



Strategic Analysis and Relocation/Replacement Plan Recommendations

Kona Community Hospital

May 24, 2024

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The Kona Community Hospital Leadership team would like to acknowledge the Hawaii State Legislature for generously funding this report for the benefit of the people of West Hawaii.

I. Project Overview

A. Project Background

Delivering healthcare on the West Side of Hawaii Island is challenging. Due to the West Side's dispersed population, roads, high cost of living, and limited resources, residents on the West Side have longer commutes to get to healthcare services and have access issues getting an appointment due to the lack of physicians. When patients do access care at Kona Community Hospital (KCH), the facility is dated, and there is a persistent risk of daily mechanical system failures, which negatively impact the delivery of critical services for residents. Additionally, the physical location of KCH may no longer be ideal because most of the West Side population has shifted north over the past 20 years. Residents in the region are not getting prompt healthcare today. The hospital is not near the West Side population center, and patients are often required to seek healthcare on Oahu or on the mainland.

Based on this current state, KCH is at an inflection point as the KCH Board and hospital leadership assess the path forward. As part of the assessment process, KCH sought a consulting adviser that could help the organization answer two overarching questions.

1. What are the leading healthcare disparities in the region, and how can they be solved for?
2. Does KCH need a new hospital facility, and if so, where should this new hospital be located and what capabilities will it need to address the first question?

To resolve these questions, KCH hired ECG Management Consultants to assess the current and future healthcare needs on the West Side of Hawaii and to develop recommendations for the future hospital site of care and capabilities of a future KCH.

As you will learn throughout this document, it is ECG's recommendation that KCH can better serve the community by relocating the short-term acute care hospital closer to the population center and reusing the current hospital site for long-term care, skilled nursing, and behavioral health (BH) services. It is also imperative as part of this strategy to invest in growing Ali'i Health Center (AHC) to improve healthcare access for residents and keep more healthcare local. The remaining portions of this report highlight ECG's market assessments and recommendations for actionable strategies that will set the foundation of future healthcare delivery in West Hawaii.

B. Overview of ECG and Engagement Objectives

ECG Management Consultants (ECG) is a national healthcare consulting firm having just celebrated its 50th anniversary advising hospitals and health system clients throughout the United States and globally. ECG brings clients deep healthcare expertise in

community needs analysis, strategic clinical service line planning, facility hospital planning, and hospital operations expertise and can develop detailed financial feasibility analyses. As result of this experience, ECG has extensive healthcare organizational and operational planning expertise with new healthcare facilities and has advised on over \$51 billion in new capital investments since 2000. Over ECG’s history, the firm has completed over 75 engagements with Hawaii-based health systems, hospitals, medical groups, medical schools, payers/providers, and ambulatory surgery centers—including three engagements with Hawaii Health Systems Corporation (HHSC). (KCH is a member of the Hawaii Health Systems Corporation, a special agency of the state of Hawaii established in 1996)

As part of this engagement, ECG was hired to assess the healthcare needs and gaps within the community and evaluate whether and how KCH can relocate healthcare services on the West Side of Hawaii. Based on KCH’s needs, ECG’s main objectives of the engagement were split into two phases.

1. Phase One: Current-State Assessment
 - a. Conduct a comprehensive current-state assessment for the West Hawaii region service area.
 - b. Understand the current strategic positioning of KCH and its network in the service area.
 - c. Build the planning foundation related to clinical services demand, gaps in care, migration trends, workforce needs, complexity, hospital market share, and geographic research.
 - d. Conduct a market-competitive assessment, including sociodemographic growth, utilization trends, payer dynamics, patient preference, and KCH’s competitive position, to better inform future planning and eventual site selection.
 - e. Conduct a healthcare community needs assessment to identify healthcare challenges in the service area and document steps needed to address those needs to better serve the community.
 - f. Conduct a physician workforce assessment.
 - g. Identify strategic opportunities and risks, critical success factors, and key imperatives for KCH to address as well as how to best capitalize on its position in the market.

- h. Provide the future site-of-service vision and define KCH's outlook regarding how healthcare will evolve and what its role will be in the future landscape.
2. Phase Two: Site Selection
- a. Confirm phase one results and identify key findings that will impact the site assessment and selection phase.
 - b. Inventory key site opportunities, and rank the sites based on financial, nonfinancial, and other criteria.
 - c. Identify and agree on the most preferred two sites for the new hospital.
 - d. Provide a financial feasibility assessment for the new site.

C. Methodology

ECG used an array of data and stakeholder feedback to complete this report. Key components of this process include:

- a. **Market Data Analysis:** Analyses in this report are based on data collected from 2020 – 2023 and is sourced from West Hawaii Region financial and electronic medical records. Additional statewide data was sourced from Lulima Data Alliance. All patient data was de-identified. This data was used in the current-state assessment to review market dynamics that helped inform the future planning and eventual site selection. As part of this assessment, ECG looked at how sociodemographic growth, utilization trends, payer dynamics, patient preference, and KCH's competitive position impact care in the service area.
- b. **Interviews:** As part of the current-state market assessment, ECG conducted a series of interviews to foster an informed discussion about the future of healthcare in West Hawaii and opportunities in the market to better meet needs of the community. To ensure a representative base of input across the network, ECG met with ~30 community and state leaders, representing healthcare, government and business.
- c. **Community Needs Assessment:** ECG created a healthcare needs profile for the geographic service area that includes demographics, out-migration trends, health status indices, health inequities, etc to determine specific area characteristics that may enhance or restrict access to health services as well as address submarkets or populations

requiring targeted implementation strategies to change healthcare utilization patterns. ECG used published and proprietary data sources, segmenting the service area into submarkets to better correlate market trends by familiar geographies.

- d. **Physician Verification:** ECG verified all physicians engaged in clinical practice on the Big Island. Tools for verification included (1) current market provider rosters for the system and its competitors, (2) ECG's internal market provider databases, and (3) direct phone calls to confirm clinical practice attributes.
- e. **Site Tours:** For each site analyzed, ECG went on a comprehensive site tour to understand key factors and variables that impacted the site selection process. ECG also looked at the current hospital and conducted an assessment that reviewed the state of current facilities and programs, including gaps related to IP beds, diagnostics, treatment (IP and ambulatory), and physician services in the region.

II. KCH Current State

A. KCH Background

KCH has been the healthcare anchor of the community for over 100 years and has seen several iterations of hospital facilities, at the current site. The most recent facility was constructed in 1974. KCH serves the community by providing emergency services through its emergency room (ER or ED); acute care services, including ICU, acute care, surgical services, women's services, Behavioral Health (BH), oncology, and rehabilitation in its 94-bed main hospital (83 beds of short-term acute care and 11 beds of BH care); and ancillary services, including imaging, laboratory, pathology, and pharmacy, through its outpatient (OP) network. AHC, 501(c)(3) a multispecialty medical group of more than 30 physicians and advanced practice practitioners providing primary and specialty care on the West Side of the island. AHC is a subsidiary of HHSC and is KCH's physician affiliate. (HHSC is the sole corporate member of AHC. KCH provides financial support to AHC).

B. Factors Contributing to KCH's Current Position

A multitude of factors have contributed to KCH's current vulnerable position, including the following:

- **Out-Migration:** Due to a lack of access to local physicians in multiple specialties, patient out-migration is a significant issue for KCH, with 40% of inpatient (IP) cases and 62% of OP surgery/procedure cases leaving West Hawaii for care in North

Hawaii, East Hawaii, or off island in 2022 (source: Laulima Data Alliance). While highly reimbursed cases are moving off island, 80% of patients originating in West Hawaii seeking emergency services receive care at KCH. The combination of highly reimbursed cases out-migrating and low-reimbursement cases staying at KCH has led to difficult financial performance by the hospital. Leading factors of out-migration include the following:

- **Physician shortages** in the market are prevalent. Based on an analysis of physician supply in West Hawaii, ECG estimates a current shortage of over 25 physicians just on the West Side of the island (source: ECG independent research through ECG’s Physician Network and Community Planning practice).
- **A lack of local physician access** is leading patients to go elsewhere or just not receiving their needed healthcare for both ambulatory and IP care. Appointment wait times for crucial services or for people who are sick are too long. ECG’s Physician Network and Community Planning practice reached out to various physician offices in the region and found long wait times for third next available appointment (source: ECG independent research) that included the following:
 - Cardiology: 65 days
 - Allergy/Immunology: 50 days
 - Pediatrics: 40 days
 - Gastroenterology: 35 days
 - Nephrology: 30 days
 - Orthopedic Surgery: 27 days
 - OB/GYN: 24 days
- **Recruiting Challenges:** KCH and Ali‘i Health Center have difficulty hiring physicians and clinical staff due to the remote nature of living on the island, very high housing and living costs, the availability of select specialty physicians, and competition from other organizations.
- **Hospital Location:** The current location of the hospital is not near the West Side population center. As most of the population lives further north toward the airport in Kona, the hospital is in Kealahou, south of the main population density .
- **Wait Listed Patients:** A significant number of “wait listed” patients occupy short-term acute care beds at KCH at any given time. Wait listed patients are defined as patients that are no longer in need of acute hospital care, but that have no appropriate place to be discharged. While many KCH patients are appropriate acute high-acuity patients, an additional 30 to 40 patients (looking at data from the past few years), every day in the hospital are wait listed patients who in any other

community will be discharged to a step-down facility (skilled nursing or rehabilitation) or to a family member's home; however, for these patients at KCH, they have nowhere to be discharged and stay at the hospital for often 100 days or more. These patients occupy beds needed by other acute patients, reducing access for the community. These patients also create significant financial issues for KCH as KCH does not get appropriate reimbursement for these wait listed patients who are in a high-cost short-term acute hospital bed. Additionally, as KCH studies building a replacement hospital, building 40+ acute hospital grade beds for these waitlisted patients not reimbursed at acute hospital rates, will be financially unfeasible.

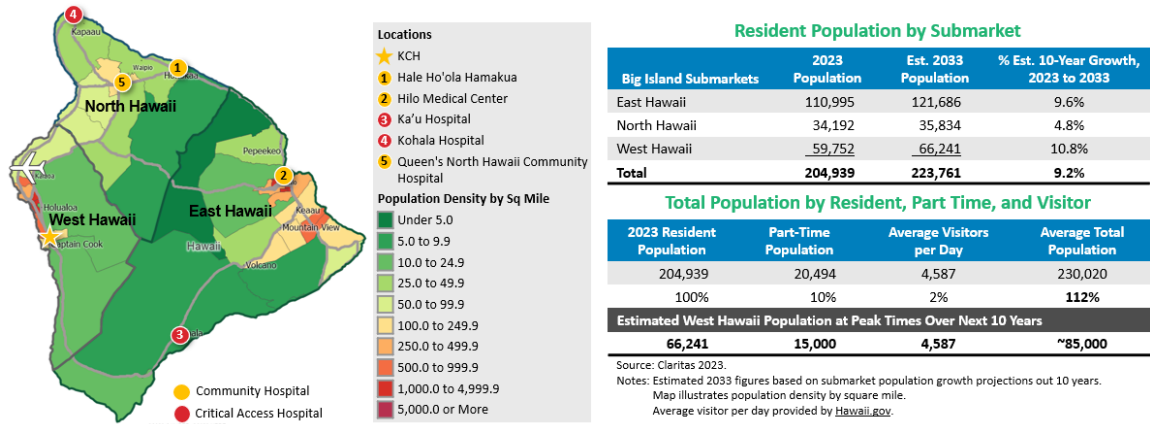
- **Hospital Reputation:** Issues regarding the hospital facility's age and difficult access have led to some community members (those with the financial means to do so) to believe it's better to go north or off island for their healthcare.

III. West Hawaii Region Healthcare Needs

A. West Hawaii Overview

The West Hawaii region is home to full- and part-time residents and has a significant number of visitors every year. The main population density on the West Side of the island is situated south of the Kona airport. The permanent population of West Hawaii is projected to increase faster than any other region on Hawaii Island — approximately 11% over the next 10 years to over 65,000 people. An estimated 20,000 part-time residents, mostly on the west and north side of Hawaii Island, swell the population each year. Also, approximately 4,500 visitors daily at the hotels and resorts on the West Side combine with residents to create a population that, at its peak, must provide acute healthcare and emergency healthcare to approximately 85,000 people. (See figure 1.) What is unique about the population is that it uses healthcare services at a lower rate than state averages, but outcomes (e.g., mortality rate for certain cancers) are worse. In ECG's opinion, this points to delayed access of care and disparities of receiving healthcare in a timely manner across the region.

FIGURE 1: Hawaii Island and West Side Demographics



B. Healthcare Community Needs Assessment

As part of this process, ECG performed a community needs assessment to determine what the most significant healthcare issues are in the West Hawaii region. A multitude of factors have contributed to the current state of healthcare on the West Side of the island, including the following:

- Resident and Physician Perception:** As stated previously, Big Island residents are concerned about the current very difficult state of healthcare access, with 45% stating that the island is “unhealthy” (source: *Access to Care on Hawaii Island Opinion Research Findings, 2022*).
- Incidence Rates:** As an example, incidence rates for many types of cancer are lower than state of Hawaii and national rates; however, cancer death rates are higher, which, in ECG’s opinion, points to delayed access of cancer diagnoses, which leads to significantly poorer outcomes when it is diagnosed late and leads to increased death. (See figure 2.)

FIGURE 2: State and National Cancer Incidence Death Rates Comparison

Cancer Type	Incidence Rate			Death Rate		
	Hawaii County	Hawaii State	US	Hawaii County	Hawaii State	US
Breast Cancer	↓↓ 125.8	140.2	128.1	↑ 16.6	15.5	19.4
Cervical Cancer	↑ 7.4	6.8	7.7	↑ 2.2	1.6	2.3
Colorectal Cancer	↓↓ 34.5	39.4	37.7	↓↓ 10.8	12.5	13.4
Liver/Bile Duct Cancer	↓ 9.0	10.2	8.6	↑↑ 9.2	8.0	6.7
Lung/Bronchus Cancer	= 43.4	43.4	56.3	↑ 25.4	22.8	31.7
Prostate Cancer	↓↓ 79.6	100.3	109.9	↑ 17.5	15.8	19.0
Skin Cancer	↑↑ 32.6	24.0	22.9	↑↑ 2.2	1.2	2.0

Source: Hawai'i Health Matters.

↑↑ Higher than US and state rate ↑ Higher than state rate = Equivalent to state rate ↓ Lower than state rate ↓↓ Lower than US and state rate

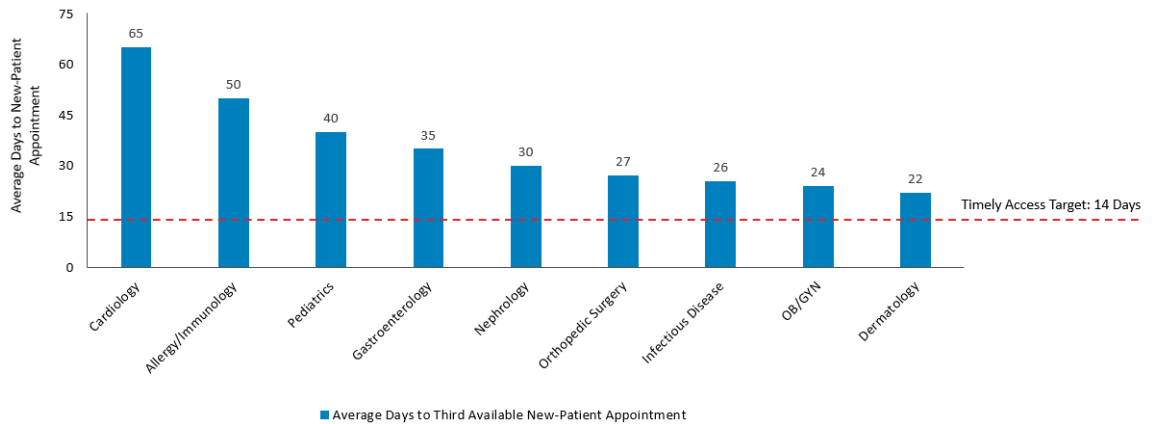
- Health Disparities:** A significant number of health disparities exist for some populations, particularly in South Kona. These disparities are influenced by health equity indicators, including income, poverty, employment, education, language, race, and Medicaid enrollment. (See figure 3.)

