



The Workforce Supply and Demand Characteristics of the East Baltimore Development Inc. Redevelopment Effort

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Introduction and Summary

The East Baltimore Development Inc., (EBDI) retained the Jacob France Institute of the Merrick School of Business at the University of Baltimore (JFI) conduct an analysis of the workforce supply and demand¹ issues related to EBDI's East Side of Baltimore City redevelopment activities and social programs. The goals of this analysis are to:

- develop projections of the types of jobs created by EBDI's planned redevelopment activity (labor demand);
- identify and analyze the characteristics of the local, East Baltimore workforce (labor supply); and
- assess the policy implications of the relationship between the jobs created and characteristics of the local workforce.

The major findings of this *Workforce Demand* analysis are as follows:

- Over the fifteen-year construction period, the redevelopment activities occurring in the EBDI area will create an estimated 12,321 construction and construction related jobs, with job creation projected to be greatest in 2010, with an estimated 2,565 jobs created;
- The overwhelming number of construction jobs created is low skill, with 85% of the jobs created requiring only on-the-job training or post secondary vocational training;
- The businesses and organizations locating in the EBDI redevelopment area will create an estimated 8,871 jobs, with job creation projected to be greatest in 2020, when 2,952 jobs are projected to be created; and
- The majority of jobs created in the EBDI development are high skilled, with 55% of the jobs created requiring an associate's degree or greater.

The major findings of this *Workforce Supply* analysis are as follows:

- The population of the EBDI redevelopment area has a low level of educational attainment. Forty-three percent (43%) of EBDI redevelopment area residents have not completed high school compared to 32% of East Baltimore residents, 25% of Baltimore City households and 14% of Metropolitan Area households;
- EBDI and East Baltimore residents have lower levels of workforce participation. Only 48% of EBDI redevelopment area residents aged 16 years or older are engaged in work activities, compared to 57% of East Baltimore residents, 60% of City residents and 67% of Metropolitan Area residents; and
- Many EBDI and East Baltimore residents face barriers to employment:
 - 11% of EBDI residents and 72% of East Baltimore residents participating in EBDI's workforce development program reported having a criminal background;
 - 12% of EBDI residents and 7% of East Baltimore residents participating in EBDI's workforce development program reported having a disability;
 - Key informants involved in east Baltimore workforce development programs report that in addition to the barriers described above – additional barriers to employment faced by EBDI and some East Baltimore residents include a lack of a work history and substance abuse.

¹ It is important to note that workforce supply data represent conditions at the time of publication and have changed over time and that not all of the estimated jobs are necessarily new to Baltimore City. Both workforce supply and demand issues have been impacted by the current economic downturn.

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- A EBDI Redevelopment Construction Jobs Created

- B EBDI Development Tenant Job Descriptions

Workforce Demand

The JFI conducted two analyses of the labor demand issues impacting the EBDI's redevelopment and social program plans, programs and policies:

1. The JFI conducted a detailed analysis of the jobs created within the EBDI redevelopment area at three levels: a) the one-time construction jobs associated with planned redevelopment construction spending; b) The ongoing jobs likely to be created inside of the EBDI development; and c) the program related jobs created by Forest City and EBDI;
2. The JFI developed rough and approximate estimates of likely job creation opportunities in the areas immediately surrounding the EBDI redevelopment area.

The goal of the first analysis is to estimate the number and types of jobs being created by the construction activity and redevelopment occurring in the EBDI area to examine the job placement potential for current and former EBDI residents and residents of the larger East Baltimore service area of EBDI. Thus, this analysis focused not only on estimating the number of jobs created, but the occupational and educational/skills profile of these jobs. The goal of the second analysis is to explore the prospects of placing EBDI or East Baltimore residents in jobs in the employment centers and development projects occurring in areas surrounding the EBDI redevelopment area.

Workforce Demand in the EBDI Redevelopment Area

The JFI prepared three estimates of the jobs created within the EBDI redevelopment area. The one-time construction jobs associated with planned redevelopment construction spending were estimated based on the construction budget for the Forest City and EBDI managed portions of the redevelopment provided by EBDI. This construction budget is presented in Table 1. The number of construction jobs created was estimated from these projected construction expenditures based on data on the number of construction jobs created by type of construction expenditure per \$1 million from the IMPLAN economic model.¹ For the ongoing jobs created by the life science, office, retail and other commercial buildings developed in the EBDI area, the JFI estimated the number of jobs created using two techniques. In most cases, the direct jobs created were estimated based on standard relationships of employment per square foot of space developed. The following square feet per job relationships were used:

- One job was estimated as being created for every 500 sq. ft. of lab space;
- One job was estimated as being created for every 300 sq. ft. of office space; and
- One job was estimated as being created for every 500 sq. ft. of retail space.

For the planned supermarket, the JFI developed an overall building revenue estimate based on planned square feet and estimated grocery store revenues per sq. ft. from the *Dollars and Cents of Shopping Centers* publication. For the hotel, the JFI estimated overall revenues based on the number of hotel rooms and estimated vacancy and revenues per room night. These were converted into jobs based on jobs per dollar of revenue relationships in the IMPLAN model. The inputs to the job creation analysis are presented in Table 2. The construction and operational inputs to this analysis are based on EBDI's current plans for and understanding of the project and both the timing and composition of the development may change. For both construction-related and ongoing jobs, total number of jobs created was converted into estimated occupational employment levels using occupational employment data by industry from the U.S.

¹ IMPLAN contains data on the number of jobs created per \$1 million in revenues for a variety of economic activities. Construction jobs were estimated using detailed estimates of construction spending my major area presented in Table 1.

Bureau of Labor Statistics (BLS).² For each of these occupations, the educational and training requirements were identified using BLS occupational data.³ EBDI program and Forest City jobs created was estimated based on interviews with and data provided by each.

Construction Phase – Job Creation Estimates

The total one-time construction jobs created by level of education and training required by year are presented in Table 3 and the 25 occupations experiencing the most job growth are presented in Table 4. As presented in Table 3, over the fifteen year construction period, the redevelopment activities occurring in the EBDI area will create an estimated 12,321 construction and construction related jobs. Job creation is projected to be greatest in 2010⁴, when 2,565 jobs are projected to be created. The overwhelming number of these construction jobs created is low skill, with 85% of the jobs created requiring only on-the-job training or post secondary vocational training. As presented in Table 4, the leading construction occupations experiencing job growth are: Carpenters with 2,395 total jobs created over the fifteen-year construction period; Construction Laborers with 1,805 jobs; First Line Supervisors of Construction workers with 1,090 jobs; and Construction Managers with 653 jobs. Of the top 25 impacted construction occupations only four – Construction Managers, General and Operations Managers, Civil Engineers, and Chief Executives -- require a bachelor's degree or above. The leading construction-related occupations where jobs are created are presented in Appendix A

Operations Phase – Job Creation Estimates

The total ongoing jobs created inside of the EBDI redevelopment area by level of education and training required by year are presented in Table 5, the 25 occupations experiencing the most job growth are presented in Table 6, and the top 20 low skilled occupations experiencing the most job growth are presented in Table 7. As presented in Table 5, once the EBDI redevelopment is complete, the businesses and organizations locating in the EBDI redevelopment area will create an estimated 8,871 jobs.⁵ Job creation is projected to be greatest in 2020⁴, when 2,952 jobs are projected to be created. Unlike in the construction phase, the majority of jobs created in the EBDI development are high skilled, with 55% of the jobs created requiring an associate's degree or greater, 45% requiring a bachelor's degree or above and 10% requiring an advanced degree. As presented in Table 6, the leading jobs created inside of the EBDI redevelopment area are in the business and professional services and medical and research occupations that are the target for the office and life sciences space developed. Only ten of the top 25 occupations are low skilled. In order to identify the best occupations for EBDI to target for its workforce development programs, the JFI identified the top 20 low skilled occupations for the jobs created in the EBDI redevelopment in Table 7. While not technically low skilled, the JFI included Biological Technicians in the list of targeted low skill jobs because of Baltimore's specialized training capacity in this area through the BioTechnical Institute of Maryland. The leading occupations are in office support and retail-related occupations. See Appendix B for a list of low-skilled tenant occupations.

² IMPLAN has developed, and this analysis used, an industry occupational matrix based on BLS data.

³ See <http://www.bls.gov/emp/empeted1.htm>.

⁴ These projections were made before the recent economic downturn. The construction schedule and related construction and operational job creation estimates are likely to experience some delay.

⁵ The operational jobs created are not necessarily new to the City and may represent the movement of employment from other parts of the City to the EBDI area.

Table 1
EBDI Modeling Inputs
Construction Costs and Schedule
For the EBDI Development

Item	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Total	\$22,400,000	\$98,000,000	\$25,065,243	\$75,000,000	\$302,574,336	\$179,482,815	\$160,250,095	\$119,600,000	\$173,800,000	\$72,800,000
Residential - Single Family	\$0	\$0	\$0	\$2,000,000	\$11,839,336	\$11,214,815	\$8,700,095	\$0	\$0	\$0
Residential - Multi-Family	\$12,000,000		\$9,065,243	\$52,000,000	\$18,800,000	\$18,800,000	\$18,800,000	\$18,800,000	\$18,800,000	\$18,800,000
Residential - Green Rehab	\$0	\$0	\$0	\$2,000,000	\$2,000,000	\$4,000,000	\$4,000,000	\$0	\$0	\$0
Commercial/Institutional Buildings	\$0	\$85,000,000	\$0	\$0	\$230,500,000	\$137,380,000	\$120,750,000	\$64,800,000	\$119,000,000	\$54,000,000
Site Prep	\$0	\$0	\$2,000,000	\$2,000,000	\$3,000,000	\$0	\$0	\$0	\$0	\$0
Parking	\$0	\$0	\$0	\$0	\$22,806,000	\$0	\$0	\$0	\$28,000,000	\$0
Infrastructure	\$1,400,000	\$13,000,000	\$14,000,000	\$8,000,000	\$8,042,000	\$8,088,000	\$8,000,000	\$8,000,000	\$8,000,000	\$0
Demolition	\$9,000,000	\$0	\$0	\$9,000,000	\$5,587,000	\$0	\$0	\$0	\$0	\$0
Light Rail Stop	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$28,000,000	\$0	\$0

Source: EBDI

Table 1 Continued
EBDI Modeling Inputs
Construction Costs and Schedule
For the EBDI Development

Item	2016	2017	2018	2019	2020	Fifteen Year Total
Total	\$52,800,000	\$52,800,000	\$52,800,000	\$52,800,000	\$52,800,000	\$1,492,972,489
Residential - Single Family	\$0	\$0	\$0	\$0	\$0	\$33,754,246
Residential - Multi-Family	\$18,800,000	\$18,800,000	\$18,800,000	\$18,800,000	\$18,800,000	\$279,865,243
Residential - Green Rehab	\$0	\$0	\$0	\$0	\$0	\$12,000,000
Commercial/Institutional Buildings	\$34,000,000	\$34,000,000	\$34,000,000	\$34,000,000	\$34,000,000	\$981,430,000
Site Prep	\$0	\$0	\$0	\$0	\$0	\$7,000,000
Parking	\$0	\$0	\$0	\$0	\$0	\$50,806,000
Infrastructure	\$0	\$0	\$0	\$0	\$0	\$76,530,000
Demolition	\$0	\$0	\$0	\$0	\$0	\$23,587,000
Light Rail Stop	\$0	\$0	\$0	\$0	\$0	\$28,000,000

Source: EBDI

Table 2
EBDI Employment Space Development, By Year

Use/Year	2009	2010	2011	2012	2013	2014	2015	2016 ...	2020	Total
Total Space	278,000		577,600	500,000	165,200	278,000	142,700	278,000	934,000	3,153,500
Wetlab	192,750		252,750	100,000	0	192,750	0	192,750	0	931,000
Office	64,250		303,850	320,000	120,000	64,250	124,000	64,250	813,000	1,873,600
Retail	21,000		21,000	0	10,200	21,000	18,700	21,000	121,000	233,900
Grocery Store					35,000					35,000
Hotel				80,000						80,000
Forest City Space ¹	<u>278,000</u>		<u>278,000</u>	<u>220,000</u>	<u>35,000</u>	<u>278,000</u>		<u>278,000</u>		<u>1,367,000</u>
Wetlab	192,750		192,750			192,750		192,750		771,000
Office	64,250		64,250	140,000		64,250		64,250		397,000
First Floor Retail	21,000		21,000			21,000		21,000		84,000
Grocery Store					35,000					35,000
Hotel				80,000						80,000
Total EDBI Space ²			<u>299,600</u>	<u>280,000</u>	<u>130,200</u>		<u>142,700</u>		<u>934,000</u>	<u>1,786,500</u>
Wetlab			60,000	100,000						160,000
Office			239,600	180,000	120,000		124,000		813,000	1,476,600
Retail					10,200		18,700		121,000	149,900

Notes

1 Data provided by Forest City.

2 Data provided by EBDI.

Source: JFI, Forest City and EBDI

Table 3
Construction Jobs Created by EBDI Development by Year by Level of Education and Training Required
(# of Jobs)

Education Level / Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Fifteen Year Total
Total	181	825	183	565	2,565	1,469	1,310	1,007	1,440	606	434	434	434	434	434	12,321
First Professional Degree	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Doctoral Degree	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Master's Degree	0	1	0	0	2	1	1	0	1	0	0	0	0	0	0	7
Degree plus work Experience	8	40	7	26	124	73	65	47	67	30	22	22	22	22	22	595
Bachelor's Degree	12	80	9	36	241	140	124	88	128	58	40	40	40	40	40	1,114
Associate Degree	1	3	0	1	8	5	4	4	4	2	1	1	1	1	1	38
Postsecondary vocational award	3	8	4	10	27	14	13	13	17	6	5	5	5	5	5	137
Work experience in a related occupation	19	109	20	63	332	193	171	121	183	79	56	56	56	56	56	1,570
Long-term on-the-job training	42	229	41	160	699	432	385	251	371	183	133	133	133	133	133	3,459
Moderate-term on-the-job training	76	281	83	204	900	471	421	385	540	188	134	134	134	134	134	4,216
Short-term on-the-job training	20	75	19	65	233	140	125	97	128	59	44	44	44	44	44	1,180
Unallocated	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	3
% of Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
First Professional Degree	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Doctoral Degree	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Master's Degree	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Degree plus work Experience	4%	5%	4%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Bachelor's Degree	7%	10%	5%	6%	9%	10%	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
Associate Degree	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Postsecondary vocational award	2%	1%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Work experience in a related occupation	11%	13%	11%	11%	13%	13%	13%	12%	13%	13%	13%	13%	13%	13%	13%	13%
Long-term on-the-job training	23%	28%	22%	28%	27%	29%	29%	25%	26%	30%	31%	31%	31%	31%	31%	28%
Moderate-term on-the-job training	42%	34%	45%	36%	35%	32%	32%	38%	37%	31%	31%	31%	31%	31%	31%	34%
Short-term on-the-job training	11%	9%	10%	12%	9%	10%	10%	10%	9%	10%	10%	10%	10%	10%	10%	10%
Unallocated	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Source: JFI

