# GROUNDWATER TASK FORCE LANDOWNER MEETING

**MARCH 5, 2014**

Lower Tule River Irrigation District

Pixley Irrigation District

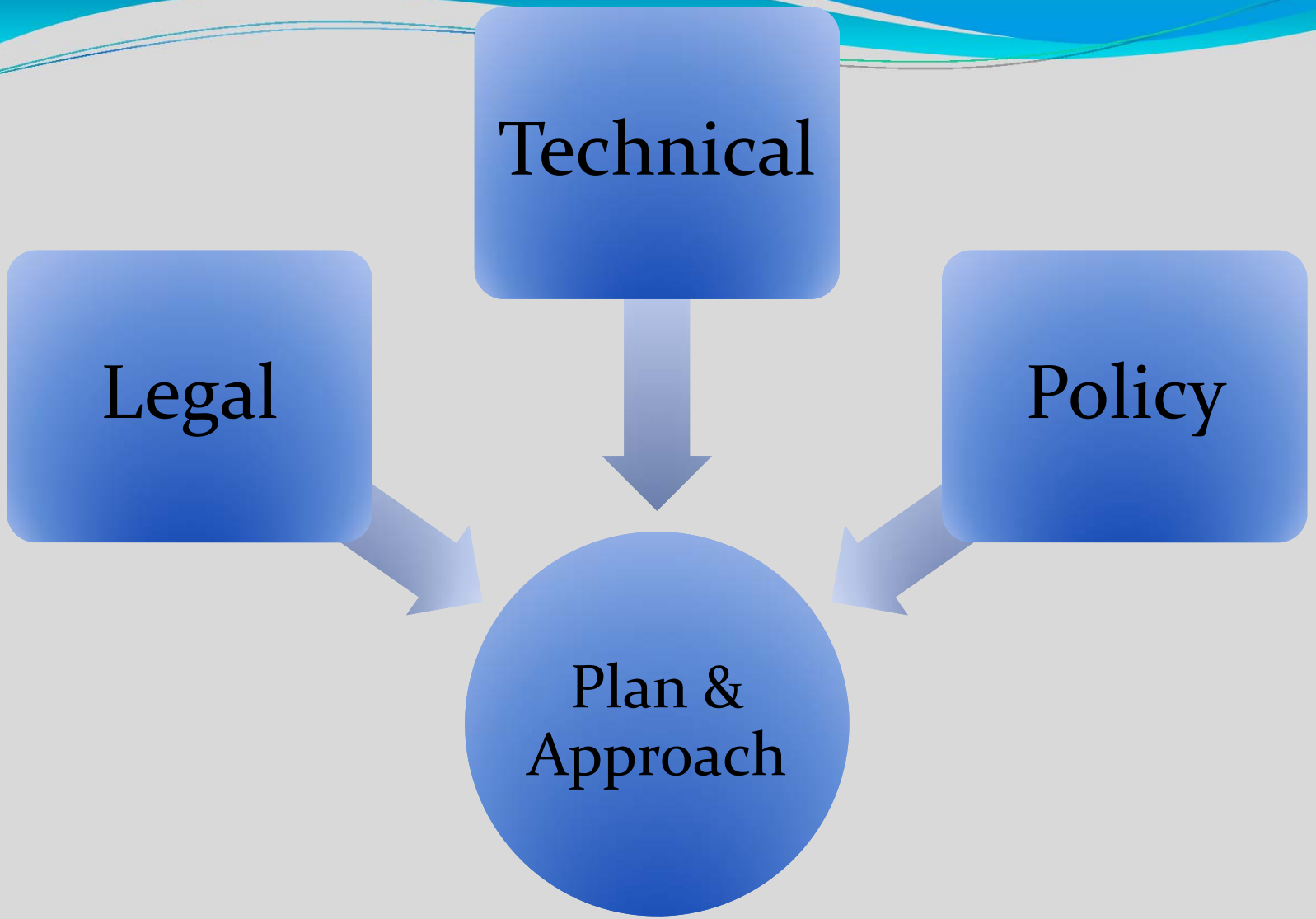
# Facts

- The groundwater levels and conditions in the Lower Tule and Pixley area have gone past the point of being critical

- The current rate of use is not sustainable and is resulting in permanent and irreversible damage impacting the long-term usability of the aquifer

# Groundwater Task Force

- Formed in 2012
- Purpose:
  - *To engage the landowners of the Districts in a conversation about the sustainability of groundwater and to understand what approaches are necessary to preserve the resource*
- Must be a landowner driven process & solution




Goal: Develop a sustainable groundwater basin reversing the effects of overdraft and stopping the current rates of subsidence

# What you will hear today

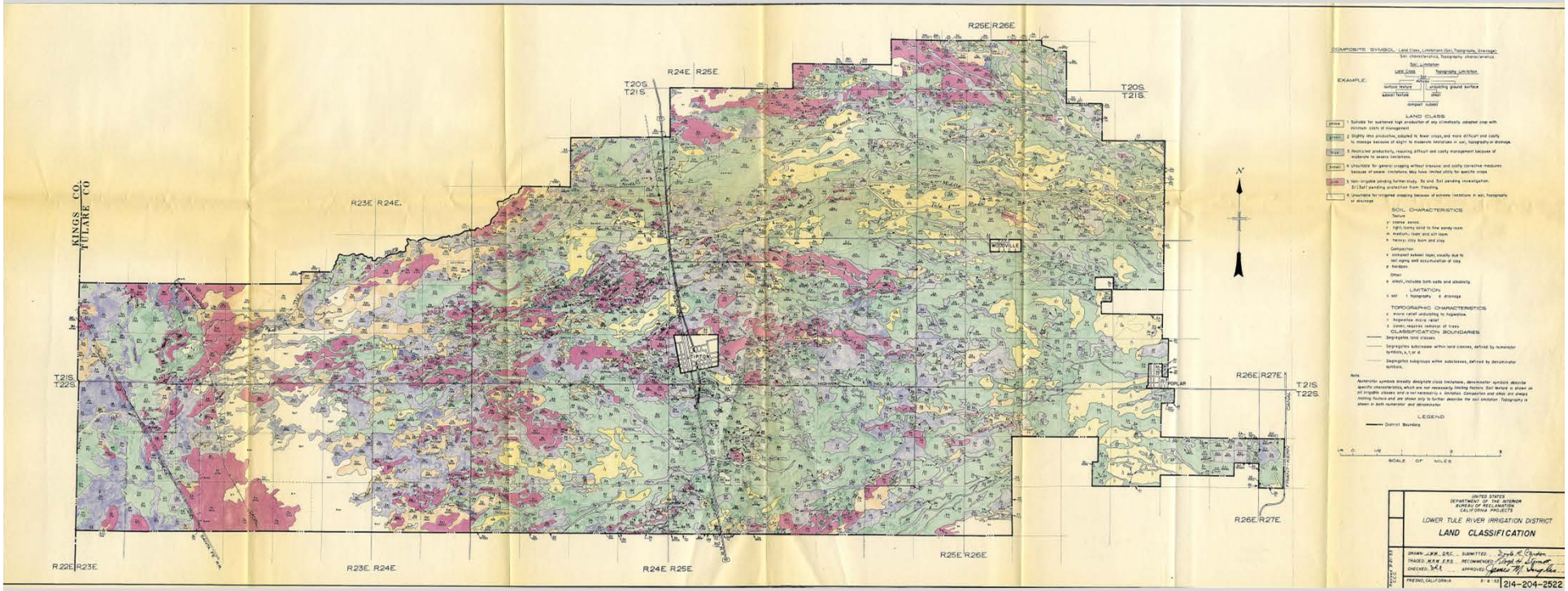
- Background / History
- Sustainability of the Groundwater Aquifer
- Land Subsidence and Local Impacts
- Future Groundwater Regulation in California
- Next Steps for Local Region

# Background / History of LTRID

- FORMED IN 1950
- SURFACE WATER SUPPLY
  - TULE RIVER PRE-1914 WATER RIGHTS: 71,000 a/f average
  - FRIANT CONTRACTOR
    - Class 1: 61,200 a.f.
    - Class 2:  238,000 a.f.
    - CVC:  31,102 a.f.
    - Average Surface Supply ‘96-’13:  205,000 acre-feet

