



City of Lodi Parks System Water Conservation

- Turf Acreage & Turf Types
- Turf Mowing Practices now and into the future
- Tree Inventory & Tree Types
- Irrigation System Types & Age
- Central Irrigation vs Stand Alone
- Past Irrigation Practices
- Current Irrigation Practices
- Potential Future Practices

Turf Acreage & Turf Types

- 190 Acres of mowable turf
- Cool- and warm-season turf
- Majority of park turf consists of cool-season turf types – Tall Fescues and Blue/Ryes
- Baseball infields and De Benedetti Park are warm-season

Cool Season Turf



Cool Season Turf



Warm Season Turf



Warm Season Turf



Turf Mowing Practices

- Current approach – all cool-season turf receives a 2.5” cut every seven days
- Grass clippings are not removed
- Riding rotary mowers

Rotary Riding Mower – 16'



Rotary Riding Mower – 6'



Tree Inventory & Tree Types

- Current inventory approximately 5,000
- Inventory consist of 15 species, various ages
- Current health ranges from very healthy to dead. A large % is in the fair to good range

Tree Inventory & Tree Types

- Vast majority within irrigated turf areas
- Very few receive individual watering
- Vast majority are planted in sloped areas
- A ready available water source is uncommon

Irrigation System Types

- Automated in almost all parks
- Fourteen of our parks have central irrigation
- Limited areas are hand/garden hose watered
- Only Roget Park has a dedicated automated irrigation system for trees
- Not all park irrigation systems have a booster pump feature

Irrigation System Ages

- Park irrigation systems range in age from very new to very old
- Newest system – Roget Park 2012
- Oldest system – Emerson Park 1955
- Average age of a basin park irrigation system – 40 years

Central Irrigation vs Stand Alone

- Central Irrigation systems allow park staff to control schedules from the base station
- Stand-alone systems require park staff to control schedules at the individual sites
- Central systems require a large amount of training and hands-on experience

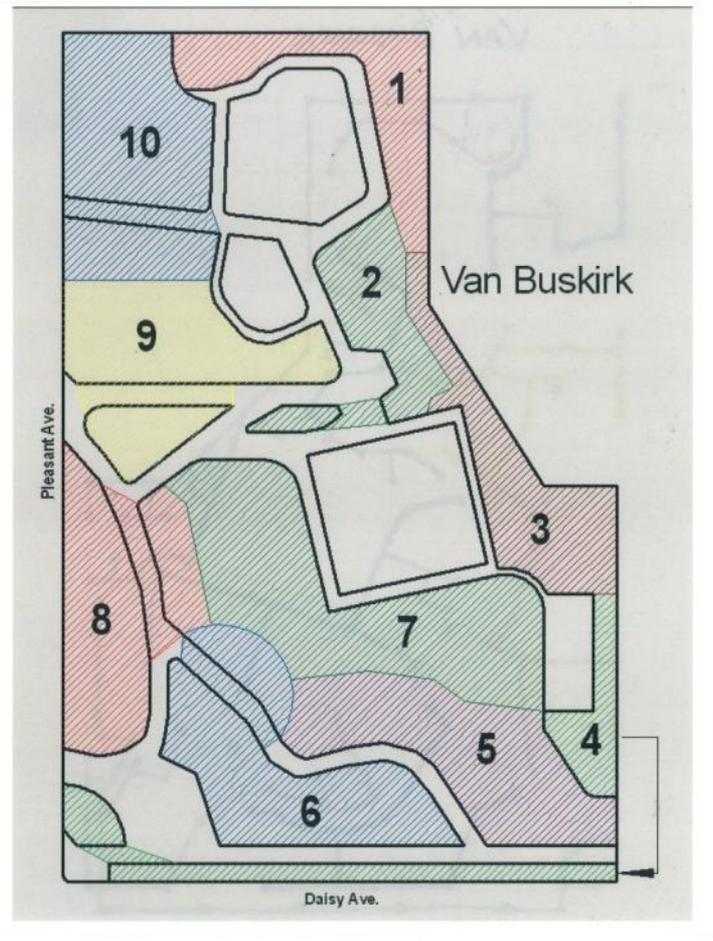
Maxicom – Central Irrigation



Field Data/File Notes By Park

- Irrigation zone map
- Irrigation system map
- Site water schedule
- Annual water use