Table 4
Top 25 Construction Jobs Created by EBDI Development by Year by Level of Education and Training Required
(# of Jobs)

Occupation	Education and Training Level	Number of Jobs															Fifteen Year Total
		2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	
Carpenters	Long-term on-the-job training	32	140	24	134	466	296	264	161	248	132	99	99	99	99	99	2,395
Construction laborers	Moderate-term on-the-job training	27	127	32	75	392	209	187	155	230	83	58	58	58	58	58	1,805
First-line supervisors/managers of construction trades and extraction workers	Work experience in a related occupation	13	75	13	43	231	134	119	83	127	55	39	39	39	39	39	1,090
Construction managers	Bachelor's degree	7	46	6	23	139	82	73	48	74	34	24	24	24	24	24	653
Operating engineers and other construction equipment operators	Moderate-term on-the-job training	12	23	12	21	81	29	26	49	58	10	6	6	6	6	6	353
Helpers—Carpenters	Short-term on-the-job training	5	17	3	20	59	38	34	21	31	17	13	13	13	13	13	313
General and operations managers	Bachelor's plus experience	4	20	4	15	63	38	34	24	35	16	12	12	12	12	12	312
Cement masons and concrete finishers	Moderate-term on-the-job training	2	19	2	8	61	33	29	20	35	14	9	9	9	9	9	270
Cost estimators	Work experience in a related occupation	3	17	2	8	53	31	27	18	29	13	9	9	9	9	9	246
Secretaries, except legal, medical, and executive	Moderate-term on-the-job training	4	15	4	15	47	29	26	19	25	13	10	10	10	10	10	244
Bookkeeping, accounting, and auditing clerks	Moderate-term on-the-job training	4	14	3	14	47	29	26	19	26	12	9	9	9	9	9	240
Office clerks, general	Short-term on-the-job training	4	13	4	14	44	27	24	18	24	12	9	9	9	9	9	227
Plumbers, pipefitters, and steamfitters	Long-term on-the-job training	3	18	3	5	48	28	25	21	24	10	7	7	7	7	7	220
Executive secretaries and administrative assistants	Moderate-term on-the-job training	2	12	2	8	39	23	21	14	21	10	7	7	7	7	7	188
Structural iron and steel workers	Long-term on-the-job training	1	14	1	1	41	23	20	13	22	9	6	6	6	6	6	174
Electricians	Long-term on-the-job training	2	12	2	4	32	19	17	12	16	7	5	5	5	5	5	146
Truck drivers, heavy and tractor-trailer	Moderate-term on-the-job training	3	7	4	7	32	10	9	14	24	4	2	2	2	2	2	126
Brickmasons and blockmasons	Long-term on-the-job training	1	9	0	2	26	16	14	8	14	6	4	4	4	4	4	118
Painters, construction and maintenance	Moderate-term on-the-job training	1	9	1	2	26	14	12	10	14	5	4	4	4	4	4	113
Civil engineers	Bachelor's degree	2	6	1	7	22	13	12	8	13	6	5	5	5	5	5	113
Drywall and ceiling tile installers	Moderate-term on-the-job training	0	7	0	2	21	13	11	6	11	5	4	4	4	4	4	96
First-line supervisors/managers of office and administrative support workers	Work experience in a related occupation	1	6	2	5	18	11	10	7	10	5	4	4	4	4	4	94
Maintenance and repair workers, general	Moderate-term on-the-job training	2	6	1	5	18	10	9	9	10	4	3	3	3	3	3	88
Welders, cutters, solderers, and brazers	Long-term on-the-job training	1	7	1	2	19	10	9	9	10	4	3	3	3	3	3	86
Chief executives	Bachelor's plus experience	1	6	1	4	18	10	9	7	10	4	3	3	3	3	3	85

Source: JFI

Table 5
Tenant Jobs Created by EBDI Development by Year by Level of Education and Training Required
(# of Jobs)

Education Level / Year	2009	2010	2011	2012	2013	2014	2015	2016 ...	2020	Total Jobs Created
Total	<u>642</u>		<u>1,560</u>	<u>1,367</u>	<u>616</u>	<u>642</u>	<u>451</u>	<u>642</u>	<u>2,952</u>	<u>8,871</u>
First Professional Degree	3		7	42	35	3	35	3	227	355
Doctoral Degree	37		93	50	1	37	1	37	5	261
Master's Degree	25		64	40	5	25	5	25	35	225
Degree plus work Experience	78		195	149	43	78	40	78	263	923
Bachelor's Degree	165		417	350	111	165	114	165	749	2,236
Associate Degree	79		201	144	33	79	34	79	225	875
Postsecondary vocational award	8		19	47	30	8	31	8	200	350
Work experience in a related occupation	34		80	67	35	34	19	34	126	428
Long-term on-the-job training	19		46	34	17	19	8	19	50	213
Moderate-term on-the-job training	96		237	226	93	96	85	96	556	1,482
Short-term on-the-job training	98		201	218	215	98	79	98	517	1,524
Unallocated	0		0.0	0	0	0	0	0	0	0
% of Total	<u>100%</u>		<u>100%</u>	<u>100%</u>	<u>100%</u>	<u>100%</u>	<u>100%</u>	<u>100%</u>	<u>100%</u>	<u>100%</u>
First Professional Degree	0%		0%	3%	6%	0%	8%	0%	8%	4%
Doctoral Degree	6%		6%	4%	0%	6%	0%	6%	0%	3%
Master's Degree	4%		4%	3%	1%	4%	1%	4%	1%	3%
Degree plus work Experience	12%		13%	11%	7%	12%	9%	12%	9%	10%
Bachelor's Degree	26%		27%	26%	18%	26%	25%	26%	25%	25%
Associate Degree	12%		13%	11%	5%	12%	8%	12%	8%	10%
Postsecondary vocational award	1%		1%	3%	5%	1%	7%	1%	7%	4%
Work experience in a related occupation	5%		5%	5%	6%	5%	4%	5%	4%	5%
Long-term on-the-job training	3%		3%	3%	3%	3%	2%	3%	2%	2%
Moderate-term on-the-job training	15%		15%	17%	15%	15%	19%	15%	19%	17%
Short-term on-the-job training	15%		13%	16%	35%	15%	18%	15%	18%	17%
Unallocated	0%		0%	0%	0%	0%	0%	0%	0%	0%

Source: JFI

Table 6
Top 25 Tenant Jobs Created by EBDI Development by Year by Level of Education and Training Required
(# of Jobs)

Occupation	Education and Training Level	2009	2010	2011	2012	2013	2014	2015	2016 ...	2020	Total Jobs Created
Lawyers	First professional degree	1		3	39	32	1	33	1	218	329
Accountants and auditors	Bachelor's degree	6		15	35	23	6	23	6	153	268
Executive secretaries and administrative assistants	Moderate-term on-the-job training	18		45	36	10	18	10	18	68	222
Office clerks, general	Short-term on-the-job training	12		29	32	16	12	14	12	94	220
Legal secretaries	Postsecondary vocational award	0		0	25	21	0	22	0	144	213
Secretaries, except legal, medical, and executive	Moderate-term on-the-job training	12		30	30	12	12	12	12	80	199
General and operations managers	Bachelor's plus experience	14		35	30	13	14	10	14	67	197
Bookkeeping, accounting, and auditing clerks	Moderate-term on-the-job training	6		14	24	16	6	14	6	95	180
Management analysts	Bachelor's plus experience	16		40	29	7	16	7	16	46	176
Computer software engineers, applications	Bachelor's degree	8		20	21	9	8	9	8	61	144
Paralegals and legal assistants	Associate degree	0		1	17	14	0	14	0	94	141
Computer software engineers, systems software	Bachelor's degree	11		29	22	6	11	6	11	38	134
Cashiers, except gaming	Short-term on-the-job training	6		6	2	64	6	5	6	35	130
All other engineers	Bachelor's degree	16		40	24	2	16	2	16	13	128
Retail salespersons	Short-term on-the-job training	10		11	1	12	10	10	10	63	128
Computer programmers	Bachelor's degree	5		13	17	9	5	10	5	63	127
Medical scientists, except epidemiologists	Doctoral degree	18		45	24	0	18	0	18	0	123
Computer systems analysts	Bachelor's degree	6		15	17	8	6	8	6	54	118
First-line supervisors/managers of office and administrative support workers	Work experience in a related occupation	6		14	16	8	6	7	6	45	107
Biological technicians	Associate degree	15		38	20	0	15	0	15	1	105
Chemists	Bachelor's degree	14		36	20	1	14	1	14	5	105
All other computer specialists	Associate degree	12		29	18	2	12	2	12	15	102
Computer support specialists	Associate degree	4		10	14	7	4	8	4	50	100
Customer service representatives	Moderate-term on-the-job training	3		8	12	10	3	7	3	47	94
Receptionists and information clerks	Short-term on-the-job training	3		8	12	6	3	6	3	42	85

Source: JFI

Table 7
Top 20 Low Skill Accessible Tenant Jobs Created by EBDI Development by Year by Level of Education and Training Required
(# of Jobs)

Occupation	Education and Training Level	2009	2010	2011	2012	2013	2014	2015	2016 ...	2020	Total Jobs Created
Executive secretaries and administrative assistants	Moderate-term on-the-job training	18		45	36	10	18	10	18	68	222
Office clerks, general	Short-term on-the-job training	12		29	32	16	12	14	12	94	220
Legal secretaries	Postsecondary vocational award	0		0	25	21	0	22	0	144	213
Secretaries, except legal, medical, and executive	Moderate-term on-the-job training	12		30	30	12	12	12	12	80	199
Bookkeeping, accounting, and auditing clerks	Moderate-term on-the-job training	6		14	24	16	6	14	6	95	180
Cashiers, except gaming	Short-term on-the-job training	6		6	2	64	6	5	6	35	130
Retail salespersons	Short-term on-the-job training	10		11	1	12	10	10	10	63	128
First-line supervisors/managers of office and administrative support workers	Work experience in a related occupation	6		14	16	8	6	7	6	45	107
Biological technicians	Associate degree (*)	15		38	20	0	15	0	15	1	105
Customer service representatives	Moderate-term on-the-job training	3		8	12	10	3	7	3	47	94
Receptionists and information clerks	Short-term on-the-job training	3		8	12	6	3	6	3	42	85
All other managers	Work experience in a related occupation	7		19	13	3	7	3	7	17	77
Stock clerks and order fillers	Short-term on-the-job training	3		5	3	31	3	2	3	16	68
Purchasing agents, except wholesale, retail, and farm products	Work experience in a related occupation	9		22	12	1	9	1	9	6	67
Interviewers	Short-term on-the-job training	7		17	10	1	7	1	7	7	58
Sales representatives, wholesale and manufacturing, technical and scientific products	Moderate-term on-the-job training	6		15	10	2	6	2	6	11	56
All other sales and related workers	Moderate-term on-the-job training	2		5	7	4	2	3	2	23	50
Team assemblers	Moderate-term on-the-job training	7		17	9	0	7	0	7	2	49
Maintenance and repair workers, general	Moderate-term on-the-job training	5		12	11	1	5	1	5	8	47
Data entry keyers	Moderate-term on-the-job training	2		6	7	3	2	3	2	21	46

(*) This Occupation did not meet the definition of "Low Skill Assessible" in used in this analysis - but was included because of Baltimore's specialized training capabilities for this occupation.

Source: JFI

Forest City and EBDI Estimated Job Creation

The JFI conducted interviews with key managers at Forest City and EBDI to identify the likely number and types of jobs created by both organizations. Forest City will continue to function as manager for the buildings they have developed. Upon completion of their phase of the development, they expect to create a total of fourteen jobs related to the ongoing management of their properties and an additional 51 ongoing jobs through regular maintenance and related contracts. As presented in Table 8, the majority of property management related jobs, especially those related to contractual services are low skilled.

Table 8
Forest City's Estimated
Property Management Related Job Creation

Title	# of Jobs	Education and Training Level
Total Direct Forest City Jobs	<u>14</u>	
Overall Facility Manager	1	Bachelor's plus experience
Building Managers	5	Bachelor's degree
Facility Administrator	5	Associates Degree
Maintenance Engineer	1	Moderate-term on-the-job training
Plumbers	2	Long-term on-the-job training
Estimated On-Site Contractor Jobs	<u>41</u>	
Security guards	15	Short-term on-the-job training
Janitors and cleaners	12	Short-term on-the-job training
Parking lot attendants	10	Short-term on-the-job training
Landscaping and grounds keeping workers	4	Short-term on-the-job training

Source: Forest City

The JFI collected information from EBDI on its expected job creation relative to both the planned Charter School and its expected expanded social services related programs. Based on the data provided by Forest City, the JFI also estimated the number of jobs likely to be created relative to EBDI's property management related responsibilities upon build out. As presented in Table 9, EBDI is expected to create an estimated 72 jobs associated with the property management of the EBDI projects.⁶ As presented in Table 10, EBDI estimates that it will create 84 jobs in the social services and educational programs under development. As presented in

⁶ EBDI did not provide estimated of the real estate related jobs created. These were based on Forest City data - scaled up to the larger amount of square feet developed by EBDI. These jobs are for commercial property only.

Table 9 and Table 10, the majority of real estate and property management related jobs are low skilled and the majority of program-related jobs require a higher educational and skill levels.⁷

Table 9
EBDI's Estimated
Property Management Related Job Creation¹

Title	# of Jobs	Education and Training Level
Total Direct EBDI Jobs	<u>18</u>	
Overall Facility Manager	1	Bachelor's plus experience
Building Managers	7	Bachelor's degree
Facility Administrator	7	Associates Degree
Maintenance Engineer	1	Moderate-term on-the-job training
Plumbers	3	Long-term on-the-job training
Estimated On-Site Contractor Jobs	<u>54</u>	
Security guards	20	Short-term on-the-job training
Janitors and cleaners	16	Short-term on-the-job training
Parking lot attendants	13	Short-term on-the-job training
Landscaping and Grounds-keeping workers	5	Short-term on-the-job training

(1) EBDI did not provide estimated of the real estate related jobs created. These were based on Forest City data - scaled up to the larger amount of square feet developed by EBDI. For commercial property only.

