



APPENDICES

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A1 Detailed Tables

Exhibit A-1

**Private Sector Industry Employment
City of Los Angeles 2011**

NAICS	Industry	Employment	% of total
211	Oil and gas extraction	629	0.0%
212	Mining, except oil and gas	146	0.0%
213	Support activities for mining	657	0.0%
221	Utilities	2,427	0.1%
236	Construction of buildings	10,844	0.6%
237	Heavy and civil engineering construction	4,107	0.2%
238	Specialty trade contractors	27,773	1.6%
311	Food manufacturing	11,270	0.7%
312	Beverage and tobacco prod manufacturing	2,780	0.2%
313	Textile mills	3,729	0.2%
314	Textile product mills	1,540	0.1%
315	Apparel manufacturing	20,033	1.2%
316	Leather and allied product manufacturing	659	0.0%
321	Wood product manufacturing	1,097	0.1%
322	Paper manufacturing	1,243	0.1%
323	Printing and related support activities	5,547	0.3%
324	Petroleum and coal prods manufacturing	1,406	0.1%
325	Chemical manufacturing	9,582	0.6%
326	Plastics and rubber prods manufacturing	3,684	0.2%
327	Nonmetallic mineral prod manufacturing	2,422	0.1%
331	Primary metal manufacturing	927	0.1%
332	Fabricated metal product manufacturing	14,188	0.8%
333	Machinery manufacturing	3,287	0.2%
334	Computer / electronic prod manufacturing	14,529	0.8%
335	Electrical equipment and appliance mfg.	1,898	0.1%
336	Transportation equipment manufacturing	9,785	0.6%
337	Furniture and related prod manufacturing	4,675	0.3%
339	Miscellaneous manufacturing	7,287	0.4%
423	Merchant wholesalers, durable goods	32,657	1.9%
424	Merchant wholesalers, nondurable goods	39,317	2.3%
425	Electronic markets and agents	7,278	0.4%
441	Motor vehicle and parts dealers	12,381	0.7%
442	Furniture and home furnishings stores	5,257	0.3%
443	Electronics and appliance stores	6,632	0.4%
444	Building material and garden supply stores	9,575	0.6%
445	Food and beverage stores	36,620	2.1%
446	Health and personal care stores	12,112	0.7%
447	Gasoline stations	4,411	0.3%
448	Clothing and clothing accessories stores	22,546	1.3%
451	Sporting, hobby, book / music stores	5,556	0.3%
452	General merchandise stores	23,955	1.4%
453	Miscellaneous store retailers	11,984	0.7%
454	Nonstore retailers	3,680	0.2%
481	Air transportation	15,741	0.9%
483	Water transportation	890	0.1%

NAICS	Industry	Employment	% of total
484	Truck transportation	6,174	0.4%
485	Transit and ground passenger transport	6,231	0.4%
486	Pipeline transportation	195	0.0%
487	Scenic and sightseeing transportation	404	0.0%
488	Support activities for transportation	15,419	0.9%
491	Postal service	120	0.0%
492	Couriers and messengers	11,901	0.7%
493	Warehousing and storage	2,412	0.1%
511	Publishing industries, except internet	8,676	0.5%
512	Motion picture and sound recording	63,371	3.7%
515	Broadcasting, except internet	14,167	0.8%
517	Telecommunications	10,073	0.6%
518	Data processing, hosting, related services	1,466	0.1%
519	Other information services	3,586	0.2%
521	Monetary authorities - central bank	328	0.0%
522	Credit intermediation and related activities	29,895	1.7%
523	Securities, commodities, investments	13,239	0.8%
524	Insurance carriers and related activities	21,285	1.2%
525	Funds, trusts, and other financial vehicles	1,493	0.1%
531	Real estate	26,040	1.5%
532	Rental and leasing services	10,141	0.6%
533	Lessors of nonfinancial intangible assets	420	0.0%
541	Professional and technical services	132,357	7.7%
551	Management of companies / enterprises	22,737	1.3%
561	Administrative and support services	101,471	5.9%
562	Waste mgmt and remediation services	2,310	0.1%
611	Educational services	54,613	3.2%
621	Ambulatory health care services	76,400	4.5%
622	Hospitals	44,573	2.6%
623	Nursing and residential care facilities	30,215	1.8%
624	Social assistance	31,304	1.8%
711	Performing arts and spectator sports	16,627	1.0%
712	Museums, historical sites, zoos, and parks	3,201	0.2%
713	Amusements, gambling, and recreation	11,139	0.7%
721	Accommodation	20,353	1.2%
722	Food services and drinking places	130,869	7.7%
811	Repair and maintenance	14,446	0.8%
812	Personal and laundry services	23,104	1.4%
813	Membership associations and orgs	20,767	1.2%

Sources: California Employment Development Department; LAEDC

Exhibit A-2

**Competitiveness of Private Sector Industries
City of Los Angeles 2012Q3
(Location Quotients v. California and US)**

NAICS	Industry	CA	US
211	Oil and gas extraction	0.5	0.3
212	Mining, except oil and gas	0.4	0.1
213	Support activities for mining	0.8	0.2
221	Utilities	0.4	0.3
236	Construction of buildings	0.7	0.7
237	Heavy and civil engineering construction	0.4	0.3
238	Specialty trade contractors	0.6	0.6
311	Food manufacturing	0.6	0.6
312	Beverage and tobacco prod manufacturing	0.5	1.1
313	Textile mills	3.7	2.4
314	Textile product mills	1.6	1.0
315	Apparel manufacturing	3.0	10.4
316	Leather and allied product manufacturing	1.6	1.7
321	Wood product manufacturing	0.5	0.2
322	Paper manufacturing	0.5	0.2
323	Printing and related support activities	1.1	0.9
324	Petroleum and coal prods manufacturing	0.8	1.0
325	Chemical manufacturing	1.1	0.9
326	Plastics and rubber prods manufacturing	0.7	0.4
327	Nonmetallic mineral prod manufacturing	0.7	0.5
331	Primary metal manufacturing	0.4	0.2
332	Fabricated metal product manufacturing	1.0	0.8
333	Machinery manufacturing	0.4	0.2
334	Computer / electronic prod manufacturing	0.5	1.0
335	Electrical equipment and appliance mfg.	0.6	0.4
336	Transportation equipment manufacturing	0.8	0.5
337	Furniture and related prod manufacturing	1.3	1.0
339	Miscellaneous manufacturing	0.8	1.0
423	Merchant wholesalers, durable goods	0.9	0.9
424	Merchant wholesalers, nondurable goods	1.3	1.5
425	Electronic markets and agents	0.6	0.6
441	Motor vehicle and parts dealers	0.6	0.5
442	Furniture and home furnishings stores	0.9	0.9
443	Electronics and appliance stores	0.9	1.0
444	Building material and garden supply stores	0.7	0.6
445	Food and beverage stores	0.9	1.0
446	Health and personal care stores	1.0	0.9
447	Gasoline stations	0.7	0.4
448	Clothing and clothing accessories stores	1.1	1.2
451	Sporting, hobby, book / music stores	0.7	0.7
452	General merchandise stores	0.7	0.6
453	Miscellaneous store retailers	1.2	1.1
454	Nonstore retailers	0.8	0.6
481	Air transportation	3.1	2.6
483	Water transportation	1.4	1.0

NAICS	Industry	CA	US
484	Truck transportation	0.5	0.3
485	Transit and ground passenger transport	1.3	1.2
486	Pipeline transportation	0.6	0.3
487	Scenic and sightseeing transportation	0.9	1.0
488	Support activities for transportation	1.6	2.0
491	Postal service	1.4	1.7
492	Couriers and messengers	1.8	1.7
493	Warehousing and storage	0.3	0.3
511	Publishing industries, except internet	0.9	0.9
512	Motion picture and sound recording	3.8	12.9
515	Broadcasting, except internet	2.8	3.8
517	Telecommunications	0.9	0.9
518	Data processing, hosting, related services	0.6	0.4
519	Other information services	0.6	1.6
521	Monetary authorities - central bank	1.9	1.4
522	Credit intermediation and related activities	1.0	0.9
523	Securities, commodities, investments	1.5	1.3
524	Insurance carriers and related activities	1.0	0.8
525	Funds, trusts, and other financial vehicles	1.2	1.3
531	Real estate	1.2	1.4
532	Rental and leasing services	1.5	1.5
533	Lessors of nonfinancial intangible assets	1.2	1.3
541	Professional and technical services	1.0	1.3
551	Management of companies / enterprises	1.0	0.9
561	Administrative and support services	1.0	1.0
562	Waste mgmt and remediation services	0.5	0.5
611	Educational services	1.5	1.6
621	Ambulatory health care services	1.0	0.9
622	Hospitals	1.0	0.7
623	Nursing and residential care facilities	1.0	0.7
624	Social assistance	1.2	0.9
711	Performing arts and spectator sports	2.2	3.1
712	Museums, historical sites, zoos, and parks	1.6	1.7
713	Amusements, gambling, and recreation	0.5	0.5
721	Accommodation	0.9	0.8
722	Food services and drinking places	1.0	1.0
811	Repair and maintenance	0.9	0.9
812	Personal and laundry services	1.3	1.3
813	Membership associations and orgs	1.2	1.2

Sources: California Employment Development Department; estimates by LAEDC

Exhibit A-3

**Competitiveness of Private Sector Industries
City of Los Angeles County 2012Q3
(% Change in Location Quotients v. California and US)**

