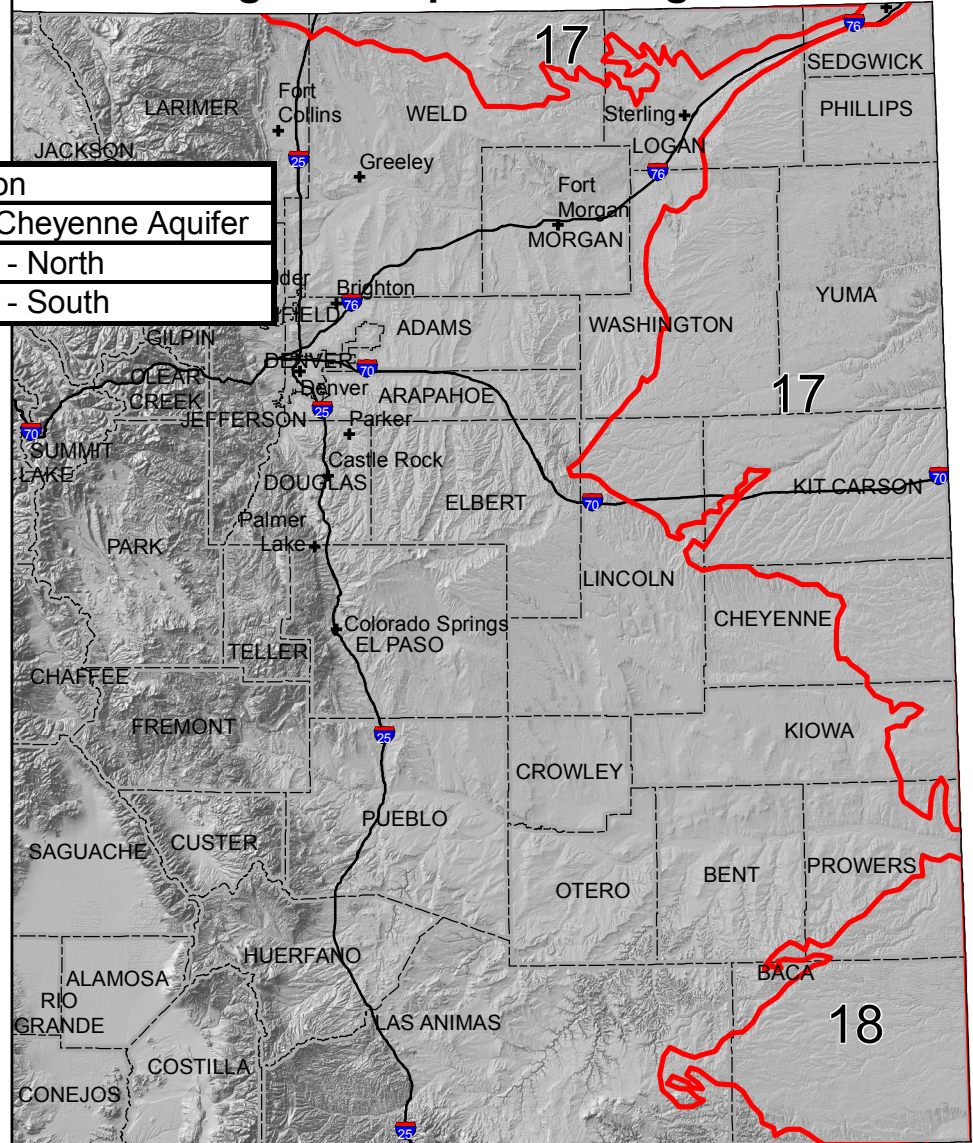
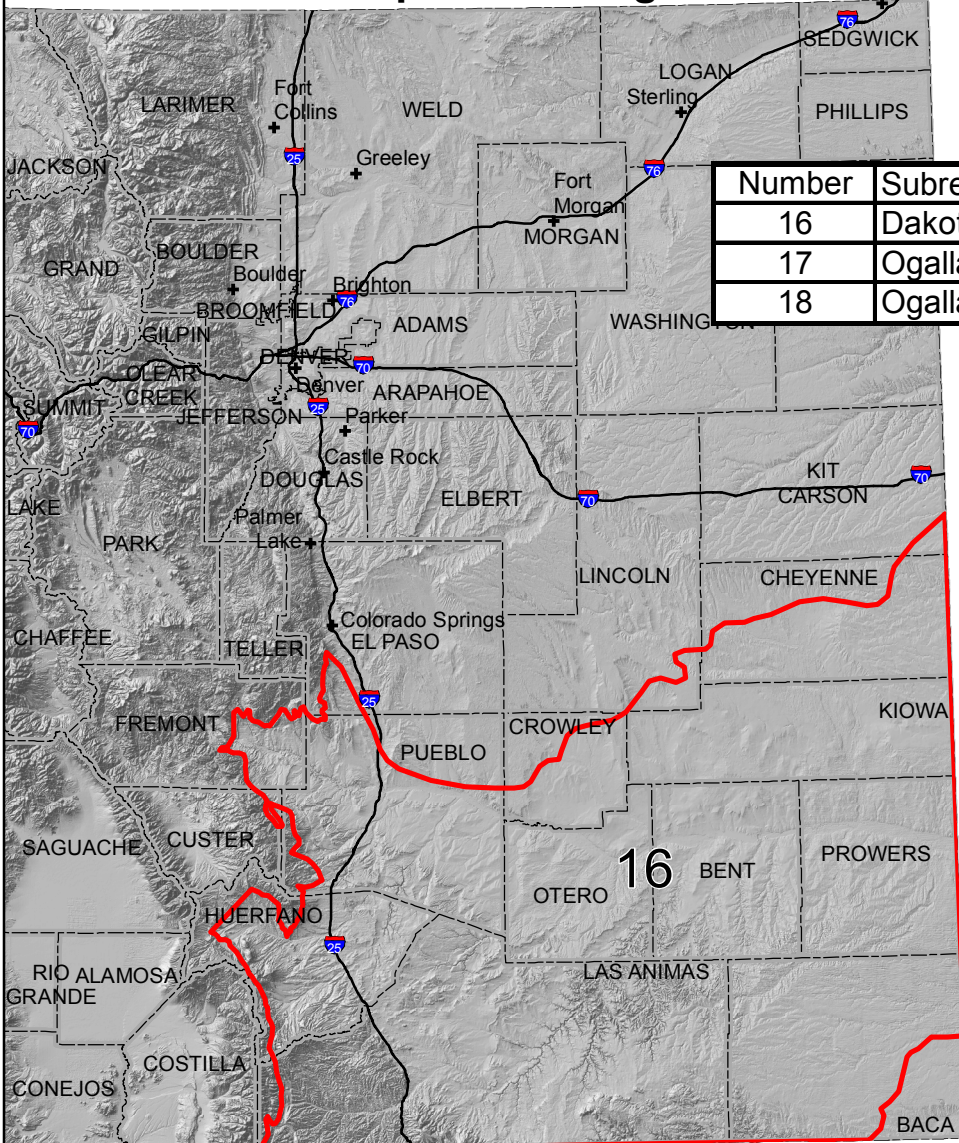


# SB06-193 Underground Water Storage Study

## Dakota and Ogallala Bedrock Aquifer Subregions

### Dakota Aquifer Subregion

### Ogallala Aquifer Subregions



Number	Subregion
16	Dakota-Cheyenne Aquifer
17	Ogallala - North
18	Ogallala - South

Northern extent of the Dakota aquifer is drawn where depth to top of formation becomes greater than 2,000 feet.  
 Source: Robson and Banta 1987

Source: Topper et al. 2003



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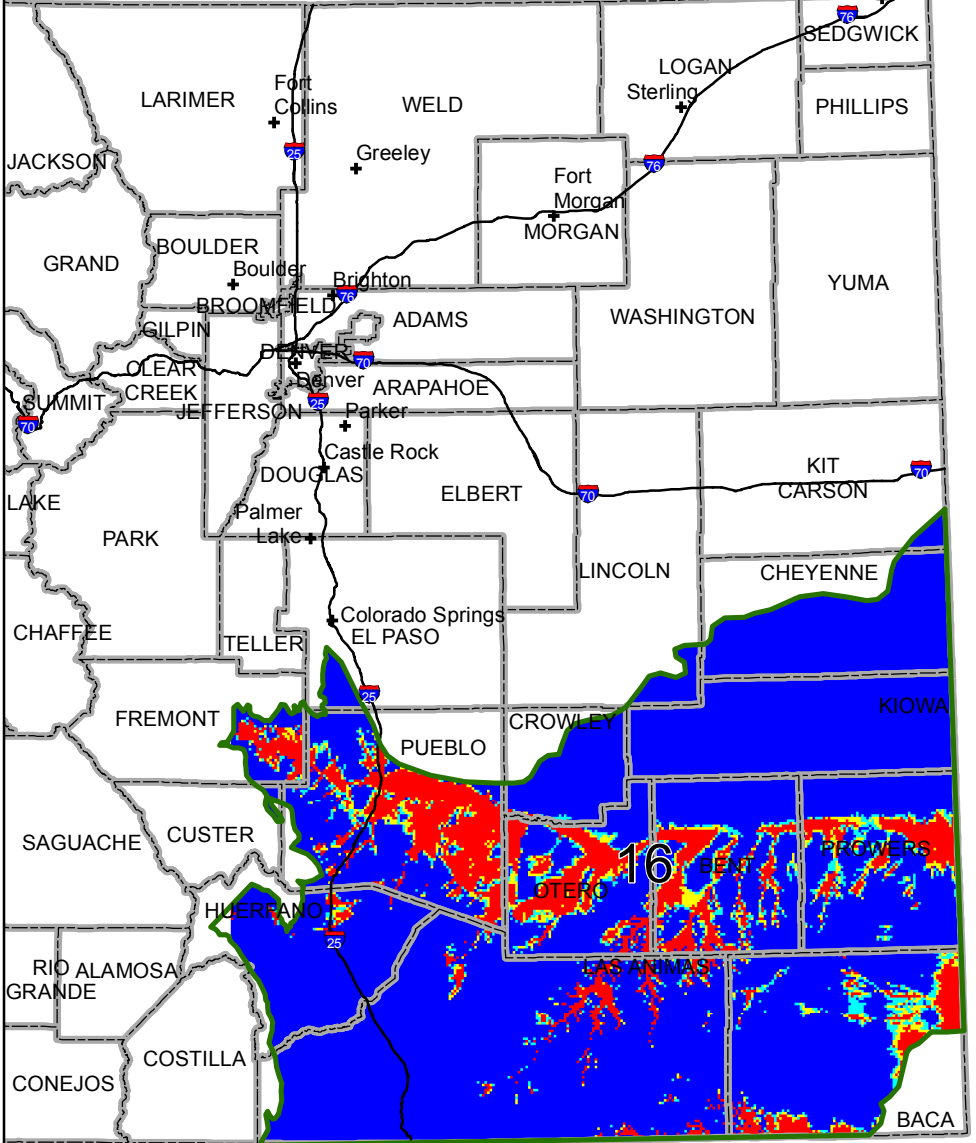
Prepared by: **CDM**