Source: Forest City

⁷ Forest City and EBDI provided a list of occupations and numbers of persons hired using their internal job titles. The JFI coded this to the list of detailed occupations in the Occupational Employment Statistics (OES) from the Bureau of Labor Statistics based on job title alone to identify the BLS educational and training requirements.

Table 10
EBDI's Estimated
Programmatic Job Creation

Title	# of Jobs	Education and Training Level
<u>Family Resource Center - Operational in 2010</u>		
Director	1	Bachelor's plus experience
Family Services Coordinator	1	Bachelor's degree
Childhood Development Specialist	1	Bachelor's degree
Childhood Development Aides	2	Moderate-term on-the-job training
In-Home Interventionist	1	Bachelor's degree
Administrative Assistant/Receptionist/Data Entry	1	Short-term on-the-job training
Van Driver (Shared)	1	Short-term on-the-job training
<u>Financial Literacy Program - Operational in 2010</u>		
Program Manager/Financial Coach	1	Bachelor's degree
Financial Coach	1	Bachelor's degree
Contracted Housing Counselor	1	Bachelor's degree
Administrative Assistant/Receptionist/Data Entry	1	Short-term on-the-job training
<u>Planned Hires for Existing Programs - 2010</u>		
Family Advocacy	TBD	
Resident Services - Resident Services Coordinator	1	Bachelor's degree
Workforce Development - Client Services Coordinator	1	Bachelor's degree
<u>East Baltimore Integrated Services in School Program</u>		
School Coordinators	5	Bachelor's degree
Family Advocates	5	TBD
School Nurses	5	Associate degree
Social Workers	5	Bachelor's degree
<u>East Baltimore Community School - Start 2010 - Full Staff 2013</u>		
Executive Director	1	Bachelor's plus experience
Directors	3	Bachelor's plus experience
Reading and Math Specialists	4	Bachelor's degree
Teachers	33	Bachelor's degree
Teaching Assistant	3	Short-term on-the-job training
Librarian	1	Master's degree
IT/Media Specialist	1	Bachelor's degree
Administrative Support	3	Short-term on-the-job training

Source: EBDI and the JFA

Employment Opportunities in Surrounding East Baltimore Developments

As described above, the majority of the jobs created in the EBDI redevelopment area are high skilled jobs, yet as will be described in greater detail below, many of the residents of EBDI redevelopment area and the larger east Baltimore service area have lower levels of educational attainment and tend to be employed in lower skill level occupations. Thus, in order to understand the opportunities for placing EBDI or East Baltimore residents outside of the redevelopment area, the JFI conducted a high level, interview-based analysis of the job opportunities being created in employment centers and development projects occurring in areas surrounding the EBDI redevelopment area. The JFI conducted interviews with representatives the Baltimore Development Corporation, the Mayor's Office of Employment Development, and with Johns Hopkins Medical Institutions (JHMI).

Because Johns Hopkins Hospital is the largest non-government employer in the City and region and is located adjacent to the EBDI redevelopment area and in the heart of EBDI's East Baltimore service area, it can and does represent a primary target for EBDI's workforce development efforts. The JFI interviewed Pamela Paulk, the Vice President for Professional and Outreach Services for Johns Hopkins Medical Institutions, to identify perceptions of the East Baltimore workforce and key areas of hiring activity, with a focus on job opportunities for East Baltimore residents. According to Ms. Paulk, JHMI maintains a strong working relationship with EBDI and other organizations serving East Baltimore and both recruits and gives preferences for hiring from the local community. A key barrier JHMI faces in hiring from the local community is the low level of educational attainment of the local workforce. The only two major jobs where JHMI hires persons without a high school diploma is in Housekeeping and Food Service. Many residents also lack a long work history, placing them at a disadvantage with other applicants. JHMI conducts drug screening, and as described below, this may be a barrier to some East Baltimore residents. Interestingly, JHMI did not view a criminal background as a barrier to employment but as a "challenge to overcome" and JHMI has worked with local and community organizations to hire ex-offenders.

JHMI provided data on all persons hired in the preceding year. The JFI analyzed this data⁸ and lists the major low and middle-skill level occupations where JHMI has major hiring activity in Table 11. As presented in Table 11, maids and housekeeping cleaners; nursing aides, orderlies, and attendants; clerical staff; and security guards represent the major areas of low skilled hiring directly by JHMI.⁹ In these six occupations, JHMI hired 265 persons in the year analyzed. JHMI hired another 249 medical, laboratory and other various technicians.¹⁰ The educational and training requirements for these "middle skill level" occupations range from on-the-job training to an associate's degree and may represent an area for a targeted workforce development strategy. Based on this preliminary, high level analysis, JHMI annually hires between 250 and 500 lower to middle skill level workers. This level of hiring is on par with the levels of projected job creation in the EBDI redevelopment areas for much of the projected

⁸ The JHMI provided a list of occupations and numbers of persons hired using their internal job titles. The JFI coded this to the list of detailed occupations in the Occupational Employment Statistics (OES) from the Bureau of Labor Statistics based on job title alone. This is a preliminary and rough analysis of JHMI jobs to identify potential areas for targeted workforce development programs, not a final and complete analysis of JHMI hiring.

⁹ The absence of food service occupations suggests that this function is outsourced by JHMI and private vendors do the hiring.

¹⁰ It was not possible to code these to the detailed OES classifications of medical technicians.

development period. Thus, a targeted workforce development effort to place EBDI and East Baltimore residents in health-related occupations, at JHMI and at the many other hospitals in the City, may represent a core opportunity for EBDI.

Table 11
Selected Major JHMI Occupations

Title	# of Jobs	Education and Training Level
Selected Low Skilled Jobs		
Maids and housekeeping cleaners	94	Short-term on-the-job training
Nursing aides, orderlies, and attendants	83	Short-term on-the-job training
Clerk	41	Short-term on-the-job training
Medical assistants	20	Moderate-term on-the-job training
Security guards	14	Short-term on-the-job training
Administrative Assistant-ADM	13	Moderate-term on-the-job training
Selected Middle Skill Level Jobs		
Medical, Laboratory and Other Various Technician	249	Moderate-term on-the-job training to Associate's Degree

Source: JHMI and JFI

The JFI also conducted interviews with Darrell Doan, the Director of Economic Development – East for the Baltimore Development Corporation (BDC), and with Marianne Navarro and Terrance Hancock BDC Economic Development Officers working on East Baltimore projects, to identify other redevelopment efforts in the City’s East Side that may represent appropriate targets for EBDI’s workforce development offices. The JFI has focused this analysis on larger projects expected to create larger numbers of low and middle skill level jobs. The major projects identified in this analysis¹¹ are:

- **The Chesapeake Commerce Center** – a port-oriented development that will include 2.7 million sq. ft. of distribution space and 2-300,000 sq. ft. of office space. Based on a preliminary JFI analysis,¹² this project could create as many as 2,800 jobs over the

¹¹ The Marriot and Hilton Convention Center hotels were intended to be part of this analysis; but the JFI was unable to obtain detailed job creation estimates, hotel-related employment opportunities, however, are described.

¹² These job estimates are rough approximations based on standard relationships of employment to building size, using one job for every 1,500 sq. ft. of distribution space, 1 job per 1,000 sq. ft. of manufacturing space, one job per 450 sq. ft. of retail space and one job for every 300 sq. ft. of office space – generally accepted rules of thumb for estimating the job impacts of real estate projects. The goal of this analysis is to provide a preliminary estimate of job creation potential related to EBDI’s workforce development program – not a final and complete analysis of the job impacts of these projects.

development period, 1,800 in the distribution sector, which has a high concentration of low and middle skill level jobs, many of which pay a living wage and offer benefits.

- **Harbor Point/Harbor East** a waterfront development that will consist of 840,000 square feet of office, 75,000 square feet of ground level retail, 550 residential units, 530 hotel rooms, 2,800 parking spaces, and 11 acres of public park and waterfront promenade. Based on a preliminary JFI analysis,¹¹ this project could create as many as 3,100 jobs.
- **Canton Crossing**, a 53 acres of waterfront development that will consist of more than 1.5 million square feet of Class-A Office Space, 750,000 square feet of retail space, a 450-unit luxury hotel, and 500 condominiums. Based on a preliminary JFI analysis,¹¹, this project could create as many as 6,780 jobs. While not located adjacent to the EBDI service area, this area is well served by mass transit and may represent a target for EBDI's workforce development program.
- The **Armco Steel Site, 3501 E Biddle Street**, 210,000 sq. ft. of industrial distribution space located immediately outside of the EBDI area that could create as many as 140 jobs (more depending on the scope of redevelopment).¹¹

It was not possible to obtain detailed construction budgets for these projects; however, there is clearly a potential to link EBDI's successful construction jobs program to these efforts. As is the case with EBDI, many of these projects received City or State assistance and are expected or required to hire locally. These projects vary by stage of completion, with some, like Harbor East, nearing completion, and others in early stages of development, like Canton Crossing. These will create large numbers of construction jobs, and once fully developed, these projects could add as many as 12,790 jobs to the Baltimore City economy. Some of the major low to middle skill level occupations where job creation in the projects analyzed above will be concentrated, along with their projected Baltimore City annual openings are presented in Table 12. These may represent appropriate targets for EBDI's workforce development programs.

Table 12
Selected Low and Middle Skill Occupations
Related to East Baltimore Development Projects Analyzed

Title	Education and Training Level	Annual Openings
<u>Distribution Jobs</u>		
Industrial Truck and Tractor Operators	Short-term on-the-job training	31
Cleaners of Vehicles and Equipment	Short-term on-the-job training	16
Laborers and Freight, Stock, and Material Movers, Hand	Short-term on-the-job training	185
Machine Feeders and Offbearers	Short-term on-the-job training	8
Packers and Packagers, Hand	Short-term on-the-job training	30
<u>Hospitality and Food Service</u>		
Lodging Managers	Work experience in a related occupation	7
Hotel, Motel, and Resort Desk Clerks	Short-term on-the-job training	16
Baggage Porters and Bellhops	Short-term on-the-job training	5
Concierges	Moderate-term on-the-job training	5
Maids and Housekeeping Cleaners	Short-term on-the-job training	119
Cooks and Food Preparation Workers	Long-term on-the-job training	246
Bartenders	Short-term on-the-job training	72
Waiters and Waitresses	Short-term on-the-job training	219
<u>Office Support</u>		
Receptionists and Information Clerks	Short-term on-the-job training	116
Secretaries and Administrative Assistants	Moderate-term on-the-job training	284
Office Clerks, General	Short-term on-the-job training	248

Source: MD DLLR and JFI

Workforce Supply

In order to best describe the workforce issues related to EBDI's redevelopment efforts, the JFI analyzed available data on the workforce supply characteristics at three geographic levels:

- The EBDI redevelopment area;
- The larger eight zip code East Baltimore area served by EBDI; and
- The City and Metropolitan Area.¹³

EBDI Redevelopment Area and East Baltimore Service Area

The JFI conducted an analysis of available data for the EBDI redevelopment and target East Baltimore service area using a combination of available commercial (Claritas) and Census databases and available EBDI administrative data from EBDI's Efforts To Outcomes (ETO) database. These data were supplemented with interviews with EBDI workforce development and social services personnel; the Mayor's Office of Employment Development (MOED), who runs the East Side Job Center; with the Historic East Baltimore Community Action Coalition (HEBCAC), who runs the Youth Opportunity program; and with the Job Opportunities Task Force, which runs the JumpStart construction training program in the area; in order to collect qualitative data on the characteristics of the targeted service population that are unavailable from databases.

The JFI's analysis of available database information on the population of the EBDI redevelopment and service area as compared to the City and region yielded the following results:

- The population of the EBDI redevelopment area is 96% African-American and the population of the eight zip code EBDI service area is 62% African American compared to Baltimore City at 63% African-American and the Metropolitan area at 29% African American (Table 13);
- The population of the EBDI service area is young with an average age of 32.0 years compared to 35.4 for East Baltimore and Baltimore City's 35.4 and 37.7 in the Metropolitan Area. Thirty-three percent (33%) of the EBDI redevelopment area population is seventeen or younger, compared to 24% in East Baltimore, Baltimore City and the Metropolitan area (Table 13);
- The population of the EBDI redevelopment area is reliant on mass-transit, with 69% of households lacking access to an automobile, compared to 34% of East Baltimore households, 29% of Baltimore City households and 11% of Metropolitan Area households (Table 14);

¹³ The JFI used 2007 Claritas data for the EBDI footprint area (tracts 703001, 703002, 704001, 704002, 807002, 808001, 808002, 80803, and 808004) and for the eight zip code targeted East Baltimore service area (zip codes 21202, 21205, 21206, 21213, 21214, 21218, 21224, 21231, and 21251) and 2007 American Community Survey data from the U.S. Census Bureau for Baltimore City and the metropolitan area. For the EBDI footprint area, data are estimates of the characteristics of the local residents before the EBDI relocation efforts.

- The population of the EBDI redevelopment area is poor, with a per capita income of \$9,973, compared to \$19,980 for East Baltimore, \$21,887 in Baltimore City and \$32,014 in the Baltimore Metropolitan Area. The median household income in the EBDI redevelopment area is \$19,508, compared to \$38,242 for east Baltimore, \$36,949 in Baltimore City and \$63,699 in the Baltimore Metro area (Table 15);
- The population of the EBDI redevelopment area has a low level of educational attainment. Forty-three percent (43%) of EBDI redevelopment area residents have not completed high school compared to 32% of East Baltimore residents, 25% of Baltimore City households and 14% of Metropolitan Area households. Only three percent (3%) of EBDI redevelopment area residents have a Bachelors Degree or above, compared to 17% of East Baltimore residents, 24% of Baltimore City residents and 34% of Metropolitan Area residents (Table 16);
- EBDI and East Baltimore residents have lower levels of workforce participation. Only 48% of EBDI redevelopment area residents aged 16 years or older are engaged in work activities, compared to 57% of East Baltimore residents, 60% of City residents and 67% of Metropolitan Area residents (Table 17);
- Employed EBDI and East Baltimore residents tend to be employed in lower skilled industries and occupations. Ten percent (10%) of EBDI residents work in food service occupations, 7% work in the building and grounds cleaning and maintenance occupations, and 27% work in construction, installation, production and transportation occupations compared to 4%, 3% and 16% of Baltimore metro area employed residents respectively (Table 19);
- As described in Workforce Demand analysis above the permanent, non-construction jobs created in the EBDI redevelopment are concentrated in the management and professional occupations and scientific occupations. Only 3% of employed EBDI residents are employed in management and business occupations compared to 13% of employed City residents and 16% of employed Baltimore metropolitan area residents. No employed EBDI residents and only 5% of employed East Baltimore residents are employed in the computer, architecture and engineering, and sciences occupations compared to 8% at the Metropolitan Area level (Table 19); and
- As described in Workforce Demand analysis above the health care sector is a strong potential target for EBDI's workforce development efforts. Supporting this finding, 11% of EBDI residents are employed in healthcare-related occupations, a higher concentration than the City or Metropolitan area (Table 19).

