

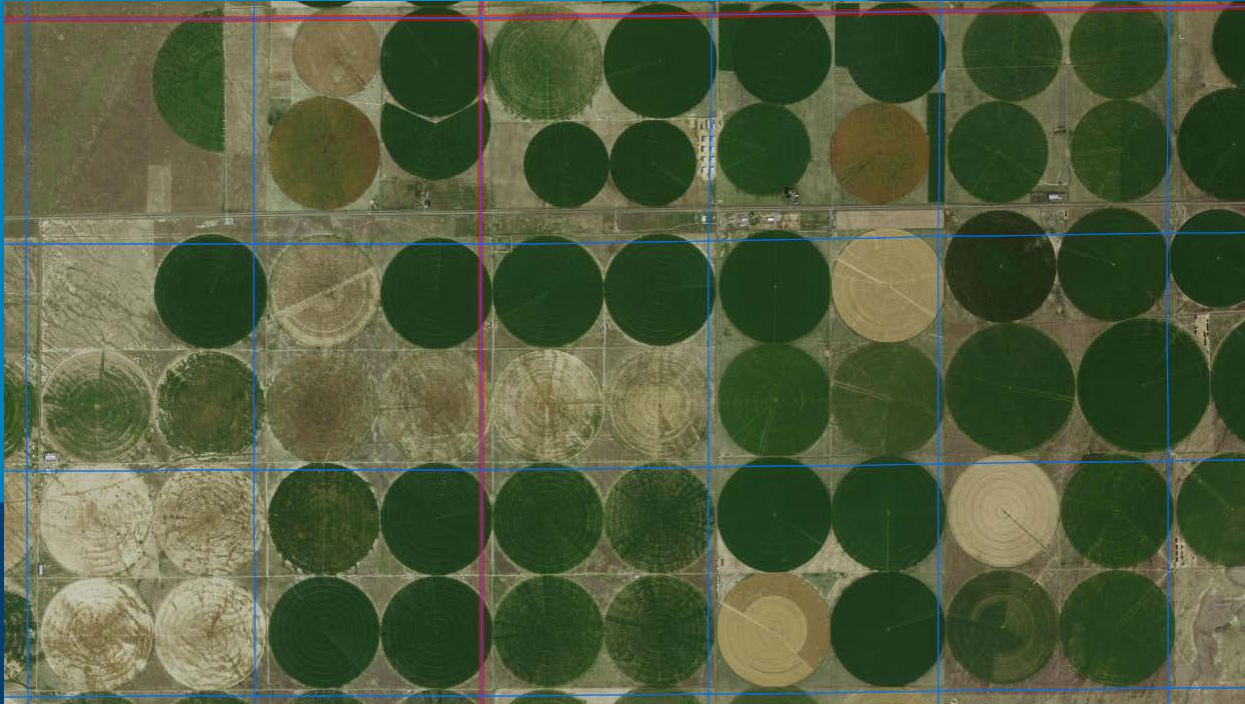


AEC Summit

Using ArcGIS to Collect and Improve the Spatial Accuracy of Parcel Data

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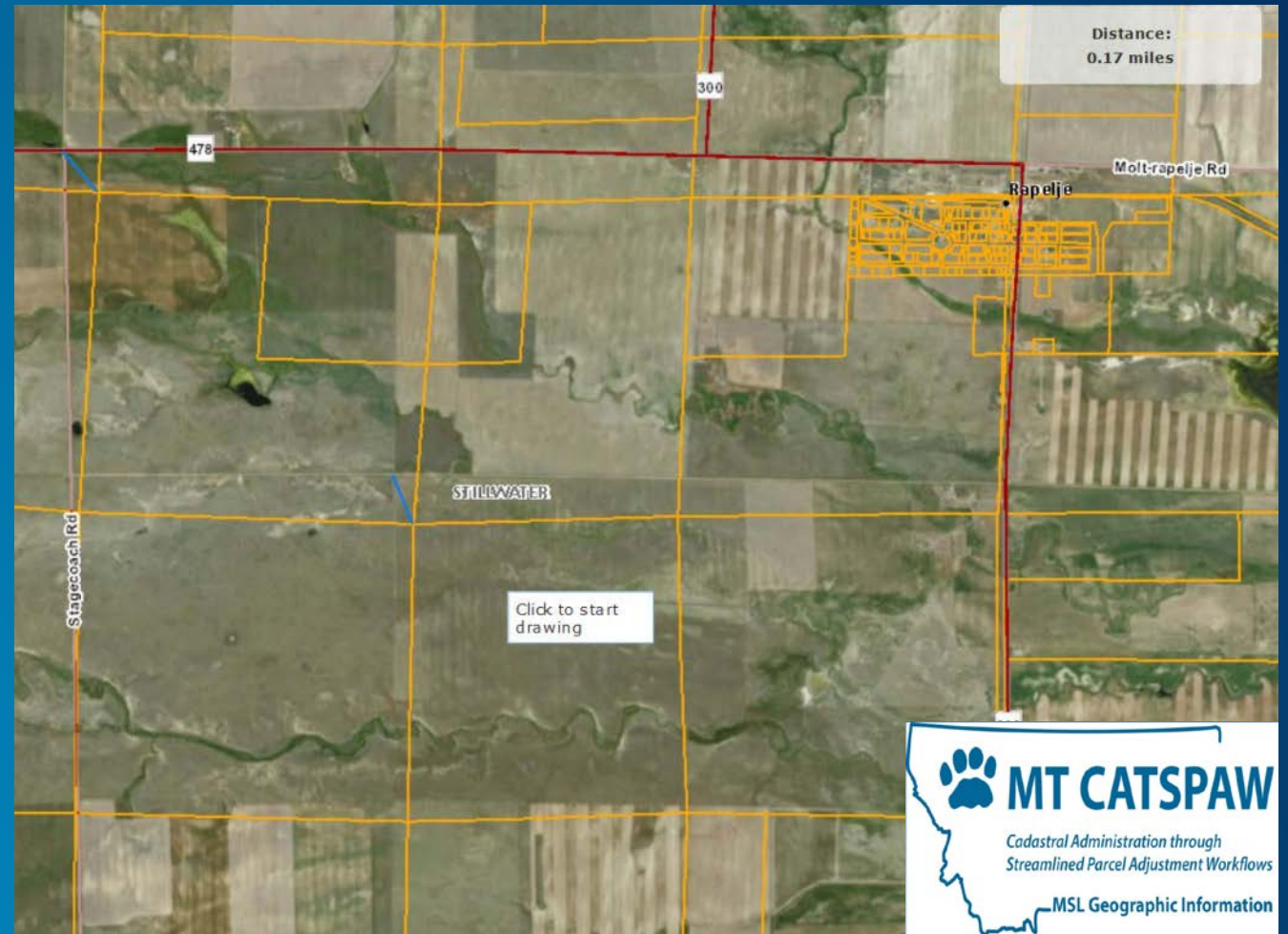
M.Sc., PLS, Real Estate Appraiser, Product Engineer



Reality Check

Examples – Public Available Data

- Within short walking distance
- Within one hour drive
- A day drive north - parcels
- A day drive north – administrative boundaries
- Limited to the USA?
- Cadastral “framework” Montana
- Limited to Montana? Utah



Not all of the data is bad, but problems are easy to find

Observations

- Poor spatial accuracy is a global problem
- Anyone can detect poor spatial accuracy
- The term “accurate” is subjective and changes over time
- Imagery is often more accurate
- Control points would have been much better but are hard to come by
- Vertical misalignment issues

**“There are known knowns; there are things we know we know.
We also know there are known unknowns;
that is to say we know there are some things we do not know**

