Geospatial Coordinating Board

DVRPC IREG

December 13, 2017

Contents

- Background
- Approach
- Task Forces
  - Data Program Task Force
  - Governance Task Force
  - Service Delivery Task Force
- Accomplishments
- 2017 Goals
- Unofficial 2018 Goals
- Conclusion

Before We Begin

Definitions:

- Commonwealth
- PA
- Pennsylvania
- Entities
- Community

} Geospatial activities of state, counties, municipalities, academia, non-profits, MPO's, private sector and so on -

- Base Map → Refers to foundational attributed data layers, not a data display backdrop

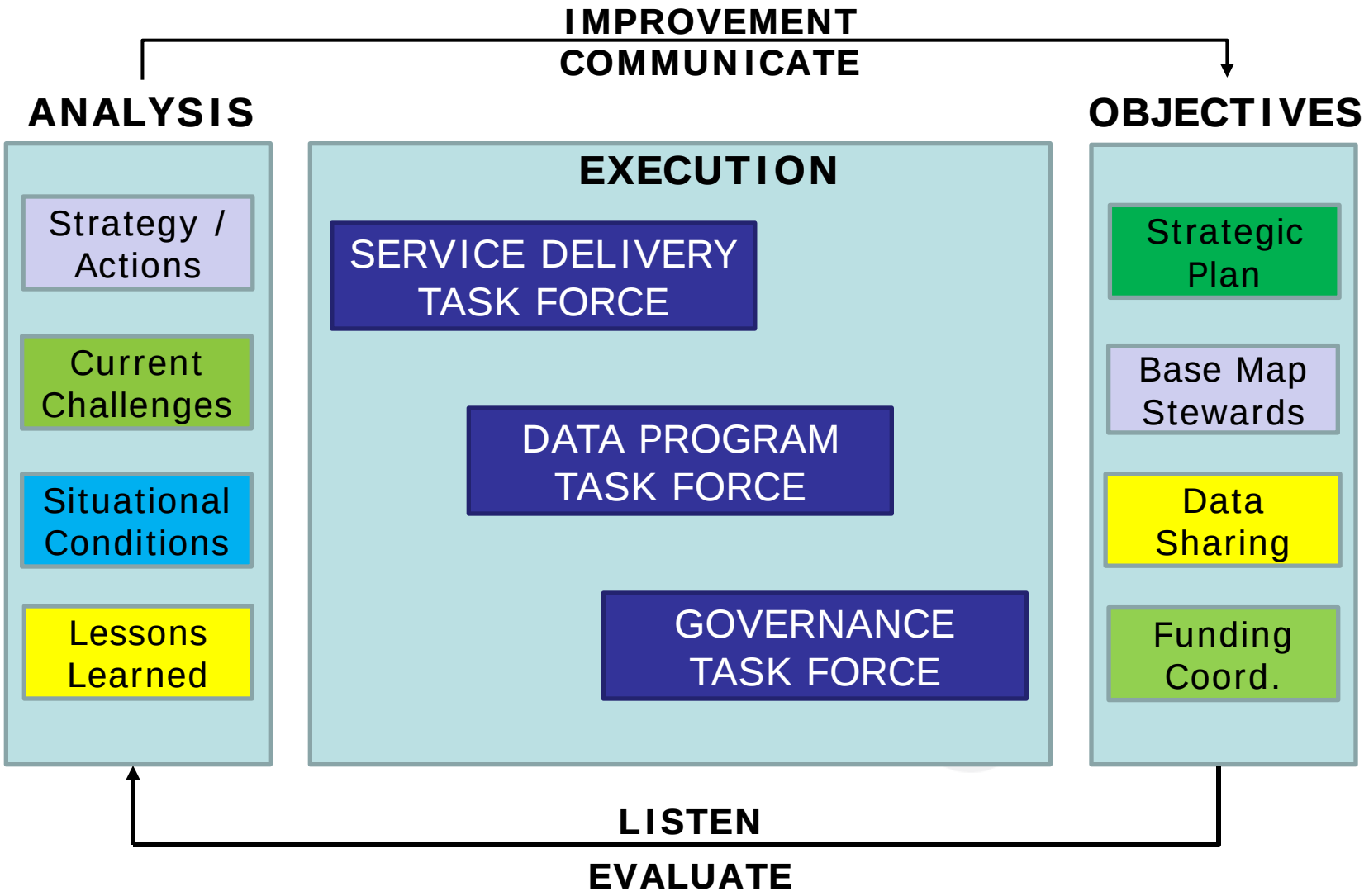
- I am a voting member of the GeoBoard

Background

- Established per PA Act 178 in October 2014
- Advise and prepare Geospatial recommendations
- Coordinate efficient policy and technology issues
- Members
  - Local, county and state government agencies
  - Academia and private sector professionals
- Facilitated by PA Office of Administration

http://www.oa.pa.gov/Programs/Information%20Technology/Pages/geoboard.aspx

Approach



http://www.oa.pa.gov/Programs/Information%20Technology/Pages/geoboard.aspx

GeoBoard Task Forces

Service Delivery	• Evaluate geospatial service delivery in the Commonwealth • Evaluate geospatial service delivery in other states and counties • Identify Service Delivery recommendations
Data	• Identify approaches removing barriers to data sharing • Promote cost effective data sharing approaches • Drive operational efficiencies and value-add solutions • Advance geospatial service delivery
Governance	• Document the geospatial governance process • Establish priorities / initiatives to address geospatial community needs • Evaluate approaches to accomplishing • Identify opportunities for collaboration • Coordinate activities across other geospatial governing bodies.

http://www.oa.pa.gov/Programs/Information%20Technology/Pages/geoboard.aspx

Service Delivery Task Force

Mission

- Evaluate geospatial service delivered in PA
  - Identify existing challenges
- Review other states and counties delivery
  - Assess existing center of excellence models
- Formulate service delivery recommendations
- Establish a service delivery framework
  - Maximize investments

Lead: Laura Simonetti, Mifflin County

Service Delivery Task Force

Challenge

- Improve service delivery by establishing a framework

Business Rationale

- Develop a “partnership culture”
  - Encourage information sharing
  - Encourage engagement and collaboration across sectors
- Avoid redundant investments
- Improve the user experience

Barriers to Implementation

- Resource constraints
- Budget limitations
- Desire to control

Effort to Complete

- Focused innovation
- Continuously improve and measure performance

http://www.oa.pa.gov/Programs/Information%20Technology/Pages/geoboard.aspx

Data Program Task Force

Mission

- Remove barriers to geospatial data sharing
- Promote cost effective approaches to data sharing

Lead: Sean Cragar, PA Office of Administration

Data Program Task Force

Challenge

- No official base (layers) map exists for PA

Business Rationale

- Entities using GIS data are working from the same base data
- Authoritative data ownership
  - Reduces redundant efforts
  - Limits multiple base data layer copies
  - Ensure data consistency with standards.

Implementation Barriers

- Cost, ownership of technology and data, frequency of updates, service delivery methods

Effort to Complete

- Identify data layers
- Coordinate base map technology ownership and service delivery
- Ensure the authoritative source is providing updates
- Develop data standards

http://www.oa.pa.gov/Programs/Information%20Technology/Pages/geoboard.aspx

Adopted Base Map Layers

Nbr	Theme	Description
1	Transportation – Road and Rail Centerlines, Mile Markers	Represents the transportation network based on a line feature and associated attribute data.
2	Municipal Boundaries	Dividing lines between countries, states, counties, municipalities, and cities.
3	Landmarks	Any prominent natural or artificial object in a landscape used to determine distance, bearing, or location.
4	Hydrography – Catchment, NHD Area, Flowline, Schematics, Waterbody, Junction Points	Represents the drainage network with features such as rivers, streams, canals, lakes, ponds, coastline, dams, and stream gages. It also represent watershed boundaries.
5	Remote Sensing (Imagery)	Uniform-scale image where corrections have been made for feature displacement such as building tilt and for scale variations caused by terrain relief, sensor geometry, and camera tilt.
6	Elevation	Contours, digital elevations models (DEMs), and light detection and ranging (LIDAR)/SPOT data
7	Structures	A constructed item (e.g., building, tower, etc.) that can have an address assigned to it.
8	Land use	Defined as a series of operations on land, carried out by humans, with the intention to obtain products and/or benefits through using land resources.
9	Land cover	Defined as the vegetation (natural or planted) or man-made constructions (buildings, etc.) which occur on the earth surface. Water, ice, bare rock, sand and similar surfaces also count as land cover.
10	Geographic names	Information describing the location and attributes of things, including their shapes and representation. Geographic data is the composite of spatial data and attribute data.
11	Tax parcels/ assessment data	A representation of the boundaries of legal ownership of a single tract or plot of land or real property. It may or may not be spatially accurate.
12	Monumentation	Permanent marking of positions so that the location of the surveyed lands may always be definitely known.

http://www.oa.pa.gov/Programs/Information%20Technology/Pages/geoboard.aspx

Data Program Task Force

Challenge

- No single data sharing agreement exists between government entities in the Commonwealth

Business Rationale

- A single data sharing agreement would:
  - Simplify data between entities
  - Protect the interests of the data owner

Barriers to Implementation

- Acceptance by all due to:
  - Language
  - Right To Know issues,
  - Data agreement collection and ownership

Effort to Complete

- Review other states and evaluate the fit for PA.
- Involve local government organizations (CCAP, others…)
- Consult PA legal counsel
- Consider incentivizing data sharing

http://www.oa.pa.gov/Programs/Information%20Technology/Pages/geoboard.aspx

Governance Task Force

Mission

- Document the geospatial governance process
  - Include all governmental entities
- List priorities and initiatives important to the Community
  - Evaluate approaches within budget constraints
- Identify opportunities for collaboration
- Coordinate activities across geospatial governing bodies

