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

# S-10b. Supplemental Wastewater Technical Report

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Prepared for:

Los Angeles World Airports

U.S. Department of Transportation
Federal Aviation Administration

Prepared by:

Camp Dresser & McKee Inc.

# Table of Contents



# List of Tables

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# 1. INTRODUCTION

This Technical Report presents detailed information related to wastewater generation and treatment 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 4.25.2, *Wastewater,* of the Supplement to the Draft EIS/EIR, and to Technical Report 15b, *Wastewater Technical Report*, of the Draft EIS/EIR. Impacts associated with the information contained in this Technical Report are addressed in Section 4.25.2, *Wastewater*, of the Supplement to the Draft EIS/EIR.

Technical Report 15b, *Wastewater 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, wastewater generation factors, and analysis results for the No Action/No Project Alternative and Alternatives A, B, and C.

# 2. YEAR 2000 LAX SANITARY WASTEWATER FLOWS

The Draft EIS/EIR provided information pertaining to baseline wastewater conditions, including calculations of wastewater flows associated with the 1996 baseline year. Changes at LAX have occurred since 1996 that affect these calculated wastewater flows, 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 with Belford and Manchester Square as 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 wastewater generation data are not collected at LAX. In order to calculate wastewater generation associated with Year 2000 conditions, usage-based factors, as described in Section 2, General Approach and Methodology, of Technical Report 15b, *Wastewater Technical Report*, of the Draft EIS/EIR, were applied to land-use building areas. Year 2000 wastewater generation at LAX airport uses is estimated to be 807,946 gallons per day (gpd) (**Table S2**, Year 2000 Wastewater Generation). For comparison, wastewater generation at LAX associated with 1996 baseline conditions was estimated to be 797,672 gpd. (**Table S1,** 1996 Baseline Wastewater Generation)

# 3. ENVIRONMENTAL CONSEQUENCES

To determine the projected wastewater generation under each of the alternatives, the appropriate wastewater 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. Wastewater generated by the Central Utility Plant (CUP) (through boiler blowdown) was calculated based on the generation of the existing CUP. Numbers in Table 8, Land Uses Included in the Alternatives, of Technical Report 15b of the Draft EIS/EIR have been revised since publication of the Draft EIS/EIR and are presented here in **Table S3**. Projected wastewater generation for the No Action/No Project Alternative and Alternatives A, B and C, are presented in Tables 9, 10, 11 and 12 of Technical Report 15b, *Wastewater Technical Report*, of the Draft EIS/EIR. **Table S4**, Projected Wastewater Generation Within the Master Plan Boundaries Under Alternative D, presents projected wastewater generation under Alternative D. A discussion of the environmental consequences of the wastewater generation projected for Alternative D is included in Section 4.25.2, *Wastewater*, of the Supplement to the Draft EIS/EIR.

**Table S1**

**1996 Baseline Wastewater Generation**

| Land Use | Wastewater Factor (gpd/S.F./yr or gpd/unit/yr) | 1996 Baseline | |
|---|---|---|---|
| | | Building S.F. or Units | Wastewater Generation (gpd) |
| **LAX** | | | |
| **Airport Land Uses** | | | |
| Terminal (S.F.) | .08 | 3,997,119 | 319,770 |
| Cargo (S.F.) | .02 | 1,900,000 | 37,002 |
| Maintenance (S.F.) | .11 | 1,440,000 | 159,406 |
| Ancillary (S.F.) | .19 | 1,294,000 | 224,794 |
| CUP (S.F.) | N/A | N/A | 56,700 |
| **Subtotal Airport Uses** | | | **797,672** |
| **Non-Airport Land Uses** | | | |
| **Belford** | | | |
| Residential (Multi Family DUs) | 160 | 583 | 93,280 |
| **Subtotal Non-Airport Uses** | | | **93,280** |
| **SUBTOTAL AIRPORT AND NON-AIRPORT USES** | | | **890,952** |
| **Non-Project Uses Within Master Plan Boundaries** | | | |
| **Manchester Square** | | | |
| Residential (Single Family DUs) | 180 | 280 | 50,400 |
| Residential (Multi Family DUs) | 160 | 1,706 | 272,960 |
| **Subtotal Manchester Square** | | | **323,360** |
| **Land Within Acquisition Areas** | | | |
| Residential (Single Family DUs) | 180 | 57 | 10,260 |
| Residential (Multi Family DUs) | 160 | 69 | 11,040 |
| Hotel (Rooms) | 130 | 2,083 | 270,790 |
| Office (S.F.) | 0.15 | 1,108,312 | 166,247 |
| Retail (S.F.) | 0.08 | 148,219 | 11,858 |
| Light Industrial (S.F.) | 0.08 | 3,789,292 | 303,143 |
| Institutional (S.F.) | 0.15 | 156,178 | 23,427 |
| **Subtotal Acquisition Areas** | | | **796,764** |
| **SUBTOTAL NON-PROJECT USES** | | | **1,120,124** |
| **TOTAL MASTER PLAN BOUNDARIES** | | | **2,011,076** |

N/A = Not Applicable

Notes: Information in table may not always total, due to rounding.
There is no baseline wastewater generation associated with Continental City or LAX Northside.

