



Opportunity
Collaborative

CAREER PATHWAYS IN THE BALTIMORE REGION: TRANSPORTATION AND LOGISTICS

SEPTEMBER 2014



Baltimore Metropolitan Council

Career Pathways in the Baltimore Region: Transportation and Logistics

This report is the Opportunity Collaborative's third publication and an important building block for our regional workforce development strategy. Our Study of Barriers to Employment Opportunity, released in June 2014, called for more sector based strategies that offer a larger menu of pathways to family-supporting careers. This study is a direct response to that call, targeted at an employment sector that offers access and concrete opportunities for job seekers in our region.

Career Pathways approaches are designed to add clarity to an otherwise murky job market and help workers attain the technical skills they need to progress into family supporting careers. Careers in transportation & logistics are incredibly relevant to our region's job seekers. The Baltimore region is home to major employment centers in this sector, such as the Port of Baltimore and BWI. Additionally, emerging opportunities of the Red Line and Amazon distribution center will only strengthen this sector's position in our labor market.

This study is an immediately valuable tool for job seekers, employers and training providers, and our hope is that this work is just a first step towards a broader sector driven approach. We hope that this report will serve as a model to be replicated in other industries that provide much needed family-supporting wages to our mid-skill workforce.

We would like to thank the region's Workforce Investment Boards, community colleges, state agencies, and non-profit organizations that helped us shape this report. The Opportunity Collaborative operates through a process of inclusive cooperation and we are proud of the diverse partners who sit around our various tables. The strength of this study comes, in no small part, from the thoughtful and generous efforts of our members.



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The Opportunity Collaborative is a coalition of local governments, state agencies and nonprofit organizations in the Baltimore region. This unique partnership was formed in 2012 to develop a Regional Plan for Sustainable Development. **Consortium members include:**

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Baltimore Metropolitan Council

The Baltimore Metropolitan Council (BMC) is the organization of the region's elected executives. We are committed to identifying regional interests and developing collaborative strategies, plans and programs which will improve the quality of life and economic vitality throughout the region. The BMC board of directors is composed of the mayor of Baltimore, the executives of Anne Arundel, Baltimore, Harford and Howard counties and a member of the Carroll County Board of Commissioners.



A special thank you to the organizations represented on our workforce development committee, without whom this report would not have been possible.

Workforce Development Committee Members

Anne Arundel Community College
Anne Arundel Workforce Development Corporation
Associated Black Charities
Baltimore City Community College
Baltimore Integration Partnership
Baltimore City Mayor's Office of Employment Development
Baltimore County office of Economic and Workforce Development
Baltimore Workforce Funders Collaborative
Citizens Planning and Housing Association
Community College of Baltimore County
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CAREER PATHWAYS IN THE BALTIMORE REGION: TRANSPORTATION & LOGISTICS

Opportunity Collaborative

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Foreword

This study has collected information to identify and analyze pathways to careers in the transportation and logistics sector in the Baltimore region that lead to family-supporting careers. The goals of the study are to identify entry-level jobs and associated on-ramps to opportunity, identify the basic entry-level requirements for jobs and careers in transportation and logistics, and determine the barriers to employment opportunity that job seekers face for entry-level jobs and for progression within a career pathway. The study is a supporting research step toward preparing a Regional Workforce Development Plan for the Baltimore region. Information presented in the study will be used by the Workforce Committee to identify opportunities for workforce development stakeholders to help low-income residents gain the education, skills, and other capacities necessary to enter and progress in careers. The study is based on a review of literature and interviews with hiring managers in Baltimore’s transportation and logistics industry.



Credit: Maryland Department of Transportation

Growth in the Transportation, Logistics, and Warehouse (TLW) Sector is Creating Opportunities for Baltimore region Residents to Work into Family-Supporting Careers

Warehouses, shipping companies, and people-moving transit companies in the region's transportation and logistics sector directly employ 32,800 workers. Hiring in the industry will be driven in part by employee turn over and retirement of experienced workers, but the sector is also expected to add at least 1,800 net new jobs by 2020. Hiring cycles in the industry also contribute to seasonal changes in on-ramps. During the August to December holiday season, distribution warehouses add thousands of temporary workers to their staff to meet shipping demand requirements. Some of these workers will be retained in full-time positions after the holiday season. MTA traditionally advertises to hire a large number of transportation operator positions in December. Opportunities working on commercial sea vessels are expected to grow as approximately a quarter of the nation's merchant marine workforce is within 10 years of retirement age. These jobs are typically offered on a contract basis for a particular voyage. The cyclical growth pattern in the TLW sector causes a comparatively high job turnover in this sector, creating opportunities for entry-level jobs and a need for pre-employment training for workers.

“At MTA, we believe in opportunity. We are a career place and we want our employees to put down roots.”

-Robin E. Henry, Acting Director, Human Resources, MTA

The Maryland Transit Administration (MTA) is one of the largest multi-modal transit systems in the United States and employs about 3,300 workers, of which about 75 to 80 percent are employed in the Baltimore region. MTA operates local and commuter buses, light rail, metro subway, Maryland Area Regional Commuter (MARC) train service, and a comprehensive paratransit (mobility) system. MTA also manages the Taxi Access system. Growth in jobs in the TLW sector is being supported by major public transportation investments such as construction of the Red Line, a \$2.6 billion project that will create a 14.1 mile track connecting Woodlawn, Edmondson Village, West Baltimore, downtown Baltimore, Harbor East, Fell's Point, Canton and the Johns Hopkins Bayview Medical Center Campus. The MTA offers a variety of entry-level positions that range from bus and rail operators that start at \$15.35 per hour and can earn \$26.44 per hour with six years of experience. Positions for trades workers, mechanics, and para-professional positions have higher starting wages and MTA hires workers for these positions who do not have prior experience. In addition, MTA is a great place to work, offering benefits like free transportation, mentoring, and many opportunities to ascend through the ranks and build a career that helps workers improve their quality of life.

The Port of Baltimore is the second-largest port on the US eastern seaboard by gross tonnage and is directly responsible for employment in 14,630 jobs generated by cargo and vessel activities at the Port, including jobs at railroads, trucking companies, terminal operators, cargo handling, manufacturing, towing, pilots, ocean carriers, and agents.¹ In addition, companies that choose to import or export their cargo through the Port of Baltimore are responsible for 68,300 additional jobs in Maryland that are directly related to activities at the Port. These companies include manufacturing firms, distributors, coal mines, automobile dealers, and others that use the Port of Baltimore to support their logistics. Job growth at the Port will be supported by ongoing major investments to increase the capacity. Recent investments include a \$29 million project to increase depth of dredging in order to accommodate larger vessels and development of a new cargo staging area to handle an estimated 20,000 more vehicles a year. These investments will increase capacity and allow for more efficient movement of freight throughout the eastern U.S. Containerized traffic at the Port of Baltimore is expected to increase significantly as the widening of the Panama Canal is completed in

Defining the Transportation Logistics and Warehouse (TLW) Sector

The transportation and warehousing sector is made up of businesses providing air, rail and water transportation services, trucking and bus services (including urban transit), taxi and limousine services, warehousing and storage and other businesses that provide supporting services to these industries.

The transportation and warehousing sector has demonstrated stable employment growth of 6% over the last decade but is expected to accelerate as more large vessels begin passing through the Panama Canal after it's expansion is complete in 2015.

2015, and already the region is seeing major new warehousing expansions and new investments like the new Amazon warehouse in Southeast Baltimore and other major new distribution warehouse developments that are designed to attract more private sector investment.

