Lauri P. Ahlskog, AICP

PA Health Equity Summit

November 1, 2019

ERIE
WARREN
MCKEAN
POTTER
TIOGA
BRADFORD
SUSQUEHANNA
WAYNE
CRAWFORD
FOREST
ELK
CAMERON
SULLIVAN
WYOMING
LACKA-WANNA
PIKE
VENANGO
MERCER
CLARION
JEFFERSON
CLINTON
LYCOMING
MONTOUR
LUZERNE
COLUMBIA
MONROE
LAWRENCE
BUTLER
ARMSTRONG
CLEARFIELD
CENTRE
UNION
CARBON
NORTHAMPTON
BEAVER
INDIANA
SNYDER
NORTH-UMBERLAND
SCHUYLKILL
LEHIGH
MIFFLIN
JUNIATA
CAMBRIA
BLAIR
DAUPHIN
ALLEGHENY
PERRY
BERKS
WESTMORELAND
HUNTINGDON
LEBANON
BUCKS
MONTGOMERY
WASHINGTON
CUMBERLAND
LANCASTER
CHESTER
BEDFORD
SOMERSET
FULTON
FRANKLIN
ADAMS
YORK
DELA-WARE
PHILADELPHIA
GREENE
FAYETTE
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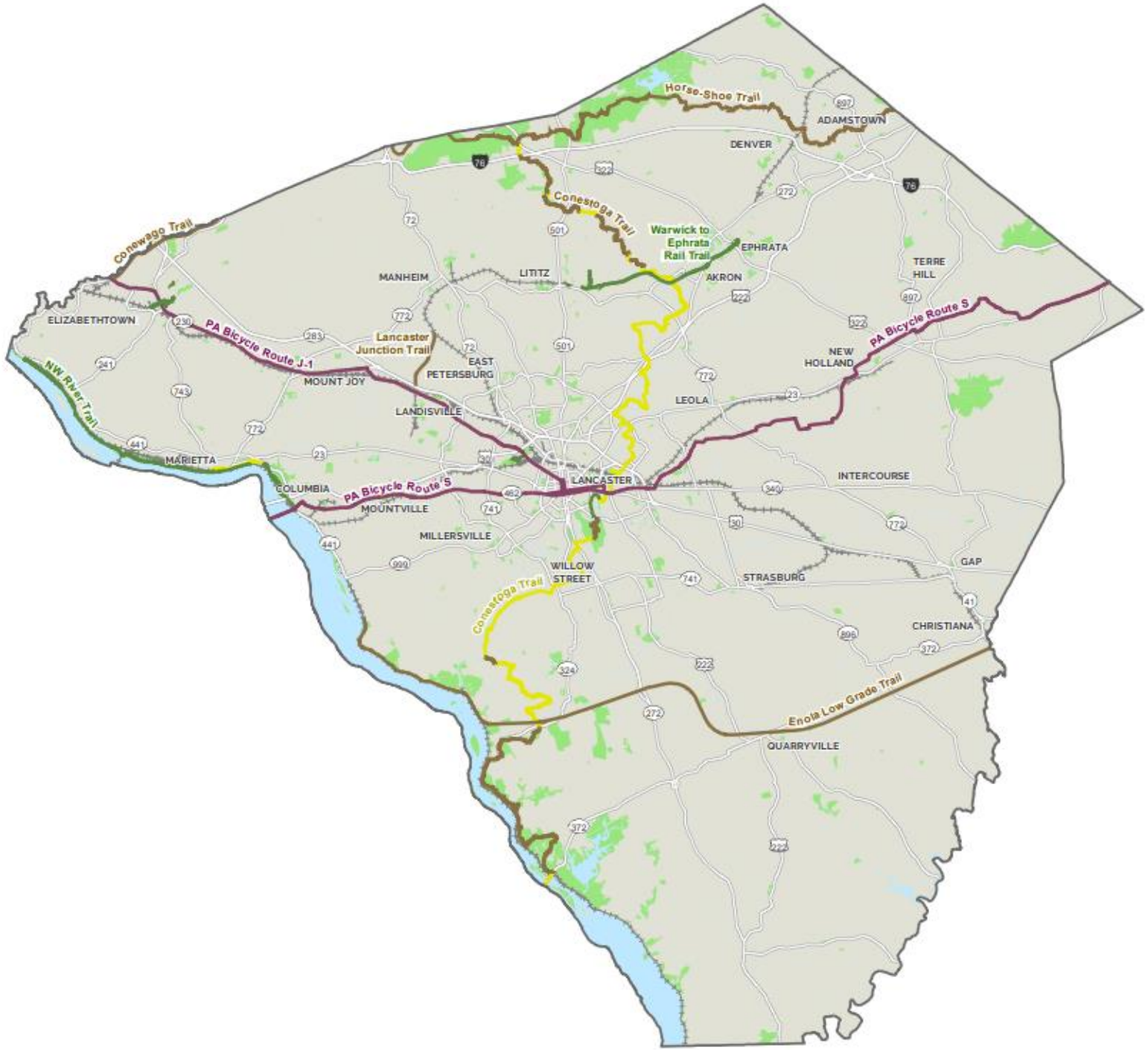
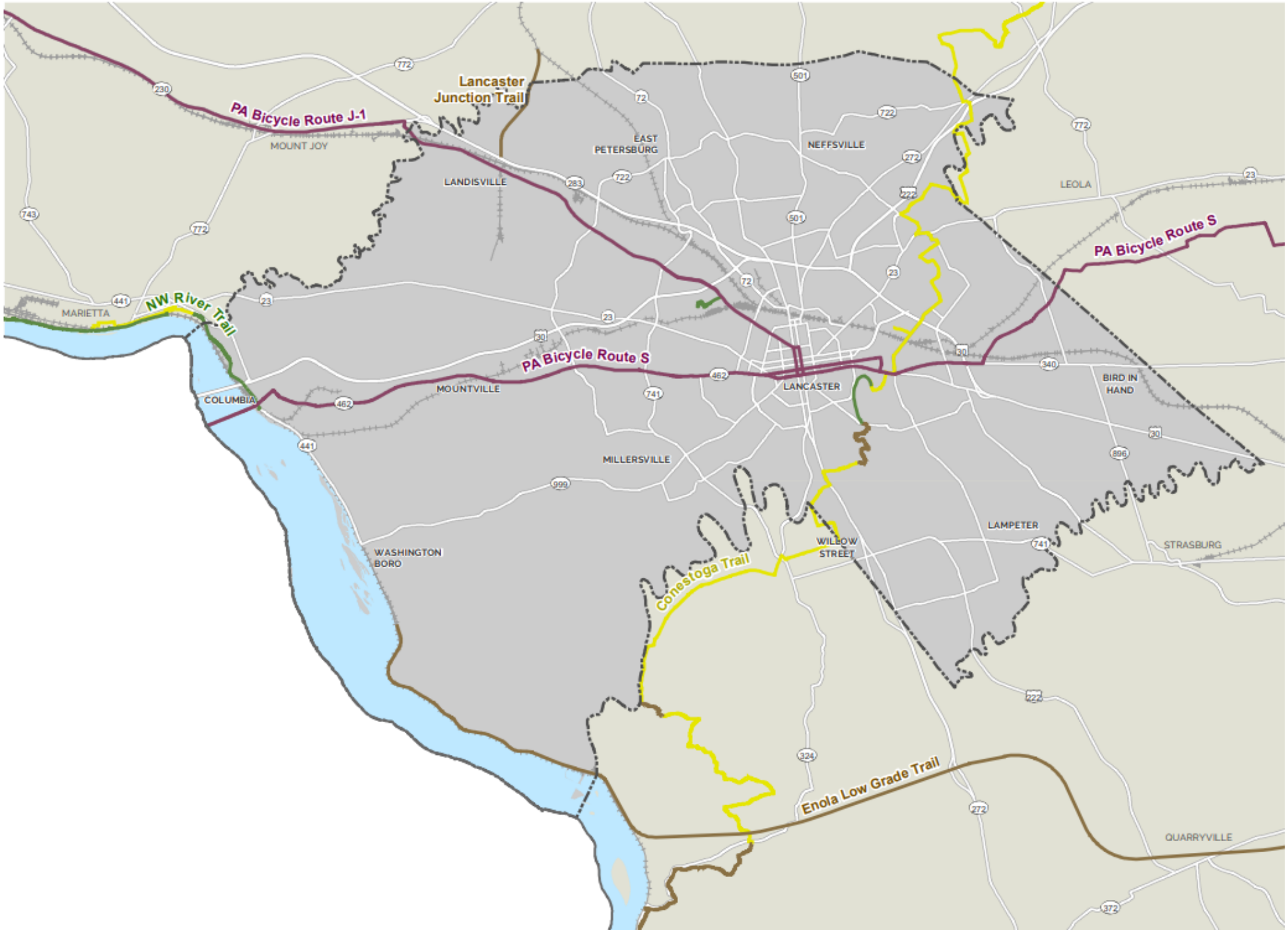

Horse-Shoe Trail
ADAMSTOWN
DENVER
Conestoga Trail
Warwick to Ephrata Rail Trail
EPHRATA
AKRON
TERRE HILL
Conewago Trail
MANHEIM
LITITZ
ELIZABETHTOWN
PA Bicycle Route J-1
Lancaster Junction Trail
EAST PETERSBURG
MOUNT JOY
NW River Trail
LANDISVILLE
NEW HOLLAND
PA Bicycle Route S
LEOLA
MARIETTA
COLUMBIA
PA Bicycle Route S
LANCASTER
INTERCOURSE
MOUNTVILLE
MILLERSVILLE
WILLOW STREET
STRASBURG
GAP
Conestoga Trail
CHRISTIANA
Enola Low Grade Trail
QUARRYVILLE


PA Bicycle Route J-1
Lancaster Junction Trail
MOUNT JOY
LANDISVILLE
EAST PETERSBURG
NEFFSVILLE
LEOLA
PA Bicycle Route S
MARIETTA
NW River Trail
COLUMBIA
MOUNTVILLE
LANCASTER
BIRD IN HAND
MILLERSVILLE
LAMPETER
STRASBURG
WASHINGTON BORO
WILLOW STREET
Conestoga Trail
Enola Low Grade Trail
QUARRYVILLE

Harrisburg Pike
W Liberty St
N Christian St
N Plum St
New Holland Ave
Marietta Ave
President Ave
College Ave
W James St
Charlotte St
N Mulberry St
N Prince St
N Queen St
E Walnut St
E Chestnut St
Lehigh Ave
N Broad St
E Orange St
E King St
Columbia Ave
W Vine St
S Line St
New Dauphin St
St Joseph St
Manor Ave
S Prince St
S Queen St
Chesapeake St
S Duke St
Fairview Ave
Hershey Ave
30
23
72
222
462
999
324

PLAN COMPONENTS

LANCASTER COUNTY ACTIVE TRANSPORTATION PLAN

LANCASTER CITY BICYCLE NETWORK

GREATER LANCASTER HERITAGE PATHWAY

NORTHEAST GREENWAY FEASIBILITY STUDY

ENGLESIDE GREENWAY FEASIBILITY STUDY

Vision

"Lancaster is a vibrant, diverse, and active community where people of all ages and abilities can move safely and conveniently through an interconnected network of pedestrian, bicycle, and transit facilities that promote healthy living and economic vitality."

WHAT DO WE HOPE TO ACHIEVE?

