

Delineating Economic Areas

Identifying Areas for Impact Analysis in the
USDA-Forest Service

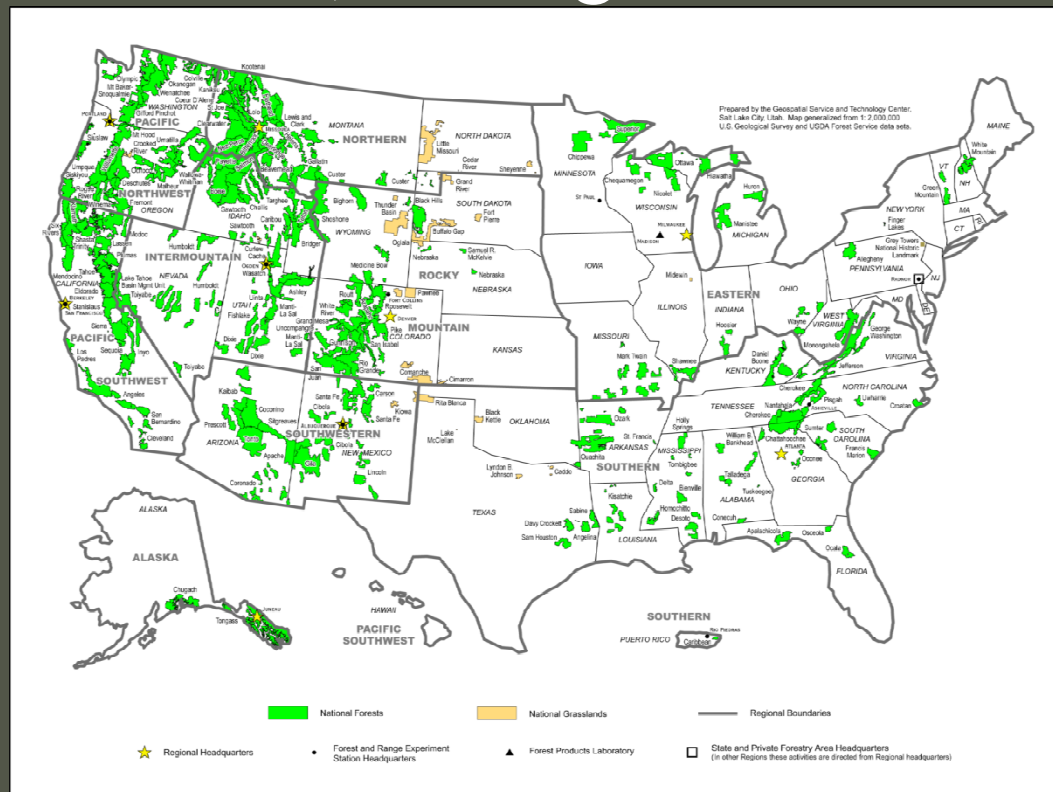
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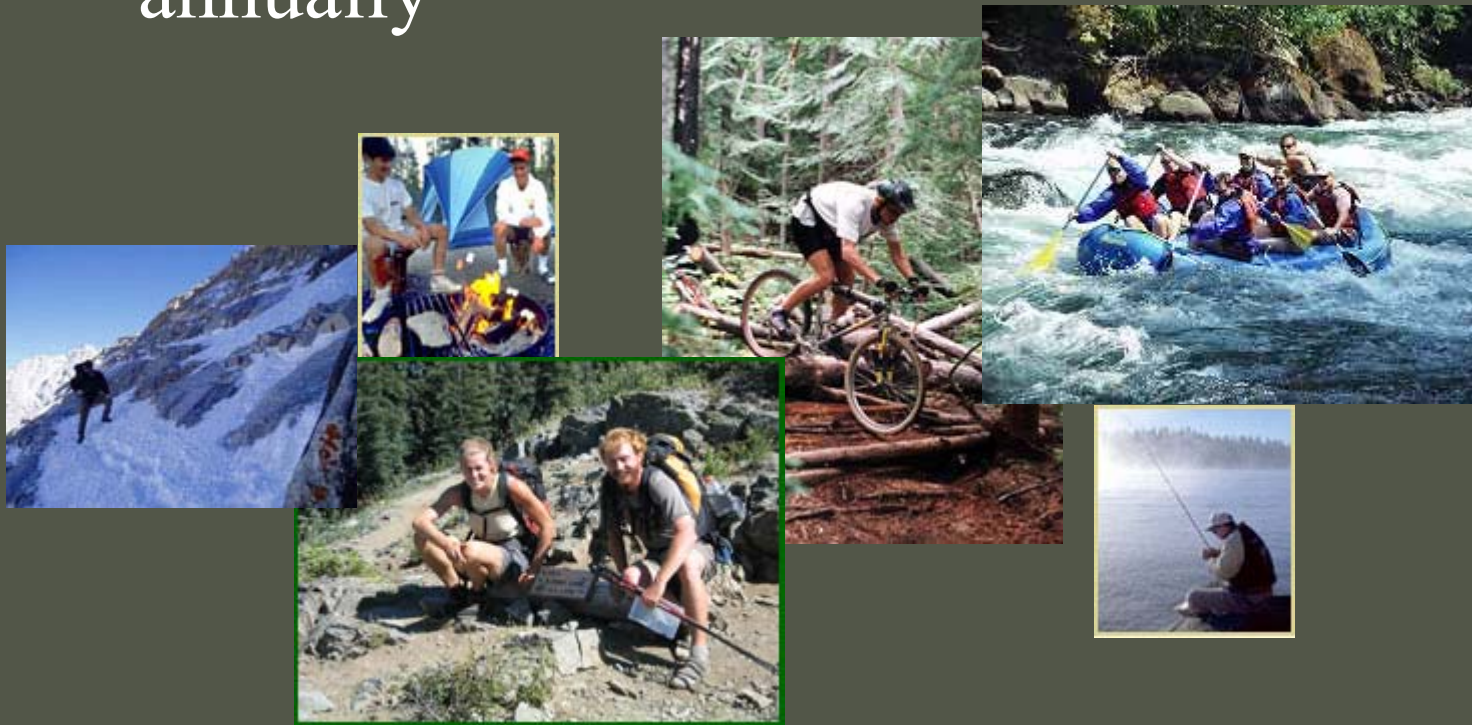
USDA-Forest Service ...

