

**Table V-5. Total and net replacement rates and annual average replacement needs, 2002-12**

(Numbers in thousands)

2002 national employment matrix occupation		Total employment, 2002	Replacement rate (Percent)		Annual average replacement needs, 2002-12	
			Total, 2001-02	Net, 2002-12	Total	Net
<b>00-0000</b>	<b>Total, all occupations</b> .....	144,014	15.9	23.5	24,571	3,389
<b>11-1300</b>	<b>Management, business, and financial occupations</b> .....	15,501	11.0	17.4	1,833	270
11-0000	Management occupations .....	10,056	10.7	17.2	1,142	173
11-1000	Top executives .....	2,669	10.5	18.7	305	50
11-1011	Chief executives .....	553	9.7	18.9	58	10
11-1021	General and operations managers .....	2,049	10.9	18.9	243	39
11-1031	Legislators .....	67	5.9	12.9	4	1
11-2000	Advertising, marketing, promotions, public relations, and sales managers .....	700	12.8	18.3	101	13
11-2011	Advertising and promotions managers .....	85	13.2	18.1	13	2
11-2020	Marketing and sales managers .....	546	12.8	18.5	79	10
11-2021	Marketing managers .....	203	12.8	18.5	29	4
11-2022	Sales managers .....	343	12.8	18.5	51	6
11-2031	Public relations managers .....	69	11.9	17.3	9	1
11-3000	Operations specialties managers .....	1,807	9.8	17.4	194	31
11-3011	Administrative services managers .....	321	10.5	19.4	37	6
11-3021	Computer and information systems managers .....	284	10.2	18.2	34	5
11-3031	Financial managers .....	599	10.0	14.3	66	9
11-3040	Human resources managers .....	202	8.5	16.9	19	3
11-3051	Industrial production managers .....	182	9.3	19.3	18	4
11-3061	Purchasing managers .....	108	7.6	21.7	8	2
11-3071	Transportation, storage, and distribution managers .....	111	9.9	19.5	12	2
11-9000	Other management occupations .....	4,880	10.9	16.2	543	79
11-9010	Agricultural managers .....	1,376	10.4	7.7	131	11
11-9011	Farm, ranch, and other agricultural managers .....	218	11.2	17.2	25	4
11-9012	Farmers and ranchers .....	1,158	10.2	5.9	106	7
11-9021	Construction managers .....	389	10.8	18.1	45	7
11-9030	Education administrators .....	427	12.3	24.8	59	11
11-9031	Education administrators, preschool and child care center/program .....	58	12.3	24.8	8	1
11-9032	Education administrators, elementary and secondary school .....	217	12.3	24.8	29	5
11-9033	Education administrators, postsecondary .....	125	12.3	24.8	17	3
11-9039	Education administrators, all other .....	27	12.3	24.8	4	1
11-9041	Engineering managers .....	212	6.7	19.9	15	4
11-9051	Food service managers .....	386	14.0	16.3	57	6
11-9061	Funeral directors <sup>1</sup> .....	24	10.5	28.5	3	1
11-9071	Gaming managers .....	6	12.9	18.8	1	( <sup>2</sup> )
11-9081	Lodging managers .....	69	14.2	16.6	10	1
11-9111	Medical and health services managers <sup>1</sup> .....	244	10.5	19.5	29	5
11-9121	Natural sciences managers .....	45	9.8	19.2	5	1
11-9131	Postmasters and mail superintendents .....	25	10.9	18.9	3	( <sup>2</sup> )
11-9141	Property, real estate, and community association managers .....	293	10.6	18.7	33	5
11-9151	Social and community service managers .....	129	12.3	19.2	18	2
11-9199	All other managers .....	1,256	10.5	19.5	135	24
13-0000	Business and financial operations occupations .....	5,445	11.5	17.7	691	97
13-1000	Business operations specialists .....	3,177	12.3	17.7	435	56
13-1011	Agents and business managers of artists, performers, and athletes .....	15	11.9	19.7	2	( <sup>2</sup> )
13-1020	Buyers and purchasing agents .....	419	12.4	25.8	54	11
13-1021	Purchasing agents and buyers, farm products .....	19	10.3	34.1	2	1
13-1022	Wholesale and retail buyers, except farm products .....	155	15.1	26.2	24	4
13-1023	Purchasing agents, except wholesale, retail, and farm products .....	245	10.9	24.9	28	6
13-1030	Claims adjusters, appraisers, examiners, and investigators .....	241	12.1	12.3	31	3
13-1031	Claims adjusters, examiners, and investigators .....	227	12.1	12.3	29	3
13-1032	Insurance appraisers, auto damage .....	14	12.1	12.3	2	( <sup>2</sup> )
13-1041	Compliance officers, except agriculture, construction, health and safety, and transportation .....	158	11.9	23.5	20	4
13-1051	Cost estimators .....	188	11.5	22.4	24	4
13-1061	Emergency management specialists .....	11	11.0	22.0	1	( <sup>2</sup> )
13-1070	Human resources, training, and labor relations specialists .....	474	13.8	15.3	74	7
13-1071	Employment, recruitment, and placement specialists .....	175	13.8	15.3	27	3
13-1072	Compensation, benefits, and job analysis specialists .....	91	13.8	15.3	14	1

See footnotes at end of table.

**Table V-5. Total and net replacement rates and annual average replacement needs, 2002-12—Continued**

(Numbers in thousands)

2002 national employment matrix occupation		Total employment, 2002	Replacement rate (Percent)		Annual average replacement needs, 2002-12	
			Total, 2001-02	Net, 2002-12	Total	Net
13-1073	Training and development specialists .....	209	13.8	15.3	33	3
13-1111	Management analysts <sup>1</sup> .....	577	10.5	13.7	70	8
13-1121	Meeting and convention planners .....	37	16.4	21.8	7	1
13-1198	All other business operations specialists .....	1,056	12.6	17.0	152	18
13-2000	<b>Financial specialists .....</b>	<b>2,268</b>	<b>10.3</b>	<b>17.8</b>	<b>256</b>	<b>40</b>
13-2011	Accountants and auditors .....	1,055	9.3	18.9	108	20
13-2021	Appraisers and assessors of real estate .....	88	10.2	21.4	10	2
13-2031	Budget analysts .....	62	11.5	16.3	8	1
13-2041	Credit analysts .....	66	11.3	15.6	8	1
13-2050	Financial analysts and advisors .....	400	10.7	15.0	48	6
13-2051	Financial analysts .....	172	10.6	14.8	20	3
13-2052	Personal financial advisors .....	126	11.0	13.0	16	2
13-2053	Insurance underwriters .....	102	10.5	17.7	11	2
13-2061	Financial examiners .....	25	12.8	22.8	3	1
13-2070	<b>Loan counselors and officers .....</b>	<b>255</b>	<b>11.6</b>	<b>16.1</b>	<b>32</b>	<b>4</b>
13-2071	Loan counselors .....	31	11.6	16.1	4	( <sup>2</sup> )
13-2072	Loan officers .....	223	11.6	16.1	28	4
13-2080	Tax examiners, collectors, preparers, and revenue agents .....	154	10.9	19.6	18	3
13-2081	Tax examiners, collectors, and revenue agents .....	75	10.9	22.9	8	2
13-2082	Tax preparers .....	79	11.0	16.5	10	1
13-2099	All other financial specialists .....	162	12.0	17.6	21	3
<b>15-2900</b>	<b>Professional and related occupations .....</b>	<b>27,687</b>	<b>10.8</b>	<b>19.2</b>	<b>3,324</b>	<b>532</b>
15-0000	<b>Computer and mathematical science occupations .....</b>	<b>3,018</b>	<b>9.8</b>	<b>13.7</b>	<b>347</b>	<b>41</b>
15-1000	Computer specialists .....	2,911	9.8	13.2	336	39
15-1011	Computer and information scientists, research .....	23	10.5	11.3	3	( <sup>2</sup> )
15-1021	Computer programmers .....	499	7.6	23.6	40	12
15-1030	Computer software engineers .....	675	9.4	9.9	78	7
15-1031	Computer software engineers, applications .....	394	9.4	9.9	45	4
15-1032	Computer software engineers, systems software .....	281	9.4	9.9	32	3
15-1041	Computer support specialists .....	507	11.0	12.3	64	6
15-1051	Computer systems analysts .....	468	10.5	11.3	59	5
15-1061	Database administrators .....	110	10.4	10.3	14	1
15-1071	Network and computer systems administrators .....	251	10.1	11.1	30	3
15-1081	Network systems and data communications analysts .....	186	9.6	11.8	23	2
15-1099	All other computer specialists .....	192	10.5	11.3	24	2
15-2000	<b>Mathematical science occupations .....</b>	<b>107</b>	<b>10.1</b>	<b>26.3</b>	<b>11</b>	<b>3</b>
15-2011	Actuaries <sup>1</sup> .....	15	10.5	42.7	2	1
15-2021	Mathematicians <sup>1</sup> .....	3	10.5	44.0	( <sup>2</sup> )	( <sup>2</sup> )
15-2031	Operations research analysts .....	62	9.9	21.9	6	1
15-2041	Statisticians <sup>1</sup> .....	20	10.5	26.3	2	1
15-2090	Miscellaneous mathematical science occupations <sup>1</sup> .....	7	10.4	22.7	1	( <sup>2</sup> )
17-0000	<b>Architecture and engineering occupations .....</b>	<b>2,587</b>	<b>8.5</b>	<b>22.2</b>	<b>229</b>	<b>57</b>
17-1000	Architects, surveyors, and cartographers .....	204	7.1	19.0	16	4
17-1010	Architects, except naval .....	136	5.6	11.4	8	2
17-1011	Architects, except landscape and naval .....	113	5.6	11.4	7	1
17-1012	Landscape architects .....	23	5.6	11.4	1	( <sup>2</sup> )
17-1020	Surveyors, cartographers, and photogrammetrists .....	64	10.5	34.2	7	2
17-1021	Cartographers and photogrammetrists .....	9	10.5	34.2	1	( <sup>2</sup> )
17-1022	Surveyors .....	56	10.5	34.2	6	2
17-1099	All other architects, surveyors, and cartographers .....	3	10.5	34.2	( <sup>2</sup> )	( <sup>2</sup> )
17-2000	<b>Engineers .....</b>	<b>1,478</b>	<b>6.9</b>	<b>21.4</b>	<b>106</b>	<b>32</b>
17-2011	Aerospace engineers <sup>1</sup> .....	78	6.1	24.8	5	2
17-2021	Agricultural engineers .....	3	6.1	32.9	( <sup>2</sup> )	( <sup>2</sup> )
17-2031	Biomedical engineers .....	8	3.7	17.0	( <sup>2</sup> )	( <sup>2</sup> )
17-2041	Chemical engineers <sup>1</sup> .....	33	6.2	29.9	2	1
17-2051	Civil engineers .....	228	6.5	15.9	16	4
17-2061	Computer hardware engineers .....	74	7.7	16.7	6	1
17-2070	Electrical and electronics engineers .....	292	7.0	19.7	21	6
17-2071	Electrical engineers .....	156	7.0	19.7	11	3
17-2072	Electronics engineers, except computer .....	136	7.0	19.7	10	3

See footnotes at end of table.

