

*Our*  
**Boone**  
*County*

**I-275/GRAVES ROAD  
INTERCHANGE STUDY**

**Adopted:**

Boone County Planning Commission: January 20, 2021

Boone County Fiscal Court: April 27, 2021

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## **CHAPTER 1. INTRODUCTION**

The Kentucky Transportation Cabinet (KYTC), in cooperation with the Federal Highway Administration (FHWA) are constructing a new interchange on Interstate (I)-275 in northern Boone County, KY. The interchange, Exit 8, will be located east of the Petersburg interchange (Exit 11) and about 1 mile west of the Hebron/KY-237 interchange (Exit 6, formerly Exit 8). The project includes realigning and widening Graves Road and adding auxiliary lanes on I-275 between the Hebron exit and the new interchange. Upon opening, the new Graves Road alignment will be a Kentucky State Route with the designation KY 495 while the previous Graves Road will remain a County road. The first phase of the project is expected to be completed by the end of 2020. This initial section will include the ramps on and off of I-275 to the new Graves Road (KY 495) to Worldwide Boulevard to the north. The remaining sections of KY 495 from Petersburg Road (KY 20) to North Bend Road (KY 237) should see final completion in 2022.

### **1.1 PURPOSE AND OPPORTUNITY**

The purpose of this Study is to guide development in the area of the new I-275/Graves Road Interchange in order to promote economic vitality and quality of life for residents and/or businesses in the community. The construction of the I-275/Graves Road Interchange provides an opportunity to create a highly visible and unique gateway to employment, commercial, and residential opportunities that will work in unison with each other as well as with the existing land uses in the area. This area should celebrate one's arrival to Boone County from the interstate system with attractive building designs, pleasant and efficient site layouts, effective (and reserved) signage, tasteful lighting, beautiful landscaping, open space, and enhanced pedestrian accessibility that will create a place not typical of most interstate interchanges. Furthermore, new Graves Road (KY 495) will provide a unifying north-south corridor through the area and connect the communities of Bullittsville and Hebron with a mix of land uses that work in concert with each other as well as the existing uses in the area. This strategy will not only encourage and attract new businesses, employers, and residents to a place of opportunity to live and work, but it will also provide for a special experience where one feels like they have arrived at a place with an enhanced environment and also functions to accommodate the various uses that rely on the interchange as a means of transportation. The anticipated function of the interchange with the local and regional transportation network provides an opportunity to come up with recommendations to create a unique place for the area while at the same time ensuring that the traffic functions in harmony with existing and future land uses.

## **1.2 PROJECT GOALS**

1. Optimize the function and operation of the interchange.
2. Optimize the function and operation of the local street network within the Study Area.
3. Provide safe and efficient operations between the connecting roadways and adjoining local roadways as well as any multi-modal components.
4. Ensure that future land uses in the area are consistent with the long-term function of the interchange and supportive road network.
5. Develop recommendations that are consistent with Our Boone County - Plan 2040.

## **1.3 DEFINITION OF THE STUDY AREA**

The Study Area is located in the Hebron vicinity of northern Boone County (**Figure 1.1**). The 2,507-acre (3.9 mi<sup>2</sup>) Study Area encompasses the entire project footprint including: interchange and ramps, improvements along Graves (CR-1311) and Williams (CR-1312) roads, connections to Petersburg (KY-20) and Bullittsville roads (CR-1052), and all parcels which front on project area road segments.

The Study Area boundaries are based upon topography, land uses, developable properties, and major roadways affecting the interchange function over the long-term planning horizon (20 years). The Study Area contains the properties around the new interchange and extends west along both sides of I-275 and KY-20 to include undeveloped parcels up to about 140 acres in size. Much the area north and east of the new interchange has already been developed and is not included in the Study Area proper, although it is within the Project Area of Influence. The Study Area also includes all or part of several existing (primarily residential) developments including Treetops, Treetops Estates, Traditions, Park West International, Sunchase Meadows, Sutton's Estates, Branham Farm, and others.



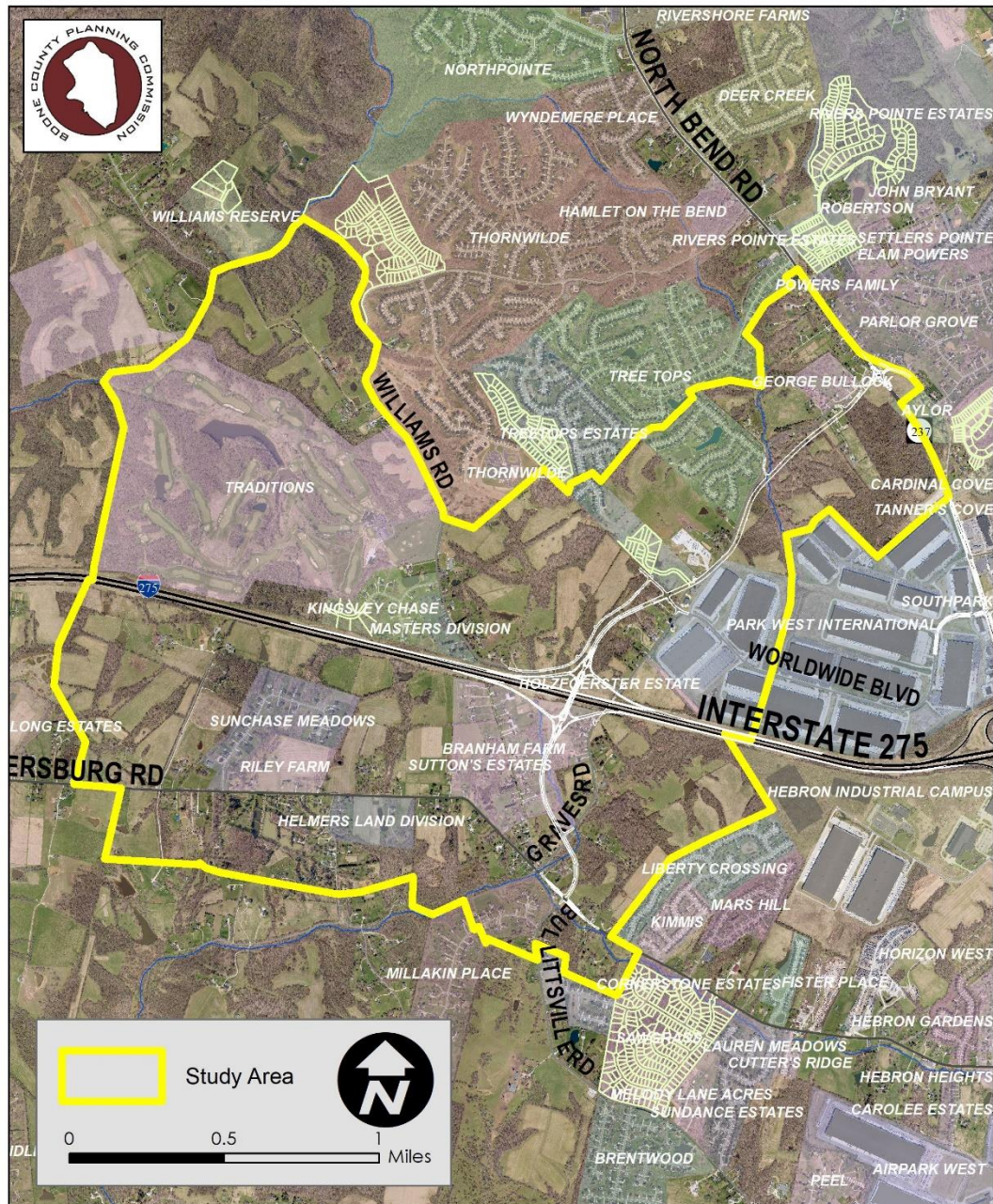


Figure 1.1 - Study Area



## CHAPTER 2. EXISTING CONDITIONS

### 2.1 INTERCHANGE DESIGN DRAWINGS

As a Design Build project, the interchange design drawings are continually changing and will do so throughout the construction process. The most recent drawings, as provided to the Boone County GIS by the contractor for the interchange project, can be accessed on the web GIS application at the link below by selecting the “KYTC Designs” box under the Layer List dropdown tab: <https://secure.boonecountygis.com/JavaScript/BooneCounty/>

According to the Kentucky Transportation Cabinet - District 6 [project website](#), the interchange will be a [double crossover diamond \(DCD\) interchange](#) that supports safer traffic movements by eliminating left turns made against oncoming traffic (**Figure 2.1**). In addition to the actual interchange, the following improvements will be included in the design and construction:

- Extend the third westbound lane on I-275 past Graves Road.
- Build an additional travel lane on eastbound I-275 between Graves Road and KY 237.
- Widen and realign Graves Road to avoid historic farmland and minimize the impact to local streams.
- Shift the intersection of Williams Road and Graves Road away from the new ramps.
- Improve the intersection at Graves Road and KY 20.
- Make safety enhancements at the KY 237/Hebron interchange.
- Provide sidewalks along Graves Road from KY 20 to KY 237.



