

## Advanced Materials and Diversified Manufacturing (AMDM) Industry Cluster

The AMDM cluster includes most durable goods industries. Notable exclusions include food production, tobacco, lumber, paper, pharmaceuticals and manufacturers that produce materials for the building industries, such as roofing materials and cement. These excluded industries can be found within other industry clusters where there exists a significant supply chain or dependence among related industries. This cluster is further refined into five sub-clusters for closer evaluation.

### High Priority Occupations in AMDM

SOC Code	Occupation	Educational Attainment <sup>1</sup>	Industry Cluster Wage, 2006	Job Openings		All Industries				Source <sup>2</sup>
				Industry Cluster	All Industries	Percent Employment Change, 2002-2004	Percent Change in Wages, 2004-2006	Unempl. Rate, 2005-2007	Completers as Percent of Total Openings	
11-1021	General & Operations Managers	BD+	\$111,690	166	2,797	-0.7%	12.1%	1.9%	91.9%	Criteria Met
17-2112	Industrial Engineers	BD	\$65,589	75	206	-6.9%	5.4%	0.7%	71.8%	Criteria Met
17-2141	Mechanical Engineers	BD	\$65,925	84	245	-8.9%	8.8%	3.4%	267.3%	Criteria Met
17-3013	Mechanical Drafters	PS VOC	\$47,230	41	121	-2.2%	0.9%	1.7%	275.2%	2006 Petition
17-3026	Industrial Engineering Technicians	AD	\$48,365	24	62	-5.5%	9.2%	1.6%	522.6%	2006 Petition
41-4012	Sales Representatives	MT OJT	\$67,622	142	2,088	-0.4%	18.3%	2.3%	17.4%	Criteria Met
43-4051	Customer Service Representatives	MT OJT	\$35,688	114	2,396	-2.4%	7.5%	5.0%	5.3%	Criteria Met
43-5061	Production, Planning & Expediting Clerks	ST OJT	\$40,702	105	337	-3.6%	5.7%	4.2%	6.5%	Criteria Met
43-5071	Shipping, Receiving & Traffic Clerks	ST OJT	\$30,612	98	601	-1.2%	5.0%	6.0%	8.3%	Criteria Met
49-9041	Industrial Machinery Mechanics	LT OJT	\$40,060	36	166	0.0%	3.5%	1.6%	4.2%	2006 Petition
49-9042	Maintenance & Repair Workers, General	LT OJT	\$38,969	200	1,491	-2.4%	4.3%	4.6%	16.2%	2006 Petition & Criteria Met
49-9043	Maintenance Workers, Machinery	LT OJT	\$36,343	33	91	-4.9%	7.8%	24.0%	3.3%	2006 Petition
51-1011	Supervisors - Production & Operating Workers	WK EXP	\$53,647	253	665	-4.7%	10.8%	2.7%	0.6%	Criteria Met
51-2092	Team Assemblers	MT OJT	\$28,342	520	1,152	-3.7%	7.8%	9.0%	0.5%	Criteria Met
51-4011	Computer-Controlled Machine Tool Operators, Metal & Plastic	LT OJT	\$31,635	88	112	-9.1%	1.0%	24.2%	5.4%	Criteria Met
51-4012	Numerical Tool & Process Control Programmers	LT OJT	\$47,285	9	12	-3.3%	9.6%	24.2%	58.3%	2006 Petition
51-4041	Machinists	LT OJT	\$34,977	262	396	-6.2%	3.7%	2.9%	3.0%	Criteria Met
51-4072	Molding & Casting Machine Oprs, Metal & Plastic	MT OJT	\$27,713	93	127	-8.9%	1.4%	2.7%	3.9%	CWIA Added
51-4121	Welders, Cutters, Solderers & Brazers	PS VOC	\$34,348	212	474	-3.5%	5.1%	3.5%	46.8%	Criteria Met
51-5023	Printing Machine Operators	MT OJT	\$35,323	149	274	-7.1%	8.5%	9.7%	9.5%	Criteria Met
51-9061	Inspectors, Testers, Sorters, Samplers & Weighers	MT OJT	\$32,947	125	307	-6.3%	3.2%	2.1%	1.0%	Criteria Met
53-7051	Industrial Truck & Tractor Operators	ST OJT	\$30,303	130	978	2.4%	3.9%	4.7%	2.5%	Criteria Met

## Agriculture and Food Production (AFP) Industry Cluster

The AFP cluster begins with the growing of food crops, including grains and livestock, and ends with the wholesale and retail distribution of these products. The cluster also includes support industries such as refrigerated warehousing and fertilizer manufacturing as well as public agencies that oversee agricultural programs. A Food Processing sub-cluster is defined to address the unique workforce and economic development needs of industries that use raw agricultural products.

