GI/LID Implementation in CT: Status & Forecast

NOAA Green Infrastructure Workshop

May 23, 2017

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Today's Agenda:

- **State of LID**
  - **regulations/policies**
  - **obstacles/barriers**
- **LID Forecast**

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COLLEGE OF AGRICULTURE, HEALTH AND NATURAL RESOURCES

…to provide information and assistance to land use decision makers and other audiences in support of better land use decisions, healthier natural resources, and more resilient communities.

CLEAR Program Areas

Water

Land Use & Climate Resiliency

Geospatial Tools & Training

STEM Education & Local Conservation

- Applied research
- Geospatial technology
- Extension outreach

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CLEAR Program Areas

Water

Land Use & Climate Resiliency

Geospatial Tools & Training

Secondary School STEM

- NEMO Program: MS4 support
- Rain garden training & smartphone app
- LID on campus

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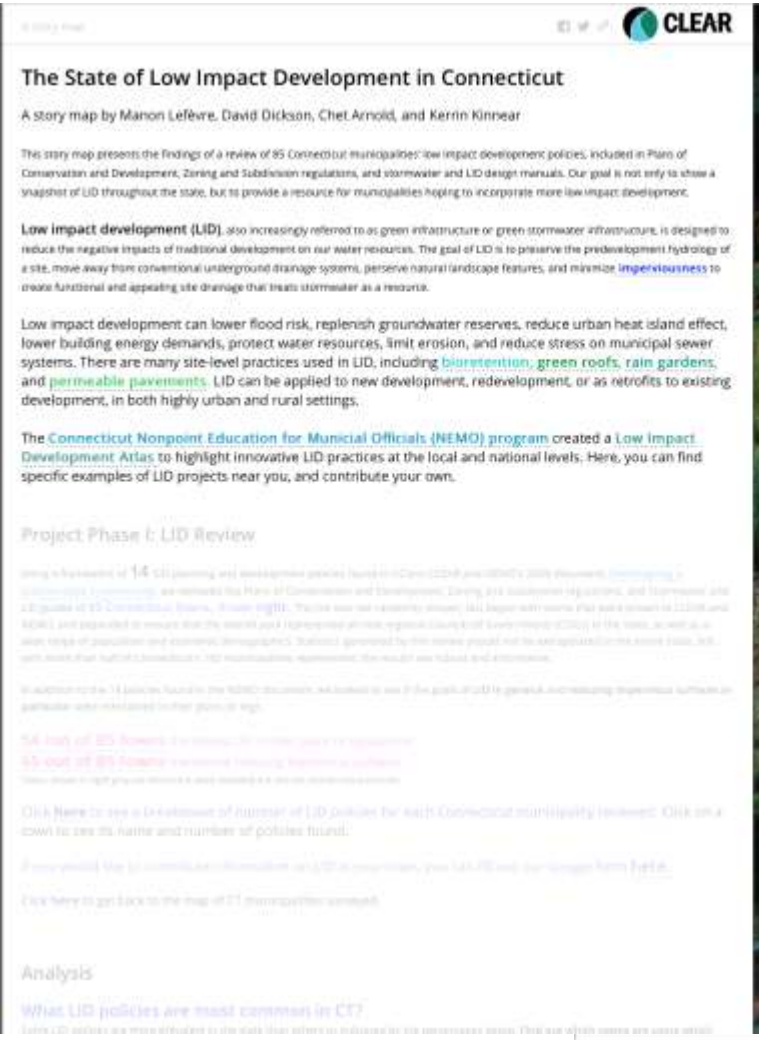
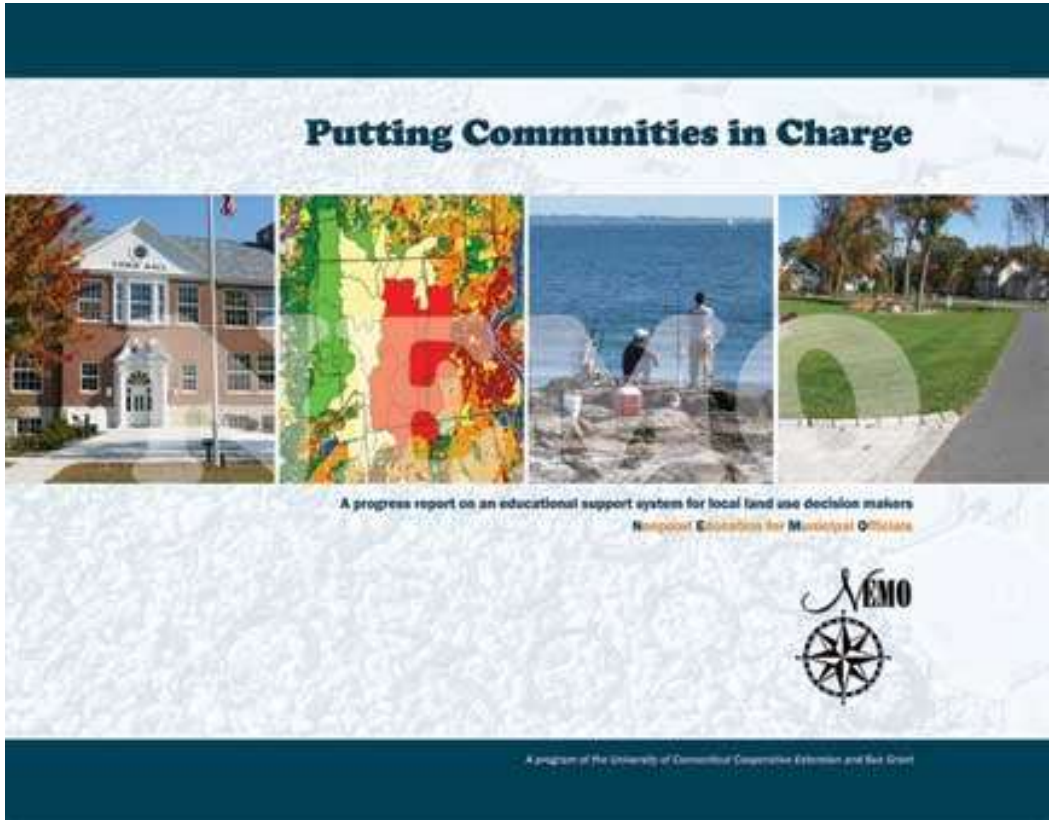
State of LID Research



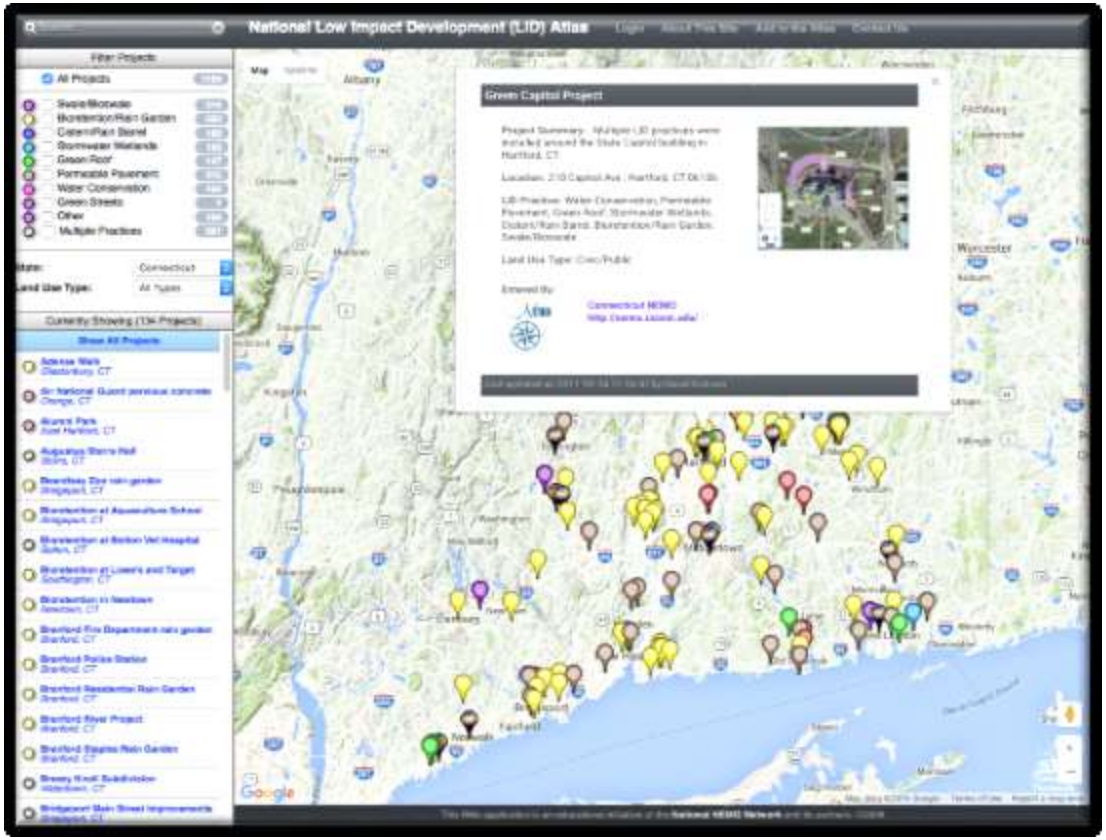
http://s.uconn.edu/stateoflid

Why Bother?



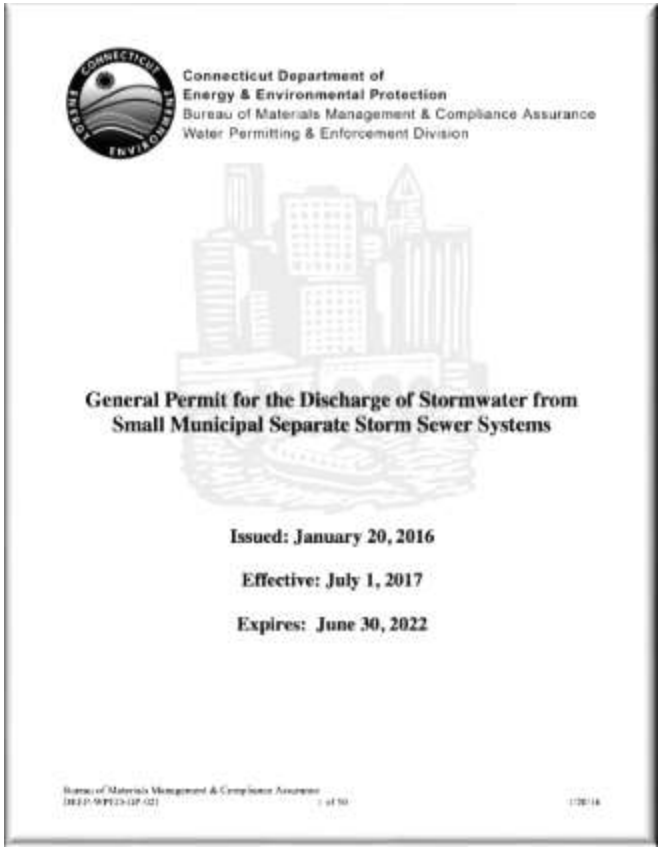
Schlepping to town hall since 1991

Why Bother?



LID examples/awareness growing

Why Bother?



