

Planning for 2023

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DUNE TMS Meeting
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We are nearing the end of the first year of the TMS consortium.

Let's look ahead, focussing on:

1. Schedule / Reviews
2. Upcoming work
3. Documents

This is a proposed plan.
Your feedback is welcome.
Volunteers are welcome.



<https://www.highenergyvintage.com/>

Schedule / Reviews

Current schedule involves CD-3 in 2024 - Final Design Report in early 2024.
Have the documentation ready for a CD2 review (Preliminary Design Report) - by March 2023.

PDR: Assess whether the design has progressed far enough (is “mature” enough) to support the proposed performance baseline.

In addition, several activities naturally converge around a year from now:

- New scintillator production run at FNAL.
- A natural time to start the final electronics design.
- Sufficient time for non-US partners to secure contributions to TMS threshold scope.
 - Electronics, module factory
- Decisions about location of module factories.

Path to PDR - end March

Here are some re-design questions we propose exploring / adopting for the PDR:

- (Short Stack)
 - This is already a change from the CDR: ANL studying effect on support structure.
- Unburying the electronics
 - U. Minnesota / Rochester to produce cost estimate for clear fiber cables
 - Goal is for discussion and ideally decision at Jan collaboration meeting.
- Using new WLS fibers (factor of two more light?)
 - We just heard about the possibilities on this
 - Could be a 'game time decision' - should be an ongoing conversation
- Orthogonal counters - to better identify exiting muons.
 - C. Marshall to help craft needed studies
 - New analyzers are needed!
- Two fibers per strip
 - More light and protection from SiPM /coupling failure
 - Physics studies / mechanical studies indicating need.

Path to PDR - end March

- + areas where we need to provide more detail than was in the CDR:
 - Steel thickness distribution
 - Optimization studies
 - Module construction
 - U. Minnesota / Argonne to work on design and construction plan.
 - Magnet
 - Would like to have a focussed review with magnet experts.
 - Installation and Integration
 - More effort on integration would be valuable.

When the PDR is ready, there would be a DUNE-internal review of it.

+ a CDR-based Publication

In addition to the PDR, we would like to see the consortium produce a physics publication from the CDR (e.g. for JINST).

- Capture current design, highlight great work done by a number of people on the physics requirements of TMS.
- Won't require a lot of work to prepare a draft.

CDR will be cloned for two new documents:

- CDR-based physics publication - finish draft ASAP.
- The PDR: will need to be a 'living document' as the design evolves - all the way through CD-2.

Each document will require a two-person editorial team.
Volunteers?