Figure 2.1 - KYTC Graves Road Project Map



In addition, the Transportation Cabinet states that the purpose of the new interchange is "to improve mobility and safety in this rapidly-growing area in northern Boone County. The existing KY 237 interchange with I-275 (Exit #8) is experiencing substantial traffic congestion, including traffic backing-up onto mainline I-275 at the KY 237 westbound off-ramp. The surrounding area is expected to see continued traffic growth as a result of changes at the Cincinnati/Northern Kentucky International Airport and the associated business and industrial facilities. Additionally, residential developments north and south of I-275 continue to add to the demand on the surrounding roadway network."

## **2.2 ZONING**

The primary zoning classification in the Study Area is Rural Suburban Estates (RSE) which is a residential designation permitting 1 dwelling unit per acre (**Figure 2.2**). There are 1,185 acres in the Study Area zoned RSE with the majority (943 acres) on the south side of I-275 and along the Petersburg Road/KY 20 corridor. This includes Sunchase Meadows subdivision as well as scattered homes fronting on KY 20. An additional 232 acres of mostly undeveloped RSE land lies north of I-275 along Graves Road from the KY 237 intersection and new Hebron Library southwest to the back portion of Park West.

There is also a considerable amount of Suburban Residential One (SR-1) zoning which allows for up to 4 units per acre. The majority of the SR-1 area is located north of I-275 and includes the SR-1/PD zoned Traditions subdivision (419 acres) which has approval to add single family residential homes to the existing golf course. Also in the north portion of the Study Area is 387 acres of SR-1 along the north side of Graves Road which includes undeveloped land as well as the parts of Tree Tops Estates and Tree Tops subdivisions that front on Graves Road. There is an area of 62 acres of SR-1 to the south of I-275, north of existing Liberty Crossing subdivision and west of the end of Litton Lane. Furthermore, there is 100 acres of Rural Suburban (RS) zoned land primarily located at the intersection of Graves Road and KY 20 (Petersburg Road) that is lightly developed with residential units. This particular zoning classification allows up to 3 dwelling units per acre.

There is a sizable amount (149 acres) of undeveloped Agriculture (A-1) zoned land along Williams Road just north of Traditions. This designation permits 1 dwelling unit per 5 acres. A small portion (26 acres) of undeveloped Agricultural Estate (A-2) land exists on the south side of Petersburg Road across from Sutton Lane. The A-2 Zone permits 2-acre residential lots.

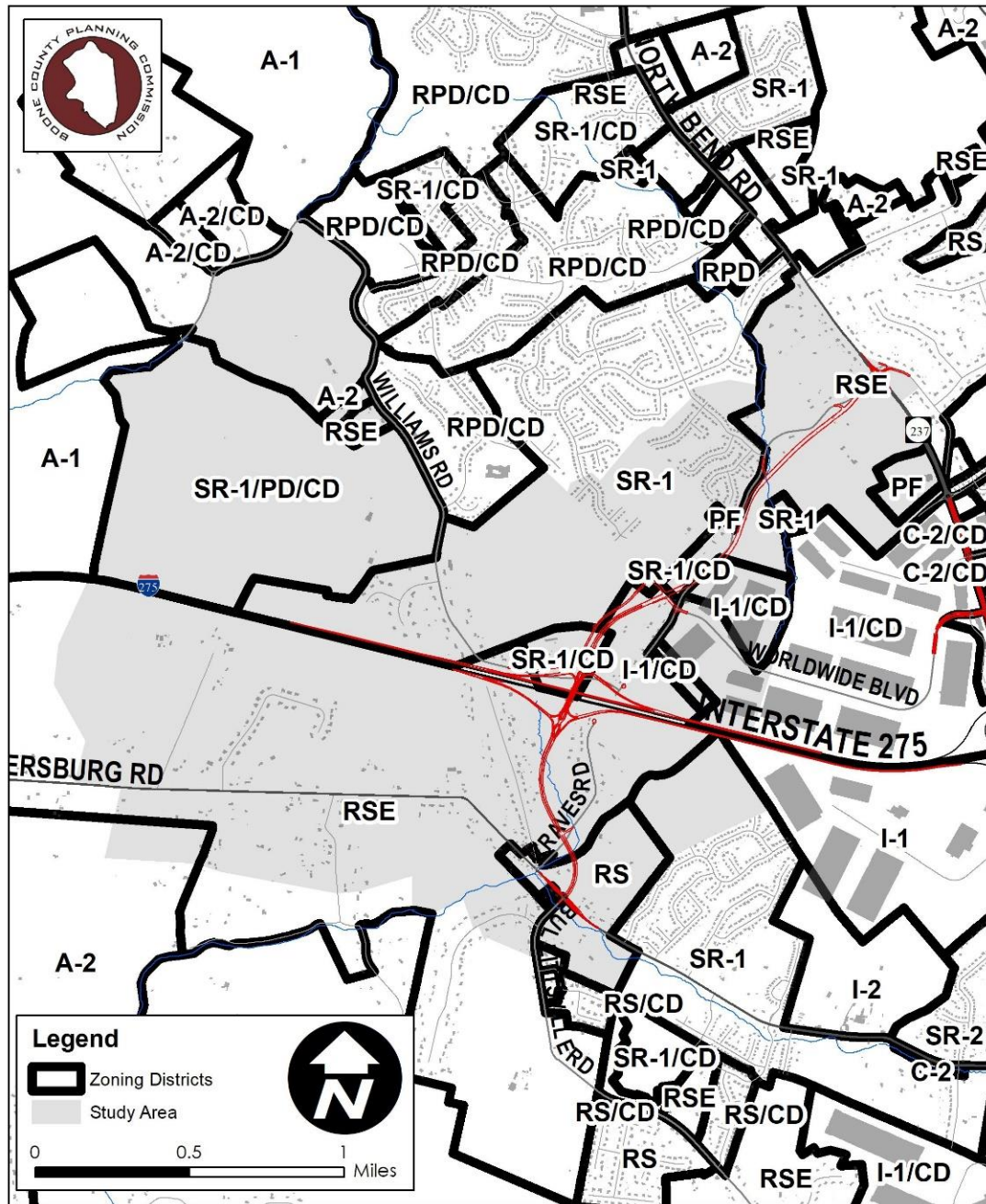


Figure 2.2 - Zoning

There is nearly 110 acres of land zoned Industrial (I-1) in the Study Area but it is developed as part of Park West. A 1.3 acre parcel along Petersburg Road near the Bullittsville Road intersection is zoned Commercial Two (C-2) and the building on site appears to be vacant at the time of the preparation of this Study. Lastly, a couple of Public Facility (PF) districts exist in the Study Area. One, for the new Hebron Library, consists of 20 acres and the other, a 1 acre lot, is home to a cell tower. The Hebron Fire Station Two parcel at the intersection of Worldwide Boulevard and Graves Road is zoned I-1.

## 2.3 LAND USE

The 2017 Existing Land Use layer, prepared for the Our Boone County - Plan 2040 comprehensive plan, reveals that within the Study Area, the primary land use (778 acres) is designated Agricultural (A) which in addition to farming, includes vacant or overgrown fields and the occasional residential dwelling (**Figure 2.3**). Woodland (W) is the next highest land use at 600 acres. Next is the 462 acres of Rural Density Residential (RD) which consists of up to one dwelling

