

Transportation Careers for Minorities

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Transportation is a major tool in determining the order of our society. It touches every phase and facet of our existence. The growth of our nation can directly be attributed to the growth and development of transportation systems. These systems provide for the movement of our products and services and the movement of people, in addition to supporting our communication network. Minorities have played a major role in the development of transportation systems as users as well as employees of the systems. In speaking of the contributions of blacks as employees and as users of the transportation system, Gerard Anderson states: "They drove carriages during slavery . . . built and repaired railroads . . . navigated ships . . . invented a self lubrication device for train steam engines and the first traffic light . . . made the beds, and cooked and served meals on transportation carriers (1). Blacks and other low-income residents have long been the major users of mass transportation services, not as an alternative but as the only means of transportation.

Although minorities have made contributions and have been employees in the transportation industry, career opportunities have been primarily at the entry or low level of the career ladder, and opportunities for professionals have been limited in all modes: motor, rail, air, water, mass transit, and pipelines.

Career opportunities in transportation exist within all modes (air, water, rail, pipelines, and mass transit); with regulatory agencies at federal, state, and local levels; and with logistics, materials management, physical distribution, and traffic departments of private industry.

Participation of minorities in programs in general, as well as in the transportation industry, has been directly related to the civil rights movement. As minorities demanded fair and equitable treatment, questions began to arise about discriminatory practices that had, in the past, been taken for granted. The results have been passage of laws and Executive Orders on nondiscrimination in employment and education, equal pay for equal work, and the more recent White House Initiative on Historically Black Colleges. As a result of these efforts, a number of specialized programs have been developed to enlarge the pool of transportation expertise.

"Time is the greatest inventor," wrote Sir Frances Bacon. The time has come for minorities to seek their rightful place among professionals in the transportation industry; progress has not kept pace with the degree of quality and training of these talented and committed individuals. Minorities can and should occupy more professional positions within the transportation industry.

EMPLOYMENT TRENDS IN THE DECADE OF THE 1990s

By 1990 the civilian labor force is expected to be 125 million, an increase of 18 million from 1980. A pronounced shift is expected in the age structure of the labor force; the number of 25 to 54 years olds in the labor force is expected to grow faster than the total labor force. The black civilian labor force is expected to be 14 million, an increase of 4 million from 1980.

During the 1982-1995 period, the number of women and minorities in the labor force are projected to grow faster than the overall labor force. The data in the following table indicate the projected labor force growth and growth for blacks and black and other minorities (2).

	<u>1982-1990</u>	<u>1990-1995</u>
Total	1.6	1.0
Women	2.3	1.4
Black and other minorities	2.6	2.0
Blacks	2.3	1.8

The black and other groups should account for slightly more than 21 percent of the additions to the labor force during 1982-1990. The black labor force is projected to grow at almost twice the white rate, which reflects the younger age structure of the black population (2). Career opportunities for minority groups are increasing in all areas as the labor force reflects growth over the next few years.

PAST EMPLOYMENT AND FUTURE OPPORTUNITIES IN TRANSPORTATION

The number of individuals in the transportation industry is expected to increase by 657,000 between 1970 and 1990 with the largest increase in trucking and warehousing (481,000) (3). The percent distribution in transportation by occupation shows that the greatest percent of increase from 1970-1990 is the managerial, official proprietor occupation (+3.22) and in transport equipment operatives (+4.20) (3).

The U.S. Department of Labor classifies transportation firms and agencies into six different industries:

1. Local and suburban transit and interurban highway passenger transportation,
2. Motor freight transportation and warehousing,
3. Water transportation,
4. Air transportation,
5. Pipelines, and
6. Transportation services.

A list of occupational groups for these industries is given in Table 1. For these industries, managers and officers were the third largest occupational group in 1979. At that time there were 196,000 managers and officers for a total 8 percent of transportation employment. The largest occupation group, as expected, was operating, maintenance, and related occupations (61 percent of total) followed by clerical workers (19 percent of total) (4). Although they are not the largest group, the size of the managers and officers group provides numerous opportuni-

ties in all transport industries. The data in Table 1 also show that for managers and officers, the industry reporting the largest employment was motor freight transportation, which employs more than 47 percent of all managers and officers. The second and third largest employers were transportation services (15.5 percent) and air transportation (13.5 percent). Local and suburban transit and passenger transportation were the fifth largest with slightly less than 7 percent (5).

