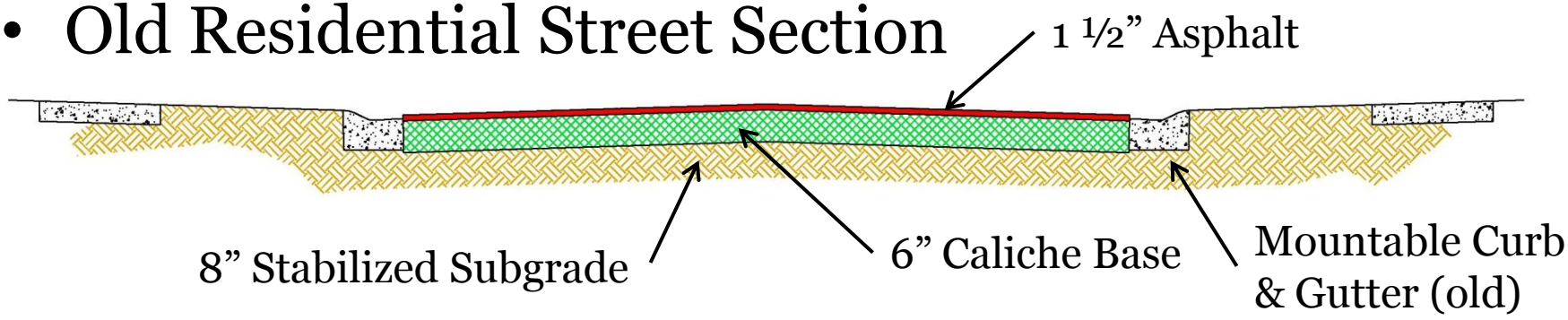
Design Standards Ordinance

Council Presentation

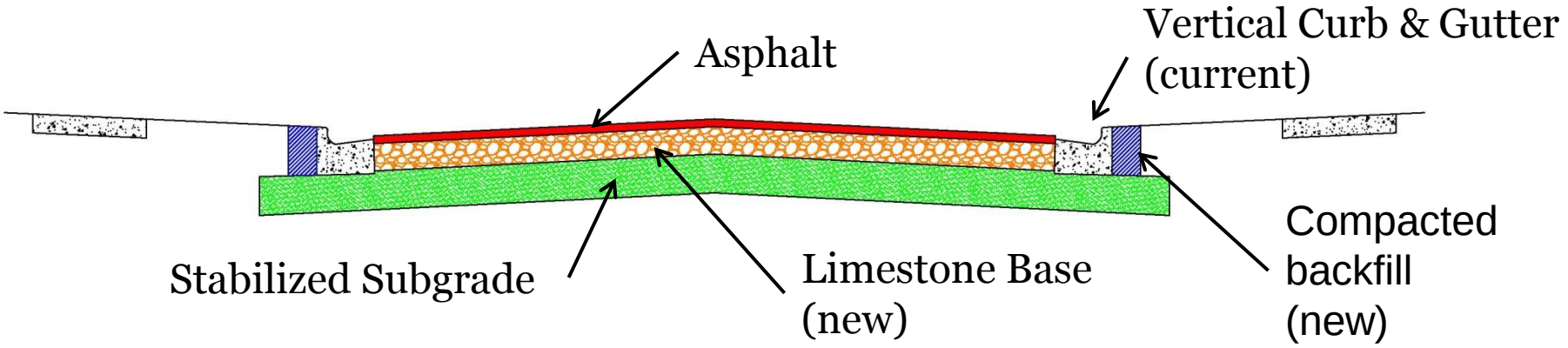
February 19, 2013

Street Design

- Old Residential Street Section



- Residential Street Section improvements:



Street Design

- 30 Year Design Life based on American Association of State Highway and Transportation Officials (AASHTO) Guide for Design of Pavement Structures
  - Based on on-site soil conditions
    - Clay soils
    - Sandy soils
  - Utilizing route specific traffic data converted to Equivalent Single-Axle Loadings (ESAL)