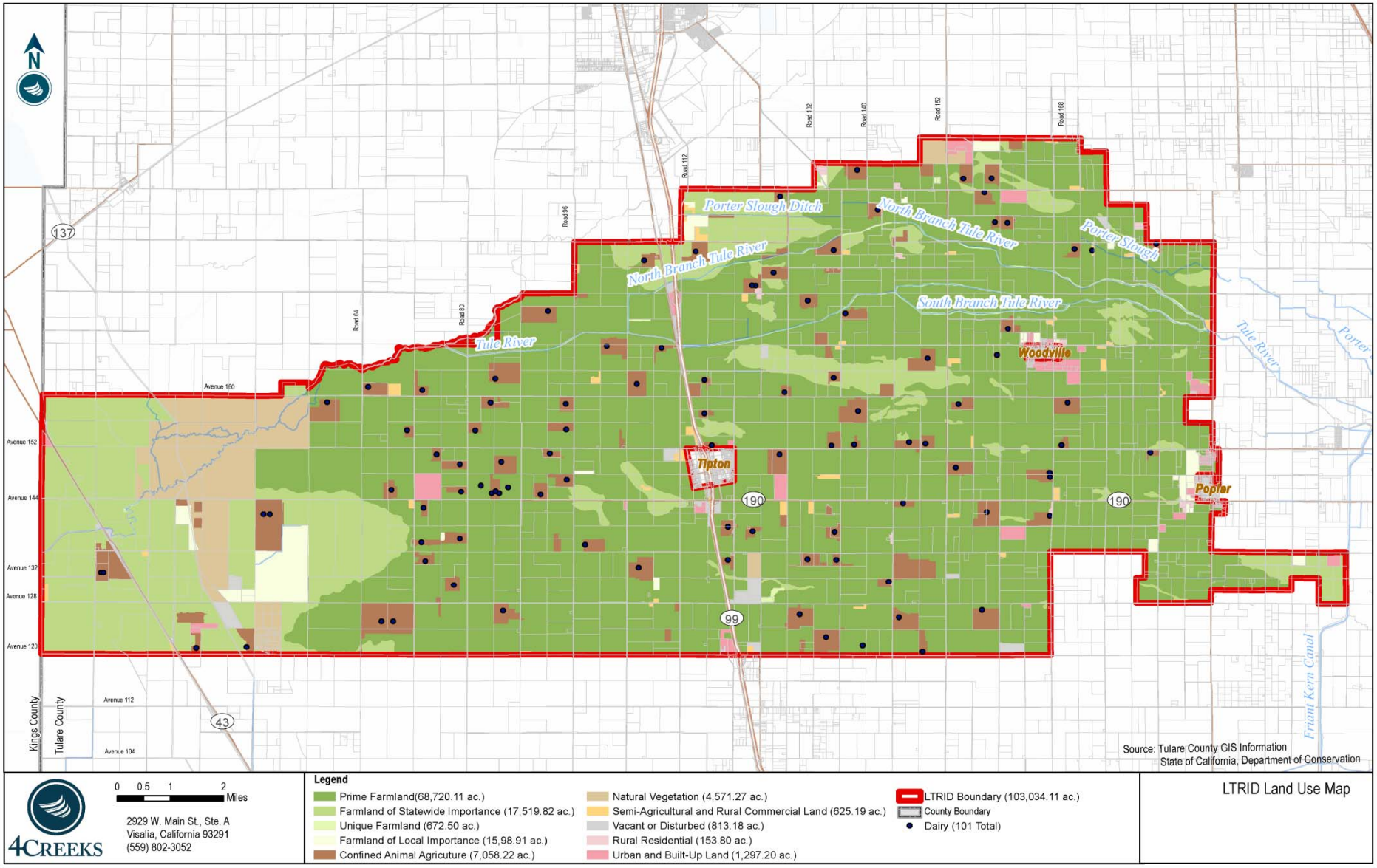
| **Summary of Land Area 2013** | | |
|---|---|---|
| **Farmland** | **86,912** | **acres** |
| Commercial/Residential | 8,509 | acres |
| Recharge/Conservation/Canals | 7,608 | acres |
| Total: | 103,030 | acres |
| **Number of Dairies:** | **101** | |

# LTRID LAND USE MAP 1950




Large Areas of Lower Tule were never intended to be irrigated according to analysis of soil conditions in the 1940's

# LTRID LAND USE MAP 2013





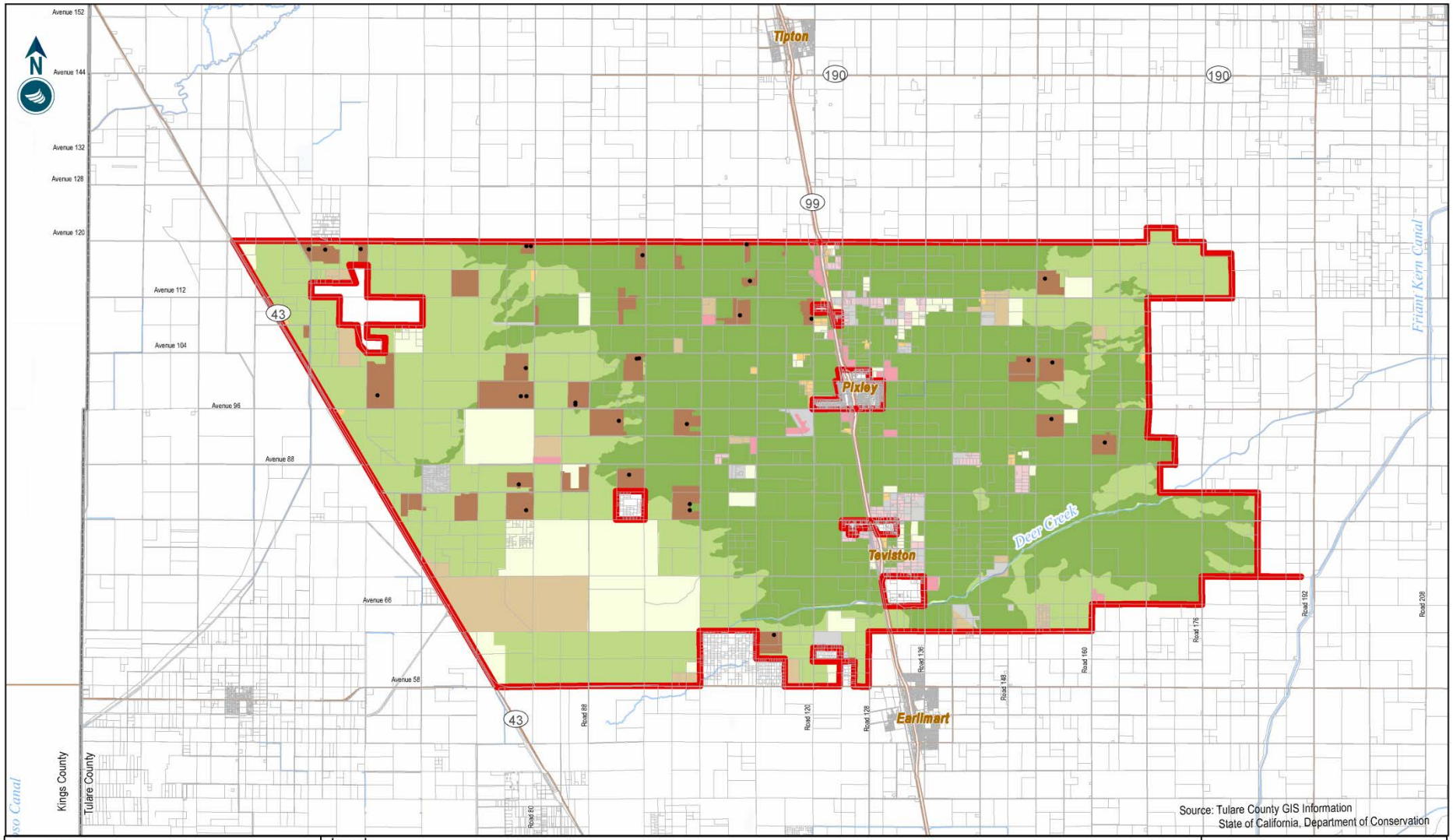
4CREEKS
2929 W. Main St., Ste. A
Visalia, California 93291
(559) 802-3052

# Background / History of PixID

- FORMED IN 1958
- SURFACE WATER SUPPLY
  - CVC 31,102 a.f.
  - Natural Run-off of Deer Creek (varies)
  - Purchases from Friant Contractors
  - Average Surface Supply '03-'13: 31,100 acre-feet

| Summary of Land Area 2013 | | |
|---|---|---|
| **Farmland** | **54,287** | **acres** |
| Commercial/Residential | 5,065 | acres |
| Recharge/Conservation/Canals | 9,892 | acres |
| Total: | 69,245 | acres |
| **Number of Dairies:** | **31** | |

# PIXID LAND USE MAP



# GROUNDWATER SUSTAINABILITY

**AVERAGE ANNUAL SURFACE WATER SUPPLY**

- **LTRID: 205,000 acre feet - (2.35 ac-ft/acre)**
  - Tule River: 71,000 acre feet
  - CVP: 134,000 acre feet

- **PixID: 31,000 acre feet (0.58 ac-ft/acre)**
  - CVP & Deer Creek: 31,000 acre feet

# GROUNDWATER SUSTAINABILITY

**ESTIMATED ANNUAL CONSUMPTIVE WATER USE**

- LTRID: 333,000 a.f to 620,000 a.f. per year

  **Use:** **3.8 (low) – 7.2 (high) a.f. per acre**

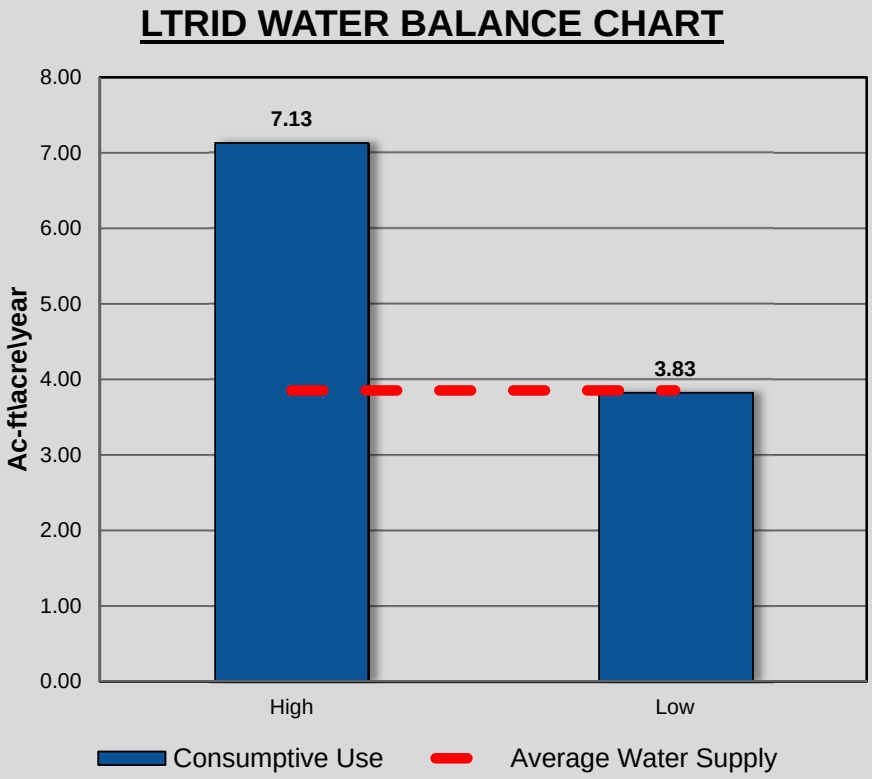
  **Groundwater:** **85 TAF (low) – 372 TAF (high)**

