

Exhibit D – Research Project Requirement Template

(Research project name) Evaluating Impacts of Street Repurposing Interventions in U.S. Cities (Phase II)

Recipient/Grant (Contract) Number: The University of Texas at Austin/Grant # 69A3552344815 and 69A3552348320

Center Name: National Center for Understanding Future Travel Behavior and Demand (TBD)

Research Priority: Improving Mobility of People and Goods

Principal Investigator(s): Cynthia Chen

Project Partners: N/A

Research Project Funding: \$125,758

Project Start and End Date: 06/01/2026 - 05/31/2027

Project Description:

Cities are increasingly repurposing street space to support pedestrian activity and economic vitality through interventions such as sidewalk cafés, parklets, streateries, and pedestrian plazas. While these interventions are widely implemented, their impacts are often evaluated using limited case studies or coarse spatial data. There is a need for scalable, data-driven approaches to evaluate their effects on mobility, economic activity, and safety at the street segment level across diverse urban contexts.

This project is Phase II of the prior study “The Effects of Street Repurposing on Pedestrian, Vehicle and Visitor Patterns,” which focused on selected sites in Seattle and developed methods to quantify pedestrian and vehicle movement patterns using Location-Based Services (LBS) data. Unlike Phase I, which focused on a small number of Seattle sites and mobility-related outcomes, the proposed research expands the analysis to multiple cities, introduces computer vision–based intervention detection, and incorporates safety-related outcomes. Building on established workflows, the project will develop scalable data capture and analysis pipelines that can be applied across diverse urban settings.

The project will leverage anonymized LBS trajectory data and street-level imagery. Computer vision object detection methods will be applied to identify and characterize street repurposing interventions, including their type and spatial configuration. The study will examine street segments across cities including Seattle, Chicago, San Francisco, and New York City. A quasi-experimental design will be used, comparing conditions before and after intervention implementation at treated sites and matched control locations to isolate the effects of interventions from broader temporal and spatial trends.

The analysis will evaluate impacts on mobility, economic activity, and safety-related outcomes, including counts and rates of observed behaviors such as vehicle speeding, mid-block pedestrian crossings, and pedestrian–vehicle conflicts. The study will also document contextual characteristics such as land use, neighborhood activity levels, and intervention type to support interpretation of results and assess the transferability of findings across urban environments.

This project will produce a scalable framework for evaluating street repurposing interventions and provide practical evidence to support transportation planning and policy decisions.

US DOT Priorities:

This project supports USDOT priorities in Safety, Economic Strength, and Transformation. The project advances safety by developing scalable methods to evaluate safety-related outcomes associated with street repurposing interventions, including vehicle speeding, mid-block pedestrian crossings, and vehicle-pedestrian conflicts. It supports economic strength by quantifying how these interventions affect visitation patterns and local economic activity. The project also advances transformation through the integration of anonymized Location-Based Services (LBS) data, street-level imagery, computer vision, and data analytics to create scalable evaluation pipelines. By enabling multi-city assessment of street repurposing interventions, the project provides transportation agencies with a transferable framework for data-driven planning, safety assessment, and performance monitoring.

Outputs:

The project will produce a scalable evaluation toolkit for street repurposing interventions consisting of documented data processing workflows, computer vision-based intervention detection methods, and behavior-based safety indicators. Additional outputs will include a multi-city dataset of mobility, economic, and safety metrics derived from study locations across multiple U.S. cities. The project will also generate reusable analytical code, technical reports, guidance documents, data summaries, visualization products, peer-reviewed publications, conference presentations, and student research products. These outputs will provide transferable resources for future research and transportation planning applications.

Outcomes/Impacts:

The project will improve understanding of how street repurposing interventions affect mobility, economic activity, and safety. Transportation agencies and planners will be able to use the project's evaluation methods and findings to assess similar interventions, support data-driven street design decisions, and prioritize investments in public space and curb management. The research is expected to promote broader adoption of scalable, behavior-based safety metrics and more consistent evaluation practices across jurisdictions. Findings may also inform local policies and design guidelines related to street repurposing, pedestrian safety, and public space management.

The project is expected to contribute to safer, more efficient, and economically vibrant urban streets by improving the ability of agencies to evaluate street repurposing interventions. The resulting methods and evidence may support better allocation of street space, improved safety for vulnerable road users, and more effective transportation planning decisions. By reducing the cost and effort required to evaluate interventions across multiple cities, the project can accelerate the adoption of data-driven practices and strengthen the use of emerging data sources in transportation decision-making.

Final Research Report: A URL link to the final report will be provided upon completion of the project.