NAICS	Industry	CA	US
211	Oil and gas extraction	-8.9%	-23.5%
212	Mining, except oil and gas	64.3%	30.4%
213	Support activities for mining	133.8%	85.4%
221	Utilities	8.1%	33.7%
236	Construction of buildings	31.1%	35.8%
237	Heavy and civil engineering construction	9.9%	9.0%
238	Specialty trade contractors	12.0%	4.3%
311	Food manufacturing	-16.8%	-14.4%
312	Beverage and tobacco prod manufacturing	3.6%	45.0%
313	Textile mills	-2.8%	59.2%
314	Textile product mills	-11.6%	-27.8%
315	Apparel manufacturing	-19.0%	30.6%
316	Leather and allied product manufacturing	-13.3%	0.4%
321	Wood product manufacturing	10.1%	-11.1%
322	Paper manufacturing	-6.7%	-5.8%
323	Printing and related support activities	-20.1%	-23.6%
324	Petroleum and coal prods manufacturing	30.3%	37.1%
325	Chemical manufacturing	-5.9%	9.5%
326	Plastics and rubber prods manufacturing	-5.7%	-12.7%
327	Nonmetallic mineral prod manufacturing	-10.6%	-18.5%
331	Primary metal manufacturing	-55.0%	-54.9%
332	Fabricated metal product manufacturing	-7.4%	-12.6%
333	Machinery manufacturing	-21.2%	-29.8%
334	Computer / electronic prod manufacturing	1.2%	8.6%
335	Electrical equipment and appliance mfg.	-16.2%	-13.0%
336	Transportation equipment manufacturing	-4.5%	-7.6%
337	Furniture and related prod manufacturing	-4.8%	-22.2%
339	Miscellaneous manufacturing	-27.7%	-22.5%
423	Merchant wholesalers, durable goods	-6.2%	-6.6%
424	Merchant wholesalers, nondurable goods	2.3%	20.2%
425	Electronic markets and agents	-32.8%	-13.7%
441	Motor vehicle and parts dealers	-4.9%	-12.8%
442	Furniture and home furnishings stores	1.5%	8.9%
443	Electronics and appliance stores	17.2%	1.2%
444	Building material and garden supply stores	17.3%	14.2%
445	Food and beverage stores	0.1%	13.2%
446	Health and personal care stores	8.5%	6.3%
447	Gasoline stations	12.8%	16.2%
448	Clothing and clothing accessories stores	4.1%	12.8%
451	Sporting, hobby, book / music stores	-18.8%	-25.8%
452	General merchandise stores	-5.2%	11.3%
453	Miscellaneous store retailers	26.3%	29.2%
454	Nonstore retailers	-13.0%	12.5%
481	Air transportation	-0.2%	-13.3%
483	Water transportation	-29.3%	-25.7%

NAICS	Industry	CA	US
484	Truck transportation	1.5%	4.7%
485	Transit and ground passenger transport	0.7%	0.7%
486	Pipeline transportation	16.6%	57.7%
487	Scenic and sightseeing transportation	63.0%	101.5%
488	Support activities for transportation	19.5%	22.8%
491	Postal service	-67.0%	-73.2%
492	Couriers and messengers	6.8%	-5.2%
493	Warehousing and storage	-59.7%	-62.7%
511	Publishing industries, except internet	2.3%	5.6%
512	Motion picture and sound recording	24.6%	43.7%
515	Broadcasting, except internet	17.8%	37.3%
517	Telecommunications	5.1%	-1.1%
518	Data processing, hosting, related services	-5.7%	-42.5%
519	Other information services	-61.7%	102.3%
521	Monetary authorities - central bank	-54.5%	-26.7%
522	Credit intermediation and related activities	0.3%	1.6%
523	Securities, commodities, investments	12.6%	0.8%
524	Insurance carriers and related activities	-23.7%	-27.7%
525	Funds, trusts, and other financial vehicles	67.3%	103.8%
531	Real estate	3.7%	7.5%
532	Rental and leasing services	27.5%	22.3%
533	Lessors of nonfinancial intangible assets	20.3%	-0.6%
541	Professional and technical services	3.0%	7.0%
551	Management of companies / enterprises	-16.2%	-48.0%
561	Administrative and support services	4.8%	2.4%
562	Waste mgmt and remediation services	-15.3%	-9.2%
611	Educational services	-2.1%	8.0%
621	Ambulatory health care services	-4.4%	0.1%
622	Hospitals	-11.7%	-14.2%
623	Nursing and residential care facilities	-3.9%	-1.8%
624	Social assistance	4.1%	-2.5%
711	Performing arts and spectator sports	18.3%	27.6%
712	Museums, historical sites, zoos, and parks	-13.9%	-3.3%
713	Amusements, gambling, and recreation	-6.8%	-0.8%
721	Accommodation	9.5%	16.9%
722	Food services and drinking places	6.5%	11.4%
811	Repair and maintenance	7.7%	3.0%
812	Personal and laundry services	0.0%	11.0%
813	Membership associations and orgs	-0.5%	4.6%

Sources: California Employment Development Department; estimates by LAEDC

Exhibit A-4

**Projected New Job Creation 2012-2017
City of Los Angeles 2011**

NAICS	Industry	Number of New Jobs	Annual Average Percent Change
211	Oil and gas extraction	-20	-0.7%
212	Mining, except oil and gas	-5	-0.7%
213	Support activities for mining	-21	-0.7%
221	Utilities	114	0.9%
236	Construction of buildings	1,544	2.7%
237	Heavy and civil engineering construction	1,122	5.0%
238	Specialty trade contractors	6,585	4.3%
311	Food manufacturing	430	0.8%
312	Beverage and tobacco prod manufacturing	211	1.5%
313	Textile mills	-183	-1.0%
314	Textile product mills	-84	-1.1%
315	Apparel manufacturing	-64	-0.1%
316	Leather and allied product manufacturing	308	8.0%
321	Wood product manufacturing	71	1.3%
322	Paper manufacturing	-57	-0.9%
323	Printing and related support activities	114	0.4%
324	Petroleum and coal prods manufacturing	122	1.7%
325	Chemical manufacturing	1,084	2.2%
326	Plastics and rubber prods manufacturing	454	2.4%
327	Nonmetallic mineral prod manufacturing	362	2.8%
331	Primary metal manufacturing	50	1.1%
332	Fabricated metal product manufacturing	1,229	1.7%
333	Machinery manufacturing	525	3.0%
334	Computer / electronic prod manufacturing	914	1.2%
335	Electrical equipment and appliance mfg.	96	1.0%
336	Transportation equipment manufacturing	-539	-1.1%
337	Furniture and related prod manufacturing	563	2.3%
339	Miscellaneous manufacturing	237	0.6%
423	Merchant wholesalers, durable goods	300	0.2%
424	Merchant wholesalers, nondurable goods	1,771	0.9%
425	Electronic markets and agents	1,397	3.6%
441	Motor vehicle and parts dealers	244	0.4%
442	Furniture and home furnishings stores	-249	-1.0%
443	Electronics and appliance stores	-180	-0.5%
444	Building material and garden supply stores	362	0.7%
445	Food and beverage stores	2,391	1.3%
446	Health and personal care stores	779	1.3%
447	Gasoline stations	31	0.1%
448	Clothing and clothing accessories stores	2,276	1.9%
451	Sporting, hobby, book / music stores	195	0.7%
452	General merchandise stores	2,264	1.8%
453	Miscellaneous store retailers	-781	-1.3%
454	Nonstore retailers	915	4.5%
481	Air transportation	812	1.0%
483	Water transportation	46	1.0%

NAICS	Industry	Number of New Jobs	Annual Average Percent Change
484	Truck transportation	318	1.0%
485	Transit and ground passenger transport	321	1.0%
486	Pipeline transportation	10	1.0%
487	Scenic and sightseeing transportation	21	1.0%
488	Support activities for transportation	795	1.0%
491	Postal service	6	1.0%
492	Couriers and messengers	614	1.0%
493	Warehousing and storage	124	1.0%
511	Publishing industries, except internet	174	0.4%
512	Motion picture and sound recording	9,572	2.9%
515	Broadcasting, except internet	954	1.3%
517	Telecommunications	-487	-1.0%
518	Data processing, hosting, related services	64	0.9%
519	Other information services	453	2.4%
521	Monetary authorities - central bank	46	2.6%
522	Credit intermediation and related activities	4,165	2.6%
523	Securities, commodities, investments	1,845	2.6%
524	Insurance carriers and related activities	2,965	2.6%
525	Funds, trusts, and other financial vehicles	208	2.6%
531	Real estate	2,577	1.9%
532	Rental and leasing services	1,004	1.9%
533	Lessors of nonfinancial intangible assets	42	1.9%
541	Professional and technical services	15,688	2.3%
551	Management of companies / enterprises	1,554	1.3%
561	Administrative and support services	23,735	4.3%
562	Waste mgmt and remediation services	540	4.3%
611	Educational services	7,082	2.5%
621	Ambulatory health care services	10,559	2.6%
622	Hospitals	6,160	2.6%
623	Nursing and residential care facilities	4,176	2.6%
624	Social assistance	4,326	2.6%
711	Performing arts and spectator sports	1,580	1.8%
712	Museums, historical sites, zoos, and parks	304	1.8%
713	Amusements, gambling, and recreation	1,059	1.8%
721	Accommodation	3,450	3.2%
722	Food services and drinking places	22,183	3.2%
811	Repair and maintenance	638	0.9%
812	Personal and laundry services	1,792	1.5%
813	Membership associations and orgs	1,419	1.3%

Source: Estimates by LAEDC

Exhibit A-5
Occupational Growth in the City of Los Angeles 2011-2017 with Job Requirements

