Tools to Help Meet CT's MS4 Requirements

COST Conference on

Environmental & Land Use Issues

October 23, 2018

Dave Dickson, UConn CLEAR

Center for Land Use Education & Research

Water (NEMO)

Land Use & Climate Resiliency

Geospatial Tools & Training

Conservation & STEM Education

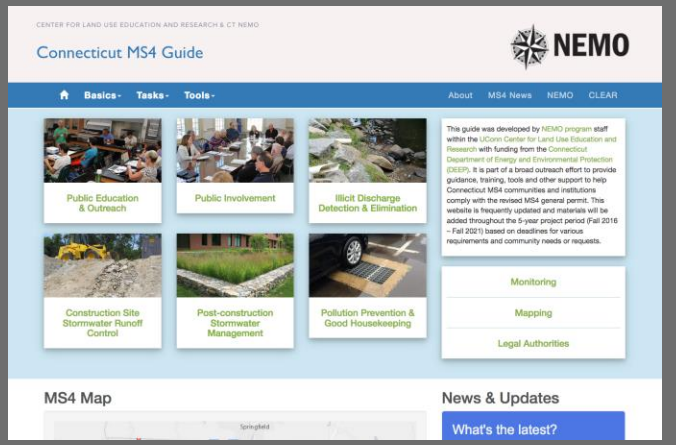
MISSION: *to provide information and assistance to land use decision makers and other audiences in support of* ***better land use decisions***, ***healthier natural resources***, *and* ***more resilient communities***.

