

he Experience to Listen he Power to Solve.

CDRPC Planning and Zoning Workshop

Stormwater Management Review, Regulatory and Implementation

Speakers: Martin Daley, Director of Water Quality Programs Nadine Medina, Senior Project Engineer (16 years) Brad Grant, Senior Project Manager (40 years)

October 28, 2022



Introduction

Bios

Nadine Medina:

Has a robust history in environmental remediation and sustainability, as well as stormwater design, water and wastewater system designs, and site plan review. Now her sole focus is MS4 program facilitation. She's created, from the ground up, municipal MS4 programs and currently manages them for local towns, cities, and villages.





Brad Grant:

Has worked in the consulting business for 40 years and much of that has involved stormwaer, raw drinking water, hydroelectric projects, water supply, sewage treatment, stormwater management, land/site development and designated engineer reviews for many cities, villages and towns in NYS.





Why Are We Here?

Capital District Impaired Waters



County	Waterbody Name (PWL Number)	Pollutant
	Ann Lee (Shakers) Pond, Stump Pond (1201-	
Albany	0096)	Phosphorus
Rensselaer	Nassau Lake (1310-0001)	Phosphorus
Saratoga	Dwaas Kill and tribs (1101-0007)	Phosphorus
Saratoga	Lake Lonely (1101-0034)	Phosphorus
Saratoga	Tribs to Lake Lonely (1101-0001)	Phosphorus
Saratoga	Dwaas Kill and tribs (1101-0007)	Silt/Sediment
Saratoga	Ballston Lake (1101-0036)	Phosphorus
Schenectady	Collins Lake (1201-0077)	Phosphorus
Schenectady	Mariaville Lake (1201-0113)	Phosphorus
Schenectady	Duane Lake (1311-0006)	Phosphorus
Warren	Hague Brook and tribs (1006-0006)	Silt/Sediment
Warren	Huddle/Finkle Brooks and tribs (1006-0003)	Silt/Sediment
Warren	Lake George (1006-0016) and tribs	Silt/Sediment
	Tribs to Lake George, Lk.George Village	
Warren	(1006-0008)	Silt/Sediment
Warren	Indian Brook and tribs (1006-0002)	Silt/Sediment
Warren	Tribs to Lake George, East Shore (1006-0020)	Silt/Sediment

What Negative Impacts of Stormwater Runoff are there?

- Flooding of all kinds of properties, often at low areas known to historically flood – Volume
- Property damage from extreme events and/or potential for mold in structures. Often occurs in lands with inexpensive purchase price due to historic flooding and often poorer neighborhoods
- Reluctance of residential, commercial or industrial development in known flood prone areas
- Pollution of receiving waterways and effects on aquatic life and recreation. Can we eat the fish?
- Public Perception that issues take forever to correct





Negative Impacts Continued

- Misunderstanding of where stormwater pollution comes from (Not POTW's)
- Extensive cost and complexities of engineering solutions in the already constructed cities, towns and villages.

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- Memories and experiences of significant pollution that have, at least partially mitigated.
 - 1970's the Hudson River is on fire

What Positive Impacts can Improvements in Stormwater Management (Water Quality and Quantity) Create in a Community

- Ability to participate in aquatic recreation (swimming, fishing, boating, community beach experiences). Case in point every summer a fleet of fishing boats comes to Albany and other communities to fish for striped bass or observe the firework show from their boats. Few were doing that in the 1970's due to inadequate water quality
- Public perception that their community and state leaders care about our environment and investments in stormwater projects make a difference
- Economic factors improve if tourists come to town to enjoy NYS water resources





Why Manage Stormwater

- Regulatory Requirement
 - MS4 Stormwater Permit
 - MS4 specific fines per day per violation
 - Construction Activity Permits
 - Industrial SWPP Permits (Landfills)
- Reduce Pollutants Entering Surface Waters
 - 50% of Nation's waterways are impacted by stormwater
 - Sediment from construction
 - Chemical transport from human activity
 - oils/grease
 - floatables (refuse, litter, plastics)
 - herbicides, pesticides, nutrients (agriculture, lawns.. Etc.)
 - detergents/chlorine (carwashing)
 - bacteria





