# Transportation Technical Advisory Committee

OCTOBER 5, 2020

**TAHOE REGIONAL PLANNING AGENCY**

*A Voice for Lake Tahoe*

# Zoom

- Success depends on participation
- Please mute when not speaking
- Please identify yourself before speaking
- Encourage use of chat for questions / comments

# Timeline

| Tasks | August | September | October | November | December |
|---|---|---|---|---|---|
| **Threshold Update** | | | | | |
| VMT Baseline | ▨ | | | | |
| Population baseline | | ▨ | | | |
| Target setting and implementation | | | ▨ | | |
| **Project Impact & Fee Update** | | | | | |
| Dynamic Test & VMT Metric Input | ▨ | | | | |
| VMT Screening Criteria, Mitigation, Thresholds of Significane; Fee Update & Input | | ▨ | | | |
| Project Impact and Air Quality Mitigation Fee Update Draft Proposals Review & Input | | | ▨ | | |
| **Formal Hearing Process (RPIC / APC / GB)** | | | | ▨ | ▨ |

# Goals

Revise the VMT standard to:

Increase mobility

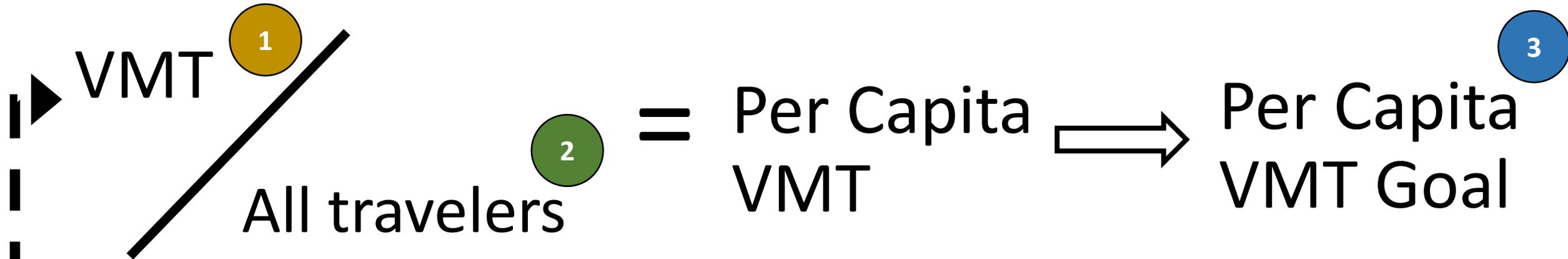Reduce greenhouse gas emissions

Reduce auto dependence

# RPIC Direction - Target setting

1. Establish a per capita VMT reduction goal

2. Establish a target date for achieving the goal

3. Ensure alignment with state policy

# Last Meeting

VMT ① / All travelers ② = Per Capita VMT ⟹ Per Capita VMT Goal ③

**Three-year annual average VMT (2016-2018) 1,457,988**

① Establish the VMT Baseline

② Establish the population baseline

③ Target setting

**Today**

$$\text{VMT} \,/\, \text{All travelers} = \text{Per Capita VMT} \Rightarrow \text{Per Capita VMT Goal}$$

(1) (2) (3)

How many travelers are there in the Region?

| | |
|---|---|
| **1** | Establish the VMT Baseline |
| **2** | Establish the population baseline |
| **3** | Target setting |

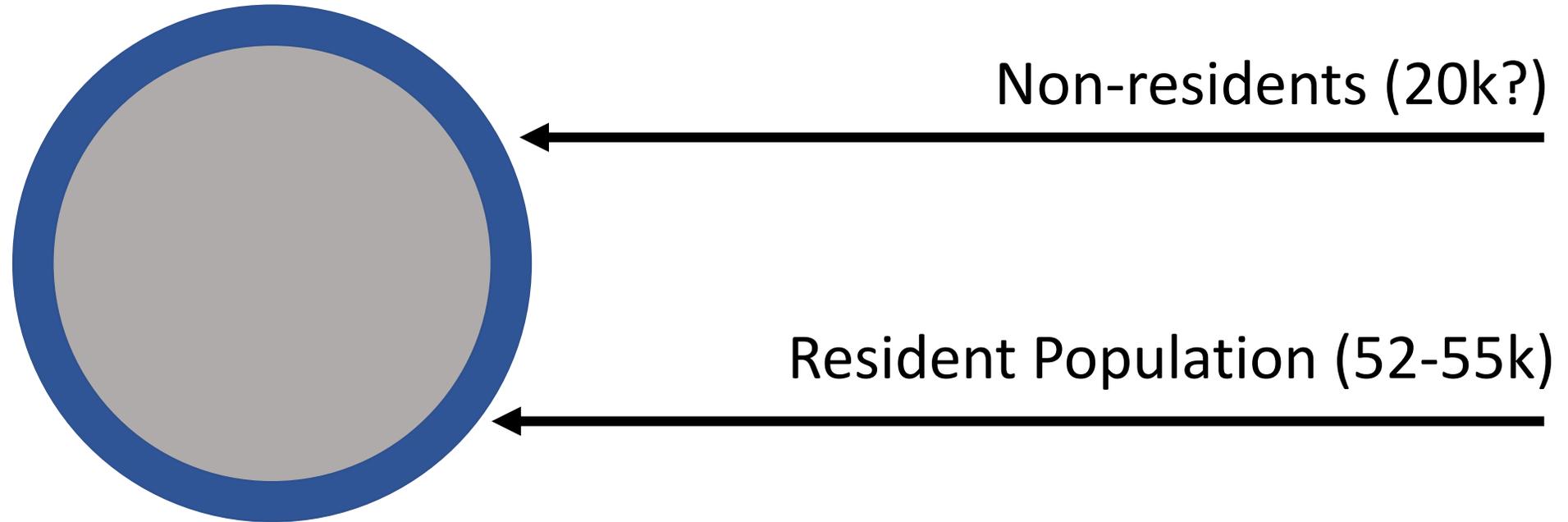# Vehicle Miles Traveled Threshold Standard: Population Baseline