30 Year Analysis for a typical Residential Street (100 Homes)

Vehicle Types	Average Daily Trips	Growth Factor* (2% annual)	Design Traffic	ESAL Factor	Design ESAL
Automobiles	900	40.57	13,327,245	0.0008	10,662
Buses	4	40.57	59,232	0.6806	40,313
Pickup/Panel Trucks	100	40.57	1,480,805	0.0122	18,066
2 Axle Trucks	0.5	40.57	7,404	0.189	1,399
5 Axle Semi Trailers	0.2	40.57	2,962	2.3187	6,867
				Total ESALs:	**77,307**

*For a typical residential subdivision there would be no growth factor and so the 30 year ESAL count would be: 57,000

Street Design

Figure 3.1 Design Chart for Flexible Pavements Based on Using Mean Values for Each Input (pg II-32 Design of Pavement Structures)

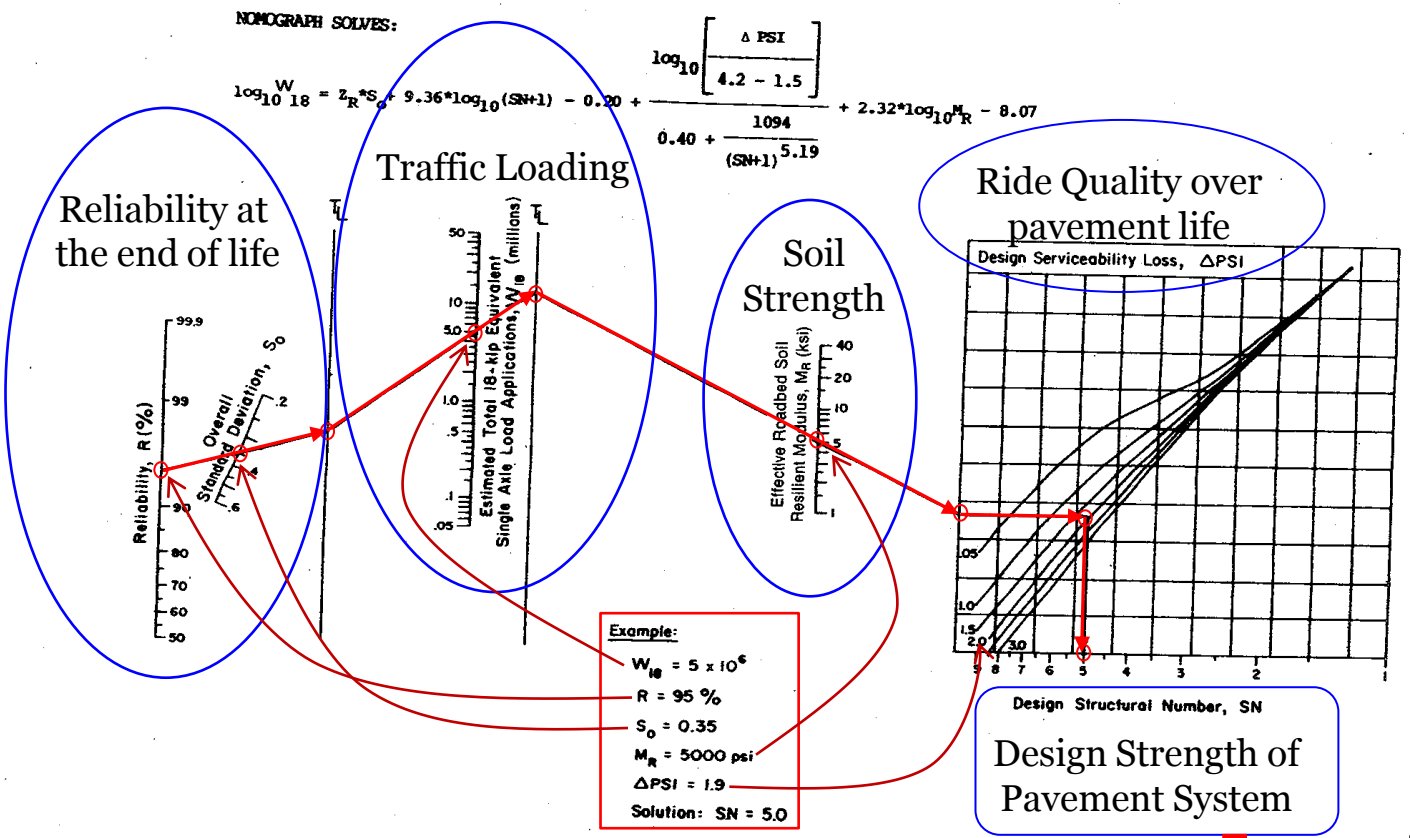
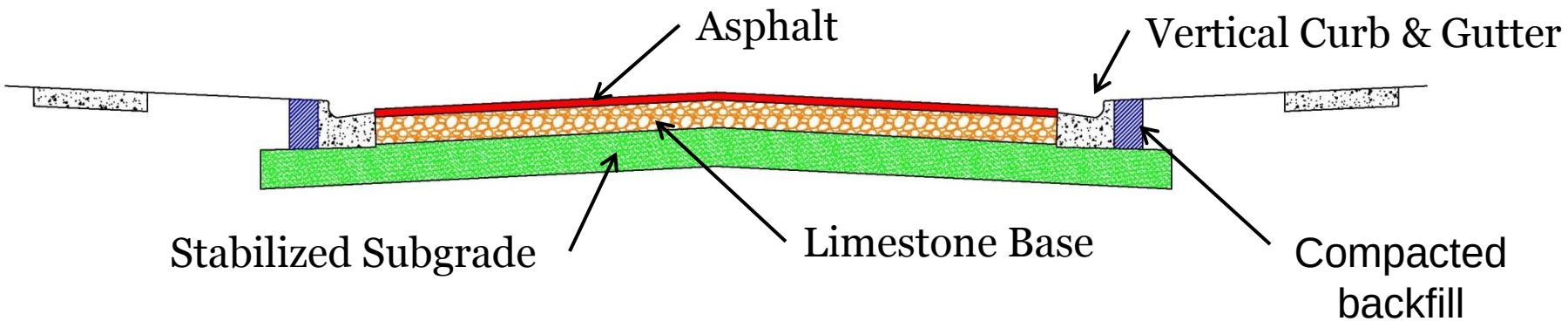


