Counting Bicycle and Pedestrian Traffic

Opportunities for the Metropolitan Council

We all have a stake in A TO B

MnDOT Strategic Directions

- 2050 Vision – Minnesota Go
  - Achieve a multimodal transportation system that benefits the health of people, the environment, and our economy.
- Toward Zero Deaths
  - Assess exposure and effectiveness of safety programs
- Complete Streets
  - Understand vehicle, bicycle, and pedestrian interactions
  - Achieve statutory goals
- Performance measures
  - Increase bicycling, walking, and transit

MnDOT's Count Program

- Work with local jurisdictions to establish count programs
- Establish automated statewide index sites
- Implement short duration automated count program
- Develop analytic procedures
- Provide technical assistance for locals
- Manual: http://www.dot.state.mn.us/bike/research/research.html
- Facilitate purchasing of monitoring equipment with state vendor contract

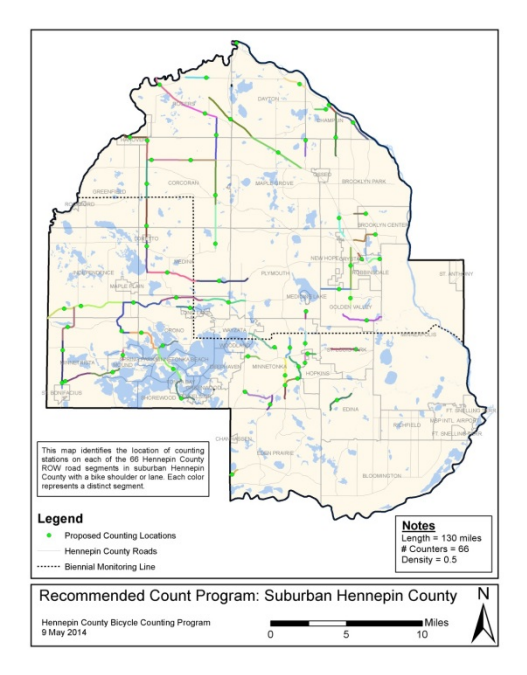
Key Outcomes

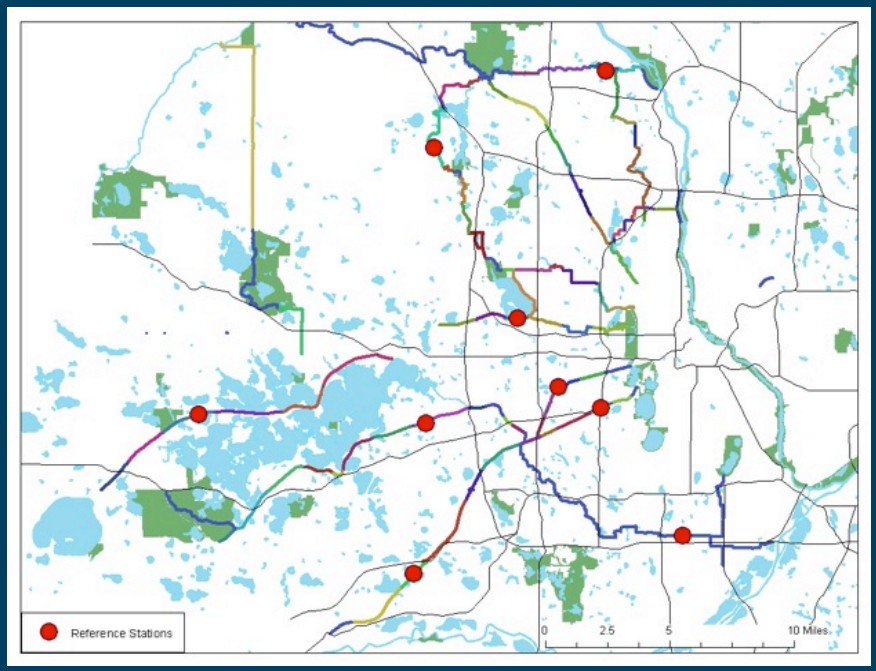
- Local governments: planning & monitoring
  - Hennepin County
    - Master counting plan and new bike monitoring program (60 locations)
  - Duluth
    - Expanded bike monitoring activities
  - Arrowhead Regional Development Commission
    - Purchased counters for Gitchee Gami Trail monitoring
- Local governments: better decisions
  - Mankato: new mid-block crossings based on counts
  - Grand Marais: data for Rt 61 reconstruction (higher priority for funding

Institutionalizing Non-motorized Traffic Counting: New Local Plans

Hennepin County (bike traffic on roads): reference sites, 66 short-duration sites

Three Rivers Park District (trail traffic): 9 reference sites, 109 segments/ short-duration sites