NEMO's MS4 Support

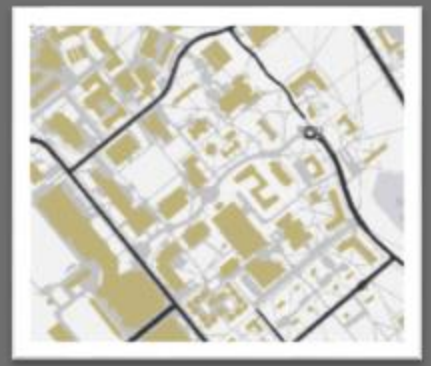
Funded by DEEP for 5 years

- MS4 educator
- website & listserv
- workshops & webinars
- maps & data

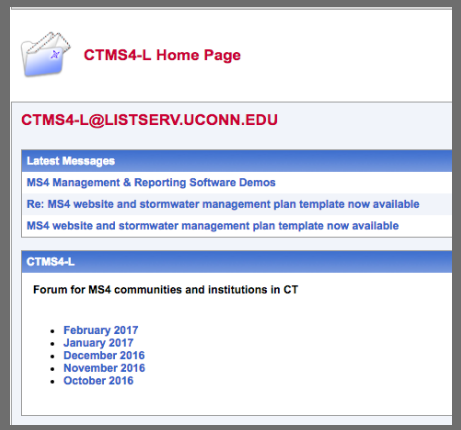
Amanda Ryan



http://nemo.uconn.edu/ms4



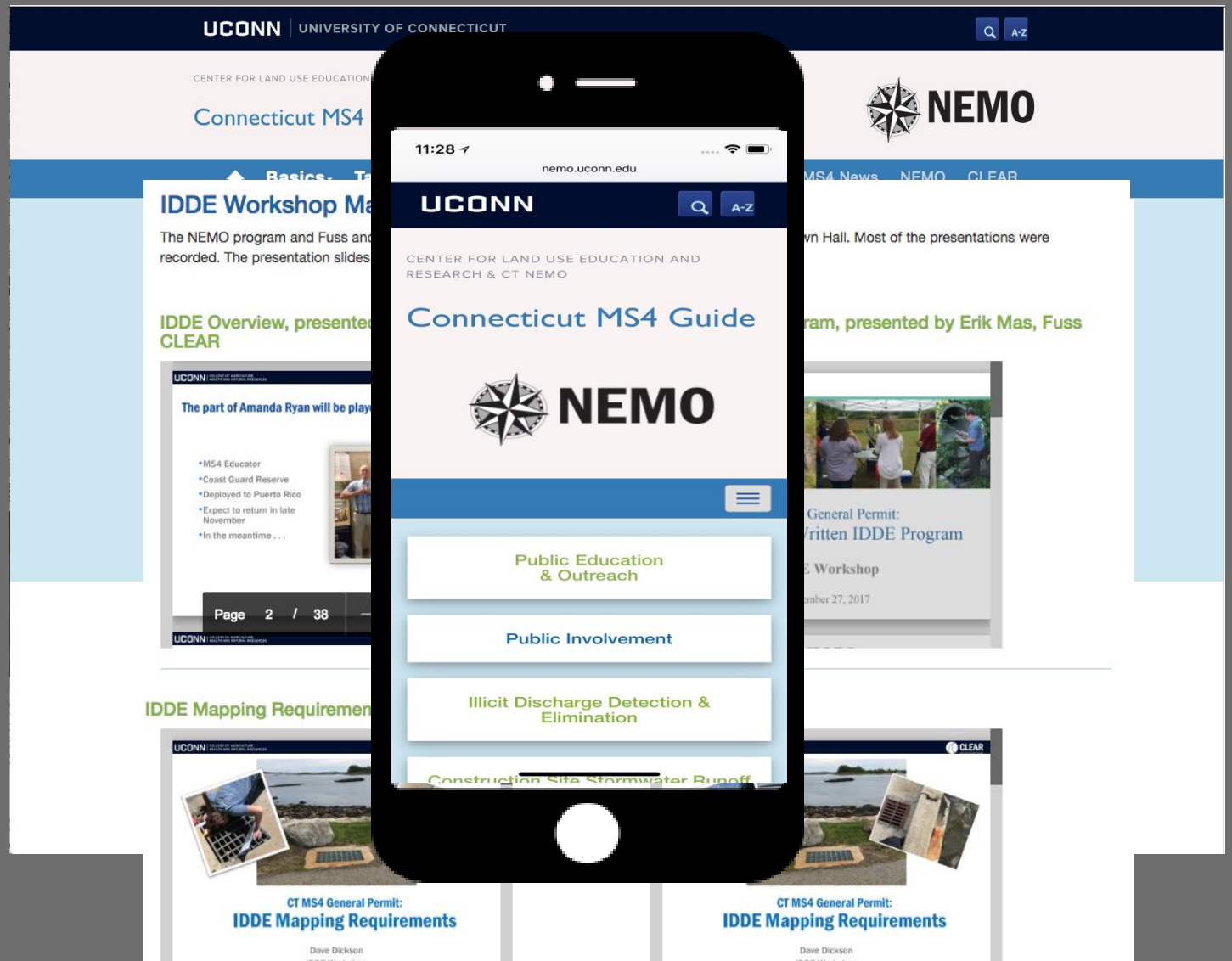
maps & data



http://s.uconn.edu/ctms4list

workshops & webinars

Online MS4 Guide



MS4 Full Task List

MS4 Tasks for 2004 Permittees

Legend (MCM 1 / MCM 2 / MCM 3 / MCM 4 / MCM 5 / MCM 6 / Monitoring)	Permit page	Implementation Deadline	Year 1 July 2017 - June 2018	Year 2 July 2018 - June 2019	Year 3 July 2019 - June 2020	Year 4 July 2020 - June 2021	Year 5 July 2021 - June 2022
Employee stormwater management training program	31	Jul 1 2017	✓	✓	✓	✓	✓
Update and implement public education and outreach program	19	Jul 1 2017	✓	✓	✓	✓	✓
Interdepartmental Coordination plan	26	Jul 1 2017	✓	✓	✓	✓	✓
Site plan review for stormwater practices	26	Jul 1 2017	✓	✓	✓	✓	✓
Site inspections for stormwater practices	26	Jul 1 2017	✓	✓	✓	✓	✓
Receive public input to development projects	26	Jul 1 2017	✓	✓	✓	✓	✓
Notify developers of DEEP construction general permit	26	Jul 1 2017	✓	✓	✓	✓	✓
Track DCIA (additions and substractions)	30	Jul 1 2017	✓	✓	✓	✓	✓
Citizen reporting program	22	Jul 1 2017	✓	✓	✓	✓	✓
Record illicit discharge abatement activities	23	Jul 1 2017	✓	✓	✓	✓	✓
Maintain Inventory of known SSOs (5 year look back)	App B p2	Oct 30 2017	✓	✓	✓	✓	✓
Post draft Annual Report	21	Feb 15 annually	✓	✓	✓	✓	✓
Submit final Annual Report to DEEP	21	Apr 1 annually	✓	✓	✓	✓	✓
Sweep streets in Priority Areas at least 1x per year	35	none specified	✓	✓	✓	✓	✓
MS4 Property O&M	33	none specified	✓	✓	✓	✓	✓
Log catch basin inspections & cleanings (including volume of material removed)	37	none specified	✓	✓	✓	✓	✓
Develop/implement deicing material SOP	37	none specified	✓	✓	✓	✓	✓
Implement snow/ice SOP to minimize stormwater pollution	37	none specified	✓	✓	✓	✓	✓
Establish catch basin inspection and cleaning schedule	36	Jul 1 2018	✓				
Develop alternate plan for sweeping streets outside Priority Area (if not sweeping < 1x per year)	35	Jul 1 2018	✓				
Develop written IDDE program	22 & App B p4	Jul 1 2018	✓				
Establish IDDE legal authority	23 & App B p5	Jul 1 2018	✓				
Map all MS4 outfalls	23 & App B p2	Jul 1 2019		✓			
Update construction site legal authority	25	Jul 1 2019		✓			
Maintenance plan for SW ponds & treatment structures	30	Jul 1 2019		✓			
Determine baseline DCIA	30	Jul 1 2020			✓		
Develop retrofit plan	32	Jul 1 2020			✓		
Complete dry weather outfall sampling (for high & low priority catchments)	App B p12	Jul 1 2020			✓		
Detailed MS4 mapping	App B p3	Jul 1 2020			✓		
Inspect all catch basins in Priority Areas	36	Jul 1 2020			✓		
Review regulations for LID barriers	27	Jul 1 2021				✓	
Legal authority for SW retention standards	27	Jul 1 2021				✓	
Monitor 6 'worst' outfalls to impaired waters annually	43	Jul 1 2021				✓	✓
Implement projects from retrofit plan	33	Jul 1 2021				✓	✓
Inspect all catch basins outside Priority Areas	36	Jul 1 2022					✓
2% impervious disconnection goal	33	Jul 1 2022					✓
Screen all outfalls to impaired waters	44	Jul 1 2022			50%		✓

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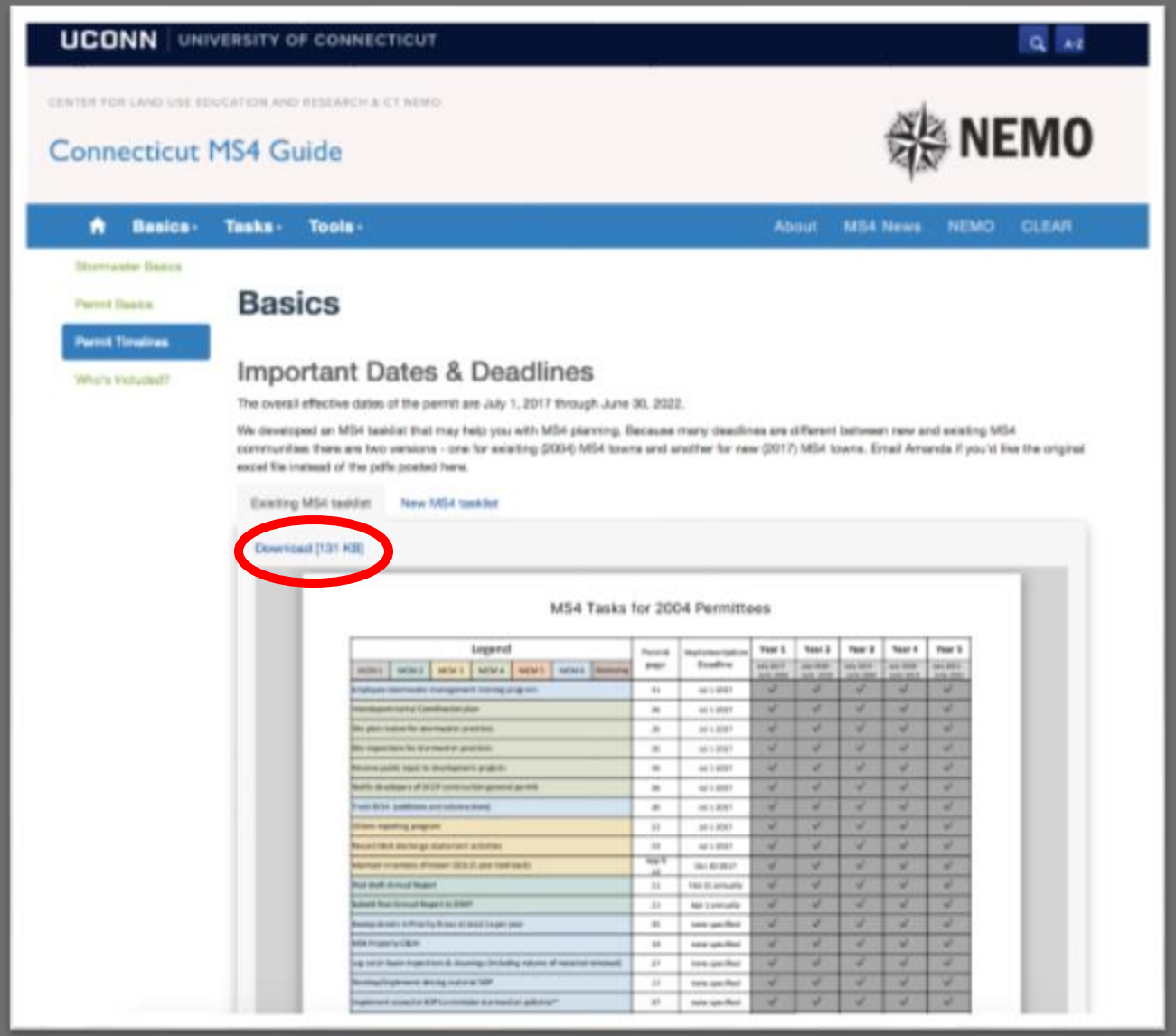
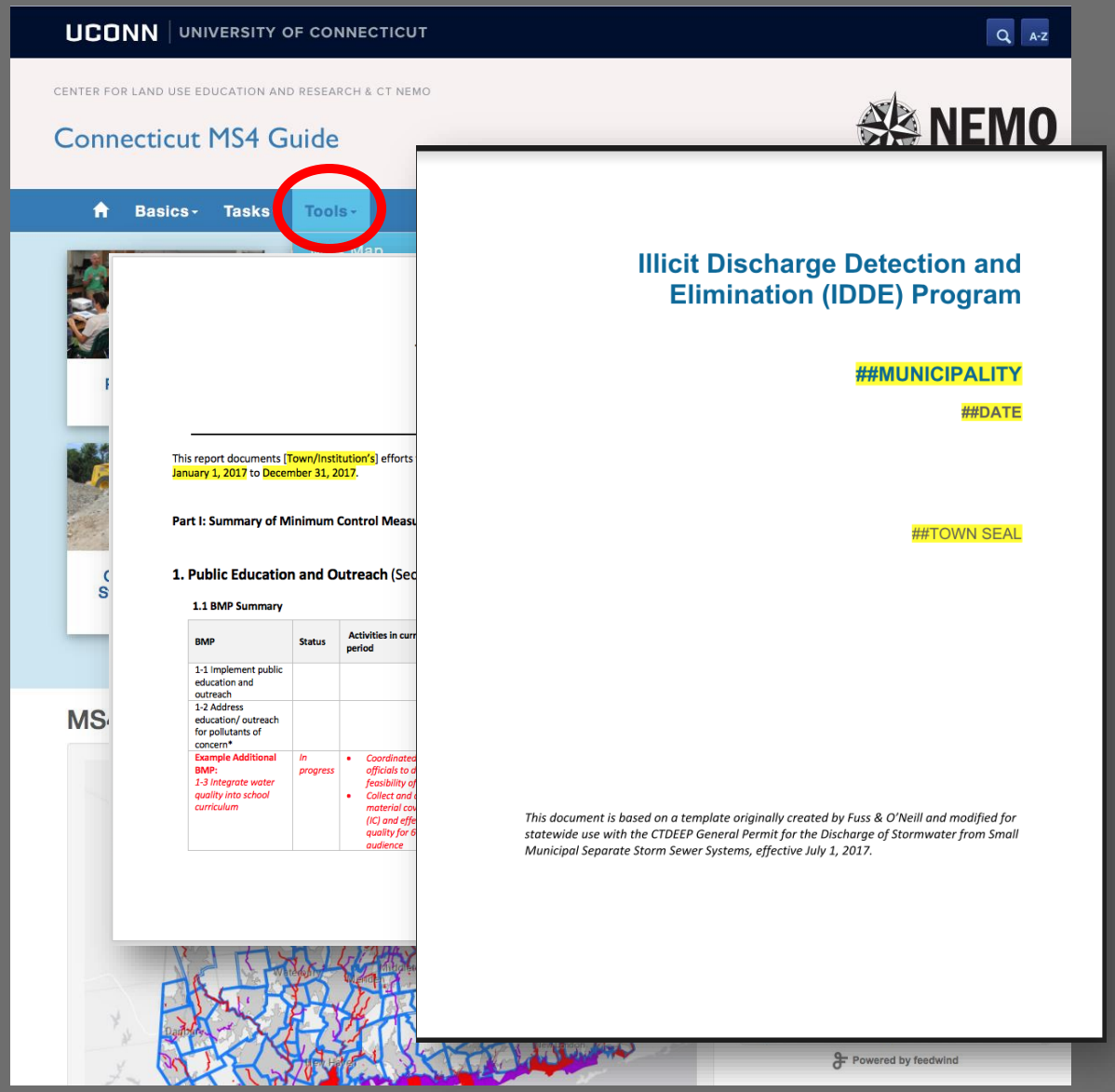


