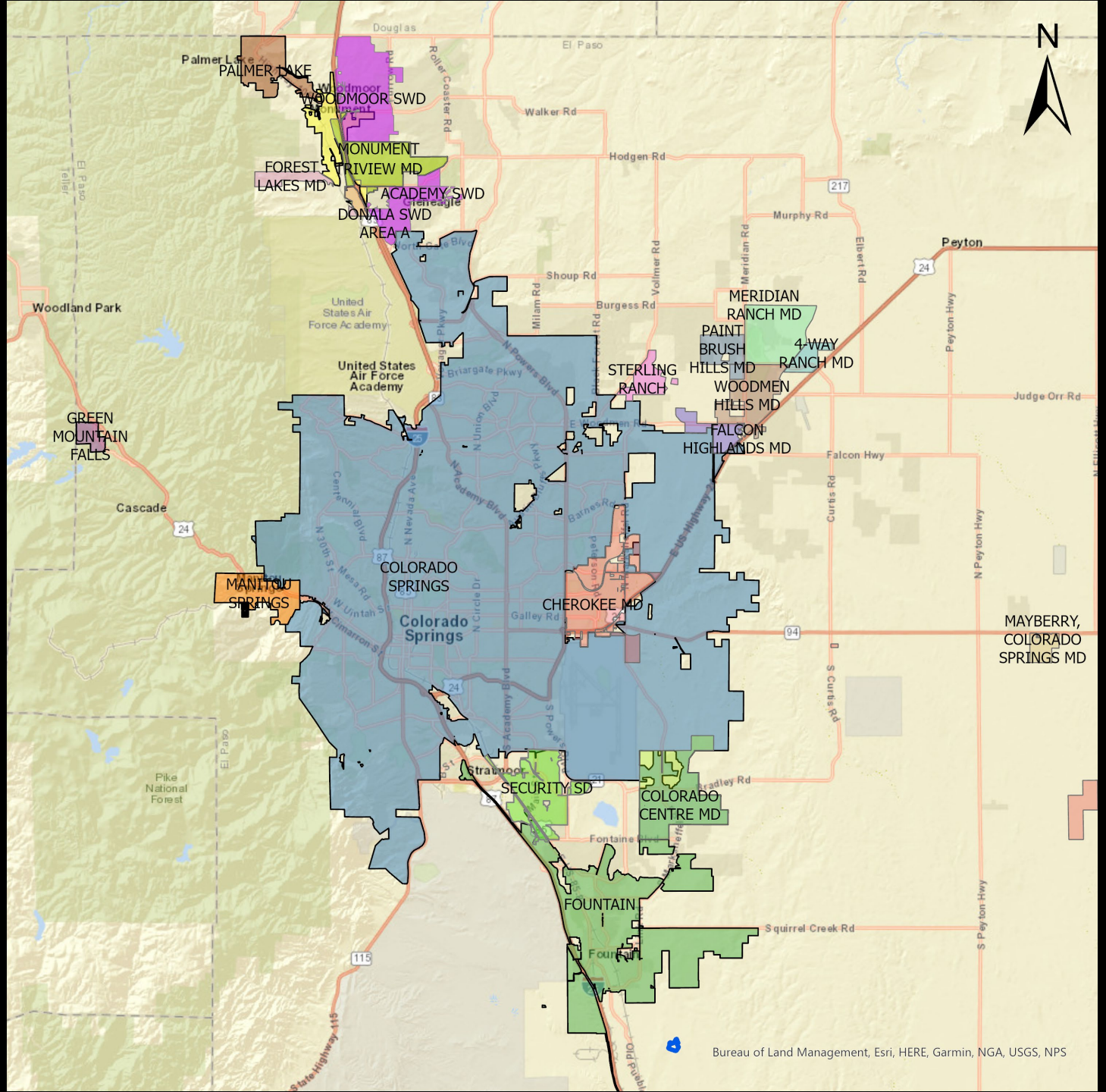
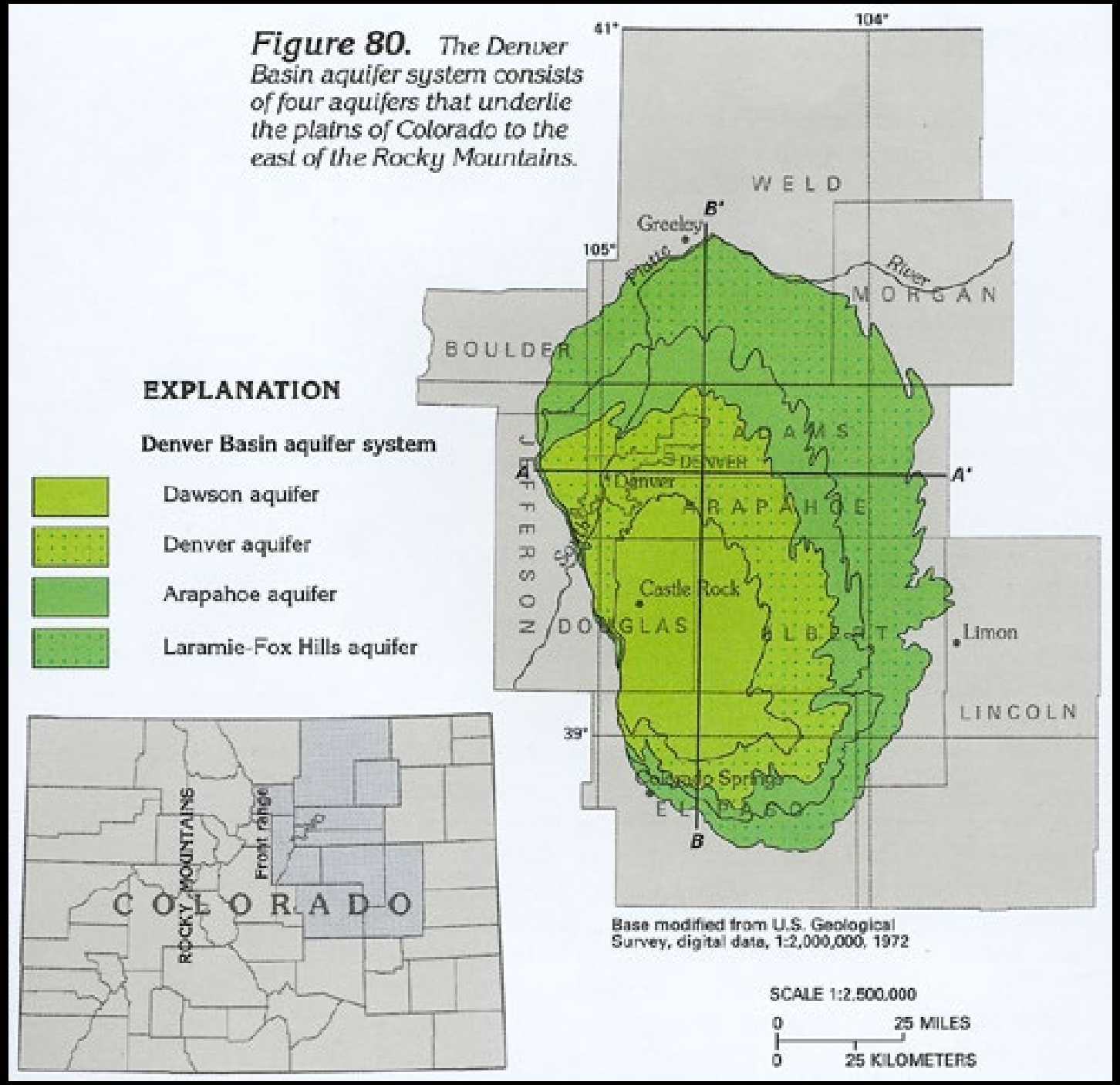
El Paso County Loop Project

