Big Data and Transportation Planning

CASE STUDIES, CONSIDERATIONS, AND CONSEQUENCES

DREW STIEHL
MURP '15
BOULDER COUNTY TRANSPORTATION
What’s inside your smartphone?
Turns out, a lot

Important things:

- A-GPS: derives your location using a clock, relativity, at least 3 satellites, wifi, and bluetooth
- Gyroscope: detects very precise changes in movement and direction
- Accelerometer: tracks changes in speed
What does your smartphone know about you?
Turns out, a lot

Important things:
- Your location (as long as it’s on your person)
- Changes in speed, direction
- Frequent/favorite locations (e.g. work, home, school, favorite bars/restaurants)
- State of your health
- Which websites you like to go to
What can we use this data for?
What's Street Bump?

Street Bump is a crowd-sourcing project that helps residents improve their neighborhood streets. Volunteers use the Street Bump mobile app to collect road condition data while they drive. The data provides governments with real-time information to fix problems and plan long term investments.

Number and location of pot holes
Distance, speed, and elevation gain of bicycle trips.
Race others, or yourself!

Data cost: roughly $0.80 per user
Steamboat Springs, CO

Low(er) density, actual canyon effects $\rightarrow$ low accuracy
Apprx. 1.4 million origin-destination points generated from cell phone movements within the region over a 30-day period.
Contracts start ~$10k, but can be as low as $3500 depending on the sample size
Can’t control your data collection? Collect it yourself!
PROS vs CONS

- Terrabytes of data, obtained quickly
- Relatively cheap data, compared to other data collection techniques
- More complete understanding of travel patterns, “do-it-yourself” sampling
- More data = more power! …

CONS

- Can you store this much data? Can you do it securely? Both have associated costs
- Expensive “entry”, e.g. data storage, legal costs, public processes, etc.
- Dubious validity with selective sampling
- But correlation & causation become very muddy with too much data. Sampling is still necessary
THANK YOU

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Multimodal Division Intern
MURP ’15

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Electric Vehicles in Colorado: It’s not your Dad’s Olds

APA Colorado State Conference
October 2015
What are EVs
The Fritchle

One hundred miles on a single charge! Engineer Oliver Fritchle built about 500 electric cars in Denver between 1905 and 1920. Two Fritchles delivered goods for the Daniels & Fisher department store in the 1910s. Molly Brown drove one too.

Fritchle made his batteries and most of the car parts in his factory on the corner of Colfax and Clarkson in what’s now the Fillmore Auditorium. He got national attention by driving one of his cars from Nebraska to New York. He opened sales offices in Salt Lake City, Los Angeles, and New York City.
Owned by Denver’s most prominent families
Hydro-electric powered charging stations
THE ELECTRIC CAR BOOMLET

THE FIRST ELECTRIC CAR DATES BACK TO 1891
But it had only four horsepower, and topped out at 20 mph.

IT WASN'T UNTIL 2010
THAT THE FIRST MASS-PRODUCED, FULLY ELECTRIC CARS WERE MADE WIDELY AVAILABLE IN THE U.S.
The Nissan Leaf boasted 107 horsepower and a top speed of about 90 mph.

AS GAS PRICES ROSE...
$3.49
$1.56
2003
2013

...SO DID SALES OF U.S. PLUG-IN HYBRID AND ELECTRIC CARS

17,813
53,172

96,050
2011
2012
2013

THE U.S. AUTO MARKET NOW HAS AT LEAST 16 ELECTRIC MODELS, INCLUDING...

MITSUBISHI-MIEV
MSRP: $22,995
Range: 62 miles
Top speed: 80 mph

FOCUS ELECTRIC
MSRP: $35,170
Range: 76 miles
Top speed: 64 mph

TESLA S
MSRP: $66,900
Range: 208 miles
Top speed: 120 mph

But this was less than 1 percent of all U.S. vehicle sales.
Quick charge for all types of electric vehicles

First mobile charging unit in Colorado!

