APPENDIX D: Traffic Forecasting Technical Memorandum

Stantec

Memo

To:	Jayalakshmi Balaji, PE KYTC Division of Planning	From:	Graham Winchester, PE Stantec Consulting Services
File:	Newport Two-Way Study Traffic Forecasting Tech Memo	Date:	April 1, 2024

Reference: Newport Two-Way Study Traffic Forecasting Technical Memorandum

PROJECT DESCRIPTION

As part of the Newport Two-Way Study, Stantec has developed traffic forecasts to assist in the evaluation of improvement concepts. Historical traffic data, population trends, information regarding anticipated developments, and results from the OKI regional travel demand model were used to develop the forecasts.

This memorandum presents the methodology and assumptions used in the development of the traffic forecasts for the corridor.

STUDY AREA

The study area consists of the one-way couplet of 4th Street and 5th Street between Central Avenue and Washington Avenue, the one-way couplet of Monmouth Street and York Street designated as US 27 between 3rd Street and 11th Street, and Saratoga Street between 3rd Street and 11th Street. This area is shown in **Figure 1.**

HISTORICAL TRAFFIC DATA

Historical KYTC traffic count data on study area roadways were analyzed to determine traffic growth patterns over the past 20 years. As shown in **Figure 2,** Monmouth Street carries 7,100 vehicles per day (VPD) north towards the Ohio River and York Street carries 4,200 VPD to the south. The other one-way couplet includes 4th Street, which carries up to 4,300 VPD to the west and 5th Street, which carries up to 5,900 VPD to the east.

Compound annual growth rates (CAGR) for medium-term (around 10 years) periods were calculated to determine historical growth trends in the study area. Historical trends for study area KYTC count stations are presented in **Table 1** and shown graphically in **Figure 3.** Most of the count stations show slight decline over the past 10-15 years. It should be noted that the drop in traffic on station 019E34, 4th Street, is likely due to the shift in traffic patterns after the KY 8 roundabout was constructed rather than a significant drop in traffic in the area.

