatives 1-20
Table 2-1 Maui County and West Maui Socio-Economic Indicators 2-2
Table 2-2 Concept Density Comparisons – Concept One 2-29
Table 2-3 Concept Density Comparisons – Concept Two 2-31
Table 2-4 Concept Density Comparisons – Concept Three 2-33
Table 2-5 Phasing, Concept One 2-35
Table 2-6 Phasing, Concept Two 2-36
Table 2-7 Phasing Concept Three 2-37
Table 2-8 Summary of Off-site Costs by Concept 2-43
Table 3-1 Impacts of the Alternatives on Climate 3-2
Table 3-2 Impacts of the Alternatives on Geography and Topography 3-3
Table 3-3 Impacts of the Alternatives on Groundwater and Hydrology, Surface Water and Drainage 3-7
Table 3-4 Soil Conservation Service Ratings 3-9
Table 3-5 Impacts of the Alternatives on Soil and Potential for Agriculture 3-15
Table 3-6 Impacts of the Alternatives from Earthquakes 3-16
Table 3-7 Impacts of Natural Hazards on the Alternatives 3-18
Table 3-8 Impacts of Man-Made Hazards on the Alternatives 3-19
Table 3-9 Native Plant Species Found on the Leiali‘i Project Site 3-20
Table 3-10 Impacts of the Alternatives on Avifauna, Terrestrial Fauna and Flora 3-22
Table 4-1 Summary of the General Significance Assessments and Recommended General Treatments – Leiali‘i Project Site 4-2
Table 4-2 Impacts of the Alternatives on Archaeological Resources 4-4
Table 4-3 Impacts of the Alternatives on Cultural Resources 4-6
Table 4-4 Existing (2010) Levels of Service 4-10
Table 4-5 Future (2028) Levels of Service Before Mitigation 4-19
Table 4-6 Future (2036) Levels of Service Before Mitigation 4-22
Table 4-7 Intersection Deficiencies and Mitigation Measures 4-26
Table 4-8 Impacts of the Alternatives on Roads and Traffic 4-27
Table 4-9 Impacts of the Alternatives on Transit and Non-Automotive Transportation 4-29
Table 4-10 Maximum Permissible Sound Levels 4-30
Table 4-11 Noise Impacts of the Alternatives 4-31
Table 4-12 State and Federal Ambient Air Quality Standards 4-32
Table 4-13 Impacts of the Alternatives on Air Quality 4-34
Table 4-14 Impacts of the Alternatives on Visual Resources 4-35
Table 4-15 On-Site Road Improvements 4-40
Table 4-16 On-Site Road Costs 4-40
Table 4-17 Impacts of the Alternatives on Roadways 4-41
Table 4-18 Summary of Existing Drainage Conditions 4-43
Table 4-19 Summary of Developed Drainage Conditions 4-46
Table 4-20 Drainage System Costs 4-47
Table 4-21 Impacts of the Alternatives on Drainage 4-50
Table 4-22 Water Pressure Service Zones 4-53
Table 4-23 Water Supply Requirements 4-55

Table 4-24 Available Water from Basal Wells 4-56
Table 4-25 Water System Infrastructure 4-57
Table 4-26 Private Water System Costs 4-58
Table 4-27 Impacts of the Alternatives on Water Supply 4-59
Table 4-28 Sewer Requirements 4-60
Table 4-29 Off-Site and On-Site Sewer System Costs 4-62
Table 4-30 Irrigation Demand 4-67
Table 4-31 Reclaimed Water System 4-69
Table 4-32 Off-Site and On-Site Reclaimed Water System Costs 4-69
Table 4-33 Impacts of the Alternatives on Wastewater and Reclaimed Water 4-72
Table 4-34 Solid Waste Generated by Construction Activities and Occupancy 4-74
Table 4-35 Summary of Solid Waste Diverted and Landfilled 4-75
Table 4-36 Impacts of the Alternatives on Solid Waste 4-76
Table 4-37 Impacts of the Alternatives on Electrical, Telephone, and Cable Systems 4-81
Table 4-38 Resident Population, Visitor Count and Jobs, Maui County and West Maui, 1970 – 2008 4-83
Table 4-39 Distributions of Planned Growth Areas by Community Plan Area, *Draft Maui Island Plan* 4-88
Table 4-40 Population at Villages of Leiali‘i Project 4-89
Table 4-41 Summary of Employment and Wages Associated with the Leiali‘i Project 4-91
Table 4-42 Cumulative Fiscal Benefit – Cost Analysis 4-92
Table 4-43 Impacts of the Alternatives on Socio-Economic Conditions 4-98
Table 4-44 Project Share of Service Populations for Public Facilities 4-99
Table 4-45 Public School Student Population at Buildout of Villages of Leiali‘i Project 4-102
Table 4-46 Estimated Park Dedication Required for Villages of Leiali‘i 4-103
Table 4-47 Park Facilities Needed to Meet County Planning Objectives 4-105
Table 4-48 Impacts on Public Facilities 4-107
Table 5-1a Hawai‘i State Planning Act Part I 5-8
Table 5-1b Hawai‘i State Planning Act Part III 5-22
Table 5-2 State Environmental Policy 5-31
Table 5-3 Countywide Policy Plan 5-40
Table 5-4 Draft Maui Island Plan Land Use Principles 5-43

APPENDICES

Appendix A Community Outreach
Appendix B Botanical
Appendix C Fauna and Avifauna
Appendix D Environmental Phase 1
Appendix E Archaeology and Cultural Impact
Appendix F Road System
Appendix G Drainage
Appendix H Water

Appendix I Wastewater and Reclaimed Water
Appendix J Solid Waste
Appendix K Socio-Economic
Appendix L Traffic Impact Assessment Report

ACRONYMS AND ABBREVIATIONS

AAQS	Ambient Air Quality Standards
ac	acre
ALISH	Agricultural Lands of Importance to the State of Hawai‘i
AMI	Area Median Income
AWWA	American Water Works Association
BMP	Best Management Practices
BWS	Board of Water Supply (County of Maui)
CDP	Census Defined Place
CFR	Code of Federal Regulations
CIA	Cultural Impact Assessment
CWRM	Commission on Water Resource Management
CZM	Coastal Zone Management
DBEDT	Department of Business, Economic Development and Tourism (State of Hawai‘i)
DEM	Department of Environmental Management (County of Maui)
DHHL	Department of Hawaiian Homelands
DHS	Department of Homeland Security
DLNR	Department of Land and Natural Resources (State of Hawai‘i)
DOE	Department of Education (State of Hawai‘i)
DOH	Department of Health (State of Hawai‘i)
DOT	Department of Transportation (State of Hawai‘i)
DPW	Department of Public Works (County of Maui)
DU	Dwelling Units
DWS	Department of Water Supply (County of Maui)
EA	Environmental Assessment
EIS	Environmental Impact Statement
EISPN	Environment Impact Statement Preparation Notice
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
GPD	Gallons per day
GPM	Gallons per minute
HABS	Historic American Buildings Survey
HAER	Historic American Engineering Record
HBWS	Honolulu Board of Water Supply
HDPE	High Density Plyethylene
HFDC	Housing Finance Development Corporation
HHFDC	Hawaii Housing Finance and Development Corporation
HRS	Hawaii Revised Statutes
HTCO	Hawaiian Telcom
HUD	U.S. Department of Housing and Urban Development
KLMC	Kaanapali Land Management Corporation

kV	Kilovolt
LEED-ND	Leadership in Energy and Environmental Design – New Development
Leiali‘i (also “the Project”)	The Villages of Leiali‘i Affordable Housing Project
LOS	Level of Service
LSB	Land Study Bureau
LUC	Land Use Commission (State of Hawai‘i)
MECO	Maui Electric Company
MG	Million gallons
MGD	Million gallons per day
ML&P	Maui Land and Pineapple Company
MMA	Maui Market Area
MVA	Megavolt Amperes
NPDES	National Pollutant Discharge Elimination System
NFIP	National Flood Insurance Program
Oceanic	Oceanic Time Warner Cable
OEQC	Office of Environmental Quality Control (State of Hawai‘i)
OHA	Office of Hawaiian Affairs
PCB	Polychlornated biphenyls
PHRI	Paul H. Rosendahl, Ph.D., Inc.
Planning Act	Hawai‘i State Planning Act
Project	The Villages of Leiali‘i Affordable Housing Project
PV	Photovoltaic
PVE	Polyvinylchloride
RFP	Request for Proposal
ROW	Right-of-Way
SCS	Soil Conservation Service
SF	Square Feet
SHPD	State Historic Preservation Division (Hawai‘i)
SIHP	State Inventory of Historic Properties
SMA	Special Management Area
State	State of Hawai‘i
TDEM	Time Domain Electro-Magnetic
TMK	Tax Map Key
UBC	Uniform Building Code
UGB	Urban Growth Boundary
UIC	Underground Injection Control
USDW	Underground Sources of Drinking Water
VOIP	Voice Over Internet Protocol
WWRF	Wastewater Reclamation Facility
WWTP	Wastewater Treatment Plant

CHAPTER ONE: INTRODUCTION AND SUMMARY

1.1 PROJECT PROFILE

Project Name:	The Villages of Leialiʻi Affordable Housing Project
Location:	Lahaina, Maui
Judicial District:	West Maui
Project Site Tax Map Key	TMK (2) 4-5-21:03, 04, 05, 13, 21, 22, and (2) 4-5-28:70
Project Site	Approximately 1,033 acres owned by the State of Hawaiʻi
Existing Use	Vacant land
Existing Land Use Designations:	*State Land Use:*……..Urban *Maui County Zoning:*……Agricultural, except for TMK (2) 4-5-28:70, which is Residential
Total Environmental Impact Statement (EIS) Study Area	Approximately 1,033 acres
Permits/Approvals Required (not an exhaustive list)	Maui County: Change of Zone National Pollutant Discharge Elimination System (NPDES) Permit Subdivision Approval Plan Approval Grading and Building Permits Exemptions pursuant to Ch. 201H, Hawaiʻi Revised Statutes (HRS) State of Hawaiʻi: Possibly Special Management Area Permit
Proposing Agency:	Hawaii Housing Finance & Development Corporation 677 Queen Street, Suite 300 Honolulu, Hawaiʻi 96813 Contact: Mr. Stan S. Fujimoto, Project Manager Telephone: 808-587-0541 Fax: 808-587-0600

Accepting Authority: Office of The Governor
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1.2 PROJECT OVERVIEW

The Hawaii Housing Finance & Development Corporation (HHFDC) is the State of Hawai'i (State) agency tasked with developing and financing low- and moderate-income housing projects and administering homeownership programs. HHFDC is proposing development of the Villages of Leiali'i Affordable Housing Project (also referred to as "Leiali'i" or "the project") to primarily serve households employed in West Maui. The project is intended to be a mixed-use community with affordable and market-priced housing, as well as open, commercial and light industrial spaces and public facilities.[1]

HHFDC and the State of Hawai'i own the project site, an area of approximately 1,033 acres in Wahikuli, West Maui. In 2008, HHFDC developed two mixed-use concept plans for the site. Both were designed on "Smart Growth" principles aimed at encouraging pedestrian, bicycle, and transit movements as well as less reliance on automobiles. They share the same physical layout but differ in residential density. Comments were elicited from stakeholders, including County and State agencies, and a public workshop was held at the Lahaina Civic Center in January 2009.

[1] The same name, "Villages of Leiali'i," is used for a slightly larger proposal by HHFDC's predecessor agency, and for the initial increments of that proposed development that were made available to the Department of Hawaiian Home Lands (DHHL) for homestead development. In this document, the earlier proposal is termed the "Leiali'i master planned community," and the DHHL area – including both Phase 1A, which has been built, and Phase 1B – is termed "DHHL Leiali'i."

Stakeholder comments and notes on issues raised in the workshop are included as Appendix A of this Environmental Impact Statement (EIS). In response to comments, HHFDC developed a third concept plan, intended to meet criteria of Leadership in Energy and Environmental Design Neighborhood Development (LEED-ND).[2]

In all three concept plans, a first phase (A) is located below the alignment of the future Lahaina Bypass Highway, and a second phase (B) is located above the Bypass Highway.[3] The makai area, below the Bypass Highway, is planned to be developed first. Table 1-1 shows the number and type of residential units in each plan. The concept plans also include retail and industrial space, parks, schools, and open space. Concept Plan Three includes a solar farm in its Phase B. HHFDC has issued a request for proposals (RFP) for solar energy development on the site as an initial use in the light industrial area of the concept plans.

Table 1-1: Alternative Concept Plans – Housing Unit Totals

	Alternative Concept Plans		
	One	Two	Three
Number of residential units:			
High density – multifamily		997	2,719
Medium density – multifamily	788	1,524	
Low density - single-family	2,135	1,522	1,386
Total Residential Dwelling Units (du)	**2,923 du**	**4,043 du**	**4,105 du**

Source: Leiali'i Affordable Housing Master Plan – December 2009

1.3 LOCATION

Located in the Wahikuli ahupua'a, West Maui, adjacent to the town of Lahaina, the project area is bordered by the Wahikuli subdivision and the DHHL Leiali'i subdivision (the completed phase 1A and the planned phase 1B of the earlier master-planned community) to the west, the

[2] Criteria for certification as a LEED-ND community have been evolving, and are likely to be refined in future years. The decision whether to submit the project for certification will be made by the eventual developer, in light of the final design and the criteria in force at the time.

[3] Throughout this document, discussions of phasing and the timing of components of the project refer to plans that may be affected by market conditions or other events. Phasing and the dates used in later chapters must be understood as a good faith estimate of the process of development, taking into account likely demand and the time needed for permitting and construction.

Kelawea subdivision to the south, State and various privately-owned land to the east, and the future expansion of Kā‘anapali Resort (Kā‘anapali 2020) to the north. Figure 1.1 shows the project’s location.

The project site is vacant but has been used in the past for sugar cultivation. Part of the Honokōhau Ditch extends across the site, and some irrigation and flood control infrastructure has been left by the previous tenant, Pioneer Mill.

1.3.1 PROJECT PARCELS AND TAX MAP KEY MAP

The project area includes several parcels, listed in Table 1-2 and shown in Figure 1-2. Approximately 448 acres of Phase A is owned by HHFDC and all of Phase B is owned by the State of Hawai‘i. Figure 1-3 shows the region.

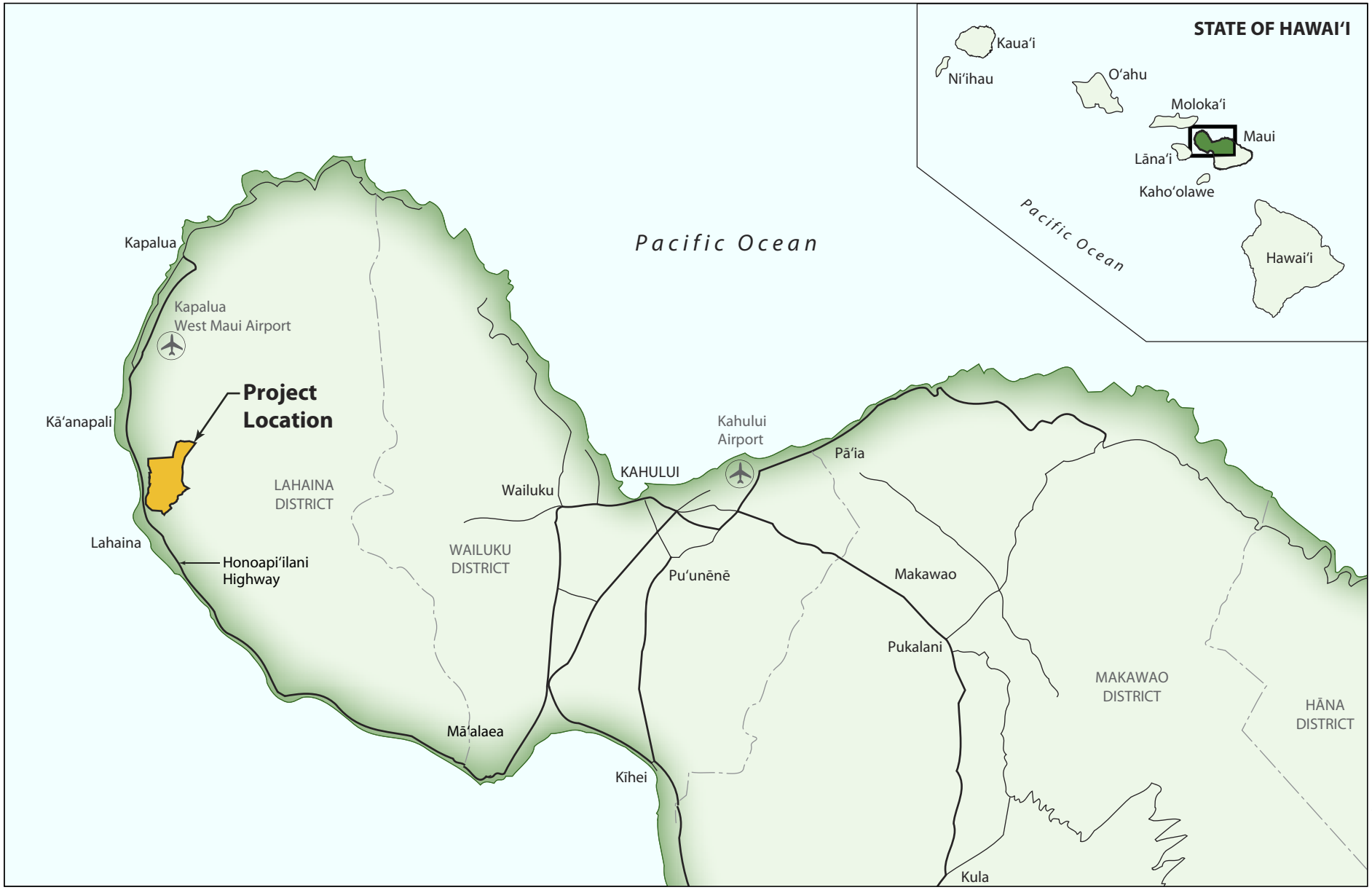
Table 1-2: Project Parcels

	Tax Map Key	Owner	Acreage	Total Acreage
Phase A Area				
Agricultural field	4-5-021:003	HHFDC	435.918	
Retention Basin	4-5-021:021	HHFDC	12.195	
Remnant Parcel	4-5-021:013	State of Hawai‘i	1.576	
Remnant Parcel	4-5-028:070	State of Hawai‘i	1.593	
Subtotal				451.282
Phase B Area				
Agricultural fields	4-5-021:portion of 022	DLNR	518.100	
Agricultural fields	4-5-021:portion of 004	DLNR	60.400	
Honokōhau Ditch	4-5-021:portion of 005	State of Hawai‘i	3.400	
Subtotal				581.900
TOTAL				**1033.182**

Note: Pioneer Mill Company has an easement for the ditch until mid-2014.

1.3.2 ACCESS TO THE PROJECT SITE

Leiali‘i Parkway currently provides access from Honoapi‘ilani Highway to the project site. The Lahaina Bypass, currently under construction, will pass through the middle of the site. Two signalized intersections at Leiali‘i Parkway and Wahikuli Road are planned to link Leiali‘i neighborhoods to the Bypass Highway. Additional access to the project site would be developed by extending roads through the Wahikuli subdivision to Honoapi‘ilani Highway.



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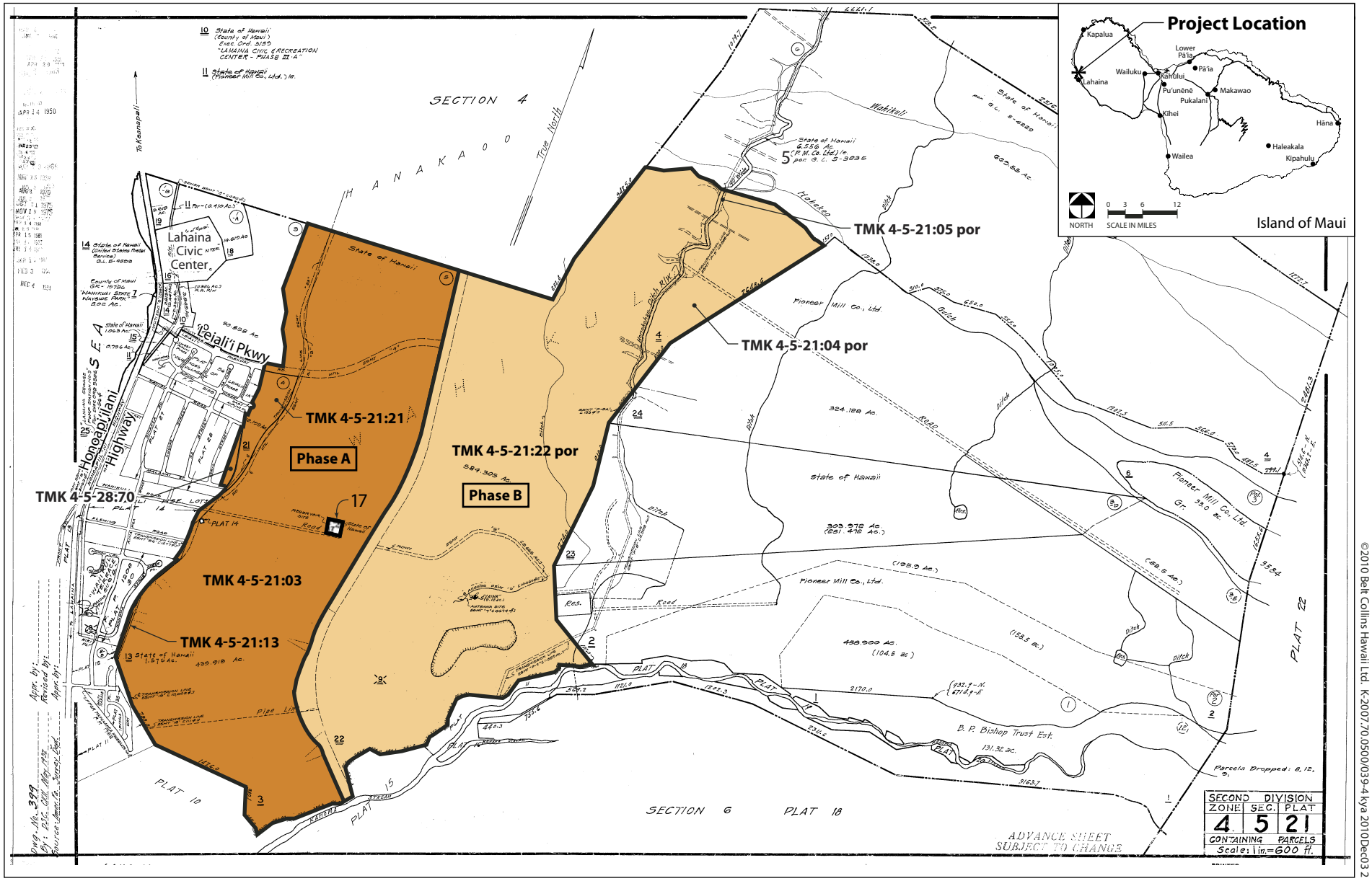
BELT COLLINS

NORTH

0 1 2 4
SCALE IN MILES

Figure 1-1
LOCATION MAP

Villages of Leiali'i
November 2010



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BELT COLLINS

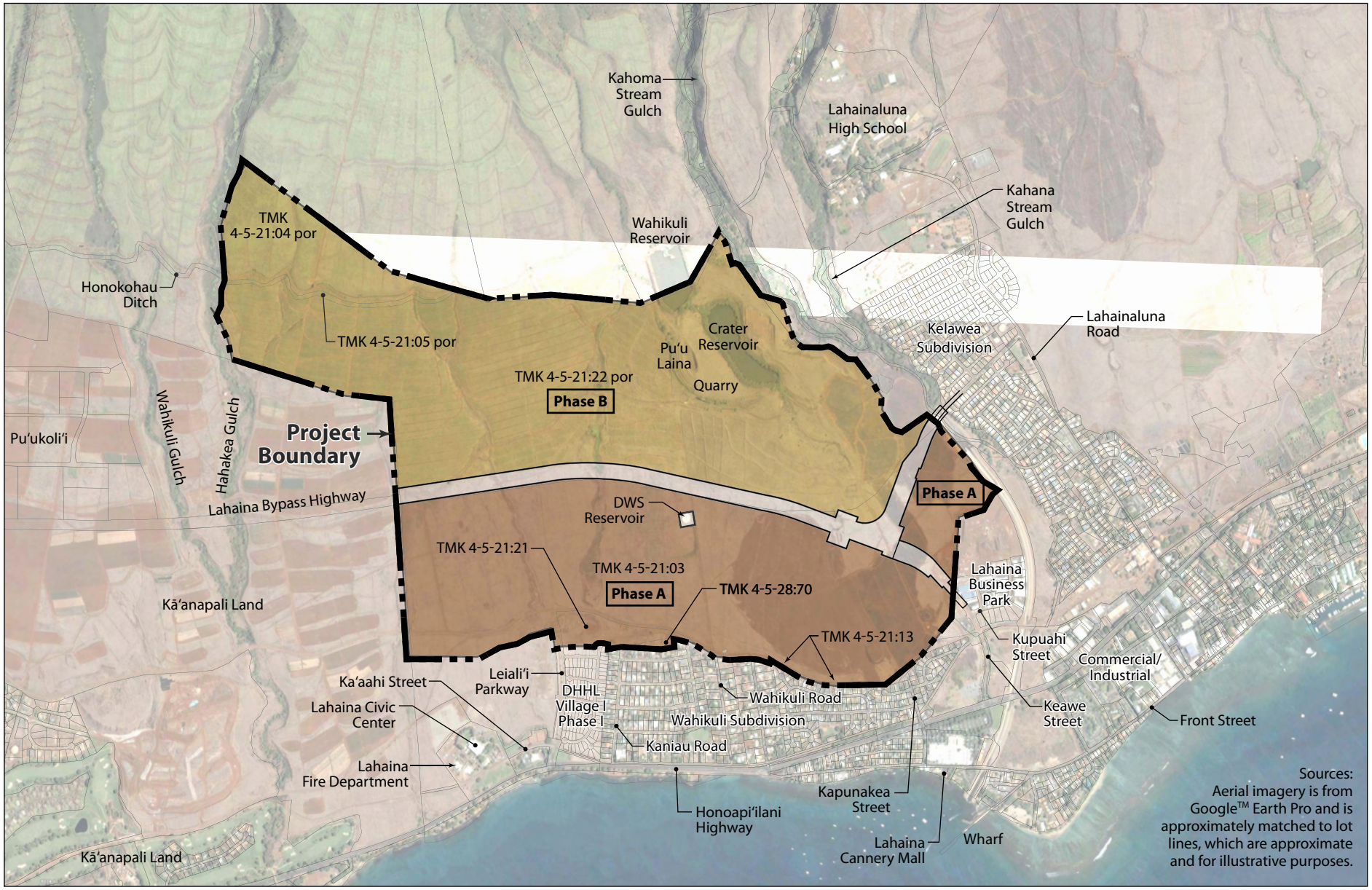
NORTH

0 500 1000 2000

SCALE IN FEET

Figure 1-2
PROJECT LOCATION MAP

Villages of Leiali'i
November 2010



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BELT COLLINS

NORTH

0 500 1000 2000

SCALE IN FEET

LEGEND

Property Boundaries

Figure 1-3
LAHAINA REGIONAL MAP

Villages of Leiali'i
November 2010

1.4 PROJECT BACKGROUND

1.4.1 EARLIER PLANS AND LEGAL ISSUES

Since its inception in October 1988, when the Mayor of the County of Maui and the Governor of the State of Hawai‘i announced a joint selection of the Villages of Leiali‘i site for a master-planned community, HHFDC and its predecessor agencies, the Housing Finance and Development Corporation (HFDC) and the Housing and Community Development Corporation of Hawai‘i, have contributed major efforts in planning, entitlement, design, and construction improvements towards the timely development of this project.

In 1990, HFDC completed a master plan and EIS for the development of 3,800 to 4,800 residential units at Leiali‘i. The project included a mix of single- and multi-family homes at affordable and market prices, as well as on- and off-site infrastructure, a public golf course, parks, and limited commercial use. HFDC filed a petition to the State Land Use Commission (LUC) to amend the land use district boundary for approximately 1,098 acres of land at Leiali‘i from the Agricultural District to the Urban District for the planned community. In its Decision and Order effective May 18, 1990, LUC approved the reclassification.

Some of the major design and construction efforts at the Villages at Leiali’i completed by HHFDC and its predecessors, for a total investment of approximately $30 million, include the following:

- Participated with the County of Maui in the expansion of the Lahaina Wastewater Treatment Plant (WWTP) to accommodate the entire Villages of Leiali‘i project in the amount of approximately $11 million (1991);
- Constructed roads, sewer, water and drainage systems for Village 1A in the amount of approximately $4.4 million (1993);
- Developed two potable water exploratory wells in the amount of approximately $1.2 million (1993);

- Participated with the County of Maui in the installation of a sewer line and wastewater reclamation line to accommodate the entire Villages of Leiali‘i project, from the Lahaina WWTP to about half-way to the Villages of Leiali‘i project, in the amount of approximately $2.9 million (1993); and
- Completed construction drawings for the development of two wells and off-site reservoir and transmission waterline in the amount of approximately $300,000 (1994).

On May 3, 1993, HHFDC’s predecessor agency, HFDC, issued an RFP for the development of Village 1 at the Villages of Leiali‘i. Two proposals were received and on November 12, 1993, the HFDC Board of Directors approved the selection of C. Brewer Properties, Inc. for the development of 320 affordable homes and 210 market homes at Village 1. Negotiations with C. Brewer Homes, Inc. on the development agreement were completed in February 1994, and the pre-sale of 103 homes (20 affordable) in Village 1A was completed in the summer of 1994. Development of Village 1A was suspended before any homes could be built due to the filing of ceded lands litigation by the Office of Hawaiian Affairs (OHA) in November 1994, and a confidential settlement with the developer was eventually reached.

Subsequent legal disputes centering on the issue of the sale of ceded lands put the Leiali‘i project on hold until recently. The agency’s proposals to develop housing on ceded lands triggered a lawsuit by OHA aimed at stopping the conveyance of such lands in fee simple to private parties while the claims of native Hawaiians are unresolved. One outcome of this litigation was the sale of 21.540 acres of improved land with 104 improved house lots at Village 1A and 50.858 acres of unimproved land at Village 1B at Leiali‘i to DHHL, since the litigation did not prevent DHHL from proceeding with development at Leiali‘i. Development of homes on Village 1A has been completed.

In January 2008, the Hawai‘i Supreme Court barred the State of Hawai‘i “from selling, exchanging, or transferring ceded lands to any third party” (Office of Hawaiian Affairs, *et al.* vs. Housing and Community Development Corporation of Hawai‘i, *et al.*). The Court based its ruling in part on Congress’ joint Apology Resolution of 1993, apologizing for the U.S. role in overthrowing the Hawaiian monarchy. In June 2008, the Circuit Court of the State of Hawai‘i entered an injunction order which barred the State from selling or transferring ceded lands to

third parties “except that the State of Hawai‘i, and its departments, agencies, agents, officers, and employees may continue its practice of transferring remnants, and issuing licenses, permits, easements and leases concerning ceded lands.”

The State of Hawai‘i appealed the Hawai‘i Supreme Court decision to the U.S. Supreme Court. In its opinion of March 2009, the high court reversed the judgment of the Hawai‘i Supreme Court, ruling that the State Supreme Court incorrectly based its decision on the Apology Resolution.

On July 13, 2009, the Governor signed into law Act 176 Session Laws of Hawai‘i 2009 which requires a community meeting, appraisal, and two-thirds vote approval of each house of the Legislature to convey State land in fee simple to third parties.

On May 6, 2009, *The Honolulu Advertiser* reported that the State, OHA, and three of the four plaintiffs had settled the ceded lands litigation. On October 28, 2009, *The Honolulu Advertiser* reported that the ceded lands litigation by the remaining plaintiff was ordered dismissed by the Hawai‘i Supreme Court.

HHFDC’s objective at the Villages of Leiali‘i is to maximize affordable housing opportunities for workforce and lower- and moderate-income households. Given the ceded land issue, HHFDC intends to lease property or otherwise comply with Act 176 at the Villages of Leiali‘i. HHFDC will issue a RFP for the project, or RFPs for phases of the project, to prospective developers.

This document presents the overall master plan for the housing development, divided into two phases (makai and mauka areas referred to as Phase A and Phase B, respectively, in the concept plan maps). The boundary between the two phases is the Lahaina Bypass Highway, currently under design and construction by the State Department of Transportation (DOT). This highway parallels the Honoapi‘ilani Highway and will provide regional access to the Leiali‘i project.

1.4.2 ENVIRONMENTAL STUDIES OF THE PROJECT SITE

The entire project site was within the area studied in the 1990 EIS for the master-planned community.[4] That document contained a detailed analysis of the impacts of a major housing development. It included independent consultant reports dealing with soils, archaeology, botany, fauna and avifauna of the site, and of the marine environment to the west.

In the course of preparing a new master plan and this EIS, HHFDC commissioned additional studies of the project site:

- An archaeological survey to validate the earlier survey;
- A cultural impact analysis;
- A new botanical survey;
- A new survey of avian and terrestrial mammal resources;
- A Phase I environmental site assessment;
- Engineering studies, dealing with roadways, drainage, potable water, sewer, reclaimed water, electrical, telephone and cable systems, and solid waste management;
- A traffic impact assessment; and
- A socio-economic impact assessment.

These studies are included as appendices to this EIS.

1.5 PURPOSE AND NEED FOR THE PROJECT

The purpose of the project is to address the need for homes for workforce families on Maui, specifically in West Maui. Housing production on Maui has not kept up with demand for homes, and housing purchase prices are high relative to working families' incomes. While West Maui is a major employment center, little housing in the region has been developed for local residents.

[4] PBR Hawai'i. *Lahaina Master Planned Project, Final Environmental Impact Statement.* Prepared for the State of Hawai'i, Housing Finance and Development Corporation. Honolulu, HI. 1990.

(Lots were made available to residents in the late 1960s at Kelawea.[5]) The region's workforce is scattered throughout Maui. The development of housing near job centers is needed not only to respond to high housing demand but to reduce regional road congestion.

Evidence of demand for housing in West Maui comes from the 2006 update of the *Hawai'i Housing Policy Study*. Based on surveys, SMS estimates that 22.7 percent of Maui County residents who expect to move in future years would like to move to West Maui. (The total demand preference for West Maui housing is estimated as 4,442 households from Maui County, and 215 households from other counties.)

Housing demand is stronger for low and moderate income groups than for more affluent households. Based on the SMS study, Maui County estimates the following housing need for different income groups countywide between 2010 and 2015:

Table 1-3: Projected Housing Need by Income Group, to 2015

Households by HUD Income Level	Number of Households, Maui County	Share of Total Housing Need
Under 30% of median income	1,093	26.4%
30% to 50% of median income	696	16.8%
50% to 80% of median income	732	17.7%
80% to 120% of median income	724	17.5%
120% to 140% of median income	106	2.6%
140% to 180% of median income	485	11.7%
Over 180% of median income	305	7.4%

Note: Percentage totals may not sum to 100 percent due to rounding.
Source: County of Maui. *Draft 2010-2014 Consolidated Plan.* Wailuku, HI: 2009.

The U.S. Census estimates that West Maui jobs grew from 13,924 in 2000 to 16,606 in 2006.[6] West Maui accounts for a quarter of the jobs in the entire county. Job growth can be anticipated in connection with development of new time share units in the Kā'anapali and North Beach resort areas.

5 The Kelawea subdivisions, along Lahainaluna Road, were established as housing for local residents at the time that the Kā'anapali Resort was developed.

6 U.S. Census Bureau, based on County Business Patterns and ZipCode Business Patterns data (for zip code 96761) using American FactFinder (http://factfinder.census.gov). These sources may undercount local jobs, since they are based on employers' assignment of jobs to locations.

1.6 STATEMENT OF PROJECT OBJECTIVES

HHFDC proposes to develop the Villages of Leiali‘i project by issuing a RFP to developers. HHFDC has conducted environmental investigations and prepared this EIS. The agency will set forth its objectives and select a developer who meets them.

HHFDC’s goal at the Villages of Leiali‘i is to increase housing opportunities that are affordable to Hawai‘i’s workforce and lower- and moderate-income households, as follows:[7]

- Develop housing affordable to Hawai‘i’s workforce and lower- and moderate-income households in the most livable and sustainable community;
- Develop at least 50 percent of the total residential units as housing affordable to Hawai‘i’s workforce and lower- and moderate-income households;
- Develop a mix of housing affordable to Hawai‘i’s workforce and lower- and moderate-income households with a broad range of household incomes;
- Develop for-sale and rental housing units that are affordable to Hawai‘i’s workforce and lower- and moderate-income households; and
- Minimize use of State resources.

1.7 PURPOSE OF THIS ENVIRONMENTAL IMPACT STATEMENT DOCUMENT

Hawai‘i Revised Statutes (HRS), Chapter 343, identifies nine triggers that require the preparation of an environmental assessment or EIS. The triggers for the Leiali‘i Affordable Housing Project include:

- The use of State or County lands or State or County funds for an affordable housing project; and

[7] “Affordable” housing is rented or sold at prices within the reach of families earning 140 percent of the area median income (AMI) or less. The AMI for Maui Island is established annually by the U.S. Department of Housing and Urban Development (HUD). The rental or sales price depends on family size and unit type, but is intended to provide housing at 30 percent of a family’s income.

- The use of State lands for the development of off-site infrastructure improvements, some of which may occur in State rights-of-way (ROW).

Also, development of the Leiali‘i Affordable Housing Project may involve or affect State and/or County lands or funds relating to infrastructure improvements for public facilities, roadways, water, sewer, utility, drainage, or other facilities.

An Environmental Impact Statement Preparation Notice (EISPN) for the project was prepared and filed with the Hawai‘i State Office of Environmental Quality Control (OEQC). Notification of the EISPN's availability for public review was published in the OEQC publication, *The Environmental Notice*, in March 2010. A 30-day public review period followed. It ended on April 9, 2010. Chapter 9 contains copies of letters received that comment on the EISPN, along with responses to those letters.

1.8 RELATIONSHIP TO LAND USE POLICIES

State Land Use Law, Chapter 205, HRS. The project site was placed in the Urban District in 1990, with conditions for future development identified in the LUC's Decision and Order on Docket No. A89-652. The developer will need to consult with the LUC whether a return to the LUC is required once plans for Phase A are finalized and, as necessary, request changes in that docket to reflect the new plan (e.g., the absence of any golf course). Chapter 5, Section 5.1 discusses this in greater detail.

Hawai‘i State Plan, Chapter 226, HRS. The Hawai‘i State Plan contains goals, objectives, and policies that serve as long-range guidelines for the growth and development of the State. The Villages of Leiali‘i Affordable Housing project is relevant to many of the goals, objectives, and policies set forth by the State Plan. Conformance of the project with the State Plan is discussed in detail in Chapter 5, Section 5.2.

State Functional Plans. The Hawai‘i State Plan directs State agencies to prepare functional plans for their respective program areas. There are 13 state functional plans that serve as the primary implementing vehicles for the goals, objectives, and policies of the Hawai‘i State Plan. The functional plans are discussed in Chapter 5, Section 5.3.

County of Maui General Plan. The General Plan sets forth a policy of comprehensive development for the islands of Maui County and incorporates an awareness of the relationship between social, physical, and economic environments. Table 5-3 in Chapter Five presents the goals and policies of the *Countywide Policy Plan*, adopted in 2010 as the Maui County General Plan, and discusses by element the relationship and applicability, if any, to the proposed project.

***Maui Island Plan*.** The General Plan and regional plans are updated in a regular cycle. In the last iteration, the regional plans consisted of nine Community Plans. Pursuant to changes in the Maui County Code passed in Bill 84 of 2002, the current update also includes a *Maui Island Plan*, to provide both overall vision and specific policy guidance for the island. That plan has been drafted, reviewed and discussed extensively. The draft was conveyed to the County Council in December 2009. While it is not yet a County ordinance, it is treated here as an important planning guide and discussed in Chapter 5, Section 5.8.2.

***West Maui Community Plan*.** The *West Maui Community Plan* was passed by ordinance in 1996. It will be reviewed and updated in the next few years. Chapter 5, Section 5.8.3 discusses the goals and policies of the plan and the relationship and applicability of the plan's elements to the proposed project.

1.9 REQUIRED PERMITS AND APPROVALS

The following is a summary of major approvals and permits required for implementation of the proposed project. Additional approvals and permits may be necessary. HHFDC will not be the developer of the project. The developer will be required to comply with the rules, regulations, ordinances, codes, and standards of the County and any federal and state requirements. Chapter 5 includes a more detailed discussion of the project's consistency with federal, state, and county land use plans, policies and controls.

Table 1-4: Required Permits and Approvals

Permit or Approval	What is Needed	Agency	Status
Chapter 343, HRS Compliance	Acceptance of Final EIS	Office of the Governor	Pending
Zone Change	Approval of new zoning designation(s) to be determined by selected developer	Maui County Council	Pending application
Exemptions from statutes, ordinances charter provisions and/or rules	Approval of exemptions	Maui County Council	Pending identification of exemptions
Archaeological Inventory Survey and Archaeological Mitigation Program	Approval of archaeologist's work and recommendations	State Historic Preservation Division	Reports have been approved
Data Recovery and Site Preservation Plan	Approval of archaeologist's work and recommendations	State Historic Preservation Division	Further data recovery work to be undertaken and plans to be approved
Special Management Area (SMA) Use Permit	Permit for intersection improvements (Leiali'i Parkway and Honoapi'ilani Highway) and drainage improvements along the highway. If the project connects to the Lahaina WWTP, off-site sewer and reclaimed water lines will pass through the SMA.	Maui County Council	Pending application(s)
Permit for Grading and Grubbing within Shoreline Setback	Permits may be needed for intersection improvements (Leiali'i Parkway and Honoapi'ilani Highway); and drainage improvements along the highway. If the project connects to the Lahaina WWTP, off-site sewer and reclaimed water lines will pass through the SMA.	County of Maui Department of Public Works	Pending application(s)
Environmental Assessment (EA) for test well, including archaeological report, botanical study, faunal study, cultural impact assessment, and hydrogeological study.	Acceptance of Final EA	HHFDC or Board of Water Supply (BWS)	Test well sites to be determined
EA for production well, reservoirs and water transmission lines, including archaeological report, botanical study, faunal study, cultural impact assessment, and hydrogeological study.	Acceptance of Final EA	HHFDC or BWS	Well and reservoir sites and transmission line alignment to be determined
EA for off-site sewer line and reclaimed water line	Acceptance of Final EA	HHFDC or County of Maui	Off-site sewer line and reclaimed water line requirements to be determined

Permit or Approval	What is Needed	Agency	Status
Special management area permit for off-site drainage culvert	Permit	Maui County Planning Commission	Off-site sewer line and reclaimed water line requirements to be determined
National Pollutant Discharge Elimination System (NPDES) Permit	Approval of plans	State Department of Health (DOH)	Pending application
Subdivision Approval	Preliminary and Final approvals	County of Maui	Pending application after zoning approval
Grading, building, plan approval and other necessary development permits	Approval of plans	County of Maui	Pending applications after subdivision approval
Well Construction / Pump Installation Permits	Approval of the permits and plans	State Commission on Water Resource Management and Department of Water Supply.	Test well sites to be determined. Production well permits pending application

In addition, HHFDC will expect the developer to present updated versions of the project plans to the community, to County agencies, and advisory boards such as the Maui County's Urban Design Review Board.

1.10 SUMMARY OF ALTERNATIVES

HHFDC has considered several alternatives, including:

1. The "No Action" Alternative;
2. Alternative Locations; and
3. The Alternative of Postponing Action.

None of the above meets HHFDC's objectives to provide affordable housing in West Maui in a timely manner in response to market demand and the need for such housing. An expanded discussion is provided in Chapter 6, Alternatives.

HHFDC developed two action alternatives and shared them with stakeholders on Maui in 2008. In response to discussions with the County and others, HHFDC developed a third alternative. All of the alternatives were designed to embody "Smart Growth" principles for compact urban

development. The third went further, in that it was designed to qualify for certification under LEED-ND criteria.[8]

Table 1-5 show the major land uses in each phase and each concept plan. None of the three Concept Plans is a "preferred alternative." The Master Plan, including the three alternatives, will be provided to developers as part of the RFP for the project. The selected developer will propose a development for Phase A. The three concept plans identify a range expected to include that eventual proposed development. (If the proposed development lies outside that range, the developer will be required to produce a Supplemental EIS.)

Table 1-5: Alternative Concepts: Phase A

	Alternative Concepts		
	One	Two	Three
Residential Units	1,401	2,521	2,601
Commercial (square feet)			
Retail	449,100	449,100	452,700
Office	101,900	101,900	143,300
Industrial (acres)*	17.20	17.20	21.82
Schools (acres)	12.01	12.01	12.01
Parks (acres)	24.39	24.39	20.88

Alternative Concepts: Phase B

	Alternative Concepts		
	One	Two	Three
Residential Units	1,522	1,522	1,504
Commercial (square feet)			
Retail			
Office			
Industrial (acres)*			
Schools (acres)	12.01	12.01	12.58
Parks (acres)	19.58	19.58	17.46
Solar energy farm (acres)			37.29

[8] The criteria for LEED-ND were being refined during project planning and could well change by the time the selected developer has finalized plans for Phase A.

Alternative Concepts: Both Phases

	Alternative Concepts		
	One	Two	Three
Residential Units	2,923	4,043	4,105
Commercial (square feet)			
Retail	449,100	449,100	452,700
Office	101,900	101,900	143,300
Industrial (acres)*	17.20	17.20	21.82
Schools (acres)	24.02	24.02	24.59
Parks (acres)	43.97	43.97	38.34
Solar energy farm (acres)			37.29

Note: * Photovoltaic installations could be included within the industrial area under all concepts.

1.11 SUMMARY OF POTENTIAL IMPACTS AND MITIGATION

A summary of the potential impacts and mitigation for the three concept plans and the No Action Alternative appears in Table 1-6.

Table 1-6: Summary of Potential Impacts and Mitigation Measures for All Alternatives

Issue or Resource	Concept One	Concept Two	Concept Three	No Action
CLIMATE				
	No impacts on climatic conditions are expected under Alternative Concept One.	No impacts on climatic conditions are expected under Alternative Concept Two.	No impacts on climatic conditions are expected under Alternative Concept Three.	No impacts on climatic conditions are expected under the No Action Alternative.
GEOLOGY AND TOPOGRAPHY				
	Impacts will be subject to County, State and federal regulation. Best Management Practices (BMPs) will be used to control erosion.	Impacts will be subject to County, State and federal regulation. BMPs will be used to control erosion.	Impacts will be subject to County, State and federal regulation. BMPs will be used to control erosion.	No impacts are expected under the No Action Alternative.
GROUNDWATER, HYDROLOGY, SURFACE WATER AND DRAINAGE				
	To mitigate impacts on the groundwater and hydrology, water conservation programs should be implemented, reclaimed water should be used to the maximum extent practicable, and the groundwater aquifer should be monitored. The project would be required to comply with the NPDES permit requirements, County Soil Erosion and Sedimentation Control and County Rules for the Design of Storm Drainage Facilities.	To mitigate impacts on the groundwater and hydrology, water conservation programs should be implemented, reclaimed water should be used to the maximum extent practicable, and the groundwater aquifer should be monitored. The project would be required to comply with the NPDES permit requirements, County Soil Erosion and Sedimentation Control and County Rules for the Design of Storm Drainage Facilities.	To mitigate impacts on the groundwater and hydrology, water conservation programs should be implemented, reclaimed water should be used to the maximum extent practicable, and the groundwater aquifer should be monitored. The project would be required to comply with the NPDES permit requirements, County Soil Erosion and Sedimentation Control and County Rules for the Design of Storm Drainage Facilities.	No impacts to groundwater, hydrology, surface water, and drainage are anticipated under the No Action Alternative.
SOILS AND AGRICULTURE POTENTIAL				
	Urban development of the project site rules out agricultural use for nearly all of the site, but the land is not in demand for viable agricultural operations.	Urban development of the project site rules out agricultural use for nearly all of the site, but the land is not in demand for viable agricultural operations.	Urban development of the project site rules out agricultural use for nearly all of the site, but the land is not in demand for viable agricultural operations.	Agricultural operations on the project site have been abandoned for many years. No impacts to soils or the potential for agricultural activity are expected under the No Action Alternative.

Issue or Resource	Concept One	Concept Two	Concept Three	No Action
NATURAL HAZARDS				
Earthquakes	Construction of the improvements will be required to comply with the Uniform Building Codes (UBCs) standards for Zone 2B.	Construction of the improvements will be required to comply with the UBCs standards for Zone 2B.	Construction of the improvements will be required to comply with the UBCs standards for Zone 2B.	No impacts are expected under the No Action Alternative.
Volcanic Hazards	Based on the statistical probability of risk, the likelihood of volcanic hazards adversely affecting the subject property is minimal. No mitigation measures are warranted.	Based on the statistical probability of risk, the likelihood of volcanic hazards adversely affecting the subject property is minimal. No mitigation measures are warranted.	Based on the statistical probability of risk, the likelihood of volcanic hazards adversely affecting the subject property is minimal. No mitigation measures are warranted.	Based on the statistical probability of risk, the likelihood of volcanic hazards adversely affecting the subject property is minimal.
Tephra	Due to the project's location, the risk of tephra fall on the subject property is anticipated to be slight. No mitigation measures are warranted.	Due to the project's location, the risk of tephra fall on the subject property is anticipated to be slight. No mitigation measures are warranted.	Due to the project's location, the risk of tephra fall on the subject property is anticipated to be slight. No mitigation measures are warranted.	Due to the project's location, the risk of tephra fall on the subject property is anticipated to be slight.
Tsunami Inundation	The subject property is located outside the coastal tsunami evacuation area. No mitigation measures are warranted.	The subject property is located outside the coastal tsunami evacuation area. No mitigation measures are warranted.	The subject property is located outside the coastal tsunami evacuation area. No mitigation measures are warranted.	The subject property is located outside the coastal tsunami evacuation area.
FLORA				
	No threatened or endangered species were found. The majority of the species found are naturalized alien plants. Potential impacts are not anticipated to be significant adverse impacts because no endangered species are present. No mitigation measures are warranted.	No threatened or endangered species were found. The majority of the species found are naturalized alien plants. Potential impacts are not anticipated to be significant adverse impacts because no endangered species are present. No mitigation measures are warranted.	No threatened or endangered species were found. The majority of the species found are naturalized alien plants. Potential impacts are not anticipated to be significant adverse impacts because no endangered species are present. No mitigation measures are warranted.	If the subject property is undeveloped, its vegetation will remain undisturbed.

Issue or Resource	Concept One	Concept Two	Concept Three	No Action
FAUNA				
	The site is not known to contain any threatened or endangered fauna species, nor contain any critical, unusual or unique habitat important to fauna. No mitigation measures are warranted.	The site is not known to contain any threatened or endangered fauna species, nor contain any critical, unusual or unique habitat important to fauna. No mitigation measures are warranted.	The site is not known to contain any threatened or endangered fauna species, nor contain any critical, unusual or unique habitat important to fauna. No mitigation measures are warranted.	There would be no adverse impacts to faunal resources under the No Action Alternative.
ARCHAEOLOGICAL AND HISTORIC RESOURCES				
Archaeological and Historic Resources	Archaeological sites and cultural resources determined to be significant under State criteria would be preserved. Data recovery plans, site preservation plans and burial treatment plans would be prepared as required.	Archaeological sites and cultural resources determined to be significant under State criteria would be preserved. Data recovery plans, site preservation plans and burial treatment plans would be prepared as required.	Archaeological sites and cultural resources determined to be significant under State criteria would be preserved. Data recovery plans, site preservation plans and burial treatment plans would be prepared as required.	Data recovery and preservation of sites would not occur. Uncontrolled vegetation growth would eventually lead to the gradual loss of sites and decreased accessibility.
CULTURAL RESOURCES				
	Based on the findings of the Cultural Impact Assessment (CIA), the proposed project will have limited impact on Hawaiian cultural resources, beliefs and practices.	Based on the findings of the CIA, the proposed project will have limited impact on Hawaiian cultural resources, beliefs and practices.	Based on the findings of the CIA, the proposed project will have limited impact on Hawaiian cultural resources, beliefs and practices.	No ongoing practices were identified relative to the site.
ROADWAYS AND TRAFFIC				
	Development of the project would have significant impacts upon the regional traffic system. To address those impacts, a series of mitigation measures are proposed.	Development of the project would have significant impacts upon the regional traffic system. To address those impacts, a series of mitigation measures are proposed.	Development of the project would have significant impacts upon the regional traffic system. To address those impacts, a series of mitigation measures are proposed.	Some improvements to the regional traffic system, such as Honoapi'ilani Highway, would be required to achieve/ maintain the County's desired Level of Service (LOS D) even if the property remains vacant.

Issue or Resource	Concept One	Concept Two	Concept Three	No Action
NOISE				
	Short-term temporary noise impacts would occur during construction. Construction work will be conducted in compliance with applicable State DOH noise regulations. Long term noise impacts are not anticipated to be significant over the development period of the project.	Short-term temporary noise impacts would occur during construction. Construction work will be conducted in compliance with applicable State DOH noise regulations. Long term noise impacts are not anticipated to be significant over the development period of the project.	Short-term temporary noise impacts would occur during construction. Construction work will be conducted in compliance with applicable State DOH noise regulations. Long term noise impacts are not anticipated to be significant over the development period of the project.	The No Action Alternative would have no impacts on noise quality.
AIR QUALITY				
	Short-term potential impacts during construction will be mitigated by following State of Hawai'i Air Pollution Control regulations. Long-term traffic related potential impacts are not expected to exceed state and national Ambient Air Quality Standards (AAQS). Long-term potential impacts associated with indirect air pollution emissions from the project's electrical demand and solid waste disposal demand would be minor.	Short-term potential impacts during construction will be mitigated by following State of Hawai'i Air Pollution Control regulations. Long-term traffic related potential impacts are not expected to exceed state and national AAQS. Long-term potential impacts associated with indirect air pollution emissions from the project's electrical demand and solid waste disposal demand would be minor.	Short-term potential impacts during construction will be mitigated by following State of Hawai'i Air Pollution Control regulations. Long-term traffic related potential impacts are not expected to exceed state and national AAQS. Long-term potential impacts associated with indirect air pollution emissions from the project's electrical demand and solid waste disposal demand would be minor.	The No Action Alternative would have no impact on air quality.
VISUAL RESOURCES AND ATTRIBUTES				
	The visual character of the project will be determined by the final development scheme of the selected developer. No mitigation is proposed at this time.	The visual character of the project will be determined by the final development scheme of the selected developer. No mitigation is proposed at this time.	The visual character of the project will be determined by the final development scheme of the selected developer. No mitigation is proposed at this time.	The No Action Alternative would have no impact on visual resources.

Issue or Resource	Concept One	Concept Two	Concept Three	No Action
INFRASTRUCTURE AND UTILITIES				
Roadway System	No significant short- or long-term environmental impacts are anticipated from the development of the project roadways.	No significant short- or long-term environmental impacts are anticipated from the development of the project roadways.	No significant short- or long-term environmental impacts are anticipated from the development of the project roadways.	No impacts are anticipated under the No Action Alternative.
Drainage Facilities	Grading activities during construction would increase the potential for site erosion. To mitigate the impacts during construction, the contractor would be required to comply with the County's Soil Erosion and Sedimentation Control requirements and the approved NPDES permit. Site storm water runoff in the long term would increase due to an increase in impermeable surfaces. Storm water runoff would be collected and conveyed to on-site detention ponds for percolation into the ground and controlled discharge from the site. The development will be required to comply with the County's Rules for the Design of Storm Drainage Facilities. Educational materials and programs would be provided and implemented to control and prevent non-point source pollution.	Grading activities during construction would increase the potential for site erosion. To mitigate the impacts during construction, the contractor would be required to comply with the County's Soil Erosion and Sedimentation Control requirements and the approved NPDES permit. Site storm water runoff in the long term would increase due to an increase in impermeable surfaces. Storm water runoff would be collected and conveyed to on-site detention ponds for percolation into the ground and controlled discharge from the site. The development will be required to comply with the County's Rules for the Design of Storm Drainage Facilities. Educational materials and programs would be provided and implemented to control and prevent non-point source pollution.	Grading activities during construction would increase the potential for site erosion. To mitigate the impacts during construction, the contractor would be required to comply with the County's Soil Erosion and Sedimentation Control requirements and the approved NPDES permit. Site storm water runoff in the long term would increase due to an increase in impermeable surfaces. Storm water runoff would be collected and conveyed to on-site detention ponds for percolation into the ground and controlled discharge from the site. The development will be required to comply with the County's Rules for the Design of Storm Drainage Facilities. Educational materials and programs would be provided and implemented to control and prevent non-point source pollution.	No impacts are anticipated under the No Action Alternative.

Issue or Resource	Concept One	Concept Two	Concept Three	No Action
Water Supply and Storage Facilities	Up to five basal or high level groundwater wells, reservoirs and transmission lines located upslope of the project site would be required for the development of the project. Construction of the water system would be required to conform to the applicable environmental requirements for storm water protection and mitigation of potential noise and dust impacts. Construction of the wells would comply with the State of Hawai'i Department of Land and Natural Resources Commission on Water Resource Management Hawai'i Well Construction & Pump Installation Standards to mitigate the impacts on the groundwater resources. To mitigate the impact on groundwater resources, the developer will be encouraged to implement water conservation measures.	Up to six basal or high level groundwater wells, reservoirs and transmission lines located upslope of the project site would be required for the development of the project. Construction of the water system would be required to conform to the applicable environmental requirements for storm water protection and mitigation of potential noise and dust impacts. Construction of the wells would comply with the State of Hawai'i Department of Land and Natural Resources Commission on Water Resource Management Hawai'i Well Construction & Pump Installation Standards to mitigate the impacts on the groundwater resources. To mitigate the impact on groundwater resources, the developer will be encouraged to implement water conservation measures.	Up to six basal or high level groundwater wells, reservoirs and transmission lines located upslope of the project site would be required for the development of the project. Construction of the water system would be required to conform to the applicable environmental requirements for storm water protection and mitigation of potential noise and dust impacts. Construction of the wells would comply with the State of Hawai'i Department of Land and Natural Resources Commission on Water Resource Management Hawai'i Well Construction & Pump Installation Standards to mitigate the impacts on the groundwater resources. To mitigate the impact on groundwater resources, the developer will be encouraged to implement water conservation measures.	No impacts are anticipated under the No Action Alternative.

Issue or Resource	Concept One	Concept Two	Concept Three	No Action
Wastewater Collection, Treatment and Disposal Facilities	The average daily flows generated from the project would amount to 1,136,276 gallons per day (GPD). Wastewater could be treated at a private on-site treatment plant or conveyed to the County Lahaina Wastewater Reclamation Facility (WWRF). Conveyance to the Lahaina WWRF would require a sewer line through Kāʻanapali land from the project site. Construction of the wastewater system would be required to conform to the applicable environmental requirements for storm water protection and mitigation of potential noise and dust impacts. The wastewater from the project site would be treated and reused on site, while backup disposal would be through injection wells into the ground. The wastewater system would be subject to all applicable federal, state and county requirements to avoid any impacts on the environment.	The average daily flows generated from the project would amount to 1,373,044 GPD. Wastewater could be treated at a private on-site treatment plant or conveyed to the County Lahaina WWRF. Conveyance to the Lahaina WWRF would require a sewer line through Kāʻanapali land from the project site. Construction of the wastewater system would be required to conform to the applicable environmental requirements for storm water protection and mitigation of potential noise and dust impacts. The wastewater from the project site would be treated and reused on site, while backup disposal would be through injection wells into the ground. The wastewater system would be subject to all applicable federal, state and county requirements to avoid any impacts on the environment.	The average daily flows generated from the project would amount to 1,387,953 GPD. Wastewater could be treated at a private on-site treatment plant or conveyed to the County Lahaina WWRF. Conveyance to the Lahaina WWRF would require a sewer line through Kāʻanapali land from the project site. Construction of the wastewater system would be required to conform to the applicable environmental requirements for storm water protection and mitigation of potential noise and dust impacts. The wastewater from the project site would be treated and reused on site, while backup disposal would be through injection wells into the ground. The wastewater system would be subject to all applicable federal, state and county requirements to avoid any impacts on the environment.	No impacts are anticipated under the No Action Alternative

Issue or Resource	Concept One	Concept Two	Concept Three	No Action
Reclaimed Water Facilities	Private or County system; to be determined along with wastewater. The County system would involve upgrade to the Lahaina WWRF effluent pump station, a new 16-inch reclaimed water line from the Lahaina WWRF to the site, a new off-site reclaimed booster pump station, and a new on-site breaker tank and booster pump station. An onsite system would involve reservoir tanks and a booster pump. The reclaimed water system would be subject to all applicable federal, state and county requirements to avoid any impacts on the environment.	Private or County system; to be determined along with wastewater. The County system would involve upgrade to the Lahaina WWRF effluent pump station, a new 16-inch reclaimed water line from the Lahaina WWRF to the site, a new off-site reclaimed booster pump station, and a new on-site breaker tank and booster pump station. An onsite system would involve reservoir tanks and a booster pump. The reclaimed water system would be subject to all applicable federal, state and county requirements to avoid any impacts on the environment.	Private or County system; to be determined along with wastewater. The County system would involve upgrade to the Lahaina WWRF effluent pump station, a new 16-inch reclaimed water line from the Lahaina WWRF to the site, a new off-site reclaimed booster pump station, and a new on-site breaker tank and booster pump station. An onsite system would involve reservoir tanks and a booster pump. The reclaimed water system would be subject to all applicable federal, state and county requirements to avoid any impacts on the environment.	No impacts are anticipated under the No Action Alternative
Electrical, Cable, Phone	Based on Maui Electric Company (MECO) comments, the impact to the existing electrical infrastructure for both the short term and long term requires development of a new substation. Other than the required expansion of communication facilities to provide service to the proposed development, existing communications infrastructure will not be impacted.	Based on MECO comments, the impact to the existing electrical infrastructure for both the short term and long term requires development of a new substation. Other than the required expansion of communication facilities to provide service to the proposed development, existing communications infrastructure will not be impacted.	Based on MECO comments, the impact to the existing electrical infrastructure for both the short term and long term requires development of a new substation. Other than the required expansion of communication facilities to provide service to the proposed development, existing communications infrastructure will not be impacted.	No impacts are anticipated under the No Action Alternative.

Issue or Resource	Concept One	Concept Two	Concept Three	No Action
Solid Waste	Emphasis for the management of solid wastes generated by the project would be on waste diversion and recycling. Solid wastes would be managed in conformance with DOH and County requirements. The County's solid waste handling facilities (Central Maui Landfill; Olowalu transfer station) serving West Maui are adequate to meet anticipated demand with population growth, including the project population. The project's waste stream is a small fraction of the waste that would go to the landfill. No significant short- or long-term impacts on the existing solid waste collection and disposal systems or the environment are anticipated as a result of the proposed development.	Emphasis for the management of solid wastes generated by the project would be on waste diversion and recycling. Solid wastes would be managed in conformance with DOH and County requirements. The County's solid waste handling facilities (Central Maui Landfill; Olowalu transfer station) serving West Maui are adequate to meet anticipated demand with population growth, including the project population. The project's waste stream is a small fraction of the waste that would go to the landfill. No significant short- or long-term impacts on the existing solid waste collection and disposal systems or the environment are anticipated as a result of the proposed development.	Emphasis for the management of solid wastes generated by the project would be on waste diversion and recycling. Solid wastes would be managed in conformance with DOH and County requirements. The County's solid waste handling facilities (Central Maui Landfill; Olowalu transfer station) serving West Maui are adequate to meet anticipated demand with population growth, including the project population. The project's waste stream is a small fraction of the waste that would go to the landfill. No significant short- or long-term impacts on the existing solid waste collection and disposal systems or the environment are anticipated as a result of the proposed development.	No impacts are anticipated under the No Action Alternative.
SOCIO-ECONOMICS				
	The two phases of the project are anticipated to be built-out over a 20+year period. Socio-economic impacts are anticipated to be positive with an increased supply of affordable housing near employment centers.	The two phases of the project are anticipated to be built-out over a 20+year period. Socio-economic impacts are anticipated to be positive with an increased supply of affordable housing near employment centers.	The two phases of the project are anticipated to be built-out over a 20+year period. Socio-economic impacts are anticipated to be positive with an increased supply of affordable housing near employment centers.	No impacts are anticipated under the No Action Alternative.

Issue or Resource	Concept One	Concept Two	Concept Three	No Action
PUBLIC SERVICES				
	The two phases of the project are anticipated to be built out over a 20+ year period. The project site is located near public service facilities (police, fire, and gymnasium) at the Lahaina Civic Center. The project provides open space and park areas; sites are reserved for two school facilities. With regional population growth, need for additional public facilities is anticipated, independent of the project.	The two phases of the project are anticipated to be built out over a 20+ year period. The project site is located near public service facilities (police, fire, and gymnasium) at the Lahaina Civic Center. The project .provides open space and park areas; sites are reserved for two school facilities. With regional population growth, need for additional public facilities is anticipated, independent of the project.	The two phases of the project are anticipated to be built out over a 20+ year period. The project site is located near public service facilities (police, fire, and gymnasium) at the Lahaina Civic Center. The project provides open space and park areas; sites are reserved for two school facilities. With regional population growth, need for additional public facilities is anticipated, independent of the project.	Demand for school and recreation facilities is strong independent of the project.

1.12 SUMMARY OF SECONDARY AND CUMULATIVE IMPACTS

Secondary and cumulative impacts will largely follow from the development of a major planned community with housing for island residents in West Maui. Specific impacts expected include:

- Less interregional commuting.
- Slower increase in the overall cost of housing.
- Support for development of local transit and of regional community services.
- A trend for Lahaina to become a center for residents. At the same time, concentration of residents in Lahaina will encourage other areas to be seen as visitor destinations and to serve the needs of visitors.

1.13 SUMMARY OF IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

Development of the property as an affordable housing community will permanently alter the use and character of the land. Grubbing will remove vegetation and grading will change the topography of the land. Fauna will be displaced temporarily from the land during construction. Development of the project will require aggregate rock for the construction of roadbeds and building foundations and the production of concrete and asphalt.

Archaeological sites and cultural resources determined to be significant under State criteria will be preserved. Archaeological sites identified for data collection will be further analyzed and recorded in an effort to increase understanding of the historical use of the area. Once this process is completed in accordance with the requirements of the State Historic Preservation Division (SHPD) of the Department of Land and Natural Resources (DLNR) and in accordance with the approved mitigation plan, any site that has been determined to require no further study will be lost. Those sites and resources determined to be significant under State criteria will be preserved.

Development of the project will require the expenditure of energy in the form of fuel for construction vehicles and equipment and the consumption of natural and man-made resources in the form of construction materials (metal, glass, wood, plastic and the like). Construction of the

project will also require the consumption of potable water. Some of the water used for dust control and, eventually, for landscaping will percolate back into the soil, while the remainder will evaporate.

The project will require the investment of human labor that might otherwise be employed elsewhere. Once project homes and buildings have been built and occupied, the project will require an ongoing commitment of potable water, electrical energy, and fuel for their occupancy and for vehicles and motorized equipment.

1.14 SUMMARY OF UNRESOLVED ISSUES

The following issues remain unresolved at the time this document is being prepared:

- Final development scheme and schedule: to be determined by developer after issuance of RFP and selection of developer;
- Consistency of the project with the Final *Maui Island Plan* and the new *West Maui Community Plan*: the former is currently in draft form, while community discussions of the latter are expected in the next months.

Chapter Seven provides a discussion of these issues.

Agencies and stakeholders have asked HHFDC to provide more detailed accounts of the project than is possible at this time, before the selection of a developer and refinement of the developer's plans. HHFDC will require the developer to continue discussions with stakeholders as plans are identified and refined, when such questions can be answered.

CHAPTER TWO: DESCRIPTION OF THE PROPOSED ACTION

2.1 BACKGROUND INFORMATION

2.1.1 REGIONAL SETTING

Maui is known as a tourist destination, and West Maui has been the heart of the island's visitor industry for decades. Kāʻanapali and Kapalua are resorts with grounds and golf courses that set them apart from other urban areas. Lahaina, Honokōhau, and Nāpili contain a mixture of housing for residents or visitors. While West Maui has more than half of the county's visitor units, it is home to about 13 percent of the population (as shown in Table 2-1). Consequently, the region's visitors outnumber the region's residents. Since the 1980s, much of the local workforce has commuted from other parts of Maui, and a regional need for workforce housing has long been recognized.

Fields for sugar and pineapple cultivation extended from south of Lahaina to Kapalua for many years. However, Pioneer Mill in Lahaina closed in 1999, and Maui Land and Pineapple ended its pineapple operations in 2009. Coffee alone remains as an export crop cultivated in the region.

Table 2-1: Maui County and West Maui Socio-Economic Indicators

	1970	1980	1990	2000	2008 (1)
Maui County					
Resident population	46,156	70,991	101,709	128,873	143,691
Wage and Salary Jobs	20,320	30,950	50,850	62,400	72,850
Unemployment rate	7.0%	5.1%	4.2%	3.7%	4.5%
Average Visitor Census	3,645	15,363	39,500	43,854	44,433
Visitor units	2,743	9,701	18,285	18,270	19,055
Hotel occupancy rate	67%	66%	69%	80%	68%
West Maui					
Resident population	5,524	10,284	14,574	17,967	19,122
share of county	12%	14%	14%	14%	13%
Visitor units	1,826	5,357	9,285	9,759	10,453
share of county	67%	55%	51%	53%	55%
Hotel occupancy rate (2)	67%	76%	73%	80%	68%

Notes:

(1) County estimates for 2008 from State reports; West Maui estimates derived from County model and County- or island-level information.

(2) Rates for 2000 and 2008 are for Maui Island, not the County or region.

Sources:

U.S. Census and other data in Community Resources, Inc. *Maui County Community Plan Update Program, Socio-Economic Forecast Technical Studies: Data Tables*. Honolulu, HI, 1992

Maui County Planning Department, *Socio-Economic Forecast: The Economic Projections for the Maui County General Plan 2030.* Wailuku, HI, 2006. (Posted at http://www.co.maui.hi.us/documents/Planning/Long %20Range%20Division/ General%20Plan%202030/Tech%20Reports/SocioEconReport_June30.pdf)

Hawaii State Department of Business, Economic Development and Tourism (DBEDT)
2008 State of Hawaii Data Book (http://hawaii.gov/dbedt/info/economic/databook/)
2008 Annual Visitor Research Report (http://hawaii.gov/dbedt/info/visitor-stats/visitor-research/)
2008 Visitor Plant Inventory (http://hawaii.gov/dbedt/info/visitor-stats/visitor-plant/)

Hawaii State Department of Labor and Industrial Relations, Hawaii Workforce Informer website, (http://www.hiwi.org/cgi/dataanalysis/AreaSelection.asp?tableName=Labforce). Viewed March 5, 2010.

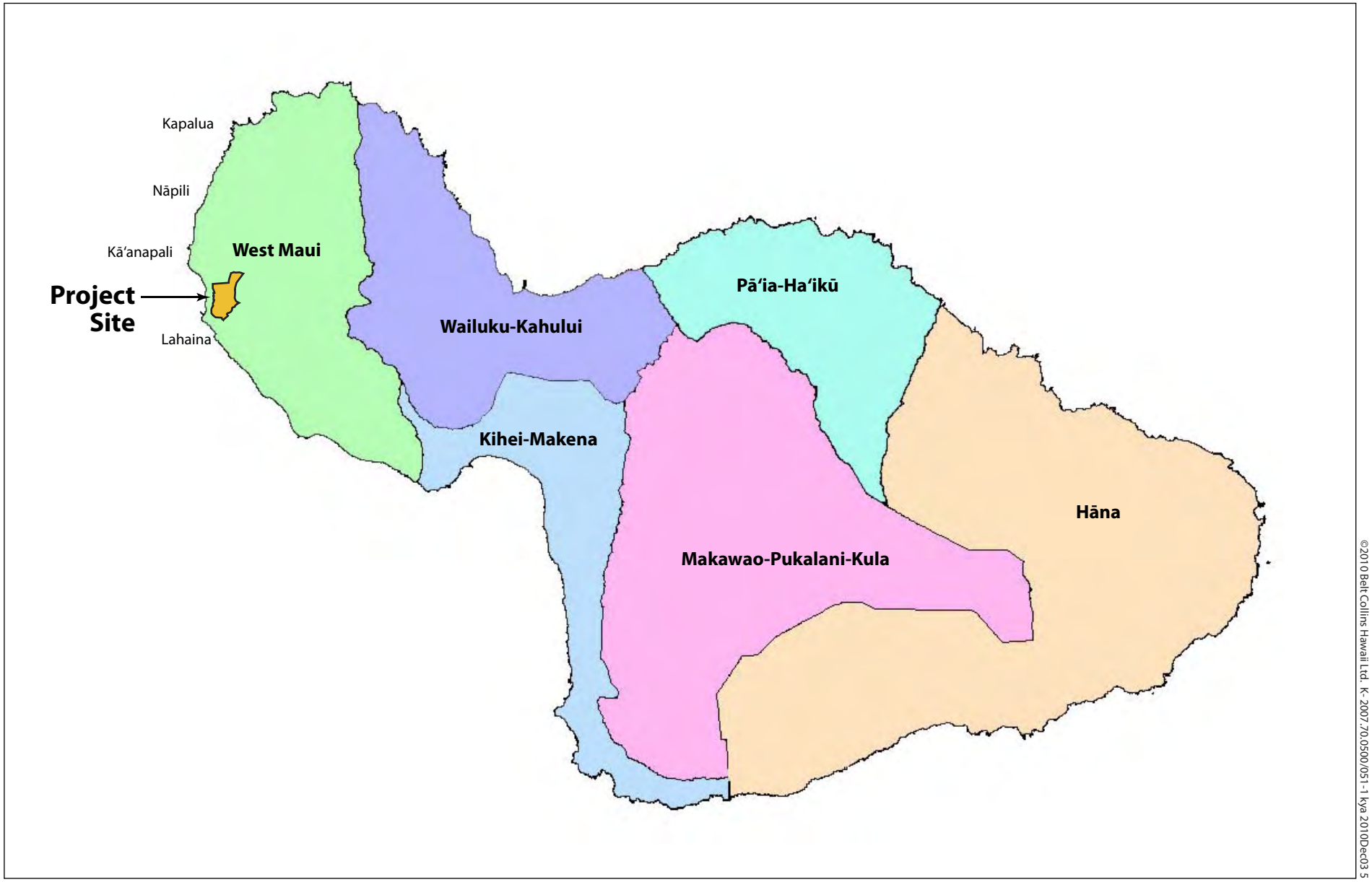
2.1.2 LOCATION

Located in West Maui, adjacent to the town of Lahaina, the project area is bordered by the Wahikuli subdivision to the west, the Kelawea subdivision to the south, State and various privately-owned land to the east, and the future expansion of Kāʻanapali Resort (Kāʻanapali 2020) to the north. (See Figure 1-3.)

Historically the site for the proposed project was used for the cultivation of sugar cane. With the closure of Pioneer Mill in 1999, plantation operations ceased and since that time, the land has remained fallow. The Tax Map Keys (TMK) are 4-5-21:03, 4-5-21:04, 4-5-21:05, 4-5-21:13, 4-5-21:21, 4-5-21:22, and 4-5-28:70 (see Figure 1-2).

The HHFDC Villages of Leialiʻi project responds to the regional need for housing and the aim of reducing congestion on regional highways due to residents travelling long distances between home and work. Future residents of the project are likely to come from neighborhoods throughout Maui Island, except perhaps from the Hāna Community Plan Area.[1] Figure 2-1 shows the West Maui Community Plan Area and the other Community Plan Areas of Maui Island. Major transportation facilities serving the region include Honoapiʻilani Highway, linking West Maui with the rest of the island, the Kapalua Airport at Mahinahina, Kahului Airport, and Kahului Commercial Harbor.

[1] Also, a few residents could come from Molokaʻi or Lānaʻi. Some residents of these islands have commuted to West Maui for work in recent decades, and others have moved to West Maui or maintained homes both on Maui and on their home island.



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BELT COLLINS

NORTH

0 2 4 6

SCALE IN MILES

Figure 2-1
MAUI ISLAND MAP

Villages of Leialiʻi
November 2010

2.1.3 OWNERSHIP

The site for the proposed Villages of Leiali‘i is approximately 1,033 acres of ceded lands (former crown lands) nearly all owned by the State of Hawai‘i:

	Tax Map Key	Owner	Acreage	Total Acreage
Phase A Area				
Agricultural Field	4-5-021:003	HHFDC	435.918	
Retention Basin	4-5-021:021	HHFDC	12.195	
Remnant Parcel	4-5-021:013	State of Hawai‘i	1.576	
Remnant Parcel	4-5-028:070	State of Hawai‘i	1.593	
Subtotal				451.282
Phase B Area				
Agricultural fields	4-5-021:portion of 022	State of Hawai‘i	518.100	
Agricultural fields	4-5-021:portion of 004	State of Hawai‘i	60.400	
Honokōhau Ditch	4-5-021:portion of 005	State of Hawai‘i	3.400	
Subtotal				581.900
TOTAL				**1033.182**

2.1.4 SURROUNDING USES

Surrounding uses include residential areas – the Wahikuli and Kelawea subdivisions – and fallow lands. Gulches separate the Leiali‘i site from Kaanapali Land Management Corporation (KLMC) lands to the north and from Kelawea to the south. KLMC plans eventual development of its adjacent lands. To the west are lands owned by Kahoma Land LLC and General Finance Group. Those firms plan to develop agricultural subdivisions and have requested easements for access roads through the Leiali‘i project site.[2]

A parcel (TMK 2-4-5-21:17) of approximately 0.918 acres lies within Phase A. It contains a County Department of Water Supply (DWS) tank. It is treated here as not part of the project area.

[2] Their plans are described in R. Frampton. *Draft Environmental Assessment for Proposed Kahoma Access Easements.* Prepared for Kahoma Land LLC. Kula, HI, 2010.

2.1.5 DESCRIPTION OF THE PROPERTY

The topography of the site is divided into two distinct areas by a break in the general grade of the hillside. The lower portion is flatter and the upper half is steeper. Both areas are west-facing with opportunities for ocean views of Lānaʻi and Molokaʻi islands. For the purpose of this document, these two areas are described as the makai and mauka areas and are shown on maps as Phase A and Phase B, respectively. They are separated by the right of way for the Lahaina Bypass Highway, now under construction.

The makai portion, the lower and western part of the site, contains slopes averaging in the 5-10 percent grade range. The mauka portion is generally steeper. It also includes the Crater Reservoir and part of the perimeter of the Wahikuli Reservoir. The latter remains part of the Honokōhau Ditch irrigation system. The ditch crosses the northwest corner of the site.

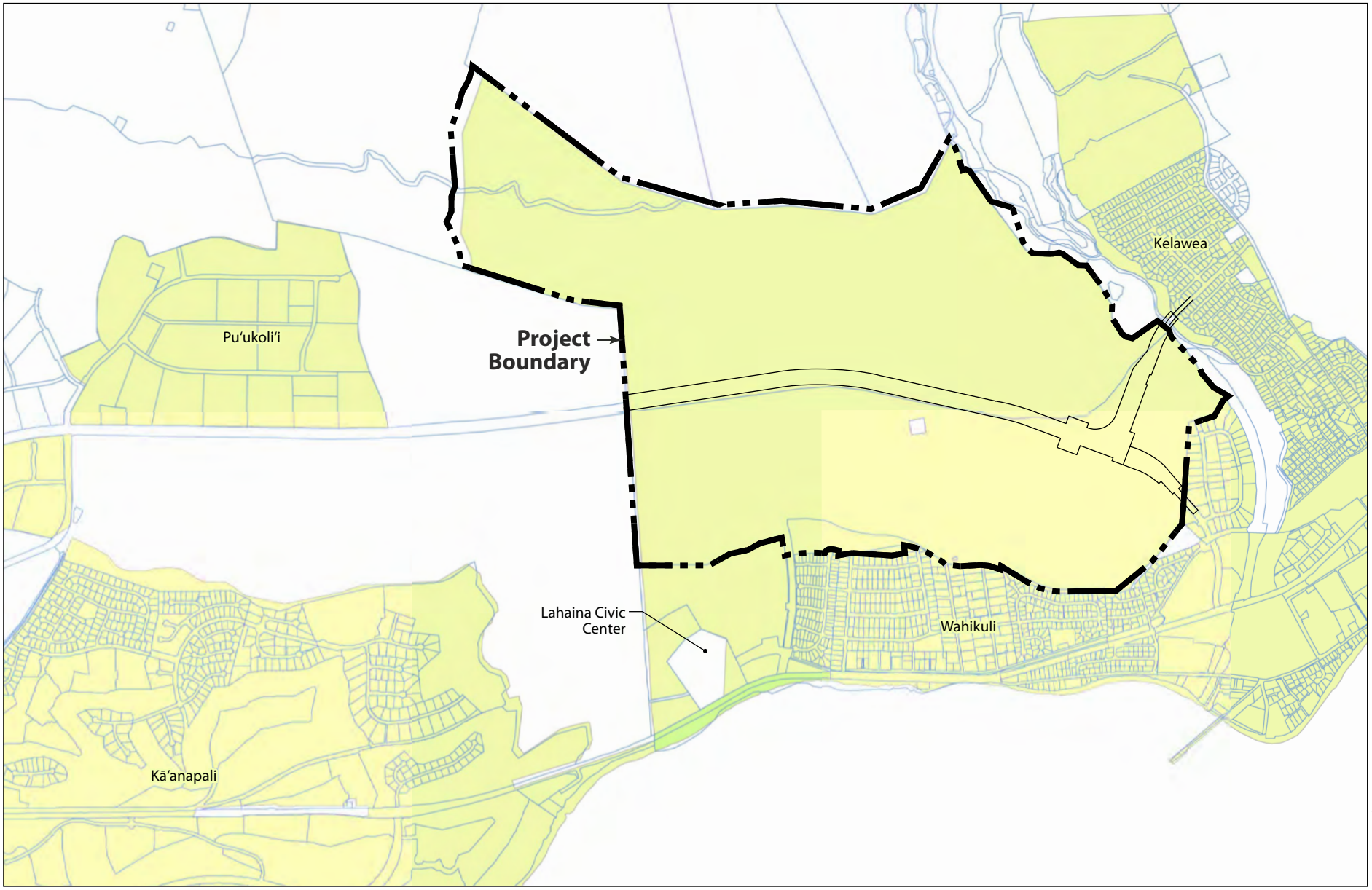
2.1.6 STATE LAND USE DISTRICT

The site was in the Agricultural District until 1990. HHFDC filed a petition to the State LUC to amend the land use district boundary for approximately 1,098 acres of land at Leialiʻi from the Agricultural District to the Urban District for the planned community. In its Decision and Order effective May 18, 1990, the LUC approved the reclassification. (See Figure 2-2.)

2.1.7 COUNTY LAND USE

2.1.7.1 DRAFT MAUI ISLAND PLAN

The *Maui Island Plan,* developed in accordance with Bill 84 of 2002, has been drafted by the County of Maui Planning Department, extensively reviewed by a General Plan Advisory Committee, and reviewed by the Maui Planning Commission. It is scheduled for review, revision and adoption by the County Council later in 2010.



Source: Adapted from map provided by State Land Use Commission. 2010.

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NORTH

0 500 1000 2000
SCALE IN FEET

LEGEND

- Urban District
- Agriculture District
- Conservation District

Figure 2-2
STATE LAND USE DISTRICT MAP

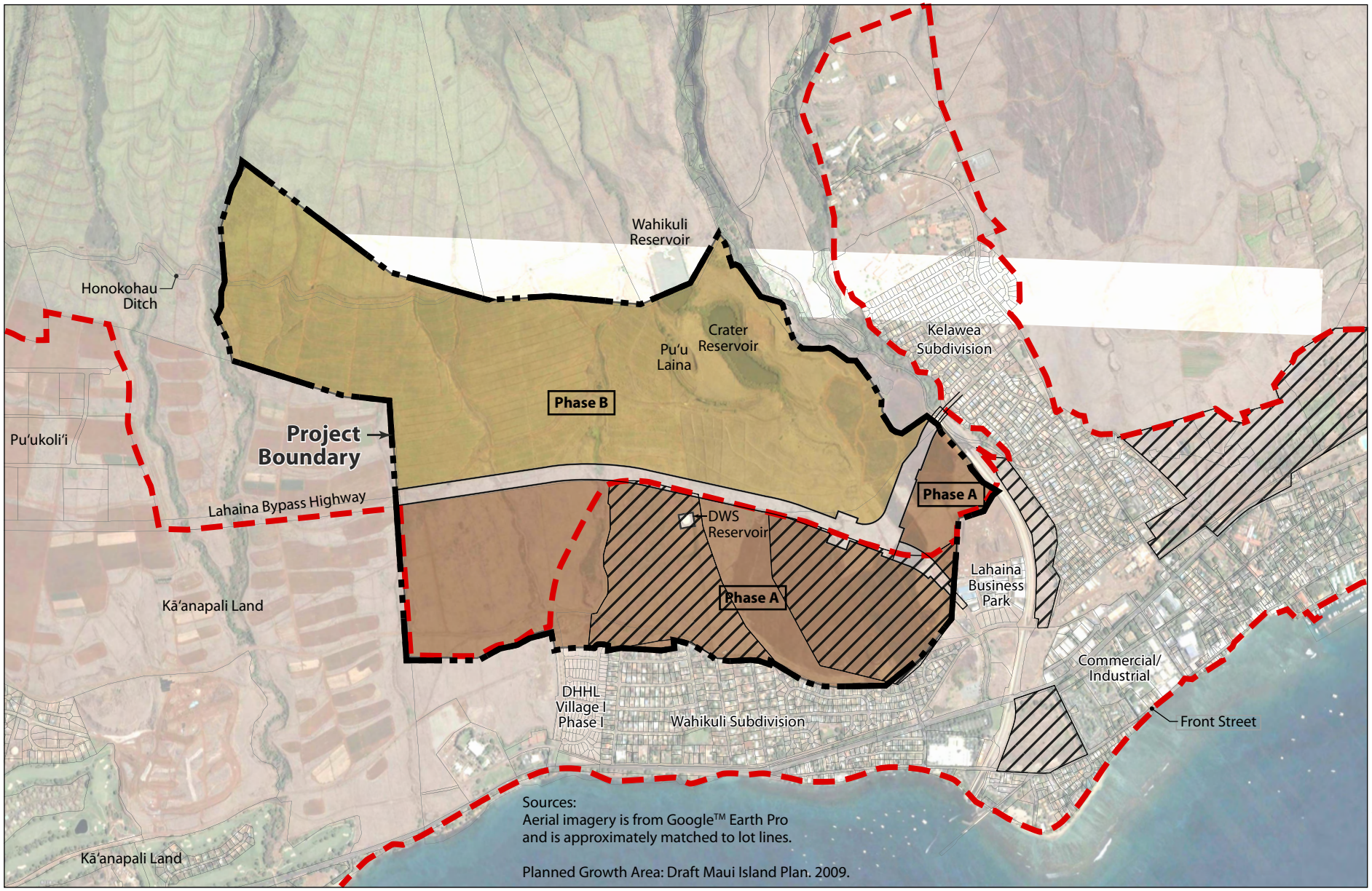
Villages of Leiali'i
November 2010

The consistency of each alternative with the objectives and guidelines in the draft *Maui Island Plan* will be considered in Chapter 5. The current status of the project site in the plan is as follows:

- The *Maui Island Plan* includes Urban Growth Boundaries. Within those boundaries, urban growth is expected and the County will endeavor to develop infrastructure and public facilities needed to support such growth. As shown in Figure 2-3, most of the makai portion of the project site is within the proposed boundary.
- Part of the project site is considered the "Lahaina North Planned Growth Area." As such, it is deemed an appropriate site for compact development. Its location, near work areas and adjacent to existing Lahaina subdivisions, is an important reason why it was chosen. The draft Plan shows much of the site below the Bypass as appropriate for development for housing at a net density of 10 to 12 dwelling units per acre, with convenience shopping provided within the community. The draft Plan calls for development of 800 units (+/- 10%) within an area of approximately 181 acres.

The Villages of Leiali'i project is larger than the urban area in the draft Plan. Development of the project will call for changes in or exemptions to the boundary to accommodate Phase A – somewhat larger than the Planned Growth Area – and Phase B.

As noted in the next section, Maui County has long recognized the Villages of Leiali'i as an important affordable housing project. HHFDC and its predecessors have committed considerable funds and energy to development of the Villages of Leiali'i. Development has been held up by litigation beyond the control of HHFDC. HHFDC has urged the County of Maui to include the entire project site within the Urban Growth Boundary, and, hence, to treat the entire project as a Planned Growth Area.



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BELT COLLINS

NORTH

0 500 1000 2000
SCALE IN FEET

LEGEND

- Property Boundaries
- Urban Growth Boundary
- Planned Growth Area

Figure 2-3
LAHAINA NORTH PLANNED GROWTH AREA, DRAFT *MAUI ISLAND PLAN*

Villages of Leiali'i
November 2010

2.1.7.2 WEST MAUI COMMUNITY PLAN

The *West Maui Community Plan* (passed by ordinance in 1996) incorporates the Leiali‘i project in the following policy:

> "Recognize the following approved major masterplanned affordable housing developments. Approvals of these projects provide that no less than 60 percent of the housing units will be in the affordable price range. Lands makai of the proposed Lahaina Bypass Highway shall be developed prior to those lands mauka of the Bypass. The land use designation of Agriculture (AG) shall apply to all portions of the following projects not fully developed under and pursuant to Hawai‘i Revised Statutes Act 15, Session Laws of Hawai‘i, 1988.
>
> a. Villages of Leiali‘i – This project is planned by the State Housing Finance Development Corporation and situated mauka of Honoapi‘ilani Highway in the vicinity of the Lahaina Civic Center and Wahikuli Terrace comprising an area of approximately 1,120 acres. The planned residential community will include approximately 4,813 housing units to be developed in phases, an 18-hole golf course, two elementary school sites, neighborhood business commercial uses, church, child care, recreational/park uses, and other public uses.
>
> b. Pu‘ukoli‘i Village – This project is proposed by AMFAC/JMB, a Hawai‘i Corporation, in the vicinity of the former Pu‘ukoli‘i Village and comprises an area of approximately 299 acres. The proposed residential community is to include approximately 1,700 housing units to be developed in phases as well as sites for neighborhood commercial uses, hospital/emergency medical facilities, child care center, church, elderly housing, elementary school, and a community park."

Figure 2-4 shows how the Leiali‘i site and nearby properties are designated in the Community Plan.