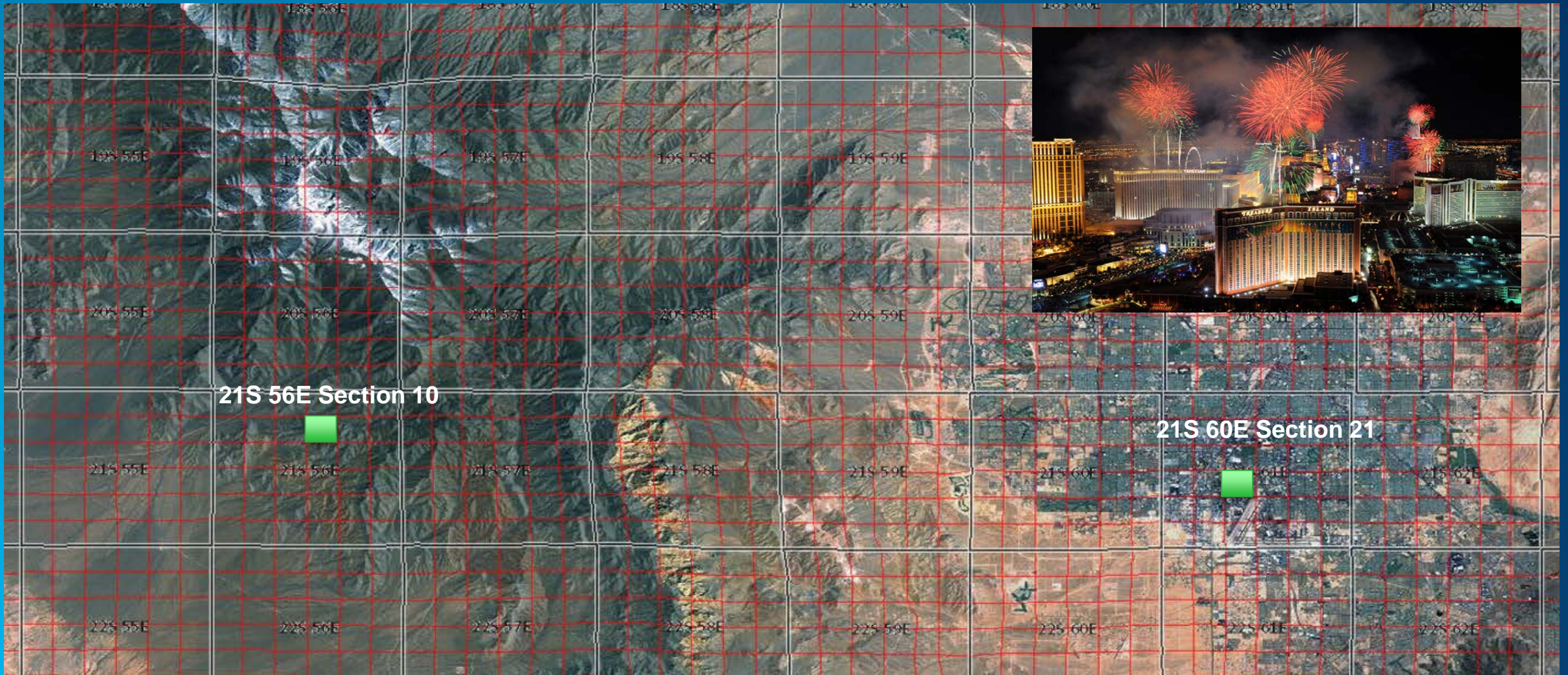
United States Secretary of Defense Donald Rumsfeld

