



# Biking Stress Levels: Bike Route 50

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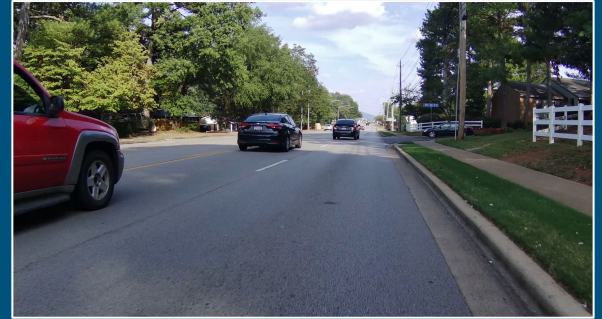
October 23rd, 2023: BASC Monthly Meeting  
Vivian Terry



# Overview

- The [Huntsville Bike Map classification](#) of cyclist stress level is inconsistent with more established measures of cyclist stress levels
- These existing classifications may lead to
  - Misleading cyclists about the expected stress on a cycling route ([2023 City Blog: New to Huntsville?](#))
  - City planners and traffic engineers not employing best practices in cycle route design ([2023 Oakwood Ave. Bike Lane](#))
- In this briefing, I
  - Describe established measures of cyclist stress levels
  - Contrast these measures with the existing Huntsville Bike Map classification
  - Provide anecdotal evidence of the stress on certain Huntsville Bike Routes

[Orange Texts are Hyperlinks](#)



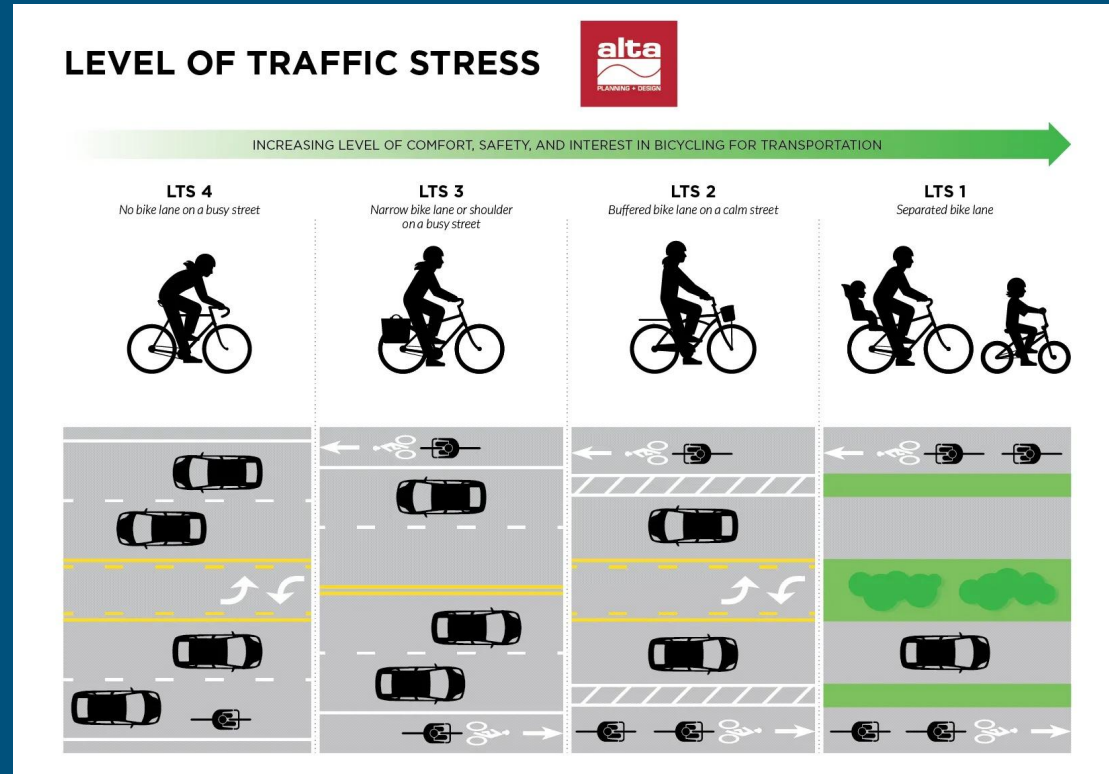
Point of View in front of cyclist biking on the road on Old Madison Pike



