Watershed Audit for the City of Nashua

Part 1. Watershed Planning

The application of regulatory measures and/or planning techniques that are designed to maintain or limit future impervious cover, redirect development where appropriate, and protect sensitive areas.

1.1 Does your community permit or encourage any of the following techniques to manage land use and impervious cover?

- [x] Conservation easements *(voluntary agreement to legal transfer of development and land use rights to a piece of property to a conservation trust; easements may be temporary or permanent)*
- [x] Land acquisition programs
- [ ] Transfer of development rights (TDRs) *(transfers potential development from a designated "sending area" to a designated "receiving area")*
- [ ] Limiting infrastructure extension *(a conscious decision is made to limit or deny extending infrastructure, such as public sewer, water, or roads, to designated areas to avoid increased development in these areas)*
- [x] Infill / community redevelopment *(encourage new development and redevelopment within existing developed areas)*

Part 2. Land Conservation

Programs or efforts to conserve undeveloped, sensitive areas or areas of particular historical or cultural value.

2.1 Other than what is required by state and federal laws, is the preservation of cultural or historical areas (e.g., historic or archaeological sites, scenic views, and recreational areas):

- [x] Required
- [ ] Encouraged
- [ ] Neither
- [ ] Don't Know
- [ ] Other (please describe)_____

See Article V- Division 9
Article V, Division 5

2.2 Is the preservation of agricultural areas:

- [ ] Required
- [ ] Encouraged
- [x] Neither
- [ ] Don't Know
- [ ] Other (please describe)_____

2.3 Are you aware of any critical habitat areas for plant and animal species in your community?

- [x] Yes
- [ ] No
- [ ] Don't Know

But an NRI will be conducted to find additional areas

2.4 Other than what is required by state and federal laws, is the preservation of critical habitat areas for plant and animal species:

- [ ] Required
- [ ] Encouraged
- [x] Neither
- [ ] Don't Know
- [ ] Other (please describe)_____

2.5 Does your community have regulations or requirements, other than what is required by state and federal laws, governing the preservation of wetlands during development?
- ☒ Yes
- ☐ No
- ☐ Don't Know
- ☐ Other (please describe)_____

2.6 Are there development restrictions pertaining to steep slopes?
- ☒ Yes
- ☐ No
- ☐ Don't Know

2.7 Is the conservation of forested areas:
- ☐ Required
- ☐ Encouraged
- ☒ Neither
- ☐ Don't Know
- ☐ Other (please describe)

2.8 Are there development restrictions pertaining to stream channel modification?
- ☒ Yes
- ☐ No
- ☐ Don't Know

Part 3. Aquatic Buffers

The protection, restoration, creation, or reforestation of stream, wetland, and urban lake buffers.

3.1 Are stream buffers required in your community?
- ☒ Yes
- ☐ No
- ☐ Don't Know

3.2 What are your stream buffer width requirements?
See attached table - Attachment #1

3.3 Are wetland buffers required in your community?
- ☒ Yes
- ☐ No
- ☐ Don't Know

3.4 What are your wetland buffer width requirements?
See above # 3.2

3.5 Are there reforestation, restoration, or riparian cover requirements or programs for buffers?
- ☒ Yes
- ☐ No
- ☐ Don't Know

Article III, Division 10 Section 16-276

Part 4. Better Site Design

Local ordinances and codes incorporate techniques to reduce impervious cover and/or redirect runoff onto pervious surfaces in the design of new development and redevelopment projects.