Electric vehicle mobile charging unit

Level I charge of 240V at 30 Amps

Ask us about: Conventional, Monthly Payment Options, Mobile battery service, Recycle roadside assistance, Travel deals, Insurance discounts

This truck runs on compressed natural gas

AAA Colorado

800-AAA-HELP
Colorado EV ownership

*per 1,000 residents

- Jefferson: 0.8
- Boulder: 1.4
- Denver: 0.6
- Arapahoe: 0.6
- Douglas: 1.0
- El Paso: 0.4
- Larimer: 0.7
- Adams: 0.4
- Weld: 0.4
- Broomfield: 0.9
- California: 2.6

*per 1,000 residents
How do you charge them?
76% of commuters travel less than 40 miles round-trip!

- Under 40 miles: 29%
- Under 20 miles: 47%
- Under 60 miles: 13%
- Under 100 miles: 9%
- Over 100 miles: 2%

2005 the US Dept. Of Commerce American Housing Survey for the United States
RESERVED PARKING

FREE EV CHARGING!

Electric Vehicle (EV) Charging at this station is currently FREE with paid admittance to the garage.

- Compliments of the City & County of Denver
LEVEL 3 QUICK CHARGER

LEVEL 3 DC QUICK CHARGING at this station is currently FREE with paid garage admittance.

LEVEL 3 QUICK CHARGING is for Short-Term parking guests with CHAdeMO vehicle connectors.

Charging Time Limits:
5 am to 5 pm = 2 hrs.
5 pm to 5 am = 4 hrs.

Please Be Courious of Your Time at this Charger
NOW 200,000+ WIRELESS CHARGING HOURS AT HOMES AND BUSINESSES IN THE USA AND CANADA
NAMED BEST OF WHAT’S NEW 2014
by Popular Science Magazine
## Plug In Electric Vehicle Battery Sizes

<table>
<thead>
<tr>
<th>Car Type</th>
<th>kWh Battery</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toyota Prius</td>
<td>4.4</td>
<td>11 miles</td>
</tr>
<tr>
<td>C-max Energi</td>
<td>7.6</td>
<td>21 miles</td>
</tr>
<tr>
<td>Chevy Volt</td>
<td>16</td>
<td>38 miles</td>
</tr>
<tr>
<td>BMW i3</td>
<td>22</td>
<td>80 miles</td>
</tr>
<tr>
<td>Ford Focus</td>
<td>23</td>
<td>76 miles</td>
</tr>
<tr>
<td>Nissan Leaf</td>
<td>24</td>
<td>75 miles</td>
</tr>
<tr>
<td>Tesla S</td>
<td>54</td>
<td>208 miles</td>
</tr>
</tbody>
</table>

## Charging Levels and Ranges

- **Level 1** = 5-9 miles of range per hour of charging
- **Level 2** = 10-15 miles of range per hour of charging
- **Level 3** = 60-70 miles of range per half hour of charging
What do they mean for CO’s economy?
Apple Targets Electric-Car Shipping Date for 2019
Car center of the universe changing

Detroit ➡️ Silicon Valley
In 2012, the average salary for a software developer was nearly **$90,000** and has risen every year since 2000.

**APPLICATION DEVELOPERS**
- Average more than $82,000 per year
- 28% increase in jobs by 2020
- To more than 691,000 total jobs

**SYSTEMS DEVELOPERS**
- Average more than $100,000 per year
- 32% increase in jobs by 2020
- To more than 500,000 total jobs

**2013 IS A GOOD TIME TO BE A SOFTWARE DEVELOPER.**

This infographic is brought to you by Covestro, makers of the industry’s leading...
What do they mean for GHG?
The Path to 2050

The combined efforts of local transportation strategies and federal fleet efficiency standard improvements can have a significant impact in reducing the emissions generated by the transportation sector.

2005

2050

Remaining Emissions from Mobility

- 73,000mt

Transportation Master Plan Actions

- 120,000mt

Federal Efficiency Standards

- 125,000mt

Electric Vehicle & Other Innovations

Total Projected Emissions Reduction = 318,000mt or 16%
How ‘green’ are electric cars?
The cars themselves give off no emissions, so they are vastly cleaner than carbon-dioxide-spewing, gas-powered vehicles. But the question gets complicated when you consider the source of electric cars’ energy. A recent MIT study found that electric cars charged in states with strong nuclear or renewable energy sources are indeed greener than normal cars, but those in states that rely on coal plants can be worse for the environment than gas-powered vehicles. There is also the question of how to recycle the dead lithium-ion batteries, which, though containing none of the caustic chemicals of conventional car batteries, can weigh hundreds of pounds and aren’t suitable for landfills on a large scale.
EV recycling market is just emerging
What's that Spot? Identifying Common Engine Fluids on the Ground

