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Impact of Roadway Characteristics on Bicycle Safety

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Presentation Outline

- Research Question

- Data Needs and Methodology

- Data Preparation Challenges

    - Crash Database

    - Roadway Characteristics Database

    - Bicycle Activity Database

- Implications for Practice

Research Question

Develop Florida-specific CMFs to assess the effects of engineering treatments on bicycle safety

- Bike lanes

- Bike slots

- Roadway characteristics, such as

  - Shared path

  - Sidewalk

  - Shoulder

  - Speed limit

  - Parking

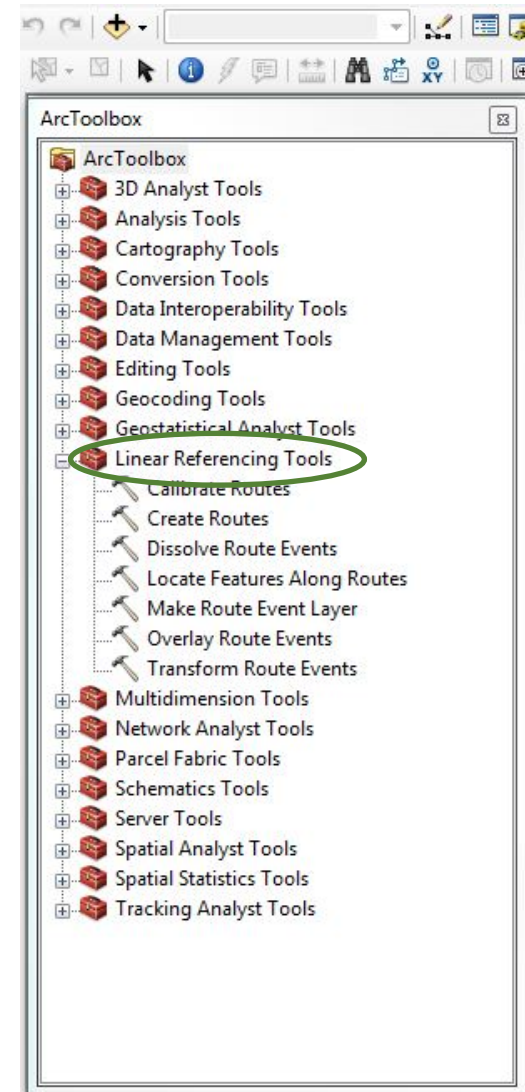# Data and Methodology

- 2011-2014 Crash Database
    - Crash Analysis Reporting (CAR) System
        - Crash, vehicle-driver-passenger, non-motorist level data files
    - Crash data shapefiles

- Roadway Characteristics Database
    - 2014 Roadway Characteristics Inventory (RCI) Database
    - FDOT Roadway Data Shapefiles for:
        - Bicycle Lanes
        - Bicycle Slots
        - Shared Path Width and Separation
        - Intersections
        - Shoulder Type and Width

- Strava Data

- Methodology for CMF Development: Cross-sectional Study

Data Preparation

- CAR Data
  - Extract bicycle crashes from crash level, and non-motorist level data files

- RCI
  - Identify the RCI variables which may impact bicycle safety
  - Segmentation
    - depends on # of variables
    - all variables vs. selected variables
    - segment length
    - long segments vs. short segments

Data Preparation Cont'd

- Strava Data
  - Collected from Strava smartphone app users biking in Florida
  - Includes bike riding distance, time, pace, trail routes, etc.
  - Incorporates count of bicycle trips on the roadway segments
  - Need linear referencing to link with other databases

- Integration of CAR, RCI, and Strava

Implications for Practice

- Direct Implication: Florida-specific CMFs for engineering countermeasures

- Secondary Implication: More insights on how representative Strava data is?

Questions, Suggestions, and Discussion