TNCs & Congestion
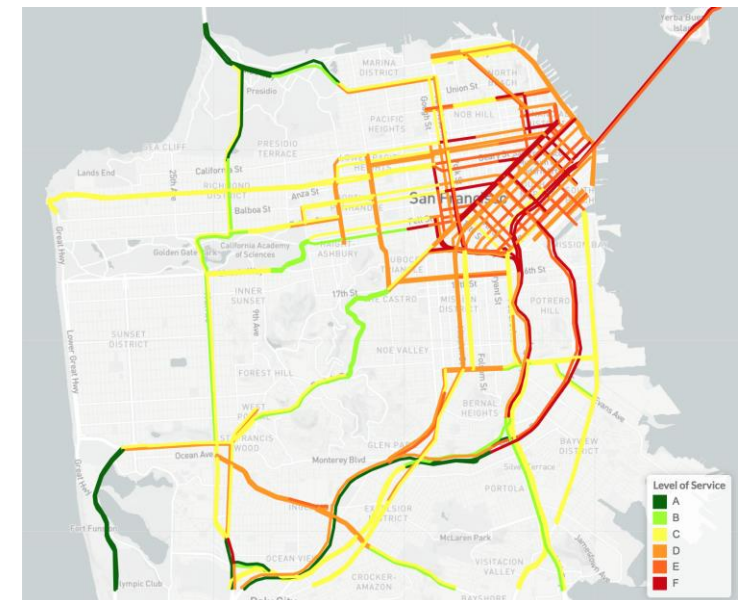
TNCs & Congestion

- Do TNCs affect roadway congestion in San Francisco?

- Report Contents
  - **Measures** of congestion
  - **Factors** that affect congestion
  - **Data** for quantifying changes in congestion
  - **Methods** for linking changes in congestion to factors
  - **Contributions of factors** to changes in SF congestion