Figure 3.1. Design Chart for Flexible Pavements Based on Using Mean Values for Each Input

SN = a1*AC depth + a2*base depth + a3*sub-base depth

Street Design



- SN = a1*AC depth + a2*base depth + a3*sub-base depth
  - From Design Example: SN = 5

Structural Material	**a value**	**depth (in)**	**Sn**
Asphalt	0.42	4	1.68
Crushed Limestone	0.18	12	2.16
Lime Stabilized Base	0.11	12	1.32
			5.16

Street Design

SH 286 (Crosstown)

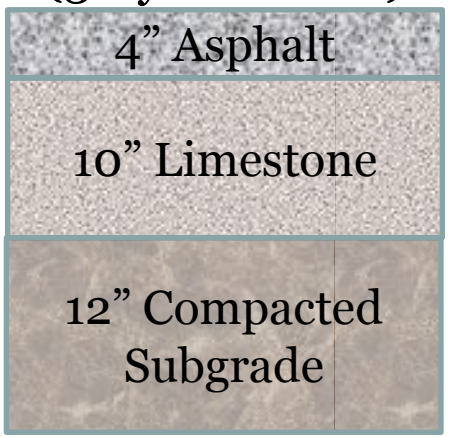
Freeway
ESALs: 7,400,000
(20 year count)

S. Staples St.*

Arterial
ESALs: 9,150,000
(30 year count)

Williams Dr.*

Collector
ESALs: 3,360,000
(30 year count)



*These two streets are being built with a concrete pavement section, which was also designed to a 30 year life.

Street Design