**Figure 35**

# SB06-193 Underground Water Storage Study

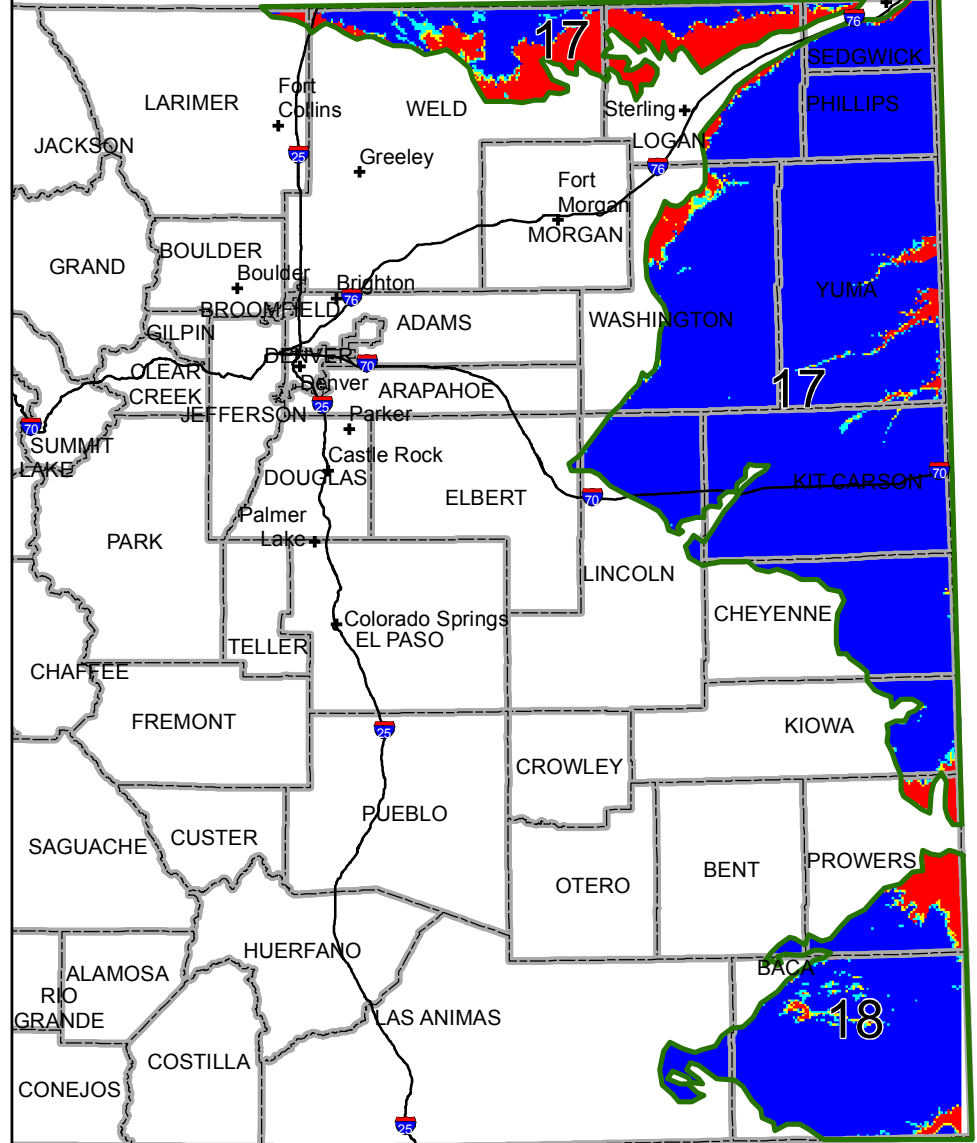
## Dakota and Ogallala Bedrock Aquifer Depth to Potentiometric Surface

### Dakota Aquifer Subregion

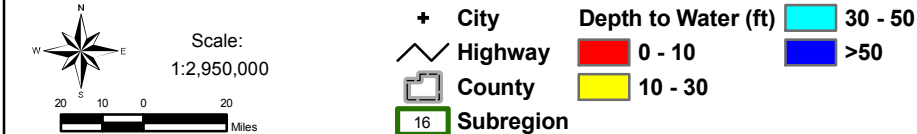


Northern extent of the Dakota aquifer is drawn where depth to top of formation becomes greater than 2,000 feet.  
Source: Robson and Banta 1987

### Ogallala Aquifer Subregions



Source: Robson and Banta 1995



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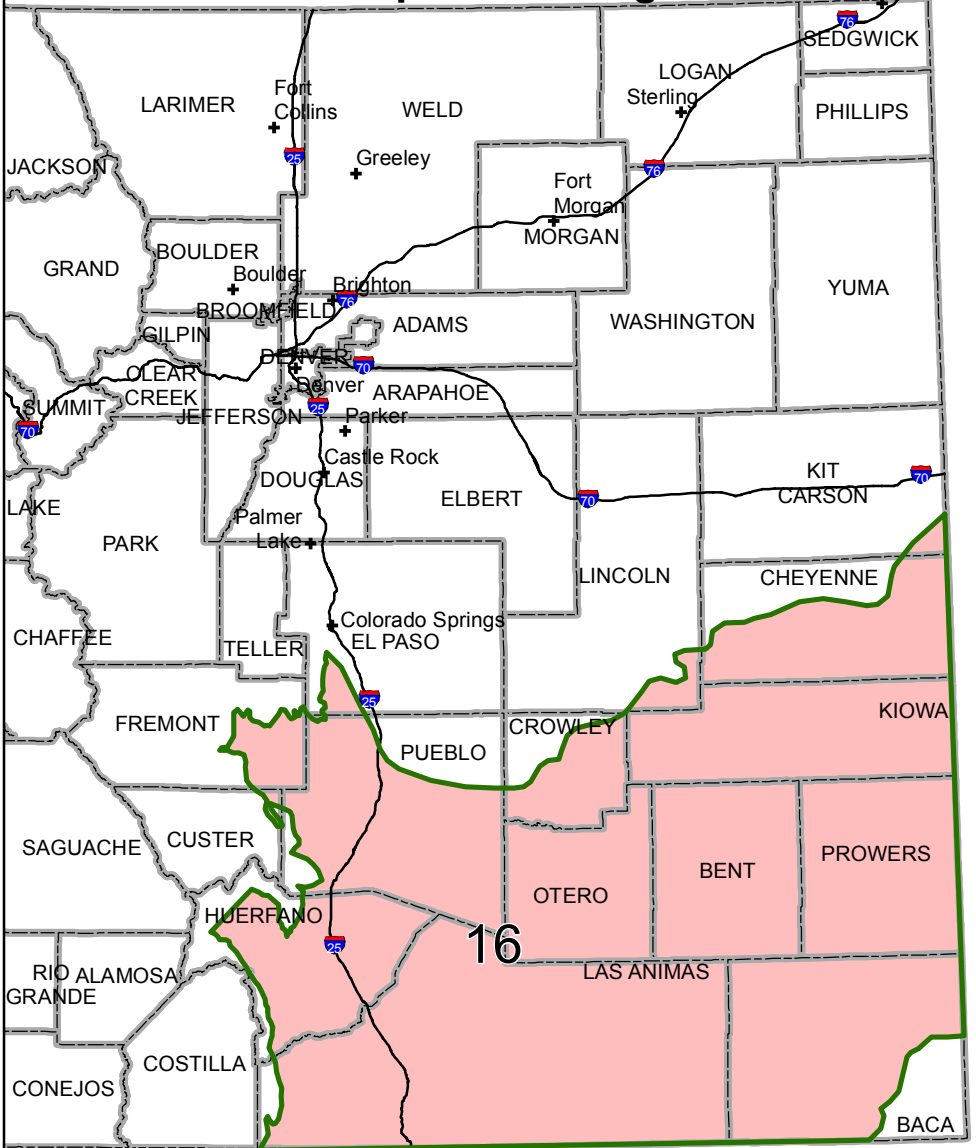
Prepared by: CDM

Figure 36

# SB06-193 Underground Water Storage Study

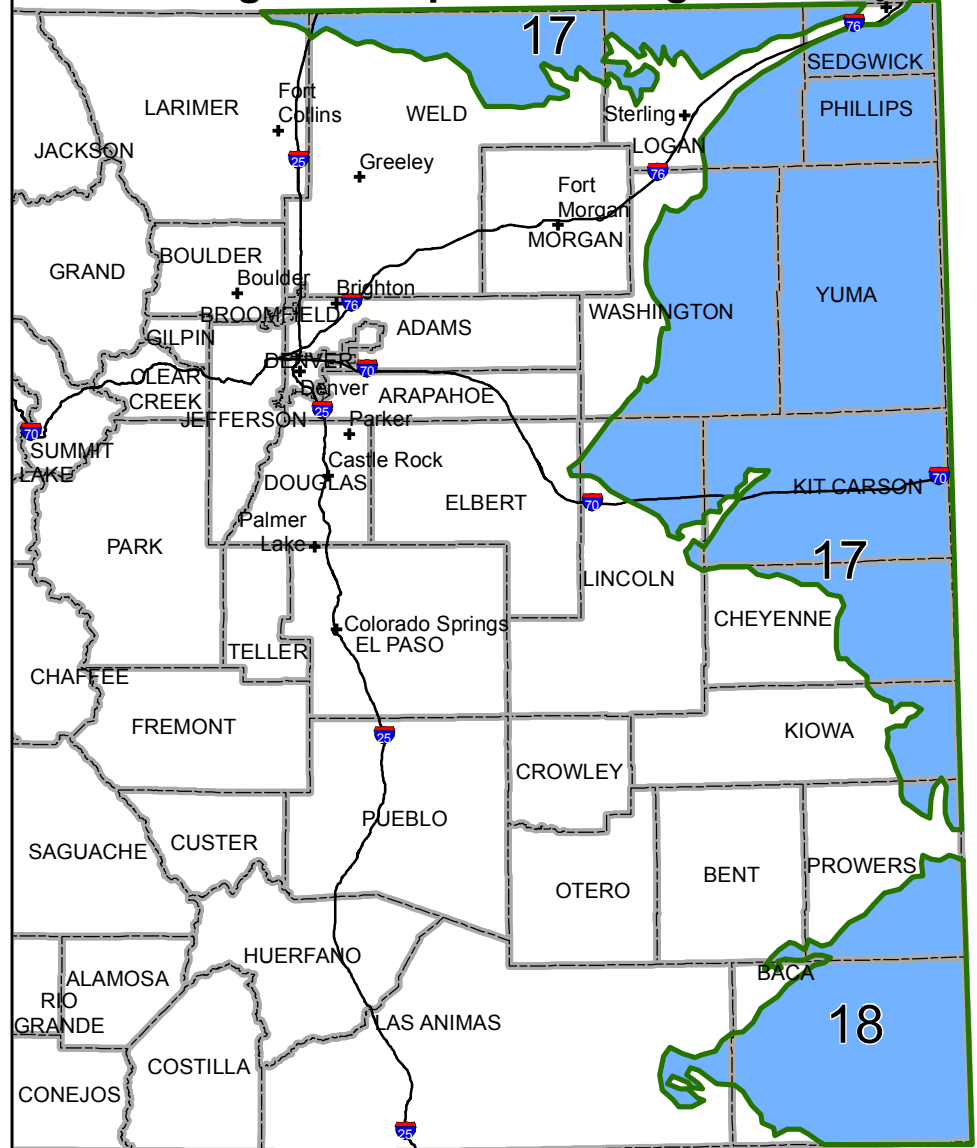
## Dakota and Ogallala Bedrock Aquifer Available Storage Capacity

