DRAPP 2014

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Agenda

- **2014 Spec Summaries**
  - What's New in the RFPs?
- **RFP/SOW Schedule**
- **General DRAPP Schedule**
- **Vendor Selection Process**
  - Evaluation Criteria
  - How to Participate

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Spec Summaries

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Creating Solid Specifications

- **Application should drive the requirement.**
- **As we go over the specs for DRAPP deliverables, be thinking:**
  - How will I use this data?
  - Does the data meet my requirements?
  - Do I need to communicate a change before RFP release?
  - Pay specific attention to:
    - **Resolution** in your area of interest
    - **Accuracy** in your area of interest
    - **Deliverables** in your area of interest
    - **Formats** and **Projections**

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Goal of a RFP

- **Get quotes for a variety of goods and services so that we can make a decision about what combinations of deliverables we want.**
  - The final scope of work will be determined in the fall when we evaluate quotes.

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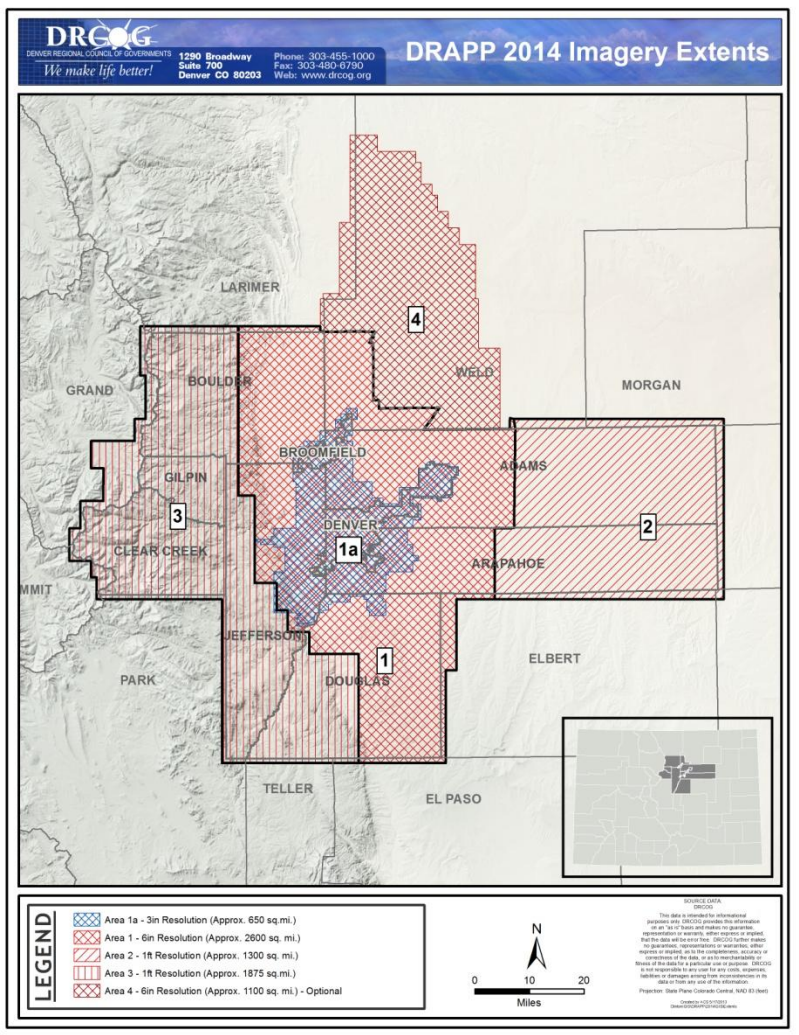
DRAPP 2014 Imagery RFP

- **5 Areas of Interest**
  - 1 - Denver Metro
  - 1a – Urbanized Area Subset
  - 2 – Eastern Plains
  - 3 – Mountains
  - 4 – Weld

- **Resolutions**
  - 3in (Area 1a)
  - 6in (Areas 1 & 4)
  - 1ft (Areas 2 & 3)

Area 1a is completely within Area 1. Are they mutually exclusive or will 1a be covered at 2 resolutions?



Items in blue are different from 2012.