Table 13
EBDI, East Baltimore, Baltimore and Metropolitan Area - Race and Age

Demographic Indicators	EBDI		East Baltimore		Baltimore City		Baltimore Metro	
		%		%		%		%
Population	3,750		243,778		637,455		2,668,056	
Number of White Alone Residents	78	2%	78,020	32%	203,790	32%	1,716,596	64%
Number of Black Alone Residents	3,586	96%	152,254	62%	404,696	63%	760,704	29%
Number of Households	1,290		95,790		233,013		995,655	
Total Population 0 - 17 Years Old	1,220	33%	59,509	24%	155,234	24%	639,432	24%
Total Population 18 - 34 Years Old	871	23%	62,662	26%	160,208	25%	593,796	22%
Total Population 35 - 54 Years Old	984	26%	70,549	29%	179,139	28%	811,147	30%
Total Population 55 - 64 Years Old	324	9%	24,528	10%	66,892	10%	299,967	11%
Total Population 65 and Over	351	9%	26,530	11%	75,982	12%	323,714	12%
Median Age	32.0		35.4		35.4		37.7	

Source: JFI, Claritas and Bureau of the Census

Table 14
EBDI, East Baltimore, Baltimore and Metropolitan Area - Vehicle Ownership

Transportation Indicators	EBDI		East Baltimore		Baltimore City		Baltimore Metro	
		%		%		%		%
Number of Homes with 0 Vehicles	894	69%	32,340	34%	68,245	29%	107,109	11%
Number of Homes with 1 Vehicle	313	24%	38,862	41%	97,624	42%	321,304	32%
Number of Homes with 2 Vehicles	62	5%	19,421	20%	50,863	22%	366,454	37%
Number of Homes with 3 or More Vehicles	21	2%	5,167	5%	16,281	7%	200,788	20%
Average Number of Vehicles per Home	0.4		1.0		N/A		N/A	

Source: JFI, Claritas and Bureau of the Census

Table 15
EBDI, East Baltimore, Baltimore and Metropolitan Area - Income

Income Indicators	EBDI	East Baltimore	Baltimore City	Baltimore Metro
Per Capita Income	\$9,973	\$19,980	\$21,887	\$32,014
Median Household Income	\$19,508	\$38,242	\$36,949	\$63,699
Average Household Income	\$28,970	\$48,441	\$54,706	\$83,308

Source: JFI, Claritas and Bureau of the Census

Table 16
EBDI, East Baltimore, Baltimore and Metropolitan Area - Educational Attainment Persons Aged 25+

Educational Attainment Indicators	EBDI		East Baltimore		Baltimore City		Baltimore Metro	
	%		%		%		%	
Less than 9th Grade	258	12%	15,393	10%	28,204	7%	67,481	4%
Some High School (No Diploma)	656	31%	33,625	22%	72,994	18%	169,565	10%
High School Graduate (Includes GED)	812	38%	44,524	29%	120,956	29%	494,041	28%
Some College (No Degree)	268	13%	28,573	18%	69,226	17%	337,371	19%
Associates Degree	53	3%	5,885	4%	20,408	5%	111,526	6%
Bachelor's Degree	67	3%	16,221	10%	51,077	12%	332,800	19%
Graduate or Professional Degree	6	0%	11,641	7%	48,048	12%	257,074	15%
Persons Aged 25+	2,120		155,862		410,913		1,769,858	

Source: JFI, Claritas and Bureau of the Census

Table 17
EBDI, East Baltimore, Baltimore and Metropolitan Area - Labor Force Participation

Employment Status Indicators	EBDI		East Baltimore		Baltimore City		Baltimore Metro	
	%		%		%		%	
Population in Armed Forces	0	0%	149	0%	465	0%	15,043	1%
Population Employed	954	36%	97,320	51%	271,098	54%	1,311,878	62%
Population Unemployed	310	12%	11,000	6%	30,354	6%	79,202	4%
Population Not in Labor Force	1,391	52%	82,511	43%	199,303	40%	702,420	33%
Total	2,655		190,980		501,220		2,108,543	

Source: JFI, Claritas and Bureau of the Census

Table 18
EBDI, East Baltimore, Baltimore and Metropolitan Area - Industry of Employment

Industry Indicators	EBDI		East Baltimore		Baltimore City		Baltimore Metro	
		%		%		%		%
Agriculture, Forestry, Fishing, Hunting, and Mining	0	0%	168	0%	205	0%	4,884	0%
Construction	77	8%	5,287	5%	16,554	6%	93,192	7%
Manufacturing	76	8%	8,148	8%	14,651	5%	79,101	6%
Wholesale Trade	39	4%	2,800	3%	5,701	2%	38,878	3%
Retail Trade	88	9%	8,632	9%	24,865	9%	144,717	11%
Transportation, Warehousing, and Utilities	40	4%	5,428	6%	16,690	6%	63,464	5%
Information	9	1%	3,080	3%	6,790	3%	33,787	3%
Finance, Insurance, Real Estate, and Rental and Leasing	41	4%	6,224	6%	18,036	7%	100,219	8%
Professional, Scientific, and Technical Services	5	1%	5,388	6%	16,079	6%	113,226	9%
Management of Companies and Enterprises	0	0%	39	0%	408	0%	1,591	0%
Administrative and Support and Waste Management Services	49	5%	4,316	4%	11,468	4%	46,938	4%
Educational Services	122	13%	10,001	10%	32,077	12%	128,202	10%
Health Care and Social Assistance	156	16%	15,486	16%	48,560	18%	185,348	14%
Arts, Entertainment, and Recreation	5	1%	1,532	2%	4,477	2%	22,343	2%
Accommodation and Food Services	83	9%	7,194	7%	17,284	6%	71,036	5%
Other Services	48	5%	4,921	5%	11,822	4%	60,863	5%
Public Administration	116	12%	8,676	9%	25,431	9%	124,089	9%
Total	954		97,320		271,098		1,311,878	

Source: JFI, Claritas and Bureau of the Census

Table 19
EBDI, East Baltimore, Baltimore and Metropolitan Area - Occupation

Occupation Indicators	EBDI		East Baltimore		Baltimore City		Baltimore Metro	
		%		%		%		%
Management Occupations	26	3%	6,166	6%	21,523	8%	149,879	11%
Business and Financial Operation Specialists	4	0%	3,488	4%	13,057	5%	71,078	5%
Computer and Mathematical Occupations	0	0%	2,192	2%	5,443	2%	57,106	4%
Architecture and Engineering	0	0%	1,313	1%	3,210	1%	29,158	2%
Life, Physical, and Social Sciences	0	0%	1,579	2%	4,587	2%	17,797	1%
Community and Social Services	12	1%	2,615	3%	7,154	3%	23,969	2%
Legal	0	0%	1,268	1%	3,587	1%	18,291	1%
Education, Training, and Library	45	5%	5,233	5%	17,841	7%	81,006	6%
Arts, Design, Entertainment, Sports and Media	0	0%	1,954	2%	5,922	2%	23,588	2%
Healthcare Practitioners and Technical	24	3%	4,990	5%	14,653	5%	83,101	6%
Healthcare Support	81	8%	3,176	3%	10,827	4%	27,374	2%
Protective Service	79	8%	3,322	3%	11,639	4%	38,067	3%
Food Preparation and Serving Related	100	10%	5,616	6%	14,702	5%	57,397	4%
Building and Grounds Cleaning and Maintenance	69	7%	4,348	4%	13,153	5%	38,076	3%
Personal Care and Service	31	3%	3,135	3%	9,742	4%	38,745	3%
Sales and Related	92	10%	8,509	9%	27,544	10%	152,788	12%
Office and Administrative Support	130	14%	17,307	18%	39,022	14%	186,587	14%
Farming, Fishing, and Forestry	0	0%	162	0%	127	0%	2,751	0%
Construction and Extraction	70	7%	4,719	5%	13,690	5%	64,179	5%
Installation, Maintenance, and Repair	26	3%	2,614	3%	5,078	2%	41,869	3%
Production	86	9%	6,329	7%	9,473	3%	44,527	3%
Transportation and Material Moving	79	8%	7,220	7%	19,124	7%	64,545	5%
Total	954		97,255		271,098		1,311,878	

Source: JFI, Claritas and Bureau of the Census

EBDI also collects a full range of demographic data on residents of the EBDI redevelopment area and less detailed demographic information on the East Baltimore residents served by its workforce development program. These data are accessible from in the EBDI's ETO database. As presented in Table 20, based on the ETO data, the residents of the EBDI redevelopment area and east Baltimore face the following barriers to employment:¹⁴

- 11% of EBDI residents and 72% of East Baltimore residents participating in EBDI's workforce development program reported having a criminal background;
- 12% of EBDI residents and 7% of East Baltimore residents participating in EBDI's workforce development program reported having a disability;
- 29% of EBDI residents and 8% of East Baltimore residents participating in EBDI's workforce development program reported being currently employed;
- 23% of EBDI residents and 84% of East Baltimore residents participating in EBDI's workforce development program reported being currently unemployed;
- 42% of EBDI residents and 85% of East Baltimore residents participating in EBDI's workforce development program reported having a household income of lower than \$10,000 and 82% and 99% respectively report less than \$25,000 in income;
- 44% of EBDI residents and East Baltimore residents participating in EBDI's workforce development program reported having less than a high school level of education; 41% and 43% respectively report having completed High School/GED; 3% and 8% have completed vocational training; 9% and 4% have completed some college; and 4% and 2% reported have a college degree or above; and
- EBDI also collects information on the employment area of interest of both EBDI residents and workforce development program participants:
 - EBDI residents were most interested in the healthcare and construction sectors;¹⁵ and
 - Workforce development program participants identified the construction sector, environmental services, hospitality, and healthcare sectors as core areas of interest.

The ETO database analysis is consistent with the demographics analysis described above indicating that the EBDI residents face barriers to employment, ranging from a low level of educational attainment to disabilities to a criminal record.

¹⁴ Not all EBDI Family Services or Workforce Development program participants provide the full range of requested demographic information. Many of the responses are for a small share of total persons in the database. The coverage for EBDI residents is quite good for most questions. The responses for the workforce development program are not intended to represent the entire population of East Baltimore – but rather the subset of East Baltimore residents participating in the EBDI workforce program.

¹⁵ Only 30% of the EBDI residents responded to employment area of interest and nearly half did not identify an area.

Table 20
EBDI Administrative ETO Data For
EBDI Residents and East Baltimore Workforce Program Participants

Item			
EBDI Residents	n = 1,633	East Baltimore -- Workforce Development	n = 1,094
Employment Barriers		Employment Barriers	
11.4%	Criminal Background	72.4%	Criminal Background
12.0%	Disabled	6.5%	Disabled
Employment Status		Employment Status	
28.8%	Employed	8.1%	Employed
22.7%	Unemployed	84.0%	Unemployed
1.1%	Underemployed	4.1%	Underemployed
Income		Income	
42.0%	Less Than \$10,000 in Household Income	85.3%	Less Than \$10,000 in Household Income
82.3%	Less Than \$25,000 in Household Income	98.5%	Less Than \$25,000 in Household Income
Education		Education	
44.2%	Less Than High School	43.4%	Less Than High School
40.6%	High School Graduate/GED	42.5%	High School Graduate/GED
2.6%	Vocational Training	7.5%	Vocational Training
9.0%	Some College	3.9%	Some College
3.6%	College Degree and Above	2.3%	College Degree and Above

Source: EBDI ETO and the JFI

The data available from demographic databases analyzed above only provide only partial detail on the population of the EBDI redevelopment and service areas served by EBDI’s workforce programs. In order to provide a more complete analysis of the key workforce development barriers and strengths of this population, the JFI supplemented the data available from demographic databases analyzed above with qualitative data collected from interviews¹⁶ with:

- the EBDI workforce development and social services personnel;
- the Mayor’s Office of Employment Development (MOED), who runs the East Side Job Center;
- the Historic East Baltimore Community Action Coalition (HEBCAC), who runs the Youth Opportunity program; and
- the Job Opportunities Task Force, which runs the JumpStart Program , a construction training program that prepares city residents to become a licensed carpenter, plumber or electrician.

Based on these interviews, the key factors impacting the workforce readiness of EBDI’s target population are as follows:

¹⁶ Interviews were conducted with Tim Lewis and Cheryl Williams from EBDI; Craig Lewis and Rosalind Howard from MOED’s Eastside Workforce Center, Lois Mitchell from HEBCAC, and Jason Perkins-Cohen from the Job Opportunities Task Force.

- **Low levels of educational attainment and achievement** – the interviews conducted identified not only the low level of educational attainment, but also the low level of educational achievement among the targeted EBDI population as a barrier. Not only does a large number of the targeted population lack a high school diploma, among the high school graduates, many do not function at that level of educational attainment. Many of the persons seeking employment opportunities are older and have been out of school for some years while others simply lack many of the skills associated with high school completion. According to the interviews conducted, many of the EBDI area and East Baltimore population, even those with a high school diploma, function at only a 5th to 7th grade math and reading level. Many lack basic math, reading and communications skills. As a result, many need basic skills training before they can be referred to job training programs.
- Substance abuse – based on the interviews conducted and estimated 25% to 30% of the target workforce development program population in the EBDI redevelopment area and East Baltimore have substance abuse problems. Substance abuse problems are even prevalent among the younger workers served by the Youth Opportunities program. Because of the drug screening requirements among many employers, substance abuse is a significant barrier to employment, especially for the better employment opportunities.
- Criminal background – based on the interviews conducted as many as 25% to 50% percent of the target population served by EBDI’s workforce development program has a criminal record.
- Poor work history – As described in the database analysis above, the EBDI and East Baltimore population has a low level of workforce participation. As a result, many of the persons served by EBDI’s workforce development program have no or only a limited work history. This places them at a disadvantage in competing for jobs and can exclude them from certain job openings.
- Lack of “soft skills” – Because of and related to the lack of a work history and experience, many of the target population served by EBDI lack “soft skills” such as knowledge of proper work attire, poor attendance and communications skills. A focus on workforce readiness training was viewed by many key informants as a core element of the workforce development services needed in this community.
- Lack of access to technology – Many employers require on-line jobs applications and resumes and use email to communicate with job applicants. Many of the target population served by EBDI lack access to computers.

