

Transportation Planning Perspectives Part 1: Transportation and Public Health Session B2

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**PA Chapter of the American Planning
Association 2018 Annual Conference**

Erie, Pennsylvania

October 14-16, 2018



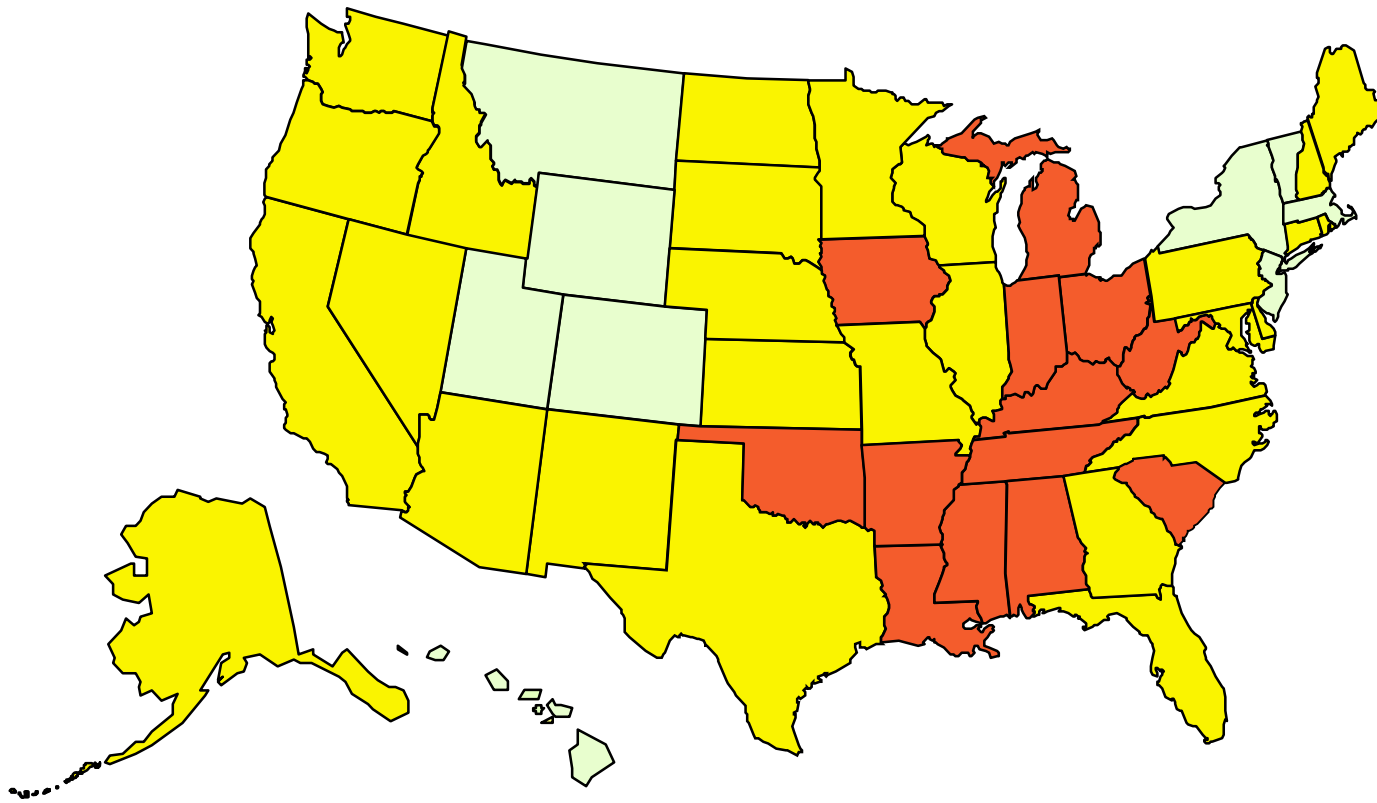
Learning Objectives

- Improve understanding of how to better account for public health outcomes for transportation decision-making
 - Better understand transportation factors that influence public health
 - Explore possibilities for collaboration between health and transportation agencies
 - Discuss tools and approaches that can be used to quantify health impacts

National Health Trends

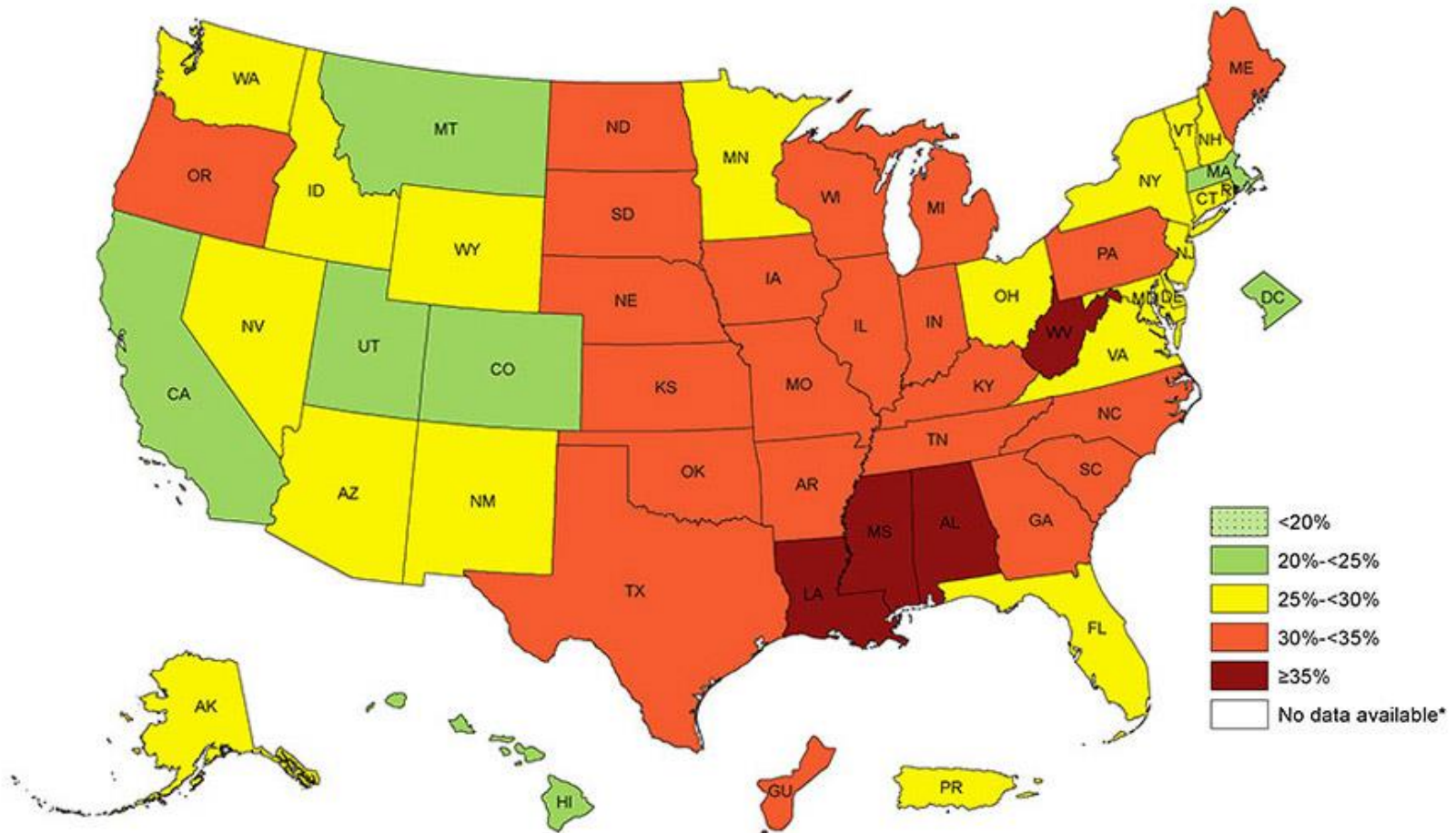
- Self-Reported Obesity Among U.S. Adults (BRFSS, 2012)