Manages 193 million acres in 44 states, Puerto Rico, & Virgin Islands.



USDA-Forest Service ...

Hosting 178 million recreation visitors annually



USDA-Forest Service ...

Sustainably managing forests...



USDA-Forest Service ...

Managing critical headwaters for the Missouri,
Colorado, Columbia, Arkansas, Rio Grande
and many other rivers



USDA-Forest Service ...

Fighting wildfires...



USDA-Forest Service ...

Managing surface access to energy minerals...



USDA-Forest Service ...

Providing forage for livestock...



USDA-Forest Service ...

Providing a vast array of special uses...

Telescopes.... broadcast towers... church
camps... utility rights-of-way... filming...
special events... research centers..



USDA-Forest Service ...

And solitude for those who seek it.



USDA-Forest Service ...

- ◉ To fulfill legal regulations under NEPA, it prepares over a thousand environmental impact and assessment documents each year...

Affecting hundreds of communities ranging from rural crossroads to major metropolitan areas

The Problem

- Many communities are tied economically to Forest Service lands... most in rural areas



- The economic impacts of Forest Service decisions are often a concern of local leaders.

The Problem

- ◎ Agency economists must identify areas of economic integrity in these rural settings
- ◎ Areas provided by BEA and others are often too large to be useful or relevant.
- ◎ Agency needs well-defined protocols to meet its analysis obligations.