http://nemo.uconn.edu/ms4

NEMO

Tools & Templates

- SMP, Annual Report, & IDDE Templates
- Legal authorities templates (soon)



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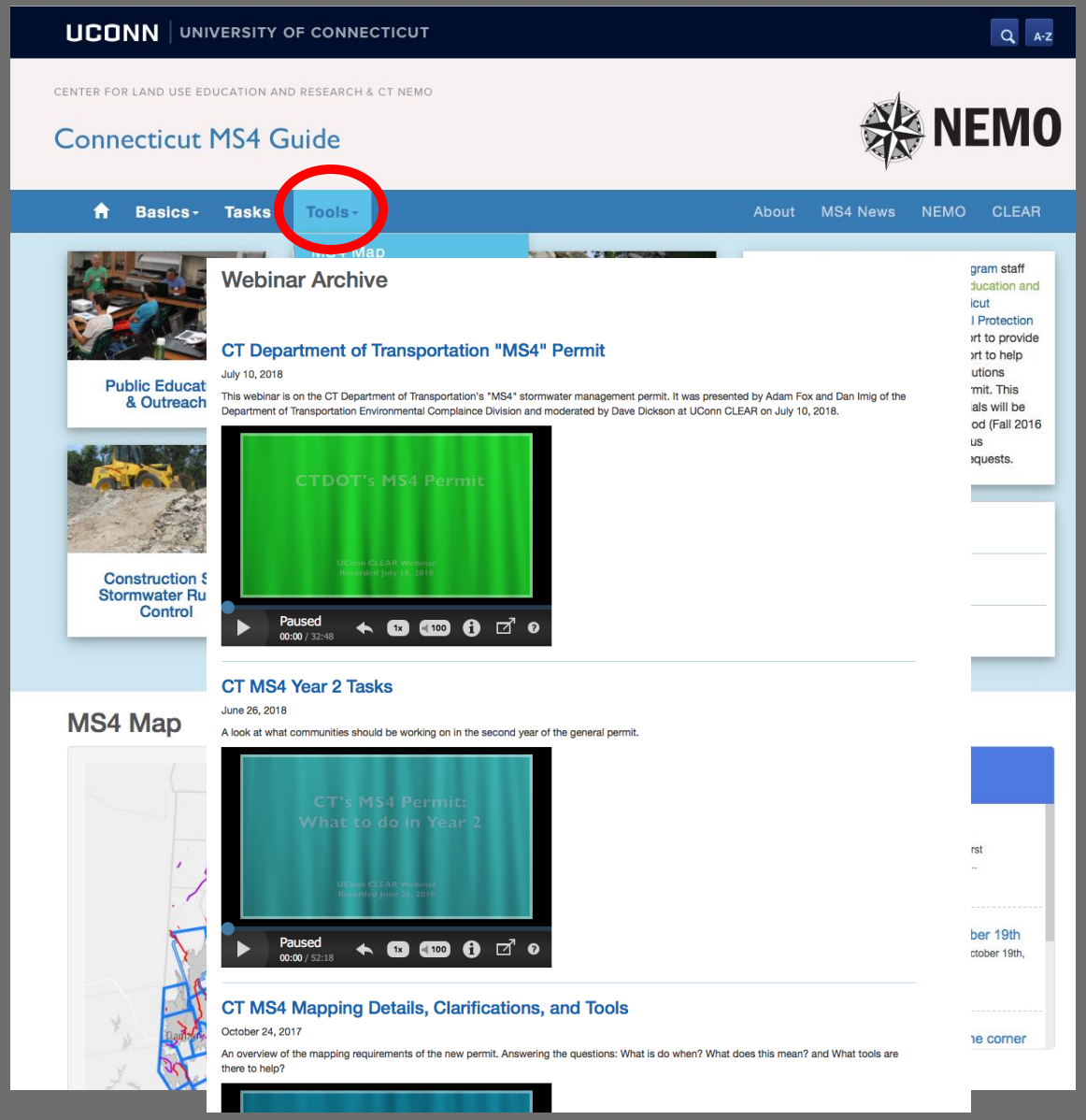

