

Higher Education Practices to Prepare Future Transportation Professionals Regarding Disability, Accessibility, and Mobility Management

April 2022

The National Center for Mobility Management (NCMM; nc4mm.org) is a national technical assistance center created to facilitate communities in adopting mobility management strategies. NCMM is funded through a cooperative agreement with the Federal Transit Administration (FTA) and is operated through a consortium of three national organizations — the American Public Transportation Association, the Community Transportation Association of America, and Easterseals, Inc.

This information brief was prepared by NCMM staff, and is disseminated in the interest of information exchange. Neither the NCMM nor the FTA assumes liability for its content or use. The opinions and conclusions expressed herein are solely those of the authors and should not be construed as representing the opinions or policy of any agency of the federal government.

Comments or questions about this document can be addressed to info@nc4mm.org or 866-846-6400.

Thank you to those higher education faculty and professionals who provided us with feedback either through our online questionnaire or one-on-one discussions. We appreciate your time and interest in speaking to us about this important topic of equipping future transportation professionals with content about disability, accessibility, and mobility management.

- Kimberly Burton, Ohio State University
- Celeste Chavis, Morgan State University
- Mahtot Gebresselassie, Carnegie Mellon University
- Patricia Greenfield, International Transportation Learning Center
- Katharine M. Hunter-Zaworski, Oregon State University
- Bradley Lane, University of Kansas
- Amber McNair, Ohio State University
- Joel Mendez, University of Kansas
- Andrea Lubin and colleagues, Rutgers University
- Sandra Rosenbloom, U of Texas
- P.S. Sriraj, University of Illinois, Chicago

NCMM is continuing our work to develop support materials for higher education faculty. If you want to contribute to our work or for questions about this Information Brief please contact Dr. Judy Shanley, Easterseals - jshanley@easterseals.com.

Introduction

"More importantly, however, recent studies show that organizations with the most diverse workforces realize better decision-making and more efficiency, innovation, and profitability than do their less-diverse peers" (Ivey, Powers, & Clark, 2019).

Various industries, including the mobility and transportation sector, are becoming increasingly diverse. Customers who use transportation services represent every community, including individuals with disabilities. In fact, one in four individuals will experience a disability during their lifetime and a large portion of these individuals will have mobility challenges. There is increased recognition that riders with disabilities should be able to access a range of transportation service and should not be limited to specialized transportation or paratransit services. For many individuals with disabilities, inclusive mobility and transportation services is the preferred mode of travel.

With increasing numbers of riders with disabilities throughout systems, it becomes important for those professionals who design and deliver transportation service be cognizant of the varying needs of riders, especially those with disabilities who utilize inclusive transportation options. Additionally, the employees of the service must reflect the demographic landscape of those using the service. Therefore, it is important for transportation professionals to have the knowledge and content expertise to design, implement, and operate transportation services that are responsive to diverse rider needs. This can be achieved, in part, by ensuring that the higher education programs that prepare these future transportation professionals are addressing disability and mobility management related topics.

Professional development and training once professionals are in the industry is equally important, but strategies to integrate disability-related content in personnel preparation programs – before an individual even enters the field – can ensure that these individuals are informed and knowledgeable at the early stages of their career.

We also were curious if higher education officials were actively recruiting individuals with disabilities into their programs. Our thinking is that disability-related content and knowledge for individuals entering the profession, could contribute to mobility and transportation practices that were more closely aligned with the needs of riders with disabilities. We conducted a literature review of studies and reports that addressed the recruitment and retention of individuals with disabilities in transportation sectors.

Former APTA Chair Nuria
Fernandez identified workforce
readiness as one of her key
initiatives, and APTA has developed
the Transit Workforce Readiness
Guide as a resource for the transit
industry. <u>APTA Transit Workforce</u>
Readiness Guide (2021).

However, relevant findings are scarce. Few pieces of literature address the diversity of the transportation industry specific to individuals with disabilities. Yet, industry leaders affirm the importance of transit workforce readiness to respond to the unique and varying needs of our society. In its recent Transit Workforce Readiness Guide, the American Public Transportation Association affirmed, to ensure that these benefits reach all members of society, and to ensure that the transit workforce reflects the demographics of its surrounding community, many agencies have enlisted the help of a range of partners that provide services to underrepresented communities, people with

disabilities, veterans, women, the underemployed, single parents, and many other disadvantaged populations.