### High Priority Occupations in AFP

(Highlighted occupations are new additions in 2008)

SOC Code	Occupation	Educational Attainment <sup>1</sup>	Industry Cluster Wage, 2006	Job Openings		All Industries				Source <sup>2</sup>
				Industry Cluster	All Industries	Percent Employment Change, 2002-2004	Percent Change in Wages, 2004-2006	Unempl. Rate, 2005-2007	Completers as Percent of Total Openings	
11-1021	General & Operations Managers	BD+	\$112,600	63	2,797	-0.7%	12.1%	1.9%	91.9%	Criteria Met
29-1131	Veterinarians	PROF	\$88,500	18	71	-3.3%	16.3%	0.0%	193.0%	Dept of Ag added
29-2056	Veterinary Technologists & Technicians	AD	\$27,730	33	106	7.2%	8.7%	1.3%	139.6%	Dept of Ag added
31-9096	Veterinary Assistants & Laboratory Animal Caretakers	ST OJT	\$22,370	15	69	5.9%	15.9%	DNA	175.4%	Dept of Ag added
41-4012	Sales Representatives	MT OJT	\$51,429	210	2,088	-0.4%	18.3%	2.3%	17.4%	Criteria Met
43-5071	Shipping, Receiving & Traffic Clerks	ST OJT	\$28,083	39	601	-1.2%	5.0%	6.0%	8.3%	Criteria Met
49-9042	Maintenance & Repair Workers, General	LT OJT	\$37,716	56	1,491	-2.4%	4.3%	4.6%	16.2%	Criteria Met
51-1011	Supervisors - Production & Operating Workers	WK EXP	\$49,513	53	665	-4.7%	10.8%	2.7%	0.6%	Criteria Met
51-3092	Food Batchmakers	ST OJT	\$28,257	103	131	-3.9%	14.2%	12.5%	0.8%	Criteria Met
51-9111	Packaging & Filling Machine Operators/Tenders	ST OJT	\$28,386	95	197	-5.4%	4.4%	5.2%	1.0%	Criteria Met
53-3031	Driver/Sales Workers	ST OJT	\$32,097	76	426	-5.7%	9.0%	4.0%	0.7%	Criteria Met
53-3032	Truck Drivers, Heavy & Tractor-Trailer	MT OJT	\$37,210	163	2,136	-6.1%	4.6%	4.0%	30.9%	Criteria Met
53-3033	Truck Drivers, Light or Delivery Services	ST OJT	\$27,994	89	1,123	3.0%	3.9%	4.0%	40.2%	Criteria Met
53-7051	Industrial Truck & Tractor Operators	ST OJT	\$30,070	115	978	2.4%	3.9%	4.7%	2.5%	Criteria Met

DNA = Data Not Available

## Bio-Medical Industry Cluster

The Bio-Medical cluster includes industries that are involved in the development and use of technology to enhance life from a health perspective, such as research laboratories, pharmaceutical manufacturing, surgical and medical equipment manufacturing, and imaging centers. This sub-cluster largely represents those industries that employ advanced technology and serve as a foundation for enhanced medical services.

### High Priority Occupations in Bio-Medical

SOC Code	Occupation	Educational Attainment <sup>1</sup>	Industry Cluster Wage, 2006	Job Openings		All Industries				Source <sup>2</sup>
				Industry Cluster	All Industries	Percent Employment Change, 2002-2004	Percent Change in Wages, 2004-2006	Unempl. Rate, 2005-2007	Completers as Percent of Total Openings	
11-1021	General & Operations Managers	BD+	\$132,013	41	2,797	-0.7%	12.1%	1.9%	91.9%	Criteria Met
17-2161	Nuclear Engineers	BD	\$94,120	35	77	-0.7%	14.2%	DNA	24.7%	DCED added
19-1021	Biochemists & Biophysicists	PhD	\$89,025	62	75	-2.1%	18.0%	0.0%	1284.0%	DCED added
19-1042	Medical Scientists	PhD	\$84,229	38	161	2.8%	11.2%	1.8%	441.6%	DCED added
19-2031	Chemists	BD	\$59,844	56	137	-7.0%	3.1%	0.0%	650.4%	DCED added
19-4021	Biological Technicians	AD	\$38,051	76	91	-0.4%	1.6%	DNA	86.8%	Criteria Met
29-2012	Medical & Clinical Laboratory Technicians	AD	\$32,555	47	361	3.2%	9.2%	2.5%	47.9%	Criteria Met
41-4011	Sales Representatives, Scientific & Technical	MT OJT	\$76,779	61	557	-2.5%	13.3%	2.3%	5.4%	Criteria Met
43-4051	Customer Service Representatives	MT OJT	\$32,856	29	2,396	-2.4%	7.5%	5.0%	5.3%	Criteria Met
43-6011	Executive Secretaries & Administrative Assistants	MT OJT	\$43,982	51	1,864	0.8%	9.5%	2.7%	32.6%	Criteria Met
43-6014	Secretaries	MT OJT	\$32,734	44	2,296	0.9%	8.5%	2.7%	19.5%	Criteria Met
51-1011	Supervisors - Production & Operating Workers	WK EXP	\$62,437	26	665	-4.7%	10.8%	2.7%	0.6%	Criteria Met

DNA = Data Not Available

## Building and Construction (BC) Industry Cluster

The BC cluster includes industries directly involved in the construction of housing, roadways or other physical structures. Industries such as HVAC Equipment Manufacturing, whose products are exclusively used in the construction of these structures, were also included given their significance to the construction industries.