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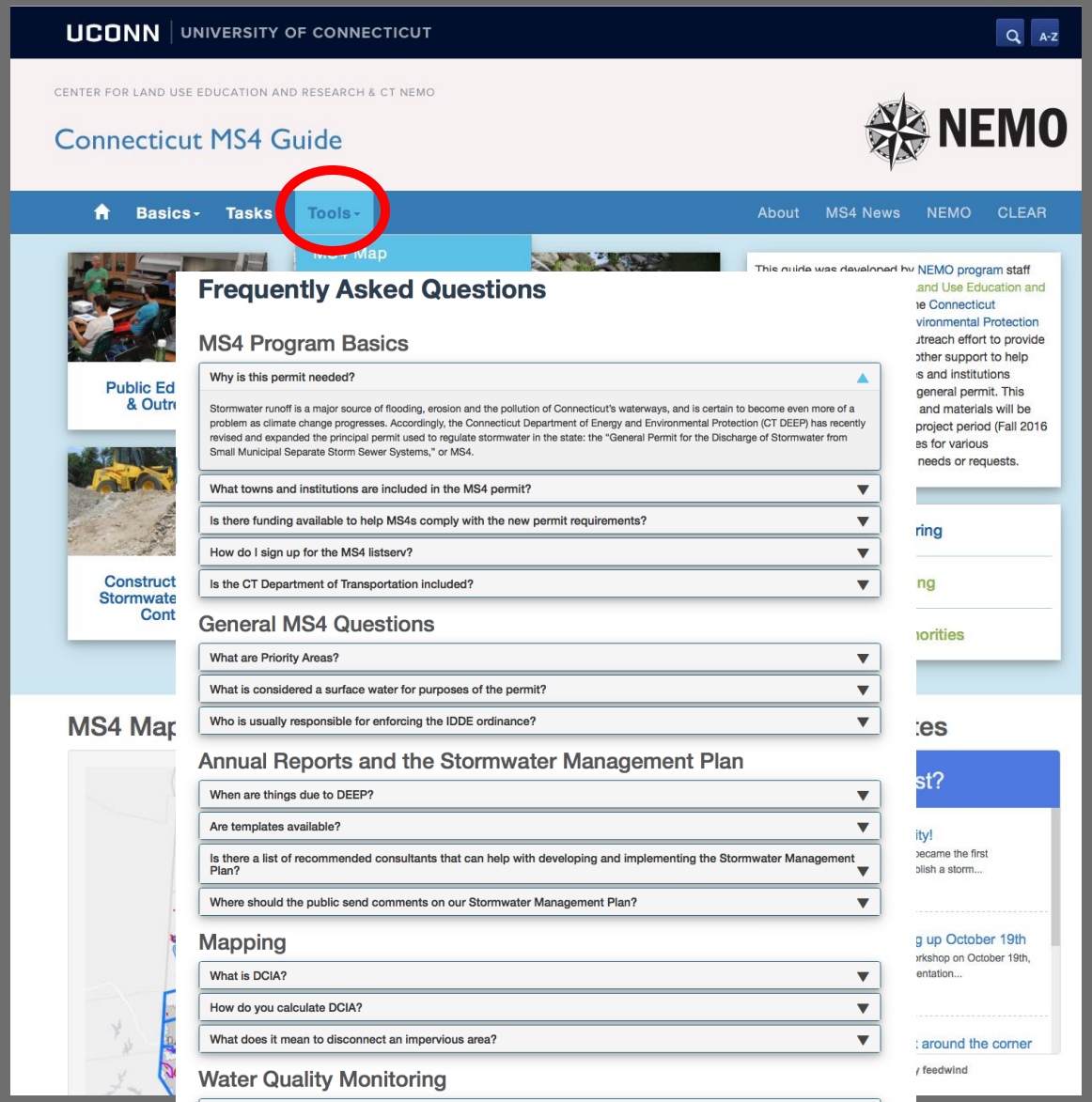
NEMO

Tools & Templates

- SMP, Annual Report, & IDDE Templates
- Legal authorities templates (soon)
- Recorded webinars
- FAQs



http://nemo.uconn.edu/ms4

NEMO

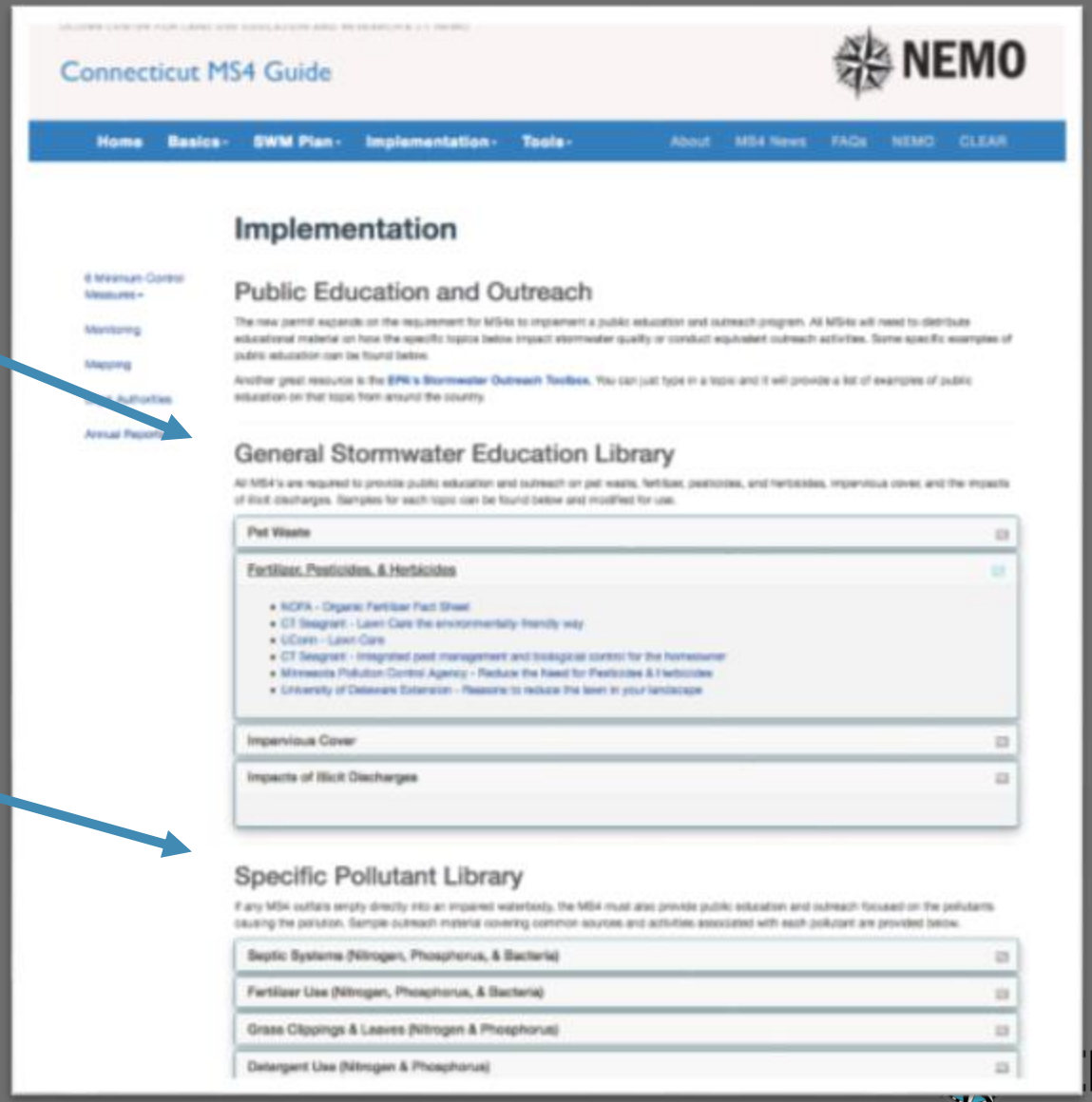
Public Education and Outreach Library

Required topics

- Pet waste
- Fertilizer, herbicides, and pesticides
- Impervious cover
- Illicit discharges