15%–<20% 20%–<25% 25%–<30% 30%–<35% ≥35%



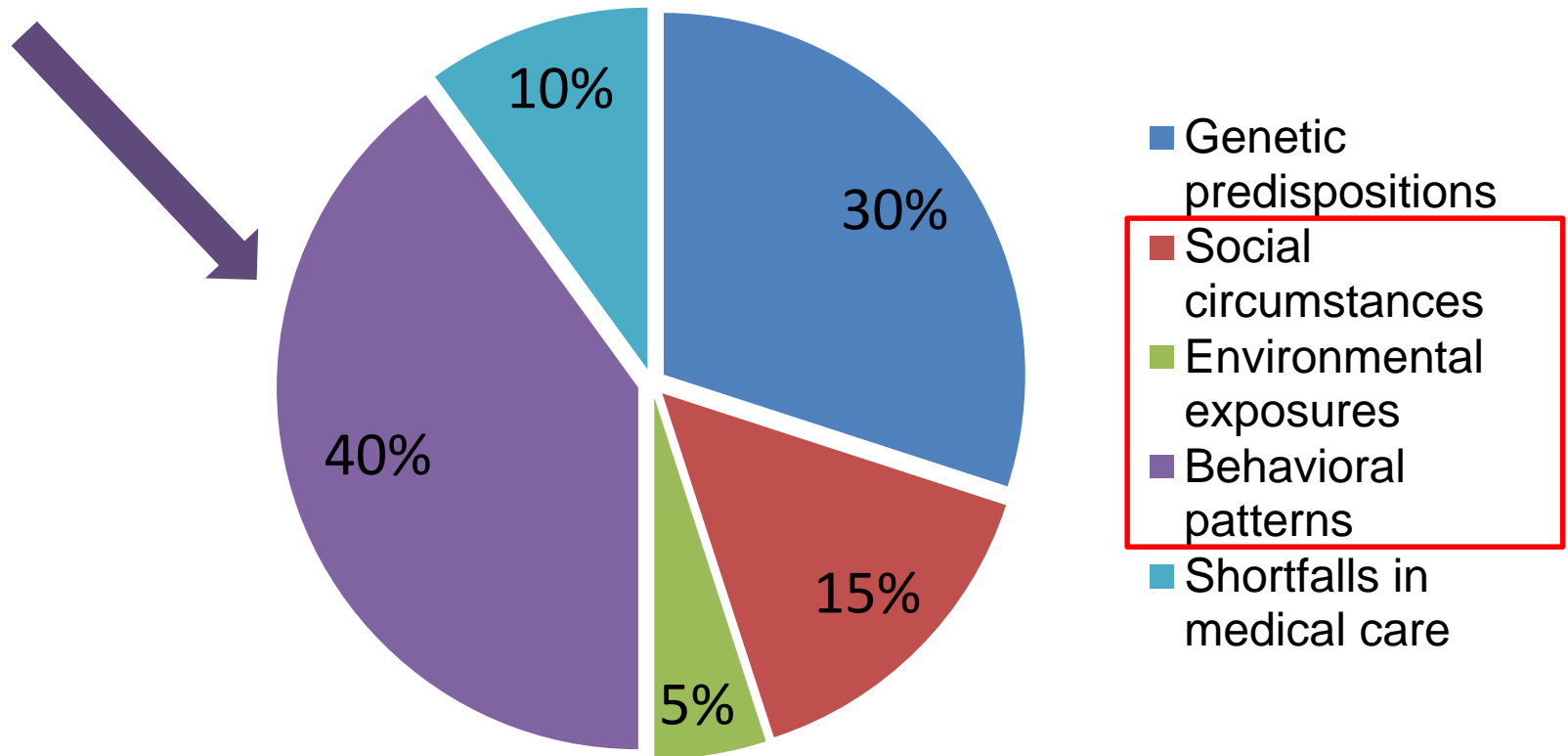
National Health Trends

- Self-Reported Obesity Among U.S. Adults (BRFSS, 2015)



Determinants of Health

- ~60% of premature deaths result from social and environmental factors



Source: McGinnis JM, Williams-Russo P, Knickman JR (2002)

Transportation and Public Health

- What are the largest transportation factors that influence public health?

Transportation and Public Health

Examples of health outcomes related to transportation:

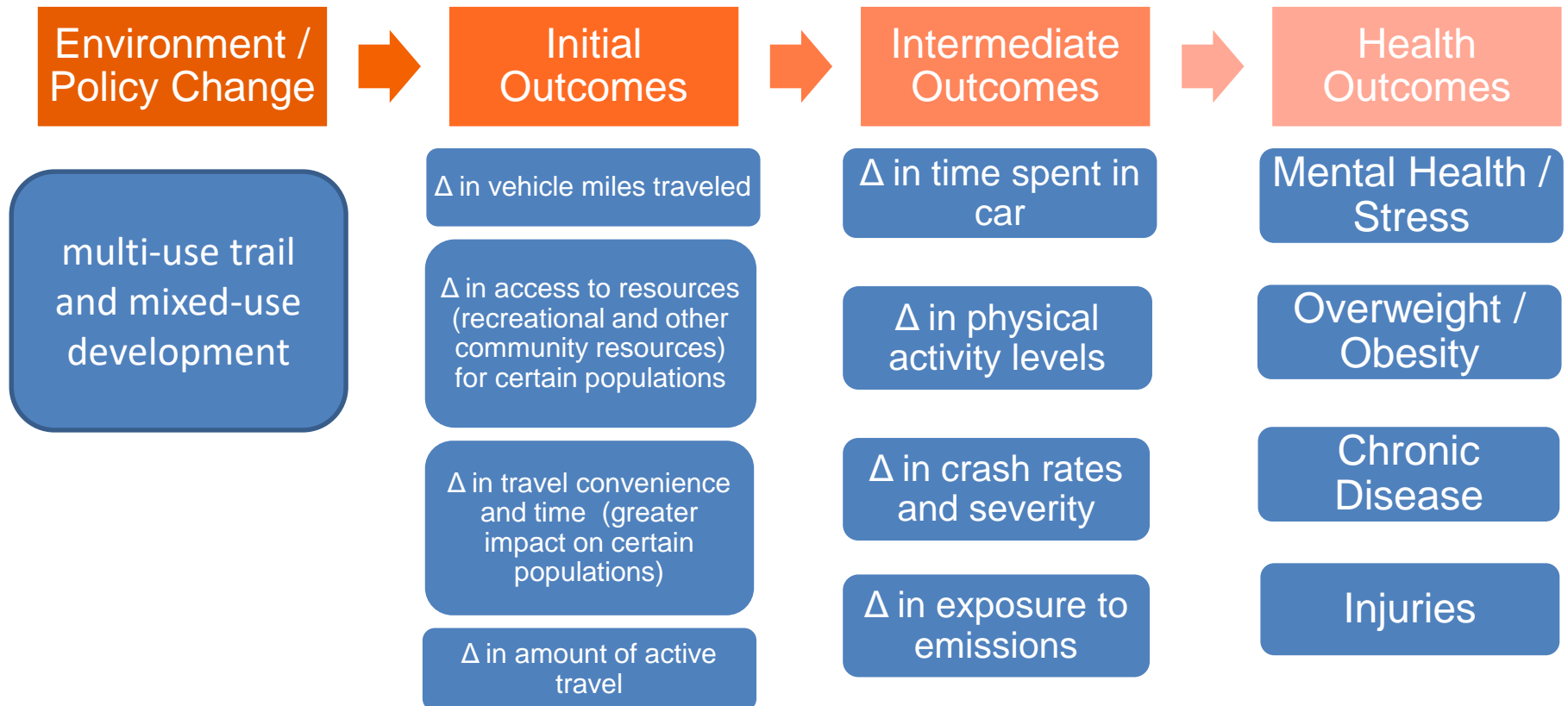
- Obesity and related chronic disease
 - Access to physical activity
 - Access to healthy food
 - Preventive care
 - Treatment of conditions (Diabetes/Late Stage Kidney Disease)
- Infant mortality
 - Access to preventive and regular care
- Mental health, opioid crisis
 - Access to treatment
 - Access to jobs, basic needs
- Equity and more
 - Air quality
 - Noise exposure
 - Community identity

To create conditions for community wellbeing we must look back – at continuing, historic influences – and forward – to the major forces that shape current and future priorities. The Visualizing Wellbeing series explores the state of wellbeing in the United States through a collection of data visualizations. Each week we will explore one vital condition that comprise our [framework for community wellbeing](#), developed in partnership through the [Well Being Legacy Initiative](#).



Image Credit: CommunityCommons.org - Accessed Sept 24, 2018 at: <https://www.communitycommons.org/2018/07/vital-conditions-for-community-wellbeing/>

Health Impact Pathways



Transportation and Public Health

- Two examples of including Public Health in Transportation Planning
 - Erie County Long Range Transportation Plan
 - Delaware Statewide Planning Toolset and Working Groups

2017 Update to the Erie LRTP



ERIE COUNTY



2042 LONG RANGE TRANSPORTATION PLAN



ADOPTED BY THE ERIE MPO
MARCH 15, 2017



Erie Health Context

- Community Health Needs Assessment (CHNA)
 - Completed in 2015
 - Local health experts and community members
 - Unhealthy diets and obesity listed as key health concerns

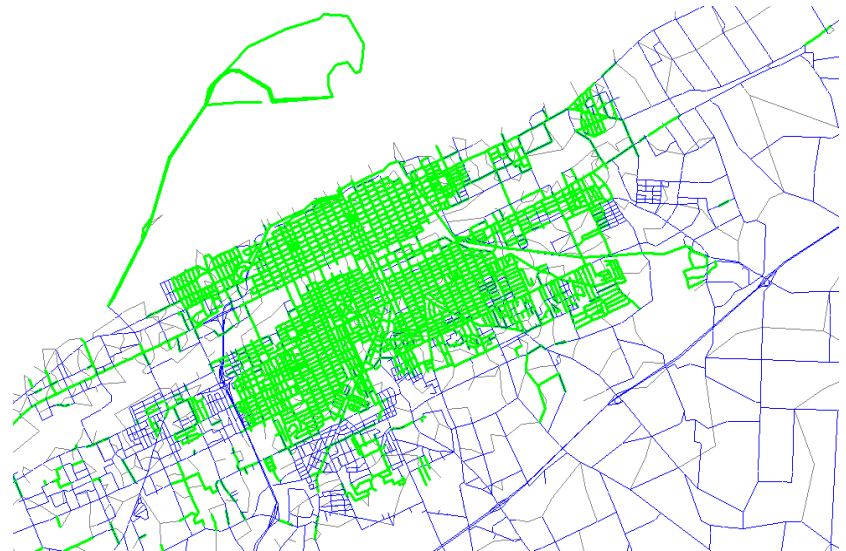
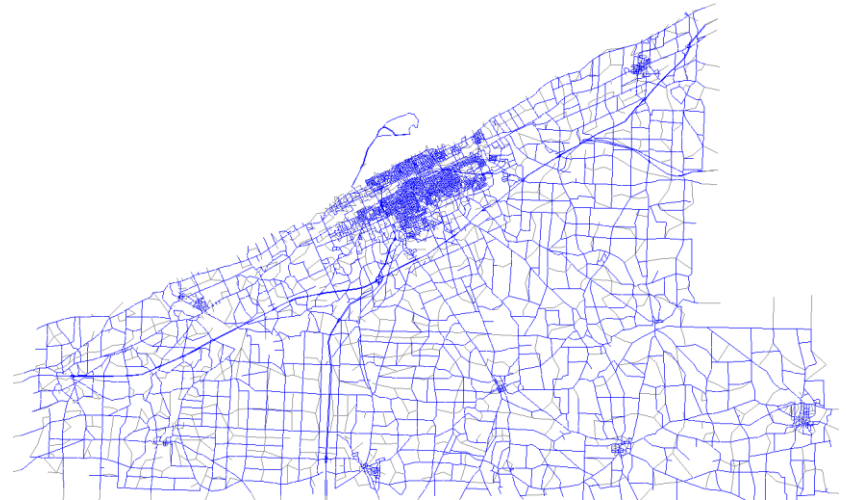