Renewable Water System



The Region

- El Paso County has developed extensively at urban density
- This has been based on Denver Basin water
- Denver Basin water is not renewable and has a finite life span
- These areas are split between a dozen towns and Special Districts
- Each has been trying for years to obtain a renewable water supply
- Substantial water rights are owned and available in distant areas, but lack an economical transmission system

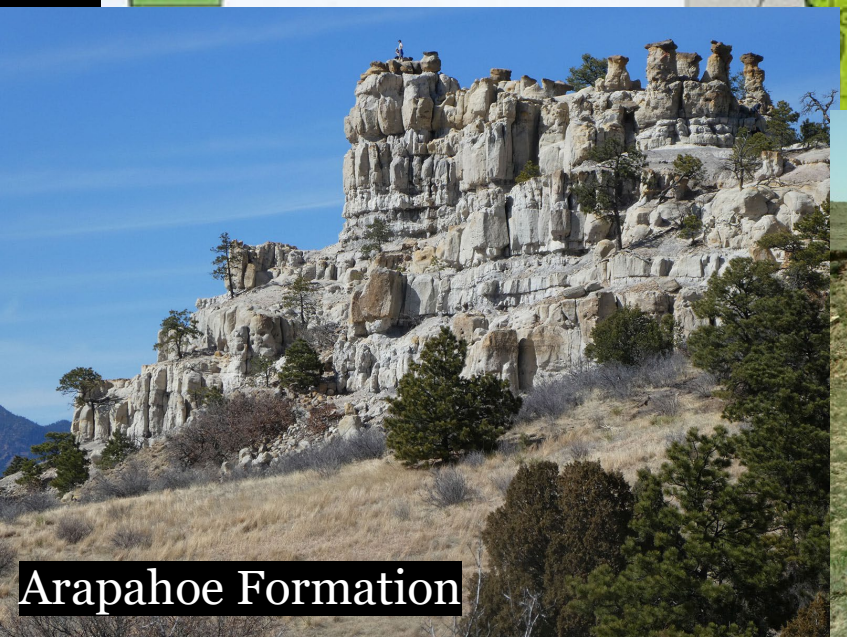


Denver Basin

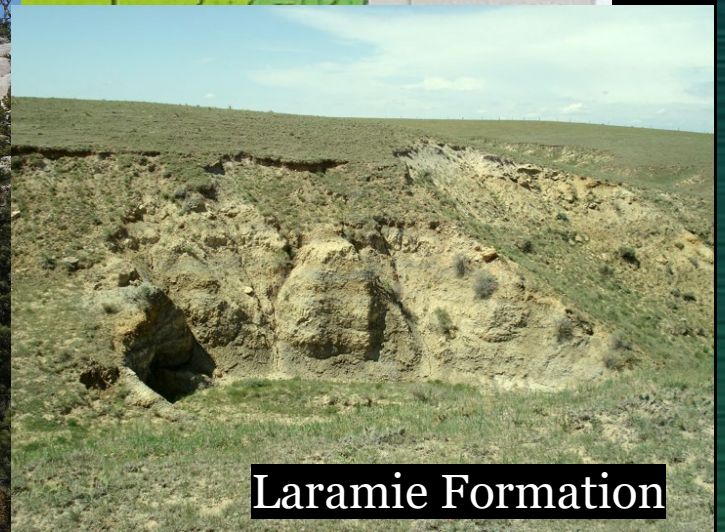
- Aquifer system that stretches from Greely to Pueblo
- Greatest depth and productivity along Palmer Divide
- Made up of hard sedimentary bedrock such as sandstones, mudstones, and conglomerates
- Not refilled by rain and snow
- Under pressure, once pressure is reduced, productivity of wells also falls
- Treated uniquely under Colorado Water Law
- Declining significantly in productivity only a few decades after first being tapped

