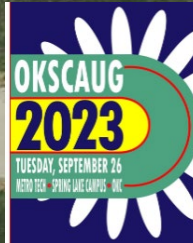


Advantages to High Resolution Aerial Imagery

Presentation by: Tim Bohn CP, PMP

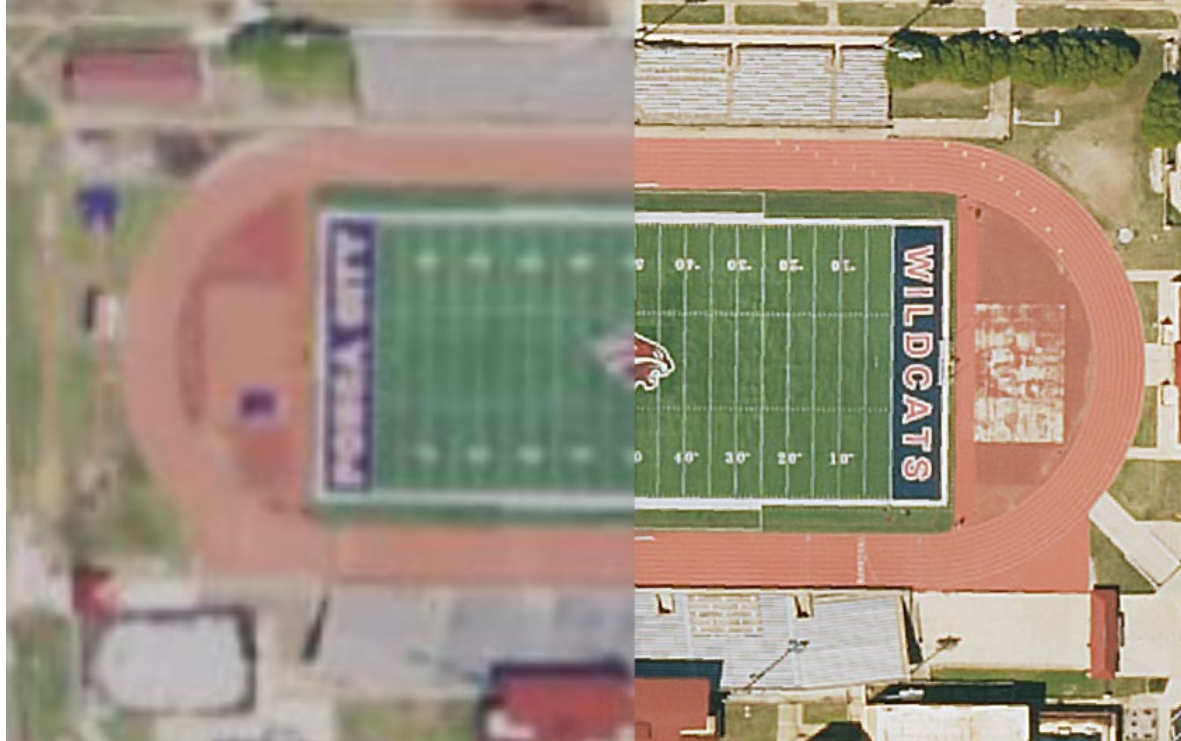


Agenda

- Leverage existing sources – correctly
- NAIP 2023 update – free 1' data coming!!
- Image Quality
- Buy-ups
- Other Content



Are you leveraging the best data?



Are you leveraging the best data?