Now we know

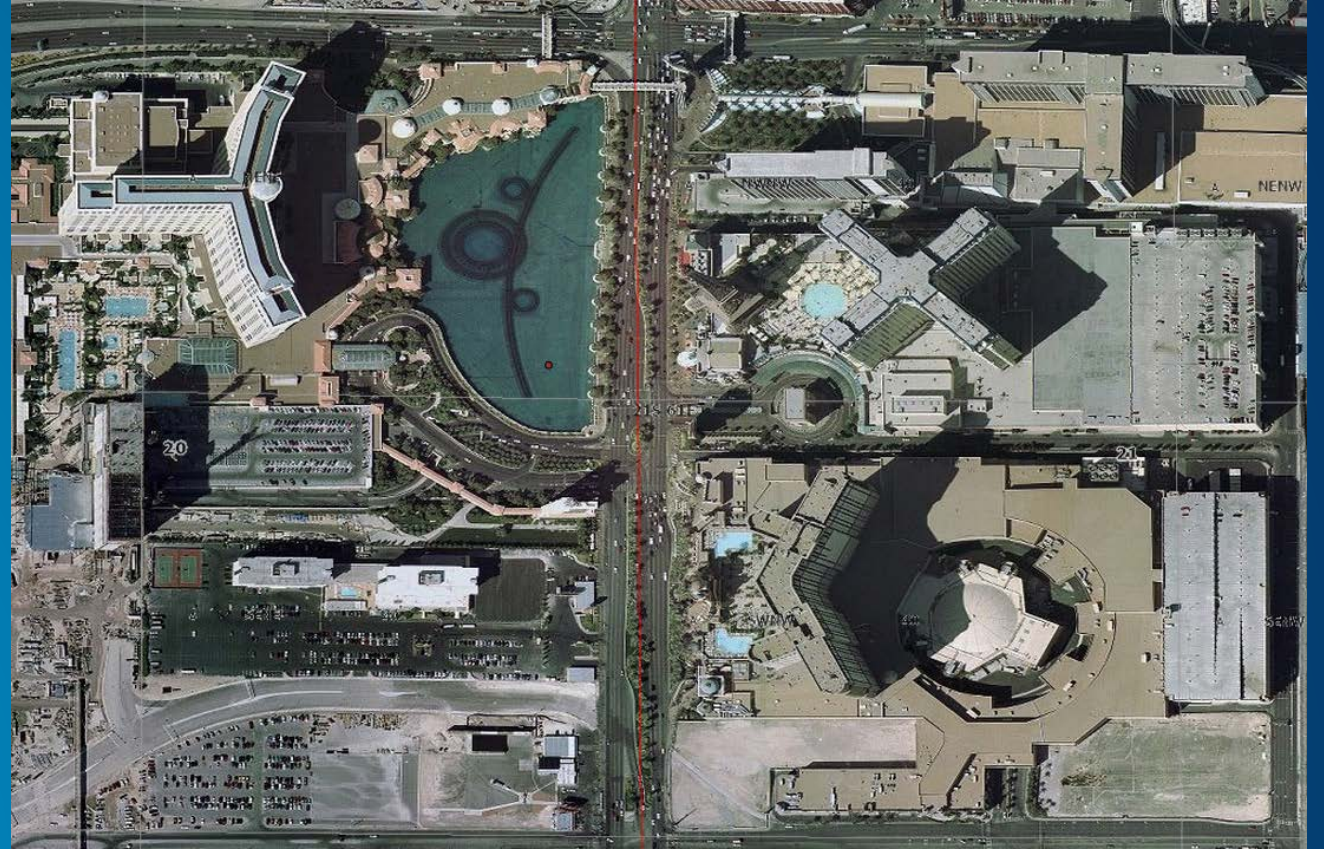
Poor Spatial Accuracy – So What?!

- Cadastral data is foundational dataset:
 - Land Use
 - Administrative boundaries
 - Valuation
 - Permits
 - ...
- Poor accuracy → Mistrust → each organization creates their own
- Any decision making \ analysis → wrong results
- Public expectation
- Location based services (real estate, land use)
- Poor accuracy can kill - hunting permits
- ...

Las Vegas, Nevada – accuracy is not a roulette



Las Vegas, Nevada – Accuracy as a Limited Resource



Conclusions

- **Poor spatial accuracy has a real life impact, can be risky and cost \$\$\$**
- **High resolution imagery makes it easy to expose inaccuracies**
- **GNSS position and imagery will only get better & cheaper**
- **PLSS “Cadastral Framework” is a legal framework, not a spatial framework**
- **Accuracy is a function of land value / risk management**

How to Improve Spatial Accuracy

Imagine

- You manage a dataset of administrative boundaries
- Boundaries are based on 2.4 million parcels
- Data suffers from poor spatial accuracy
- You work hard to align the datasets to each other
- Just as you think you are done, the parcels move
- Budget and resources are limited
- Resurveying 2.4 M parcels is out of the question
- Limited number of control points

WHAT WOULD YOU DO?



