

Bicycle Infrastructure Design

2nd of 2 presentations about Bike Infrastructure

Last Month:

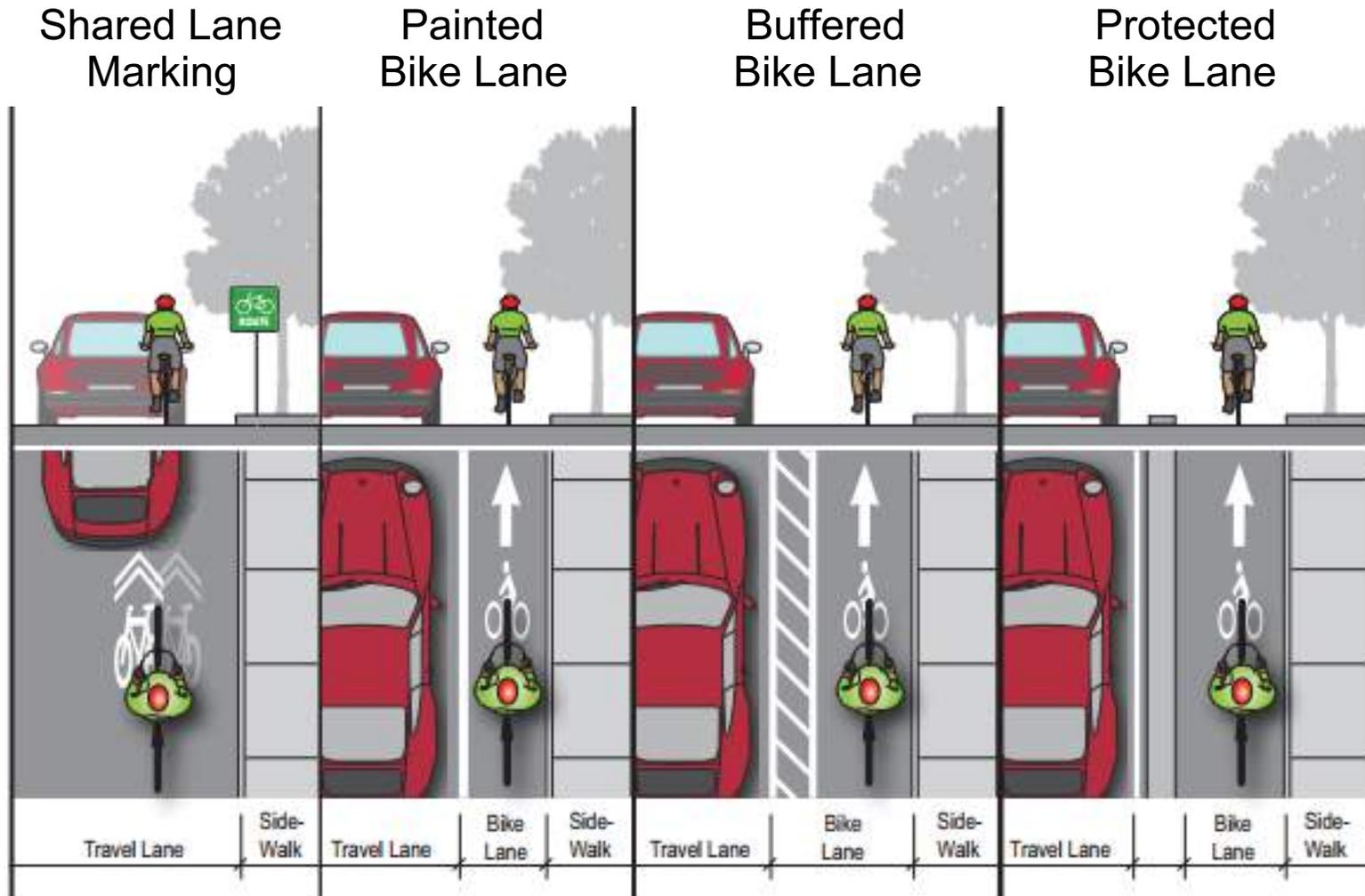
A Picture of Transportation and
Infrastructure in Druid Hills

This Month:

A Look at Cycling and Infrastructure Design

April 2018

Gradations of Bicycle Infrastructure



least protected



most protected

Gradations of Bicycle Infrastructure

Shared Lane Marking – “sharrow”

In GA, bicycles are allowed in all lanes on all roads* unless specifically marked, “motor vehicles only.”