2009 PM PEAK LEVEL-OF-SERVICE
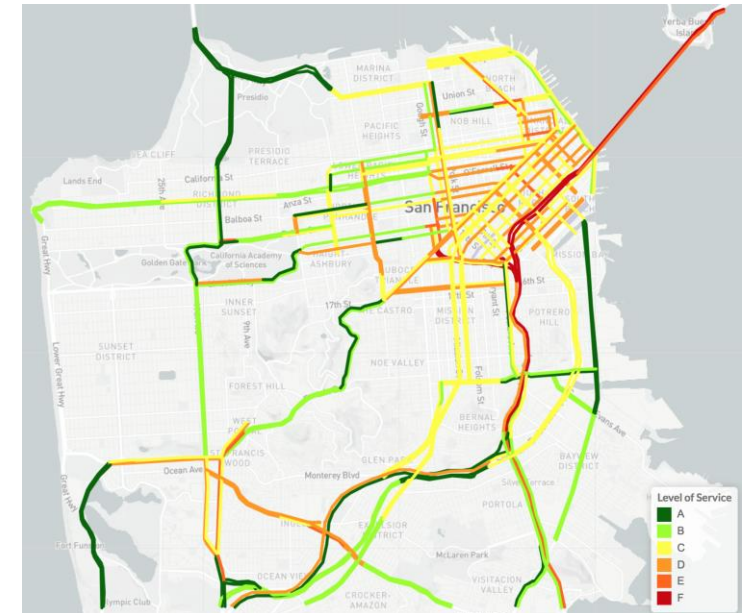

2017 PM PEAK LEVEL-OF-SERVICE

Factors that Affect Congestion

- How could TNCs decrease congestion?
    - Increased **vehicle occupancy**
    - Mode **shift to transit** due to easier access (first/last mile)
    - Mode **shift away from auto** due to reduced auto ownership
- How could TNCs increase congestion?
    - Add "dead head" or **out-of-service vehicle miles**
    - Mode **shift away from transit and non-motorized** modes
    - **Disrupt traffic flow** due to pickups and drop-offs
- Background traffic and roadway performance
    - **Network** changes (increases or decreases in roadway capacity)
    - **Population** changes
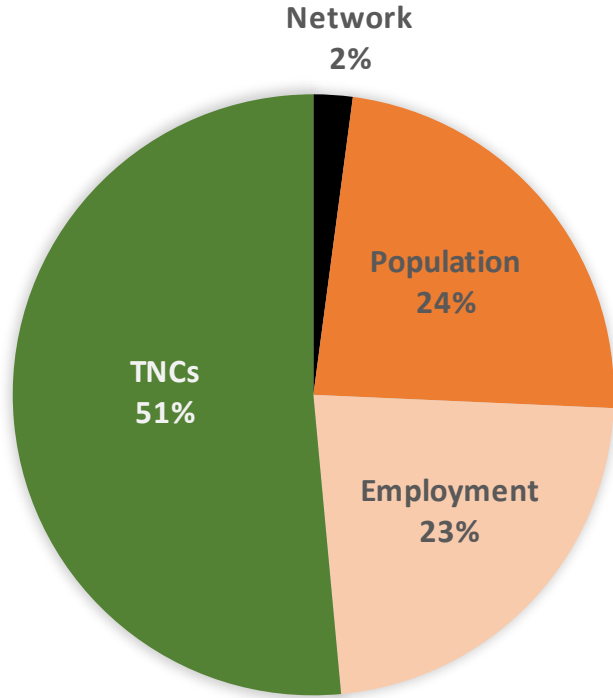   - **Employment** changes
- Other

Data

- ## Congestion (INRIX)
  - Nov / Dec 2010 & 2016
  - 1400 "TMCs" (segments) in SF
  - Speeds, imputed volumes
- ## TNCs
  - Nov / Dec 2016
  - In-service and out-of-service volumes
  - Pick up and drop off locations
- ## Background traffic (CHAMP)
  - 2010, 2016 (adjusted from 2015)
  - All streets in SF
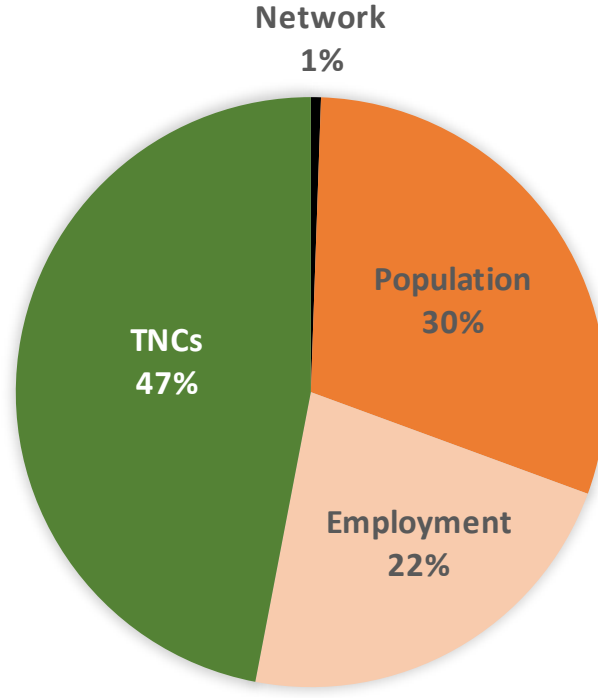 - Volumes, imputed speeds

