

Mayor Karl Dean, Chairman



NASHVILLE AREA

Metropolitan Planning Organization

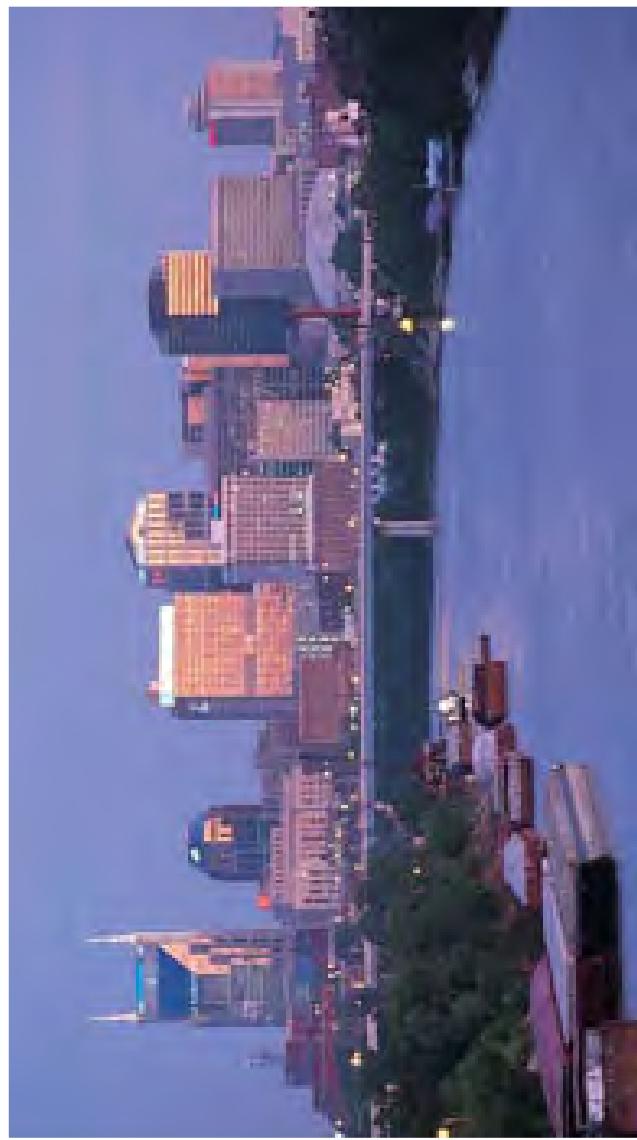
Incorporating Health in Regional Transportation Planning

Michael J. Skipper, ACIP - Director
Leslie A. Meehan, AICP – Senior Transportation Planner
Walk 21 Symposium
October 6, 2011

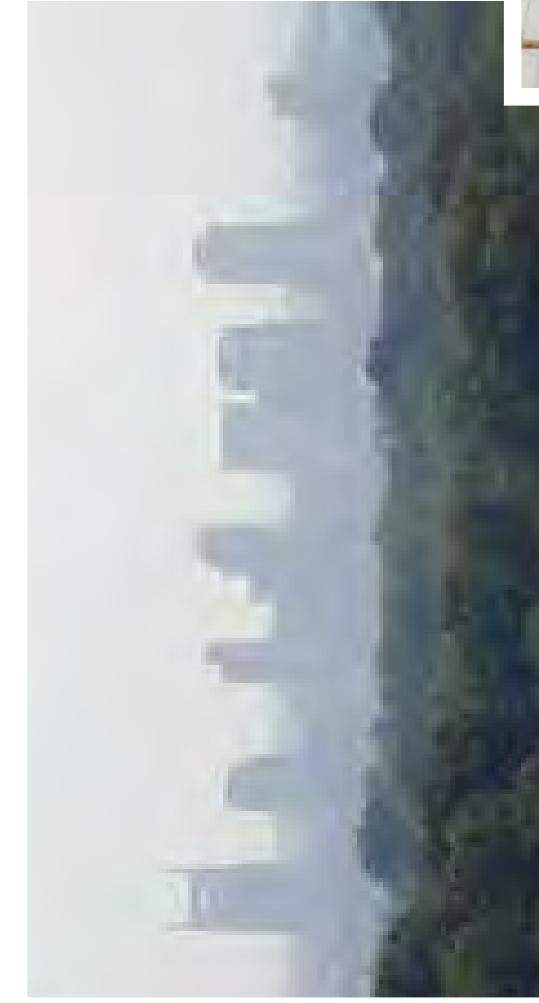
Objectives for Today

- ➔ Frame the Issues
- ➔ Relationship between Transportation and Health
- ➔ Establish a Vision
- ➔ Major Policy Initiatives of the MPO
- ➔ Provide the Evidence for Support
- ➔ Regional Bicycle and Pedestrian Study
- ➔ Choose a Path
- ➔ 2035 Plan Investment Strategies
- ➔ Keep At It
- ➔ Ongoing efforts to link Transportation & Health