The project described in this EIS differs in detail from the earlier plan. It is still an affordable housing project and it follows the Community Plan guidance to develop lands makai of the

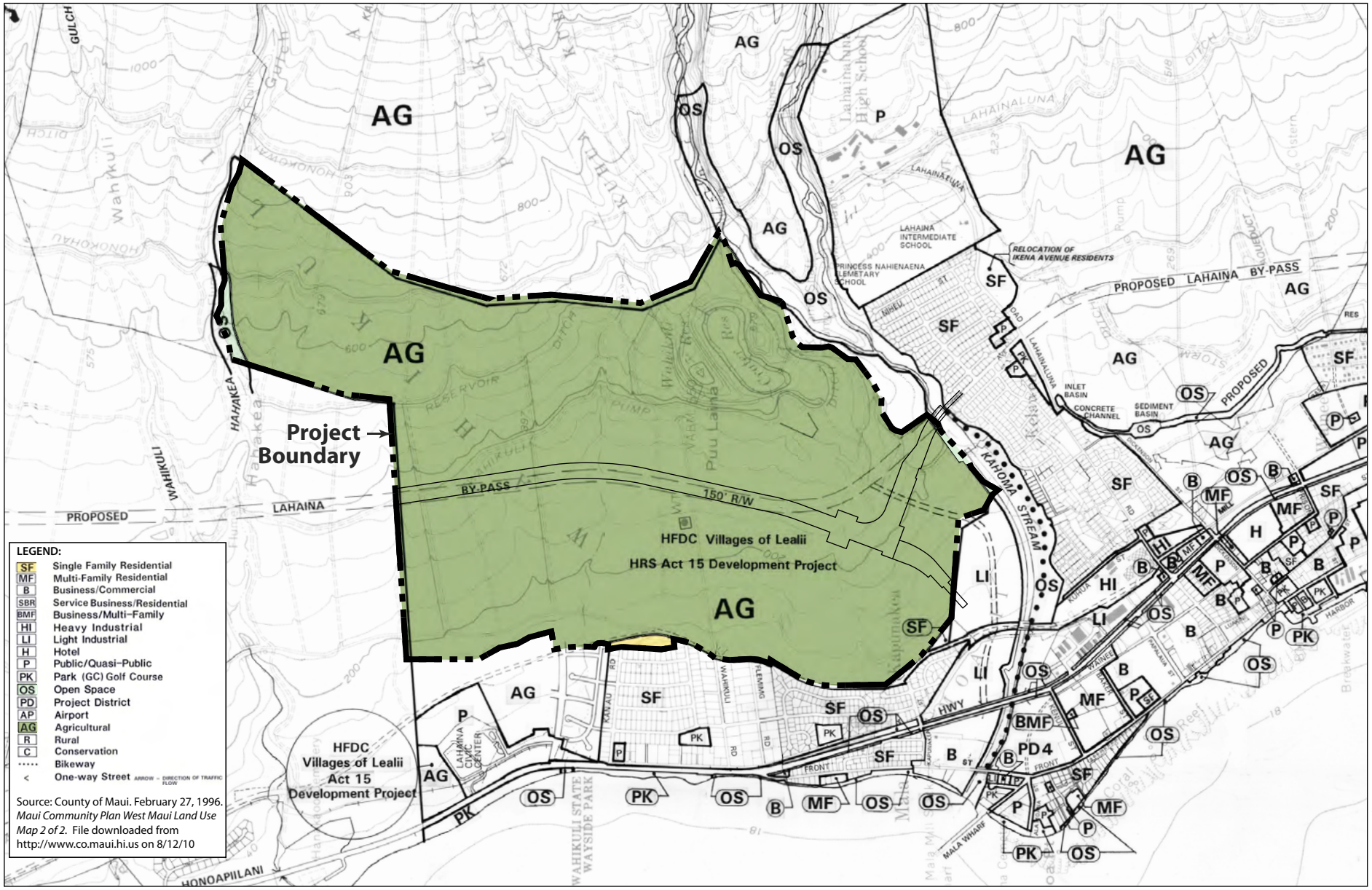

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Figure 2-4
WEST MAUI COMMUNITY PLAN DESIGNATION

Villages of Leiali'i
November 2010

Bypass before mauka lands. HHFDC seeks inclusion of the project described here within the Urban Growth Boundaries of the *Maui Island Plan* and in the next version of the *West Maui Community Plan* (to be drafted in 2010-2012).

2.1.7.3 MAUI COUNTY ZONING

The Leiali‘i property is zoned Agricultural, except for a very small area abutting the Wahikuli subdivision. (See Figure 2-5.)

2.2 MASTER PLAN PROCESS AND DESIGN PRINCIPLES

HHFDC decided to develop a new master plan for Leiali‘i. The planning process was designed to present concepts for review by agencies, the surrounding community, and prospective developers, then incorporate their concerns in three concepts that provide guidance to developers responding to an RFP for the Leiali‘i project. HHFDC consulted with County agencies in 2008. Next, two preliminary land use concept plans for the project site were distributed to 74 stakeholders with a request for comments and suggestions (the list of stakeholders is in Appendix A). A public meeting was held on January 28, 2009, at the Lahaina Civic Center. Afterwards, Concepts One and Two were revised to respond to comments and to changes in the Lahaina Bypass alignment, and a third concept was developed.

Leiali‘i is planned as a new urbanist community composed of compact, higher-density, walkable neighborhoods with a mixture of residential unit types, mixed-use neighborhood centers, and good connectivity for all modes of transportation. The following principles apply to all three concepts described in this master plan. Concept One and Two share similar road and open space networks but have slightly different land use distributions. Concept Three has a different land use, circulation, and open space pattern because LEED-ND criteria were used to lay out the plan.

LEED-ND, a proposed national standard for planning and designing neighborhoods, integrates the principles of green building design and smart growth. The U.S. Green Building Council proposes a certification process that evaluates a new project’s location and design for sustainability and environmental quality. The program is currently in the pilot stages of

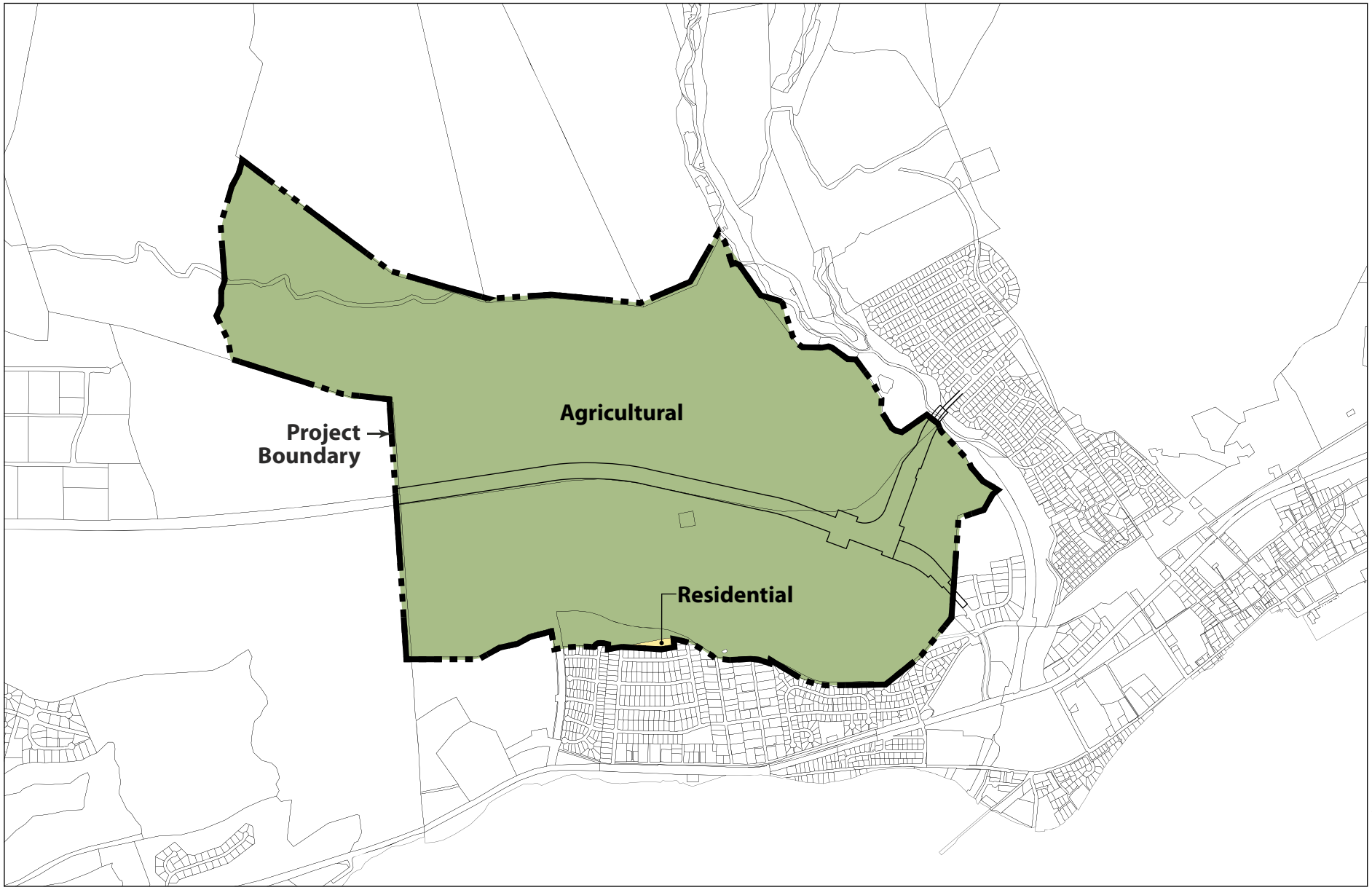

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Figure 2-5
LAND ZONING MAP

Villages of Leiali'i
November 2010

development. For the most part, the following planning principles apply to all three concepts. Any variations are the result of the differences in layout and densities among the concept plans.

Compact, High Density Neighborhoods:

Leiali‘i is a valuable land resource that needs to be efficiently used. It is adjacent to established commercial uses, community facilities, and infrastructure and has close access to major West Maui employment centers such as Lahaina town and Kā‘anapali Resort. Creating compact and higher development densities for Leiali‘i makes it more sustainable by minimizing travel distances for residents and minimizing its carbon footprint. All concepts for Leiali‘i propose higher neighborhood densities in the makai area to take advantage of this proximity to the existing urban district.

Walkable Neighborhoods and Connectivity:

Walkable neighborhoods require connectivity or good access to places where residents want to go, such as schools, stores, parks, community facilities, and transit stops. These places need to be at a convenient distance from the home or workplace, with sidewalks for pedestrians and bikeways for bicyclists. A rule of thumb is a five- to ten-minute distance, which is equivalent to one-quarter to one-half mile for pedestrians and one to two miles for bicyclists. Connectivity also requires direct and alternative routes to get from place to place. Areas that require the highest level of access, such as town or neighborhood centers, should have shorter block lengths or more closely spaced streets that are interconnected. A gridded network of streets is the optimal model used in new urbanist communities. For blocks longer than 500 feet, midblock access for pedestrians and bicycles should be provided.

For Leiali‘i, this principle is followed in the layout of neighborhoods. Figures 2-6a and 2-6b show that all of the commercial centers, major parks, and schools for the different alternatives have quarter-mile walking radii extended from the centers. The areas within these walking radii encompass the majority of the adjacent residential neighborhoods and commercial centers, which need a higher degree of access, a tighter network of streets, and organization in a modified street grid.

Figure 2-6a: Land Use Concepts One and Two Walkable Neighborhoods

Figure 2-6b: Land Use Concept Three Walkable Neighborhoods

Mixed Uses:

Mixed uses within town, community, and neighborhood centers provide a number of places to visit on a single trip for residents and visitors, especially if these centers are in close proximity and well connected to their neighborhoods. More residents are willing to walk or bike to these activity centers when they are located at reasonable distances. When places such as parks and squares are provided for social interaction, they become the focus for a neighborhood and community.

Building Design:

Commercial centers must be walkable with mixed uses arranged along continuous store frontages and with sidewalks laid out in a compact plan, as proposed for Leiali‘i. The architectural frontages need to include sidewalks for pedestrians and allow views of the commercial space interiors to provide interest and animation on the street. On-street parking should be available for quick access to stores, and larger parking lots should be tucked behind buildings so as not to create large gaps in the shopping experience.

Residential streets also need active architectural frontages with an edge that defines the pedestrian and public zone. Architectural facades along the streets also need to be animated with porches, doors, windows, roof treatments, and details. Common living areas of the homes (porches, living rooms, and family rooms) should be oriented to the street and sidewalk for surveillance to provide security for neighborhoods. Large non-habitable interiors such as enclosed garages create gaps in the residential frontage, so parking needs to be placed in the back of residences.

Multimodal Connectivity:

Multimodal connectivity for Leiali‘i involves a network of transportation (Figures 2-7a and 2-7b). The road system is comprised of interconnected streets that relate to the density of the underlying land use. With higher density land uses, the makai area has a finer network of roads. Land Use Concept Three maximizes the number of off-site access points to earn more points under the LEED-ND credit scoring process.

Figure 2-7a: Land Use Concepts One and Two Roadway Circulation

Figure 2-7b: Land Use Concept Three Roadway Circulation

Sidewalks are provided on all roads on both sides of the street (Figure 2-8a and 2-8b). Land Use Concept Three has pedestrian multi-purpose trails providing additional mauka-makai access due to the larger open space buffers along the banks of the drainage ways.

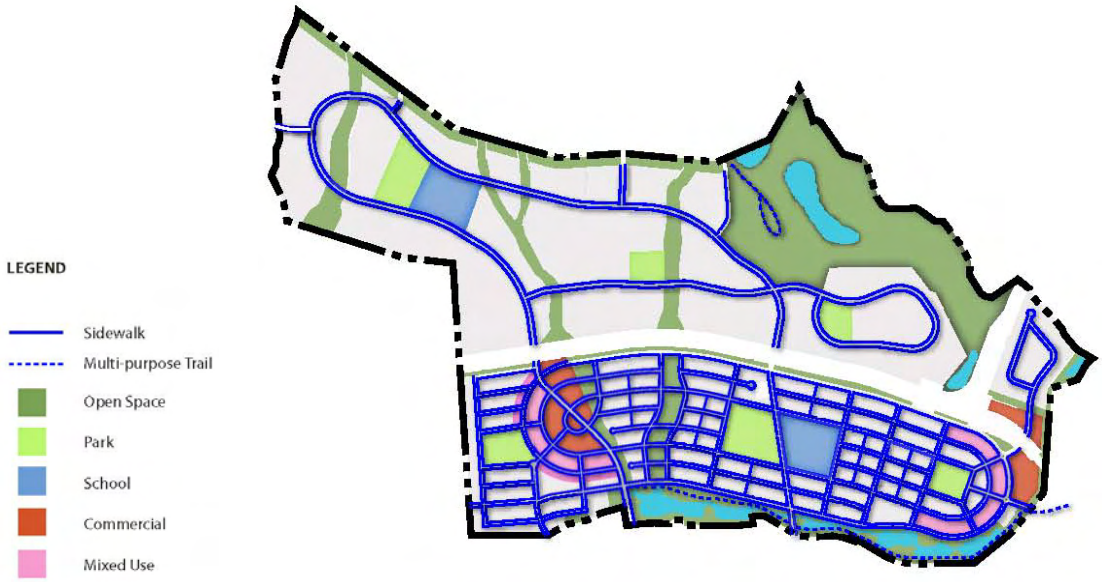


Figure 2-8a: Land Use Concepts One and Two Pedestrian Circulation

Figure 2-8b: Land Use Concept Three Pedestrian Circulation

For bike circulation (Figures 2-9a and 2-9b), striped bike lanes are located on collector streets. All other streets serve as bike routes, which are bike compatible but do not designate a bike lane. A regional bike path and multi-purpose trail is aligned on the western side of the site along the open space mauka of the Wahikuli neighborhood. The path connects Leiali'i with the Kā'anapali 2020 development to the north and with Lahaina along the Mill Street extension to the south.

Figure 2-9a: Land Use Concepts One and Two Bicycle and Trail Circulation

Figure 2-9b: Land Use Concept Three Bicycle and Trail Circulation

Bus transit routes and stops are integrated with the existing routing to make Leiali'i a transit-ready community (Figures 2-10a and 2-10b).

Figure 2-10a: Land Use Concepts One and Two Bus Transit Circulation

Figure 2-10b: Land Use Concept Three Bus Transit Circulation

At key roadway intersections, roundabouts help calm traffic and increase safety for all modes of transportation. Roundabouts also increase the efficiency of traffic control as cars, bikes, and pedestrians merge simultaneously at these intersections. Serving as identifiable landmarks, they become design elements as well as opportunities for wayfinding and monumentation for the community. Roundabout locations were identified in Figure 2-7b.

Green Streets and Landscaping:

Street trees promote a walkable community by offering continuous shade for pedestrian comfort against the hot and dry climate of Lahaina. Trees also enhance the overall aesthetics of the streetscape. Local food production or community gardens can be incorporated into areas such as landscape buffer zones along the Bypass Highway and along stream or drainage corridors. Landscaping that uses adapted species reduces the need for irrigation and maintenance. Bioremedial swales carry storm water through native ground covers to reduce hydrocarbons and potential runoff.

Open Space:

Open space areas meet the active and passive recreational needs of Leiali‘i residents and visitors (Figures 2-11a and 2-11b). Smaller neighborhood parks serve as activity centers for gathering and small neighborhood events. Community parks allow for organized sports activities and are located next to schools to accommodate their physical education programs. Natural open spaces are not only visual amenities but also preserve unique natural features such as Pu‘u Laina and the archaeological preserve. In addition, they serve as buffers zones to the Bypass Highway and potentially create a mauka-makai network of walking, hiking, and biking trails along the drainage corridors.

Figure 2-11a: Land Use Concepts One and Two Open Space

Figure 2-11b: Land Use Concept Three Open Space

2.3 ALTERNATIVE LAND USE CONCEPTS

Based on the design principles and site opportunities and constraints described above, HHFDC developed three alternative land use concepts. The master planning process was conducted iteratively with engineers working to identify and evaluate on- and off-site infrastructure requirements for the various approaches and options considered. (The infrastructure analyses and findings are summarized in Chapters 3 and 4.) Preliminary concepts were distributed to 74 stakeholders with a request for comments and suggestions. Sixteen stakeholders submitted input; copies of the comment letters are presented in Appendix A. In addition, HHFDC presented preliminary concepts at a community meeting. (See Appendix A for a summary of the community meeting.)

The three alternative concepts, representing varying housing types and densities, have several elements in common:

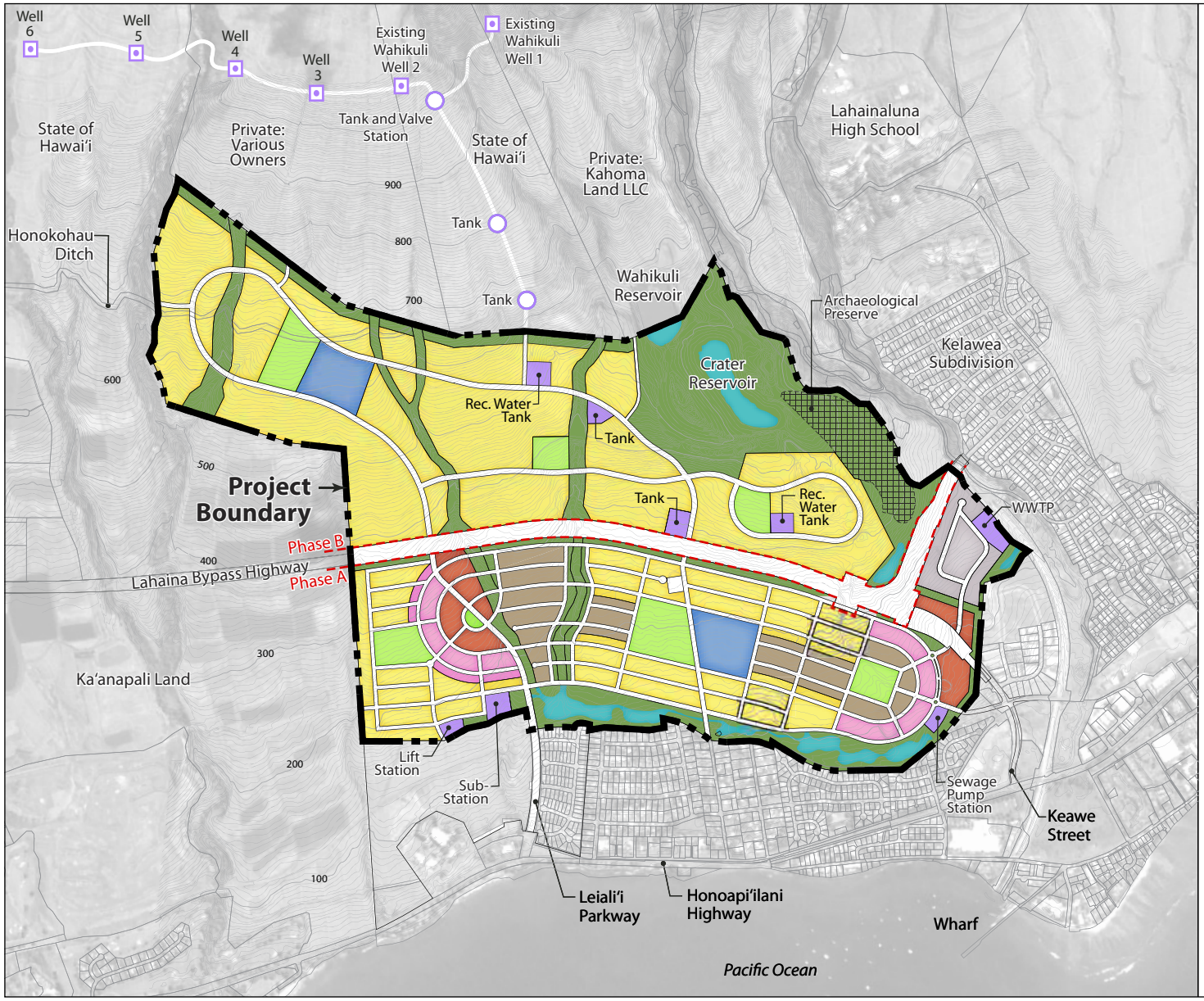
- Concentration of density around mixed use and commercial land uses in the makai area, west of the Bypass Highway, taking advantage of flatter slopes for a more dense street grid to increase circulation, connectivity, and proximity within and to surrounding developments.
- The use of smart growth concepts to promote walking and biking and sustainable opportunities throughout the community. Multimodal circulation is included throughout all three concepts.
- A dense grid system close to existing developments on the makai side of the Bypass Highway.
- Utilization of the Bypass Highway through two signalized four-way intersections.
- “Transit ready” community with bus service through all mixed use and commercial zones of the project.
- Two schools with adjacent neighborhood parks, one in the makai area and one in the mauka area.

- A natural preserve around Pu'u Laina, Crater Reservoir, and an culturally sensitive area with archaeological sites.
- Preservation of natural drainage corridors.
- Light industrial zone at the southeast corner of the site.
- Detention basins along the downhill western edge to contain and clean on-site runoff. To protect the mauka side from runoff, all concepts have landscape buffers for drainage collection along the eastern edge of the project.
- Service roads to mauka areas and water tanks, east of the project, utilizing existing abandoned cane haul roads as access points. All concepts provide for potential off-site road connections to accommodate future development.
- On-site and off-site infrastructure improvements.

2.3.1 CONCEPTS ONE AND TWO

Land Use Concepts One and Two are shown in Figures 2-12a and 2-12b. The general road circulation and layout, parks and open space, and commercial and office spaces of these two concepts are identical. Each has applied and met the same design principles. Each concept has a dense street grid on the makai side and a loop road system accessing the mauka side. With each containing 551,000 square feet of retail and office space, the only variation is in residential land use densities.

Land Use Concept One has the lowest residential density, consisting of 2,135 single-family residential units and 788 multi-family residential units. Concept Two is designed to contain a higher density in the makai area, with 1,522 single-family residential units and 2,521 multi-family residential units. While both concepts focus compact development around the mixed use town centers in the makai area, Concept Two replaces the makai single-family density with multi-family density, resulting in a more dense urban environment. Within these concepts, the areas mauka of the Bypass Highway are identical in layout and have applied single family densities, taking advantage of the steeper topography and offering great views.



LEGEND

- Detached Single-Family Residential
  Phase A: 101.47 ac/ 613 du
  Phase B: 304.60 ac/ 1,522 du
- Multi-Family Residential - 15 du/ac
  Phase A: 41.52 ac/ 625 du
- Open Space
  Phase A: 78.11 ac
  Phase B: 180.77 ac
- Park
  Phase A: 24.39 ac
  Phase B: 19.58 ac
- Elementary School
  Phase A: 12.01 ac
  Phase B: 12.01 ac
- Commercial
  Phase A: 20.75 ac/ 245,200 sf
- Mixed Use
  Phase A: 23.40 ac
  Commercial: 203,900 sf
  Office: 101,900 sf
  Multi-Family Residential: 163 du
- Light Industrial
  Phase A: 17.20 ac/ 524,500 sf
- Infrastructure
  Phase A: 7.67 ac
  Phase B: 7.47 ac
- Detention Ponds
- Phase Boundary

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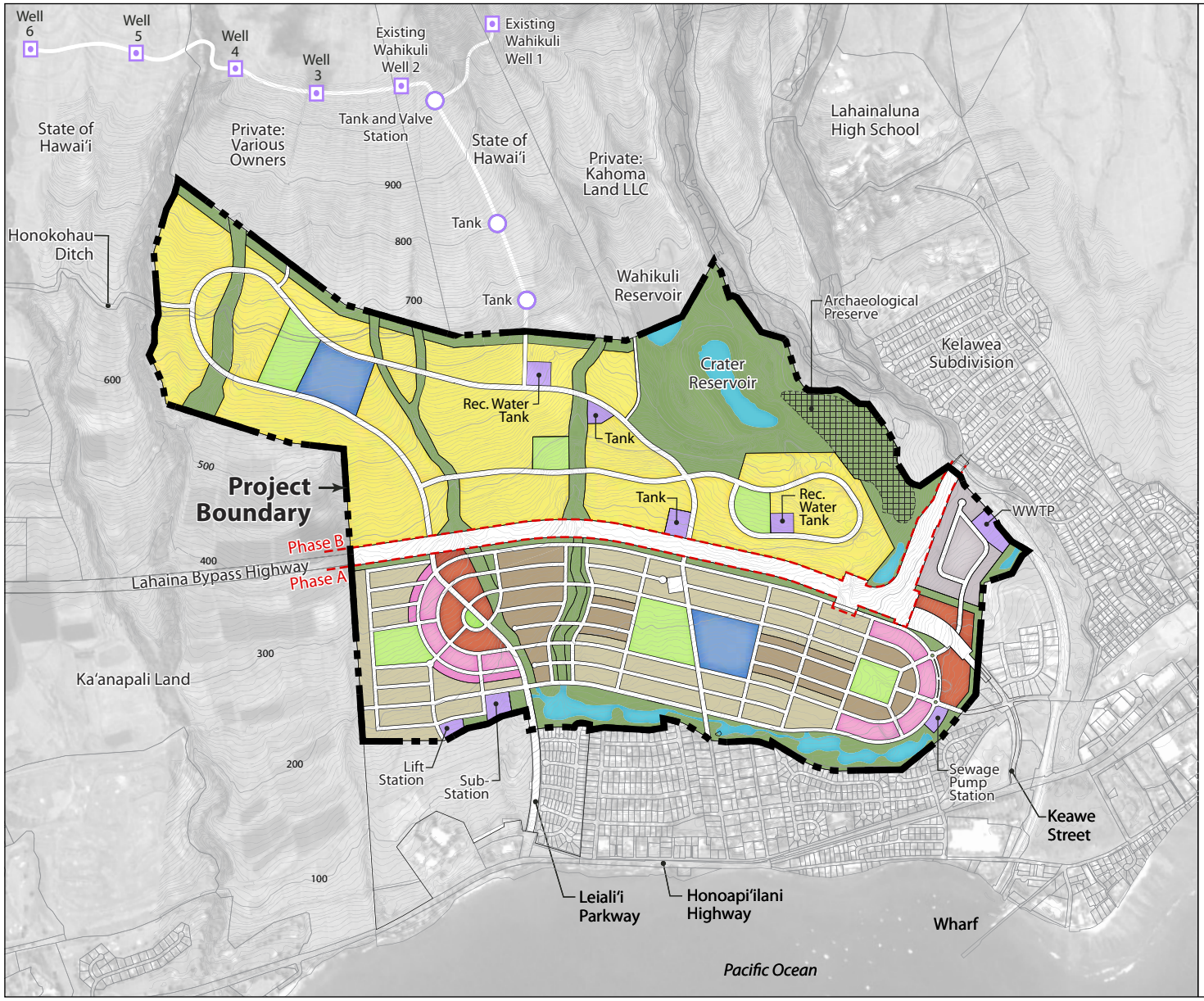
Note: Lot lines shown are approximate and for illustrative purposes. Imagery is from Google Earth Pro and is approximately matched to lot lines.

Figure 2-12a
LAND USE PLAN CONCEPT ONE

Villages of Leiali'i
November 2010



LEGEND

- Detached Single-Family Residential
  Phase B: 304.60 ac/ 1,522 du
- Multi-Family Residential - 15 du/ac
  Phase A: 101.47 ac/ 1,524 du
- Multi-Family Residential - 20 du/ac
  Phase A: 41.52 ac/ 834 du
- Open Space
  Phase A: 78.11 ac
  Phase B: 180.77 ac
- Park
  Phase A: 24.39 ac
  Phase B: 19.58 ac
- Elementary School
  Phase A: 12.01 ac
  Phase B: 12.01 ac
- Commercial
  Phase A: 20.75 ac/ 245,200 sf
- Mixed Use
  Phase A: 23.40 ac
  Commercial: 203,900 sf
  Office: 101,900 sf
  Multi-Family Residential: 163 du
- Light Industrial
  Phase A: 17.20 ac/ 524,500 sf
- Infrastructure
  Phase A: 7.67 ac
  Phase B: 7.47 ac
- Detention Ponds
- Phase Boundary

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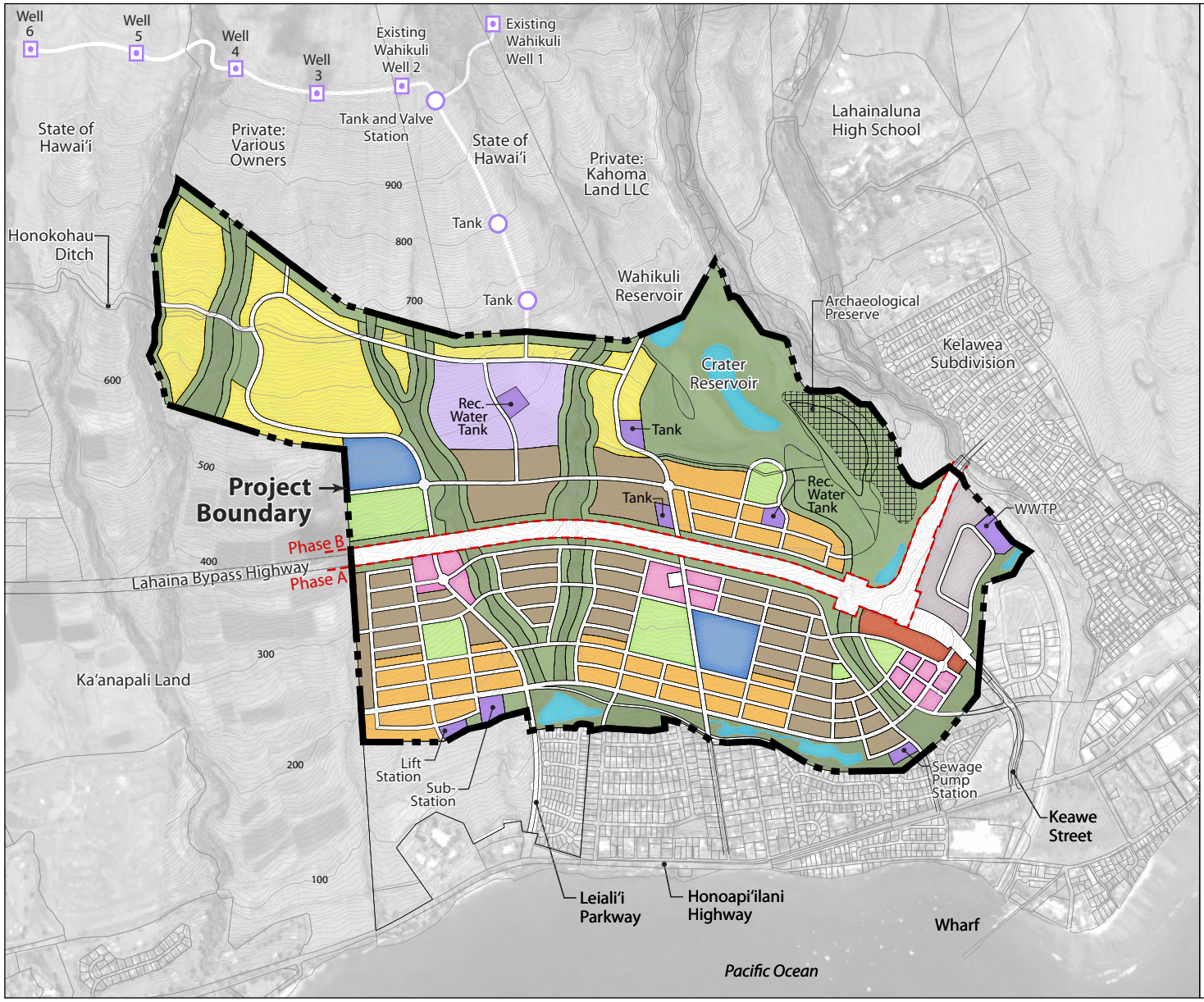
Figure 2-12b
LAND USE PLAN CONCEPT TWO

Villages of Leiali'i
November 2010

2.3.2 CONCEPT THREE

Of the land use alternatives, Land Use Concept Three (Figure 2-12c) has the highest density, consisting of 1,573 single-family residential units and 2,719 multi-family residential units, with 596,000 square feet of retail and office space. Maximizing the design principles described above, Concept Three was planned by using LEED-ND criteria to increase the potential for a sustainable "green" community.

Land Use Concept Three differs from the first two concepts by locating the town centers and overall density towards and around the Bypass Highway, increasing proximity to the mauka areas and accessibility to the Bypass Highway itself. The school in the mauka area is located closer to the Bypass Highway and towards the more dense residential neighborhoods. While focusing the mixed use town center to the south, for connectivity and proximity to existing amenities, two smaller neighborhood mixed use zones are spaced equally along the Bypass Highway to increase the community's northern accessibility and proximity to commercial and retail services. An attached single-family housing type is added as well, providing a greater range of housing opportunities. The natural drainage corridors are maintained, and open space buffers provide recreational greenways for pedestrians, connecting the mauka and makai areas. A photovoltaic farm is also planned in the mauka area as a source of sustainable energy for the community.



LEGEND

- Detached Single-Family Residential
  Phase B: 121.56 ac/ 607 du
- Attached Single-Family Residential
  Phase A: 53.07 ac/ 532 du
  Phase B: 24.63 ac/ 247 du
- Multi-Family Residential—18 & 20 du/ac
  Phase A: 80.92 ac/ 1,477 du
  Phase B: 36.15 ac/ 650 du
- Open Space
  Phase A: 103.81 ac
  Phase B: 267.44 ac
- Park
  Phase A: 20.88 ac
  Phase B: 17.46 ac
- Elementary School
  Phase A: 12.01 ac
  Phase B: 12.58 ac
- Commercial
  Phase A: 7.62 ac/ 166,000 sf
- Mixed Use
  Phase A: 19.74 ac
  Commercial: 286,700 sf
  Office: 143,300 sf
  Multi-Family Residential: 592 du
- Light Industrial
  Phase A: 21.81 ac/ 665,100 sf
- Infrastructure
  Phase A: 7.67 ac
  Phase B: 6.84 ac
- Photovoltaic Farm
  Phase B: 37.29 ac
- Detention Ponds
- Phase Boundary

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Figure 2-12c
LAND USE PLAN CONCEPT THREE

Villages of Leiali'i
November 2010

Table 2-2: Concept Density Comparisons – Concept One

LAND USE	NO. UNITS	UNIT	ACRES
Phase A			
Single Family Residential			
Detached	613	DU	101.47
Attached	0	DU	0.00
Multi-Family Residential			
15 du/ac	625	DU	41.52
20 du/ac	0	DU	0.00
Commercial			20.75
Office	61,300	SF	
Retail	183,900	SF	
Mixed Use			
Residential	163	DU	23.40
Office	76,450	SF	
Retail	229,350	SF	
Light Industrial	524,500	SF	17.20
Elementary School	-	-	12.01
Parks			
Makai North 1	-	-	6.70
Makai North 2	-	-	0.71
Makai Central	-	-	11.76
Makai South	-	-	5.22
Subtotal Parks	-	-	24.39
Infrastructure			
N. Lift station	-	-	1.20
MECO Substation	-	-	2.29
S. Sewage Pump Station	-	-	1.20
WWTP	-	-	2.98
Subtotal Infrastructure	-	-	7.67
Open Space	-	-	78.11
Roads	-	-	89.55
Subtotal Phase A	**1,401** **1,075,500**	**DU** **SF**	**416.07**
Keawe Street Extension	-	-	5.31
Existing DWS Reservoir	-	-	0.87
TOTAL PHASE A	**1,401** **1,075,500**	**DU** **SF**	**422.25**

du/ac: dwelling units per acre
SF: square feet

Table 2-2: Concept Density Comparisons – Concept One *(continued)*

LAND USE	NO. UNITS	UNIT	ACRES
Phase B			
Single Family Residential			
Detached	1,522	DU	304.60
Attached	0	DU	0.00
Multi-Family Residential			
15 du/ac	0	DU	0.00
20 du/ac	0	DU	0.00
Commercial			
Office	0	SF	0.00
Retail	0	SF	0.00
Mixed Use			
Residential	0	DU	0.00
Office	0	SF	0.00
Retail	0	SF	0.00
Light Industrial	0	SF	0.00
Elementary School	-	-	12.01
Parks			
Mauka North	-	-	10.11
Mauka Central	-	-	4.43
Mauka South	-	-	5.04
Subtotal Parks	-	-	19.58
Infrastructure			
525' Reclaimed Water Tank	-	-	2.20
360' Reclaimed Water Tank	-	-	1.70
470' Water Tank	-	-	1.44
325' Water Tank	-	-	2.13
Subtotal Infrastructure	-	-	7.47
Open Space	-	-	180.77
Roads	-	-	35.25
TOTAL PHASE B	**1,522** **0**	**DU** **SF**	**559.68**

SUMMARY

TOTAL PHASE A	1,401 1,075,500	DU SF	422.25
TOTAL PHASE B	1,522 0	DU SF	559.68
Bypass Highway	-	-	50.75
TOTAL CONCEPT ONE	**2,923** **1,075,500**	**DU** **SF**	**1032.68**

Table 2-3: Concept Density Comparisons – Concept Two

LAND USE	NO. UNITS	UNIT	ACRES
Phase A			
Single Family Residential			
Detached	0	DU	0.00
Attached	0	DU	0.00
Multi-Family Residential			
15 du/ac	1,524	DU	101.47
20 du/ac	834	DU	41.52
Commercial			20.75
Office	61,300	SF	
Retail	183,900	SF	
Mixed Use			
Residential	163	DU	23.40
Office	76,450	SF	
Retail	229,350	SF	
Light Industrial	524,500	SF	17.20
Elementary School	-	-	12.01
Parks			
Makai North 1	-	-	6.70
Makai North 2	-	-	0.71
Makai Central	-	-	11.76
Makai South	-	-	5.22
Subtotal Parks	-	-	24.39
Infrastructure			
N. Lift station	-	-	1.20
MECO Substation	-	-	2.29
S. Sewage Pump Station	-	-	1.20
WWTP	-	-	2.98
Subtotal Infrastructure	-	-	7.67
Open Space	-	-	78.11
Roads	-	-	89.55
Subtotal Phase A	**2,521** **1,075,500**	**DU** **SF**	**416.07**
Keawe Street Extension	-	-	5.31
Existing DWS Reservoir	-	-	0.87
TOTAL PHASE A	**2,521** **1,075,500**	**DU** **SF**	**422.25**

DWS: Department of Water Supply

Table 2-3: Concept Density Comparisons – Concept Two *(continued)*

LAND USE	NO. UNITS	UNIT	ACRES
Phase B			
Single Family Residential			
Detached	1,522	DU	304.60
Attached	0	DU	0.00
Multi-Family Residential			
15 du/ac	0	DU	0.00
20 du/ac	0	DU	0.00
Commercial			
Office	0	SF	0.00
Retail	0	SF	0.00
Mixed Use			
Residential	0	DU	0.00
Office	0	SF	0.00
Retail	0	SF	0.00
Light Industrial	0	SF	0.00
Elementary School	-	-	12.01
Parks			
Mauka North	-	-	10.11
Mauka Central	-	-	4.43
Mauka South	-	-	5.04
Subtotal Parks	-	-	19.58
Infrastructure			
525' Reclaimed Water Tank	-	-	2.20
360' Reclaimed Water Tank	-	-	1.70
470' Water Tank	-	-	1.44
325' Water Tank	-	-	2.13
Subtotal Infrastructure	-	-	7.47
Open Space	-	-	180.77
Roads	-	-	35.25
TOTAL PHASE B	**1,522** **0**	**DU** **SF**	**559.68**

SUMMARY

TOTAL PHASE A	2,521 1,075,500	DU SF	422.25
TOTAL PHASE B	1,522 0	DU SF	559.68
Bypass Highway	-	-	50.75
TOTAL CONCEPT TWO	**4,043** **1,075,500**	**DU** **SF**	**1032.68**

Table 2-4: Concept Density Comparisons – Concept Three

LAND USE	NO. UNITS	UNIT	ACRES
Phase A			
Single Family Residential			
Detached	0	DU	0.00
Attached	532	DU	53.07
Multi-Family Residential			
18 du/ac	1,311	DU	72.61
20 du/ac	166	DU	8.31
Subtotal Multi-Family	1,477	DU	80.92
Commercial			7.62
Office	41,500	SF	
Retail	124,500	SF	
Mixed Use			
Residential	592	DU	19.74
Office	107,500	SF	
Retail	322,500	SF	
Light Industrial	665,100	SF	21.81
Elementary School	-	-	12.01
Parks			
Makai North	-	-	5.73
Makai Central	-	-	11.76
Makai South 1	-	-	0.85
Makai South 2	-	-	2.54
Subtotal Parks	-	-	20.88
Infrastructure			
N. Lift station	-	-	1.20
MECO Substation	-	-	2.29
S. Sewage Pump Station	-	-	1.20
WWTP	-	-	2.98
Subtotal Infrastructure	-	-	7.67
Open Space	-	-	103.81
Roads	-	-	88.54
Subtotal Phase A	**2,601** **1,261,100**	**DU** **SF**	**416.07**
Keawe Street Extension	-	-	5.31
Existing DWS Reservoir	**-**	**-**	0.87
TOTAL PHASE A	**2,601** **1,261,100**	**DU** **SF**	**422.25**

Table 2-4: Concept Density Comparisons – Concept Three *(continued)*

LAND USE	NO. UNITS	UNIT	ACRES
Phase B			
Single Family Residential			
Detached	607	DU	121.56
Attached	247	DU	24.63
Subtotal Single Family	854	DU	146.19
Multi-Family Residential			
18 du/ac	650	DU	36.15
20 du/ac	0	DU	0.00
Commercial			
Office	0	SF	0.00
Retail	0	SF	0.00
Mixed Use			
Residential	0	DU	0.00
Office	0	SF	0.00
Retail	0	SF	0.00
Light Industrial	0	SF	0.00
Elementary School	-	-	12.58
Parks			
Mauka North	-	-	12.93
Mauka South	-	-	4.53
Subtotal Parks	-	-	17.46
Infrastructure			
525' Reclaimed Water Tank	-	-	2.12
360' Reclaimed Water Tank	-	-	1.46
470' Water Tank	-	-	1.99
325' Water Tank	-	-	1.27
Photovoltaic Farm	-	-	37.29
Subtotal Infrastructure	-	-	44.13
Open Space	-	-	267.44
Roads	-	-	35.73
TOTAL PHASE B	**1,504** **0**	**DU** **SF**	**559.68**

SUMMARY

TOTAL PHASE A	2,601 1,261,100	DU SF	422.25
TOTAL PHASE B	1,504 0	DU SF	559.68
Bypass Highway	-	-	50.75
TOTAL CONCEPT THREE	**4,105** **1,261,100**	**DU** **SF**	**1032.68**

2.3.3 PHASING

In all three concepts, Phase A will be initiated before Phase B. The timeline of the phases is largely controlled by the estimated production of 200 residential units each year. Parks development will occur along with residential growth, and retail and office development will occur once residential development is well under way. Industrial development is independent, since this responds to regional demand. Tables 2-5, 2-6, and 2-7 summarize the phasing of development program by land uses per year for the three concept plans.

Table 2-5: Phasing, Concept One

	Year	Residential Units	Retail SF	Office SF	Industrial Acres	School Acres	Park Acres
Phase A							
1	2016	200			4,30		
2	2017	200					4.39
3	2018	200					
4	2019	200					
5	2020	200			4.30		10.00
6	2021	200					
7	2022	201	64,100	14,500		12.01	
8	2023		64,100	14,500			
9	2024		64,100	14,500	4.30		
10	2025		64,100	14,500			
11	2026		64,100	14,500			
12	2027		64,100	14,500			
13	2028		64,500	14,900	4.30		10.00
Subtotal Phase A		1,401	449,100	101,900	17.20	12.01	24.39
Phase B							
14	2029	200					
15	2030	200					10.00
16	2031	200					
17	2032	200					
18	2033	200					
19	2034	200					
20	2035	200					
21	2036	122				12.01	9.58
Subtotal Phase B		1,522	0	0	0	12.01	19.58
TOTALS CONCEPT ONE:		**2,923**	**449,100**	**101,900**	**17.20**	**24.02**	**43.97**

Note: 2 year build out for each development. Construction starts in 2014.

Table 2-6: Phasing, Concept Two

	Year	Residential Units	Retail SF	Office SF	Industrial Acres	School Acres	Park Acres
Phase A							
1	2016	200			4,30		
2	2017	200					4.39
3	2018	200					
4	2019	200					
5	2020	200			4.30		10.00
6	2021	200					
7	2022	200	64,100	14,500		12.01	
8	2023	200	64,100	14,500			
9	2024	200	64,100	14,500	4.30		
10	2025	200	64,100	14,500			
11	2026	200	64,100	14,500			
12	2027	200	64,100	14,500			
13	2028	121	64,500	14,900	4.30		10.00
Subtotal Phase A		2,521	449,100	101,900	17.20	12.01	24.39
Phase B							
14	2029	200					
15	2030	200					10.00
16	2031	200					
17	2032	200					
18	2033	200					
19	2034	200					
20	2035	200					
21	2036	122				12.01	9.58
Subtotal Phase B		1,522	0	0	0	12.01	19.58
TOTALS CONCEPT TWO:		**4,043**	**449,100**	**101,900**	**17.20**	**24.02**	**43.97**

Note: 2 year build out for each development. Construction starts in 2014.

Table 2-7: Phasing Concept Three

	Year	Residential Units	Retail SF	Office SF	Industrial Acres	School Acres	Park Acres	Photo-voltaic Farm Acres
Phase A								
1	2016	200			4.30			
2	2017	200					10.00	
3	2018	200						
4	2019	200						
5	2020	200			4.30			
6	2021	200						
7	2022	200	64,700	20,500		12.01	10.88	
8	2023	200	64,700	20,500				
9	2024	200	64,700	20,500	4.30			
10	2025	200	64,700	20,500				
11	2026	200	64,700	20,500				
12	2027	200	64,700	20,500				
13	2028	201	64,500	20,300	8.92			
Subtotal Phase A		2,601	452,700	143,300	21.82	12.01	20.88	0
Phase B								
14	2029	200						
15	2030	200					10.00	10.00
16	2031	200						
17	2032	200						
18	2033	200						10.00
19	2034	200						
20	2035	200						
21	2036	104				12.58	7.46	17.29
Subtotal Phase B		1,504	0	0	0	12.58	17.46	37.29
TOTALS CONCEPT THREE:		**4,105**	**452,700**	**143,300**	**21.82**	**24.59**	**38.34**	**37.29**

Note: 2 year build out for each development. Construction starts in 2014.

2.4 HHFDC'S RFP PROCESS

HHFDC plans to issue an RFP for the Leiali‘i project, inviting developers to submit proposals to develop the property. Parties proposing to develop the project will have the Master Plan and information about HHFDC's evaluation criteria to direct them. The alternatives described in this EIS will also serve as guides to HHFDC's preferences. The selected developer could work within the range of development options identified in this EIS or, if necessary, prepare and submit a Supplemental EIS.

HHFDC has already issued an RFP for a solar energy farm on the property. It is anticipated that much of the light industrial area between the Lahaina Bypass and the Keawe Street extension, at the southern end of the Leiali‘i site, will be leased for this use. The firm selected to install and operate a photovoltaic solar farm plans to submit an Environmental Assessment (EA) independent of this EIS, in order to be able to proceed quickly.

2.4.1 HHFDC EVALUATION CRITERIA

HHFDC's objective at the Villages of Leiali‘i is to increase housing opportunities that are affordable to Hawai‘i's workforce and lower- and moderate-income households. Proposals will be evaluated according to criteria developed by HHFDC which may include, but not be limited to the following:

- Develop housing affordable to Hawai‘i's workforce and lower- and moderate-income households in the most livable and sustainable community;
- Develop at least 50 percent of the total residential units as housing affordable to Hawai‘i's workforce and lower- and moderate-income households;
- Develop a mix of housing affordable to Hawai‘i's workforce and lower- and moderate-income households with a broad range of household incomes;
- Develop for-sale and rental housing units that are affordable to Hawai‘i's workforce and lower- and moderate-income households; and
- Minimize use of State resources.

2.4.2 RELATIONSHIP BETWEEN THE DEVELOPER AND HHFDC

Under the RFP, there will be no partnership, joint venture, employer and employee, master and servant, or other agency relationship between HHFDC and a developer. The developer ultimately selected by HHFDC for the project will be responsible for all on-site and off-site infrastructure improvements, costs, and expenses associated with and required for the development, ownership, management, and operation of the project, including planning, design, permit fees, utility charges, operation, management, and lease or sales expenses. While the procedures for leasing of property at Leiali‘i remain to be specified, it is clear that HHFDC will be the master lessor and the developer, not HHFDC, would be responsible for individual land leases.

2.4.3 OTHER PROJECT CONSIDERATIONS CONTAINED IN THE HHFDC RFP

The following information will be provided in the HHFDC RFP to prospective developers of Leiali‘i Phase A regarding energy and design considerations and infrastructure service for the project.

2.4.3.1 ENERGY AND DESIGN CONSIDERATIONS

The project shall comply with HRS Section 196-9 and the Governor’s Administrative Directive No. 06-01, dated January 20, 2006, as follows:

1. To the extent possible, design and construct buildings meeting the LEED silver or the Green Globes rating system or another comparable state-approved, nationally recognized, and consensus-based guideline, standard or system, except when the guideline, standard, or system interferes or conflicts with the use of the building or facility as an emergency shelter.
2. To the extent possible, incorporate energy efficiency measures to prevent heat gain in residential facilities of one to three stories by providing R-19 or equivalent insulation on roofs, R-11 or equivalent in walls, and high-performance windows to minimize heat gain and, if air conditioned, to minimize cool air loss. Where possible, orient buildings to maximize natural ventilation and day lighting without heat gain, and optimize building roof exposure for solar water heating.

3. To the extent possible, incorporate design features to conserve energy and water usage pursuant to Chapter 344, HRS (State Environmental Policy) and Section 226-18, HRS, of the Hawai‘i State Plan. If the project does not incorporate solar water heating into its design, the developer shall submit to HHFDC, either a written approval of a cost-benefit comparative analysis by the Energy Branch of the Department of Business, Economic Development and Tourism (DBEDT), or a cost-benefit comparative analysis bearing the stamp and signature of a licensed mechanical engineer, concluding that the use of the proposed conventional water heating system for the project is more cost effective than a solar water heating system. The analysis shall be based on the projected life-cycle costs to purchase and operate the water heating systems. If the life-cycle analysis is positive, the facility shall incorporate solar water heating. If water heating entirely by solar is not cost-effective, the analysis shall also evaluate the life-cycle, cost-benefit of solar water heating for preheating water.
4. To the extent possible, implement water and energy efficiency practices in operations to reduce waste and increase conservation.
5. To the extent possible, incorporate principles of waste minimization and pollution prevention: reduce, reuse, and recycle as a standard operating practice, including programs for construction and demolition waste management, and office paper and packaging recycling programs.
6. To the extent possible, use life cycle cost-benefit analysis to purchase energy efficient equipment such as ENERGY STAR products and use utility rebates, where available, to reduce the purchase and installation costs. ENERGY STAR products meet strict efficiency guidelines set by the U.S. Environmental Protection Agency and the U.S. Department of Energy.
7. To the extent possible, procure environmentally preferable products, including but not limited to recycled and recycled-content, bio-based, and other resource-efficient products and materials.

In addition, all single family dwellings shall include a solar water heater system unless a variance is granted by the State energy resources coordinator pursuant to Section 196-6.5, HRS.

2.4.3.2 INFRASTRUCTURE, MAINTENANCE AND COORDINATION CONSIDERATIONS

The developer will be required to provide and/or develop adequate infrastructure to service the project. This section notes some of the infrastructure and maintenance issues that will require coordination with County agencies and nearby landowners.

Roadways. The developer will be responsible for both on-site roads and off-site road improvements needed to connect the project to the island's road system, including improvements to Leiali‘i Parkway through the DHHL parcel and to the intersection of Leiali‘i Parkway with Honoapi‘ilani Highway.

Drainage. Drainage improvements of two Honoapi‘ilani Highway culvert crossings were part of the original Leiali‘i project, which were subject to a SMA Use Permit (SM1 960024) and Shoreline Setback Variance (SSV 960002). The County of Maui, Department of Planning granted the permits in May 26, 2000. However, the permits have since expired. Additional improvements will be needed, depending on the final development concept.

Drinking Water. The developer shall be responsible for constructing off-site potable wells, reservoirs and water lines for the project, whether it is a private system or one dedicated to the County of Maui DWS.

Sewer System. The County of Maui Department of Environmental Management (DEM) owns and operates the existing wastewater system in the vicinity of the Leiali‘i project site to the County's Lahaina Wastewater Reclamation Facility (WWRF). The proposed sewer system for the Villages of Leiali‘i would be either a private system or a system dedicated to the DEM.

Reclaimed Water. The proposed reclaimed water system for the Villages of Leiali‘i would be either a private system or a system dedicated to the DEM. A private system would be supplied by the on-site WWTP. A dedicated DEM system would be supplied by the Lahaina WWRF via an off-site transmission main.

Maintenance of the Project Site. The developer shall be responsible for any maintenance of the project site, as well as the area from the project boundary to the adjacent street curb, commencing six months from the date of HHFDC Board of Directors' approval of the project.

Coordination of Construction. The developer shall coordinate construction of the project with other activities taking place in the area. The developer shall be responsible for repairing or paying for the costs of repairing any damage that its activities may cause to any improvements, including to the adjacent DHHL Leiali'i project.

Accessibility. The project shall be accessible to and usable by persons with disabilities in compliance with HRS Section 103-50, and the developer shall submit written evidence to HHFDC that the project plans have been approved by the Disability and Communication Access Board, prior to start of construction. This requirement is in addition to any other applicable requirement for accessibility such as the *Fair Housing Amendments Act of 1988*[3] and the *Fair Housing Accessibility Guidelines*.[4]

2.4.3.3 PERMITS AND APPROVALS

HHFDC will require of the developer that the project shall comply with the rules, regulations, ordinances, codes, and standards of the County of Maui and any federal and state requirements. If there is a conflict between requirements, the more restrictive requirement shall control. See Section 1.9 for a list of permits and approvals.

2.5 PRELIMINARY PROJECT COSTS

In the master planning process, preliminary cost estimates were developed for off-site infrastructure. The proposed improvements are detailed in Chapter 4, and summarized in Table 2-8. On-site construction and infrastructure costs will depend on design choices by the selected developer. Initial estimates of the costs of particular infrastructure systems are also included in Chapter 4.

[3] Public Law 100-430. September 13, 1988.
[4] 24 Code of Federal Regulations (CFR) 1. April 2010.

Table 2-8: Summary of Off-site Costs by Concept

Infrastructure	Concept One	Concept Two	Concept Three
Roadway Infrastructure	$15,662,000	$15,662,000	$15,662,000
Water System (Private)			
Phase A	$19,560,500	$20,176,000	$23,562,000
Phase B	$6,893,500	$10,063,300	$6,758,000
Drainage System			
Phase A	$85,600,000	$85,600,000	$79,600,000
Phase B	$14,800,000	$14,800,000	$15,200,000
Sewer System			
Off-Site Sewer System (County)			
Phase A	$42,721,000	$42,721,000	$42,099,000
Phase B	--	--	--
On-Site Sewer System (Private)			
Phase A	$49,119,000	$52,527,000	$54,315,000
Phase B	$19,174,000	$15,766,000	$13,585,000
Reclaimed Water System			
Off-Site Reclaimed Water System (County)			
Phase A	$47,551,000	$49,423,000	$50,408,000
Phase B	$3,361,000	$3,389,000	$9,645,000
On-Site Reclaimed Water System (Private)			
Phase A	$18,884,000	$20,000,000	$20,966,000
Phase B	$2,009,000	$2,028,000	$5,170,000
Electrical and Communication Systems	$4,050,000	$4,050,000	$4,050,000
Subtotal – Phase A			
Infrastructure with County Sewer & Reclaimed Water Systems	$215,144,500	$217,632,000	$215,381,000
Infrastructure with Private Sewer & Reclaimed Water Systems	$192,875,500	$198,015,000	$198,155,000
Subtotal – Phase B			
Infrastructure with County Sewer & Reclaimed Water Systems	$25,054,500	$28,252,300	$31,603,000
Infrastructure with Private Sewer & Reclaimed Water Systems	$42,876,500	$42,657,300	$40,713,000
TOTAL			
Infrastructure with County Sewer & Reclaimed Water Systems	$240,199,000	$245,844,300	$246,984,000
Infrastructure with Private Sewer & Reclaimed Water Systems	$235,752,000	$240,672,300	$238,868,000

Note: All cost estimates are in 2009 dollars.

CHAPTER THREE: DESCRIPTION OF THE AFFECTED NATURAL ENVIRONMENT, POTENTIAL IMPACTS, AND MITIGATION MEASURES

3.1 CLIMATE

3.1.1 EXISTING CONDITIONS

West Maui is known for high insolation; the term Lahaina is commonly translated as "cruel sun." Lahaina is also known for strong winds. Trade winds in Hawai‘i typically blow from northeast to southwest, but the West Maui Mountains limit their access to the West Maui coast, setting a pattern of calm weather with occasional northerlies. Strong gusting winds can come from other directions.

Generally, temperatures are moderate. Temperatures recorded at Kapalua Airport, four miles north of the project, have ranged from 58 degrees to 96 degrees Fahrenheit, but the daily average ranges from 69.2 to 81.9 degrees. Annual precipitation at the Kapalua Airport averages 29.8 inches.[1] The project site is to the south of the airport, in an area with similar climate.

3.1.2 POTENTIAL IMPACTS AND MITIGATION MEASURES

The proposed Villages of Leiali‘i development will not have a significant impact on the climate.

[1] U.S. Dept. of Commerce, National Oceanic and Atmospheric Administration, Western Regional Climate Center, Hawai‘i Climate Summaries, in Hawaii Business Research Library. *Maui County Data Book 2009.* Kihei, HI, 2010. Posted at http://www.hbrl-sbdc.org/mcdb/2009/3Geography%20and%20Land%20Use.pdf. The Kapalua weather data records date back to 1987.

Table 3-1: Impacts of the Alternatives on Climate

ALTERNATIVES		NO IMPACTS	POTENTIAL IMPACTS	ADVERSE IMPACTS	COMMENTS/MITIGATION MEASURES
1.	No Action	✓			No impacts on climatic conditions are expected under the No Action Alternative.
2.	Concept One	✓			No impacts on climatic conditions are expected under Alternative Concept One.
3.	Concept Two	✓			No impacts on climatic conditions are expected under Alternative Concept Two.
4.	Concept Three	✓			No impacts on climatic conditions are expected under Alternative Concept Three.

3.2 GEOLOGY AND TOPOGRAPHY

3.2.1 EXISTING CONDITIONS

Maui island consists of two major volcanoes. The older one is West Maui, the younger is Haleakalā. The West Maui volcano may be extinct. The project site is at the base of the West Maui Mountains. The deep valleys of that massif and alluvial plain below them testify to a long history of erosion.

The underlying rock in the area is Wailuku basalt. The Lahaina series lavas come from a later eruption. Pu‘u Laina, containing the Crater Reservoir, was the major site from which Lahaina lavas flowed. There are no known geothermal resources below the project site.

The site slopes up from west to east, reaching an elevation of approximately 800 feet above mean sea level in the northeast corner. Slopes range from about 6 percent in the lower elevations to 12 percent in the higher (Phase B) sections of the site.

3.2.2 POTENTIAL IMPACTS AND MITIGATION MEASURES

A grading permit will need approvals from State DLNR SHPD, Maui County Planning Department, and Department of Public Works (DPW) before construction begins. Grading plans for the site will be reviewed by DPW and SHPD.

The existing topography would be altered to the extent necessary for construction of the proposed project. Cut and fill quantities are anticipated to be similar, so little or no fill would be brought to or taken from the site. During all phases of construction, erosion control practices will

comply with county, state and federal regulations. A National Pollutant Discharge Elimination System (NPDES) general permit will be required from the State Department of Health (DOH), Environmental Management Division, Clean Water Branch, authorizing discharge of storm water associated with construction activity. Best Management Practices (BMP) to control erosion during construction will be a component of the NPDES permit.

The project would have no significant geographic or topographic impacts.

Table 3-2: Impacts of the Alternatives on Geography and Topography

ALTERNATIVES		NO IMPACTS	POTENTIAL IMPACTS	ADVERSE IMPACTS	COMMENTS/MITIGATION MEASURES
1.	No Action	✓			No impacts on are expected under the No Action Alternative.
2.	Concept One		✓		Impacts will be subject to county, state and federal regulation. BMPs will be used to control erosion.
3.	Concept Two		✓		Impacts will be subject to county, state and federal regulation. BMPs will be used to control erosion.
4.	Concept Three		✓		Impacts will be subject to county, state and federal regulation. BMPs will be used to control erosion.

3.3 GROUNDWATER, HYDROLOGY, SURFACE WATER AND DRAINAGE

3.3.1 EXISTING CONDITIONS

Groundwater, hydrology, surface water conditions, and drainage were analyzed for the 1990 EIS.[2] Since those studies were completed, plantation agriculture on the project site has been abandoned. The Honokōhau Ditch irrigation system remains, drawing water from the Wahikuli Reservoir (at the edge of the project site) for use on KLMC land to the north. The Crater Reservoir receives excess water from the Wahikuli Reservoir. An existing well, which supplies water for landscape irrigation at Leiali‘i Parkway, is located on the project site in TMK: 4-5-21:21.

[2] J. Mink. “Water Supply for the HFDC Project, Lahaina Maui.” In W. S. Unemori Engineering, Inc. *Evaluation of Offsite Infrastructural Requirements, HFDC Residential Development, Wahikuli-Lahaina, Maui, Hawaii.* 1989. Summarized in 1990 EIS for HFDC.

The groundwater aquifer below the project site is not impeded by caprock at the coast. Groundwater flow has been estimated as 4.5 to 5.0 million gallons per day (mgd) per mile of coastline. The groundwater floats as a lens on seawater and discharges along the coast. Evidence of the freshwater lens along the coast has been found in salinity measurements.[3] A Time Domain Electro-Magnetic (TDEM) survey was completed in October to November 2009 upslope of the project site. The TDEM surveys indicate the possibility of high level groundwater occurring as low as the 1,450-foot elevation upslope of the site. High level groundwater occurs where there are low permeability subsurface features which impede and/or control groundwater movement.[4]

West Maui draws on both public and private water systems. The County's system taps both groundwater and surface water. Metered usage of the County system reached 5.2 mgd in West Maui in 2005. Customers are largely residential users; agriculture accounts for less than 1 percent of that demand.[5] (Kā'anapali's private water system supplies both the resort and agricultural lands.)

Runoff from the project site and mauka lands generally sheet flows, collects, and is conveyed in existing channels from east (mauka) to west (makai).

Irrigation ditches cross the northern and mauka portions of the site. Several mauka-makai ditches were abandoned with the end of sugar production. Eight basins can be identified within the site (Figure 3-1). A detention basin was created on the site for the DHHL Leiali'i development. Major conveyance ditches, notably the Honokōhau Ditch connecting to Wahikuli Reservoir, are still in use supplying water to the coffee fields located in the Kā'anapali 2020 lands.

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3 R. Brock and A. Kam, "Predevelopment Reconnaissance of the Marine Macrobiota and Water Quality Conditions Affronting the Lahaina Master Planned Project, Lahaina, Maui." Appendix G in PBR Hawaii, *Lahaina Master Planned Project Final Environmental Impact Statement.* 1990. Prepared for Housing Finance and Development Corporation. Honolulu, HI.

4 Tom Nance, "Assessment of Blackhawk's TDEM Results in the Area Inland of the Villages of Leialii Project" Memorandum, January 4, 2010.

5 C. Freedman, "Water Use and Demand: Department of Water Supply Systems." *Draft Maui County Water Use and Development Plan.* Haiku, HI. 2007. Posted at http://www.co.maui.hi.us/documents/Water/Water%20Resource%20Planning%20Division/WUDPdraftDemand.PDF

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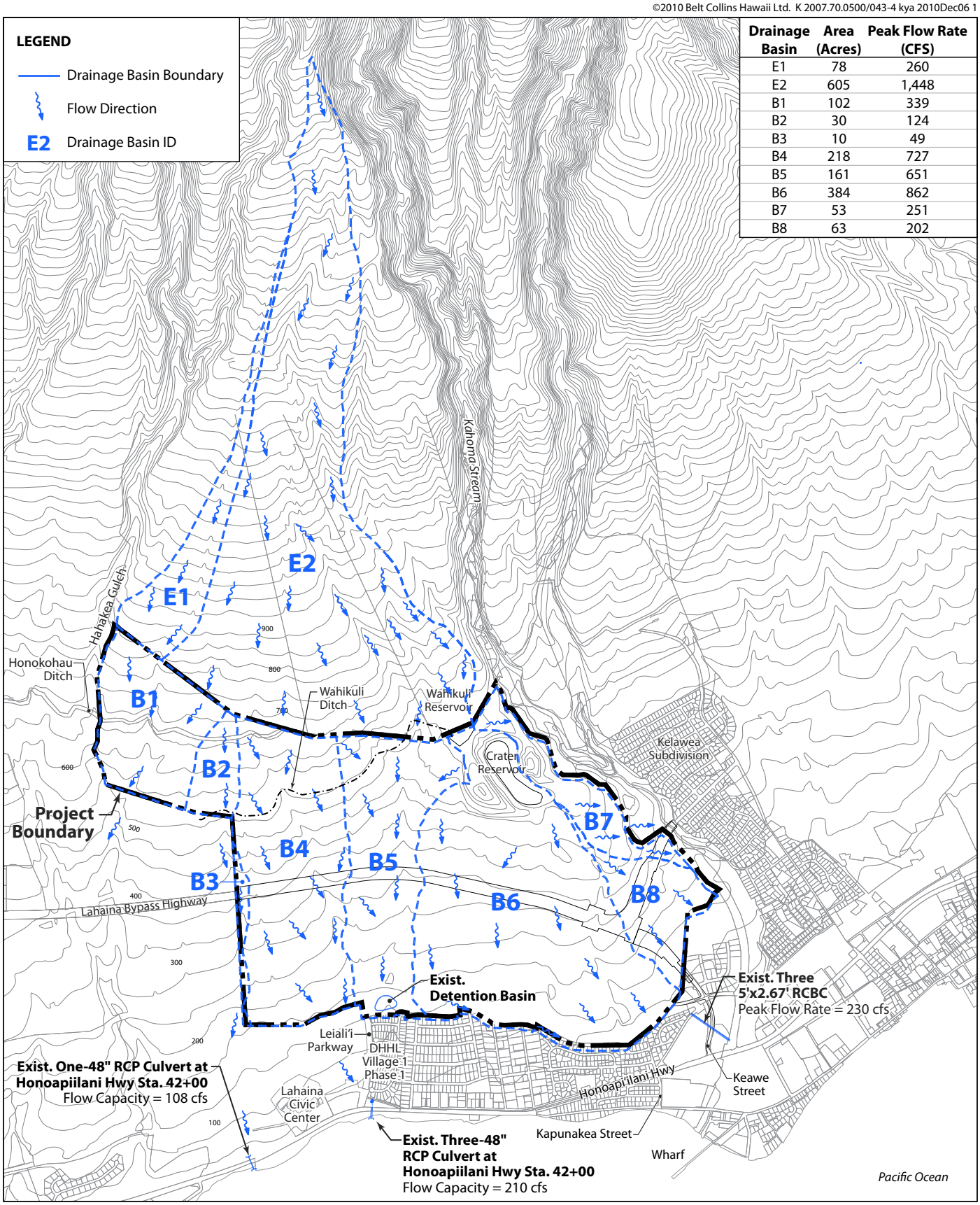


Drainage Basin	Area (Acres)	Peak Flow Rate (CFS)
E1	78	260
E2	605	1,448
B1	102	339
B2	30	124
B3	10	49
B4	218	727
B5	161	651
B6	384	862
B7	53	251
B8	63	202

BELT COLLINS

NORTH

0 600 1200 2400
SCALE IN FEET

Figure 3-1
EXISTING DRAINAGE BASINS

Villages of Leiali'i
November 2010

Crater Reservoir is a volcanic crater which receives excess irrigation water from Wahikuli Reservoir. Kaanapali Land Management Corporation personnel reports that there is an outlet or spillway from Crater Reservoir. Wahikuli Reservoir has been inspected by a team from the U.S. Army Corps of Engineers. It has been identified as a "High Hazard" dam. That classification is used when a dam is located above populated areas. No assessment of the strength of the dam is involved. Crater Reservoir is not in use but is identified as a receiving area in case of overflow at the Wahikuli Reservoir.

New Flood Insurance Rate maps (FIRM) have recently been produced by the Federal Emergency Management Agency (FEMA). Along with earlier maps, they show the project site as an area of minimal flooding. Some flooding can occur in gullies to the north and south of the project, and near Honoapi'ilani Highway, outside the current project site.

3.3.2 POTENTIAL IMPACTS AND MITIGATION MEASURES

Development of the project would increase impermeable surface areas and, hence, reduce the opportunity for groundwater recharge on the site. However, the property is not located up gradient of drinking wells or distinctive geological formations sensitive to changes in groundwater flows from the site.

The project will require the development of potable drinking wells. Test wells and TDEM surveys upslope of the project site indicate the opportunity for development of basal groundwater wells, high level groundwater wells, or a combination on State and private lands. However, available well sites upslope of the project are limited as the developable groundwater supply is estimated to be 2.0 mgd per mile.[6] At full build-out of the project, the water demands will require the development of the potential upslope well sites. To mitigate impacts on the groundwater aquifer, water conservation programs should be implemented, reclaimed water should be used to the maximum extent practicable, and the aquifer should be monitored. For details on mitigation measures, see Section 4.8.3.3.

The project will respect existing on-site drainageways and will detain runoff from the site in on-site detention basins. A cutoff ditch along the mauka (east) property line would discharge off-site

[6] Tom Nance, "Conceptual Offsite Water Master Plan for the Villages of Leialii in Lahaina, Maui", August 2009.

runoff to Crater Reservoir and a minor drainageway that discharges to Hāhākea Gulch. In the alternative to discharging to Crater Reservoir, on-site drainageways will detain off-site runoff in several on-site retention basins. Culvert improvements will be required at Honoapi'ilani Highway, and a triple 5-foot by 2.67-foot box culvert at Keawe Street will have to be extended approximately 700 feet to the project site. For a full description of the proposed improvements, see 4.8.2.2. To mitigate the impacts of the project, the project will be required to comply with the NPDES permit requirements, County Soil Erosion and Sedimentation Control, and County Rules for the Design of Storm Drainage Facilities. For details of the developed drainage system and mitigation measures, see Section 4.8.2.

Table 3-3: Impacts of the Alternatives on Groundwater and Hydrology, Surface Water and Drainage

ALTERNATIVES		NO IMPACTS	POTENTIAL IMPACTS	ADVERSE IMPACTS	COMMENTS/MITIGATION MEASURES
1	No Action	✓			No impacts to groundwater, hydrology, surface water and drainage are anticipated under the No Action Alternative.
2	Concept One		✓		To mitigate impacts on the groundwater and hydrology, water conservation programs should be implemented, reclaimed water should be used to the maximum extent practicable, and the groundwater aquifer should be monitored. The project would be required to comply with the NPDES permit requirements, County Soil Erosion and Sedimentation Control, and County Rules for the Design of Storm Drainage Facilities.
3	Concept Two		✓		To mitigate impacts on the groundwater and hydrology, water conservation programs should be implemented, reclaimed water should be used to the maximum extent practicable, and the groundwater aquifer should be monitored. The project would be required to comply with the NPDES permit requirements, County Soil Erosion and Sedimentation Control, and County Rules for the Design of Storm Drainage Facilities.
4	Concept Three		✓		To mitigate impacts on the groundwater and hydrology, water conservation programs should be implemented, reclaimed water should be used to the maximum extent practicable, and the groundwater aquifer should be monitored. The project would be required to comply with the NPDES permit requirements, County Soil Erosion and Sedimentation Control, and County Rules for the Design of Storm Drainage Facilities.

3.4 SOILS AND AGRICULTURE POTENTIAL

3.4.1 EXISTING CONDITIONS

Soil Types

The soils of the proposed project site include eight soil categories, enumerated by the U.S. Department of Agricultural, Soil Conservation Service.

Lahaina Silty Clay (LaB): Approximately 40 acres of the proposed project site consist of Lahaina Silty Clay. This soil is categorized as a surface layer, with most parts of the subsoil removed due to prior erosion. A few areas of the project site, where Lahaina Silty Clay exists, are eroded to soft, weathered rock.

Lahaina Silty Clay (LaC): Approximately 180 acres of the project site consist of this soil type. Runoff is medium and the erosion hazard is considered moderate. There are small steep areas and areas where cobble stones are on the surface.

Lahaina Silty Clay (LaD): Approximately 20 acres of the project site consist of this soil type. Similar to Lahaina Silty Clay, this soil type runoff is medium and the erosion hazard is moderate.

Wahikuli Stony Silty Clay (WcB): Approximately 220 acres of the project site consist of this soil type. This soil was formerly used for sugar cane cultivation. The soil is often used for cultivation, with the exception that there are stones on the surface of the soil to hinder cultivation.

Wahikuli Stony Silty Clay (WcC): Approximately 290 acres of the project site consist of this soil type. Runoff is slow to medium and the erosion hazard is slight to moderate. This soil type was also used for the cultivation of sugarcane and homesites.

Wahikuli Very Stony Silty Clay (WdB): Approximately 200 acres of the project site consist of this soil type. This soil was also used for sugar cane and a small percentage of the acreage was used for homesites.

Rock Land (rRK): Approximately 10 acres of the project site consist of this soil type. Rock Land is comprised of areas where exposed rock covers approximately 25 percent to 90 percent of the surface. This type of soil is present on all major Hawaiian islands. Approximately 11 acres of the project site, all within the gulches on the site, are Rock Land. Rock Land is present in a variety of land uses, including wildlife habitats, pasturing of domestic animals as well as for urban development.

Rough Broken and Stony Land (rRS): Approximately 60 acres of the project site consist of this soil type.

Figure 3-2 shows the location of these soil types on the project site.

Soil Conservation Service Ratings

The Soil Conservation Service (SCS) has assigned agricultural use ratings to lands throughout Hawai'i.[7] The soils at the project site are rated as follows:

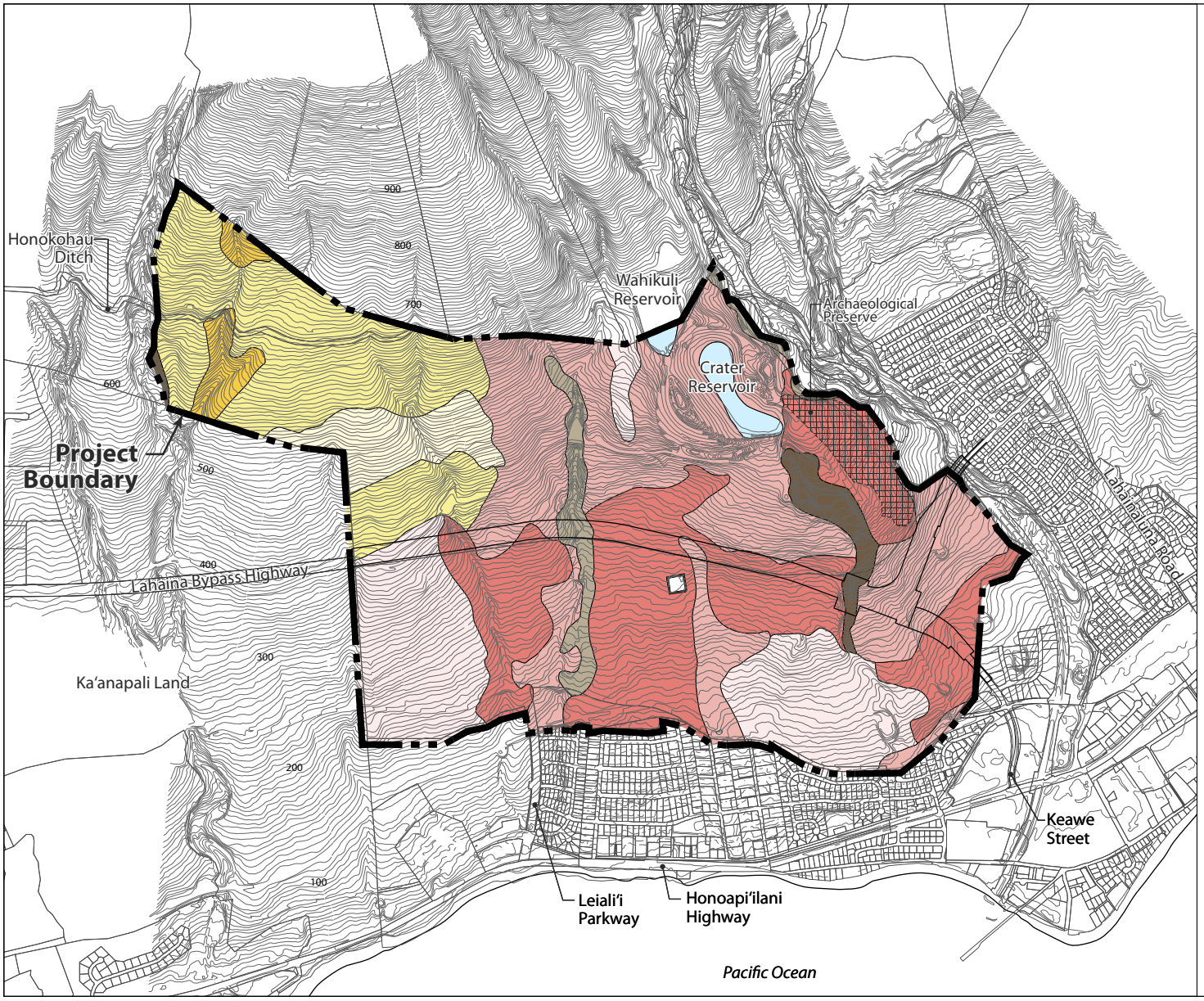
Table 3-4: Soil Conservation Service Ratings

Type	SCS Rating	Agricultural Uses	
		Irrigated	Non-Irrigated
LaB	IIIe	IVe	Sugar, pineapple, truck crops, pasture
LaC	IIIe	IIIe	Sugar, pineapple, truck crops, pasture
LaD	IVe	IVe	Sugar
rRK	--	VIIs	Pasture
rRS	--	VIIs	Pasture
WcB	IIe	IVe	Sugar
WcC	IIIe	IVe	Sugar
WdB	IVs	VIs	Sugar

Notes: Ratings range from highest (I) to lowest (VII) capability. On SCS ratings, "e" indicates a risk of erosion, and "s" identifies stony soils.

While nearly all the project site is identified as appropriate for agriculture, extensive irrigation has been needed to sustain productivity on those lands.

[7] U.S. Department of Agriculture, Soil Conservation Service, *Soil Survey of Islands of Kauai, Oahu, Maui, Molokai and Lanai, State of Hawaii.* Honolulu, HI, 1972.



LEGEND

LaB	Lahaina, silty clay, 3 to 7 percent slopes
LaC	Lahaina, silty clay, 7 to 15 percent slopes
LaD	Lahaina, silty clay, 15 to 25 percent slopes
WcB	Wahikuli stony silty clay, 3 to 7 percent slopes
WcC	Wahikuli stony silty clay, 7 to 15 percent slopes
WdB	Wahikuli very stony silty clay, 3 to 7 percent slopes
rRK	Rock land
rRS	Rough broken and stony land
w	Water

Source:
Soil types—U.S. Department of Agriculture, Natural Resources Conservation Service. December 31, 2006. *Soil Survey Geographic (SSURGO) database for Island of Maui, Hawaii*. http://SoilDataMart.nrcs.usda.gov (June 23, 2010).

Note: Lot lines shown are approximate and for illustrative purposes.

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BELT COLLINS

NORTH

0 500 1000 2000
SCALE IN FEET

Figure 3-2
SOIL TYPES

Villages of Leiali'i
November 2010

Agricultural Lands of Importance to the State of Hawai'i (ALISH)

The ALISH ratings were developed in 1977 by the Natural Resources Conservation Service, the University of Hawai'i College of Tropical Agriculture and Human Resources, and the State Department of Agriculture.[8] Land is classified into three broad categories: (1) Prime agricultural land, which is land best suited for the production of crops because of its ability to sustain high yields with relatively little input and with the least damage to the environment; (2) Unique agricultural land, which is non-Prime agricultural land used for the production of specific high-value crops (e.g., coffee and taro); (3) Other agricultural land, which is non-Prime and non-Unique agricultural and that is important to the production of crops; and (4) Unclassified which are lands that are not rated.

The great majority of the project site land was identified as "Prime" or "Other Important" agricultural land in the ALISH studies, as shown in Figure 3-3. This classification reflected the then-current use of the land for sugar cultivation.

Land Study Bureau Detailed Land Classification

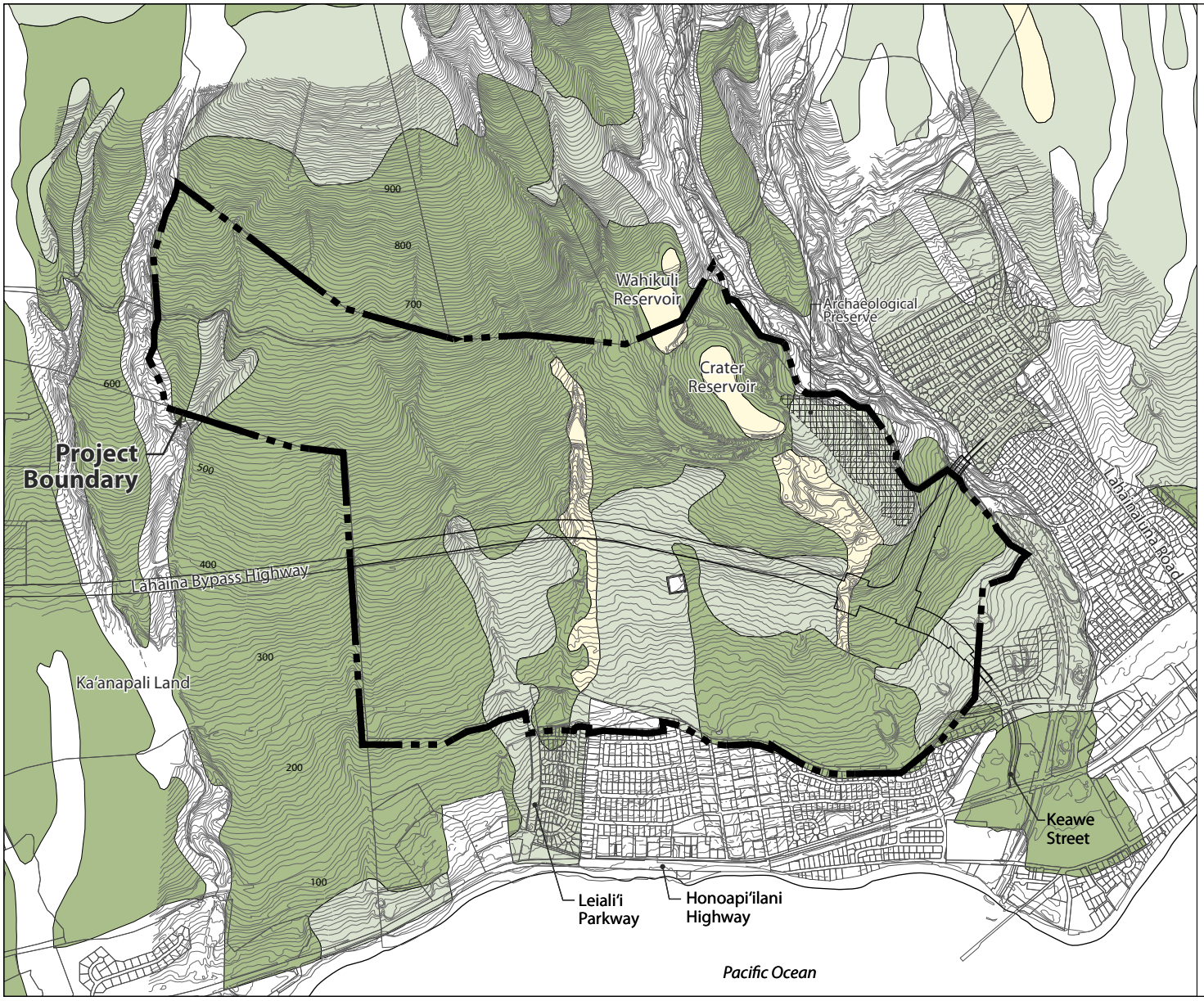
In 1972, the University of Hawai'i Land Study Bureau (LSB) developed the Overall Productivity Rating, which classifies soils according to five levels of agricultural productivity using the letters A, B, C, D, and E. The letter A represents the highest class of productivity and E the lowest class of productivity. The subject property lands had been classified as A, B, and C, with areas below and around the Crater Reservoir and in the gulches classified as E. Now that the site has been urbanized by the LUC, it is no longer shown on the LSB map (Figure 3-4).

Agriculture in West Maui

Agriculture on Maui Island is prospering, at least in comparison to other islands of Hawai'i. The state's only remaining sugar plantation is located in central Maui. Pineapple cultivation remains, and the "Maui Gold" brand has been developed to mark the island's produce as exceptional.

---

[8] ALISH is distinct from "important agricultural lands." Act 233, State Laws of Hawai'i 2008, established procedures to designate "important agricultural lands" throughout Hawai'i. The counties are to identify such lands, after consultation with landowners, and propose maps to the Land Use Commission. While some private landowners have proposed designation of their land, none of the counties has completed the initial phase of the designation process.



LEGEND

- Unclassified
- Prime Lands
- Other Lands

Source:
Agricultural Lands of Importance to the State of Hawaii. Hawaii Statewide GIS Program.1977. *Agricultural Lands of Importance to the State of Hawaii for the Island of Maui.* http://hawaii.gov/dbedt/gis/alish.htm (June 23, 2010).

Note: Lot lines shown are approximate and for illustrative purposes.

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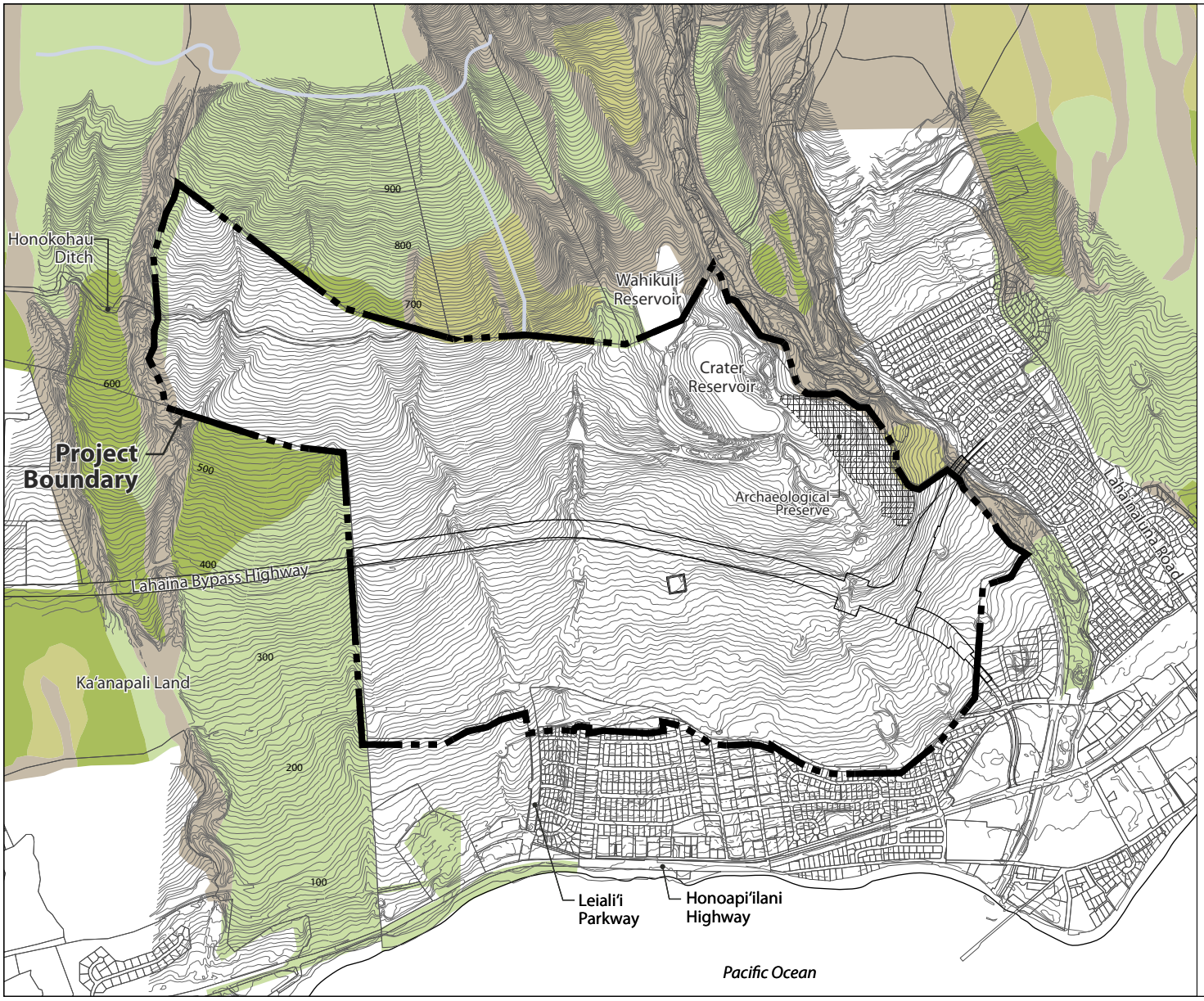
BELT COLLINS

NORTH

0 500 1000 2000
SCALE IN FEET

Figure 3-3
AGRICULTURAL LANDS OF IMPORTANCE

Villages of Leiali'i
November 2010



LEGEND

- A — 85 to 100 percent soil productivity
- B — 70 to 84 percent soil productivity
- C — 55 to 69 percent soil productivity
- D — 30 to 54 percent soil productivity
- E — 0 to 30 percent soil productivity
- Not Classified

Source:
Hawaii Statewide GIS Program. Land Study Bureau (LSB). 1972. *Land Study Bureau's Detailed Agricultural Land Productivity Ratings for Maui.* http://hawaii.gov.dbedt/gis/lsb.htm (June 23, 2010).

Note: Lot lines shown are approximate and for illustrative purposes.

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BELT COLLINS

NORTH

0 500 1000 2000
SCALE IN FEET

Figure 3-4
SOIL PRODUCTIVITY ACCORDING TO LAND STUDY BUREAU

Villages of Leiali'i
November 2010

Flower farms have developed in the Upcountry region. Taro is cultivated on family lands in many parts of the island. Diversified farming of vegetables and fruits is practiced by small-scale commercial farmers.

Nearly all the land once used for sugar and pineapple cultivation in West Maui remains fallow. Pioneer Mill closed its operations in the Lahaina area in 1999. While KLMC attempted to develop diversified agriculture and Maui-branded coffee enterprises, these did not succeed. Coffee is still cultivated, but on large-lot estates, on which others defray land costs. Maui Land & Pineapple no longer grows pineapple; its fields on the lower slopes of Haleakalā are now being farmed by a new, smaller operator.

In 1960, approximately 330,000 acres were in use for plantation or diversified agriculture in the state of Hawai‘i. With the withdrawal of plantation agriculture, the total had dropped to slightly over 100,000 acres by 2005.[9] Diversified agriculture expanded from less than 20,000 acres in 1960 to about 50,000 acres by the mid-1990s. Since then, acreage in crop has expanded, and then declined to less than 50,000 acres. Even if this sector somehow increased fivefold, the total acreage farmed would still be well below historical levels.

3.4.2 POTENTIAL IMPACTS AND MITIGATION MEASURES

The project site has already been classified Urban, and thus as appropriate for non-agricultural development. Development of the project will rule out future agricultural use. However, such use was at best unlikely without independent irrigation. Furthermore, the agricultural acreage now vacant far exceeds that needed to support the people of Hawai‘i. Final withdrawal of the property from future agricultural use would not have a significant impact on agriculture.