Here are six fluids that are likely to end up on your driveway, and how to recognize them:

- Light Brown to Black: Engine Oil
- Reddish and Thin or Brown and Thick: Transmission Fluid
- Reddish or Light Brown and Thin: Power Steering Fluid
- Clear to Brown and Slick: Brake Fluid
- Yellow, Green, or Pink and Slimy: Coolant
- Clear, Thin: Water

Less to leak over time and during crashes
SILENT OIL SPILLS ANNUALLY
USED MOTOR OIL LOST IN USE, ILLEGALLY DUMPED, AND BURNED AS FUEL.

10 BILLION GALLONS

ACCIDENTAL OIL SPILLS 1901-2013

2.7 BILLION GALLONS

Lowers the “silent oil” spill
What is the government doing?
Get a Big IRS Tax Break for Your Business When You Buy a Qualifying New Ford Truck, Van or SUV by **December 31, 2010**. Look inside for details.

**Depreciation**

**Election To Expense Certain Property Under Section 179**

*Note: If you have any listed property, complete Part V before you*...

Drive one.

ThinkFordNow.com
Sad but still true...
Making the Cleanest Cars Affordable

EFMP® Plus-Up is helping low-income families save money with fuel-efficient and ultra-clean cars

**STEP 1**
Where do you live?

The pilot program is available in the South Coast Air Quality Management District & San Joaquin Valley Air Pollution Control District.

**STEP 2**
Scrap your old vehicle.

Turn in your dirty old vehicle. (Check with your Air District for eligibility requirements.)

**STEP 3**
What type of vehicle are you interested in?

<table>
<thead>
<tr>
<th>Eligible vehicles must be less than 8 years old.</th>
<th>Hybrid 20 MPG+</th>
<th>Hybrid 35 MPG+</th>
<th>Plug-in Hybrid</th>
<th>EV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Income ≤ 225% of the federal poverty level</td>
<td>$6,500</td>
<td>$7,000</td>
<td>$9,500 + $1,500**</td>
<td>$9,500 + $2,500**</td>
</tr>
<tr>
<td>Moderate Income 226% - 300% of federal poverty level</td>
<td>$5,000</td>
<td>$7,500 + $1,500**</td>
<td>$7,500 + $2,500**</td>
<td></td>
</tr>
<tr>
<td>Above Moderate Income 301% - 400% of federal poverty level</td>
<td>$5,500 + $1,500**</td>
<td>$5,500 + $2,500**</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Enhanced Fleet Modernization Program
**Clean Vehicle Rebate Project for new vehicle purchases
vehicle miles traveled

estimating and forecasting
VMT 101

[traffic volume] \times [roadway length] = VMT
why is VMT useful

• performance monitoring indicator
  – amount of driving
  – mode share
  – GHG and other vehicle emissions
  – roadway capacity

• track trends

• compare to other locations
national VMT trends

source: State Smart Transportation Initiative (FHWA and Census Bureau data)
western states 2006-2012

VMT

US  CO  ID  MT  WY
-2% -4% +7% +6% -2%

VMT per capita

US  CO  ID  MT  WY
-6% -6% -1% -1% -8%

Source: FHWA and US Census Bureau
measuring VMT

SIR, I'M GOING TO NEED TO LOOK AT YOUR ODOMETER SO I CAN TAX YOU FOR DRIVING.

image credit: flashreport.org
define area being measured

corridor

internal

attributable
polygon model

\[
\text{miles of street} \times \text{traffic volume} = \text{vmt}
\]

\[(\text{GIS}) \times (\text{counts})\]

- biased toward higher volume streets
- does not account for external travel
- includes pass-through traffic
- good reality check
- provides no analytics (trip purpose, traveler type, etc.)
activity model

\[
\text{vehicle trips} \times \text{trip length} = \text{vmt}
\]

(survey data)  (survey data)

• aggregated from behavioral data
• draws from studies
• combined with demographic data
• supports estimation of external travel
• provides some data on trip purpose, traveler type
• provides some data on seasonality
case study: Teton County, WY

internal
*person miles of travel
VMT by group

population

resident → dwelling units

visitor → lodging units

in-commuter → census data
VMT by group

season

winter

summer

shoulder

occupancy rate

trip length
2013 Countywide VMT
(estimated average daily vehicle miles traveled - thousands)

