Mind the Gap:
From Policy to Implementation
Transport Solutions for Energy Reduction

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USDOT-FHWA Hawaii
22 July 2014

Legal & Policy Basis

• Federal
  • Complete streets; green infrastructure; active living; affordable housing access; asset management; sustainable communities

• State
  • Complete Streets (Act 54); Statewide Pedestrian Plan & Toolkit, Statewide Bike Plan; Strategic Highway Safety Plan

• Local:
  • Complete Streets; TODs; Bikeshare; …commuter benefits

• Metrics
  • Federal: Performance-based planning & programming
  • State: Aloha+Challenge
Bridging the Gap

**Transportation**
- Mode shift (non-construction)
- Completing network gaps
- Asset management
- Car/Bike Share

**Non-Infrastructure**
- Commuter benefits
- Telework/ Flex schedules
- Land use development decisions
- Innovative partnerships
- Energy sources

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**Funding Options**

Support system operations and maintenance

- **Current:**
  - Highway Trust Fund – motor fuel taxes

- **Future??**
  - **ORDOT:** Pay-Per-Mile ($0.0156/ mile on system)
    - Flexible – odometer, GPS, vehicle weight, time of day, combination
    - Road damage
  - **Olympia WA:** Utility tax for Parks & Sidewalks
    - 1% of 3% increase for sidewalk construction & maintenance
Transportation

Mode Shift

• Bike/ Ped
  • King Street Cycle Track
  • Bike Plan implementation

• Transit
  • Smart Cards

• Car & Bike Share

www.switchmytrip.org
Mode Shift - Like Lays Potato Chips*

* You can't have just one.

Nonmotorized Transportation Pilot Program (FHWA)

Modeshare shift outcomes:

- **Access & Mobility**
  - Demonstrates how bike/ped infrastructure & programs increase rates of walking and bicycling.

- **Environment & Energy**
  - Reduced GHG emissions and criteria air pollution

- **Safety**
  - Based on exposure estimates
  - Assess fatality & injury data
  - Overall trip-making context

- **Public Health**
  - WHO's Health Economic Assessment Tool (HEAT) model
  - Estimates economic benefits of improved public health.

www.fhwa.dot.gov/environment/bicycle_pedestrian/ntpp
Complete Streets

• Connectivity
  • More direct routes for pedestrians, bicyclists, and transit.
  • Shorter travel distances.
  • Reduced vehicle miles of travel.
  • Reduced traffic congestion on arterials and collectors.
  • Greater emergency vehicle access; reduced response times.
  • Easier maintenance.
  • Improved utility connections; more efficient trash pick up.

• Virginia Secondary Street Acceptance Requirements:
  www.virginiadot.org/projects/vssar/default.asp

Asset Management

• Completing the last mile
  • Bike/ Ped
  • Highway
  • Intermodal Connections

• Freight/ Intermodal Planning

• Maintaining the existing system

• Future Needs
BikeShare Honolulu

- Downtown to Waikiki (+ UH-Manoa)
- 141-183 stations
- 1,430-1,676 bikes for initial roll out

Projected Benefits - Initial Phase

<table>
<thead>
<tr>
<th>Benefit</th>
<th>Metric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health</td>
<td>141-173 M calories</td>
</tr>
<tr>
<td></td>
<td>45,000 # of fat</td>
</tr>
<tr>
<td></td>
<td>burned each year</td>
</tr>
<tr>
<td></td>
<td>566-692,000</td>
</tr>
<tr>
<td></td>
<td>hamburgers burnt annually</td>
</tr>
<tr>
<td>Environmental/</td>
<td>4.3 M miles</td>
</tr>
<tr>
<td>Energy</td>
<td>potential annual VMT savings</td>
</tr>
<tr>
<td></td>
<td>3.9-4.3 M</td>
</tr>
<tr>
<td></td>
<td>estimated pounds of carbon saved annually</td>
</tr>
<tr>
<td>Economic</td>
<td>33-36 jobs</td>
</tr>
<tr>
<td></td>
<td>new jobs created directly by bike share operations</td>
</tr>
<tr>
<td></td>
<td>$195-$255,000</td>
</tr>
<tr>
<td></td>
<td>net increase in retail spending near stations (conservative estimate)</td>
</tr>
<tr>
<td></td>
<td>$2.5 M</td>
</tr>
<tr>
<td></td>
<td>potential annual savings from reduced driving</td>
</tr>
</tbody>
</table>
NGV Benefits
- Cost advantage over petroleum
- CNG can refuel at home
- CNG 20% less C intensive

NGV Challenges
- Substantial infrastructure investment
- Limited vehicle fleet – underpowered, less cargo space
- 4-7% Max reduction of CO2 overall

Shift of revenue sources needed to replace MF taxes.
Vehicle Fuel Economy

Adjusted Fuel Economy:
- sticker values,
- ~80% of values from laboratory tests,
- accounts for real-world performance.

