OmniEarth Water Efficiency Analytics
Insights on using data to drive conservation efforts in California.
Are there lessons which can be applied in Texas?

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- Offices in Arlington, Boston, and CA

- GeoAnalytics Company with over 300 staff years of experience in Earth and Data Sciences

- 25 Staff members, scientists and engineers, 6 Ph. D.s

- Advisory Board including Former NASA Head, National Laboratory Head, and Fortune 100 Industry Executives

- Founded with the mission that science and data-driven decisions improve outcomes for business and government
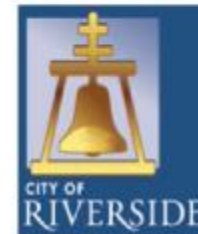
About OmniEarth

Water Efficiency Analysis in California

Current Partners……..

DATA IN

Parcel Data

＋

Imagery

＋

Water Meter Data

The OmniEarth Solution

ANALYSIS

Patented water
budgeting algorithms

VISUALIZATION

Intuitive, Simple Dashboards

Water Budget by Parcel
Sq. Footage of Irrigated Area
Inefficient User Identification

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Example of OE Land Cover Assessment

OmniEarth's patent pending methodology identifies irrigated versus non-irrigated features. This precision analysis produces an exact water budget for every parcel.

Example of OE Land Cover Assessment

Irrigated and non-irrigated area classification accuracy exceed 96% and 97%

| Pool | Lawn | Tree | Non-irrigated | Shadow | Man-made | Shrub |

Water Efficiency Calculations

Land Cover Classification Foundation:

Irrigated, Manmade, Non-irrigated, Pools, Water bodies, Shrubs/Trees

Water Budget by Parcel Calculation:
- DWR equation using daily ET rates from CIMIS
- California Model Water Efficient Landscape Ordinance (MWELO)
- Indoor Water budget calculated either via DropCountr feedback, OE generalized usage allocation based on state standards, or custom agency preferred method

Inefficient User identification:
- Comparison (in gallons) between actual and budgeting usage
- Vector layer highlighting users with largest delta
- Automated distinction of inefficient user tiers

Current Retail Agency Product:

- Automated **Land Cover classification**
- Parcel by parcel **Water Budget calculation**
- Individual **water use efficiency** rating & **savings potential**
- Contribution to the district's overall conservation goal
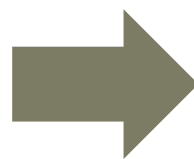- GIS based District Management Web-based dashboards

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The Importance of an Efficiency Approach

Comparing Conservation Methods:
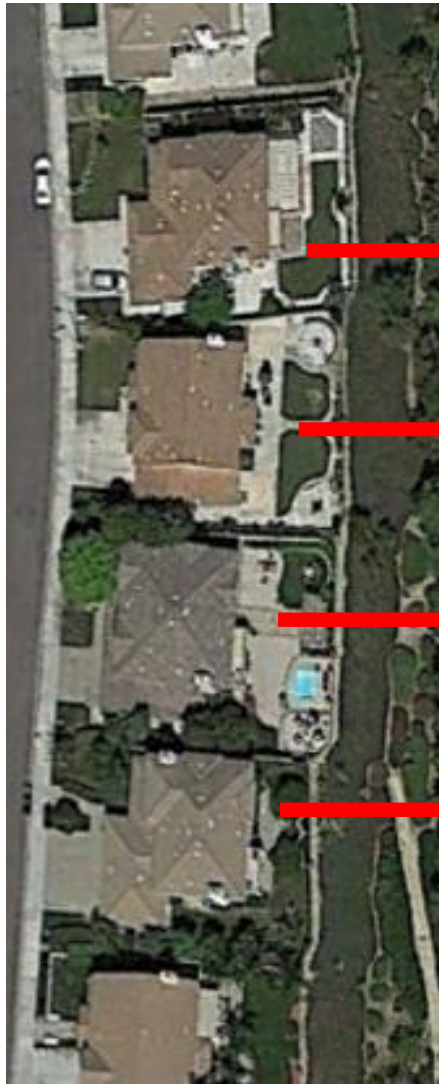
| ACTUAL USE	30% TARGET	SAVINGS	OE BUDGET	SAVINGS
75 GPCD	53 GPCD →	22 GPCD	75 GPCD →	0 GPCD
155 GPCD	109 GPCD →	46 GPCD	70 GPCD →	85 GPCD
243 GPCD	170 GPCD →	73 GPCD	85 GPCD →	158 GPCD
155 GPCD	109 GPCD →	46 GPCD	81 GPCD →	74 GPCD

SAVINGS IDENTIFIED:
With generalized method: 187 GPCD
With Efficiency Analysis: 317 GPCD

