2018 Purdue Road School:

Analyzing Walkability

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What does it mean to be walkable, and how do you measure or evaluate it?
PART 1: INTRODUCTION
Introduction

What can the Appalachian Trail teach us about walkability?
Overview

- 2,191 miles long
- 14 States
How Walkable is the Appalachian Trail?
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Why Hike the AT?

The Appalachian Trail is far from accessible or convenient. So, why do so many hike it every year?
Why Hike the AT?

- Interesting and Attractive Places
Why Hike the AT?

- People and Community
Why Hike the AT?

- Health and Fitness
People hike the AT for the same reasons they take walks in local communities:

- Interesting and attractive places
Introduction

People hike the AT for the same reasons they take walks in local communities:

- People and Community
Introduction

People hike the AT for the same reasons they take walks in local communities:

- **Health and Fitness**
Walkability is More Than “Easy to Walk”

- If walkability was only about accessibility, the Appalachian Trail would not be considered walkable. Yet, so many people walk it that it must be considered very walkable.

- This principle applies to other places. When you visit cities lauded for walkability, you will find very popular areas that don’t come close to being accessible. Yet, they attract large numbers of people.

- Let’s explore walkability in more places and see if we can better define these complexities.
PART 2: HOW WALKABLE ARE THEY?
Monon Trail
New Curb Ramp
Bad Curb Ramp
Martinsville
West Lafayette
Savannah
Charleston
Charleston
Charleston
Seabrook Island
What is Walkability?

Characteristics of walkability:

- Connects people and places
- Substitutes trips you would take with a car
- Activates communities
- Characterizes a healthy lifestyle
- Provides a view to the world
- Makes pedestrians a priority
- Improves social equity
Walkability

Another way to define walkability:

- Does it compel one to walk?
PART 3: DESIGNING FOR WALKABILITY
How do I Design for Walkability?

What does this mean to an engineer designing walks or trails?

- Yes, walkability includes accessibility
- But, the goal is never to have infrastructure or just to design to minimum standards - the goal of infrastructure should be community development
- Every sidewalk, trail or downtown district should be part of meeting that goal
Elements of Walkability

- Width
- Setback From Roadways
- Surface Condition
- Accessibility
Elements of Walkability – Mixed Use Districts

- Separation of use areas

Frontage Zone  Pedestrian Zone  Amenity/Greenspace Zone
Elements of Walkability

Context is everything

- Traffic volume
- Traffic speeds
- Enforcement
- Congestion
- Time of day
- Network connectivity
- Destinations nearby
- Intersection traffic control
- Shade
Designing for Walkability

- FHWA allows context sensitive solutions
PART 4: EVALUATING WALKABILITY
Walk Score

Strategy 1: Walk Score

- www.walkscore.com
- Analyzes walkability based on multiple factors
  - Population density
  - Block length
  - Intersection density
  - Distance to services/amenities

Best for:

- Real estate
- Quick snapshot
- Analysis that considers services/amenities
Evaluating Walkability

Why evaluate walkability?

- Identify issues limiting walkability
- Quantify walkability of an area or route
- Compare relative walkability of different areas or routes
- Understand how distance and other factors influence walkability
- Benchmark status/progress
- Understand how development patterns influence walkability
Walk Score

135 North Pennsylvania Street
Downtown, Indianapolis, 46204
Commute to Downtown Indianapolis

- Car: 1 min
- Bus: 4 min
- Bike: 1 min
- Walk: 3 min

Looking for a home for sale in Indianapolis?

**Walker’s Paradise**
Daily errands do not require a car.

**Good Transit**
Many nearby public transportation options.

**Biker’s Paradise**
Flat as a pancake, excellent bike lanes.
101 North Grant Street
West Lafayette, Indiana, 47907

Commute to Downtown West Lafayette
🚗 2 min  🚌 12 min  🚴 4 min  ⚒️ 15 min  View Routes

**Walk Score**

Somewhat Walkable
Some errands can be accomplished on foot.