Lead: Kevin Eaton, Franklin County

Governance Task Force

Objectives

- Evaluate the current state of GIS in PA
  - Understand the PA GIS community's status
- Develop a GIS Strategic Plan
  - Coordinate with task forces and interested parties
  - Author a Commonwealth wide geospatial strategic plan
- Assess and communicate key funding opportunities
  - Coordinate information technology investment strategies to maximize investments.
  - Identify and evaluate creative approaches to fund geospatial activities

http://www.oa.pa.gov/Programs/Information%20Technology/Pages/geoboard.aspx

Governance Task Force

Goal: Evaluate the current state of GIS in PA

Challenge

- No statewide GIS Survey exists, previous were one-offs

Business Rationale

- Understand the status of GIS across the state
  - Target outreach
  - Align goals
  - Implement collaborative projects
  - Inform future direction

Barriers to Implementation

- Who creates / processes
- Who receives
- Length / iterations

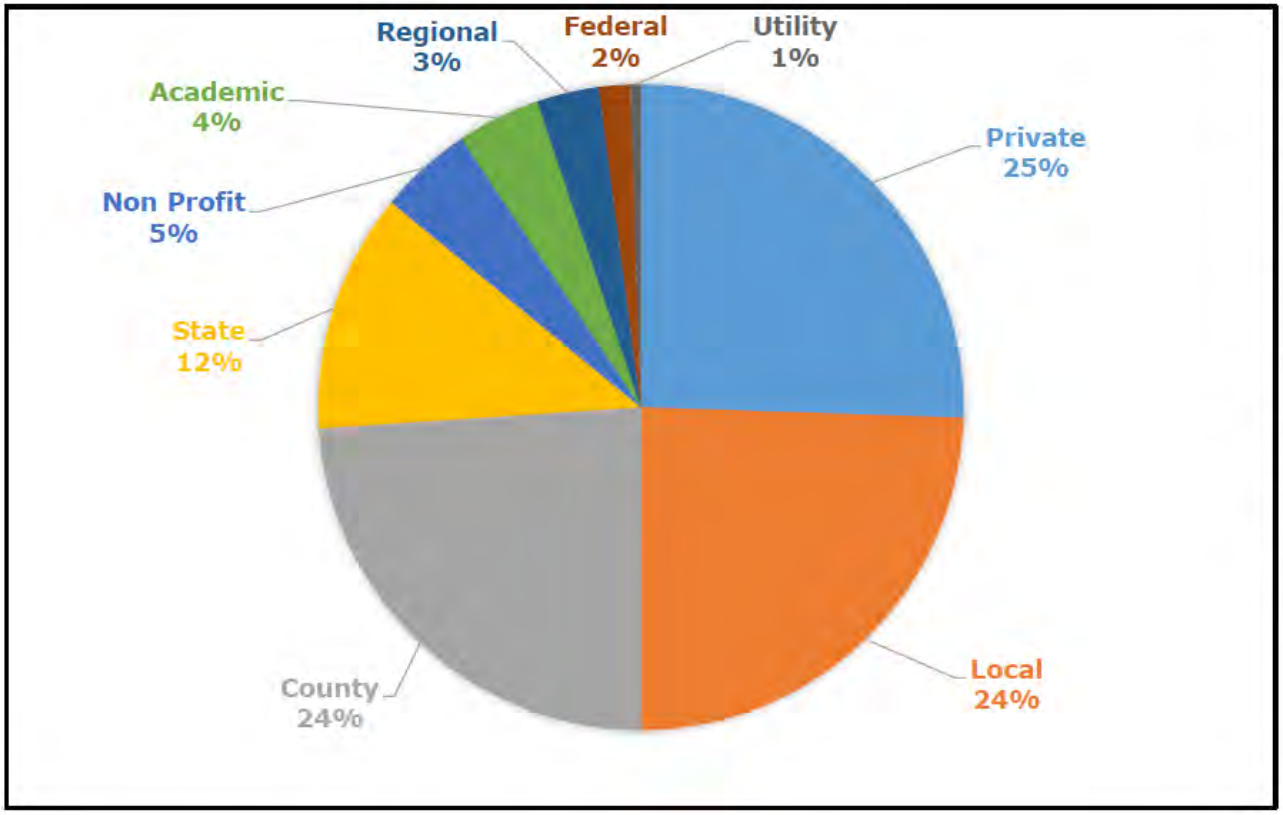
Effort to Complete

- “State Geospatial Coordinating Board Questionnaire”
- August 2016
- Questions regarding GeoBoard goals & objectives
- Update target yearly

http://www.oa.pa.gov/Programs/Information%20Technology/Pages/geoboard.aspx

Governance Task Force

Evaluate the current state of GIS in PA (continued)



- 37 Counties
- 13 State Agencies
- 26 Townships
- 16 Boroughs
- 4 Cities
- 8 Universities
- 49 Private Sector

http://www.oa.pa.gov/Programs/Information%20Technology/Pages/geoboard.aspx

Governance Task Force

Goal: Evaluate the current state of GIS in PA (continued)

Questionnaire Response Highlights

- There is a strong need for a Pennsylvania base map to support many different business related activities
- Data Sharing Agreement (DSA) - most sharing is done between government agencies; the private sector pays acquisition fees; one-half of respondents had DSA
- GIS is centralized in about one-half of respondents, one-third have an internal strategic plan
- Respondents are largely unaware of external funding opportunities, almost one-third have unmet funding needs
- One-half of the respondents provide some form of GIS service delivery; overwhelming majority are consumed both internally and externally

http://www.oa.pa.gov/Programs/Information%20Technology/Pages/geoboard.aspx

Governance Task Force

Goal: Develop a GIS Strategic Plan

Challenge

- No up-to-date, statewide, GIS strategic plan

Business Rationale

- A Commonwealth strategic plan can offer the guidance for:
  - Capturing funding opportunities
  - Facilitating cooperation
  - Streamlining operations

Barriers to Implementation

- Creation and maintenance
- An update timeline is undetermined
- Many differing entities covered
- Interaction with other plans *"Feedback & Revisions vital"*

Effort to Complete

GIS Strategic Plan recently completed public comment period

http://www.oa.pa.gov/Programs/Information%20Technology/Pages/geoboard.aspx

Governance Task Force

Goal: Assess and communicate key funding opportunities & information

Challenge

- Budget constraints stifle GIS growth & development

Business Rationale

- Collaboration, cooperation, and coordination provide savings
- Using principals creates a sustainable funding model
- Communication will open access to pooled resources

Barriers to Implementation

- Budget constraints & shortfalls
- Staffing / Skills shortfalls
- Earmarked budgetary items restrictive

Effort to Complete

- Objective in the Draft Strategic Plan
- Preliminary research has been conducted

GeoBoard Accomplishments

- Conducted nine board meetings
- Established Task Forces
  - Held individual & joint task force meetings
- Administered a state-wide GIS survey
- Approved base map themes
- Published an Annual Report
- Wrote a Strategic Plan
  - Led through public comment

http://www.oa.pa.gov/Programs/Information%20Technology/Pages/geoboard.aspx

2017 Goals

- Advise Governor
- Publish an Annual Report
- Complete a strategic plan
- Support PEMA's remote sensing procurement
- Identify authoritative spatial data layers and their stewards supporting the base map themes
- Decide approach to resolving local municipal boundary discrepancies
- Define a single data sharing agreement that can be used throughout PA
- Determine a strategy for coordinated funding of statewide GIS programs
- Define the strategy for leveraging cloud-based services
- Implement a GIS governance framework
- Continue outreach and education at industry events

http://www.oa.pa.gov/Programs/Information%20Technology/Pages/geoboard.aspx

Frank's Unofficial 2018 Goals

- Advise Governor
- Publish a strategic plan
- Publish an Annual Report
- Publish a position on PA HB 1106
- Identify authoritative spatial data layers and stewards
- Decide approach to resolving local municipal boundary discrepancies
- Define a single data sharing agreement that can be used throughout PA
- Determine a strategy for coordinated funding of statewide GIS programs
- Define the strategy for leveraging cloud-based services
- Implement a GIS governance framework
- Continue outreach and education at industry events

http://www.oa.pa.gov/Programs/Information%20Technology/Pages/geoboard.aspx

Frank's Unofficial 2018 Goals (continued)

- Evaluate GeoBoard meeting format/agenda
- Establish a process for getting on the GeoBoard's agenda
- Finalize a format for Recommendation items
- Advance Strategic Plan items
- Increase active participation

http://www.oa.pa.gov/Programs/Information%20Technology/Pages/geoboard.aspx

Conclusion

- GeoBoard meets Quarterly
  - Harrisburg 333 Market St 1:30 – 3:00
  - Consult the web site
- Next GeoBoard Meeting - February 26, 2018
- GeoBoard meetings are open to the public
  - Anyone can attend
- Participants can call in
- Task Forces meet monthly
  - Joint Task Force January 10, 2018 @ PA Turnpike
- Additional participation is desired
- Participants are volunteers

http://www.oa.pa.gov/Programs/Information%20Technology/Pages/geoboard.aspx

Conclusion

On Behalf of the GeoBoard

Frank DeSendi
PennDOT
Bureau of Planning and Research
717-787-3738
fdesendi@pa.gov

http://www.oa.pa.gov/Programs/Information%20Technology/Pages/geoboard.aspx

BICYCLE LTS & CONNECTIVITY ANALYSIS

December 13, 2017

PRESENTED TO:
Information Resources Exchange Group

PRESENTED BY:
Sarah Moran, AICP

DELAWARE VALLEY dvrpc REGIONAL PLANNING COMMISSION

Why?