### High Priority Occupations in BC

(Highlighted occupations are new additions in 2008)

SOC Code	Occupation	Educational Attainment <sup>1</sup>	Industry Cluster Wage, 2006	Job Openings		All Industries				Source <sup>2</sup>
				Industry Cluster	All Industries	Percent Employment Change, 2002-2004	Percent Change in Wages, 2004-2006	Unempl. Rate, 2005-2007	Completers as Percent of Total Openings	
11-1011	Chief Executives	BD+	\$161,193	135	940	-2.4%	4.7%	1.1%	113.6%	Criteria Met
11-1021	General & Operations Managers	BD+	\$106,388	217	2,797	-0.7%	12.1%	1.9%	91.9%	Criteria Met
11-9021	Construction Managers	BD	\$83,380	114	291	5.1%	19.1%	1.7%	95.9%	Criteria Met
13-1051	Cost Estimators	BD	\$54,911	143	250	-1.8%	-0.3%	1.4%	5.6%	CWIA Added
41-4012	Sales Representatives	MT OJT	\$62,248	209	2,088	-0.4%	18.3%	2.3%	17.4%	Criteria Met
43-3031	Bookkeeping, Accounting & Auditing Clerks	MT OJT	\$32,268	99	1,430	0.8%	6.9%	1.2%	130.8%	Criteria Met
43-6014	Secretaries	MT OJT	\$28,289	209	2,296	0.9%	8.5%	2.7%	19.5%	Criteria Met
47-1011	Supervisors - Construction Trades & Extraction Workers	WK EXP	\$62,994	263	453	1.5%	16.7%	4.1%	2.4%	Criteria Met
47-2021	Brickmasons & Blockmasons	LT OJT	\$45,208	121	164	2.2%	6.9%	14.6%	7.9%	2007 Petition & Criteria Met
47-2022	Stonemasons	LT OJT	\$39,219	7	11	0.0%	6.5%	14.6%	9.1%	2007 Petition
47-2031	Carpenters	LT OJT	\$39,895	714	1,156	0.5%	8.1%	7.9%	23.4%	Criteria Met
47-2051	Cement Masons & Concrete Finishers	LT OJT	\$38,540	114	123	-1.2%	1.8%	12.9%	0.8%	2007 Petition & Criteria Met
47-2073	Operating Engineers	MT OJT	\$44,743	224	546	-2.5%	12.4%	6.7%	2.2%	Criteria Met
47-2111	Electricians	LT OJT	\$54,240	431	640	-5.6%	11.2%	3.7%	133.0%	Criteria Met
47-2141	Painters, Construction & Maintenance	MT OJT	\$38,139	123	288	-4.0%	6.6%	4.1%	1.0%	Criteria Met
47-2152	Plumbers, Pipefitters & Steamfitters	LT OJT	\$50,598	411	586	-5.1%	11.4%	2.3%	14.5%	Criteria Met
47-2181	Roofers	MT OJT	\$35,209	165	208	-8.0%	14.5%	11.7%	0.5%	Criteria Met
47-2211	Sheet Metal Workers	MT OJT	\$47,517	148	222	-3.4%	8.1%	9.7%	4.1%	Criteria Met
47-2221	Structural Iron & Steel Workers	LT OJT	\$51,482	81	91	0.0%	11.2%	4.1%	20.9%	Criteria Met
47-3011	Helpers--Brick, Block & Stonemasons and Tile & Marble Setters	ST OJT	\$28,961	150	156	6.1%	0.4%	26.5%	3.8%	Criteria Met
49-9021	Heating, A/C & Refrigeration Mechanics & Installers	LT OJT	\$39,673	128	293	-2.3%	1.8%	5.7%	141.0%	Criteria Met
51-2092	Team Assemblers	MT OJT	\$28,508	109	1,152	-3.7%	7.8%	9.0%	0.5%	Criteria Met
53-3032	Truck Drivers, Heavy & Tractor-Trailer	MT OJT	\$33,170	244	2,136	-6.1%	4.6%	4.0%	30.9%	Criteria Met

## Business and Financial Services (BFS) Industry Cluster

The BFS cluster includes a wide range of services available to today's businesses from business support services to waste management. Included in this cluster are banking and credit institutions, insurance carriers and brokers, personal and professional business services, advertising and marketing agencies, employment agents and agencies as well as a varied assortment of business support services.

### High Priority Occupations in BFS

(Highlighted occupations are new additions in 2008)

