



Public Cemeteries 2012 Proposed Watering Plan 6-12-12

Background: Due to the compounding factors of site use and several years of drought, many trees at Austin's Public Cemeteries have become severely stressed and dozens have died. The lack of available water to the trees' fine absorbing roots remains a critical problem.

Goal: Using best management practices for tree care, the professional judgment of the Parks and Recreation Department (PARC) Forestry staff, volunteers and resources to provide supplemental water to trees in Austin's Public Cemeteries to improve their health

Approach: Austin Parks and Recreation Department (PARC) staff will address this issue by recommending supplemental watering practices to be applied by the contractor and enabling volunteer efforts. The City and its project partners intend to provide supplemental water to the outside portion of critical root zones of selected trees. Trees will be selected by a Certified Arborist based on the following priorities:

- 1) Have some drought stress symptoms such as dead branch tips or discolored leaves covering between 5-25% of the canopy. Healthy trees with no drought symptoms should not be watered, nor should those that will not respond substantially to treatment (more than 25% of the canopy is defoliated or dead)
- 2) Are large mature trees where declining health may increase the risk to public health and safety or site protection
- 3) Are native species
- 4) Are within reach of an existing water source

Application method will be to supply a professionally established quantity to the outer ½ critical root zone (critical root zone is defined by the City of Austin Environmental Criteria Manual as 1 foot radius per inch of tree diameter) with a delivery method such as a soaker hose that allows deep infiltration and soil storage. The inner ½ critical root zone contains many structural roots and fewer fine absorbing roots, therefore should not be watered. General quantity recommendations are contained in the Parks and Recreation Department guideline.

Watering Objectives (based on guidelines established by the Texas Forest Service and Texas A&M AgriLife Extension):

- 1) Water will be distributed to the trees by the best and most practical methods, in consideration of water availability and delivery methods. This may include irrigation, temporary water tanks, watering trucks, or hand watering
- 2) Water amounts will be based on the individual needs of each tree. A PARD professional forester, or certified arborist employed by a partner group, will inspect trees on a weekly basis to observe soil moisture and tree health. Based on the results of the weekly inspections, the forester or arborist will determine the need for supplemental water
- 3) In determining watering amounts, PARD professional staff or arborist will use the guideline established by the Parks and Recreation Department. This amount will be adjusted based on tree health, precipitation, micro site conditions, and tree response to watering
- 4) Supplemental watering will continue until PARD foresters determine that a sufficient response from the tree has been achieved
- 5) Tree monitoring by staff will commence immediately and will continue through March 1, 2013. At that time, the need to extend the monitoring and the watering plan will be evaluated
- 6) The City will utilize volunteers whenever possible to assist with the watering

June 2012 Update

Using the same criteria outlined in the “Approach” section, PARD Forestry staff reevaluated the trees identified to receive supplemental water in 2011. The specific trees recommended to receive supplemental water in 2012 will be similar to those that were watered in 2011. Supplemental tree watering modifications fall into these three categories and are illustrated in the maps below:

- Continue: These trees were watered in 2011 and should be watered again in 2012
- Discontinue: The health of these trees have either improved significantly and can be taken off of supplemental watering in 2012 or the health of these trees has declined to a point at which supplemental watering is less likely to result in health improvements.
- Initiate: These trees were not watered in 2011 but fit the criteria in 2012 for receiving supplemental water.

Quantity:

The total number and changes in the quantity of trees (indicated in parenthesis) to receive supplemental watering are as follows:

