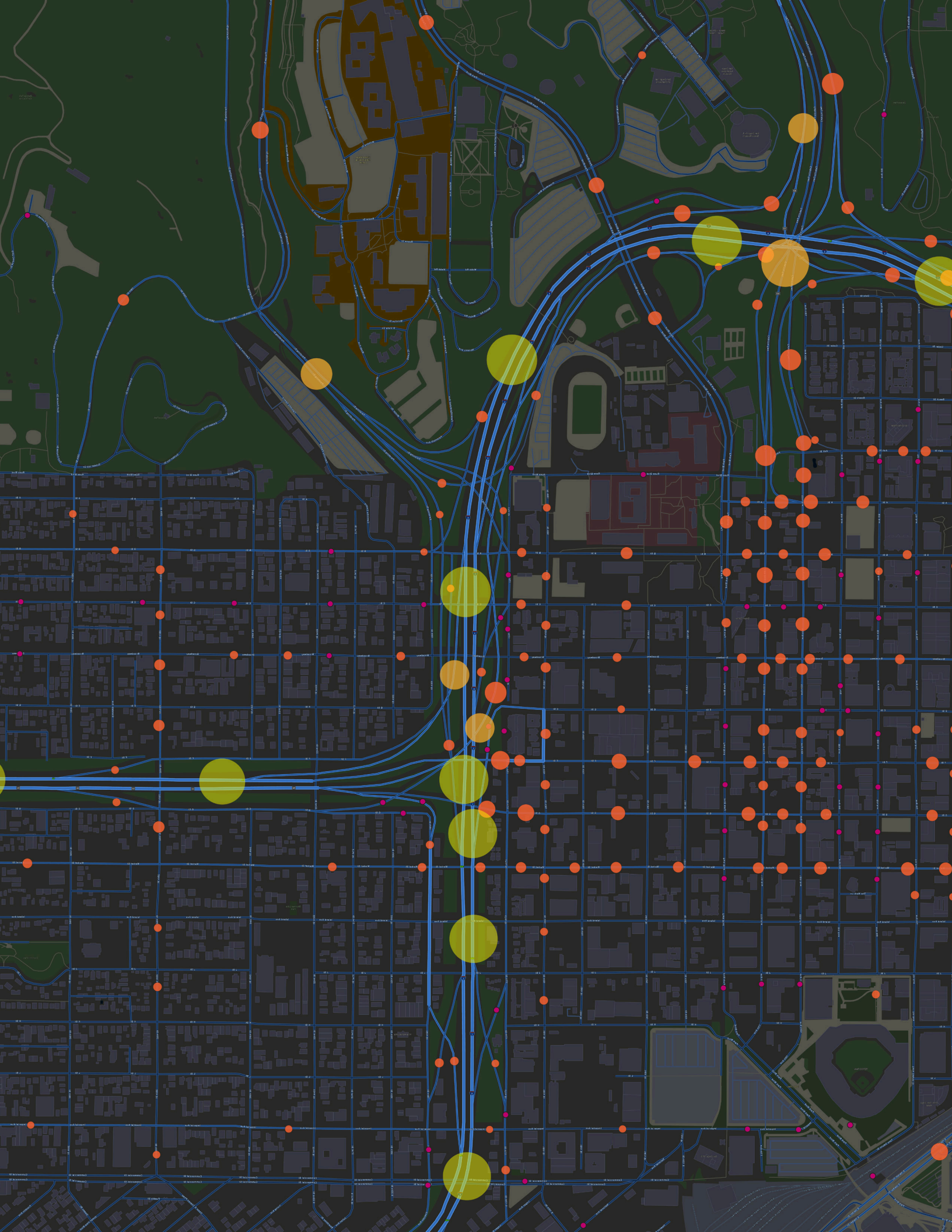


# USING GIS TO DESIGN WALKABLE COMMUNITIES











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The concept of a walkable community is not new. America's early neighborhoods were designed strictly for that purpose out of necessity. But the exponential growth of automobile use over the last 100 years moved walkable communities to a lower priority in many neighborhood designs.

Today, walkable communities are making a strong comeback with public demand and innovative approaches by planners. Since geography is at the core of nearly every facet of planning, geographic information system (GIS) technology has a natural role in the design, development, and analysis of walkable communities.