Concepts of Area Definition

- ◎ Three Fundamental Notions --
 - Functional Economic Areas (FEA)
 - Central Place Theory (CPT)
 - Agglomeration (clusters)

Origins

- Fox & Berry in early 1960s
- Based on rural Iowa settlement & commuting patterns in 1950s
- Labor flows to population nodes
- People-based “self sufficiency”



◉ Extensions

- At request of Census Bureau, Fox & Berry expanded concept to urban areas across US in 1964
- Template for all future economic area delineations by BEA.
- Widely adopted by economists internationally
- FEA has become a *de facto* label for all areas

● Origins

- Christaller in 1930's & Lösch in 1940's
- Settlement patterns of German cities
- Hierarchical system of places based on:
 - their provision of goods & services (functions)
 - demand for the same by populations & businesses
- A full trade flow model



◎ Extensions

- Recognized internationally as the most foundational theory for settlements & trade
- Adopted by geographers & planners
- Used extensively in marketing, demographics
- Centrality, not nodality.
- FEA label used often when CPT is the basis

Areas & Issues

- Accurate issue identification is key for any analysis

- Economic issues facing the Forest Service are primarily labor and income based



- Occasionally economic issues will be supply-chain based



- Different issues lead to different areas.

Labor Market Areas

◉ OMB – Core Based Statistical Areas

- “self-contained” – central & outlying counties
- Population \geq 2.5 million (node)
- Commuting is the defining relationship
- 65% of employed residents remain in area
- A county is included if
 - 25% of employed residents work within area or
 - 25% of jobs in the county are filled by workers from area

Labor Market Areas

◎ BEA & BLS follow OMB lead

- “independent labor markets”
- Commuting is the defining element
- 25% criteria adopted
- Thus, areas are urban labor markets
- BLS added “small LMAs”
- Intended for collection & use of labor force data

Labor Market Areas

◎ ERS – Rural Commuting Areas & RUCAs

- Tolbert & Killian
 - County-based
 - Cluster analysis
 - To identify “local labor markets operating beyond the boundaries of cities”
- Morrill, Cromartie, & Hart
 - Census tract-based

Labor Market Areas

◉ States

- Surveyed 5 Rocky Mountain states for uniformity or consistency
- None found



Labor Market Areas

◎ Conclusions

- Solid concepts & methods
- One size doesn't fit all
 - Driving issues defining “standard” areas do not match issues driving FS areas.
- Desired a flexible tool with solid credentials

Labor Market Areas

◎ Conclusions

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◎ New Mexico suggested LED OnTheMap!

⦿ Advantages

- Current
- County-based
- Cartographic
- Comprehensive (almost)

⦿ Disadvantages

- Missing self-employed, govt, ag workers

◎ Application criteria

- Define “strongly self-contained” areas as 60% of total workers – not 65%
 - Strong labor connections in rural areas, not urban areas
 - Self-employed & ag workers have shorter commutes
 - Govt employee commutes similar to private sector
- Connected counties meet with 25% criterion
- Exclude metro area counties – masks rural focus

Commodity Market Areas

- ◉ No Federal precedent or guidelines established
- ◉ BEA defaults to labor market basis
 - Proxy claimed – the “relevant regional markets for labor, products, and information”
- ◉ However, flow of goods & services cannot be expected to match labor flows

Commodity Trade Flows

◎ Two known sources of data:

1. Firm- or industry-specific information

- Proprietary – disclosure issues
- Availability – uncertain
- Costly – primary data collection
- Highly accurate!

Commodity Trade Flows

2. IMPLAN® trade flow data

- No disclosure issues
- Readily available
- Modest cost
- An estimate based on county-specific supply/demand and transportation costs

