



National Agriculture Imagery Program (NAIP)

2003 Mid-year Conference
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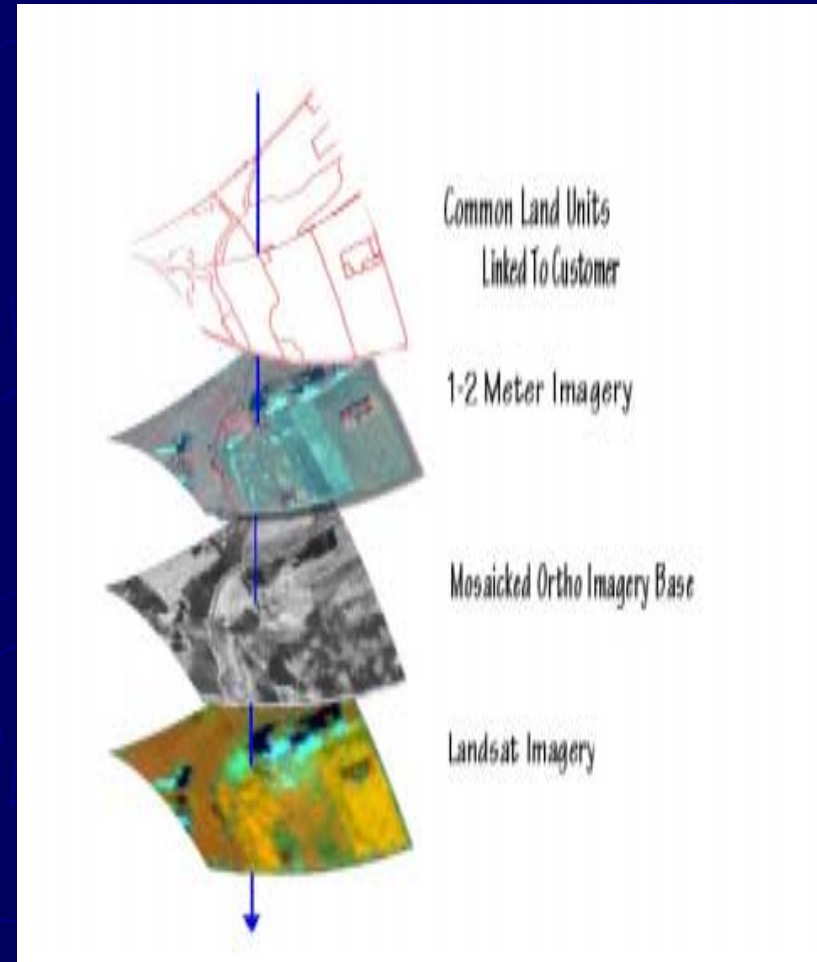
USDA Service Centers:

- ▶ Responsible for administering over 40 programs in farm commodity, credit, conservation, and emergency assistance.
- ▶ Transitioning from analog to digital imagery (GIS) in order to administer programs more effectively.
- ▶ Seeking imagery cost sharing partnerships under cooperative agreements.



Farm Service Agency's GIS Initiative

- ▶ Replace paper photomaps with digital orthophotos and GIS vector (line) data
- ▶ Replace pencils and pens with PCs and GIS software
- ▶ Replace wheel and chains with GPS units
- ▶ Replace 35mm compliance slides with NAIP digital imagery



National Agriculture Imagery Program (NAIP)

Previous Pilot Projects:

- ▶ Scanned 35mm Slides
- ▶ Direct Digital 35mm Cameras
- ▶ Satellite Imagery
- ▶ Aerial Mapping Cameras

Image Format Comparison



Small Format

- 35mm Camera
- 3 sq. miles@8,000 feet

- Digital Camera
- 3 sq. miles@10,000 feet

Large Format

- Mapping Camera
- 9"x 9" film
- 25 sq. miles@20,000 ft.

Program Purpose and End Products

- ▶ FSA Compliance Program:
 - Two Meter Ortho-rectified Digital Imagery
- ▶ GIS Orthoimagery Base Update:
 - One Meter Ortho-rectified Digital Imagery
 - Also used for FSA Compliance Program
- ▶ Aerial Photography Film Archive:
 - Digital and Photographic products made from 1:40,000 scale, Color Positive Film at APFO

NAIP Program Goals

- ▶ Procurement plan based on “Best-Value” contracting practices
- ▶ Acquire large format aerial photography, 1:40,000 scale, color positive film
- ▶ Acquire during the peak agricultural growing season (leaf-on)
- ▶ Deliver digital imagery (one & two meter), in a county format, within one month of acquisition for FSA Compliance Program