TNCs Pickup/Dropoff per Mile

PUDO_PER_MILE
- 25 or less
- 25 – 50
- 50 – 100
- 100 – 1000
- more than 1000
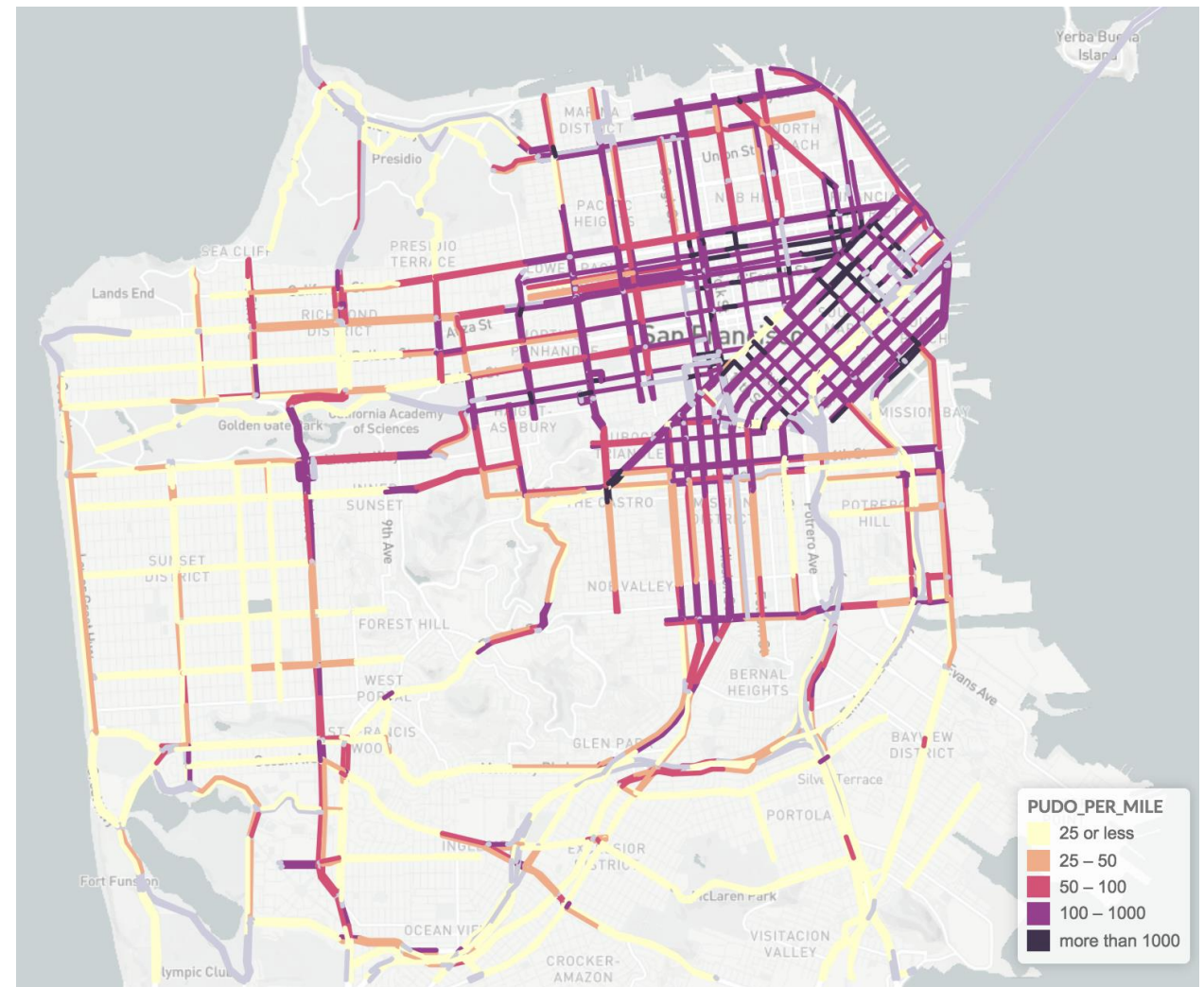
Causes of Changes in Congestion (2010-2016)