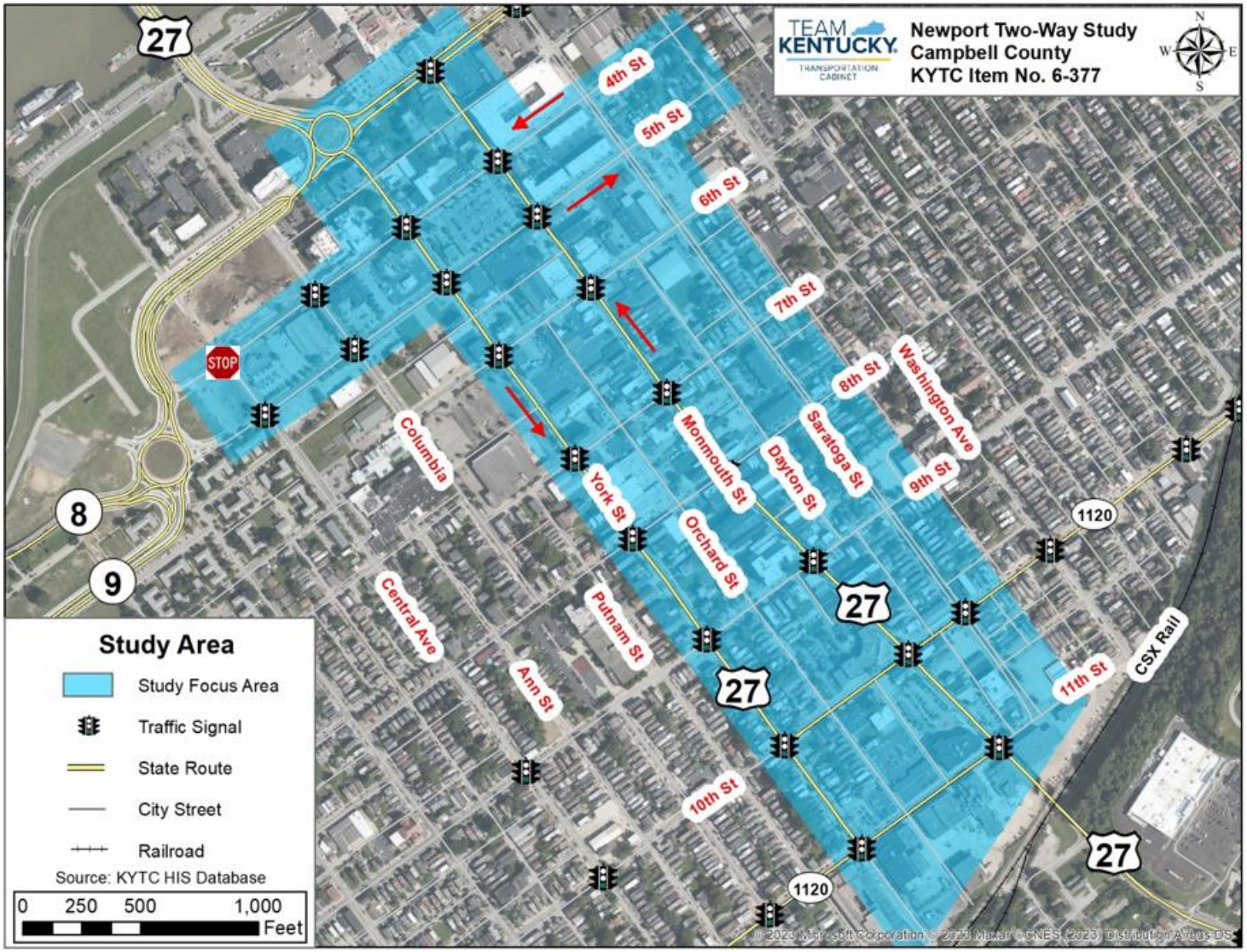

Figure 1: Study Area

Reference: **Newport Two-Way Study Traffic Forecasting Technical Memorandum**

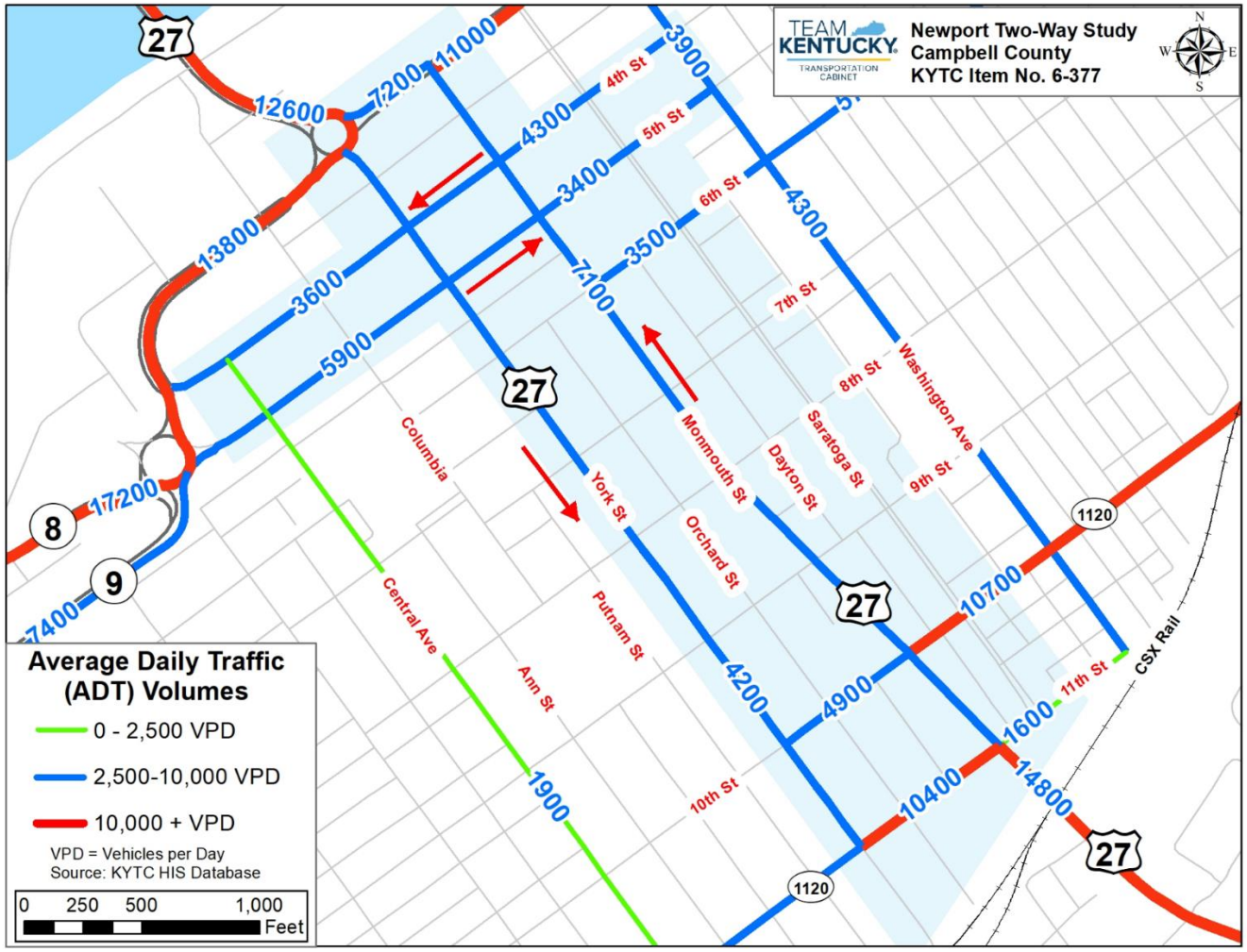

Figure 2: KYTC Traffic Station Average Daily Traffic (ADT)

Table 1: KYTC Historical Traffic Counts

Year	Monmouth St. Sta. 019E58	York St. Sta. 019E29	W. 4th St. Sta. 019E34	E 4th St. Sta. 019B10	W. 5th St. Sta. 019E35	E 5th St. Sta. 019E39
2009	7,820				6,420	
2010		6,600	11,700	4,650		
2011						
2012	8,827					4,540
2013		6,455	9,410	4,539	6,815	
2014						4,334
2015	8,501				6,228	
2016		5,721	10,739	4,332		
2017						4,741
2018	7,490		3,555		5,452	3,424
2019		4,199				
2020						
2021	7,109				5,891	
2022		4,229	2,379			
Annual Growth Rate (%)	**-0.79%**	**-3.64%**	**-12.43%**	**-1.17%**	**-0.71%**	**-4.59%**

Source: Kentucky Transportation Cabinet (KYTC)