NAIP Program Goals

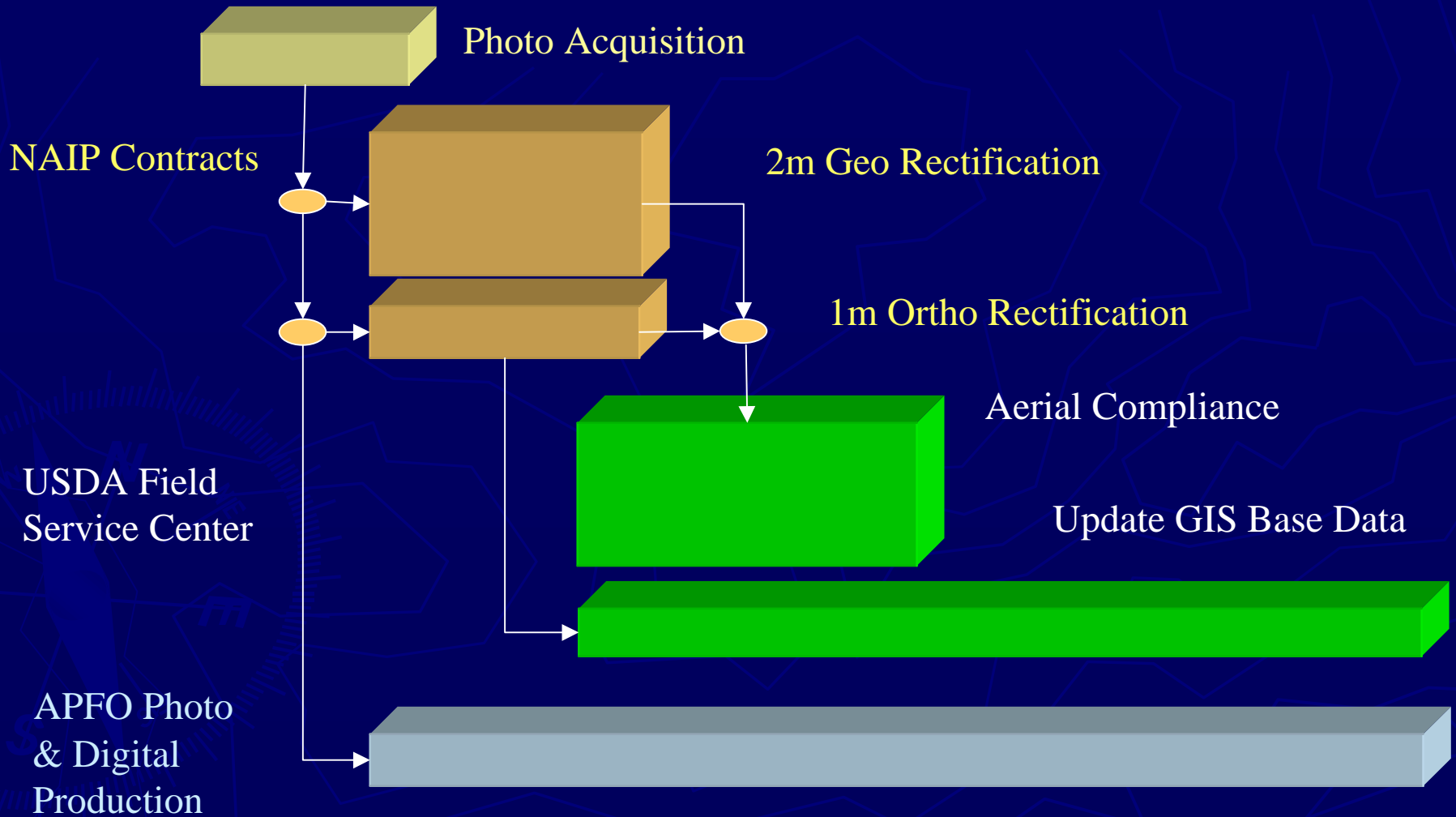
- ▶ Provide new photography/digital imagery on an annual basis
- ▶ Update ortho-image base on 1-5 year cycle (depending on USDA Service Center needs)
- ▶ Aerial film archived at APFO and made available for photographic products
- ▶ Digital imagery furnished to the "National Map" concept in place of or to augment the NAPP/NDOP

NAIP Vision Statement

The **National Agricultural Imagery Program (NAIP)** consolidates USDA's aerial photography, digital imagery, and digital orthoimagery requirements into a national strategy that **acquires the best value products** for USDA agencies while being flexible enough to create win-win partnerships with Federal agencies, State and local governments, and private entities. NAIP will maximize the informational value of acquisitions by **minimizing the cycle time** from acquisition to fielding while keeping the image content information for the creation of traditional photographic and orthoimagery.

