

Land Use In the California Water Plan Update

**Statewide Water Analysis Network
Meeting**

**Tom Hawkins
September 24, 2007**

Outline of Presentation

Key Deliverables

Data and Information Used

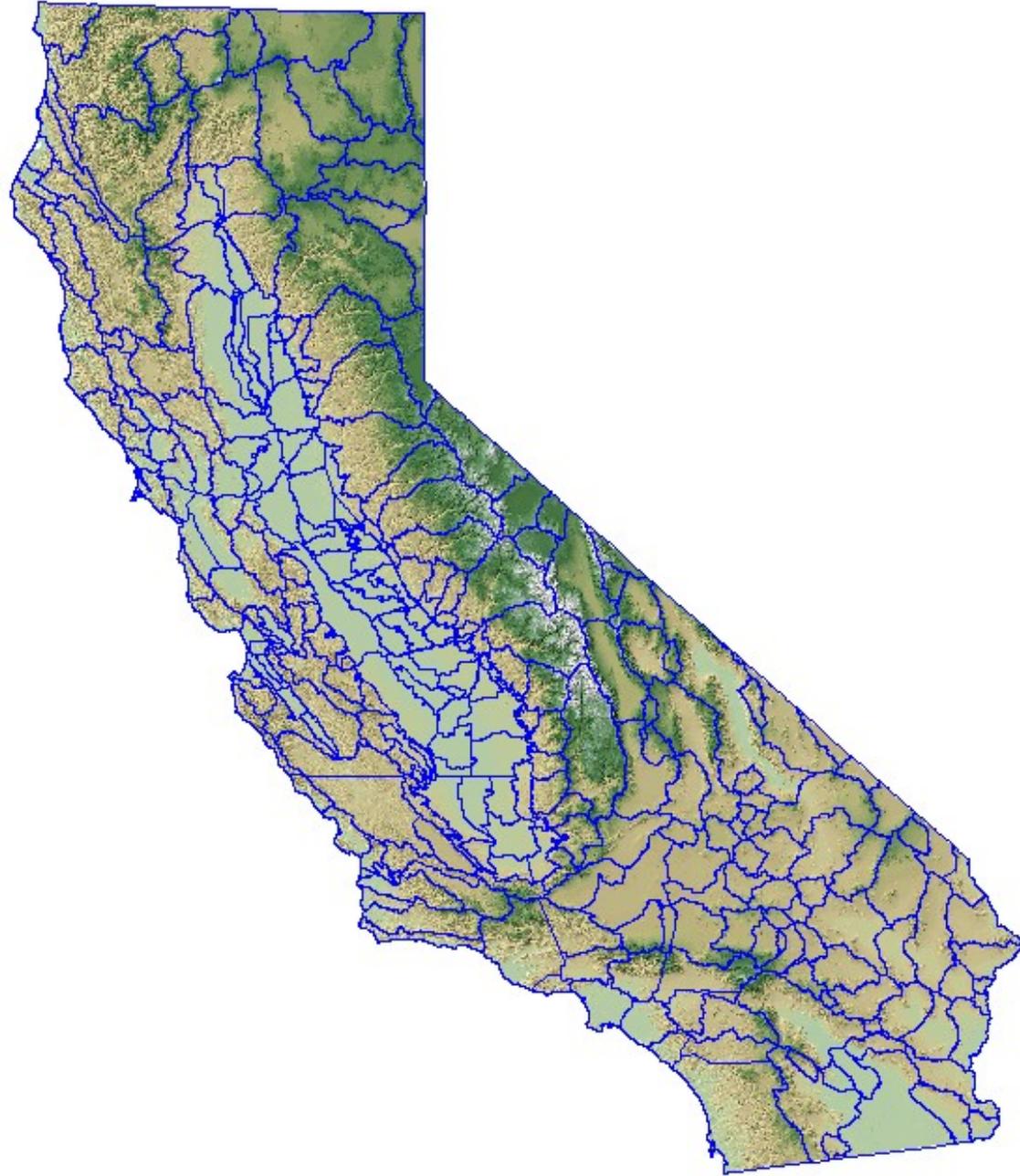
Methods Used

Future Improvements

Key Deliverables

Agricultural crop acreage:

- DAU/County
- Year
- 20 Crops (and crop groups)