The National Center for Mobility Management set out to learn what future transportation planners are learning in their college preparation programs. We believe that if future professionals have knowledge about disability issues, and the needs of individuals with disabilities, they can use this knowledge to facilitate the accessibility of the transportation systems they are designing and implementing. We hoped to learn about the strategies that higher education personnel are using to recruit students with disabilities into their planning programs. Our belief is that if the transportation workforce reflects the diversity of the general population of riders, the design and delivery of services will be more responsive to the traveling needs of riders with disabilities.

Method and Response

We developed a questionnaire (Appendix A) targeted at higher education faculty and program administrators associated with transportation planning programs, to gather information about 1) the content that is embedded in college curriculum around disability, accessibility, the ADA, and mobility management topics; and 2) the strategies that colleges use to recruit and retain students with disabilities into their programs. We used varying dissemination channels to obtain feedback from the field including the NCMM Newsletter, the University Transportation Center Listserv, the International Transportation Learning Center Newsletter, and the American Public Transportation Association Connect forums. We reached out to leaders in the industry, including the Transportation Research Board to identify others who could inform this work.

Response to the online questionnaire was low. Despite repeated attempts to reach the field through recognized dissemination channels, the response to the online

questionnaire provided little information that could help us answer the two questions at the heart of this work. Consequently, we changed our data collection method and instead, conducted short interviews with identified faculty from a range of higher education programs. We hoped to get a geographically diverse set of respondents from both engineering and planning departments within universities. Overall, the content in this information brief based was developed based on five completed written questionnaires and discussions with over 10 higher education faculty and a transportation professional affiliated with the International Transportation Learning Center.

"Just for your information, I heard back from our adjunct faculty who teaches the introductory transportation course and he responded that "this is not something that I cover at all in my introductory class."" University Transportation Researcher.

What we Learned

We intentionally spoke to faculty that represented both engineering and planning departments within universities. Our expectation was that engineering students would be exposed to content related to Americans with Disabilities Act (ADA) standards and its requirements pertinent to ADA Transition Planning and public rights of way architectural barriers.

We did find some higher education programs that addressed engineering standards and design features established by the <u>United States Access Board.</u>

Easterseals has been involved in a national study to examine ADA Transition Plan practices across states. We learned that there are differing understandings of disabilities contingent upon whether a professional involved in the ADA Transition Plan work represents a human services or civil rights or an engineering perspective. ADA Transition Coordinators suggested that people doing the work need to have knowledge and skills in both aspects of the process – the aspect that emphasizes the philosophical, sociocultural, and economic impacts of accessible communities and the aspect of the ADA Transition Plan process that emphasizes the technical and engineering dimensions and standards of barrier removal. If practicing professionals in the field are suggesting this alignment of knowledge and skills, perhaps, higher education programs should be preparing students in the

One faculty member we talked to offered, "there is a gap between engineering and planning programs. There are siloes that prevent a systematic approach – we peg people in specialties – and they don't understand the entire system". University Transportation Program Faculty.

same way. One university program combines its planning and engineering departments, so students have an opportunity for cross content learning. The interactions between the two transportation professional disciplines creates venues for information sharing and collaborative learning.

Several of the faculty explained that the national licensure and credentialing bodies, such as

Engineer in Training (EIT) certification program driven by the Accreditation Body of Engineering (ABET), are very specific regarding the course content that can be offered. Therefore, it is difficult to find time to adapt the curriculum to fit in content regarding disability and mobility management. Other faculty shared that they have specific courses devoted to social equity and justice, such as the <u>Urban Planning Program</u> at the University of Kansas. The range of coursework in this program enables instructors to integrate content about disability in several of their courses. Through

"We discussed mobility and accessibility a lot in class, but just for the "mobility and accessibility" for the public, not for people with disabilities. About 2-3 years ago, my research interests diverted into aging transportation, and found it was meaningful to introduce more ADA concepts and mobility management into my class. Therefore, I tried to highlight more ADA requirements into transportation facility design (e.g., pedestrian sidewalks, intersection with curb ramps), and invited several mobility managers into my class to introduce mobility management practices in their communities". University Transportation Program Faculty.

coursework, faculty address historical trends in disability and transportation, implications of disability on transportation services, Federal policies that relate to the provision of transportation services, mobility management, Federal coordination efforts, paratransit, innovative mobility services, community engagement and content about human services organization and accessible transportation. KU faculty also shared that they work with local human services, such as food distribution organizations and community gardens, on accessibility topics and integrate bike and pedestrian topics in their program which may also is a way to address disability and accessibility topics.