- metals
- next time you are at a convience store
 in a rainfall event, look downs to see
 the oil sheen, cigarette butts and litter
 on the pavement heading to a
 conveyance feature and adjacent
 waterway



Plan Review for Municipalities

TDE Review Services



- No checklist applies to every project review and documents herein are offered to streamline review needs and
 provoke thought of reviewer to ensure needed items are considered. B&L review and comments need to be
 addressed by applicant and their design professionals and not up to the reviewer to decide solutions.
 Recommendations can be made but as an example we want to be assured that a water system can provide the
 necessary fire flow demand which considers many variables per NFPA and hydrant flow tests. We don't indicate the
 required fire flow or the system design itself or we are liable if a fire event goes wrong. The responsibility is and
 always is with THE DESIGNER OF RECORD.
- Our comments need to have a legitimate basis and reasonable. Dramatic comment language should be avoided. Mistakes happen but comments should be as neutral and polite as possible to avoid a war of words with applicant's team. Avoid lecturing words or phrases. Comments should be complete and clear. Shorter is better but if one would pick up the letter and see comment 12 could they understand it? If wording is conditioned on un-common knowledge or depends on total knowledge to understand it should be re-worded.

Designated Review Services



- Typically services are for review of residential or commercial development projects that are privately sponsored and owned
- Our services begin with assignment from a municipal client to review the plans, SWPPP, Engineering Reports for water and sewer, environmental assessments and compliance with environmental standards and industry standards
- Our services can have fee limits for early phases (sketch and concept levels) but overall our fee is time and expenses.
- Sub-consultant fees are often marked up 10% but depends on agreement with municipality
- Total fee is dependent on many factors and degree of comfort client has with the proposal and its impacts. This can be
 influenced by public opinion and press reports. Quality of submissions, plans and reports definitely influence time spent on
 review and its cost.
- We can also perform capital projects of our own with design and construction phases or any of our practice areas.
- Often these assignments have an agreed basis of rates per title. Typically spelled out in term agreements. Rates subject to change by mutual and revised form of agreement

Review Philosophy

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- Personal feelings are left on the sidelines. Our position on development in the community is neutral and the review is fact based.
- Recommendations for improvements for the project are sometimes offered when significant or with subtle comments in our letters. "Please consider..."
- We respond to project impacts within the scope of our agreement. Requests for speculative opinions (particularly in public) without sufficient information are to be avoided. I.e.-can you guarantee this property will never flood?
- Conduct a fair review and keep comments focused and uncontroversial. If unsure of designer intent contact them for clarification before authoring a negative comment. If applicant's engineer does not do their homework or ignored previous requests for clarification it is a deficiency for them to address.
- We may make recommendations but we are not the designer of record. Lack of confirming data is for the applicant's team to furnish not for a designated engineer to provide. "Please consider...."
- Employment of a designated engineering firm provides an additional layer between municipal officials and the public.
 We dress well for meetings and represent the community to the best of our abilities and keep a calm, neutral and professional demeanor.

Zoning



- Review Zoning Code for Chapters about Site Plan and/or Subdivision Review submittal requirements and procedures. Compare the Applicant's submission package contents against any checklist in the Codes to confirm the submitted package is "complete" or not.
- Refer to Zoning Map to verify the zoning district on the application is correct, and confirm whether the project is a permitted use in that zone.
- Refer to the Zoning Code for the bulk regulations / dimensional requirements. Does the Plan have a zoning statistics table that clearly demonstrates, "required dimensions vs. provided dimensions?"
- Is the Project's total acreage shown on the plan? Are any subdivided areas quantified in acres? Do all subdivided acreages add up to the total project acreage?
- Are any waivers or variances needed or already requested by the Applicant? If so, then identify those possibilities in our comment letter, so the Applicant can decide whether to pursue waivers/variances or to modify the plan to avoid them



- Roads meet local code (i.e., width, length of dead-end, etc.) and ROW is shown as dedicated to the municipality
- Is zoning appropriate? Is proposed development comply with any local comprehensive plan?
 Has project been presented to community prior to review and existing comments/concerns exist? Check.
- Property shown is the entire parcel, including sections that may continue beyond physical barriers, such as roads? (i.e., check SBL on interactive mapper). Add hook for continuation of parcel, if required.
- Ag-data statement required? Submitted?

