

FREIGHT ACCESSIBILITY AND ECONOMIC DEVELOPMENT

Case Studies in Practical Measurement

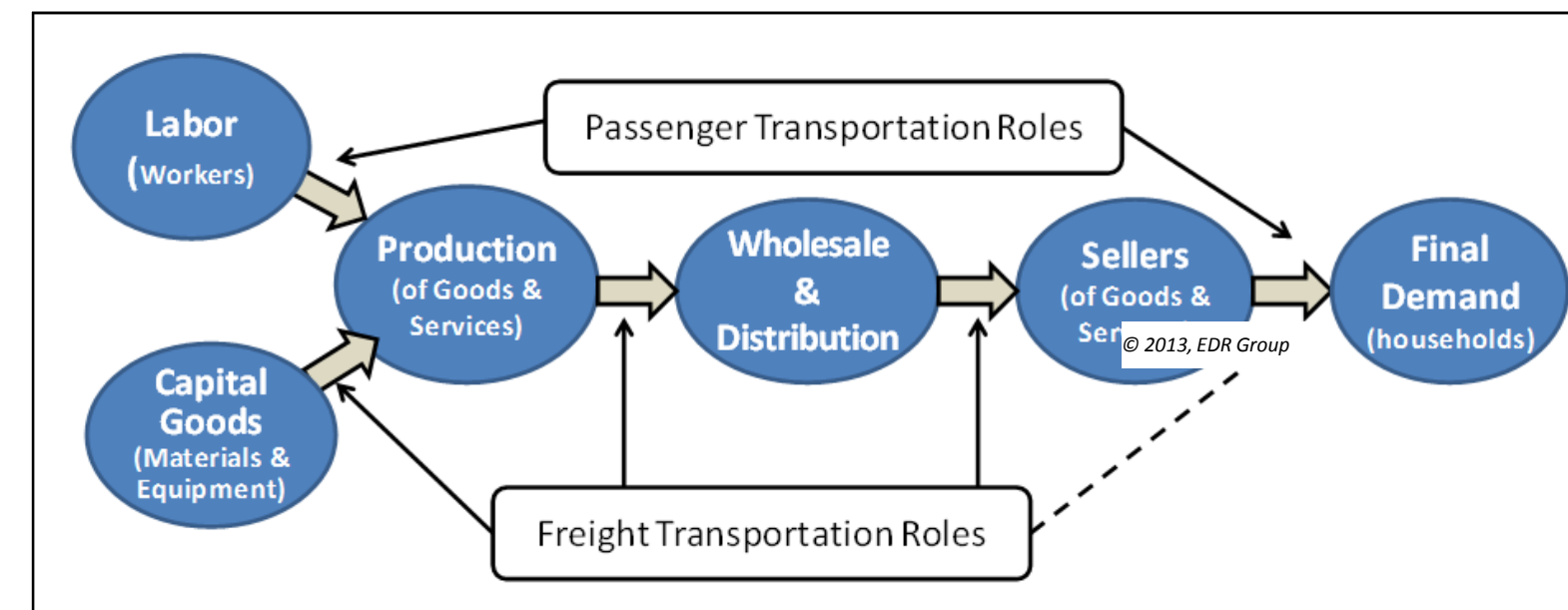
Accessibility is “the *potential* of opportunities for interaction.” (Walter Hansen, 1959)

A lack of freight accessibility limits economic development and growth.

Naomi Stein, Glen Weisbrod, Adam Blair

Why Freight Access?