Irrigation Zone Map – Van Buskirk Park



Site Water Schedule – Van Buskirk Park

Schedule: Schedule A

Site: Van Buskirk*

Schedule Number: 001, Programmed Repeats: 0, FLO-MANAGER: NO, Automatic Send: NO, Protected: NO
Runtime Adjustment: Water Budget 0%, Nominal ET: 0.10 in/d

001 START ON - TUESDAY WEDNESDAY THURSDAY FRIDAY
002 *
003 START AT - 11:45PM
004 Ms4 Satellite CHANNEL - 01
005 Station 01, 010 minutes
006 Station 02, 010 minutes
007 Station 03, 015 minutes
008 Station 04, 015 minutes
009 Station 05, 040 minutes
010 Station 06, 040 minutes
011 Station 07, 040 minutes
012 Station 08, 040 minutes
013 Station 09, 040 minutes
014 Station 10, 010 minutes
015 * OFF AT 2:10AM
016 * CHANGED 6/8/06

March 0
MAY 4x week
July 4x week
Oct 2x week

Annual Water Use Report – Van Buskirk Park

2013 Year

Flow Data for Site: Van Buskirk*

From: 1/1/2013 12:00:00 AM To: 12/31/2013 12:00:59 AM

Actual Runtime Data														
CHANNEL	01	02	03	04	05	06	07	08	09	10	11	12	13	14
DEVICE	Sat					Dec								
Sensor (A)						1131788.0g								
Sensor B														
Station 01	1494m													
Station 02	1155m													
Station 03	1720m													
Station 04	1407m													
Station 05	4910m													
Station 06	4570m													
Station 07	4910m													
Station 08	4910m													
Station 09	4910m													
Station 10	1137m													
Station 11	--													
Station 12	--													
Station 13	--													
Station 14	--													
Station 15	--													
Station 16	--													
Station 17														
Station 18														
Station 19														
Station 20														
Station 21														
Station 22														
Station 23														
Station 24														

Influencing factors

- Facility use schedules
- Watering window
- Resources available
- Special Events
- Safety
- Policies
- Drought

Potential Future Practices

- Drought-driven actions
- Different approach to mowing
- New tools in the tool box
- Increase some cultural practices
- Protecting our assets

New tools in the tool box



New tools in the tool box



New tools in the tool box



Reducing water use

- Historical: Up to five days per week
- Watering cycles would typically start in the late evening
- Likely reduce days per week
- Likely have four levels of turf management
- Likely raise mow height at several sites from 2.5" to 4"

Reducing water use

- Limit use of fertilizers
- Increase aerification frequency
- Lessen turf areas where possible
- Swap existing turf areas with native grasses
- Purchase mow equipment that will aid in new approaches to turf management

Native grasses vs. standard turf



Low water plant selection



Potential Change – Four Levels of Turf Management

- Level One – sports fields (no change)
- Level Two – non sports field, mow weekly at higher cut (2.5” vs 4”)
- Level Three – non sports fields, mow bi-monthly at 4”
- Level Four – mow monthly, if at all

