Ward Village Mahana (Block N-West) Economic Impacts

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EXHIBIT 15

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Executive summary

Ward Village Mahana (Block N-West (NW)) redevelopment will deliver 451 new condominium housing units in Howard Hughes' master plan for Kakaako urban renewal. This report summarizes economic impacts of Mahana (Block NW) redevelopment in present values of constant, 2025 dollars, and documents substantial permanent economic impacts.

- Mahana (Block NW) redevelopment is associated with $670 million in direct, indirect, and induced (total) output, peaking in 2028.
- Mahana (Block NW) redevelopment is associated with $225 million in total workers' earnings.
- Mahana (Block NW) redevelopment is associated with $41 million in total state tax receipts.
- An annual average of 395 jobs are associated with Mahana (Block NW) redevelopment, with a peak annual impact of 906 jobs in 2028.
- Over thirty years beginning late in 2030, in present values of constant 2025 dollars, Mahana (Block NW) operations and maintenance will generate $165 million in future output, $55 million in earnings, $10 million in state tax revenues, and an annual average 19 jobs.
- Over thirty years beginning in 2030 Mahana (Block NW) will accrue $121 million in the present value of future real county residential property tax revenues, in constant 2025 dollars plus or minus 9 percent, based on historical volatility of home price appreciation.
- Over fifty years Mahana (Block NW) will accrue $190 million in present value real residential property taxes.

[1] This report was prepared by Paul H. Brewbaker, Ph.D., CBE, Principal, TZ Economics of Kailua, Hawaii for The Howard Hughes Corporation in a format of earlier reports related to the development's master plan and its individual towers, under planning assumptions from the developer, subject to revision.

1. Introduction

Mahana (Block N-West) redevelopment will deploy 451 new urban core condominium housing units, around average Oahu suburban single-family home prices, within the master-planned Ward Village of Honolulu's Kakaako district.

Estimates of statewide economic impacts of Mahana (Block NW) development are reported here using the State of Hawaii's latest input-output (I-O) economic model.[2] Through interindustry linkages, final expenditure on private investment—capital formation—is directly associated with a variety of economic activities. Investment outlay also is associated indirectly with economic activity through derived demand for intermediate goods and services that support production. Earnings associated with the jobs created by these activities induce personal consumption expenditures which have additional economic impacts. Quantitative estimates of direct, indirect, and induced effects comprise total economic impacts attributable to Mahana (Block NW) redevelopment.

Other economic consequences of Mahana (Block NW) redevelopment are not quantified in this report. Excluded are certain costs of entitlement acquisition necessary for building, state conveyance taxes not itemized in the I-O model, and county property taxes paid prior to completion, as well as impacts of recent tax policy changes which may be pertinent but currently are not incorporated in the I-O model. No estimate of external social costs—unintended, uncompensated spillovers—is included in this report although fees often are justified partly to internalize, privately, social costs of negative externalities. No estimate is included of social benefits of positive externalities from urban agglomeration, from economies of scale and scope, neighborhood valuations, or mitigated of pecuniary externalities from offshore demand for Oahu residential real estate assets. Finally, no estimate of contributions to natural resource conservation is incorporated in this report.[3]

Economic impact estimates in this report are adjusted for 2.5 percent inflation and expressed in present values at a 3 percent discount rate from the standpoint of year 2025, taking into explicit account the impacts of the passage of time and accounting for net leakages from imported inputs. Projected job impact estimates incorporate productivity growth rates consistent with assumptions in the state's I-O- model. Total impacts of direct and indirect effects through inter-industry linkages, and induced effects from personal consumption expenditure effects of higher earnings from associated job creation, are estimated. Output comprises total value inclusive of intermediate goods and services, a broader measure than value-added (GDP).

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[2] Research and Economics Analysis Division (READ), Hawaii Department of Business and Economic Development (DBEDT) (December 2020) *The Hawaii State Input-Output Study: 2017 Benchmark Report* (https://files.hawaii.gov/dbedt/economic/reports/IO/2017_state_io_study.pdf).

[3] The State of Hawaii constitution directs that, "the State and its political subdivisions shall conserve and protect Hawaii's natural beauty and all natural resources" (Article XI, Section 1), and that, "the State shall conserve and protect agricultural lands" (Article XI, Section 3). These criteria widely are interpreted and probably were intended to favor urban density in residential development over suburbanization of agricultural land. Ward Village contributes to this mandate through concentration of residential development in Honolulu's urban core. See League of Women Voters of Honolulu (https://www.lwv-hawaii.com/govt/constitution/art11.htm).

2. Development and construction economic impact estimates

Ward Village Mahana (Block NW) development and construction economic impacts are reported in constant 2025 dollars, over nine years 2022-2029, predominantly in second-half 2020s as the associated construction impulse reaches its zenith, in present value terms.

- Mahana (Block NW) development and construction is associated with $456 million in direct and indirect impacts on output from interindustry consequences of development, construction and marketing and other management and administrative activities. Including expenditures arising from incomes created by project, Mahana (Block NW) is associated with $670 million in direct, indirect, and induced (total) output.

- Mahana (Block NW) development and construction is associated with $168 million in workers earnings directly and indirectly, and is associated with $225 million in direct, indirect, and induced earnings.

- Mahana (Block NW) development and construction is associated with nearly $31 million in state taxes directly and indirectly, and is associated with $41 million in direct, indirect, and induced (total) state tax receipts.

- An annual average of 273 jobs are associated directly and indirectly with Mahana (Block NW) development and construction (one job-year or one job for one year), and with 395 jobs including the full scope of total effects (direct, indirect, and induced) over nine years, with a peak annual count of 906 jobs—both on the project and as its economy-wide consequence—in 2028, at the height of construction.

Following a multi-year period of planning and development, the economic impulse of Mahana (Block NW) development surges from 2027-2030 during the construction phase of the project before impacts subside upon completion later in 2030. Contemporaneous economic impacts are illustrated in Figures 1, 2 and 3, below, and are summarized in Table 1.

