

BILL021(26)
Testimony

MISC. COMM. 157

COUNCIL

COUNCIL Meeting

Meeting Date: Apr 15, 2026 @ 10:00 AM

Support: 0

Oppose: 4

I wish to comment: 1

Name: Andrew Pereira	Email: apereira@prp-hawaii.com	Zip: 96813
Representing: Pacific Resource Partnership (PRP)	Position: Oppose	Submitted: Apr 14, 2026 @ 12:34 PM
Name: Stanford Carr	Email: scarr@stanfordcarr.com	Zip: 96813
Representing: Stanford Carr Development, LLC	Position: Oppose	Submitted: Apr 14, 2026 @ 03:04 PM
Name: McKinley Eads	Email: mckinleye@avalonhi.com	Zip: 96822
Representing: Avalon Group	Position: Oppose	Submitted: Apr 15, 2026 @ 07:31 AM
Name: Alana Pakkala	Email: alana@kobayashi-group.com	Zip: 96814
Representing: Kobayashi Group	Position: Oppose	Submitted: Apr 15, 2026 @ 09:09 AM
Testimony: Aloha Chair Kia’aina, Council Chair Waters, and Councilmembers, my name is Alana Kobayashi Pakkala, CEO of Kobayashi Group. I respectfully oppose Bill 21 as currently drafted. Hawai’i has a severe housing shortage, and the solution is clear: we need to increase supply. But this bill adds requirements and uncertainty that make projects more difficult to be financially feasible. Research from the University of Hawai’i Economic Research Organization shows that Honolulu is already one of the most highly regulated housing markets in the country, and these barriers directly constrain supply. This bill adds to that burden. As you know, Kobayashi Group supports gray water systems and has been at the forefront of incorporating this technology into our projects. While we appreciate its inclusion as a community benefit, DPP already has the authority to allow this without this bill. Tourism remains a major driver of Hawai’i’s economy—roughly a quarter of GDP directly, and closer to 30% including indirect impacts—and we have already lost hotel inventory over time. That means fewer jobs and less revenue to support our community. Adding new affordability requirements to hotel projects increases the extraction from these developments and will result in fewer projects moving forward.		

I know you all care deeply about housing affordability and the challenges facing our community. I respectfully ask that you not support this bill as drafted, and instead work with us as partners to remove barriers and deliver more housing and jobs for our local families.

Mahalo.

Name: Stefanie Sakamoto	Email: ssakamoto@imanaka-asato.com	Zip: 96789
Representing: BIA Hawaii	Position: I wish to comment	Submitted: Apr 15, 2026 @ 09:13 AM

Testimony:

BIA Hawai'i appreciates the intent of this measure; however, we are concerned that, as currently drafted, the bill may introduce additional uncertainty and procedural burden into an already constrained housing development and permitting environment. Given the City's ongoing challenges with permitting delays and the urgent need to produce housing—particularly affordable units—it is critical that any new requirements are clear, predictable, and administratively feasible.

Thank you very much for the opportunity to share our comments.



Testimony of
Pacific Resource Partnership

Honolulu City Council
Wednesday, April 15, 2026

Subject: Testimony in Strong Opposition of Bill 21 relating to transit-oriented development.

Aloha Chair Waters, Vice Chair Tupola, and esteemed members of the Council:

Pacific Resource Partnership (PRP) represents Hawai'i's largest construction union — the Hawai'i Regional Council of Carpenters — in addition to more than 250 signatory contractors statewide.

We strongly oppose Bill 21 (2026) and respectfully request that the Council defer this measure. While the bill is framed as a way to secure community benefits in exchange for zoning modifications in the TOD Special District, it rests on a flawed premise that will actually undermine the very goals of transit-oriented development, affordable housing production, and responsible growth that PRP has long supported.

1. Bonus Height, FAR, and Zoning Modifications Are Not a “Cost” to the Community — They Are the Community Benefit

Bill 21 treats bonus height and floor-area-ratio (FAR) allowances as concessions that must be “offset” by additional community benefits. This misunderstands the core purpose of TOD. In 2013, PRP commissioned the Honolulu TOD Study Scenarios Results Report (Calthorpe Associates, Strategic Economics, Bowers + Kubota). That study demonstrated that concentrating new housing and jobs within the rail corridor — through higher density near stations — delivers island-wide benefits:

- It dramatically reduces land consumption outside the corridor, keeping open spaces, agricultural lands, and rural areas clear of sprawl.
- It lowers traffic congestion, infrastructure costs, and greenhouse-gas emissions.
- It maximizes the return on billions in public investment in the Honolulu rail transit Skyline system by ensuring sufficient ridership and economic vitality at each station.

(Continued From Page 1)

The report's scenarios showed that TOD-focused growth is the most fiscally responsible and environmentally sustainable path for O'ahu. Treating density bonuses as a detriment to be mitigated turns national and local best practices on their head. Without strong incentives for compact, walkable development around stations, Skyline risks under-utilization and the island loses the open-space preservation that only corridor-focused growth can achieve.

2. New Requirements on Hotel Development Will Discourage Investment and Reduce Housing Supply

Bill 21 adds two new mandatory community-benefit requirements for any hotel component: (1) additional affordable housing units beyond Chapter 29 obligations, and (2) monetary contributions or improvements to the city's multimodal transportation system. These mandates ignore market realities. Mixed hotel-residential projects are complex, financing-intensive, and not the industry norm in Honolulu. More importantly, they introduce uncertainty in project viability without a clear nexus or proportionality to the specific impacts of each development — raising serious legal and practical concerns. Critically, restricting density and adding layers of exactions will slow overall housing production.

A recent University of Hawai'i Economic Research Organization (UHERO) study on "The Central" (512-unit condominium tower completed in 2021) provides clear evidence of the housing "filtering" effect: new market-rate and mixed-income housing generates substantial vacancy chains. The study tracked movers and found that The Central alone created an estimated 500+ vacancies across O'ahu within three years. These vacated units were significantly cheaper (40% less per square foot in the first round) and freed up lower-rung housing for families who could not afford new construction. Both market-rate and income-restricted units contributed, with market-rate units producing even more vacancies.

New supply — enabled by TOD incentives — is one of the most effective tools we have for improving affordability across the entire housing ladder. Bill 21's approach risks the opposite outcome.

3. Graywater System Requirements Are Premature

Requiring or incentivizing graywater reuse systems as a community benefit leaps ahead of stable, fully

(Continued From Page 2)

codified regulatory standards from the Department of Health. Until the state's framework is mature and operationally consistent, inserting these provisions into the TOD ordinance creates compliance uncertainty for projects already coordinating with DOH.

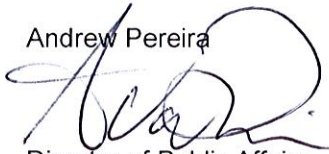
Conclusion

Bill 21, as drafted, will discourage the very development the city needs to make TOD successful, preserve open space, and expand housing supply through market filtering. It introduces unnecessary costs, legal risks, and delays at a time when O'ahu urgently needs more housing and construction jobs. PRP therefore respectfully requests that the Council defer Bill 21 and engage in further stakeholder coordination — including with the development community, labor, and organizations like PRP that have invested deeply in evidence-based TOD policy.

We appreciate the opportunity to testify and stand ready to work with the Council on solutions that truly advance transit-oriented development and housing affordability.

Mahalo for your consideration.

Andrew Pereira



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Honolulu Transit Oriented Development Study Scenarios

RESULTS REPORT

Introduction

The Honolulu Transit-Oriented Development (TOD) Scenarios Study was undertaken to inform discussions about the role that rail transit and growth focused around transit can play in addressing the challenges facing Oahu today and into the next decades. The scenarios produced in this project posit varying futures in which population and job growth is more or less focused around the Honolulu Rail Transit corridor. These scenarios are analyzed for their impacts on a full range of fiscal, environmental, transportation, and quality of life indicators to express the island-wide costs, benefits, and consequences of land use, transportation, and related policy and investment decisions on Oahu.

This project builds on the station-area TOD studies completed or being undertaken by the City and County of Honolulu and other agencies, and adds a higher-level, corridor-wide perspective to studies of demand, capacity, and development potential along the Honolulu Rail Transit corridor. It sheds critical light on the island-wide impacts and fiscal implications of how and where growth occurs on Oahu, providing a broader context for the public TOD station-area planning process and discussions of the role rail transit and related investments play in the future of Honolulu.

Project Working Group and Consultant Team

The Honolulu TOD Study Scenarios Project was commissioned by the Pacific Resource Partnership (PRP) to analyze the development potential and full range of impacts of transit corridor-focused development. PRP assembled a diverse project working group to provide crucial input and bring a broad set of perspectives and opinions to discussions about TOD, rail, and future growth and development on Oahu. This group includes leaders and key stakeholders from environmental, business, development, finance, social equity, and public policy groups.

The project is led by Calthorpe Associates, a national and international leader in TOD planning and scenario development and analysis. Market analysis and TOD implementation expertise is provided by Strategic Economics, and the firm Bowers + Kubota adds critical local expertise and perspective.



CALTHORPE ASSOCIATES
URBAN DESIGNERS, PLANNERS, ARCHITECTS

Rev. July 2013



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Scenario Planning for Oahu

Oahu is a place of natural splendor, rich history, diverse people, and world-renowned quality of life. It is also, like many cities across the United States, facing significant challenges as it settles into the 21st century. Oahu and its nearly one million residents are faced with stressed city budgets and aging infrastructure, high levels of traffic congestion and auto dependence, extremely high costs of living, housing affordability gaps, rising obesity rates and related health issues, dependence on foreign oil for transportation and electricity, and greenhouse gas and other air pollution issues. This project serves to answer fundamental questions about how the shape of growth on the island impacts each of these issues. By comparing a business-as-usual development pattern and transportation investment policies with future patterns that are more walkable, less auto-dependent, and more closely coordinated with transit investments, the scenarios explore the specific impacts of different options for accommodating projected population and job growth.



Rail corridor area – see map at right

Land Consumption

Between 1992 and 2005, nearly
10 square miles
of land were newly
developed on Oahu.¹

Traffic Congestion

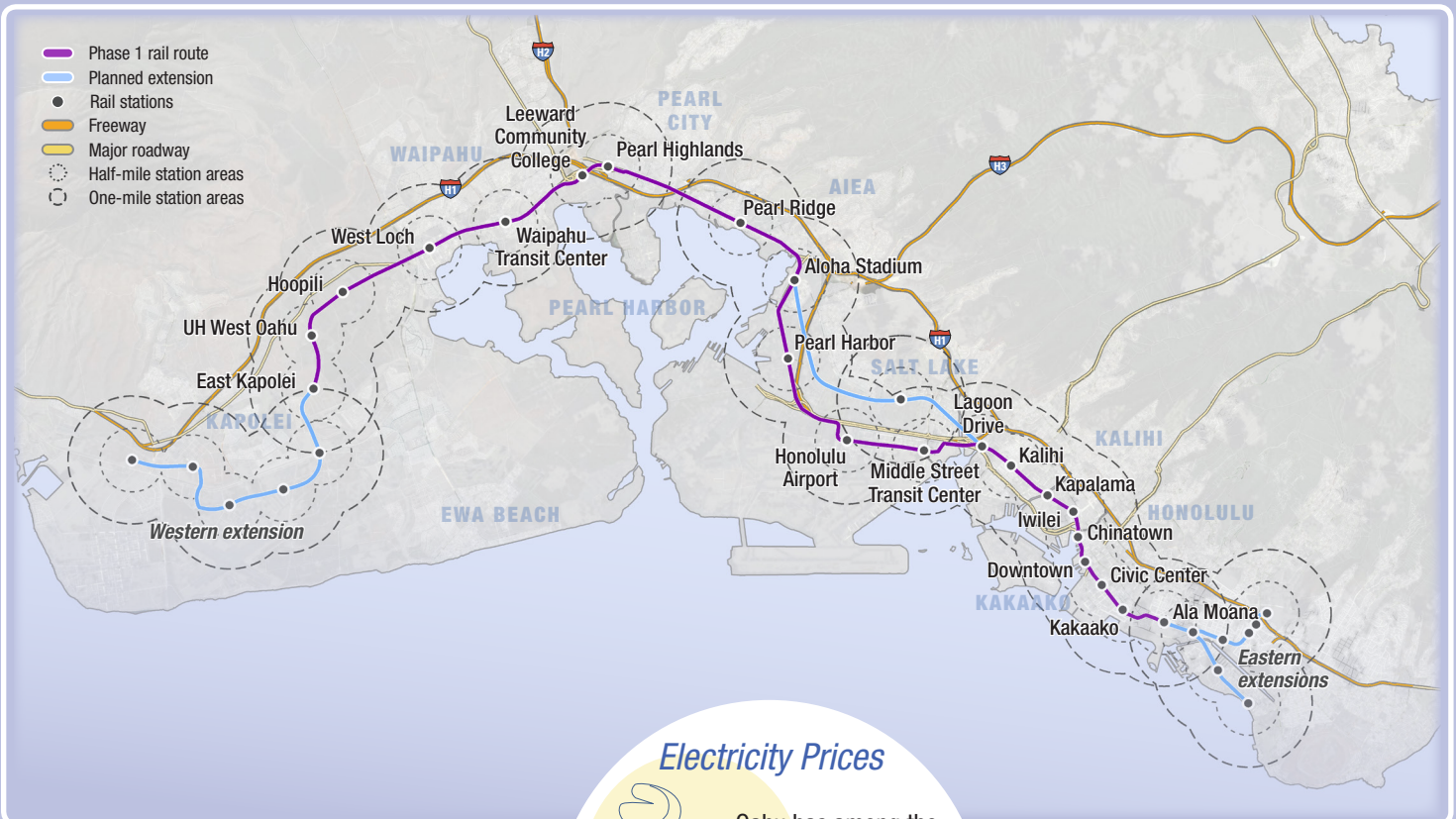
Honolulu has the worst traffic
congestion in the U.S., surpassing
Los Angeles, San Francisco, and New York.

The average driver spent

58 hours
in traffic
in 2011.²

Honolulu Rail Transit Corridor

Transportation investments are key to supporting the growth that will shape Oahu's future. Phase 1 of the fixed-guideway Honolulu Rail Transit system will run from West Oahu to Ala Moana Center. Extensions are planned to the west through Kapolei, and to the east to the University of Hawaii-Manoa campus and Waikiki.



Electricity Prices



Oahu has among the
highest electricity prices
in the U.S.

Per kilowatt-hour, residents pay
over two and a half
times the national
average.⁵

Housing Affordability

Honolulu is among the most expensive
housing markets in the nation, with the
median house or condo valued at \$550,000.³

Over half of residents
spend more than
30% of their income
on housing.⁴

Energy Supply

Imported petroleum provides nearly
90% of all energy
consumed in Hawaii.⁶

Emissions per kilowatt-hour of electricity
and gallon of gas are thus much higher
in Hawaii than on the mainland.⁷

Scenario Drivers

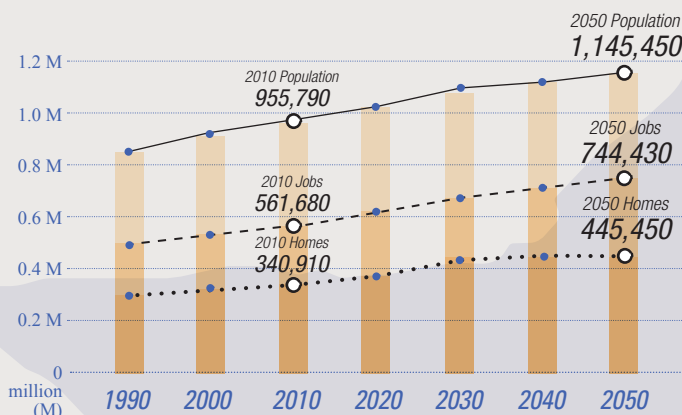
This project's scenarios help to address a number of important questions and issues about Oahu's future growth and the specific role that the Honolulu Rail Transit corridor can play in shaping that growth.