Dawson Arkose

Denver Formation



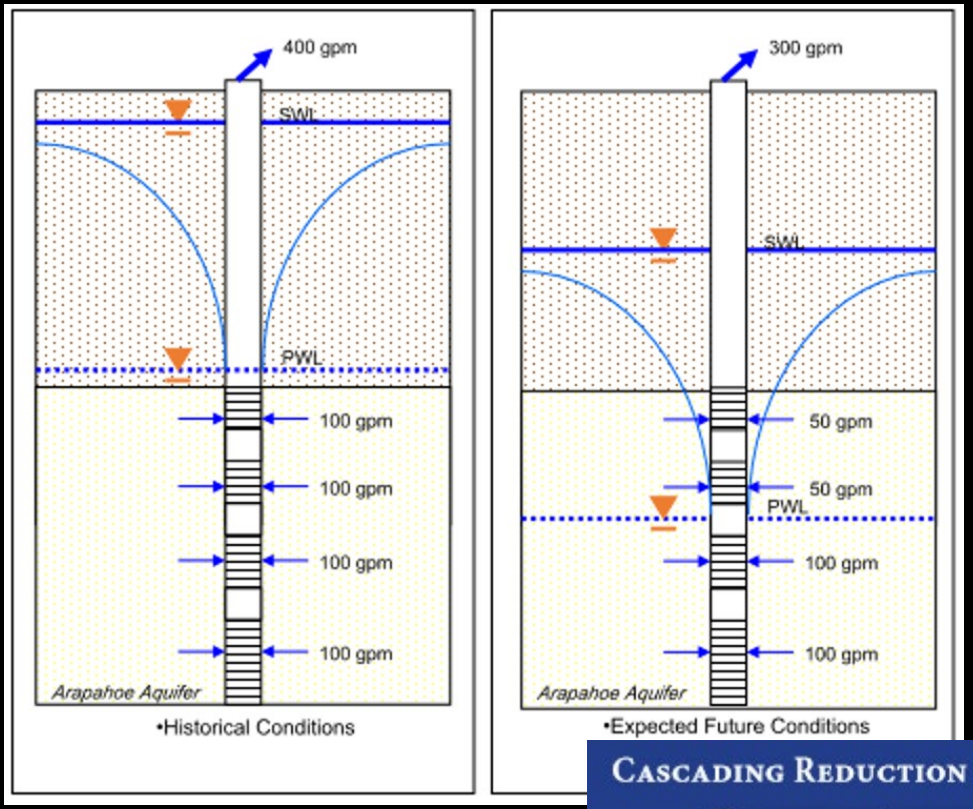
Arapahoe Formation

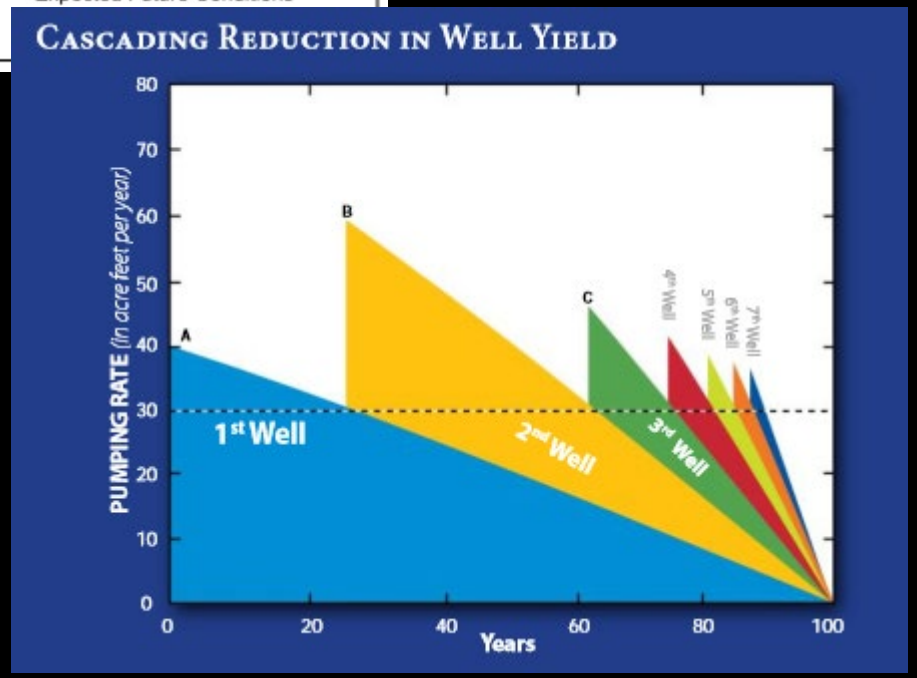


Laramie Formation

Denver Basin

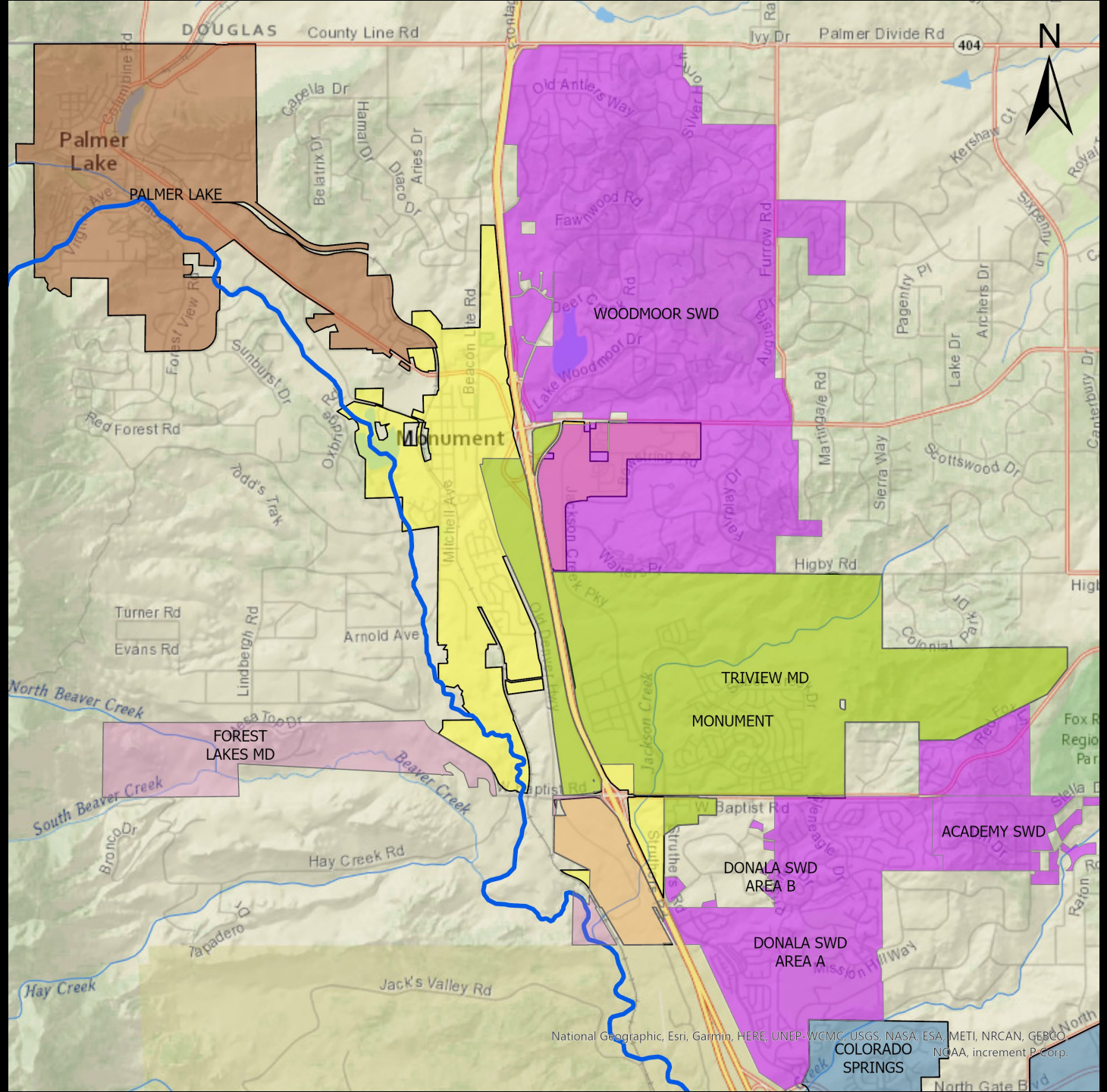
- Aquifer system that stretches from Greely to Pueblo
- Greatest depth and productivity along Palmer Divide
- Made up of hard sedimentary bedrock such as sandstones, mudstones, and conglomerates
- Not refilled by rain and snow
- Under pressure, once pressure is reduced, productivity of wells also falls
- Treated uniquely under Colorado Water Law
- Declining significantly in productivity only a few decades after first being tapped