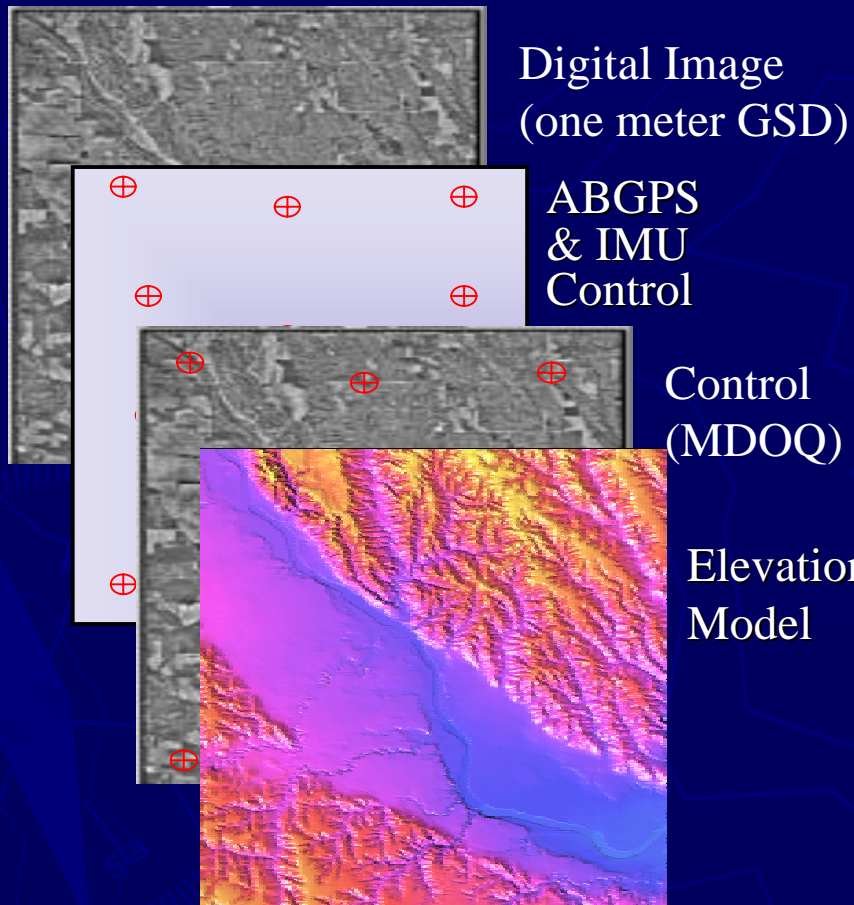
Annual NAIP Acquisition/Use Cycle

June | July | Aug | Sept | Oct | Nov | Dec | Jan | Feb | Mar | April | May



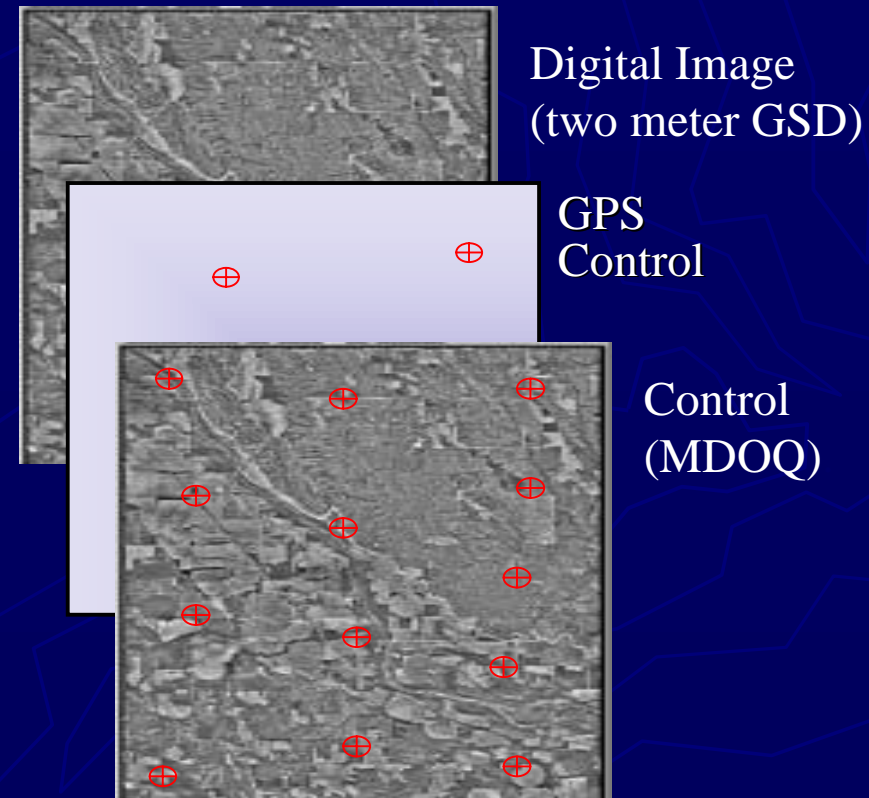
2002 NAIP Products and Cost

1m Ortho-Rectified



\$18.99 / Square Mile

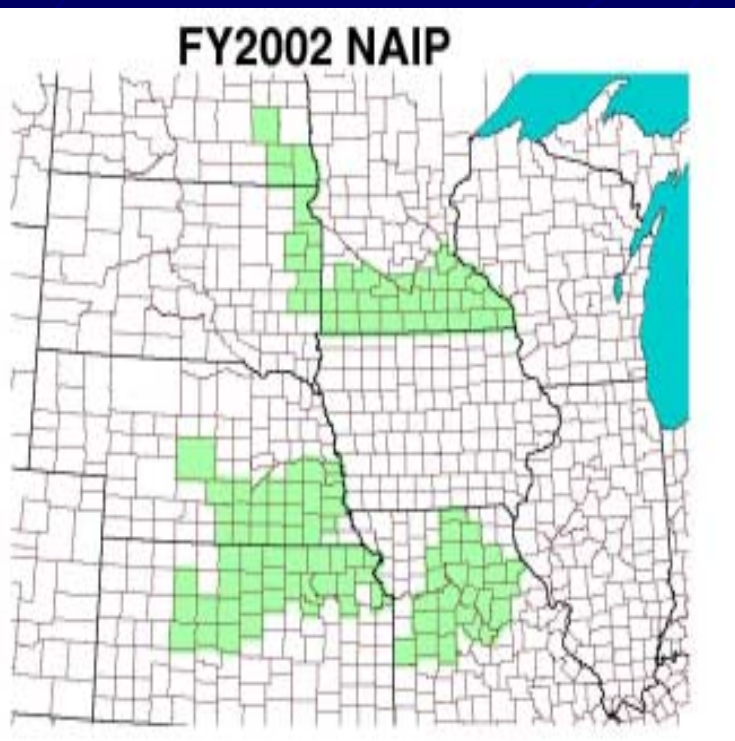
2m Geo-Rectified



\$6.94 / Square Mile

2002 FSA NAIP Contracts

Aerial Imagery Contracts

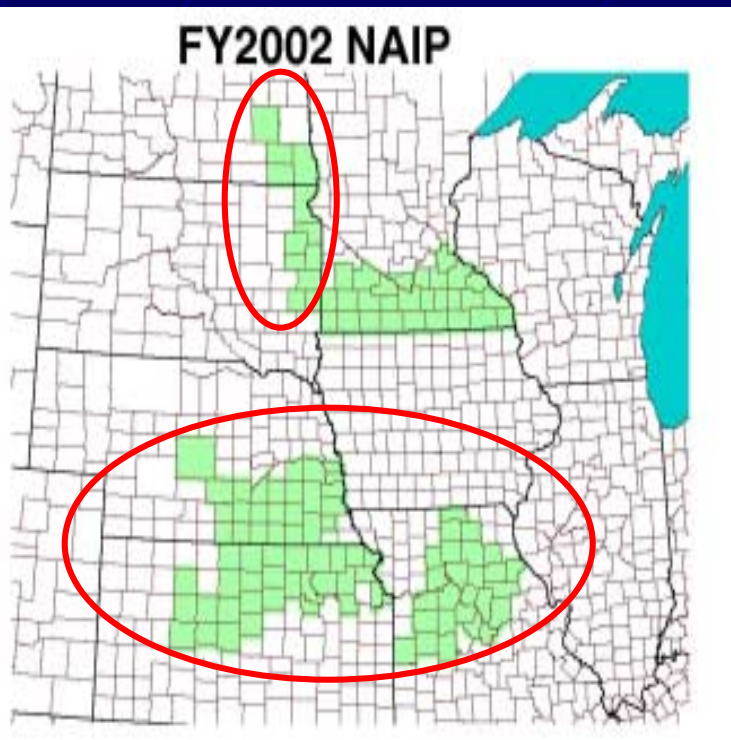


Contracts Summary

- ▶ Six States Contracted: KS, NE, ND, SD, MO, and MN