Based on the interviews conducted, the strength of EBDI’s workforce and social services programmatic approach is that it offers integrated services. By combining social and workforce development programs, EBDI can better meet the multiple barriers of portions of the target population. Substance abuse services are considered an essential element of the integrated services needed. All of the persons interviewed identified the need to combine basic skills with

workforce readiness training followed by specific job training in order to make the target population job ready. According to one key informant, “we have to educate these people and provide workforce training, there is value in these workers.” Many also need additional social service-related assistance, including substance abuse counseling or obtaining governmental records. The interviews conducted also identified some of the core strengths of EBDI’s targeted population, these include a readiness to obtain employment and willingness to become involved in training and assistance programs. The key informants interviewed expressed the view that the population served by EBDI has potential, but requires integrated social and workforce development services.

The City and Metropolitan Area

The detailed analysis of workforce characteristics for the EBDI redevelopment and service areas was augmented with a high level analysis of workforce characteristics in the larger City and Metropolitan area. This high level analysis has two goals. It is meant to:

1. support the EBDI redevelopment by providing information on the regional workforce available and other life sciences related assets available to support the redevelopment effort; and
2. inform EBDI’s own workforce development planning by benchmarking the characteristics of its target population against the characteristics of the broader competing City and regional workforce.

The demographic characteristics of the City and Regional workforce were described in the database analysis above. The core characteristics of the City and regional workforce are as follows:

- 5% of City workers and 6% of Metropolitan area workers have an associate’s degree; 12% and 19% respectively have a Bachelor’s degree and 12% and 15% have a graduate or a professional degree;
- The City and region have a high concentration of life-sciences workers:
 - 4,587 City residents (1.7% of the total) and 17,797 Metropolitan Area residents (1.4% of the total) are employed in life, physical, and social science-related occupations;
 - 14,653 City residents (5.4% of the total) and 83,101 Metropolitan Area residents (6.3% of the total) are employed in healthcare practitioner and technical occupations;
 - 10,827 City residents (4.0% of the total) and 27,374 Metropolitan Area residents (2.1% of the total) are employed in healthcare support occupations;
- The City and region have a high concentration of life-sciences jobs. According to the Maryland Department of Labor, Licensing and Regulation, in 2004 – the most recent year for which data are available, total employment of non-healthcare related - Life Science workers in Baltimore City is 2,270 and in the metropolitan area total employment of non-

healthcare related life Sciences workers is 6,170. Baltimore City is projected to create 71 non-direct healthcare life science jobs annually and the Baltimore metro area is projected to create 322 jobs.

- The City, region and State are recognized national leaders in Life Sciences development. According to the Maryland Department of Business and Economic Development:¹⁷
 - Maryland has the second highest concentration of employed doctoral scientists and engineers among the states, and is ranked 1st in the biological sciences;
 - Maryland ranks second among the states in the percentage of professional and technical workers (25.4%) in the workforce.
 - Maryland ranks second among U.S. states in educational attainment—35.2 percent of Maryland’s population age 25 and above have completed a bachelor’s degree or higher and 15.7 have a graduate or professional degree.
 - Johns Hopkins University ranks first among U.S. colleges and universities in total National Institutes of Health awards, including grants and contracts for research, development, training and fellowships (\$607 million).
 - Maryland ranks first in the nation in National Institutes of Health research and development contract awards (\$757 million).
 - Johns Hopkins University ranks first among academic institutions in the nation in research and development expenditures, totaling \$1.50 billion in FY 2006. The university also ranks first in federally funded research (\$1.31 billion).
 - Maryland ranks second among the states in research and development intensity, which is the ratio of R&D expenditures to gross domestic product (GDP) by state. Maryland ranks fourth in total R&D performance, first in federal intramural research, and fourth in R&D performed at universities and colleges.
 - Maryland ranks second in the Milken Institute’s State Technology and Science Index for 2008. According to study results, Maryland ranks in the top ten in all five composite indices, including:
 - first in human capital investment
 - second in research and development inputs
 - second in technology concentration and dynamism
 - third in technology and science workforce
 - sixth in risk capital and entrepreneurial infrastructure
 - Maryland ranks second nationally in the Milken Institute’s State Biopharmaceutical Innovation Pipeline Index. The index measures a state’s research, financial and human capital infrastructure reflecting its competitive advantage and ability to sustain long-term growth in the biopharmaceutical industry.
 - Maryland ranks third among states in the number of biotechnology firms and third in biotech-related employment according to the latest survey by the U.S. Department of Commerce.
 - According to Ernst & Young, Maryland has the fourth largest cluster of biotechnology companies among states in the U.S.

¹⁷ <http://www.dbed.state.md.us/Resources/pdf/files/marylandrankingsfiles/MarylandRankings.pdf>

- The Baltimore Region has invested in the development of a strong educational infrastructure to support life sciences development. According to data collected by the JFI:
 - Five Maryland community colleges, including three in the Metropolitan area, offer biotechnology technician training programs with a total of 48 degrees awarded (Table 21).
 - Baltimore Metropolitan area community colleges and public and private universities have total life sciences related enrollment of 7,576 (Table 22) and awarded 1,467 life science degrees (Table 23).

Table 21
Community College Degrees Awarded in Potential
Biotechnology Technician Programs, 2007

College/Program	Degree	Degrees Awarded
Allegany College of Maryland		
Medical Laboratory Technician	Lower Division Certificate	3
Medical Laboratory Technician	Associate	13
Baltimore City Community College		
Biotechnology	Associate	10
Community Colleges of Baltimore County		
Biotechnology	Associate	1
Howard Community College		
Biomedical Engineering	Lower Division Certificate	4
Biomedical Engineering	Associate	4
Montgomery College		
Biotechnology	Lower Division Certificate	4
Biotechnology	Associate	9
Total Community College Certificates and Associate Degrees Awarded		48

Source: Maryland Higher Education Commission

Table 22
Enrollment in Life Science Programs by Institution

School	Lower Division Certificates	Associates	Bachelors	Masters	First Professional	Doctorate
Community Colleges						
Baltimore City Community College		51				
Community College of Baltimore County	6	32				
Harford Community College		30				
Howard Community College	1	17				
Four-Year Public Institutions						
Coppin Stste University			89			
Towson University			913	73		
University of Maryland - Baltimore				46	621	197
University of Maryland - Baltimore County			1,397	23		160
Morgan State University			450	3		
Independent Colleges and Universities						
Goucher College			51			
Johns Hopkins University			327	760	466	992
Loyola College			339			
McDaniel College			149			
College of Notre Dame of Maryland			68			
Soujourner-Douglass College			2			
Villa Julie College (Stevenson)			313			
Total	7	130	4,098	905	1,087	1,349

Source: JFI and MHEC

Table 23
Degrees Awarded in Life Science Programs by Institution

School	Lower Division Certificates	Associates	Bachelors	Masters	First Professional	Doctorate
Community Colleges						
Baltimore City Community College		10				
Community College of Baltimore County	0	1				
Harford Community College						
Howard Community College	4	4				
Four-Year Public Institutions						
Coppin State University			6			
Towson University			114	15		
University of Maryland - Baltimore				32	158	37
University of Maryland - Baltimore County			283	13		12
Morgan State University			61	2		
Independent Colleges and Universities						
Goucher College			31			
Johns Hopkins University			101	234	122	101
Loyola College			44			
McDaniel College			25			
College of Notre Dame of Maryland			21			
Soujourner-Douglass College						
Villa Julie College (Stevenson)			36			
Total	4	15	722	296	280	150

Source: JFI and MHEC

Workforce Demand and Supply Analysis

The EBDI redevelopment effort represents a transformational investment that will create an opportunity to integrate the Baltimore City into the State of Maryland's strong national competitive position in the life sciences. Maryland's strong position in life sciences and biotechnology employment has been concentrated in suburban jurisdictions, while much of the research and educational programs supporting the sector have been concentrated in Baltimore City. The EBDI redevelopment will create opportunities for life science development linked to the largest research university in Maryland. EBDI's redevelopment effort will also create an opportunity to improve social and economic conditions in one of the poorest neighborhoods in the City by creating new employment opportunities and attracting new residents. However, in pursuing this redevelopment effort, there is a fundamental disconnect between the high skilled life sciences and business and professional services employment opportunities being created in the EBDI redevelopment area and the skills and educational levels of the area's and East Baltimore resident served by EBDI. As described above, 55% of the jobs created in the redevelopment area are high skill level jobs that require an associate's degree or above while 43% of EBDI redevelopment area residents have not completed high school and 38% have only completed high school. Furthermore, despite many EBDI and East Baltimore residents being ready and eager for improved employment opportunities, many face barriers to employment ranging from disabilities, to substance abuse to a criminal record.

EBDI's phased approach to social services and workforce development has been well designed to meet the current needs and capabilities of the residents and the redevelopment effort. As described above, an estimated 85% of the construction jobs created during the more than decade long effort will be lower skill level jobs open to persons with a lower level of educational attainment and less restricted by the barriers to employment faced by many residents. EBDI's current focus on targeted workforce development in the construction area matched the needs of the redevelopment with the existing educational and skills profile of the targeted population to be served. Furthermore, the EBDI focus on providing integrated social services and workforce development programs are better able to meet the comprehensive needs of the target population, many of whom face multiple barriers to employment. The EBDI approach creates an opportunity to provide education, social services, housing assistance and workforce development programs in an integrated way. Many City, State and federal programs provide only a single service, while many EBDI provides and many East Baltimore residents need multiple types of assistance.

Moving forward, as the EBDI effort begins to reach a critical mass of job creation inside of the redevelopment area rather than from its construction, EBDI should consider the following policy issues and options:

1. EBDI should continue its emphasis on construction jobs as these match the skills and educational profile of the target population. There is more than a decade left of

construction projects before the EBDI redevelopment is complete – so job creation will continue in the near to long-term;

2. EBDI should consider broadening its construction training and placement services to include providing workers to the large number of other large-scale redevelopment efforts in surrounding East Baltimore communities. Many of these projects have similar local hiring goals;
3. While a large number of jobs will be created inside of the EBDI redevelopment area as the planned buildings are completed, the goal of placing large numbers of residents in jobs inside of the redevelopment area may be difficult to attain as a result of the high levels of education and training required for many of these jobs. Furthermore, while a large number of retail and office support jobs will be created, the diverse nature of these occupations make a targeted workforce development strategy focused on these jobs difficult.
4. As identified in the *Workforce Demand* analysis, there are significant hiring and job creation opportunities in the surrounding communities. In order to meet these opportunities:
 - a. EBDI should consider medically oriented training programs. JHMI is the largest non-government employer in the City and annually hires almost as many low and middle skill level workers as will be annually created in the EBDI development. Large numbers of workers are hired in specific and defined occupational areas, creating a situation where targeted workforce development strategies focusing on specific occupations are possible. There are also many other hospital and health care providers located in and near the EBDI area, so placement options are not tied to a single employer.
 - b. EBDI should explore other targeted training programs. Large-scale distribution and hospitality oriented developments are underway in neighboring communities. Both of these sectors hire workers with lower levels of education and skills. Developing a pipeline of workers for these sectors has the mutually beneficial effect of improving job opportunities for residents and making these developments more attractive and successful by providing access to a ready workforce.
5. Just because a large number of jobs created inside of the EBDI redevelopment area are higher skill does not mean that placements are impossible. The BioTechnical Institute of Maryland has demonstrated that lower skilled workers can be trained for and successfully placed in higher skill jobs. Because of EBDI's strong City and foundation support, supporting this type of training and workforce development program is a viable option for placing local residents in good jobs. Expanding this type of focused training to include healthcare occupations may be a viable strategy.

Epilogue – Note on the Impact of Current Economic Conditions

In analyzing and assessing the implications of this report it is important to note the impact of the current economic climate on the research conducted. As a result of the recent economic downturn, the employment situation and earnings of East Baltimore residents analyzed in the workforce supply section of this report are likely worse than reported. Because of the high concentration of EBDI and East Baltimore resident employment in the Accommodation and Food Services sector and in lower-skilled, blue collar food preparation, office support, production and transportation- related occupations, their employment and earnings are likely to have been more significantly negatively impacted by the current recession than workers at the regional and state levels. Thus, the workforce development and training assistance needs of the target population are likely to have increased with the current economic downturn. Also, as discussed in the workforce demand section of this report, both the construction and lease-up schedule of the EBDI redevelopment are likely to be delayed until national and regional economic conditions improve. Thus, the timing of job creation activities is likely to be delayed. The job and occupational estimates accurately reflect both the timing and composition of the proposed EBDI redevelopment based on current plans and may need to be reassessed based on the impact of current economic conditions on the EBDI redevelopment.

APPENDIX A
EBDI REDEVELOPMENT CONSTRUCTION JOBS CREATED

Carpenters

2,395 Jobs

- City Openings: 73
- Regional Openings: 516
- State Openings: 1,158

Construct, erect, install, and repair structures and fixtures of wood, plywood, and wallboard, using carpenter's hand tools and power tools.

Baltimore City Salary: \$40,893

Education and Training Requirements

Overall Experience	Previous work-related skill, knowledge, or experience is required for these occupations. For example, an electrician must have completed three or four years of apprenticeship or several years of vocational training, and often must have passed a licensing exam, in order to perform the job.
Job Training	Employees in these occupations usually need one or two years of training involving both on-the-job experience and informal training with experienced workers.
Education	Most occupations in this zone require training in vocational schools, related on-the-job experience, or an associate's degree. Some may require a bachelor's degree.