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DRAPP 2014 Imagery RFP

Changes in 2014

- **New Resolution – 3in**
  - RFP requires them to propose methodology for creating this resolution
  - Prefer 6in to be created independently from 3in. *(Josh has QAQC results).*
- **New Extent – Urban Area Subset and Fraser/Winter Park; Weld is tentative**
- **Expanded the areas where we require additional overlap (need help with delineation)**
- **Limited the projection and format options for deliverables (you may request others but will pay additional and will wait for delivery)**
- **Changed sun angle requirements to mitigate shadow issues**
- **Added a metadata deliverable to the DEM**
- **Emphasized our delivery needs (individual shipments to partners)**
- **Added an Option for Subsequent Partnerships**
  - Allows you to leverage the contract for planimetrics, additional projections, format, tiling schemes, and stereo pairs

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DRAPP 2014 Imagery RFP

- **"Standard" Deliverables**
  - Projections:
    - Colorado Central, NAD 83 State Plane (US Survey Feet)
    - Colorado North, NAD 83 HARN State Plane (US Survey Feet)
    - UTM Zone 13 North, NAD 83 meters (2007)
  - Formats
    - Uncompressed TIFF
    - JPG 2000
    - SID
  - Tiles
    - 6in and 1ft TIFFs - 1 mile by 1 mile
    - 3in TIFFs – ~~0.5 mile by 0.5 mile~~
    - SID and JPG – 10 mile by 10 mile

- **"Custom" Deliverables**
  - If you want a custom projection, custom format or custom tile schema, you may have to wait or pay additional funds. Quotes for additional items will be in RFP.

DRAPP 2014 Imagery RFP

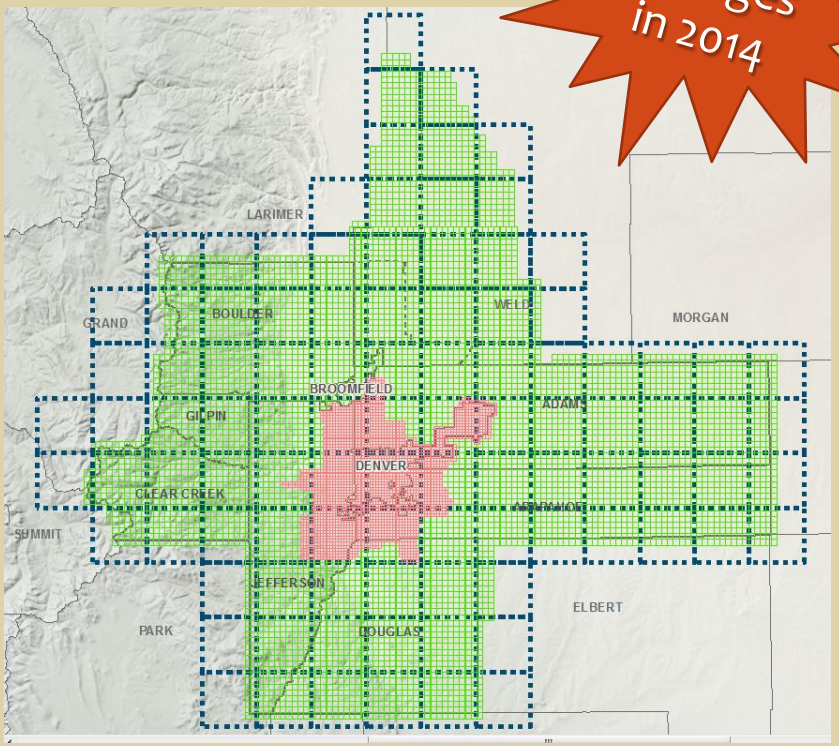
Changes in 2014

Tiling Schemes

- The 2012 tiles have PLSS names, but do not match up to the PLSS data currently available (which has irregular geometry!!!).