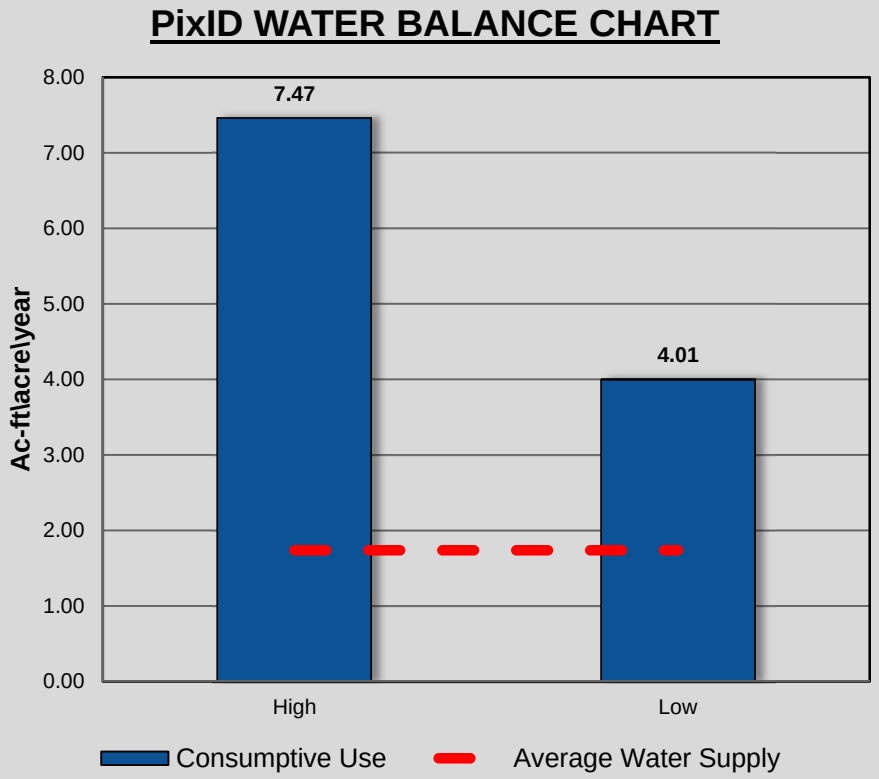
- PixID: 217,000 a.f. to 405,000 a.f. per year