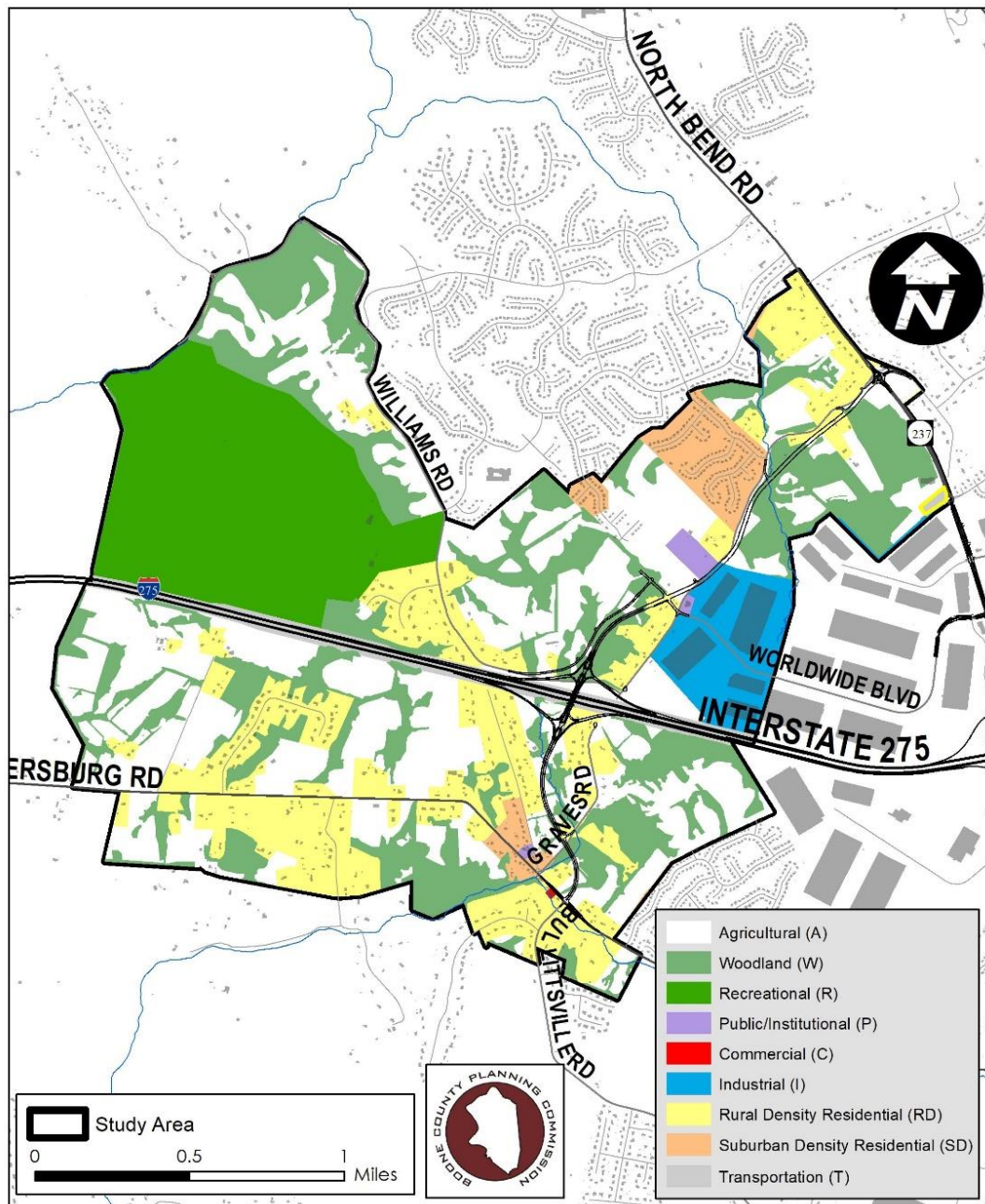


Figure 2.3 - 2017 Existing Land Use



unit per acre. Nearly 85 acres of Suburban Density Residential (SD) exists in the Study Area and is comprised of portions of Treetops and Tree Tops Estates subdivisions as well as some residential development along Watts Road and Petersburg Road. There are nearly 400 acres of land at Traditions Golf Course designated as Recreational (R). In addition, there are 104 acres of Industrial (I) development in Park West, as well as 11 acres of Public/Institutional (P) which includes the Bullittsville Christian Church at Watts Lane and Petersburg Road, Hebron Fire Station Two and the Duke Energy Substation on Graves Road. There is a half-acre of Commercial (C) on Petersburg Road near the intersection with Bullittsville Road and nearly 70 acres of Transportation (T) which accounts for the I-275 interstate and the Park N Ride lot at KY 237 in front of the new Hebron Library.

## 2.4 DEMOGRAPHICS

Using ESRI's Business Analyst software, it was determined that the U.S. Census Bureau's 2019 forecasts for 39 square miles in a 5 block group area around the new I-275/Graves Road Interchange shows that the population of nearly 18,000 is a bit younger and more affluent than the Boone County averages as a whole (**Figure 2.4**). The median age of residents in the area is 34.6 compared to 38 for the county as a whole. Furthermore, the county-wide average household size is approximately 2.63 people whereas for the area around the new interchange it is 3.11 indicating more of a traditional family demographic. As a general principle, the larger the household size, the more stable and less transient the population for a given area.

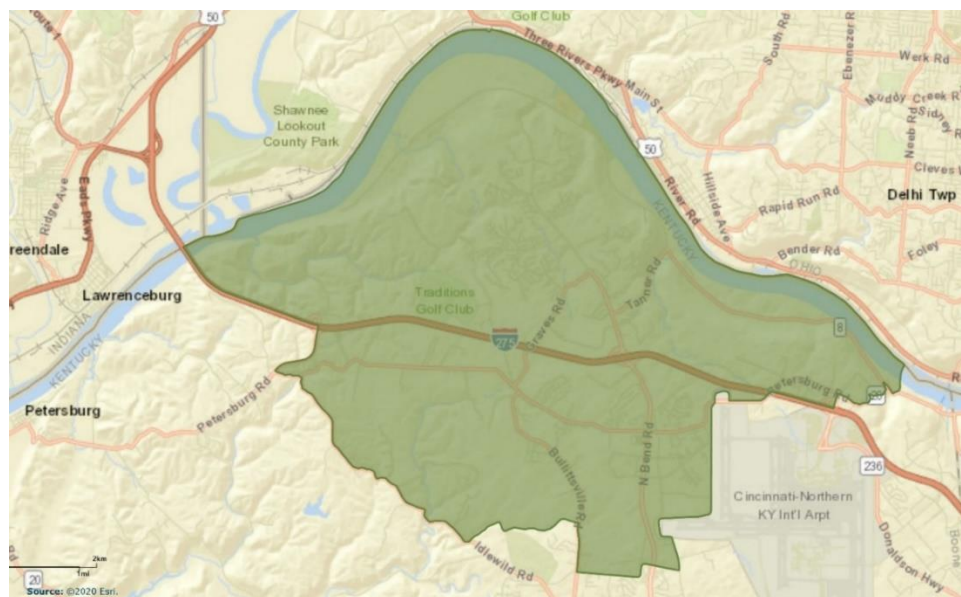


Figure 2.4 - Business Analyst 5-Block Group Area

Economically, the area is quite prosperous when compared to the county as a whole. The median household income for Boone County is currently approximately \$74,000 whereas the area around the new interchange is estimated to be around \$103,000 (**Figure 2.5**). This indicates the working population is more white collar in nature and able to afford higher valued housing. Most of the people working in this area of the county travel to areas such as downtown Cincinnati for more corporate, white-collar jobs versus the primarily heavy logistics jobs that have recently moved into the areas around the Cincinnati-Northern Kentucky International Airport (CVG) and I-75/71 corridor.