4.1 What is the minimum pavement width allowed for streets in low-density residential developments that have less than 500 average daily trips (ADT)?
- ☐ 18 - 22 feet
- ☐ 23 - 26 feet
- ☒ Greater than 26 feet 28 feet

4.2 What is the minimum right-of-way (ROW) width for a residential street?
- ☐ Less than 45 feet
- ☒ Greater than 45 feet 50 feet

4.3 What is the minimum radius allowed for cul-de-sacs?
- ☒ Less than 35 feet 30 feet if no future extension of street
- ☐ 36 feet to 45 feet
- ☐ Greater than 45 feet (50 feet or 60 feet min ROW radius)

4.4 Can a landscaped island be created within the cul-de-sac?
- ☒ Yes Residents must maintain.
- ☐ No
- ☐ Not specified in codes

4.5 Are curb and gutters required for most residential street sections?
- ☒ Yes
- ☐ No

4.6 What is the minimum parking ratio for a professional office building (per 1,000 ft2 of gross floor area)?
- ☒ Less than or equal to 3.0 spaces per 1,000 ft2 of gross floor area 1 per 1,000 sf
- ☐ 3.1 to 5.0 spaces per 1,000 ft2 of gross floor area
- ☐ Greater than 5.0 spaces per 1,000 ft2 of gross floor area

4.7 What is the minimum required parking ratio for shopping centers (per 1,000 ft2 gross floor area)?
- ☒ Less than or equal to 4.0 spaces per 1,000 ft2 of gross floor area for all shopping center sizes
- ☐ 4.1 to 5.5 spaces per 1,000 ft2 of gross floor area
- ☐ Greater than 5.5 spaces per 1,000 ft2 of gross floor area

4.8 What is the minimum required parking ratio for single-family homes (per home)?
- ☒ Less than or equal to 2.0 spaces 2 per unit
- ☐ Greater than 2.0 spaces

4.9 Is the use of shared parking arrangements permitted?
- ☒ Yes
- ☐ No
- ☐ Not specified in codes

4.10 Are model shared parking agreements provided?
- [x] Yes
- [ ] No
- [ ] Not applicable

4.11 Are parking ratios reduced if shared parking arrangements are in place?
- [x] Yes Table 592-1 Shared Parking - Parking Ratio Reduction Factors
- [ ] No
- [ ] Not specified in codes
- [ ] Not applicable

4.12 Is a percentage of the spaces at commercial parking lots required to have smaller dimensions for compact cars?
- [ ] Yes (please specify percentage)_____
- [x] No

4.13 Can pervious materials be used for spillover parking areas?
- [x] Yes
- [ ] No

4.14 Is a minimum percentage of a parking lot required to be landscaped?
- [x] Yes It must comply with Section 16-574
- [ ] No

4.15 Are open space or cluster development designs allowed in the community?
- [x] Yes
- [ ] No
- [ ] Not specified in codes

4.16 Are the submittal or review requirements for open space design greater than those for conventional development?
- [ ] Yes
- [x] No
- [ ] Not applicable

4.17 Are flexible site design criteria available for developers that utilize open space or cluster design options (e.g., setbacks, road widths, lot sizes)?
- [x] Yes See under Site Design, Street Design & Transportation
- [ ] No
- [ ] Not specified in codes
- [ ] Not applicable

Section 16-72

4.18 Are sidewalks always required on both sides of residential streets?
- [ ] Yes
- [x] No Only on one side of the street

4.19 What is the minimum sidewalk width allowed in the community?
- [ ] 4 feet or less
- [x] Greater than 4 feet 5 feet for only ped use - 10 feet if includes bicycles (per City Board of Public Works)
- [ ] Not specified in codes
- [ ] Not Applicable

4.20 Can alternate pedestrian networks be substituted for sidewalks (e.g., trails through common areas)?
- ☐ Yes
- ☐ No
- ☒ Not specified in codes
- ☐ Not applicable

4.21 Can pervious materials be used for single-family home driveways (grass, gravel, porous pavers, etc)?
- ☒ Yes
- ☐ No
- ☐ Not specified in codes

4.22 Can a "two-track" design be used at single-family driveways *(a driveway with two strips of paving corresponding to wheel tracks with a vegetated area in between)?*
- ☐ Yes
- ☐ No
- ☒ Not specified in codes

4.23 Are shared driveways permitted in residential developments?
- ☒ Yes
- ☐ No
- ☐ Not specified in codes

(Skip to question 4.27 if open space, cluster, or conservation developments are not allowed in your community.)