A Voice for Lake Tahoe

# Why does it matter?

VMT / ? = Per Capita VMT

**?**

Per Capita VMT is up ~30% since 2008

# The basics

Non-residents (20k?)

Resident Population (52-55k)

# The basics

Non-residents (200k?)

Resident Population (52-55k)
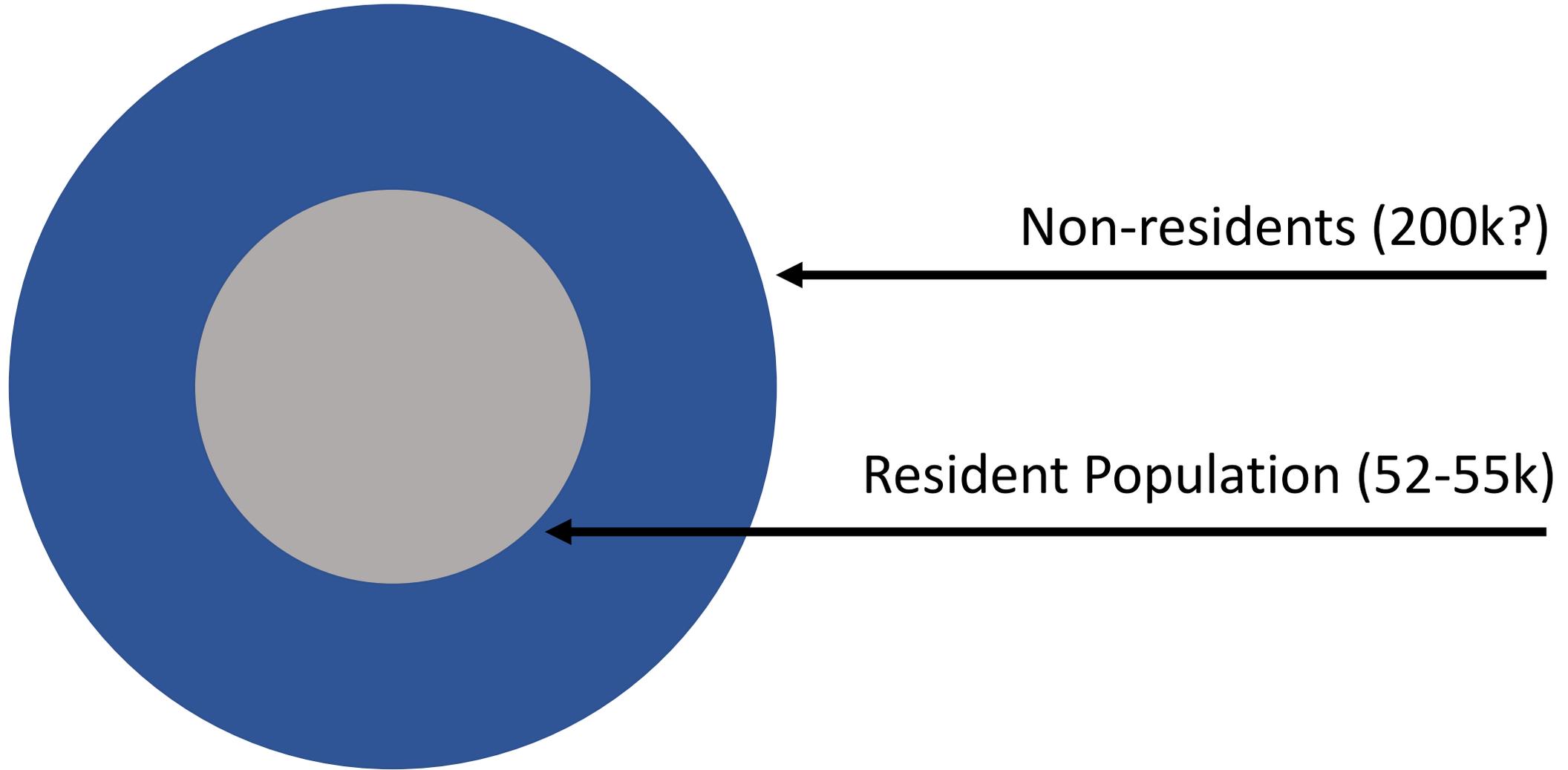
# Two Approaches