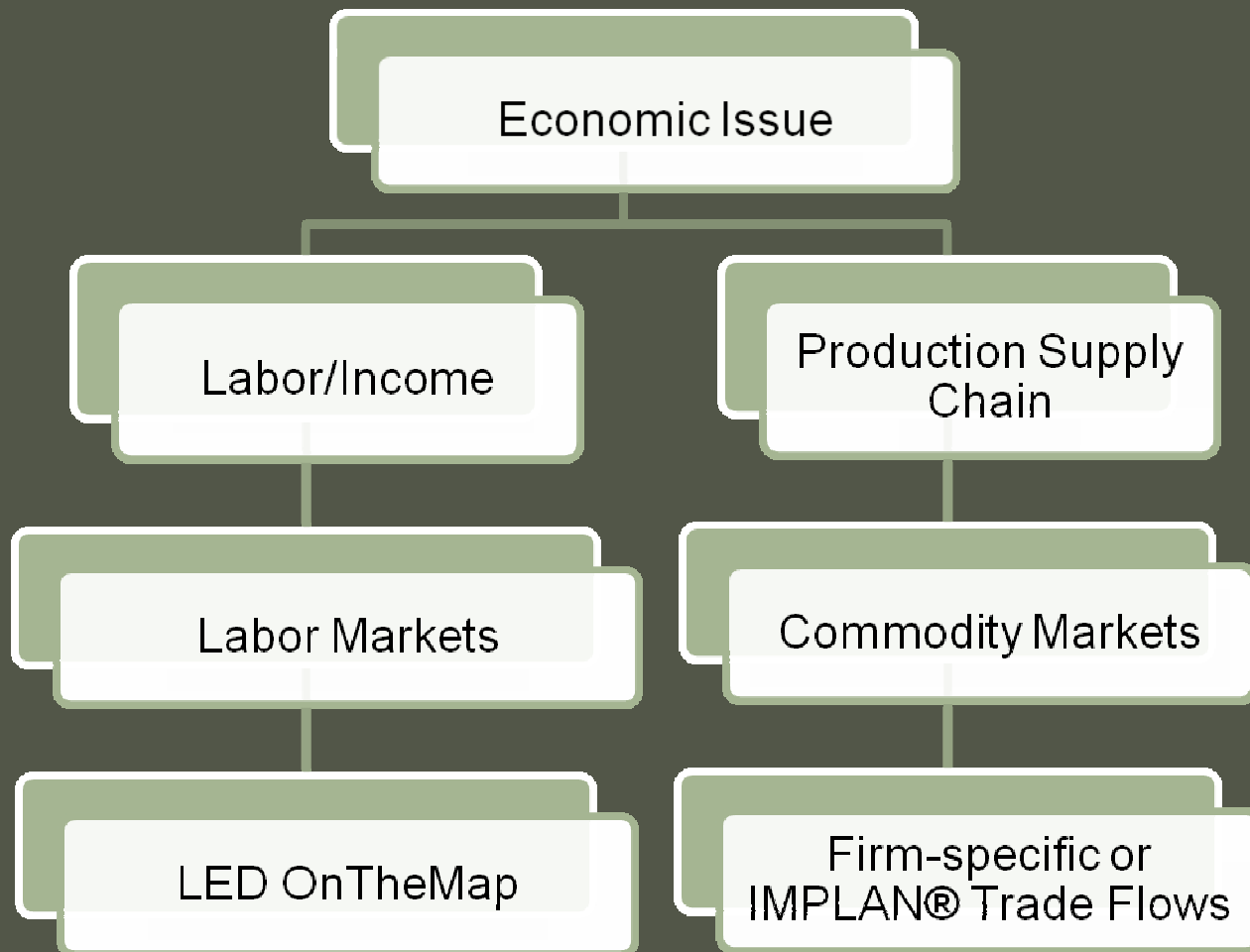


Commodity Trade Flows

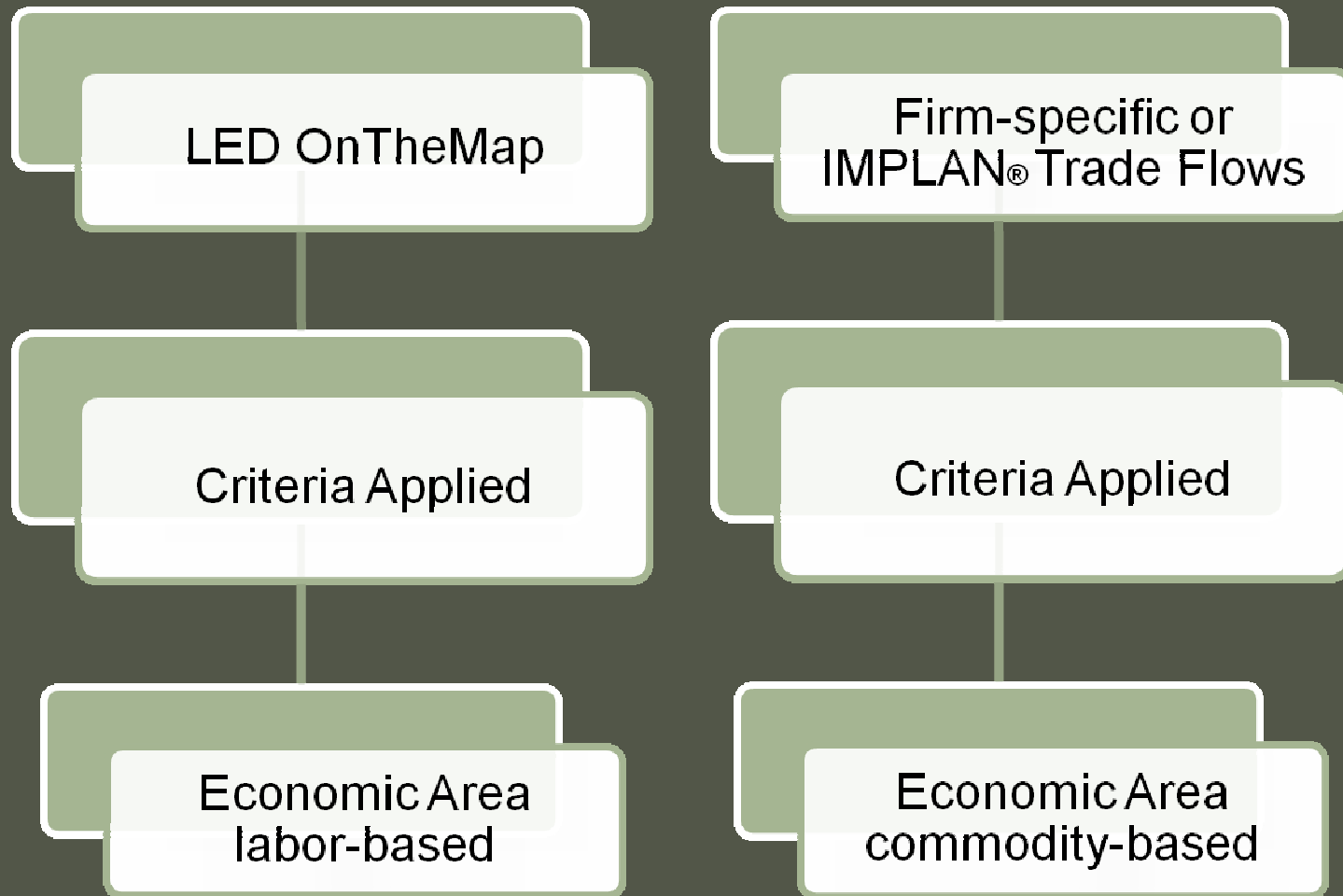
◉ Criteria for application:

- Acquire firm-specific data, if possible
- If not, use IMPLAN® trade flow data
 - Identify a central county – likely place of transactions
 - Limit focus on most crucial inputs to production
 - Focus on contiguous counties

Issues to Tools



Tools to Economic Areas



Examples - Disclaimer

- ◎ The following examples are purely hypothetical. The firms & communities mentioned have not proposed or suggested the actions or issues.
- ◎ However, these examples represent common situations faced by Forest Service managers & analysts.

LED Example

◎ Sugarbush Ski Area, VT

Sugarbush is proposing changes to the area under permit that are expected to increase skier visits. Additional workers will be needed to support the increase. What analysis area should be used to assess the economic impact on surrounding communities?