SOC Code	Occupational Title	New Openings	Replacement Needs	Total Openings	Entry Level		On-the-Job Training to Attain Competency	Median Annual Wage
					Educ-ation	Work Exp		
11-1011	Chief Executives	424	547	971	3	>5 years	None	N/A
11-1021	General and Operations Managers	2,895	2,598	5,493	4	1-5 years	None	113,956
11-1031	Legislators	71	116	187	3	1-5 years	None	61,935
11-2011	Advertising and Promotions Managers	60	88	149	3	1-5 years	None	108,607
11-2021	Marketing Managers	261	387	648	3	1-5 years	None	124,236
11-2022	Sales Managers	388	691	1,079	3	1-5 years	None	109,024
11-2031	Public Relations and Fundraising Managers	87	130	217	3	1-5 years	None	98,395
11-3011	Administrative Services Managers	444	537	981	7	1-5 years	None	91,563
11-3021	Computer and Information Systems Managers	497	385	882	3	>5 years	None	133,082
11-3031	Financial Managers	748	657	1,405	3	>5 years	None	124,130
11-3051	Industrial Production Managers	97	193	290	3	1-5 years	None	93,595
11-3061	Purchasing Managers	60	131	191	3	>5 years	None	107,584
11-3071	Transportation, Storage, and Distribution Managers	79	165	244	7	>5 years	None	84,739
11-3111	Compensation and Benefits Managers	47	55	103	3	1-5 years	None	109,907
11-3121	Human Resources Managers	143	175	318	3	1-5 years	None	111,163
11-3131	Training and Development Managers	43	50	93	3	1-5 years	None	104,410
11-9013	Farmers, Ranchers, and Other Agricultural	-2	18	17	7	>5 years	None	N/A
11-9021	Construction Managers	333	69	402	4	>5 years	None	103,141
11-9031	Education Administrators, Preschool and Childcare	75	84	159	3	1-5 years	None	51,882
11-9032	Education Administrators, Elementary and	150	165	314	2	1-5 years	None	105,636
11-9039	Education Administrators, All Other	50	51	101	3	1-5 years	None	73,508
11-9041	Architectural and Engineering Managers	244	283	527	3	>5 years	None	141,356
11-9051	Food Service Managers	395	231	626	7	1-5 years	None	47,011
11-9081	Lodging Managers	57	46	103	7	1-5 years	None	49,371
11-9111	Medical and Health Services Managers	549	521	1,071	3	None	None	100,234
11-9121	Natural Sciences Managers	68	223	291	3	>5 years	None	133,118
11-9141	Property, Real Estate, and Community Association	282	303	585	7	1-5 years	None	64,775
11-9151	Social and Community Service Managers	230	249	478	3	1-5 years	None	69,376
11-9161	Emergency Management Directors	20	25	45	3	1-5 years	LT OJT	98,952
11-9199	Managers, All Other	376	489	865	7	1-5 years	None	126,760
13-1011	Agents and Business Managers of Artists,	63	57	120	3	1-5 years	None	115,899
13-1021	Buyers and Purchasing Agents, Farm Products	9	13	21	7	None	LT OJT	66,364
13-1022	Wholesale and Retail Buyers, Except Farm	80	176	256	7	None	LT OJT	50,174
13-1023	Purchasing Agents, Except Wholesale, Retail, and	276	481	757	7	None	LT OJT	60,511
13-1031	Claims Adjusters, Examiners, and Investigators	370	440	809	7	None	LT OJT	63,142
13-1041	Compliance Officers	270	225	495	3	None	MT OJT	71,806
13-1051	Cost Estimators	277	180	456	3	None	None	65,094
13-1078*	Human Resources, Training, and Labor Relations	101	128	229	3	None	None	69,732
13-1081	Logisticians	97	141	238	3	1-5 years	None	78,249
13-1111	Management Analysts	1,022	853	1,874	3	1-5 years	None	84,476
13-1121	Meeting, Convention, and Event Planners	141	119	260	3	<1 year	None	49,853
13-1141	Compensation, Benefits, and Job Analysis	186	168	354	3	None	None	58,934
13-1151	Training and Development Specialists	344	271	615	3	None	None	61,464
13-1161	Market Research Analysts and Marketing	642	831	1,473	3	None	None	58,174
13-1199	Business Operations Specialists, All Other	1,351	1,524	2,875	7	<1 year	LT OJT	65,220
13-2011	Accountants and Auditors	1,991	2,061	4,052	3	None	None	68,193
13-2021	Appraisers and Assessors of Real Estate	122	148	270	7	None	APP	78,148
13-2031	Budget Analysts	107	143	250	3	None	None	76,782

Education: 1=Doctoral or professional degree; 2=Master's degree; 3=Bachelor's degree; 4=Associate's degree; 5=Postsecondary non-degree award; 6=Some college, no degree; 7=High school diploma or equivalent; 8=Less than high school; On-the-Job Training: I/R=Internship/Residency; APP=Apprenticeship; LT OJT=Long-term on-the-job training (more than one year); MT OJT=Moderate-term on-the-job training (1-12 months); ST OJT=Short-term on-the-job training (1 month or less)
Sources: Estimates by LAEDC; Education and skills requirements from BLS

Exhibit A-5 (cont'd)

Occupational Growth in the City of Los Angeles 2011-2017 with Job Requirements

SOC Code	Occupational Title	New Openings	Replacement Needs	Total Openings	Entry Level		On-the-Job Training to Attain Competency	Median Annual Wage
					Educ-ation	Work Exp		
13-2041	Credit Analysts	87	82	169	3	None	None	71,496
13-2051	Financial Analysts	384	363	747	3	None	None	86,197
13-2052	Personal Financial Advisors	377	164	541	3	None	None	58,137
13-2053	Insurance Underwriters	140	166	306	3	None	MT OJT	71,260
13-2071	Credit Counselors	39	39	78	3	None	MT OJT	45,416
13-2072	Loan Officers	462	443	906	7	None	MT OJT	71,294
13-2081	Tax Examiners and Collectors, and Revenue	94	204	298	3	None	MT OJT	N/A
13-2082	Tax Preparers	132	126	258	7	None	MT OJT	33,479
13-2099	Financial Specialists, All Other	233	254	488	3	None	MT OJT	60,850
15-1111	Computer and Information Research Scientists	27	35	61	1	None	None	122,443
15-1121	Computer Systems Analysts	935	894	1,829	3	None	None	86,114
15-1131	Computer Programmers	596	643	1,239	3	None	None	85,490
15-1132	Software Developers, Applications	991	493	1,484	3	None	None	94,358
15-1133	Software Developers, Systems Software	587	325	912	3	None	None	108,273
15-1141	Database Administrators	172	140	312	3	1-5 years	None	77,956
15-1142	Network and Computer Systems Administrators	535	450	985	3	None	None	76,433
15-1150	Computer Support Specialists	91	162	253	6	None	MT OJT	51,461
15-1179*	Information Security Analysts, Web Developers,	23	23	46	3	1-5 years	None	75,803
15-1799*	Computer Occupations, All Other	7	50	57	3	None	None	77,806
15-2011	Actuaries	35	87	122	3	None	LT OJT	91,289
15-2021	Mathematicians	3	14	17	2	None	None	106,283
15-2031	Operations Research Analysts	117	195	312	3	None	None	81,974
15-2041	Statisticians	35	93	128	2	None	None	77,453
17-1011	Architects, Except Landscape and Naval	180	161	340	3	None	I/R	85,436
17-1012	Landscape Architects	42	37	78	3	None	I/R	69,845
17-1021	Cartographers and Photogrammetrists	19	22	41	3	None	None	78,249
17-1022	Surveyors	98	104	202	3	None	None	90,039
17-2011	Aerospace Engineers	60	114	174	3	None	None	117,348
17-2031	Biomedical Engineers	23	28	50	3	None	None	87,399
17-2041	Chemical Engineers	44	71	115	3	None	None	118,325
17-2051	Civil Engineers	682	740	1,421	3	None	None	91,931
17-2071	Electrical Engineers	201	275	476	3	None	None	100,091
17-2072	Electronics Engineers, Except Computer	130	266	396	3	None	None	101,548
17-2081	Environmental Engineers	100	113	213	3	None	None	82,586
17-2111	Health and Safety Engineers, Except Mining Safety	42	48	90	3	None	None	93,334
17-2112	Industrial Engineers	166	255	421	3	None	None	92,369
17-2131	Materials Engineers	18	35	52	3	None	None	99,487
17-2141	Mechanical Engineers	258	474	733	3	None	None	89,032
17-2171	Petroleum Engineers	12	27	39	3	None	None	96,034
17-2199	Engineers, All Other	168	212	380	3	None	None	95,651
17-3011	Architectural and Civil Drafters	180	151	330	4	None	None	49,869
17-3013	Mechanical Drafters	65	64	129	4	None	None	52,638
17-3019	Drafters, All Other	24	22	46	4	None	None	53,832
17-3021	Aerospace Engineering and Operations	8	14	21	4	None	None	66,036
17-3022	Civil Engineering Technicians	159	163	322	4	None	None	64,360
17-3023	Electrical and Electronics Engineering Technicians	196	233	430	4	None	None	62,997
17-3024	Electro-Mechanical Technicians	17	21	38	4	None	None	49,129
17-3025	Environmental Engineering Technicians	45	43	88	4	None	None	58,584
17-3026	Industrial Engineering Technicians	43	63	107	4	None	None	48,775

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Sources: Estimates by LAEDC; Education and skills requirements from BLS

Exhibit A-5 (cont'd)

Occupational Growth in the City of Los Angeles 2011-2017 with Job Requirements

SOC Code	Occupational Title	New Openings	Replacement Needs	Total Openings	Entry Level		On-the-Job Training to Attain Competency	Median Annual Wage
					Educ-ation	Work Exp		
17-3027	Mechanical Engineering Technicians	54	57	111	4	None	None	55,206
17-3029	Engineering Technicians, Except Drafters, All Other	93	116	209	4	None	None	62,294
17-3031	Surveying and Mapping Technicians	91	84	176	7	None	MT OJT	65,074
19-1012	Food Scientists and Technologists	12	30	42	3	None	None	59,093
19-1021	Biochemists and Biophysicists	46	45	90	1	None	None	69,912
19-1022	Microbiologists	31	33	63	3	None	None	74,472
19-1023	Zoologists and Wildlife Biologists	19	30	49	3	None	None	76,653
19-1029	Biological Scientists, All Other	26	46	72	1	None	None	77,630
19-1042	Medical Scientists, Except Epidemiologists	161	42	202	1	None	None	72,294
19-2011	Astronomers	2	2	4	1	None	None	96,977
19-2012	Physicists	25	36	62	1	None	None	92,915
19-2031	Chemists	134	205	339	3	None	None	69,724
19-2032	Materials Scientists	11	18	29	3	None	None	78,972
19-2041	Environmental Scientists and Specialists, Including	200	336	536	3	None	None	74,825
19-2042	Geoscientists, Except Hydrologists and	39	68	107	3	None	None	84,285
19-3011	Economists	26	46	72	3	None	None	104,988
19-3022	Survey Researchers	33	40	73	3	None	None	45,662
19-3031	Clinical, Counseling, and School Psychologists	194	297	491	1	None	I/R	79,140
19-3039	Psychologists, All Other	6	17	23	2	None	I/R	104,754
19-3051	Urban and Regional Planners	138	226	363	2	None	None	77,053
19-4011	Agricultural and Food Science Technicians	31	66	97	4	None	None	29,969
19-4021	Biological Technicians	107	183	290	3	None	None	47,987
19-4031	Chemical Technicians	100	69	169	4	None	MT OJT	43,179
19-4041	Geological and Petroleum Technicians	11	25	35	4	None	MT OJT	56,342
19-4061	Social Science Research Assistants	37	66	104	4	None	None	44,726
19-4091	Environmental Science and Protection Technicians,	66	139	205	4	None	MT OJT	52,550
19-4092	Forensic Science Technicians	41	109	150	3	None	MT OJT	N/A
19-4093	Forest and Conservation Technicians	19	184	202	4	None	None	N/A
19-4099	Life, Physical, and Social Science Technicians, All	84	170	254	4	None	MT OJT	45,355
21-1011	Substance Abuse and Behavioral Disorder	159	143	302	7	None	MT OJT	30,201
21-1012	Educational, Guidance, School, and Vocational	218	197	415	2	None	None	73,647
21-1013	Marriage and Family Therapists	60	54	113	2	None	I/R	48,951
21-1014	Mental Health Counselors	241	214	454	2	None	I/R	40,320
21-1015	Rehabilitation Counselors	164	139	303	2	None	None	30,901
21-1019	Counselors, All Other	71	83	154	2	None	None	41,163
21-1021	Child, Family, and School Social Workers	480	603	1,083	3	None	None	51,398
21-1022	Healthcare Social Workers	273	262	534	2	None	None	57,069
21-1023	Mental Health and Substance Abuse Social	236	244	479	3	None	None	46,717
21-1029	Social Workers, All Other	231	349	580	3	None	None	N/A
21-1091	Health Educators	109	119	228	3	None	None	43,796
21-1092	Probation Officers and Correctional Treatment	278	393	671	3	None	ST OJT	N/A
21-1093	Social and Human Service Assistants	712	732	1,444	7	None	ST OJT	35,530
21-1798*	Community and Social Service Specialists, All	118	170	289	3	None	None	36,876
21-2011	Clergy	61	58	119	3	None	MT OJT	62,891
21-2021	Directors, Religious Activities and Education	20	25	46	3	1-5 years	None	62,145
23-1011	Lawyers	1,225	1,167	2,392	1	None	None	156,963
23-1012	Judicial Law Clerks	51	50	101	1	None	None	N/A
23-1021	Administrative Law Judges, Adjudicators, and	24	35	59	3	1-5 years	MT OJT	N/A
23-1022	Arbitrators, Mediators, and Conciliators	15	15	30	3	1-5 years	MT OJT	128,742

