


This presentation premiered at WaterSmart Innovations

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Addressing AB 1881 Large Landscape Requirements

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Model Landscape Ordinance

- What is AB 1881?
- Core Issues
- Ways to Address Core Issues



What is This Model Landscape Ordinance?

- State Law requiring cities to adopt 'model' Landscape Ordinance
- Landscapes "installed" after January 1st, 2010
- Requiring cities to meet or exceed Model Ordinance
- It Changes Irrigation Efficiency in new design, implementation processes and validation process
- Civil and Criminal penalties allowed for noncompliance

How AB 1881 has teeth...

- Environmental Groups/Individuals Hold Law in Check
 - Challenge city not meeting state ordinance
 - Challenge permits not meeting city ordinance
 - Holds Project up in each stage unless meets standard

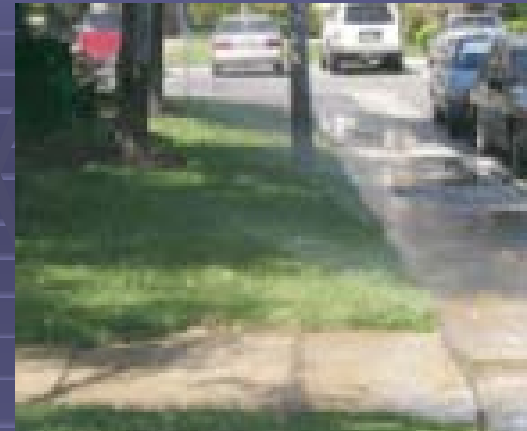
Model Landscape Ordinance

- What it is
- **Core Issues**
- Ways to Address Core Issues in new ordinance

Large Landscape Core Issues

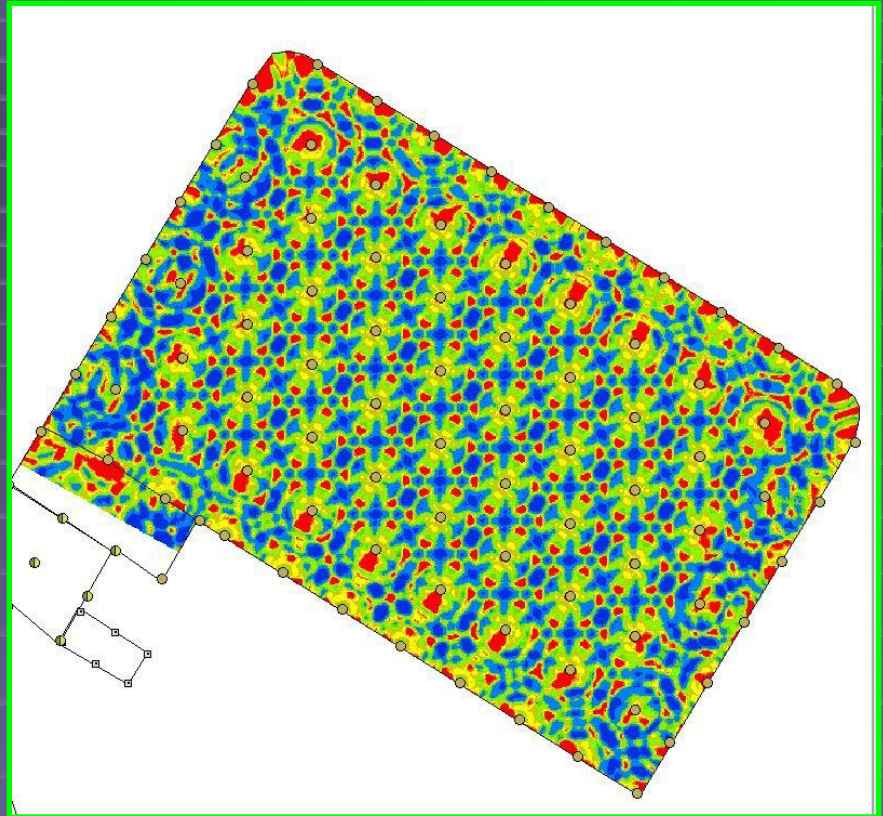
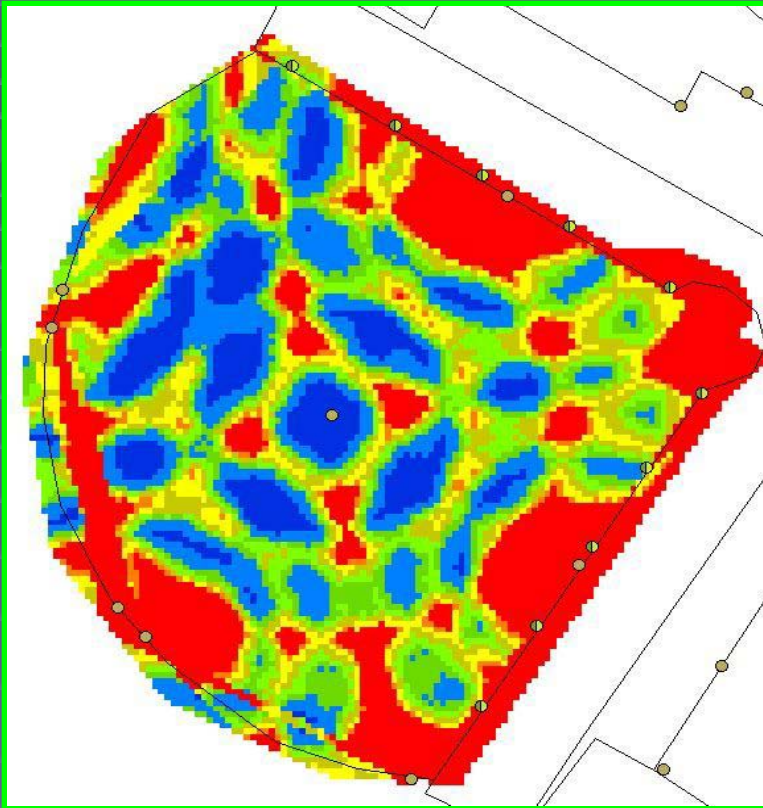
- **Enforcement of Ordinance**
 - No occupancy permit – unless ordinance met in design, and in field
 - Field validation by Certified irrigation Audit
- **Zero Run off**
- **Irrigation Efficiency (71%)**
