MILE HIGH FLOOD DISTRICT

DATE: 03/17/2020 (Via Microsoft Teams)
PROJECT: USDCM Vol. 3 Ch. 4 Update 2020-2021
SUBJECT: V3Ch4 Update Kickoff – Stakehold Meeting #1

MEETING NOTES

MEETING DETAILS

Meeting Date/Time: 03/17/2020 3:00PM to 4:00PM (via Microsoft Teams)

Attendees: Tiffany Clark, Rob Hansen, Ryan Taylor, Mitch Black, Jessica Noel, Lisa Cherry, Danny Harris, Candice Owen, Holly Piza, Dan Hill, Jim Watt, Jon Villines, Morgan Lynch, Brik Zivkovich, Laura Kroeger, Shea Thomas, Barbara Chongtuoa, Teresa Patterson

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Related: Video recording (via Microsoft Stream) – available at mhfd.org

MEETING NOTES - CRITERIA FEEDBACK

1. **How does criteria make your work easier?**
   - for training entry-level engineers
   - for ensuring permit compliance
   - examples are good (many agreed with this)

- Appreciate that the criteria provides a uniform baseline that the regional area can utilize and refer to the technical criteria. Uniform criteria can be thought of as good customer service in that the design engineer knows what it will take to get through a process to meet local regulations so it is important that it be properly vetted for the end user, the contractor in the field who needs good design plans.
- They can be given to junior staff as a starting point. They can also be referenced in permanent water quality criteria I write for others. I like that the District updates them, especially regarding maintenance concerns, on a regular basis. Updating performance expectations as data comes in is great too. I like that the District methodology seems to have been accepted by the CDPHE as the WQCV is mentioned in the MS4 permits. I can convince clients that by following Chapter 4 for WQCV, they are meeting their MS4 permit requirements.
- It is really nice to have a central repository for information, and that the District updates and keeps criteria current so that Boulder can incorporate by reference.

2. **How does criteria make your work harder?**
   - When reviewers use it prescriptively - in a way that limits innovation
   - Lack of understanding of intent

- The criteria's purpose is technical and not intended to be utilized for regulatory purposes or (in some cases) for construction level detail. When the criteria is used for those purposes, it can be challenging. The local government/Reg agency has to make revisions that allow practical application by the contractor under field conditions.
- Many clients are convinced that if something isn't designed in strict accordance with Chapter 4 that it won't work. Being limited by the design criteria in Chapter 4 makes my job harder and leaves less room for innovation.
- When criteria lacks clarity and requires judgement calls it can be confusing or misused. Wordy or complicated criteria can get overlooked. There is also a trickle down effect of criteria, so being aware

of the consequences of manual changes to local ordinances and code is important, otherwise it can make local jurisdictions do a lot of work to do a corresponding update.

3. What groups use the USDCM and what do they need?

- Development Review
- Consultants that want to be innovative
- Consultants motivated by timely plan approval
- Design Engineers in General
- Manufacturers
- Municipal Engineers
- Landscape Architects

- Development, CIP, Environmental Resources, Maintenance and Inspections groups.
- Developers use it and they need design classes. Recorded videos might be nice. They don't do a good job of design from what I've heard from my clients
- Primarily used by civil – land development firms and city reviewers. They need to know what they have to do and what they could do.
- I like what North Carolina did in setting up: Minimum Design Criteria for each SCM type: https://deq.nc.gov/sw-bmp-manual/

4. What content is missing?

- Intent of various components: Maybe list this first by intent (rather than component), (e.g., pretreatment (rather than forebay) – but the reader needs to also understand why pretreatment is needed and what it is). Maybe a table summarizing intent/components similar to Table 4-1?
- A "narrative" of design process/justification and/or an example narrative. This would help the designer make good site-specific choices. Maybe it could be included as part of a drainage report outline? Also consider ensuring permit compliance. (Tiffany to send SEMSWA's work on this.)
- What information should be on construction documents? What does the contactor need to understand about intent of components?
- Recommendations for contextual design. Ryan suggested looking at Portland's manual for this. They created a separate section.
- How to provide energy dissipation and a forebay separate but together.
- How to quantify treatment in a treatment train. (Jessie and Ryan) Jessie provided an example.

