20 Minutes

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20 Minute Commute Goals

• Aiea to downtown in 20 minutes!
• Hawaii Kai to downtown in 20 minutes!
• Kapolei to downtown in 20 minutes!
• UH-Manoa to Kailua in 20 minutes!
• Waikele or Waipio to downtown in 20 minutes in a bus!

Are These In 1982? NO! 2022
Yes: People – Bedrooms – Utilities – Schools – Parks

No: Jobs – Roads

Huge dependence on Honolulu

Honolulu is most lane deficient metro

Commuter nightmare

Kapolei, Ewa, Makakilo
Waianae coast
Mililani
Wahiawa
<table>
<thead>
<tr>
<th>Rank</th>
<th>Urbanized Area Name</th>
<th>Location</th>
<th>Miles of Total Traffic Per 1,000 Persons</th>
<th>Total DVMT Per Capita</th>
<th>Average Daily Traffic/Freeway Lane</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Houston</td>
<td>TX</td>
<td>6.1</td>
<td>37.6</td>
<td>18,174</td>
</tr>
<tr>
<td>2</td>
<td>Atlanta</td>
<td>GA</td>
<td>4.7</td>
<td>35.6</td>
<td>19,031</td>
</tr>
<tr>
<td>3</td>
<td>Birmingham</td>
<td>AL</td>
<td>6.9</td>
<td>34.8</td>
<td>12,847</td>
</tr>
<tr>
<td>4</td>
<td>Nashville</td>
<td>TN</td>
<td>4.4</td>
<td>34.3</td>
<td>13,763</td>
</tr>
<tr>
<td>5</td>
<td>Indianapolis</td>
<td>IN</td>
<td>4.7</td>
<td>33.6</td>
<td>16,911</td>
</tr>
<tr>
<td>6</td>
<td>Austin</td>
<td>TX</td>
<td>5.2</td>
<td>32.9</td>
<td>16,424</td>
</tr>
<tr>
<td>46</td>
<td>Los Angeles</td>
<td>CA</td>
<td>2.1</td>
<td>22.2</td>
<td>23,123</td>
</tr>
<tr>
<td>65</td>
<td>Philadelphia</td>
<td>PA</td>
<td>3.1</td>
<td>18.4</td>
<td>14,656</td>
</tr>
<tr>
<td>66</td>
<td>Honolulu</td>
<td>HI</td>
<td>1.5</td>
<td>16.8</td>
<td>14,014</td>
</tr>
<tr>
<td>67</td>
<td>New York-Northeastern NJ</td>
<td>NY</td>
<td>2.2</td>
<td>15.7</td>
<td>15,329</td>
</tr>
<tr>
<td>68</td>
<td>New Orleans</td>
<td>LA</td>
<td>3.1</td>
<td>14.4</td>
<td>13,478</td>
</tr>
<tr>
<td>69</td>
<td>San Juan</td>
<td>PR</td>
<td>2.2</td>
<td>13.4</td>
<td>15,557</td>
</tr>
</tbody>
</table>

Source: Highway Statistics, 2002
The Washington Post complains that they got the Bronze medal in freeway traffic congestion. Look who got the Silver...
Commuter Characteristics

- High Carpooling Rate
- High Drop-off Rate
- High Multi-job Rate
- School & Work (UH is commuter school)
- Tourists: Rentals, Vans, Buses
- Business, Deliveries, Repairs
- Consistent Bus Rider Drop

Least suitable mobility option?

Fixed Guideway Mass Transit
ANNUAL PASSENGERS PER BUS


The Unproductive The Bus

160,000 180,000 200,000

100,000 120,000 140,000 160,000 180,000 200,000
Current Public Sentiment (KHON 1.18.2010)

How should the city and state proceed with the rail transit project?

- Elevated as planned (23.0%)
- At ground level (1.1%)
- Mix of above and at ground level (10.1%)
- Scrap the whole thing (65.8%)

Hannemann’s biggest margin of loss, 25.4% came in Honolulu: 35.8% vs. Abercrombie’s 61.2%
(Hawaii 9/10 Primary Elections)
Smart transportation investment builds on existing travel behavior: Express bus, van- & car-pools ➔ HOT lanes