Growth

How much will Oahu grow between now and 2050?

Each of the scenarios tested in this study accommodates the same number of people, homes, and jobs. The study uses official state and city/county projections for population and employment through 2050. According to these projections, Oahu will need about 104,500 additional homes to accommodate its resident population.

Growth Forecasts



Growth
2010 to 2050

Population
189,660

Jobs
182,750

Homes
104,540

Housing Demand

What kind of housing do the residents of Oahu need now and into the future?

A growing body of research suggests that housing demand in the US and Hawaii is shifting to favor more compact housing types and neighborhoods that offer convenient access to transit, shopping, and entertainment.⁸ Over the coming decades, residential demand will be driven in large part by the housing preferences and needs of the two largest generations: the Baby Boomers and the Echo Boomers. Demographic changes, as well as increased considerations for accessibility, affordability, and quality of life, impact the types of housing needed to meet the needs of current and future residents.

Currently, Oahu's housing mix is relatively more compact than the national average. Over the last decade, single family detached homes have accounted for the majority of new construction, about 64%, with attached and multifamily homes making up the other 36%.⁹ However, married couples with children, the primary market for single-family detached homes, now account for only 22% of all Oahu households¹⁰, a proportion that continues to shrink each year.

By contrast, the proportion of singles, single parents, empty nesters, and seniors — many of whom prefer more compact single family and multifamily housing types — has grown steadily. The city's projections forecast the number of one- and two-person households to climb from 55% today to 60% by 2035. As these demographic trends continue, it is evident that a tighter connection between housing supply and

Projected Oahu Housing Demand to 2050, by Unit Type

Unit Type	Existing Units (2010)	Demand (2050)	Net New Units needed by 2050
Multifamily	146,100 (43%)	196,850 (44%)	50,760 (49%)
Single Family Attached	29,280 (9%)	59,400 (13%)	30,120 (28%)
Smaller Lot (<5,500 sq ft)	59,590 (17%)	83,260 (19%)	23,760 (23%)
Larger Lot (>5,500 sq ft)	105,940 (31%)	105,940 (24%)	0 ¹¹ (0%)

Source: Strategic Economics, 2012

demand, achieved through a greater diversity of housing types, will be necessary.

Analyzing changing household demographics and expressed preferences in the context of existing supply yields a projection in which demand for more compact and more transit-compatible residential types increases. The table above shows the projected demand for new homes by type, and the resulting end-state mix of all homes in 2050. The figures are tied to recent growth projections by the City and County of Honolulu. This new growth housing unit mix — 23% smaller-lot single family, 28% single family attached, and 49% multifamily — reflects local housing preferences, as well as the tradeoffs people make in response to affordability considerations and neighborhood characteristics.

Rail Corridor Capacity

How much growth can the rail corridor realistically accommodate over the next decades? This study explores the critical question of corridor capacity from the perspective of ongoing City/County efforts, and includes a data-driven assessment of the physical and financial capacity of corridor-area lands to accommodate additional housing and employment growth. These analyses serve to bracket the range of development potential of the corridor. (For the purposes of this study, the corridor is defined as a roughly one-mile radius around the planned stations, including the first phase of the planned rail system, known as the Minimum Operating Segment, or MOS, as well as the extensions planned for both the Ewa (west) and Diamond Head (east) ends of the system.)

Station Area Plans. The City and County of Honolulu has been working on station-specific development studies since 2009, and has either completed or is in the process of developing plans for nearly all the stations along the first phase of the planned rail line.¹² Together, these station-area plans, which focus on the half-mile radius around 21 stations, accommodate about 58,000 new housing units. This assessment of “planned capacity” is an important component to the scenarios developed in this study, as it defines the city/county perspective on approximate potential in the half-mile station areas. Because it has been demonstrated that rail supports ridership from a one-mile distance¹³, this study extends the TOD area to include areas within a one-mile radius of the Phase 1 and rail extension stations.

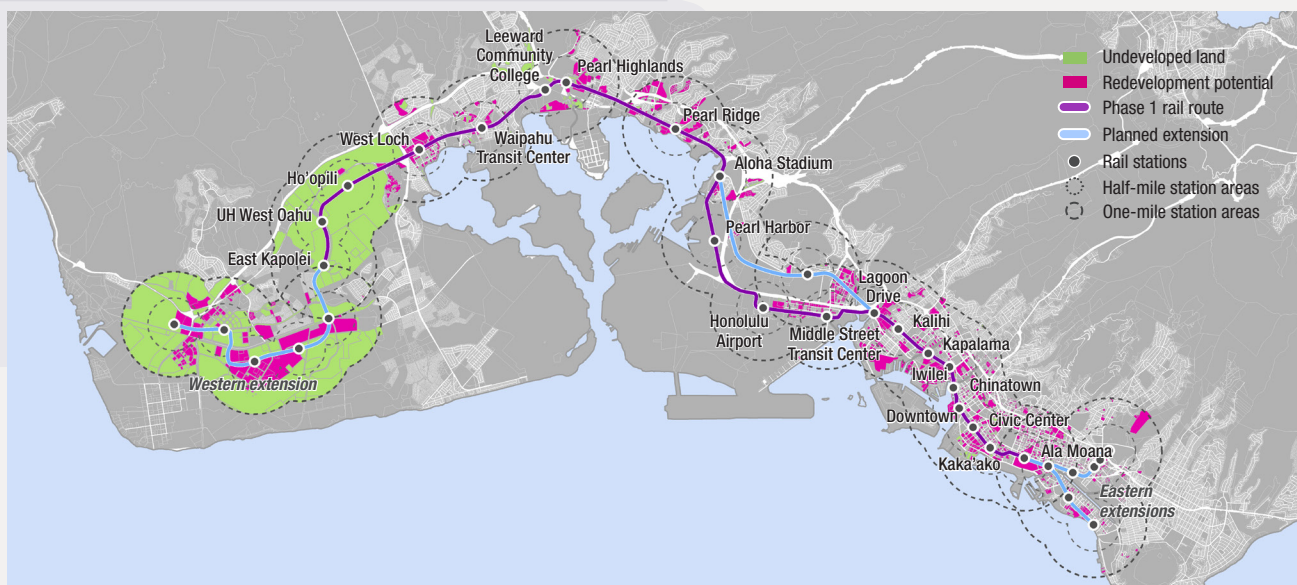


Undeveloped Land and Redevelopment Capacity Analysis. This study used extensive parcel, building, and land cover data from the Honolulu Department of Planning and Permitting (DPP), along with state and aerial imagery sources to determine the total undeveloped land area along the rail corridor, and assess the likelihood that developed land along the corridor will redevelop to more intense or different uses over time. A combination of form- and value-based analyses (performed using floor-area ratios (FAR) and improvements-to-land (I-L) ratios), combined with DPP data on existing and pipeline projects, was used.

The resulting ranges for development potential depend on the assumptions applied; specifically, using relatively moderate sets of FAR and I-L ratio thresholds¹⁴, between 3,000 and 3,650 acres of currently developed land could be expected to redevelop or intensify over the next decades. This acreage is supplemented by the approximately 6,750 acres of previously undeveloped land along the corridor.

The illustrative at left depicts the plan for the Pearlridge rail station area. The plan, created by Van Meter Williams Pollack for the City and County of Honolulu, envisions the Pearlridge Station Area as a major urban center and regional shopping destination.

The graphic below highlights undeveloped land (green) and the redevelopment potential (pink) within the half- and one-mile radii of the rail stations.



Scenario Building

The Honolulu TOD Study scenarios produced for this report depict the growth choices facing the island by combining different land patterns with variations in housing type mix, proximity to transit investments and concentrations of development, and the proportion of growth accommodated either through infill and redevelopment on already-urbanized “refill” land, or on previously undeveloped land.

Land use scenarios are defined by the proportion of growth allocated to the Urban Infill, Mixed-Use Walkable, and Standard Suburban “land development categories” (LDCs). The LDCs represent distinct forms of land use. Each is associated with a unique set of assumptions describing housing type mix, travel behavior, land consumption, infrastructure costs, and other key factors. This allows the RapidFire model to estimate the impacts of varying different island-wide land use patterns over time.

The RapidFire Model

The Honolulu TOD Study scenarios were produced using the RapidFire scenario modeling tool, developed by Calthorpe Associates. The model is a user-friendly, spreadsheet-based tool used to develop and evaluate scenarios at the national, state, regional, county, corridor, and local scales. It constitutes a single framework into which data and research-based assumptions about the future can be loaded to test the impacts of corridor and local land use patterns.

The RapidFire model emerged out of the near-term need for a comprehensive modeling tool that could inform state, regional, and local agencies and policy makers in evaluating climate, land use, and infrastructure investment policies across the United States.

The model produces results for a range of metrics including:

- GHG (CO₂e) emissions from cars and buildings
- Air pollution and public health impacts
- Fuel use and cost
- Building energy and water use, and cost
- Land consumption
- Fiscal impacts: capital infrastructure costs, operations and maintenance costs, and local revenues

The screenshot displays the 'Scenario Definition & Policy Options Selection' window of the RapidFire model. It is divided into two main sections: '1 DEFINE SCENARIOS' and '2 SELECT POLICY GROUP OPTIONS'.

1 DEFINE SCENARIOS includes:

- A. SCENARIO DEFINITIONS:** A table where users define scenarios by selecting values for Urban, Compact, and Sprawl proportions. Three scenarios are shown: 'A. Total' (Urban: 6%, Compact: 25%, Sprawl: 70%), 'B. Conservative' (Urban: 10%, Compact: 40%, Sprawl: 50%), and 'C. Urban Smart' (Urban: 35%, Compact: 35%, Sprawl: 30%).
- B. LAND DEVELOPMENT CATEGORY (LDC) PROPORTIONS:** A table for defining the mix of housing types within each LDC. For example, in the 'Urban' LDC, users can specify the percentage of Single-Family Attached, Single-Family Detached, and Multi-Family housing.
- LAND SCENARIOS:** A dropdown menu to select between 'Land Scenario' and 'Resource Default Scenario'.
- SET LDC PROPORTIONS:** A button to apply the defined LDC proportions.
- RESOURCE DEFAULT LDC PROPORTIONS:** A button to reset to default values.
- HOUSING UNIT BREAKDOWN:** A table showing the resulting housing unit counts for each scenario across different housing types.

2 SELECT POLICY GROUP OPTIONS includes:

- TRANSPORTATION:** A table for selecting policy options for various transportation metrics, such as 'ICE Vehicle Efficiency (mpg)' and 'Bicyclist Electric Vehicle Efficiency (mi/kWh)'. Users can choose between different policy groups (A, B, C) and their respective values.
- FUEL PRICE SENSITIVITY (optional):** A table for selecting fuel price assumptions for different years (2000, 2005, 2010, 2015, 2020).
- TRANSPORTATION COSTS (optional):** A table for selecting transportation cost assumptions for different years.

The bottom of the window shows a navigation bar with tabs for 'Auto Efficiency and Fuel Cost', 'Study Area Selection', 'Policy Options Selection', 'Assumptions', 'Big Results Table', 'Public Results', 'Results', and 'Metrics Summary'.

Results are summarized so that users can compare the impacts of different scenarios. All assumptions are clearly identified and can be easily modified to test varying land use and policy choices. A detailed description of the RapidFire model can be found in the RapidFire Technical Summary, available at www.calthorpe.com/scenario_modeling_tools.

Urban Infill

Land Use Characteristics

The most intense and most mixed land development category (LDC), often found within and directly adjacent to moderate- and high-density urban centers. Virtually all Urban Infill growth would be considered infill or redevelopment, and much of it would occur in the existing urban core in and around Downtown Honolulu. The majority of housing in Urban Infill areas is multifamily and attached single family (townhome), with some smaller-lot single family homes. These housing types tend to consume less water and energy than the larger types found in greater proportion in less urban locations.

Transportation Infrastructure

Supported by high levels of regional and local transit service. Well-connected street networks and the mix and intensity of uses result in a highly walkable environment and relatively low dependence on the automobile for many trips.

Per-household vehicle miles traveled:

Less than 10,000 per year¹⁵



Mixed-Use Walkable

Land Use Characteristics

Less intense than Urban Infill, but highly walkable with a rich mix of retail, commercial, residential, and civic uses. The Mixed-Use Walkable LDC is most likely to occur as new growth on the urban edge or in large-scale redevelopment projects. It contains a rich mix of housing, from multifamily and attached single family (townhome) to smaller- and medium-lot single family homes. Housing types in Mixed-Use Walkable areas tend to consume less energy and water than the larger types found in the Standard Suburban LDC.

Transportation Infrastructure

Well served by regional and local transit service, but may not benefit from as much service as Urban Infill growth, and is less likely to occur around major multimodal hubs. Streets are well connected and walkable, and destinations such as schools, shopping, and entertainment areas can typically be reached via a walk, bike, transit, or short auto trip.

Per-household vehicle miles traveled:

10,000 to 15,000 per year¹⁶



Standard Suburban

Land Use Characteristics

Represents the majority of separated-use, auto-oriented development that has occurred on Oahu, and dominated the American suburban landscape since World War II. Densities tend to be lower than those of the Mixed-Use Walkable LDC, with uses that are not highly mixed or organized to facilitate walking, biking, or transit service. The Standard Suburban LDC can contain a wide variety of housing types, though medium and larger-lot single family homes comprise the majority of this development form. These larger single family homes tend to consume more energy and water than those in the Urban Infill or Mixed-Use Walkable LDCs.

Transportation Infrastructure

Not typically well served by regional transit service. Local street networks are not well connected, discouraging walking and bike trips. Most trips are made via automobile.

Per-household vehicle miles traveled:

Above 15,000 per year¹⁷



Honolulu TOD Study Scenarios Overview

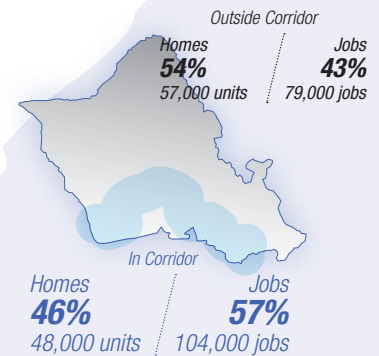
Each of the scenarios represents a different way of accommodating projected housing and job growth on Oahu to approximately the year 2050. Each includes the same total number of people, homes, and jobs, but varies in where and how they are located on the island. The scenarios also vary in terms of the types of homes that will be built in the coming decades, and the extent to which their mix of housing types meet the demands of Oahu's current and future residents.

