

Collecting Meaningful Exposure Data:

Non-Motorized Volume Monitoring Fundamentals

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UTC Spotlight
Conference

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Exposure

“the frequency of a bicycle or pedestrian being present in a conflict zone with the potential to be involved in a crash”

– NCHRP Report 797

Research Project

Establish a common, consistent system to quantifiably measure bicycle and pedestrian volumes.

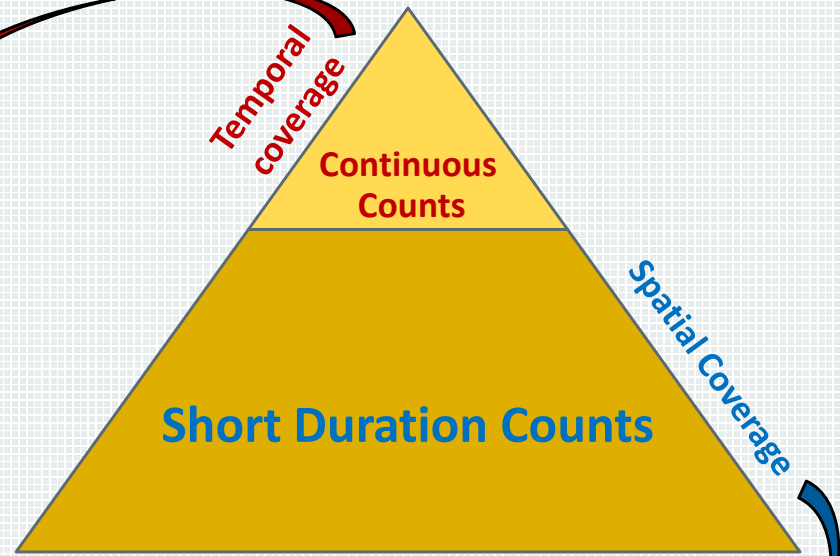


*What gets measured, gets done.
If you're not counted, you don't count!*





Winston-Salem, NC



Continuous Count Stations – Permanent counting sites that provide data continuously (24 hours per day, 7 days per week).