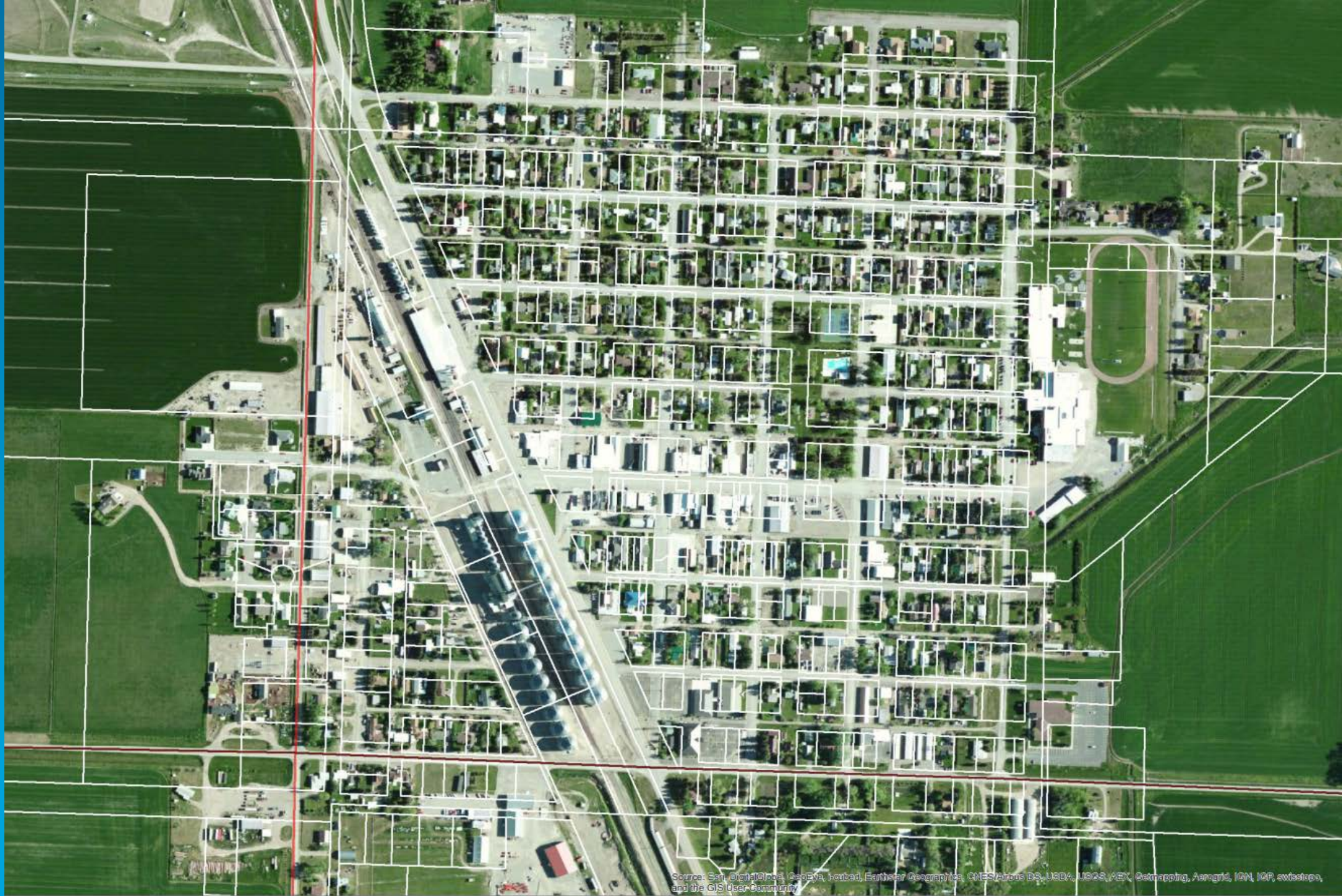
My Hero:
Stewart Kirkpatrick
State GIS Coordinator
Montana State Library – Geographic
Information