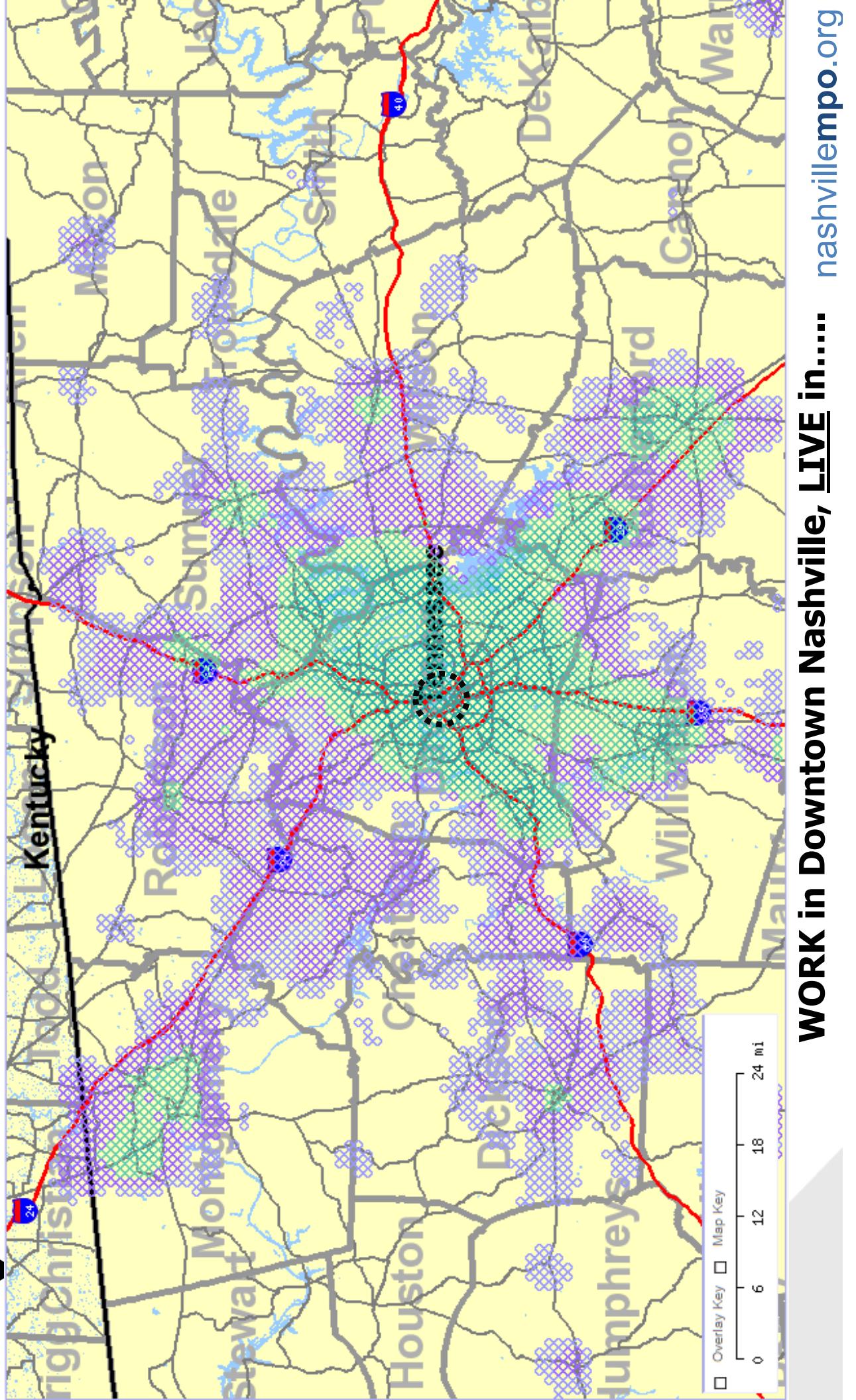
The Middle Tennessee Area



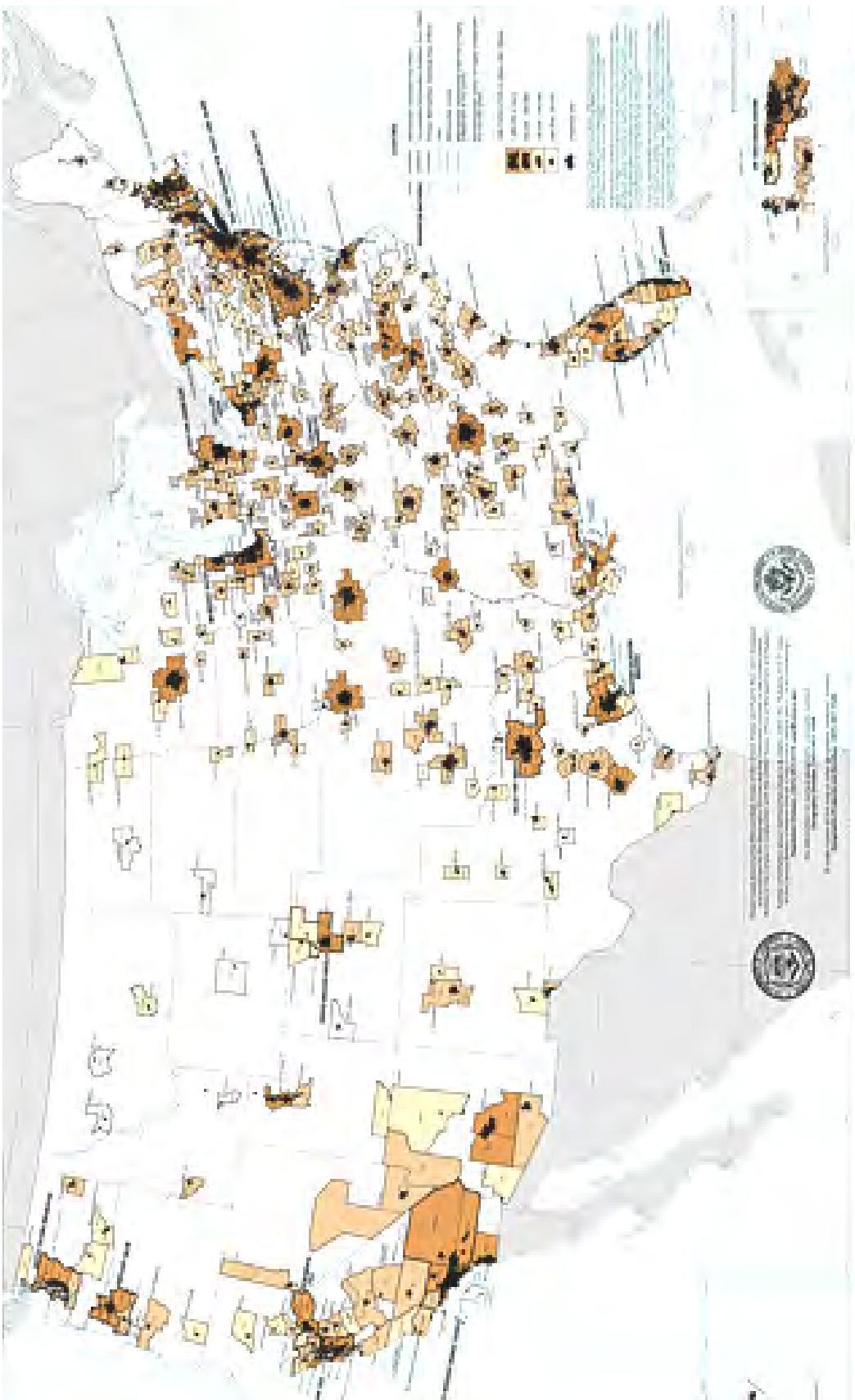
The Middle Tennessee Area



Heavy Cross-County Commuting

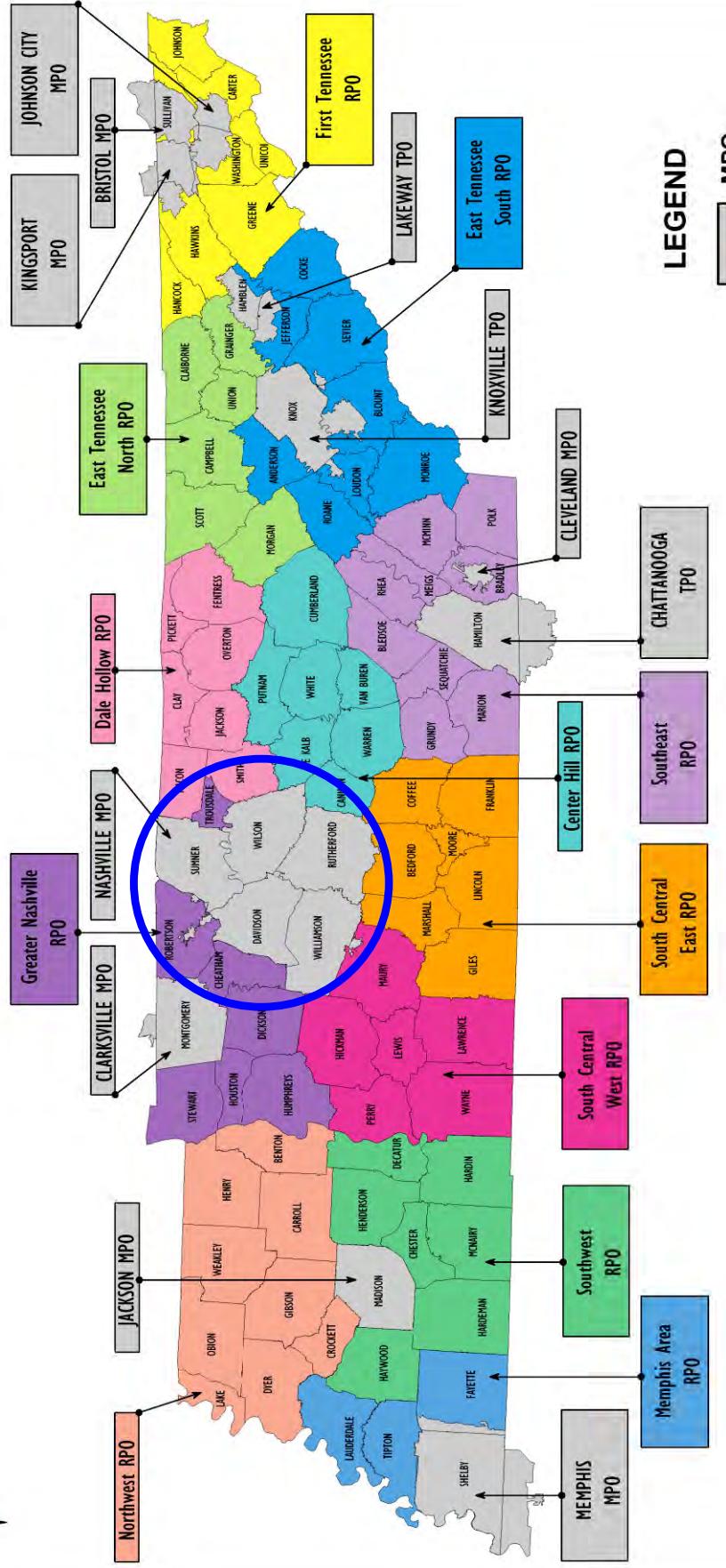


Metropolitan Planning Organizations



MPOs in Tennessee

MPO/ TPO/ RPO Planning Areas



The Tennessee Department of Transportation, Long Range Planning Division,
GIS Mapping and Facilities Data (TRIMS) Office provided this illustration.
For comments or questions please contact : 615-741-3214

Development Pattern, 1965-2035

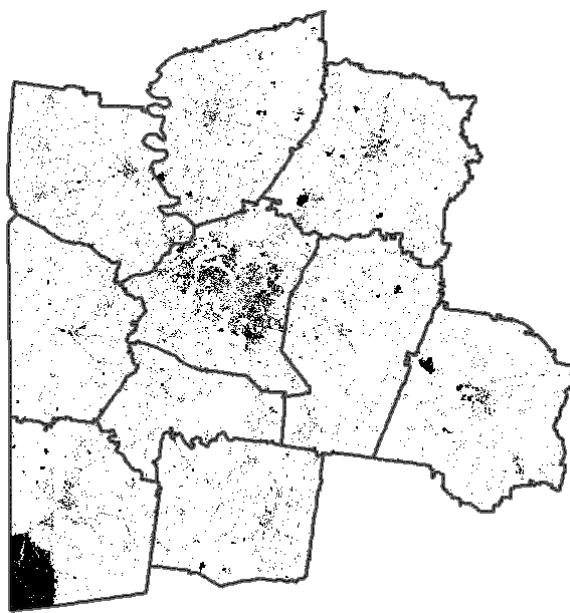
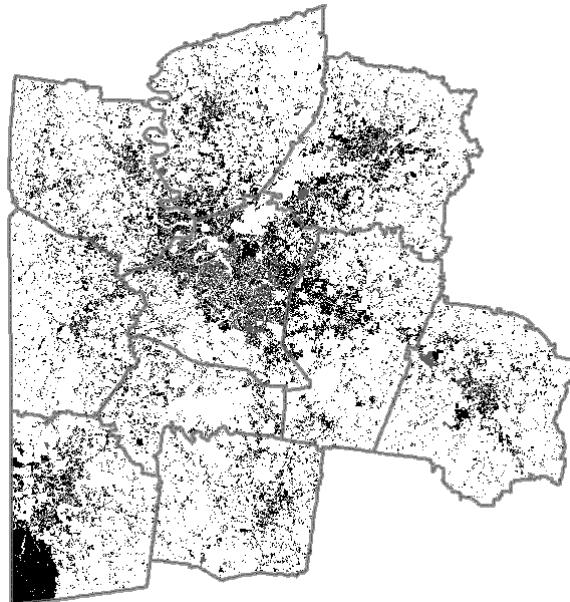
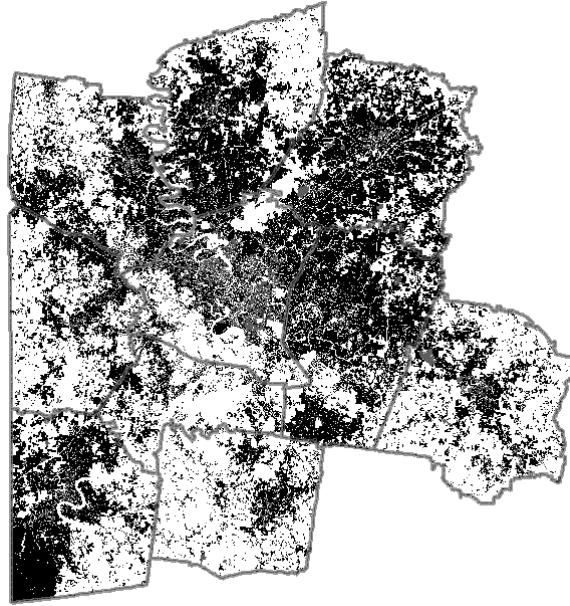
Population

2035
2,600,000

*(In 2035, the Nashville region will be
about the size of the Denver region today)*