Annual Average Daily Pedestrian Traffic (AADP)	Annual Average Daily Bicycle Traffic (AADB)
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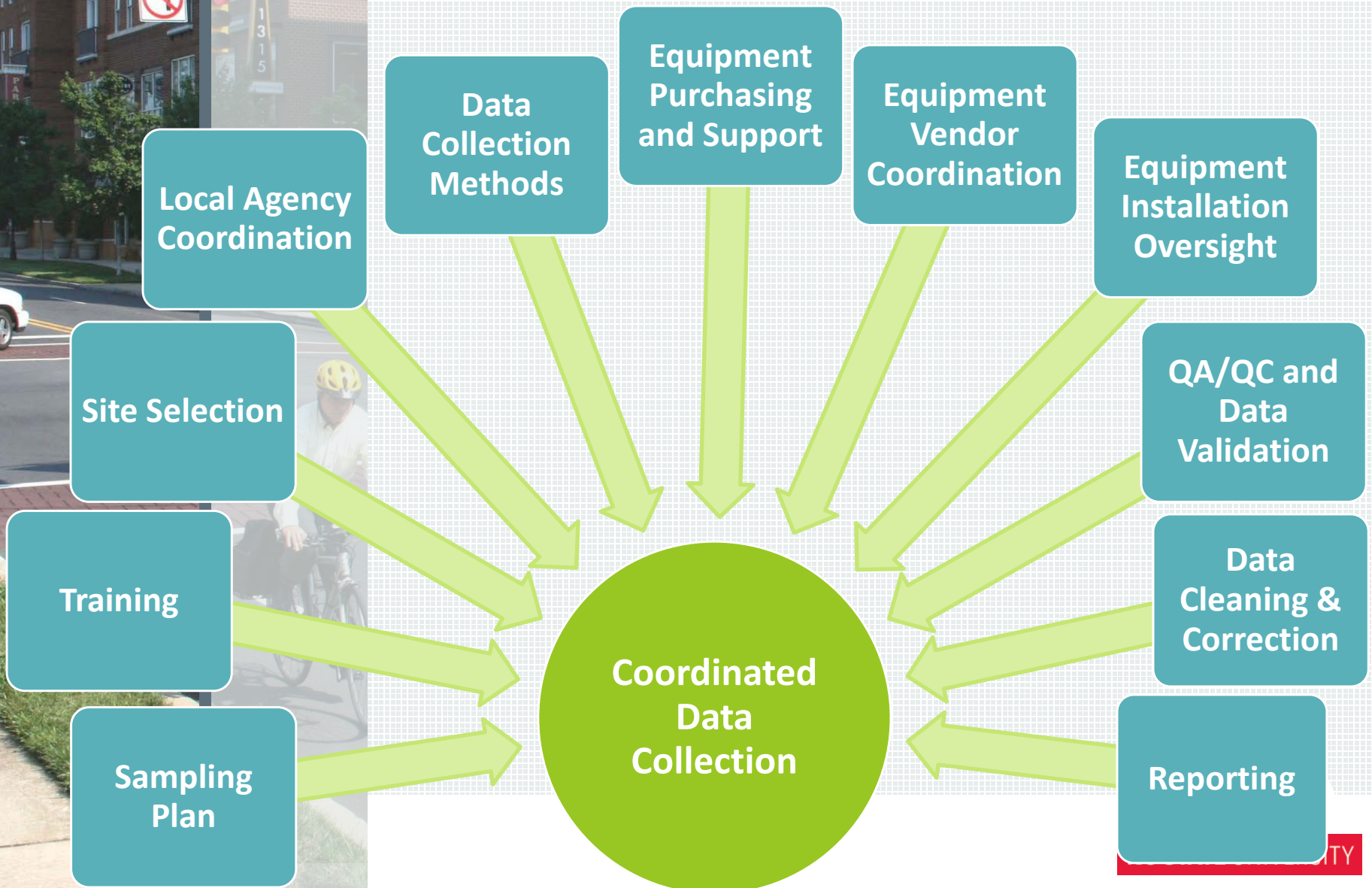
Enough data should be collected to allow calculation of accurate adjustment factors (Time of Day, Day of Week, Monthly) to apply to **Short Duration Counts**.