SOC Code	Occupation	Educational Attainment <sup>1</sup>	Industry Cluster Wage, 2006	Job Openings		All Industries				Source <sup>2</sup>
				Industry Cluster	All Industries	Percent Employment Change, 2002-2004	Percent Change in Wages, 2004-2006	Unempl. Rate, 2005-2007	Completers as Percent of Total Openings	
11-1021	General & Operations Managers	BD+	\$114,584	475	2,797	-0.7%	12.1%	1.9%	91.9%	Criteria Met
11-2022	Sales Managers	BD+	\$104,988	117	500	-2.6%	17.5%	2.5%	69.6%	Criteria Met
11-3011	Administrative Services Managers	BD+	\$79,676	127	468	2.8%	11.4%	0.0%	79.1%	Criteria Met
11-3021	IT Managers - Programming, Network & DB	BD+	\$108,426	116	456	0.8%	18.7%	0.3%	397.4%	CWIA Added
11-3031	Financial Managers	BD+	\$100,933	351	800	-0.8%	29.3%	2.3%	213.0%	Criteria Met
11-9141	Property, Real Estate & Community Association Managers	BD	\$62,984	81	174	10.9%	5.1%	1.8%	106.9%	Criteria Met
13-1031	Claims Adjusters, Examiners & Investigators	LT OJT	\$48,841	174	268	-2.4%	11.8%	2.1%	23.9%	Criteria Met
13-1073	Training & Development Specialists	BD	\$51,358	94	271	4.4%	1.2%	5.5%	53.5%	Criteria Met
13-1111	Management Analysts	BD+	\$86,719	196	536	-3.8%	11.9%	0.0%	5.4%	Criteria Met
13-2011	Accountants & Auditors	BD	\$66,047	486	1,099	3.3%	12.3%	1.9%	181.9%	Criteria Met
13-2051	Financial Analysts	BD	\$67,435	104	190	3.2%	14.6%	2.4%	200.0%	Criteria Met
13-2052	Personal Financial Advisors	BD	\$86,154	134	196	-4.7%	6.9%	0.6%	178.6%	Criteria Met
13-2072	Loan Officers	BD	\$52,904	125	131	1.7%	9.2%	5.2%	160.3%	Criteria Met
15-1031	Computer Software Engineers, Applications	BD	\$80,689	149	568	7.2%	9.2%	1.3%	125.2%	Criteria Met
15-1032	Computer Software Engineers, Systems Software	BD	\$78,702	75	335	-1.3%	6.4%	1.3%	254.9%	Criteria Met
15-1051	Computer Systems Analysts	BD	\$64,489	143	610	0.6%	-0.3%	2.2%	165.1%	CWIA Added
15-1071	Network & Computer Systems Administrators	BD	\$64,120	92	399	0.3%	7.9%	1.2%	340.9%	CWIA Added
15-1081	Network Systems & Data Communications Analysts	BD	\$65,981	81	328	-8.1%	12.4%	11.4%	150.0%	Criteria Met
23-1011	Lawyers	PROF	\$108,108	399	630	-1.4%	2.3%	0.7%	293.8%	Criteria Met
23-2011	Paralegals & Legal Assistants	AD	\$40,921	222	274	3.3%	8.2%	0.0%	196.7%	Criteria Met
37-1011	Supervisors - Housekeeping & Janitorial Workers	WK EXP	\$36,148	77	306	4.8%	8.1%	2.0%	DNA	Criteria Met
41-3021	Insurance Sales Agents	BD	\$55,892	317	491	-3.9%	13.9%	1.2%	4.3%	Criteria Met
41-3031	Securities, Commodities & Financial Services Sales Agents	BD	\$76,681	231	256	-1.8%	7.1%	4.9%	23.8%	Criteria Met
41-9022	Real Estate Sales Agents <sup>1</sup>	PS VOC	\$44,278	80	198	-1.3%	2.1%	4.0%	22.2%	Criteria Met
43-1011	Supervisors - Office & Administrative Support Workers	WK EXP	\$48,165	413	1,560	0.5%	9.4%	3.1%	112.5%	Criteria Met
43-3011	Bill & Account Collectors	ST OJT	\$28,290	309	685	-2.6%	6.5%	3.5%	5.4%	Criteria Met
43-3031	Bookkeeping, Accounting & Auditing Clerks	MT OJT	\$30,925	298	1,430	0.8%	6.9%	1.2%	130.8%	Criteria Met

43-4051	Customer Service Representatives	MT OJT	\$29,612	946	2,396	-2.4%	7.5%	5.0%	5.3%	Criteria Met
43-6011	Executive Secretaries & Administrative Assistants	MT OJT	\$38,702	414	1,864	0.8%	9.5%	2.7%	32.6%	Criteria Met
43-6012	Legal Secretaries	PS VOC	\$35,357	414	438	3.4%	0.5%	2.7%	41.3%	Criteria Met
43-6014	Secretaries	MT OJT	\$27,152	360	2,296	0.9%	8.5%	2.7%	19.5%	2008 Demand
43-9041	Insurance Claims & Policy Processing Clerks	MT OJT	\$32,177	122	183	-1.1%	4.7%	2.3%	18.6%	Criteria Met
49-9042	Maintenance & Repair Workers, General	LT OJT	\$29,802	211	1,491	-2.4%	4.3%	4.6%	16.2%	Criteria Met

1 - For those obtaining a real estate degree, not continuing education credits.

DNA = Data Not Available

## Education (ED) Industry Cluster

The ED cluster provides a full view of educational institutions in the commonwealth, encompassing elementary schools through universities as well as technical schools and junior colleges. Museums and historical sites are included as they provide a rich source of educational material for commonwealth residents. Support services such as school bus transportation and child day care services are included given their vital roles in facilitating or beginning one's educational pursuits and/or providing a valuable service to working parents. Finally, public agencies that oversee educational programs are also included.

### High Priority Occupations in ED

(Highlighted occupations are new additions in 2008)

