The Transportation and Health Tool

North Carolina Association of MPOs Annual Conference

May 12, 2016

Ann Steedly, PE

Overview

- THT Background and Goals
- Development of Indicators
- Strategies, Interventions & Policies
- Website Development
- THT Implementation

THT Background

- USDOT, CDC, and APHA partnership
- Recognition of transportation and health intersections
- Establishment of vision and goals
- Product outcomes defined:
  - Paper-based tool
  - Web tool
  - Testing and tool refinement

THT Goals

Practice Goals

- Increased awareness of links between transportation and public health in both sectors
- Collaboration between the sectors
- More health-supportive federal, state and regional policy and project decisions

Tool Design Goals

- Transportation- and health-practitioner audience
- Easy to use
- Region- and state-specific data
- Assessment of performance (indicators)
- Recommended strategies
- Evidence base for integrating health and transportation

Transportation and Health Connections

Safety of travel

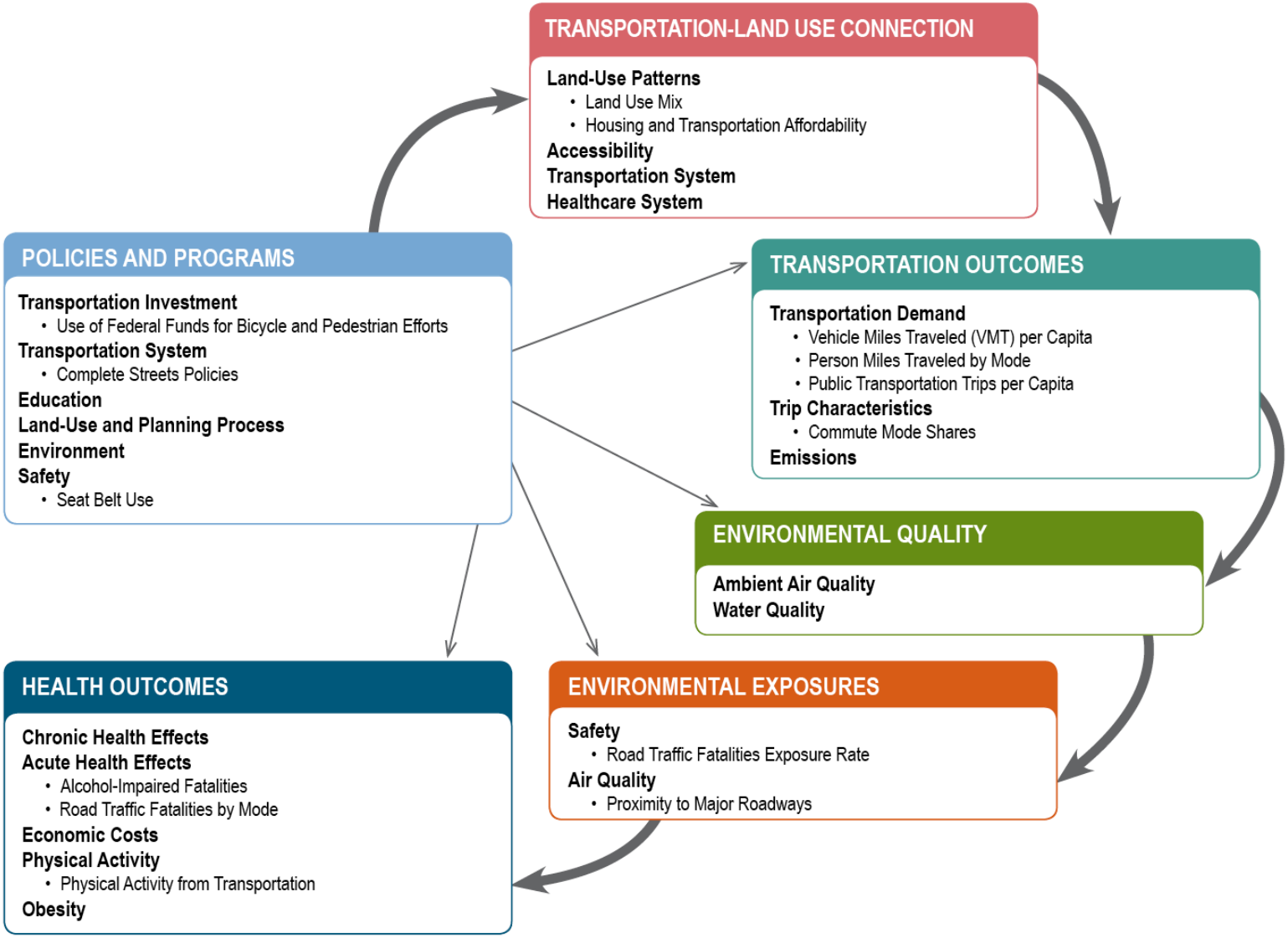
Equity of infrastructure and health outcomes

Air pollution as relates to human health

Active transportation modes

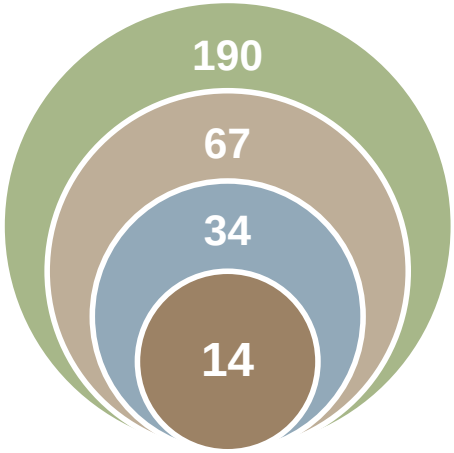
Access to opportunities for healthy lifestyles

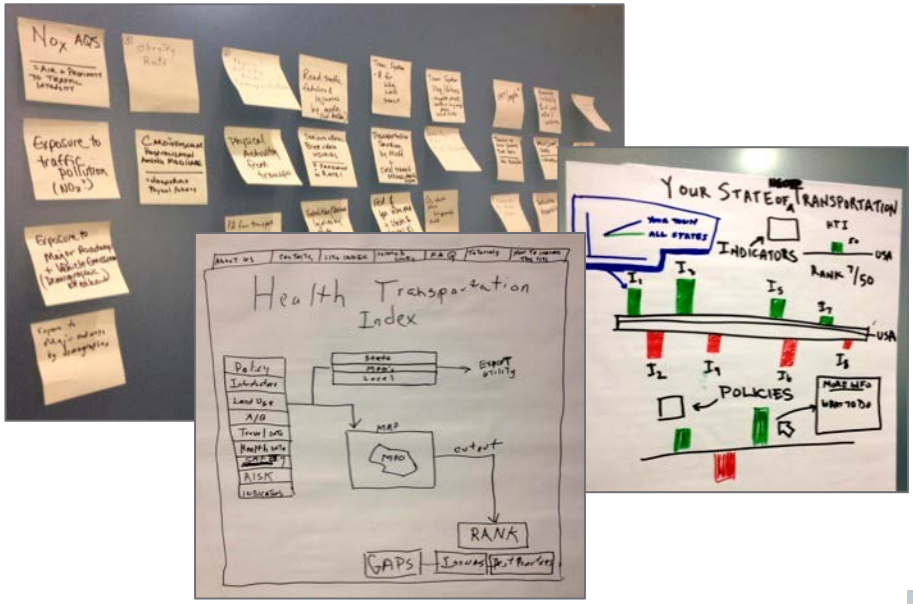
Transportation and Health Linkages



THT Indicator Development Process

- Narrowed from190 potential indicators
- Refined through research, evaluation criteria, subject matter expert consultation, 2-day expert workshop and agency reviews
- Selected 14 indicators to represent the intersection of transportation and health
- Prepared in-depth profiles on final set of indicators





THT Indicators

14 Final Approved Indicators

Transportation

1. Commute Mode Share
2. Person Miles Traveled by Mode
3. VMT per Capita
4. Public Transportation Trips per Capita
5. Proximity to Major Roadways
6. Land Use Mix
7. Housing and Transportation Affordability

Health

8. Physical Activity from Transportation
9. Alcohol-Impaired Fatalities
10. Road Traffic Fatalities by Mode
11. Road Traffic Fatalities Exposure Rate

Policy

12. Complete Streets Policies
13. Seat Belt Use
14. Use of Federal Funds for Bicycle and Pedestrian Efforts

Geographic Scales

- **State**
- **Metropolitan Statistical Area (MSA)** - Groups of counties showing strong commuting ties with at least one US Census urbanized area.
- **Urbanized Area (UZA) -** Densely settled areas of 50K or people comprised of census tracts.

