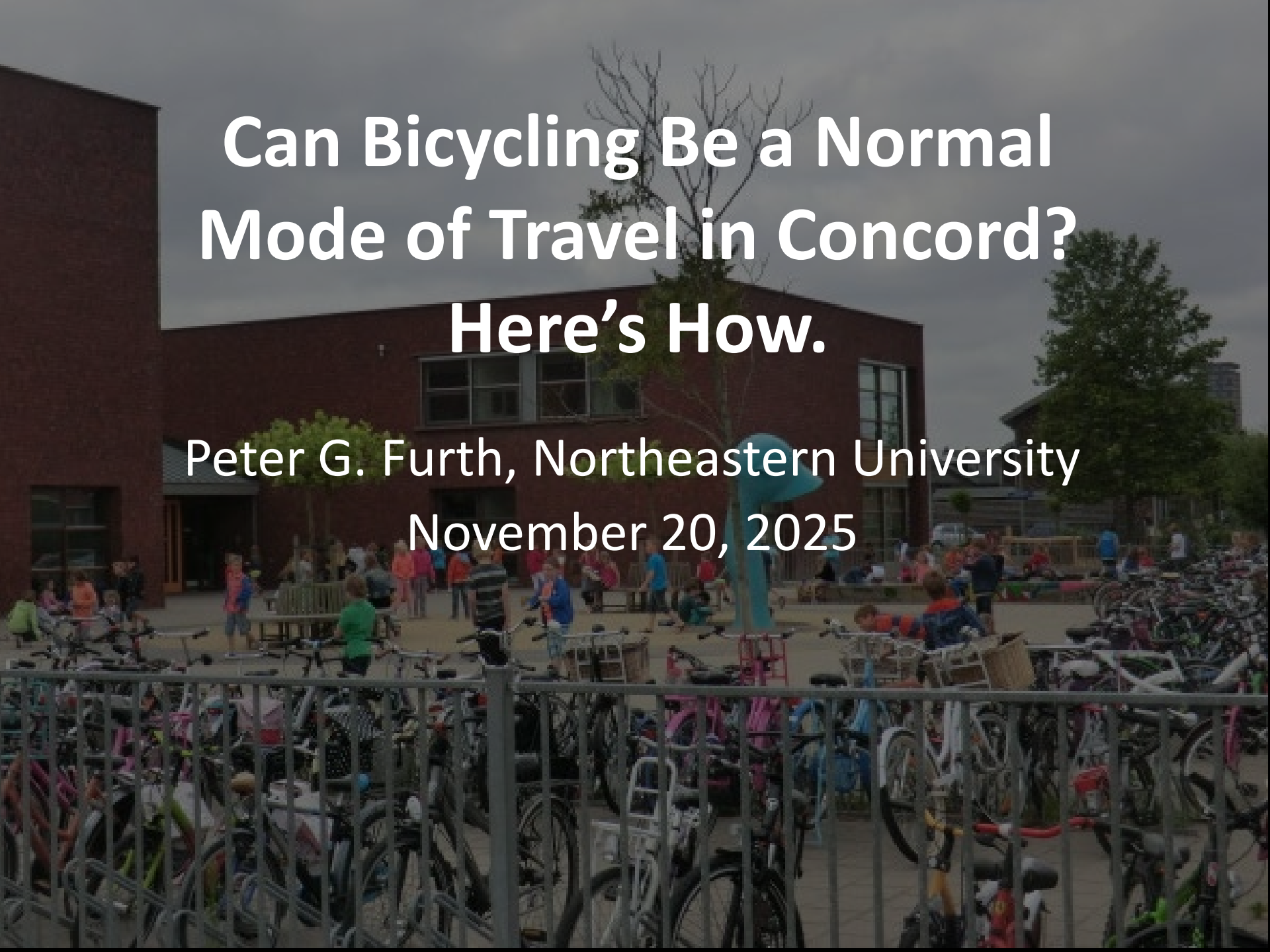


Can Bicycling Be a Normal Mode of Travel in Concord? Here's How.

Peter G. Furth, Northeastern University

November 20, 2025

First …

Concord has $2.5 Million to Invest in Safety

3 main points of advice

1. Crossing Islands: they're magic

- Make crossing safer and easier in 10 ways
- Slows traffic by forcing some horizontal deflection
- Routine in Europe; why so rare in the U.S.?
- More effective than corner bumpouts

(Next best thing: In-Street “STOP for Peds” Knock-down Signs)

- Vastly improves driver yielding
- Creates a “gate” that makes drivers feel confined, slowing drivers

2. Speed Humps

Boston new attitude: Road owner has an obligation to make the road safe.

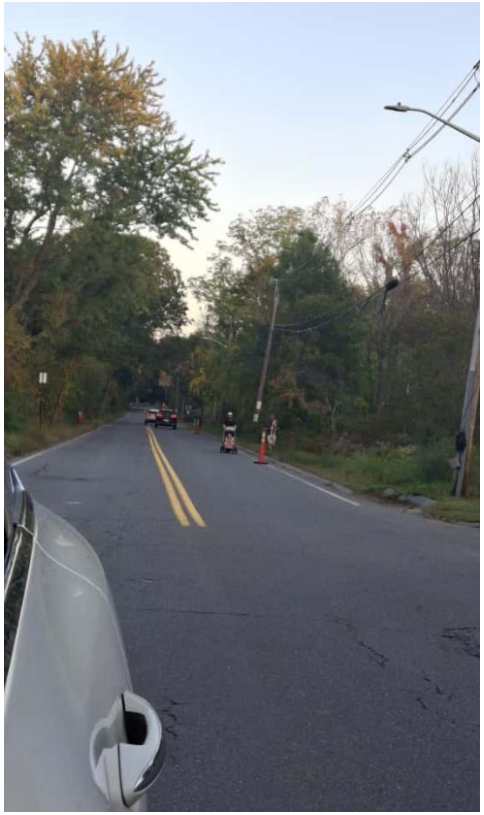
3. Appropriate Speed Limits

- Since ~2020, statutory (default) speed limit in Concord is 25 mph in “thickly settled” areas
- 25 mph applies anywhere higher limits are rescinded if the area is thickly settled; no need for MassDOT approval