### Dakota Aquifer Subregion

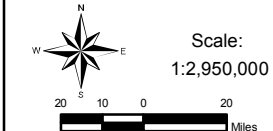


Northern extent of the Dakota aquifer is drawn where depth to top of formation becomes greater than 2,000 feet.  
Source: Robson and Banta 1987

### Ogallala Aquifer Subregions



Source: Robson and Banta 1995



- + City
  - Highway
  - County
  - Subregion 16
- | Ac-ft/Ac  | Color       |
|-----------|-------------|
| 0.0 - 2.0 | Pink        |
| 2.0 - 4.0 | Orange      |
| 4.0 - 6.0 | Yellow      |
| 6.0 - 8.0 | Light Green |
| > 8.0     | Blue        |

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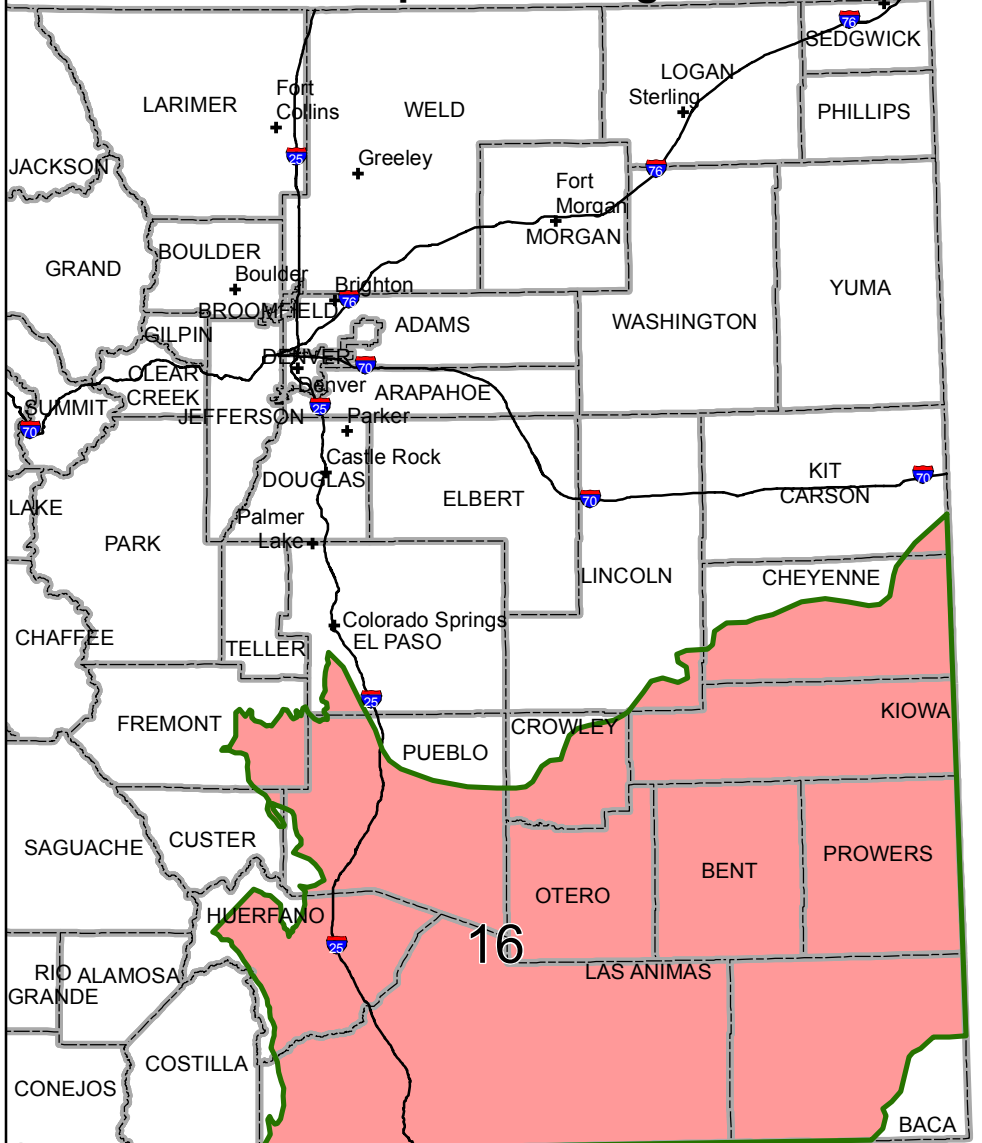
Prepared by: CDM

Figure 37

# SB06-193 Underground Water Storage Study

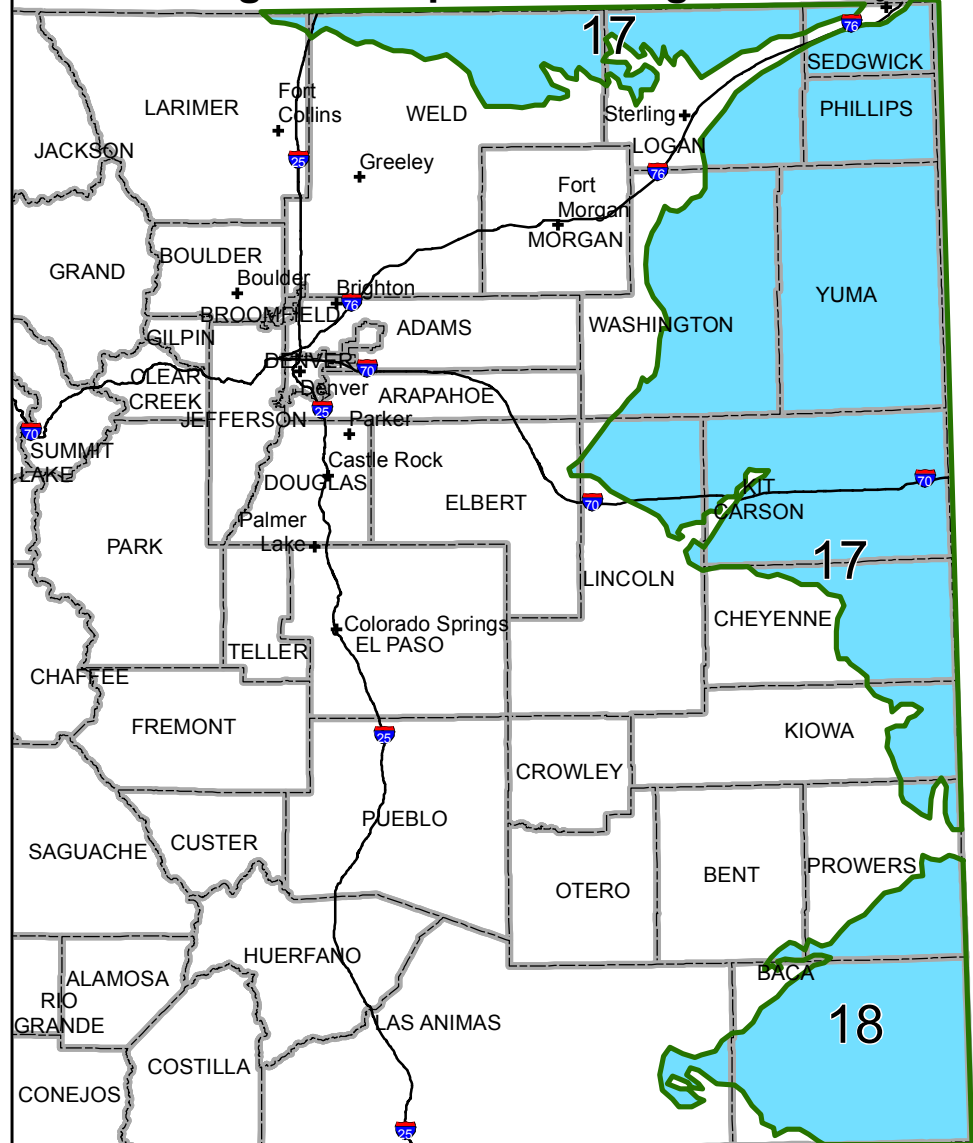
## Dakota and Ogallala Bedrock Aquifer Transmissivity

### Dakota Aquifer Subregion



Northern extent of the Dakota aquifer is drawn where depth to top of formation becomes greater than 2,000 feet.  
 Source: Robson and Banta 1987

### Ogallala Aquifer Subregions



Source: Robson and Banta 1995

Scale:  
1:2,950,000

0 10 20 Miles

+ City

Highway

County

16 Subregion

Transmissivity (ft<sup>2</sup>/day)