Indicator	Geography		
	State	MSA	UZA
Commute Mode Share (Auto, Transit, Bike, Walk)	X	X	
Complete Streets	X	X	
DUI/DWI Fatalities	X	X	
Housing/Transportation Affordability		X	
Land Use Mix		X	
PMT (Auto, Walking)	X		
Physical Activity from Transportation	X		
Proximity to Major Roadways	X	X	
Road Traffic Fatalities (Auto, Bike, Ped)	X	X	
Seat Belt Use	X		
Traffic Fatalities Exposure Rate (Auto, Bike, Ped)	X	X	
Transit Trips per Capita	X		X
Use of Federal Funds for Bike/Ped	X		
VMT per Capita	X		X

Indicator Profiles

- Description
- Transportation and health connection
- About the data
- Moving forward
- Related strategies
- References

Commute Mode Share

Indicator Description

Commute mode share measures the percentage of workers aged 16 years and over who commute either

1. by bicycle
2. by private vehicle, including car, truck, van, taxicab, and motorcycle
3. by public transportation, including bus, rail, and ferry
4. by foot.

Data on commute mode share come from the 2012 one-year estimates from the American Community Survey (ACS).

Transportation and Health Connection

Commute mode share reflects how well infrastructure, policies, investments, and land-use patterns support different types of travel to work. Commute patterns are directly tied to the economy (where jobs are located within a region relative to housing). Commute mode share is linked to environmental conditions and contributing factors that affect health outcomes, such as air pollutant emissions, which vary by transportation mode. Motor vehicle emissions contribute nearly a quarter of world energy-related greenhouse gases. Reducing motor vehicle use and increasing active transportation are ways to mitigate harmful environmental impacts caused by a large amount of vehicle use (Xia et al., 2013).

Traveler safety is also an issue related to commuting, and long commutes in motor vehicles (i.e., cars and trucks) are linked to physical inactivity and associated health problems (Ewing, Schieber, Zegeer, 2003). Conversely, active commute modes are a potential source of health-enhancing physical activity. Additionally, pedestrian and motor vehicle traffic fatalities decrease in more compact communities, suggesting that shorter commutes are safer for commuters in all modes.

It is important to also consider other influences when connecting various health outcomes to modes of travel. These factors include food choices, sedentary hobbies, stress, unemployment rates, and regional culture, and may have impacts on obesity and diabetes (Price and Godwin, 2012).

THT Strategies

>Child safety seats
>Traffic calming
>Integrate health and transportation planning
>Complete Streets
>Encourage and promote biking and walking
>Built environment strategies to deter crime
>Health impact assessments
>Clean freight
>Distracted driving
>High-occupancy vehicle lanes
>Graduated driver licensing
>Expand public transportation
>Expand bicycle and pedestrian infrastructure
>Improve roadway safety
>Impaired driving laws
>Health performance metrics
>Improve vehicles and fuels
>In-vehicle monitoring and feedback
>Multimodal access to transit
>Promote connectivity
>Rural public transportation
>Ride sharing programs
>Safe Routes to School
>Seat belt laws
>Strengthen helmet laws

THT Strategies

- Description
- Related indicators
- Potential health benefits
- Example(s) from practice
- Learning resources
- Evidence base

How has this worked in practice?

New York City Pedestrian Safety Study & Action Plan

To develop the New York City Pedestrian Safety Report and Action Plan, the New York City Department of Transportation (NYCDOT) evaluated more than 7,000 records of crashes that resulted in serious injuries or fatalities to pedestrians. The purpose was to identify underlying causes of the crashes. NYCDOT would use that information to help develop strategies to reduce traffic fatalities involving pedestrians. Accomplishments resulting from the plan during 2010-2011 included

·installing countdown pedestrian signals at 1,500 intersections,

·retrofitting 60 miles of streets to improve pedestrian safety,

·revising 20 intersections for pedestrian safety on major two-way streets,

Expand and Improve Bicycle and Pedestrian Infrastructure

Expanding and improving bicycle and pedestrian infrastructure means ensuring that a network of infrastructure is in place to make bicycling or walking viable modes of travel. It also means ensuring that the infrastructure is safe and comfortable to use. This approach can promote health by providing added opportunity for physical activity from transportation. This strategy is related to and supportive of the Safe Routes to School, Complete Streets, and Encouraging Bicycling and Walking programs. Elements of bicycle and pedestrian infrastructure may include

- Bicycle lanes
- Bicycle parking and storage facilities
- Curb extensions
- Intersection treatments for bicycles – bicycle boxes, stop bars, lead signal indicators
- Landscaping
- Paved shoulders
- Pedestrian- and bicyclist-scale lighting
- Pedestrian overpass or underpass
- Separation/buffers
- Shared-lane markings ("sharrows")
- Sidewalks
- Signage, especially high-visibility signage
- Signalized pedestrian crossings and mid-block crossings
- Trails or shared-use paths

Bicycle and pedestrian infrastructure location and type can affect health outcomes. For example, bicyclists and pedestrians who use pathways next to heavily congested roadways could experience increased exposure to vehicle emissions. A benefit of bicycle infrastructure that is physically separated from vehicles is that it can help increase bicycle use, especially by less confident riders, and support safe travel in some applications (Pucher and Buehler, 2012; Lusk, 2011).