- Roads with “sharrows” are not different from other roads except for marking.
- These offer no protection for cyclists.
- “Sharrows” may alert drivers to presence of bicycles.
- “Sharrows” may give drivers false impression bicycles are allowed only on certain roads or lanes.



Gradations of Bicycle Infrastructure

Painted Bike Lane

Painted bike lanes designate space within a roadway for bicycles.

Painted bike lanes do not separate bicycles from traffic.



Buffered Bike Lane

Buffered bike lanes allow additional designated space for bicycles and improve safety.

Buffered bike lanes do not separate bicycles from traffic.



Gradations of Bicycle Infrastructure



Protected Bike Lane / Cycle-track

Separates bicycles from traffic using curbs, bollards, greenspace, etc.

Offers protection for cyclists.

Can be one-way or two-way.

Gradations of Bicycle Infrastructure

Multi-use Trails / Paths

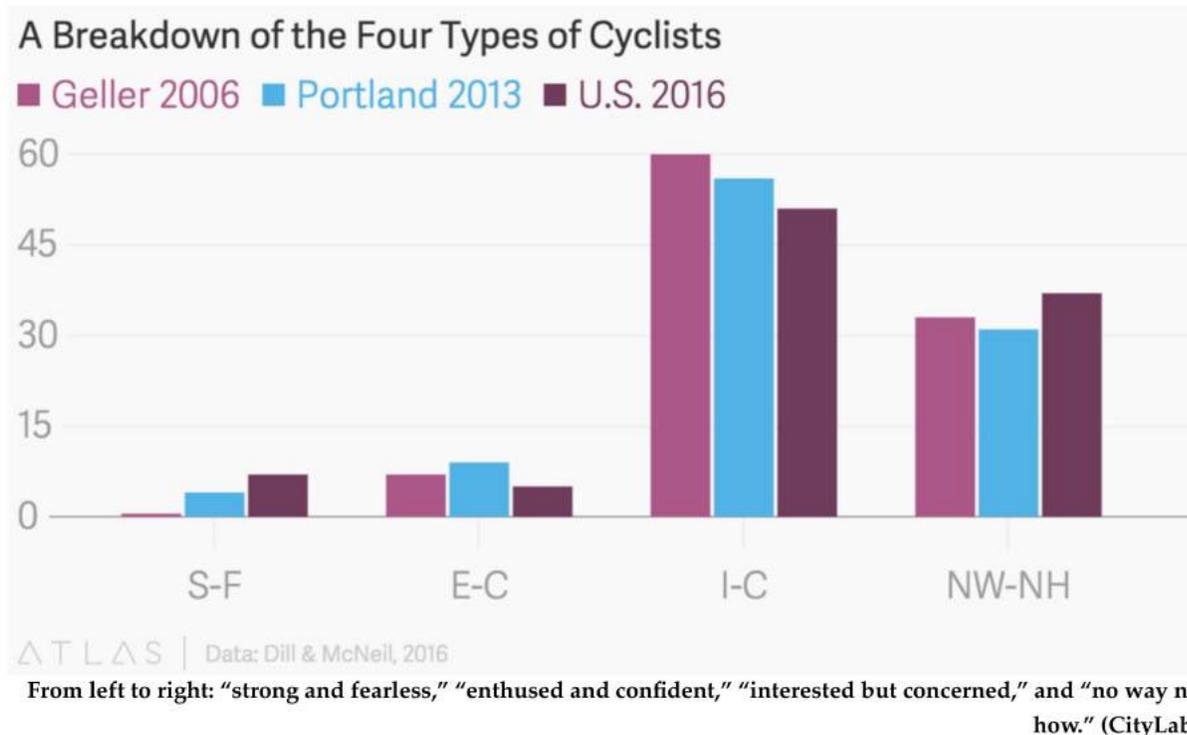
Typically separated from traffic by greenspace or sometimes curbs.