## What Makes a **Community Walkable**?

Every community will have variations in its response to this question, but here are **Five core components** of a **walkable community**:







# 1 Economic Mobility

An automobile is not needed for every trip. Residents should have easy access to parks, services, grocery stores, schools, health care, jobs, and so forth. A holistic approach to planning walkable communities means actively engaging with economic development organizations (EDOs) and the business community to encourage business retention and growth in these neighborhoods.





## 2 Safety

Residents of all ages should feel safe from automobile traffic. Feeling safe encourages more outside activity, which, in turn, improves overall health. It also increases sociability, creating a collaborative, closely-knit neighborhood.





### 3 People First, Vehicles Second

Pedestrians and bicyclists should be a priority when designing a walkable neighborhood. Well-designed walkable communities mean that access to services, jobs, transit and more are attainable within reasonable walking or biking distance. Motorized vehicle access does not have to necessarily be removed, but it does need to be relegated in priority to achieve this goal.





## 4 Transportation Accessibility

Easy access to transit by pedestrians and cyclists should be a priority when designing a walkable neighborhood. Creating a walkable neighborhood minimizes the necessity for automobiles.





## 5 Street Design

New developments and streets (both existing and new) should be designed to accommodate pedestrians comfortably and safely, including creating safer crossings.





The benefits of walkable communities are numerous and interconnected. Ensuring pedestrians and cyclists' safety encourages more outdoor activity. This is the key component of any Vision Zero initiative. This increased activity can lead to a healthier population. The decrease in automobile dependence provides two key benefits: environmental and economic. Fewer automobiles on the road mean lower emissions. Residents that live in walkable communities no longer bear the financial burden of purchasing, leasing, or maintaining an automobile. This promotes economic mobility within the community.





## Walkable Communities Start with Geography

Planning requires understanding location—from understanding the impact of physical, cultural, and economic geography to embracing geodesign in developing neighborhoods that support civic inclusion to gathering resident

feedback and making feasible changes. ArcGIS® software provides the tools to effectively design sustainable walkable communities in a way that benefits all residents.





## ArcGIS Empowers Planners to Address Essential Initiatives.

### 1. Understand Neighborhood Characteristics to Create Sustainable Policies

Gaining insight and understanding into a neighborhood's demographic and socioeconomic characteristics is an integral first step in the planning process. ArcGIS Business Analyst™ software helps you make smarter planning, site selection, and customer segmentation decisions by combining

demographic; lifestyle; behavioral; and spending data, maps, and reports with location-driven analytics. ArcGIS Living Atlas of the World is a collection of curated maps, apps, and data layers to support sustainable policy development.