  **Use:** **4.0 (low) – 7.5 (high) a.f. per acre**

  **Groundwater:** **186 TAF (low) – 374 TAF (high)**

# GROUNDWATER SUSTAINABILITY

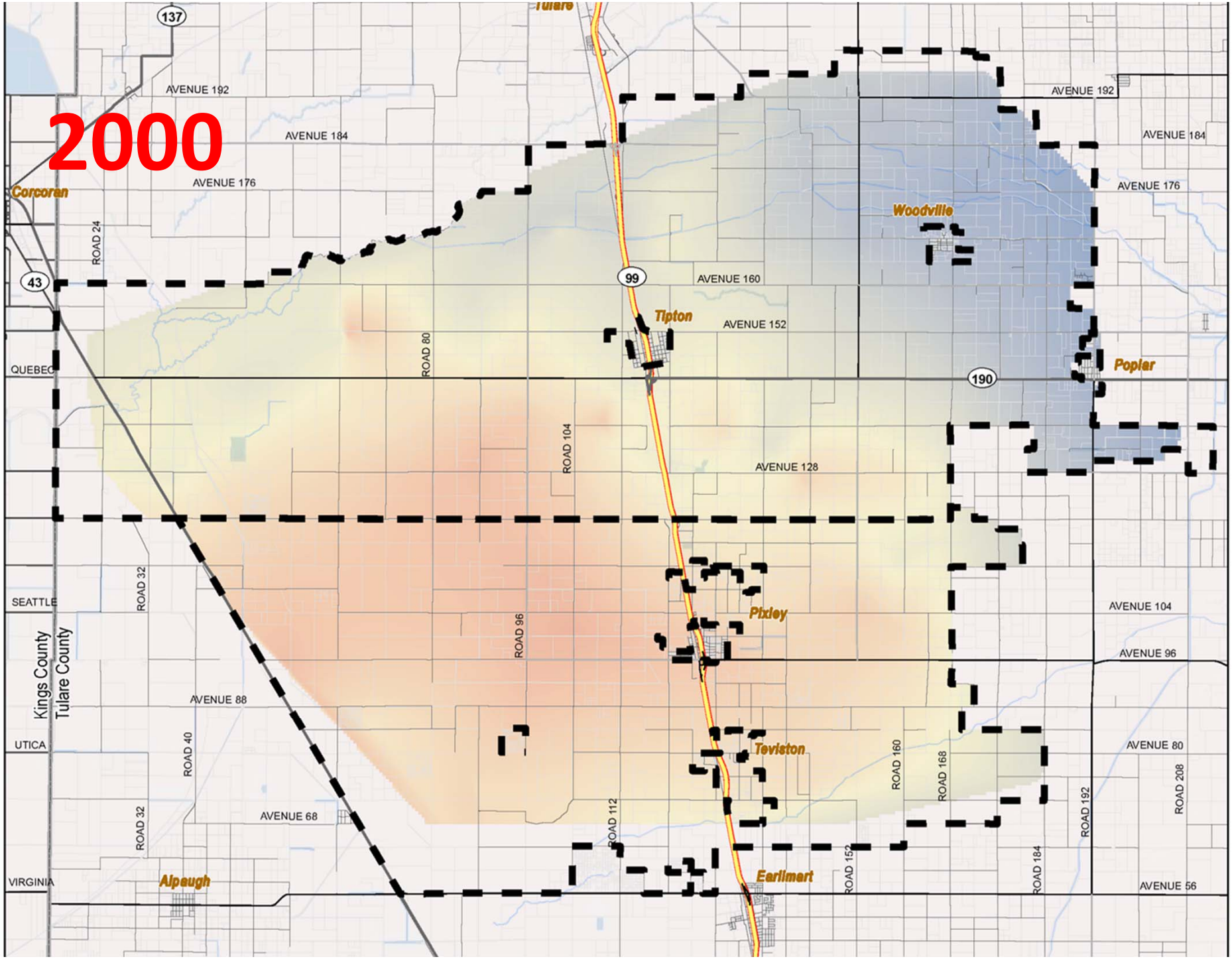


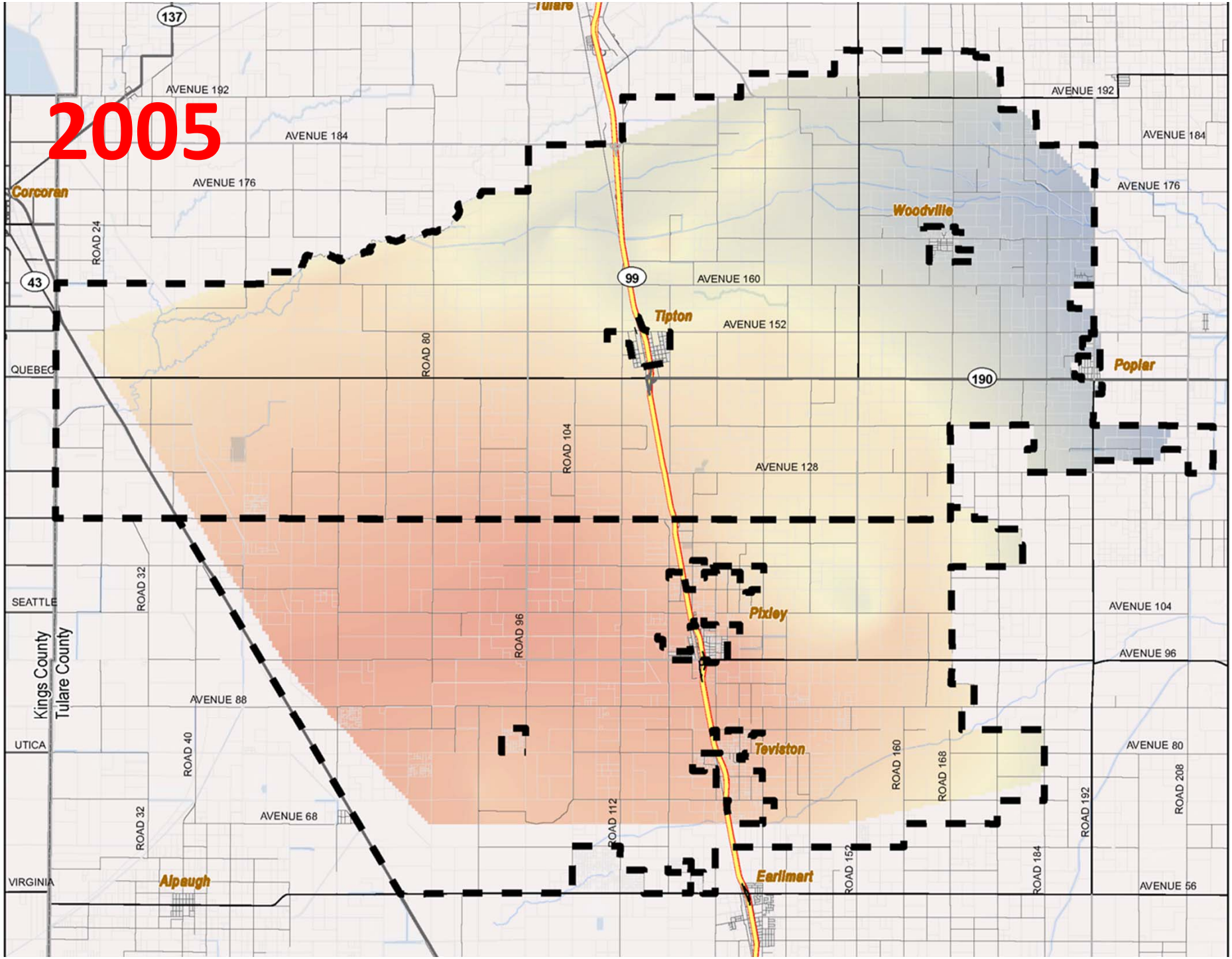



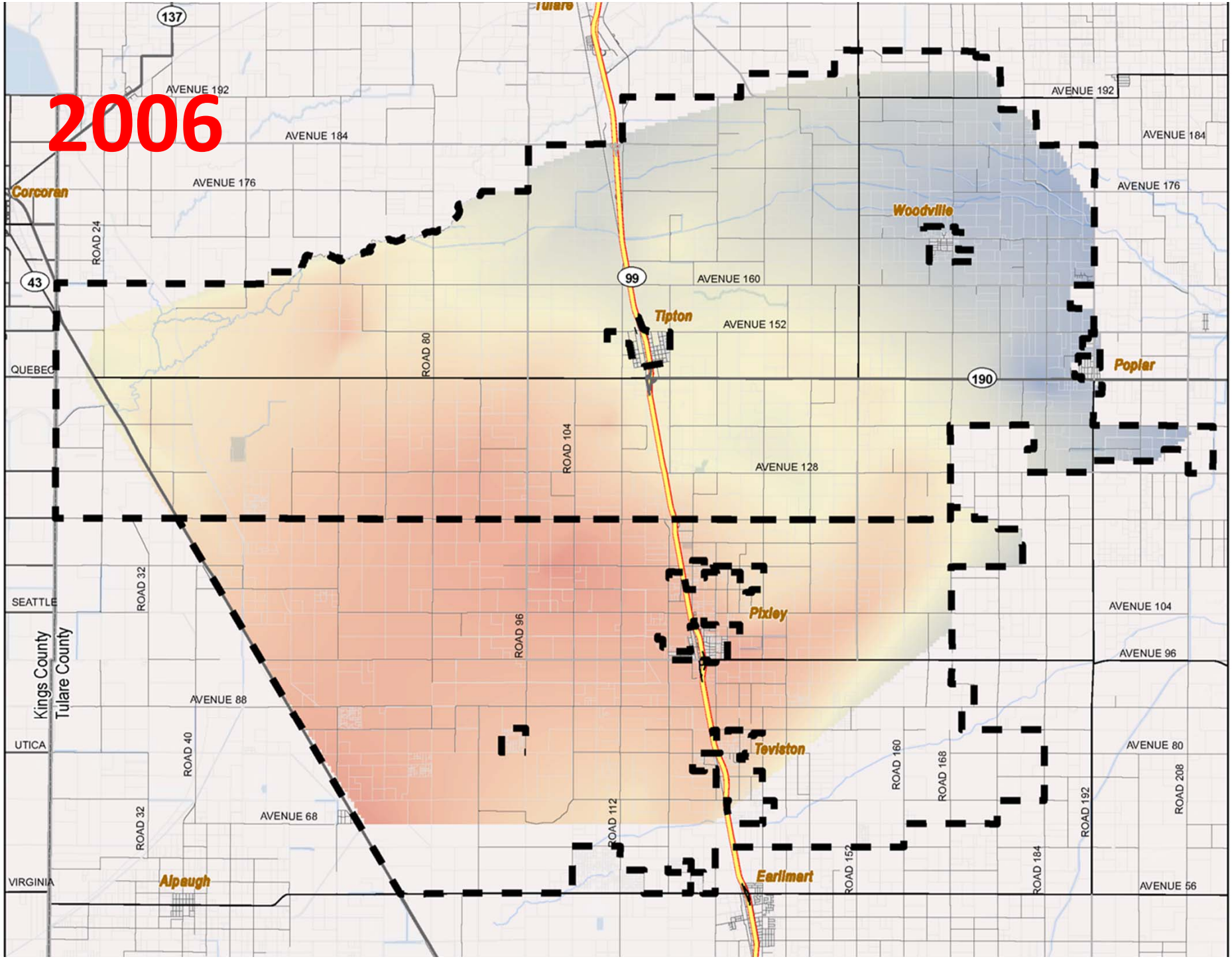

- LTRID Annual Overdraft Estimate: 0 ac-ft/acre to -3.3 ac-ft/acre
- PixID Annual Overdraft Estimate: -2.3 ac-ft/acre to -5.8 ac-ft/acre
- **Overall Overdraft: 100 TAF to 650 TAF per year**