Picture from the Point of View behind cyclist on the road. Also seen is a cyclist [sidewalk cycling](#) crossing a driveway

# What is meant by Level of Traffic Stress?

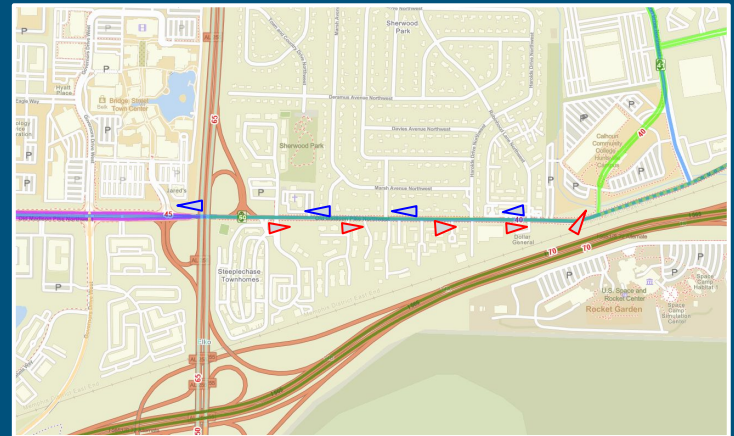
- Level of Traffic Stress (LTS) is a measure of the perceived stress a cyclist feels while cycling, based on
  - Roadway design
  - Traffic volume
  - Motor vehicle speeds
- Originally developed by the [Mineta Transportation Institute at San Jose State University](#), the LTS concept has been utilized by several municipalities to characterize their cycling infrastructure
- Although there can be minor differences in the definitions of the levels of LTS, this image depicts roadway design features typical of most LTS classifications
- Research shows that most adults would be comfortable cycling in LTS 1 or LTS 2 conditions, with only about 1% of adults comfortable cycling in LTS 4 conditions



Example LTS graphic created for public consumption for [project in Bend, OR](#).

# Bike Route 50 (Old Madison Pike)

LTS 4 “High Stress”  
Speed Limit: 40 mph  
4-5 thru-lanes  
Bike Route Sign  
No dedicated Bike infrastructure



# Example 1: Huntsville Bike Route 50

Research Park Blvd to Wynn Drive

Hover over and click images to access videos

- This section of Bicycle Route 50 is classified at “Moderate Stress” on [Huntsville Bike Route Map](#)
- According to the Mineta LTS classification, this section would be categorized as LTS 4, the most stressful level, suitable for ~1% of the population
- These two videos exemplify typical cycling experiences on this route
- The “moderate stress” level does not seem appropriate for these conditions.



Bike Route 50, evening rush hour, making a left turn



Bike Route 50, evening rush hour, bike road hazard and approaching at a risky intersection (Old Madison Pike/Research Park Blvd off-ramp)

# Example 2: Getting Passed by Motorists

Research Park Blvd (the Bridgestreet) to Wynn Drive

- Video shows three different events where it can be felt that motorists passed too closely
- According to the Mineta LTS classification, this section would be categorized as LTS 4, the most stressful level, suitable for ~1% of the population
- The “moderate stress” level does not seem appropriate for these conditions.

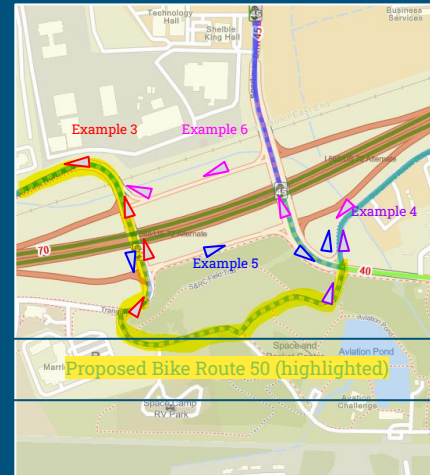
Hover over and click images to access videos



Bike Route 50, evening rush hour, getting passed by motorists in the same travel lane

# Proposed Bike Route 50

LTS 4 “High Stress”  
Speed Limit: 40 mph  
4-5 thru-lanes  
No dedicated Bike infrastructure





# Example 3: Proposed Bike Route 50

Proposed Bike Route 50 (Space and Rocket Center) to Research Park Blvd (the Bridgestreet)

Hover over and click images to access videos

- Video shows how high stress can be felt having to bike on this Proposed Bike Route 50 section
  - Shows getting passed by motorists on the right while needing to change lanes from the left to the right lane, requiring: taking the lane, looking back to make eye contact with drivers, hand signaling, and finally changing lanes
- According to the Mineta LTS classification, this section would be categorized as LTS 4, the most stressful level, suitable for ~1% of the population
- The “moderate stress” level does not seem appropriate for these conditions.



