






COVER SHEET
Center for Equitable Transit-Oriented Communities (CETOC)

Names and Locations of Consortium Members:

 University of New Orleans New Orleans, LA 70148 [Redacted] [Redacted] <div>Lead Institution</div>	
 Florida Atlantic University Boca Raton, FL 33431 [Redacted] [Redacted] <div>Minority Institution</div>	 University of Utah Salt Lake City, UT 84112 [Redacted] [Redacted]
 University of Colorado Denver Denver, CO 80204 [Redacted]	 University of Florida Gainesville, FL 32611 [Redacted]

Type of UTC Application: **Tier 1 Center**

IIJA Research priority area: **"Preserving the Environment"**

US DOT Strategic Plan strategic goals:

- Primary strategic goal: **"Climate and Sustainability"**
- Secondary strategic goals: **"Equity"** and **"Transformation"**

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RESEARCH ABSTRACT

“We’re a very pro-transit administration, because we know the economic benefits, the safety benefits, the equity benefits and the climate benefits that come with having more people having that excellent option for transit.”

– Transportation Secretary Pete Buttigieg, July 2022

CETOC’s Research Focus

The Center for Equitable Transit-Oriented Communities (CETOC) will focus on the statutory research priority area of ***Preserving the Environment***. CETOC research will support US DOT’s climate solution and sustainability goals by promoting transit access, multimodal infrastructure, compact and efficient land use patterns, as well as resilience and climate mitigation and adaptation. As recognized thought-leaders and practitioners in transit-oriented communities, the CETOC team prioritizes environmental and equity goals to promote transformational impacts in achieving DOT goals. CETOC research, education and tech transfer activities will tap into the relationship between transportation and land use as a nexus of achieving economic, safety, equity, and climate benefits through the following broad research areas: 1. Next-generation public transit systems, 2. Coordination of land use and transportation planning, 3. Resilient infrastructure and communities, 4. Data, technology, and transformation.

CETOC’s Motivations and Alignment with Priority Areas

Transit-oriented development (TOD) has generated a number of benefits for communities. Transit is safer than driving on a per mile basis, and active modes lead to better health for our planet and its population. Quality transit can increase access to economic opportunities, social networks, and healthcare. Yet, despite transit’s importance, access to its benefits is not shared equitably. Differences persist across the urban-suburban-rural spectrum. Even when controlling for density, disparities in transit access exist based on race, ethnicity, and income. While the promotion of transit-oriented communities remains worthwhile, better access to transit and other amenities can drive up the cost of housing and increase gentrification and displacement pressures. One outcome may be higher-income transit-oriented communities may feature transit as an amenity as opposed to a fundamental mode and the associated high rates of driving may fall short of aspired environmental and social benefits. Remedying these problems is thorny and under-researched. Universities have also failed to train professionals adept at handling the complexity of these challenges. CETOC's research topics align with the goals for climate and equity by promoting net-zero emissions, infrastructure resilience, and equitable access to transportation while addressing TOD benefits and drawbacks, including gentrification and displacement of minority and low-income communities.

Preserving the Environment. The US DOT aims to achieve net-zero emissions by 2050 by reducing vehicle miles travelled (VMT) and shifting trips to sustainable vehicles and modes, which requires close coordination among state and local agencies engaged in land use and transportation planning, as well as addressing induced demand. Research on transit and shared-mobility will promote the shift from single-occupancy driving to multimodal travel, aiming for a reduction in greenhouse gas (GHG) emissions. Also,

products generated from the resilient infrastructure and communities research can inform decision-making in transportation agencies on resilience improvement plans and infrastructure investments. CETOC's research, technology transfer, and workforce development efforts will advance infrastructure resilience through identification of opportunities to improve emergency preparedness and response across the transportation sector. CETOC's work will also support climate justice by enhancing availability and access to clean transportation options and by mitigating impacts on communities and ecosystems such as noise pollution and criteria air pollutants.

Equity. Transportation investments have the potential to connect or divide communities, to mitigate or exacerbate inequality. Moreover, when climate disasters such as hurricanes and wildfires hit, residents often need to evacuate—but carless and vulnerable populations such as older and low-income people often lack the means to evacuate on their own. For these populations, public transit and multimodal options can provide vital and life-saving support. Addressing issues of equitable access to opportunity requires strengthening the coordination of land use and transportation, improving the affordability of transportation and housing, and encouraging equitable TOD, particularly in disadvantaged communities.

Transformation. CETOC will develop novel data and technology approaches related to artificial intelligence, machine learning, cybersecurity, and infrastructure resilience that advance technological transformation in the transportation sector. CETOC researchers will also leverage existing partnerships with transportation agencies and communities to pilot demonstration projects regarding mobility-on-demand innovations, micromobility, and resilience digital platforms.

Impacts on Transportation System and Users

CETOC research activities will promote equitable multimodal transportation systems in two ways: 1) UTC researchers will directly engage disadvantaged and underserved communities to deliver results that address their essential transportation needs; and 2) UTC research activities will enhance access and reduce transportation costs for disadvantaged and underserved communities, with a focus on increasing multimodal travel options, enhancing multimodal experiences, and preparing communities for climate disaster. In addition, by focusing on equity, CETOC's outreach and educational efforts will support diversity among the next generation of transportation professionals across the public, private, and nonprofit sectors. CETOC team activities will promote equitable wealth creation by expanding access to housing and transportation affordability. Moreover, CETOC projects will support safety and the economic strength and global competitiveness of our urban and rural communities through transportation system investments in sustainable and carbon-minimizing approaches.

CETOC links its climate and equity goals to transformation by integrating research and best practices from other fields and fostering dialogue among a diverse range of private and public stakeholders. We plan to utilize innovative tools such as virtual and augmented reality to envision future development scenarios.