[9] Decision Analysts Hawai‘i Inc. *Koa Ridge Makai: Impact on Agriculture.* Honolulu, HI. 2008. In Helber Hastert & Fee’s *Final Environmental Impact Statement: Koa Ridge Makai & Waiawa Development.* Vol. II. Honolulu, HI 2009.

Table 3-5: Impacts of the Alternatives on Soil and Potential for Agriculture

ALTERNATIVES		NO IMPACTS	POTENTIAL IMPACTS	ADVERSE IMPACTS	COMMENTS/MITIGATION MEASURES
1	No Action	✓			Agricultural operations on the project site have been abandoned for many years. No impacts to soils or the potential for agricultural activity are expected under the No Action Alternative.
2	Concept One	✓			Urban development of the project site rules out agricultural use for nearly all of the site, but the land is not in demand for viable agricultural operations.
3	Concept Two	✓			Urban development of the project site rules out agricultural use for nearly all of the site, but the land is not in demand for viable agricultural operations.
4	Concept Three	✓			Urban development of the project site rules out agricultural use for nearly all of the site, but the land is not in demand for viable agricultural operations.

3.5 NATURAL HAZARDS

Potential natural hazards in the project area include earthquakes, volcanic eruptions, tsunami, and hurricanes. Flooding has already been discussed in Section 3.3.

3.5.1 EARTHQUAKES

Existing Conditions

The state of Hawai'i is seismically active, especially on and near the island of Hawai'i. Maui County has experienced earthquakes in 1871 (Lāna'i) and 1938 (north of Maui) that caused damage to structures and roadways. (Roads in the Hāna District were damaged during the 2006 West Hawai'i earthquake.) Seismic hazards in the Lahaina area are much the same as for the rest of Maui. The County is rated as seismic hazard level 2B in the Uniform Building Code (UBC) (as compared to 4, the highest level, for the island of Hawai'i, and 1 for Kaua'i).

Maui County adopted the UBC (1997 edition, with amendments). Along with the other counties in Hawai'i, it is moving towards adoption of the International Building Code. The current and likely future code both address seismic issues.

Potential Impacts and Mitigation Measures

The project would have no impact on the risk or consequences of earthquakes. Earthquakes can lead to property damage, but construction according to code will mitigate such damage in all but the most extreme circumstances.

Table 3-6: Impacts of the Alternatives from Earthquakes

ALTERNATIVES		NO IMPACTS	POTENTIAL IMPACTS	ADVERSE IMPACTS	COMMENTS/MITIGATION MEASURES
1	No Action	✓			No impacts on are expected under the No Action Alternative.
2	Concept One		✓		Construction of the improvements will be required to comply with the UBC's standards for Zone 2B.
3	Concept Two		✓		Construction of the improvements will be required to comply with the UBC's standards for Zone 2B.
4	Concept Three		✓		Construction of the improvements will be required to comply with the UBC's standards for Zone 2B.

3.5.2 VOLCANIC HAZARDS

Existing Conditions

Volcanic hazards for Maui have been studied closely. Hazard zones have been identified for lava flow and tephra (ash) falls. The project site lies within lava-flow hazard Zone 5, the zone with the lowest hazard level. This zone includes all areas that have not been affected by flows for at least 20,000 years. For ash falls, the project site lies within Zone 3, where less than one centimeter of ash is expected to fall, on average, once per 1,000 years.[10]

Potential Impacts and Mitigation Measures

Due to the low likelihood of volcanic or seismic activity, no special mitigation measures are warranted beyond following current engineering design and building standards for Hawai'i.

[10] Mullineaux, et al, 1987, as reported in PBR Hawaii, 1990.

3.5.3 TSUNAMI INUNDATION

Existing Conditions

The State has identified potential tsunami inundation areas throughout Hawai‘i. West of the project area, the tsunami evacuation map identifies the Wahikuli State Wayside beach area as within the evacuation zone, but Honoapi‘ilani Highway and land mauka as outside that zone. Emergency shelters are located at Princess Nahi‘ena‘ena Elementary, Lahaina Middle, and Lahainaluna High School. Project residents will be able to reach those locations either by the Lahaina Bypass or the existing highway.

Potential Impacts and Mitigation Measures

Tsunami inundation does not pose a risk to the project site, nor does project development affect tsunami risk and response for others in the area.

3.5.4 HURRICANES

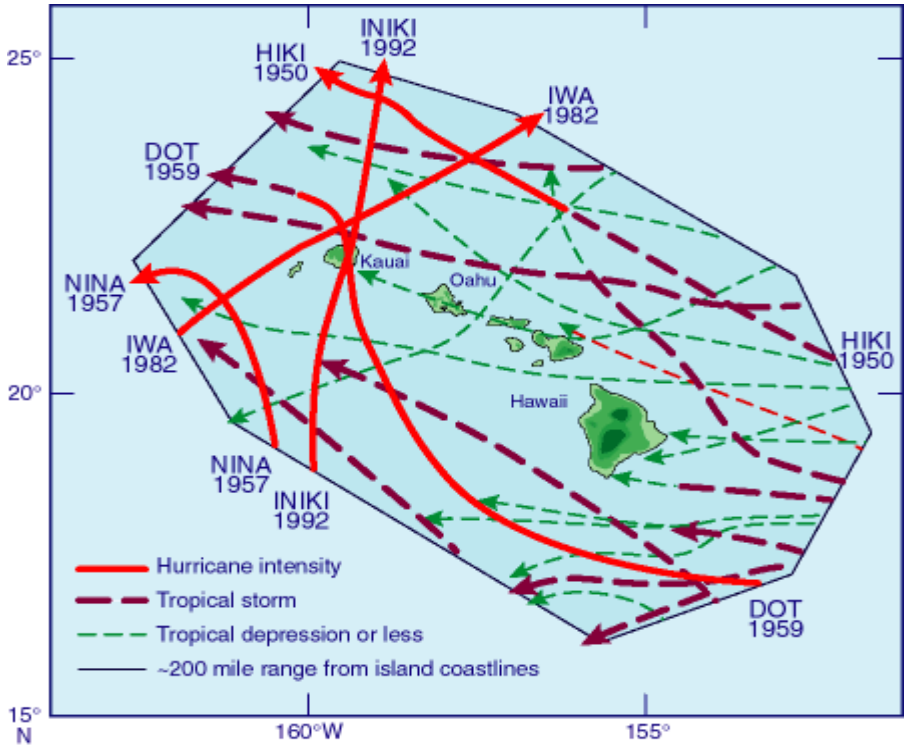
Existing Conditions

Hurricanes are rated in terms of wind speed and, hence, risk of damage. No standard rating of risk for geographic areas is in use. Hurricanes can damage structures and risk lives due to wind, waves, or storm surge. Winds are strongest in the immediate path of these storms but can be strong over a wider area. Waves and storm surge normally reach coasts ahead of the high winds. When a hurricane reaches land, local rainfall is often intense.

Maui was spared by the most severe tropical storms to hit Hawai‘i in the 20th century (Figure 3-5).[11] This may be due to the low incidence of hurricanes, not to any geographic feature that protects the island or West Maui. No recent hurricanes have passed directly over Lahaina.

[11] Schroeder, Tom, “Hawaii’s Hurricanes: Their History, Causes and Future.” Office of State Planning, 1993. US Army Corps of Engineers, *Hurricane Vulnerability Study for Honolulu, Hawaii, and Vicinity*, 1985. Map accessed January 23, 2009 and reproduced from http://www.soest.hawaii.edu/MET/Faculty/businger/poster/hurricane/Fig2_tracks.gif.

Figure 3-5: Tracks of Major Tropical Storms



Source: http://www.soest.hawaii.edu/MET/Faculty/businger/poster/hurricane/Fig2_tracks.gif.

Potential Impacts and Mitigation Measures

Located inland, the project site is less likely to experience extreme wind damage than coastal properties. Structures built to current codes include clips and other means to reduce the risk of wind damage.

Table 3-7: Impacts of Natural Hazards on the Alternatives

ALTERNATIVES		NO IMPACTS	POTENTIAL IMPACTS	ADVERSE IMPACTS	COMMENTS/MITIGATION MEASURES
1.	No Action	✓			The subject property is located outside the coastal tsunami evacuation area. It is in a low hazard zone for volcanic activity. The entire island is potentially subject to hurricanes and earthquakes.
2.	Concept One		✓		Risk of natural hazards cannot be eliminated, but can be mitigated by construction according to County Building Code.
3.	Concept Two		✓		Risk of natural hazards cannot be eliminated, but can be mitigated by construction according to County Building Code.
4.	Concept Three		✓		Risk of natural hazards cannot be eliminated, but can be mitigated by construction according to County Building Code.

3.6 MAN-MADE HAZARDS

3.6.1 EXISTING CONDITIONS

A Phase 1 Environmental Site Assessment was conducted for this project; see Appendix D. Pesticides and herbicides were used for the cultivation of sugar; however, when applied according to the labeled instructions, their use is not considered a release and therefore does not qualify as a recognized environmental condition. No other hazardous substances or petroleum have been stored on the site. The Phase 1 study identified a rusting pole-mounted transformer and various substation transformers located on bare soil, which may pose a threat by leaking or may have leaked polychlorinated biphenyls (PCBs).

3.6.2 POTENTIAL IMPACTS AND MITIGATION MEASURES

Further study or removal of transformers will depend on the specific use proposed for those sites by the future developer. HHFDC will require that the future developer remove hazards and remediate as necessary any site slated for use by future occupants.

Table 3-8: Impacts of Man-Made Hazards on the Alternatives

ALTERNATIVES	NO IMPACTS	POTENTIAL IMPACTS	ADVERSE IMPACTS	COMMENTS/MITIGATION MEASURES
1. No Action		✓		Sites of potential PCB releases have been identified in the project area.
2. Concept One		✓		Environmental hazards will be remediated at any site proposed for use.
3. Concept Two		✓		Environmental hazards will be remediated at any site proposed for use.
4. Concept Three		✓		Environmental hazards will be remediated at any site proposed for use.

3.7 TERRESTRIAL FLORA

3.7.1 EXISTING CONDITIONS

Botanical field surveys were conducted on the project site in 1989 and 2008. In 1989, 88 plant species were noted; in 2008, the total had increased to 155. Of that number, only 12 are native plants: two are endemic (i.e., found only in Hawai‘i) and ten are indigenous (not endemic, but present before European contact). No threatened or endangered species were found during either survey.

Four types of vegetation were recognized in the 2008 survey. These are described in detail in Appendix B and summarized here:

- Managed Land Vegetation. Flora at several sites indicate past or current agricultural activities, including garden plots near the western edge of the project area, abandoned papaya plantations, abandoned pineapple and cane fields, dirt tracks, a parking area, and a railroad right-of-way. Alien grasses and weedy species now dominate the abandoned areas.
- Buffel Grass/Koa Haole Grassland. This covers nearly all of the Phase A lands. It is successor to the cane fields found there in 1989.
- Cinder Cones. The undisturbed and bulldozed areas on the outside of the craters is covered with much the same mix of grass and koa haole as in the grasslands. A wider variety of plants, including the two endemic species, was found inside the craters. One native species, *a‘ali‘i,* was found here but not elsewhere on the project site.
- Riparian Vegetation. The western reservoir is surrounded by a forest dominated by Java plum with guava and Chinese banyan.

Table 3-9: Native Plant Species Found on the Leiali‘i Project Site

Latin	English/Hawaiian	Incidence
	Endemic	
Doryopteris decora	-	Uncommon
Lipochaeta lavarum	-	Uncommon
	Indigenous	
Blechnum occidentale	blechnum	Uncommon
Boerhavia repens	alena, nena	Uncommon
Cordia subcordata	kou, cordial	Cultivated
Dodonaea viscose	‘a‘ali‘i	Uncommon
Ipomoea indica	koali-‘awa	Uncommon
Jacquemontia ovalifolia	pa‘u-o-Hi‘i‘aka	Uncommon
Psilotum nudum	moa	Uncommon
Sida fallax	‘ilima	Common
Solanum americanum	black nightshade, popolo	Uncommon
Waltheria indica	‘uhaloa	Abundant

3.7.2 POTENTIAL IMPACTS AND MITIGATION MEASURES

There are no botanical impediments to the proposed project. The project site has not been designated as critical habitat for any listed species. Because no species is federally listed as threatened or endangered, no mitigation is needed.

3.8 AVIFAUNA AND TERRESTRIAL FAUNA

3.8.1 EXISTING CONDITIONS

A survey of avian and terrestrial mammals was conducted on the project site in April 2008. Appendix C provides the detailed findings of the survey. Because no species are federally listed as threatened or endangered, no mitigation is needed.

Seven terrestrial mammals and 22 avian species were observed. All of the mammals were common alien species. Two of the bird species were native (short-eared owl, or *pueo*, and black-crowned night heron). The rest were alien to Hawai‘i. Three species – Japanese white-eye (*Zosterops japonicus*), house finch (*Carpodacus mexicanus*), and gray francolin (*Francolinus pondicerianus*) – accounted for slightly more than 48 percent of the total number of birds recorded during station counts.

No species are listed as threatened, endangered, or proposed for listing under federal or state statutes.

No indigenous migratory species were recorded during the survey. However, it is likely that several migratory shorebirds are present in the area and on the site between late July and late April each year. The most likely species to be expected are the Pacific golden plover (*Pluvialis fulva*), ruddy turnstone (*Arenaria interpres*), and wandering tattler (*Tringa incana*). All of these species are commonly encountered in Hawai‘i during the fall and winter months. All three nest in the high Arctic, and spend the winter months in lower latitudes, including Hawai‘i.

Both the endangered Hawaiian petrel (*Pterodroma sandwichensis*) and the threatened endemic sub-species of the Newell’s shearwater (*Puffinus auricularis newelli*) may over-fly the project area between April and the end of November each year. Both species have been recorded flying

inland south of Lahaina and at other locations on Maui. Both of these pelagic seabird species nest high in the mountains in burrows excavated under thick vegetation. There is no suitable nesting habitat for either of these seabird species on or close to the proposed development site.

The primary cause of mortality in both Hawaiian petrels and Newell's shearwaters is thought to be predation by alien mammalian species at the nesting colonies. Collision with man-made structures is considered the second most significant cause of mortality of these seabird species in Hawai'i. Nocturnally flying seabirds, especially fledglings on their way to sea in the summer and fall, can become disoriented by exterior lighting. When disoriented, seabirds often collide with manmade structures, and if they are not killed outright, the dazed or injured birds are easy targets of opportunity for feral mammals.

3.8.2 POTENTIAL IMPACTS AND MITIGATION MEASURES

No endangered or threatened species have been found on the project site. No federally recognized critical habitat is on the site. However, seabirds flying over the site could be disoriented by bright lights and then harmed. Shielding of streetlights and other exterior lights is recommended to mitigate this possibility.

Table 3-10: Impacts of the Alternatives on Avifauna, Terrestrial Fauna and Flora

ALTERNATIVES		NO IMPACTS	POTENTIAL IMPACTS	ADVERSE IMPACTS	COMMENTS/MITIGATION MEASURES
1.	No Action	✓			Project site is highly disturbed area after decades of agricultural use. No protected species identified.
2.	Concept One		✓		Shielding of external lights recommended to minimize risk of harm to seabirds.
3.	Concept Two		✓		Shielding of external lights recommended to minimize risk of harm to seabirds.
4.	Concept Three		✓		Shielding of external lights recommended to minimize risk of harm to seabirds.

CHAPTER FOUR: DESCRIPTION OF THE EXISTING HUMAN ENVIRONMENT, POTENTIAL IMPACTS, AND MITIGATION MEASURES

4.1 ARCHAEOLOGICAL AND HISTORIC RESOURCES

4.1.1 EXISTING CONDITIONS

The site has few archaeological resources. In part this reflects past settlement patterns concentrated on the coast and along streams, leaving the alluvial plain as a transitional zone. In part it is because of the extensive cultivation that took place during the plantation era. Almost the entire site except for the Pu‘u Laina area and gulches were cultivated for sugar production. Archaeological sites that remain include field terraces created in the course of sugar cane cultivation. The terraces are located between Pu‘u Laina and Kahoma Gulch. The terraced area is approximately 30 acres in size. DOT has realigned the Bypass Highway to minimize impacts on the terraced area.[1]

An archaeological inventory survey was conducted as part of the 1990 EIS process by Paul H. Rosendahl, Ph.D., Inc. (PHRI). Twelve archaeological sites were identified within or immediately adjacent to the project area. Six were assessed as being significant solely for information content. Of the remaining six sites, five were assessed as being significant for information content and provisionally as good examples of site types. Additional data collection was recommended to determine whether preservation “as is” or preservation with some level of interpretive development would be appropriate. The last site was assessed as being significant for information content and also as being potentially culturally significant. Further data collection was recommended to evaluate the site for the presence of any human remains. The State Land Use Commission Decision and Order required data recovery and preservation for selected sites. A detailed mitigation plan was also required.

[1] Two “pushpiles” remain within the highway ROW. They have been identified as State Inventory of Historic Properties (SIHP) 50-50-03-6492 and -6496. For description, see Cultural Surveys, Inc. “An Archaeological Inventory Survey for Lahaina Bypass Phase 1A, Modified Extension.” In Wilson Okamoto Corporation, *Final Environmental Assessment/Finding of No Significant Impact: Lahaina Bypass Modified Alignment, Kahoma Stream to Keawe Street Extension*. Prepared for Hawai‘i State Department of Transportation, Highways Division. Honolulu, HI, 2009.

To assist in preparation of this current master plan, PHRI was retained to confirm the location and description of selected sites identified in the earlier survey. A GPS unit was used to locate five sites within the project area. The remaining sites were within or near gulches and outside the area being planned for development and, therefore, did not have to be located again. The GPS locations of the sites were placed on the base map used to prepare the master plan alternatives. See Appendix E for the PHRI report. Figure 4-1 shows archaeological site locations. Table 4-1 summarizes the PHRI findings and recommendations.

Table 4-1: Summary of General Significance Assessments and Recommended General Treatments – Leiali'i Project Site

SIHP Site Number	Formal Site Type	Functional Interpretation	Significance Category	General Recommendations
GPS-LOCATED SITES				
2484	Enclosure/L-shape	Possible Habitation	D	FDC
2485	Enclosure	Habitation	C, D	FDC, PID
2486	Cairn/Marker/Mounds	Possible Graves/grave markers	A, C, D, E	FDC, PID*, PAI*
2487	Access Road	Agriculture	D	NFW
2488	Enclosure	Habitation	C, D	FDC, PID*
SITES IN/NEAR GULCHES, STREAMS				
2478	Terrace	Agriculture	D	FDC
2479	Terrace	Agriculture	D	FDC
2480	Enclosures (2)	Habitation	C, D	FDC, PID*
2481	Terraces (2)	Agriculture	D	FDC
2482	Terrace	Agriculture	D	FDC

Notes:
General Significance Categories:
A = Important for historical contribution to significant events and/or broad patterns of history
B = Important for association with the lives of important individuals in history
C = Excellent example of site type at local, region, island, state, or national level
D = Important for information content
E – Culturally significant

Recommended General Treatments:
FDC = Further data collection necessary (detailed recording, surface collections, and limited excavations, and possibly subsequent data recovery/mitigation excavations)
NFW = No further work of any kind necessary, sufficient data collected, archaeological clearance recommended, no preservation potential
PID = Preservation with some level of interpretive development recommended (including appropriate related data recovery work)
PAI = Preservation "as is," with nor further work (and possible inclusion into landscaping), or possible minimal further data collection necessary
* = Provisional assessment; definite assessment pending completion of further data collection

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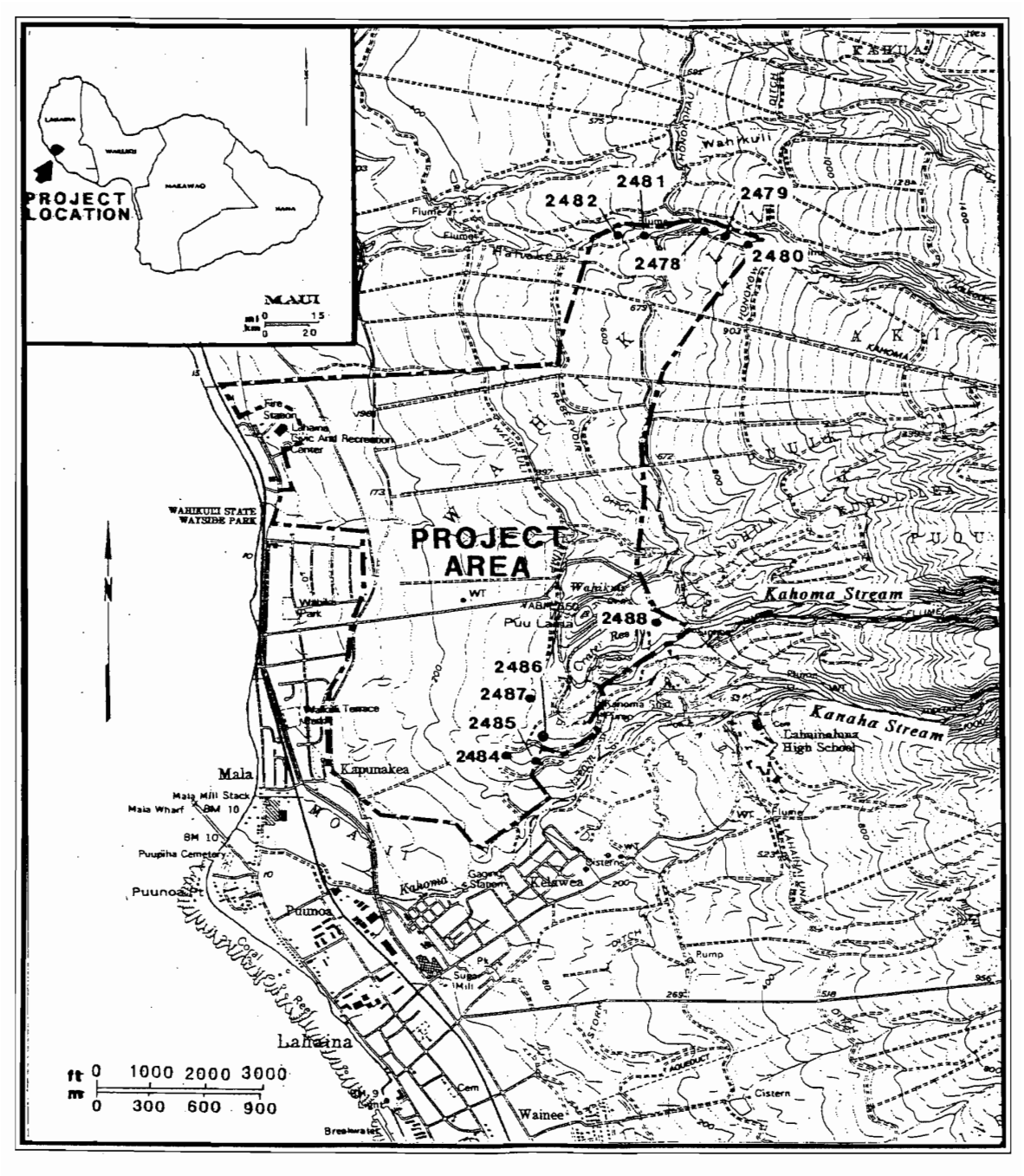

Source: PHRI. May 2008. *Archaeological Survey and Cultural Impact Assessment Villages of Leiali'i (Phases A and B) Master Planning Project. Land of Wahikuli, Lahaina District, Island of Maui.*

Figure 4-1
PROJECT SITE ARCHAEOLOGICAL SITE LOCATIONS

Villages of Leiali'i
November 2010

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NORTH

0 1000 2000 3000
SCALE IN FEET

4.1.2 POTENTIAL IMPACTS AND MITIGATION MEASURES

Table 4-2 summarizes impacts of alternatives on archaeological resources. No adverse impacts are expected due to any of the alternatives. As a condition to the LUC's order reclassifying the Villages of Leiali'i, HHFDC's predecessor agency agreed to develop data recovery and mitigation plans. If data recovery indicates that preservation as is or preservation with interpretive development is appropriate, the sites in question – 2485, 2486, and 2488 – would be included in a site preservation plan before any further development in their immediate vicinity. In the event that human skeletal remains are found in the course of data recovery, a burial plan would be developed.

All three concept plans include an Archaeological Preserve area. Sites 2484, 2485, 2486, and 2487 are located within it. This area will not be developed.

In the event that archaeological remains are uncovered in the course of development, SHPD will be alerted and all disturbance of the immediate area surrounding the find will be stopped until the matter is resolved with SHPD.

Table 4-2: Impacts of the Alternatives on Archaeological Resources

ALTERNATIVES		NO IMPACTS	POTENTIAL IMPACTS	ADVERSE IMPACTS	COMMENTS/MITIGATION MEASURES
1.	No Action	✓			No impacts are expected under the No Action Alternative.
2.	Concept One		✓		While development involves the risk of impacts to archaeological resources, management measures would mitigate impacts under Alternative Concept One.
3.	Concept Two		✓		While development involves the risk of impacts to archaeological resources, management measures would mitigate impacts under Alternative Concept Two.
4.	Concept Three		✓		While development involves the risk of impacts to archaeological resources, management measures would mitigate impacts under Alternative Concept Three.

4.2 CULTURAL RESOURCES

4.2.1 EXISTING CONDITIONS

Within the project site, Pu'u Laina is a well known landmark. This cinder cone has been identified in legends with Pele (as either a person turned to stone by the goddess, or as a home of the goddess).

Much of the land around Lahaina was probably cultivated in pre-contact and early historic times, but was covered by wild plants before it was converted to cane fields.[2] When the project site was under sugar cultivation, no cultural use was reported. Native Hawaiians from the region have long farmed and held lands along Kahoma Stream and further up Kahoma Valley.

The Haia family graveyard is located mauka of the project site. Area residents have visited and maintained it. They took cane haul roads across the fields (presumably through the project site) to get there. A second family cemetery has been identified by a knowledgeable person as at SIHP 2485. Others have visited recently to clean it. Nearby, SIHP 2486 includes several likely grave markers.[3]

A plantation camp, Crater Camp, was located beside Wahikuli Reservoir, near the mauka boundary of the Leiali'i project. In the 1930s, it included about fifty houses and a Japanese language school.

Cultural impact assessments have been conducted for the project site (by PHRI, in Appendix E) and for the Lahaina Bypass Alignment (by Cultural Surveys, Inc.).

4.2.2 POTENTIAL IMPACTS AND MITIGATION MEASURES

Sites of cultural concern have already been identified as archaeological sites, to be covered by data recovery and, as appropriate, preservation with interpretive development. Since elders in the region recognize at least one of the sites as the Pali family cemetery, consultation with

[2] Fornander wrote, "…people cultivated a great deal of potatoes, bananas, sugar cane, and things of a like nature [near Keka'a]. I have been told that the country from Kekaa to Hahakea and Wahikuli – that country now covered by cactus, in a northwesterly direction from Lahaina – was all cultivated." (cited in PHRI, Appendix E to this report).

[3] Cultural Surveys Hawaii, Inc. "Cultural Impact Assessment for the Lahaina Bypass Modified Alignment from Kahoma Stream to the Keawe Street Extension." In Wilson Okamoto Corporation, *Final Environmental Assessment/Finding of No Significant Impact: Lahaina Bypass Modified Alignment, Kahoma Stream to Keawe Street Extension.* Prepared for Hawai'i State Department of Transportation, Highways Division. Honolulu, HI 2009.

descendants would be appropriate before any plans for development in the immediate vicinity are finalized. The site is within the Archaeological Preserve in all three Concept Plans.

Continued access through the project area may also be important for families visiting sites. HHFDC would require the future developer to maintain such access and to work with representatives of the Pali and Haia 'Ohana, as well as archaeologists, to develop preservation strategies sensitive to their concerns, especially with regard to SIHP 2485 and 2486.

In summary, no adverse impacts on cultural resources are anticipated for any of the alternatives (see Table 4-3).

Table 4-3: Impacts of the Alternatives on Cultural Resources

ALTERNATIVES		NO IMPACTS	POTENTIAL IMPACTS	ADVERSE IMPACTS	COMMENTS/MITIGATION MEASURES
1.	No Action	✓			No impacts are expected under the No Action Alternative.
2.	Concept One		✓		While development involves the risk of impacts to cultural resources, management measures would mitigate impacts under Alternative Concept One.
3.	Concept Two		✓		While development involves the risk of impacts to cultural resources, management measures would mitigate impacts under Alternative Concept Two.
4.	Concept Three		✓		While development involves the risk of impacts to cultural resources, management measures would mitigate impacts under Alternative Concept Three.

4.3 ROADWAYS AND TRAFFIC

4.3.1 BACKGROUND

The Villages of Leiali'i project site is located northeast of the intersection of Honoapi'ilani Highway (SR30) and Keawe Street. Honoapi'ilani Highway provides the primary regional access from central to west Maui. Primary vehicle access to the site would be via Keawe Street, Leiali'i Parkway, and Wahikuli Road. Vehicle access would also be provided to the site through the Lahaina Bypass Highway, which is currently under construction. Under Concept Three, additional vehicle access would be through Kaniau Road and Kapunakea Street.

4.3.2 TRAFFIC STUDY ASSUMPTIONS AND SCOPE

A traffic impact analysis report was developed by Fehr & Peers Transportation Consultants. It is incorporated in this EIS as Appendix L. The traffic study analyzed the potential project-related traffic impacts on the area roadway system. It evaluated existing (2010) conditions and projected future conditions at the completion of Phase 1 in 2028 and at full build out in 2036, with and without the proposed project in place. The study analyzed potential project-related traffic impacts under typical weekday morning and afternoon peak hour traffic conditions at four existing and six future intersections around the project site. The analyzed intersections are listed below and shown in Figure 4-2.

1. Honoapi‘ilani Highway/Leiali‘i Parkway
2. Honoapi‘ilani Highway/Wahikuli Road
3. Honoapi‘ilani Highway/Kapunakea Street
4. Honoapi‘ilani Highway/Keawe Street
5. Keawe Street/Mill Street (future intersection)
6. Keawe Street/Phase A connection to Industrial Area (future intersection)
7. Lahaina Bypass Highway/Lahainaluna Road (future intersection)
8. Lahaina Bypass Highway/Keawe Street (future intersection)
9. Lahaina Bypass Highway/Wahikuli Road (future intersection)
10. Lahaina Bypass Highway/Leiali‘i Parkway (future intersection)

Project-related traffic impacts were also measured on the three existing and four future street segments listed below and shown in Figure 4-2:

1. Honoapi‘ilani Highway south of Leiali‘i Parkway
2. Honoapi‘ilani Highway south of Wahikuli Road
3. Honoapi‘ilani Highway south of Lahainaluna Road
4. Lahaina Bypass Highway south of Leiali‘i Parkway (future roadway)
5. Lahaina Bypass Highway south of Wahikuli Road (future roadway)
6. Keawe Street south of Lahaina Bypass Highway (future roadway)
7. Mill Street south of Keawe Street (future roadway)

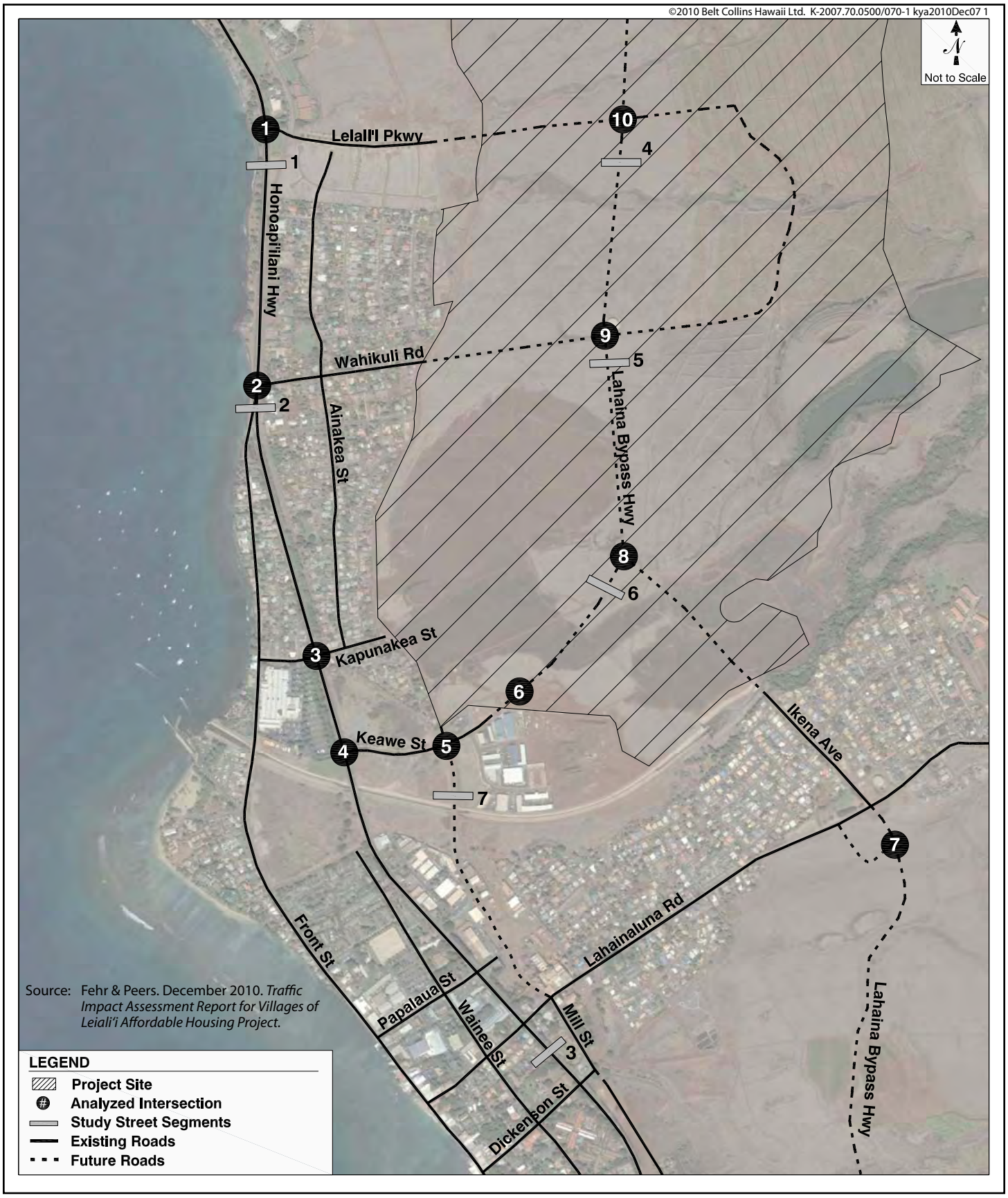

Figure 4-2
STUDY AREA AND ANALYZED LOCATIONS

Villages of Leiali'i
November 2010

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NORTH NOT TO SCALE

4.3.3 EXISTING ROADWAY SYSTEM CONDITIONS

Primary regional access to the project site is provided by Honoapi‘ilani Highway (SR30), a primary arterial with four travel lanes (two in each direction) with separate left and right turn lanes at many intersections. Parking is not permitted on most segments of Honoapi‘ilani Highway, and there are no sidewalks.

Leiali‘i Parkway, Wahikuli Road, Kapunakea Street, and Keawe Street provide access from Honoapi‘ilani Highway to the existing residential and commercial areas west of the project site. Ainakea Street runs parallel and east of Honoapi‘ilani Highway through the residential areas.

Leiali‘i Parkway, a two-lane arterial street at the Honoapi‘ilani Highway connection, provides access to the Lahaina Civic Center and existing residential areas. East of Ka‘aahi Street, two additional lanes of Leiali‘i Parkway are constructed but not yet opened to traffic. Sidewalks exist along most of Leiali‘i Parkway. Parking is generally permitted.

Wahikuli Road is a two-lane collector street that runs east from Honoapi‘ilani Highway. Parking is permitted, and there are no sidewalks.

Kapunakea Street, a two-lane secondary arterial, runs east and west from Honoapi‘ilani Highway. It provides access to the Lahaina Cannery Shopping Center and to adjacent residential areas. Parking is permitted in the residential areas east of Honoapi‘ilani Highway, and sidewalks exists along most of Kapunakea Street.

Keawe Street is a four-lane secondary arterial street that provides access to the commercial and industrial areas east of Honoapi‘ilani Highway. It includes bike lanes, landscaped center medians, left-turn pockets, and sidewalks. West of the Keawe Street and Honoapi‘ilani Highway intersection is the Lahaina Cannery Shopping Center driveway.

Ainakea Street is a two-lane collector street through the existing residential areas. Parking is permitted. There are no sidewalks.

4.3.3.1 Traffic Counts

Weekday peak period intersection turning movement counts were collected between 6:00 AM and 9:00 AM and between 3:00 PM and 6:00 PM at the four existing study intersections

described above on Wednesday, May 5, 2010, and Thursday, May 6, 2010. Existing weekday peak hour volumes at these intersections are illustrated in Figure 4-3, and the traffic count data are provided in Appendix A of the traffic report.

4.3.3.2 Level of Service Methodology

Level of service (LOS) is a qualitative measure used to describe the condition of traffic flow ranging from excellent conditions at LOS A to overload conditions at LOS F. LOS D is considered the minimum desirable operating level of service in this area. LOS definitions for signalized and unsignalized intersections are displayed in Appendix L, Tables 1 and 2.

LOS analyses were conducted at each of the study intersections to determine the operating conditions using the operations methodology for signalized intersections and the two-way stop-controlled methodology for unsignalized intersections from the Transportation Research Board's *2000 Highway Capacity Manual*.

4.3.3.3 Findings - Existing Traffic Conditions

The existing weekday AM and PM peak hour turning movements were used in conjunction with the LOS methodologies described above to determine existing operating conditions at each study intersection. Current (2010) LOS for the existing intersections are summarized in Table 4-4. Detailed LOS calculation worksheets are included in Appendix B of the traffic study.

Table 4-4: Existing (2010) Levels of Service

No.	Intersection	Peak Hour	Critical Movement	Existing Conditions		
				V/C	Del/Veh *	LOS
1	Honoapi'ilani Highway & Leiali'i Parkway	AM	Average Delay	0.48	13	B
		PM	Average Delay	0.55	13	B
2	Honoapi'ilani Highway & Wahikuli Road [a]	AM	WB Approach	NC	31	D
		AM	NB Through/Right		12	B
		PM	WB Approach		51	**F**
		PM	NB Through/Right		15	C
3	Honoapi'ilani Highway & Kapunakea Street	AM	Average Delay	0.54	16	B
		PM	Average Delay	0.59	21	C
4	Honoapi'ilani Highway & Keawe Street	AM	Average Delay	0.47	22	C
		PM	Average Delay	0.63	29	C

Notes: * Delay indicates average stopped delay per vehicle in seconds for signalized intersections. The vehicular delay for critical movements is reported for stop-controlled intersections.

NC = Not Calculated

[a] Intersection is controlled by stop signs on the minor approach

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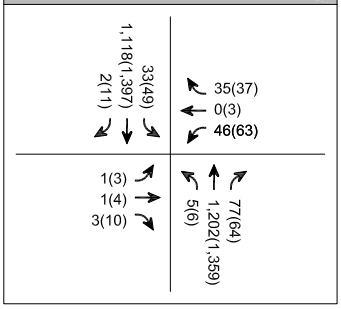
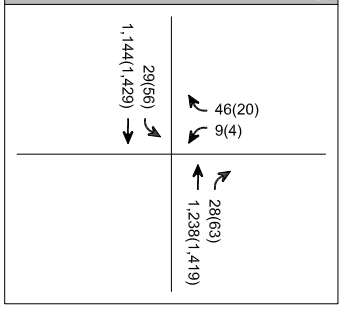
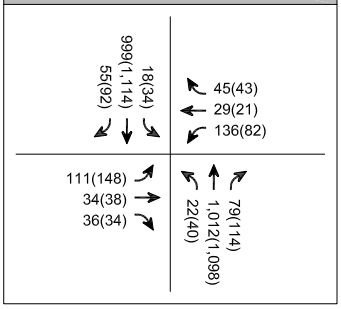
1. Honoapiʻilani Hwy & Leialiʻi Pkwy



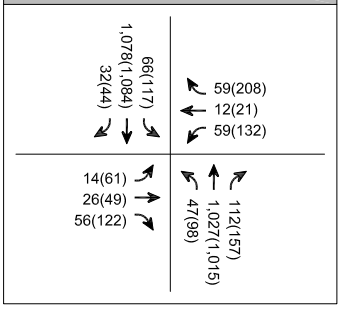
2. Honoapiʻilani Hwy & Wahikuli Rd



3. Honoapiʻilani Hwy & Kapunakea St



4. Honoapiʻilani Hwy & Keawe St



5. Mill St & Keawe St

Future Intersection

6. Industrial Connector & Keawe St

Future Intersection

7. Lahaina Bypass Hwy & Lahainaluna Rd

Future Intersection

8. Lahaina Bypass Hwy & Keawe St

Future Intersection

9. Lahaina Bypass Hwy & Wahikuli Rd

Future Intersection

10. Lahaina Bypass Hwy & Leialiʻi Pkwy

Future Intersection

LEGEND

- Project Site
- # Analyzed Intersection
- X(X) AM(PM) Peak Hour Traffic Volumes
- Existing Roads
- Future Roads

Source: Fehr & Peers. December 2010. *Traffic Impact Assessment Report for Villages of Leialiʻi Affordable Housing Project.*

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Figure 4-3
EXISTING PEAK HOUR TRAFFIC VOLUMES

Villages of Leialiʻi
November 2010

As indicated in Table 4-4, the intersection of Honoapi‘ilani Highway and Wahikuli Road is currently operating at LOS F during the PM peak hour, based on the delay experienced by drivers on the most constrained (westbound) movement. The other three existing study intersections are operating at LOS D or better during both the AM and PM peak hours.

4.3.4 FUTURE TRAFFIC CONDITIONS WITHOUT THE PROJECT

To evaluate the potential impact of traffic generated by the proposed project on the surrounding street system, estimates of future traffic conditions in the area both with and without the project were developed. Future traffic conditions without the proposed project reflect traffic increases due to general regional growth and development, as well as traffic increases generated by other specific developments near the project site. These conditions are referred to as the cumulative base condition (i.e., without-project conditions).

4.3.4.1 Areawide Traffic Growth and Cumulative Development Projects

The cumulative base traffic projections include two elements. The first element is growth in existing background traffic volumes reflecting the effects of overall regional growth and development in and around the study area, referred to as ambient growth. The second is the traffic generated by specific cumulative projects located in or near the study area.

The annual growth rate of traffic was estimated at 1.6 percent, based on the *Maui Long Range Land Transportation Plan* (1997) and the *Traffic Impact Report for the Kahoma Residential Development* (Wilson Okamoto Corporation, October 2007). Application of the 1.6 percent annual growth rate leads to estimated traffic growth of 29 percent from 2010 to 2028, and 42 percent through 2036.

Traffic projections from approved and planned development projects throughout West Maui were also correlated with the annual growth rate. Where the cumulative development projects resulted in traffic growth of more than 1.6 percent per year for a particular turning movement at any intersection, those higher traffic volumes were used in the analyses.

Estimated trips from the related projects were assigned to the roadway system based on their locations and anticipated distribution patterns. The geographic distribution of traffic generated by

new developments depends on several factors, such as the type and density of the proposed land uses, the geographic distribution of the population from which employees and/or patrons may be drawn, the geographic distribution of activity centers (employment, commercial, and other) to which residents of proposed residential projects may be drawn, and the location of those developments in relation to the surrounding street system.

The resulting cumulative base traffic volumes, representing future conditions without the project for year 2028 and 2036, are presented in Appendix L Figures 8 and 9 respectively. These future projections take into account the estimated overall growth in the surrounding area without the addition of traffic generated by the proposed Villages of Leiali‘i project.

4.3.4.2 Baseline Street System Improvements

Several roadway improvements in or near the study area are planned for completion by 2028. These improvements, listed below, would result in improved mobility options throughout the study area.

- Lahaina Bypass Highway – This new major arterial road would extend between Launiupoko south of Lahaina and Honokowai to the north. Two lanes would be provided in each direction, and left-turn lanes and traffic signals would be provided at key intersections.
- Mill Street – This collector street would be improved between Keawe Street and Lahainaluna Road.
- Honoapi‘ilani Highway (SR 30)/Keawe Street – This intersection would be reconfigured from one right-turn lane and one shared through/left-turn lane on both the eastbound and westbound approaches to include one left-turn lane and one shared through/right-turn lane on the eastbound approach and one left-turn lane, one through lane, and one right-turn lane on the westbound approach.
- Keawe Street/Mill Street – This side street stop-controlled intersection to be constructed in the future would consist of a northbound approach including a left-turn lane and right-turn lane, an eastbound approach including one through lane and one shared through/right-turn lane, and a westbound approach including one left-turn lane and two through lanes.

- Lahaina Bypass Highway/Lahainaluna Road Connector – The Lahaina Bypass Highway would be grade-separated at Lahainaluna Road, with a short roadway providing a connection for traffic between the two roads. The analyzed intersection lies on the Lahaina Bypass Highway where the connecting road joins it. This intersection would consist of a northbound approach that provides one left-turn lane and two through lanes, a southbound approach that provides one right-turn lane and two through lanes, and one eastbound approach consisting of one left-turn lane and one right-turn lane.
- Lahaina Bypass Highway/Keawe Street – This future signalized intersection would consist of a northbound approach that provides one through lane and one right-turn lane, a southbound approach that provides one through lane and two left-turn lanes, and a westbound approach including two free right-turn lanes and one left-turn lane, which would be controlled by the traffic signal. The initial phase of this portion of the Lahaina Bypass Highway is currently under construction.
- Lahaina Bypass Highway/Wahikuli Road – This future side-street stop-controlled intersection would consist of a northbound approach that provides one through lane and one shared through/right-turn lane, a southbound approach that provides one left-turn lane and two through lanes, and a westbound approach that provides one left-turn lane and one right-turn lane. This intersection is assumed to be built independent of the project as it would provide access to a cumulative development project mauka of the Lahaina Bypass Highway, with the westbound approach stop-controlled.
- Lahaina Bypass Highway/Leiali‘i Parkway – This future side-street stop-controlled intersection would consist of a northbound approach that provides one through lane, and one shared through/right-turn lane, a southbound approach that provides one left-turn lane and two through lanes, and a westbound approach that provides one left-turn lane and one right-turn lane. This intersection is assumed to be built independent of the project as it would provide access to a cumulative development project mauka of the Lahaina Bypass Road, with the westbound approach stop-controlled.

4.3.4.3 Cumulative Base Traffic Volumes Without the Project

Forecasts of cumulative base traffic volumes were developed by adding the total projected traffic growth to the existing volumes and distributing it over the future street network. Estimated

traffic shifts for the horizon year due to the Lahaina Bypass Highway were developed based on field observations, previous reports, the future transportation network, and current and future land use patterns. Approximately 40 percent of the future through traffic in the area is expected to use the Lahaina Bypass Highway instead of Honoapi'ilani Highway. The resulting projected traffic volumes at the analyzed intersections, illustrated in Figures 4-4 and 4-5, represent the 2028 and 2036 cumulative base conditions (i.e., future conditions without the project), respectively.

4.3.5 FUTURE TRAFFIC CONDITIONS WITH THE PROJECT

Development of future traffic projections for the proposed project involved a three-step process: estimation of project trip generation, trip distribution, and trip assignment.

4.3.5.1 Project Trip Generation

Vehicle trip rates presented in *Trip Generation 8th Edition* (Institute of Transportation Engineers, 2008) were used to estimate number of trips to and from the proposed project. A more comprehensive analysis of mixed-use and infill trip generation was developed and is presented in the paper, *Traffic Generated by Mixed-Use Developments – A Six-Region Study Using Consistent Built Environmental Measures* (Reid Ewing et al., September 2008). This mixed-use development (MXD) approach refines traditional trip generation estimates approaches by incorporating reductions associated with the density, diversity of land uses, and design of the internal roadway system, as well as the proposed pedestrian and bicycle facilities. Accordingly, internalization reductions at the proposed Villages of Leiali'i project were estimated using both methods.

Factors considered in the development of the project trip distribution estimates include previous studies in the area, observations of actual traffic patterns, the geographic distribution of employment and commercial activity in the vicinity, proposed developments in the area, and the proposed construction of the Lahaina Bypass Highway as described in *Lahaina Bypass Modified Alignment Kahoma Stream to Keawe Street Extension*[4]

[4] Hawai'i State Department of Transportation, Highways Divison. 2009. *Final Environmental Assessment/Finding of No Significant Impact: Lahaina Bypass Modified Alignment, Kohoma Stream to Keawe Street Extension.* Prepared by Wilson Okamoto Corporation.

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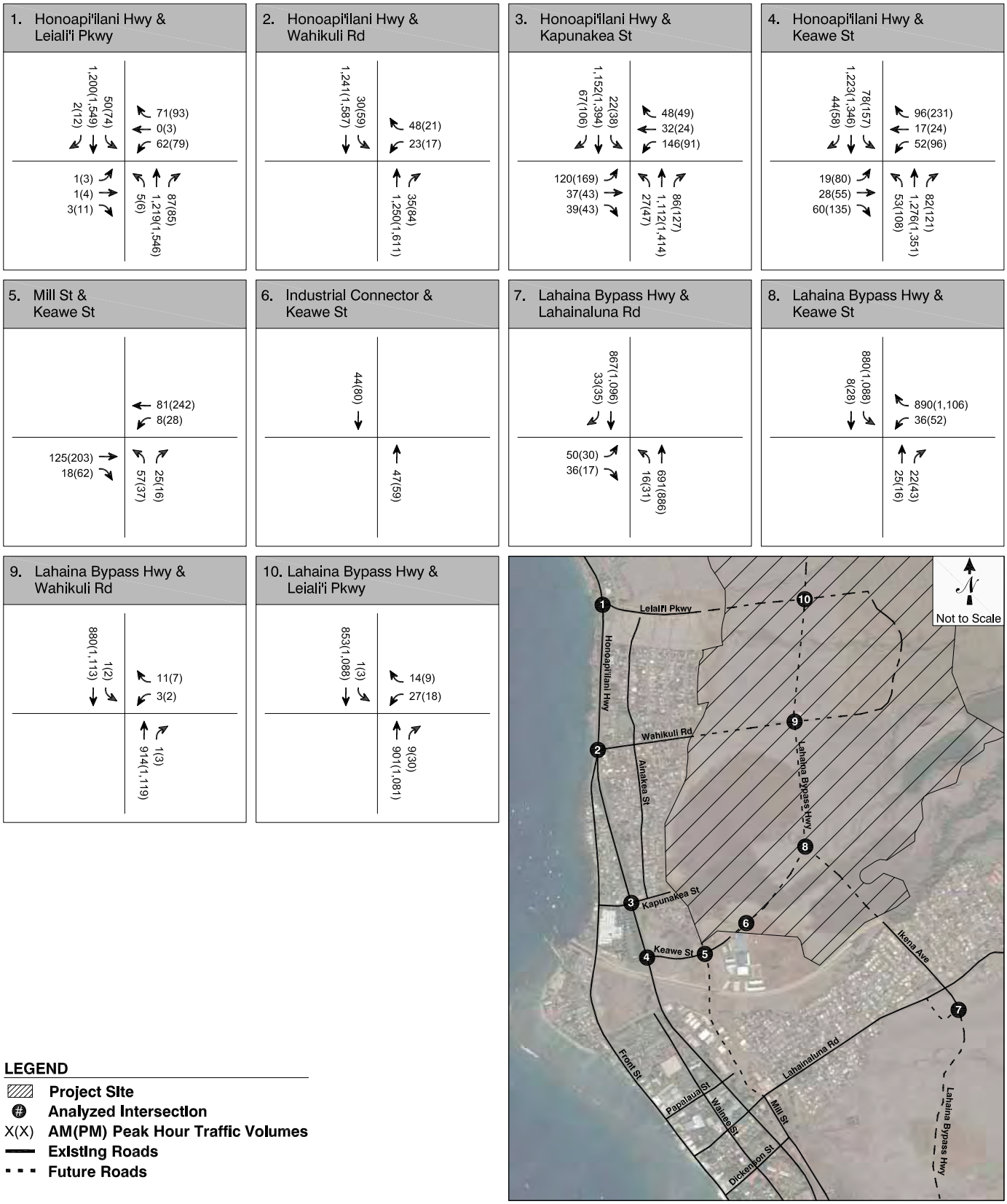

Source: Fehr & Peers. December 2010. *Traffic Impact Assessment Report for Villages of Leiali'i Affordable Housing Project.*

Figure 4-4
CUMULATIVE BASE TRAFFIC VOLUMES AT ANALYZED INTERSECTIONS, 2028

Villages of Leiali'i
November 2010

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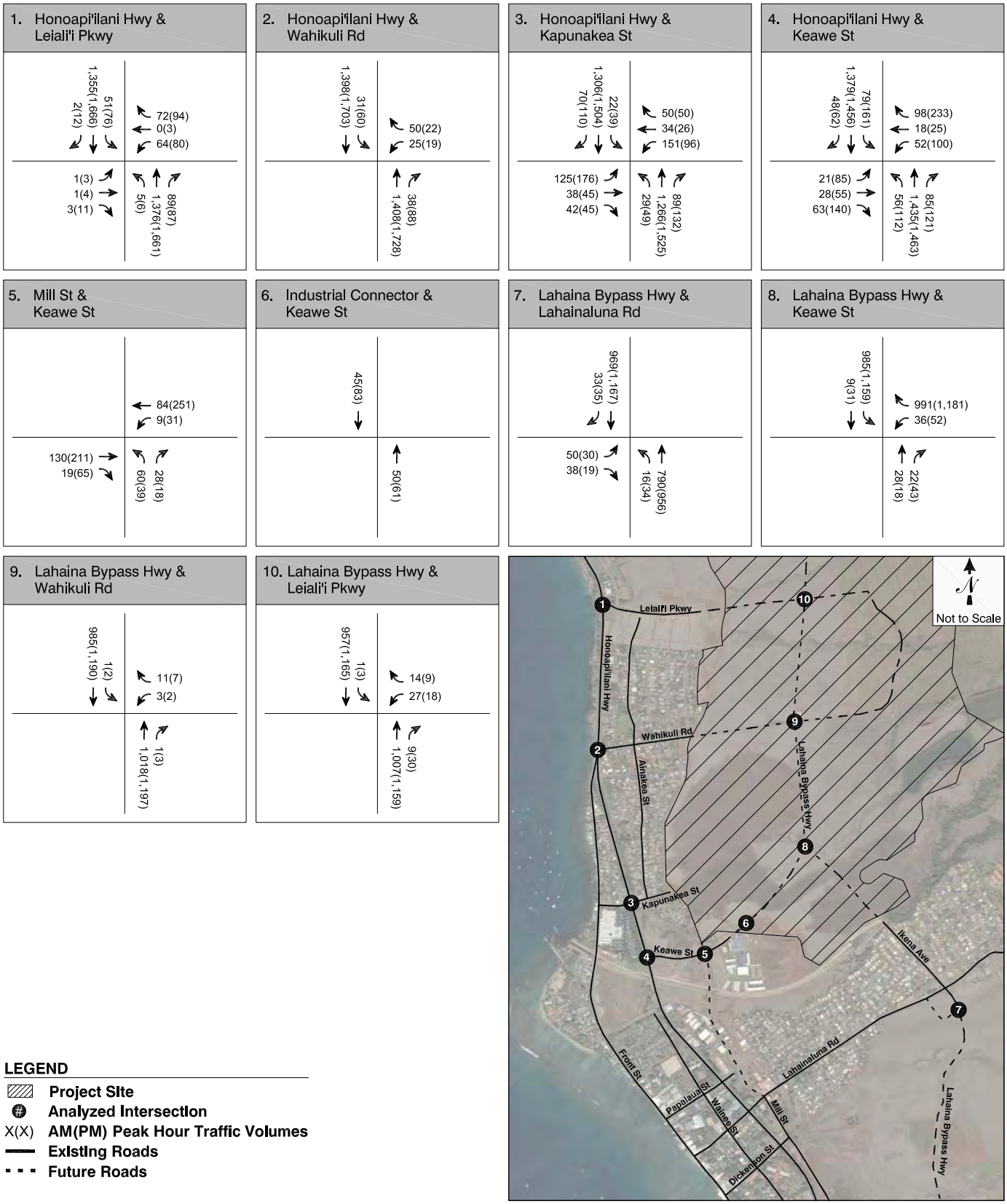


Source: Fehr & Peers. December 2010. *Traffic Impact Assessment Report for Villages of Leiali'i Affordable Housing Project.*

Figure 4-5
CUMULATIVE BASE TRAFFIC VOLUMES AT ANALYZED INTERSECTIONS, 2036

Villages of Leiali'i
November 2010

Based on these elements at this time, the following overall trip distribution pattern was estimated for the project-generated traffic:

- North 40 percent
- West/south (local Lahaina area) 30 percent
- Southeast (regional central and southern Maui) 30 percent

The estimated project trips were assigned to the future roadway network that will be in place by 2028 and 2036, the horizon years for full buildout of Phases A and B of the proposed project, respectively.

4.3.5.2 Summary of Potential Impacts at Study Intersections

The project-generated traffic volumes were added to the cumulative base traffic projections to develop the cumulative plus project traffic forecasts for 2028 and 2036. Appendix L, Figures 13, 14, and 15 illustrate the projected 2028 cumulative plus project AM and PM peak hour traffic volumes at each of the 10 study intersections. Figures 19, 20, and 21 show the projected 2036 cumulative plus project AM and PM peak hour traffic volumes at each of the 10 study intersections.

The cumulative base and cumulative plus project 2028 traffic conditions level of service operations of the study intersections are summarized in Table 4-5.

Under the 2028 cumulative base traffic conditions the stop-controlled approaches at the following intersection are projected to operate at LOS E or F during one or both peak hours:

- Honoapi‘ilani Highway/Wahikuli Road (Intersection 2)
- Lahaina Bypass Highway/Wahikuli road (Intersection 9)
- Lahaina Bypass Highway/Leiali‘i Parkway (Intersection 10)

The remaining seven study intersections are expected to continue operating at a desirable LOS (LOS D or better) during both peak hours.

Table 4-5: Future (2028) Levels of Service Before Mitigation

No.	Intersection	Peak Hour	Critical Movement	Cumulative Base	Cumulative plus Project Concept 1	Cumulative plus Project Concept 2	Cumulative plus Project Concept 3
				LOS	LOS	LOS	LOS
1	Honoapi'ilani Highway & Leiali'i Parkway	AM	Average Delay	B	B	B	B
		PM	Average Delay	B	C	C	C
2	Honoapi'ilani Highway & Wahikuli Road [a]	AM	WB Approach	F	F	F	F
		AM	NB Through/Right	B	B	B	B
		PM	WB Approach	F	F	F	F
		PM	NB Through/Right	C	C	D	D
3	Honoapi'ilani Highway & Kapunakea Street	AM	Average Delay	B	B	B	D
		PM	Average Delay	C	D	D	F
4	Honoapi'ilani Highway & Keawe Street	AM	Average Delay	B	C	C	C
		PM	Average Delay	C	D	E	E
5	Keawe Street & Mill Street [a]	AM	WB Left	A	A	A	A
		AM	NB Through/Right	A	C	C	C
		AM	NB Left	B	C	D	D
		PM	WB Left	A	A	A	A
		PM	NB Through/Right	A	F	F	F
		PM	NB Left	B	F	F	F
6	Keawe Street & Phase A Conn to Industrial Area [a]	AM	WB Left	A	C	C	C
		AM	EB Left	A	E	F	F
		AM	EB Through/Right	A	F	F	F
		PM	WB Left	A	F	F	F
		PM	EB Left	A	F	F	F
		PM	EB Through/Right	A	F	F	F
7	Lahaina Bypass Highway & Lahainaluna Road	AM	Average Delay	A	A	A	A
		PM	Average Delay	A	A	A	A
8	Lahaina Bypass Highway & Keawe Street	AM	Average Delay	C	C	C	D
		PM	Average Delay	C	C	C	C
9	Lahaina Bypass Highway & Wahikuli Road [a]	AM	EB/WB Approach	E	F	F	F
		PM	EB/WB Approach	E	F	F	F
10	Lahaina Bypass Highway & Leiali'i Parkway	AM	EB/WB Approach	E	F	F	F
		PM	EB/WB Approach	F	F	F	F

Note: [a] Intersection is or assumed to be controlled by stop signs on the minor approach(es).

During the 2028 cumulative plus project Concept One, Two, and Three peak hour, project traffic would contribute to cumulative impacts (LOS E or F conditions) during one or both peak hours at the following study intersections:

Concept One (five locations):

- Honoapi‘ilani Highway/Wahikuli Road (Intersection 2)
- Keawe Street/Mill Street (Intersection 5)
- Keawe Street/Phase A Connection to Industrial Area (Intersection 6)
- Lahaina Bypass Highway/Wahikuli Road (Intersection 9)
- Lahaina Bypass Highway/Leiali‘i Parkway (Intersection 10)

Concept Two (six locations):

- Honoapi‘ilani Highway/Wahikuli Road (Intersection 2)
- Honoapi‘ilani Highway/Keawe Street (Intersection 4)
- Keawe Street/Mill Street (Intersection 5)
- Keawe Street/Phase A Connection to Industrial Area (Intersection 6)
- Lahaina Bypass Highway/Wahikuli Road (Intersection 9)
- Lahaina Bypass Highway/Leiali‘i Parkway (Intersection 10)

Concept Three (seven locations):

- Honoapi‘ilani Highway/Wahikuli Road (Intersection 2)
- Honoapi‘ilani Highway/Kapunakea Street (Intersection 3)
- Honoapi‘ilani Highway/Keawe Street (Intersection 4)
- Keawe Street/Mill Street (Intersection 5)
- Keawe Street/Phase A Connection to Industrial Area (Intersection 6)
- Lahaina Bypass Highway/Wahikuli Road (Intersection 9)
- Lahaina Bypass Highway/Leiali‘i Parkway (Intersection 10)

The cumulative base and cumulative plus project 2036 traffic conditions level of service operations of the study intersections are summarized in Table 4-6.

In 2036, the stop-controlled approaches at the following intersections are projected to operate at LOS E or F during one or both peak hours, independent of the project:

- Honoapi‘ilani Highway/Wahikuli Road (Intersection 2)
- Lahaina Bypass Highway/Wahikuli road (Intersection 9)
- Lahaina bypass Highway/Leiali‘i Parkway (Intersection 10)

The remaining seven study intersections are expected to continue operating at a desirable LOS (LOS D or better) during both peak hours under cumulative base traffic conditions.

Under the 2036 cumulative plus project Concept One, Two, and Three conditions, project traffic would contribute to cumulative impacts (LOS E or F conditions) during one or both peak hours at the following study intersections:

Concept One and Two (six locations):

- Honoapi‘ilani Highway/Wahikuli Road (Intersection 2)
- Honoapi‘ilani Highway/Keawe Street (Intersection 4)
- Keawe Street/Mill Street (Intersection 5)
- Keawe Street/Phase A Connection to Industrial Area (Intersection 6)
- Lahaina Bypass Highway/Wahikuli Road (Intersection 9)
- Lahaina Bypass Highway/Leiali’i Parkway (Intersection 10)

Concept Three (seven locations):

- Honoapi‘ilani Highway/Wahikuli Road (Intersection 2)
- Honoapi‘ilani Highway/Kapunakea Street (Intersection 3)
- Honoapi‘ilani Highway/Keawe Street (Intersection 4)
- Keawe Street/Mill Street (Intersection 5)
- Keawe Street/Phase A Connection to Industrial Area (Intersection 6)

- Lahaina Bypass Highway/Wahikuli Road (Intersection 9)
- Lahaina Bypass Highway/Leiali‘i Parkway (Intersection 10)

Table 4-6: Future (2036) Levels of Service Before Mitigation

No.	Intersection	Peak Hour	Critical Movement	Cumulative Base	Cumulative plus Project Concept 1	Cumulative plus Project Concept 2	Cumulative plus Project Concept 3
				LOS	LOS	LOS	LOS
1	Honoapi‘ilani Highway & Leiali‘i Parkway	AM	Average Delay	B	C	C	C
		PM	Average Delay	B	C	C	C
2	Honoapi‘ilani Highway & Wahikuli Road [a]	AM	WB Approach	F	F	F	F
		AM	NB Through/Right	B	C	C	C
		PM	WB Approach	F	F	F	F
		PM	NB Through/Right	C	E	E	F
3	Honoapi‘ilani Highway & Kapunakea Street	AM	Average Delay	B	C	C	D
		PM	Average Delay	C	D	D	F
4	Honoapi‘ilani Highway & Keawe Street	AM	Average Delay	B	C	C	C
		PM	Average Delay	C	E	E	F
5	Keawe Street & Mill Street [a]	AM	WB Left	A	A	A	A
		AM	NB Through/Right	A	C	C	D
		AM	NB Left	B	E	F	F
		PM	WB Left	A	A	A	A
		PM	NB Through/Right	A	F	F	F
		PM	NB Left	B	F	F	F
6	Keawe Street & Phase A Conn to Industrial Area [a]	AM	WB Left	A	C	C	D
		AM	EB Left	A	F	F	F
		AM	EB Through/Right	A	F	F	F
		PM	WB Left	A	F	F	F
		PM	EB Left	A	F	F	F
		PM	EB Through/Right	A	F	F	F
7	Lahaina Bypass Highway & Lahainaluna Road	AM	Average Delay	A	A	A	A
		PM	Average Delay	A	A	A	B
8	Lahaina Bypass Highway & Keawe Street	AM	Average Delay	C	C	C	C
		PM	Average Delay	C	C	C	D
9	Lahaina Bypass Highway & Wahikuli Road [a]	AM	EB/WB Approach	E	F	F	F
		PM	EB/WB Approach	F	F	F	F
10	Lahaina Bypass Highway & Leiali‘i Parkway	AM	EB/WB Approach	F	F	F	F
		PM	EB/WB Approach	F	F	F	F

Note: [a] Intersection is or assumed to be controlled by stop signs on the minor approach(es).

4.3.5.3 Proposed Mitigation Measures at Study Intersections

The recommended mitigation measures to address the identified traffic impacts, both project-related and cumulative, are described below. Each of the identified cumulative and project-related impacts would be fully mitigated, i.e., the recommended improvements would result in LOS D or better.

- Honoapi'ilani Highway/Wahikuli Road (Intersection 2) – Traffic conditions at this intersection could be managed by installing a traffic signal with the existing lane configuration. Signal warrant analysis was conducted based on the Peak Hour Warrant found in *Manual on Uniform Traffic Control Devices* (MUTCD) (National Committee on Uniform Traffic Control Devices, 2003). It indicates that a traffic signal at this intersection would be warranted under future plus project conditions, but not under cumulative base conditions.
- Honoapi'ilani Highway/Kapunakea Street (Intersection 3) – The impact at this intersection could be mitigated by converting the eastbound approach from a shared through/left-turn lane and right-turn lane to a left-turn lane and shared through/right-turn lane, resulting in similar eastbound and westbound approach configurations. No changes are proposed to the signal phasing.
- Honoapi'ilani Highway/Keawe Street Year 2028 (Intersection 4) – The impact at this intersection could be mitigated by converting left-turn signal phasing from protected left turns to protected-permitted left turns on all approaches[5].
- Honoapi'ilani Highway/Keawe Street Year 2036 (Intersection 4) – The impact at this intersection could be mitigated by converting the eastbound approach from a left-turn lane and shared through/right-turn to a left-turn lane, through lane, and right-turn lane, and converting left-turn signal phasing from protected left turns to protected-permitted left turns on all approaches. Adding the right-turn lane to the eastbound approach would require widening of this approach.

[5] A protected left turn lane is signalized, and all oncoming traffic is stopped while left turn movement proceeds. Protected-permitted turn lanes typically have "Yield on Green" instructions: left turns occur when oncoming traffic is absent.

- Keawe Street/Mill Street (Intersection 5) – The impact at this intersection could be mitigated during both peak periods by installing a traffic signal with protected left-turns on the eastbound and westbound approaches. The MUTCD peak hour signal warrant indicates that a traffic signal at this intersection would be warranted under future plus project (Year 2036, Concepts Two and Three) conditions, but not under cumulative base conditions, nor under Year 2028 (Concepts One, Two, or Three) or under Year 2036 (Concept One) conditions. It is recommended that the need for a traffic signal at this location be monitored as development of the Villages of Leiali'i project proceeds and that such installation be dependent on future traffic engineering studies.
- Keawe Street/Phase A Connection to Industrial Area (Intersection 6) – The impact at this intersection could be mitigated during both peak periods by installing a traffic signal with protected left turns on all approaches. The MUTCD peak hour signal warrant indicates that a traffic signal at this intersection would be warranted under future plus project (Year 2036, Concepts One, Two, and Three) conditions and under Year 2028 (Concepts Two and Three) conditions, but not under cumulative base conditions, nor under Year 2028 (Concept One) conditions. It is recommended that the need for a traffic signal at this location be monitored as development of the Villages of Leiali'i project proceeds and that such installation be dependent on future traffic engineering studies.
- Lahaina Bypass Highway/Wahikuli Road (Intersection 9) – The impact at this intersection could be mitigated during both peak periods by installing a traffic signal with permissive left-turn (i.e., "Yield on Green") phasing. The MUTCD peak hour signal warrant indicates that a traffic signal at this intersection would be warranted under future plus project (Year 2036, Concepts One, Two, and Three) conditions, but not under cumulative base conditions, nor under Year 2028 (Concepts One, Two, or Three) conditions. It is recommended that the need for a traffic signal at this location be monitored as development of the Villages of Leiali'i project proceeds and that such installation be dependent on future traffic engineering studies.
- Lahaina Bypass Highway/Leiali'i Parkway (Intersection 10) – The impact at this intersection could be mitigated during both peak periods by installing a traffic signal with permissive left-turn phasing. The MUTCD peak hour signal warrant indicates that a

traffic signal at this intersection would be warranted under future plus project conditions, but not under cumulative base conditions.

The order of magnitude construction costs of the intersection improvements in 2009 dollars are summarized as follows:

Honoapi‘ilani Highway/Wahikuli Road	$580,000
Honoapi‘ilani Highway/Kapunakea Street	$9,000
Honoapi‘ilani Highway/Keawe Street (Year 2028)	$45,000
Honoapi‘ilani Highway/Keawe Street (Year 2036)	$454,000
Keawe Street/Mill Street	$442,000
Keawe Street/Phase A Connection to Industrial Area	$442,000
Lahaina Bypass Highway/Wahikuli Road	$442,000
Lahaina Bypass Highway/Leiali‘i Parkway	$442,000
Total	$2,856,000

The project’s share of these costs can be estimated, based on its share of the new traffic for which mitigation is needed. As discussed in Appendix L, the project share is in the range from approximately $2,041,517 (for Concept One, Phases A and B) to $2,127,369 (for Concept Three, Phases A and B).

4.3.5.4 Street Segment Traffic Impact Analysis

An analysis of the proposed project’s potential impacts on several key street segments in the project vicinity was conducted. The street segments analyzed were as follows:

1. Honoapi‘ilani Highway south of Leiali’i Parkway
2. Honoapi‘ilani Highway south of Wahikuli Road
3. Honoapi‘ilani Highway south of Lahainaluna Road
4. Lahaina Bypass Road south of Leiali‘i Parkway (future roadway)
5. Lahaina Bypass Road south of Wahikuli Road (future roadway)
6. Keawe Street south of Lahaina Bypass Road (future roadway
7. Mill Street south of Keawe Street (future roadway)

Each of the analyzed directional street segments is projected to operate at LOS D or better under both cumulative base and cumulative base plus project conditions in 2028 and 2036. Thus, no cumulative or project-specific impacts are identified on the seven analyzed street segments, and no mitigation is required.

4.3.6 SUMMARY AND CONCLUSIONS

The proposed project is composed of two phases, located makai of the Lahaina Bypass Road (Phase A) and mauka of the Lahaina Bypass Road (Phase B). Phase A is planned for completion by 2028 and Phase B is planned for completion by 2036. The traffic impacts from three alternative development scenarios, Concepts One, Two, and Three, at the completion of each phase were analyzed for ten intersections and seven street segments. A summary of the intersection deficiencies and mitigation measures is shown in Table 4-7. In all cases, proposed measures would mitigate potentially significant impacts and achieve the desired LOS at the ten intersections (Table 4-8). No significant impacts were identified at the seven street segments.

Table 4-7: Intersection Deficiencies and Mitigation Measures

Concept	Intersection	Mitigation Measures
Year 2028		
One, Two, Three	Honoapi'ilani Highway and Wahikuli Road	Install traffic signal.
Three	Honoapi'ilani Highway and Kapunakea Street	Revise eastbound approach striping.
Two, Three	Honoapi'ilani Highway and Keawe Street	Revise signal phasing.
One, Two, Three	Keawe Street and Mill Street	Install traffic signal.
One, Two, Three	Keawe Street and Phase A Connection to Industrial Area	Install traffic signal.
One, Two, Three	Lahaina Bypass Highway and Wahikuli Road	Install traffic signal.
One, Two, Three	Lahaina Bypass Highway and Leiali'i Parkway	Install traffic signal.
Year 2036		
One, Two, Three	Honoapi'ilani Highway and Wahikuli Road	Install traffic signal.
Three	Honoapi'ilani Highway and Kapunakea Street	Revise eastbound approach striping.
One, Two, Three	Honoapi'ilani Highway and Keawe Street	Add right-turn lane on eastbound approach, and revise signal phasing.
One, Two, Three	Keawe Street and Mill Street	Install traffic signal
One, Two, Three	Keawe Street and Phase A Connection to Industrial Area	Install traffic signal.
One, Two, Three	Lahaina Bypass Highway and Wahikuli Road	Install traffic signal.
One, Two, Three	Lahaina Bypass Highway and Leiali'i Parkway	Install traffic signal.

These improvements would not be needed immediately. They would be warranted as conditions change with increases in both regional and project traffic.

Table 4-8: Impacts of the Alternatives on Roads and Traffic

ALTERNATIVES		NO IMPACTS	POTENTIAL IMPACTS	ADVERSE IMPACTS	COMMENTS/MITIGATION MEASURES
1.	No Action		✓		Some improvements to the regional traffic system, such as the signalization of the Honoapi'ilani Highway and Wahikuli Road intersection would be required to achieve/maintain the County's desired Level of Service (LOS D) even if the property remains vacant.
2.	Concept One		✓		Development of the project would have significant impacts on the regional traffic system. To address those impacts, mitigation measures are proposed. With mitigation, desired LOS would be achieved.
3.	Concept Two		✓		Development of the project would have significant impacts on the regional traffic system. To address those impacts, mitigation measures are proposed. With mitigation, desired LOS would be achieved.
4.	Concept Three		✓		Development of the project would have significant impacts on the regional traffic system. To address those impacts, mitigation measures are proposed. With mitigation, desired LOS would be achieved.

4.4 TRANSIT AND NON-AUTOMOTIVE TRANSPORTATION

4.4.1 EXISTING CONDITIONS

The Maui Bus provides public transit service around the island with 12 local and regional routes and four commuter routes. Four of these bus routes serve the Lahaina area near the project site. Each route operates seven days a week, including holidays. The Wharf Cinema Center in Lahaina is a designated transfer location.

- The Lahaina Villager Route (#23) provides hourly service in Lahaina. It originates at the Wharf Cinema Center and operates on Honoapi'ilani Highway, Lahainaluna Road, Ainakea Road, and Front Street as well as local streets.

- The Lahaina Islander Route (#20) provides hourly service between the Wharf Cinema Center in Lahaina and Kahului. In the study area, this route operates on Honoapi‘ilani Highway.
- The Ka‘anapali Islander Route (#25) provides hourly service between the Wharf Cinema Center in Lahaina and Ka‘anapali. In the study area, this route operates on Honoapi‘ilani Highway.
- The Makawao-Kapalua Commuter Route provides regional commuter service between Kapalua, Lahaina, Kahului, and Makawao, with two northbound runs in the AM period and two southbound runs in the PM period. The stop in Lahaina is at the Lahaina Cannery Shopping Center.

Honoapi‘ilani Highway has no sidewalks or dedicated bicycle lanes near the project site making non-automotive travel difficult and potentially dangerous. As noted in Section 4.3.3 above, many of the other streets near the project have no sidewalks.

4.4.2 FUTURE WITHOUT PROJECT

Maui County expects to increase the volume of transit service as demand grows and its budget allows. *Bike Plan Hawaii* maps (drawn in 2003) show that bicycles could use a future greenway and the Lahaina Bypass Highway, but do not indicate dedicated lanes.

4.4.3 FUTURE WITH PROJECT

The Villages of Leiali‘i Affordable Housing Project follows new urbanist design principles that include an emphasis on walkability and connectivity. All three concepts provide extensive pedestrian and bicycle networks on the project site.

The project’s design makes extension of transit service through the Phase A residential area potentially attractive to both public and private transit services.

Under Concepts One, Two, and Three, the makai phase of the project predominantly consists of a grid street network with relatively short and similarly spaced blocks. Pedestrian circulation is accommodated by the provision of sidewalks on all streets. As a result, pedestrian access is provided to retail, office, school, park, and residential uses. The proposed project improves on the existing pedestrian network in the area, which lacks sidewalks in many locations and limits

pedestrian accessibility at locations with cul-de-sacs. The mauka phase of the project also provides sidewalks on all streets. However, the pedestrian circulation system differs in that it does not reflect a grid network.

The project has been designed so that the use of long cul-de-sac streets is avoided and local street connectivity is promoted. The design makes walking to schools, parks, and other pedestrian generators a viable transport option in both phases of the project. Relocation of the elementary school in Phase B to a more central location could be considered to improve the accessibility to pedestrians in the southern and central area of Phase B, subject to the constraints of topography. It is recommended that high demand pedestrian generators include amenities such as shade, benches, trash receptacles, pedestrian scale lighting, wayfinding, and compliance with ADA best practices for pedestrians.

Both phases of the project propose bike lanes under Concepts One, Two, and Three. Under all three concepts, at least two bike lanes providing north-south access and two bike lanes providing east-west access are proposed in Phase A (makai). In Phase B (mauka), all three concepts propose bike lanes for the two major circulator roads serving the residential and school uses. It is recommended that short-term and long-term bicycle parking be provided at major traffic generators such as retail outlets, offices, schools, and parks.

In summary, project impacts on transit as well as pedestrian and bicycle use would be positive, as shown in Table 4-9.

Table 4-9: Impacts of the Alternatives on Transit and Non-Automotive Transportation

ALTERNATIVES		NO IMPACTS	POTENTIAL IMPACTS	ADVERSE IMPACTS	COMMENTS/MITIGATION MEASURES
1.	No Action	✓			
2.	Concept One		✓		The project design supports transit, pedestrian activity and bicycle use.
3.	Concept Two		✓		The project design supports transit, pedestrian activity and bicycle use.
4.	Concept Three		✓		The project design supports transit, pedestrian activity and bicycle use.

4.5 NOISE

Title 11, Chapter 46 of the Hawai'i Administrative Rules defines maximum permissible sound levels. These levels are intended to control and abate noise pollution from stationary sources, construction, and industrial and agricultural equipment. Maxima are identified for sound at the property line near where the activity occurs, depending on surrounding zoning and the time of day.

Table 4-10 shows sound levels over time; impulsive noises are permissible 10 dBA above the levels shown. Maximum permissible sound levels are not to be exceeded more than 10 percent of the time in a 20-minute period without a permit or variance.

Table 4-10: Maximum Permissible Sound Levels

Class	Zoning	Maximum Permissible Sound Level (dBA)*	
		Daytime (7:00 AM to 10:00 PM)	Nighttime (10:00 PM to 7:00 AM)
A	Residential, conservation, preservation, public space, open space, or similar type	55	45
B	Multi-family dwellings, apartment, business, commercial, hotel, resort, or similar type	60	50
C	Agriculture, country, industrial, or similar type	70	70

4.5.1 EXISTING CONDITIONS

The dominant noise source in the vicinity of the Villages of Leiali'i is from traffic on the area's roadways, especially Honoapi'ilani Highway. Traffic on the Lahaina Bypass Highway will also generate noise by the time Phase A of the Leiali'i project is completed.

No noise-sensitive uses exist on the project site itself. Homes are located to the west, in the Wahikuli subdivision. The area to the south is largely industrial.

4.5.2 POTENTIAL IMPACTS AND MITIGATION MEASURES

Potential impacts on the ambient noise quality of the project sites and the surrounding area would arise from construction activity in the course of development of the Villages of Leiali'i Project. These impacts are not considered significant since they would be temporary, and construction work would be conducted in compliance with applicable DOH noise regulations (see Table 4-11).

Construction activities would involve grubbing and grading of the site and construction of infrastructure and buildings. Noise levels associated with construction equipment typically range from 80 to 95 dBA at 50 feet from the source. Noise levels may be continuous (e.g., generator motors), fluctuating (e.g., crane operations), or impulsive (e.g., metal pipes banging together).

Development of the project would involve site preparation activities and construction. The dominant noise sources during this phase would be earth moving equipment such as bulldozers and trucks. Some area residences may be temporarily affected by construction noise, depending on their proximity to the work being done on the project site.

Measures to minimize noise impacts may include limiting work to daylight hours, reducing truck and equipment idling, using manually adjustable or self-adjusting backup alarms, and fitting generators and equipment with manufacturer-approved exhaust mufflers. Noise from construction activity will be short-term and required to comply with DOH noise regulations.

Over the long term, the project's residential areas will be sensitive to noise from vehicles traveling on the Lahaina Bypass Highway. Landscape buffers are included in all three concept plans to limit noise impacts on residents of the project.

Table 4-11: Noise Impacts of the Alternatives

ALTERNATIVES		NO IMPACTS	POTENTIAL IMPACTS	ADVERSE IMPACTS	COMMENTS/MITIGATION MEASURES
1.	No Action	✓			No impacts are expected under the No Action Alternative.
2.	Concept One		✓		Construction noise will be limited by management measures and compliance with DOH regulations. Afterwards, landscape buffers will limit roadway noise impacts on the project.
3.	Concept Two		✓		Construction noise will be limited by management measures and compliance with DOH regulations. Afterwards, landscape buffers will limit roadway noise impacts on the project.
4.	Concept Three		✓		Construction noise will be limited by management measures and compliance with DOH regulations. Afterwards, landscape buffers will limit roadway noise impacts on the project.

4.6 AIR QUALITY

Federal ambient air quality standards (AAQS) have been established by the U.S. Environmental Protection Agency (EPA) for carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), lead (Pb), ozone (O_3), and particulate matter at concentrations less than 10 microns (PM_{10}) and 2.5 microns ($PM_{2.5}$). The State has established a standard for hydrogen sulfide (H_2S), in response to concerns over volcanic and geothermal venting. Table 4-12 shows the current standards.

Table 4-12: State and Federal Ambient Air Quality Standards

Air Pollutant	Averaging Time	Hawaii AAQS	Federal (NAAQS)	
			Primary	Secondary
Carbon Monoxide (CO)	1-hour 8-hour	9 ppm 4.4 ppm	35 ppm 9 ppm	-- --
Lead (Pb)	Quarterly	1.5 µg/m^3	0.15 µg/m^3 (running 3-month)	1.5 µg/m^3 (running 3-month)
Nitrogen Dioxide (NO_2)	Annual	0.04 ppm	0.053 ppm	0.053 ppm
Ozone (O_3)	8-hour	0.08 ppm	0.075 ppm	0.075 ppm
Particulate Matter ≤10 micrometers in diameter (PM_{10})	Annual 24-hour	50 µg/m^3 150 µg/m^3	-- 150 µg/m^3	-- 150 µg/m^3
Particulate Matter ≤2.5 micrometers in diameter ($PM_{2.5}$)	Annual 24-hour	-- --	15 µg/m^3 35 µg/m^3	15 µg/m^3 35 µg/m^3
Hydrogen Sulfide (H_2S)	1-hour	--	75 ppb	--
Sulfur Oxides (SO_2)	Annual 24-hour 3-hour	0.03 ppm 0.14 ppm 0.50 ppm	0.03 ppm 0.14 ppm --	-- -- 0.50 ppm

Source: State Department of Health, 2008.
ppb = parts per billion by volume
ppm = parts per million by bolume
µg/m^3 = micrograms per cubic meter of air

4.6.1 EXISTING CONDITIONS

The entire state of Hawai'i is a region classified as in attainment of the National Ambient Air Quality Standards. Air quality on Maui as a whole is clean and low in pollution. The Hawai'i State Department of Health posts information about air quality monitored at Kihei, not West Maui. The Kihei station monitors pollutants associated with sugarcane burning (PM_{10} and $PM_{2.5}$), which no longer occurs in West Maui. As land withdrawn from agricultural production, the project site does not currently have any activities that emit pollutants in significant amounts.

The AirNow database shows that air quality on Maui was recently below levels of concern for older persons and children, as well as the general population, on all days in 2009.[6]

Throughout Hawai'i trade winds work much of the time to disperse concentrations of air pollutants.

4.6.2 POTENTIAL IMPACTS AND MITIGATION MEASURES

Short- and long-term impacts on ambient air quality would not be significant (Table 4-13).

Construction activities are likely to generate fugitive dust (from earthmoving for clearing and grading). Construction equipment on-site will emit NO_2 and CO. These temporary impacts would be controlled and minimized through the contractor's compliance with State of Hawaii Administrative Rules (HAR) 11-60-1 and, hence, would not violate State air quality standards.

State of Hawai'i Air Pollution Control regulations prohibit visible emissions of fugitive dust from construction activities at the property line. The developer/contractor would be required to follow a dust control program with measures such as watering active work areas, using wind screens, keeping adjacent roadways clean, and covering open trucks. Other measures include limiting the area disturbed at any given time, mulching or chemically stabilizing inactive areas, or paving and landscaping areas early in the construction schedule. Monitoring dust at the project boundary could be considered to evaluate the effectiveness of the dust control program.

The largest mobile and stationary construction equipment is usually diesel-powered. Nitrogen oxide emissions from diesel engines can be higher than from gasoline-powered equipment. However, the standard for NO_2 is set on an annual basis, and is unlikely to be violated by short-term construction equipment emissions. CO emissions from diesel engines, on the other hand, are very low and should be insignificant. Engine exhaust emissions from construction vehicles, subject to regulatory controls under HAR 11-60.1, can be minimized through proper operation and maintenance of equipment.

During construction, trips by construction equipment and by workers would add to traffic on nearby roadways. As the project is built, residents and on-site workers would travel to and from

[6] http://www.epa.gov/aircompare/index.htm.

the project site, as discussed in Section 4.3 above. This activity would increase vehicle emissions on-site and nearby. However, Hawai'i's weather patterns and regular trade winds keep air quality well above national standards. Also, Federal air pollution control regulations require new motor vehicles to be equipped with devices that reduce emissions significantly compared to vehicles manufactured a few years ago. As older vehicles are replaced by new ones on Maui, emissions per vehicle would decline greatly.

Table 4-13: Impacts of the Alternatives on Air Quality

ALTERNATIVES		NO IMPACTS	POTENTIAL IMPACTS	ADVERSE IMPACTS	COMMENTS/MITIGATION MEASURES
1.	No Action	✓			No impacts are expected under the No Action Alternative.
2.	Concept One		✓		Construction-phase impacts on air quality will be limited by management measures and compliance with DOH regulations. Air quality impacts from the project would not be significant.
3.	Concept Two		✓		Construction-phase impacts on air quality will be limited by management measures and compliance with DOH regulations. Air quality impacts from the project would not be significant.
4.	Concept Three		✓		Construction-phase impacts on air quality will be limited by management measures and compliance with DOH regulations. Air quality impacts from the project would not be significant.

4.7 VISUAL RESOURCES

4.7.1 EXISTING CONDITIONS

The project site is a slope above the Wahikuli subdivision, visible from Honoapi'ilani Highway and the Wahikuli State Wayside. When the Lahaina Bypass is built, it will run through the project site.

Much of the time, the lands once in use for plantation agriculture provide a brown backdrop to Lahaina and the Ka'anapali Resort. During droughts, the region is at risk of wildfires. (Major fires have recently occurred in Olowalu and Ukumehame to the south, not close to Lahaina.)

The ocean, Moloka'i, and Lāna'i can be viewed from much of the project site. Inland, the West Maui Mountains provide an impressive backdrop to the coastal area.

Much of Lahaina Town has been designated a National Historic District. The visual character of buildings is important to the educational and aesthetic qualities of the District (see Figure 4-6). The Leiali'i project site is not visible from public spaces in the National Historic District.

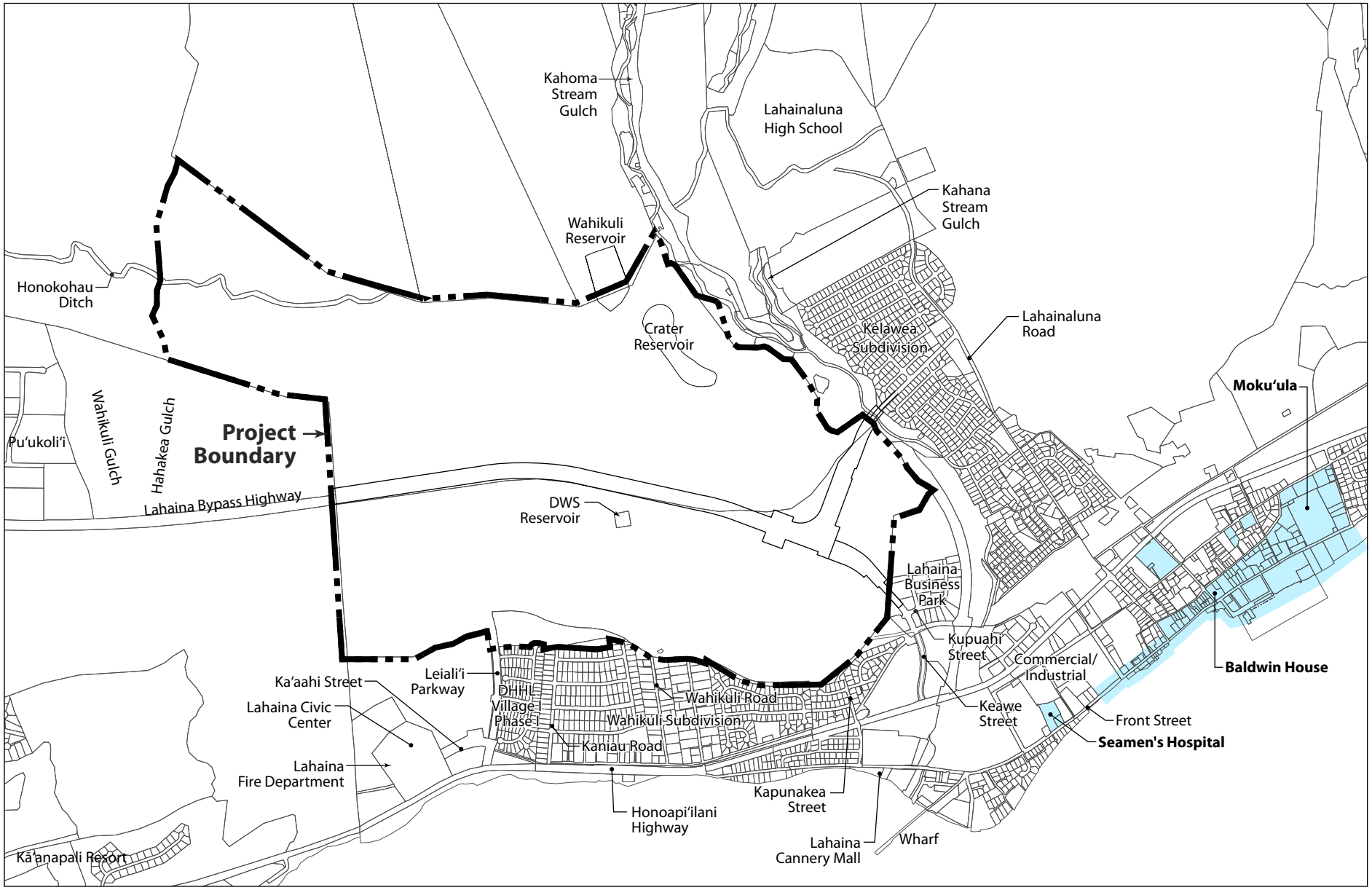
4.7.2 POTENTIAL IMPACTS AND MITIGATION MEASURES

When developed, the project site would present an urbanized appearance, with homes and other buildings set in landscaping and open space. Landscaped buffers along the Lahaina Bypass Highway would provide more greenery than can be seen today. From Honoapi'ilani Highway, homes would be visible above the Wahikuli subdivision area, although open space would still be visible above the project site. The inland edge of Phase B is not as far inland as Lahainaluna High School, at the top of the nearby Kelawea subdivision.