Figure 1. Mahana (Block NW) outlay attribution (million 2025$, in present values)

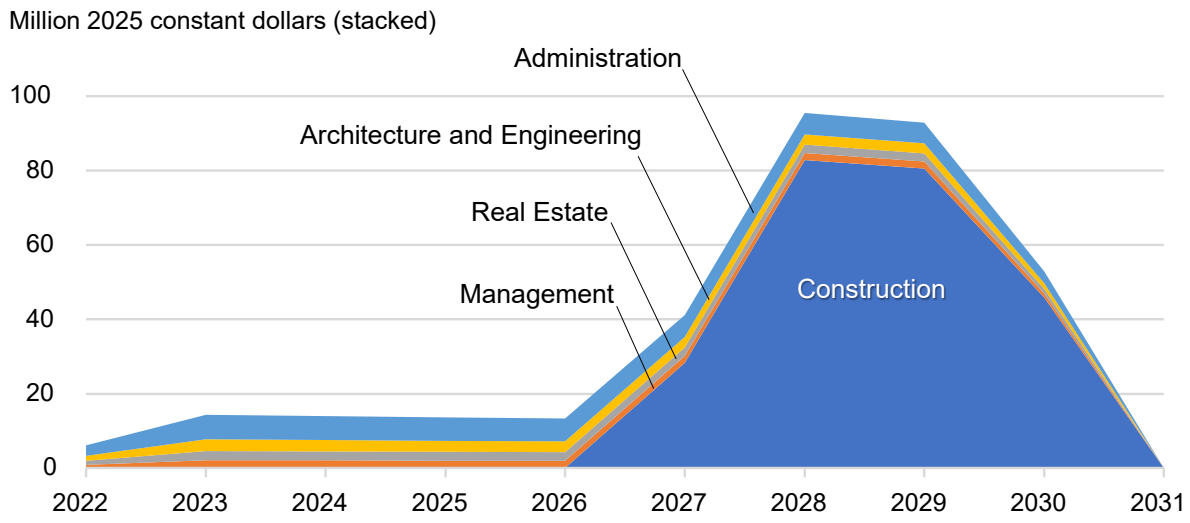

Figure 2. Mahana (Block NW) economic impacts (million 2025$, in present values)

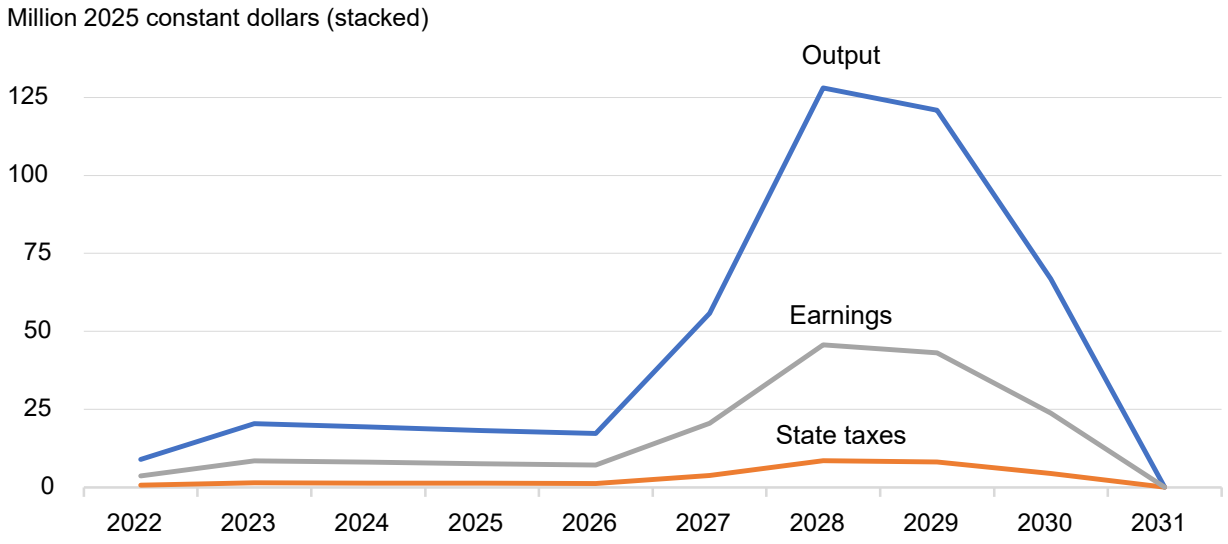

Figure 3. Mahana (Block NW) state tax revenues (million 2025$, in present values)

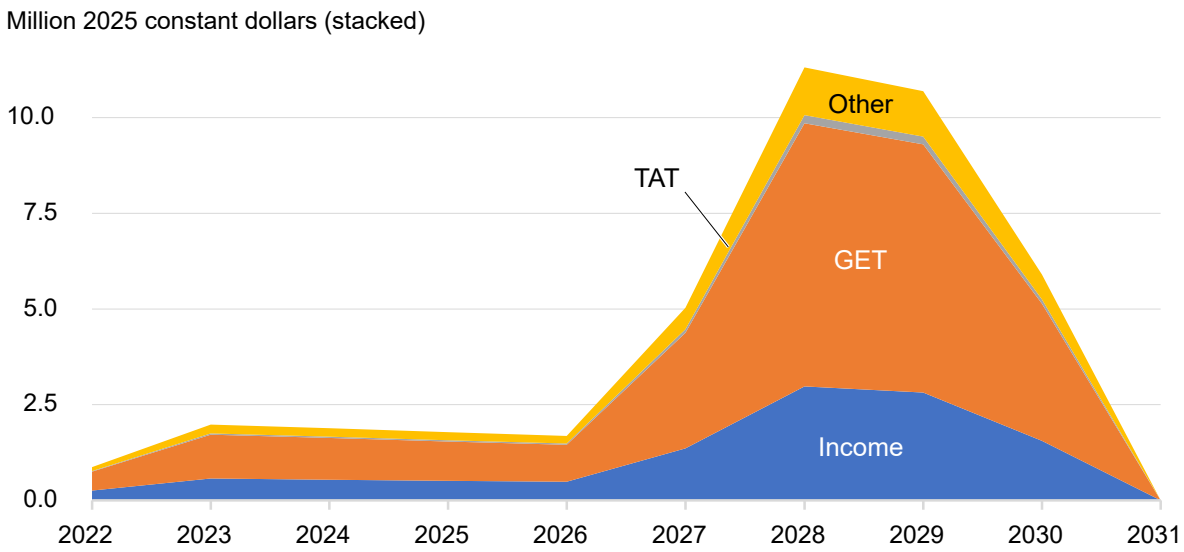

Table 1. Estimated economic impacts of Mahana (Block NW)

MAHANA (BLOCK NW) DEVELOPMENT AND CONSTRUCTION IMPACTS

Million dollars of present value, or as noted		
	Direct + indirect impacts	**Total impacts**
Output	$ 488.2	**$ 716.5**
Earnings	$ 179.9	**$ 240.8**
State tax*	$ 32.9	**$ 44.0**
Average annual jobs	273	**395**
Million constant (2025) dollars of present value, or as noted		
	Direct + indirect impacts	**Total impacts**
Output	$ 455.9	**$ 669.6**
Earnings	$ 168.4	**$ 225.4**
State taxes	$ 30.8	**$ 41.1**
Average annual jobs	273	**395**
Peak annual jobs (2028)	608	**906**

3. Permanent, ongoing economic impact estimates

Upon completion, the condominium tower, grounds, and related amenities in Mahana (Block NW) require ongoing operations and maintenance of common areas and infrastructure, such as elevators and recreational spaces. Maintenance is funded by owners' collective outlays. Because they are aggregated and managed under homeowner association, the impacts collectively comprise an independent economic consequence of development.