Occupational Requirements

- Examine and inspect work progress, equipment, and construction sites to verify safety and to ensure that specifications are met.
- Read specifications such as blueprints to determine construction requirements and to plan procedures.
- Estimate material and worker requirements to complete jobs.
- Supervise, coordinate, and schedule the activities of construction or extractive workers.
- Confer with managerial and technical personnel, other departments, and contractors in order to resolve problems and to coordinate activities.
- Coordinate work activities with other construction project activities.
- Order or requisition materials and supplies.
- Locate, measure, and mark site locations and placement of structures and equipment, using measuring and marking equipment.
- Record information such as personnel, production, and operational data on specified forms and reports.
- Assign work to employees, based on material and worker requirements of specific jobs.

Required Skills

Skills	Skill Definitions
Active Listening	Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.
Time Management	Managing one's own time and the time of others.
Equipment Selection	Determining the kind of tools and equipment needed to do a job.
Reading Comprehension	Understanding written sentences and paragraphs in work related documents.
Coordination	Adjusting actions in relation to others' actions.
Speaking	Talking to others to convey information effectively.
Critical Thinking	Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
Mathematics	Using mathematics to solve problems.
Instructing	Teaching others how to do something.
Judgment and Decision Making	Considering the relative costs and benefits of potential actions to choose the most appropriate one.

- City Openings: 26
- Regional Openings: 326
- State Openings: 831

Perform tasks involving physical labor at building, highway, and heavy construction projects, tunnel and shaft excavations, and demolition sites. May operate hand and power tools of all types: air hammers, earth tampers, cement mixers, small mechanical hoists, surveying and measuring equipment, and a variety of other equipment and instruments. May clean and prepare sites, dig trenches, set braces to support the sides of excavations, erect scaffolding, clean up rubble and debris, and remove asbestos, lead, and other hazardous waste materials. May assist other craft workers.

Baltimore City Salary: \$28,407

Education and Training Requirements

Overall Experience	No previous work-related skill, knowledge, or experience is needed for these occupations. For example, a person can become a cashier even if he/she has never worked before.
Job Training	Employees in these occupations need anywhere from a few days to a few months of training. Usually, an experienced worker could show you how to do the job.
Education	These occupations may require a high school diploma or GED certificate. Some may require a formal training course to obtain a license.

Occupational Requirements

- Clean and prepare construction sites to eliminate possible hazards.
- Read and interpret plans, instructions, and specifications to determine work activities.
- Control traffic passing near, in, and around work zones.
- Signal equipment operators to facilitate alignment, movement, and adjustment of machinery, equipment, and materials.
- Dig ditches or trenches, backfill excavations, and compact and level earth to grade specifications, using picks, shovels, pneumatic tampers, and rakes.
- Position, join, align, and seal structural components, such as concrete wall sections and pipes.
- Measure, mark, and record openings and distances to lay out areas where construction work will be performed.
- Load, unload, and identify building materials, machinery, and tools, and distribute them to the appropriate locations, according to project plans and specifications.
- Erect and disassemble scaffolding, shoring, braces, traffic barricades, ramps, and other temporary structures.
- Build and position forms for pouring concrete, and dismantle forms after use, using saws, hammers, nails, or bolts.

Required Skills

Skills	Skill Definitions
Active Listening	Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.
Coordination	Adjusting actions in relation to others' actions.
Equipment Selection	Determining the kind of tools and equipment needed to do a job.
Speaking	Talking to others to convey information effectively.
Instructing	Teaching others how to do something.
Monitoring	Monitoring/Assessing performance of yourself, other individuals, or organizations to make improvements or take corrective action.
Equipment Maintenance	Performing routine maintenance on equipment and determining when and what kind of maintenance is needed.
Learning Strategies	Selecting and using training/instructional methods and procedures appropriate for the situation when learning or teaching new things.
Critical Thinking	Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
Mathematics	Using mathematics to solve problems.

First-Line Supervisors/Managers of Construction Trades/ Extraction Workers 1,090 Jobs

- City Openings: 34
- Regional Openings: 336
- State Openings: 611

Directly supervise and coordinate activities of construction or extraction workers.

Baltimore City Salary: \$55,831

Education and Training Requirements

Overall Experience	Previous work-related skill, knowledge, or experience is required for these occupations. For example, an electrician must have completed three or four years of apprenticeship or several years of vocational training, and often must have passed a licensing exam, in order to perform the job.
Job Training	Employees in these occupations usually need one or two years of training involving both on-the-job experience and informal training with experienced workers.
Education	Most occupations in this zone require training in vocational schools, related on-the-job experience, or an associate's degree. Some may require a bachelor's degree.

Occupational Requirements

- Examine and inspect work progress, equipment, and construction sites to verify safety and to ensure that specifications are met.
- Read specifications such as blueprints to determine construction requirements and to plan procedures.
- Estimate material and worker requirements to complete jobs.
- Supervise, coordinate, and schedule the activities of construction or extractive workers.
- Confer with managerial and technical personnel, other departments, and contractors in order to resolve problems and to coordinate activities.
- Coordinate work activities with other construction project activities.
- Order or requisition materials and supplies.
- Locate, measure, and mark site locations and placement of structures and equipment, using measuring and marking equipment.
- Record information such as personnel, production, and operational data on specified forms and reports.
- Assign work to employees, based on material and worker requirements of specific jobs.

Required Skills

Skills	Skill Definitions
Active Listening	Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.
Time Management	Managing one's own time and the time of others.
Equipment Selection	Determining the kind of tools and equipment needed to do a job.
Reading Comprehension	Understanding written sentences and paragraphs in work related documents.
Coordination	Adjusting actions in relation to others' actions.
Speaking	Talking to others to convey information effectively.
Critical Thinking	Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
Mathematics	Using mathematics to solve problems.
Instructing	Teaching others how to do something.
Judgment and Decision Making	Considering the relative costs and benefits of potential actions to choose the most appropriate one.

- City Openings: 27
- Regional Openings: 175
- State Openings: 244

Operate one or several types of power construction equipment, such as motor graders, bulldozers, scrapers, compressors, pumps, derricks, shovels, tractors, or front-end loaders to excavate, move, and grade earth, erect structures, or pour concrete or other hard surface pavement. May repair and maintain equipment in addition to other duties.

Baltimore City Salary: \$44,475

Education and Training Requirements

Overall Experience	Previous work-related skill, knowledge, or experience is required for these occupations. For example, an electrician must have completed three or four years of apprenticeship or several years of vocational training, and often must have passed a licensing exam, in order to perform the job.
Job Training	Employees in these occupations usually need one or two years of training involving both on-the-job experience and informal training with experienced workers.
Education	Most occupations in this zone require training in vocational schools, related on-the-job experience, or an associate's degree. Some may require a bachelor's degree.

Occupational Requirements

- Learn and follow safety regulations.
- Take actions to avoid potential hazards and obstructions, such as utility lines, other equipment, other workers, and falling objects.
- Adjust handwheels and depress pedals to control attachments, such as blades, buckets, scrapers, and swing booms.
- Start engines, move throttles, switches, and levers, and depress pedals to operate machines such as bulldozers, trench excavators, road graders, and backhoes.
- Locate underground services, such as pipes and wires, prior to beginning work.
- Monitor operations to ensure that health and safety standards are met.
- Align machines, cutterheads, or depth gauge makers with reference stakes and guidelines or ground or position equipment, following hand signals of other workers.
- Load and move dirt, rocks, equipment, and materials, using trucks, crawler tractors, power cranes, shovels, graders, or related equipment.
- Drive and maneuver equipment equipped with blades in successive passes over working areas to remove topsoil, vegetation, and rocks, and to distribute and level earth or terrain.
- Coordinate machine actions with other activities, positioning or moving loads in response to hand or audio signals from crew members.

Required Skills

Skills	Skill Definitions
Active Listening	Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.
Equipment Maintenance	Performing routine maintenance on equipment and determining when and what kind of maintenance is needed.
Equipment Selection	Determining the kind of tools and equipment needed to do a job.
Reading Comprehension	Understanding written sentences and paragraphs in work related documents.
Operation and Control	Controlling operations of equipment or systems.
Operation Monitoring	Watching gauges, dials, or other indicators to make sure a machine is working properly.
Active Learning	Understanding the implications of new information for both current and future problem-solving and decision-making.
Installation	Installing equipment, machines, wiring, or programs to meet specifications.
Instructing	Teaching others how to do something.
Judgment and Decision Making	Considering the relative costs and benefits of potential actions to choose the most appropriate one.

- City Openings: 8
- Regional Openings: 44
- State Openings: 153

Help carpenters by performing duties of lesser skill. Duties include using, supplying or holding materials or tools, and cleaning work area and equipment.

Baltimore City Salary: \$20,512

Education and Training Requirements

Overall Experience	Some previous work-related skill, knowledge, or experience may be helpful in these occupations, but usually is not needed. For example, a teller might benefit from experience working directly with the public, but an inexperienced person could still learn to be a teller with little difficulty.
Job Training	Employees in these occupations need anywhere from a few months to one year of working with experienced employees.
Education	These occupations usually require a high school diploma and may require some vocational training or job-related course work. In some cases, an associate's or bachelor's degree could be needed.

Occupational Requirements

- Position and hold timbers, lumber, and paneling in place for fastening or cutting.
- Erect scaffolding, shoring, and braces.
- Select tools, equipment, and materials from storage and transport items to work site.
- Fasten timbers or lumber with glue, screws, pegs, or nails and install hardware.
- Clean work areas, machines, and equipment, to maintain a clean and safe jobsite.
- Hold plumb bobs, sighting rods, or other equipment to aid in establishing reference points and lines.
- Align, straighten, plumb, and square forms for installation.
- Cut timbers, lumber and/or paneling to specified dimensions, and drill holes in timbers or lumber.
- Smooth and sand surfaces to remove ridges, tool marks, glue, or caulking.
- Perform tie spacing layout and measure, mark, drill or cut.

Required Skills

Skills	Skill Definitions
Active Listening	Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.
Equipment Maintenance	Performing routine maintenance on equipment and determining when and what kind of maintenance is needed.
Equipment Selection	Determining the kind of tools and equipment needed to do a job.
Reading Comprehension	Understanding written sentences and paragraphs in work related documents.
Mathematics	Using mathematics to solve problems.
Management of Material Resources	Obtaining and seeing to the appropriate use of equipment, facilities, and materials needed to do certain work.
Troubleshooting	Determining causes of operating errors and deciding what to do about it.
Installation	Installing equipment, machines, wiring, or programs to meet specifications.
Coordination	Adjusting actions in relation to others' actions.
Time Management	Managing one's own time and the time of others.

- City Openings: 8
- Regional Openings: 48
- State Openings: 182

Smooth and finish surfaces of poured concrete, such as floors, walks, sidewalks, roads, or curbs using a variety of hand and power tools. Align forms for sidewalks, curbs, or gutters; patch voids; use saws to cut expansion joints.

Baltimore City Salary: \$39,453

Education and Training Requirements

Overall Experience	Previous work-related skill, knowledge, or experience is required for these occupations. For example, an electrician must have completed three or four years of apprenticeship or several years of vocational training, and often must have passed a licensing exam, in order to perform the job.
Job Training	Employees in these occupations usually need one or two years of training involving both on-the-job experience and informal training with experienced workers.
Education	Most occupations in this zone require training in vocational schools, related on-the-job experience, or an associate's degree. Some may require a bachelor's degree.

Occupational Requirements

- Check the forms that hold the concrete to see that they are properly constructed.
- Set the forms that hold concrete to the desired pitch and depth, and align them.
- Spread, level, and smooth concrete, using rake, shovel, hand or power trowel, hand or power screed, and float.
- Mold expansion joints and edges, using edging tools, jointers, and straightedge.
- Monitor how the wind, heat, or cold affect the curing of the concrete throughout the entire process.
- Signal truck driver to position truck to facilitate pouring concrete, and move chute to direct concrete on forms.
- Produce rough concrete surface, using broom.
- Operate power vibrator to compact concrete.
- Direct the casting of the concrete and supervise laborers who use shovels or special tools to spread it.
- Mix cement, sand, and water to produce concrete, grout, or slurry, using hoe, trowel, tamper, scraper, or concrete-mixing machine.

Required Skills

Coordination	Adjusting actions in relation to others' actions.
Mathematics	Using mathematics to solve problems.
Active Listening	Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.
Critical Thinking	Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
Active Learning	Understanding the implications of new information for both current and future problem-solving and decision-making.
Complex Problem Solving	Identifying complex problems and reviewing related information to develop and evaluate options and implement solutions.
Equipment Selection	Determining the kind of tools and equipment needed to do a job.

- City Openings: 16
- Regional Openings: 108
- State Openings: 246

Prepare cost estimates for product manufacturing, construction projects, or services to aid management in bidding on or determining price of product or service. May specialize according to particular service performed or type of product manufactured.

Baltimore City Salary: \$ 56,595

Education and Training Requirements

Overall Experience	A minimum of two to four years of work-related skill, knowledge, or experience is needed for these occupations. For example, an accountant must complete four years of college and work for several years in accounting to be considered qualified.
Job Training	Employees in these occupations usually need several years of work-related experience, on-the-job training, and/or vocational training.
Education	Most of these occupations require a four - year bachelor's degree, but some do not.

Occupational Requirements

- Consult with clients, vendors, personnel in other departments or construction foremen to discuss and formulate estimates and resolve issues.
- Analyze blueprints and other documentation to prepare time, cost, materials, and labor estimates.
- Prepare estimates for use in selecting vendors or subcontractors.
- Confer with engineers, architects, owners, contractors and subcontractors on changes and adjustments to cost estimates.
- Prepare estimates used by management for purposes such as planning, organizing, and scheduling work.
- Prepare cost and expenditure statements and other necessary documentation at regular intervals for the duration of the project.
- Assess cost effectiveness of products, projects or services, tracking actual costs relative to bids as the project develops.
- Set up cost monitoring and reporting systems and procedures.
- Conduct special studies to develop and establish standard hour and related cost data or to effect cost reduction.
- Review material and labor requirements to decide whether it is more cost-effective to produce or purchase components.

Required Skills

Reading Comprehension	Understanding written sentences and paragraphs in work related documents.
Writing	Communicating effectively in writing as appropriate for the needs of the audience.
Active Listening	Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.
Mathematics	Using mathematics to solve problems.
Critical Thinking	Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
Speaking	Talking to others to convey information effectively.
Judgment and Decision Making	Considering the relative costs and benefits of potential actions to choose the most appropriate one.
Active Learning	Understanding the implications of new information for both current and future problem-solving and decision-making.
Complex Problem Solving	Identifying complex problems and reviewing related information to develop and evaluate options and implement solutions.
Persuasion	Persuading others to change their minds or behavior.

- City Openings: 123
- Regional Openings: 467
- State Openings: 710

Perform routine clerical and administrative functions such as drafting correspondence, scheduling appointments, organizing and maintaining paper and electronic files, or providing information to callers.

