Health, Equity and Transportation: Policy, Funding, Data Collection

Rochelle Carpenter
AMPO Conference
October 23rd, 2014
Mayor Karl Dean, Chairman
The Next Boom Town

• Forbes 7/2011: Nashville is #3 Boom Town in Country

• Atlantic Cities 8/2012: Nashville rated #1 in Metro Music Index

• Forbes 8/2012: Ranked Nashville #9 on its list of cities with the greatest "brain gain." The ranking charts the metropolitan areas that have experienced the fastest growth in their college-educated populations in the past decade.

• Business Insider 6/2012: Nashville is #9 on Business Insider's list of "15 hottest American cities of the future."

• Gallup Poll 3/2012: A survey released by Gallup in March showed that the Nashville region was one of the top five metro areas for job creation.
History of Expansive Development

Strong Cross-County Commuting Patterns
Growing Costs of Traffic Congestion
Household Budgets Consumed by Transportation Costs
Longer Travel Times
Few Options for Seniors
Dangerous by Design
Housing Choices
Worsening Personal Health / Increasing Costs
Inactivity in Tennessee

- 2011: 61% fail to meet aerobic physical activity guidelines
  - National rank: 50th

- Nashville area slightly better: 57%
- Tennessee tied for 10th highest prevalence of obesity (31.1%)

Physical inactivity: 2011 BRFSS; obesity: 2012 BRFSS
The promise of performance measures

- Saving money
- Prioritizing community values
- Communicating community-supported benefits of transportation projects
Why Health?

- The health of Middle Tennesseans is our responsibility

- Health and health disparities help diversify public engagement and make transportation policy more relatable
MPO Health Initiatives

- **Policy**
  - Dedicated Staff
  - Identified Active Transport a Leading Regional Initiative

- **Funding**
  - Updated Project Scoring Criteria to Include Health and Equity in Evaluation of Transportation Projects
  - Restructured Existing Funding Sources so More Money is Spent on Active Transportation

- **Data & Modeling**
  - Regional Data Collection Effort to Provide Baseline Evidence for Policy Benchmarking
  - Implementation of Health Outcome Model
Nashville Area MPO – 2040 Update

- Develop and adopt performance measures
- Communications and public engagement strategy: translate transportation goals as health goals and do creative placemaking
- Design and fund projects that meet healthy, equitable goals
- Analyze health, socioeconomic and transportation data
A Bold, New Vision for Mass Transit

Support for Active Transportation & Walkable Communities

Preservation & Enhancement of Strategic Roadways

Nashville Area Metropolitan Planning Organization

nashvillempo.org
More Complete Streets

70% of adopted roadway projects include sidewalks, bicycle lanes, or shared-use lanes (up from 2%)
Middle TN Public Opinions

1st choice: improve and expand mass transit options

2nd choice: make communities more walkable & bike-friendly

3rd choice: build new or widen existing roadways
What We Accomplished: A Regional Vision

Bikeways

Sidewalks
#1
A Bold, New Vision for Mass Transit

#2
Support for Active Transportation & Walkable Communities

#3
Preservation & Enhancement of Strategic Roadways
MPO’s Health Investment Strategy

Roadway Funding:

- 70% - Roadway projects that improve health
- 15% - Sidewalks, bicycle lanes, greenways, transit stops, and education
- 10% - Transit
- 5% Intelligent Transportation Systems
MPO’s Urban STP Investment Strategy

70% to Location Specific Roadway Improvements

- Quality Growth and Sustainable Development – 15%
- Multi-Modal Options – 15%
- Health & Environment – 10%
- Safety & Security – 10%
- Congestion Management – 10%
- State & Local Support/Investment – 15%
- System Preservation & Enhancement – 15%
- Freight & Goods Movement – 10%
What We Learned – Health Analysis

There is a strong link between the lack of physical activity and health (e.g., heart disease, obesity, and other chronic conditions).

