Cambridge Bike Count Network

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City of Cambridge

MIT 6.900
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Context and Background

Jeffrey R. Parenti, PE, PTOE, PTP, ENV SP

B.S., Civil Engineering, Carnegie Mellon

M.S., Civil Engineering, Georgia Tech

~15 years with the City

Traffic, Parking, and Transportation Department

Operations

- Parking Meters, Pavement Markings, Flex Posts, Signs and Sign Poles
- Traffic Signals, Parking Stickers and Parking Tickets

Planning and Design

- Safe and Comfortable Mobility for All Users
- Reduce Vehicle Trips
- Vision Zero

Image: A separated bike lane on Brattle St;
Credit: Kyle Klein

Context and Background

- Vehicle Trip Reduction Ordinance (1992)
  - Commitment to sustainable modes of transportation
  - Rise of bike lanes (5 foot unbuffered)
  - Growing interest in bike safety
  - Rise in bike crashes
    - Consider exposure to risk
    - Calculate crash rates
- Cycling Safety Ordinance (2019)
  - Separated lanes must have buffers and posts
  - 25 miles of bike lanes by November 2026
  - Continued interest in bike safety
  - Some skepticism on the level of bike use

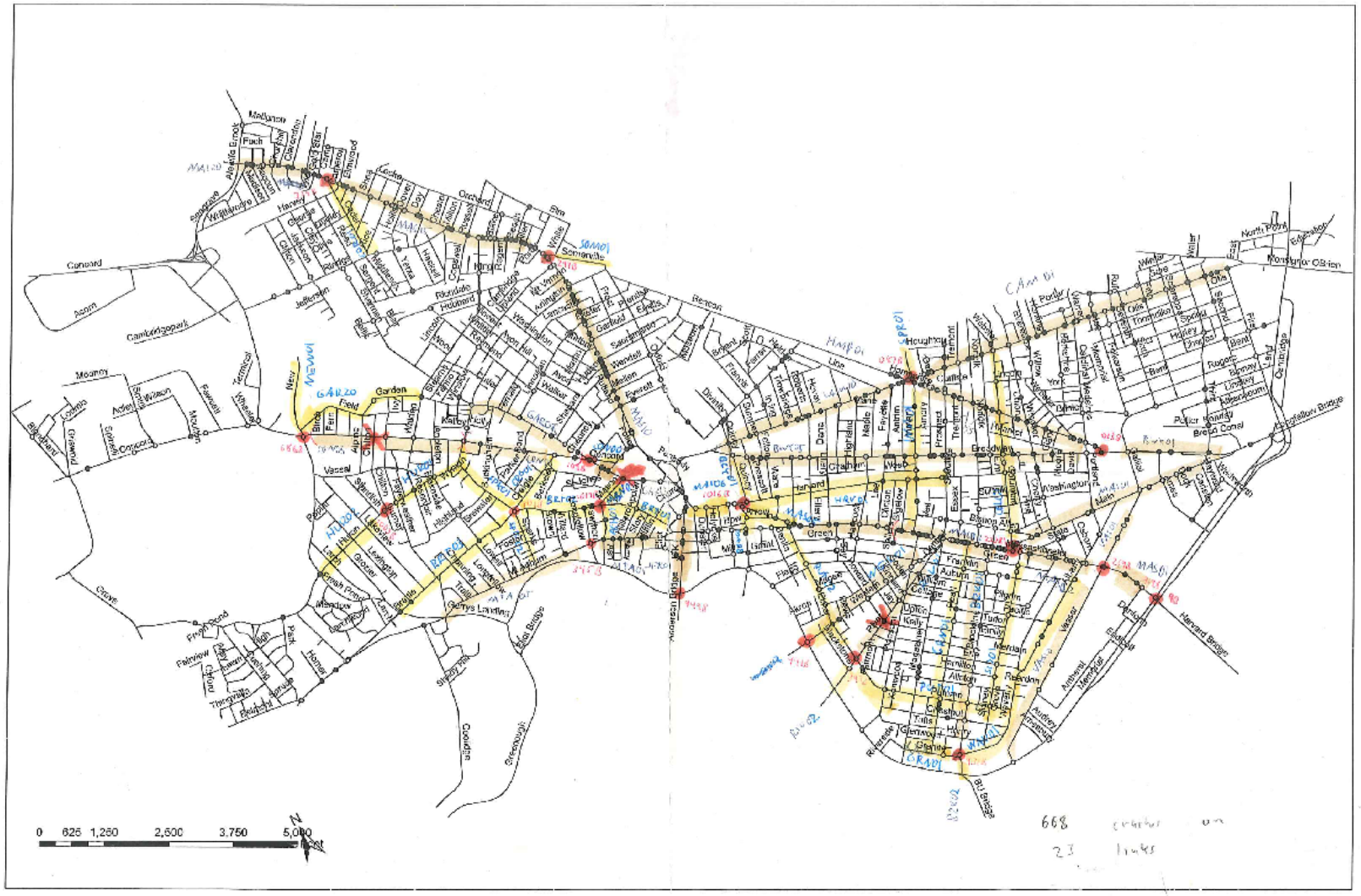
Project Objective

Measure the magnitude of bicycling use

- Citywide
- By corridor
- At intersections

Bicycle Miles traveled

- BMT = Bike Volume x Length of Segment



Engineering Design Process

- Define the Problem
- Identify Design Constraints
- Brainstorm Solutions
- Eliminate Infeasible Solutions
- Evaluate Remaining Alternatives
- Select Preferred Alternative

Bike Count Types

- Permanent stations
  - 18 intersections
  - Kendall Square
- Turning Movement Counts (TMC)
  - AM, PM, Saturday peak period
  - Camera
- Manual Counts

