Appendix C

Abbreviated Geotechnical Overview

GRAYSON SMALL URBAN AREA STUDY (SUA)
ABBREVIATED GEOTECHNICAL OVERVIEW
CARTER COUNTY

The Grayson Small Urban Area Study (SUA) is located in Carter County in an area surrounding Grayson as shown in Figure 1. This SUA The study will focus on short and long-term improvements that the Kentucky Transportation Cabinet, the City of Grayson, or Carter County can use for further project development and implementation. Due to the large area, this overview was not a normal abbreviated overview, however, just a map of geotechnical conditions (Figure 2). The center coordinates of Grayson are approximately 38.335344 N, -82.94502 W. Carter County, in Kentucky, is in the Eastern Kentucky Coal Field physiographic region.

The eastern half of the study area is dominated by the Middle Breathitt Group and western half, the Princess and Hyden Formations. The topography consists of long and narrow ridgetops, steep hillsides, and narrow valleys. Most of the soils in the county are formed in material that weathered from sandstone, siltstone, shale or limestone. The most extensive geologic formations in the county are the Breathitt and Lee Formations of the Lower and Middle Pennsylvanian Systems. The soils in Carter County are underlain by interbedded shale, siltstone, sandstone, and limestone of the Pennsylvanian and Mississippian Periods. According to the Natural Resources Conservation Service Soil Report, the study area encompasses over 15,500 acres and is characterized by 45.4 % Latham-Shelocta association, steep, and other sandy loam and silt loam soils (see Tables 1 and 2).

Geologic outcrops exist along I-64 and US 60. One fault exists in the southwestern portion of the study area west of KY 7. Dry and abandoned wells are located along US 60 in the east central portion of the study area.

The county is dissected by 3 major drainage systems: Buffalo Creek (northwestern), Tygarts Creek (western) and the Little Sandy River (eastern). The study area is bisected by the Little Sandy River. Water wells are along KY 9, KY 1, and US 60. According to the Kentucky Geological Survey (KGS), areas of Carter County just west of the study area are underlain by karst limestone; however, the study area is designated as “non-karst” potential (categorized as intense, prone and non-karst) and there are no mapped depressions and/or sinkholes. One monitoring well appears to be located along CW Stevens Boulevard.

The following prior KYTC projects nearby can be accessed through the KYTC Geotechnical Branch Database through the KYTC Division of Structural Designs home page (Click on Geotech and Search KYTC Completed Projects)[1]. KYTC Geotechnical Data, published by the KGS and KYTC, are as follows:

R-005-1970	R-015-2013	S-005-1983	S-058-2009	SA-004-2012
R-006-1971	S-011-1983	S-088-2011	S-030-2007	
R-015-1988	S-007-1992	S-019-2013	R-035-2011	
R-036-1999	S-051-1995	S-062-2015	S-114-2001	