Buildings on the project site would be subject to conditions, codes, and restrictions (CC&Rs) established by the future developer. To maintain the value of the overall project, restrictions on building heights and landscaping will insure that distant views of the ocean and the mountains will remain. Landscaping will also limit the extent to which developed areas interfere with these views. Table 4-14 summarizes the visual impacts of the alternatives. No significant impacts are expected and no mitigation would be required.

Table 4-14: Impacts of the Alternatives on Visual Resources

ALTERNATIVES		NO IMPACTS	POTENTIAL IMPACTS	ADVERSE IMPACTS	COMMENTS/MITIGATION MEASURES
1.	No Action	✓			No impacts are expected under the No Action Alternative.
2.	Concept One		✓		The project expands the urbanized area but is not visible from the Lahaina Historic District. Landscaping and height restrictions will limit impacts on views of the ocean.
3.	Concept Two		✓		The project expands the urbanized area but is not visible from the Lahaina Historic District. Landscaping and height restrictions will limit impacts on views of the ocean.
4.	Concept Three		✓		The project expands the urbanized area but is not visible from the Lahaina Historic District. Landscaping and height restrictions will limit impacts on views of the ocean.



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BELT COLLINS

NORTH

0 500 1000 2000
SCALE IN FEET

LEGEND

Lahaina Historic District

Figure 4-6
LAHAINA HISTORIC DISTRICT

Villages of Leiali'i
November 2010

4.8 INFRASTRUCTURE AND UTILITIES

4.8.1 ROADWAY SYSTEM

4.8.1.1 Existing Conditions

Honoapi‘ilani Highway connects West Maui to Central, South, and East Maui. It is a four-lane undivided State DOT highway located makai of the Leiali‘i project site. (See Figure 4-7.) The major intersections along Honoapi‘ilani Highway are controlled by traffic signals. The posted speed limit along the highway fronting Leiali‘i Parkway is 40 miles per hour.

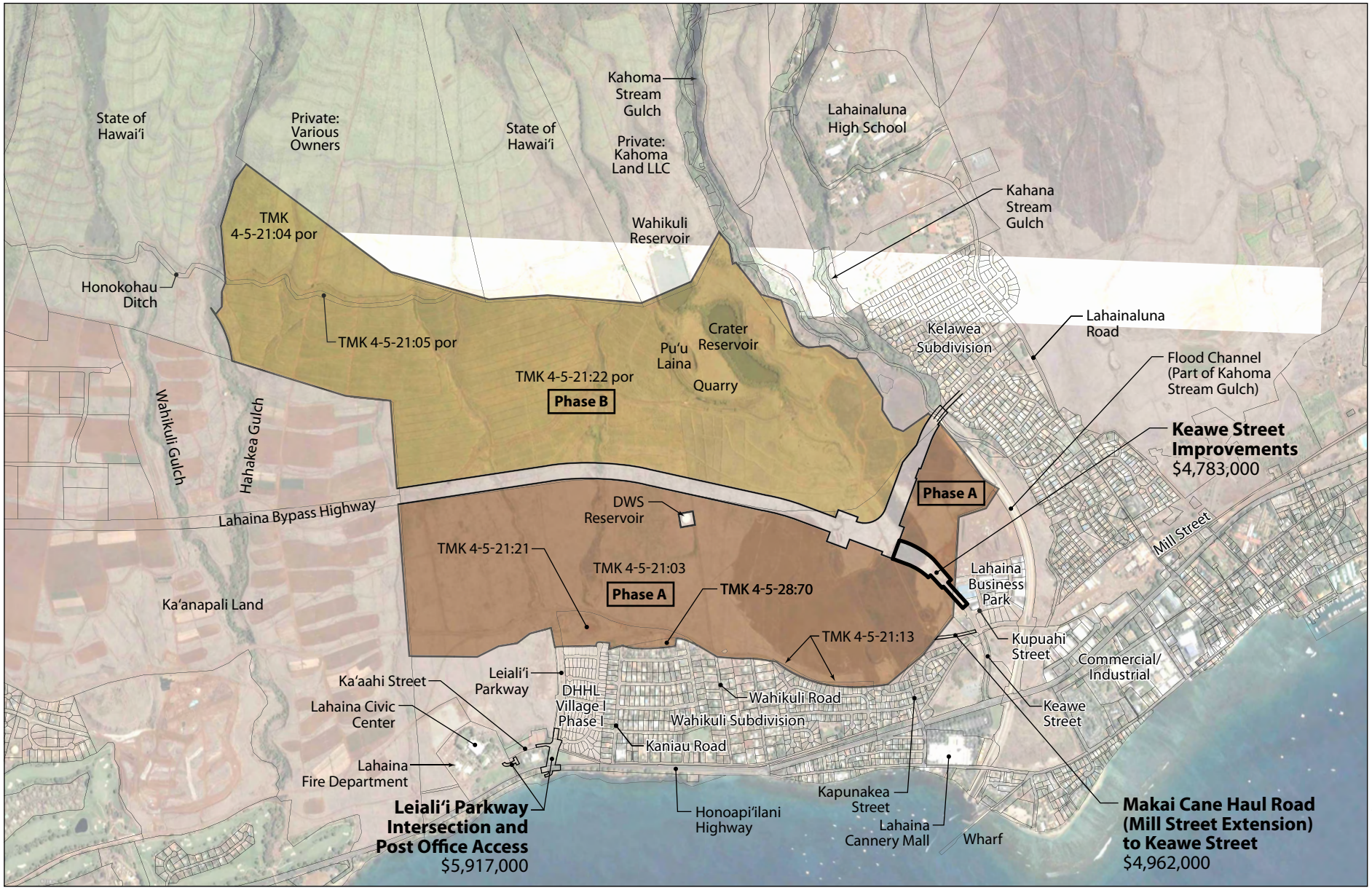
Access to the project site is restricted by locked gates at the ends of Leiali‘i Parkway, Wahikuli Road, and the cane haul road that intersects Keawe Street. Roads that end at the project site and are blocked by barricades or berms include Kaniau Road, Malanai Street, Fleming Road, and Kapunakea Street.

4.8.1.2 Proposed Roadway System

DOT started the first phase of construction of the Lahaina Bypass Highway, which includes two lanes of the future four-lane highway, inland and parallel to Honoapi‘ilani Highway. The Lahaina Bypass Highway will reduce congestion on Honoapi‘ilani Highway in and around Lahaina. The first phase of construction through the project site will include the portion from Kahoma Stream up to a two-lane extension of Keawe Street. When the first phase of the Lahaina Bypass Highway is open, access to the Villages of Leiali‘i would be allowed at an intersection with the Keawe Street extension. Future phases of the Lahaina Bypass Highway would include intersections accessing the Villages of Leiali‘i at Wahikuli Road and Leiali‘i Parkway.

The portion of Keawe Street being constructed with the Lahaina Bypass Highway is only a two-lane road. Additional earthwork, pavement, curbs and gutters, and sidewalks would be required for build-out of Keawe Street for the Villages of Leiali‘i intersections.

For Land Use Concepts One and Two, three additional roadway accesses to the Villages of Leiali‘i are proposed at (1) the existing makai cane haul road (Mill Street extension) connection to Keawe Street, (2) Wahikuli Road, and (3) Leiali‘i Parkway. A fourth roadway access is



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NORTH

0 500 1000 2000
SCALE IN FEET

LEGEND

Property Boundaries

Source: Imagery is from Google™ Earth Pro and is approximately matched to lot lines.

Figure 4-7
OFF-SITE ROAD SYSTEM

Villages of Leiali'i
November 2010

proposed at Kapunakea Street for Concept Three. Offsite improvements would be required for the makai cane haul road (Mill Street extension) connection to Keawe Street, and Leiali‘i Parkway from Ka‘a‘ahi Street to Honoapi‘ilani Highway. Wahikuli Road is a County road up to the makai boundary of the project and a service road through the Leiali‘i site. Kapunakea Street is a County road up to the makai boundary of the site.

The makai cane haul road (Mill Street extension) connection to Keawe Street would include an extension of a triple box reinforced concrete culvert (3 – 5 feet x 2.67 feet). The connecting road would be 60 feet wide and approximately 700 feet in length. The box culvert extension would convey runoff from the project site to Kahoma Stream.

Currently, Leiali‘i Parkway intersects Honoapi‘ilani Highway with a single mauka-bound lane and two makai-bound lanes. Approximately 360 linear feet mauka of the Honoapi‘ilani Highway intersection, Leiali‘i Parkway was constructed as a four-lane road with a landscaped median. From the Honoapi‘ilani Highway intersection, the three Leiali‘i Parkway lanes transition to the two lanes on the east half of the road.

Leiali‘i Parkway improvements would include reconstruction of the existing intersection with Honoapi‘ilani Highway, reconstruction of approximately 360 linear feet of Leiali‘i Parkway, reconstruction of the driveway entries to the Lahaina Post Office, and reconstruction of the Ka‘a‘ahi Street intersection with Leiali‘i Parkway. The Leiali‘i Parkway intersection improvements were part of the original Leiali‘i project. These are subject to the Special Management Area (SMA) Use Permit (SM1 950024) and Shoreline Setback Variance (SSV 960002). The County of Maui, Department of Planning granted the permits in May 26, 2000, to be held in abeyance.

The off-site road improvements are shown in Figure 4-7.

The order-of-magnitude construction costs of the off-site road improvements in 2009 dollars, presented in Appendix F, are summarized as follows:

Keawe Street Improvements	$4,783,000
Makai Cane Haul Road to Keawe Street	$4,962,000
Wahikuli Road	---
Leiali'i Parkway Intersection	$5,917,000
Kapunakea Street (Concept Three Only)	---
Total	$15,662,000

The approximate lengths of roads and order of magnitude costs of on-site road improvements, also included in Appendix F, are summarized in Tables 4-15 and 4-16. On-site road costs include water, sewer, drainage, electrical, telephone and cable television utilities, and landscaping.

Table 4-15: On-Site Road Improvements

Concept	Length	Right-of-Way
One and Two	24,470 LF 12,300 LF 64,450 LF	70' Right-of-Way 60' Right-of-Way 50' Right-of-Way
Three	23,640 LF 82,140 LF	60' Right-of-Way 50' Right-of-Way

Table 4-16: On-Site Road Costs

Concept	Costs
One and Two	$340,151,000
Three	$345,174,000

Note: All costs are shown in 2009 dollars

4.8.1.3 Potential Impacts and Mitigation Measures

No significant short-term or long-term environmental impacts are anticipated from the development of roadways associated with this project (Table 4-17). During construction, roadway areas would be disturbed and the potential for erosion would increase. The contractor would be required to comply with Chapter 20.08 – Soil Erosion and Sedimentation Control – of the County Code, the DPW *Title MC-15, Chapter 4, Rules for the Design of Storm Drainage Facilities in the County of Maui*, and the National Pollutant Discharge Elimination System

(NPDES) permit requirements, including Best Management Practices (BMPs) to contain and control site erosion and to prevent the discharge of sediment from the site. Based on the requirement for construction activities to comply with the County requirements and the approved NPDES permit, the short-term impacts on the environment from roadway construction activities would be managed and insignificant. After completion of the roadway construction, surfaces would be stabilized with hardscape and landscape, so the potential for erosion would be minimal.

The long-term impacts of the proposed roads would not be significant. The traffic impacts associated with the project are assessed in Section 4.3 of this document.

Table 4-17: Impacts of the Alternatives on Roadways

ALTERNATIVES		NO IMPACTS	POTENTIAL IMPACTS	ADVERSE IMPACTS	COMMENTS/MITIGATION MEASURES
1.	No Action	✓			No impacts on existing roadways are expected under the No Action Alternative.
2.	Concept One		✓		Construction-phase erosion will be managed per regulations and BMPs.
3.	Concept Two		✓		Construction-phase erosion will managed per regulations and BMPs.
4.	Concept Three		✓		Construction-phase erosion will be managed per regulations and BMPs.

4.8.2 DRAINAGE FACILITIES

4.8.2.1 Existing Conditions

Existing runoff mauka of and through the Leiali'i project site generally sheet flows, collects, and is conveyed in natural channels in the mauka (east) to makai (west) direction. Existing drainage is illustrated in Figure 4-8. Off-site drainage mauka (east) of Leiali'i is divided into two drainage basins (E1 and E2), which discharge runoff into the project site. The project site is divided into eight drainage basins (B1 to B8). Table 4-18 summarizes the area, discharge point, and existing runoff from a 100-year, 24-hour design storm for the off-site and on-site drainage basins. For details of the drainage calculations, see the Drainage Report for Villages of Leiali'i Master Plan in Appendix G.

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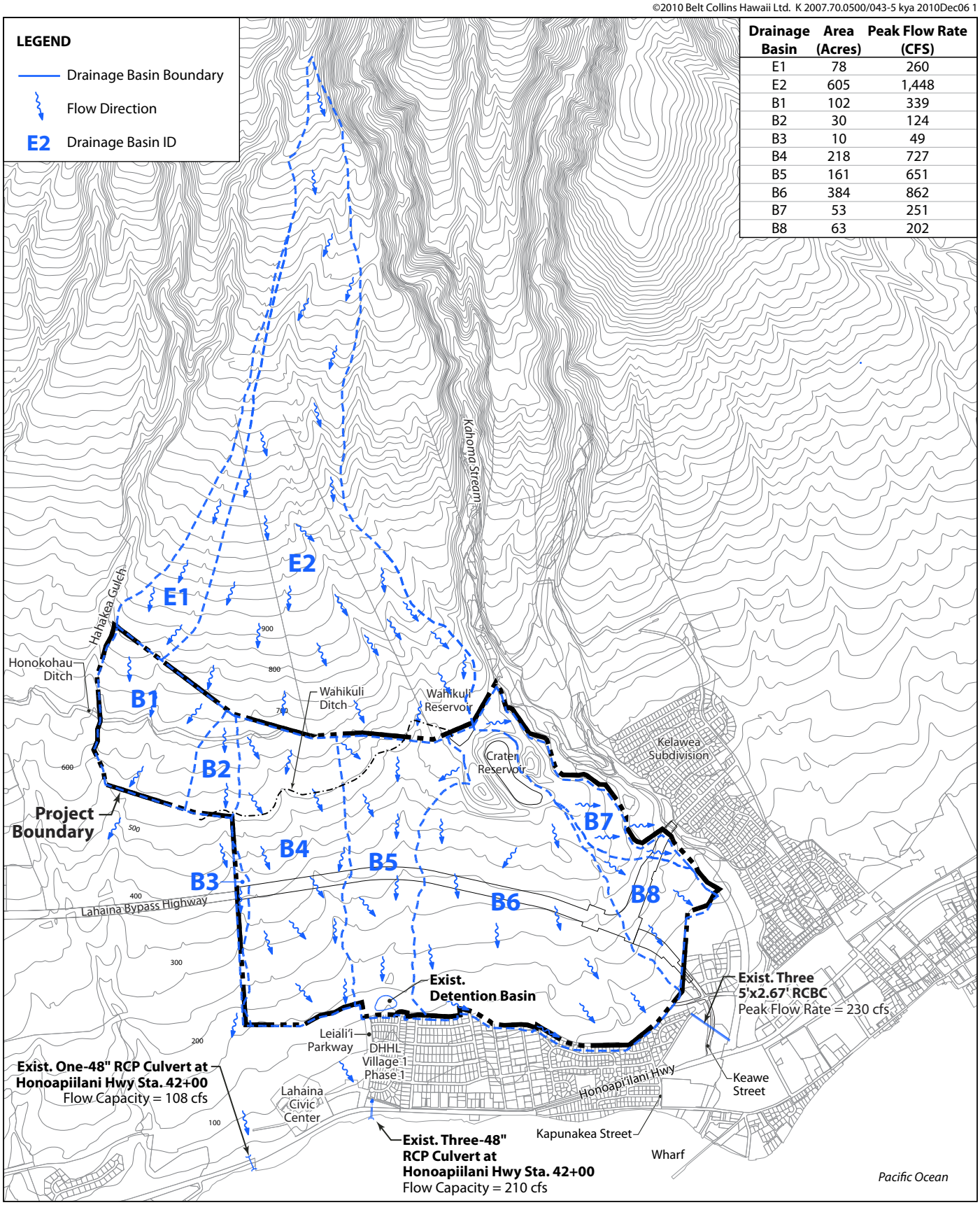

Drainage Basin	Area (Acres)	Peak Flow Rate (CFS)
E1	78	260
E2	605	1,448
B1	102	339
B2	30	124
B3	10	49
B4	218	727
B5	161	651
B6	384	862
B7	53	251
B8	63	202

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SCALE IN FEET

Figure 4-8
EXISTING DRAINAGE CONDITIONS

Villages of Leiali'i
November 2010

Table 4-18: Summary of Existing Drainage Conditions

Drainage Basin	Area (Acres)	Runoff (cfs)	Discharge Point
Off-site Basins			
E1	78	260	Basin B1 and Hāhākea Gulch
E2	605	1,448	Basin B1 and Hāhākea Gulch Basin B2, B3, and 48-inch Culvert, Honoapi'ilani Highway, Sta. 42+00 Basin B4 and 3-48-inch Culvert, Honoapi'ilani Highway, Sta. 24+00 Basin B5, On-site Detention Basin, and 3-48-inch Culvert, Honoapi'ilani Highway, Sta. 24+00 Basin B6 and Triple 5-foot x 2.67-foot Box Culvert to Kahoma Stream
On-site Basins			
B1	102	339	Hāhākea Gulch
B2	30	124	48-inch Culvert, Honoapi'ilani Highway, Sta. 42+00
B3	10	49	48-inch Culvert, Honoapi'ilani Highway, Sta. 42+00
B4	218	727	3-48-inch Culvert, Honoapi'ilani Highway, Sta. 24+00
B5	161	651	On-site Detention Basin and 3-48-inch Culvert, Honoapi'ilani Highway, Sta. 24+00
B6	384	862	Triple 5-foot x 2.67-foot Box Culvert to Kahoma Stream
B7	53	251	Kahoma Stream
B8	63	202	Kahoma Stream

Notes: Runoff is calculated for a 100-year, 24-hour storm. cfs = cubic feet per second

Honokōhau Ditch runs along the mauka (east) side of the project site. It conveys irrigation water from north of the project site, intercepts overland sheet flow, and discharges into Wahikuli Reservoir. Wahikuli Ditch conveys irrigation water from Wahikuli Reservoir to agricultural fields north of the project site. Overflow from Wahikuli Reservoir discharges over a spillway into Crater Reservoir. Crater Reservoir, a natural volcanic crater, receives excess irrigation water from Wahikuli Reservoir. There is no outlet or spillway from Crater Reservoir, and there have been no reports of discharges from Crater Reservoir.

4.8.2.2 Proposed Drainage System

The proposed Villages of Leiali'i project would increase runoff from the project site, as the inactive agricultural lands would be converted to urban development with increased impervious land area. The general flow patterns and the off-site and on-site drainage basins would remain. See Figure 4-9 and Figure 4-10 for the developed drainage conditions for Concepts One and Two, and for Concept Three, respectively. Table 4-19 summarizes the developed conditions runoff from a 100-year, 24-hour design storm for the off-site and on-site drainage basins.

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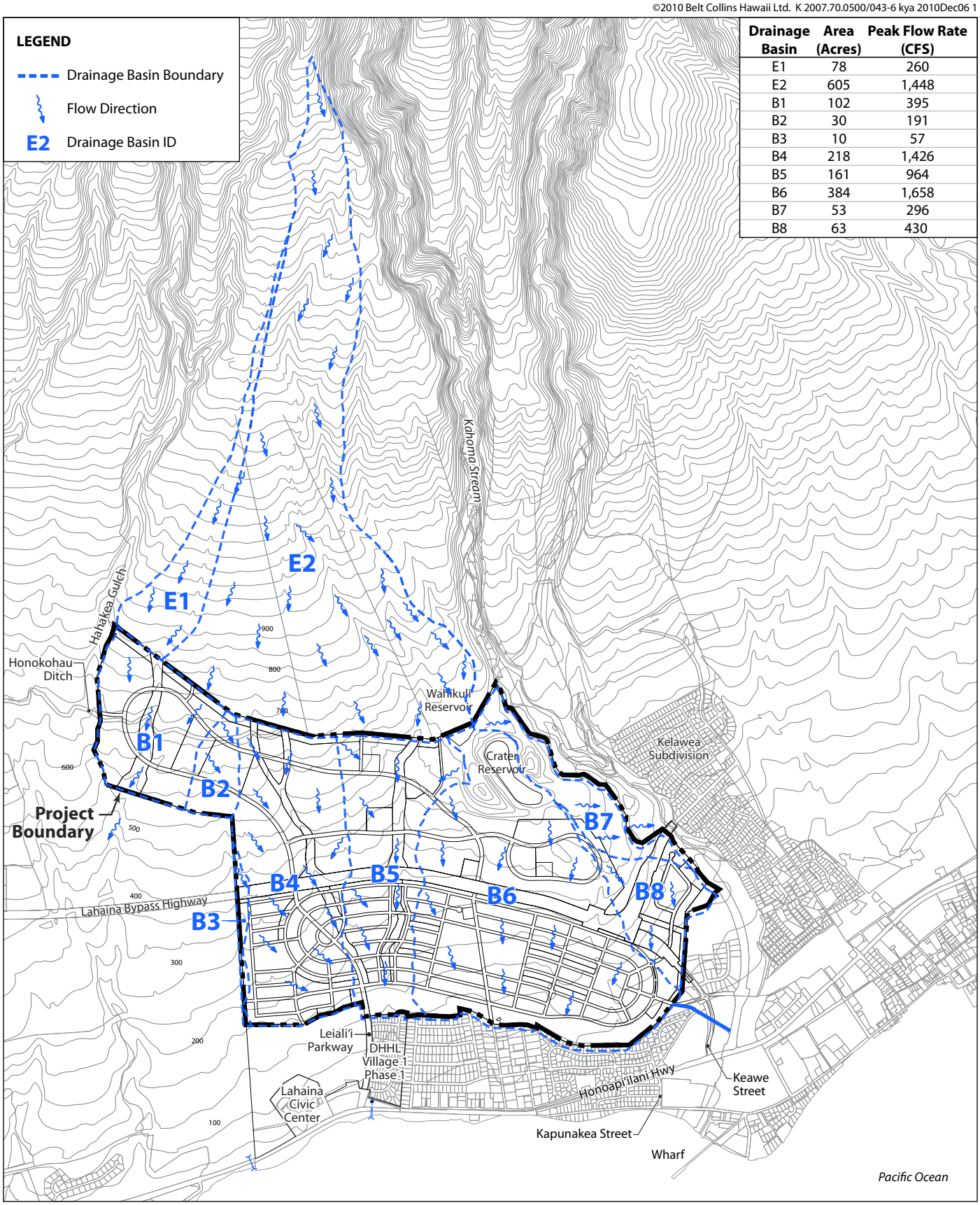

Drainage Basin	Area (Acres)	Peak Flow Rate (CFS)
E1	78	260
E2	605	1,448
B1	102	395
B2	30	191
B3	10	57
B4	218	1,426
B5	161	964
B6	384	1,658
B7	53	296
B8	63	430

Note: Lot lines shown are approximate and for illustrative purposes.

NORTH

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SCALE IN FEET

Figure 4-9
DEVELOPED DRAINAGE CONDITIONS FOR CONCEPTS ONE AND TWO

Villages of Leiali'i
November 2010

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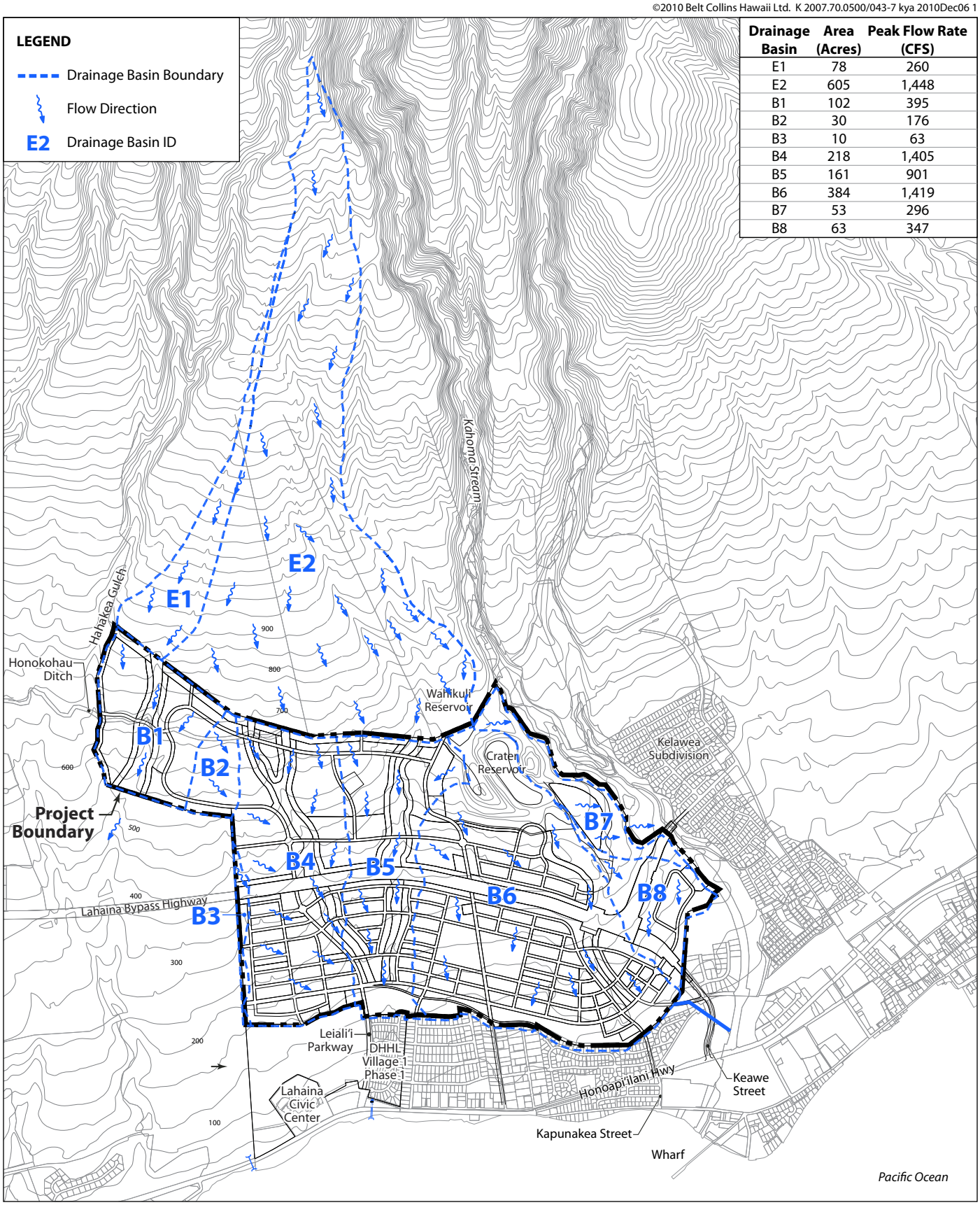


Drainage Basin	Area (Acres)	Peak Flow Rate (CFS)
E1	78	260
E2	605	1,448
B1	102	395
B2	30	176
B3	10	63
B4	218	1,405
B5	161	901
B6	384	1,419
B7	53	296
B8	63	347

Note: Lot lines shown are approximate and for illustrative purposes.

NORTH

0 600 1200 2400
SCALE IN FEET

Figure 4-10
DEVELOPED DRAINAGE CONDITIONS FOR CONCEPT THREE

Villages of Leiali'i
November 2010

Table 4-19: Summary of Developed Drainage Conditions

Land Use Concepts One and Two			
Drainage Basin	Existing Runoff (cfs)	Developed Runoff (cfs)	Increase (cfs)
E1	260	260	0
E2	1,448	1,448	0
B1	339	395	56
B2	124	191	67
B3	49	57	8
B4	727	1,426	699
B5	651	964	313
B6	862	1,658	796
B7	251	296	45
B8	202	430	228
Land Use Concept Three			
Drainage Basin	Existing Runoff (cfs)	Developed Runoff (cfs)	Increase (cfs)
E1	260	260	0
E2	1,448	1,448	0
B1	339	395	56
B2	124	176	52
B3	49	63	14
B4	727	1,405	678
B5	651	901	250
B6	862	1,419	557
B7	251	296	45
B8	202	347	145

Note: All runoff will be reduced either to predevelopment rates or to rates that can be conveyed by downstream drainage structures.
cfs = cubic feet per second

To handle the net increase in runoff from the Leiali‘i development, several improvements are proposed, including a cutoff ditch along the mauka (east) property line which would discharge off-site runoff to Crater Reservoir and a minor drainageway that discharges to Hāhākea Gulch, on-site detention basins, a new 48-inch culvert added to three existing 48-inch culverts at Honoapi‘ilani Highway Station 24+00, and an approximately 700-foot extension of the triple 5-foot x 2.67-foot box culvert from Keawe Street to the project site. Additional on-site improvements required would include 96-inch culvert roadway crossings along the drainage channels through the project site, an emergency spillway from Crater Reservoir to Kahoma Stream, and a 24-inch relief drain line from Crater Reservoir to the on-site detention basins. For Land Use Concepts One and Two, additional drainage improvements include a diversion channel

along approximately one third of the mauka side of the proposed Lahaina Bypass Highway and 48-inch and 72-inch drain lines discharging to the detention basins. (See Figure 4-11 and Figure 4-12.) Four proposed on-site detention basins would provide runoff water quality treatment, reduce developed runoff rates leaving the site to pre-development values, and/or reduce developed runoff to rates that can be conveyed by the downstream drainage structures.

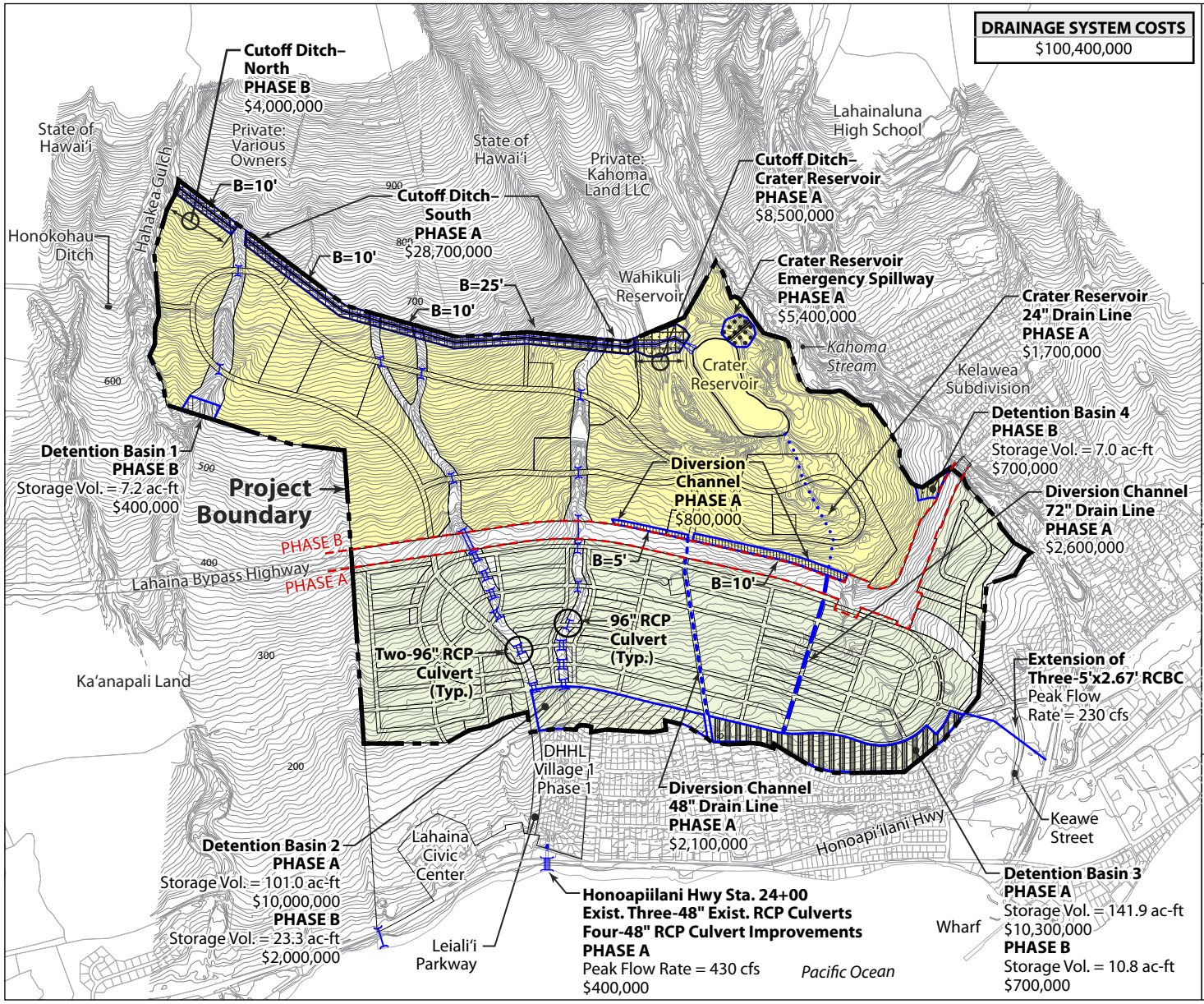
The order-of-magnitude costs for the drainage system are summarized in Table 4-20. For details on the drainage system costs, see Appendix G.

Table 4-20: Drainage System Costs

Alternative Plan	Costs
Concept One	$100,400,000
Concept Two	$100,400,000
Concept Three	$94,800,000

Notes: All costs are shown in 2009 dollars

An alternate drainage system is also being considered, under which no off-site runoff would discharge to Crater Reservoir. In lieu of Crater Reservoir, the cutoff ditch would convey off-site runoff to detention basins located along existing drainage channels through the Phase B portion of the project site. There would be a total of eight detention basins used to store a total of 334 acre-feet of off-site runoff. Under this drainage alternative, no improvements to Crater Reservoir would be required, including the emergency spillway and 24-inch relief drain line. All other improvements proposed in the previous drainage system would also be required for this drainage alternative. See Appendix G for details on the drainage alternative.



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NORTH

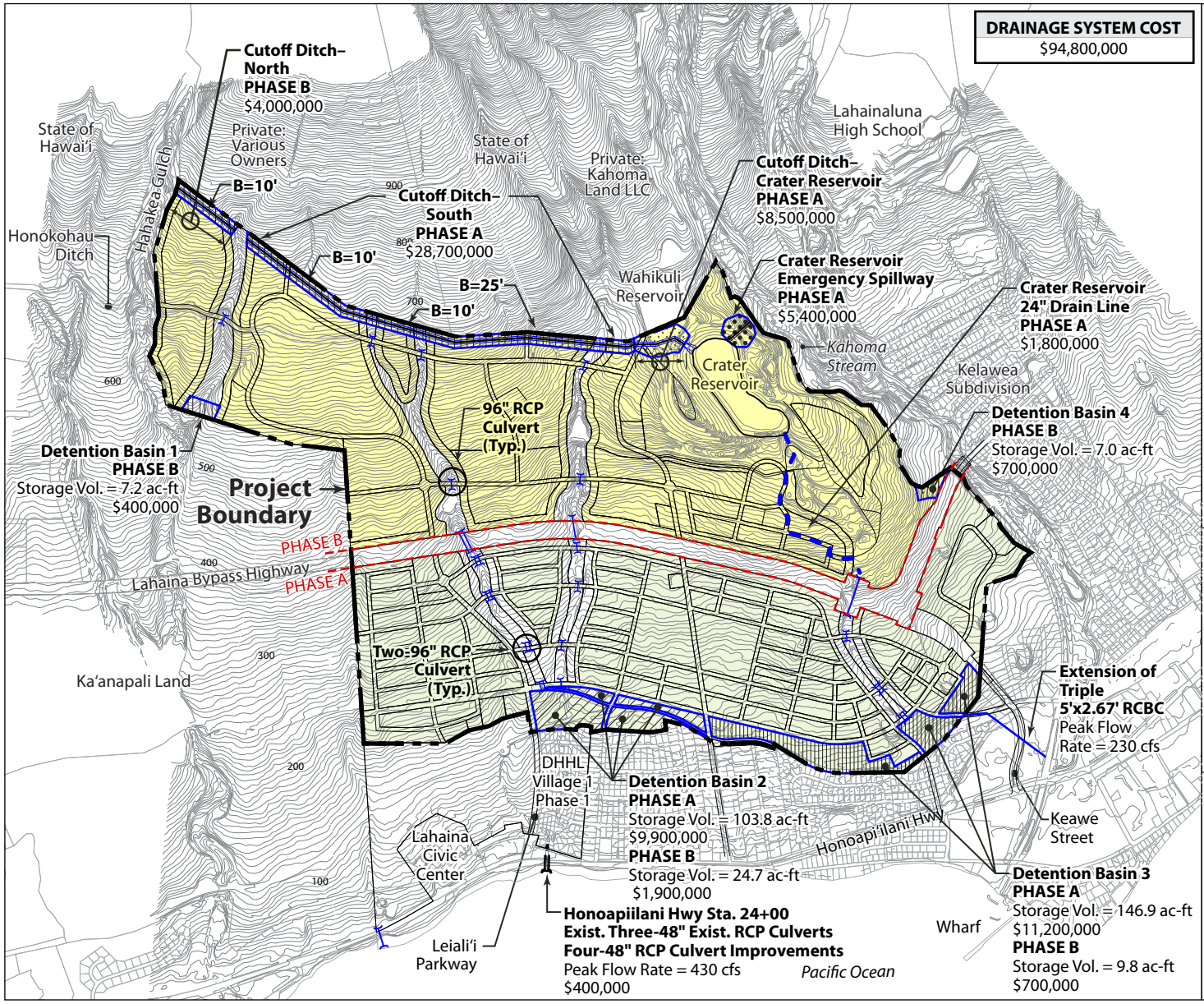
0 500 1000 2000
SCALE IN FEET

Notes: Lot lines shown are approximate and for illustrative purposes.

Detention basin storage volumes shown are for water storage.

Figure 4-11
PROPOSED DRAINAGE SYSTEM—LAND USE CONCEPTS ONE AND TWO

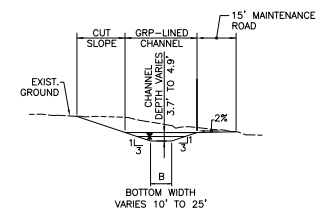
Villages of Leiali'i
November 2010



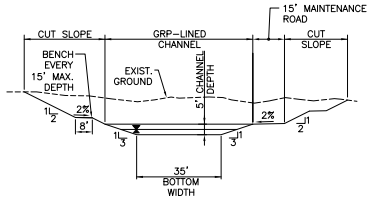
LEGEND

- Project Boundary
- Culvert
- Phase A
- Phase B

(Estimated Cost for PHASE A On-Site Culverts = $13,700,000)
(Estimated Cost for PHASE B On-Site Culverts = $7,500,000)



TYPICAL SECTION OF CUTOFF DITCH–NORTH & CUTOFF DITCH–SOUTH
Not to Scale



TYPICAL SECTION OF CUTOFF DITCH–CRATER RESERVOIR & CRATER RESERVOIR EMERGENCY SPILLWAY
Not to Scale

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NORTH

0 500 1000 2000
SCALE IN FEET

Notes: Lot lines shown are approximate and for illustrative purposes.

Detention basin storage volumes shown are for water storage.

Figure 4-12
PROPOSED DRAINAGE SYSTEM—LAND USE CONCEPT THREE
Villages of Leiali'i
November 2010

As summarized in Table 4-21, no significant short-term or long-term drainage impacts are expected with the implementation of BMPs during construction and measures taken by residents to prevent non-point source pollution.

Table 4-21: Impacts of the Alternatives on Drainage

ALTERNATIVES		NO IMPACTS	POTENTIAL IMPACTS	ADVERSE IMPACTS	COMMENTS/MITIGATION MEASURES
1.	No Action	✓			No impacts are expected under the No Action Alternative.
2.	Concept One		✓		Construction-phase erosion managed per regulations, BMPs; increase in runoff managed by detention basins; education and rules on water use to mitigate impact of residents' activities
3.	Concept Two		✓		Construction-phase erosion managed per regulations, BMPs; increase in runoff managed by detention basins; education and rules on water use to mitigate impact of residents' activities
4.	Concept Three		✓		Construction-phase erosion managed per regulations, BMPs; increase in runoff managed by detention basins; education and rules on water use to mitigate impact of residents' activities

During grading activities, portions of the site would be disturbed and the potential for site erosion would increase. The contractor would be required to comply with Chapter 20.08 "Soil Erosion and Sedimentation Control" of the County Code; the DPW *Title MC-15, Chapter 4, Rules for the Design of Storm Drainage Facilities in the County of Maui*; and NPDES permit requirements, including BMPs to contain and control site erosion and to prevent the discharge of sediment from the site. The short-term impacts on the environment from grading activities would be managed and insignificant. After completion of construction, ground surfaces would be stabilized with landscape and hardscape, so the potential for erosion would be minimal.

With more impermeable surfaces on-site, storm water runoff would increase. Runoff would be collected and detained in basins. The detention basins would maintain runoff water quality, reduce developed runoff rates leaving the site to pre-development values, and/or reduce developed runoff to rates that can be conveyed by downstream drainage structures.

The developer would provide educational materials and programs to help residents control and prevent non-point source pollution. These materials would deal with vehicle maintenance and

proper disposal of vehicle fluids, impacts of washing cars on the street, and potential impacts of fertilizer and pesticides on the environment. The developer would establish community association covenants to control the use of fertilizers, pesticides, and herbicides, with a list of approved fertilizers, pesticides, and herbicides, as well as a list of preferred landscape plant species, including native plant species and those with a low risk of becoming invasive. The developer would also provide the County Department of Parks, State Department of Education (DOE), and others information on the landscape management controls and vehicle maintenance controls to be used within the Leiali'i site. With these measures, long-term impacts of the project on drainage and erosion would not be significant.

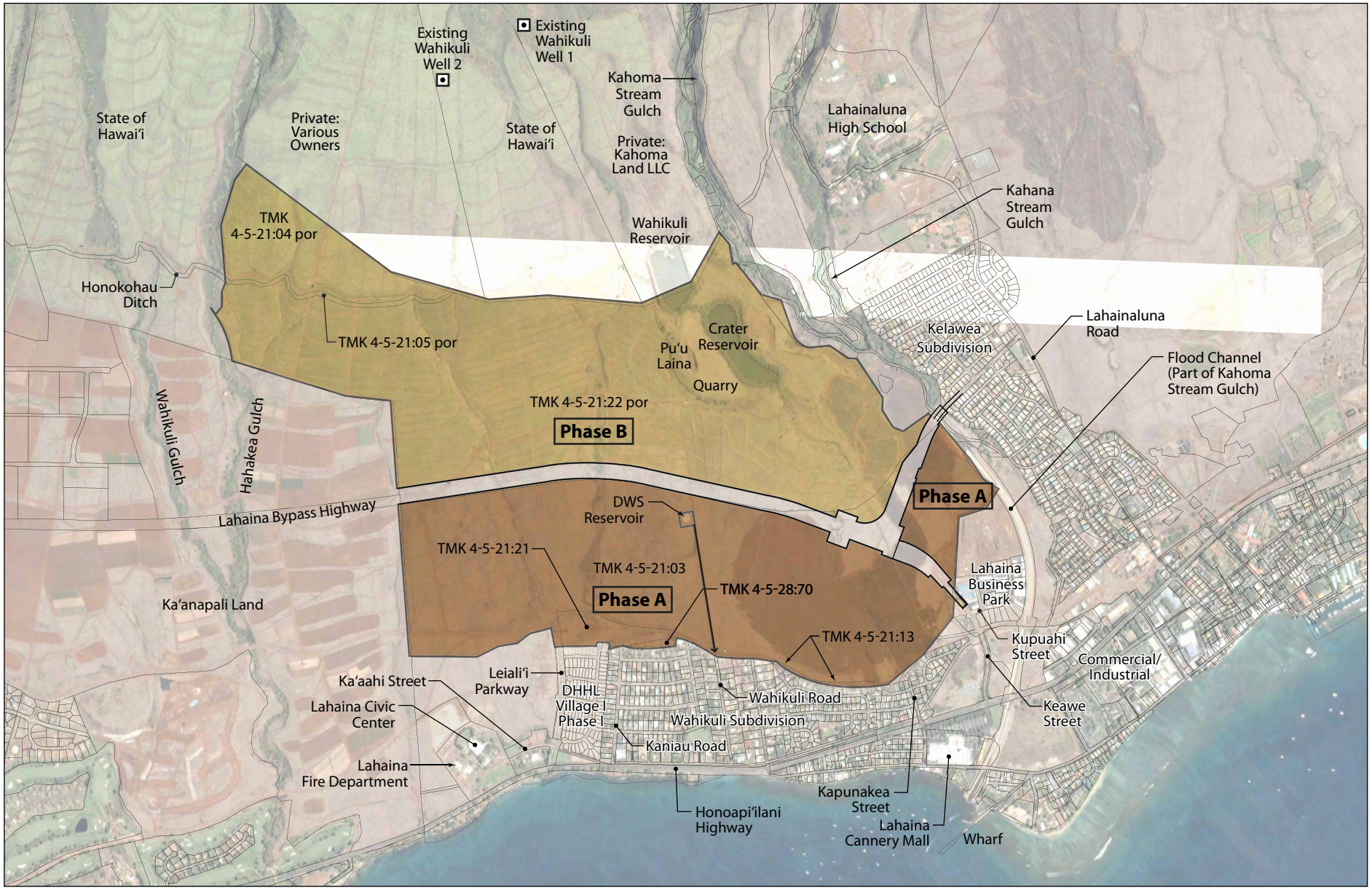
4.8.3 WATER SUPPLY AND STORAGE FACILITIES

4.8.3.1 Existing Conditions

No drinking water system currently serves the Leiali'i project site. A County DWS reservoir, servicing the Wahikuli subdivision makai of the project site, is located at elevation 235 feet within the Leiali'i property. Two wells, Wahikuli Well 1 (State Well No. 5439-01) and Wahikuli Well 2 (State Well No. 5439-02), were drilled mauka of the subject property to tap basal groundwater (see Figure 4-13). The wells have not been outfitted with pumps, and no water system infrastructure has been constructed from the well sites to the project site. Wahikuli Well 1 is located in TMK 4-5-21:2, which is owned by Kahoma Land LLC. Wahikuli Well 2 is located in TMK 4-5-21:23, which is State of Hawai'i land. Wahikuli Well 1 has a recommended pump capacity of 300 gallons per minute (GPM), and Wahikuli Well 2 has a recommended pump capacity of 450 GPM.

4.8.3.2 Proposed Water System

The drinking water system for the Villages of Leiali'i project site could be either a private system or a system dedicated to the County DWS. A private system would be operated and maintained by a private utility company regulated by the State Public Utilities Commission. DWS would maintain and operate a County system. Either system would be designed in compliance with American Water Works Association (AWWA) standards. The primary differences between the private and dedicated DWS systems are the system materials and water allocation.



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BELT COLLINS

NORTH

0 500 1000 2000
SCALE IN FEET

LEGEND

Property Boundary

Source: Imagery is from Google™ Earth Pro and is approximately matched to lot lines.

Figure 4-13
EXISTING WATER SYSTEM

Villages of Leiali'i
November 2010

The water system would include wells, water lines, and reservoir tanks. Different materials would be used to construct storage tanks and pipes for a private system and a DWS dedicated system. Storage tanks for a private system would be either steel tanks or reinforced concrete tanks. Private systems typically install steel tanks due to cost considerations. Storage tanks for a DWS system would be reinforced concrete tanks, in compliance with DWS standards. Pipe material for a private system would be polyvinylchloride (PVC), high density polyethylene (HDPE), or ductile iron, in compliance with AWWA standards. Pipe material for a DWS system would be ductile iron.

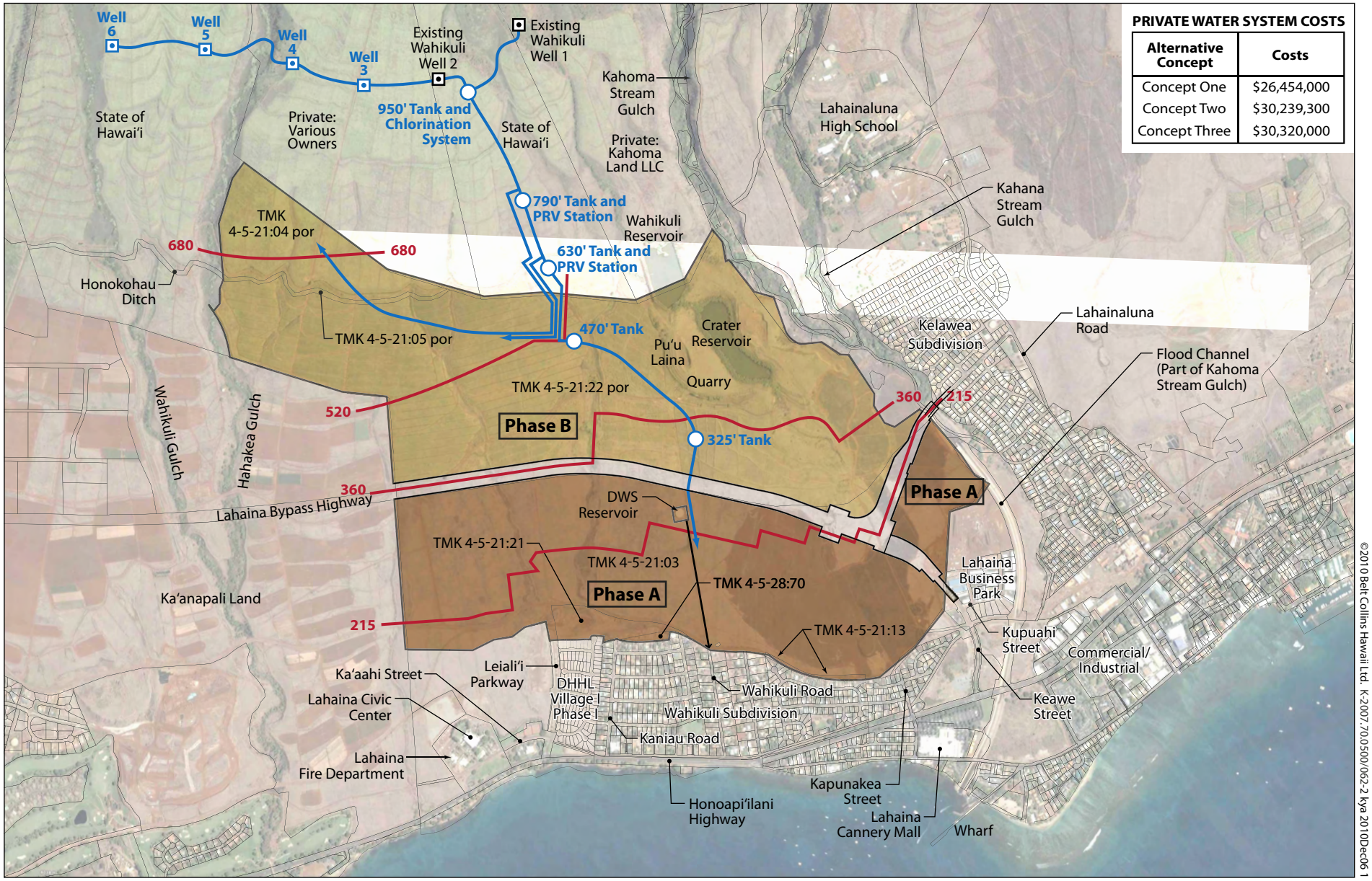
Reservoir tanks would be located at five different elevations to service the Leiali‘i project. The project site, extending from about 80-foot to 840-foot elevation, would be divided into five pressure zones, as shown in Table 4-22 and Figure 4-14.

Table 4-22: Water Pressure Service Zones

Reservoir Tank Spillway Elevation (Feet MSL)	Approximate Service Range (Feet MSL)
950	840 to 680
790	680 to 520
630	520 to 360
470	360 to 215
325	215 to 80

Notes: MSL = above mean sea level

The average daily and maximum day water supply requirements for the alternative concepts are summarized in Table 4-23. The private system water supply requirements are based on the use rate criteria for the Honolulu Board of Water Supply (HBWS). The differences between the Maui County DWS and HBWS criteria are discussed in the Conceptual Offsite Water Master Plan in Appendix H. In sum, Maui presumes higher levels of water use per unit when planning for new facilities than do the other counties.



PRIVATE WATER SYSTEM COSTS

Alternative Concept	Costs
Concept One	$26,454,000
Concept Two	$30,239,300
Concept Three	$30,320,000

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0 500 1000 2000
SCALE IN FEET

LEGEND

Property Boundary

Source: Imagery is from Google™ Earth Pro and is approximately matched to lot lines.

Figure 4-14
PROPOSED WATER SYSTEM

Villages of Leiali'i
November 2010

Table 4-23: Water Supply Requirements

System	Average Daily Water Requirement	Maximum Day Water Requirement
Private System		
Concept One	1,789,580 GPD	2,684,370 GPD
Concept Two	2,176,280 GPD	3,264,420 GPD
Concept Three	2,189,640 GPD	3,284,460 GPD
DWS System		
Concept One	2,018,203 GPD	3,027,305 GPD
Concept Two	2,620,883 GPD	3,931,325 GPD
Concept Three	2,674,909 GPD	4,012,363 GPD

GPD = gallons per day

In addition to the two existing wells, additional source wells would be required to support the Leiali'i project. Additional wells, which would tap basal groundwater,[7] would be located north of Wahikuli Well 2 along the 1,040-foot elevation. Four additional basal groundwater well sites, spaced at least 1,200-feet apart, could be located in the State and private lands mauka of the project site.

Recommended pumping capacities for basal groundwater wells located north of Well 2 would be 500 to 550 GPM to avoid salinity intrusion. All of the water from source wells of a private system would be allocated to the Villages of Leiali'i.

For a DWS system, DWS has indicated a limit of 400 GPM capacity for each of the area wells tapping basal groundwater, a 45 percent operating factor out of the wells' 24-hour production capacity, and allocation of 75 percent of the wells' production to the project. Available water from a single DWS-operated basal groundwater well would be 194,400 GPD. The remainder of the well's production (64,800 GPD) would be dedicated to the County for other projects. See Table 4-24 for the available water from basal wells for a private system or a DWS system.

[7] Island water resources may include a "basal" lens of water, floating on seawater underground, high-level water sources which are underground but separated from the basal lens by geological structures such as dikes, and surface water. If water is drawn from basal resources faster than it is replenished, the lens can shrink and the salinity of the underlying resource increase. If demands on high-level resources exceed replenishment, there is rarely a danger of salinity intrusion.

Table 4-24: Available Water from Basal Wells

System	Well	Rate	Units
Private	1	300	GPM
	2	450	GPM
	3	550	GPM
	4	550	GPM
	5	550	GPM
	6	550 *	GPM
	Total for Project	2,400	GPM
		3,456,000	GPD
DWS	1	300	GPM
	2	400	GPM
	3	400	GPM
	4	400	GPM
	5	400	GPM
	6	400 *	GPM
	Subtotal	1,900	GPM
	45% Capacity	855	GPM
	75% Allocation	641	GPM
	Total for Project	923,400	GPD

* One well standby
GPM = gallons per minute
GPD = gallons per day

TDEM surveys[8] conducted in the lands upslope of the project site indicate the potential for high level groundwater. Drilling for high level groundwater could be undertaken between the 1,600- and 1,700-foot elevations with anticipated well pumping capacities from 750 to 1,400 GPM. However, high level groundwater wells could not be developed and operated at less cost than basal wells. For additional information on high level groundwater wells, see Memorandum: Assessment of Blackhawk's TDEM Results in the Area Inland of the Villages of Leiali'i Project in Appendix H.

Based on the available water and the maximum day water supply requirements, a private system can provide adequate water for the three concepts. A system constrained by DWS requirements and allocation would not be able to provide adequate water for the project. Consequently, infrastructure requirements and costs were only determined for a private system.

[8] TDEM is a geophysical method to determine from the surface the geoelectric layering below the ground. It provides a basis for inferences about geology and water quality (i.e., Is there water in significant quantities below a given site, and is it fresh or salt?). This is possible because the electrical resistivity of the earth depends on geological materials, porosity, saturation, and concentration of dissolved solids in the ground water.

The well sites for the project would be approximately 180 feet by 180 feet, or approximately 0.75 acres in size. Reservoir tanks, either 0.5 million gallons (MG) or 1.0 MG, would be required to support the water system. A 0.5-MG reservoir tank site would be approximately 180 feet by 180 feet, or 0.75 acres, while a 1.0-MG reservoir tank site would be approximately 225 feet by 225 feet, or 1.16 acres. An access road to the well and tank sites would be located in a 50-foot wide easement, which would encompass the road, transmission water line, power poles, and overhead power lines. If all 6 basal well sites are developed, approximately 10,340 linear feet of access road would be required in an easement of approximately 11.9 acres.

The major infrastructure requirements, excluding the distribution waterlines and appurtenances in the roadways, for a private system are summarized in Table 4-25. The order of magnitude costs of the water system improvements are summarized in Table 4-26. For details of the improvements and costs, refer to the Conceptual Offsite Water Master Plan in Appendix H.

Table 4-25: Water System Infrastructure

Private System	Infrastructure
Concept One	• Wahikuli Wells 1, 2, 3, 4 and 5 • Reservoirs o 0.5 MG 950' Elevation o 0.5 MG 790' Elevation o 0.5 MG 630' Elevation o 1.0 MG 470' Elevation o 0.5 MG 325' Elevation • Pressure reducing-rate of flow control stations o 790' Elevation o 630' Elevation • Transmission lines from wells to 325' Reservoir • Chlorination System at 950' Reservoir
Concept Two	• Wahikuli Wells 1, 2, 3, 4, 5 and 6 • Reservoirs o 0.5 MG 950' Elevation o 0.5 MG 790' Elevation o 0.5 MG 630' Elevation o 1.0 MG 470' Elev o 1.0 MG 325' Elev • Pressure reducing-rate of flow control stations o 790' Elevation o 630' Elevation • Transmission lines from wells to 325' Reservoir • Chlorination System at 950' Reservoir

Private System	Infrastructure
Concept Three	• Wahikuli Wells 1, 2, 3, 4, 5 and 6 • Reservoirs o 0.5 MG 950' Elevation o 0.5 MG 790' Elevation o 0.5 MG 630' Elevation o 1.0 MG 470' Elevation o 1.0 MG 325' Elevation • Pressure reducing-rate of flow control stations o 790' Elevation o 630' Elevation • Transmission lines from wells to 325' Reservoir • Chlorination System at 950' Reservoir

Table 4-26: Private Water System Costs

Alternative Concept	Costs
Concept One	$26,454,000
Concept Two	$30,239,300
Concept Three	$30,320,000

4.8.3.3 Potential Impacts and Mitigation Measures

Construction of water supply infrastructure, including source wells, storage reservoirs, water lines, and appurtenances, would have no significant short-term impacts on the environment. Construction activities would conform to the applicable environmental requirements for storm water protection and mitigation of potential noise and dust impacts. Construction of the wells would comply with State of Hawai'i DLNR Commission on Water Resource Management *Hawai'i Well Construction & Pump Installation Standards* to manage impacts on groundwater resources. One potential short-term impact of the development would be the lowering of water levels in the vicinity of the project's wells. No short-term detrimental impacts on the existing water supply system are anticipated as a result of the proposed project.

Over the long term, the proposed wells would draw from the basal aquifer. The project would add approximately 1.8 to 2.2 MGD daily demand on the aquifer. No additional basal wells could be located upslope of the site without affecting the salinity from the proposed project wells. Wells drawing from the high level groundwater could be developed upslope of the basal wells in lieu of or in addition to the basal wells. However, withdrawal of groundwater from either the basal or high level aquifers could affect the aquifers and discharge of groundwater to the coastal ecosystems and marine waters.

Water conservation measures could be implemented by the developer to mitigate the impacts on the groundwater resources. These conservation measures could include installing low flow toilets and showerheads, installing waterless urinals in public restrooms, and providing residents, businesses, schools, and other users with information on the importance of water conservation.

No long-term detrimental impacts on the existing water supply are anticipated as a result of the project. Table 4-27 summarizes potential short-term and long-term impacts of the project on the region's water supply.

Table 4-27: Impacts of the Alternatives on Water Supply

ALTERNATIVES		NO IMPACTS	POTENTIAL IMPACTS	ADVERSE IMPACTS	COMMENTS/MITIGATION MEASURES
1.	No Action	✓			No impacts are expected under the No Action Alternative.
2.	Concept One		✓		Wells drawing on basal and perhaps high-level sources would supply the project with 1.8 million gpd. Conservation measures and education would limit demand.
3.	Concept Two		✓		Wells drawing on basal and perhaps high-level sources would supply the project with 2.2 million gpd. Conservation measures and education would limit demand.
4.	Concept Three		✓		Wells drawing on basal and perhaps high-level sources would supply the project with 2.2 million gpd. Conservation measures and education would limit demand.

4.8.4 WASTEWATER COLLECTION, TREATMENT, AND DISPOSAL FACILITIES

4.8.4.1 Existing Conditions

The County of Maui DEM owns and operates the Lahaina Wastewater Reclamation Facility (WWRF), which is approximately three miles north of the project site. Regional sewer in the area connects through a series of gravity transmission lines, three wastewater pump stations, and sewer force mains along Honoapi'ilani Highway to the Lahaina WWRF. At the WWRF, wastewater is treated to R-1 water (significantly reducing viral and bacterial pathogens) for reuse or disposal.

4.8.4.2 Proposed Wastewater System

The sewer system analysis was based on the County of Maui DEM Wastewater Reclamation Division criteria used to calculate wastewater quantities for various land uses and densities,

pipeline sizes, manhole spacing, and wastewater treatment plant capacity. For details, see the Sewer Master Plan for the Villages of Leiali'i in Appendix I. The projected sewer flows are summarized in Table 4-28.

Table 4-28: Sewer Requirements

Alternative Plan	Design Average Flow (GPD)	Design Peak Flow (GPD)
Concept One	1,136,276	4,292,592
Concept Two	1,373,044	4,862,060
Concept Three	1,387,953	4,748,386

The proposed sewer system for the Villages of Leiali'i could be either a private system or a system dedicated to the DEM. A private system would consist of an on-site collection system with an on-site wastewater treatment plant (WWTP). A dedicated DEM system would consist of an on-site collection system with off-site sewer line to the WWRF. DEM had reserved capacity at the Lahaina WWRF for HHFDC, but HHFDC's agreement with the County of Maui expired. Currently, projects are allowed to connect to the WWRF without an assessment fee, as long as there is capacity at the WWRF. Under either system, a sewage pump station would be located in the southwest corner of the site, which is the lowest area of the property.

Potential Off-Site Wastewater System Alignments

Sewer lines from the project site to the WWRF would be routed through Kā'anapali land via the old cane road to an existing sewer line in Honoapi'ilani Highway. The sewer lines would include a new easement with a 12-foot paved access road. The sewer alignment, with new 21-inch and 18-inch gravity sewer lines, was designed in the *Villages of Leiali'i Offsite Sewer System* project (1994), but the sewer system was not constructed. In order to accommodate the projected flows from the current Leiali'i project, the design should be revised to provide the new 21-inch sewer line with a minimum 0.0025 ft/ft slope for Concept One, and minimum 0.0032 ft/ft slope for Concepts Two and Three.

Figure 4-15 shows the route of the sewer lines for the off-site sewer system. The sewer line alignment and sizes are subject to change based on the final development concept.

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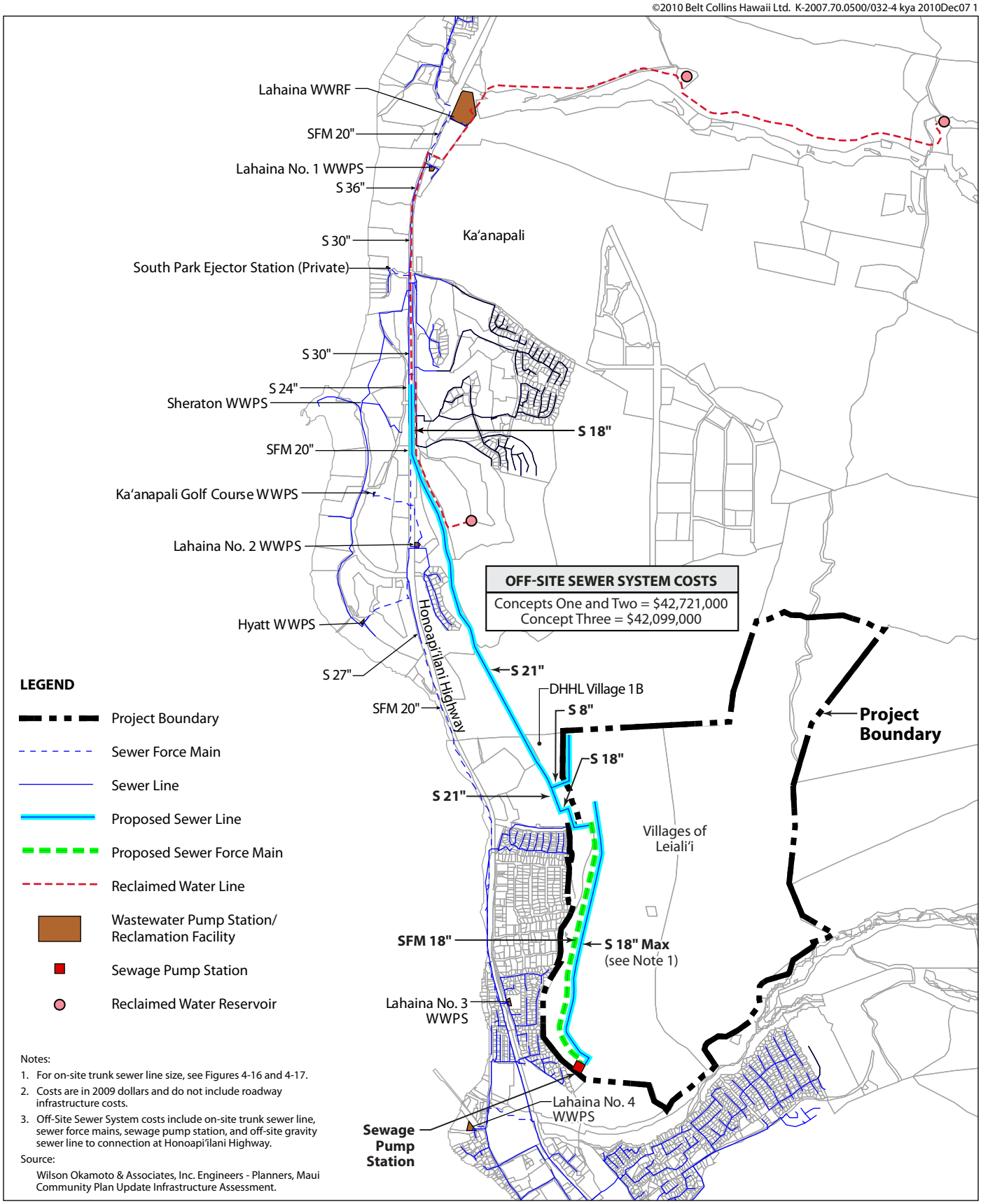

Notes:

1. For on-site trunk sewer line size, see Figures 4-16 and 4-17.
2. Costs are in 2009 dollars and do not include roadway infrastructure costs.
3. Off-Site Sewer System costs include on-site trunk sewer line, sewer force mains, sewage pump station, and off-site gravity sewer line to connection at Honoapi'ilani Highway.

Source:

Wilson Okamoto & Associates, Inc. Engineers - Planners, Maui Community Plan Update Infrastructure Assessment.

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SCALE IN FEET

Figure 4-15
OFF-SITE SEWER SYSTEM

Villages of Leiali'i
November 2010

Proposed On-Site Wastewater System

The on-site sewer system would consist of sewer lines within the roadway network. The sewer system would have a minimum gravity sewer pipe size of 8 inches in diameter and a maximum pipe size of 18 inches in diameter. The sewer lines would be sized to convey the design peak flow from the upstream tributary areas. Figure 4-16 and Figure 4-17 show the on-site sewer system for the alternative plan concepts.

The off-site sewer line to the WWRF would require a force main line to convey wastewater generated from the majority of the site across the length of the site from the on-site sewage pump station to Leiali'i Parkway, where it would flow by gravity through DHHL Village 1B to the north-makai (west) corner of the DHHL site. Wastewater generated from the remainder of the Leiali'i site would flow by gravity through DHHL Village 1B to the north-makai (west) corner of the DHHL site.

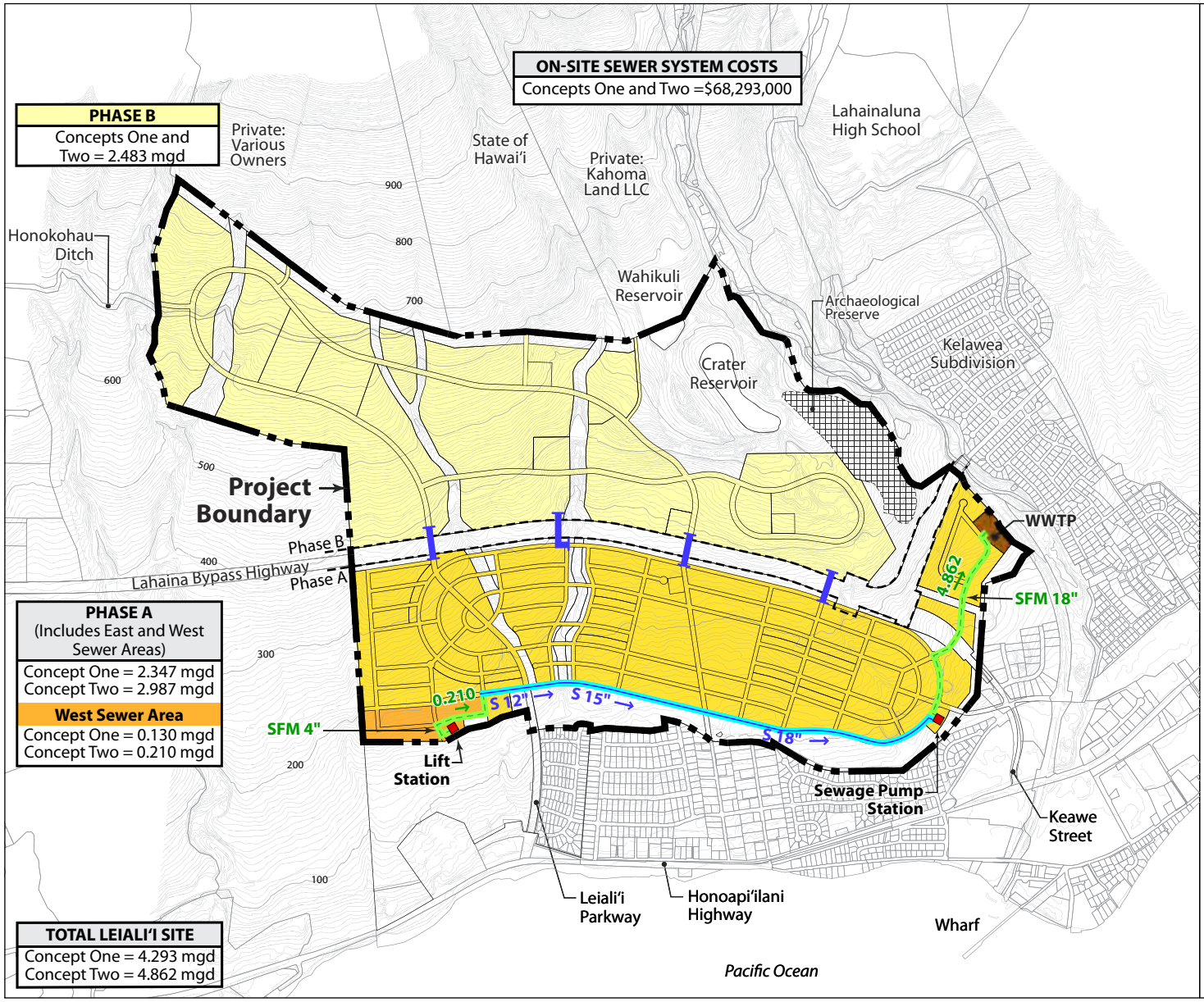
The on-site WWTP would produce R-1 water for on-site reuse of treated reclaimed water. Injection wells for backup disposal would be located on the sewage pump station site, located makai of the UIC line.

The order-of-magnitude costs for the sewer system construction are summarized in Table 4-29. The off-site sewer system costs are for a County-dedicated system, while the on-site sewer system costs are for a private system. For details on the sewer system and costs, see Appendix J.

Table 4-29: Off-Site and On-Site Sewer System Costs

	Off-Site Sewer System (County System)	On-Site Sewer System (Private System)
Concept One	$42,721,000	$68,293,000
Concept Two	$42,721,000	$68,293,000
Concept Three	$42,099,000	$67,900,000

Notes: All costs are shown in 2009 dollars.



LEGEND

- Project Boundary
- Phase A—East Sewer Area
- Phase A—West Sewer Area
- Phase B—East Sewer Area
- SFM 18" — Sewer Force Main
- S 18" — Trunk Sewer Line
- 4.862 — Sewer Flow (mgd) for Concept Two
- Sewer Line Crossing for Phase B
- Wastewater Treatment Plant (WWTP)
- Sewage Pump Station/ Lift Station
- PHASE A 2.347 — Design Peak Flow (mgd) from Sewer Area

Notes:

1. Costs are in 2009 dollars and do not include roadway infrastructure costs.
2. On-Site Sewer System costs include the trunk sewer line, sewer force mains, lift station, sewage pump station and WWTP.

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Note: Lot lines shown are approximate and for illustrative purposes.

Figure 4-16
ON-SITE SEWER SYSTEM—CONCEPTS ONE AND TWO

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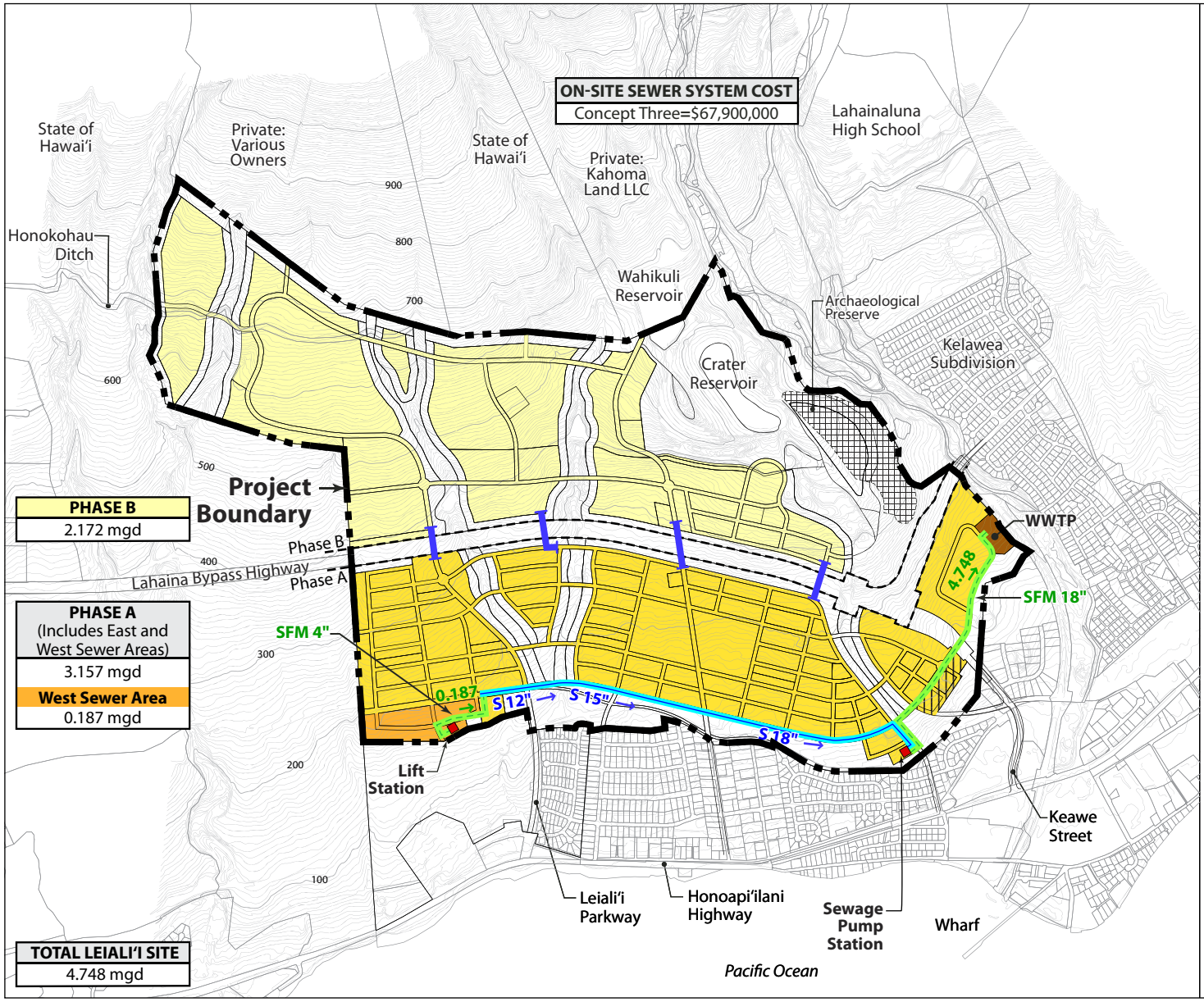
November 2010



LEGEND

- Project Boundary
- Phase A—East Sewer Area
- Phase A—Southwest Sewer Area
- Phase A—West Sewer Area
- Phase B—East Sewer Area
- SFM 18" — Sewer Force Main
- S 18" — Trunk Sewer Line
- 4.862 — Sewer Flow (mgd)
- Sewer Line Crossing for Phase B
- Wastewater Treatment Plant (WWTP)
- Sewage Pump Station/ Lift Station
- PHASE A 3.157 — Design Peak Flow (mgd) from Sewer Area

Notes:

1. Costs are in 2009 dollars and do not include roadway infrastructure costs.
2. On-Site Sewer System cost includes the trunk sewer line, sewer force mains, lift station, sewage pump station and WWTP.

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Note: Lot lines shown are approximate and for illustrative purposes.

Figure 4-17
ON-SITE SEWER SYSTEM—CONCEPT THREE

Villages of Leiali'i
November 2010

4.8.4.3 Potential Impacts and Mitigation Measures

Construction of the sewer system to serve the proposed development would have no significant short-term impacts on the environment.

For a County-dedicated sewer system, extension of the existing sewer system and construction of the on-site sewage pump station would have no significant short-term impacts on the environment. Construction activities would conform to applicable environmental requirements for storm water protection and mitigation of potential noise and dust impacts.

For a privately-maintained sewer system, construction of the sewer lines, sewage pump station, WWTP, and injection wells would have no significant short-term impacts on the environment. Construction activities would conform to the applicable environmental requirements for storm water protection and mitigation of potential noise and dust impacts. The injection wells would comply with State of Hawai'i DOH requirements, mitigating short-term impacts on the groundwater aquifer.

For the County-dedicated sewer system, the long-term impacts of the project would be an increase in daily flows to the WWRF of 1,136,276 GPD, 1,373,044 GPD, or 1,387,953 GPD for Concepts, One, Two, or Three, respectively. The on-site sewage pump station would be designed with sufficient pumping equipment and substructures to meet County standards, avoiding potential long-term impacts on the environment.

The privately-maintained sewer system, on-site and independent of the County sewer system would have no long-term impact on the existing sewer system. The sewage pump station and WWTP would be designed with appropriate measures to meet applicable federal, state, and county requirements for a suitable level of performance that would avoid potential long-term impacts on the environment. A potential long-term impact would be the backup disposal of effluent from the WWTP through injection wells into the ground. To mitigate this potential impact, the injection wells would meet applicable federal and state requirements, including monitoring and reporting.

Short-term and long-term wastewater impacts are summarized in Table 4-33, following the discussion of reclaimed water facilities.

4.8.5 RECLAIMED WATER FACILITIES

4.8.5.1 Existing Conditions

The County of Maui DEM owns and operates the reclaimed water system in the vicinity of the Leiali‘i project site. It extends south from the Lahaina WWRF to the Royal Kā‘anapali Golf Course, and east from the WWRF to the 6.0-MG Maui Land and Pineapple Company (ML&P) reservoir, continuing east to the 3.0-MG County of Maui reservoir. The existing reclaimed water system consists of a 16-inch reclaimed water line that conveys R-1 water from the WWRF along Honoapi‘ilani Highway to the 2.0-MG reservoir at the golf course. A 20-inch reclaimed water line extends approximately 5,500 linear feet from the WWRF to the 6.0-MG ML&P reservoir and approximately 6,100 linear feet to the 3.0-MG County reservoir. The portion of the system from the ML&P reservoir up to and including the County reservoir is currently not in use, as pumping to the County reservoir is too costly. The ML&P reservoir does not rely on supply from the Lahaina WWRF, but the WWRF occasionally exercises the pumps to the reservoir for maintenance purposes.

The 16-inch system and 20-inch system are independent of one another. However, the County plans to connect the two systems, install a 200-foot elevation, 1.0-MG reservoir connected to the existing 20-inch line, replace the pumps for the ML&P reservoir at the WWRF with ones designed to pump to the proposed 1.0-MG reservoir, and install a pressure sustaining valve at the golf course reservoir. The improvements would provide continuous pressurized service to the reclaimed water system, enabling surrounding developments to connect to and utilize the R-1 system.

4.8.5.2 Proposed Reclaimed Water System

Reclaimed water can only be used for multi-family, commercial, mixed-use, and industrial areas, as well as schools, parks, and roads where a master association or entity can oversee the use. Reclaimed water cannot be used for single-family lots, unless landscaped areas are maintained by a master association.

Landscape irrigation demand was estimated using landscaped area percentages of comparable developments and projected landscape water requirements. Irrigation demand was analyzed to accommodate the phasing of the Leiali‘i project and utilize all of the available reclaimed water

from the wastewater treatment process. Irrigation of open space/drainage areas was used to consume excess reclaimed water beyond that which would be needed for the developed areas. For details of the irrigation demand analysis, see the Sewer *Master Plan for the Villages of Leiali'i* in Appendix I. The irrigation demand is summarized in Table 4-30.

Table 4-30: Irrigation Demand

Alternative Plan	Average Daily Demand (GPD)
Concept One	1,022,648
Concept Two	1,235,739
Concept Three	1,249,157

The proposed reclaimed water system for the Villages of Leiali'i would be either a private system or a system dedicated to the DEM. A private system would be supplied by the on-site WWTP. A dedicated DEM system would be supplied by the proposed 1.0-MG reservoir mauka of the Lahaina WWRF via an off-site transmission main. The Maui County Council would likely require the project to utilize reclaimed water on the site at an equivalent amount to the wastewater discharged to the WWRF. Under either system, reclaimed water reservoirs would be located to provide gravity service to approximately two-thirds of the site in the makai (west) direction. Booster pump stations would be required to supply reclaimed water to the reservoirs and provide service to the mauka (east) portion of the site that would not be gravity-fed by the reservoirs.

Potential Off-Site Reclaimed Water System

The new reclaimed water line would connect to the existing 20-inch reclaimed water line approximately 1,700 feet mauka of the Lahaina WWRF, then parallel the existing 20-inch reclaimed water line to the WWRF, the existing 16-inch reclaimed water line from the WWRF to the Kā'anapali Golf Course reservoir, and the proposed sewer line along the old cane haul road through the DHHL Village 1B site. Upgrade to the effluent pump station and a new 2.0-MG storage reservoir at the WWRF, and a new off-site reclaimed booster pump station in DHHL Village 1B would be required. Figure 4-18 shows the proposed off-site reclaimed water system.

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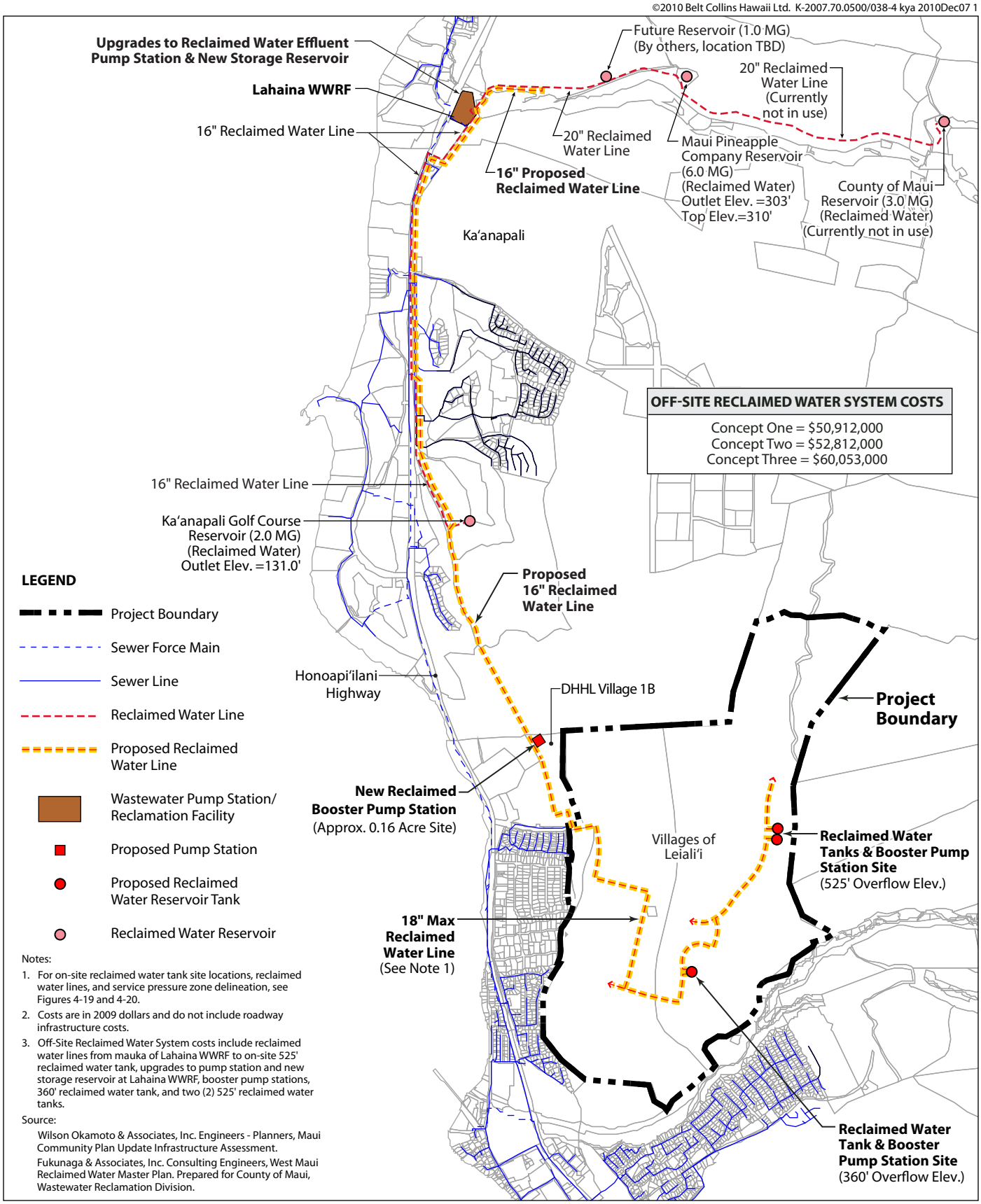

Notes:

1. For on-site reclaimed water tank site locations, reclaimed water lines, and service pressure zone delineation, see Figures 4-19 and 4-20.
2. Costs are in 2009 dollars and do not include roadway infrastructure costs.
3. Off-Site Reclaimed Water System costs include reclaimed water lines from mauka of Lahaina WWRF to on-site 525' reclaimed water tank, upgrades to pump station and new storage reservoir at Lahaina WWRF, booster pump stations, 360' reclaimed water tank, and two (2) 525' reclaimed water tanks.

Source:

Wilson Okamoto & Associates, Inc. Engineers - Planners, Maui Community Plan Update Infrastructure Assessment.

Fukunaga & Associates, Inc. Consulting Engineers, West Maui Reclaimed Water Master Plan. Prepared for County of Maui, Wastewater Reclamation Division.

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Figure 4-18
OFF-SITE RECLAIMED WATER SYSTEM

Villages of Leiali'i
November 2010

Proposed On-Site Reclaimed Water System

The reclaimed water system would consist of reservoir tanks, booster pump stations, and transmission mains. Reservoir tanks would be located at the 360-foot overflow spillway elevation and 525-foot overflow spillway elevation to service the project site. Extending from about the 50-foot to 840-foot elevation, the site would be divided into three pressure zones. Table 4-31 summarizes the pressure service zones and reservoir tank data for the reclaimed water system. The two reservoir tanks would service the three pressure service zones as shown in Figure 4-19 and Figure 4-20. A booster pump at the 525-foot tank site would provide pressure service to the mauka (east) areas located above the gravity service pressure zones.

Table 4-31: Reclaimed Water System

Reservoir Tank Spillway Elevation (Feet MSL)	Service Zones Elevation Ranges (Feet MSL)	Reservoir (MG)		
		Concept One	Concept Two	Concept Three
360	50 to 215	0.7	0.9	0.7
525	215 to 380	0.7*	0.8*	1.0*
	380 to 840**			
Total		1.4	1.7	1.7

* Denotes total reservoir tank capacity for two equal-sized tanks.
** Denotes pumped service to elevation indicated. MSL = mean sea level

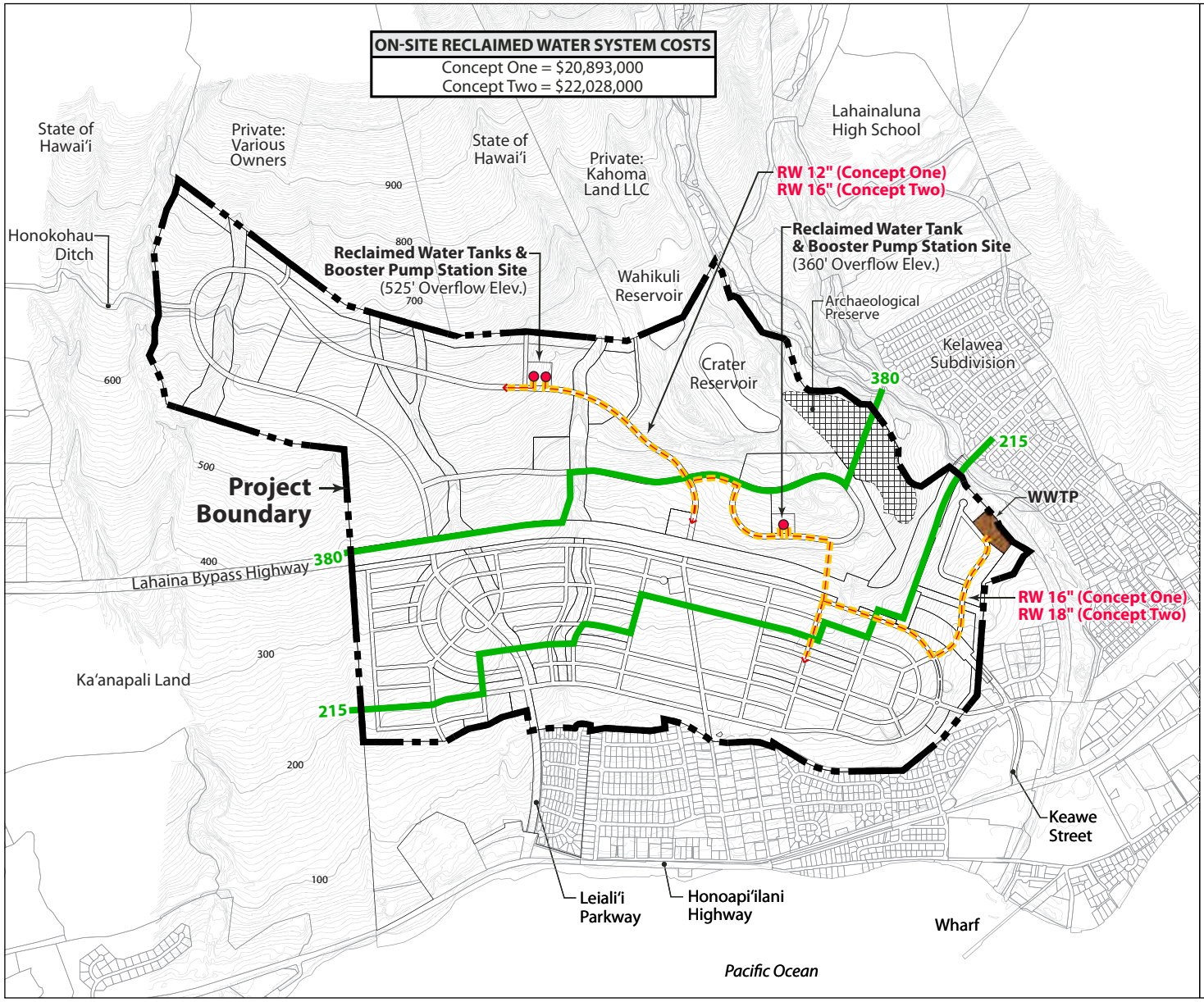
The reclaimed water reservoir tanks would be constructed to accommodate the project's phased development of Phase A and Phase B. Two reservoir tanks would be included at the 525-foot reservoir site, one for each phase of the project.