Site Layout



- Are there any existing or proposed easements on the site? Will any easement agreements be necessary? Will a structure or site feature encroach on this easement?
- Are pavement sections, dumpster enclosure details, etc., up to the municipality's standards?
- Review road and trench detail against local code (and DOT standards, if applicable).
- In commercial or multi-family projects is the distance a resident has to walk with groceries reasonable?
- Are there any known vista's or special existing conditions that should be considered when assessing impacts of proposed development?
- Are their known traffic concerns near site? New road curb-cuts require NYSDOT approval on NYS highways.

SWPP



- Review SWPPP contents against NYSDEC SWDM Appendix E Checklist
- Check inches of precipitation for rainfall events based on Extreme Precipitation Tables (1-, 10- and 100-year event). Some communities have those already established in their standards that must be complied with.
- Review pre- and post- sub-catchment area maps and verify catchment areas based on topography. Confirm HydroCAD model routing diagram is accurate. A proposed conditions model should analyze the same area as the pre-development condition model and the first item checked
- Spot check sub-catchment details: area, % impervious, soil type, composite CN numbers, time of concentration
- Mixed soil and surface cover sub-catchments should be modeled such that overall CN's are similar. I.e. a 100 acre subcatchment with woods, a soils and 6 acres of impervious area modeled together in one sub-catchment will underestimate the runoff since the low curve numbers of A soils will dilute the impact of impervious areas to that below the 6 acres of impervious runoff if modeled alone.
- Use NYSDEC GI Worksheet to verify WQv, RRv and adjusted WQv after RRv
- Is RRv > minimum RRv?
- Is RRv > 100% WQv? If not, then request that the Applicant justify limitations and recommend alternatives such as use of proprietary products

SWPP continued



- Check details of SMPs (e.g., base width, filter depth, longitudinal slope, etc.) against NYSDEC SWDM requirements.
- Are post-development flows less than or equal to pre-development for 1-, 10- and 100- year storm? Review table and spot check hydrographs from HydroCAD output.
- Is a Maintenance Plan (including activity, frequency and responsibility) for post-construction stormwater practices
 included in SWPPP? Is there a Maintenance easement shown on Plan and binding agreement in place for all SMPs? Does
 the Applicant need to petition the municipality for a taxable SW District? Or provide evidence of alternative mechanism
 for private maintenance? (i.e. Home Owners Association);
- Infiltration practices (and/or septic system) regulated as Class V Injection Well under the EPA UIC Program? Refer Applicant to submit details for EPA inventory.
- Do all catchment areas and cover types make sense? (For example, if a portion of pavement on a project is listed as grass it will affect the curve number and thus the entire runoff calculations).
- An operation and maintenance manual outlining necessary maintenance and frequency should be submitted and reviewed and documents are available from NYSDEC and possibly community.

ESC Plan

• Review ESC Plan and sequencing of construction events. Comment on any intervals for Building Inspector and/or Town Engineer to undertake construction inspections based on municipal code for SW Management (for MS4 communities);

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- Look for language that ensures disturbance area is kept to a minimum and phased projects are stabilized before opening up new disturbance areas. Maximum disturbance area is 5 acres without needing a variance from DEC or MS4. Generally a bad idea and only granted in certain special circumstances.
- Removal of E&SC practices can be done when tributary areas are stabilized AND when SWPPP monitoring Professional and/or engineer and/or appropriate municipal official says it can be removed.
- Ensure sediment devices are sized per tributary area that includes offsite area per NYSDEC requirements (generally 3,600 CF per acre).
- Review proposed BMPs; confirm location and notes are in accordance with the Blue Book (i.e., concrete washout, check dams, diversion swales, temporary and permanent seeding initiated within 1 business day and stabilized within 14 days, etc.)

Complete Streets Checklist

Complete Street Policy Vision (May 2012)

Complete Streets Policy will encourage the development of a complete streets network throughout the City to create a more balanced transportation system. The Policy shall be consistent with and assist in achieving the goals and recommendations set forth in the City's Comprehensive Plan and other policy documents. The Policy shall ensure new and updated public and private projects are planned, designed, maintained and operated to enable safer, comfortable and convenient travel to the greatest extent possible for users of all abilities including pedestrians, bicyclists, motorists and transit riders.