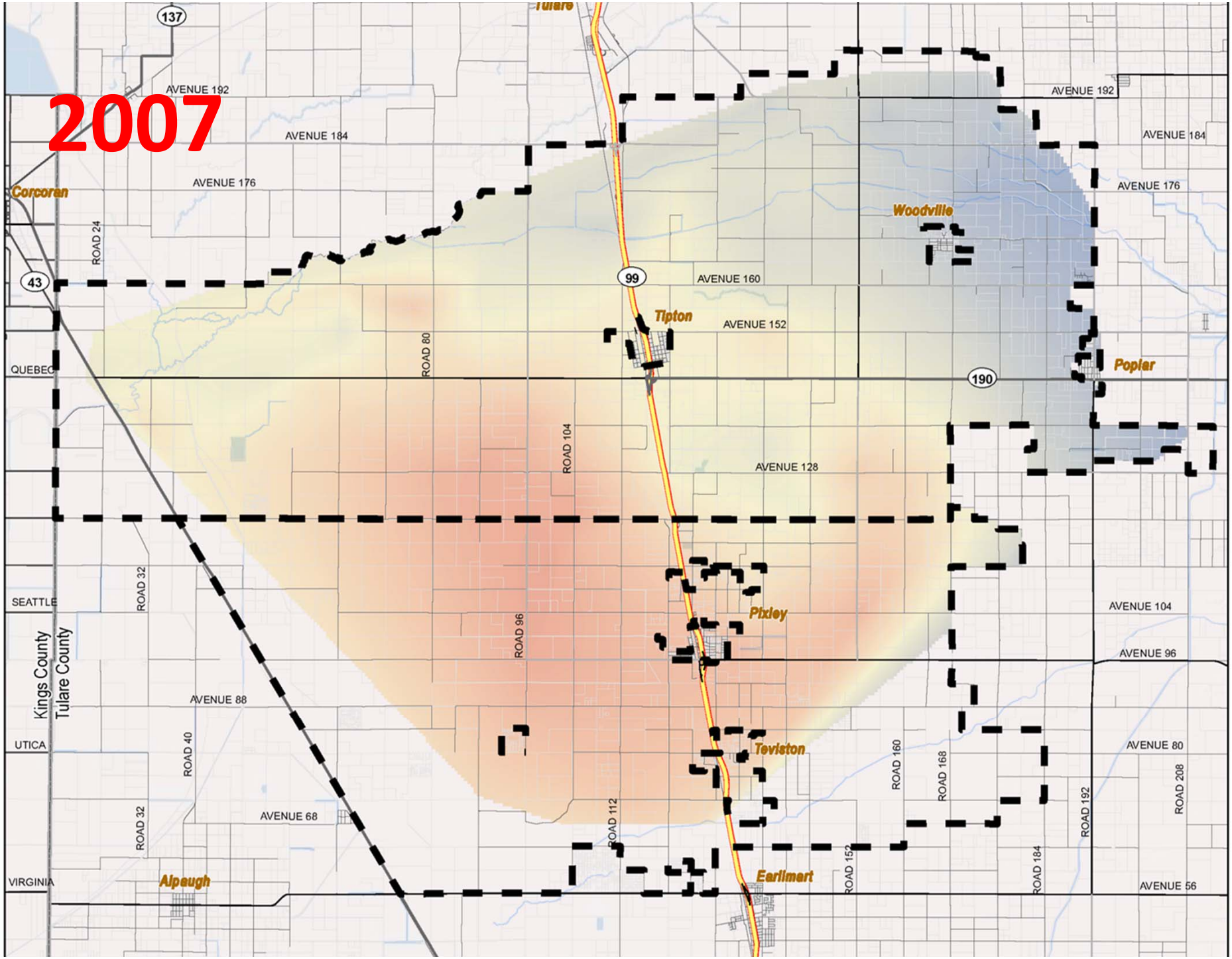
# GROUNDWATER SUSTAINABILITY

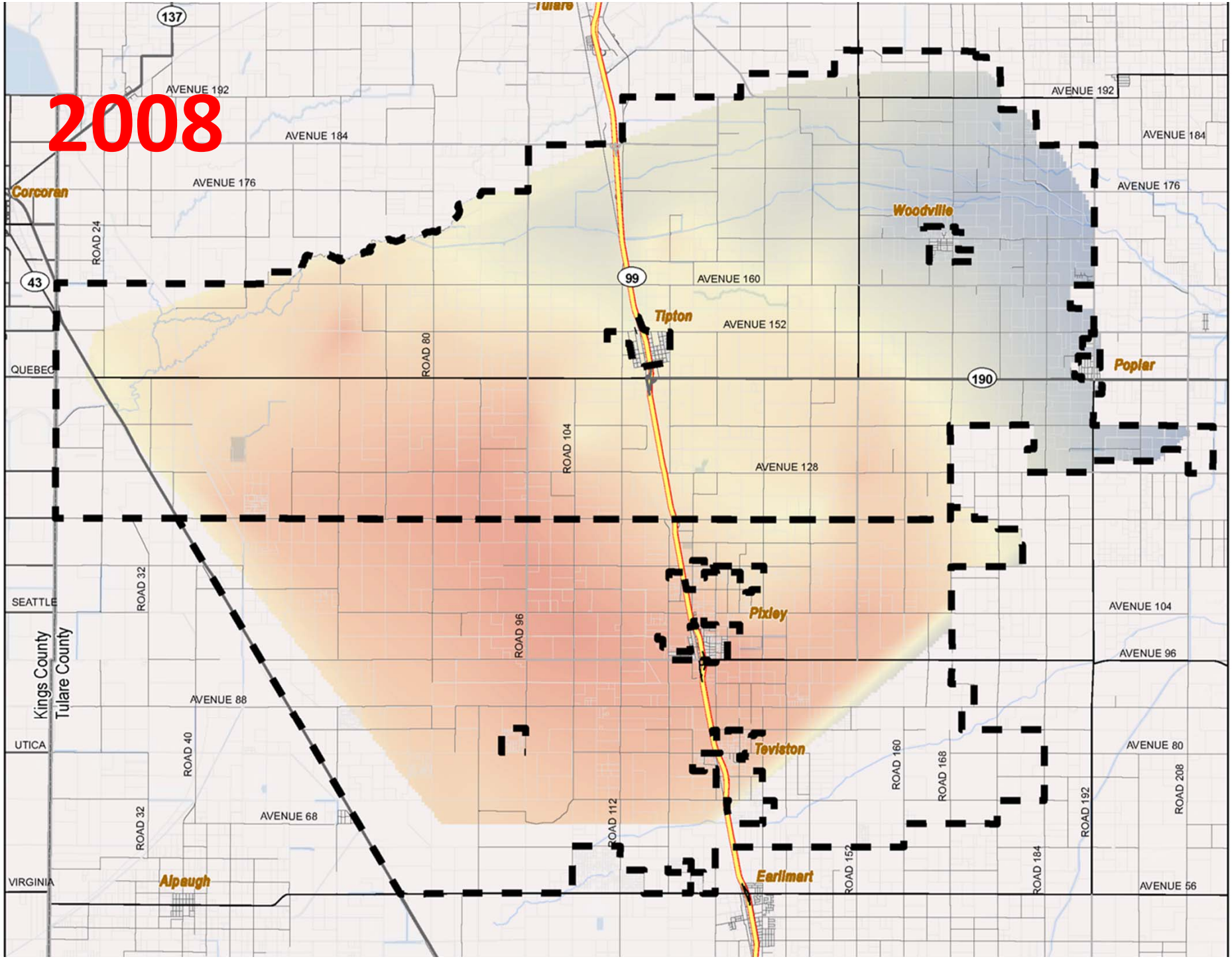
- Following Maps from 2000 – 2013 show depth to groundwater change over time
  - Blue Color: Shallow Groundwater
  - Red Color:  Deeper Groundwater

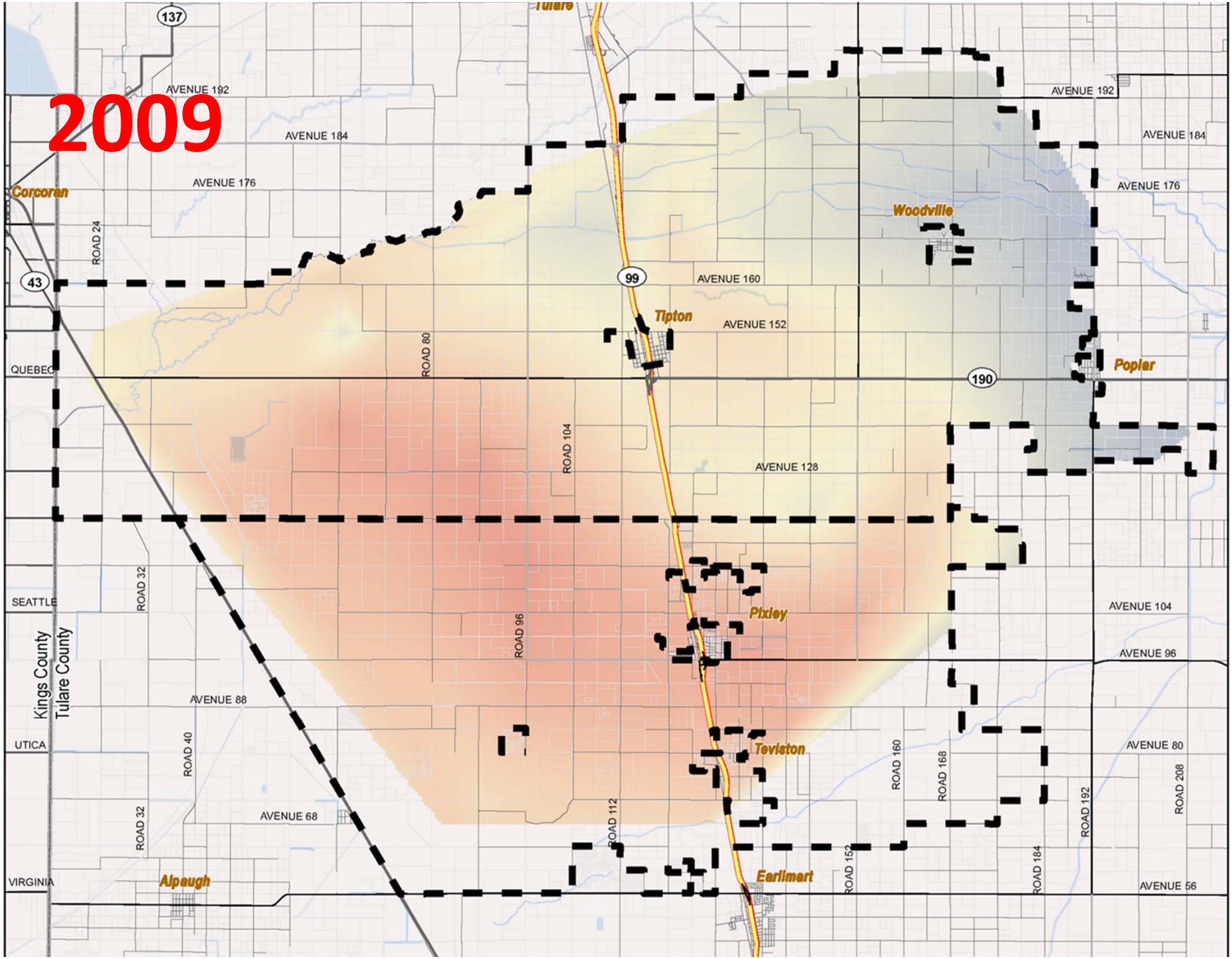

2000
137
AVENUE 192
AVENUE 184
AVENUE 176
Corcoran
ROAD 24
43
QUEBEC
SEATTLE
ROAD 32
Kings County
Tulare County
UTICA
ROAD 40
AVENUE 88
ROAD 32
AVENUE 68
VIRGINIA
Alpaugh
Tulare
99
AVENUE 160
Tipton
AVENUE 152
ROAD 80
ROAD 104
AVENUE 128
ROAD 96
Pixley
ROAD 112
Teviston
Earlimart
ROAD 152
ROAD 160
ROAD 168
ROAD 184
ROAD 192
AVENUE 192
AVENUE 184
AVENUE 176
Woodville
190
Poplar
AVENUE 104
AVENUE 96
AVENUE 80
ROAD 208
AVENUE 56