IMPROVE ACCESS & CONNECTIVITY

ENHANCE HEALTH

PROTECT THE ENVIRONMENT

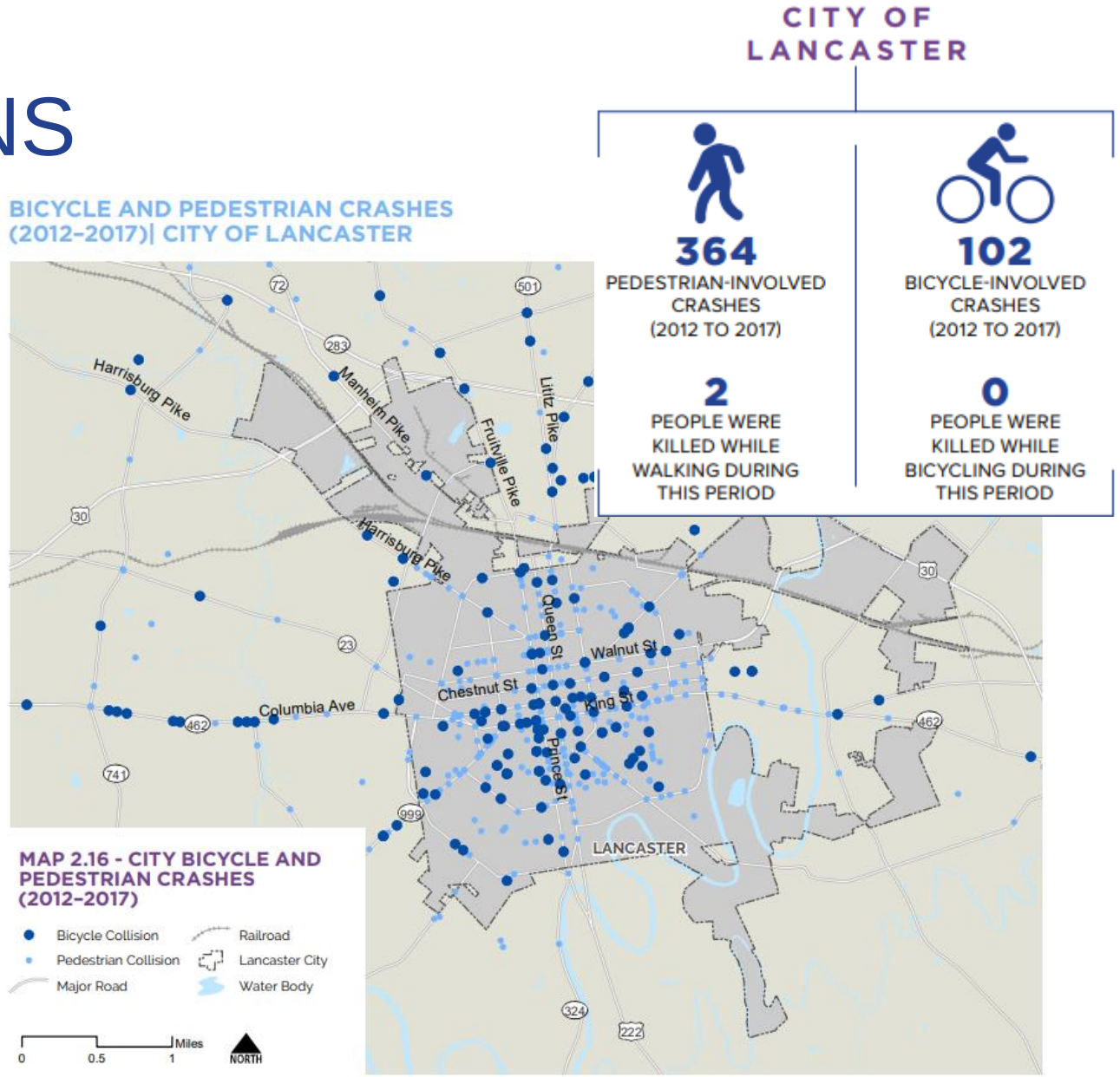
CREATE ECONOMIC OPPORTUNITY

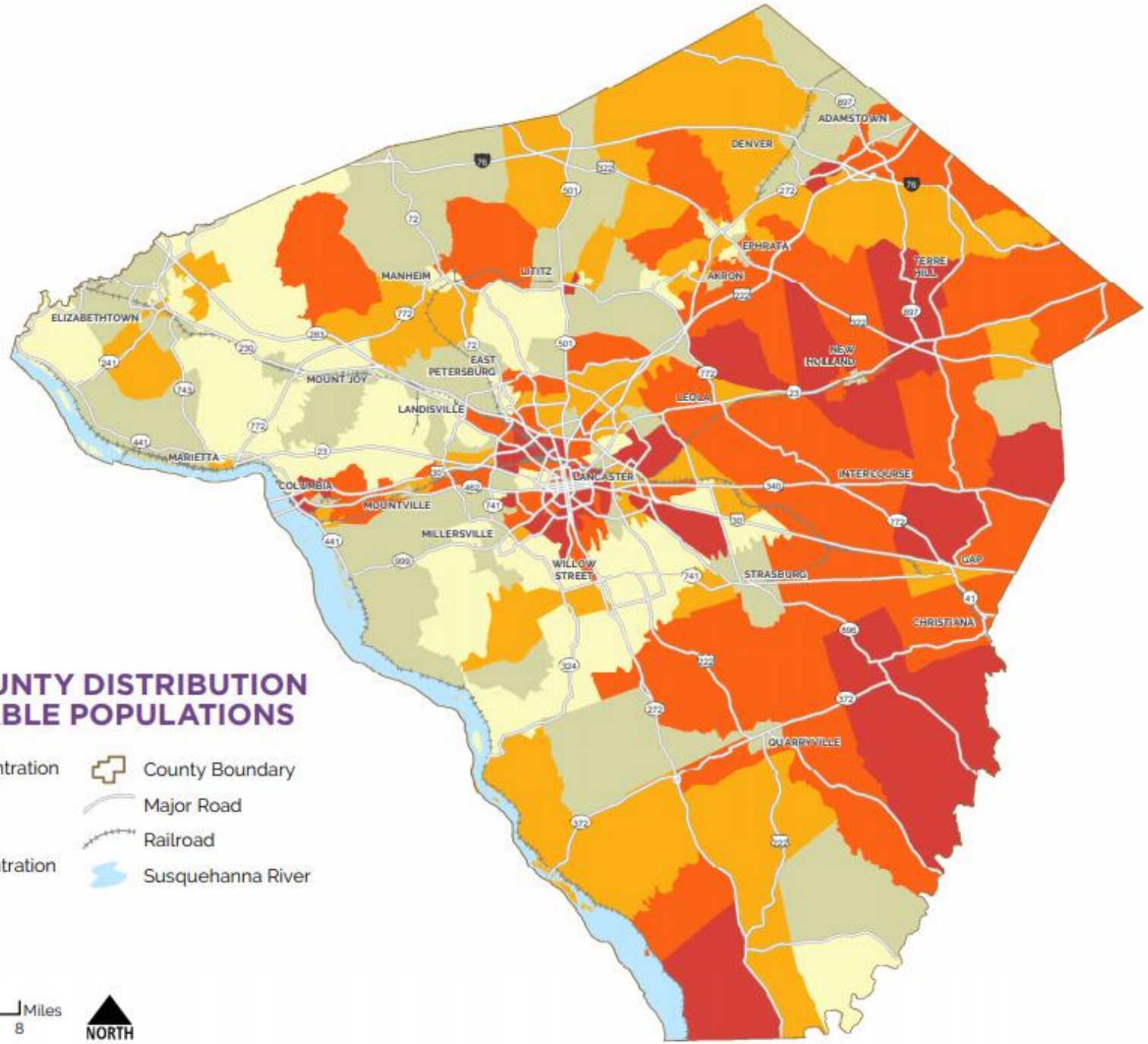
INCREASE SAFETY

EXISTING CONDITIONS

ANALYSES

- Existing Bicycle and Pedestrian Facilities
- Equity Analysis
- Demand Analysis
- Bicycle Level of Traffic Stress
- Pedestrian Level of Service
- Bike/Ped Crash Mapping
- Route 30 Crossing Analysis