TRANSPORTATION & THE ECONOMY



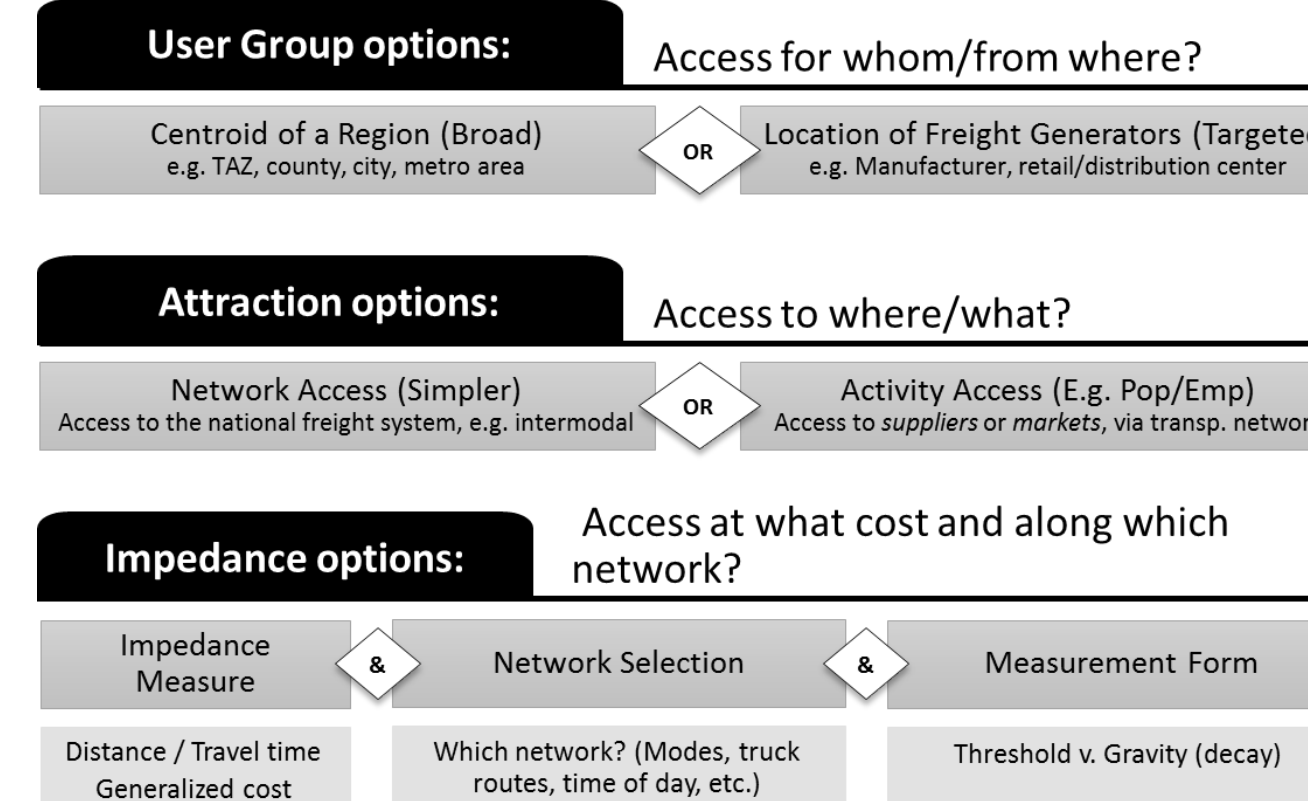
Sources of Access Issues: Geometric constraints. Service provision and scheduling constraints. Volume-to-capacity constraints. Circuity, network coverage, and remoteness.