[1] http://kgs.uky.edu/kgsmap/kytcLinks.asp

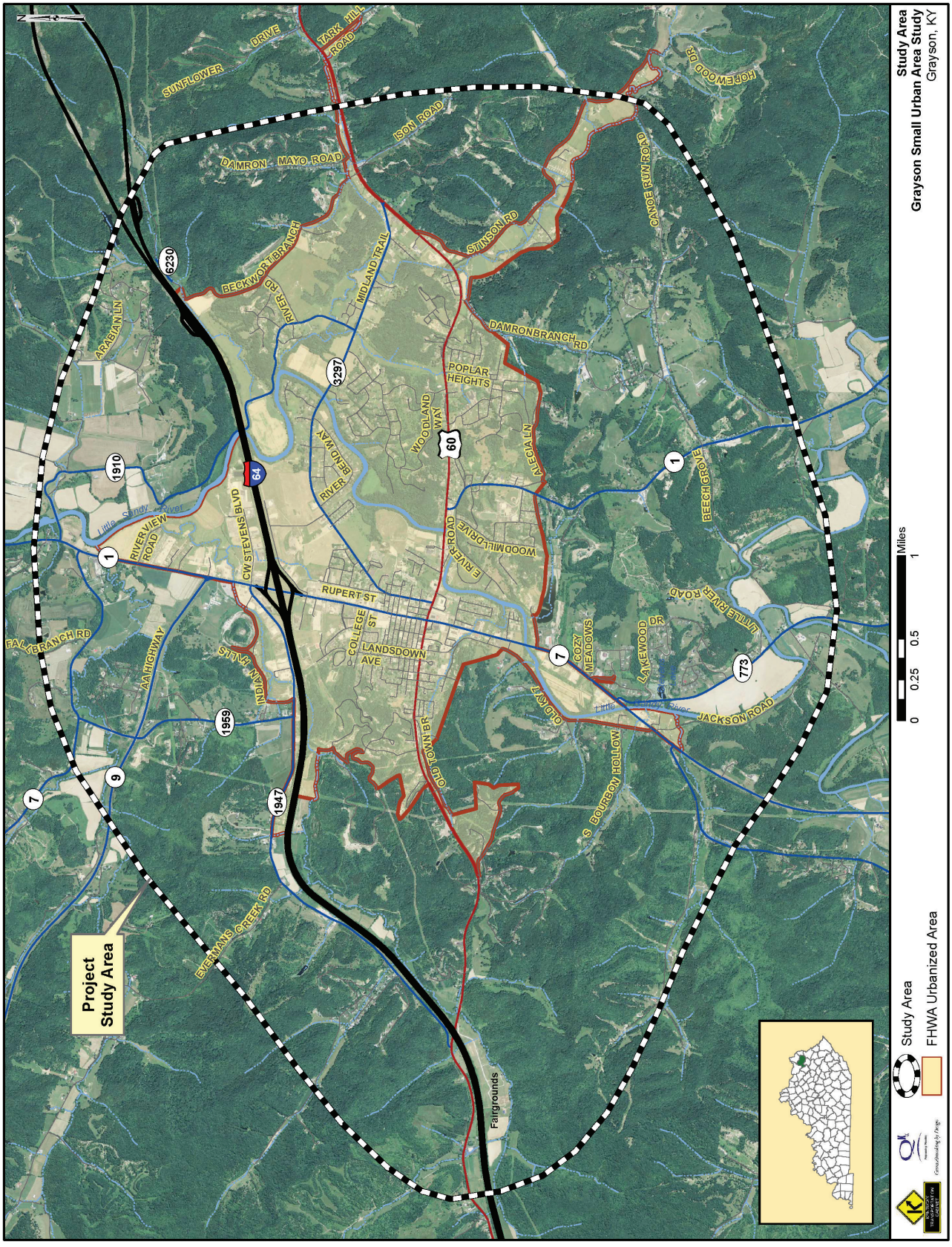

Figure 1 Study Area

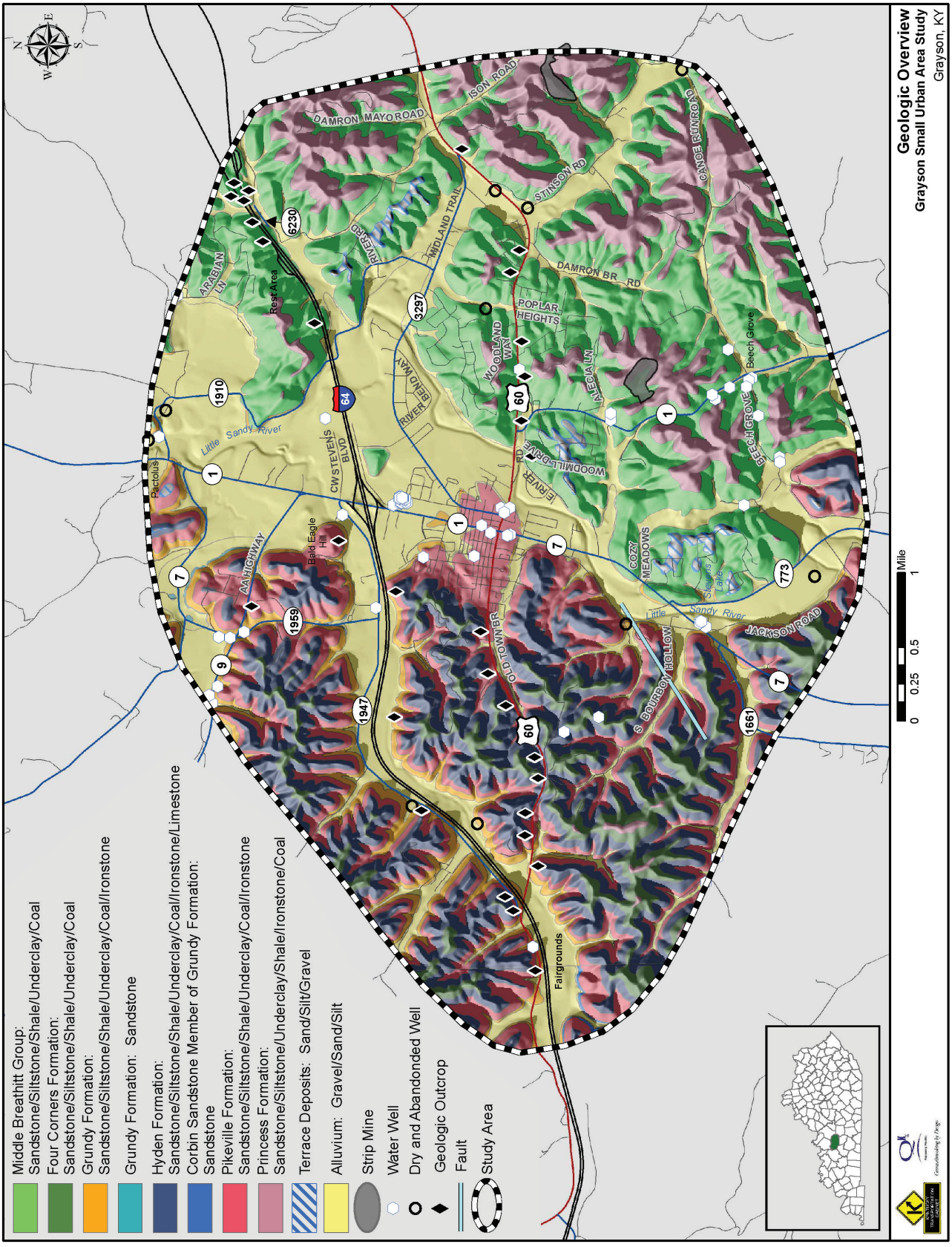

Figure 2 Overview

Table 1 Web Soil Survey

Map Unit Legend

Carter County, Kentucky (KY043)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
AlA	Allegheny loam, 0 to 2 percent slopes	347.9	2.2%
AlB	Allegheny loam, 2 to 6 percent slopes	64.8	0.4%
AlC	Allegheny loam, 6 to 12 percent slopes	99.9	0.6%
BeF	Bethesda-Fairpoint complex, 6 to 60 percent slopes	112.2	0.7%
Co	Cotaco loam	968.9	6.2%
Cu	Cuba silt loam	28.3	0.2%
DAM	Dam, large	2.3	0.0%
LaC	Latham silt loam, 6 to 12 percent slopes	276.6	1.8%
LaD	Latham silt loam, 12 to 20 percent slopes	398.2	2.6%
LsE	Latham-Shelocta silt loams, 20 to 30 percent slopes	1,092.0	7.0%
LTF	Latham-Shelocta association, steep	7,051.5	45.4%
LyD	Lily fine sandy loam, 6 to 20 percent slopes	203.0	1.3%
Mc	McGary silt loam	560.0	3.6%
MoA	Monongahela loam, 0 to 2 percent slopes	196.2	1.3%