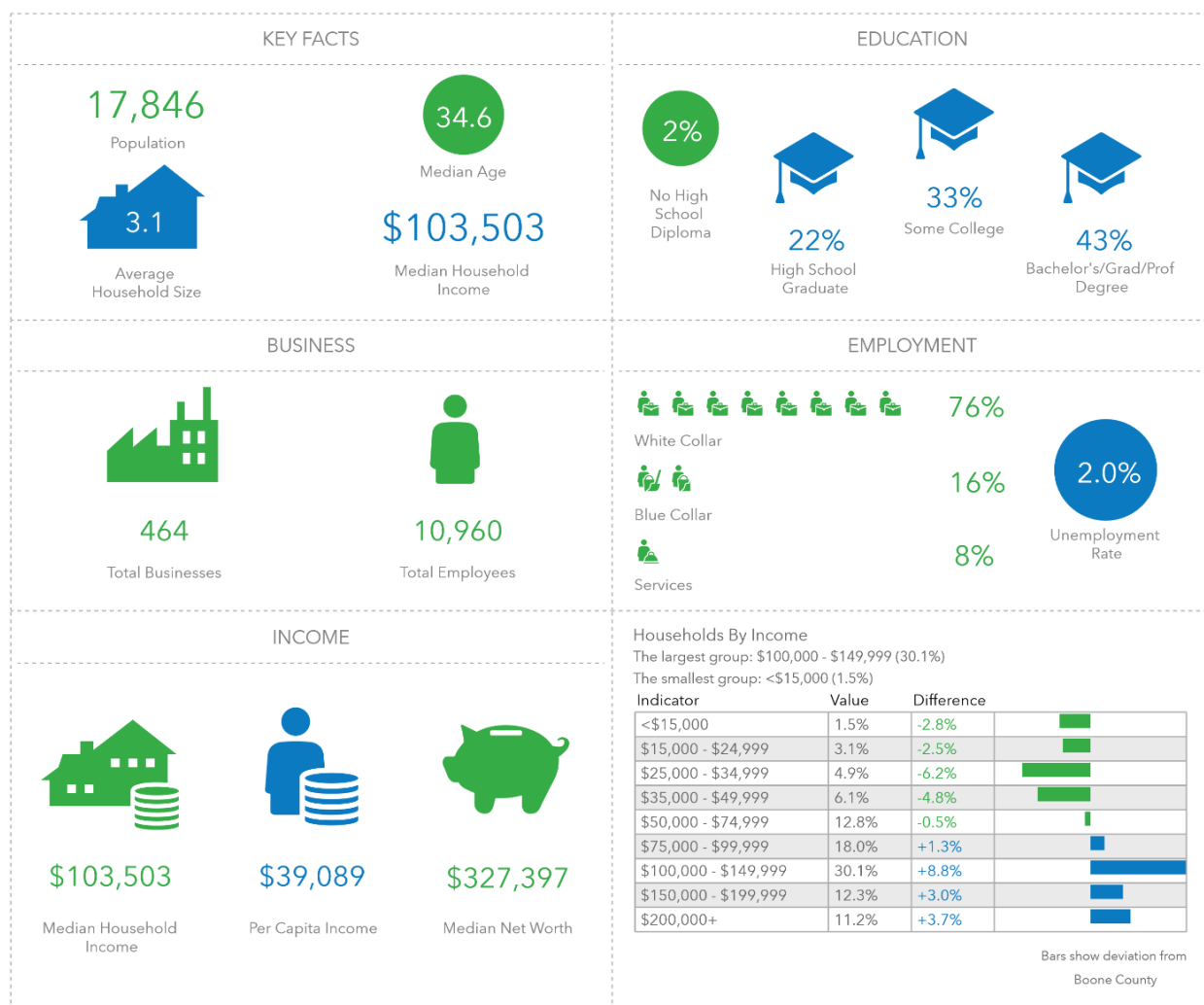


Figure 2.5 - Business Analyst Economic Summary



## 2.5 NATURAL AND CULTURAL RESOURCES

### Water Resources

The Study Area includes portions of four watersheds as shown in **(Figure 2.6)**. 985 acres at the north end of the 33-square mile Woolper Creek Watershed exists in the central portion of the Study Area and includes the interchange footprint. Most of the western end of the Study Area (959 acres) falls within the Garrison Creek sub-watershed of the 31.8-square mile Ohio River North Watershed. The northwest tip and northeast portion of the Study Area along Graves Road up to North Bend Road (560 acres) lies within a portion of the 5-square mile Sand Run watershed. Just 3 acres of the Study Area extends into the Elijah's Creek watershed.

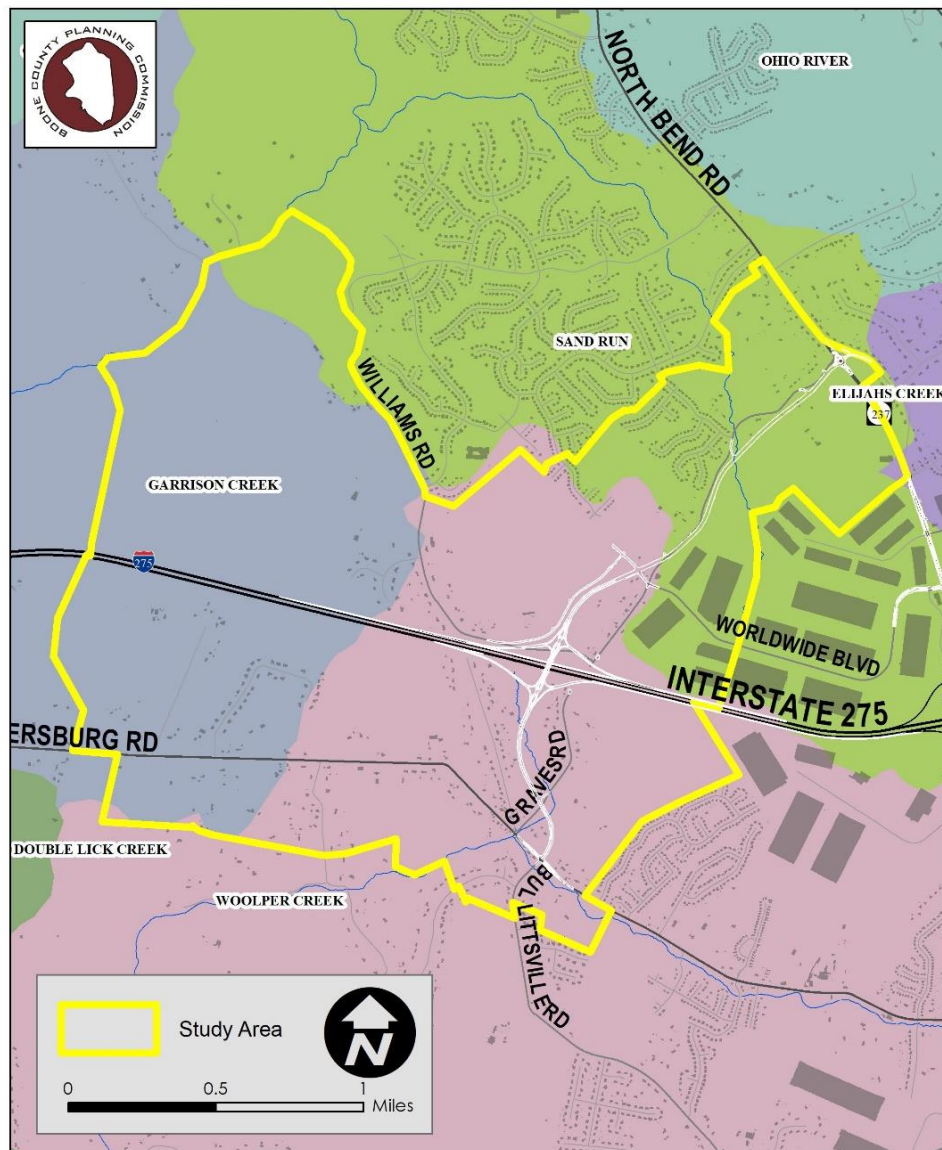


Figure 2.6 - Watersheds

As part of the 2007 Sanitation District Number 1 (SD1) Consent Decree with the US Environmental Protection Agency (USEPA) and Kentucky Division of Water (KDOW), SD1 developed [Watershed Characterization Reports](#) for each of these watersheds. These reports include good reference information ranging from physical and natural features to infrastructure and potential sources of pollution. The [Woolper Creek Watershed Initiative](#), completed in 2016, is a more in depth resource and includes inventories, analysis and recommended Best Management Practices for the 33-square mile watershed. To date, two projects following BMPs from the initiative have been completed, including a bioretention basin at the KY 18/237 Interchange in Burlington and retrofit of a water retention basin at the Toyota North American Parts Center of Kentucky.

Field surveys conducted in 2017 and 2018 to assess streams and wetlands in the project area showed that the selected I-275/Graves Road Interchange alternative will have minimal stream impacts to Woolper Creek, Sand Run, and tributaries. Minimal impacts to small wetlands may also occur, but neither stream nor wetland impacts were considered significant. Ashby's Fork, its tributaries, and Garrison Creek's tributaries may be impacted depending the final design. The Interchange Justification Study notes that through completion, the project will follow the design criteria and storm water regulations of KYTC's existing MS4 permit.

#### Threatened and Endangered Species

This information is summarized from the Interchange Justification Study and Categorical Exclusion Environmental Determination Checklist. The data came from the US Fish and Wildlife Service, Kentucky Department of Fish and Wildlife, and Kentucky State Nature Preserves Commission supplemented by three field surveys. While no detailed "presence/absence" studies were conducted to identify individual species, habitats suitable for 11 species (1 threatened, 10 endangered 10) were identified in the project area, including Running Buffalo Clover, 3 bat species and 7 mussel species. Given the 'Design Build' nature of construction, there may be additional environmental study conducted at some point during the project.

#### Historic Structures

Fifteen (15) properties recorded in the Kentucky Historic Inventory are located within this project's Study Area (**Table 2.1**), mostly along Petersburg, Graves or Williams Roads. Two of these are listed in the National Register of Historic Places (NRHP): the Allie Corn House (Be-95) and the Watts House (Be-352). The Allie Corn House (**Figure 2.7**) is prominently sited at 2807 Graves Road and includes the large 1893 Queen Anne style farm house, three outbuildings adjacent to the house and a stock barn on the opposite side of Graves Road from the house. The Corn House is in excellent condition and has been well maintained for many years by the Graves family. The Boone County Historic Preservation Review Board recognized the owners and property with a bronze National Register plaque in 2011 for these ongoing efforts. The Watts House at 1829 Williams Road is a Federal style 5-bay hall-parlor house constructed of stone c. 1800. Although its early history has never been researched, the property has been in the Souther family since 1916 and is one of just a few stone houses of its type known to have been built in Boone County.