MAP 2.1 - COUNTY DISTRIBUTION OF VULNERABLE POPULATIONS

Higher Concentration

Lower Concentration

County Boundary

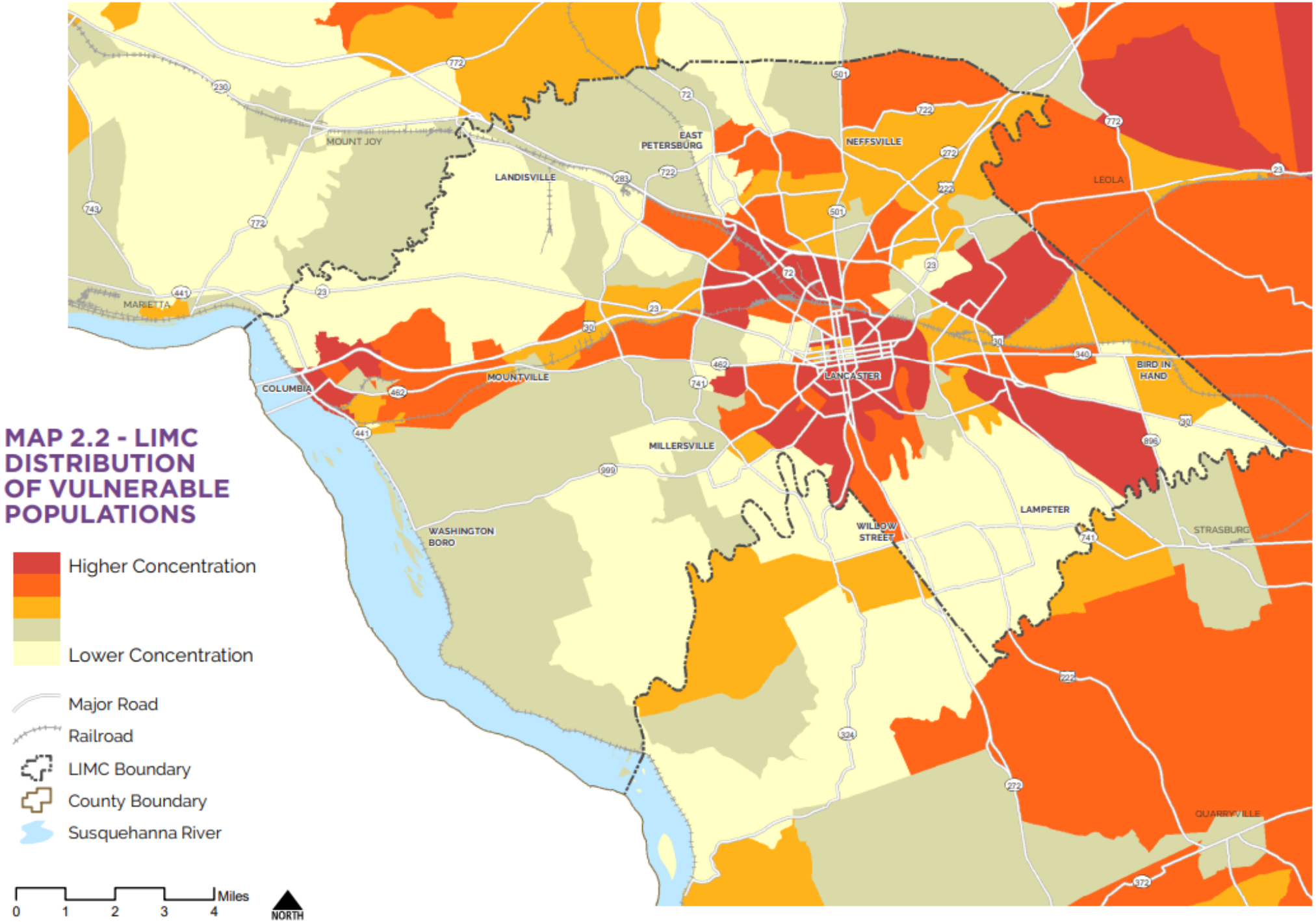
Major Road

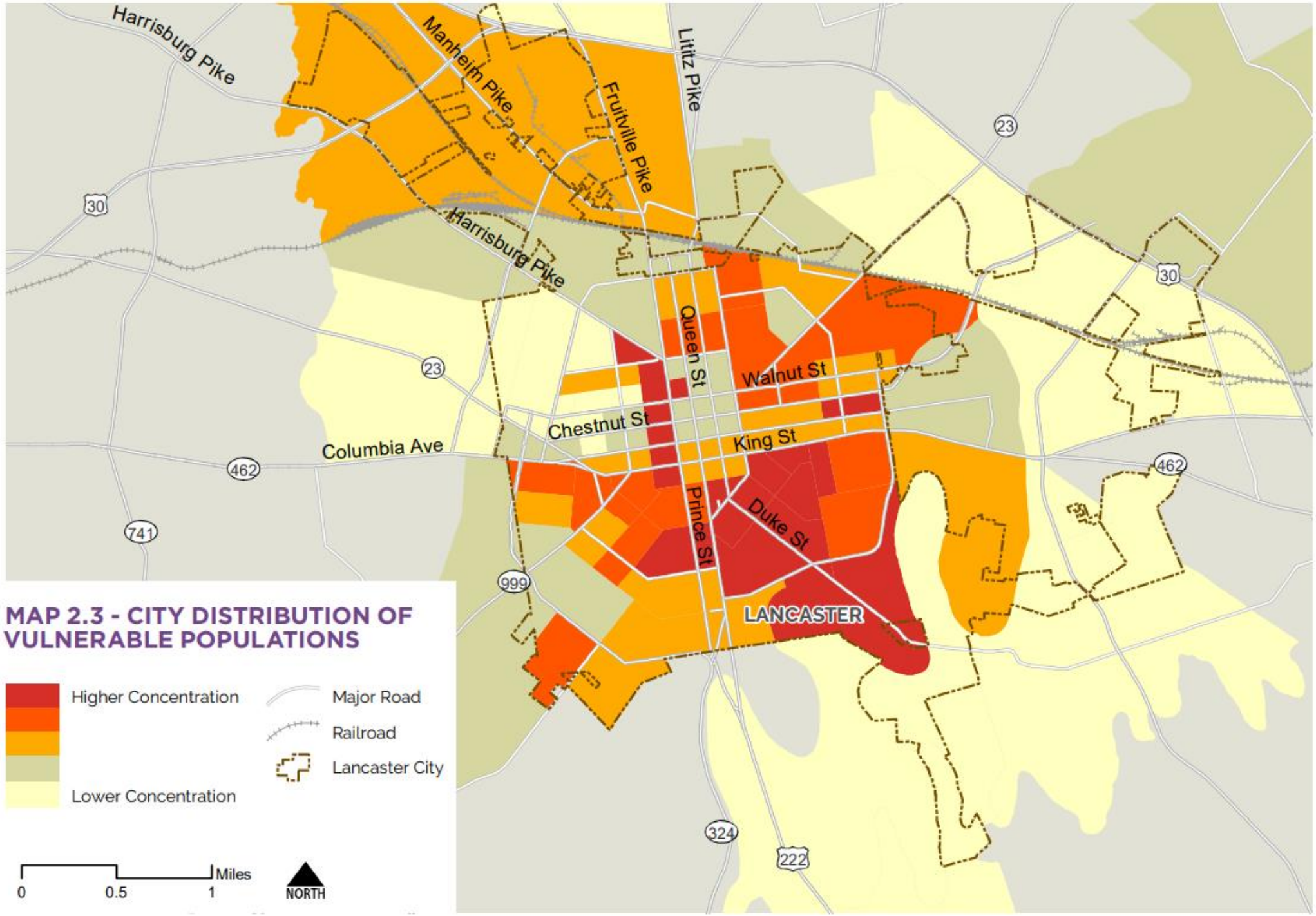
Railroad

Susquehanna River

0 2 4 6 8 Miles

NORTH


MAP 2.2 - LIMC DISTRIBUTION OF VULNERABLE POPULATIONS
Higher Concentration
Lower Concentration
Major Road
Railroad
LIMC Boundary
County Boundary
Susquehanna River
0
1
2
3
4
Miles
NORTH
MOUNT JOY
EAST PETERSBURG
NEFFSVILLE
LEOLA
LANDISVILLE
MARIETTA
COLUMBIA
MOUNTVILLE
LANCASTER
BIRD IN HAND
MILLERSVILLE
LAMPETER
WASHINGTON BORO
WILLOW STREET
STRASBURG
QUARRYVILLE



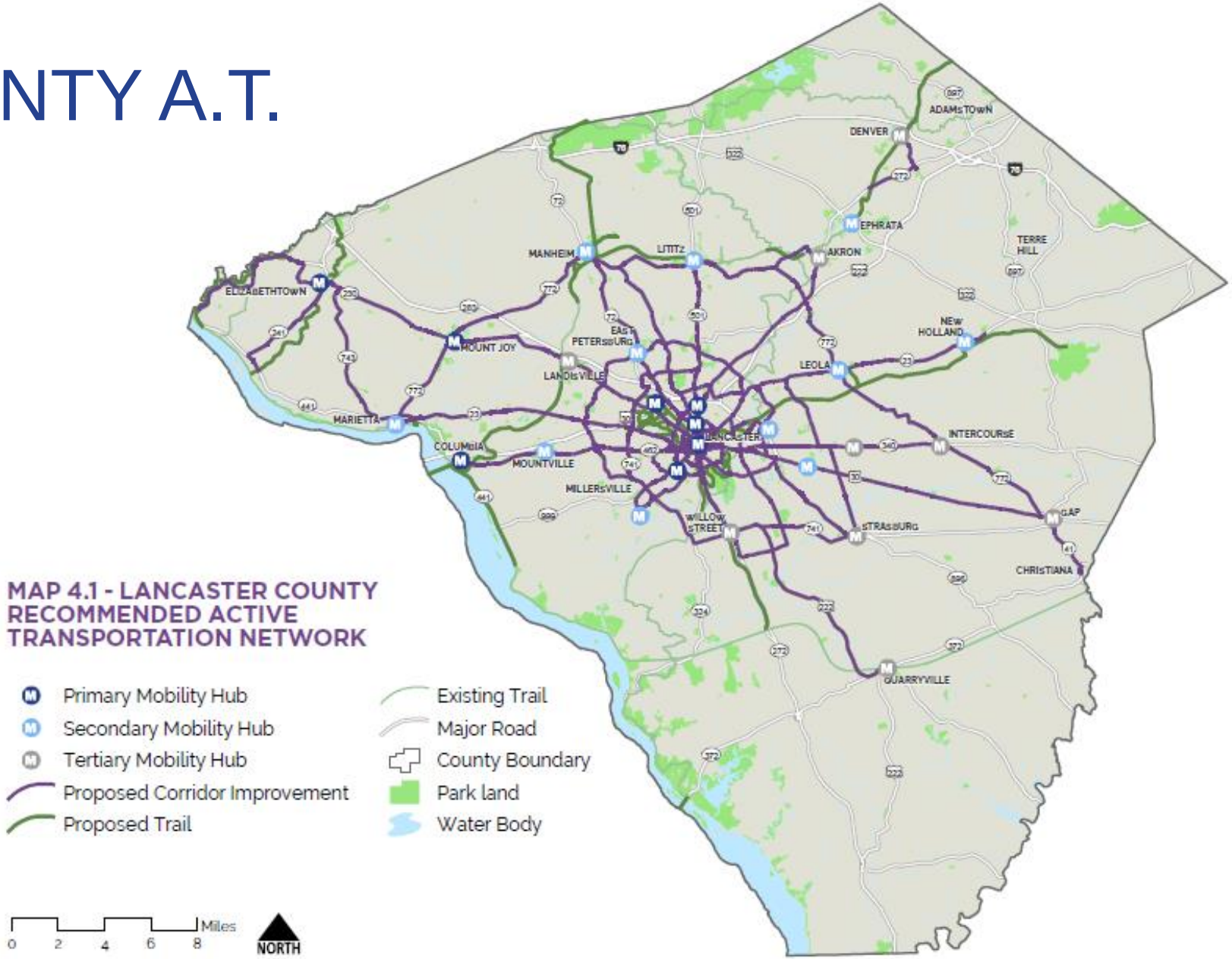
MAP 2.3 - CITY DISTRIBUTION OF VULNERABLE POPULATIONS

COUNTY NETWORKS & TRAILS

COUNTY A.T. NETWORK (CH. 4)

GREENWAY FEASIBILITY (CH. 6)

LANCASTER COUNTY A.T. NETWORK



MOBILITY HUBS & COMPLETE STREETS

MOBILITY HUBS

- Multiple modes of transportation
- Bicycle and pedestrian demand
- Higher density & a variety of destinations

COMPLETE STREETS

CONTEXT-SENSITIVE DESIGN

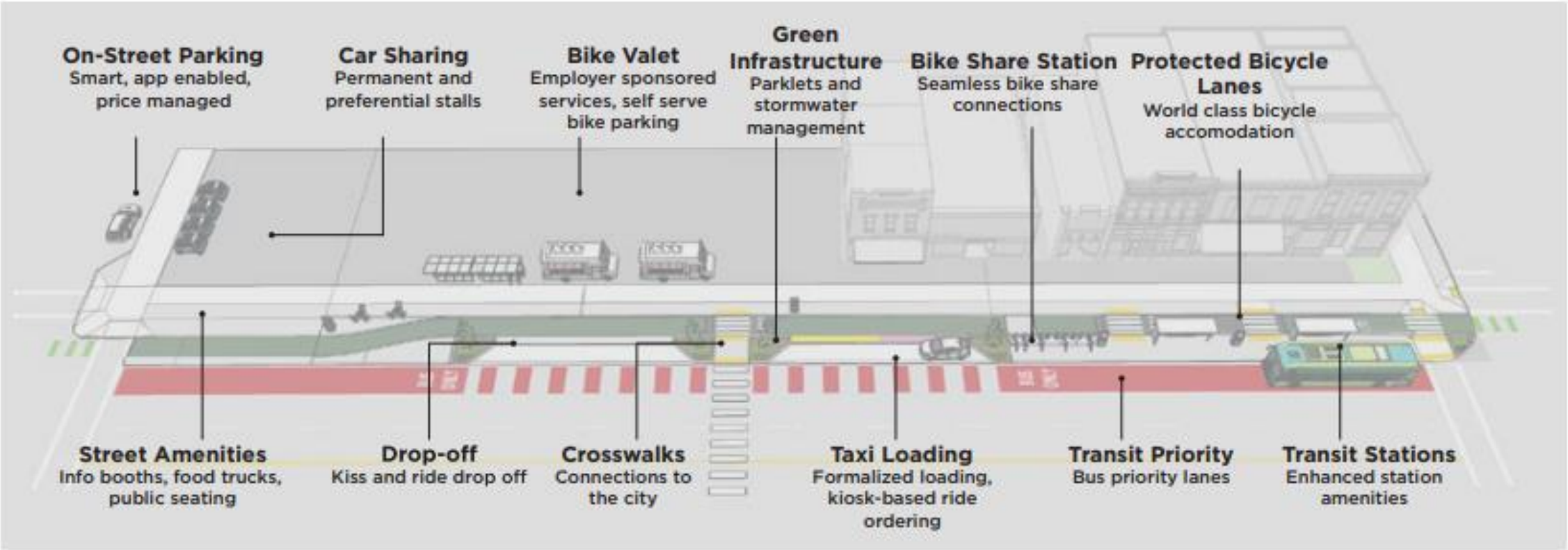
MULTIMODAL DESIGN

COMPACTNESS

PLACEMAKING

INCREMENTALISM

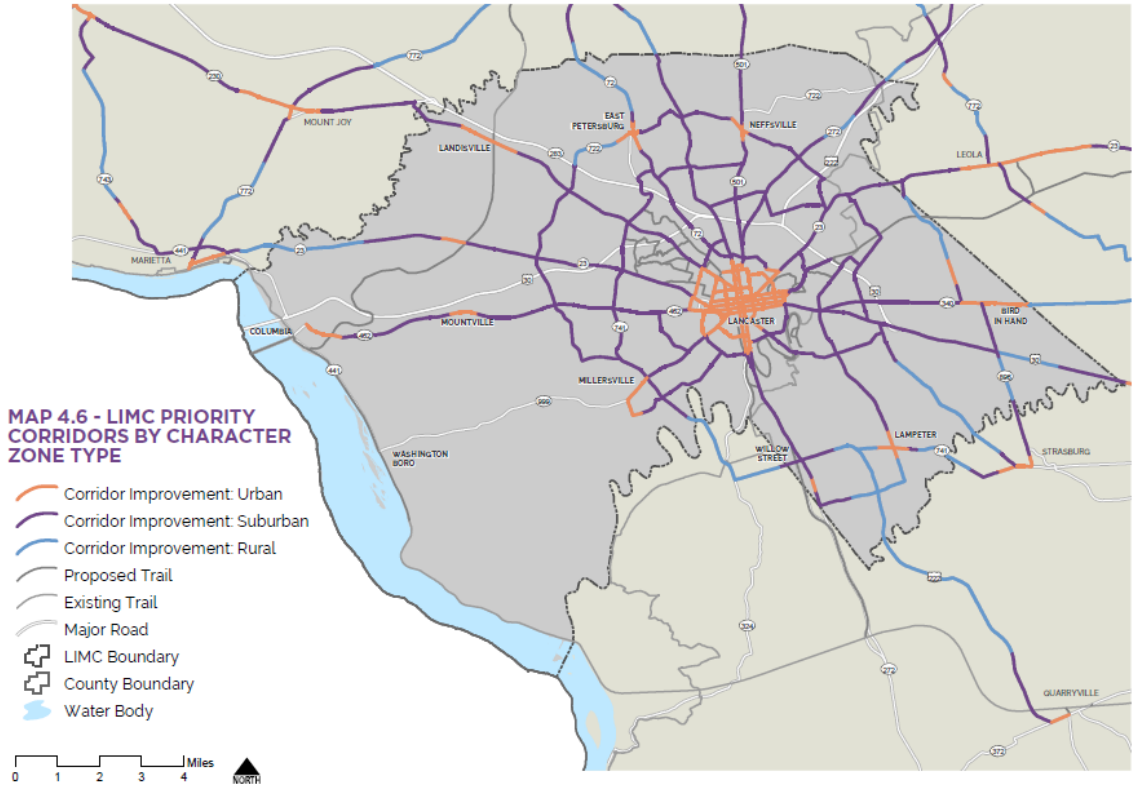
ENVIRONMENTAL SUSTAINABILITY


On-Street Parking
Smart, app enabled, price managed
Car Sharing
Permanent and preferential stalls
Bike Valet
Employer sponsored services, self serve bike parking
Green Infrastructure
Parklets and stormwater management
Bike Share Station
Seamless bike share connections
Protected Bicycle Lanes
World class bicycle accomodation
Street Amenities
Info booths, food trucks, public seating
Drop-off
Kiss and ride drop off
Crosswalks
Connections to the city
Taxi Loading
Formalized loading, kiosk-based ride ordering
Transit Priority
Bus priority lanes
Transit Stations
Enhanced station amenities

