

Technical Report  
LAX Master Plan Supplement to the Draft EIS/EIR

**S-10a. Supplemental Water Use Technical  
Report**

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Prepared for:

Los Angeles World Airports

U.S. Department of Transportation  
Federal Aviation Administration

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# 1. INTRODUCTION

This Technical Report presents detailed information related to water use associated with implementation of Alternative D- Enhanced Safety and Security Plan, of the Los Angeles International Airport (LAX) Master Plan. This report supports the Supplement to the Draft Environmental Impact Statement/Environmental Impact Report (EIS/EIR) for the LAX Master Plan prepared pursuant to the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA).

This Technical Report provides supporting information pertaining to Year 2000 conditions and analysis results for Alternative D that are supplemental to the material presented in Section 4.25.1, *Water Use*, of the Supplement to the Draft EIS/EIR, and to Technical Report 15a, *Water Use Technical Report*, of the Draft EIS/EIR. Impacts associated with the information contained in this Technical Report are addressed in Section 4.25.1, *Water Use*, of the Supplement to the Draft EIS/EIR.

Technical Report 15a, *Water Use Technical Report*, of the Draft EIS/EIR contains detailed information pertaining to the general approach and methodology used in the analysis regional and local context, water use factors and analysis results for the No Action/No Project Alternative and Alternatives A, B, and C. In addition, discussion of reclaimed water use for landscape irrigation is also included for all alternatives.

## 2. YEAR 2000 LAX WATER USE

The Draft EIS/EIR provided information pertaining to baseline water use conditions, including calculations of water use associated with the 1996 baseline year. Changes at LAX have occurred since 1996 that affect these calculated water use values, including the construction of an additional 466,000 square feet of cargo uses, an additional 15,000 square feet of terminal facilities, and a 9,000 square foot child care facility within LAX Northside. In addition, since 1996, LAWA has initiated the purchase of residential uses within the Belford and Manchester Square areas as a part of a voluntary acquisition associated with the Aircraft Noise Mitigation Program (ANMP). As of 2000, 147 single-family dwelling units and 142 multi-family dwelling units within Manchester Square, and 245 multi-family dwelling units within Belford had been purchased.

Site-specific water use data are not collected at LAX. In order to calculate water use associated with Year 2000 conditions, usage-based factors, as described in Section 2, General Approach and Methodology, of Technical Report 15a, *Water Use Technical Report*, of the Draft EIS/EIR, were applied to land-use building areas. Year 2000 water use at LAX airport facilities is estimated to be 965 acre-feet per year (AF-yr) (**Table S2**, Year 2000 Water Use ). For comparison, water use at LAX associated with 1996 baseline conditions was estimated to be 953 AF-yr (**Table S1**, 1996 Baseline Water Use).

Recycled water is available for use at LAX from the Los Angeles Department of Water and Power (DWP) and is in use in landscaped irrigation areas of the airport. Recent information from DWP indicates that during 2002, 131 AF were used at LAX.

## 3. ENVIRONMENTAL CONSEQUENCES

To determine the projected water use under each of the alternatives, the appropriate water generation factor for each land use type was multiplied by the building square footage or units of that land use included in the alternative. **Table S3**, Land Uses Included in the Alternatives, presents a comparison of the land use types included in the alternatives. Water use by the Central Utility Plant (CUP) was based upon the current level of use. Numbers in Table 6, Land Uses Included in the Alternatives, of Technical Report 15a, *Water Use Technical Report*, of the Draft EIS/EIR have been revised since publication of the Draft EIS/EIR and are presented here in **Table S3**. Projected water use for the No Action/No Project Alternative and Alternatives A, B and C are presented in Tables 7, 8, 9 and 10 of Technical Report 15a, *Water Use Technical Report*, of the Draft EIS/EIR. **Table S4**, Projected Water Use Within the Master Plan Boundaries Under Alternative D, presents projected water use under Alternative D. A discussion of the environmental consequences of water use projected for Alternative D is included in Section 4.25.1, *Water Use*, of the Supplement to the Draft EIS/EIR.