CROP NAME

GRAIN

RICE

COTTON

SUGAR BEETS

CORN

DRY BEANS

SAFFLOWER

OTHER FIELD

ALFALFA

PASTURE

PROCESSING TOMATOES

FRESH TOMATOES

CUCURBITS

ONION AND GARLIC

POTATO

OTHER TRUCK

ALMOND/PISTACHIO

OTHER DECIDIOUS

SUBTROPICAL

VINEYARD

California Land and Water Use Database:

<http://www.landwateruse.water.ca.gov/annualdata/datalevels.cfm>

Data and Information Used

- DWR's land use surveys
- County agricultural commissioner crop reports
- Other local agency data if available (irrigation and water districts)

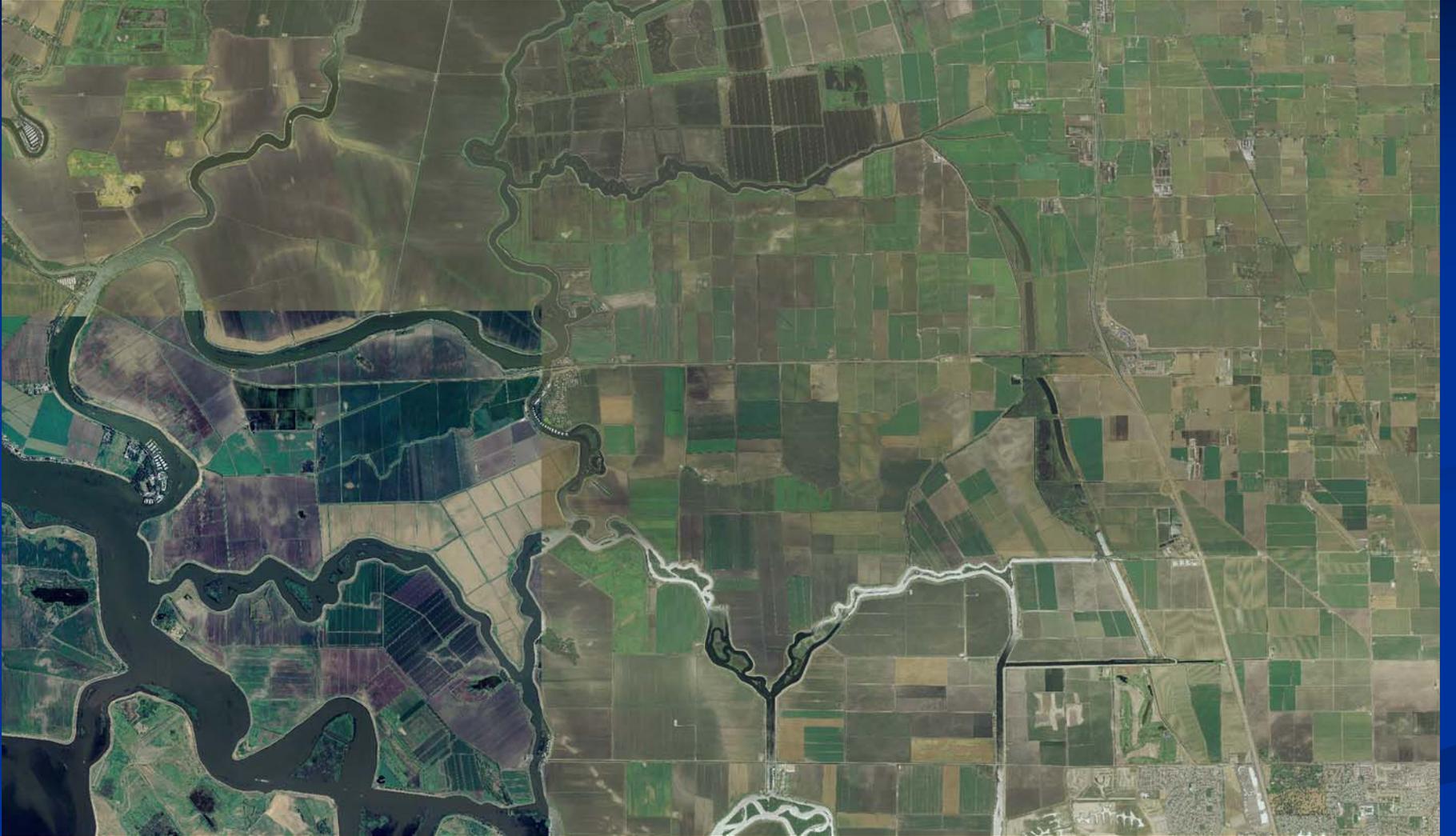
DWR's Land Use Surveys

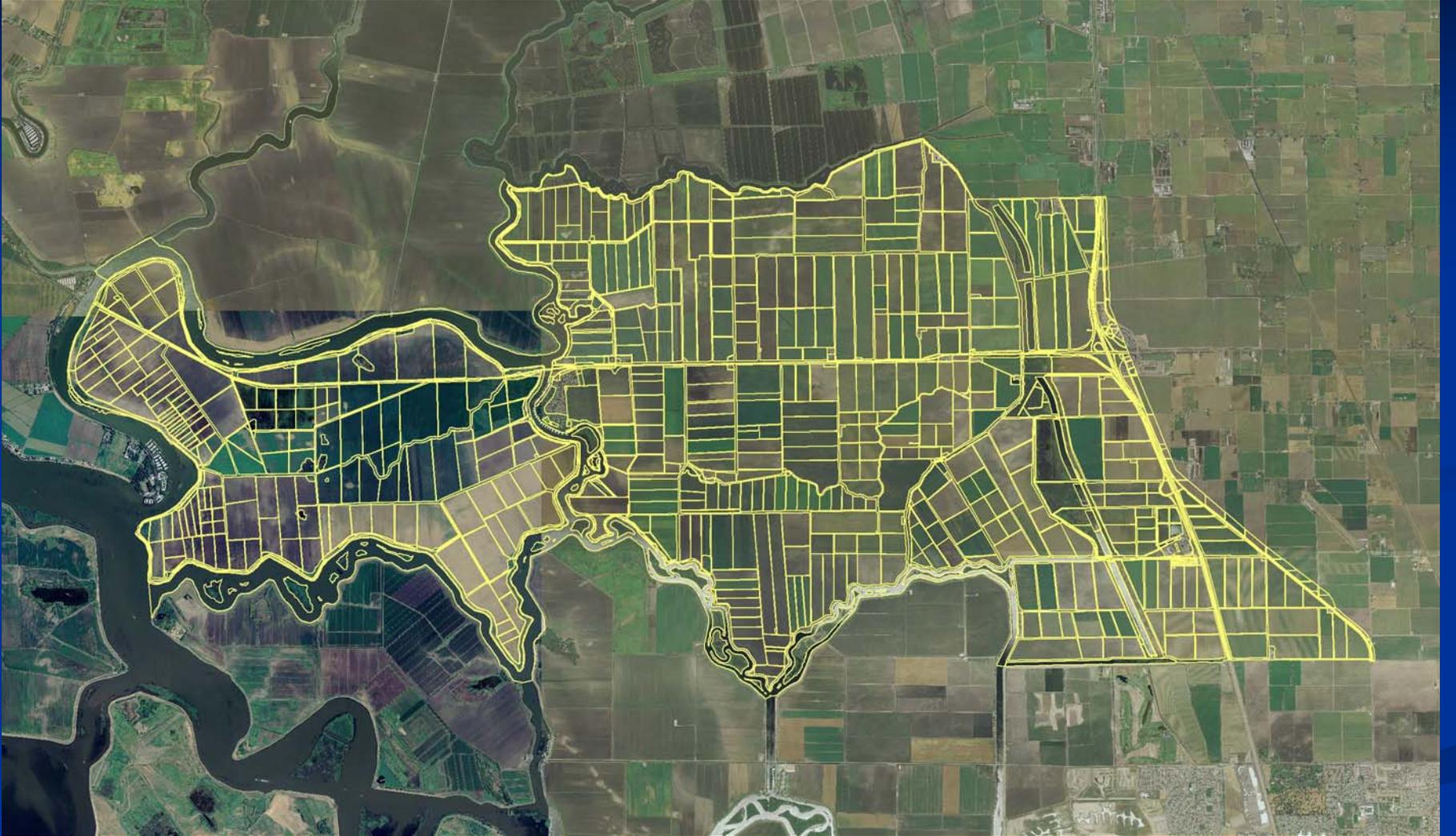
- On-going program since the late 1950's
- Between 4 and 6 counties per year are surveyed
- Both agricultural and urban land surveyed, with more detail on the agricultural side