1. Big Data
2. Tahoe Effective Population Model

# Big Data

# "Big data" Estimation

- Direct count of the number of unique devices in the region

- Extrapolate the total population

| | Low Estimate of Effective Population | High Estimate of Effective Population |
|---|---|---|
| **Unique Device IDs** | | |
| 6,000 (low observation) | 75,000 | 120,000 |
| 10,000 (average) | 125,000 | 200,000 |
| 14,000 (peak observation) | 175,000 | 280,000 |

# Tahoe Effective Population Model

# Tahoe Effective Population Model

- The effective population model utilizes observed data for residential/commuter populations, entry/exit station traffic counts, and overnight lodging rooms rented in conjunction with several key assumptions to estimate the total effective population.

- It is an additive model – the total effective population is estimated by adding together each individual subpopulation

# Overnight Population



- Overnight Visitors + Residents = Overnight Population

- Population information is available or can be derived from several publicly available datasets

TAHOE REGIONAL PLANNING AGENCY
*Threshold Update*

**Effective Population**

**Overnight Population** | **Population entering region**

Residents | Overnight Visitors | Commuters | Day Visitors | Overnight visitors arriving | Resident day trips | Overnight visitor day trips
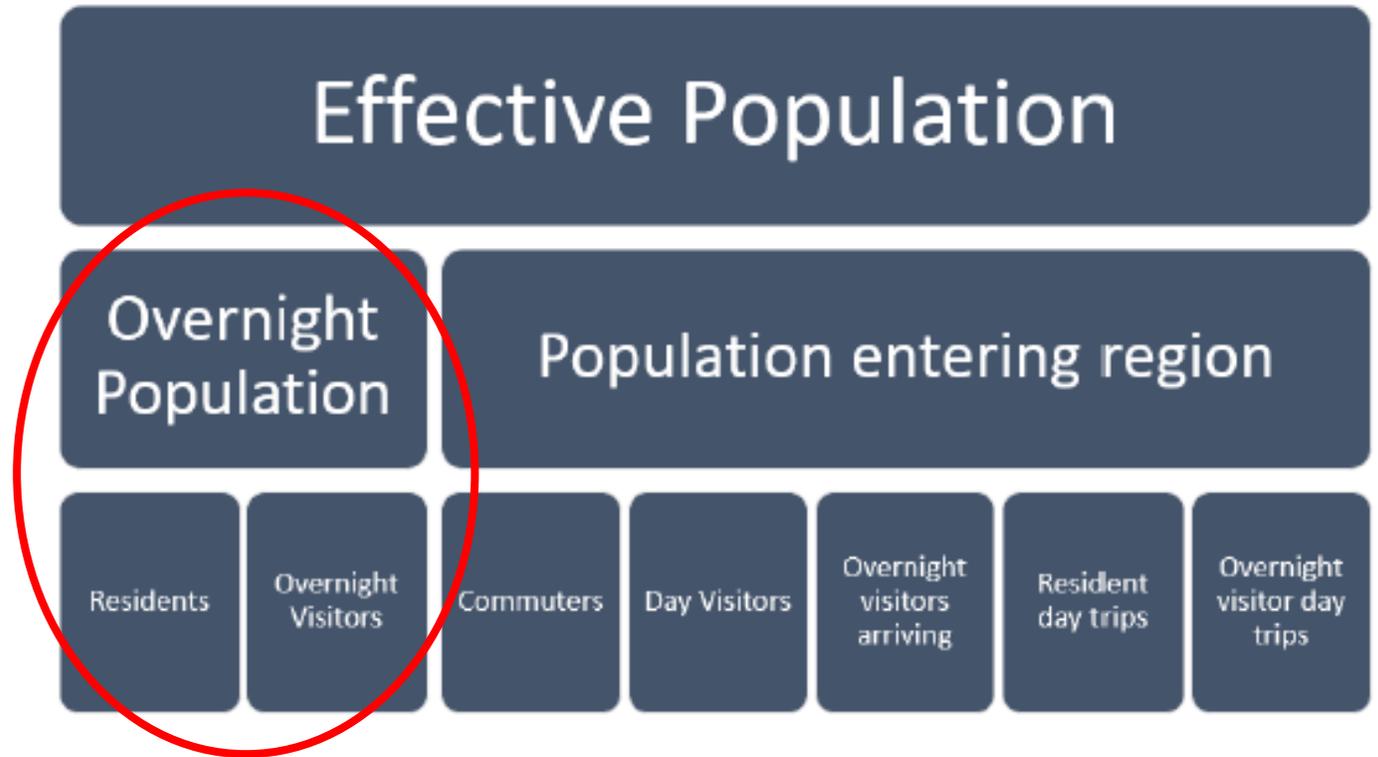
# Residential Population

