

MEETING DETAILS

- Meeting Date/Time: October 14, 2020 (via Microsoft Teams)
- Attendees: See Q1 in poll results
- This document: Meeting details
 Meeting notes
 Stakeholder Poll Results
- Related: Video recording (via Microsoft Stream) – available at mhfd.org

MEETING DISCUSSION NOTES

TOPICS (POLL ?s)	DISCUSSION NOTES & COMMENTS
Introduction Questions	<ul style="list-style-type: none"> - 6 Manufacturers on call (not one of original options in poll Q2) - Manufactured Treatment Devices (MDT's), vs Proprietary Stormwater Control Measures (SCM's) – most use term SCM. <ul style="list-style-type: none"> o Interested in what manufactures vs municipalities call them
Concerns with Designing/ Specifying/ reviewing/ Approving	<ul style="list-style-type: none"> - Maintenance is a common theme - Easily access for vac trucks – for large facilities concern is getting every corner, for smaller ones, concern is frequency of maintenance - Municipalities don't always have the resources to keep up with maintenance (Shavger Rekani, San Diego) - Written approval process, checklist, to show you've met requirements would be helpful (Laddie Fromulus, Manufacturer) - Underground vs aboveground MTD's
Experiences (Good or Bad)	<ul style="list-style-type: none"> - Metric for MTD currently exists, also a new phase 2 permit coming out in Colorado (30 mg/ Liter)
MTD's use over BMP	<ul style="list-style-type: none"> - Lack of space is common theme - Pretreatment – reducing long term maintenance requirements - SEMSWA has a standard for constrained redevelopment sites
Concerns over maintenance of MTD's	<ul style="list-style-type: none"> - Public vs Private maintenance <ul style="list-style-type: none"> o CDOT – usually relies on road crews – most areas only one vac truck per region - For privately owned facilities, is maintenance regulated by public or private bodies – does this vary by municipality - Colorado has requirements on permits - Denver – inspects above ground MDT's in person, for underground, send letters to property owners requiring to return maintenance and inspection records for approval
Any Additional Comments regarding Maintenance?	<ul style="list-style-type: none"> - Protocols specific to devices - General guidelines for Maintenance for various class of devices – versus specific manufacturer guidelines – can this be included in the manual?

<p>What is Missing from Criteria?</p>	<ul style="list-style-type: none"> - Roadmap, flowchart where there is a process for approval (Laddie Fromulus- Manufacturer) - Denver – uses a policy document that works well - references TAPE / TARP requirements - Lack of Evaluation process – different environments = different protocols - Denver – Criteria just about treatment, versus Manufacture’s look at sizing more for maintenance - Darren M – Constructability standpoint, issues with getting installed correctly. Need for installation standards - From manufacturer perspective - contract drawings are provided for installation, usually is a contractor installing incorrectly
<p>Recommendations:</p>	<ul style="list-style-type: none"> - Checklists –when and where can be use will vary from LG to LG - Training would be helpful – especially for new devices - When fact sheet first came out 10 years ago – there was not as much Maintenance content - Removing criteria language that discourages underground devices
<p>Where does Criteria Limit Innovation?</p>	<ul style="list-style-type: none"> - Lack of verification, certification process does create regulatory uncertainty - TAPE is good example with helpful regulations
<p>What aspects of MTD Design are most confusing?</p>	<ul style="list-style-type: none"> - CDOT – Influent vs Effluent concentration when inspecting, when comes to approving - Influent EMC Mean vs Median to be used
<p>Summarize Meeting re: Criteria Rewrite: (Eliot W., AWARE)</p>	<ul style="list-style-type: none"> - New approach to fact sheet for MTD, and helpful to have guidance the same way it was received for BMP’s - Maintenance – ease, access, frequency, transference. Will be a big part of the re-write - Clearly Defined Approval process – for all different types of MTD’s

STAKEHOLDER SURVEY – POLL EVERYWHERE RESULTS

Q 1: Introduce Yourself (Name, Organization/ Place of Work)

- Ben Beall, City of Steamboat Springs
- Brian Wethington, CCD DOTI OGI
- Charlie Pajares - Jacobs
- Craig Fairbaugh, Contech
- Craig Perl, City of Aurora Public Works
- Dan Dodson, Bio Clean
- Derek Rapp, Peak Stormwater Engineering
- Drew Roberts, MHFD
- Frans Lambrechtsen, Jacobs
- Heather Otterstetter, City of Westminster
- Jake Moyer, Westminster
- Jane Clary, Wright Water Engineers
- Jeremiah Unger (CDOT)
- Jim Watt, MHFD
- Jon Villines, MHFD
- Laddie Fromelius, StormTrap
- Mark Schutte, MHFD
- Mark West, HKS consulting engineers
- Mike Broecker, Bio Clean Environmental
- Mike Sheehan, Bio Clean
- Olivia Dawson, JVA Inc.
- Sam Miller, City of Aurora – Water Dept
- Selena Klosowski, CCD Wastewater Management Division
- Shavger Rekani - Rick Engineering Company

Q2: What is your primary role?