Order-of-magnitude costs for the reclaimed water system construction are summarized in Table 4-32. The off-site reclaimed water costs are for a County-dedicated system, while the on-site reclaimed water system costs are for a private system. For details on the reclaimed water system and costs, see Appendix I.

Table 4-32: Off-Site and On-Site Reclaimed Water System Costs

	Off-Site Reclaimed Water System (County System)	On-Site Reclaimed Water System (Private System)
Concept One	$50,912,000	$20,893,000
Concept Two	$52,812,000	$22,028,000
Concept Three	$60,053,000	$26,136,000

Notes: All costs are shown in 2009 dollars.



LEGEND

- Project Boundary
- 380 — 380 Delineation of Service Pressure Zones
- RW16" Reclaimed Water Line
- Wastewater Treatment Plant
- Reclaimed Water Reservoir Tank

Notes:

1. Costs are in 2009 dollars and do not include roadway infrastructure costs.
2. On-Site Reclaimed Water System costs include reclaimed water lines from WWTP to 525' reclaimed water tank, booster pump station at WWTP, 360' reclaimed water tank and associated booster pump station, and two (2) 525' reclaimed water tanks and associated booster pump station.

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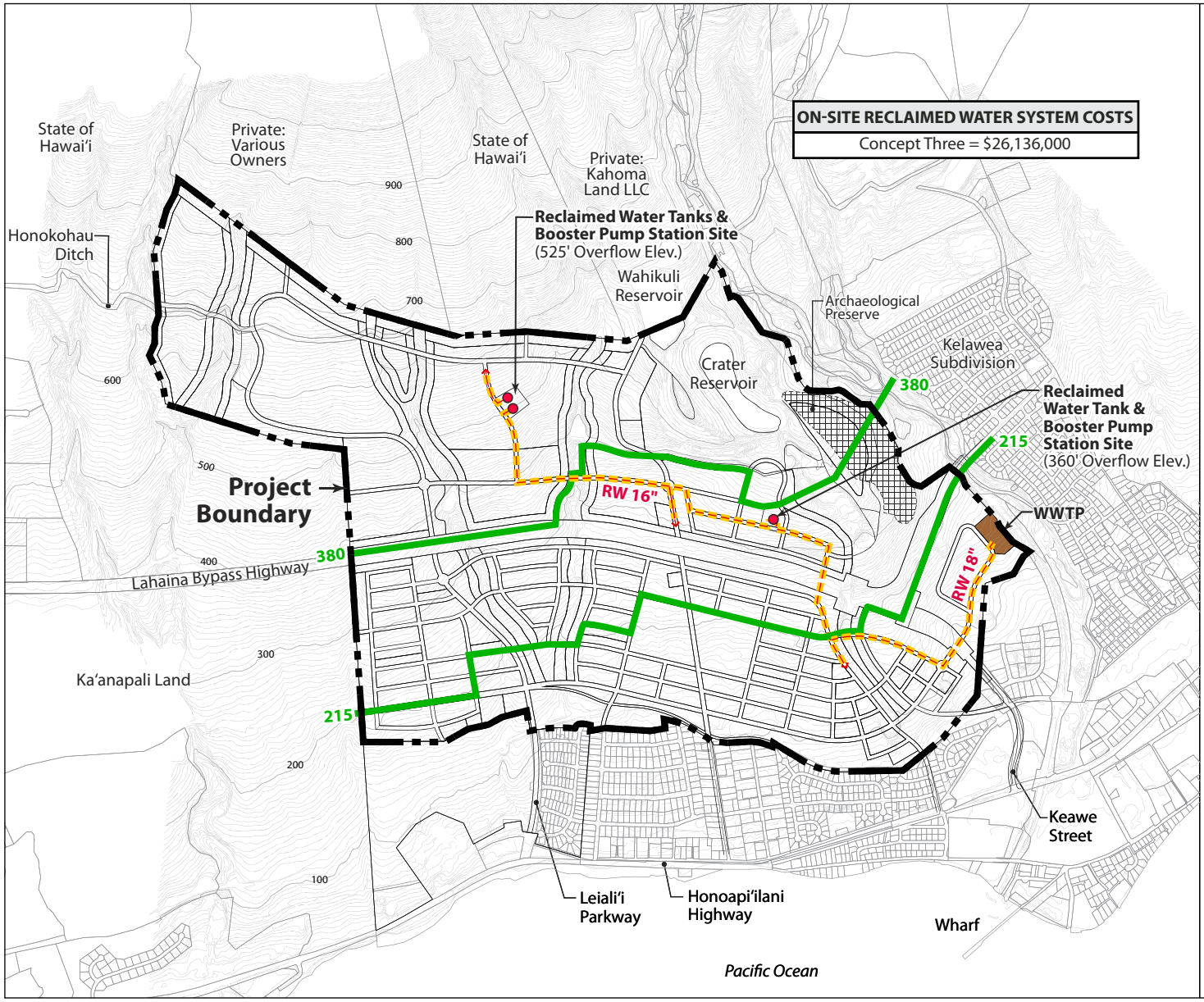
Note: Lot lines shown are approximate and for illustrative purposes.

Figure 4-19
ON-SITE RECLAIMED WATER SYSTEM—CONCEPTS ONE AND TWO

Villages of Leiali'i
November 2010



LEGEND

- Project Boundary
- 380 — 380 Delineation of Service Pressure Zones
- RW16" Reclaimed Water Line
- Wastewater Treatment Plant (WWTP)
- Reclaimed Water Reservoir Tank

Notes:

1. Costs are in 2009 dollars and do not include roadway infrastructure costs.
2. On-Site Reclaimed Water System cost includes reclaimed water lines from WWTP to 525' reclaimed water tank, booster pump station at WWTP, 360' reclaimed water tank and associated booster pump station, and two (2) 525' reclaimed water tanks and associated booster pump station.

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SCALE IN FEET

Note: Lot lines shown are approximate and for illustrative purposes.

Figure 4-20
ON-SITE RECLAIMED WATER SYSTEM—CONCEPT THREE

Villages of Leiali'i
November 2010

4.8.5.3 Potential Impacts and Mitigation Measures

Potential short-term and long-term impacts are summarized in Table 4-33. Construction of the reclaimed water system to serve the proposed development would have no significant short-term impacts on the environment. Construction activities would be required to conform to the applicable environmental requirements for storm water protection and mitigation of potential noise and dust impacts.

Table 4-33: Impacts of the Alternatives on Wastewater and Reclaimed Water

ALTERNATIVES		NO IMPACTS	POTENTIAL IMPACTS	ADVERSE IMPACTS	COMMENTS/MITIGATION MEASURES
1.	No Action	✓			No impacts are expected under the No Action Alternative.
2.	Concept One		✓		Increase in daily flow of 1.1 MGD to Lahaina WWRF, if a public system is selected; reclaimed water for irrigation reduces effluent to be disposed and helps to control runoff
3.	Concept Two		✓		Increase in daily flow of 1.4 MGD to Lahaina WWRF, if a public system is selected; reclaimed water for irrigation reduces effluent to be disposed and helps to control runoff
4.	Concept Three		✓		Increase in daily flow of 1.4 MGD to Lahaina WWRF, if a public system is selected; reclaimed water for irrigation reduces effluent to be disposed and helps to control runoff

In the long term, reclaimed water would be provided for irrigation on the site and uses such as for toilets. Use of the reclaimed water for irrigation and provision of on-site storage reservoirs would reduce the effluent disposal requirement by underground injection, thereby minimizing impacts on groundwater and coastal waters. With reclaimed water, both the developed and undeveloped areas of the property could be irrigated, promoting plant growth and minimizing erosion from the site. The land application rate of reclaimed water would be optimized based on the area evapotranspiration rate for irrigation efficiency. Optimization of the irrigation rate would avoid impacts of runoff or percolation of the reclaimed water on surface drainage or groundwater, respectively.

The reservoir tanks and booster pumps would be designed with appropriate measures to meet applicable federal, state, and county requirements to avoid potential long-term impacts on the environment.

For the County-dedicated reclaimed water system, the long-term impacts would be an increase in daily flows from the WWRF and the energy required to pump reclaimed water to the Leiali‘i project site and the on-site reservoir tanks for distribution.

The privately-maintained reclaimed water system would be on-site and independent of the County system. It would not impact the existing County reclaimed water system. A privately-maintained system would also use energy to pump reclaimed water from the on-site WWTP to the reservoir tanks for distribution.

4.8.6 SOLID WASTE

4.8.6.1 Existing Conditions

No solid waste service is currently provided to the site.

4.8.6.2 Proposed Solid Waste Collection System

The County requires all solid waste to be removed from all buildings and premises and disposed of at an approved solid waste disposal facility. All solid waste generated from the project would be taken to the Central Maui Landfill in Pu‘unēnē or recycled.

Quantities of solid waste were estimated for both construction and occupancy phases of the Leiali‘i project. The construction phase of development could start as early as 2012 with infrastructure development. It would continue until approximately 2036, as shown in Tables 4-34 and 4-35.

The occupancy phase of development refers to the time at which the facilities have been built and are open for use. The construction and occupancy phases overlap, as construction of later portions of the project would continue while earlier portions are completed and occupied. The project is estimated to be completed and occupied in 2036. The average amounts of solid waste generated by construction activities and occupancy are summarized in Table 4-34. A preliminary solid waste management plan is provided in Appendix J.

Table 4-34: Solid Waste Generated by Construction Activities and Occupancy

Year	Concept One		Concept Two		Concept Three	
	Construction Waste (tons/year)	Occupancy Waste (tons/year)	Construction Waste (tons/year)	Occupancy Waste (tons/year)	Construction Waste (tons/year)	Occupancy Waste (tons/year)
2012	70 – 121	0	74 – 129	0	74 – 129	0
2013	70 – 121	0	74 – 129	0	74 – 129	0
2014	286 – 495	0	248 – 430	0	286 – 495	0
2015	474 – 822	0	399 – 692	0	474 – 822	0
2016	375 – 650	1,150	300 – 520	1,150	376 – 651	1,149
2017	375 – 650	1,839	300 – 520	1,839	375 – 650	2,131
2018	474 – 822	2,299	399 – 692	2,299	473 – 820	2,591
2019	473 – 820	2,759	398 – 690	2,759	448 – 776	3,051
2020	409 – 708	4,425	365 – 633	4,425	383 – 664	4,195
2021	280 – 485	4,885	424 – 736	4,885	434 – 753	4,655
2022	216 – 375	6,762	516 – 895	6,759	526 – 912	7,150
2023	216 – 375	7,383	516 – 895	7,840	526 – 912	8,283
2024	118 – 204	8,688	418 – 724	9,606	428 – 742	10,100
2025	120 – 207	9,309	420 – 728	10,687	430 – 746	11,233
2026	219 – 380	9,930	460 – 798	11,768	635 – 1,100	12,366
2027	383 – 664	10,551	474 – 821	12,849	606 – 1,050	13,499
2028	451 – 781	12,384	451 – 781	14,960	384 – 662	16,051
2029	451 – 781	12,844	451 – 781	15,420	383 – 661	16,511
2030	450 – 780	13,826	450 – 780	16,402	375 – 650	17,493
2031	450 – 780	14,286	450 – 780	16,862	379 – 654	17,953
2032	450 – 780	14,746	450 – 780	17,322	379 – 654	18,413
2033	450 – 780	15,206	450 – 780	17,782	394 – 683	18,873
2034	370 – 641	15,666	370 – 641	18,242	338 – 580	19,333
2035	144 – 249	16,126	144 – 249	18,702	131 – 221	19,793
2036 and Beyond	0	17,700	0	20,276	0	21,214

4.8.6.3 Potential Impacts and Mitigation Measures

Solid waste would be managed in conformance with applicable DOH and County requirements. Management of solid wastes generated by the Leiali‘i project would emphasize waste diversion and recycling.

Since the County of Maui provides waste collection services only for single-family residential waste, recycling and disposal of construction waste and occupancy waste generated by all other sources is handled by private contractors or individuals. Specific arrangements for construction and occupancy waste recycling and disposal would be made closer to the project start date. Recyclables and wastes would be managed in a centralized system or by private individuals, and

hauled directly to recycling centers, transfer stations, and the landfill. The average amounts of solid waste diverted through minimization and recycling and amounts landfilled are summarized in Table 4-35.

Table 4-35: Summary of Solid Waste Diverted and Landfilled

Year	Concept One		Concept Two		Concept Three	
	Diverted Waste (tons/year)	Landfilled Waste (tons/year)	Diverted Waste (tons/year)	Landfilled Waste (tons/year)	Diverted Waste (tons/year)	Landfilled Waste (tons/year)
2012	43–74	27–47	45–79	29–50	45–78	29–50
2013	43–74	27–47	45–79	29–50	45–78	29–50
2014	143–248	143–248	124–215	124–215	143–248	143–248
2015	237–411	237–411	200–346	200–346	237–411	237–411
2016	539–677	985–1,123	502–612	948–1,058	540–677	986–1,123
2017	750–888	1,464–1,601	713–823	1,426–1,536	840–977	1,667–1,804
2018	940–1,114	1,832–2,006	903–1,049	1,795–1,941	1,030–1,203	2,035–2,209
2019	1,081–1,254	2,151–2,325	1,043–1,189	2,114–2,260	1,158–1,322	2,341–2,506
2020	1,558–1,708	3,275–3,425	1,537–1,671	3,254–3,388	1,475–1,616	3,103–3,244
2021	1,635–1,738	3,530–3,633	1,707–1,863	3,602–3,758	1,642–1,801	3,448–3,607
2022	2,177–2,256	4,801–4,880	2,327–2,516	4,949–5,138	2,451–2,644	5,225–5,418
2023	2,367–2,447	5,232–5,311	2,657–2,847	5,699–5,889	2,798–2,990	6,011–6,204
2024	2,717–2,761	6,088–6,132	3,148–3,302	6,875–7,029	3,305–3,461	7,223–7,380
2025	2,909–2,953	6,520–6,564	3,480–3,634	7,626–7,780	3,653–3,811	8,011–8,168
2026	3,148–3,229	7,001–7,081	3,831–4,000	8,397–8,565	4,102–4,334	8,899–9,132
2027	3,420–3,560	7,514–7,654	4,168–4,342	9,154–9,327	4,434–4,656	9,671–9,893
2028	4,015–4,180	8,820–8,985	4,803–4,969	10,608–10,773	5,103–5,242	11,331–11,470
2029	4,156–4,321	9,139–9,305	4,944–5,109	10,927–11,092	5,244–5,383	11,650–11,789
2030	4,456–4,621	9,821–9,986	5,244–5,409	11,608–11,773	5,540–5,678	12,327–12,465
2031	4,597–4,762	10,140–10,305	5,385–5,550	11,928–12,093	5,683–5,821	12,649–12,786
2032	4,737–4,902	10,459–10,624	5,526–5,691	12,247–12,412	5,824–5,961	12,968–13,105
2033	4,878–5,043	10,778–10,943	5,666–5,831	12,566–12,731	5,972–6,116	13,294–13,439
2034	4,979–5,114	11,057–11,193	5,767–5,902	12,845–12,980	6,085–6,206	13,586–13,707
2035	5,007–5,059	11,264–11,316	5,795–5,848	13,051–13,104	6,122–6,167	13,801–13,847
2036 and Beyond	5,416	12,284	6,205	14,072	6,492	14,723

Placing an emphasis on waste diversion and recycling, the developer would promote recycling programs to residents, businesses, schools, and other users to minimize and divert wastes.

At full build-out, the project's share of annual landfill waste disposal at the Central Maui Landfill is estimated to be 6.16 percent, 7.05 percent, and 7.38 percent for Concepts One, Two, and Three, respectively. The project's waste stream would be a small fraction of the waste going to the landfill. The County estimates that the Central Maui Landfill has adequate capacity to

accommodate the project's anticipated quantity of waste. No significant short-term or long-term impacts on the existing solid waste collection and disposal systems are anticipated as a result of the proposed development (Table 4-36).

Table 4-36: Impacts of the Alternatives on Solid Waste

ALTERNATIVES		NO IMPACTS	POTENTIAL IMPACTS	ADVERSE IMPACTS	COMMENTS/MITIGATION MEASURES
1.	No Action	✓			No impacts are expected under the No Action Alternative.
2.	Concept One		✓		Developer would promote recycling during construction and occupancy. Part of the waste stream would go annually to the landfill, which has adequate capacity.
3.	Concept Two		✓		Developer would promote recycling during construction and occupancy. Part of the waste stream would go annually to the landfill, which has adequate capacity.
4.	Concept Three		✓		Developer would promote recycling during construction and occupancy. Part of the waste stream would go annually to the landfill, which has adequate capacity.

4.8.7 ELECTRICAL, TELEPHONE, AND CABLE SYSTEMS

4.8.7.1 Maui Electric Company

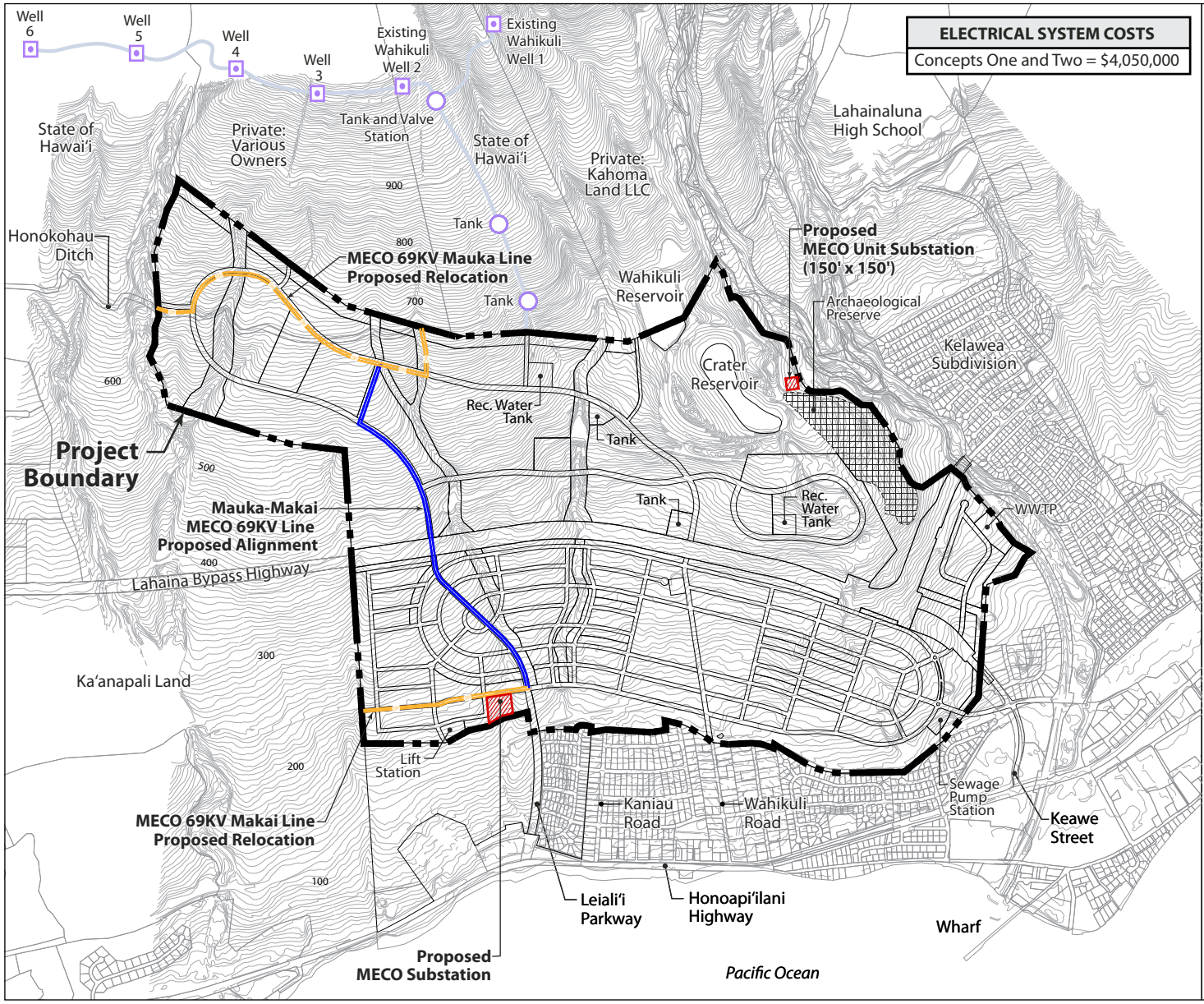
Currently, Maui Electric Co. (MECO) provides electric service to the Lahaina area from its Lahaina Substation located on Lahainaluna Road. During previous discussions, MECO indicated that the Lahaina Substation had nearly reached its designed capacity. MECO has requested a substation site within the project area. The present concept land use plans designate a 2.29-acre site in the northwest corner of the site near Leiali'i Parkway. MECO has indicated that if a minimum of 1.5 acres for the substation is set aside, they would consider this substation a regional facility as opposed to a dedicated facility. MECO would provide a list of required substation site improvements to the project developer in order to satisfy the regional facility designation.

Concept Land Use Plan 3 includes construction of a 2.87 mega-watt photovoltaic (PV) farm in the light industrial parcel at the southern edge of Leiali'i near the Lahaina Bypass Highway. Discussions were held with MECO as to whether development of the proposed MECO substation in the vicinity of the PV farm would have any synergistic advantages. MECO

indicated that from a planning perspective, locating a new substation in the proximity of an existing substation (i.e., Lahaina Substation) would diminish the new substation's usefulness. Secondly, based on MECO's tariff, the alternate energy provider is responsible for the construction of any distribution/transmission facilities, including necessary voltage transformation required to extend power from the alternate energy facility to the designated interconnection point with MECO's system. Therefore, collocation of the substation adjacent to the PV farm would not necessarily provide any advantages for the interconnection.

As part of the substation development process, MECO may request an east-west routing through the development to bring a spur from their mauka 69 kilo-volt (kV) line to any proposed substation site. This spur would act as a back-up to the makai 69 kV line which runs adjacent to the substation site. It would serve to ensure the reliability of the substation. However, an alternate route for the second 69 kV line from Lahainaluna Road may be feasible, although it appears that securing easements/rights-of-ways from property owners along any proposed alignment would be necessary. If this alternative were selected, MECO could request the assistance of the developer in securing the necessary easements/rights-of-ways. The least desirable alternative, from MECO's perspective, would be to route the second 69 kV line along the same alignment as the existing makai 69 kV line. This routing would require that MECO replace approximately 40 existing wood poles with metal poles and may also require additional easements. If this alternative is selected by the developer, MECO may ask the developer to fund the difference in cost between the wood poles and the metal poles.

It should be noted that the existing alignments of both the makai and mauka 69 kV lines presently pass through portions of the Phase A and Phase B developments, respectively. The developer will need to either route future roads so as to maintain the easements for these lines and access roads, or budget funds to have MECO relocate the lines.



LEGEND

- Project Boundary
- MECO 69KV Mauka Line Proposed Relocation
- Mauka-Makai MECO 69KV Line Proposed Alignment
- Proposed MECO Substation

Source: Ronald NS Ho & Associates

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BELT COLLINS

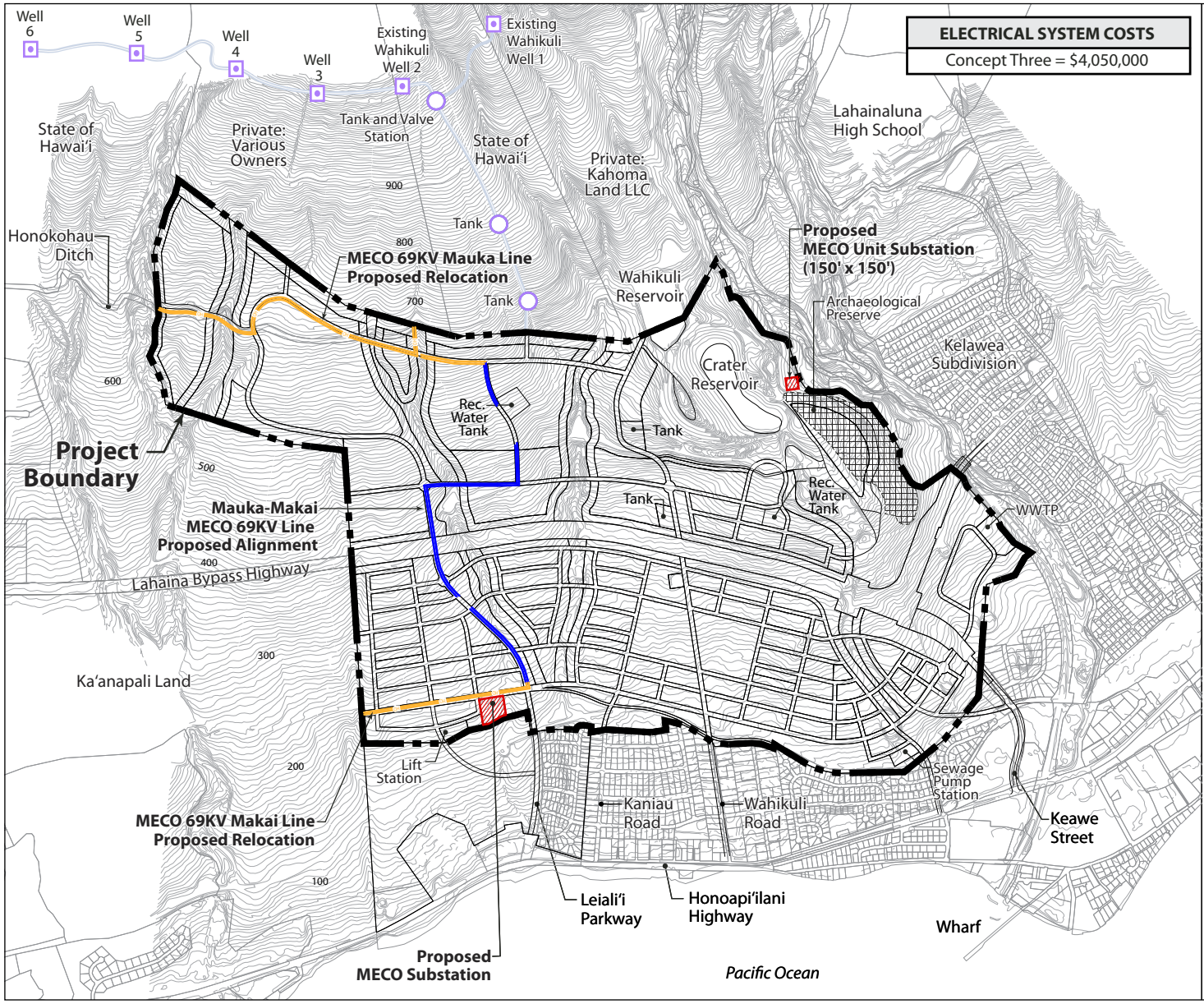
NORTH

0 500 1000 2000
SCALE IN FEET

Note: Lot lines shown are approximate and for illustrative purposes.

Figure 4-21
ELECTRICAL SYSTEM
ALTERNATE CONCEPT LAND USE PLANS
ONE AND TWO

Villages of Leiali'i
November 2010



LEGEND

- Project Boundary
- MECO 69KV Mauka Line Proposed Relocation
- Mauka-Makai MECO 69KV Line Proposed Alignment
- Proposed MECO Substation

Source: Ronald NS Ho & Associates

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BELT COLLINS

NORTH

0 500 1000 2000
SCALE IN FEET

Note: Lot lines shown are approximate and for illustrative purposes.

Figure 4-22
ELECTRICAL SYSTEM
ALTERNATE CONCEPT LAND USE PLAN
THREE

Villages of Leiali'i
November 2010

4.8.7.2 Hawaiian Telcom and Oceanic Time Warner

Currently, Hawaiian Telecom's (HTCO) and Oceanic Time Warner Cable's (Oceanic) trunking facilities in this area are located on an overhead pole line along Honoapi'ilani Highway and are routed, underground to the development boundary through an underground ductline in Leiali'i Parkway. The existing portion of Leiali'i Parkway also provides access to an existing DHHL subdivision. Sandwich Isles Communications has an equipment site, within the subdivision, located near the intersection of Leiali'i Parkway and Honoapi'ilani Highway and fed from the SIC ductline in Honoapi'ilani Highway.

Discussions with HTCO and Oceanic indicate that although the preferred point of connection for the project is from the existing end of Leiali'i Parkway, it may also be feasible to feed the project from the proposed Lahaina Bypass Road. However, construction plans for the Lahaina Bypass Highway do not include extension of underground utility infrastructure to the boundary of the project. Possible alternate service routes for HTCO and Oceanic include the extensions of Kaniau and Wahikuli Roads.

Both HTCO and Oceanic may elect to deploy fiber optic infrastructure as well as copper based infrastructure for both commercial and residential service. This would increase the high speed bandwidth available to the development.

4.8.7.3 Costs

Order of magnitude costs for the off-site electric and communications system improvements to support the project are as follows:

Regional Leiali'i Substation +69 kV Line Extension	$0*
Permanent Utility Service	$0**
Overhead MECO 12 kV service line to Off-site Well Sites	$600,000
69 kV-12 kV Unit Substation	$1,500,000
Mauka 69 kV Line Relocation Budget	$850,000
Makai 69 kV Line Relocation Budget	$1,100,000
Total	$4,050,000

* Assumes that MECO accepts the substation site and designates the substation as a regional improvement. The cost for a dedicated Leiali'i Substation and 69 kV Line Extension is approximately $4,500,000.

** Assumes that HTCO and Oceanic service are extended from the end of Leiali'i Parkway. Further, it is assumed that the respective utility company will furnish its standard service connection, whether copper or fiber. Any developer-

requested enhancement to the standard service connection may result in the utility company requesting an advance payment to provide such service.

4.8.7.4 Potential Impacts and Mitigation Measures

No short-term impacts are anticipated, since the respective utility companies' tariff and license require that electric and telecommunications service to existing rate payers be unaffected, where practicable, by construction of new facilities and maintenance on existing facilities. Therefore, no mitigative measures are needed.

Based on the proposed land use guidelines, the entire project over the long term is projected to increase electrical demand load by as much as 33.6 Megavolt Amperes (MVA) and increase telephone requirements by approximately 5,500 lines at full buildout of the larger concepts. MECO has indicated that an additional regional substation site would be required to provide service to this development. In addition, the increased loading would require MECO to plan for expansion of generating capacity, as well as evaluate means of "increasing" system capacity by expanding the penetration of alternate energy sources into their grid. To address the increased telephone line counts for this area, HTCO would consider deploying a "pair-gain" unit since the development is relatively close to the existing Lahaina central office facility. The actual added telephone line counts may be further mitigated by customers opting for wireless only telephone service or telephone service through a broadband connection, i.e., voice over internet protocol (VOIP).

Table 4-37: Impacts of the Alternatives on Electrical, Telephone, and Cable Systems

ALTERNATIVES		NO IMPACTS	POTENTIAL IMPACTS	ADVERSE IMPACTS	COMMENTS/MITIGATION MEASURES
1.	No Action	✓			No impacts are expected under the No Action Alternative.
2.	Concept One		✓		Additional demand would be addressed by locating a new regional substation. New demand for telephone service could be handled by local infrastructure, if needed.
3.	Concept Two		✓		Additional demand would be addressed by locating a new regional substation. New demand for telephone service could be handled by local infrastructure, if needed.
4.	Concept Three		✓		Additional demand would be addressed by locating a new regional substation. New demand for telephone service could be handled by local infrastructure, if needed.

4.9 SOCIO-ECONOMIC CONDITIONS

A separate socio-economic impact assessment was completed by Belt Collins Hawaii in the course of preparing this EIS. It is included as Appendix K. This section summarizes the major findings of that study.

4.9.1 EXISTING SOCIO-ECONOMIC CONDITIONS

The Socio-Economic Impact Assessment focuses on West Maui, and, for housing-related issues, the Maui Market Area (MMA) – the entire island except for the Hāna Community Plan area – since future residents of the project could come from all parts of the MMA. The island and county as a whole provide a context for understanding regional differences and trends.

Lahaina was once the capital and leading port in Hawaiʻi. It is now the major town in an outlying section of Maui where the economy is based on tourism.

Table 4-38 shows that Maui's population has grown in the past decades, but that the visitor industry has grown faster than resident population. West Maui's share of the island and county resident population has changed little. However, West Maui has more than half of Maui County's visitor plant. Consequently, it also has far more jobs than can be filled by the region's resident population.

Table 4-38: Resident Population, Visitor Count and Jobs, Maui County and West Maui, 1970 - 2008

	1970	1980	1990	2000	2008 (1)
Maui County					
Resident population	46,156	70,991	101,709	128,873	143,691
Wage and Salary Jobs	20,320	30,950	50,850	62,400	72,850
Unemployment rate	7.0%	5.1%	4.2%	3.7%	4.5%
Average Visitor Census	3,645	15,363	39,500	43,854	44,433
Visitor units	2,743	9,701	18,285	18,270	19,055
Hotel occupancy rate (2)	67%	66%	69%	80%	68%
West Maui					
Resident population	5,524	10,284	14,574	17,967	19,122
share of county	12%	14%	14%	14%	13%
Visitor units	1,826	5,357	9,285	9,759	10,453
share of county	67%	55%	51%	53%	55%
Hotel occupancy rate (2)	67%	76%	73%	80%	68%

Notes:

(1) County estimates for 2008 from State reports and the U.S. Census; West Maui estimates derived from Maui County forecast model and county- or island-level information.

(2) Recent rates are for Maui island, not the county or region.

Communities and Population

Within West Maui, Lahaina had just over half the resident population, while Nāpili-Honokōwai accounted for 38 percent in 2000.[9] The resort areas of Kāʻanapali and Kapalua had few residents. The median age was lower than the county average in the two more populous Census Defined Places (CDPs) in West Maui, and higher in the two resort areas.

Household sizes vary greatly, with the average household in Lahaina reported as 3.5 persons in 2000, while the average was below 2.6 persons per household in the other CDPs of West Maui. The county average was 2.91 persons per household.

In 2000, half the West Maui population had lived in the same house five years before. Some 16 percent of the population had moved from another state. Census data on place of birth showed a

[9] This discussion selects data from the Census tables in Appendix K. Nearly all of West Maui's population lives in four adjacent CPDs. From south to north, these are Lahaina, Kāʻanapali, Nāpili-Honokōwai, and Kapalua. See map in Appendix K for boundaries. The project site lies within the Lahaina CDP.

more complex trend. Over a third of the regional population was Hawaiʻi-born, and a similar share was born in another state. A quarter of the population was foreign-born. About half the population of Lahaina was Hawaiʻi-born. In the other West Maui CDPs, persons born in other states formed the largest group.

More recent data on ethnicity is available from the State DOE. The ethnic distribution of West Maui students in public schools is much the same as for the rest of the island: Filipinos form the largest group (31% of the school population), followed by Hawaiians (18%) and "Whites" (16%). "Hispanics" are relatively numerous in West Maui schools (13% vs. 3% elsewhere). Hawaiians form a larger part of the school population (25%) elsewhere on Maui. The difference between the 2008 school data and the 2000 Census information indicates that much of the region's population from other states, concentrated in the resorts, is mature and has few children in public schools.

Housing and Housing Demand

Countywide, about a quarter of all housing units are not occupied. Nearly all of these are vacant for seasonal or visitor use. In West Maui, 42 percent of the housing stock was not occupied in 2000. In the two resort CDPs, occupied units accounted for only 22 percent (Kapalua) to 30 percent (Kāʻanapali) of the housing stock. In Lahaina, however, the housing stock was mostly (86%) occupied. Although Lahaina is a recognized tourist destination, it is also a town with homes, retail, and services for residents.

Despite the Census reports of high vacancy rates, little housing is available for residents. Resort units are priced for rent or sale far above levels that most local families can afford. In 2008, nearly 45 percent of homeowners paid more than 30 percent of their income for housing costs. Gross rent was over 30 percent of income for 56 percent of renting households. Another indication of a tight housing market comes from a study of resales, which showed that older homes kept or increased value not only in terms of changing dollars but also in relation to incomes.[10] Median single-family housing prices in Maui County peaked at nearly $700,000, but

[10] SMS Research & Marketing Services, Inc. *Affordable Housing Policies and Hawaii's For-Sale Housing Markets.* Prepared for Land Use Research Foundation of Hawaiʻi. Honolulu, HI. 2005.

have since declined to below $500,000. Median condominium prices have risen, and now are nearly as high as single-family prices.

Median prices for all single-family units in West Maui neighborhoods are far higher than the island median as of 2009. Similarly, condominiums in the West Maui resorts are costly, although condominiums in Lahaina and Nāpili-Honokōwai are priced below the island condominium median.

Private developers, the County, HHFDC and DHHL have made a concerted effort to bring new units to market on Maui at prices affordable to working families. The new production has been concentrated in Central Maui. In West Maui, new projects aimed at resident markets have served delimited groups – Native Hawaiians and the elderly – not the larger population.

New housing production averaged 908 units per year on Maui in the decade from 1999 through 2008. Currently it is much lower; few projects have moved from being permitted to actually being under construction since 2007. The draft *Maui Island Plan* estimates demand for some 34,600 housing units over a 35-year period: above 1,386 annually. To meet continuing demand, then, housing production on Maui would need to increase by about 50 percent.

Maui County has demanded that all new housing projects include a substantial share of units priced for families earning 160 percent of the island median income or below. The Workforce Housing ordinance does not, however, retroactively affect resort projects that already have land use permits (e.g., North Beach Kāʻanapali; Kapalua). In West Maui, new housing for resident markets has been proposed by ML&P and by KLMC. In both cases, production of housing for residents would accompany developments aimed at visitor markets. In the current economy, capital for new housing projects for any market is extremely tight, so the timing of projects competing with the Villages of Leialiʻi is unknown.[11]

[11] The major competing projects in West Maui are Pulelehua, parts of the Kāʻanapali 2020 area, and Waineʻe. If all of these were built, they could account for as many as 2,300 units, of which perhaps 1,200 would be for resident families earning up to 140% of the island median income. DHHL has another increment to build at Leialiʻi, and could also develop its lands at Honokōwai. The latter could include as many as 411 homes, but would largely be devoted to agriculture (DHHL, 2008).

Economy

Maui's economy is greatly dependent on tourism. It has diversified in recent decades. Ventures such as the Maui High Performance Computing Center have encouraged new industries. With overall economic growth, stores and business services for Maui are increasingly found on Maui, not on O'ahu. Maui island jobcounts grew consistently through the 1990s. Unemployment increased after 2007, on Maui as elsewhere, but remains low. (As of April 2010, unemployment on Maui island was estimated at 8.2%, well above the state figure [6.3%] but also well below the national figure [9.5%].)[12]

Maui County is expected to see renewed, but slow, economic growth in the coming decades. The annual rate of job growth is projected at about 1 percent; personal income growth is expected to be higher, about 1.7 percent, before inflation.[13]

Community Issues and Concerns

When plans for the Lahaina Master Planned Community project were originally presented, the reaction voiced most strongly in West Maui was that it had long been needed. Maui lacked suitable housing located near employment centers priced at levels that working families can afford.

When the current version of the project was presented in 2009, housing demand still outpaced development. However, residents, especially residents of the DHHL Villages of Leiali'i, Phase 1A project, were concerned (a) that the project is on Crown land, which some saw as for Native Hawaiians only; (b) water must be found for the project, and new wells or surface water collection could affect very limited water resources for agriculture; and (c) the project simply seemed too large for the area. In more recent discussions, both these concerns and continuing need for workforce housing were mentioned.

[12] Rates are not seasonally adjusted. Local Area Unemployment Statistics posted by Hawai'i State Department of Labor and Industrial Relations at http://www.hiwi.org/article.asp?ARTICLEID=463&PAGEID=94&SUBID.

[13] State and county projections of population and economy to 2035, issued by DBEDT in 2009 and posted at http://hawaii.gov/dbedt/info/economic/data_reports/2035LongRangeSeries.

4.9.2 POTENTIAL SOCIO-ECONOMIC IMPACTS

4.9.2.1 Future Socio-Economic Conditions Without the Project (No Action Alternative)

State projections forecast slow growth in resident population and jobs on Maui through 2035. Tourism is expected to remain the key driver for the island economy. The County has allocated projected growth to Community Plan Areas, based in part on historical trends, in part on existing land use permits, and in part on a smart-growth approach to planning.

In West Maui, projects with land use permits include resort developments (at Kapalua and North Beach Kāʻanapali) as well as resident-oriented projects. Recognizing demand for resident housing, the Planning Department has identified "Planned Growth Areas" in the Draft *Maui Island Plan*. These are supported both as meeting resident needs and as making fewer demands on County infrastructure than other projects. Table 4-39 shows the islandwide distribution of Planned Growth Areas. West Maui has a large share of anticipated development. (The Villages of Leialiʻi project accounts for 800 units and some of the retail space allocated for West Maui.)

Major projects by private developers in West Maui are linked to resort development. Few resort or residential projects have found new funding in recent years.

New highway infrastructure has already addressed problems of congestion in and out of Lahaina. The Lahaina Bypass Road, now under construction, is expected to improve traffic flow considerably.

Table 4-39: Distributions of Planned Growth Areas by Community Plan Area, Draft *Maui Island Plan*

	Dwelling Units		Commercial Space	
	Number	*Share*	*Square Feet (1)*	*Share*
West Maui	3,591	35%	240,000	41%
South Maui	1,500	15%	100,000	17%
Central Maui	4,227	41%	180,000	31%
Upcountry	731	7%	40,000	7%
Pāʻia-Haʻikū	207	2%	20,000	3%
Hāna	0	0%	0	0%
	10,256	100%	580,000	100%

Notes: Some 800 homes in the Leialiʻi project are included in the West Maui unit count. While no units are shown for Hāna, a longstanding proposal for up to 200 resident agricultural lots would likely be supported by the County, if steps are taken to realize the plan.

(1) The draft *Maui Island Plan* identifies the number of dwelling units in Planned Growth Areas and whether commercial space in these areas would be "neighborhood serving," "convenience shopping," or "convenience shopping: region serving." To estimate the commercial areas that could be built, these have been assumed here to average:

Neighborhood	20,000	square feet Gross Leasable Area
Convenience	40,000	square feet Gross Leasable Area
Convenience: Regional	100,000	square feet Gross Leasable Area

4.9.2.2 Future Socio-Economic Conditions With the Project

As a workforce housing development, the project is planned to have beneficial socio-economic impacts. This section provides detailed accounts of specific impacts, covering both immediate and cumulative impacts.

Population Impacts

When both phases are built out, the Leialiʻi project would house some 7,375 to 10,550 persons (for Concepts One and Three, respectively).

Affordable units will be sold or rented to full-time occupants. A qualified resident preference will be established for the initial sale of market units. Despite procedures designed to encourage island residents to live in the project, some market units would likely be acquired by off-island buyers. Based on comparative data from Maui and West Hawaiʻi subdivisions, it seems likely that as much as a 20 percent share of market units could be acquired by buyers from outside the island community. Those units would likely be occupied less of the time than those held by full-time residents. The calculation of on-site population in Table 4-40 takes into account both

housing vacancy and part-time resident occupancy. Part-time residents would account only for 3 percent of the on-site population. (See Appendix K for further discussion.)

Table 4-40: Population at Villages of Leiali'i Project

	2020	2025	2030	2035
Full-Time Residents				
CONCEPT ONE				
Phase A	2,561	3,588	3,588	3,588
Phase B	-	-	1,025	3,586
CONCEPT TWO				
Phase A	2,561	5,123	6,457	6,457
Phase B	-	-	1,025	3,586
CONCEPT THREE				
Phase A	2,561	5,123	6,662	6,662
Phase B	-	-	1,025	3,586
Part-Time Residents				
CONCEPT ONE				
Phase A	73	102	102	102
Phase B	-	-	29	102
CONCEPT TWO				
Phase A	73	146	183	183
Phase B	-	-	29	102
CONCEPT THREE				
Phase A	73	146	189	189
Phase B	-	-	29	102
	-			
Total	-			
CONCEPT ONE	2,634	3,690	4,744	7,378
CONCEPT TWO	2,634	5,268	7,694	10,328
CONCEPT THREE	2,634	5,268	7,905	10,539

Notes: A 3% average vacancy rate is assumed for all concepts. Some 20% of market units are expected to be acquired eventually by non-residents. Resident population is estimated using data from the 2006-2008 three-year American Community Survey for Maui County:

Average household size, owner-occupant	3.12	persons
Average household size, rented	2.50	persons
Given 30% rented, 70% owner-occupied:	2.93	persons
For units leased by non-residents	2.50	persons, in residence for 30% of year

Source: U.S. Census, American Community Survey data posted at http://hawaii.gov/dbedt/info/census/ACS2008/. Non-resident household size estimated by Belt Collins Hawaii.

Impacts on the Housing Market

Demand for homes on Maui is already strong and expected to exceed planned production, especially of housing for low- and moderate-income families. The project appreciably increases the pool of housing for residents, especially in West Maui, and would introduce leasehold units. It is hence likely to mitigate the trend towards increasing housing prices in the Maui Market Area.

Employment and Wage Impacts

Construction of the project would involve jobs and wages over the period until buildout. On-site operations would continue afterwards. Table 4-41 shows both cumulative person-years of employment in and associated with construction, and the average annual jobcount. The large majority of the indirect and induced jobs included in the Total Jobs count would be located on Maui. (See Appendix K for assumptions and Maui vs. Rest of Hawai'i estimates.)

Construction would begin in approximately 2014 and continue until each phase is completed. The number of direct construction jobs per year is estimated as being from 208 to 302 (depending on the concept plan and phase). In addition to the direct jobs, indirect and induced jobs would be created in the Hawai'i economy, mostly on Maui. (See Appendix K for detailed calculations and for estimates of Maui jobs.)

Residential projects do not result in the creation of many permanent jobs. Resident managers and a few landscape, maintenance, and security workers could be employed on a permanent basis at the Villages of Leiali'i. Within the commercial and industrial areas and at the schools, as many as 2,200 jobs could be located when the project is fully built out and occupied. Most of these jobs would exist in Maui County wherever families find it possible to live: i.e., they would still exist even if the project is not built.

The location of direct jobs at the project site rather than elsewhere on Maui is a socio-economic impact, affecting residents and their neighbors. The indirect and induced jobs associated with operations on the project site are not, since those operations, funded by resident spending, would occur somewhere in the county with or without the project.

Table 4-41: Summary of Employment and Wages Associated with the Leiali'i Project

	Concept One		Concept Two		Concept Three	
	Phase A	*Both A,B*	*Phase A*	*Both A,B*	*Phase A*	*Both A,B*
On-site Population	3,690	7,700	6,641	10,650	6,851	10,539
Housing Units Built	1,401	2,923	2,521	4,043	2,601	4,105
Construction -- Cumulative						
Direct Jobs	3,113	6,058	3,292	6,236	4,039	6,952
Direct Wages (Million $s)	$180.1	$350.5	$190.5	$360.8	$233.7	$402.2
Total Jobs (1)	6,376	12,407	6,742	12,771	8,271	14,237
Total Wages (Million $s) (1)	$308.1	$599.7	$325.8	$617.2	$399.7	$688.1
Construction -- Average Annual						
Direct Jobs	208	263	219	271	269	302
Direct Wages (Million $s)	$12.0	$15.2	$12.7	$15.7	$15.6	$17.5
Total Jobs (1)	425	539	449	555	551	619
Total Wages (Million $s) (1)	$20.5	$26.1	$21.7	$26.8	$26.6	$29.9
Operations -- Annual, End of Phase [2]						
Direct Jobs	1,897	1,933	1,932	1,968	2,190	2,246
Direct Wages (Million $s)	$110.4	$112.8	$112.1	$114.4	$131.7	$135.8
Total Jobs (1)	3,306	3,355	3,362	3,411	3,903	4,002
Total Wages (Million $s) (1)	$165.3	$168.2	$167.8	$170.8	$198.4	$204.1

Notes: The table summarizes information showed in more detail in Appendix K. Construction work is estimated in full time equivalent person-years. The cumulative figures cover the periods 2014 through 2028 (15 years) and 2014 through 2036 (23 years). All wages are shown in millions of 2009 dollars.

[1] "Total" jobs are direct, indirect and induced jobs in the State of Hawai'i associated with the project.

[2] Direct operations jobs are those located at the project site. See text for discussion of impacts.

Labor Force Impacts

The Leiali'i project would affect the regional labor force in part by creating jobs, but more importantly, by providing new housing for service, retail, managerial, and professional workers. As more housing units are built, fewer workers would face unacceptable housing choices and/or difficult daily commutes.

By shortening the commute time for workers and their families, the project could increase labor force participation, with some joining the labor force and others changing from part-time to full-time employment. For young people, the number of easily accessible jobs is far greater in Lahaina than in communities such as Waiehu and Pukalani. Consequently, high-school student participation in the labor force may increase.

With fewer obstacles to work, residents living near job centers are more likely to keep their jobs than ones with long commutes. A long-term result of increasing the housing stock for West Maui workers would likely be a decrease, on average, in job turnover.

Fiscal Impacts

Government Revenues

Development of the Leiali'i project would result in revenues for the State associated with construction (e.g., income taxes, excise taxes on workforce spending – but excise taxes would presumably not be levied on much of the project construction, since the Villages of Leiali'i is an affordable housing project). The County would gain revenues from taxes on homes and residential land. The cumulative revenues through 2036 can be projected as summarized in Table 4-42.

Table 4-42: Cumulative Fiscal Benefit – Cost Analysis

All values are Million 2009 $s	***Concept One***		***Concept Two***		***Concept Three***	
	A	*Both A, B*	*A*	*Both A, B*	*A*	*Both A, B*
STATE OF HAWAII						
Estimated Revenues						
Construction-Related Taxes	$27.5	$53.4	$29.1	$55.0	$35.6	$61.3
School Impact Fees	$0.3	$3.3	$1.4	$4.4	$3.0	$4.0
Taxes on Part-Time Resident Spending	$4.5	$5.8	$6.8	$8.1	$7.0	$8.2
	$32.2	$62.5	$37.3	$67.5	$45.6	$73.4
Estimated Costs						
Average Cost, Part-Time Residents	$0.4	$0.4	$0.5	$0.6	$0.5	$0.6
Net Benefit > Cost	$31.9	$62.0	$36.8	$66.9	$45.1	$72.8
COUNTY OF MAUI						
Estimated Revenues						
Property Taxes	$28.1	$31.8	$33.2	$39.1	$42.8	$51.0
Estimated Costs						
Average Cost, Part-Time Residents	$1.5	$1.9	$2.2	$2.6	$2.3	$2.7
Net Benefit > Cost	$26.7	$29.9	$31.0	$36.5	$40.5	$48.4

Note: All estimates are for cumulative cash flows through the year 2036.

The State would also gain revenue from the leasing of some of the property – although this cash flow would depend on additional factors that would be negotiated in the future.[14]

Government Costs

Table 4-42 includes State and County costs for providing public services to non-residents in the project. The estimates are based on recent government budgeting, i.e., on providing services at recent levels. They do not reflect either current reductions in services due to strained government budgets or additional facilities that may be needed, whether due to the project population or due to decisions to provide services at a higher standard than in the past. Costs for providing services to Maui residents are not treated as a project impact, since this population would be on-island, and would receive government services, with or without the project.

The developer would reduce County costs associated with new development by paying for on- and off-site infrastructure. The developer would likely be asked pay impact fees to the County for roads and public facilities, but these have not been set, much less passed by ordinance.

Net Fiscal Impact

Table 4-42 shows a strong surplus of revenues over foreseeable costs. While the County and the State would likely take on additional costs to support quality of life in West Maui, the surplus appears large enough to cover the project's share of those costs.

Social Impacts

Impacts on Maui Island

The most general social impact of the project is that it would provide more housing on an island with strong demand, and hence very high housing prices. By increasing the housing stock, it would help to limit increases in the cost of housing. Moreover, housing at Leiali'i would be developed to meet the needs of Maui residents. Most lessees would be owner-occupants; about 15 percent would be long-term resident renters. If, as seems likely, the land would remain in leasehold, the resale price of units for workforce families can be kept from increasing with the

[14] For analytical purposes, it is assumed that the entire property will be retained by the State and leased to the developer, who will in turn lease to others.

overall housing market. The impact would be to keep homes prices attractive for working families for many years.

Based on the County's estimate, some 1,380 new homes are needed annually to meet demand. Over the 22-year period for which the Villages of Leiali'i project is expected to deliver housing, the project would provide from 9.6 percent (Concept One) to 13.5 percent (Concept Three) of that demand.

Next, it would make resident housing available near job centers in Kā'anapali Resort and Lahaina. For many workers living at the project, commute times would shorten. Transit options – public transit or private shuttles between the community and employment sites – may further reduce the number of residents commuting by automobile. The result is likely to be less congestion on the route between West Maui and the rest of the island, as well as lower demand for employee parking at job centers.

With increased resident housing available in Lahaina, areas that now serve a mix of residents and visitors – parts of Honokōwai and Kīhei – could see reduced resident demand, and hence a change in neighborhood character towards becoming largely visitor-oriented areas. Such change would occur only over a long term, and would be a cumulative impact of many trends on Maui, not just of the project.

Impacts on West Maui

As a general rule, the shorter the commute, the easier it is for adults to participate in the life of their home communities, whether as volunteers, as parents involved with their children's schools and teams, or simply as participants in everyday life. Community involvement is likely to increase. On the other hand, residents moving from areas in which they grew up and have family ties can find a new development to be less vibrant and lacking the networks, occasions, and places in which they enjoy community life. The Leiali'i project's design as a walkable community with parks and schools nearby would help to encourage resident community participation. On balance, then, the project is likely to increase West Maui residents' ability to contribute to community life.

With new housing at Leiali‘i, Lahaina as a community would change. With more housing in the immediate area, crowding is likely to decrease. Also, with more full-time residents in the community, some retail areas would target the resident market more than visitors.

Growth of the resident community would increase demand for limited public facilities. Enrollment and volunteer support for activities such as youth soccer, baseball, and paddling are likely to grow.

The impact of the project on existing neighborhoods includes a mix of possible changes:

- Traffic on Leiali‘i Parkway and other roads between the project and Honoapi‘ilani Highway would increase. With through traffic, these roads (Leiali‘i, Wahikuli, Kapunakea) would no longer function solely as local subdivision roads, and residents may experience a loss of valued community isolation.
- Keawe Street currently serves industrial and commercial subdivisions. With development of the Bypass Highway, it would become a major access point to Lahaina, with a mix of resident and visitor traffic to and from the northern half of West Maui. To the extent that Leiali‘i project roadways link up with Keawe Street, the project would also add to the volume, and perhaps to the diversity, of traffic on this roadway.
- With development of the project, the mauka boundary of DHHL Leiali‘i and Wahikuli would no longer face untended fields of dry grass. In the past, residents reported the project site as home to rats. Some thought that thieves used the project site to reach the back of the residential area, and then escape via the cane roads. With the project, the boundary between the project and older subdivisions would largely consist of a landscaped border incorporating drainage control features. The project site would no longer be a source of nuisances and threats. (However, it would no longer appear an undeveloped open space behind the older subdivisions, so homes near the inland boundary of those subdivisions would no longer enjoy unobstructed upland views.)
- The Bypass Highway will bring changes to traffic on Lahainaluna Road, taking students from all over West Maui to the schools at the top of Kelawea Mauka. The project would contribute some of the middle and high school student enrollment. However, the major

change to Kelawea Mauka, improved traffic flow on Lahainaluna Road, will be brought by the Bypass Highway, independent of the Leiali‘i project.

- Little or no impact would be felt in the Historic District. That area is largely devoted to the visitor industry. It draws visitors, especially first-time visitors, rather than residents.

With the project, the population of West Maui would grow at a faster rate than in recent years, and could reach levels higher than those projected by the County of Maui Planning Department. This population growth could accelerate if some of the other projects slated to provide housing for resident workforce families are developed.

Development of the project would exert pressure on other developers of resident housing projects to make their housing and prices more attractive to potential buyers or renters. The result is expected to be beneficial for residents.

The Leiali‘i project would develop at a pace responsive to market conditions. Many Maui families would be interested in moving to West Maui, but not ready to do so while they hold jobs in both West and Central Maui, or are sending young people to high schools in Central or South Maui. Project development is estimated as occurring over about a twenty-year period, and could take longer. The resulting regional change would hence be gradual.

Impacts on the Project Site and Surrounding Area

The new neighborhood would be characterized by design elements intended to encourage walking, bicycling, and public transit use. As a neighborhood with much of the new construction in West Maui, it would likely be more desirable than older areas with homes at similar prices. As a community with a mix of rental and for-sale units, the project would not fit the negative stereotypes associated with low-income housing.

As the first major leasehold community on Maui, the project would offer a new product type and, for market units, pricing possibly below competing units.

By greatly increasing the resident population of the Lahaina area, the project would tend to support local businesses and community organizations. It would contribute to the ongoing development of the town’s identity and reputation. Currently, Lahaina Town is known for

raucous celebrations at Halloween; whether or not these continue – for reasons independent of the project – the presence of many working families would encourage a wider range of community activities.

4.9.2.3 Summary - Impacts of the Alternatives On Socio-Economic Conditions

The Leiali‘i project is expected to have positive socio-economic impacts. Above all, it would increase the housing supply, and hence have a positive impact on housing prices and the quality of life. It would increase the workforce population within the Lahaina urban area, and hence encourage higher labor force participation. It would result in increased revenues for the State and County, which are likely to offset any increased costs associated with new development at the project site. Over time, it is likely to reduce commuting into and out of West Maui, and hence work against the trend towards increasingly congested roadways.

The No Action Alternative would fail to respond to regional demand for housing. It would not have any significant socio-economic impacts.

The three concepts differ in the number of units, and hence in the extent to which they respond to regional housing demand and create a new community within Lahaina. The density of settlement involved, however, is too low for the differences among the three alternatives to be associated with significant long-term social impacts. The impact of traffic congestion (and resulting social impacts) would be similar for all three alternatives. The project-related traffic impacts of all three alternatives, however, can be fully mitigated with recommended improvements.

While residents of subdivisions makai of the project would lose some of their sense of living in small neighborhood communities, the project would offer them access to the Lahaina Bypass, new parks and a new elementary school. These changes may mitigate the loss of felt separation.

HHFDC has discussed, and would continue to discuss with DHHL, OHA, and members of the West Maui community, ways to respond to Native Hawaiians’ interests and concerns. HHFDC would also require the future developer to work with Native Hawaiian families to assure appropriate access to and preservation of culturally important sites.

Table 4-43: Impacts of the Alternatives on Socio-Economic Conditions

ALTERNATIVES		NO IMPACTS	POTENTIAL IMPACTS	ADVERSE IMPACTS	COMMENTS/MITIGATION MEASURES
1.	No Action	✓			No substantial socio-economic impacts are anticipated under this alternative.
2.	Alternative One		✓		The project is anticipated to be built out over approximately 20 years. Socio-economic impacts are anticipated to be positive with an increased supply of affordable housing near employment centers.
3.	Alternative Two		✓		The project is anticipated to be built out over approximately 20 years. Socio-economic impacts are anticipated to be positive with an increased supply of affordable housing near employment centers.
4.	Alternative Three		✓		The project is anticipated to be built out over approximately 20 years. Socio-economic impacts are anticipated to be positive with an increased supply of affordable housing near employment centers.

4.10 PUBLIC FACILITIES

The residents of the Villages of Leiali'i will need public facilities. The extent of residents' demand for those facilities can be calculated and compared to facilities available either in the project or nearby. That demand is greater than the impact of the project: to the extent that Leiali'i residents live in nearby communities, they already are using regional public facilities, and they do not create new demand for services.

Maui County has conducted long-term planning for its public facilities. The impact analyses in this EIS draw on accounts of existing service levels, expected new facilities, and likely demand developed for the County.[15] Table 4-44 shows the share of local service populations that would be housed in the Leiali'i project. More specific demand estimates are included in the text below, for each public facility category.

[15] R.M. Towill Corporation, *Public Facilities Assessment Update, County of Maui.* Prepared for Planning Department, County of Maui. Honolulu, HI, 2007.

Table 4-44: Project Share of Service Populations for Public Facilities

Public Facility or Service	User Population		Project Share (by Concept and Phase)					
		Number in	***Concept One***		***Concept Two***		***Concept Three***	
	Type [1]	*2035 [2]*	*A*	*Both A, B*	*A*	*Both A, B*	*A*	*Both A, B*
Population			3,690	7,700	6,641	10,650	6,851	10,539
Public Safety								
Police	R, Both	54,966	7%	14%	12%	19%	12%	19%
Fire Control	R, Both	54,966	7%	14%	12%	19%	12%	19%
Education [3]								
Elementary School	C, Res.	NA	NA	NA	NA	NA	NA	NA
Middle, High Schools	R, Res.	24,587	15%	31%	27%	43%	28%	43%
Recreation								
Playfields, Community Centers	R, Res.	24,587	15%	31%	27%	43%	28%	43%
Beach Parks	R, Both	54,966	7%	14%	12%	19%	12%	19%
Medical								
Major Hospital	I, Both	243,402	2%	3%	3%	4%	3%	4%
Emergency Medical Service	R, Both	54,966	7%	14%	12%	19%	12%	19%

Notes: Project share calculations are rough approximations, given broad definitions of the populations served. More specific demand estimates are included in the text.

[1] "Type" covers both the area served and the population served:
I = Island
R = Region (West Maui)
C = local Community
Both = Both residents and visitors
Res. = Residents

[2] Numbers are from DBEDT projections, allocated by Belt Collins Hawaii. "Both" combine the average visitor census and resident count.

[3] Population cited here includes all ages, not just students. The DOE will define the community to be served by new schools based on the capacity of its various facilities; the size of the community served by elementary schools on-site at Leiali'i is unknown. The number of students generated by development in the Leiali'i project is calculated in Table 4-45.

4.10.1 PUBLIC SAFETY

4.10.1.1 Existing Conditions

Police. The County Police Department's Lahaina station is located at the Lahaina Civic Center, just below the project site. Some 57 officer positions were authorized for Lahaina as of 2006. West Maui is divided into five beats. A sub-station is located in Nāpili.

Fire Protection. The County's Lahaina fire station is also located at the Lahaina Civic Center. It has a fire company and a ladder company, with 30 full-time staff. The station also has a boat for ocean rescues. A second station in Nāpili, built by local fundraising, also serves West Maui.

4.10.1.2 Potential Impacts

Police. While population and housing growth would lead to increased demand for police services, the impact of the Leiali'i project would be lessened by its location and its design as a walkable community. A maximal impact estimate can be derived from the County's planning study: 0.196 officers and 0.06 other personnel per 100 persons in the de facto (resident plus visitor) population. Using this factor, the project could support demand for 10 (Concept One, Phase A) to 29 officers and other personnel (Phases A and B combined, either Concept Two or Concept Three) in the Maui Police Department.

Fire Protection. The project will be built according to the Maui County Fire Code. All public roadways in the project will be wide enough to permit access by fire trucks. With development comes an increase in the Fire Department's responsibility for structures, and a decrease in the acreage on which brushfires could occur. To the extent that the project allows residents to congregate in a planned community, located near a fire station, it would help the Fire Department to improve its response times. The net impact is likely to be minimal.

The County of Maui standards for assessing need for additional fire control facilities are based on density and height of urbanization, and on distance to the nearest fire station. Located just uphill from Lahaina Civic Center, the project is well within the distance being well served by the existing Lahaina Fire Station.

4.10.2 EDUCATION

4.10.2.1 Existing Conditions

The project site is within the Lahainaluna High catchment area. The Lahainaluna schools serve all of West Maui. They are all located in Lahaina:

- King Kamehameha III Elementary School is located on Front Street in Lahaina Town. It had 717 students in Fall 2008 in grades K through 5.
- Princess Nahi‘ena‘ena Elementary School, in Kelawea Mauka, had 657 students in grades K through 5.
- Lahaina Intermediate School is also located in Kelawea Mauka, had 698 students in grades 6 through 8.
- Lahainaluna High School, at the top of Kelawea Mauka, has served Maui since 1831. Founded as a mission school, it is now a public high school, but is the only one in Hawai‘i to enroll boarders as well as day students. In Fall 2008, it had 949 students.

Private schools in West Maui include:

- Sacred Hearts School in Lahaina offers preschool to 8th grade classes. In 2008, it enrolled 216 pupils.
- Maui Preparatory Academy. This school was founded in 2005. It currently enrolls fewer than 200 students, in preschool through 12th grade, at facilities in Nāpili.

The Kamehameha Schools Maui Campus serves Native Hawaiian students from all the island of Maui. Catholic high school education is offered at St. Anthony School in Wailuku.

4.10.2.2 Potential Impacts

The Hawai‘i State DOE has provided multipliers that were used to develop preliminary estimates of the Leiali‘i project’s public school population, as shown in Table 4-45.

Table 4-45: Public School Student Population at Buildout of Villages of Leiali‘i Project

	Students, at Buildout
CONCEPT ONE	
PHASE A	448
PHASE B	761
	1,209
CONCEPT TWO	
PHASE A	454
PHASE B	761
	1,215
CONCEPT THREE	
PHASE A	638
PHASE B	544
	1,182

Notes: Calculations are from DOE’s analysis of student generation rates for single-family and multifamily units in new developments in West Maui, according to 2010 *Draft Analysis of the Proposed West Maui School Impact District.*

Project plans call for land to be provided for two elementary schools on-site. These would serve a school population larger than the project would generate by itself. In addition, the project is likely to contribute impact fees for school construction, as discussed in Section 4.9.2.2.

4.10.3 RECREATION

4.10.3.1 Existing Conditions

Major recreational facilities located in West Maui include county parks, the Lahaina Civic Center, and an Aquatics Center. Ocean recreational activities – swimming, diving, surfing, and snorkeling – are enjoyed along the West Maui shore. Canoe clubs operate from Hanaka‘ō‘ō Beach Park, just north of the project site. In addition, Ka‘anapali and Kapalua Resorts operate world-class golf courses available, for fees, to the general public.

In 2006, West Maui had 124.8 acres of county park space (not including the Ukumehame Firing Range). No state or federal parks are located in the region.

The County’s Facility Usage Reports for 2009 indicate that the Lahaina Civic Center gym is reserved for 93 percent of the year. Ballfields at the Lahaina Recreation Center and Waine‘e Park

are also reserved often; for the district as a whole, ballfields are reserved on 35 percent of the days of the year.[16]

4.10.3.2 Potential Impacts

Various standards can be used to project need for recreation facilities. Section 18.16 of the Maui County Code directs private developers to provide 500 square feet of park space per housing unit, or 250 square feet per workforce housing unit. Should only 50 percent of project units qualify as workforce housing, the park dedication requirement for the projection would be:

Table 4-46: Estimated Park Dedication Required for Villages of Leiali'i

	Project Share					
	Concept One		***Concept Two***		***Concept Three***	
	A	*Both A, B*	*A*	*Both A, B*	*A*	*Both A, B*
Housing Units	1,401	2,923	2,521	4,043	2,601	4,105
Population	3,690	7,700	6,641	10,650	6,851	10,539
Park Dedication --						
Developer's Requirement						
Workforce Units	4.0	8.4	7.2	11.6	7.5	11.8
Market Units	8.0	16.8	14.5	23.2	14.9	23.6
Total (acres)	12.1	25.2	21.7	34.8	22.4	35.3
Park Acreage	24.4	44.0	24.4	44.0	20.9	38.3
Acreage - Requirement	12.3	18.8	2.7	9.2	(1.5)	3.0

Notes: Calculated at 250 square feet per workforce unit, and 500 square feet per market unit. Since Maui treats units for households earning up to 160% of the area median as "workforce housing," this calculation probably overestimates the market share, and hence the park requirement, for the project.

The park space allocated in the Concept Plans exceeds this maximal estimate of the requirement in all cases except for Concept Three, Phase A. HHFDC would require the future developer to meet the requirement in each phase.

The County's *Public Facility Assessment Update* recognized 124.8 acres of county park space in West Maui, for a de facto population of 44,701, or .279 acres per 100 persons. If additional park space for the new development were provided at existing levels, the resulting park space would be from 11 acres (Concept One, Phase A) to 32 acres (Phases A and B combined, either Concept

[16] Data made available by John Anderson, Regional Manager, Maui County Parks and Recreation Department.

Two or Concept Three). The existing level of service in West Maui, then, is less than that mandated by the park dedication requirement for the project.

In a comment dated July 14, 2008, Maui County Parks & Recreation Director Tamara Horcayo indicated that in a large development the County would request a single large park, with a number of playing fields, rather than smaller parks. The concept plans have not been changed to accommodate this request, in order to encourage pedestrian movement in and between communities.

In a comment on the EISPN, Director Horcayo commented that "the department is concerned that adequate land be set aside for development of active recreational park facilities for the residents as well as the surrounding communities." In the *Public Facility Assessment Update*, the County identified planning standards for a wide range of parks and park components. Table 4-47 adopts those standards to the project's population, to assess the extent of the County's commitment, should the County attempt to meet its standards.

It should be stressed that the project dedicates approximately 320 to 470 acres for residential development. The County's planning goal is to provide from 0.4 to 1.3 acres of parks for every residential acre in the project. (The end points to the above range are Concept One, both Phases, and Concept Three, Phase A.) In effect, the County's goal is to devote 7.5 acres to parks for every acre required of the developer under the park dedication requirement. It does not appear economically feasible for the State or the future Leiali'i developer to meet the County's goal.

The County's aim is to deliver a higher level of service, at least in terms of acreage, than it has provided to date. Since the Leiali'i project is expected to include many young families and it is located close to existing parks facilities, demand for existing parks facilities would probably increase. Since the project is planned to include more park space than the existing average, it can help to provide recreational facilities serving surrounding communities as well as residents.

Table 4-47: Park Facilities Needed to Meet County Planning Objectives

		Extent of County Objective associated with Project (by Concept and Phase)					
		Concept One		***Concept Two***		***Concept Three***	
		A	*Both A, B*	*A*	*Both A, B*	*A*	*Both A, B*
County Objectives							
Parks	Acres/ 1,000						
Mini Parks	2	7.4	15.4	13.3	21.3	13.7	21.1
Neighborhood Parks	4	14.8	30.8	26.6	42.6	27.4	42.2
District Parks	4	14.8	30.8	26.6	42.6	27.4	42.2
Regional Parks	15	55.4	115.5	99.6	159.7	102.8	158.1
Park Facilities/Amenities	Units/ 1,000						
Sports fields	0.5	1.8	3.8	3.3	5.3	3.4	5.3
Tennis Courts	0.25	0.9	1.9	1.7	2.7	1.7	2.6
Sports Courts	0.8	3.0	6.2	5.3	8.5	5.5	8.4
Tot Lots	0.2	0.7	1.5	1.3	2.1	1.4	2.1
Community Centers	0.1	0.4	0.8	0.7	1.1	0.7	1.1
Gymnasium	0.04	0.1	0.3	0.3	0.4	0.3	0.4
Public Golf Course	0.02	0.1	0.2	0.1	0.2	0.1	0.2
Swimming Pools	0.04	0.1	0.3	0.3	0.4	0.3	0.4

Notes: Objectives are expressed in the plan per 1,000 persons. The County's objectives are for general planning purposes, and are not linked to requirements for particular projects.

Source: R.M. Towill, 2007.

At the January 2009 workshop in Lahaina, a member of the Mayor's staff indicated that the County administration knew that residents of the DHHL Leiali'i project wanted land for a park or playground mauka of their subdivision. The three concept plans all include open space between the DHHL subdivisions and residential areas of the proposed project, but use of that space may be constrained due to its use for drainage.

4.10.4 MEDICAL FACILITIES

4.10.4.1 Existing Conditions

The primary medical facility for Maui Island is Maui Memorial Medical Center in Wailuku, Central Maui. This 251-bed hospital is part of the Hawaii Health System Corporation supported by the State. It has 24-hour emergency services, an intensive care unit, maternity, oncology, and

other units. It is located about 25 miles from the project. Long term care is available at Kula Hospital, also a State facility, and Hale Makua, a non-profit.

West Maui is served by clinics associated with major health providers, and by private physicians.

A concerted effort to develop a West Maui Hospital over a decade has resulted in site selection (on KLMC land), detailed plans, collaboration with a hospital developer, and approval of an application for a Certificate of Need. Plans call for construction of a local hospital as soon as funding allows.

Emergency medical vehicles are stationed at Lahaina and Nāpili, and staffed on a 24-hour basis.

4.10.4.2 Potential Impacts

With increased population in West Maui, demand for medical services would grow. The project's population would contribute to that growth in proportion to its size, as indicated in Table 4-48. As noted for other public services, the impact of the project involves redistribution of existing and anticipated demand, rather than new demand.

A maximal estimate of demand for hospital facilities can be calculated on the basis of future population. For acute and critical care, 0.0809 beds are needed to maintain current standards of care for every 100 persons on Maui Island. On this basis, the project's population could account for demand for a maximum of 3 (for Phase A of Concept One) to 9 beds (Concepts Two or Three, both Phases).[17]

To maintain current levels of ambulance service, 0.0045 ambulances would be needed per 100 persons. The planning study estimates that West Maui could need 2.8 ambulances by 2030. The maximal impact of the Leiali'i project would, by this analysis, be from 0.2 to 0.5 ambulances with staffing.

[17] Additional demand for pediatric, obstetrics, specialty, and long-term care beds can be calculated for sub-populations. Of these, the one accounting for appreciable demand is long term care, calculated for the resident population aged 65 and older. No age-specific estimate can be made for the project population. Unless the future developer plans specifically to include senior housing, a new planned community seems likely to attract young families, not elderly persons. Hence, this calculation does not apply to the Leiali'i project.

4.10.4.3 Summary - Impacts of the Alternatives on Public Facilities

The project would not have significant impacts on public facilities. It would concentrate demand for schools and recreation, but would also provide school sites, parks and open space, in accordance with DOE and County Parks Department requirements, thereby managing and mitigating the potential impacts.

With population growth comes increasing demand for public services, whether the population lives in new housing or older units. A new planned development can mitigate much of the impact of that demand. Moreover, the new property tax revenues associated with a new development can help the County to meet that demand.

Table 4-48: Impacts on Public Facilities

ALTERNATIVES		NO IMPACTS	POTENTIAL IMPACTS	ADVERSE IMPACTS	COMMENTS/MITIGATION MEASURES
1.	No Action	✓			Demand for school and recreation facilities is strong, independent of the project.
2.	Alternative One		✓		The project is anticipated to be built out over a 20 year period. The project provides open space/ park areas and sites reserved for a school facility.
3.	Alternative Two		✓		The project is anticipated to be built out over a 20 year period. The project provides open space/ park areas and sites reserved for a school facility.
4.	Alternative Three		✓		The project is anticipated to be built out over a 20 year period. The project provides open space/ park areas and sites reserved for a school facility.

CHAPTER FIVE: RELATIONSHIP OF THE PROPOSED ACTION TO LAND USE PLANS, POLICIES, AND CONTROLS FOR THE AFFECTED AREA

STATE OF HAWAIʻI PLANS AND CONTROLS

5.1 THE LAND USE LAW

The Hawaiʻi State Legislature determined in 1961 that a state-wide zoning system was needed to protect Hawaiʻi's valuable land from development that provided a short-term gain for a few and resulted in a long-term loss to the income and growth potential of the state's economy. Accordingly, the Legislature established an overall framework of land use management and adopted the Land Use Law under HRS Chapter 205. The law placed all lands in the state in one of four land use districts: *Urban, Agricultural, Conservation, or Rural* (the Rural District was added in 1963), and established the State LUC under HRS §205-1.

Approximately 1,097.765 acres of the Villages of Leialiʻi site were reclassified as Urban in 1990, including all of the land involved in the present proposed action. In 2005, Villages 1A and 1B, covering approximately 75.475 acres, were transferred to DHHL. As of 2006, remnant areas amounting to less than half an acre were transferred to the Hawaiʻi DOT for Phase 1A of the Lahaina Bypass Highway. Additional lands will be conveyed based on the final right-of-way needed for the highway. In 2007, the HHFDC Board approved land and drainage easements to the County of Maui for the Keawe Street extension.

The LUC reclassification was subject to a series of conditions, listed here in abbreviated form, to be fulfilled by HFDC (as "Petitioner"):

1. Historic structures and inadvertent finds: The archaeological study and survey of historic plantation structures on the site shall be evaluated; data recovery shall occur at five sites, while five other sites shall be preserved; mitigation plans for structures and

archaeological sites shall be submitted to SHPD for approval; and work will stop and SHPD will be alerted should archaeological resources be encountered during project development.

Discussion: A final report on the plantation inventory was submitted to SHPD in 1997. Photographs meeting level 2 standards of the Historic American Buildings Survey (HABS) and Historic American Engineering Record (HAER) were taken of irrigation features on-site, and a report was completed. SHPD accepted the report and its mitigation plan in letters dated in 1997 and 1998. Many of the archaeological sites identified in 1989 by PHRI are located in gulches which will not be developed. The remaining sites were revisited by PHRI and located using GPS technology in 2008. (See Appendix E). Additional work on data recovery and preservation will precede any development in the immediate area of those sites. As stipulated by the LUC Decision and Order, work will stop and SHPD will be alerted should any archaeological resources be encountered in the course of project development.

2. Hawai‘i Right-to-Farm Act: All prospective occupants shall be informed of possible odor, noise, and dust resulting from agricultural operations nearby, and the Right-to-Farm Act protects pre-existing farming activities from being deemed a nuisance.

   Discussion: The future developer will be required to inform all prospective occupants of this condition. As of September 1999, sugar cultivation ended on the project site and nearby lands.

3. Golf course development: The golf course proposed by HFDC shall be developed in compliance with environmental restrictions.

   Discussion: HHFDC does not propose to dedicate any part of the site to a golf course, so this condition is moot.

4. Traffic report: Petitioner shall submit a revised traffic report addressing the secondary impacts on County roadways and pedestrian traffic to the Maui DPW for review and approval prior to submittal of the project’s master plan.

   Discussion: An updated traffic report was submitted and accepted in 1992. A separate traffic study has been conducted for the present EIS. It is attached as Appendix L to this EIS.

5. Water: Petitioner shall consult with the Maui DWS and other agencies regarding measures to obtain water needed for the project. Petitioner shall pay for its share of water source, storage, transmission, and filtration facilities.

   Discussion: Consultation is ongoing.

6. Wastewater: Petitioner shall participate in the funding, development, and construction of improvements to the Lahaina WWTP; occupancy of housing on the project site shall be phased with the increased capacity of the plant.

   Discussion: HFDC participated in the expansion of the Lahaina WWTP, completed in 1994. The County agreed to provide 1.8 mgd of sewer capacity for the Villages of Leiali‘i, to be used by September 2003. The County of Maui refused HHFDC's subsequent request for an extension, and this agreement has lapsed. See section 4.8.4 above for analysis of the capacity needed to support the Villages of Leiali‘i project. The selection of an approach to wastewater collection will be made by the project developer.

7. Drainage: Petitioner shall fund and construct drainage improvements within the property; drainage plans shall be submitted to State and County agencies.

   Discussion: Section 4.8.2 of this EIS discusses different approaches to managing drainage through the site. The choice of an approach will be taken by the eventual developer, after review by HHFDC, along with State and County agencies.

8. School: Petitioner shall make land, with infrastructure up to the lots, available to the State DOE for school facilities.

   Discussion: HHFDC has designated school sites in each phase of the project. The future developer will be required to provide infrastructure leading up to school sites. Furthermore, HHFDC and the future developer will comply with the DOE's impact fee requirements when these are specified for West Maui and approved by the Board of Education.

9. Petitioner shall provide housing opportunities for low, low-moderate, and moderate income residents of the state of Hawai‘i by offering for sale or lease a number of units equal to 60 percent of the residential units in the petition area at prices which families with an income range of up to 120 percent of the County of Maui's median income can afford.

Discussion: Act 100 SLH 2001 waived this requirement for undeveloped lands at the Villages of Leiali'i, requiring instead that HHFDC and the County of Maui reach agreement on the appropriate distribution of housing in the project. Within the current project area, HHFDC anticipates that at least 50 percent of the housing will be rented or leased at prices affordable to residents earning up to 140 percent of the median income for the County of Maui. One factor in HHFDC's evaluation of the proposals to develop the project will be provision of additional units, beyond the 50 percent minimum, at prices affordable to low, low-moderate, moderate, and gap-group residents. The County of Maui passed its Workforce Housing Ordinance in 2006, directing developers to provide a minimum of 40 percent of units in all housing projects at prices affordable to residents earning up to 160 percent of the area median income. HHFDC's project requirements are more stringent than those of the County's Workforce Housing Ordinance, so HHFDC anticipates that the County of Maui will find the eventual distribution of housing units acceptable.

10. Public services: Petitioner shall coordinate development with the County of Maui's improvements to County services and facilities, such as fire and police protection.

    Discussion: HHFDC has solicited input from County departments in developing the master plan and this EIS.

11. Infrastructure: All infrastructure improvements will be developed to County standards.

    Discussion: To date, all infrastructure improvements have been built in accordance with County of Maui standards. The proposed developer will determine whether proposed improvements will be developed to County standards.

12. Coordination with DPW: Petitioner shall submit all master plans for drainage, water, roadways, utilities, and sewers to the Maui DPW for review and approval prior to submittal of construction plans for individual villages.

    Discussion: This condition was satisfied in 1992. Future master plans will be submitted as specified in this condition.

13. Preservation area: The State shall maintain responsibility for the preservation area, including the crater and reservoirs.

Discussion: The State's responsibility is acknowledged. The responsibility of the future developer to maintain the preservation area will be identified in the agreement between the developer and HHFDC.

14. Parks: Petitioner shall fund, design, and construct park improvements.

    Discussion: HHFDC will require that the future developer provide park improvements as specified by the Commission.

15. Golf rates and tee times: Golf course covenants shall include conditions on preferential rates and tee times for residents.

    Discussion: Since the concept plans considered in this EIS include no golf course, this condition is now moot.

16. Noise: Petitioner shall incorporate noise attenuation measures or devices to reduce noise impacts along Honoapi'ilani Highway, Bypass Highway, and the cane haul road.

    Discussion: The current project does not abut Honoapi'ilani Highway. HHFDC will work with the State DOT and the County DPW to reduce noise impacts from roadways created through the project area.

17. Mitigation of construction impacts: Petitioner shall incorporate measures to mitigate impacts from wind, water, and soil erosion during construction.

    Discussion: The future developer will be required to adopt measures to limit construction impacts as directed by State and County regulations.

18. Timing: Petitioner shall not commence the construction of Villages 7 through 11 until the construction of the bypass road through the Petition Areas is substantially under way.

    Discussion: This condition refers to the area mauka of the Bypass Highway: Phase B in the proposed concept plans. HHFDC does not plan to develop Phase B immediately but may request approval to install non-traffic-generating improvements, such as water and drainage infrastructure, above the Bypass Highway.

19. State powers: Conditions requiring County agency review, coordination or approval are subject to the powers of the HFDC as expressed in Act 15.

    Discussion: As of July 1, 2006, requests for County approvals, exemptions, waivers and variances will be processed through the County under Chapter 201H, HRS, not Act 15.

The future developer will decide whether to move towards development by applying for permits under 201H or by applying to the County for zoning.

20. Compliance with claims made to LUC: Petitioner shall develop the Property in substantial compliance with the representations made to the LUC in obtaining reclassification.

    Discussion: The project remains a mixed-income housing project that responds to the need for housing for workforce families in West Maui. Except for future changes in housing policy, unit count, marketing strategy, and pricing, HHFDC plans to continue development of the property in substantial compliance with the representations made to the LUC. This EIS provides updated concept plans that identify the range of development futures under consideration. In the event new housing policies are adopted which adversely impact HHFDC's ability to satisfy the above-stated conditions, HHFDC would inform the LUC.

21. Annual reports: Petitioner shall file annual reports to the LUC, the Office of State Planning, and the County of Maui Planning Department.

    Discussion: HHFDC has filed and will continue to file or require the proposed developer to file annual reports on the status of the project.

22. The LUC may fully or partially release these conditions.

HHFDC is in compliance with the conditions in Docket No. A89-652 and will direct the future developer to act in compliance with them as described above, or obtain approval for revisions as required by the LUC.

5.2 HAWAI'I STATE PLAN

In 1978, DBEDT (formerly known as the Department of Planning and Economic Development) completed a *Hawai'i State Plan* to: (1) improve the planning process; (2) increase the effectiveness of government and private actions; (3) improve coordination among agencies and

levels of government; (4) provide for the wise use of Hawai‘i’s resources; and (5) guide the future development of the State.[1]

In 1978, the Legislature adopted the Hawai‘i State Planning Act (Planning Act), as HRS Chapter 226. The Planning Act consists of a series of broad goals, objectives and policies that serve as guidelines for future long-term growth and development. It further (1) provides a basis for determining priorities and allocating limited resources; (2) seeks to improve coordination of Federal, State, and County plans, policies, programs, projects, and regulatory activities; and (3) establishes a system for plan formulation and program coordination to provide for an integration of all major State and County activities.

The Planning Act is divided into three sections: Part I - Overall Theme, Goals, Objectives and Policies; Part II - Planning Coordination and Implementation; and Part III - Priority Guidelines:

Part I of the Planning Act consists of three overall themes: (1) individual and family self-sufficiency; (2) social and economic mobility; and (3) community or social well-being. These themes are considered “basic functions of society” and goals toward which government must strive (HRS §226-3).

Part II of the Planning Act primarily addresses internal government policies to help streamline, coordinate, and implement various plans and processes between governmental agencies. It seeks to eliminate or consolidate burdensome or duplicative governmental requirements imposed on business, where public health, safety, and welfare would not be adversely affected.

Part III of the Planning Act establishes overall priority guidelines to address areas of statewide concern (HRS §226-101). The overall direction and focus are on improving the quality of life for Hawai‘i’s present and future population through the pursuit of desirable courses of action (HRS §226-102).

The following tables, identified as Table 5-1a and 5-1b, respectively, present Parts I and III of the Planning Act and rates the applicant’s conformance and support of the State’s goals and

[1] State of Hawai‘i, Department of Planning and Economic Development, 1978, Revised 1989, 1991.

objectives. Part II is not presented, as that section primarily pertains to internal government affairs.

Table 5-1a: Hawai'i State Planning Act Part I

SECTION	CHAPTER 226 - PART I. OVERALL THEME, GOALS, OBJECTIVES AND POLICIES	RATING
A = actively supportive C= conforms I = goal is inconsistent with applicant's objectives NA = goal is not applicable		
226-1	Findings and purpose.	
226-2	Definitions.	
226-3	Overall Theme	
226-4	State Goals. In order to guarantee, for present and future generations, those elements of choice and mobility that insure that individuals and groups may approach their desired levels of self-reliance and self-determination, it shall be the goal of the State to achieve:	
(1)	A strong, viable economy, characterized by stability, diversity, and growth, that enables the fulfillment of the needs and expectations of Hawai'i's present and future generations.	**A**
(2)	A desired physical environment, characterized by beauty, cleanliness, quiet, stable natural systems, and uniqueness, that enhances the mental and physical well being of the people.	**A**
(3)	Physical, social, and economic well being, for individuals and families in Hawai'i, that nourishes a sense of community responsibility, of caring, and of participation in community life.	**A**
226-5	OBJECTIVE AND POLICIES FOR POPULATION	
(a)	It shall be the objective in planning for the State's population to guide population growth to be consistent with the achievement of physical, economic, and social objectives contained in this chapter;	**A**
(b)	To achieve the population objective, it shall be the policy of this State to:	
(1)	Manage population growth statewide in a manner that provides increased opportunities for Hawai'i's people to pursue their physical, social, and economic aspirations while recognizing the unique needs of each county.	**A**
(2)	Encourage an increase in economic activities and employment opportunities on the neighbor islands consistent with community needs and desires.	**A**
(3)	Promote increased opportunities for Hawai'i's people to pursue their socio-economic aspirations throughout the islands.	**C**
(4)	Encourage research activities and public awareness programs to foster an understanding of Hawai'i's limited capacity to accommodate population needs and to address concerns resulting from an increase in Hawai'i's population.	**C**
(5)	Encourage federal actions and coordination among major governmental agencies to promote a more balanced distribution of immigrants among the states, provided that such actions do not prevent the reunion of immediate family members.	**NA**
(6)	Pursue an increase in federal assistance for states with a greater proportion of foreign immigrants relative to their state's population.	**NA**
(7)	Plan the development and availability of land and water resources in a coordinated manner so as to provide for the desired levels of growth in each geographic area.	**A**
COMMENTARY: The project will develop affordable housing units and commercial and industrial space in a location specifically designated by the State and County for urban expansion. The project directly contributes to government's desire to direct population growth to areas with the greatest economic benefit and to provide housing near employment centers.		