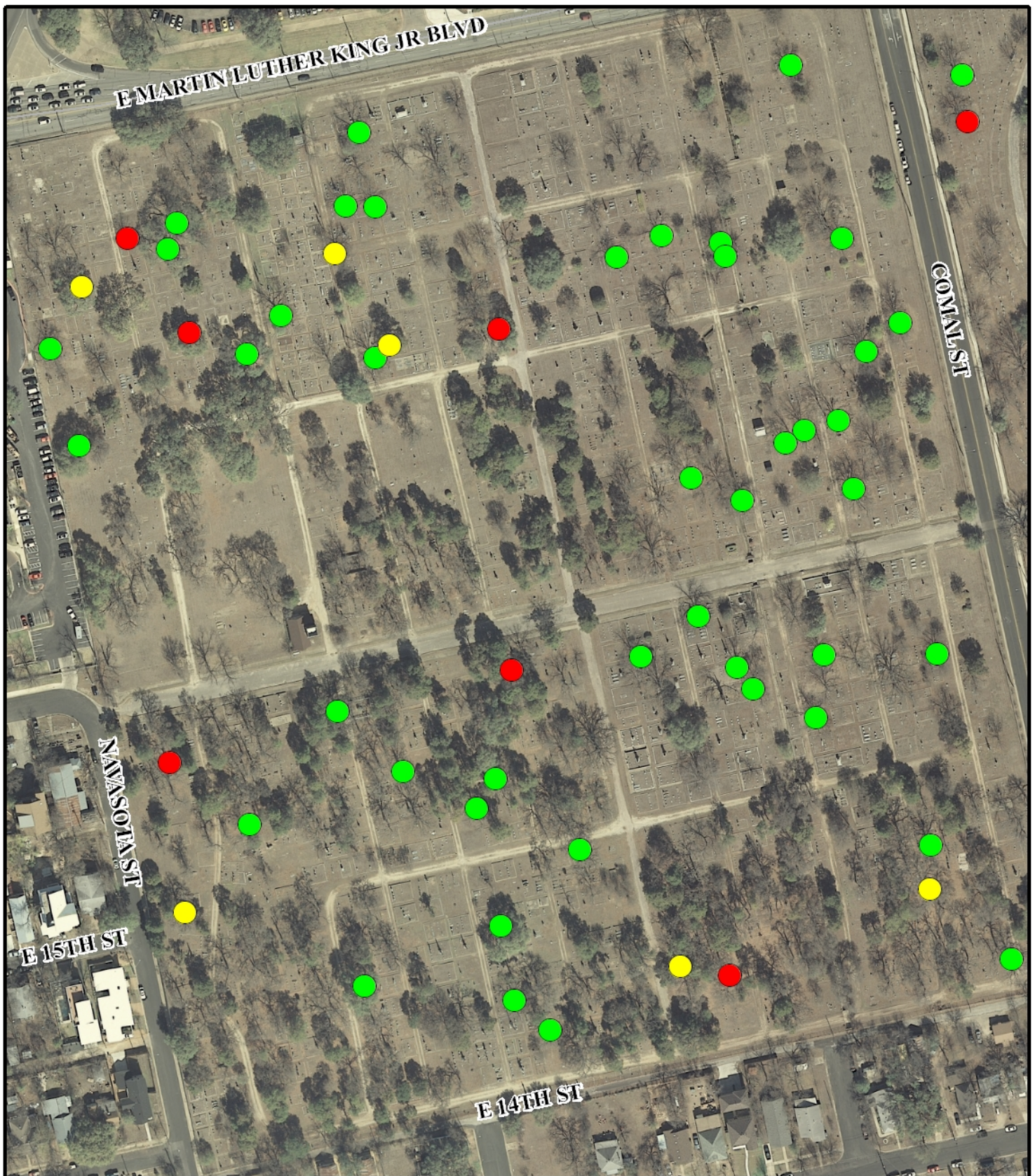
Oakwood Cemetery: 65 (+0)

Austin Memorial Park Cemetery: 47 (+1)

Evergreen Cemetery: 20 (+5)

Total: 132 (+6)