**Table V-5. Total and net replacement rates and annual average replacement needs, 2002-12—Continued**

(Numbers in thousands)

2002 national employment matrix occupation		Total employment, 2002	Replacement rate (Percent)		Annual average replacement needs, 2002-12	
			Total, 2001-02	Net, 2002-12	Total	Net
17-2081	Environmental engineers .....	47	9.8	17.0	6	1
17-2110	Industrial engineers, including health and safety .....	194	9.1	24.2	19	5
17-2111	Health and safety engineers, except mining safety engineers and inspectors .....	36	9.1	24.2	3	1
17-2112	Industrial engineers .....	158	9.1	24.2	15	4
17-2121	Marine engineers and naval architects <sup>1</sup> .....	5	6.3	47.2	( <sup>2</sup> )	( <sup>2</sup> )
17-2131	Materials engineers .....	24	6.5	26.3	2	1
17-2141	Mechanical engineers .....	215	5.9	27.3	13	6
17-2151	Mining and geological engineers, including mining safety engineers .....	5	6.1	28.9	( <sup>2</sup> )	( <sup>2</sup> )
17-2161	Nuclear engineers <sup>1</sup> .....	16	6.1	29.9	1	( <sup>2</sup> )
17-2171	Petroleum engineers <sup>1</sup> .....	14	6.2	31.8	1	( <sup>2</sup> )
17-2199	All other engineers .....	243	6.0	19.0	15	5
17-3000	Drafters, engineering, and mapping technicians .....	905	11.4	24.2	108	22
17-3010	Drafters .....	216	12.6	28.1	28	6
17-3011	Architectural and civil drafters .....	106	12.6	28.1	14	3
17-3012	Electrical and electronics drafters .....	38	12.6	28.1	5	1
17-3013	Mechanical drafters .....	72	12.6	28.1	9	2
17-3020	Engineering technicians, except drafters .....	478	10.6	20.9	53	10
17-3021	Aerospace engineering and operations technicians .....	15	10.6	20.9	2	( <sup>2</sup> )
17-3022	Civil engineering technicians .....	92	10.6	20.9	10	2
17-3023	Electrical and electronic engineering technicians .....	204	10.6	20.9	23	4
17-3024	Electro-mechanical technicians .....	31	10.6	20.9	4	1
17-3025	Environmental engineering technicians .....	19	10.6	20.9	2	( <sup>2</sup> )
17-3026	Industrial engineering technicians .....	62	10.6	20.9	7	1
17-3027	Mechanical engineering technicians .....	55	10.6	20.9	6	1
17-3031	Surveying and mapping technicians .....	60	13.6	36.4	9	2
17-3099	All other drafters, engineering, and mapping technicians .....	150	11.2	24.1	18	4
19-0000	Life, physical, and social science occupations .....	1,237	9.7	24.1	131	30
19-1000	Life scientists .....	214	7.2	24.2	17	5
19-1010	Agricultural and food scientists <sup>1</sup> .....	18	7.5	17.8	1	( <sup>2</sup> )
19-1020	Biological scientists .....	75	7.1	31.3	6	2
19-1021	Biochemists and biophysicists .....	17	7.1	31.3	1	1
19-1022	Microbiologists .....	16	7.1	31.3	1	1
19-1023	Zoologists and wildlife biologists .....	15	7.1	31.3	1	( <sup>2</sup> )
19-1029	Biological scientists, all other .....	27	7.1	31.3	2	1
19-1030	Conservation scientists and foresters .....	33	6.5	29.2	2	1
19-1031	Conservation scientists <sup>1</sup> .....	19	6.5	29.2	1	1
19-1032	Foresters <sup>1</sup> .....	14	6.5	29.2	1	( <sup>2</sup> )
19-1040	Medical scientists .....	62	7.4	17.6	5	1
19-1041	Epidemiologists <sup>1</sup> .....	4	7.4	17.6	( <sup>2</sup> )	( <sup>2</sup> )
19-1042	Medical scientists, except epidemiologists <sup>1</sup> .....	58	7.4	17.6	5	1
19-1099	All other life scientists <sup>1</sup> .....	26	7.4	17.6	2	( <sup>2</sup> )
19-2000	Physical scientists .....	251	6.9	25.4	19	6
19-2010	Astronomers and physicists .....	14	6.5	32.4	1	( <sup>2</sup> )
19-2011	Astronomers <sup>1</sup> .....	1	6.5	32.4	( <sup>2</sup> )	( <sup>2</sup> )
19-2012	Physicists <sup>1</sup> .....	13	6.5	32.4	1	( <sup>2</sup> )
19-2021	Atmospheric and space scientists <sup>1</sup> .....	8	6.4	39.3	1	( <sup>2</sup> )
19-2030	Chemists and materials scientists .....	91	7.2	32.7	7	3
19-2031	Chemists .....	84	7.2	32.7	6	3
19-2032	Materials scientists .....	7	7.2	32.7	1	( <sup>2</sup> )
19-2040	Environmental scientists and geoscientists .....	101	6.7	17.8	7	2
19-2041	Environmental scientists and specialists, including health .....	65	6.7	17.8	5	1
19-2042	Geoscientists, except hydrologists and geographers .....	28	6.7	17.8	2	( <sup>2</sup> )
19-2043	Hydrologists .....	8	6.7	17.8	1	( <sup>2</sup> )
19-2099	All other physical scientists .....	37	7.3	22.8	3	1
19-3000	Social scientists and related occupations .....	426	10.8	24.4	51	10
19-3011	Economists .....	16	10.0	29.0	2	( <sup>2</sup> )
19-3020	Market and survey researchers .....	155	10.7	25.9	19	4
19-3021	Market research analysts .....	134	10.7	25.9	16	3
19-3022	Survey researchers .....	20	10.7	25.9	3	1
19-3030	Psychologists .....	139	10.0	21.8	16	3
19-3031	Clinical, counseling, and school psychologists .....	137	10.0	21.8	15	3
19-3032	Industrial-organizational psychologists .....	2	10.0	21.8	( <sup>2</sup> )	( <sup>2</sup> )
19-3041	Sociologists <sup>1</sup> .....	3	13.0	35.1	( <sup>2</sup> )	( <sup>2</sup> )

See footnotes at end of table.

**Table V-5. Total and net replacement rates and annual average replacement needs, 2002-12—Continued**

(Numbers in thousands)

2002 national employment matrix occupation		Total employment, 2002	Replacement rate (Percent)		Annual average replacement needs, 2002-12	
			Total, 2001-02	Net, 2002-12	Total	Net
19-3051	Urban and regional planners <sup>1</sup> .....	32	12.9	33.4	4	1
19-3090	Miscellaneous social scientists and related workers .....	14	12.0	20.2	2	( <sup>2</sup> )
19-3091	Anthropologists and archeologists <sup>1</sup> .....	5	12.0	20.2	1	( <sup>2</sup> )
19-3092	Geographers <sup>1</sup> .....	1	12.0	20.2	( <sup>2</sup> )	( <sup>2</sup> )
19-3093	Historians <sup>1</sup> .....	2	12.0	20.2	( <sup>2</sup> )	( <sup>2</sup> )
19-3094	Political scientists <sup>1</sup> .....	6	12.0	20.2	1	( <sup>2</sup> )
19-3098	All other social scientists and related workers .....	68	11.7	21.2	8	1
19-4000	Life, physical, and social science technicians .....	346	12.0	22.8	45	8
19-4011	Agricultural and food science technicians .....	20	13.9	19.3	3	( <sup>2</sup> )
19-4021	Biological technicians <sup>1</sup> .....	48	13.4	16.9	7	1
19-4031	Chemical technicians .....	69	12.0	24.9	8	2
19-4041	Geological and petroleum technicians .....	11	9.6	25.5	1	( <sup>2</sup> )
19-4051	Nuclear technicians .....	6	12.1	26.9	1	( <sup>2</sup> )
19-4090	Other life, physical, and social science technicians .....	55	11.7	23.5	7	1
19-4091	Environmental science and protection technicians, including health .....	28	11.7	23.5	4	1
19-4092	Forensic science technicians .....	8	11.7	23.5	1	( <sup>2</sup> )
19-4093	Forest and conservation technicians .....	19	11.7	23.5	2	( <sup>2</sup> )
19-4098	All other life, physical, and social science technicians .....	137	11.7	23.5	17	3
21-0000	Community and social services occupations .....	2,190	12.7	19.1	314	42
21-1000	Counselors, social workers, and other community and social service specialists .....	1,436	14.0	19.4	231	28
21-1010	Counselors .....	526	12.5	22.8	73	12
21-1011	Substance abuse and behavioral disorder counselors .....	67	12.5	22.8	9	2
21-1012	Educational, vocational, and school counselors .....	228	12.5	22.8	31	5
21-1013	Marriage and family therapists .....	23	12.5	22.8	3	1
21-1014	Mental health counselors .....	85	12.5	22.8	12	2
21-1015	Rehabilitation counselors .....	122	12.5	22.8	18	3
21-1020	Social workers .....	477	14.1	17.1	76	8
21-1021	Child, family, and school social workers .....	274	14.1	17.1	43	5
21-1022	Medical and public health social workers .....	107	14.1	17.1	17	2
21-1023	Mental health and substance abuse social workers .....	95	14.1	17.1	16	2
21-1090	Miscellaneous community and social service specialists .....	434	15.7	17.6	82	8
21-1091	Health educators .....	45	15.7	17.6	8	1
21-1092	Probation officers and correctional treatment specialists .....	84	15.7	17.6	14	1
21-1093	Social and human service assistants .....	305	15.7	17.6	60	5
21-2000	Religious workers .....	506	8.1	18.5	44	9
21-2011	Clergy .....	400	6.9	20.5	30	8
21-2021	Directors, religious activities and education <sup>1</sup> .....	105	12.6	11.0	15	1
21-9099	All other counselors, social, and religious workers .....	248	13.5	18.7	38	5
23-0000	Legal occupations .....	1,168	7.9	11.7	100	14
23-1000	Lawyers, judges, and related workers .....	747	5.9	12.9	47	10
23-1011	Lawyers .....	695	5.9	12.9	44	9
23-1020	Judges, magistrates, and other judicial workers .....	51	5.9	12.9	3	1
23-1021	Administrative law judges, adjudicators, and hearing officers .....	19	5.9	12.9	1	( <sup>2</sup> )
23-1022	Arbitrators, mediators, and conciliators .....	6	5.9	12.9	( <sup>2</sup> )	( <sup>2</sup> )
23-1023	Judges, magistrate judges, and magistrates .....	27	5.9	12.9	2	( <sup>2</sup> )
23-2000	Legal support workers .....	320	11.5	9.1	40	3
23-2011	Paralegals and legal assistants .....	200	11.6	8.0	26	2
23-2090	Miscellaneous legal support workers .....	121	11.4	10.9	14	1
23-2091	Court reporters .....	18	11.4	10.9	2	( <sup>2</sup> )
23-2092	Law clerks .....	48	11.4	10.9	6	1
23-2093	Title examiners, abstractors, and searchers .....	55	11.4	10.9	6	1
23-9099	All other legal and related workers .....	101	11.4	10.9	12	1
25-0000	Education, training, and library occupations .....	8,530	12.8	20.9	1,225	178
25-1000	Postsecondary teachers .....	1,581	9.8	22.6	185	36
25-2000	Primary, secondary, and special education teachers .....	4,187	11.6	22.4	534	94
25-2010	Preschool and kindergarten teachers .....	592	17.2	11.9	119	7
25-2011	Preschool teachers, except special education .....	424	17.2	11.9	86	5
25-2012	Kindergarten teachers, except special education .....	168	17.2	11.9	33	2
25-2020	Elementary and middle school teachers .....	2,070	11.0	22.1	242	46

See footnotes at end of table.