 - Must prove in design stage and at construction before Certified irrigation Designer signs Plans




Zero Run off Irrigation Design



- No sprayhead, or rotor within 24" of any hardscape
- Only "Low Volume" surface flow or subsurface irrigation in all mulched areas (bush/shrubs/trees)
 - 60% of your area is low flow
 - All areas except turf or creeping groundcover must be mulched
- Slopes of 25% or greater must have precipitation rate less than 0.75 in/hr
- Soil grading to keep all stormwater on site

Distribution Uniformity Sites



-  WET
-  AVE
-  DRY

Model Landscape Ordinance

- What it is
- Core Issues
- Ways to Address Core Issues in new ordinance for Large Landscape

Ways Cities Meet Ordinance

- **Ordinance Design:**
 - Adopt Straight forward requirements
 - example: Weather Based Controller
 - Simplify Plan Review
 - Limit irrigation systems to high Distribution Uniformity throughout site with no run off
 - Eliminate Turf area unless in recreation area or utilization of “low volume” irrigation

Ways Cities Address AB 1881

- Hire Certified Irrigation Consultants
 - Review plans & documents
- Electronic Plan Check & Validation Process
 - CAD Digital Documentation Only
 - Easy to work with Water Purveyor
 - Simplify process reduce total costs
 - GPS Technology validates Distribution Uniformity from CAD drawings