Research has also shown certain population groups have a higher disparity. These groups include:

- Low Income
- Minority
- Older Adults (over 65)
Middle Tennessee Transportation and Health Study

Transportation, Physical Activity and Health Data Collection and Analysis

www.middletnstudy.com
Research Objectives

- Baseline Data & Initial Exploration of Links between Built Environment, Transport, & Health
  - Socio-economics, travel behaviors, area type, physical activity, eating behaviors, health outcomes
- Inform Policy and Funding of MPO 2040 Regional Plan
- Behavioral Data for Regional Travel Demand Modeling
  - Traditional 4-Step Model Update
  - Activity Based Modeling Transition
The Middle Tennessee Transportation and Health Study

- 6,000+ Households, 7 counties

- Traditional transportation study
  - Transportation habits
  - 1-day travel diary

- General health questions

- 10% health sub-sample:
  - Expanded health questionnaire
  - Accelerometer + GPS monitor

Active transport assessment

- # Times last week travel by walk/bike, non-exercise
- Mode: walk or bike
- Purpose: not “loop” or exercise/leisure

- # Days last week walk/bike to go from place to place
  - Duration per day
Health Survey Components / Domains – HPA Person

Characteristics of the HHs neighborhood
• Neighborhood Food Environment, Infrastructure for walking & Traffic hazards

Individual-level behaviors and health status (food, physical activity, health quality, and chronic conditions)
• Meals and Snacks Ate (see Health Survey Reminder Card, next slide)
• Food Away from Home Frequency

International physical activity questionnaire - Short last 7 days self-administered format
• Moderate and Vigorous Activity Questions – Time Spent

International physical activity questionnaire - Long last 7 days self-administered format
• Part 2 - Transportation and Physical Activity, Recreation
• Part 4 - Sport and Leisure-Time Activity
• Part 5 - Time Spent Sitting

Health – Related Quality of Life
Chronic Health Conditions
Health Questions – All Persons / All Households

Q1 During the last 7 days, how much time did you usually spend sitting on a weekday? (Please report in hours; for example: 8.5 hours)

Q2 Which of the following statements best describes how physically active you are in a typical week.
   1. I rarely or never do any physical activity.
   2. I do some light or moderate physical activities.
   3. I do some vigorous physical activities.

Q3 In general, how healthy is your overall diet?
   1. excellent  2. very good  3. good  4. fair  5. poor

Q4 Would you say that, in general, your health is:
   1. excellent  2. very good  3. good  4. fair  5. poor

Q5 About how much do you weigh without shoes?

Q6 About how tall are you without shoes?
Health & Physical Activity Sub-Study

• 10% of all households participate in health study
  – One adult (18-75) to receive a GPS and accelerometer
  – All other adults (16-75) receive GPS
  – Wear for 4 days

• 60+ question health survey available once retrieval complete and equipment returned
  – survey based on BRFSS, IPAQ, & SF-12

• Incentive offered for completion of all elements
Package for three-person household
Agreement - Bicycling

% Responding "Yes"

Transportation Question
Health Question

Days/times per week with non-exercise bicycling:
- none
- 1-2
- 3-4
- 5+
Accelerometer and GPS

Adapted from GeoStats, Inc. report, Nashville Pilot Study
Modeling Health Impacts

What could happen if we successfully increase walking and bicycling in Middle Tennessee?

Models can help: Integrated Transport and Health Impact Model (ITHIM) – developed by CEDAR in UK
### Diseases and Exposures

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<thead>
<tr>
<th>Physical Activity</th>
<th>Air Pollution</th>
<th>Collisions</th>
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<td>Ischemic Heart Disease</td>
<td>Respiratory Infections</td>
<td>Auto</td>
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<td>Depression</td>
<td>Cardiovascular Disease</td>
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- **Key Point: Thoroughness = Data-hunger!**
Mayor Karl Dean, Chairman

Green Hills

NASHVILLE AREA
Metropolitan Planning Organization

Existing Conditions
Health and Transportation Links

- Research linking walkable neighborhoods, transit use and physical activity guidelines
- Air quality linked to respiratory complications, such as asthma
- Access to jobs, nutritious foods, health care services

Wener & Evans, Environment and Behavior, 2007
Lopez-Zetina, Health and Place, 2006
What role does transportation have in protecting our environment?

Health and Transportation Links


Mayor Karl Dean, Chairman

Nolensville Pike: City’s First Bilingual Crosswalk

Crews from Kerr Brothers & Associates work on the crosswalk where a bilingual crossing sign was installed Wednesday at Nolensville Pike and Glenrose Avenue.

(Photo: Jae S. Lee / The Tennessean)
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