**Table V-5. Total and net replacement rates and annual average replacement needs, 2002-12—Continued**

(Numbers in thousands)

2002 national employment matrix occupation		Total employment, 2002	Replacement rate (Percent)		Annual average replacement needs, 2002-12	
			Total, 2001-02	Net, 2002-12	Total	Net
25-2021	Elementary school teachers, except special education .....	1,467	11.0	22.1	173	32
25-2022	Middle school teachers, except special and vocational education .....	585	11.0	22.1	67	13
25-2023	Vocational education teachers, middle school .....	18	11.0	22.1	2	( <sup>2</sup> )
25-2030	Secondary school teachers .....	1,093	10.1	28.1	120	31
25-2031	Secondary school teachers, except special and vocational education .....	988	10.1	28.1	109	28
25-2032	Vocational education teachers, secondary school .....	105	10.1	28.1	11	3
25-2040	Special education teachers .....	433	10.5	23.8	52	10
25-3000	Other teachers and instructors .....	960	15.6	12.3	175	12
25-3011	Adult literacy, remedial education, and GED teachers and instructors .....	80	15.6	12.3	14	1
25-3021	Self-enrichment education teachers .....	200	15.6	12.3	37	2
25-3999	All other teachers, primary, secondary, and adult .....	679	15.6	12.3	123	8
25-4000	Librarians, curators, and archivists .....	309	11.6	28.8	38	9
25-4010	Archivists, curators, and museum technicians <sup>1</sup> .....	22	9.3	22.0	2	( <sup>2</sup> )
25-4021	Librarians .....	167	8.0	23.9	14	4
25-4031	Library technicians .....	119	17.0	36.9	22	4
25-9000	Other education, training, and library occupations .....	1,493	17.6	18.7	293	28
25-9011	Audio-visual collections specialists .....	10	15.4	15.2	2	( <sup>2</sup> )
25-9021	Farm and home management advisors .....	16	15.4	15.2	3	( <sup>2</sup> )
25-9031	Instructional coordinators .....	98	15.4	15.2	17	1
25-9041	Teacher assistants .....	1,277	18.0	19.3	256	25
25-9199	All other library, museum, training, and other education workers .....	93	15.4	15.2	16	1
27-0000	Arts, design, entertainment, sports, and media occupations .....	2,377	12.8	18.8	329	45
27-1000	Art and design occupations .....	775	12.1	15.5	101	12
27-1010	Artists and related workers .....	149	13.9	21.7	22	3
27-1011	Art directors .....	51	13.9	21.7	7	1
27-1013	Fine artists, including painters, sculptors, and illustrators .....	23	13.9	21.7	3	1
27-1014	Multi-media artists and animators .....	75	13.9	21.7	11	2
27-1020	Designers .....	532	11.4	13.4	66	7
27-1021	Commercial and industrial designers .....	52	11.4	13.4	6	1
27-1022	Fashion designers .....	15	11.4	13.4	2	( <sup>2</sup> )
27-1023	Floral designers .....	104	11.4	13.4	13	1
27-1024	Graphic designers .....	212	11.4	13.4	27	3
27-1025	Interior designers .....	60	11.4	13.4	8	1
27-1026	Merchandise displayers and window trimmers .....	77	11.4	13.4	9	1
27-1027	Set and exhibit designers .....	12	11.4	13.4	2	( <sup>2</sup> )
27-1099	All other art and design workers .....	95	13.1	17.8	13	2
27-2000	Entertainers and performers, sports and related occupations .....	606	14.4	20.6	95	12
27-2010	Actors, producers, and directors .....	139	11.6	13.9	18	2
27-2011	Actors <sup>1</sup> .....	63	11.7	12.7	8	1
27-2012	Producers and directors <sup>1</sup> .....	76	11.5	15.0	10	1
27-2020	Athletes, coaches, umpires, and related workers .....	158	17.8	19.2	31	3
27-2021	Athletes and sports competitors .....	15	17.8	19.2	3	( <sup>2</sup> )
27-2022	Coaches and scouts .....	130	17.8	19.2	25	2
27-2023	Umpires, referees, and other sports officials .....	14	17.8	19.2	3	( <sup>2</sup> )
27-2030	Dancers and choreographers .....	37	14.9	61.5	6	2
27-2031	Dancers <sup>1</sup> .....	20	14.9	61.5	3	1
27-2032	Choreographers <sup>1</sup> .....	17	14.9	61.5	3	1
27-2040	Musicians, singers, and related workers .....	215	13.5	21.0	32	5
27-2041	Music directors and composers .....	54	13.5	21.0	8	1
27-2042	Musicians and singers .....	161	13.5	21.0	24	3
27-2099	All other entertainers and performers, sports and related workers <sup>1</sup> .....	56	14.8	12.2	9	1
27-3000	Media and communication occupations .....	700	12.6	19.6	95	14
27-3010	Announcers .....	76	11.1	25.3	8	2
27-3020	News analysts, reporters and correspondents .....	66	9.2	24.2	6	2
27-3031	Public relations specialists .....	158	14.7	14.4	27	2
27-3040	Writers and editors .....	319	11.8	21.9	41	7
27-3041	Editors .....	130	9.4	24.2	13	3
27-3042	Technical writers .....	50	8.5	28.8	5	1
27-3043	Writers and authors .....	139	15.2	17.2	23	2
27-3090	Miscellaneous media and communications workers .....	82	14.9	12.1	13	1
27-3091	Interpreters and translators <sup>1</sup> .....	24	14.9	12.1	4	( <sup>2</sup> )

See footnotes at end of table.

**Table V-5. Total and net replacement rates and annual average replacement needs, 2002-12—Continued**

(Numbers in thousands)

2002 national employment matrix occupation		Total employment, 2002	Replacement rate (Percent)		Annual average replacement needs, 2002-12	
			Total, 2001-02	Net, 2002-12	Total	Net
27-3099	All other media and communication workers <sup>1</sup> .....	58	14.9	12.1	9	1
27-4000	Media and communication equipment occupations .....	295	11.9	21.9	38	6
27-4010	Broadcast and sound engineering technicians and radio operators .....	93	9.2	24.5	9	2
27-4011	Audio and video equipment technicians .....	42	9.2	24.5	4	1
27-4012	Broadcast technicians .....	35	9.2	24.5	3	1
27-4013	Radio operators .....	3	9.2	24.5	( <sup>2</sup> )	( <sup>2</sup> )
27-4014	Sound engineering technicians .....	13	9.2	24.5	1	( <sup>2</sup> )
27-4021	Photographers .....	130	12.6	20.4	18	3
27-4030	Television, video, and motion picture camera operators and editors .....	48	11.2	21.2	6	1
27-4031	Camera operators, television, video, and motion picture .....	28	11.2	21.2	3	1
27-4032	Film and video editors .....	19	11.2	21.2	2	( <sup>2</sup> )
27-4099	All other media and communication equipment workers .....	24	20.2	21.3	5	1
29-0000	Healthcare practitioners and technical occupations .....	6,580	8.7	19.0	649	125
29-1000	Health diagnosing and treating practitioners .....	4,071	6.5	19.5	298	80
29-1011	Chiropractors <sup>1</sup> .....	49	4.0	18.9	2	1
29-1020	Dentists <sup>1</sup> .....	153	4.0	16.8	6	3
29-1031	Dietitians and nutritionists .....	49	14.6	26.0	8	1
29-1041	Optometrists <sup>1</sup> .....	32	3.9	27.7	1	1
29-1051	Pharmacists <sup>1</sup> .....	230	6.9	19.4	18	4
29-1060	Physicians and surgeons .....	583	4.6	13.4	29	8
29-1071	Physician assistants <sup>1</sup> .....	63	6.3	15.4	5	1
29-1081	Podiatrists <sup>1</sup> .....	13	3.9	24.3	1	( <sup>2</sup> )
29-1111	Registered nurses .....	2,284	6.7	20.9	173	48
29-1120	Therapists .....	450	8.3	19.6	43	9
29-1121	Audiologists <sup>1</sup> .....	11	8.4	24.2	1	( <sup>2</sup> )
29-1122	Occupational therapists <sup>1</sup> .....	82	8.2	13.5	8	1
29-1123	Physical therapists <sup>1</sup> .....	137	8.3	9.8	13	1
29-1124	Radiation therapists <sup>1</sup> .....	14	7.4	22.8	1	( <sup>2</sup> )
29-1125	Recreational therapists <sup>1</sup> .....	27	8.7	23.9	2	1
29-1126	Respiratory therapists <sup>1</sup> .....	86	8.2	32.9	8	3
29-1127	Speech-language pathologists <sup>1</sup> .....	94	8.3	24.9	9	2
29-1131	Veterinarians <sup>1</sup> .....	58	4.0	24.1	3	1
29-1198	All other health diagnosing and treating practitioners <sup>1</sup> .....	107	6.7	21.7	8	2
29-2000	Health technologists and technicians .....	2,263	12.2	18.1	313	41
29-2010	Clinical laboratory technologists and technicians .....	297	12.0	26.9	39	8
29-2011	Medical and clinical laboratory technologists .....	150	12.0	26.9	20	4
29-2012	Medical and clinical laboratory technicians .....	147	12.0	26.9	19	4
29-2021	Dental hygienists .....	148	1.8	8.5	3	1
29-2030	Diagnostic related technologists and technicians .....	271	9.7	18.7	29	5
29-2031	Cardiovascular technologists and technicians .....	43	9.7	18.7	5	1
29-2032	Diagnostic medical sonographers .....	37	9.7	18.7	4	1
29-2033	Nuclear medicine technologists .....	17	9.7	18.7	2	( <sup>2</sup> )
29-2034	Radiologic technologists and technicians .....	174	9.7	18.7	19	3
29-2041	Emergency medical technicians and paramedics .....	179	14.4	11.5	30	2
29-2050	Health diagnosing and treating practitioner support technicians .....	451	15.6	13.0	80	6
29-2051	Dietetic technicians <sup>1</sup> .....	29	15.6	13.0	5	( <sup>2</sup> )
29-2052	Pharmacy technicians <sup>1</sup> .....	211	15.6	13.0	38	3
29-2053	Psychiatric technicians <sup>1</sup> .....	60	15.6	13.0	10	1
29-2054	Respiratory therapy technicians <sup>1</sup> .....	26	15.6	13.0	5	( <sup>2</sup> )
29-2055	Surgical technologists <sup>1</sup> .....	72	15.6	13.0	13	1
29-2056	Veterinary technologists and technicians <sup>1</sup> .....	53	15.6	13.0	10	1
29-2061	Licensed practical and licensed vocational nurses .....	702	13.0	21.8	100	15
29-2071	Medical records and health information technicians .....	147	11.6	14.3	21	2
29-2081	Opticians, dispensing <sup>1</sup> .....	63	13.7	17.5	9	1
29-2090	Miscellaneous health technologists and technicians .....	5	12.9	16.2	1	( <sup>2</sup> )
29-2091	Orthotists and prosthetists .....	5	12.9	16.2	1	( <sup>2</sup> )
29-9000	Other healthcare practitioners and technical occupations .....	56	14.3	21.7	9	1
29-9010	Occupational health and safety specialists and technicians .....	41	14.3	21.7	6	1
29-9090	Miscellaneous health practitioners and technical workers .....	14	14.3	21.7	2	( <sup>2</sup> )
29-9091	Athletic trainers .....	14	14.3	21.7	2	( <sup>2</sup> )
29-9199	All other health practitioners and technical workers .....	190	13.5	18.1	29	3

See footnotes at end of table.

**Table V-5. Total and net replacement rates and annual average replacement needs, 2002-12—Continued**

(Numbers in thousands)