Typically two-way.

Does not separate cyclists and pedestrians.



U.S. Population as Cyclist



Population can be divided into four cycling groups:

1. Strong and Fearless
2. Enthused and Confident
3. Interested but Concerned
4. No Way - No How

Groups 1&2 are the folks riding on roads.

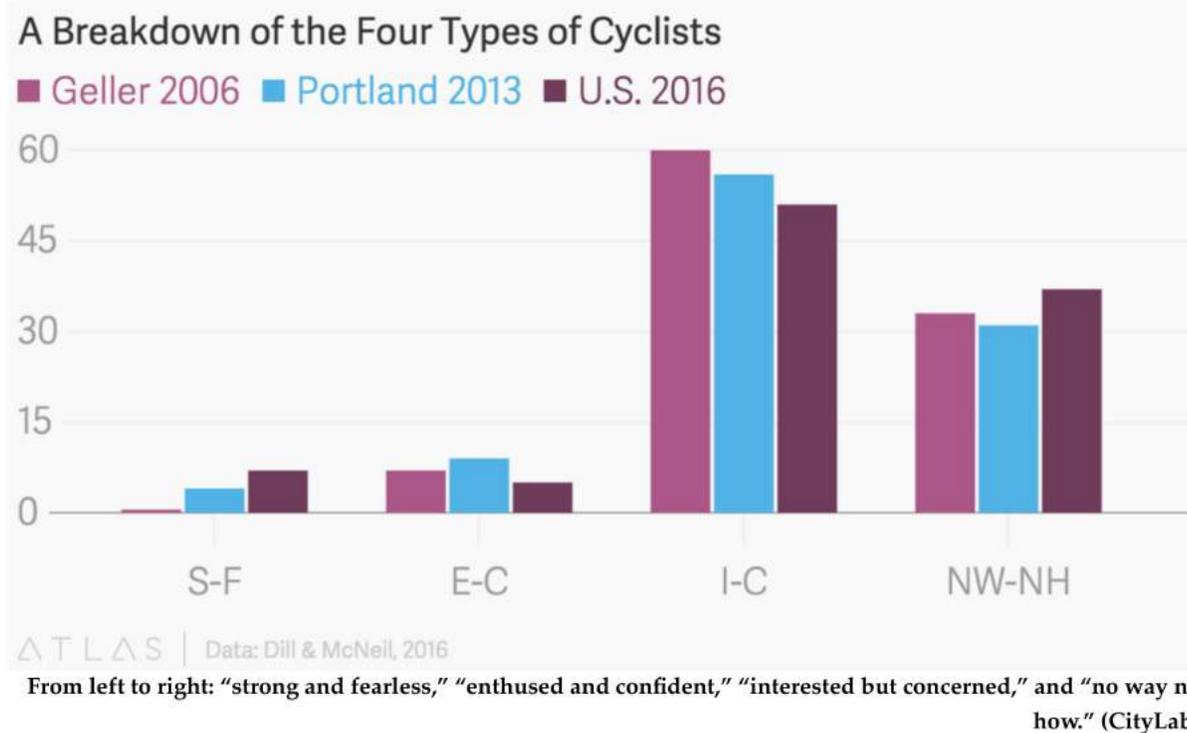
- Roughly 10% of the population
- Roughly 25% women*

Group 3 would like to ride, but only under safe conditions.

- Roughly 55% of the population
- Group 3 consists largely of women, families, children.

*League of American Bicyclists, Report of Current Data 2013

Bicycle Infrastructure Goals



Goals of improved bicycle infrastructure:

- Provide group 3 "interested but concerned" safe, attractive options for cycling.
- Provide safer cycling conditions for those currently riding on roads.

Bicycle Infrastructure Effectiveness

What infrastructure are “interested but concerned” cyclists likely to use?