This checklist is intended to assist the City in achieving its vision for complete streets.

Project Name: _____ Date: _____

Project Location / Limits:

Project Description: _____

Instructions: For each box checked, please provide a brief description for how the item is addressed, not addressed, or not applicable and include supporting documentation.

Street Classification (i	identify street or streets within the project area)	
Principal arterial	Minor arterial Mixed use collector Mixed use local	
Residential collector	Residential local Special use street	

EXISTING CONDI	TIONS			
Item to Be Addressed/ Checklist Consideration	YES	NO	N/A	Required Description
Existing Bicycle & Pedestrian Operations				
Do bicycle and pedestrian accommodations exist? (see page 2 for examples)				
Existing Transit Operations				
Do transit facilities exist within the study area, including bus and train stops/stations?				
Is the project area on a transit route? (CDTA Service Routes)				
Are there bicycle racks, shelters, or parking for transit riders available?				
Existing Access and Mobility				
Do connective opportunities exist with schools, hospitals, senior care or community centers or persons with disabilities within project area?				
Are there gaps inhibiting continuous access between schools, hospitals, senior care, or community centers or persons with disabilities within project area?*				
Project Area Context				
Are there prominent landmarks, recreation, shopping, employment center, cultural centers or other key destinations that offer opportunities to connect this site?				

Please list and/or describe planning or policy documents addressing bicyclist, pedestrian, transit, or truck/ freight use for the project area. Examples can include:

PROPOSED	DE	SIG	δN				
Item to Be Addressed/ Checklist Consideration	YE	S	N	0	N	/A	Required Description
Complete Streets Design							
Bicyclist accommodations?			[[
Pedestrian accommodations?							
Access and Mobility accommodations?							
Transit accommodations?							
Truck/ freight accommodations?							
Streetscape elements?							

Offerenders bits	Mar No.
Off-roadway bike	
accommodations	
Dedicated bike lane	Yes No NA
Shared-use lane	Yes No NA
Shoulder	Yes No NA
Acceptable actuated traffic	Yes No NA
signal bike detection, including	
turn lanes	
Do signals allow adequate	Yes No NA
minimum green time for	
bicyclist to safely cross	
intersection?	
Signage and pavement	Yes No NA
markings specific to proposed	
bike facilities	
Bicycle safe inlet grates	Yes No NA
Bicycle parking, eg. bike racks,	Yes No NA
bike lockers	
Transit Facilities:	
Transit shelters	Yes No NA
Bus turnouts	Yes No NA
Standing pads	Yes No NA
Has CDTA been contacted?	Yes No NA
Access and Mobility Facilities:	
Adequate sidewalk or paved	Yes No NA
path	
Acceptable	Yes No NA
consideration/provision for	
accessible pedestrian traffic	
signal features	
Curb ramps, including	Yes No NA
detectable warning	
surface	
Acceptable slope and	Yes No NA
cross-slope for driveway ramps,	
sidewalks, crossings)	
Have conflicts been reduced	Yes No NA
among pedestrian, bicyclists.	
and motor vehicles (access	
	1

Design meets guidelines such as described below for

bicycle/pedestrian/bus/transit facilities?

Sidewalks on both sides of the street Striped crosswalks Geometric modifications to reduce crossing distances such as curb extensions (e.g. bulb-outs) Acceptable provision for pedestrian traffic signal features (e.g. ped. buttons) Pedestrian signage for crossing & wayfinding Safety islands/medians on roadways with two or more traffic lanes in each direction Enhanced supplemental pedestrian treatments at uncontrolled marked conscings Connectivity: Are there proposed connections to other bike paths, pedestrian facilities, or transit facilities? Are there proposed connections to any key destinations listed on page 1? Are there proposed connections to neighborhoods? Streetscape Elements: proposed such as landscaping, street trees, planters, buffer strips, etc? Pedestrian-level lighting Public seating or benches	
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*American Association of State Highway and Transportation Officials (AASHTO) - A Policy on Geometric Design of Highway and Streets, Guide for the Development of Bicycle Facilities and AASHTO Guide for the Planning, Design, and Operation of Pedestrian Facilities; <u>Public Right-of-Way</u> <u>Accessibility Guide(PROWAS); Manual on Uniform Traffic Control Devices (MUTCD); Americans with Disabilities Act Accessibility Guidelines (ADAAG);</u> National Association of City Transportation Officials (NACTO) - <u>Urban Bikeway Design Guide</u>, New York State Department of Transportation – Highway Design Manual