Types of Metrics

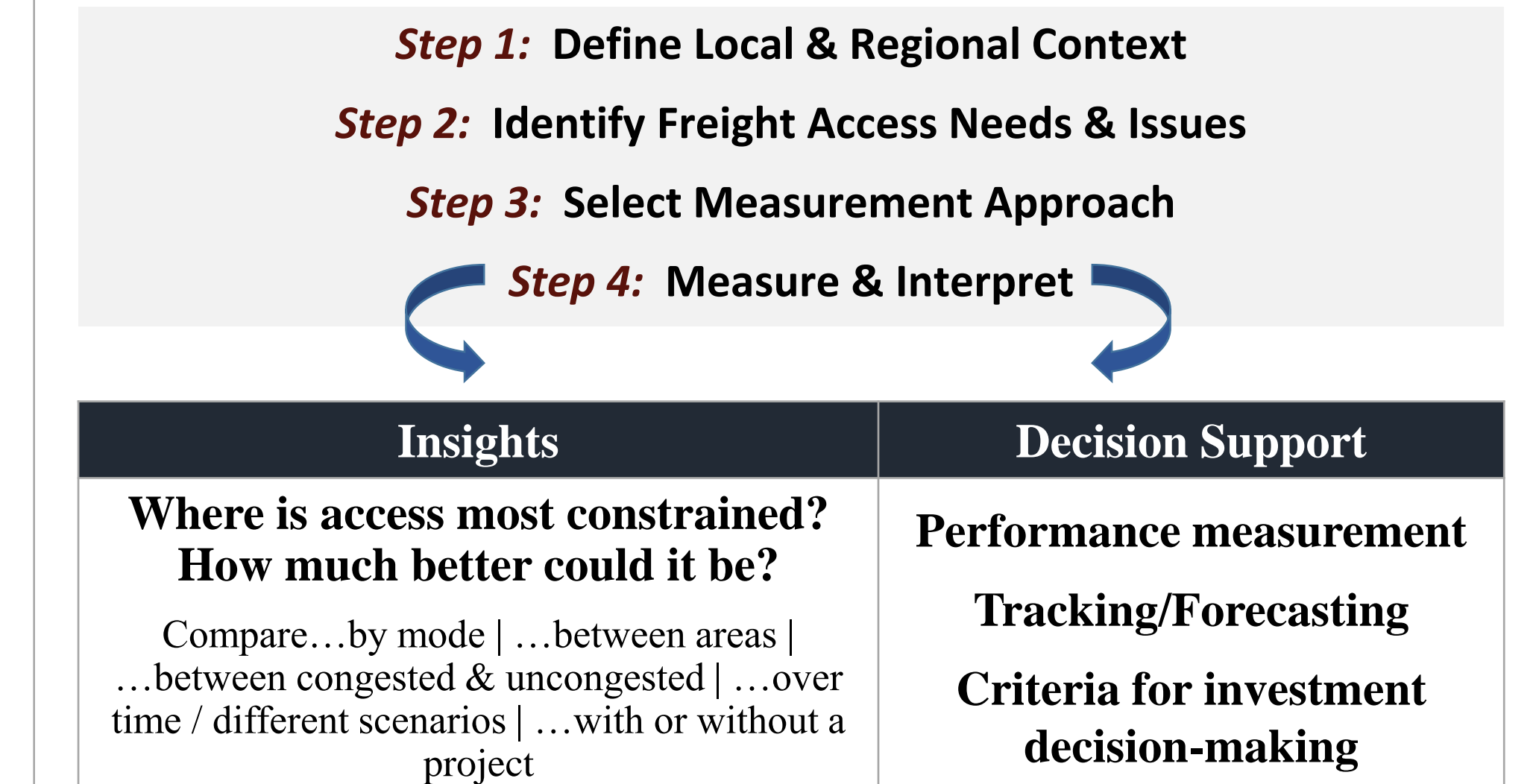
- 1 INFRASTRUCTURE-BASED**
 - “Traditional” - Performance on a link/corridor/node
 - E.g. Speed, transfer time, V/C, Travel Time Index
- 2 NETWORK MEASURES**
 - Coverage / completeness within a specified geography
 - E.g. intersections of miles of network w/in a X mile radius