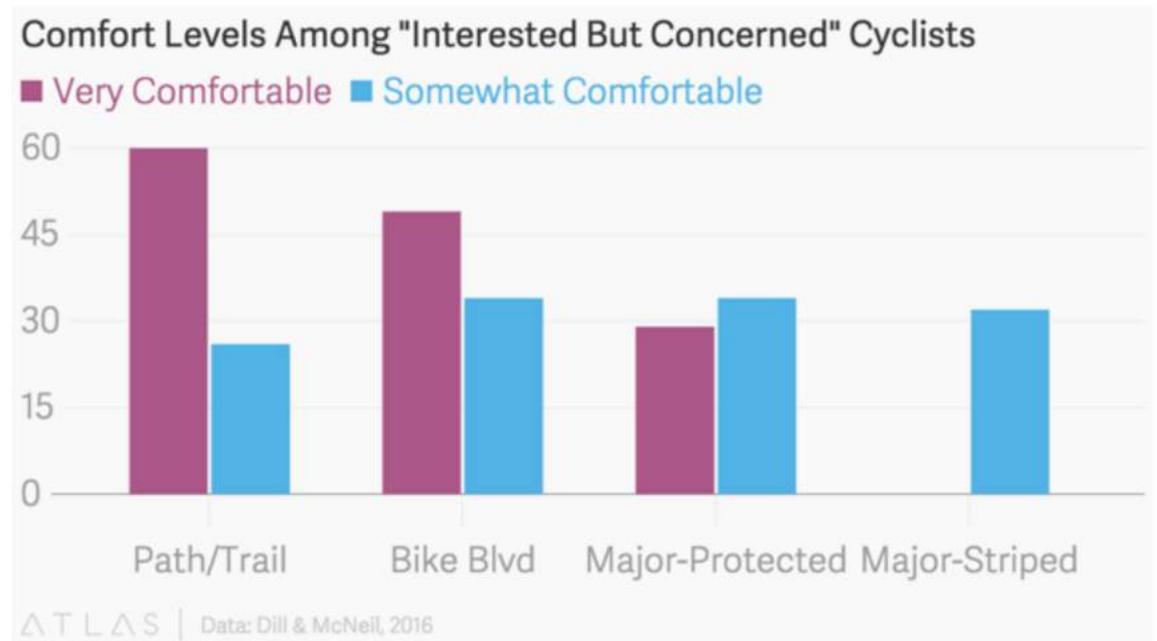
- Trails
- Protected 2-way Bike Lanes
- Protected Bike Lanes

Minneapolis has made significant improvements in protected bike infrastructure:

- Women constitute 37% of cyclists, well above 25% national average*

Amsterdam:

- Women constitute 55% of cyclists**



*www.southwestjournal.com/focus/2012/06/spokes-soles-as-infrastructure-improves-more-twin-cities-women-bike/

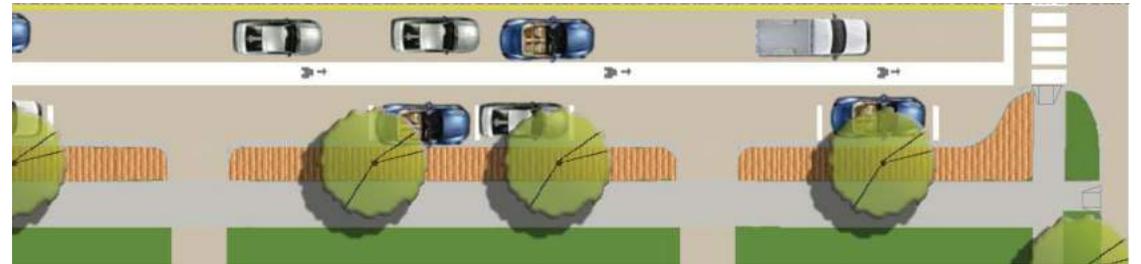
**League of American Bicyclists, Report of Current Data 2013

Infrastructure Design

How is transportation infrastructure designed?