Charlotte, NC

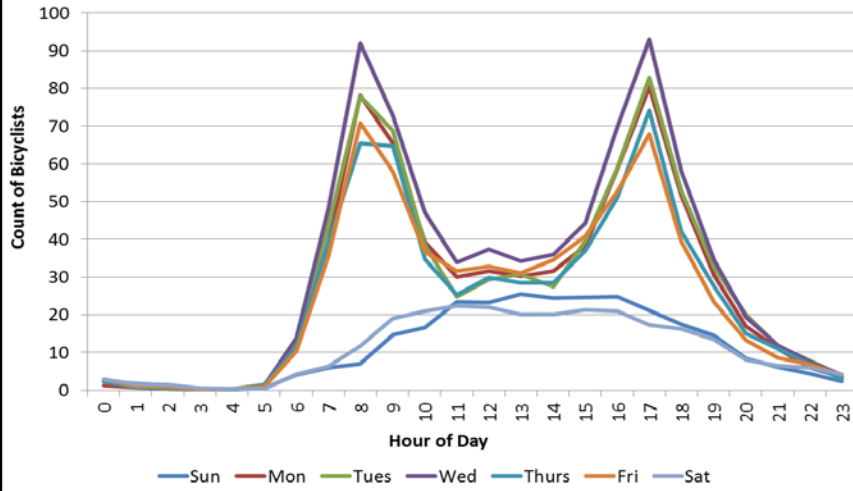


NON-MOTORIZED TRAFFIC MONITORING PROGRAM ELEMENTS



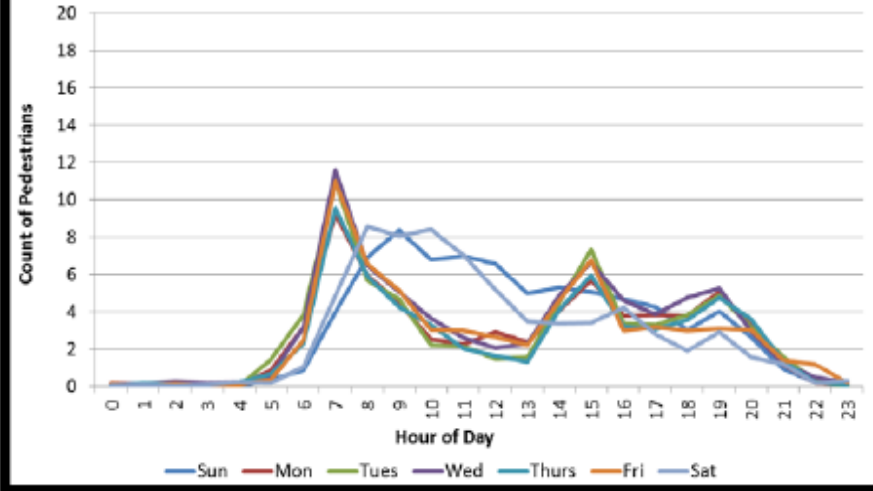
Average Daily Bicycle Volume by Hour of Day

Libba Cotten Bikeway, Carrboro, NC
12/12/2014 - 11/30/2015



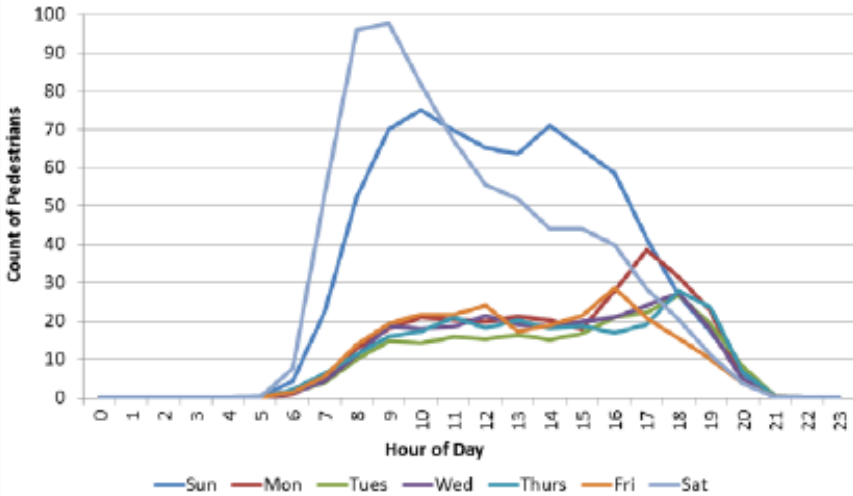
Average Daily Pedestrian Volume by Hour of Day

Old NC 86, Carrboro, NC
12/12/2014 - 11/30/2015



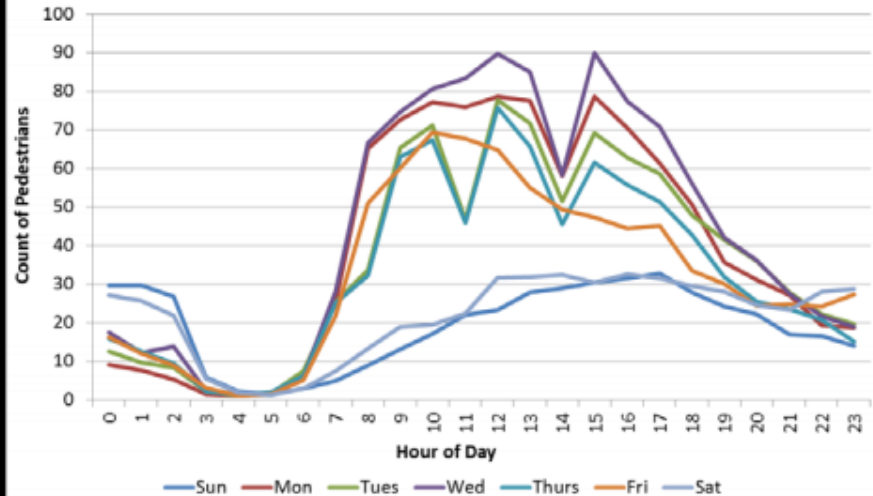
Average Daily Pedestrian Volume by Hour of Day