TABLE 1 Percent Distribution of Employment in Major Occupational Groups by Transportation Industry in 1979 (5)

Industry	Total	Managers and Officers	Professional Workers	Technical Workers	Service Workers	Operating Maintenance, Construction, Repair, Material Handling and Power Plant Workers	Clerical Workers	Sales Workers
Total	2,467,290	195,960	81,560	69,740	100,280	1,501,930	477,640	40,180
Percent	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Local and suburban transit and interurban highway passenger transportation	10.64	6.90	1.80	10.58	4.77	13.67	6.12	2.36
Motor freight transportation and warehousing	54.80	47.27	13.34	1.78	13.51	66.55	44.38	54.98
Water transportation	3.41	13.47	6.52	3.14	9.01	9.17	4.97	7.94
Air transportation	17.99	15.02	17.14	81.75	67.73	7.88	31.80	13.24
Pipelines, except natural gas	0.82	0.90	2.43	1.98	0.01	0.88	0.41	—
Transportation services	7.34	16.44	58.77	0.77	4.97	1.85	12.32	21.48

The outlook for all sectors of transportation management is excellent. In allied professions, U.S. Department of Labor projections are at or above the growth of employment overall. One indicator of the job market in this area is the annual earnings for different occupations. Two industries were examined. First, urban and regional planning (allied with transit and passenger transportation) were examined. Most recent figures (for 1980) showed entry-level positions earning a median of \$13,800 with an overall median of \$24,000 and maximum potential of \$32,000. This was contrasted with purchasing agents (allied with freight transportation and warehousing). In the same year that entry positions were drawing a median of \$16,200, managers were earning a median of \$30,600 with a potential in excess of \$50,000 for materials managers (6).

The current salary picture for physical distribution managers is even better. According to the National Council of Physical Distribution Management, current entry-level positions pay as high as \$25,000, and top-level physical distribution managers earn between \$50,000 and \$85,000 depending on the size of the firm.

PAST EMPLOYMENT AND FUTURE OPPORTUNITIES FOR MINORITIES

Statistics were not available on race of employees for the transportation sector but were reported for all industries together. Although approximately 72 percent of all managerial administrative positions were held by white men, only 3 percent were held by blacks even though they comprise 9 percent of the work force. Clearly blacks are underrepresented in managerial and administrative positions (4). Although these figures represent an approximate 20 percent increase in participation by minorities over the past decade, they still emphasize the well-known fact

that minorities are underrepresented in managerial positions. Personal anecdotal experience indicates that this underrepresentation is even more pronounced throughout the transportation industry.

There is a projected increase in employment and the employment for blacks is projected to be twice that of other groups. A great opportunity exists for young blacks to work in a strong and growing industry and to be a part of the decision-making process that affects the lives of all Americans. Projections show the strongest areas of need in the manager and officer occupations.

This leads to the conclusion that good potential exists for graduates throughout the transportation industry. However, with the greatest number of positions in motor freight and higher salaries in physical distribution management, the greatest potential for employment appears to be in areas related to freight transportation. This demand has increased in recent years as a result of deregulation of the motor freight industry and the increased cost of fuel. Specifically, physical distribution managers have been elevated in importance in production industries. This implies that academic programs for minorities must include programs in carrier and physical distribution management.

The transportation industry also provides career opportunities for blacks and minorities who desire to become entrepreneurs with specialties in providing goods and services to the industry--such as technical services, including marketing, planning, and engineering; and operational services, including catering, maintenance, and construction. This entrepreneurial role can be enhanced through strong Minority Business Enterprise Programs.

ROLE OF THE UNIVERSITY

There are three general employment categories for which university training has been provided. They are transportation planning, carrier and physical distribution management, and transportation engineering.

Transportation planning programs train students for careers in a field that includes both the traditional role of capital planning and forecasting, as well as the newly defined role of urban transit broker. All of this is in an era of limited financial resources. Most job vacancies appear to be in the newer broker or coordinator area both in urban and rural settings, although for minority students there are still good opportunities in forecasting and related quantitative areas. Many university programs, however, still emphasize the traditional role of the planner despite these changes.