2000
1,450,000

1965
750,000



Properties affected by development

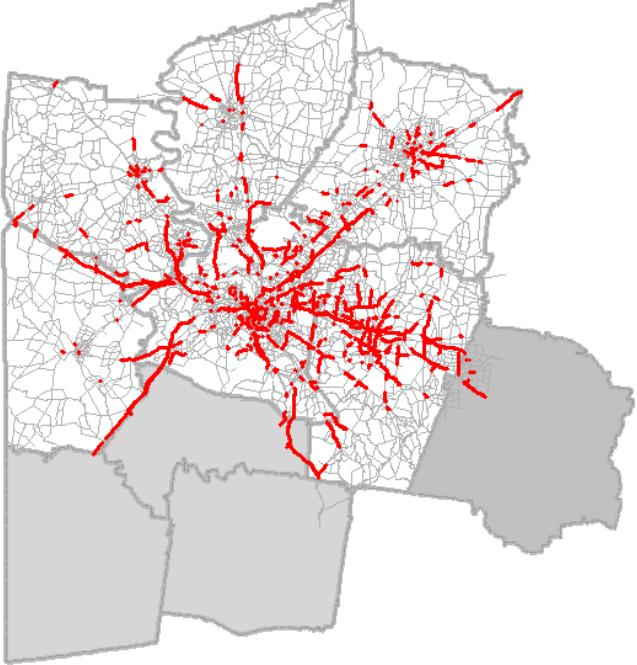
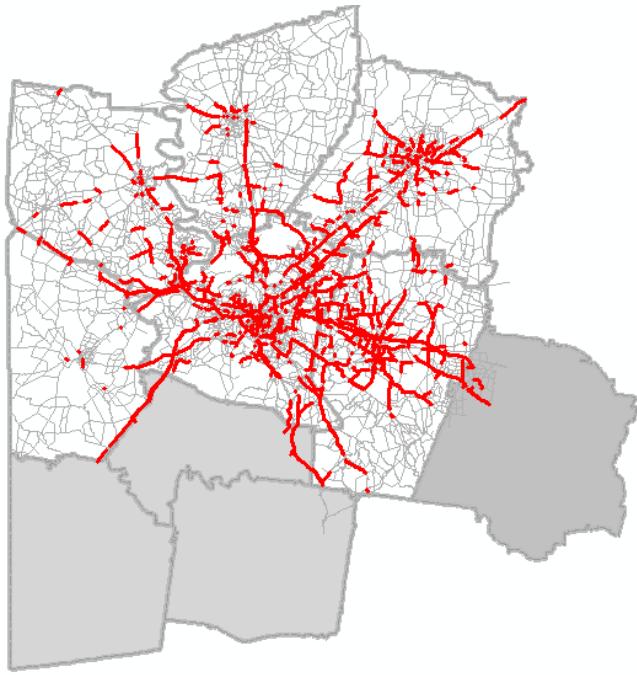
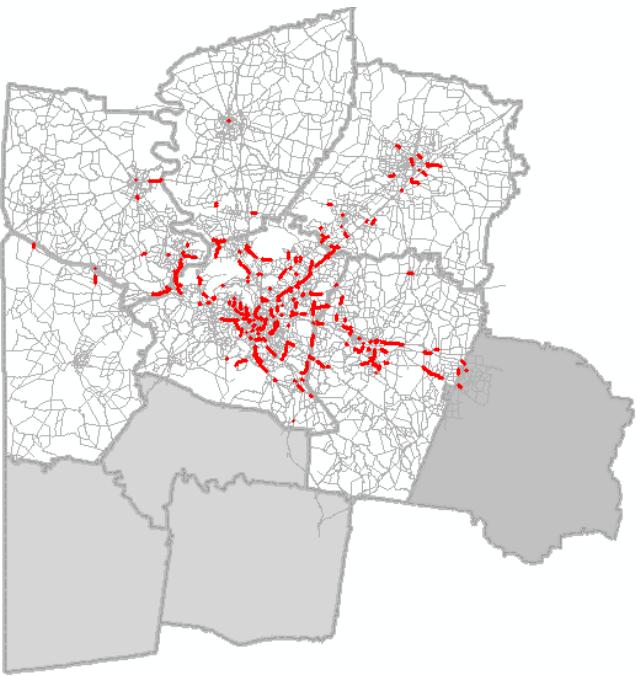
Resiliency in Urban Congestion

TODAY

2030

w/ Short-Term Improvements

2030
After Long-Term Improvements



Congestion in Urban Areas Cannot Be Treated with Roadway Capacity Alone.

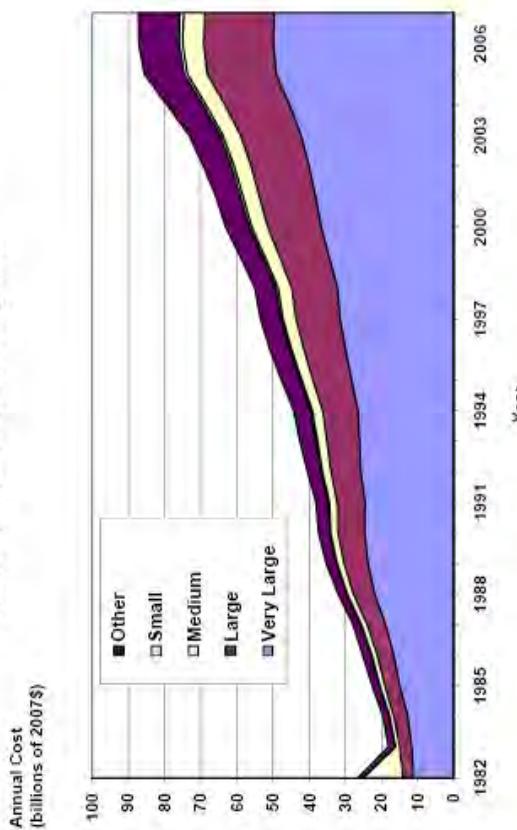
Daily Recurring Congestion on Major Roadways.

Texas Transportation Institute Urban Mobility Report, 2009

**Nashville-Davidson Urbanized Area
Cost of Congestion (wasted fuel & time):**

**\$ 624 Million, Annually
\$ 15.6 Billion, over 25 years**

Exhibit B-12. Annual Cost of Congestion



The Mobility Data for Nashville-Davidson TN

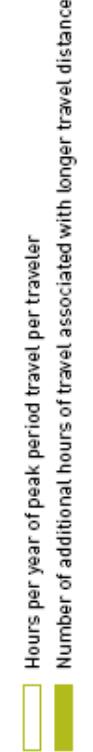
Urban Area Information	2007	2006	2005	2004	2003	2002
Population (1000s)	985	920	850	780	710	640
Urban Area (square miles)	1.253	1.224	1.205	1.180	1.153	1.125
Peak Travel Density (cars/mile)	4.78	4.75	4.72	4.69	4.66	4.63
Total Town 2007 Urban Area Totals	3,452	3,423	3,394	3,365	3,336	3,307
Ex-Suburb Population	1,760	1,730	1,690	1,650	1,610	1,570
Urban Area Commuters	3,452	3,423	3,394	3,365	3,336	3,307
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URBAN MOBILITY REPORT
2009

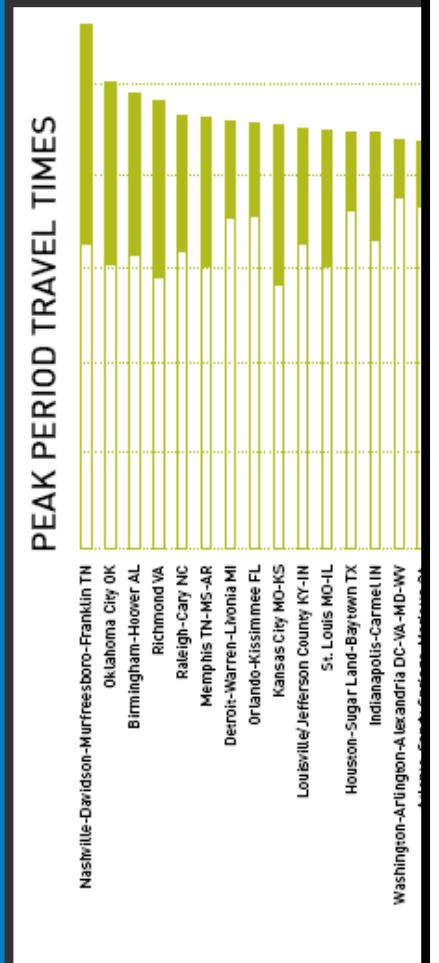
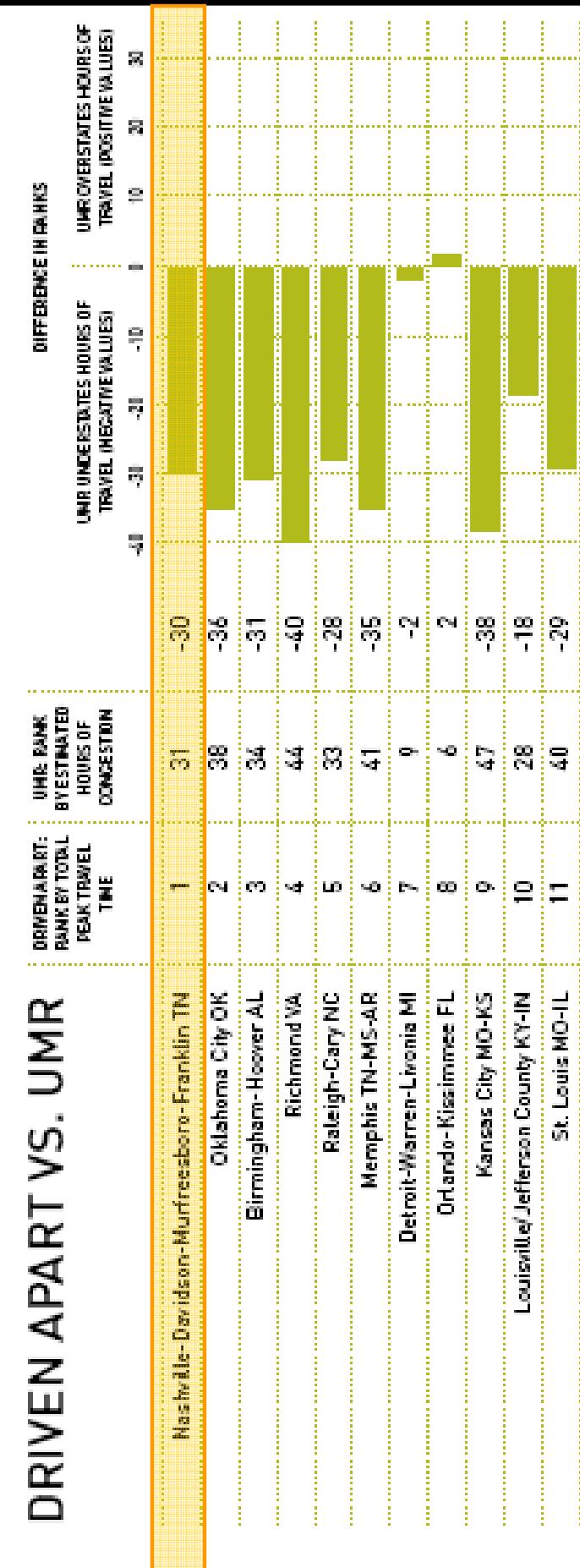
July 2009

UTC M

Texas Transportation Institute



See Cortright, Senior Policy Advisor for CEOs for Cities
Issued by the Rockefeller Foundation
September 2010

