

ESG Research and Data Analysis: Overview

The ESG group leads and assists on a variety of projects aimed at providing data, research, and tools that support a range of transportation planning and decision-making activities. ESG staff are mixed-methods analysts that are proficient at quantitative, qualitative, and spatial techniques, as well as dashboard and application development. ESG staff manage projects as well as provide advisory services and general support for many research and analytics efforts.

Skillsets that ESG offers include:

- Proficiency in transportation data platforms including but not limited to Conveyal, Replica, RITIS, REMIX, and MS2
- Spatial data analysis and visualization in ESRI, as well as dashboard development in ESRI Experience Builder and Microsoft PowerBI
- Developing scripts for geospatial and data analysis in Python and R
- Data visualization and graphic design support with expertise in Adobe Illustrator, Photoshop, and InDesign
- Dataset identification (Census data; location-based services data; national, state, and proprietary sources) and aggregation
- Metric development

The following slides offer examples of projects that ESG has managed, advised on, and provided general support for, in collaboration with an array of MassDOT modal divisions and planning groups.

Measuring Access to Improve Public Health Role: Project Advisor

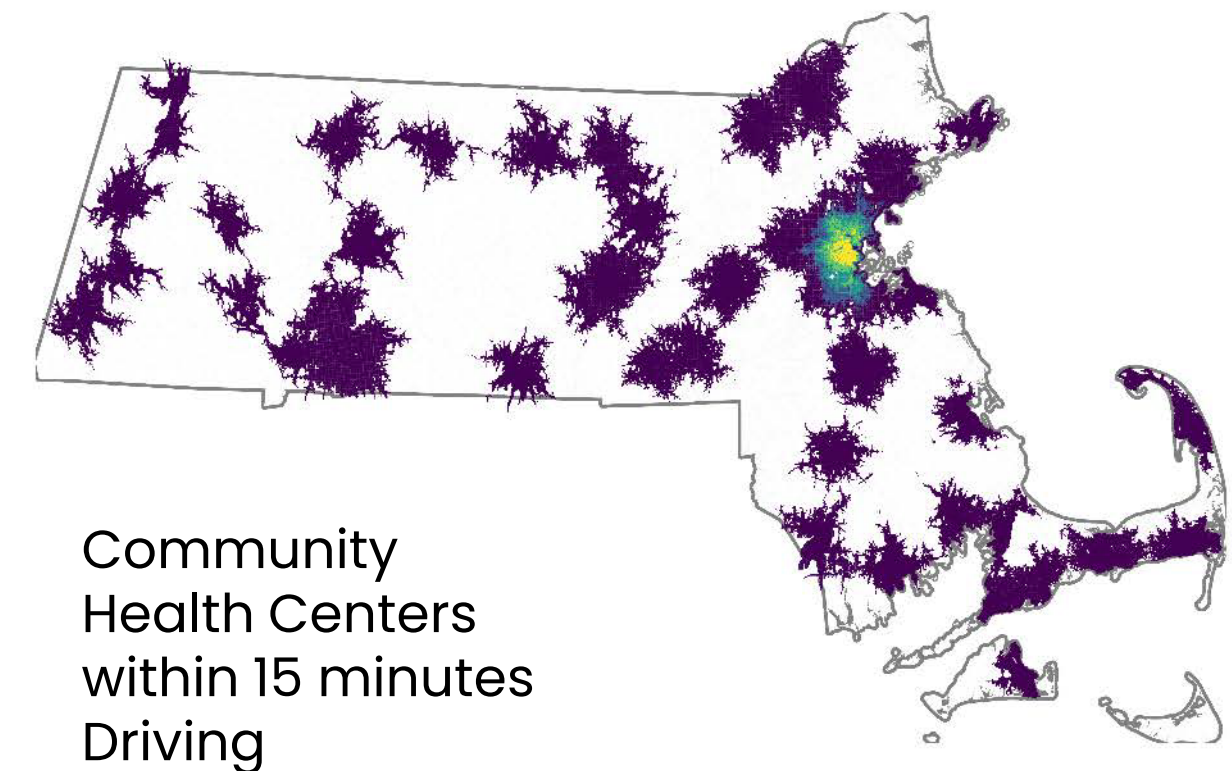
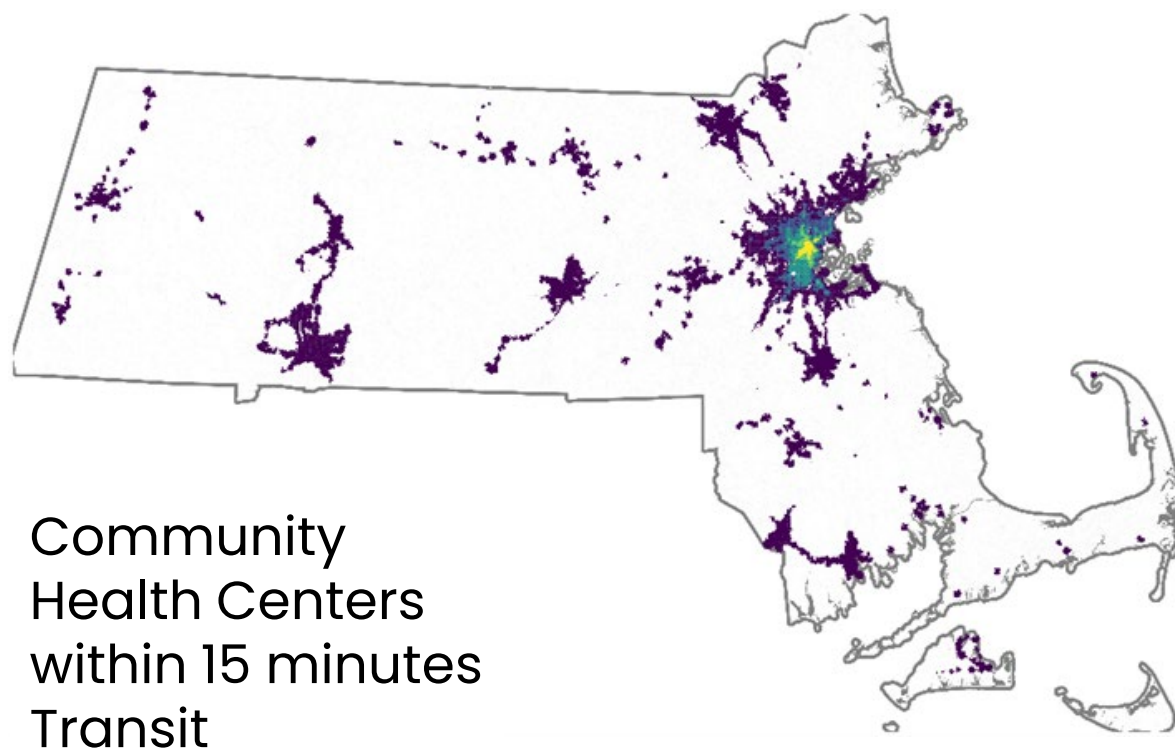
A partnership between MassDOT and UMass Amherst, the Measuring Access to Improve Public Health study was conducted in two phases. The Phase I study identified three research opportunities that became the focus of Phase II:

- Accounting for microtransit and quality of infrastructure **in access metrics**
- Metrics and analysis should account for locations of REJ+ populations
- Measurements of access should include more public health-related determinants, such as healthcare, education, and recreation.

The Phase II study **proposed metrics related to walk access, bike access, and transit access** (including microtransit). Using these metrics, the researchers **examined the relationship between access, demographic variables, and three chronic diseases**, diabetes, heart disease, and obesity.

Results:

- There is **more access across MA by driving** than by walking, biking, or transit.
- **Transportation access is a significant determinant of public health outcomes.** In particular, limited access among low-income and zero-vehicle households is especially associated with poorer health outcomes.



The People and Transportation Project **Role: Project Manager**

The People and Transportation Project is a **participatory research project** the MassDOT Office of Transportation Planning (OTP) conducted in partnership with the [MassINC Polling Group](#) and [Way Finders Community Development Corporation](#). This project employed **survey and focus group methods** to gain critical insight into the **lived experiences of Way Finders's client population and low-income residents across the greater Springfield region.**

The project comprised a **survey** of over 1,600 Way Finders clients, a survey of 601 other residents of Hampden and Hampshire counties with household incomes of less than \$75,000, and eight **focus groups** of Way Finders clients (four conducted before the surveys and four after).

Some findings:

- **Transportation is a financial burden for lower-income residents**
- Despite the costs, **residents rely on cars** – driven by themselves or others – to get around.
- **Other modes of transportation**, such as public transit or ride-sharing apps, **pose challenges** including speed, access, cost, and safety.
- **Getting to Boston is a major challenge**; there is latent demand for West-East Rail.
- **More early-morning transit service** could help those working early or late shifts.



MassDOT Issue Briefs

Role: Project Manager



Issue Briefs

Assessing Community Access to Transportation
MassDOT Environmental, Social, and Governance



Through **research** and **interviews**, MassDOT's Office of Transportation Planning (OTP) will be writing a series of issue briefs, each focusing on a different community and **the issues they face in accessing transportation in Massachusetts**, as well as the ways in which MassDOT and the MBTA are seeking to address those issues through their work.

The issue briefs are a demonstration of **MassDOT's interest in better understanding the lived experiences of the Commonwealth's travelling public**. They are intended to be informative for transportation stakeholders at-large, with an emphasis on transportation sector decision-makers.