Connecticut Department of
Energy & Environmental Protection
Bureau of Materials Management & Compliance Assurance
Water Permitting & Enforcement Division

General Permit for the Discharge of Stormwater from Small Municipal Separate Storm Sewer Systems

Issued: January 20, 2016

Effective: July 1, 2017

Expires: June 30, 2022

- Remove LID barriers in regs.
- Require LID as 1st option
- Reduce DCIA by 1% per year with retrofits

New MS4 general permit

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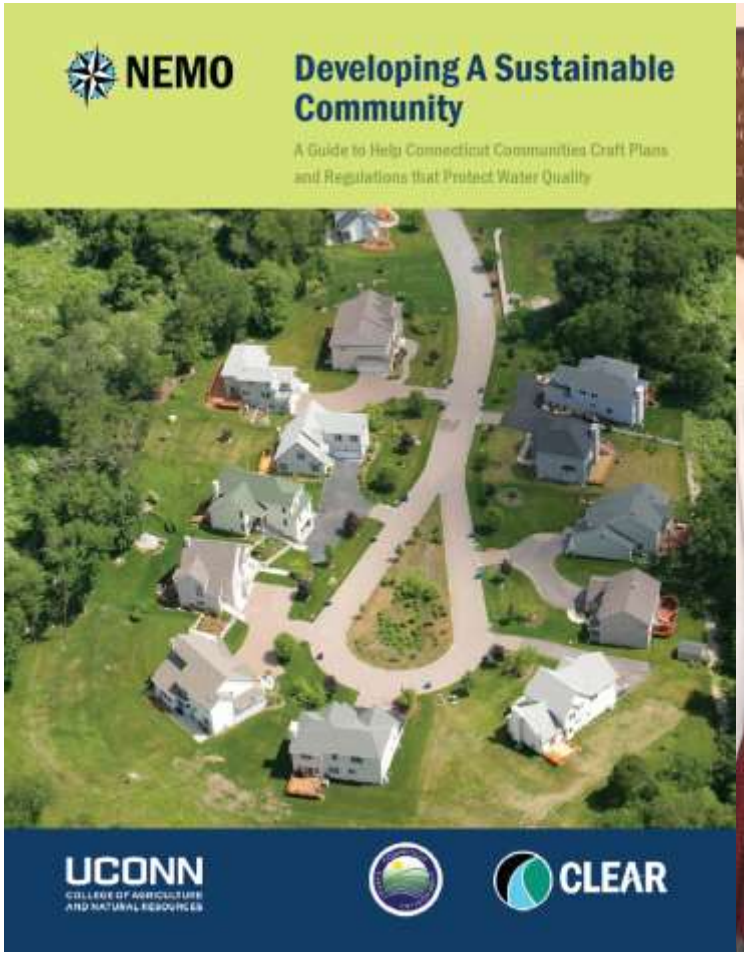
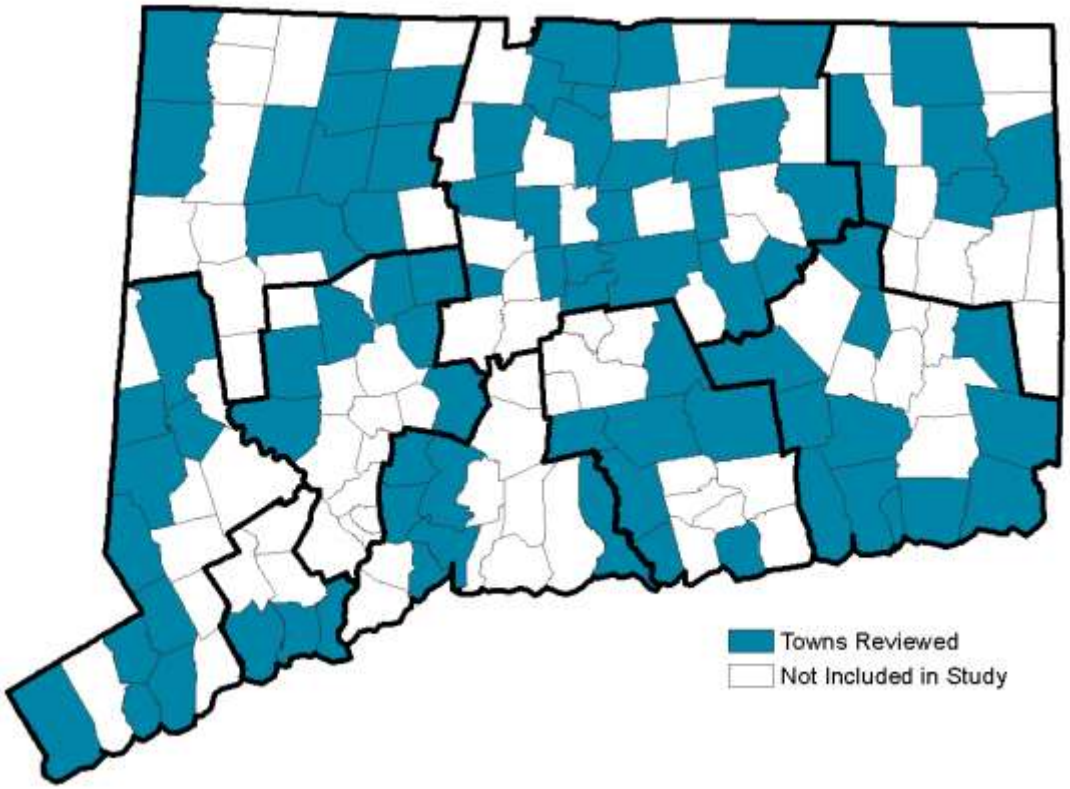
Step 1: Regulation Review



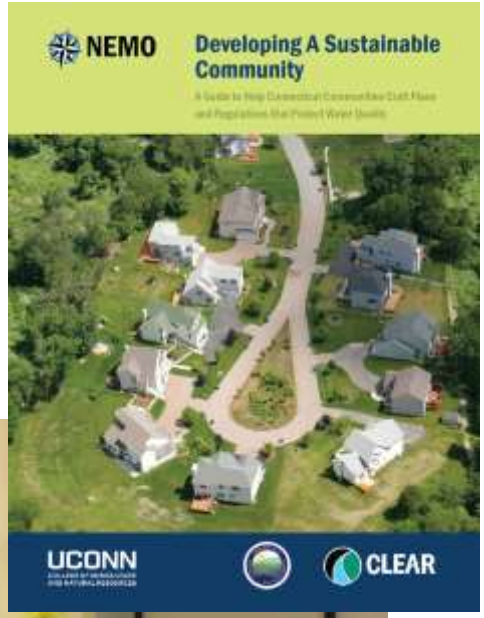
LID Practice	
1. Street Width	Design residential streets for the minimum required pavement width needed to support travel lanes, on-street parking, emergency services and maintenance access. (26 out of 85 towns)
2. Cul-De-Sacs	Minimize the number of residential cul-de-sacs and, where they do exist, incorporate landscaped areas to reduce impervious cover and encourage infiltration of stormwater runoff. (21 out of 85 towns)
3. Road Drainage	Where density, topography, soil and slopes permit, vegetated swales should be used in the street right-of-way to convey and treat stormwater runoff, replacing curb and gutter drainage systems (34 out of 85 towns)
4. Parking Size	Required parking ratios governing a particular land use or activity should be enforced as both a maximum and a minimum in order to curb excess parking construction. Further, reduce the overall imperviousness associated with parking lots by minimizing stall dimensions and incorporating efficient parking lanes. (44 out of 85 towns)
5. Parking Runoff	Wherever possible, provide stormwater treatment for parking lot runoff using bioretention areas, filter strips and/or other practices that can be integrated into required landscaping areas and traffic islands. (41 out of 85 towns)
6. Conservation/Open Space Subdivision	Encourage development designs that minimize total impervious area, reduce total construction costs, conserve natural areas, and provide community recreational space and promote watershed protection. (76 out of 85 towns)
7. Setbacks and Frontages	Relax side yard setbacks and allow narrower frontages to reduce total road length in the community and overall site imperviousness. Relax front yard setback requirements to minimize driveway lengths and reduce lot imperviousness. (20 out of 85 towns)
8. Sidewalks	Promote more flexible design standards for residential sidewalks on only one side of the street and provide common walkways linking pedestrian areas, use permeable pavement. (44 out of 85 towns)
9. Driveways	Reduce overall lot imperviousness by promoting alternative driveway surfaces and shared driveways that connect two or more homes together. (28 out of 85 towns)
10. Roof Runoff	Direct roof runoff to pervious areas such as yards, open channels, or vegetated areas and avoid routing rooftop runoff to the roadway and the stormwater conveyance system. (20 out of 85 towns)
11. Stormwater Management Plan	As a minimum, a stormwater management plan should be required for sites that have disturbance equal to or greater than one acre, as proposed by the CT Stormwater Quality Manual. The purpose of the plan is to identify potential water quality and quantity impacts of the proposed development, and to propose selected source controls and treatment practices to mitigate against those impacts. (65 out of 85 towns)
12. Riparian Buffers	Riparian Buffers: Create a naturally vegetated buffer along all water resources that also encompasses critical environmental features such as the 100-year floodplain, steep slopes, and wetlands, which should be preserved or restored with native vegetation. (59 out of 85 towns)
13. Clearing and Grading	Clearing and grading of forests and native vegetation at a site should be limited to the minimum amount needed to build lots, allow access, and provide fire protection. (43 out of 85 towns)
14. Tree Conservation	Conserve trees and other vegetation at each development by protecting trees and other vegetation during construction and by planting additional vegetation, clustering tree areas, minimizing native vegetation disturbance, and promoting the use of native plants. (71 out of 85 towns)

Selecting Towns

- not randomized
- towns we knew
- urban/suburban/rural
- median home price
- geographic distribution
- 9 “regions”



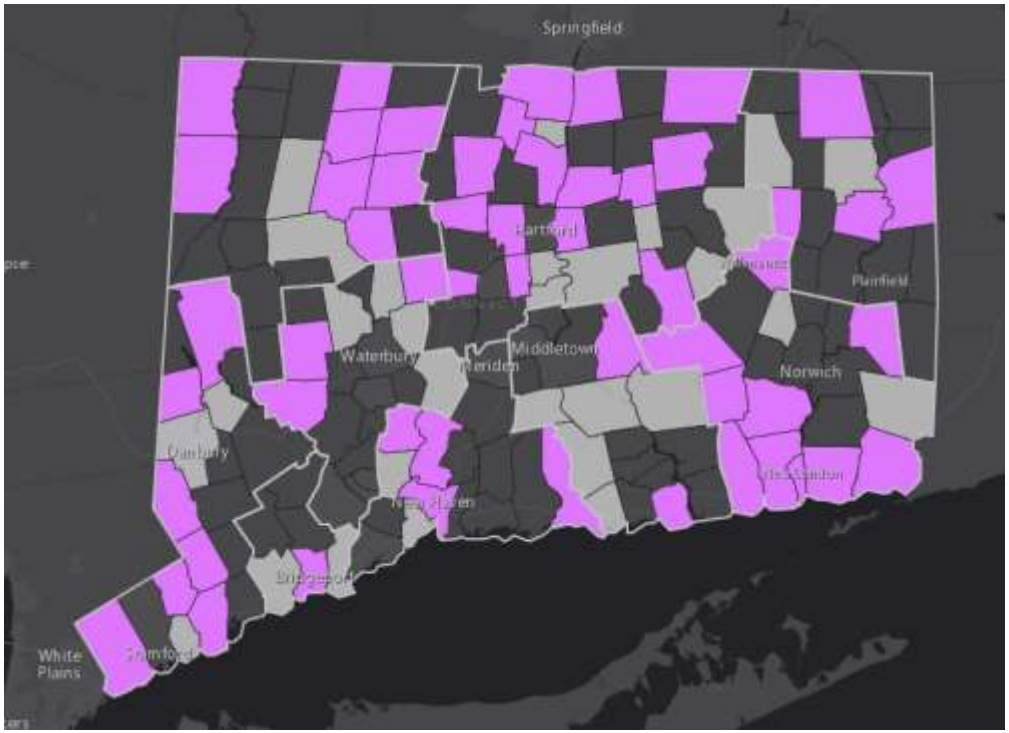
Interns are wonderful



Scoured town websites for:

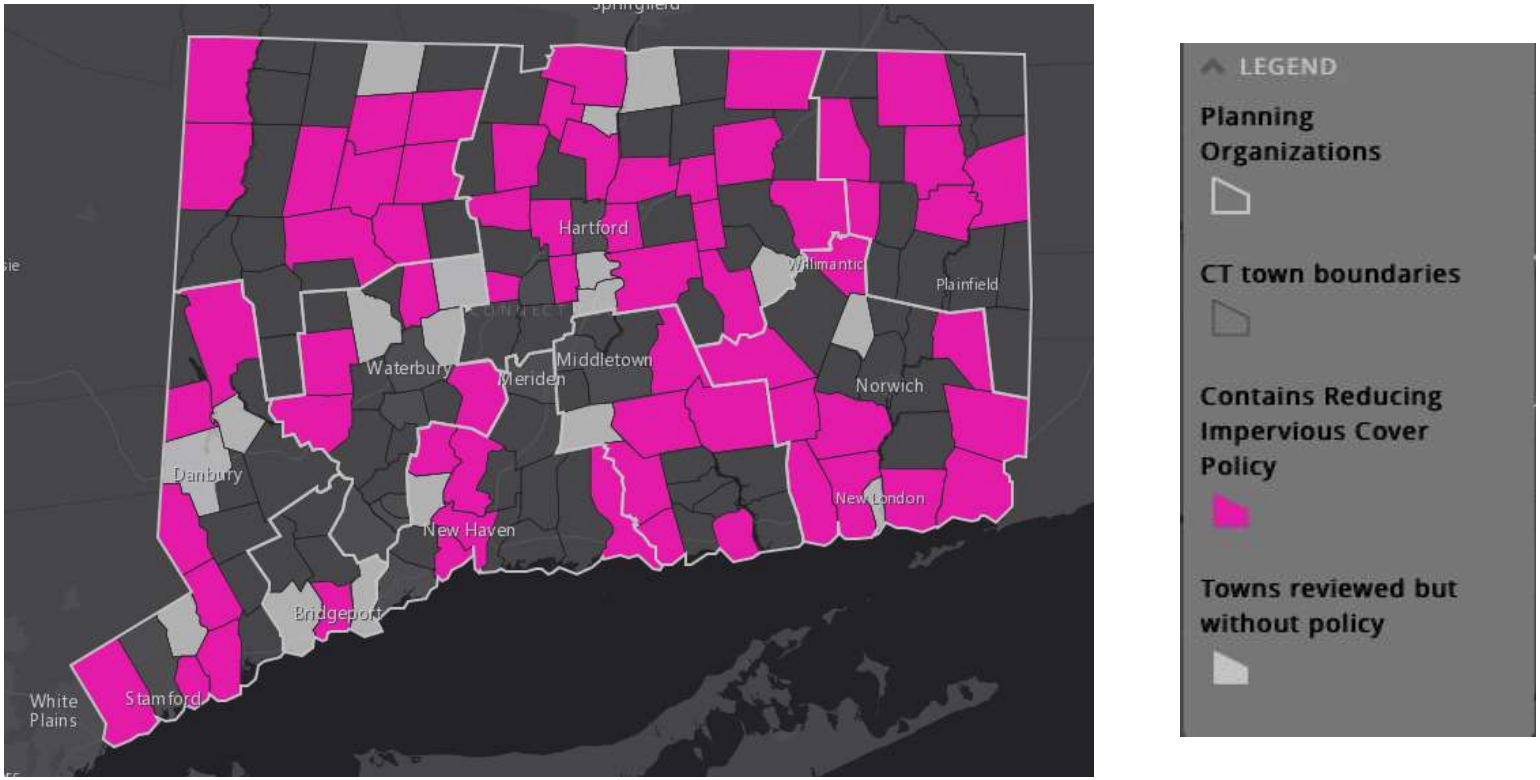
- POCDs
- Zoning regulations
- Subdivision regulations
- Inland/wetlands regulations
- Stormwater plans/other

General Support for LID



54 of 85 towns
mention LID in regs

General Support for LID



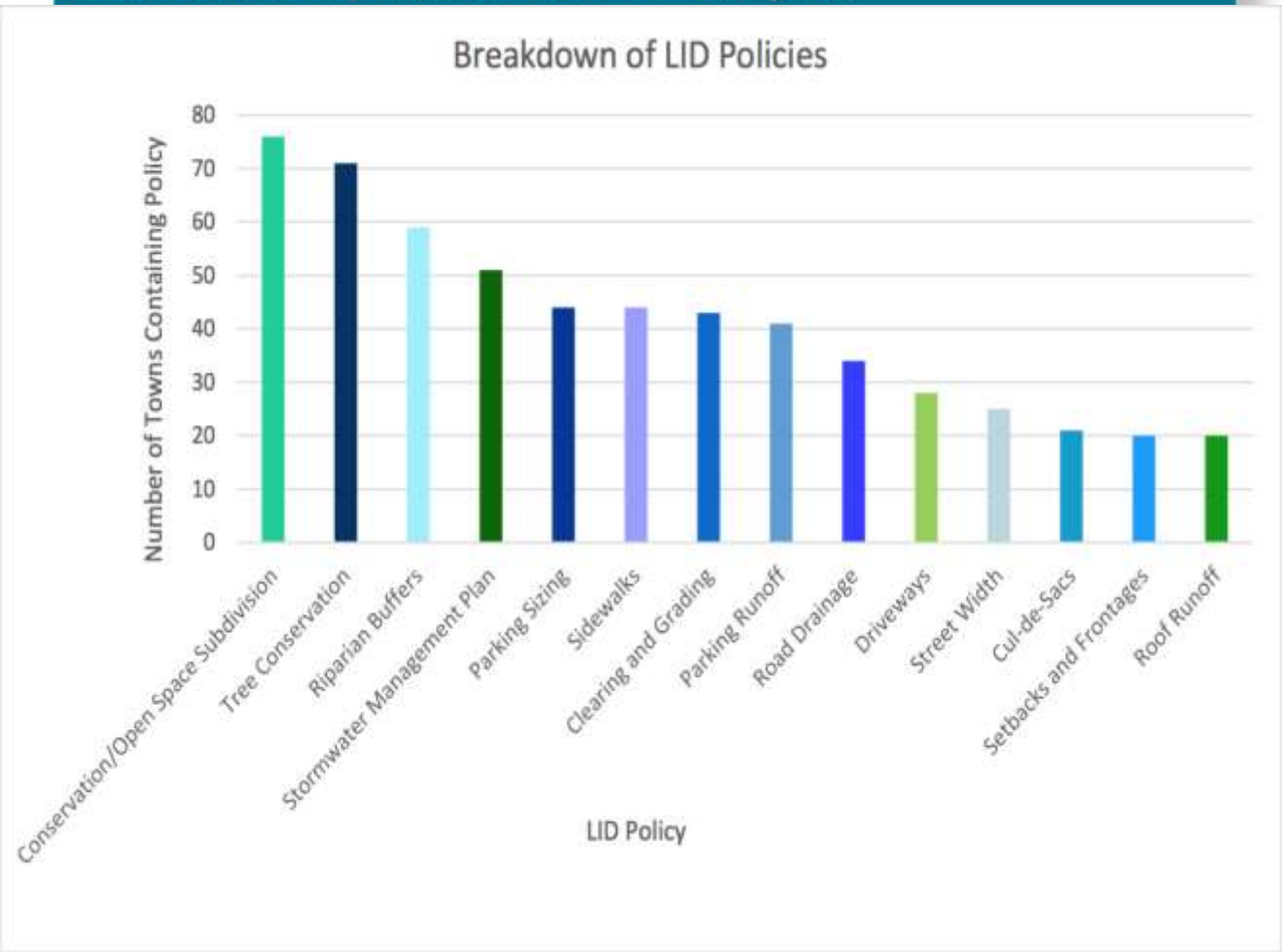
65 of 85 towns mention
reducing impervious surfaces