4.24 Are open space areas within subdivisions required to be consolidated into larger units?
- ☒ Yes At least 40% of lots w/in a Cons. Subdivision shall abut a Cons. Area.
- ☐ No
- ☐ Not specified in codes

4.25 Does a minimum percentage of open space in a residential subdivision have to be managed in a natural condition?
- ☐ Yes
- ☐ No
- ☒ Not specified in codes

4.26 Are allowable and unallowable uses for open space in residential developments defined?
- ☒ Yes - Dependent on zoning district
- ☐ No

4.27 Can rooftop runoff be discharged to yard areas?
- ☒ Yes
- ☐ No
- ☒ Not specified in codes

But, rooftop drainage is not considered contaminated in our Stormwater Mngt ordinance & therefore does not require treatment.

Part 5. Erosion and Sediment Control

The use of erosion control, sediment controls and dewatering practices at all new development and redevelopment sites.

5.1 Does your community provide guidance or set forth requirements on the types of erosion and sediment control practices that may be used?

- ☒ Yes, we refer the development community to a state document
- ☒ Yes, we have developed our own guidance and/or requirements
- ☐ No
- ☐ Don't Know

5.2 Check all erosion and sediment control practices that your community has required to be implemented in the past three years:

- ☒ Silt fence
- ☒ Straw bales
- ☒ Construction sequencing
- ☒ Construction phasing
- ☒ Preservation and non-disturbance of natural vegetation
- ☒ Preservation and non-disturbance of stream or wetland buffers
- ☐ Stair-step grading
- ☐ Temporary seeding and mulching
- ☐ Permanent seeding and mulching
- ☐ Dust control
- ☒ Erosion blankets and geotextiles
- ☐ Fiber rolls
- ☒ Temporary stream crossings
- ☐ Stabilized construction entrance
- ☐ Exit tire wash
- ☐ Energy dissipation at pipe outlets
- ☒ Check dams in natural or man-made channels
- ☐ Sand / gravel bag barrier
- ☐ Brush or rock filter
- ☒ Storm drain inlet protection
- ☒ Catch basin inlet filters
- ☐ Sedimentation basins
- ☐ Sediment traps
- ☐ Filtration of dewatering operations
- ☐ Secondary filtration (mechanical or sand filtration devices to filter fine sediments from runoff)
- ☐ Dikes / berms as conveyance to ESC structures
- ☐ Pipe slope drains to bypass erodible soils
- ☒ Stockpile stabilization

5.3 Is an erosion and sediment control plan required during the site plan review process?

- ☒ Yes
- ☐ No
- ☐ Don't Know
- ☐ Not Applicable

5.4 Are construction sites inspected for compliance with erosion and sediment control requirements?
- [x] Yes Although this could be conducted more often.
- [ ] No
- [ ] Don't Know

5.5 Who conducts inspections of construction sites for compliance with erosion and sediment control requirements?
- [ ] Municipal inspector
- [ ] Third-party inspector (e.g. private engineer)
- [x] Other (please describe) Planner

5.6 How frequently does an erosion and sediment control inspector visit a construction site?
- [ ] Daily
- [ ] Weekly
- [ ] Monthly
- [ ] Annually
- [x] Other (please describe) As needed - mostly quarterly

5.7 Does your community sponsor erosion and sediment control training for:
- [ ] Developers
- [ ] Contractors
- [ ] Engineers
- [ ] Inspectors
- [x] None of the above

5.8 Are there erosion and sediment control enforcement mechanisms (e.g. fines, stop work orders, etc.)?
- [ ] Yes
- [x] No
- [ ] Don't Know

If yes, please describe enforcement mechanisms: However, we can tell the EPA + they'll come out if it's severe enough.

Part 6. Stormwater Management Practices

The incorporation of structural practices into new development, redevelopment, or the existing landscape to help mitigate the impacts of urbanization and stormwater runoff on receiving waters.