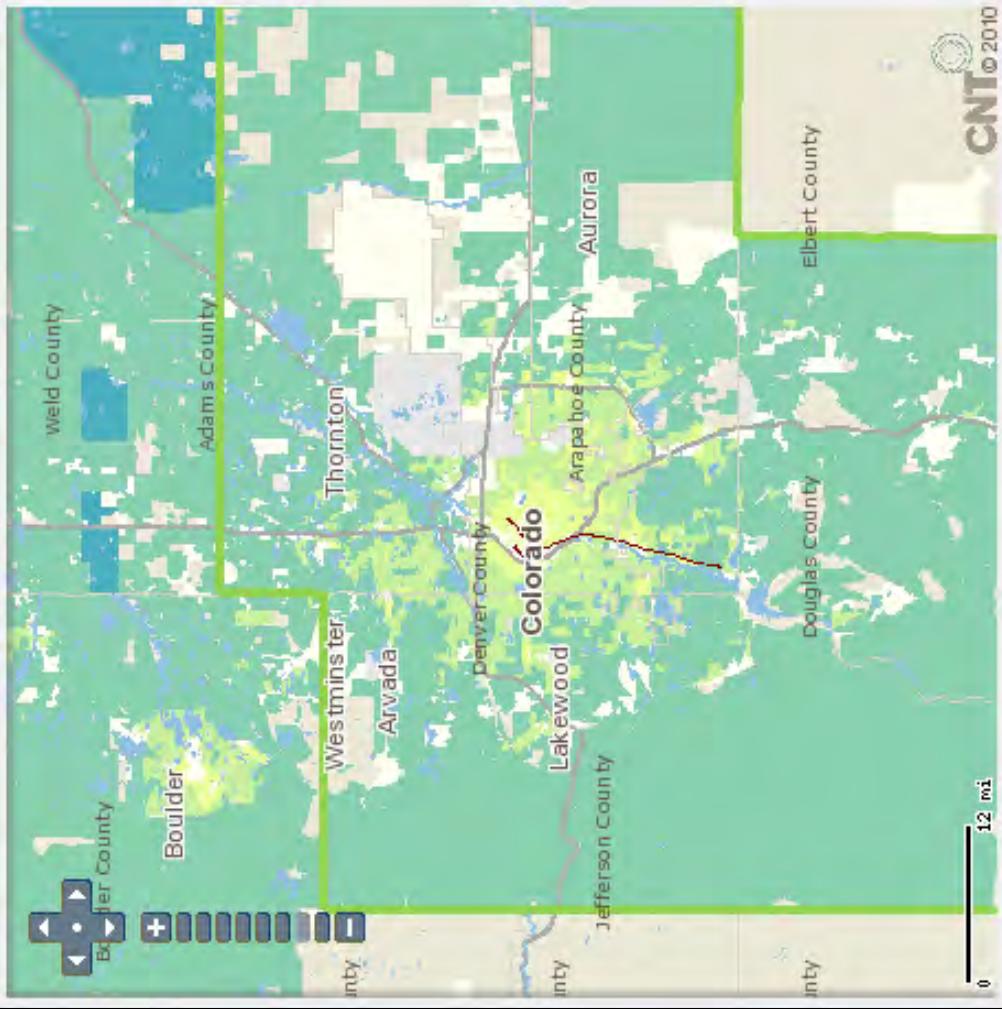
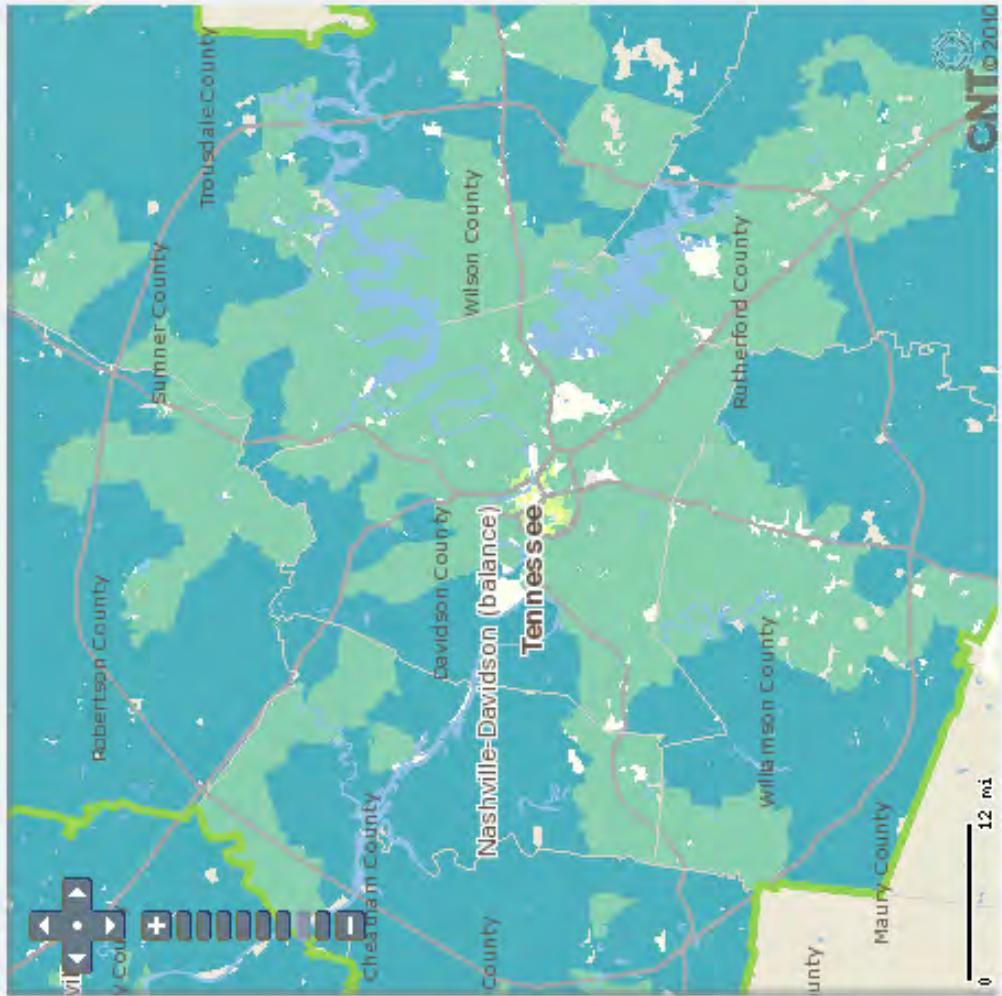


Transportation Costs, % Income

▼ Change

Transportation Costs, % Income		Households	Percent of Households
Criteria		0	0%
No Data Available		0	0%
Less than 15%		0	0%
15 to 18%		8,352	1.7%
18 to 20%		10,927	2.2%
20 to 28%		389,765	79.7%
28% and Greater		79,885	16.3%
Map Total		488,929	100%

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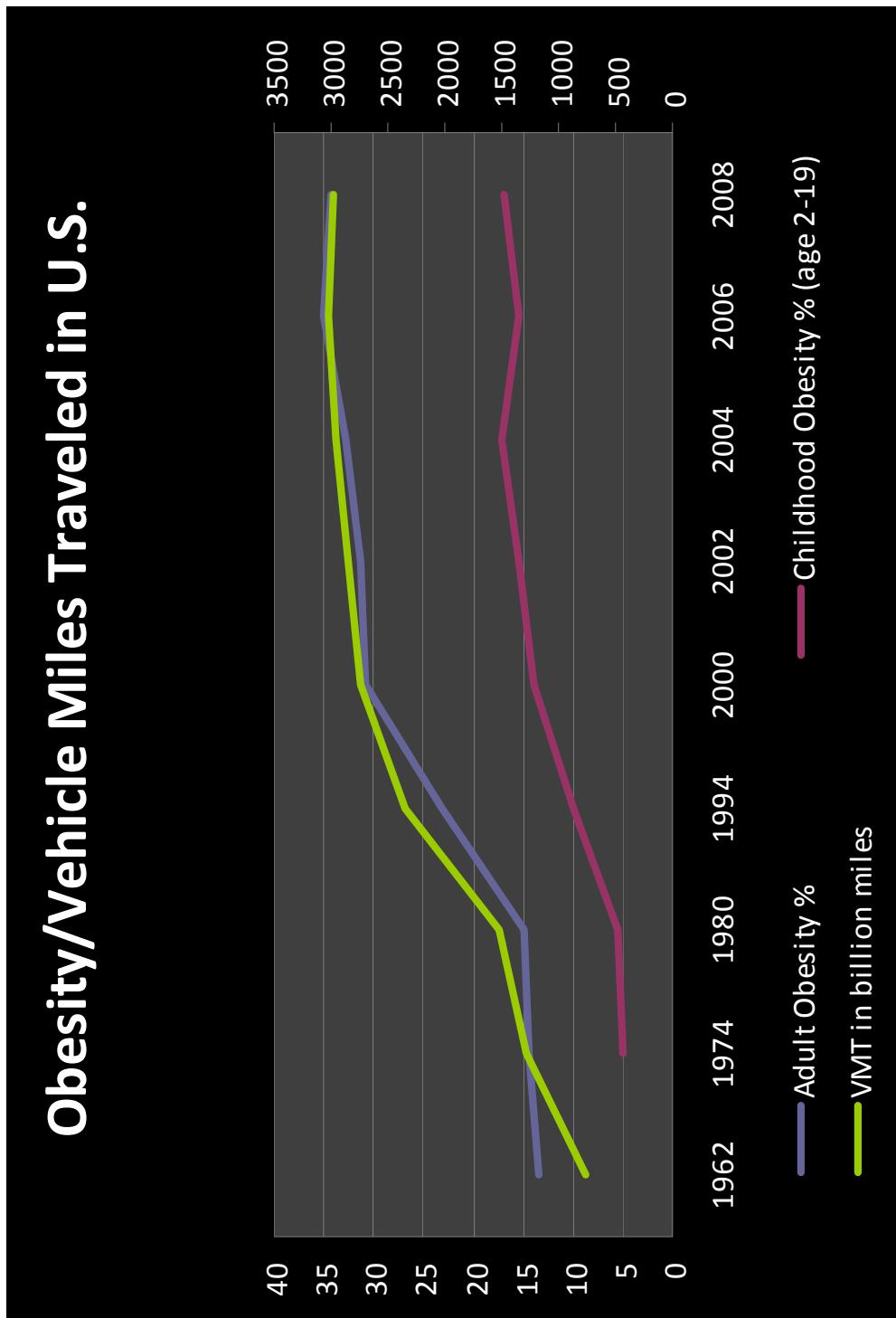
Growing Issues to Address

- ➔ Unmanageable Congestion
- ➔ Longer Travel Times & Trip Lengths
- ➔ Increasing Energy Consumption / Costs
- ➔ Declining Air & Water Quality
- ➔ Aging Population/ Dispersed Families
- ➔ Worsening Personal Health / Increasing Costs
- ➔ Lost Habitat / Natural Areas
- ➔ Unsustainable Costs/ Revenue Sources
- ➔ Lack of Housing Choice

Linking Transportation & Health to Support Regional Mobility Initiatives

nashvillempo.org

Transportation and Obesity



Sources: Centers for Disease Control – National Health and Nutrition Examination Survey/
U.S. DOT – Federal Highway Administration, Annual Vehicle Distance Traveled in Miles and Related Data

Tennessee Grades for Obesity

- 1st – adult inactivity
- 2nd highest overweight
- 3rd highest obese (32.8% of adults)
- 4th highest extreme obesity
- 5th highest – overweight or obese children ages 10-17 (36.5%)



Adverse Financial Consequences

- * An obese person has \$1,429 per year more medical costs, or about 42 percent more costs, than someone of normal weight.
- * The total costs annually of obesity related diseases in Tennessee can be estimated as follows:
 - 6.2 million TN population
 - × 32.9% obesity rate
 - × \$1,429 additional costs per obese person
 - = \$2.9 billion per/year

Shifting Policy

nashvilleempo.org

U.S. DOT Responding to Public Demand

“I have traveled all over this country...and everywhere I go, people want **better options**. Options that offer reduced greenhouse-gas emissions. Options that offer reduced fuel-consumption. Options that offer **better health**. Options that bring communities together. Now, let me make this absolutely clear: I never said we would stop repairing, maintaining, and –yes– even expanding roadways. I said only that it’s time to **stop assuming that putting more cars on more roads is the best way to move people around more effectively**.”