2002 national employment matrix occupation		Total employment, 2002	Replacement rate (Percent)		Annual average replacement needs, 2002-12	
			Total, 2001-02	Net, 2002-12	Total	Net
<b>31-3900</b>	<b>Service occupations</b>	26,569	22.8	28.7	6,671	762
31-0000	Healthcare support occupations	3,310	17.5	15.9	681	53
31-1000	Nursing, psychiatric, and home health aides	2,014	19.5	13.1	454	26
31-1011	Home health aides	580	19.5	13.1	140	8
31-1012	Nursing aides, orderlies, and attendants	1,375	19.5	13.1	302	18
31-1013	Psychiatric aides	59	19.5	13.1	12	1
31-2000	Occupational and physical therapist assistants and aides	114	15.1	15.7	21	2
31-2010	Occupational therapist assistants and aides	27	11.1	12.7	4	( <sup>2</sup> )
31-2011	Occupational therapist assistants <sup>1</sup>	18	11.1	12.7	2	( <sup>2</sup> )
31-2012	Occupational therapist aides <sup>1</sup>	8	11.1	12.7	1	( <sup>2</sup> )
31-2020	Physical therapist assistants and aides	87	16.3	16.7	17	1
31-2021	Physical therapist assistants <sup>1</sup>	50	16.3	16.7	10	1
31-2022	Physical therapist aides <sup>1</sup>	37	16.3	16.7	7	1
31-9000	Other healthcare support occupations	1,182	14.6	20.7	206	24
31-9011	Massage therapists	92	23.0	19.4	24	2
31-9090	Miscellaneous healthcare support occupations	1,090	13.9	20.8	181	23
31-9091	Dental assistants	266	8.7	28.0	28	7
31-9092	Medical assistants	365	15.6	18.5	73	7
31-9093	Medical equipment preparers	36	15.6	18.5	6	1
31-9094	Medical transcriptionists	101	15.6	18.5	17	2
31-9095	Pharmacy aides	60	15.6	18.5	10	1
31-9096	Veterinary assistants and laboratory animal caretakers	63	15.6	18.5	11	1
31-9099	All other healthcare support workers	198	15.6	18.5	35	4
33-0000	Protective service occupations	3,116	14.1	28.2	492	88
33-1000	First-line supervisors/managers, protective service workers	266	10.4	32.9	30	9
33-1010	First-line supervisors/managers, law enforcement workers	147	10.4	32.2	17	5
33-1011	First-line supervisors/managers of correctional officers	33	10.3	29.5	4	1
33-1012	First-line supervisors/managers of police and detectives	114	10.5	33.0	13	4
33-1021	First-line supervisors/managers of fire fighting and prevention workers <sup>1</sup>	63	10.4	41.2	7	3
33-1099	All other first-line supervisors/managers, protective service workers	56	10.5	25.4	7	1
33-2000	Fire fighting and prevention workers	296	8.2	29.0	27	9
33-2011	Fire fighters	282	8.2	29.0	26	8
33-2020	Fire inspectors	14	8.7	28.5	1	( <sup>2</sup> )
33-3000	Law enforcement workers	1,179	8.8	23.9	116	28
33-3010	Bailiffs, correctional officers, and jailers	442	9.1	20.7	45	9
33-3011	Bailiffs	15	9.1	20.7	1	( <sup>2</sup> )
33-3012	Correctional officers and jailers	427	9.1	20.7	44	9
33-3021	Detectives and criminal investigators	94	9.7	26.8	10	3
33-3031	Fish and game wardens <sup>1</sup>	8	8.1	25.0	1	( <sup>2</sup> )
33-3041	Parking enforcement workers <sup>1</sup>	11	9.1	18.6	1	( <sup>2</sup> )
33-3050	Police officers	625	8.4	25.8	59	16
33-3051	Police and sheriff's patrol officers	619	8.4	25.9	58	16
33-3052	Transit and railroad police	6	11.4	18.9	1	( <sup>2</sup> )
33-9000	Other protective service workers	1,374	20.4	30.9	320	42
33-9011	Animal control workers	11	13.8	69.8	2	1
33-9021	Private detectives and investigators	48	16.3	21.1	9	1
33-9030	Security guards and gaming surveillance officers	1,004	19.7	21.8	229	22
33-9031	Gaming surveillance officers and gaming investigators	9	19.7	21.8	2	( <sup>2</sup> )
33-9032	Security guards	995	19.7	21.8	227	22
33-9091	Crossing guards <sup>1</sup>	74	24.5	32.2	20	2
33-9095	All other protective service workers	237	23.7	69.3	60	16
35-0000	Food preparation and serving related occupations	10,200	30.3	39.7	3,338	405
35-1000	Supervisors, food preparation and serving workers	824	21.2	24.7	188	20
35-1011	Chefs and head cooks	132	23.5	29.6	33	4
35-1012	First-line supervisors/managers of food preparation and serving workers	692	20.7	23.8	155	16
35-2000	Cooks and food preparation workers	2,836	28.1	32.3	845	92
35-2010	Cooks	1,986	27.5	31.0	570	61

See footnotes at end of table.

**Table V-5. Total and net replacement rates and annual average replacement needs, 2002-12—Continued**

(Numbers in thousands)

2002 national employment matrix occupation		Total employment, 2002	Replacement rate (Percent)		Annual average replacement needs, 2002-12	
			Total, 2001-02	Net, 2002-12	Total	Net
35-2011	Cooks, fast food .....	588	27.5	31.0	166	18
35-2012	Cooks, institution and cafeteria .....	436	27.5	31.0	121	13
35-2013	Cooks, private household .....	8	27.5	31.0	2	( <sup>2</sup> )
35-2014	Cooks, restaurant .....	727	27.5	31.0	216	23
35-2015	Cooks, short order .....	227	27.5	31.0	65	7
35-2021	Food preparation workers .....	850	29.4	35.4	275	30
35-3000	Food and beverage serving workers .....	5,211	32.6	47.9	1,857	249
35-3011	Bartenders .....	463	20.8	39.5	100	18
35-3020	Fast food and counter workers .....	2,457	35.4	47.5	965	117
35-3021	Combined food preparation and serving workers, including fast food <sup>1</sup> .....	1,990	34.6	43.3	767	86
35-3022	Counter attendants, cafeteria, food concession, and coffee shop .....	467	39.0	65.3	198	30
35-3031	Waiters and waitresses .....	2,097	32.6	51.5	744	108
35-3041	Food servers, nonrestaurant .....	195	23.1	33.5	47	7
35-9000	Other food preparation and serving related workers .....	1,328	31.7	33.0	448	44
35-9011	Dining room and cafeteria attendants and bartender helpers .....	409	33.4	33.4	147	14
35-9021	Dishwashers .....	505	32.0	33.8	169	17
35-9031	Hosts and hostesses, restaurant, lounge, and coffee shop .....	298	30.3	31.8	98	9
35-9098	All other food preparation and serving related workers .....	117	27.5	31.1	35	4
37-0000	Building and grounds cleaning and maintenance occupations .....	5,485	18.5	20.0	1,096	110
37-1000	Supervisors, building and grounds cleaning and maintenance workers .....	380	10.3	18.0	43	7
37-1011	First-line supervisors/managers of housekeeping and janitorial workers .....	230	10.7	23.6	27	5
37-1012	First-line supervisors/managers of landscaping, lawn service, and groundskeeping workers .....	150	9.7	9.3	16	1
37-2000	Building cleaning and pest control workers .....	3,820	19.9	19.7	815	75
37-2010	Building cleaning workers .....	3,759	19.9	19.8	804	74
37-2011	Janitors and cleaners, except maids and housekeeping cleaners .....	2,267	18.2	19.0	450	43
37-2012	Maids and housekeeping cleaners .....	1,492	22.7	21.0	354	31
37-2021	Pest control workers <sup>1</sup> .....	62	15.9	15.1	11	1
37-3000	Grounds maintenance workers .....	1,285	16.8	21.6	238	28
37-3010	Grounds maintenance workers .....	1,160	16.7	21.8	215	25
37-3011	Landscaping and groundskeeping workers .....	1,074	16.7	21.8	199	23
37-3012	Pesticide handlers, sprayers, and applicators, vegetation .....	27	16.7	21.8	5	1
37-3013	Tree trimmers and pruners .....	59	16.7	21.8	11	1
37-9099	All other building and grounds cleaning and maintenance workers .....	125	17.3	20.5	23	3
39-0000	Personal care and service occupations .....	4,458	21.7	24.0	1,064	107
39-1000	Supervisors, personal care and service workers .....	276	11.7	24.2	34	7
39-1010	First-line supervisors/managers of gaming workers .....	60	13.7	21.0	9	1
39-1011	Gaming supervisors .....	39	13.7	21.0	6	1
39-1012	Slot key persons .....	21	13.7	21.0	3	( <sup>2</sup> )
39-1021	First-line supervisors/managers of personal service workers .....	216	11.2	25.1	25	5
39-2000	Animal care and service workers .....	151	21.8	24.1	36	4
39-2011	Animal trainers .....	26	15.4	20.6	4	1
39-2021	Nonfarm animal caretakers .....	125	23.1	24.9	32	3
39-3000	Entertainment attendants and related workers .....	507	26.3	35.7	149	18
39-3010	Gaming services workers .....	92	31.3	31.6	32	3
39-3011	Gaming dealers .....	78	31.3	31.6	27	2
39-3012	Gaming and sports book writers and runners .....	14	31.3	31.6	5	( <sup>2</sup> )
39-3021	Motion picture projectionists <sup>1</sup> .....	9	13.3	51.7	1	( <sup>2</sup> )
39-3031	Ushers, lobby attendants, and ticket takers <sup>1</sup> .....	105	24.2	57.0	27	6
39-3090	Miscellaneous entertainment attendants and related workers .....	261	25.6	28.8	76	8
39-3091	Amusement and recreation attendants .....	234	25.6	28.8	68	7
39-3092	Costume attendants .....	4	25.6	28.8	1	( <sup>2</sup> )
39-3093	Locker room, coatroom, and dressing room attendants .....	23	25.6	28.8	7	1
39-3199	All other gaming service workers .....	40	28.1	30.4	12	1
39-4000	Funeral service workers .....	33	11.0	20.9	4	1
39-4011	Embalmers .....	7	11.0	20.9	1	( <sup>2</sup> )
39-4021	Funeral attendants .....	26	11.0	20.9	3	1

See footnotes at end of table.



**Table V-5. Total and net replacement rates and annual average replacement needs, 2002-12—Continued**

(Numbers in thousands)

2002 national employment matrix occupation		Total employment, 2002	Replacement rate (Percent)		Annual average replacement needs, 2002-12	
			Total, 2001-02	Net, 2002-12	Total	Net
39-5000	Personal appearance workers .....	754	10.3	20.0	83	15
39-5010	Barbers and cosmetologists .....	651	10.2	20.1	71	13
39-5011	Barbers .....	66	10.3	28.1	7	2
39-5012	Hairdressers, hairstylists, and cosmetologists .....	585	10.2	19.3	64	11
39-5090	Miscellaneous personal appearance workers .....	103	10.6	19.4	12	2
39-5091	Makeup artists, theatrical and performance .....	2	10.6	19.4	( <sup>2</sup> )	( <sup>2</sup> )
39-5092	Manicurists and pedicurists .....	51	10.6	19.4	6	1
39-5093	Shampooers .....	25	10.6	19.4	3	( <sup>2</sup> )
39-5094	Skin care specialists .....	25	10.6	19.4	3	( <sup>2</sup> )
39-6000	Transportation, tourism, and lodging attendants .....	248	22.4	19.3	60	5
39-6010	Baggage porters, bellhops, and concierges .....	75	24.4	26.4	20	2
39-6011	Baggage porters and bellhops <sup>1</sup> .....	58	24.4	26.4	15	2
39-6012	Concierges <sup>1</sup> .....	17	24.4	26.4	4	( <sup>2</sup> )
39-6020	Tour and travel guides .....	43	24.3	26.5	11	1
39-6021	Tour guides and escorts <sup>1</sup> .....	36	24.3	26.5	9	1
39-6022	Travel guides <sup>1</sup> .....	6	24.3	26.5	2	( <sup>2</sup> )
39-6030	Transportation attendants .....	130	20.6	12.8	29	2
39-6031	Flight attendants <sup>1</sup> .....	104	20.6	12.8	23	1
39-6032	Transportation attendants, except flight attendants and baggage porters <sup>1</sup> .....	26	20.6	12.8	6	( <sup>2</sup> )
39-9000	Other personal care and service workers .....	2,490	25.1	23.2	698	58
39-9011	Child care workers .....	1,211	32.3	27.2	414	33
39-9021	Personal and home care aides .....	608	21.4	16.0	156	10
39-9030	Recreation and fitness workers .....	485	16.4	22.9	91	11
39-9031	Fitness trainers and aerobics instructors .....	183	16.4	22.9	37	4
39-9032	Recreation workers .....	302	16.4	22.9	54	7
39-9041	Residential advisors .....	53	19.1	21.1	12	1
39-9099	Personal care and service workers, all other .....	134	16.5	21.5	25	3
<b>41-0000</b>	<b>Sales and related occupations .....</b>	<b>15,260</b>	<b>21.1</b>	<b>31.9</b>	<b>3,421</b>	<b>487</b>
41-1000	Supervisors, sales workers .....	2,395	12.7	18.2	316	44
41-1011	First-line supervisors/managers of retail sales workers .....	1,798	13.1	18.0	246	32
41-1012	First-line supervisors/managers of non-retail sales workers .....	597	11.4	18.9	70	11
41-2000	Retail sales workers .....	8,224	28.1	41.4	2,476	341
41-2010	Cashiers .....	3,465	34.3	48.7	1,266	169
41-2011	Cashiers, except gaming .....	3,432	34.3	48.7	1,253	167
41-2012	Gaming change persons and booth cashiers .....	33	34.3	48.7	13	2
41-2020	Counter and rental clerks and parts salespersons .....	683	25.2	34.8	186	24
41-2021	Counter and rental clerks .....	436	30.3	38.3	149	17
41-2022	Parts salespersons .....	248	14.7	28.6	36	7
41-2031	Retail salespersons .....	4,076	23.4	36.4	1,025	148
41-3000	Sales representatives, services .....	957	12.4	19.0	124	18
41-3011	Advertising sales agents .....	157	13.8	19.4	23	3
41-3021	Insurance sales agents .....	381	12.7	23.9	51	9
41-3031	Securities, commodities, and financial services sales agents .....	300	11.6	11.3	37	3
41-3041	Travel agents <sup>1</sup> .....	118	11.8	22.4	13	3
41-4000	Sales representatives, wholesale and manufacturing .....	1,857	9.1	26.3	184	49
41-4011	Sales representatives, wholesale and manufacturing, technical and scientific products <sup>1</sup> .....	398	9.1	26.3	40	10
41-4012	Sales representatives, wholesale and manufacturing, except technical and scientific products <sup>1</sup> .....	1,459	9.1	26.3	145	38
41-9000	Other sales and related workers .....	1,827	16.8	19.8	321	36
41-9010	Models, demonstrators, and product promoters .....	179	20.3	22.2	39	4
41-9011	Demonstrators and product promoters .....	175	20.3	22.2	38	4
41-9012	Models .....	5	20.3	22.2	1	( <sup>2</sup> )
41-9020	Real estate brokers and sales agents .....	407	10.5	19.9	44	8
41-9021	Real estate brokers .....	99	10.5	19.9	11	2
41-9022	Real estate sales agents .....	308	10.5	19.9	33	6
41-9031	Sales engineers <sup>1</sup> .....	82	6.1	29.8	5	2
41-9041	Telemarketers .....	428	21.0	16.4	88	7

See footnotes at end of table.