Photo: Sugarbush Ski Area

Sugarbush Ski Area Example

Proposed action is in Washington County.



Sugarbush Ski Area Example

WASHINGTON COUNTY, VT		
	Count	Share
Jobs Total	34,165	100.0%
<u>Job counts in Counties Where Workers Live</u>		
	Count	Share
Washington Co.,	19,822	58.0%
Chittenden Co.,	3,683	10.8%
Orange Co.,	3,271	9.6%
Caledonia Co.,	1,201	3.5%
Lamoille Co.,	1,007	2.9%
Rutland Co.,	939	2.7%
Windsor Co.,	703	2.1%
Franklin Co.,	672	2.0%
All Other Locations	2,867	8.4%

Less than 60%,
✓ add other counties

↖ Less than 25%,
check origin county

Sugarbush Ski Area Example

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All Other Locations	2,867	8.4%

CHITTENDEN COUNTY, VT		
	Count	Share
Jobs Total	83,947	100.0%
<u>Job counts in Counties Where Workers are Employed</u>		
	Count	Share
Chittenden Co.,	70,612	84.1%
Washington Co.,	3,683	4.4%
Franklin Co.,	1,731	2.1%
Windsor Co.,	1,694	2.0%
Addison Co.,	1,547	1.8%
Rutland Co.,	1,397	1.7%
Lamoille Co.,	1,038	1.2%
All Other Locations	2,245	2.6%