Proposed Bike Route 50, making a left to right lane change on a bike, also seen [sidewalk cyclist](#)



# Example 4: Crossing Bob Wallace

## Proposed Bike Route 50 (Space and Rocket Center) to Governor's House Drive (Cycle Track)

Hover over and click images to access videos

- Video shows how crossing on a bike through Bob Wallace Ave. from Proposed Bike Route 50 to the Cycle Track on Governor's House West is High Stress.
  - Cars never slowed down during this time from both sides requiring to wait for ~5 minutes and in the middle turn lane.
- According to the Mineta LTS classification, this section would be categorized as LTS 4 for Unsignalized intersection, suitable for ~1% of the population
- Members of BASC have proposed bike infrastructure to cross Bob Wallace during the [East Arsenal Connector public session in 2022](#) without any follow-up



Proposed Bike Route 50 to Governor's House Drive, evening rush hour at unsignalized intersection

# Example 5: Attempting a different Route

Proposed Bike Route 50 (Old Madison Pike) through I-565 Interchange (Eastbound) to Governor's House Drive (Cycle Track)

Hover over and click images to access videos

- Video shows how high stress can be felt attempting a different route by bike than the Proposed Bike Route 50
  - This route was chosen in hopes that traffic is slower due to bottleneck and one-way directions at the I-565 interchange.
  - This route requires changing two lanes of traffic on Bob Wallace from right to left with motorists in the same travel lanes causing high stress
- According to the Mineta LTS classification, this section would be categorized as LTS 4, the most stressful level, suitable for ~1% of the population



Attempting a different Route, evening rush hour, requires lane changes on a bike

# Example 6: Attempting a different Route

Governor's House Drive (Cycle Track) through I-565 Interchange Westbound to Proposed Bike Route 50 (Old Madison Pike)

- Video shows how high stress can be felt attempting a different route by bike using the I-565 interchange to get on to Bike Route 50 on Old Madison Pike towards the Bridgestreet
  - This route was chosen to avoid the lane change stress as seen in Example 3. This section still requires changing a lane from left to right.
  - The large width of these travel lanes allows motorists to pass in the same travel lane without slowing down
- According to the Mineta LTS classification, this section would be categorized as LTS 4, the most stressful level, suitable for ~1% of the population

Hover over and click images to access videos




Governor's House Drive to I-565 interchange to Bike Route 50 (Old Madison Pike), weekend afternoon



# Low-stress Bike Paths

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Assessment of lanes that are  
considered as “Low-Stress”



# Example 7: Multi-use Path

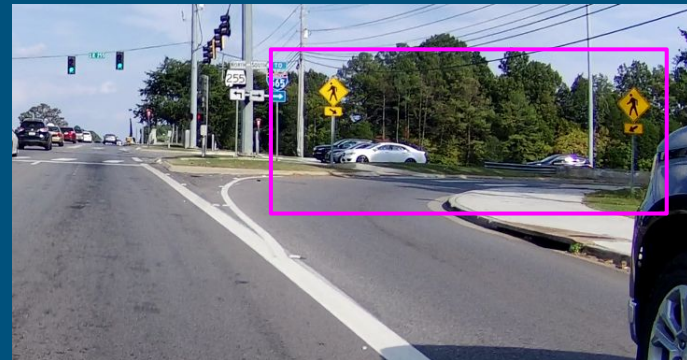
Huntsville Bike Route 50: The Bridgestreet

- “Multi-use Paths” would be categorized as LTS 2, suitable for most cyclists based on [Montgomery County MD Planning Department LTS criteria](#)
- Video highlights sections of the Multi-Use Paths that should be considered LTS 3
  - Crossing at dedicated “Right Turn Slip” lane @0:35 and @1:43
  - Crossing six driveways with cars: @0:15, @0:35, @1:02, @1:39, @2:34, @2:41
  - Potential increase in stress for pedestrians to share the path with cyclists @2:40.
  - Unclear transition into intersections resulting in unpredictable and unsafe biking behaviors: @2:50
- Huntsville “Multi-use Paths” should consider re-evaluating who should use these paths, where these paths are implemented, and adding more pedestrian traffic safety features
  - Consider reducing the amount of driveways that will be crossed
  - Pedestrians should be able to cross through dedicated “Right-Turn Slip” lanes, driveways, and intersections before motorists (having better lighting, HAWK Pedestrian Signals, raised crosswalks, intersection traffic signals allowing peds to cross first etc.)