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**Table S1**

**1996 Baseline Water Use**

Land Use	Water Factor (AF/S.F./yr) or AF/unit/yr)	1996 Baseline	
		Building S.F. or Units	Water Use (AF/yr)
<b>LAX</b>			
<b>Airport Land Uses</b>			
Terminal (S.F.)	8.96E-05	3,997,119	358.0
Cargo (S.F.)	2.42E-05	1,900,000	46.0
Maintenance (S.F.)	1.38E-04	1,440,000	198.3
Ancillary (S.F.)	2.16E-04	1,294,000	279.7
CUP (S.F.)	N/A	N/A	70.5
<b>Subtotal Airport Uses</b>			<b>952.6</b>
<b>Non-Airport Land Uses</b>			
<b>Belford</b>			
Residential (Multi Family DUs)	0.18	583	104.4
<b>Subtotal Non-Airport Uses</b>			<b>104.4</b>
<b>SUBTOTAL AIRPORT AND NON-AIRPORT USES</b>			<b>1,057.0</b>
<b>Non-Project Uses Within Master Plan Boundaries</b>			
<b>Manchester Square</b>			
Residential (Single Family DUs)	0.20	280	56.4
Residential (Multi Family DUs)	0.18	1,706	305.6
<b>Subtotal Manchester Square</b>			<b>362.0</b>
<b>Land Within Acquisition Areas</b>			
Residential (Single Family DUs)	0.20	57	11.5
Residential (Multi Family DUs)	0.18	69	12.4
Hotel (Rooms)	0.15	2,083	303.2
Office (S.F.)	1.68E-04	1,108,312	186.2
Retail (S.F.)	8.96E-05	148,219	13.3
Light Industrial (S.F.)	8.96E-05	3,789,292	339.5
Institutional (S.F.)	1.68E-04	156,178	26.2
<b>Subtotal Acquisition Areas</b>			<b>892.2</b>
<b>SUBTOTAL NON-PROJECT USES</b>			<b>1,254.2</b>
<b>TOTAL MASTER PLAN BOUNDARIES</b>			<b>2,311.2</b>

N/A = Not applicable.

Notes: The factors used to calculate projected water use were rounded. Information in table may not always total, due to rounding.  
There is no baseline water use associated with Continental City or LAX Northside.

Source: Camp Dresser & McKee Inc., 2003.

**Table S2**  
**Year 2000 Water Use**

Land Use	Water Factor (AF/S.F./yr) or AF/unit/yr)	Year 2000	
		Building S.F. or Units	Water Use (AF/yr)
<b>LAX</b>			
<b>Airport Land Uses</b>			
Terminal (S.F.)	8.96E-05	4,012,119	359.3
Cargo (S.F.)	2.42E-05	2,366,000	57.3
Maintenance (S.F.)	1.38E-04	1,440,000	198.3
Ancillary (S.F.)	2.16E-04	1,294,000	279.7
CUP (S.F.)	N/A	N/A	70.5
<b>Subtotal Airport Uses</b>			<b>965.2</b>
<b>Non-Airport Land Uses</b>			
<b>Belford<sup>1</sup></b>			
Residential (Multi Family DUs)	0.18	340	61.2
<b>LAX Northside<sup>2</sup></b>			
Airport Related (S.F.)	2.16E-04	9,000	1.9
<b>Subtotal Non-Airport Uses</b>			<b>63.1</b>
<b>SUBTOTAL AIRPORT AND NON-AIRPORT USES</b>			<b>1,028.3</b>
<b>Non-Project Uses Within Master Plan Boundaries</b>			
<b>Manchester Square<sup>3</sup></b>			
Residential (Single Family DUs)	0.20	132	26.6
Residential (Multi Family DUs)	0.18	1,579	282.8
<b>Subtotal Manchester Square</b>			<b>309.4</b>
<b>Land Within Acquisition Areas</b>			
Residential (Single Family DUs)	0.20	57	11.5
Residential (Multi Family DUs)	0.18	69	12.4
Hotel (Rooms)	0.15	2,083	303.2
Office (S.F.)	1.68E-04	1,108,312	186.2
Retail (S.F.)	8.96E-05	148,219	13.3
Light Industrial (S.F.)	8.96E-05	3,789,292	339.5
Institutional (S.F.) <sup>4</sup>	1.68E-04	156,178	26.2
<b>Subtotal Acquisition Areas</b>			<b>892.2</b>
<b>SUBTOTAL NON-PROJECT USES</b>			<b>1,201.6</b>
<b>TOTAL MASTER PLAN BOUNDARIES</b>			<b>2,229.9</b>