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Exhibit A-5 (cont'd)

Occupational Growth in the City of Los Angeles 2011-2017 with Job Requirements

SOC Code	Occupational Title	New Openings	Replacement Needs	Total Openings	Entry Level		On-the-Job Training to Attain Competency	Median Annual Wage
					Educ-ation	Work Exp		
23-1023	Judges, Magistrate Judges, and Magistrates	37	46	83	1	>5 years	ST OJT	N/A
23-2011	Paralegals and Legal Assistants	559	369	928	4	None	None	57,755
23-2091	Court Reporters	73	54	126	5	None	ST OJT	N/A
23-2093	Title Examiners, Abstractors, and Searchers	94	61	156	7	None	ST OJT	43,716
23-2099	Legal Support Workers, All Other	80	74	154	7	None	ST OJT	57,196
25-1011	Business Teachers, Postsecondary	54	33	87	1	None	None	115,563
25-1021	Computer Science Teachers, Postsecondary	22	14	36	1	None	None	102,831
25-1022	Mathematical Science Teachers, Postsecondary	35	22	57	1	None	None	100,535
25-1031	Architecture Teachers, Postsecondary	5	3	8	1	None	None	80,426
25-1032	Engineering Teachers, Postsecondary	22	14	36	1	None	None	111,303
25-1051	Atmospheric, Earth, Marine, and Space Sciences	7	5	12	1	None	None	111,585
25-1052	Chemistry Teachers, Postsecondary	13	8	21	1	None	None	91,426
25-1054	Physics Teachers, Postsecondary	9	6	15	1	None	None	99,537
25-1061	Anthropology and Archeology Teachers,	4	2	6	1	None	None	92,698
25-1062	Area, Ethnic, and Cultural Studies Teachers,	6	4	10	1	None	None	77,426
25-1063	Economics Teachers, Postsecondary	9	6	15	1	None	None	96,610
25-1065	Political Science Teachers, Postsecondary	11	7	18	1	None	None	87,340
25-1066	Psychology Teachers, Postsecondary	25	16	41	1	None	None	89,131
25-1067	Sociology Teachers, Postsecondary	11	7	18	1	None	None	95,570
25-1069	Social Sciences Teachers, Postsecondary, All	7	4	11	1	None	None	157,742
25-1072	Nursing Instructors and Teachers, Postsecondary	44	28	72	2	None	None	86,912
25-1081	Education Teachers, Postsecondary	41	25	66	1	None	None	70,437
25-1082	Library Science Teachers, Postsecondary	3	2	5	1	None	None	85,595
25-1111	Criminal Justice and Law Enforcement Teachers,	9	6	15	1	None	None	89,058
25-1112	Law Teachers, Postsecondary	10	6	16	1	None	None	166,230
25-1113	Social Work Teachers, Postsecondary	6	4	10	1	None	None	85,014
25-1121	Art, Drama, and Music Teachers, Postsecondary	61	38	99	1	None	None	83,036
25-1122	Communications Teachers, Postsecondary	20	12	32	1	None	None	91,889
25-1123	English Language and Literature Teachers,	48	29	77	1	None	None	99,714
25-1124	Foreign Language and Literature Teachers,	20	12	31	1	None	None	66,627
25-1125	History Teachers, Postsecondary	15	9	25	1	None	None	94,663
25-1126	Philosophy and Religion Teachers, Postsecondary	42	40	82	1	None	None	84,467
25-1191	Graduate Teaching Assistants	78	48	126	2	None	None	58,913
25-1192	Home Economics Teachers, Postsecondary	3	2	5	2	None	None	84,012
25-1193	Recreation and Fitness Studies Teachers,	13	8	21	2	None	None	95,585
25-1194	Vocational Education Teachers, Postsecondary	79	50	129	3	1-5 years	None	73,874
25-1199	Postsecondary Teachers, All Other	133	82	215	2	None	None	67,017
25-2011	Preschool Teachers, Except Special Education	521	535	1,055	4	None	None	29,557
25-2012	Kindergarten Teachers, Except Special Education	112	112	224	3	None	I/R	66,455
25-2021	Elementary School Teachers, Except Special	909	764	1,673	3	None	I/R	70,230
25-2022	Middle School Teachers, Except Special and	414	349	763	3	None	I/R	65,434
25-2023	Career/Technical Education Teachers, Middle	12	10	22	3	1-5 years	I/R	66,312
25-2031	Secondary School Teachers, Except Special and	650	690	1,340	3	None	I/R	64,087
25-2032	Career/Technical Education Teachers, Secondary	60	67	127	3	1-5 years	I/R	70,403
25-2054	Special Education Teachers, Secondary School	89	101	189	3	None	I/R	64,962
25-3011	Adult Basic and Secondary Education and Literacy	56	35	91	3	None	I/R	76,782
25-3021	Self-Enrichment Education Teachers	179	131	310	7	1-5 years	None	49,573
25-3999	Teachers and Instructors, All Other	18	45	63	3	None	None	46,083
25-4012	Curators	18	29	47	2	None	None	67,860

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Exhibit A-5 (cont'd)

Occupational Growth in the City of Los Angeles 2011-2017 with Job Requirements

SOC Code	Occupational Title	New Openings	Replacement Needs	Total Openings	Entry Level		On-the-Job Training to Attain Competency	Median Annual Wage
					Educ-ation	Work Exp		
25-4013	Museum Technicians and Conservators	16	27	43	3	None	None	47,104
25-4021	Librarians	198	282	480	2	None	None	67,982
25-4031	Library Technicians	171	431	601	5	None	None	41,357
25-9011	Audio-Visual and Multimedia Collections Specialists	7	6	12	3	1-5 years	None	42,650
25-9031	Instructional Coordinators	121	120	241	2	>5 years	None	61,665
25-9041	Teacher Assistants	1,009	905	1,915	7	None	ST OJT	29,398
25-9099	Education, Training, and Library Workers, All Other	73	68	141	3	None	None	27,367
27-1011	Art Directors	122	118	240	3	1-5 years	None	105,802
27-1012	Craft Artists	12	16	28	7	None	LT OJT	63,364
27-1013	Fine Artists, Including Painters, Sculptors, and	95	88	183	7	None	LT OJT	55,295
27-1014	Multi-Media Artists and Animators	309	261	570	3	None	MT OJT	81,166
27-1019	Artists and Related Workers, All Other	18	22	40	7	None	LT OJT	54,728
27-1021	Commercial and Industrial Designers	40	59	99	3	None	None	54,385
27-1022	Fashion Designers	26	126	152	7	None	LT OJT	65,465
27-1023	Floral Designers	-20	107	87	7	None	ST OJT	28,828
27-1024	Graphic Designers	361	591	952	3	None	None	56,078
27-1025	Interior Designers	62	99	161	3	None	None	58,826
27-1026	Merchandise Displayers and Window Trimmers	96	173	269	7	None	MT OJT	31,954
27-1027	Set and Exhibit Designers	79	93	171	3	None	None	62,456
27-1029	Designers, All Other	21	29	50	3	None	None	43,282
27-2012	Producers and Directors	1,218	1,338	2,556	3	1-5 years	None	121,461
27-2022	Coaches and Scouts	176	204	380	7	None	LT OJT	40,473
27-2023	Umpires, Referees, and Other Sports Officials	30	47	77	7	None	LT OJT	21,392
27-2041	Music Directors and Composers	40	44	84	3	1-5 years	None	59,317
27-2042	Musicians and Singers	142	181	323	7	None	LT OJT	N/A
27-3012	Public Address System and Other Announcers	23	30	53	7	None	ST OJT	21,675
27-3022	Reporters and Correspondents	68	204	273	3	None	None	41,261
27-3031	Public Relations Specialists	368	500	867	3	None	MT OJT	63,572
27-3041	Editors	194	308	502	3	1-5 years	None	56,142
27-3042	Technical Writers	72	68	140	3	1-5 years	ST OJT	78,710
27-3043	Writers and Authors	171	194	365	3	None	LT OJT	75,014
27-3091	Interpreters and Translators	92	114	206	3	None	LT OJT	58,016
27-3099	Media and Communication Workers, All Other	233	226	459	7	None	ST OJT	57,470
27-4011	Audio and Video Equipment Technicians	362	405	767	5	None	MT OJT	47,298
27-4012	Broadcast Technicians	148	256	404	4	None	ST OJT	44,631
27-4014	Sound Engineering Technicians	223	227	450	5	None	ST OJT	69,167
27-4021	Photographers	132	61	192	7	None	LT OJT	45,015
27-4031	Camera Operators, Television, Video, and Motion	215	151	367	3	None	MT OJT	51,664
27-4032	Film and Video Editors	427	266	693	3	1-5 years	None	97,339
27-4099	Media and Communication Equipment Workers, All	145	97	242	7	None	MT OJT	80,589
29-1011	Chiropractors	55	40	96	1	None	None	72,821
29-1021	Dentists, General	193	215	408	1	None	I/R	120,922
29-1029	Dentists, All Other Specialists	6	10	16	1	None	I/R	157,024
29-1031	Dietitians and Nutritionists	104	155	259	3	None	I/R	67,772
29-1041	Optometrists	52	70	122	1	None	None	87,878
29-1051	Pharmacists	325	453	777	1	None	None	129,577
29-1062	Family and General Practitioners	221	163	384	1	None	I/R	164,003
29-1063	Internists, General	87	63	150	1	None	I/R	186,607
29-1064	Obstetricians and Gynecologists	41	29	70	1	None	I/R	N/A