APPLYING CHARACTER ZONES TO CORRIDORS

CHARACTER ZONES

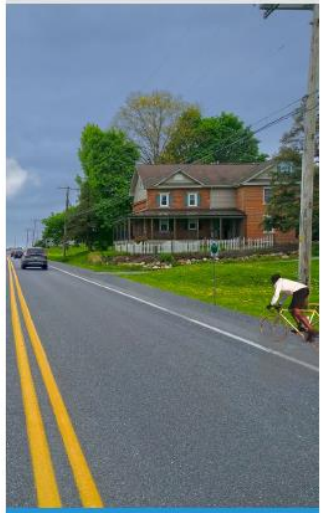
PRIORITY CORRIDORS BY CHARACTER ZONE TYPE | LIMC



DESIGN & TREATMENTS

ROAD CORRIDOR CHARACTER ZONE TYPES AND POTENTIAL TREATMENT

RURAL

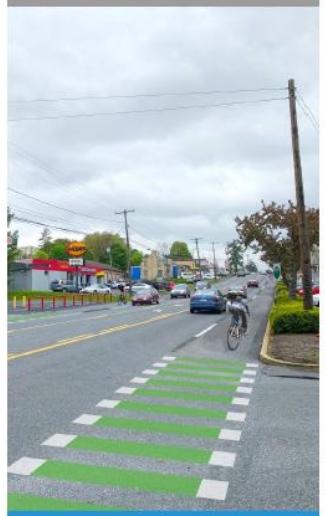


- NATURAL
- AGRICULTURAL

Potential corridor improvement*

- Wider shoulders
- Bicycle route signs
- Advisory shoulders
- Yield roadways
- Sidepaths

SUBURBAN



- SUBURBAN
- SPECIAL DISTRICT

Potential corridor improvement*

- Wider sidewalks and additional green infrastructure
- Enhanced crossings
- Sidepaths
- Sharrows

URBAN

- RURAL COMMUNITY
- URBAN
- URBAN CORE

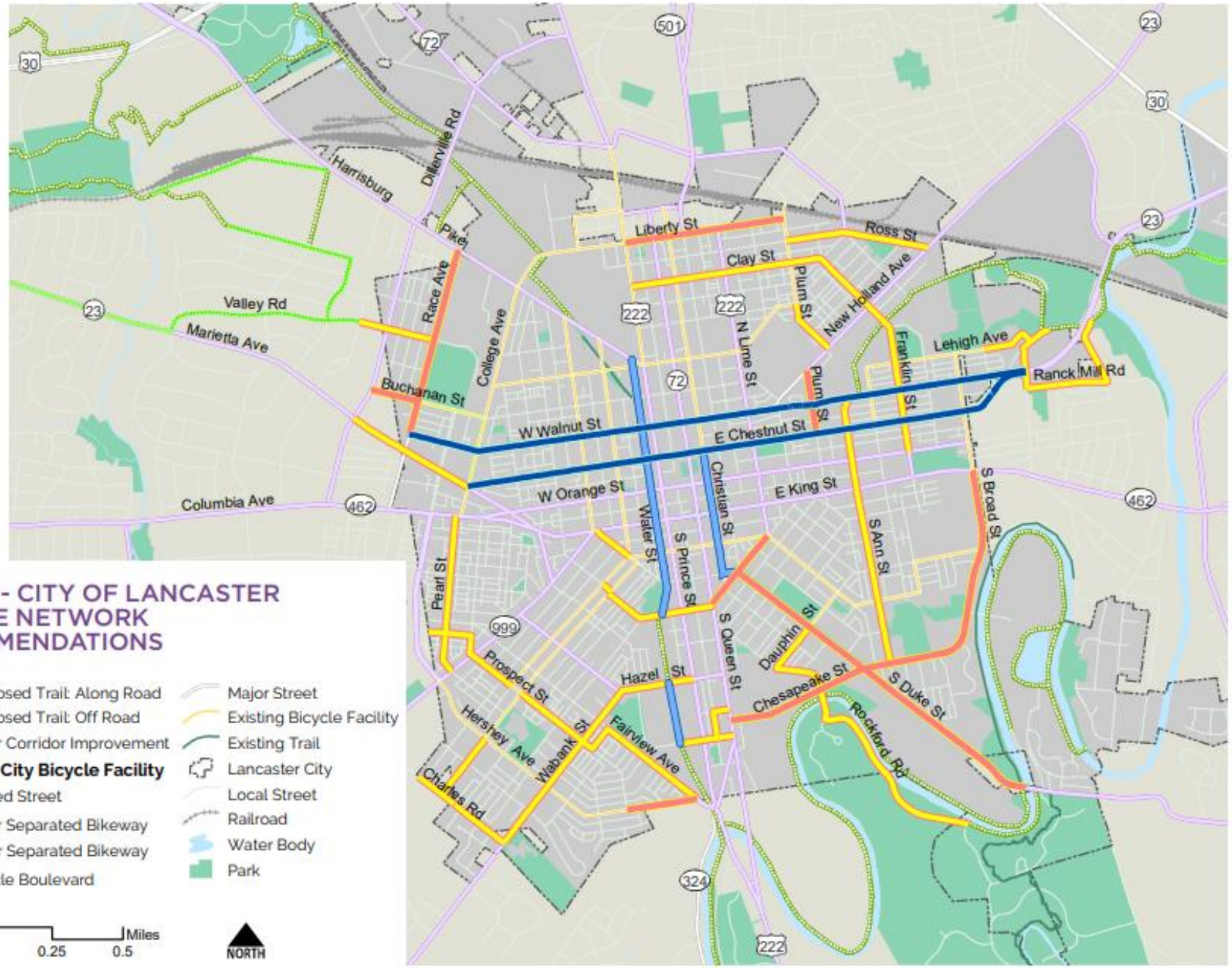
Potential corridor improvement*

- Sidewalks on both sides of the roadway
- Marked crosswalks and pedestrian signals
- Bike lanes or separated bikeways
- Marked shared roadways (sharrows)
- Bike Boulevard

LANCASTER CITY NETWORK

CITY BIKEWAY NETWORK (CH. 5)

LANCASTER CITY BIKEWAY NETWORK



BIKEWAY FACILITY TYPE LEGEND

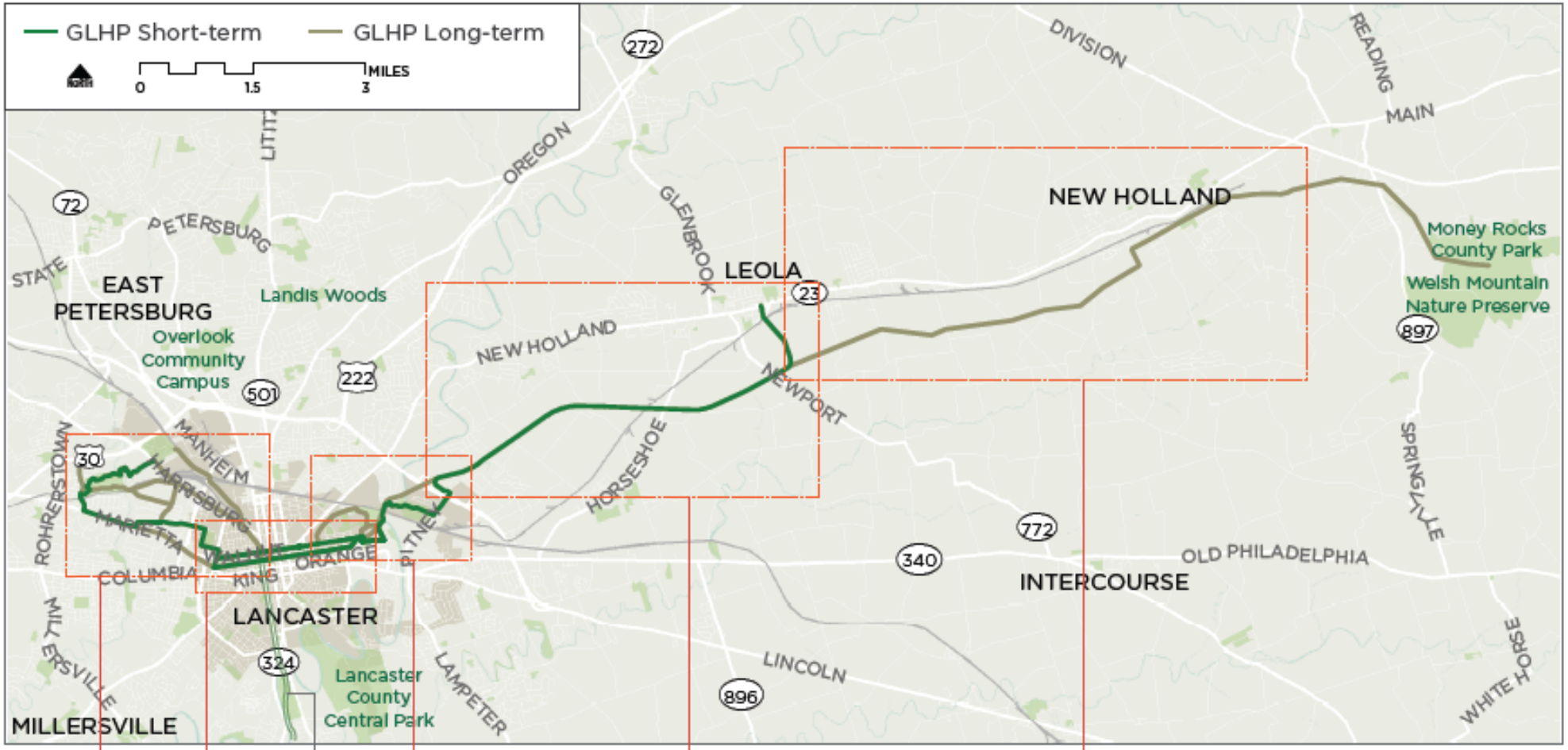
MAJOR SEPARATED BIKEWAY

SHARED STREET & BICYCLE BOULEVARD

MINOR SEPARATED BIKEWAY

GREENWAY TRAIL

GREATER LANCASTER HERITAGE PATHWAY



GLHP West
p. 6-4 to 6-5

GLHP City Connection
p. 6-6 to 6-7

GLHP Northeast Greenway
p. 6-8 to 6-10

GLHP Goat Path
p. 6-12 to 6-17

GLHP Goat Path Extension
p. 6-20 to 6-21

Engleside Greenway and Water St Bike and Ped Blvd (separate from GLHP)
p. 6-23 to 6-25

IMPLEMENTATION

IMPLEMENTATION (CH. 7)

DESIGN GUIDELINES (APP. A)

IMPLEMENTATION REFERENCE (APP. D)