**Transit Score**

Good Transit
Many nearby public transportation options.
Route Analysis

Strategy 2: Route Analysis

- Used for analysis of individual routes
- Several measuring tools available – but there is not a universally accepted standard
- Can be used in conjunction with system-wide evaluations
## Route Analysis - CDC Walkability Audit Tool

<table>
<thead>
<tr>
<th>Category</th>
<th>Rating (1 = low, 5 = best)</th>
<th>Priority (multiplier)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pedestrian Facilities</td>
<td>None = 1; Good Walks = 5</td>
<td>High (x3)</td>
</tr>
<tr>
<td>Pedestrian Conflicts (Drives)</td>
<td>Many =1; Few/None = 5</td>
<td>High (x3)</td>
</tr>
<tr>
<td>Crosswalks at Major Intersections</td>
<td>None = 1; None or Clearly Marked = 5</td>
<td>High (x3)</td>
</tr>
<tr>
<td>Maintenance (Condition)</td>
<td>Poor = 1; Good = 5</td>
<td>Medium (x2)</td>
</tr>
<tr>
<td>Path Size</td>
<td>No path = 1; Wide and Barrier Free = 5</td>
<td>Medium (x2)</td>
</tr>
<tr>
<td>Buffer</td>
<td>None = 1; Not by Road = 5</td>
<td>Medium (x2)</td>
</tr>
<tr>
<td>Universal Accessibility</td>
<td>Impassible = 1; Accessible = 5</td>
<td>Medium (x2)</td>
</tr>
<tr>
<td>Aesthetics</td>
<td>Uninviting = 1; Pleasant = 5</td>
<td>Medium (x2)</td>
</tr>
<tr>
<td>Shade</td>
<td>None = 1; Full Shade = 5</td>
<td>Low (x1)</td>
</tr>
</tbody>
</table>
Route Analysis - CDC Walkability Audit Tool

Results:
- <39 High Risk and Unattractive
- 40-69 Medium Risk and Average (non-descript)
- 70+ Low Risk and Pleasant

Best For:
- Specific route analysis
- System analysis
- Areas where services are provided, but infrastructure is lacking
Strategy 3: Walking Workshops

- Gather a group of concerned citizens to walk and assess an area
- Can be formal or informal
- Can be self-guided or led by a professional

Best for:

- Good for identifying issues
- Good for rallying support around issues
- Good for prioritizing needs
- Good for evaluations related to particular needs
  - Wheelchair access
  - School zones

*This is a great place to start with analyzing walkability*
Mapping

Strategy 3: Mapping Assessments

- Distance assessments
- Gap analysis
- Safe Routes to Schools (also parks or transit)

Good for:

- Connectivity analysis
- Proximity studies
Mapping

Distance Assessments

- ½ mile – 10-15 min walk
- Identifies walkable areas of a community related to parks, schools or services
- This map identifies current/future park needs
Mapping

Distance Assessments

- 1/4 mile – 5-10 min walk
- This map identifies the relationship between neighborhoods and downtown services within a very short walking distance
Mapping

Distance Assessments

- GIS will automate distance analysis along roadways/sidewalks for community evaluations of walking distance
GIS Inventories

Strategy 4: GIS Inventories

Inventories Provide Detail for Walkability Assessments

- Inventory can guide action plans for improvements
- Inventory can identify general issues for planning purposes.
GIS Inventories

Inventories can include condition ratings
GIS Inventories

Inventories can include identification of spot issues and defects
GIS Inventories

Inventories can include accessibility analysis for curb ramps
GIS Inventories

Inventories can provide data for planning purposes

Figure 11. Curb Ramp ADA Compliance
GIS Inventories

GIS Inventories are best for:

- Detailed assessments
- Identifying priorities
- Benchmarking status/progress
- Establishing action plans
Strategy 5: Network Ratings

- The data you collect in an inventory (Strategy 4) is the same information you need for a Route Analysis (Strategy 2).
- With an inventory complete, you can also provide a rating for various routes in the community.
Evaluating Walkability

Walkability Rating Map

Best for:
- Identify areas of emphasis for improvements
Strategy 6: 5D Approach

Urban planning studies often refer to the 5D’s of compact development:

- Density
- Diversity
- Design
- Destinations
- Distance

These measures can be used with GIS data to measure walkability.
5D Approach

Density – The number of dwellings or jobs per acre
5D Approach

**Diversity** – Mix of land uses in an area
5D Approach

**Design** – Measure of the built environment that considers sidewalk availability, average block size and street density
5D Approach

**Destinations** – Proximity to area activity centers
5D Approach

Distance – Distance to transit stations and services
5D Approach

Net Results
Best for:

- Detailed analysis
- Modeling inputs
- Walkability issues when strongly influenced by development patterns (more than connectivity/condition)
Summary

- Walkability can be defined as “Does it compel one to walk?”
- Characteristics of a compelling walk include accessibility, but also include:
  - Interesting views/places
  - People/community
  - Fitness
- Designing for walkability requires you to carefully study the context.
- Strategies for measuring and analyzing walkability can include:
  - Walk Score (for spot assessments)
  - Walking workshops (for identifying general issues and opportunities)
  - Mapping assessments (for proximity issues)
  - GIS inventories (for condition and connectivity assessments)
  - 5D’s (for pattern of development assessments)
Questions?

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