Incorporate Health into the Plan

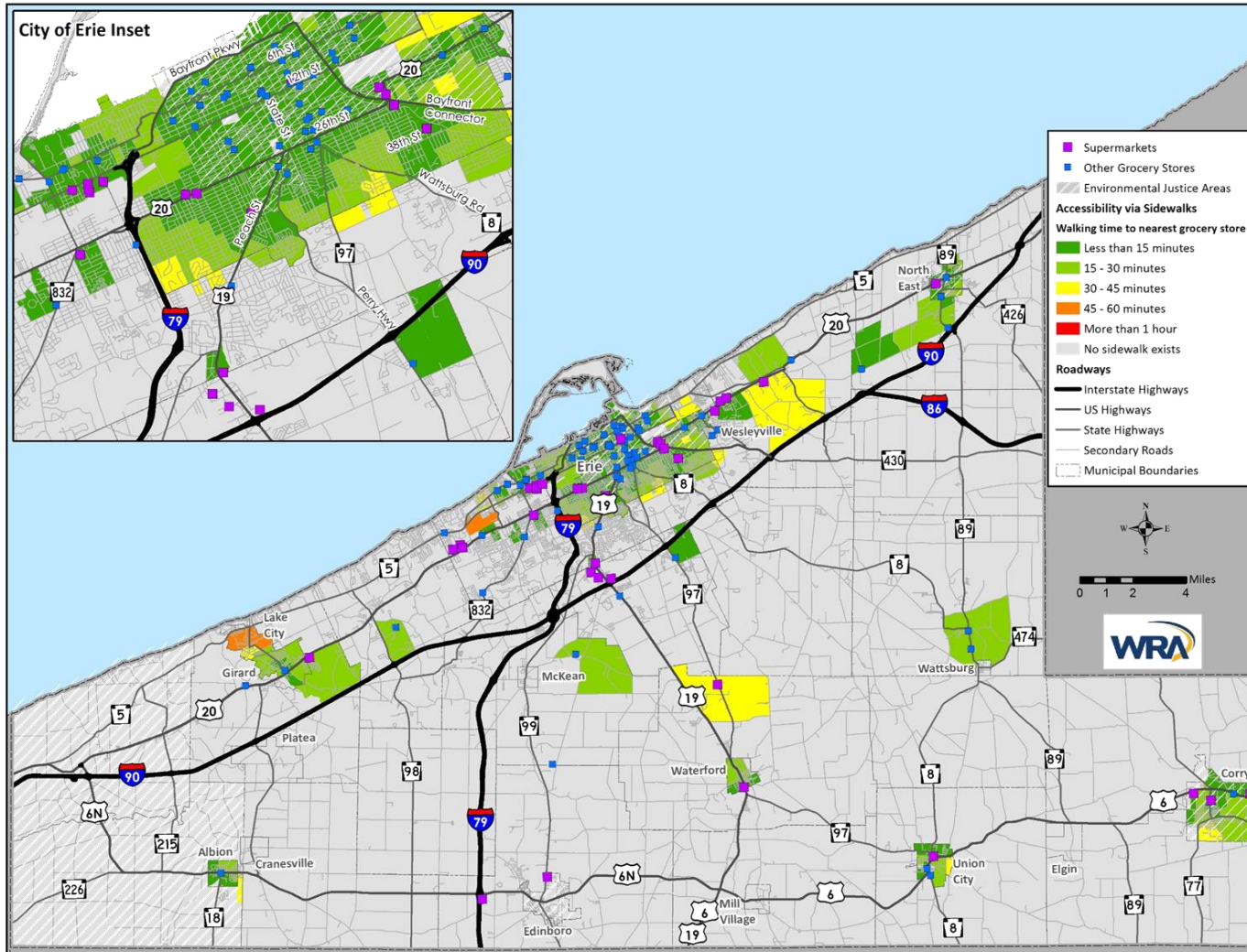
- Added a Health section to the Sustainability Chapter
 - Addresses walking accessibility
 - Transit
 - Fresh Food
 - Hospitals
 - Schools
 - Parks
 - Recommends formation of a Multimodal Transportation and Health Committee

Health Based Performance Measures

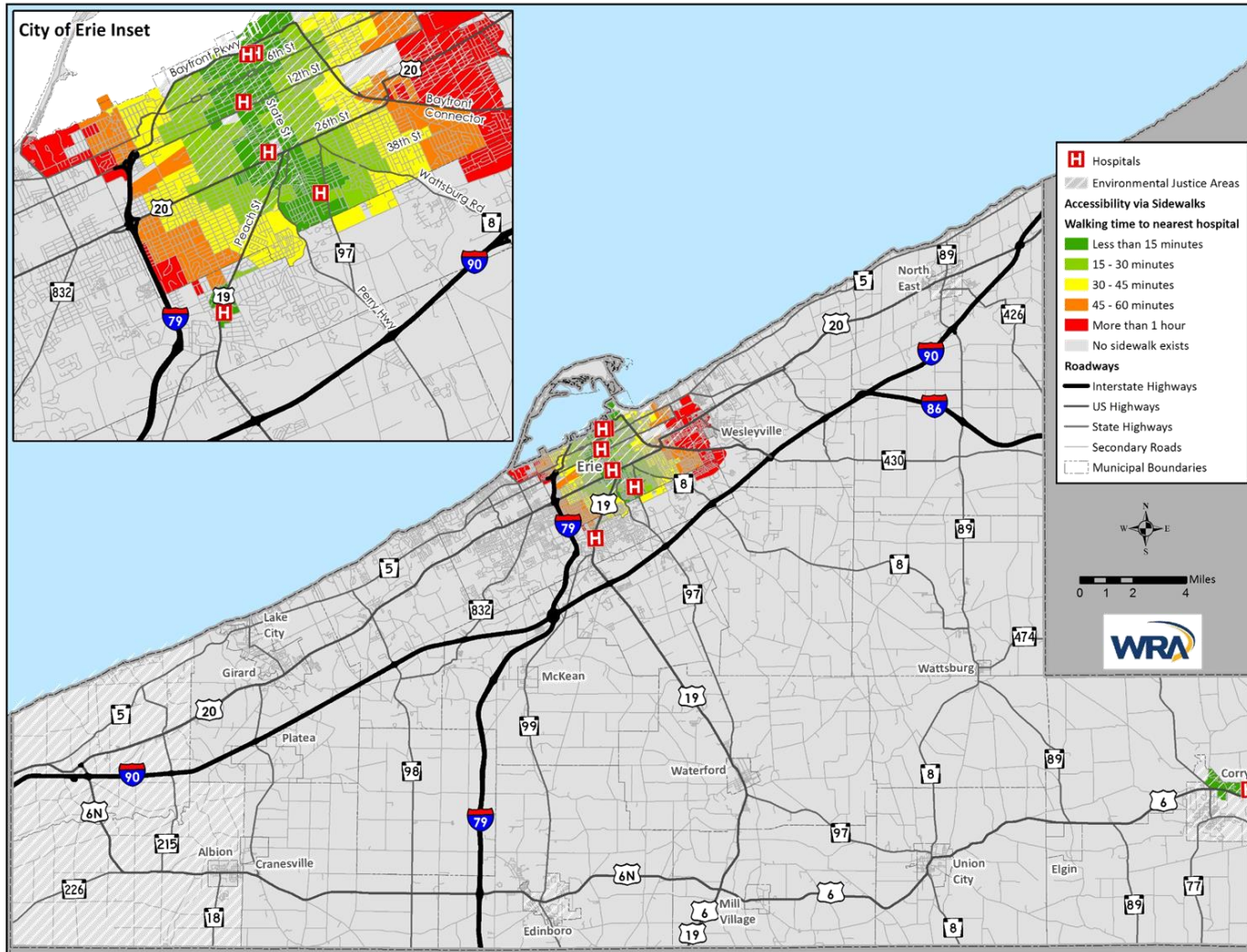
- Enhanced Erie MPO Travel Demand Model
 - Smaller zones
 - Active transportation forecasts at the individual street level
 - Accounts for multi-use trails and walk access to transit stops
- HEAT tool
 - Health Economic Assessment Tool
 - World Health Organization
 - Health-related mortality risk comparisons