Source: Camp Dresser & McKee Inc., 2003.

**Table S2**

**Year 2000 Wastewater Generation**

| Land Use | Wastewater Factor (gpd/S.F.) or gpd/unit) | Year 2000 Building S.F. or Units | Year 2000 Wastewater Generation (gpd) |
|---|---|---|---|
| **LAX** | | | |
| **Airport Land Uses** | | | |
| Terminal (S.F.) | 0.08 | 4,012,119 | 320,970 |
| Cargo (S.F.) | 0.02 | 2,366,000[5] | 46,077 |
| Maintenance (S.F.) | 0.11 | 1,440,000 | 159,406 |
| Ancillary (S.F.) | 0.17 | 1,294,000 | 224,794 |
| CUP (S.F.) | N/A[2] | N/A | 56,700 |
| **Subtotal Airport Uses** | | | **807,946** |
| **Non-Airport Land Uses** | | | |
| **Belford**[2] | | | |
| Residential (Multi Family DUs) | 160 | 340 | 54,400 |
| **LAX Northside** | | | |
| Airport Related[1] (S.F.) | 0.15 | 9,000 | 1,350 |
| **Subtotal Non-Airport Uses** | | | **55,750** |
| **SUBTOTAL AIRPORT AND NON-AIRPORT USES** | | | **863,696** |
| **Non-Project Uses Within Master Plan Boundaries** | | | |
| **Manchester Square**[3] | | | |
| Residential (Single Family DUs) | 180 | 132 | 23,760 |
| Residential (Multi Family DUs) | 160 | 1,579 | 252,640 |
| **Subtotal Manchester Square** | | | **276,400** |
| **Land Within Acquisition Areas** | | | |
| Residential (Single Family DUs) | 180 | 57 | 10,260 |
| Residential (Multi Family DUs) | 160 | 69 | 11,040 |
| Hotel (Rooms) | 130 | 2,083 | 270,790 |
| Office (S.F.) | 0.15 | 1,108,312 | 166,247 |
| Retail (S.F.) | 0.08 | 148,219 | 11,858 |
| Light Industrial (S.F.) | 0.08 | 3,789,292 | 303,143 |
| Institutional (S.F.)[4] | 0.15 | 156,178 | 23,427 |
| **Subtotal Acquisition Areas** | | | **796,765** |
| **SUBTOTAL NON-PROJECT USES** | | | **1,073,165** |
| **TOTAL MASTER PLAN BOUNDARIES** | | | **1,936,861** |

N/A = Not Applicable

Notes: The factors used to calculate projected wastewater generation were rounded.
There is no Year 2000 wastewater generation associated with Continental City.
Year 2000 wastewater generation associated with LAX Northside was limited to a childcare facility constructed subsequent to 1996.
Information in the table may not always total, due to rounding.

1 Used office factor.

2 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.

3 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.

4 Includes college, high school, elementary school and library land use.

Source: Camp Dresser & McKee Inc., 2003.

**Table S3**

**Land Uses Included in the Alternatives**

| Land Use | 1996 Baseline | Year 2000 | Alternatives 2015 NA/NP | A | B | C | D |
|---|---|---|---|---|---|---|---|
| **LAX** | | | | | | | |
| **Airport Land Uses** | | | | | | | |
| Terminal (S.F.)[1] | 3,997,119 | 4,012,119 | 3,997,000 | 10,419,000 | 9,712,000 | 7,319,000 | 6,800,000 |
| Cargo (S.F.) | 1,900,000 | 2,366,000 | 2,342,000[2] | 4,518,000 | 4,871,000 | 4,903,000[2] | 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 |
| **Non-Airport Land Uses** | | | | | | | |
| **Belford** | | | | | | | |
| Residential (Multi Family DUs) | 583 | 340 | | | | | |
| **LAX Northside Development**[3] | | | | | | | |
| 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 |
| **Continental City** | | | | | | | |
| Office (S.F.) | | | 3,000,000 | | | | |
| Retail (S.F.) | | | 100,000 | | | | |
| **Westchester Southside** | | | | | | | |
| 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 | |
| **Non-Project Uses Within Master Plan Boundaries** | | | | | | | |
| **Manchester Square**[4] | | | | | | | |
| 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 | | | |
| **Land Within Acquisition Areas**[5] | | | | | | | |
| Residential (Single Family DUs) | 57 | 57 | 57 | | | | 57 |
| Residential (Multi Family DUs) | 69 | 69 | 69 | 42 | 42 | 42[2] | 69 |
| Office (S.F.) | 1,108,312 | 1,108,312 | 1,108,312 | 142,064 | | 137,010[2] | 901,001 |
| Hotel (rooms) | 2,083 | 2,083 | 2,083 | 154 | | 1,354 | 1,929 |

