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## Presentation to

Sanjeev Ranjan, Secretary, Road Transport & Other Transport Ministry Officials

## Problem Statement

Officials at Transport Ministry are doing budget allocation for FY 2019-20 towards cities, those need robust road transport. Majorly aiming for –

1. Improving connectivity and strengthening public transport
2. Identifying rural and urban transport needs

## Visualization (Key Findings)

Majorly people travel for work purpose, Major transport modes – Bus, Trains, 2 Wheelers, Cars

### How Indians Travel to work ?

* **Cycle to work is healthy – But 20-40 KMs daily Isn’t**. A large population including females can be seen
* In Urban population, Ladies travel more by train/ buses and Men by Two wheelers
* In Rural population, Ladies travel mostly on foot, Men dependent on bus connectivity

### Cars/ Two Wheelers usage ?

* **Bangalore and Pune have 9.5 and 8+ Lakhs people traveling by private vehicles** to work everyday
  + Need more buses to reduce traffic/pollution and ease of traveling
* Bangalore alone has more people traveling by Car, than whole of NCR or even populated Mumbai
  + Shows cities like Mumbai and Delhi have benefitted lot from suburban rail and metro
* Next on list, we have **Chennai, Surat and Ahmedabad**
  + **5+ Lakhs cars/bikes** on road everyday

### Lack of Connectivity in Urban areas

* **24 Parganas (West Bengal) lacks most in connectivity**
  + People forced to travel on Foot/Cycle 10-40 KMs everyday for work
  + Need connectivity in both Urban and Rural areas
* **Mumbai Suburban, Bangalore and Ahmedabad** each have 2.5 Lakhs people traveling on Foot/Cycle to work
  + Needs better connectivity/ wider roads
  + Deployments of additional bus routes

## Dataset

* Dataset collected from Indian Government’s public data repository - <https://data.gov.in/catalog/other-workers-distance-residence-place-work-and-mode-travel-place-work-census-2011-india-and>
* Data on residence to place of work travel (whole population except agricultural and household working population)
* State and city level data for remotest areas of India based on distance and all possible transport modes
* Important rows –
  + Division of Urban and Rural population
  + Male/ Female population census
  + Bucketed distance 0-1, 2-5, 6-10 Kms and so on

## Data Cleaning and Preparation

* Python scripts to combine and clean data
* Google Maps APIs used to fetch Latitude and Longitude for each city/ area
* Scripts and data available at - <https://github.com/anmolmore/Indian-Work-Travel> (available on request/not public)
* Filtered duplicated data for total counts and edited misspelt city names
* 20k rows and 36 columns after combining data from each state and union territory

## Further Analysis

* State level analysis for each mode of travel
* Identifying specific areas in city, where transport needs to be improved
* Feasibility study of metro for Surat and Ahmedabad
* Analysis on past budget allocations and utilization for improving road transport