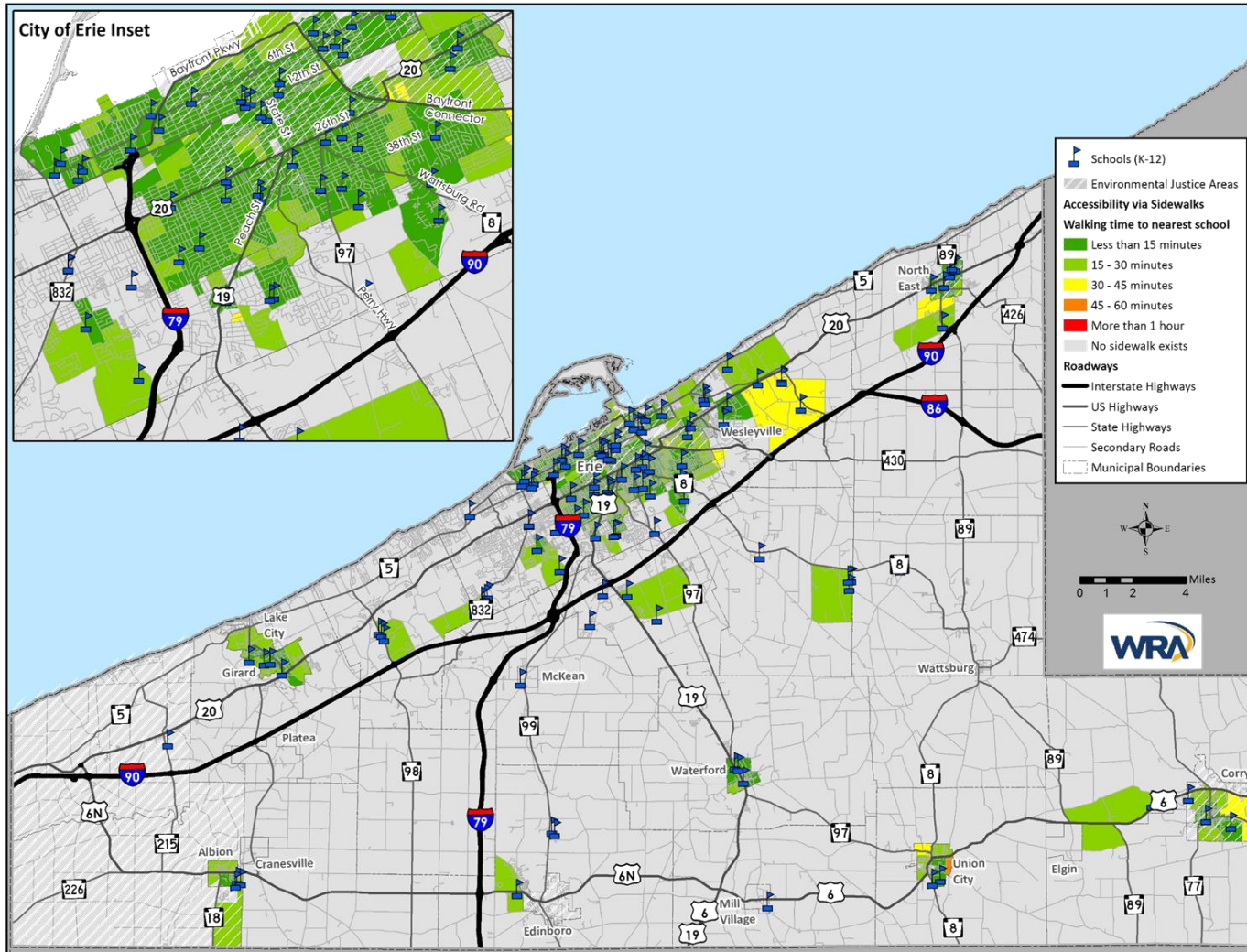
Access to Grocery Stores via Sidewalk



Access to Hospitals via Sidewalk



Access to Schools via Sidewalk



Impacts of the Plan

Health Benefit due to Walking (Annually)



Delaware: Taking Action in Transportation

- Estimating health impacts of land use/transportation scenarios
 - Existing strategies fall short
 - Health impact assessment not quantitative
 - Standard TDM and travel survey lack detail
 - Model to quantifying land use/transportation decisions, comparative risk assessment
 - DelDOT leading cross collaborative group
 - TDM, Travel Survey + ITHIM

