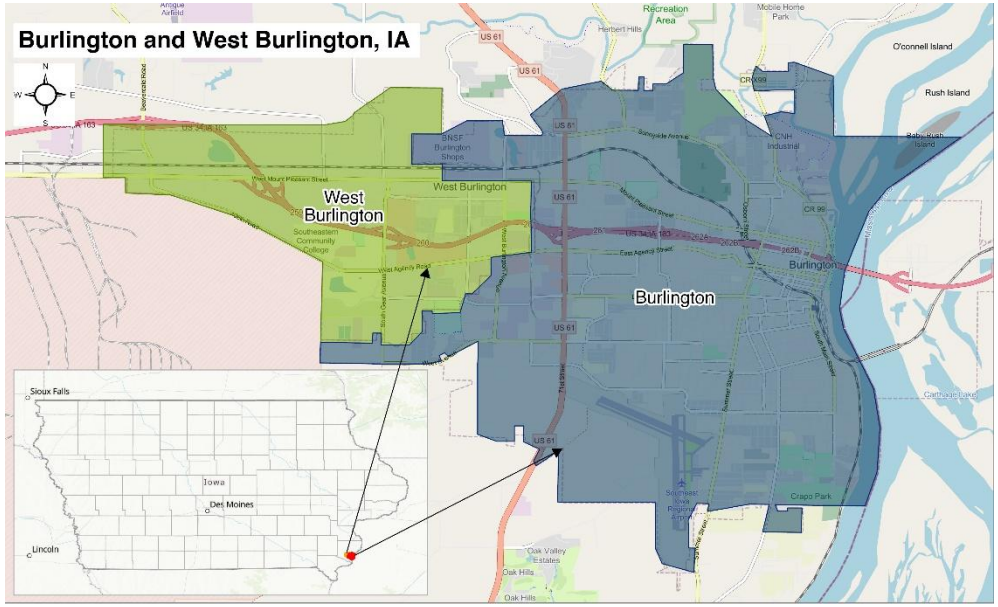


Spatial Analysis in Transportation Planning

Burlington and West Burlington Transportation Opportunity Plan

All maps are created by Sanzida Rahman Setu

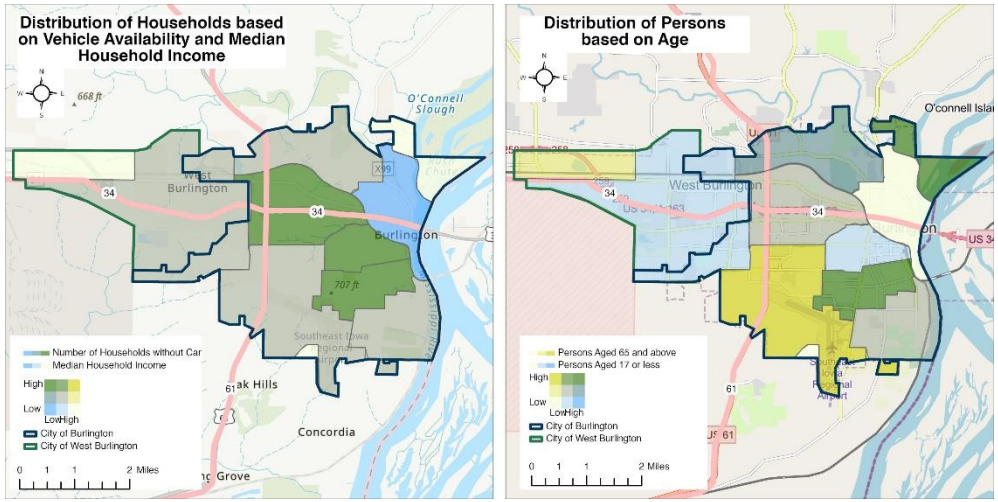
The Burlington and West Burlington Transportation Opportunity Plan is a recent planning effort to improve transportation network for both cities, carried out through the Iowa Initiative for Sustainable Communities at the University of Iowa. Through site visits, public engagement, focus groups, and research, the planning team identified a need to enhance transportation equity and promote land use patterns that support multi-modal transportation. The plan aims to improve active transportation, support transit networks and promote flexibility in land use regulations to boost connectivity. It includes clear recommendations regarding costs, timelines, and success measures, prioritized with community input.