Design guidelines and policies adopted by
GA DoT, City of Atlanta, City of Decatur, and DeKalb County:

- AASHTO Guidelines
- NACTO Guidelines
- Vision Zero Policies*
- Complete Streets Policies

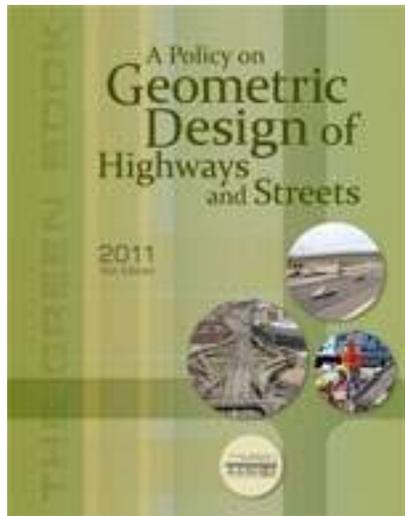


Infrastructure Design Guidelines

AASHTO

American Association of State Highway and Transportation Officials

AASHTO “Green Book”



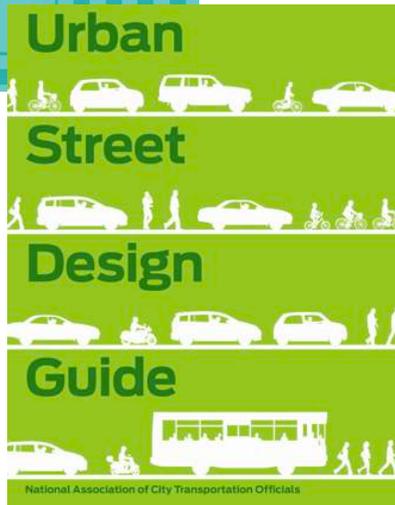
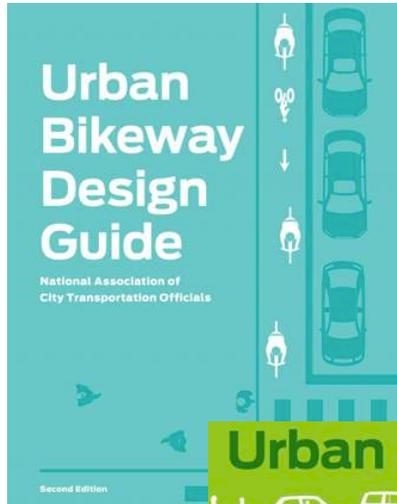
- \$6000.
- 4” thick.
- This has been the standard for design of highways & streets for automobiles and trucks for decades.
- Contains very few guidelines for bicycle infrastructure design.

Bicycle Infrastructure Design Guidelines

NACTO

National Association of City Transportation Officials

NACTO Urban Design Guides



- 4 inexpensive books.
- Free on-line design guidelines.
- Developed to fill in the missing gaps for planning and design of bicycle and transit infrastructure.
- These guides are changing the face of U.S. cities.

NACTO - Bike Lane Design Guideline Examples

Two examples/exerpts of bike lane design guidelines from the NACTO guides:

“The desirable bike lane width adjacent to a curbface is 6 feet. The desirable rideable surface adjacent to a street edge or longitudinal joint is 4 feet, with a minimum width of 3 feet...”



“When placed adjacent to a parking lane, the desirable reach from the curb face to the edge of the bike lane (including the parking lane, bike lane, and optional buffer between them) is 14.5 feet; the absolute minimum reach is 12 feet. A bike lane next to a parking lane shall be at least 5 feet wide, unless there is a marked buffer between them...”

Infrastructure Design Policies

Vision Zero

“Vision Zero is a strategy to eliminate all traffic fatalities and severe injuries, while increasing safe, healthy, equitable mobility for all.”

- First implemented in Sweden in the 1990s, Vision Zero has proved successful across Europe.
- Has been adopted by several major U.S. cities, including Atlanta, Decatur, & GA DoT.
- Acknowledges many factors contribute to safe mobility – including roadway design, speeds, behaviors, technology, and policies.
- Sets clear goals to achieve shared goal of zero fatalities and severe injuries.