226-6	OBJECTIVES AND POLICIES FOR THE ECONOMY - IN GENERAL.	
(a)	Planning for the State's economy in general shall be directed toward achievement of the following objectives:	
(1)	Increased and diversified employment opportunities to achieve full employment, increased income and job choice, and improved living standards for Hawai'i's people.	**A**
(2)	A steadily growing and diversified economic base that is not overly dependent on a few industries, and includes the development and expansion of industries on the neighbor islands.	**C**
(b)	To achieve the general economic objectives, it shall be the policy of this State to:	
(1)	Expand Hawai'i's national and international marketing, communication, and organizational ties, to increase the State's capacity to adjust to and capitalize upon economic changes and opportunities occurring outside the State.	**NA**
(2)	Promote Hawai'i as an attractive market for environmentally and socially sound investment activities that benefit Hawai'i's people.	**NA**
(3)	Seek broader outlets for new or expanded Hawai'i business investments.	**NA**
(4)	Expand existing markets and penetrate new markets for Hawai'i's products and services.	**NA**
(5)	Assure that the basic economic needs of Hawai'i's people are maintained in the event of disruptions in overseas transportation.	**NA**
(6)	Strive to achieve a level of construction activity responsive to, and consistent with, state growth objectives.	**A**
(7)	Encourage the formation of cooperatives and other favorable marketing arrangements at the local or regional level to assist Hawai'i's small-scale producers, manufacturers, and distributors.	**NA**
(8)	Encourage labor-intensive activities that are economically satisfying and which offer opportunities for upward mobility.	**NA**
(9)	Foster greater cooperation and coordination between the government and private sectors in developing Hawai'i's employment and economic growth opportunities.	**A**
(10)	Stimulate the development and expansion of economic activities which will benefit areas with substantial or expected employment problems.	**C**
(11)	Maintain acceptable working conditions and standards for Hawai'i's workers.	**C**
(13)	Provide equal employment opportunities for all segments of Hawai'i's population through affirmative action and nondiscrimination measures.	**C**
(14)	Encourage businesses that have favorable financial multiplier effects within Hawai'i's economy.	**C**
(15)	Promote and protect intangible resources in Hawai'i, such as scenic beauty and the aloha spirit, which are vital to a healthy economy.	**C**
(16)	Increase effective communication between the educational community and the private sector to develop relevant curricula and training programs to meet future employment needs in general, and requirements of new, potential growth industries in particular.	**NA**
(17)	Foster a business climate in Hawai'i - including attitudes, tax and regulatory policies, and financial and technical assistance programs - that is conducive to the expansion of existing enterprises and the creation and attraction of new business and industry.	**NA**
COMMENTARY: West Maui needs affordable housing opportunities to support employees of the visitor industry and service sectors. The proposed project is situated to help fulfill West Maui's employee housing demand.		
226-7	OBJECTIVES AND POLICIES FOR THE ECONOMY - AGRICULTURE	

(a)	Planning for the State's economy with regard to agriculture shall be directed towards achievement of the following objectives:	
(1)	Viability of Hawai'i's sugar and pineapple industries.	**NA**
(2)	Growth and development of diversified agriculture throughout the State.	**NA**
(3)	An agriculture industry that continues to constitute a dynamic and essential component of Hawai'i's strategic, economic, and social well-being.	**NA**
(b)	To achieve the agriculture objectives, it shall be the policy of this State to:	
(1)	Establish a clear direction for Hawai'i's agriculture through stakeholder commitment and advocacy.	**NA**
(2)	Encourage agriculture by making best use of natural resources.	**NA**
(3)	Provide the governor and the legislature with information and options needed for prudent decision making for the development of agriculture.	**NA**
(4)	Establish strong relationships between the agricultural and visitor industries for mutual marketing benefits.	**NA**
(5)	Foster increased public awareness and understanding of the contributions and benefits of agriculture as a major sector of Hawai'i's economy.	**NA**
(6)	Seek the enactment and retention of federal and state legislation that benefits Hawai'i's agricultural industries.	**NA**
(7)	Strengthen diversified agriculture by developing an effective promotion, marketing, and distribution system between Hawai'i's producers and consumer markets locally, on the continental United States, and internationally.	**NA**
(8)	Support research and development activities that provide greater efficiency and economic productivity in agriculture.	**NA**
(9)	Enhance agricultural growth by providing public incentives and encouraging private initiatives.	**NA**
(10)	Assure the availability of agriculturally suitable lands with adequate water to accommodate present and future needs.	**NA**
(11)	Increase the attractiveness and opportunities for an agricultural education and livelihood.	**NA**
(12)	Expand Hawai'i's agricultural base by promoting growth and development of flowers, tropical fruits and plants, livestock, feed grains, forestry, food crops, aquaculture, and other potential enterprises.	**NA**
(13)	Promote economically competitive activities that increase Hawai'i's agricultural self-sufficiency.	**NA**
(14)	Promote and assist in the establishment of sound financial programs for diversified agriculture.	**NA**
(15)	Institute and support programs and activities to assist the entry of displaced agricultural workers into alternative agricultural or other employment.	**NA**
(16)	Facilitate the transition of agricultural lands in economically nonfeasible agricultural production to economically viable agricultural uses.	**NA**
COMMENTARY: The site is designated for urban expansion. Development of the property for residential use will not adversely impact agriculture because no agricultural land is being removed from production.		
226-8	OBJECTIVE AND POLICIES FOR THE ECONOMY - VISITOR INDUSTRY.	
(a)	Planning for the State's economy with regard to the visitor industry shall be directed towards the achievement of the objective of a visitor industry that constitutes a major component of steady growth for Hawai'i's economy.	
(b)	To achieve the visitor industry objective, it shall be the policy of this State to:	

(1)	Support and assist in the promotion of Hawai'i's visitor attractions and facilities.	**NA**
(2)	Insure that visitor industry activities are in keeping with the social, economic, and physical needs and aspirations of Hawai'i's people.	**NA**
(3)	Improve the quality of existing visitor destination areas.	**C**
(4)	Encourage cooperation and coordination between the government and private sectors in developing and maintaining well-designed, adequately serviced visitor industry and related developments which are sensitive to neighboring communities and activities.	**A**
(5)	Develop the industry in a manner that will continue to provide new job opportunities and steady employment for Hawai'i's people.	**A**
(6)	Provide opportunities for Hawai'i's people to obtain job training and education that will allow for upward mobility within the visitor industry.	**NA**
(7)	Foster a recognition of the contribution of the visitor industry to Hawai'i's economy and the need to perpetuate the aloha spirit.	**NA**
(8)	Foster an understanding by visitors of the aloha spirit and of the unique and sensitive character of Hawai'i's cultures and values.	**NA**
COMMENTARY: The health of the County's economy is influenced by the availability of affordable housing in reasonable proximity to job centers. Reducing commute times is important to workers' well being. Because West Maui is a major visitor destination, the current housing opportunities are outstripped by its employment opportunities. The provision of new affordable housing will have a beneficial impact on visitor industry workers.		
226-9	OBJECTIVE AND POLICIES FOR THE ECONOMY – FEDERAL EXPENDITURES.	
(a)	Planning for the State's economy with regard to federal expenditures shall be directed towards achievement of the objective of a stable federal investment base as an integral component of Hawai'i's economy;	
(b)	To achieve the federal expenditures objective, it shall be the policy of this State to:	
(1)	Encourage the sustained flow of federal expenditures in Hawai'i that generates long-term government civilian employment.	**NA**
(2)	Promote Hawai'i's supportive role in national defense.	**NA**
(3)	Promote the development of federally supported activities in Hawai'i that respect state-wide economic concerns, are sensitive to community needs, and minimize adverse impacts on Hawai'i's environment.	**NA**
(4)	Increase opportunities for entry and advancement of Hawai'i's people into federal government service.	**C**
(5)	Promote federal use of local commodities, services, and facilities available in Hawai'i.	**NA**
(6)	Strengthen federal-state-county communication and coordination in all federal activities that affect Hawai'i.	**NA**
(7)	Pursue the return of federally controlled lands in Hawai'i that are not required for either the defense of the nation or for other purposes of national importance, and promote the mutually beneficial exchanges of land between federal agencies, the State, and the counties.	**NA**
COMMENTARY: Increasing the availability of housing may have a secondary beneficial impact upon existing and potential federal workers by increasing housing opportunities in the Maui Market Area.		
226-10	OBJECTIVE AND POLICIES FOR THE ECONOMY – POTENTIAL GROWTH ACTIVITIES.	
(a)	Planning for the State's economy with regard to potential growth activities shall be directed towards achievement of the objective of development and expansion of potential growth activities that serve to increase and diversify Hawai'i's economic base.	
(b)	To achieve the potential growth activity objective, it shall be the policy of this State to:	

(1)	Facilitate investment and employment in economic activities that have the potential for growth such as diversified agriculture, aquaculture, apparel and textile manufacturing, film and television production, and energy and marine-related industries.	**NA**
(2)	Expand Hawai'i's capacity to attract and service international programs and activities that generate employment for Hawai'i's people.	**C**
(3)	Enhance and promote Hawai'i's role as a center for international relations, trade, finance, services, technology, education, culture, and the arts.	**NA**
(4)	Accelerate research and development of new energy- related industries based on wind, solar, ocean, and underground resources and solid waste.	**NA**
(5)	Promote Hawai'i's geographic, environmental, social, and technological advantages to attract new economic activities into the State.	**NA**
(6)	Provide public incentives and encourage private initiative to attract new industries that best support Hawai'i's social, economic, physical, and environmental objectives.	**A**
(7)	Increase research and the development of ocean-related economic activities such as mining, food production, and scientific research.	**NA**
(8)	Develop, promote, and support research and educational and training programs that will enhance Hawai'i's ability to attract and develop economic activities of benefit to Hawai'i.	**NA**
(9)	Foster a broader public recognition and understanding of the potential benefits of new, growth-oriented industry in Hawai'i.	**NA**
(10)	Encourage the development and implementation of joint federal and state initiatives to attract federal programs and projects that will support Hawai'i's social, economic, physical, and environmental objectives.	**NA**
(11)	Increase research and development of businesses and services in the telecommunications and information industries.	**NA**
COMMENTARY: The project will contribute to Hawai'i's renewable energy economy, both through construction of new homes and other buildings to higher energy standards than in the past, and by providing space for economically viable solar energy development.		
226-10.5	OBJECTIVES AND POLICIES FOR THE ECONOMY – INFORMATION INDUSTRY.	
(a)	Planning for the State's economy with regard to the information industry shall be directed toward the achievement of the objective of positioning Hawai'i as the leading dealer in information businesses and services in the Pacific Rim;	
(b)	To achieve the information industry objective, it shall be the policy of this State to:	
(1)	Encourage the continued development and expansion of the telecommunications infrastructure serving Hawai'i to accommodate future growth in the information industry;	**C**
(2)	Facilitate the development of new business and service ventures in the information industry which will provide employment opportunities for the people of Hawai'i;	**C**
(3)	Encourage greater cooperation between the public and private sectors in developing and maintaining a well-designed information industry;	**NA**
(4)	Ensure that the development of new businesses and services in the industry are in keeping with the social, economic, and physical needs and aspirations of Hawai'i's people;	**C**
(5)	Provide opportunities for Hawai'i's people to obtain job training and education that will allow for upward mobility within the information industry;	**NA**
(6)	Foster a recognition of the contribution of the information industry to Hawai'i's economy; and	**NA**
(7)	Assist in the promotion of Hawai'i as a broker, creator, and processor of information in the Pacific.	**C**

COMMENTARY: As is the case with other segments of the economy, the availability of affordable housing in reasonable proximity to employment centers will have a beneficial impact upon the information industry's ability to attract and keep workers.		
226-11	OBJECTIVES AND POLICIES FOR THE PHYSICAL ENVIRONMENT – LAND-BASED, SHORELINE, AND MARINE RESOURCES.	
(a)	Planning for the State's physical environment with regard to land-based, shoreline, and marine resources shall be directed towards achievement of the following objectives:	
(1)	Prudent use of Hawai'i's land-based, shoreline, and marine resources.	**C**
(2)	Effective protection of Hawai'i's unique and fragile environmental resources.	**C**
(b)	To achieve the land-based, shoreline, and marine resources objectives, it shall be the policy of this State to:	
(1)	Exercise an overall conservation ethic in the use of Hawai'i's natural resources.	**C**
(2)	Ensure compatibility between land-based and water-based activities and natural resources and ecological systems.	**C**
(3)	Take into account the physical attributes of areas when planning and designing activities and facilities.	**A**
(4)	Manage natural resources and environs to encourage their beneficial and multiple use without generating costly or irreparable environmental damage.	**A**
(5)	Consider multiple uses in watershed areas, provided such uses do not detrimentally affect water quality and recharge functions.	**NA**
(6)	Encourage the protection of rare or endangered plant and animal species and habitats native to Hawai'i.	**NA**
(7)	Provide public incentives that encourage private actions to protect significant natural resources from degradation or unnecessary depletion.	**C**
(8)	Pursue compatible relationships among activities, facilities, and natural resources.	**C**
(9)	Promote increased accessibility and prudent use of inland and shoreline areas for public recreational, educational, and scientific purposes.	**C**
COMMENTARY: The location of the project is consistent with sound planning principals for the prudent use of land-based resources. The project area has been carefully surveyed to ensure that no significant habitats are present and that no endangered, threatened, or candidate species will be affected.		
226-12	OBJECTIVE AND POLICIES FOR THE PHYSICAL ENVIRONMENT – SCENIC, NATURAL BEAUTY, AND HISTORIC RESOURCES.	
(a)	Planning for the State's physical environment shall be directed towards achievement of the objective of enhancement of Hawai'i's scenic assets, natural beauty, and multi-cultural/historical resources.	
(b)	To achieve the scenic, natural beauty, and historic resources objective, it shall be the policy of this State to:	
(1)	Promote the preservation and restoration of significant natural and historic resources.	**A**
(2)	Provide incentives to maintain and enhance historic, cultural, and scenic amenities.	**NA**
(3)	Promote the preservation of views and vistas to enhance the visual and aesthetic enjoyment of mountains, ocean, scenic landscapes, and other natural features.	**C**
(4)	Protect those special areas, structures, and elements that are an integral and functional part of Hawai'i's ethnic and cultural heritage.	**C**
(5)	Encourage the design of developments and activities that complement the natural beauty of the islands.	**C**

COMMENTARY: Little of cultural significance remains on the site after decades of plantation agriculture. Significant archaeological sites that have been identified will be appropriately preserved. Preserved areas will become elements of open space areas. Locations within the project area will enjoy stunning views of the ocean, Lānaʻi and Molokaʻi.		
226-13	OBJECTIVES AND POLICIES FOR THE PHYSICAL ENVIRONMENT – LAND, AIR, AND WATER QUALITY.	
(a)	Planning for the State's physical environment with regard to land, air, and water quality shall be directed towards achievement of the following objectives:	
(1)	Maintenance and pursuit of improved quality in Hawaiʻi's land, air, and water resources.	**C**
(2)	Greater public awareness and appreciation of Hawaiʻi's environmental resources.	**C**
(b)	To achieve the land, air, and water quality objectives, it shall be the policy of this State to:	
(1)	Foster educational activities that promote a better understanding of Hawaiʻi's limited environmental resources.	**NA**
(2)	Promote the proper management of Hawaiʻi's land and water resources.	**C**
(3)	Promote effective measures to achieve desired quality in Hawaiʻi's surface, ground, and coastal waters.	**C**
(4)	Encourage actions to maintain or improve aural and air quality levels to enhance the health and well-being of Hawaiʻi's people.	**C**
(5)	Reduce the threat to life and property from erosion, flooding, tsunamis, hurricanes, earthquakes, volcanic eruptions, and other natural or man-induced hazards and disasters.	**C**
(6)	Encourage design and construction practices that enhance the physical qualities of Hawaiʻi's communities.	**C**
(7)	Encourage urban developments in close proximity to existing services and facilities.	**A**
(8)	Foster recognition of the importance and value of the land, air, and water resources to Hawaiʻi's people, their cultures and visitors.	**C**
COMMENTARY: The project's location is not in an area especially subject to significant natural or man-made hazards. The subject property is in close proximity to existing services and facilities as it lies mauka of the Lahaina Civic Center.		
226-14	OBJECTIVE AND POLICIES FOR FACILITY SYSTEMS – IN GENERAL.	
(a)	Planning for the State's facility systems in general shall be directed towards achievement of the objective of water, transportation, waste disposal, and energy and telecommunication systems that support statewide social, economic, and physical objectives.	
(b)	To achieve the general facility systems objective, it shall be the policy of this State to:	
(1)	Accommodate the needs of Hawaiʻi's people through coordination of facility systems and capital improvement priorities in consonance with state and county plans.	**A**
(2)	Encourage flexibility in the design and development of facility systems to promote prudent use of resources and accommodate changing public demands and priorities.	**A**
(3)	Ensure that required facility systems can be supported within resource capacities and at reasonable cost to the user.	**A**
(4)	Pursue alternative methods of financing programs and projects and cost-saving techniques in the planning, construction, and maintenance of facility systems.	**A**
COMMENTARY: The preliminary planning of the project's infrastructure systems has involved coordination discussions with State and County agencies and private landowners in the area. Future development of these systems will require ongoing coordination. HHFDC will require that the project's design includes features to conserve energy and water usage, to the extent possible.		

226-15	OBJECTIVE AND POLICIES FOR FACILITY SYSTEMS -- IN GENERAL.	
(a)	Planning for the State's facility systems with regard to solid and liquid wastes shall be directed towards the achievement of the following objectives:	
(1)	Maintenance of basic public health and sanitation standards relating to treatment and disposal of solid and liquid wastes.	**C**
(2)	Provision of adequate sewerage facilities for physical and economic activities that alleviate problems in housing, employment, mobility, and other areas.	**C**
(b)	To achieve solid and liquid waste objectives, it shall be the policy of this State to:	
(1)	Encourage the adequate development of sewerage facilities that complement planned growth.	**A**
(2)	Promote re-use and recycling to reduce solid and liquid wastes and employ a conservation ethic.	**A**
(3)	Promote research to develop more efficient and economical treatment and disposal of solid and liquid wastes.	**C**
COMMENTARY: Objective (a) and related policies are directed at government infrastructure agencies. The proposed project is consistent with Objective (b) and its policies.		
226-16	OBJECTIVE AND POLICIES FOR FACILITY SYSTEMS – WATER.	
(a)	Planning for the State's facility systems with regard to water shall be directed towards achievement of the objective of the provision of water to adequately accommodate domestic, agricultural, commercial, industrial, recreational, and other needs within resource capacities.	
(b)	To achieve the facility systems water objective, it shall be the policy of this State to:	
(1)	Coordinate development of land use activities with existing and potential water supply.	**A**
(2)	Support research and development of alternative methods to meet future water requirements well in advance of anticipated needs.	**C**
(3)	Reclaim and encourage the productive use of runoff water and wastewater discharges.	**A**
(4)	Assist in improving the quality, efficiency, service, and storage capabilities of water systems for domestic and agricultural use.	**C**
(5)	Support water supply services to areas experiencing critical water problems.	**C**
(6)	Promote water conservation programs and practices in government, private industry, and the general public to help ensure adequate water to meet long-term needs.	**A**
COMMENTARY: The potable water wells needed to support the project have been identified. The developer will fund the development of the potable water system, including wells, reservoirs and transmission lines. Construction of the system may enhance service to the surrounding area as well by increasing water supply and storage capacity. A reclaimed water system will work to limit demand for potable water.		
226-17	OBJECTIVES AND POLICIES FOR FACILITY SYSTEMS – TRANSPORTATION	
(a)	Planning for the State's facility systems with regard to transportation shall be directed towards the achievement of the following objectives:	
(1)	An integrated multi-modal transportation system that services statewide needs and promotes the efficient, economical, safe, and convenient movement of people and goods.	**A**
(2)	A statewide transportation system that is consistent with and will accommodate planned growth objectives throughout the State.	**A**
(b)	To achieve the transportation objectives, it shall be the policy of this State to:	

(1)	Design, program, and develop a multi-modal system in conformance with desired growth and physical development as stated in this chapter;	**A**
(2)	Coordinate state, county, federal, and private transportation activities and programs toward the achievement of statewide objectives;	**A**
(3)	Encourage a reasonable distribution of financial responsibilities for transportation among participating governmental and private parties;	**C**
(4)	Provide for improved accessibility to shipping, docking, and storage facilities;	**NA**
(5)	Promote a reasonable level and variety of mass transportation services that adequately meet statewide and community needs;	**A**
(6)	Encourage transportation systems that serve to accommodate present and future development needs of communities;	**A**
(7)	Encourage a variety of carriers to offer increased opportunities and advantages to interisland movement of people and goods;	**NA**
(8)	Increase the capacities of airport and harbor systems and support facilities to effectively accommodate transshipment and storage needs;	**NA**
(9)	Encourage the development of transportation systems and programs which would assist statewide economic growth and diversification;	**A**
(10)	Encourage the design and development of transportation systems sensitive to the needs of affected communities and the quality of Hawai'i's natural environment;	**A**
(11)	Encourage safe and convenient use of low-cost, energy-efficient, non-polluting means of transportation;	**A**
(12)	Coordinate intergovernmental land use and transportation planning activities to ensure the timely delivery of supporting transportation infrastructure in order to accommodate planned growth objectives; and	**A**
(13)	Encourage diversification of transportation modes and infrastructure to promote alternate fuels and energy efficiency.	**A**
COMMENTARY: The project is to be transit-oriented. By encouraging new housing development near major employment centers, the project will tend to reduce long-distance automobile commuting and encourage alternative modes of travel.		
226-18	OBJECTIVES AND POLICIES FOR FACILITY SYSTEMS – ENERGY	
(a)	Planning for the State's facility systems with regard to energy shall be directed toward the achievement of the following objectives, giving due consideration to all	
(1)	Dependable, efficient, and economical statewide energy systems capable of supporting the needs of the people;	**A**
(2)	Increased energy self-sufficiency where the ratio of indigenous to imported energy use is increased;	**C**
(3)	Greater energy security in the face of threats to Hawai'i's energy supplies and systems; and	**A**
(4)	Reduction, avoidance, or sequestration of greenhouse gas emissions from energy supply and use.	**C**
(b)	To achieve the energy objectives, it shall be the policy of this State to ensure the provision of adequate, reasonably priced, and dependable energy services to accommodate demand.	

(c)	To further achieve the energy objectives, it shall be the policy of this State to:	
(1)	Support research and development as well as promote the use of renewable energy sources;	**A**
(2)	Ensure that the combination of energy supplies and energy-saving systems is sufficient to support the demands of growth;	**NA**
(3)	Base decisions of least-cost supply-side and demand-side energy resource options on a comparison of their total costs and benefits when a least-cost is determined by a reasonably comprehensive, quantitative, and qualitative accounting of their long-term, direct and indirect economic, environmental, social, cultural, and public health costs and benefits;	**NA**
(4)	Promote all cost-effective conservation of power and fuel supplies through measures including: (A) Development of cost-effective demand-side management programs; (B) Education; and (C) Adoption of energy-efficient practices and technologies;	**C**
(5)	Ensure to the extent that new supply-side resources are needed, the development or expansion of energy systems utilizes the least-cost energy supply option and maximizes efficient technologies;	**NA**
(6)	Support research, development, and demonstration of energy efficiency, load management, and other demand-side management programs, practices, and technologies;	**NA**
(7)	Promote alternate fuels and energy efficiency by encouraging diversification of transportation modes and infrastructure;	**A**
(8)	Support actions that reduce, avoid, or sequester greenhouse gases in utility, transportation, and industrial sector applications; and	**C**
(9)	Support actions that reduce, avoid, or sequester Hawai'i's greenhouse gas emissions through agriculture and forestry initiatives.	**NA**
COMMENTARY: A number of the policies are directed at government agencies. However, the Leiali'i project can contribute to energy efficiency in at least three ways: residential energy consumption, transportation, and production. The HHFDC RFP will direct the developer, to the extent possible, to design and construct buildings to meet LEED standards and to incorporate design features to conserve energy and water usage. The project is to also incorporate principles of waste minimization and pollution prevention. In terms of transportation, the project communities and roadways will be designed to encourage use of transit, bicycles, and pedestrian trips. Energy production has been encouraged through issuance of a RFP for solar power development.		
226-18.5	OBJECTIVES AND POLICIES FOR FACILITY SYSTEMS – TELECOMMUNICATIONS.	
(a)	Planning for the State's telecommunications facility systems shall be directed towards the achievement of dependable, efficient, and economical statewide telecommunications systems capable of supporting the needs of the people.	
(b)	To achieve the telecommunications objective, it shall be the policy of this State to ensure the provision of adequate, reasonably priced, and dependable telecommunications services to accommodate demand.	
(c)	To further achieve the telecommunications objective, it shall be the policy of this State to:	
(1)	Facilitate research and development of telecommunications systems and resources;	**NA**
(2)	Encourage public and private sector efforts to develop means for adequate, ongoing telecommunications planning;	**NA**
(3)	Promote efficient management and use of existing telecommunications systems and services; and	**C**

(4)	Facilitate the development of education and training of telecommunications personnel.	**NA**
COMMENTARY: The developer will fund the development of the telecommunications systems required to service the project.		
226-19	OBJECTIVES AND POLICIES FOR SOCIO – CULTURAL ADVANCEMENT – HOUSING	
(a)	Planning for the State's socio-cultural advancement with regard to housing shall be directed toward the achievement of the following objectives:	
(1)	Greater opportunities for Hawai'i's people to secure reasonably priced, safe, sanitary, and livable homes, located in suitable environments that satisfactorily accommodate the needs and desires of families and individuals, through collaboration and cooperation between government and nonprofit and for-profit developers to ensure that more affordable housing is made available to very low, low- and moderate-income segments of Hawai'i's population.	**A**
(2)	The orderly development of residential areas sensitive to community needs and other land uses.	**A**
(3)	The development and provision of affordable rental housing by the State to meet the housing needs of Hawai'i's people.	**A**
(b)	To achieve the housing objectives, it shall be the policy of this State to:	
(1)	Effectively accommodate the housing needs of Hawai'i's people.	**A**
(2)	Stimulate and promote feasible approaches that increase housing choices for low-income, moderate-income, and gap-group households.	**A**
(3)	Increase homeownership and rental opportunities and choices in terms of quality, location, cost, densities, style, and size of housing.	**A**
(4)	Promote appropriate improvement, rehabilitation, and maintenance of existing housing units and residential areas.	**NA**
(5)	Promote design and location of housing developments taking into account the physical setting, accessibility to public facilities and services, and other concerns of existing communities and surrounding areas.	**A**
(6)	Facilitate the use of available vacant, developable, and underutilized urban lands for housing.	**A**
(7)	Foster a variety of lifestyles traditional to Hawai'i through the design and maintenance of neighborhoods that reflect the culture and values of the community.	**C**
(8)	Promote research and development of methods to reduce the cost of housing construction in Hawai'i.	**NA**
COMMENTARY: The Leiali'i project will offer a range of affordable and market-priced housing units in a range of densities. This will create a variety of housing opportunities for the public. The project's location in close proximity to Lahaina will make the project attractive to potential home buyers. The site is already Urban.		
226-20	OBJECTIVES AND POLICIES FOR SOCIO – CULTURAL ADVANCEMENT – HEALTH.	
(a)	Planning for the State's socio-cultural advancement with regard to health shall be directed towards achievement of the following objectives:	
(1)	Fulfillment of basic individual health needs of the general public.	**C**
(2)	Maintenance of sanitary and environmentally healthful conditions in Hawai'i's communities.	**C**
(b)	To achieve the health objectives, it shall be the policy of this State to:	

(1)	Provide adequate and accessible services and facilities for prevention and treatment of physical and mental health problems, including substance abuse.	**NA**
(2)	Encourage improved cooperation among public and private sectors in the provision of health care to accommodate the total health needs of individuals throughout the State.	**NA**
(3)	Encourage public and private efforts to develop and promote statewide and local strategies to reduce health care and related insurance costs.	**NA**
(4)	Foster an awareness of the need for personal health maintenance and preventive health care through education and other measures.	**NA**
(5)	Provide programs, services, and activities that ensure environmentally healthful and sanitary conditions.	**C**
(6)	Improve the State's capabilities in preventing contamination by pesticides and other potentially hazardous substances through increased coordination, education, monitoring, and enforcement.	**NA**
COMMENTARY: The project will connect to regional infrastructure systems. On-site infrastructure improvements will be constructed to comply with relevant DOH and County standards. Collectively, the on-site and off-site systems will ensure that sanitary and healthful conditions are maintained for the benefit of the area's residents.		
226-21	OBJECTIVE AND POLICIES FOR SOCIO – CULTURAL ADVANCEMENT – EDUCATION	
(a)	Planning for the State's socio-cultural advancement with regard to education shall be directed towards achievement of the objective of the provision of a variety of educational opportunities to enable individuals to fulfill their needs, responsibilities, and aspirations.	**NA**
(b)	To achieve the education objective, it shall be the policy of this State to:	
(1)	Support educational programs and activities that enhance personal development, physical fitness, recreation, and cultural pursuits of all groups.	**NA**
(2)	Ensure the provision of adequate and accessible educational services and facilities that are designed to meet individual and community needs.	**C**
(3)	Provide appropriate educational opportunities for groups with special needs.	**NA**
(4)	Promote educational programs which enhance understanding of Hawai'i's cultural heritage.	**NA**
(5)	Provide higher educational opportunities that enable Hawai'i's people to adapt to changing employment demands.	**NA**
(6)	Assist individuals, especially those experiencing critical employment problems or barriers, or undergoing employment transitions, by providing appropriate employment training programs and other related educational opportunities.	**NA**
(7)	Promote programs and activities that facilitate the acquisition of basic skills, such as reading, writing, computing, listening, speaking, and reasoning.	**NA**
(8)	Emphasize quality educational programs in Hawai'i's institutions to promote academic excellence.	**NA**
(9)	Support research programs and activities that enhance the education programs of the State.	**NA**
COMMENTARY: The project area contains two approximately 12-acre areas reserved for school sites.		
226-23	OBJECTIVE AND POLICIES FOR SOCIO-CULTURAL ADVANCEMENT – LEISURE.	

(a)	Planning for the State's socio-cultural advancement with regard to leisure shall be directed towards the achievement of the objective of the adequate provision of resources to accommodate diverse cultural, artistic, and recreational needs for present and future generations.	
(b)	To achieve the leisure objective, it shall be the policy of this State to:	
(1)	Foster and preserve Hawai'i's multi-cultural heritage through supportive cultural, artistic, recreational, and humanities-oriented programs and activities.	**NA**
(2)	Provide a wide range of activities and facilities to fulfill the cultural, artistic, and recreational needs of all diverse and special groups effectively and efficiently.	**NA**
(3)	Enhance the enjoyment of recreational experiences through safety and security measures, educational opportunities, and improved facility design and maintenance.	**NA**
(4)	Promote the recreational and educational potential of natural resources having scenic, open space, cultural, historical, geological, or biological values while ensuring that their inherent values are preserved.	**C**
(5)	Ensure opportunities for everyone to use and enjoy Hawai'i's recreational resources.	**C**
(6)	Assure the availability of sufficient resources to provide for future cultural, artistic, and recreational needs.	**NA**
(7)	Provide adequate and accessible physical fitness programs to promote physical and mental well-being of Hawai'i's people.	**NA**
(8)	Increase opportunities for appreciation and participation in the creative arts, including the literary, theatrical, visual, musical, folk, and traditional art forms.	**NA**
(9)	Encourage the development of creative expression in the artistic disciplines to enable all segments of Hawai'i's population to participate in the creative arts.	**NA**
(10)	Assure adequate access to significant natural and cultural resources in public ownership.	**C**
COMMENTARY: The conceptual project design contains neighborhood parks and recreation areas.		
226-24	OBJECTIVE AND POLICIES FOR SOCIO-CULTURAL ADVANCEMENT-INDIVIDUAL RIGHTS AND PERSONAL WELL-BEING.	
(a)	Planning for the State's socio-cultural advancement with regard to individual rights and personal well-being shall be directed towards achievement of the objective of increased opportunities and protection of individual rights to enable individuals to fulfill their socio-economic needs and aspirations.	
(b)	To achieve the individual rights and personal well-being objective, it shall be the policy of this State to:	
(1)	Provide effective services and activities that protect individuals from criminal acts and unfair practices and that alleviate the consequences of criminal acts in order to foster a safe and secure environment.	**NA**
(2)	Uphold and protect the national and state constitutional rights of every individual.	**C**
(3)	Assure access to, and availability of, legal assistance, consumer protection, and other public services which strive to attain social justice.	**NA**
(4)	Ensure equal opportunities for individual participation in society.	**NA**
226-25	OBJECTIVE AND POLICIES FOR SOCIO – CULTURAL ADVANCEMENT – CULTURE.	

(a)	Planning for the State's socio-cultural advancement with regard to culture shall be directed toward the achievement of the objective of enhancement of cultural identities, traditions, values, customs, and arts of Hawaiʻi's people.	
(b)	To achieve the culture objective, it shall be the policy of this State to:	
(1)	Foster increased knowledge and understanding of Hawaiʻi's ethnic and cultural heritages and the history of Hawaiʻi.	**NA**
(2)	Support activities and conditions that promote cultural values, customs, and arts that enrich the lifestyles of Hawaiʻi's people and which are sensitive and responsive to family and community needs.	**C**
(3)	Encourage increased awareness of the effects of proposed public and private actions on the integrity and quality of cultural and community lifestyles in Hawaiʻi.	**NA**
(4)	Encourage the essence of the aloha spirit in people's daily activities to promote harmonious relationships among Hawaiʻi's people and visitors.	**NA**
COMMENTARY: Significant archaeological sites that have been identified will be preserved. Preserved areas will become elements of open space areas throughout the development. The project responds to the resident community's need for housing.		
226-26	SECTION 226-26 OBJECTIVES AND POLICIES FOR SOCIO-CULTURAL ADVANCEMENT-PUBLIC SAFETY.	
(a)	Planning for the State's socio-cultural advancement with regard to public safety shall be directed towards the achievement of the following objectives:	
(1)	Assurance of public safety and adequate protection of life and property for all people.	**NA**
(2)	Optimum organizational readiness and capability in all phases of emergency management to maintain the strength, resources, and social and economic well-being of the community in the event of civil disruptions, wars, natural disasters, and other major disturbances.	**C**
(3)	Promotion of a sense of community responsibility for the welfare and safety of Hawaiʻi's people.	**NA**
(b)	To achieve the public safety objectives, it shall be the policy of this State to:	
(1)	Ensure that public safety programs are effective and responsive to community needs.	**NA**
(2)	Encourage increased community awareness and participation in public safety programs.	**C**
(c)	To further achieve public safety objectives related to criminal justice, it shall be the policy of this State to:	
(1)	Support criminal justice programs aimed at preventing and curtailing criminal activities.	**NA**
(2)	Develop a coordinated, systematic approach to criminal justice administration among all criminal justice agencies.	**NA**
(3)	Provide a range of correctional resources which may include facilities and alternatives to traditional incarceration in order to address the varied security needs of the community and successfully reintegrate offenders into the community.	**NA**
(d)	To further achieve public safety objectives related to emergency management, it shall be the policy of this State to:	**NA**
(1)	Ensure that responsible organizations are in a proper state of readiness to respond to major war-related, natural, or technological disasters and civil disturbances at all times.	**NA**

(2)	Enhance the coordination between emergency management programs throughout the State.	**NA**
COMMENTARY: If warranted, the project site may contain a civil warning siren. Roadways will be designed to meet County Department of Fire Control standards.		
226-27	OBJECTIVES AND POLICIES FOR SOCIO-CULTURAL ADVANCEMENT-GOVERNMENT	
(a)	Planning the State's socio-cultural advancement with regard to government shall be directed towards the achievement of the following objectives:	
(1)	Efficient, effective, and responsive government services at all levels in the State.	**NA**
(2)	Fiscal integrity, responsibility, and efficiency in the state government and county governments.	**NA**
(b)	To achieve the government objectives, it shall be the policy of this State to:	
(1)	Provide for necessary public goods and services not assumed by the private sector.	**NA**
(2)	Pursue an openness and responsiveness in government that permits the flow of public information, interaction, and response.	**NA**
(3)	Minimize the size of government to that necessary to be effective.	**NA**
(4)	Stimulate the responsibility in citizens to productively participate in government for a better Hawai'i.	**NA**
(5)	Assure that government attitudes, actions, and services are sensitive to community needs and concerns.	**NA**
(6)	Provide for a balanced fiscal budget.	**NA**
(7)	Improve the fiscal budgeting and management system of the State.	**NA**
(8)	Promote the consolidation of state and county governmental functions to increase the effective and efficient delivery of government programs and services and to eliminate duplicative services wherever feasible.	**NA**

Table 5-1b: Hawai'i State Planning Act Part III

SECTION	CHAPTER 226 - PART III. PRIORITY GUIDELINES	RATING
A = actively supportive C = conforms I = goal is inconsistent with applicant's objectives NA = goal is not applicable		
226-101	Establishes overall priority guidelines to address areas of statewide concern.	
226-102	Overall direction. The State shall strive to improve the quality of life for Hawai'i's present and future population through the pursuit of desirable courses of action in five major areas of statewide concern which merit priority attention: economic development, population growth and land resource management, affordable housing, crime and criminal justice, and quality education.	
226-103	ECONOMIC PRIORITY GUIDELINES.	
(a)	Priority guidelines to stimulate economic growth and encourage business expansion and development to provide needed jobs for Hawai'i's people and achieve a stable and diversified economy:	
(1)	Seek a variety of means to increase the availability of investment capital for new and expanding enterprises.	**NA**
(A)	Encourage investments which:	

(i)	Reflect long term commitments to the State;	**C**
(ii)	Rely on economic linkages within the local economy;	**C**
(iii)	Diversify the economy;	**C**
(iv)	Reinvest in the local economy;	**C**
(v)	Are sensitive to community needs and priorities, and	**C**
(vi)	Demonstrate a commitment to provide management opportunities to Hawai‘i residents.	**C**
(2)	Encourage the expansion of technological research to assist industry development and support the development and commercialization of technological advancements.	**NA**
(3)	Improve the quality, accessibility, and range of services provided by government to business, including data and reference services and assistance in complying with governmental regulations.	**NA**
(4)	Seek to ensure that state business tax and labor laws and administrative policies are equitable, rational, and predictable.	**NA**
(5)	Streamline the building and development permit and review process, and eliminate or consolidate other burdensome or duplicative governmental requirements imposed on business, where public health, safety and welfare would not be adversely affected.	**C**
(6)	Encourage the formation of cooperatives and other favorable marketing or distribution arrangements at the regional or local level to assist Hawai‘i’s small-scale producers, manufacturers, and distributors.	**NA**
(7)	Continue to seek legislation to protect Hawai‘i from transportation interruptions between Hawai‘i and the continental United States.	**NA**
(8)	Provide public incentives and encourage private initiative to develop and attract industries which promise long-term growth potentials and which have the following characteristics:	**NA**
(A)	An industry that can take advantage of Hawai‘i’s unique location and available physical and human resources.	**NA**
(B)	A clean industry that would have minimal adverse effects on Hawai‘i’s environment.	**NA**
(C)	An industry that is willing to hire and train Hawai‘i’s people to meet the industry's labor needs at all levels of employment.	**NA**
(D)	An industry that would provide reasonable income and steady employment.	**NA**
(9)	Support and encourage, through educational and technical assistance programs and other means, expanded opportunities for employee ownership and participation in Hawai‘i business.	**NA**
(10)	Enhance the quality of Hawai‘i’s labor force and develop and maintain career opportunities for Hawai‘i’s people through the following actions:	**NA**
(A)	Expand vocational training in diversified agriculture, aquaculture, information industry, and other areas where growth is desired and feasible.	**NA**
(B)	Encourage more effective career counseling and guidance in high schools and post-secondary institutions to inform students of present and future career opportunities.	**NA**
(C)	Allocate educational resources to career areas where high employment is expected and where growth of new industries is desired.	**NA**
(D)	Promote career opportunities in all industries for Hawai‘i’s people by encouraging firms doing business in the State to hire residents.	**C**
(E)	Promote greater public and private sector cooperation in determining industrial training needs and in developing relevant curricula and on-the-job training opportunities.	**NA**
(F)	Provide retraining programs and other support services to assist entry of displaced workers into alternative employment.	**NA**

(b)	Priority guidelines to promote the economic health and quality of the visitor industry:	
(1)	Promote visitor satisfaction by fostering an environment which enhances the aloha spirit and minimizes inconveniences to Hawaiʻi's residents and visitors.	**NA**
(2)	Encourage the development and maintenance of well-designed, adequately serviced hotels and resort destination areas which are sensitive to neighboring communities and activities and which provide for adequate shoreline setbacks and beach access.	**NA**
(3)	Support appropriate capital improvements to enhance the quality of existing resort destination areas and provide incentives to encourage investment in upgrading, repair, and maintenance of visitor facilities.	**NA**
(4)	Encourage visitor industry practices and activities which respect, preserve, and enhance Hawaiʻi's significant natural, scenic, historic, and cultural resources.	**NA**
(5)	Develop and maintain career opportunities in the visitor industry for Hawaiʻi's people, with emphasis on managerial positions.	**NA**
(6)	Support and coordinate tourism promotion abroad to enhance Hawaiʻi's share of existing and potential visitor markets.	**NA**
(7)	Maintain and encourage a more favorable resort investment climate consistent with the objectives of this chapter.	**NA**
(8)	Support law enforcement activities that provide a safer environment for both visitors and residents alike.	**NA**
(9)	Coordinate visitor industry activities and promotions to business visitors through the state network of advanced data communication techniques.	**NA**
(c)	Priority guidelines to promote the continued viability of the sugar and pineapple industries:	
(1)	Provide adequate agricultural lands to support the economic viability of the sugar and pineapple industries.	**NA**
(2)	Continue efforts to maintain federal support to provide stable sugar prices high enough to allow profitable operations in Hawaiʻi.	**NA**
(3)	Support research and development, as appropriate, to improve the quality and production of sugar and pineapple crops.	**NA**
(d)	Priority guidelines to promote the growth and development of diversified agriculture and aquaculture:	
(1)	Identify, conserve, and protect agricultural and aquacultural lands of importance and initiate affirmative and comprehensive programs to promote economically productive agricultural and aquacultural uses of such lands.	**NA**
(2)	Assist in providing adequate, reasonably priced water for agricultural activities.	**NA**
(3)	Encourage public and private investment to increase water supply and to improve transmission, storage, and irrigation facilities in support of diversified agriculture and aquaculture.	**NA**
(4)	Assist in the formation and operation of production and marketing associations and cooperatives to reduce production and marketing costs.	**NA**
(5)	Encourage and assist with the development of a waterborne and airborne freight and cargo system capable of meeting the needs of Hawaiʻi's agricultural community.	**NA**
(6)	Seek favorable freight rates for Hawaiʻi's agricultural products from interisland and overseas transportation operators.	**NA**
(7)	Encourage the development and expansion of agricultural and aquacultural activities which offer long-term economic growth potential and employment opportunities.	**NA**
(8)	Continue the development of agricultural parks and other programs to assist small independent farmers in securing agricultural lands and loans.	**NA**

(9)	Require agricultural uses in agricultural subdivisions and closely monitor the uses in these subdivisions.	**NA**
(10)	Support the continuation of land currently in use for diversified agriculture.	**NA**
(e)	Priority guidelines for water use and development:	
(1)	Maintain and improve water conservation programs to reduce the overall water consumption rate.	**A**
(2)	Encourage the improvement of irrigation technology and promote the use of nonpotable water for agricultural and landscaping purposes.	**C**
(3)	Increase the support for research and development of economically feasible alternative water sources.	**NA**
(4)	Explore alternative funding sources and approaches to support future water development programs and water system improvements.	**NA**
(f)	Priority guidelines for energy use and development:	
(1)	Encourage the development, demonstration, and commercialization of renewable energy sources.	**A**
(2)	Initiate, maintain, and improve energy conservation programs aimed at reducing energy waste and increasing public awareness of the need to conserve energy.	**C**
(3)	Provide incentives to encourage the use of energy conserving technology in residential, industrial, and other buildings.	**C**
(4)	Encourage the development and use of energy conserving and cost-efficient transportation systems.	**C**
(g)	Priority guidelines to promote the development of the information industry:	
(1)	Establish an information network that will serve as the catalyst for establishing a viable information industry in Hawai'i.	**NA**
(2)	Encourage the development of services such as financial data processing, products and services exchange, foreign language translations, telemarketing, teleconferencing, a twenty-four-hour international stock exchange, international banking, and a Pacific Rim management center.	**NA**
(3)	Encourage the development of small businesses in the information field such as software development, the development of new information systems and peripherals, data conversion and data entry services, and home or cottage services such as computer programming, secretarial, and accounting services.	**NA**
(4)	Encourage the development or expansion of educational and training opportunities for residents in the information and telecommunications fields.	**NA**
(5)	Encourage research activities, including legal research in the information and telecommunications fields.	**NA**
(6)	Support promotional activities to market Hawai'i's information industry services.	**NA**
226-104	POPULATION GROWTH AND LAND RESOURCES PRIORITY GUIDELINES.	
(a)	Priority guidelines to effect desired statewide growth and distribution:	
(1)	Encourage planning and resource management to insure that population growth rates throughout the State are consistent with available and planned resource capacities and reflect the needs and desires of Hawai'i's people.	**C**
(2)	Manage a growth rate for Hawai'i's economy that will parallel future employment needs for Hawai'i's people.	**NA**
(3)	Ensure that adequate support services and facilities are provided to accommodate the desired distribution of future growth throughout the State.	C

(4)	Encourage major state and federal investments and services to promote economic development and private investment to the neighbor islands, as appropriate.	A
(5)	Explore the possibility of making available urban land, low-interest loans, and housing subsidies to encourage the provision of housing to support selective economic and population growth on the neighbor islands.	A
(6)	Seek federal funds and other funding sources outside the State for research, program development, and training to provide future employment opportunities on the neighbor islands.	NA
(7)	Support the development of high technology parks on the neighbor islands.	NA
(b)	Priority guidelines for regional growth distribution and land resource utilization:	
(1)	Encourage urban growth primarily to existing urban areas where adequate public facilities are already available or can be provided with reasonable public expenditures, and away from areas where other important benefits are present, such as protection of important agricultural land or preservation of lifestyles.	A
(2)	Make available marginal or nonessential agricultural lands for appropriate urban uses while maintaining agricultural lands of importance in the agricultural district.	C
(3)	Restrict development when drafting of water would result in exceeding the sustainable yield or in significantly diminishing the recharge capacity of any groundwater area.	C
(4)	Encourage restriction of new urban development in areas where water is insufficient from any source for both agricultural and domestic use.	C
(5)	In order to preserve green belts, give priority to state capital-improvement funds which encourage location of urban development within existing urban areas except where compelling public interest dictates development of a noncontiguous new urban core.	C
(6)	Seek participation from the private sector for the cost of building infrastructure and utilities, and maintaining open spaces.	A
(7)	Pursue rehabilitation of appropriate urban areas.	NA
(8)	Support the redevelopment of Kakaako into a viable residential, industrial, and commercial community.	NA
(9)	Direct future urban development away from critical environmental areas or impose mitigating measures so that negative impacts on the environment would be minimized.	C
(10)	Identify critical environmental areas in Hawai'i to include but not be limited to the following: watershed and recharge areas; wildlife habitats (on land and in the ocean); areas with endangered species of plants and wildlife; natural streams and water bodies; scenic and recreational shoreline resources; open space and natural areas; historic and cultural sites; areas particularly sensitive to reduction in water and air quality; and scenic resources.	C
(11)	Identify all areas where priority should be given to preserving rural character and lifestyle.	NA
(12)	Utilize Hawai'i's limited land resources wisely, providing adequate land to accommodate projected population and economic growth needs while ensuring the protection of the environment and the availability of the shoreline, conservation lands, and other limited resources for future generations.	C
(13)	Protect and enhance Hawai'i's shoreline, open spaces, and scenic resources.	C
226-105	CRIME AND CRIMINAL JUSTICE. PRIORITY GUIDELINES IN THE AREA OF CRIME AND CRIMINAL JUSTICE:	
(1)	Support law enforcement activities and other criminal justice efforts that are directed to provide a safer environment.	NA
(2)	Target state and local resources on efforts to reduce the incidence of violent crime and on programs relating to the apprehension and prosecution of repeat offenders.	NA

(3)	Support community and neighborhood program initiatives that enable residents to assist law enforcement agencies in preventing criminal activities.	NA
(4)	Reduce overcrowding or substandard conditions in correctional facilities through a comprehensive approach among all criminal justice agencies which may include sentencing law revisions and use of alternative sanctions other than incarceration for persons who pose no danger to their community.	NA
(5)	Provide a range of appropriate sanctions for juvenile offenders, including community-based programs and other alternative sanctions.	NA
(6)	Increase public and private efforts to assist witnesses and victims of crimes and to minimize the costs of victimization.	NA
226-106	AFFORDABLE HOUSING. PRIORITY GUIDELINES FOR THE PROVISION OF AFFORDABLE HOUSING:	
(1)	Seek to use marginal or nonessential agricultural land and public land to meet housing needs of low-and moderate-income and gap-group households.	A
(2)	Encourage the use of alternative construction and development methods as a means of reducing production costs.	A
(3)	Improve information and analysis relative to land availability and suitability for housing.	A
(4)	Create incentives for development which would increase home ownership and rental opportunities for Hawai'i's low- and moderate-income households, gap-group households, and residents with special needs.	A
(5)	Encourage continued support for government or private housing programs that provide low interest mortgages to Hawai'i's people for the purchase of initial owner-occupied housing.	A
(6)	Encourage public and private sector cooperation in the development of rental housing alternatives.	A
(7)	Encourage improved coordination between various agencies and levels of government to deal with housing policies and regulations.	A
(8)	Give higher priority to the provision of quality housing that is affordable for Hawai'i's residents and less priority to development of housing intended primarily for individuals outside of Hawai'i.	A
226-107	QUALITY EDUCATION. PRIORITY GUIDELINES TO PROMOTE QUALITY EDUCATION:	
(1)	Pursue effective programs which reflect the varied district, school, and student needs to strengthen basic skills achievement;	NA
(2)	Continue emphasis on general education "core" requirements to provide common background to students and essential support to other university programs;	NA
(3)	Initiate efforts to improve the quality of education by improving the capabilities of the education work force;	NA
(4)	Promote increased opportunities for greater autonomy and flexibility of educational institutions in their decision-making responsibilities;	NA
(5)	Increase and improve the use of information technology in education by the availability of telecommunications equipment for:	NA
(A)	The electronic exchange of information;	NA
(B)	Statewide electronic mail; and	NA
(C)	Access to the Internet.	NA
(6)	Encourage programs that increase the public's awareness and understanding of the impact of information technologies on our lives;	NA

(7)	Pursue the establishment of Hawai'i's public and private universities and colleges as research and training centers of the Pacific;	NA
(8)	Develop resources and programs for early childhood education;	NA
(9)	Explore alternatives for funding and delivery of educational services to improve the overall quality of education; and	NA
(10)	Strengthen and expand educational programs and services for students with special needs.	NA

5.3 STATE FUNCTIONAL PLANS

The Planning Act called for the creation of functional plans to set specific objectives, establish policies, and implement actions for a particular field of activity. These functional plans further identified those organizations responsible in carrying out the actions, the implementing timeframe, and proposed budgets for State agencies. Major functional plans deal with: agriculture, conservation, education, higher education, employment, energy, health, historic preservation, housing, human services, recreation, tourism, transportation, and water resources.

Of the functional plans, the Housing Plan deserves mention here, as providing direction to HHFDC. The 1990 State Housing Functional Plan identified a need to develop affordable housing throughout the state, and found that the housing needs of lower income households would not be adequately met in future residential developments. Obstacles identified to the development of affordable housing include (1) the lack of infrastructure, particularly on the neighbor islands; (2) the high cost of zoned land, high development costs, and the regulatory system, particularly on O'ahu; (3) government policies that have created a shortage of urban land zoned for housing; (4) lack of government funds to develop rental housing; (5) building codes and subdivision standards that constrain innovative, cost-saving technologies; and (6) current labor wages. The Plan recommended increased densities in residential developments where feasible, smaller and basic units, funding for rental developments, and state subsidies.

The HHFDC Leiali'i project is planned as a response to islandwide need for housing and the desire to reduce congestion on regional highways due to residents' traveling long distances between home and work. The project will directly address the demand for affordable homes near employment centers in West Maui.

5.4 HAWAI'I WATER CODE

In 1987, the State Legislature adopted the Hawai'i Water Code as HRS Chapter 174C, as amended, to "protect, control, and regulate the use of Hawai'i's water resources for the benefit of its people." The Commission on Water Resource Management (CWRM) administers the water code. The code's policies include the (1) protection of water resources, maintenance of ecological balance and scenic quality with regard to the development of new resources; (2) improvement of water quality; and (3) the establishment of comprehensive water planning statewide. A major element of the code is the development of the Hawai'i Water Plan.

The State Water Code pursuant to HRS 174-2(c) allows "maximum beneficial use of the waters of the state for purposes such as domestic uses, aquaculture uses, irrigation and other agricultural uses, power development, and commercial and industrial uses." Furthermore, the code shall be liberally interpreted and applied in a manner which conforms to intentions and plans of the counties in terms of land use planning.

5.4.1 STATE OF HAWAI'I WATER PLAN

The Hawai'i Water Plan, under HRS §174C-31, consists of four parts: (1) a water resource protection plan prepared by the water commission; (2) water use and development plans for each county prepared by each separate county and adopted by ordinance, setting forth the allocation of water to land use in that county; (3) a state water projects plan prepared by the agency which has jurisdiction over such projects in conjunction with other state agencies; and (4) a water quality plan prepared by the DOH.

All water use and development plans shall be conditioned upon and be consistent with: (1) water resource protection and water quality plans; (2) respective county land use plans and policies including general plan and zoning as determined by each respective county; and (3) state land use classification and policies.

Water development for the Villages of Leiali'i will be consistent with state and county plans.

5.4.2 STATE UNDERGROUND INJECTION CONTROL PROGRAM

The Safe Drinking Water Act of 1974 legislated the protection of all aquifers, portions of aquifers, and any potential aquifer capable of yielding consumable drinking water sources. This mandate was based on increased evidence of contamination of this valuable resource and on a national concern for the quality of groundwater.

In 1976, the State Legislature enacted Act 84, relating to Safe Drinking Water, which required the State DOH to establish an Underground Injection Control (UIC) program to protect the quality of underground sources of drinking water. The UIC program identifies aquifers that should be protected from subsurface disposal of wastewater through injection wells and designates areas now being used or could potentially be used for drinking water. The underground sources of drinking water (USDW) are protected and the program prohibits the construction of new injection wells that may pollute the USDW. Injection wells are allowed in exempted areas. The boundary lines, known as the UIC line, between the USDW and the exempted areas have been developed, with a 1,000-foot setback of wastewater systems from all public drinking water wells and springs.

The subject property is situated mauka of the UIC line, and injection wells are not permissible in this area.

5.5 STATE ENVIRONMENTAL POLICY

HRS Chapter 344 establishes an environmental policy that (1) encourages productive and enjoyable harmony between people and their environment; (2) promotes efforts to prevent or eliminate damage to the environment and biosphere; (3) stimulates the health and welfare of humanity; and (4) enriches the understanding of the ecological systems and natural resources important to the people of Hawai‘i.

HRS §344-2 defines “environment” as the complex of physical and biological conditions that influence human well-being, including land, air, water, minerals, flora, fauna, energy, noise, and places of historic or aesthetic significance.

Table 5-2 summarizes the policies of the State Environmental Policy, HRS §344, and discusses the relationship and applicability, if any, of the policy to the Leiali‘i project.

Table 5-2: State Environmental Policy

SECTION	STATE ENVIRONMENTAL POLICY	RATING
A = actively supportive C = conforms I = goal is inconsistent with applicant's objectives NA = goal is not applicable		
344-3	ENVIRONMENTAL POLICY. It shall be the policy of the State, through its programs, authorities, and resources to:	
(1)	Conserve the natural resources, so that land, water, mineral, visual, air and other natural resources are protected by controlling pollution, by preserving or augmenting natural resources, and by safeguarding the State's unique natural environmental characteristics in a manner which will foster and promote the general welfare, create and maintain conditions under which humanity and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of the people of Hawai‘i.	C
(2)	Enhance the quality of life by:	
(A)	Setting population limits so that the interaction between the natural and artificial environments and the population is mutually beneficial;	C
(B)	Creating opportunities for the residents of Hawai‘i to improve their quality of life through diverse economic activities which are stable and in balance with the physical and social environments;	C
(C)	Establishing communities which provide a sense of identity, wise use of land, efficient transportation, and aesthetic and social satisfaction in harmony with the natural environment which is uniquely Hawaiian; and	C
(D)	Establishing a commitment on the part of each person to protect and enhance Hawai‘i's environment and reduce the drain on nonrenewable resources.	NA
344-4	GUIDELINES. In pursuance of the state policy to conserve the natural resources and enhance the quality of life, all agencies, in the development of programs, shall, insofar as practicable, consider the following guidelines:	
(1)	POPULATION.	
(A)	Recognize population impact as a major factor in environmental degradation and adopt guidelines to alleviate this impact and minimize future degradation;	C
(B)	Recognize optimum population levels for counties and districts within the State, keeping in mind that these will change with technology and circumstance, and adopt guidelines to limit population to the levels determined.	C
(2)	LAND, WATER, MINERAL, VISUAL, AIR, AND OTHER NATURAL RESOURCES.	
(A)	Encourage management practices which conserve and fully utilize all natural resources;	C
(B)	Promote irrigation and waste water management practices which conserve and fully utilize vital water resources;	C
(C)	Promote the recycling of waste water;	C
(D)	Encourage management practices which conserve and protect watersheds and water sources, forest, and open space areas;	C
(E)	Establish and maintain natural area preserves, wildlife preserves, forest reserves, marine preserves, and unique ecological preserves;	NA

(F)	Maintain an integrated system of state land use planning which coordinates the state and county general plans.	C
(G)	Promote the optimal use of solid wastes through programs of waste prevention, energy resource recovery, and recycling so that all our wastes become utilized.	C
(3)	FLORA AND FAUNA.	
(A)	Protect endangered species of indigenous plants and animals and introduce new plants or animals only upon assurance of negligible ecological hazard;	C
(B)	Foster the planting of native as well as other trees, shrubs, and flowering plants compatible to the enhancement of our environment.	C
(4)	Parks, recreation, and open space.	
(A)	Establish, preserve and maintain scenic, historic, cultural, park and recreation areas, including the shorelines, for public recreational, educational, and scientific uses;	C
(B)	Protect the shorelines of the State from encroachment of artificial improvements, structures, and activities;	NA
(C)	Promote open space in view of its natural beauty not only as a natural resource but as an ennobling, living environment for its people.	C
(5)	ECONOMIC DEVELOPMENT.	
(A)	Encourage industries in Hawai'i which would be in harmony with our environment;	C
(B)	Promote and foster the agricultural industry of the State; and preserve and conserve productive agricultural lands;	NA
(C)	Encourage federal activities in Hawai'i to protect the environment;	NA
(D)	Encourage all industries including the fishing, aquaculture, oceanography, recreation, and forest products industries to protect the environment;	NA
(E)	Establish visitor destination areas with planning controls which shall include but not be limited to the number of rooms;	NA
(F)	Promote and foster the aquaculture industry of the State; and preserve and conserve productive aquacultural lands.	NA
(6)	TRANSPORTATION.	
(A)	Encourage transportation systems in harmony with the lifestyle of the people and environment of the State;	A
(B)	Adopt guidelines to alleviate environmental degradation caused by motor vehicles;	NA
(C)	Encourage public and private vehicles and transportation systems to conserve energy, reduce pollution emission, including noise, and provide safe and convenient accommodations for their users.	A
(7)	ENERGY.	
(A)	Encourage the efficient use of energy resources.	A
(8)	COMMUNITY LIFE AND HOUSING.	
(A)	Foster lifestyles compatible with the environment; preserve the variety of lifestyles traditional to Hawai'i through the design and maintenance of neighborhoods which reflect the culture and mores of the community;	A
(B)	Develop communities which provide a sense of identity and social satisfaction in harmony with the environment and provide internal opportunities for shopping, employment, education, and recreation;	A
(C)	Encourage the reduction of environmental pollution which may degrade a community;	A
(D)	Foster safe, sanitary, and decent homes;	A

(E)	Recognize community appearances as major economic and aesthetic assets of the counties and the State; encourage green belts, plantings, and landscape plans and designs in urban areas; and preserve and promote mountain-to-ocean vistas.	A
(9)	EDUCATION AND CULTURE.	
(A)	Foster culture and the arts and promote their linkage to the enhancement of the environment;	NA
(B)	Encourage both formal and informal environmental education to all age groups.	NA
(10)	CITIZEN PARTICIPATION.	
(A)	Encourage all individuals in the State to adopt a moral ethic to respect the natural environment; to reduce waste and excessive consumption; and to fulfill the responsibility as trustees of the environment for the present and succeeding generations; and	NA
(B)	Provide for expanding citizen participation in the decision making process so it continually embraces more citizens and more issues.	NA

5.6 STATE ENVIRONMENTAL IMPACT STATEMENT REQUIREMENTS SIGNIFICANCE CRITERIA

HAR §11-200-12, establishes 13 significance criteria which agencies shall use in evaluating an action's impacts. Following is a discussion of how the proposed action relates to the 13 criteria.

Pursuant to subparagraph 12,... an action shall be determined to have a significant effect on the environment if it:

(1) Involves an irrevocable commitment to loss or destruction of any natural or cultural resource;

Discussion: The SHPD approved the historic structures inventory and archaeological mitigation plan for the project area. Before any development occurs in the immediate area, data recovery work needs to take place at five sites; seven other sites will be preserved.

No ongoing cultural practices were identified. However, the cultural impact assessment suggests that family visits to graves may still occur. Such graves will not be disturbed, and access by family members will be respected.

(2) Curtails the range of beneficial uses of the environment;

Discussion: The range of beneficial uses of the property's environment is guided by State Land Use District classification and the County's plans. The proposed project increases the range of

beneficial uses for the environment by providing affordable and market-priced housing units, parks and open space, sites reserved for future school facilities, integration of future transit components, and potential connectivity with surrounding roads, infrastructure, services, and public facilities.

(3) Conflicts with the state's long-term environmental policies or goals and guidelines as expressed in Chapter 344, HRS, and any revisions thereof and amendments thereto, court decisions, or executive orders;

Discussion: The stated purpose of Chapter 344 is to establish a state policy which will encourage productive and enjoyable harmony between people and their environment, promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of humanity, and enrich the understanding of the ecological systems and natural resources important to the people of Hawai'i. The proposed project complies with the policies, goals and guidelines of Chapter 344, as described in section 5.5 above. The project proposes to create a master planned mixed-use residential community that will be integrated with regional transportation network and infrastructure systems, and improve the quality of life for residents by providing affordable housing near employment centers.

(4) Substantially affects the economic or social welfare of the community or state;

Discussion: Development of the property for residential purposes is consistent with State and County policies encouraging residential development near employment centers. The project will have positive impacts on the social welfare of the West Maui community and on the economic welfare of the community and the state through the creation of jobs and property tax revenue base.

(5) Substantially affects public health;

Discussion: The proposed project is anticipated to have negligible impact on public health. Infrastructure systems will be constructed to comply with applicable State DOH and County standards and regulations.

(6) Involves substantial secondary impacts such as population changes or effects on public facilities;

Discussion: The alternative concept plans provide for up to 4,105 new housing units. The final development scheme will be provided by the developer selected by the HHFDC. Addition of this population is anticipated to increase demand on public facilities, including the area's schools. The project has reserved two sites of approximately 12 acres each for school facilities.

(7) Involves a substantial degradation of environmental quality;

Discussion: The proposed project will involve extensive ground disturbance, including clearing, grubbing, and grading of the property. These activities are necessary for the development. Grading and construction activities will be required to comply with applicable regulations. Eventual landscaping will provide new cover over much of the project site.

(8) Is individually limited but cumulatively has considerable effect upon the environment or involves a commitment for larger actions;

Discussion: A cumulative effect related to the total residential development in the region can be anticipated. It is both positive in terms of creating affordable residential housing opportunities and locating residents closer to major urban centers, and potentially negative in terms of some of the cumulative traffic impacts. Chapter 4 discusses the traffic impacts of the Leiali'i Affordable Housing Project and the proposed measures to mitigate traffic impacts to acceptable levels.

(9) Substantially affects a rare, threatened, or endangered species, or its habitat;

Discussion: No rare, threatened, or endangered species or related habitats have been identified on the subject property or the reservoir site.

(10) Detrimentally affects air or water quality or ambient noise levels;

Discussion: The project will increase motor vehicle use in the immediate area, which may affect air quality but not significantly. Wastewater from the project site will be handled, either using a private system or through connection to the county's facility. Ambient noise levels may

be impacted in the project area, but are not expected to exceed acceptable levels due to the residential community nature of the development.

(11) Affects or is likely to suffer damage by being located in an environmentally sensitive area such as a flood plain, tsunami zone, beach, erosion-prone area, geologically hazardous land, estuary, fresh water, or coastal waters;

Discussion: The project site lies within lava-flow hazard Zone 5, the zone with the lowest hazard level. Maui is rated as seismic hazard level IIb in the UBC (as compared to IV, the highest level, for the island of Hawai‘i, and I for Kaua‘i). Proposed structures in the development will conform to all relevant building code requirements, including applicable seismic design standards.

(12) Substantially affects scenic vistas and viewplanes identified in county or state plans or studies;

Discussion: No scenic vistas or viewplanes over the project site are identified on County or State plans or studies.

(13) Requires substantial energy consumption.

Discussion: Energy consumption will increase in relation to the proposed residential development. The project’s design will be required, to the extent possible, to include energy and water conservation features.

5.7 FEDERAL LAWS AND CONTROLS

5.7.1 COASTAL ZONE MANAGEMENT ACT (HRS CHAPTER 205A)

Federal Coastal Zone Management (CZM) enforcement authority (Public Law 92-583), as amended, is delegated to the State and enacted as HRS Chapter 205A. The Hawai‘i CZM Program was promulgated in 1977 in response to the Federal CZM Act of 1972. Other than the review of federal applicants, federal permits, or federal activities, the State CZM review

authority has been delegated to the county level to control within each county's designated SMA. The Leiali'i site is not within the SMA and hence a county SMA permit is not required.

The CZM area encompasses the entire state including all marine waters seaward to the extent of the State's police power and management authority, including the 12-mile U.S. territorial sea and all archipelagic waters. The CZM Act is comprised of a number of objectives primarily related to (1) protecting and preserving the coastal zone; (2) improving the quality of coastal scenic and open space resources and ensuring that coastal dependent development such as harbors and ports, and coastal-related development such as visitor industry facilities and energy generating facilities, are located, designed, and constructed to minimize adverse social, visual, and environmental impacts in the coastal zone management area; and (3) encouraging research and development of new, innovative technologies for exploring, using, or protecting marine and coastal resources.

Following is a summary of the project's conformance with the ten objectives of the coastal zone management program.

1A Provide coastal recreation opportunities accessible to the public.

Discussion: Not applicable, as the project site is upslope and away from the coastline.

2A Protect, preserve, and where desirable, restore those natural and manmade historic and prehistoric resources in the coastal zone management area that are significant in Hawaiian and American history and culture.

Discussion: Archaeological sites determined to be significant will be preserved. However, the project site is outside the SMA.

3A Protect, preserve, and, where desirable, restore or improve the quality of coastal scenic and open space resources.

Discussion: As the proposed project is located well above the shoreline, this objective is not applicable.

4A Protect valuable coastal ecosystems, including reefs, from disruption and minimize adverse impacts on all coastal ecosystems.

Discussion: As discussed under Objective 2A above, the proposed project will not have a significant adverse impact on the coastal ecosystem.

5A Provide public or private facilities and improvements important to the State's economy in suitable locations.

Discussion: The Leiali'i project will provide housing, commercial, and light industrial areas. The project also has two approximately 12-acre sites reserved for future schools. The project location is suitable as encouraging short commutes and use of transit.

6A Reduce hazard to life and property from tsunami, storm waves, stream flooding, erosion, subsidence, and pollution.

Discussion: Due to its location, the project area is not exposed to tsunami, storm waves, or subsidence. Drainage plans and a general policy of minimal intrusion in stream corridors will minimize the risk of stream flooding. Grading and site design will conform to all regulatory requirements and ensure that storm drainage is retained on site to minimize the potential for erosion and other impacts on surrounding properties. As a primarily residential development, the project will not have a significant negative impact on air quality.

7 Improve the development review process, communication, and public participation in the management of coastal resources and hazards.

Discussion: While the coastal element of this objective is not relevant to the project, the public participation aspect is. HHFDC has developed its plans through discussions with stakeholders and a presentation to the West Maui community. This EIS provides further opportunity for public participation. The future developer will be urged to continue dialogue with members of the public as the project design evolves.

8 Stimulate public awareness, education, and participation in coastal management.

Discussion: As this project is not situated near the coastline, this objective is not applicable.

9 *Protect beaches for public use and recreation.*

Discussion: As this project is not situated near the coastline, this objective is not applicable.

10 *Promote the protection, use, and development of marine and coastal resources to assure their sustainability.*

Discussion: As discussed above, the proposed project will have little or no negative impact upon the coastal resources of West Maui. Therefore, it is consistent with the intent of this objective.

5.7.2 FEDERAL EMERGENCY MANAGEMENT AGENCY NATIONAL FLOOD INSURANCE PROGRAM

FEMA assists states through disasters both natural and manmade. A part of the Department of Homeland Security (DHS), FEMA responds to, plans for, recovers from, and mitigates against disasters.

The National Flood Insurance Program (NFIP) is one of FEMA's measures to assist communities in time of flood disaster. The U.S. Congress in 1968 established the program to enable property owners in participating communities to purchase insurance as a protection against flood losses. States and communities must first establish floodplain management regulations that reduce future flood damages. Participation in the NFIP is based on an agreement between communities and the federal government. If a community adopts and enforces a floodplain management ordinance to reduce future flood risk to new construction in floodplains, the federal government will make flood insurance available within the community as a financial protection against flood losses. This insurance is designed to provide an insurance alternative to disaster assistance to reduce the escalating costs of repairing damage to buildings and their contents caused by floods. The NFIP identifies and maps the nation's floodplains.

FEMA has prepared FIRMs for the island of Maui to delineate flood hazard zones and base flood elevations. The subject property is located about 1 mile inland from the shoreline. Per FIRM Map No. 1500030161C, the subject property is in Zone X. In that zone, flood requirements and restrictions of the program do not apply.

5.8 MAUI COUNTY PLANS AND CONTROLS

Maui County has a hierarchy of land use plans, including a general plan, island plans, and community plans. These are to be updated every ten years or so. The County is currently engaged in a general plan update process. Island plans were not included in the last planning cycle. Currently, the lead element of a new general plan, the *Countywide Policy Plan*, was reviewed and passed as Ordinance 3732 in March 2010. The *Maui Island Plan* has been drafted and is before the Maui County Council for review. The *West Maui Community Plan* was passed by ordinance in 1996.

5.8.1 MAUI COUNTY GENERAL PLAN: THE COUNTYWIDE POLICY PLAN

The new *Countywide Policy Plan* includes a vision and principles for policy-making and implementation. These embody a holistic approach, emphasizing balance between communities and environmental resources, and between immediate needs and long-term sustainability.

The following table (Table 5-3) presents the goals and objectives of the *Countywide Policy Plan* and discusses by element the relationship and applicability, if any, of the project to the listed objectives.

Table 5-3: Countywide Policy Plan

GOALS AND OBJECTIVES OF THE COUNTYWIDE GENERAL PLAN	RATING
A = actively supportive C = conforms I = goal is inconsistent with applicant's objectives NA = goal is not applicable	
A. Protect the Natural Environment	
1. Improve the opportunity to experience the natural beauty and native biodiversity of the islands for present and future generations.	C
2. Improve the quality of environmentally sensitive, locally valued natural resources.	NA
3. Improve the stewardship of the natural environment.	C
4. Educate residents and visitors about responsible stewardship.	NA
B. Preserve Local Cultures and Traditions	
1. Perpetuate the Hawaiian culture as a vital force in the lives of residents.	C
2. Emphasize respect for our island lifestyle and our unique local cultures, family, and natural environment.	C
3. Preserve for present and future generations the opportunity to know and experience the arts, culture, and history of Maui County.	C

4. Preserve and restore significant historic architecture, structures, cultural sites, cultural districts, and cultural landscapes.	NA
C. Improve Education	
1. Encourage the State to attract and retain school administrators and educators of the highest quality.	NA
2. Provide nurturing learning environments that build skills for the 21st century.	A
3. Provide all residents with educational opportunities.	NA
4. Maximize community-based educational opportunities.	NA
D. Strengthen Social and Healthcare Services	
1. In cooperation with the Federal and State governments and nonprofit agencies, broaden access to social and healthcare services and expand options to improve the overall wellness of the people of Maui.	C
2. Encourage the Federal and State governments and the private sector to improve the quality and delivery of social and healthcare services	NA
3. Strengthen public-awareness programs related to healthy lifestyles and social and medical services.	NA
E. Expand Housing Opportunities for Residents	
1. Reduce the affordable housing deficit for residents.	A
2. Increase the mix of housing types in towns and neighborhoods to promote sustainable land use planning, expand consumer choice, and protect the County's rural and small-town character.	A
3. Increase and maintain the affordable housing inventory.	A
4. Expand access to education related to housing options, homeownership, financing, and residential construction.	C
F. Strengthen the Local Economy	
1. Promote an economic climate of diversification and sustainable growth.	A
2. Diversify and expand sustainable agriculture and aquaculture.	NA
3. Support a visitor industry that respects the resident culture and the environment.	NA
4. Expand economic sectors that increase living-wage job choices and are compatible with community values.	A
G. Improve Parks and Public Facilities	
1. Expand access to recreational opportunities and community facilities for all present and future residents.	A
2. Improve the quality and adequacy of community facilities.	C
3. Enhance the funding, management, and planning of public facilities and park lands.	A
H. Diversify Transportation Options	
1. Provide an effective, affordable, and convenient ground transportation system that is environmentally sustainable.	A

2. Reduce reliance on the automobile and fossil fuels.	A
3. Improve opportunities for affordable, efficient, safe, and reliable air transportation.	NA
4. Improve opportunities for affordable, efficient, safe, and reliable ocean transportation.	NA
5. Improve and expand the planning and management of transportation systems.	C
I. Improve Physical Infrastructure	
1. Improve water systems to assure access to sustainable sources of water.	A
2. Improve water-disposal practices and systems to be efficient, safe, and as environmentally sound as possible.	A
3. Significantly increase the use of renewable and green technologies to promote energy efficiency and self-sufficiency.	A
4. Direct growth to make efficient use of existing infrastructure, to areas where there is available infrastructure capacity.	A
5. Improve the planning and management of infrastructure systems.	A
J. Promote Sustainable Land Use and Growth Management	
1. Improve land use management and implement a directed-growth strategy.	A
2. Improve planning for and management of agricultural lands and rural areas.	NA
3. Design all developments to be in harmony with the environment and to protect each community's sense of place.	A
4. Improve and increase efficiency in land use planning and management	A
K. Strive for good governance	
1. Strengthen governmental planning, coordination, consensus building, and decision making.	C
2. Promote civic engagement.	C
3. Improve the efficiency, reliability, and transparency of County government processes.	NA
4. Adequately fund in order to effectively administer, implement and enforce the General Plan.	NA
5. Strive for County government to be a role model for implementing cultural and environmental policies and practices.	NA

The Leiali'i project actively supports the *Countywide Policy Plan*: it is a residential development built next to existing subdivisions, close to employment centers, and planned to encourage transit, bicycle, and pedestrian movement. Inclusion of green building practices and of renewable energy development in the project advances the County's sustainability objectives. Increasing the housing supply will tend to hold housing prices under control and, hence, increase opportunities for housing for working families to enjoy a prosperous island lifestyle.

5.8.2 DRAFT MAUI ISLAND PLAN

The island plan is intended to specify the policy aims of the *Countywide Policy Plan*, above all through managing growth and tying infrastructure development to land use planning. A draft version of the plan was published in December 2009.[2] The island plan emerged from first drafts and technical papers developed by the Planning Department with the help of consultants. An islandwide General Plan Advisory Committee provided detailed review and input. The Maui Planning Commission and the Council's Planning Committee both reviewed it and held meetings throughout Maui to hear public input. The Planning Department has compiled revisions throughout the process. The current draft reflects suggestions and decisions by a wide range of stakeholders.

The Plan innovates by showing boundaries that identify areas for future growth and other areas to be protected from development. Its Directed Growth Strategy relies on ten principles. Table 5-4 identifies the principles and the project's consistency with them.

Table 5-4: Draft Maui Island Plan Land Use Principles

GUIDING LAND USE PRINCIPLES, DRAFT MAUI ISLAND PLAN (2009)	RATING
A = actively supportive C = conforms I = goal is inconsistent with applicant's objectives NA = goal is not applicable	
1. Respect and encourage island lifestyles, cultures, and Hawaiian traditions.	C
2. Promote sustainable land use planning and livable communities.	A
3. Keep "urban-urban" and "country-country."	A
4. Protect traditional small towns.	C
5. Protect open space and working agricultural landscapes.	C
6. Protect environmentally sensitive lands and natural resources.	A
7. Promote equitable development that meets the needs of each community.	A
8. Plan for and provide efficient and effective public facilities and infrastructure.	A
9. Support sustainable economic development and the needs of small business.	A
10. Promote community responsibility, empowerment, and uniqueness.	C

[2] Chapter 6 of the plan, on Infrastructure and Public Facilities, was not posted at the time.

The draft plan recognizes that population growth will continue and new housing will be needed to meet demand. Even if all currently entitled housing units are built between 2005 and 2030, an additional 11,154 units would be needed to meet anticipated demand.[3]

The *Draft Maui Island Plan* identifies six Planned Growth Areas in West Maui. In some cases "urban reserve" areas are noted abutting the Growth Areas. The "Lahaina Town North" Growth Area includes most of Phase A of the Leiali‘i project. It is described as follows:

> Lahaina Town North is a logical expansion of the existing Lahaina community. Being an HFDC project with a mix of housing types and moderate single-family lot sizes, the project will address the need for additional affordable resident housing in West Maui in close proximity to Lahaina's employment opportunities. The project should include a mix of land uses, park land, and open space, and will be proximate to public facilities such as the Lahaina Civic Center, making the project a livable community based on sustainable land use planning (page 8-39).

The Lahaina Town North area is identified as 118 acres. A total of 800 units (plus or minus 10%) is anticipated, along with "convenience shopping."

The Leiali‘i project is larger than the Lahaina Town North Planned Growth Area and, hence, it goes beyond the *Draft Maui Island Plan*. However, that plan includes several Planned Growth Areas and currently entitled housing areas, in West Maui and the rest of the Maui Market Area, that face challenges before they are actually built.

Notably, much of West Maui's expected growth depends on financing for the expansion of Kapalua Resort. The landowner has ceased pineapple operations in order to concentrate on resort development. When and if new resort housing can be sold at Kapalua, the developer will seek to provide a mix of affordable and market housing at Pulelehua in Māhinahina. Financing for both projects is, in the current economic climate, impossible to predict. Similar uncertainties arise for other private-sector projects.

[3] This calculation, from Table 8-1 of the draft plan, takes into account the revised population and economic projections published by DBEDT in mid-2009.

The State of Hawai‘i’s aim at Leiali‘i is to increase the stock of housing for Maui residents in walkable communities near employment. While the future developer will need to make a profit on its operations, the State has already committed over $32 million to advance its aim and will continue to support residential housing development for its own sake.

Accordingly, while the Leiali‘i project exceeds the Planned Growth Area in the *Draft Maui Island Plan*, it does so in conformity with both the plan’s principles and emerging economic reality. Geographically, it also fits within the general strategy of the plan. Urban development is proposed first below the Lahaina Bypass Highway, next to existing subdivisions. Eventually, urbanization could extend further up the slope, but not above the developed Kelawea area (at Lahainaluna High School). The project’s location, design for transit and walkable communities, and preservation of sensitive sites all fit with the principles and objectives of the *Draft Maui Island Plan*.

Karen Seddon, Executive Director of HHFDC, responded to the *Draft Maui Island Plan*’s treatment of the Villages of Leiali‘i in a letter to the Maui County Council’s Planning Committee in January 2010.

> The Villages of Leiali‘i was reclassified from Agriculture to Urban District by the LUC on May 18, 1990 and was initially included in the West Maui Community Plan in 1992-1993, and is currently indicated in the existing West Maui Community Plan Land Use Map as 1,128 acres and 4,800 residential units. . . .
>
> Due to events beyond its control, development at the Villages of Leiali‘i was suspended after the filing of the ceded lands legislation in 1994. In January 2009, the Hawai‘i Supreme Court ruled that ceded lands cannot be alienated until the claims of Native Hawaiians have been resolved. However, this decision was reversed by the U.S. Supreme Count on March 31, 2009, and the case has been remanded back to the Hawai‘i Supreme Court for further action. The State is in the process of settling the litigation assuming development of the Villages of Leiali‘i in leasehold or with legislative approval in compliance with Act 176 Session Laws of Hawai‘i 2009.

The Villages of Leiali‘i is closer to infrastructure and Lahaina town and more appropriate for development under smart growth principles than other projects being proposed.

- The Villages of Leiali‘i uses smart growth principles to create a walkable, bikable, active-lifestyle community;
- The Villages of Leiali‘i includes commercial space and mixed-use areas comprised of multifamily housing, ground-floor commercial/retail uses, and civic open space;
- The Villages of Leiali‘i includes two elementary schools, neighborhood parks, and a large open space area around the crater reservoir;
- The Villages of Leiali‘i accommodates the potential for feasible roadway connections to adjacent lands; and
- The Villages of Leiali‘i includes on-site and off-site infrastructure.

HHFDC urges the County Council’s continued support of the Villages of Leiali‘i affordable housing master planned community as described herein:

- The Villages of Leiali‘i should not be penalized for excusable delays due to events beyond its control after substantial investments have been made in good faith;
- The Villages of Leiali‘i is more appropriately located for development under smart growth principles than other proposed projects; and
- The leasehold Villages of Leiali‘i project can provide meaningful alternatives for affordable housing for residents of West Maui and the County of Maui.

HHFDC hopes that the final version of the *Maui Island Plan* will reflect the considerations raised in Ms. Seddon’s letter.

5.8.3 WEST MAUI COMMUNITY PLAN

The current *West Maui Community Plan* was adopted in 1996. The Planning Department anticipates discussions of a revised plan with members of the community in 2010 or 2011. The new plan will be organized in terms of the priorities established in Bill 84 of 2002 (Ordinance 3166), covering the range of issues in the *Maui Island Plan*.

The current plan includes the following land use goal for West Maui:

> An attractive, well-planned community with a mixture of compatible land uses in appropriate areas to accommodate the future needs of residents and visitors in a manner that provides for the stable social and economic well-being of residents and the preservation and enhancement of the region's open space areas and natural environmental resources.

This is followed by a list of policies to implement the land use goal, including:

> 11. Recognize the following approved major master planned affordable housing developments. Approvals of these projects provide that no less than 60 percent of the housing units will be in the affordable price range. Lands makai of the proposed Lahaina Bypass Highway shall be developed prior to those lands mauka of the bypass. The land use designation of Agriculture (AG) shall apply to all portions of the following projects not fully developed under and pursuant to HRS Act 15, Session Laws of Hawai'i, 1988.
>
> > a. Villages of Leiali'i - This project is planned by the State Housing Finance Development Corporation and situated mauka of Honoapi'ilani Highway in the vicinity of the Lahaina Civic Center and Wahikuli Terrace comprising an area of approximately 1,120 acres. The planned residential community will include approximately 4,813 housing units to be developed in phases, an 18-hole golf course, two elementary school sites, neighborhood business commercial uses, church, child care, recreational/park uses, and other public uses.
> >
> > b. Pu'ukoli'i Village - This project is proposed by AMFAC/JMB, a Hawai'i Corporation, in the vicinity of the former Pu'ukoli'i Village and comprises an area of approximately 299 acres. The proposed residential community is to

include approximately 1,700 housing units to be developed in phases as well as sites for neighborhood commercial uses, hospital/emergency medical facilities, child care center, church, elderly housing, elementary school, and a community park.

The Act 15 Villages of Leiali‘i acreage includes the project site and the DHHL Leiali‘i area. The total number of units recognized in the *West Maui Community Plan* is larger than the total proposed under any of the three concepts presented here.

The proposed Leiali‘i development realizes both the broad land use goal and the specific development policy of the *West Maui Community Plan*.

5.8.4 WATER AVAILABILITY POLICY

In December 2007, the County Council passed Ordinance 3502, modifying the County Code to include:

> **14.12.040 Written verification of long-term, reliable supply of water.**
>
> A. No subdivision shall be approved, unless prior to submittal of subdivision construction plans pursuant to section 18.20.160 of this code, the director shall provide written verification of a long-term, reliable supply of water.
>
> B. Written verification of a long-term, reliable supply of water shall not constitute an assurance, covenant, or warranty by the County of water source from a private, non-County system.

This “show me the water” ordinance demands that the director of DWS verify the availability of water for a project, taking various factors into account. It calls for action at the time of subdivision, not initial planning and EIS preparation.

The future developer of the Leiali‘i project will be responsible for reaching agreement with DWS on the water infrastructure for the project and for appropriate source and transmission costs. Besides a water master plan consisting of 6 wells at the 1,040-foot elevation, HHFDC has commissioned geophysical surveys of areas mauka of the Leiali‘i project at elevations ranging

from 1,010-feet to 1,660-feet above mean sea level.[4] The soundings yielded indications of access to the freshwater lens, in one case, and to areas with potential for high-level groundwater apart from the lens, held by geological discontinuities. These studies provide a basis for other options for the future developer to proceed.

[4] Zapata Incorporated, Blackhawk Division. *Time Domain Electromagnetic Surveys for Assisting in Determining the Groundwater Resources on Property Located in the Lahaina District above Kaanapali, Island of Maui.* Golden, CO, 2009.

CHAPTER SIX: ALTERNATIVES

The three alternatives described in preceding sections of this document have been considered because their realization would meet the objectives of the proposed action, while minimizing potential adverse environmental impacts, according to Section 11-200-17(f), HAR. Feasible alternatives must provide housing units on State land, responding to demand for housing near the major West Maui employment centers.

Three Alternative Concept Plans were developed during the recent master plan process with input from government agencies, owners of nearby lands, and other stakeholders. The aim of the planning process was to understand the physical, environmental, and cultural character of the land, and then propose plans that would fulfill HHFDC's mission and objectives, as well as State and County land use policies for the island and region.

This section presents other alternatives considered in the course of planning the Villages of Leiali‘i project. That process, carried out since the late 1980's, has included substantial commitments of resources by HHFDC and its predecessor agencies.

6.1 THE "NO ACTION" ALTERNATIVE

The No Action Alternative would involve no development, so the site would remain vacant. This alternative fails to meet HHFDC's mission and objectives.

The impact assessment in Chapters Three and Four includes summaries of impacts with No Action. In most cases, no action amounts to no impact. However, the No Action alternative would entail failure to complete archaeological plans and failure to deal with hazards identified on-site in the Phase I Environmental Site Assessment (Appendix D).

In the past, irrigated agricultural lands provided a green backdrop for Lahaina, adding to the appeal of West Maui for tourists and residents alike. Since the withdrawal of plantation agriculture, the land is fallow and far more brown than green. The risk of wildfire on such land is considerable, as recent fires above Mā‘alaea and Olowalu have shown.

The project site comprises a large area of land adjoining a major settlement area. The No Action Alternative would not only fail to realize HHFDC's objectives but also leave a significant state resources underutilized.

6.2 ALTERNATIVE LOCATIONS

Before the initial plans for the Lahaina Master Planned Community were presented in the late 1980s, alternative sites at Honokōwai and Olowalu were considered.[1] Those sites were less attractive because they lacked nearby public facilities and services. Development of infrastructure for them would be costly and would be of little or no regional benefit.

More recently, the Honokōwai parcel has been transferred to the DHHL, which has its own plans, including agricultural and residential lots, for the land. The State retains large land areas in Olowalu and Ukumehame, but these are not close to employment centers. Hence, these could not be developed to encourage transit and other non-automobile forms of transportation. Development of those sites would fail to meet planning objectives espoused by both the State and the County.

6.3 THE ALTERNATIVE OF POSTPONING ACTION

In light of the complex legal status of the site as "ceded lands," the alternative of postponing action can be considered. However, this alternative does not meet HHFDC's basic objectives, to increase housing opportunities that are affordable to Hawai'i's workforce and lower- and moderate-income households in a timely manner near the West Maui employment centers. Postponement is not warranted by project impacts. Impacts are identified and evaluated in this EIS, and subsequent entitlement processes will provide additional opportunities for public and agency comments. Delaying the project would likely increase the cost of construction and, as a result, make it more difficult for the future developer to provide housing at prices affordable to local workers.

[1] PBR Hawaii. *Lahaina Master Planned Project: Final Environmental Impact Statement.* Prepared for Housing Finance and Development Corporation, State of Hawaii. Honolulu, HI, 1990.

The courts and the State Legislature have identified ways in which the project can proceed – either through lease of lands or through sales approved by both houses of the Legislature. Accordingly, there is no need for further postponement of an action that has already been delayed for 20 years until the State's rights and obligations were clarified.

6.4 REVISING THE PROJECT TO FIT THE DRAFT MAUI ISLAND PLAN'S URBAN GROWTH BOUNDARIES

Commenting on the EISPN for the Villages of Leiali'i project, the Planning Director of the County of Maui asked for a discussion of how development of portions of the project outside the currently proposed Lahaina North Planned Growth Area and the Urban Growth Boundary (UGB) "can be revised and/or phased to coordinate with future Maui Island Plan Updates."[2] This issue is not considered an alternative, since it is more a matter of coordinating County and State land use planning than of project development. The conceptual fit of the Leiali'i project with the *Draft Maui Island Plan* is discussed in Chapter 5.

HHFDC recognizes the County's aim of concentrating new development in areas in which infrastructure development costs are limited. HHFDC chose the Villages of Leiali'i site for development because of its proximity to employment centers – reducing automobile trips – and public facilities. However, the *Draft Maui Island Plan* for West Maui also includes major new developments that promote scattered development and are not consistent with Smart Growth principles of expanding development from existing communities to minimize impacts on major infrastructure.

In the *Draft Maui Island Plan*'s maps W2 and W3, the UGB extends above the Bypass Highway to include the Pu'ukoli'i Village Act 15 project area. The UGB then extends along the bypass to the south, until reaching the southern boundary of Kā'anapali Land Management Corporation lands, abutting the State's Villages of Leiali'i. At that point, the boundary goes seaward, approximately to the mauka boundary of DHHL Leiali'i (Village 1B). Above DHHL Village 1A, the boundary extends westward towards the bypass, and then extends along the bypass until the junction of the bypass with the Keawe Street extension. The boundary then appears to follow the

[2] Letter, Jeffrey S. Hunt, AICP, Planning Director, to Susan A. Sakai, April 6, 2010.

Keawe Street extension to Kahoma Stream. South of the stream, it extends mauka to include the entire Kelawea Mauka area, including inland buildings of Lahainaluna High School, within the urban area. Figure 6-1 shows the boundary and Planned Growth Area within the project site.

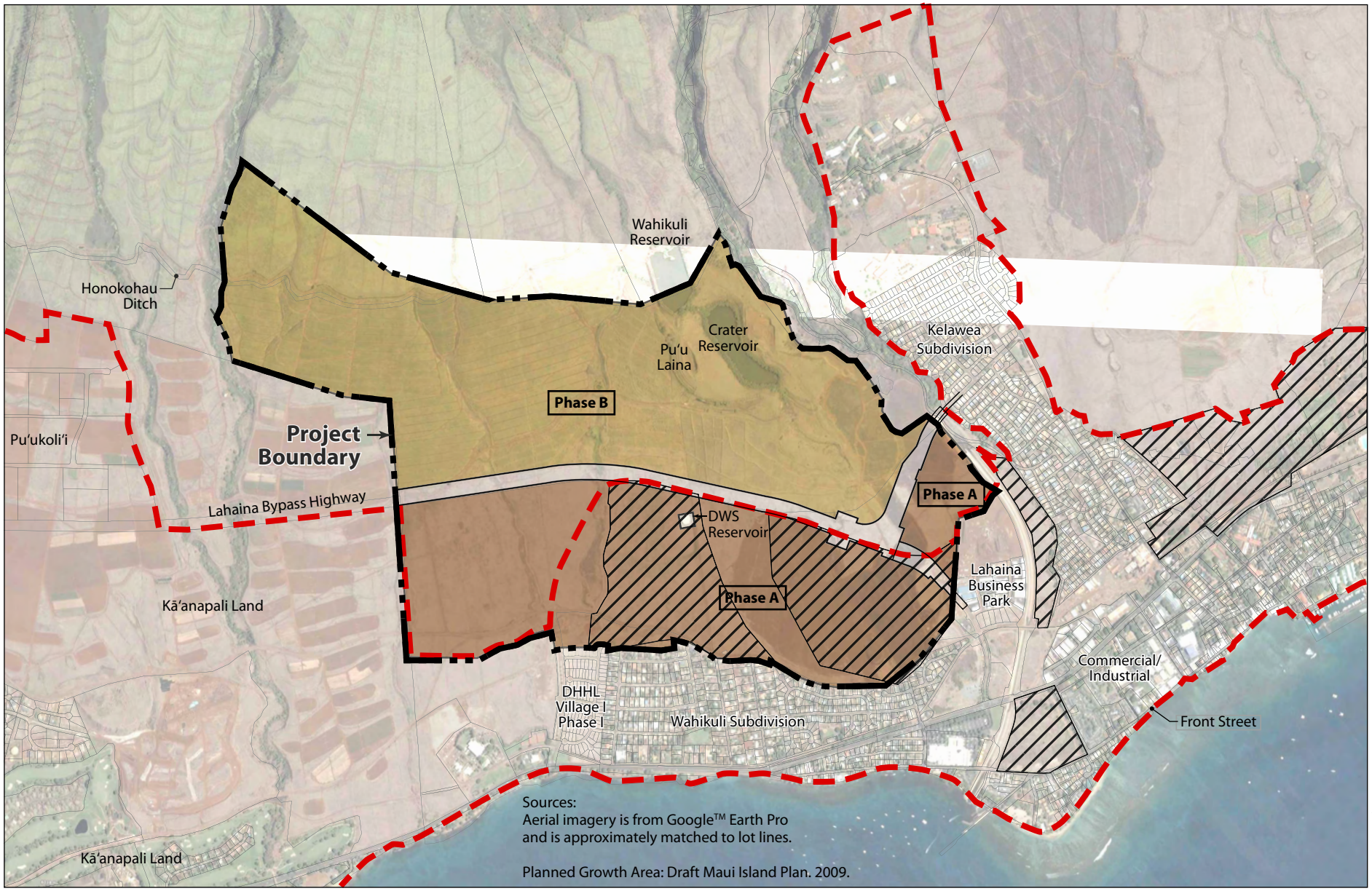
The Planned Growth Area is described in the Plan's Table 8-15 as approximately 181 acres. The Plan calls for development of 800 housing units (+/- 10%), parks and open space amounting to 30 percent or more of the area, and convenience shopping. Figure 8-12 shows four separate areas below the UGB: from north to south, these are an undeveloped area, then part of the Planned Growth Area, then an undeveloped area, and then the rest of the Planned Growth Area.