FIGURE 3: Core West Hawaii Health Equity Indicators

	Median HHI	% of Population below FPL ¹	Unemployment Rate	Speak Language Other than English at Home	% of Households with Food Stamps/ SNAP Benefits	Medicaid Enrollment
North Kona						
Holualoa	\$76,450	9%	5%	15%	6%	22%
Kailua-Kona	\$81,689	10%	4%	25%	11%	22%
Kealahou	\$71,667	7%	3%	18%	16%	25%
South Kona						
Captain Cook	\$67,845	14%	7%	27%	14%	22%
Ocean View	\$25,402	39%	16%	35%	41%	39%
Hawaii and US Benchmarks						
Hawaii County	\$72,568	15%	4%	23%	18%	26%
Hawaii State	\$92,458	10%	4%	24%	12%	20%
US	\$74,755	13%	4%	22%	12%	21%

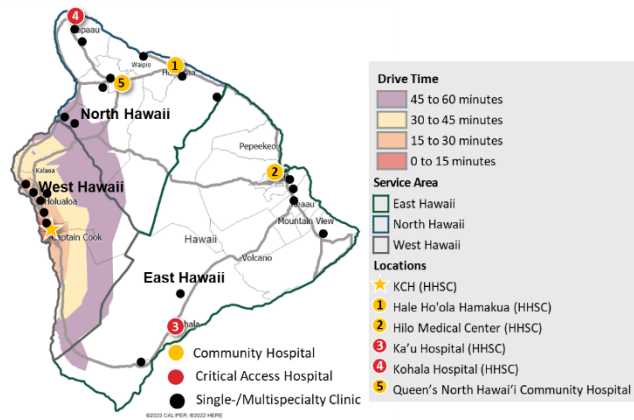
- Physician Wait Times:** Based on ECG’s investigation, wait times significantly impact the mortality rate of patients in emergency need. Lengthy new-patient appointment wait times can result in unnecessary care delays for disease diagnosis, acute treatment, and therapeutic procedures. A significant amount of West Hawaii specialties have average wait times over 14 days. (See figure 4.) ECG recommends that average wait times should be fewer than 5 days for primary care visits and 14 days or fewer for specialists.

FIGURE 4: West Hawaii Specialties with Average Wait Times over 14 Days (source: ECG wait time analysis)



- Aging Population:** The population of West Hawaii is expected to grow over the next decade with the average age of the population expected to increase faster than state averages. Patients who are more than 65 years old often utilize IP healthcare at four to six times higher rates than younger populations. The increasing and aging population will add significant pressure to existing West Side hospital constraints.
- Drive Times to KCH:** In 2020, 8,500 people (out of approximately 85,000 people at peak times) lived within a 15-minute drive to KCH. Access to KCH remains challenging for the rest of the region as the majority of the 85,000 residents in West Hawaii (at peak times) live 15 to 60 minutes from KCH. (See figure 5A.) Studies show that for each 5-minute increase in distance from a hospital, a person’s mortality rate will increase by 0.51 percentage points (source: “Effects of Driving Distance and Transport Time on Mortality among Level I and II Traumas Occurring in a Metropolitan Area,” *National Library of Medicine*). If the hospital is moved more North to the population center of West Hawaii (see Figure 5B), there will be ~24,000 more residents that have a less than 15-minute drive to a hospital compared to today. Also, current drive times to Hilo Medical Center are 1 or 2 hours for most West Hawaii residents, and access to critical services (e.g., cath labs) are too far to get timely care for critical services.

FIGURE 5A: Drive-Time Rings from KCH Today

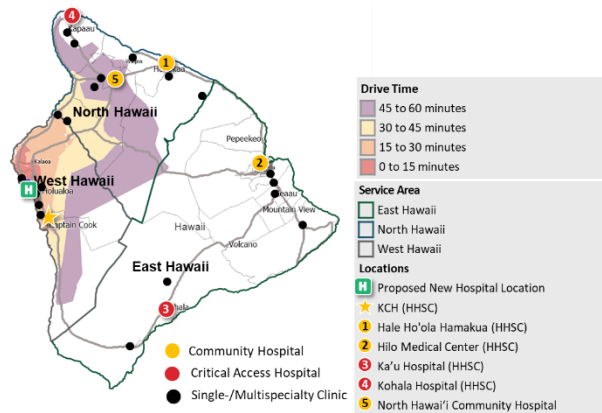


Drive-Time Rings from KCH

Drive Time	Drive-Time Ring Population
0 to 15 Minutes	8,347 (~15% of West Hawaii)
15 to 30 Minutes	27,397 (~45% of West Hawaii)
30 to 45 Minutes	11,154 (~18% of West Hawaii)
45 to 60 Minutes	13,872 (~22% of West Hawaii + small subset of North Hawaii)
Total Population within 60-Minute Drive from KCH	60,770

Source: Caliper; population figures based on 2020 census.

FIGURE 5B: Drive-Time Rings if Site is Moved More North

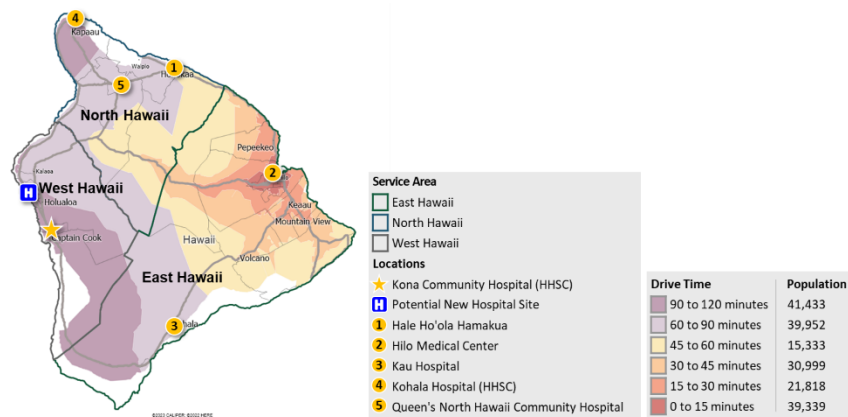


Drive-Time Rings from Proposed New KCH Site

Drive Time	Drive-Time Ring Population
0 to 15 Minutes	32,688 (~55% of West Hawaii)
15 to 30 Minutes	11,229 (~19% of West Hawaii with a small portion in North Hawaii)
30 to 45 Minutes	10,937
45 to 60 Minutes	18,695
Total Population within 60-Minute Drive from Proposed New KCH Site	73,549

Source: Caliper; population figures based on 2020 census.

FIGURE 5C: Drive-Time Rings to Hilo for West Hawaii Residents



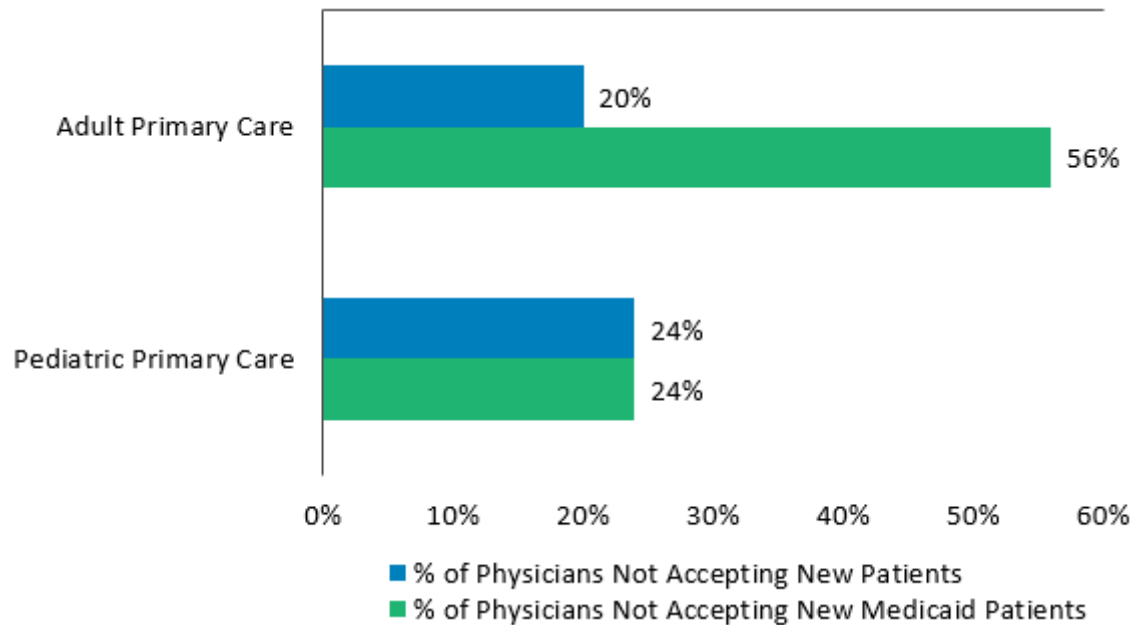
C. Physician Workforce Assessment

In addition to the healthcare community needs assessment, ECG performed a physician workforce assessment to determine the severity of the healthcare physician access

issues in the West Hawaii region. This assessment refers to physician needs (MD/DO) but to fill-in gaps of care, KCH should consider adding more providers (MD/DO/Nurse Practitioners, Midwives, Physician Assistants) to the island. A multitude of factors have contributed to the perception and current state of the healthcare workforce on the West Side of the island, including the following:

- Medical Physicians’ Perception:** Providers on Hawaii Island are concerned with the current state of healthcare access, with 59% of Hawaii Island providers stating that the island is unhealthy. Additionally, 76% of residents and 84% of providers on the island believe there are not enough providers (source: *Access to Care on Hawaii Island Opinion Research Findings, 2022*).
- Care Gaps:** Primary care physicians are heavily concentrated in Kailua-Kona, resulting in significant care gaps for South Kona. Additionally, many adult and pediatric physicians are not accepting new Medicaid and uninsured patients. (See figure 6.)

FIGURE 6: West Hawaii Primary Care Shortages (source: ECG shortage analysis)



- Physician Shortages and Need in West Hawaii:** There are significant gaps in physician shortages today. Overall, the West Side of Hawaii Island is short 25 physicians. Adding approximately 18 new physicians to the region to practice at Ali`i Health Center is a critical success factor for the future of KCH. With a growing population of 65,000 (approximately 85,000 at peak times every year), the West Side can reasonably support an integrated medical group such as Ali`i Health Center.

Nationally, physicians (and especially new graduates) are seeking more employment options instead of practicing independently. Given this preference for employment, KCH and Ali'i Health Center are positioned to be the physician employer of choice on the West Side of the island. Recruitment must also aim to backfill physician successions to proactively ensure specialty services are sustained in the community. Figure 7 highlights the current demand for physicians today on the West Side (second column), and columns three and four highlight the current physician supply. The last column shows the shortage of physicians within each specialty. Most specialties can support at least one additional FTE in West Hawaii, and primary care (adult primary care and pediatrics) needs at least five additional FTEs in West Hawaii.

FIGURE 7: West Hawaii Physician Shortages

Specialty	Current Demand ¹	West Hawaii Physician FTEs		Current Shortage
		Ali'i	Other ¹	
<i>Legend</i>	<i>A</i>	<i>B</i>	<i>C</i>	<i>D = A - (B + C)</i>
Psychiatry	6.2	-	1.4	4.8
Cardiology	3.6	0.8	-	2.8
Adult Primary Care	21.9	4.8	14.4	2.7
Pediatrics	7.3	0.8	3.4	2.1
Pulmonology/Critical Care	1.9	-	-	1.9
Hematology-Oncology	1.8	-	-	1.8
ENT	1.4	-	-	1.4
Endocrinology	1.2	-	-	1.2
Gastroenterology (GI)	2.2	1.0	-	1.2
Physical Medicine/Rehab	1.5	-	0.5	1.0
Neurology	1.7	-	0.8	0.9
Rheumatology	0.9	-	-	0.9
Radiation Oncology	0.8	-	-	0.8
General Surgery	3.6	2.0	1.0	0.6
Interventional Radiology (IR)	0.6	-	-	0.6
Nephrology	1.3	-	0.9	0.4
Obstetrics/Gynecology (OB/GYN)	5.9	4.0	1.7	0.2
Plastic Surgery	1.2	1.0	-	0.2
Orthopedic Surgery	3.2	6.0	0.6	-
Total	68.0	20.4	24.7	25.3

Note: Figures may not be exact due to rounding.

¹ Demand excludes 20% of assumed Kaiser Permanente coverage; other physician supply excludes Kaiser FTEs.

- Physician Wait Times:** Wait times significantly impact the diagnoses of disease and the mortality rate of patients in emergency need (e.g., cardiology–heart attacks, strokes, trauma, and oncology). Lengthy new-patient appointment wait times can result in unnecessary care delays for acute treatment and diagnostic procedures.

D. Market-Competitive Assessment

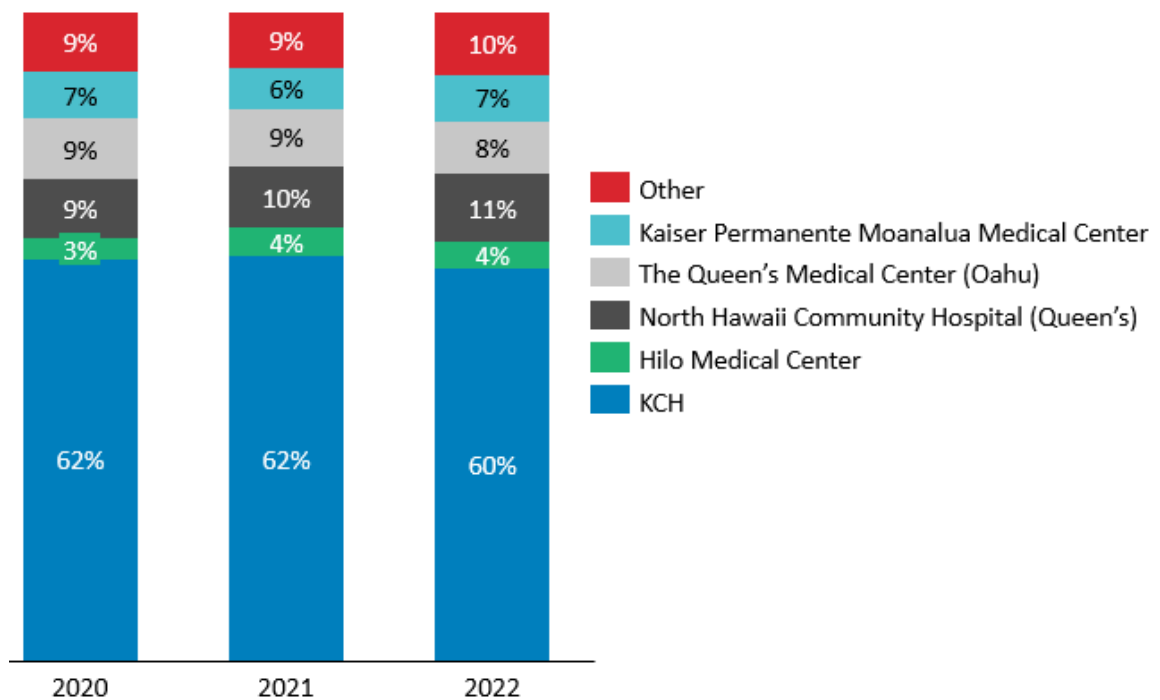
In addition to the healthcare community needs and physician workforce assessment, ECG performed a market-competitive assessment primarily to the West Hawaii region to determine where patients are receiving care and for what services they are leaving for. Overall, patients are leaving the market altogether for care at higher rates than ECG has

seen when comparing similar markets. As noted previously, a lack of services, long wait times, and a lack of physicians are causing this significant healthcare out-migration for people with the financial means to do so.