Specific Regulations

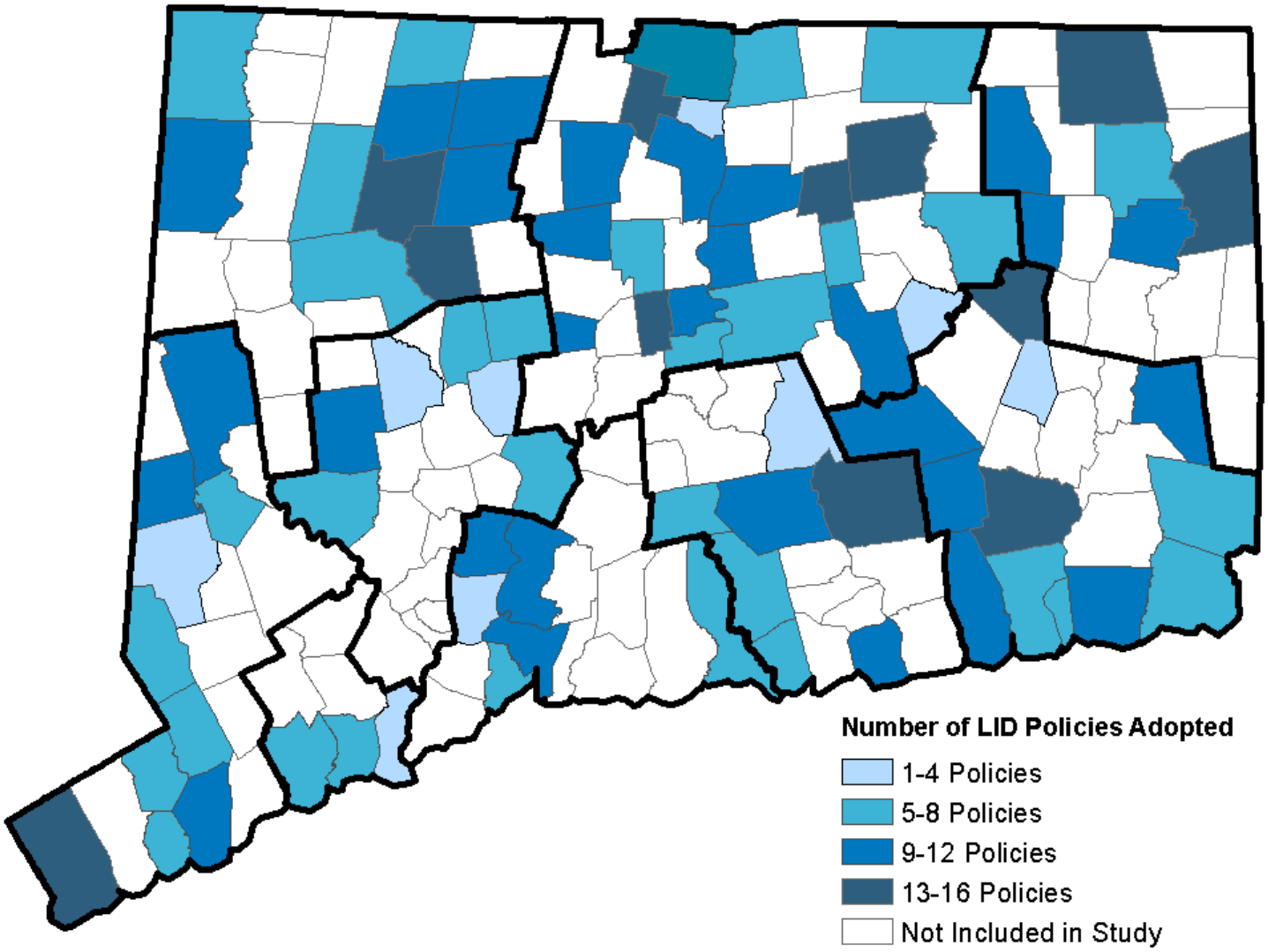
landscape scale

site scale

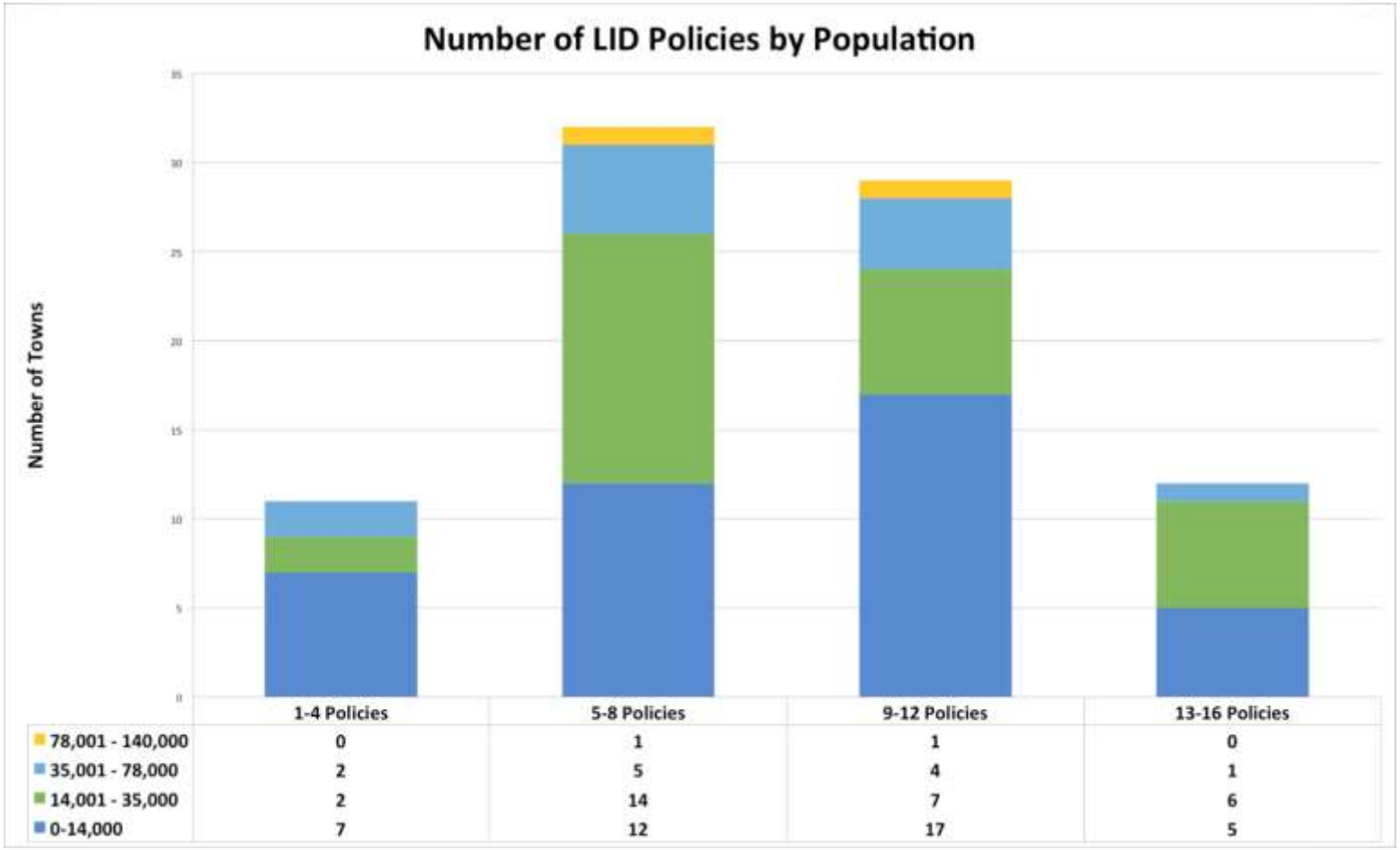
LID Practices by Number of Towns Adopted



Policies Adopted by Town

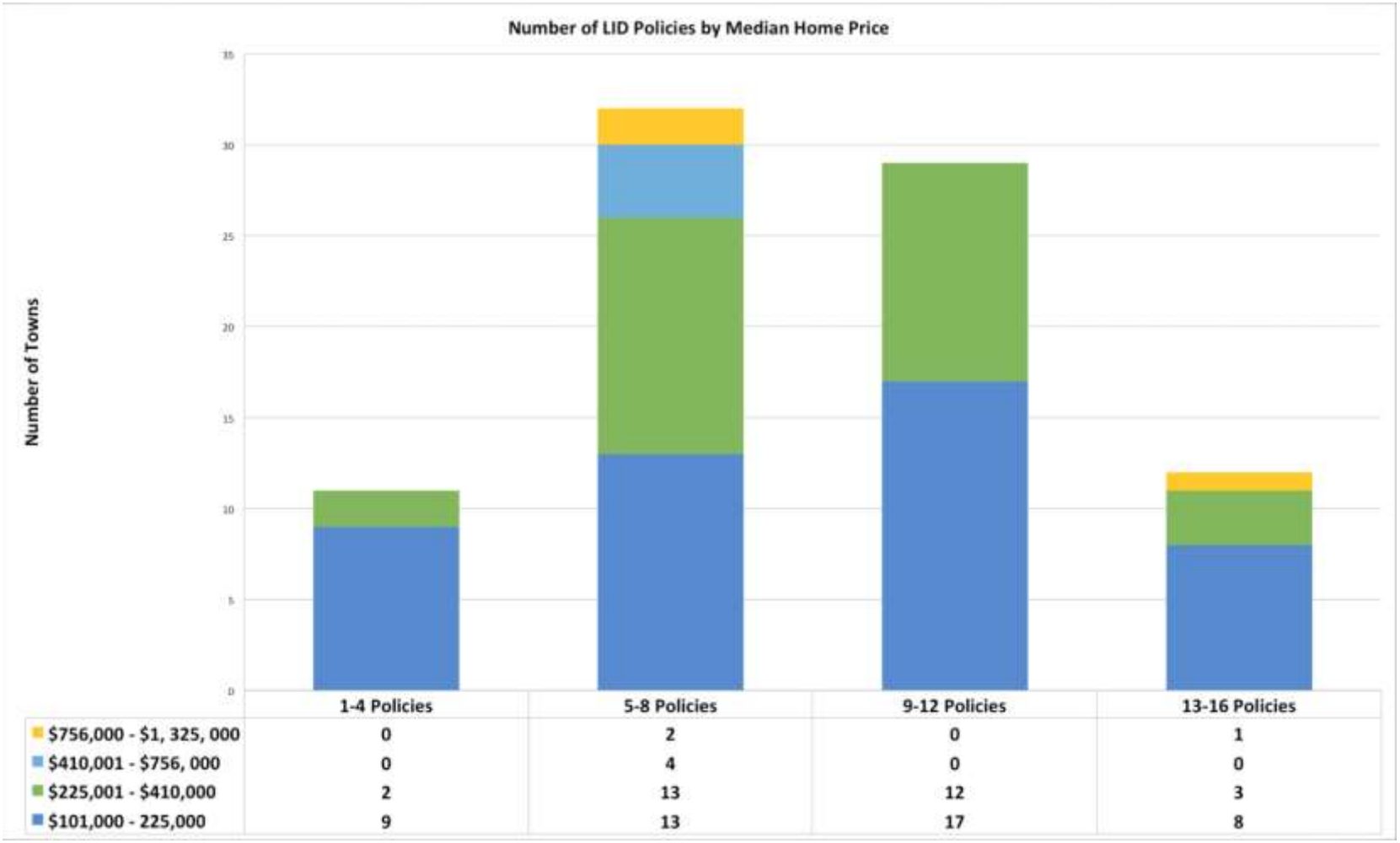


Does size matter?



	1-4 Policies	5-8 Policies	9-12 Policies	13-16 Policies
78,001 - 140,000	0	1	1	0
35,001 - 78,000	2	5	4	1
14,001 - 35,000	2	14	7	6
0-14,000	7	12	17	5

Does wealth matter?



	1-4 Policies	5-8 Policies	9-12 Policies	13-16 Policies
$756,000 - $1, 325, 000	0	2	0	1
$410,001 - $756, 000	0	4	0	0
$225,001 - $410,000	2	13	12	3
$101,000 - 225,000	9	13	17	8

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Step 2: Interviews

1. Does your community encourage/require the use of **low impact development or green infrastructure** to manage stormwater? If so, in what ways?