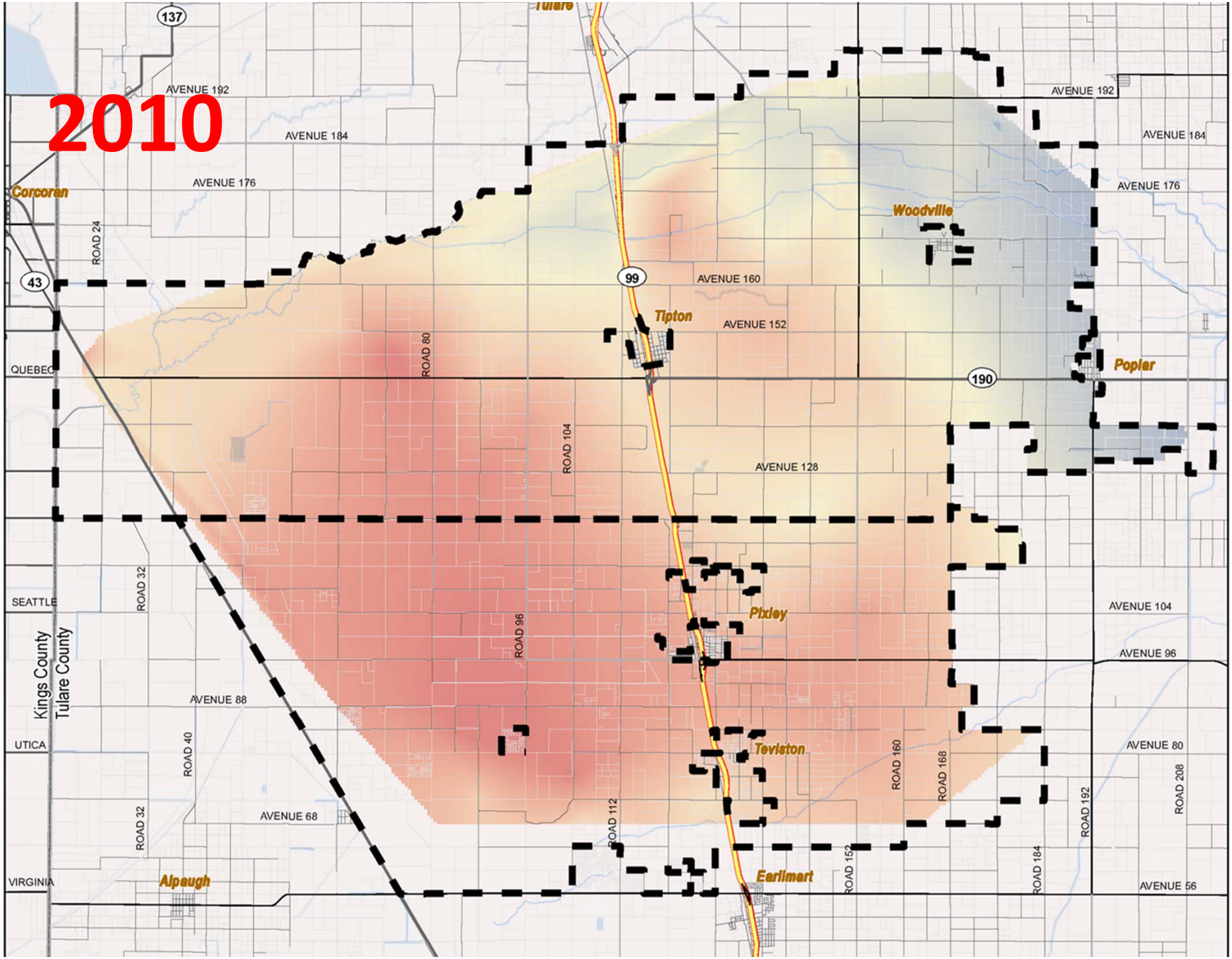

2005
137
AVENUE 192
AVENUE 184
AVENUE 176
Corcoran
ROAD 24
43
QUEBEC
ROAD 32
SEATTLE
Kings County
Tulare County
AVENUE 88
ROAD 40
UTICA
ROAD 32
AVENUE 68
VIRGINIA
Alpaugh
Tulare
99
AVENUE 160
Tipton
AVENUE 152
ROAD 80
ROAD 104
AVENUE 128
ROAD 96
Pixley
Teviston
ROAD 112
Earlimart
ROAD 152
AVENUE 192
AVENUE 184
AVENUE 176
Woodville
190
Poplar
ROAD 160
ROAD 168
ROAD 184
ROAD 192
AVENUE 104
AVENUE 96
AVENUE 80
ROAD 208
AVENUE 56

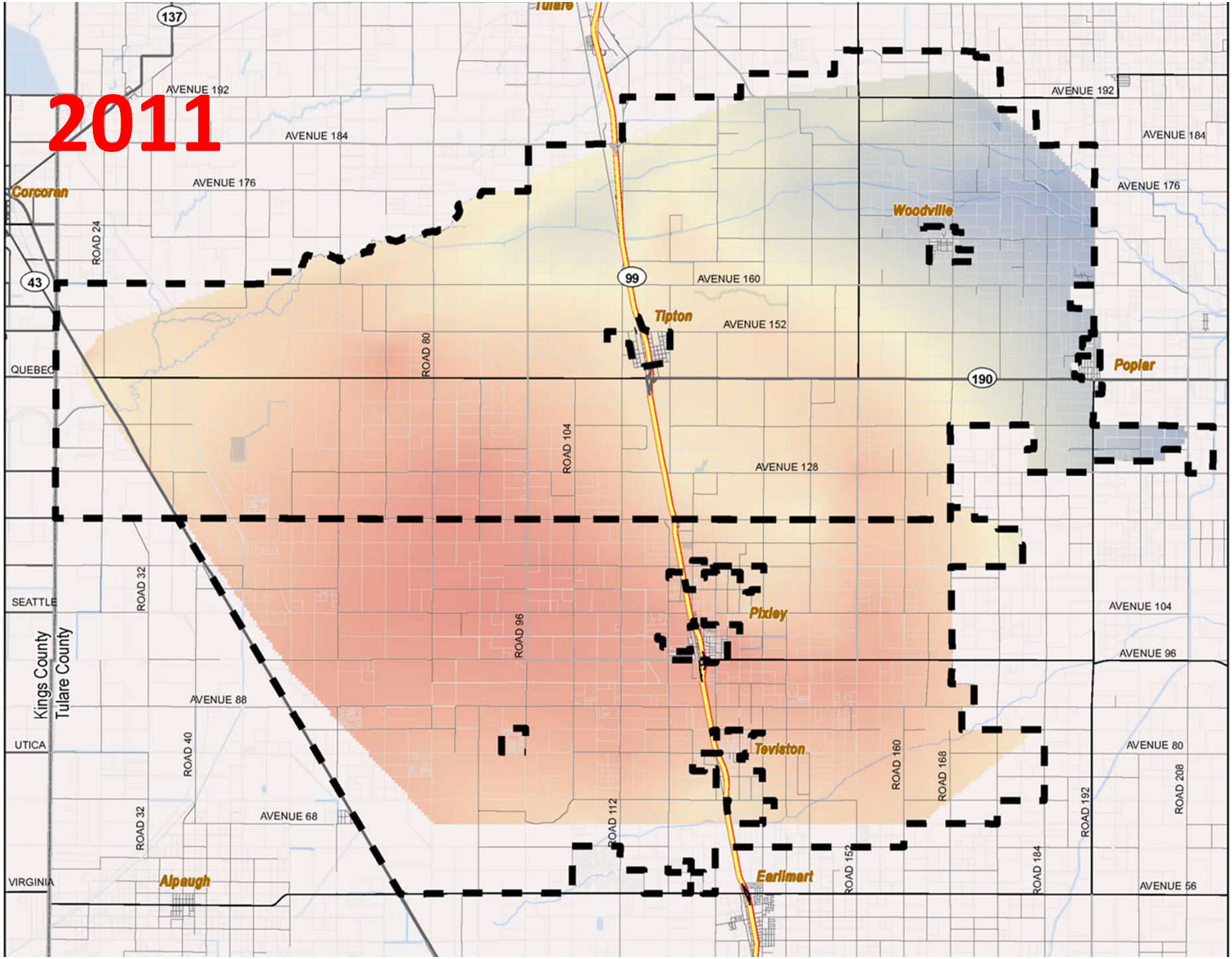

2006
137
AVENUE 192
AVENUE 184
AVENUE 176
Corcoran
ROAD 24
43
QUEBEC
ROAD 32
SEATTLE
Kings County
Tulare County
AVENUE 88
ROAD 40
UTICA
ROAD 32
AVENUE 68
VIRGINIA
Alpaugh
Tulare
99
AVENUE 160
Tipton
AVENUE 152
ROAD 80
ROAD 104
AVENUE 128
ROAD 96
Pixley
ROAD 112
Teviston
Earlimart
AVENUE 192
AVENUE 184
AVENUE 176
Woodville
190
Poplar
AVENUE 104
AVENUE 96
ROAD 160
ROAD 168
ROAD 192
AVENUE 80
ROAD 208
ROAD 152
ROAD 184
AVENUE 56