Lessons Learned:
# Efficiency Analysis in California

- Current data driving decision making is historical usage information

- Individuals never think they are water wasters

- Frequency of data collection and analysis had to be considered

- Consistent conservation messaging and customer satisfaction were paramount

- Conservation planning and regulatory response was stronger when quantified

- Extreme conservation challenges can drive revenue down
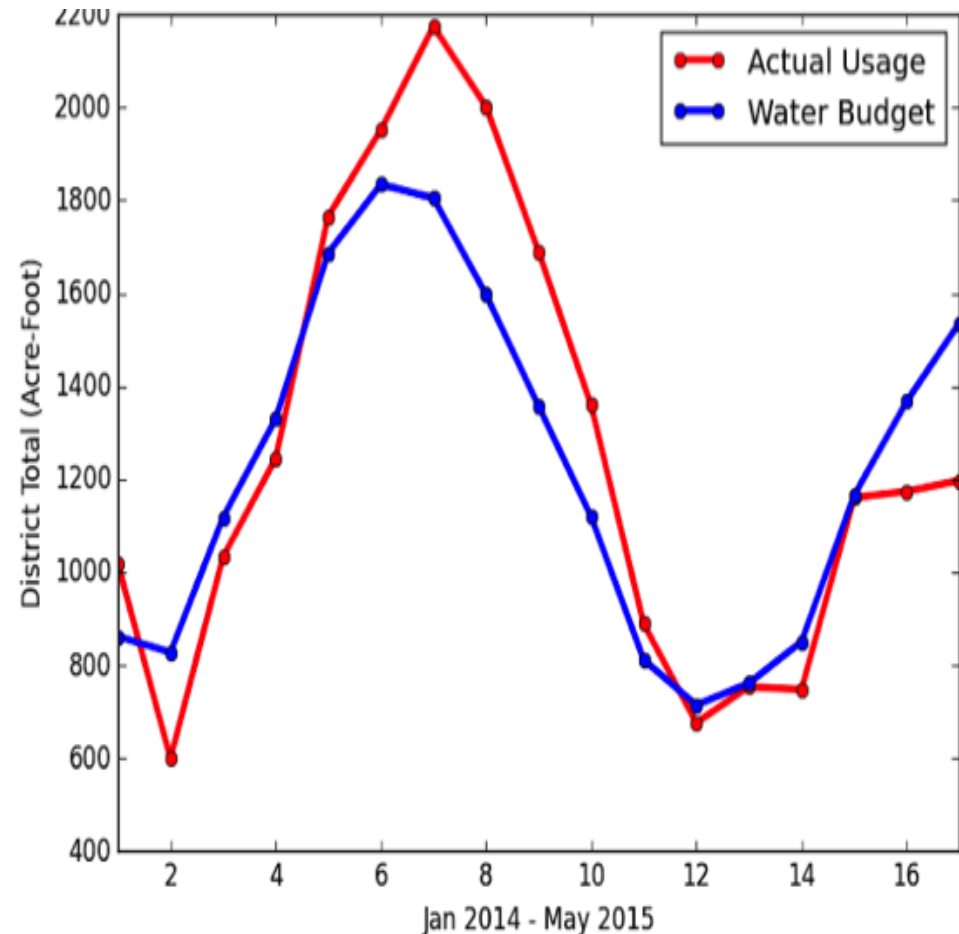
Agricultural Crop Typing & Water Optimization

Automated land use classification by crop types provides high accuracy for farmers
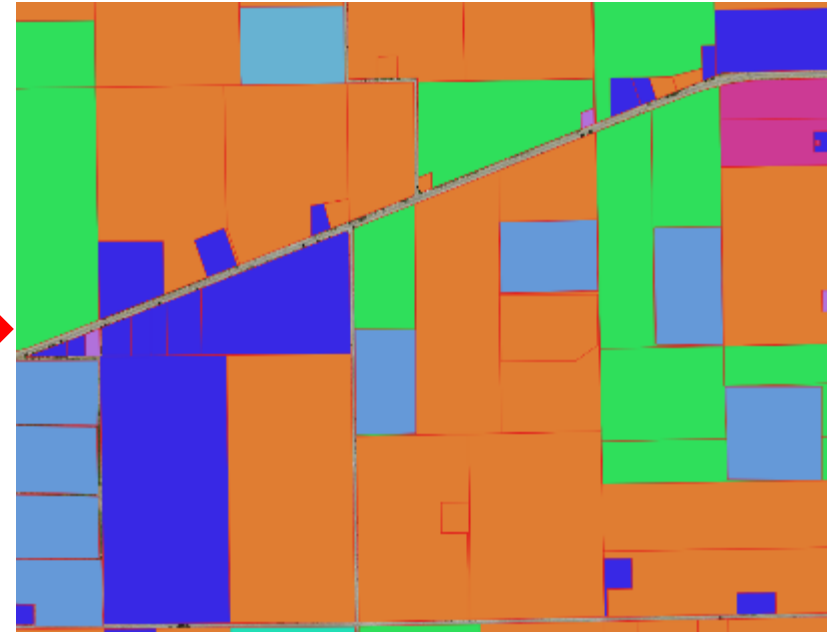
- Crops by square foot classified and tied to parcel boundaries

- Can be used in determining property value, crop yield, water demand

- Serves as basis for OmniEarth's Water Demand Estimates

Beyond Water Conservation

Other Analysis Techniques:
- Change Detection
- Additional Land Cover Analytics (ie., NDVI)
- Predictive Analytics

Other Applications:
- Identifying changes in turf grass (turf removal)
- Landscape change over time
- Commercial Water Budgets by Parcel
- Supply prediction
- Agricultural Water Use & Crop Identification

- Facilitates switch to "new" data-driven approach to conservation

- Identifies users with potential to save water

- Maximizes marketing outreach by targeting relevant audiences – more efficient outreach

- Quantifies unique impacts of current and future regulations on an individual agency

- Clearly identifies trends and tracks progress over time

- Supports long-term demand and revenue planning

- Automated, fast, ongoing

OmniEarth's proposition for Texas water management

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Thank You!
Questions?

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