Continuum Of Spatial Accuracy

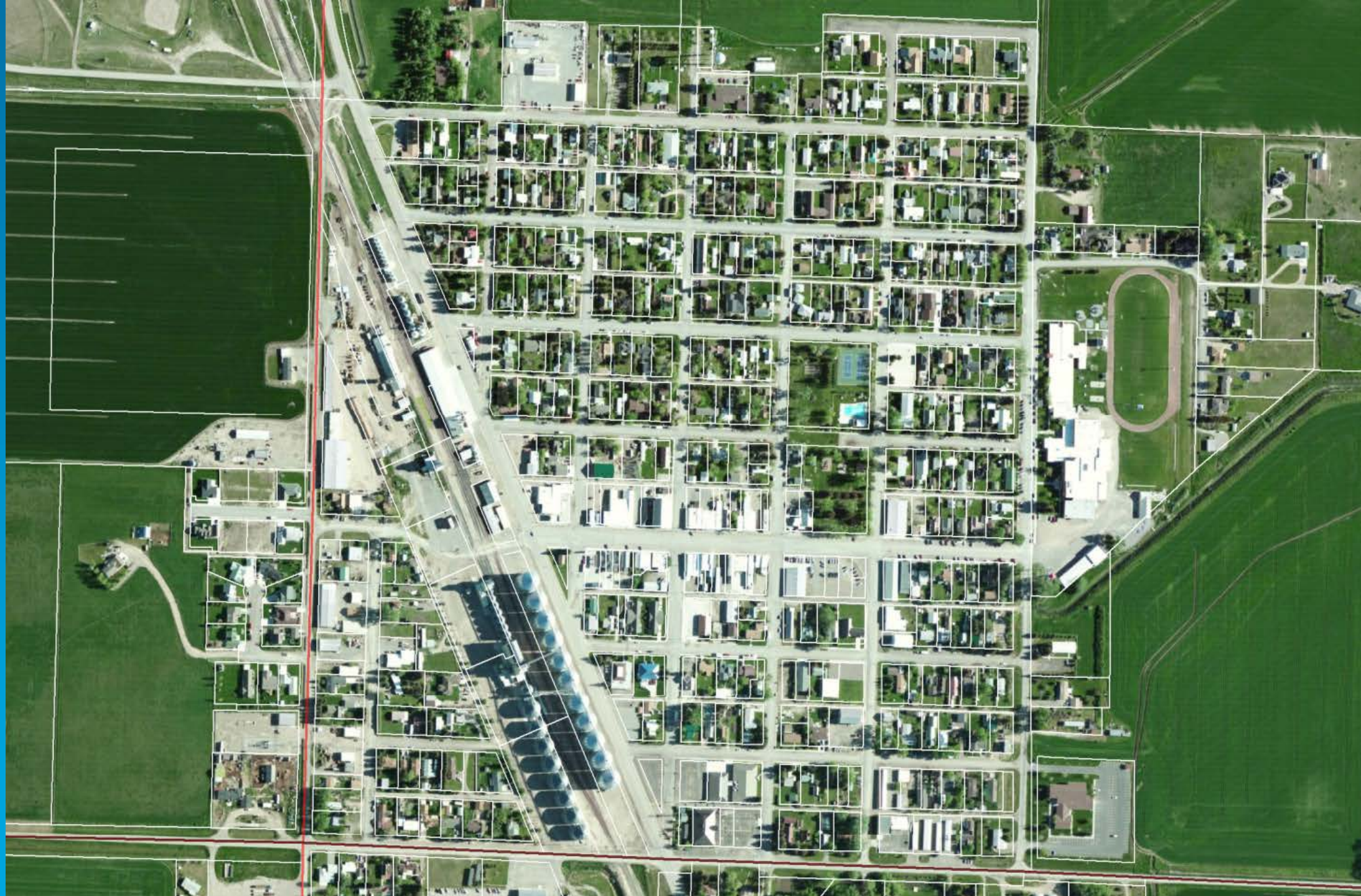
- Improving spatial accuracy is a never ending process
- Steps:
 - Be proactive: take ownership, migrate data
 - Gather as much control points from reliable sources
 - Prioritize by location
 - Supplement with “pseudo control points”
 - Adjust parcels
 - Adjust derived data (associated feature class)
 - Share results