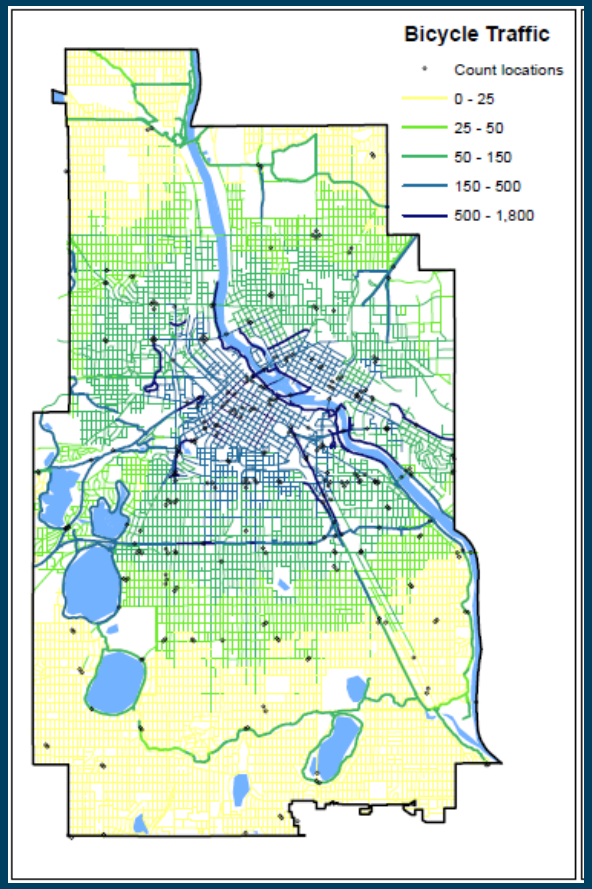
Key Outcomes

- Minneapolis: Top 10 reasons to count

  (thanks to Simon Blenski)

  1. Tell story: increase in benchmark locations
  2. Tell project story: use of Dinkytown Greenway
  3. Identify network needs
  4. Show where cyclists aren't comfortable (on sidewalks)
  5. Estimate crash rates
  6. Analyze complex intersections
  7. Make traffic control decisions (Midtown Greenway)
  8. Design appropriate facilities (e.g., separated paths)
  9. Plan better network (e.g., downtown corridors)
  10. Generate headlines: promote cycling