While HHFDC has shared its plans with the Planning Department, the Planning Department has not sought input from HHFDC. HHFDC has raised concerns about the current placement of the UGB and Planned Growth Area (described in Chapter 5):

- As currently drawn, the UGB ignores the *West Maui Community Plan*'s support for the Villages of Leiali'i;
- HHFDC has devoted much staff time and over $30 million to plan the project and develop infrastructure, including facilities which the County has taken over; and
- During the process of developing the UGB, the Planning Department incorrectly informed the General Plan Advisory Committee that the Villages of Leiali'i should not be included in the UGB because it was a State project which was exempt from County planning ordinances. Therefore, the citizen input process that developed and recommended the UGB is based on incorrect information on the Villages of Leiali'i project.

In this EIS, two phases of the Villages of Leiali'i are described. The *Draft Maui Island Plan* places all of Phase B outside the UGB. As Figure 6-1 indicates, Phase A includes:

- Some 181 acres identified as Planned Growth Area, in two sites;
- Additional acreage within the UGB but not called out as part of the Planned Growth Area; and
- Acreage at the north side of Phase A and a separate area, between the realigned bypass leading to Kelawea and the Keawe Street extension, outside the UGB.



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BELT COLLINS

NORTH

0 500 1000 2000
SCALE IN FEET

LEGEND

- Property Boundaries
- Urban Growth Boundary
- Planned Growth Area

Figure 6-1
URBAN GROWTH BOUNDARY AND PLANNED GROWTH AREA WITHIN THE VILLAGES OF LEIALI'I

Villages of Leiali'i
November 2010

HHFDC plans to have Phase A developed first. Major Phase B development (excepting work on infrastructure and similar uses generating little or no traffic) would follow. This sequence follows the general terms of the condition in Land Use Commission Docket No. A89-652. The entire property, including Phases A and B, was designated Urban in 1990, so HHFDC views the difference between the two phases as following market-driven demand, not separate approval processes.

The draft Planned Growth Area sections appear arbitrary and inconsistent with Smart Growth planning:

- Parts of the project area are excluded from the Planned Growth Area, although they are contiguous with similar developments.
- The Planned Growth Area maps use local roads – Leiali'i Parkway and Keawe Street – as boundaries, when they are clearly designated and have been built as collectors or arterials.
- The draft plan calls for a minimum of 54 acres in parks and open space within the Planned Growth Area. It then excludes a large swath of land between the two parts of the Planned Growth Area from development or even planning. Perhaps this area is meant to correspond to a major drainage basin. It does not correspond to any feature found in the close study of the property conducted in master planning. The total area within the UGB which the *Draft Maui Island Plan* would dedicate for parks and open space clearly exceeds 100 acres, or approximately 40 percent of that area. The result is not compact development.
- Instead of an infill area in which new development is concentrated, the proposed Planned Growth Area appears to be two extensions of the Wahikuli subdivision, dependent only on that subdivision's road network, rather than the infrastructure that has been created by HHFDC and the County. It places new development within the project site far from the Lahaina Civic Center and Leiali'i Parkway.
- Again, the identification of two separate development areas works against connectivity, both within the project and on the regional scale, and against planning for transit and other forms of non-automotive travel.

- The Planned Growth Area does not allow for schools or industrial space or space set aside for energy development.
- The draft plan's growth areas include major new developments that promote scattered development and are inconsistent with Smart Growth principles that promote expansion from existing communities to minimize infrastructure investments.
- The public input process that resulted in the draft Plan Growth Area is incorrectly tainted against the Villages of Leiali'i project because of the Planning Department's incorrect advocacy to the General Plan Advisory Committee to exclude the Villages of Leiali'i project from the Planned Growth Area because it was exempt from the County's planning ordinances.

These considerations argue against the *Draft Maui Island Plan* approach as a basis for project development. HHFDC and the future developer will seek Smart Growth solutions, recognizing both the challenges and the opportunities presented by the project site.

CHAPTER SEVEN: CONTEXTUAL ISSUES

7.1 RELATIONSHIP BETWEEN SHORT-TERM USES AND MAINTENANCE OF LONG-TERM PRODUCTIVITY (SUSTAINABILITY ANALYSIS)

Development of the Villages of Leiali‘i property as a residential community constitutes a permanent commitment that would remove the property from the inventory of potentially available agricultural land. This action is consistent with the State urban designation and plans for the area.

Demand for homes on Maui is already strong and expected to exceed planned production, especially of housing for lower- and moderate-income families. The housing market continues to be active, even though prices have reached levels that many families cannot afford.

The HHFDC Leiali‘i project is planned as a response to the need for workforce and affordable housing on Maui and the desire to reduce congestion on regional highways due to residents' traveling long distances between home and work.

Short-term uses and long-term productivity relate to the short-term construction phases and the long-term socio-economic benefits that would accrue to the state and the county in the form of affordable housing near employment centers in West Maui and added revenue resulting from construction and continuing economic activity that would otherwise not occur on the property.

7.2 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

Development of the subject property as a residential community would permanently alter the use and character of the land:

Soil: The terrain will be crushed and graded to allow the construction of roads that comply with county road design standards. Land abutting the roads may be terraced to accommodate home sites. Aggregate rock and topsoil will be imported.

Quarry material: High quality aggregate rock is an important natural resource in an island environment. As the subject property is not considered to be a source of potential quarry material (grade-A basalt), there will be no loss of this particular natural resource. However, development of the project will require large amounts of aggregate rock for the construction of roadbeds and house foundations and the production of concrete and asphalt.

Flora: Much of the existing flora will be removed (grubbed) prior to site development. Residential properties will eventually be landscaped with new plant material, including where practicable, drought-tolerant species.

Fauna: Existing fauna will be displaced during the development process. With the exception of rats and pigs, most displaced species of fauna would likely return once the property has been re-landscaped.

Cultural resources: Archaeological sites and cultural resources determined to be significant according to State criteria and identified for preservation will be preserved. Sites identified for data collection will be further analyzed and recorded in an effort to increase the understanding of the historical use of the area. This process must be completed in accordance with the requirements of SHPD.

Energy and resources: Development of the project will require the expenditure of energy in the form of fuel for construction vehicles and equipment and the consumption of natural and man-made resources in the form of construction materials (metal, glass, wood, plastic, etc.). Construction of the project will also require the consumption of potable water. Some of the water used for dust control will percolate back into the soil while the remainder will evaporate. The operational phase of the project, that is to say once the project is completed and the homes have been built and occupied, will require an ongoing commitment of potable water, electrical energy, and fuel for privately owned vehicles and motorized equipment.

Labor: The project will require the investment of human labor that might otherwise be employed elsewhere.

7.3 CUMULATIVE AND SECONDARY IMPACTS

Cumulative impacts are defined as impacts on the environment which result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

The Leiali‘i project represents a significant contribution of affordable housing units to the much larger communities and landscape of Lahaina and West Maui. It will provide more housing than needed for on-site jobs, and so will make it possible for Maui residents with jobs in Kā‘anapali and Lahaina to live in a new community close to their work places.

Most of the impacts disclosed in Chapter 4 are cumulative; they are assessed in relation to the surrounding social environment and likely trends in that environment. Traffic, for example, is assessed in the context of anticipated population growth.

As a mixed-use affordable housing community, the cumulative impact of the project will be its contribution to the long-term stability of the resident population of Lahaina. The project and other proposed housing developments will help to fulfill the goal of a strong and healthy West Maui economy and the provision of affordable housing in proximity to employment centers.

The term “secondary impact” means effects which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. These impacts may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air, water, and other natural systems including ecosystems.

The Leiali‘i project’s primary impacts include an increase in the supply of housing, regional population growth, changes in traffic flows, and demand for potable water and energy in West Maui. The project’s secondary impacts are effects that are induced by these primary impacts, such as the additional jobs created in the economy, and increased revenues for resident-oriented retail and service businesses in West Maui, due to project residents’ demand for goods and services.

7.4 OFFSETTING CONSIDERATIONS OF GOVERNMENTAL POLICIES

The proposed project is consistent with State and County policies that identify the property for urban expansion to support prosperity and economic growth in West Maui. Other policies of the State and County promote the preservation of agricultural land. However, plantation agriculture is no longer active in West Maui. Extensive land areas lie fallow. In these circumstances, the dedication of the site for an affordable housing community does not pose a significant challenge to the promotion of agriculture.

7.5 UNRESOLVED ISSUES

The following issues remain unresolved at the time this document is being prepared:

- **Final Development Scheme:** The HHFDC will consider proposals from qualified developers to develop the Leiali‘i project. The final development scheme will be within the range of the concept plans presented in this EIS. However, the following details are unknown at the time of this writing:
    - The total number of housing units;
    - The mix of housing units of different types and for different market segments;
    - The total square footage of commercial and industrial floor area and the share of the industrial area devoted to photovoltaics;
    - The appearance, architectural emphases, and urban design standards championed by the developer;
    - Whether the project’s wastewater and reclaimed water systems will be private (on-site) or will connect to the County systems off site; and
    - The specific process whereby the developer will seek to meet County land use requirements (by HRS 201H-38 or by a more conventional application to the County).

  HHFDC does not consider one of the Concept Plan Alternatives to be the preferred alternative. Rather, the three alternatives provide guidance to the future developer.

- ***West Maui Community Plan*:** The Villages of Leiali‘i project is recognized in the current *West Maui Community Plan* as a housing resource that will benefit the region. It is likely that this EIS will be published for public and agency review and comment prior to the publication of the first draft of the next version of the *West Maui Community Plan*. Thus, the fit of the project with the new Community Plan, developed in light of the new *Maui Island Plan*, remains to be known.
- ***Maui Island Plan*:** The *Maui Island Plan* is currently available in draft form. The fit of the project with the details of the final plan remain to be seen. Furthermore, the Lahaina North Planned Growth Area in the *Maui Island Plan* – i.e., the Villages of Leiali‘i project area – is allocated only 800 housing units. The proposed project extends beyond the Planned Growth Area in the draft Plan, and includes more housing units. (On the other hand, the project lies within the project area reclassified by the LUC in 1990 and recognized by Maui County in the *West Maui Community Plan* in 1996.) HHFDC looks to discussions with the County administration and to the future review of plans for development of the site by the Maui County Council to resolve this issue.

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CHAPTER NINE: EISPN MAILING LIST AND COMMENT LETTERS

MAILING OF EISPN March 5, 2010
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Ms. Barbara Allen Lahaina-Kaanapali and Pacific Railroad 17 Kaha‘alaneo Dr Lahaina, Maui, HI 96761
Mr. Michael Nakano, Principal Lahainaluna High School 980 Lahainaluna Road Lahaina, Maui, HI 96761
Mr. Michael Rose Maryl Group 55 Merchant Street, Suite 2900 Honolulu, HI 96813
Ms. Pamela Tumpap, President Maui Chamber of Commerce 313 Ano Street Kahului, Maui, HI 96732
Mr. Wes Nohara Maui Land & Pineapple Company, Inc. 870 Haliimaile Road Pukalani, Maui, HI 96768
Ms. Leiane Paci Maui Lani Partners 105 N. Market St., Suite 202 Wailuku, Maui, 96793
Mr. Mich Hirano Munekiyo & Hiraga, Inc. 305 High Street, Suite 104 Wailuku, Maui, 96793
Mr. Marvin Awaya Pacific Housing Assistance Corporation 677 Ala Moana Blvd., Suite 712 Honolulu, HI 96813-5419
Mr. Steve Sakai Ronald N.S. Ho & Associates, Inc. 2138 Algaroba Street Honolulu, HI 96826-2714
Mr. Brian Hoyle Southwest Health Group 17207 Kuykendahl Road, Suite 210 Spring, TX 77379
Mr. Stanford S. Carr, President Stanford Carr Development, LLC 1100 Alakea Street, 27th Floor Honolulu, HI 96813
Mr. Tom Nance Tom Nance Water Resource Engineering 680 Ala Moana Blvd., Suite 406 Honolulu, HI 96813
Mr. Bruce Tsuchida, President Townscape, Inc. 900 Fort Street Mall, Suite 1160 Honolulu, HI 96813

MAILING OF EISPN March 5, 2010
Mr. Jeff Minter UniDev Hawaii, LLC 1100 Alakea Street, Suite 1550 Honolulu, HI 96813
Mr. Charles Jencks Wailea 670 Associates 381 Huku Li‘i Place, Suite 202 Kihei, Maui, HI 96753
Mr. Peter Martin West Maui Land Company, Inc. 33 Lono Avenue, Suite 450 Kahului, Maui, HI 96732
Ms. Arlene Torricer West Maui Land Company, Inc. 33 Lono Avenue, Suite 450 Kahului, Maui, HI 96732
Mr. Ezekiela Kalua, Executive Director West Maui Taxpayers Association P.O. Box 10338 Lahaina, Maui, HI 96761
Mr. Joseph Pluta, President West Maui Taxpayers Association P.O. Box 10338 Lahaina, Maui, HI 96761
Ms. Joan McKelvey, President LahanaTown Action Committee 648 Wharf Street Lahaina, Maui, HI 96761
Mr. Robert Harris Sierra Club Hawaii PO Box 2577 Honolulu, HI 96803
Maui Tomorrow 55 Church Street Wailuku, Maui, 96793
Maui Electric Company 210 West Kamehameha Ave Kahului, Maui, HI 96732
Hawaiian Telcom 1177 Bishop Street Honolulu, HI 96813
The Maui Gas Company 70 Hana Highway Kahului, Maui, HI 96732
Mayor Charmaine Tavares Office of the Mayor, County of Maui 200 South High Street Wailuku, Maui, 96793
Councilmember JoAnne Johnson County Council, West Maui District County of Maui 200 South High Street Wailuku, Maui, 96793

MAILING OF EISPN March 5, 2010
The Honorable Daniel Akaka U.S. Senate 300 Ala Moana Blvd., Room 3-106 Honolulu, HI 96850
The Honorable Daniel Inouye U.S. Senate 300 Ala Moana Blvd., Room 7-212 Honolulu, HI 96850
The Honorable Mazie Hirano U.S. House of Representatives 300 Ala Moana Blvd., Room 5-104 Honolulu, HI 96850
The Honorable Neil Abercrombie U.S. House of Representatives 300 Ala Moana Blvd., Room 4-104 Honolulu, HI 96850
Ms. Rosalyn Baker Hawaii State Senate, District 5 Hawaii State Capitol, Room 231 415 Beretania St. Honolulu, HI 96813
Mr. Angus McKelvey Hawaii State House of Representative, District 10 Hawaii State Capitol, Room 427 415 Beretania St. Honolulu, HI 96813
Hawaii State Main Library State of Hawaii 478 S. King Street Honolulu, HI 96813
Lahaina Public Library 680 Wharf Street Lahaina, Maui, HI 96761
Legislative Reference Bureau Library 415 South Beretania Honolulu, HI 96813
University of Hawaii Hamilton Library 2550 McCarthy Mall Honolulu, HI 96822
Mr. Mark Platte, Editor Honolulu Advertiser 605 Kapiolani Blvd. Honolulu, HI 96813
Mr. Frank Bridgewater, Editor Honolulu Star-Bulletin 7 Waterfront Plalza, Suite 210 500 Ala Moana Blvd. Honolulu, HI 96813
Hawaii Tribune Herald PO Box 767 Hilo, HI 96721
Garden Island Newspaper PO Box 231 Lihue, Kauai, 96766

MAILING OF EISPN March 5, 2010
Maui News 100 Mahalani Street Wailuku, Maui, 96793
Molokai Dispatch PO Box 482219 Kaunakakai, 96748
Postmaster Lahaina Post Office Lahaina, Maui, HI 96761
Mr. Dick Mayer, Vice Chair Maui General Plan Advisory Committee 1111 Lower Kimo Drive Kula, HI 96790
Kaeo Duarte, Water Resources Manager Kamehameha Schools 78-6831 Alii Drive, Suite 235 Kailua-Kona, HI 96740

COMMENTS TO LEIALI‘I EISPN RECEIVED
Mr. Milton M. Arakawa, AICP, Director of Public Works Department of Public Works, County of Maui 200 S. High Street, Room 434 Wailuku, HI 96793
Mr. Morris M. Atta, Administrator, Land Division State Department of Land and Natural Resources PO Box 621 Honolulu, HI 96809
Mr. Marvin B. Awaya, Executive Director Pacific Housing Assistance Corporation 677 Ala Moana Boulevard, Suite 712 Honolulu, HI 96813
Mr. Jeffrey K. Eng, Director Department of Water Supply County of Maui 200 S. High Street Wailuku, HI 96793-2155
Ms. Tamara Horcajo, Director Department of Parks and Recreation County of Maui 700 Hali‘a Nakoa Street, Unit 2 Wailuku, HI 96793
Ms. Kathryn S. Matayoshi, Interim Superintendent Hawaii State Department of Education PO Box 2360 Honolulu, HI 96804
Mr. Dick Mayer, Vice Chair Maui General Plan Advisory Committee 1111 Lower Kimo Drive Kula, HI 96790
Dr. Brennon T. Morioka, Director Hawaii State Department of Transportation 869 Punchbowl Street Honolulu, HI 96813-5097

COMMENTS TO LEIALI‘I EISPN RECEIVED
Chief Jeffrey Murray Department of Fire and Public Safety, County of Maui 313 Manea Place Wailuku, HI 96793
Mr. Clyde W. Nāmu‘o, Chief Executive Officer Office of Hawaiian Affairs 711 Kapiolani Boulevard, Suite 500 Honolulu, HI 96813
Ms. Sina Pruder, P.E., Acting Chief, Wastewater Branch Hawaii State Department of Health PO Box 3378 Honolulu, HI 96801
Kathleen Ross Aoki, Planning Director Department of Planning County of Maui 250 South High Street Wailuku, HI 96793
Mr. Russ K. Saito, Comptroller Department of Accounting and General Services State of Hawaii PO Box 119 Honolulu, HI 96810-0119
Mr. James E. Smith, General Manager Hawaii Water Service Company PO Box 384809 Waikoloa, HI 96738
Mr. Kyle Tamori, Staff Engineer Maui Electric Company PO Box 398 Kahului, HI 96733-6898
The Honorable Charmaine Tavares, Mayor, County of Maui 200 South High Street Wailuku, HI 96793-2155
Mr. Alec Wong, P.E., Chief Clean Water Branch Hawaii State Department of Health PO Box 3378 Honolulu, HI 96801-3778
Mr. Gary A. Yabuta, Chief of Police Police Department, County of Maui 55 Mahalani Street Wailuku, HI 96793
Mr. Stuart Yamada, P.E., Chief Safe Drinking Water Branch Hawaii State Department of Health PO Box 3378 Honolulu, HI 96801-3378
Mr. George P. Young, P.E., Chief Regulatory Branch Department of the Army U.S. Army Corps of Engineers, Honolulu District Fort Shafter, Hawaii 96858-5440

COMMENTS TO LEIALI‘I EISPN RECEIVED
William J. Campbell, New Business Development Manager California Water Service Company 1720 North First Street San Jose, CA 95112 wcampbell@calwater.com

PHONE (808) 594-1888

FAX (808) 594-1865

RECEIVED
2010 APR 20 PM 1:25
BELT COLLINS HAWAII

STATE OF HAWAI'I
OFFICE OF HAWAIIAN AFFAIRS
711 KAPI'OLANI BOULEVARD, SUITE 500
HONOLULU, HAWAI'I 96813

HRD10/3755B

April 6, 2010

Susan A. Sakai, Director of Planning
Belt Collins Hawai'i LTD.
2153 North King Street, Suite 200
Honolulu, Hawaii 96819-4554

Re: Villages of Leiali'i Affordable Housing Project
Environmental Impact Statement Preparation Notice
Lahaina, Island of Maui

Aloha e Susan A. Sakai,

The Office of Hawaiian Affairs (OHA) is in receipt of your March 5, 2010 request for comments on the Environmental Impact Statement Preparation Notice (EISPN) for the Villages of Leiali'i Affordable Housing Project (project), proposed by the Hawai'i Housing Finance & Development Corporation (HHFDC).

We note that the proposed project area is situated on approximately 1,033 acres of ceded lands currently under the control of the State of Hawai'i. OHA recognizes that the overall intent of this HHFDC project is to provide affordable housing options and supporting services to members of the community in low to moderate income groups near a major employment center in West Maui.

We have no specific comments at this time and look forward to the opportunity to review the draft environmental impact statement and provide comments at that time. Should you have any questions, please contact Keola Lindsey, at (808) 594-0244 or keolal@oha.org.

'O wau iho nō me ka 'oia'i'o,

Clyde W. Nāmu'o
Chief Executive Officer

C: OHA-Maui Community Resource Coordinator

May 19, 2010
2007.70.0500/10P-046

Mr. Clyde W. Nāmuʻo
Chief Executive Officer
Office of Hawaiian Affairs
711 Kapiolani Boulevard, Suite 500
Honolulu, HI 96813

Dear Mr. Nāmuʻo

Environmental Impact Statement Preparation Notice (EISPN)
The Villages of Leialiʻi Affordable Housing Project
Lahaina District, Island of Maui

Thank you for sending comments on the EISPN, thereby participating in the Hawaii Revised Statutes Chapter 343 public review process. We appreciate your letter of April 6, 2010.

The proposed master plan includes three alternative programs for the site, illustrating how it could be developed to meet the objectives of the Hawaii Housing Finance and Development Corporation (HHFDC). However, the final plan may vary from the proposed alternatives. HHFDC intends to issue Request for Proposals to developers to plan, design and develop the Villages of Leialiʻi project. The developers who submit proposals to HHFDC will formulate plans based on their own design and cost considerations. The plan accepted by HHFDC will likely fit within the range of alternatives in the EIS. Should the plan involve additional impacts, the developer will be required to prepare supplemental environmental impact submittals.

We look forward to your comments on the draft Environmental Impact Statement. Again, thank you for your participation. We will send you more information as the Chapter 343 process continues.

Very truly yours,

BELT COLLINS HAWAII LTD.

Susan A. Sakai
Vice President/Director of Planning

SAS:dco

Belt Collins Hawaii Ltd. | 2153 North King Street, Suite 200 | Honolulu, HI 96819-4554 USA
Tel: 808.521.5361 | Fax: 808.538.7819 | www.beltcollins.com | honolulu@beltcollins.com
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From: Alan Kato
Sent: Tuesday, April 06, 2010 1:16 PM
To: 'Campbell, William J.'
Cc: Smith, Jim; Sue Sakai
Subject: RE: The Villages of Leiali'i Affordable Housing

Bill,

Thank you for supporting the project. Having a private company that would want to run the water, sewer and reclaimed water systems for the project will provide the developer with options, when they decide whether they would like to dedicate the utilities to the County or go with a private system. Your comment letter will be included in the EIS, so potential developers will be aware that having a private utility company is a viable option.

Alan Kato
Belt Collins Hawaii Ltd.

From: Campbell, William J. [mailto:BCampbell@calwater.com]
Sent: Tuesday, April 06, 2010 10:04 AM
To: Alan Kato
Cc: Smith, Jim
Subject: The Villages of Leiali'i Affordable Housing

Alan,

We received a letter from Belt Collins requesting a response to the Environmental Impact Statement Preparation Notice. I've drafted something up and have sent it over to our lawyer, Pam Larson, to look it over. I'm not really sure that we have much to comment on other than we are interested in operating and owning the system. Clearly this gives financial relief to the Hawaii Housing Finance and Development Corporation as it will receive most of the water and sewer development costs back. I tried to call Susan Sakai but she's not in the office this morning, I also tried your extension but wasn't able to get you. Please find attached my draft letter, Pam will follow through with the final version. If you think we can make a positive contribution to the project at this stage I'd be pleased to work with you to do so. Please feel free give me a call, my direct line is (505) 980 0410.

Bill Campbell

New Business Development Manager
California Water Service Company
1720 North First Street
San Jose, CA 95112
Toll free: (866) 827 4895
wcampbell@calwater.com
http://www.calwater.com

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this e-mail, please notify the sender immediately by replying to this e-mail and then
deleting it from your system.

CHARMAINE TAVARES
MAYOR

JEFFREY A. MURRAY
CHIEF

ROBERT M. SHIMADA
DEPUTY CHIEF

RECEIVED
2010 MAY 18 PM 1:55
BELT COLLINS HAWAII

COUNTY OF MAUI
DEPARTMENT OF FIRE AND PUBLIC SAFETY
FIRE PREVENTION BUREAU

313 MANEA PLACE • WAILUKU, HAWAII 96793
(808) 244-9161 • FAX (808) 244-1363

May 14, 2010

Belt Collins Hawaii Ltd.
C/O Susan A. Sakai
2153 N. King St. Ste. #200
Honolulu, HI 96819-4554

Subject: The Villages at Leiali'i Affordable Housing Environmental Impact Statement Preparation Notice

Susan,

From our review of this EISPN, this project is off to a good start with the planning that has already taken place. Should you want to include a site for a future fire station facility in your plans, the department would definitely entertain the idea. The current and projected growth of Lahaina and the Westside of Maui as a whole has significantly increased the amount of services that needs to be provided by the fire department and our current facility in Lahaina is quickly being outgrown.

At this time, our office does not have any specific comments. We do reserve the right to comment specifically during the subdivision and building permit application processes when actual plans are submitted for review. Thank you for allowing us to comment on the EISPN.

If you have any questions, you may call me at 244-9161 ext. 23.

Sincerely,

Paul Haake
Captain, Fire Prevention Bureau

For: Fire Chief Jeffrey Murray

July 12, 2010
2007.70.0500/10P-091

Chief Jeffrey Murray
Department of Fire and Public Safety, County of Maui
313 Manea Place
Wailuku, HI 96793

Dear Chief Murray,

Environmental Impact Statement Preparation Notice (EISPN)
The Villages of Leiali‘i Affordable Housing Project
Lahaina District, Island of Maui

Thank you for sending comments on the EISPN, thereby participating in the Hawaii Revised Statutes Chapter 343 public review process. We appreciate your letter of May 14, 2010.

The proposed master plan includes three alternative programs for the site, illustrating how it could be developed to meet the objectives of the Hawaii Housing Finance and Development Corporation (HHFDC). In the letter, Captain Haake noted that your Department would entertain the idea of an additional fire station in West Maui. No fire station site has been planned for the Villages of Leiali‘i, located just mauka of the existing Lahaina Fire Station.

However, the final plan may vary from the proposed alternatives. HHFDC intends to issue Request for Proposals to developers to plan, design and develop the Villages of Leiali‘i project. The developers who submit proposals to HHFDC will formulate plans based on their own design and cost considerations. The plan accepted by HHFDC will likely fit within the range of alternatives in the EIS. Should the plan involve additional impacts, the developer will be required to prepare supplemental environmental impact submittals.

Again, thank you for your participation. We will send you more information as the Chapter 343 process continues.

Very truly yours,

BELT COLLINS HAWAII LTD.

Susan A. Sakai
Vice President/Director of Planning

SAS:dco

Belt Collins Hawaii Ltd. | 2153 North King Street, Suite 200 | Honolulu, HI 96819-4554 USA
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CHARMAINE TAVARES
Mayor

CHERYL K. OKUMA, Esq.
Director

GREGG KRESGE
Deputy Director

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JUN -2 AM 11: 48
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TRACY TAKAMINE, P.E.
Solid Waste Division

DAVID TAYLOR, P.E.
Wastewater Reclamation Division

COUNTY OF MAUI
DEPARTMENT OF
ENVIRONMENTAL MANAGEMENT
2200 MAIN STREET, SUITE 100
WAILUKU, MAUI, HAWAII 96793

May 27, 2010

Ms. Susan Sakai
Belt Collins Hawaii Ltd.
2153 North King Street, Suite 200
Honolulu, Hawaii 96819

Dear Ms. Sakai:

SUBJECT: **THE VILLAGES OF LEIALI'I AFFORDABLE HOUSING EIS PREPARATION NOTICE TMK (2) 4-5-021:003, 004, 005, 013, 021, 022 AND (2) 4-5-028:070, LAHAINA**

We reviewed the subject project as a pre-application consultation and have the following comments:

1. Solid Waste Division comments:

   a. Applicant has consulted with the Division. No comments.

2. Wastewater Reclamation Division (WWRD) comments:

   a. The proposed private wastewater and reclaimed water systems shall remain privately owned and maintained.

If you have any questions regarding this memorandum, please contact Gregg Kresge at 270-8230.

Sincerely,

Cheryl K. Okuma

Cheryl K. Okuma, Director

CHARMAINE TAVARES
Mayor

TAMARA HORCAJO
Director

ZACHARY Z. HELM
Deputy Director

(808) 270-7230
FAX (808) 270-7934

RECEIVED

2010 APR 19 PM 3:34

DEPARTMENT OF PARKS & RECREATION

700 Hali'a Nakoa Street, Unit 2, Wailuku, Hawaii 96793

April 12, 2010

Belt Collins Hawaii
Attention: Susan Sakai
2153 North King Street, Suite 200
Honolulu, HI 96819

SUBJECT: **Environmental Impact Statement Preparation Notice for The Villages of Leiali'i Affordable Housing Lahaina, Maui, Hawai'i**

Dear Ms. Sakai:

Thank you for the opportunity to review and comment on the subject project.

The department is concerned that adequate land be set aside for development of active recreational park facilities for the residents as well as the surrounding communities. This amount is significantly greater than the 500 square feet per unit required by Section 18.16 of the Maui County Code (park dedication requirements). The project will be required to go through several land use entitlement processes. We would like to continue discussions with the applicant on the size and location of the proposed park lands.

Please feel free to contact me or Patrick Matsui, Chief of Parks Planning & Development, at (808) 270-7931 should you have any questions.

Sincerely,

TAMARA HORCAJO
Director of Parks & Recreation

xc: Patrick Matsui, Chief of Parks Planning and Development

TH:PTM:ca
S:\PLANNING\CSA\County Reviews\EA Reviews\Villages of Leialii EIS Prep.doc

May 19, 2010
2007.70.0500/10P-048

Ms. Tamara Horcajo, Director
Department of Parks and Recreation
County of Maui
700 Hali‘a Nakoa Street, Unit 2
Wailuku, HI 96793

Dear Ms. Horcajo:

Environmental Impact Statement Preparation Notice (EISPN)
The Villages of Leiali‘i Affordable Housing Project
Lahaina District, Island of Maui

Thank you for sending comments on the EISPN, thereby participating in the Hawaii Revised Statutes Chapter 343 public review process. We appreciate your letter of April 12, 2010.

The proposed master plan includes three alternative programs for the site, illustrating how it could be developed to meet the objectives of the Hawaii Housing Finance and Development Corporation (HHFDC). However, the final plan may vary from the proposed alternatives. HHFDC intends to issue Request for Proposals to developers to plan, design and develop the Villages of Leiali‘i project. The developers who submit proposals to HHFDC will formulate plans based on their own design and cost considerations. The plan accepted by HHFDC will likely fit within the range of alternatives in the EIS. Should the plan involve additional impacts, the developer will be required to prepare supplemental environmental impact submittals.

You note that Maui’s residents need space for active recreation. The EIS will include a discussion of the Maui County park dedication requirements and the need for active recreation space for residents of the Villages of Leiali‘i project.

Again, thank you for your participation. We will send you more information as the Chapter 343 process continues.

Very truly yours,

BELT COLLINS HAWAII LTD.

Susan A. Sakai
Vice President/Director of Planning

SAS:dco

Belt Collins Hawaii Ltd. | 2153 North King Street, Suite 200 | Honolulu, HI 96819-4554 USA
Tel: 808.521.5361 | Fax: 808.538.7819 | www.beltcollins.com | honolulu@beltcollins.com
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CHARMAINE TAVARES
Mayor

JEFFREY K. ENG
Director

ERIC H. YAMASHIGE, P.E., L.S.
Deputy Director

RECEIVED
2010 APR 22 PM 1:51
BELT COLLINS HAWAII

DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793-2155
www.mauiwater.org

April 14, 2010

Ms. Susan Sakai
Belt Collins Hawaii Ltd.
2153 North King St., Ste 200
Honolulu, Hawaii 96819

Re: TMK: (2) 4-5-021:003, 04, 05, 13, 21, 22 and 4-5-028:070
Project Name: The Villages of Leiali'i Affordable Housing, Lahaina
Environmental Impact Statement Prep Notice (EISPN)

Dear Ms. Sakai:

Thank you for the opportunity to comment on the Environmental Impact Statement Prep Notice.

Source Availability, System Infrastructure and Consumption
The EIS should identify sources and potable and non-potable demand for the proposed project. The project area is served by the Lahaina system. The main sources of water for this portion of the Lahaina system are wells withdrawing from Launiupoko aquifer, and surface water from Kanaha Stream. New source development projects include upgrades to the Lahaina and Mahinahina Water Treatment Plants, and review of potential sites for groundwater wells and raw water storage is under way.
There is one 16" waterline that traverses the site to the Wahikuli Reservoir. The applicant will be required to provide for water service and fire protection in accordance with system standards. Fire flow, domestic and irrigation calculations will be required in the building permit process, as well as approved backflow preventers.
Using system standards, anticipated water demand for Concepts 1, 2 and 3 would range from approximately 1,902,620 to 2,568,480 gallons per day.

Conservation
To alleviate demand on the Lahaina system, please find attached a conservation checklist for the home and yard, condominiums and our planting brochure. We recommend that the following conservation measures be included in the project design and noted in the EIS:

- Use Non-potable Water: Use reclaimed or brackish water for landscaping, dust control and other non-potable purposes where feasible.
- Use Climate-adapted Plants: Consider using climate-adapted native plants for all

The Department of Water Supply is an Equal Opportunity provider and employer. To file a complaint of discrimination, write: USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington DC 20250-9410. Or call (202) 720-5964 (voice and TDD)

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- landscaping. The project is located in the "Maui County Planting Plan" - Plant Zones 1, 3 and 4. Native plants adapted to the area conserve water and protect the watershed from degradation due to invasive alien species.
- Eliminate Single-Pass Cooling: Single-pass, water-cooled systems should be eliminated per Maui County Code Subsection 14.21.20. Although prohibited by code, single-pass water cooling is still manufactured into some models of air conditioners, freezers, and commercial refrigerators. Such models should be avoided.
- Maintain Fixtures to Prevent Leaks: A simple, regular program of repair and maintenance can prevent the loss of hundreds or even thousands of gallons a day. Regular maintenance programs should be established.
- Utilize Low-Flow Fixtures and Devices: Maui County Code Subsection 16.20A.680 requires the use of low-flow water fixtures and devices in faucets, showerheads, water closets, and hose bibs.
- Prevent Over-Watering By Automated Systems: Provide rain shut offs and smart controllers on all automated irrigation systems. Any controllers which do not provide for soil moisture or evapotranspiration based response should be checked and reset at least once a month to reflect the monthly changes in evapo-transpiration rates at the site. As an alternative, provide the more automated, soil-moisture sensors on controllers.

Pollution Prevention

In order to protect ground and surface water sources, we encourage Best Management Practices (BMPs) designed to minimize infiltration and runoff from construction. The mitigation measures below should be noted in the EIS and implemented during construction:

- Prevent cement products, oil, fuel and other toxic substances from falling or leaching into the water.
- Properly and promptly dispose of all loosened and excavated soil and debris material from drainage structure work.
- Retain ground cover until the last possible date.
- Stabilize denuded areas by sodding or planting as soon as possible. Replanting should include soil amendments and temporary irrigation. Use high seeding rates to ensure rapid stand establishment.
- Avoid fertilizers and biocides, or apply only during periods of low rainfall to minimize chemical run-off.
- Keep run-off on site.

Should you have any questions, please contact our Water Resources and Planning Division at 808-244-8550.

Sincerely,

Jeffrey K. Eng, Director

mlb
cc: applicant, engineering division

A Checklist of Conservation Ideas for the Home

Shaving & Brushing Teeth: Stopper the sink and fill the basin half way when you shave, and you use just ½ a gallon! Turn off the water while brushing your teeth. Replace your faucet aerator and save over 500 gallons per year, they are free from the Department of Water Supply (244-8550).

Bathing & Showering: Make a habit of showering quickly or using a partially filled tub. Or try the "navy shower." Turn on the water to get wet, turn it off to soap up, and turn it back on to rinse off. It's a great conservation technique, especially in drought emergencies. Use a bucket to catch the water as it warms up, then water your plants with the water.

House Plants & Fish Tanks: If you have a fish tank, you probably clean it regularly. Use the dirty water to water your house plants. It saves using the same water twice, and the plants love the water, which is rich in nitrogen and phosphorous!

Food Prep: If you like to rinse off vegetables and fruits, stopper the sink or use a tub instead of using running water. And when you're finished, turn on the garbage disposal as you pull the plug or water your plants with the water.

Doing Dishes: It is more water efficient to wash full loads. If you do wash dishes by hand, stopper the sink and run the disposal as you pull the plug.

Washing Machines: A water-efficient washing machine can save up to 20 gallons per load. With the average household washing 6 loads per week, that's a lot of water! Statistics on energy savings potential indicate that highly efficient washing machines save from 35% to 65% on energy used for washing!

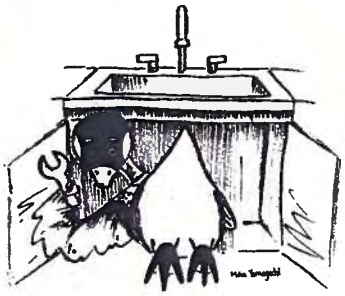
For a Cold Glass of Water: Keep a pitcher of cool water in the refrigerator. Running the water until it turns cool can waste a gallon for each glass. Letting the water sit in the fridge can also allow any chlorine to dissipate, and improve the taste.

Toilets: Some people toss and flush away tissues, cigarettes or bits of trash in the toilet. Use a wastebasket instead. If everyone in the U.S. flushed just once less per day, we could save a sea full of water a mile wide, a mile long, and four feet deep, every day! Installing a water conserving or dual flush toilet can save more than 17 gallons per person per day. Even a low cost installing a toilet flapper can save more than 5 gallons per person per day.

Showerheads: Replacing your old showerhead with a low flow one can save as much as 7.2 gallons per person per day. You can also receive these free from the Department of Water Supply.

Faucets: Replacing your old faucets with more efficient models can save 4 gallons per person per day. Faucet aerators or spray taps can also help, by mixing air with water. This cuts the flow and reduces splashing, while leaving enough pressure to cut the soap and grease.

Check For Leaks: Leaking faucets cost you money! Even a slow drip wastes 15 gallons per day. A 1/8" stream can waste 400 gallons per day. Unfortunately, the average non-conserving home looses more than 10% of the water it pays for to leaks! Check for leaks regularly. Try putting 10 drops of food coloring in your toilet tank. Don't flush, just wait 15 minutes. If colored water shows up in the bowl, your tank is leaking. Check your water meter while no water is running in your house. If the meter is registering, you have a leak . Check your faucets twice a year. If any drip after you've turned them off firmly, turn off the supply line, take the faucet apart, and replace the washer. And don't forget the faucets outside of the house.



Pipes Break - Be Prepared: If a pipe breaks in your home, you could experience flooding and property damage as well as huge water waste unless you quickly shut your valve. Locate your valve and mark it for quick, easy identification. Learn how to shut it properly, and teach your family to do so as well.

"By Water All Things Find Life"

www.mauiwater.org

A Checklist of Conservation Ideas for the Yard

Xeriscaping: This is a landscaping technique which utilizes native drought tolerant plants. Most of these plants only require water to become established. They are adapted to thrive on available nutrients. A handbook on this technique will be available soon from the Department of Water Supply (244-8550).

Limit Lawn Size: Most turf grasses require 30-50% more water than shrubs and ground covers. Limit the use of grass and lawns to active picnicking and play areas. Shade in these areas will reduce moisture loss and make a cool area for children to play. If you mow the grass too short, root shock will cause your grass to turn yellow despite your watering!

Soils & Mulch: Soils are not all alike. Sandy soils require more frequent watering than clay soils. You can have your soils tested. Call the Ag Extension Service at MCC for advice (244-3242). Compost or other organic material will also help soils hold moisture and support heartier, more drought-tolerant plants. Try leaves, grass clippings, manure, aged sawdust, wood chips, or humic acid. Mulching is an excellent way to hold moisture, keep the ground from overheating, and discourage weeds. You should also loosen the soil by rototilling or spading while you add the organic matter.

Designing for Irrigation Zones: Zone your plants so that each area has similar water needs. This will enable you to water more efficiently, and keep the plants healthier. Limit thirsty plants to small decorative borders around the house itself or in specific viewing areas or shady areas.

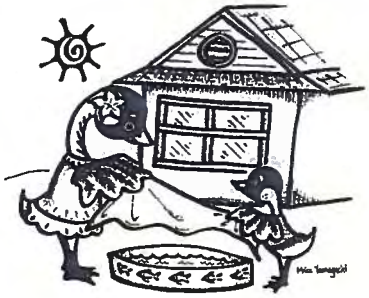
Irrigation Systems: Drip irrigation is designed to get water slowly and directly to the roots of plants. Use sprinklers with low, flat spray patterns and larger drops of water. Check timers on irrigation controllers and adjust them monthly to water appropriately for the season. If you use a hose, set a kitchen timer or buy a timer attachment that hooks on between the faucet and hose. This will help remind you not to over-water one area. Use a soaker hose on slopes to reduce run-off.

Choosing Native Plants -- A Hawaiian Sense of Place: Plant shrubs and trees that nature designed to look green and full here on Maui without a lot of water. once they are grown in, you can cut back or stop watering, depending upon your location.

Watering: If you do have a lawn, water only when it needs it. A good deep soaking is better than a light sprinkling. A good way to see if your lawn needs watering is to step on the grass. If it springs back up when you move, it doesn't need water. If it stays flat, it could use a bit. The best time of day to water is early in the morning before the sun and wind.

Watching the Weather: never water while it's raining! Install rain-shutoffs or soil moisture sensors on automated systems. Teach your family to turn off your irrigation in the rain. Sunny, exposed areas and slopes need to be watered more frequently than shady areas. Place your plants appropriately.

Cover Pools and Jacuzzis: They're fun, but they can waste a lot of water! An average sized pool loses about 1,000 gallons of water per month to evaporation. A pool cover can cut these losses by 90%!



Washing the Car: Do you wash your car at home? Use a bucket, or a hose with a trigger nozzle to avoid wasting water. Wet the car thoroughly, and then turn off the hose while you wash the car! Swab the car with soapy water from a bucket. You can use the hose again for a final rinse. Better still, take your car to a car wash. Most of the car washes on Maui are fitted with recirculating water.

A Clean Sweep: Did you know that 5 minutes of unnecessary hosing will waste 25 gallons of water? Try sweeping sidewalks and driveways.

Find and Repair Leaks: Your garden hose and irrigation lines can carry thousands of gallons per day, so you can imagine a leak outdoors wastes a lot of water! Check and repair all of your outdoor fixtures regularly.

"By Water All Things Find Life"

A Checklist of Water Conservation Ideas for Condominiums

PLUMBING MEASURES FOR EACH UNIT

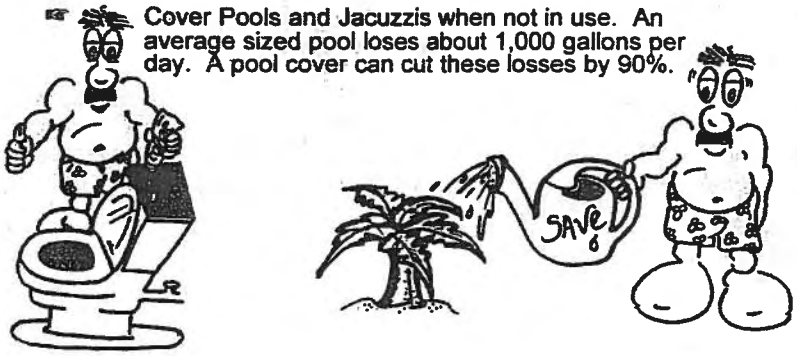
- Replace toilets with Ultra Low Flush Models, or retrofit with low flow flappers. Contact the Maui County Board of Water Supply at 243-7199 or the Wastewater Division at 243-7417 for more information.
- Retrofit faucets with aerators, or consider alternative faucet types such as self closing or, automatic sensor controlled faucets.
- Replace showerheads with low flow models. Contact the Maui County Board of Water Supply at 243-7199, or the Public Works Wastewater Division at 243-7417 to find out how you can get these!
- Check for leaks! Check for leaks! Check for leaks! Do dye tablet or food coloring tests in toilets to check for hidden leaks. Check for dripping faucets indoors and out!

COMMON LAUNDRY AREAS

- Efficient washing machines can save up to 20 gallons per load. These also save on energy. If you are replacing laundry facilities don't even consider anything but the new horizontal axis models. These not ony save up to 40% of water used, but deliver even more substantial energy savings - up to 65%!
- Water boilers also require blow-down, or bleed-off, just like air conditioners. Monitor total dissolved solids, and blow down only when necessary!
- Avoid excessive filter or softener back flush. Back flush only when needed.

NON-LANDSCAPED AREAS OUTDOORS

- Never hose your sidewalks and driveways. This is a complete waste of water, and a hose can use 25 gallons in just 5 minutes. Remember: A broom is best.
- Check for leaks! Note the number of outdoor faucets on the outsides of buildings. Make a list and check every one regularly.
- Cover Pools and Jacuzzis when not in use. An average sized pool loses about 1,000 gallons per day. A pool cover can cut these losses by 90%.



EDUCATION

- Knowledge is power. Educate people about how they can help to save water at your building or facility. You may be surprised at how willing people are to chip in, once they know what to do!

LANDSCAPES

- Understand your system: Develop a schematic of all water entry points. Know where your faucets, time clocks, solenoids, booster pumps, sprinklers, bubblers, valves, pipes and etc. are located.
- Make a checklist of system elements and check each one regularly for leaks! Finding and repairing leaks can lead to big savings, especially in irrigation systems!
- Use turf only where actually necessary. Avoid turf except in picnic or active play areas.
- Choose the right plants. Native plants appropriate for your region are best. These save water, because they are adapted to survive on the natural rainfall of the area. Besides saving water, they also help to avoid the spread of invasive alien plant species which can destroy native ecosystems. And they contribute to the true Hawaiian sense of place.
- Avoid over-watering! Use soil moisture over-rides and rain-shutoffs on all automated systems. Reset controllers at least once per month to account for changing evapotranspiration.
- Zone your plants. This means that plants with similar water needs should be grouped together. This avoids wasting water, overwatering some plants and under-watering others.
- Never water during the heat of the day. The best time to water is just around sunrise. Evenings are also acceptable. Once the sun comes up, the evapotranspiration rate soars, and much of your water is wasted.
- Having your soil tested also helps you to learn what type of watering is needed. Clay soils take from ¼ to ½" of water per hour before water starts running off and being wasted. Sandy soils require somewhat more frequent, shorter watering.
- Mulch, compost or other organic material will help soils hold moisture, keep the ground from overheating and discourage weeds. Loosening the soil while you add the organic matter will also help keep your lawn healthier
- Root feeder or water aerator probes around trees and bushes will help to direct water where it is needed. You can also build a watering basin in the soil around the base of your plants to help the water soak in deeply.

For More Information, Contact the Maui County Board of Water Supply - Water Resources & Planning Division @ 243-7199

A Checklist of Water Conservation Ideas for Condominiums

COOLING

Cooling Towers

Cooling Towers are used to reject heat from air conditioning systems. In a cooling tower, a circulating stream of warm water contacts an air flow, causing evaporation of a portion of the water. When this water evaporates, the water which remains behind is cooled. The cooled water then circulates through a cooling system, warms and then returns to the tower.

- ☞ Understand Your System: Prepare an inventory of each cooling tower you have, its cooling capacity, and the equipment or processes that it serves
- ☞ If you purchase chemicals for the treatment of the recirculating cooling tower water, have the chemical vendor explain the purpose and action of each chemical.
- ☞ Have your chemical vendor provide a written report of each service call, and be sure that the vendor explains the meaning of each analysis performed,as well as the test results.
- ☞ Tell your chemical vendor that water conservation is a priority, and ask about alternatives that may reduce the amount of water bled-off from the towers.
- ☞ Have vendors bid for your facility's water cooling tower water treatment. Require a predetermined minimum level of water efficiency. Have them provide figures showing projected annual water and chemical consumption and costs.
- ☞ Consider incorporating sulfuric acid to reduce carbonate scale and achieve significantly higher cycles of concentration. If you use sulfuric acid, be sure to observe appropriate safety precautions.
- ☞ Ozone is another alternative that can help remove dissolved minerals and act as a biocide. Again, observe the appropriate safety precautions.
- ☞ If available, use reclaimed water as a source of cooling tower make-up water.
- ☞ Blow-down water is the release of some of the circulating water to remove suspended and dissolved solids left behind as pure water evaporates from the system. Re-use blow down where possible for non-potable uses.

Evaporative Coolers

Evaporative coolers lower air temperature by increasing the humidity of incoming air being drawn into a building. The air's ambient or "dry bulb" temperature is lowered when the air absorbs water vapor. After a short period of operation, the recirculating air in the cooler reaches wet bulb temperature, which is theoretically the lowest temperature to which the entering air may be cooled. Some evaporative coolers have recirculation pumps.

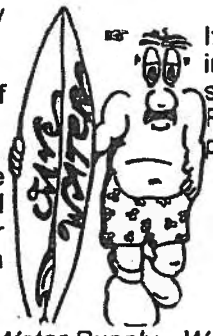
All evaporative coolers require either a small amount of bleed-off or regular cleaning to maintain and prevent damage to the coolers pads. The principle opportunity for conservation in evaporative cooling is to reduce the amount of water bled-off, and to reuse that water wherever possible.

- ☞ Be sure your coolers have pumps to recirculate the water. This decreases water consumption and increases cooling efficiency.
- ☞ Check to make sure you are not bleeding off an excessive amount of water. For a typical small cooler, anything more htan a few gallons per hour may be excessive.
- ☞ Pipe the bleed-off water from your coolers to help water a landscaped area!

Eliminate Once Through Cooling!

Some coolers pass water through the equipment only once, and then discard it. "Single pass" technology is not good for two reasons. First, these single pass coolers use too much water! Secondly, they do not cool as effectively, because the water does not cool to wet bulb temperature. This type of cooling is illegal under Maui County Codes! Make sure your air conditioners, ice makers and other cooling systems are not single pass models!

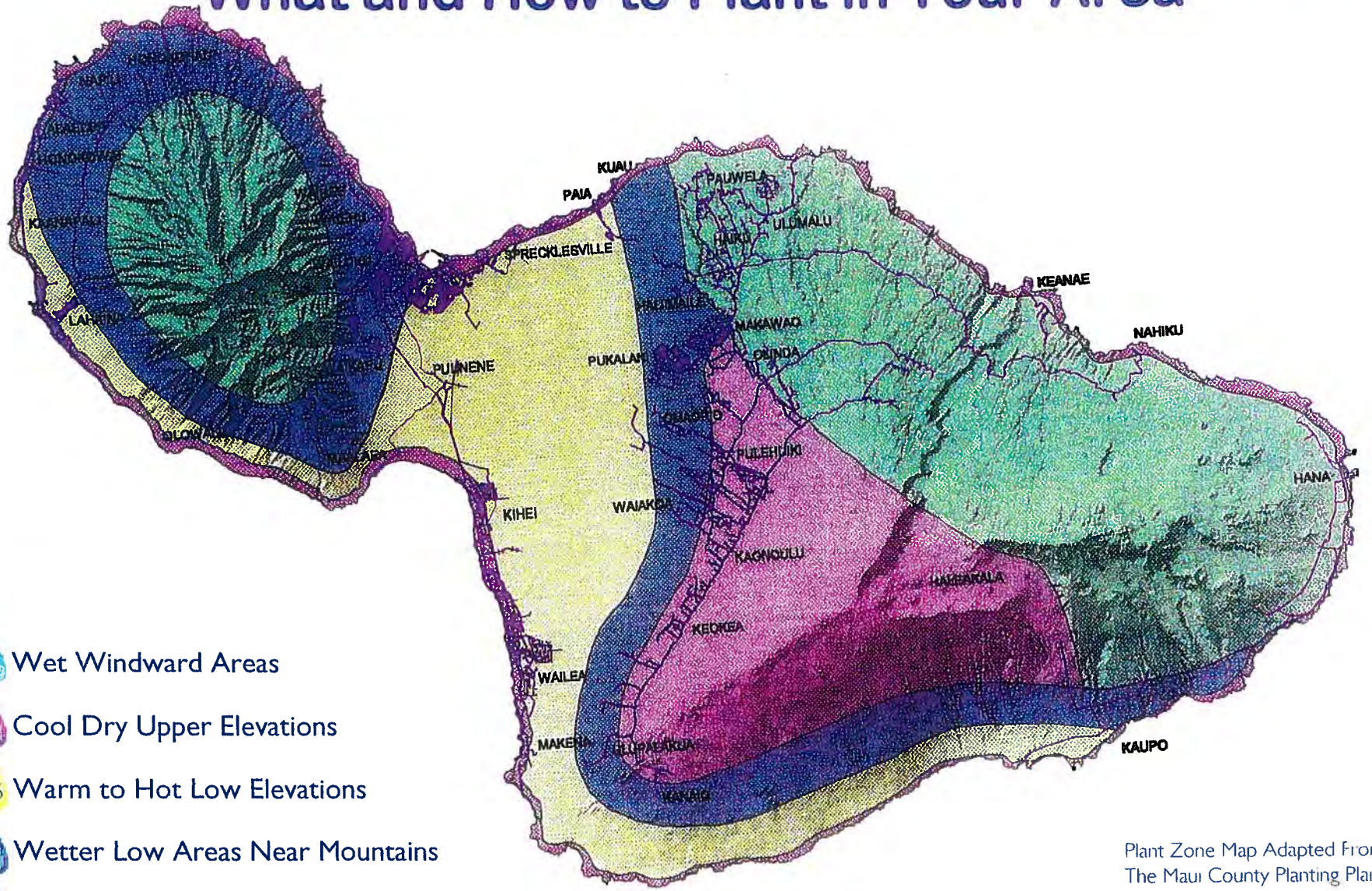
- ☞ Replace single-pass cooling models with air-cooled or recirculating models
- ☞ Connect to a recirculating cooling water loop. Or retrofit models to be recirculating.
- ☞ If a piece of equipment can not be replaced immediately, remember, it is illegal to dump single pass cooling water into the sewer system. Re-use this water for landscaping or other non-potable uses.



For More Information Contact the Maui County Board of Water Supply - Water Resources & Planning Division @ 243-7199

Saving Water in The Yard

What and How to Plant in Your Area



1 Wet Windward Areas

2 Cool Dry Upper Elevations

3 Warm to Hot Low Elevations

4 Wetter Low Areas Near Mountains

5 Windward Coastal Salt Spray Zones

Plant Zone Map Adapted From
The Maui County Planting Plan

Tips From The Maui County Department of Water Supply

By Water All Things Find Life

Zone-specific Native and Polynesian plants for Maui County

Zone 1

TYPE: **F** Fern **G** Grass **Gr** Ground Cover **Sh** Shrub **P** Palm **S** Sedge **Tr** Tree **V** Vine

Type	Scientific Name	Common Name	Height	Spread	Elevation	Water req.
F	Psilotum nudum	moa, moa kula	1'	1'	sea to 3,000'	Dry to Wet
F	Sadleria cyatheoides	'ama'u, ama'uma'u				
Gr - Sh	Lipochaeta succulenta	nehe	2'	5'	sea to 1,000'	Dry to Wet
P	Cocos nucifera	coconut, niu	100'	30'	sea to 1,000'	Dry to Wet
P	Pritchardia arecina	lo'ulu, hawane	40'	10'	1,000' to 3,000'	Dry to Wet
P	Pritchardia forbesiana	lo'ulu	15'			
P	Pritchardia hillebrandii	lo'ulu, fan palm	25'	15'	sea to 1,000'	Dry to Wet
S	Mariscus javanicus	marsh cypress, 'ahu'awa	0.5'	0.5'	sea to 1,000'	Dry to Medium
Sh	Bidens hillebrandiana ssp. hillebrandiana	ko'oko'olau	1'	2'	sea to 1,000'	Dry to Wet
Sh	Cordyline fruticosa	ti, ki	6			
Sh	Hedyotis spp.	au, pilo	3'	2'	1,000' to 3,000'	Dry to Wet
Sh - Tr	Broussonetia papyrifera	wauke, paper mulberry	8'	6'	sea to 1,000'	Dry to Medium
Tr	Acacia koa	koa	50' - 100'	40' - 80'	1,500' to 4,000'	Dry to Medium
Tr	Aleurites moluccana	candlenut, kukui	50'	50'	sea to 3,000'	Medium to Wet
Tr	Calophyllum inophyllum	kamani, alexandrian laurel	60'	40'	sea to 3,000'	Medium to Wet
Tr	Charpentiera obovata		15'			
Tr	Cordia subcordata	kou	30'	25'	sea to 1,000'	Dry to Wet
Tr	Hibiscus furcellatus	'akiohala, hau-hele	8'			
Tr	Metrosideros polymorpha var. macrophylla	ohi'a lehua	25'	25'	sea to 1,000'	Dry to Wet
Tr	Morinda citrifolia	indian mulberry, noni	20'	15'	sea to 1,000'	Dry to Wet
Tr	Pandanus tectorius	hala, puhala (HALELIST)	35'	25'	sea to 1,000'	Dry to Wet
V	Alyxia oliviformis	maile	Vine		sea to 6,000'	Medium to Wet

Zone-specific Native and Polynesian plants for Maui County

Zone 2

TYPE: **F** Fern **G** Grass **Gr** Ground Cover **Sh** Shrub **P** Palm **S** Sedge **Tr** Tree **V** Vine

Type	Scientific Name	Common Name	Height	Spread	Elevation	Water req.
F	Psilotum nudum	moa, moa kula	1'	1'	sea to 3,000'	Dry to Wet
F	Sadleria cyatheoides	'ama'u, ama'uma'u				
G	Eragrostis monticola	kalamalo	1'	2'	sea to 3,000'	Dry to Medium
Gr	Ipomoea tuboides	Hawaiian moon flower, 'uala	1'	10'	sea to 3,000'	Dry to Medium
Gr	Peperomia leptostachya	'ala'ala-wai-nui	1'	1'	sea to 3,000'	Dry to Medium
Gr	Plumbago zeylanica	'ilie'e	1'			
Gr - Sh	Hibiscus calyphyllus	ma'o hau hele, Rock's hibiscus	3'	2'	sea to 3,000'	Dry to Medium
Gr - Sh	Lipochaeta rockii	nehe	2'	2'	sea to 3,000'	Dry to Medium
Sh	Argemone glauca var. decipiens	pua kala	3'	2'	sea to 3,000'	Dry to Medium
Sh	Artemisia mauiensis var. diffusa	Maui wormwood, 'ahinahina	2'	3'	1,000' to higher	Dry to Medium
Sh	Chenopodium oahuense	'aheahea, 'aweoweo	6'		sea to higher	Dry to Medium
Sh	Dianella sandwicensis	'uki	2'	2'	1,000' to higher	Dry to Medium
Sh	Lipochaeta lavarum	nehe	3'	3'	sea to 3,000'	Dry to Medium
Sh	Osteomeles anthyllidifolia	'ulei, eluehe	4'	6'	sea to 3,000'	Dry to Medium
Sh	Senna gaudichaudii	kolomana	5'	5'	sea to 3,000'	Dry to Medium
Sh	Styphelia tameiameiae	pukiawe	6'	6'	1,000' to higher	Dry to Medium
Sh	Vitex rotundifolia	pohinahina	3'	4'	sea to 1,000'	Dry to Medium
Sh - Tr	Myoporum sandwicense	naio, false sandalwood	10'	10'	sea to higher	Dry to Medium
Sh - Tr	Nototrichium sandwicense	kulu'i	8'	8'	sea to 3,000'	Dry to Medium
Sh-Tr	Dodonaea viscosa	'a'ali'i	6'	8'	sea to higher	Dry to Medium
Tr	Acacia koa	koa	50' - 100'	40' - 80'	1,500' to 4,000'	Dry to Medium
Tr	Charpentiera obovata		15'			
Tr	Erythrina sandwicensis	wiliwili	20'	20'	sea to 1,000'	Dry
Tr	Metrosideros polymorpha var. macrophylla	ohi'a lehua	25'	25'	sea to 1,000'	Dry to Wet

Zone-specific Native and Polynesian plants for Maui County

Zone 2

Type	Scientific Name	Common Name	Height	Spread	Elevation	Water req.
Tr	Nestegis sandwicensis	olopua	15'	15'	1,000' to 3,000'	Dry to Medium
Tr	Pleomele auwahiensis	halapepe	20'			
Tr	Rauvolfia sandwicensis	hao	20'	15'	sea to 3,000'	Dry to Medium
Tr	Santalum ellipticum	coastal sandalwood, 'ili-ahi	8'	8'	sea to 3,000'	Dry to Medium
Tr	Sophora chrysophylla	mamane	15'	15'	1,000' to 3,000'	Medium
V	Alyxia oliviformis	maile	Vine		sea to 6,000'	Medium to Wet

Zone-specific Native and Polynesian plants for Maui County

Zone 3

TYPE: **F** Fern **G** Grass **Gr** Ground Cover **Sh** Shrub **P** Palm **S** Sedge **Tr** Tree **V** Vine

Type	Scientific Name	Common Name	Height	Spread	Elevation	Water req.
F	Psilotum nudum	moa, moa kula	1'	1'	sea to 3,000'	Dry to Wet
G	Colubrina asiatica	'anapanapa	3'	10'	sea to 1,000'	Dry to Wet
G	Eragrostis monticola	kalamalo	1'	2'	sea to 3,000'	Dry to Medium
G	Eragrostis variabilis	'emo-loa	1'	2'	sea to 3,000'	Dry to Medium
G	Fimbristylis cymosa ssp. spathacea	mau'u'aki'aki fimbristylis	0.5'	1'	sea to 1,000'	Dry to Medium
Gr	Boerhavia repens	alena	0.5'	4'	sea to 1,000'	Dry to Medium
Gr	Chamaesyce celastroides var. laehiensis	'akoko	2'	3'	sea to 1,000'	Dry to Medium
Gr	Cressa truxillensis	cressa	0.5'	1'	sea to 1,000'	Dry to Medium
Gr	Heliotropium anomalum var. argenteum	hinahina ku kahakai	1'	2'	sea to 1,000'	Dry to Medium
Gr	Ipomoea tuboides	Hawaiian moon flower, uala	1'	10'	sea to 3,000'	Dry to Medium
Gr	Jacquemontia ovalifolia ssp. sandwicensis	pa'u o hi'iaka	0.5'	6'	sea to 1,000'	Dry to Medium
Gr	Lipochaeta integrifolia	nehe	1'	5'	sea to 1,00'	Dry to Medium
Gr	Peperomia leptostachya	'ala'ala-wai-nui	1'	1'	sea to 3,000'	Dry to Medium
Gr	Plumbago zeylanica	'ilie'e	1'			
Gr	Sesuvium portulacastrum	'akulikuli, sea-purslane	0.5'	2'	sea to 1,000'	Dry to Wet
Gr	Sida fallax	'ilima	0.5'	3'	sea to 1,000'	Dry to Medium
Gr	Tephrosia purpurea var. purpurea	'auhuhu	2'	2'	sea to 1,000'	Dry to Medium
Gr - Sh	Hibiscus calyphyllus	ma'o hau hele, Rock's hibiscus	3'	2'	sea to 3,000'	Dry to Medium
Gr - Sh	Lipochaeta rockii	nehe	2'	2'	sea to 3,000'	Dry to Medium
Gr - Sh	Lipochaeta succulenta	nehe	2'	5'	sea to 1,000'	Dry to Wet
Gr - Sh	Lycium sandwicense	'ohelo-kai, 'ae'ae	2'	2'	sea to 1,000'	Dry to Medium
P	Cocos nucifera	coconut, niu	100'	30'	sea to 1,000'	Dry to Wet
P	Pritchardia hillebrandii	lo'ulu, fan palm	25'	15'	sea to 1,000'	Dry to Wet
S	Mariscus javanicus	marsh cypress, 'ahu'awa	0.5'	0.5'	sea to 1,000'	Dry to Medium

Zone-specific Native and Polynesian plants for Maui County

Zone 3

Type	Scientific Name	Common Name	Height	Spread	Elevation	Water req.
Sh	Argemone glauca var. decipiens	pua kala	3'	2'	sea to 3,000'	Dry to Medium
Sh	Bidens mauiensis	ko'oko'olau	1'	3'	sea to 1,000'	Dry to Medium
Sh	Bidens menziesii ssp. menziesii	ko'oko'olau	1'	3'		
Sh	Bidens micrantha ssp. micrantha	ko'oko'olau	1'	3'		
Sh	Chenopodium oahuense	'aheahea, 'aweoweo	6'		sea to higher	Dry to Medium
Sh	Dianella sandwicensis	'uki	2'	2'	1,000' to higher	Dry to Medium
Sh	Gossypium tomentosum	mao, Hawaiian cotton	5'	8'	sea to 1,000'	Dry to Medium
Sh	Hedyotis spp.	au, pilo	3'	2'	1,000' to 3,000'	Dry to Wet
Sh	Lipochaeta lavarum	nehe	3'	3'	sea to 3,000'	Dry to Medium
Sh	Osteomeles anthyllidifolia	'ulei, eluehe	4'	6'	sea to 3,000'	Dry to Medium
Sh	Scaevola sericea	naupaka, naupaka-kahakai	6'	8'	sea to 1,000'	Dry to Medium
Sh	Senna gaudichaudii	kolomana	5'	5'	sea to 3,000'	Dry to Medium
Sh	Solanum nelsonii	'akia, beach solanum	3'	3'	sea to 1,00'	Dry to Medium
Sh	Styphelia tameiameiae	pukiawe	6'	6'	1,000' to higher	Dry to Medium
Sh	Vitex rotundifolia	pohinahina	3'	4'	sea to 1,000'	Dry to Medium
Sh	Wikstroemia uva-ursi kauaiensis kauaiensis	'akia, Molokai osmanthus				
Sh - Tr	Broussonetia papyrifera	wauke, paper mulberry	8'	6'	sea to 1,000'	Dry to Medium
Sh - Tr	Myoporum sandwicense	naio, false sandalwood	10'	10'	sea to higher	Dry to Medium
Sh - Tr	Nototrichium sandwicense	kulu'i	8'	8'	sea to 3,000'	Dry to Medium
Sh-Tr	Dodonaea viscosa	'a'ali'i	6'	8'	sea to higher	Dry to Medium
Tr	Aleurites moluccana	candlenut, kukui	50'	50'	sea to 3,000'	Medium to Wet
Tr	Calophyllum inophyllum	kamani, alexandrian laurel	60'	40'	sea to 3,000'	Medium to Wet
Tr	Canthium odoratum	Alahe'e, 'ohe'e, walahe'e	12'	8'	sea to 3,000'	Dry to Medium
Tr	Cordia subcordata	kou	30'	25'	sea to 1,000'	Dry to Wet
Tr	Diospyros sandwicensis	lama	12'	15'	sea to 3,000'	Dry to Medium
Tr	Erythrina sandwicensis	wiliwili	20'	20'	sea to 1,000'	Dry
Tr	Metrosideros polymorpha var. macrophylla	ohi'a lehua	25'	25'	sea to 1,000'	Dry to Wet

Zone-specific Native and Polynesian plants for Maui County

Zone 3

Type	Scientific Name	Common Name	Height	Spread	Elevation	Water req.
Tr	Morinda citrifolia	indian mulberry, noni	20'	15'	sea to 1,000'	Dry to Wet
Tr	Nesoluma polynesicum	keahi	15'	15'	sea to 3,00'	Dry
Tr	Nestegis sandwicensis	olopua	15'	15'	1,000' to 3,000'	Dry to Medium
Tr	Pandanus tectorius	hala, puhala (HALELIST)	35'	25'	sea to 1,000'	Dry to Wet
Tr	Pleomele auwahiensis	halapepe	20'			
Tr	Rauvolfia sandwicensis	hao	20'	15'	sea to 3,000'	Dry to Medium
Tr	Reynoldsia sandwicensis	'ohe makai	20'	20'	1,000' to 3,000'	Dry
Tr	Santalum ellipticum	coastal sandalwood, 'ili-ahi	8'	8'	sea to 3,000'	Dry to Medium
Tr	Thespesia populnea	milo	30'	30'	sea to 3,000'	Dry to Wet

Zone-specific Native and Polynesian plants for Maui County

Zone 4

TYPE: F Fern G Grass Gr Ground Cover Sh Shrub P Palm S Sedge Tr Tree V Vine

Type	Scientific Name	Common Name	Height	Spread	Elevation	Water req.
F	Psilotum nudum	moa, moa kula	1'	1'	sea to 3,000'	Dry to Wet
F	Sadleria cyatheoides	'ama'u, ama'uma'u				
G	Colubrina asiatica	'anapanapa	3'	10'	sea to 1,000'	Dry to Wet
G	Eragrostis monticola	kalamalo	1'	2'	sea to 3,000'	Dry to Medium
G	Eragrostis variabilis	'emo-loa	1'	2'	sea to 3,000'	Dry to Medium
G	Fimbristylis cymosa ssp. spathacea	mau'u'aki'aki fimbristylis	0.5'	1'	sea to 1,000'	Dry to Medium
Gr	Chamaesyce celastroides var. laehiensis	'akoko	2'	3'	sea to 1,000'	Dry to Medium
Gr	Ipomoea tuboides	Hawaiian moon flower, 'uala	1'	10'	sea to 3,000'	Dry to Medium
Gr	Jacquemontia ovalifolia ssp. sandwicensis	pa'u o hi'iaka	0.5'	6'	sea to 1,000'	Dry to Medium
Gr	Lipochaeta integrifolia	nehe	1'	5'	sea to 1,00'	Dry to Medium
Gr	Peperomia leptostachya	'ala'ala-wai-nui	1'	1'	sea to 3,000'	Dry to Medium
Gr	Plumbago zeylanica	'ilie'e	1'			
Gr	Sida fallax	'ilima	0.5'	3'	sea to 1,000'	Dry to Medium
Gr	Tephrosia purpurea var. purpurea	'auhuhu	2'	2'	sea to 1,000'	Dry to Medium
Gr - Sh	Hibiscus calyphyllus	ma'o hau hele, Rock's hibiscus	3'	2'	sea to 3,000'	Dry to Medium
Gr - Sh	Lipochaeta rockii	nehe	2'	2'	sea to 3,000'	Dry to Medium
Gr - Sh	Lipochaeta succulenta	nehe	2'	5'	sea to 1,000'	Dry to Wet
P	Cocos nucifera	coconut, niu	100'	30'	sea to 1,000'	Dry to Wet
P	Pritchardia arecina	lo'ulu, hawane	40'	10'	1,000' to 3,000'	Dry to Wet
P	Pritchardia forbesiana	lo'ulu	15'			
P	Pritchardia hillebrandii	lo'ulu, fan palm	25'	15'	sea to 1,000'	Dry to Wet
S	Mariscus javanicus	marsh cypress, 'ahu'awa	0.5'	0.5'	sea to 1,000'	Dry to Medium
Sh	Argemone glauca var. decipiens	pua kala	3'	2'	sea to 3,000'	Dry to Medium
Sh	Artemisia australis	'ahinahina	2'	3'	sea to 3,000'	Dry to Medium

Zone-specific Native and Polynesian plants for Maui County

Zone 4

Type	Scientific Name	Common Name	Height	Spread	Elevation	Water req.
Sh	Artemisia mauiensis var. diffusa	Maui wormwood, 'ahinahina	2'	3'	1,000' to higher	Dry to Medium
Sh	Bidens hillebrandiana ssp. hillebrandiana	ko'oko'olau	1'	2'	sea to 1,000'	Dry to Wet
Sh	Bidens menziesii ssp. menziesii	ko'oko'olau	1'	3'		
Sh	Bidens micrantha ssp. micrantha	ko'oko'olau	1'	3'		
Sh	Cordyline fruticosa	ti, ki	6			
Sh	Dianella sandwicensis	'uki	2'	2'	1,000' to higher	Dry to Medium
Sh	Lipochaeta lavarum	nehe	3'	3'	sea to 3,000'	Dry to Medium
Sh	Osteomeles anthyllidifolia	'ulei, eluehe	4'	6'	sea to 3,000'	Dry to Medium
Sh	Scaevola sericea	naupaka, naupaka-kahakai	6'	8'	sea to 1,000'	Dry to Medium
Sh	Solanum nelsonii	'akia, beach solanum	3'	3'	sea to 1,00'	Dry to Medium
Sh	Styphelia tameiameiae	pukiawe	6'	6'	1,000' to higher	Dry to Medium
Sh	Vitex rotundifolia	pohinahina	3'	4'	sea to 1,000'	Dry to Medium
Sh	Wikstroemia uva-ursi kauaiensis kauaiensis	'akia, Molokai osmanthus				
Sh - Tr	Broussonetia papyrifera	wauke, paper mulberry	8'	6'	sea to 1,000'	Dry to Medium
Sh - Tr	Myoporum sandwicense	naio, false sandalwood	10'	10'	sea to higher	Dry to Medium
Sh - Tr	Nototrichium sandwicense	kulu'i	8'	8'	sea to 3,000'	Dry to Medium
Sh-Tr	Dodonaea viscosa	'a'ali'i	6'	8'	sea to higher	Dry to Medium
Tr	Acacia koa	koa	50' - 100'	40' - 80'	1,500' to 4,000'	Dry to Medium
Tr	Aleurites moluccana	candlenut, kukui	50'	50'	sea to 3,000'	Medium to Wet
Tr	Calophyllum inophyllum	kamani, alexandrian laurel	60'	40'	sea to 3,000'	Medium to Wet
Tr	Canthium odoratum	Alahe'e, 'ohe'e, walahe'e	12'	8'	sea to 3,000'	Dry to Medium
Tr	Charpentiera obovata		15'			
Tr	Cordia subcordata	kou	30'	25'	sea to 1,000'	Dry to Wet
Tr	Diospyros sandwicensis	lama	12'	15'	sea to 3,000'	Dry to Medium
Tr	Hibiscus furcellatus	'akiohala, hau-hele	8'			
Tr	Metrosideros polymorpha var. macrophylla	ohi'a lehua	25'	25'	sea to 1,000'	Dry to Wet
Tr	Morinda citrifolia	indian mulberry, noni	20'	15'	sea to 1,000'	Dry to Wet

Zone-specific Native and Polynesian plants for Maui County

Zone 4

Type	Scientific Name	Common Name	Height	Spread	Elevation	Water req.
Tr	Nestegis sandwicensis	olopua	15'	15'	1,000' to 3,000'	Dry to Medium
Tr	Pandanus tectorius	hala, puhala (HALELIST)	35'	25'	sea to 1,000'	Dry to Wet
Tr	Pleomele auwahiensis	halapepe	20'			
Tr	Rauvolfia sandwicensis	hao	20'	15'	sea to 3,000'	Dry to Medium
Tr	Santalum ellipticum	coastal sandalwood, 'ili-ahi	8'	8'	sea to 3,000'	Dry to Medium
Tr	Sophora chrysophylla	mamane	15'	15'	1,000' to 3,000'	Medium
Tr	Thespesia populnea	milo	30'	30'	sea to 3,000'	Dry to Wet
V	Alyxia oliviformis	maile	Vine		sea to 6,000'	Medium to Wet

Zone-specific Native and Polynesian plants for Maui County

Zone 5

TYPE: F Fern G Grass Gr Ground Cover Sh Shrub P Palm S Sedge Tr Tree V Vine

Type	Scientific Name	Common Name	Height	Spread	Elevation	Water req.
G	Colubrina asiatica	'anapanapa	3'	10'	sea to 1,000'	Dry to Wet
G	Eragrostis variabilis	'emo-loa	1'	2'	sea to 3,000'	Dry to Medium
G	Fimbristylis cymosa ssp. spathacea	mau'u'aki'aki fimbristylis	0.5'	1'	sea to 1,000'	Dry to Medium
Gr	Boerhavia repens	alena	0.5'	4'	sea to 1,000'	Dry to Medium
Gr	Chamaesyce celastroides var. laehiensis	'akoko	2'	3'	sea to 1,000'	Dry to Medium
Gr	Cressa truxillensis	cressa	0.5'	1'	sea to 1,000'	Dry to Medium
Gr	Heliotropium anomalum var. argenteum	hinahina ku kahakai	1'	2'	sea to 1,000'	Dry to Medium
Gr	Jacquemontia ovalifolia ssp. sandwicensis	pa'u o hi'iaka	0.5'	6'	sea to 1,000'	Dry to Medium
Gr	Lipochaeta integrifolia	nehe	1'	5'	sea to 1,00'	Dry to Medium
Gr	Sesuvium portulacastrum	'akulikuli, sea-purslane	0.5'	2'	sea to 1,000'	Dry to Wet
Gr	Sida fallax	'ilima	0.5'	3'	sea to 1,000'	Dry to Medium
Gr	Tephrosia purpurea var. purpurea	'auhuhu	2'	2'	sea to 1,000'	Dry to Medium
Gr - Sh	Hibiscus calyphyllus	ma'o hau hele, Rock's hibiscus	3'	2'	sea to 3,000'	Dry to Medium
Gr - Sh	Lycium sandwicense	'ohelo-kai, 'ae'ae	2'	2'	sea to 1,000'	Dry to Medium
P	Cocos nucifera	coconut, niu	100'	30'	sea to 1,000'	Dry to Wet
P	Pritchardia hillebrandii	lo'ulu, fan palm	25'	15'	sea to 1,000'	Dry to Wet
S	Mariscus javanicus	marsh cypress, 'ahu'awa	0.5'	0.5'	sea to 1,000'	Dry to Medium
Sh	Argemone glauca var. decipiens	pua kala	3'	2'	sea to 3,000'	Dry to Medium
Sh	Artemisia australis	'ahinahina	2'	3'	sea to 3,000'	Dry to Medium
Sh	Bidens hillebrandiana ssp. hillebrandiana	ko'oko'olau	1'	2'	sea to 1,000'	Dry to Wet
Sh	Bidens mauiensis	ko'oko'olau	1'	3'	sea to 1,000'	Dry to Medium
Sh	Chenopodium oahuense	'aheahea, 'aweoweo	6'		sea to higher	Dry to Medium
Sh	Dianella sandwicensis	'uki	2'	2'	1,000' to higher	Dry to Medium
Sh	Gossypium tomentosum	mao, Hawaiian cotton	5'	8'	sea to 1,000'	Dry to Medium

Zone-specific Native and Polynesian plants for Maui County

Zone 5

Type	Scientific Name	Common Name	Height	Spread	Elevation	Water req.
Sh	Hedyotis spp.	au, pilo	3'	2'	1,000' to 3,000'	Dry to Wet
Sh	Lipochaeta lavarum	nehe	3'	3'	sea to 3,000'	Dry to Medium
Sh	Osteomeles anthyllidifolia	'ulei, eluehe	4'	6'	sea to 3,000'	Dry to Medium
Sh	Scaevola sericea	naupaka, naupaka-kahakai	6'	8'	sea to 1,000'	Dry to Medium
Sh	Senna gaudichaudii	kolomana	5'	5'	sea to 3,000'	Dry to Medium
Sh	Solanum nelsonii	'akia, beach solanum	3'	3'	sea to 1,00'	Dry to Medium
Sh	Vitex rotundifolia	pohinahina	3'	4'	sea to 1,000'	Dry to Medium
Sh	Wikstroemia uva-ursi kauaiensis kauaiensis	'akia, Molokai osmanthus				
Sh - Tr	Myoporum sandwicense	naio, false sandalwood	10'	10'	sea to higher	Dry to Medium
Sh-Tr	Dodonaea viscosa	'a'ali'i	6'	8'	sea to higher	Dry to Medium
Tr	Aleurites moluccana	candlenut, kukui	50'	50'	sea to 3,000'	Medium to Wet
Tr	Calophyllum inophyllum	kamani, alexandrian laurel	60'	40'	sea to 3,000'	Medium to Wet
Tr	Cordia subcordata	kou	30'	25'	sea to 1,000'	Dry to Wet
Tr	Hibiscus furcellatus	'aklohala, hau-hele	8'			
Tr	Morinda citrifolia	indian mulberry, noni	20'	15'	sea to 1,000'	Dry to Wet
Tr	Pandanus tectorius	hala, puhala (HALELIST)	35'	25'	sea to 1,000'	Dry to Wet
Tr	Thespesia populnea	milo	30'	30'	sea to 3,000'	Dry to Wet
V	Ipomoea pes-caprae	beach morning glory, pohuehue	1			

DO NOT PLANT THESE PLANTS !!!

Common name	Scientific name	Plant family
black wattle	Acacia mearnsii	Mimosaceae
blackberry	Rubus argutus	Rosaceae
blue gum	Eucalyptus globulus	Myrtaceae
bocconia	Bocconia frutescens	Papaveraceae
broad-leaved cordia	Cordia glabra	Boraginaceae
broomsedge, yellow bluestem	Andropogon virginicus	Poaceae
buffelgrass	Cenchrus ciliaris	Poaceae
butterfly bush, smoke bush	Buddleja madagascariensis	Buddlejaceae
cats claw, Mysore thorn, wait-a-bit	Caesalpinia decapetala	Caesalpiniaceae
common ironwood	Casuarina equisetifolia	Casuarinaceae
common velvet grass, Yorkshire fog	Holcus lanatus	Poaceae
fiddlewood	Citharexylum spinosum	Verbenaceae
fire tree, faya tree	Myrica faya	Myricaceae
glorybower	Clerodendrum laponicum	Verbenaceae
hairy cat's ear, gosmore	Hypochoeris radicata	Asteraceae
haole koa	Leucaena leucocephala	Fabaceae
ivy gourd, scarlet-fruited gourd	Coccinia grandis	Cucurbitaceae
juniper berry	Citharexylum caudatum	Verbenaceae
kahili flower	Grevillea banksii	Proteaceae
klu, popinac	Acacia farnesiana	Mimosaceae
logwood, bloodwood tree	Haematoxylon campechianum	Caesalpiniaceae
loquat	Eriobotrya japonica	Rosaceae
meadow ricegrass	Ehrharta stipoides	Poaceae
melaleuca	Melaleuca quinquenervia	Myrtaceae
miconia, velvet leaf	Miconia calvescens	Melastomataceae
narrow-leaved carpetgrass	Axonopus fissifolius	Poaceae
oleaster	Elaeagnus umbellata	Elaeagnaceae
oriental mangrove	Bruguiera gymnorrhiza	Rhizophoraceae
padang cassia	Cinnamomum burmanii	Lauraceae
palmgrass	Setaria palmifolia	Poaceae
pearl flower	Heterocentron subtriplinervium	Melastomataceae
quinine tree	Cinchona pubesens	Rubiaceae
satin leaf, caimitillo	Chrysophyllum oliviforme	Sapotaceae
silkwood, Queensland maple	Flindersia brayleyana	Rutaceae
silky oak, silver oak	Grevillea robusta	Proteaceae
strawberry guava	Psidium cattleianum	Myrtaceae
swamp oak, saltmarsh, longleaf ironwood	Casuarina glauca	Casuarinaceae
sweet vernalgrass	Anthoxanthum odoratum	Poaceae
tree of heaven	Ailanthus altissima	Simaroubaceae
trumpet tree, guarumo	Cecropia obtusifolia	Cecropiaceae
white ginger	Hedychium coronarium	Zingiberaceae
white moho	Heliocarpus popayanensis	Tiliaceae
yellow ginger	Hedychium flavescens	Zingiberaceae

DO NOT PLANT THESE PLANTS !!!

Common name	Scientific name	Plant family
	Jasminum fluminense	Oleaceae
	Arthrostema ciliatum	Melastomataceae
	Dissotis rotundifolia	Melastomataceae
	Erigeron karvinskianus	Asteraceae
	Eucalyptus robusta	Myrtaceae
	Hedychium gardnerianum	Zingiberaceae
	Juncus planifolius	Juncaceae
	Lophostemon confertus	Myrtaceae
	Medinilla cumingii	Melastomataceae
	Medinilla magnifica	Melastomataceae
	Medinilla venosa	Melastomataceae
	Melastoma candidum	Melastomataceae
	Melinis minutiflora	Poaceae
	Olea europaea	
	Oxyspora paniculata	Melastomataceae
	Panicum maximum	Poaceae
	Paspalum urvillei	Poaceae
	Passiflora edulis	Passifloraceae
	Phormium tenax	Agavaceae
	Pinus taeda	Pinaceae
	Prosopis pallida	Fabaceae
	Pterolepis glomerata	Melastomataceae
	Rhodomyrtus tomentosa	Myrtaceae
	Schefflera actinophylla	Araliaceae
	Syzygium jambos	Myrtaceae
Australian blackwood	Acacia melanoxylon	Mimosaceae
Australian tree fern	Cyathea cooperi	Cyatheaceae
Australian tree fern	Sphaeropteris cooperi	Cyatheaceae
Beggar's tick, Spanish needle	Bidens pilosa	Asteraceae
California grass	Brachiaria mutica	Poaceae
Chinese banyon, Maylayan banyon	Ficus mirocarpa	Moraceae
Chinese violet	Asystasia gangetica	Acanthaceae
Christmasberry, Brazilian pepper	Schinus terebinthifolius	Anacardiaceae
Formosan koa	Acacia confusa	Mimosaceae
German ivy	Senecio mikanioides	Asteraceae
Japanese honeysuckle	Lonicera japonica	Caprifoliaceae
Koster's curse	Clidemia hirta	Melastomataceae
Lantana	Lantana camara	Verbenaceae
Mauritius hemp	Furcraea foetida	Agavaceae
Mexican ash, tropical ash	Fraxinus uhdei	Oleaceae
Mexican tulip poppy	Hunnemannia fumariifolia	Papaveraceae
Mules foot, Madagascar tree fern	Angiopteris evecta	Marattiaceae
New Zealand laurel, karakaranut	Corynocarpus laevigatus	Corynocarpaceae
New Zealand tea	Leptospermum scoparium	Myrtaceae
Pampas grass	Cortaderia jubata	Poaceae
Panama rubber tree, Mexican rubber tree	Castilloa elastica	Moraceae
Shoebutton ardisia	Ardisia elliptica	Myrsinaceae
banana poka	Passiflora mollissima	Passifloraceae

Selection

As a general rule, it is best to select the largest and healthiest specimens. However, be sure to note that they are not pot-bound. Smaller, younger plants may result in a low rate of plant survival.[1] When selecting native species, consider the site they are to be planted in, and the space that you have to plant. For example: Mountain species such as koa and maile will not grow well in hot coastal areas exposed to strong ocean breezes. Lowland and coastal species such as wiliwili and Kou require abundant sunshine and porus soil. They will not grow well with frequent cloud cover, high rainfall and heavy soil.

Consider too, the size that the species will grow to be. It is not wise to plant trees that will grow too large.[2] Overplanting tends to be a big problem in the landscape due to the underestimation of a species' height, width or spread.

A large, dense canopied tree such as the kukui is a good shade tree for a lawn. However, it's canopy size and density of shade will limit what can be planted in the surrounding area. Shade cast by a koa and ohia lehua is relatively light and will not inhibit growth beneath it.

Keep seasons in mind when you are selecting your plants. Not all plants look good year round, some plants such as ilima will look scraggly after they have flowered and formed seeds. Avoid planting large areas with only one native plant. Mixing plants which naturally grow together will ensure the garden will look good all year round.[3] Looking at natural habitats helps to show how plants grow naturally in the landscape.

When planting an area with a mixed-ecosystem, keep in mind the size and ecological requirements of each plant. Start with the hardiest and most easily grown species, but allow space for fragile ones in subsequent plantings.

Acquiring natives

Plants in their wild habitat must be protected and maintained. It is best and easiest to get your plants from nurseries (see list), or friend's gardens. Obtain proper permits from landowners and make sure you follow a few common sense rules:

- collect sparingly from each plant or area.
- some plants are on the state or Federal Endangered Species list. Make sure you get permits (see app. A,B)

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[1] K. Nagata, P.6

[2] K. Nagata, P.9

[3] Nagata, P.9

Soil

Once you have selected your site and the plants you wish to establish there, you must look at the soil conditions on the site. Proper soil is necessary for the successful growth of most native plants, which preform poorly in hard pan, clay or adobe soils. If natives are to be planted in these types of soil, it would be wise to dig planting holes several times the size of the rootball and backfill with 50-75% compost.[4] A large planting hole ensures the development of a strong root system. The plant will have a headstart before the roots penetrate the surrounding poor soil.[5]

It is recommended that native plants not be planted in ground that is more dense than potting soil. If there is no alternative, dig a hole in a mound of soil mixed with volcanic cinder which encourages maximum root development. Fill the hole with water, if the water tends to puddle or drain too slowly, dig a deeper hole until the water does not puddle longer than 1 or 2 minutes.[6] Well-drained soil is one of the most important things when planting natives as you will see in the next section.

Irrigation

Most natives do very poorly in waterlogged conditions. Do not water if the soil is damp. Water when the soil is dry and the plants are wilting. Once established, a good soaking twice a week should suffice. Deep soaking encourages the development of stronger, and deeper root systems. This is better than frequent and shallow watering which encourage weaker, more shallow root systems.

The following is a watering schedule from Kenneth Nagata's Booklet, *How To Plant A Native Hawaiian Garden*:

WATER REQUIREMENT	WATERING FREQUENCY
Heavy	3x / week
Moderate	2x / week
Light	1x / week

Red clay soils hold more water for a longer period of time than sandy soils do. If your area is very sunny or near a beach, things will dry out faster. Even in the area of one garden, there are parts that will need more or less water. Soils can vary and amount of shade and wind differ. After plants are established (a month or two for most plants, up to a year for some trees), you can back off watering.

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[4] Nagata, p. 6

[5] Nagata, p. 8

[6] Nagata, p. 8

Automatic sprinkler systems are expensive to install and must be checked and adjusted regularly. Above-ground systems allow you to monitor how much water is being put out, but you lose a lot due to malfunctioning of sprinkler heads and wind. The most efficient way to save water and make sure your plants get enough water, is to hand-water. This way you are getting our precious water to the right places in the right amounts.[7]

Fertilizer

An all-purpose fertilizer 10-10-10 is adequate for most species. They should be applied at planting time, 3 months later, and 6 months thereafter. Use half the dosage recommended for ornamentals and pay special attention to native ferns which are sensitive to strong fertilizers. Use of organic composts and aged animal manures is suggested instead of chemical fertilizers. In addition, use of cinders for providing trace minerals is strongly recommended.[8]

Natives are plants which were here hundreds of years before the polynesians inhabited the Hawaiian Islands. They were brought here by birds, or survived the harsh ocean conditions to float here. They are well-adapted to Hawaii's varying soil and environmental conditions. This is why they make prime specimens for a xeriscape garden. However, natives will not thrive on their own, especially under harsh conditions. On the other hand, like any other plant, if you over-water and over-fertilize them, they will die. Follow the instructions given to you by the nursery you buy the plant from, or from this booklet. Better yet, buy a book (suggested readings can be found in the bibliography in the back of this pamphlet), read it, and learn more about native plants. I guarantee that you will be pleased with the results.

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[7] Bornhorst, p. 19-20

[8] Nagata, p. 6

Propagation

There are many ways to propagate and plant-out native Hawaiian species. One of the most thourough and helpful book is Heidi Bornhorst's book, *Growing Native Hawaiian Plants.* The easiest, and best way to obtain natives for the novice gardener is to get them from a reputable nursery (see appendix c). That way all you will have to do is know how to transplant (if necessary) and plant-out when you are ready. These are the two methods I have listed here.

Transplanting

1. Use pots that are one size bigger than the potted plant is in
2. Get your potting medium ready

Good potting medium is a ½, ½ mixture of peat moss and perlite. If the plant is from a dry or coastal area, add chunks of cinder or extra perlite. If it is a wet forest species, add more peat moss or compost. Be aware that peat moss is very acidic and certain plants react severely to acidity.

If the plant is to eventually be planted into the ground, make a mix of equal parts peat moss, perlite, and soil from the area in which the plant is to be planted. Slow-release fertilizer can be mixed into the potting medium.

3. Once pots, potting medium, fertilizer and water are ready, you can begin re-potting. Keep the plant stem at the same depth it was in the original pot. Avoid putting the plant in too large a pot, as the plant may not be able to soak up all the water in the soil and the roots may drown and rot.