Method

Challenges

Results & Use

BICYCLE LTS & CONNECTIVITY ANALYSIS

dvrpc

Project Overview

Project Partner: Southeastern PA Suburban Bike Lanes Working Group

Goal: Identify which road segments would have meaningful impacts on low-stress bicycle connectivity and would be worth investing in design

Deliverable: Maps as resource for developing bike plans and identifying priorities for capital improvements

dvrpc

Level of Traffic Stress (LTS)

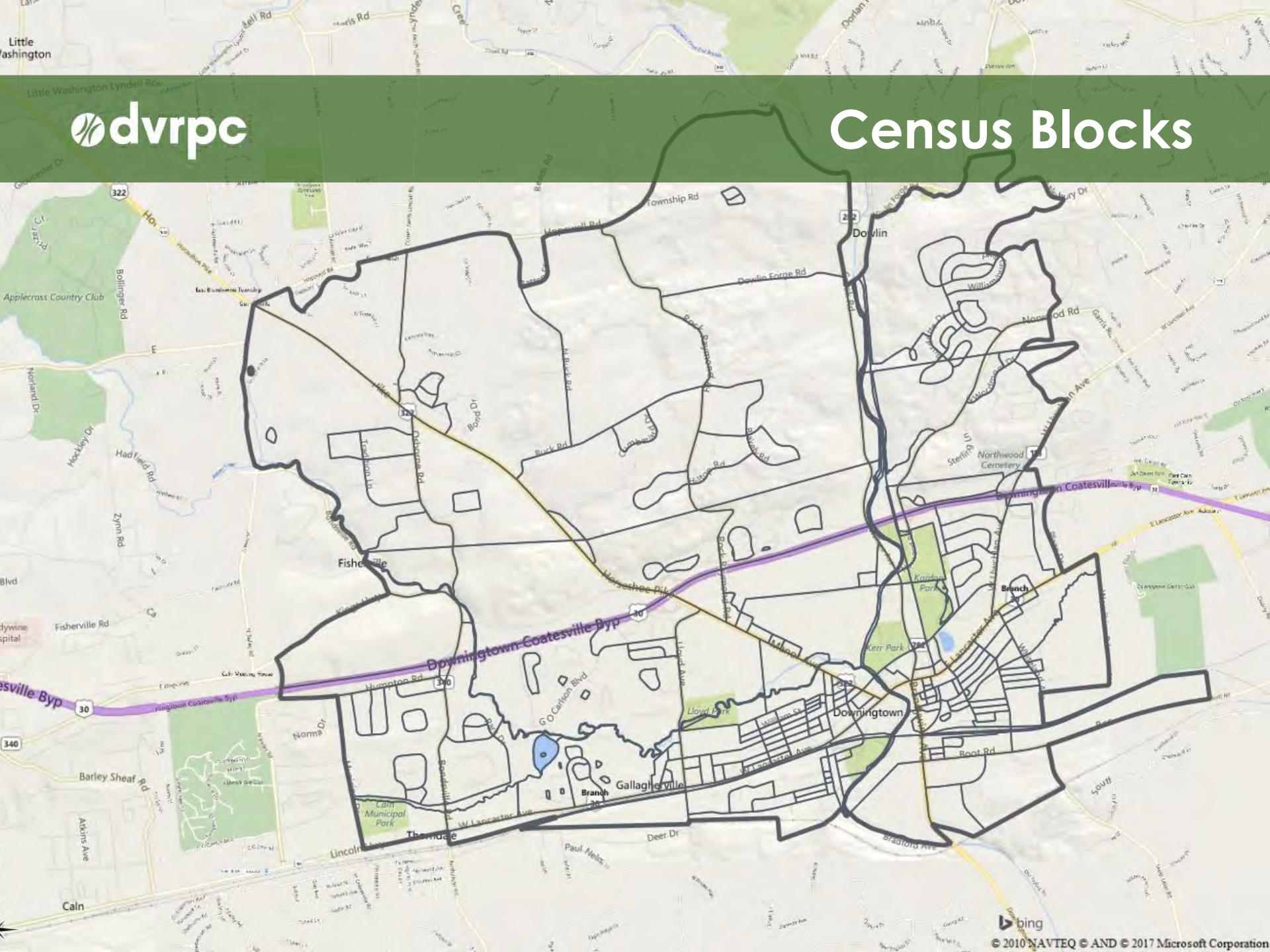
LTS	Comfortable Enough For (Cyclist Type)	Characteristics
1	Everyone	Lowest stress Comfortable for most ages and abilities
2	Interested, but Concerned	Suitable for most adults Presenting little traffic stress
3	Enthused and Confident	Moderate traffic stress Comfortable for those already biking in American cities
4	Strong and Fearless	High traffic stress Multilane, fast moving traffic

dvrpc

Mekuria, M., Furth, P. and Nixon, H. "Low-stress bicycling and network connectivity", *Mineta Transportation Institute*, No. Report 11-19, 2012.
Geller, R. "Four Types of Cyclists," Portland Bureau of Transportation, Portland, OR, 2006. www.portlandoregon.gov/transportation/article/264746. Accessed Aug, 11, 2016.

dvrpc

Census Blocks



dvrpc

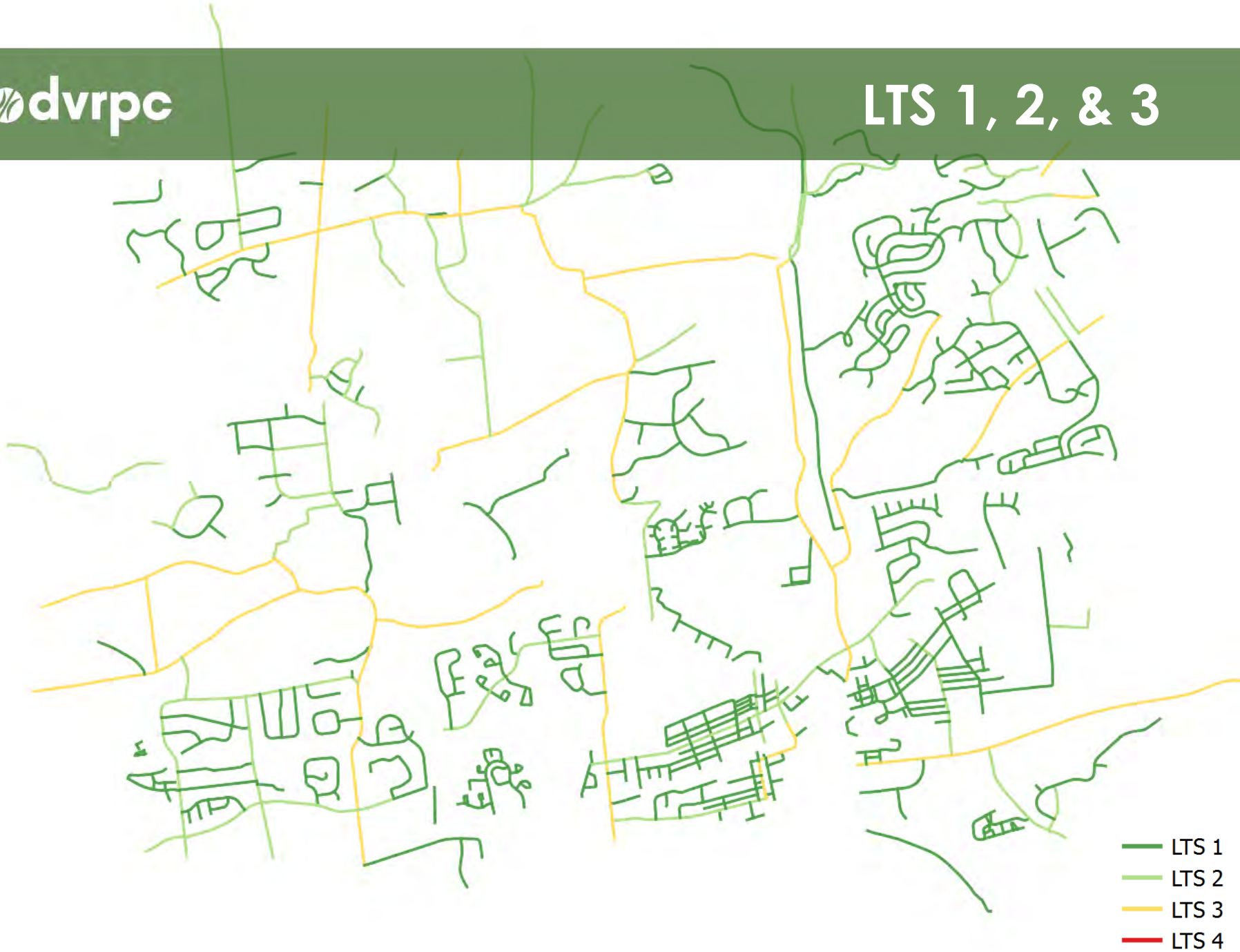
Network

dvrpc

LTS 1 & 2

dvrpc

LTS 1, 2, & 3



Why?