DWR's Land Use Surveys

- All agricultural fields are digitized using recent digital aerial imagery
- Laptop computers with GIS software, a standard attributing program, recent imagery, and GPS units are taken to the field by staff
- All agricultural fields have their land use visually identified and attributed digitally

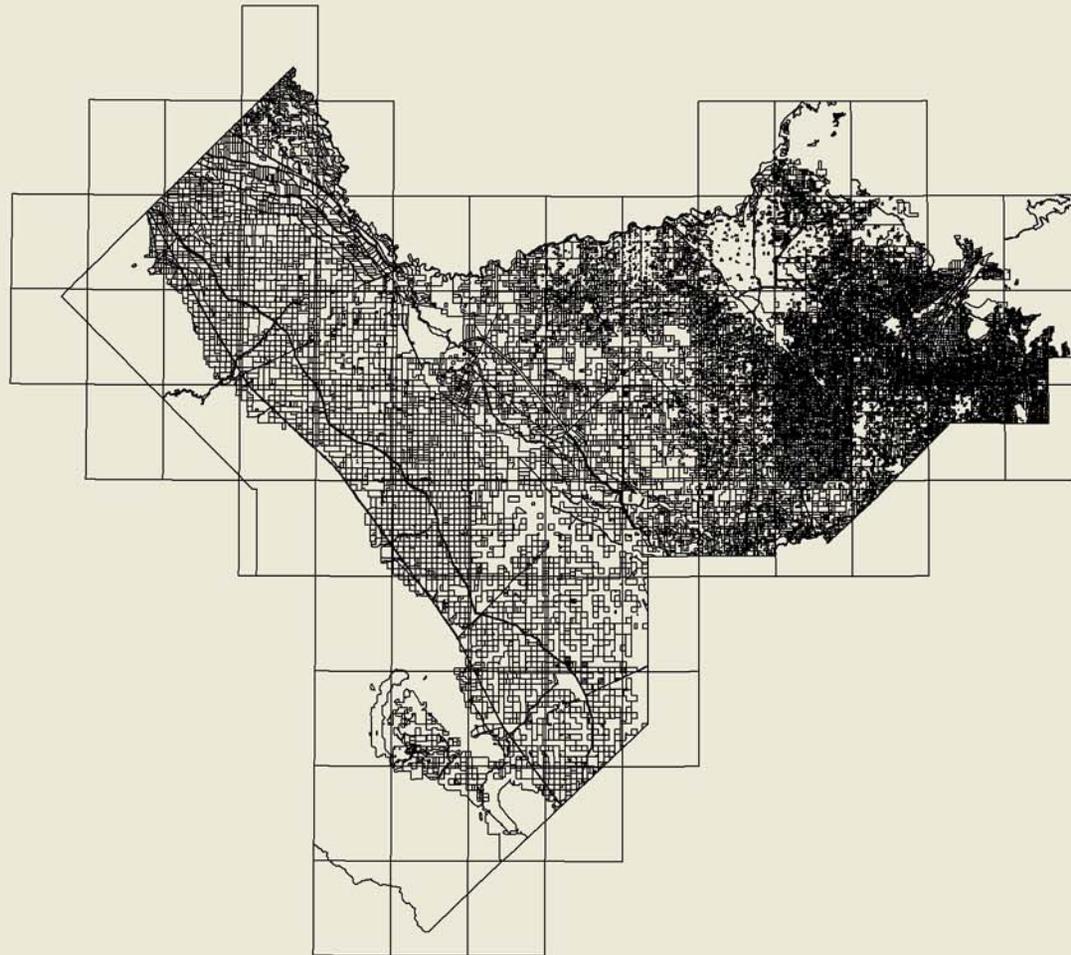


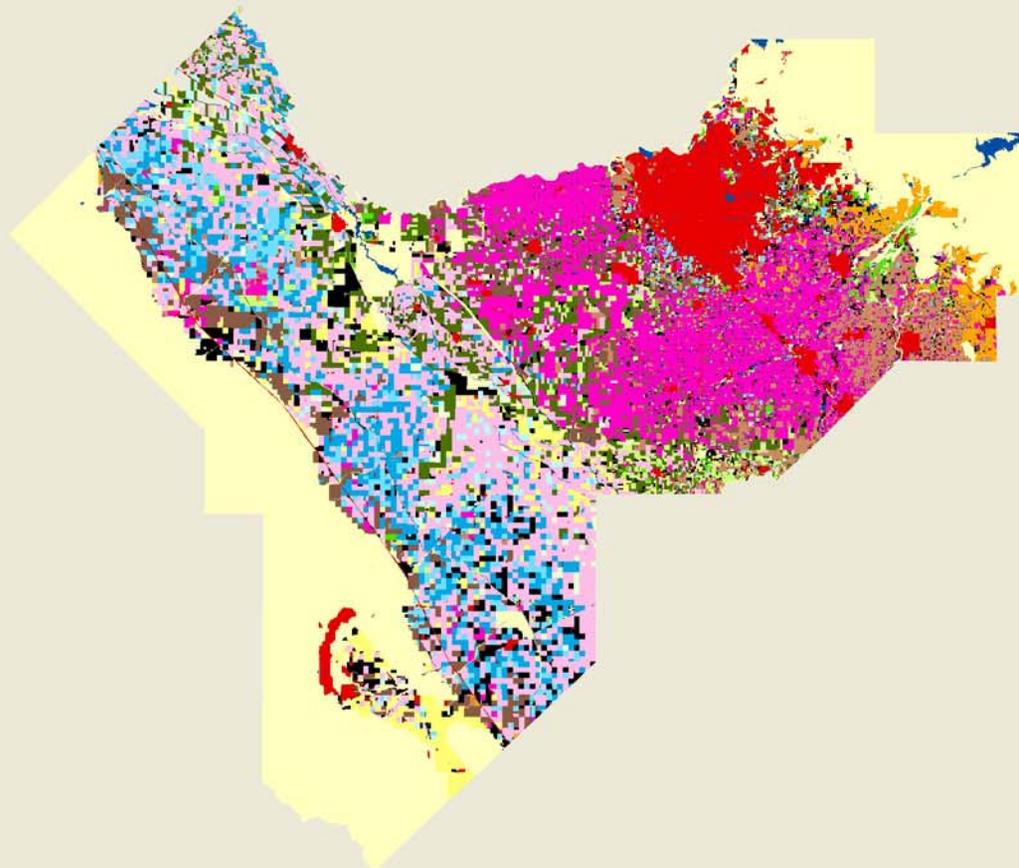












DWR's Land Use Surveys

- During the last 15 years, the average amount of California's agricultural land that was surveyed per year was about 13%
- The lowest amount was about 6%, the highest about 17 %
- Fresno County is about 12% of the State's agricultural land

Access to DWR's Land Use Survey Data

<http://www.landwateruse.water.ca.gov/basicdata/landuse/landusesurvey.cfm>

County Agricultural Commissioner Crop Reports

- Annual reports counties are required to prepare of crop acres, production, and values
- Data is countywide

Methods Used (Year of Survey)

- DWR's land use survey data is used to determine acreage summaries by DAU/County
- This acreage data is used for the year of the land use survey

Methods Used (Remainder of Counties)

- Comparisons are made between the last DWR survey and the crop report data from the same year
- Correction factors are developed by crop and are used with the crop report data for the year of interest
- This results in an estimate of irrigated acreage for the entire county

Methods Used (Remainder of Counties)

- For the most recent DWR land use survey, the percentages of each crop within each DAU within the county are calculated
- These percentages are used with the countywide crop acreages to disaggregate crop acreage to each DAU within the county

Future Improvements

- Possibility of using Department of Pesticide Regulation's pesticide permit information
- Use of remote sensing for:
 - Identifying crops
 - Estimating crop ET
 - Estimating irrigated landscape

Future Improvements

- Department of Pesticide Regulation collects pesticide use information, along with field size and crop where the pesticide is applied
- Information is by section (square mile)
- Not all fields receive pesticides, some problems with incorrect or non-reporting by growers