No direct measurement of land-use and activity distributions in geographic space

3 AREA-BASED *Incorporates land use & transportation*



Analysis Process



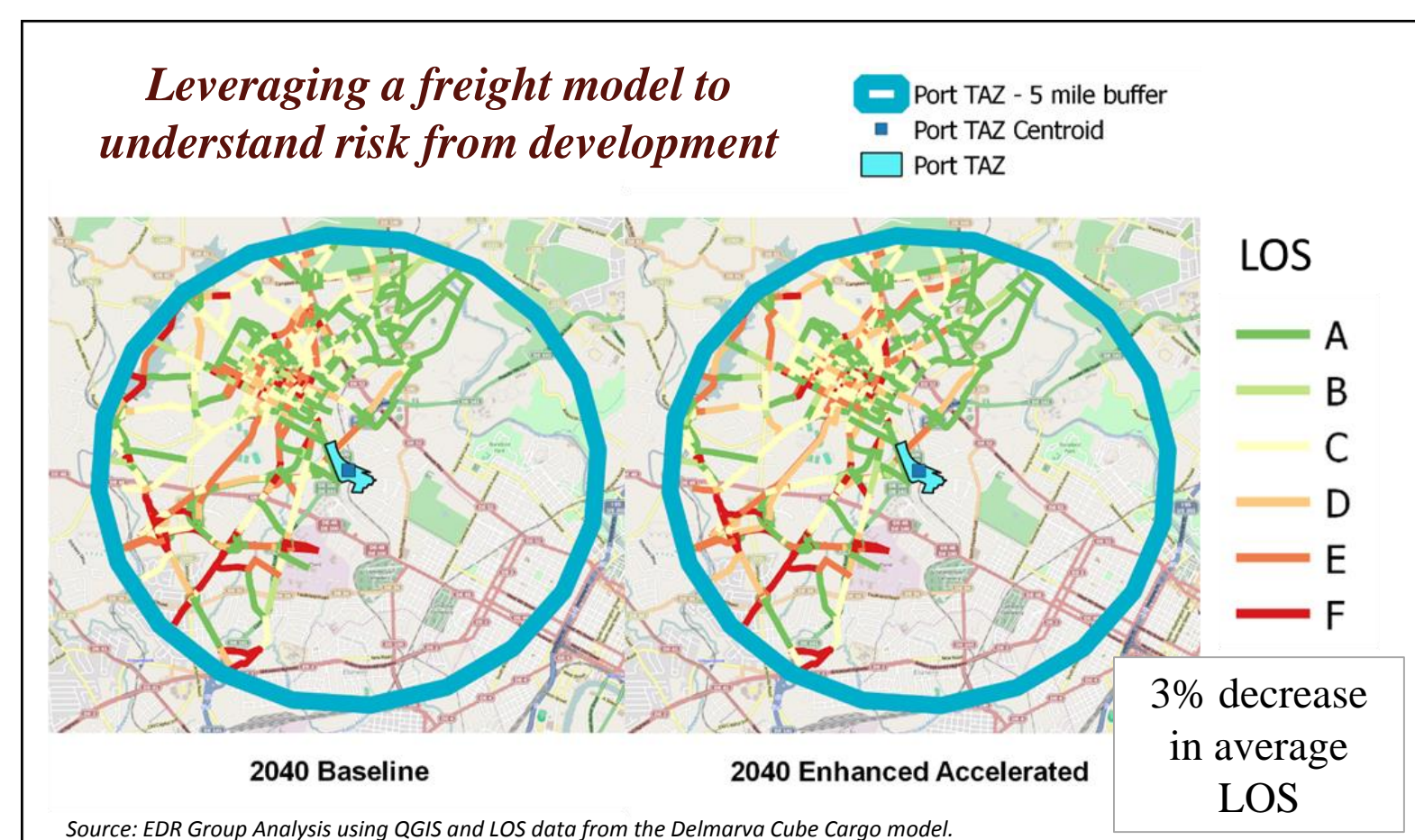
Illustrative Case Studies: Application of Freight Access Metrics

Port of Wilmington (Delaware)

- Context:** urban setting; adjacent to two interstates; access via local street network; supports energy, food, and transportation equipment supply chains.
- Accessibility Issues:** Existing truck queuing, pressure on local roads during peak; anticipated pressures from industrial development and growth in port activity.
- Measurement:** Compare **across alternative futures**