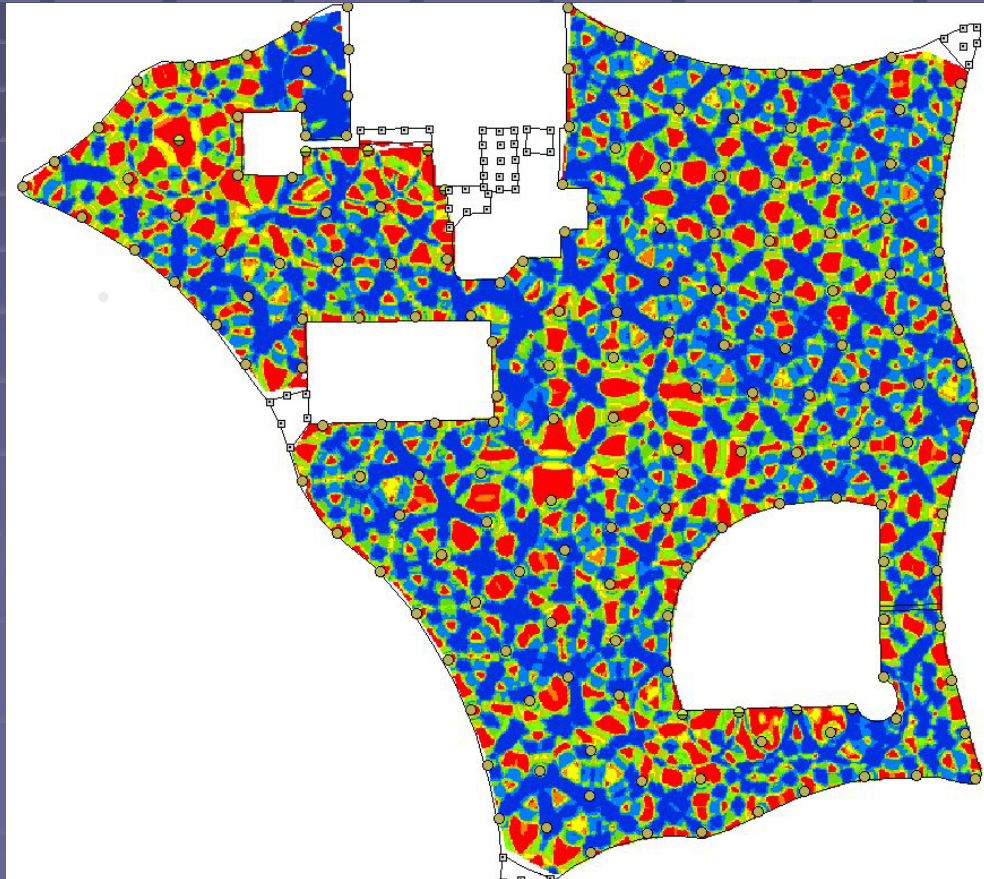
Ways Cities Meet Ordinance

- **Plan Check & Validation Process:**
 - CAD Plans can be electronically submitted
 - Sent Electronically to Certified Irrigation Designers
 - Plan is processed through software to validate Distribution Uniformity
 - Plan can be revised to meet AB 1881 standards