- Data sourced directly from US Census

- Generally low uncertainty, although the Census does identify margin of error

- Historical data shows that population is typically between 50k & 60k residents
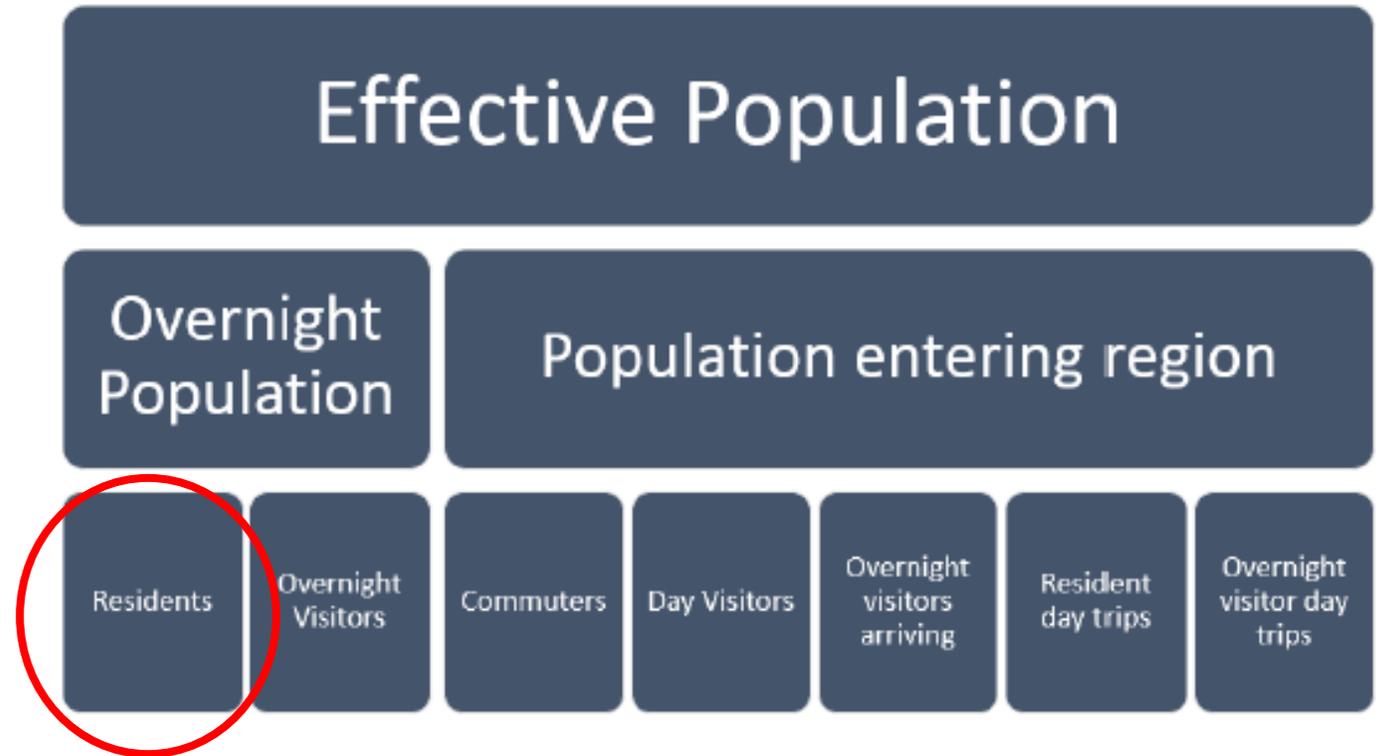
# Overnight Visitor Population

- Includes visitors staying overnight in hotel/resort/casino, STRs, second homes

- Hotel/Motel/Resort & STR rooms rented data sourced from local jurisdiction TOT reporting

