Useful Transit: Bridging the Gap between the Vision and Reality of Transit-Oriented Communities

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Center Name: Center for Transit Oriented Communities (CETOC)

Research Priority: Preserving the Environment

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Project Partners: Denver Regional Transportation District (RTD)

Project Funding: $52,000 (USDOT) + $26,000 (matching funds) = $78,000

Project Start and End Date: 10/1/2024 – 5/31/2026

Project Description: Transit-oriented communities (TOCs) have long been championed as promising reductions in household transportation costs while also providing the freedom to reach destinations via a variety of modes. However, empirical evidence suggests that TOCs often fall short of such outcomes with many residents still needing to drive to most destinations (Rodier et al., 2019). For example, TOCs tend to emerge along stops near new large-scale transit investments, particularly along new rail corridors (Cervero et al., 2017). These new rail corridors often focus on bringing travelers to and from downtown destinations – with high frequencies during peak hours – or to other major land uses such as airports (Walker, 2024). But with increased remote work and more of a reliance on gig economy jobs, such destinations may not be as essential as they used to be (Kahn, 2022). Moreover, travelers needing to access other destinations such as schools, healthy food options, or health care facilities – especially during off-peak hours – rarely receive a similar level of transit service (Muley et al., 2007). This lack of a useful, more general transit service can force residents near these stops into unwanted car ownership or into regularly using ridesharing or other such services. While myriad factors play a role in this lack of success with respect to the above outcomes, the relative usefulness of the transit itself is often taken for granted and remains an under-researched issue. Using the Denver region as our initial case study, this project first seeks to understand why some transit-oriented communities may be meeting the above goals while others do not. We will then assess transit usefulness in order to understand its contribution to the relative success or failure of the TOC. To be more precise, we will gather data on transit ridership, mode shares, car ownership rates, household transportation costs, land use patterns, employment distribution, access to essential services, and other relevant variables. We will then: 1. Identify the factors contributing to the over- or under-performance of TOCs in achieving stated outcomes; 2. Evaluate the usefulness of

transit in TOCs in facilitating access to a range of destinations beyond downtown area; 3. Create a new type of transit map that accounts for variables such as headways and the variety of destinations in order to focus on the usefulness of transit instead of raw transit coverage; and 4. Analyze the collected data to identify factors contributing to the performance of TOCs. We will use these results to propose strategies that will enhance the effectiveness of TOCs and our transportation investments in them. By collaborating with Denver's regional transit provider, we will also include a significant technology transfer component that may lead to changes in transit supply and our future ability to empirically test the strategies that our results suggested.

USDOT Priorities: This project directly supports the USDOT priority of Transformation and designing for the future by critically re-evaluating the effectiveness of transit-oriented communities (TOCs). Rather than assuming transit access automatically leads to our stated goals, the project identifies gaps in service usefulness – especially beyond peak hours and traditional employment centers. By creating innovative transit maps emphasizing transit usefulness and accessibility to diverse destinations, the project lays the groundwork for reshaping transit planning. It encourages transit systems that adapt to contemporary needs such as remote work and flexible lifestyles, ultimately fostering a forward-thinking approach to transportation infrastructure.

Outputs: 1) At least two conference papers to be submitted to Transportation Research Board Annual Meeting; 2) At least one peer-reviewed journal publication; 3) Development of an online, public-facing map series focused less on transit coverage and more on transit usefulness.

Outcomes/Impacts: 1. Transportation system impacts: By creating a new type of transit map that accounts for variables such as headways and the variety of destinations, the project could improve the predictability and dependability of public transportation, making it a more viable option for daily living. A focus on the actual usage of transit systems and the factors contributing to the success or failure of TOCs could also lead to more durable, long-term transportation solutions that better meet the needs of communities. We might also see financial benefits such as lower household transportation costs. 2. Changes in practice and policy: The project's more comprehensive approach to evaluating the success of TOCs and the role of transit in these communities can provide an empirical basis for informing and shaping future transportation policies and investments. The results could help shift how cities and transportation authority's plan and implement transit services, focusing on a more comprehensive and holistic approach. The project's findings could also inform local, state, and national transportation policies by highlighting the importance of transit service diversity beyond peak hours and major destinations. Doing so could significantly impact the transportation system by helping make it more useful.

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