“Thickly settled” means 7 homes in 1400 ft

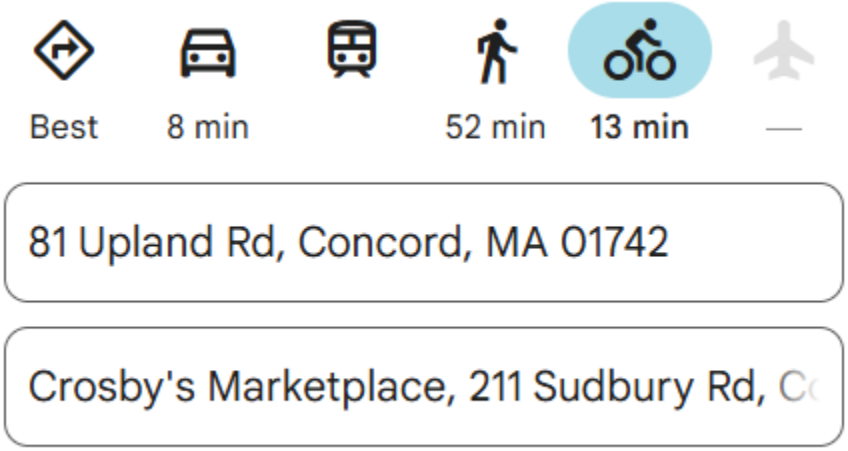
or 8 homes in 1600 ft, or 9 homes in 1800 ft, or 10 homes in 2000 ft, etc.

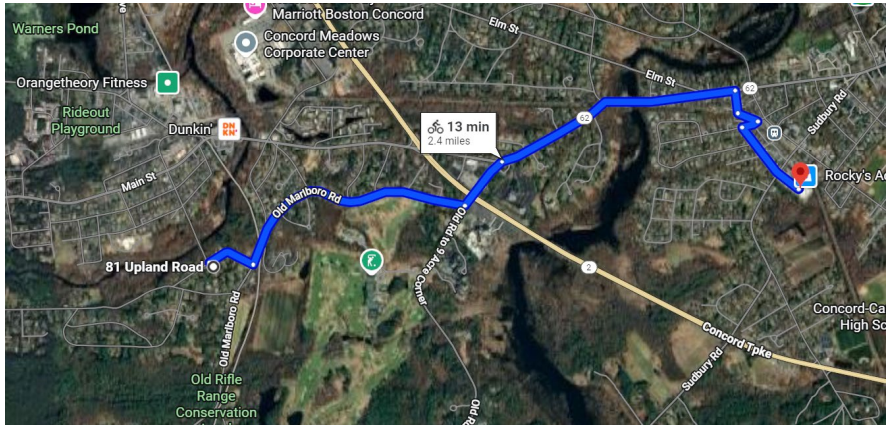
Thoreau Street southeast of the high school, where people walk in the street – We know that 35 mph is not a safe speed, and Concord has the authority to apply its statutory 25 mph speed limit.



Why Bicycling Is Special

- It's mechanically assisted walking
  - Human powered, but using wheels
- So much faster than walking!
  - Fits Concord: reach train station, high school, ….





- Carbon-free
- Good for health
- Good for the economy
- Good for equity
- Good for children’s development
- Good for HAPPINESS

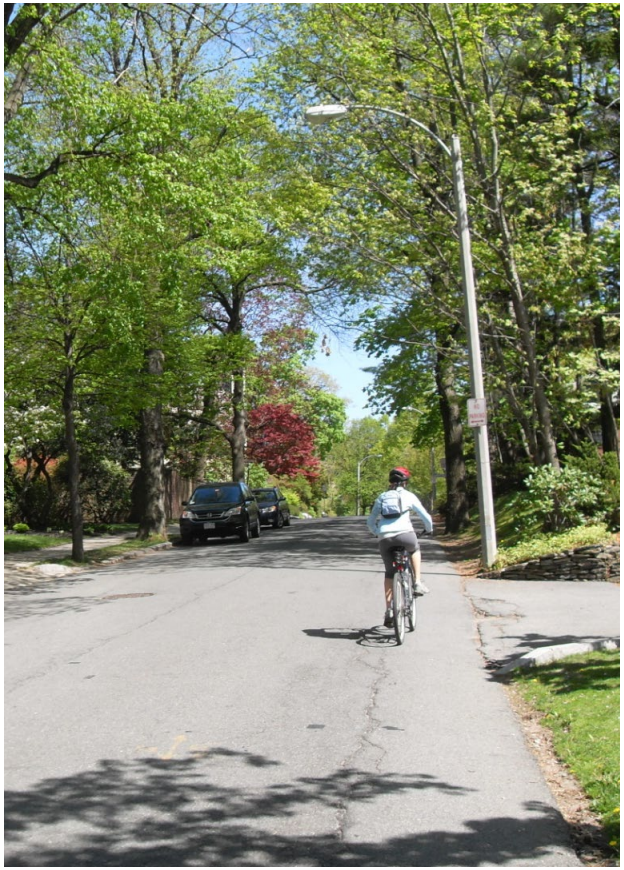
- And yes, we ride in winter, too.