**Table 4.1 Historic Sites In Study Area**

<b>SITE #</b>	<b>NAME</b>	<b>ADDRESS</b>	<b>STATUS</b>	<b>DATE</b>	<b>USE</b>
92	Phelps-Crisler Farm	3563 PETERSBURG RD	KHS	1870	Farm
94	House	3392 PETERSBURG RD	KHS	19th-3	Farm
95	Allie Corn House	2807 GRAVES RD	NRHP	1893	Farm
96	Lucretia Souther Gaines House	2272 WILLIAMS RD	NRHP Eligible	19th-3	SFR
108	Marietta Graves House	2123 GRAVES RD	NRHP Potential	1878	Farm
352	Watts House	1829 WILLIAMS RD	NRHP	1790s	SFR
502	House	2962 PETERSBURG RD	KHS	20th-1	SFR
508	House	3097 PETERSBURG RD	KHS	20th-1	SFR
509	House	3093 PETERSBURG RD	KHS	20th-1	SFR
510	House	3073 PETERSBURG RD	KHS	20th-2	SFR
511	House	2976 WATTS RD	KHS	19th-4	SFR
513	Stone Cellar	3183 BULLITTSVILLE RD	KHS	20th-1	SFR
817	Graves Tenant House	2648 GRAVES RD	NRHP Eligible	19th-4	Tenant House
1091	Sutton House	2754 SUTTON LN	KHS	20th-1	Farm
1211	Rogers Farm	3654 PETERSBURG RD	KHS	20th-1	Farm



**Figure 2.7 - Allie Corn House**

A cultural resources assessment of the Interchange project conducted for KYTC recommended that the Allie Corn NRHP boundary be expanded to include the Graves Tenant House (Be-871) located on the east side of Graves Road. The assessment also recommended NRHP eligibility for the Lucretia Souther Gaines House (Be-96) at 2272 Williams Road. The Kentucky Heritage Council (KHC) concurred with both recommendations and that design Alternative 2-A would have No

Adverse Effect on either property. During the project design phase the historic significance of the Allie Corn House was one of the factors that led to a final design with the realigned Graves Road and new roundabout to the west.

The National Register eligibility of the c. 1878 Marietta Graves House (Be-108) at 2123 Graves Road was not evaluated by the KYTC sponsored assessment. However, the house is considered one of the finest remaining Victorian era Stick style buildings in the county and certainly has potential for listing in the NRHP.

#### Archaeological Sites

Archaeological investigations sponsored by KYTC as part of the interchange planning process referred to four sites in the project footprint. Three (Sites 15Be472, 15Be472, and 15Be529) were previously recorded and Site 15Be720 was newly reported. None were expected to have NRHP eligibility and no further work was recommended.

#### Cemeteries

Two small family cemeteries are located within the project Study Area. The Watts Cemetery is located in the front of a 3.5-acre parcel at 3190 Petersburg Road. Grave marker dates of the 26 known burials range from 1813 to 1878. The well-kept cemetery sits next to a small pond and is visible from Petersburg Road. The Graves-Duncan Cemetery is located in the back yard of a residence on Sequoia Drive in the Treetops Subdivision and was preserved on site when the subdivision was created. Revolutionary War Captain John Graves is thought to be buried in the cemetery, which includes six other marked graves dating from 1836 to 1871. The cemetery was cleared and fenced as part of Eagle Scout project in 2017, which culminated in the Patriot Grave Marking ceremony for Captain Graves by the Daughters and Sons of the American Revolution.

In addition the two historic period family cemeteries, a prehistoric burial mound (Rheimer Mound, Site 15Be65) is located just outside the Study Area in the Liberty Crossing subdivision. First recorded in 1968, the site was later confirmed by archaeologists from the University of Kentucky as a burial mound, most likely from the Early Woodland period (c. 1000 BC to AD 200). The mound has been fenced and preserved within the subdivision under the Cemeteries section of the Boone County Zoning Regulations. Quite a few such mounds have been recorded in Boone County. While these mounds are often isolated ceremonial sites found on ridges and hilltops, there can be associated features elsewhere nearby, including "twin" mounds. The mound's presence should be taken into consideration prior to development of any nearby property.

## 2.6 PREVIOUS PLANS AND STUDIES

### Comprehensive Plans

The earliest mention of a Graves Road/I-275 interchange appears in the 1995 Boone County Comprehensive Plan. A “possible interchange” is referenced briefly in two places in the Hebron Area discussion of the Land Use Element, although no time frame is given. The 1996 Boone County Transportation Plan also references an I-275/Graves Road Interchange twice. Both instances are in “Future Highway System Capacity Expansion Projects Only” tables (Tables 2.3 and 4.5). The latter reference shows it as an Unfunded Project not expected to occur before 2020.

The Land Use Element of the 2000 Boone County Comprehensive Plan mentions the future need for an I-275 interchange at Graves Road in both the Hebron and Idlewild area discussions. For the Hebron area, the plan noted that “the industrial/business park shown south of I-275 in the Bullittsville area is dependent upon a future interchange in the Graves Road area.” In the Idlewild Area, the plan further states that “the High Suburban Density residential development shown on the Future Land Use map along I-275 is dependent on a new interchange in the Graves Road area and must be accessed from the interchange and Industrial/Business Park development described in the Hebron Area.” Language in the 2005 Boone County Comprehensive Plan is similar and adds that a “future parallel road north of I-275 [and] possible interchange at Graves Road should preclude any need to directly connect the Idlewild Interchange with KY 8.”

Language about the 2010 Boone County Comprehensive Plan of the I-275/Graves Road interchange in the Hebron and Idlewild subareas is unchanged from 2005. Discussion in the North Hebron Area notes that a KY 8 connection to I-275 may be more appropriate to the east of the existing Idlewild Exit due to the future Graves Road interchange.

Boone County’s most recent comprehensive plan, Our Boone County – Plan 2040, was adopted in June, 2019 and deals with the County as a whole in a more general sense than a specific area plan such as this Interchange Study. The plan specifically recommends a land use/zoning study for the Graves Road area. Discussion related to the I-275/Graves Road interchange is more specific than in preceding plans. The North Hebron area discussion notes that the interchange area should see expansion of existing industrial uses coming west from Park West International but that the west side of the new Graves Road alignment should be commercial. Additionally, property next to the interstate at Graves Road is appropriate for high-profile office uses, in part as a transition between residential to the west and industrial/business park to the east.



The Hebron area discussion in [Plan 2040](#) recommends continued subdivision activity in the Bullittsville and Bullittsville Road areas with High Suburban Density Residential adjacent to the interchange, but that new residential development must be accompanied by road improvements in the area. Business park development is specified from the new interchange east toward Litton Lane. The plan goes on to say that a collector road along the south side of I-275 should connect the interchange to the existing Litton Lane industrial and that the Industrial/Business Park shown on the future land use map is contingent on the interchange. Design control is recommended to ensure that this development is sensitive to nearby residential. It should also be accessed from the interchange rather than KY 20.

### Transportation Plans

The [Boone County Transportation Plan 2030](#) (November, 2005) discusses the interchange and Graves Road improvements separately among a list of 29 long-range highway improvement projects. The plan states that the new I-275/Graves Road interchange is warranted due to “increased residential and industrial development already...and need for improved mobility and accessibility to the interstate.” The project was considered a High Priority to be completed by 2015. Recommended improvements to Graves Road included widening from 2 to 4 lanes from KY 20 to KY 237 and realignment with Bullittsville Road. This was considered Medium Priority to be completed between 2015 - 2025.

The [2018 Boone County Transportation Plan](#) lists the [I-275/Graves Road interchange](#) as a Tier 1 (Highest Priority) project (**Figure 2.8**) designed to “improve mobility and reduce congestion in the Hebron area” per the recommendations of the Interchange Justification Study.

#### **Project Information**

**Facility:** I-275

**Location:** Graves Road

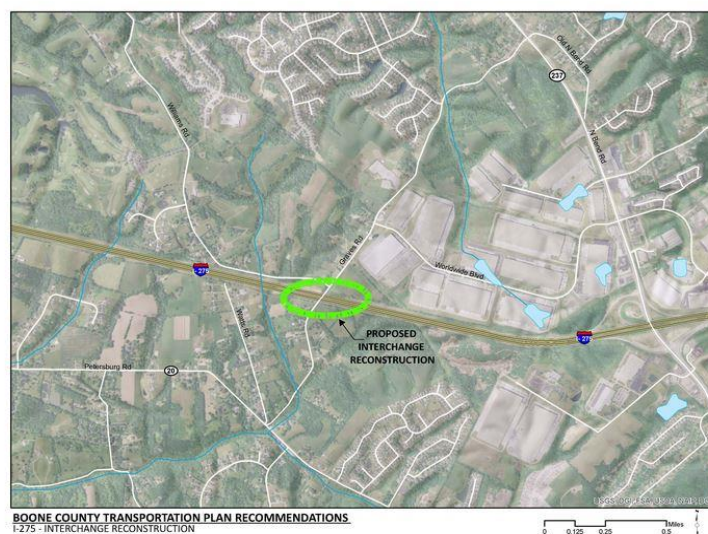
**Project Type:** Roadway

Widening/Relocation/New Facility

**Priority Level:** Tier 1

#### **Project Description:**

- Construct a new interchange on I-275 at Graves Road to improve mobility and reduce congestion in the Hebron area as recommended in the Kentucky Transportation Cabinet's Graves Road Interchange Justification Study.
- Include improvements to Graves Road from KY 237 (North Bend Road) to KY 20 (Petersburg Road).
- Install a multi-use path on Graves Road to accommodate bicycles and pedestrians.