National Agriculture Imagery Program (NAIP)

- The largest Civilian mapping program in the history of the US
- CCM Download and Streaming Options Available at no cost
- Uncompressed TIF can be ordered.
- Most states 1' in 2023
- Geohub Access
- Buy-ups available



ArcGIS REST Services Directory

[Home](#) > [services](#) > [NAIP](#) > [USDA_CONUS_PRIME \(ImageServer\)](#)

[JSON](#) | [SOAP](#) | [WMS](#) | [WMTS](#)

NAIP/USDA_CONUS_PRIME (ImageServer)

View In: [ArcGIS JavaScript](#) [ArcGIS Online Map Viewer](#) [ArcGIS Earth](#) [ArcMap](#)

View Footprint In: [ArcGIS Online Map Viewer](#)

Service Description: NAIP/USDA_CONUS_PRIME

Name: NAIP/USDA_CONUS_PRIME

Description: NAIP/USDA_CONUS_PRIME

Single Fused Map Cache: true

Tile Info:

- Height: 256
- Width: 256
- DPI: 96
- Levels of Detail: 18
 - Level ID: 0 [[Start Tile](#), [End Tile](#)]
 - Resolution: 156543.03392800014
 - Scale: 5.91657527591555E8
 - Level ID: 1 [[Start Tile](#), [End Tile](#)]
 - Resolution: 78271.51696399994
 - Scale: 2.95828763795777E8
 - Level ID: 2 [[Start Tile](#), [End Tile](#)]



NAIP GeoHub

[NAIP Image Services](#)

[NAIP Image Services Metadata](#)



SCAN ME

FREE Has Its Limits

<https://cloud.google.com/maps-platform/terms#3.-license>



3.2.3 Restrictions Against Misusing the Services.

(a) *No Scraping.* Customer will not export, extract, or otherwise scrape Google Maps

Content for use outside the Services. For example, Customer will not: (i) pre-fetch,

index, store, reshare, or rehost Google Maps Content outside the Services; (ii) download Google Maps tiles, Street View images, geocodes, data, or matrix results, roads information, places information, elevation information, or details; (iii) copy and save business names, addresses, or user information; or (iv) use Google Maps Content with text-to-speech services.

3.2.1 *General Restrictions.* Customer will not: (a) copy, modify, create a derivative work

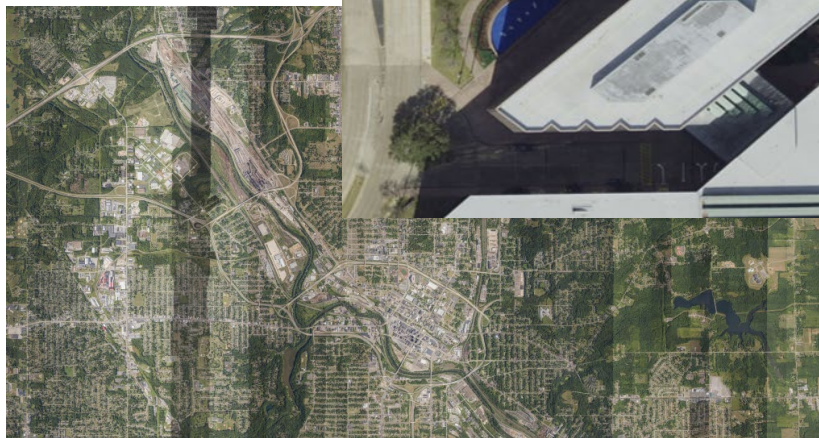
of, reverse engineer, decompile, translate, disassemble, or otherwise attempt to extract any or all of the source code (except to the extent such restriction is expressly prohibited by applicable law); (b) sublicense, transfer, or distribute any of

(b) *No Caching.* Customer will not cache Google Maps Content except as expressly permitted under the Maps Service Specific Terms.

(c) *No Creating Content From Google Maps Content.* Customer will not create content based on Google Maps Content. For example, Customer will not: (i) trace or digitize roadways, building outlines, utility posts, or electrical lines from the Maps JavaScript API Satellite base map type; (ii) create 3D building models from 45° Imagery from Maps JavaScript API; (iii) build terrain models based on elevation values from the Elevation API; (iv) use latitude/longitude values from the Places API as an input for point-in-polygon analysis; (v) construct an index of tree locations within a city from Street View imagery; or (vi) convert text-based driving times into synthesized speech

transfer, or distribute the Services; or (d) engage in any of the foregoing Risk Activities; (ii) in a manner intended to circumvent any restrictions on activities that are subject to the International Traffic in Arms Regulations promulgated by the United States Department of Defense; (iii) causes the breach of, Export Control Laws; or (iv) disseminate information subject to United States HIPAA

Not all Orthoimagery is created equal



How does your imagery stack up?