Key highlights of this assessment include the following:

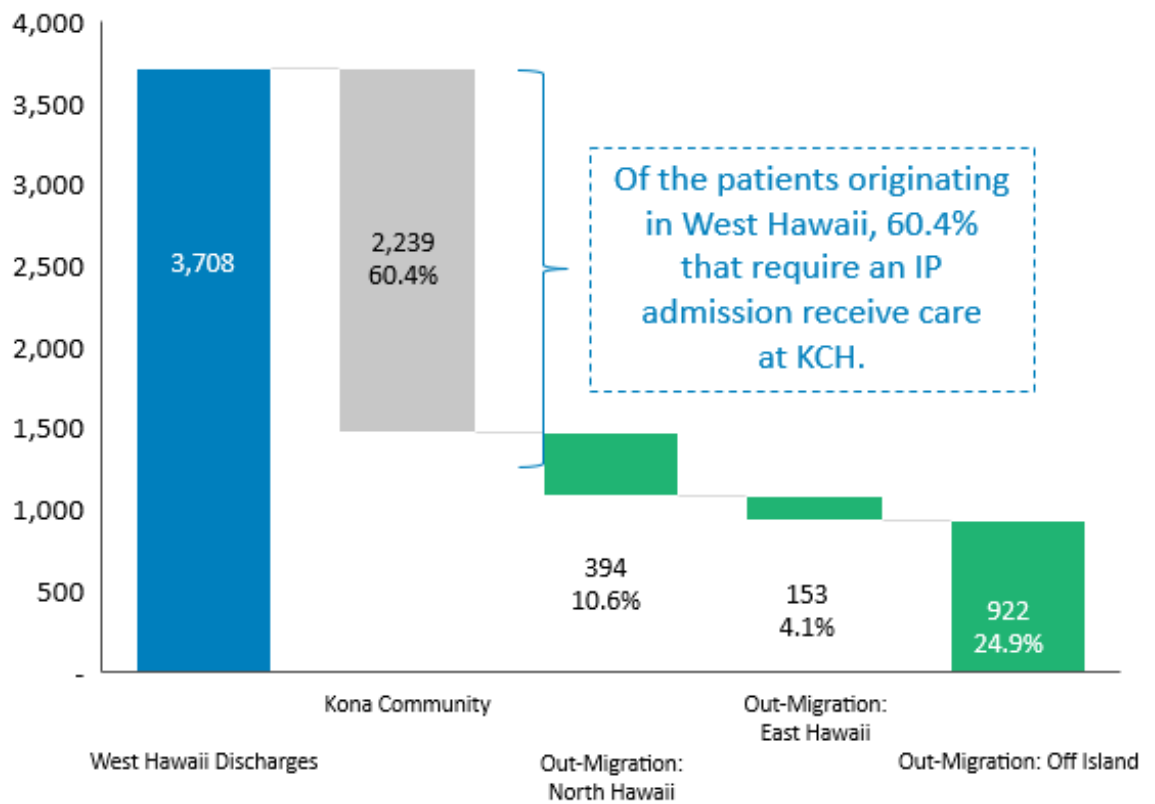
- IP Discharge Market Share:** Of all IP discharges in West Hawaii, approximately 60% go to KCH (with most of these originating in the ER). Few patients go to Hilo Medical Center and only then for select services; around 20% of patients either go to North Hawaii Community Hospital or off-island to Queen’s Medical Center on Oahu . (See figure 8.)

FIGURE 8: West Hawaii, IP Discharge by Hospital 2020–2022 (source: Laulima Data Alliance, OP volume data, 2020, 2021, and 2022)



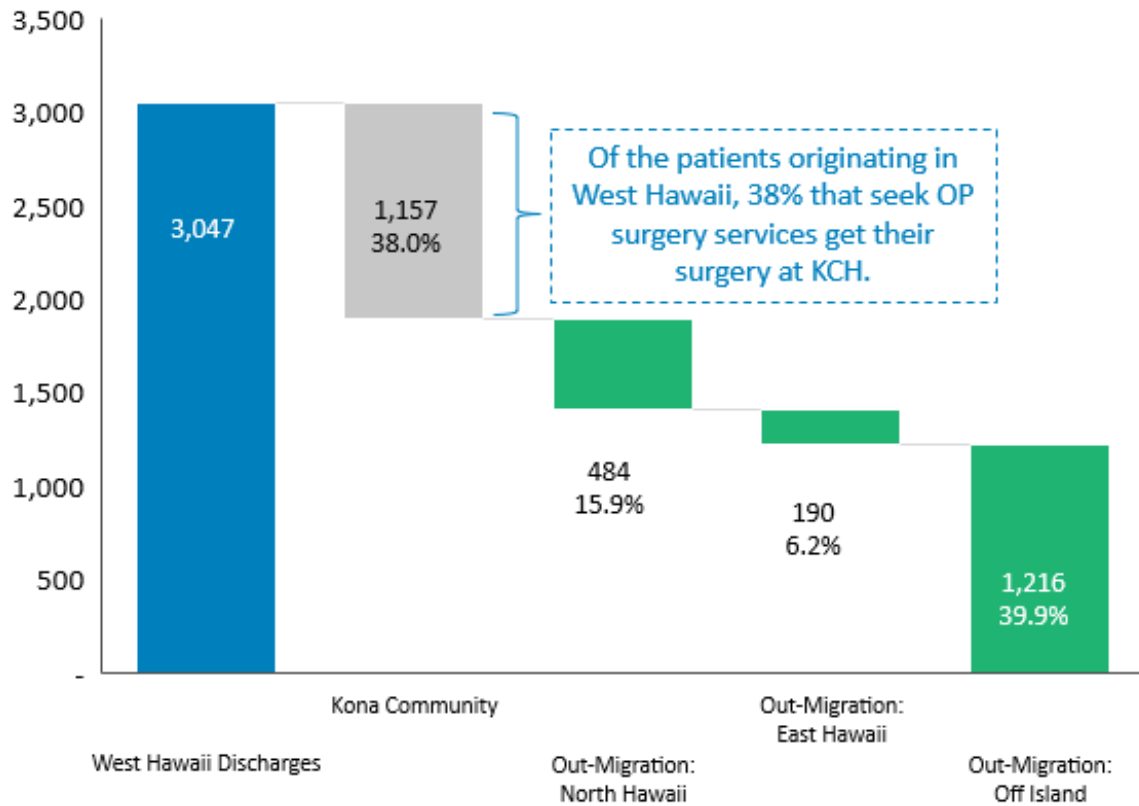
- IP Out-Migration:** Nearly 20% of all patients who leave Kona either go to Queen’s in North Hawaii or off-island to Oahu. For Queen’s on Oahu, this is often for higher-acuity services, but in North Hawaii, many of these services have a similar acuity range as KCH, indicating these patients can be treated at either location. (See figure 9.)

FIGURE 9: Discharges and Acuity of Patients Living in West Hawaii 2022 (source: Laulima Data Alliance, OP volume data, 2022)



- OP Surgeries/Procedures Market Share:** Of the patients who originate in West Hawaii, 38% have OP surgeries or procedures at KCH. However, another one-third of patients go to Kaiser Oahu or the Queen’s Medical Center.
- OP Surgeries/Procedures Out-Migration:** KCH’s OP surgery and procedure share (38%) is less than the IP share of services (60%). Much of this lower-acuity care can stay local but will depend on expanding ambulatory capabilities and having a more integrated physician base. (See figure 10.)

FIGURE 10: Surgeries of Patients Living in West Hawaii, 2022 (source: Lailima Data Alliance, OP volume data, 2022)



- ER Services Out-Migration:** Most patients who originate from West Hawaii receive ER services at KCH; 12% of cases go to North Hawaii, and a majority of those who don't go to Kona originate in Kailua-Kona.

IV. KCH Future Vision

A. Future Vision

As part of this process, ECG outlined a comprehensive plan for KCH to create a long-term sustainable future. The goal of KCH's vision is to provide care in a location that is more accessible to a greater portion of the West Side population in a state of the art hospital and ambulatory facilities, as well as support the growth of providers to serve the growing and aging population. While the new location will ideally be closer to the majority of the population, urgent care services would continue to be provided at the current KCH site to ensure access to residents that reside further south. The benefits of relocating the hospital and expanding the number of physicians on the West Side include the following:

- **Improve Healthcare Access:** Relocating the hospital and adding more physicians will allow patients to receive healthcare at the right place at the right time. Relocating the current hospital to North Kona promotes greater access to a larger portion of the West Hawaii population and expands services to improve healthcare. Access to services will also be improved by building a scalable and integrated medical group closer to the West Hawaii population.
- **Enhance Quality Delivered in the Community:** Adding more contemporary services to the new hospital and expanding services that are available (e.g., cath lab) will lead to better outcomes for not only the permanent West Hawaii patient base but also visitors and part-time residents. Also, patient drive times to essential hospital services (e.g., emergency room [ER]) will be improved at this new site since it will be closer to the population center—every extra mile a patient is from the hospital will impact outcomes.
- **Expand Primary Care and Specialty Services in the Region:** For many services, 25%–50% of patients leave the region altogether for care, and for a community this size, that is significantly higher than ECG sees in other similar markets. To keep care closer to home, KCH plans to expand services available at KCH (e.g., add infusion chairs) and add physicians to the market (e.g., add cardiology). Also, a contemporary KCH can serve as a recruitment incentive for potential physicians looking to join the community.
- **Reducing Patient Out-Migration:** Keeping more healthcare services local versus people having to go off-island for both ambulatory and inpatient services, will improve access and decrease health equity disparities. It will save lives. Local patient volume growth will also provide increased critical financial revenues and reimbursement that KCH will need to support a new hospital .

ECG’s recommendations for KCH are anchored in relocating KCH and replacing the current facility to expand healthcare access to all residents of West Hawaii. In addition to relocating the facility, a major future success factor is further investing in physicians who are aligned and integrated with Ali`i Health Center to keep more care local and to increase volume of healthcare served locally. A summary of engagement recommendations can be found in figure 11.

FIGURE 11: ECG Recommendation Summary Overview

Recommendations		Considerations
1	Build integrated ambulatory site and relocate hospital to more central location.	<ol style="list-style-type: none"> 1. Rightsize the new hospital to expand community services. 2. Reuse the current site for behavioral health (BH) and long-term care needs.
2	Place new site at Queen’s site or Kmart site for new location	<ol style="list-style-type: none"> 1. Determine whether a partnership with Queen’s or Lili’uokalani Trust (Kmart) aligns with KCH’s long-term aspirations 2. Evaluate whether the possible sites can be viable long-term
3	Enter into a phased construction approach (ambulatory center first, hospital second) for more funding flexibility.	Create a fundraising plan that meets key construction milestones.
4	Invest in the expansion and success of Ali’i Health Center	KCH and Ali’i Health Center are to work together to recruit for and improve the productivity and efficiencies of group.
5	Reuse the current hospital location for long-stay urgent care, SNF, and BH patients when new hospital options.	Evaluate the best care delivery method for urgent care, BH and long-term care, and SNF.

V. ECG’s Recommended KCH Phased Relocation/ Replacement Plan

A. Recommendation One: Integrated Ambulatory Center and Hospital in Central West Side Location

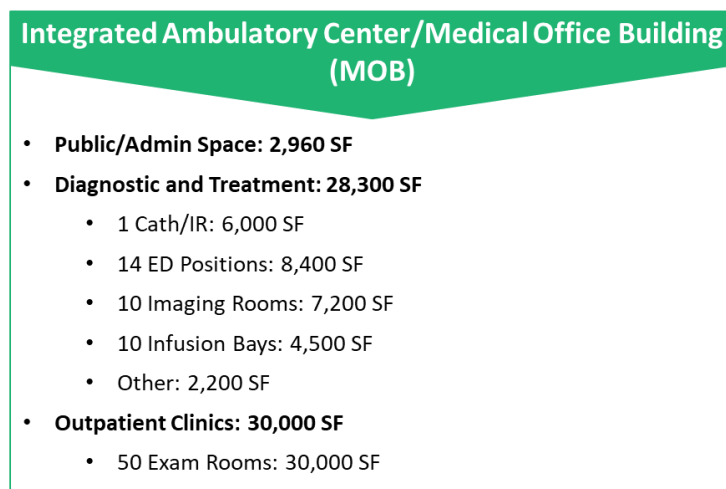
Based on market demand, anticipated market share growth, and financial considerations, ECG recommends a relocation and replacement plan that includes an integrated hospital and an ambulatory center. The location of this new hospital/ambulatory center is assumed to be more north near the West Side population center and have a more contemporary facility. Major benefits of this recommendation include:

- Providing a co-location of ambulatory and hospital services for patients that offers a single, efficient medical campus for the majority of their healthcare needs.
- Adding a cardiac cath lab, which can be supported by a population this size. Current options for patients are in Hilo or on Oahu (which negatively impacts patient survivability and outcomes for a service that is best to provide within the first hour in an emergency).
- Having an ER that is closer to the patient population. Currently, drive times from downtown Kona to KCH can be severely impacted by traffic.
- Having clinic space for physicians where they can be more collaborative with the hospital.
- Expanding the chemo infusion chairs to allow for cancer care to stay more local instead of going to Oahu.
- Seeing more short-term acute patients, expanding programs (e.g., cardiac), and having enough beds to accommodate local market share growth.

- One of the key assumptions driving the size and scope of this facility plan is that KCH will capture an additional 10% market share (See Market Assessment Section for more details on current share) by opening the new hospital and that the hospital will become more efficient with the transfer of wait listed stay patients to the current/repurposed site.
- To appropriately size the short-term acute care hospital, ECG recommends the new hospital will have 82 beds total. This is approximately the same size as the current 83-bed acute hospital. This assumes that psychiatry patients (11 beds) and wait listed patients (who occupy 30 to 40 beds per day on average) will remain at the current site of care in beds and staffing reconfigured for low acute, long-term stay patients; similar to skilled nursing facility beds (SNF).

Ambulatory Center Scope: This ambulatory center will include a freestanding ER and a freestanding cath lab (pending a temporary legislative exemption approval), imaging services (X-ray, mammography, ultrasound, CT, and MRI, and infusion bays). The ambulatory center will include clinic space for Ali`i Health Center specialists to see patients. It is assumed that the ambulatory center will be constructed to Hawaii acute care hospital inpatient (IP) building codes so the hospital, when it is built at least five years after the ambulatory center, and the ambulatory center, will meet IP hospital codes. Once the hospital is built, the EDs and cath lab will be integrated as part of the full acute care hospital.