Key Outcomes

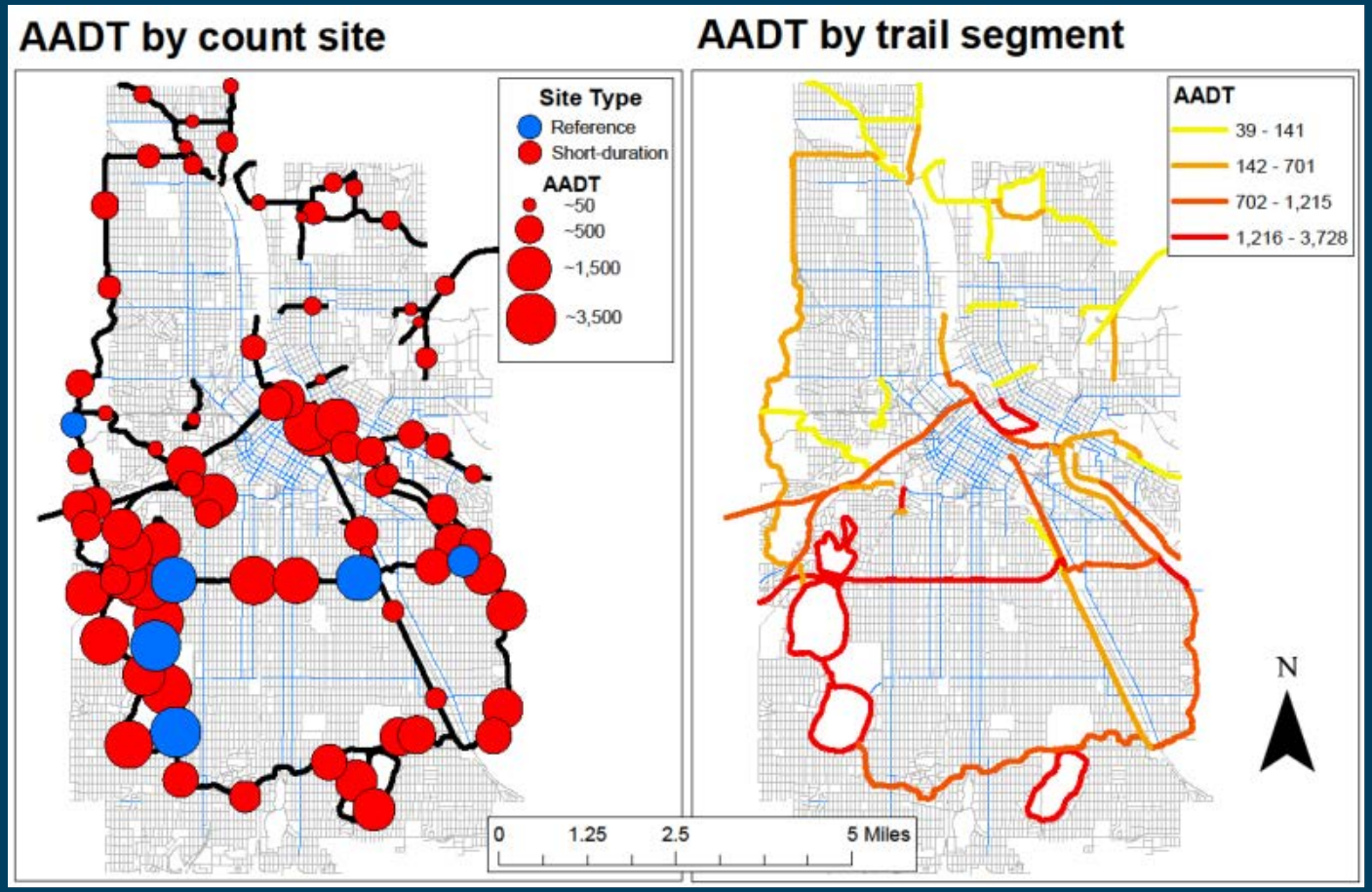


- UMN
  - Estimate models
    - 2 hour counts
    - ± 500 locations
    - FHWA Report to Congress
    - FHWA Nonmotorized Transportation Tool Kit

Key Outcomes (UMN)

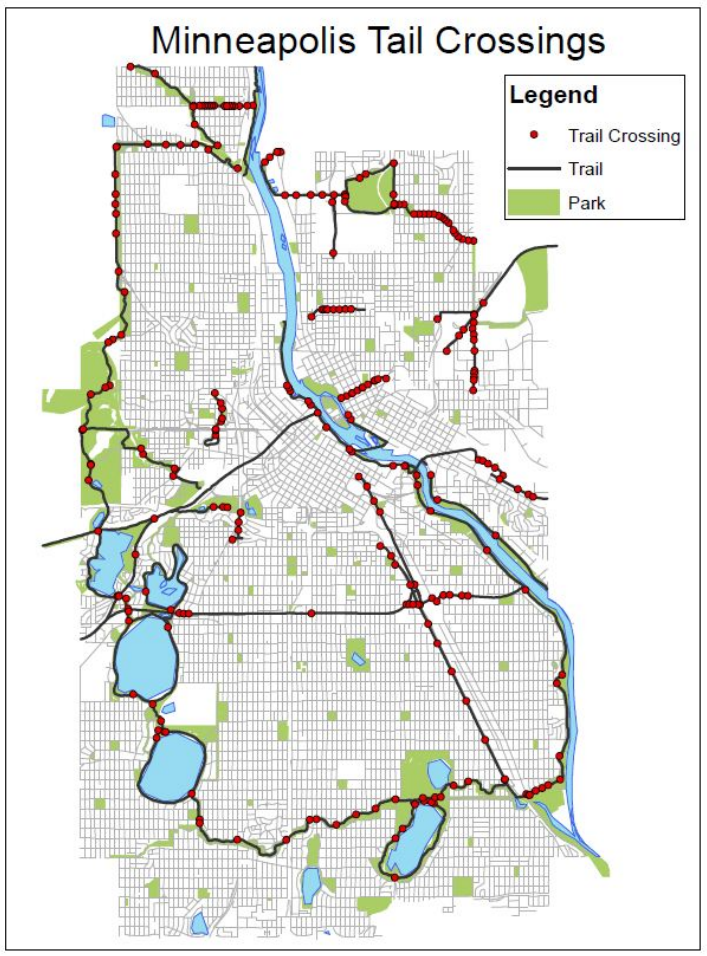
Performance Measures: 28 Million Miles Traveled