Building on Past Efforts



The plan was built on the past planning initiatives carried out by the twin cities to improve their transportation network. The TOP seeks to complement the past planning efforts like the recent reconstruction of Jefferson Street, Main Street and Riverfront area in Downtown with a vision to promote transportation alternatives such as walking, biking and transit and implement complete street policies.

Identification of Specific Groups with Transportation Needs

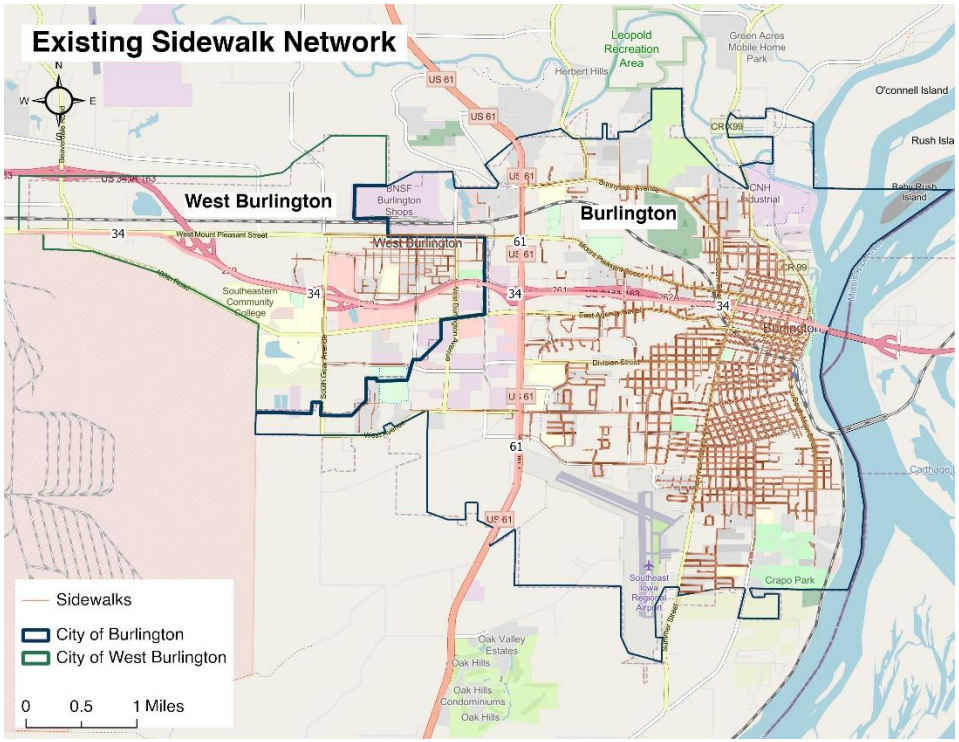


A key part of understanding the community needs was to observe the spatial distribution of people based on various socio-economic factors. As different demographics factors influence people's travel behavior (Minj & Mishra, 2019), transportation equity also gets significantly impacted by these characteristics. For this Plan, three major socio-economic characteristics: age, annual household income and vehicle availability per household in Burlington and West Burlington were considered in identifying areas where the marginalized communities are living, who are in need of transportation alternatives.

Transportation Barriers

With socioeconomic and demographic analysis, the planning team identified major transportation barriers that limit safe and efficient travel, especially for walkers, bikers, and transit users. Through community feedback and data analysis, the team emphasized three key areas to address: pedestrian infrastructure, land use and connectivity, and transit accessibility.