SHARE OF CHANGE IN DELAY BY FACTOR

Network
2%

Population
24%

TNCs
51%

Employment
23%

SHARE OF CHANGE IN VMT BY FACTOR

Network
1%

Population
30%

TNCs
47%

Employment
22%

SHARE OF CHANGE IN SPEED BY FACTOR

Network
4%

Population
19%

TNCs
55%

Employment
22%
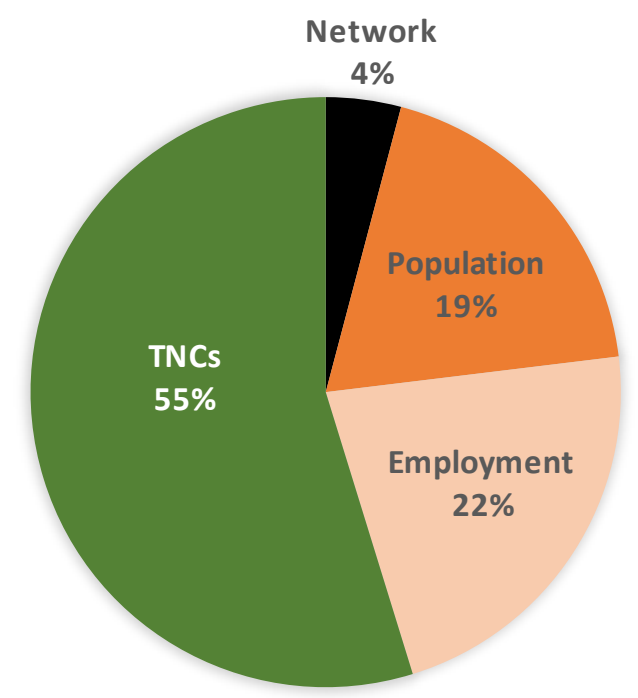
Factors Affecting Hours of Delay by Time Period

SHARE OF CHANGE IN HOURS OF DELAY BY FACTOR
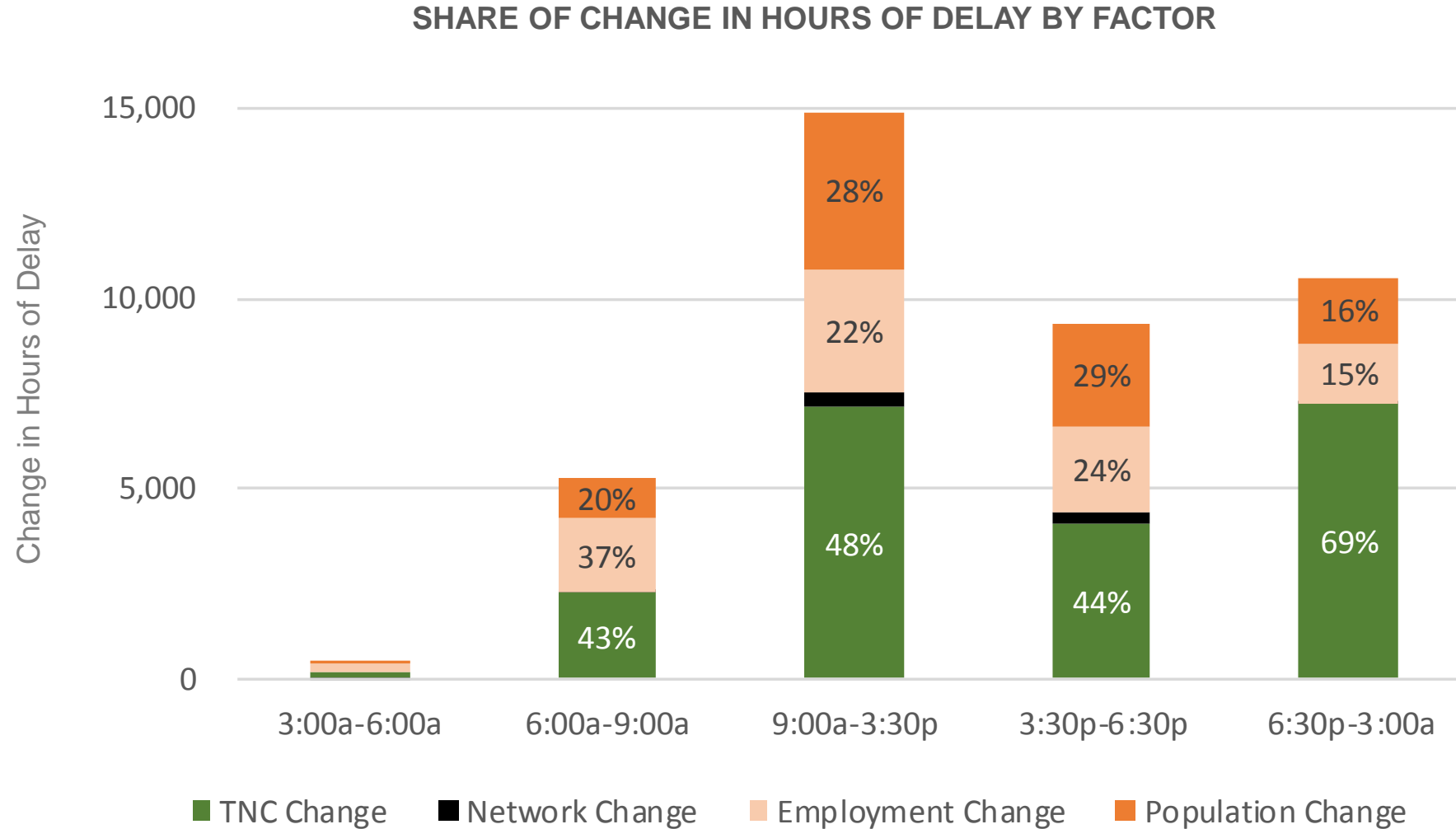
Factors Affecting Speed by Time Period