- ▶ 121 Counties Covered
- ▶ 82,727 Square Miles
- ▶ 28,932 Linear Miles of NAPP-Like Aerial Photography (Film archived at APFO)
- ▶ Summer 2002 Flying Season

FSA Compliance Imagery

2 Meter Geo-rectified Imagery

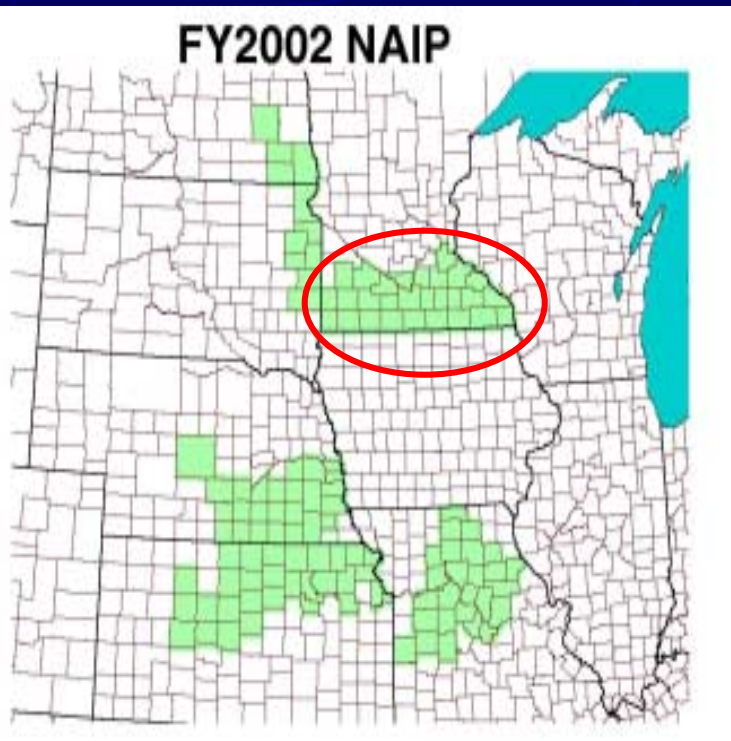


Kansas, Nebraska, North & South Dakota, and Missouri

- ▶ Project Cost: \$6.94 per square mile
\$453,000.00 total
- ▶ 65,266 Square Miles
- ▶ 93 Counties Covered
- ▶ Geo-Rectified Color Digital Imagery
- ▶ 2.0 Meter pixel Resolution
- ▶ Geo-Tiff Image Format