University programs that prepare students in carrier and physical distribution management are preparing them for positions with freight transportation firms or as traffic managers. Physical distribution management involves the following areas: physical distribution planning, physical distribution management, traffic or transportation management, warehouse operations or management, material handling operations, packaging, customer service and order entry, inventory planning and control activities, management information system planning or control, purchasing, production, marketing or sales activities, general management, education, training or teaching, internal consulting and corporate research, and finance and accounting.

One effect of deregulation, however, is that some regulatory agencies are being phased out or deemphasized, which requires fewer people to be familiar with rules of practice. Nevertheless, there is still a shortage of trained physical

distribution managers. The salaries of graduates in physical distribution management are substantially higher than salaries in the public sector. Academic programs for minorities reflect these changes in the industry.

Transportation engineering programs train students to design transportation facilities. To the extent that the emphasis in facility construction has switched from new construction to maintenance of existing facilities, the need for new personnel in this area will be limited in the future. The engineering curriculum must reflect this emphasis on maintenance.

Finally, a new role for universities in the transit industry is emerging. This role is to cooperatively provide in-service training not only for management personnel, but also for nonmanagement employees. For example, universities are developing programs to help train drivers to operate vehicles more efficiently. Other in-service examples includes classes and seminars for managers in innovative approaches to service provision, computer technology, financing, accounting, management, and planning.

One example of a training program is the transit management apprentice program at North Carolina A&T State University, which provides 1 year of full-time training for new graduates of the university's transportation program. Students are employed at a local transit agency, and funds are provided by the North Carolina Department of Transportation. Upon completion of the program, apprentices are assisted by the state department of transportation, the university, and the agency in finding permanent positions in mid-level management with transit agencies in North Carolina.

The university that can provide a full set of training programs will find that these programs both complement and contribute to each other.

TRANSPORTATION OPPORTUNITIES AT HISTORICALLY BLACK COLLEGES

Historically black colleges (HBCs) enroll more than 60 percent of all black students. "These institutions provide points of access and often offer better odds for retention and attainment for blacks than are evident in other institutions" (7).

Black colleges have been involved in transportation since the early 1970s. The earliest efforts to increase the involvement of the historically black colleges in U.S. Department of Transportation programs were initiated in 1969-1970 by the Urban Mass Transportation Administration (UMTA). UMTA's University Research and Training Program was authorized in Section 11 of the Urban Mass Transportation Act of 1964. Visits by UMTA officials and UMTA-funded consultants to HBCs resulted in proposals for grants under the program. Three HBCs, North Carolina A&T State University, Atlanta University, and Southern University were each awarded \$150,000 grants for the 1970-1971 academic year. In subsequent years UMTA has continued to make awards to HBCs.

Government involvement with HBCs continues today. In 1981 President Reagan signed Executive Order 12320 mandating that government departments and agencies "help to significantly increase the capabilities of historically black colleges." The Secretary, U.S. Department of Transportation directed that "HBCs should be afforded equitable consideration. Special efforts should be made to identify and utilize the areas of expertise which these institutions possess. Each administration should consider establishing developmental programs for faculty and curriculum at these institutions to ensure an ongoing pool of minority transportation researchers."

Transportation Centers for Excellence

In 1982 UMTA approved two historically black colleges as Transportation Centers for Excellence under Section 6 of the UMTA Act of 1964--Florida A&M University and Texas Southern University. Specifically, these centers will focus on short courses, certificate programs, development of operations, management skills, and mid-level management training. Emphasis is also placed on research directed at current transit problems and technical assistance to transit operators in problematic areas.

Academic Degree Programs

Few historically black colleges have full-fledged academic programs in transportation. Several public and private institutions have transportation curricula in the developmental stages. Three undergraduate degree programs have been identified at black colleges--North Carolina A&T State University, Virginia State College, and Florida Memorial College in Miami, Florida. Three HBCs have developed masters' degree programs in transportation--North Carolina A&T State University, Morgan State University, and Texas Southern University. Concentration in these degree programs lead to career development in transportation planning and management with emphasis on mass transit planning, management, urban planning, public policy, transportation forecasting, research, and technical writing. The degree program at North Carolina A&T State University, however, is located in the School of Business and Economics. This program trains carrier and physical distribution managers and is accredited by the American Assembly of Collegiate Schools of Business. Examples of similar programs at major universities are Indiana University and Pennsylvania State University.