N/A = Not applicable

- <sup>1</sup> Subsequent to publication of the Draft EIS/EIR, the number of multi-family dwelling units within Belford was determined to be 585. As of December 2000, 245 units had been acquired.
- <sup>2</sup> Year 2000 water use associated with LAX Northside was limited to a childcare facility constructed subsequent to 1996.
- <sup>3</sup> Subsequent to publication of the Draft EIS/EIR, the number of dwelling units within Manchester Square was determined to be 279 single-family units and 1,721 multi-family units. As of December 2000, 147 single-family dwelling units and 142 multi-family dwelling units had been acquired.
- <sup>4</sup> Includes college, high school, elementary school and library land use.

Notes: The factors used to calculate projected water use were rounded.  
Information in the table may not always total, due to rounding.  
There is no Year 2000 water use associated with Continental City.

Source: Camp Dresser & McKee Inc., 2003.

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Table S3

## Land Uses Included in the Alternatives

Land Use	1996	Year	Alternatives 2015				
	Baseline	2000	NA/NP	A	B	C	D
<b>LAX</b>							
<b>Airport Land Uses</b>							
Terminal (S.F.) <sup>1</sup>	3,997,119	4,012,119	3,997,000	10,419,000	9,712,000	7,319,000	6,800,000
Cargo (S.F.) <sup>1</sup>	1,900,000 <sup>2</sup>	2,366,000	2,342,000 <sup>2</sup>	4,518,000	4,871,000	4,903,000 <sup>2</sup>	2,342,000
Maintenance (S.F.)	1,440,000	1,440,000	1,440,000	841,000	859,000	834,000	1,368,000
Ancillary (S.F.)	1,294,000	1,294,000	1,294,000	2,260,000	1,720,000	3,198,000	1,764,000
<b>Non-Airport Land Uses</b>							
<b>Belford</b>							
Residential (Multi Family DUs)	583	340					
<b>LAX Northside Development<sup>3</sup></b>							
Office (S.F.)			1,580,000				1,580,000
Hotel (rooms)			1,400				1,400
Retail (S.F.)			60,000				60,000
Airport Related (S.F.)		9,000	750,000				750,000
R/D Business Park (S.F.)			1,170,000				1,170,000
Restaurant (S.F.)			70,000				70,000
<b>Continental City</b>							
Office (S.F.)			3,000,000				
Retail (S.F.)			100,000				
<b>Westchester Southside</b>							
Hotel (rooms)				1,308	1,308	1,308	
Office (S.F.)				650,000	650,000	650,000	
Retail (S.F.)				110,000	110,000	110,000	
R/D Business Park (S.F.)				970,000	970,000	970,000	
Restaurant (S.F.)				40,000	40,000	40,000	
<b>Non-Project Uses Within Master Plan Boundaries</b>							
<b>Manchester Square<sup>4</sup></b>							
Residential (Single Family DUs)	280	132					
Residential (Multi Family DUs)	1,706	1,579					
Office (S.F.)				50,000			
Hotel (rooms)				770			
Industrial (S.F.)				1,720,000			
<b>Land Within Acquisition Areas<sup>5</sup></b>							
Residential (Single Family DUs)	57	57	57				57
Residential (Multi Family DUs)	69	69	69	42	42	42 <sup>2</sup>	69
Hotel (rooms)	2,083	2,083	2,083	154		1,354	1,929
Office (S.F.)	1,108,312	1,108,312	1,108,312	142,064		137,010 <sup>2</sup>	901,001
Retail (S.F.)	148,219	148,219	148,219	45,737	60,231 <sup>2</sup>	73,002	113,564



**Table S3**

**Land Uses Included in the Alternatives**

<b>Land Use</b>	<b>1996 Baseline</b>	<b>Year 2000</b>	<b>Alternatives 2015</b>				
			<b>NA/NP</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>
Light Industrial (S.F.)	3,789,292	3,789,292	3,789,292	1,196,544	83,329	2,207,937 <sup>2</sup>	3,542,231
Institutional <sup>6</sup> (S.F.)	156,178	156,178	156,178	85,902	85,902		102,912