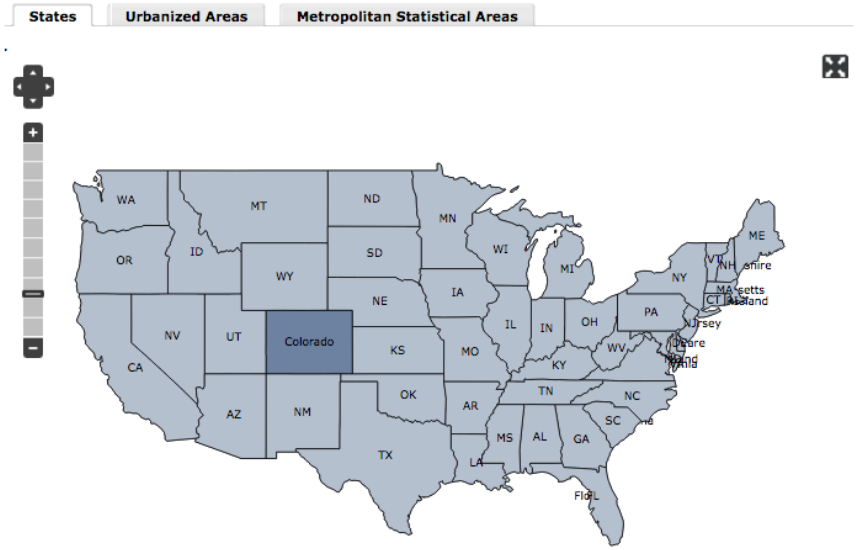
Contextual Elements

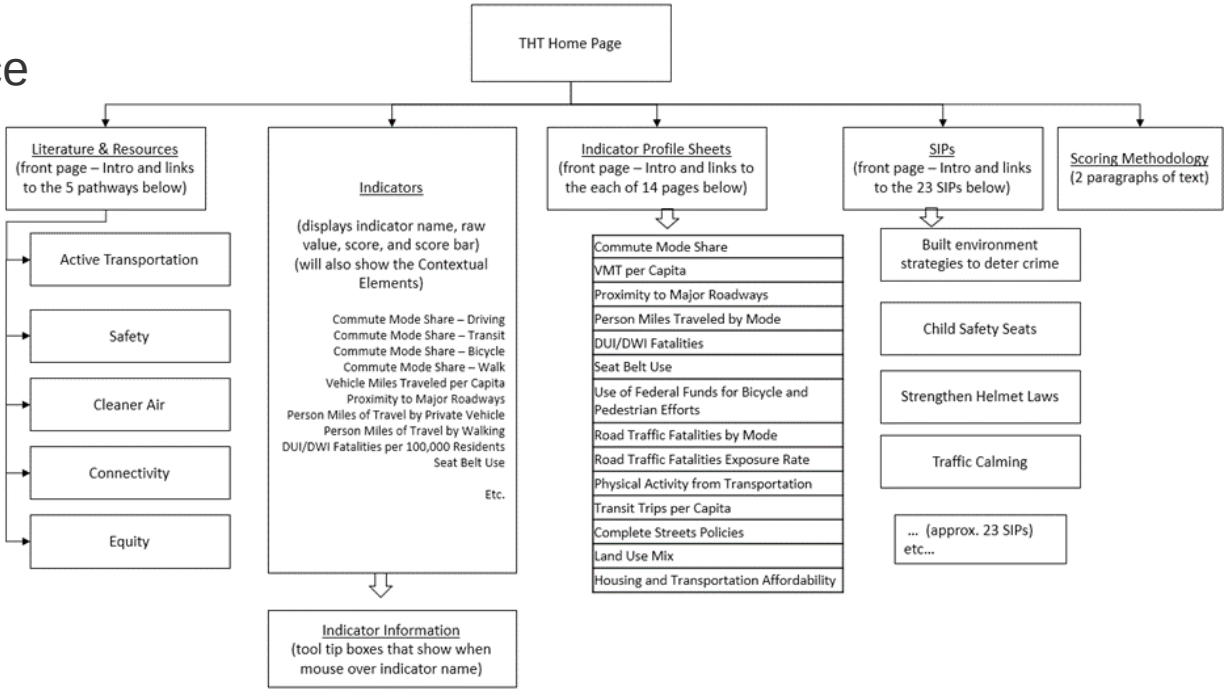
- Upcoming addition to THT site
- Supports understanding of area's demographic, health, environmental and transportation conditions
- Includes some of an original 67 indicators

Demographic	Health & Environment	Transportation
Population	Asthma rates	Vehicle availability
Population growth	Diabetes	Graduated license laws
Race & ethnicity	Obesity	Cell phone/texting laws
Income	Hypertension	
Income inequality	Air quality	

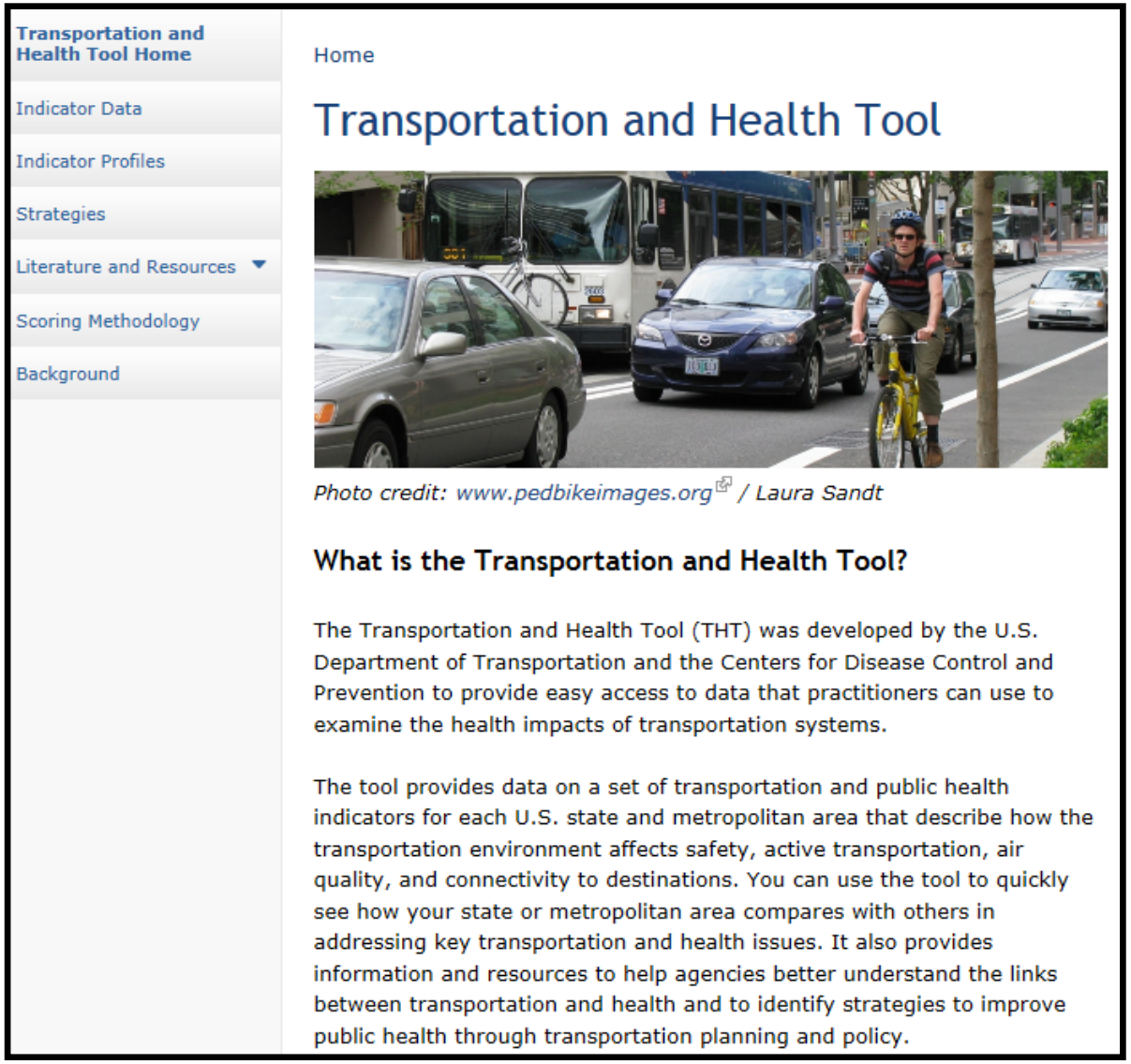
THT Website Development

- 2-year interagency process
- User centered design approach
  - Potential user interviews
  - Testing and feedback sessions
- FHWA site hosting and requirements
  - Drupal web CMS
  - Section 508 compliance
  - DOT's map tool
- Website launched fall 2015
- Tool updates ongoing





THT website



http://www.transportation.gov/transportation-health-tool

Indicator Profiles

Transportation and Health Tool reports 14 indicators at the state level, the metropolitan area level, and/or the urbanized area level. Centers for Disease Control and Prevention (CDC) and US Department of Transportation worked together, with input from an expert panel, to carefully select the indicators for use in this tool. Read more about the process used to select the indicators.

Select an indicator below for a description of the indicator, how the indicator is connected to transportation and public health, and the data and analysis used to develop the indicator.