- DRCOG proposes:
  - 3in nest inside the 6in (as quarter sections)
  - 6in and 1ft are the same size tiles
  - Tiffs (1 mile x 1 mile) nest inside larger sids (10 mile x 10 mile)

- For 3 in, what is more important to you?
  - Smaller file size, increased # of tiles
  - Larger file size, decreased # of tiles



- Small Files - 2,590 tiles at roughly 52.4 MB per tile

- Large Files - 605 tiles at roughly 209.6 MB Per tile, plus 86 partial tiles (Some at 52.4 MB, Some at 104.8 MB, Some at 157.2 MB)

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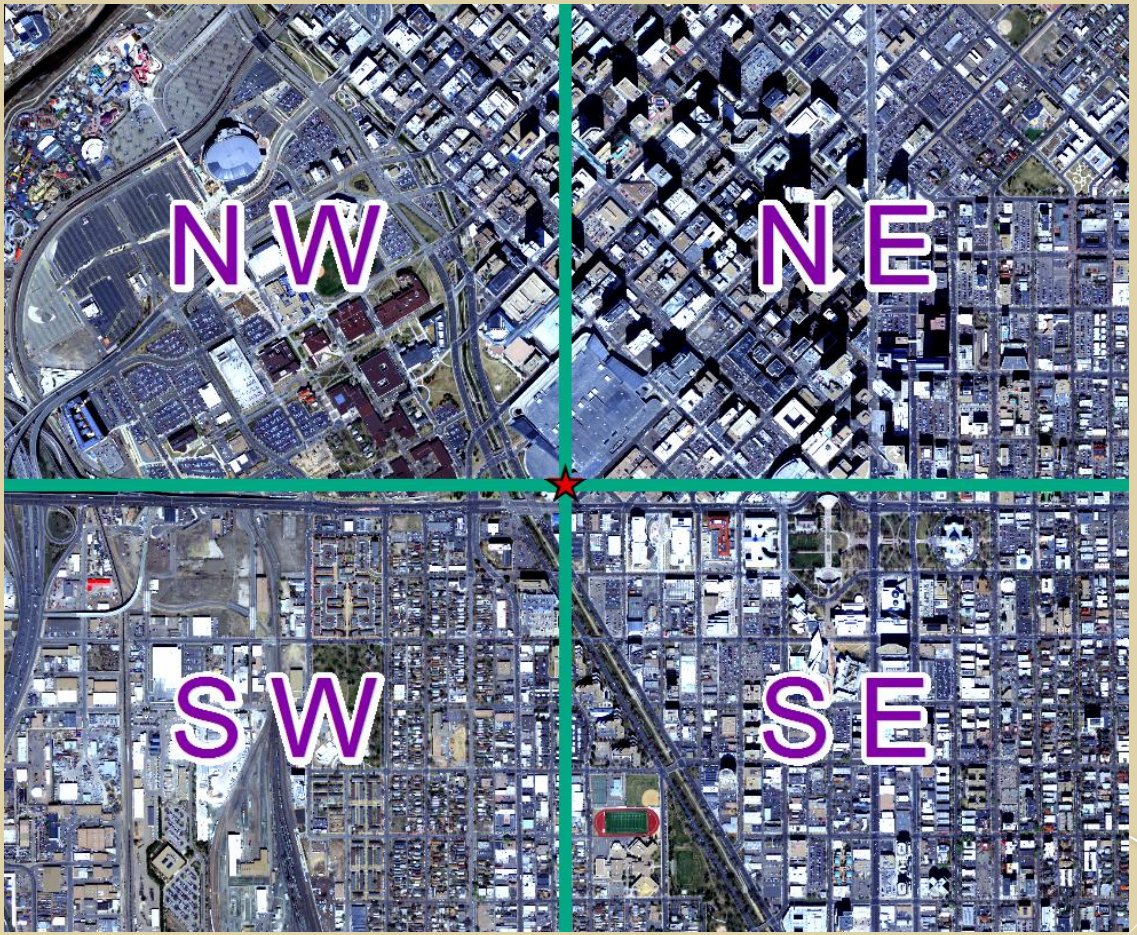
More on New Tiling Scheme

- **Why?**
  - Reusable
  - Denver Region Centric
  - Simple, Easy to use

- **Using a central location (based off the 2012 TIF Grid), the Region has been divided into Quadrants**



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SID Tiling Scheme
10x10 Miles

Numbers Increase by 1 for each tile further from the "Axis"

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TIF Tiling Scheme 1x1 Mile (100 per full SID)