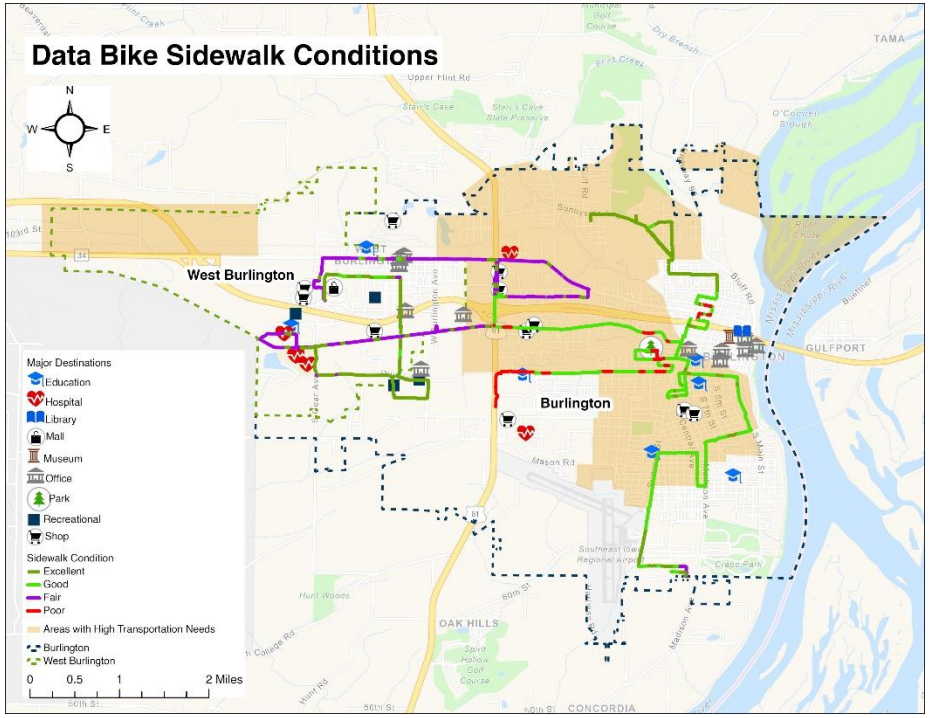
Pedestrian Infrastructure Barriers



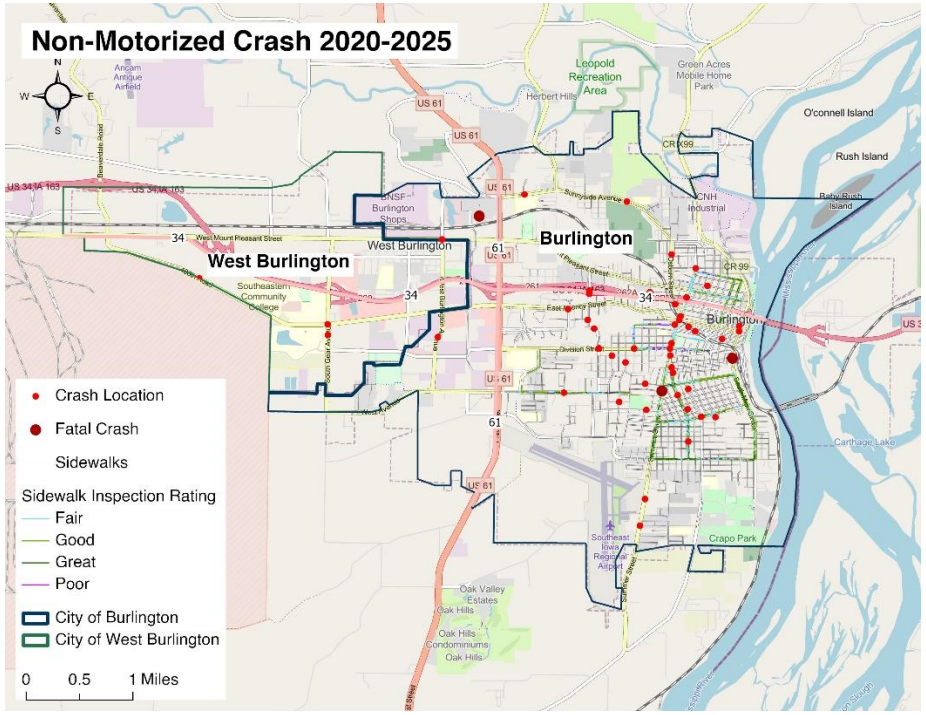
As of 2021, Burlington has 168.9 miles of sidewalks and 9.3 miles of trails but needs 192 more miles for full sidewalk coverage. West Burlington has 22.13 miles of sidewalks (2024), with some new trails near key institutions, though they remain disconnected from the broader network. Physical barriers like US Highway 34 and land use separation limit walkability.