– U.S. DOT Secretary Ray LaHood



MPO's Public Opinions

- ➊ Three strategies provided for improving transportation in Middle Tennessee; respondents then asked to prioritize–
 - ➔ **1st choice:** improve and expand mass transit options
 - ➔ **2nd choice:** make communities more walkable & bike-friendly
 - ➔ **3rd choice:** build new or widen existing roadways

#1

A Bold, New Vision
for Mass Transit

Nashville Area Metropolitan Planning Organization

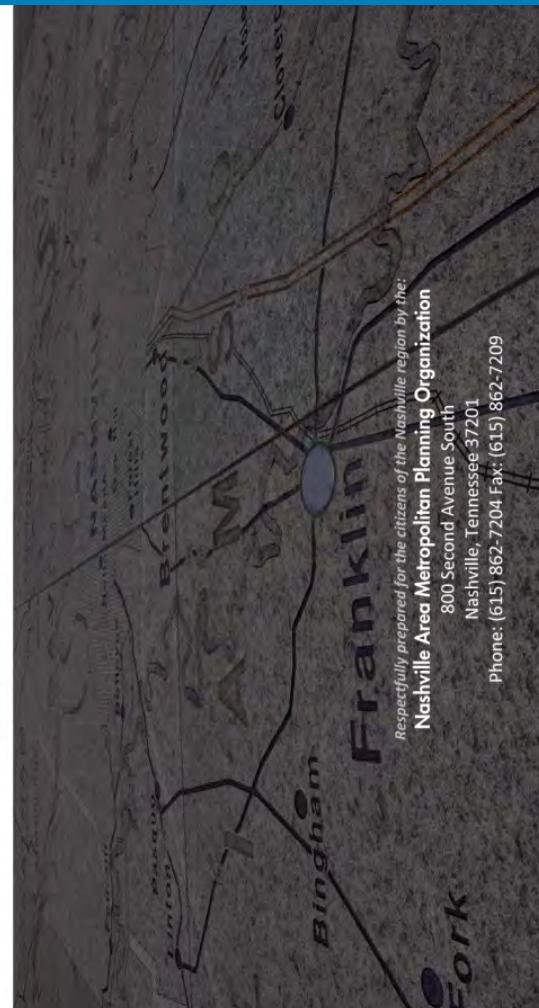


#2

Support for Active
Transportation & Walkable
Communities

#3

Preservation &
Enhancement of Strategic
Roadways



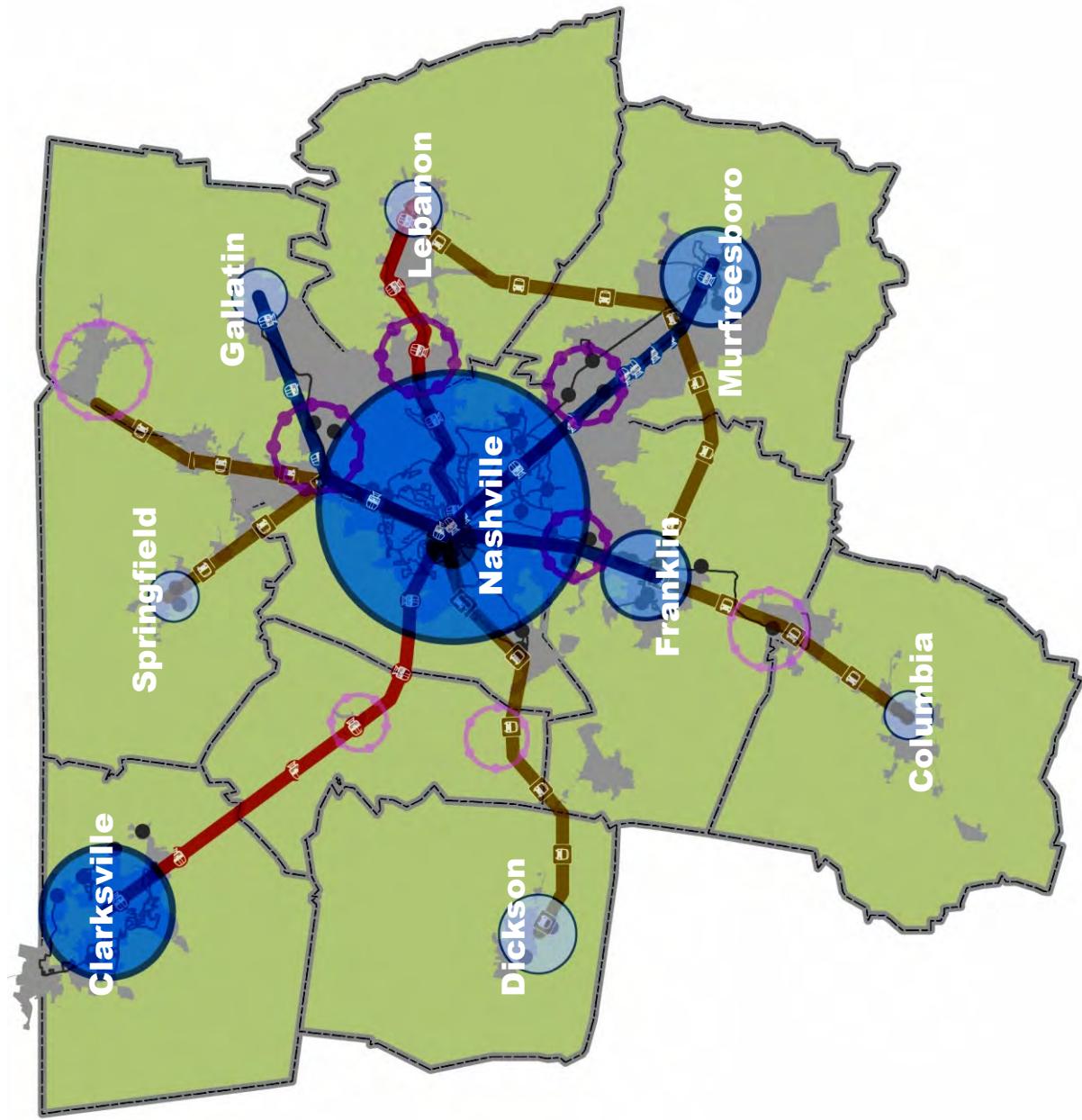
Respectfully prepared for the citizens of the Nashville region by the:
Nashville Area Metropolitan Planning Organization
800 Second Avenue South
Nashville, Tennessee 37201
Phone: (615) 862-7204 Fax: (615) 862-7209

nashvillempo.org

A Bold, New Vision for Mass Transit

nashvilleempo.org

A Bold, New Vision for Mass Transit



Rural Services Area
Urban Services Area
Existing Fixed-Route Service
Existing Park & Ride Lot

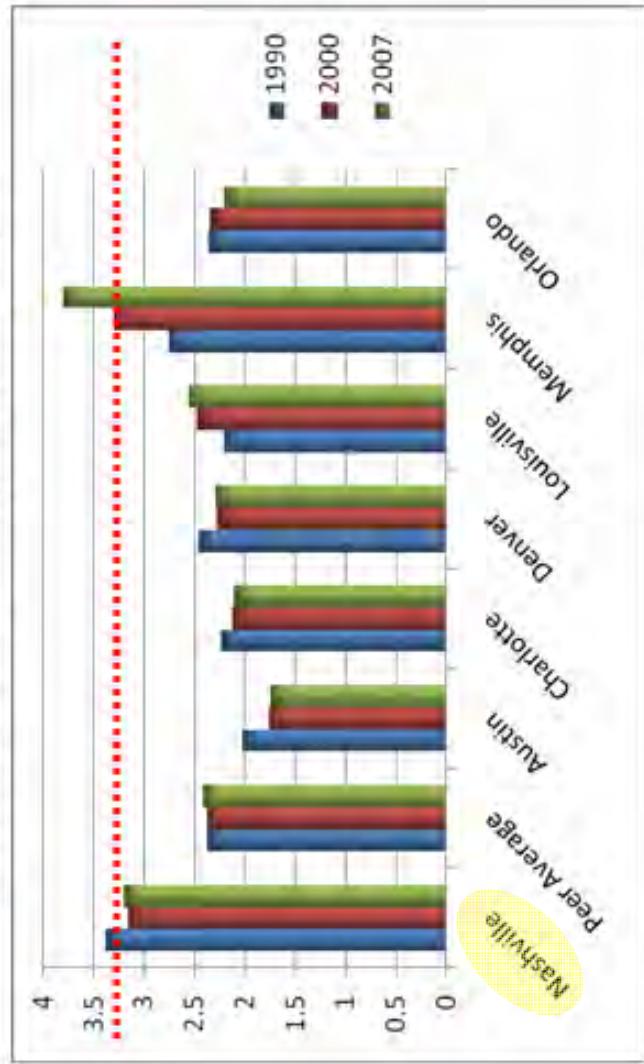
FUTURE REGIONAL CORRIDOR SERVICE

Rapid Transit (BRT or LRT)
Commuter Rail
Express Coach Service

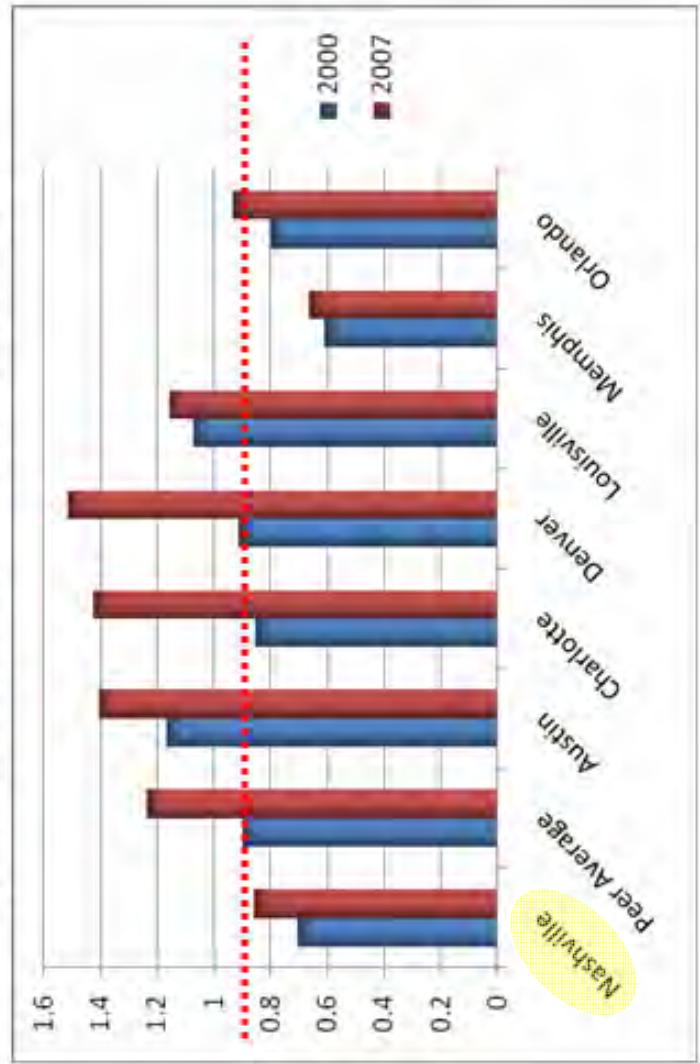
FUTURE LOCAL TRANSIT SERVICE

Urban Core Fixed Route
Large Urban Fixed Route
Small Urban Fixed Route
Emerging Urban Fixed-Route
Suburban Circulator
Commuter Circulator