IMPLEMENTATION

RECOMMENDATIONS

A. Connect the transportation network.

B. Implement Complete Streets: consider all roadway users in infrastructure design.

C. Improve safety through education, awareness, and enforcement.

D. Encourage everyone to walk and bike.

E. Align resources and work collaboratively to implement active transportation priorities.

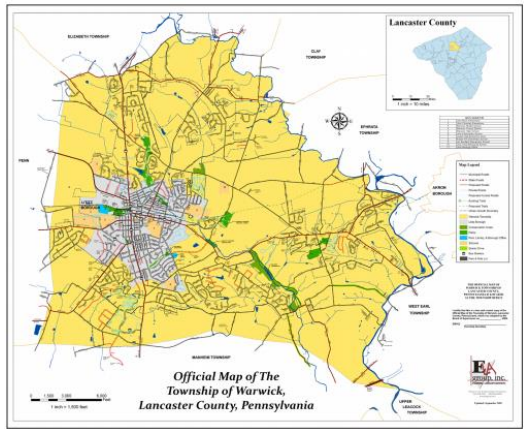
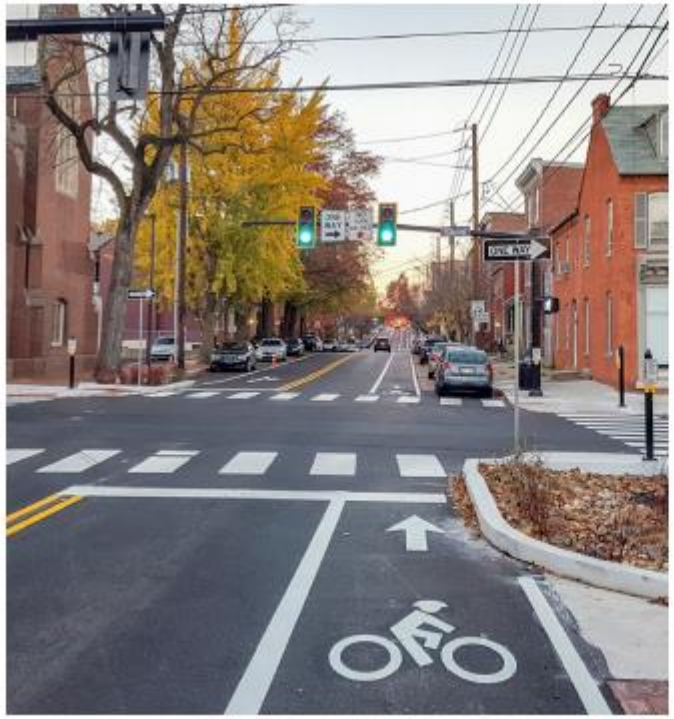


Photo Credit: ALTA Planning

CORRIDOR IMPROVEMENTS

A seamless network of improvements that will tie key corridors across the City, LIMC area, and County together to improve safety for all roadway users and promote active transportation. Improvements should match the existing and proposed land use and are therefore organized by Urban, Suburban and Rural character zones.



MOBILITY HUBS

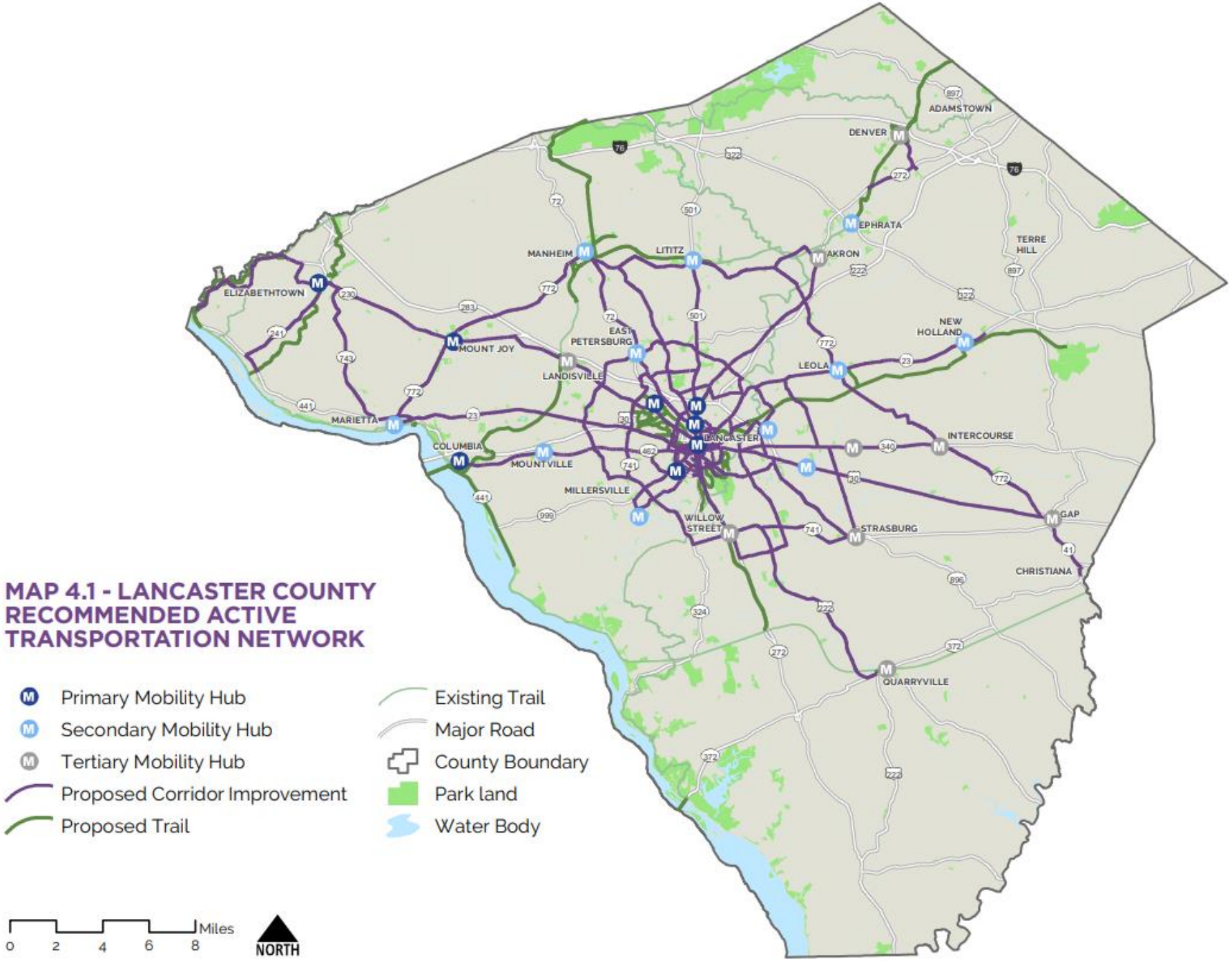
The creation of "Mobility Hubs," or activity nodes, that contain concentrations of pedestrian activity would link people to high demand areas. A mobility hub can take shape in a variety of ways based on the Lancaster County character zones.

Primary Secondary Tertiary

SHARED USE TRAILS

A network of trails across the County, LIMC area, and through the City that will serve a wide array of user ages and abilities providing transportation and recreation facilities while contributing to the plan goal of economic development through bicycle tourism.

Photo Credit: Lancaster Bicycle Club



MAP 4.1 - LANCASTER COUNTY RECOMMENDED ACTIVE TRANSPORTATION NETWORK

MEDIAN REFUGE ISLAND CROSSING

Median refuge islands are located at the mid-point of a marked crossing and help improve path user safety by allowing pedestrians to cross one direction of traffic at a time. Refuge islands minimize pedestrian exposure by shortening crossing distance and increasing the number of available gaps for crossing.

TYPICAL APPLICATION

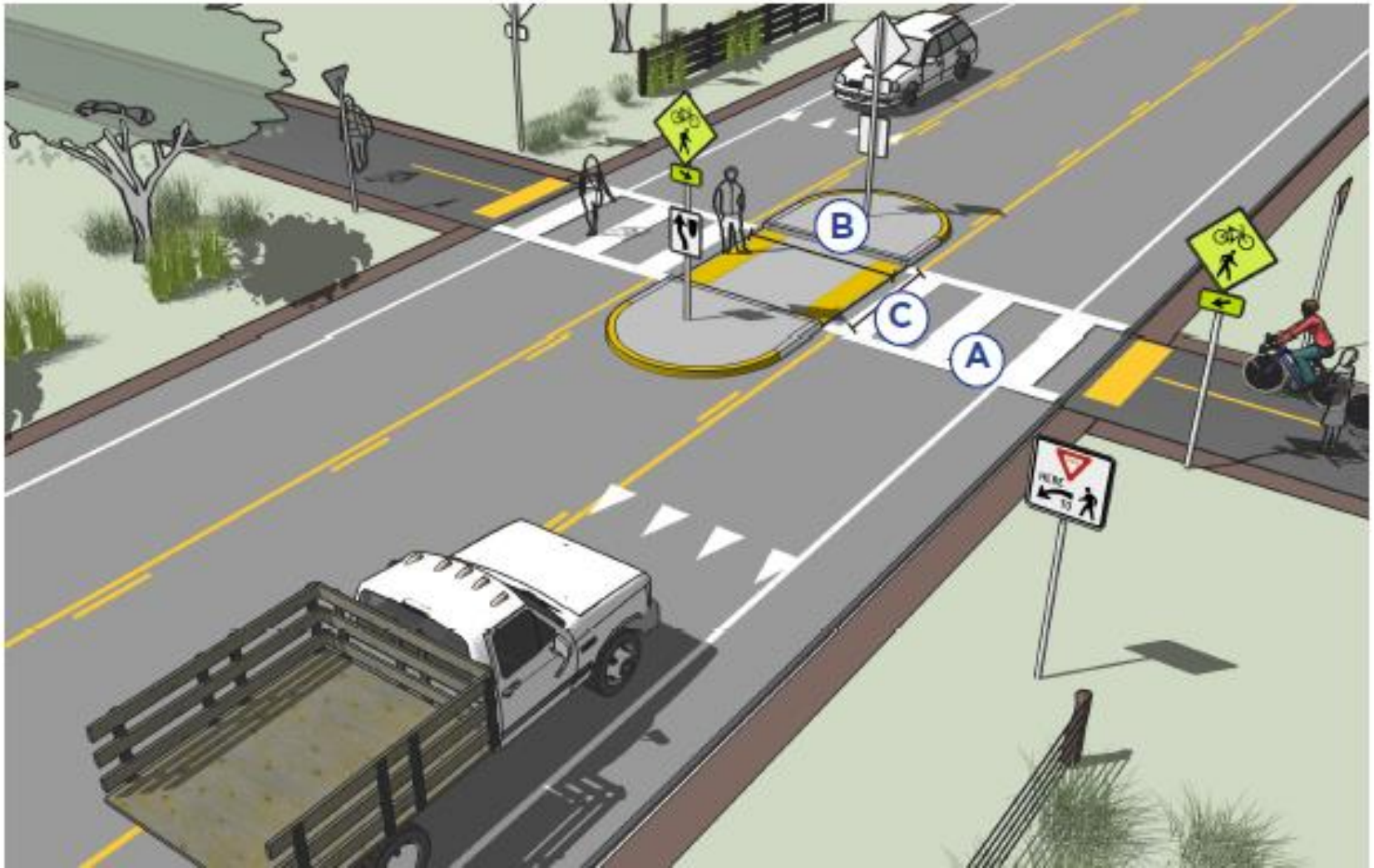
Can be applied on any roadway with a left turn center lane or median that is at least 8 ft wide, or where wide traffic lanes and/or shoulders can be narrowed to provide at least 8 ft of space for the island.