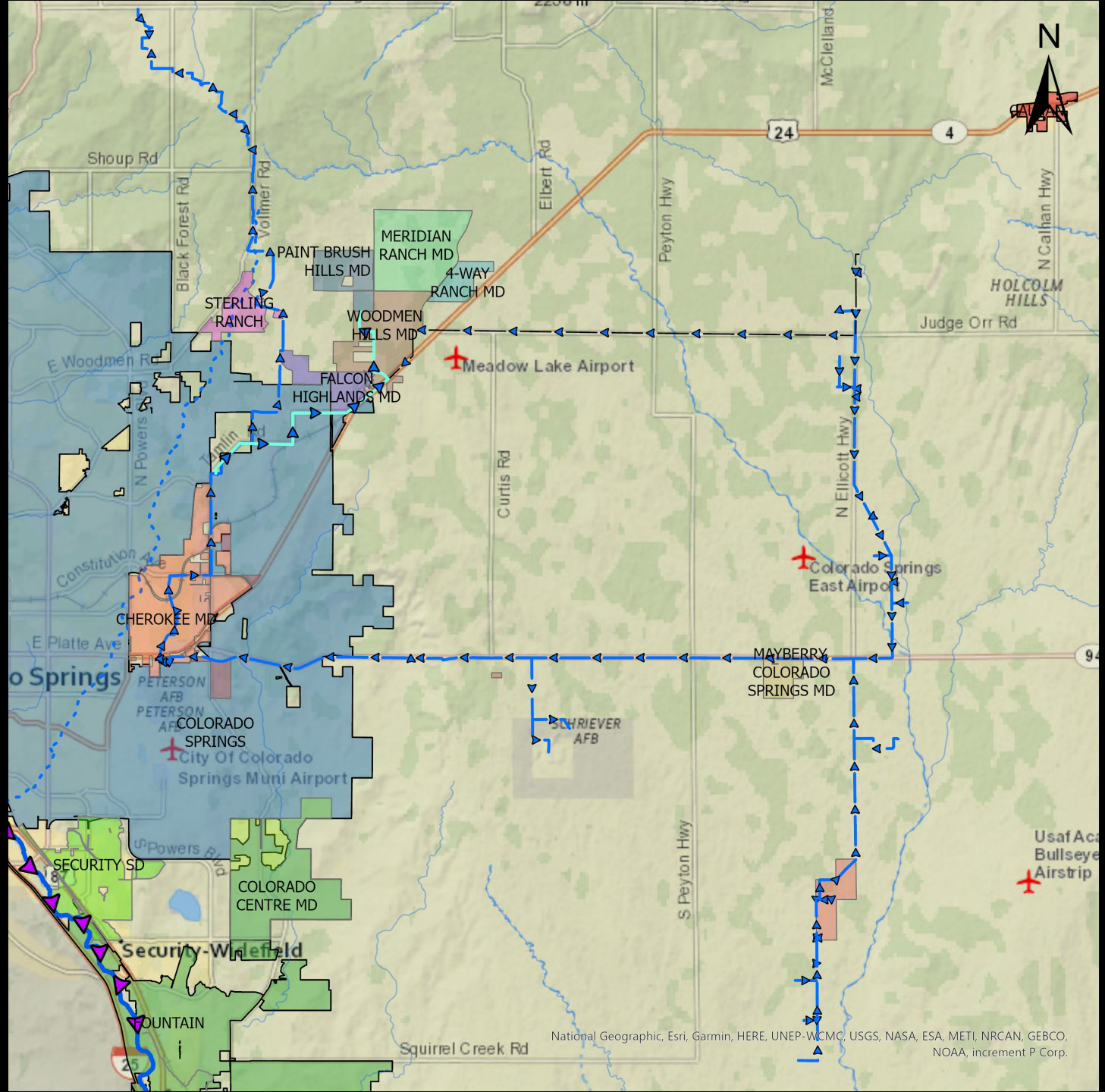
Denver Basin Productivity

- Denver basin wells decline in productivity
- Less water for each dollar
- Productivity declines in existing wells must be replaced by drilling new wells
  - New wells are also likely to be less productive
- Diminishing returns in the face of mounting costs
- At some point becomes economically unsustainable, even as there is still significant water underground



