



July 1, 2022

The 2022 edition of the City of Houston Infrastructure Design Manual will be effective July 1, 2022. The manual has been updated and revised to reflect changes to the City of Houston's general requirements, survey requirements, graphic requirements, platting requirements, easement requirements, water line design requirements, wastewater collection system design requirements, storm water design requirements and geospatial data deliverable requirements.

Please keep in mind that the purpose of this manual is to establish the basic criteria from which engineers can design infrastructure in a manner acceptable to the Department and is not intended to address all design conditions or specialized situations.

A 90-day design grace period for implementation of the City of Houston Infrastructure Design Manual is instituted for the 2022 edition as described in the attached Executive Summary.

For more detailed information concerning the updates to the Infrastructure Design Manual, Standard Drawings and the Standard Construction Specifications see the attached Executive Summary.

Respectfully,

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Carol Ellinger Haddock, P.E.
Director, Houston Public Works

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Suhail Kanwar, P.E.
City Engineer

Attachment: Executive Summary

cc: Eric Dargan, Chief Operating Officer
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EXECUTIVE SUMMARY

2021-2022 Review Cycle

The following executive summary highlights the implementation and some of the major updates to the City of Houston's (City) Infrastructure Design Manual (IDM), General Requirements, Standard Construction Specifications, and Standard Drawings from the 2021-2022 review cycle.

GENERAL CHANGES

The July 2022 Infrastructure Design Manual, General Requirements, and Standard Construction Specifications show change bars on the left side of the page to indicate a major revision has taken place. For specific details on what changes took place, redlines will be posted on the Design and Construction Standards website for reference.

Department names have been updated throughout the IDM and specifications, and pronouns have been replaced with gender-neutral language. References to the City's previous Geographic Information and Management System (GIMS) have been replaced with references to the new GeoLink Hub throughout the IDM.

INFRASTRUCTURE DESIGN MANUAL (IDM)

Chapter 1 General Requirements

The chapter's references and definitions have been updated. The plat review process for utility and paving projects has been updated. A requirement for electronic drawings has been added to the final design requirements section. Submittal procedures (electronic review process, "Public/Private" project submittals) have been updated. A new section on engineering requirements in the construction phase has been added. A requirement for conflict verification for capital improvement projects requiring the acquisition of real property has been added. The chapter has been re-organized for uniformity and the chapter is now organized into sections for easier navigation and referencing.

Chapter 2 Survey Requirements

The chapter's references and definitions have been updated. Requirements for recording of topographic information and improvements have been updated. Requirements for cross-sections have been updated. The field work requirement for locating visible improvement beyond right-of-way has been increased from 10 feet to 25 feet. File format requirements have been added for submittals. Submittal requirements for field books have been updated to allow for electronic copies. References to templates have been added. The requirement for grid values of "x", "y" for points of curve, points of tangency and points of intersection on proposed right-of-way lines has been removed. A figure showing the perimeter of a standard topographical survey has been added. Redundant requirements have been removed. Two figures outlining the general review process for design contracts and right-of-way parcel surveys have been added. Appendix A has been added for site control monument installation requirements. The chapter has been re-organized for uniformity and the chapter is now organized into sections for easier navigation and referencing.

Chapter 3 Graphic Requirements

The chapter's references and definitions have been updated. The standard detail's importing requirements have been updated to ensure drawing readability. A process for modifying standard details has been added for any project specific changes. The requirement for cross-street drawing information requirements at street crossings has been updated. Color requirements for existing objects and existing utilities has been added. North arrow requirements have been updated. Increased labeling requirements for plan and profile design data was added. Typical use line weight requirements have been updated. New line types have been included and existing line types have been updated. Several new CAD tools are added online to aid drafters in meeting the City's graphic requirements.

Chapter 4 Platting Requirements

References and definitions have been added to the chapter. A requirement that Class II and Class III plats, as existed in the year 1870, must be routed to the chief surveyor has been added. File format requirements have been added for drawings. The two processes for plat approval when dedicating right-of-way to the City have been added. The preliminary plat approval authority has been updated. The chapter is now organized into sections for easier navigation and referencing.

