This presentation premiered at WaterSmart Innovations

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Identifying Water Use Efficiency Opportunities for Large Landscapes with GIS

Part Deux

WaterSmart Innovations Conference
October 9, 2014
Las Vegas, Nevada
Regional water wholesaler to 6 counties, 19 million people, over 5,200 sq mi

- Growth: ~170,000 people/yr

- $1 trillion regional economy

- ~50% of region’s retail water supply
Metropolitan Water District Service Area

- 26 member agencies
Sources of Water for Southern California

Delta
Sierra Nevada Mtns / Lake Oroville
Delta
LA Aqueduct (Local)
State Water Project
~30% of supplies
Local
~45% of supplies
Colorado River Aqueduct
~20% of supplies

Average Rainfall = 15 inches per year
Recap (Part Un)

- **2009 Water Conservation Act (SBX7-7) “20 x 2020”**
  - State mandate to reduce urban per capita water use 20% by 2020
  - Achieve through conservation & recycled water use

- **Helping Large Landscapes Improve Water Use Efficiency**
  - Landscape surveys & rebates for irrigation equipment
  - Performance-based incentives for customized projects
  - Recycled water hookups
Landscape Equipment Incentives

- Turf removal
- “Smart” controllers & central systems
- High efficiency rotary sprinkler nozzles
- Large high efficiency nozzles
- Sprinkler flow regulators
- Soil moisture sensors
- Active landscape management
Project Goals

- Identify and catalog Large Landscape sites
- Overlay Metropolitan’s past participation data (sites that have received incentives to retrofit water-conserving landscape equipment)
- Update Metropolitan’s recycled water infrastructure data
- Obtain water treatment plant production data
Large Landscapes

- ≥ 5 acres
- Actively irrigated
- Public & private
- Within Metropolitan’s service area
Readily Available Data

- U.S. Geological Survey 2006 30m raster National Land Cover Dataset
- Southern California Association of Governments (SCAG) 2008 Land Use Data
- San Diego Association of Governments (SANDAG) 2012 Land Use data
- ESRI Aerial imagery
- County parcel data (where available)
Working with Data: Choosing Parcels

- **Selection criteria**
  - Larger than 5 acres
  - Classified (> 50%) as “Developed, Open Space or Grassland/Herbaceous”

- **Not chosen:**
  - Outside the designated land cover classification
  - Less than 5 acres
  - LU classification not generally associated with irrigated landscapes
Working with Data: Choosing Parcels

- Filtering
  - Land use classification
  - Aerial image assessment
  - Percentage of NCLD coverage
Some “cleaning up” still needed:

- Recent development can alter landscapes: this irrigated parcel is classified as having ~4.4 acres of NLCD Developed, Open Space and Grassland/Herbaceous within its ~5.2 total acres.
Recycled Water Infrastructure

- Plants
- Pipelines & connections
- Service points, storage areas
- Production data (if/where available)
Recycled Water Data

**Challenges**
- Not all agencies can/will share data
- Multiple formats (digital/ hard copy/PDF/GIS/etc)
- Production data often not available
- Multiple agencies and agency types: Water Agencies, Water Authorities, Watershed Authorities, Sanitation Districts, NGOs, Cities, Counties…

**Sources**
- Online data
- Published reports
- Direct communication with agencies
Incentives Past Participation - Landscape

- Metropolitan / regional programs
- Member agency & retail agency programs
Using The Results: Big Picture

Legend
- Recycled Water Pipeline
- Outdoor-related Devices
- Past Participation Locations By Square Mile

- Fewest Participants
- Most Participants

Distance:
- 10
- 5
- 0
- 10 Miles
Using The Results

- Identify saturated areas & potential target areas
- Review marketing and outreach strategies
- Collaborative options
- Modify incentives
Next Steps

- Review & refine data
- Analyses
- Collaborate w/ member & retail agencies
- Maintain database
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Identify distribution infrastructure
Identify sites for potential RW use
Modify programs or structure incentives to increase RW use
Collaborate RW purveyors