- Alcohol-Impaired Fatalities (state and metro area level)
- Commute Mode Shares (state and metro area level)
- Complete Streets Policies (state and metro area level)
- Housing and Transportation Affordability (metro area level only
- Land Use Mix (metro area level only)
- Person Miles Traveled by Mode (state level only)
- Physical Activity from Transportation (state level only)
- Proximity to Major Roadways (state and metro area level)
- Public Transportation Trips per Capita (state and urbanized area level)
- Road Traffic Fatalities by Mode (state and metro area level)
- Road Traffic Fatalities Exposure Rate (state and metro area level)
- Seat Belt Use (state level only)
- Use of Federal Funds for Bicycle and Pedestrian Efforts (state level only)
- Vehicle Miles Traveled (VMT) per Capita (state and urbanized area level)

Contact Us

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Business Hours:
9:00am-5:00pm ET, M-F

Share

Transportation and Health Tool Home
Indicator Data
Indicator Profiles
Strategies
Literature and Resources
Scoring Methodology
Background

Home

Strategies

This section identifies and describes evidence-based policies, strategies, and interventions ("strategies") that transportation practitioners can use to address health. Each strategy is related to one or more indicators in the THT. The following information is presented for each strategy:

- A brief description
- The related THT indicators
- How the strategy could result in positive health benefits
- Resources for additional information on the strategy
- Resources that provide a base of evidence for the brief description and in general
- An example, or examples, of how the strategy has been applied in practice

The following strategies are included:

- Built environment strategies to deter crime
- Child Passenger Safety laws, child safety seat distribution programs, education and enhanced enforcement
- Clean freight
- Complete Streets
- Distracted driving
- Encourage and promote safe bicycling and walking
- Expand bicycle and pedestrian infrastructure
- Expand public transportation
- Graduated driver licensing systems
- Health impact assessment (HIA)

Contact Us

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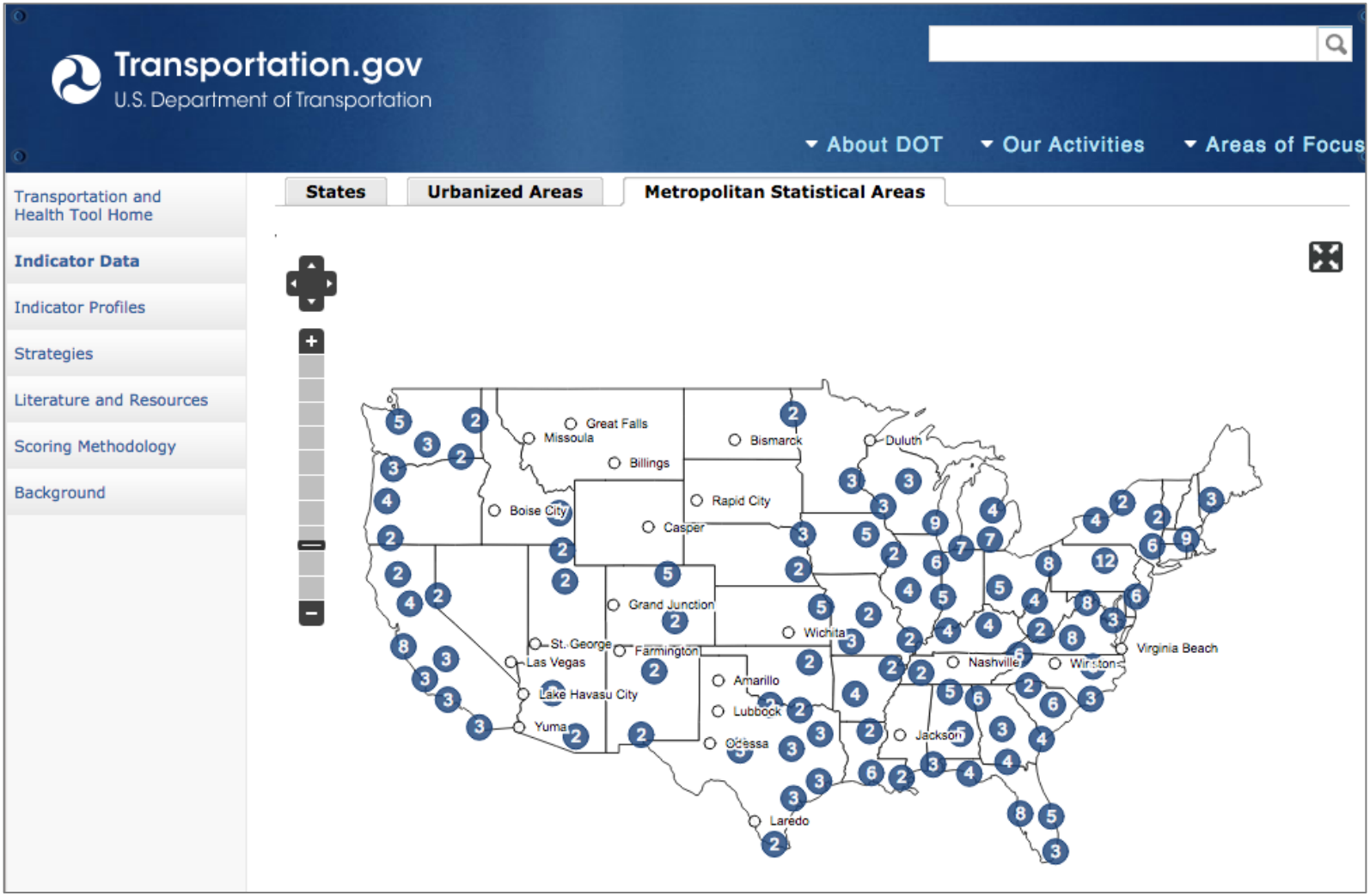
Share

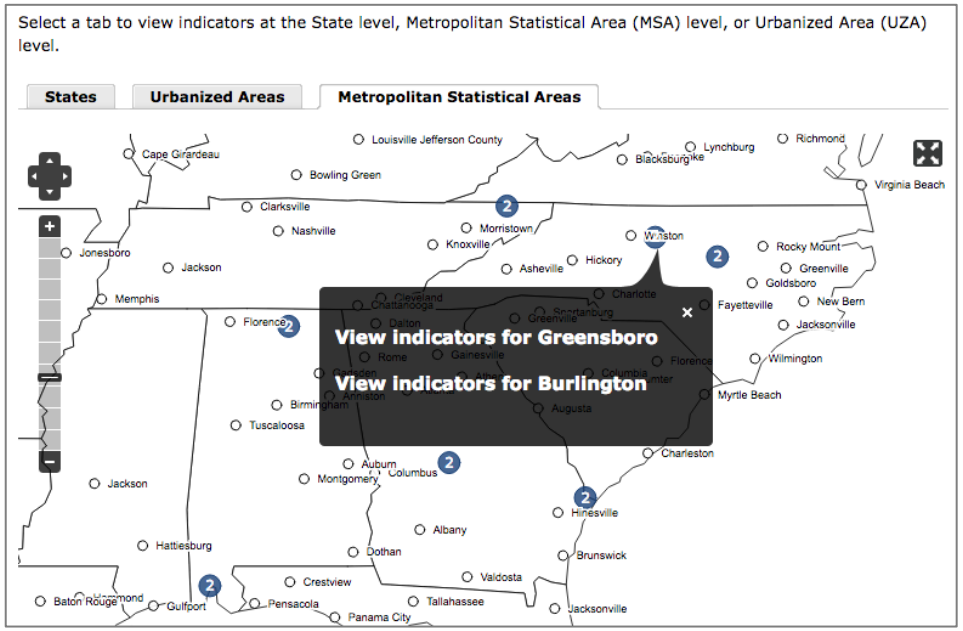
Using the THT in your community

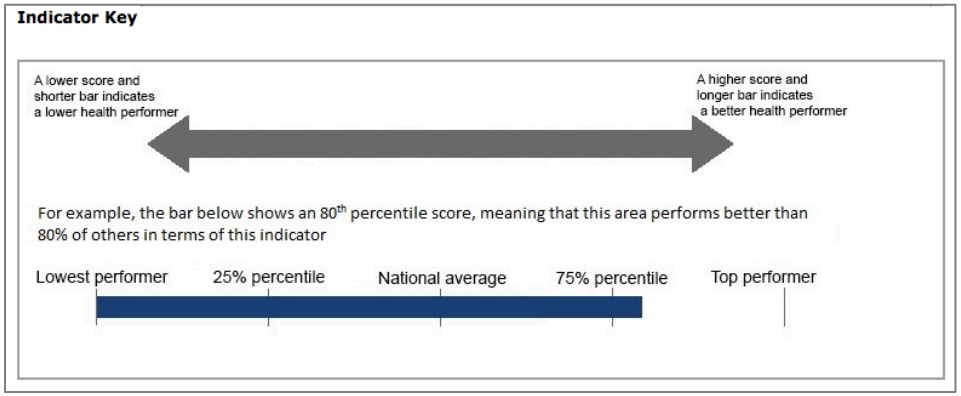
- Discuss indicator score
- Determine indicators you hope to improve
- Explore the data behind the tool
- Use the THT to identify strategies to implement or expand
- Create action items for both short term and long term goals

