APPENDIX D: Traffic Forecasting Technical Memorandum

Stantec

Memo

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	KYTC Division of Planning		Stantec Consulting Services
File:	KY 716 Corridor Study - Traffic Forecasting Technical Memorandum	Date:	March 1, 2024

Reference: KY 716 Traffic Forecasting Technical Memorandum

PROJECT DESCRIPTION

As part of the KY 716 Corridor Study in Boyd County, Stantec was tasked with developing traffic forecasts to assist in the development and evaluation of improvement concepts. Historical traffic data, population trends, the KYOVA regional travel demand model, and the Kentucky Statewide Traffic Model (KYSTM) were used to develop the forecasts. **Figure 1** displays the study corridor highlighted in purple, which includes KY 716 from the intersection at US 60 to the intersection of KY 3293.

The objective of the KY 716 Corridor Study is to identify and evaluate the need for and scope of potential options to improve safety, mobility, and capacity on KY 716 between US 60 and Summit Road / KY 3293.

HISTORICAL DAILY TRAFFIC VOLUMES

Historical data from KYTC traffic count stations in the study area were analyzed to estimate traffic trends for the study corridor and adjacent roadways. The most recent daily traffic data for study area roadways is displayed in **Figure 2**. Average daily traffic (ADT) on the study corridor is 3,900 VPD with 4.7 percent trucks. The heaviest daily traffic volumes near the study corridor are on US 60, with 16,100 vpd near the KY 716 intersection. North of the KY 3293 intersection, KY 716 carries 4,800 vpd, while Summit Road carries 3,900 vpd.

Historical average daily traffic volumes and annual growth rates, between 2000 and 2022, for study area roadways are summarized in **Table 1** and shown graphically in **Figure 3**. Daily traffic has generally decreased over the past 20 years in the study area.

While counts can fluctuate significantly from year to year for many reasons, they still provide an opportunity to identify different growth trend lines. The red text in the tables represents traffic counts from 2020 which are not an accurate representation of recent traffic patterns due to COVID shutdowns in 2020 and were not used to calculate the compound annual growth rates.