Permanent and ongoing Mahana (Block NW) economic impacts in 2022 dollars are reported in Table 2. Permanent maintenance and operations outlays required to secure the building's longevity are associated, through interindustry linkages with economic activity and related employment, incomes, and tax receipts. Like development, construction, and marketing activities arising from building the condominium, economic activities associated with its operations and maintenance give rise to imported goods and services which are excluded from onshore economic impact calculations.

Impacts of labor-saving productivity growth on employment over time also are incorporated in the job impact calculations from permanent, ongoing activities, just as they are for contemporaneous development and construction. What happens over several years of construction, while incorporated in the impact estimates, is less noticeable than what happens over decades of maintenance, because of productivity growth. Job creation erodes as productivity increases. Cumulative erosion is larger over longer sweeps of time. Upon initiation of the first full year of operations and maintenance in 2031, for example, 25.2 jobs are associated with Mahana (Block NW), but after thirty years of productivity growth, the associated count is 13.2 jobs based on calibrations implicit in the state's I-O model. This summary average job impacts for the entirety of 30 years. The state's published estimates of job multipliers for this sector, 2021-2028, based on the 2017 Hawaii Census of Industry, are extended to 2059 using parameterization implicit in the published calibrations.[4]

As a result:

- Mahana (Block NW) will be associated over thirty years beginning in 2028 with operations and maintenance outlays generating $165 million in the present value of constant, 2025-dollar future economic output, $55 million in the present value of future earnings, $10 million in the present value of future state tax revenues, and an annual average 19 jobs including productivity growth, from direct, indirect, and induced economic effects, as summarized in Table 2.

[4] Because published estimates are available, 2018-2026, the impact estimates reported here stipulate to the officially published job multipliers *during* those years. To extend the multipliers, the natural logarithms of published multipliers are regressed on a time index, and then projected for the subsequent three decades. For repair and maintenance activities, this method estimated a 2.3 percent annual reduction in Type 2 job multipliers, each year.

Table 2. Continuing Mahana (Block NW) economic impacts

MAHANA PERMANENT ONGOING MACROECONOMIC IMPACTS		
Million constant (2025) dollars or as noted		
Present value of operations, maintenance over 30 years @3%		
Direct, indirect, and induced		
Output	$	**165.4**
Earnings	$	**54.8**
State taxes	$	**10.0**
Jobs (average number)		**19**

4. Real property tax revenue estimates

Mahana (Block NW) generates real property tax revenues for the City & County of Honolulu. Estimates of their present value, in constant 2025 dollars, over a 30-year and a 50-year horizon are calculated under current (2025) tax law. The baseline around which upper and lower bound estimates of future home price appreciation paths are used to calculate alternative property tax revenues assumes that Oahu existing homes appreciate at an annual rate of 4.5 percent.[5] Other assumptions are designed to be conservative. Ownership patterns are adopted which are consistent with the area character of Mahana (Block NW) and a spatial valuation gradient extending mauka from Ala Moana Boulevard, calibrated to prior Ward Village experience.[6]

[5] Under current tax law, assuming that old-age deductions are not pertinent, a homeowner's deduction of $100,000 from assessed value is included in the tax base. An effective residential tax rate of 0.0035 is applied to assessed value after the homeowner deduction, where appropriate. For investor-owned and second homes the first $1 million in assessed value is taxed at a rate of 0.0045 (the so-called Tier 1 rate), or $4.50 for each $1,000 of assessed value. Amounts of assessed value above the first $1 million are taxed at a rate of 0.0105 (Tier 2). Based on historical evidence summarized in the appendixes, incorporating the decline in background inflation during the forty years summarized by the median existing home price data upon which the benchmark calculation is based, price appreciation in the middle of the observed historical range of 4-5 percent rate is assumed to continue, raising assessed valuations over time accordingly. From appreciated future values 2.5 percent inflation is removed each year. Future values after inflation are then discounted to a 2025 present value at a discount rate of 3 percent.

[6] Calibrated to neighboring properties, the proportion of Mahana (Block NW) units assumed to be held by owner-occupants is 36.9 percent of the building total. Proportions comprising units held as investments (31.7 percent), and as second homes (31.4 percent) are distinguished accordingly and by property tax rates.

Over thirty years the contribution of Mahana (Block NW) to City & County of Honolulu real property tax revenues is substantial, in constant-dollar terms and present values. Given Hawaii jurisdictions' high bond ratings and relatively generous borrowing capacity, under the relevant legal borrowing constraints, these present values of *incremental* county property tax revenue are accretive to county borrowing capacity.[7] The term structure of risk-free interest rates proxied by constant-maturity yields on U.S. Treasury securities and projections of monetary policy by the Federal Reserve Board are consistent with an expectation that these borrowing costs may continue settling, with tight monetary policy tightening concluding, beyond mid-decade.[8] A return to neutral funding costs, settling inflation risk premia, and well-rated municipal borrowing capacity will be complemented by addition of future property tax receipts arising from Mahana (Block NW) redevelopment beginning in the 2030s.

Hypothetically, a private development of a new residential condominium tower worth $121 million in the present value over thirty years of future property tax receipts, reserving 20 percent of that value to be conservative (as an "equity" tranche), adds $97 million in incremental borrowing capacity *up front* to support future long-term infrastructure investments by the city. Whether or not this 20 percent "haircut" is considered, hypothetical future property tax revenues augment the asset side of the city's balance sheet, against which liabilities are incurred even when infrastructure investments funded by such borrowing are not revenue-generating. (Indeed, the $121 million in present value in this example equally would be available to offset $121 million in the present value of future current as well as future capital expenditures.)