Resolution Comparison

12"

6"

3"

Positional Accuracy

- Are you validating your data?

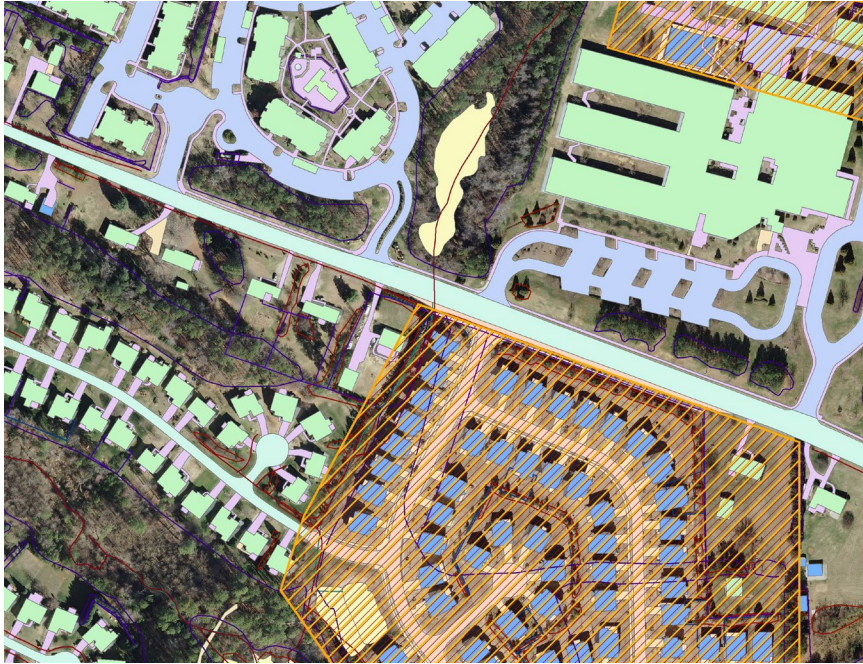
Number of check points	28	28
Mean Error (US S ft)	0.01	-0.06
Standard Deviation (US S ft)	0.36	0.29
Minimum Error (US S ft)	-0.78	-0.57
Maximum Error (US S ft)	0.86	0.41
RMSE (US S ft)	0.35	0.29
RMSEr (US S ft)	0.46	
NSSDA Horizontal Error 95% (US S ft)	0.79	



The same QC point over orthoimagery (left) and in the field survey (right)

Control Point ID	Survey Values in US Survey Feet		Control Point ID	Orthophoto Readings in US Survey Feet		Delta Easting	Delta Northing
	Easting	Northing		Easting	Northing		
QCDES119	714681.57	1081581.33	QCDES119	714681.25	1081581.51	0.33	-0.18
QCDES124	660104.45	1064944.81	QCDES124	660104.68	1064944.59	-0.23	0.22
FY2017ID104	704719.21	1052452.87	FY2017ID104	704718.97	1052453.02	0.24	-0.15
FY2017ID105	675194.12	1013682.54	FY2017ID105	675194.50	1013682.51	-0.38	0.03
AT-25	693891.17	1025436.86	AT-25	693891.46	1025436.98	-0.29	-0.12
AT-28	674162.82	1011120.87	AT-28	674163.25	1011120.97	-0.43	-0.10

Will it support your Objectives?