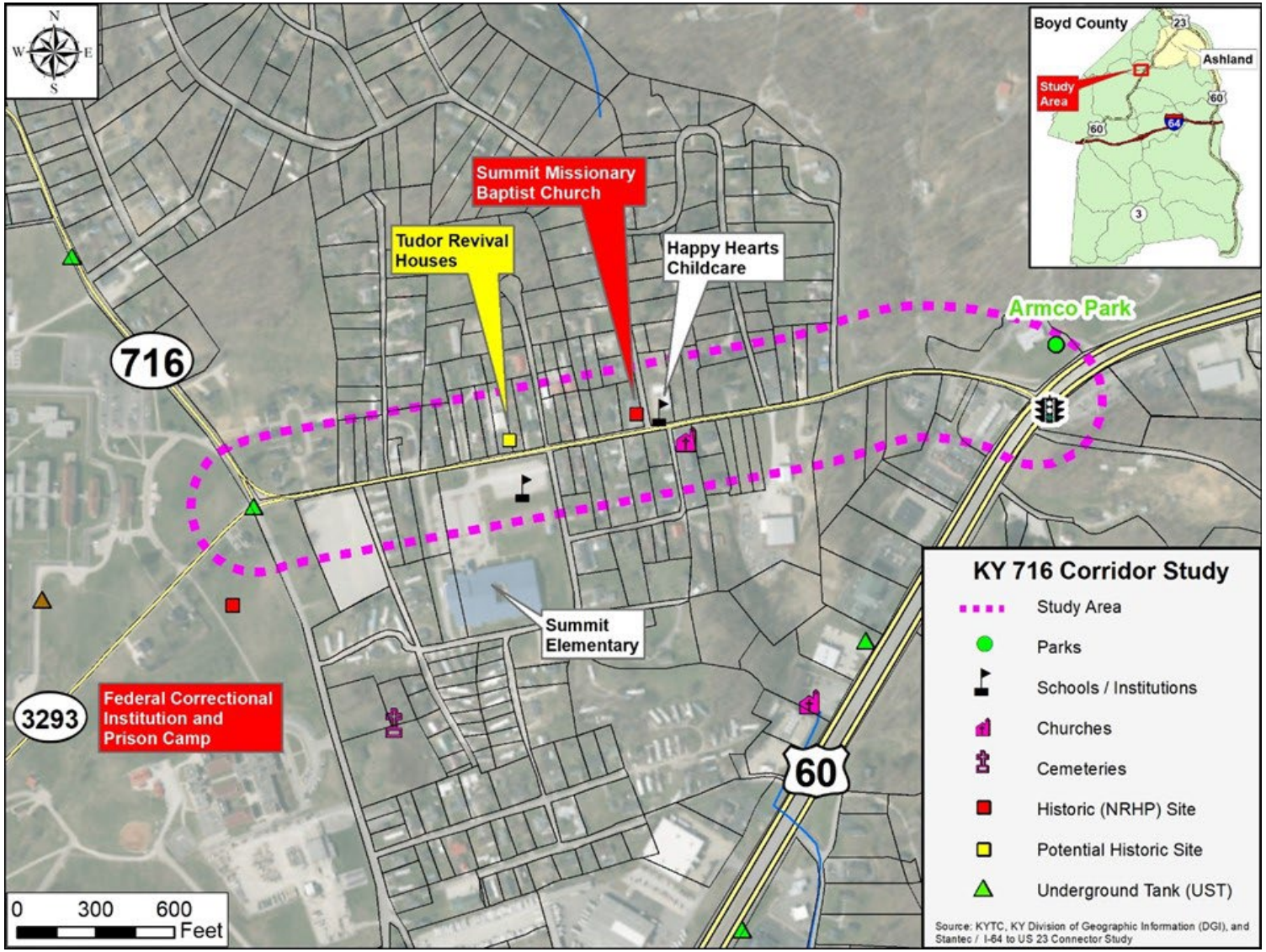

Figure 1: KY 716 Corridor Study Area

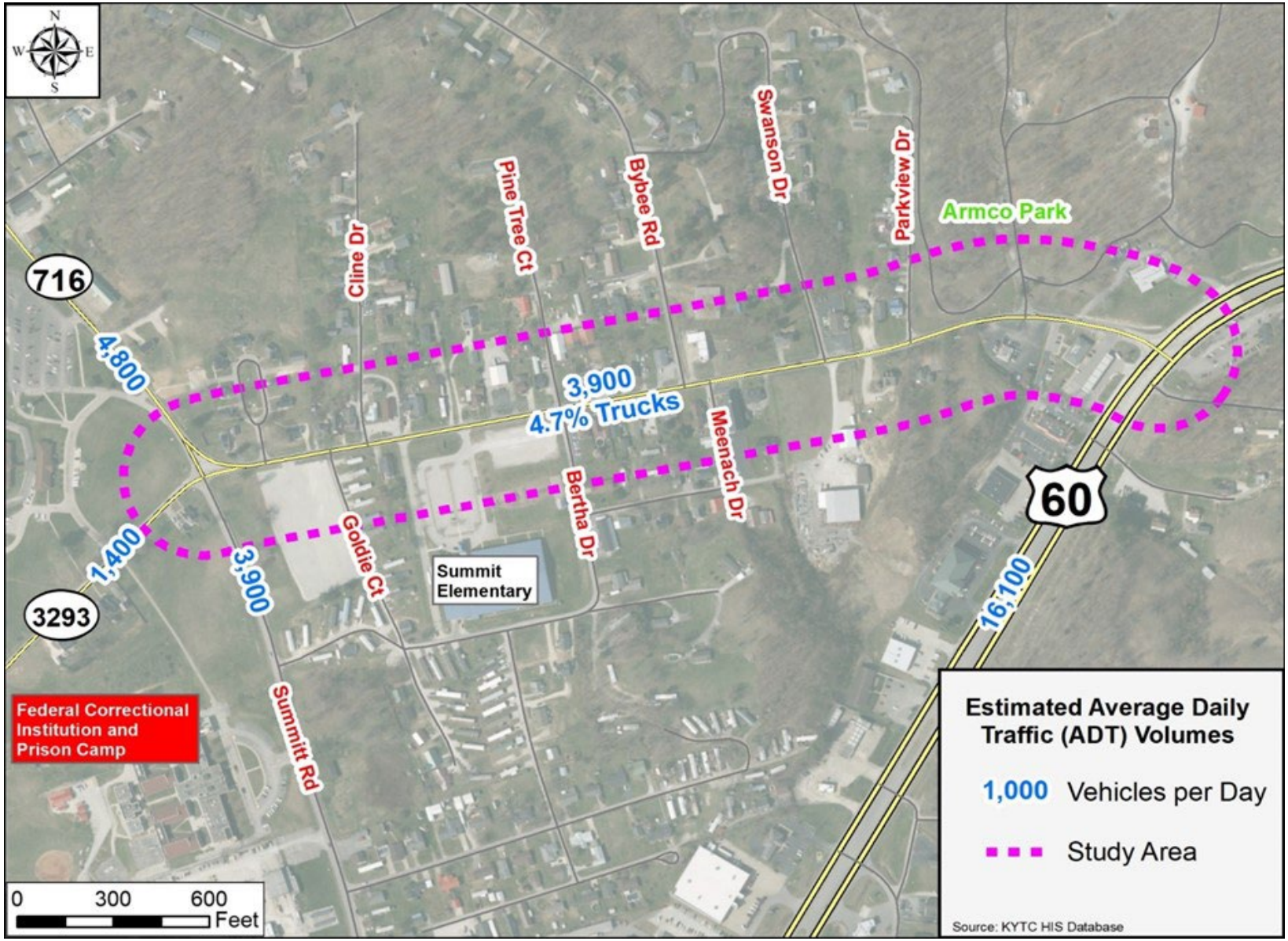

Figure 2: KY 716 Corridor Study Area Average Daily Traffic

Table 1. KY 716 Study Corridor KYTC Historical Average Daily Traffic

Year	KY 716	KY 716 North	KY 3293	Summit Rd.	US 60
	Sta. 010C20	Sta. 010C27	Sta. 010C30	Sta. 010C35	Sta. 010C36
2000					
2001					
2002	6,430	7,590			26,700
2003			2,510		
2004					26,700
2005		8,880			
2006	6,230		2,280		
2007					21,500
2008		6,810			
2009	6,280		2,280		
2010					21,300
2011		6,650			
2012	4,840		2,115		
2013					16,369
2014		5,879			
2015	4,477		2,054		
2016					17,893
2017		5,506			
2018	4,675		1,823	4,271	
2019				3,900	16,081
2020		4,796			
2021	3,857		1,370	3,831	
2022				4,095	17,804
Long Term GR	-2.65%	-2.12%	-3.31%	N/A	-2.01%
Medium Term GR	-3.98%	-2.33%	-4.16%	-1.05%	-1.48%

Source: Kentucky Transportation Cabinet (KYTC)