The hypothetical $121 million in this example is essentially bankable for the jurisdiction. The infrastructure investments it supports, in present values of incremental property tax receipts, *are accretive to the productive capacity* of the island economy. This capacity also augments the jurisdiction's ability to pay. By raising productivity, infrastructure investments contribute to the tax base even when such investments are not revenue-generating *per se*. At a time when global sea rise associated with climate change is becoming a significant potential urban threat, and with coastal roadway alignments potentially imminent, compelling future public infrastructure needs of the City & County of Honolulu cry out for additional funding. A county jurisdiction's capital formation funding options are not limited to fiscal largesse of state or federal governments when private investments in real property tax-generating assets also are available. Mahana (Block NW) redevelopment literally represents, in present value terms, a prospective harvest of asset returns.

That is, Mahana (Block NW) redevelopment is *securitizable* by the City & County of Honolulu. Its existence provides a basis for borrowing secured by repayment sources for public debt-servicing even when public investments themselves do not generate revenue streams. When fulfilling social needs is a primary objective, jurisdictions benefit from the incremental present value of future property tax receipts created by urban redevelopment.

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[7] References include local municipal bond fund managers.

[8] The yield on 10-year U.S. Treasury Notes in June 2025 was 4.358 percent (https://www.federalreserve.gov/releases/h15/). The median forecast of participants of the Federal Reserve Board's Federal Open Market Committee June 2025 meeting was a longer-run neutral interest rate of 3.0 percent (https://www.federalreserve.gov/monetarypolicy/fomcprojtabl20250618.htm).

Over thirty years real property tax revenues of Mahana (Block NW) redevelopment are estimated below.

- Mahana (Block NW) will be associated over thirty years beginning in 2030 with nearly $121 million in the present value of future county residential property tax revenues under the baseline assumption grounded in historical housing appreciation rates.

- Because of the exportability of the City's Residential A property tax rates, approximately 80 percent of the baseline property tax revenue will arise from second-home and other investors, and about 20 percent from owner-occupants.

- A lower bound estimate of the present value of real property tax revenues from Mahana (Block NW) over thirty years beginning in 2030 is $110 million; an upper bound estimate is $131 million, based on the historical volatility of home price appreciation over time.

Over fifty years the present values of future Mahana (Block NW) property tax receipts are higher.

- Mahana (Block NW) will be associated over 50 years beginning in 2028 with $190 million in the present value of future county residential property tax revenues.

- A lower bound estimate of the present value of real property tax revenues from Mahana (Block NW) over 50 years beginning in 2028 is $174 million; an upper bound estimate is $206 million.

Mahana (Block NW) real property tax estimate attribution under thirty- and fifty-year time horizons are summarized in Table 3.

Table 3. Present value of future Mahana (Block NW) real property tax receipts

Estimated central tendencies and upper and lower bounds based on a 4.5 percent nominal appreciation rate plus or minus conditional standard deviations (95% confidence interval)

in million 2025 dollars	Non-owner occupant	Owner-occupant	Total
Present value over 30 years	$97.0	$23.7	**$120.7**
Upper bound	$105.9	$25.4	$131.3
Lower bound	$88.1	$21.9	$110.1
Present value over 50 years	$153.8	$36.2	**$190.0**
Upper bound	$167.3	$38.8	$206.1
Lower bound	$140.3	$33.6	$173.8

5. Dynamic economic impacts

Development and construction—investment generally—are distinguished from consumption by the fact that their economic impacts accrue over time. Longer lives of buildings make their building (the verb) different from consumption in that the creation of the productive capacity—for housing services—generates economic impacts over years or decades, generally exceeding the lifetimes of benefits from most consumer durables. This report explicitly incorporates the role of time, both in the *flow* of capital formation associated with development and construction, as well as accruing to the *stock* of capital upon completion of the investment activity. The latter has been the focus of real property tax impact estimates, and economic impacts of operations and maintenance, in previous sections of this report.

This section details the annual flow of investment outlays and timing of their associated economic impacts during development and construction of Mahana (Block NW). Delivery of individual Ward Village block redevelopments has been staggered over time. Each one is typified by a crescendo of development and related administrative and management activities culminating with a construction impulse. The flow of investment outlay concludes upon the building's delivery. Because time is of explicit importance in physical capital formation, economic impact estimates have been discounted to present values in the year 2025. The effects of inflation also have adjusted to originate in that reference point, 2025, with a slightly higher longer term inflation assumption of 2.5 percent, versus 2.0 percent characteristic of the Urban Hawaii consumer price index (CPI-U) during the 2010s. Annual economic impacts of Mahana (Block NW) redevelopment are detailed over time in Table 4, below, consistent with the summary impacts in preceding tables.

Table 4. Annual Mahana (Block NW) economic impacts

Mahana (Block NW) development impacts (million 2025$ in present values,* job-years†, or as noted)

Direct and indirect	2022	2023	2024	2025	2026	2027	2028	2029	2030	TOTAL
Output (mil 2025$)	9.0	20.4	19.3	18.3	17.3	55.9	128.0	120.9	66.8	455.9
Earnings (mil 2025$)	3.7	8.5	8.1	7.6	7.2	20.6	45.7	43.1	23.8	168.4
State taxes (mil 2025$)	0.6	1.5	1.4	1.3	1.2	3.8	8.5	8.0	4.4	30.8
Jobs (average number)	69	158	150	141	134	297	608	577	320	273

Direct, indirect, and induced	2022	2023	2024	2025	2026	2027	2028	2029	2030	TOTAL
Output (mil 2025$)	13.7	31.1	29.6	27.9	26.5	82.0	186.0	175.7	97.1	669.6
Earnings (mil 2025$)	5.0	11.4	10.8	10.2	9.7	27.6	61.1	57.7	31.9	225.4
State taxes (mil 2025$)	0.9	2.0	1.9	1.8	1.7	5.0	11.3	10.7	5.9	41.1
Jobs (average number)	93	211	201	190	180	430	906	860	478	395

Mahana (Block NW) state tax revenue impacts (million 2025$ in present values*)

Direct and indirect	2022	2023	2024	2025	2026	2027	2028	2029	2030	TOTAL
Individual income (mil 2025$)	0.189	0.430	0.408	0.386	0.365	1.004	2.204	2.082	1.151	8.221
GET (mil 2025$)	0.381	0.866	0.823	0.777	0.736	2.357	5.390	5.091	2.813	19.235
TAT (mil 2025$)	0.008	0.018	0.017	0.016	0.015	0.052	0.122	0.115	0.063	0.426
Other (mil 2025$)	0.065	0.149	0.141	0.133	0.126	0.354	0.782	0.739	0.408	2.899
Annual total	0.644	1.463	1.390	1.313	1.243	3.768	8.498	8.028	4.435	30.781