No, share is < 25%

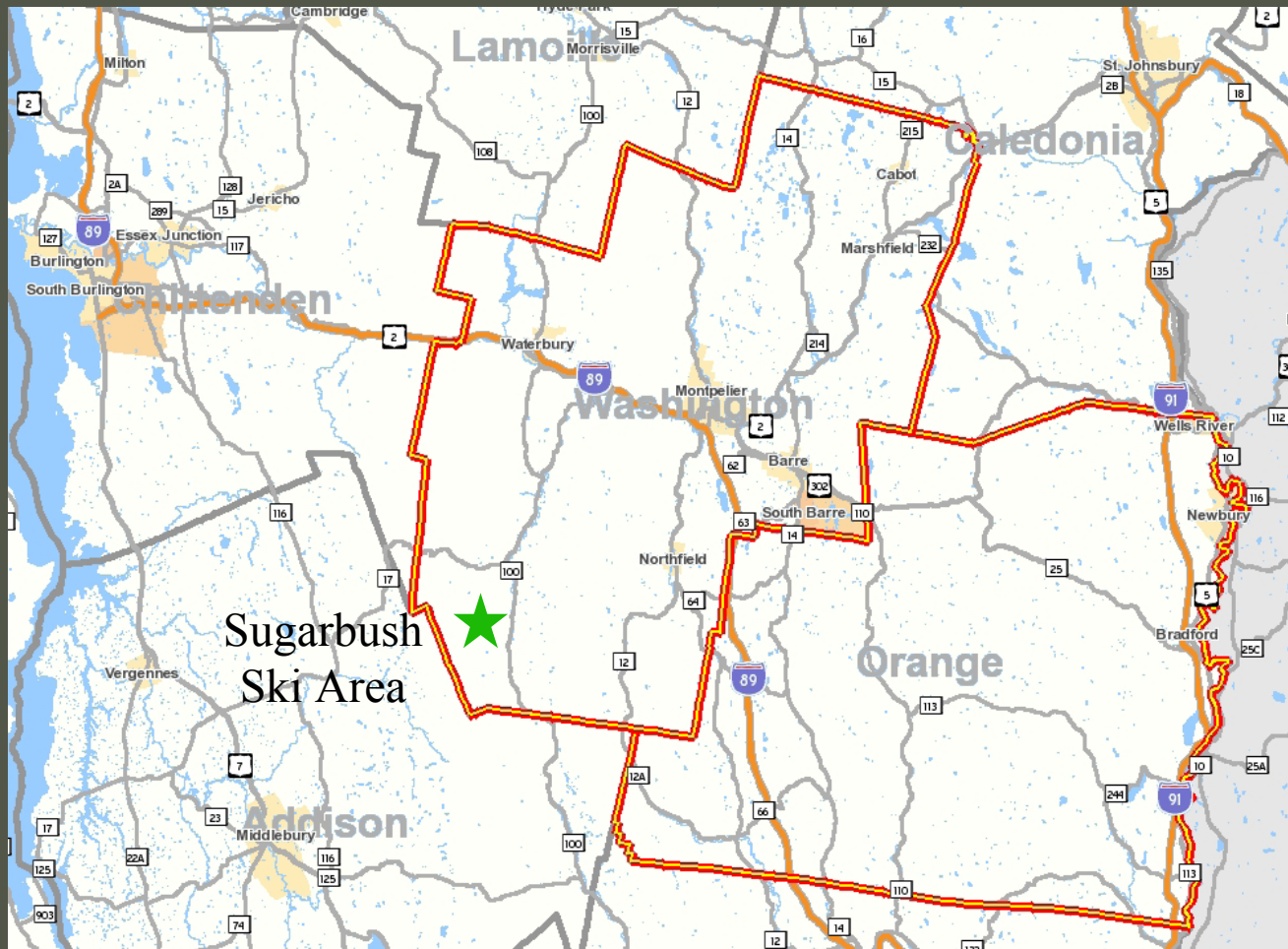
Sugarbush Ski Area Example

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Rutland Co.,	939	2.7%
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Franklin Co.,	672	2.0%
All Other Locations	2,867	8.4%

Yes, share is $\geq 25\%$

ORANGE COUNTY, VT		
	Count	Share
Jobs Total	10,184	100.0%
<u>Job counts in Counties Where Workers are Employed</u>		
	Count	Share
Orange Co.,	4,484	44.0%
Washington Co.,	3,271	32.1%
Windsor Co.,	1,867	18.3%
Rutland Co.,	244	2.4%
Windham Co.,	103	1.0%
All Other Locations	215	2.0%

Sugarbush Ski Area Example



Final Economic Analysis Area

METI Corp/EIC LLC

Trade Flow Example

● Shoshone County, ID

The Lucky Friday silver mine near Mullan, ID has submitted a special use permit request to use NFS land for auxiliary operations. Northern Idaho economic development interests support the proposal to enhance business opportunities for conveyor and construction equipment.