Method

Challenges

Results & Use

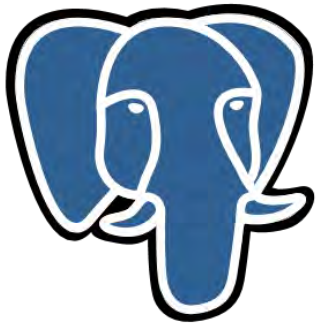
BICYCLE LTS & CONNECTIVITY ANALYSIS

dvrpc

Tools

the mind of movement

pgRouting



PostgreSQL

dvrpc

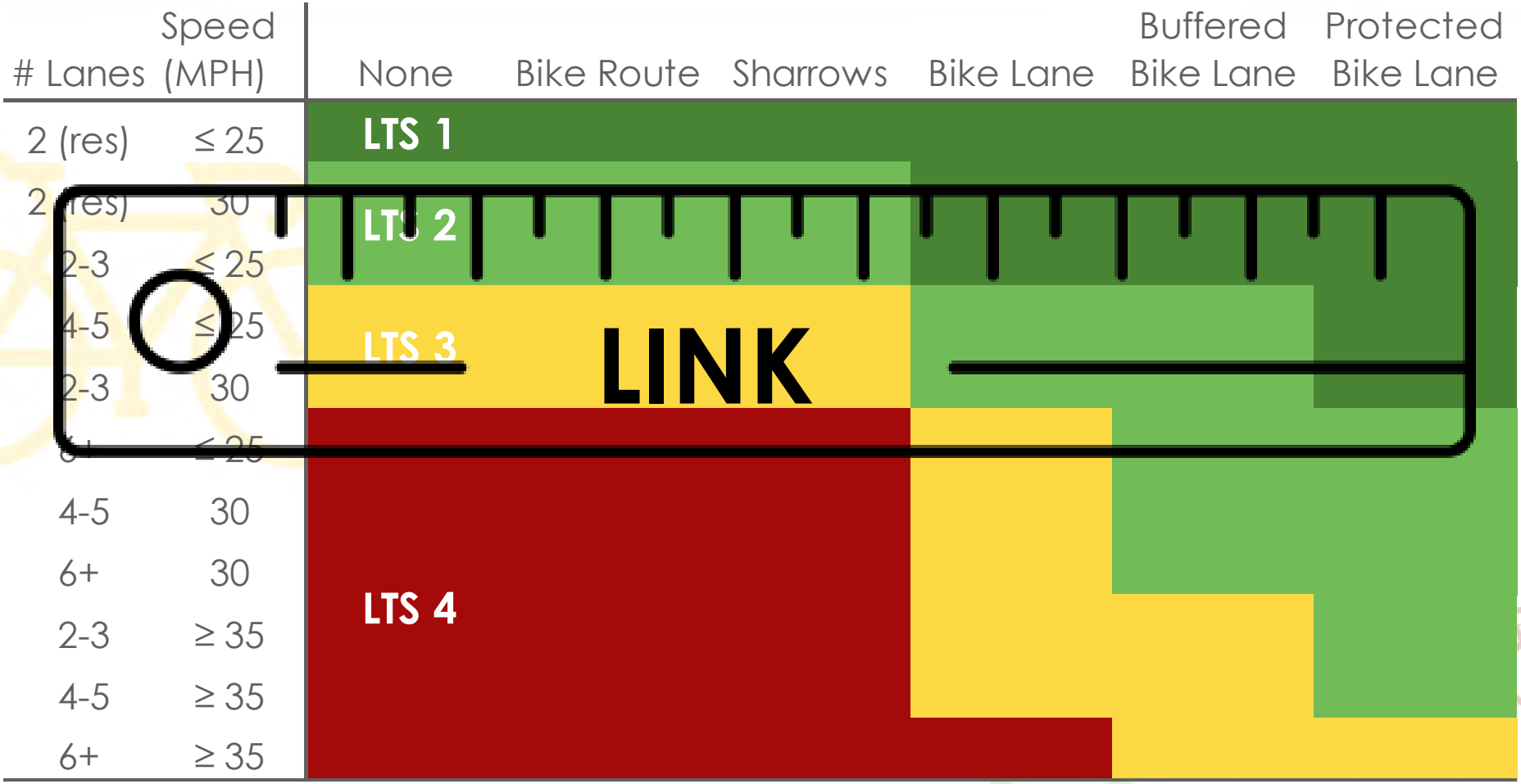
Link LTS

# Lanes	Speed (MPH)	None	Bike Route	Sharrows	Bike Lane	Buffered Bike Lane	Protected Bike Lane
2 (res)	≤ 25	LTS 1					
2 (res)	30	LTS 2					
2-3	≤ 25						
4-5	≤ 25	LTS 3					
2-3	30						
6+	≤ 25	LTS 4					
4-5	30						
6+	30						
2-3	≥ 35						
4-5	≥ 35						
6+	≥ 35						

dvrpc

Lowry, M., Furth, P., and Hadden-Loh, T. Low-Stress Neighborhood BIkeability Assessment to Prioritize Bicycle Infrastructure. Presented at the 95th Annual Meeting of The Transportation Research Board, Washington D.C., 2016.

Link LTS

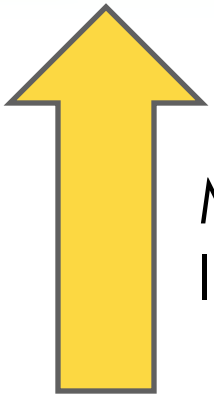


dvrpc

Lowry, M., Furth, P., and Hadden-Loh, T. Low-Stress Neighborhood BIkeability Assessment to Prioritize Bicycle Infrastructure. Presented at the 95th Annual Meeting of The Transportation Research Board, Washington D.C., 2016.

Turn LTS

LTS of Destination Segment

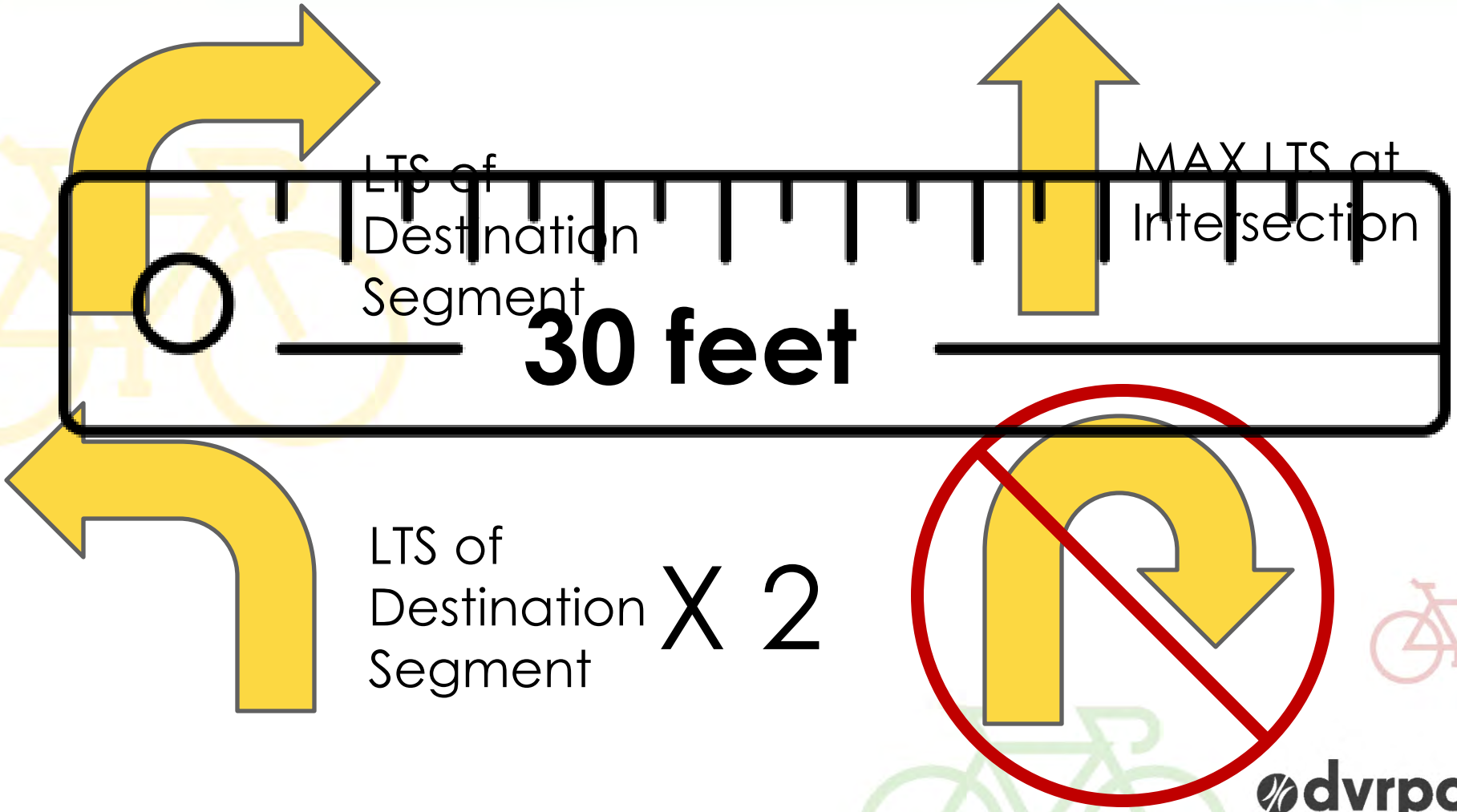


MAX LTS at Intersection

LTS of Destination Segment X 2

dvrpc

Turn LTS



dvrpc

Why?