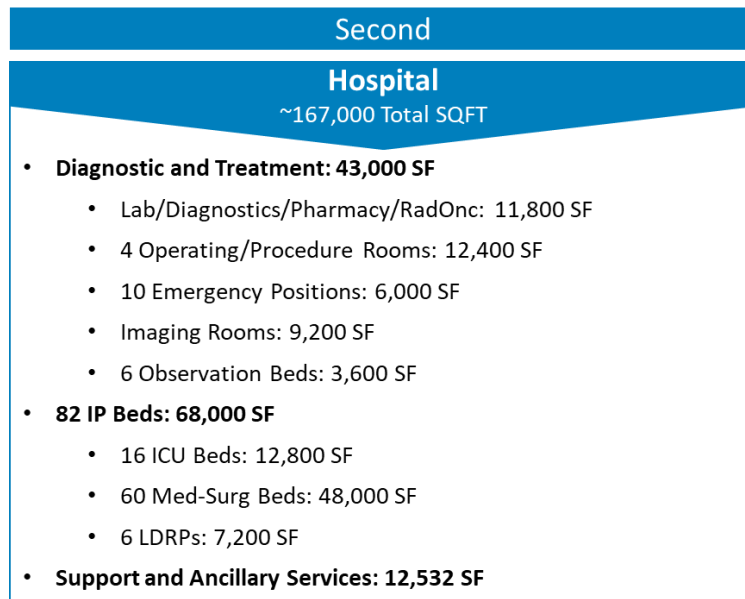
FIGURE 12: Integrated Ambulatory Center Programming



Hospital Scope: This new hospital will include sufficient diagnostic and treatment capabilities with labs, operating rooms, ER positions, imaging rooms, and observation beds. The acute beds will include ICU, medical-surgical, and LDRP (birthing) beds. It is

assumed that the hospital will be built after the ambulatory center. Once the hospital is built, the ambulatory center and freestanding ER will be connected.

FIGURE 13: Hospital Programming



B. Recommendation Two: Future Site of Care

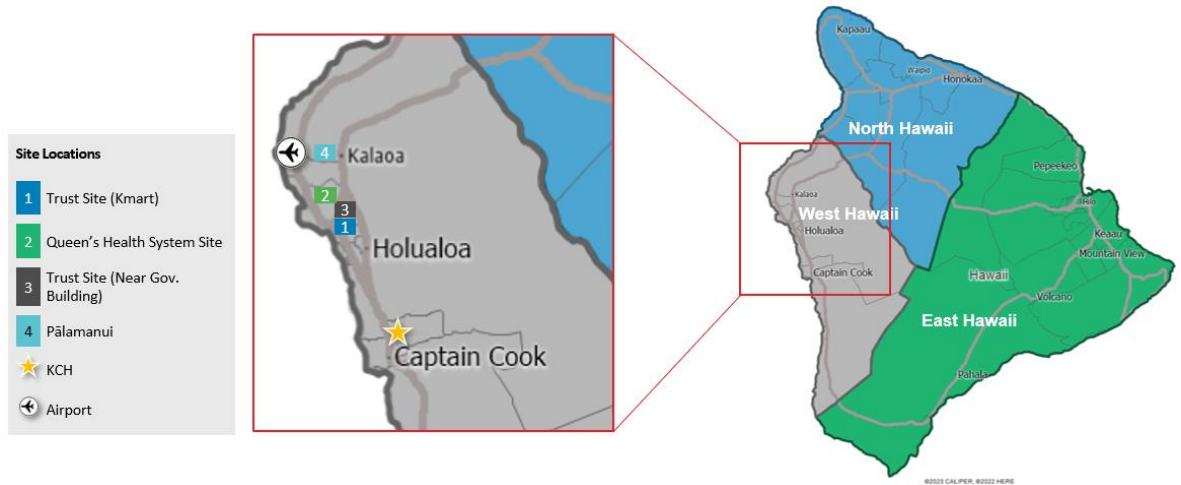
ECG and the representatives from KCH worked together to identify critical elements applicable to the site assessment. Overall, the goal was to find a suitable site north of the current site, closer to the Kona airport, more toward the population center. ECG interviewed key stakeholders in the community and representatives from potential hospital sites to identify the best opportunities for KCH’s new hospital. As a result of the site assessment work performed, ECG identified six main sites that could be suitable for KCH’s new hospital. ECG rated sites using the following characteristics:

- Acres: Size of usable land
- Site Features: current development of land and infrastructure
- Access: Proximity to highways and population centers
- Price: Price of land and deal type (e.g., lease vs purchase)
- Parking: Number of parking spots
- Utilities: Ability to support healthcare facilities

Of the sites identified by ECG, two sites present the most preferred options for KCH, each of which have specific advantages and challenges. Those sites not chosen for further consideration were not considered further due to financial, construction, or timeline challenges. Of the original sites, the Queen’s Health System site and the

Liliuokalani Trust Site (the “Kmart Site”) were identified as good options for KCH to pursue moving forward.

FIGURE 14: New Campus Site Locations



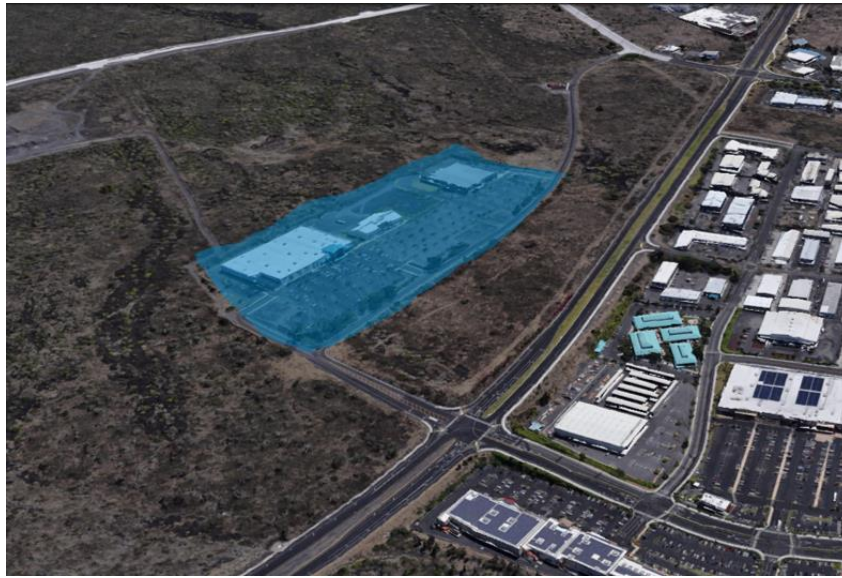
- **Queens Health System Site:** The Queen’s Health System site offers potential for future clinical collaborations. Water rights and sewage are still to be explored. Acquisition terms still need to be explored.

FIGURE 15: The Queen’s Health System Site



- **Kmart Site:** The Liliuokalani Trust Kmart Site is also near the city center and the land is already developed with items like sewage and parking. Acquisition terms still need to be explored.

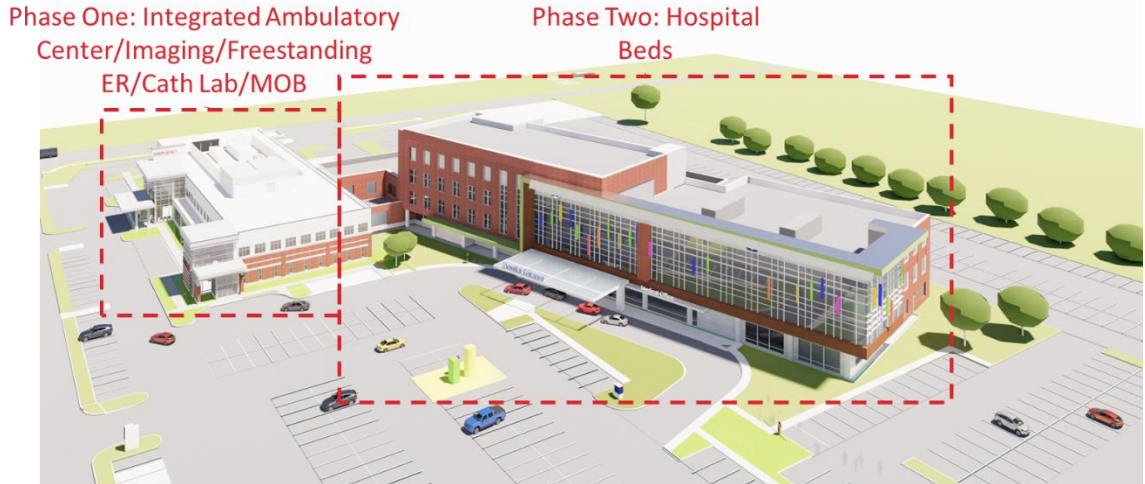
FIGURE 16: Kmart Site



C. Recommendation Three: Phased Approach to Construction

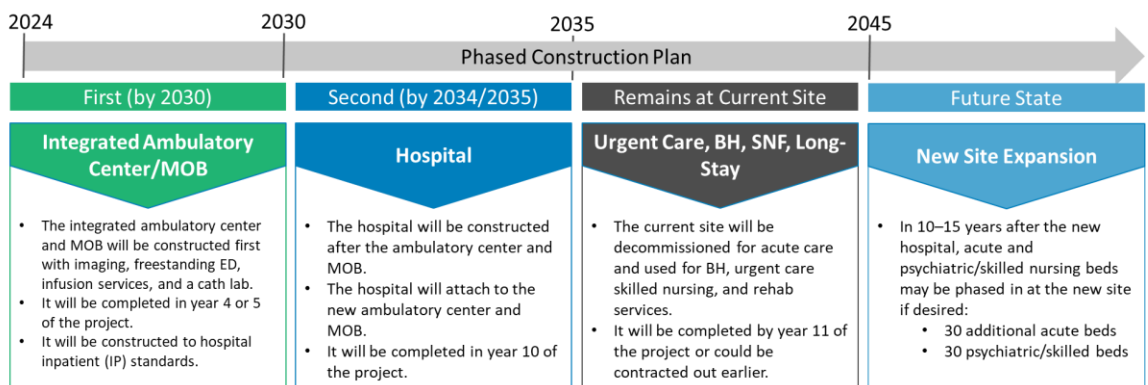
Regardless of the site selected, the new hospital will require significant state and philanthropic funding. As an alternative to constructing the ambulatory center and the hospital at the same time, ECG recommends a phased relocation/replacement approach. Based on the feasibility of constructing a new hospital closer to the population center, ECG recommends implementing a phased approach in which KCH will construct pieces of the project at different times to ensure necessary funding and support can be acquired. See figure 17 for a similar scenario 10-year phased building approach ECG assisted with an Ohio client.

FIGURE 17: Example Phased Construction Illustration (source: Memorial Health System, Marietta, Ohio)



The recommended plan is developed into three phases: (1) move forward now to plan and build the ambulatory center (freestanding ER, cath lab, imaging, infusion, and physician clinic space), (2) plan now for the hospital portion, begin building the hospital in 2030 (80 beds, surgery, and additional ER space), and (3) repurpose the current site for urgent care services and skilled nursing and rehabilitation use. This strategy allows KCH to parse out funding over a longer period to have more time to work with donors to raise funds and to secure state funding. Based on ECG’s time frame, this phased approach assumes the ambulatory center will open in 2030, the hospital in 2035, and the potential reuse of the hospital site after 2035 (recommendation five). Also based on either site selected, there is an opportunity to expand capacity at the new hospital site in the future over the next 40 to 50 years.

FIGURE 18: Phased Construction Plan



D. Recommendation Four: Growing Ali`i Health Center

ECG believes that to improve access and meet growth goals, it is critical that KCH invests in the growth of Ali`i Health Center. As noted previously, there are significant access issues in the region, and patients will leave the region to get care. It is ECG's view that a community this size must have a reasonably sized integrated multispecialty medical group that supports local primary and secondary care. ECG recommends, beginning immediately and continuing over the next five to seven years, for KCH and Ali`i Health Center to jointly expand the group by doubling its size. Growth will be across a range of specialties, with the inclusion of advanced practice physicians to support physicians and patient access.

Though recruiting and retaining physicians to smaller communities in Hawaii is always difficult, Kona is an exciting place to build a practice and a highly desirable place to live. Ongoing financial subsidies for these physicians will be required as is necessary for all health systems, but without a physician build strategy, it is unlikely any of the other recommendations in this report will be feasible. Doubling Ali`i Health Center is key to ensuring access to high-quality care for members of the community, reducing patient out-migration, growth of inpatient and ambulatory services, increased financial revenues, and improvement to its reputation from residents.

E. Recommendation Five: Repurposing the Current Site for Urgent Care, BH and Skilled Nursing/Rehabilitation

To ensure the financial viability of KCH and the new hospital project, ECG has recommended that all non-acute patients with length of stays over 15 days are to remain and taken care of at the current site, which will be repurposed into a skilled nursing and rehabilitation center. These patients who stay over 15 days often get less reimbursement at the hospital and receive higher-cost care than they will in a more appropriate setting.

To decommission and renovate the current hospital into a skilled nursing/rehabilitation facility, ECG estimates that KCH will need a capital investment of approximately \$20 million from the state or philanthropic sources (this is in addition to funds outlined for new site). Once the current hospital has been repurposed, KCH may consider continuing to operate the facility as a behavioral health and skilled nursing facility or possibly contracting/selling the facility to a third-party community partner. At this repurposed site, the hospital will be able to offer lower acute staffing models to best meet patient needs and to be reimbursed for care under the skilled nursing or rehabilitation center rates, which are higher than wait listed IP rates. Additionally, there are already 11 BH-certified beds at the current site, and ECG recommends keeping these beds and considering expanding the number of beds to meet this growing community

need. Urgent care can also be offered at this site to maintain care closer to South Kona residents.

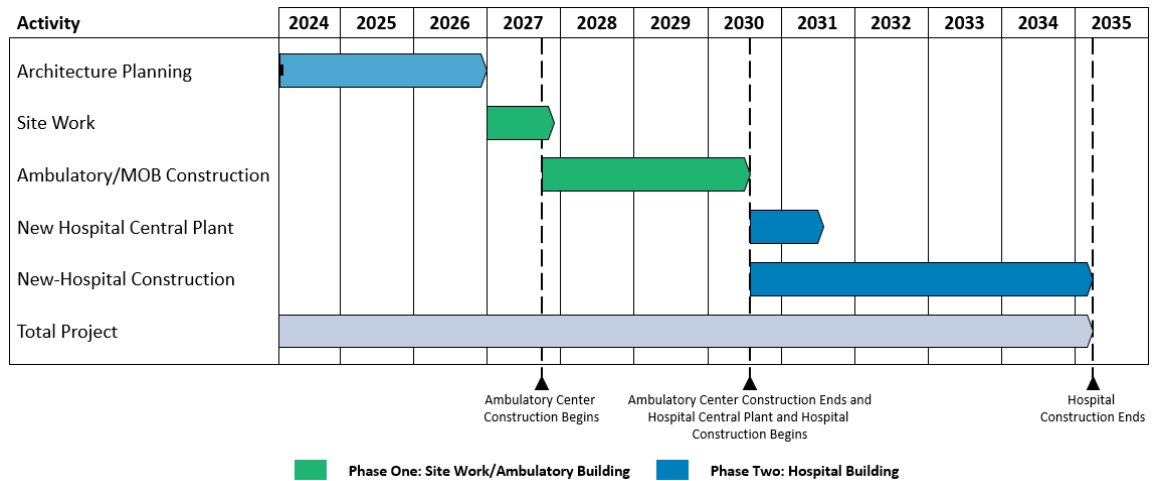
VI. Timeline for Plans and Construction

A. Facility Plan

Based on the work completed by ECG and KCH, architecture planning can begin immediately. ECG estimates that the planning phase of the engagement and any preliminary site work will take approximately three to four years before construction can begin on the ambulatory center. Once construction on the ambulatory center begins, ECG estimates that construction will last approximately two years. Upon completion of the ambulatory center, construction on the new hospital may begin, which will last approximately four to five years.