Direct, indirect, and induced	2022	2023	2024	2025	2026	2027	2028	2029	2030	TOTAL
Individual income (mil 2025$)	0.253	0.575	0.546	0.515	0.488	1.354	2.980	2.815	1.555	11.081
GET (mil 2025$)	0.502	1.141	1.084	1.024	0.970	3.022	6.866	6.485	3.583	24.678
TAT (mil 2025$)	0.015	0.035	0.033	0.031	0.030	0.094	0.213	0.201	0.111	0.764
Other (mil 2025$)	0.104	0.236	0.224	0.212	0.200	0.565	1.250	1.181	0.653	4.625
Annual total	0.874	1.987	1.887	1.782	1.688	5.035	11.309	10.683	5.903	41.148

Block NW development outlays by econ. activity,net of imports (mil. 2025$ in present values*)

Outlays (mil. 2025$)	2022	2023	2024	2025	2026	2027	2028	2029	2030	TOTAL
Construction	0.0	0.0	0.0	0.0	0.0	28.2	82.8	80.6	45.9	237.5
Architecture, engineering	0.9	2.1	2.0	2.0	1.9	1.9	1.9	1.8	1.0	15.5
Real estate	1.1	2.5	2.5	2.4	2.3	2.3	2.2	2.2	1.2	18.8
Management	1.3	3.1	3.0	3.0	2.9	2.8	2.8	2.7	1.5	23.1
Administrative (indirect)	2.8	6.6	6.4	6.2	6.1	5.9	5.8	5.7	3.2	48.7
Annual total	6.1	14.3	14.0	13.6	13.3	41.2	95.5	92.9	52.9	343.6

*Assumes 2.5% CPI inflation, 3% (risk-freee) discount rate, and trend productivity growth

†One job for one year; annual labor requirement reductions from productivity growth *c. 2.*3% (*s.d.* 0.6-0.8 percentage points)

6. Discussion

Input-output models are linear by design. Changes in demand for interindustry goods and services translate directly into employment and output effects mechanically, without changes to factor prices for labor and materials. The multipliers underlying the economic impacts of Mahana (Block NW) redevelopment imply that resources are adequate to enable production activities to engage according to patterns of development investment outlays. In a full-employment context in which skilled labor may be scarce, or sourcing non-labor inputs is confounded by logistics, supply-chain disruptions, or tariffs, it is possible that an increase in investment demand could warrant an alternative estimating approach in which output prices *and* input prices are flexible, not fixed as linear production modeling implies. Some of the development's increased demand for inputs such as steel or concrete are sourced from outside the Hawaii economy, but a single development's demand is unlikely to affect input prices for an entire input market. Increased demand by for other inputs, like skilled labor in some tasks or occupations, *could* have an impact on wage rates in a labor market defined over a smaller geography. In adopting the State of Hawaii's input-output model for economic impact estimation, these price effects, if they exist at all, are assumed muted. The individual developer's decisions do not have economy-wide impacts on prices in the I-O model. This is a reasonable approach, and the standard assumption.

Post-pandemic economic recovery in 2021-2022 was complicated by supply chain disruptions which raised producer prices of building materials and of other inputs. About half of the inflation surge in 2021-2022 can be attributed to such supply side influences.[9] Hawaii inflation peaked in March 2022, however, and disinflation through 2025 will return inflation to the Federal Reserve's policy goal by or before mid-decade, responding to recent monetary policy tightening. New 2025 U.S. tariffs on lumber, steel, aluminum and other building materials, along with virtually every U.S. national trading partner, represent an unknown known influence on the cost structure and economic impacts estimated in this report

At the time this Mahana (Block NW) revised economic impact analysis was written,[10] five years after the 2020 COVID-19 recession, amid introduction of the highest U.S. tariffs in nearly a

[9] A 60:40 ratio between demand-side inflation factors and supply-side inflation factors, or the other way around, appears in much recent literature estimating relative roles of post-pandemic factors, supporting a "fifty-fifty" compromise. The Fed's monetary policy response (higher interest rates) primarily influences demand-side factors while post-pandemic supply chain re-articulation cannot diminish geopolitical suppy-side inflation factors (such as wars and associated commodity market dislocations). See Şebnem Kalemli-Özcan, Julian di Giovanni, Álvaro Silva, and Muhammed Yıldırım (June 2022) "Global Supply Chain Pressures, International Trade, and Inflation" presented at the ECB Forum on Central Banking, Challenges for monetary policy in a rapidly changing world, (https://www.ecb.europa.eu/pub/conferences/ecbforum/shared/pdf/2022/Kalemli-Oezcan_paper.pdf). U.S. empirical estimates also around 50-50 include: Adam Hale Shapiro (June 2022) "A Simple Framework to Monitor Inflation" *FRBSF Working Papers 2020-29* (https://www.frbsf.org/economic-research/publications/working-papers/2020/29/).

[10] National Bureau of Economic Research (https://www.nber.org/research/data/us-business-cycle-expansions-and-contractions) and *Business Cycle Dating Committee Announcement July 19, 2021: Determination of the April 2020 Trough in US Economic Activity* (https://www.nber.org/news/business-cycle-dating-committee-announcement-july-19-2021).

century,[11] Hawaii labor markets remained firm with adequate job openings and low unemployment. Urban Hawaii inflation peaked at 7.5 percent in March 2022 but subsided to 2.9 percent in first half 2025,[12] with a sharp decline in housing market activity because of higher mortgage interest rates.

Benefits to the community of Mahana (Block NW) redevelopment remain compelling, as always, for two reasons.

First, economic recovery may suffer if the weight of new tariffs and persistent high interest rates does produce *nationwide* economic deceleration. A U.S. recession could dampen Hawaii economic prospects by weakening travel demand already impaired by disappearing international travel to the U.S. Even if Hawaii itself would not experience a regional recession, a drop in mainland tourism would continue to weigh heavily on Hawaii's abortive post-pandemic recovery.

Second, Mahana (Block NW) redevelopment makes a significant increment to housing capacity on Oahu as part of longer-term master plan fulfillment for thousands of new housing units. At Honolulu homebuilding rates of the last decade, even 451 new units in Mahana (Block NW) redevelopment constitutes nearly 20 percent of annual average Oahu homebuilding.[13] Mahana (Block NW) redevelopment makes a material contribution to Honolulu's housing needs.