FSA Ortho Imagery Updates

1 Meter Ortho Updates and Compliance Imagery



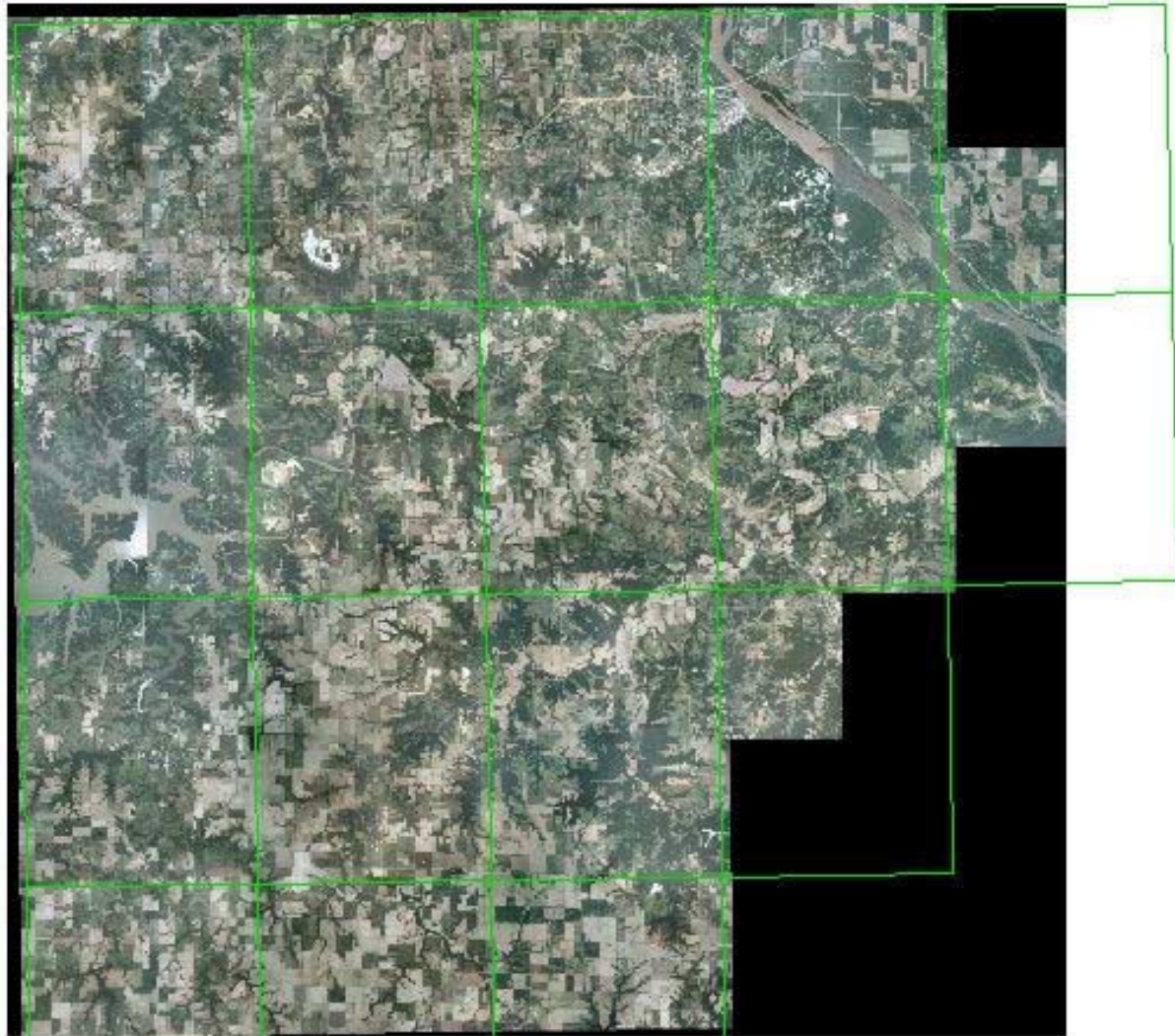
MINNESOTA

- ▶ Project Cost: \$18.99 per square mile, \$331,548.70 total
- ▶ 17,461 Square Miles
- ▶ 28 Counties Covered
- ▶ Ortho-Rectified Color Digital Imagery
- ▶ 1.0 Meter pixel Resolution
- ▶ Geo-Tiff Image Format