Data Bike Analysis

To assess the existing sidewalk conditions in depth, the planning team conducted a data bike analysis – a planning tool used by the Des Moines County MPO that collects the roughness and pavement conditions of sidewalks. A sidewalk analysis found West Burlington had better conditions than Burlington, with 52% rated 'excellent' and none in 'poor' condition. In contrast, 12% of Burlington sidewalks were 'poor,' often due to lack of maintenance by property owners. Community feedback supports the need for sidewalk upgrades in Burlington and better connectivity in West Burlington.

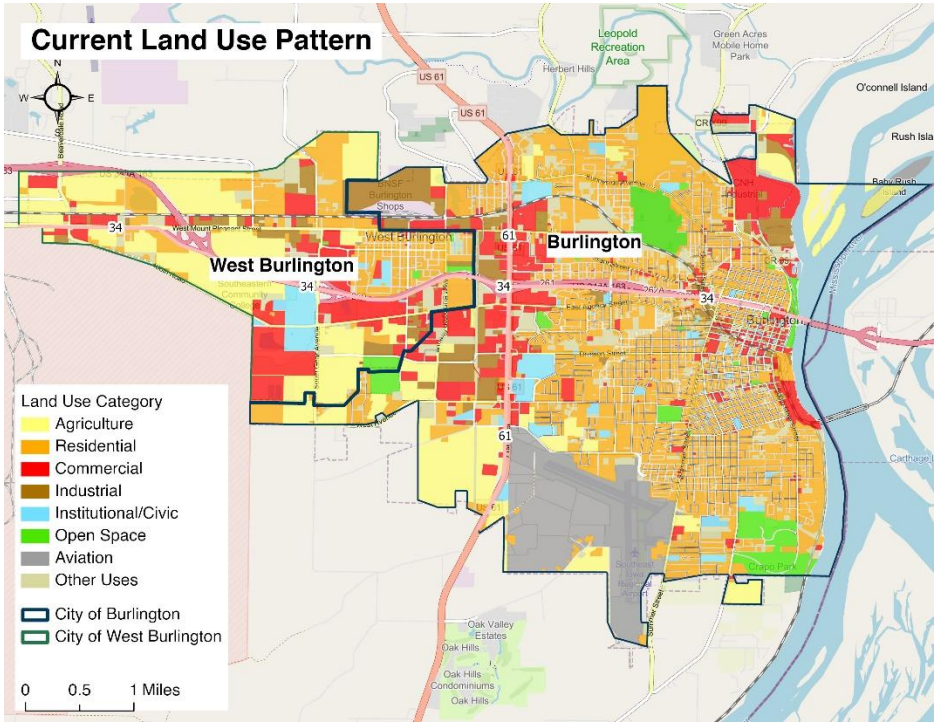


Pedestrian Safety Barrier



From 2020–2025, 53 crashes involving pedestrians or cyclists were reported in Burlington and West Burlington, mostly near intersections and concentrated in downtown and south/west Burlington. These high-crash areas should be prioritized for safety improvements.