Bike Count Data

- Intersection Miovision data
- Counts required as part of land development projects
- Conducted as part of City improvement projects
- Biannual citywide
- Safety studies
- Permanent stations
  - Kendall Square EcoTotem (inductive loops)
- Census
- BlueBike data

Bike Count Data

CAMBRIDGE CDD@344

COMMUNITY DEVELOPMENT DEPARTMENT
344 Broadway

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Getting Around Cambridge

- By Foot
- By Bike
  - Rules of the Road
  - Cambridge Bicycle Plan
  - Bicycle WikiMap
  - Ebikes
  - Designing for Bikes
  - New and Current Bicycle Projects
  - Bluebikes Bike Share
  - Bicycle Parking
  - Bicycle Toolbox
  - Bicycle Workshops
  - Bicycle Crash Information
  - Reporting Vehicles Blocking Bike Lanes
  - Bike FAQ
  - Bicycle Data
  - Broadway Eco-Totem Bicycle Counter
  - Policies
  - Safety
  - Wayfinding

CDD > Transportation > Getting Around Cambridge > By Bike > Bicycle Data

Bicycle Data

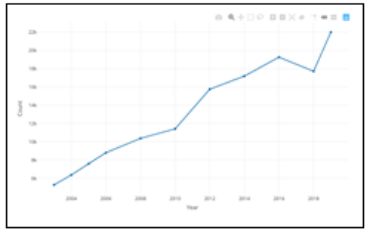
The City of Cambridge uses a variety of data to evaluate bicycling conditions in the city. These data are used to help measure growth, identify issues, determine what is and is not working, and make decisions to improve bicycling conditions for people of all ages and abilities.

Click in the boxes below to learn more about different kinds of bicycle data available.

Bicycling in Cambridge Data Report

This 2023 report contains updated information and analyses of bicycle data trends.

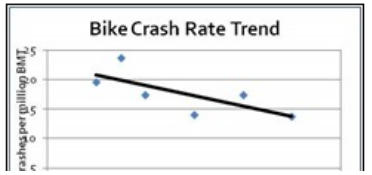
Citywide Bike Counts



View an interactive data application of the City's regular citywide bike counts. These counts have been collected at intersections throughout the city since 2002. Counts can be viewed as a chart or downloaded as a spreadsheet.