Major assets like Baltimore/Washington Thurgood Marshall International Airport (BWI) also support the sector's growth. Based on 2010 data, BWI is responsible for supporting nearly 94,000 jobs in the region and generating \$3.6 billion in personal income.ⁱⁱ The Baltimore region has a robust supply chain across the entire mid-Atlantic region with a robust network of road and rail connecting BWI airport and the Port of Baltimore to major cities. Distribution across this network requires a skilled and qualified workforce of truck drivers and transportation equipment operators. In addition, the growth of truck transportation will create spin-off employment demand in related sectors such as diesel mechanics, logistics workers, and workers in international trade who provide the back-office administration to manage the movement of goods. Approximately 94% of the future hiring demand in the transportation and warehousing sector is expected to be for jobs that require education less than a Bachelors degree (total hiring demand of at least 7,270 workers between 2012 and 2020).ⁱⁱⁱ This hiring demand can create powerful opportunities for Baltimore region residents to move into family-supporting careers.

The Baltimore region's Talent Pipeline for TLW is Underdeveloped. There are Opportunities for Workforce Development Organizations, Educational Partners, and Employers to Work Together to Build Stronger Career Pathways

While the TLW sector is growing, there are limited resources directed to creating sustainable career pathways in this field. In 2012, there were approximately 1,476 graduates of 45 educational programs in the region that prepare workers for careers in occupations related to the transportation and warehousing sector,^{iv} however, many of these programs have low enrolment and the majority of graduates (87%) earned awards from truck driving schools or diesel mechanic programs. The Maritime Institute of Technology and Graduate Studies (MITAGS) located in Baltimore offers a two year vocational education and apprenticeship for workers seeking careers in the merchant marine, however, the cost of the program is high (\$32,000) and the program is not eligible for financial aid. Jobs available in distribution warehouses are in demand and most employers provide all of the technical training needed for the job through on-the-job training – although most employers report that they face chronic difficulties finding reliable workers to fill these positions. Maryland New Directions has recently started work on an industry led partnership to meet the needs of the warehouse employers, but this program is one of the few in the region designing on-ramps into transportation, logistics, and warehousing careers. With few resources and community-connected programs serving the TLW sector in Baltimore, the opportunity to place workers in careers in this field is relatively open, and there is a need for workforce development organizations, educational providers, and employers to fill gaps in the talent pipeline.

Worker barriers to employment are significant in this sector. In part, TLW careers are inaccessible due to barriers to even beginning entry-level positions. A criminal background is a major barrier for any worker seeking a career in the TLW sector. Interviews with TLW employers revealed that most employers are unable to offer employment to workers with a felony, because workers must obtain a Transportation Worker Identification Credential (TWIC®). This card is required for workers to gain access to the Port of Baltimore, BWI Airport, and other secure areas and most workers with a felony

conviction are not eligible for a TWIC card. Many of the entry-level jobs available in the TLW sector do not pay a family-supporting wage and some employers lack well defined career paths and resources -- such as mentoring -- to help workers progress from entry-level positions into family-supporting jobs. Barriers such as the lack of a vehicle to travel to work, limited basic reading skills, and low basic math skills can also stand in the way of workers finding entry-level jobs or progressing into higher skilled positions. Several studies have shown that structural racism puts Blacks and other people of color at a disadvantage when seeking a job and when pursuing career advancement. A complex array of historical, cultural, educational, institutional, and interpersonal dynamics produce cumulative and chronic barriers for people of color, and the detrimental effects are often perpetuated through unconscious and implicit biases in the workplace.^v Finally, while warehouse and other TLW career jobs appeal to many workers, the pathways into these jobs aren't always clear and many workers need assistance and resources to overcome barriers.

Five Opportunities to Create Strong Pathways to TLW Careers in the Baltimore region

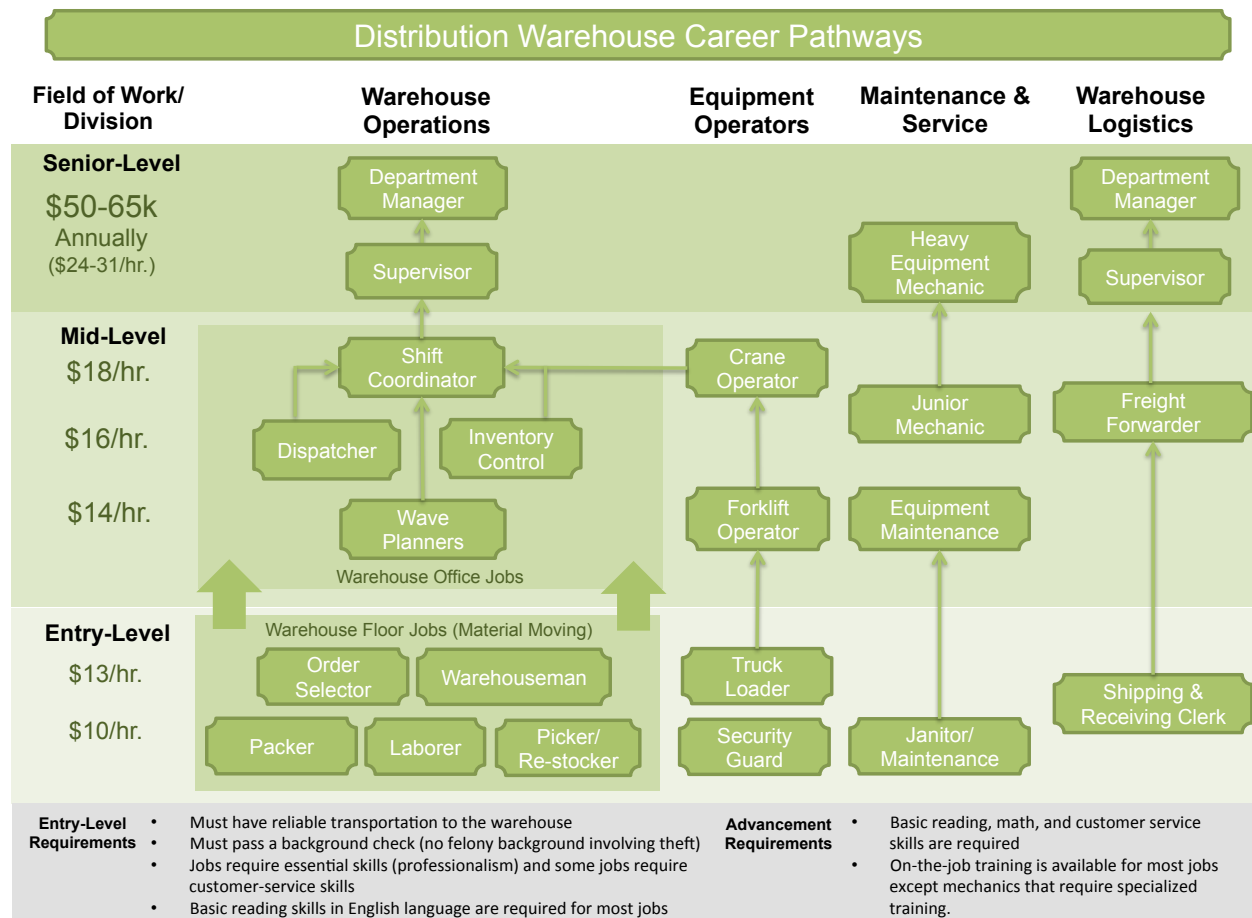
Interviews with employers across Baltimore's TLW sector revealed that there are at least five high-potential sub-sectors within the transportation, logistics and warehousing field in which workers can begin work in entry-level positions that have the potential to lead to family-supporting careers. These include careers in warehouse operations, truck and bus driver careers, diesel mechanics, mariners, and careers in logistics and trade (Table 1), although other potential pathways may also exist. This report provides background on the career progression opportunities, the barriers that workers face, and resources and educational infrastructure that can support career pathways in the TLW sector.