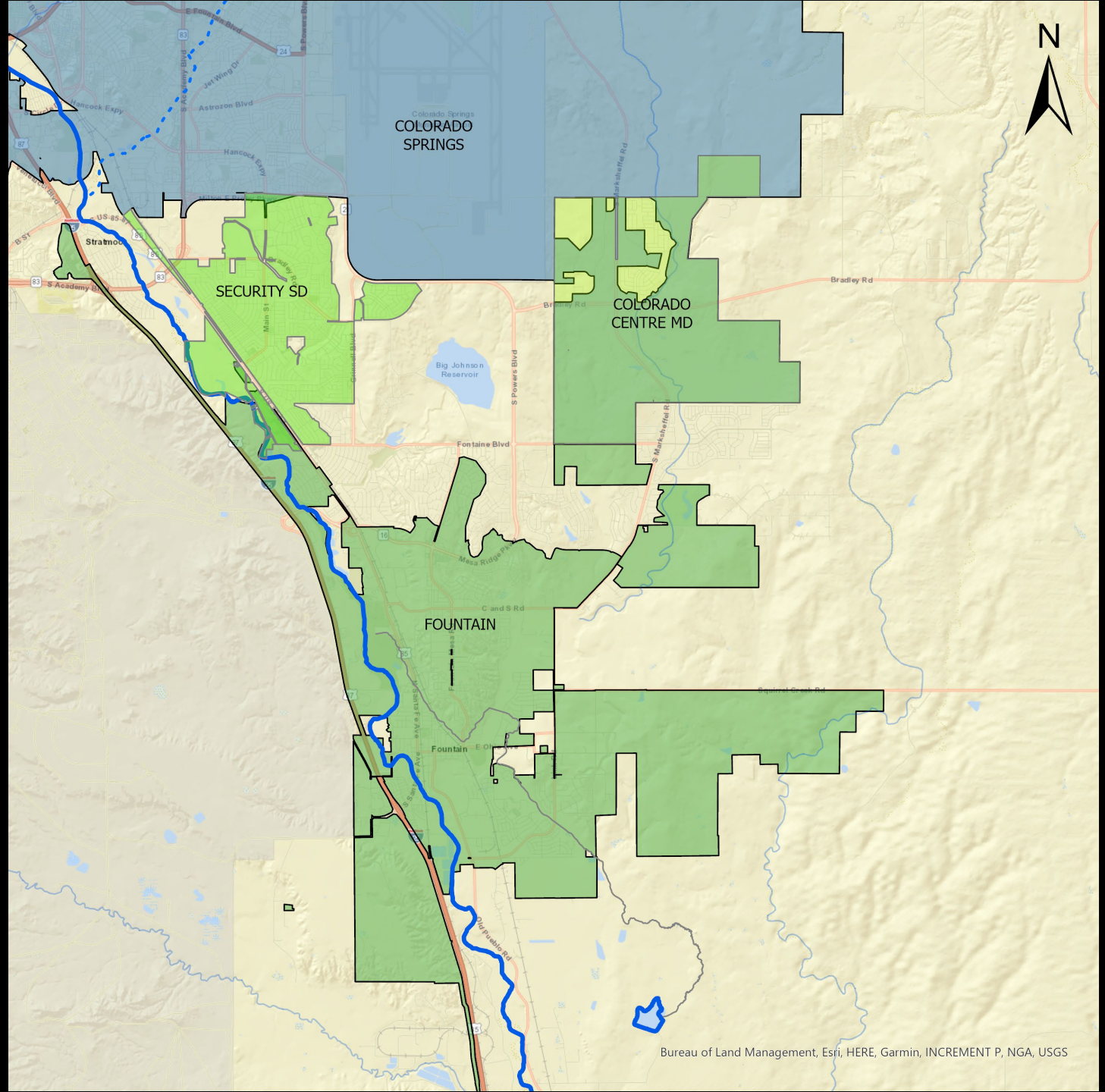
Northern Utilities

- Woodmoor, Monument, Donala, Triview, Forest Lakes, Palmer Lake
- Limited surface water rights, large majority of production from Denver Basin wells
- Treat wastewater at two facilities and discharge into Monument Creek, some return flows recaptured via exchange
- All have acquired additional surface water rights in some form, but cannot deliver full allocations to service areas
- Developing rapidly



Eastern Utilities

- Cherokee, Meridian Ranch, Woodmen Hills, Paintbrush Hills, 4-Way Ranch, Sterling Ranch
- Cherokee has unique renewable groundwater rights in the Upper Black Squirrel Basin
- All others almost entirely dependent on Denver Basin wells
- Denver Basin in this area is thinner and less productive
- Wastewater is treated at two facilities for discharge into the UBS Basin
- Developing rapidly
- Almost no renewable water outside of Cherokee
  - Meridian and Woodmen share a small renewable well



Southern Utilities

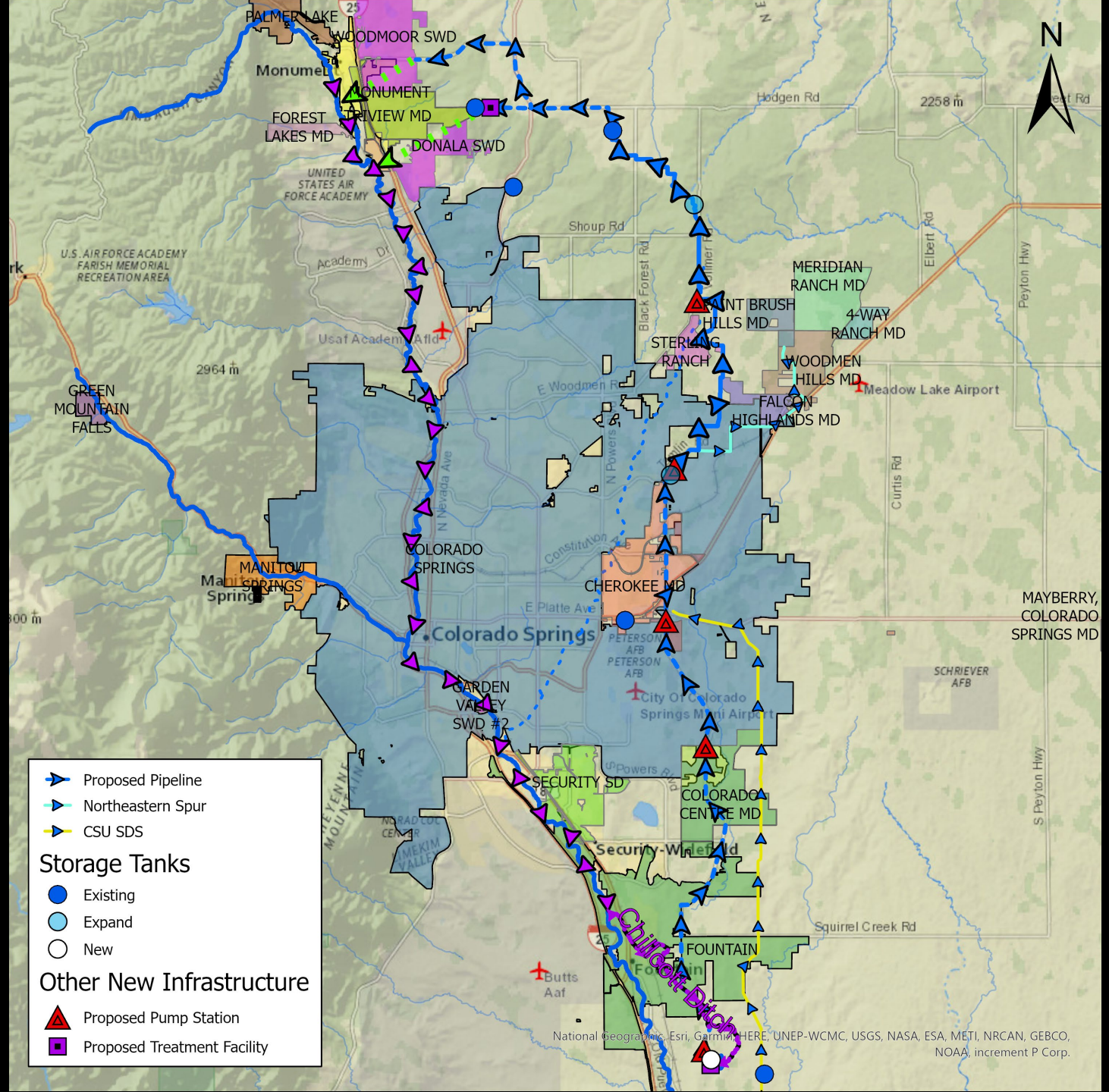
- Fountain, Security, Widefield, Colorado Centre
- Outside the Denver Basin
- Supplied with renewable surface water rights
- Still running into capacity limitations
- Treated wastewater is discharged to Fountain Creek
- Developing rapidly
- PFAS issues have led to operational challenges