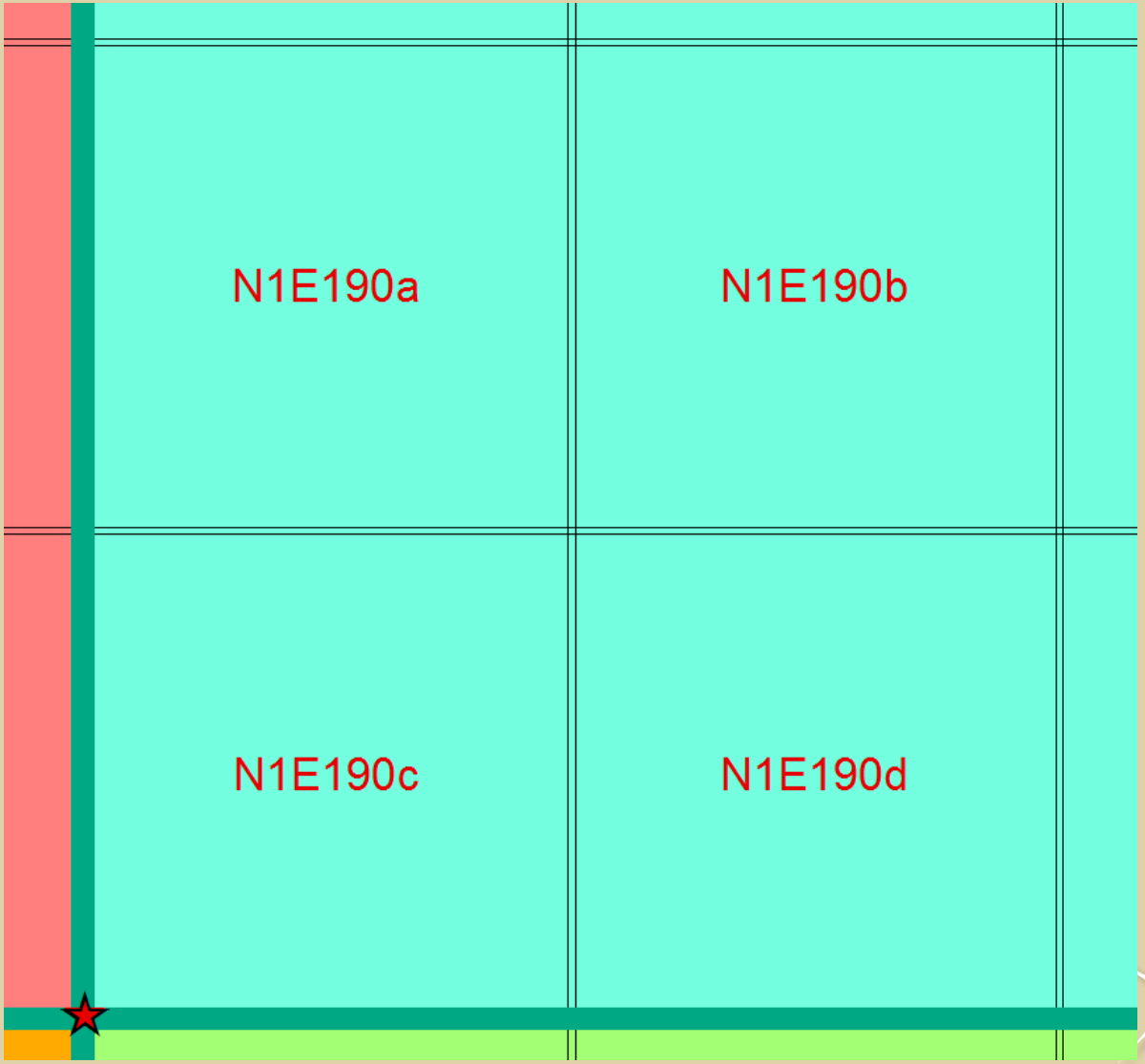
- Example: SID Tile N1E1
- Upper left corner of a FULL tile starts with 00
- Partial SID tiles are treated with the potential that they could be full, so that the TIF numbers do not change over the years
- Unlike past schemes based on PLSS, counting for new rows always starts on the left