**Table V-5. Total and net replacement rates and annual average replacement needs, 2002-12—Continued**

(Numbers in thousands)

2002 national employment matrix occupation		Total employment, 2002	Replacement rate (Percent)		Annual average replacement needs, 2002-12	
			Total, 2001-02	Net, 2002-12	Total	Net
41-9091	Door-to-door sales workers, news and street vendors, and related workers .....	155	25.2	23.6	37	4
41-9098	All other sales and related workers .....	577	16.6	19.0	108	11
<b>43-0000</b>	<b>Office and administrative support occupations .....</b>	<b>23,851</b>	<b>16.7</b>	<b>22.9</b>	<b>4,118</b>	<b>545</b>
43-1000	Supervisors, office and administrative support workers .....	1,459	8.9	21.5	135	31
43-1011	First-line supervisors/managers of office and administrative support workers .....	1,459	8.9	21.5	135	31
43-2000	Communications equipment operators .....	304	19.1	25.4	55	8
43-2011	Switchboard operators, including answering service .....	236	20.2	25.6	48	6
43-2021	Telephone operators .....	50	13.1	25.9	5	1
43-2099	All other communications equipment operators .....	18	16.3	21.4	3	( <sup>2</sup> )
43-3000	Financial clerks .....	3,726	15.3	23.5	589	88
43-3011	Bill and account collectors .....	413	15.9	18.8	74	8
43-3021	Billing and posting clerks and machine operators .....	507	14.7	17.0	77	9
43-3031	Bookkeeping, accounting, and auditing clerks .....	1,983	13.5	18.7	272	37
43-3041	Gaming cage workers .....	18	36.4	48.7	7	1
43-3051	Payroll and timekeeping clerks .....	198	9.1	26.4	19	5
43-3061	Procurement clerks .....	77	17.4	25.4	13	2
43-3071	Tellers .....	530	22.9	49.3	127	26
43-4000	Information and record clerks .....	5,394	20.5	21.3	1,198	115
43-4011	Brokerage clerks .....	78	12.8	13.3	9	1
43-4021	Correspondence clerks .....	33	20.0	29.7	7	1
43-4031	Court, municipal, and license clerks .....	106	11.8	22.2	13	2
43-4041	Credit authorizers, checkers, and clerks .....	80	19.3	19.2	15	2
43-4051	Customer service representatives .....	1,894	19.7	14.9	419	28
43-4061	Eligibility interviewers, government programs .....	94	12.6	26.7	11	3
43-4071	File clerks .....	265	23.4	29.7	62	8
43-4081	Hotel, motel, and resort desk clerks .....	178	23.7	44.9	47	8
43-4111	Interviewers, except eligibility and loan .....	193	20.8	25.8	46	5
43-4121	Library assistants, clerical .....	120	20.4	40.5	27	5
43-4131	Loan interviewers and clerks .....	170	18.3	13.7	29	2
43-4141	New accounts clerks .....	99	23.2	25.1	24	2
43-4151	Order clerks .....	330	18.6	22.5	60	7
43-4161	Human resources assistants, except payroll and timekeeping .....	174	18.7	21.5	36	4
43-4171	Receptionists and information clerks .....	1,100	23.9	24.6	302	27
43-4181	Reservation and transportation ticket agents and travel clerks <sup>1</sup> .....	177	18.7	26.1	35	5
43-4999	All other financial, information, and record clerks .....	304	18.6	15.7	57	5
43-5000	Material recording, scheduling, dispatching, and distributing occupations .....	4,005	19.0	29.4	763	118
43-5011	Cargo and freight agents .....	59	12.3	22.5	8	1
43-5021	Couriers and messengers .....	132	18.3	22.9	25	3
43-5030	Dispatchers .....	262	15.0	21.5	42	6
43-5031	Police, fire, and ambulance dispatchers .....	92	15.0	21.5	15	2
43-5032	Dispatchers, except police, fire, and ambulance .....	170	15.0	21.5	27	4
43-5041	Meter readers, utilities <sup>1</sup> .....	54	18.4	31.5	9	2
43-5050	Postal service workers .....	664	6.4	28.9	42	19
43-5051	Postal service clerks .....	77	6.9	26.4	5	2
43-5052	Postal service mail carriers <sup>1</sup> .....	334	6.0	31.3	20	10
43-5053	Postal service mail sorters, processors, and processing machine operators .....	253	6.9	26.4	17	7
43-5061	Production, planning, and expediting clerks <sup>1</sup> .....	288	16.4	24.2	50	7
43-5071	Shipping, receiving, and traffic clerks .....	803	18.9	20.5	154	16
43-5081	Stock clerks and order fillers .....	1,628	25.7	37.0	409	60
43-5111	Weighers, measurers, checkers, and samplers, recordkeeping .....	81	18.4	25.3	16	2
43-5199	All other material recording, scheduling, dispatching, and distributing workers .....	34	25.7	37.0	8	1
43-6000	Secretaries and administrative assistants .....	4,104	12.9	19.2	540	79
43-6011	Executive secretaries and administrative assistants .....	1,526	12.9	19.2	205	29
43-6012	Legal secretaries .....	264	12.9	19.2	37	5
43-6013	Medical secretaries .....	339	12.9	19.2	47	7
43-6014	Secretaries, except legal, medical, and executive .....	1,975	12.9	19.2	251	38
43-9000	Other office and administrative support workers .....	4,858	17.0	22.1	838	107

See footnotes at end of table.

**Table V-5. Total and net replacement rates and annual average replacement needs, 2002-12—Continued**

(Numbers in thousands)

2002 national employment matrix occupation		Total employment, 2002	Replacement rate (Percent)		Annual average replacement needs, 2002-12	
			Total, 2001-02	Net, 2002-12	Total	Net
43-9011	Computer operators .....	182	14.8	21.3	25	4
43-9020	Data entry and information processing workers .....	633	18.4	23.0	106	15
43-9021	Data entry keyers .....	392	18.3	23.6	70	9
43-9022	Word processors and typists .....	241	18.6	22.0	36	5
43-9031	Desktop publishers .....	35	9.5	22.6	4	1
43-9041	Insurance claims and policy processing clerks .....	266	14.9	16.1	40	4
43-9051	Mail clerks and mail machine operators, except postal service .....	170	17.0	29.9	29	5
43-9061	Office clerks, general .....	2,991	17.4	22.1	546	66
43-9071	Office machine operators, except computer .....	96	18.0	25.2	17	2
43-9081	Proofreaders and copy markers <sup>1</sup> .....	27	19.3	20.5	5	1
43-9111	Statistical assistants .....	23	10.6	16.0	2	( <sup>2</sup> )
43-9999	All other secretaries, administrative assistants, and other office support workers .....	435	14.7	21.2	64	9
<b>45-0000</b>	<b>Farming, fishing, and forestry occupations .....</b>	<b>1,072</b>	<b>21.5</b>	<b>26.8</b>	<b>235</b>	<b>29</b>
45-1000	Supervisors, farming, fishing, and forestry workers .....	52	10.8	22.9	6	1
45-2000	Agricultural workers .....	804	22.5	28.0	185	23
45-2011	Agricultural inspectors .....	16	21.8	24.3	4	( <sup>2</sup> )
45-2021	Animal breeders .....	9	7.2	16.7	1	( <sup>2</sup> )
45-2041	Graders and sorters, agricultural products .....	49	21.8	26.5	11	1
45-2090	Miscellaneous agricultural workers .....	731	22.7	28.3	169	21
45-2091	Agricultural equipment operators .....	61	22.7	28.3	14	2
45-2092	Farmworkers and laborers, crop, nursery, and greenhouse .....	617	22.7	28.3	143	17
45-2093	Farmworkers, farm and ranch animals .....	53	22.7	28.3	12	2
45-3000	Fishing and hunting workers .....	38	17.4	29.6	6	1
45-3011	Fishers and related fishing workers <sup>1</sup> .....	36	17.6	28.5	6	1
45-3021	Hunters and trappers <sup>1</sup> .....	1	12.9	57.9	( <sup>2</sup> )	( <sup>2</sup> )
45-4000	Forest, conservation, and logging workers .....	81	20.3	19.5	16	2
45-4011	Forest and conservation workers .....	14	17.8	24.6	3	( <sup>2</sup> )
45-4020	Logging workers .....	67	20.9	18.4	14	1
45-4021	Fallers .....	14	20.9	18.4	3	( <sup>2</sup> )
45-4022	Logging equipment operators .....	43	20.9	18.4	9	1
45-4023	Log graders and scalers .....	10	20.9	18.4	2	( <sup>2</sup> )
45-9099	All other farming, fishing, and forestry workers .....	96	22.2	24.1	22	2
<b>47-0000</b>	<b>Construction and extraction occupations .....</b>	<b>7,292</b>	<b>12.8</b>	<b>19.8</b>	<b>1,000</b>	<b>145</b>
47-1000	Supervisors, construction and extraction workers .....	633	9.2	17.0	63	11
47-1011	First-line supervisors/managers of construction trades and extraction workers <sup>1</sup> .....	633	9.2	17.0	63	11
47-2000	Construction trades and related workers .....	5,596	12.8	18.4	774	103
47-2011	Boilermakers <sup>1</sup> .....	25	6.2	36.4	2	1
47-2020	Brickmasons, blockmasons, and stonemasons .....	165	12.8	14.9	23	2
47-2021	Brickmasons and blockmasons <sup>1</sup> .....	148	12.8	14.9	20	2
47-2022	Stonemasons <sup>1</sup> .....	17	12.8	14.9	2	( <sup>2</sup> )
47-2031	Carpenters .....	1,209	14.9	16.3	190	20
47-2040	Carpet, floor, and tile installers and finishers .....	164	10.1	15.6	18	3
47-2041	Carpet installers .....	82	10.1	15.6	9	1
47-2042	Floor layers, except carpet, wood, and hard tiles .....	31	10.1	15.6	3	( <sup>2</sup> )
47-2043	Floor sanders and finishers .....	17	10.1	15.6	2	( <sup>2</sup> )
47-2044	Tile and marble setters .....	33	10.1	15.6	4	1
47-2050	Cement masons, concrete finishers, and terrazzo workers .....	188	10.7	20.1	23	4
47-2051	Cement masons and concrete finishers .....	182	10.7	20.1	22	4
47-2053	Terrazzo workers and finishers .....	6	10.7	20.1	1	( <sup>2</sup> )
47-2061	Construction laborers .....	938	16.3	13.3	163	12
47-2070	Construction equipment operators .....	416	12.0	24.0	52	10
47-2071	Paving, surfacing, and tamping equipment operators <sup>1</sup> .....	58	12.9	14.3	8	1
47-2072	Pile-driver operators .....	5	14.6	16.9	1	( <sup>2</sup> )
47-2073	Operating engineers and other construction equipment operators .....	353	11.8	25.7	44	9
47-2080	Drywall installers, ceiling tile installers, and tapers .....	176	10.4	21.7	20	4
47-2081	Drywall and ceiling tile installers .....	135	10.4	21.7	16	3
47-2082	Tapers .....	41	10.4	21.7	5	1
47-2111	Electricians .....	659	7.6	19.8	56	13

See footnotes at end of table.