Bluebikes

Bicycle Crashes



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344 Broadway

Definition of the Problem

- Existing count data is fragmented and difficult to analyze
  - Spot counts in many locations
  - Permanent stations in a few locations
  - Much of the data is on paper
  - Electronic files are in multiple formats
- Commercial count devices are expensive and require subscriptions

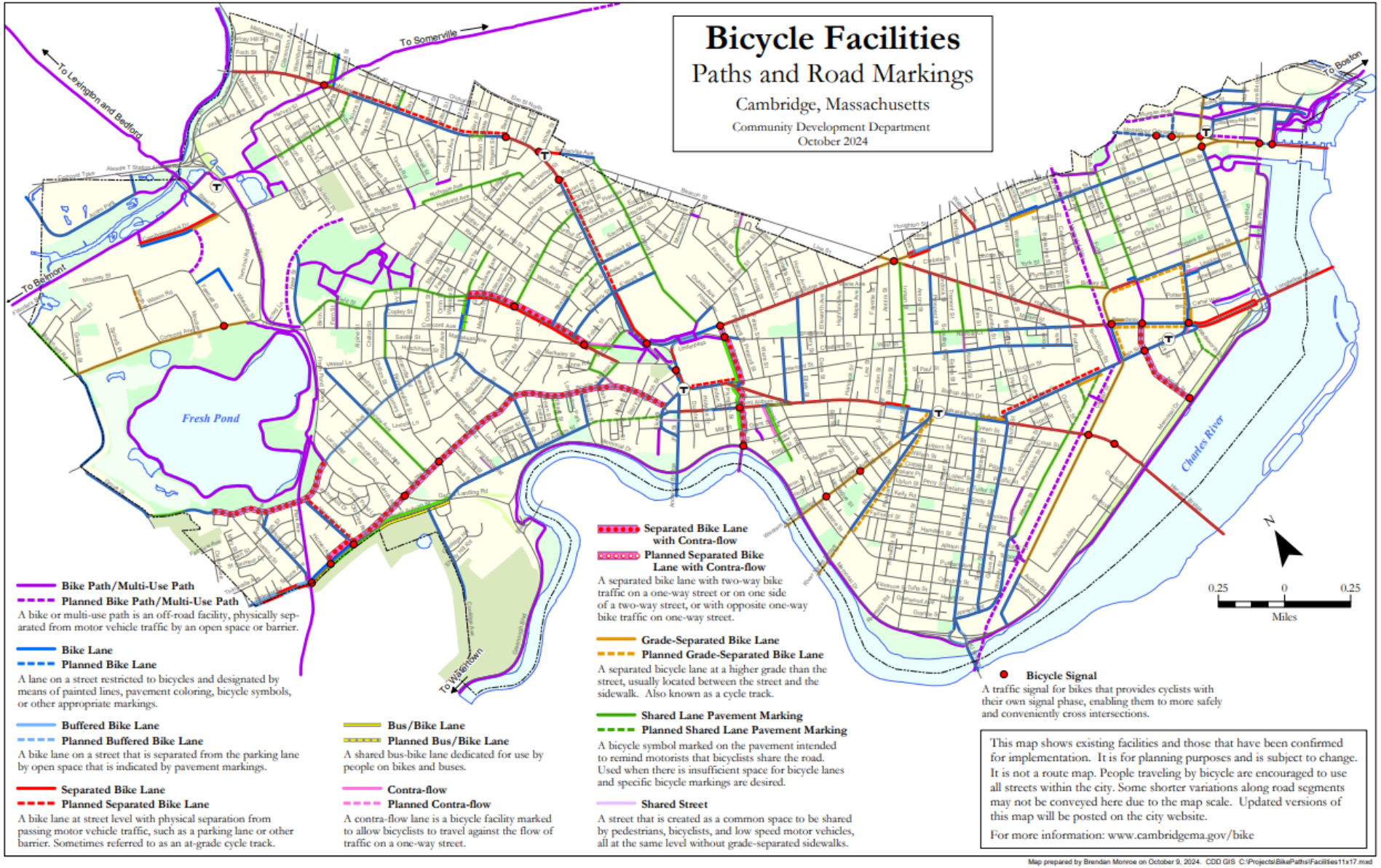
Design Constraints and Parameters

1. Measure bike volume (number and direction)
   a. Speed is not necessary
2. Operate without line voltage
3. Installable by a technician without altering the roadway
4. Report faults (battery, vandalism, etc.)
5. Inexpensive (installation and maintenance)
6. Operate at all times
7. Communicate wirelessly

Design Constraints and Parameters

8. Data tied to a location
9. Data should not ID individuals
10. Operate independently without servicing for at least a year
11. Withstand Cambridge weather
12. Multiple systems should be used simultaneously
13. Present information to end user in a useful way

Count Locations



Q & A

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