**FIGURE 3-34** Drive Alone Shares by State, 2000

*Note: States appear in alphabetical order.*
## Real Solutions

<table>
<thead>
<tr>
<th>IMMEDIATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1 to 4 years)</td>
</tr>
<tr>
<td>1. Pearl Harbor Ferry</td>
</tr>
<tr>
<td>2. Underpasses</td>
</tr>
<tr>
<td>3. Nimitz Viaduct (~20% of HOT Lanes)</td>
</tr>
<tr>
<td>4. Traffic Signal Optimization</td>
</tr>
<tr>
<td>5. In-town BRT</td>
</tr>
<tr>
<td>6. Middle St. merge fix</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LONGER TERM</th>
</tr>
</thead>
<tbody>
<tr>
<td>(5 to 12 years)</td>
</tr>
<tr>
<td>1. 10 mi. HOT Lanes</td>
</tr>
<tr>
<td>2. Alexander to Pali tunnel</td>
</tr>
<tr>
<td>3. Complete Plan for ORL Light Rail</td>
</tr>
<tr>
<td>4. Pearl Harbor ferry and cut-and-cover tunnel thru airport</td>
</tr>
</tbody>
</table>

See Sample Solutions ...
The 3-lane choker is replaced by a 4-lane segment. The additional lane terminates as a second exit lane at Vineyard Blvd.

An auxiliary lane begins at the Palama viaduct before Liliha St. on-ramp and terminates at the Pali Hwy. off-ramp.

(1) Middle St. Merge Fix
(2) Pearl Harbor Ferry
Waiting to get on the Pearl Harbor Ferry
Pearl Harbor Ferry Route

Monitor-Merrimac Memorial Bridge-Tunnel (I-664), looking north, Newport News, VA

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Mode of Transportation</th>
<th>Time (minutes)</th>
<th>% Improvement from existing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing conditions</td>
<td>Car on H-1, Nimitz</td>
<td>65.0</td>
<td>none; this is the base case</td>
</tr>
<tr>
<td>Ferry</td>
<td>Car on Ferry, Lagoon Dr., Nimitz</td>
<td>36.6</td>
<td>-44%</td>
</tr>
<tr>
<td></td>
<td>Car on H-1, Nimitz</td>
<td>62.9</td>
<td>-3%</td>
</tr>
<tr>
<td>Tunnel</td>
<td>Car through tunnel, Lagoon Dr., Nimitz Viaduct</td>
<td>10.6</td>
<td>-84%</td>
</tr>
<tr>
<td></td>
<td>Car on H-1, Nimitz</td>
<td>40.3</td>
<td>-38%</td>
</tr>
</tbody>
</table>
(3) Pali and Vineyard → now
Pali and Vineyard ➔ underpass
(4) Nimitz Viaduct: 3→2 Lane HOT @ Waikamilo
HOT Lanes end on Nimitz Hwy.
Bus viaduct to bus-only Hotel St.
A 5 second reduction in the average stopped time results in:
- 7,000,000 gallons of fuel reduction per year
- equal to removal of 14,000 cars from traffic
- Much quicker trips
(6) UH to town BRT on King and Beretania anchored at Hotel Street Transit Mall
(7) Reversible HOT Lanes
HOT Lanes and Buses

- Buses and Vanpools Go Free!
- Cars Pay Toll to Use HOT Lanes
- All Travel at 60 mph
Express bus, and vanpool on the REL

REL = Reversible Express Lanes
REL: 100 buses, 400 vanpools, 5000 cars = 12,000 people, seated
Rail: 20 x 300 = 6,000 people (majority are standees)
Where did the ugly double-decker go?
FIGG Bridge design for Birmingham, AL
4 lanes + 4 shoulders!
(8) Pali to UH Tunnels

New Paris A86 tunnel under Versailles (2 meter limit)

Also considered for LA
Secret Scenario 2: Medium Express Tunnel
Two lanes per direction, 2.1 miles
Access at Bingham St., Alexander St., Pali Hwy., Vineyard Blvd., University Ave.
Note: tunnel, transition and surface link
(9) Light Rail Projects

1. Wiki-Wiki replacement; internal and external to Airport (tramway or pods)
2. Airport to downtown via Hart Street or on the sides of Nimitz Viaduct (pods)
3. Oahu Railway & Land (ORL) restoration – Waianae to Airport (40 ft ROW for light rail)
SkyTran will change how people commute as profoundly as how PCs changed the way people compute.
SO... ARE THESE POSSIBLE?

• Aiea to downtown in 20 minutes!
• Hawaii Kai to downtown in 20 minutes!
• Kapolei to downtown in 20 minutes!
• UH-Manoa to Kailua in 20 minutes!
• Waikele or Waipio to downtown in 20 minutes in a bus!

YES!
HOT Lane Advantages

Those who pay the toll receive congestion insurance.
Waikele to Alakea St. in 12 min.
Boosts express buses, vanpools, carpools.
Those who stay on H-1 get free congestion reduction.
Very large travel time, energy, pollution savings.
Utility corridor and fast emergency response.
Emergency detour.
Resilience/Recovery backbone.
$\frac{1}{3}$ the cost of 20 mi heavy rail.