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Exhibit A-5 (cont'd)

Occupational Growth in the City of Los Angeles 2011-2017 with Job Requirements

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					Educ-ation	Work Exp		
29-1065	Pediatricians, General	59	42	102	1	None	I/R	155,837
29-1066	Psychiatrists	63	60	123	1	None	I/R	N/A
29-1067	Surgeons	85	62	148	1	None	I/R	N/A
29-1069	Physicians and Surgeons, All Other	542	422	964	1	None	I/R	>\$187,20
29-1071	Physician Assistants	160	108	268	2	None	None	97,666
29-1081	Podiatrists	17	14	30	1	None	I/R	93,995
29-1111*	Registered Nurses	264	375	639	4	None	None	85,178
29-1122	Occupational Therapists	191	136	328	2	None	None	87,868
29-1123	Physical Therapists	370	159	528	1	None	None	87,316
29-1124	Radiation Therapists	36	25	61	4	None	None	89,085
29-1125	Recreational Therapists	32	49	81	3	None	None	62,545
29-1126	Respiratory Therapists	226	158	383	4	None	None	67,606
29-1127	Speech-Language Pathologists	157	112	269	2	None	None	86,209
29-1128	Therapists, All Other	13	11	24	2	None	None	43,785
29-1131	Veterinarians	118	98	216	1	None	None	88,170
29-1181	Audiologists	19	5	23	1	None	None	74,246
29-1199	Health Diagnosing and Treating Practitioners, All	32	31	63	2	None	None	54,076
29-2011	Medical and Clinical Laboratory Technologists	298	218	515	3	None	None	79,046
29-2012	Medical and Clinical Laboratory Technicians	301	215	516	4	None	None	36,384
29-2021	Dental Hygienists	382	276	658	4	None	None	100,378
29-2031	Cardiovascular Technologists and Technicians	98	55	152	4	None	None	54,940
29-2037	Radiologic Technologists and Technicians	5	8	13	4	None	None	64,603
29-2041	Emergency Medical Technicians and Paramedics	353	272	625	5	None	None	27,477
29-2051	Dietetic Technicians	47	31	78	7	None	MT OJT	31,463
29-2052	Pharmacy Technicians	380	380	760	7	None	MT OJT	37,115
29-2053	Psychiatric Technicians	112	79	190	5	None	ST OJT	50,272
29-2054	Respiratory Therapy Technicians	25	16	42	4	None	MT OJT	46,181
29-2055	Surgical Technologists	190	118	308	5	None	None	46,658
29-2056	Veterinary Technologists and Technicians	176	130	306	4	None	None	35,146
29-2061	Licensed Practical and Licensed Vocational Nurses	1,408	1,377	2,785	5	None	None	50,213
29-2071	Medical Records and Health Information	354	267	621	5	None	None	35,860
29-2081	Opticians, Dispensing	92	83	175	7	None	LT OJT	33,504
29-2799	Health Technologists and Technicians, All Other	3	6	9	5	None	ST OJT	37,368
29-9011	Occupational Health and Safety Specialists	77	156	233	3	None	MT OJT	74,268
29-9012	Occupational Health and Safety Technicians	13	21	34	7	None	MT OJT	43,594
29-9091	Athletic Trainers	30	47	77	3	None	None	52,456
29-9799	Healthcare Practitioners and Technical Workers, All	2	6	7	3	None	None	69,639
31-1011	Home Health Aides	1,640	749	2,389	8	None	ST OJT	20,913
31-1012*	Nursing Aides, Orderlies, and Attendants	45	45	91	5	None	None	26,078
31-1013	Psychiatric Aides	106	50	156	7	None	ST OJT	25,464
31-2011	Occupational Therapy Assistants	55	31	86	4	None	None	64,758
31-2012	Occupational Therapy Aides	15	8	22	7	None	ST OJT	28,083
31-2021	Physical Therapist Assistants	137	78	215	4	None	None	57,548
31-2022	Physical Therapist Aides	94	52	146	7	None	MT OJT	26,426
31-9011	Massage Therapists	122	93	215	5	None	None	33,630
31-9091	Dental Assistants	601	466	1,067	5	None	None	32,631
31-9092	Medical Assistants	1,095	611	1,706	7	None	MT OJT	30,362
31-9093	Medical Equipment Preparers	99	59	157	7	None	MT OJT	31,548
31-9094	Medical Transcriptionists	172	85	258	5	None	None	45,017

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Sources: Estimates by LAEDC; Education and skills requirements from BLS

Exhibit A-5 (cont'd)

Occupational Growth in the City of Los Angeles 2011-2017 with Job Requirements

SOC Code	Occupational Title	New Openings	Replacement Needs	Total Openings	Entry Level		On-the-Job Training to Attain Competency	Median Annual Wage
					Educ-ation	Work Exp		
31-9095	Pharmacy Aides	38	40	79	7	None	ST OJT	24,006
31-9096	Veterinary Assistants and Laboratory Animal	150	100	249	7	None	ST OJT	25,980
31-9799*	Healthcare Support Workers, All Other	5	15	20	7	None	ST OJT	35,247
33-1011	First-Line Supervisors of Correctional Officers	45	84	129	7	1-5 years	MT OJT	N/A
33-1012	First-Line Supervisors of Police and Detectives	100	241	341	7	1-5 years	MT OJT	N/A
33-1021	First-Line Supervisors of Fire Fighting and	73	226	299	5	1-5 years	None	N/A
33-1099	First-Line Supervisors of Protective Service	133	164	296	7	1-5 years	None	42,519
33-2011	Firefighters	810	1,452	2,261	5	None	LT OJT	N/A
33-2021	Fire Inspectors and Investigators	39	64	103	7	>5 years	MT OJT	104,452
33-3012	Correctional Officers and Jailers	878	971	1,849	7	None	MT OJT	N/A
33-3021	Detectives and Criminal Investigators	181	348	530	7	1-5 years	MT OJT	N/A
33-3041	Parking Enforcement Workers	53	85	138	7	None	ST OJT	39,294
33-3051	Police and Sheriff's Patrol Officers	1,734	3,396	5,131	7	None	MT OJT	N/A
33-3052	Transit and Railroad Police	7	10	17	7	None	ST OJT	56,986
33-9011	Animal Control Workers	51	82	132	7	None	MT OJT	N/A
33-9021	Private Detectives and Investigators	52	32	85	6	1-5 years	MT OJT	54,793
33-9031	Gaming Surveillance Officers and Gaming	17	17	35	7	None	ST OJT	34,399
33-9032	Security Guards	2,883	1,305	4,189	7	None	ST OJT	24,286
33-9092	Lifeguards, Ski Patrol, and Other Recreational	271	1,068	1,339	7	None	ST OJT	28,753
33-9093	Transportation Security Screeners (Federal Only)	2	38	40	7	None	MT OJT	38,039
33-9099	Protective Service Workers, All Other	160	615	776	7	None	ST OJT	38,583
35-1011	Chefs and Head Cooks	197	117	314	7	1-5 years	None	38,618
35-1012	First-Line Supervisors of Food Preparation and	1,760	1,191	2,951	7	1-5 years	None	27,326
35-2011	Cooks, Fast Food	1,138	731	1,869	8	None	ST OJT	18,684
35-2012	Cooks, Institution and Cafeteria	617	509	1,127	8	None	ST OJT	27,206
35-2014	Cooks, Restaurant	2,206	1,443	3,649	8	<1 year	MT OJT	22,428
35-2015	Cooks, Short Order	319	223	542	8	None	ST OJT	23,375
35-2019	Cooks, All Other	38	29	67	8	None	MT OJT	26,206
35-2021	Food Preparation Workers	1,473	1,932	3,404	8	None	ST OJT	19,148
35-3011	Bartenders	1,124	1,295	2,419	8	None	ST OJT	19,222
35-3021	Combined Food Preparation and Serving Workers,	6,103	5,344	11,447	8	None	ST OJT	18,953
35-3022	Counter Attendants, Cafeteria, Food Concession,	1,818	4,399	6,217	8	None	ST OJT	19,217
35-3031	Waiters and Waitresses	5,112	7,797	12,909	8	None	ST OJT	18,868
35-3041	Food Servers, Nonrestaurant	493	479	972	8	None	ST OJT	22,908
35-9011	Dining Room and Cafeteria Attendants and	845	991	1,836	8	None	ST OJT	18,753
35-9021	Dishwashers	1,085	1,555	2,640	8	None	ST OJT	18,891
35-9031	Hosts and Hostesses, Restaurant, Lounge, and	757	1,630	2,387	8	None	None	19,251
35-9099	Food Preparation and Serving Related Workers, All	75	139	214	8	None	ST OJT	18,646
37-1011	First-Line Supervisors of Housekeeping and	375	160	536	7	1-5 years	None	38,123
37-1012	First-Line Supervisors of Landscaping, Lawn	267	121	387	7	1-5 years	None	51,920
37-2011	Janitors and Cleaners, Except Maids and	4,468	2,652	7,120	8	None	ST OJT	22,747
37-2012	Maids and Housekeeping Cleaners	1,881	994	2,875	8	None	ST OJT	21,507
37-2019	Building Cleaning Workers, All Other	48	27	75	7	None	ST OJT	24,058
37-2021	Pest Control Workers	201	200	401	7	None	MT OJT	29,256
37-3011	Landscaping and Groundskeeping Workers	2,199	1,220	3,419	8	None	ST OJT	24,570
37-3012	Pesticide Handlers, Sprayers, and Applicators,	68	44	112	7	None	MT OJT	42,933
37-3013	Tree Trimmers and Pruners	128	60	188	7	None	ST OJT	28,571
39-1011	Gaming Supervisors	62	58	120	7	1-5 years	None	39,149
39-1021	First-Line Supervisors of Personal Service Workers	385	408	793	7	1-5 years	None	42,570

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Sources: Estimates by LAEDC; Education and skills requirements from BLS

Exhibit A-5 (cont'd)