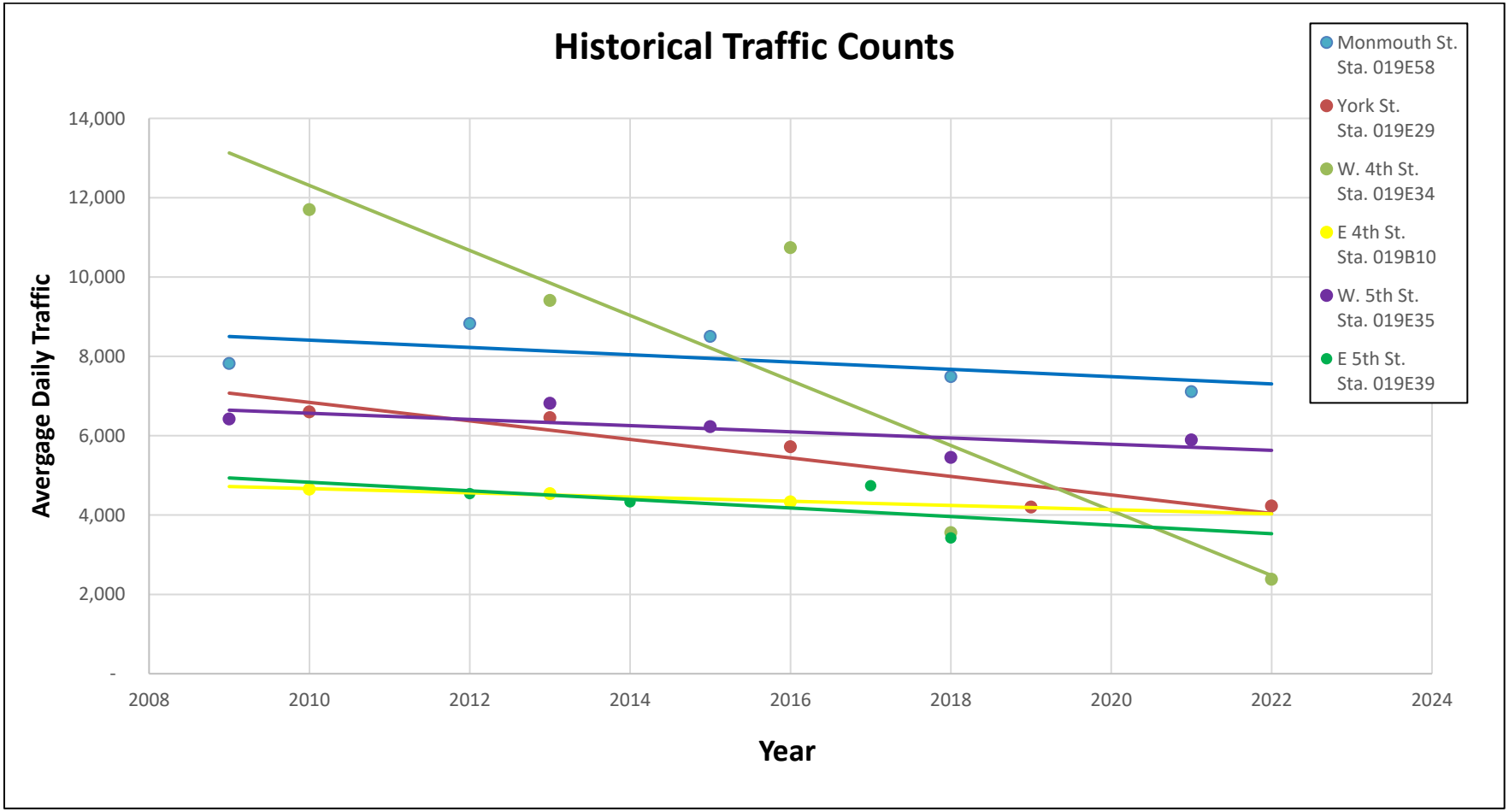

Figure 3: Historical KYTC Traffic Counts

POPULATION GROWTH

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, Campbell County, and Newport are summarized in **Table 2.** Between 2000 and 2020 the population of Newport declined, while the population of Campbell County increased at a rate of 0.25 percent. Campbell County is expected to experience a population decline from 2020 through 2050, as shown in **Figure 4.**

Table 2: Population Estimates & 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	0.20%
Campbell County	88,616	90,336	93,076	0.25%	91,848	-0.04%
Newport	17,029	15,273	14,150	-0.92%	N/A	N/A