Oakwood Cemetery

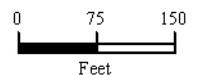
Tree Irrigation

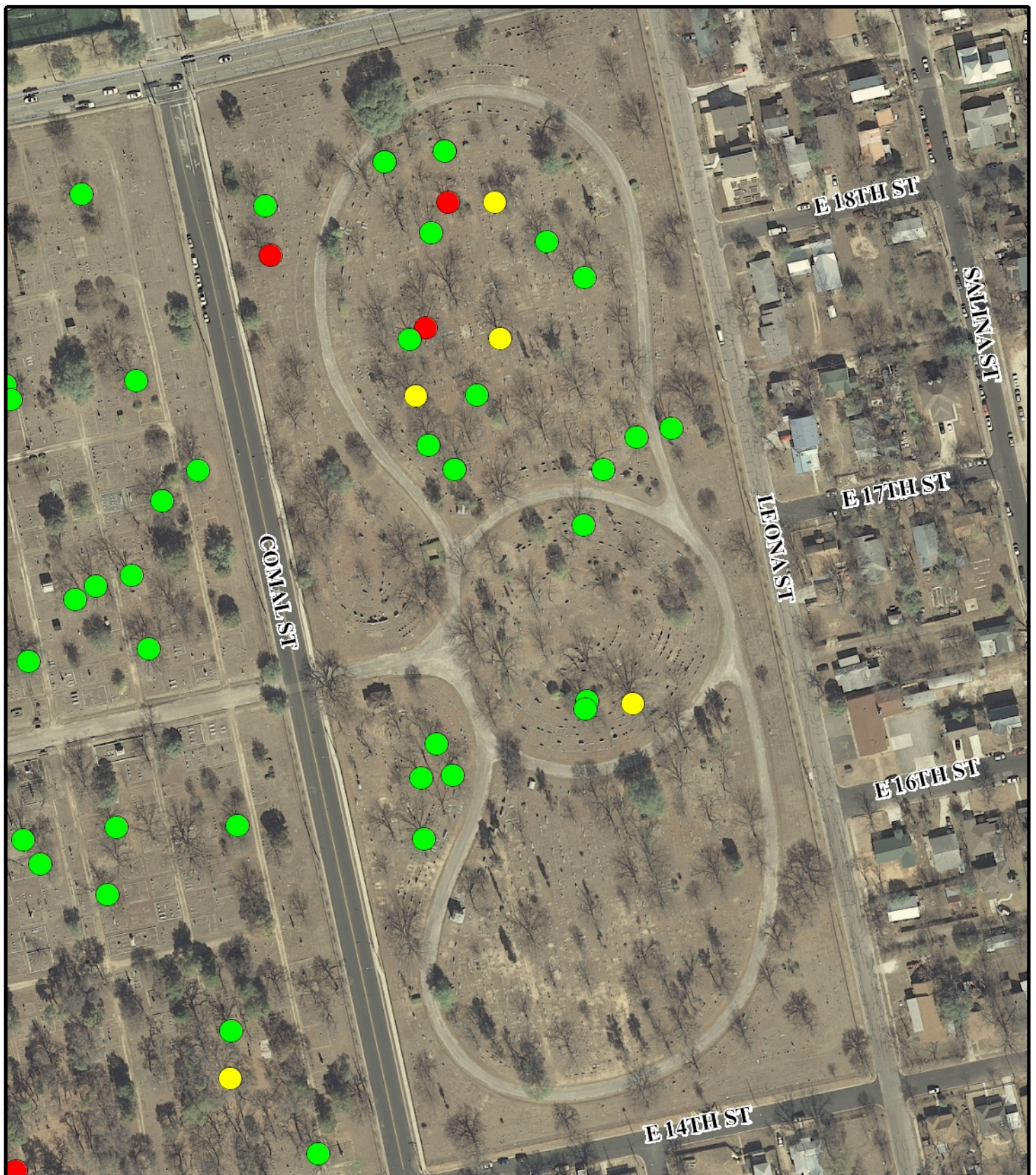


Legend

- continue
- discontinue
- initiate

June 2012 AG
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Oakwood Cemetery Annex