**Table V-5. Total and net replacement rates and annual average replacement needs, 2002-12—Continued**

(Numbers in thousands)

2002 national employment matrix occupation		Total employment, 2002	Replacement rate (Percent)		Annual average replacement needs, 2002-12	
			Total, 2001-02	Net, 2002-12	Total	Net
47-2121	Glaziers <sup>1</sup> .....	49	12.8	20.9	7	1
47-2130	Insulation workers .....	53	14.6	30.2	8	2
47-2140	Painters and paperhangers .....	468	14.2	15.1	70	7
47-2141	Painters, construction and maintenance .....	448	14.3	15.2	68	7
47-2142	Paperhangers <sup>1</sup> .....	20	12.9	12.7	3	( <sup>2</sup> )
47-2150	Pipelayers, plumbers, pipefitters, and steamfitters .....	550	9.5	23.0	57	13
47-2151	Pipelayers .....	58	9.5	23.0	6	1
47-2152	Plumbers, pipefitters, and steamfitters .....	492	9.5	23.0	51	11
47-2161	Plasterers and stucco masons <sup>1</sup> .....	59	12.8	18.3	8	1
47-2171	Reinforcing iron and rebar workers .....	29	7.0	19.4	2	1
47-2181	Roofers .....	166	21.1	23.3	38	4
47-2211	Sheet metal workers .....	205	12.5	24.0	28	5
47-2221	Structural iron and steel workers .....	78	9.7	19.6	8	2
47-3000	Helpers, construction trades .....	431	15.4	41.5	71	18
47-3010	Helpers, construction trades .....	431	15.4	41.5	71	18
47-3011	Helpers—brickmasons, blockmasons, stonemasons, and tile and marble setters .....	59	15.4	41.5	9	2
47-3012	Helpers—carpenters .....	97	15.4	41.5	16	4
47-3013	Helpers—electricians .....	99	15.4	41.5	17	4
47-3014	Helpers—painters, paperhangers, plasterers, and stucco masons .....	31	15.4	41.5	5	1
47-3015	Helpers—pipelayers, plumbers, pipefitters, and steamfitters .....	79	15.4	41.5	13	3
47-3016	Helpers—roofers .....	21	15.4	41.5	4	1
47-3019	All other helpers, construction trades .....	44	15.4	41.5	7	2
47-4000	Other construction and related workers .....	354	13.8	19.1	52	7
47-4011	Construction and building inspectors <sup>1</sup> .....	84	10.1	22.5	9	2
47-4021	Elevator installers and repairers <sup>1</sup> .....	21	11.2	24.7	3	1
47-4031	Fence erectors .....	27	11.9	14.8	3	( <sup>2</sup> )
47-4041	Hazardous materials removal workers .....	38	16.7	26.4	8	1
47-4051	Highway maintenance workers .....	154	15.3	14.5	25	2
47-4061	Rail-track laying and maintenance equipment operators .....	11	14.0	22.6	1	( <sup>2</sup> )
47-4071	Septic tank servicers and sewer pipe cleaners .....	18	16.6	26.7	3	( <sup>2</sup> )
47-4090	Miscellaneous construction and related workers .....	2	12.0	16.0	( <sup>2</sup> )	( <sup>2</sup> )
47-4091	Segmental pavers .....	2	12.0	16.0	( <sup>2</sup> )	( <sup>2</sup> )
47-4999	All other construction trades and related workers .....	110	12.0	16.0	15	2
47-5000	Extraction workers .....	167	14.5	27.1	24	5
47-5010	Derrick, rotary drill, and service unit operators, oil, gas, and mining .....	41	11.8	29.0	5	1
47-5011	Derrick operators, oil and gas <sup>1</sup> .....	15	11.8	29.0	2	( <sup>2</sup> )
47-5012	Rotary drill operators, oil and gas <sup>1</sup> .....	14	11.8	29.0	2	( <sup>2</sup> )
47-5013	Service unit operators, oil, gas, and mining <sup>1</sup> .....	13	11.8	29.0	2	( <sup>2</sup> )
47-5021	Earth drillers, except oil and gas <sup>1</sup> .....	23	12.8	21.1	3	( <sup>2</sup> )
47-5031	Explosives workers, ordnance handling experts, and blasters <sup>1</sup> .....	5	15.5	38.1	1	( <sup>2</sup> )
47-5040	Mining machine operators .....	18	15.2	28.4	3	1
47-5041	Continuous mining machine operators <sup>1</sup> .....	8	15.2	28.4	1	( <sup>2</sup> )
47-5042	Mine cutting and channeling machine operators <sup>1</sup> .....	5	15.2	28.4	1	( <sup>2</sup> )
47-5049	All other mining machine operators <sup>1</sup> .....	4	15.2	28.4	1	( <sup>2</sup> )
47-5051	Rock splitters, quarry .....	3	13.0	24.7	( <sup>2</sup> )	( <sup>2</sup> )
47-5061	Roof bolters, mining <sup>1</sup> .....	4	17.0	18.2	1	( <sup>2</sup> )
47-5071	Roustabouts, oil and gas <sup>1</sup> .....	32	15.2	27.7	5	1
47-5081	Helpers—extraction workers <sup>1</sup> .....	29	18.7	28.2	6	1
47-5099	Extraction workers, all other .....	12	13.0	24.7	2	( <sup>2</sup> )
<b>49-0000</b>	<b>Installation, maintenance, and repair occupations .....</b>	<b>5,696</b>	<b>10.5</b>	<b>22.9</b>	<b>638</b>	<b>131</b>
49-1000	Supervisors of installation, maintenance, and repair workers .....	444	7.9	25.1	38	11
49-1011	First-line supervisors/managers of mechanics, installers, and repairers .....	444	7.9	25.1	38	11
49-2000	Electrical and electronic equipment mechanics, installers, and repairers .....	689	10.4	19.2	74	13
49-2011	Computer, automated teller, and office machine repairers .....	156	10.7	12.2	18	2
49-2020	Radio and telecommunications equipment installers and repairers .....	226	10.4	20.7	23	5
49-2021	Radio mechanics .....	7	10.4	20.7	1	( <sup>2</sup> )
49-2022	Telecommunications equipment installers and repairers, except line installers .....	219	10.4	20.7	23	5
49-2090	Miscellaneous electrical and electronic equipment mechanics, installers, and repairers .....	284	10.2	21.8	31	6
49-2091	Avionics technicians .....	23	11.3	24.2	3	1

See footnotes at end of table.

**Table V-5. Total and net replacement rates and annual average replacement needs, 2002-12—Continued**

(Numbers in thousands)

2002 national employment matrix occupation		Total employment, 2002	Replacement rate (Percent)		Annual average replacement needs, 2002-12	
			Total, 2001-02	Net, 2002-12	Total	Net
49-2092	Electric motor, power tool, and related repairers .....	31	10.7	24.0	3	1
49-2093	Electrical and electronics installers and repairers, transportation equipment .....	18	12.9	24.4	2	( <sup>2</sup> )
49-2094	Electrical and electronics repairers, commercial and industrial equipment .....	85	10.4	22.0	9	2
49-2095	Electrical and electronics repairers, powerhouse, substation, and relay .....	21	10.4	22.0	2	( <sup>2</sup> )
49-2096	Electronic equipment installers and repairers, motor vehicles .....	18	6.4	24.2	1	( <sup>2</sup> )
49-2097	Electronic home entertainment equipment installers and repairers .....	43	11.7	19.6	5	1
49-2098	Security and fire alarm systems installers .....	46	8.0	19.1	4	1
49-2099	All other electrical and electronic equipment mechanics, installers, and repairers .....	22	10.4	20.7	3	( <sup>2</sup> )
49-3000	Vehicle and mobile equipment mechanics, installers, and repairers .....	1,817	10.9	25.8	210	47
49-3011	Aircraft mechanics and service technicians <sup>1</sup> .....	131	7.7	23.6	11	3
49-3020	Automotive technicians and repairers .....	1,038	10.9	25.2	121	26
49-3021	Automotive body and related repairers .....	198	10.4	20.3	22	4
49-3022	Automotive glass installers and repairers .....	22	12.4	19.0	3	( <sup>2</sup> )
49-3023	Automotive service technicians and mechanics .....	818	11.0	26.6	96	22
49-3031	Bus and truck mechanics and diesel engine specialists .....	267	9.1	25.7	26	7
49-3040	Heavy vehicle and mobile equipment service technicians and mechanics .....	176	8.8	21.7	16	4
49-3041	Farm equipment mechanics .....	35	8.8	21.7	3	1
49-3042	Mobile heavy equipment mechanics, except engines .....	126	8.8	21.7	12	3
49-3043	Rail car repairers .....	15	8.8	21.7	1	( <sup>2</sup> )
49-3050	Small engine mechanics .....	67	6.6	24.8	5	2
49-3051	Motorboat mechanics <sup>1</sup> .....	22	6.6	24.8	2	1
49-3052	Motorcycle mechanics <sup>1</sup> .....	15	6.6	24.8	1	( <sup>2</sup> )
49-3053	Outdoor power equipment and other small engine mechanics <sup>1</sup> .....	30	6.6	24.8	2	1
49-3090	Miscellaneous vehicle and mobile equipment mechanics, installers, and repairers <sup>1</sup> .....	102	25.7	42.5	28	4
49-3091	Bicycle repairers .....	7	25.7	42.5	2	( <sup>2</sup> )
49-3092	Recreational vehicle service technicians .....	13	25.7	42.5	4	1
49-3093	Tire repairers and changers .....	83	25.7	42.5	22	4
49-3099	All other vehicle and mobile equipment mechanics, installers, and repairers .....	36	11.0	26.6	4	1
49-9000	Other installation, maintenance, and repair occupations .....	2,746	10.7	21.6	316	59
49-9010	Control and valve installers and repairers .....	49	11.4	25.0	6	1
49-9011	Mechanical door repairers .....	11	11.4	25.0	1	( <sup>2</sup> )
49-9012	Control and valve installers and repairers, except mechanical door .....	38	11.4	25.0	5	1
49-9021	Heating, air conditioning, and refrigeration mechanics and installers .....	249	10.9	13.3	31	3
49-9031	Home appliance repairers .....	42	11.8	23.8	5	1
49-9040	Industrial machinery installation, repair, and maintenance workers .....	1,628	10.1	19.7	176	32
49-9041	Industrial machinery mechanics .....	197	9.2	20.1	19	4
49-9042	Maintenance and repair workers, general .....	1,266	10.6	19.2	145	24
49-9043	Maintenance workers, machinery .....	92	4.7	22.6	4	2
49-9044	Millwrights .....	69	9.4	24.3	7	2
49-9045	Refractory materials repairers, except brickmasons .....	4	9.2	20.1	( <sup>2</sup> )	( <sup>2</sup> )
49-9050	Line installers and repairers .....	268	7.1	28.9	20	8
49-9051	Electrical power-line installers and repairers .....	101	8.9	31.7	9	3
49-9052	Telecommunications line installers and repairers .....	167	6.1	27.2	11	5
49-9060	Precision instrument and equipment repairers .....	64	11.1	28.0	7	2
49-9061	Camera and photographic equipment repairers .....	7	11.1	28.0	1	( <sup>2</sup> )
49-9062	Medical equipment repairers .....	29	11.1	28.0	3	1
49-9063	Musical instrument repairers and tuners .....	6	11.1	28.0	1	( <sup>2</sup> )
49-9064	Watch repairers .....	5	11.1	28.0	1	( <sup>2</sup> )
49-9069	All other precision instrument and equipment repairers .....	17	11.1	28.0	2	( <sup>2</sup> )
49-9090	Miscellaneous installation, maintenance, and repair workers .....	447	14.5	27.4	70	12
49-9091	Coin, vending, and amusement machine servicers and repairers .....	43	14.0	24.2	6	1
49-9092	Commercial divers <sup>1</sup> .....	4	14.8	15.1	1	( <sup>2</sup> )
49-9093	Fabric menders, except garment .....	2	10.6	22.7	( <sup>2</sup> )	( <sup>2</sup> )
49-9094	Locksmiths and safe repairers <sup>1</sup> .....	23	11.2	33.4	3	1
49-9095	Manufactured building and mobile home installers .....	18	9.5	24.3	2	( <sup>2</sup> )
49-9096	Riggers .....	14	19.2	22.8	3	( <sup>2</sup> )
49-9097	Signal and track switch repairers .....	8	11.7	35.0	1	( <sup>2</sup> )
49-9098	Helpers—installation, maintenance, and repair workers <sup>1</sup> .....	150	20.1	33.8	33	5
49-9099	Installation, maintenance, and repair workers, all other .....	185	10.6	22.7	21	4
<b>51-0000</b>	<b>Production occupations .....</b>	<b>11,258</b>	<b>12.8</b>	<b>23.8</b>	<b>1,461</b>	<b>268</b>

See footnotes at end of table.