Table 1 Career Paths from Entry-Level to Advanced Occupations in the TLW Sector

Career Path	Entry-Level Occupations	Entry Level Pay (Hourly)	Hourly Pay for Advanced Occupations	Advanced Occupations
Warehouse Operations	Laborer, Packer, Picker, Re-Sorter, Order Selector, Truck Loader, Security Guard, Janitor, Shipping & Receiving Clerk, and Warehouseman	\$9.50-\$13.50	\$16.00-\$24.00	Wave Planners, Dispatchers, Inventory Control, Freight Forwarder, Forklift Operator, Crane Operator, Maintenance Technician, Equipment Mechanic, Heavy Equipment Mechanic, Supervisor, Department Manager
Truck and Bus Drivers	Taxi Driver, Delivery/Sales Driver, Recycle/Waste Material Collector, Light Truck Driver, School Bus Driver, Transit Driver, Heavy Tractor Truck Driver	\$9.00-\$14.00	\$16.00-\$24.00	Driver Supervisor, Experienced Drivers
Diesel Mechanics	Tire Technician, Lube Technician, Customer Service Technician, Diesel Mechanic Trainee	\$9.00-\$14.00	\$22.00-\$26.00	Diesel Engine Technician, Mid/Senior Technician, Lead/Master Technician, Maintenance Supervisor, Maintenance Manager.
Mariner Careers	Ordinary Seaman, Able Bodied Seaman, Wiper, Assistant Cook, Steward	\$12.00-\$15.00	\$30.00-\$65.00	Qualified Member of the Engineering Department (QMED), Boatswain, Cook, Chief Cook, Chief Steward, 3 rd Assistant Engineer, 2 nd Engineer, Chief Engineer, 3 rd Mate, 2 nd Mate, Chief Officer
Logistics Careers	Administrative Assistant, Data Entry Agent	\$9.00-\$11.00	\$18.00-\$22.00	Freight Forwarder, Customs/Import Specialist, Export Specialist, Customs Boarder Patrol Officer, Customs Broker

Careers in Distribution Warehouse Operations

Figure 1 Distribution Warehouse Career Paths



Career Progression

Distribution warehouses offer several paths or career streams as material handlers, equipment operators, maintenance and mechanics workers, and warehouse logistics positions (Figure 1). Within the warehouse operations segment there are several entry-level positions including laborers, packers, pickers, restockers, order selectors, and general warehouseman positions. Some positions have starting pay in the range of \$9.50 per hour, increasing to approximately \$13.00 per hour with experience. Often workers beginning in one of these positions will rotate between positions to gain skills and experience, progressing into positions with higher responsibility. Demand for workers to fill entry-level positions increases seasonally in August through December as distribution warehouses hire thousands of additional workers to handle the increased shipment volume occurring during the holiday season. Other entry-level positions in distribution warehouses include jobs as a security guard, truck loader, janitor or maintenance worker, or shipping and receiving clerk.

To begin work in any of the entry-level positions in distribution warehouses, workers must possess:

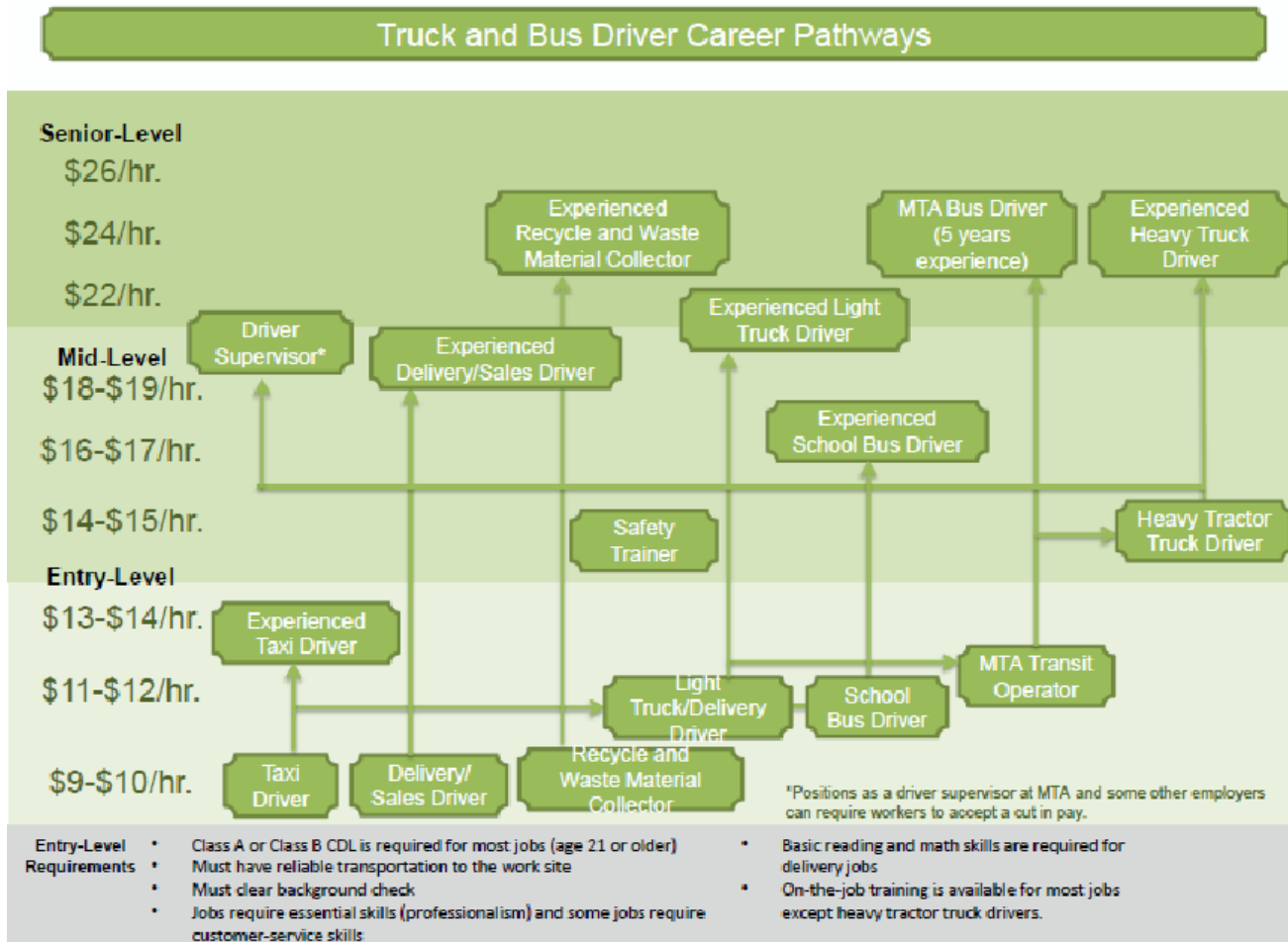
- ✓ **Access to reliable transportation.** Many warehouse operators have multiple locations and prefer workers who are able to travel to different locations in order to meet changing workforce requirements. In addition, many distribution warehouses operate more than a single shift and those that hire workers for 2nd and 3rd shift jobs prefer workers with access to a vehicle due to limited off-peak public transit service.
- ✓ **No criminal theft background.**
- ✓ **Good basic reading and basic math skills** including the ability to read instructions and labels.
- ✓ **Good customer service skills** and an ability to work under supervision.