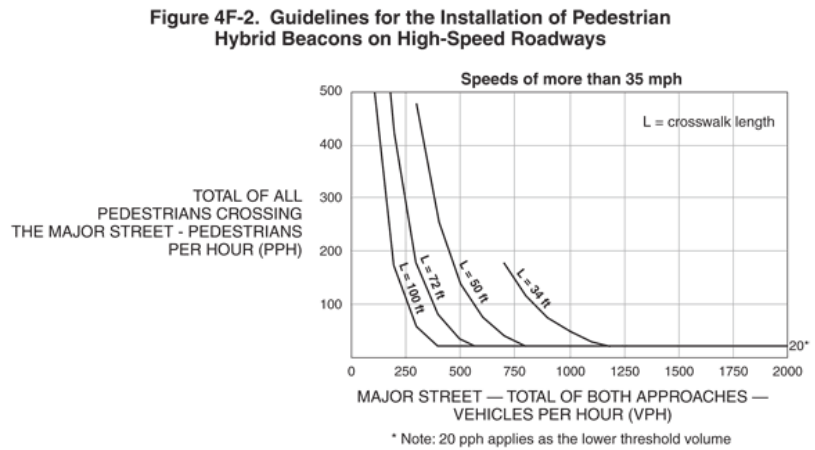
Segment AADT	
Max	3,728
P90	2,321
P75	1,264
Mean	954
Median	750
P25	142
Min	39



Key Outcomes

UMN: Assessing Safety at 192 Trail Crossings





Ghost bike at scene of traffic fatality

Opportunities for Met Council

- Support local government counting initiatives
- Experiment with counting
  - Attend MnDOT training session
  - Borrow MnDOT automated counters
- Purchase portable and permanent equipment
- Augment manual trail visitation counts
- Develop master counting plan
- Build performance measures from counts

Questions? Discussion?

Extra Slides if Questions Arise

- Examples of counters
- Examples of analyses

Validating Accuracy of Commercially Available Counters

MODE / LOCATION	TECHNOLOGY	VENDOR AND MODEL
*Bicycle Counter – Portable – roads**	*Pneumatic Tubes**	*Metro Count MC 5600 and Time Mark*
Bicycle Counter – Permanent – roads	Inductive Loops	Eco Counter ZELT Inductive loops
Pedestrian Counter – Portable – trails	Microwave Active Infrared	Chambers Electronics RBBP7 and Trail Master TrailMaster, Inc.
Bicycle AND Pedestrian Counter – Permanent – trails	Passive Infrared and Inductive Loops	Eco Counter MULTI

*Bike traffic monitoring on roads is priority; potentially can adapt tube counters used by MnDOT.

Inductive Loops & Passive Infrared Lake Walk & Scenic 61, Duluth

Lake Walk
- Tourist destination
- Principal bike route along Lake Superior
- Eco-Multi

Scenic 61
- Popular bike route along Lake Superior
- Eco-Zelt

Inductive Loops on Road Shoulder TH 13 Eagan

Eco Counter ZELT Inductive Loops:
Eagan – TH13 near Lone Oak Road SB & NB

Eco Counter ZELT Inductive Loops:

Pneumatic Tubes

Claussen Ave, Bemidji; Gunflint Trail, Grand Marais

MetroCount pneumatic tube , Bemidji MN.

MetroCount pneumatic tubes
Gunflint Trail, Cook Co. 12, Grand Marais MN.
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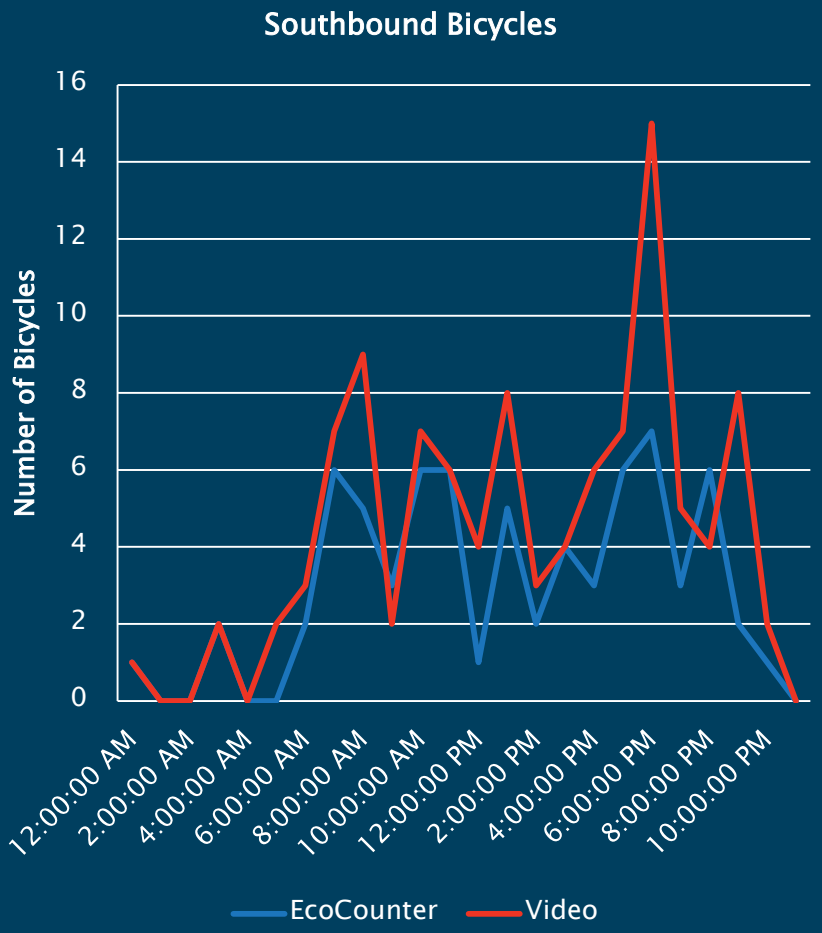
Inductive Loops in Bike Lane
Central Avenue, Minneapolis, MnDOT