Before



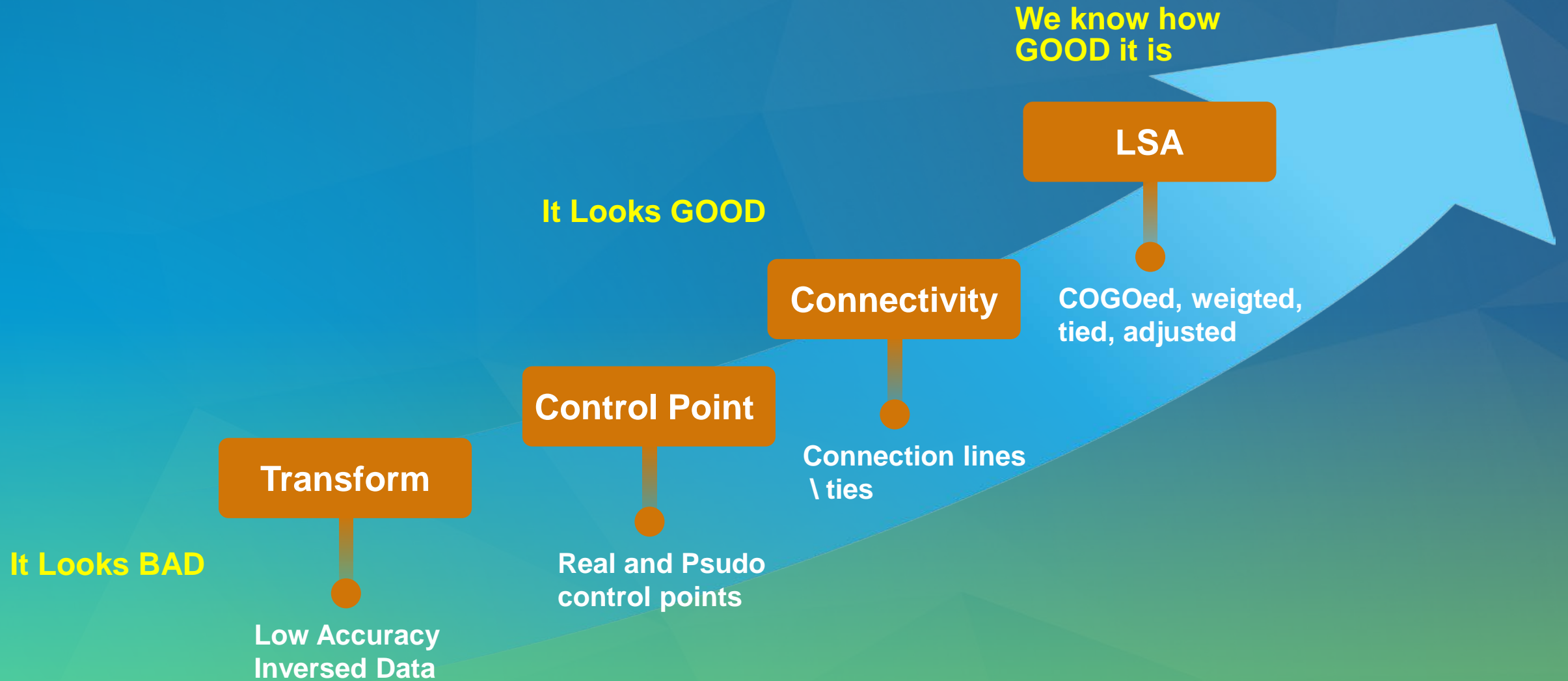
After





LSA & Feature Adjustment

Continuum of Spatial Accuracy



Conclusions

- **Poor spatial accuracy is a common problem**
- **There are dedicated tools to improve spatial accuracy**
- **Improving spatial accuracy is a process / continuum**
- **Sharing control points can help improve vertical alignment issues**



Understanding our world.