Method

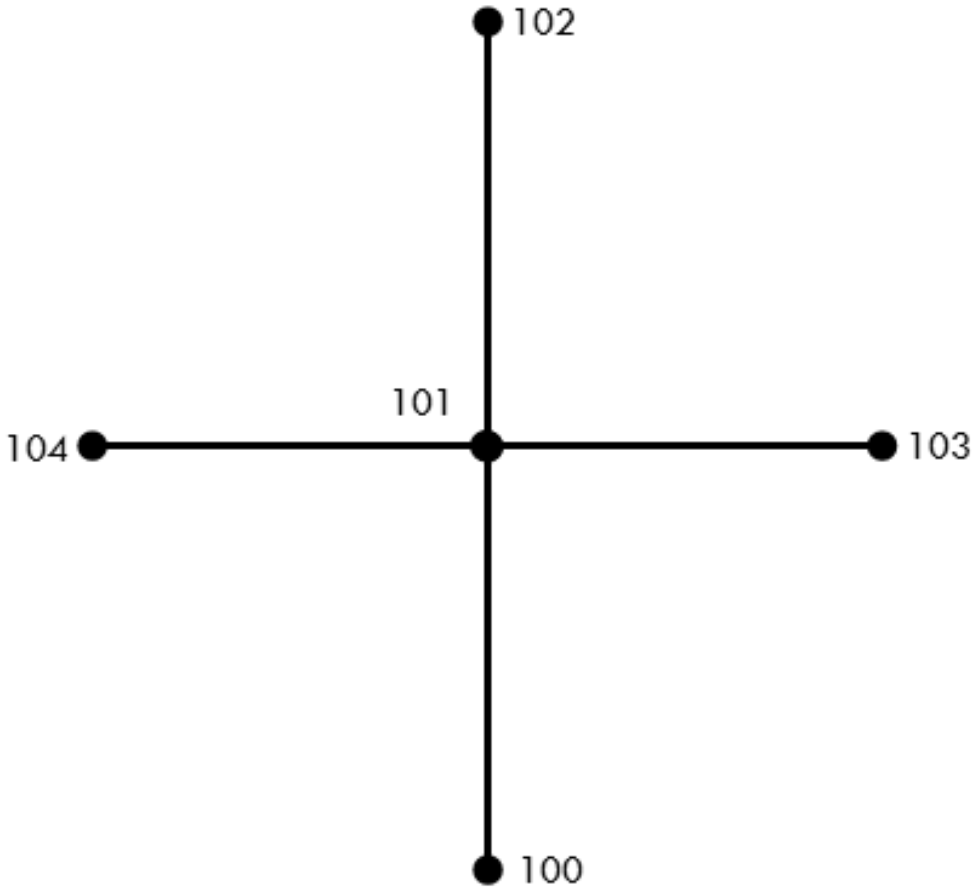
Challenges

Results & Use

BICYCLE LTS & CONNECTIVITY ANALYSIS

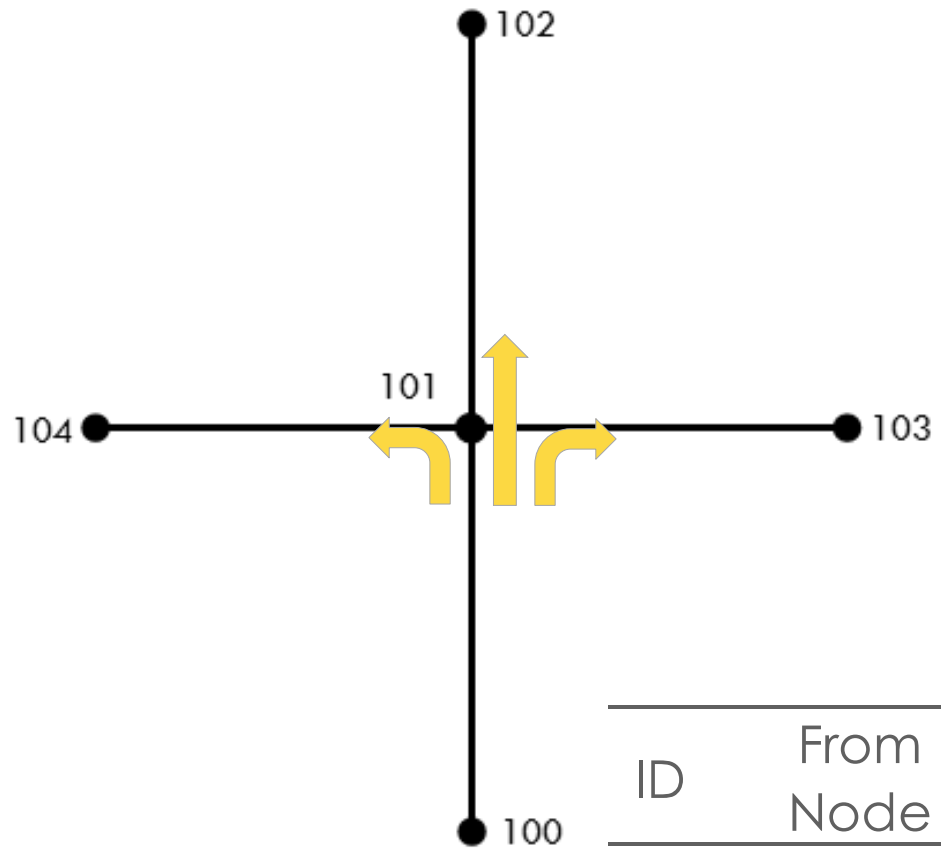
dvrpc

Links



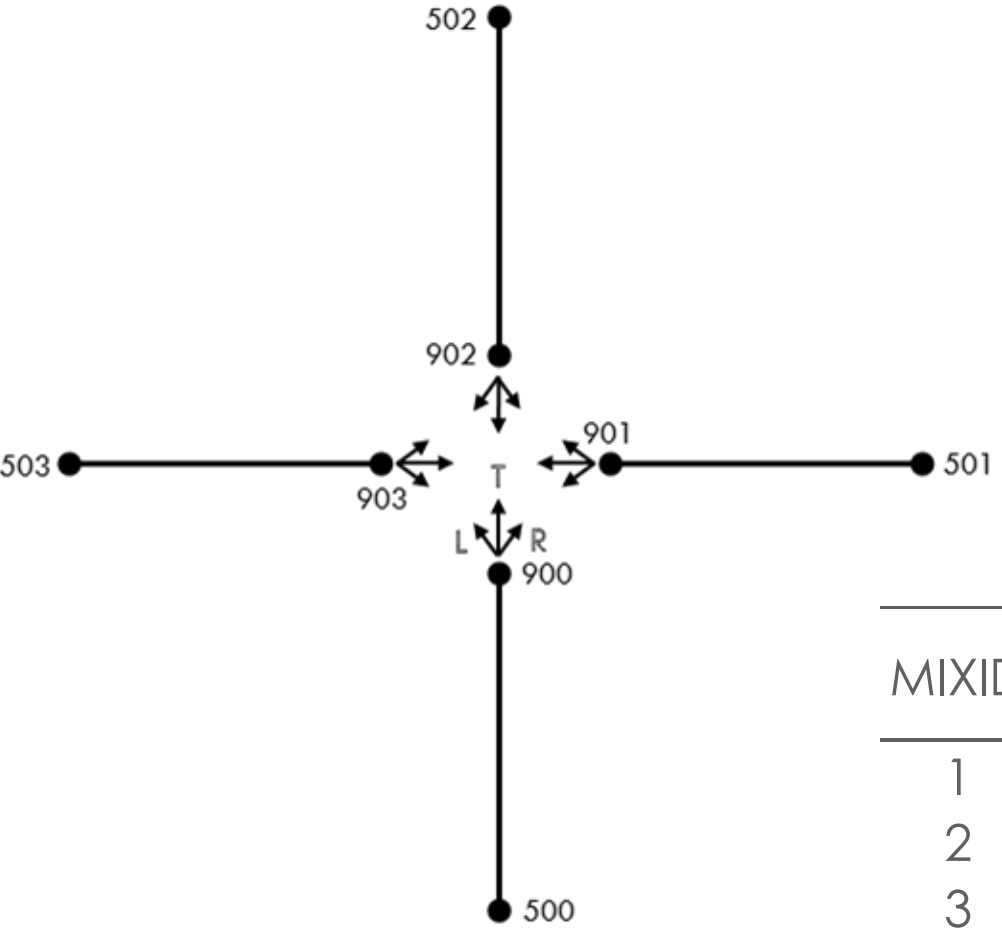
ID	From Node	To Node
A	104	101
B	101	103
C	100	101
D	101	102

Turns



ID	From Node	Via Node	To Node	Direction
L	100	101	104	Left
T	100	101	102	Through
R	100	101	103	Right
U	100	101	100	U-turn

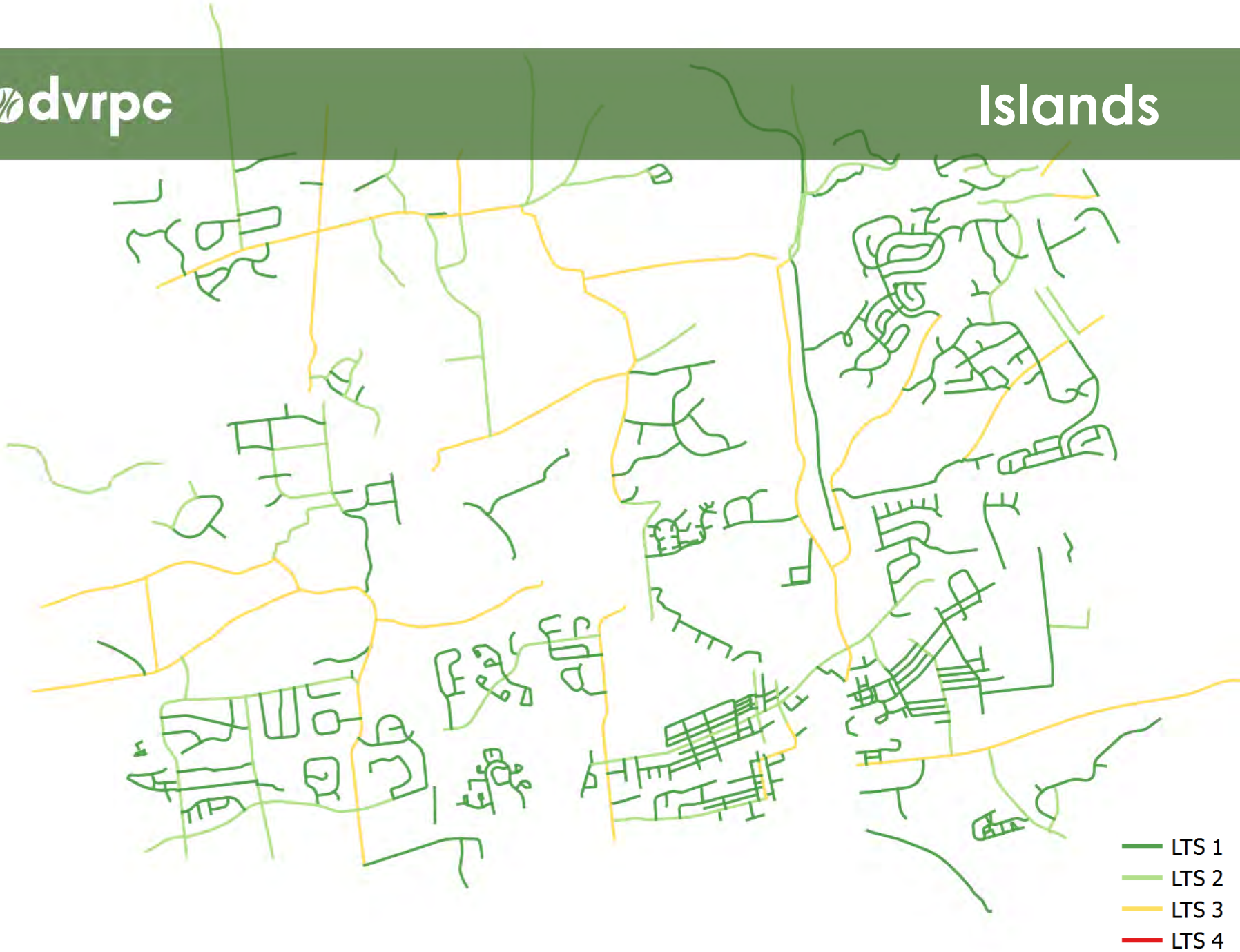
Master Routable Network



MIXID	From Geoff	To Geoff	Type
1	500	900	Link
2	900	901	Turn
3	900	902	Turn
4	900	903	Turn
5	901	501	Link
↓	↓	↓	↓