Why does this matter for future development?

- Currently development outside the City of Colorado Springs has no ready water supply
- In the past developers have developed Denver Basin supplies
  - Sterling Ranch, Grandview Reserve, Meridian Ranch, Woodmen Hills…
  - Extremely expensive infrastructure including multiple wells, treatment plants, redundant piping
- In areas outside the Denver Basin, no reliable, cost-effect water supply

A solution to the constraints of the Denver Basin, now and in the future

- Northern and Southern Utilities discharge water into the Fountain-Monument watershed
- Most reusable return flows are not currently used
  - Exchanges up Monument Creek are already nearly maximized
  - Exchanges up Fountain Creek are difficult and not guaranteed
- If there were a way to pull water off Fountain creek near the southern County border, store it, and deliver it north, this water could be used
  - It would also allow utilities with stranded surface water rights to access them
- A pipeline from the southern part of the county to the north is the solution



The Loop

- Use the Chilcott ditch to deliver water to Callahan Reservoir
- Treat water and pump north
- Serves highest growth areas of the County
- Independent of City of Colorado Springs
- Only El Paso County jurisdiction
- More than replaces Denver Basin wells, allows for continued growth
- Brings new water into the UBS Basin via return flows
- Provides full redundancy for all Utilities involved

How does this help developers?

- Provides a large new water supply at reasonable rates
- Water supply will be available proximate to highest growth areas on Colorado Springs' periphery
- New water supply will be scalable
- Able to serve areas Colorado Springs Utilities cannot
- When tied to a participating wastewater system, multiplies available water and SFE's through return flows