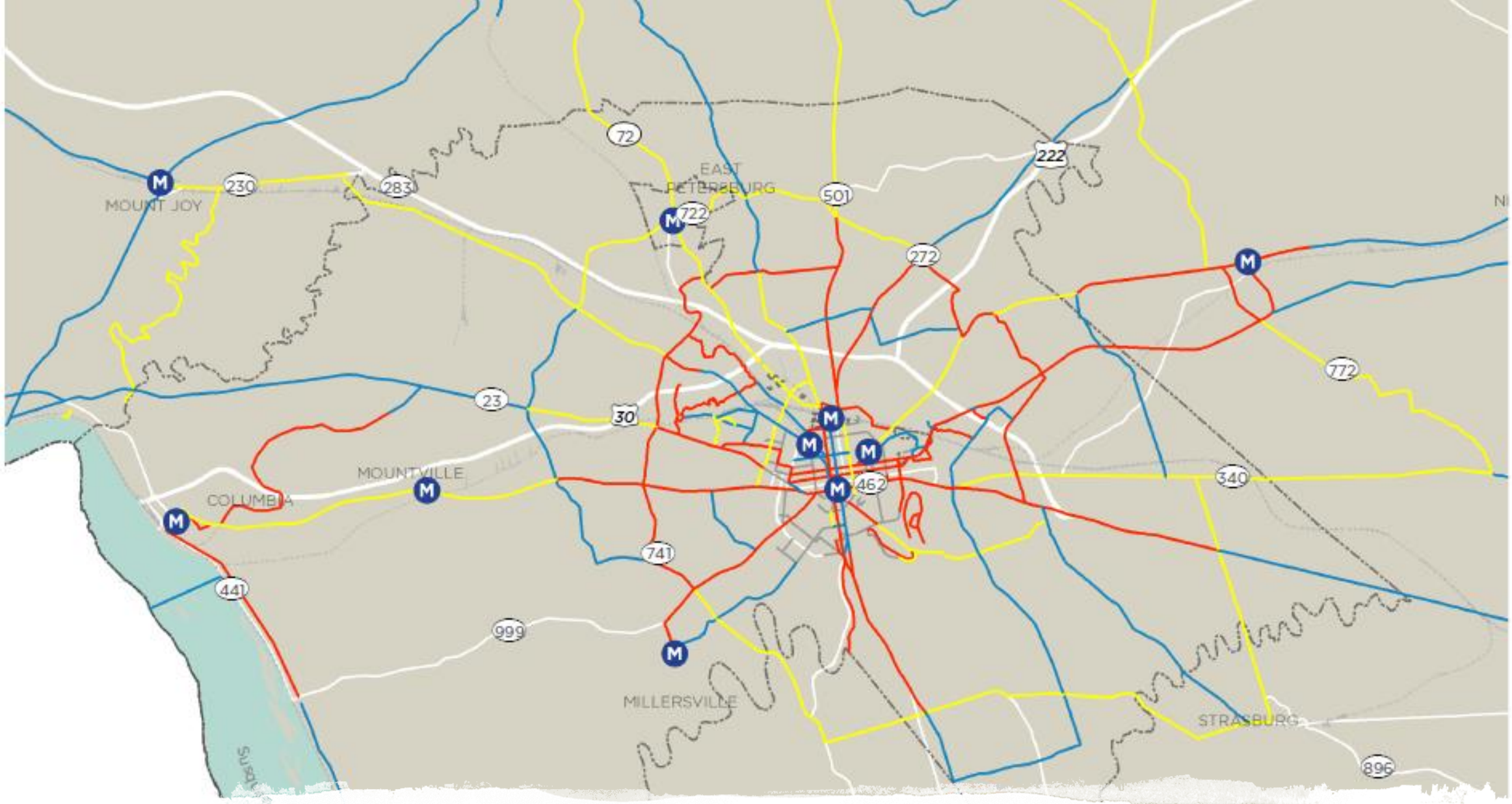
DESIGN FEATURES

(A) Median islands should be paired with a **Marked Crosswalk and Advanced Yield Line** crossing treatment package.

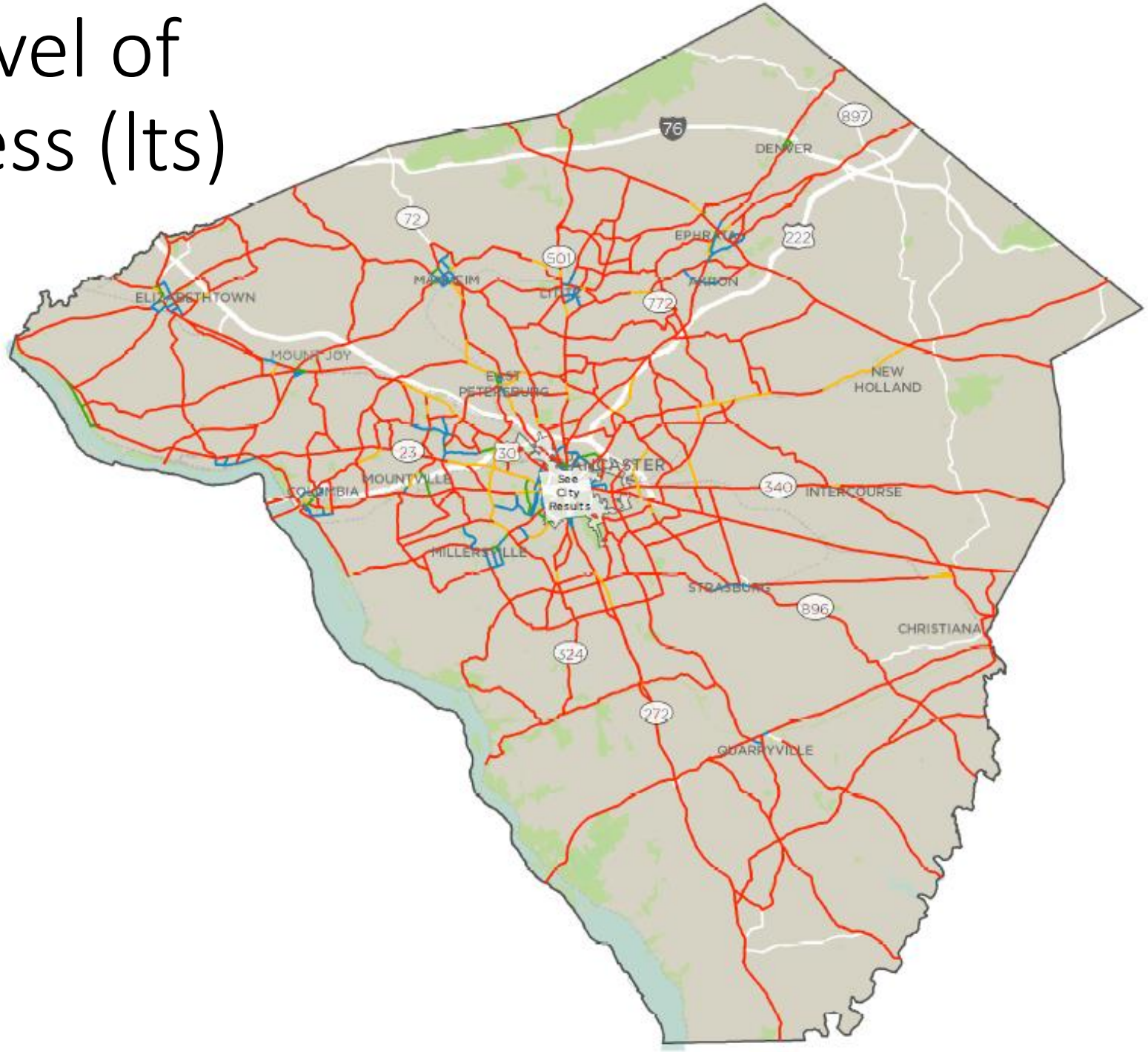
- Configure the island with an at-grade passage through the island rather than ramps and landings. Detectable warning surfaces must be full-width and 2 ft deep to provide indication for people with vision disabilities.

(B) To accommodate bicyclists, the standard refuge area depth is 10 ft, 8 ft minimum (AASHTO *Bike*




MOUNT JOY
EAST PETERSBURG
MOUNTVILLE
COLUMBIA
MILLERSVILLE
STRASBURG
Susq
72
230
283
722
501
222
272
772
23
30
462
340
741
441
999
896

Bicycle Level of traffic stress (lts)

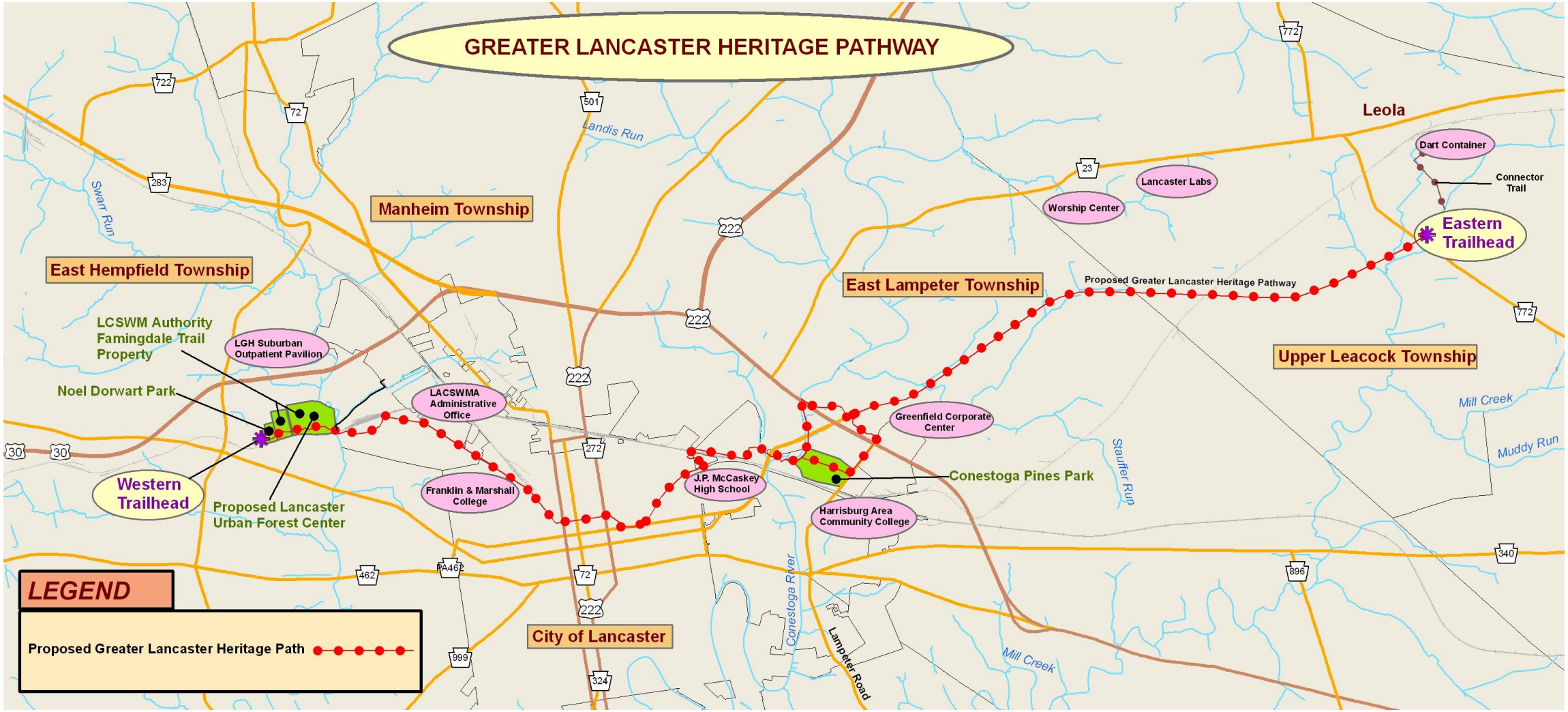


MAP 2.10: BICYCLE LEVEL OF TRAFFIC STRESS - COUNTY

- LTS 1 (Low Stress)
- LTS 2
- LTS 3
- LTS 4 (High Stress)

0 4 8 MILES NORTH

LTS Level Road Examples


GREATER LANCASTER HERITAGE PATHWAY
Leola
Manheim Township
East Hempfield Township
East Lampeter Township
Upper Leacock Township
City of Lancaster
Dart Container
Connector Trail
Eastern Trailhead
Lancaster Labs
Worship Center
Proposed Greater Lancaster Heritage Pathway
LCSWM Authority Famingdale Trail Property
LGH Suburban Outpatient Pavilion
Noel Dorwart Park
LACSWMA Administrative Office
Greenfield Corporate Center
Conestoga Pines Park
J.P. McCaskey High School
Franklin & Marshall College
Harrisburg Area Community College
Western Trailhead
Proposed Lancaster Urban Forest Center
Landis Run
Swarr Run
Stauffer Run
Mill Creek
Muddy Run
Conestoga River
Lampeter Road
LEGEND
Proposed Greater Lancaster Heritage Path