Surdex model

- ✓ Your specifications and schedule
- ✓ You keep the data & distribution
 - ✦ Website
 - ✦ Downloads
 - ✦ Perpetual Ownership
 - ✦ Partner sharing
- ✓ Hosted imagery –SurCheck & streaming access included
- ✓ Quality & Accuracy
 - ✦ Pilot & color sample is standard
 - ✦ Includes ground survey for control and Independent QA



OK



Hosted services

ArcGIS REST Services Directory

[Home](#) > [services](#) > [Virginia](#) > [P3200108s1 \(ImageServer\)](#)

[JSON](#) | [SOAP](#)

Virginia/P3200108s1 (ImageServer)

View In: [ArcGIS JavaScript](#) [ArcGIS Online Map Viewer](#) [ArcMap](#)

View Footprint In: [ArcGIS Online Map Viewer](#)

Service Description: Virginia Early Access 12 inch 2022 Imagery

Name: Virginia/P3200108s1

Description: Virginia Early Access 12 inch 2022 Imagery

Single Fused Map Cache: false

Extent:

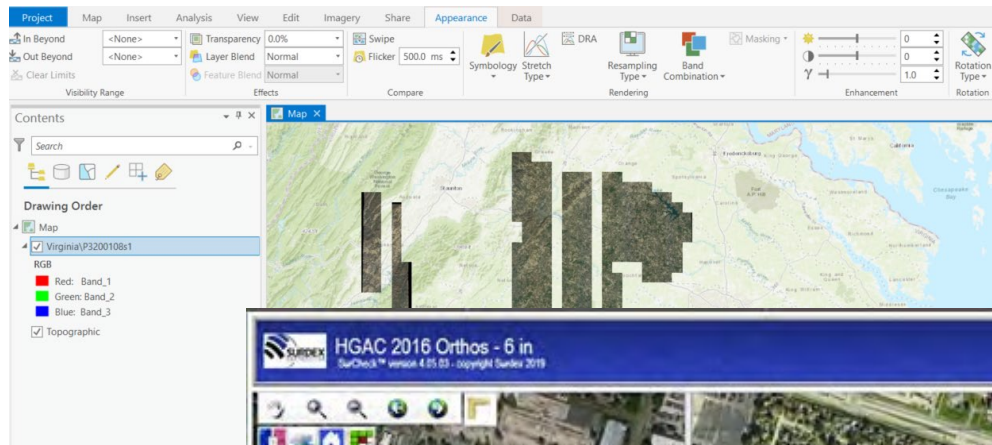
XMin: 1.119027199984014E7
YMin: 3342336.0000652224
XMax: 1.174732799984014E7
YMax: 3997696.0000652224
Spatial Reference: 102747 (2284)

Initial Extent:

XMin: 1.119027199984014E7
YMin: 3342336.0000652224
XMax: 1.174732799984014E7
YMax: 3997696.0000652224
Spatial Reference: 102747 (2284)

Full Extent:

XMin: 1.119027199984014E7
YMin: 3342336.0000652224
XMax: 1.174732799984014E7
YMax: 3997696.0000652224
Spatial Reference: 102747 (2284)



Take web maps offline

ArcGIS 10.9.1 | [Other versions](#) | [Help archive](#)

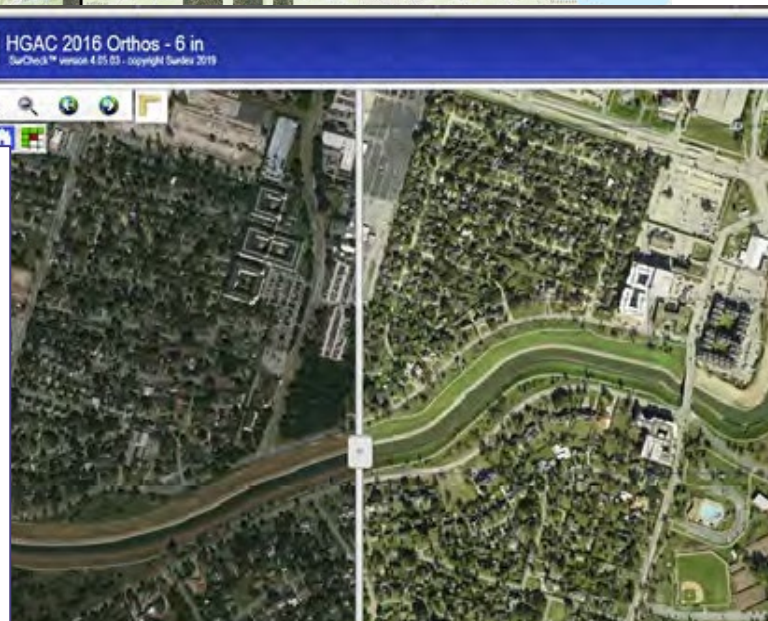
Taking web maps offline allows you to view, collect, and update features when you are disconnected from the internet. Once you reconnect, you can synchronize your map, send any updates you have, and get map updates from other users.