Conclusion

Ward Village Mahana (Block NW) development and construction of 451 new condominium housing units continues Howard Hughes' master plan for Kakaako urban renewal. This report has summarized economic impacts of Mahana (Block NW) redevelopment in present values of constant, 2025 dollars. Mahana (Block NW)'s initial development phase will transition to a construction phase from 2027-2030 with peak impacts in 2028. Its legacy of permanent economic impacts is substantial.

- Mahana (Block NW) development and construction is associated with $456 million in direct and indirect impacts on output, and with $670 million in direct, indirect, and induced output.

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[11] "[U.S.] consumers face an overall average effective tariff rate of 18.4%, the highest since 1933. After consumption shifts, the average tariff rate will be 17.5%, the highest since 1934. Yale Budget Lab (July 30, 2025), *The State of U.S. Tariffs, July 30, 2025* (https://budgetlab.yale.edu/research/state-us-tariffs-july-30-2025).

[12] U.S. Bureau of Labor Statistics (https://data.bls.gov/toppicks?survey=r9).

[13] The average annual number of new housing units authorized by building permit on Oahu, 2015-2024, was 2,407. Mahana would represent nearly one-fifth of annual average new housing units during the last decade. Hawaii DBEDT (https://dbedt.hawaii.gov/economic/qser/).

- Mahana (Block NW) development and construction is associated with $168 million in earnings directly and indirectly, and $225 million in direct, indirect, and induced earnings.

- Mahana (Block NW) development and construction is associated directly and indirectly with $31 million in state tax receipts, and with $41 million in state tax receipts including induced effects.

- An annual average of 273 jobs directly and indirectly, and 395 jobs including direct, indirect, and induced effects, are associated with Mahana (Block NW) development and construction, with a peak annual count of 906 jobs in 2028.

Permanent, ongoing economic impacts of Mahana (Block NW) redevelopment accrue from operations and maintenance outlays as well as real property tax revenues accruing to the City & County of Honolulu.

- Over thirty years beginning in 2030, Mahana (Block NW) will be associated with operations and maintenance outlays generating $165 million in the present value of constant-dollar future economic output, $55 million in the present value of future earnings, $10 million in the present value of future state tax revenues, and an annual average 19 jobs after productivity growth, including direct, indirect, and induced economic effects

- Mahana (Block NW) will be associated over thirty years beginning in 2030 with a baseline estimate of $120 million in the present value of future county residential property tax revenues. Exportability of the Residential A property tax rate implies an 80:20 split between property tax revenue from second-home and other investors, and from owner-occupants, respectively.

- An upper bound estimate of the present value of real property tax revenues from Mahana (Block NW) over thirty years beginning in 2030 is $131 million; a lower bound estimate is $110 million, based on the historical volatility of home price appreciation over time.

- Mahana (Block NW) will be associated over fifty years beginning in 2030 with $190 million in the present value of future county residential property tax revenues.

- An upper bound estimate of the present value of real property tax revenues from Mahana (Block NW) over fifty years beginning in 2030 is $206 million; a lower bound estimate is $174 million.

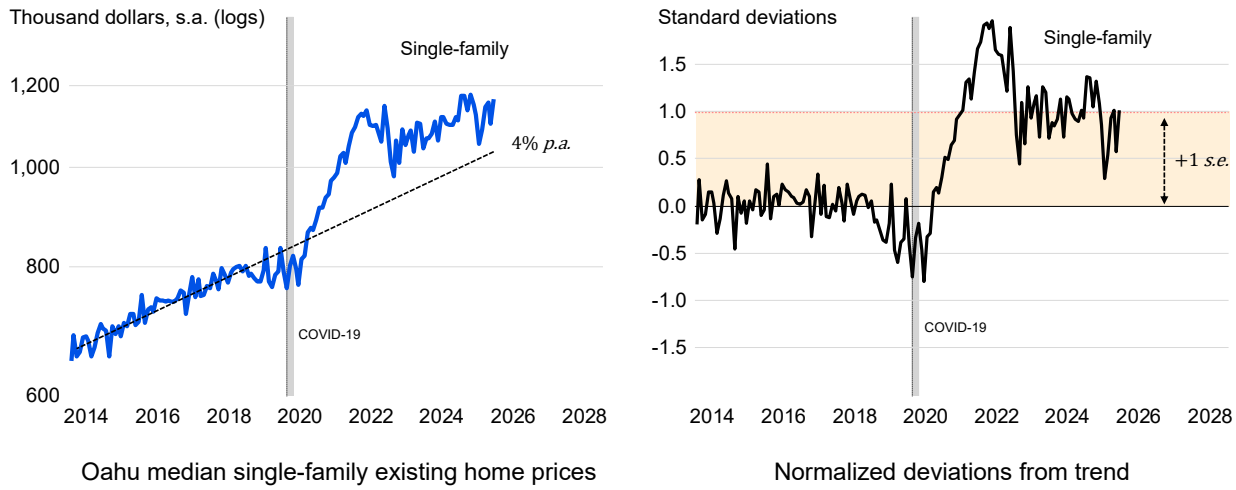
Mahana (Block NW) redevelopment supports area amenities as well as public open space development commitments, in addition to a large number of new urban residential condominium units at average prices of suburban residential detached units. Mahana (Block NW)

redevelopment makes a substantial contribution through private capital outlays to sustaining economic expansion in the 2020s. Mahana (Block NW)'s permanent economic legacy includes a substantial and, for the city, bankable addition to the present value of future property tax receipts and to ongoing economic activity arising from building operations and maintenance.

Appendix. Oahu housing and macroeconomic characteristics

1. **Housing price trend convergence**. Oahu median home sales prices and statewide housing valuation indexes built up from median sales prices and mortgage collateral values suggest that a return to longer-term trends is underway. The nuance on Oahu is that single-family prices appear to have picked up a remote-work premium attached spatially to suburban and exurban locales, while mostly urban core Oahu condominium prices have drifted below the 2010s trend by about the same 1 standard-error magnitude characterizing the persistence of single-family prices above the 2010s trend. Longer-run price appreciation on Oahu in the 2010s was around 4-5 percent *per annum*. After adjustment for inflation, real valuations appreciated historically at a rate of 2.0-2.5 percent for a half century. Variations after the 2020 pandemic were more amplified than prior slippage below trend after 2017. Following pandemic onset, Oahu home sales prices first surged upward in 2021, predominantly for single-family homes. The single-family valuation overshoot settled to a trajectory parallel to the 2010s benchmark, with a slight premium attributable to remote work adoption. Policymakers' inflation expectations (2 percent[14]) and "neutral" overnight interest rate goals now are higher than in the 2010s, but are consistent with Oahu home price appreciation rates.