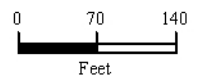
Tree Irrigation



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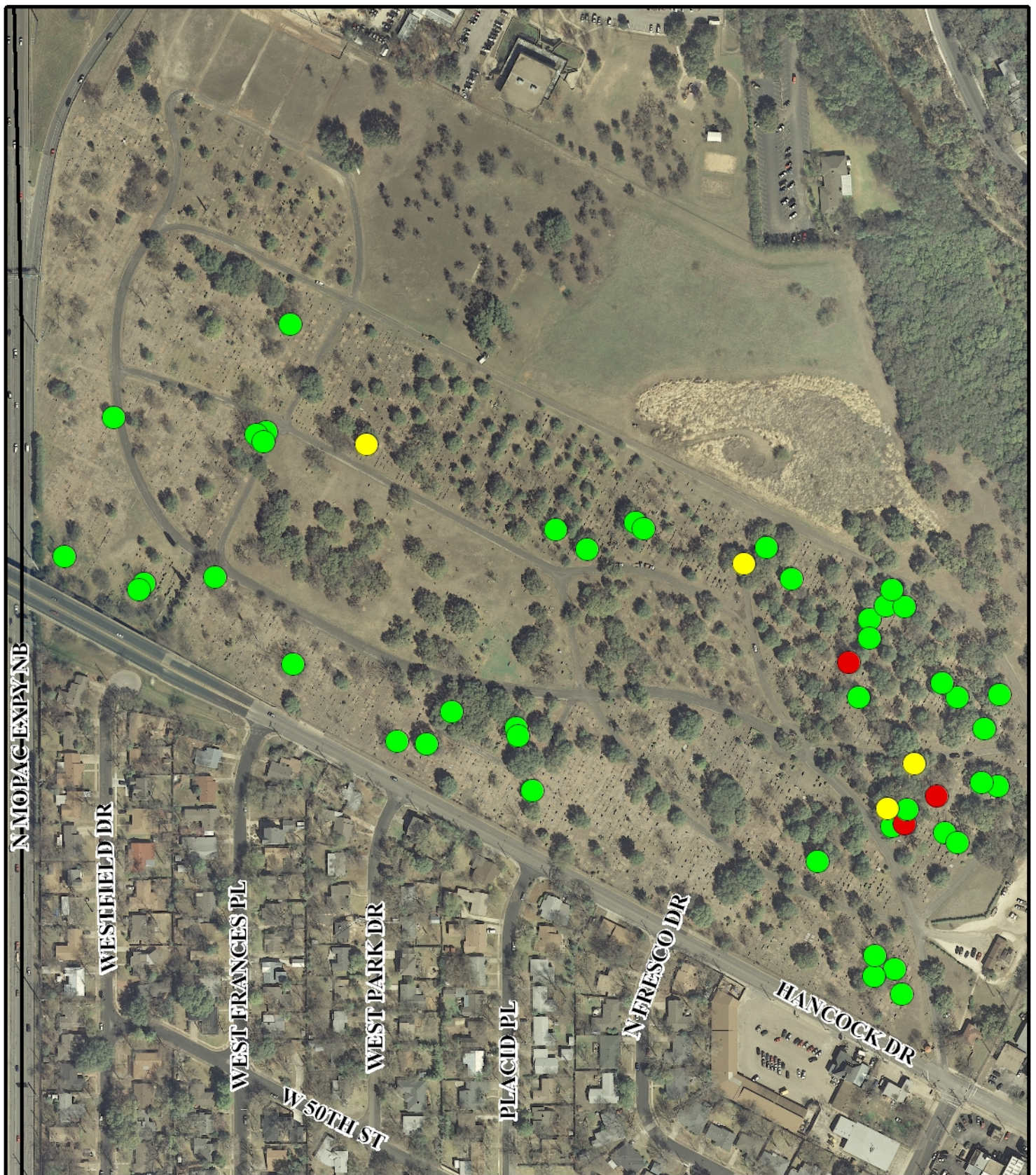
- continue
- discontinue
- initiate