0 - 300

301 - 601

601 - 900

> 900

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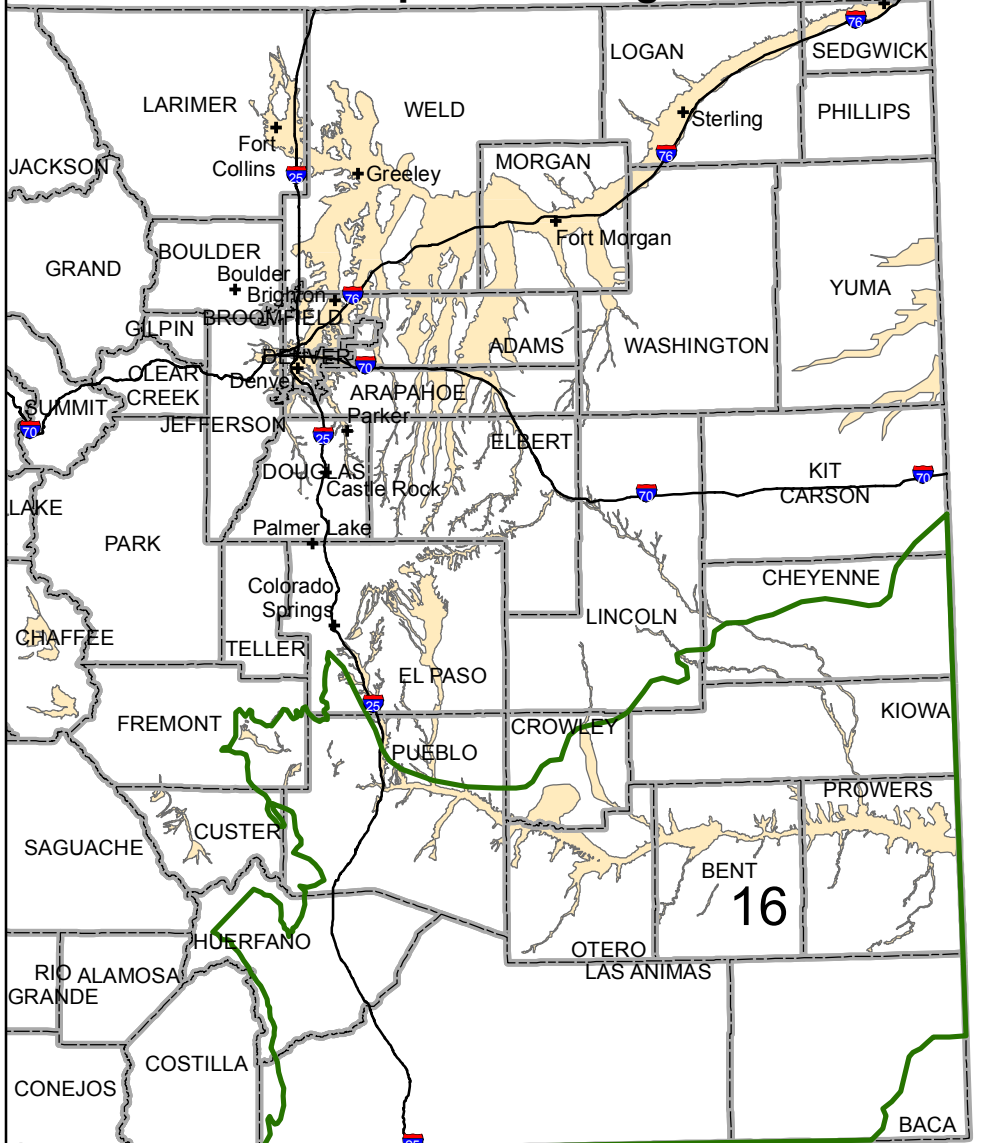


Prepared by: **CDM**

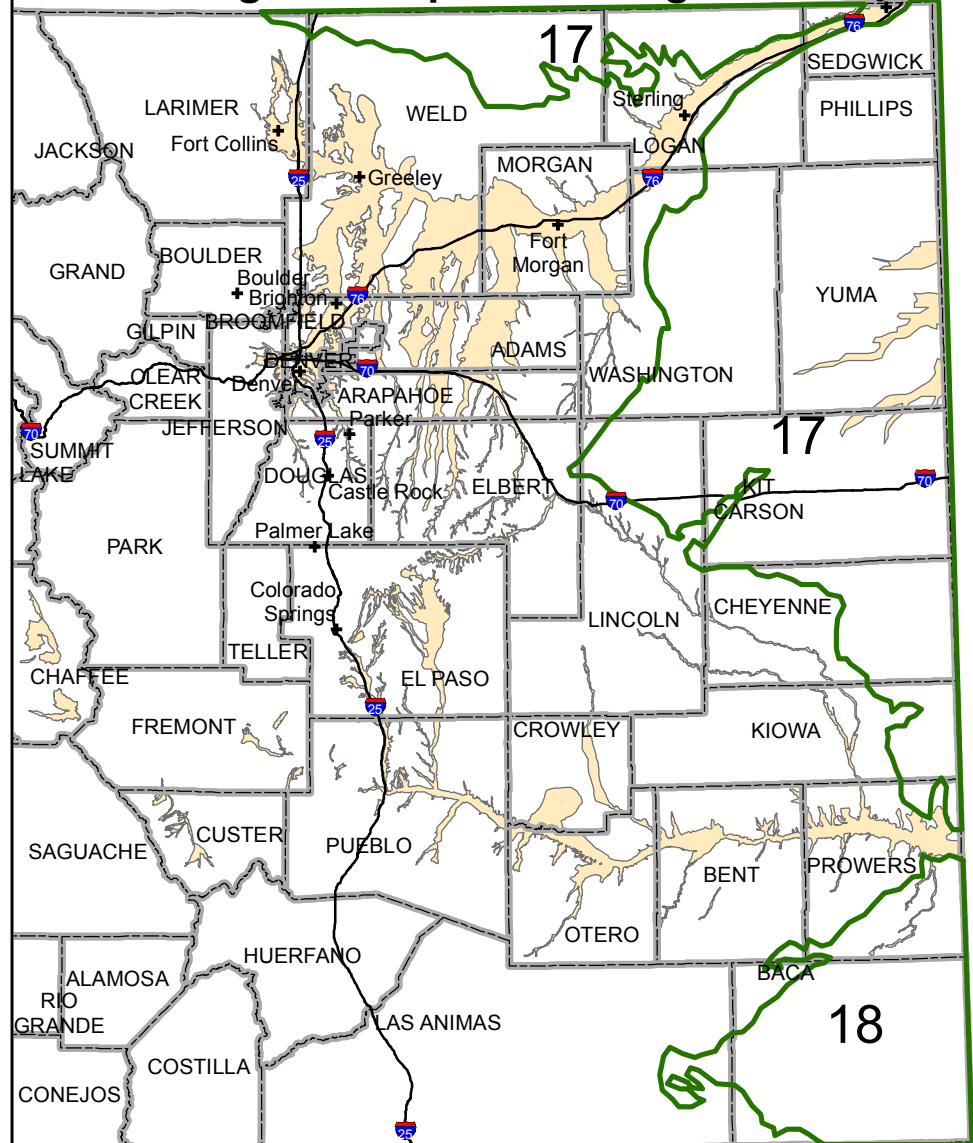
SB06-193 Underground Water Storage Study

Dakota and Ogallala Bedrock Aquifer Proximity to Alluvial Aquifers

Dakota Aquifer Subregion

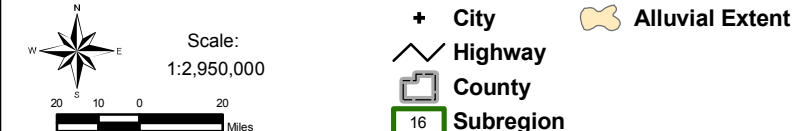


Ogallala Aquifer Subregions



Northern extent of the Dakota aquifer is drawn where depth to top of formation becomes greater than 2,000 feet. Source: CDM 2006e; Jenkins & Taylor 1972; Topper et al. 2003

Proximity to alluvial aquifers only applies to unconfined regions of bedrock aquifers. Sources: CDM 2006e; Jenkins & Taylor 1972; Topper et al. 2003



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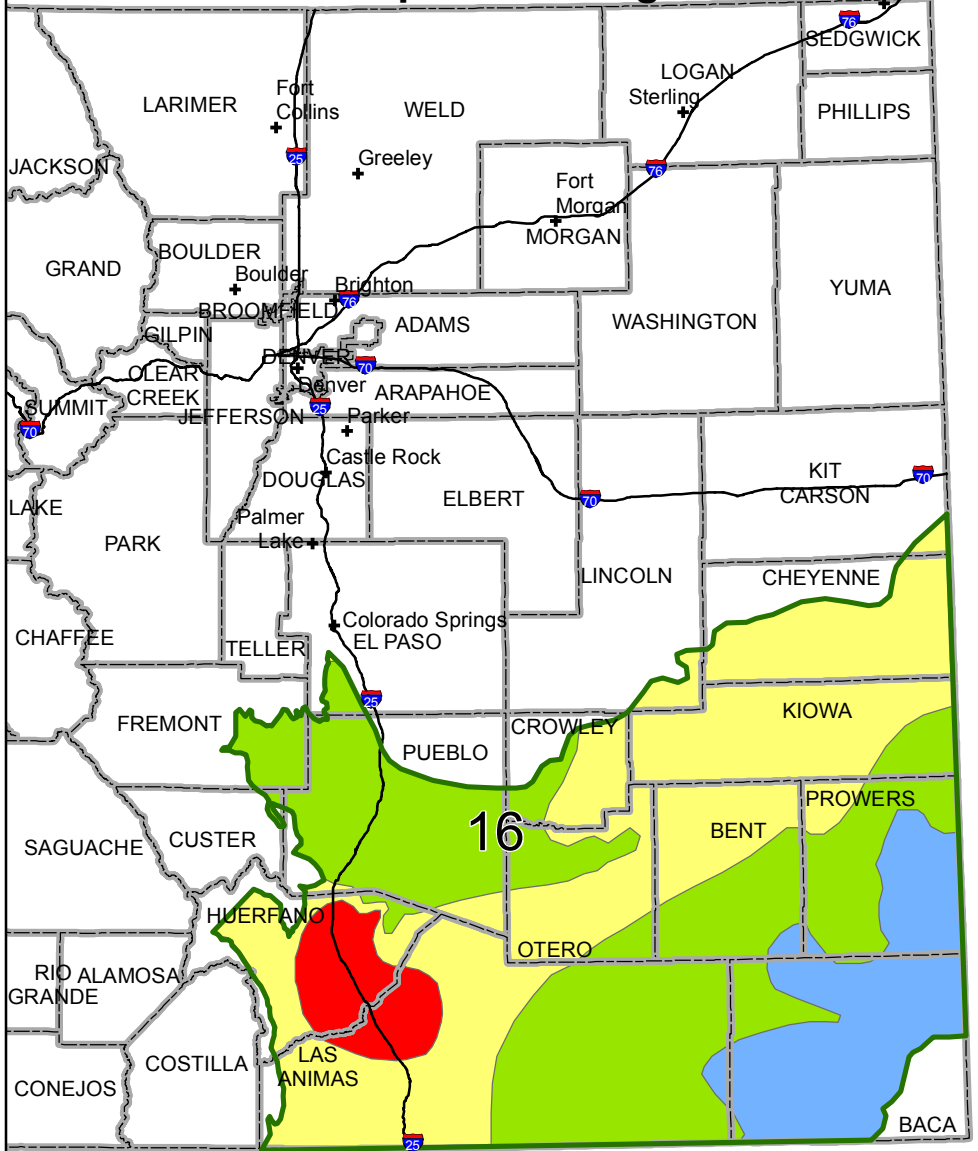
Prepared by: CDM