**Figure 2.8 - 2018 Boone County Transportation Plan - I-275/Graves Road Interchange Summary**

## **CHAPTER 3. FUTURE CONDITIONS AND ANALYSIS**

### **3.1 POPULATION AND EMPLOYMENT GROWTH ASSUMPTIONS**

Population in and around the Study Area is expected to grow as residential developments expand. Several “active” residential subdivisions continue to develop in the area with a current total of approved units at approximately 2,450. All but 500 of these units will be detached single family residences. The largest of these developments with lots yet to be built include Rivers Pointe Estates (488 single family [SF] lots plus 255 multi-family [MF] units), Traditions (515 SF lots), Northpointe (477 SF lots), Sawgrass (211 SF lots), and The Woodlands (31 SF lots plus 130 MF units). These developments are already approved. It is anticipated that additional acreages will develop in the years following the opening of the I-275/Graves Road Interchange as well as any improvements being made to North Bend Road (KY 237) and/or Petersburg Road (KY 20).

U.S. Census projections for the area foresee steady increases in population over the next 5 years as well as a rise in the median household income as additional affluent families move into the area. While the predominant professions of residents in the area are classified as “white collar,” the jobs in the immediate area currently do not support such a workforce. Most have to commute to their “professional” office jobs in adjoining counties/states. The logistics industry growth in and around the Cincinnati-Northern Kentucky International Airport (CVG) will continue as the economy shifts more towards on-line e-commerce and away from brick and mortar stores. As a result, the abundance of “blue-collar” jobs will remain in the region. However, in order to promote a more sustainable employment environment with current and future residents of the Hebron and north Hebron area, more office-related professional jobs must be made available to curb the impact that the commute has on the already congested roadways in and around the I-275 Interchanges at KY 237 as well as Graves Road.

### **3.2 FUTURE LAND USE ANALYSIS**

The Future Land Use layer in the Our Boone County - Plan 2040 comprehensive plan indicates recommended land uses over the next 20 years (**Figure 3.1**). These future uses could occur or develop prior to 2040 depending on changes to the area such as the availability of utilities, improvements to roads, and other factors. The general nature of the Future Land Use designations in the vicinity of the new interchange has not varied much since the 2000 Boone County Comprehensive Plan update when the possibility of a new interchange at Graves Road was discussed in the Land Use Element. However, the fact that the area was looked at in a

general nature in the county-wide long range plan requires that it be reexamined in more detail when doing a specific area study such as this and could result in changes. This 2040 Future Land Use map is essentially a starting point for further analysis.

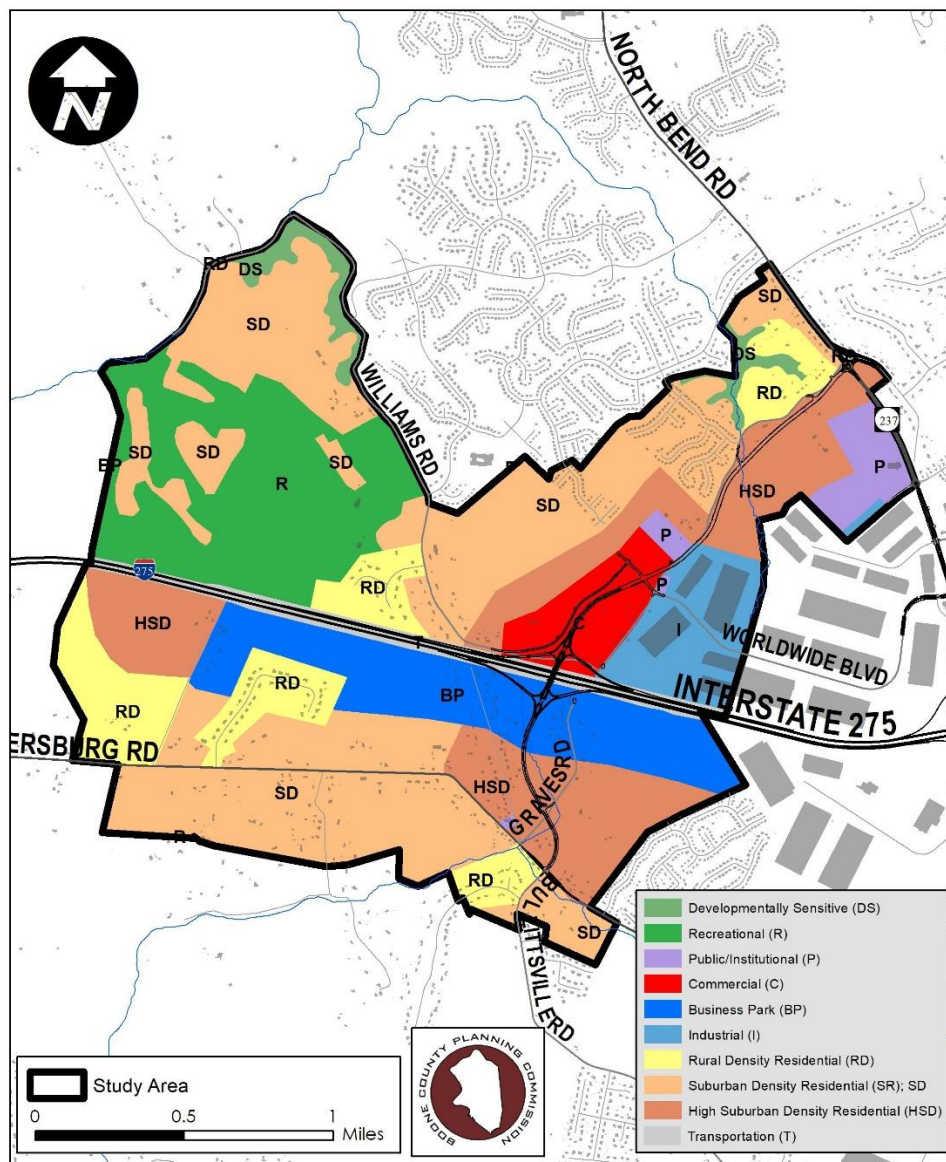


Figure 3.1 - Our Boone County - Plan 2040 Future Land Use map

The most prevalent Future Land Use classification shown in the I-275/Graves Road Interchange Study Area is the 860 acres of Suburban Density Residential (SD) shown on both the north and south sides of the interstate. Approximately 484 acres of the SD land is undeveloped. This classification reflects the typical subdivision development of single family homes up to 4 units per acre. The next largest Future Land Use in area is High Suburban Density Residential (HSD) at 406 acres, most of which (327 acres) remains undeveloped. This classification calls for up to 8 units per acre and is most typically seen in the form of town homes or condominiums. The

majority of this HSD use is shown near the southern end of the new interchange as well as along the new Graves Road corridor north of I-275 to North Bend Road (KY 237). Rural Density Residential (RD) consists of larger lot homes, typically 1 acre lots and larger, and located in more rural areas of Boone County where roads and utilities are not as developed and available. There are 260 acres of RD shown on the Future Land Use Map in the Study Area, 145 of which is not yet developed. This use is primarily shown at the west end of the KY 20/Petersburg Road corridor as well as an area off Williams Road near Traditions Golf Course. There are 340 acres of Recreational (R) represented solely by the existing Traditions Golf Course.

Of the non-residential (or recreation) uses, there are 244 acres of Business Park (BP), 123 acres of Industrial (I), and 87 acres of Commercial (C) shown on the Future Land Use Map. The 244 acres of BP land, shown on the south side of I-275, is either undeveloped or currently being used as lower density residential and will likely redevelop in time. This use is mostly comprised of office, research, small warehousing, light industrial uses in a professional office park-like campus setting. This type of use is recommended for high visibility areas and can serve as a transition between residential developments and the more intense Industrial (I) uses such as large scale warehousing typical of the logistics industry. The 123 acres of Industrial (I) shown in the Study Area is mostly comprised of the already developed industrial uses on Worldwide Boulevard as well as a small (21 acre) “leftover” undeveloped section at the end of the newly created old Graves Road cul-de-sac. Lastly, 87 acres of Commercial (C) is shown on the north side of the new Interchange along the new Graves Road alignment between the intersection with Worldwide and the interstate. These uses could include retail as well as corporate and professional office uses.

### **3.3 UTILITIES ANALYSIS**

There are approximately 1,300 acres of undeveloped land in the I-275/Graves Road Interchange Study Area and a primary concern is whether the area can be adequately served by water and sanitary sewer once the I-275/Graves Road Interchange opens and land begins to be developed. To address this issue, staff met with representatives of both the Sanitation District No. 1 (SD1) and the Boone County Water District in February 2020 to gauge current and future service capacities and whether these agencies expect to be able to meet future service demands in the area. Both agencies have relied heavily upon the Boone County Comprehensive Plan updates over the past 20 years to anticipate projected land uses in the area.



