Clean Transportation
What Will It Take?

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Creating Paradise

Paradise is not a distant destination - it is something we create in our own communities.
Energy Is Important

- Hawaii imports approximately 95% of its energy.
- Approximately 90% of Hawaii’s imported energy is petroleum.
- Hawaiians spent $4.5 billion to import oil in 2011, $3,300 per capita, the state’s largest import product.
- Petroleum expenditures tend to generate less state employment and economic activity than most other goods.
- Hawaii has the highest electricity and fuel retail prices in the United States, but per capita energy consumption is among the lowest so per capita energy costs are overall moderate.

(www.instituteforenergyresearch.org/2013/06/25/hawaii)
Transportation Is Important

• Approximately half of Hawaii’s total energy is used for transportation.
• Approximately half of Hawaii’s transport energy is used for aviation and marine transport.
• Efficient transportation is essential for economic development and quality of life.
• Transport is a major household financial burden, representing 10-15% of household expenditures in multi-modal neighborhoods and 20-25% of household expenditures in automobile-dependent locations. Approximately 20% is for fuel.
• Motor vehicle transport imposes significant indirect economic, health and environmental costs.
• Transportation infrastructure is a major cost to businesses and governments.
Fuel Consumption Per Capita
US Daily Vehicle Travel

Average Daily Vehicle-Miles Per Capita

(FHWA. 2007)
Mode Share By U.S. Urban Region

Commute Share

- Bicycle
- Walk
- Public Transport

Sustainability emphasizes the integrated nature of human activities and therefore the need to coordinate planning among different sectors, jurisdictions and groups.
Sustainable Transportation?

Is a transport system sustainable if all vehicles are electric powered?
Electric Power Does Not:

- Reduce traffic congestion
- Reduce accidents
- Reduce roadway costs
- Reduce parking facility costs
- Reduce vehicle purchase costs
- Improve mobility for non-drivers
- Improve social equity
- Improve public fitness and health
- Reduce sprawl
- Protect threatened habitat
Trends Supporting Multi-Modalism

- Motor vehicle saturation.
- Aging population.
- Rising fuel prices.
- Increased urbanization.
- Increased traffic and parking congestion.
- Rising roadway construction costs and declining economic return from increased roadway capacity.
- Environmental concerns.
- Health Concerns

U.S. vehicle travel grew steadily during the Twentieth Century but stopped about 2003.
“Governments may find that changes in driving habits force them to rethink infrastructure. Most forecasting models that governments employ assume that driving will continue to increase indefinitely. Urban planning, in particular, has for half a century focused on cars.

If policymakers are confident that car use is waning they can focus on improving lives and infrastructure in areas already blighted by traffic rather than catering for future growth.

By improving alternatives to driving, city authorities can try to lock in the benefits of declining car use.”
Win-Win Solutions

Comprehensive planning helps identify “Win-Win” strategies: solutions to one problem that also help solve other problems facing society.

Ask:

“Which energy conservation strategy also reduces traffic and parking congestion, savings consumers money, and improves mobility options for non-drivers.”
# Comparing Benefits

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Affordability as a Planning Issue

- 2009 National Household Travel Survey respondents rated high transport costs as their most important transport planning issue.

- Affordability requires reducing total travel costs, including vehicle ownership costs.

- Households in multi-modal communities tend to save thousands of dollars in annual transport costs.
A more resource efficient transport system supports economic development in several ways:

- Reducing vehicle and fuel expenditures increases regional employment and business activity.
- Transportation savings and efficiencies (congestion, parking, taxes) increases productivity and competitiveness.
- Agglomeration efficiencies from more compact development.
- Increases affordability, allowing businesses to attract employees in areas with high living costs.
Per Capita GDP and VMT

Productivity tends to decline with increased mobility. (Each dot is a U.S. urban region.)

Bureau of Economic Analysis and FHWA data
Smart Growth Safety Impacts

![Bar chart showing annual traffic deaths per 100,000 population for different counties in the US. The chart compares the number of deaths in 'Most Sprawled' and 'Smartest Growth' areas.]
Walking is a natural and essential activity. If you ask sedentary people what physical activity they will most likely to stick with, walking usually ranks first.
Sustainable Transport Hierarchy

1. Walking
2. Cycling
3. Public Transit
4. Service & Freight
5. Taxi
6. HOV
7. Private Automobile
Complete Streets

A Complete Street is designed for all activities, abilities, and travel modes. Complete Streets provide safe and comfortable access for pedestrians, cyclists, transit users and motorists, and a livable environment for visitors, customers, employees and residents in the area.
Transit travel requires less road space than automobile travel. A bus lane that carries 20 or more buses during peak hours carries more people than a general traffic lane.

It is therefore more efficient and fair to give buses priority in traffic with special lanes and signal controls. This increases operating efficiency and attracts discretionary travelers who would otherwise drive.
Employers encourage employees to walk, bicycle, carpool, ride transit and telework rather than drive to work.
School & Campus Transport Management

Programs that encourage parents and students to use alternative modes to travel to schools, colleges and universities.
- Locate affordable housing in accessible areas (near services and jobs, walkable, public transit).
- Diverse, affordable housing options (secondary suites, rooms over shops, loft apartments).
- Reduced parking requirements and unbundle parking.
- Reduced property taxes and utility fees for clustered and infill housing.
Parking Management Strategies

- Share spaces, within a parking lot and between destinations
- Use of off-site parking, particularly for occasional overflow
- Reduced and more flexible requirements
- Regulate and price to prioritize use of the most convenient spaces
- Encouraging use of alternative modes, particularly during peak periods
- Improved walking conditions, to allow more convenient use of off-site parking facilities
- Improved user information, so travelers can determine their travel and parking options.
- Improved design of existing parking facilities
Smart Growth

- Compact (higher density)
- Mixed use
- Diverse housing types
- Connected roads
- Multi-modal
- Good walking and cycling conditions
- Good public transit services
- Efficient parking management
- Emphasis on the public realm (public places where people interact)
Freight Management

- Improve marine, truck and air transport services: integrated logistics.
- Encourage more efficient local delivery services.
- Reduce total goods volumes.
- Alternative freight fuels
Supported by Professional Organizations

International City/County Management Association

Institute of Transportation Engineers

American Planning Association

- American Public Health Assoc.
- Center for Disease Control
- Federal, state, regional and local planning agencies
- World Health Organization
- National Governor’s Association
- And much more...
“Transportation Affordability: Evaluation and Improvement Strategies”
“Evaluating Non-Motorized Transportation Benefits and Costs”
“Win-Win Transportation Emission Reduction Strategies”
“Smart Transportation Emission Reduction Strategies”
“Introduction to Multi-Modal Transport Planning”
“Evaluating Complete Streets”
“Online TDM Encyclopedia”
and more...

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