- Second home units sourced from US Census

**Effective Population**

| Overnight Population | Population entering region |

| Residents | Overnight Visitors | Commuters | Day Visitors | Overnight visitors arriving | Resident day trips | Overnight visitor day trips |

Overnight Visitors in the Region:

(1) Number overnight visitors = Number of Occupied Units * Average Party Size

# Population Entering the Region



**Effective Population**

**Overnight Population** | **Population entering region**

Residents | Overnight Visitors | Commuters | Day Visitors | Overnight visitors arriving | Resident day trips | Overnight visitor day trips

- We know the number of cars that enter the region through Tahoe's 7 fixed entry/exit stations

- Using this observed traffic count data, we apply a set of assumptions to identify which type of travel party comprises each of these cars

- StreetLight Data estimates 27k cars enter the region on an annual average day

(1) Total Entry Trips = Day Visitors + Incoming commuters (Non-residents who work inside) + Outgoing commuters (Residents who work outside) + Overnight Visitors Arriving + Overnight Visitor Discretionary trips + Resident Discretionary Trips

# Trips Entering the Region



**Discretionary** 2,000

**Commuters** 1,000

7,000

**Day Visitors** 1,300

**Overnight Visitor** 2,700
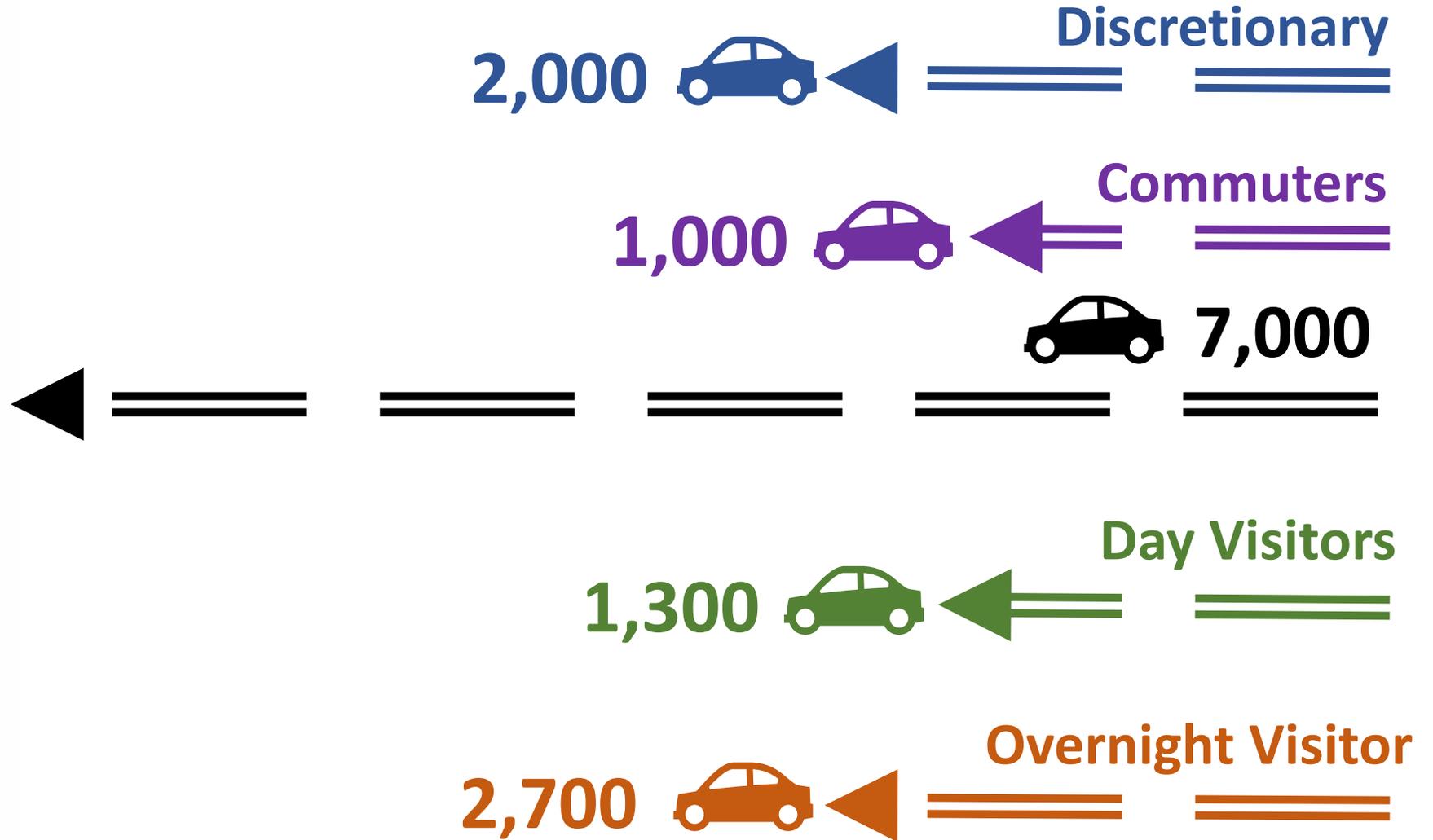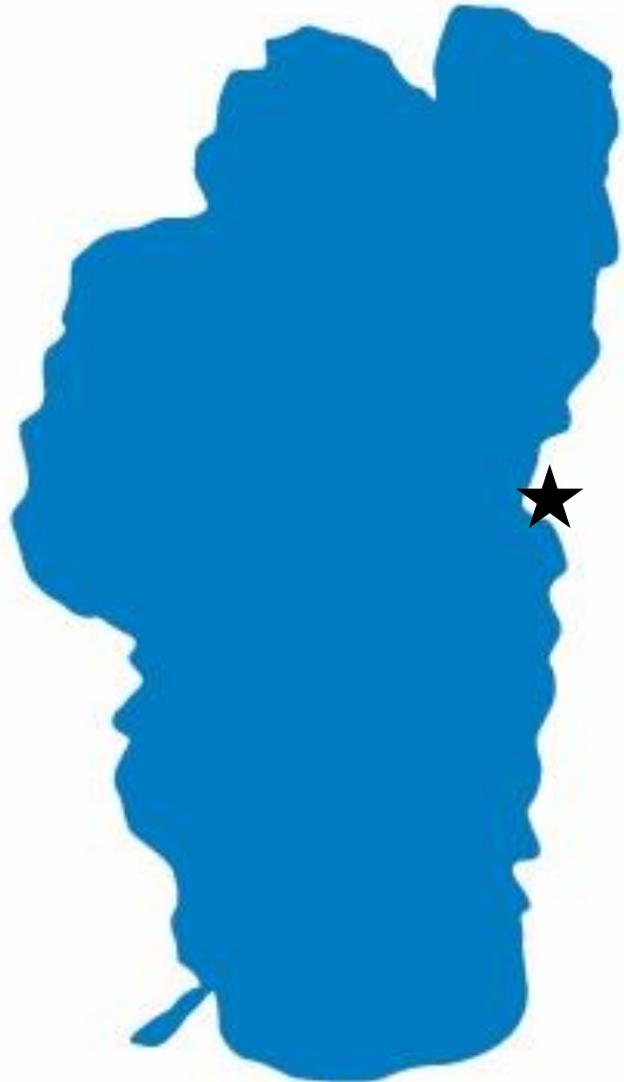
# Commuter Population