2. What are the **factors driving** your community to encourage or not encourage LID?

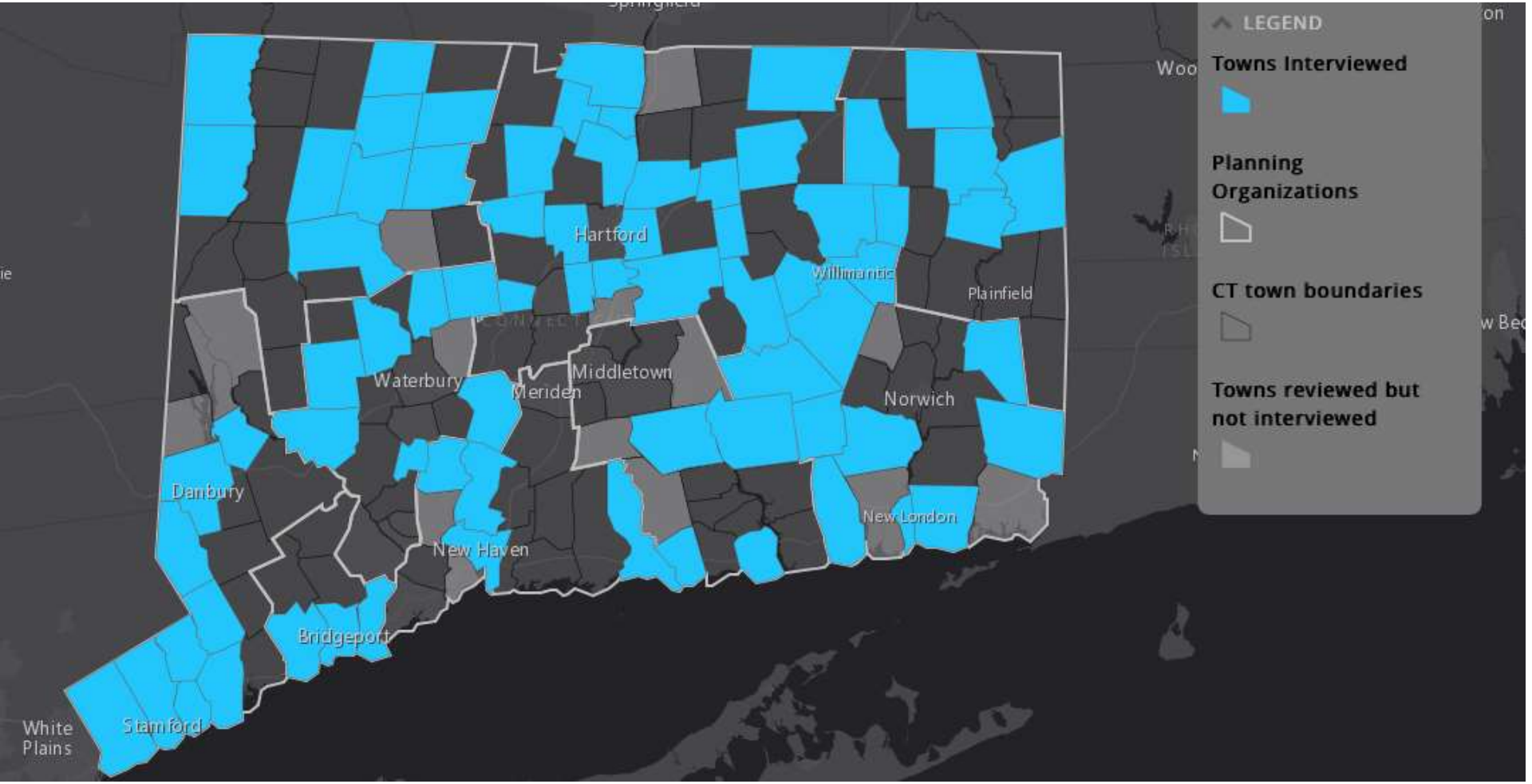
3. What are the **biggest obstacles** to implementing LID regulations or practices in your town?

An aside about Terminology

LID vs green infrastructure

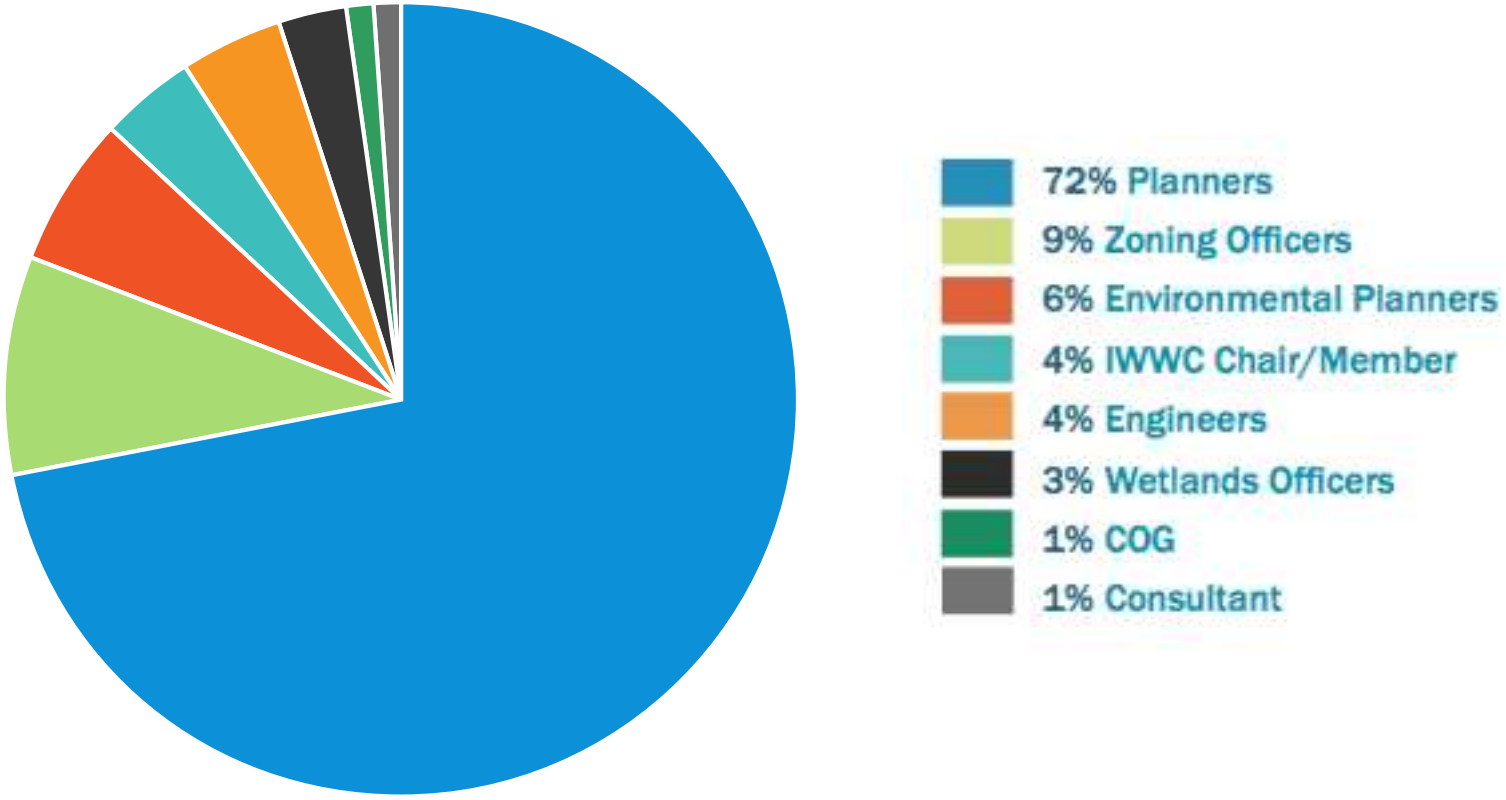
- Often used interchangeably
- Federal & state agencies using green infrastructure
- LID used at local level – so we used LID

Who'd we talk to?



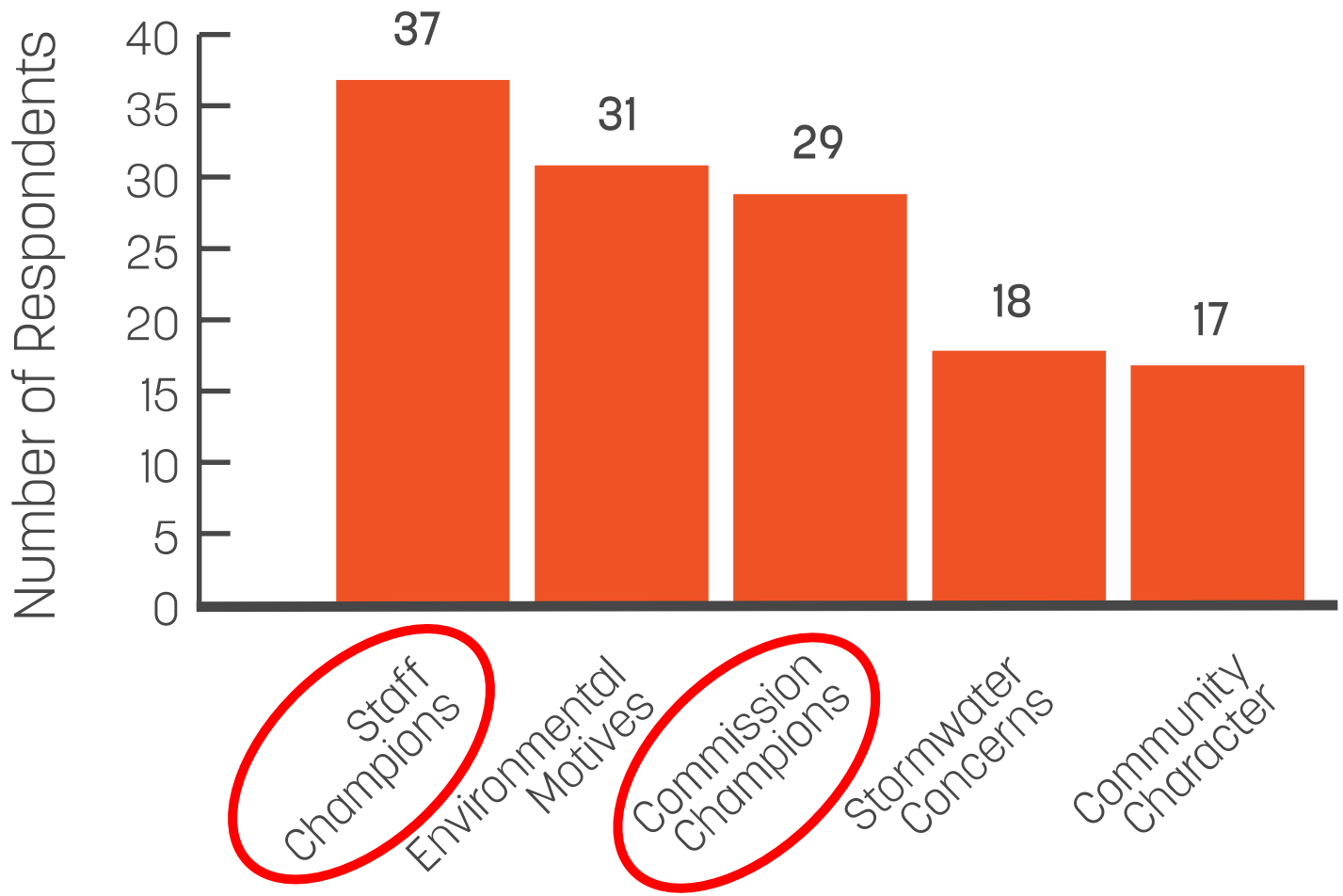
Interviewed 78 people in 74 of 85 towns reviewed

Who'd we talk to?

