



10/2/2025

# Town Hall Meeting: TxDOT Hydraulic Design Manual Revisions Project

Challenges, goals, and aspirations for a recreated document

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# **1. A little bit of background**

## **Purpose of the Upcoming Procurement**

**Major overhaul of the TxDOT Hydraulic Design Manual, including re-thinking manual vs guidance, and innovative approaches to support our growing State and wide range of hydrophysiographic regions.**

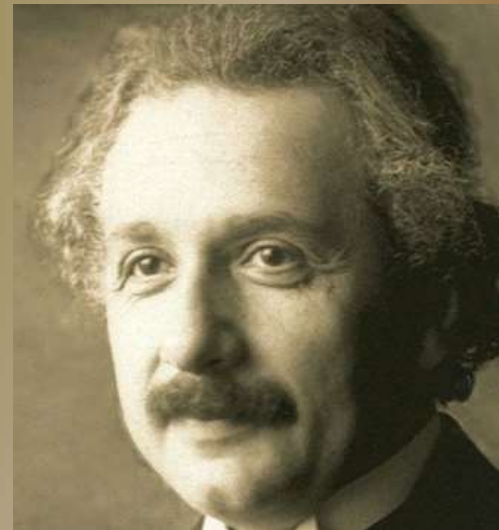
1-Indefinite Deliverable

\$6M

State procurement process, with interviews

A problem cannot be solved using the same thinking that created it

*(Probleme kann man niemals mit derselben Denkweise lösen, durch die sie entstanden sind.)*



## **The Relationship of Divisions and Districts**

*Leading TxDOT in providing and growing design and project development expertise, through collaborative efforts and quality customer service, to effectively and efficiently deliver a safer transportation system for Texas.*

*Ensure the districts know what they need to know and have what they need to have to maximize successful program delivery.*

## **Purpose of DES Hydrology & Hydraulics Section**

The H&H Section leads the statewide practice of hydrology & hydraulics through:

- development of policy and guidance
- providing training and specialized project support
- cultivating a community of technical collaborators
- maintaining expertise at the leading edge of the state of practice and the state of knowledge.

## **DES H&H: Vision and Goal**

**TxDOT's H&H needs are well-served through a best-in-class H&H program**

**H&H practitioners feel well-supported and empowered in doing their work.**



## **2. Overview of the HDM revision project**

## **WHAT is the HDM for?**

- Codify policy
- Explain policy
- Provide guidance
- Primary purpose is to support H&H design at TxDOT
- Creates legal framework in cases of complaints
- Also used by various jurisdictions within Texas as their local criteria

## **WHO is the HDM for?**

- TxDOT staff doing H&H design
- TxDOT consultants doing H&H design
- Also used by entities making complaints against TxDOT
- Also serves some communities that do not have their own separate criteria

## **What are the PRIMARY challenges?**

- Is the manual written in a way that best serves its primary audience (?)
- The current manual is 600 pages long
- Manuals are more resource-intensive to update than stand-alone guidance documents
- Limits of technical support for some content
- Absence of some content that is needed
- Language about district processes/roles/authorities

## **What are the PRIMARY challenges?**

- The need for flexibility with H&H criteria
- The size and range of Texas hydrophysiography
- Designing for existing conditions
- How to impart sufficient understanding, given complicated ideas
- Providing explanations that do not create legal risk, other risks

## Major Scope Elements

- Assessment (to develop workplan and schedule)
- Technical analysis of criteria and guidance
- Development of guidance and criteria
- Pilot projects
- Stakeholder collaboration
- Drafts and manual releases and documentation of decisions

## **Assessment (to develop work plan and schedule)**

- Review current manual
- Review compilations of suggested changes
- Elicitation of input from key stakeholder groups
- Develop framework for what should be in the manual vs standalone guidance
- Determine what revisions may be needed in other TxDOT manuals as relates to H&H
- Review H&H/drainage manuals by others (e.g., AASHTO model drainage manual, other state DOTs, local/regional)

## **Assessment (to develop work plan and schedule, continued)**

- Assess the state of the art for manual design and content that conforms to applicable requirements (e.g., digital accessibility)
- Develop detailed 5-yr work plan and schedule



## Technical Analysis

- Review practices and criteria from major regions/jurisdictions within Texas for potential incorporation
- Review H&H research by TxDOT and others
- Review FHWA Hydraulic Engineering Circulars/Hydraulic Design Series documents

## Technical Analysis

Examples of topics to visit/revisit:

- Kerby-Kirpich for  $T_c$  versus NRCS
- Peak Rate Factors
- Design rainfall distributions
- Freeboard
- Design for evacuation routes

## **Development of Guidance and Criteria**

- Develop template and style guide for stand-alone documents
- Develop prioritized list of guidance to be developed, along with task/schedule details for developing/testing/releasing (e.g., written, video)
- For content to be removed from HDM, develop stand-alone guidance

## **Development of Guidance and Criteria**

Examples of guidance/criteria to be developed:

- Improved detention pond guidance/criteria (for design, for maintainability)
- When and how to subdivide a watershed
- Use of Rain on Mesh
- Aerial reduction for basins larger than 10 sq mi

## **Development of <Novel> Guidance and Criteria**

Examples:

- Freeboard – uncertainty – resilience – reliability – non-stationarity
- Resilient pump station design
- Regional approaches to hydrology
- Playas – arid regions – karst hydrology
- Fluvial geomorphology

## Pilot Projects

- Develop pilot projects based on Technical Analysis
- Develop pilot projects based on proposed guidance and new criteria

## Stakeholder Collaboration

- Early phase – elicitation
- Draft guidance – core reviewers, internal H&H committee, potential external reviewers
- Facilitate technical discussions for a range of participants and capture action items
- For each release, develop and conduct training in a variety of delivery formats (e.g., live, recorded, slides)

## Draft Manual Releases

Anticipate three drafts:

1. Quick and easy
2. Moderately challenging
3. Innovative, remade, glorious final
  - Processes for drafting, review cycles and stakeholder groups
  - Final drafts for legal, FHWA review
  - Documentation of process and decisions



## **3. Some additional information**

## What's Next?

- Town Hall slides will be posted on 10/6/2025
- One-on-one meetings from 10/6/2025 to 10/22/2025– send request to [rosemarie.klee@txdot.gov](mailto:rosemarie.klee@txdot.gov)
- TBD on start date for NO CONTACT period. Anticipated as early as 10/23/2025 and as late as 11/4/2025

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