Workers with experience in the materials moving warehouse floor positions can progress into higher-paying office positions such as a wave planner, dispatcher, inventory control position, or shift coordinator. These positions begin at approximately \$14.00 per hour and can go up to \$18.00 per hour for shift supervisors. Other mid-level positions in a distribution warehouse include equipment operators such as forklift operators (\$14.00 per hour) and crane operators (starting near \$17.50 per hour). This path may also be available to workers who take an entry-level job on the warehouse floor as well as workers who have experience as a security guard or truck loader. Forklift and crane operators require on-the-job training through an employer-delivered training program and most employers offer on-the-job OSHA training. Workers may also obtain certification as a rigger, signal person, or mobile crane operator through NCCER certification (www.nccer.org); however, NCCER training is not currently available in Maryland.

Table 2 Standard Barriers to Entry in Distribution Warehouse Occupations

	Requires a Car	Requires Basic Math Skills/Math Test	Requires Basic Reading Skills/Test	Requires H.S. Diploma/GED	Requires a Driver's License	Requires Criminal Background Check	Requires Prior Work Experience	Requires Technology/Computer Skills	Requires Customer Service Skills	Requires Certification/Training Prior To Work
Laborer						⊙				
Security Guard						⊙				
Janitor/Maintenance						⊙				
Packer						⊙				
Picker/Re-Sorter			⊙			⊙				
Order Selector		⊙	⊙			⊙				
Warehouseman						⊙	⊙			
Truck Loader						⊙				
Wave Planner		⊙	⊙			⊙	⊙	⊙		
Dispatcher		⊙	⊙			⊙	⊙	⊙		
Inventory Control		⊙	⊙			⊙	⊙	⊙		
Shift Coordinator		⊙	⊙			⊙	⊙	⊙	⊙	⊙
Forklift Operator						⊙	⊙			⊙
Crane Operator						⊙	⊙			⊙
Equipment Maintenance Technician		⊙	⊙		⊙	⊙		⊙	⊙	
Junior Equipment Mechanic		⊙	⊙		⊙	⊙		⊙	⊙	
Senior Heavy Equipment Mechanic		⊙	⊙		⊙	⊙	⊙	⊙	⊙	
Shipping and Receiving Clerk		⊙	⊙			⊙		⊙		
Freight Forwarder		⊙	⊙			⊙	⊙	⊙	⊙	
Warehouse Supervisor		⊙	⊙			⊙	⊙	⊙	⊙	
Warehouse Department Manager		⊙	⊙			⊙	⊙	⊙	⊙	

Careers as Bus and Truck Drivers



Career Progression

Entry-level positions as a driver include jobs for taxi drivers, delivery drivers, and recycling and waste material collector drivers. These jobs offer starting wages in the range of \$9.00-\$10.50 per hour. Drivers with some experience can also work as light truck drivers, school bus drivers, or MTA bus drivers. These positions have starting wages in the range of \$11.00 to \$12.50 per hour.

Drivers can earn family-supporting wages through both pay increases for years of

experience, or through transfer into higher-paying driver positions such as heavy truck or tractor drivers. Experienced drivers may also be able to progress into safety trainer positions or driver supervisor positions, although in some cases, driver supervisors are not paid as highly as experienced drivers, but may have more flexible schedules.

Bus drivers who are employed by MTA have the potential to earn wages of approximately \$24.00 per hour with five years of employment tenure. Experienced heavy truck drivers and experienced waste truck drivers can earn similar wages.

Entry Requirements

Careers as a truck or bus driver require a driver's license (the class of license that is required depends on type of vehicle), basic reading and math skills, customer service skills, a criminal background check, and reliable transportation to work. Entry requirements differ by type of vehicle.

- ✓ Taxi, limousine or drivers for passenger vehicles accommodating less than 16 passengers only require a regular Class A Maryland driver's license, which is available to anyone age 18 or older who meets the regular Class A Maryland driver's license requirements. They do not require a commercial driver's license (CDL).
- ✓ All other driver positions require either a Class B or Class A Commercial Drivers License (CDL).
 - CDL learner's permits are available to people age 18 or older, but interstate drivers learners permits require that applicants be age 21 or older.
 - The Maryland Department of Transportation provides additional information on the requirements to obtain a CDL.^{vi}
- ✓ Some jobs require a HAZMAT endorsement on a worker's license (e.g. waste material truck drivers or drivers transporting dangerous materials). To obtain this endorsement, workers must pass a criminal background check.
- ✓ Drivers of commercial vehicles that accommodate 16 passengers or more must obtain a passenger endorsement on their license.
- ✓ In addition to a passenger endorsement, school bus drivers require a school bus endorsement.
- ✓ Many jobs require completion of a driver's training course. A driver's training course can also help workers to prepare for a CDL exam, although a training course is not required. In order to enroll in a commercial drivers training course, applicants must meet program entry requirements. Requirements vary between programs and may include:
 - Minimum age of 18
 - A clean driving record
 - Current D.O.T. Physical
 - A drug screening
 - CDL-B learner's permit
 - English proficiency
 - Class C driver's License
 - An admission test
 - A high school diploma or GED

Available Training

There are eleven training programs in the Baltimore region that prepare workers for careers as drivers. This includes four training programs for Class B commercial truck and bus drivers, three Class A training programs, and two advanced tractor-trailer driving programs. The costs for training range from \$2,196 for a Class B Commercial Drivers License (a one-week course) up to \$10,328 for an advanced tractor-

Career Pathways in Transportation and Logistics in the Baltimore region

trailer driving course lasting 24 weeks. Training courses available in the Baltimore region are listed below:

Table 3 Training Programs in the Baltimore region for Commercial Drivers

Type	Location	School	Program	Tuition & Fees	Length	Enrolment (2012)	Comple-tions	Job Placements
PCS	Baltimore County	North American Trade School	Commercial Truck Driving (320 Clock Hours)	\$4,500	10-20 Weeks	185	114	93
PCS	Baltimore County	North American Trade School	Class B Commercial Drivers License	2,196	1 Week	n.a.	n.a.	n.a.
PCS	Baltimore City	All-State Career School	Advanced Tractor Trailer Driving (480 Clock Hours)	10,328	24 Weeks	1,100	611	367
PCS	Baltimore City	All-State Career School	Class B CDL Driver Training Program (42 Clock Hours)	2,975	1 Week	75	70	44
WIA	Baltimore City	All-State Career School	Advanced Tractor Trailer Driving (480 Clock Hours)	9,740	24 Weeks	709	595	392
WIA	Baltimore City	All-State Career School	Class B CDL Driver Training Program (42 Clock Hours)	2,975	1 Week	77	69	36
WIA	Anne Arundel County	Anne Arundel Community College	Commercial Driver's License Class A (160 Clock Hours); Commercial Drivers License-Class B (52 Clock Hours) ^{vii}	3,905 (Class A) 2,400 (Class B)	2-8 Weeks	70-90	90%	90%
WIA	Baltimore County	North American Trade School	Commercial Truck Driving (320 Clock Hours)	5,167	10-20 Weeks	151	114	65
WIA	Harford County	Harford Community College	Commercial Driver's License Class A (160 Clock Hours)	2,215	4 Weeks	n.r.	n.r.	n.r.
WIA	Baltimore County	Community College of Baltimore County	CDL-A Upgrade (127 Clock Hours)	2,395	6 Weeks	86	73	46
	Baltimore County	Community College of Baltimore County	Commercial Driver's License CDL-B	1,850	75+ Hours	n.a.	n.a.	n.a.
	Baltimore County	Community College of Baltimore County	CDL Learner's Permit Preparation Course	850	28 Hours	n.a.	n.a.	n.a.
Total						2,390	1,646	1,048