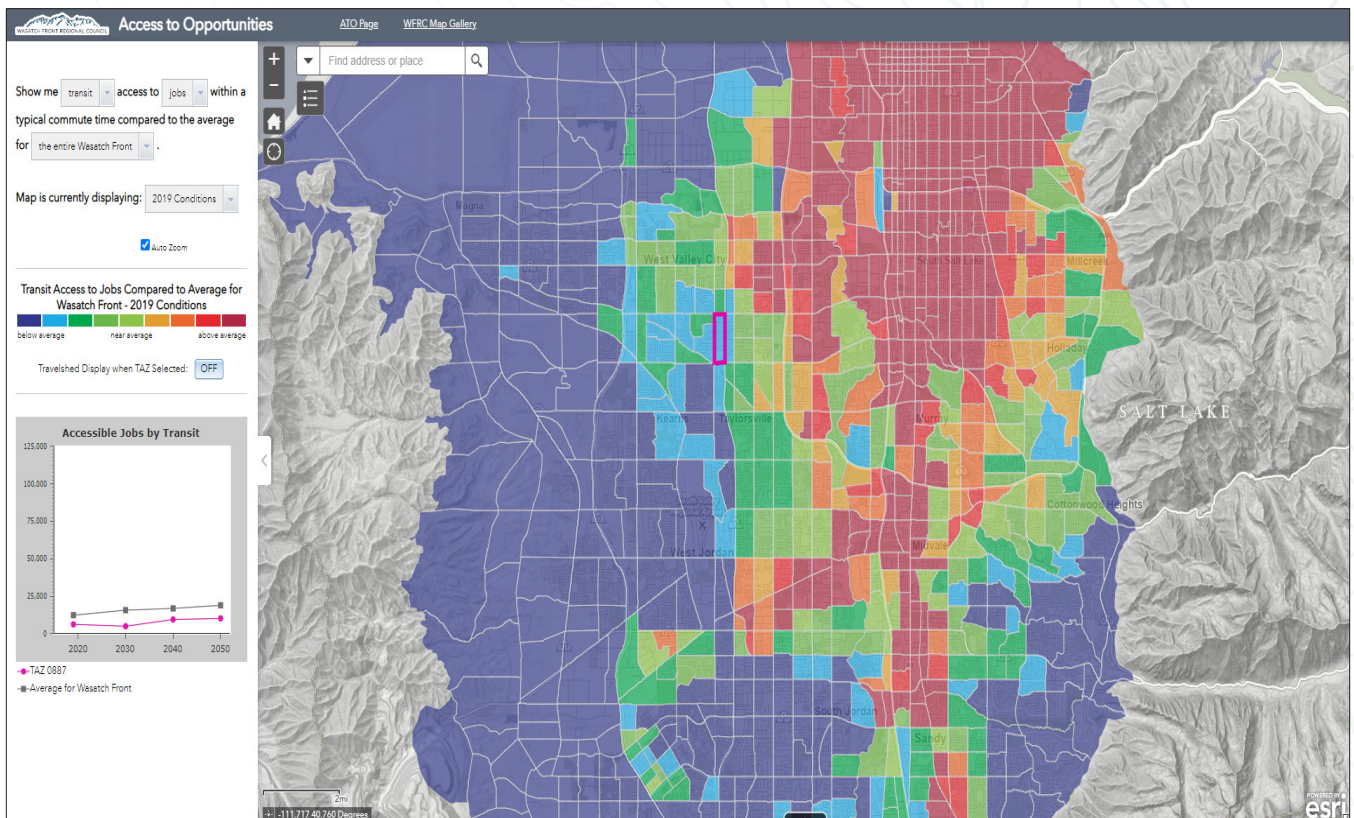


## *2. Design Pedestrian-Friendly Land-Use Scenarios*

Creating the ideal walkable community likely won't happen on the first iteration. Planners need to be able to quickly generate multiple land-use scenarios and measure the impacts of proposed changes. ArcGIS Urban makes creating, editing, and managing land-use and zoning plans simple with an interactive 3D environment built with planners in mind. Evaluating the impact of zoning

and land-use changes in a study area is key to saving time and money while balancing precious resources. Through detailed indicators and analytics, ArcGIS Urban also enables the creation of on-the-fly scenarios to help visualize the areas that would be impacted by proposed urban developments.





### 3. Manage Access to Transit

Mitigating the need for automobiles often requires walkable access to transit. Ensuring this access is the key to a successful walkable neighborhood design and likely requires work with outside agencies. The Transit Outreach solution, one of over 150 free ArcGIS Solutions

configurations, delivers a set of capabilities that help you solicit feedback from riders, manage the transit agency's response, share information about upcoming service changes, and allow the public to provide feedback on proposed changes.



## Safety Campaigns



### Aggressive Driving

Aggressive driving involves speeding, careless, or negligent behavior.

[Explore](#)



### Impaired Driving

Refers to a driver under the influence of alcohol, drugs, or both.

[Explore](#)



### Occupant Protection

One of the safest choices drivers and passengers can make is to buckle up every trip, every time.

[Explore](#)



### Pedestrian Safety

Everyone is a pedestrian. Be aware of traffic safety laws.

[Explore](#)



### Bicycle Safety

Bicyclists and motorists must share the road, whether or not bike lanes are provided. Be aware of traffic safety laws.

[Explore](#)

## 4. Coordinate between Departments and Organizations and Support Civic Inclusion

Planners cannot design walkable communities in a vacuum and must actively solicit engagement from the public, supporting agencies, administrators, and other stakeholders. Simply relying on in-person meetings limits resident participation. Planners must use a modern,

inclusive approach to engagement. ArcGIS Hub<sup>SM</sup> software as a service (SaaS) is an engagement platform that rallies communities around issues and initiatives, applying data to create a more efficient, livable, sustainable, and smart community.





### *5. Implement a Successful Project Quickly*

Esri Professional Services works with you using a consultative approach to understand the needs of your design. Planners can team up with subject

matter experts, access cutting-edge technology, and realize value sooner for their walkable community project.