Based on conservative estimates, assuming KCH begins the process to move now, ECG estimates that the new ambulatory center will open sometime in 2030 and the new hospital can open in 2035. While this construction plan mirrors similar construction projects, unforeseen setbacks may delay the timeline for plans and construction and some order of flexibility in timing should be assumed. (See figure 19.)

FIGURE 19: Timeline for Preliminary Planning and Construction



VII. Financial Overview

A. New Facility Cost

ECG partnered with the Cumming Group, a healthcare facility construction consulting agency, to assemble construction and project cost estimates. ECG used the Cumming Group’s cost estimate to underpin the approximate capital investment requirements

that were used in ECG’s financial feasibility analyses, supporting an ROI calculation for any new investment facility. Based on today’s dollars, the total project cost for the ambulatory center and hospital ranges from \$544 million to \$653 million. (See figure 20.)

FIGURE 20: Recommended Square Footage and Cost Estimates

	Square Footage	Total Costs (low, in today’s dollars)	Total Costs (high, in today’s dollars)
Phase One			
Site Work	11.5 acres	\$21,500,000	\$25,800,000
Central Energy Plant	6,792 square feet	\$23,300,000	\$28,000,000
Ambulatory Center/MOB	79,638 square feet	\$91,000,000	\$109,300,000
Total Phase One Costs	86,430 square feet	\$135,800,000	\$163,100,000
Phase Two			
Central Energy Plant	13,584 square feet	\$46,600,000	\$56,000,000
Hospital (82 IP beds)	166,768 square feet	\$361,300,000	\$434,000,000
Total Phase Two Costs	180,352 square feet	\$407,900,000	\$490,000,000
Combined Phase One and Two			
Total Phases One and Two Costs	266,782 square feet	\$543,700,000	\$653,100,000

B. Financial Feasibility Overview

To determine the financial impact of the recommendations found in this document on KCH and Ali`i Health Center, ECG performed financial analyses and generated individual pro formas for the future ambulatory center, future hospital, and Ali`i Health Center. Due to data limitations, a significant number of revenue and expense assumptions were used in the following pro forma analyses. These assumptions were based on industry trends and available data from similar sized and similarly performing organizations.

C. Financial Feasibility Key Drivers and Results

1. Integrated Ambulatory Center

Key assumptions include the following:

- **Key Services:** The integrated ambulatory center will have a cath lab, freestanding ER, an imaging center, retail space, a physician clinic, and an infusion center.
- **340B Drug Pricing Program:** The infusion center will receive 340B pricing, resulting in decreased drug expenses by 30%.
- **Hospital Outpatient Department (HOPD) Rates:** Once the hospital is built, the center can bill using HOPD rates, which are 30% higher than non-HOPD rates.
- **Lease Payment:** It is assumed that a third-party developer will construct the ambulatory center and MOB and lease the building to KCH.

- **Profitability:** The ambulatory center is expected to break even or have a slight negative return until HOPD rates are achieved.

FIGURE 21: Ambulatory Center Pro Forma Summary

	2030	2035	2040
Revenue			
Total Ambulatory Center Revenue	\$ 29,947,479	\$ 41,564,996	\$ 49,035,617
Operating Expenses			
Total Operating Expenses	\$ 31,302,521	\$ 40,916,789	\$ 47,857,860
EBIDA			
EBIDA	\$ (1,355,042)	\$ 648,208	\$ 1,177,756
EBIDA Margin	-4.5%	1.6%	2.4%

Note: This analysis has been prepared for informational purposes only and is being furnished through ECG Management Consultants, the strategic adviser to KCH, solely for use in planning for the proposed phased relocation/replacement plan.

Any estimates, projections, or forward-looking information contained in this analysis or communicated otherwise is based on information available to ECG as of the date of this report. Such estimates, projections, and forward-looking statements involve known and unknown risks, uncertainties, assumptions, and other factors that may cause actual results, performance, or achievements to be materially different. ECG does not assume any responsibility for and makes no representation that actual conditions, performance, or operating results will occur as forecast. Changes in management, business operations, economic environment, and/or legal regulations may materially impact the conclusions set forth herein.

2. **New Hospital**

Key assumptions include the following:

- **Market Share Capture:** IP discharges are expected to increase to an amount that represents a 10% market share capture.
- **Wait Listed Patients:** When the new hospital opens in 2035, patients who are wait listed will remain at the current site.
- **Improved Operational Efficiencies:** Improved efficiencies at the new hospital are achieved.
- **Profitability:** Negative returns are expected. The main driver is a high benefit cost for all employees (80% of salaries by year 5).

- **Funding:** All funding for the hospital will come through state or philanthropic sources, as KCH is most likely unable to obtain debt financing.

FIGURE 22: New Hospital Pro Forma Summary

	2024	2030	2035	2039
Revenue				
Total Hospital Revenue	\$ 108,348,539	\$ 127,765,035	\$ 120,616,204	\$ 140,481,377
Operating Expenses				
Total Hospital Operating Expenses (Includes Depreciation and Amortization)	\$ 136,588,124	\$ 164,310,359	\$ 169,569,041	\$ 185,729,509
EBIDA				
EBIDA	\$ (24,302,966)	\$ (31,048,705)	\$ (15,660,808)	\$ (11,756,102)
EBIDA Margin	-22.4%	-24.3%	-13.0%	-8.4%

Note: EBIDA = earnings before interest, depreciation, and amortization.

See ECG Financial Disclaimer on Page 24

3. **Ali`i Health Center**

Key assumptions include the following:

- **Enhanced Operations:** Assumes improved productivity and collections to the 60th percentile by 2028 which correlates with industry standards.
- **Growth of Physician Group:** The group is expected to grow from approximately 20 CFTEs to approximately 39 CFTEs in five years.
- **Epic:** Expenses for the group include onetime Epic software cost when a new physician is onboarded.
- **Housing Stipends:** Physician expenses include a yearly housing stipend for each physician.
- **Ambulatory Lease Payment:** The group will pay a portion of the total ambulatory building lease payment equal to the percentage of the ambulatory center square footage it occupies.

FIGURE 23: Ali`i Health Center Pro Forma Summary

	2024	2030	2035
Revenue			
Total Total			
Operating Revenue	\$ 10,844,949	\$ 26,167,865	\$ 27,046,909
Operating Expenses			
Total Operating Expenses	\$ 23,891,391	\$ 37,155,787	\$ 38,651,666
EBIDA			
EBIDA	\$ (12,943,631)	\$ (10,841,665)	\$ (11,408,567)
EBIDA Margin	-119.4%	-41.4%	-42.2%
Subsidy			
Net Income	\$ (1,314,375)	\$ 3,549,556	\$ (392,588)
AHC Subsidy	\$ 12,234,375	\$ 7,370,444	\$ 11,312,588
Physician FTEs	20.4	38.4	38.4
Subsidy per FTEE	\$ 599,724	\$ 191,939	\$ 294,599

Note: See ECG Financial Disclaimer on Page 24

FIGURE 24: Combined Pro Forma Summary

	2024	2030	2035	2039
Revenue				
Ambulatory Revenue	\$ -	\$ 29,947,479	\$ 41,564,996	\$ 47,396,130
Hospital Revenue	\$ 108,348,539	\$ 127,765,035	\$ 120,616,204	\$ 140,481,377
AHC Revenue	\$ 10,844,949	\$ 26,167,865	\$ 27,046,909	\$ 27,109,293
Total Revenue	\$ 119,193,488	\$ 183,880,378	\$ 189,228,109	\$ 214,986,800
Operating Expenses				
Ambulatory Operating Expenses	\$ -	\$ 31,302,521	\$ 40,916,789	\$ 46,331,967
Hospital Operating Expenses	\$ 136,588,124	\$ 164,310,359	\$ 169,569,041	\$ 185,729,509
AHC Operating Expenses	\$ 23,891,391	\$ 37,155,787	\$ 38,651,666	\$ 39,925,838
Total Operating Expenses	\$ 160,479,516	\$ 232,768,667	\$ 249,137,496	\$ 271,987,314
EBIDA				
Ambulatory EBIDA		\$ (1,355,042)	\$ 648,208	\$ 1,064,163
Hospital EBIDA	\$ (24,302,966)	\$ (31,048,705)	\$ (15,660,808)	\$ (11,756,102)
AHC Health Center EBIDA	\$ (12,943,631)	\$ (10,841,665)	\$ (11,408,567)	\$ (12,568,387)
Total EBIDA	\$ (37,246,597)	\$ (43,245,412)	\$ (26,421,167)	\$ (23,260,326)
EBIDA Margin	-31%	-24%	-14%	-11%

Note: See ECG Financial Disclaimer on Page 24

VIII. Next Steps and Conclusion

A. Conclusion

As stated at the beginning of this report, delivering healthcare on the West Side of Hawaii Island is challenging but not insurmountable. A growing community such as the one in this region can support a thriving hospital, expanded services, and an integrated medical group. Moving KCH and investing in Ali`i Health Center allows for a reset of how healthcare is delivered to the community. More residents will have convenient access to hospital care; instead of driving 30 minutes or more for care, many patients will drive less than 10 minutes. Services will be expanded, such as a cath lab, and instead of going to Hilo or Oahu, patients will have state-of-the-art cardiac care locally. Access will be improved; patients will be able to get specialist care locally and not on Oahu or on the mainland. Also, this strategy does not abandon care delivery at the original location. The current site will be repurposed to care for wait listed patients in a more appropriate care setting and to keep the BH beds and will include urgent care services.

As for key rate-limiting factors, securing adequate funding will be essential. Due to the amount of funds needed, ECG recommends pursuing a more phased approach to construction (ambulatory center first, hospital second). Also, recruitment of the physician base will be critical, and KCH and Ali`i Health Center must determine creative recruiting approaches to attract mission-driven physicians to the region.

B. Next Steps

Upon the completion of the work performed by KCH and ECG, ECG recommends that KCH share the outcomes and recommendations of this report with the community and its government leaders. Additionally, KCH must begin project planning and fundraising to keep this important work moving forward. ECG is extremely grateful to be engaged to advise KCH leadership in this process. ECG is honored to work with the entire community to create a viable path forward for KCH. Thank you for trusting us with this ever-important task.

Appendix I: Market Assessment

Figure 25 illustrates IP Discharge Market Share by Hospital on Hawaii Island.

FIGURE 25: IP Discharges by Hospital: Hawaii Island

Big Island IP Discharges by Hospital, 2020 to 2022

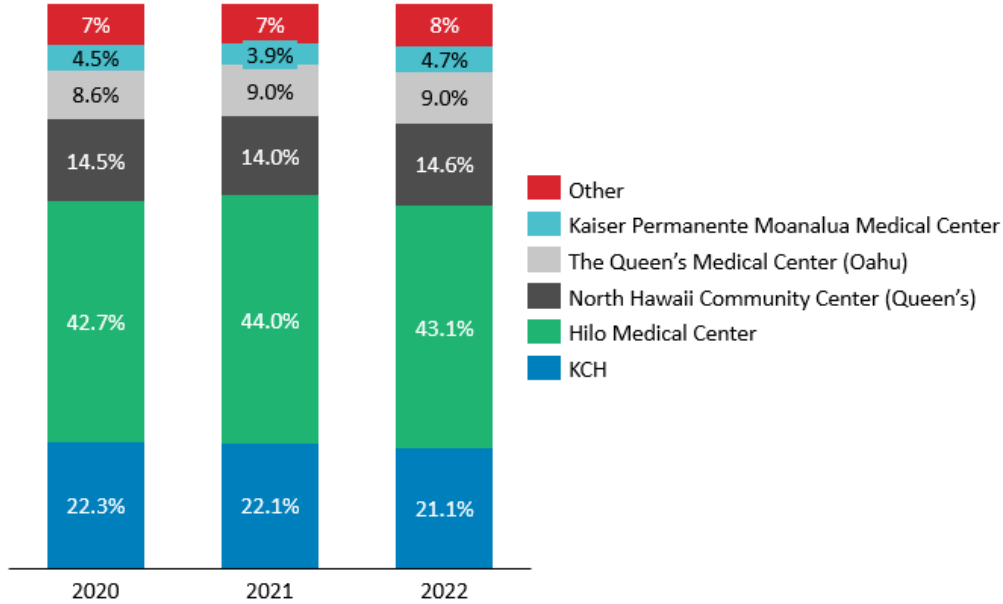


Figure 26 illustrates Inpatient Market Share by Service Line on Hawaii Island.

FIGURE 26: IP Service Lines on Hawaii Island

Big Island High-Volume Service Lines and Market Share: IP—All DRGs, 2022

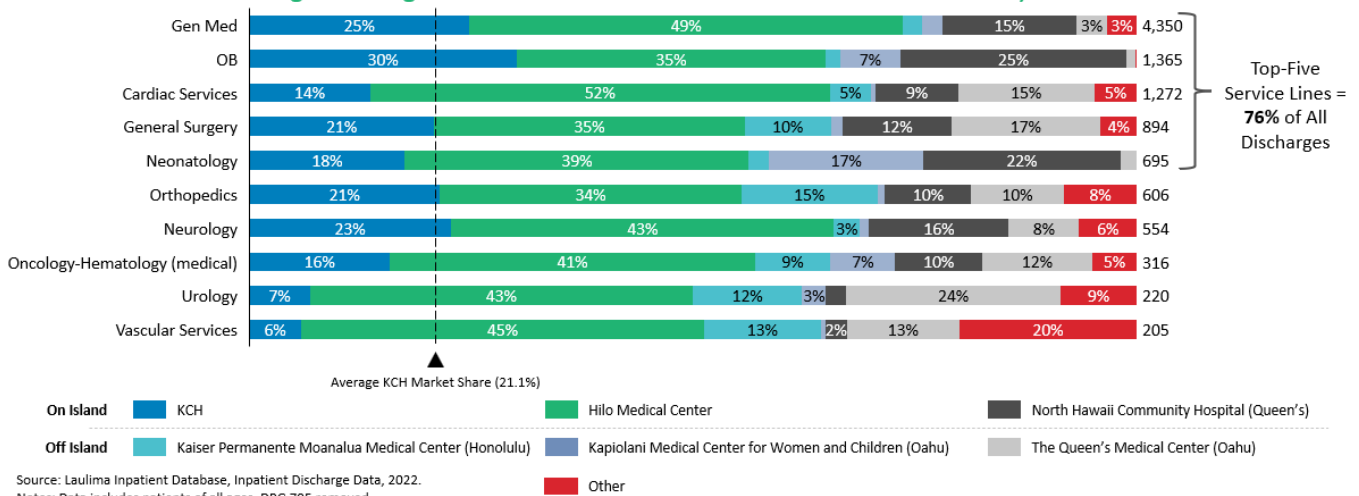


Figure 27 illustrates IP Discharge Market Share by Hospital in West Hawaii.