Roadway Lane Miles per 1000 People



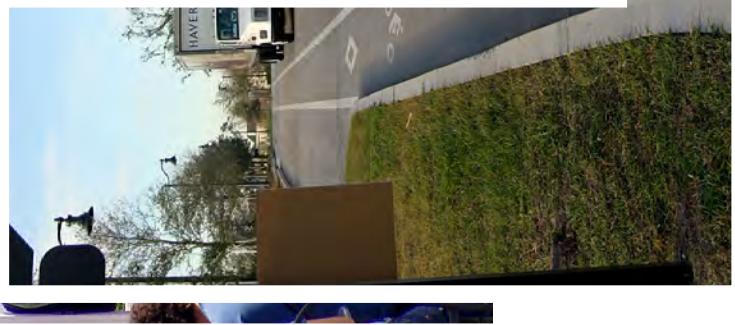
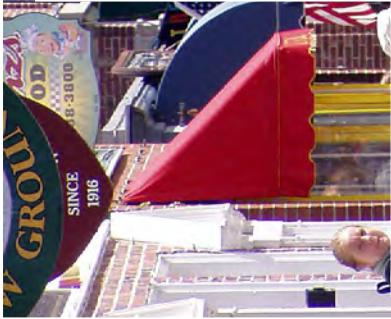
Transit Revenue Hours per Person/ Year



Support for Active Transportation & Walkable Communities

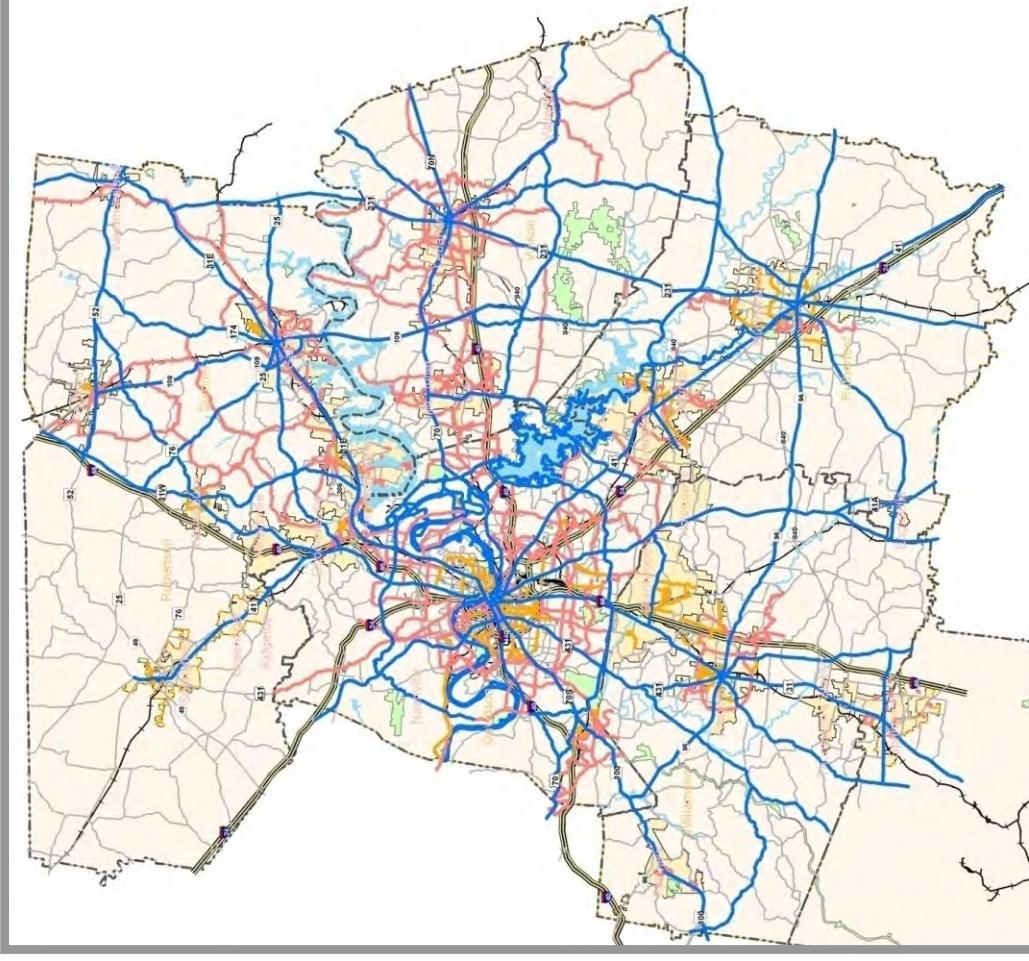
nashvilleempo.org

Support for Active Transportation

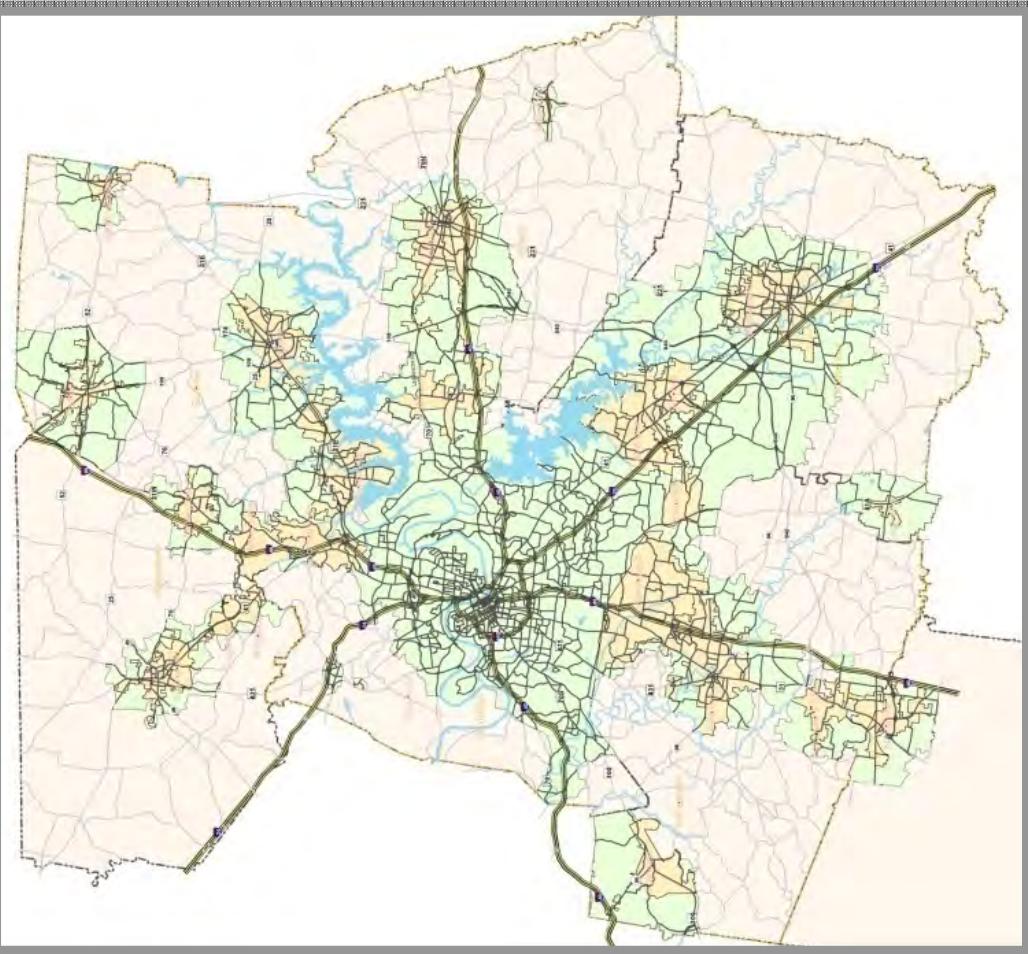


A Regional Vision for Non-Motorized Modes

Bikeways



Sidewalks



MPO's Urban Highway Funding Policy

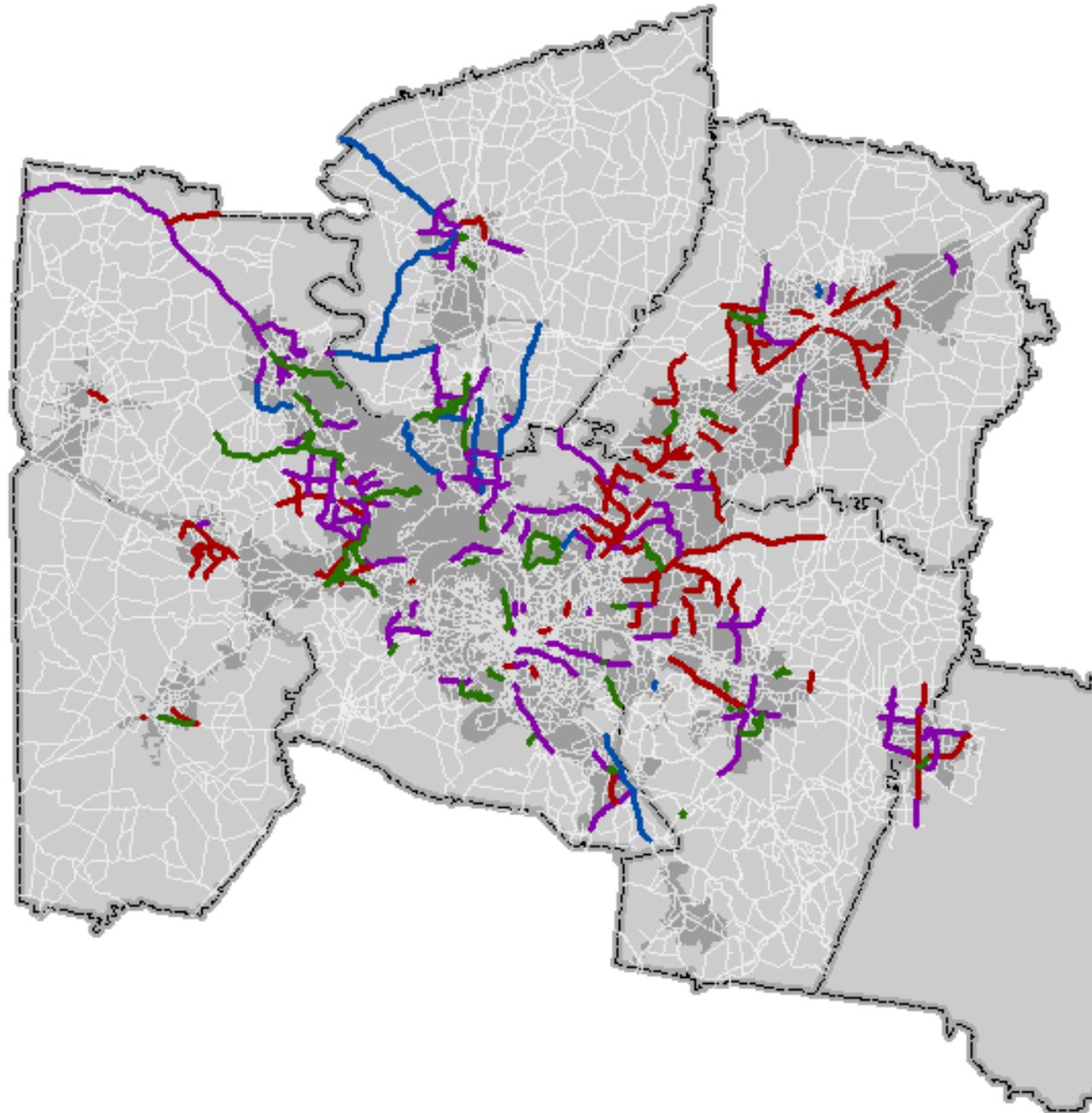
- ➡ 15% minimum investment in Active Transportation & Walkable Communities
 - ➡ Sidewalks, bicycle lanes, greenways, transit stops, amenities
- ➡ 10% minimum flexed to Transit
 - ➡ Combined with FTA funds to help implement regional vision for mass transit
- ➡ 5% minimum reserved for stand-alone ITS/ Incident Management Upgrades
 - ➡ Support for smaller projects that make our system smarter and more efficient