Chapter 5 Easement Requirements

The chapter's references and definitions have been updated. The statement concerning easements for electrical and gas lines has been removed, because the chapter only covers easement requirements for water, wastewater and storm sewer utilities/facilities. To consolidate requirements, easement requirements from Chapters 7, 8, and 9 have been moved to this chapter. Language pertaining to the recent amendment to Code of Ordinances, Chapter 42 – Subdivisions, Development and Platting has been added. Water line easement requirements have been updated to increase easements widths and change the utility location requirements. Large diameter water line (LDWL) easement requirements that were added to Ch. 7 in 2021 have been modified. Side-lot easement requirements for water lines have been updated. Flushing valve easement size has been reduced. Sanitary sewer force main easement requirements have been moved to the appropriate section for improved distinction between gravity sewers and force mains. Minimum easement requirements for storm sewers have been updated and are included in a table similar to the table for LDWLs. A requirement for easements for storm sewers located inside the right-of-way close to the right-of-way boundary has been added. Requirements for storm sewer placement within easements have been updated. The combined storm and sanitary easement requirements have been updated.

Chapter 7 Water Line Design Requirements

Chapter 7 – *Water Line Design Requirements* was not officially part of the 2021-2022 review cycle. Due to updates in Chapters 1, 5 and 13, several updates were needed to the chapter. The chapter's references have been updated. A definitions section has been added. Easement requirements have been moved to Chapter 5. "As-built" has been renamed "Record Drawing" for consistency with Chapter 1, and updates to record drawing requirements have been made. A requirement for GIS deliverables has been added to the submittals section.



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Chapter 8 Wastewater Collection System Design Requirements

Chapter 8 – Wastewater Collection System Design Requirements was not officially part of the 2021-2022 review cycle. Due to updates in Chapters 5 and 13, several updates were needed to the chapter. The chapter's references have been updated. References to the City's previous Geographic Information and Management System (GIMS) have been replaced with references to the new GeoLink Hub. Easement requirements have been moved to Chapter 5. A requirement for GIS deliverables has been added to the submittals section.

Chapter 9 Stormwater Design and Water Quality Requirements

Chapter 9 – Stormwater Design and Water Quality Requirements was not officially part of the 2021-2022 review cycle. The chapter's references have been updated. Easement requirements have been moved to Chapter 5. Detention requirements for shared driveways have changed. A requirement for GIS deliverables has been added to the submittals section.

Chapter 13 Geospatial Data Deliverables

The name of the chapter was changed from "GIS Data Digitization Standards" to "Geospatial Data Deliverables". The entire chapter was re-formatted to consolidate similar sections into one and eliminate repetition of information. In addition to an overview section, Ch.13 now contains overarching sections on asset specifics, data accuracy standards, GIS data collection methods, data quality and topological checks, and deliverable submission requirements. Each section goes into further detail regarding specific utility groups as needed. A references subsection was added under Section 1 – Geospatial Data Deliverables Overview. The definitions subsection was expanded under Section 1 – Geospatial Data Deliverables Overview. Asset descriptions were added for each asset type under Section 2 – Asset Specifics. Table 13.1 - Information Required for Storm Water Assets was added under Section 2 – Asset Specifics to match similar tables that were already in Ch.13 for the water, wastewater, and geotechnical and environmental utilities. Digital data deliverable requirements were clarified for geotechnical and environmental assets, as well as clarifying the alternative tabular deliverable requirements allowed for this asset type only. A separate section on digital data deliverable submission requirements was added to address the new deliverable process enacted by Houston Public Works' GIS team. This briefly clarifies the new standards regarding GIS data. The Geospatial Data Deliverables Properties Guide was established as a separate, standalone document that will be updated and maintained alongside Ch.13 of the IDM. This document goes further into detail about data requirements for each utility group, as well as providing specific guidance on how to submit digital GIS data via the new submission process. A subsection on metadata submittal was included in the Geospatial Data Deliverables Properties Guide to clarify the information that should be included with each file geodatabase submittal. Information regarding general asset information, feature class field properties, domain codes, and subtypes was moved to the Geospatial Data Deliverables Properties Guide so that this information can be regularly updated as changes to schemas are made. Links and references to the guide document are provided throughout Ch.13, where appropriate.



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2021-2022 Review Cycle

IDM Supplements

The City creates supplements for the IDM when there is a need to revise a current IDM chapter that is outside of its normal review cycle period. At the time when a new IDM is to be released, any active supplements are incorporated into the new IDM and those supplements subsequently deactivated.

Prior to the completion of the 2021-2022 review cycle, there were no active IDM supplements therefore no IDM supplements have been incorporated into the IDM for the 2022 release.

Infrastructure Design Manual Implementation

- *Capital Improvement Projects*

A 90-day design grace period will be given for Houston Public Works capital improvement projects managed by the Capital Projects service line. Phase II final designs that have not been submitted for a required review prior to October 1, 2022, will be required to completely comply with the new Infrastructure Design Manual.

