Innovative Applications of Big Data to Make More Informed Transportation Policy Decisions

ITE Joint Western & Texas District Meeting
June 25, 2018
Introduction

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Principal, Urban Planning and Design
Creating a Comprehensive Multimodal Transportation Master Plan

Tasks:
- Complete trip generator and land use analysis
- Purchase and mine cell phone data
- Gap Analysis for all transportation modes
- Create a multi-agency stakeholder committee
- Inter/intra regional transit master plan
- Ferry Oriented Development Plan
- Corridor Connection Plan
Project Study Area

2 states
2 DOTs
5 counties
1 city
3 federal agencies
Lots of opinions
Tahoe Facts

76 miles of road
2 transit agencies
5 points of entry
55,000 residents
Lake clarity depth declined to 77.8’
Deliverables

Data for unique visitor devices seen in the Lake Tahoe Basin

Extrapolated data for Trip Matrix OD by zone

- Home locations
- Durations of stay
- Number of arrivals and departures by day
- Device arrivals via area airport
- Activity Density ArcGIS device based shapefile
- Trips Matrices February, July, and August 2014
Arrivals by Area Airports

Percent visitor devices seen in the Tahoe Basin and one of these area airports the same day.
Analysis
Zones for Trip Matrices

283 TAZs
5 Externals

Stantec
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<th>End Date</th>
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Visitor Trips
February 2014
4.7 million

Heavenly Valley Resort/Getty Images
Visitor Trips
July 2014

11.8 million

Sand Harbor/Albright
### Annual Vehicles Entering the Lake Tahoe Basin, 2014

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<th>Annual Vehicles Entering the Lake Tahoe Basin</th>
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- **Note:** 1 car icon = 25,000 Vehicles.
From Data to Plan

Using ArcGIS to illustrate results of activity density data and multimodal recommendations basin-wide
From Data to Plan

Annual transit ridership vs. person and vehicle trips

1.1 Million
Transit Trips

Legend
Annual Transit Ridership
170,700 7,500

Transit Center

1.6 Million Annual Vehicle Trips/
7,500 transit riders (2014)
# Transit Vision Summary

## Time Frame

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<th>Time Frame</th>
<th>0-1 years</th>
<th>1-5 years</th>
<th>5-10 years</th>
<th>10+ years</th>
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## Transit Mode Split

- **5%**
- **10%**
- **20%**

## Layers of Service

- Frequent
- Local
- Community
- Summer
- Regional

## Supporting Infrastructure

- Mobility Hubs
- Transit Centers
- Intelligent Transportation Systems
- Improved Rider Facilities

## Recommendations

- Route Changes
- System Changes/Additions
- Operation/Maintenance Facilities Expanded

## Auto Trips Removed

- 1.34 million
- 3.27 million
- 7.03 million

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**“20 in 20”**
Data Summary

- **Annual Visitors 2014**
  - 25.6M
  - Original estimate 8-10M

- **Vehicles entering annually**
  - 41.4M

- **1.4% transit ridership as a percent of all trips**

- **Existing parking spaces Basinwide**
  - 18,725

- **Total miles of existing bikeways**
  - 94

- **Miles of existing sidewalks**
  - 20

- **Person trips within the Basin annually**
  - 80M
Tips for Newbies

1. Be sure to clearly understand your data needs
2. Use the data to tell a broader story
3. Consider cost share agreements
Tips for Newbies

1. Be sure to clearly understand your data needs
2. Use the data to tell a broader story
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Thank you