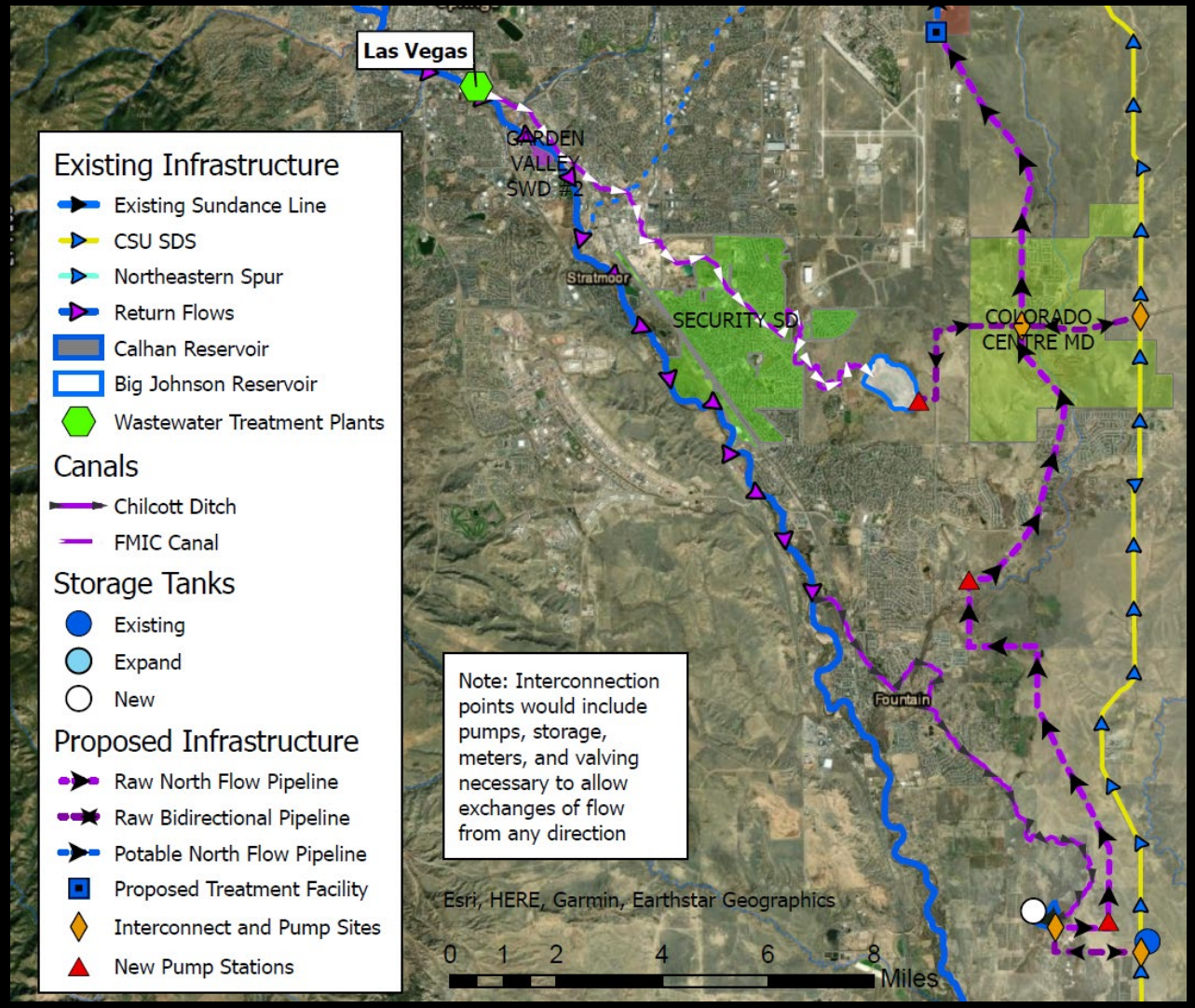
Current Population Served

- Estimates based on 2020 census
- Growth outside City has been slowed by limited and expensive water
- Southern utilities may or may not need to join, but could benefit them
- Not all of current population will be directly served, but future population expansion will be
- Northern and Eastern utilities have approximately 28% of EPC's non-CS population (242,182 in 2019 estimate)
  - Including Southern utilities, that percentage increases to 56%

Northern Utilities	
Donala Water and Sanitation District	8639
Forest Lakes Metropolitan District	813
Town of Monument and Triview MD	10399
Woodmoor Water and Sanitation District	10000
Eastern Utilities	
Cherokee Metropolitan District	23852
Falcon Highlands Metropolitan District	1471
Four Way Ranch Metropolitan District	128
Meridian Service Metropolitan District	8816
Paintbrush Hills Metropolitan District	3159
Sterling Ranch Metropolitan District	430
Woodmen Hills Metropolitan District	8652
Denver Basin Total	**76359**

Southern Utilities	**2020**
Fountain	30700
Security - Widefield	37950
Total	**68650**

“The fact is that the region has to have resiliency.”



Redundant Projects

- Parallel cost study involving Colorado Springs Utilities also underway
  - Intention to use CSU infrastructure
- Both projects could support each other providing options to current and future water providers
- Concerns with a Colorado Springs Utilities-managed system
  - Limitations to service area
  - High cost of delivery
  - Rates and deliveries subject to change by CSU
  - Short term contracts
  - Water rights concerns

Challenges

- Entire project is technically and legally feasible
- But it is expensive
  - Raising funds only from participants would require major rate hikes
    - Without it, some boards may keep drilling Denver Basin wells as it is economical for now
- Requires significant new regional infrastructure
- Requires regulatory/budget approval from many groups