Selecting Geographies - MSAs

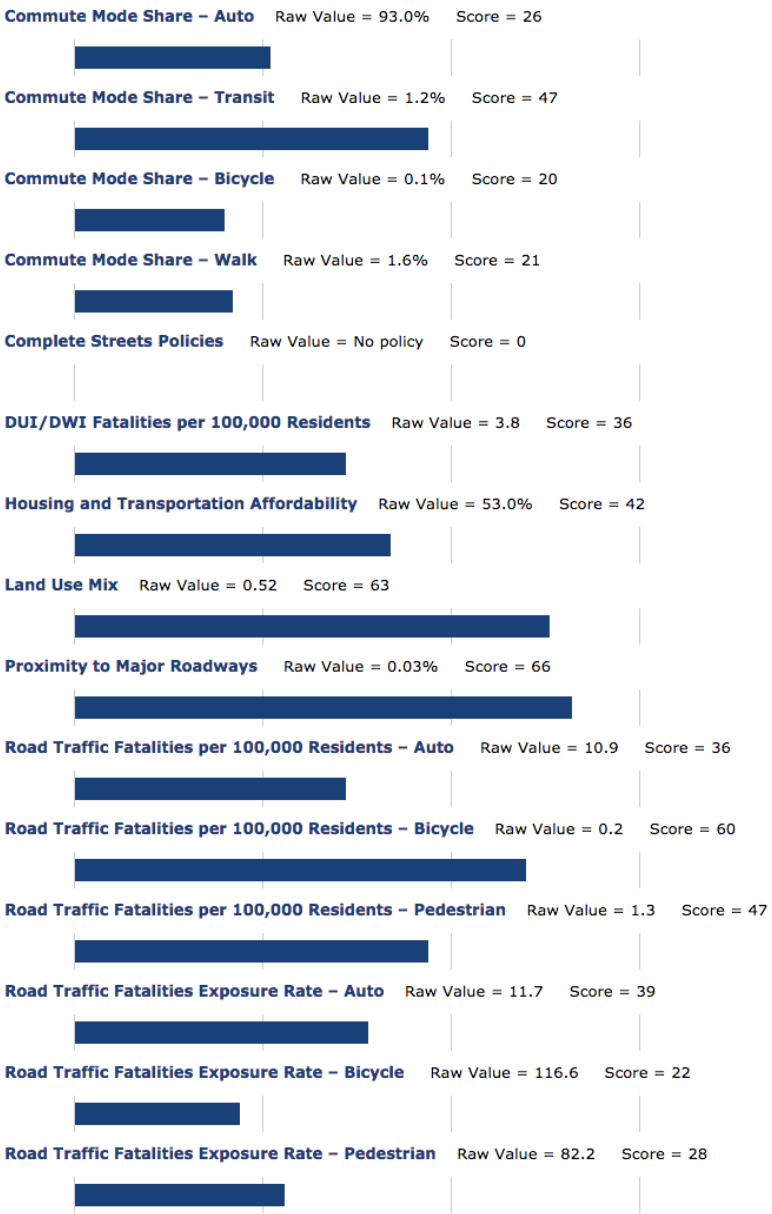


THT Indicators-Greensboro

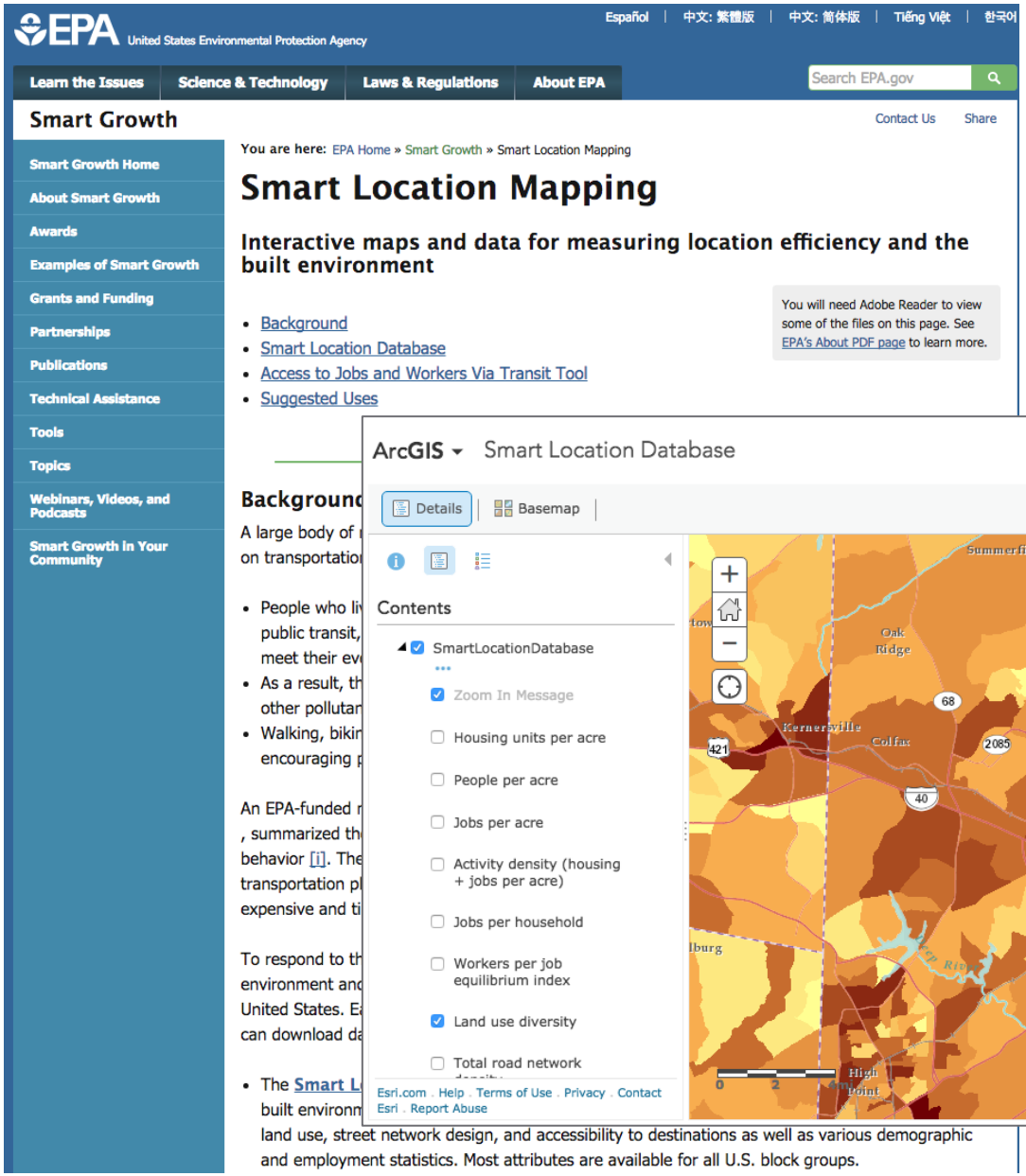




Greensboro



Land Use Mix


EPA United States Environmental Protection Agency
Español | 中文: 繁體版 | 中文: 简体版 | Tiếng Việt | 한국어
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Background
Smart Location Database
Access to Jobs and Workers Via Transit Tool
Suggested Uses
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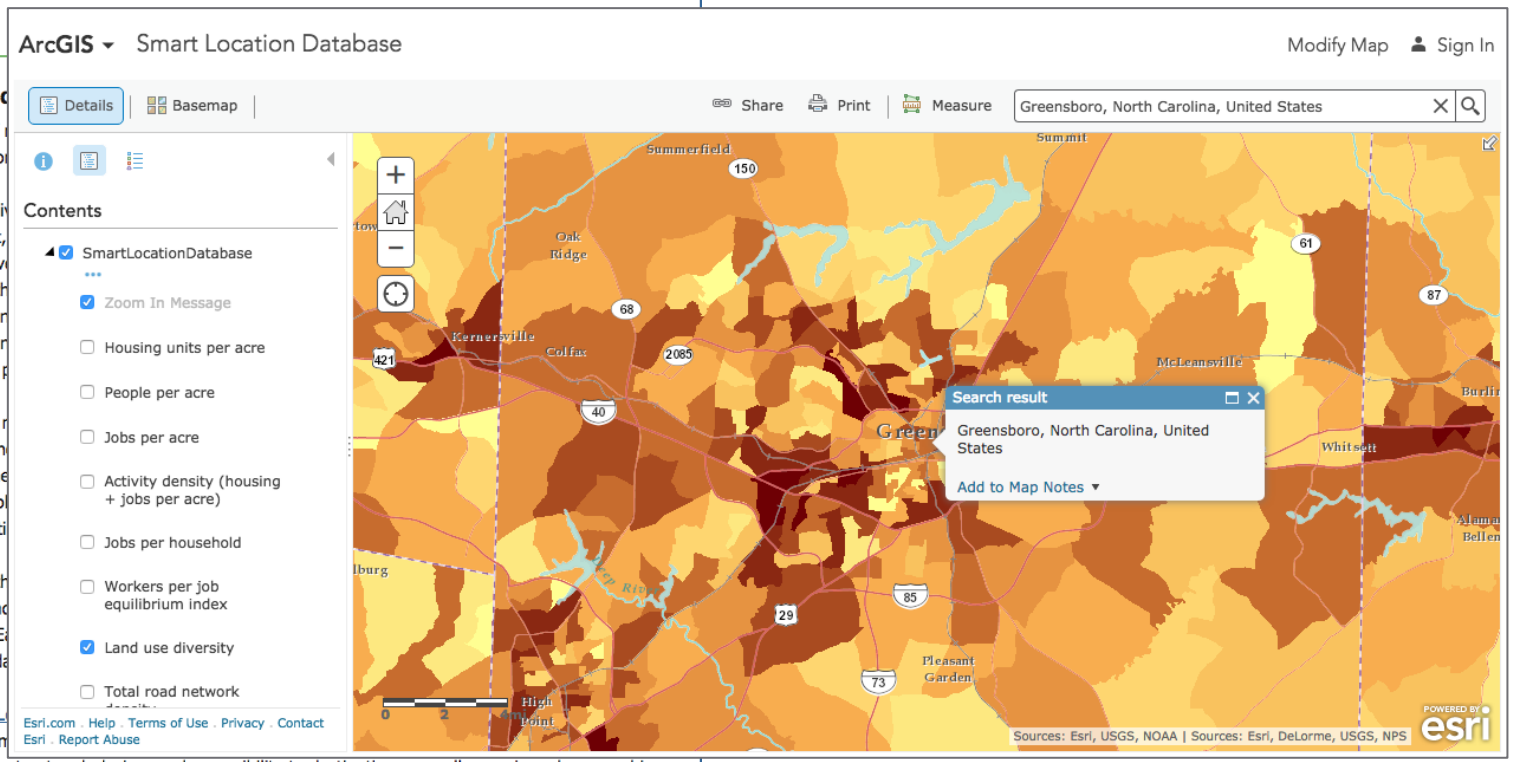
land use, street network design, and accessibility to destinations as well as various demographic and employment statistics. Most attributes are available for all U.S. block groups.


ArcGIS
Smart Location Database
Modify Map
Sign In
Details
Basemap
Share
Print
Measure
Greensboro, North Carolina, United States
Contents
SmartLocationDatabase
Zoom In Message
Housing units per acre
People per acre
Jobs per acre
Activity density (housing + jobs per acre)
Jobs per household
Workers per job equilibrium index
Land use diversity
Total road network
Esri.com . Help . Terms of Use . Privacy . Contact Esri . Report Abuse
Search result
Greensboro, North Carolina, United States
Add to Map Notes
Summerfield
Oak Ridge
Kernersville
Colfax
McLeansville
Pleasant Garden
Sources: Esri, USGS, NOAA | Sources: Esri, DeLorme, USGS, NPS