**Table V-5. Total and net replacement rates and annual average replacement needs, 2002-12—Continued**

(Numbers in thousands)

2002 national employment matrix occupation		Total employment, 2002	Replacement rate (Percent)		Annual average replacement needs, 2002-12	
			Total, 2001-02	Net, 2002-12	Total	Net
51-1000	Supervisors, production workers .....	733	8.0	21.0	62	15
51-1011	First-line supervisors/managers of production and operating workers .....	733	8.0	21.0	62	15
51-2000	Assemblers and fabricators .....	2,122	11.2	25.4	233	54
51-2011	Aircraft structure, surfaces, rigging, and systems assemblers .....	27	6.5	27.4	2	1
51-2020	Electrical, electronics, and electromechanical assemblers .....	377	6.8	23.6	24	9
51-2021	Coil winders, tapers, and finishers .....	36	6.8	23.6	2	1
51-2022	Electrical and electronic equipment assemblers .....	281	6.8	23.6	17	7
51-2023	Electromechanical equipment assemblers .....	60	6.8	23.6	4	1
51-2031	Engine and other machine assemblers .....	50	6.3	28.0	3	1
51-2041	Structural metal fabricators and fitters .....	89	15.7	23.5	14	2
51-2090	Miscellaneous assemblers and fabricators .....	1,579	12.1	25.9	191	41
51-2091	Fiberglass laminators and fabricators .....	37	12.1	25.9	5	1
51-2092	Team assemblers .....	1,174	12.1	25.9	141	30
51-2093	Timing device assemblers, adjusters, and calibrators .....	7	12.1	25.9	1	( <sup>2</sup> )
51-2099	All other assemblers and fabricators .....	361	12.1	25.9	44	9
51-3000	Food processing occupations .....	757	15.5	22.7	123	17
51-3011	Bakers .....	173	15.5	23.2	28	4
51-3020	Butchers and other meat, poultry, and fish processing workers .....	414	15.9	21.9	69	9
51-3021	Butchers and meat cutters .....	132	15.9	21.9	21	3
51-3022	Meat, poultry, and fish cutters and trimmers .....	154	15.9	21.9	26	3
51-3023	Slaughterers and meat packers .....	128	15.9	21.9	22	3
51-3090	Miscellaneous food processing workers .....	127	14.1	24.8	19	3
51-3091	Food and tobacco roasting, baking, and drying machine operators and tenders .....	19	13.4	28.6	3	1
51-3092	Food batchmakers <sup>1</sup> .....	74	13.5	24.6	10	2
51-3093	Food cooking machine operators and tenders .....	34	16.0	22.9	6	1
51-3099	All other food processing workers .....	42	15.9	21.9	7	1
51-4000	Metal workers and plastic workers .....	2,367	10.4	24.2	254	57
51-4010	Computer control programmers and operators .....	151	7.2	16.5	11	2
51-4011	Computer-controlled machine tool operators, metal and plastic .....	132	7.2	16.5	10	2
51-4012	Numerical tool and process control programmers .....	19	7.2	16.5	1	( <sup>2</sup> )
51-4020	Forming machine setters, operators, and tenders, metal and plastic .....	188	10.2	26.3	20	5
51-4021	Extruding and drawing machine setters, operators, and tenders, metal and plastic <sup>1</sup> .....	98	13.3	33.3	13	3
51-4022	Forging machine setters, operators, and tenders, metal and plastic <sup>1</sup> .....	45	6.1	14.7	3	1
51-4023	Rolling machine setters, operators, and tenders, metal and plastic .....	44	7.3	22.6	3	1
51-4030	Machine tool cutting setters, operators, and tenders, metal and plastic .....	546	10.6	22.1	59	12
51-4031	Cutting, punching, and press machine setters, operators, and tenders, metal and plastic .....	283	12.5	23.2	37	7
51-4032	Drilling and boring machine tool setters, operators, and tenders, metal and plastic <sup>1</sup> .....	53	9.0	29.2	5	2
51-4033	Grinding, lapping, polishing, and buffing machine tool setters, operators, and tenders, metal and plastic .....	104	8.4	19.1	9	2
51-4034	Lathe and turning machine tool setters, operators, and tenders, metal and plastic .....	75	8.7	19.2	7	1
51-4035	Milling and planing machine setters, operators, and tenders, metal and plastic .....	31	7.1	17.2	2	1
51-4041	Machinists .....	387	6.9	23.3	28	9
51-4050	Metal furnace and kiln operators and tenders .....	31	13.3	22.4	4	1
51-4051	Metal-refining furnace operators and tenders <sup>1</sup> .....	18	13.3	22.4	2	( <sup>2</sup> )
51-4052	Pourers and casters, metal <sup>1</sup> .....	13	13.3	22.4	2	( <sup>2</sup> )
51-4060	Model makers and patternmakers, metal and plastic .....	15	6.3	31.9	1	( <sup>2</sup> )
51-4061	Model makers, metal and plastic .....	9	6.3	31.9	1	( <sup>2</sup> )
51-4062	Patternmakers, metal and plastic .....	6	6.3	31.9	( <sup>2</sup> )	( <sup>2</sup> )
51-4070	Molders and molding machine setters, operators, and tenders, metal and plastic .....	174	11.0	24.9	20	4
51-4071	Foundry mold and coremakers .....	23	11.0	24.9	3	1
51-4072	Molding, coremaking, and casting machine setters, operators, and tenders, metal and plastic .....	151	11.0	24.9	17	4
51-4081	Multiple machine tool setters, operators, and tenders, metal and plastic .....	99	7.1	27.6	7	3
51-4111	Tool and die makers .....	109	2.5	22.5	3	2
51-4120	Welding, soldering, and brazing workers .....	452	16.5	28.2	80	13
51-4121	Welders, cutters, solderers, and brazers .....	391	16.5	28.2	70	11
51-4122	Welding, soldering, and brazing machine setters, operators, and tenders .....	61	16.5	28.2	10	2
51-4190	Miscellaneous metalworkers and plastic workers .....	215	10.0	24.9	22	5
51-4191	Heat treating equipment setters, operators, and tenders, metal and plastic <sup>1</sup> .....	29	12.9	31.4	4	1

See footnotes at end of table.

**Table V-5. Total and net replacement rates and annual average replacement needs, 2002-12—Continued**

(Numbers in thousands)

2002 national employment matrix occupation		Total employment, 2002	Replacement rate (Percent)		Annual average replacement needs, 2002-12	
			Total, 2001-02	Net, 2002-12	Total	Net
51-4192	Lay-out workers, metal and plastic .....	13	6.4	15.2	1	( <sup>2</sup> )
51-4193	Plating and coating machine setters, operators, and tenders, metal and plastic <sup>1</sup> .....	44	13.0	21.8	6	1
51-4194	Tool grinders, filers, and sharpeners <sup>1</sup> .....	26	6.0	32.4	2	1
51-4199	All other metal workers and plastic workers .....	104	9.5	23.7	10	2
51-5000	Printing occupations .....	465	10.9	24.0	51	11
51-5010	Bookbinders and bindery workers .....	98	6.4	26.7	6	3
51-5011	Bindery workers <sup>1</sup> .....	91	6.4	26.7	6	2
51-5012	Bookbinders <sup>1</sup> .....	7	6.4	26.7	( <sup>2</sup> )	( <sup>2</sup> )
51-5020	Printers .....	346	12.0	23.3	42	8
51-5021	Job printers .....	56	10.8	23.5	6	1
51-5022	Prepress technicians and workers .....	91	6.2	23.4	5	2
51-5023	Printing machine operators .....	199	14.7	23.2	30	5
51-5099	All other printing workers .....	21	14.7	23.2	3	( <sup>2</sup> )
51-6000	Textile, apparel, and furnishings occupations .....	1,085	15.6	19.3	157	21
51-6011	Laundry and dry-cleaning workers .....	231	19.1	27.2	47	6
51-6021	Pressers, textile, garment, and related materials .....	91	21.1	15.7	19	1
51-6031	Sewing machine operators .....	315	12.5	12.4	33	4
51-6040	Shoe and leather workers .....	23	13.6	26.1	3	1
51-6041	Shoe and leather workers and repairers <sup>1</sup> .....	16	14.6	31.4	2	1
51-6042	Shoe machine operators and tenders <sup>1</sup> .....	7	11.0	13.0	1	( <sup>2</sup> )
51-6050	Tailors, dressmakers, and sewers .....	90	16.2	17.4	14	2
51-6051	Sewers, hand .....	36	16.2	17.4	5	1
51-6052	Tailors, dressmakers, and custom sewers .....	53	16.2	17.4	8	1
51-6060	Textile machine setters, operators, and tenders .....	179	12.7	18.1	19	3
51-6061	Textile bleaching and dyeing machine operators and tenders .....	27	13.2	25.6	3	1
51-6062	Textile cutting machine setters, operators, and tenders .....	34	11.0	22.1	3	1
51-6063	Textile knitting and weaving machine setters, operators, and tenders <sup>1</sup> .....	53	10.7	11.2	5	1
51-6064	Textile winding, twisting, and drawing out machine setters, operators, and tenders <sup>1</sup> .....	66	14.9	18.6	8	1
51-6090	Miscellaneous textile, apparel, and furnishings workers .....	156	14.7	25.2	22	4
51-6091	Extruding and forming machine setters, operators, and tenders, synthetic and glass fibers <sup>1</sup> .....	27	14.9	19.4	4	1
51-6092	Fabric and apparel patternmakers <sup>1</sup> .....	11	12.4	46.7	1	1
51-6093	Upholsterers <sup>1</sup> .....	56	15.5	25.4	8	1
51-6099	All other textile, apparel, and furnishings workers .....	61	14.3	23.6	9	1
51-7000	Woodworkers .....	374	11.8	25.7	45	10
51-7011	Cabinetmakers and bench carpenters .....	147	9.3	25.1	14	4
51-7021	Furniture finishers <sup>1</sup> .....	39	8.5	20.2	3	1
51-7030	Model makers and patternmakers, wood .....	9	7.3	29.0	1	( <sup>2</sup> )
51-7031	Model makers, wood <sup>1</sup> .....	4	7.3	29.0	( <sup>2</sup> )	( <sup>2</sup> )
51-7032	Patternmakers, wood <sup>1</sup> .....	4	7.3	29.0	( <sup>2</sup> )	( <sup>2</sup> )
51-7040	Woodworking machine setters, operators, and tenders .....	151	15.7	27.0	24	4
51-7041	Sawing machine setters, operators, and tenders, wood .....	56	18.0	28.3	10	2
51-7042	Woodworking machine setters, operators, and tenders, except sawing .....	95	14.4	26.3	14	2
51-7099	All other woodworkers <sup>1</sup> .....	29	10.5	28.9	3	1
51-8000	Plant and system operators .....	346	7.3	29.4	26	10
51-8010	Power plant operators, distributors, and dispatchers .....	51	7.1	26.9	4	1
51-8011	Nuclear power reactor operators <sup>1</sup> .....	3	7.1	26.9	( <sup>2</sup> )	( <sup>2</sup> )
51-8012	Power distributors and dispatchers <sup>1</sup> .....	12	7.1	26.9	1	( <sup>2</sup> )
51-8013	Power plant operators <sup>1</sup> .....	35	7.1	26.9	3	1
51-8021	Stationary engineers and boiler operators .....	55	7.8	18.5	4	1
51-8031	Water and liquid waste treatment plant and system operators <sup>1</sup> .....	99	7.0	34.4	8	3
51-8090	Miscellaneous plant and system operators .....	141	7.4	31.0	10	4
51-8091	Chemical plant and system operators <sup>1</sup> .....	58	7.4	31.0	4	2
51-8092	Gas plant operators <sup>1</sup> .....	12	7.4	31.0	1	( <sup>2</sup> )
51-8093	Petroleum pump system operators, refinery operators, and gaugers <sup>1</sup> .....	39	7.4	31.0	3	1
51-8099	All other plant and system operators <sup>1</sup> .....	32	7.4	31.0	2	1
51-9000	Other production occupations .....	3,010	16.3	24.2	510	73
51-9010	Chemical processing machine setters, operators, and tenders .....	94	13.4	32.0	12	3
51-9011	Chemical equipment operators and tenders <sup>1</sup> .....	58	13.4	32.0	8	2
51-9012	Separating, filtering, clarifying, precipitating, and still machine setters, operators, and tenders <sup>1</sup> .....	36	13.4	32.0	5	1

See footnotes at end of table.