Additional topics

- Topics based on impairments for nitrogen, phosphorus, bacteria, mercury



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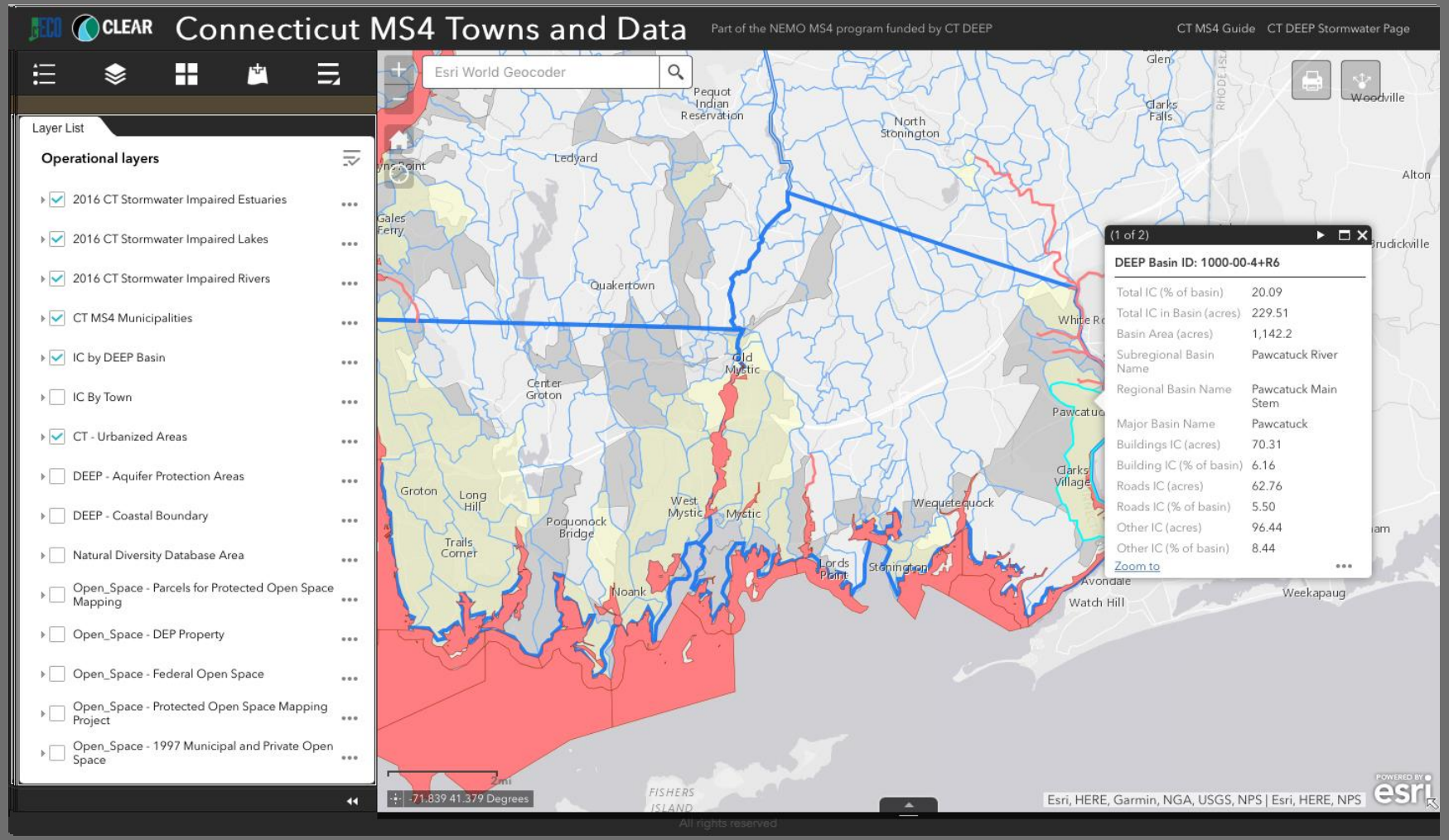
MS4 Map Viewer

- Urbanized Area
- MS4 Impaired Waters
- New HR IC Data
  - By Basin
  - By Town



http://s.uconn.edu/ctms4map

NEMO

Mapping Your Stormwater System

- **Outfalls & interconnections**
  - All outfalls (townwide, regardless of size)
  - Due Date
    - July 1, 2019 (existing MS4s)
    - July 1, 2020 (new MS4s)
- **Entire system**
  - In priority areas
  - Due Date
    - July 1, 2020 (existing MS4s)
    - July 1, 2022 (new MS4s)

MS4 Mapping Workshop

Map & Disconnect Impervious Cover

- Establish baseline estimate of connected impervious cover
- Develop plan to disconnect 2% by 2022
- Track disconnections

Disconnected Impervious

Map & Disconnect Impervious Cover

- Establish baseline estimate of connected impervious cover
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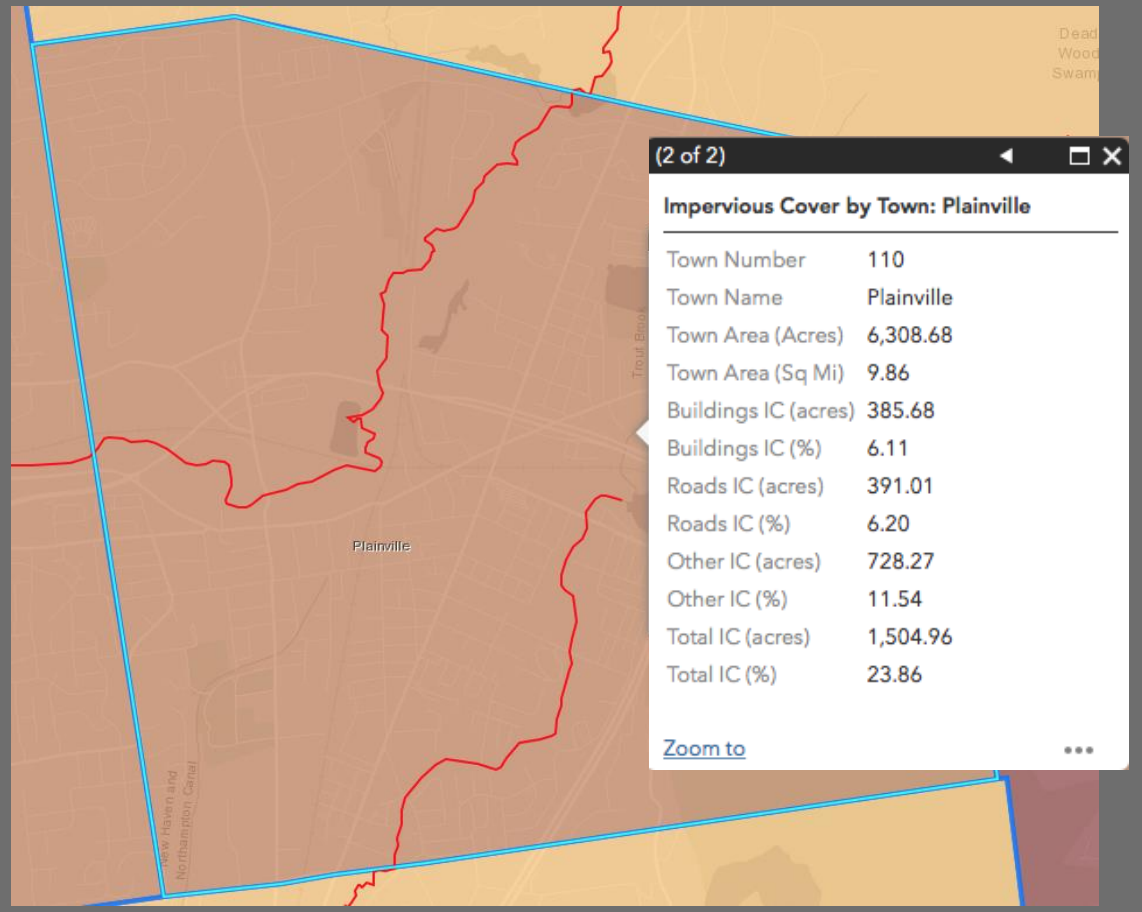
- Track disconnections
- New Statewide High-Res IC Data



