Developing Curriculum and Guidelines for a Capstone-Style Transit System Planning & Design Course

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Project Description: Great cities don't work without great transit. While many European and Asian cities boast of robust transit systems providing convenient connectivity and access to all types of destinations, transit in the US has mostly remained inefficient, unreliable, limited. We can point to many possible financial, structural, political, and cultural reasons behind the lack of progress in the US; however, it is worth pointing out that it all coincides with a general lack of transit-specific education on the part of transportation engineers and planners in the US. While there are some open-access transit curriculums available online, none includes urban design components that introduce students to account for contextual access and perception aspects of transit. The purpose of developing this curriculum is to provide students with hands-on experience in designing different elements of a transit system and its operations from a systems-level perspective. The curriculum will have 3 different components: 1. A lecture component that will provide students with an overview of the principles and practices of transit system planning and design in transportation engineering. 2. A case study analysis component where students will engage in hands-on exercises that apply the concepts learned. 3. A Capstone-style final project where the student groups will visit transit-oriented communities, analyze and understand the gaps between current state of practice and community needs, and then provide design recommendation for improvements.

USDOT Priorities: *Organizational Excellence*: This project will prepare the next generation of transportation planners and engineers to use systems view for transit design where contextual elements of access are as important as transit frequency and reliability.

Outputs: The output of this project will be open-access modules of the proposed transit planning and design course. At the minimum, we will produce: 1. a website with lecture slides, assignments, and project ideas 2. a list of references and links to other open-source transit course materials 3. open-source data sites/repositories that may be useful for transit planning

Outcomes/Impacts: The anecdotal belief that transit is a social service that marginalized people benefit from immensely, is often not true because of a lack of network/system level view of trips. For example, for a transit system to be successful, it is important that it has seamless or at least efficient connections – to other transit routes, to first and last mile travel modes, to safe and accessible infrastructure – so that users do not have to plan separately for different parts of their travel. However, transit system and facilities planning is often focused on a single route or services, lacking the integrated system level thinking or using the user perspective of a trip. The goal of the curriculum will be that by the end of the course, students will have a comprehensive understanding of transit system planning and design and the skills necessary to plan and design effective transit systems that meet the needs of communities and support sustainable mobility. The project takes a step towards developing an equity conscious and futuristic thinking transportation workforce through integration of real-life experience through case studies and multidisciplinary team activities.

Final Research Report: (Link to be provided after project completion).