Baltimore City Salary: \$ 30,717

Education and Training Requirements

Overall Experience	Some previous work-related skill, knowledge, or experience may be helpful in these occupations, but usually is not needed. For example, a teller might benefit from experience working directly with the public, but an inexperienced person could still learn to be a teller with little difficulty.
Job Training	Employees in these occupations need anywhere from a few months to one year of working with experienced employees.
Education	These occupations usually require a high school diploma and may require some vocational training or job-related course work. In some cases, an associate's or bachelor's degree could be needed.

Occupational Requirements

- Operate office equipment such as fax machines, copiers, and phone systems, and use computers for spreadsheet, word processing, database management, and other applications.
- Answer telephones and give information to callers, take messages, or transfer calls to appropriate individuals.
- Greet visitors and callers, handle their inquiries, and direct them to the appropriate persons according to their needs.
- Set up and maintain paper and electronic filing systems for records, correspondence, and other material.
- Locate and attach appropriate files to incoming correspondence requiring replies.
- Open, read, route, and distribute incoming mail and other material and answer routine letters.
- Complete forms in accordance with company procedures.
- Make copies of correspondence and other printed material.
- Review work done by others to check for correct spelling and grammar, ensure that company format policies are followed, and recommend revisions.
- Compose, type, and distribute meeting notes, routine correspondence, and reports.

Required Skills

Active Learning	Understanding the implications of new information for both current and future problem-solving and decision-making.
Coordination	Adjusting actions in relation to others' actions.
Social Perceptiveness	Being aware of others' reactions and understanding why they react as they do.
Critical Thinking	Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
Time Management	Managing one's own time and the time of others.
Learning Strategies	Selecting and using training/instructional methods and procedures appropriate for the situation when learning or teaching new things.
Monitoring	Monitoring/Assessing performance of yourself, other individuals, or organizations to make improvements or take corrective action.
Active Listening	Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.
Reading Comprehension	Understanding written sentences and paragraphs in work related documents.
Speaking	Talking to others to convey information effectively.
Writing	Communicating effectively in writing as appropriate for the needs of the audience.

- City Openings: 87
- Regional Openings: 387
- State Openings: 947

Compute, classify, and record numerical data to keep financial records complete. Perform any combination of routine calculating, posting, and verifying duties to obtain primary financial data for use in maintaining accounting records. May also check the accuracy of figures, calculations, and postings pertaining to business transactions recorded by other workers.

Baltimore City Salary: \$ 34,292

Education and Training Requirements

Overall Experience	Previous work-related skill, knowledge, or experience is required for these occupations. For example, an electrician must have completed three or four years of apprenticeship or several years of vocational training, and often must have passed a licensing exam, in order to perform the job.
Job Training	Employees in these occupations usually need one or two years of training involving both on-the-job experience and informal training with experienced workers.
Education	Most occupations in this zone require training in vocational schools, related on-the-job experience, or an associate's degree. Some may require a bachelor's degree.

Occupational Requirements

- Check figures, postings, and documents for correct entry, mathematical accuracy, and proper codes.
- Operate computers programmed with accounting software to record, store, and analyze information.
- Comply with federal, state, and company policies, procedures, and regulations.
- Debit, credit, and total accounts on computer spreadsheets and databases, using specialized accounting software.
- Classify, record, and summarize numerical and financial data to compile and keep financial records, using journals and ledgers or computers.
- Calculate, prepare, and issue bills, invoices, account statements, and other financial statements according to established procedures.
- Compile statistical, financial, accounting or auditing reports and tables pertaining to such matters as cash receipts, expenditures, accounts payable and receivable, and profits and losses.
- Code documents according to company procedures.
- Access computerized financial information to answer general questions as well as those related to specific accounts.

- Operate 10-key calculators, typewriters, and copy machines to perform calculations and produce documents.

Required Skills

Mathematics	Using mathematics to solve problems.
Time Management	Managing one's own time and the time of others.
Active Listening	Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.
Reading Comprehension	Understanding written sentences and paragraphs in work related documents.
Critical Thinking	Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
Learning Strategies	Selecting and using training/instructional methods and procedures appropriate for the situation when learning or teaching new things.
Active Learning	Understanding the implications of new information for both current and future problem-solving and decision-making.
Social Perceptiveness	Being aware of others' reactions and understanding why they react as they do.
Writing	Communicating effectively in writing as appropriate for the needs of the audience.
Speaking	Talking to others to convey information effectively.

- City Openings: 248
- Regional Openings: 964
- State Openings: 223

Perform duties too varied and diverse to be classified in any specific office clerical occupation, requiring limited knowledge of office management systems and procedures. Clerical duties may be assigned in accordance with the office procedures of individual establishments and may include a combination of answering telephones, bookkeeping, typing or word processing, stenography, office machine operation, and filing.

Baltimore City Salary: \$27,392

Education and Training Requirements

Overall Experience	Some previous work-related skill, knowledge, or experience may be helpful in these occupations, but usually is not needed. For example, a teller might benefit from experience working directly with the public, but an inexperienced person could still learn to be a teller with little difficulty.
Job Training	Employees in these occupations need anywhere from a few months to one year of working with experienced employees.
Education	These occupations usually require a high school diploma and may require some vocational training or job-related course work. In some cases, an associate's or bachelor's degree could be needed.

Occupational Requirements

- Collect, count, and disburse money, do basic bookkeeping, and complete banking transactions.
- Communicate with customers, employees, and other individuals to answer questions, disseminate or explain information, take orders, and address complaints.
- Answer telephones, direct calls, and take messages.
- Compile, copy, sort, and file records of office activities, business transactions, and other activities.
- Complete and mail bills, contracts, policies, invoices, or checks.
- Operate office machines, such as photocopiers and scanners, facsimile machines, voice mail systems, and personal computers.
- Compute, record, and proofread data and other information, such as records or reports.
- Maintain and update filing, inventory, mailing, and database systems, either manually or using a computer.
- Open, sort, and route incoming mail, answer correspondence, and prepare outgoing mail.
- Review files, records, and other documents to obtain information to respond to requests.

Required Skills

Skills	Skill Definitions
Oral Comprehension	The ability to listen to and understand information and ideas presented through spoken words and sentences.
Oral Expression	The ability to communicate information and ideas in speaking so others will understand.
Speech Clarity	The ability to speak clearly so others can understand you.
Speech Recognition	The ability to identify and understand the speech of another person.
Near Vision	The ability to see details at close range (within a few feet of the observer).
Written Comprehension	The ability to read and understand information and ideas presented in writing.
Information Ordering	The ability to arrange things or actions in a certain order or pattern according to a specific rule or set of rules (e.g., patterns of numbers, letters, words, pictures, mathematical operations).
Number Facility	The ability to add, subtract, multiply, or divide quickly and correctly.
Mathematical Reasoning	The ability to choose the right mathematical methods or formulas to solve a problem.
Selective Attention	The ability to concentrate on a task over a period of time without being distracted.

APPENDIX B
EBDI DEVELOPMENT – TENANT JOB DESCRIPTIONS

Executive Secretaries and Administrative Assistants

222 Jobs

- City Openings: 1,18
- Regional Openings: 3,86
- State Openings: 8,18

Provide high-level administrative support by conducting research, preparing statistical reports, handling information requests, and performing clerical functions such as preparing correspondence, receiving visitors, arranging conference calls, and scheduling meetings. May also train and supervise lower-level clerical staff.

Baltimore City Salary: \$ 39,983

Education and Training Requirements

Overall Experience	Previous work-related skill, knowledge, or experience is required for these occupations. For example, an electrician must have completed three or four years of apprenticeship or several years of vocational training, and often must have passed a licensing exam, in order to perform the job.
Job Training	Employees in these occupations usually need one or two years of training involving both on-the-job experience and informal training with experienced workers.
Education	Most occupations in this zone require training in vocational schools, related on-the-job experience, or an associate's degree. Some may require a bachelor's degree.

Occupational Requirements

- Manage and maintain executives' schedules.
- Prepare invoices, reports, memos, letters, financial statements and other documents, using word processing, spreadsheet, database, or presentation software.
- Read and analyze incoming memos, submissions, and reports to determine their significance and plan their distribution.
- Open, sort, and distribute incoming correspondence, including faxes and email.
- File and retrieve corporate documents, records, and reports.
- Greet visitors and determine whether they should be given access to specific individuals.
- Prepare responses to correspondence containing routine inquiries.
- Perform general office duties such as ordering supplies, maintaining records management systems, and performing basic bookkeeping work.
- Prepare agendas and make arrangements for committee, board, and other meetings.
- Make travel arrangements for executives.

Required Skills

Time Management	Managing one's own time and the time of others.
Speaking	Talking to others to convey information effectively.
Active Listening	Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.
Service Orientation	Actively looking for ways to help people.
Coordination	Repairing machines or systems using the needed tools.
Critical Thinking	Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
Reading Comprehension	Understanding written sentences and paragraphs in work related documents.
Writing	Communicating effectively in writing as appropriate for the needs of the audience.
Active Learning	Understanding the implications of new information for both current and future problem-solving and decision-making.
Monitoring	Monitoring/Assessing performance of yourself, other individuals, or organizations to make improvements or take corrective action.

- City Openings: 248
- Regional Openings: 964
- State Openings: 2,227

Perform duties too varied and diverse to be classified in any specific office clerical occupation, requiring limited knowledge of office management systems and procedures. Clerical duties may be assigned in accordance with the office procedures of individual establishments and may include a combination of answering telephones, bookkeeping, typing or word processing, stenography, office machine operation, and filing.

Baltimore City Salary: \$27,392

Education and Training Requirements

Overall Experience	Some previous work-related skill, knowledge, or experience may be helpful in these occupations, but usually is not needed. For example, a teller might benefit from experience working directly with the public, but an inexperienced person could still learn to be a teller with little difficulty.
Job Training	Employees in these occupations need anywhere from a few months to one year of working with experienced employees.
Education	These occupations usually require a high school diploma and may require some vocational training or job-related course work. In some cases, an associate's or bachelor's degree could be needed.

Occupational Requirements

- Collect, count, and disburse money, do basic bookkeeping, and complete banking transactions.
- Communicate with customers, employees, and other individuals to answer questions, disseminate or explain information, take orders, and address complaints.
- Answer telephones, direct calls, and take messages.
- Compile, copy, sort, and file records of office activities, business transactions, and other activities.
- Complete and mail bills, contracts, policies, invoices, or checks.
- Operate office machines, such as photocopiers and scanners, facsimile machines, voice mail systems, and personal computers.
- Compute, record, and proofread data and other information, such as records or reports.
- Maintain and update filing, inventory, mailing, and database systems, either manually or using a computer.
- Open, sort, and route incoming mail, answer correspondence, and prepare outgoing mail.
- Review files, records, and other documents to obtain information to respond to requests.

Required Skills

Skills	Skill Definitions
Oral Comprehension	The ability to listen to and understand information and ideas presented through spoken words and sentences.
Oral Expression	The ability to communicate information and ideas in speaking so others will understand.
Speech Clarity	The ability to speak clearly so others can understand you.
Speech Recognition	The ability to identify and understand the speech of another person.
Near Vision	The ability to see details at close range (within a few feet of the observer).
Written Comprehension	The ability to read and understand information and ideas presented in writing.
Information Ordering	The ability to arrange things or actions in a certain order or pattern according to a specific rule or set of rules (e.g., patterns of numbers, letters, words, pictures, mathematical operations).
Number Facility	The ability to add, subtract, multiply, or divide quickly and correctly.
Mathematical Reasoning	The ability to choose the right mathematical methods or formulas to solve a problem.
Selective Attention	The ability to concentrate on a task over a period of time without being distracted.

- City Openings: 25
- Regional Openings: 75
- State Openings: 101

Perform duties too varied and diverse to be classified in any specific office clerical occupation, requiring limited knowledge of office management systems and procedures. Clerical duties may be assigned in accordance with the office procedures of individual establishments and may include a combination of answering telephones, bookkeeping, typing or word processing, stenography, office machine operation, and filing.

Baltimore City Salary: \$45,943

Education and Training Requirements

Overall Experience	Some previous work-related skill, knowledge, or experience may be helpful in these occupations, but usually is not needed. For example, a teller might benefit from experience working directly with the public, but an inexperienced person could still learn to be a teller with little difficulty.
Job Training	Employees in these occupations need anywhere from a few months to one year of working with experienced employees.
Education	These occupations usually require a high school diploma and may require some vocational training or job-related course work. In some cases, an associate's or bachelor's degree could be needed.

Occupational Requirements

- Collect, count, and disburse money, do basic bookkeeping, and complete banking transactions.
- Communicate with customers, employees, and other individuals to answer questions, disseminate or explain information, take orders, and address complaints.
- Answer telephones, direct calls, and take messages.
- Compile, copy, sort, and file records of office activities, business transactions, and other activities.
- Complete and mail bills, contracts, policies, invoices, or checks.
- Operate office machines, such as photocopiers and scanners, facsimile machines, voice mail systems, and personal computers.
- Compute, record, and proofread data and other information, such as records or reports.
- Maintain and update filing, inventory, mailing, and database systems, either manually or using a computer.
- Open, sort, and route incoming mail, answer correspondence, and prepare outgoing mail.
- Review files, records, and other documents to obtain information to respond to requests.

Required Skills

Skills	Skill Definitions
Oral Comprehension	The ability to listen to and understand information and ideas presented through spoken words and sentences.
Oral Expression	The ability to communicate information and ideas in speaking so others will understand.
Speech Clarity	The ability to speak clearly so others can understand you.
Speech Recognition	The ability to identify and understand the speech of another person.
Near Vision	The ability to see details at close range (within a few feet of the observer).
Written Comprehension	The ability to read and understand information and ideas presented in writing.
Information Ordering	The ability to arrange things or actions in a certain order or pattern according to a specific rule or set of rules (e.g., patterns of numbers, letters, words, pictures, mathematical operations).
Number Facility	The ability to add, subtract, multiply, or divide quickly and correctly.
Mathematical Reasoning	The ability to choose the right mathematical methods or formulas to solve a problem.
Selective Attention	The ability to concentrate on a task over a period of time without being distracted.

- City Openings: 123
- Regional Openings: 467
- State Openings: 710

Perform routine clerical and administrative functions such as drafting correspondence, scheduling appointments, organizing and maintaining paper and electronic files, or providing information to callers.