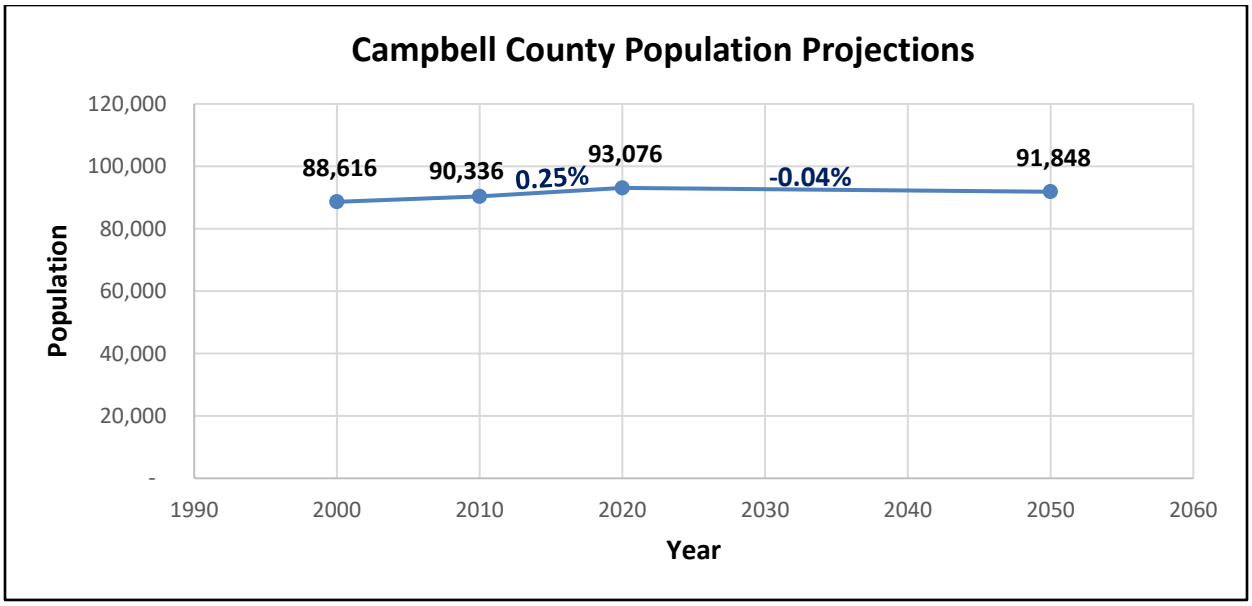

Figure 4: Campbell County Population Projections

Reference: **Newport Two-Way Study Traffic Forecasting Technical Memorandum**

ANTICIPATED DEVELOPMENTS

Based on the latest information from the City of Newport, there are three sites in the vicinity of the study area that are expected to be developed, as shown in **Figure 5**. At the current location of the World Peace Bell site a new development is expected to include the construction of a 207-room hotel, office space, and a 400-space parking structure.

Along the Ohio River, a 264-room Margaritaville Hotel and event venue is expected to be constructed between the Taylor Southgate Bridge and Newport on the Levee. This development will include restaurants, bars, retail, and over 10,000 square feet of meeting and event space.

The final development, Ovation, is currently under construction between 3rd Street and the Ohio River. The Ovation site includes a 449-room hotel, residential units, office spaces, entertainment, retail, and dining.

The ITE Trip Generation Manual, 11th Edition, was used to determine the number of trips attracted and produced to/from the developments. The number of estimated daily trips for each of the developments is shown in **Table 3**.

Table 3: World Peace Bell Development Trip Generation

Development	Daily Trips		
	In	Out	Total
Ovation	11,033	11,034	22,067
Margaritaville	1,219	1,219	2,438
World Peace Bell	1,369	1,369	2,738

These trips were distributed using the following distribution patterns:

- 15 percent to and from Monmouth and York Streets
- 25 percent to and from the Taylor Southgate Bridge
- 25 percent to and from 5th Street / KY 9
- 25 percent to and from 3rd Street to the east
- 10 percent to and from 3rd Street / KY 8 to the west