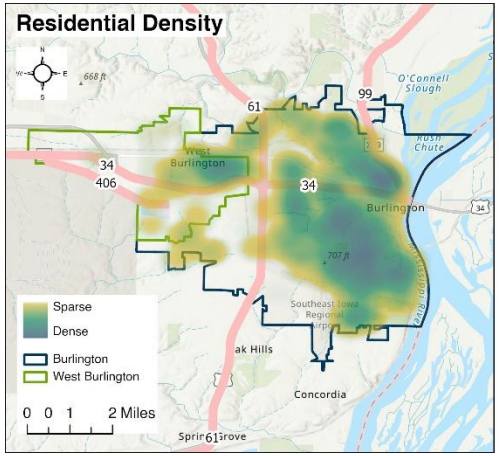
Existing Land Use Barrier

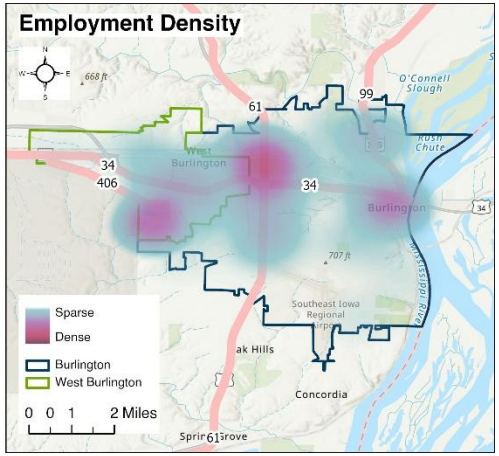


Burlington and West Burlington have mostly single-use zones, with residential areas separated from commercial centers, except in downtown Burlington. This separation makes access difficult for those without a car.

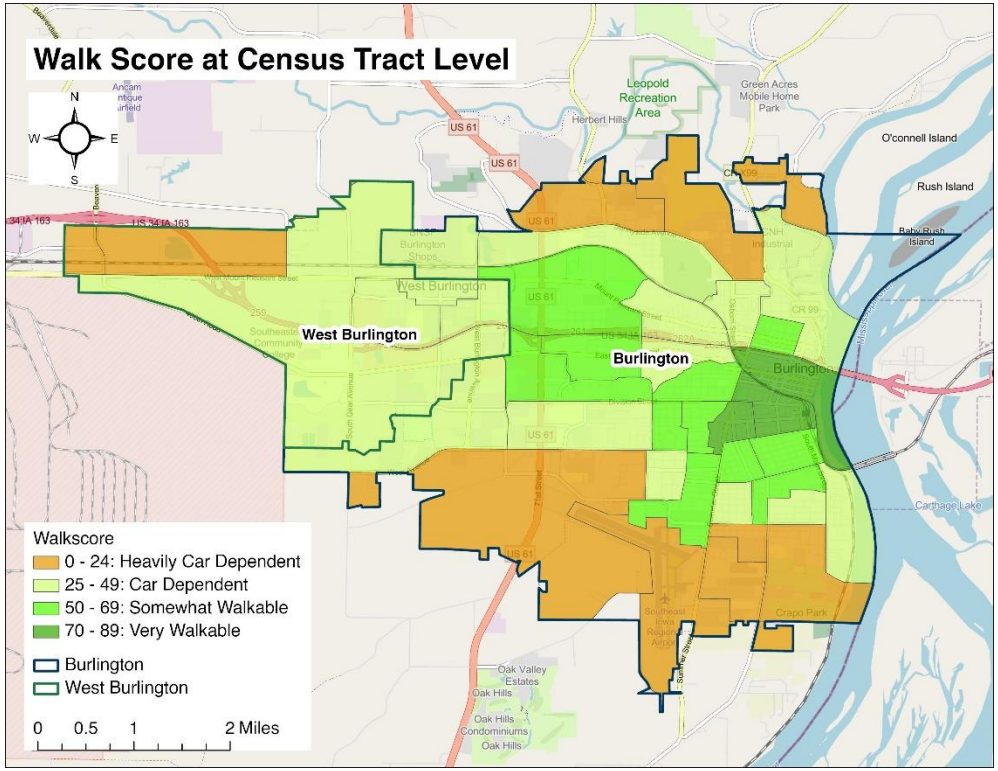
Housing vs Job Density

Burlington and West Burlington use zoning that separates land uses, limiting mixed-use development. This reduces walkability and transit use and increases commute distances, especially for those without cars. Mapping shows little overlap between residential and job centers, highlighting the need for better land use integration.