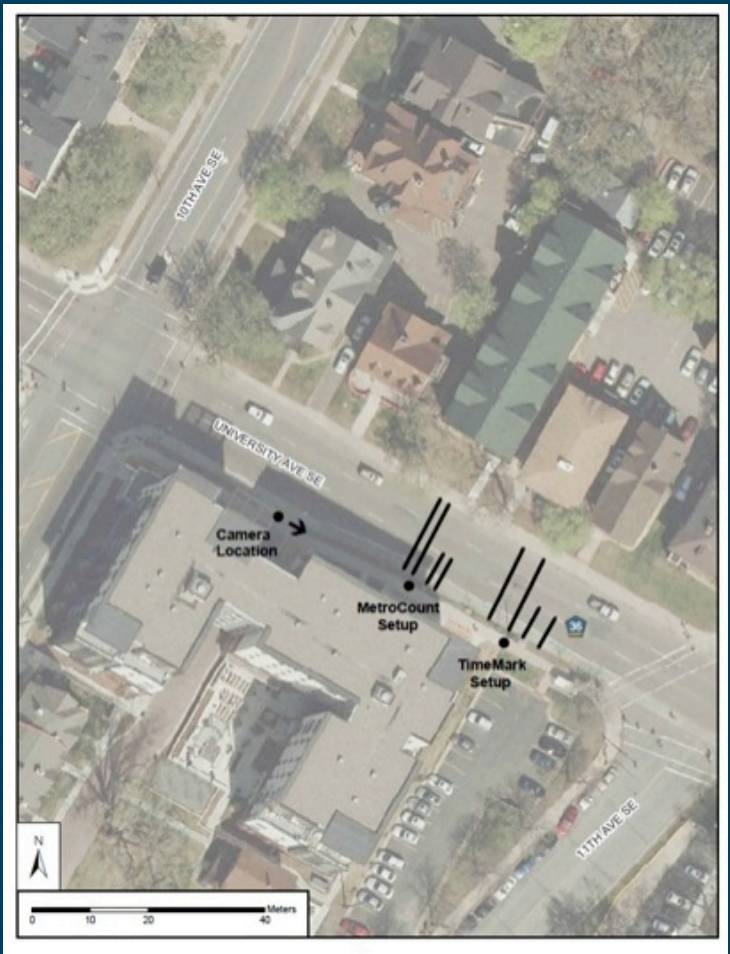
Eco Counter ZELT Inductive Loops:
Minneapolis – Central Avenue NE SB & NB

Sensor systematically undercounts.
Correction equations estimated.