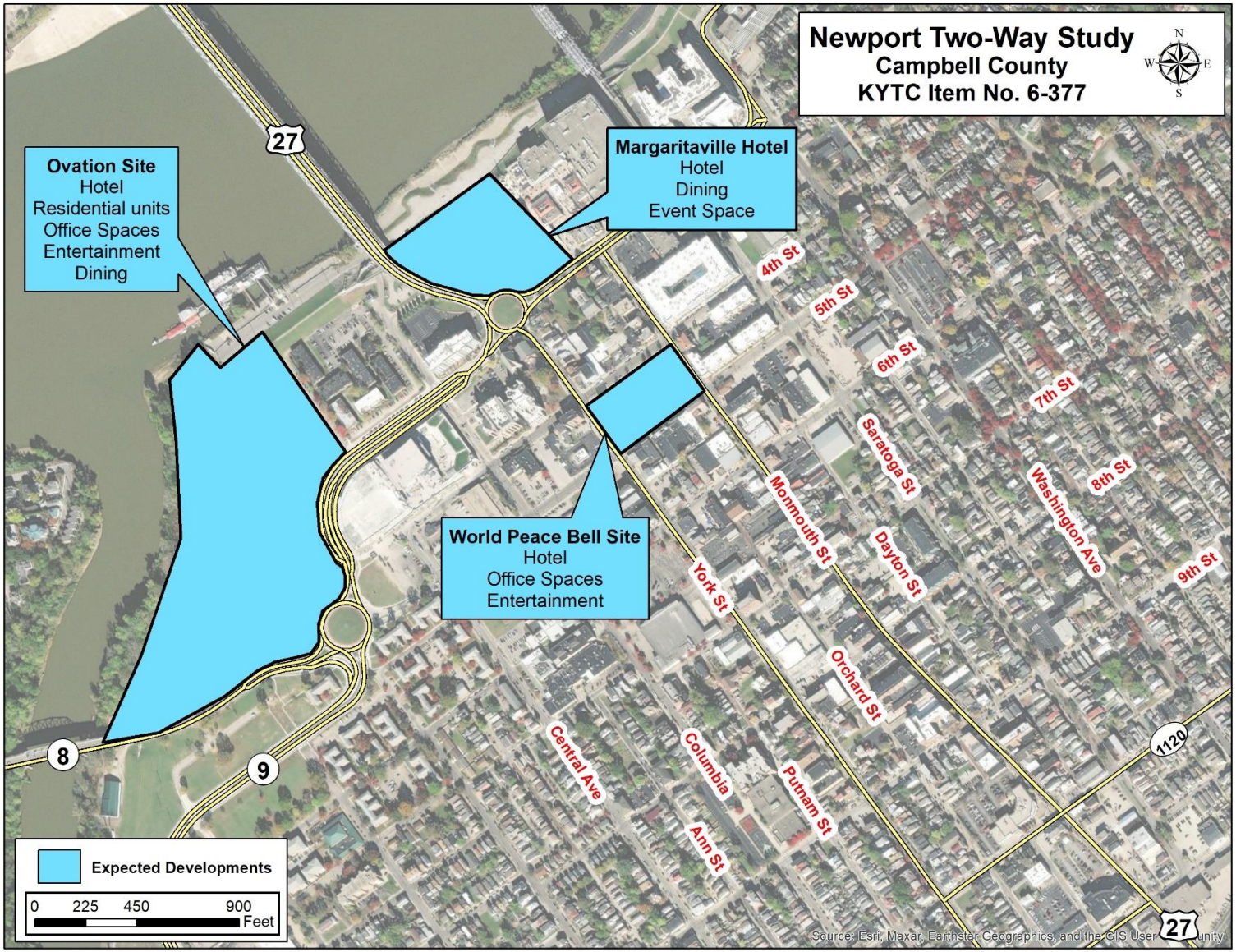

Figure 5: Anticipated Developments

OKI REGIONAL TRAVEL DEMAND MODEL

Study area growth rates from the OKI regional travel demand model were reviewed, as shown in **Figure 6.** The annual growth rates in the study area, between 2020 and 2040, are expected to range between -0.1 and 0.68 percent per year. Daily traffic on York and Monmouth Streets are expected to grow around half a percent per year.

ANNUAL GROWTH RATES

While traffic and population in the study area have declined over the past 20 years, the three developments anticipated in the study area are expected to significantly increase traffic. Additionally, the one-way couplet of Monmouth and York Streets currently comprise US 27, a north-south regional connection between northern Kentucky and Cincinnati, that will continue to grow regardless of local population trends. Based on results from the OKI model, these routes are expected to experience growth over the next 20 years. For these reasons, an annual growth rate of 0.5 percent was selected.