We did find faculty who were passionate about addressing disability topics in their courses and identified creative ways to introduce students to these topics. For instance, one graduate student

who responded to the online questionnaire indicated she had to go outside of her department to find course content. Resources such as the Center for Neurotechnology (CNT) at the University of Washington a set of promising practices to engage people with disabilities in Center activities could be valuable (Appendix B)

We also asked faculty questions regarding how they were teaching future transportation professionals about topics related to coordination, mobility management, and the national effort related to the Coordinating Council on Access and Mobility. Only a handful of higher education professionals indicated that they talk about coordination in their planning programs, with a focus on the importance of considering partners to support the ability of riders to access community services such as health care. In one conversation with a program administrator and faculty from the University of Illinois Chicago, they noted how they will bring in external speakers to address coordination topics, and, in fact, invited NCMM to provide an overview of Federal coordination work to a graduate class.

"Disability and accessibility are covered in our department's pedestrian planning class as well as a transportation equity course. However, neither class dedicates an entire classroom period to disability. I had to seek out courses related to disability and transportation in the social work department at our university".

University Transportation Program Faculty.

planner that is examining last-mile

solution challenges for individuals

Potential Strategies

We asked faculty for their suggestions regarding how disability, accessibility, and mobility management topics could be integrated in higher education courses of study and synthesized these recommendations in the following strategies. The NCMM author of this information brief, Dr. Judy Shanley, has professional experience in implementing career development programs, and that knowledge was also integrated into the following strategies.

- Invite guest speakers to your classes representing all sectors of the disability world, including advocacy organizations, mobility
 "We have a student who is a city
 - managers, governmental human services agencies, and individual with disabilities themselves.
- Provide practical assignments to students whereby students visit community based human services organizations and have conversations with personnel and participants from these

organizations.

with disabilities. We encourage projects that focus on diversity".

University Transportation Program

Faculty.

One faculty emphasized the value of practical experience and stated, "I send my students to the Ohio Department of Transportation's Active Transportation Academy to prepare for the Transportation Studio. They offer free e- learning courses, and the topics touch on access to all users of the transportation network, including users with disabilities". University Transportation Program Faculty.

Collaborate across transportation engineering and transportation planning programs, ensuring there is opportunity for students to interact and learn about the technical aspects of accessibility standards that may be offered through an engineering program, along with content that focuses on the sociocultural, economic, and human services implication of accessibility.

- Require students to do assignments that enable them to explore the various plans that states are required to complete, such as the Human Services Transportation Coordinated Plan, the State Transportation Plan, the Active Living Plans.
- □ Include images of people with disabilities in promotional and curricular materials.
- Implement simulation assignments for students, whereby they experience the functional implications of having a disability, such as using a wheelchair. Disability advocacy organizations have differing views of this strategy to educate those individuals without disabilities, and faculty and students should keep this in mind. An exercise like this is intended to educate and create experiences for participants in ways that do not make light or minimize the implications of a disability.
- Develop modules focused on disability and accessibility that can be easily integrated into course curriculum by faculty.
- ☐ Educate faculty about these topics by having a workshop or a professional development training session nationally targeted at faculty.
- Help students learn about universal design with a focus on social equity and justice issues; help students understand what universal access means, and the mobility challenges that individuals with disabilities face.

"Teaching universal design is tough...the best thing I can do as a faculty member is to raise consciousness of students – so they think about the implications of having a disability". University Transportation Program Faculty.

 \Box Identify "best practices" and opportunities to highlight these practices.

Address bike and pedestrian topics in programs that can create an opportunity to address disability and accessibility topics.