10 Smart Planning Goals Include

- 1. Use, maintain or improve existing infrastructure.
- 2. Located in Municipal centers.
- 3. Located in Developed of Targeted Areas.
- 4. Protect, preserve or enhance State resources.
- 5. Foster mixed land uses and compact development.
- 6. Provide for mobility through a variety of transportation choices.
- 7. Coordinate between State and Local Governments.
- 8. Participate in Community based planning & collaboration.
- 9. Ensure predictability in land use codes.
- 10. Strengthen existing communities which reduce greenhouse gas emissions.





Checklists/Related

Planning Board Decision Making Resources



- Town Comprehensive Plan
- Town Code
- Zoning Code
- Subdivision Code
- Zoning Map
- Special Codes, Regulations (Design Standards/GEIS's)
- NYS Town Law/Case Law
- Personal Knowledge/Expertise

Pressure on the Board



- Developers Residents -• Stop this or I'll • I need it now! move! • I can't compete • Not in my unless! backyard! • It is costing me \$! • I'll sue the Town! • I'll revert to the 'worst case' option! Elected Officials -• Build the tax base! • Efficient & cost-effective delivery of services!



Project Examples

Capital District Regional Planning Commission Albany Pool Communities Green Infrastructure Planning

- The Albany Pool Communities have joined in a comprehensive intermunicipal venture since
 2006 to develop a Phase I Combined Sewer
 Overflow (CSO) Long Term Control Plan (LTCP)
- Provides consistent design and detail standards for green infrastructure as the basis for more stormwater control practices to address abatement of CSO discharges and reduce impact to the environment











Proposed Pollution Prevention/Good Housekeeping Requirements



High Priority Municipal Facilities

Chemical, salt, petroleum, pesticides, fertilizers, anti-freeze,

lead-acid batteries, tires, waste bulk storage

Fueling Stations

Vehicle/Equipment Maintenance

Site Specific SWPPP

Assessments

Visual outfall monitoring – twice/year Site assessment – once/year



The City of Rochester & Monroe County Image: Contract of the city of the





Lowe

Stormwater Park

Modified existing stormwater structure and pipe daylighting

Pavilion with seat wall, stormwater runoff harvested in rain gardens

Bike Shelter

A Reconstructed open stream channel

Bridge with lake viewing seatwall

6 Stepping stones

Drop structures, typ.

8 Seatwalls, typ.

9 Habitat buffer planting

Rain gardens and biofiltration

LAKEWOOD STORMWATER RETROFIT

Village of Lakewood & Town of Busti

April 23, 2018

CONCEPT MAPS

Sustainability

Sustainable Development and Creating the Future We Want to See for the World

Many Definitions of Sustainability

"Avoidance of the depletion of natural resources in order to maintain an ecological balance." - *Miriam Webster*

"Sustainable development that meets the needs of the present without compromising the ability of future generations to meet their own needs." - *Brundtland Report of 1987, World Commission of Env. and Development*

"In every decision, be it personal, governmental or corporate, we must consider how it will affect our descendants seven generations in the future"- *Iroquois Great Law Of Peace, 1451* Victor, N.Y. ratified 1722