Map & Disconnect Impervious Cover

- Establish baseline estimate of connected impervious cover
- Develop plan to disconnect 2% by 2022
- Track disconnections
- New Statewide High-Res IC Data
- Mapping workshop recordings

Water Quality Monitoring

Two monitoring requirements:

- Impaired waters
- IDDE

☆ Helpful resources

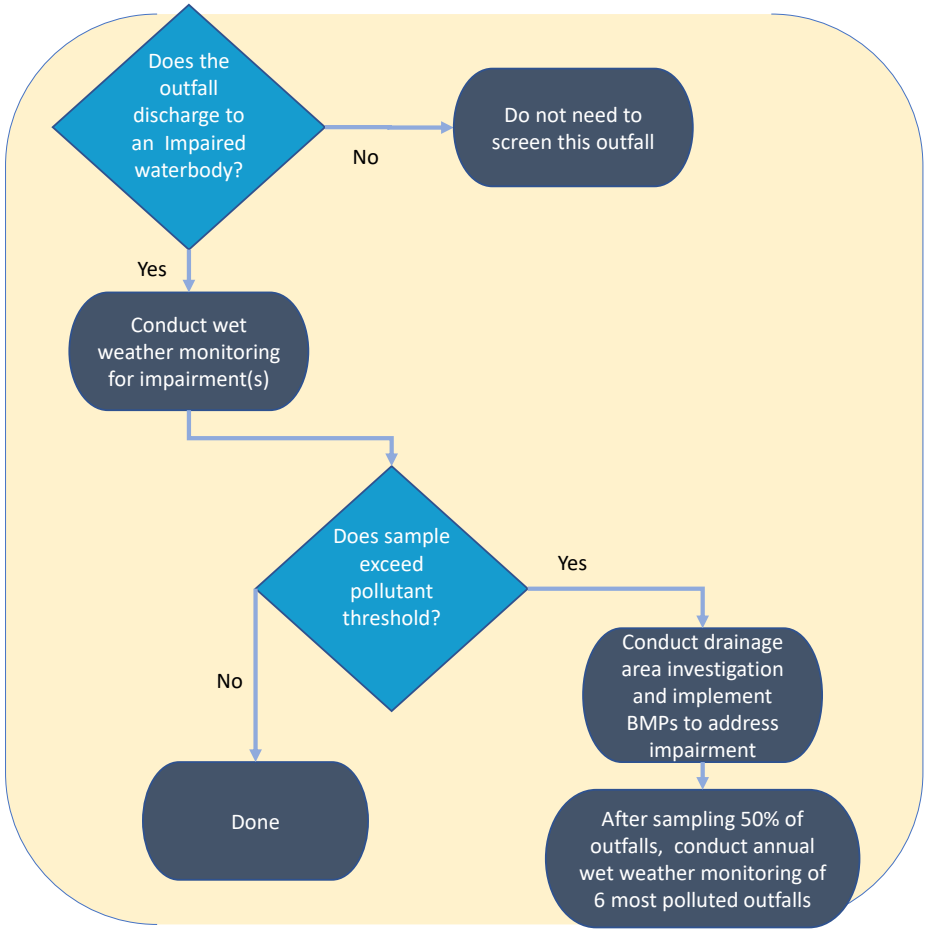
- MS4 Monitoring webpage
- MS4 Map viewer

MS4 Monitoring Requirement Comparison

	Impaired waters monitoring	Baseline monitoring (IDDE)	Catchment Investigation Procedure (IDDE)
area covered	All outfalls to Stormwater impaired waters	Outfalls in priority areas (urbanized area, discharges to impaired waters or in basin where DCIA > 11%) that are categorized as either high or low priority catchments (see IDDE section of this website or appendix B of permit for more information)	Problem, High Priority and Low Priority catchments in the priority area. Those with at least one SVF to be investigated and screened.
type of sampling	wet weather	dry weather for initial baseline screening	dry weather manhole investigation wet weather screening at outfall for catchment with at least one SVF
pollutant(s) to screen for	The listed stormwater pollutant of concern (nitrogen, phosphorus, bacteria, or other pollutant of concern). Note that for waters impaired by 'other pollutant of concern' screen for turbidity.	Listed stormwater pollutants of concern (if any), PLUS: ammonia chlorine conductivity salinity *E. coli.* (freshwater) or enterococcus (saline or brackish receiving water) surfactants temperature	Dry wx: ammonia, chlorine, and surfactants Wet wx: listed impairment pollutant(s) (if any), PLUS ammonia chlorine conductivity salinity *E. coli.* (freshwater) or enterococcus (saline or brackish receiving water) surfactants temperature

Water Quality Monitoring

Impaired waters outfall monitoring



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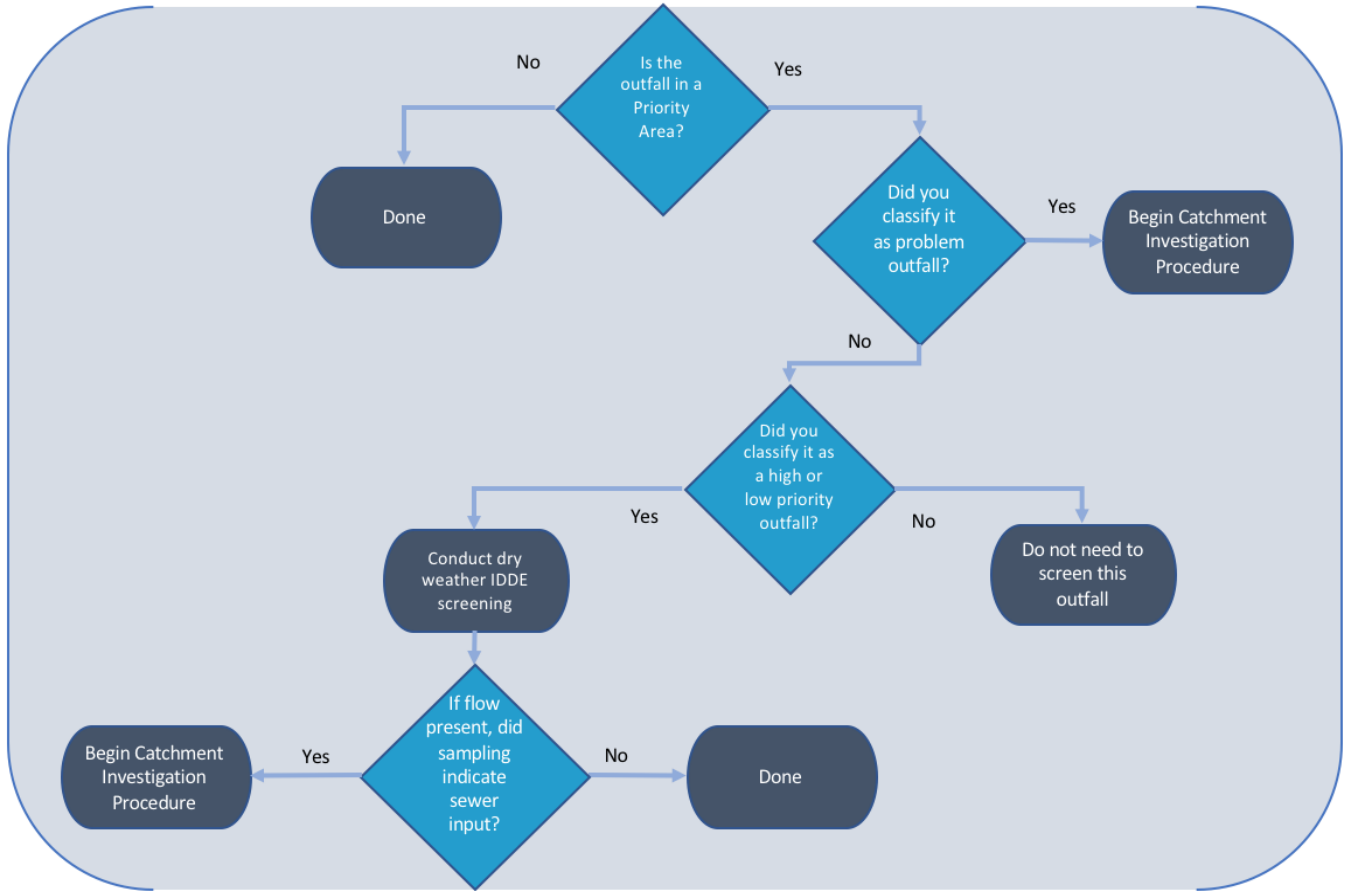
Water Quality Monitoring