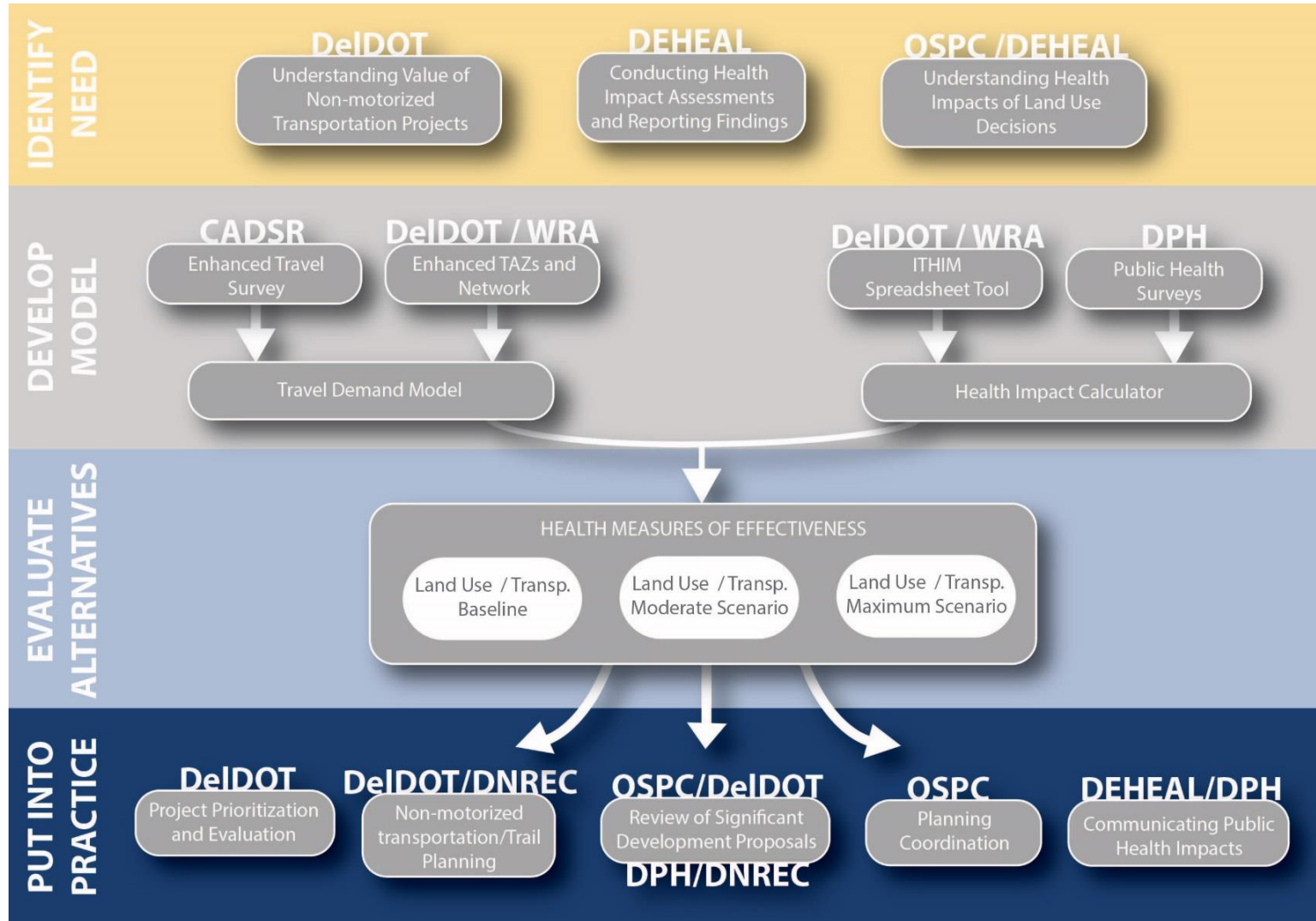
Health Impact Estimation

- Cross-Disciplinary Approach

PARTNER		ROLE
Delaware Department of Transportation	DeIDOT	Manage state's transportation system (~90% of roads statewide) Commissioned the study
University of Delaware Center for Applied Demography & Survey Research	CADSR	Conduct Delaware's household travel survey (DTMS) Advise on model development
Whitman, Requardt & Associates, LLP	WRA	Develop and manage Delaware travel demand model lead health impact quantification
Delaware Division of Public Health	DPH	Supply mortality/morbidity data Provide public health and epidemiological expertise
Delaware Office of State Planning Coordination	OSPC	Coordinate planning efforts across governments Assist agency review of major land use change proposals
Environment & Policy Committee, Delaware Coalition for Healthy Eating & Active Living	DEHEAL	Multi-sector group that promotes public health through policy, environment, and systems change
Delaware Department of Natural Resources and Environmental Control	DNREC	Plans and constructs recreational trails, pathways, and related facilities

Health Impact Estimation

- Steps/Roles



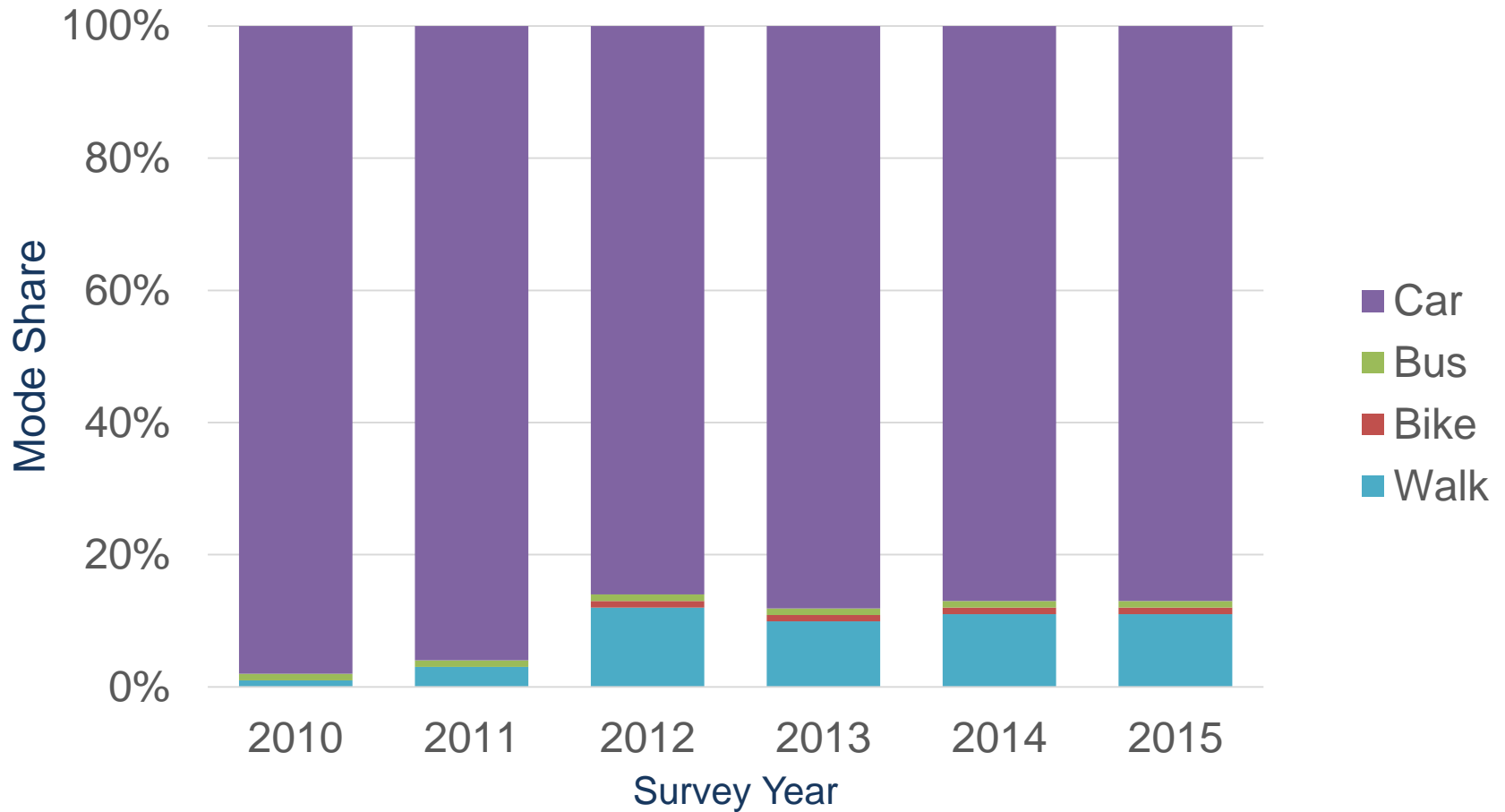
Health Impact Estimation

- Data Inputs
 - Delaware Trip Monitoring Survey (DeIDOT)
 - Behavioral Risk Factor Survey (Delaware Division of Public Health)
 - Mortality Data (Delaware Health Statistics Center)
 - Crash Data (Crash Analysis Reporting System, DeIDOT)
 - Census 5-year population demographics (American Community Survey)
 - Population Projections (Delaware Population Consortium)