☐ Collaborate with faculty colleagues in departments of disability studies, education, and social services programs.

"I invited the local Canadian
Paraplegic Association into one of
my lectures to have them share
information about their work and
about accessibility issues".

University Transportation
Program Faculty.

- Invite local human services and non-profit organizations into your classes to share information about their work.
- Create a welcoming environment for all students, where all students can feel supported.
- Ensure that faculty and higher education staff reflect diversity, particularly individuals with disabilities.

Use multi-disciplinary teams, especially in orientation programs for new students, which provide expertise and an opportunity to introduce accessibility.

Recommendations for the Industry

- Work with credentialing organizations and accreditors, such as the Engineer in Training (EIT) certification organization and the Accreditation Body of Engineering (ABET), to identify opportunities to include disability related content into higher education program standards.
- Identify a national organization that can offer a workshop or seminar to faculty on topics related to disability, accessibility, and mobility management.
- □ Collaborate with the University Transportation Center programs to integrate this focus into their scope of work and program activities.
- Assist the field to identify recruitment strategies targeted at enrolling students with disabilities in higher education programs.
- □ Support the industry in thinking about disability in the broadest sense.
- Encourage national and prominent organizations such as the Federal Transit Administration, the American Public Transportation Association, and the Community Transportation Association, to include images and examples of industry professionals with disabilities in informational and promotional materials and ensure that the leadership of these organizations represents people with disabilities.
- Include incentives in national grant programs and through funders for applicants to address the needs of individuals with disabilities.
- Collect data on the prevalence of professionals with disabilities as employees in transportation sectors and encourage data collection by higher education programs regarding enrollment data for students with disabilities.

Recruitment and Retention of Students with Disabilities into Transportation Planning Programs

Through the online questionnaire and in our interviews, faculty were asked about specific recruitment activities related to encouraging students with disabilities to participate in their higher education programs. Specifically, participants were asked whether they used any of the following recruitment strategies:

- Collaboration with high school programs and youth transition programs to actively recruit students with disabilities.
- Relationships with community human services and disability organizations to identify a potential pool of applicants.
- Resources from professional associations such as American Public Transportation Association (APTA) or the Community Transportation Association of America (CTAA).

Few individuals with whom we spoke were aware of any recruitment or outreach strategies specifically targeting students with disabilities. Several indicated they do work with disability resource centers on their campuses to provide accommodations and supports, such as note takers or extra time on tests, to enrolled students who identify as having a

"We don't actively recruit students with disabilities – we provide supports once they are enrolled, but don't encourage applications to our program". *University Transportation Program Faculty.*

disability. However, none of faculty suggested that they are involved in any deliberate recruitment activities, nor did they have knowledge about any university-wide recruitment activities.

As our research made clear, transportation higher education programs do not intentionally reach recruitment sources to attract students with disabilities into their programs. Collaboration and relationships with professionals in high schools to support the career development of students with disabilities could be beneficial to attract qualified students with disabilities in higher education. Some strategies to enhance recruitment efforts can include:

- Work with disability resource centers on campus and college admissions personnel to ensure that recruitment methods include a focus on students with disabilities.
- Ensure that college recruitment marketing forums clearly identify the viability of transportation related careers for students with disabilities.
- □ Articulate the supports that can be available to students with disabilities in your programs.
- Consider establishing a volunteer disability mentoring program to support students with disabilities once they are enrolled.
- □ Explore a summer camp program to introduce high school students to careers in transportation.
 - o Introducing High School Students to Transportation: Summer Camps and Curriculum. The Transportation Research and Education Center at Portland State University program is an example. Big news: applications open next week for our FREE transportation summer camp at PSU, open to any Oregon student entering the 9–12 grade. Our residential camp, hosted July 31 Aug 5, offers an immersive introduction to transportation careers and the workings of transportation systems in Portland.
- Implement career pathways programs using supports from the <u>International</u>
 <u>Transportation Learning Center.</u>
- Participate in career fairs and recruitment forums that specifically attract students with disabilities and their families.