Affluence = Having Options

Don’t you want the option of relaxed, easy bicycling within your town?

… That demands *corporate* action

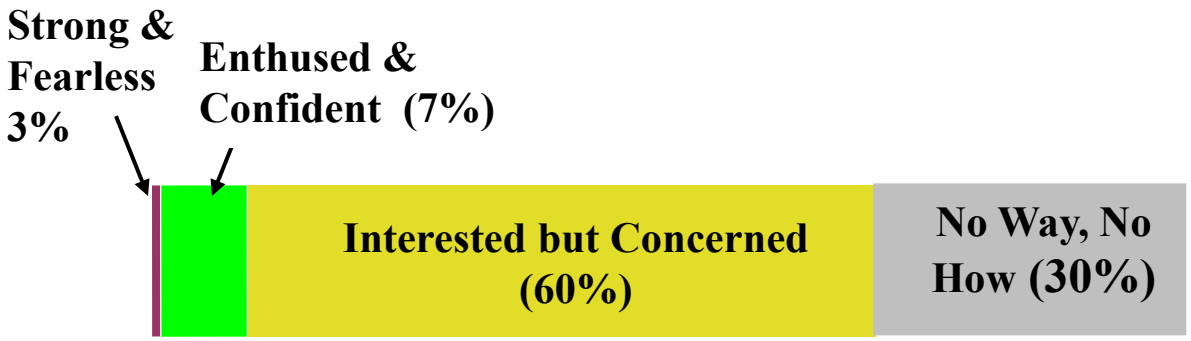
Current State of Affairs: Lots of Traffic Stress



Low stress

High stress

Few People Have a Tolerance for Traffic Stress



Source: Roger Geller, City of Portland

Classifying Network Elements by Level of Traffic Stress (LTS)

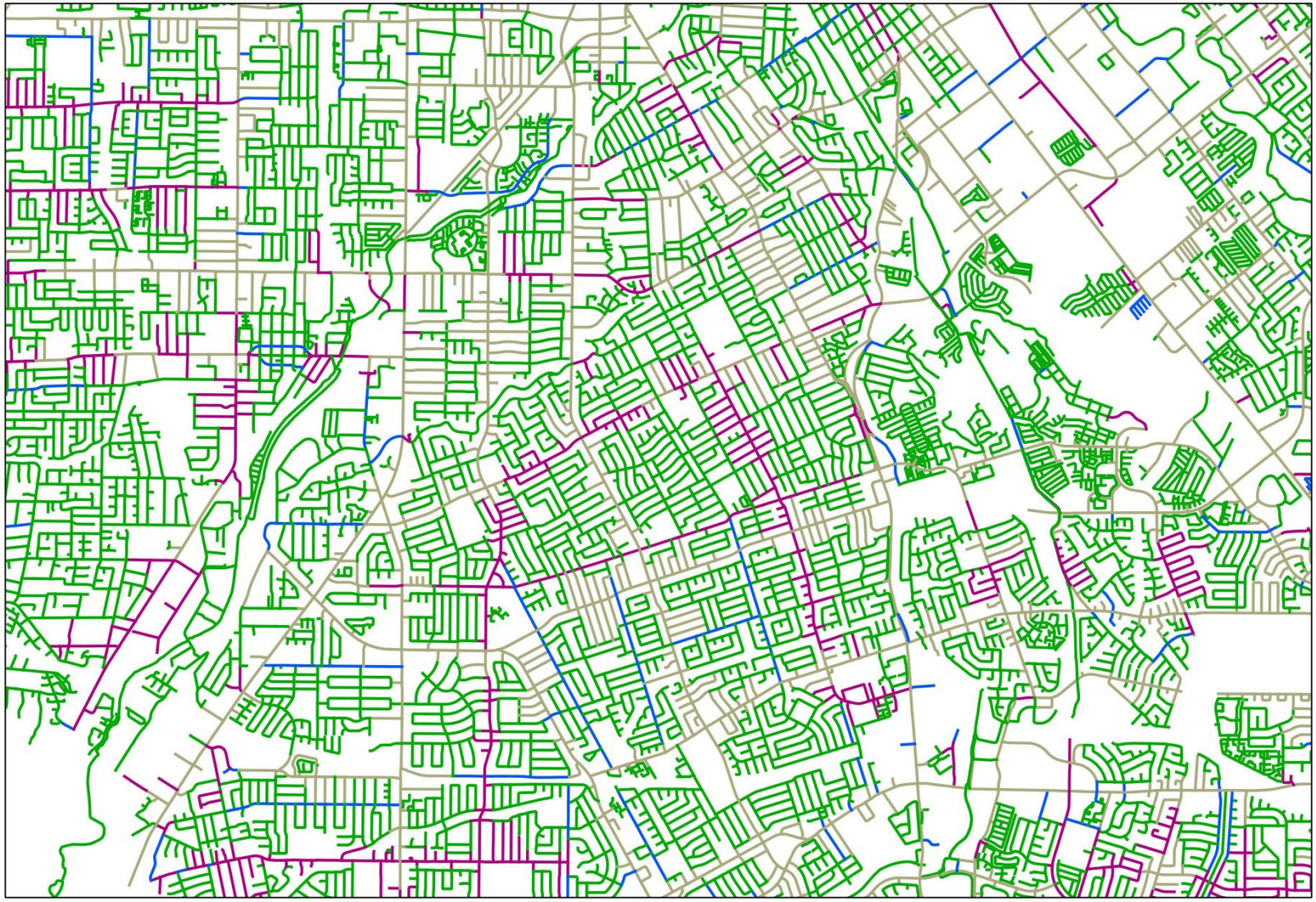
LTS 1: for children

LTS 2: for most adults – based on Dutch criteria

LTS 3: for "Enthused & Confident"