- *Private Sector*

A 90-day design grace period will be given for projects in the public/private sector. Substantially complete plans submitted for initial review after October 01, 2022, will be required to comply with the new IDM.

- *Plats and Easements*

Plats and easements submitted for preliminary plat review after October 1, 2022, must comply with the new IDM requirements. Easements dedicated through separate instrument and submitted to the Houston Permitting Center (OCE & BCE) for initial review after October 1, 2022, must comply with the new IDM requirements. Easements that were reviewed and approved during preliminary plat, but design drawings have not been submitted for initial review by October 1, 2022, must be resubmitted for review and comply with the new IDM requirements.

CONSTRUCTION SPECIFICATIONS

Revised Specifications

Various specifications, that are associated with the IDM chapters reviewed during the 2021-2022 review cycle, were reviewed and updated. A total of twelve (12) specifications were revised and three (3) new specifications were created. The three (3) new specifications created are 01582 "Build Houston Forward Project Identification Signs", 02445 "Jack And Bore/Jack And Mine/Pilot Tube Guided Boring Tunnels" and 02447 "Installation of Water Lines by Slurry Bore". A list of all specifications created or updated is provided at the end of this executive summary.

Specification Implementation

- *Capital Improvement Projects*

Per Document 00700 General Condition, section 1.2.4:



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“Reference to standard specifications, manuals, or codes of a technical society, organization, or association, or to laws or regulations of a governmental authority, whether specific or implied, mean the latest edition in effect as of date of receipts of bids, except as may be otherwise specifically stated in the Contract.”

- *Private Sector*

All projects in the public/private sector submitted after October 1, 2022, shall comply with the latest version of the City's Construction Specifications.

STANDARD DETAIL REVISIONS

Revised Standard Details

Various standard details associated with IDM Chapters 1-5 were up for review during the 2021-2022 review cycle. One new standard detail was created, 01582-01 “Construction Sign, Build Houston Forward”. A list of all standard details created or updated is provided at the end of this executive summary.

Revised Standard Detail Implementation

- A 90-day design grace period will be given for implementation of the standard details. Changes shall be effective October 1, 2022.
- For Houston Public Works capital improvement projects managed by the Capital Projects service line, Phase II final designs that have already been submitted for a required review prior to October 1, 2022, it is recommended that all designers make an effort to incorporate the new changes into their current design to the extent that it does not increase cost or delay a project.

END OF EXECUTIVE SUMMARY

(See Next Page for List of New Revisions)



EXECUTIVE SUMMARY

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NEW IN THE 2022 REVISION

Infrastructure Design Manual (IDM), Standard Construction Specifications and Standard Details for Houston Public Works Design & Construction — 2022 Revision

Infrastructure Design Manual (IDM) Chapters Updated*:

- IDM Ch. 1 – General Requirements
- IDM Ch. 2 – Survey Requirements
- IDM Ch. 3 – Graphic Requirements
- IDM Ch. 4 – Platting Requirements
- IDM Ch. 5 – Easement Requirements
- IDM Ch. 7 – Water Line Design Requirements
- IDM Ch. 8 – Wastewater Collection System Design Requirements
- IDM Ch. 9 – Stormwater Design and Water Quality Requirements
- IDM Ch. 13 – Geospatial Data Deliverables

Standard Details Updated:

- None

Standard Details Retired/Deleted:

- None

*Only IDM chapters and specifications with technical changes have been included in the list.

New Standard Specifications:

- 01582 – Build Houston Forward Project Identification Signs
- 02445 – Jack and Bore/Jack and Mine/Pilot Tube Guided Boring Tunnels
- 02447 – Installation of Water Lines by Slurry Bore

Standard Specifications Updated*:

- 01145 – Use of Premises
- 01340 – Shop Drawings, Product Data, and Samples
- 01422 – Reference Standards
- 01450 – Contractors Quality Control
- 01502 – Mobilization
- 01725 – Field Surveying
- 01770 – Closeout Procedures
- 01782 – Operations and Maintenance Data
- 02441 – Microtunneling
- 02501 – Ductile Iron Pipe and Fittings
- 02504 – Fiberglass Reinforced Pipe
- 02526 – Water Meters

Standard Specifications Retired/Deleted:

- 02447 – Augering Pipe and Conduit

New Standard Details:

- 01582-01 – Construction Sign, Build Houston Forward