esri

NHTSA
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

Fatality Analysis Reporting System (FARS)

Pubs/Data Requests | FARS Data Tables | Query FARS Data | State Traffic Safety Info | Help

State Traffic Safety Information For Year 2013

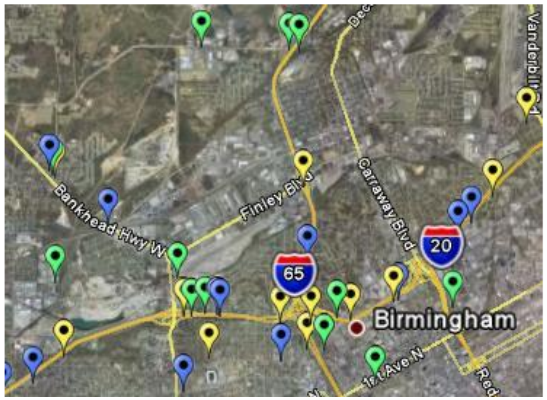
Quick, easy access to traffic safety facts

Native American Traffic Safety Facts

State GIS Fatal Traffic Crash Maps

This Utility Provides Location Based Maps of Fatal Crashes for the Years 2011-2013

Click on States (on the US Map) to View these GIS Crash Maps



Since 2005, FARS has also included latitude and longitude coordinates for every collision record. Web-based maps of collisions from the past 3 years are available: http://www-nrd.nhtsa.dot.gov/departments/nrd-30/ncsa/STSI/USA%20WEB%20REPORT.HTM

http://www-fars.nhtsa.dot.gov/QueryTool/QuerySection/SelectYear.aspx

FARS Encyclopedia
Mapping Features

Introduction:

This document describes the new mapping tool features in the FARS Encyclopedia. Users can create pin maps and intensity maps from custom queries using the FARS database. Pin maps may be created showing locations of fatal crashes for any custom query in the Query FARS Data section. Intensity maps can be created for custom univariate tables based on State and County geographic boundaries.