FIGURE 27: IP Discharges by Hospital: West Hawaii

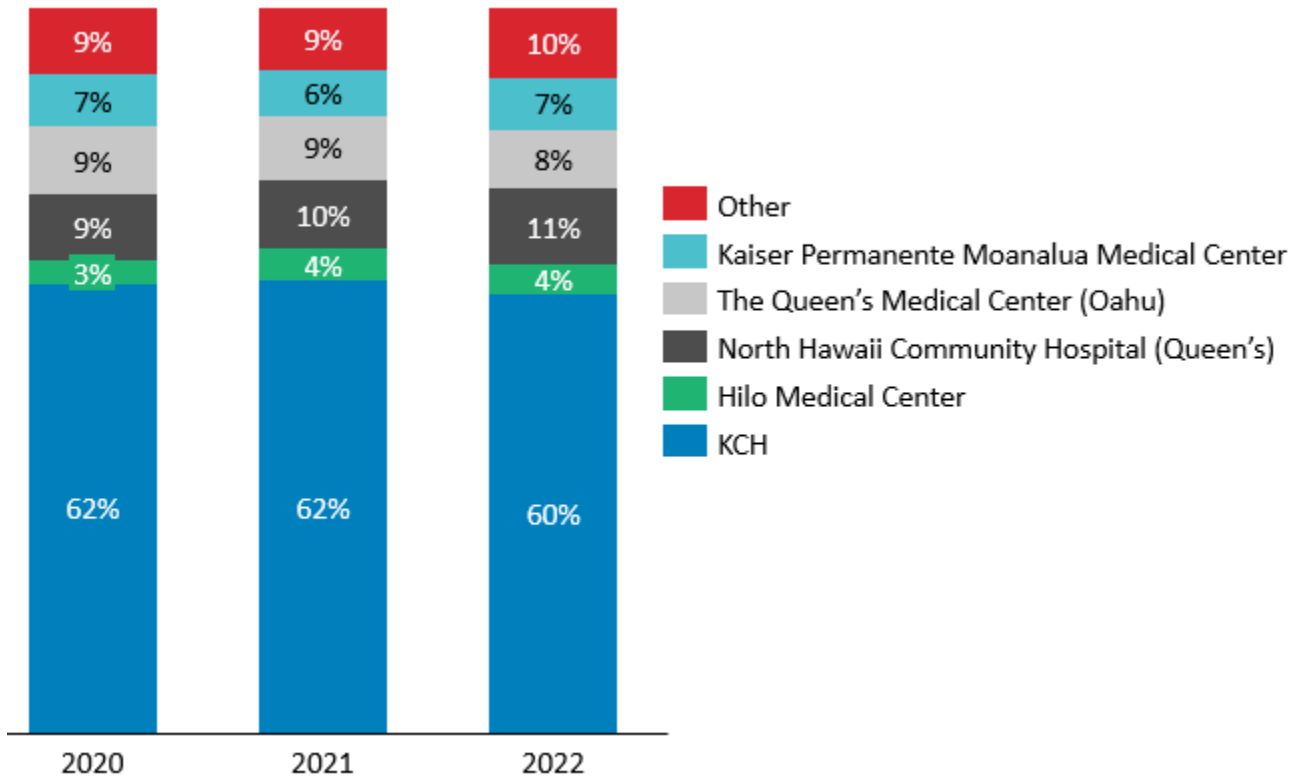


Figure 28 illustrates Inpatient Market Share by Service Line in West Hawaii.

FIGURE 28: IP Discharges by Hospital: West Hawaii

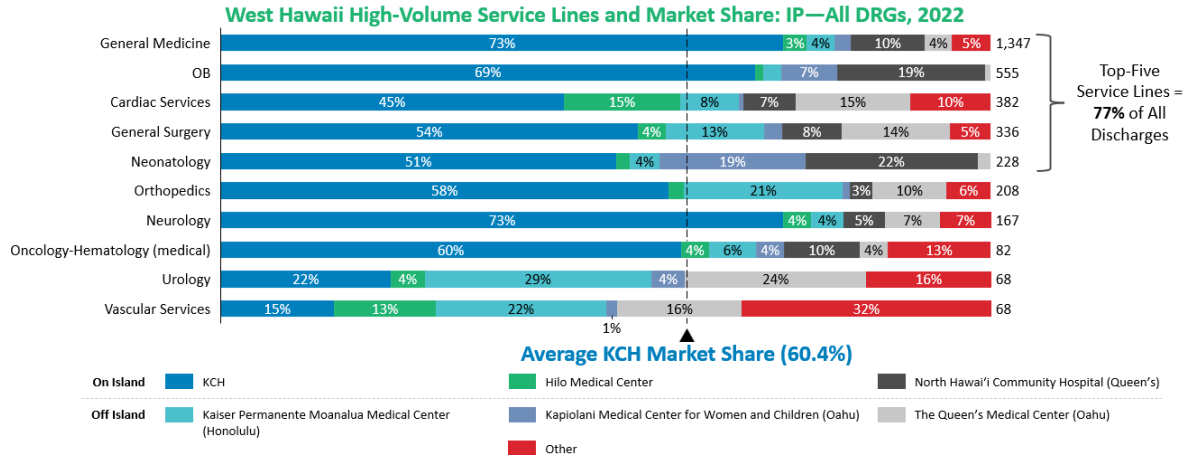
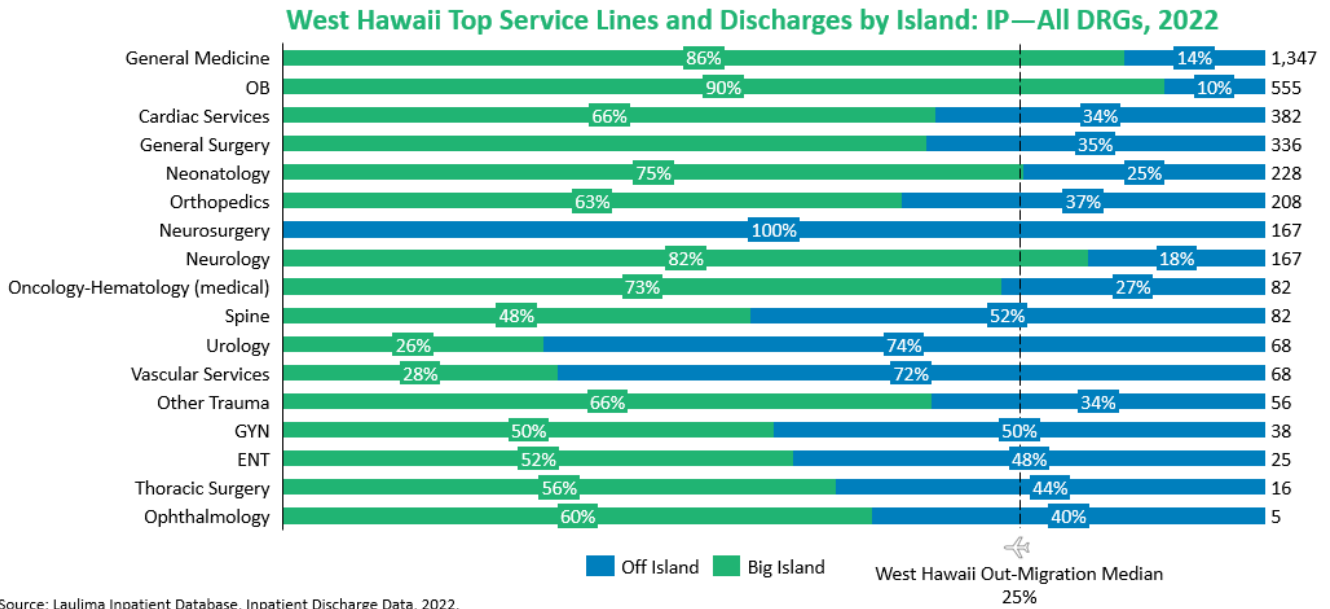


Figure 29 illustrates patient outmigration by service line in West Hawaii

FIGURE 29: West Hawaii top service lines and discharges by Island.



Source: Lailima Inpatient Database, Inpatient Discharge Data, 2022.

Figure 30 illustrates Hawaii County Adult inpatient use rates from 2020 to 2022.

FIGURE 30: IP Uses Rates by County vs Service Area, State, and National Benchmarks.

IP Use Rate by County versus Service Area, State, and National Benchmarks, 2020 to 2022

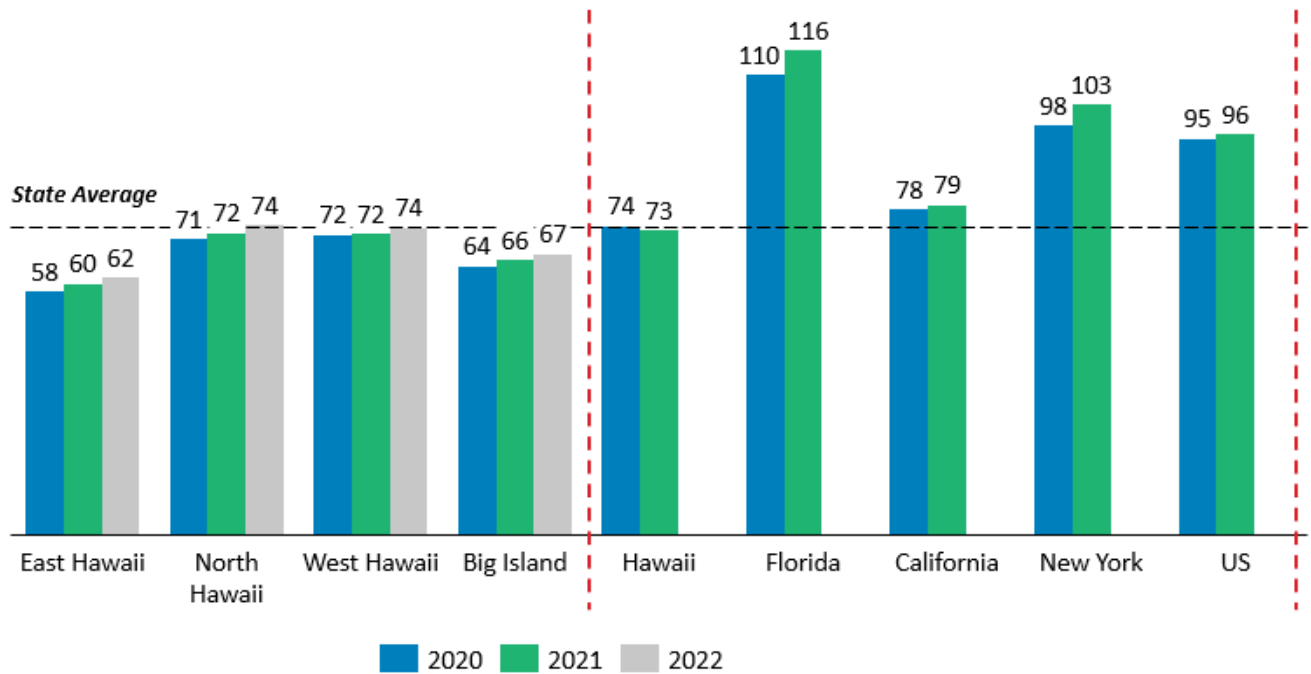
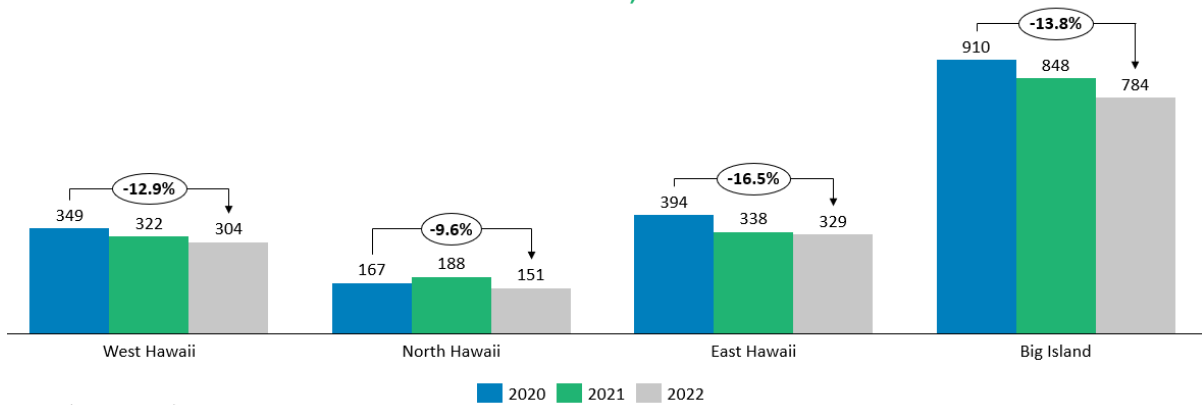


Figure 31 illustrates birth rate trends across Hawaii Island from 2020 to 2022.

FIGURE 31: IP Birth Rate Trends 2020 to 2022.

IP Birth Rate Trends, 2020 to 2022



Source: Lailima Inpatient Database, 2022.

Figure 32 illustrates outpatient surgery and procedure market share trends by hospital.

FIGURE 32: Big Island OP Surgeries by Hospital 2020 to 2022.
Big Island OP Surgeries by Hospital, 2020 to 2022

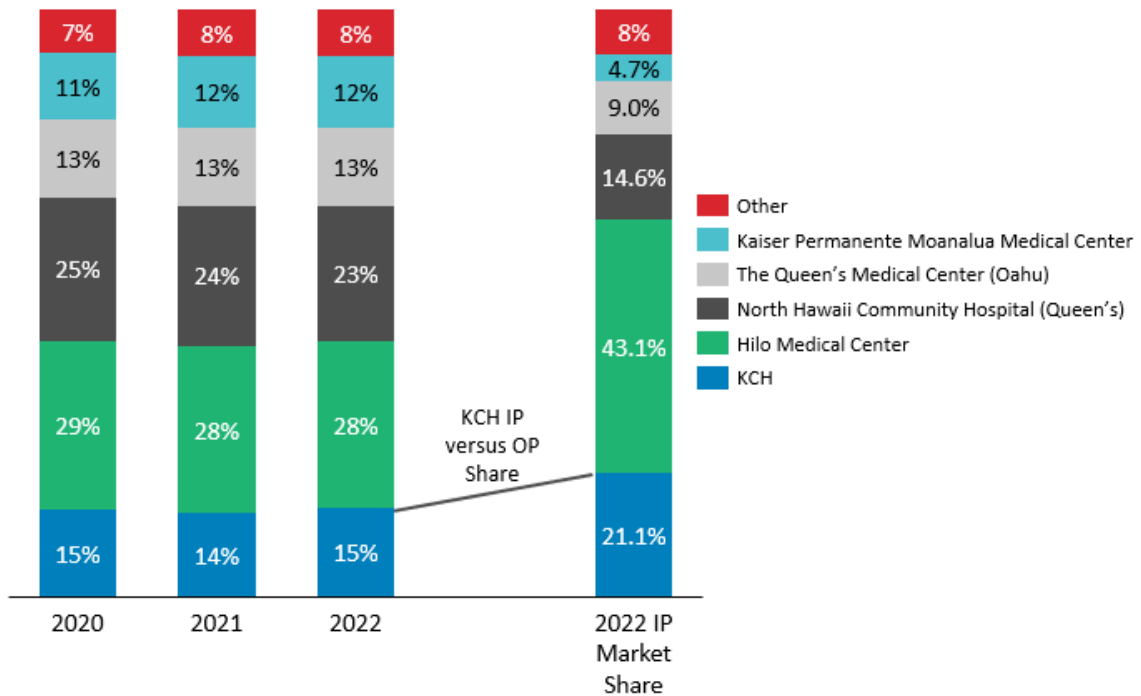


Figure 33 illustrates hospital outpatient surgery and procedure market share by service line across Hawaii Island.

FIGURE 33: Hawaii Island, High Volume Service Lines and Market Share OP Surgery 2022.