IDDE baseline monitoring



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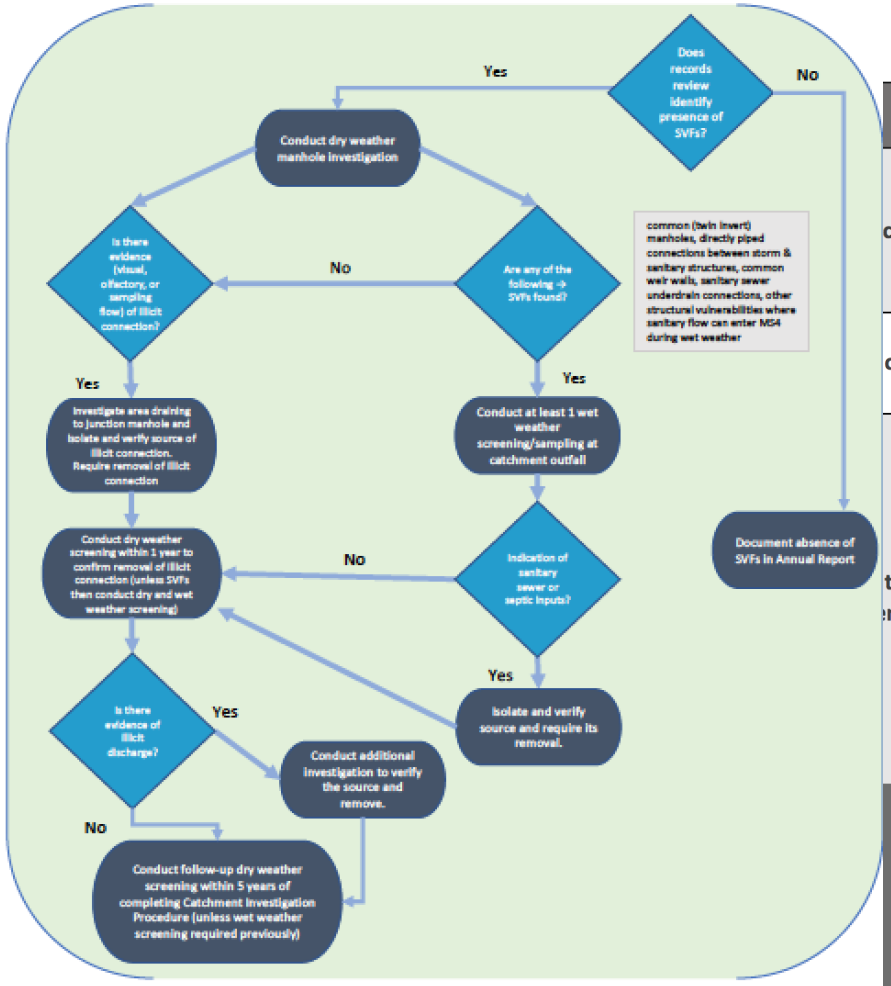
Water Quality Monitoring

IDDE Catchment Investigation Procedure



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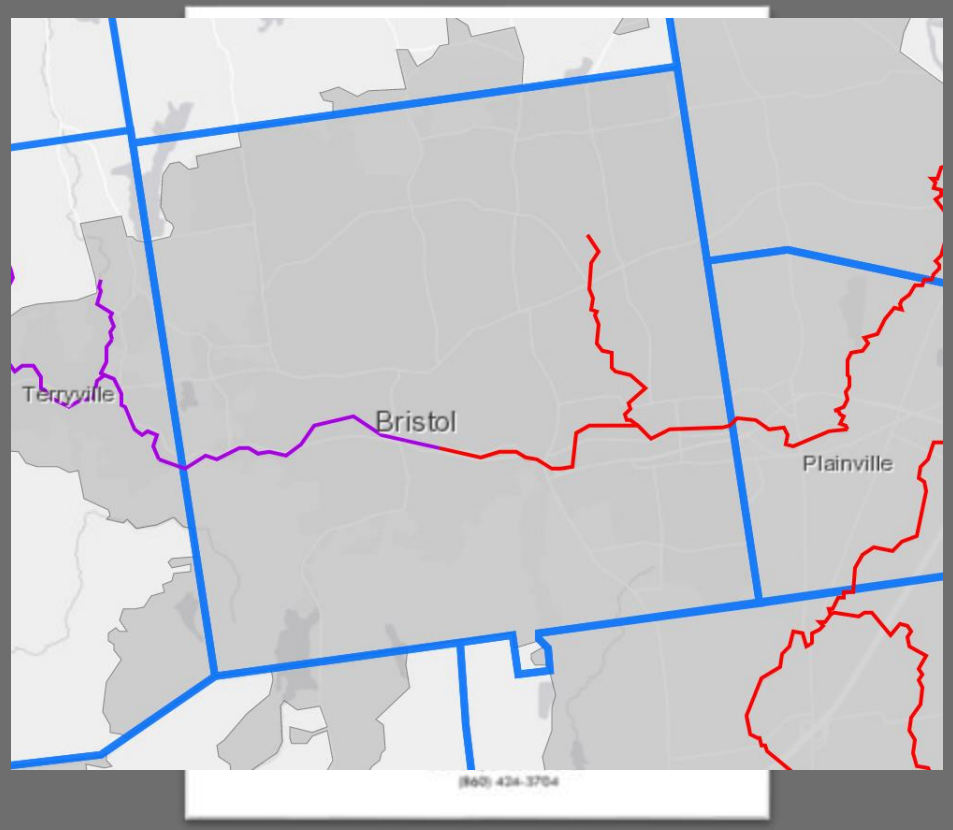
Water Quality Monitoring – Identifying Impaired Waters

- Know the impaired waters in municipality/institution
  - http://s.uconn.edu/ctms4map
- Begin monitoring outfalls to impaired waters by:

  July 2018 – Existing MS4

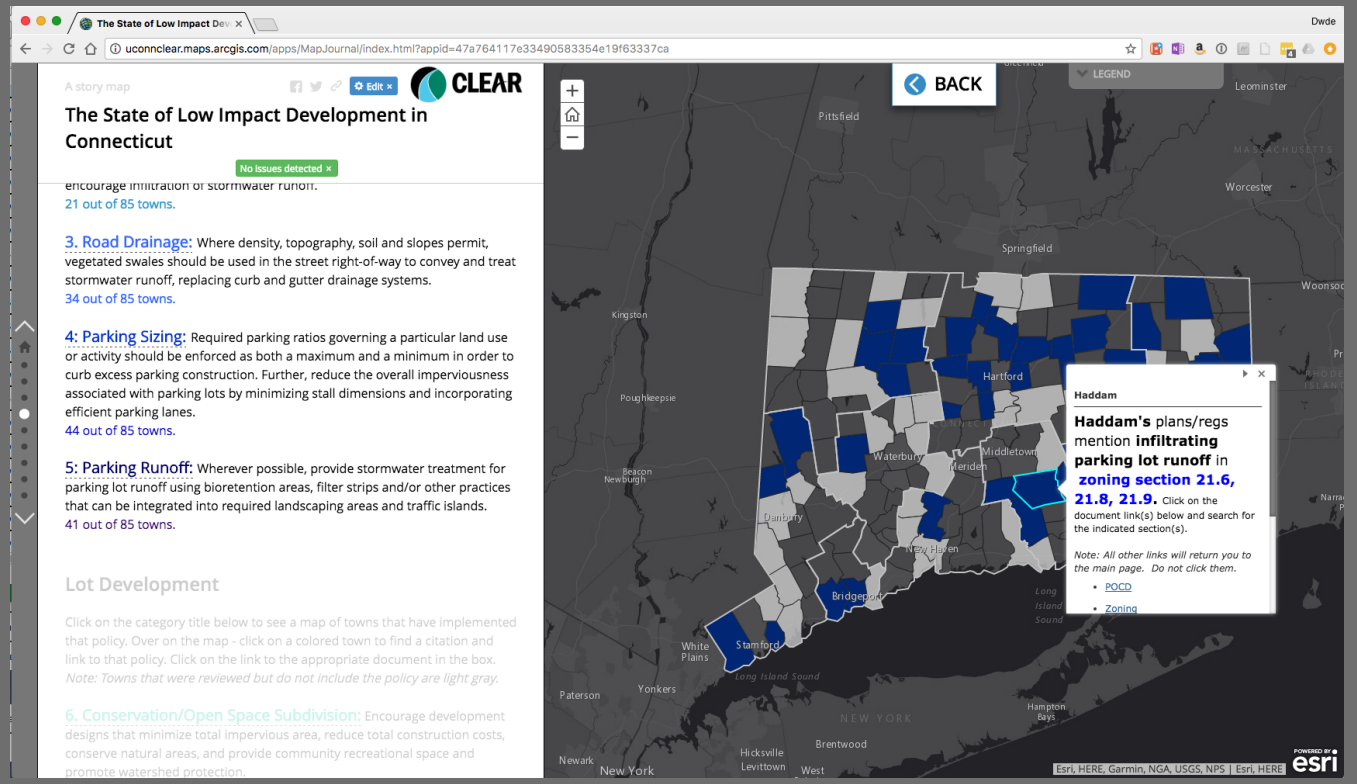
  July 2019 – New MS4



- Red – use for determining priority area *and* for impaired waters monitoring
- Purple – impaired waters monitoring only

Updating Land Use Regulations

- Remove obstacles to LID
- Establish LID as preferred approach
- 2% disconnect by 2022
- Site redevelopment retention standards



http://s.uconn.edu/stateoflid

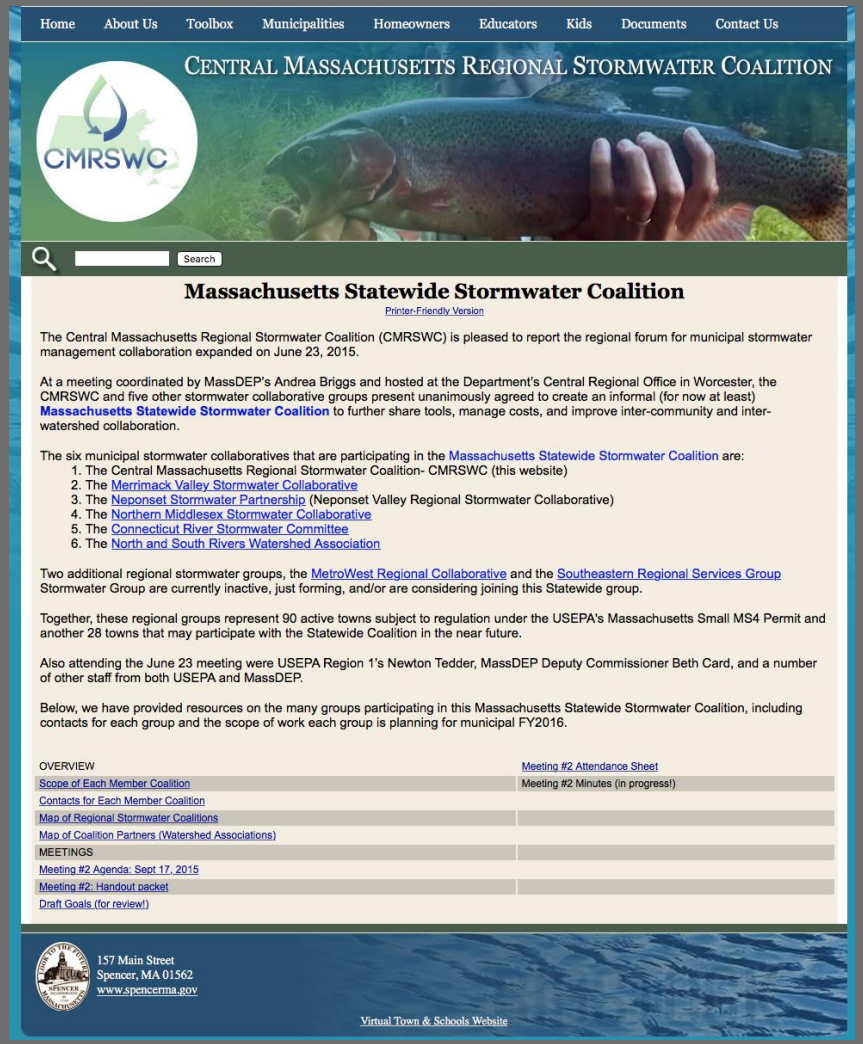
NEMO

Future Workshop/Webinar Topics

- LID Isn't Scary Tour – Oct. 30

Future Workshop/Webinar Topics

- LID Isn't Scary Tour – Oct. 30
- Stormwater Collaboratives



Future Workshop/Webinar Topics

- LID Isn't Scary Tour – Oct. 30
- Stormwater Collaboratives
- Stormwater Utilities

City of New London
Connecticut

STORMWATER PROGRAM COSTS

Property Type	Units	Total IC	% of IC	Average IC	REU	Quarterly Cost	Revenue
Residential							
0-1000	286	191,916	0.47%	671	1	$ 7.50	$ 8,580
1000-2000	1930	3,021,388	7.42%	1,565	2	$ 15.00	$ 115,800
2000-3000	1520	3,705,912	9.10%	2,438	3	$ 22.50	$ 136,800
3000 +	1218	5,504,091	13.52%	4,519	5	$ 37.50	$ 182,700
Commercial	828	16,880,522	41.46%	20,387	20.4	$ 152.90	$ 506,416
Tax Exempt	168	7,078,629	17.39%	42,135	42.1	$ 316.01	$ 212,359
Municipal	112	4,330,290	10.64%	38,663	38.7	$ 289.97	$ 129,909
Totals	**6062**	**40,712,748**	**100.00%**				**$ 1,292,563**
Residential Equivalent Unit =		1000	Square Feet (SF) of Impervious Cover (IC) =			$7.50	

Future Workshop/Webinar Topics

- LID Isn't Scary Tour – Oct. 30
- Stormwater Collaboratives
- Stormwater Utilities
- Your favorite (or least favorite) topic here

If you get stressed, remember MEP

Maximum Extent Practicable (MEP)

- Make a serious attempt to comply
- Don't reject practical solutions
- Attenuating factors:
  - MS4 size
  - Ability to finance
  - Capacity to perform operations & maintenance
  - Local conditions
  - Etc.

If MEP chanting fails . . .

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http://nemo.uconn.edu/ms4