(thousands of miles)

- Residential
- Commuter
- Visitor

<table>
<thead>
<tr>
<th>Season</th>
<th>Residential</th>
<th>Commuter</th>
<th>Visitor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Winter</td>
<td>537</td>
<td>102</td>
<td>461</td>
</tr>
<tr>
<td>Summer</td>
<td>663</td>
<td>102</td>
<td>1,189</td>
</tr>
<tr>
<td>Shoulder</td>
<td>484</td>
<td>102</td>
<td>887</td>
</tr>
<tr>
<td>Annual</td>
<td>561</td>
<td>102</td>
<td>651</td>
</tr>
</tbody>
</table>
forecasting VMT

**baseline scenario:** no change in travel behavior

**plan scenario:** 5% mode shift from SOV

<table>
<thead>
<tr>
<th>Mode Share (of total annual trips)</th>
<th>2013</th>
<th>2024</th>
<th>2035</th>
<th>2024</th>
<th>2035</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOV (single occupant vehicle)</td>
<td>54%</td>
<td>54%</td>
<td>54%</td>
<td>51%</td>
<td>48%</td>
</tr>
<tr>
<td>MOA (multiple occupant auto)</td>
<td>29%</td>
<td>29%</td>
<td>29%</td>
<td>29%</td>
<td>29%</td>
</tr>
<tr>
<td>Walk</td>
<td>9%</td>
<td>9%</td>
<td>9%</td>
<td>10%</td>
<td>11%</td>
</tr>
<tr>
<td>Bicycle</td>
<td>7%</td>
<td>7%</td>
<td>7%</td>
<td>8%</td>
<td>9%</td>
</tr>
<tr>
<td>Transit</td>
<td>1%</td>
<td>1%</td>
<td>1%</td>
<td>2%</td>
<td>3%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Base Year</th>
<th>Baseline Scenario</th>
<th>Plan Scenario</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual vehicle miles traveled (VMT)</td>
<td>480 million</td>
<td>550 million</td>
<td>610 million</td>
</tr>
<tr>
<td>% Growth in VMT from 2013</td>
<td>-</td>
<td>14%</td>
<td>28%</td>
</tr>
<tr>
<td>Annual transit ridership</td>
<td>0.9 million</td>
<td>1.1 million</td>
<td>1.2 million</td>
</tr>
</tbody>
</table>
informing cost estimates

<table>
<thead>
<tr>
<th>Plan Scenario</th>
<th>2013</th>
<th>2018</th>
<th>2024</th>
<th>2035</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Assumptions</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annual ridership</td>
<td>899,318</td>
<td>1,259,045</td>
<td>1,798,636</td>
<td>3,597,272</td>
</tr>
<tr>
<td>Annual bus revenue hours</td>
<td>39,731</td>
<td>55,623</td>
<td>79,461</td>
<td>158,922</td>
</tr>
<tr>
<td>Bus fleet size</td>
<td>30</td>
<td>42</td>
<td>60</td>
<td>120</td>
</tr>
<tr>
<td>Farebox revenue (23% of O&amp;M)</td>
<td>$674,399</td>
<td>$944,158.33</td>
<td>$1,348,798</td>
<td>$2,697,595</td>
</tr>
<tr>
<td><strong>Cost Estimates</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operation and maintenance (O&amp;M) cost</td>
<td>$2,913,229</td>
<td>$4,369,843</td>
<td>$6,554,765</td>
<td>$14,566,145</td>
</tr>
<tr>
<td>Capital cost - bus fleet replacement</td>
<td>$750,000</td>
<td>$1,125,000</td>
<td>$1,687,500</td>
<td>$3,750,000</td>
</tr>
<tr>
<td>Capital cost - other</td>
<td>$600,000</td>
<td>$840,000</td>
<td>$1,200,000</td>
<td>$2,400,000</td>
</tr>
<tr>
<td>Capital cost - transit facility completion*</td>
<td>$30,000,000*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total cost (O&amp;M + capital)</td>
<td>$4,263,229</td>
<td>$6,334,843</td>
<td>$9,442,265</td>
<td>$20,716,145</td>
</tr>
<tr>
<td>Total cost (O&amp;M + capital) less revenue</td>
<td>$3,588,830</td>
<td>$5,390,685</td>
<td>$8,093,468</td>
<td>$18,018,550</td>
</tr>
</tbody>
</table>
monitoring VMT overtime
case study: Aspen, CO