Baltimore City Salary: \$ 30,717

Education and Training Requirements

Overall Experience	Some previous work-related skill, knowledge, or experience may be helpful in these occupations, but usually is not needed. For example, a teller might benefit from experience working directly with the public, but an inexperienced person could still learn to be a teller with little difficulty.
Job Training	Employees in these occupations need anywhere from a few months to one year of working with experienced employees.
Education	These occupations usually require a high school diploma and may require some vocational training or job-related course work. In some cases, an associate's or bachelor's degree could be needed.

Occupational Requirements

- Operate office equipment such as fax machines, copiers, and phone systems, and use computers for spreadsheet, word processing, database management, and other applications.
- Answer telephones and give information to callers, take messages, or transfer calls to appropriate individuals.
- Greet visitors and callers, handle their inquiries, and direct them to the appropriate persons according to their needs.
- Set up and maintain paper and electronic filing systems for records, correspondence, and other material.
- Locate and attach appropriate files to incoming correspondence requiring replies.
- Open, read, route, and distribute incoming mail and other material and answer routine letters.
- Complete forms in accordance with company procedures.
- Make copies of correspondence and other printed material.
- Review work done by others to check for correct spelling and grammar, ensure that company format policies are followed, and recommend revisions.
- Compose, type, and distribute meeting notes, routine correspondence, and reports.

Required Skills

Active Learning	Understanding the implications of new information for both current and future problem-solving and decision-making.
Coordination	Adjusting actions in relation to others' actions.
Social Perceptiveness	Being aware of others' reactions and understanding why they react as they do.
Critical Thinking	Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
Time Management	Managing one's own time and the time of others.
Learning Strategies	Selecting and using training/instructional methods and procedures appropriate for the situation when learning or teaching new things.
Monitoring	Monitoring/Assessing performance of yourself, other individuals, or organizations to make improvements or take corrective action.
Active Listening	Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.
Reading Comprehension	Understanding written sentences and paragraphs in work related documents.
Speaking	Talking to others to convey information effectively.
Writing	Communicating effectively in writing as appropriate for the needs of the audience.

- City Openings: 87
- Regional Openings: 387
- State Openings: 947

Compute, classify, and record numerical data to keep financial records complete. Perform any combination of routine calculating, posting, and verifying duties to obtain primary financial data for use in maintaining accounting records. May also check the accuracy of figures, calculations, and postings pertaining to business transactions recorded by other workers.

Baltimore City Salary: \$ 34,292

Education and Training Requirements

Overall Experience	Previous work-related skill, knowledge, or experience is required for these occupations. For example, an electrician must have completed three or four years of apprenticeship or several years of vocational training, and often must have passed a licensing exam, in order to perform the job.
Job Training	Employees in these occupations usually need one or two years of training involving both on-the-job experience and informal training with experienced workers.
Education	Most occupations in this zone require training in vocational schools, related on-the-job experience, or an associate's degree. Some may require a bachelor's degree.

Occupational Requirements

- Check figures, postings, and documents for correct entry, mathematical accuracy, and proper codes.
- Operate computers programmed with accounting software to record, store, and analyze information.
- Comply with federal, state, and company policies, procedures, and regulations.
- Debit, credit, and total accounts on computer spreadsheets and databases, using specialized accounting software.
- Classify, record, and summarize numerical and financial data to compile and keep financial records, using journals and ledgers or computers.
- Calculate, prepare, and issue bills, invoices, account statements, and other financial statements according to established procedures.
- Compile statistical, financial, accounting or auditing reports and tables pertaining to such matters as cash receipts, expenditures, accounts payable and receivable, and profits and losses.
- Code documents according to company procedures.
- Access computerized financial information to answer general questions as well as those related to specific accounts.

- Operate 10-key calculators, typewriters, and copy machines to perform calculations and produce documents.

Required Skills

Mathematics	Using mathematics to solve problems.
Time Management	Managing one's own time and the time of others.
Active Listening	Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.
Reading Comprehension	Understanding written sentences and paragraphs in work related documents.
Critical Thinking	Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
Learning Strategies	Selecting and using training/instructional methods and procedures appropriate for the situation when learning or teaching new things.
Active Learning	Understanding the implications of new information for both current and future problem-solving and decision-making.
Social Perceptiveness	Being aware of others' reactions and understanding why they react as they do.
Writing	Communicating effectively in writing as appropriate for the needs of the audience.
Speaking	Talking to others to convey information effectively.

- City Openings: 390
- Regional Openings: 1,797
- State Openings: 3,495

Receive and disburse money in establishments other than financial institutions. Usually involves use of electronic scanners, cash registers, or related equipment. Often involved in processing credit or debit card transactions and validating checks.

Baltimore City Salary: \$17,296

Education and Training Requirements

Overall Experience	No previous work-related skill, knowledge, or experience is needed for these occupations. For example, a person can become a cashier even if he/she has never worked before.
Job Training	Employees in these occupations need anywhere from a few days to a few months of training. Usually, an experienced worker could show you how to do the job.
Education	These occupations may require a high school diploma or GED certificate. Some may require a formal training course to obtain a license.

Occupational Requirements

- Receive payment by cash, check, credit cards, vouchers, or automatic debits.
- Issue receipts, refunds, credits, or change due to customers.
- Count money in cash drawers at the beginning of shifts to ensure that amounts are correct and that there is adequate change.
- Greet customers entering establishments.
- Maintain clean and orderly checkout areas.
- Establish or identify prices of goods, services or admission, and tabulate bills using calculators, cash registers, or optical price scanners.
- Issue trading stamps, and redeem food stamps and coupons.
- Resolve customer complaints.
- Answer customers' questions, and provide information on procedures or policies.
- Cash checks for customers.

Required Skills

Skills	Skill Definitions
Active Listening	Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.
Mathematics	Using mathematics to solve problems.
Speaking	Talking to others to convey information effectively.
Instructing	Teaching others how to do something.
Social Perceptiveness	Being aware of others' reactions and understanding why they react as they do.
Service Orientation	Actively looking for ways to help people.
Learning Strategies	Selecting and using training/instructional methods and procedures appropriate for the situation when learning or teaching new things.
Critical Thinking	Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.

- City Openings: 194
- Regional Openings: 2,190
- State Openings: 4,171

Sell merchandise, such as furniture, motor vehicles, appliances, or apparel in a retail establishment.

Baltimore City Salary: \$20,263

Education and Training Requirements

Overall Experience	Some previous work-related skill, knowledge, or experience may be helpful in these occupations, but usually is not needed. For example, a teller might benefit from experience working directly with the public, but an inexperienced person could still learn to be a teller with little difficulty.
Job Training	Employees in these occupations need anywhere from a few months to one year of working with experienced employees.
Education	These occupations usually require a high school diploma and may require some vocational training or job-related course work. In some cases, an associate's or bachelor's degree could be needed.

Occupational Requirements

- Greet customers and ascertain what each customer wants or needs.
- Open and close cash registers, performing tasks such as counting money, separating charge slips, coupons, and vouchers, balancing cash drawers, and making deposits.
- Maintain knowledge of current sales and promotions, policies regarding payment and exchanges, and security practices.
- Compute sales prices, total purchases and receive and process cash or credit payment.
- Maintain records related to sales.
- Watch for and recognize security risks and thefts, and know how to prevent or handle these situations.
- Recommend, select, and help locate or obtain merchandise based on customer needs and desires.
- Answer questions regarding the store and its merchandise.
- Describe merchandise and explain use, operation, and care of merchandise to customers.
- Ticket, arrange and display merchandise to promote sales.

Required Skills

Skills	Skill Definitions
Active Listening	Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.
Mathematics	Using mathematics to solve problems.
Speaking	Talking to others to convey information effectively.
Instructing	Teaching others how to do something.
Social Perceptiveness	Being aware of others' reactions and understanding why they react as they do.
Writing	Communicating effectively in writing as appropriate for the needs of the audience.
Judgment and Decision Making	Considering the relative costs and benefits of potential actions to choose the most appropriate one.
Critical Thinking	Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
Reading Comprehension	Understanding written sentences and paragraphs in work related documents.

First-line supervisors/managers of office and administrative support workers 107 Jobs

- City Openings: 83
- Regional Openings: 365
- State Openings: 756

Supervise and coordinate the activities of clerical and administrative support workers.

Baltimore City Salary: \$47,456

Education and Training Requirements

Overall Experience	Previous work-related skill, knowledge, or experience is required for these occupations. For example, an electrician must have completed three or four years of apprenticeship or several years of vocational training, and often must have passed a licensing exam, in order to perform the job.
Job Training	Employees in these occupations usually need one or two years of training involving both on-the-job experience and informal training with experienced workers.
Education	Most occupations in this zone require training in vocational schools, related on-the-job experience, or an associate's degree. Some may require a bachelor's degree.

Occupational Requirements

- Greet customers and ascertain what each customer wants or needs.
- Open and close cash registers, performing tasks such as counting money, separating charge slips, coupons, and vouchers, balancing cash drawers, and making deposits.
- Maintain knowledge of current sales and promotions, policies regarding payment and exchanges, and security practices.
- Compute sales prices, total purchases and receive and process cash or credit payment.
- Maintain records related to sales.
- Watch for and recognize security risks and thefts, and know how to prevent or handle these situations.
- Recommend, select, and help locate or obtain merchandise based on customer needs and desires.
- Answer questions regarding the store and its merchandise.
- Describe merchandise and explain use, operation, and care of merchandise to customers.
- Ticket, arrange and display merchandise to promote sales.

Required Skills

Skills	Skill Definitions
Active Listening	Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.
Monitoring	Monitoring/Assessing performance of yourself, other individuals, or organizations to make improvements or take corrective action.
Speaking	Talking to others to convey information effectively.
Instructing	Teaching others how to do something.
Social Perceptiveness	Being aware of others' reactions and understanding why they react as they do.
Time Management	Managing one's own time and the time of others.
Judgment and Decision Making	Considering the relative costs and benefits of potential actions to choose the most appropriate one.
Critical Thinking	Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
Reading Comprehension	Understanding written sentences and paragraphs in work related documents.
Management of Personnel Resources	Motivating, developing, and directing people as they work, identifying the best people for the job.

- City Openings: 32
- Regional Openings: 39
- State Openings: 129

Assist biological and medical scientists in laboratories. Set up, operate, and maintain laboratory instruments and equipment, monitor experiments, make observations, and calculate and record results. May analyze organic substances, such as blood, food, and drugs.

Baltimore City Salary: \$37,718

Education and Training Requirements

Overall Experience	A minimum of two to four years of work-related skill, knowledge, or experience is needed for these occupations. For example, an accountant must complete four years of college and work for several years in accounting to be considered qualified.
Job Training	Employees in these occupations usually need several years of work-related experience, on-the-job training, and/or vocational training.
Education	Most of these occupations require a four - year bachelor's degree, but some do not.

Occupational Requirements

- Keep detailed logs of all work-related activities.
- Monitor laboratory work to ensure compliance with set standards.
- Isolate, identify and prepare specimens for examination.
- Use computers, computer-interfaced equipment, robotics or high-technology industrial applications to perform work duties.
- Conduct research or assist in the conduct of research, including the collection of information and samples, such as blood, water, soil, plants and animals.
- Set up, adjust, calibrate, clean, maintain, and troubleshoot laboratory and field equipment.
- Provide technical support and services for scientists and engineers working in fields such as agriculture, environmental science, resource management, biology, and health sciences.
- Clean, maintain and prepare supplies and work areas.
- Participate in the research, development, or manufacturing of medicinal and pharmaceutical preparations.
- Conduct standardized biological, microbiological or biochemical tests and laboratory analyses to evaluate the quantity or quality of physical or chemical substances in food or other products.

Required Skills

Skills	Skill Definitions
Active Listening	Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.
Science	Using scientific rules and methods to solve problems.
Speaking	Talking to others to convey information effectively.
Instructing	Teaching others how to do something.
Active Learning	Understanding the implications of new information for both current and future problem-solving and decision-making.
Time Management	Managing one's own time and the time of others.
Learning Strategies	Selecting and using training/instructional methods and procedures appropriate for the situation when learning or teaching new things.
Mathematics	Using mathematics to solve problems.
Reading Comprehension	Understanding written sentences and paragraphs in work related documents.
Quality Control Analysis	Conducting tests and inspections of products, services, or processes to evaluate quality or performance.

- City Openings: 126
- Regional Openings: 590
- State Openings: 2,162

Interact with customers to provide information in response to inquiries about products and services and to handle and resolve complaints.

Baltimore City Salary: \$32,114

Education and Training Requirements

Overall Experience	Some previous work-related skill, knowledge, or experience may be helpful in these occupations, but usually is not needed. For example, a teller might benefit from experience working directly with the public, but an inexperienced person could still learn to be a teller with little difficulty.
Job Training	Employees in these occupations need anywhere from a few months to one year of working with experienced employees.
Education	These occupations usually require a high school diploma and may require some vocational training or job-related course work. In some cases, an associate's or bachelor's degree could be needed.

Occupational Requirements

- Confer with customers by telephone or in person in order to provide information about products and services, to take orders or cancel accounts, or to obtain details of complaints.
- Keep records of customer interactions and transactions, recording details of inquiries, complaints, and comments, as well as actions taken.
- Resolve customers' service or billing complaints by performing activities such as exchanging merchandise, refunding money, and adjusting bills.
- Check to ensure that appropriate changes were made to resolve customers' problems.
- Contact customers to respond to inquiries or to notify them of claim investigation results and any planned adjustments.
- Refer unresolved customer grievances to designated departments for further investigation.
- Determine charges for services requested, collect deposits or payments, or arrange for billing.
- Complete contract forms, prepare change of address records, and issue service discontinuance orders, using computers.
- Obtain and examine all relevant information to assess validity of complaints and to determine possible causes, such as extreme weather conditions that could increase utility bills.
- Solicit sale of new or additional services or products.

Required Skills

Skills	Skill Definitions
Active Listening	Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.
Monitoring	Monitoring/Assessing performance of yourself, other individuals, or organizations to make improvements or take corrective action.
Speaking	Talking to others to convey information effectively.
Service Orientation	Actively looking for ways to help people.
Active Learning	Understanding the implications of new information for both current and future problem-solving and decision-making.
Time Management	Managing one's own time and the time of others.
Learning Strategies	Selecting and using training/instructional methods and procedures appropriate for the situation when learning or teaching new things.
Writing	Communicating effectively in writing as appropriate for the needs of the audience.
Reading Comprehension	Understanding written sentences and paragraphs in work related documents.
Critical Thinking	Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.

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