N1E100	N1E101	N1E102	N1E103	N1E104	N1E105	N1E106	N1E107	N1E108	N1E109
N1E110	N1E111	N1E112	N1E113	N1E114	N1E115	N1E116	N1E117	N1E118	N1E119
N1E120	N1E121	N1E122	N1E123	N1E124	N1E125	N1E126	N1E127	N1E128	N1E129
N1E130	N1E131	N1E132	N1E133	N1E134	N1E135	N1E136	N1E137	N1E138	N1E139
N1E140	N1E141	N1E142	N1E143	N1E144	N1E145	N1E146	N1E147	N1E148	N1E149
N1E150	N1E151	N1E152	N1E153	N1E154	N1E155	N1E156	N1E157	N1E158	N1E159
N1E160	N1E161	N1E162	N1E163	N1E164	N1E165	N1E166	N1E167	N1E168	N1E169
N1E170	N1E171	N1E172	N1E173	N1E174	N1E175	N1E176	N1E177	N1E178	N1E179
N1E180	N1E181	N1E182	N1E183	N1E184	N1E185	N1E186	N1E187	N1E188	N1E189
N1E190	N1E191	N1E192	N1E193	N1E194	N1E195	N1E196	N1E197	N1E198	N1E199

3 Inch Tiling Scheme

- Example: TIF Tile N1E190

- In the event 3 inch resolution is used and we go with smaller tiles for size purposes, A TIF tile will be divided in 4, the NW quadrant will be designated “a”, NE – “b”, SW – “c”, SE – “d”



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Data Acceptance Testing RFP

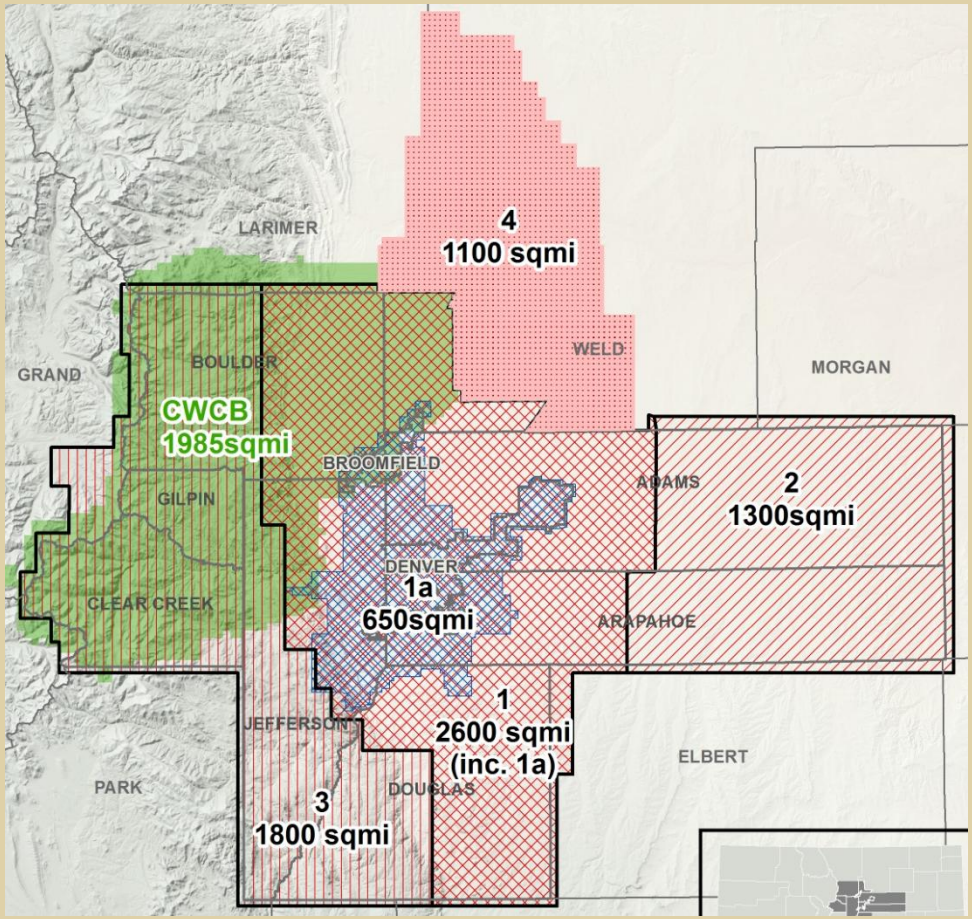
- Task 1 – Establish a region-wide network of Ground Control Points (GCPs).
- Task 2 – Data acceptance testing review of 2014 Digital orthoimagery
- Task 3 – DAT Review of Associated Data Products.
- Task 4 – Project Management, Reporting & Customer Service
- Task 5 – OPTIONAL: Provide QAQC of LIDAR and Derivatives, if acquired.