attributable
<table>
<thead>
<tr>
<th>Resident</th>
<th>Effective Population</th>
<th>SOV Mode Share</th>
<th>MOA Mode Share</th>
<th>MOA Vehicle Occ.</th>
<th>Daily Trips</th>
<th>Trip Length</th>
<th>SOV VMT</th>
<th>MOA VMT</th>
<th>Daily VMT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residents</td>
<td>7,792</td>
<td>29%</td>
<td>18%</td>
<td>2.6</td>
<td>3.7</td>
<td>3.8</td>
<td>31,911</td>
<td>7,503</td>
<td>39,414</td>
</tr>
<tr>
<td>Commuters</td>
<td>5,821</td>
<td>45%</td>
<td>13%</td>
<td>2.5</td>
<td>3.3</td>
<td>4.5</td>
<td>39,588</td>
<td>4,379</td>
<td>43,967</td>
</tr>
<tr>
<td>RFV Visitors</td>
<td>2,386</td>
<td>39%</td>
<td>20%</td>
<td>2.6</td>
<td>3.7</td>
<td>4.5</td>
<td>15,434</td>
<td>3,062</td>
<td>18,496</td>
</tr>
<tr>
<td>Other Visitors</td>
<td>12,885</td>
<td>15%</td>
<td>59%</td>
<td>2.6</td>
<td>3.7</td>
<td>4.5</td>
<td>32,456</td>
<td>48,445</td>
<td>80,901</td>
</tr>
</tbody>
</table>

Subtotals:
- 28,884

**TOTAL** 119,389 63,390 188,364
**Commuter Population**

<table>
<thead>
<tr>
<th>Description</th>
<th>Summer</th>
<th>Winter</th>
<th>Shoulder</th>
<th>Annual</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seasonal variation</td>
<td>-0.7%</td>
<td>12.0%</td>
<td>-11.3%</td>
<td>0.0%</td>
<td></td>
</tr>
<tr>
<td>Pitkin County workers</td>
<td>16,660</td>
<td>18,793</td>
<td>14,879</td>
<td>16,777</td>
<td>2013 American Community Survey Workers by Workplace Geography</td>
</tr>
<tr>
<td>% working in Aspen TAZ</td>
<td>78%</td>
<td>78%</td>
<td>78%</td>
<td>78%</td>
<td>2014 Regional Travel Patterns Survey</td>
</tr>
<tr>
<td>Aspen EIB workers</td>
<td>12,935</td>
<td>14,591</td>
<td>11,552</td>
<td>13,026</td>
<td></td>
</tr>
<tr>
<td>% commute</td>
<td>70%</td>
<td>70%</td>
<td>70%</td>
<td>70%</td>
<td>2014 Regional Travel Patterns Survey</td>
</tr>
<tr>
<td>Aspen EIB commuters</td>
<td>9,055</td>
<td>10,214</td>
<td>8,087</td>
<td>9,118</td>
<td></td>
</tr>
<tr>
<td>Days per week commuting</td>
<td>4.5</td>
<td>4.5</td>
<td>4.5</td>
<td>4.5</td>
<td>Estimate</td>
</tr>
<tr>
<td>Average daily commuters</td>
<td>5,821</td>
<td>6,566</td>
<td>5,199</td>
<td>5,862</td>
<td></td>
</tr>
</tbody>
</table>

**Commuter Mode Share**

- Aspen employee SOV: 36% Summer, 38% Winter, 2014 Regional Travel Patterns Study
- Aspen employee MOA: 10% Summer, 16% Winter, 2014 Regional Travel Patterns Study
- Aspen employee Bus: 35% Summer, 38% Winter, 2014 Regional Travel Patterns Study
- Aspen employee Walk/Bike: 20% Summer, 10% Winter, 2014 Regional Travel Patterns Study
- In-commute SOV: 45% Summer, 42% Winter, 44% 2013 American Community Survey Means of Transportation to Work by Workplace Geography (Aspen)
- In-commute MOA: 13% Summer, 18% Winter, 15% 2013 American Community Survey Means of Transportation to Work by Workplace Geography (Aspen)
- In-commute bus mode share: 44% Summer, 42% Winter, 43%