Figure 39

# SB06-193 Underground Water Storage Study

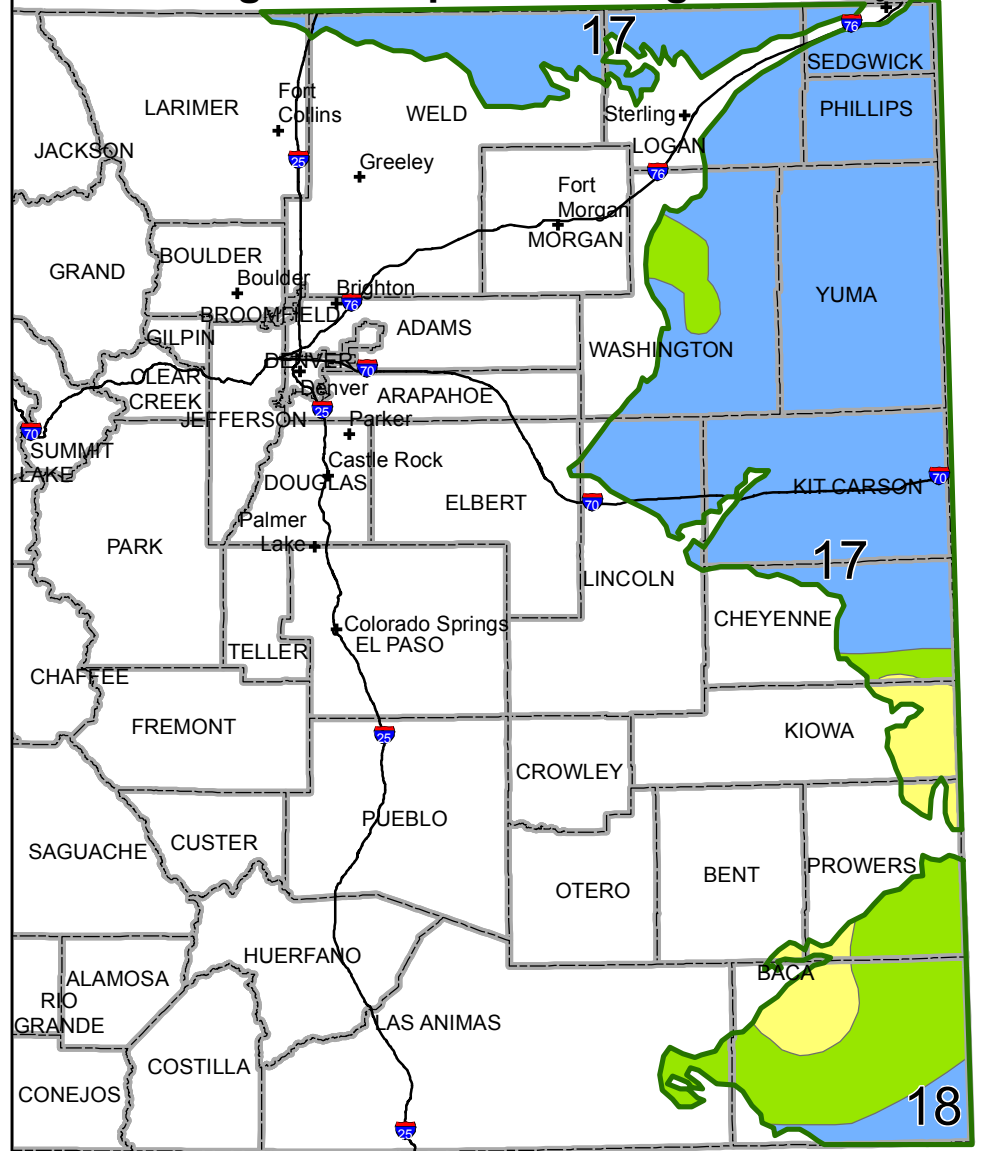
## Dakota and Ogallala Bedrock Aquifer TDS Values

### Dakota Aquifer Subregion

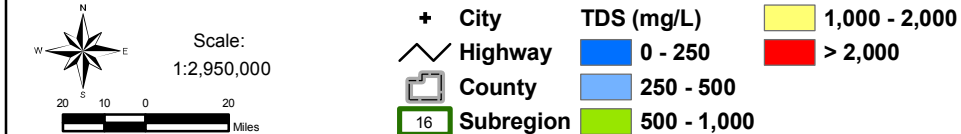


Northern extent of the Dakota aquifer is drawn where depth to top of formation becomes greater than 2,000 feet.  
Source: Topper et al. 2003

### Ogallala Aquifer Subregions



Source: Topper et al. 2003



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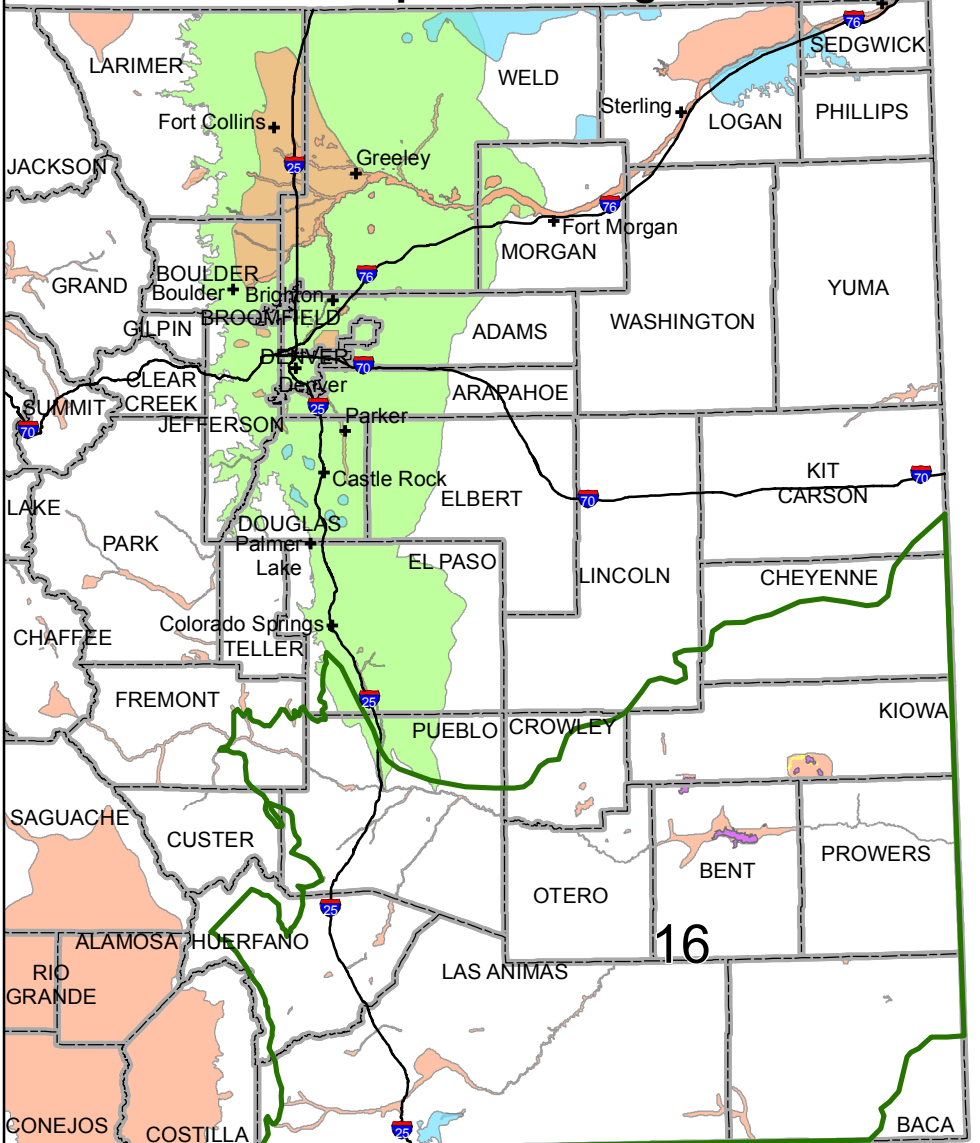
Prepared by: **CDM**

**Figure 40**

# SB06-193 Underground Water Storage Study

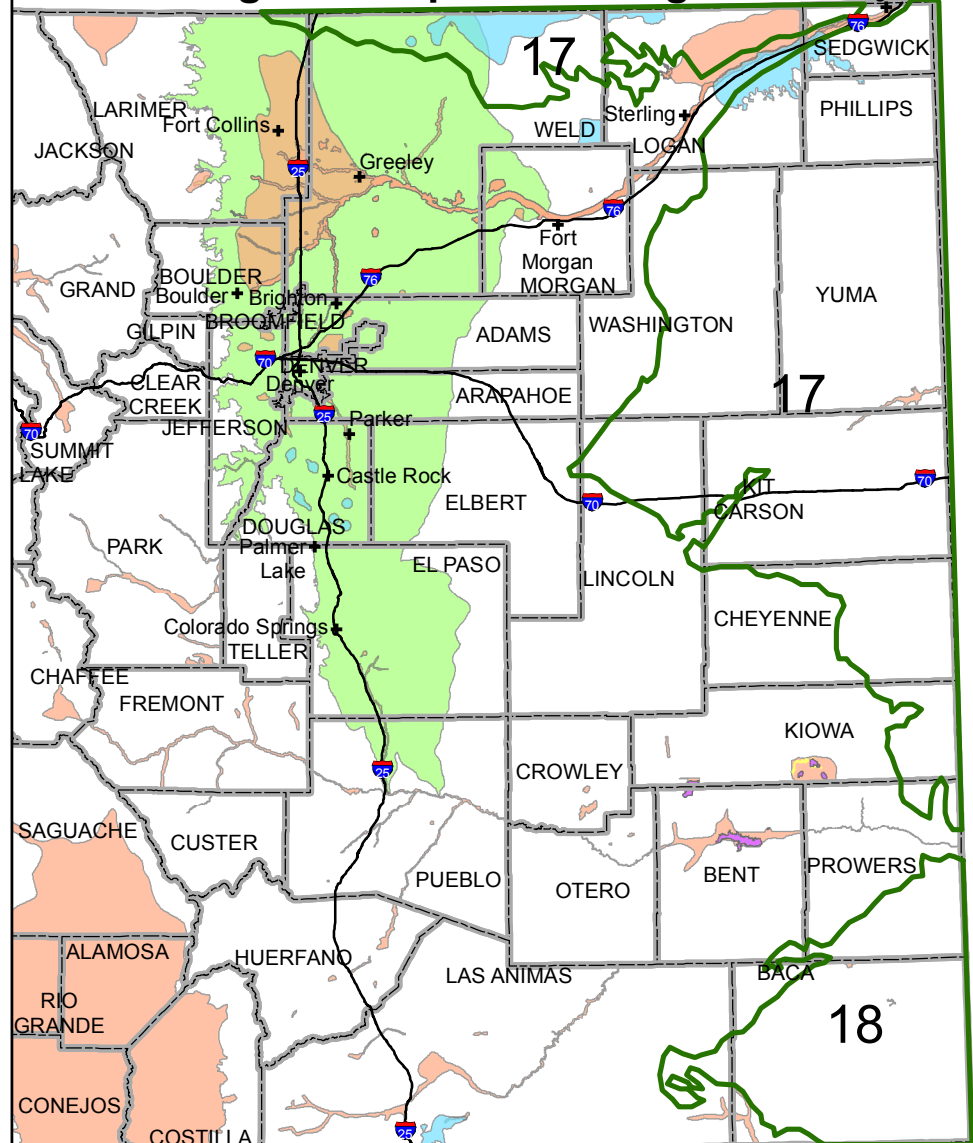
## Dakota and Ogallala Bedrock Aquifer Potential Habitat Concerns