Scenario A

Business as Usual

This scenario extends the land development and transportation investment choices of the past decades forward to 2050. It accommodates about 46% of projected housing growth—about 48,000 homes—within the one-mile transit corridor area, but does not include the planned Honolulu Rail Transit line. Most new growth (81%) tends toward suburban, auto-oriented development, and more than 80% of growth occurs on previously undeveloped land, much of that outside of the rail corridor. The majority of new housing is single family detached; about 30% of new housing is multifamily.

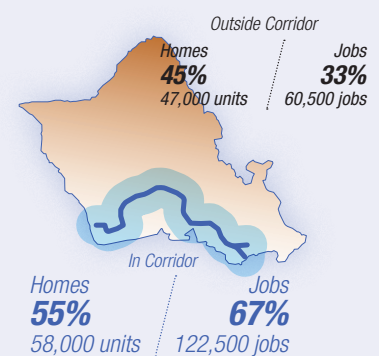
Percent of New Growth in Rail Corridor



Scenario B

Forecast Future

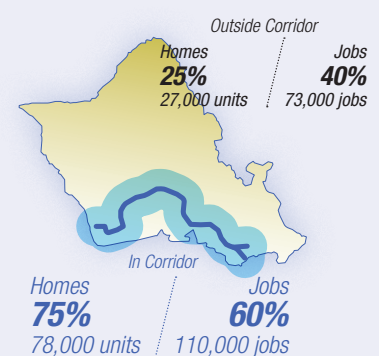
This scenario represents the housing and job distribution forecast in official state and city/county projections. It is very close to the distribution used in the rail ridership forecasting for the federally required environmental impact statement. The Forecast Future sees about 55% of new growth occur on the corridor, accounting for about 58,000 new homes. While the majority of new growth occurs in auto-centric patterns and locations, there is somewhat more Mixed-Use Walkable and Urban Infill development in this scenario. Nearly 75% of growth occurs on undeveloped land, and most new housing remains single family detached in this scenario; there is more multifamily development than in Scenario A.



Scenario C

Station Area Plans

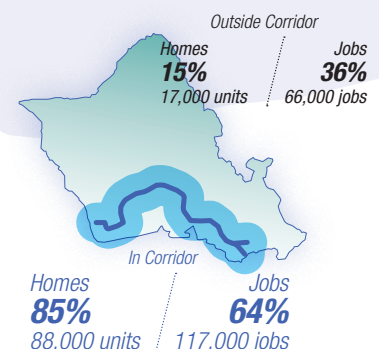
This scenario is built upon the City and County of Honolulu's station-area planning efforts and focuses significantly more growth along the rail corridor than Scenarios A or B. The city/county station-area plans, which focus on the half-mile radius around the 21 stations along the first phase (MOS) of the rail program, accommodate about 58,000 new housing units. This scenario looks out to the one-mile radius and includes the rail extensions, accommodating about 75% (78,000 homes) of new housing growth within the rail corridor; about 27,000 homes are built outside of the corridor. More than two-thirds of new growth occurs in moderate-intensity, mixed-use, less auto-dependent patterns; 16% occurs in urban infill locations; and 17% in Standard Suburban areas. About 60% of growth occurs on undeveloped land. This scenario comes closer to, but does not meet, projected housing demand by type.



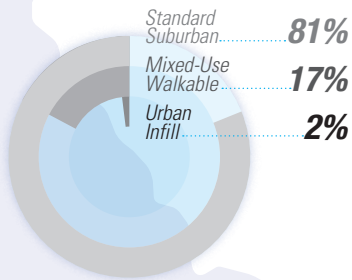
Scenario D

Corridor Focus

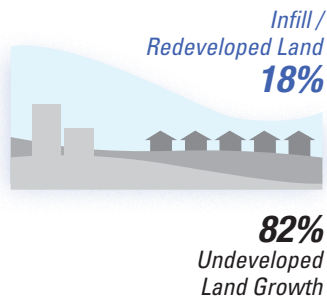
This scenario takes greatest advantage of the planned rail investment, while also seeking to meet projected housing demand by type. It accommodates about 85% of new homes, about 88,000 units, along the rail corridor, with another 17,000 homes located outside of the corridor. Growth along the corridor is focused in compact, walkable communities that include a range of single and multi-family types, and more than 25% of growth occurs through urban infill and redevelopment. Only about 3% of growth occurs in suburban, auto-oriented patterns. Growth in this scenario is split equally between infill and undeveloped locations. The housing mix in this scenario aligns with projected housing demand by type of housing, with new housing construction focused on single-family attached and townhome products, multi-family housing, and smaller-lot single family homes.



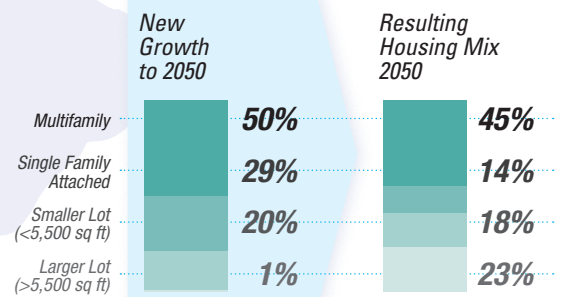
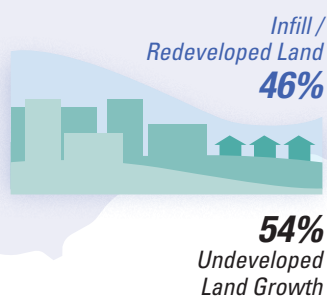
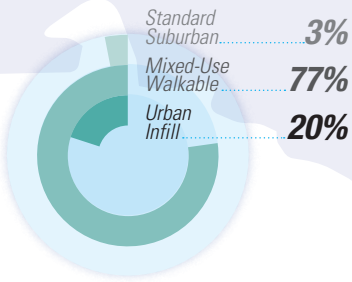
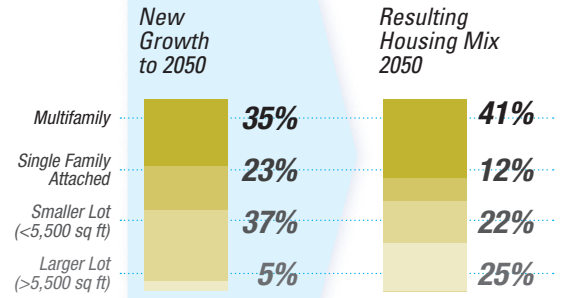
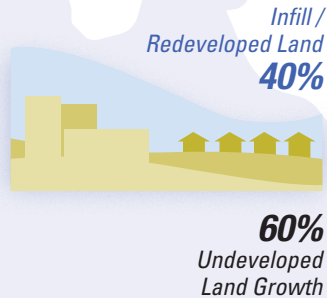
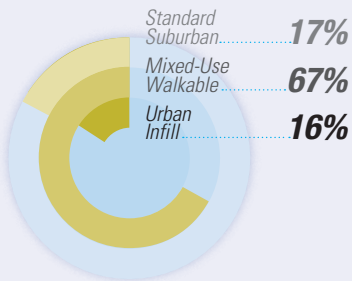
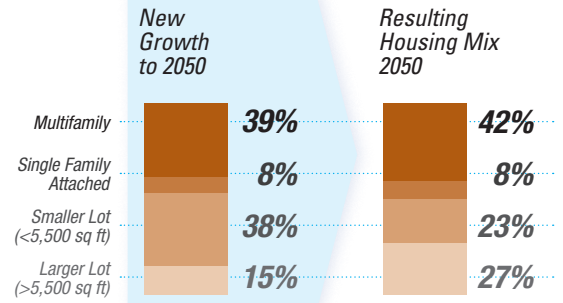
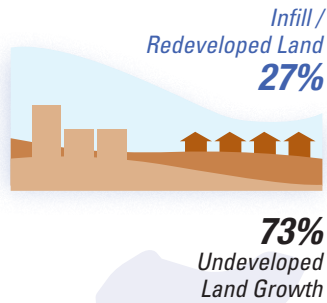
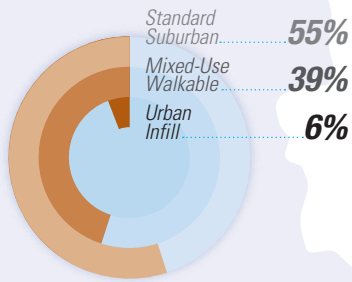
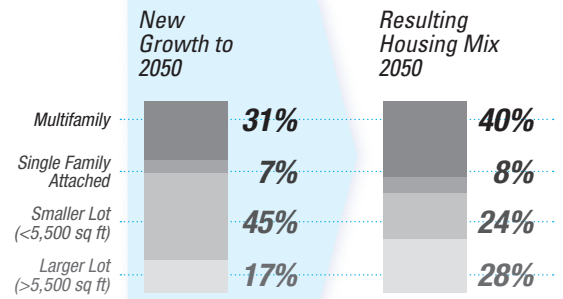
Land Development Category Proportions



Infill / Redeveloped Land vs. Undeveloped Land



Housing Unit Mix



Scenario Metrics Summary

The comparative scenario metrics summarized here are described in detail in the following sections. For clarity, values are rounded. All costs are expressed in 2011 dollars.



Land Consumption

Includes all previously undeveloped land that will be urbanized in a scenario.



Vehicle Miles Traveled (VMT)

Miles driven in passenger vehicles on Oahu.



Highway and Arterial Roadway Costs

Capital and ongoing operations and maintenance costs of additional roadway capacity needed to accommodate VMT increases.



Building Energy Use

Energy (electricity and gas) consumed by new and existing residential¹⁸ and commercial buildings.

Scenario A	Business as Usual	Scenario A			
		21.8 square miles (cumulative to 2050)	6.2 billion miles (annual in 2050) 12,720 miles / year (per new household, 2050)	\$ 10.2 billion (cumulative to 2050) 230 lane miles (to 2050)	22.2 trillion Btu (annual in 2050) 5,800 kWh / year ¹⁹ (per new household, 2050)
Scenario B	Forecast Future	Scenario B			
		16.8 square miles (cumulative to 2050)	5.8 billion miles (annual in 2050) 10,650 miles / year (per new household, 2050)	\$ 9.4 billion (cumulative to 2050) 155 lane miles (to 2050)	21.7 trillion Btu (annual in 2050) 5,450 kWh / year (per new household, 2050)
Scenario C	Station Area Plans	Scenario C			
		10.8 square miles (cumulative to 2050)	5.1 billion miles (annual in 2050) 6,950 miles / year (per new household, 2050)	\$ 3.0 billion (cumulative to 2050) 35 lane miles (to 2050)	21.1 trillion Btu (annual in 2050) 5,300 kWh / year (per new household, 2050)
Scenario D	Corridor Focus	Scenario D			
		7.1 square miles (cumulative to 2050)	4.8 billion miles (annual in 2050) 5,350 miles / year (per new household, 2050)	\$ 0 billion (cumulative to 2050) 0 lane miles (to 2050) [No add'l miles because VMT is held close to current rates]	20.8 trillion Btu (annual in 2050) 4,950 kWh / year (per new household, 2050)



Water Consumption

Water used to serve and maintain new and existing homes.

1,515

billion gallons
(cumulative to 2050)

105,700

gallons / year
(per new household, 2050)



GHG Emissions

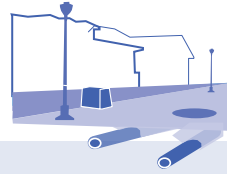
CO₂e emissions from passenger vehicles, and residential and commercial buildings.

Transportation Buildings

1.65 2.93

4.58

MMT / year
(annual in 2050)



Fiscal Impacts of Development

Capital and ongoing operations and maintenance costs for new local roads, sewer, water, and wastewater infrastructure. *For public-sector revenues, see detailed results on page 17.*

\$ 8.6

billion
(cumulative to 2050)

\$81,900

(per new household, 2050)



Rail Transit Ridership

Daily transit boardings on the proposed Honolulu Rail Transit line.

(Scenario A does not include rail)



Household Costs

Automobile transportation (fuel, insurance, maintenance) and home energy and water costs.

\$ 16,950

(per new household, 2050)

1,500

billion gallons
(cumulative to 2050)

101,850

gallons / year
(per new household, 2050)

Transportation Buildings

1.53 2.86

4.39

MMT / year
(annual in 2050)

\$ 8.0

billion
(cumulative to 2050)

\$76,300

(per new household, 2050)

Phase I Extensions

140,000

trips
(daily in 2035)

\$ 14,750

(per new household, 2050)

1,480

billion gallons
(cumulative to 2050)

93,200

gallons / year
(per new household, 2050)

Transportation Buildings

1.35 2.78

4.13

MMT / year
(annual in 2050)

\$ 7.5

billion
(cumulative to 2050)

\$72,000

(per new household, 2050)

Phase I Extensions

200,000

trips
(daily in 2035)

\$ 11,150

(per new household, 2050)

1,455

billion gallons
(cumulative to 2050)

84,200

gallons / year
(per new household, 2050)

Transportation Buildings

1.28 2.75

4.03

MMT / year
(annual in 2050)

\$ 7.1

billion
(cumulative to 2050)

\$68,000

(per new household, 2050)

Phase I Extensions

160,000

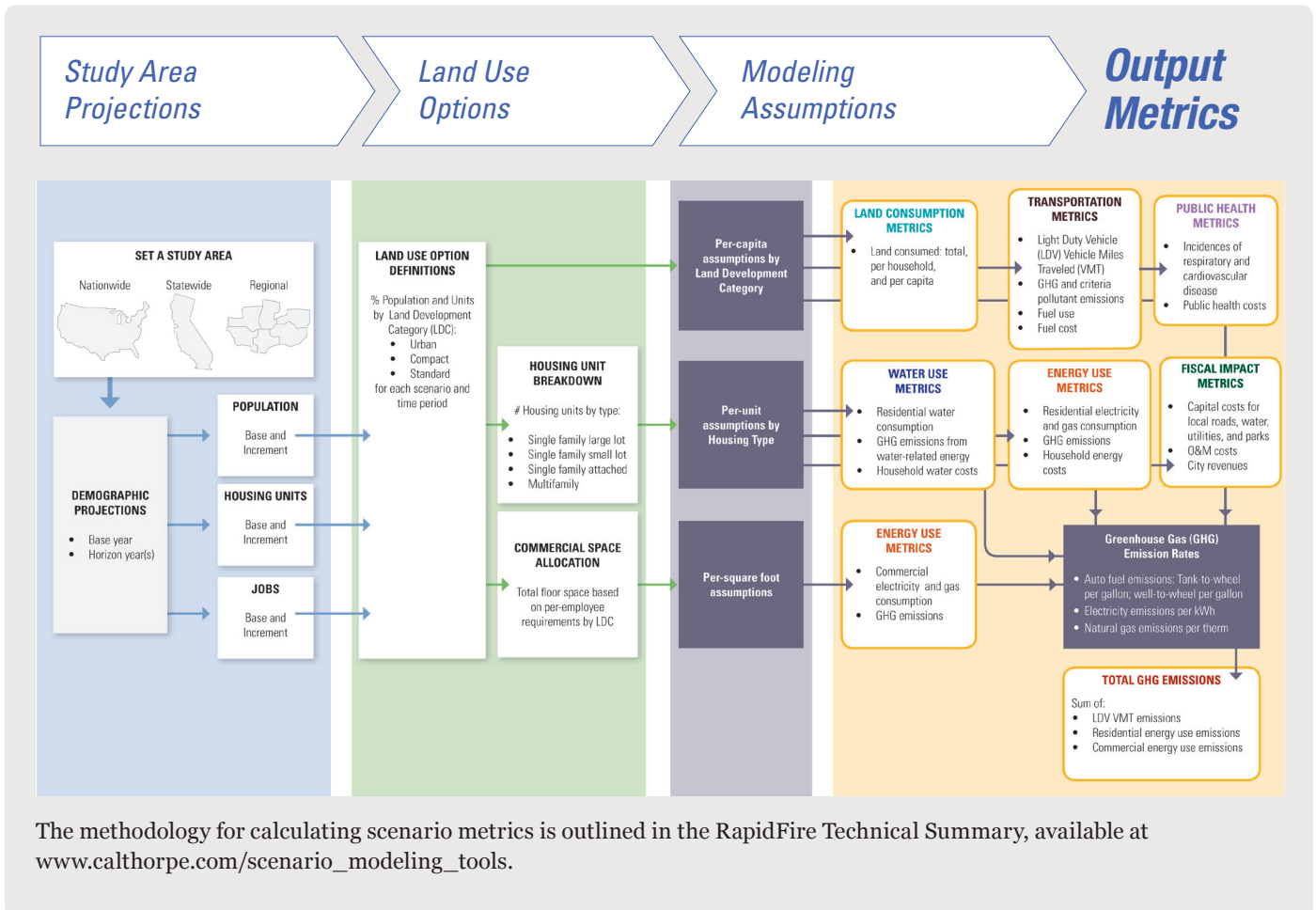
trips
(daily in 2035)

\$ 9,300

(per new household, 2050)

Scenario Metrics

This section explores the impacts of the Honolulu TOD Study scenarios for a range of fiscal, environmental, and transportation impacts. The RapidFire model was used to develop and model the full range of metrics for the four scenarios. Island-wide results are presented here; input assumptions for the metrics are summarized in the Appendix. Note that “cumulative” results reflect sum totals over many years (e.g., 2010 to 2050), while “annual” results reflect values in a single year.