Source: Maryland Higher Education Commission. Notes: PCS: Private Career School, WIA: Programs Eligible for WIA funding, "n.a.": Not Available, "n.r.": Not Reported

Barriers to Employment

Most employers require that workers pass a background check, have the required driver's licenses and endorsements required for the job. Most jobs also require some prior work experience, with the exception of taxi drivers or a heavy tractor truck driver, where placement is usually available upon completion of a training program. Most delivery drivers and drivers of passenger vehicles must interact with the public. As a result they require customer service skills and they cannot have a criminal record for assault or other related offense. Table 4 provides additional information on requirements by occupation.

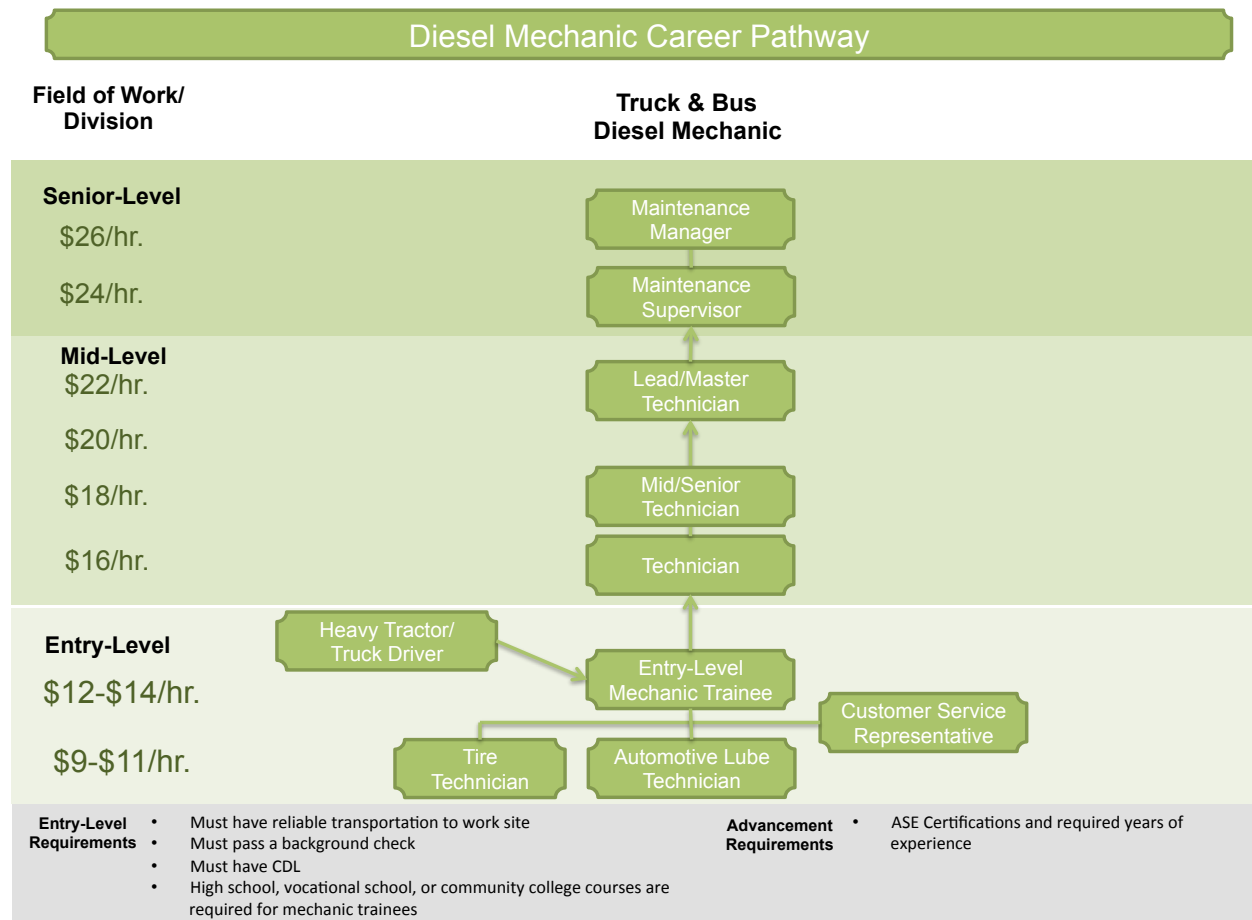
Career Pathways in Transportation and Logistics in the Baltimore region

Table 4 Barriers to Careers as a Driver, by Occupation

	Requires a Car	Requires Basic Math Skills/Math Test	Requires Basic Reading Skills/Test	Requires H.S. Diploma/GED	Requires a Driver's License	Requires Criminal Background Check	Requires Prior Work Experience	Requires Technology/Computer Skills	Requires Customer Service Skills	Requires Certification/Training Prior To Work
Taxi Driver	⊙				⊙	⊙			⊙	⊙
Delivery/Sales Driver	⊙	⊙	⊙		⊙	⊙	⊙	⊙	⊙	⊙
Recycle and Waste Material Collector					⊙	⊙	⊙			⊙
Light Truck/Delivery Driver		⊙	⊙		⊙	⊙	⊙		⊙	⊙
School Bus Driver	⊙				⊙	⊙	⊙		⊙	⊙
MTA Transit Bus Driver					⊙	⊙	⊙		⊙	⊙
Heavy Tractor Truck Driver		⊙	⊙		⊙	⊙			⊙	⊙
Driver Supervisor		⊙	⊙		⊙	⊙	⊙		⊙	⊙



Careers as a Diesel Mechanic



Career Progression

Entry-level positions leading to careers as a diesel mechanic include tire technician jobs and automotive lube technician jobs. Workers who begin as a customer service representative at an automotive service center can also progress into positions as an entry-level mechanic trainee. These entry-level positions pay between \$9.00 and \$11.50 per hour.

Entry-level mechanic trainee positions begin at between \$12.00 to \$14.00 per hour. Higher wages are earned as workers attain certification through the National Institute of Automotive Service Excellence (ASE). Certifications require workers to pass a written exam and accumulate years of work experience. Trainees progress to technicians (\$16.00 per hour), mid-level or senior-level technicians (\$18.00 per hour), master technicians (\$21.00-\$23.00 per hour) and beyond that into supervisor positions that pay \$24.00 per hour or more.

Entry Requirements

Entry-level requirements for tire technicians or automotive lube technicians typically do not require a high school diploma or any type of certification prior to beginning work. They typically do require a criminal background check and they also require some customer service skills. Technical training is provided on the job.

To become a diesel mechanic trainee, some technical training is typically required. Diesel mechanics must also obtain a commercial driver's license (in order to test-drive trucks), and they require basic reading and math skills, a criminal background check and drug test, and reliable transportation to work.

Available Training

In 2012, there were a total of 190 students enrolled in the Baltimore region's three diesel mechanic programs. The program at North American Trade School is the largest with 2012 enrolment of 176 students. There is also an Associates degree program and a lower division certificate program available at the Community College of Baltimore County. Each of three of the diesel mechanic training programs is available only in Baltimore County. In addition to these training programs, there are seven other automotive-related training programs offered at the Community College of Baltimore County and two programs offered at Lincoln College of Technology in Howard County. See Table 6 for program details.