Health Impact Estimation

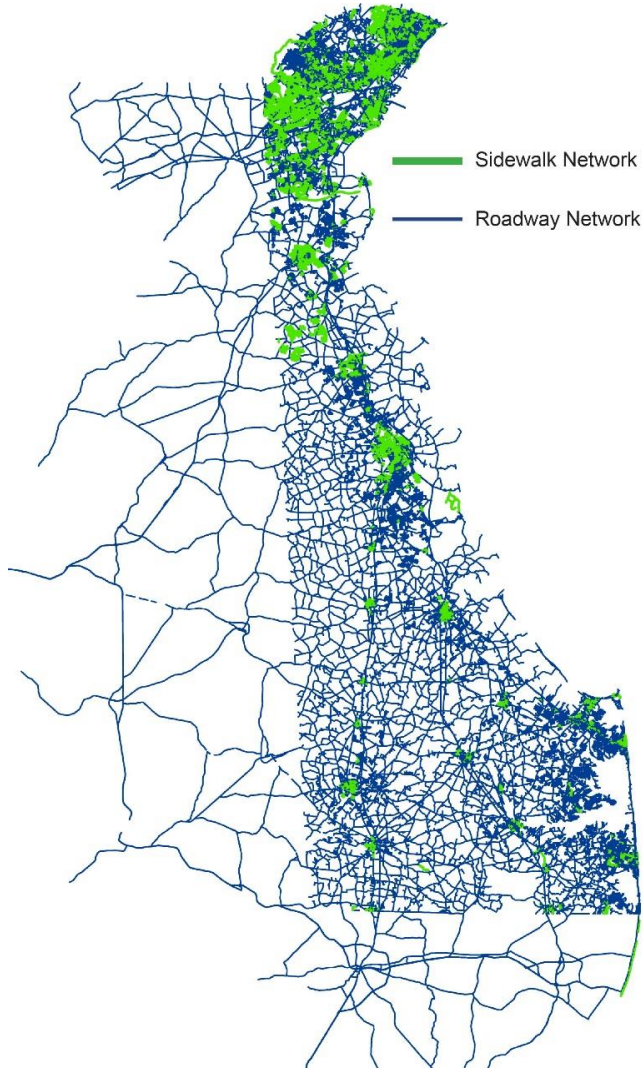
- Enhancing the model

Delaware Mode Share by Survey Year



Health Impact Estimation

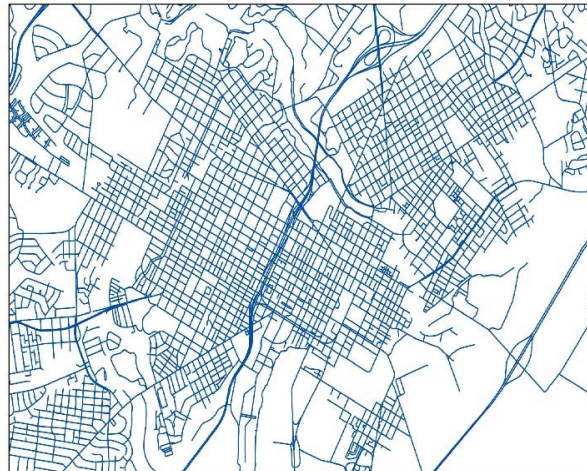
- Enhancing the model



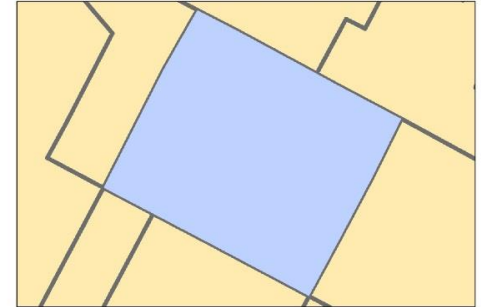
Standard Peninsula TDM Network in Wilmington, Delaware



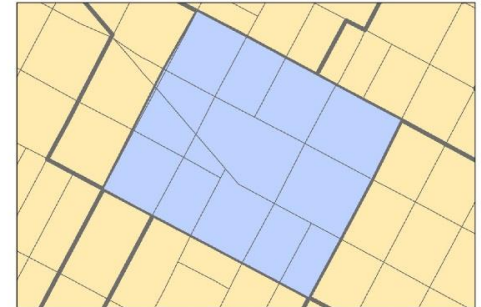
Multi-resolution Peninsula TDM Network in Wilmington, Delaware



Standard TAZs in downtown Wilmington, Delaware



Census Block TAZs in downtown Wilmington, Delaware



Tax Parcel TAZs in downtown Wilmington, Delaware



Health Impact Estimation

- Outcomes from ITHIM
 - Integrated Transportation and Health Impact Model



		Baseline		Alternative	
Scenario:		Pop.: 917,060		Pop.: 917,060 10% decrease in VMT over baseline	
Time (minutes / day / person)	Walk	2.6	5%	7.6	16%
	Bike	0.15	0%	0.15	0%
	Bus	0.1	0%	0.1	0%
	Train	0.0	0%	0.0	0%
	Car driver	42.4	90%	36.2	80%
	Car passenger	2.0	4%	1.8	4%
	Motorcycle	0.0	0%	0.0	0%
	Total	47.3	100%	47.3	100%
Relative Risk (percent difference)	Breast Cancer			-1%	
	Colon Cancer			-1%	
	Dementia			-4%	
	Depression			-1%	
	Diabetes			-4%	
	Ischemic Heart Disease			-4%	
	Road Traffic Injuries			+10%	
	Stroke			-4%	
	All Cause Mortality			-1%	

Livability Collaborative

- Recognition of health and quality of life impacts in fields not traditionally focused on these
- Increasing number of Policy, Partnerships, and Professionals interested

~2009

2011

2013

2015

2017

DE HEAL

Delaware Coalition for
Healthy Eating and Active Living

Delaware
PLAN4Health
An American Planning Association Project

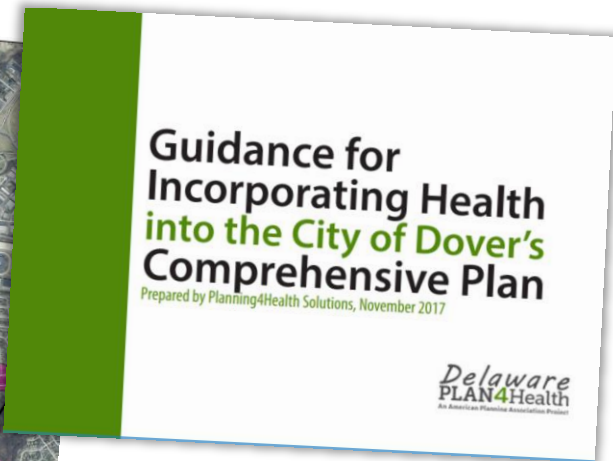
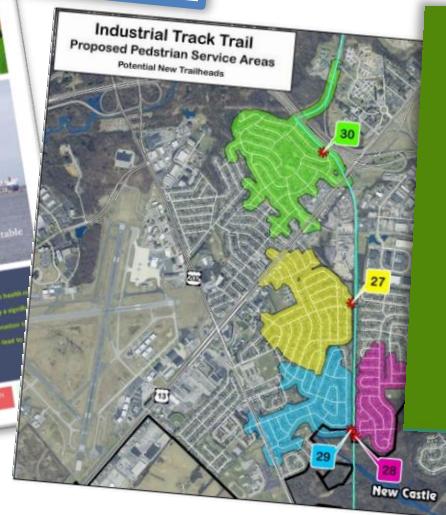
Livability Collaborative