- Estimates can be obtained from several potential sources including LEHD, CTPP, surveys

- Recent estimates range widely from 3k to 10k

## Effective Population

| Overnight Population | Population entering region |
|---|---|

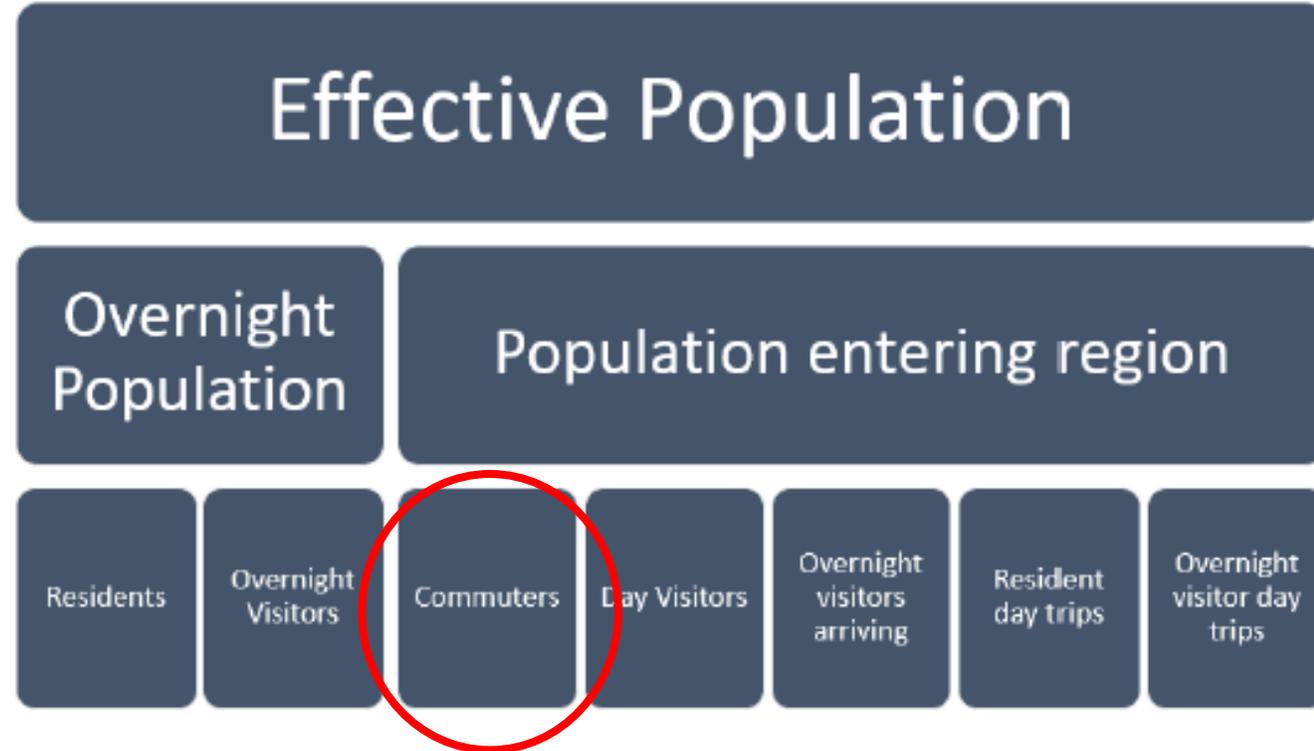| Residents | Overnight Visitors | Commuters | Day Visitors | Overnight visitors arriving | Resident day trips | Overnight visitor day trips |
|---|---|---|---|---|---|---|