Barriers to Employment

Most employers require that workers pass a background check and possess customer service skills. For diesel mechanic trainee positions, workers are required to have a commercial driver's license, reading and math skills, and technology or computer skills.

Table 5 Barriers to Employment Opportunity in Diesel Mechanic and Related Occupations

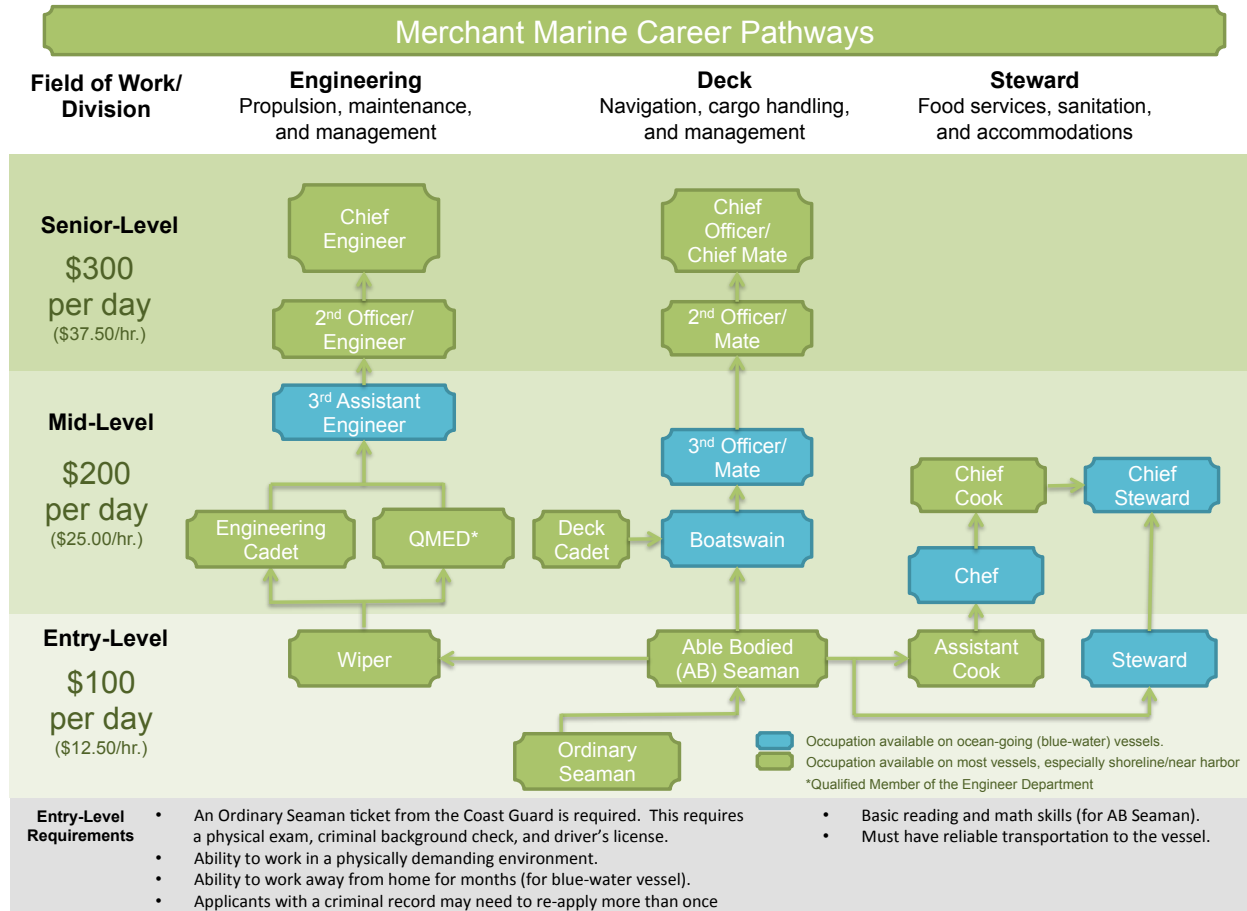
	Requires a Car	Requires Basic Math Skills/Math Test	Requires Basic Reading Skills/Test	Requires H.S. Diploma/ GED	Requires a Driver's License	Requires Criminal Background Check	Requires Prior Work Experience	Requires Technology/ Computer Skills	Requires Customer Service Skills	Requires Certification/ Training Prior To Work
Tire Technician						⊙			⊙	
Automotive Lube Technician						⊙			⊙	
Customer Service Representative						⊙		⊙	⊙	
Entry-Level Mechanic Trainee		⊙	⊙		⊙	⊙		⊙		
Diesel Mechanic Technician		⊙	⊙		⊙	⊙	⊙	⊙		⊙
Mid/Senior Level Diesel Mechanic Technician		⊙	⊙		⊙	⊙	⊙	⊙	⊙	⊙
Lead/Master Technician		⊙	⊙		⊙	⊙	⊙	⊙	⊙	⊙
Maintenance/Service Supervisor		⊙	⊙		⊙	⊙	⊙	⊙	⊙	⊙
Maintenance/Service Manager		⊙	⊙		⊙	⊙	⊙	⊙	⊙	⊙

Career Pathways in Transportation and Logistics in the Baltimore region

Table 6 Training Programs in the Diesel Mechanics and Other Automotive Mechanics in the Baltimore region

Type	Location	School	Program	Tuition & Fees	Length	Enrolment (2012)	Completions	Job Placements
Diesel Mechanic Programs								
Associates	Baltimore County	Community College of Baltimore County	Diesel & Equipment Maintenance Technician	n.a.	n.a.	13	n.a.	n.a.
Lower Division Certificate	Baltimore County	Community College of Baltimore County	Diesel & Engine Specialist	n.a.	n.a.	1	n.a.	n.a.
WIA	Baltimore County	North American Trade School	Diesel Technician	\$15,950	1152 Clock Hours	176	76	62
Other Automotive Mechanic Programs								
Associates	Baltimore County	Community College of Baltimore County	Automotive Technology	n.a.	n.a.	235	n.a.	n.a.
Associates	Baltimore County	Community College of Baltimore County	Automotive Collision Repair	n.a.	n.a.	6	n.a.	n.a.
Lower Division Certificate	Baltimore County	Community College of Baltimore County	Automotive Engine Specialist	n.a.	n.a.	5	n.a.	n.a.
Lower Division Certificate	Baltimore County	Community College of Baltimore County	Automotive Master Technician	n.a.	n.a.	70	n.a.	n.a.
Lower Division Certificate	Baltimore County	Community College of Baltimore County	Automotive Service Attendant	n.a.	n.a.	3	n.a.	n.a.
Lower Division Certificate	Baltimore County	Community College of Baltimore County	Automotive Electrical & Electronic Specialist	n.a.	n.a.	11	n.a.	n.a.
Lower Division Certificate	Baltimore County	Community College of Baltimore County	Automotive Air Conditioning and Heating Specialist	n.a.	n.a.	4	n.a.	n.a.
Associates	Howard	Lincoln College of Technology	Automotive Technology	n.a.	n.a.	35	n.a.	n.a.
Lower Division Certificate	Howard	Lincoln College of Technology	Master Certified Automotive Technology	n.a.	n.a.	276	n.a.	n.a.