Future Improvements

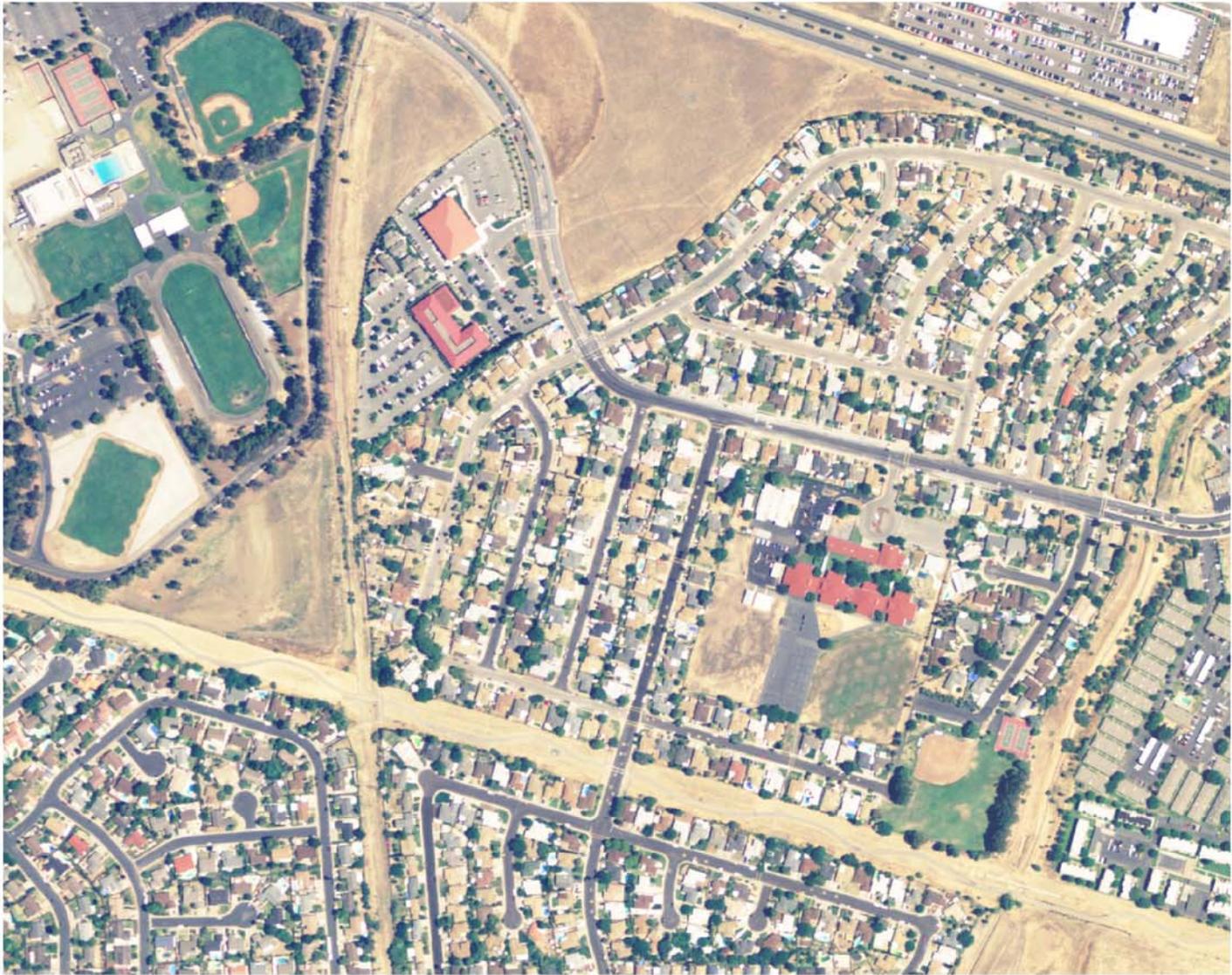
- Crop identification using satellite imagery is an ongoing program in the USBR's Lower Colorado region
- DWR has performed a pilot project in Sutter County, where a identification accuracies were about 75%, but resultant applied water calculations were only off by 2%

Future Improvements

- Various methods have been developed and used to estimate crop evapotranspiration using satellite imagery (with a thermal band)
- This could be an additional analysis that could further enhance DWR's efforts to develop crop ET data

Future Improvements

- The amount of urban irrigated landscape water use is currently estimated using changing monthly water uses reported by water agencies
- DWR and the USBR are currently using aerial infrared imagery to quantify irrigated urban landscapes in the Delta using object oriented techniques
- Estimating landscape acreage will allow the calculation of ET using models used for agricultural water use





Questions?

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