You can create a web map in an ArcGIS Enterprise portal for use offline in ArcGIS apps such as ArcGIS Collector, ArcGIS Survey123, ArcGIS Pro, and custom apps built with ArcGIS Runtime SDK.

You have the following two options for taking a map offline. Some apps may support one or the other, or both.

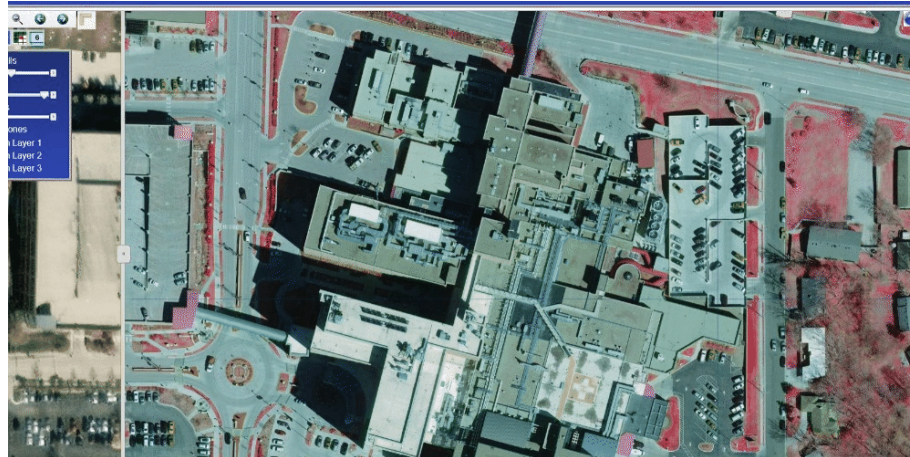
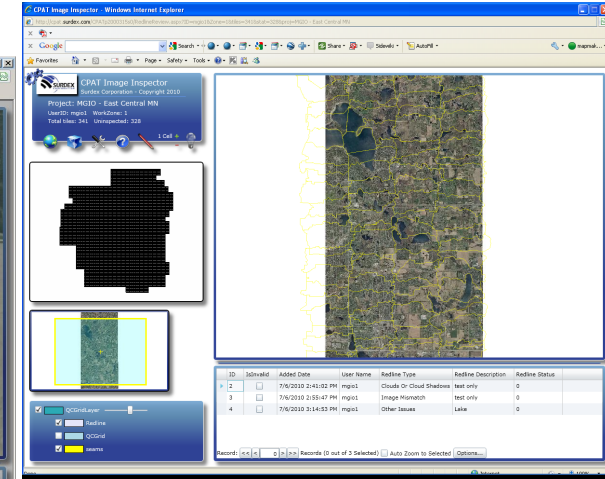
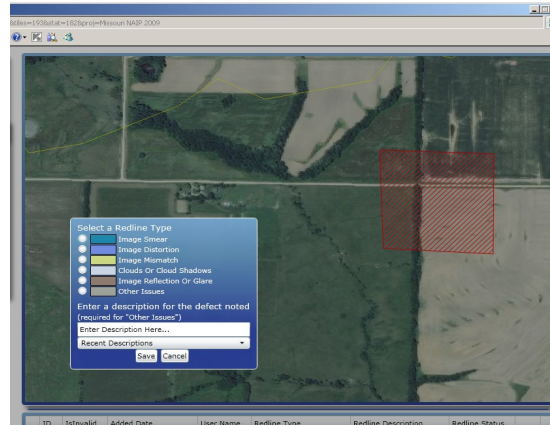
- On demand—Field users can download any portion of the map whenever they need it. The field user specifies the area they want to take offline along with the details of the basemap required.
- Create map areas—Map authors can create map areas to package data for specific areas ahead of time. Map areas speed up and simplify the map download process for field workers.