6.1 Is your community required to implement NPDES Phase II stormwater regulations?
- [x] Yes
- [ ] No
- [ ] Don't Know

6.2 If yes, what are the design criteria for stormwater practices?

- [x] Control peak discharge rate (flood control)
  Design storm(s):_____
- [x] Treat stormwater runoff for water quality
  Design storm(s):_____
- [x] Control / reduce total volume of runoff (by means of infiltration practices, etc.)
  Design storm(s):_____
- [x] Protect downstream channels
  Design storm(s):_____
- [ ] Other:_____

6.3 Does your community provide guidance or set forth requirements on the types of stormwater practices that may be constructed?

- [x] Yes, we refer the development community to a state document
- [x] Yes, we have developed our own guidance and/or requirements
- [ ] No
- [ ] Don't Know

6.4 What are the top three stormwater practices typically installed in your community?

Infiltration - subsurface units
Treatment basins
Vortechnics

6.5 Is a stormwater plan or other documentation required during the site plan review process?

- [x] Yes
- [ ] No
- [ ] Don't Know

6.6 Does your community inspect stormwater practices during construction?

- [x] Yes
- [ ] No
- [ ] Don't Know

6.7 Who is typically responsible for maintenance of stormwater practices over the life of the stormwater practice?

- [x] Private owner
- [ ] Builder
- [ ] Homeowner's association
- [ ] Permitting agency
- [ ] Other (please explain)_____
- [ ] Don't Know

6.8 Are privately maintained stormwater practices inspected by a public agency for maintenance upkeep or structural integrity over the life of the facility?

- [ ] Yes
- [x] No - Not unless there's a problem downstream or onsite
- [ ] Don't Know

6.9 How frequently are privately owned stormwater practices inspected?
- ☐ More than once a year
- ☐ Once a year
- ☐ Every two years
- ☒ In response to complaints
- ☐ Never
- ☐ Other (please describe)_____
- ☐ Don't Know

6.10 Are there penalties for not complying with the maintenance agreement or other applicable regulations applying to maintenance?
- ☒ Yes Under RSA 676:17 - our ordinance refers to this RSA.
- ☐ No
- ☐ Don't Know

If yes, please describe penalties:_____

Part 7. Non-Stormwater Discharges

Locating, quantifying, and controlling non-stormwater pollutant sources in the watershed. Operation and maintenance practices that prevent or reduce pollutants entering the municipal or natural drainage system.

7.1 The best description of my community's stormwater management system is:
- ☒ Storm sewers (usually pipes leading to a receiving stream)
- ☐ Open channels
- ☐ Combination (please provide relative percentage of each)_____
- ☒ Other (please describe) Still have some combined sewer overflows
- ☐ Don't Know

7.2 How does your community manage sanitary wastes (check all that apply)?
- ☐ Septic systems
- ☐ Aeration systems
- ☐ Package treatment plants
- ☒ Centralized wastewater treatment plants
- ☐ Other (please describe)_____
- ☐ Don't Know

7.3 Do the sanitary sewer trunk mains follow (check all that apply):
- ☒ Shortest distance
- ☒ Stream valley Mostly
- ☐ Other (please describe)_____
- ☐ Don't Know
- ☐ Not Applicable

7.4 Does your community have regulations pertaining to septic system maintenance?
- ☒ Yes
- ☐ No
- ☐ Don't Know

7.5 Does your community conduct inspections of privately owned septic systems?
- ☒ Yes
- ☐ No
- ☐ Don't Know

7.6 Does your community have a spill response plan?
- ☒ Yes
- ☐ No
- ☐ Don't Know

7.7 What deicing compounds are applied to public roads?
- ☒ Sand
- ☒ Road salt (Sodium Chloride, NaCl)
- ☐ Calcium Chloride ($CaCl^2$)
- ☐ Magnesium Chloride ($MgCl^2$)
- ☐ Other (please describe)_____

7.8 How are the deicing compounds stored?
- ☒ Within structure
- ☐ Covered, but not in structure
- ☐ Not covered
- ☐ Other (please explain)_____

Part 8. Watershed Stewardship Programs

Stormwater and watershed education or outreach programs targeted towards fostering human behavior that prevents or reduces pollution over a range of land uses and activities.