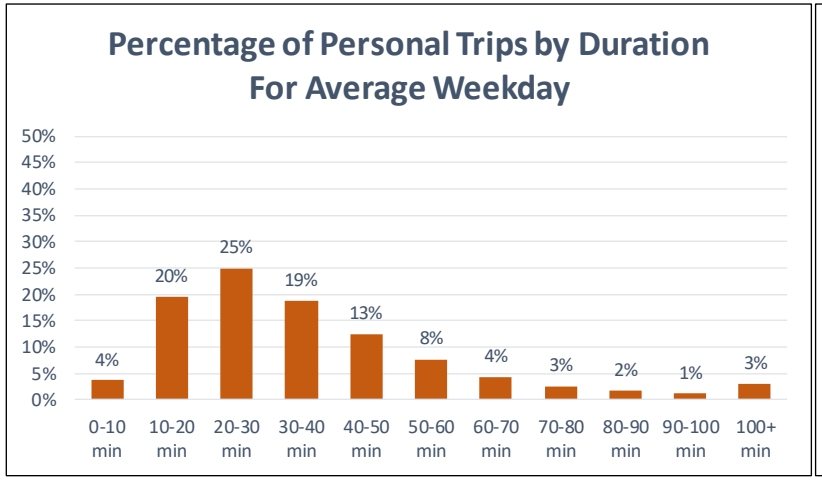
Using “Big Data” to Support Bike and Pedestrian Planning

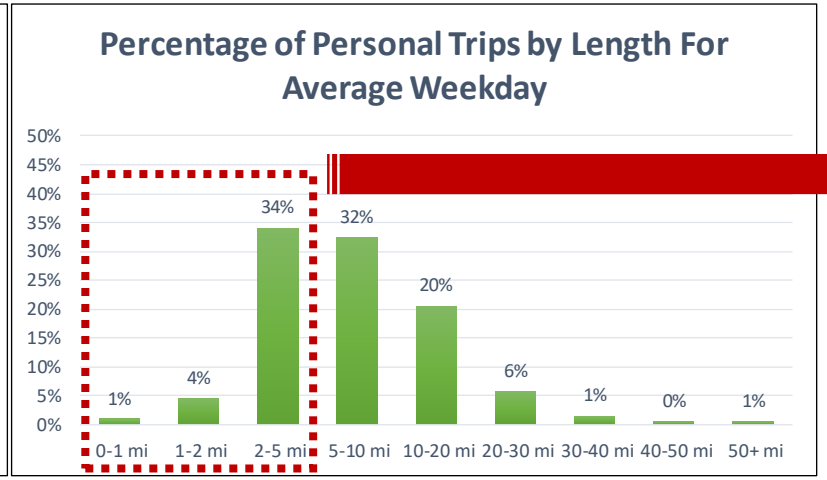
(1) Understanding the "Market" for Bike and Pedestrian Travel

- ❑ Lancaster County evaluated use of StreetLight Data
- ❑ Focused efforts on priority road locations (CMP Corridors)
- ❑ Budget limited number of locations and analyses
- ❑ Evaluate the **Origins – Destinations** for cars using roads
- ❑ Evaluate the **Characteristics** of those car travelers

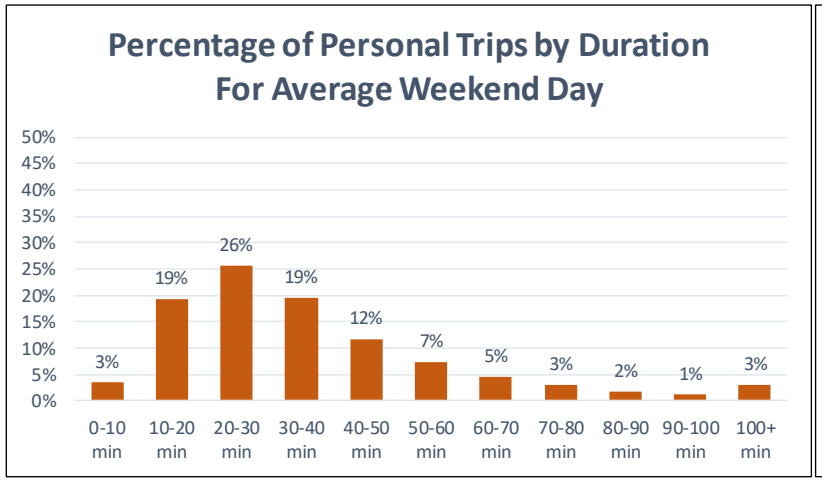
STREETLIGHT DATA
Big Data for Mobility

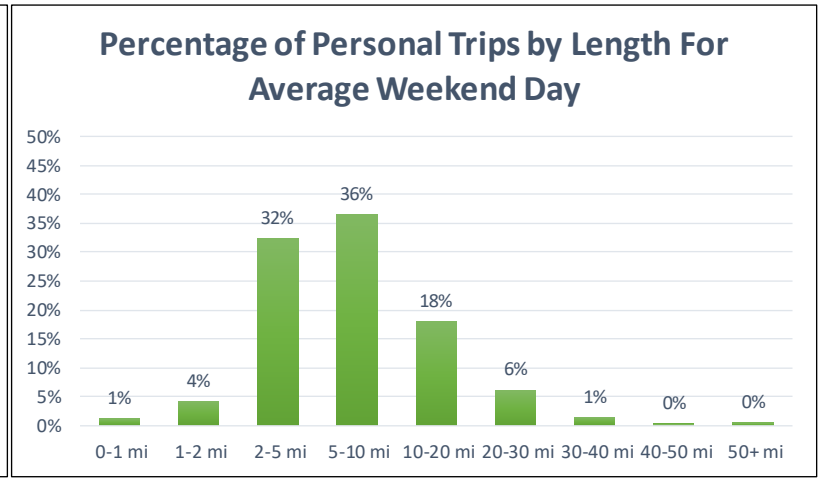
Example: King Street Personal Vehicle Travel – *Trip Attributes*





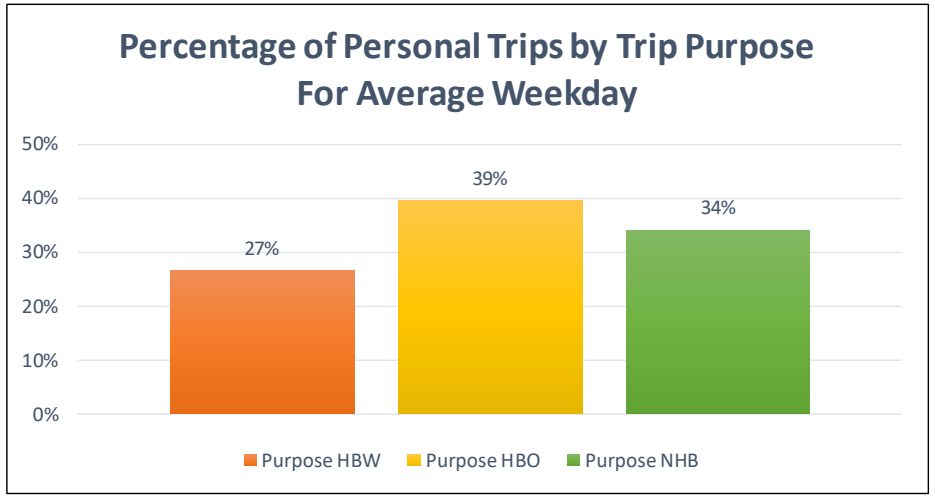
How many of the car trips on this road have trip lengths less than 5mi? 2mi? etc.

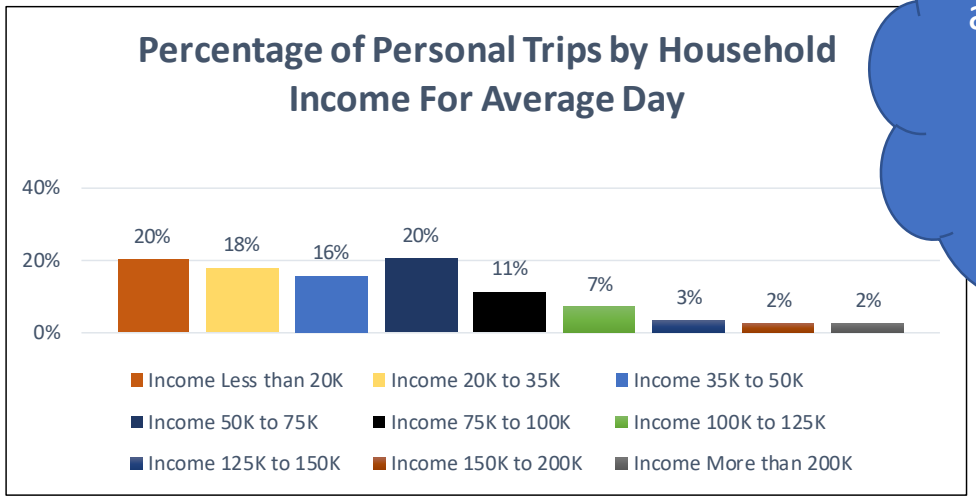




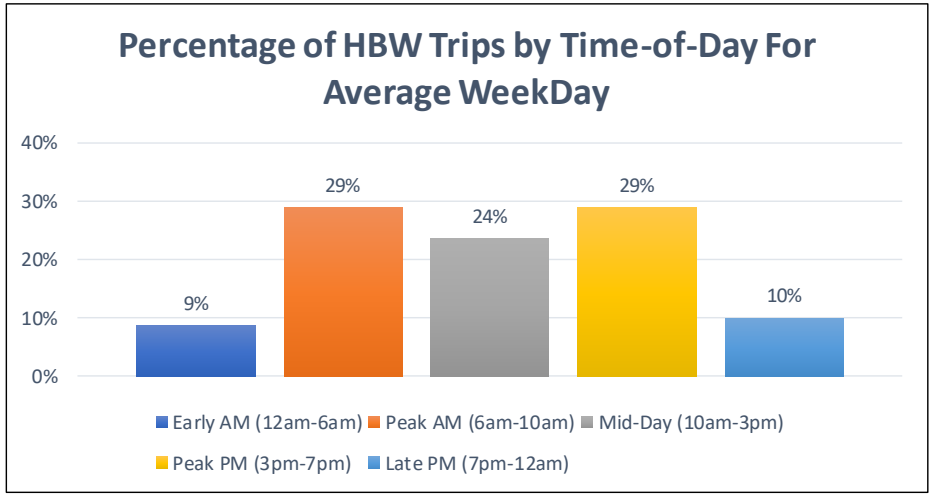
Roads with higher numbers of short trip distances may have higher market for bike and pedestrian travel

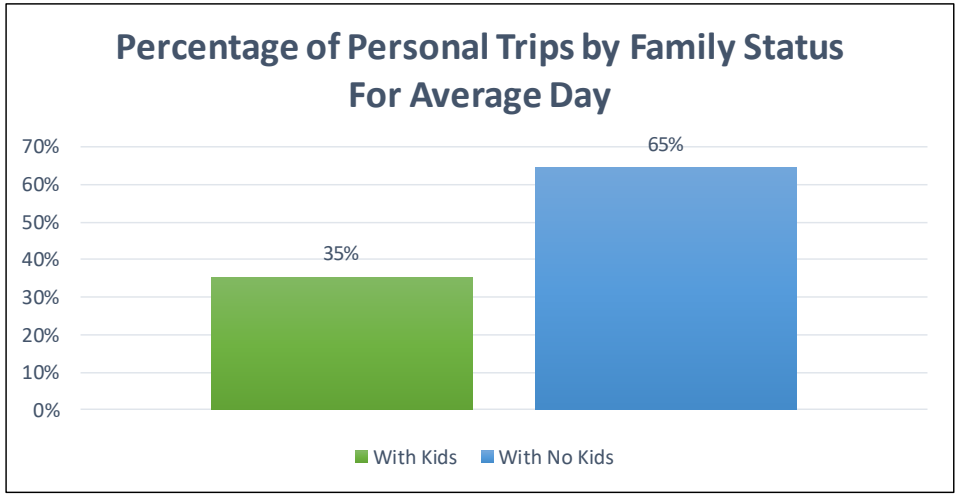
Example: King Street
Other Characteristics of Travelers