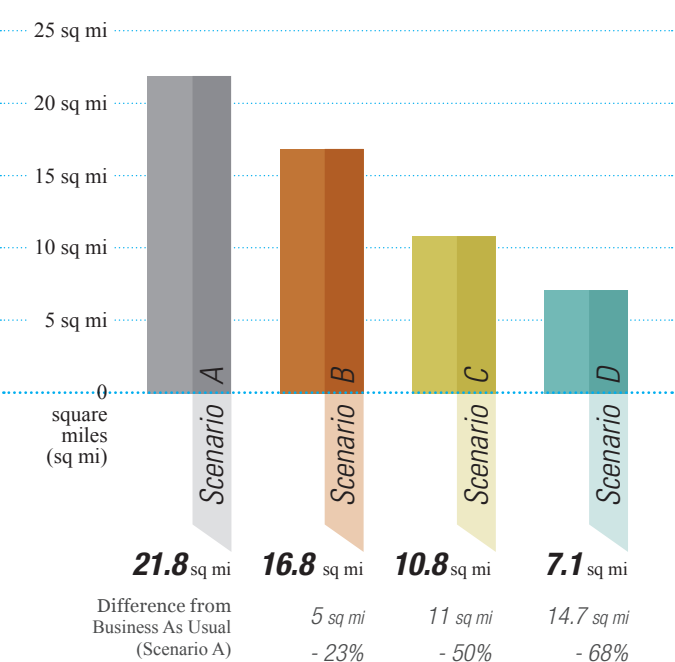
The methodology for calculating scenario metrics is outlined in the RapidFire Technical Summary, available at www.calthorpe.com/scenario_modeling_tools.

Land Consumption

The amount of land needed to accommodate new growth varies widely among the scenarios. Land consumption includes all land that will be newly urbanized, including residential and employment areas, roadways, open space, and public lands. Through infill, redevelopment, and more efficient use of previously undeveloped land to accommodate new growth, scenarios with a greater share of Urban Infill and Mixed-Use Walkable development consume less land overall. By contrast, scenarios that place a greater share of new growth in the Standard Suburban development pattern consume more land.

Scenario A, the business-as-usual scenario that puts most homes outside the corridor and continues past patterns of dispersed growth through 2050, consumes 21.8 square miles of previously undeveloped land — more than three times as much as Scenario D , the corridor-focused scenario. Scenario B (Forecast Future) consumes 16.8 square miles; Scenario C (Station Area Plans) consumes 10.8 square miles; Scenario D consumes 7.1 square miles. There were approximately 150 square miles of urbanized or developed land on Oahu as of 2005.²⁰

Cumulative New Land Consumption to 2050



Fiscal Impacts

Infrastructure and Operations and Maintenance Costs

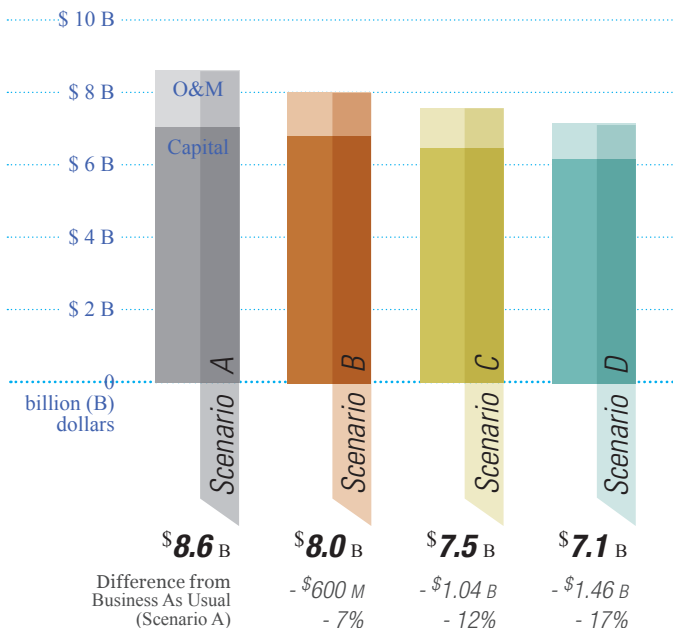
Increased land consumption can lead to higher costs for local infrastructure, as growth on previously undeveloped land requires significant capital investments to extend or build new local roads and water and sewer systems. Growth focused in existing urban areas takes advantage of existing infrastructure and capitalizes on the efficiencies of providing service to higher concentrations of jobs and housing. (While it is true that some infill locations on Oahu are currently in need of costly infrastructure upgrades, many of these costs will ultimately need to be borne regardless of where future growth is concentrated.) Accommodating growth within focused urban areas will help to ensure that future infrastructure investments generate a high return on investment in the form of quality neighborhoods.

The cost difference between compact and more dispersed development increases when public-sector operations and maintenance (O&M) costs are taken into account. O&M costs include the ongoing city expenditures required to operate and maintain the infrastructure serving new residential growth, along with providing other services included in the city's operating budget.²¹ Engineering and public works costs are strongly linked to the physical form of infrastructure. More dispersed development, which entails greater lengths of roads and sewer pipes, incur higher O&M costs than more compact development, which capitalizes on the economic efficiencies of shared infrastructure capacity. The same is true for many services such as police and fire, which cost more to provide when development is more dispersed.

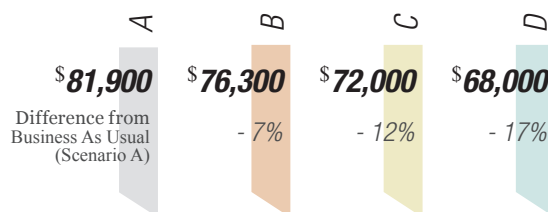
Focusing growth within the corridor area would reduce costs significantly, as demonstrated by reviewing the capital infrastructure and ongoing O&M costs for each scenario. As compared to Scenario A (Business as Usual), following the development pattern of Scenario B (Forecast Future) would save \$595 million to 2050; Scenario C (Station Area Plans) would save \$1.0 billion; and Scenario D (Corridor Focus) would save \$1.5 billion — 17% less on the whole than Scenario A, and an average savings of \$13,900 per new home.

Note that the capital infrastructure and O&M costs detailed here represent those associated with residential growth only. It is expected that the inclusion of non-residential fiscal impacts would compound the cost and revenue differences that have been evidenced between dispersed and compact development patterns.

Cumulative Capital Infrastructure Costs and Operations and Maintenance (O&M) Expenditures (2011 dollars)



Cumulative Infrastructure Costs and O&M per New Home to 2050 (2011 dollars)

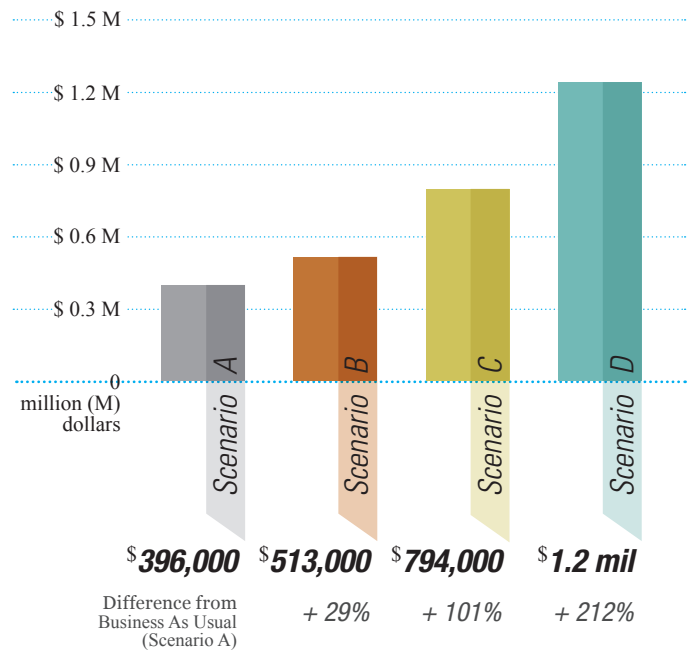


Revenues

Potential public-sector revenues associated with different development patterns are estimated from local residential property and property transfer taxes. Compact development can generate higher local revenues than more dispersed development, because denser locations tend to have higher property values²². Close proximity to major transit systems also boosts property values. Some of this increased value and the resulting higher home and rental prices are offset by the benefits of living in a more efficient location: the scenarios demonstrate that new households in Scenario D save an average of \$6,300 per year on transportation costs (see the Household Costs Summary section on page 27) — a difference that is highest for households living on the rail transit corridor in the most walkable, mixed-use communities.

The relationship between development patterns and revenues is made clear when reviewing on a per-acre basis — by 2050, Scenario A generates \$396,000 per newly developed acre, while Scenario B generates \$513,000, Scenario C generates \$794,000, and Scenario D generates \$1.2 million per acre — three times as much as Scenario A. To 2050, Scenario D generates \$42 million more than Scenario A. Note that these revenue estimates assume a provision for affordable housing in each scenario, with 30% of units available for households with a range of income levels below 120% of area median income.

Cumulative Revenues per Acre to 2050 (2011 dollars)



Transportation

Transportation system impacts — including vehicle miles traveled (VMT), transit ridership, fuel use and cost, roadway needs and costs, and greenhouse gas (GHG) emissions — vary significantly across the scenarios. The land use patterns described in each scenario result in distinct differences in the rates of passenger auto use, measured as VMT, which in turn impacts fuel consumption, fuel cost, and emissions.

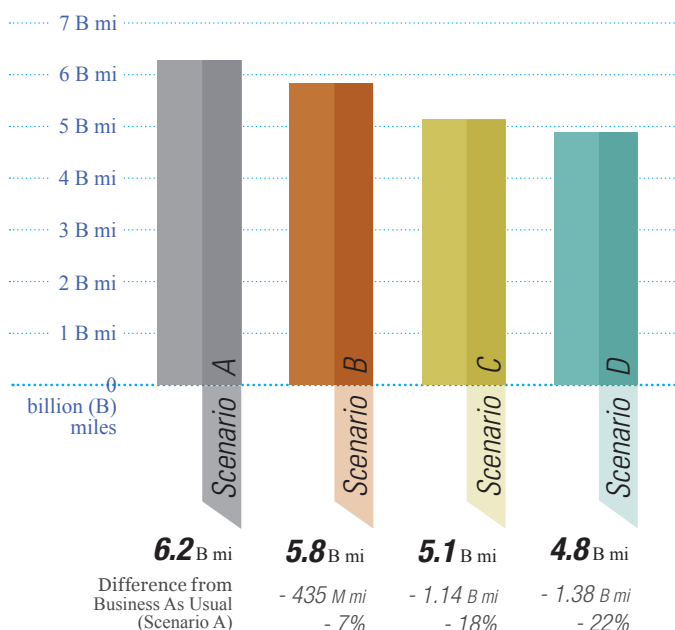
Vehicle Miles Traveled (VMT)

VMT is calculated by applying assumptions about the distances people drive each year to projected population growth. These assumptions, which differ by Land Development Category, are based on current driving rates, and data showing that per-capita VMT of both new and existing population vary based on the form of new growth.²³ For example, when a majority of new growth occurs as Mixed-Use Walkable or Urban Infill development, over time most people — including those living in existing neighborhoods — will be able to drive less because more jobs, daily destinations, and services will be closer. Likewise, if a majority of new growth occurs as Standard Suburban development, many people will be likely to drive more, as workplaces and other destinations will grow farther apart.

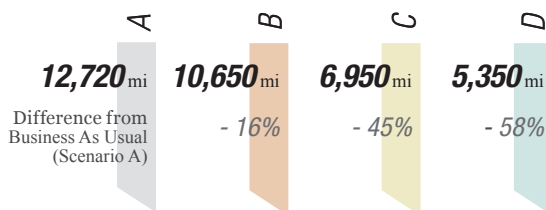
The scenarios assume that requisite transportation investments go hand-in-hand with growth patterns, such that scenarios with a greater focus on Mixed-Use Walkable and Urban Infill development would see increased transit, bicycle, pedestrian, streetscape, and livability investments. Conversely, scenarios dominated by Standard Suburban development would see larger budget outlays to highway and road expansion. Scenario A is modeled without the Honolulu Rail Transit corridor; Scenarios B, C, and D include the rail corridor and vary in the proportions and concentrations of growth, and hence investments, along it.

Scenario results for VMT indicate a wide variation in passenger vehicle use related to the form of new growth. The consequence of putting more homes in dispersed patterns is high: Scenario A, which accommodates 80% of growth in auto-oriented Standard Suburban development, produces an average annual VMT of 12,720 per new household, per year by 2050. This is 2,060 miles more than Scenario B (Forecast Future); 5,770 more than Scenario C (Station Area Plans); and 7,360 more than Scenario D (Corridor Focus).

Vehicle Miles Traveled (VMT) in 2050



Annual VMT Per New Household in 2050



In total, Scenario A results in an annual VMT of 6.2 billion miles. This is 435 million miles more per year than Scenario B, and 1.1 billion miles more than Scenario C. At the lowest end, Scenario D results in an annual total of 4.8 billion miles, 1.4 billion less than Scenario A. The difference between Scenario A and Scenario D is equivalent to taking nearly 160,000 cars off Honolulu's roads each year.