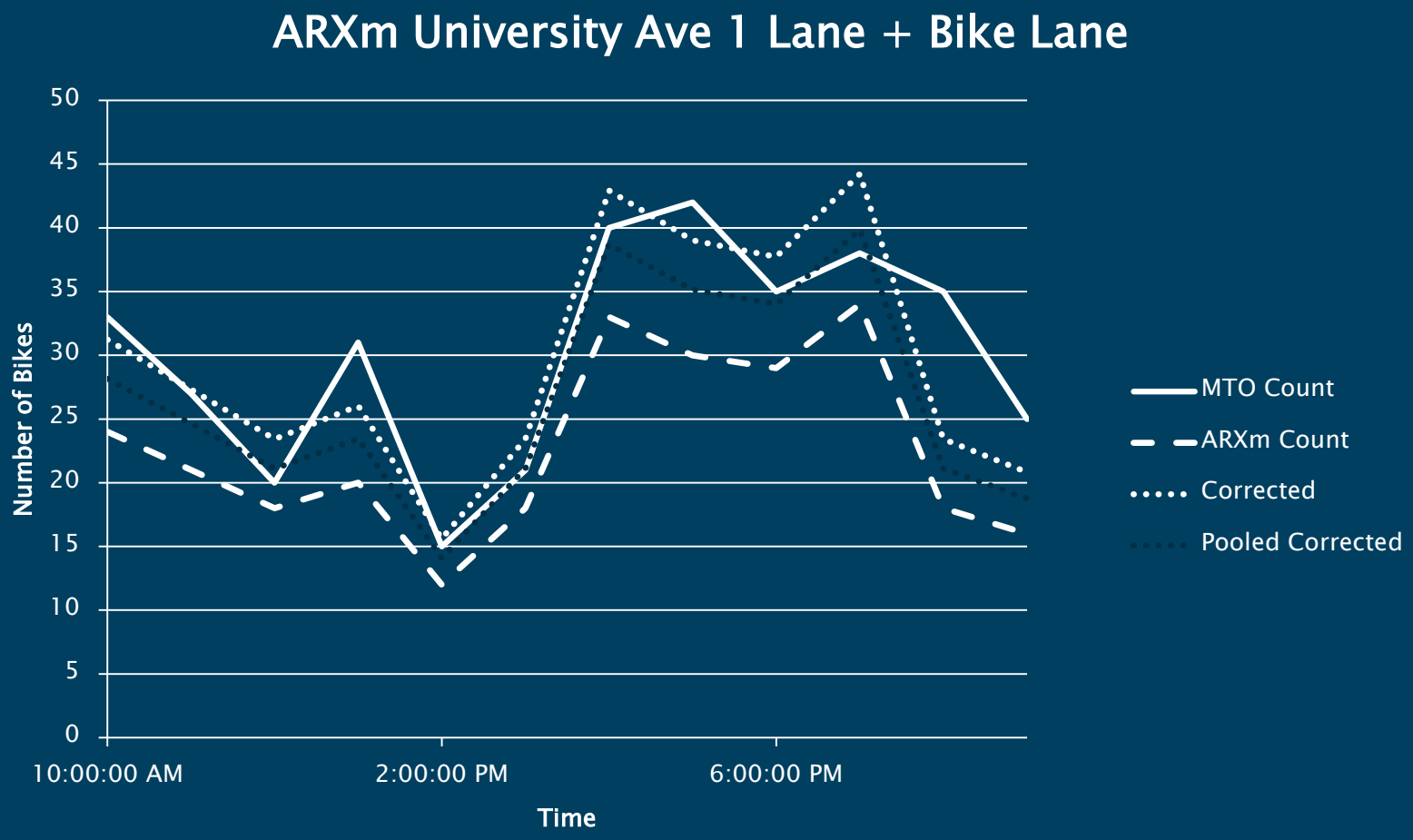
Pneumatic Tubes

University Ave., Minneapolis (Hennepin County)



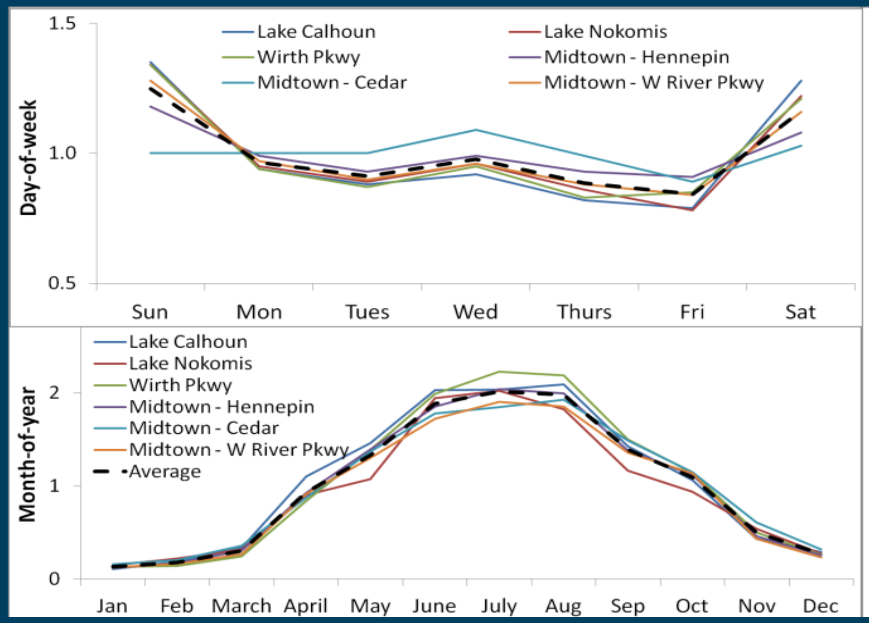
MetroCount and TimeMark pneumatic tube counters.
Hennepin County & MnDOT use TimeMark counters.