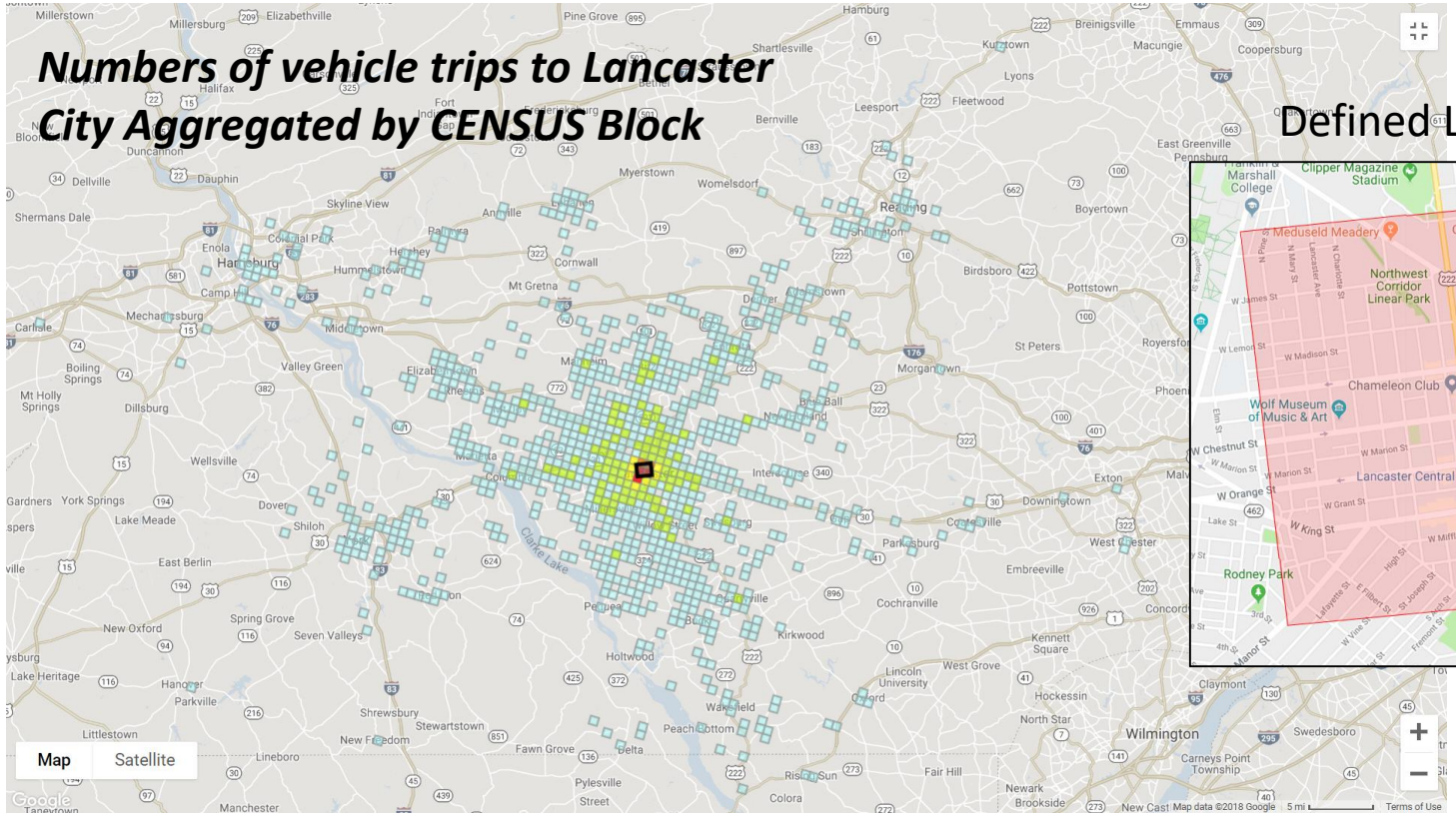
Can these attributes help determine market for bike/ped?



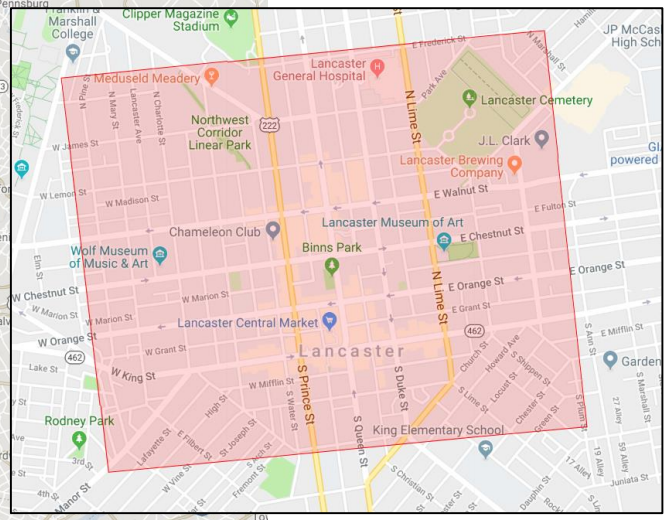


Example: Evaluating Home Locations of Car Travels to Defined Areas

- ❑ Home locations for any weekday visitor to Lancaster City
- ❑ Could be used to evaluate corridors for bike/ped infrastructure

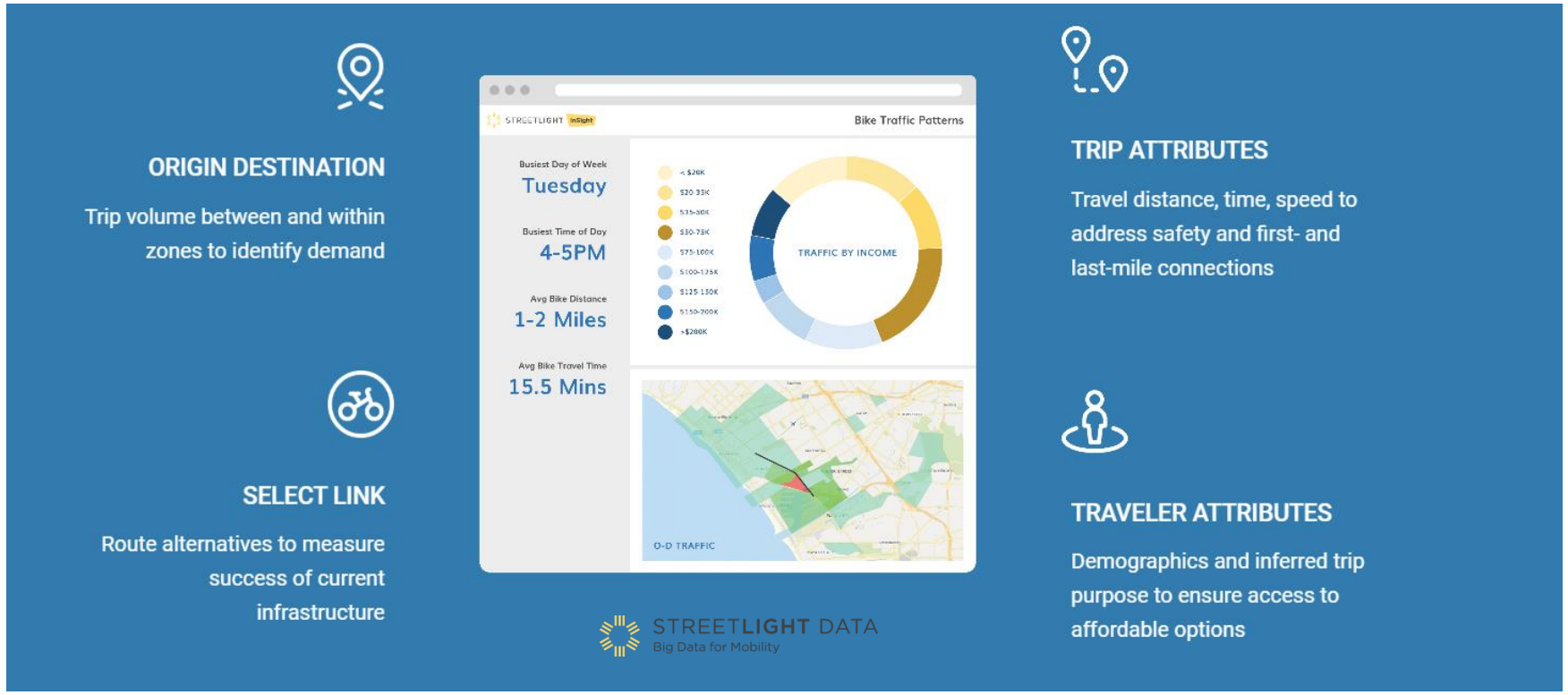


Defined Lancaster City Zone



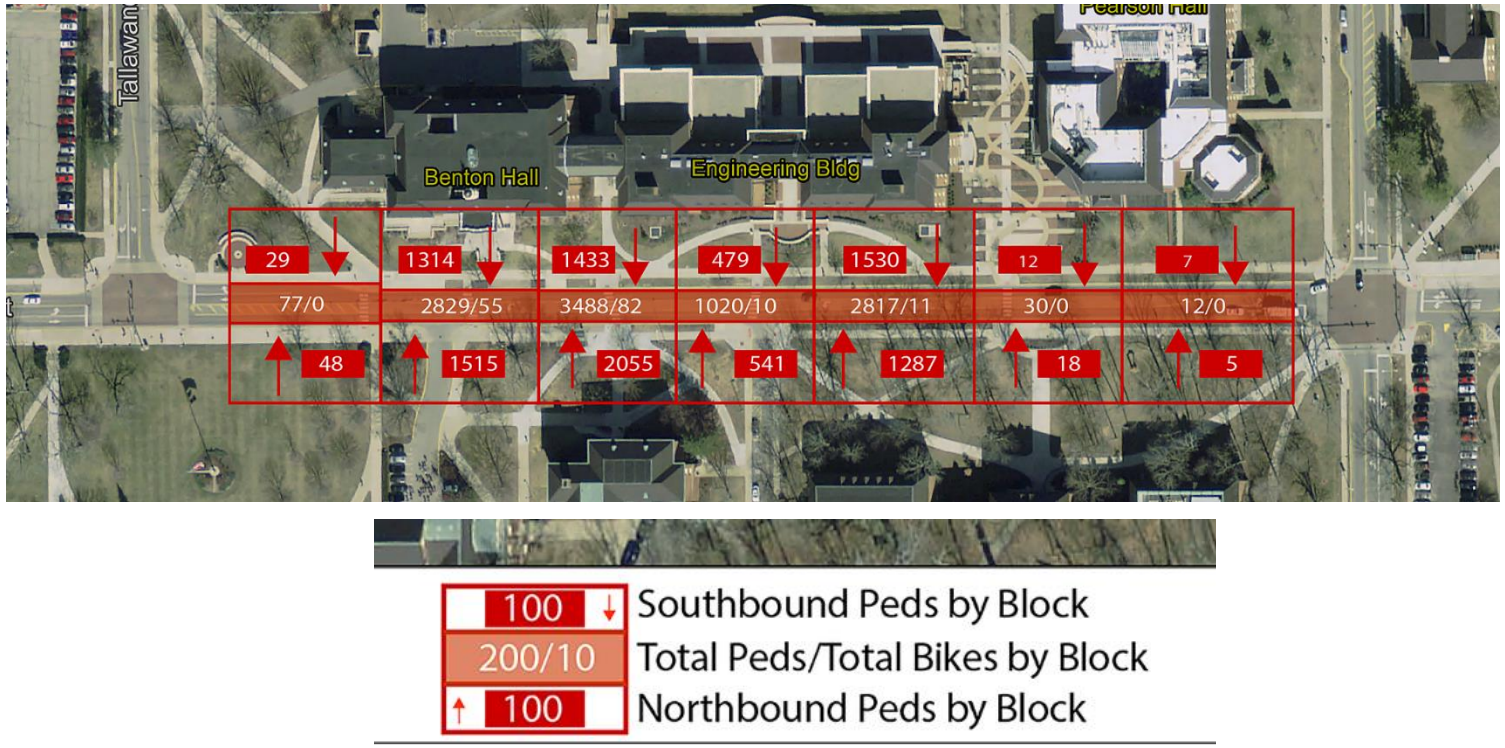
(2) Understanding Current Bike and Pedestrian Travel

- ❑ Now available in StreetLight; Not available for Lancaster purchase
- ❑ Future investigation and evaluation (bike/ped counts, o-d, characteristics)



Example From Other Region: Evaluating Bike-Ped Trips on Campus

- ❑ Can be used to replace field counts
- ❑ Much larger numbers of observations



STREETLIGHTDATA

places2040

a plan for lancaster county pa

thinking beyond boundaries

ive Plan,
ık more
creating
t to see.

connects 2040

metropolitan transportation plan
for lancaster county, pa

Lauri P. Ahlskog, AICP

Senior Transportation Planner

Lancaster County Planning Commission

ahlskogl@co.Lancaster.pa.us

717.299.8333