DAILY TRAFFIC FORECASTS

Daily traffic forecasts were developed by applying the 0.5 percent per year growth rate to the most recent KYTC traffic counts and adding anticipated development trips based on the ITE estimates. 2035 daily forecasts are shown in **Figure 7** and 2050 daily forecasts are shown in **Figure 8.**

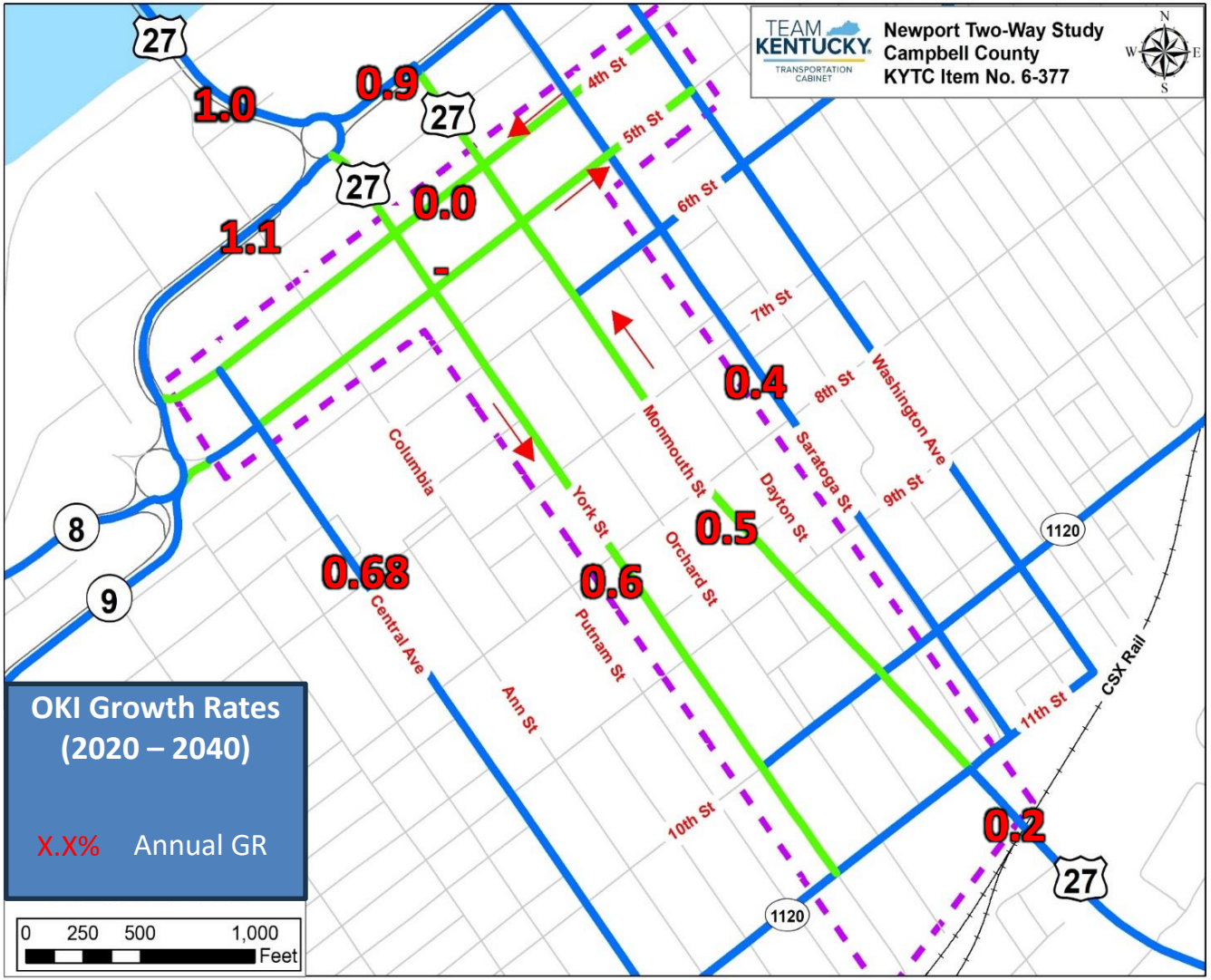

Figure 6: OKI Growth Rates

Figure 7: 2035 Daily Traffic Forecasts

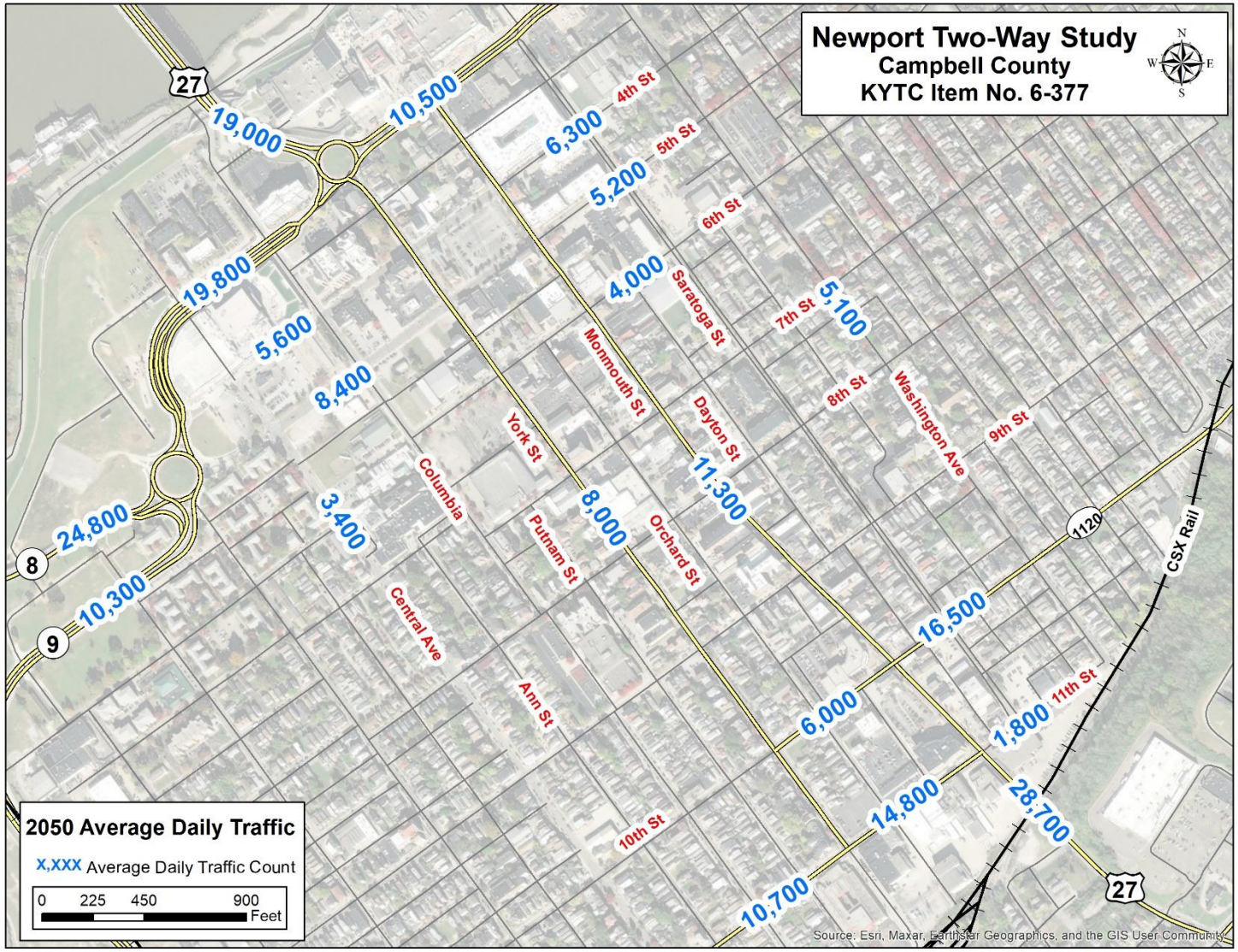

Figure 8: 2050 Daily Traffic Forecasts

NEXT STEPS

The next step is to develop No-Build and Build 2035 peak hour microsimulation model growth scenarios.

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