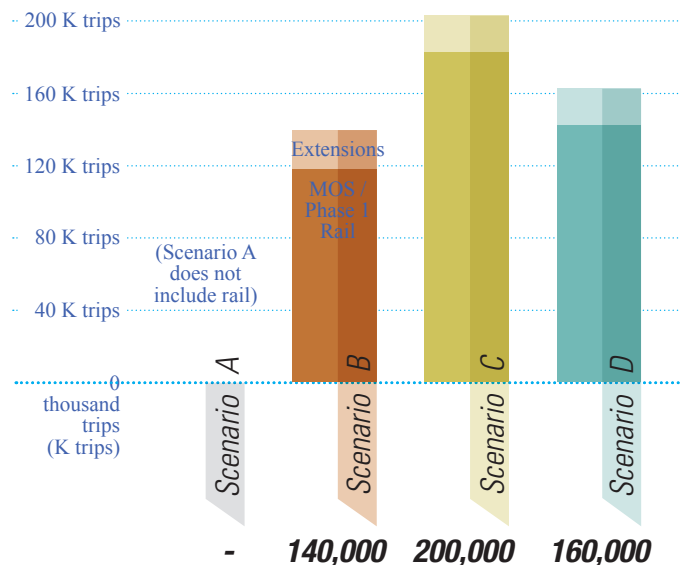
Rail Transit Ridership

Rail transit ridership projections for each of this study's scenarios were developed using the Oahu Metropolitan Planning Organization (OMPO) travel demand model. This is the same model used to produce the official rail ridership projections of the federally-required environmental impact statement (EIS) for the Honolulu Rail Transit program. The model was used to produce ridership estimates for both the first phase of rail, the 21-station line known as the minimum operating segment (MOS), and the rail system with the western (to West Kapolei) and eastern (to Waikiki and the University of Hawaii Manoa campus) extensions. The model produces ridership estimates for the year 2035, and all model runs include a complete network of highways and roadways and all local transit service. More information about the OMPO travel model can be found at www.oahumpo.org/programs/ortpcurrent.html.

Ridership modeling illustrates the benefits to rail ridership and system efficiency that come from locating more homes and jobs in and around the rail corridor. Ridership in Scenario B (Forecast Future), which places about 58,000 new homes in the rail corridor and represents the official distribution of population and employment used in the EIS, matches the official ridership projection of about 116,000 daily rail boardings on the first MOS phase of the rail; with the rail extensions, ridership rises to about 140,000 boardings. Scenario C (Station Area Plans), with 77,000 new homes located within the one-mile rail transit corridor, sees rail ridership grow significantly to more than 180,000 boardings per day on the MOS, and more than 200,000 boardings with the extensions. Scenario D (Corridor Focus) also sees significant gains in rail ridership, with about 160,000 daily boardings with extensions in 2035 — nearly 45,000 boardings more than the EIS Phase 1/MOS system.

Scenario D ridership is lower than that of Scenario C, even with a higher proportion of growth in the corridor, because Scenario D presents a more balanced approach to the overall corridor; homes, jobs, and daily needs like schools, shopping, and parks are more mixed and integrated throughout the corridor, thereby reducing the need for both auto and rail transit trips. Thus, while Scenario D shows lower ridership than Scenario C, it also shows significantly lower VMT due to an increase in conditions where people are more likely to walk, bike, take local transit, or drive shorter distances for many trips. Scenario A (Business as Usual) does not include the proposed Honolulu Rail Transit line.

Daily Rail Boardings in 2035



Hawaii Clean Energy Initiative (HCEI)



Launched in 2008, the Hawaii Clean Energy Initiative (HCEI), a partnership between the state and the U.S. Department of Energy, lays out a roadmap for Hawaii's energy independence, with overarching goals for energy efficiency and the use of renewable sources. For the transportation sector, HCEI will involve reducing VMT — by increasing the use of non-auto modes as well as reducing trip lengths — as well as improving vehicle efficiency, expanding the use of alternative fuels, and accelerating the deployment of electric vehicles. Only through a combination of these strategies can the the goal of using clean energy to supply 70% of Hawaii's ground transportation needs be met.

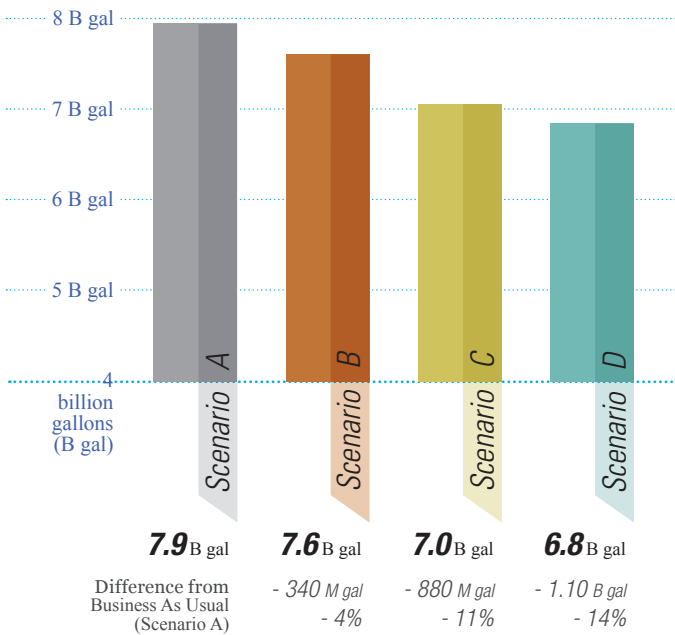
Automobile Fuel Use and Cost of Driving

Variations in passenger VMT lead to substantial differences in the amount of gas (or equivalent) used. These differences will vary depending on how efficient cars become. Assuming the same modest vehicle fuel economy improvements (37 mpg, in line with a federal Energy Information Administration Reference case scenario²⁴) for all scenarios, there would be substantial differences in fuel use due to land use-related VMT variations. By 2050, Scenario A (Business as Usual) would require 168 million gallons of fuel annually. Scenario B (Forecast Future) would require 11.8 million gallons less, Scenario C (Station Area Plans) would require 30.9 million gallons less,

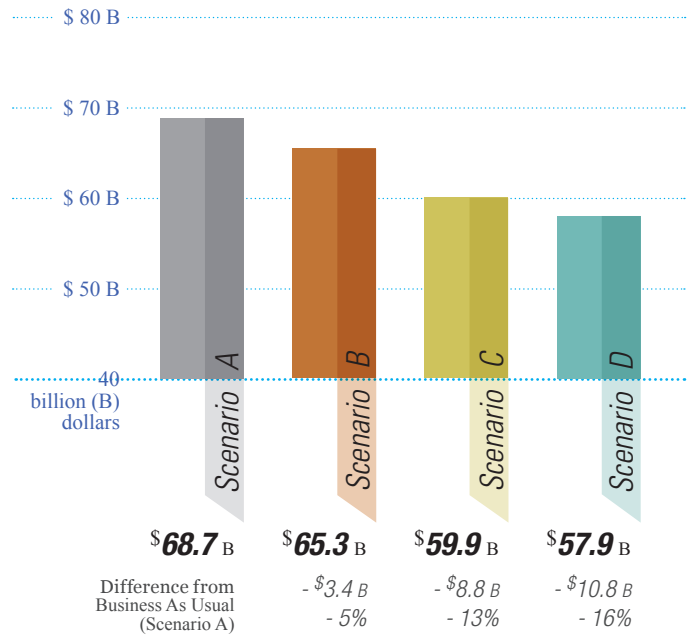
and Scenario D (Corridor Focus) would require 37.3 million gallons less.

Reduced VMT and fuel use leads to lower costs for all households. When compared to Scenario A, Scenario B saves the average Oahu household \$900 per year in driving costs in 2050 (including auto ownership, maintenance, and other driving-related costs); Scenario C saves \$2,350; and Scenario D saves \$2,700 — significant savings that could be applied to housing and other essentials. For the entire island in 2050, the annual savings total as much as \$1.2 billion in Scenario D. Adding up all costs to 2050 (taking into account rising fuel prices and gradual population growth), Scenario D would save a cumulative total of \$24 billion.

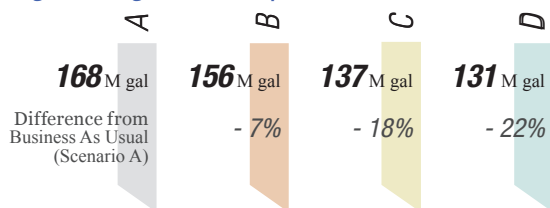
Cumulative Passenger Vehicle Fuel Consumption to 2050 (gallons gasoline equivalent)



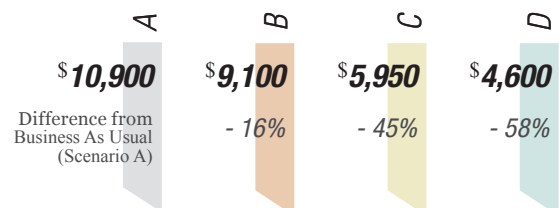
Cumulative Fuel Costs to 2050 (2011 dollars)



Annual Passenger Vehicle Fuel Consumption to 2050 (gallons gasoline equivalent)



Annual Driving Costs per New Household in 2050 (2011 dollars)



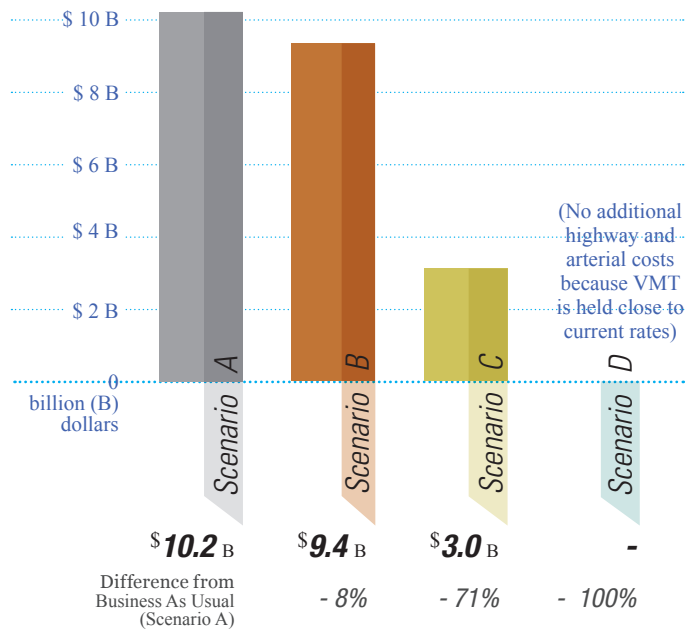
Highway and Arterial Roadway Costs

Reducing vehicle travel demand relieves pressure to expand roadway capacity. In Honolulu, where highway expansion options are limited, the costs of adding lane-miles are very high — the estimate for an elevated, two-direction, managed-lane facility along and parallel to the H-1 corridor from the H-2/Waiawa Interchange to Pacific Street in Iwilei was estimated to cost \$3.77 billion in capital costs alone²⁵. Even assuming that roadway expansion would also include less-intensive, lower-cost roadway construction projects, the costs and impacts of new highway and arterial miles — which include land acquisition needs and adverse effects on urban areas and the natural environment — are significant.²⁶

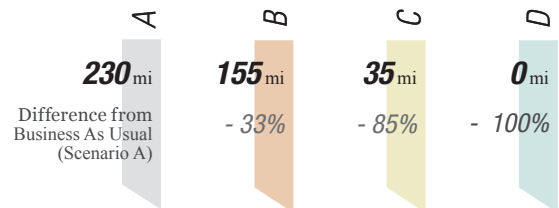
Assuming today's rates of roadway utilization into the future, the travel demand generated by Scenario A would require an additional 230 lane-miles of highway and arterial roadways (including about half highways and half arterials), at a total cost of about \$10.2 billion; Scenario D, which approximately maintains current annual VMT rates²⁷ and includes the rail investment with growth focused around that investment in more walkable communities, requires almost no additional highway or major arterial lane miles to 2050. Scenario B would require 155 lane-miles, at a cost of \$9.4 billion; Scenario C would require 35 lane-miles, at a cost of \$3.0 billion.

Operations, maintenance, and system preservation costs add to the initial capital costs of adding roadway capacity.²⁸ According to Oahu's 2035 Regional Transportation Plan, these costs account for over \$3 billion, or 13% of planned spending to 2035. Looking at preventative maintenance costs alone (the costs of resurfacing new freeways once every ten years, which staves off more costly repairs down the line), Scenario A would cost an additional \$22 million to 2050, Scenario B would cost an additional \$14 million, and Scenario C would cost an additional \$3.3 million.

Cumulative Cost for Additional Highway and Arterial Lane Miles to 2050

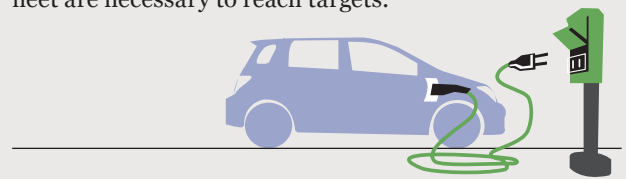


Additional Highway and Arterial Lane Miles Needed to 2050



Alternative Vehicle Impacts

Electric and other alternative fuel vehicles play an important role in reducing GHG emissions from transportation. These scenario results implicitly capture the impacts of electric vehicle use because the fuel economy and GHG emission rate assumptions used in the RapidFire model are based on adopted and/or proposed policies for improving vehicle fuel economy and decreasing fuel carbon intensity — each of which assumes that growing shares of electric and other alternative fuel vehicles in the on-road fleet are necessary to reach targets.



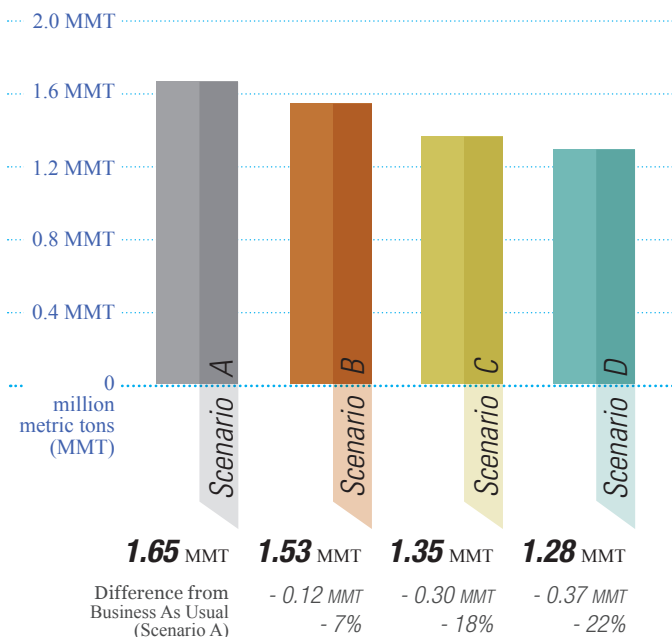
GHG Emissions from Passenger Vehicles

Hawaii's Act 234, passed in 2007, sets the state's goal for reducing greenhouse gas emissions (GHG) to 1990 levels by 2020. This forward-thinking legislation has been an impetus for Oahu to address its climate change impacts through the close coordination of land use and transportation planning. The challenge is substantial: between 1990 and 2005, statewide emissions associated with passenger vehicle transportation and building energy use — sectors influenced by the form and amount of urban growth — grew by approximately one-third.²⁹ By planning for more focused growth in complete communities, Oahu has the potential to significantly reduce GHG emissions by minimizing vehicle travel demand — and along with that realize a full range of co-benefits, including considerable cost savings.