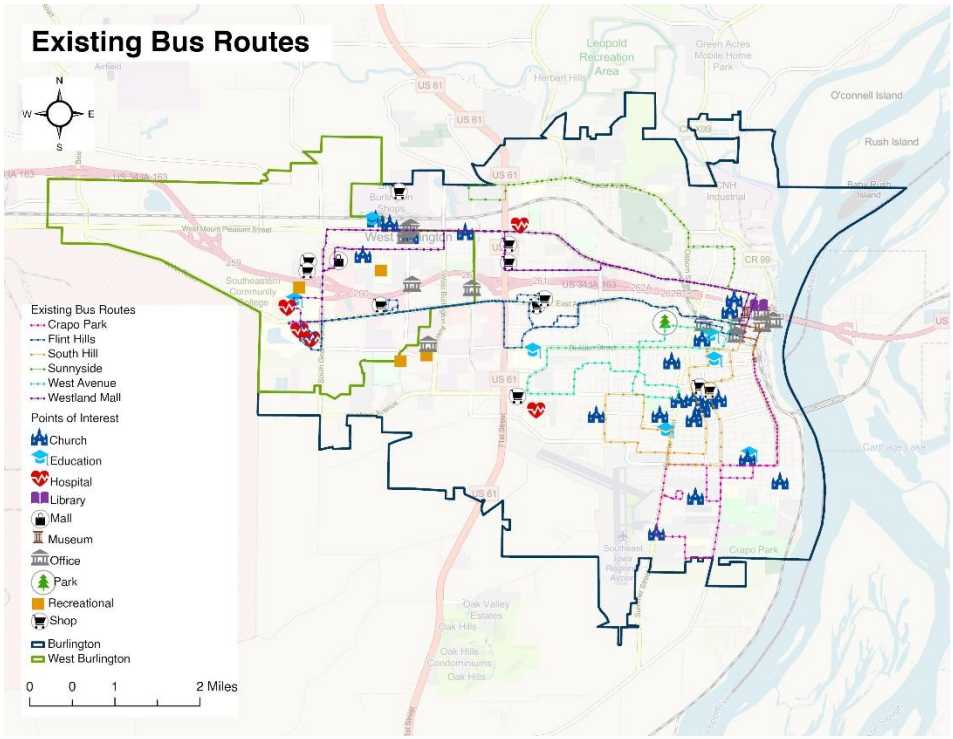


Walkability Analysis



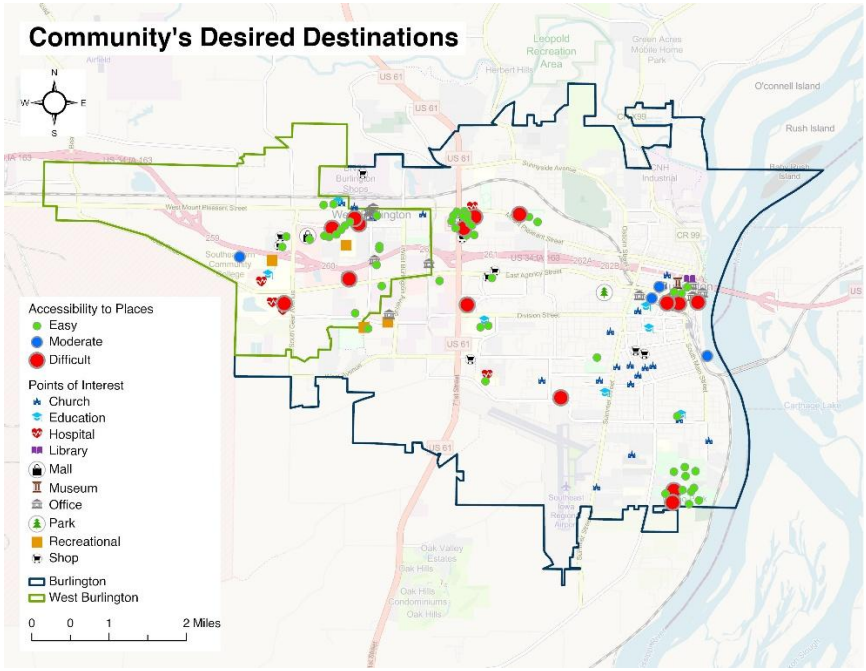
Walk Score data shows downtown Burlington is the most walkable area, while outer neighborhoods and all of West Burlington are car dependent. This reflects how separated land uses reduce walkability.