Response	Count
Designer	14
Reviewer	9
Maintenance	5
Total	28

Q3: With which term are you most familiar?

Response	Count
Proprietary Stormwater Control Measures (SCMs)	16
Manufactured Treatment Devices (MTDs)	10
Total	26

Q4: How many MTD’s have you designed, reviewed, or installed in the last 5 years?

Response	Count
More than 5	15
Less than 5	10
None	3
N/A - Only maintenance	1
Total	29

Q5: Are you familiar with these national verification programs? (TAPE, TARP, NJCAT, NJDEP, WEF, STEPP)?

Response	Count
I understand these programs and differences between each of them.	8
Familiar enough to know what these programs do.	8
Not familiar	8
I have heard of some of these acronyms.	7
Total	31

Q6: Which of these MTD types are you most familiar with?

Response	Count
All of the above	15
Sedimentation MTDs (Hydrodynamic separators/Oil & water separators)	10
Storage MTDs (Underground storage/dry vaults/wet vaults)	4
Filtration/Biofiltration MTDs	4
Other (please type in chat)	1
Total	34

-----Meeting Note - OPEN DISCUSSION POLL QUESTIONS - "M" indicates comment from manufacturer. -----

Q7: What are your concerns with designing/ specifying and/ or reviewing/approving MTD's?

- M - Distinct difference for above ground vs below ground maintenance - both exist
- A transparent approval process
- Out of sight out of mind.
- That they are often providing only specific or narrow benefit (on trick pony)
- Inspection, access and maintenance
- Easy to maintain
- Who's going to maintain it, how often, and do they know how. Hopefully will be better now with O&M Manuals.
- Need verifications using standards and acceptance by regulators. Maintenance needs to be verified not just performance
- Meeting city requirements
- Regulatory consistency and that they are held to the same testing and evaluation standards as all SW BMPs
- Does it meet compliance requirements
- Long term maintenance obligations by the Owner
- As a manufacturer, biggest concern is equitable review as compared to public domain practices
- Placement
- Effective removal of 6 micron and less particle size
- Maintenance, designing to comply with permit requirements.
- M-"Apples to apples" comparison
- Maintenance sustainability, ensuring access for vac trucks- CCD WMD
- Justifying the cost and maintenance requirements to the client
- Evaluating devices for compliance with removal requirements
- Not thoroughly evaluating alternatives
- Cost, lifecycle O&M, WQ benefit
- Getting the device approved

Q8: For those of you who have been involved with MTD projects – please share your experience (good and bad) and lessons learned:

- Make sure the device won't be overwhelmed by the drainage area it's treating. Monitor performance post-construction.
- On private developments, inspection and maintenance seems to fall apart
- Maintenance agreements need to run with property transactions
- Municipalities with approved SCMs/MTDs lists take less time in an approval process
- Need for in field performance monitoring
- Make sure installed with maintenance in mind. Manholes able to be opened without equipment.
- TSS vs mg/L
- 80% TSS vs. 30mg/L standards

Q9: In what scenarios would you use MTD's over traditional BMP's?

- We try to minimize the use of MTDs
- M -more reliable treatment vs public domain
- In airport zones
- Pretreat an underground detention system
- To reduce the debris in a forebay
- M - useful for high flow applications
- As part of a treatment train (x2)
- To get sediment sand out
- Where land is too valuable for an open pond
- Pretreatment (x2)
- Required to treat areas not able to be hydraulically connected to primary WQ area and no space to add other treatment.
- Engineering constraints e.g. Impermeable soils, lack of space. Certain economic drivers for denser development in highly urbanized areas, Retrofits
- As an upstream device before a bioretention BMP to ensure that drainage areas for both are appropriate
- Site constraints. Grading restraints
- If it was allowed
- Elementary schools where above ground ponding presents drowning hazards
- Constrained urban areas
- Lack of space (x3)
- Space constraints, to achieve aesthetic benefits
- Treating runoff to areas that might not otherwise be capturable
- Lot line-to-lot line building
- Ultra urban environment (x2)
- Cost
- Nothing else fits
- All of the above
- Constrained sites (x2)
- Urban infill

Q10: Has your organization or agency had concerns of ensuring maintenance of MTD's?

- Agree MS4 inspects every year, if maintenance is not performed under our standards and regulation we will hire a contractor to do so and back charge the owner
- M - TAPE is starting to report on maintenance intervals during testing campaigns. Metrics are emerging to better design for maintenance
- Through municipality
- Are EDB's being maintained?
- Equipment including storage
- Not all MTDs need a vac truck
- M - important to note that enforcing maintenance is a challenge for all practices, not just specific to MTDs
- Asset management programs are needed for all SCMs. Half the utility world is underground and they are effectively managed by asset management programs
- Better now with O&M Manuals being required and inspection by MS4s but hard to ensure maintenance when manhole requires special equipment to lift.
- Concern of private maintenance actually happening
- Yes, access, frequency, location such as ROW
- Yes, most of our school clients stay away from MTDs
- Yes access is a concern. Frequency is also a concern -Public
- Yes (x5)
- Yes, and it failed
- Yes! We have limited inspection capacity, and they are "out of site, out of mind"
- M – nope

Q11: Do you have any other comments, general or specific, regarding the maintenance of MTD's?