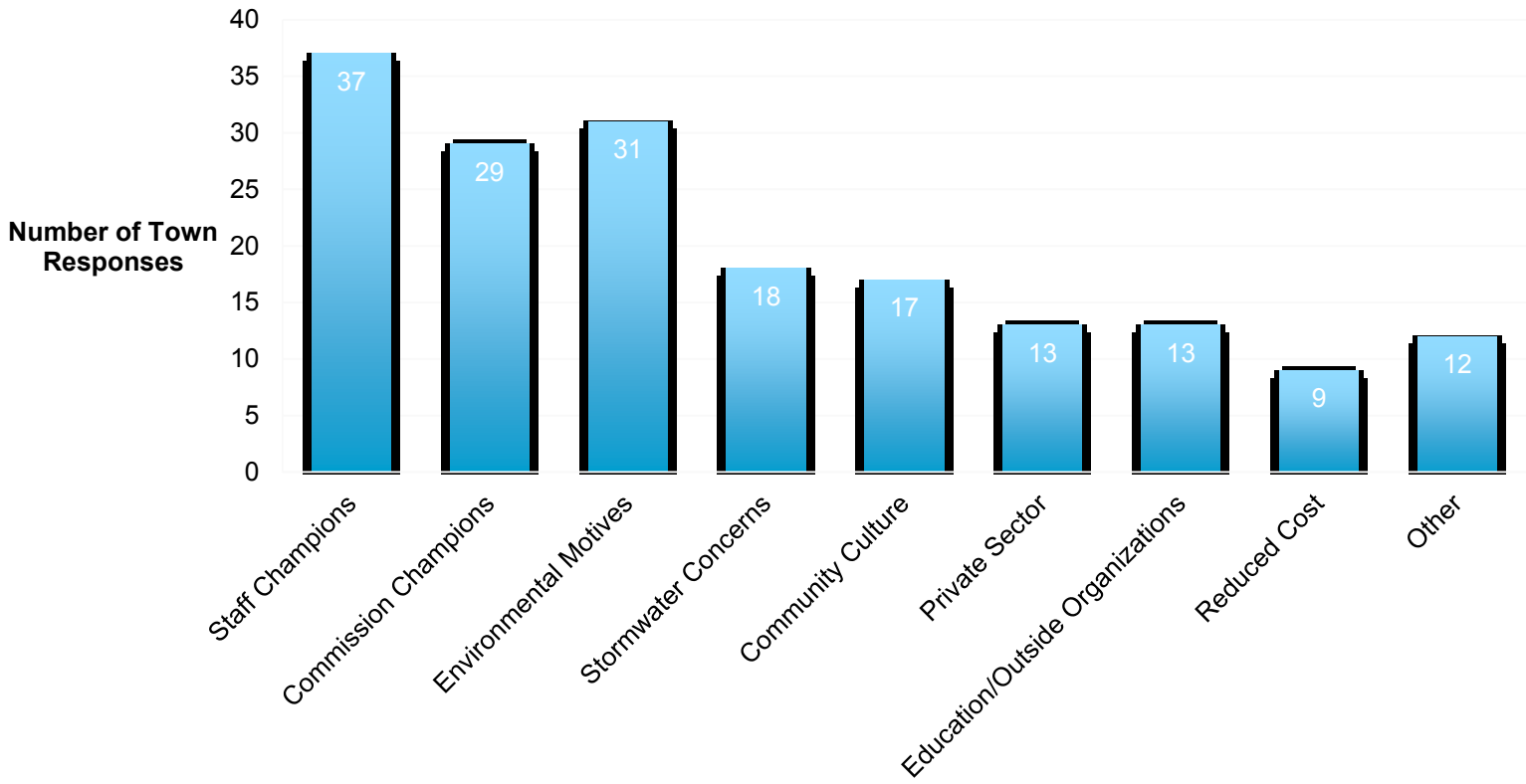


78 interviews over 2 months

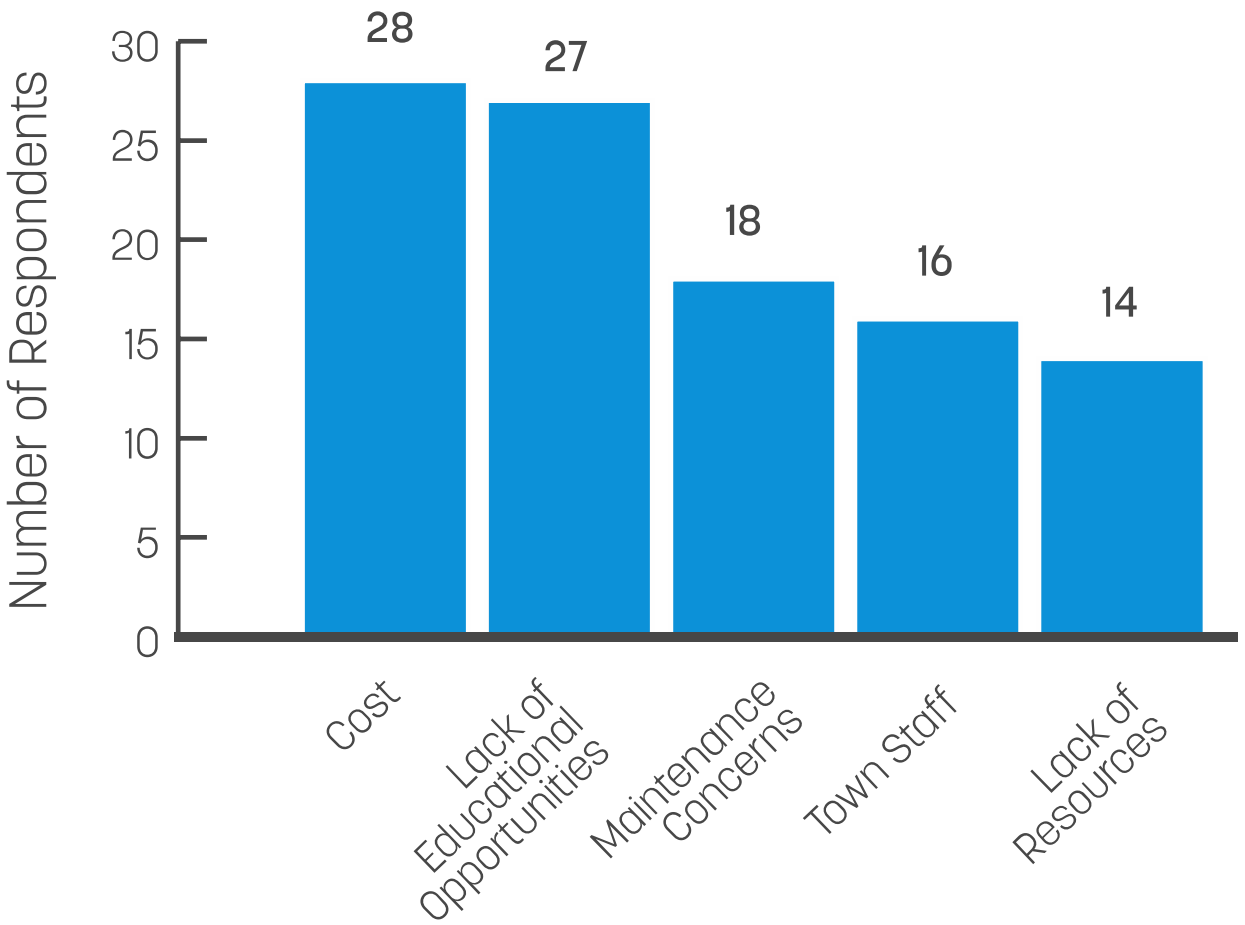
Top 5 LID Drivers



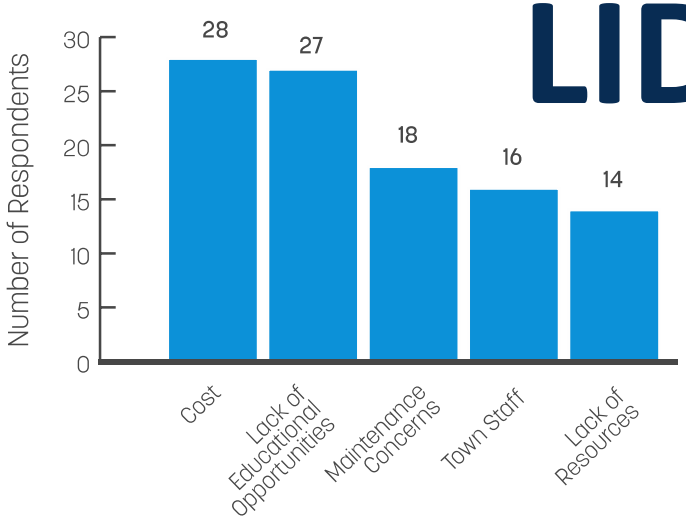
All LID Drivers



Top 5 LID Barriers



LID Barriers

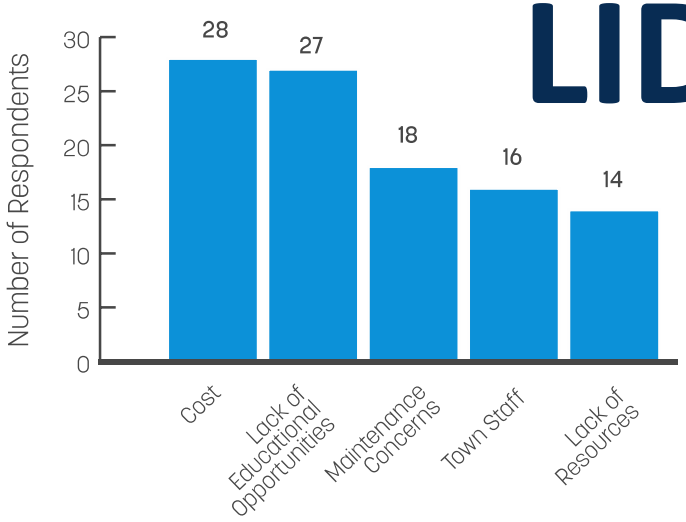


Cost: to developers/applicants, to town, to residents

Lack of ed: commissioners, community/homeowners, contractors, developers, nurseries, private engineers, town engineers, planners, staff