(U.S. EPA)

Innovations

- Hawaii Island Transit (Hele-On)
- Recommendations

<table>
<thead>
<tr>
<th>Technology Name</th>
<th>Selected Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automatic Vehicle Location (AVL)</td>
<td>Vehicle fuel efficiency; safety/security.</td>
</tr>
<tr>
<td>Computer automated Scheduling &amp; Dispatch (CASD) Software</td>
<td>Operational efficiency; reporting/report keeping</td>
</tr>
<tr>
<td>Geographic Information Systems (GIS)</td>
<td>Planning/scheduling; maps</td>
</tr>
<tr>
<td>Mobile Data Terminals (MDTs)</td>
<td>Vehicle status information; reliable communication</td>
</tr>
<tr>
<td>Electronic Fare Payment (EFP)</td>
<td>Ridership data collection; ease of fare collection; passenger convenience</td>
</tr>
<tr>
<td>Traveler Information Systems (TIS)</td>
<td>Passenger convenience</td>
</tr>
<tr>
<td>Google Transit</td>
<td>Passenger convenience; live updates can be incorporated</td>
</tr>
</tbody>
</table>

Public-Private Partnering

<table>
<thead>
<tr>
<th>Key Partners</th>
<th>Key Activities</th>
<th>Value Propositions</th>
<th>Customer Relationships</th>
<th>Customer Segments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value Driven Investors Independent Taxi Companies Transit Authority</td>
<td>Acquiring funding &amp; private investment Platform, database, account development GPS calibration &amp; coordination Application software development</td>
<td>Connectivity, community, networking potential Reduced cost of individual travel Carpool, engagement is friendly, safe, personalized, flexible</td>
<td>Same-side network effect</td>
<td>Countywide commuters Employers Advertisers and Marketers Tourists</td>
</tr>
<tr>
<td></td>
<td>Marketing &amp; outreach</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cost Structure Development phase (GPS, ridematch platform, tech support, marketing) Regional transit authority, consolidation/ administration Cost of driving (gas, maintenance)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Key Resources Technology, infrastructure Ridesharing Community Mobile phones, tablets, Cloud-based support</td>
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</tbody>
</table>

Figure 7-2: Public–Private Partnership Rideshare Network Business Model

Land Use Development

- **HUD & USDOT Tools:**
  - Location Affordability Portal [www.locationaffordability.info](http://www.locationaffordability.info)

- **TODs - Local Planning**
  - HART corridor
Commuter Benefits ...

- Have been around since 1992
- Part of the IRS tax code (Section 132(f)) - allows use of tax-free dollars to pay for transit commuting
- Easy to administer
- Flexible:
  - Pre-tax (employer and employee save)
  - Subsidy (employer pays it tax-free but gets to offer a great benefit at low cost),
  - Combination, not to exceed $130/month.

Benefits...
- Supports clean transportation choices
- Reduces energy consumed for transportation
- Reduce emissions of greenhouse gases and other air pollutants
- Decrease traffic congestion

Commuter Benefits

- Since 2008, are currently operational in:
  - San Francisco, Richmond, CA, Berkeley, CA, and San Mateo County, as well an umbrella one for the 9-county Bay Area
  - Washington State
  - Maryland State
  - Being considered in New York City (37 of 52 councilmembers favor)
  - Federal government-wide
- Could benefit Hawaii/Honolulu
Commuter Benefits

- Telework
- Alternate/ Flexible Work Schedules
- Transportation Benefits
  - Transit
  - Carpool/ vanpool
  - Bike/ped
- Services
  - Smart cards – electronic fare
  - Employer car & vanpool connect

Public Outreach
SF Benefit Program Results

- Emissions reduction calculations from surveys of 4,000 employers:

<table>
<thead>
<tr>
<th>Benefit Program Participants</th>
<th>90,723</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Commute Distance</td>
<td>16 miles one-way</td>
</tr>
<tr>
<td>Average Daily VMT Reduction</td>
<td>2,903,136 miles</td>
</tr>
<tr>
<td>Average Daily Gallons of Gas Saved</td>
<td>123,538</td>
</tr>
<tr>
<td>Total Daily Reduction in CO2</td>
<td>1,098 metric tons</td>
</tr>
<tr>
<td>Total Annual Reduction in CO2</td>
<td>286,547 metric tons</td>
</tr>
</tbody>
</table>

San Francisco & Honolulu

SAN FRANCISCO
- Transit infrastructure (BART, Caltrain, Muni)
- Bikeshare and bike infrastructure
- Other modes of clean transportation
- Sustainability goals, plans, and policies
- High density of business of all sizes

HONOLULU
- Transit infrastructure (TheBus, HART, shuttles)
- Planned bikeshare & bike infrastructure
- Hawaii Clean Energy Initiative, TOD goals, Aloha+ Challenge
- High density of small businesses
Culture Change

- From reluctance to a way of life.
  - Education
  - Practice Practice Practice

- Leverage Points/ ROI:
  - Performance-based planning and programming
  - Aloha+Challenge

**There is no one silver bullet.** It takes a village of options.
Next Steps

- Identify who needs to be part of this discussion
- Coordinate existing material from other state/city programs/initiatives
- Gather related Hawaii/Honolulu information
- Identify what components of these may work best in Hawaii/Honolulu

Mahalo nui loa.

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Presentation Resource Links

- FHWA Nonmotorized Transportation Pilot Program: www.fhwa.dot.gov/environment/bicycle_pedestrian/ntpp
- Complete Streets Hawaii: http://honoahawaiiactories.org/vmt-reduction/complete-streets/
- FHWA Asset Management: http://www.fhwa.dot.gov/asset/
- USDOT & HUD Location Affordability Portal: www.locationaffordability.info
- Honolulu Transit Oriented Development (TODs): http://www.honolulu.gov/tod.html
- San Francisco Commuter Benefits Program: http://sfenvironment.org/transportation/sustainable-commuting-programs/commuter-benefits