SHARE OF CHANGE IN SPEED BY FACTOR
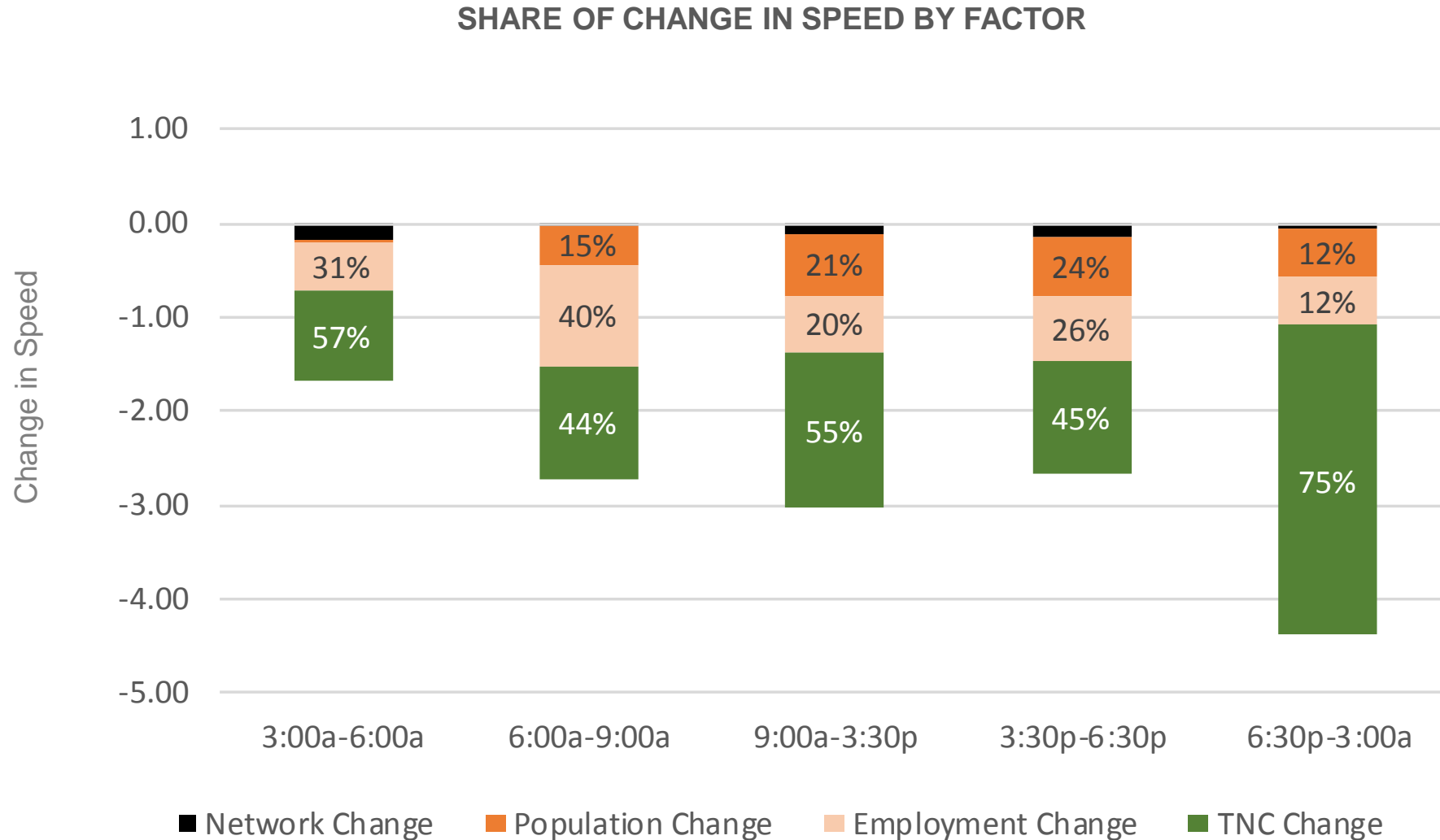
Factors Affecting Hours of Delay by District