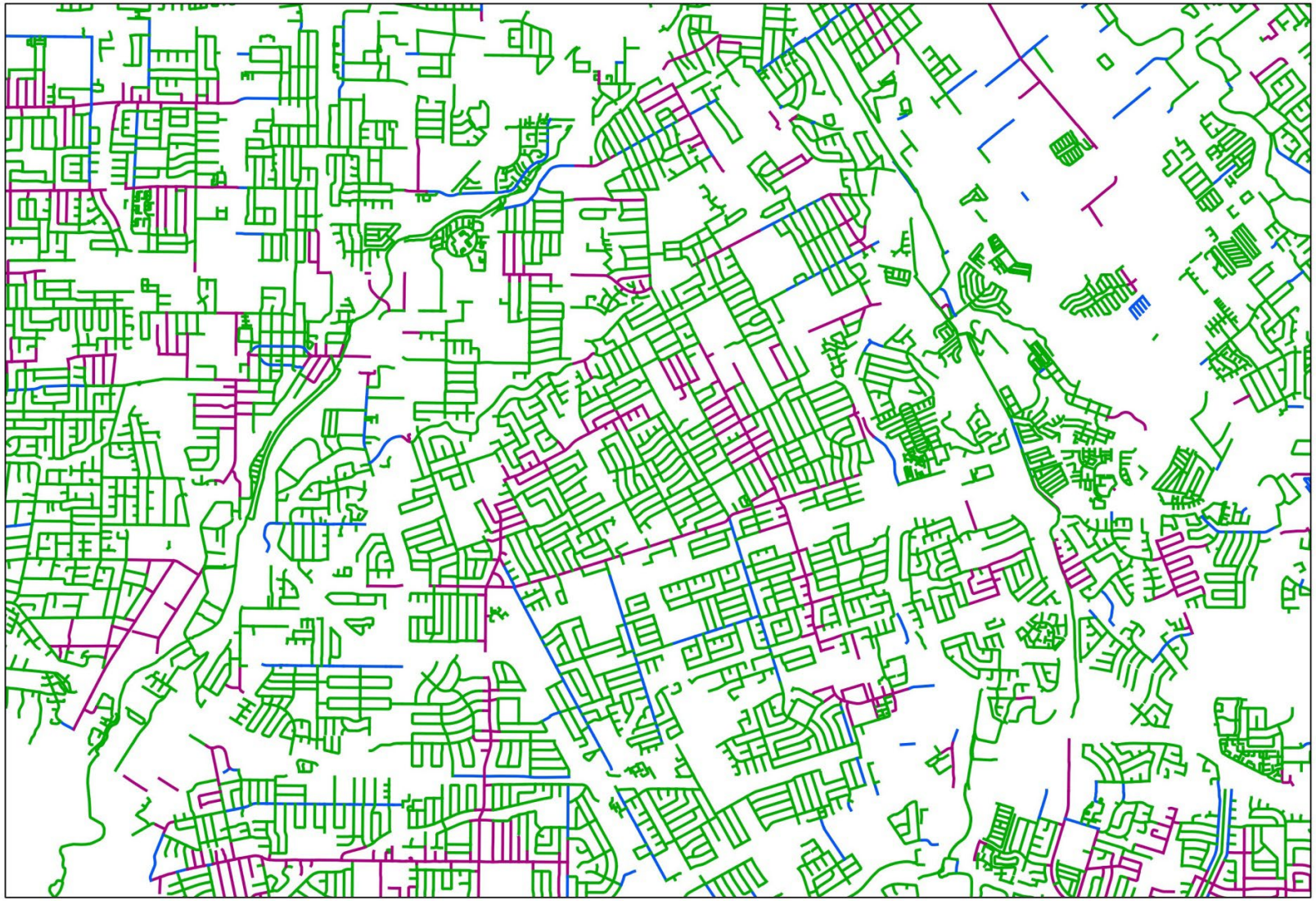
LTS 4: highest stress

San Jose 2010, All Levels of Traffic Stress

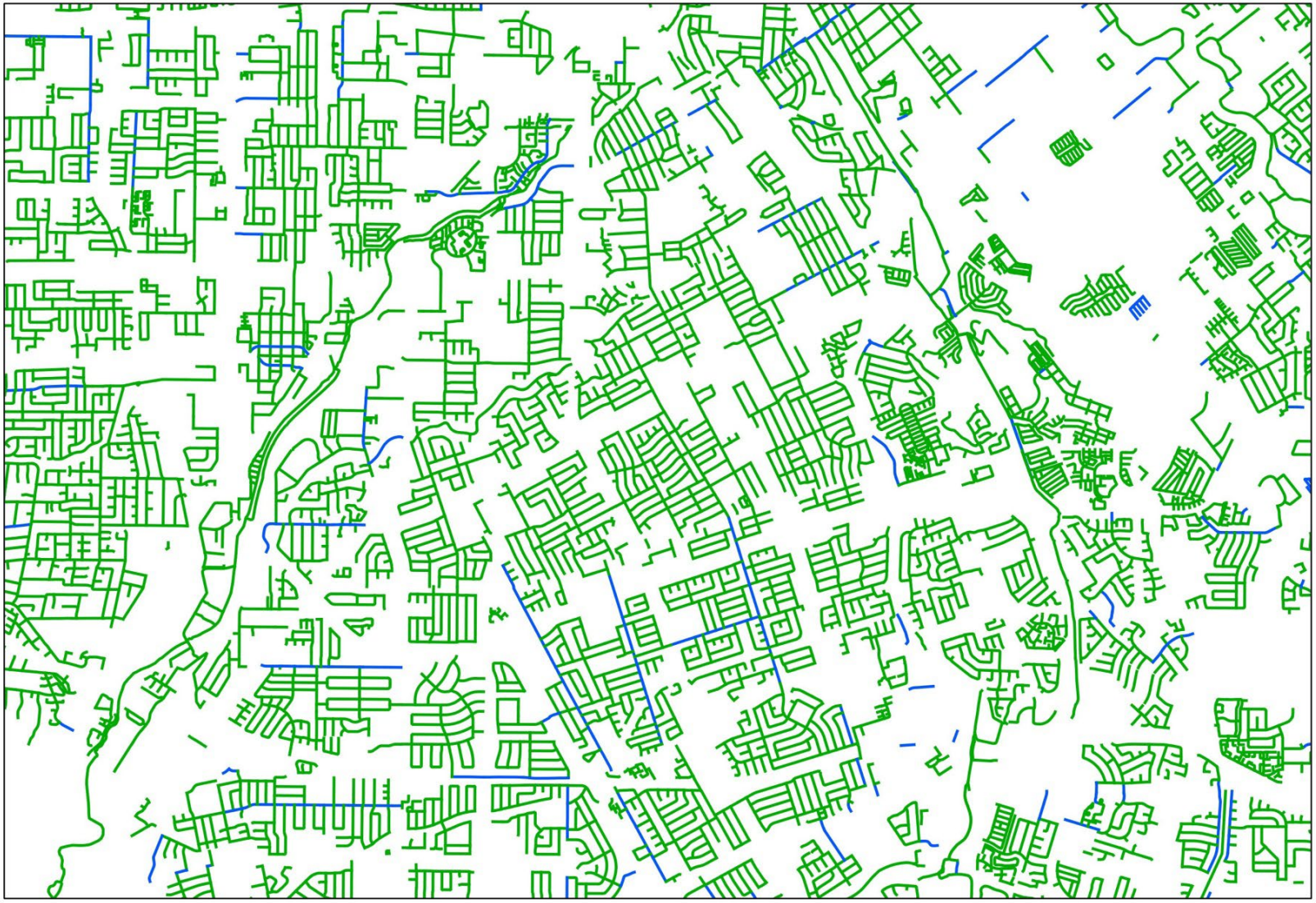


Green = LTS 1, Blue = LTS 2, Purple = LTS 3, Tan = LTS 4

Stress Level 3 or Less

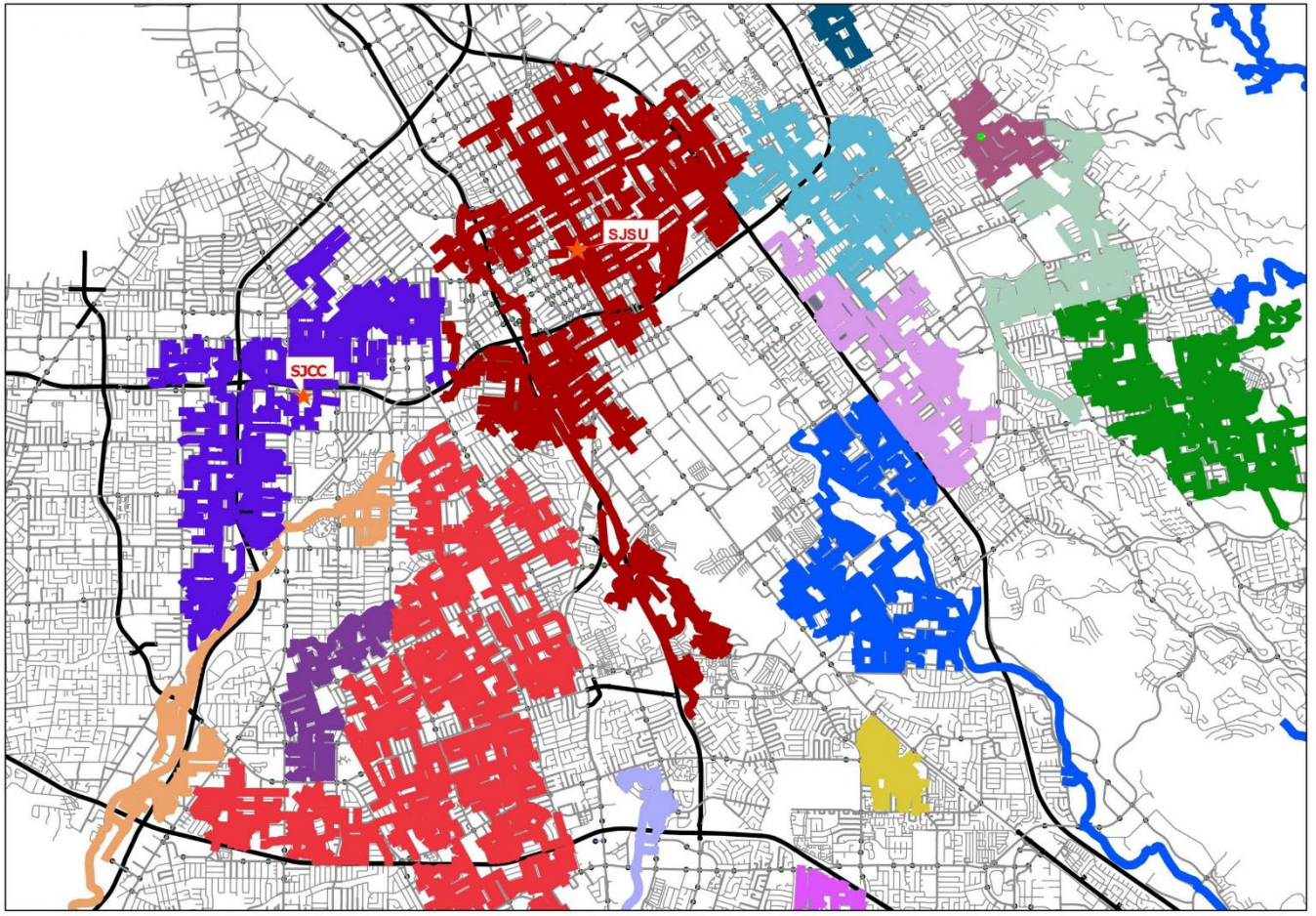


Stress Level 2 or Less

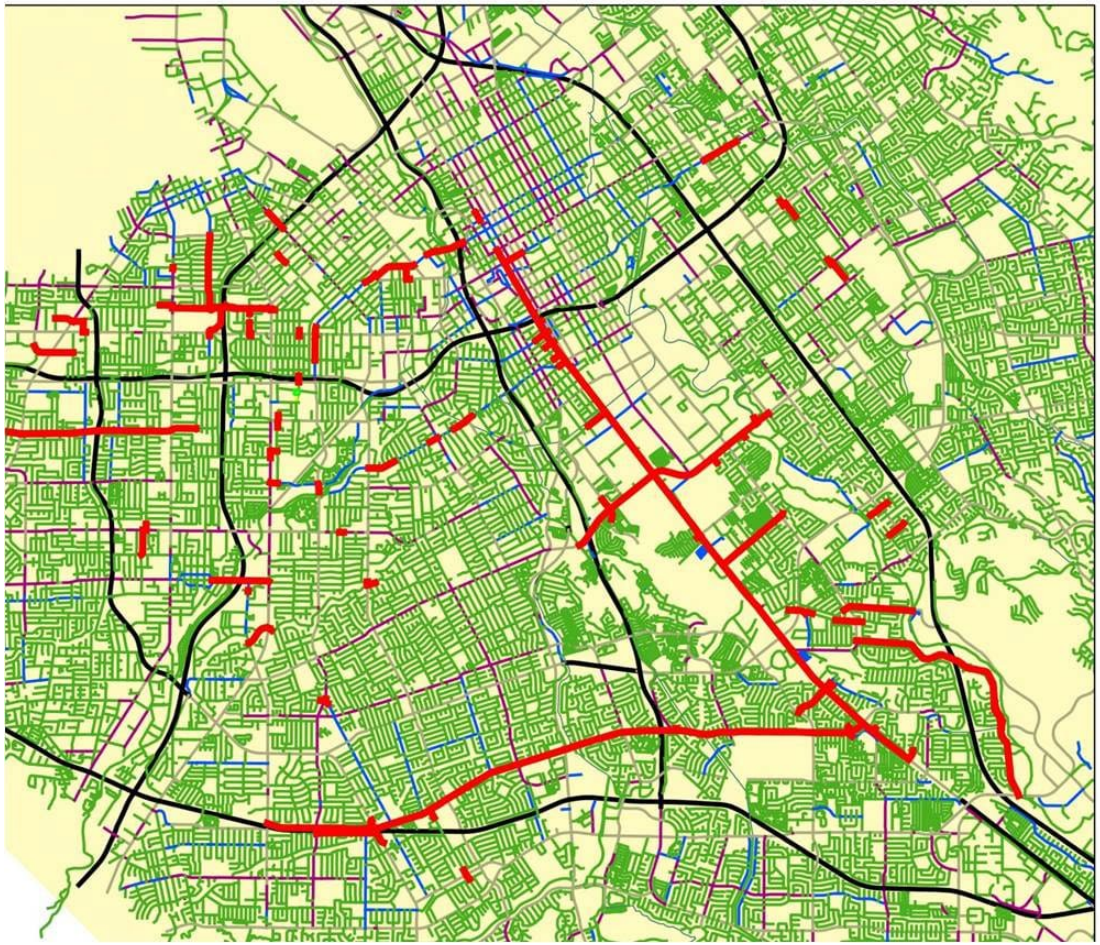


Stress Level 1

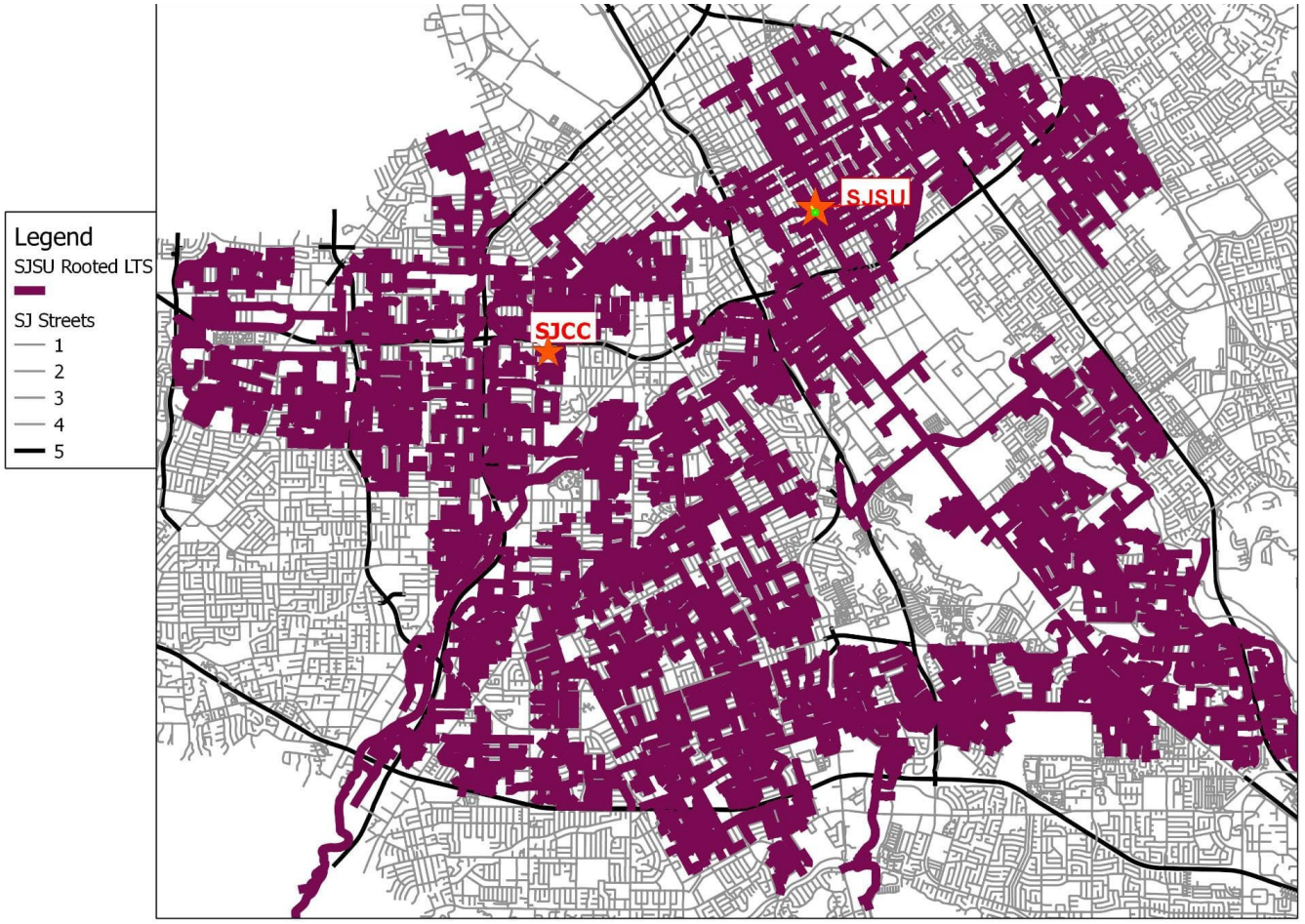
Connectivity Islands @ LTS 2



Slate of Improvements

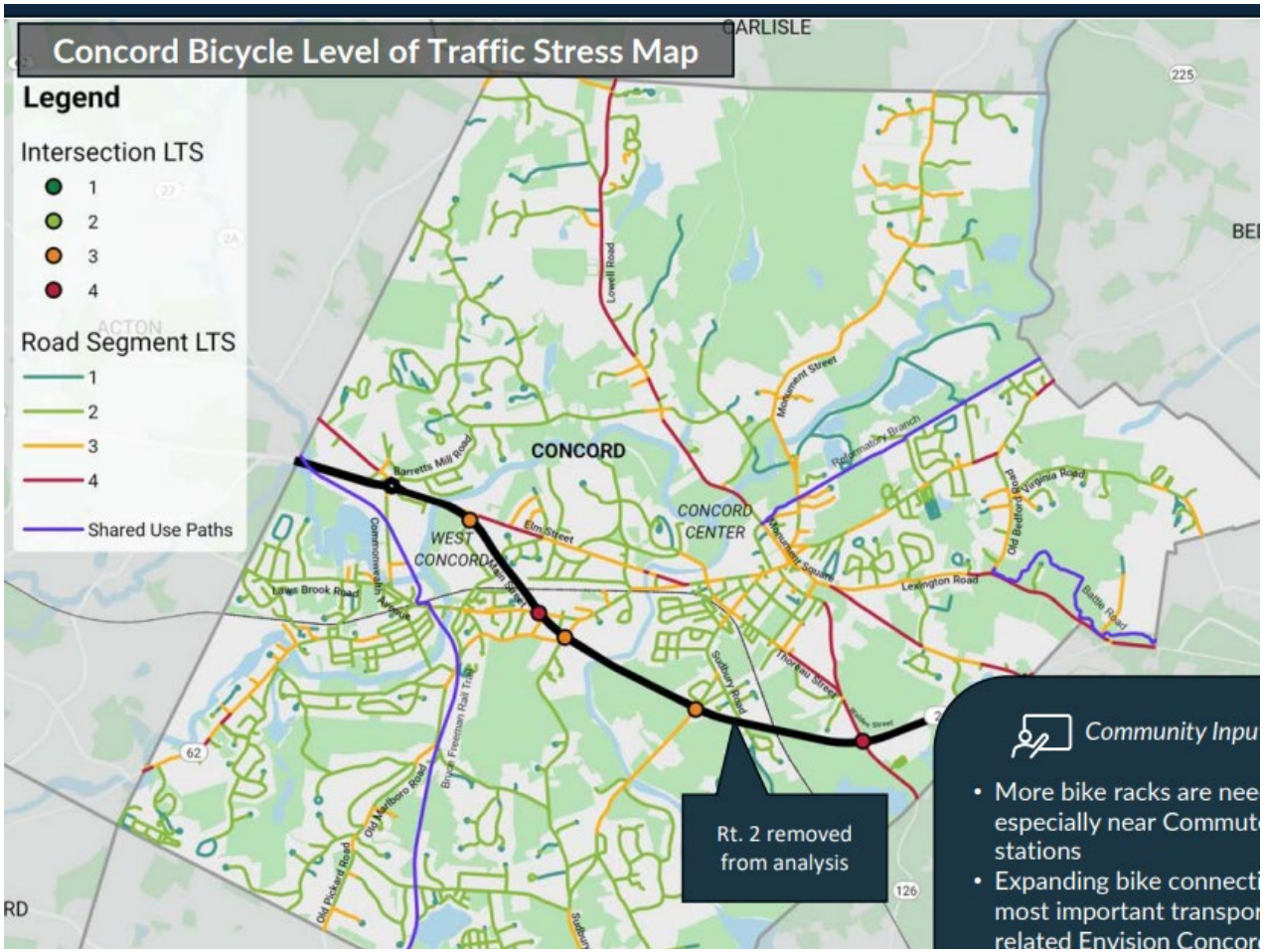


Resulting Connectivity Island



LTS in Concord

(from Stantec's recent report)



Can you get from home to your destination using only LTS 1 or LTS 2 segments?

Vision: Low-Stress Connectivity

Low-stress routes to

- The train stations and town centers
- The high school, middle school, elementary schools
- Bruce Freeman Trail and Reformatory Branch Trail
- Walden Pond
- Emerson Hospital
- Other popular destinations

from 75% (?) 85% (?) 95% (?) of homes

Finding the Space for Bike Lanes
A. Lane Width