MPO's Urban STP Investment Strategy

- ➡ Remainder (approx. 70%) to Location Specific Roadway Improvements
 - ➡ System Preservation & Enhancement – 15%
 - ➡ Quality Growth and Sustainable Development – 15%
 - ➡ Multi-Modal Options – 15%
 - ➡ Health & Environment – 10%
 - ➡ Safety & Security – 10%
 - ➡ Freight & Goods Movement – 10%
- ➡ Congestion Management – 10%
- ➡ State & Local Support/ Investment – 15%

More Complete Streets

70% of proposed roadway projects included sidewalks, bicycle lanes, or shared-use lanes (up from 2%)



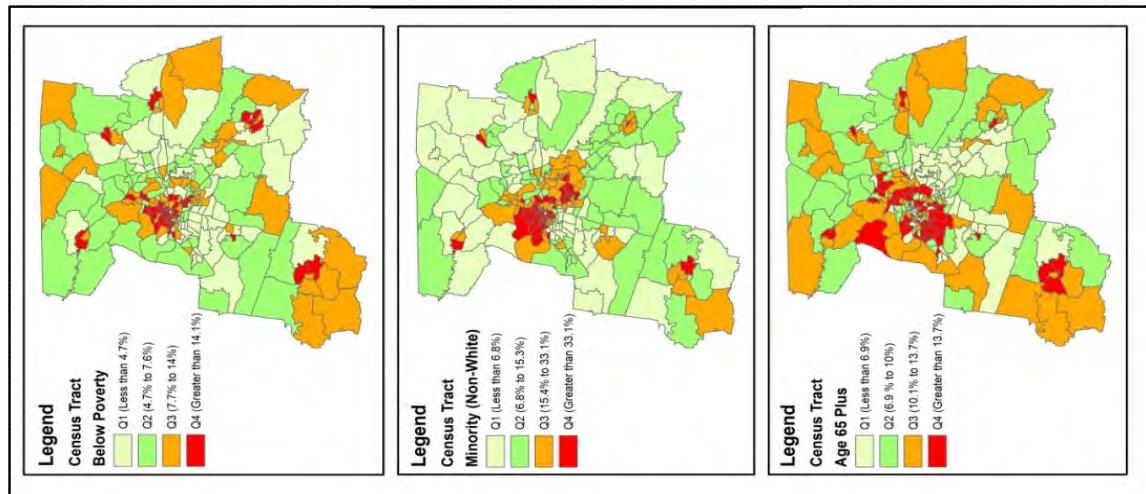
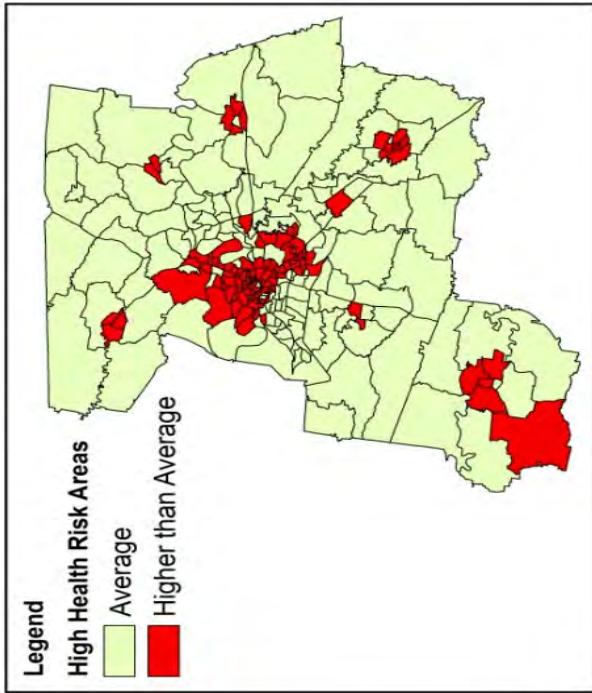
Ongoing Evaluation of Transportation & Health

Health Impact Analysis

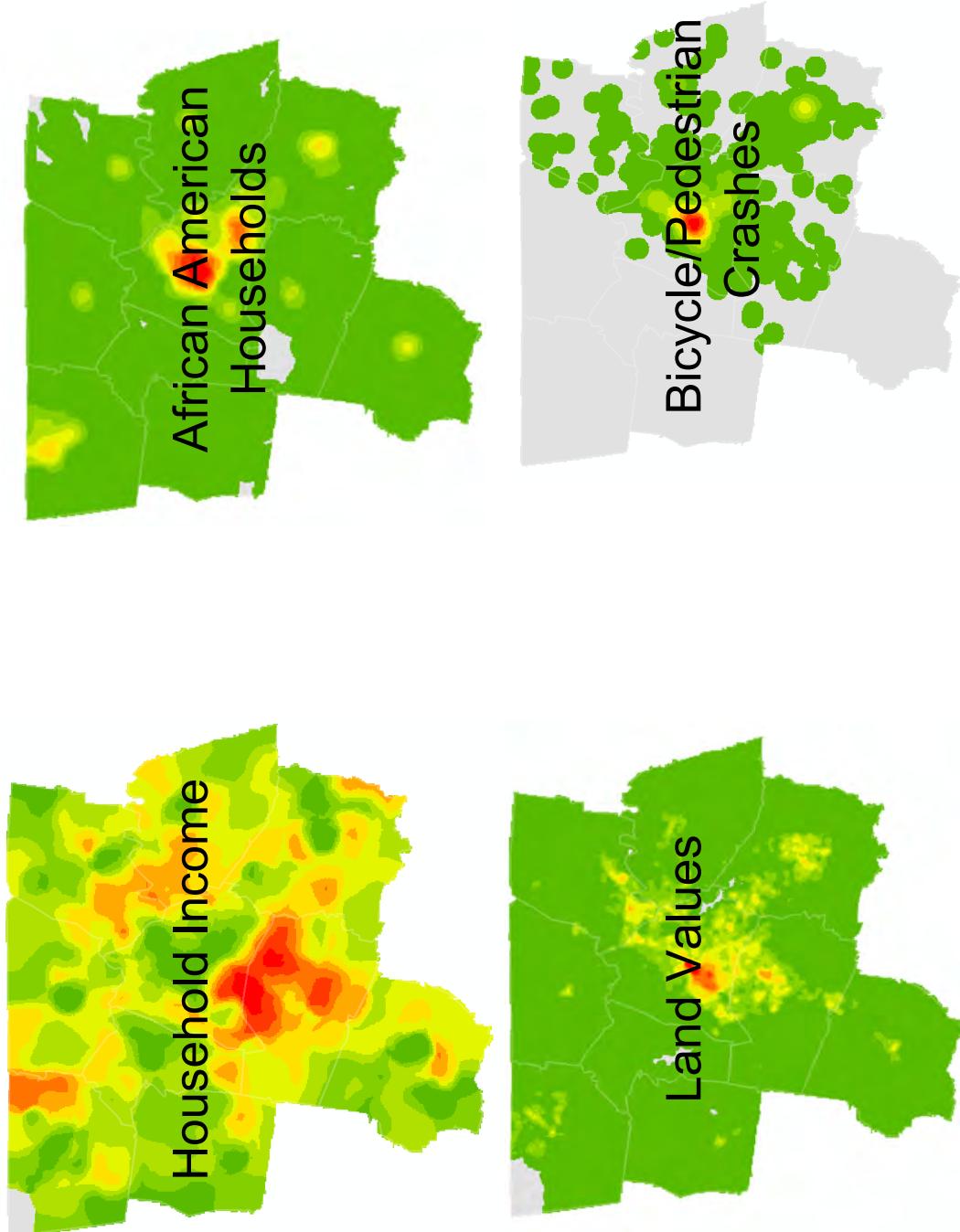
There is a strong link between the lack of physical activity and health (e.g. heart disease, obesity, and other chronic conditions).

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

- Low Income
- Minority
- Older Adults (over 65)



Nashville Equity Heat Mapping



Health Impact Assessment

- Health Impact Assessment of proposed Transit Oriented Development (2-year project)
- Includes active transportation, environmental assessment and food access recommendations
- Collaboration with CPPW grant to create HIA criteria as part of land development project review process