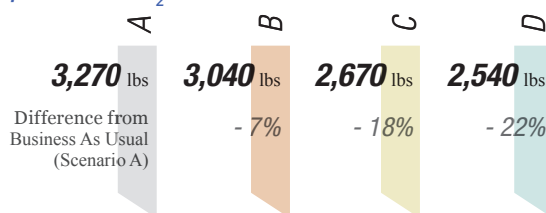
GHG emissions from passenger vehicles are determined by VMT (related to land use patterns), vehicle fuel economy, and the carbon intensity of automobile fuel. Assuming the same modest improvements in fuel emissions for all scenarios — a 10% reduction from baseline emissions³⁰ by 2050 — there would be substantial differences in CO₂e emissions (carbon dioxide equivalent, which includes the main forms of greenhouse gases). The land use-related variations in GHG are directly proportional to VMT and fuel use. By 2050, Scenario A (Business as Usual) would produce 1.65 million metric tons (MMT) of CO₂e annually. Scenario B (Forecast Future) would produce 7% less; Scenario C (Station Area Plans) would produce 18% less; and Scenario D (Corridor Focus) would produce 22% less.

Note that the transportation emissions reported here are limited to tailpipe (tank-to-wheel) emissions. A more complete picture of emissions would emerge in an analysis of full lifecycle (well-to-wheel) emissions, which take into account the emissions associated with generating fuel from various sources.

Annual Transportation GHG Emissions in 2050 (MMT CO₂e)



Annual Transportation GHG Emissions per Capita (lbs CO₂e)



Residential and Commercial Building Energy

With the most fossil fuel-dependent energy supply in the nation, conserving building energy use is a major goal for Hawaii. The Hawaii Clean Energy Initiative (HCEI) sets a statewide goal of achieving 70% clean energy by 2030, with 40% coming from renewable sources, and 30% from efficiency measures. The Honolulu TOD Study scenarios address the efficiency side of this goal, demonstrating the energy savings that can be realized through more compact development.

The scenarios vary in their building energy use profiles due to their different mixes of housing types. Scenarios that contain more Mixed-Use Walkable and Urban Infill development accommodate a higher proportion of growth in more energy-efficient housing types like apartments, attached single-family homes, and smaller single family homes, as well as more compact commercial building types. By contrast, a large proportion of Standard Suburban development leads to a higher proportion of larger single family homes, which are typically less energy-efficient.

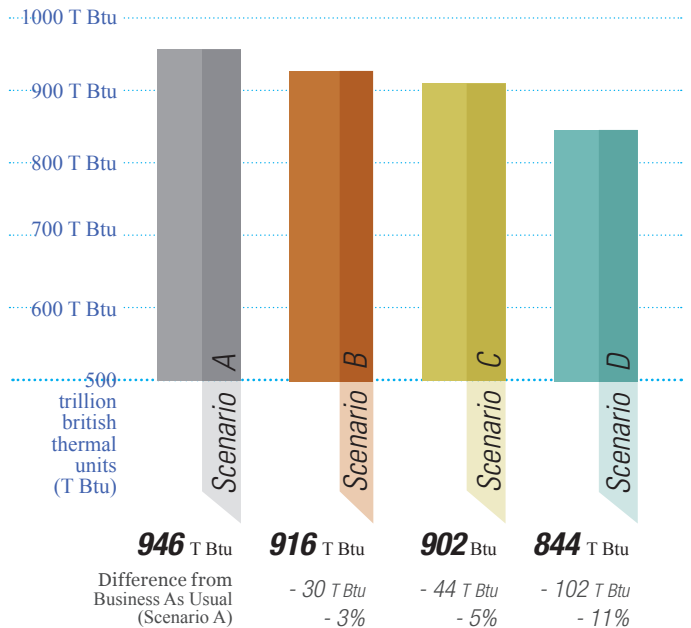
Energy Consumption, Cost, and Emissions

Variations in land use patterns lead to substantial differences in the amount of energy used. These differences will vary depending on policies regulating how efficient buildings become. Assuming the same efficiency standards for new buildings in all scenarios — an improvement to 30% below current baselines³¹ by 2050 — there would be marked differences in energy use due to land use-related variations.

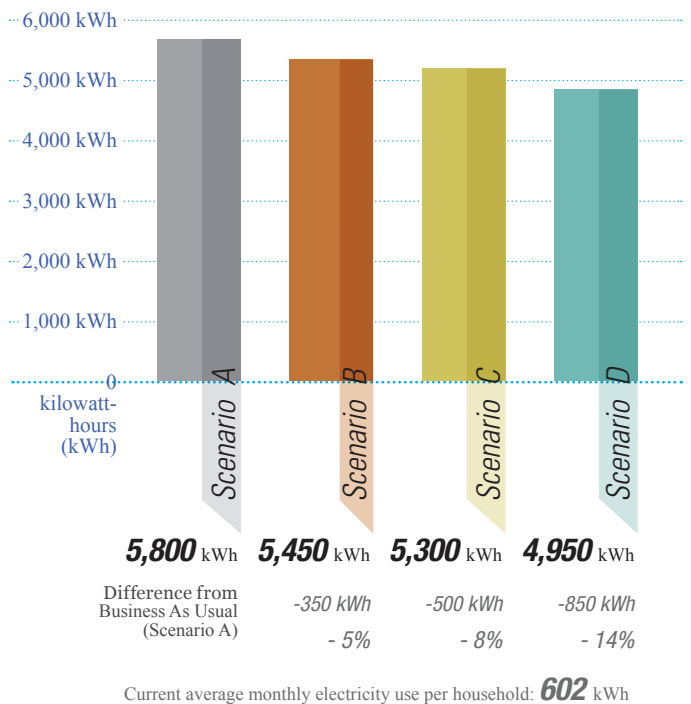
Cumulative energy use, including electricity and natural gas for all existing and new homes and commercial buildings to 2050, amounts to 946 trillion Btu in Scenario A. By comparison, Scenario B (Forecast Future) uses 3% less; Scenario C (Station Area Plans) uses 5% less, and Scenario D (Corridor Focus) uses 11% less. In 2050, the annual energy savings amount to as much as 1.4 trillion Btu in Scenario D — enough to power over 65,000 homes.

Looking at new residential growth alone, the differences between scenarios are magnified. Compared to Scenario A, the average new household in Scenario B uses 5% less electricity per year; Scenario C, 8% less; and Scenario D, 14% less. These savings equate to \$220 per new household in Scenario B; \$340 per household in Scenario C; and \$590 per new household in Scenario D.

Cumulative Residential and Commercial Building Energy Use to 2050 (Btu)



Annual Residential Electricity Use per New Household in 2050 (kWh)



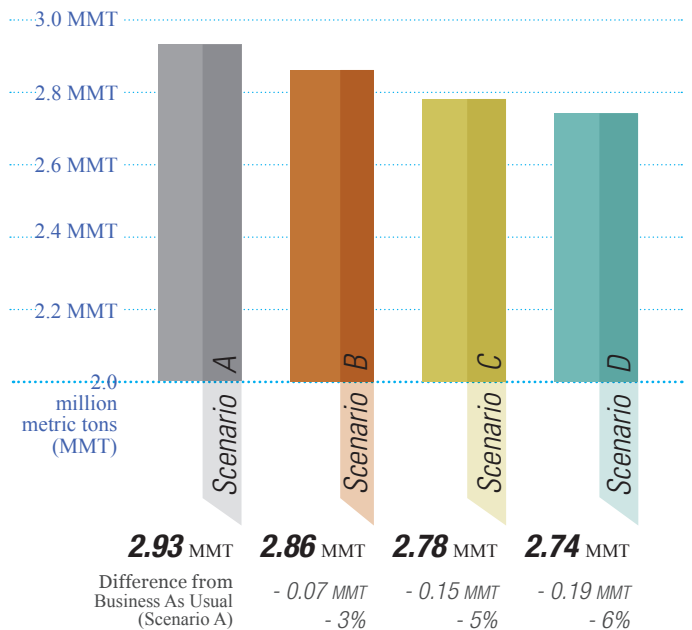
Energy Consumption, Cost, and Emissions (continued)

Over time, these household savings amount to a large sum: compared to the \$46.5 billion total spent to 2050 in Scenario A, total residential energy costs (including existing and new growth households) in Scenario B would be \$490 million less. In Scenario C, the costs would be \$754 million less; in Scenario D, the costs would be \$1.3 billion less. These estimates assume modest improvements in energy efficiency, applied to existing buildings as well as new growth.

The combined savings in residential and commercial energy are significant: compared to Scenario A, Scenario B uses 3% less energy per year; Scenario C uses 5% less; and Scenario D uses 6% less. The annual difference between Scenario A and Scenario D — about 1.3 trillion Btu — could power over 65,000 homes, or 15% of all households in 2050.

Conserving energy also reduces GHG emissions. The progressively more compact land uses of Scenarios B, C, and D would reduce emissions in proportion to energy use — 3%, 5%, and 6% each year, respectively, as compared to Scenario A. When combined with the effects of more stringent clean energy policies, which would reduce the amount of GHG emissions for every kilowatt-hour of electricity used, building energy emissions could be reduced even further.

Annual Residential and Commercial Building Energy GHG Emissions in 2050 (MMT CO₂e)



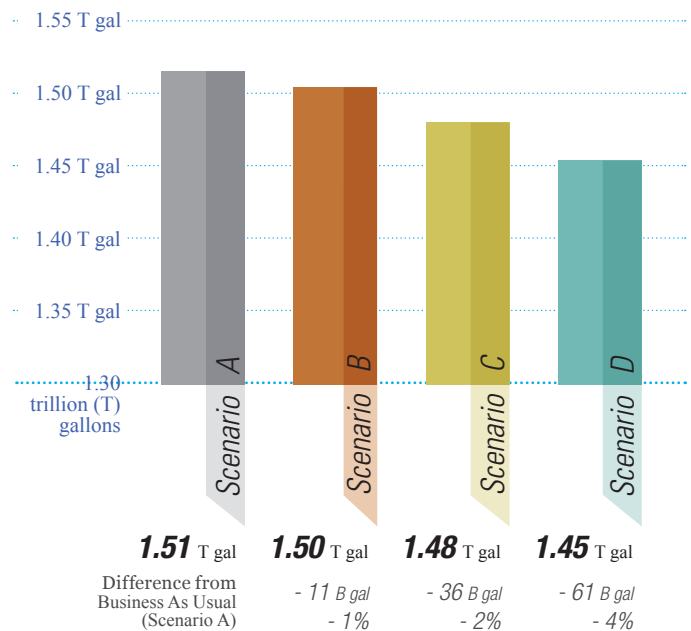
Residential Water Use

Variations in land use patterns and their related building profiles also lead to substantial differences in residential water use and cost. Residential water use is a function of both indoor and outdoor water needs, with outdoor use (landscape irrigation) accounting for the majority of the difference among housing types. Because homes with larger yards require more water for landscape irrigation, lot size is generally correlated with a household's overall water consumption. Thus, scenarios with a greater proportion of the Standard Suburban Land Development Category, which includes some larger-lot single-family homes, require more water than scenarios with a greater proportion of Mixed-Use Walkable or Urban Infill development, which include more attached and multifamily homes.

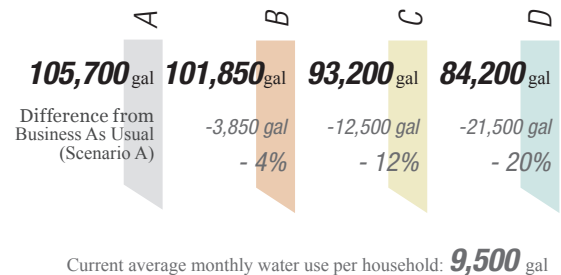
Water use will vary based on efficiency and conservation policies, which will be increasingly important as population grows relative to Oahu's limited water supply. Assuming the same modest improvements for all scenarios — an improvement to 30% below current baselines³² by 2050 — we can see the potential savings attributable to land use patterns alone.

Compared to Scenario A, which uses 1.51 trillion gallons of water per year to 2050, Scenario B (Forecast Future) uses 11 billion gallons, or 1%, less; Scenario C (Station Area Plans) uses 36 billion gallons, or 2%, less; and Scenario D (Corridor Focus) uses 62 billion gallons, or 4%, less. The average new home using 3,850 fewer gallons per year in Scenario B; 12,500 fewer gallons in Scenario C; and 21,500 fewer gallons in Scenario D. Annually, the water savings are substantial: in 2050, Scenario A uses 39.8 billion gallons, while Scenario D uses 2.4 billion gallons less — enough to supply over 26,000 homes for a year.

Cumulative Residential Water Use to 2050



Annual Residential Water Use per New Household in 2050



Greenhouse Gas Emissions Summary

Combined transportation and building sector impacts provide the most complete picture of the greenhouse gas emissions and fiscal implications of the futures presented by the Honolulu TOD Study scenarios. Passenger vehicle transportation, along with residential and commercial building energy use, currently account for over half of total carbon emissions on Oahu. Land use and transportation planning on Oahu, in conjunction with statewide policies in regulating energy emissions and efficiency, will be crucial to meeting the state's goals for GHG reductions, as well as its fiscal health.

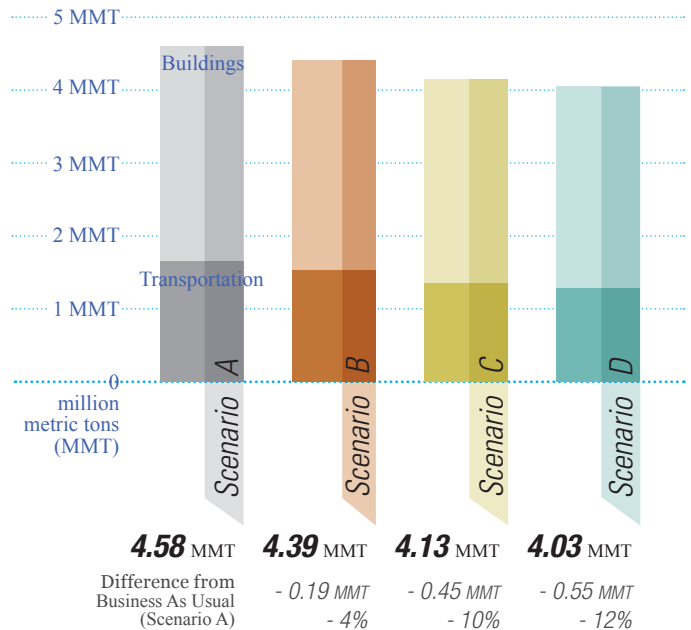
Greenhouse Gas Emissions from Transportation and Buildings

Total GHG emissions — including those from passenger vehicles, and emissions associated with residential and commercial building energy consumption — vary across the scenarios due to their differences in land use patterns. In 2050, Scenario A (Business as Usual), with the highest proportion of growth occurring as Standard Suburban development, would produce 4.6 million metric tons (MMT) of annual GHG emissions from buildings and transportation, the highest among the scenarios. Emissions decrease as land use patterns become more compact: in comparison to Scenario A, Scenario B (Forecast Future) results in 4% lower emissions; Scenario C (Station Area Plans) results in 10% lower emissions, and Scenario D (Corridor Focus) results in 12% lower emissions.