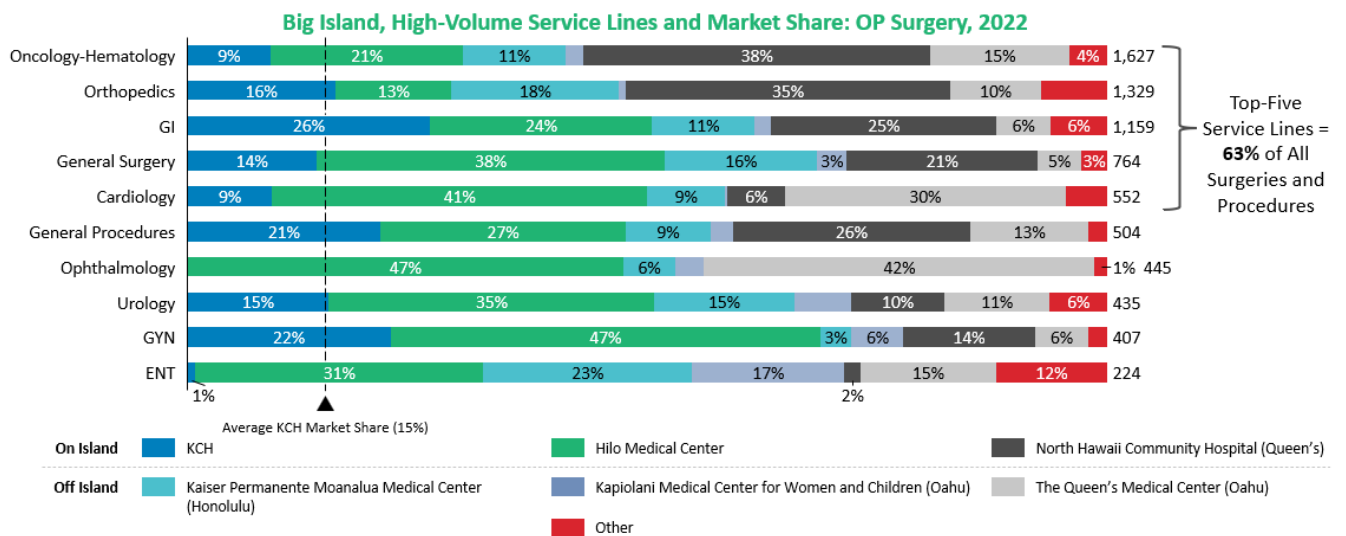


Figure 34 illustrates hospital outpatient surgery and procedure market share by hospital for West Hawaii residents.

FIGURE 34: West Hawaii OP Surgeries by Hospital, 2020 to 2022.

OP Surgeries by Hospital, 2020 to 2022

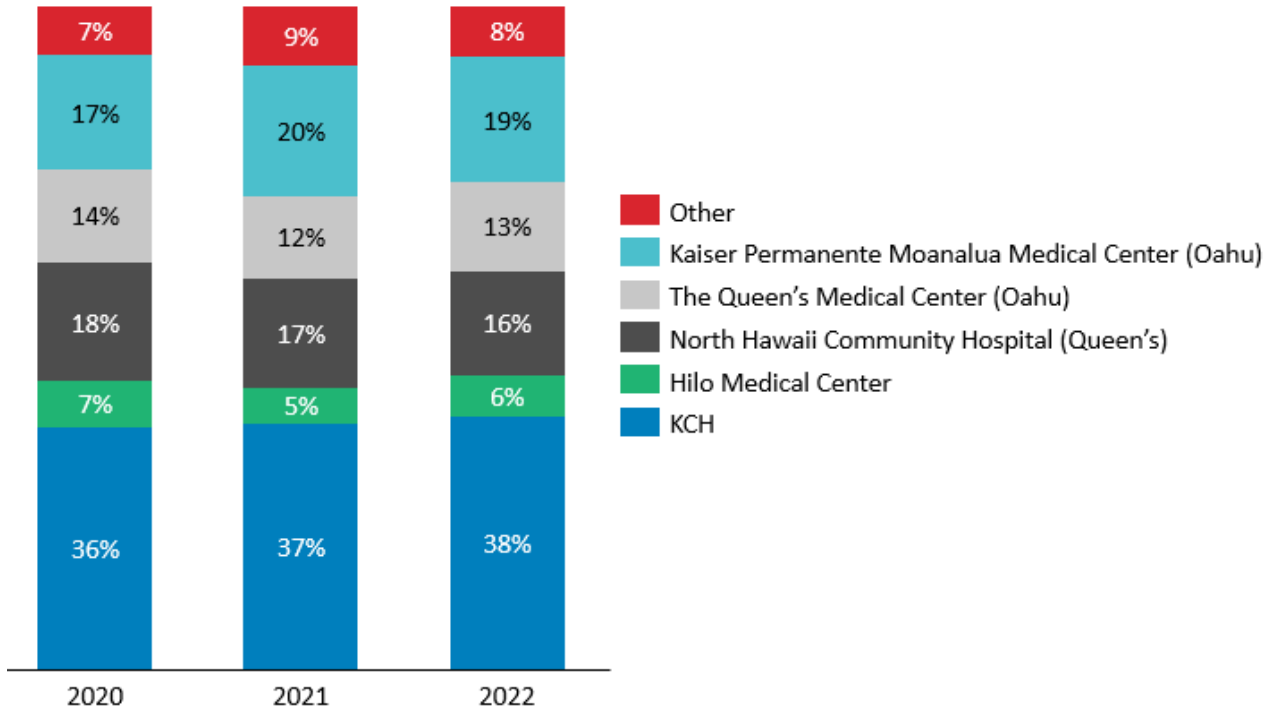


Figure 35 illustrates hospital outpatient surgery and procedure market share by service line for West Hawaii.

FIGURE 35: West Hawaii High Volume Service Lines and Market Share OP Surgery 2022.

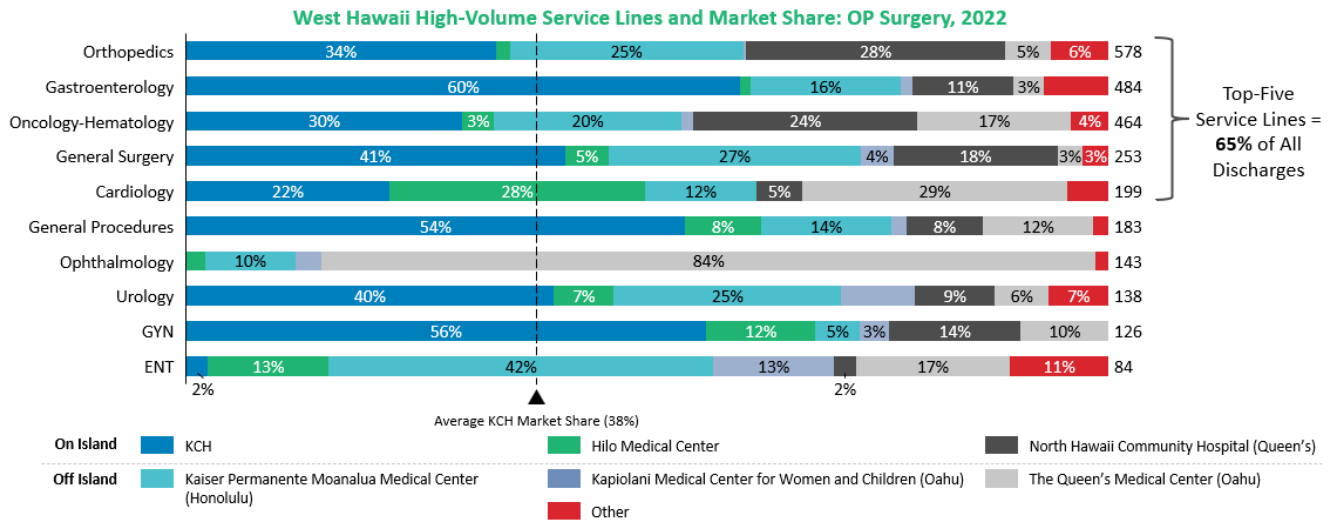


Figure 36 illustrates West Hawaii Outmigration of Emergency Services

FIGURE 36: ER Visits of Patients Living in West Hawaii, 2022.

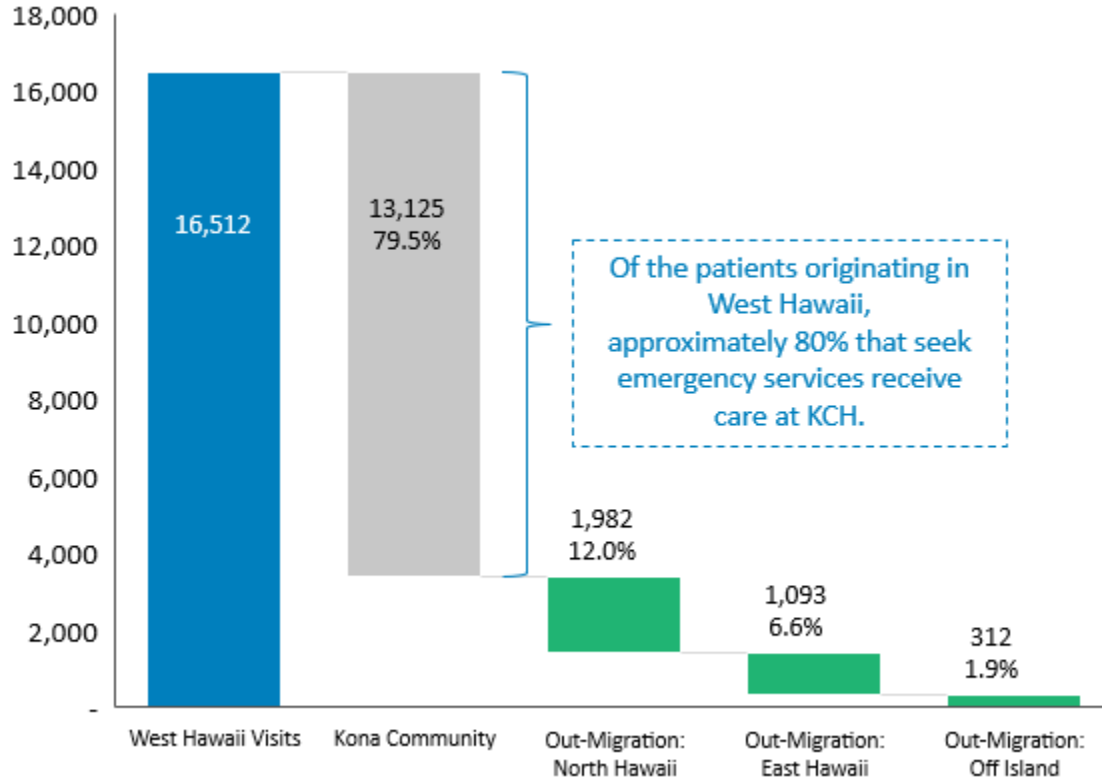
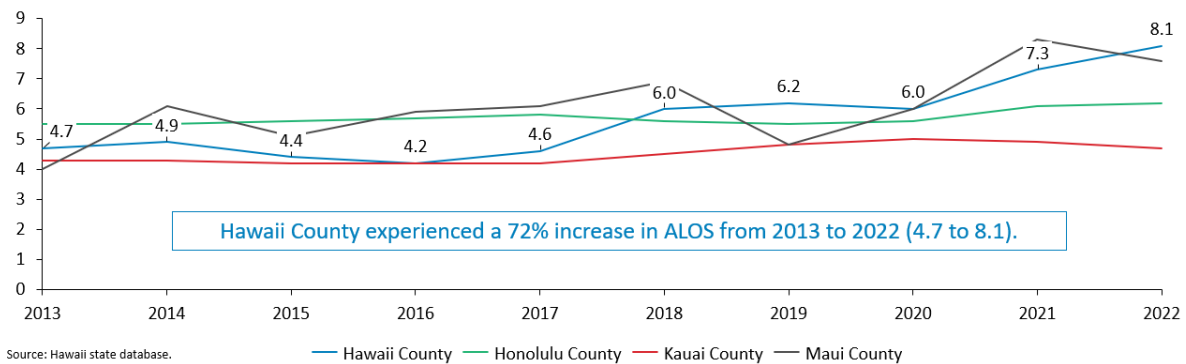


Figure 37 illustrates current ALOS for admitted patients across the State of Hawaii.

FIGURE 37: ALOS by County (Acute Care) 2013-2022



Appendix II: Community Needs Assessment

Figure 38 illustrates State and National Cancer Incidence and Death Rates Comparison

FIGURE 38: State and National Cancer Incidence and Death Rates.

Cancer Type	Incidence Rate			Death Rate		
	Hawaii County	Hawaii State	US	Hawaii County	Hawaii State	US
Breast Cancer	↓ ↓ 125.8	140.2	128.1	↑ 16.6	15.5	19.4
Cervical Cancer	↑ 7.4	6.8	7.7	↑ 2.2	1.6	2.3
Colorectal Cancer	↓ ↓ 34.5	39.4	37.7	↓ ↓ 10.8	12.5	13.4
Liver/Bile Duct Cancer	↓ 9.0	10.2	8.6	↑ ↑ 9.2	8.0	6.7
Lung/Bronchus Cancer	= 43.4	43.4	56.3	↑ 25.4	22.8	31.7
Prostate Cancer	↓ ↓ 79.6	100.3	109.9	↑ 17.5	15.8	19.0
Skin Cancer	↑ ↑ 32.6	24.0	22.9	↑ ↑ 2.2	1.2	2.0

Source: Hawai'i Health Matters.

↑ ↑ Higher than US and state rate ↑ Higher than state rate = Equivalent to state rate ↓ Lower than state rate ↓ ↓ Lower than US and state rate

Figure 39 illustrates that South Kona is disproportionately unhealthy and has higher susceptibility for some diseases and cancer.

FIGURE 39: West Hawaii Indicator Comparison to County and State.

	North Kona	South Kona	Hawaii County	Hawaii State
All-Cause Hospitalization Rate	↓ 805.5	↑ ↑ 931.8	855.1	754.8
Adults with Diabetes	↓ ↓ 8.8%	↓ ↓ 9.4%	11.4%	9.5%
Adults with High Blood Pressure	↓ ↓ 27.9%	= 33.5%	33.5%	29.8%
Adults with Kidney Disease	↓ ↓ 2.4%	↑ ↑ 4.1%	3.0%	2.8%
Cancer Death Rate	↓ 122.8	↑ 141.5	127.0	121.9
Heart Disease Death Rate	↓ ↓ 108.3	↓ ↓ 122.4	143.3	124.0
Stroke Death Rate	↓ ↓ 31.9	↓ ↓ 32.7	42.6	43.3
Mothers Who Received Late or No Prenatal Care	↓ 8.9%	↓ 9.4%	10.4%	11.3%

Source: Hawai'i Health Matters.

↑ ↑ Higher than state and county rate ↑ Higher than county rate = Equivalent to county rate ↓ Lower than county rate ↓ ↓ Lower than state and county rate

Figure 40 illustrates that there are significant health equity disparities for some populations.

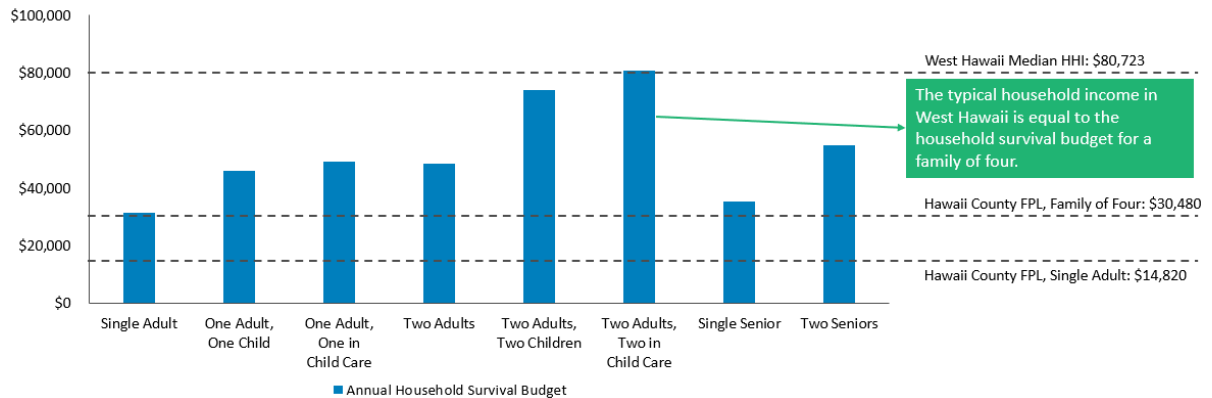
FIGURE 40: Key West Hawaii Health Equity Indicators.