### Dakota Aquifer Subregion

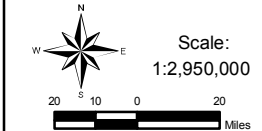


Northern extent of the Dakota aquifer is drawn where depth to top of formation becomes greater than 2,000 feet.  
Sources: CDOW 2006 a-f

### Ogallala Aquifer Subregions



Sources: CDOW 2006 a-f



- Least Tern Foraging Area
- Bald Eagle Range
- Plains Sharp-Tailed Grouse Range
- Preble's Meadow Jumping Mouse Range
- Subregion

- Piping Plover Foraging Area

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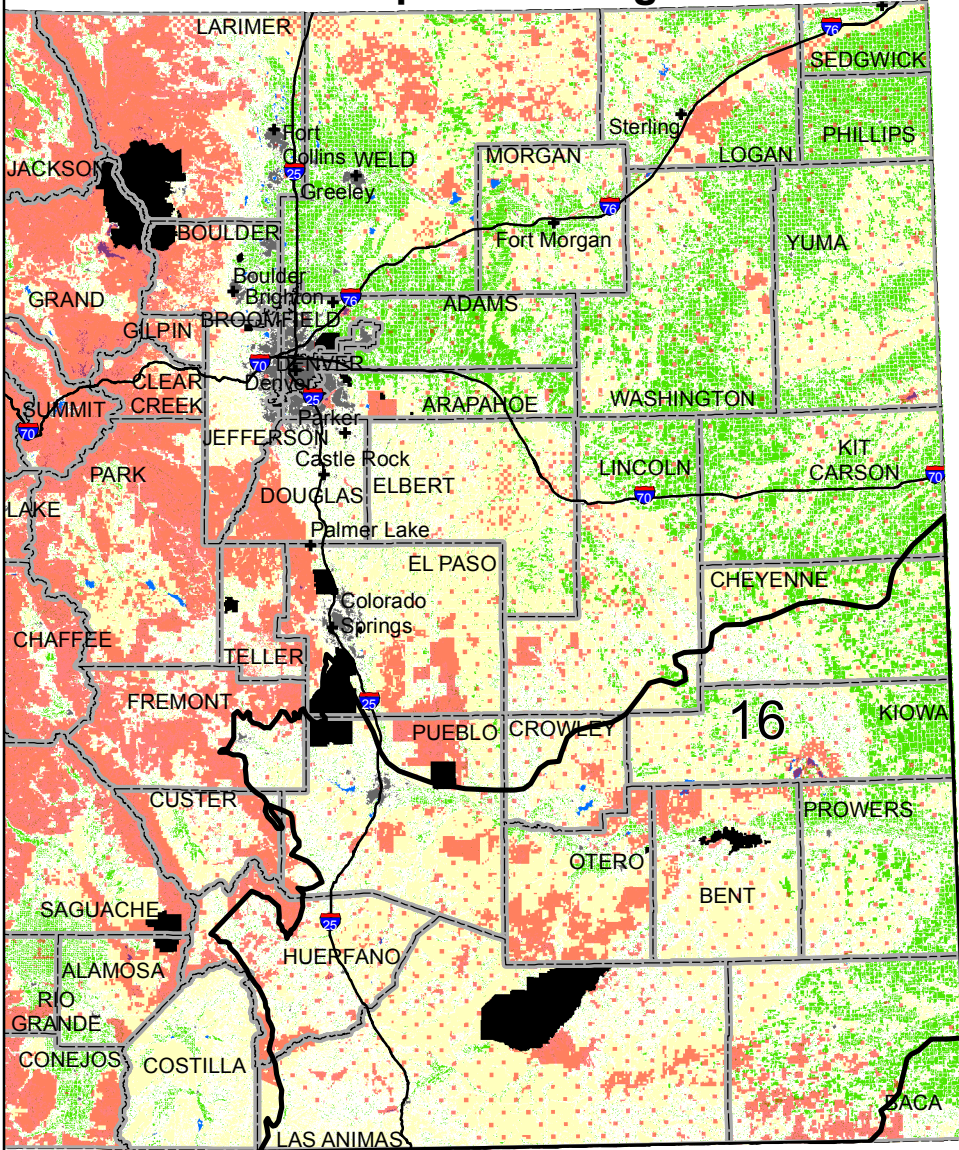
Prepared by: **CDM**

**Figure 41**

# SB06-193 Underground Water Storage Study

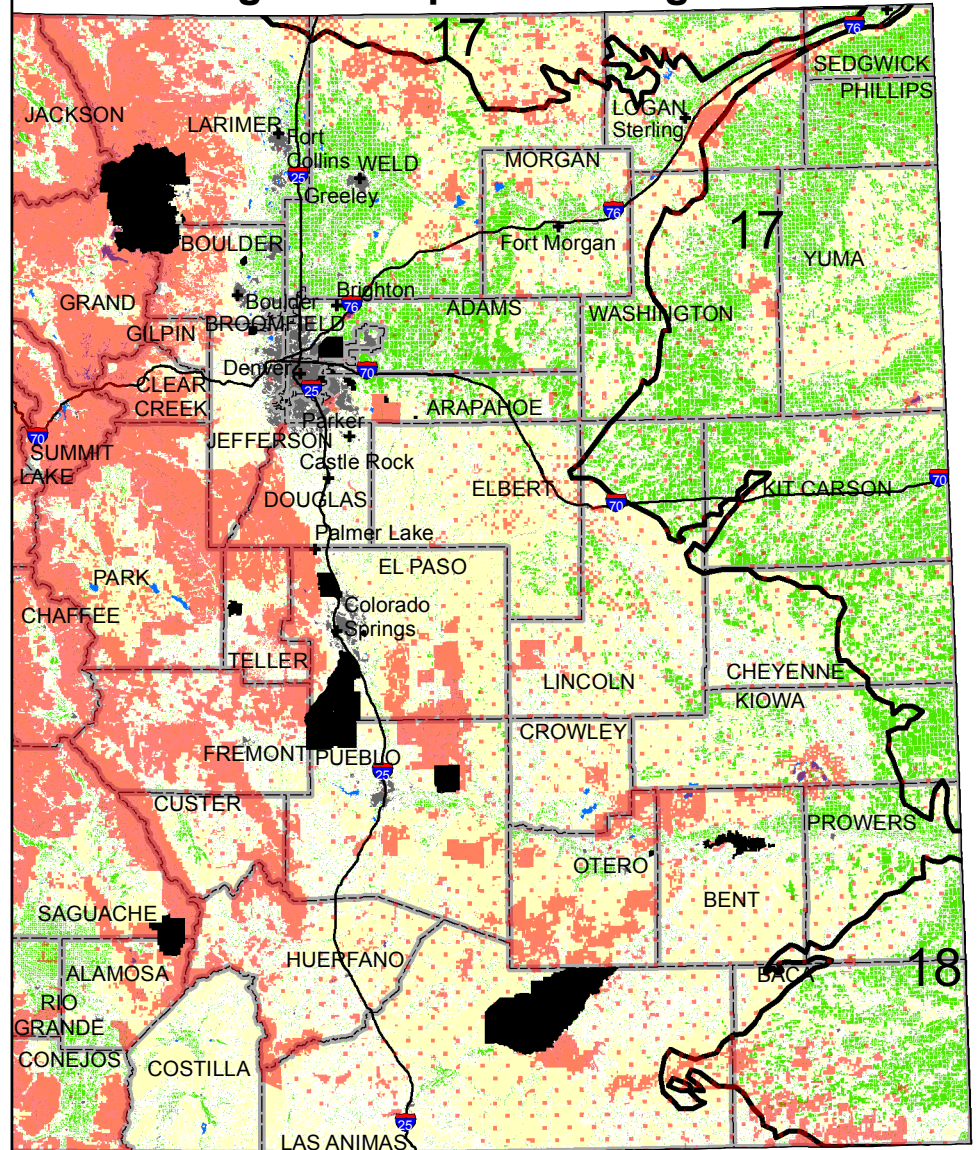
## Dakota and Ogallala Bedrock Aquifer Land Use and Ownership

### Dakota Aquifer Subregion

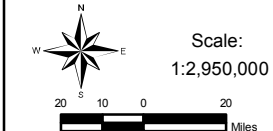


Northern extent of the Dakota aquifer is drawn where depth to top of formation becomes greater than 2,000 feet.  
Sources: USGS National Land Cover Dataset 2001; US BLM 2002

### Ogallala Aquifer Subregions



Sources: USGS National Land Cover Dataset 2001; US BLM 2002



- + City
- Highway
- County
- 16 Subregion
- Publicly Accessible Lands
- Potentially Inaccessible Public Lands
- Water
- Urban
- Native/Rangeland
- Agricultural

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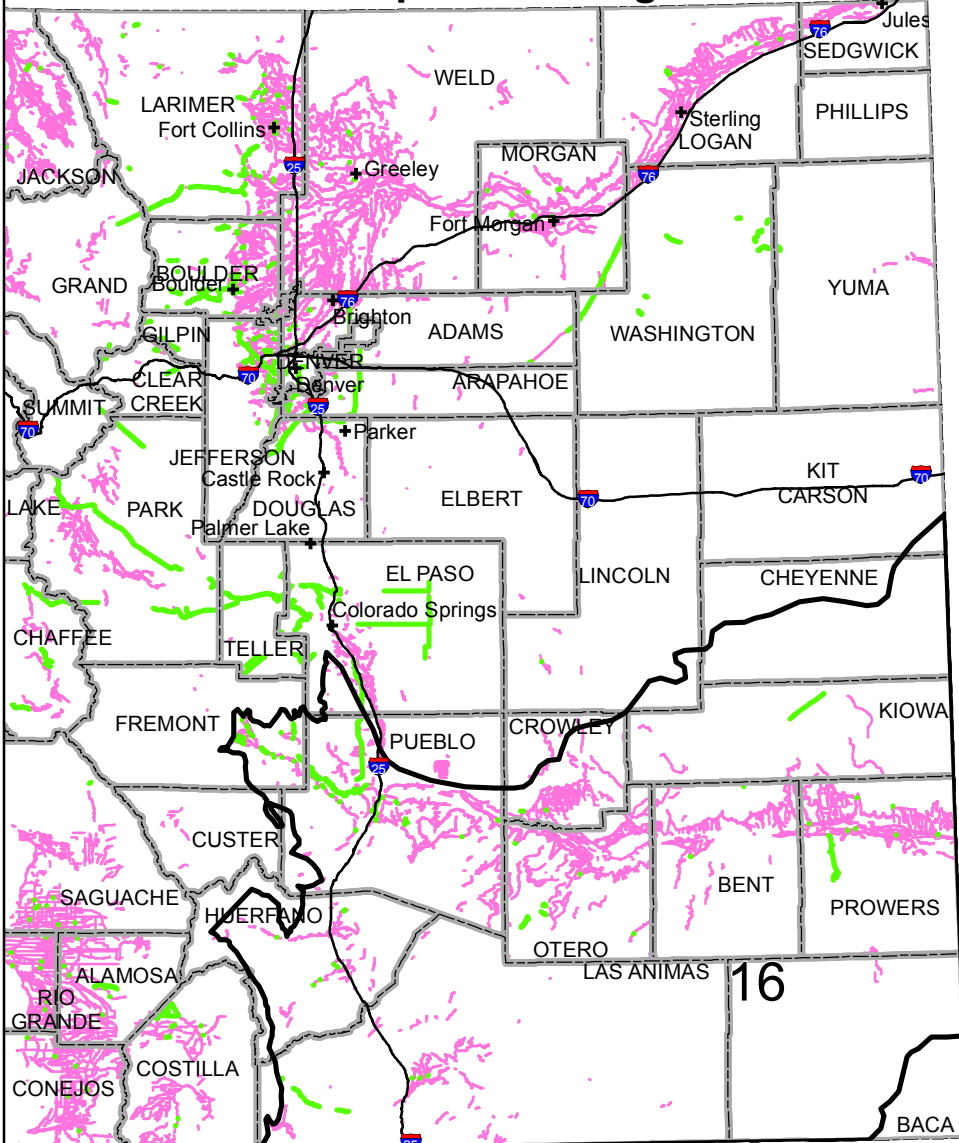
Figure 42