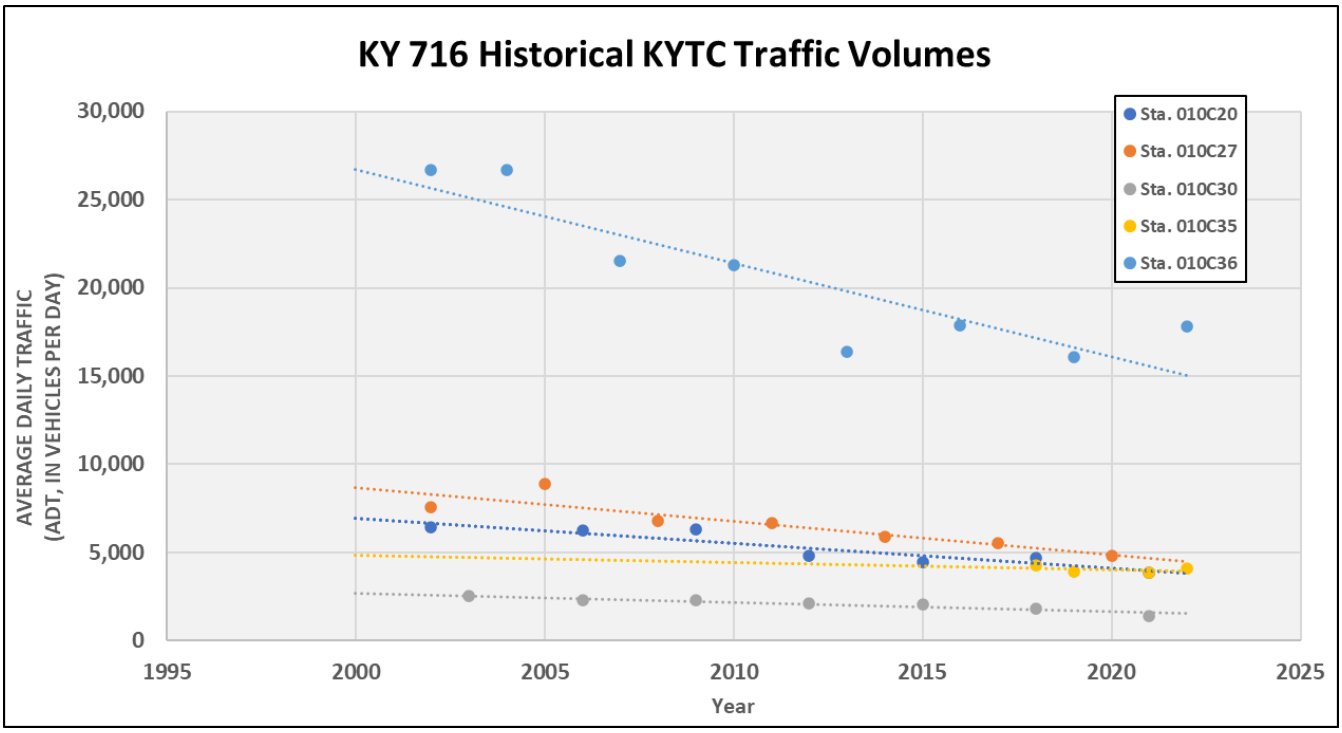

Figure 3. KY 716 Study Corridor Historical KYTC Traffic Volumes

POPULATION

Population data, including data from the 2020 Census, were obtained from the Kentucky State Data Center (KSDC) at the University of Louisville, Kentucky's official clearinghouse for Census data. Population projections for the state of Kentucky, Boyd County, and Ashland are summarized in **Table 2.** Between 2000 and 2020, Boyd County and Ashland have slightly declined in population.

Table 2: Population Estimates and Projections

Area	Census Estimates			Annual Growth	2050 Projection	Annual Growth
	2000	2010	2020	2000 - 2020		2020 - 2050
Kentucky	4,041,769	4,339,367	4,505,836	0.54%	4,785,233	0.30%
Boyd County	49,752	49,542	48,261	-0.15%	41,028	-0.81%
Ashland	21,879	21,712	21,588	-0.07%	N/A	N/A

KYOVA REGIONAL TRAVEL DEMAND MODEL

Study area growth rates from the KYOVA regional travel demand model were reviewed. **Figure 4** presents the annual growth rates on the study corridor and adjacent roadways between 2020 and 2040. Annual growth rates on KY 716 range from 0.39 to 0.73 percent per year while rates on US 60 range from 0.66 to 0.85 percent per year. These positive growth rates reflect US 60 being used as a regional connection and growing even while the local population slightly declines.

KYSTM

As an additional data source, study area growth rates from the KYSTM were reviewed. **Figure 5** presents the 2019 and 2045 daily assignments and corresponding annual growth rates. Based on results from the model, annual growth rates on KY 716 are expected to range between -0.58 and 0.19 percent per year.

CONCLUSIONS

Based on the historical count data, study area population estimates and projections, and annual growth rates from the KYOVA regional travel demand model and KYSTM, an annual growth rate of 0.75 percent was selected to reflect the highest potential growth for the KY 716 study area through the year 2045.