SOC Code	Occupation	Educational Attainment <sup>1</sup>	Industry Cluster Wage, 2006	Job Openings		All Industries				Source <sup>2</sup>
				Industry Cluster	All Industries	Percent Employment Change, 2002-2004	Percent Change in Wages, 2004-2006	Unempl. Rate, 2005-2007	Completers as Percent of Total Openings	
11-9032	Education Administrators, Elementary & Secondary School	BD+	\$82,715	294	311	3.3%	5.4%	4.1%	207.4%	Criteria Met
11-9033	Education Administrators, Postsecondary	BD+	\$89,763	248	256	2.2%	24.6%	4.1%	193.8%	Criteria Met
21-1012	Educational, Vocational & School Counselors	MD	\$51,225	264	389	5.1%	6.8%	2.6%	278.4%	Criteria Met
25-1011	Business Teachers, Postsecondary	PhD	\$72,843	155	156	2.0%	6.2%	1.0%	41.0%	Criteria Met
25-1022	Mathematical Science Teachers, Postsecondary	PhD	\$66,476	103	103	2.0%	4.1%	1.0%	32.0%	Criteria Met
25-1032	Engineering Teachers, Postsecondary	PhD	\$84,426	113	114	2.5%	9.4%	1.0%	27.2%	Criteria Met
25-1042	Biological Science Teachers, Postsecondary	PhD	\$68,768	75	75	2.7%	13.4%	1.0%	30.7%	Criteria Met
25-1071	Health Specialties Teachers, Postsecondary	PhD	\$82,688	86	133	2.1%	DNA	1.0%	26.3%	Criteria Met
25-1072	Nursing Instructors & Teachers, Postsecondary	MD (MSN)*	\$60,055	54	66	1.3%	8.2%	1.0%	27.3%	2008 Demand
25-1081	Education Teachers, Postsecondary	PhD	\$59,696	106	107	2.5%	9.8%	1.0%	51.4%	Criteria Met
25-1194	Vocational Education Teachers, Postsecondary	WK EXP	\$42,910	123	157	-3.2%	6.6%	1.0%	105.1%	Criteria Met
25-2011	Preschool Teachers	BD	\$21,656	290	424	1.8%	-5.2%	2.4%	98.1%	2008 Petition
25-2021	Elementary School Teachers	BD	\$50,797	1,643	1,687	3.2%	0.1%	1.6%	343.2%	CWIA Added
25-2022	Middle School Teachers - Math, Science and Foreign Language	BD	\$53,507	675	678	3.3%	3.9%	1.6%	105.6%	Criteria Met
25-2031	Secondary School Teachers - Math, Science and Foreign Language	BD	\$50,608	1,847	1,856	3.3%	1.2%	0.5%	131.4%	Criteria Met
25-2032	Vocational Education Teachers, Secondary School	BD	\$52,529	192	194	3.2%	2.5%	0.5%	39.2%	Criteria Met
25-2041	Special Education Teachers, Pre-, Kindergarten & Elem.	BD	\$54,320	208	221	3.7%	DNA	2.1%	335.7%	CWIA Added
25-2042	Special Education Teachers, Middle School	BD	\$52,220	85	85	3.7%	5.3%	2.1%	328.2%	CWIA Added
25-2043	Special Education Teachers, Secondary School	BD	\$53,230	156	160	3.8%	2.7%	2.1%	301.3%	CWIA Added
25-3011	Adult Literacy, Remedial Education & GED Teachers	BD	\$41,791	35	84	14.7%	26.7%	5.1%	967.9%	2008 Demand
25-4021	Librarians	MD	\$51,524	207	275	0.6%	0.4%	4.3%	184.0%	Criteria Met
39-9011	Child Care Workers	AD*	\$17,630	457	1,153	-14.6%	4.6%	8.6%	16.7%	2008 Petition
43-6011	Executive Secretaries & Administrative Assistants	MT OJT	\$36,038	373	1,864	0.8%	9.5%	2.7%	32.6%	Criteria Met

DNA = Data Not Available

## Energy (ENGY) Industry Cluster

The Energy cluster includes industries directly involved in extracting materials used to generate both traditional and alternative energy; producing, transmitting, distributing or supplying this energy or energy efficient technologies; or engaged in manufacturing items exclusively used to produce this energy

### High Priority Occupations in Energy

(Highlighted occupations are new additions in 2008)

SOC Code	Occupation	Educational Attainment <sup>1</sup>	Industry Cluster Wage, 2006	Job Openings		All Industries				Source <sup>2</sup>
				Industry Cluster	All Industries	Percent Employment Change, 2002-2004	Percent Change in Wages, 2004-2006	Unempl. Rate, 2005-2007	Completers as Percent of Total Openings	
11-1021	General & Operations Managers	BD+	\$102,417	44	2,797	-0.7%	12.1%	1.9%	91.9%	Criteria Met
17-2161	Nuclear Engineers	BD	\$87,130	40	77	-0.7%	14.2%	DNA	24.7%	DCED added
43-4051	Customer Service Representatives	MT OJT	\$33,432	66	2,396	-2.4%	7.5%	5.0%	5.3%	Criteria Met
43-9061	Office Clerks	ST OJT	\$28,195	40	3,576	0.7%	8.1%	4.5%	6.1%	Criteria Met
47-1011	Supervisors - Construction Trades & Extraction Workers	WK EXP	\$69,292	33	453	1.5%	16.7%	4.1%	2.4%	Criteria Met
47-2073	Operating Engineers	MT OJT	\$41,477	55	546	-2.5%	12.4%	6.7%	2.2%	Criteria Met
47-2152	Plumbers, Pipefitters & Steamfitters	LT OJT	\$49,477	35	586	-5.1%	11.4%	2.3%	14.5%	Criteria Met
49-1011	Supervisors - Mechanics, Installers & Repairers	WK EXP	\$64,539	27	494	-1.9%	13.5%	0.8%	3.8%	Criteria Met
49-9042	Maintenance & Repair Workers, General	LT OJT	\$40,476	49	1,491	-2.4%	4.3%	4.6%	16.2%	Criteria Met
51-1011	Supervisors - Production & Operating Workers	WK EXP	\$59,556	28	665	-4.7%	10.8%	2.7%	0.6%	Criteria Met
51-2092	Team Assemblers	MT OJT	\$29,176	32	1,152	-3.7%	7.8%	9.0%	0.5%	Criteria Met
51-4121	Welders, Cutters, Solderers & Brazers	PS VOC	\$33,297	25	474	-3.5%	5.1%	3.5%	46.8%	Criteria Met
53-3032	Truck Drivers, Heavy & Tractor-Trailer	MT OJT	\$33,282	83	2,136	-6.1%	4.6%	4.0%	30.9%	Criteria Met
53-7062	Laborers & Freight, Stock & Material Movers	ST OJT	\$27,969	37	3,076	1.0%	0.9%	8.1%	DNA	Criteria Met

DNA = Data Not Available

## Information and Communication Services (ICS) Industry Cluster

The ICS cluster includes businesses engaged in the production and dissemination of information such as motion pictures and newspapers. Also included are information support industries, e.g. computer systems design and Internet service providers. Communication equipment manufacturers are included given their ties to the publication industries. Technical consulting rounds out the cluster.

