TNCs Today:
A Profile of San Francisco Transportation Network Company Activity

2018 SF Bay Area ITE/ITS CA Joint Transportation Workshop
Purpose + Need

- TNCs very visually present
- Data exists, but not forthcoming
- Research Questions:
  - Number of vehicles
  - Number of trips
  - When and Where
  - VMT
  - Geographic Coverage
Data Collection + Methodology

- Data/Research Partnership with Northeastern University
  - Collected GPS data from Lyft/Uber APIs
  - Used data to estimate trips

- Limitations
  - Intra-SF only
  - Trip details are imputed
  - No info about travelers, chosen product, vehicle occupancy
Data Collection + Methodology
Data Collection + Methodology

- Create Uber and Lyft telemetry files
  - Group data by vehicle id
  - Remove duplicates
Data Collection + Methodology

- **Impute Trips**
  - Identify out-of-service segments and “gaps” in data
  - Calculate out-of-service attributes
  - Link related segments
  - Estimate Lyft in-service attributes
Data Collection + Methodology

- Match Uber and Lyft trips to each other
  - Route on OSM map
  - Match out-of-service segments
Data Collection + Methodology

- Estimate Uber in-service attributes
  - Develop flow matrix with Lyft data
  - IPF to match Uber origin and destination totals
  - Estimate trip distance from flows
How Many?

- How many TNCs operate in San Francisco Today?
  - 21,000 – 45,000 drivers (or more)
  - 29% live in SF
  - 10% live outside of Bay Area
  - 6,500 vehicles at busiest time

- How many TNC trips are occurring?
  - 170,000 trips on a typical day
  - 15% of intra-SF vehicle trips
When are TNC trips occurring?

Intra-SF TNC Trips by Day-of-Week

Intra-SF TNC Trips by Time-of-Day and Day-of-Week
Where are TNC trips occurring?
How many vehicle-miles traveled?

Intra-SF TNC & Taxi VMT by Day-of-Week

<table>
<thead>
<tr>
<th>Day</th>
<th>TNCs VMT</th>
<th>Taxi VMT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weekday</td>
<td>170,400</td>
<td>669,700</td>
</tr>
<tr>
<td>Saturday</td>
<td>14,400</td>
<td>65,900</td>
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</table>

Average Total Trip Length

<table>
<thead>
<tr>
<th>Mode</th>
<th>Average Total Trip Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>TNCs</td>
<td>3.3</td>
</tr>
<tr>
<td>Taxis</td>
<td>4.6</td>
</tr>
</tbody>
</table>

Average In-service Trip Length

<table>
<thead>
<tr>
<th>Mode</th>
<th>Average In-service Trip Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>TNCs</td>
<td>2.6</td>
</tr>
<tr>
<td>Taxis</td>
<td>2.6</td>
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</table>

Average Out-of-Service Trip Length

<table>
<thead>
<tr>
<th>Mode</th>
<th>Average Out-of-Service Trip Length</th>
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</thead>
<tbody>
<tr>
<td>TNCs</td>
<td>0.7</td>
</tr>
<tr>
<td>Taxis</td>
<td>2.0</td>
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% Out-of-Service Trips Length

<table>
<thead>
<tr>
<th>Mode</th>
<th>% Out-of-Service Trips Length</th>
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</thead>
<tbody>
<tr>
<td>TNCs</td>
<td>21.0%</td>
</tr>
<tr>
<td>Taxis</td>
<td>43.6%</td>
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</tbody>
</table>
Do TNCs Provide Geographic Coverage

TNC Pickups per Taxi Pickup

TNC Pickups per Population + Employment

Communities of Concern
How do TNCs Compare to Taxis and Transit?

**TNC Pickups per Taxi Pickup**

**TNC Pickups per Transit Boarding**
Future Research

- **TNCs and Safety:** How do TNCs affect the safety of people who use the roads, including transit riders, bicyclists and pedestrians?
- **TNCs and Transit Demand:** How do TNCs complement, compete with, or otherwise affect transit ridership?
- **TNCs and Transit Operations:** How do TNCs affect transit service operations?
- **TNCs and Congestion:** How do TNCs affect roadway congestion, delay, and travel time reliability?
- **TNCs and Disabled Access:** To what extent do TNCs serve people with disabilities?
- **TNCs and Equity:** Can TNCs be accessed by all San Francisco residents including communities of concern?
- **TNCs and Air Quality:** How do TNCs affect air quality emissions?
- **TNC Policies:** What is the role of government in regulating TNCs?
- **TNC Best Practices:** What potential impacts of TNCs have other agencies identified, and what policies have they enacted in response?
Questions?

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