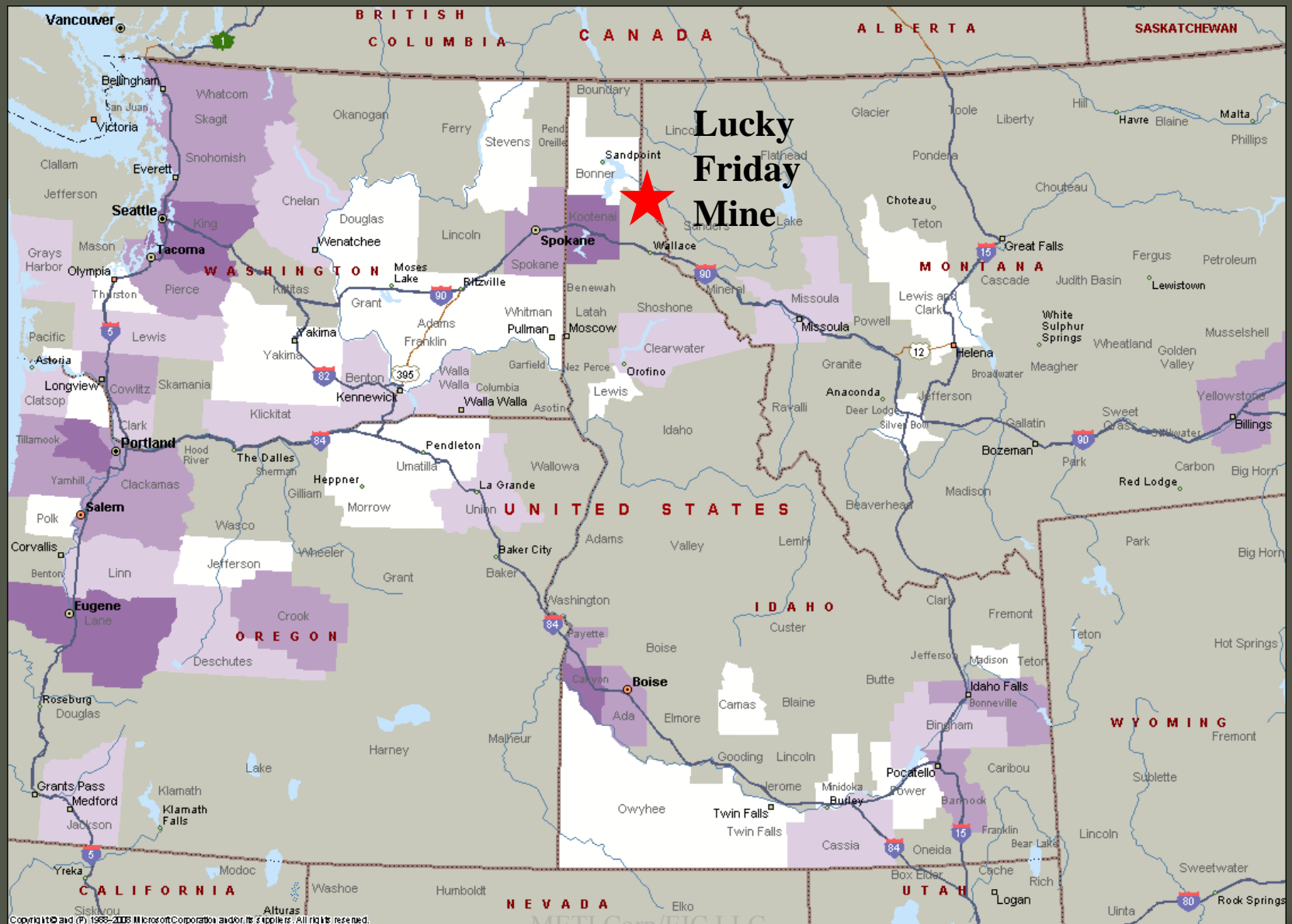
What is the appropriate area for analyzing the potential economic impacts of this supply chain issue?



Lucky Friday Mine Example

- ◎ The report builder is run on the Idaho trade flow file to locate probable sources of conveyor and construction equipment.
- ◎ The results are mapped....

Lucky Friday Mine Example



Lucky Friday Mine Example

- ⦿ There are 5 highly likely counties in ID, WA, & OR.
- ⦿ The issue concerns economic development in northern Idaho.
- ⦿ Kootenai County is the only likely source in northern Idaho.
- ⦿ Thus, limit the economic analysis to Shoshone and Kootenai Counties.

Lucky Friday Mine Example



Final Economic Analysis Area

METI Corp/EIC LLC

Summary

- ◎ Issues that drive the design of economic impact analyses should also drive the delineation of analysis areas.
- ◎ The “functional economic area” concept and “central place theory” concept are based on distinctly different trade relationships.

Summary

- ◎ “Standardized” economic areas are based primarily on the FEA concept - labor flows in an urban context.
- ◎ “Standardized” economic areas are not a good fit for economic impact analyses:
 - in rural areas
 - for commodity-based issues.

Summary

◎ Recommendations:

- LED OnTheMap for delineation of labor-based economic areas.
- IMPLAN® Trade Flow data with USDA-Forest Service report builder for delineation of commodity-based economic areas.
- Criteria provided for the application of both.

Where to Find...

- ◎ Final Report, Technical Guide, & Report Builder

ftp://ftp2.fs.fed.us/incoming/wo/economic_analysis_archive/

- ◎ IMPLAN® Trade Flow Data

www.implan.com

Thank You

Questions?