### High Priority Occupations in ICS

(Highlighted occupations are new additions in 2008)

SOC Code	Occupation	Educational Attainment <sup>1</sup>	Industry Cluster Wage, 2006	Job Openings		All Industries				Source <sup>2</sup>
				Industry Cluster	All Industries	Percent Employment Change, 2002-2004	Percent Change in Wages, 2004-2006	Unempl. Rate, 2005-2007	Completers as Percent of Total Openings	
11-1021	General & Operations Managers	BD+	\$120,716	134	2,797	-0.7%	12.1%	1.9%	91.9%	Criteria Met
11-3021	IT Managers - Programming, Network & DB	BD+	\$116,943	92	456	0.8%	18.7%	0.3%	397.4%	CWIA Added
13-1111	Management Analysts	BD+	\$82,521	93	536	-3.8%	11.9%	0.0%	5.4%	Criteria Met
15-1021	Computer Programmers	BD	\$66,080	192	513	-1.8%	8.2%	2.1%	158.7%	Criteria Met
15-1031	Computer Software Engineers, Applications	BD	\$85,410	299	568	7.2%	9.2%	1.3%	125.2%	Criteria Met
15-1032	Computer Software Engineers, Systems Software	BD	\$81,314	172	335	-1.3%	6.4%	1.3%	254.9%	Criteria Met
15-1041	Computer Support Specialists	AD	\$39,510	163	586	0.1%	1.3%	2.5%	90.4%	Criteria Met
15-1051	Computer Systems Analysts	BD	\$69,218	167	610	0.6%	-0.3%	2.2%	165.1%	CWIA Added
15-1071	Network & Computer Systems Administrators	BD	\$66,298	116	399	0.3%	7.9%	1.2%	340.9%	CWIA Added
15-1081	Network Systems & Data Communications Analysts	BD	\$71,094	101	328	-8.1%	12.4%	11.4%	150.0%	Criteria Met
17-2081	Environmental Engineers	BD	\$72,625	17	57	-2.9%	6.2%	0.0%	31.6%	DEP added
17-3011	Architectural & Civil Drafters	PS VOC	\$40,327	54	97	-1.8%	2.8%	1.7%	503.1%	2008 Petition
41-3011	Advertising Sales Agents	MT OJT	\$44,772	104	171	-4.2%	2.6%	0.9%	147.4%	Criteria Met
41-4012	Sales Representatives	MT OJT	\$55,290	84	2,088	-0.4%	18.3%	2.3%	17.4%	Criteria Met
43-1011	Supervisors - Office & Administrative Support Workers	WK EXP	\$54,963	58	1,560	0.5%	9.4%	3.1%	112.5%	Criteria Met
43-4051	Customer Service Representatives	MT OJT	\$30,592	219	2,396	-2.4%	7.5%	5.0%	5.3%	Criteria Met
43-6011	Executive Secretaries & Administrative Assistants	MT OJT	\$39,783	93	1,864	0.8%	9.5%	2.7%	32.6%	Criteria Met
43-6014	Secretaries	MT OJT	\$28,499	56	2,296	0.9%	8.5%	2.7%	19.5%	Criteria Met
43-9061	Office Clerks	ST OJT	\$28,224	179	3,576	0.7%	8.1%	4.5%	6.1%	Criteria Met
49-2022	Telecommunications Equipment Installers & Repairers	PS VOC	\$50,852	77	121	-6.6%	3.5%	4.4%	4.1%	Criteria Met

## Health Care Industry Cluster

The Health Care cluster is comprised of industries that provide for the health and well being of Pennsylvania residents. Direct patient care forms the cornerstone. Also included are industries that support direct patient care such as ambulance services, retail drug stores and health insurance carriers as well as public agencies that oversee health programs.

### High Priority Occupations in Health Care

(Highlighted occupations are new additions in 2008)