Occupational Growth in the City of Los Angeles 2011-2017 with Job Requirements

SOC Code	Occupational Title	New Openings	Replacement Needs	Total Openings	Entry Level		On-the-Job Training to Attain Competency	Median Annual Wage
					Educ-ation	Work Exp		
39-2011	Animal Trainers	12	9	21	7	None	MT OJT	44,067
39-2021	Nonfarm Animal Caretakers	190	317	506	8	None	ST OJT	21,252
39-3011	Gaming Dealers	285	671	956	7	None	MT OJT	18,672
39-3012	Gaming and Sports Book Writers and Runners	35	84	118	7	None	ST OJT	39,135
39-3019	Gaming Service Workers, All Other	65	166	231	7	None	MT OJT	20,677
39-3021	Motion Picture Projectionists	227	320	547	8	None	ST OJT	26,202
39-3031	Ushers, Lobby Attendants, and Ticket Takers	1,272	2,654	3,926	8	None	ST OJT	20,873
39-3091	Amusement and Recreation Attendants	347	1,067	1,414	8	None	ST OJT	20,789
39-3093	Locker Room, Coatroom, and Dressing Room	29	87	116	7	None	ST OJT	19,076
39-3099	Entertainment Attendants and Related Workers, All	19	64	83	7	None	ST OJT	21,972
39-4011	Embalmers	7	24	31	5	None	ST OJT	41,947
39-5011	Barbers	19	21	40	5	None	None	23,426
39-5012	Hairdressers, Hairstylists, and Cosmetologists	520	620	1,141	5	None	None	21,188
39-5091	Makeup Artists, Theatrical and Performance	34	21	54	5	None	None	89,310
39-5092	Manicurists and Pedicurists	91	106	196	5	None	None	18,893
39-5094	Skincare Specialists	48	50	98	5	None	None	28,943
39-6011	Baggage Porters and Bellhops	80	96	175	7	None	ST OJT	21,042
39-6012	Concierges	48	49	97	7	None	MT OJT	29,568
39-7011	Tour Guides and Escorts	61	101	162	7	None	MT OJT	20,337
39-7012	Travel Guides	9	9	19	7	None	MT OJT	30,500
39-9011	Childcare Workers	889	1,125	2,014	7	None	ST OJT	24,194
39-9021	Personal Care Aides	1,829	521	2,350	8	None	ST OJT	21,261
39-9031	Fitness Trainers and Aerobics Instructors	220	194	414	7	None	ST OJT	39,718
39-9032	Recreation Workers	767	712	1,479	3	None	None	24,022
39-9041	Residential Advisors	131	183	314	6	<1 year	ST OJT	31,194
39-9099	Personal Care and Service Workers, All Other	90	97	187	7	None	ST OJT	22,909
41-1011	First-Line Supervisors of Retail Sales Workers	822	1,616	2,438	7	1-5 years	None	41,071
41-1012	First-Line Supervisors of Non-Retail Sales Workers	316	463	779	7	>5 years	None	66,994
41-2011	Cashiers	3,063	8,885	11,949	8	None	ST OJT	20,017
41-2021	Counter and Rental Clerks	576	794	1,369	8	None	ST OJT	22,771
41-2022	Parts Salespersons	41	352	393	8	None	MT OJT	29,559
41-2031	Retail Salespersons	2,668	7,335	10,003	8	None	ST OJT	21,849
41-3011	Advertising Sales Agents	342	601	944	7	None	MT OJT	52,892
41-3021	Insurance Sales Agents	519	425	944	7	None	MT OJT	58,605
41-3031	Securities, Commodities, and Financial Services	665	674	1,339	3	None	MT OJT	85,939
41-3041	Travel Agents	208	49	257	7	None	MT OJT	32,794
41-3099	Sales Representatives, Services, All Other	1,080	1,497	2,578	7	None	ST OJT	56,454
41-4011	Sales Representatives, Wholesale and	323	564	887	3	None	MT OJT	74,270
41-4012	Sales Representatives, Wholesale and	1,203	2,195	3,398	7	None	MT OJT	55,429
41-9011	Demonstrators and Product Promoters	140	165	305	7	None	ST OJT	23,762
41-9021	Real Estate Brokers	67	75	142	7	1-5 years	None	92,302
41-9022	Real Estate Sales Agents	288	323	611	7	None	LT OJT	34,481
41-9031	Sales Engineers	62	145	206	3	None	MT OJT	91,917
41-9041	Telemarketers	630	374	1,004	8	None	ST OJT	23,848
41-9091	Door-to-Door Sales Workers, News and Street	8	9	17	7	None	ST OJT	21,309
41-9799	Sales and Related Workers, All Other	8	13	21	7	None	MT OJT	36,378
43-1011	First-Line Supervisors of Office and Administrative	2,291	2,924	5,216	7	1-5 years	None	56,230
43-2011	Switchboard Operators, Including Answering	229	170	399	7	None	ST OJT	28,428
43-3011	Bill and Account Collectors	821	538	1,358	7	None	MT OJT	37,978

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Sources: Estimates by LAEDC; Education and skills requirements from BLS

Exhibit A-5 (cont'd)

Occupational Growth in the City of Los Angeles 2011-2017 with Job Requirements

SOC Code	Occupational Title	New Openings	Replacement Needs	Total Openings	Entry Level		On-the-Job Training to Attain Competency	Median Annual Wage
					Educ-ation	Work Exp		
43-3021	Billing and Posting Clerks	841	625	1,466	7	None	ST OJT	35,095
43-3031	Bookkeeping, Accounting, and Auditing Clerks	2,486	1,337	3,823	7	None	MT OJT	38,918
43-3041	Gaming Cage Workers	55	62	117	7	None	ST OJT	26,348
43-3051	Payroll and Timekeeping Clerks	298	289	587	7	None	MT OJT	43,787
43-3061	Procurement Clerks	73	195	268	7	None	MT OJT	38,788
43-3071	Tellers	910	1,349	2,259	7	None	ST OJT	26,033
43-4011	Brokerage Clerks	136	139	274	7	None	MT OJT	47,128
43-4031	Court, Municipal, and License Clerks	185	340	525	7	None	MT OJT	N/A
43-4041	Credit Authorizers, Checkers, and Clerks	69	90	159	7	None	ST OJT	40,342
43-4051	Customer Service Representatives	3,664	4,670	8,334	7	None	ST OJT	35,296
43-4061	Eligibility Interviewers, Government Programs	468	865	1,333	4	None	MT OJT	N/A
43-4071	File Clerks	316	346	661	7	None	ST OJT	27,478
43-4081	Hotel, Motel, and Resort Desk Clerks	448	543	992	7	None	ST OJT	22,388
43-4111	Interviewers, Except Eligibility and Loan	440	378	818	7	None	ST OJT	36,511
43-4121	Library Assistants, Clerical	194	522	716	7	None	ST OJT	24,712
43-4131	Loan Interviewers and Clerks	321	217	539	7	None	ST OJT	41,017
43-4141	New Accounts Clerks	93	95	188	7	None	ST OJT	32,558
43-4151	Order Clerks	220	379	599	7	None	ST OJT	30,144
43-4161	Human Resources Assistants, Except Payroll and	218	312	530	7	None	ST OJT	42,899
43-4171	Receptionists and Information Clerks	1,761	2,196	3,957	7	None	ST OJT	27,400
43-4181	Reservation and Transportation Ticket Agents and	269	363	632	7	None	ST OJT	35,049
43-4199	Information and Record Clerks, All Other	178	364	542	7	None	ST OJT	40,393
43-5011	Cargo and Freight Agents	110	244	354	7	None	ST OJT	40,620
43-5021	Couriers and Messengers	139	181	320	7	None	ST OJT	24,756
43-5031	Police, Fire, and Ambulance Dispatchers	158	188	346	7	None	MT OJT	54,264
43-5032	Dispatchers, Except Police, Fire, and Ambulance	226	238	463	7	None	MT OJT	36,392
43-5041	Meter Readers, Utilities	61	102	163	7	None	ST OJT	39,441
43-5051	Postal Service Clerks	1	2	2	7	None	ST OJT	53,834
43-5052	Postal Service Mail Carriers	3	10	13	7	None	ST OJT	56,296
43-5053	Postal Service Mail Sorters, Processors, and	1	1	2	7	None	ST OJT	53,824
43-5061	Production, Planning, and Expediting Clerks	371	555	925	7	None	MT OJT	47,683
43-5071	Shipping, Receiving, and Traffic Clerks	611	1,181	1,792	7	None	ST OJT	28,322
43-5081	Stock Clerks and Order Fillers	1,592	2,627	4,219	8	None	ST OJT	22,677
43-5111	Weighers, Measurers, Checkers, and Samplers,	86	168	254	7	None	ST OJT	24,071
43-6011	Executive Secretaries and Executive Administrative	1,431	923	2,354	7	1-5 years	None	50,259
43-6012	Legal Secretaries	462	273	735	7	None	MT OJT	51,075
43-6013	Medical Secretaries	1,010	491	1,500	7	None	MT OJT	33,483
43-6014	Secretaries and Administrative Assistants, Except	3,136	1,843	4,979	7	None	ST OJT	36,040
43-9011	Computer Operators	110	50	159	7	None	MT OJT	42,033
43-9021	Data Entry Keyers	393	273	666	7	None	MT OJT	30,237
43-9022	Word Processors and Typists	294	103	397	7	None	ST OJT	36,853
43-9031	Desktop Publishers	19	24	43	4	None	ST OJT	40,240
43-9041	Insurance Claims and Policy Processing Clerks	348	386	733	7	None	MT OJT	35,065
43-9051	Mail Clerks and Mail Machine Operators, Except	193	148	341	7	None	ST OJT	28,069
43-9061	Office Clerks, General	5,122	4,317	9,439	7	None	ST OJT	29,692
43-9071	Office Machine Operators, Except Computer	118	130	248	7	None	ST OJT	25,789
43-9081	Proofreaders and Copy Markers	13	13	26	3	None	MT OJT	45,244
43-9111	Statistical Assistants	15	12	26	3	None	None	42,284
43-9799	Office and Administrative Support Workers, All	111	166	277	7	None	ST OJT	26,386

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Sources: Estimates by LAEDC; Education and skills requirements from BLS

Exhibit A-5 (cont'd)