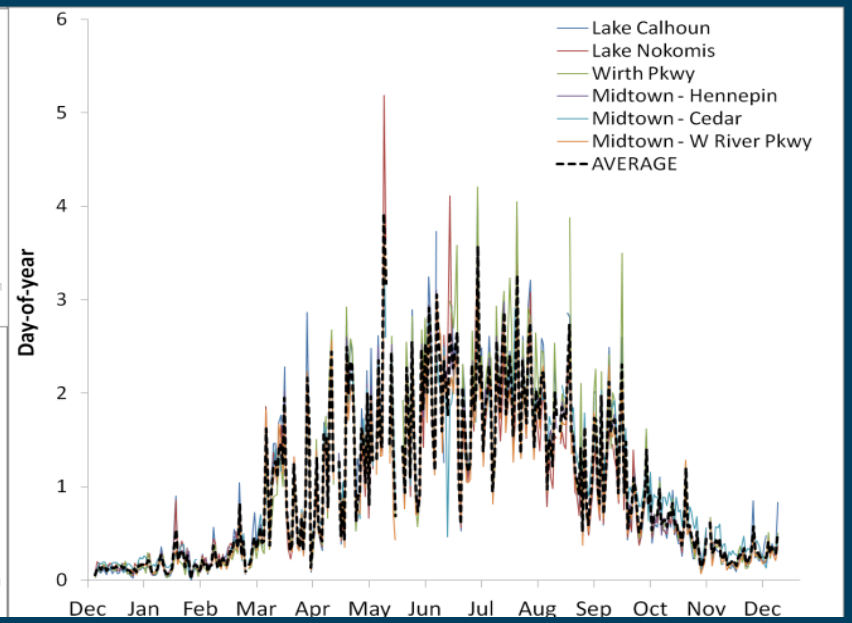
Application of Correction Equations Approximates Observed Traffic Volume



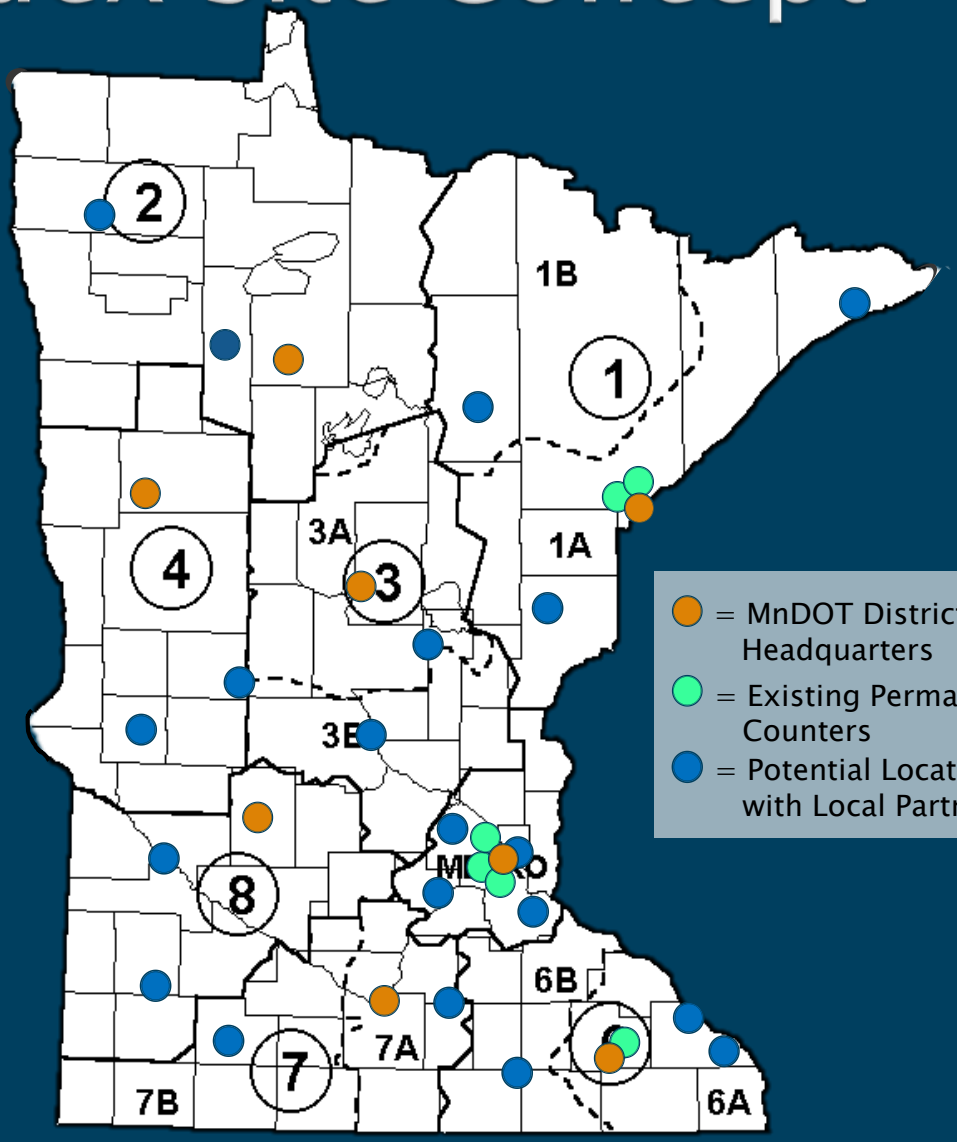
Continuous Site Purposes

- Track statewide trends (performance indicators)
- Develop adjustment factors
- Identify factor groups