LiDAR RFP

- **Based on:**
  - Comments from a independent consultant
  - USGS specifications
  - FEMA specifications
  - Sample SOWs from CAPCOG, Idaho, HGAC, CCD etc.
  - Results from the LiDAR survey
- **Still a little shaky on:**
  - Accuracy requirements
  - NPS requirements
  - Deliverables
  - Extent

Overlaps with CWCB LiDAR

- **Project Areas from the imagery project are shown:**
  - 1, 1a, 2, 3, 4
- **CWCB LiDAR is shown in green**
  - Data is freely available through DRCOG or CWCB.
  - NPS = 1m
  - Collected in 2011
  - Point clouds and breaklines only



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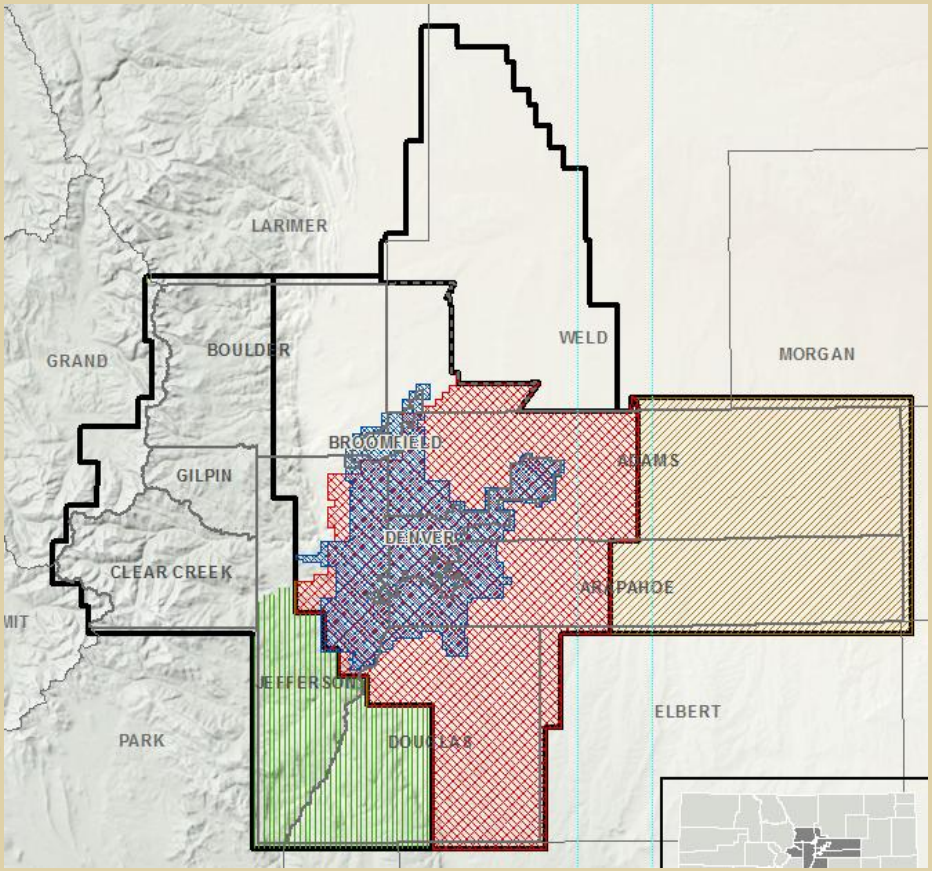
Prelim LiDAR Extent

- **Ranked by Likelihood of Acquisition:**
  1. Area 1a
     - Necessary to support 3in ortho imagery at ASPRS Class 1 standards
     - 11 expected partners in extent
  2. Area 1
     - 31 expected partners in extent (20 if exclude Area 1a)
  3. Eastern Plains & Mountains
     - Not a lot of partners in these areas
     - Need for LiDAR is uncertain
     - Will likely only collect if price is right and underwriters (e.g. USGS) will help with funds.
- **No Collection in CWCB or Weld**



* Come see me to find out where you're jurisdiction or agency is in relation to project areas.