Infrastructure Design Policies

Complete Streets



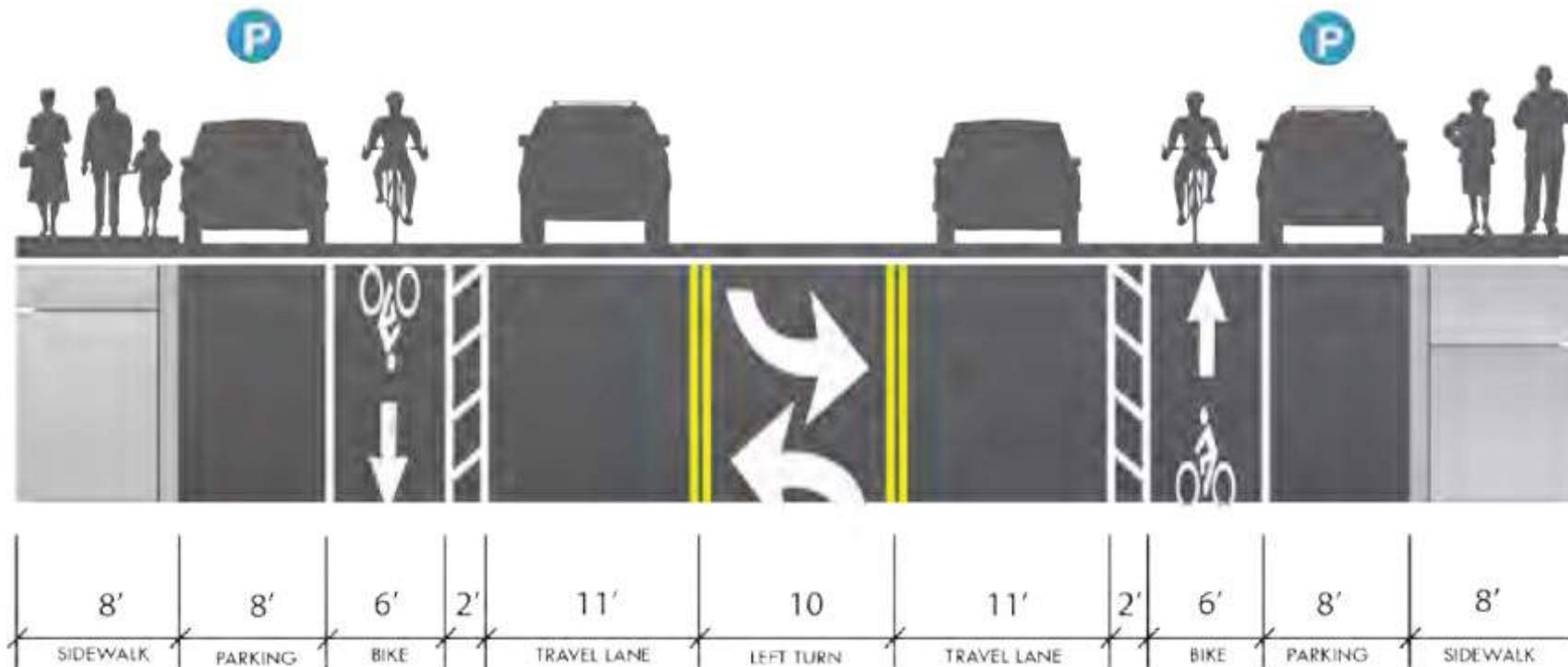
Policy to design all streets for all modes of transportation:

- Automobile
- Mass Transit
- Bicycle
- Pedestrian

Complete Streets

Complete streets designs are more conceptual than defined.

This example shows a street which includes: sidewalks, parking, buffered bike lanes, & wide traffic lanes to accommodate mass transit vehicles.



- Complete streets designs are limited by width of available right-of-way (ROW).

- The more width, the more can be accommodated.