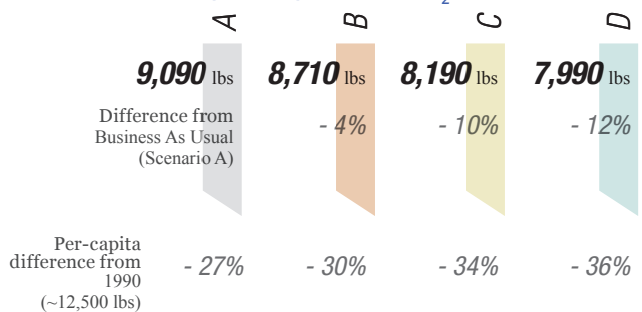
To put these figures into context, Hawaii's Act 234, passed in 2007, mandates a statewide reduction to 1990 levels of greenhouse gas emissions by 2020. California's Assembly Bill 32, the legislation upon which Act 234 was modeled, envisions an 80% reduction from 1990 levels by 2050. Oahu's 1990 emissions from building energy and passenger vehicle transportation can be estimated to be about 4.6 MMT; an 80% reduction target would fall below 1 MMT.

The results of the Honolulu TOD Study scenarios make it clear that decisions made about where and how to grow will play a fundamental role in meeting goals for reduced GHG emissions. It is only through a combination of smart land use and transportation planning with progressive "green" building- and auto-related energy policies that statewide targets for ongoing progress can be achieved.

Annual Transportation and Building Energy GHG Emissions, 2050 (MMT CO₂e)



Annual Transportation and Building GHG Emissions per Capita (lbs CO₂e)



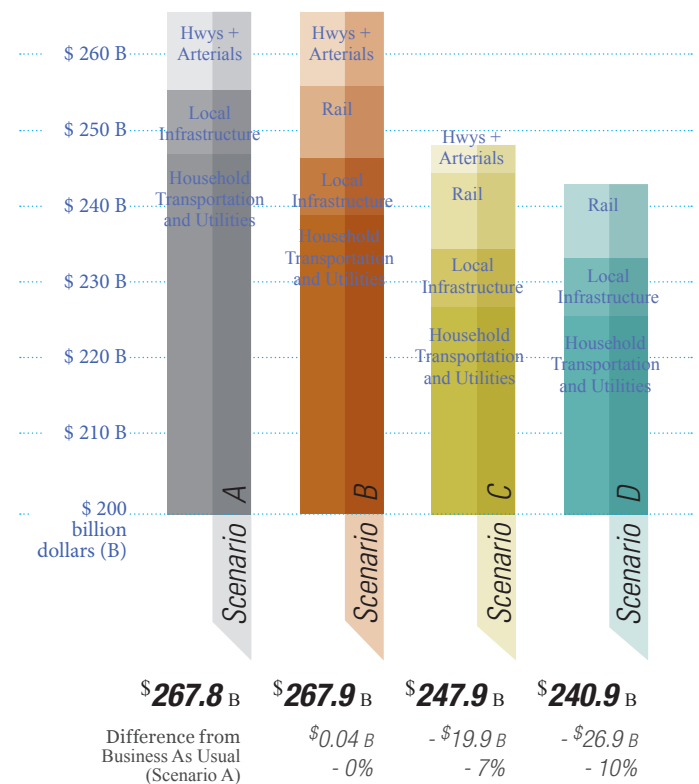
Cost Summary

The public and private costs associated with each of the Honolulu TOD Study scenarios are a product of their resource consumption, land pattern, and transit focus. A combined look at household costs for transportation and utilities, and the costs to build and maintain local and regional infrastructure illustrate that the corridor-focused scenarios show significant total savings even when the costs of the proposed rail transit system are included.³³ Cumulative savings total nearly \$27 billion when comparing Scenario D to Scenario A, and significant savings of \$20 billion are also realized in Scenario C.

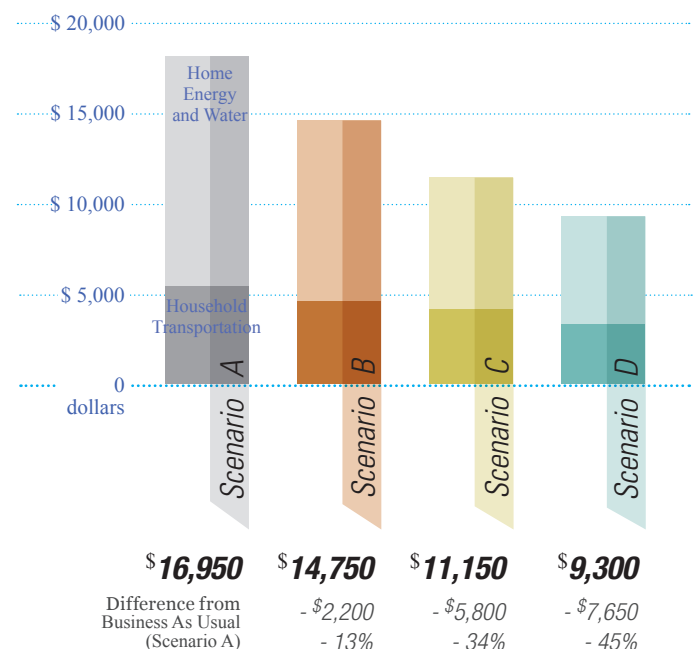
Looking at just household cost burdens for transportation and utilities (energy and water use) exposes the impact of land use and policy choices on Honolulu households' direct costs: in 2050, Scenario A (Business as Usual) would cost the average household \$17,350 in expenditures associated with driving and residential energy and water use. By comparison, Scenario B (Forecast Future) would cost \$950 less; Scenario C (Station Area Plans) would cost \$2,450 less; and Scenario D (Corridor Focus) would cost \$3,000 less.

Per new household, the differences are even greater: by 2050, Scenario A (Business as Usual) would cost the average new household \$16,950 in expenditures associated with driving and residential energy and water use. Scenario B would cost \$2,200 less; Scenario C would cost \$5,800 less; and Scenario D would cost \$7,650 less. Over time, the differences in annual expenditures would amount to a significant sum for each household — money that could instead be applied to a home mortgage or other living expenses, which would be spent in the local economy. Collectively to 2050, household spending amounts to \$249 billion in Scenario A. Scenario B saves more than \$8 billion; Scenario C saves \$22 billion; and Scenario D saves \$25 billion.

Cumulative (2010 to 2050) Expenditures for Regional and Local Infrastructure and Services + Household Transportation and Utilities (2011 dollars) to 2050 (2011 dollars)



Annual Household Costs per New Household in 2050 (2011 dollars)



Endnotes

1. Developed area includes low-, medium-, and high-intensity developed lands and developed open space as classified by the Coastal Change Analysis Program (C-CAP) 1992, 2001, and 2005 Hawaii Land Cover datasets. NOAA Coastal Services Center, 2009.
2. Inrix National Travel Scorecard, 2012. Accessed at www.scorecard.inrix.com, May 2012.
3. U.S. Census Bureau, American Community Survey, 5-Year Estimates, 2010.
4. Helber Hastert & Fee, Planners. *Honolulu General Plan Update Affordable Housing Trend Report*, 2010.
5. U.S. Energy Information Administration, *Average Retail Price of Electricity to Ultimate Customers by Sector*, 2010.
6. U.S. Energy Information Administration, *Hawaii State Energy Profile*, 2009.
7. U.S. Environmental Protection Agency, Emissions and Generation Resource Integrated Database (eGRID2012) year 2009 data, 2012.
8. See, for example, Nelson, Arthur C., *The New California Dream: How Demographic and Economic Trends May Shape the Housing Market*, Urban Land Institute, December 2011. Also, Center for Transit-Oriented Development, *Hidden in Plain Sight: Capturing the Demand for Housing Near Transit*, 2004.
9. U.S. Census Bureau, Decennial Census of Population and Housing, 2000, 2010.
10. U.S. Census Bureau, American Community Survey 5-year Estimates, 2010.
11. This study does not suggest that no new larger-lot homes will be built to 2050, but rather that the aggregate number of larger-lot homes will not change.
12. For station area plans from the City and County of Honolulu, see honolulu.gov/planning/TOD/TOD.pdf
13. See, for example, Cervero, Robert et. al, *TRCP Report 102: Transit-Oriented Development in the United States: Experiences, Challenges, and Prospects*, Transportation Research Board, 2004.
14. Parcels with floor-area ratios ranging from below 0.25 to 0.5 and improvements-to-land ratios ranging from below 0.15 to 0.5 were considered to have redevelopment potential.
15. Average VMT per household on Oahu is approximately 14,500 per year. Center for Neighborhood Technology, H+T® Affordability Index, 2010.
16. Ibid.
17. Ibid.
18. Oahu residential energy comes primarily from electricity.
19. Kilowatt-hour per new household figures include residential electricity use only; natural gas use, while minimal, is included in total energy use (expressed in British thermal units, or Btu). Usage estimates for all scenarios reflect a policy-based assumption of 30% less energy use by 2050.
20. Developed area includes low-, medium-, and high-intensity developed lands and developed open space as classified by the Coastal Change Analysis Program (C-CAP) 2005 Hawaii Land Cover dataset. NOAA Coastal Services Center, 2009.
21. Operations and maintenance costs include community services, customer services, design and construction, emergency management, emergency services, environmental services, facility maintenance, fire, police, and transportation services.
22. See, for example, Center for Transit Oriented Development, *Capturing the Value of Transit*, Federal Transit Administration, 2008.
23. For a description of the RapidFire VMT modeling methodology, refer to the RapidFire Technical Summary, available at www.calthorpe.com/scenario_modeling_tools.
24. U.S. Energy Information Administration, *Annual Energy Outlook 2012 Early Release*, 2012.
25. City and County of Honolulu Department of Transportation Services, *Honolulu High-Capacity Transit Corridor Project Alternatives Analysis Report*, 2006.
26. Roadway cost estimates assume a mix of different types of roadway construction, including high-cost and lower-cost projects. High-cost construction, priced at \$155.8 billion per lane-mile (2011 dollars) based on the elevated facility analyzed as part of the Honolulu High-Capacity Transit Corridor Project “Managed Lane” alternative, is assumed for the first 55 lane-miles of additional highway capacity needed. Lower-cost construction, priced at \$17.2 million per lane-mile (2011 dollars), is assumed for the remaining highway lane-miles needed (from Federal Highway Administration (FHWA), Highway Economic Requirements System inputs, 2008). The average cost of adding arterial lane-miles is assumed to be \$5 million, based on FHWA data.
27. Total VMT in Scenario D is 4.8 billion miles, compared to approximately 4.6 billion miles in 2010.
28. Roadway maintenance costs are applied to new freeway lane-miles, assuming an average cost of \$183,000 per lane-mile every 10 years.
29. Estimate based on further analysis applied to GHG inventory by sector. University of Hawaii Economic Research Organization (UHRO), *Hawaii Greenhouse Gas Emissions Profile, 1990 and 2005*, 2009.
30. 21.6 lbs CO₂e per gallon, based on a 10% emissions reduction from a baseline of 24 lbs CO₂e per gallon.
31. Refer to the Appendix for specific baseline energy use assumptions.
32. Refer to the Appendix for description of baseline water use assumptions.
33. Rail costs in this analysis include the capital costs for the minimum operating segment included in the 2009 Federal EIS (\$4.49 billion in 2011 dollars), as well as the cost estimates for the Kapolei, Waikiki, and University of Hawaii extensions included in the Oahu Metropolitan Planning Organization Oahu Regional Transportation Plan 2035 (\$3.04 Billion in 2011 dollars). Operations and maintenance costs are based on estimates in the EIS documents, and total \$2.42 billion from 2021-2050. Cumulative rail capital and operations costs total to \$9.95 billion with the extensions included.
34. U.S. Energy Information Administration, *Annual Energy Outlook 2012 Early Release*, 2012.

Appendix: Model Assumptions

	Base Year	2050
TRANSPORTATION		
<i>Fuel economy</i>	Passenger vehicle average: 20.7 mpg (est. per 2007 and projected 2035 mpg change from OMPO RTP). Represents on-road cars, trucks, SUVs, vans.	37 mpg, per EIA Reference Case fleet mix scenario. ³⁴
<i>Fuel price</i>	\$4.13 Hawaii state average motor gasoline price, extrapolated from 2008.	\$15.00 per gallon.
<i>Auto operating cost</i>	\$0.26 per mile, including ownership and maintenance.	\$0.45 per mile, based on Edmunds.com <i>True Cost of Ownership</i> data for Hawaii.
<i>Roadway costs</i>	Costs estimated for additional lane-miles only.	\$139.6 billion per lane-mile for high-cost freeway projects; \$15.4 million per lane-mile for lower-cost freeway projects; \$5 million per lane-mile for arterials. Freeway maintenance: \$18,300 per lane-mile, per year.
<i>Transportation fuel emissions</i>	24 lbs carbon dioxide equivalent (CO ₂ e) per gallon, derived from ORTP 2007 total fuel consumed and tons CO ₂ e.	21.6 lbs CO ₂ e per gallon, based on a modest assumption of 10% emissions reduction from baseline by 2050.
BUILDINGS		
<i>Energy use of new buildings</i>	HECO 2010 average electricity use per housing unit by type (single family 729 kWh/month avg; multifamily 426 kWh/month avg). Gas use (though minimal) differentiation by type is assumed based on EIA RECS data. • Larger-lot single family: 9,800 kWh/year; 17 thm/year • Smaller-lot single family: 7,250 kWh/year; 13 thm/year • Townhome: 7,000 kWh/year; 11 thm/year • Multifamily: 5,112 kWh/year; 9 thm/year Commercial energy use: 22.6 kWh/sq ft/year, based on EIA CBECS data, 2006.	30% below baselines, reflecting modest efficiency improvements.
<i>Energy use of existing buildings</i>	HECO 2010 average electricity use per household: 7,224 kWh. Average natural gas use per household: 11 therms, estimated based on total residential consumption and number of households, 2008. (Minimal natural gas market penetration/use rates for the residential sector are assumed into the future.) Commercial energy use: 22.6 kWh/sq ft/year, based on EIA CBECS data, 2006.	0.5% less energy used per year, reflecting modest improvements for building retrofits.
<i>Electricity price</i>	\$0.35 per kWh state average (residential).	\$0.69 state average, twice the baseline price.
<i>Natural gas price</i>	\$4.19 per therm state average.	\$9.33 per therm state average, reflecting a trend-based 2% annual increase in price.
<i>Water use of new residential buildings</i>	Estimated use per housing unit, by type, by subregion. Indoor use based on average per-capita rates; outdoor use based on lot size and evapotranspiration (water use) zone.	30% reduction below base year rates, reflecting modest efficiency and conservation policies.
<i>Water use of existing residential buildings</i>	313 gallons per household/day Oahu average (0.35 acre-feet per year), estimated from total water use and households served. Includes indoor and outdoor water use.	0.5% less water used per year, reflecting modest improvements for building retrofits. (This translates to a 50% reduction by 2050.)
<i>Water price</i>	\$3.68 per 1,000 gallons (\$1,200 per acre-foot) Oahu average.	\$5.58 per 1,000 gallons (\$1,819 per acre-foot), representing a 1.1% annual increase in price.
ENERGY EMISSIONS		
<i>Electricity emissions</i>	1.75 lbs CO ₂ e/kWh state average.	1.05 lbs/kWh state average, based on a 40% reduction in emissions from the increase of renewable energy sources in state portfolio (HCEI goal is 40% renewables by 2030).
<i>Natural gas emissions</i>	11.7 lbs/therm average.	11.7 lbs/therm average (no change, since emissions are constant).