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LiDAR RFP Specs

- NPS – highest in Areas 1 and 1a
- Hydro Enforcement only required in 1a
- Contours – 1 ft in Area 1a, 2ft in Area 1, None in Areas 2 and 3

LIDAR Specification Summary Sheet - DRAFT Subject to Change					
Requirement	Specification*				Source
Data Collection	*Area 1*	*Area 1a*	*Area 2*	*Area 3*	
Point Density	2 pt/m^2	2 pt/m^2	1 pt/m^2	1 pt/m^2	DRCOG
Nominal Pulse Spacing	0.7meters or less	0.7 meters or less	1 meters or less	1 meters or less	DRCOG
Hydro-enforcement	Not Required	Required	Not Required	Not Required	FEMA
Contours	2 foot	1 foot	None	None	DRCOG

Discussion on NPS

- DNC data was 0.7m
- USGS Specification says minimum of 2m (although their new goal is 1m for future projects)
- Minimum NPS?
  - http://www.watershedsciences.com/about/news/lidar-pulse-densities-comparison-white-paper

Discipline	Application	Recommended Density, pulses per m^2 and (NPS)	
		Low	High
Geology	Landslides	4 (0.50 m)	4 (0.50 m)
	Morphology	5 (0.45 m)	8 (0.35 m)
Urban Planning	Building Classification	4 (0.50 m)	8 (0.35 m)
Fire Modeling	Fire Loads	4 (0.50 m)	8 (0.35 m)
	Mapping Burns	4 (0.50 m)	6 (0.41 m)
Forestry with Pacific Northwest-specific Applications	Tree Species Identification	4 (0.50 m)	6 (0.41 m)
	Forest Measurement and Monitoring	4 (0.50 m)	4 (0.50 m)
	Tree Height Measurements	4 (0.50 m)	6 (0.41 m)
	Vegetation Characterization	4 (0.50 m)	8 (0.35 m)
	DTM Accuracy under Canopy Cover	4 (0.50 m)	6 (0.41 m)

LiDAR RFP Pricing Form

- **Getting quotes for 5 NPS specs, 1ft, and 2ft contours for all project areas**

LIDAR + Derivatives (Costs per Square Mile)

	Base Costs	Collection Costs per Square Mile			Additional Processing Costs	Derivative Costs per Square Mile				Total Cost	Total Cost
Area	**Mobilization, overhead, etc.**	**Collection (NPS ≤ 2.0m)**	**Collection (NPS ≤ 1.0m)**	**Collection (NPS ≤ 0.7m)**	**Include Hydro-Enforcement**	**1m Bare-Earth DEM**	**Auto-Generated Breaklines**	**1ft Contours**	**2ft Contours**	**for the preferred option by square mile (Add Blue Cells)**	**for the preferred option for the project area (muliply sum by project square mileage)**
Project Area 1 - Denver Region (approx. 2,600 square miles					N/A						
Project Area 1a - Urbanized Area Subset (approx. 650 square miles)											
Project Area 2 - Eastern Plains (approx. 1,300 square miles)					N/A	N/A		N/A	N/A		
Project Area 3 - Mountainous (approx. 1,8000 square miles)				N/A	N/A	N/A		N/A	N/A		
Total											

Note: The preferred option has a blue highlighted cell.

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Calculating LiDAR Costs

- **Potentially different deliverables available to partners.**

- **Just like 3in, the entire consortium will not pay equal proportions for LiDAR deliverables.**

- **Preliminary idea of what partners could be charged for:**
  - Level 1 – Point Clouds, Breaklines, DEM, TIN (Cheapest)
  - Level 2 – L1 + 2ft Contours
  - Level 3 – L1 + 1ft Contours (Most expensive)