2045 TRAFFIC FORECASTS

The annual growth rate was then used to develop 2045 daily traffic forecasts, as shown in **Figure 6**

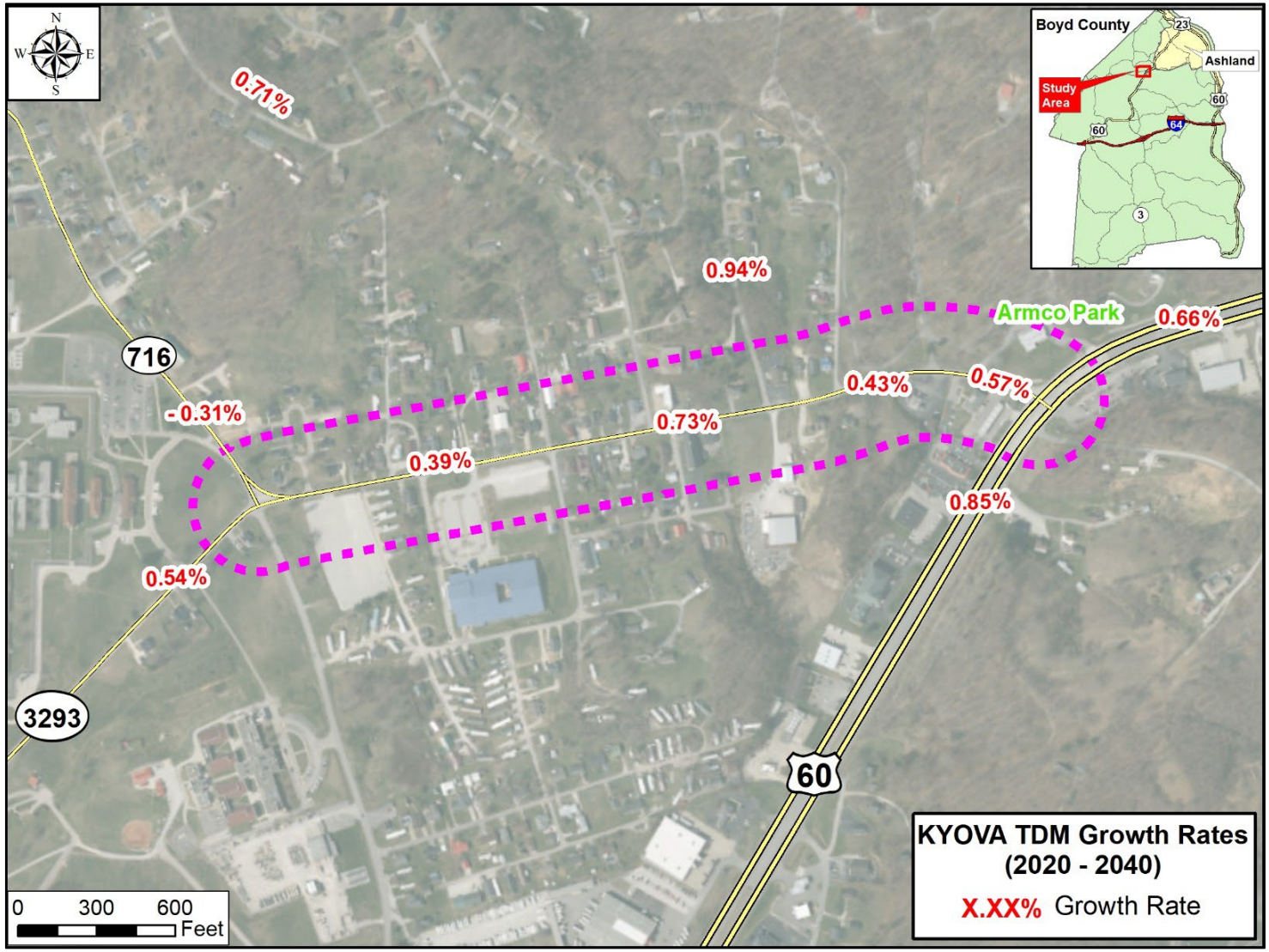

Figure 4: KYOVA Annual Growth Rates (2020 - 2045)