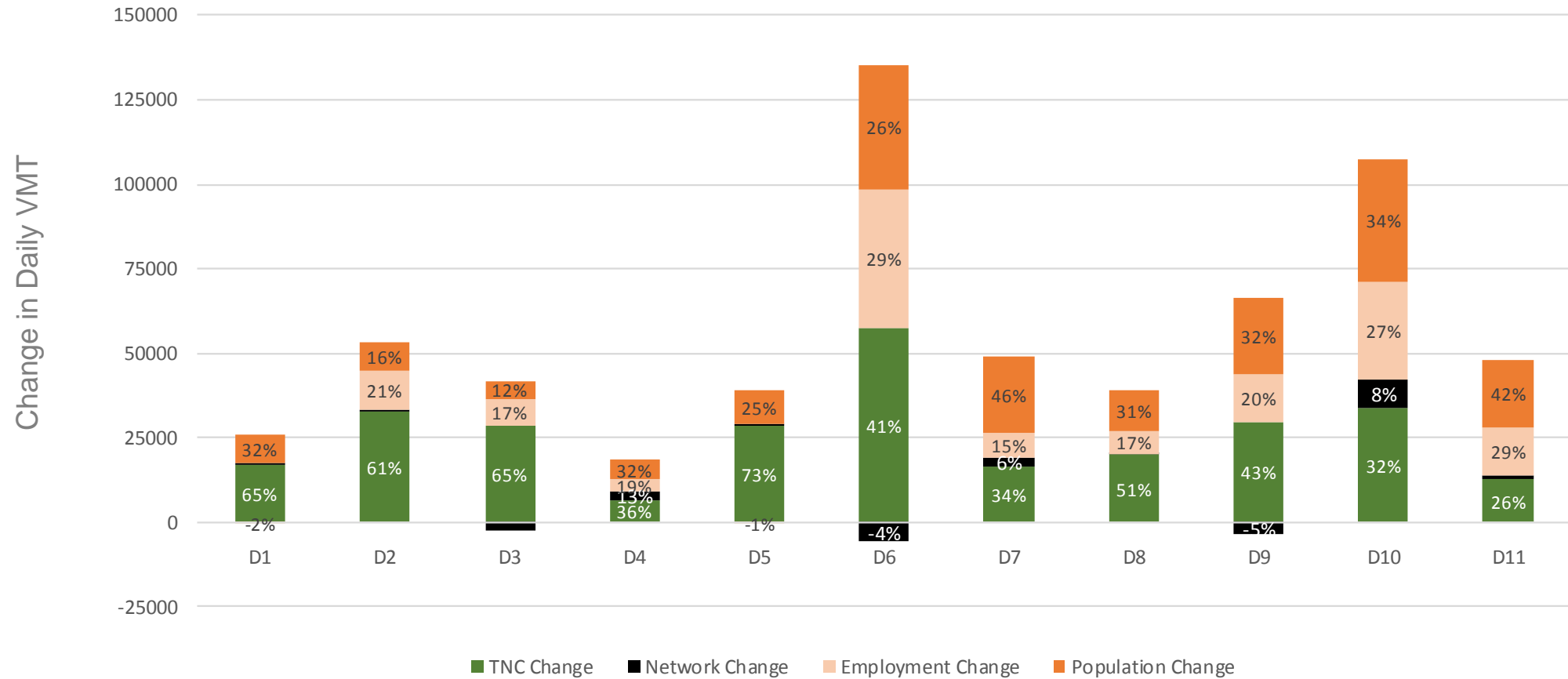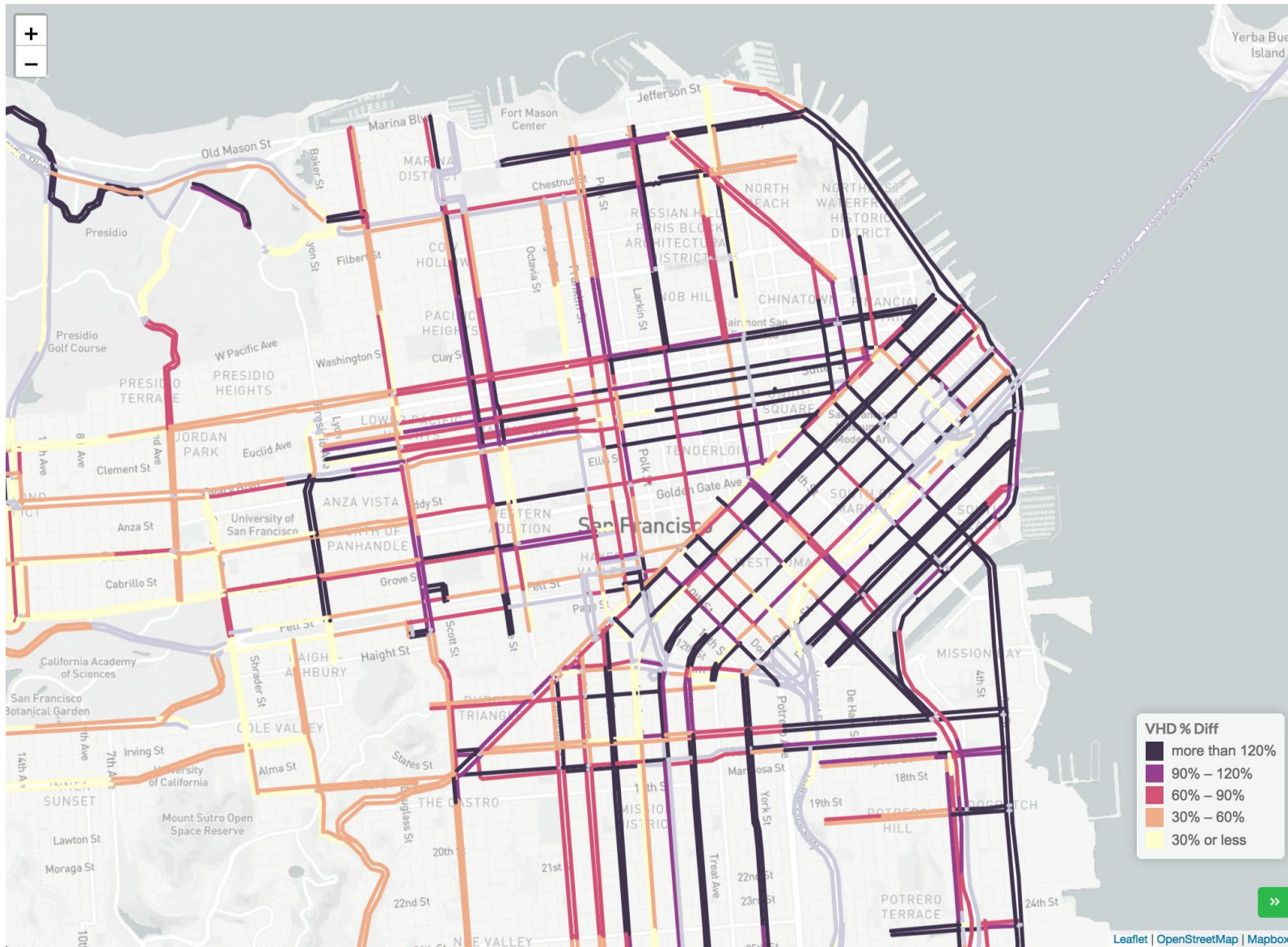SHARE OF CHANGE IN HOURS OF DELAY BY FACTOR