**Table S3**

**Land Uses Included in the Alternatives**

| Land Use | 1996 Baseline | Year 2000 | Alternatives 2015 NA/NP | A | B | C | D |
|---|---|---|---|---|---|---|---|
| Retail (S.F.) | 148,219 | 148,219 | 148,219 | 45,737 | 60,231[2] | 73,002 | 113,564 |
| Light Industrial (S.F.) | 3,789,292 | 3,789,292 | 3,789,292 | 1,196,544 | 83,329 | 2,207,937[2] | 3,542,231 |
| Institutional[6] (S.F.) | 156,178 | 156,178 | 156,178 | 85,902 | 85,902 | 0 | 102,912 |

[1] 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 wastewater generation totals, nor affect the conclusions of this analysis.

[2] Modified since publication of the Draft EIS/EIR to correct an error. This modification does not alter the conclusions of the Draft EIS/EIR.

[3] 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, wastewater generation associated with LAX Northside is overstated.

[4] 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.

[5] 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.

[6] Includes college, high school, elementary school and library land use.

Source: Landrum & Brown, 2003.

**Table S4**

**Projected Wastewater Generation Within the Master Plan Boundaries Under Alternative D**

| Land Use | Wastewater Factor (gpd/S.F.) or gpd/unit) | 2015 Building S.F. or Units | 2015 Wastewater Generation (gpd) |
|---|---|---|---|
| **LAX** | | | |
| **Airport Land Uses** | | | |
| Terminal (S.F.) | 0.08 | 6,800,000 | 544,000 |
| Cargo (S.F.) | 0.02 | 2,342,000 | 45,610 |
| Maintenance (S.F.) | 0.11 | 1,368,000 | 151,438 |
| Ancillary (S.F.) | 0.17 | 1,764,000 | 306,442 |
| CUP (S.F.) | N/A | N/A | 56,700 |
| **Subtotal Airport Uses** | | | **1,104,188** |
| **Non-Airport Land Uses** | | | |
| **LAX Northside** | | | |
| Office (S.F.) | 0.15 | 1,580,000 | 237,000 |
| Hotel (Rooms) | 130 | 1,400 | 182,000 |
| Retail (S.F.) | 0.08 | 60,000 | 4,800 |
| Airport Related (S.F.)[1] | 0.15 | 750,000 | 112,500 |
| R/D Business Park (S.F.)[1] | 0.15 | 1,170,000 | 175,500 |
| Restaurant (S.F.) | 0.92 | 70,000 | 64,155 |
| **Subtotal Northside** | | | **775,955** |
| **SUBTOTAL AIRPORT AND NON-AIRPORT USES** | | | **1,880,143** |
| **Non-Project Uses Within Master Plan Boundaries** | | | |
| **Land Within Acquisition Areas** | | | |
| Residential (Single Family DUs) | 180 | 57 | 10,260 |
| Residential (Multi Family DUs) | 160 | 69 | 11,040 |
| Hotel (Rooms) | 130 | 1,929 | 250,770 |
| Office (S.F.) | 0.15 | 901,001 | 135,150 |
| Retail (S.F.) | 0.08 | 113,564 | 9,085 |
| Light Industrial (S.F.) | 0.08 | 3,542,231 | 283,378 |
| Institutional (S.F.)[1] | 0.15 | 102,912 | 15,437 |
| **Subtotal Acquisition Areas** | | | **715,121** |
| **SUBTOTAL NON-PROJECT USES** | | | **715,121** |
| **TOTAL MASTER PLAN BOUNDARIES** | | | **2,595,263** |

N/A = Not Applicable

Notes: The factors used to calculate projected wastewater generation were rounded.

[1] Used office factor.

Source: Camp Dresser & McKee Inc., 2003.