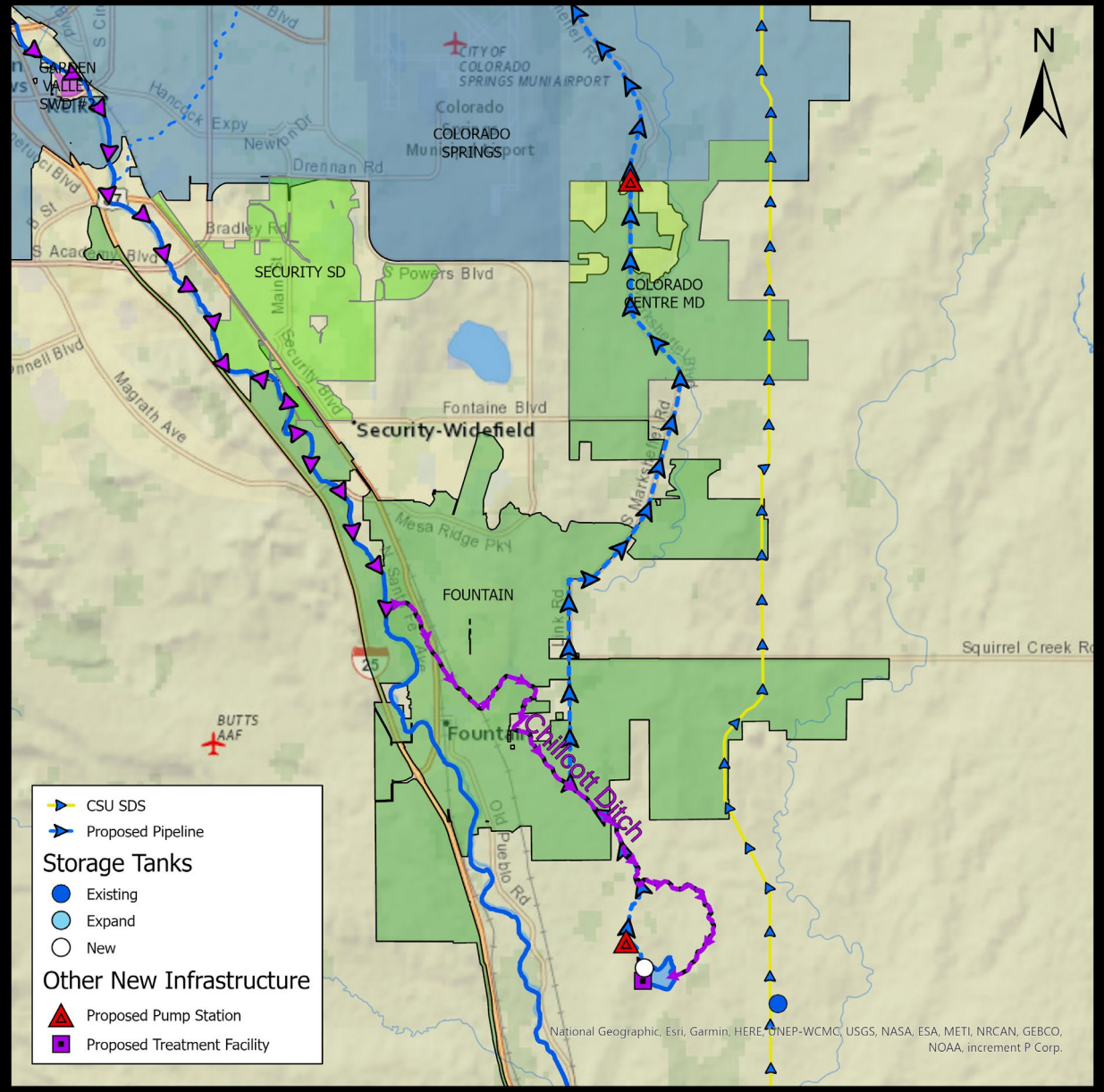
Next Steps

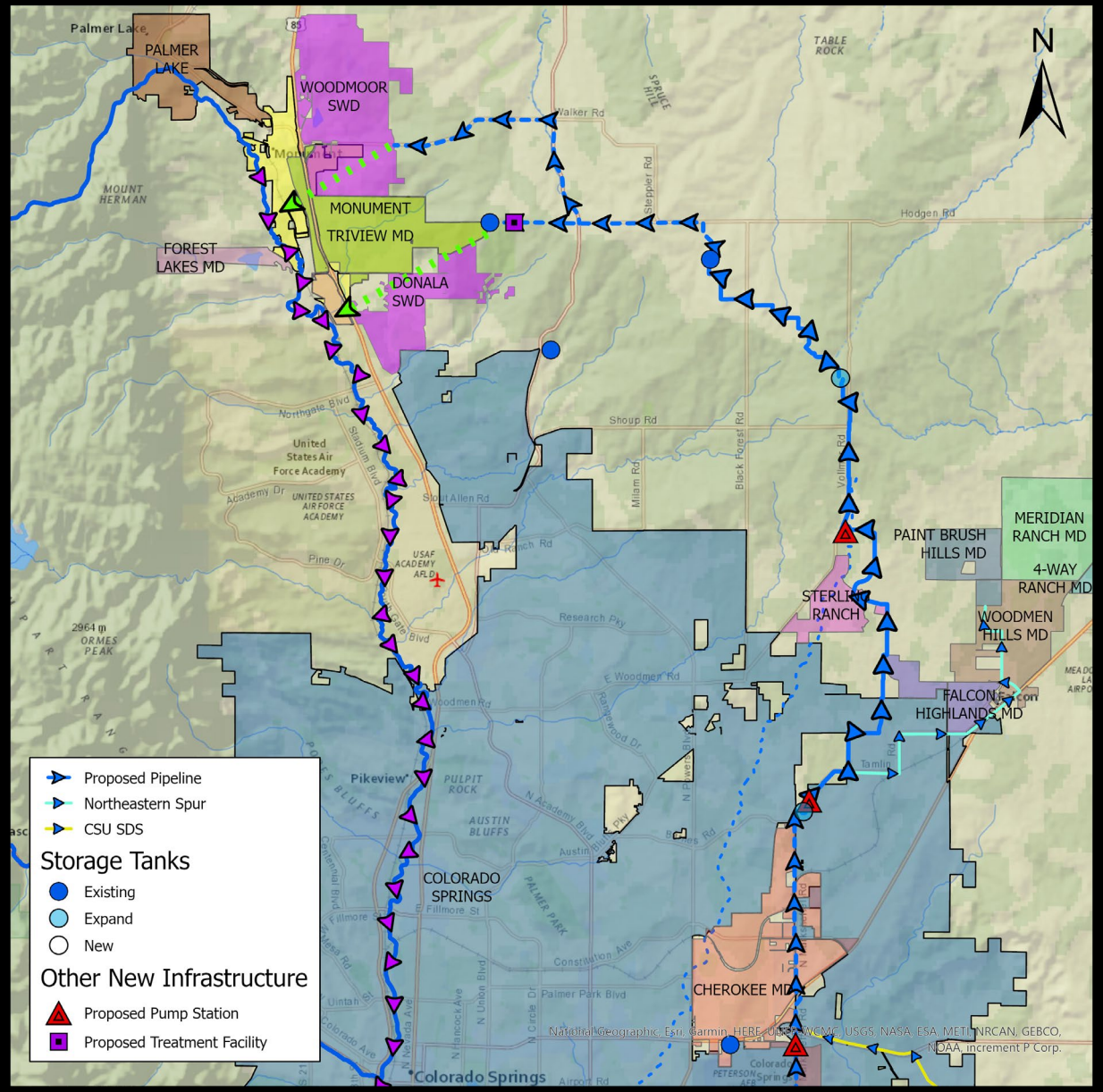
- Cost study preliminary results available, soon to be finalized
- After completion, compare to CSU study projects
- Develop final list of founding members
  - Leave door open to others to join later on
  - Finalize framework for post-construction partners
- Develop funding plan from participants and other groups
- Engineering and construction
- Water delivery

Project Needs

- We can either continue on an economically unsustainable Denver Basin path, or take this opportunity to convert to renewable water
- This will be expensive, but so will continuing to drill Denver Basin wells
- We are looking for partners to share a major fraction of the upfront project cost to bring in more partners and keep water rates low
- Federal infrastructure appropriations offer opportunity to accelerate the project
    - Previous Federal projects such as Fryingpan-Arkansas have been foundational to southern Colorado's development
- This project would allow for continued growth in the County while protecting aquifer levels for small capacity users

Questions


CSU SDS
Proposed Pipeline
Storage Tanks
Existing
Expand
New
Other New Infrastructure
Proposed Pump Station
Proposed Treatment Facility
Security-Widefield
FOUNTAIN
COLORADO SPRINGS
COLORADO CENTRE MD
SECURITY SD
GARDEN VALLEY SWD #2
CITY OF COLORADO SPRINGS MUNI AIRPORT
Chilcott Ditch
BUTTS AAF
Squirrel Creek Rd
Fontaine Blvd
S Powers Blvd
Bradley Rd
Drennan Rd
Hancock Expy
Mesa Ridge Pky
Magrath Ave
Pueblo Rd
National Geographic, Esri, Garmin, HERE, GNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.


Proposed Pipeline
Northeastern Spur
CSU SDS
Storage Tanks
Existing
Expand
New
Other New Infrastructure
Proposed Pump Station
Proposed Treatment Facility
PALMER LAKE
WOODMOOR SWD
MONUMENT
TRIVIEW MD
FOREST LAKES MD
DONALA SWD
COLORADO SPRINGS
CHEROKEE MD
PAINT BRUSH HILLS MD
MERIDIAN RANCH MD
4-WAY RANCH MD
STERLING RANCH
WOODMEN HILLS MD
FALCON HIGHLANDS MD
United States Air Force Academy
Pikeview
Colorado Springs
Palmer Lake
Walker Rd
Hodgen Rd
Shoup Rd
Research Pky
Woodmen Rd
Palmer Park Blvd
Constitution Ave
National Geographic, Esri, Garmin, HERE, USGS, WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.