

CITY OF CLIVE

DEPARTMENT OF PUBLIC WORKS

CHAPTER 10 – PLANNING AND DEVELOPMENT

SECTION 10.7 - DESIGN PRACTICES

POLICY TITLE: Pavement Design and Construction

POLICY NO.: 10.7.1

PURPOSE: This policy has been established to define requirements for the design and construction of streets in the City of Clive. The policy is based on a 50 year design life to provide long lasting quality sustainable streets. Streets in the City of Clive shall be designed and constructed in accordance with the following.

POLICY:

A. Local & Private Streets

1. Pavement Foundation

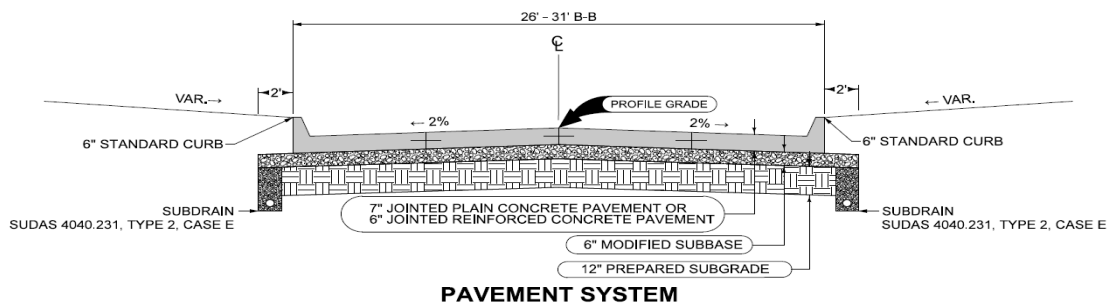
- a) A Geotechnical report is required in accordance with Chapter 6 of the SUDAS Design Manual. The report shall be signed by a Licensed Professional Engineer in the State of Iowa. The Geotechnical report shall specify actions necessary to provide a subgrade with a minimum CBR of 10. The report shall include all data and analysis necessary to support the recommendations
- b) A minimum of 12" M&D below subbase shall be required
- c) 6" of modified subbase (SUDAS Specifications Manual, Section 2010, 2.04.D.3a) with subdrains (SUDAS Specifications Manual Figure 4040.231, Type 2, Case E), with engineering fabric, shall be required unless the geotechnical report determines soil is free draining. The subdrain pipe shall be A-2000 pipe and designed as a combination subdrain/footing drain collector. Where RCP storm sewer pipe is present 2' back of curb, the storm sewer pipe may be used as the subdrain, by wrapping joints with engineering fabric, not applying joint sealant (SUDAS Specifications Manual Figure 4020.211) and backfilling with porous backfill material (SUDAS Specifications Manual, Section 4040, 2.04) (porous backfill material must extend to modified subbase).

2. Pavement

- a) Concrete – Class C mix (C-SUD) (Iowa DOT, IM 529, with Type 1 cement and aggregate proportions of 55% coarse and 45% fine, Slag is not allowed)
 - i. Air entrainment shall be 6% to 8% after placement
 - ii. Water to Cement (w/c) ratio shall be 0.40 with a max of 0.45

- iii. Supplementary Cementitious Materials (SCMs) – Fly ash – 20% Class F or Class C shall be used (SUDAS Specifications Manual Section 7010, 2.01.B1).
- b) Thickness
- i. 7" Jointed Plain Concrete Pavement (JPCP) or
 - ii. 6" Jointed Reinforced Concrete Pavement (JRCP) (SUDAS Design Manual Figure 5G-2.11 for 26' wide pavement or SUDAS Design Manual Figure 5G-2.12 for 31' wide pavement) (reinforcement for other pavement widths must be approved by the City)
- c) Jointing
- i. Quarter Point Jointing shall be used for 26' and 31' Pavements (SUDAS Specifications Manual, Figure 7010.901). Quarter Point Jointing shall be used for other pavement widths and must be approved by City.
 - ii. Transverse Joint Spacing shall be 14' for 7" thick pavement and 12' for 6" thick pavement.

City of Clive Residential Street Cross Section



B. Collectors and Arterial Streets

1. Collector and Arterial Street shall be designed for a 50 year pavement life and shall include the same pavement foundation and pavement requirements as residential streets except for the following:
 - i. Pavement width shall be determined by design based on projected traffic volume and existing or connecting pavement width.
 - ii. Pavement thickness shall be determined by design based on projected truck volume according to SUDAS Design Section 5F-1. Pavements with thickness of 8" or more shall have 'CD' transverse joints.
 - iii. Maximum longitudinal joint spacing shall be 10' and shall be uniform across the pavement width.
 - iv. Maximum transverse joint spacing shall be 15'