GreenWorld Electronic CAD Plan Check

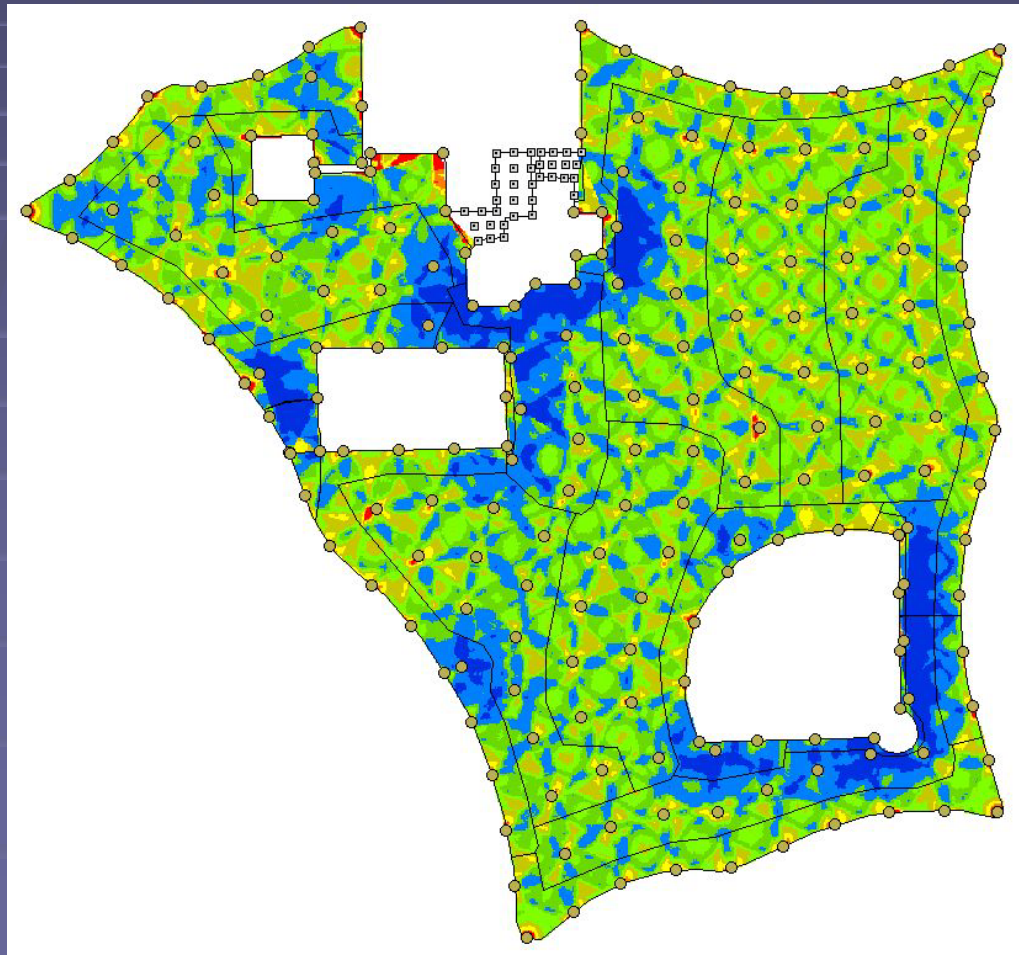
Sample: - Bad System Design

Distribution Uniformity - score 51.2



GreenWorld Electronic CAD Redesign: - Good System Design

Distribution Uniformity - score 81.7

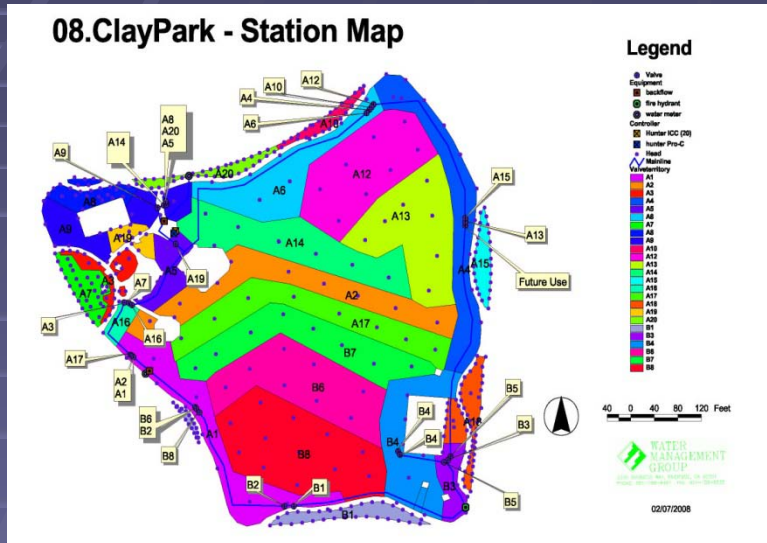


GIS Irrigation System Plan Check Program

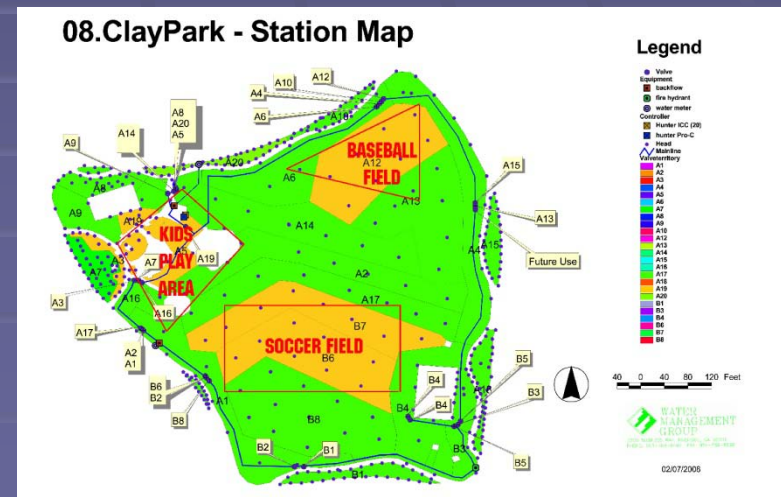
- Accurate measure of Volume Requirement
- Plan Check Process Cost is the same
- Forces all new design to Meets State Standards tests for Distribution Uniformity
- Easy to evaluate water budget and watering window tests.
- GIS data base is standard and fits into agency program
- *GIS information can pass right into ET controller*

Water Budget Graphic Tools

Valve Map



Drought Map



Irrigation Scheduling Engine

- Automatically schedules irrigation based on Irrigation Association BMP- 19 factors
- Seasonal adjustments are made automatically.

Hydrozones Editor

Select A Hydrozone

Hydrozone List

1 Turf

Description

(type in description)

Turf

Historical ET (ETo)

75 Irvine

Historical Rainfall (R)

6 Santa Ana