Summary

This NCMM information brief provides a glimpse into the lack of disability diversity or discussion about disability diversity that exists across the transportation industry. Through a national survey and interviews with faculty, we learned that there are limitations in what future transportation professionals are taught about disability and accessibility. So too is the profession lacking in recruitment strategies specially targeted at students with disabilities. These findings provide the impetus for national organizations, such as NCMM, to develop tools

and guides for higher education faculty to support their ability to do more targeted work in this area, impacting what they teach and who they recruit.

Individuals with disabilities are increasingly seeking inclusive and accessible transportation options. If the transportation workforce is knowledgeable and skilled in considering the needs of diverse ridership, this could positively influence service and attract riders, particularly those who may not have considered using public transit. Further, as the transit industry faces workforce challenges, the timing seems right to consider untapped hiring pools that include potential applicants with disabilities. Our nation's transportation planning preparation departments have an important role in shaping the future of the transportation workforce. This workforce should and must include individuals with disabilities.

References and Resources

- American Public Transportation Association (APTA). (2021). <u>Transit Workforce Readiness Guide.</u>
 Washington, DC.
- Burgstahler, S. (2019). <u>Promising Practices That Engage People with Disabilities in the CNT.</u>
 Access ERC. Washington, DC: National Science Foundation.
- Disability IN. *Disability Equality Index (DEI) Best Practices.* (2021). Washington, DC: AAPD. Retrieved from https://disabilityin.org/what-we-do/disability-equality-index/.
- Ivey, S., Powers, M. and Clark, A. (2019). *Building a Business Case for Increasing Diversity in the Transportation Workforce.* Washington, DC: Transportation Research Board, TRNews 323. Retrieved https://onlinepubs.trb.org/onlinepubs/trnews/trnews323BusinessCase.pdf.
- National Academies of Sciences, Engineering, and Medicine 2018. *Critical Issues in Transportation 2019*. Washington, DC: The National Academies Press. https://doi.org/10.17226/25314.
- <u>Transit Workforce Center.</u> In partnership with the FTA, the Transit Workforce Center (TWC) will support public transit agencies' workforce development needs for all modes of public transit across urban, tribal, and rural entities. The overarching mission of this new center is to assist public transit agencies to recruit, hire, train, and retain the diverse workforce needed now and in the future.

Appendix A NCMM Higher Education Online Questionnaire

NCMM Higher Education & Disability

Project Introduction & Purpose

Dear Faculty:

The National Center for Mobility Management, NCMM, funded by the Federal Transit Administration (FTA), seeks to understand what future transportation professionals are learning about disability, accessibility, and mobility management topics. This is not intended to be an evaluation or an assessment of what you are or are not teaching, rather, its our work to develop an understanding of what is already being done to prepare our future transportation professionals with the content they need to respond to the mobility needs of broad audiences. Thank you in advance for our feedback. For questions, please contact, Judy Shanley, Ph.D., Asst. VP, Education & Youth Transition, Easterseals and Easterseals Director, NCMM. jshanley@easterseals.com.

Project Intent: To understand what future transportation professionals are learning in preservice or graduate preparation programs regarding accessibility, disability, mobility management, and disability-related legislation and policy. We hope to use what we learn to develop support materials for faculty to include in their teaching programs.

We are also interested in learning about the strategies your university uses to recruit and retain students with disabilities into your preparation program.

Project Outcome: To identify content and resources that can be shared with higher education programs to facilitate their focus on disability and accessibility topics for future transportation professionals.

Please provide your feedback by January 14th, 2021.