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Park_Name	Species	DBH	Tree_Tag	CREATED_DA	ID	Watering
Oakwood	Oak, Post	24	391	9/8/2011	1	discontinue
Oakwood	Oak, Post	24	289	9/8/2011	2	continue
Oakwood	Oak, Post	23	298	9/8/2011	3	continue
Oakwood	Oak, Post	31	368	9/8/2011	4	continue
Oakwood	Oak, Live	38	308	9/8/2011	5	continue
Oakwood	Pecan	22	313	9/8/2011	6	continue
Oakwood	Oak, Post	19	321	9/8/2011	7	continue
Oakwood	Oak, Live	32	136	9/8/2011	8	continue
Oakwood	Oak, Post	23	73	9/8/2011	9	continue
Oakwood	Oak, Post	26	30	9/8/2011	10	discontinue
Oakwood	Oak, Post	32	13	9/8/2011	11	continue
Oakwood	Oak, Post	20	240	9/8/2011	12	continue
Oakwood	Oak, Live	28	855	9/8/2011	13	discontinue
Oakwood	Pecan	30	880	9/8/2011	14	continue
Oakwood	Pecan	20	875	9/8/2011	15	continue
Oakwood	Pecan	20	874	9/8/2011	16	continue
Oakwood	Pecan	27	871	9/8/2011	17	continue
Oakwood	Pecan	34	948	9/8/2011	18	continue
Oakwood	Oak, Live	31	986	9/8/2011	19	continue
Oakwood	Oak, Live	30	984	9/8/2011	20	discontinue
Oakwood	Oak, Live	39	981	9/8/2011	21	continue
Oakwood	Oak, Live	40	9777	9/8/2011	22	continue
Oakwood	Pecan	20	975	9/8/2011	23	discontinue
Oakwood	Pecan	20	1577	9/8/2011	24	continue
Oakwood	Oak, Live	35	148	9/8/2011	25	continue
Oakwood	Pecan	19	717	9/8/2011	28	continue
Oakwood	Pecan	19	723	9/8/2011	29	continue
Oakwood	Pecan	23	692	9/8/2011	30	continue
Oakwood	Pecan	22	676	9/8/2011	31	continue
Oakwood	Pecan	27	673	9/8/2011	32	continue
Oakwood	Pecan	28	670	9/8/2011	33	continue
Oakwood	Oak, Texas Red	24	744	9/8/2011	37	continue
Oakwood	Oak, Texas Red	20	747	9/8/2011	38	continue
Oakwood	Pecan	33	0	9/8/2011	39	continue
Oakwood	Pecan	20	632	9/8/2011	40	continue
Oakwood	Oak, Post	28	606	9/8/2011	41	continue
Oakwood	Oak, Post	31	5777	9/8/2011	42	continue
Oakwood	Oak, Post	25	448	9/8/2011	43	discontinue
Oakwood	Pecan	22	523	9/8/2011	44	continue
Oakwood	Pecan	20	397	9/8/2011	49	continue
Oakwood	Pecan	21	769	9/8/2011	26	continue
Oakwood	Pecan	26	768	9/8/2011	27	continue
Oakwood	Pecan	29	665	9/8/2011	34	continue
Oakwood	Pecan	21	738	9/8/2011	35	continue
Oakwood	Pecan	20	735	9/8/2011	36	continue