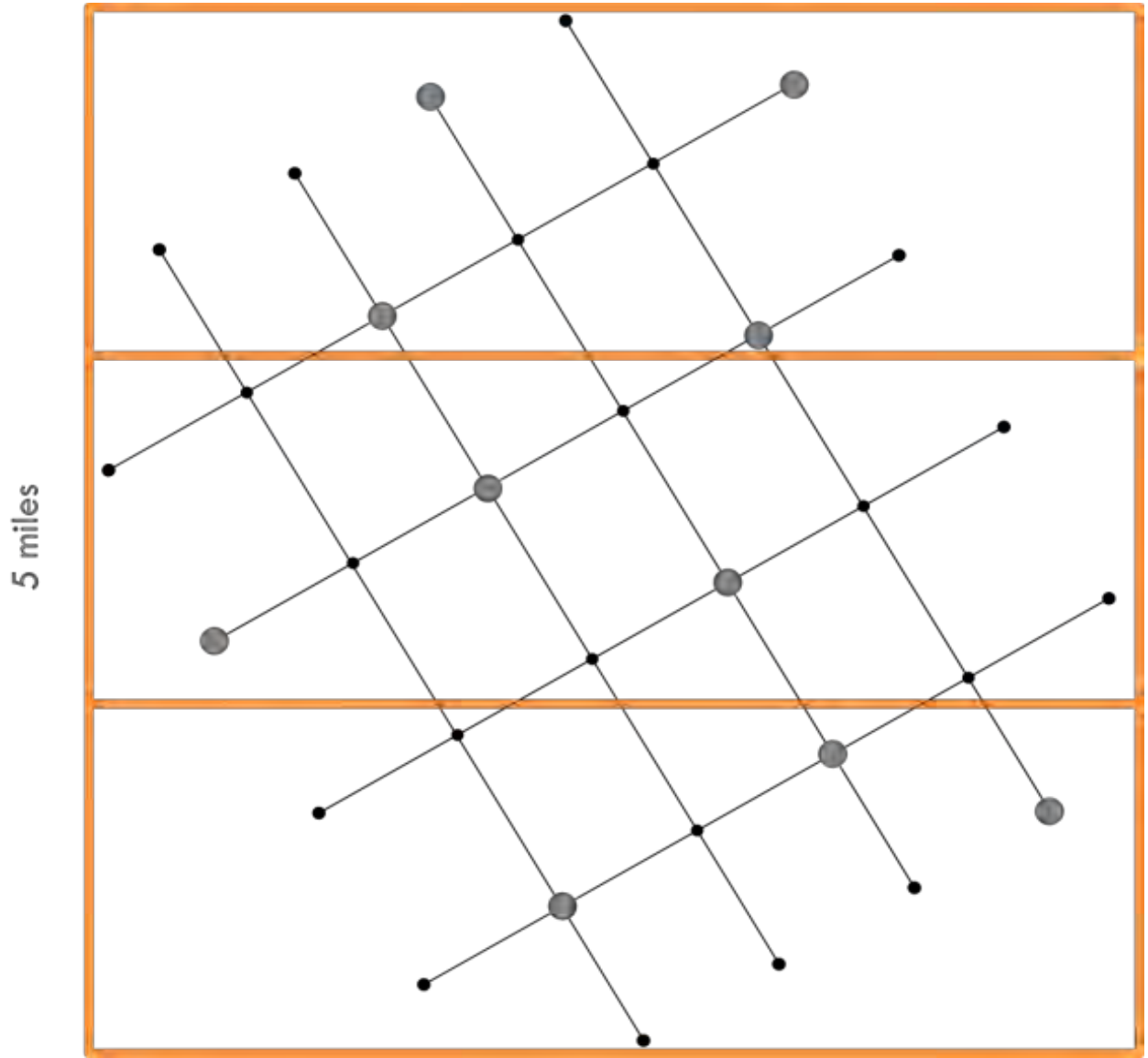
dvrpc

Islands



dvrpc

Moving Frame



Why?