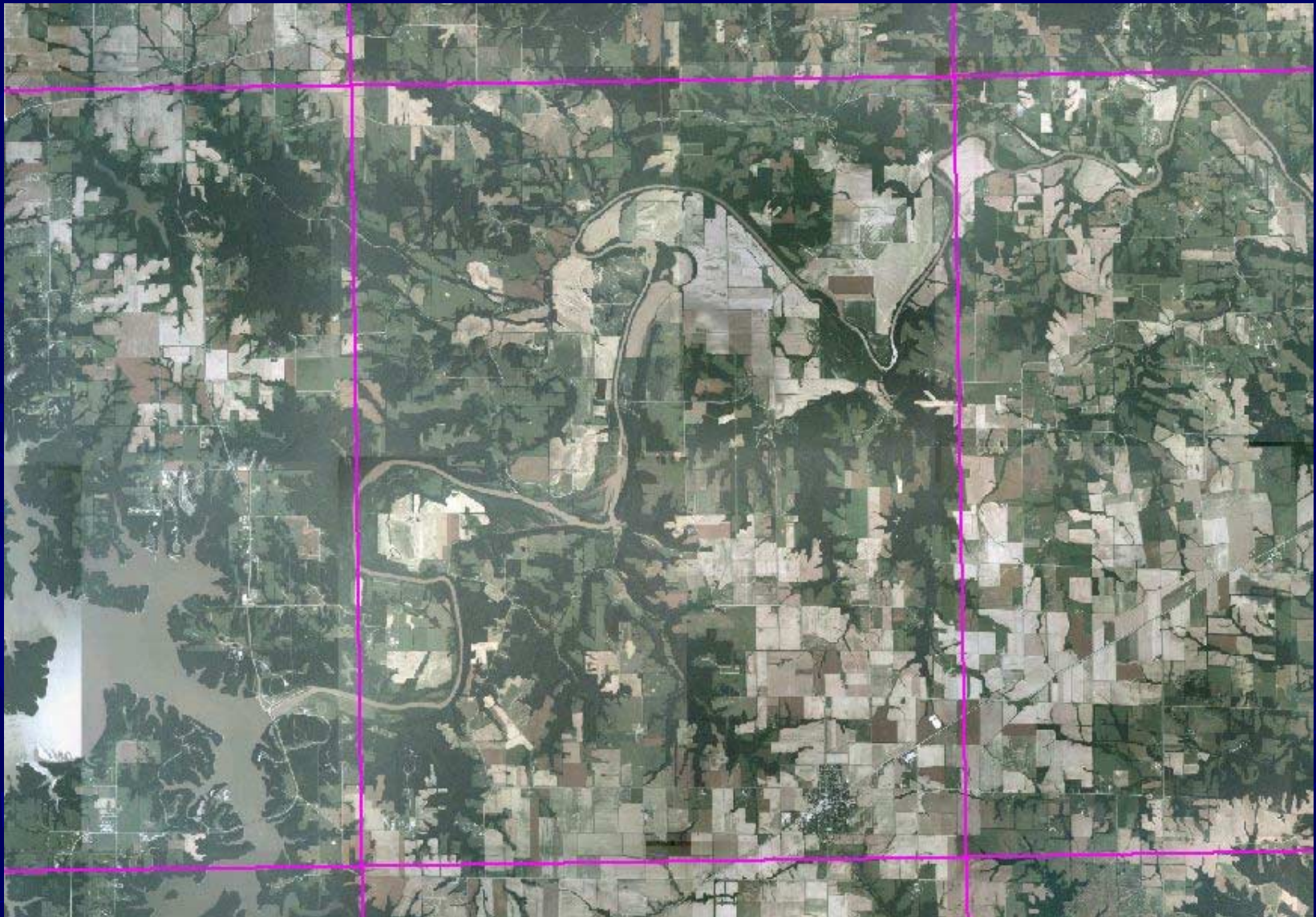
Ralls County, Missouri 2 Meter Geo-Referenced Image



7.5 Minute Quad Boundaries




7.5 Minute Quad Boundaries



Common Land Unit (CLU) Boundaries



2003 Estimated Costs and Products



Digital Image

ABGPS & IMU

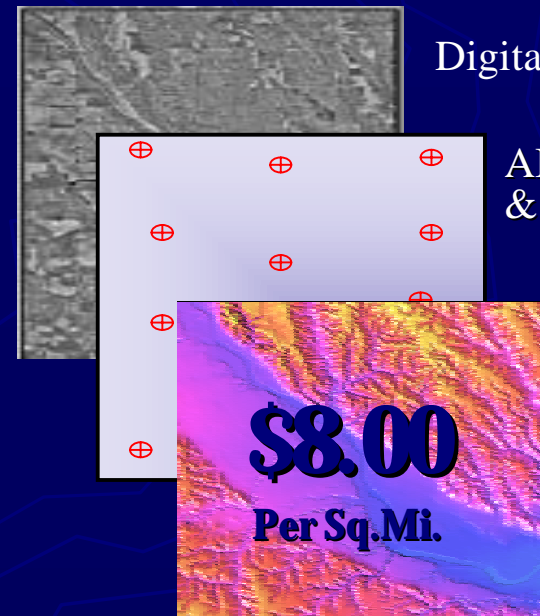
Control DOQ

Elevation Model

\$20.00
Per Sq.Mi.