Maintenance: difficult to keep track of LID, maintenance concerns

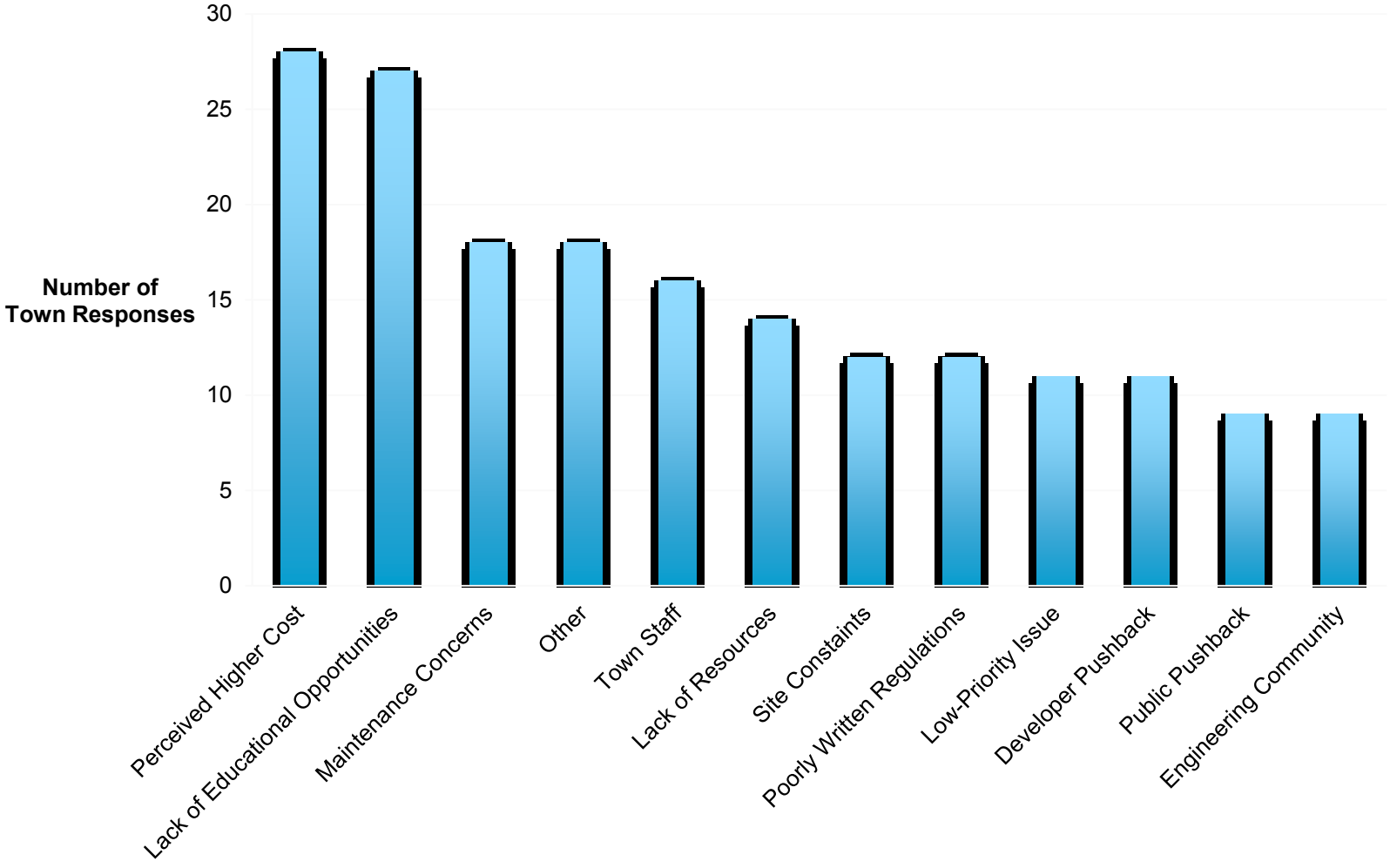
LID Barriers



Town staff: lack of coordination between planning and public works, planner, public safety (fire department, etc.), public works, town engineer

Lack of resources: lack of funding/resources, no in-house engineer, time constrains (Staff/Volunteers)

All LID Barriers



What it all means

- Education is still key – finding champions & removing obstacles
- Many barriers are an education issue
- Maintenance challenge – who is responsible?

State of LID StoryMap

http://s.uconn.edu/stateoflid

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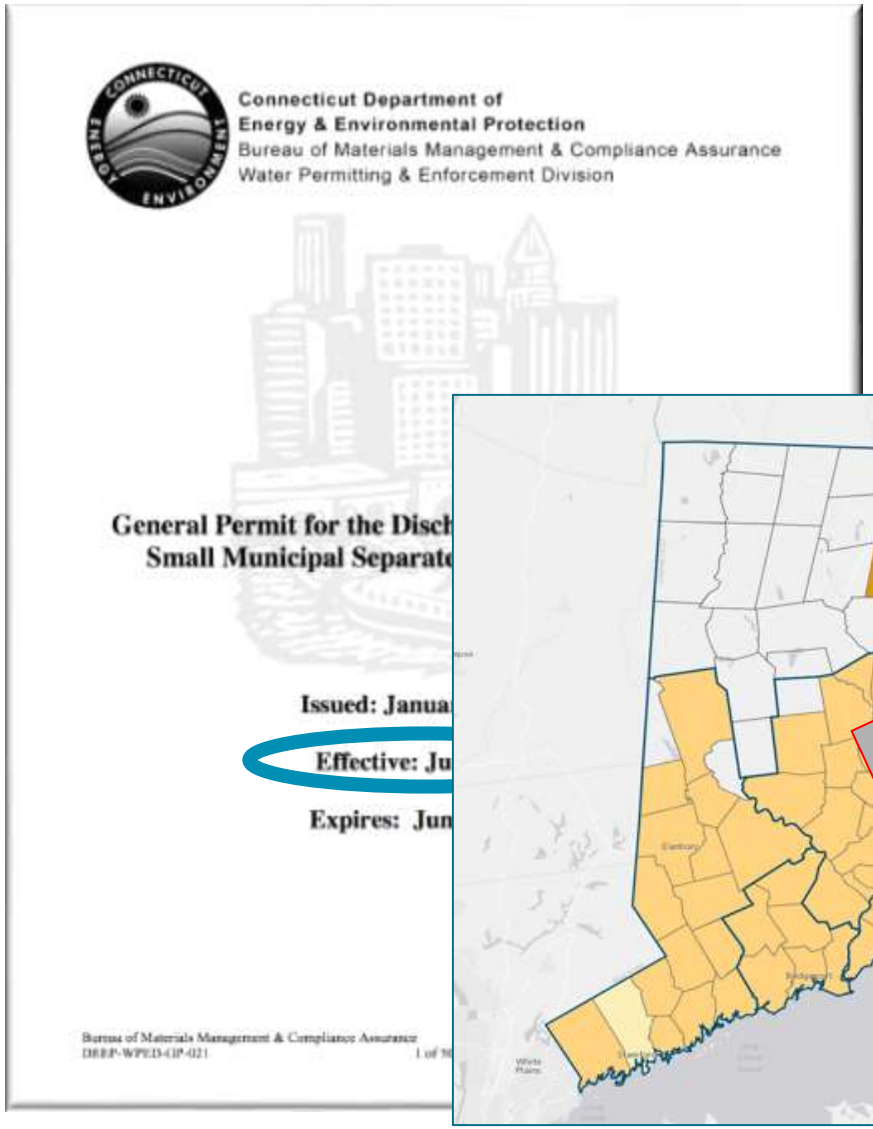
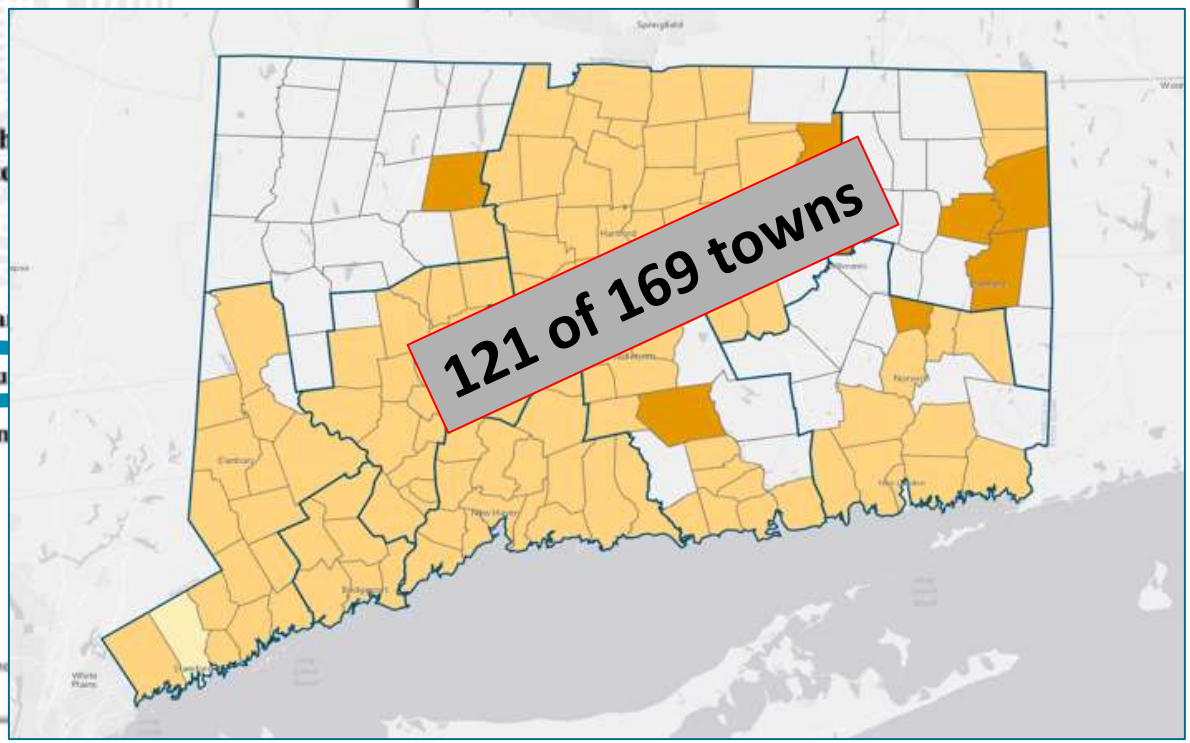
From carrots to sticks





Removing LID barriers

Towns must:

"**identify and**, where appropriate, **reduce or eliminate** existing local **regulatory barriers to implementing LID** and runoff reduction practices"

LID - 1st option

Towns must require that:

"a developer or contractor seeking the permittee's approval **shall consider the use of low impact development ("LID")** and runoff reduction site planning and development practices **prior to** the consideration of **other practices**"

Retrofit Program

Towns must:

- reduce **directly connected impervious area (DCIA) by 2%** by 2022
- develop a plan for meeting 2% goal
- track reductions & additions
- 5 year look back to 2012

Retention Standard

On sites greater than 1/2 acre towns must require:

New development

- retain 1” on site

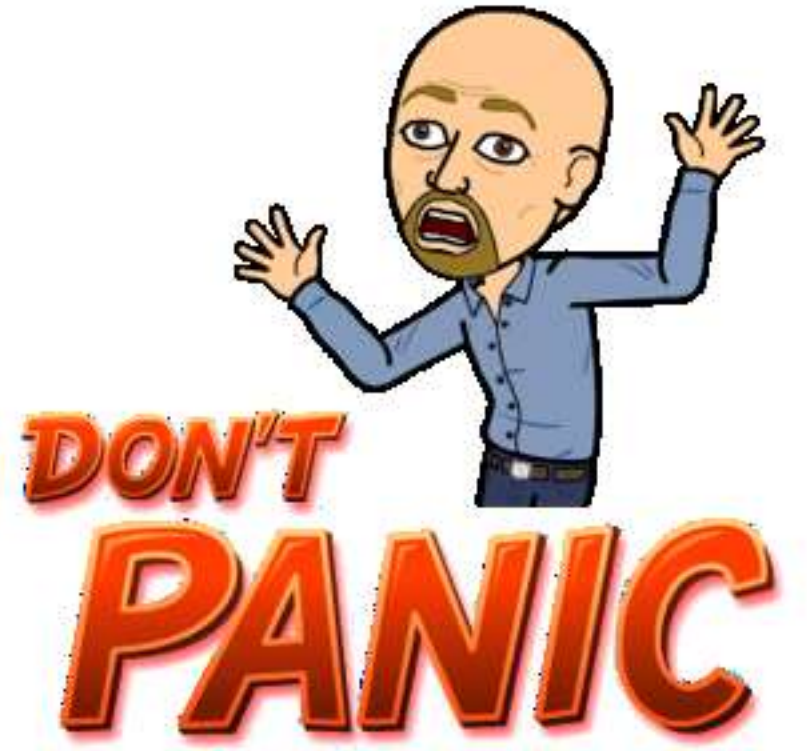
Redevelopment

- DCIA less than 40% - 1” on site
- DCIA greater than 40% - ½” on site

So . . .