Careers in the Merchant Marine



Merchant mariners are commercial ship workers who operate and maintain coastal vessels such as tugboats, dredges, towboats, and ferries as well as deep-sea merchant ships and excursion vessels. An ordinary seaman (OS) is an unlicensed member of the deck department of a merchant ship and an OS ticket from the US Coast Guard is required for the job. The position is an apprenticeship to become an able bodied (AB) seaman. An AB seaman can then progress into one of three fields of work: (1) Engineering, which controls the vessel's propulsion, maintenance, and management (2) Deck cadet, which handles navigation and cargo handling, and (3) Steward, which includes food services and sanitation.

Entry Requirements

The OS position requires workers to perform their duties in a physically demanding environment and if they are working on an ocean-going vessel, they may be gone from home for months at a time. In addition to possessing basic math and reading skills, an OS must complete an application to the Regional Exam Center (REC) and obtain a Transportation Worker Identification Credential (TWIC) from the

Transportation Security Administration (TSA). This creates a barrier for workers who have a criminal record and are unable to obtain a TWIC card.

After obtaining six months of experience, an OS can apply for the rank of able-bodied seaman or AB. The AB rank is required for hire on most vessels and there are multiple AB levels. To qualify as any level of able seaman, an individual must be 18 years or older, pass a medical exam, serve on a vessel at least six months, take training and pass an exam qualifying as a lifeboatman and able seaman. The assessment areas include personal survival techniques, fire prevention and firefighting, elementary first aid, and personal safety and social responsibility. In addition, the applicant must be able to speak English well enough to perform the duties of the job and to act appropriately in an emergency.

**National Maritime Center
Baltimore regional Exam
Center**

US Custom House Bldg.
40 S. Gay St.,
Room 420
Baltimore, MD 21202-4022
Phone: 1-(888) 427-5662

Career Progression

Engineering

In the engineering division, a wiper is the most common starting position. A wiper's responsibilities are to keep the engine room and rest of the vessel well maintained. With experience, a wiper can progress into a position as a Qualified Member of the Engineering Department (QMED). QMEDs work in the engine spaces below deck to maintain the craft's running order by lubricating moving parts of the engines and motors, including bearings, gears and shafts. From this position, a worker can progress into a 3rd or 2nd Assistant Engineer or Engineer Officer. Many merchant marine vessels employ a chief engineer along with up to three assistant engineers, whose job it is to stand periodic watches to monitor the safety of engine and machinery operations. Many AB seamen progress into these positions through experience, however, an alternative point of entry into this career is as an engineering cadet, after completing a training program at MITAGS (www.mitags-pmi.org) or another training program.

Deck

AB seamen can progress into careers in the deck division through positions such as boatswain, officer or mate. A boatswain is a senior crewman of the deck department and is responsible for the components of a ship's hull. Deck officers or mates direct routine vessel operations and direct the crew's activities including maintenance, upkeep operations, cargo loading, and cargo inspections. On ships that operate with more than one mate, different mates are referred to as first (or chief) mate, second mate, third mate, etc. Similar to an engineering cadet, a deck cadet can directly enter this career path without prior experience as an OS or AB seaman.

Steward

Cruise ships and some other ocean-going vessels employ bedroom stewards who clean passenger living quarters and most vessels employ a cook and/or chef.

Other positions

Entry-level apprentice trainees sometimes receive special unlicensed positions, such as electrician or mechanic. Senior positions on vessels are captains or masters who manage the course and velocity of the vessel and monitor the vessel's position using navigational charts and instruments. Captains supervise crew members who perform basic operational tasks, which include steering the vessel, operating its engines, determining its location, operating equipment and communicating with other vessels. Pilots are responsible for steering ships through confined waterways. Pumpmen work on tugboats and other tow vessels, connecting, inspecting and ultimately disconnecting towed vessels.

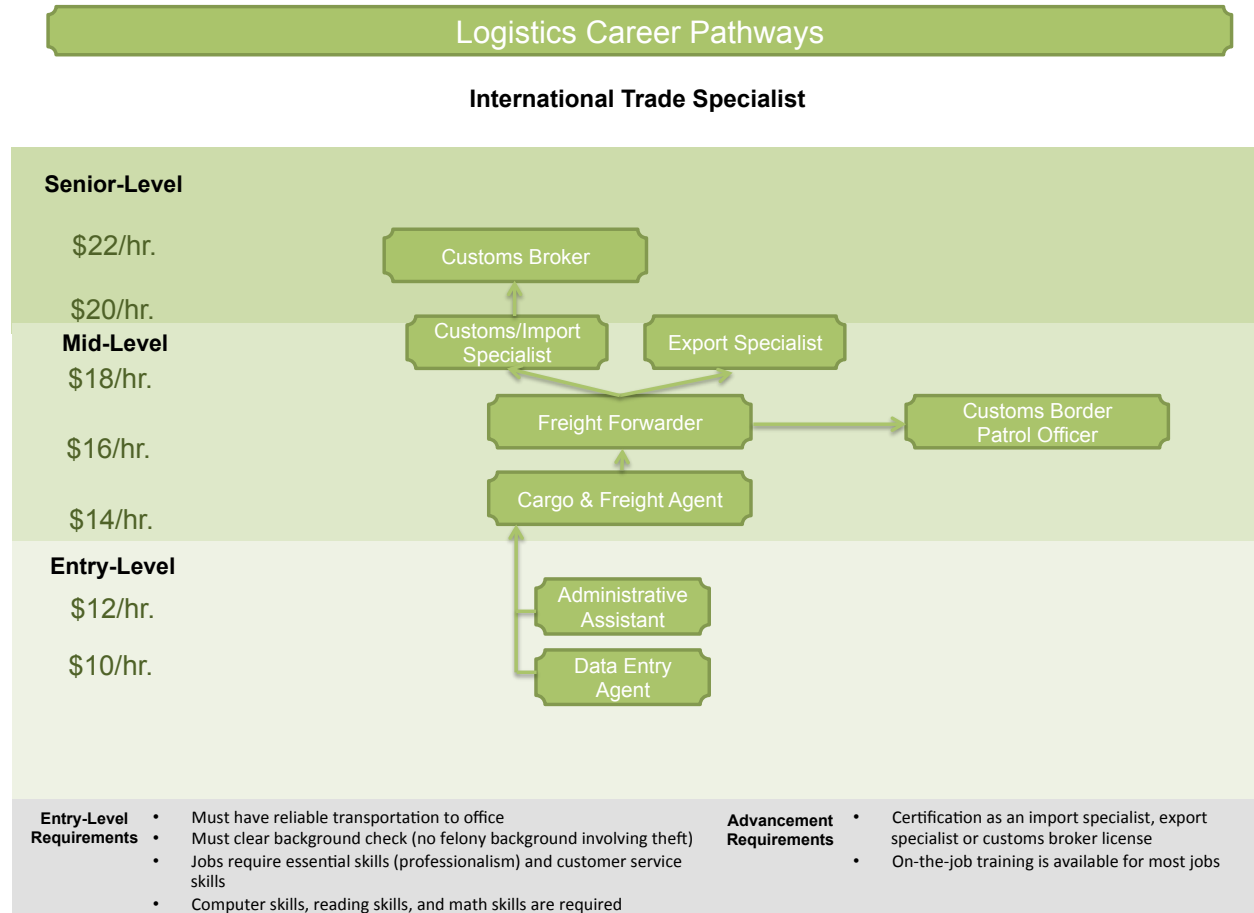
Barriers to Employment Opportunity

Math and reading skills, a criminal background check, and a TWIC card are a requirement to begin work in the merchant marine. In addition, workers may face difficulties related to the work schedule. Most ocean-going merchant mariners are hired on a voyage-by-voyage basis and they can be at sea for months at a time. Smaller coastal vessels, however, generally offer workers steady employment on one ship.