Salem Lake Greenway, Winston-Salem, NC
12/01/2014 - 11/30/2015



Average Daily Pedestrian Volume by Hour of Day

Spring Garden Street, Greensboro, NC
12/01/2014 - 11/30/2015



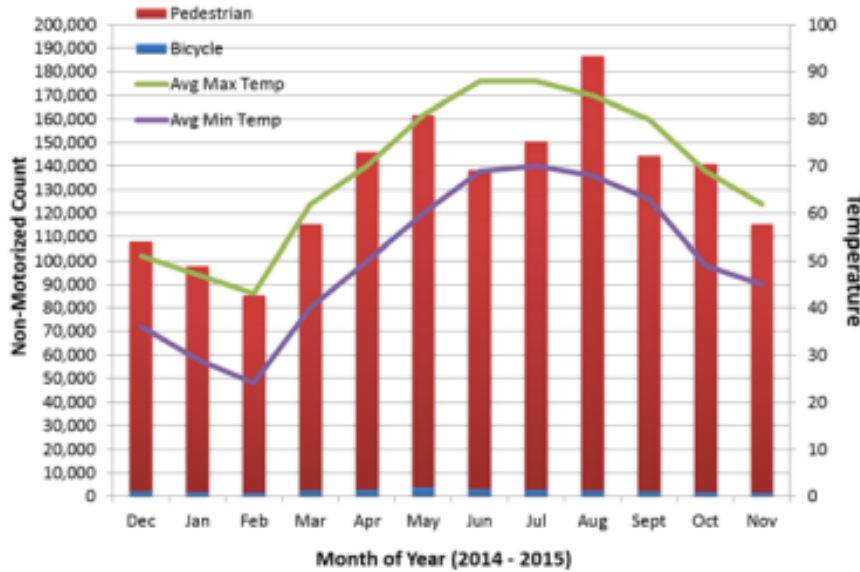
Average Daily Pedestrian Volume by Hour of Day

Martin Luther King Blvd, Chapel Hill, NC
12/11/2014 - 11/30/2015



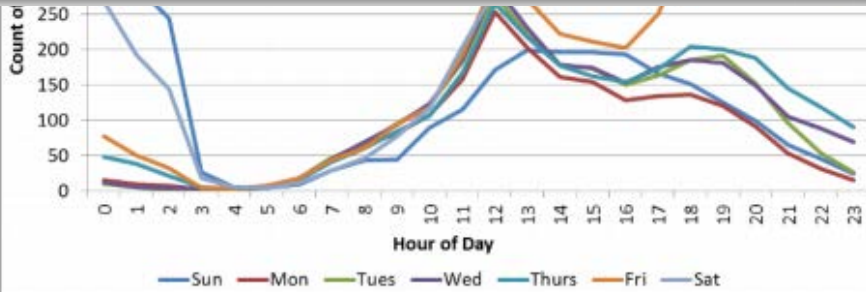
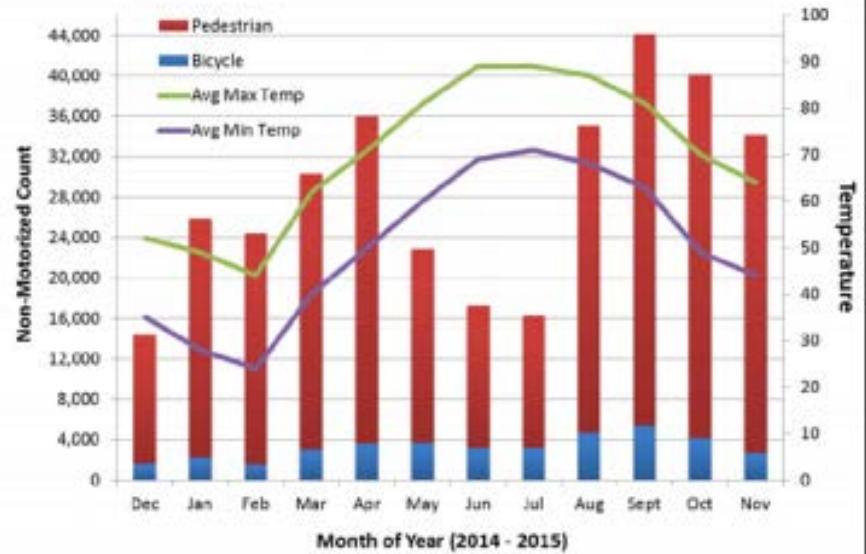
Count of Bicyclists and Pedestrians by Month