Background

RapidFire Model Output Metrics and Input Assumptions

Summary of Output Metrics

Land Consumption Land Consumed (square miles)	Fiscal Impacts - Capital Costs for Roads and Wet and Dry Utility Provision (\$) - Operations and Maintenance Costs (\$)
Transportation System Impacts and Emissions - Vehicle Miles Traveled (VMT) (miles) - Fuel Consumed (gal) - Fuel Cost (\$) - Transportation Electricity Consumed (kWh) - Transportation Electricity Cost (\$) - Transportation Electricity CO₂e Emissions (MMT) - ICE Fuel Combustion CO₂e Emissions (MMT) - ICE Full Fuel Lifecycle CO₂e Emissions (MMT) - Criteria Pollutant Emissions (tons) Public Health Impacts Related to Transportation Emissions* - Respiratory and Cardiovascular Health Incidences (#) - Health Costs associated with Health Incidences (\$)	Building Energy, Cost, and Emissions - Residential Energy Consumed (Btu) - Commercial Energy Consumed (Btu) - Total Energy Consumed (Btu) - Residential Building CO₂e Emissions (MMT) - Commercial Building CO₂e Emissions (MMT) - Residential Energy Cost (\$) - Building Water Use, Cost, and Emissions - Water Consumed (AF) - Water Cost (\$) - Water-Related Electricity Use (GWh) - Water-Related Electricity CO₂e Emissions (MMT)
Total Greenhouse Gas (GHG) Emissions Total CO₂e Emissions (Transportation & Buildings, MMT)	Building Program Housing type mix

Summary of Input Assumptions

Demographics - Baseline population and population growth - Baseline households and household growth - Baseline housing units and housing unit growth - Baseline non-farm jobs and job growth	Scenarios - Land Development Category (LDC) proportions for each scenario and time period - Housing unit composition for each LDC
Fiscal Impacts - Per-unit capital cost assumptions for roads and wet and dry utility provision by building type and Land Development Category (LDC) - Per-unit operations and maintenance cost assumptions for roads, utilities, and public services by building type and LDC	Land Consumption - Percent greenfield vs. infill/greyfield/brownfield growth for each land development category, scenario, and time period - Acres per capita required for greenfield development in each land development category, scenario, and time period

* Denotes an optional input which was not applied in calculating the output metrics presented in this report.

Summary of Input Assumptions [continued]

Vehicle Miles Traveled (VMT) - Baseline Per Capita Light Duty Vehicle (LDV) VMT - VMT adjustment factors by LDC and scenario for growth increment population - VMT escalation and deceleration rates for the baseline environment population - Elasticity of VMT with respect to driving costs per mile*	Vehicle Fuel Economy and Cost - Baseline fuel economy for total fleet, internal combustion engine vehicles alone*, and alternative/electric vehicles alone* - Fuel economy in horizon years for total fleet, internal combustion engine vehicles alone*, and alternative/electric vehicles alone* - Elasticity of fuel economy with respect to fuel cost*
Transportation Emissions - Baseline fuel emissions, full lifecycle (well-to-wheel) for total fleet, internal combustion engine vehicles alone*, and alternative/electric vehicles alone* - Baseline fuel emissions, combustion (tank-to-wheel) for total fleet, internal combustion engine vehicles alone*, and alternative/electric vehicles alone* - Percent gasoline vs. diesel in liquid fuel mix - Composition of gasoline and diesel fuel mix - Criteria pollutant emissions per mile traveled	Public Health Impacts Related to Transportation Emissions* - Health incidences per ton of pollutant - Health costs per ton of pollutant Building Energy Emissions - Electricity generation emissions (lbs/kWh) - Natural gas combustion emissions (lbs/therm) - Electricity generation emissions in horizon years (lbs/kWh) - Natural gas combustion emissions in horizon years (lbs/therm)
Residential Building Energy Use & Price - Baseline average annual energy use per unit for base/existing population - Annual energy use by building type - Housing unit replacement rate for base/existing housing stock - Upgrade efficiency reduction factor 'A' for base/existing housing stock - New efficiency reduction factor 'B' for replacement units of base/existing housing stock - Upgrade efficiency reduction factor 'C' for replacement units of base/existing housing stock - New efficiency factor 'D' for new units of the growth increment - Upgrade efficiency factor 'E' for new units of the growth increment - Baseline residential electricity price - Baseline residential gas price - Residential electricity price in horizon years - Residential gas price in horizon years	Commercial Building Energy Use & Price - Non-farm job proportion by floorspace-type category - Floorspace per employee by category for each LDC - Commercial space replacement rate for base/existing housing stock - Baseline average annual energy use per square foot for base/existing commercial space - Annual baseline energy use for new commercial space - Replacement rate for base/existing commercial space - Upgrade efficiency reduction factor for base/existing commercial space - New efficiency reduction factor for replacement commercial space - Upgrade efficiency reduction factor for replacement commercial space - New efficiency factor for new floorspace of the growth increment - Upgrade efficiency factor for new floorspace of the growth increment - Baseline commercial electricity price - Baseline commercial gas price - Commercial electricity and gas price in horizon years
Residential Building Water Use - Baseline per capita indoor water demand by building type - Baseline per-unit outdoor water demand by building type - New residential water efficiency (% reduction from 2005) - Baseline water price (\$/acre foot) - Water price in horizon years (\$/acre foot)	Residential Water-Related Energy Use and Emissions Average water energy proxy (electricity required per million gallons water used)



Credits

Consulting Team:

Lead:

Calthorpe Associates

Market Analysis and Implementation:

Strategic Economics

Local Planning and Development Expertise:

Bowers + Kubota

Acknowledgements:

This project and the scenarios detailed in this report would not have been possible without the technical support and expertise of a number of individuals and organizations. In addition to the project Working Group, which provided critical ongoing input, technical details, and local expertise to the development and analysis of the scenarios, the City and County of Honolulu Department of Planning and Permitting was instrumental in providing data and feedback to the scenario development and modeling process. The Hawaii Department of Business, Economic Development, and Tourism (DBEDT) and the Oahu Metropolitan Planning Organization also provided critical data and information to this process, as did the consultants to Honolulu's station-area planning efforts, Van Meter Williams Pollack and Dyett & Bhatia. Parsons Brinckerhoff's Honolulu office was a key player in providing ridership and congestion estimates for the scenarios.



CALTHORPE ASSOCIATES
URBAN DESIGNERS. PLANNERS. ARCHITECTS

April 14, 2026

The Honorable Tommy Waters, Chair
and Members of the Honolulu City Council
530 South King Street, Room 202
Honolulu, Hawaii 96813

Subject: Testimony: Bill 21, (2026), Relating to Transit-Oriented Development

Dear Chair Waters and Members of the Honolulu City Council:

Stanford Carr Development wishes to testify in **strong opposition** to Bill 21 (2026). While the proposals ostensibly originate from a well-intentioned desire to improve the quality of life of O‘ahu residents by increasing the amount of affordable housing, the unintended consequences of this language are likely to instigate the opposite effect. For the following reasons, we respectfully request the City defer this measure.

Community Benefits for Zoning Modifications

First, in its April 2, 2026 report, the Zoning & Planning Committee (ZPC) rests its justification for advancing this bill on the premise that bonus height, bonus FAR, and other zoning modifications (“Modifications”) are a cost to the community that must be offset.

This is a flawed premise. The City has long understood that a key component to the success of the Honolulu Skyline is high-density, mixed-use development within a half-mile radius of each station. What the ZPC characterizes here as a detriment requiring offset is, in fact, the community benefit itself.

This approach is consistent with national best practices:

- The Urban Land Institute has found that **transit-oriented development (TOD)** increases ridership, reduces traffic congestion, and improves economic productivity when density is concentrated near transit hubs.
- The American Public Transportation Association reports that households in walkable, transit-oriented communities **drive 20–40% less** than those in auto-dependent areas.
- A study by the National Institute of Transportation and Communities found that compact, walkable development near transit significantly increases transit utilization and reduces infrastructure costs per capita.

Municipalities across the country—including Arlington County (Rosslyn-Ballston Corridor) and Portland—have successfully implemented TOD policies that rely on increased density, not restrictions, to achieve public benefits.

In Honolulu’s case, the Skyline effectively connects neighborhoods across the island as if they were different floors in a single building. That system only works if there is sufficient density at each “stop.”

In short, the Modifications are not a concession to developers—they are the mechanism by which the City achieves its transit-oriented development goals. Absent strong and consistent encouragement of density around these stations, the Skyline risks becoming an underutilized system, undermining billions in public investment.

Extracting Additional Premium from Hotel Development

Bill 21 (2026) adds two new requirements for hotel projects: (1) inclusion of affordable housing, and (2) contributions toward City multimodal transportation improvements. Both present practical and legal concerns.

1. Affordable Housing Requirement

While there are legitimate policy considerations for allocating some portion of affordable housing costs to hotel development, the structure proposed here is unclear and misaligned with how hotel project’s function.

Mixed hotel-residential projects are highly market-specific and not the industry norm. For example:

- Developments in New York City and Los Angeles that successfully combine hotel and residential uses typically rely on **luxury condominium components** to cross-subsidize costs—conditions not comparable to Honolulu’s workforce housing needs.
- The American Hotel and Lodging Association has noted that hotel financing, operations, and valuation differ significantly from residential projects, making hybridization complex and often infeasible.

More importantly:

- There is no clear methodology for calculating the required amount of affordable housing; and
- It is not evident that co-locating residential and hotel uses is consistently viable from a market or operational standpoint.

The result is a requirement that introduces uncertainty and inefficiency into both hotel development and affordable housing production—ultimately working against the stated intent of the bill.

2. Transportation Improvements and Exactions

The requirement for “monetary contributions” or improvements tied to transit, bus, or other infrastructure raises additional concerns.

As drafted, the bill does not require a clear nexus between a proposed project and the improvements being required, nor does it ensure that any such requirement is proportional to the impacts of the project. This raises concern under well-established constitutional law:

- In *Nollan v. California Coastal Commission* and *Dolan v. City of Tigard*, the U.S. Supreme Court held that development exactions must have both an “essential nexus” and “rough proportionality” to project impacts.
- More recently, *Koontz v. St. Johns River Water Management District* reaffirmed that monetary exactions are subject to the same constitutional limitations.

Without these guardrails, the language may be interpreted as granting broad authority to impose exactions without demonstrating that the improvements are necessitated by the project itself—creating legal exposure for the City.

Additionally, many of the listed improvements are typically undertaken by agencies such as the Honolulu Authority for Rapid Transportation or the Honolulu Department of Transportation Services as part of broader infrastructure planning. Absent a clear nexus and proportionality, these provisions risk creating both legal vulnerability in the form of a codified unconstitutional taking and a meaningful deterrent to development.

Graywater Systems and DOH Compliance

Finally, the bill’s provisions regarding graywater systems are premature. Graywater reuse systems are already regulated by the Hawaii Department of Health, and the applicable standards are still evolving.

Nationally, regulatory frameworks for graywater reuse continue to develop:

- The U.S. Environmental Protection Agency has noted that graywater reuse standards vary widely across jurisdictions and are still being refined.
- The International Association of Plumbing and Mechanical Officials continues to update the Uniform Plumbing Code to address emerging graywater technologies.

In practice, there is often a lag between how systems are implemented in the field and how compliance standards are formally codified.

This language creates a scenario where a project could be operating in coordination with DOH and consistent with real-world requirements, while simultaneously falling out of technical compliance due to evolving standards. Until there is a fully established and operationally stable regulatory framework, we urge the Council to remain silent on this issue.

April 14, 2026

For the reasons above, Bill 21 (2026), as currently drafted, risks discouraging development, introducing legal uncertainty, and undermining the very goals it seeks to advance. We respectfully request that the Council **defer Bill 21 (2026)** and allow for further coordination with stakeholders.

Thank you for the opportunity to provide testimony.

Sincerely,

A handwritten signature in black ink, appearing to read 'Stanford S. Carr', with a large, stylized initial 'S'.

Stanford S. Carr



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**WRITTEN TESTIMONY
IN OPPOSITION TO BILL 21 (2026)
RELATING TO TRANSIT-ORIENTED DEVELOPMENT**

Aloha Chair Waters, Vice Chair Tupola and Members of the Council,

On behalf of Avalon Group, we respectfully submit testimony in opposition to Bill 21 (2026), as currently drafted. Avalon strongly supports transit-oriented development (TOD) and the City's long-standing policy of focusing growth near high-capacity transit. However, several provisions in this bill risk discouraging TOD projects from moving forward, which would ultimately undermine housing production, economic activity, and transit ridership.

Density and Community Benefits

Bill 21 is premised on the idea that increased height and density in TOD districts create negative impacts that must be offset through additional community benefits. We respectfully disagree with this underlying assumption. The community has already made a deliberate policy choice, through TOD zoning and station area plans, to allow greater density near rail stations because density is essential to making transit work.

Higher density near stations increases ridership, reduces automobile dependence, supports walkability, and helps justify the City's significant investment in rail. Treating allowed TOD density as a burden that must be "paid for again" introduces uncertainty into projects that are already consistent with adopted plans. Rather than incentivizing TOD, this approach risks deterring it.

Affordable Housing Requirements for Hotel Projects

Bill 21's requirement that TOD projects with a hotel component provide affordable housing beyond Chapter 29 raises serious feasibility concerns. Hotel projects are fundamentally different from residential developments in how they are financed, valued, and operated. Requiring affordable housing as an additional condition—particularly within mixed hotel or condo-hotel projects, creates significant challenges related to financing, ownership structure, and long-term operations.

In many cases, combining hotel uses with for-sale affordable housing under a single condominium regime makes mortgage financing extremely difficult or impossible, often leaving only cash buyers for units intended to serve working families. These complications increase risk, delay financing, and can render projects infeasible altogether.



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When hotel or mixed-use TOD projects stall or are abandoned, the City loses construction jobs, permanent employment opportunities, tax revenue, and transit riders. These outcomes run counter to the very goals TOD is meant to advance.

Graywater as a Community Benefit

Avalon supports sustainability initiatives, including graywater reuse where feasible. Bill 21 appropriately identifies graywater systems as a potential community benefit, not a mandate. However, graywater feasibility is highly site-specific and subject to State Department of Health review and evolving regulatory standards. Graywater should remain a voluntary, incentive-based option and should not become an implicit expectation or condition of approval that could delay projects through no fault of the applicant.

Conclusion

TOD projects are already complex and capital-intensive, particularly in today's environment of high construction costs and elevated interest rates. Layering additional requirements, however well intentioned, can be enough to prevent projects from moving forward. When that happens, the City does not gain community benefits; it loses housing, jobs, tax revenue, and transit ridership.

For these reasons, Avalon Development Group respectfully urges the Council to defer Bill 21 (2026) and work with stakeholders to ensure TOD policies remain feasible, predictable, and aligned with the City's long-term planning goals.

Mahalo for the opportunity to provide testimony.

Respectfully submitted,

Avalon Group