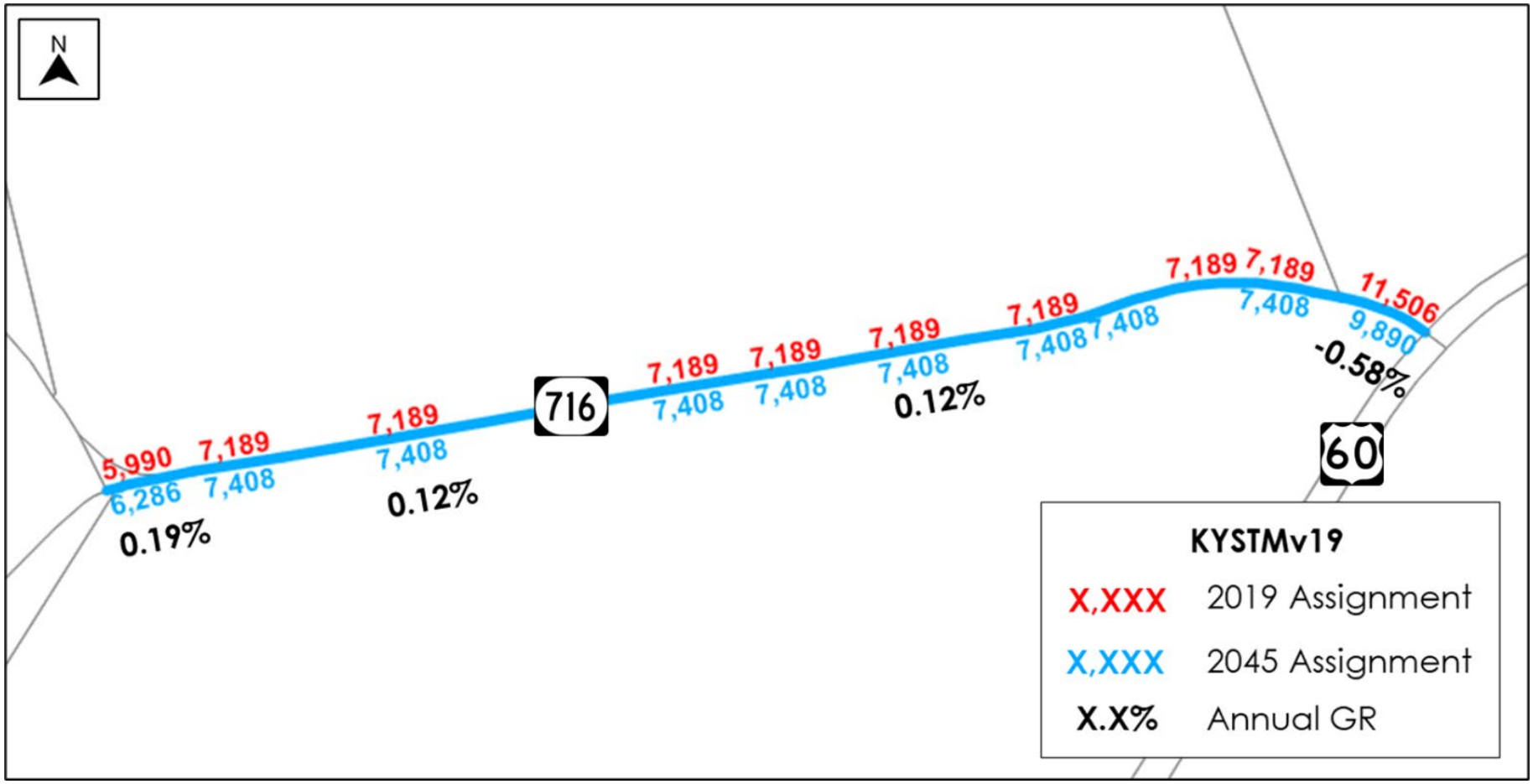

Figure 5: KYSTM Assignments and Growth Rates

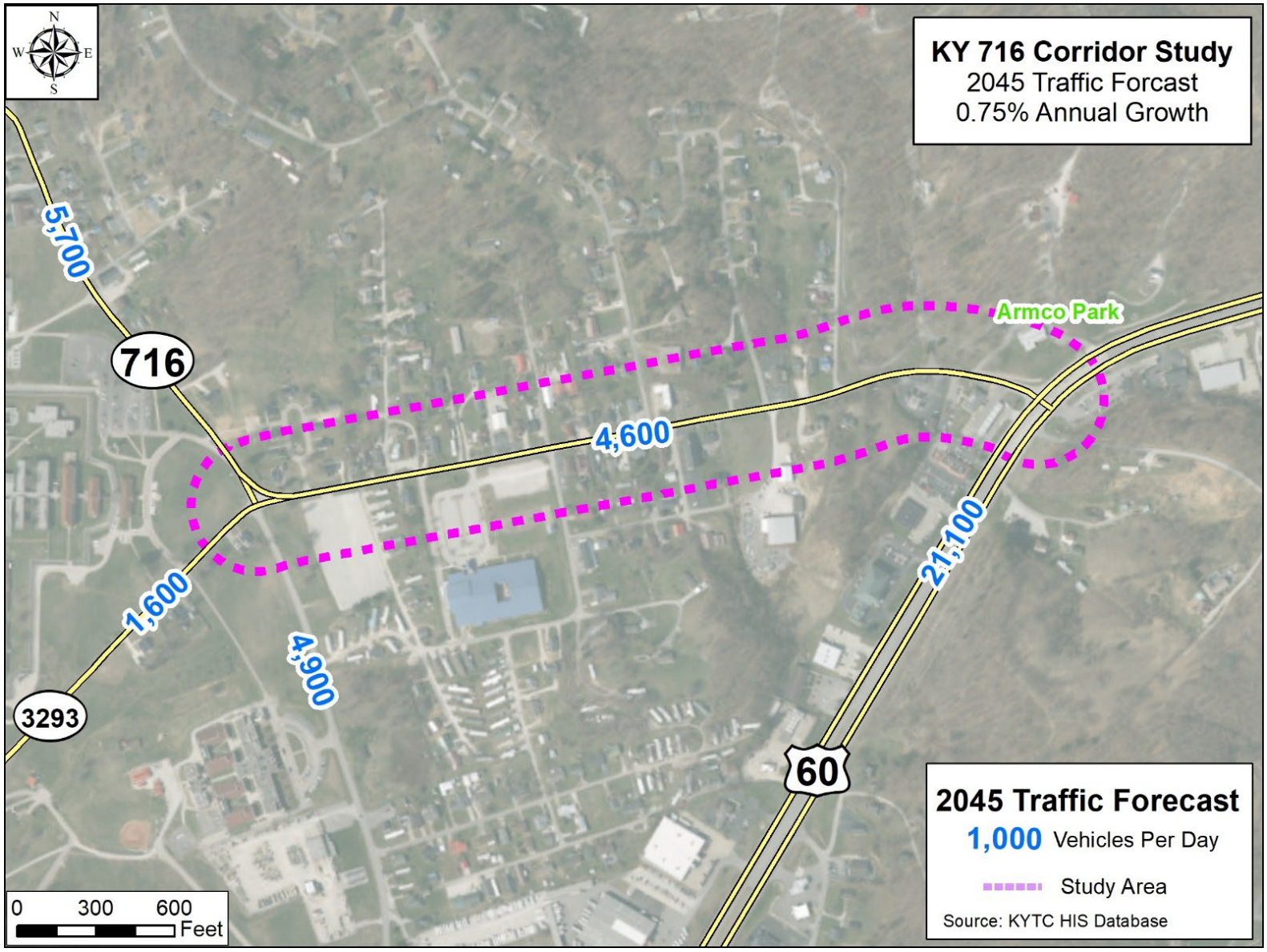

Figure 6: 2045 Daily Traffic Estimates

NEXT STEPS

The next step is to analyze the preliminary improvement concepts using the traffic forecasts.

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