# SB06-193 Underground Water Storage Study

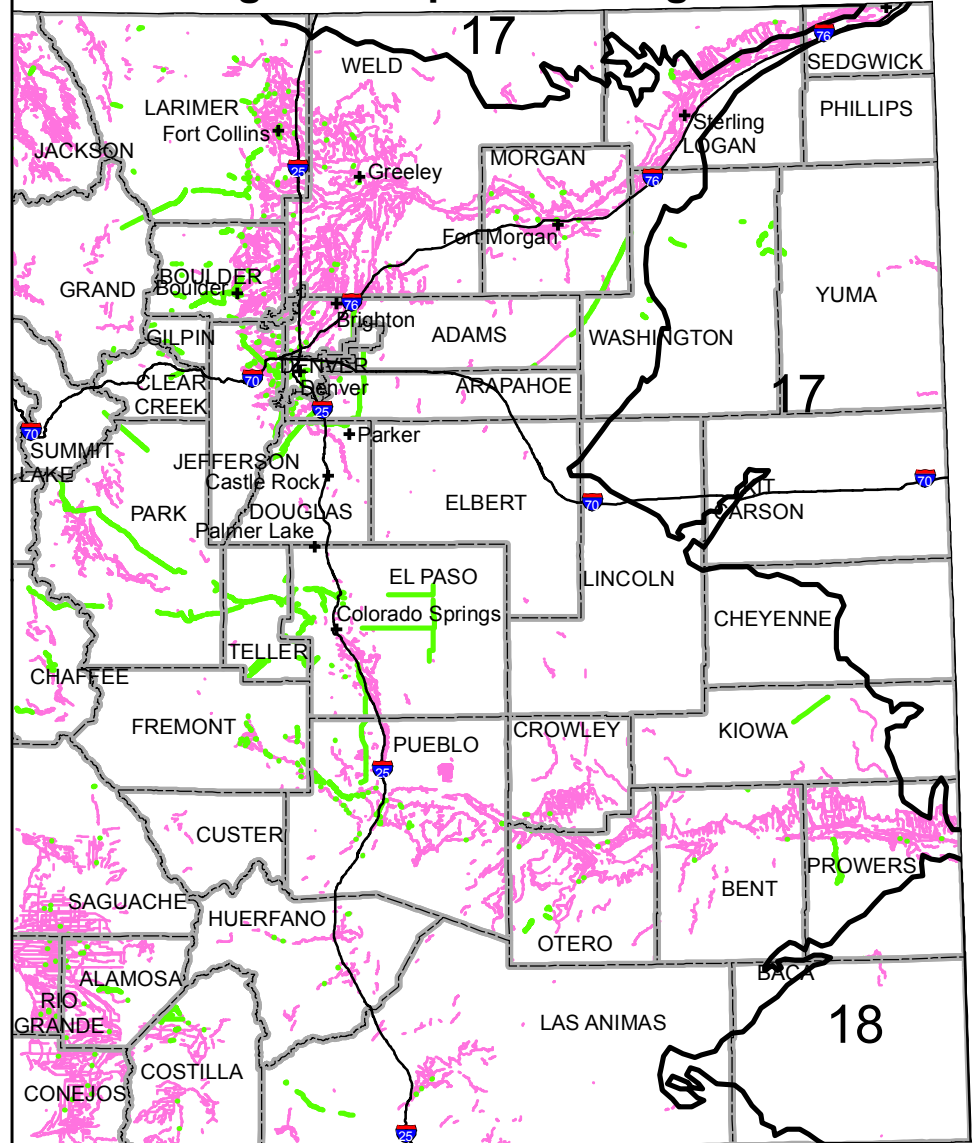
## Dakota and Ogallala Bedrock Aquifer Existing Infrastructure

### Dakota Aquifer Subregion

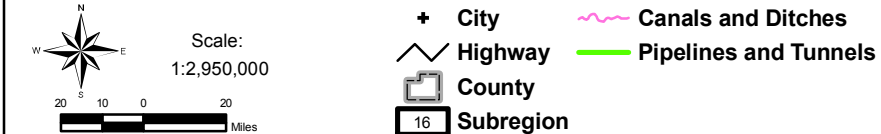


Northern extent of the Dakota aquifer is drawn where depth to top of formation becomes greater than 2,000 feet.  
Sources: Cherokee Metropolitan District 2005; Colorado DWR; USGS 2006 NHD

### Ogallala Aquifer Subregions



Sources: Cherokee Metropolitan District 2005; Colorado DWR; USGS 2006 NHD



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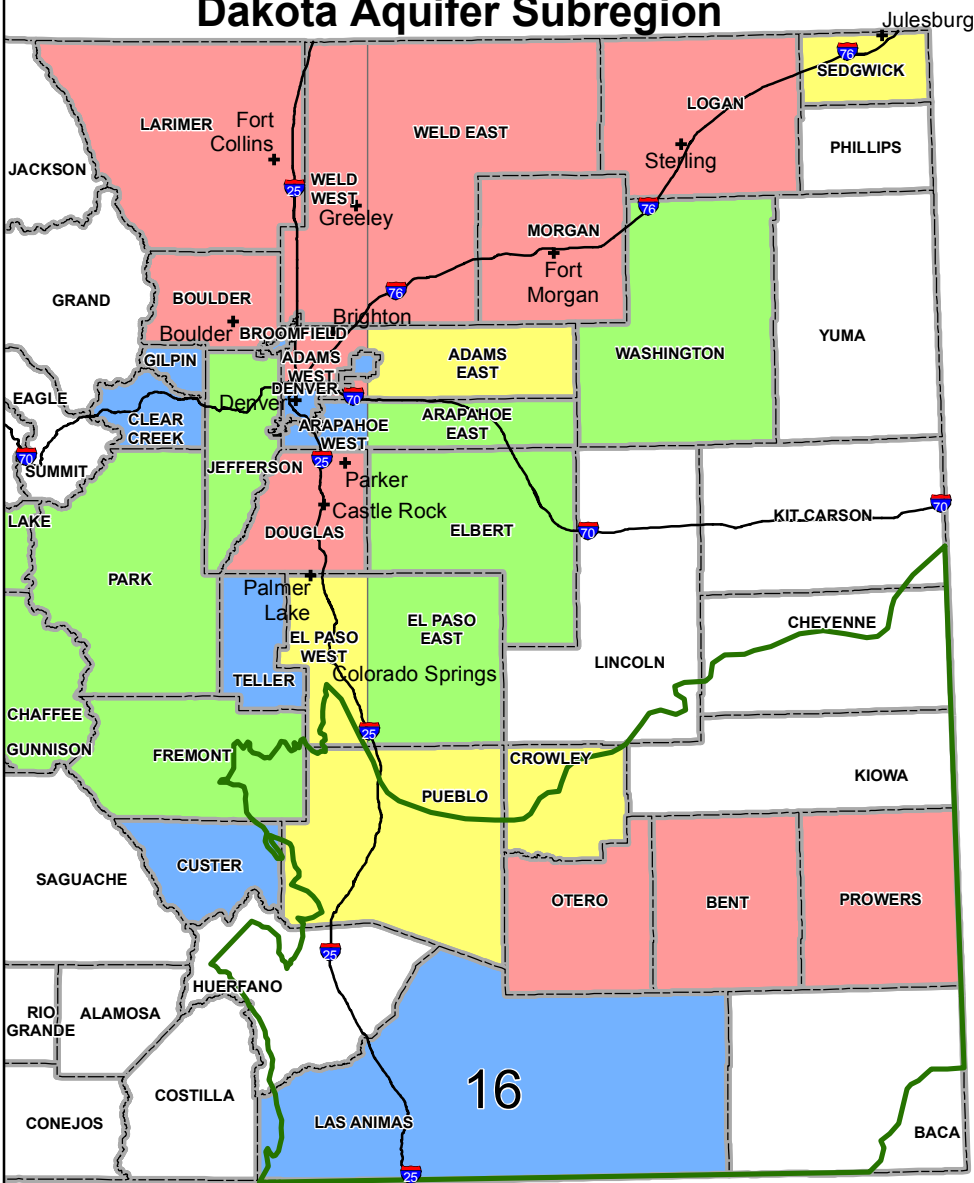
Prepared by: CDM