Enable the layers and map for offline use



SurCheckSM Online Inspection and Approval Tool

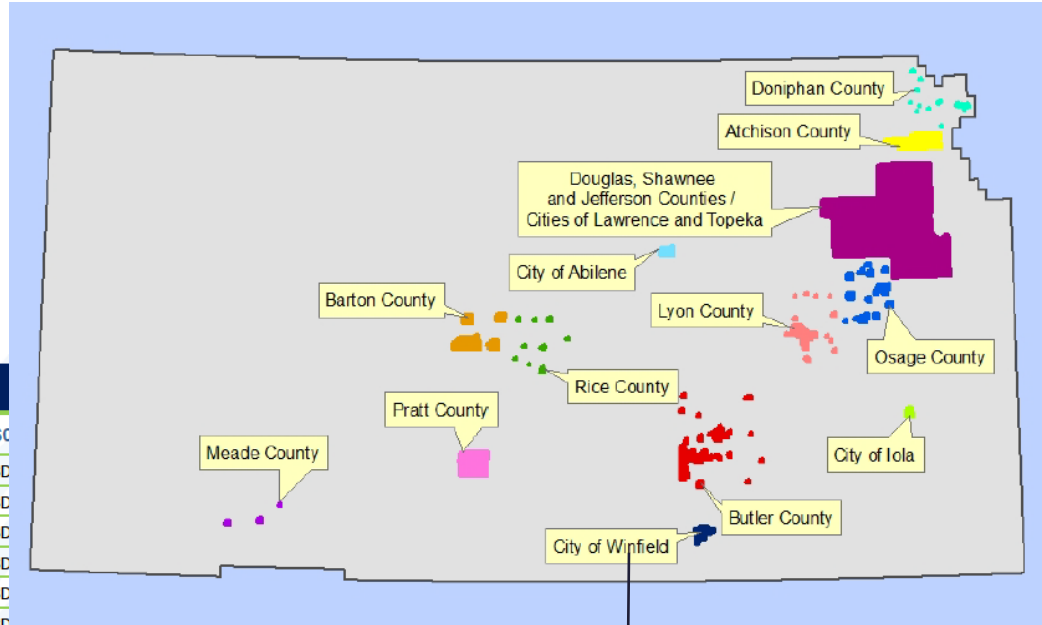
- ESRI ImageServer through web browser
 - No Software installation
 - No Licensing
 - Secure, Password Protected
 - Free Training
- Seamless roam
- Redline areas of concern
- Overlay graphics & swipe other sources
- Tracking of review & acceptance



Partner Buy-ups

FLIGHT DESIGN PARAMETERS

PROJECT / CLIENT	YEAR(S)	AREA (SQ. MI.)	IMAGERY RESOLUTION
ABILENE, CITY OF	2019	19	3" GSD
ATCHISON COUNTY	2018, 2021	107	6" GSD
BARTON COUNTY	2018	79	3" GSD
BUTLER COUNTY	2021	112	6" GSD
DONIPHAN COUNTY	2019	9	6" GSD
DOUGLAS, SHAWNEE AND JEFFERSON COUNTIES	2018, 2020, 2022	1,588	6" GSD
IOLA, CITY OF (FOR ALLEN COUNTY)	2019	8	6" GSD
LYON COUNTY	2018	54	3" GSD
MEADE COUNTY	2020	6	6" GSD
OSAGE COUNTY	2018, 2020	61	6" GSD
PRATT COUNTY	2019	107	6" GSD
RICE COUNTY	2018	11	6" GSD
WINFIELD, CITY OF	2022	40	3" GSD