- <sup>1</sup> The minor differences in terminal and cargo square footage between Year 2000 and the No Action/No Project Alternative are attributable to improvements at LAX that were not foreseen at the time the No Action/No Project Alternative assumptions were developed. Actual terminal and cargo facilities under the No Action/No Project Alternative would normally be the same as the facilities in 2000. However, the increased square footage does not materially alter the water use totals, nor affect the conclusions of this analysis.
- <sup>2</sup> Modified since publication of the Draft EIS/EIR to correct an error. This modification does not alter the conclusions of the Draft EIS/EIR.
- <sup>3</sup> LAX Northside is currently subject to a trip cap (refer to Chapter 4, *Affected Environment, Consequences and Mitigation Measures* (Analytical Framework Section), of this Supplement to the Draft EIS/EIR. Under Alternative D, this trip cap would be reduced, which would effectively reduce the total amount of development allowed in LAX Northside. As a result, water use associated with LAX Northside is overstated.
- <sup>4</sup> Under the No Action/No Project Alternative, existing uses would be demolished. For purposes of this Supplement to the Draft EIS/EIR, no development is assumed. Under Alternative A, Manchester Square would be redeveloped with commercial/light industrial uses independent of the Master Plan. Under Alternatives B, C and D, existing uses would be demolished, and the area would be incorporated into the overall Master Plan development.
- <sup>5</sup> Only a portion of the land within the acquisition areas would be acquired for each individual build alternative. No land within the acquisition areas would be acquired under the No Action/No Project Alternative. The land within the Master Plan boundaries that would not be acquired under a particular alternative is assumed to remain in its current use.
- <sup>6</sup> Includes college, high school, elementary school and library land use.

Source: Landrum & Brown, 2000, 2002.

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**Table S4**

**Projected Water Use Within the Master Plan Boundaries Under  
Alternative D**

Land Use	Water Factor (AF/S.F./yr) or AF/unit/yr <sup>1</sup>	Building S.F. or Units	2015
			Water Use (AF/yr)
<b>LAX</b>			
<b>Airport Land Uses</b>			
Terminal (S.F.)	8.96E-05	6,800,000	609.3
Cargo (S.F.)	2.42E-05	2,342,000	56.7
Maintenance (S.F.)	1.38E-04	1,368,000	188.8
Ancillary (S.F.)	2.16E-04	1,764,000	381.0
CUP (S.F.)	N/A	N/A	70.5
<b>Subtotal Airport Land Uses</b>			<b>1,306.3</b>
<b>Non-Airport Land Uses</b>			
<b>LAX Northside</b>			
Office (S.F.)	1.68E-04	1,580,000	265.4
Hotel (Rooms)	0.15	1,400	203.8
Retail (S.F.)	8.96E-05	60,000	5.4
Airport Related (S.F.) <sup>1</sup>	1.68E-04	750,000	126.0
R/D Business Park (S.F.) <sup>1</sup>	1.68E-04	1,170,000	196.6
Restaurant (S.F.)	1.03E-03	70,000	72.1
<b>Subtotal Northside</b>			<b>869.3</b>
<b>SUBTOTAL AIRPORT AND NON-AIRPORT USES</b>			<b>2,175.6</b>
<b>Non-Project Uses Within Master Plan Boundaries</b>			
<b>Land Within Acquisition Areas</b>			
Residential (Single Family DUs)	0.20	57	11.5
Residential (Multi Family DUs)	0.18	69	12.4
Hotel (Rooms)	0.15	1,929	280.8
Office (S.F.)	1.68E-04	901,001	151.4
Retail (S.F.)	8.96E-05	113,564	10.2
Light Industrial (S.F.)	8.96E-05	3,542,231	317.4
Institutional (S.F.) <sup>1</sup>	1.68E-04	102,912	17.3
<b>Subtotal Acquisition Areas</b>			<b>801.0</b>
<b>SUBTOTAL NON-PROJECT USES</b>			<b>801.0</b>
<b>TOTAL MASTER PLAN BOUNDARIES</b>			<b>2,976.6</b>
N/A = Not Applicable			
Notes: The factors used to calculate projected water use were rounded.			
<sup>1</sup> Used office factor.			
Source: Camp Dresser & McKee Inc., 2003.			