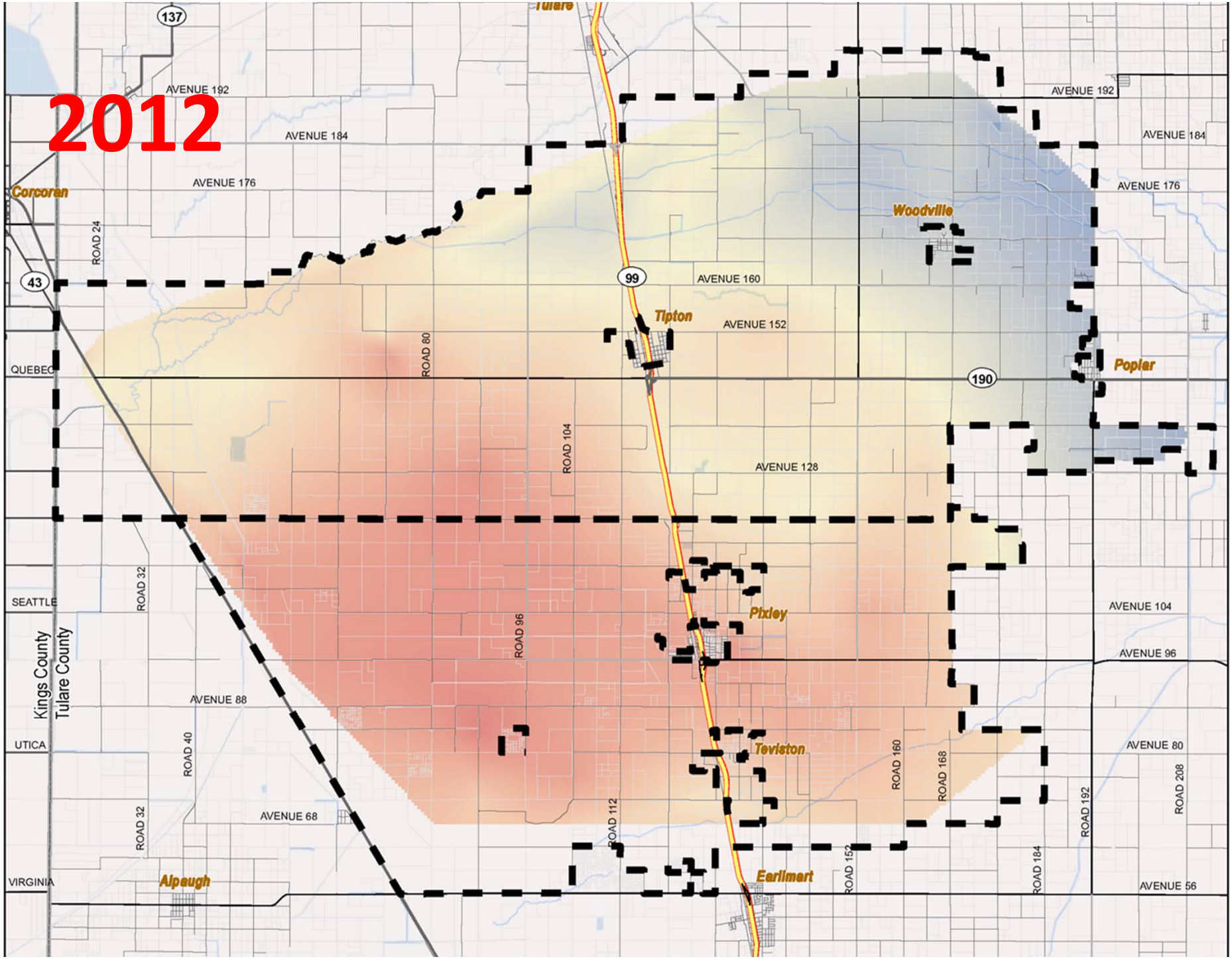

2007
Tulare
137
AVENUE 192
AVENUE 184
AVENUE 176
Corcoran
ROAD 24
43
99
AVENUE 160
Tipton
AVENUE 152
ROAD 80
QUEBEC
Woodville
Poplar
190
ROAD 104
AVENUE 128
SEATTLE
ROAD 32
Kings County
Tulare County
ROAD 96
Pixley
AVENUE 104
AVENUE 96
AVENUE 88
UTICA
ROAD 40
Teviston
AVENUE 80
ROAD 160
ROAD 168
ROAD 208
ROAD 192
AVENUE 68
ROAD 112
ROAD 152
ROAD 184
VIRGINIA
Alpaugh
Earlimart
AVENUE 56

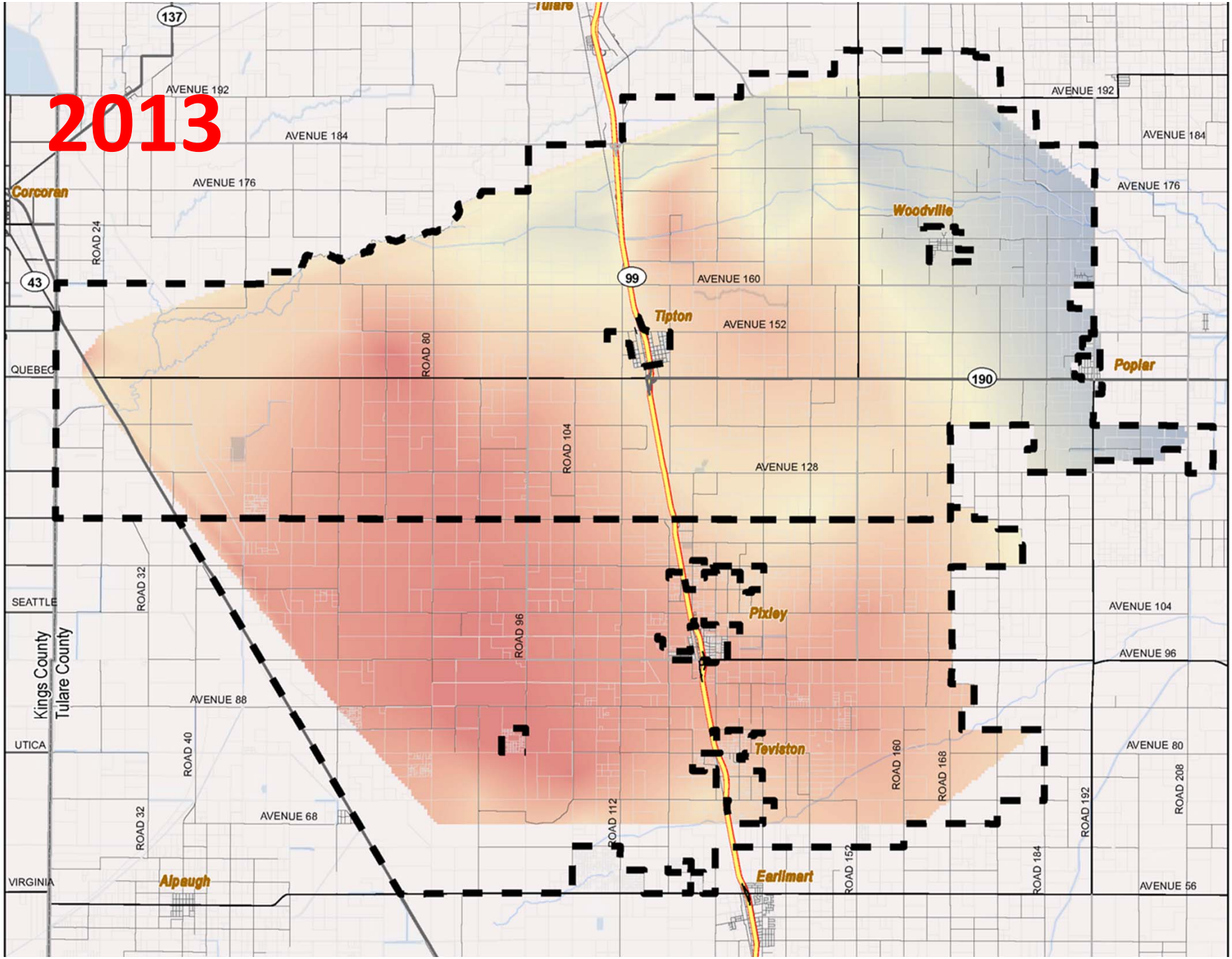

2008
137
AVENUE 192
AVENUE 184
AVENUE 176
Corcoran
ROAD 24
43
QUEBEC
ROAD 80
99
AVENUE 160
Tipton
AVENUE 152
Woodville
AVENUE 192
AVENUE 184
AVENUE 176
Poplar
190
ROAD 104
AVENUE 128
SEATTLE
ROAD 32
Kings County
Tulare County
ROAD 96
Pixley
AVENUE 104
AVENUE 96
AVENUE 88
UTICA
ROAD 40
Teviston
AVENUE 80
ROAD 160
ROAD 168
ROAD 208
ROAD 32
AVENUE 68
ROAD 112
ROAD 192
VIRGINIA
Alpaugh
Earlimart
ROAD 152
ROAD 184
AVENUE 56


2009
Tulare
137
AVENUE 192
AVENUE 184
AVENUE 176
Corcoran
ROAD 24
43
99
AVENUE 160
Tipton
AVENUE 152
ROAD 80
QUEBEC
Woodville
AVENUE 192
AVENUE 184
AVENUE 176
Poplar
190
ROAD 104
AVENUE 128
SEATTLE
ROAD 32
Kings County
Tulare County
ROAD 96
Pixley
AVENUE 104
AVENUE 96
AVENUE 88
UTICA
ROAD 40
Teviston
ROAD 160
ROAD 168
AVENUE 80
ROAD 208
ROAD 32
AVENUE 68
ROAD 112
ROAD 192
VIRGINIA
Alpaugh
Earlimart
ROAD 152
ROAD 184
AVENUE 56