**Tell the OK GIS Leadership
you want this for OK!!!!**

Partner Content



Permit
Enforcement



Emergency
Response and
Preparedness



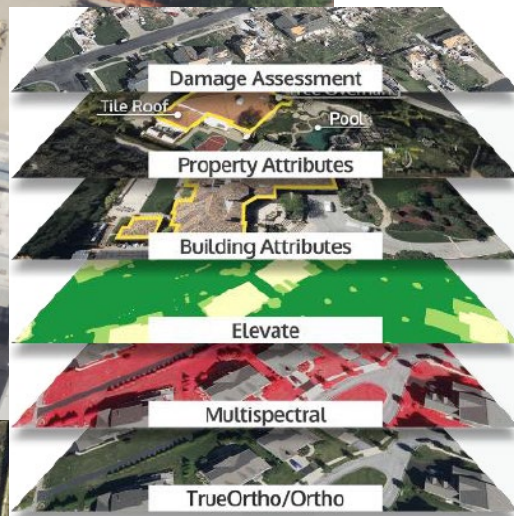
Infrastructure
Monitoring



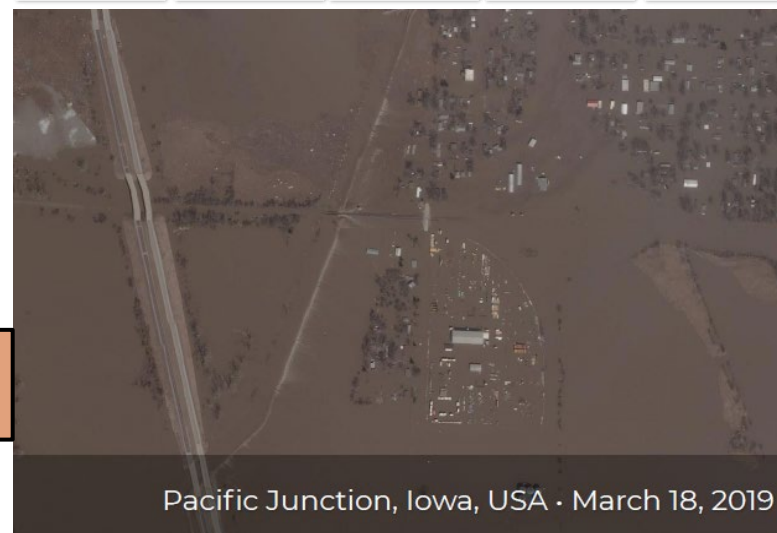
Agriculture
Support and
Subsidies



Natural Resource
Protection



This will be
licensed data!!



Pacific Junction, Iowa, USA · March 18, 2019



OK SCAUG 2023

Geospatial Checklist

✓ Ground conditions

- Leaf-on / leaf-off – (time of year)
 - *Intended usage of data vs when you need data*
- Clouds/shadows, allowing 5% has significant time/cost savings

✓ Pilot area

- Volume discount vs your budget
 - *Start with something and progress forward*

✓ Specifications

- Pixel size ≠ features detectable
- Utilize Ground Survey; Accuracy as important as resolution
- Provide samples
- Detailed list of deliverables

✓ Distribution of data

- Schedule: 5 – 120 days
- Image service, instant access
- Online QA
- FTP/Media shuttle

✓ Reference layers

- **Does it need to match other data?**
- NAD83 replacement (NATRF 2022)
 - *Will you be ready?*

✓ Free data

- Has its limitations on usage, accuracy & currency
- You get what you pay for



Any questions?

You can find me at:

- » Tim Bohn C.P. PMP
- » timb@surdex.com
- » (636) 368-4400