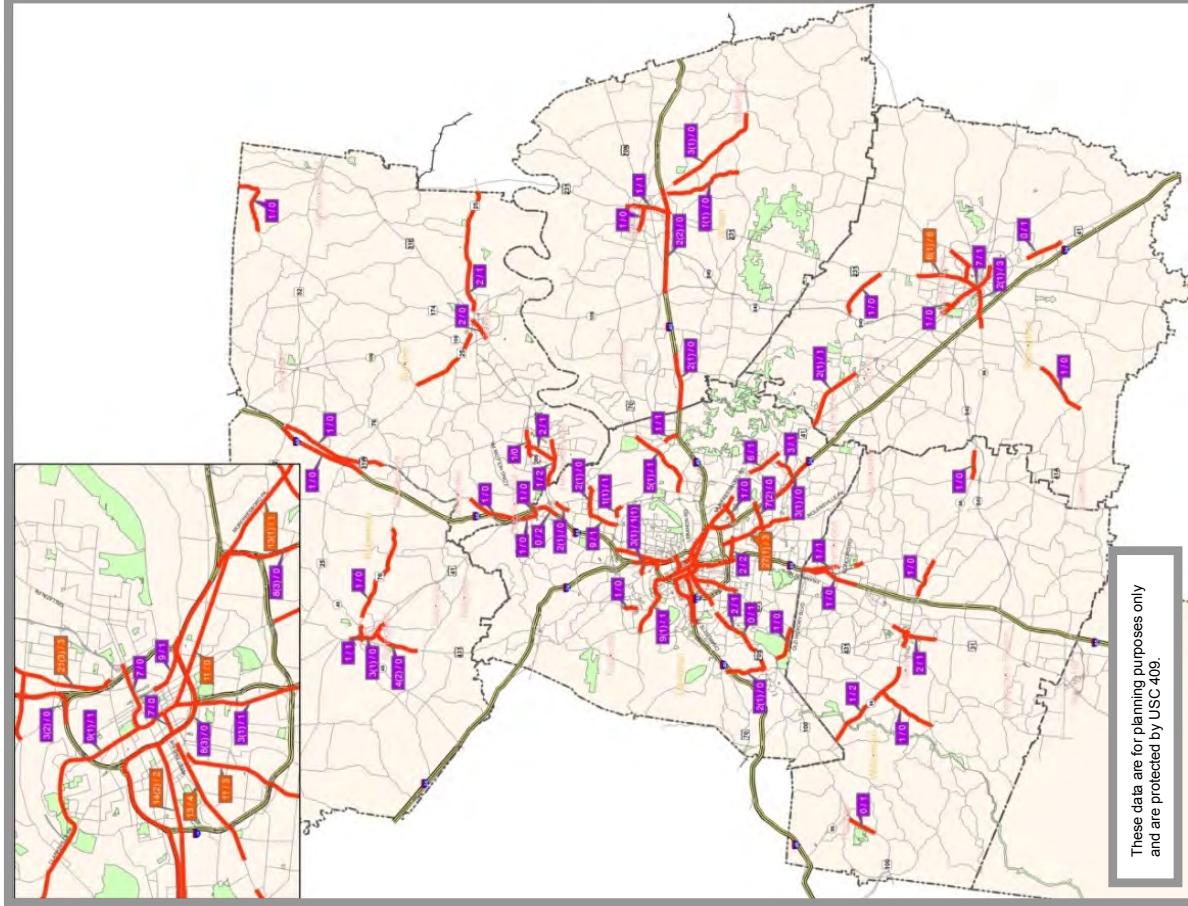


Safety Analysis - Regional Crash Data

- 2,076 reported crashes within the MPO between 2003-2007
- 107 resulted in a fatality (99 pedestrian & 8 cyclist)

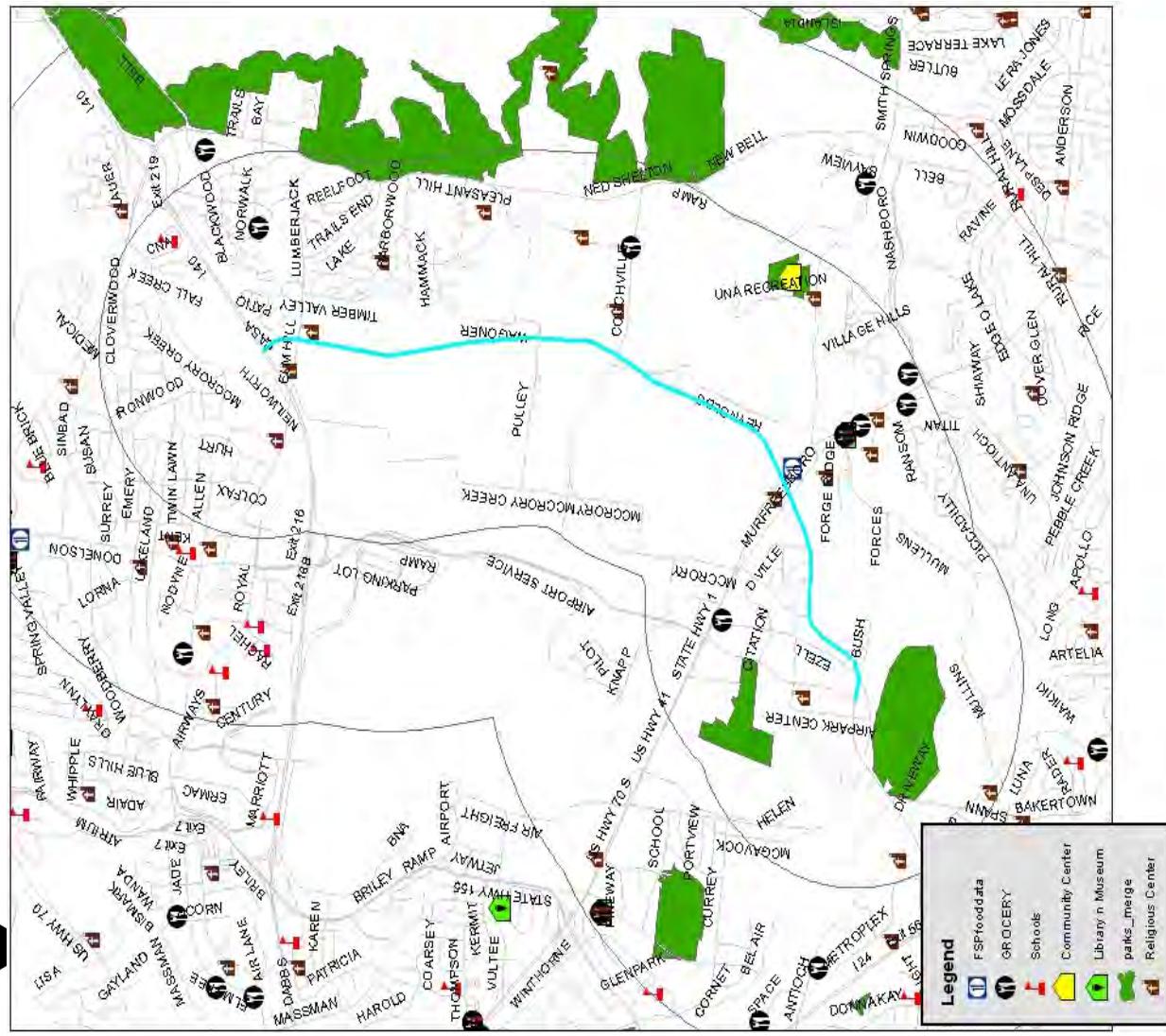
High Crash Corridors include:

- Nolensville Road
- Dickerson Pike
- Murfreesboro Road
- West End Ave
- Charlotte Ave



Food Access and Transportation

- 10 grocery stores and 1 emergency food source located within one mile of project
- 12 schools within 2 miles
- Community and religious centers
- Corridor has planned bike/ped facilities but road widening project does not include those facilities.



Physical Activity/ Travel Behavior

► Data will show which mode of travel allows for most energy expenditure and physical activity

The screenshot displays the DemoPAStudy application's main interface. At the top left is the application logo "GeoStats LP". The top navigation bar includes links for "Participants List", "Trip Map", "Trip Speed And Physical Activity Graphs", "Deliverable List", and "Logout".

The central area features two line graphs under the heading "Trip Speed And Physical Activity Graphs". The left graph plots "SPEED (mph)" against "TIME (minutes)" from 0 to 14, showing a highly fluctuating blue line. The right graph plots "PHYSICAL ACTIVITY" against the same time period, showing a blue line that starts high and drops sharply after minute 10.

Below the graphs is a legend for "Speed" and "Activity Level". The speed legend uses a blue line for "Speed". The activity level legend defines four levels: "Vigorous (> 5998)" (green), "Moderate (2020-5998)" (light green), "Light (1-2019)" (orange), and "Other" (red). A red star icon is also present in this legend area.

The bottom section contains a map titled "Trip Map" showing a route through Atlanta. The route is highlighted in red and blue. A legend at the bottom left identifies icons for "Home" (green arrow), "Work" (red arrow), and "School" (black star). A "Previous Trip" link is located at the bottom right of the map area.

Health Economic Assessment Tool (HEAT)

EUROPE

ECONOMIC ASSESSMENT OF TRANSPORT INFRASTRUCTURE AND POLICIES

Methodological guidance on the economic appraisal of health effects related to walking and cycling

by: **Wouter Hovinga**, **Sonja Hattori**, **Harry Rutte**, **François Ruelau**, **Hilde Dijx**

Fill in the two fields in Step 1 with your values and read the corresponding results in Step 3. You can use the default parameters supplied in Step 2 or adjust them according to your needs. The population parameters used to calculate the results are displayed at the bottom of the sheet.

Step 1: enter your data (all users must fill in the red fields)

Number of trips per day
Mean trip length (km)
10,000

Step 2: check the parameters

Mean number of days cycled per year
Proportion of trips that are one part of a return journey (or 'round trip')
Proportion undertaken by people who would not otherwise cycle
Mean proportion of working age population who die each year
Mean value of a statistical life (in euros)
Discount rate
124
0.9
0.5
0.000847
EUR 1,500,000
5.02

Step 3: read the economic savings resulting from reduced mortality

Maximum annual benefit
Savings per km cycled per individual cyclist per year
Saving per individual cyclist per year
Saving per trip
EUR 4,289,000
EUR 0.81
EUR 765
EUR 3.39

Mean annual benefit:
EUR 2,135,000
This value takes the likely build up of benefit into account (see below)

Present value of mean annual benefit:
Based on:
5% discount rate
5 year build-up of uptake, averaged over 10 years
EUR 2,283,000
This value uses the discount rate from section two to calculate the present value

Population parameters used to calculate results

Population that stands to benefit
Mean proportion of working age population who die each year
Affected health in local population
Protection benefit, according to actual distance travelled
Lives saved
2750
0.005847
16.08
0.17
2.81

Based on number of individual cyclists calculated from data in stages 1 and 2. This reflects the relative risk of cardiovascular mortality in the age groups that are more likely to be exposed among the population of cyclists (assuming they are aged 25-64). Relative risk of death among cyclists, adjusted for the actual distance cycled (as Reduction in number of deaths expected due to the modeled increase in cycling).

Microsoft Excel - Cycling HEAT v1.0.xls

File Edit View Insert Format Tools Data Window Help

Type a question for help

ECONOMIC ASSESSMENT OF TRANSPORT INFRASTRUCTURE AND POLICIES

HEALTH ECONOMIC ASSESSMENT TOOL FOR CYCLING

UNIVERSITY OF NATION EUROPE

Notes on how to use this tool. For additional instructions, hold the mouse over any red triangle.

Hour-long trips are observed (or are estimated) on the specific route, across a city or on a network in any direction?

What is the main trip length (estimated or measured)?

The default parameters in green are based on best available evidence.

The estimator number of days per year that people cycle

What proportion of these observed cyclists do you expect will also be making a first trip of one of these cyclists that are new users DIRECTLY as a result of the new local parameters page for explanation.

See local parameters page for explanation.

What is the standard value of a statistical life used in the country of study?

Discount is used for future benefits. That is only used for the Present value of Click here to change local parameters

Click here to view underlying study parameters

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Health Economic Assessment Tool for Cycling

About this tool

ECONOMIC ASSESSMENT OF TRANSPORT INFRASTRUCTURE AND POLICIES

HEALTH ECONOMIC ASSESSMENT TOOL FOR CYCLING

Methodological guidance on the economic appraisal of health effects related to walking and cycling

User guide

(HEAT for cycling)

Download the guidance document, HEAT for cycling and user guide from

www.euro.who.int/transport/policy/20070503_1



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Livability. Sustainability. Prosperity. Diversity.