### Sanitary Sewer

Within the I-275/Graves Road Interchange Study Area, both north and south of the interstate, the existing sanitary sewer system is adequately serving current needs and has room for growth depending on the connection point to the existing system and anticipated sanitary sewer usage of the new development. SD1 indicates that treatment capacity for the area north of I-275 will be more than adequate for many years to come. Existing needs presently only consume 40% of treatment capacity at the Dry Creek Plant. The question becomes, how much room for growth is there in areas where growth is predicted within the Study Area and, more specifically, what growth will be spurred by the development of the new interchange? **Figure 3.2** shows sanitary sewer lines and possible tap locations that will allow for future development in the area. There are many options for future land use development in the project area to be served by sewage treatment facilities.

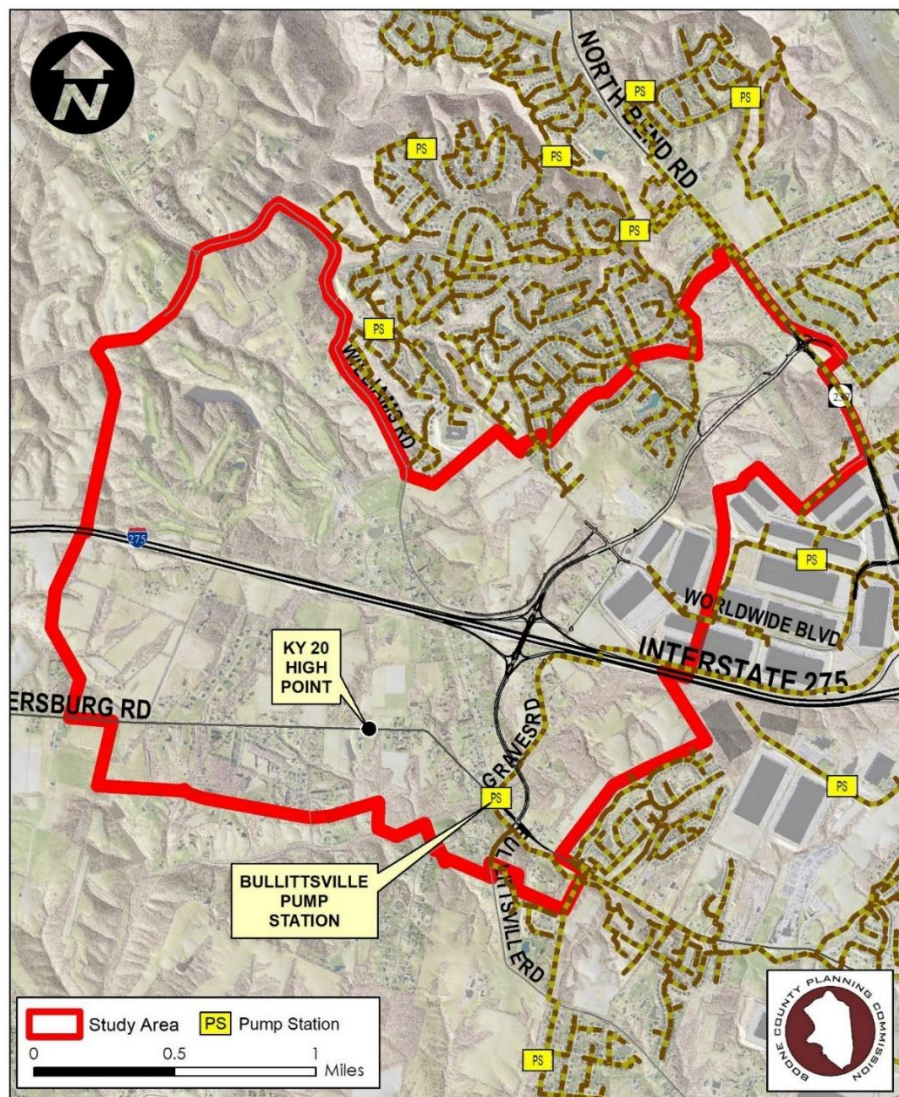


Figure 3.2 - Sanitary Sewer Lines



Based on the potential flows and diameter of the existing pipelines, undeveloped land within the project area, both north and south of I-275, can be adequately served in the future. As existing developments expand or new ones are built, the sanitary sewer system can be extended beyond the current pipeline network. There are no obvious restrictions or impediments to flow within the project area and treatment of sewage from the I-275/Graves Road Interchange area. Development in areas north of I-275 will need to be pumped generally to the north due to topography. The possible exception to this is that a pipeline could be installed under I-275 that would enable the area to flow by gravity to the Bullittsville Pump Station near the intersection of KY 20 and Bullittsville Road. The area south of I-275 generally flows to the existing Bullittsville Pump Station by gravity without pumping. Development west of the “high spot” on KY 20 will require pumping in order to get material to the Bullittsville Pump Station. Potential investment west along KY 20 towards the I-275/Petersburg Exit may result in the availability of sewerage along that road pending a cost-benefit analysis by SD1 but is unrelated to development in the I-275/Graves Road Interchange Study area.

### Water

The Boone County Water District (BCWD) is the water service provider to the I-275/Graves Road Interchange Study area and, similar to SD1, also relied on the Boone County Comprehensive Plan and its Future Land Use map designations over the past couple of decades to prepare for future system needs. Currently, there is adequate capacity to meet future water demand in the project Study Area, assuming the 1,300 acres of undeveloped land develop in a pattern similar to that shown on the 2040 Future Land Use Map. **Figure 3.3** shows the existing water line coverage in the Study Area along with existing and proposed water tanks/towers.

Currently, water is distributed throughout the area via a storage tower located on old Graves Road near Worldwide Boulevard. In anticipation of the future growth expected in the area, the completion of a new ground storage tank is planned by the BCWD within the next 2-3 years on Williams Road. This new underground tank will provide an additional 2-3 million gallons of water service capacity for future development. In addition, as the new Graves Road is built, new water mains will be installed in the new right-of-way.