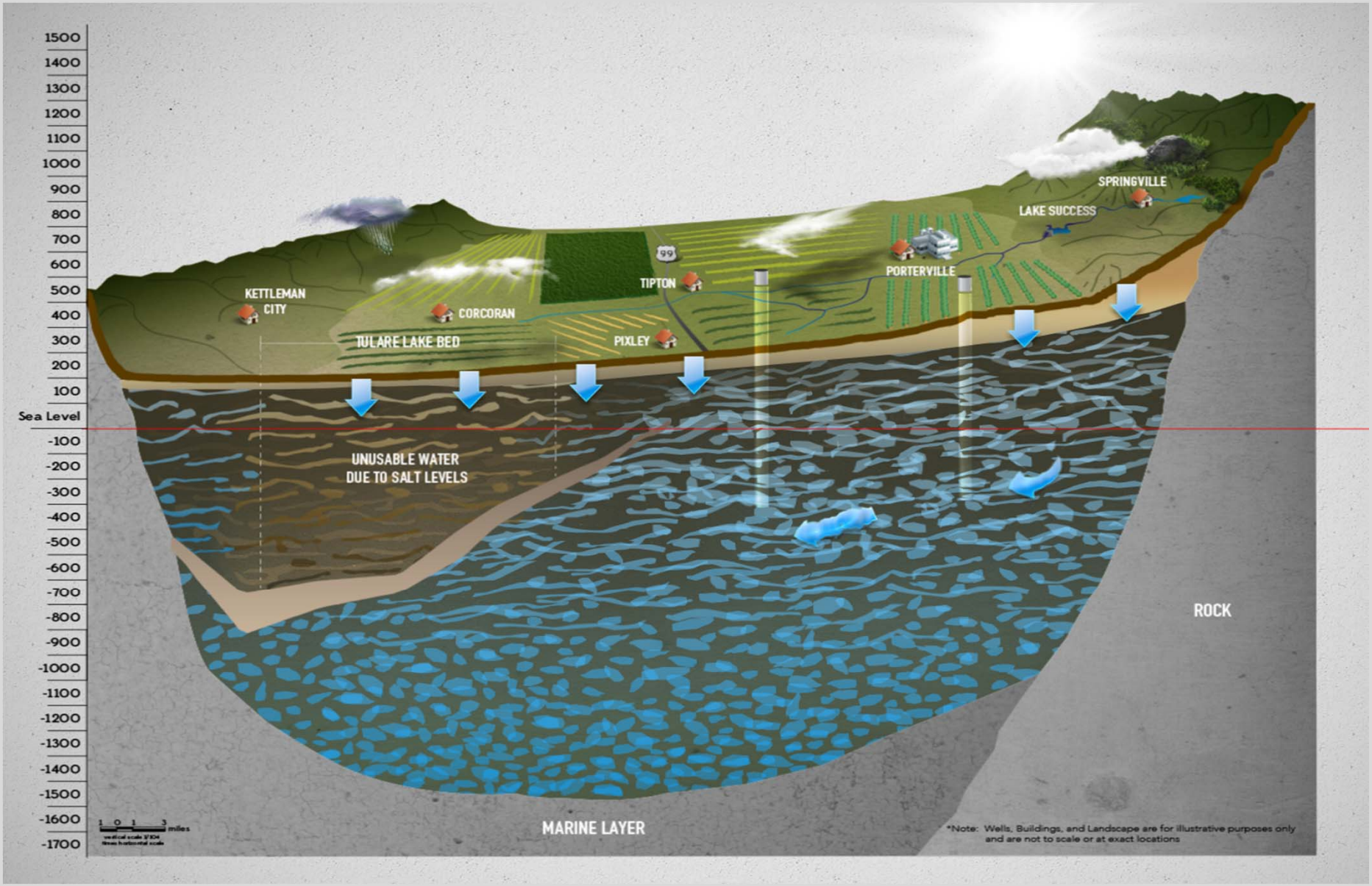

2010
Tulare
137
AVENUE 192
AVENUE 184
AVENUE 176
Corcoran
ROAD 24
43
99
AVENUE 160
Tipton
AVENUE 152
ROAD 80
QUEBEC
Woodville
190
Poplar
ROAD 104
AVENUE 128
SEATTLE
ROAD 32
Kings County
Tulare County
ROAD 96
Pixley
AVENUE 104
AVENUE 96
AVENUE 88
UTICA
ROAD 40
Teviston
ROAD 160
ROAD 168
AVENUE 80
ROAD 208
ROAD 192
AVENUE 68
ROAD 112
ROAD 152
ROAD 184
VIRGINIA
Alpaugh
Earlimart
AVENUE 56


2011
137
AVENUE 192
AVENUE 184
AVENUE 176
Corcoran
ROAD 24
43
QUEBEC
ROAD 32
SEATTLE
Kings County
Tulare County
AVENUE 88
ROAD 40
UTICA
ROAD 32
AVENUE 68
VIRGINIA
Alpaugh
Tulare
99
AVENUE 160
Tipton
AVENUE 152
ROAD 80
ROAD 104
AVENUE 128
ROAD 96
Pixley
Teviston
ROAD 112
Earlimart
ROAD 152
ROAD 160
ROAD 168
ROAD 184
ROAD 192
AVENUE 192
AVENUE 184
AVENUE 176
Woodville
190
Poplar
AVENUE 104
AVENUE 96
AVENUE 80
ROAD 208
AVENUE 56


2012
137
AVENUE 192
AVENUE 184
AVENUE 176
Corcoran
ROAD 24
43
QUEBEC
SEATTLE
ROAD 32
Kings County
Tulare County
UTICA
ROAD 40
AVENUE 88
ROAD 32
AVENUE 68
VIRGINIA
Alpaugh
Tulare
99
AVENUE 160
Tipton
AVENUE 152
ROAD 80
ROAD 104
AVENUE 128
ROAD 96
Pixley
ROAD 112
Teviston
Earlimart
ROAD 152
AVENUE 192
AVENUE 184
AVENUE 176
Woodville
190
Poplar
ROAD 160
ROAD 168
ROAD 184
ROAD 192
AVENUE 104
AVENUE 96
AVENUE 80
ROAD 208
AVENUE 56


2013
137
AVENUE 192
AVENUE 184
AVENUE 176
Corcoran
ROAD 24
43
QUEBEC
ROAD 80
99
AVENUE 160
Tipton
AVENUE 152
ROAD 104
AVENUE 128
Woodville
190
Poplar
SEATTLE
ROAD 32
Kings County
Tulare County
ROAD 96
Pixley
AVENUE 104
AVENUE 96
AVENUE 88
UTICA
ROAD 40
Teviston
ROAD 160
ROAD 168
AVENUE 80
ROAD 208
ROAD 112
AVENUE 68
ROAD 192
ROAD 32
VIRGINIA
Alpaugh
Earlimart
ROAD 152
ROAD 184
AVENUE 56

# CROSS SECTION OF CENTRAL VALLEY

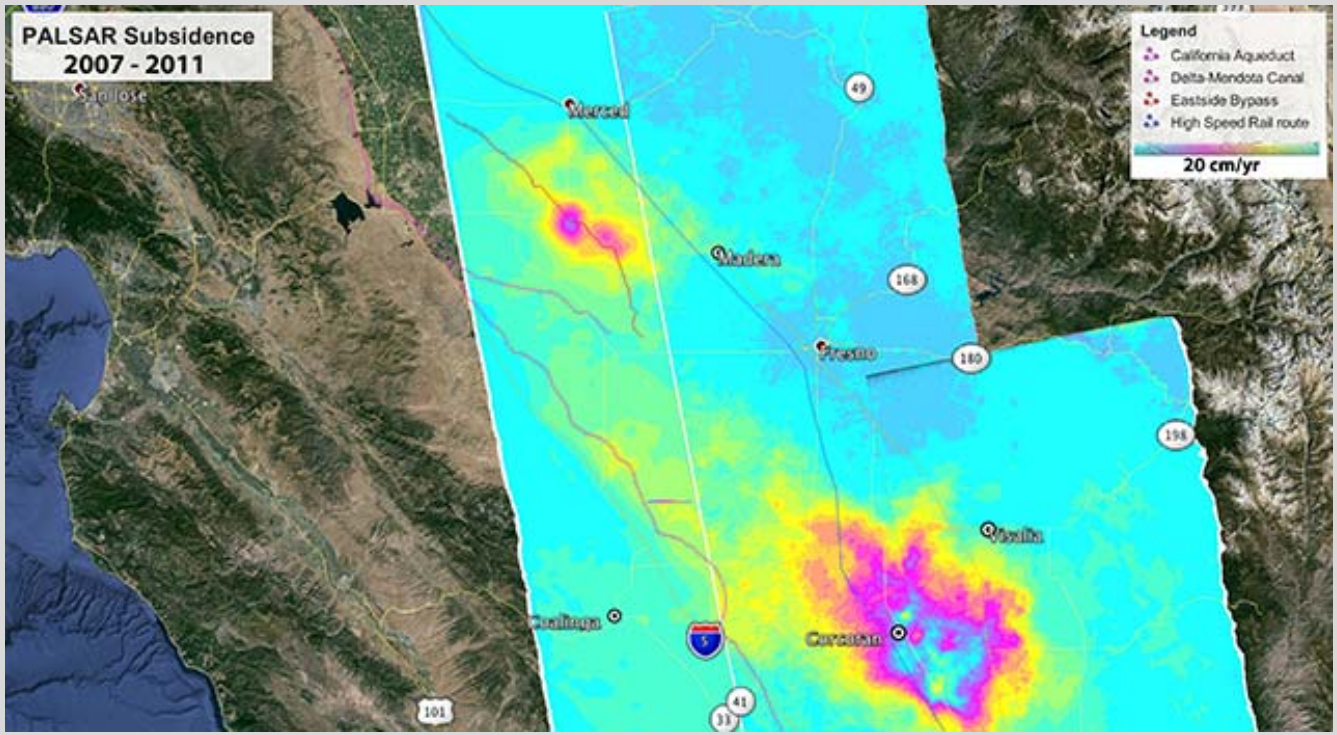


# HISTORICAL GROUNDWATER CONDITIONS

- Video of Depth to Groundwater Changes over time

# LAND SUBSIDENCE IMPACT

- **Groundwater Overdraft is the cause of land subsidence:**
  - Existing Wells: Casings shift / break / snap
  - Individual Fields: Land leveling issues
  - Irrigation Canals:  No longer gravity flow



# What Next?

- Groundwater regulation in the State of California is a matter of when, not if
- Groundwater basin in the Central Valley and in Tulare County is considered a high priority basin by the State of California
- Life as you know it will change
  - By force through State control/regulation
  - Tragedy of the Commons
  - Adjudication of the groundwater basin by the courts
  - Self-imposed standards of sustainability
- None of these options will be easy

# CONCLUSION

- WHO DO YOU WANT TO ADDRESS THIS ISSUE?