8.1 Does your community administer or support watershed or pollution education or outreach programs targeted towards:
- ☒ Residents
- ☐ Commercial sector
- ☐ Industrial sector
- ☒ Municipal employees
- ☐ Other (please describe)_____
- ☐ None of the above

8.2 Are there any stream restoration programs or projects within your community?
- ☒ Yes LMRLAC, Salmon Brook Greenway
- ☐ No
- ☐ Don't Know

8.3 Does your community have any restrictions on pet waste management?
- ☒ Yes
- ☐ No
- ☐ Don't Know

If yes, please describe regulations or restrictions: Ordinance for pooper scooper

8.4 Does your community sweep public streets?
- [x] Yes
- [ ] No
- [ ] Don't Know

8.5 How often does street sweeping occur?
- [x] Weekly from March - Sept/oct
- [ ] Monthly
- [ ] Annually
- [ ] Other (please explain)_____

8.6 Does street sweeping vary seasonally (e.g., streets are not swept in winter)?
- [x] Yes (please explain) See above
- [ ] No
- [ ] Don't Know

8.7 Are fertilizers used on public lands?
- [x] Yes
- [ ] No
- [ ] Don't Know

8.8 Are pesticides (insecticides, herbicides) used on public lands?
- [x] Yes
- [ ] No
- [ ] Don't Know

(b) For purposes of Table 271-1, Column "C", the buffer shall be measured horizontally outward and perpendicular to the edge of the delineated wetland.

Table 271-1 Wetland Classifications and Buffers

(A) Wetland Category	(B) Definitions	(C) Buffer
Primary wetlands	Areas designated as "prime wetlands" in accordance with RSA 483-A:7 and areas that have been documented as satisfying the criteria for designation as prime wetlands in accordance with RSA 483-A:7. "Primary Wetlands" are defined by Resolution R-90-84, and generally depicted on maps entitled "Prime Wetlands, Nashua, New Hampshire" prepared for the Nashua Conservation Commission. R-90-84 defined primary wetlands as: The Merrimack River and its wetlands The Nashua River and its wetlands Salmon Brook and its wetlands Pennichuck Brook, Bowers Pond, Harris Pond, Holts Pond, Pennichuck Pond, Supply Pond and its wetlands Lovewell's Pond and its wetlands Horse Pond and its wetlands Old Ridge Road wetlands Nashua Canal Nashua Cove	75 feet
Critical wetlands	Critical wetlands are the following water bodies and watercourses and their wetlands. Critical wetlands also include any perennial streams that are tributaries to prime wetlands. Boire Brook Coburn Pond Cold Brook Colerain Brook Hales Brook Harris Brook Hassells Brook Lincoln Brook Lyle Reed Brook Mill Pond Muddy Brook Old Maid's Brook Round Pond Spectacle Brook Spit Brook Trout Brook Sandy Pond	40 feet
Other wetlands over 9,000 sf	Any wetland other than a Primary or a Critical wetland over 9,000 square feet in area	40 feet
Other wetlands from 3,000 to 9,000 sf and intermittent streams	Any wetland other than a Primary or Critical wetland between 3,000 and 9,000 square feet in area. Intermittent streams require a 20 foot buffer from both banks, measured from top of bank. Intermittent streams are streams with a defined channel but that may not flow the entire year. Isolated man-made drainage ditches are not included.	20 feet
Vernal Pools	Twenty foot minimum buffer. Buffer to be determined from recommendations in a protection plan submitted by a professional biologist. The buffer will be measured from the edge of the average annual high water mark.	20 feet