## Case Study

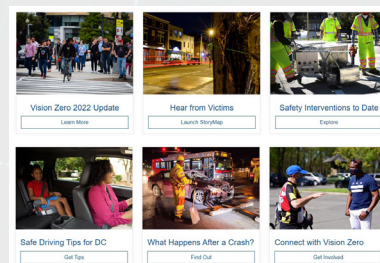
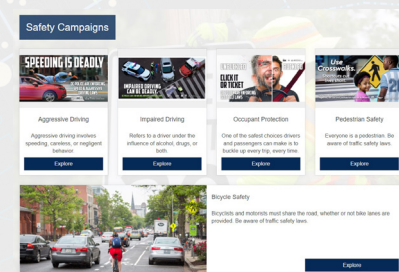
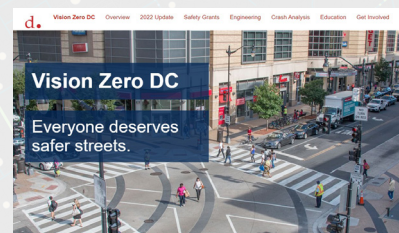
# Designing Safer Streets with GIS in the District of Columbia

District of Columbia Mayor Muriel Bowser launched Vision Zero in 2015 to inspire and transform DC's roadway safety efforts. The city set its sights on a goal of zero fatalities or serious injuries on district streets through more effective use of data, education, enforcement, and engineering. This strategy is supplemented by prioritizing policies and projects that provide the greatest benefits to neighborhoods with streets that have seen historic disinvestment and high numbers of vulnerable populations. As part of the Vision Zero program, the District Department of Transportation (DDOT) has shifted to designing streets that are safe for everyone, working closely with community members to identify problems and build solutions.

Mayor Bowser's Vision Zero initiative started as an all-hands-on-deck approach to traffic safety. DDOT's Vision Zero 2022 Update involves collaboration among 30 district agencies, with 5 key agencies deeply involved and the Metropolitan Police Department serving an integral role. It also outlines the adoption of the national Safe System model. The Safe System approach focuses on five key elements: Safer People, Safer Roads, Safer Vehicles, Safer Speeds, and Post-Crash Care. The district's renewed approach to achieving Vision Zero comes with a newly launched Vision Zero website, built using ArcGIS Hub technology, in collaboration with Esri partner

SymGEO, a Maryland-based GIS company specializing in ArcGIS Hub, ArcGIS Online, and state and local government solutions. The new site, found at <https://visionzero.dc.gov/>, provides a consolidated home for information on current and upcoming traffic safety projects, as well as dashboards and map features for interactive user experiences. The website also serves as a robust educational tool for promoting safe traveling behaviors.

"The new Vision Zero DC website will help us work closely with community members to identify problems and build solutions," said DDOT Vision Zero director Linda Bailey.





## Walkable Communities Special Offer

The following Esri offer provides the software and services a planning agency needs to design, analyze, and implement a walkable communities strategy. This provides a guideline, and the quantities of software will vary based on the size of the organization.

### *Proposed Offer*

- Software

- ArcGIS Online with 3 Creator and 5 Viewer user types
- ArcGIS Urban suite (includes ArcGIS CityEngine® app)—3 licenses
- ArcGIS Hub Premium
- ArcGIS InsightsSM app—1 license
- ArcGIS Business AnalystSM Web App—2 licenses
- ArcGIS Pro—3 licenses
- ArcGIS Solutions
  - \* Land-Use Outreach
  - \* Vision Zero Suite (Vision Zero Hub Site; Vision Zero Pledge; and Transportation Hazard Reporter, Manager, and Dashboard)
  - \* Performance Management Dashboards

- Services

Esri or Esri's urban specialty partners will design, configure, and enable a suite of geospatial solutions to support your organization's walkable communities project.

The effort will need to be estimated by working with the jurisdictions, but it usually consists of the following activities:

- Project kickoff and needs assessment
- Existing zoning and building form evaluation (3D basemap)
- Public outreach hub deployment (ArcGIS Hub)
- Zoning reform model deployment (ArcGIS Urban)
- Realistic 3D building form visualization (CityEngine)
- Knowledge transfer workshops

Please contact [planningteam@esri.com](mailto:planningteam@esri.com) for more information.





Esri, the global market leader in geographic information system (GIS) software, location intelligence, and mapping, helps customers unlock the full potential of data to improve operational and business results.

Founded in 1969 in Redlands, California, USA, Esri software is deployed in hundreds of thousands of organizations globally, including Fortune 500 companies, government agencies, nonprofit institutions, and universities.

Esri has regional offices, international distributors, and partners providing local support in over 100 countries on six continents. With its pioneering commitment to geospatial technology and analytics, Esri engineers the most innovative solutions that leverage a geographic approach to solving some of the world's most complex problems by placing them in the crucial context of location.

Visit us at [esri.com](https://esri.com).



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