- Standard lane width is 11’ or 12’
- Research finding: 9’ and 10’ lanes are as safe as 11’ and 12’ lanes*
- For short turn pockets, 9’ lanes are fine; they’re just for storing cars

* Potts, Harwood, & Richard (TRR, 2007), “Relationship of Lane Width to Safety for Urban and Suburban Arterials”

Main Street @ Baker Avenue

	MassDOT minimum	Consultant proposed	Why not …
unused edge space, N side	0	1.7	0
sidewalk	5.5	6.5	6
bike lane next to curb	5	2	4.75
WB lane	10	11	10
EBLT lane	10	10	9
EB lane	10	11	10
bike lane next to curb	5	2	4.75
sidewalk	5.5	5.8	5.5
unused edge space, S side	0	0	0
Total	51	50	50
Target (space available)	50	50	50
surplus / deficit	-1	0	0

Finding the Space for Bike Lanes
B. Pricing / Managing Parking

- Pricing / Information / Enforceable Limits
- Employee parking permits for nearby residential streets

Designs that Fit Concord's Context

- 28 ft of pavement: 10' travel lanes, 4' bike lanes
  - May apply on Bedford St, Lowell Rd, Lexington Rd, Walden St
  - If street also has a sidewalk, kids & some adults can use sidewalk, while most adults will use bike lane
- 32 ft of pavement: 10' travel lanes, buffer with flexpost bollards, separated bike lanes
  - May require making a road a bit wider
- 7' wide sidepaths
  - Sidewalks are already used a lot by kids
  - 7' is not a standard width (8' is standard), but is enough
  - Will need to treat intersections, too

- Quiet residential streets: need no treatment
- Commercial blocks: Separated bike lanes

- Collector streets with 500 – 4,000 vehicles per day: Advisory lanes

Advisory lanes on Farrar Rd., Lincoln MA. If a street has no sidewalk, the advisory lanes serve pedestrians as well as cyclists

Recommended Actions

1. Policy order designating the set of streets the Town aims to have in its network. Any project touching those streets should advance, or at least not impede, development of the bike network.

   [Like the Baker Avenue / Main St intersection project]

2. Inventory your roads and determine those that are at least 28’ wide and therefore amenable to bike lanes.

