

Change-Out of Pop-up Sprinklers with In-Stem Flow Regulators & High-Efficiency Nozzles
LAX FlyAway Bus Terminal, 7610 Woodley Avenue, Van Nuys, CA
'Before & After' Water Usage/Time Studies For 26 of 57 Zones Retrofitted

Summary of Results

In an effort to be transparent and provide more specific results as to water usage differences in shrub areas versus turf areas, the average water savings at the site is expressed 5 different ways: A through E below. The second page provides the details and calculations from which this summary is derived.

AVERAGE WATER SAVINGS CALCULATIONS AT THE FLYAWAY BUS TERMINAL

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|---|--------------|
| A. Average Water Savings of all 26 retrofitted zones: | 47.8% |
| B. Average Water Savings of 22 retrofitted zones that <u>excludes</u> the 4 * zones in which some heads were substantially reduced or shut off as appropriate:
(See <i>Note no. 3</i> below) | 45.2% |
| C. Average Water Savings of the 9 "T" (turf) retrofitted zones: | 43.4% |
| D. Average Water Savings of 13 "S" (shrub) retrofitted zones, which also excludes the same 4 * zones described above in B. (See <i>Note no. 3</i> below) | 49.1% |
| E. Average Water Savings of all 17 "S" (shrub) retrofitted zones: | 52.2% |

The FlyAway Terminal

This site, the LAX FlyAway Bus Terminal, is a large site comprising 2,500+ sprinklers, operated by 2 controllers. 26 of the 57 valves systems that were retrofitted were included in this study of which 17 valves watered only shrub areas and 9 valves watered only turf areas. These zones are representative of the entire site.

NOTES and Legend for FlyAway Retrofit:

NOTE #1: The itemized water savings shown on the 2nd page and the averages shown above can be relied upon 4 seasons of the year for all the S (shrub) valves. For T (turf) valves, the water savings might be reduced by as much as 50% during the summer season.

NOTE #2: No sprinklers were moved or added. Only the pop-up stems and nozzles in every existing sprinkler in each zone were retrofitted. The Project was completed on April 21, 2015.

NOTE #3: Wherever sprinklers are watering just dirt, mulch, or gravel, the easy on/off adjustment control of the In-Stem Flow Regulators (**IFRs**) were used to substantially reduce the watering distances in order to save even more water. In the first 4 zones (of this Report), some sprinklers were partially closed down or closed off completely. An asterisk (*) is shown beside each of those valves in page 2.

NOTE #4: Each valve waters either Shrubs or Turf as shown in the 2nd column in the table on page 2.

- Legend: POP1210 = LittleValve 12" Rain Bird Replacement stem
POP610 = LittleValve 6" Rain Bird Replacement stem
POP410 = LittleValve 4" Rain Bird Replacement stem
PRN = Precision Rotating Nozzle by The Toro Company
PSN = Precision Spray Nozzle – 4 x 30 & 4 X 18 Side Strip models by The Toro Company

Legend Note: A few sprinklers were very difficult to access, specifically under very thick Bougainvillea bushes, hence 8' full circle PSNs were used in those few locations.

**Retrofit of Every Sprinkler in 57 Zones With
In-Stem Flow Regulators (IFRs) and High-Efficiency Nozzles**

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<u>Valve No.</u>	<u>Shrubs or Turf</u>	<u>Number Of Sprinklers</u>	<u>Number Of IFRs used</u>	<u>H/E Nozzles Used</u>	<u>Savings</u>
A7 *	S	48	18 POP1210; 14 POP610; 16 POP410	12 PRNs; 36 PSNs	42.7%
A13 *	S	52	30 POP1210; 22 POP610	1 PRN; 51 PSNs	67.6%
A17 *	S	42	39 POP1210; 3 POP610	42 PRNs	55.1%
A20 *	S	16	16 POP1210	16 PRNs	83.4%
A21	T	19	19 POP610	19 PRNs	28.0%
A22	T	41	41 POP610	26 PRNs; 15 PSNs	33.6%
A24	S	70	65 POP1210; 5 POP610	35 PRNs; 35 PSNs	46.0%
A25	T	60	60 POP610	15 PRNs; 45 PSNs	40.6%
A26	S	67	45 POP1210; 22 POP610	33 PRNs; 34 PSNs	52.6%
A27	T	64	64 POP610	20 PRNs; 40 PSNs	48.9%
A28	S	49	40 POP1210; 9 POP610	34 PRNs; 15 PSNs	48.3%
A30	S	57	42 POP-1210; 17 POP610	27 PRNs; 30 PSNs	55.1%
A31	T	67	67 POP610	22 PRNs; 45 PSNs	50.4%
A32	S	68	48 POP1210; 20 POP610	35 PRNs; 33 PSNs	50.0%
A33	T	69	69 POP610	19 PRNs; 50 PSNs	40.4%
A34	S	61	44 POP1210; 17 POP610	35 PRNs, 26 PSNs	54.1%
A35	S	50	44 POP1210; 6 POP610	50 PRNs	58.7%
A36	T	62	62 POP610	45 PRNs; 17 PSNs	31.7%
A37	S	49	41 POP1210; 8 POP610	49 PRNs	49.7%
B1	T	16	16 POP610	16 PRNs	48.4%
B3	T	16	16 POP610	16 PRNs	34.6%
B7	S	15	15 POP1210	13 PRNs; 2 PSNs	56.9%
B8	S	32	31 POP1210; 1 POP610	30 PRNs; 2 PSNs	45.5%
B20	S	47	47 POP1210	47 PRNs	44.0%
B21	S	28	28 POP1210	28 PRNs	31.3%
B22	S	68	60 POP1210; 8 POP610	61 PRNs; 7 PSNs	45.8%