- Operation and maintenance manuals
- Depth of devices
- Individual property owners wouldn't know what they're looking at
- Post Construction Inspection yearly
- Require a cost estimate associated with long term maintenance that the owner/developer acknowledges with the proposal of an MTD
- Individual property owners don't pull lids to do inspections
- At some point in the life cycle of underground features do require OSHA confined space entry.
- If a vac truck is required, many property owners will not do it
- Replacement criteria after lifespan of MTDs
- Potential to use cloud based monitoring
- Institute performance
- Do not place them in a travel lane requiring traffic control.
- Many of the manufacturers track the locations and provide maintenance or maintenance assistance
- Responsibility transfers with ownership
- ACCESS
- Without a vac truck you are hosed
- I use an underground camera and look at both upstream and downstream pipes during inspections

Q12: What is missing from the current Criteria in regard to MTD's?

- If 30mg/L is the goal, what is the sediment concentration flowing into the MTD?
- Installation design depending on size and location, soils, structural design
- Yes loading to the device!
- Use in contaminated soils
- M - 2yr vs WQCV sizing
- MTDs meaning separators? Filters and biofilters are also MTDs.
- Regional facility modeling
- If you have floatables and sand as pollutants MTDs do a great job. Smaller particle sizes not so much. Pollutants bind to the smallest particle sizes. 80% removal of sand is easy, silt not so much.
- Clear approval process that is formalized. Using TAPE reciprocity is the easiest approach as it takes the burden of the local agencies to setting up and running their own protocol which is very expensive and complex. Also, is TSS the only pollutant of concern? What about phosphorus? The 30 mg/L is somewhat ambiguous as it doesn't call out an influent concentration or a PSD for that sediment. Leaves it open ended.
- Need better guidance. Suggest looking at the new ASTM/STEPP for Hydrodynamic separators and Washington TAPE for filters
- M - Uniform sizing guidance
- M – A road for approval
- Analysis guidance of loading to device
- Identical sites with identical MTDs but different "dirtiness" (mall parking lot v. Nature preserve parking lot v. County road) would, theoretically, produce different effluent concentration. How can apples to apples be compared?
- Clear standards on when they can and cannot be used, i.e. site imperviousness and guidelines on treatment and/or storage requirements
- Space for access by maintenance equipment including in parking lots or ROW

Q13: What are your recommendations for improving the current Criteria?

- M - More focus on sizing guidance will help with maintenance concerns. 2-yr sizing that many use is oversizing vs 80th percentile permit req, oversizing can lead to unnecessary maintenance...
- For Private Owners a manufacturer guidance on fiscal impacts of devices for maintenance
- Guidance on when MFD's are appropriate vs. bioretention; right device for the right use.
- provide sample maintenance and inspection worksheets to guide the owner's long term system inspections
- Have a defined process to allow the manufacturers to get approved, while maintaining the confidence of the municipality. Require verification by STEPP or TAPE. Certifications done by the municipality in terms of design and sizing criteria
- Require the engineer of record to inspect the constructed system and sign off on it.
- Independent testing of each device by MHFD before inclusion in Vol III
- To encourage treatment train implementation
- I think more of when and where they should be used and in what scenarios (x2)
- CSU Colorado testing standards for 30mg/L similar to TAPE or NJDEP
- Flow Chart/Checklist

Q14: Where does the Criteria limit innovation in regard to MTD's?

- Temperature, I actually think temperature as a pollutant is where MTDs can really shine.
- Trash?
- Bacteria
- Innovation will be needed to address emerging pollutants and stricter regulations. PAHs PFAS etc.
- The 30 mg/L permit req limits innovation, most devices are not tested in this manner
- For your notes - to the last point - the language of the guidance manual limits
- Innovation is driven by demand. There are processes in place to allow for innovation and pilot projects.
- It doesn't

Q15: What aspects of MTD design are most confusing if any?

- Use performance expectations functions. Performance removal rates increase with influent concentrations
- How does a site specific engineered solution gain approval easier than an MTD?
- Unfounded and unsupported claims.
- Influent concentration vs effluent concentrations

For any comments or questions about these meeting notes, please contact one of the following MHFD staff members (or our supporting consultants) managing the V3Ch4 criteria update via email at:

- Morgan Lynch, PE, CFM (mlynch@mhfd.org)
- Holly Piza, PE (hpiza@mhfd.org)
- Brik Zivkovich, EI, CFM (bzivkovich@mhfd.org)
- Eliot Wong, PE (ewong@aware-engineering.com) – Manufactured Treatment Devices (MTDs) | Proprietary SCMs