OS
PC

PLUS Operations Dashboard

Brought together
professionals in:

- Public health
- Transportation
- Environment
- Land use
- Others



Outcomes

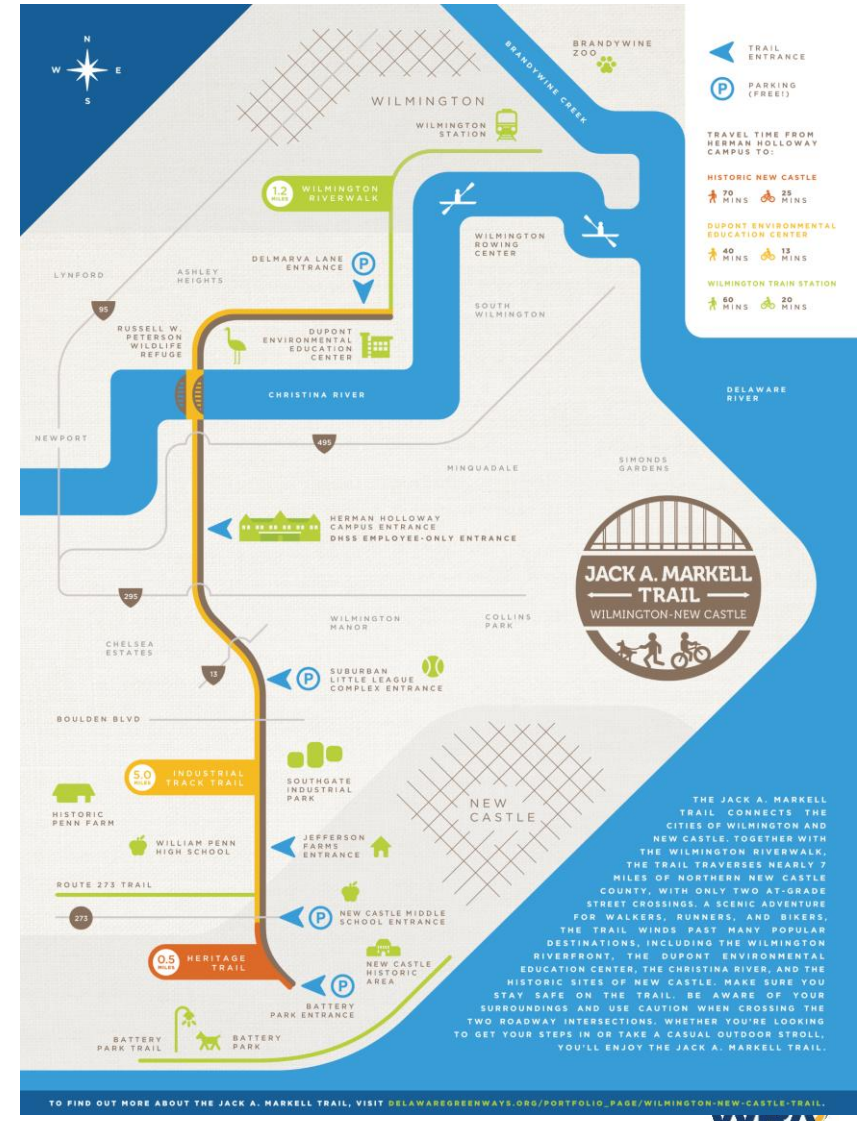
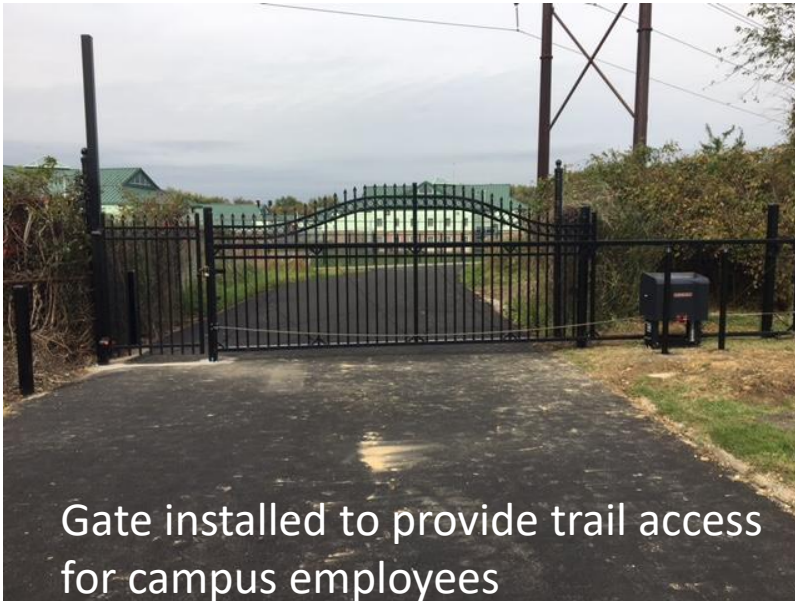
- Opportunity: Jack A. Markell Trail



7 continuous miles of trail with
only 2 street crossings!

Outcomes

- Survey of employees at Holloway Campus
 - ~1,000 workers
 - ~160 completed the survey
- Multi-agency collaboration efforts



Limitations/Uncertainties

- Unreliable for small geographies (regional OK)
- Physical activity substitution (assumes additive)
- Undersampling
 - demographic sub-group
 - geographic areas
- Crash data



Future Work

- Continue to improve data inputs
- Incorporate quality of bike/ped facilities
- Accessibility and land use impacts
- Fully integrate ITHIM into travel demand model environment



Photo Credit: Delaware Department of Transportation

Next Steps for Erie County

- Use health as a Decision Lens category in the Erie County Parks, Trails & Recreation Plan
- Prioritize projects that address the gaps identified in the LRTP
- Continue data acquisition to input into health equity assessment tools
- Build bridges between the ECDP and the Health Department



Questions and Discussion

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Special thanks to:

Andrea Trabelsi, AICP ~ atrabelsi@wrallp.com



Integrated Transport and Health Impact Model: Woodcock J, Givoni M, Morgan AS. Health Impact Modelling of Active Travel Visions for England and Wales Using an Integrated Transport and Health Impact Modelling Tool (ITHIM). PLoS One. 2013;8(1):e51462.

Special thanks to Neil Maizlish for guidance with the ITHIM.