Factor % (RF), type in value

25

Plant Coefficient Factors (KI)

Plant Species (Ks)

Trees	Cool Turfgrass
Shrubs	Warm Turfgrass
Mixture of trees, shrubs, and ground cover	Shrubs 2
Ground Cover	Shrubs 3
	Drip Stations

Stress

High

Average

Low

Ks

0.7

Density (Kd)

High

Average

Low

Kd

0.6

Microclimate (Kmc)

Pavement/Reflective	
Full Sun	Shade
Partial Sun	Custom

Kmc

1.0

KI

0.42

Precipitation Rate (PR)

Rotor	new 100
Spray	Custom
Bubbler	Custom2
Drip	Custom3
1.2 in.	pcn
1.1 in.	pgp
1.0 in.	lo flo drip
0.9 in.	Custom7

Precipitation Rate, in./hr.

0.73

Soil Type

Sand	Clay Loam
Sandy Loam	Silty Clay
Loam	Clay

Available Water Capacity (AWC)

23

Intake Rate (IR)

.1

Cycle Period Factor (CP)

1.0

Soak Period Factor (Sp)

1.0

Slope

None	1:1
1:4	3:1
1:2	Custom

Slope Factor (Sb)

1.0

Net Slope Factor (St)

1

Root Depth

1/2"	7 in.
1 in.	8 in.
2 in.	9 in.
3 in.	10 in.
4 in.	12 in.
5 in.	15 in.
6 in.	18 in.

Root Depth

2

DU

60 %

Efficiency

100 %

Depletion

35 %

ET %

100

Area and Flow Rate

3000 sq. ft. 22 gpm

Enter Area and Flow, Precip is set.
Enter Area and Precip, Flow is set.

