UTC Project Information	
Project Title	MPC-678 – Pedestrian Infrastructure and ADA Compliance: Leveraging Advances in Spatial Technologies
University	University of Colorado Denver
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Brief Description of Research Project	Cities are increasingly facing costly litigation because of their inability to build and maintain sidewalks and curb ramps that comply with the Americans with Disabilities Act (ADA) of 1990. The underlying problem is often less about willingness and more about a lack of good data. This research project will examine the use of mobile LiDAR (Light Detection and Ranging) technology to measure the ADA compliance of sidewalks and curb ramps. While historically expensive and somewhat difficult to employ at scale, high-density LiDAR has become much more commonplace and is standard on higher-end iPhones and iPads. The proposed project seeks to create a map of ADA sidewalk and sidewalk ramp compliance issues using iPhone LiDAR. This will include a comparison of sidewalk metrics from planimetric data to on-the-ground LiDAR sidewalk infrastructure data collection. We will compare the results of the iPhone LiDAR to manual methods, planimetric data, as well as data derived from a much higher-end LiDAR data collection device. We will also compare our ability to measure sidewalk issues from the sidewalk versus the street and consider how this differs by different possible occlusion issues (such as

	on-street parking). Lastly, we will explore built environment data against sidewalk infrastructure data to identify what factors are significantly associated with ADA compliance issues. The resulting ADA compliance maps will be integrated into a GIS platform for deployment into web-mapping and mobile-mapping applications. Given that 1 in 7 Americans has a mobility-related disability, this is about more than asset management and protecting cities from liability; it will help put cities on a data-driven path towards fulfilling the promise of the ADA.
Describe Implementation of Research Outcomes (or why not implemented) Place Any Photos Here	We are using the outcomes of this research to advise municipalities, researchers, and consultants on best practices for collecting sidewalk and curb ramp data by highlighting the effectiveness and limitations of mobile LiDAR technology. More specifically, we recommend that mobile LiDAR, such as the iPhone Pro LiDAR, can be a cost-effective and efficient tool for assessing ADA compliance in pedestrian infrastructure and may have the potential for crowdsourcing. However, for more accurate data collection, it is essential to avoid areas with obstructions like vegetation and parked cars, as these can create data gaps. We also suggest that, where possible, data should be collected directly from sidewalks rather than from the street in order to improve accuracy. By sharing these findings, we aim to help municipalities and consultants streamline ADA assessments, enhance accessibility, and ensure more consistent compliance with ADA standards in their infrastructure projects.
Impacts/Benefits of Implementation (actual, not anticipated)	This research demonstrates that mobile LiDAR, such as that embedded within the iPhone 13 Pro and newer, offers a cost-effective, efficient way to assess ADA compliance in pedestrian infrastructure. Its implementation can help municipalities streamline compliance checks, improving the accessibility of sidewalks and curb ramps for individuals with disabilities. By reducing the time and cost involved in data collection, cities can more rapidly address non-compliant infrastructure. Though obstructions can impact accuracy, using mobile LiDAR in unobstructed areas provides a practical solution, potentially leading to faster and more widespread improvements in accessibility for communities.
Web Links • Reports • Project Website	MPC Final Report – Pedestrian Infrastructure and ADA Compliance: Leveraging Advances in Spatial Technologies