Occupational Growth in the City of Los Angeles 2011-2017 with Job Requirements

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					Educ-ation	Work Exp		
45-1011	First-Line Supervisors of Farming, Fishing, and	17	42	59	7	1-5 years	None	47,692
45-2011	Agricultural Inspectors	17	38	55	3	None	MT OJT	N/A
45-2021	Animal Breeders	0	1	1	7	1-5 years	ST OJT	N/A
45-2041	Graders and Sorters, Agricultural Products	16	46	61	8	None	ST OJT	18,804
45-2092	Farmworkers and Laborers, Crop, Nursery, and	27	349	376	8	None	ST OJT	19,156
45-2093	Farmworkers, Farm, Ranch, and Aquacultural	16	52	69	8	None	ST OJT	20,384
45-3011	Fishers and Related Fishing Workers	4	7	11	8	None	MT OJT	N/A
45-4011	Forest and Conservation Workers	46	67	113	7	None	MT OJT	16,900
47-1011	First-Line Supervisors of Construction Trades and	677	482	1,159	7	>5 years	None	72,615
47-2011	Boilermakers	24	28	51	7	None	APP	86,379
47-2021	Brickmasons and Blockmasons	108	49	156	7	None	APP	55,698
47-2022	Stonemasons	21	10	31	7	None	APP	49,394
47-2031	Carpenters	919	605	1,524	7	None	APP	52,267
47-2041	Carpet Installers	30	27	57	8	None	ST OJT	38,301
47-2042	Floor Layers, Except Carpet, Wood, and Hard Tiles	14	10	24	7	None	MT OJT	49,046
47-2044	Tile and Marble Setters	48	25	74	8	None	LT OJT	41,979
47-2051	Cement Masons and Concrete Finishers	242	89	331	8	None	MT OJT	46,838
47-2053	Terrazzo Workers and Finishers	6	2	9	7	None	APP	43,715
47-2061	Construction Laborers	1,446	305	1,751	8	None	ST OJT	37,396
47-2071	Paving, Surfacing, and Tamping Equipment	86	55	141	7	None	MT OJT	60,595
47-2073	Operating Engineers and Other Construction	443	315	758	7	None	MT OJT	78,266
47-2081	Drywall and Ceiling Tile Installers	145	90	235	8	None	MT OJT	49,210
47-2082	Tapers	30	18	48	8	None	MT OJT	45,410
47-2111	Electricians	978	765	1,743	7	None	APP	62,283
47-2121	Glaziers	71	74	145	7	None	APP	54,780
47-2141	Painters, Construction and Maintenance	368	238	606	8	None	MT OJT	36,240
47-2142	Paperhangers	7	2	9	7	None	MT OJT	38,939
47-2151	Pipelayers	67	62	128	7	None	ST OJT	45,998
47-2152	Plumbers, Pipefitters, and Steamfitters	619	493	1,112	7	None	APP	55,746
47-2161	Plasterers and Stucco Masons	39	17	57	8	None	LT OJT	43,450
47-2171	Reinforcing Iron and Rebar Workers	27	12	39	7	None	APP	43,560
47-2211	Sheet Metal Workers	194	101	295	7	None	APP	46,442
47-2221	Structural Iron and Steel Workers	95	50	144	7	None	APP	53,846
47-3011	Helpers--Brickmasons, Blockmasons,	48	28	76	8	None	ST OJT	26,921
47-3012	Helpers--Carpenters	53	41	95	8	None	ST OJT	31,618
47-3013	Helpers--Electricians	123	79	202	7	None	ST OJT	30,886
47-3014	Helpers--Painters, Paperhangers, Plasterers, and	21	12	34	8	None	ST OJT	23,385
47-3016	Helpers--Roofers	25	16	40	8	None	ST OJT	27,371
47-4011	Construction and Building Inspectors	194	318	512	7	>5 years	MT OJT	82,197
47-4021	Elevator Installers and Repairers	37	24	61	7	None	APP	102,933
47-4031	Fence Erectors	40	25	65	7	None	MT OJT	35,741
47-4041	Hazardous Materials Removal Workers	58	39	97	7	None	MT OJT	38,867
47-4051	Highway Maintenance Workers	100	170	270	7	None	MT OJT	60,347
47-4061	Rail-Track Laying and Maintenance Equipment	11	9	19	7	None	MT OJT	N/A
47-4071	Septic Tank Servicers and Sewer Pipe Cleaners	47	49	95	8	None	MT OJT	34,413
47-4799	Construction and Related Workers, All Other	12	27	39	7	None	MT OJT	40,444
47-5011	Derrick Operators, Oil and Gas	-2	5	4	8	None	ST OJT	67,226
47-5013	Service Unit Operators, Oil, Gas, and Mining	0	19	19	8	None	MT OJT	62,404
47-5071	Roustabouts, Oil and Gas	3	19	22	8	None	MT OJT	45,072

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Sources: Estimates by LAEDC; Education and skills requirements from BLS

Exhibit A-5 (cont'd)

Occupational Growth in the City of Los Angeles 2011-2017 with Job Requirements

SOC Code	Occupational Title	New Openings	Replacement Needs	Total Openings	Entry Level		On-the-Job Training to Attain Competency	Median Annual Wage
					Educ-ation	Work Exp		
49-1011	First-Line Supervisors of Mechanics, Installers, and	429	741	1,171	7	1-5 years	None	69,999
49-2011	Computer, Automated Teller, and Office Machine	65	186	251	5	None	None	41,127
49-2021	Radio, Cellular, and Tower Equipment Installers	3	16	19	4	None	MT OJT	61,200
49-2022	Telecommunications Equipment Installers and	40	245	285	5	None	MT OJT	56,610
49-2092	Electric Motor, Power Tool, and Related Repairers	14	9	23	5	None	LT OJT	40,066
49-2093	Electrical and Electronics Installers and Repairers,	9	22	30	5	None	LT OJT	68,340
49-2094	Electrical and Electronics Repairers, Commercial	47	86	133	5	None	LT OJT	55,667
49-2095	Electrical and Electronics Repairers, Powerhouse,	19	36	54	5	None	LT OJT	87,296
49-2096	Electronic Equipment Installers and Repairers,	1	16	17	5	None	ST OJT	28,663
49-2097	Electronic Home Entertainment Equipment	18	42	60	5	None	None	30,803
49-2098	Security and Fire Alarm Systems Installers	146	82	229	7	None	MT OJT	44,581
49-3011	Aircraft Mechanics and Service Technicians	133	413	546	5	None	None	58,411
49-3021	Automotive Body and Related Repairers	68	192	260	7	None	MT OJT	38,806
49-3023	Automotive Service Technicians and Mechanics	285	833	1,118	7	None	LT OJT	36,989
49-3031	Bus and Truck Mechanics and Diesel Engine	191	303	494	7	None	LT OJT	51,730
49-3042	Mobile Heavy Equipment Mechanics, Except	134	236	370	7	None	LT OJT	60,630
49-3043	Rail Car Repairers	17	40	57	7	None	LT OJT	43,955
49-3052	Motorcycle Mechanics	3	16	18	7	None	LT OJT	31,416
49-3053	Outdoor Power Equipment and Other Small Engine	24	36	60	7	None	MT OJT	36,638
49-3091	Bicycle Repairers	4	13	17	7	None	MT OJT	21,746
49-3093	Tire Repairers and Changers	25	99	123	7	None	MT OJT	29,686
49-9012	Control and Valve Installers and Repairers, Except	36	42	78	7	None	MT OJT	67,109
49-9021	Heating, Air Conditioning, and Refrigeration	422	204	627	5	None	LT OJT	54,365
49-9041	Industrial Machinery Mechanics	169	298	467	7	None	LT OJT	55,982
49-9043	Maintenance Workers, Machinery	61	98	159	7	None	MT OJT	36,752
49-9044	Millwrights	41	30	72	7	None	LT OJT	47,758
49-9051	Electrical Power-Line Installers and Repairers	81	138	219	7	None	LT OJT	86,428
49-9052	Telecommunications Line Installers and Repairers	73	178	251	7	None	LT OJT	54,041
49-9061	Camera and Photographic Equipment Repairers	5	7	12	4	None	LT OJT	44,189
49-9062	Medical Equipment Repairers	34	65	99	4	None	MT OJT	51,974
49-9069	Precision Instrument and Equipment Repairers, All	10	23	33	4	None	LT OJT	67,051
49-9071	Maintenance and Repair Workers, General	1,895	1,769	3,664	7	None	MT OJT	38,369
49-9091	Coin, Vending, and Amusement Machine Servicers	62	57	119	7	None	ST OJT	30,193
49-9094	Locksmiths and Safe Repairers	48	28	76	7	None	LT OJT	45,923
49-9097	Signal and Track Switch Repairers	3	4	7	5	None	MT OJT	N/A
49-9098	Helpers--Installation, Maintenance, and Repair	166	436	603	7	None	MT OJT	25,307
49-9799	Installation, Maintenance, and Repair Workers, All	20	30	49	7	None	MT OJT	34,690
51-1011	First-Line Supervisors of Production and Operating	418	435	853	5	1-5 years	None	51,218
51-2021	Coil Winders, Tapers, and Finishers	7	8	15	7	None	ST OJT	19,982
51-2022	Electrical and Electronic Equipment Assemblers	170	159	328	7	None	ST OJT	27,392
51-2023	Electromechanical Equipment Assemblers	33	33	66	7	None	ST OJT	23,844
51-2031	Engine and Other Machine Assemblers	13	22	35	7	None	ST OJT	40,784
51-2041	Structural Metal Fabricators and Fitters	57	66	123	7	None	MT OJT	35,676
51-2091	Fiberglass Laminators and Fabricators	3	12	15	7	None	MT OJT	29,333
51-2092	Team Assemblers	935	958	1,893	7	None	MT OJT	23,507
51-2099	Assemblers and Fabricators, All Other	348	294	642	7	None	MT OJT	25,925
51-3011	Bakers	148	241	389	8	None	LT OJT	25,453
51-3021	Butchers and Meat Cutters	109	241	350	8	None	LT OJT	26,605
51-3022	Meat, Poultry, and Fish Cutters and Trimmers	72	214	286	8	None	ST OJT	21,058

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Sources: Estimates by LAEDC; Education and skills requirements from BLS

Exhibit A-5 (cont'd)