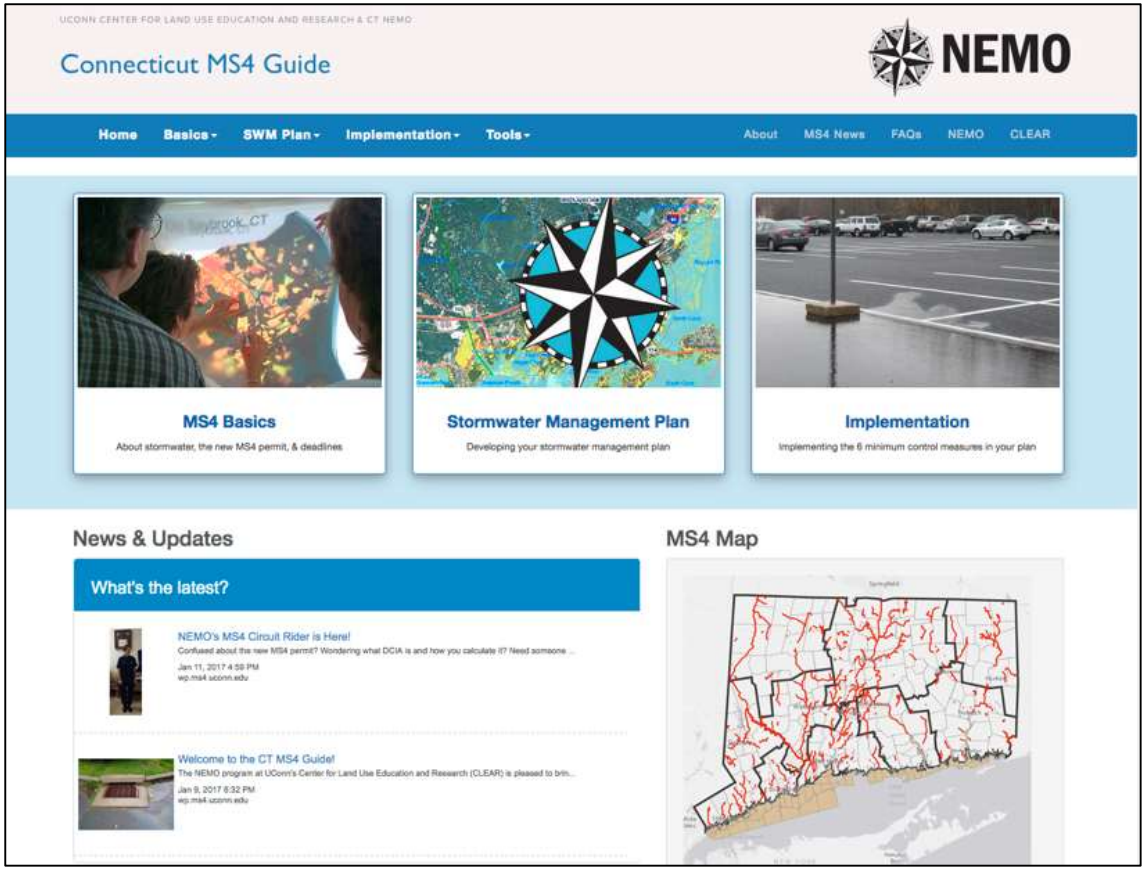
So . . .

So . . .



NEMO MS4 Support

- circuit rider
- website
- workshops & webinars
- regulation/policy templates



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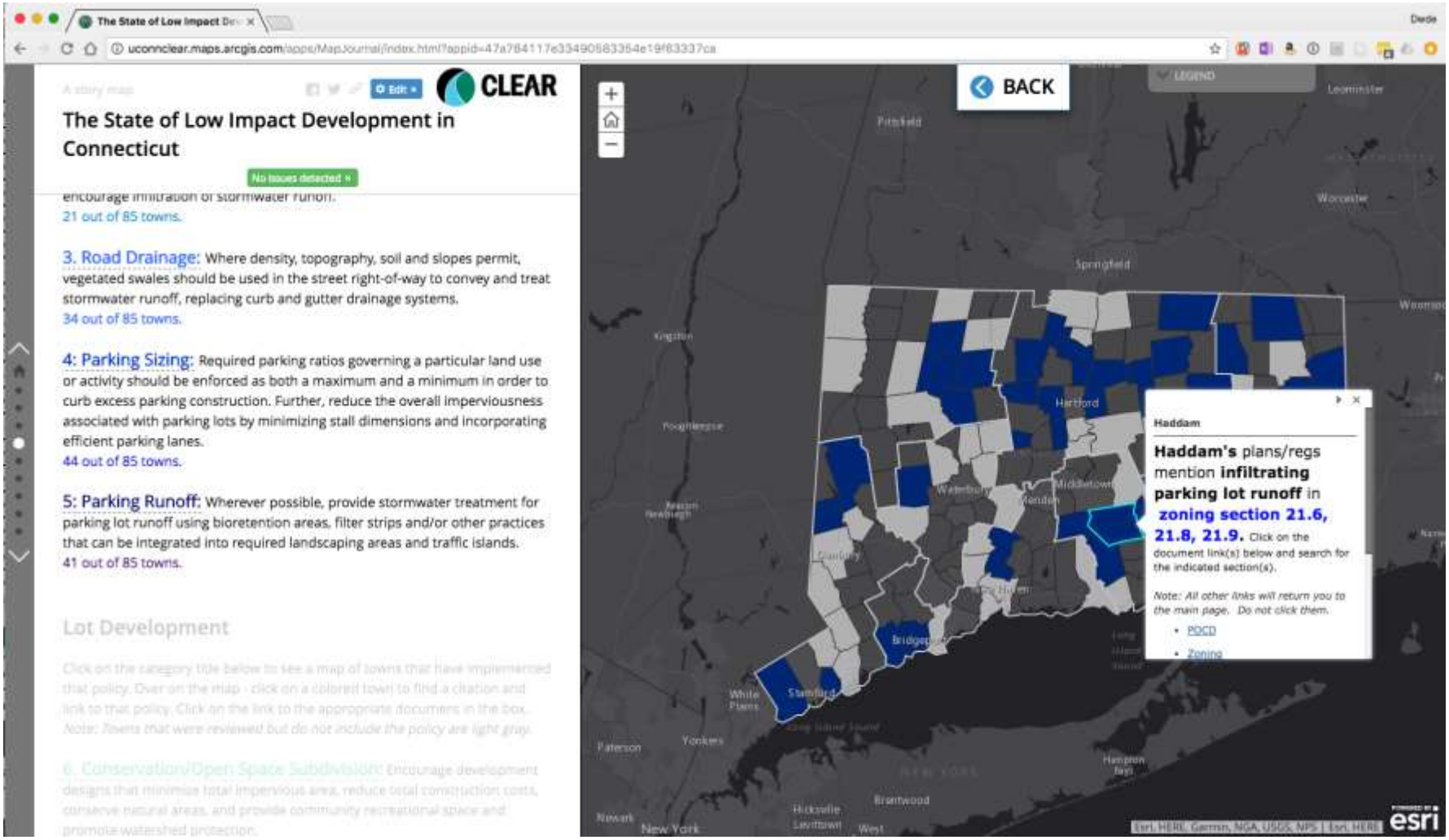
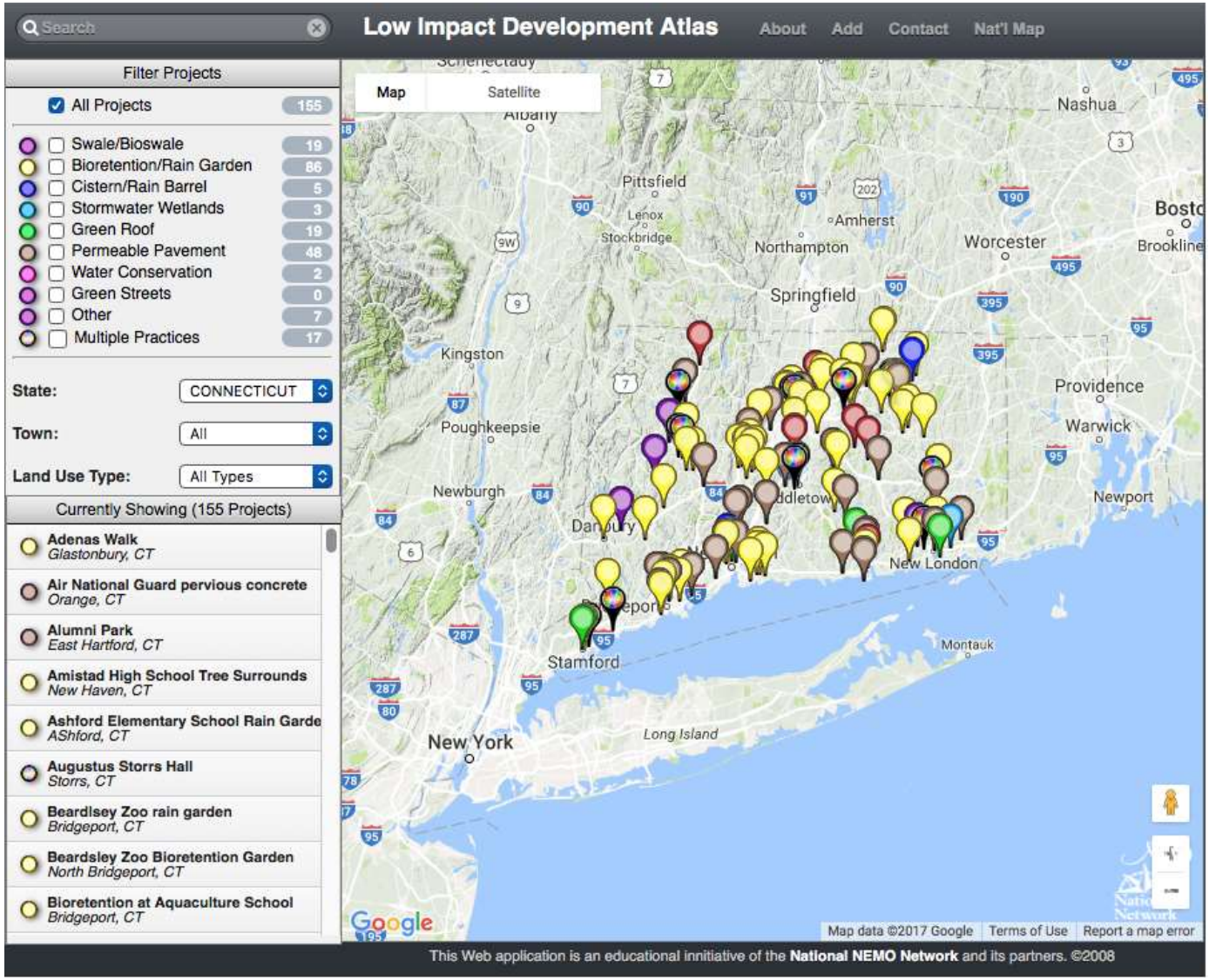


http://lidmap.uconn.edu



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Thanks

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