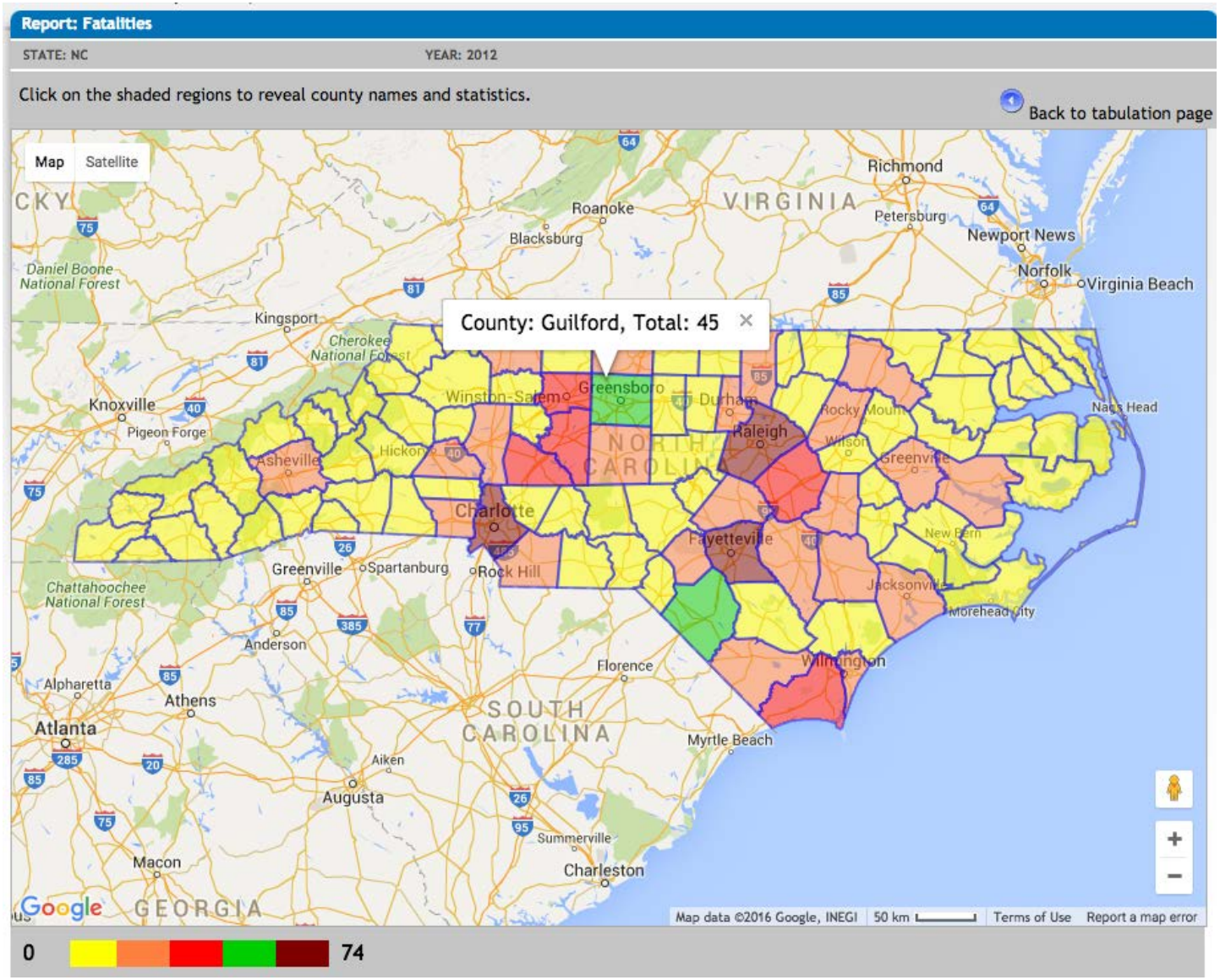
In the FARS Data Tables section, users may plot crash locations in the following FARS Data Tables:

Chapter	Subchapter	Report
Crashes	Time	Fatal Crashes by Time of Day and Day of Week
Vehicles	All Vehicles	Vehicles Involved in Fatal Crashes by Vehicle Type, Rollover Occurrence
People	All Victims	Persons Killed, by Age
People	All Victims	Persons Killed in Construction/Maintenance Zones
People	Occupants	Vehicle Occupants Killed, by Vehicle Type and Most Harmful Event
People	Restraints	Passenger Vehicle Occupants Killed, by Age and Restraint Use
People	Motorcyclists	Motorcyclists Killed, by Time of Day and Day of Week
People	Motorcyclists	Motorcyclists Killed, by Person Type and Helmet Use
People	Pedestrians	Pedestrians Killed, by Time of Day and Day of Week
States	Crashes and All Victims	Person Killed, by STATE and Age Group
States(*)	Fatalities and Fatality Rates	Fatalities and Fatality Rates by STATE, 1994 - 2009

(*) For the Fatalities and Fatality Rates report, intensity maps are displayed by user selections on column heading (calendar year) links.

This document describes the use of the map features. **Users must first create data tables or listing in the *FARS Data Tables* or the *Query FARS Data* tools.** Refer to the following exercise documents for instructions on creating custom tabular results and listings:

Fatalities by County and Year (Guilford, 2012)



Fatal Crashes by Time of Day and Day of Week - State : North Carolina, Year : 2014

SELECT REPORT CRITERIA: STATE: North Carolina YEAR: 2014 VIEW

OUTPUT OPTIONS: EXPORT (TXT) EXPORT (XLS)

NEW Note: Map features are enabled for this report (for year 2001 onwards). Please click on the individual counts to display the crashes on the map. Also, please note that map display takes time if there are more than 250 crash points to locate on the map.

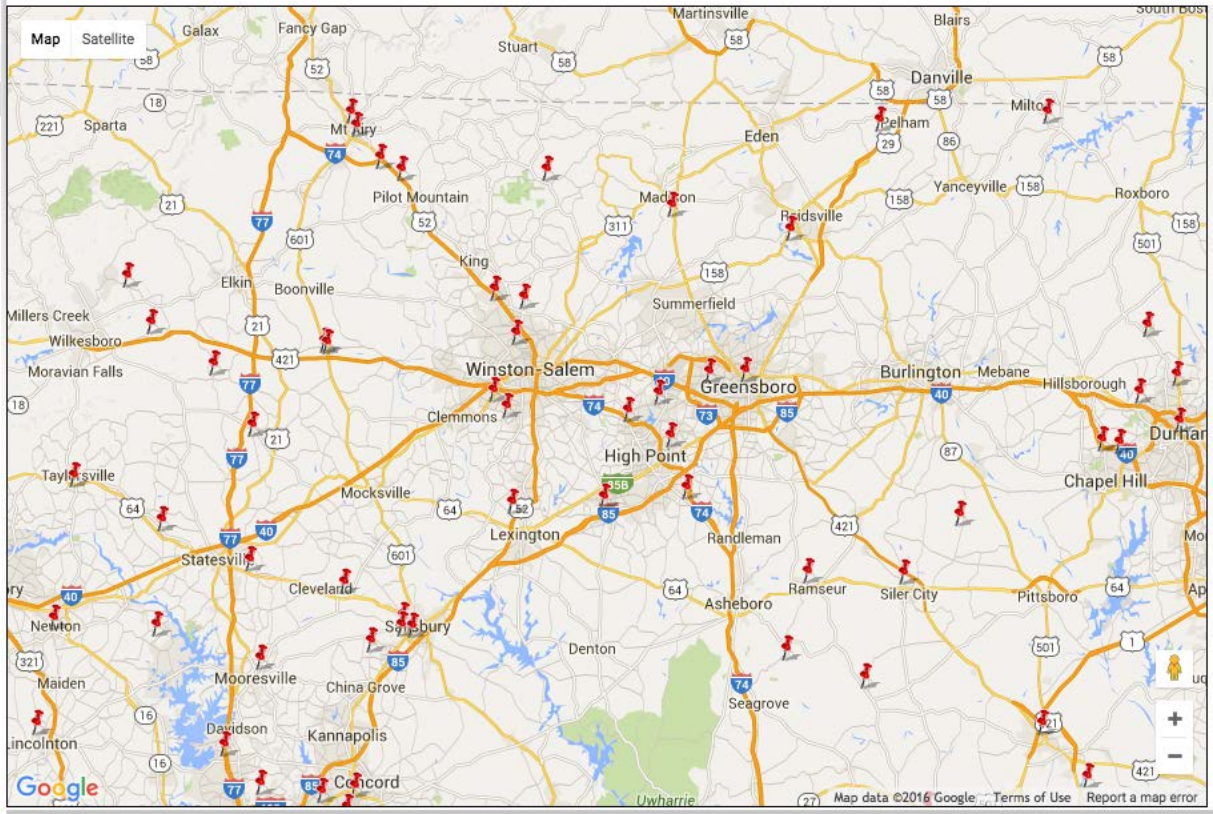
Time of Day	Day of Week								
	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Unknown	Total
Midnight to 2:59 a.m.	36	9	11	10	11	10	26	0	113
3 a.m. to 5:59 a.m.	24	6	10	3	7	8	29	0	87
6 a.m. to 8:59 a.m.	13	18	19						
9 a.m. to 11:59 a.m.	18	19	9						
Noon to 2:59 p.m.	24	31	18						
3 p.m. to 5:59 p.m.	23	29	34						
6 p.m. to 8:59 p.m.	21	29	29						
9 p.m. to 11:59 p.m.	19	22	25						
Unknown	0	0	0						
TOTAL	178	163	155						