- The sections on Treatment BMPs are very helpful but academic. Having additional practical considerations and discussion would be helpful. Often times, the end user of the criteria is a new development/redevelopment. Often, being installed by out of state contractors, so constructability is a key component. For example, is recommended material readily available? Cost effective? Certifiable/identifiable in the field?
- Treatment trains and treatment in series are mentioned but there are no calculations or guidance provided. Stokes Law for particle setting as it relates to percent removal could be good. Or even an intuitive calculation for percent removal along a treatment train. For example, if you know you need to remove 90% of the 60 micron particle (like Aspen), and you remove 50% with the first treatment facility, you now only have to remove 40% with the remaining facilities. See example.

- Since the CDPHE didn't include any guidance on what they consider TSS influent to be (mg/L or particle size), this makes getting to 30 mg/L hard to calculate. Perhaps a table of what can be assumed to come off various land uses, or maybe a range of concentrations by land use. Minnesota has this information, although no one knows where it came from so I don't like to use it. That way, treatment trains could actually be designed to get to that 30 mg/L benchmark set by the CDPHE and would help encourage their design and use. Right now they are seldom used even though they are often the best option. (see example treatment train problem). It might be a little heavy, but I think given the textbook nature of the USDCM it would fit right in.
- More solid references to NJCAT and WSDOE/TAPE and their protocols would be good. You hate to make manufacturer's go through that as it's so expensive, but they really are the gold standard of testing.
- Finally, any way to convince the CDPHE to use the water quality flow rate instead of the 2-year design flow rate for water quality treatment? Seems like an apples to oranges approach when using volume based versus flow based treatment. Of course then we'd need to identify a point rainfall for that event.
- Other discussion notes/comments:
  - The permeable pavement no infiltration design is getting messed up in Boulder.
  - The maintenance section could use a revamp.
  - The interaction between the manual and the MS4 design standards, especially volume reduction could be improved.
  - Guidance on infiltration testing
  - Guidance on resilient design features (i.e. capped or valved underdrains, etc.)
  - Design for more engineered swale would be welcome

5. Whose input is missing?

- Biologists
- Ecologists
- People involved in the permitting process – Mary Powell
- People that do maintenance
- Tyler Dell
- Look at CDOT Maintenance requirements for Permanent WQ. (Jessie N.) – but please don't make maintenance prescriptive (Ryan)
- Suppliers (Material providers)
- Inspection staff
- National Experts Would be good to get some national representation, sometimes it feels like we are kind of insulated in how we think about stormwater in Colorado.
- Contractors!

6. What is the best way to facilitate engagement in the update process?

- Open the discussion to designers and contractors in the new development/redevelopment arena.
- Designer and city plan review online survey, in person working sessions, comment period, engaging the group on the phone again with draft changes or outline of changes

7. Other ideas/comments/discussion

- Experience with Fact Sheets – pros/cons? – (Question for next time)
- Discussion of construction-level details. People like these but there is also concern for them making the criteria too prescriptive. There still might be a place for them.
- After the rewrite: More education/outreach – maybe MHFD LnLs, short videos, and a library of good examples.

- CDOT PWQ site as a whole:https://www.codot.gov/programs/environmental/water-quality/stormwater-programs/pwq-permanent-water-quality/documents
- The PWQ section of the drainage design manual is at the link below. CDOT was on board with requiring maintenance staff to be at the FIR and FOR meeting to provide input. I'm really hopeful all the work we've done with them will help their program get organized.
- https://www.codot.gov/programs/environmental/water-quality/drainage-design-manual-documents-sept-2019/chapter-16-permanent-water-quality-6-30-2019-docx.pdf