Specs by Jurisdiction

LiDAR Extents										Deliverables Collected Within Jurisdiction Boundaries - DRAFT								
Type	OID	Jurisdiction	Expected to Participate in DRAPP	In Area 1	In Area 1s	In Area 2	In Area 3	In C'W/CB	Orders All Areas	3in	6in	1ft	LiDAR at 0.7m NPS	LiDAR at 1m NPS	Point Clouds and Breaklines	DEM and TIN	1ft Contours	2ft Contours
County	1	Adams	1	0	0	0			X	0	0	0	0	0	1	0	0	0
County	1	Arapahoe		0	0	0				0	0	0	0	0	1	0	0	0
County	2	Boulder	1					1										
County	3	Broomfield	1	1					X		1				1	1		1
County	4	Clear Creek	1				1							1	1	?		
County	5	Denver	1	1	1				X	1	1		1		1	1	1	1
County	6	Douglas	1												1	?		
County	7	Gilpin	1				1	1										
County	8	Jefferson	1												1	?		
City	9	Arvada	1	1							1				1	1		1
City	10	Aurora	1	1					X		1				1	1		1
City	11	Bennett	1												1	?		
City	12	Black Hawk					1	1										
City	13	Boulder	1	1				1			1							
City	14	Bow Mar		1	1					1	1		1		1	1	1	1
City	15	Brighton	1	1					X		1				1	1		1
City	16	Castle Rock	1	1							1				1	1		1
City	17	Centennial	1	1							1				1	1		1
City	18	Central City					1	1										
City	19	Cherry Hills Village		1	1					1	1		1		1	1	1	1
City	20	Columbine Valley		1	1					1	1		1		1	1	1	1
City	21	Commerce City	1	1							1				1	1		1
City	22	Dacono		1				1			1							
City	23	Deer Trail				1						1		1	1	?		
City	24	Edgewater		1	1					1	1		1		1	1	1	1
City	25	Empire					1	1										
City	26	Englewood	1	1	1					1	1		1		1	1	1	1

- **Come see me to see what project area you are in and what deliverables you can receive (based on this preliminary planning).**

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WMS & Reseller RFP

- **Combining the WMS and Reseller RFP**
- **To be released for bid in Sept/Oct**

- **How will it work?**
  - A WMS with all DRAPP imagery, including interim 2014 will be available to DRAPP participants from 3/2014 to 5/2015.
  - After 5/2015, the services will transition to subscription-based
  - Will get quotes for WCS too

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Schedules

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RFP/SOW Schedule

◆ Imagery, DAT, LiDAR RFPs Released	Aug 30
◆ Submittals Due	Sept 27
◆ Vendor Interviews	Oct 28
◆ DRAPP Extent Workshop	Oct/Nov
◆ Cost information known (ish)	Oct/Nov
◆ DRCOG Board Approval	Nov 20
◆ Start Letters of Intent	Nov
◆ Contract Execution	Jan 2014

- Very important that we communicate about participation and budget before contract execution. I want to know what we can afford before we sign the contract.
- Use Marketing tool for budgeting…

DRAPP High Level Schedule

◆ Contract Execution	Jan 2014
◆ Ground Control	Jan- Mar 2014
◆ Spring Flights*	Mar-Apr 2014
◆ Interim in WMS	Apr 2014
◆ Summer Flights*	Jun 2014
◆ Data Processing	Oct-Nov 2014
◆ Deliveries	Dec –Jan 2015
◆ Wrap up activities	Mar 2015

* LiDAR may occur simultaneously (this is preferred).
If that's not possible, the LiDAR collection window is larger.

Vendor Selection Process

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Evaluation Criteria

- Corporate Background 10%
- Corporate Experience 20%
- Ability to Assume Risk 20%
- Technical Approach 30%
- Price 15%
- Other Value 5%

- Comments on the scoresheets from last year?
- Changes in weights or criteria?

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Volunteer

- **Responsibilities**
  - Read, evaluate, score the bids.
  - Participate in vendor interviews.
- **Time Requirement**
  - Bids (Expect 8-10 per topic area; 1-2 hours each for eval)
  - Vendor interviews (Expect 2 per topic area; 1 hour each)
- **Scheduling**
  - October
- **Email or call me if you are interested.**
- **(You're already on the list if you provided feedback on an RFP)**

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Reminder on Roles

- As the project manager, it is my job to save you time and money by facilitating the project.

- I will gather project requirements, but it is your responsibility to create them and to make sure they meet your business needs.

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For more information, contact Ashley Summers at asummers@drcog.org or 303-480-6746.

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