Because of government initiatives during the past one and one-half decades, academic programs at minority campuses tend to emphasize, perhaps overemphasize, public-sector training. This is underscored by the placement experiences of recent graduates of North Carolina A&T University. At the undergraduate level, graduates who accepted positions in freight transportation averaged approximately twice the beginning salary of those in public transportation (\$25,000 for freight and \$13,000 for public transit).

The job market alone cannot be the only influence on the establishment of academic programs. There are two underlying characteristics of most students at minority campuses:

1. A desire to complete an academic program that has a track record of successful employment placements; and
2. A need for a structural program that can reinforce basics at the same time that new, specialized material is presented.

The first point addresses the relationship of the job market to the academic program discussed previously. The second point, however, addresses the content of the academic program itself. For example, a curriculum that assumes advanced mathematical skills for all students, such as an engineering curriculum, will necessarily exclude the majority of students who have average skills in mathematics. Similar observations can be made about programs in the arts.

Business programs, however, require a general competency in a wide range of skills. This competency is typically possessed by many students and, along with the marketability of graduates, accounts for the popularity of business programs at many campuses. It is, therefore, suggested that transportation programs for minorities be located in a school of business and emphasize carrier and physical distribution management.

The accrediting agency for such programs is the American Assembly of Collegiate Schools of Business (AACSB) which, in its accreditation standards, provides for a balance of nonbusiness and business-oriented courses. The AACSB also provides for a common body of knowledge that consists of requirements in several areas of business including quantitative methods, organization and personnel management, policy, and a balance of specialized courses (8). Thus, a business curriculum may emphasize transportation by adopting specialized courses that either contain the common body of knowledge or that are additional courses that can be substituted for more general required courses in business and still meet AACSB standards. This approach has been taken at North Carolina A&T University and to date has been quite successful.

In contrast to the business-centered curriculum, many schools offer a multidisciplinary approach, drawing on courses and faculty from different departments and schools. The primary examples of this are curricula at Northwestern University and the Massachusetts Institute of Technology.

Among the HBCs, Morgan State University has adopted a multidisciplinary approach. Students are provided a required core of courses and then are provided options to specialize in either planning or management (Master of Science in Transportation). Neither specialization includes the entire set of elements prescribed by the AACSB in the common body of knowledge for business. However, this approach offers more flexibility and accommodates specialization at an earlier stage.

Comparing the two approaches, the advantages and disadvantages of each are complementary. The business curriculum requires more business-oriented prerequisites and a greater amount of time allocated to general business content. This has the advantage of providing the student greater strength in an administrative background and, subsequently, in the transportation management job market. The disadvantage is that the business core requirements and prerequisites will discourage nonbusiness majors. On the other hand, the multidisciplinary approach provides specialized transportation courses from the outset and has the obvious advantage of attracting an interdisciplinary student body. The disadvantage of this approach is that the administrative and general academic background of the students is inconsistent, which can affect course content and make students less competitive for transportation management positions when they graduate.

In summary, two strategies have emerged by which minority transportation professionals can be trained. These strategies parallel those at nonminority institutions. Although recognition of an accredited business program appears to fit the needs of many minority students, each school must develop its own curriculum that best fits local conditions. Only time will confirm the relative strength of the advantages and disadvantages of each approach.

CONCLUSION

Career opportunities for minorities are available in all modes of transportation. In the past these opportunities have been primarily at the entry or low level of

the career ladder. As a result of new laws and executive orders, more initiatives have resulted in a number of special programs to train and enhance careers in professional positions within the transportation industry.

The role of the historically black college and university is to train minorities for employment opportunities in the transportation industry. Specialized programs for minorities to accomplish this task have been limited to a handful of programs at these institutions. Because of past initiatives from DOT, these programs have been geared to careers in urban transportation. Because employment trends are directed to careers in freight transportation, which pays higher salaries, there should be a concerted effort to establish more programs in these areas at minority institutions and to recruit more minorities at universities with established transportation programs.

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