Figure A-1a. Oahu median existing single-family home sales price appreciation may be sticking to trend above and parallel to 2010s



Oahu median single-family existing home prices

Normalized deviations from trend

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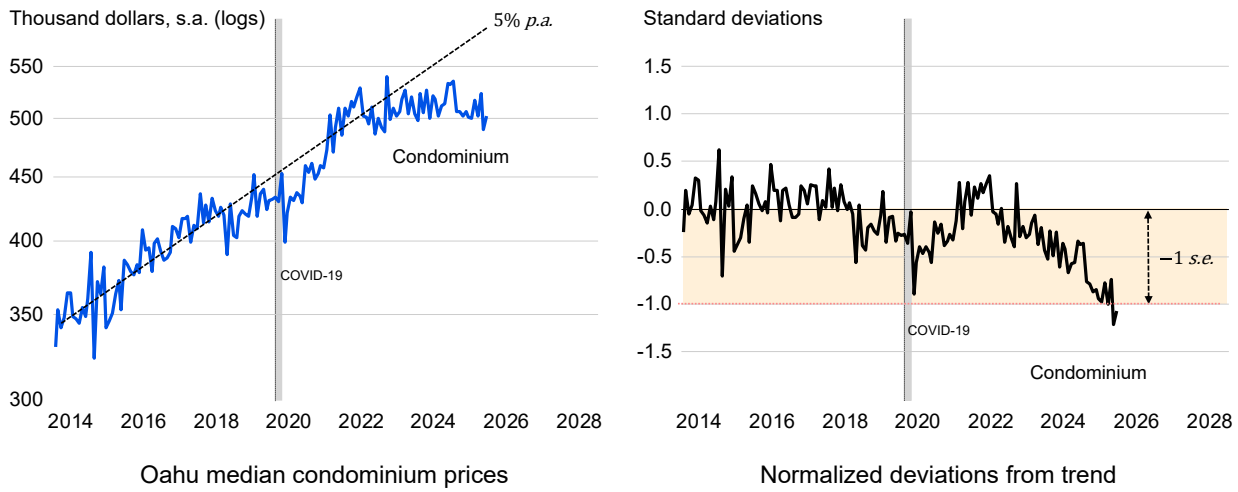
[14] PCE inflation is the percentage rate of change in the (non-core, *i.e.* including food and energy) price index for personal consumption expenditures (PCE). Federal Reserve Board, *Summary of Economic Projections* (December 2025) (https://www.federalreserve.gov/monetarypolicy/fomcprojtabl20251210.htm).

Figure A-1b. Oahu median existing condominium sales price appreciation has drifted at or below 2010s trend for eight years



Source: Honolulu Board of Realtors (https://www.hicentral.com/market-press-releases.php), Hawaii DBEDT (http://dbedt.hawaii.gov/economic/mei/), monthly median existing home sales prices seasonally adjusted using Census X-13 ARIMA filter through December 2025, with stationary trend regressions on pre-pandemic interval 2012 – 2018

Figure A-2a. Long-term appreciation of *real* (inflation-adjusted) statewide housing valuations

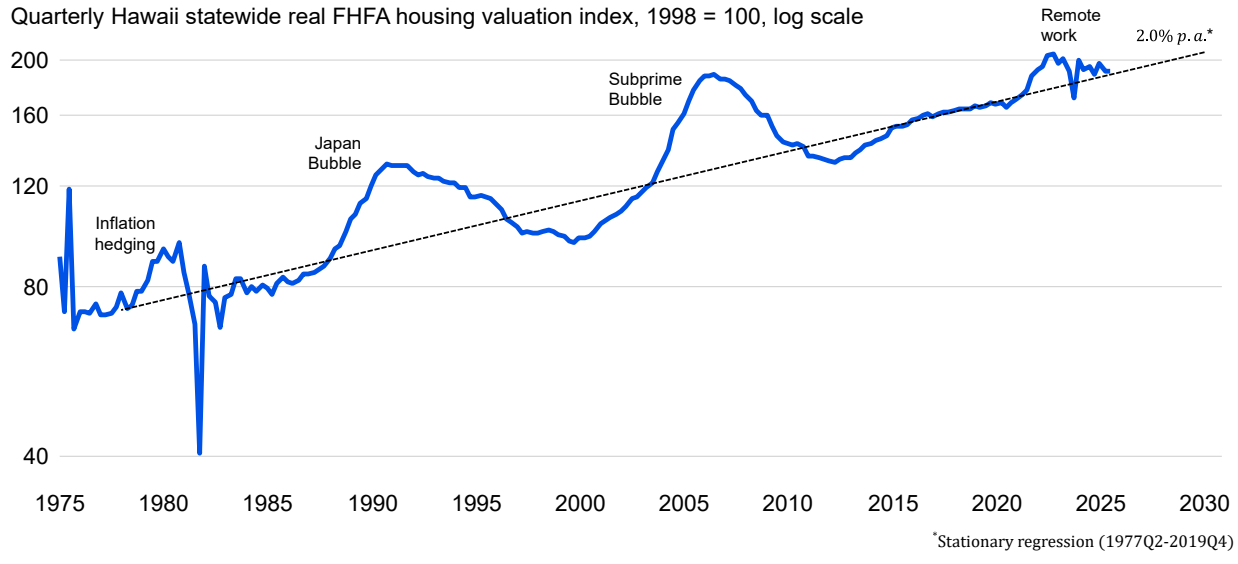
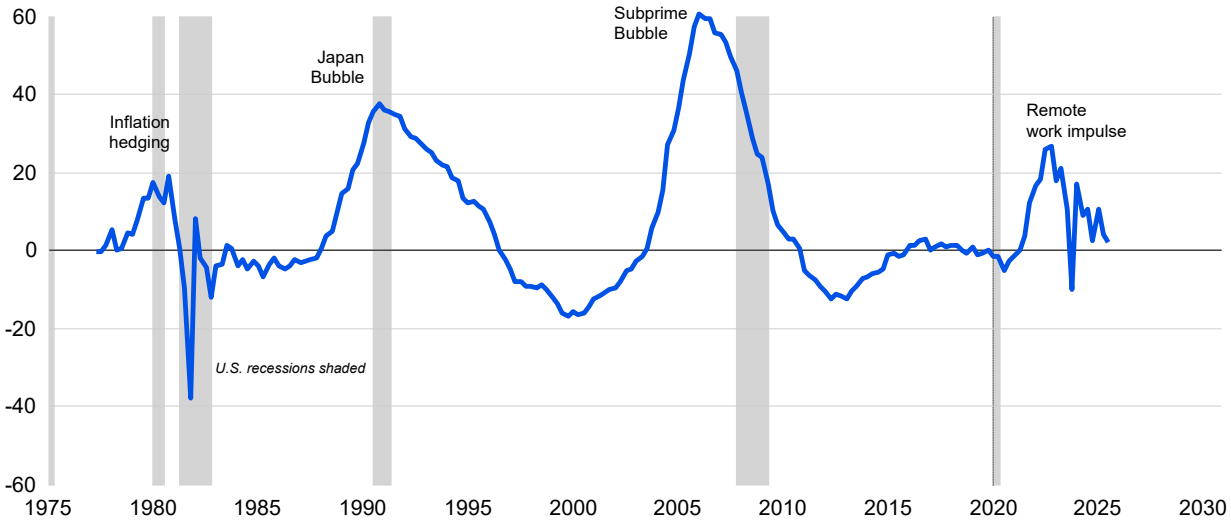