**Vehicle Occupancy of Carpool Trips**

- Average MOA vehicle occupancy (per trip per vehicle): 2.51 Summer, 2.51 Winter, 2.51 2013 American Community Survey Means of Transportation to Work by Workplace Geography (Aspen)

**Trip Rate**

- Average daily trips per person: 3.3 Summer, 3.3 Winter, 3.3 Assumed to be 90% of resident trip rate

**Trip Length**

- Trip length from EIB boundary to downtown Aspen: 5.0 Summer, 5.0 Winter, 5.0
- Average commute trips per commute day: 2.0 Summer, 2.0 Winter, 2.0
- Average Trip Length by Commuters in EIB: 4.5 Summer, 4.5 Winter, 4.5
by travel group

- non-local visitors (44%) 64m
- commuters (26%) 37m
- residents (16%) 23m
- local visitors* (9%) 13m
- large trucks 5% 8m
- RFTA buses (1%) 1.1m

*from Roaring Fork Valley outside Aspen
by season

- **summer**: (38%) 56m
- **winter**: (36%) 53m
- **shoulder**: (26%) 38m

summer = Jun - Sep
winter = Dec - Mar
shoulder = Apr - May & Oct - Nov
by vehicle and fuel type

<table>
<thead>
<tr>
<th>Vehicle Type</th>
<th>Fuel Type</th>
<th>Miles per Gallon</th>
<th>% of Total VMT</th>
<th>Annual VMT</th>
<th>Gallons of Fuel Consumed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Car (sedan, wagon, small SUV, crossover)</td>
<td>Gasoline</td>
<td>24.4</td>
<td>38.1%</td>
<td>55,791,068</td>
<td>2,287,611</td>
</tr>
<tr>
<td>Car (sedan, wagon, small SUV, crossover)</td>
<td>Diesel</td>
<td>25.0</td>
<td>0.4%</td>
<td>514,322</td>
<td>20,593</td>
</tr>
<tr>
<td>Car (sedan, wagon, small SUV, crossover)</td>
<td>Electric</td>
<td>n/a</td>
<td>0.03%</td>
<td>39,406</td>
<td>0</td>
</tr>
<tr>
<td>Truck (med/large SUV, pickup, van, minivan)</td>
<td>Gasoline</td>
<td>17.9</td>
<td>50.0%</td>
<td>73,273,931</td>
<td>4,082,787</td>
</tr>
<tr>
<td>Truck (med/large SUV, pickup, van, minivan)</td>
<td>Diesel</td>
<td>17.6</td>
<td>4.4%</td>
<td>6,518,415</td>
<td>370,400</td>
</tr>
<tr>
<td>Motorcycle</td>
<td>Gasoline</td>
<td>43.5</td>
<td>1.0%</td>
<td>1,508,814</td>
<td>34,650</td>
</tr>
<tr>
<td>RFTA Bus (standard)</td>
<td>B5 Biodiesel</td>
<td>4.3</td>
<td>0.6%</td>
<td>874,468</td>
<td>205,757</td>
</tr>
<tr>
<td>RFTA Bus (BRT)</td>
<td>CNG</td>
<td>5.8</td>
<td>0.1%</td>
<td>196,641</td>
<td>34,199</td>
</tr>
<tr>
<td>Single-Unit Truck (&amp; other bus)</td>
<td>Gasoline</td>
<td>7.3</td>
<td>0.4%</td>
<td>617,226</td>
<td>83,982</td>
</tr>
<tr>
<td>Single-Unit Truck (&amp; other bus)</td>
<td>Diesel</td>
<td>7.3</td>
<td>0.6%</td>
<td>837,532</td>
<td>113,958</td>
</tr>
<tr>
<td>Combination Truck (semi, tractor-trailer)</td>
<td>Diesel</td>
<td>5.8</td>
<td>4.4%</td>
<td>6,384,608</td>
<td>1,091,479</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>100%</td>
<td>146,556,433</td>
<td>8,325,416</td>
</tr>
</tbody>
</table>