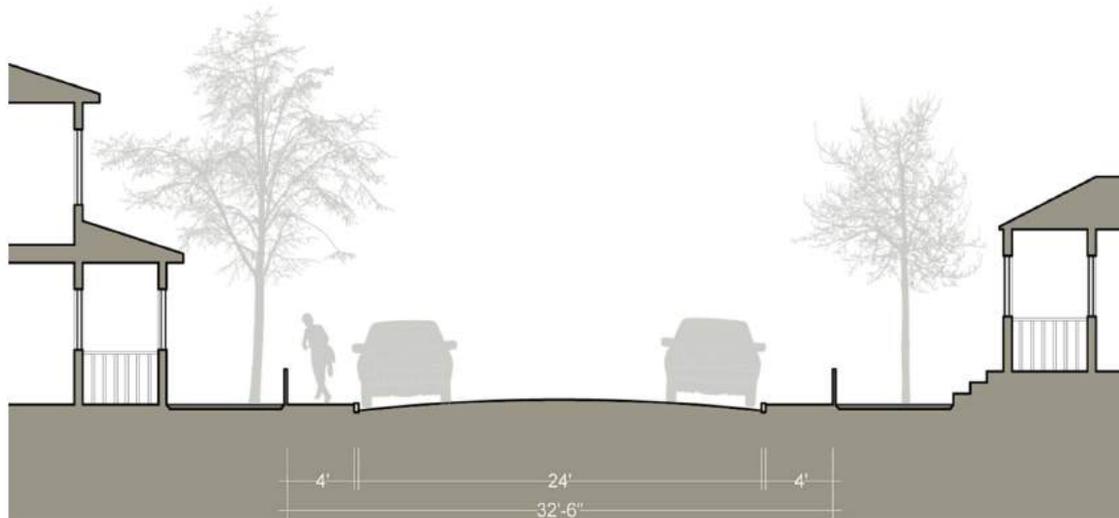
- the less width, the fewer the options.

Street Design

Street design is determined by road and ROW width

Most residential streets in Druid Hills have road widths varying from 24' to 32'.

Most ROWs in Druid Hills vary from 32' to 40'.



24' wide road (shown) is considered a “yield” street, as there is not enough room for two-way traffic with parking on both sides.

- Difficult to add striped or protected bicycle infrastructure to a 24' road.

30' wide road allows parking on both sides and two way traffic.

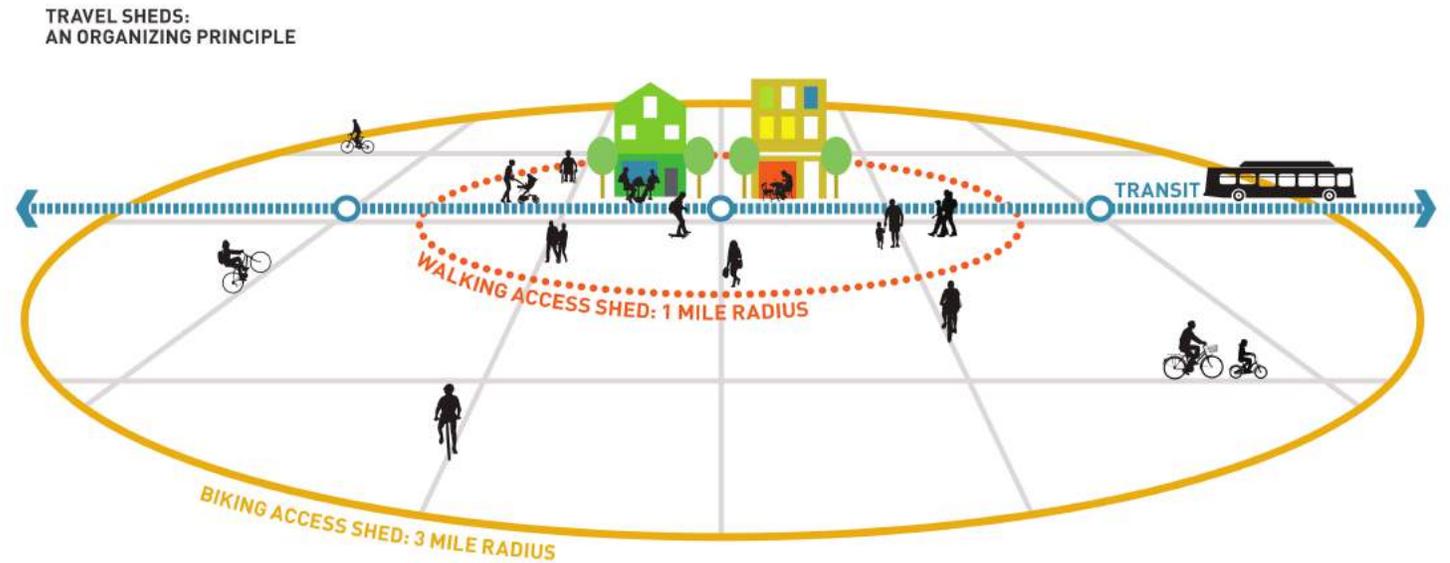
- Our 32' roads allow faster movement.
- These streets are wide enough to consider bicycle infrastructure improvements.
- Potential benefit of traffic-slowing.