Mix potting medium and add slow-release fertilizer at this time. Pre-wet the medium to keep dust down and lessen shock to the plant. Put medium in bottom of pot. Measure for the correct depth in the new pot. Make sure there is from ½ to 2 inches from the top of the pot so the plant can get adequate water. Try to stand the plant upright and center the stem in the middle of the pot.

Water the plant thoroughly after transplanting. A vitamin B-1 transplanting solution can help to lessen the transplant shock. Keep the plant in the same type of environment as it was before, sun or shade. If roots were broken, trimm off some of the leaves to compensate for the loss.[9]

Planting out

1. Plant most native Hawaiian plants in a sunny location in soil that is well-drained.
2. Make the planting hole twice as wide as the root ball or present pot, and just as deep.

If the soil is clay-like, and drains slowly, mix in some coarse red or bland cinder, coarse perlite or

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[9] Bornhorst, p.20-21

coarse compost. Place some slow-release fertilizer at the bottom of the hole.

3. Carefully remove the plant from the container and place it in the hole. The top of the soil should be at the same level as the top of the hole, if it is too high or too low, adjust the soil level so that the plant is at the right depth.

4. Water thoroughly after you transplant.

Mulch

Most natives cannot compete with weeds, and therefore must be weeded around constantly in order to thrive. Mulch is a practical alternative, which discourages and prevents weeds from growing.

Hawaii's hot, humid climate leads to the breaking down of organic mulches. Thick organic mulches such as wood chips and leaves, may also be hiding places for pests.

Stone mulches are attractive, permanent and can help to improve soil quality. Red or black cinder, blue rock chips, smooth river rocks and coral chips are some natural choices.[10] Macadamia nut hulls are also easy to find and can make a nice mulch.[11]

Never pile up mulch right next to the stem or trunk of a plant, keep it a few inches away.

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[10] Bornhorst, p. 24

[11] Nagata, p. 7

ZONES

The Maui County Planting Plan has compiled a system of 5 zones of plant growth for Maui County. The descriptions of zones and maps for these zones are as follows:

Zone 1:

Wet areas on the windward side of the island. More than 40 inches of rain per year. Higher than 3,000 feet.

Zone 2:

Cool, dry areas in higher elevations (above 1,000 feet). 20 to 40 inches of rain per year.

Zone 3:

Low, drier areas, warm to hot. Less than 20 inches of rain per year. Sea level to 1,000 feet.

Zone 4:

Lower elevations which are wetter due to proximity of mountains. 1,000 to 3,000 feet.

Zone 5:

Salt spray zones in coastal areas on the windward side.

These zones are to be used as a general guide to planting for Maui County. In addition to looking at the maps, read the descriptions of the zones and decide which zone best fits your area. Plants can be listed in more than one zone and can be planted in a variety of conditions. For best results, take notes on the rainfall, wind, sun and salt conditions of your site. Use the zones as a general guide for selection and read about the plants to decide which best fits your needs as far as care and or function.

PLACES TO SEE NATIVES ON MAUI:

The following places propagate native Hawaiian plants from seeds and/or cuttings. Their purpose is to protect and preserve these native plants. Please contact them before going to view the sites, they can provide valuable information and referral to other sources.

1.	Hoolawa Farms P O Box 731 Haiku HI 96708	575-5099
2.	The Hawaiian Collection 1127 Manu Street Kula HI 96790	878-1701
3.	Kula Botanical Gardens RR4, Box 228 Kula HI 96790	878-1715
4.	Maui Botanical Gardens Kanaloa Avenue, Kahului across from stadium	249-2798
5.	Kula Forest Reserve access road at the end of Waipoli Rd Call the Maui District Office	 984-8100
6.	Wailea Point, Private Condominium residence 4000 Wailea Alanui, Kihei public access points at Four Seasons Resort or Polo Beach	875-9557
7.	Kahanu Gardens, National Tropical Botanical Garden Alau Place, Hana HI 96713	248-8912
8.	Kahului Library Courtyard 20 School Street Kahului HI 96732	873-3097

PLACES TO BUY NATIVE PLANTS ON MAUI

1. Ho'olawa Farms
   Anna Palomino
   P O Box 731
   Haiku HI 96708
   575-5099

   * The largest and best collection of natives in the state. They will deliver, but worth the drive to go and see! Will propagate upon request

2. Kahanu Gardens
   National Tropical Botanical Garden
   Alau Place, Hana
   248-8912

3. Kihana Nursery
   1708 South Kihei Road
   Kihei HI 96753
   879-1165

4. Kihei Garden and Landscape
   Waiko Road, Wailuku
   P O Box 1058
   Puunene HI 96784
   244-3804

5. Kula Ace Hardware and Nursery
   3600 Lower Kula Road
   Kula HI 96790
   876-0734
   * many natives in stock
   * get most of their plants from Ho'olawa Farms
   * they take special requests

6. Kulamanu Farms - Ann Carter
   Kula HI 96790
   878-1801

7. Maui Nui Botanical Gardens
   Kanaloa Avenue
   (Across from stadium)
   Kahului HI 96732
   249-2798

8. Native Gardenscapes
   Robin McMillan
   1330 Lower Kimo Drive
   Kula HI 96790
   870-1421

   * grows native plants and installs landscapes including irrigation.

9. Native Hawaiian Tree Source
   1630 Piiholo Road
   Makawao HI 96768
   572-6180

10. Native Nursery, LLC
    Jonathan Keyser
    250-3341

11. New Moon Enterprises - Pat Bily
    47 Kahoea Place
    Kula HI 96790
    878-2441

12. Waiakoa Tree Farm - Kua Rogoff
    Pukalani HI 96768
    Cell - 264-4166

May 19, 2010
2007.70.0500/10P-050

Mr. Jeffrey K. Eng, Director
Department of Water Supply
County of Maui
200 S. High Street
Wailuku, HI 96793-2155

Dear Mr. Eng:

Environmental Impact Statement Preparation Notice (EISPN)
The Villages of Leiali‘i Affordable Housing Project
Lahaina District, Island of Maui

Thank you for sending comments on the EISPN, thereby participating in the Hawaii Revised Statutes Chapter 343 public review process. We appreciate your letter of April 14, 2010.

The proposed master plan includes three alternative programs for the site, illustrating how it could be developed to meet the objectives of the Hawaii Housing Finance and Development Corporation (HHFDC). However, the final plan may vary from the proposed alternatives. HHFDC intends to issue Request for Proposals to developers to plan, design and develop the Villages of Leiali‘i project. The developers who submit proposals to HHFDC will formulate plans based on their own design and cost considerations. The plan accepted by HHFDC will likely fit within the range of alternatives in the EIS. Should the plan involve additional impacts, the developer will be required to prepare supplemental environmental impact submittals.

As you request, the EIS will identify water sources, and both potable and non-potable water demand from the project.

We acknowledge your recommendations for water conservation, planting materials, and pollution prevention. These will be conveyed to the future developer of the project.

Again, thank you for your participation. We will send you more information as the Chapter 343 process continues.

Very truly yours,

BELT COLLINS HAWAII LTD.

Susan A. Sakai
Vice President/Director of Planning

SAS:dco

Belt Collins Hawaii Ltd. | 2153 North King Street, Suite 200 | Honolulu, HI 96819-4554 USA
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Belt Collins Hawaii is an Equal Opportunity Employer

CHARMAINE TAVARES
Mayor

JEFFREY S. HUNT
Director

KATHLEEN ROSS AOKI
Deputy Director

COUNTY OF MAUI

DEPARTMENT OF PLANNING

April 6, 2010

Ms. Susan A. Sakai
Vice President/Director of Planning
Belt Collins Hawaii Ltd.
2153 North King Street, Suite 200
Honolulu, Hawaii 96819-4554

Dear Ms. Sakai:

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT (EIS) PREPARATION NOTICE FOR THE PROPOSED VILLAGES OF LEIALI'I AFFORDABLE HOUSING PROJECT, LOCATED AT LAHAINA, ISLAND OF MAUI, HAWAII; TMK(S): (2) 4-5-021:003, 004, 005, 013, 021, 022, AND (2) 4-5-028:070 (RFC 2010/0029)

The Department of Planning (Department) is in receipt of the above-referenced document for the proposed Villages of Leiali'i Affordable Housing Project. The Department understands the proposed action includes the following:

- The Applicant is the State of Hawaii, Hawaii Housing Financing and Development Corporation (HHFDC);

- The Applicant is requesting to develop a Mixed-Use community comprised of higher-density, walkable neighborhoods with a mixture of residential unit types, Commercial and Mixed-Use neighborhood centers, light industrial areas, and connectivity for various modes of transportation and associated improvements on approximately 1,033 acres of land;

- A primary project goal is to increase housing opportunities that are affordable to Hawaii's workforce and lower and moderate income households with the goal of developing at least fifty percent (50%) of the total residential units as affordable;

- The Accepting Authority is the Office of the Governor. The HHFDC will conduct the review on behalf of the Office of the Governor;

- The proposed subdivision will also include a neighborhood oriented village town center, parks, open space, and lands for other Public/Quasi-Public use;

250 SOUTH HIGH STREET, WAILUKU, MAUI, HAWAII 96793
MAIN LINE (808) 270-7735; FACSIMILE (808) 270-7634
CURRENT DIVISION (808) 270-8205; LONG RANGE DIVISION (808) 270-7214; ZONING DIVISION (808) 270-7253

- The proposed project will require a Maui County Change in Zoning from Agriculture to the respective zoning district requested and a West Maui Community Plan Amendment to the respective zoning designation requested;

- The proposed project will require a State Land Use District Boundary Amendment from the State Land Use Commission; and

- The use of State of Hawaii land and/or funds is the "trigger" for the preparation of an EIS.

Based on the foregoing, the Department provides the following comments in preparation of the Draft EIS:

1. The land use designations for the project vary. Provide a chart and map outlining each Tax Map Key (TMK) under review verified by the Maui County Zoning Administration and Enforcement Division (ZAED) indicating the existing designations for: State Land Use District, County Zoning, West Maui Community Plan, and any other special districts, such as Special Management Area (SMA) and the proposed zoning designation and respective approving authority if the zoning is to be changed;

2. Provide an analysis of the advantages and potential challenges of the three (3) concept plans known as: Concept One, Concept Two, and Concept Three and provide a conclusion as to which concept plan fits most closely with the goals of the HHFDC;

3. Provide a history of current entitlements received for specific project TMK parcels from the State Land Use Commission, adherence with Docket No. A89-652 and the associated Conditions of Approval, and how past project approvals from the State Land Use Commission relate to the potential need for further District Boundary Amendments and approvals from the State Land Use Commission. How do the Conditions of Approval for Docket No. A89-652 relate to the current proposed project?

4. Provide an estimated "breakdown" of the project's affordable housing program indicating income groups broken down by income range (% of median income), the "%" and "unit count" allocation of affordable units for each income range in relation to all units throughout the project, and the estimated price range for the residences in each income group category;

5. Provide a market analysis for the proposed project that defines the West Maui market area for housing, identifies and analyzes the current supply and demand conditions specific to the project's market, and identifies and forecasts the effect of this development as well as other proposed "affordable" developments on supply and demand for future housing throughout the West Maui region;

6. The Draft EIS should include a discussion of how the project is supportive of the West Maui Community Plan (1996). The West Maui Community Plan recognizes the Villages of Leiali'i as an approved major master planned affordable housing development. It goes on to say on page 17 of the Plan that, *"Approvals of these projects provide that no less than 60% of the housing units will be in the affordable price range. Lands makai of the proposed Lahaina Bypass Highway shall be developed prior to those lands mauka of the Bypass. The land designation of Agriculture (AG) shall apply to all portions of the following projects not fully developed under and pursuant to Hawaii Revised Statutes Act 15, Sessions Laws of Hawaii, 1988..*

   a. *Villages of Leiali'i – This project is planned by the State Housing Finance Development Corporation and situated mauka of Honoapiilani Highway in the vicinity of the Lahaina Civic Center and Wahikuli Terrace comprising an area of approximately 1,120 acres. The planned residential community will include approximately 4,813 housing units to be developed in phases, an 18-hole golf course, two elementary school sites, neighborhood business commercial uses, church, child care, recreation/park uses, and other public uses."*

   Indicate how the project has evolved from the project referred to in the West Maui Community Plan 1996;

7. Provide "theoretical" visual images of the proposed architecture and the range of product types from Residential to Commercial and demonstrate how the project will support urban design guidelines and standards which will reflect the unique traditional architectural values of the West Maui Community Plan area. Identify and compare this proposed project with other affordable communities within the Hawaiian Islands to show a range of architectural styles. West Maui and historic Lahaina are particularly well known for their "sense of place" and portions of Lahaina are included in the Lahaina National Historic Landmark District. Does this project intend to build upon the heritage of Lahaina and if so, how?

8. Has the project been proposed to be processed, pursuant to Section 201H-38 Hawaii Revised Statutes (HRS) for an affordable housing community?

9. As represented, the project proposes to develop a Mixed-Use Commercial/Retail component. Please provide information in the form of plans and overall goals as to how the commercial area will be designed to be integrated into the residential area, and how the commercial area integrates with the character and configuration of commercial areas in Lahaina. Discuss how the proposed density, character of the development, urban form, urban design principles, and character proposed for the development supports this intent. Discuss how the existing Lahaina community will be impacted both negatively and positively by the proposed Commercial uses.

10. The Department recommends this project be reviewed in detail by the Maui County Urban Design Review Board (UDRB) in a publicly noticed meeting to allow for a discussion of project design. Maui County's General Plan Urban Design Policy is to *"encourage expansion in the process to require all non-single family development to be reviewed by the Urban Design Review Board."* Although the majority use in this project is Residential, this is a Mixed-Use Development/Commercial component that should be reviewed by the UDRB. The General Plan Urban Design Objective *"to see that all developments are well designed and are in harmony with their surroundings"* is a critical design guideline by which the UDRB reviews potential projects. Please comment if the UDRB will be consulted during the entitlement process;

11. Provide a preliminary engineering report that reviews existing and anticipated infrastructure improvements including: roadways, drainage, mass grading, sewer, water, and electric/telephone/cable TV;

12. The Draft EIS should include a discussion of how the project is supportive of the Draft Maui Island Plan, which is currently under review by the County Council. Portions of the proposed project are indicated in the planned growth area noted as "Lahaina Town North." Clearly describe how the proposed project complies with the proposed Directed Growth Strategy of the Maui Island Plan. The proposed project does not appear to be consistent with some of the principles and maps within the Maui Island Plan, specifically The Directed Growth Strategy maps. Growth areas have been proposed where future growth is desired. As currently reflected, much of the proposed Villages of Leiali'i project mauka of the proposed Lahaina Bypass Highway falls outside of the proposed Urban Growth Boundaries (UGB) on the Lahaina Town Directed Growth Map W3 and the Kaanapali Directed Growth Map W2 in the Draft Maui Island Plan dated October 16, 2009. The Draft Maui Island Plan provides an adequate supply of land for the number of new housing units forecasted to 2030 with lands that are within the Urban, Country Town, Rural Service Centers, and Rural Growth boundaries. On pages 8-39 and 8-40, of the Draft Maui Island Plan, the Planned Growth Area that comports with a portion of the proposed project provides for 181 acres with a corresponding 800 residential units allocated for urban expansion. However, the open space and greenways proposed for the Villages of Leiali`i project closely correlate with the open space and park area Planning Guidelines within the Draft Maui Island Plan. As such, the proposed project's acreage and units exceed the allocation of units for the vicinity of the proposed project;

13. The Alternatives Analysis section of the Draft EIS should include a thorough discussion of how the portions of the project which fall outside of the proposed UGB and planned growth areas, including associated unit counts, can be revised and/or phased to coordinate with future Maui Island Plan Updates and how the proposed project can support the currently proposed 2030 Maui Island Plan.

Future updates to the Maui Island Plan may include amendments to the UGB that will provide opportunities for reconsideration of the portions of the proposed project that fall outside of the currently proposed UGB. Please provide an adequate analysis as to how the proposed project's housing mix relates to and supports the Draft Maui Island Plan housing mix standards and guidelines. Please discuss why additional housing units are needed outside of the proposed UGB;

14. The Draft EIS should include the following additional studies and elements:

- A multi-modal traffic circulation analysis including a thorough discussion of how the proposed project will encourage multi-modal transportation;

- Proposed Urban Design Standards which may include streetscape, public realm, and/or architectural design guidelines. Please also include a list of flexible design standards and building typologies considered for inclusion into the project;

- Sustainable building technologies planned for the proposed project that mostly closely align with the project's goals;

- Climate appropriate design principles and green design principles considered for inclusion into the project;

- Leadership in Energy and Environmental Design (LEED) certifications being sought and/or the specific LEED criteria that will be incorporated into Concept Three;

- Phase I and II Environmental Site Assessment Reports conducted for the Proposed Project;

- A Viewshed Impact Analysis which clearly demonstrates how the project will minimize impacts to scenic resources. Provide a series of visual schematics and photosimulations of the proposed project as seen from adjacent, mauka and makai locations to the proposed project and a view plane analysis to demonstrate the relation of the project to adjacent visual resources including the West Maui mountains, and the Pacific Ocean. In addition, the erection of story poles outlining the framing of a typical house should be done to see the physical outline from adjacent roadways and public spaces. This is standard procedure for a project that has potential impacts on open space resources; and

- A timeline indicating the full build-out of the proposed project, including any phasing, and the financing of the build-out.

15. The Draft EIS should also include a thorough discussion of how the project is supportive of the following broad themes contained within the Draft Maui Island Plan, which is currently under review by the County Council:

    - Protection of Maui's Small Towns and Rural Character;
    - Protection of Watersheds and Coastal Resources; and
    - Integration of Land Use and Infrastructure Planning, including a description of how the proposed project's infrastructure systems will tie into the existing infrastructure systems of other significant projects proposed in West Maui.

16. The Draft EIS should discuss how the State of Hawaii will meet the requirements of Article XII, Section 6, of the Hawaii State Constitution and Section 10-13.5, HRS.

Thank you for the opportunity to comment. Please include the Department on the distribution list of the Draft EIS. Should you require further clarification, please contact Staff Planner Kurt Wollenhaupt of the Department's Current Division at kurt.wollenhaupt@mauicounty.gov or at (808) 270-1789 or Staff Planner Simone Bosco of the Department's Long Range Division at simone.bosco@mauicounty.gov or at (808) 270-5570.

Sincerely,

JEFFREY S. HUNT, AICP
Planning Director

xc: Clayton I. Yoshida, AICP, Planning Program Administrator
Aaron H. Shinmoto, PE, Planning Program Administrator (2)
John F. Summers, Planning Program Administrator
Kurt F. Wollenhaupt, Staff Planner
Simone Bosco, Staff Planner
State Land Use Commission
Susan A. Sakai, Applicant (PDF)
Project File
General File

JSH:KFW:vb
K:\WP_DOCS\PLANNING\RFC\2010\0029_Villages of Leiali'i\FinalComment.DOC

May 19, 2010
2007.70.0500/10P-049

Kathleen Ross Aoki
Planning Director
Department of Planning
County of Maui
250 South High Street
Wailuku, HI 96793

Dear Ms. Aoki,

Environmental Impact Statement Preparation Notice (EISPN)
The Villages of Leiali‘i Affordable Housing Project
Lahaina District, Island of Maui

Thank you for sending comments on the EISPN, thereby participating in the Hawaii Revised Statutes Chapter 343 public review process. We appreciate your letter of April 6, 2010.

The proposed master plan includes three alternative programs for the site, illustrating how it could be developed to meet the objectives of the Hawaii Housing Finance and Development Corporation (HHFDC). However, the final plan may vary from the proposed alternatives. HHFDC intends to issue Request for Proposals to developers to plan, design and develop the Villages of Leiali‘i project. The developers who submit proposals to HHFDC will formulate plans based on their own design and cost considerations. The plan accepted by HHFDC will likely fit within the range of alternatives in the EIS. Should the plan involve additional impacts, the developer will be required to prepare supplemental environmental impact submittals.

Our responses to your comments are listed in the order they appear in your letter.

1. We will prepare a chart and map(s) of the TMKs in the project, identifying their current designation in terms of State Land Use Districts, County Zoning, West Maui Community Plan and Special Management Areas for review and verification by the Zoning Administration and Enforcement Division of your Department for inclusion into the Draft Environmental Impact Statement. Proposed zoning designations are not known at this time because they will depend upon the proposed plan of the selected developer and his decision whether to proceed with entitlements by conventional rezoning or exemptions through the Hawaii Revised Statutes (HRS) Section 201H-38 process.

2. The Draft EIS will provide further discussion of the advantages, drawbacks and impacts associated with the three development alternatives.

3. Since its inception in October 1988 when the Mayor of the County of Maui and the Governor of the State of Hawaii announced a joint selection of the Villages of Leiali'i project site, HHFDC and its predecessor agencies, the Housing Finance and Development Corporation and the Housing and Community Development Corporation of Hawaii, have contributed major efforts in planning, entitlement, design and construction improvements towards the timely development of this project, including the following:

    - Master Plan and EIS (1990)
    - LUC classification to Urban (1990)
    - Participated with the County of Maui in the expansion of the Lahaina Wastewater Treatment Plant to accommodate the entire Villages of Leiali'i project (1991)
    - Roads, sewer, water and drainage systems for Village 1A (1993)
    - Two exploration portable water wells (1993)
    - Participated with the County of Maui for the installation of a sewer line and wastewater reclamation line to accommodate the entire Villages of Leiali'i project, from the Lahaina Wastewater Treatment Plant to about half-way to the Villages of Leiali'i project (1993)
    - Land acquisition (1994)
    - Construction drawings for the development of two wells and offsite reservoir and transmission waterline (1994)
    - Construction drawings (1994) and condemnation of the easement for the offsite sewer line and wastewater reclamation line for the balance of the connection from the Lahaina Wastewater Treatment Plant to the Villages of Leiali'i project (1995)

    Excluding agency administrative staff time, expenses and carrying charges, as of June 30, 2009, the unrecovered costs for the Villages of Leiali'i is about $32.4 million.

    The Land Use Commission approved the Urban District Boundary Amendment for the Villages of Leiali'i on May 18, 1990.

    The Villages of Leiali'i was initially included in the West Maui Community Plan in 1992-1993, and is currently indicated in the existing West Maui Community Plan Land Use Map as 1,128 acres and 4,800 residential units.

    Your question, "How do the Conditions of Approval for Docket No. A89-652 relate to the current proposed project?" will be explicitly addressed in the Draft EIS. In part, the answer is that HHFDC has chosen to develop a new master plan and EIS in light of the time that has elapsed since 1990. HHFDC and the developer will consult with the Land Use Commission (LUC) and seek approval of the developer's proposed plan as required by the LUC.

4. The details of the affordable housing program will be finalized by the future project developer. A majority of the residential units shall be affordable to Hawaii's workforce and

lower- and moderate-income households at or below 140% of the U.S. Department of Housing and Urban Development area median income. The range and "breakdown" of affordable units will be based upon the program of the developer selected through a competitive Request for Proposals (RFP) process. With potential competing evaluation criteria such as: most affordable units, most sustainable community, range and mix of affordable units, most rental units, and minimum use of State resources, HHFDC is unable to predict the range and mix of affordable units that will result from the RFP process.

Act 100 Session Laws of Hawaii 2001 requires that affordable housing at the Villages of Leiali'i be agreed to between HHFDC and the County of Maui. HHFDC and the selected developer will be seeking the County's approval of the "breakdown" of the affordable housing program based upon the proposal of the selected developer.

5. The draft EIS will include a discussion of the market for the Villages of Leiali‘i project, the supply of and demand for housing in the market area, and the likely impact of the project on the housing market in West Maui and Maui Island generally.

6. The draft EIS will include a discussion of how the project aligns with the *West Maui Community Plan* (1996). That discussion will recognize how the project has evolved since the Plan was adopted, and how the current concepts align with the features of the Leiali‘i project that were supported in the Plan.

7. HHFDC will instruct the developer to take into consideration the range of architectural styles found on Maui, especially in Lahaina. It will not be possible to supply useful images of project architecture and product types until the master developer has been selected.

   The project is adjacent to the Kelawea and Wahikuli subdivisions. The developer will likely take the range of styles and design in nearby housing areas into consideration, as well as those of landmarks in the Lahaina National Historic District.

8. The future developer will be responsible for seeking permits for the Villages of Leiali‘i. While it seems likely that the developer will seek HRS Section 201H-38 processing, that decision will be made by the selected developer.

9. The draft EIS will include information on the concepts of the commercial and industrial areas in each alternative. It will discuss how the project, and its commercial component, fit into the overall urban character of Lahaina. The impacts of the project on adjoining areas and on Lahaina as a whole will be considered in an account of socio-economic impacts.

10. Per your recommendation, HHFDC will advise the future developer to submit plans for the project to the Urban Design Review Board for consideration in a public meeting, and to consider suggestions from the Board as plans are revised.

11. A preliminary engineering report will be included in the draft EIS. It will discuss existing and future infrastructure, including roadways, drainage, mass grading, water, wastewater, electricity, telephone, and cable connections.

12. The draft EIS will discuss how the Villages of Leiali‘i project aligns with the objectives, directed growth strategy, and specific proposals for West Maui in the draft Maui Island Plan. As you note, the number of units proposed is larger than that indicated for development within the Urban Growth Boundary in the “Lahaina Town North” Planned Growth Area in the Plan.

13. The draft EIS will include a discussion of phasing, and how phasing of the project can respond to the County’s directed growth strategy. That discussion will include an account of steps that could be taken to request County support for future development outside the Urban Growth Boundary, when and if appropriate.

    The draft EIS will further discuss the mix of housing proposed for the Villages of Leiali‘i project in relation to the standards and guidelines for housing in the draft *Maui Island Plan*. It will identify why and how the development proposed is in keeping with the objectives and directed growth strategy of that Plan.

14. The draft EIS will include the following studies and elements:

    - A traffic impact assessment report, including consideration of multi-modal transportation;
    - Climate-appropriate and green design standards in line with HHFDC objectives;
    - Further discussion of the LEED-ND criteria used in developing Concept Three;
    - A visual resources analysis, assessing the impact of the project on views from nearby locations, especially public spaces such as Wahikuli State Wayside Park and adjacent roadways; and
    - A timeline for project build-out.

    Urban design standards, sustainable building technologies, and LEED designations (including LEED-ND and LEED for new construction) will be identified by the selected developer and further developed through the planning process.

    A Phase I site assessment has been conducted for the Villages of Leiali‘i in the course of master planning. Results will be reported in the draft EIS. A discussion of any Phase II assessment will be included if completed prior to issuance of the Draft EIS.

15. The draft EIS will include a discussion of broad themes in the draft *Maui Island Plan*, including Protection of Maui’s Small Towns and Rural Character, Protection of Watersheds and Coastal Resources, and Integration of Land Use and Infrastructure Planning. The

preliminary engineering report will discuss how the project's infrastructure will tie in with existing and proposed infrastructure systems in the area.

16. The draft EIS will discuss how HHFDC will meet its obligations under the State Constitution, Article XII and HRS Sec. 10-13.5, along with recent statutes and court rulings bearing on "ceded lands," with regard to the Villages of Leiali'i project lands.

Again, thank you for your participation. We will send you more information as the Chapter 343 process continues.

Very truly yours,

BELT COLLINS HAWAII LTD.

Susan A. Sakai
Vice President/Director of Planning

SAS:dco

POLICE DEPARTMENT

COUNTY OF MAUI

CHARMAINE TAVARES
MAYOR

OUR REFERENCE

YOUR REFERENCE

55 MAHALANI STREET
WAILUKU, HAWAII 96793
(808) 244-6400
FAX (808) 244-6411

GARY A. YABUTA
CHIEF OF POLICE

CLAYTON N.Y.W. TOM
DEPUTY CHIEF OF POLICE

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2010 APR -9 PM 2:01
BELT COLLINS HAWAII

April 6, 2010

Ms. Susan A. Sakai
Vice President/Director of Planning
Belt Collins Hawaii, Ltd.
2153 North King Street, Suite 200
Honolulu, HI 96819-4554

Dear Ms. Sakai:

SUBJECT: Environmental Impact Statement Preparation Notice – The Villages of Leiali'i Affordable Housing

Thank you for your letter of March 5, 2010, requesting comments on the above subject.

After reviewing the Environmental Impact Statement Preparations Notice (EISPN) for The Villages of Leiali'i Affordable Housing we will submit our review of this project as it pertains to traffic mitigation and patrol duties at the appropriate juncture.

Very truly yours,

Assistant Chief Danny Matsuura
for: GARY A. YABUTA
Chief of Police

c: Jeffrey Hunt, Maui County Planning Department

May 19, 2010
2007.70.0500/10P-051

Mr. Gary A. Yabuta
Chief of Police
Police Department, County of Maui
55 Mahalani Street
Wailuku, HI 96793

Dear Chief Yabuta:

Environmental Impact Statement Preparation Notice (EISPN)
The Villages of Leiali‘i Affordable Housing Project
Lahaina District, Island of Maui

Thank you for sending comments on the EISPN, thereby participating in the Hawaii Revised Statutes Chapter 343 public review process. We appreciate your letter of April 6, 2010.

The proposed master plan includes three alternative programs for the site, illustrating how it could be developed to meet the objectives of the Hawaii Housing Finance and Development Corporation (HHFDC). However, the final plan may vary from the proposed alternatives. HHFDC intends to issue Request for Proposals to developers to plan, design and develop the Villages of Leiali‘i project. The developers who submit proposals to HHFDC will formulate plans based on their own design and cost considerations. The plan accepted by HHFDC will likely fit within the range of alternatives in the EIS. Should the plan involve additional impacts, the developer will be required to prepare supplemental environmental impact submittals.

In your letter, you note that you will submit comments on traffic mitigation and patrol duties at the appropriate juncture.

Again, thank you for your participation. We will send you more information as the Chapter 343 process continues.

Very truly yours,

BELT COLLINS HAWAII LTD.

Susan A. Sakai
Vice President/Director of Planning

SAS:dco

Belt Collins Hawaii Ltd. | 2153 North King Street, Suite 200 | Honolulu, HI 96819-4554 USA
Tel: 808.521.5361 | Fax: 808.538.7819 | www.beltcollins.com | honolulu@beltcollins.com
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LINDA LINGLE
GOVERNOR

~~PATRICIA HAMAMOTO~~
~~XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX~~
KATHRYN S. MATAYOSHI
INTERIM SUPERINTENDENT

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2010 MAR 25 PM 2: 34
BELT COLLINS HAWAII

STATE OF HAWAI'I
DEPARTMENT OF EDUCATION
P.O. BOX 2360
HONOLULU, HAWAI'I 96804

OFFICE OF THE SUPERINTENDENT

March 22, 2010

Ms. Susan A. Sakai, Vice President
Belt Collins Hawaii Ltd.
2153 North King Street, Suite 200
Honolulu, Hawaii 96819-4554

Subject: Environmental Impact Statement Preparation Notice for Villages of Leiali`i, Lahaina, Maui

The Department of Education (DOE) has reviewed the Environmental Impact Statement Preparation Notice for an affordable housing project in Lahaina. It is not clear what regulatory action is being sought for the project. It is also unclear how the project being proposed is different from the project already proposed in an earlier Environmental Impact Statement.

The DOE is in the process of analyzing future school needs on the island of Maui as part of the process of implementing school impact fees. It is highly likely that the Lahaina area will be part of a West Maui school impact fee district that will be proposed to the Board of Education for approval before the end of 2010. If a West Maui district is adopted, the Leiali`i project would be subject to school impact fees.

The DOE welcomes an opportunity to learn more about the Leiali`i project prior to the issuance of the latest Environmental Impact Statement. If you have any questions, please call Heidi Meeker of the Facilities Development Branch at 377-8301.

Very truly yours,

Kathryn S. Matayoshi
Interim Superintendent

KSM:to

c: Lindsay Ball, CAS, Hana/Lahaina/Lanai/Molokai Complex Areas

May 19, 2010
2007.70.0500/10P-052

Ms. Kathryn S. Matayoshi
Interim Superintendent
Hawaii State Department of Education
PO Box 2360
Honolulu, HI 96804

Dear Ms. Matayoshi:

Environmental Impact Statement Preparation Notice (EISPN)
The Villages of Leiali‘i Affordable Housing Project
Lahaina District, Island of Maui

Thank you for sending comments on the EISPN, thereby participating in the Hawaii Revised Statutes Chapter 343 public review process. We appreciate your letter of March 22, 2010.

The proposed master plan includes three alternative programs for the site, illustrating how it could be developed to meet the objectives of the Hawaii Housing Finance and Development Corporation (HHFDC). However, the final plan may vary from the proposed alternatives. HHFDC intends to issue Request for Proposals to developers to plan, design and develop the Villages of Leiali‘i project. The developers who submit proposals to HHFDC will formulate plans based on their own design and cost considerations. The plan accepted by HHFDC will likely fit within the range of alternatives in the EIS. Should the plan involve additional impacts, the developer will be required to prepare supplemental environmental impact submittals.

Our responses to your comments are listed in the order they appear in your letter.

1. The project will need State and County approvals. It will be up to the developer to decide whether to propose the project as a HRS 201-H affordable housing project.
2. The project differs from the Lahaina Master Planned Community proposed in 1990 in design. Also, transfer of lands will be in leasehold, or subject to legislative approval pursuant to Act 176 Session Laws of Hawaii 2009 due to its location on “ceded lands”; this process was not established in 1990.
3. We acknowledge that the Department of Education is likely to identify West Maui as a school impact fee district. We look forward to discussing the project with Ms. Meeker prior to issuance of the Draft Environmental Impact Statement.

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Tel: 808.521.5361 | Fax: 808.538.7819 | www.beltcollins.com | honolulu@beltcollins.com
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Again, thank you for your participation. We will send you more information as the Chapter 343 process continues.

Very truly yours,

BELT COLLINS HAWAII LTD.

Susan A. Sakai
Vice President/Director of Planning

SAS:dco

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, HONOLULU DISTRICT
FORT SHAFTER, HAWAII 96858-5440

RECEIVED
2010 MAY 20 PM 1:36
BELT COLLINS HAWAII

REPLY TO ATTENTION OF:

May 18, 2010

Regulatory Branch

File No. POH-2008-00014

Susan Sakai
Director of Planning
Belt Collins Hawaii Ltd
2153 North King Street, Suite 200
Honolulu, HI 96819-4554

Dear Ms. Sakai:

This responds to your request for written comments for the preparation of a draft Environmental Impact Statement (dEIS) which will address activities and impacts of the proposed Villages of Leiali`i Project located TMK TMKs 245021003, 245021004, 245021005, 245021013, 245021021, 245021022, AND 245028070, Lahaina, Maui.

The proposed dEIS will be reviewed pursuant to Section 10 of the Rivers and Harbors Act of 1899 (Section 10) and Section 404 of the Clean Water Act (Section 404). Section 10 requires that a Department of Army (DA) permit be obtained for certain structures or work in or affecting navigable waters of the United States (U.S.), prior to conducting the work (33 U.S.C. 403). Navigable waters of the U.S. are those waters subject to the ebb and flow of the tide shoreward to the mean high water mark, and/or other waters identified as navigable by the Honolulu District. In addition, a Section 10 permit is required for structures or work outside this limit if they affect the course, location, or condition of the waterbody as to its navigable capacity.

Section 404 requires that a DA permit be obtained for the placement or discharge of dredged and/or fill material into waters of the U.S., including wetlands, prior to conducting the work (33 U.S.C. 1344). For regulatory purposes, the U.S. Army Corps of Engineers (Corps) defines wetlands as those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. The area of Corps jurisdiction under Section 404 extends to the Ordinary High Water Mark (OHWM) for navigable waters other than the Pacific Ocean, and to the upland boundary of any adjacent wetlands.

The dEIS should indicate whether waters of the United States, as typically represented by navigable waters, perennial, intermittent, ephemeral streams and wetlands, are in, or adjacent to, or absent from, the proposed project areas. The dEIS should state in appropriate sections whether there is the potential for waters of the U.S. to be impacted by construction of project structures and associated ground disturbing activities, such as temporary access and egress across or within the streams and wetlands, if present, to accomplish the proposed upland work. This additional information would enable the Corps to determine the scope of this activity and

determine whether a discharge of fill material may require DA permit authorization. You will need to apply for and receive authorization from the Corps prior to the installation of access/egress structures that could be construed as fill material into waters of the U.S..

A copy of the draft Environmental Impact Statement is requested for review and comment by our program.

Thank you for giving us the opportunity to review this proposal and for your cooperation with our regulatory program. Please be advised you can provide comments on your experience with the Honolulu District Regulatory Branch by accessing our web-based customer survey form at http://per2.nwp.usace.army.mil/survey.html.

Should you have any questions, please contact Mr. Farley Watanabe of this office at the above address, by telephone 808-438-7701 or by E-Mail at Farley.K.Watanabe@usace.army.mil . Please refer to **File No. POH-2010-00014** in all future communications with this office regarding this or other projects at this location.

Sincerely,

George P. Young, P.E.
Chief, Regulatory Branch

July 12, 2010
2007.70.0500/10P-092

Mr. George P. Young, P.E., Chief
Regulatory Branch
Department of the Army
U.S. Army Corps of Engineers, Honolulu District
Fort Shafter, Hawaii 96858-5440

Dear Mr. Young:

Environmental Impact Statement Preparation Notice (EISPN)
The Villages of Leiali‘i Affordable Housing Project
Lahaina District, Island of Maui

Thank you for sending comments on the EISPN, thereby participating in the Hawaii Revised Statutes Chapter 343 public review process. We appreciate your letter of May 18, 2010, File No. POH-2010-00014.

The proposed master plan includes three alternative programs for the site, illustrating how it could be developed to meet the objectives of the Hawaii Housing Finance and Development Corporation (HHFDC). However, the final plan may vary from the proposed alternatives. HHFDC intends to issue a Request for Proposals to developers to plan, design and develop the Villages of Leiali‘i project. The developers who submit proposals to HHFDC will formulate plans based on their own design and cost considerations. The plan accepted by HHFDC will likely fit within the range of alternatives in the EIS. Should the plan involve additional impacts, the developer will be required to prepare supplemental environmental impact submittals.

As part of the master plan drainage improvements a cut-off ditch is proposed along the mauka property line cutting through Wahikuli Reservoir and discharging into Crater Reservoir. An emergency spillway to Kahoma Stream is proposed for overflow discharge from Crater Reservoir. The irrigation ditches that feed water to Wahikuli and Crater Reservoirs are proposed to be eliminated. We understand that the Corps of Engineers has not made a geographic jurisdictional determination to indicate whether Wahikuli and Crater Reservoirs are, or are not Waters of the U.S. and that the draft EIS will be reviewed pursuant to Section 10 of the Rivers and Harbors Act of 1899 (Section 10) and Section 404 of the Clean Water Act (Section 404), and a determination made whether a Department of Army (DA) permit will be required for the project. If it is determined that the proposed project will impact Waters of the U.S., a DA permit will be obtained. If we receive a determination from the Corps of Engineers prior to publication

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of the draft EIS, a discussion of improvements required for the DA permit will be included in the draft EIS.

A copy of the draft EIS will be provided to your program for review and comment, as requested.

Again, thank you for your participation. We will send you more information as the Chapter 343 process continues.

Very truly yours,

BELT COLLINS HAWAII LTD.

Susan A. Sakai
Vice President/Director of Planning

SAS:dco

From: Stanley.S.Fujimoto@hawaii.gov [mailto:Stanley.S.Fujimoto@hawaii.gov]
Sent: Tuesday, March 30, 2010 8:06 AM
To: Sue Sakai; John Kirkpatrick
Cc: Richard.K.Prahler@hawaii.gov; Beth.E.Malvestiti@hawaii.gov
Subject: Leiali'i EISPN

Sue, John,
I just spoke to Dick Mayer on the Leiali'i EISPN. His comments were--
1. He wants to be on the mailing list for the EIS process. His title and address are as follows:
   Vice Chair of the Maui General Plan Advisory Committee
   1111 Lower Kimo Drive
   Kula, HI 96790
   Email: dickmayer@earthlink.net
2. EIS must include discussion of unit counts from the project relative to the units counts for West Maui in the Maui Island Plan.

Thanks.

Stan S. Fujimoto, Project Manager
Hawaii Housing Finance and Development Corporation
677 Queen Street, Suite 300
Honolulu, Hawaii 96813
Phone (808) 587-0541
Fax (808) 587-0600

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May 19, 2010
2007.70.0500/10P-053

Mr. Dick Mayer, Vice Chair
Maui General Plan Advisory Committee
1111 Lower Kimo Drive
Kula, HI 96790

Dear Mr. Mayer,

Environmental Impact Statement Preparation Notice (EISPN)
The Villages of Leiali‘i Affordable Housing Project
Lahaina District, Island of Maui

Thank you for your comments on the EISPN, thereby participating in the Hawaii Revised Statutes Chapter 343 public review process. We appreciate your phone call of March 30, 2010.

Our responses to your comments are:

1. Your name is now on the EIS distribution list, and you will receive the draft and final Environmental Impact Statements.
2. The Draft EIS will discuss the project in relation to the objectives and unit counts in the directed growth strategy set out in the draft *Maui General Plan*.

Again, thank you for your participation. We will send you more information as the Chapter 343 process continues.

Very truly yours,

BELT COLLINS HAWAII LTD.

Susan A. Sakai
Vice President/Director of Planning

SAS:dco

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LINDA LINGLE
GOVERNOR OF HAWAII

LAURA H. THIELEN
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

RECEIVED
2010 APR -8 PM 2:23
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STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

April 6, 2010

Belt Collins Hawaii Ltd.
2153 North King Street Suite 200
Honolulu, Hawaii 96819-4554

Attention: Ms. Susan A. Sakai

Ladies and Gentlemen:

Subject: Environmental Impact Statement Preparation Notice for The Villages of Leiali'i Affordable Housing

Thank you for the opportunity to review and comment on the subject matter. The Department of Land and Natural Resources' (DLNR), Land Division distributed or made available a copy of your report pertaining to the subject matter to DLNR Divisions for their review and comment.

Other than the comments from Commission on Water Resource Management, Engineering Division, the Department of Land and Natural Resources has no other comments to offer on the subject matter. Should you have any questions, please feel free to call our office at 587-0433. Thank you.

Sincerely,

Charlene Unoki

for Morris M. Atta
Administrator

LINDA LINGLE
GOVERNOR OF HAWAII

LAURA H. THIELEN
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

'10 MAR 11 PM02:49 ENGINEERING

'10 MAR 11 PM02

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

March 9, 2010

MEMORANDUM

TO: **DLNR Agencies:**
x Div. of Aquatic Resources
~~Div. of Boating & Ocean~~ Recreation
x Engineering Division
x Div. of Forestry & Wildlife
Div. of State Parks
x Commission on Water Resource Management
x Office of Conservation & Coastal Lands
x Land Division –Maui District/Keith

RECEIVED
LAND DIVISION
2010 MAR 19 P 3 06
DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

FROM: for Morris M. Atta
SUBJECT: Environmental Impact Statement Preparation Notice for The Villages of Leiali'i Affordable Housing
LOCATION: Island of Maui
APPLICANT: Belt Collins on behalf of HHFDC

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by April 4, 2010.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact my office at 587-0433. Thank you.

Attachments

( ) We have no objections.
( ) We have no comments.
(✓) Comments are attached.

Signed:
Date: 3/18/10

DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

LD/Morris Atta
Ref.: EISPN for the Villages of Leiali'i Affordable Housing
Maui.001

COMMENTS

(X) **We confirm that part of the project site, according to the Flood Insurance Rate Map (FIRM), is located in Flood Zone A. The National Flood Insurance Program does regulate developments within Zone A as indicated in bold letters below.**

We also confirm that the remainder of the project site according to the Flood Insurance Rate Map (FIRM), is located in Flood Zone X. The National Flood Insurance Program (NFIP) does not regulate developments within Zone X.

( ) Please take note that the project site, according to the Flood Insurance Rate Map (FIRM), is also located in Zone ____.

( ) Please note that the correct Flood Zone Designation for the project site according to the Flood Insurance Rate Map (FIRM) is ___.

(X) **Please note that the project site must comply with the rules and regulations of the National Flood Insurance Program (NFIP) presented in Title 44 of the Code of Federal Regulations (44CFR), whenever development within a Special Flood Hazard Area is undertaken. If there are any questions, please contact the State NFIP Coordinator, Ms. Carol Tyau-Beam, of the Department of Land and Natural Resources, Engineering Division at (808) 587-0267.**

Please be advised that 44CFR indicates the minimum standards set forth by the NFIP. Your Community's local flood ordinance may prove to be more restrictive and thus take precedence over the minimum NFIP standards. If there are questions regarding the local flood ordinances, please contact the applicable County NFIP Coordinators below:

( ) Mr. Robert Sumimoto at (808) 523-4254 or Mr. Mario Siu Li at (808) 523-4247 of the City and County of Honolulu, Department of Planning and Permitting.

( ) Mr. Frank DeMarco at (808) 961-8042 of the County of Hawaii, Department of Public Works.

(X) **Mr. Francis Cerizo at (808) 270-7771 of the County of Maui, Department of Planning.**

( ) Mr. Mario Antonio at (808) 241-6620 of the County of Kauai, Department of Public Works.

( ) The applicant should include project water demands and infrastructure required to meet water demands. Please note that the implementation of any State-sponsored projects requiring water service from the Honolulu Board of Water Supply system must first obtain water allocation credits from the Engineering Division before it can receive a building permit and/or water meter.

(X) **The applicant should provide the water demands and calculations to the Engineering Division so it can be included in the State Water Projects Plan Update.**

( ) Additional Comments: _____

_____

( ) Other: _____

Should you have any questions, please call Mr. Dennis Imada of the Planning Branch at 587-0257.

Signed: _____
CARTY S. CHANG, ACTING CHIEF ENGINEER

Date: 3/18/10

LINDA LINGLE
GOVERNOR OF HAWAII

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LAND DIVISION

2010 MAR 23 P 3:16

DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

LAURA H. THIELEN
CHAIRPERSON

WILLIAM D. BALFOUR, JR.
SUMNER ERDMAN
NEAL S. FUJIWARA
CHIYOME L. FUKINO, M.D.
DONNA FAY K. KIYOSAKI, P.E.
LAWRENCE H. MIIKE, M.D., J.D.

KEN C. KAWAHARA, P.E.
DEPUTY DIRECTOR

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT
P.O. BOX 621
HONOLULU, HAWAII 96809

March 23, 2010

REF: Villages of Leialii.EISPN

TO: Morris Atta, Administrator
Land Division

FROM: Ken C. Kawahara, P.E., Deputy Director
Commission on Water Resource Management

SUBJECT: Environmental Impact Statement Preparation Notice for The Villages of Leiali'i Affordable Housing, Island of Maui

FILE NO.: NA
TMK NO.: 4- 5- 21:03, 04, 05, 13, 21, 22, AND 4- 5- 28:70

Thank you for the opportunity to review the subject document. The Commission on Water Resource Management (CWRM) is the agency responsible for administering the State Water Code (Code). Under the Code, all waters of the State are held in trust for the benefit of the citizens of the State, therefore, all water use is subject to legally protected water rights. CWRM strongly promotes the efficient use of Hawaii's water resources through conservation measures and appropriate resource management. For more information, please refer to the State Water Code, Chapter 174C, Hawaii Revised Statutes, and Hawaii Administrative Rules, Chapters 13-167 to 13-171. These documents are available via the Internet at http://www.hawaii.gov/dlnr/cwrm.

Our comments related to water resources are checked off below.

☒ 1. We recommend coordination with the county to incorporate this project into the county's Water Use and Development Plan. Please contact the respective Planning Department and/or Department of Water Supply for further information.

☒ 2. We recommend coordination with the Engineering Division of the State Department of Land and Natural Resources to incorporate this project into the State Water Projects Plan.

☐ 3. We recommend coordination with the Hawaii Department of Agriculture (HDOA) to incorporate the reclassification of agricultural zoned land and the redistribution of agricultural resources into the State's Agricultural Water Use and Development Plan (AWUDP). Please contact the HDOA for more information.

☒ 4. We recommend that water efficient fixtures be installed and water efficient practices implemented throughout the development to reduce the increased demand on the area's freshwater resources. Reducing the water usage of a home or building may earn credit towards Leadership in Energy and Environmental Design (LEED) certification. More information on LEED certification is available at http://www.usgbc.org/leed. A listing of fixtures certified by the EPA as having high water efficiency can be found at http://www.epa.gov/watersense/pp/index.htm.

☒ 5. We recommend the use of best management practices (BMP) for stormwater management to minimize the impact of the project to the existing area's hydrology while maintaining on-site infiltration and preventing polluted runoff from storm events. Stormwater management BMPs may earn credit toward LEED certification. More information on stormwater BMPs can be found at http://hawaii.gov/dbedt/czm/initiative/lid.php.

☒ 6. We recommend the use of alternative water sources, wherever practicable.

☐ 7. There may be the potential for ground or surface water degradation/contamination and recommend that approvals for this project be conditioned upon a review by the State Department of Health and the developer's acceptance of any resulting requirements related to water quality.

Permits required by CWRM:
Additional information and forms are available at http://hawaii.gov/dlnr/cwrm/resources_permits.htm.

☐ 8. The proposed water supply source for the project is located in a designated water management area, and a Water Use Permit is required prior to use of water.

☐ 9. A Well Construction Permit(s) is (are) required any well construction work begins.

☒ 10. A Pump Installation Permit(s) is (are) required before ground water is developed as a source of supply for the project.

☒ 11. There is (are) well(s) located on or adjacent to this project. If wells are not planned to be used and will be affected by any new construction, they must be properly abandoned and sealed. A permit for well abandonment must be obtained.

☐ 12. Ground water withdrawals from this project may affect streamflows, which may require an instream flow standard amendment.

☐ 13. A Stream Channel Alteration Permit(s) is (are) required before any alteration(s) can be made to the bed and/or banks of a stream channel.

☐ 14. A Stream Diversion Works Permit(s) is (are) required before any stream diversion works is (are) constructed or altered.

☐ 15. A Petition to Amend the Interim Instream Flow Standard is required for any new or expanded diversion(s) of surface water.

☐ 16. The planned source of water for this project has not been identified in this report. Therefore, we cannot determine what permits or petitions are required from our office, or whether there are potential impacts to water resources.

☒ OTHER:
The report mentions that two exploratory wells have been drilled for the project. The EIS should identify these wells by State Well No. and discuss the results of the pumping tests. Pump installation permits from the Commission will need to be obtained prior to the installation of pumps for production purposes. Any other existing wells on the project site should also be identified. The EIS should project the potable and non-potable demands for the project, the basis for the estimates, identify any planned water conservation measures or practices to be implemented and identify any alternative water sources that may be available to meet the non-potable demands. There appears to be a stream in the vicinity of the project site; any potential impacts to the stream channel as a result of the project development should be disclosed. A stream channel alteration permit is required before any alterations may be made.

If there are any questions, please contact Commission staff at 587-0216.

LINDA LINGLE
GOVERNOR OF HAWAII

LAURA H. THIELEN
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

RECEIVED
2010 APR 15 PM 1:33
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STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

April 13, 2010

Belt Collins Hawaii Ltd.
2153 North King Street Suite 200
Honolulu, Hawaii 96819-4554

Attention: Ms. Susan A. Sakai

Ladies and Gentlemen:

Subject: Environmental Impact Statement Preparation Notice for The Villages of Leiali'i Affordable Housing

Thank you for the opportunity to review and comment on the subject matter. The Department of Land and Natural Resources' (DLNR), Land Division distributed or made available a copy of your report pertaining to the subject matter to Division of Aquatic Resources for their review and comment.

The Department of Land and Natural Resources has no other comments to offer on the subject matter. Should you have any questions, please feel free to call our office at 587-0433. Thank you.

Sincerely,

Charlene Unoki
Assistant Administrator

DIVISION OF AQUATIC RESOURCES - MAUI
DEPARTMENT OF LAND & NATURAL RESOURCES
130 Mahalani Street
Wailuku, Hawai'i 96793
April 7, 2010

RECEIVED
LAND DIVISION
2010 APR 13 P 2: 34
DEPT. OF LAND &
NATURAL RESOURCES
STATE OF HAWAII

To: Alton Miyasaka, Aquatic Biologist

From: Skippy Hau, Aquatic Biologist

Subject: EIS Preparation Notice for The Villages of Leiali'i Affordable Housing (DAR 2944) TMK: 4-5-21:03, 04, 05, 13, 21, 22 and 4-5-28:70 (Comments due by April 4, 2010 Morris Atta)

On 28 July 2008, (DAR1727), In addition to smart growth principles, we recommend that appropriate landscaping using indigenous trees and shrubs be integrated with drainage for the development. We would also recommend porous asphalt or concrete be used whenever possible. Attention should be given to storage basins & water recharge than dependency on storm drain systems that flow directly to the ocean.

On 21 January 2010, I commented on the Wahikuli Reservoir Emergency Action Plan Draft (MA-0055). The maps identify three reservoirs, an Upper(Newloa), "Wahikuli" and Crater Reservoir (Site Plan Figure 2, Sept. 2009). If this reservoir should breach, it appears that the model assumes risk for a full reservoir. The current spillway into the Crater Reservoir and the Upper or Newloa Reservoir would appear to have some storage capacity that would reduce the total anticipated impact for just Wahikuli Reservoir.

These reservoirs appear to have irrigation ditches which may have been used to irrigate fields of sugar cane. The condition of the irrigation ditches and their location is not clearly identified. These too, would appear to reduce the risk for lower elevation flooding. Have these reservoirs been evaluated for leakage and water loss??

(On P.19 of this preparation notice,) The drainage ways that must be maintained should be clearly identified on the project map. What will be maintained and how will it relieve problems from runoff? Have the irrigation ditches and reservoir(s) been evaluated for leakage and efficiency in transporting of water?

May 19, 2010
2007.70.0500/10P-060

Mr. Morris M. Atta
Administrator, Land Division
State Department of Land and Natural Resources
PO Box 621
Honolulu, HI 96809

Dear Mr. Atta:

Environmental Impact Statement Preparation Notice (EISPN)
The Villages of Leiali‘i Affordable Housing Project
Lahaina District, Island of Maui

Thank you for sending comments on the EISPN, thereby participating in the Hawaii Revised Statutes Chapter 343 public review process. We appreciate your letter of April 6, 2010.

The proposed master plan includes three alternative programs for the site, illustrating how it could be developed to meet the objectives of the Hawaii Housing Finance and Development Corporation (HHFDC). However, the final plan may vary from the proposed alternatives. HHFDC intends to issue Request for Proposals to developers to plan, design and develop the Villages of Leiali‘i project. The developers who submit proposals to HHFDC will formulate plans based on their own design and cost considerations. The plan accepted by HHFDC will likely fit within the range of alternatives in the EIS. Should the plan involve additional impacts, the developer will be required to prepare supplemental environmental impact submittals.

You note that comments were received from the Engineering Division and the State Commission on Water Resource Management (CWRM). This letter responds to those comments.

As noted by the Engineering Division, part of the project site is within Flood Zone A of the National Flood Insurance Rate Map, and development of the site must meet national standards and, if more restrictive, local standards as well. We will consult with Maui County’s representative to assure that both standards are met.

The EIS will include calculations of water demand and the infrastructure needed to meet that demand. In addition, we will provide information needed for the County’s Water Use and Development Plan and the State Water Projects Plan.

The EIS will identify exploratory wells drilled for this project by State Well No. and discuss the results of pumping tests. Existing wells on the project site will be identified. The EIS will further discuss potential impacts to the stream channels on the site from development.

We acknowledge that permits for pump installation and well abandonment, and any stream channel alteration may be needed, as noted in your letter.

Belt Collins Hawaii Ltd. | 2153 North King Street, Suite 200 | Honolulu, HI 96819-4554 USA
Tel: 808.521.5361 | Fax: 808.538.7819 | www.beltcollins.com | honolulu@beltcollins.com
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We acknowledge CWRM's recommendations that best management practices for stormwater management and, as practicable, alternative water sources be used. The EIS will provide further information on these issues.

We acknowledge CWRM's recommendation that water efficient fixtures and practices be used throughout the project. The developer shall be required to incorporate water efficient fixtures and practices throughout the project as required by law, however the choice of fixtures will be made by the future developer.

Again, thank you for your participation. We will send you more information as the Chapter 343 process continues.

Very truly yours,

BELT COLLINS HAWAII LTD.

Susan A. Sakai
Vice President/Director of Planning

SAS:dco

HAWAII WATER SERVICE COMPANY
P.O. BOX 384809 • WAIKOLOA, HI 96738 • TEL (808) 883-2046 • FAX (808) 883-2064

April 6, 2010

Susan A. Sakai
Vice President/Director of Planning
Belt Collins Hawaii Ltd
2153 North King Street
Suite 200
Honolulu, HI 96819

Re: The Villages of Leiali'i - Environmental Impact Statement Preparation Notice

Dear Ms. Sakai:

Further to your letter of March 5th regarding the Environmental Impact Statement Preparation Notice (EISPN) for the Villages of Leiali'i Affordable Housing. Hawaii Water Service Company (HWSC) is a public utility that provides water service in the immediate vicinity of the development.

The Villages of Leiali'i Affordable Housing project is outside the service area of HWSC, and HWSC has not been asked to provide service to the development. However, if requested to do so, HWSC would be willing to provide water service to the development, subject to the Public Utilities Commission's approval of the expansion of HWSC's service territory and mutual agreement on the terms of the expansion.

I trust my comments have been constructive and if you have any questions please do not hesitate to call me at (808) 883-2046.

Sincerely,

James E. Smith
General Manager

Cc: A. Oughton
B. Campbell

May 19, 2010
2007.70.0500/10P-054

Mr. James E. Smith
General Manager
Hawaii Water Service Company
PO Box 384809
Waikoloa, HI 96738

Dear Mr. Smith:

Environmental Impact Statement Preparation Notice (EISPN)
The Villages of Leiali‘i Affordable Housing Project
Lahaina District, Island of Maui

Thank you for sending comments on the EISPN, thereby participating in the Hawaii Revised Statutes Chapter 343 public review process. We appreciate your letter of April 6, 2010.

The proposed master plan includes three alternative programs for the site, illustrating how it could be developed to meet the objectives of the Hawaii Housing Finance and Development Corporation (HHFDC). However, the final plan may vary from the proposed alternatives. HHFDC intends to issue Request for Proposals to developers to plan, design and develop the Villages of Leiali‘i project. The developers who submit proposals to HHFDC will formulate plans based on their own design and cost considerations. The plan accepted by HHFDC will likely fit within the range of alternatives in the EIS. Should the plan involve additional impacts, the developer will be required to prepare supplemental environmental impact submittals.

As you note, the Leiali‘i site is outside your current service area. We acknowledge your statement that, if asked, Hawaii Water Service Company would be willing to provide water service to the project, subject to mutual agreement and Public Utility Commission approval. By making this statement in the planning process, you will help potential developers consider private as well as public utilities for the Leiali‘i project.

Again, thank you for your participation. We will send you more information as the Chapter 343 process continues.

Very truly yours,

BELT COLLINS HAWAII LTD.

Susan A. Sakai
Vice President/Director of Planning

SAS:dco

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CHARMAINE TAVARES
Mayor

MILTON M. ARAKAWA, A.I.C.P.
Director

MICHAEL M. MIYAMOTO
Deputy Director

Telephone: (808) 270-7845
Fax: (808) 270-7955

RALPH NAGAMINE, L.S., P.E.
Development Services Administration

CARY YAMASHITA, P.E.
Engineering Division

BRIAN HASHIRO, P.E.
Highways Division

RECEIVED
2010 APR 14 PM 2:00
BELT COLLINS HAWAII

COUNTY OF MAUI
DEPARTMENT OF PUBLIC WORKS
200 SOUTH HIGH STREET, ROOM NO. 434
WAILUKU, MAUI, HAWAII 96793

April 8, 2010

Ms. Susan A. Sakai
Vice President/Director of Planning
BELT COLLINS HAWAII, LTD.
2153 North King Street, Suite 200
Honolulu, Hawaii 96819-4554

Dear Ms. Sakai:

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE FOR THE VILLAGES OF LEIALI`I AFFORDABLE HOUSING, LAHAINA, MAUI, HAWAII

We reviewed the subject application and have the following comments:

1. Landscape plantings along and within road rights of way shall be provided with root barriers.

2. Include the Department of Public Works as a County of Maui agency respondent/distribution shown in the table on page 30/31.

3. Recommend the use of energy saving Light Emitting Device (LED) street lights. LED street lights produce "white" light, saves as much as 70% of the energy that conventional lights use and projects no maintenance required for at least ten (10) years.

4. There is one (1) open permit, No. 922703 for the subject property. Please resolve.

Please call Michael Miyamoto at 270-7845 if you have any questions regarding this letter.

Sincerely,

MILTON M. ARAKAWA, A.I.C.P.
Director of Public Works

MMA:MMM:ls
xc: Highways Division
Engineering Division
S:\LUCA\CZM\villages_of_leialii_affordable_hsg_eis_ls.wpd

May 19, 2010
2007.70.0500/10P-062

Mr. Milton M. Arakawa, AICP
Director of Public Works
Department of Public Works, County of Maui
200 S. High Street, Room 434
Wailuku, HI 96793

Dear Mr. Arakawa:

Environmental Impact Statement Preparation Notice (EISPN)
The Villages of Leiali‘i Affordable Housing Project
Lahaina District, Island of Maui

Thank you for sending comments on the EISPN, thereby participating in the Hawaii Revised Statutes Chapter 343 public review process. We appreciate your letter of April 6, 2010.

The proposed master plan includes three alternative programs for the site, illustrating how it could be developed to meet the objectives of the Hawaii Housing Finance and Development Corporation (HHFDC). However, the final plan may vary from the proposed alternatives. HHFDC intends to issue Request for Proposals to developers to plan, design and develop the Villages of Leiali‘i project. The developers who submit proposals to HHFDC will formulate plans based on their own design and cost considerations. The plan accepted by HHFDC will likely fit within the range of alternatives in the EIS. Should the plan involve additional impacts, the developer will be required to prepare supplemental environmental impact submittals.

In response to your comments:

We will identify the Maui County Department of Public Works (DPW) on our distribution list in future documents.

Thank you for noting that there is an open permit, # 922703, for the site. Based upon a telephone conversation HHFDC had with Mr. Michael Miyamoto of DPW on April 16, 2010, it appears to date from 1992 for a shed at 1610 Lokia Street. Public records indicate that there are two tax map key parcels for 1610 Lokia Street—TMK 4-5-28: 70 (owned by the State of Hawaii and part of the Villages of Leiali’i Project) and TMK 4-5-28: 74 (owned by Kimberly C. Tanaka, et al. and not part of the Villages of Leiali’i project). Based upon a site visit made by HHFDC on April 21, 2010, there is no shed on the State parcel, and therefore we request that open permit #922703 be closed as to the State parcel at TMK 4-5-28: 70.

Your direction that landscape plantings along and within road rights of way shall be provided with root barriers will be required of the future developer. Your recommendation in favor of LED street lights will also be conveyed to the future developer.

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Again, thank you for your participation. We will send you more information as the Chapter 343 process continues.

Very truly yours,

BELT COLLINS HAWAII LTD.

Susan A. Sakai
Vice President/Director of Planning

SAS:dco

Maui Electric Company, Ltd. • 210 West Kamehameha Avenue • PO Box 398 • Kahului, Maui, HI 96733-6898 • (808) 871-8461

RECEIVED

2010 MAR 10 PM 1:49

BELT COLLINS HAWAII

March 9, 2010

Ms. Susan A. Sakai, Vice President/Director of Planning
Belt Collins Hawaii Ltd.
2153 North King Street, Suite 200
Honolulu, Oahu, Hawaii, 96819

Subject: Environmental Impact Statement Preparation Notice for the Villages of Leiali'i Affordable housing
TMK: (2) 4-5-021:003, 004, 005, 013, 021, 022, and (2) 4-5-028:070
Leiali'i Parkway
Lahaina, Maui, Hawaii

Dear Ms. Sakai,

Thank you for allowing us to comment on the Environmental Impact Statement Preparation Notice for the subject project.

In reviewing our records and the information received, Maui Electric Company (MECO) will be requiring access and electrical easements for our facilities to serve the subject project site. We highly encourage the customer's electrical consultant to submit the electrical demand requirements , project time schedule, and schedule a meeting with us as soon as practical so that service can be provided on a timely basis.

Should you have any questions or concerns, please call me at 871-2341.

Sincerely,

Kyle Tamori
Staff Engineer

May 19, 2010
2007.70.0500/10P-055

Mr. Kyle Tamori
Staff Engineer
Maui Electric Company
PO Box 398
Kahului, HI 96733-6898

Dear Mr. Tamori:

Environmental Impact Statement Preparation Notice (EISPN)
The Villages of Leiali‘i Affordable Housing Project
Lahaina District, Island of Maui

Thank you for sending comments on the EISPN, thereby participating in the Hawaii Revised Statutes Chapter 343 public review process. We appreciate your letter of March 9, 2010.

Our responses to your comments are listed in the order they appear in your letter.

1. We recognize that Maui Electric will require access and easements for facilities to serve the project site.
2. Our electrical consultant will provide you with information on the project electrical demand requirements and time schedule.
3. Our consultant will meet with Maui Electric as soon as practical to advance planning for the project.

Again, thank you for your participation. We will send you more information as the Chapter 343 process continues.

Very truly yours,

BELT COLLINS HAWAII LTD.

Susan A. Sakai
Vice President/Director of Planning

SAS:dco

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CHARMAINE TAVARES
MAYOR

RECEIVED
2010 MAR 23 PM 1:36
BELT COLLINS HAWAII

200 South High Street
Wailuku, Hawaii 96793-2155
Telephone (808) 270-7855
Fax (808) 270-7870
e-mail: mayors.office@mauicounty.gov

OFFICE OF THE MAYOR
County of Maui

March 18, 2010

Belt Collins Hawaii Ltd.
Attn: Susan A. Sakai, Vice President/Director of Planning
2153 North King Street, Suite 200
Honolulu, Hawaii 96819

SUBJECT: VILLAGES OF LEIALI'I AFFORDABLE HOUSING ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE

Dear Ms. Sakai:

Thank you for the opportunity to comment on the Villages of Leiali'i affordable housing project Environmental Impact Statement Preparation Notice. My administration is in support of affordable housing projects for all of Maui's residents. At the same time it is important that all projects constructed in Maui County comply with all State of Hawaii and County of Maui zoning ordinances including Community plans.

Sincerely,

CHARMAINE TAVARES
Mayor, County of Maui

CT:RS/ec

May 19, 2010
2007.70.0500/10P-056

The Honorable Charmaine Tavares
Mayor, County of Maui
200 South High Street
Wailuku, HI 96793-2155

Dear Mayor Tavares:

Environmental Impact Statement Preparation Notice (EISPN)
The Villages of Leiali‘i Affordable Housing Project
Lahaina District, Island of Maui

Thank you for sending comments on the EISPN, thereby participating in the Hawaii Revised Statutes Chapter 343 public review process. We appreciate your letter of March 18, 2010.

We appreciate your administration’s support for affordable housing projects for Maui’s residents.

The draft EIS will include discussion of the ways in which the Villages of Leiali‘i project will fit with State and County zoning requirements, including the West Maui Community Plan.

Again, thank you for your participation. We will send you more information as the Chapter 343 process continues.

Very truly yours,

BELT COLLINS HAWAII LTD.

Susan A. Sakai
Vice President/Director of Planning

SAS:dco

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PACIFIC HOUSING ASSISTANCE CORPORATION

677 ALA MOANA BOULEVARD• SUITE 712•HONOLULU, HAWAII 96813•(808) 523-5681

RECEIVED

2010 MAR -8 PM 1:52

BELT COLLINS HAWAII

March 8, 2010

Susan A. Sakai
Vice President/Director of Planning
Belt Collins Hawaii Ltd.
2153 North King Street, Suite 200
Honolulu, HI 96819-4554

Dear Ms. Sakai:

Subject: The Villages of Leiali'i Affordable Housing, Lahaina, Maui
EIS Preparation Notice; March 5, 2010.

Thank your for the opportunity to review and comment on the EIS preparation notice of the subject affordable housing project. Pacific Housing Assistance Corporation supports the development of this project of affordable homes for the residents of Maui.

I am very pleased to see that the Leiali'i master planned community is moving forward to commencement. The other master planned communities on Oahu, Kauai, and Hawaii have either been completed or at least have been started since the early 1980's when the concept of State owned master planned communities first arose.

This project is important to the people of Maui as it represents a real opportunity for many of them to improve their current living condition by moving away from substandard or over crowded homes and apartments or lower the extremely high household expense of living on Maui. The three (3) development concepts presented appear to be well thought out given the preliminary stage of the environmental study/planning undertaken to date.

I encourage the Hawaii Housing Finance and Development Corporation to use every effort and facility to involve the west-side residents and business community and the local elected officials in this project at the earliest opportunity. From past experience to ignore them or ram this project through will have serious negative consequences that will be difficult to rectify for many years to come.

We look forward to the completion of the draft EIS.

Sincerely,

Marvin B. Awaya
Executive Director

May 19, 2010
2007.70.0500/10P-057

Mr. Marvin B. Awaya
Executive Director
Pacific Housing Assistance Corporation
677 Ala Moana Boulevard, Suite 712
Honolulu, HI 96813

Dear Mr. Awaya:

Environmental Impact Statement Preparation Notice (EISPN)
The Villages of Leiali‘i Affordable Housing Project
Lahaina District, Island of Maui

Thank you for sending comments on the EISPN, thereby participating in the Hawaii Revised Statutes Chapter 343 public review process. We appreciate your letter of March 8, 2010.

The proposed master plan includes three alternative programs for the site, illustrating how it could be developed to meet the objectives of the Hawaii Housing Finance and Development Corporation (HHFDC). However, the final plan may vary from the proposed alternatives. HHFDC intends to issue Request for Proposals to developers to plan, design and develop the Villages of Leiali‘i project. The developers who submit proposals to HHFDC will formulate plans based on their own design and cost considerations. The plan accepted by HHFDC will likely fit within the range of alternatives in the EIS. Should the plan involve additional impacts, the developer will be required to prepare supplemental environmental impact submittals.

As you note, it is important to involve the West Maui community, including residents, businesses, and elected officials, in developing plans for community development. HHFDC has already done this through circulation of preliminary concepts, a public meeting, and refinement of the master plan in response to comments and the future developer will continue to engage the community throughout the planning process.

Again, thank you for your participation. We will send you more information as the Chapter 343 process continues.

Very truly yours,

BELT COLLINS HAWAII LTD.

Susan A. Sakai
Vice President/Director of Planning

SAS:dco

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LINDA LINGLE
GOVERNOR

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2010 APR -6 PM 2:08

BELT COLLINS HAWAII

RUSS K. SAITO
COMPTROLLER

SANDRA L. YAHIRO
DEPUTY COMPTROLLER

`(P)1073.0

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810-0119

APR - 5 2010

Ms. Susan A. Sakai, Vice President/Director of Planning
Belt Collins Hawaii Ltd.
2153 North King Street
Honolulu, Hawai`i 96819

Dear Ms. Sakai:

Subject: Environmental Impact Statement Preparation Notice
The Villages of Leiali`i Affordable Housing
Lāhainā, Maui, Hawai`i

Thank you for the opportunity to provide comments on the Environmental Impact Statement Preparation Notice for The Villages of Leiali`i Affordable Housing project at Lāhainā, Maui. The proposed project does not impact any of the Department of Accounting and General Services' projects or existing facilities, and we have no comments to offer at this time.

If you have any questions, please call me at 586-0400 or have your staff call Mr. Clarence Kubo of the Public Works Division at 586-0488.

Sincerely,

RUSS K. SAITO
State Comptroller

May 19, 2010
2007.70.0500/10P-047

Mr. Russ K. Saito, Comptroller
Department of Accounting and General Services
State of Hawaii
PO Box 119
Honolulu, HI 96810-0119

Dear Mr. Saito:

Environmental Impact Statement Preparation Notice (EISPN)
The Villages of Leiali‘i Affordable Housing Project
Lahaina District, Island of Maui

Thank you for sending comments on the EISPN, thereby participating in the Hawaii Revised Statutes Chapter 343 public review process. We appreciate your letter of April 5, 2010.

We acknowledge your comment that the proposed project will not affect any of your Department’s projects or facilities.

Again, thank you for your participation. We will send you more information as the Chapter 343 process continues.

Very truly yours,

BELT COLLINS HAWAII LTD.

Susan A. Sakai
Vice President/Director of Planning

SAS:dco

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GOVERNOR

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2010 MAY -5 PM 1:18
BELT COLLINS HAWAII

BRENNON T. MORIOKA
DIRECTOR

Deputy Directors
MICHAEL D. FORMBY
FRANCIS PAUL KEENO
BRIAN H. SEKIGUCHI
JIRO A. SUMADA

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

IN REPLY REFER TO:

STP 8.0084

April 25, 2010

Ms. Susan A. Sakai
Vice President/Director of Planning
Belt Collins Hawaii, LTD.
2153 North King Street, Suite 200
Honolulu, Hawaii 96819-4554

Dear Ms. Sakai:

Subject: Hawaii Housing Finance and Development Corporation (HHFDC),
Villages of Leialii Affordable Housing Project
Environmental Impact Statement Preparation Notice (EISPN)

Thank you for requesting the State Department of Transportation's (DOT) review of the EISPN covering the subject project that proposes to develop 1,386 - 2,135 single-family units, 785 - 2,719 multi family units, 551,000 -596,00 square feet of office & retail space, and 17.2 - 21.8 acres of light industrial on 1,033 acres outside of Lahaina. Given the location of the subject project, the State highways, Lahaina Bypass Highway (which bisects the project) and Honoapiilani Highway will be impacted.

A thorough traffic impact analysis report (TIAR) addressing the project's impact and the project's contribution to regional impacts, including drainage and related impacts, on both State highways, will be required.

The TIAR should be supported and accompanied by a development plan for the project showing detailed information on the various types of uses, quantity and areas of units and commercial spaces, phases or increments and project timetables covering the initial phase through full build out of the project.

DOT Highways staff also received a Technical Memorandum (TM) dated March 31, 2010 via e-mail from the traffic consultant, Fehr & Peers, requesting DOT's review of the proposed assumptions and methodologies to be used in the TIAR for the subject project. Since the TM was received after the subject EISPN document was distributed for DOT staff review, DOT comments on the TM will follow at a later date to supplement the above comments on the EISPN.

DOT appreciates the opportunity to provide initial comments on the subject project. When a Draft EIS of the project is completed, DOT requests four (4) copies of the document be provided for staff review and any necessary approvals. If there are any questions, please contact Mr. David Shimokawa of the DOT Statewide Transportation Planning Office at telephone number (808) 587-2356.

Very truly yours,

BRENNON T. MORIOKA, Ph.D., P.E.
Director of Transportation

c: Karen Seddon, Hawaii Housing Finance and Development Corporation
Netai Basu and Miguel Nunez, Fehr & Peers Transportation Consultants

May 19, 2010
2007.70.0500/10P-061

Dr. Brennon T. Morioka, Director
Hawaii State Department of Transportation
869 Punchbowl Street
Honolulu, HI 96813-5097

Dear Dr. Morioka:

Environmental Impact Statement Preparation Notice (EISPN)
The Villages of Leiali‘i Affordable Housing Project
Lahaina District, Island of Maui

Thank you for sending comments on the EISPN, thereby participating in the Hawaii Revised Statutes Chapter 343 public review process. We appreciate your letter of April 25, 2010.

The proposed master plan includes three alternative programs for the site, illustrating how it could be developed to meet the objectives of the Hawaii Housing Finance and Development Corporation (HHFDC). However, the final plan may vary from the proposed alternatives. HHFDC intends to issue Request for Proposals to developers to plan, design and develop the Villages of Leiali‘i project. The developers who submit proposals to HHFDC will formulate plans based on their own design and cost considerations. The plan accepted by HHFDC will likely fit within the range of alternatives in the EIS. Should the plan involve additional impacts, the developer will be required to prepare supplemental environmental impact submittals.

You indicate that a detailed traffic impact analysis report (TIAR) will be required. One is being prepared. Both the draft EIS and the TIAR will include a development plan for uses on the Leiali‘i site. A timetable for two phases of development (through approximately 2036) will be included. The TIAR will address regional transportation impacts. The Draft EIS will include engineering reports and analysis of drainage and the like.

You request that four copies of the draft EIS be provided to your department; this will be done.

Again, thank you for your participation. We will send you more information as the Chapter 343 process continues.

Very truly yours,

BELT COLLINS HAWAII LTD.

Susan A. Sakai
Vice President/Director of Planning

SAS:dco

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LINDA LINGLE
GOVERNOR OF HAWAII

CHIYOME L. FUKINO, M.D.
DIRECTOR OF HEALTH

RECEIVED
2010 APR 23 PM 12: 00
BELT COLLINS HAWAII

STATE OF HAWAII
DEPARTMENT OF HEALTH
P.O. BOX 3378
HONOLULU, HAWAII 96801-3378

In reply, please refer to:
EMD / CWB

04028PSW.10

April 22, 2010

Ms. Susan A. Sakai
Vice President/Director of Planning
Belt Collins Hawaii, Ltd.
2153 North King Street, Suite 200
Honolulu, Hawaii 96819-4554

Dear Ms. Sakai:

SUBJECT: **Environmental Impact Statement Preparation Notice for The Villages of Leiali`i Affordable Housing Project Lahaina, Island of Maui, Hawaii Tax Map Key: 4-5-28:70**

The Department of Health, Clean Water Branch (CWB), has reviewed the document received March 8, 2010, regarding the subject project and offers these comments. Please note that our review is based solely on the document for the subject project and its compliance with Hawaii Administrative Rules (HAR), Chapters 11-54 and 11-55. You may be responsible for fulfilling additional requirements related to our program. We recommend that you also read our standard comments on our website at http://hawaii.gov/health/environmental/env-planning/landuse/CWB-standardcomment.pdf

1. Any project and its potential impacts to State waters must meet the following criteria:

    a. Anti-degradation policy (HAR, Section 11-54-1.1), which requires that the existing uses and the level of water quality necessary to protect the existing uses of the receiving State water be maintained and protected.

    b. Designated uses (HAR, Section 11-54-3), as determined by the classification of the receiving State waters.

    c. Water quality criteria (HAR, Sections 11-54-4 through 11-54-8).

2. You are required to obtain a National Pollutant Discharge Elimination System (NPDES) permit for discharges of wastewater, including storm water runoff, into State surface waters (HAR, Chapter 11-55). For the following types of discharges into Class A or Class 2 State waters, you may apply for NPDES general permit coverage by submitting a Notice of Intent (NOI) form:

   a. Storm water associated with construction activities, including clearing, grading, and excavation, that result in the disturbance of equal to or greater than one (1) acre of total land area. The total land area includes a contiguous area where multiple separate and distinct construction activities may be taking place at different times on different schedules under a larger common plan of development or sale. This includes areas used for a construction base yard and the storage of any construction related equipment, material, and waste products. An NPDES permit is required before the start of the construction activities.

   b. Hydrotesting water,

   c. Construction dewatering effluent.

   You must submit a separate NOI form for each type of discharge at least 30 calendar days prior to the start of the discharge activity, except when applying for coverage for discharges of storm water associated with construction activity. For this type of discharge, the NOI forms may be picked up at our office or downloaded from our website at http://hawaii.gov/health/environmental/water/cleanwater/forms/genl-index.html

3. For other types of wastewater not listed in Item No. 2 above or wastewater discharging into Class 1 or Class AA waters, an NPDES individual permit will need to be obtained. An application for an NPDES individual permit must be submitted at least 180 calendar days before the commencement of the discharge. The NPDES application forms may be picked up at our office or downloaded from our website at http://hawaii.gov/health/environmental/water/cleanwater/forms/environmental/water/cleanwater/forms/indiv-index.html

4. Please call the Army corps of Engineers at (808) 438-9258 to determine which Department of the Army (DA) permit(s) shall be required for the subject project. Permits may be required for work performed in, over, and under navigable waters of the United States. Projects requiring a DA permit also require a Section 401 Water Quality Certification (WQC) from our office.

5. Please note that all discharges related to the project construction or operation activities, whether or not NPDES permit coverage and/or 401 WQC are required, must comply with the State's Water Quality Standards. Noncompliance with water quality requirements contained in HAR, Chapter 11-54, and/or permitting requirements, specified in HAR, Chapter 11-55, may be subject to penalties of $25,000 per day per violation.

If you have any questions, please visit our website at http://hawaii.gov/health/environmental/water/cleanwater/index.html, or contact the Engineering Section, CWB, at 586-4309.

Sincerely,

ALEC WONG, P.E. CHIEF
Clean Water Branch

SW:ml

DOH-EPO #I-3085 [via email only]

May 19, 2010
2007.70.0500/10P-063

Mr. Alec Wong, P.E., Chief
Clean Water Branch
Hawaii State Department of Health
PO Box 3378
Honolulu, HI 96801-3778

Dear Mr. Wong:

Environmental Impact Statement Preparation Notice (EISPN)
The Villages of Leiali‘i Affordable Housing Project
Lahaina District, Island of Maui

Thank you for sending comments on the EISPN, thereby participating in the Hawaii Revised Statutes Chapter 343 public review process. We appreciate your letter of April 22, 2010.

The proposed master plan includes three alternative programs for the site, illustrating how it could be developed to meet the objectives of the Hawaii Housing Finance and Development Corporation (HHFDC). However, the final plan may vary from the proposed alternatives. HHFDC intends to issue Request for Proposals to developers to plan, design and develop the Villages of Leiali‘i project. The developers who submit proposals to HHFDC will formulate plans based on their own design and cost considerations. The plan accepted by HHFDC will likely fit within the range of alternatives in the EIS. Should the plan involve additional impacts, the developer will be required to prepare supplemental environmental impact submittals.

As you indicate, the project must meet State requirements to protect State waters, and will need permits for discharges of wastewater, including storm water from areas cleared by construction activity.

Again, thank you for your participation. We will send you more information as the Chapter 343 process continues.

Very truly yours,

BELT COLLINS HAWAII LTD.

Susan A. Sakai
Vice President/Director of Planning

SAS:dco

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LINDA LINGLE
GOVERNOR OF HAWAII

RECEIVED
2010 APR -9 PM 2:00
BELT COLLINS HAWAII

CHIYOME L. FUKINO, M.D.
DIRECTOR OF HEALTH

STATE OF HAWAII
DEPARTMENT OF HEALTH
P.O.BOX 3378
HONOLULU, HAWAII 96801-3378

In reply, please refer to:
EMD/SDWB

April 7, 2010

Ms. Susan Sakai
Belt Collins Hawaii, Ltd.
2153 North King Street, Suite 200
Honolulu, Hawaii 96819-4554

Dear Ms. Sakai:

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE (EISPN) REVIEW
THE VILLAGES OF LEIALI`I AFFORDABLE HOUSING PROJECT
LAHAINA, MAUI, HAWAII

We would like to acknowledge receipt of the Environmental Impact Statement Preparation Notice (EISPN) and express our appreciation for the opportunity to comment on the proposed project.

The Safe Drinking Water Branch has reviewed the subject document and offers the following comments:

- The EIS should clearly indicate what features (tanks, wells, etc.) are part of the drinking water system for the new development, whether these features are new or existing, and clarify whether the infrastructure will be owned and operated as a new public water system or dedicated to the County of Maui, Department of Water Supply.

- Given the size of the project it is clear that it will need to be served by a public water system. Federal and State regulations define a public water system as a system that serves 25 or more individuals at least 60 days per year or has at least 15 service connections. All public water system owners and operators are required to comply with Hawaii Administrative Rules, Title 11, Chapter 20, "Rules Relating to Potable Water Systems."

- If the Hawaii Housing Finance and Development Corporation (HHFDC) plans to develop a new public water system to service this housing project, they will be required to demonstrate and meet minimum capacity requirements prior to its establishment. This requirement involves demonstration that the system will have satisfactory technical, managerial

and financial capacity to enable the system to comply with safe drinking water standards and requirements.

- New, proposed public water systems must receive approval by the Director of Health prior to construction of the proposed system.

- If the water system will be connected and dedicated to the County of Maui, Department of Water Supply, this system would be considered to be a modification of Public Water System No. 214, DWS Lahaina. In this situation, the Maui Department of Water Supply would be responsible for the review and approval of the water system construction plans.

- All new sources of drinking water proposed to serve a public water system must comply with the terms of Hawaii Administrative Rules, Title 11, Chapter 20, section 29. This section requires that all new public water system sources be approved by the Director of Health prior to their use. Such approval is based primarily upon the submission of a satisfactory engineering report which addresses the requirements set in Section 11-20-29.

- The engineering report must identify all potential sources of contamination and evaluate alternative control measures which could be implemented to reduce or eliminate the potential for contamination, including treatment of the water source. In addition, water quality analyses for all regulated contaminants, performed by a laboratory certified by the State Laboratories Division of the state of Hawaii, must be submitted as part of the report to demonstrate compliance with all drinking water standards. Additional parameters may be required by the Director for this submittal or additional tests required upon his or her review of the information submitted.

- All public water system sources must undergo a source water assessment which will delineate a source water protection area. This process is preliminary to the creation of a source water protection plan for that source and activities which will take place to protect the drinking water source.

- All public water systems must be operated by certified distribution system and water treatment plant operators as defined by Hawaii Administrative Rules, Title 11,

Chapter 11-25 titled "Rules Pertaining to Certification of Public Water System Operators."

- All projects which propose the use of dual water systems or the use of a non-potable water system in proximity to a drinking water system to meet irrigation or other needs must be carefully designed and operated to prevent the cross-connection of these systems and the possibility of backflow of non-potable water into the drinking water system. The two systems must be clearly labeled and physically separated by air gaps or reduced pressure principle backflow prevention devices to avoid contaminating the drinking water supply. In addition, backflow devices must be tested periodically to assure their proper operation. Further, all non-potable spigots and irrigated areas should be clearly labeled with warning signs to prevent the inadvertent consumption of non-potable water. Compliance with Hawaii Administrative Rules, Title 11, Chapter 11-21 titled "Cross-Connection and Backflow Control" is also required.

- All projects which propose the establishment of a potentially contaminating activity (as identified in the Hawai`i Source Water Assessment Plan) within the source water protection area of an existing source of water for a public water supply should address this potential, and activities that will be implemented to prevent or reduce the potential for contamination of the drinking water source.

If you have any questions, please call Craig Watanabe at 586-4258.

Sincerely,

STUART YAMADA, P.E., CHIEF
Safe Drinking Water Branch
Environmental Management Division

CW:cb

c: EPO

May 19, 2010
2007.70.0500/10P-059

Mr. Stuart Yamada, P.E., Chief
Safe Drinking Water Branch
Hawaii State Department of Health
PO Box 3378
Honolulu, HI 96801-3378

Dear Mr. Yamada:

Environmental Impact Statement Preparation Notice (EISPN)
The Villages of Leialiʻi Affordable Housing Project
Lahaina District, Island of Maui

Thank you for sending comments on the EISPN, thereby participating in the Hawaii Revised Statutes Chapter 343 public review process. We appreciate your letter of April 6, 2010.

The proposed master plan includes three alternative programs for the site, illustrating how it could be developed to meet the objectives of the Hawaii Housing Finance and Development Corporation (HHFDC). However, the final plan may vary from the proposed alternatives. HHFDC intends to issue Request for Proposals to developers to plan, design and develop the Villages of Leialiʻi project. The developers who submit proposals to HHFDC will formulate plans based on their own design and cost considerations. The plan accepted by HHFDC will likely fit within the range of alternatives in the EIS. Should the plan involve additional impacts, the developer will be required to prepare supplemental environmental impact submittals.

In your letter, you comment on several steps needed for the Environmental Impact Statement (EIS) and for eventual development of the Villages of Leialiʻi. In response:

1. The EIS will describe the drinking water system proposed for the project, and whether it will be new or include existing components.
2. We do not yet know whether the water system for the project will be private or operated by the County of Maui. That decision will be made by the future developer.
3. We acknowledge that the operator of the drinking water system will be subject to Hawaii Administrative Rules (HAR) Title 11, Chapter 20.
4. We acknowledge that development of a new public water system can only be done after demonstrating and meeting minimal capacity requirements, including technical, finance and managerial plans.
5. We acknowledge that a new public drinking water system must be approved by the Director of the Department of Health before construction. Plans must be submitted by the potential operator, whether the County of Maui or a private water system operator.
6. We acknowledge that new public water sources must be approved by the Director of the Department of Health, based on an engineering report and a source water assessment.

7. We acknowledge that the operators of any public drinking water system must be certified (HAR 11-11-25).
8. If a dual water system is proposed, care will be needed to avoid backflow, affecting the drinking water system.
9. We acknowledge that the source water assessment will include delineation of a source water protection area and will identify any potentially contaminating activity within that area, and steps needed to mitigate potential contamination.

Again, thank you for your participation. We will send you more information as the Chapter 343 process continues.

Very truly yours,

BELT COLLINS HAWAII LTD.

Susan A. Sakai
Vice President/Director of Planning

SAS:dco

LINDA LINGLE
GOVERNOR OF HAWAII

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2010 MAR 30 PM 1:48
BELT COLLINS HAWAII

CHIYOME LEINAALA FUKINO, M.D.
DIRECTOR OF HEALTH

STATE OF HAWAII
DEPARTMENT OF HEALTH
P.O. BOX 3378
HONOLULU, HAWAII 96801

In reply, please refer to:
EMD / WB

LUD-M4 5 021 003 etc
EISPN Villages of Leialii
ID#354

March 25, 2010

Ms. Susan A. Sakai
Vice President/Director of Planning
Belt Collins Hawaii Ltd.
2153 North King Street Suite 200
Honolulu, Hawaii 96819-4554

Dear Ms. Sakai:

Subject: The Villages of Leialii Affordable Housing, Lahaina, Maui, Hawaii
Environmental Impact Statement Preparation Notice, Off Leialii Parkway
TMK (2) 4-5-021: 003, 004 , 005, 013, 021, 022 and (2) 4-5-028: 070

Thank you for allowing us the opportunity to review the above subject project which proposes to construct The Villages of Leialii Affordable Housing in Lahaina, Maui. We have the following comments and information on the above subject property:

> We are always satisfied with the construction of affordable housing in these economic times. However, our main concern is still with proper wastewater treatment and disposal. We encourage the developer to work with the County of Maui to connect to the existing Lahaina Reclamation Facility or construct a private wastewater treatment plant that will accommodate such a project. Please be informed that the use of treatment individual wastewater systems will not be allowed for the subject project.
>
> Also, use of recycled wastewater should be encouraged and utilized in major common areas such as parks, golf courses and other open spaces or landscaping areas. Further, any means to reduce green house gas emissions, practice renewable energy and a reduction in waste is highly recommended.

All wastewater plans must conform to applicable provisions of the Department of Health's Administrative Rules, Chapter 11-62, "Wastewater Systems." We do reserve the right to review the detailed wastewater plans for conformance to applicable rules. Should you have any questions, please contact the Planning & Design Section of the Wastewater Branch at (808) 586-4294.

Sincerely,

SINA PRUDER, P.E., ACTING CHIEF
Wastewater Branch

c: DOH's Environmental Planning Office (EPO 1-3085)
DOH-WWB's Maui Staff – Mr. Roland Tejano

May 19, 2010
2007.70.0500/10P-058

Ms. Sina Pruder, P.E.
Acting Chief, Wastewater Branch
Hawaii State Department of Health
PO Box 3378
Honolulu, HI 96801

Dear Ms. Pruder:

Environmental Impact Statement Preparation Notice (EISPN)
The Villages of Leiali‘i Affordable Housing Project
Lahaina District, Island of Maui

Thank you for sending comments on the EISPN, thereby participating in the Hawaii Revised Statutes Chapter 343 public review process. We appreciate your letter of March 25, 2010.

Our responses to your comments are listed in the order they appear in your letter.

1. We acknowledge your support for the construction of affordable housing.

2. HHFDC will work with the County of Maui to plan connection of the project to the existing Lahaina Reclamation Facility or connect to a private plant sufficient to serve the project. Please note that expansion of the Lahaina facility in the past was made possible through support by HHFDC’s predecessor agency, in order to serve the Villages of Leiali‘i.

3. HHFDC is exploring the use of recycled water on site, in discussion with your agency and the County of Maui. This process will be continued by HHFDC and the future developer of the Villages of Leiali‘i.

4. The concepts developed for the Villages of Leiali‘i take smart growth and sustainability into consideration. As planning and design advance, HHFDC and the future developer of the project will implement sustainable design principles further.

Again, thank you for your participation. We will send you more information as the Chapter 343 process continues.

Very truly yours,

BELT COLLINS HAWAII LTD.

Susan A. Sakai
Vice President/Director of Planning

SAS:dco

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