Figure A-2b. Deviations from long-term real statewide housing valuation trend

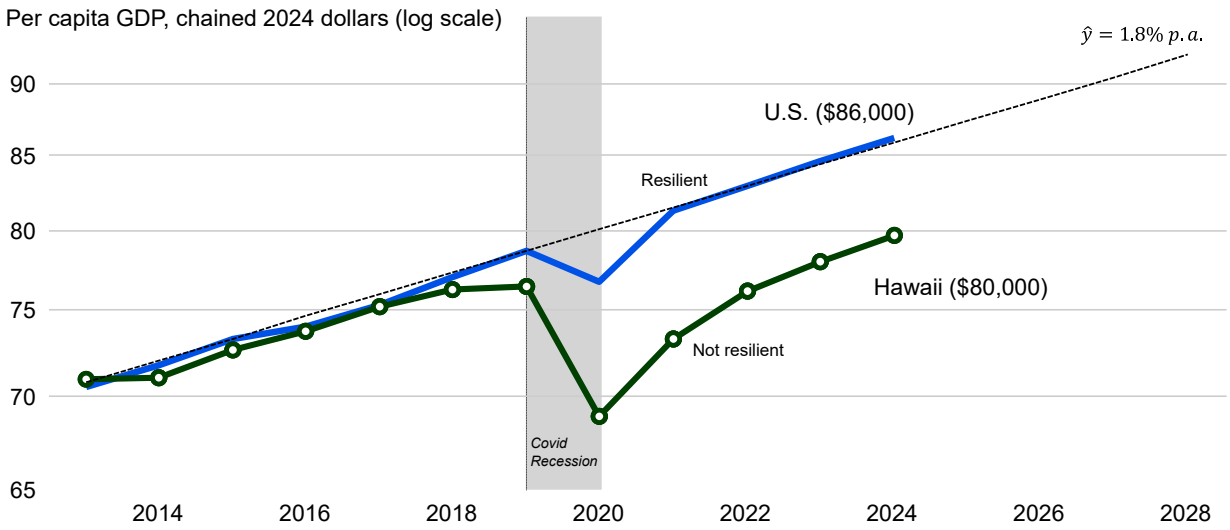


Source: Federal Housing Finance Agency Federal Housing Finance Agency (https://www.fhfa.gov/data/hpi/datasets?tab=quarterly-data), U.S. Bureau of Labor Statistics (https://data.bls.gov/cgi-bin/surveymost?r9); seasonal adjustment using Census X-13 ARIMA filter, deflation using quarterly interpolated Urban Hawaii CPI-U, stationary regression 1977Q2-2019Q4.

2. **Hawaii's shrinking economy**. The erosion of condominium valuations on Oahu beginning after 2017, derailing valuations from trend, mimics erosion of Hawaii statewide real GDP *per capita* after 2017, derailing from trend for seven subsequent years, punctuated by the "V-shaped" covid recession and recovery. In Hawaii's case, however, the post-pandemic recovery of real *per capita* GDP, has *not* returned real *per capita* GDP to its pre-pandemic trend, unlike a complete return for real U.S. real GDP *per capita*. Only *pre*-pandemic Hawaii real GDP *per capita* grew on trend close to the 1.8 percent real annual *per capita* GDP growth rate for the U.S. before *and* after pandemic recovery. Post-pandemic, about an 8 percentage point gap between U.S. and Hawaii real GDP *per capita* emerged and persisted. Based on State of Hawaii projections, a substantial Hawaii discount to the national average will persist for the remainder of the decade.[15]

[15] Implicit is the assumption that the same technological progress and productivity growth responsible for restored 2020s U.S. real GDP growth, post-pandemic, was available to Hawaii because of knowledge diffusion within an economic union (the U.S.) with high mobility of factors of production like labor, capital, and information. That is, five years of Hawaii real GDP trending downward, 2018-2022 inclusive, is *idiosyncratic*, not systemic. For projections see Hawaii DBEDT (December 5, 2025) *Outlook for the Economy: 4th Quarter 2025 Report* (https://dbedt.hawaii.gov/economic/qser/outlook-economy/) and UHERO (December 12, 2025), *UHERO Forecast for the State of Hawai'i: Mild recession and weak recovery in 2026* (https://uhero.hawaii.edu/uhero-forecast-for-the-state-of-hawai%CA%BBi-mild-recession-and-weak-recovery-in-2026/).

Figure A-3. Pre-pandemic decoupling of Hawaii per capita real GDP from U.S. average



Sources: U.S. Bureau of Economic Analysis (BEA) (September 26, 2025) (https://www.bea.gov/data/gdp/gdp-state), re-indexed by TZ Economics and as retrieved from FRED (January 28, 2026), Federal Reserve Bank of St. Louis (https://fred.stlouisfed.org/series/A939RC0A052NBEA). Stationary U.S. growth trend from regression on 2013-2019 data, projected to 2028. Real GDP estimates (numerator) are published in BEA GDP by state data. Population estimates (denominator) are taken from BEA personal income, per capita personal income, and population by state data.