**Table V-5. Total and net replacement rates and annual average replacement needs, 2002-12—Continued**

(Numbers in thousands)

2002 national employment matrix occupation		Total employment, 2002	Replacement rate (Percent)		Annual average replacement needs, 2002-12	
			Total, 2001-02	Net, 2002-12	Total	Net
51-9020	Crushing, grinding, polishing, mixing, and blending workers .....	196	13.2	26.1	26	5
51-9021	Crushing, grinding, and polishing machine setters, operators, and tenders .....	45	13.2	26.1	6	1
51-9022	Grinding and polishing workers, hand .....	45	13.2	26.1	6	1
51-9023	Mixing and blending machine setters, operators, and tenders .....	106	13.2	26.1	14	3
51-9030	Cutting workers .....	109	14.3	20.7	16	2
51-9031	Cutters and trimmers, hand .....	31	14.3	20.7	5	1
51-9032	Cutting and slicing machine setters, operators, and tenders .....	77	14.3	20.7	11	2
51-9041	Extruding, forming, pressing, and compacting machine setters, operators, and tenders .....	73	13.4	26.3	10	2
51-9051	Furnace, kiln, oven, drier, and kettle operators and tenders .....	31	13.3	23.9	4	1
51-9061	Inspectors, testers, sorters, samplers, and weighers .....	515	16.3	22.8	86	12
51-9071	Jewelers and precious stone and metal workers <sup>1</sup> .....	40	6.6	19.9	3	1
51-9080	Medical, dental, and ophthalmic laboratory technicians .....	94	5.5	21.9	5	2
51-9081	Dental laboratory technicians .....	47	5.5	21.9	3	1
51-9082	Medical appliance technicians .....	14	5.5	21.9	1	( <sup>2</sup> )
51-9083	Ophthalmic laboratory technicians .....	33	5.5	21.9	2	1
51-9111	Packaging and filling machine operators and tenders .....	387	15.8	19.9	68	8
51-9120	Painting workers .....	187	15.7	26.1	31	5
51-9121	Coating, painting, and spraying machine setters, operators, and tenders .....	103	15.7	26.1	17	3
51-9122	Painters, transportation equipment .....	50	15.7	26.1	9	1
51-9123	Painting, coating, and decorating workers .....	34	15.7	26.1	6	1
51-9130	Photographic process workers and processing machine operators .....	82	15.2	24.7	13	2
51-9131	Photographic process workers .....	28	15.2	24.7	4	1
51-9132	Photographic processing machine operators .....	54	15.2	24.7	9	1
51-9141	Semiconductor processors .....	46	8.1	22.1	4	1
51-9190	Miscellaneous production workers .....	1,155	19.3	25.5	232	29
51-9191	Cementing and gluing machine operators and tenders <sup>1</sup> .....	27	13.4	27.2	4	1
51-9192	Cleaning, washing, and metal pickling equipment operators and tenders .....	18	13.5	29.2	3	1
51-9193	Cooling and freezing equipment operators and tenders .....	7	14.6	28.0	1	( <sup>2</sup> )
51-9194	Etchers and engravers <sup>1</sup> .....	10	7.5	27.5	1	( <sup>2</sup> )
51-9195	Molders, shapers, and casters, except metal and plastic .....	46	12.6	23.8	6	1
51-9196	Paper goods machine setters, operators, and tenders .....	117	13.4	21.2	15	2
51-9197	Tire builders .....	14	13.4	23.6	2	( <sup>2</sup> )
51-9198	Helpers—production workers .....	467	27.9	28.0	135	13
51-9199	All other production workers .....	449	13.9	23.9	66	11
<b>53-0000</b>	<b>Transportation and material moving occupations .....</b>	<b>9,828</b>	<b>17.9</b>	<b>22.4</b>	<b>1,870</b>	<b>220</b>
53-1000	Supervisors, transportation and material moving workers .....	364	9.7	23.5	38	9
53-1011	Aircraft cargo handling supervisors .....	9	9.7	23.5	1	( <sup>2</sup> )
53-1021	First-line supervisors/managers of helpers, laborers, and material movers, hand .....	147	9.7	23.5	15	3
53-1031	First-line supervisors/managers of transportation and material-moving machine and vehicle operators .....	207	9.7	23.5	21	5
53-2000	Air transportation occupations .....	144	6.6	26.2	10	4
53-2010	Aircraft pilots and flight engineers .....	100	6.1	26.7	7	3
53-2011	Airline pilots, copilots, and flight engineers <sup>1</sup> .....	79	6.1	26.7	5	2
53-2012	Commercial pilots <sup>1</sup> .....	21	6.1	26.7	1	1
53-2020	Air traffic controllers and airfield operations specialists .....	32	6.9	25.7	2	1
53-2021	Air traffic controllers <sup>1</sup> .....	26	6.9	25.7	2	1
53-2022	Airfield operations specialists <sup>1</sup> .....	6	6.9	25.7	( <sup>2</sup> )	( <sup>2</sup> )
53-2099	All other air transportation workers .....	12	9.7	23.5	1	( <sup>2</sup> )
53-3000	Motor vehicle operators .....	4,136	16.2	15.1	732	62
53-3011	Ambulance drivers and attendants, except emergency medical technicians .....	17	20.7	10.2	4	( <sup>2</sup> )
53-3020	Bus drivers .....	654	15.0	21.8	106	14
53-3021	Bus drivers, transit and intercity .....	202	15.0	21.8	33	4
53-3022	Bus drivers, school .....	453	15.0	21.8	74	10
53-3030	Driver/sales workers and truck drivers .....	3,221	16.3	14.1	575	45
53-3031	Driver/sales workers .....	431	15.0	16.3	66	7
53-3032	Truck drivers, heavy and tractor-trailer .....	1,767	15.0	16.3	291	29
53-3033	Truck drivers, light or delivery services .....	1,022	19.1	9.2	218	9
53-3041	Taxi drivers and chauffeurs .....	132	19.1	9.2	28	1
53-3099	All other motor vehicle operators .....	111	15.5	14.1	19	2

See footnotes at end of table.



**Table V-5. Total and net replacement rates and annual average replacement needs, 2002-12—Continued**

(Numbers in thousands)

2002 national employment matrix occupation		Total employment, 2002	Replacement rate (Percent)		Annual average replacement needs, 2002-12	
			Total, 2001-02	Net, 2002-12	Total	Net
53-4000	Rail transportation occupations .....	101	12.6	25.9	12	3
53-4010	Locomotive engineers and operators <sup>1</sup> .....	33	12.8	29.3	4	1
53-4021	Railroad brake, signal, and switch operators <sup>1</sup> .....	15	11.9	10.7	2	( <sup>2</sup> )
53-4031	Railroad conductors and yardmasters <sup>1</sup> .....	38	13.0	27.1	5	1
53-4039	Subway, streetcar operators and all other rail transportation workers .....	15	12.0	30.7	2	( <sup>2</sup> )
53-5000	Water transportation occupations .....	68	10.9	32.8	8	2
53-5011	Sailors and marine oilers <sup>1</sup> .....	27	10.7	35.3	3	1
53-5020	Ship and boat captains and operators .....	29	12.4	28.5	4	1
53-5021	Captains, mates, and pilots of water vessels <sup>1</sup> .....	25	12.4	28.5	3	1
53-5022	Motorboat operators <sup>1</sup> .....	4	12.4	28.5	1	( <sup>2</sup> )
53-5031	Ship engineers .....	8	7.1	44.0	1	( <sup>2</sup> )
53-5099	All other water transportation workers .....	4	9.7	23.5	( <sup>2</sup> )	( <sup>2</sup> )
53-6000	Other transportation workers .....	294	17.2	34.7	53	10
53-6011	Bridge and lock tenders .....	4	11.8	31.4	( <sup>2</sup> )	( <sup>2</sup> )
53-6021	Parking lot attendants <sup>1</sup> .....	107	15.5	29.7	18	3
53-6031	Service station attendants .....	107	21.4	44.9	23	5
53-6041	Traffic technicians .....	6	14.1	30.1	1	( <sup>2</sup> )
53-6051	Transportation inspectors .....	29	14.5	23.8	4	1
53-6099	All other related transportation workers .....	40	14.1	30.1	6	1
53-7000	Material moving occupations .....	4,722	20.6	27.6	1,017	130
53-7011	Conveyor operators and tenders .....	58	13.9	28.7	9	2
53-7021	Crane and tower operators .....	50	8.9	21.8	5	1
53-7030	Dredge, excavating, and loading machine operators .....	87	17.2	27.5	16	2
53-7031	Dredge operators <sup>1</sup> .....	3	17.2	27.5	1	( <sup>2</sup> )
53-7032	Excavating and loading machine and dragline operators <sup>1</sup> .....	80	17.2	27.5	14	2
53-7033	Loading machine operators, underground mining <sup>1</sup> .....	4	17.2	27.5	1	( <sup>2</sup> )
53-7041	Hoist and winch operators <sup>1</sup> .....	9	9.9	31.7	1	( <sup>2</sup> )
53-7051	Industrial truck and tractor operators .....	594	14.6	18.9	92	11
53-7060	Laborers and material movers, hand .....	3,659	21.8	29.1	830	107
53-7061	Cleaners of vehicles and equipment .....	344	20.7	34.8	74	12
53-7062	Laborers and freight, stock, and material movers, hand .....	2,231	22.9	32.7	527	73
53-7063	Machine feeders and offbearers .....	164	18.8	27.3	31	4
53-7064	Packers and packagers, hand .....	920	20.1	18.7	198	17
53-7070	Pumping station operators .....	32	12.6	23.3	4	1
53-7071	Gas compressor and gas pumping station operators .....	7	12.6	23.3	1	( <sup>2</sup> )
53-7072	Pump operators, except wellhead pumpers .....	13	12.6	23.3	2	( <sup>2</sup> )
53-7073	Wellhead pumpers .....	11	12.6	23.3	1	( <sup>2</sup> )
53-7081	Refuse and recyclable material collectors <sup>1</sup> .....	134	29.3	25.6	43	3
53-7111	Shuttle car operators .....	3	19.3	24.9	1	( <sup>2</sup> )
53-7121	Tank car, truck, and ship loaders .....	17	19.6	27.8	3	( <sup>2</sup> )
53-7199	Material moving workers, all other .....	78	18.0	26.8	15	2

<sup>1</sup> One or more Current Population Survey (CPS) proxy occupations may be used to estimate CPS-based data. See Chapter III.

<sup>2</sup> Less than 500.