Global Elements of Sustainability

- Environment
- Social
- Economic

Permitting/SEQR

SEQR Terminology

- •SEQRA State Environmental Quality Review Act.
- •Action Physical activities or regulatory procedures.
- •Agency A Federal, State or Local agency.
- •Applicant A person or entity making an application or seeking an approval.
- •SEQRA Classification How an action is classified (Type I, Type II or Unlisted).
- Involved Agency An agency that has jurisdiction by law to fund, approve or directly undertake and action.
 Interested Agency An agency that lacks the jurisdiction to fund, approve or undertake an action but wishes to participate in the review process.
- •Lead Agency The agency that is principally responsible for undertaking, funding or approving an action.
- •**Negative Declaration** A written determination by a lead agency that the action will not result in any significant adverse environmental impacts.
- •**Positive Declaration** A written determination by a lead agency that the action may have a significant adverse impact on the environment.
- •EAF A form (short or long form) used by an agency to assist in determining the environmental significance of nonsignificance of an action.
- •EIS A written "draft" (DEIS) and/or "final" (FEIS) document that allows agencies to consider significant adverse environmental impacts, alternative and mitigation measures for a proposed action.
- •Findings Statement A written statement prepared by the lead agency that considers the relevant environmental impacts, and provides a rationale for the agency's decision and certifies that the SEQRA process has been met.

SEQR Terminology cont.

•**Mitigation** – A way to avoid or minimize adverse environmental impacts associated with an action.

•Segmentation – The division of the environmental review of an action such that various activities or stages are addressed as independent, unrelated, or separate entities.

•Type I Action – An action or class of actions listed in Section 617.4

•Type II Action – An action or class of actions listed in Section 617.5

•Unlisted Action – All actions not listed or identified as Type I or Type II actions.

•**SEQRA Review** – The **process** of reviewing an action according to the formal steps and timelines prescribed by the SEQRA regulations.

Actions Subject to SEQR Review

•Any Federal or State <u>Funded</u> Action

•Any Action Requiring any State, Federal or Local Permit

•Any Action Requiring any State, Federal or Local <u>Approval</u>

•Any Action under which a <u>policy</u> involves the Environment

Environmental Permits

- DEC SPDES Permit for any Non-stormwater Discharge
- DEC General Permit for Stormwater Discharges (>1 acre disturbance for permit)
- Air emissions permits or registrations for air pollutant releases
- Petroleum or chemical bulk storage registrations
- Pre-construction notifications (PCN's) for minor impacts to federal wetlands under USACOE
- DEC Wetland permits for impacts to NYS wetlands or within 100-foot wetland buffer

What does MS4 stand for? <u>Municipal Separate</u> Storm Sewer System

An MS4 is a conveyance or system of conveyances that is:

 owned by a state, city, town, village, or other public entity that discharges to waters of the U.S.,

2. designed or used to collect or convey stormwater (e.g., storm drains, pipes, ditches),

- 3. not a combined sewer, and
- 4. <u>not</u> part of a sewage treatment plant, or publicly owned treatment works (POTW).

- Cities, Towns and Villages in:
 Albany County
 - •Rensselaer County
 - •Saratoga County
 - •Schenectady County

Green Infrastructure Maintenance

"But I had the oil changed when I bought it two years ago"

Benefits of Green Infrastructure

- Treat stormwater for water quality and volume attenuation to improve surface groundwater quality
- Mitigate localized nuisance flooding
- Reduce flooding and the impacts to storm sewer and possibly sanitary sewer infrastructure
- Improve natural habitats and urban forests with native species to restore a better ecologic balance involving all
 - aspects of the hydrologic cycle
 - Increase pollinator opportunities
 - Mitigate invasive species and heat island effects
 - Improve nutrient uptake

Proper Maintenance

- Without proper maintenance GI loses its functionality
 - Their poor appearance reflects negatively on the community's that implement these practices
- Maintaining GI vegetation requires care, knowledge and the ability to identify beneficial plants from invasive and performance reducing species
- Maintenance typically gets pushed off onto Public Works Departments
- Consistent and scheduled GI maintenance helps avoid costly reconstruction of failed stormwater management practices and negative community perceptions
- Document and monitor progress in writing and include pictures. If municipality is audited by NYSDEC and/or EPA good documentation and records retention will benefit the process significantly.

Examples of Green Infrastructure

Tree Pit

Green Roof

Rain Garden

Connecticut Stormwater and Green Infrastructure Maintenance Guidance Document

Maine Stormwater and Green Infrastructure Maintenance Guidance Document

Maryland Stormwater and Green Infrastructure Maintenance Guidance Document

New York Stormwater and Green Infrastructure Maintenance Guidance Document

Any Questions?

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