



Undertaking a Turf Reduction Project: A Case Study at Bernardo Heights

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Bernardo Heights Country Club
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> BHCC Turf Reduction Goals

- Get off the city water supply
- Bring more color to the course
- Eliminate poorly maintained turf



> BHCC Turf Reduction Stats

35

Acres Removed

5,800

Tons of Sand

6,000

Yards of Mulch

16,000

New Plants

5

Months to
Complete

\$2.9

Million Total
Cost

12

Miles of
Irrigation

0

Golfers
Harmed

> Our Process

> Our Process



Kill the Turf

> Our Process



Kill the Turf



Remove the Turf

> Our Process



Kill the Turf



Remove the Turf



Install Landscape

> Killing Grass

It's Not as Easy as it Appears

- Herbicides
 - Glyphosate + Fusilade
 - High rates, split apps
- Water between applications
- Space apps by 4-6 weeks
- Careful of evening dew



> Turf Removal

- Sod cut the edges
- Till (Blecavator)
 - Brings up seeds
 - Damages tree roots
 - Makes a mess
- No till protects surface, reduces weed growth



Landscape Installation

- Drip vs overhead
 - Overhead install offers speed and ease
 - Drip saves water and future maintenance
- Plant selection
 - Site specific
 - Availability



Landscape Installation

- Drip vs overhead
 - Overhead install offers speed and ease
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 - Plant selection
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 - Availability
- Drainage
 - Install as much as possible
 - Expect to lose 10% of plants
 - DG and sands need water and compaction and lots of time



> Turf Substitutes



> Decomposed Granite- Pros



Compacts
very well

Easy to
spread

Pre-
emergent
applications
are effective

Occasional
raking
keeps
surface
clean

Long
lasting,
does not
break down

> Decomposed Granite- Cons



Abrasive
to golf
clubs

Sometimes
dusty with
cart traffic

Relatively
expensive

Prone to
erosion

> Erosion



> Mulch - Pros



Erosion
control is
Excellent

Many different
colors and
varieties

Low cost
sources are
available

> Mulch - Cons



Needs
regular

Refreshment

Difficult to
keep clean

from leaves,
litter

Pre-
emergent

applications
may not reach
soil



➤ Should your course consider a turf reduction program?

> Water Savings – Drought can strike anywhere

U.S. Drought Monitor California



May 13, 2014
(Released Thursday, May 15, 2014)
Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	0.00	100.00	100.00	100.00	76.68	24.77
Last Week 5/6/2014	0.00	100.00	100.00	95.93	76.68	24.77
3 Months Ago 3/15/2014	1.43	98.57	94.54	91.59	60.94	9.81
Start of Calendar Year 12/01/2013	2.61	97.39	94.25	87.53	27.59	0.00
Start of Water Year 10/01/13	2.63	97.37	95.95	84.12	11.36	0.00
One Year Ago 5/14/2013	0.00	100.00	98.16	46.25	0.00	0.00

Intensity:



The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

Author:

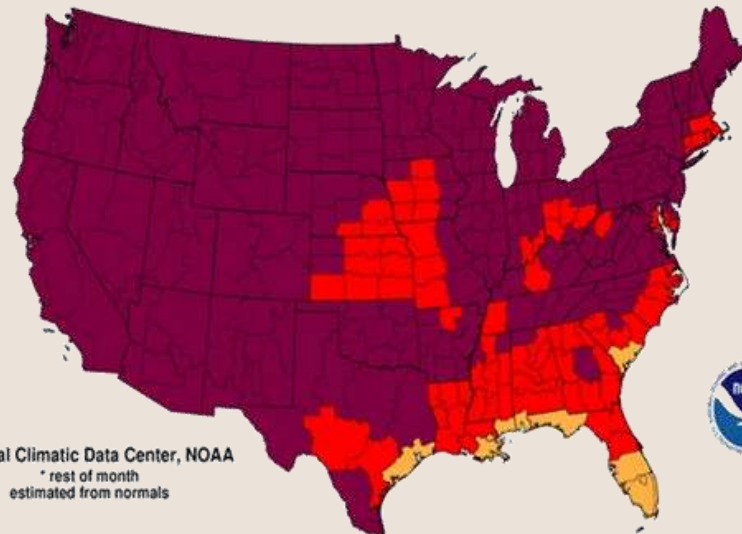
Mark Svoboda
National Drought Mitigation Center



<http://droughtmonitor.unl.edu/>

Palmer Drought Index Long-Term (Meteorological) Conditions

July 2005: through July 3, 2005*



National Climatic Data Center, NOAA

* rest of month
estimated from normals



> Aesthetics

- Replace low quality turf with low-maintenance landscapes.



> Aesthetics

- Diversify your landscape
 - Addition of 16,000 new plants, 24 different species



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> Aesthetics

- Diversify your landscape
 - Addition of 16,000 new plants, 24 different species
 - New contours and definition
 - Simple shots now look interesting and challenging
 - Tee surrounds have character





➤ Does this investment make sense?



Water Savings

Drought tolerant plants on drip irrigation can use 90% less water.

> Labor Reduction??

- Hours to mow rough
 - Before, 24 hours
 - After, 12 hours
- Landscape Maintenance
 - Before, 10 hours
 - After, 40+ hours



Post - Installation Challenges

- Traffic control



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- Plant mortality



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- Irrigation problems
 - Emitters clogging
 - Part circles out of adjustment



Post - Installation Challenges

- Traffic control
- Plant mortality
- Irrigation problems
 - Emitters clogging
 - Part circles out of adjustment
- Drain Issues





> Homeowners



Letter to all addressing the project

- What to expect, scope of project
- Hours of work
- Time of completion
- When will plants reach maturity
- Where to send your complaints





But we keep on learning

Current and Future Challenges

- 12,000 drip emitters



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- Drainage, drainage, drainage



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- Drainage, drainage, drainage
- Plant upkeep



Current and Future Challenges

- 12,000 drip emitters
- Drainage, drainage, drainage
- Plant upkeep
- El Niño





Thank you!



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