Table 7 Barriers to Employment Opportunity in Merchant Marine Occupations

	Requires a Car	Requires Basic Math Skills/Math Test	Requires Basic Reading Skills/Test	Requires H.S. Diploma/GED	Requires a Driver's License	Requires Criminal Background Check	Requires Prior Work Experience	Requires Technology/Computer Skills	Requires Customer Service Skills	Requires Certification/Training Prior To Work
Ordinary Seaman					⊙	⊙				⊙
Able Bodied (AB) Seaman		⊙	⊙		⊙	⊙	⊙			⊙
Wiper		⊙	⊙		⊙	⊙	⊙			⊙
Assistant Cook		⊙	⊙		⊙	⊙	⊙			⊙
Steward		⊙	⊙		⊙	⊙	⊙			⊙
Engineering Cadet		⊙	⊙	⊙	⊙	⊙	⊙			⊙
Qualified Member of the Engineering Department (QMED)		⊙	⊙		⊙	⊙	⊙			⊙
3rd Assistant Engineer		⊙	⊙		⊙	⊙	⊙	⊙		⊙
2nd Officer Engineer		⊙	⊙		⊙	⊙	⊙	⊙		⊙
Chief Engineer		⊙	⊙		⊙	⊙	⊙	⊙		⊙
Deck Cadet		⊙	⊙	⊙	⊙	⊙	⊙			⊙
Boatswain		⊙	⊙		⊙	⊙	⊙			⊙
3rd Officer/Mate		⊙	⊙		⊙	⊙	⊙	⊙		⊙
2nd Officer/Mate		⊙	⊙		⊙	⊙	⊙	⊙		⊙
Chief Officer/Chief Mate		⊙	⊙		⊙	⊙	⊙	⊙		⊙
Chef			⊙		⊙	⊙	⊙	⊙		⊙
Chief Cook			⊙		⊙	⊙	⊙			⊙
Chief Steward			⊙		⊙	⊙	⊙			⊙

Careers in Logistics



Career Progression

Careers as an international trade specialist can begin with entry-level positions as a data entry agent or administrative assistant in an office that performs international export and import functions. In these positions, workers gain computer skills, customer service skills, and gain knowledge of the company's freight and cargo movement operations. With experience, workers can progress into a cargo and freight agent position, a freight forwarder position, or an international freight forwarder position. Workers in these occupations expedite and route the movement of incoming and outgoing cargo and freight shipments in airline, train, and trucking terminals, and shipping docks. They also prepare the shipping paperwork, such as bills of lading, to determine shipping charges and tariffs.

International freight forwarders often specialize in either imports or exports (depending on the business operations of their employer). Knowledge and experience gained as a freight forwarder can also prepare workers to change careers and enter into a position as a Customs Boarder Patrol Officer, working for the US Customs and Boarder Protection as an import specialist.

Workers with significant import experience can take the Customs Brokers License examination and if they pass, they will become a licensed customs broker. Customs brokers help importers and exporters meet regulations on international tariffs, shipping restrictions, and insurance requirements. They are responsible for guiding goods through customs, preparing and submitting documents, determining tariff and duty payments, tracking shipments, and using the tariff coding system to classify shipments. Customs brokers may work as independent contractors, work for transportation and freight companies, or may be employed by the federal government.

Entry and Advancement Requirements

Reliable transportation to the employer's office and a conviction-free criminal background check is required for most jobs in this field. Most jobs as an international trade specialist require customer service skills, strong math and reading skills, computer skills, and problem-solving and communication skills. The employer typically provides on-the-job training. In order to increase skills, knowledge, and career progression, many workers in this field first earn a beginner-level certification as a Certified Exporter®(CE) and then go on to earn intermediate or senior-level certifications.

Table 8 International Trade Certifications

Entry-Level Certifications	Intermediate Certifications	Advanced or Experienced Certifications
CIFFA Certificate (Freight Forwarders)	Certified Customs Specialist (CCS)	Certified U.S. Import Professional® (CUSIP)
CIFFA Advanced Certificate	Certified Export Specialist (CES)	Certified International Trade Professional® (CITP)
Certified Exporter®(CE)	Certified International Freight Forwarder® (CIFF)	Certified International Trade Marketing Specialist (CITMS)
	Certified International Trade Finance Specialist® (CITFS)	Certified U.S. Import Compliance Officer® (CUSICO)
	Certified International Trade Documentation Specialist® (CITDS)	Certified U.S. Export Compliance Officer® (CUSECO)
	Certified International Trade Logistics Specialist® (CITLS)	Certified ITAR Professional®(CIP)
	Professional Freight Forwarder (PFF)	Certified International Trade Manager® (CITM)
		Certified in Transportation and Logistics (CTL)

Available Training

Most training for international trade specialist positions in the Baltimore region is provided through on-the-job training. There is currently no approved training provider in the Baltimore region for the Certified Exporter® professional designation, although several providers offer online courses or short seminars.

Barriers to Employment Opportunity

The top barriers to opportunity in international trade are basic reading and math skills, computer skills, customer service skills and a clear criminal background.

Career Pathways in Transportation and Logistics in the Baltimore region

Table 9 Barriers to Careers in International Trade

	Requires a Car	Requires Basic Math Skills/Math Test	Requires Basic Reading Skills/Test	Requires H.S. Diploma/ GED	Requires a Driver's License	Requires Criminal Background Check	Requires Prior Work Experience	Requires Technology/ Computer Skills	Requires Customer Service Skills	Requires Certification/ Training Prior To Work
Data Entry Agent		⊙	⊙			⊙		⊙	⊙	
Administrative Assistant		⊙	⊙			⊙		⊙	⊙	
Cargo and Freight Agent		⊙	⊙		⊙	⊙		⊙		
Customs Boarder Patrol Officer	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
Customs/Import Specialist		⊙	⊙			⊙	⊙	⊙	⊙	⊙
Export Specialist		⊙	⊙			⊙	⊙	⊙	⊙	⊙
Customs Broker		⊙	⊙			⊙	⊙	⊙	⊙	⊙

ⁱ Economic Impacts of the Port of Baltimore, Maryland Port Administration, 2010. Report last accessed June 2014 at

http://www.mpa.maryland.gov/_media/client/planning/2012/EconomicImpact.pdf

ⁱⁱ See The Regional and Local Impacts of Baltimore/Washington International Thurgood Marshall Airport (Maryland Aviation Administration, 2012). Report last Accessed June 2014 at:

<http://www.bwiairport.com/files/pdfs/BWI%20Economic%20Impact-Executive%20Summary%202012.pdf>

ⁱⁱⁱ See Baltimore region Talent Development Pipeline Study (Opportunity Collaborative, 2013)

^{iv} See Baltimore region Talent Development Pipeline Study (Opportunity Collaborative, 2013)

^v See Barriers to Employment Opportunities in the Baltimore region for a discussion of structural racism as a barrier to employment opportunity.

^{vi} For more information, see Maryland Department of Transportation, Motor Vehicle Administration, CDL Requirements available at

<http://www.mva.maryland.gov/drivers/apply/cdl/commercial.htm>

^{vii} Data provided by Anne Arundel Community College.



Opportunity Collaborative

For a Greater Baltimore Region.

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