MoB	Monongahela loam, 2 to 6 percent slopes	85.3	0.5%
Mr	Morehead silt loam	274.9	1.8%
Po	Pope fine sandy loam	1,193.8	7.7%
SaB	Shelocta silt loam, 2 to 6 percent slopes	252.8	1.6%
SaC	Shelocta silt loam, 6 to 12 percent slopes	403.2	2.6%
SaD	Shelocta silt loam, 12 to 20 percent slopes	299.9	1.9%
Sd	Skidmore gravelly loam	5.4	0.0%
SNF	Steinsburg-Latham association, steep	148.5	1.0%
St	Stendal silt loam	33.5	0.2%
Sv	Stokly fine sandy loam	520.1	3.4%
TlB	Tilsit silt loam, 2 to 6 percent slopes	12.7	0.1%

Table 2 Web Soil Survey (continued)

Carter County, Kentucky (KY043)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
W	Water	114.3	0.7%
WeB	Wernock silt loam, 2 to 6 percent slopes	99.4	0.6%
WeC	Wernock silt loam, 6 to 12 percent slopes	172.9	1.1%
WeD	Wernock silt loam, 12 to 20 percent slopes	144.3	0.9%
WhA	Whitley silt loam, 0 to 4 percent slopes	354.2	2.3%
Totals for Area of Interest		**15,516.7**	**100.0%**