(1) **Total Entry Trips** = Day Visitors + Incoming commuters (Non-residents who work inside) + Outgoing commuters (Residents who work outside) + Overnight Visitors Arriving + Overnight Visitor Discretionary trips + Resident Discretionary Trips

# Overnight Visitors Arriving

- The total effective population includes overnight visitors entering the region before they arrive at their lodging destination
- This population is estimated based upon the average length of stay and average party size
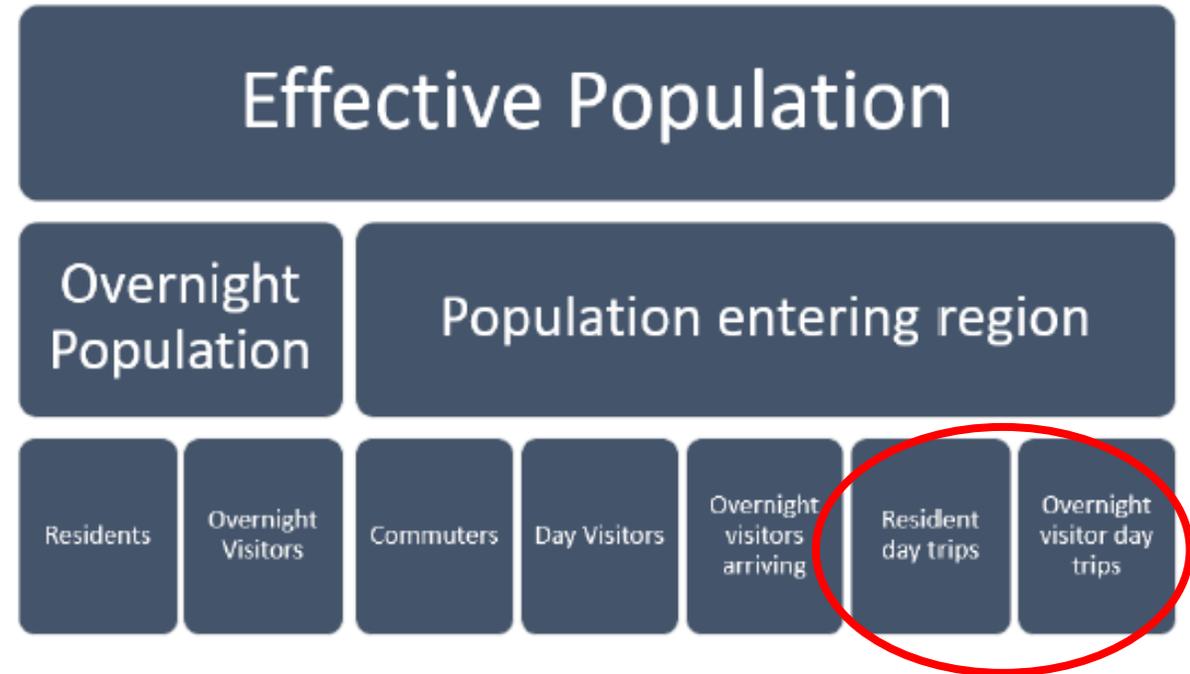


Overnight Visitors Arriving:

(1) Overnight Visitor Entering = (Number Overnight Units Occupied / Length of Stay) * Party Size

(2) Overnight Visitors Cars = Overnight Visitors Entering / Visitors Per Car

# Resident and Overnight Visitor Day Trips

- Both residents and overnight visitors leave and re-enter the region through the entry/exit points (E.g. shopping trips and trips to ski resorts)

- These trips directly impact the estimation of day visitation



(1) Total Entry Trips = Day Visitors + Incoming commuters (Non-residents who work inside) + Outgoing commuters (Residents who work outside) + Overnight Visitors Arriving + Overnight Visitor Discretionary trips + Resident Discretionary Trips

# Day Visitor Population

- The day visitor population is estimated by subtracting all of entry/exit trips by other party types from the total number of entry/exit trips and then applying an average vehicle occupancy.