Method

Challenges

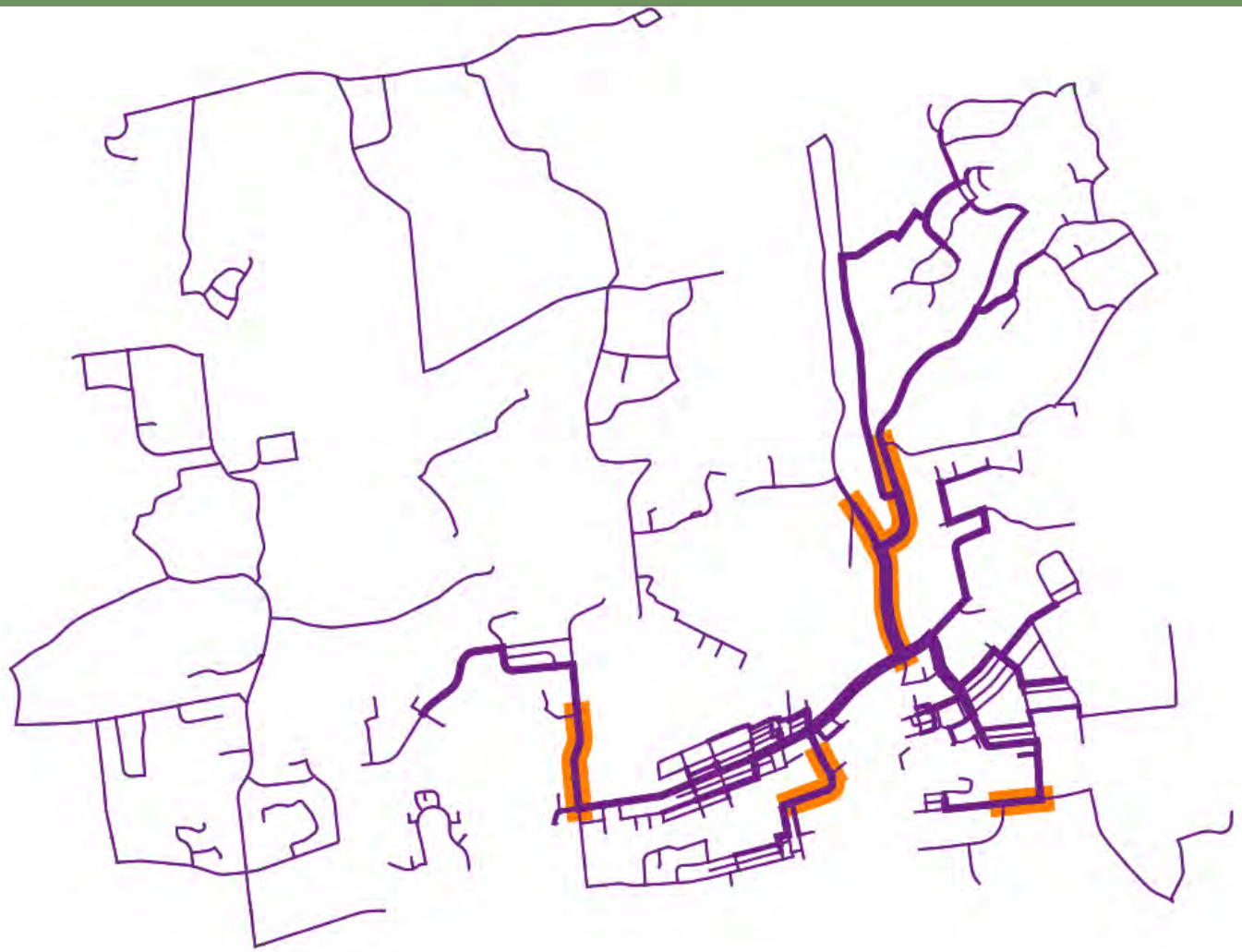
Results & Use

BICYCLE LTS & CONNECTIVITY ANALYSIS

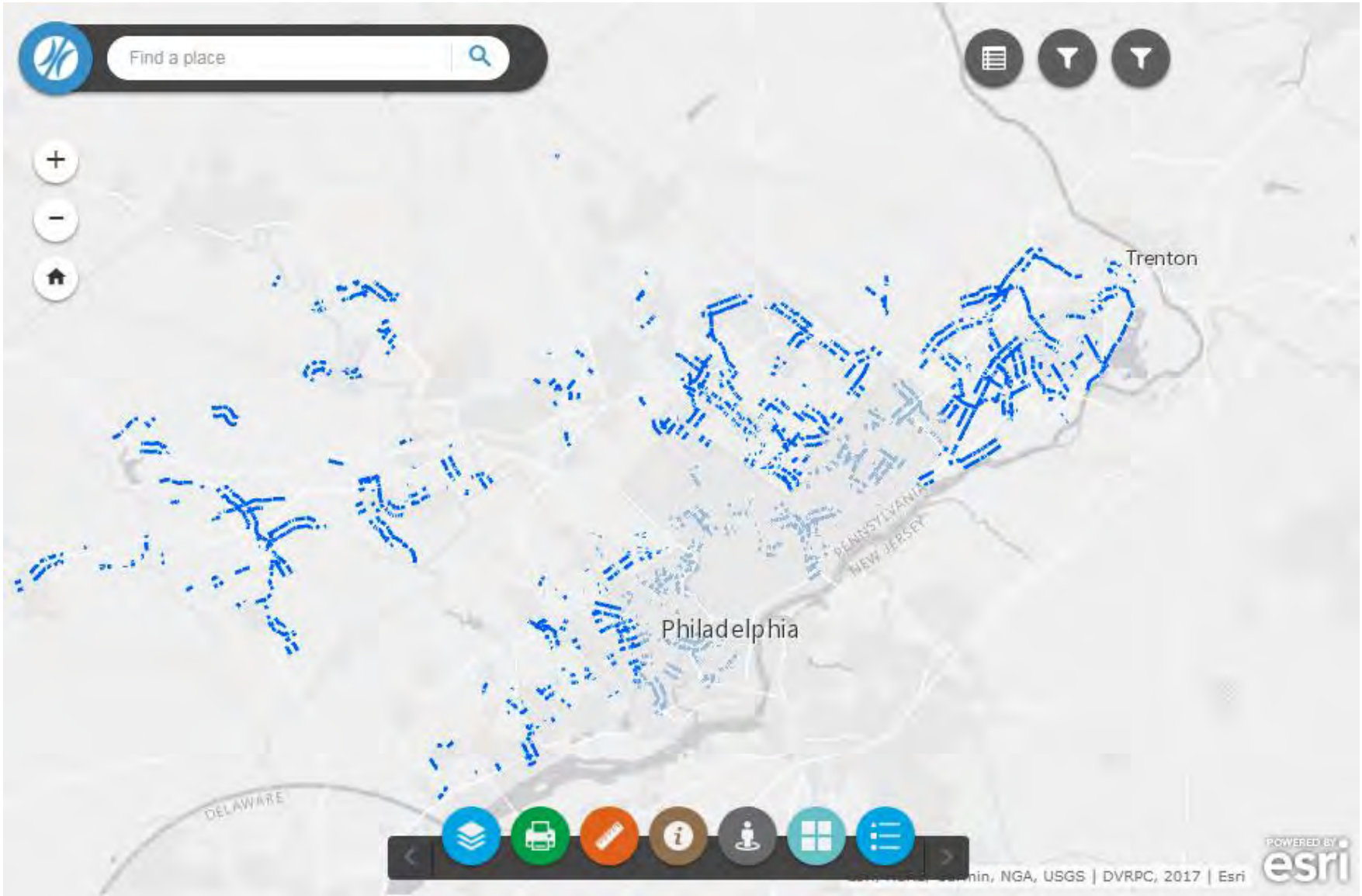
dvrpc

dvrpc

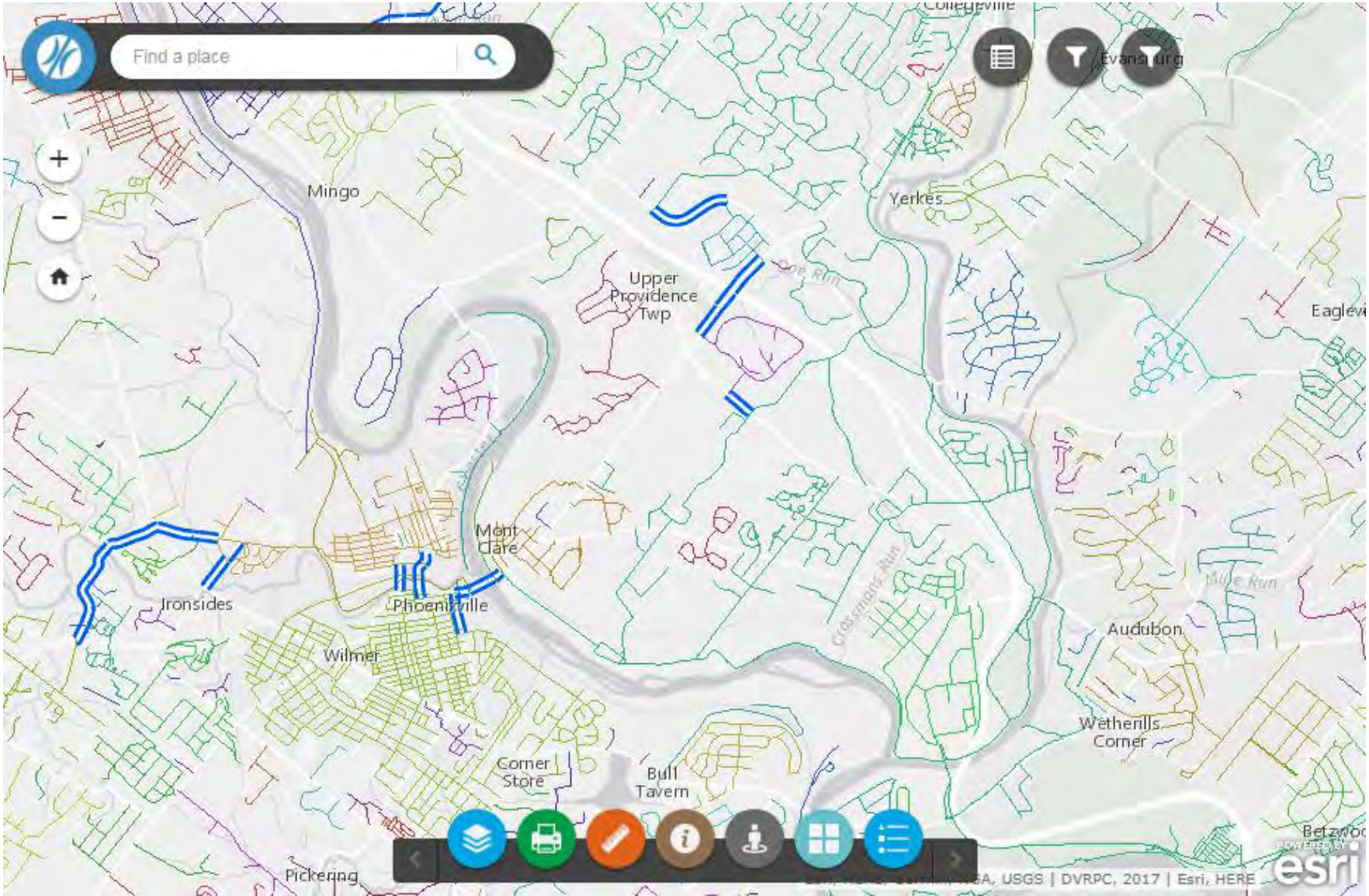
Highest Usage



Webmap

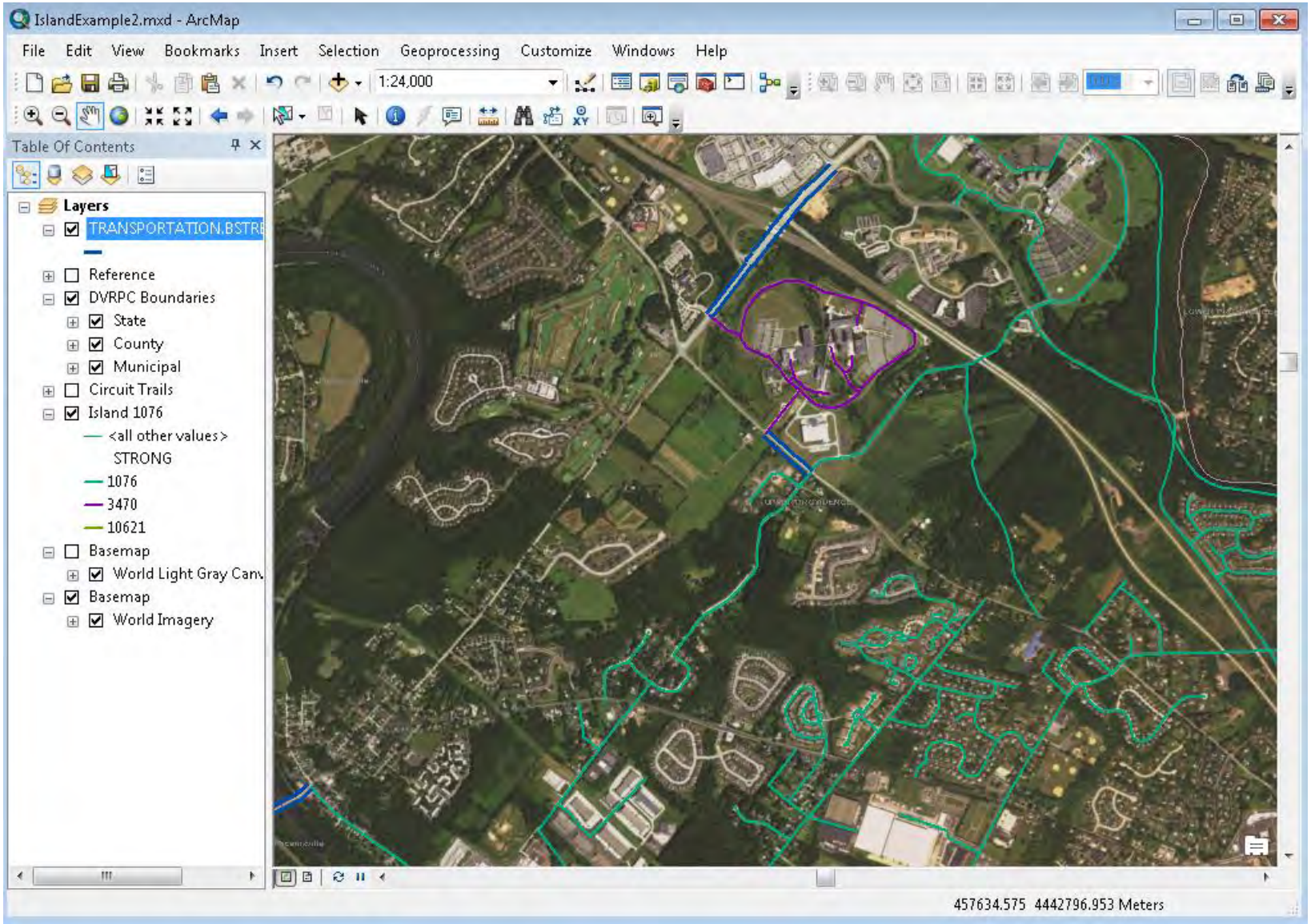

Find a place
Trenton
Philadelphia
PENNSYLVANIA
NEW JERSEY
DELAWARE
DVRPC, 2017 | Esri
esri