SOC Code	Occupation	Educational Attainment <sup>1</sup>	Industry Cluster Wage, 2006	Job Openings		All Industries				Source <sup>2</sup>
				Industry Cluster	All Industries	Percent Employment Change, 2002-2004	Percent Change in Wages, 2004-2006	Unempl. Rate, 2005-2007	Completers as Percent of Total Openings	
11-9111	Medical & Health Services Managers	BD+	\$76,183	266	374	5.5%	1.5%	1.4%	390.1%	CWIA Added
13-1031	Claims Adjusters, Examiners & Investigators	LT OJT	\$48,295	84	268	-2.4%	11.8%	2.1%	23.9%	Criteria Met
21-1011	Substance Abuse & Behavioral Disorder Counselors	MD	\$33,793	98	160	11.6%	11.8%	2.6%	115.0%	Criteria Met
21-1014	Mental Health Counselors	MD	\$31,277	248	357	8.3%	13.3%	2.6%	117.9%	Criteria Met
21-1022	Medical & Public Health Social Workers	BD	\$43,409	103	179	3.8%	4.3%	1.5%	118.4%	Criteria Met
21-1023	Mental Health & Substance Abuse Social Workers	MD	\$36,813	93	218	7.0%	5.1%	1.5%	107.3%	Criteria Met
25-1072	Nursing Instructors & Teachers, Postsecondary	MD (MSN)*	\$61,629	11	66	1.3%	8.2%	1.0%	27.3%	2008 Demand
29-1051	Pharmacists	PROF	\$85,600	107	354	-1.5%	9.6%	1.6%	207.9%	Criteria Met
29-1062	Family & General Practitioners	PROF	\$136,064	204	240	-4.8%	4.5%	1.5%	188.8%	Criteria Met
29-1071	Physician Assistants	BD	\$61,124	91	112	4.3%	2.2%	0.0%	519.6%	CWIA Added
29-1111	Registered Nurses	AD	\$57,061	2,731	3,114	1.2%	8.1%	1.0%	265.4%	Criteria Met
29-1122	Occupational Therapists	BD	\$63,657	97	129	8.4%	10.5%	0.0%	248.1%	Criteria Met
29-1123	Physical Therapists	MD	\$67,390	199	221	5.0%	9.3%	0.0%	499.5%	CWIA Added
29-1126	Respiratory Therapists	AD	\$48,166	99	104	0.2%	11.5%	4.7%	112.5%	Criteria Met
29-2011	Medical & Clinical Laboratory Technologists	BD	\$46,819	178	229	1.4%	9.8%	2.5%	48.9%	Criteria Met
29-2012	Medical & Clinical Laboratory Technicians	AD	\$35,847	250	361	3.2%	9.2%	2.5%	47.9%	Criteria Met
29-2021	Dental Hygienists	AD	\$50,617	269	274	1.1%	2.7%	4.0%	96.7%	Criteria Met
29-2031	Cardiovascular Technologists & Technicians	AD	\$42,634	22	23	0.0%	21.7%	0.7%	826.1%	2007 Petition
29-2034	Radiologic Technologists & Technicians	AD	\$44,299	187	221	1.5%	9.5%	0.7%	255.7%	Criteria Met
29-2041	Emergency Medical Technicians & Paramedics	PS VOC	\$26,313	457	551	2.8%	8.2%	2.2%	10.9%	2008 Allied Health
29-2052	Pharmacy Technicians	MT OJT	\$28,414	91	303	-0.3%	9.6%	1.3%	162.4%	Criteria Met
29-2061	Licensed Practical & Licensed Vocational Nurses	PS VOC	\$38,416	1,212	1,462	0.7%	5.9%	3.3%	109.4%	Criteria Met
29-2071	Medical Records & Health Information Technicians	AD	\$29,754	154	176	1.5%	8.0%	0.0%	173.3%	Criteria Met
31-1011	Home Health Aides	ST OJT	\$19,922	1,027	1,358	9.6%	3.3%	5.4%	0.4%	PA CHC
31-1012	Nursing Aides, Orderlies & Attendants	ST OJT	\$23,507	1,329	1,630	0.3%	5.2%	5.4%	27.2%	PA CHC
31-9091	Dental Assistants	MT OJT	\$27,468	448	459	1.4%	4.1%	1.7%	74.1%	CWIA Added
31-9094	Medical Transcriptionists	PS VOC	\$28,121	199	247	7.4%	4.1%	DNA	52.2%	Criteria Met

31-9099	Phlebotomists	N/A	\$25,015	318	455	7.1%	5.9%	DNA	238.9%	Demand
43-1011	Supervisors - Office & Administrative Support Workers	WK EXP	\$45,905	258	1,560	0.5%	9.4%	3.1%	112.5%	Criteria Met
43-3021	Billing & Posting Clerks & Machine Operators	ST OJT	\$28,528	125	345	5.9%	5.0%	6.0%	38.8%	Criteria Met
43-6011	Executive Secretaries & Administrative Assistants	MT OJT	\$34,947	255	1,864	0.8%	9.5%	2.7%	32.6%	Criteria Met
43-6013	Medical Secretaries	PS VOC	\$26,798	407	446	1.4%	4.5%	2.7%	50.9%	CWIA Added
51-9081	Dental Laboratory Technicians	LT OJT	\$32,599	6	41	-9.8%	3.0%	0.0%	17.1%	2008 Allied Health
51-9082	Medical Appliance Technicians	LT OJT	\$31,323	1	30	-9.3%	19.7%	0.0%	53.3%	2008 Allied Health

DNA = Data Not Available

## Logistics and Transportation (LT) Industry Cluster

The LT cluster isolates industries that are related to the storage, transportation and distribution of goods. This cluster includes all modes of transportation including pipelines as well as logistics consulting and other supporting industries.

### High Priority Occupations in LT

(Highlighted occupations are new additions in 2008)