1. Tell us about Your F Name of Individual	ligher Educatio	on Program			
Providing this Information					
Your Title					
Name of University/College					
City-State Where your Program is Offered					
Department Where this Content is Taught					
Name of Program					
Degree (Major and Educational level i.e. Bachelors, Masters, Doctorate, Other)					
Program Size (number of full-part time enrollees)					
University Size					
2. Describe How you I	nclude the Fol	lowing Topics in	your Courseworl	k	
2. Describe How you I	Classroom	Practical or Field Experience		Additional Ways that Content is Addressed	Content is not Addressed in our Program
2. Describe How you I Historical Trends in Disability & Transportation	Classroom	Practical or Field	Collaboration with other College/University Departments and	Additional Ways that Content is	Addressed in our
Historical Trends in Disability &	Classroom	Practical or Field	Collaboration with other College/University Departments and	Additional Ways that Content is	Addressed in our
Historical Trends in Disability & Transportation Implications of Disability and an Individual's Access to Transportation	Classroom	Practical or Field	Collaboration with other College/University Departments and	Additional Ways that Content is	Addressed in our
Historical Trends in Disability & Transportation Implications of Disability and an Individual's Access to Transportation Services Federal Policies and Legislation (ADA) that Relate to the Provision of Transportation Services to Individuals	Classroom	Practical or Field	Collaboration with other College/University Departments and	Additional Ways that Content is Addressed	Addressed in our
Historical Trends in Disability & Transportation Implications of Disability and an Individual's Access to Transportation Services Federal Policies and Legislation (ADA) that Relate to the Provision of Transportation Services to Individuals with Disabilities Mobility Management and How It Supports Services for Individuals	Classroom	Practical or Field	Collaboration with other College/University Departments and	Additional Ways that Content is Addressed	Addressed in our

	Classroom Instruction	Practical or Field Experience	Collaboration with other College/University Departments and Faculty	Additional Ways that Content is Addressed	Content is not Addressed in our Program
Federal Efforts to Improve Transportation Coordination such as the Coordination Council on Access and Mobility (CCAM)					
ADA Paratransit Services – Planning, Design, Delivery, and Evaluation					
Innovative Mobility Services and Strategies to Consider the Needs of Individuals with Disabilities					
Community Engagement – Particularly Engaging Individuals with Disabilities and Advocacy Groups					
Content about Community Human Service Organizations that can Support Accessible Transportation					
Other Content in your Program Coursework that Addresses Disability and Transportation Service					
dditional Related Information	n and Resources -	include links.			

. Describe the Stra nto your program	escribe the Strategies that your Institution uses to Attract and Recruit Students with Disabilition				
	Our University Frequently uses this Recruitment Method	Our University Sometimes uses this Recruitment Method	uses this	Our University Never uses this Recruitment Method	Unsure
Collaboration with High School Programs					
Collaboration with Community Human Service and Disability Organizations					
Use Resources from Professional Associations such as CTAA or APTA					
Other Recruitment Methods					
dditional Recruitment Str	ategies - include Rele	vant Resources.			
Please provide	your name and best c	ontact information.			
i. Any Additional Info Strategies ii. Please Identify and shanley@eastersea	d Provide Links to				Recruitment

Appendix B - Center for Neurotechnology (CNT) at the University of Washington

Center for Neurotechnology (CNT) at the University of Washington developed a set of promising practices to engage people with disabilities in Center activities. Although CNT is at an academic institution, these strategies can be useful to the transportation industry. Retrieved https://www.washington.edu/doit/sites/default/files/atoms/files/Promising-Practices-ERC.pdf

CNT Promising Practices

The Center for Neurotechnology (CNT) at the University of Washington promotes engaging people with disabilities in all aspects of the Center. The following are a set of promising practices CNT uses and encourages other engineering research centers to practice.

Recruitment and Engagement

- Develop strategic partnerships, including those with disability and veteran service units, and employ joint recruitment strategies.
- Recruit people with disabilities, including veterans, onto advisory boards and leadership teams.
- Develop outreach activities and programs especially for students with disabilities, including veterans, and also recruit individuals with disabilities into programs for all students.

Communication

- · Promote disability awareness.
- · Highlight the achievements of people with disabilities.
- Include images of people with disabilities and information on how to request accommodations in promotional materials.
- Encourage faculty, staff, and student leaders to engage in disability-related conferences and training opportunities.
- · Share disability-related practices at conferences.

Accessibility of Facilities, Information Resources, Products, and Activities

- · Apply universal design and provide reasonable accommodations.
- · Consult with individuals with disabilities in lab/facility design.
- Conduct website, document, and video accessibility reviews and remediate.

An Inclusive Climate

- · Consider disability as a diversity issue.
- Provide mentoring opportunities for individuals with disabilities.
- Address disability-related issues in grant proposals to enhance and expand ERC initiatives.

Data Collection and Evaluation

- Collect disability status along with other demographic information in application and evaluation forms.
- · Analyze data to determine the effectiveness of activities for people with disabilities.