Park_Name	Species	DBH	Tree_Tag	CREATED_DA	ID	Watering
Oakwood	Pecan	21	520	9/8/2011	45	continue
Oakwood	Pecan	31	513	9/8/2011	46	continue
Oakwood	Pecan	22	508	9/8/2011	47	continue
Oakwood	Pecan	22	505	9/8/2011	48	continue
Oakwood	Oak, post	24	444	5/30/2012	80	initiate
Oakwood	Oak, post	28	94	5/30/2012	81	initiate
Oakwood	Oak, post	27	598	5/30/2012	82	initiate
Oakwood	red eastern cedar	36	879	6/7/2012	75	initiate
Oakwood	pecan	24	876	6/7/2012	76	initiate
Oakwood	live oak	36	160	6/7/2012	77	initiate
OakwoodAnne	Pecan	22	0	9/8/2011	50	continue
OakwoodAnne	Pecan	23	0	9/8/2011	51	continue
OakwoodAnne	Pecan	29	0	9/8/2011	52	continue
OakwoodAnne	Pecan	26	0	9/8/2011	53	continue
OakwoodAnne	Pecan	21	0	9/8/2011	55	continue
OakwoodAnne	Pecan	24	0	9/8/2011	56	continue
OakwoodAnne	Pecan	33	0	9/8/2011	57	continue
OakwoodAnne	Pecan	19	0	9/8/2011	58	continue
OakwoodAnne	Pecan	22	0	9/8/2011	59	continue
OakwoodAnne	Pecan	22	0	9/8/2011	60	continue
OakwoodAnne	Pecan	24	0	9/8/2011	61	continue
OakwoodAnne	Pecan	20	0	9/8/2011	63	discontinue
OakwoodAnne	Pecan	23	0	9/8/2011	65	continue
OakwoodAnne	Pecan	20	0	9/8/2011	66	discontinue
OakwoodAnne	Pecan	21	0	9/8/2011	67	continue
OakwoodAnne	Pecan	19	0	9/8/2011	75	continue
OakwoodAnne	Pecan	22	0	9/8/2011	54	continue
OakwoodAnne	Pecan	19	0	5/30/2012	76	initiate
OakwoodAnne	Pecan	26	0	5/30/2012	77	initiate
OakwoodAnne	Pecan	28	0	5/30/2012	78	initiate
OakwoodAnne	Pecan	35	0	5/30/2012	79	initiate
OakwoodAnne	Pecan	20	0	9/8/2011	62	continue
OakwoodAnne	Pecan	23	0	9/8/2011	64	continue
OakwoodAnne	Pecan	21	0	9/8/2011	68	discontinue
OakwoodAnne	Pecan	23	0	9/8/2011	69	continue
OakwoodAnne	Pecan	26	0	9/8/2011	70	discontinue
OakwoodAnne	Pecan	25	0	9/8/2011	71	continue
OakwoodAnne	Pecan	30	0	9/8/2011	72	continue
OakwoodAnne	Pecan	25	0	9/8/2011	73	continue
OakwoodAnne	Pecan	19	0	9/8/2011	74	continue