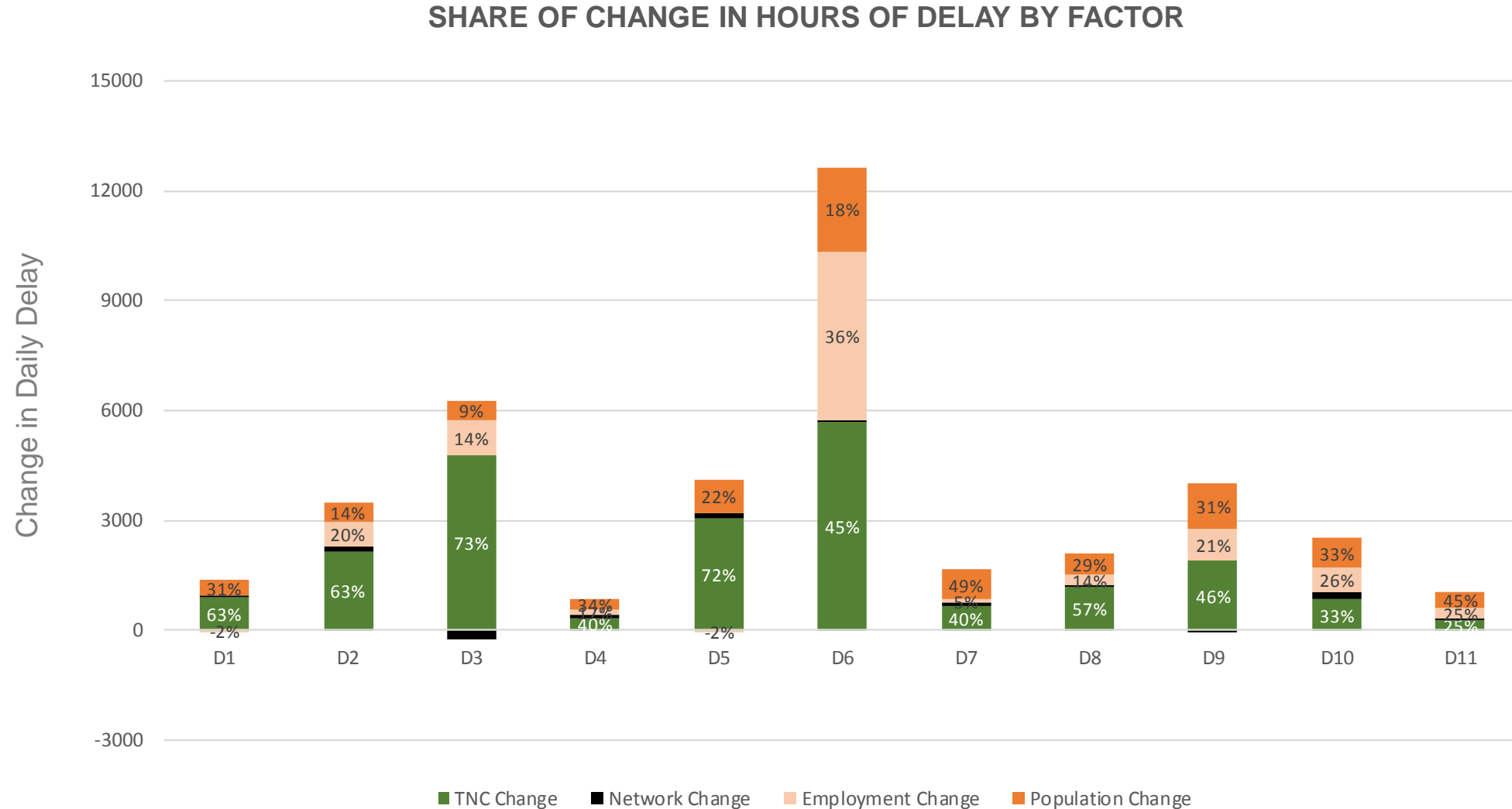
Causes of Increased VMT by District

SHARE OF CHANGE IN VMT BY FACTOR

Interactive Data Visualization

Questions?

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SAN FRANCISCO COUNTY TRANSPORTATION AUTHORITY