Report: Person Killed, by STATE and Age Group - State : North Carolina, Year : 2014, (State=North Carolina, Age Group = 55 - 64)

STATE: NC YEAR: 2014

Crashes: 178, Number of pins: 172. (Location coordinates of - 6 crashes are not reported to FARS.)

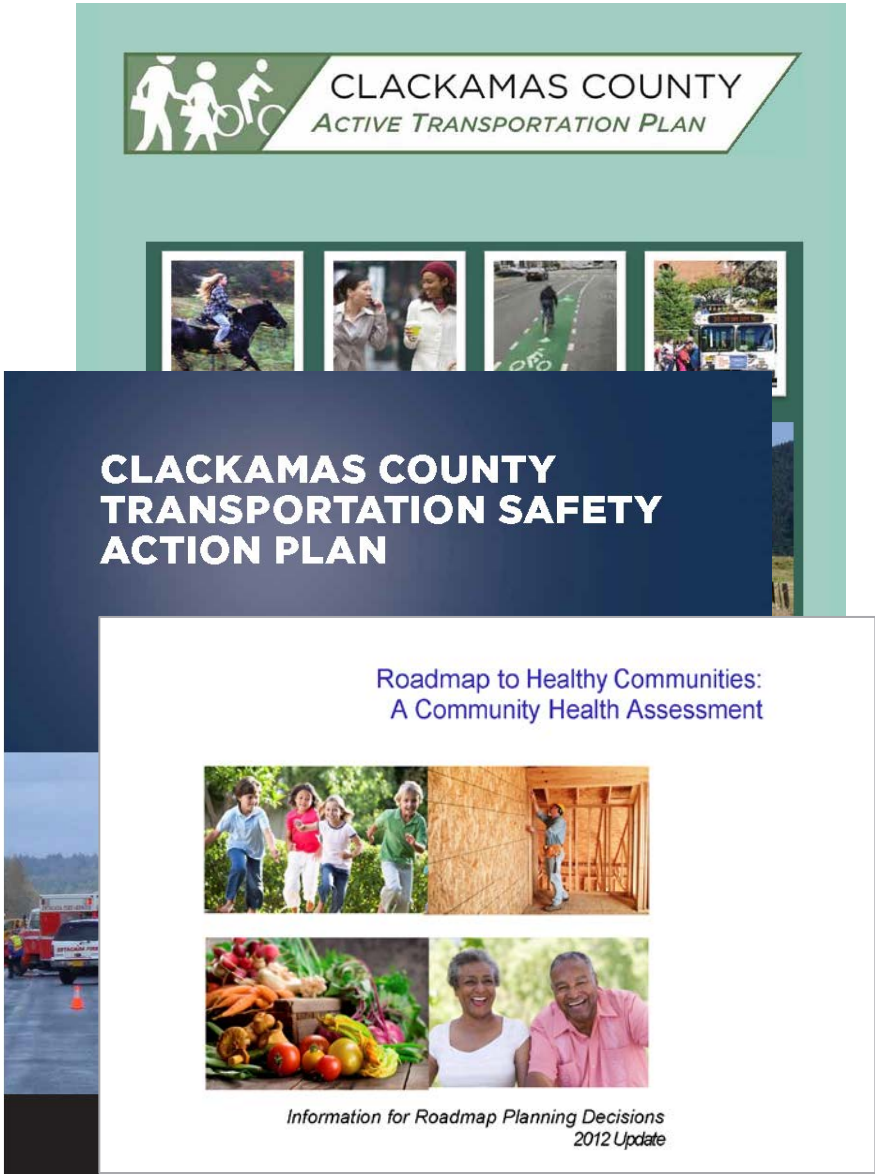
Back to tabulation page



Options to query FARS data or explore maps and export data for select criteria for state and local geographies from 1994-2014

Implementation Use Case – Clackamas County, OR

- Transportation & Public Health Divisions
- County context
  - Strategic priorities: public trust, infrastructure, safety, health
  - Various transportation & health planning initiatives
  - Health & Safety in All Policies pilot
- Application of THT
  - “Proximity to major roadways”
  - Impacts & solutions (transit, planning, greenspace, active transport)
  - Benefits: central source, basis for dialogue, policy & data, partnerships

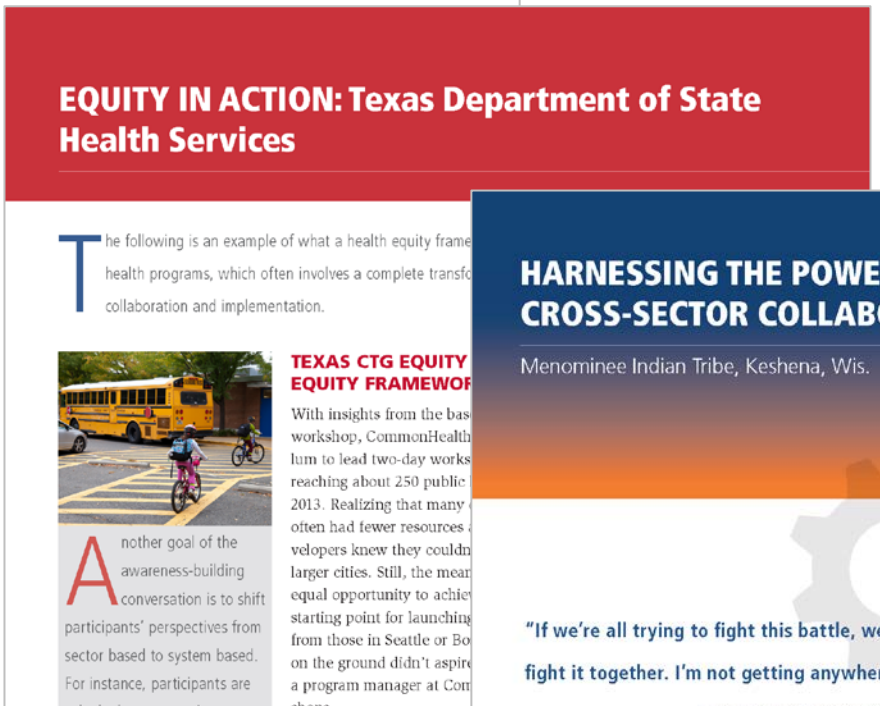


THT Implementation Workshops – Call for Projects

- Coordinate with planning processes underway summer 2016
- Facilitate cross-sector dialogue and planning
- Review indicators and identify strategies
- Model use for other communities
- Selection criteria
  - # of THT indicators involved
  - Health intersections represented
  - Project characteristics (type, scale, location)
  - Range of stakeholders
  - Organizational capacity/support
- 1 workshop in NC, 1 outside of NC
- Contact team with interest

THT Implementation Case Studies

- Present examples of THT application
- Highlight uses and benefits
- Inform practitioners and policy-makers
- Add to wealth of health case studies
- Post to THT website



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