(1) Day visitation trips = Total Entry Trips − Overnight Entry Trips − Commute Entry Trips

− Discretionary Entry Trips

(2) Day visitors = Day visitation trips X vehicle occupancy

# Preliminary Findings

- Estimated population is ultimately constrained by the number of vehicles that are observed entering the region

- Using the Effective Population Model, the effective population is likely between 125k and 165k.

- Model has room for improvement with more refined assumptions and additional data sources
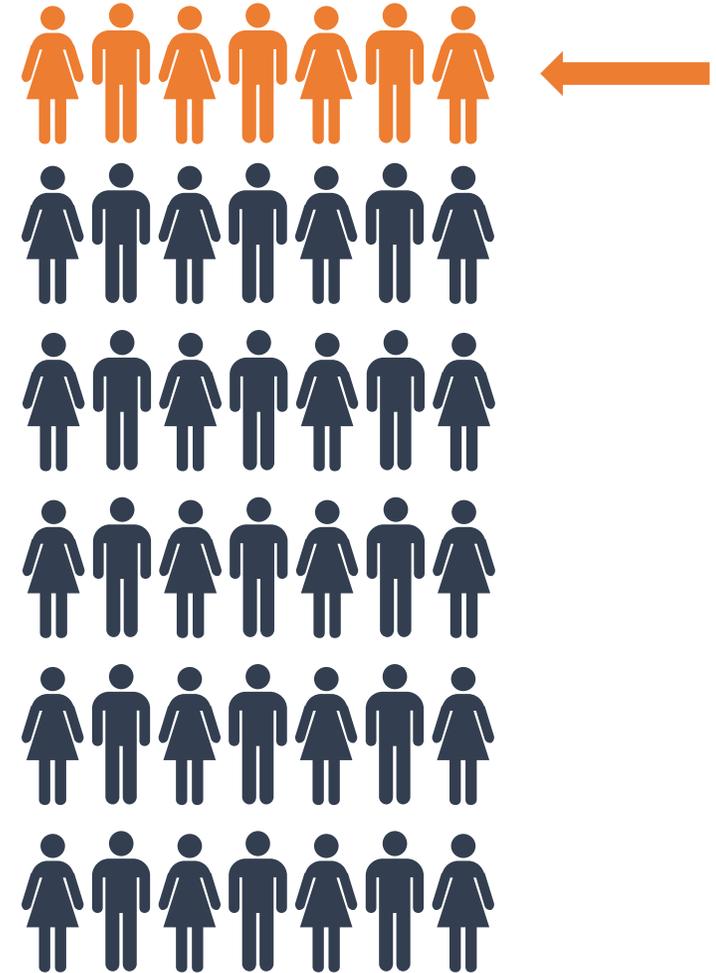
# Key Assumptions & Uncertainty

1. **Vehicle Occupancy (Party Size)**
   - Derived from various survey data
   - 0.25 change in occupancy impacts effective pop by 10k
   - E.g  - 2.4 = 145k, 2.15=135k, and 2.9=165k

2. **Number of Commuters**
   - Wide range of estimates and difficulty of obtaining annual average
   - 4k change in commuters impacts effective pop by 5-6k
   - E.g. 4k = 143k, 8k=138k, and 12k= 132k

# Key Assumptions & Uncertainty

3. **Number of Discretionary entry/exit trips (Resident & Visitor)**
   - High uncertainty and few data sources
   - 4k change in number of discretionary trips impacts effective pop by 10k
   - E.g. 2k= 145k, 6k= 135k, and 10k=125k

4. **Second Home Occupancy**
   - Few available data sources
   - Every 10% increase in occupancy increases the effective pop by 5k
   - E.g. 38%= 145k, 78%= 165k, and 18%=135k

# Next Steps

| Tasks | August | September | October | November | December |
|---|---|---|---|---|---|
| **Threshold Update** | | | | | |
| VMT Baseline | � grey▬ | | | | |
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| **Formal Hearing Process (RPIC / APC / GB)** | | | | ▬dark blue▬ | ▬dark blue▬ |

# Thank you