Hover over and click images to access videos



Bike on Bike Route 50 on Multi-use Path, weekend afternoon in 2022, traveling from the Bridgestreet towards the Space and Rocket Center



2023 there is a crosswalk painted at “Right Turn Slip” lane

# Example 8: Lower Level Stress Roads

Hover over and click images to access videos

- Greenways and Cycle Tracks would be categorized as LTS 1, the least stressful level, suitable for almost all cyclists based on [Montgomery County MD Planning Department LTS criteria](#)
- Some residential roads and parking lots are categorized as LTS 2, suitable for almost all adults

What did these have in common? Environment is designed for slower moving traffic or separated physically from motorists



Biking on [Indian Creek Greenway off of Bike Route 50](#), weekend afternoon



Biking in Mid-City Parking Lot, weekend afternoon



# Closing Remarks

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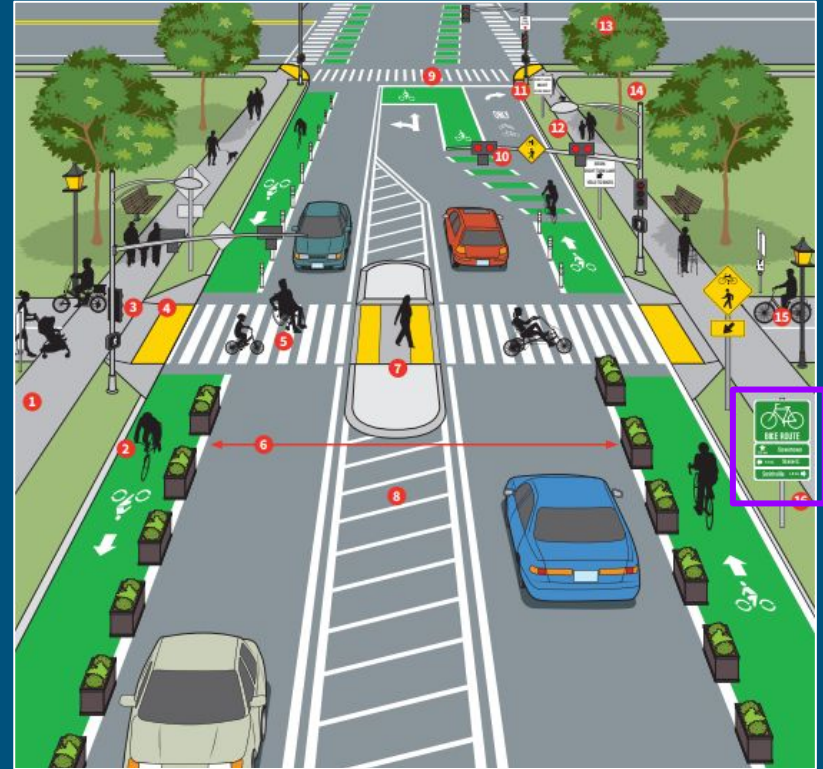
What does it take to lower stresses on  
the road for cyclists?





# Recommendations

- Huntsville ought to research existing LTS methodology ([Montgomery County MD Planning Department](#), [Alta](#), [PeopleforBikes](#)) and work with local cyclists ([BASC](#)) to come up with clear definitions of LTS for Huntsville
- Existing Bike Maps should be revised to have these LTS classifications and be easily understood by utilizing color-codes for each LTS classification ([David's map](#))
- Huntsville ought to strive to redesign current bike routes to a LTS 1, suitable for children and adults



[AARP Bike Audit Tool kit](#) showing how a bike route that would be closer to an LTS 1, narrower roads to slow cars and motorists, cyclists are separated physically from motorists, clearly marked dedicated travel lanes for cyclists and pedestrians