Figure 43

SB06-193 Underground Water Storage Study

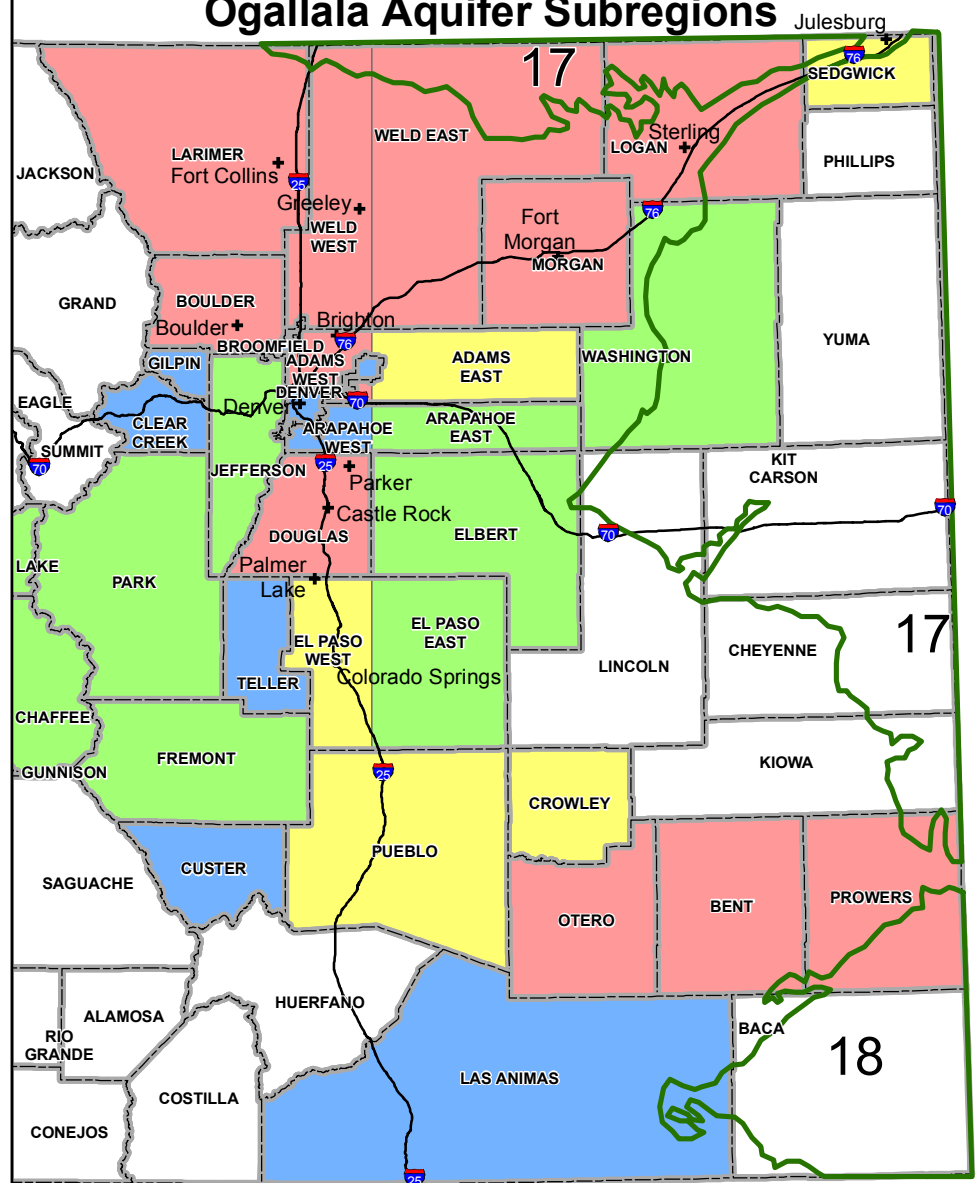
Dakota and Ogallala Bedrock Aquifer Projected Unmet Demand in 2030

Dakota Aquifer Subregion

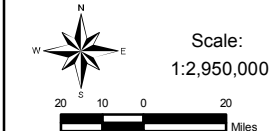


Northern extent of the Dakota aquifer is drawn where depth to top of formation becomes greater than 2,000 feet. Sources: CDM 2004; CDSS 2003; SPDSS 2001

Ogallala Aquifer Subregions



Unmet demands represent both M&I and agricultural uses. Sources: CDM 2004; CDSS 2003; SPDSS 2001



- + City
  - Highway
  - County
  - 16 Subregion
- Projected 2030 Unmet Demands by County (ac-ft/yr)
- No data available
  - 1 - 1,000

- 1,000 - 5,000
- 5,000 - 10,000
- > 10,000

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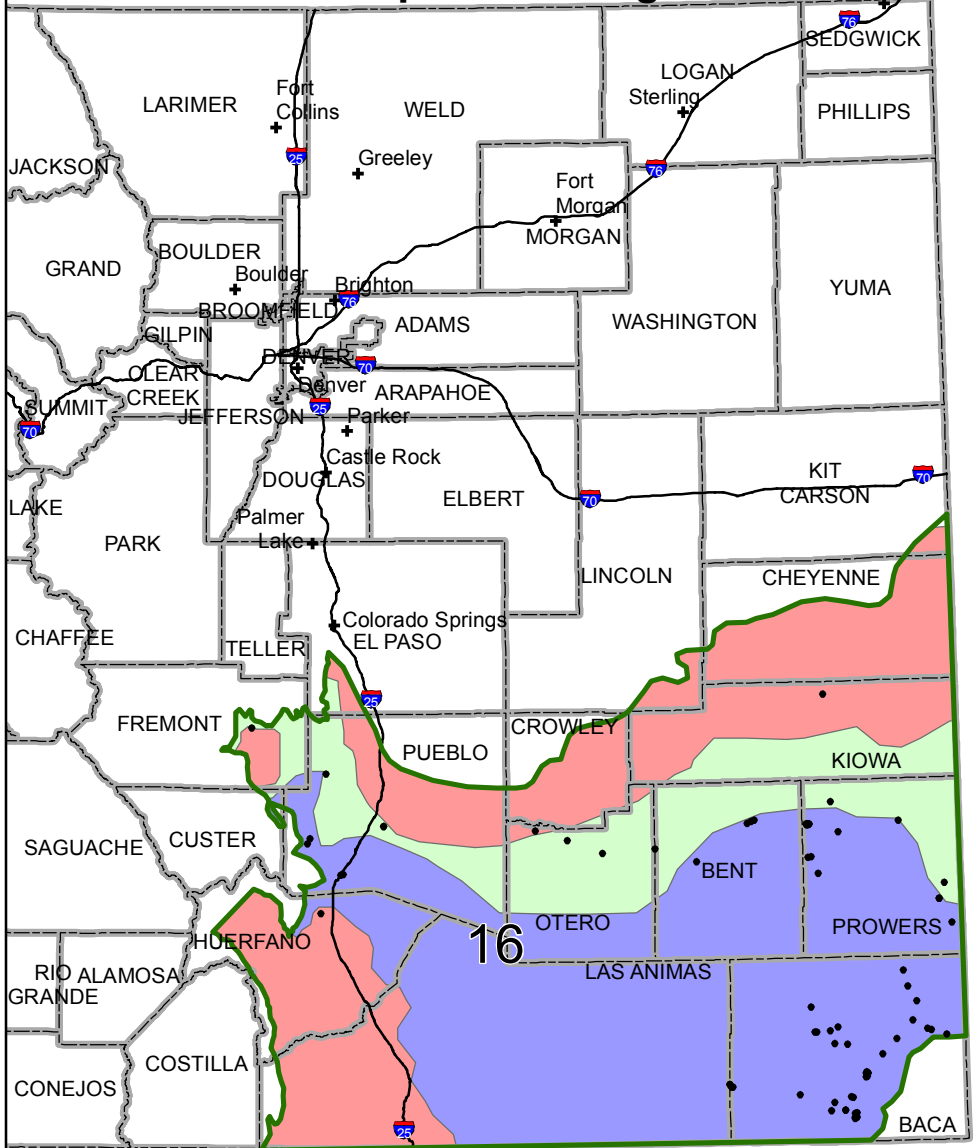
Prepared by: CDM

Figure 44

# SB06-193 Underground Water Storage Study

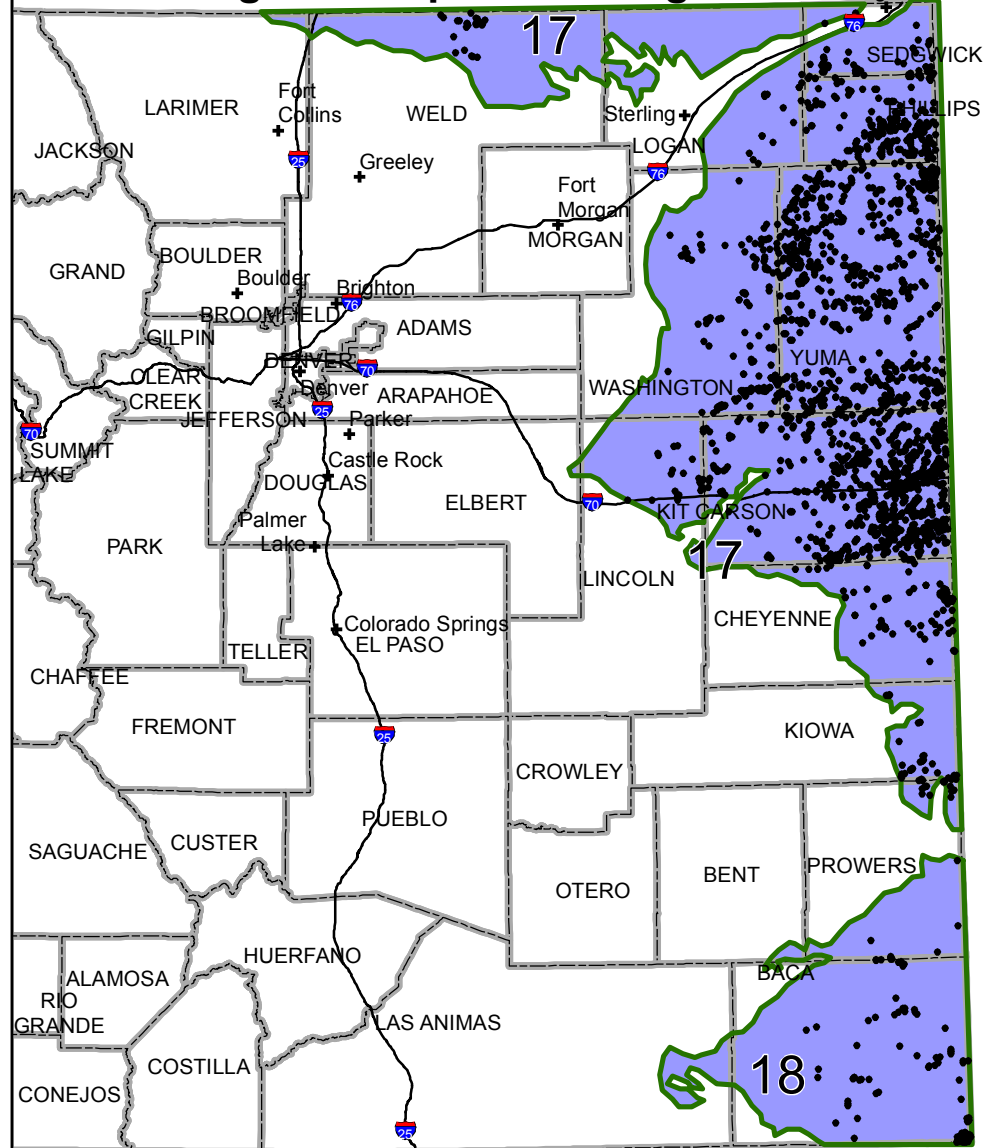
## Dakota and Ogallala Bedrock Aquifer Depth to Aquifer Top

### Dakota Aquifer Subregion

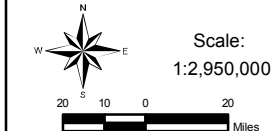


Northern extent of the Dakota aquifer is drawn where depth to top of formation becomes greater than 2,000 feet.  
Sources: Topper et al. 2003; Colorado DWR 2007

### Ogallala Aquifer Subregions



Sources: Topper et al. 2003; Colorado DWR 2007



- + City
  - Highway
  - County
  - ▭ Subregion
  - Wells >50 GPM
- |  |             |
|--|-------------|
|  | 0 - 250     |
|  | 250 - 1,000 |
|  | > 1,000     |

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Prepared by: **CDM**

**Figure 45**