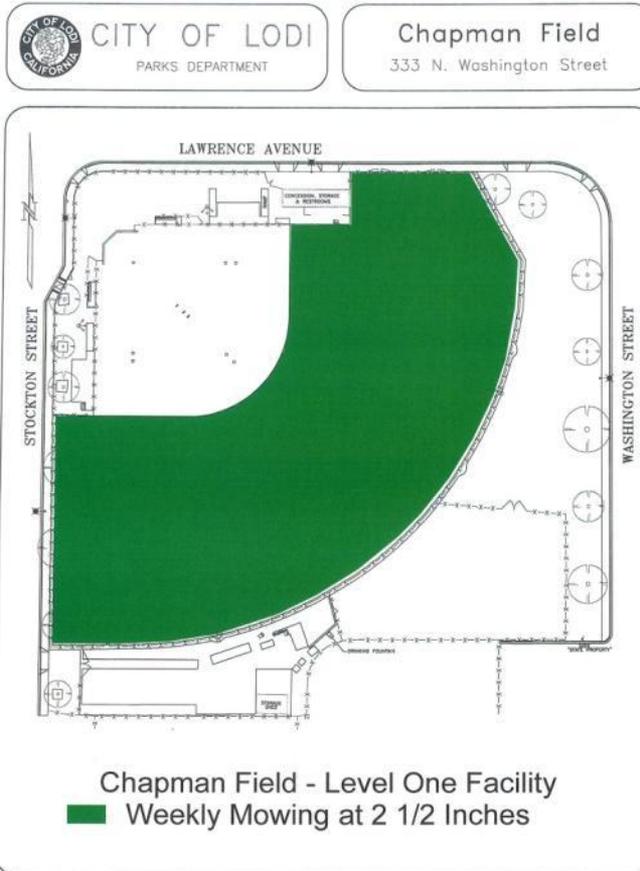
Examples

- Level One – Lodi Lake Park, Zupo Field, Chapman Field and the Softball Complex
- Mow weekly at 2.5”
- Level Two – Salas Park, Beckman Park, Henry Graves Park
- Mow sports fields weekly at 2.5”
- Mow non sports areas weekly at 4”

Examples of Potential Changes regarding mowing

- Level Three – English Oaks Park, Van Buskirk Park and Lawrence Park
- Mow bi-monthly at 4”
- Level Four – Century Park, Borchardt Park
- Mow monthly

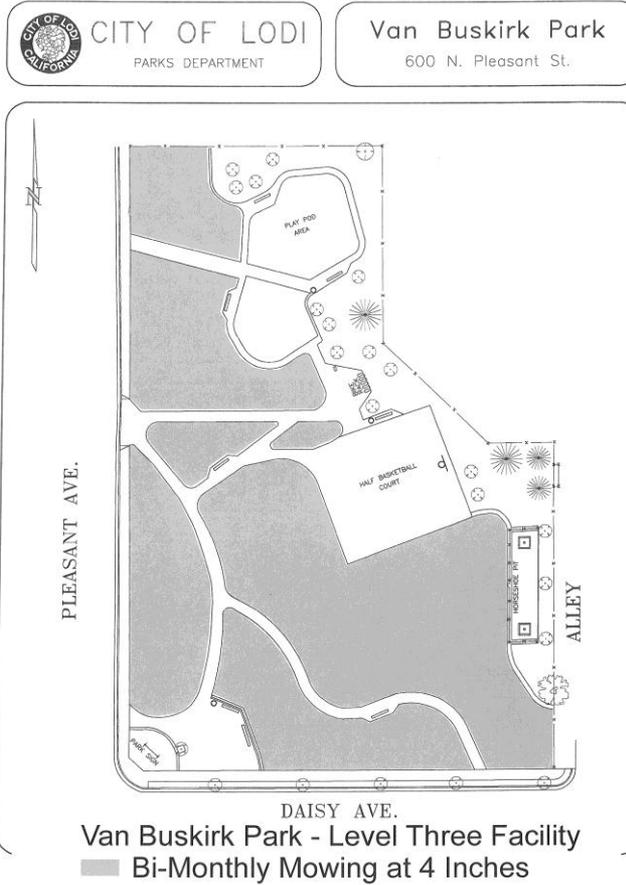
Level One



Level Two



Level Three



Planned watering changes

- Reduce watering days
- Reduce run times
- Develop new schedules for shrub vs. turf areas
- Modify watering schedules to accommodate a cycle/soak option
- Perform seasonal, if not ongoing system adjustments

Water Scheduling



Facts and Figures

- 165-plus acres of a turf
- 37 irrigation controllers
- 717 remote control valves
- More than 5,000 sprinkler heads
- Staff of five average 42 weeks/year on mowing, edging and equipment maintenance

Proposed mowing levels

- Level One
 - 36.5 acres
 - Sites: Zupo, Softball Complex, Chapman, Lodi Lake Park, De Benedetti Park and Hutchins Street Square
- Level Two
 - 120.5 acres
 - Site examples: Roget, Vinewood, Katzakian, Blakely Park

Proposed mowing levels

- Level Three
 - 5.8 acres
 - Site examples: Van Buskirk, Century Meadows, Skate Park
- Level Four
 - 2.76 acres
 - Site examples: Century, Borchardt

Water Waste ?

- Maintenance tasks perform by park staff
- Watering in fertilizer application
- Responses to citizen reports
- Ball field prep
- Field conditions such as wind, and slopes

Maintenance tasks performed by park staff



Maintenance tasks performed by park staff



Responding to citizen concerns



Ball Field Maintenance



Negatives

- Loss of assets – turf/trees
- Public image
- Safety
- Wear and tear on equipment
- Scheduling of manpower and equipment
- Existing irrigation system design conflicts
- Negative impact to park users/customers