SOC Code	Occupation	Educational Attainment <sup>1</sup>	Industry Cluster Wage, 2006	Job Openings		All Industries				Source <sup>2</sup>
				Industry Cluster	All Industries	Percent Employment Change, 2002-2004	Percent Change in Wages, 2004-2006	Unempl. Rate, 2005-2007	Completers as Percent of Total Openings	
11-1021	General & Operations Managers	BD+	\$101,577	66	2,797	-0.7%	12.1%	1.9%	91.9%	Criteria Met
43-4051	Customer Service Representatives	MT OJT	\$30,928	61	2,396	-2.4%	7.5%	5.0%	5.3%	Criteria Met
43-5071	Shipping, Receiving & Traffic Clerks	ST OJT	\$28,117	43	601	-1.2%	5.0%	6.0%	8.3%	Criteria Met
49-3031	Bus, Truck & Diesel Engine Mechanics	PS VOC	\$36,252	117	535	1.6%	5.2%	1.9%	15.0%	Criteria Met
53-1031	Supervisors - Transportation & Vehicle Operators	WK EXP	\$49,925	101	314	1.6%	6.8%	2.3%	3.2%	Criteria Met
53-3032	Truck Drivers, Heavy & Tractor-Trailer	MT OJT	\$39,082	977	2,136	-6.1%	4.6%	4.0%	30.9%	Criteria Met
53-3033	Truck Drivers, Light or Delivery Services	ST OJT	\$34,958	195	1,123	3.0%	3.9%	4.0%	40.2%	Criteria Met
53-7051	Industrial Truck & Tractor Operators	ST OJT	\$28,518	350	978	2.4%	3.9%	4.7%	2.5%	Criteria Met

DNA = Data Not Available

## Lumber, Wood & Paper (LWP) Industry Cluster

The LWP cluster begins with logging and moves through sawmills to the manufacturing of wood furniture and paper products. The retail sales of building materials are included as it represents an increasingly larger market for the products of this cluster. Although home centers often provide materials not derived from the tree, the inability to determine what percentage of their workforce and sales is from lumber and wood products requires us to consider their significance to the LWP cluster.

### High Priority Occupations in LWP

SOC Code	Occupation	Educational Attainment <sup>1</sup>	Industry Cluster Wage, 2006	Job Openings		All Industries				Source <sup>2</sup>
				Industry Cluster	All Industries	Percent Employment Change, 2002-2004	Percent Change in Wages, 2004-2006	Unempl. Rate, 2005-2007	Completers as Percent of Total Openings	
11-1021	General & Operations Managers	BD+	\$107,403	38	2,797	-0.7%	12.1%	1.9%	91.9%	Criteria Met
41-4012	Sales Representatives	MT OJT	\$64,157	84	2,088	-0.4%	18.3%	2.3%	17.4%	Criteria Met
47-2031	Carpenters	LT OJT	\$31,454	45	1,156	0.5%	8.1%	7.9%	23.4%	Criteria Met
49-9042	Maintenance & Repair Workers, General	LT OJT	\$36,107	33	1,491	-2.4%	4.3%	4.6%	16.2%	Criteria Met
51-1011	Supervisors - Production & Operating Workers	WK EXP	\$52,139	45	665	-4.7%	10.8%	2.7%	0.6%	Criteria Met
51-5023	Printing Machine Operators	MT OJT	\$35,452	47	274	-7.1%	8.5%	9.7%	9.5%	Criteria Met
51-7011	Cabinetmakers & Bench Carpenters	LT OJT	\$33,443	80	159	-1.8%	18.1%	11.3%	9.4%	Criteria Met
51-7042	Woodworking Machine Setters/Operators/Tenders	MT OJT	\$25,750	49	80	-1.1%	8.8%	4.0%	15.0%	2008 Demand
51-9196	Paper Goods Machine Setters/Operators/Tenders	MT OJT	\$32,842	58	64	-7.8%	9.3%	0.0%	1.6%	2008 Demand
53-3032	Truck Drivers, Heavy & Tractor-Trailer	MT OJT	\$32,434	51	2,136	-6.1%	4.6%	4.0%	30.9%	Criteria Met
53-7051	Industrial Truck & Tractor Operators	ST OJT	\$30,018	78	978	2.4%	3.9%	4.7%	2.5%	Criteria Met

Footnotes:

1/ Educational Attainment Abbreviations:

Short-term, Moderate-term and Long-term training (**ST OJT**, **MT OJT** and **LT OJT**) – basic tasks and skills are learned through a period of on-the-job training.

Work experience in a related occupation (**WK EXP**) – training is gained through hands-on work in a similar occupation.

Post-secondary vocational training (**PS VOC**) – training is gained through a vocational training program.

Associate's Degree (**AD**) – degree completed after two years of full-time schooling beyond high school.

Associate's Degree (**AD\***) – for HPO purposes only – a two year associate's degree such as child development associate.

Bachelor's Degree (**BD**) – degree completed after four years of full-time schooling beyond high school.

Bachelor's Degree plus experience (**BD+**) – a four-year bachelor's degree plus experience gained through hands-on experience.

Master's (**MD**), Masters of Science in Nursing (**MD\***), Doctoral (**PhD**) or First Professional Degree (**PROF**) – training at the college or university level beyond a four-year bachelor's degree.

2/ Source Definitions:

**Criteria Met** – Occupations met all of the data screens established for the HPO process.

**CWIA added** – Occupations failing only one criteria screen that were evaluated and added by the Center for Workforce Information & Analysis.

**PA petition** – These occupations were added to the 2005 HPO list after being petitioned for statewide inclusion. All approved petitions were valid for three years.

**Demand** – The Human Capital Workgroup added these occupations to the 2005 HPO list because they represented a good commonwealth investment. Some are also the first-step in a career ladder and can lead to career advancement.

**PA CHC** - Added to the list because of known initiatives and work being done by The Pennsylvania Center for Health Careers.

**Allied Health group** - Added to the list because of known initiatives and work being done by The Allied Health workgroup.

**DCED added** – The Department of Community & Economic Development requested that these occupations be added due to known demand or future need.

**DEP added** – The Department of Environmental Protection requested that these occupations be added due to known demand or future need.

**Dept of Ag added** – The Department of Agriculture requested that these occupations be added due to known demand or future need.