Infrastructure based: LOS on key facilities

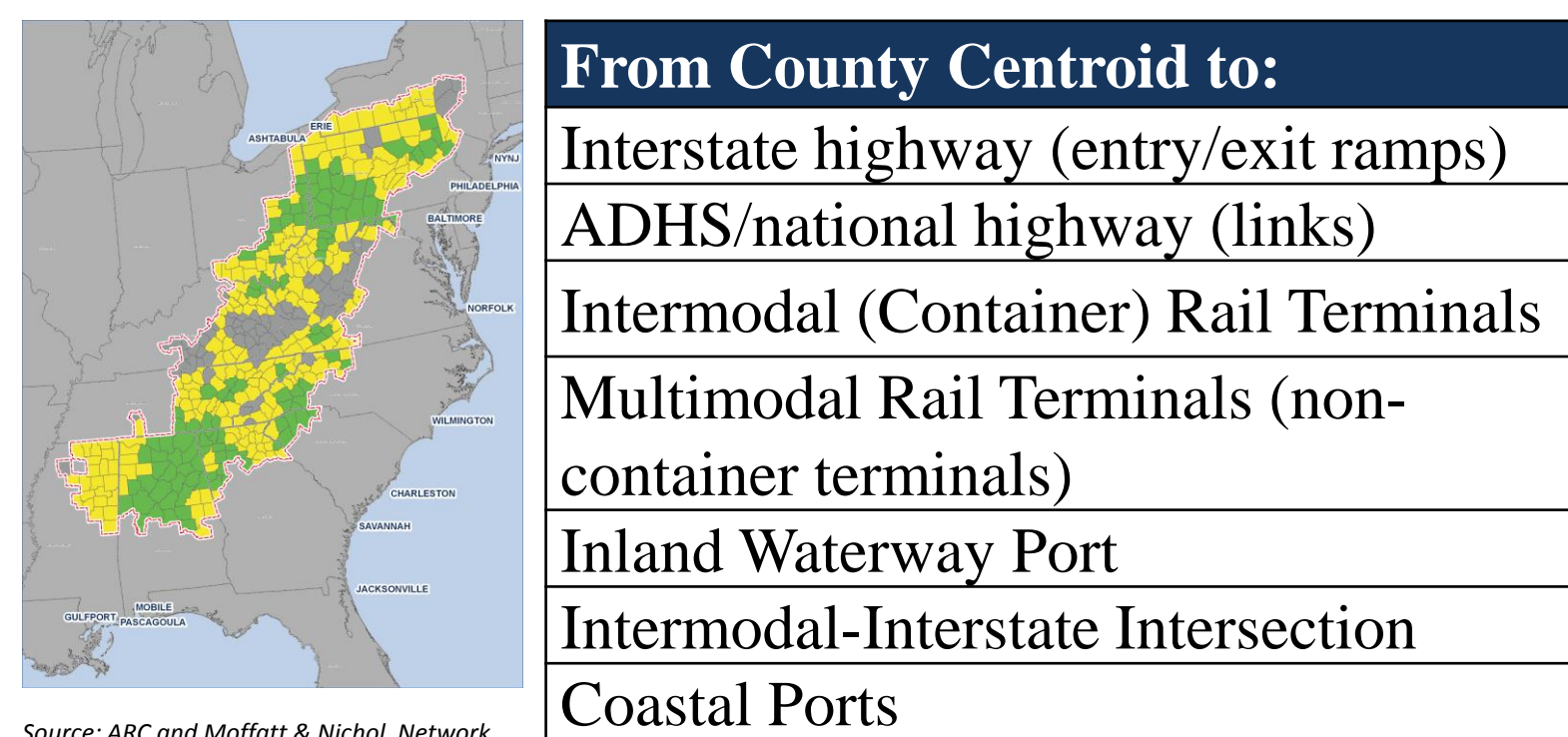
Area-based: employment accessible from the port



Appalachian Region

- Context:** 13 states, 25 million people, largely rural/isolated, transitioning from extractive industries, agriculture, and heavy manufacturing to services & specialized manufacturing.
- Accessibility Issues:** Originally bypassed by Interstate system, inadequate access to ports/intermodal facilities for international trade.
- Measurement:** Multimodal **network access** indicators applied **comparatively across counties**. Multi-criteria weighting based on stakeholder priorities.