Urban Design – Travel Sheds

Travel Sheds

Recap:

- Pedestrians will walk up to 1 mile to reach a destination
- Cyclists will ride up to 3 miles to reach a destination



If any given urban area with a 1-mile radius is well planned, then walking and cycling may be viable options for travel within the area and throughout the city.

Urban Design

Travel Sheds and Grids

For well planned transportation throughout a city, imagine the city as a collection of loosely overlapping travel sheds like the one shown here.

- Each having 1-mile radius.
- Each containing mass transit, trails, parks & points of interest.
- Each accessible by walking using a safe network of sidewalks.
- Each accessible by cycling using a grid of safe bikeways.

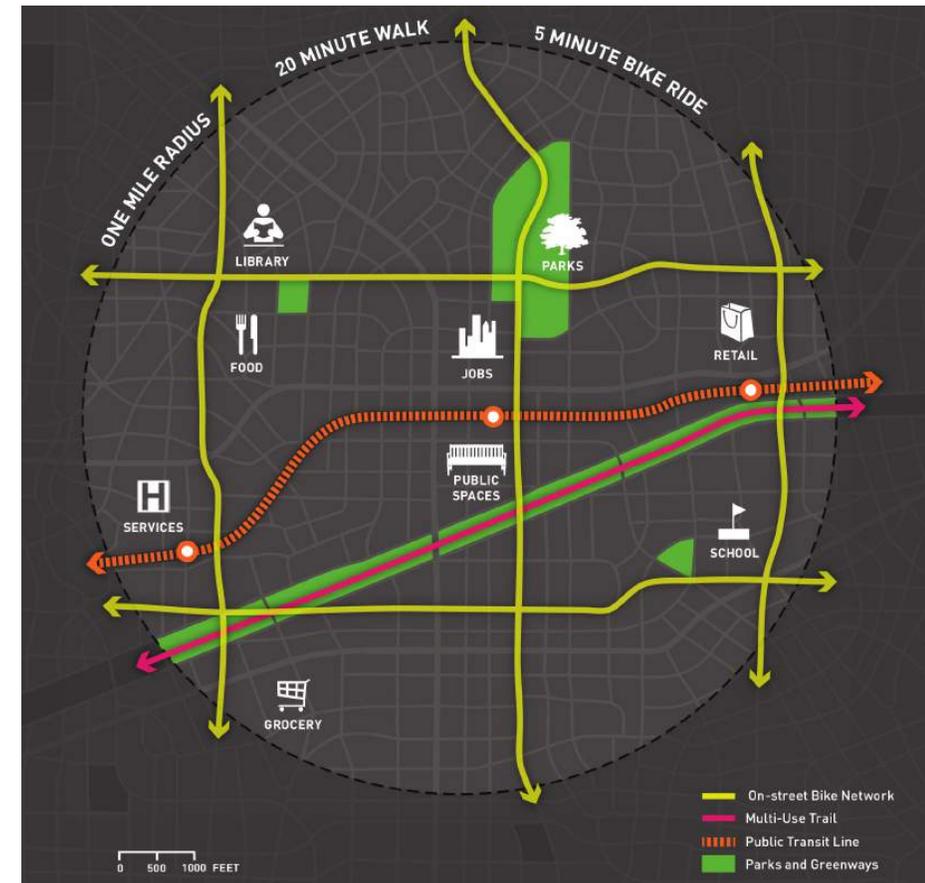


Travel Sheds and Grids



This brings us back to our Druid Hills map, shown next to the 1-mile radius map for scale and reference.

Now shown with existing transit, bike infrastructure, parks & points of interest.



Questions for Druid Hills residents to consider:

- What transportation options do we, collectively, want for Druid Hills?
- Is this sort of design something we want?
- If so, how might we achieve this within the context of our historic neighborhood?