Occupational Growth in the City of Los Angeles 2011-2017 with Job Requirements

SOC Code	Occupational Title	New Openings	Replacement Needs	Total Openings	Entry Level		On-the-Job Training to Attain Competency	Median Annual Wage
					Educ-ation	Work Exp		
51-3023	Slaughtering and Meat Packers	28	95	123	8	None	MT OJT	19,636
51-3091	Food and Tobacco Roasting, Baking, and Drying	10	27	37	8	None	MT OJT	30,043
51-3092	Food Batchmakers	48	128	176	7	<1 year	ST OJT	23,435
51-3093	Food Cooking Machine Operators and Tenders	18	45	63	7	<1 year	ST OJT	20,693
51-4011	Computer-Controlled Machine Tool Operators,	73	107	180	7	None	MT OJT	33,773
51-4012	Computer Numerically Controlled Machine Tool	18	18	36	7	None	MT OJT	53,835
51-4021	Extruding and Drawing Machine Setters, Operators,	46	47	93	7	None	MT OJT	30,117
51-4022	Forging Machine Setters, Operators, and Tenders,	12	18	30	7	None	MT OJT	31,793
51-4023	Rolling Machine Setters, Operators, and Tenders,	17	19	36	7	None	MT OJT	24,997
51-4031	Cutting, Punching, and Press Machine Setters,	153	60	213	7	None	MT OJT	28,554
51-4033	Grinding, Lapping, Polishing, and Buffing Machine	37	42	79	7	None	MT OJT	26,090
51-4034	Lathe and Turning Machine Tool Setters,	24	54	78	7	None	MT OJT	37,460
51-4041	Machinists	287	321	608	7	None	LT OJT	36,099
51-4051	Metal-Refining Furnace Operators and Tenders	4	6	9	7	None	MT OJT	40,153
51-4052	Pourers and Casters, Metal	2	3	5	7	None	MT OJT	28,944
51-4072	Molding, Coremaking, and Casting Machine	76	73	149	7	None	MT OJT	23,077
51-4081	Multiple Machine Tool Setters, Operators, and	41	62	102	7	None	MT OJT	31,798
51-4111	Tool and Die Makers	28	13	41	7	None	LT OJT	47,854
51-4121	Welders, Cutters, Solderers, and Brazers	240	382	622	7	<1 year	MT OJT	34,959
51-4122	Welding, Soldering, and Brazing Machine Setters,	24	55	80	7	None	MT OJT	35,408
51-4191	Heat Treating Equipment Setters, Operators, and	12	65	77	7	None	MT OJT	30,938
51-4192	Lay-Out Workers, Metal and Plastic	2	7	9	7	None	MT OJT	30,545
51-4193	Plating and Coating Machine Setters, Operators,	28	38	66	7	None	MT OJT	29,232
51-4194	Tool Grinders, Filers, and Sharpeners	6	3	10	7	None	MT OJT	29,151
51-4199	Metal Workers and Plastic Workers, All Other	21	8	29	7	None	MT OJT	28,252
51-5111	Prepress Technicians and Workers	21	60	81	5	None	None	39,436
51-5112	Printing Press Operators	88	216	304	7	None	MT OJT	34,118
51-5113	Print Binding and Finishing Workers	22	108	130	7	None	ST OJT	25,146
51-6011	Laundry and Dry-Cleaning Workers	332	308	640	8	None	ST OJT	20,309
51-6021	Pressers, Textile, Garment, and Related Materials	76	45	121	8	None	ST OJT	20,456
51-6031	Sewing Machine Operators	54	250	304	8	None	ST OJT	19,274
51-6041	Shoe and Leather Workers and Repairers	33	20	53	7	None	MT OJT	19,746
51-6051	Sewers, Hand	4	17	21	8	None	MT OJT	26,705
51-6052	Tailors, Dressmakers, and Custom Sewers	29	44	73	8	None	MT OJT	24,172
51-6062	Textile Cutting Machine Setters, Operators, and	1	104	104	7	None	MT OJT	21,182
51-6063	Textile Knitting and Weaving Machine Setters,	-28	23	-4	7	None	MT OJT	19,304
51-6064	Textile Winding, Twisting, and Drawing Out	-35	41	6	7	None	MT OJT	19,527
51-6091	Extruding and Forming Machine Setters, Operators,	4	18	22	7	None	MT OJT	30,035
51-6092	Fabric and Apparel Patternmakers	2	31	33	7	None	MT OJT	43,907
51-6093	Upholsterers	28	46	74	7	None	MT OJT	27,749
51-6099	Textile, Apparel, and Furnishings Workers, All	12	15	27	7	None	ST OJT	19,888
51-7011	Cabinetmakers and Bench Carpenters	107	109	216	7	None	MT OJT	27,403
51-7021	Furniture Finishers	14	20	34	7	None	ST OJT	27,475
51-7041	Sawing Machine Setters, Operators, and Tenders,	18	24	42	7	None	ST OJT	23,253
51-7042	Woodworking Machine Setters, Operators, and	39	19	58	7	None	ST OJT	23,586
51-7099	Woodworkers, All Other	4	8	12	7	None	MT OJT	19,878
51-8012	Power Distributors and Dispatchers	8	24	32	7	None	LT OJT	72,541
51-8013	Power Plant Operators	40	101	142	7	None	LT OJT	89,394
51-8021	Stationary Engineers and Boiler Operators	62	78	140	7	None	LT OJT	62,298

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Exhibit A-5 (cont'd)

Occupational Growth in the City of Los Angeles 2011-2017 with Job Requirements

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					Educ-ation	Work Exp		
51-8031	Water and Wastewater Treatment Plant and	216	369	585	7	None	LT OJT	74,433
51-8091	Chemical Plant and System Operators	53	77	130	7	None	LT OJT	46,282
51-8093	Petroleum Pump System Operators, Refinery	30	68	98	7	None	LT OJT	74,884
51-8099	Plant and System Operators, All Other	23	45	69	7	None	LT OJT	60,728
51-9011	Chemical Equipment Operators and Tenders	73	56	129	7	None	MT OJT	41,246
51-9012	Separating, Filtering, Clarifying, Precipitating, and	34	33	68	7	None	MT OJT	36,968
51-9021	Crushing, Grinding, and Polishing Machine Setters,	17	32	50	7	None	MT OJT	27,241
51-9022	Grinding and Polishing Workers, Hand	19	37	56	8	None	MT OJT	24,092
51-9023	Mixing and Blending Machine Setters, Operators,	126	193	319	7	None	MT OJT	30,846
51-9031	Cutters and Trimmers, Hand	10	39	49	8	None	ST OJT	22,167
51-9032	Cutting and Slicing Machine Setters, Operators,	33	50	83	7	None	ST OJT	28,408
51-9041	Extruding, Forming, Pressing, and Compacting	53	64	117	7	None	MT OJT	25,761
51-9051	Furnace, Kiln, Oven, Drier, and Kettle Operators	11	18	29	7	None	MT OJT	30,225
51-9061	Inspectors, Testers, Sorters, Samplers, and	404	611	1,015	7	None	MT OJT	34,469
51-9071	Jewelers and Precious Stone and Metal Workers	22	38	61	7	None	LT OJT	27,623
51-9081	Dental Laboratory Technicians	24	76	100	7	None	MT OJT	37,886
51-9082	Medical Appliance Technicians	10	26	36	7	None	LT OJT	32,988
51-9083	Ophthalmic Laboratory Technicians	26	60	85	7	None	MT OJT	29,737
51-9111	Packaging and Filling Machine Operators and	429	345	774	7	None	MT OJT	22,422
51-9121	Coating, Painting, and Spraying Machine Setters,	50	76	126	7	None	MT OJT	24,110
51-9122	Painters, Transportation Equipment	18	59	77	7	None	MT OJT	35,706
51-9123	Painting, Coating, and Decorating Workers	17	21	38	7	None	MT OJT	23,283
51-9141	Semiconductor Processors	21	36	57	4	None	MT OJT	32,840
51-9151	Photographic Process Workers and Processing	67	79	146	7	None	ST OJT	28,406
51-9191	Adhesive Bonding Machine Operators and Tenders	9	8	17	7	None	MT OJT	23,279
51-9192	Cleaning, Washing, and Metal Pickling Equipment	8	17	25	8	None	MT OJT	22,390
51-9194	Etchers and Engravers	2	3	5	7	None	MT OJT	27,723
51-9195	Molders, Shapers, and Casters, Except Metal and	30	46	75	7	None	LT OJT	24,980
51-9196	Paper Goods Machine Setters, Operators, and	-3	22	19	7	None	MT OJT	30,828
51-9197	Tire Builders	12	20	32	7	None	MT OJT	28,077
51-9198	Helpers--Production Workers	570	385	955	8	None	ST OJT	21,162
51-9399	Production Workers, All Other	0	0	0	7	None	MT OJT	30,887
53-1011	Aircraft Cargo Handling Supervisors	9	17	25	7	1-5 years	None	52,617
53-1021	First-Line Supervisors of Helpers, Laborers, and	158	252	410	7	1-5 years	None	45,457
53-1031	First-Line Supervisors of Transportation and	191	278	469	7	1-5 years	None	58,739
53-2011	Airline Pilots, Copilots, and Flight Engineers	114	406	520	3	1-5 years	MT OJT	111,593
53-2012	Commercial Pilots	51	155	206	5	None	None	81,809
53-2021	Air Traffic Controllers	2	55	57	4	None	LT OJT	N/A
53-2022	Airfield Operations Specialists	15	35	50	7	None	LT OJT	55,259
53-2031	Flight Attendants	154	285	438	7	None	MT OJT	36,021
53-3011	Ambulance Drivers and Attendants, Except	33	28	61	7	None	MT OJT	28,957
53-3021	Bus Drivers, Transit and Intercity	492	658	1,149	7	None	MT OJT	39,024
53-3022	Bus Drivers, School or Special Client	476	583	1,059	7	None	MT OJT	31,676
53-3031	Driver/Sales Workers	548	561	1,109	7	None	ST OJT	23,088
53-3032	Heavy and Tractor-Trailer Truck Drivers	982	1,305	2,286	7	1-5 years	ST OJT	41,482
53-3033	Light Truck or Delivery Services Drivers	700	1,125	1,825	7	None	ST OJT	29,793
53-3041	Taxi Drivers and Chauffeurs	199	146	345	8	None	ST OJT	22,159
53-3099	Motor Vehicle Operators, All Other	108	116	224	7	None	ST OJT	25,241
53-5021	Captains, Mates, and Pilots of Water Vessels	32	105	137	3	None	None	56,956

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Exhibit A-5 (cont'd)

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					Educ-ation	Work Exp		
53-6021	Parking Lot Attendants	240	399	639	8	None	ST OJT	19,677
53-6031	Automotive and Watercraft Service Attendants	56	171	227	8	None	ST OJT	21,546
53-6041	Traffic Technicians	21	38	59	8	None	ST OJT	N/A
53-6051	Transportation Inspectors	36	64	100	6	None	ST OJT	66,218
53-6061	Transportation Attendants, Except Flight Attendants	32	41	74	7	None	ST OJT	24,966
53-6099	Transportation Workers, All Other	53	142	195	7	None	ST OJT	N/A
53-7011	Conveyor Operators and Tenders	26	77	103	8	None	ST OJT	32,424
53-7032	Excavating and Loading Machine and Dragline	43	37	80	8	1-5 years	MT OJT	47,954
53-7051	Industrial Truck and Tractor Operators	422	783	1,205	8	<1 year	ST OJT	35,449
53-7061	Cleaners of Vehicles and Equipment	217	554	772	8	None	ST OJT	19,515
53-7062	Laborers and Freight, Stock, and Material Movers,	2,734	4,591	7,325	8	None	ST OJT	23,147
53-7063	Machine Feeders and Offbearers	57	72	129	8	None	ST OJT	23,412
53-7064	Packers and Packagers, Hand	780	1,182	1,962	8	None	ST OJT	19,614
53-7081	Refuse and Recyclable Material Collectors	186	217	403	8	None	ST OJT	43,259

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