Transit Barrier

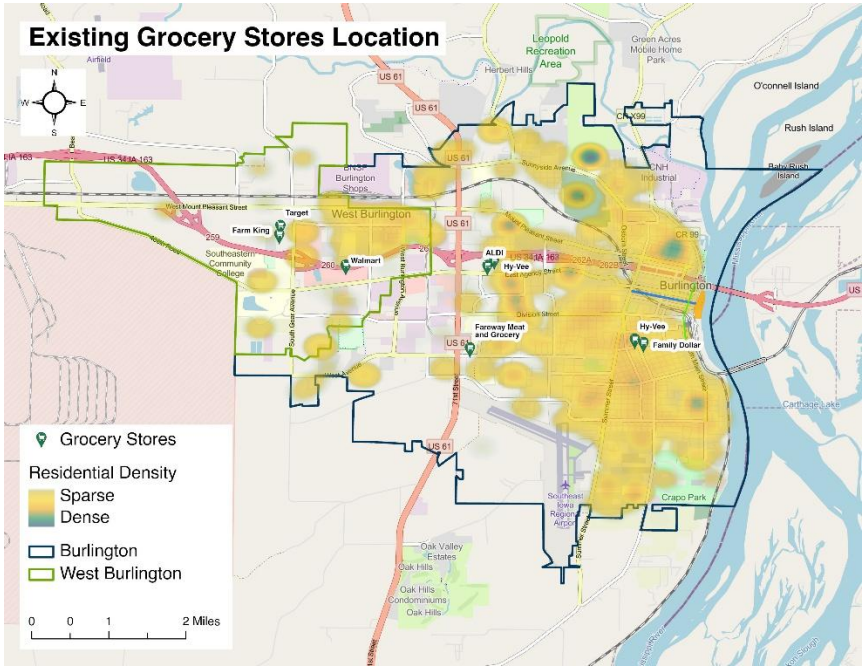


The Burlington Urban Service (BUS) system covers most of Burlington and West Burlington, with flexible routing and no fixed stops. While this increases coverage, it creates unpredictable wait times, making the service less reliable for riders

Community Feedback



At community events, participants of all ages completed a mapping activity and free-response questions. They marked frequently visited places and rated how easy or hard they were to reach using color-coded dots.



Residents want easier access to key destinations, but most popular places are not within walking distance. Focus groups revealed interest in small neighborhood stores, especially grocery options, to improve local access. However, current zoning restricts commercial services in residential areas.

Beyond the spatial analysis, a SWOT, transit data analysis and stakeholder analysis were done to guide TOP's implementation by assessing community trends and key groups to involve, supporting the plan's overall goals.

Way Forward

Based on these analyses, the team developed recommendations to support transportation equity and provide mode choices for all residents. These include improving pedestrian infrastructure, establishing a reliable fixed-route transit system, and relaxing land use regulations to encourage repurposing infrastructure, promote density, mixed-use development, and form-based codes—ultimately fostering a more sustainable transportation system.

Data

- The City of Burlington
- National Historical Geographic Information System: IPUMS NHGIS
- Iowa Department of Transportation
- Iowa Crash Analysis Tool (ICAT), IowaDOT
- UrbanFootprint: The Resilient Decision Intelligence Platform
- U.S. Census Bureau – On The Map
- Walkscore.com