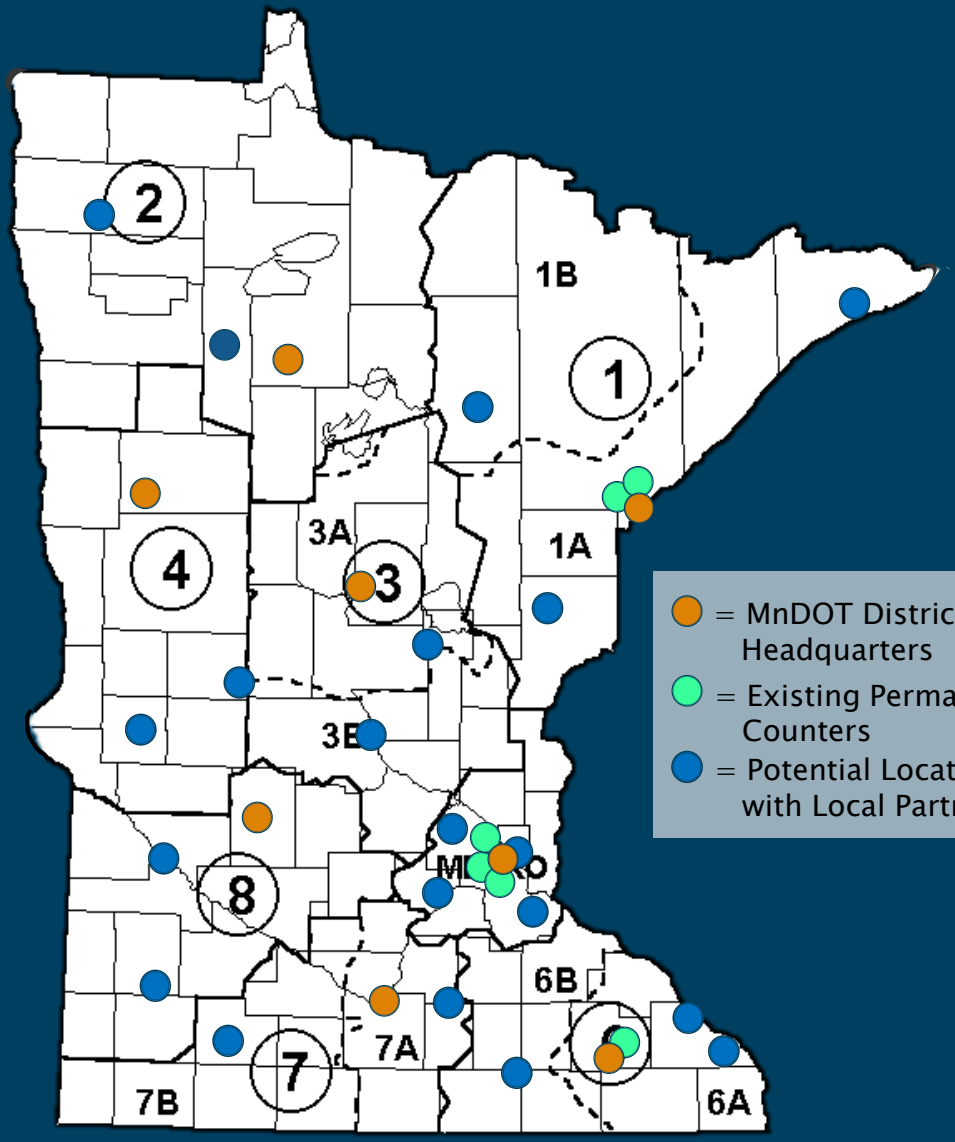


Continuous Index Site Concept



Short Duration Count Concept

- Provide portable equipment in each region
- Support data collection by MnDOT districts and local jurisdictions



Short Duration Count Purpose

- Describe variation in use
- Inform project planning
- Provide broad geographic coverage across the state
- Estimate AADT (AADB, AADP)
- Evaluate warrants and need for traffic controls
- Assist with evaluation of transportation investments and innovative safety treatments