Selection of relatively simple measures to enable consistent analysis across a large region



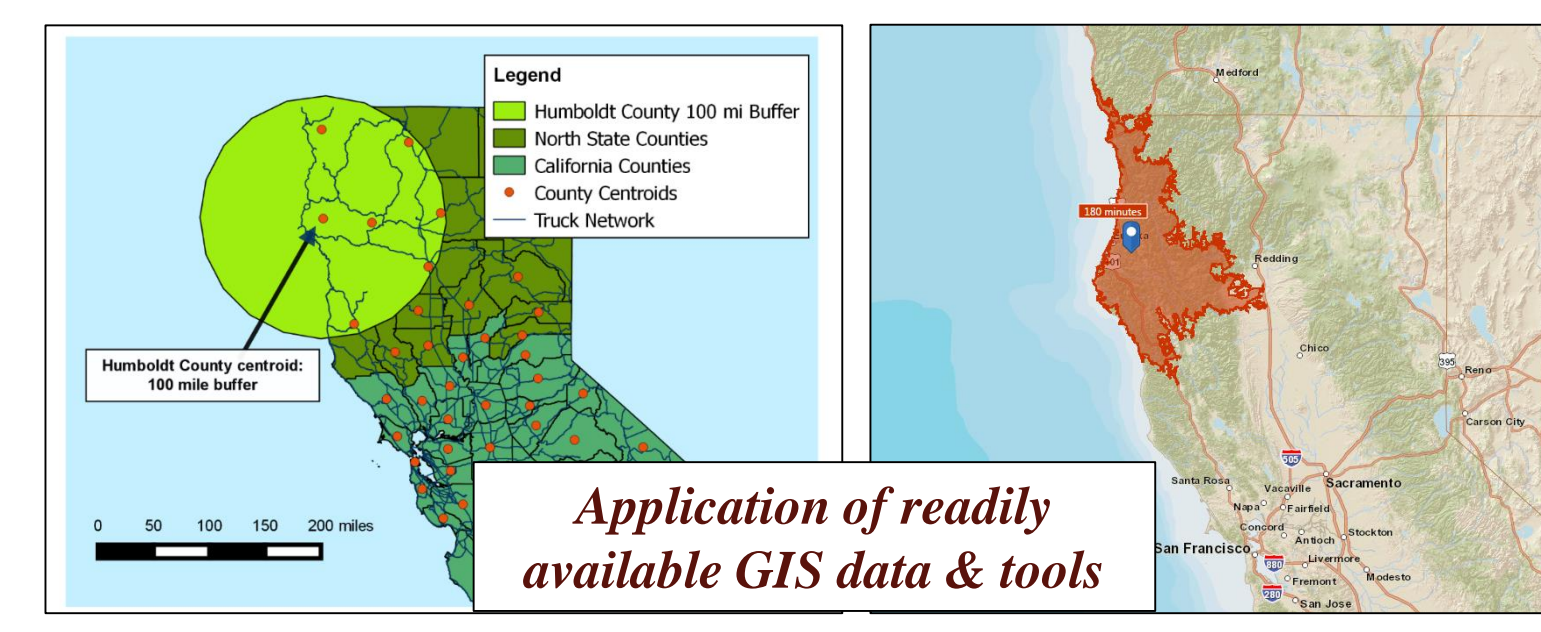
North State Super Region of California

- Context:** 16-county region characterized by mostly rural coastal areas, mountains, and agriculture; Unemployment and poverty rates are higher than CA average.
- Accessibility Issues:** Remoteness, poor connectivity to industry inputs, ports, and intermodal facilities; challenging terrain, geometric constraints, limited network.
- Measurement:** Multi-metric approach used to compare across counties

Network coverage: truck & rail network density.

Area-based, activity: employment w/in 3 hours.

Area-based, network access: drive time to cargo airport, intermodal rail facility.



Conclusions

- Traditional infrastructure-based or network measures address the underlying causes of accessibility issues
- Area-based measures capture the scope/severity of access constraints within a given comparative framework
- Together these metrics serve as important indicators of economic competitiveness
- While there will be continuing advancements in methodologies and available tools, there is sufficient information available within MPOs/DOTs for these measures to be useful now.

Acknowledgements

- Sponsors:** Federal Highway Administration & American Association of State Highway and Transportation Officials.
- Delaware case study support** from Dan Blevins at the Wilmington Area Planning Council, and Chad Reese and Li Li of Whitman, Requardt & Associates, LLP.