Quick Calcs

May

Scientific Run Time = 0:13:14 ETo = 5.18 inches

Scheduled RunTime = 0:10:58 PWR = 2.12 inches

Interval = Runs every 1 Days IEInches = 0.161

Cycle = 0:08:13 Monthly Run= 4:51:00

Soak = 1:00:00

Ways City Meet Ordinance

- **Field Validation Process:**
 - CAD creates GPS points of irrigation system for field validation
 - Simplify process reduce costs
 - Technology has electronic validation for record tracking
 - City & Utility can validate process before inspection

GPS Water Audit



Flagger Measures
Pressure /Throw, and
standard water audit
information

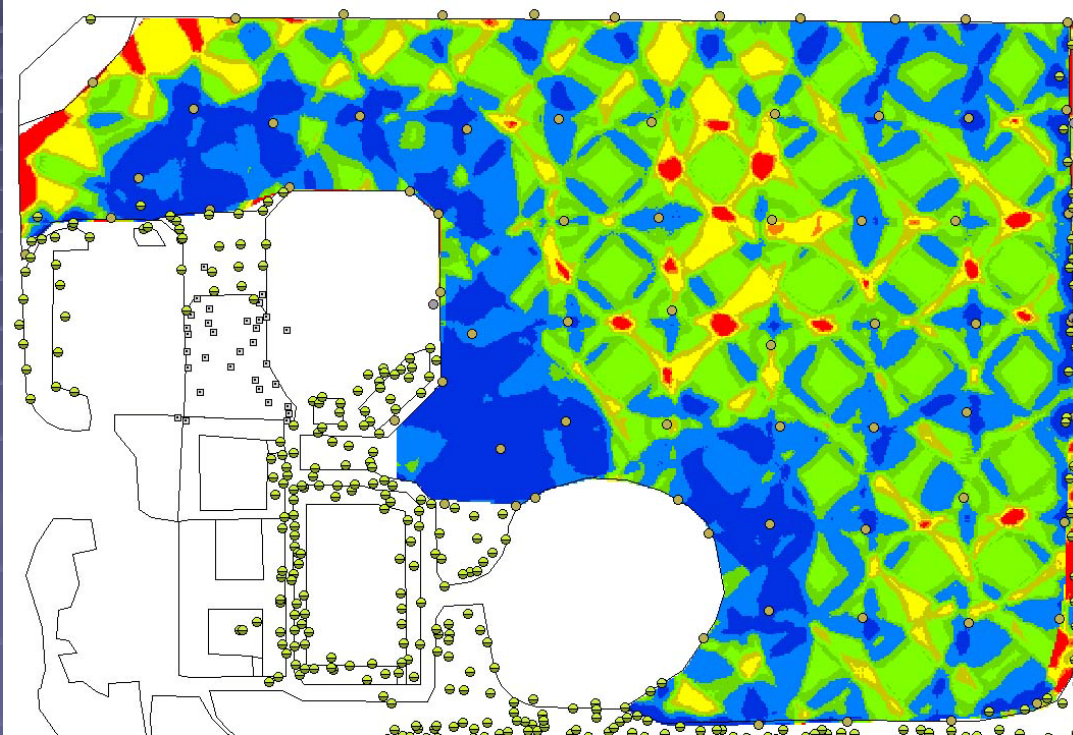
GPS Instrument
Measures Head
Location



GreenWorld GPS field Site Map



Distribution Uniformity Audit Analysis




Less Water

Average Water

More Water

- **System Distribution Uniformity: 75.5%**



Summary

Addressing Large Landscape Under AB 1881

- Technology Solutions
 - CAD Electronic filing
 - Environmentally Friendly
 - Easy to Share and validate
 - GIS technology – plan validation
 - GPS irrigation - field verification

Any Questions? Regli@hydroearth.com



