CITY OF HOUSTON
HOUSTON PUBLIC WORKS

INFRASTRUCTURE DESIGN MANUAL

CAROL ELLINGER HADDOCK, P.E.,
DIRECTOR

JOSEPH T. MYERS, P.E.,CFM
CITY ENGINEER

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R. TRB – Transportation Research Board

S. Type 1 Permanent Access Easement - A permanent access easement at least 50-feet in width that is designed and constructed like a public street in accordance with the design manual and contains one or more public utilities in an unpaved portion of the easement. Refer to Chapter 42 of the Code of Ordinances No. 1999-262.

T. Type 2 Permanent Access Easement - A permanent access easement at least 28-feet in width that is designed and constructed like a private street serving a development that has no public utilities other than a public water line, connected to one or more fire hydrants, that provides no domestic water services. All private utilities within a Type 2 permanent access easement must be designed to public utility standards outlined in the Infrastructure Design Manual. Refer to Chapter 42 of the Code of Ordinances No. 1999-262.

10.04 ASPHALTIC CONCRETE PAVEMENT DESIGN REQUIREMENTS:

A. AC Surface Minimum Thickness – Pavement design shall be prepared by a Professional Engineer based on current AASHTO design methodology (Guide for the Design of Pavement Structure). Minimum thickness shall be as shown on City of Houston Standard Detail 02741-01.

B. Base Minimum Thickness – Pavement design shall be prepared by a Professional Engineer based on current AASHTO design methodology (Guide for the Design of Pavement Structure). Minimum thickness shall be as shown on City of Houston Standard Detail 02741-01. Alternative design may be approved by HPW.

C. Subgrade Treatment

1. Type, depth, and percentage of subgrade stabilization, stabilization design, and type of stabilization shall be determined by a geotechnical engineer.

2. For subgrade conditions of cohesive soils, subgrade treatment or stabilization shall be no less than eight (8)-inches unless otherwise prescribed in this document or specified by a geotechnical engineer.

10.05 CONCRETE PAVEMENT DESIGN REQUIREMENTS:

The following requirements are applicable to pavement within City street rights-of-way.

A. Minimum Pavement Thickness, Reinforcing, and Subgrade Stabilization Requirements:

1. Pavement thickness and reinforcement shall be designed by a Professional Engineer based on a current soils analysis, roadway use, traffic loadings, and minimum 50 year life span of proposed pavement. Pavement design shall be prepared by a Professional Engineer based on current AASHTO design methodology (Guide for the Design of Pavement Structure). However, in no event shall the pavement thickness be less than the minimums stated below.

2. For Residential Roadway Concrete Pavement:

   a. Minimum concrete slab thickness shall be six (6)-inches.

   b. Minimum concrete strength shall be f'c = 4000 psi.

   c. Minimum reinforcing steel strength shall be fy = 60,000 psi.

   d. Refer to City of Houston Standard Detail 02751-01 for concrete reinforcement details.

   e. Minimum stabilized subgrade thickness shall be six (6)-inches for granular soils and eight (8)-inches for cohesive soils.

   f. The type and depth of subgrade and base shall be as determined by a geotechnical engineer.

3. Collector Roadway with Concrete Pavement

   a. Minimum concrete slab thickness shall be nine (9)-inches.

   b. Minimum concrete strength shall be f'c = 4000 psi.

   c. Minimum reinforcing steel strength shall be fy = 60,000 psi.

   d. Refer to City of Houston Standard Detail 02751-01 for concrete reinforcement details.

   e. Minimum stabilized subgrade thickness shall be six (6)-inches for granular soils and eight (8)-inches for cohesive soils.

   f. The type and depth of subgrade and base shall be as determined by a geotechnical engineer.

4. For Major Thoroughfares Constructed With Concrete Pavement

   a. Minimum concrete slab thickness shall be 11-inches.

   b. Minimum concrete strength shall be f'c = 4,000 psi.

   c. Minimum reinforcing steel strength shall be fy=60,000 psi.

   d. Refer to City of Houston Standard Detail 02751-01 for concrete reinforcement details.

   e. Minimum stabilized subgrade thickness shall be eight (8)-inches.

f. The type and depth of subgrade and base shall be as determined by a geotechnical engineer.

5. Paving headers shall be placed at the end of all concrete pavements.

B. Curb Requirements:

1. Six (6)-inch Vertical Curb:

a. Six (6)-inch vertical curb is the standard curb design and shall be in accordance with City Standard Details.

b. Collector streets and higher volume residential streets where traffic calming measures are in place require construction of six (6)-inch vertical curb.

2. Laydown Curb:

a. Laydown curb shall be in accordance with City Standard Details.

b. Shall be four (4)-inches in height.

c. Is only allowed as an option for street projects on single family residential streets within the City.

d. Laydown curb shall not be permitted if sidewalk is to be constructed immediately adjacent to the curb.

e. Laydown curb construction shall provide for necessary transition lengths at curb inlets to go from laydown curb to standard vertical curb section.

f. Transition from standard six (6)-inch to four (4)-inch vertical curb shall be extended a minimum of ten (10)-feet beyond curb inlets before beginning transitions.

10.06 GEOMETRIC DESIGN REQUIREMENTS:

A. Design Guidance

1. The design of streets within the City of Houston shall consider all users.

2. Roadway designs shall require context sensitive solutions such as those included in the ITE Recommended Practice: Designing Walkable Urban Thoroughfares: A Context Sensitive Approach; the NACTO Urban Bikeway Design Guide; AASHTO; or any other reference documents as defined in Chapter 17.

3. Minimum standards should be exceeded, to enhance safety and comfort for all roadway users. The minimum standards set in this chapter are not intended to be the only values used for design. The design values should be based on the context of the roadway and engineers may choose to use values that vary from the minimums set in this chapter. Use of the minimums shall be properly communicated and coordinated with Houston Public Works Staff.

4. Alternative Cross Section:

   Project designs should consider roadway context, including adjacent land uses; nearby destination and infrastructure; and existing and potential bicycle, pedestrian, and transit traffic. Designers are encouraged to consider alternative cross sections as defined in Appendix 1 of this chapter to support the roadway context. Additional information regarding potential enhanced pedestrian environments and bicycle facilities can be found in Chapter 17.

B. Roadway Classifications

a. Principal Thoroughfare

b. Thoroughfare

c. Major Collector

d. Minor Collector

e. Transit Corridor

f. Local Street Classifications (not applicable in the ETJ)
   (1) Residential Standard Density – Provides access to individual lots equal to or greater than 40-feet in width.
   (2) Residential High Density – Provides access to individual lots less than 40-feet in width.
   (3) Residential Main – Serves multiple streets and can be described as the "neighborhood feeder / collector."
   (4) A summary of the design characteristics for the three local street classifications above is included in Table 10.06-01. Traffic volumes shown in column "Traffic ADT" are provided as general guidelines.