Fourth Street, Winston-Salem, NC
12/01/2014 - 11/30/2015



Count of Bicyclists and Pedestrians by Month

Spring Garden Street, Greensboro, NC
12/01/2014 - 11/30/2015





More Research Needed

- What other factor groups to define?
- Is 3-5 CCS per group enough?
- How long a corridor is represented by that count – how to segment?
- (How) Can we institutionalize the NMVDP within traditional travel monitoring programs?
- How often to sample at a SDC station for seasonality?
- How many SDC stations are needed to understand the region? The state?
- (How) Can we accept data collected from others in NC?
 - Data quality thresholds, standards
 - Data sharing, management





Good data can serve many purposes!

- Inventory statistics
- Route planning / Connectivity analysis
- Project planning and development
- Inter-agency coordination
- Project selection/prioritization
- Determining unmet need
- School siting
- Access to recreation amenities
- Relate spatial datasets (eg. crash data)
- Development of goals/benchmarks
- Data gaps/deficiencies
- Compare assets
- Facilities Maintenance
- Research
- Funding
- Promote physical activity





Thank You!

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NC Non-Motorized Volume Data Program

About

Establishing a bicycle and pedestrian count program will assist the NCDOT in evaluating facility usage over time, inform the project prioritization process and provide quantifiable evidence to support non-motorized facility inclusion through the Complete Streets process. Improving municipal and regional planning for active travel. In turn, these data can be fed into tools to measure existing trends and model future increases in non-motorized trips at site, corridor, and regional-levels.

Phase I Pilot Project

The pilot phase of the NC Non-Motorized Volume Data Program was conducted in the geographic region which comprises NCDOT Divisions 7 and 9 to test a bicycle and pedestrian count protocol and replicate the methodology across the state. Continuous Count Stations to monitor bicyclist and pedestrian travel for Phase I went live in late 2014. Twelve Phase I stations were set up to monitor both bicycle and pedestrian traffic for a total of twenty-four continuous count data streams which are still active. These stations cover a mix of sites across different land uses, travel patterns, and volume groups. Detailed technical information can be found in the Phase I Final Report and Appendices.

The following programmatic elements were piloted (i.e. the Triad region) to select, install and provide quality data for the twelve stations:

- > Agency Coordination
- > Pre - installation Site Selection and Procurement
- > Equipment Set Up (Installation and Onboarding)
- > Equipment Validation
- > Data Handling (QA/QC Checks, Cleaning, and Correcting)
- > Equipment Maintenance
- > Data Reporting

Phase II Expansion

Phase II of the project started in 2015 with expansion to NCDOT Divisions 4, 5, 6, and 10. Over 50 stations, or 110 data streams to monitor bicyclist traffic and pedestrian traffic are anticipated to be live by the end of 2016, making North Carolina's NMVDP one of the largest non-motorized monitoring programs in the United States.

[Continuous Count Station Quarterly and Data Summary \(10/16\)](#)

[Download Data](#)

[Making People Count, 2016 IJCASMO Conference Presentation \(3/17/16\)](#)

[Development of QA/QC Processes for Bike/Ped Data \(2/17/16\)](#)

itre.ncsu.edu/focus/bike-ped/nc-nmvdp/