Webmap


Find a place
Mingo
Upper Providence Twp
Yerkes
Mont Clare
Ironsides
Phoenixville
Wilmer
Audubon
Wetherills Corner
Corner Store
Bull Tavern
Pickering
Mule Run
Crossmans Run
esri

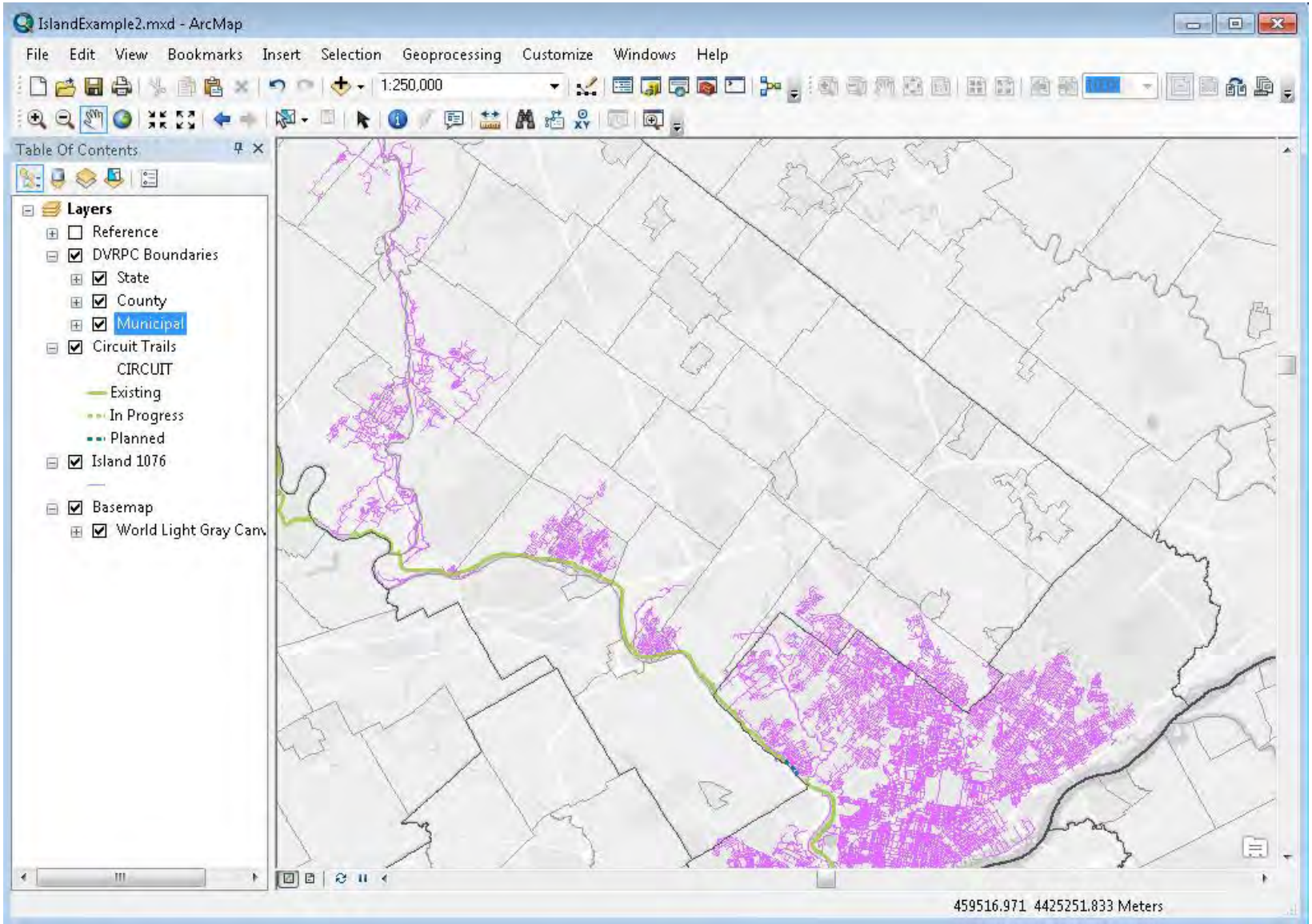
dvrpc

Closer Look

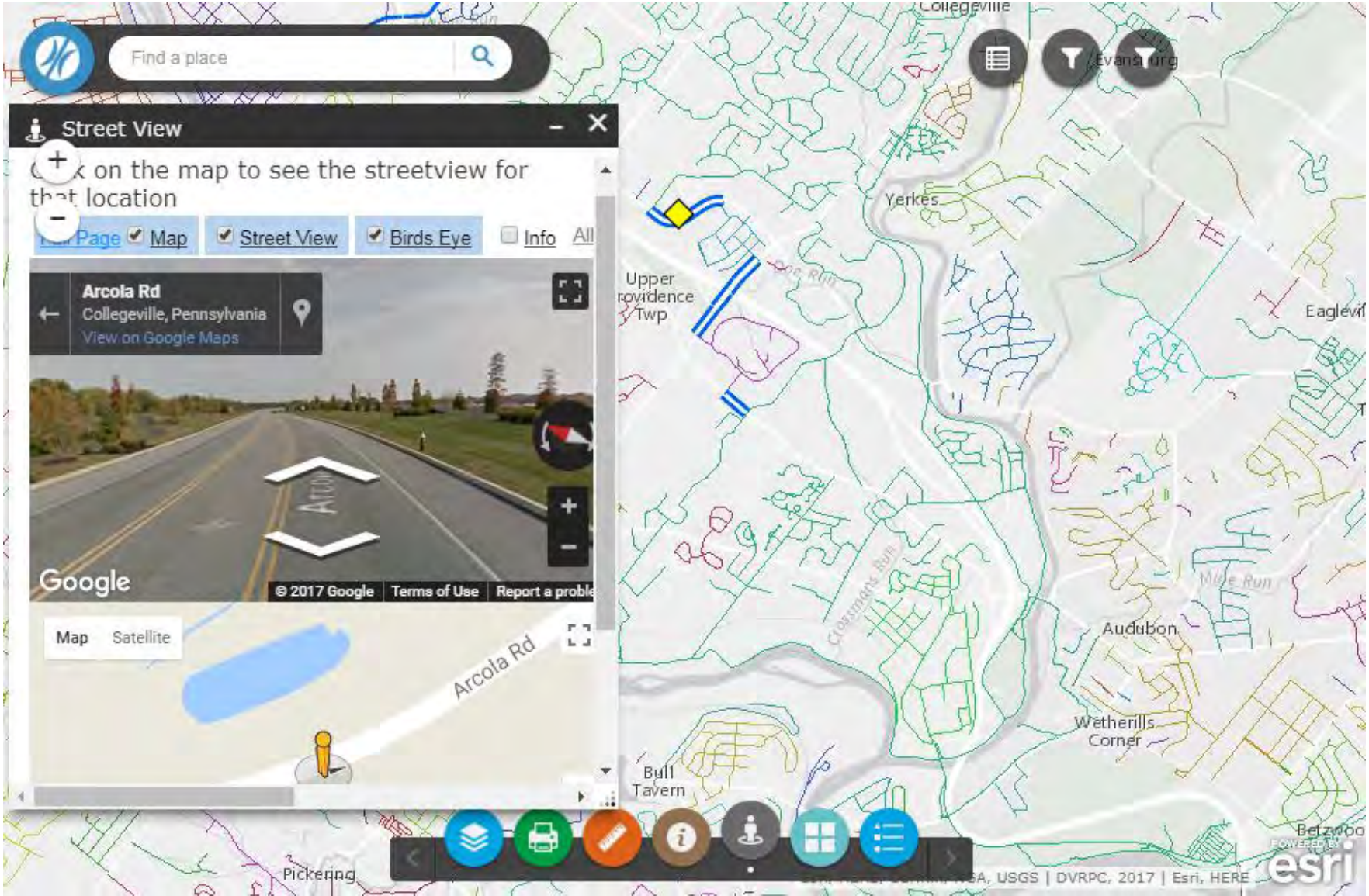


dvrpc

Closer Look



Webmap


Find a place
Street View
on the map to see the streetview for that location
Map
Street View
Birds Eye
Info
Arcola Rd
Collegeville, Pennsylvania
View on Google Maps
Google
© 2017 Google
Terms of Use
Map
Satellite
Arcola Rd
Collegeville
Yerkes
Upper Providence Twp
Audubon
Wetherills Corner
Bull Tavern
Pickering
esri

Next Steps

Analysis

- Include NJ counties and formally include Philadelphia
- O-D attributes/weights
- Incorporate trail access points

Products

- Interactive network modification with on-the-fly calculations

dvrpc

Thank You!

Sarah Moran, AICP
smoran@dvrpc.org

DELAWARE VALLEY dvrpc REGIONAL PLANNING COMMISSION

BICYCLE LTS & CONNECTIVITY ANALYSIS

dvrpc

https://www.dvrpc.org/webmaps/BikeStress/