	Median HHI	% of Population below FPL ¹	Unemployment Rate	Speak Language Other than English at Home	% of Households with Food Stamps/ SNAP Benefits	Medicaid Enrollment
North Kona						
Holualoa	\$76,450	9%	5%	15%	6%	22%
Kailua-Kona	\$81,689	10%	4%	25%	11%	22%
Kealahou	\$71,667	7%	3%	18%	16%	25%
South Kona						
Captain Cook	\$67,845	14%	7%	27%	14%	22%
Ocean View	\$25,402	39%	16%	35%	41%	39%
Hawaii and US Benchmarks						
Hawaii County	\$72,568	15%	4%	23%	18%	26%
Hawaii State	\$92,458	10%	4%	24%	12%	20%
US	\$74,755	13%	4%	22%	12%	21%

Source: American Community Survey (ACS).

Figure 41 illustrates that basic household expenses in Hawaii significantly exceed Federal Poverty Limits.

FIGURE 41: Household Survival Budget for Hawaii residents.



Appendix III: Physician Needs Assessment

Figure 42 illustrates that primary care physicians are heavily concentrated in Kona, resulting in significant care gaps for South Kona.

FIGURE 42: West Hawaii Primary Care Shortages.

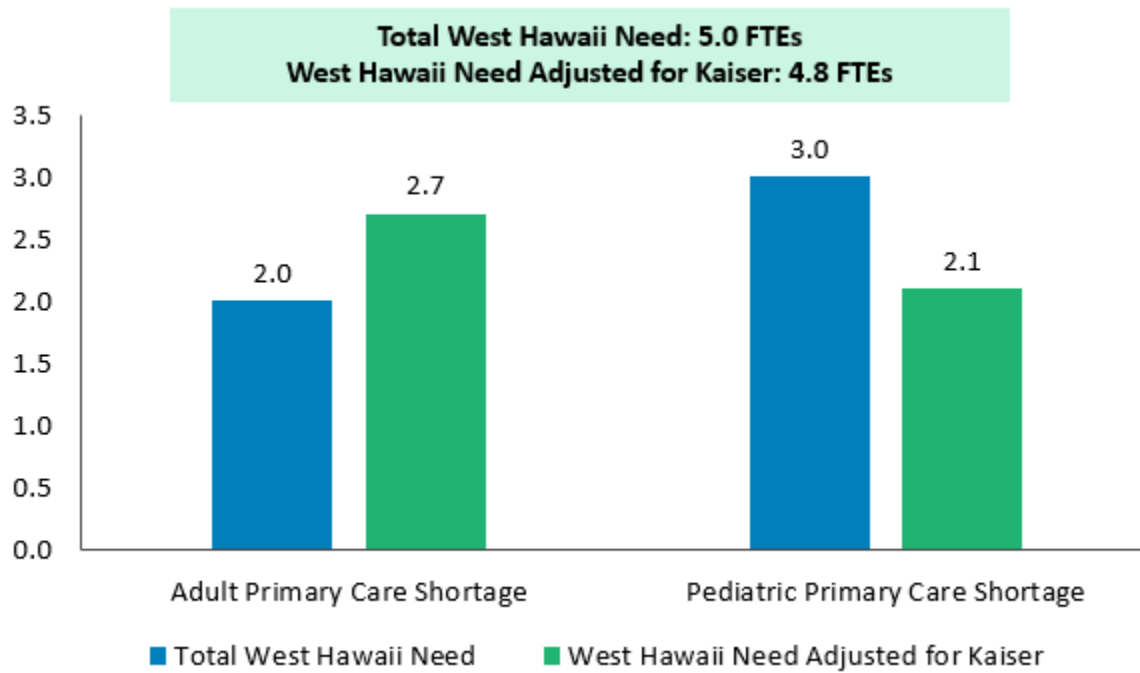


Figure 43 illustrates that most medical specialties can support at least one additional FTE in West Hawaii.

FIGURE 43: West Hawaii Medical Specialty Shortages.

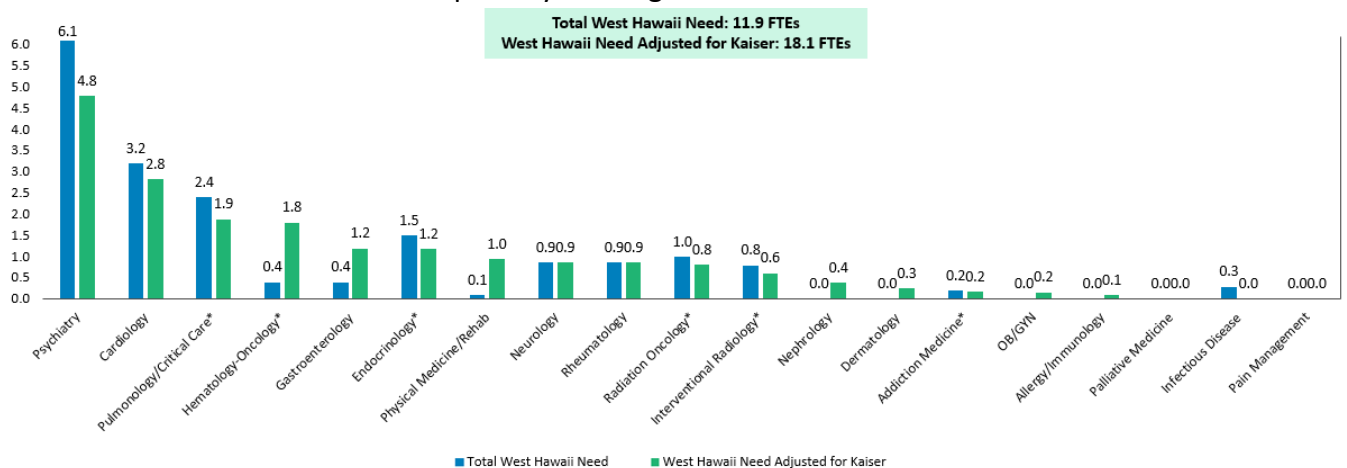


Figure 44 illustrates that most surgical specialties are appropriately sized for West Hawaii.

FIGURE 44: West Hawaii Surgical Specialty Shortages.

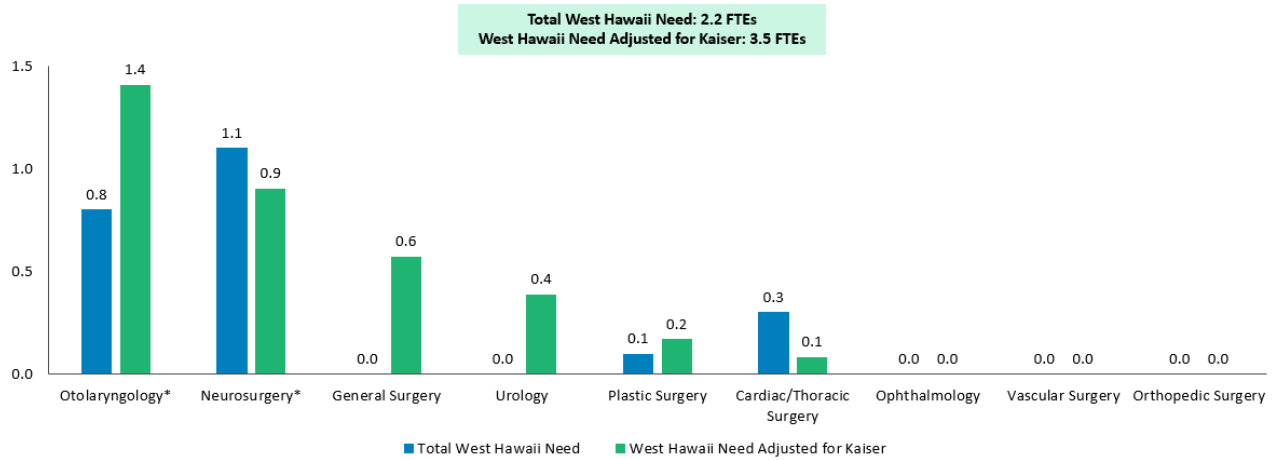


Figure 45 illustrates that lengthy new appointment wait times can result in unnecessary care delays for both acute treatment and diagnostic procedures.

FIGURE 45: West Hawaii Specialties with Average Wait Times over 14 days.

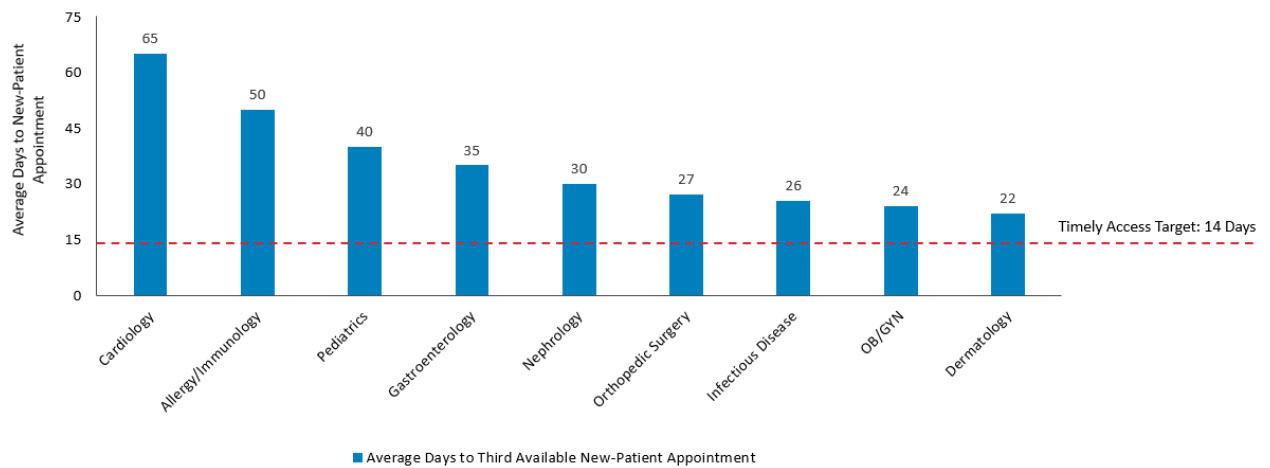
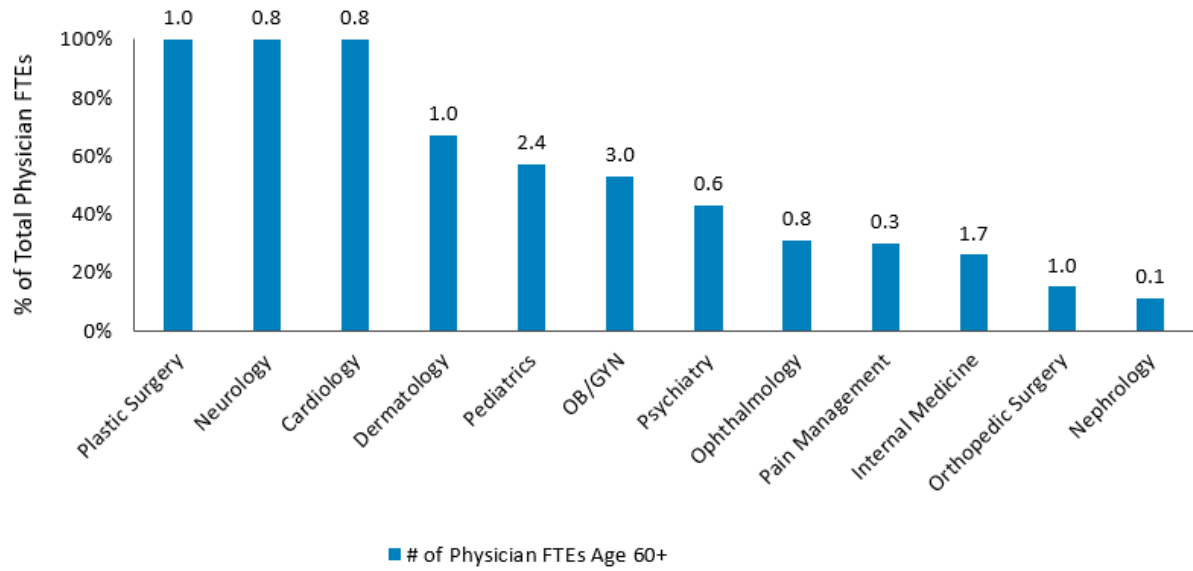


Figure 46 illustrates that recruitment must also aim to backfill physician successions to proactively ensure specialty services are sustained in the community.

FIGURE 46: West Hawaii physicians age 60+: percentage and number of physician FTEs.



Appendix IV: Additional Sites for Consideration

FIGURE 47: Palamanui Site

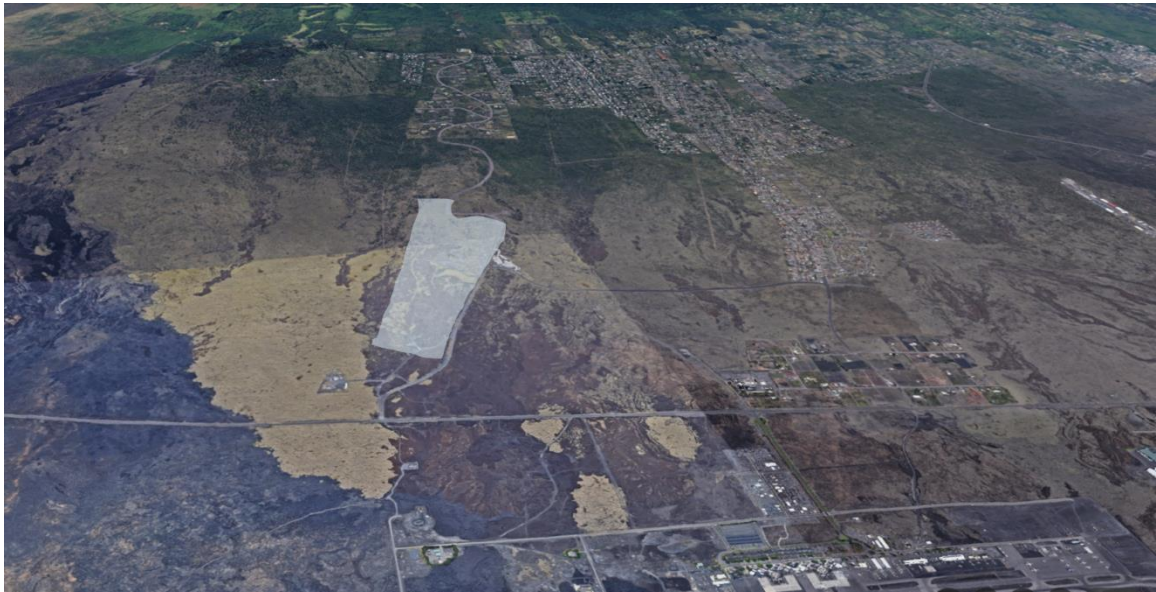


FIGURE 47: Trust Sites One and Two



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