This block illustrates the components of a 1m Ortho Rectified product. It consists of a stack of four layers: a top Digital Image, a layer with ABGPS & IMU ground control points, a Control DOQ (Digital Ortho Quarter Frame) image, and an Elevation Model. The cost for this product is \$20.00 per square mile.

1m Ortho Rectified



Digital Image

ABGPS & IMU

Elevation Model

\$8.00
Per Sq.Mi.

This block illustrates the components of a 2m Ortho Rectified product. It consists of a stack of three layers: a top Digital Image, a layer with ABGPS & IMU ground control points, and an Elevation Model. The cost for this product is \$8.00 per square mile.

2m Ortho Rectified

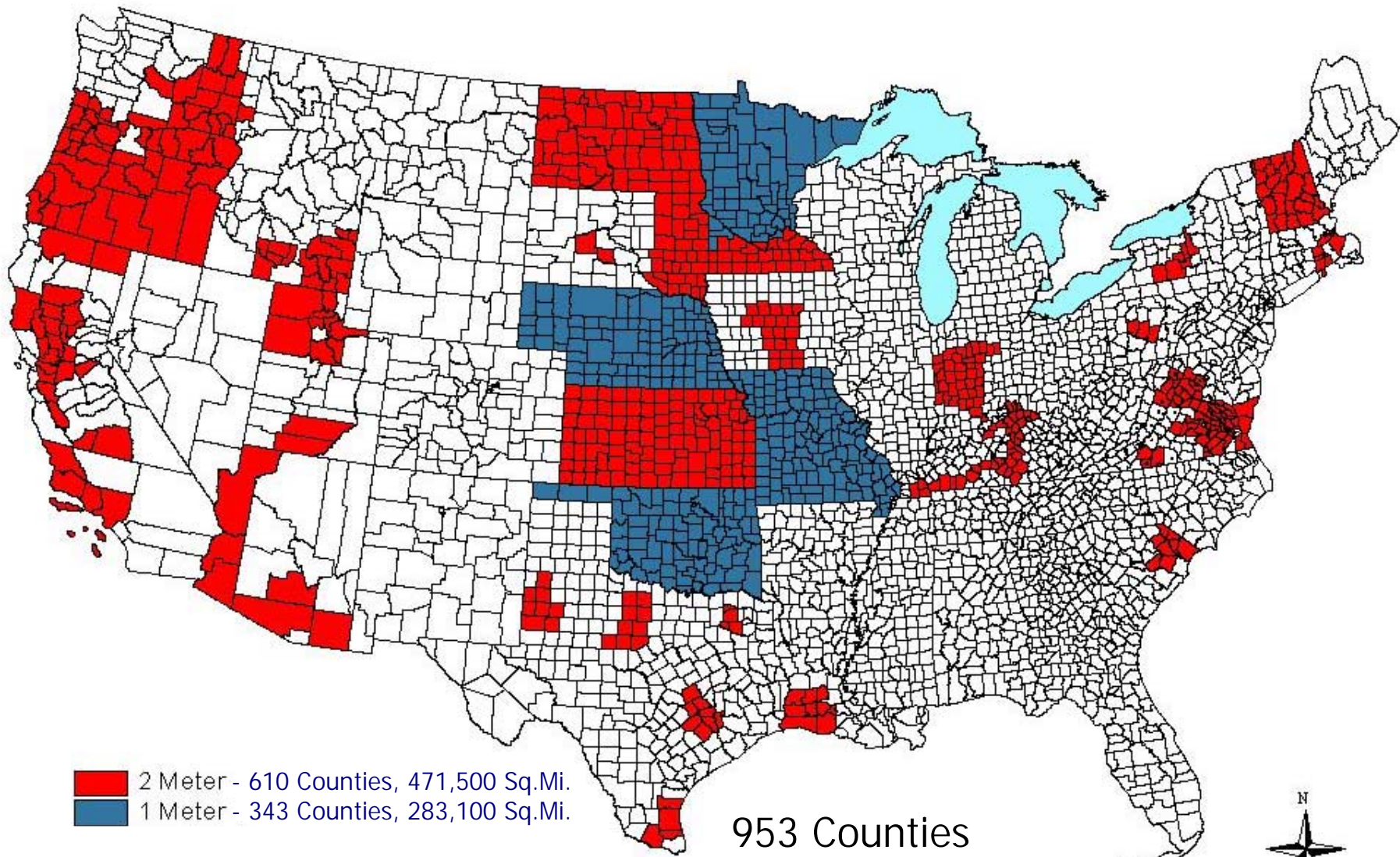
2003 Alternative Imagery Source



Large Format Digital Camera
with Inertial Measurement Unit
and GPS integration



PROPOSED NAIP 03 COVERAGE



2 Meter - 610 Counties, 471,500 Sq.Mi.
1 Meter - 343 Counties, 283,100 Sq.Mi.

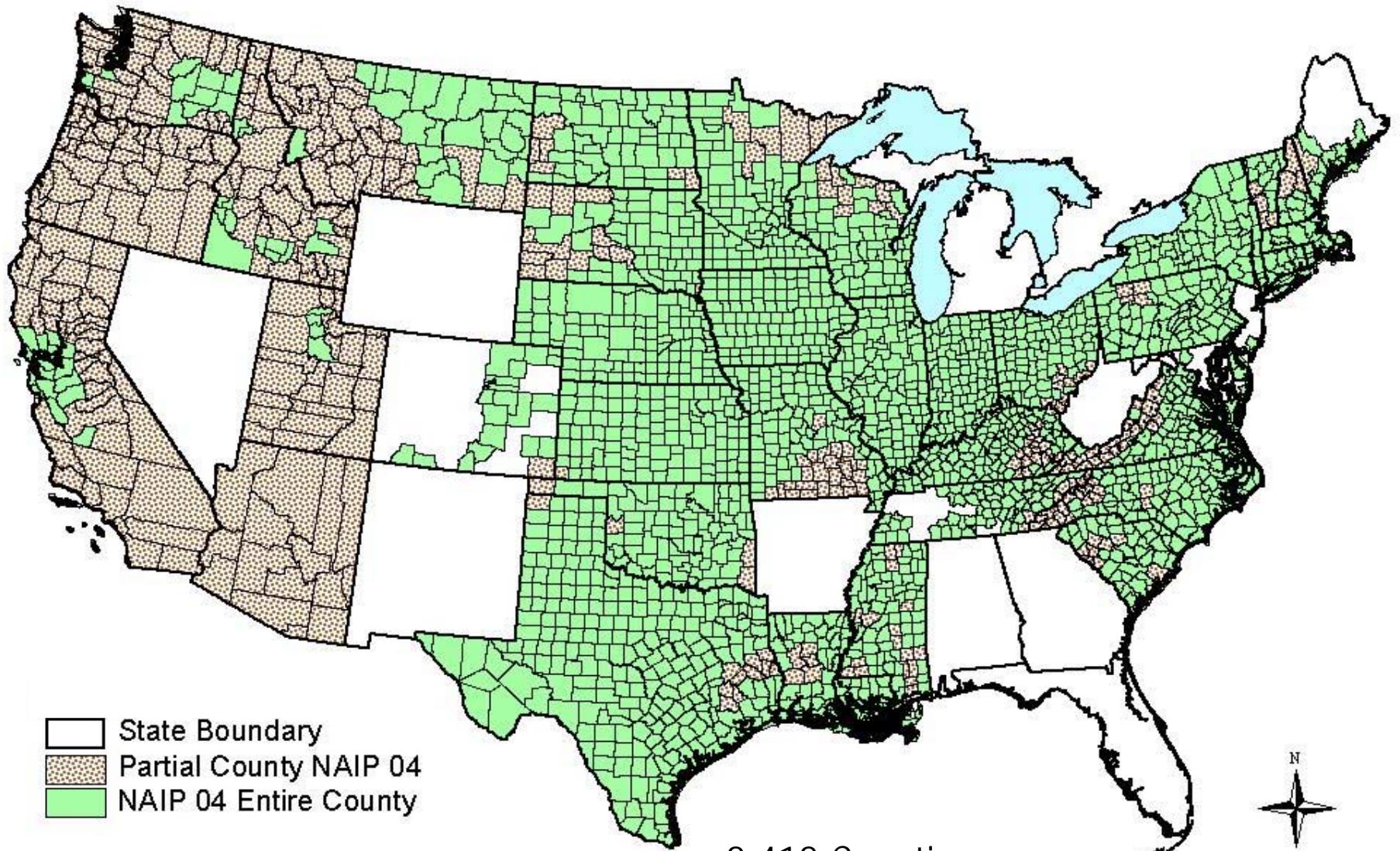
953 Counties
754,600 Square Miles^o



2003 NAIP Partners

▶ Minnesota:	State Agencies	\$250,000
	NRCS	\$300,000
▶ Missouri:	State Agencies	\$220,000
	Forest Service	\$30,000
	NRCS	\$300,000
▶ Oklahoma:	NRCS	<u>\$600,000</u>
Total 2003 Cost Shares:		\$1,700,000

PROPOSED NAIP 2004



- State Boundary
- Partial County NAIP 04
- NAIP 04 Entire County

2,412 Counties
1,870,000 Square Miles

Types of Partnership Opportunities

State or County Cost Share with FSA for:

- ▶ New Coverage Beyond FSA Counties
- ▶ New Coverage Beyond Agricultural Areas of a County
- ▶ Higher Image Resolution Upgrade



USDA Aerial Photography Field Office

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Contacts for Partnership Information:

Cindy Sessions (801) 975-3500 Ext. 208

Wynn Zundel (801) 975-3500 Ext. 222



APFO is the primary source of aerial imagery for USDA Agencies. Over 10 million images, from 1955 through the present, are libraried here.