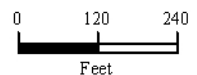


Austin Memorial Cemetery

Tree Irrigation

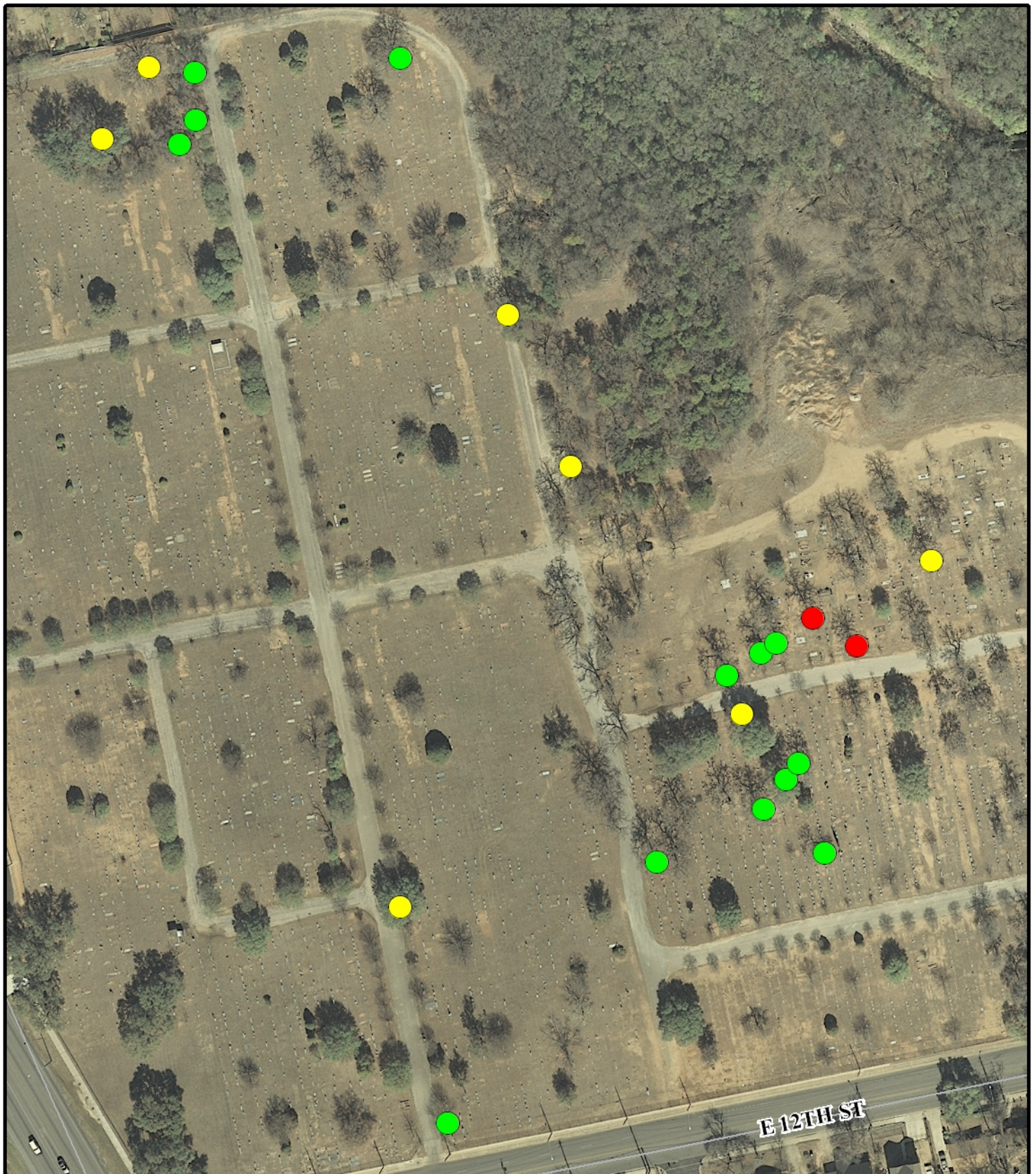
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- Legend**
- continue
 - discontinue
 - initiate



Park_Name	Species	DBH	Tree_Tag	CREATED_DA	ID	Watering
Austin Memorial	Oak, Live	18	0	9/9/2011	1	continue
Austin Memorial	Oak, Live	36	0	9/9/2011	2	continue
Austin Memorial	Oak, Live	30	0	9/9/2011	3	continue
Austin Memorial	Oak, Live	29	0	9/9/2011	4	continue
Austin Memorial	Oak, Live	25	0	9/9/2011	5	continue
Austin Memorial	Oak, Blue	12	0	9/9/2011	6	continue
Austin Memorial	Pecan	23	0	9/9/2011	7	continue
Austin Memorial	Oak, Texas Red	41	0	9/9/2011	8	continue
Austin Memorial	Oak, Texas Red	31	0	9/9/2011	9	continue
Austin Memorial	Oak, Live	32	0	9/9/2011	10	continue
Austin Memorial	Oak, Live	16	0	9/9/2011	11	continue
Austin Memorial	Oak, Texas Red	30	0	9/9/2011	12	continue
Austin Memorial	Oak, Texas Red	24	0	9/9/2011	13	continue
Austin Memorial	Oak, Texas Red	22	0	9/9/2011	14	continue
Austin Memorial	Oak, Texas Red	22	0	9/9/2011	15	continue
Austin Memorial	Oak, Live	24	0	9/9/2011	16	continue
Austin Memorial	Oak, Bur	21	0	9/9/2011	17	continue
Austin Memorial	Oak, Bur	22	0	9/9/2011	18	discontinue
Austin Memorial	Oak, Texas Red	21	0	9/9/2011	19	continue
Austin Memorial	Oak, Texas Red	33	0	9/9/2011	20	discontinue
Austin Memorial	Oak, Live	21	0	9/9/2011	21	continue
Austin Memorial	Oak, Live	21	0	9/9/2011	22	discontinue
Austin Memorial	Oak, Live	19	0	9/9/2011	23	continue
Austin Memorial	Pecan	18	0	9/9/2011	24	continue
Austin Memorial	Oak, Live	32	19	9/9/2011	26	continue
Austin Memorial	Oak, Live	60	18	9/9/2011	27	continue
Austin Memorial	Oak, Live	20	22	9/9/2011	28	continue
Austin Memorial	Oak, Live	23	0	9/9/2011	29	continue
Austin Memorial	Oak, Live	35	23	9/9/2011	30	continue
Austin Memorial	Oak, Live	36	24	9/9/2011	31	continue
Austin Memorial	Oak, Live	29	33	9/9/2011	32	continue
Austin Memorial	Oak, Live	26	35	9/9/2011	33	continue
Austin Memorial	Oak, Live	19	36	9/9/2011	34	continue
Austin Memorial	Oak, Live	24	29	9/9/2011	35	continue
Austin Memorial	Oak, Live	34	31	9/9/2011	36	continue
Austin Memorial	Oak, Live	17	32	9/9/2011	37	continue
Austin Memorial	Walnut, Black	18	0	9/9/2011	38	continue
Austin Memorial	Oak, Texas Red	19	0	9/9/2011	39	continue
Austin Memorial	Oak, Texas Red	27	15	9/9/2011	40	continue
Austin Memorial	Oak, Texas Red	15	0	9/9/2011	41	continue
Austin Memorial	Pecan	16	0	9/9/2011	42	continue
Austin Memorial	Oak, Texas Red	37	13	9/9/2011	43	continue
Austin Memorial	Oak, Live	40	9	9/9/2011	44	continue
Austin Memorial	Oak, Live	26	7	9/9/2011	45	continue
Austin Memorial	Oak, Live	17	6	9/9/2011	46	continue