   [and then make the bike lanes]

3. Review speed limits and lower them where appropriate.

With new MassDOT rules, it's become a lot easier to lower speed limits.

- In a thickly settled area, town has direct authority to apply the statutory speed limit of 25 mph.
- Outside thickly settled areas, a speed study is needed to measure the 85th percentile speed, which can then be rounded down as much as 7 mph to a multiple of 5 mph. For example, if you measure 85th percentile speed is 35, 36, or 37 mph, speed limit can be set to 30 mph.

4. Make a plan: For each section in the network, what treatment should apply?
   - Build a sidepath?
   - Widen the pavement to 32', have protected bike lanes?
   - Advisory lanes?
5. Plan for special bottlenecks, with MassDOT if it involves a MassDOT owned road or bridge
   - Assabet River Bridge
   - Route 2 crossings

6. Develop a GIS-based evaluation tool
   - How many miles of the network have been completed?
   - How many people – and what neighborhoods – have a continuous low-stress route to each destination?
     - E.g., Boston Latin School: 6%
     - Boston Latin Academy: 0.5%

7. Parking management plan

   Bikes and parking compete for the “leftover” space. There are many creative ways to manage parking to keeping parking available for residents, shoppers, and employees.

   Members of a Parking Management Committee should be required to read Donald Shoup, *The High Price of Free Parking*]

8. Estimate the cost, make a funding plan, schedule the improvements

Conclusions

1. Convergence of concerns: Climate, health, safety, children's development and happiness, building community, economic vitality, equity: all point to the bicycle.
2. Space and $$ demands of bicycling are small – they are affordable and achievable. There is little real sacrifice involved.
3. Previously, bicycling got nowhere because it only got the leftovers. Recalibrate: make achieving an extensive, connected bike network a high Town priority, and you'll achieve a future you didn't dare dream of.