Park_Name	Species	DBH	Tree_Tag	CREATED_DA	ID	Watering
Austin Memorial	Oak, live	32	0	6/1/2012	47	initiate
Austin Memorial	Oak, live	32	0	6/1/2012	48	initiate
Austin Memorial	Oak, Live	21	0	9/9/2011	25	continue
Austin Memorial	Oak, live	17	0	6/1/2012	49	initiate
Austin Memorial	Oak, live	25	0	6/1/2012	50	initiate



Evergreen Cemetery

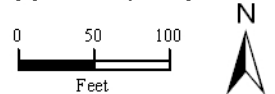
Tree Irrigation



Legend

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Park_Name	Species	DBH	Tree_Tag	CREATED_DA	ID	watering
Evergreen	Oak, Black Jack	27		9/15/2011	1	continue
Evergreen	Oak, Bur	23		9/15/2011	2	continue
Evergreen	Oak, Black Jack	21		9/15/2011	3	continue
Evergreen	Oak, Post oak	28		9/15/2011	4	continue
Evergreen	Oak, post	23		9/15/2011	5	continue
Evergreen	Oak, post	30		9/15/2011	6	continue
Evergreen	Oak, post	19		9/15/2011	7	continue
Evergreen	Oak, post	25		9/15/2011	8	discontinue
Evergreen	Oak, post	24		9/15/2011	9	discontinue
Evergreen	Oak, Mexican White	22		9/15/2011	10	continue
Evergreen	Oak, post	25		9/15/2011	11	continue
Evergreen	Oak, Live	21		9/15/2011	12	continue
Evergreen	Oak, Post	22		9/15/2011	13	continue
Evergreen	Oak, post	26		9/15/2011	14	continue
Evergreen	Oak, Texas red oak	14		9/15/2011	15	continue
Evergreen	post oak	28		6/12/2012	0	initiate
Evergreen	live oak	27		6/12/2012	0	initiate
Evergreen	post oak	22		6/12/2012	0	initiate
evergreen	post oak	22		6/12/2012	0	initiate
evergreen	post oak	22		6/12/2012	0	initiate
evergreen	post oak	22		6/12/2012	0	initiate
evergreen	live oak	30		6/12/2012	0	initiate