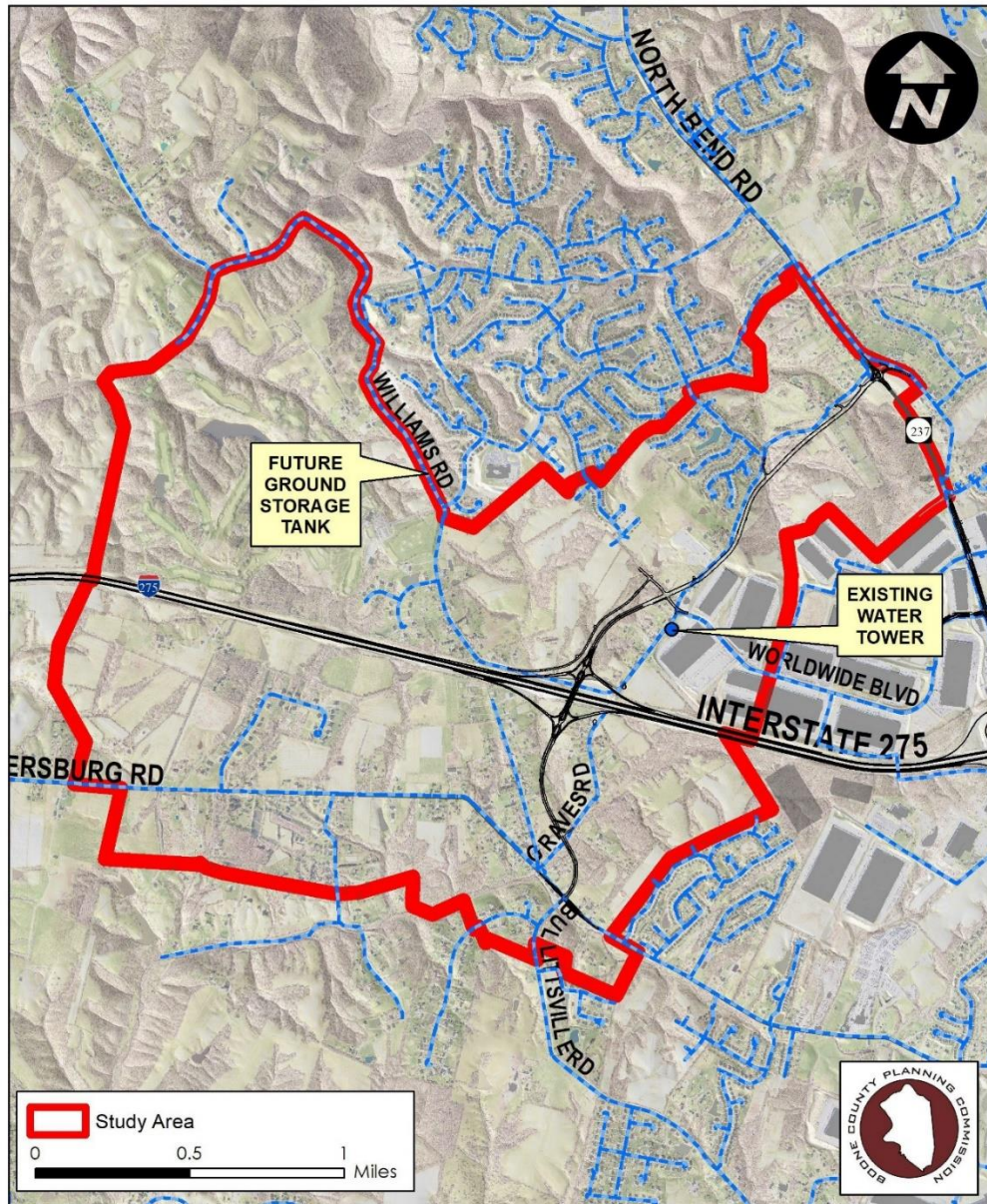


Figure 3.3 - Water Lines, Tanks, Towers

### 3.4 TRAFFIC ANALYSIS

The Planning Commission retained TEC Engineering to analyze the potential impact of the new I-275/Graves Road Interchange on the surrounding roadway network and recommend future improvements. TEC's review focused on the project's Area of Influence as established in the Kentucky Transportation Cabinet (KYTC) Interchange Justification Study with some adjustments from Planning Commission staff. The traffic study Area of Influence is based on traffic analysis standards and consultation between KYTC and the Federal Highway Administration (FHWA). It

largely overlaps with the land use study project area, with the exception of extensions northwest on Williams road and southeast along Bullittsville Road toward Burlington.

TEC identified existing roads within the Area of Influence most likely to experience increased traffic volumes following completion of the new interchange and subsequent development of currently undeveloped land. The identified roads include 6 Residential streets, 3 Collectors and 1 Arterial:

- Residential: Treetop Lane, Thornwilde Drive, Southcross Drive, Sequoia Drive, Merrell Road, Watts Road.
- Collector: Williams Road, Worldwide Boulevard, Bullittsville Road.
- Arterial: Petersburg Road (KY 20).

TEC generated future traffic counts for undeveloped land in the Area of Influence based on the land uses on the Planning Commission's Plan 2040 Future Land Use Map. The analysis assumes that traffic will be generated at varying rates and times of day by land use, whether Business Park, Commercial or Residential, which is further broken down into Rural Density (2 homes/acre), Suburban Density (3 homes/acre) and High Suburban Density (8 homes/acre). The analysis determined that future Business Park land will generate the most traffic, followed by Commercial land uses and then Residential. The traffic analysis used the Institute of Traffic Engineers Trip Generation Manual (10<sup>th</sup> Edition) to generate total hourly trip counts for peak AM and PM times.

Further analysis of the raw trip numbers provided by TEC can be used to calculate other data relevant to future land use planning. **Table 3.1** aggregates trip data by land use type and totals for future (Year 2040) land uses in the Area of Influence, both north and south of I-275. Assuming that land develops according to the Year 2040 Future Land Use Map, the 809 acres north of I-275 will generate 2606 and 4189 trips/hour during the AM and PM peaks. The 1214 acres south of the interstate will generate 6776 and 7435 trips/hour during the peaks. Residential land uses (Rural, Suburban and High Suburban Density in Areas A-K and L-AA on TEC's map) generate between 1.5 and 3.5 trips/hour depending on density, significantly below the rates of either Commercial or Business Park. Residential uses are combined in **Table 3.1**. The 21.0 AM trips/hour generated by Commercial land uses during the AM peak doubles to 42.9 PM trips/hour in the afternoon. By comparison, Business Park generates consistent AM and PM rates of around 19.0 trips/hour. Although the evening Commercial trip peak is the highest of any land use, the nearly six times more acreage of future Business Park (243ac v. 42ac) in the Area of Influence make BP the greater traffic generator of the two.

AREA OF INFLUENCE NORTH OF I-275				
FUTURE LAND USE	ACRES	AM	PM	TRIPS PER ACRE (AM vs PM)
Residential (Areas L-AA)*	767	1724	2389	2.2 -- 3.1
Commercial (Area AG)	42	882	1800	21.0 -- 42.9
<b>TOTALS</b>	<b>809</b>	<b>2606</b>	<b>4189</b>	<b>3.2 -- 5.2</b>
AREA OF INFLUENCE SOUTH OF I-275				
FUTURE LAND USE	ACRES	AM	PM	TRIPS PER ACRE (AM vs PM)
Residential (Areas A-K)*	971	2166	2865	2.2 -- 2.9
Business Park (Area AF)	243	4610	4570	19.0 -- 18.9
<b>TOTALS</b>	<b>1214</b>	<b>6776</b>	<b>7435</b>	<b>5.6 -- 6.1</b>
* Combined RD, SD, and HSD Residential Trips				RD Residential = 1.5 -- 2.0
				SD Residential = 2.2 -- 3.0
				HSD Residential = 2.9 -- 3.5

Table 3.1 - AM And PM Trip Counts By Future Land Use

Analysis of the existing transportation network, coupled with trip data for future land uses, led TEC to make the below recommendations. The impacts of the high peak rates for Commercial and Business Park are reflected in these recommendations:

- Treetop Lane - careful consideration of this connection to Williams Road opposite Worldwide Blvd as such a connection could reroute significant traffic into the adjacent subdivisions.
- Thornwilde Drive and Southcross Drive - Intersection improvements including lighting, westbound right turn lanes at Williams Road, and consideration for future signalization or roundabouts as traffic volume grows.
- Sequoia Drive - Signalized new intersection at Graves Road needs to be carefully designed and coordinated with other intersections in the immediate area.
- Merrell Road - Improve Williams Road intersection and upgrade Merrell to a modern 2-lane roadway with curb and gutter.
- Williams Road - Upgrade to 4-lane roadway; improve intersections at Thornwilde, Southcross and Merrell; create "Stop Controlled" T intersection at Worldwide Blvd to allow continuous flow to/from Williams
- Worldwide Blvd - Several recommendations to accommodate increased truck traffic including turn lanes to/from New Graves road; relocated, signalized and timed Old Graves intersection to allow for truck stacking; consideration for issues such as slower speeds, acceleration, turning radii and pavement design.
- Bullittsville Road - Improve the intersection with Petersburg Road with turn lanes and signals or a roundabout.

- Petersburg Road - Improve to 4 or 6-lanes between Graves Road and proposed new Development Roads to the west; new intersections should be designed to with truck traffic in mind.
- Watts Road - Realign southern end to cross New Graves Road to proposed Litton Lane extension with signalized or roundabout intersection.
- New Development Roads - Construct two new 4-lane curb and gutter roads off of Petersburg Road to access undeveloped Business Park land on the south side of I-275.
- Litton Lane - Extend west as a 4-lane road and connect with Graves Road opposite realigned Watts Road at new signalized or roundabout intersection.
- General Site Development Recommendations:
  - Careful consideration of access to future Business Park on the south side of I-275 west of Graves to spread out traffic volumes.
  - New connections to residential streets should be evaluated to minimize traffic diverting through subdivisions.
  - With the northwest area of influence expected to develop as residential, subdivision plans should be carefully evaluated relative to intersection spacing, capacity and sight distance for both existing and future traffic.



## CHAPTER 4. RECOMMENDATIONS

As stated previously in the Introduction, the new I-275/Graves Road Interchange provides an opportunity to create a unique gateway to Boone County's Hebron and Bullittsville areas and should be characterized by "attractive building designs, pleasant and efficient site layouts, effective (and reserved) signage, tasteful lighting, beautiful landscaping, open space, and enhanced pedestrian accessibility that will create a place not typical of most interstate interchanges." The new Graves Road (KY 495) should become a unifying corridor through the area by connecting the communities of Bullittsville and Hebron with a mix of land uses working in support of each other as well as the existing uses in the area. It is the goal of this set of recommendations to not only encourage and attract new businesses, employers, and residents to live and work, but also to create a special place that accommodates the various uses that rely on the interchange as a means of transportation.

### 4.1 FUTURE LAND USE

Section 3.2 of this Study points out that for the past few decades, it has been the desire of the Boone County Planning Commission to prepare for a forecasted interchange on I-275 at Graves Road. As a result, general Future Land Use designations have been in place since 2000 in anticipation of the interchange with the understanding that further refinement may be necessary once an exact location and design has been determined by the Kentucky Transportation Cabinet. Now that the design of the interchange and actual work on site has begun, more detailed analysis and rearrangement of the Future Land Uses in the area can be made accordingly. As a result, the boundaries of some Future Land Uses are being shifted while some are being relocated altogether in an effort to better maximize the development pattern around the new interchange in contrast to the adopted Future Land Use Map of Our Boone County - Plan 2040 that was adopted in 2019. **Figure 4.2** shows the proposed Future Land Use for the Study Area as recommended in this Study.

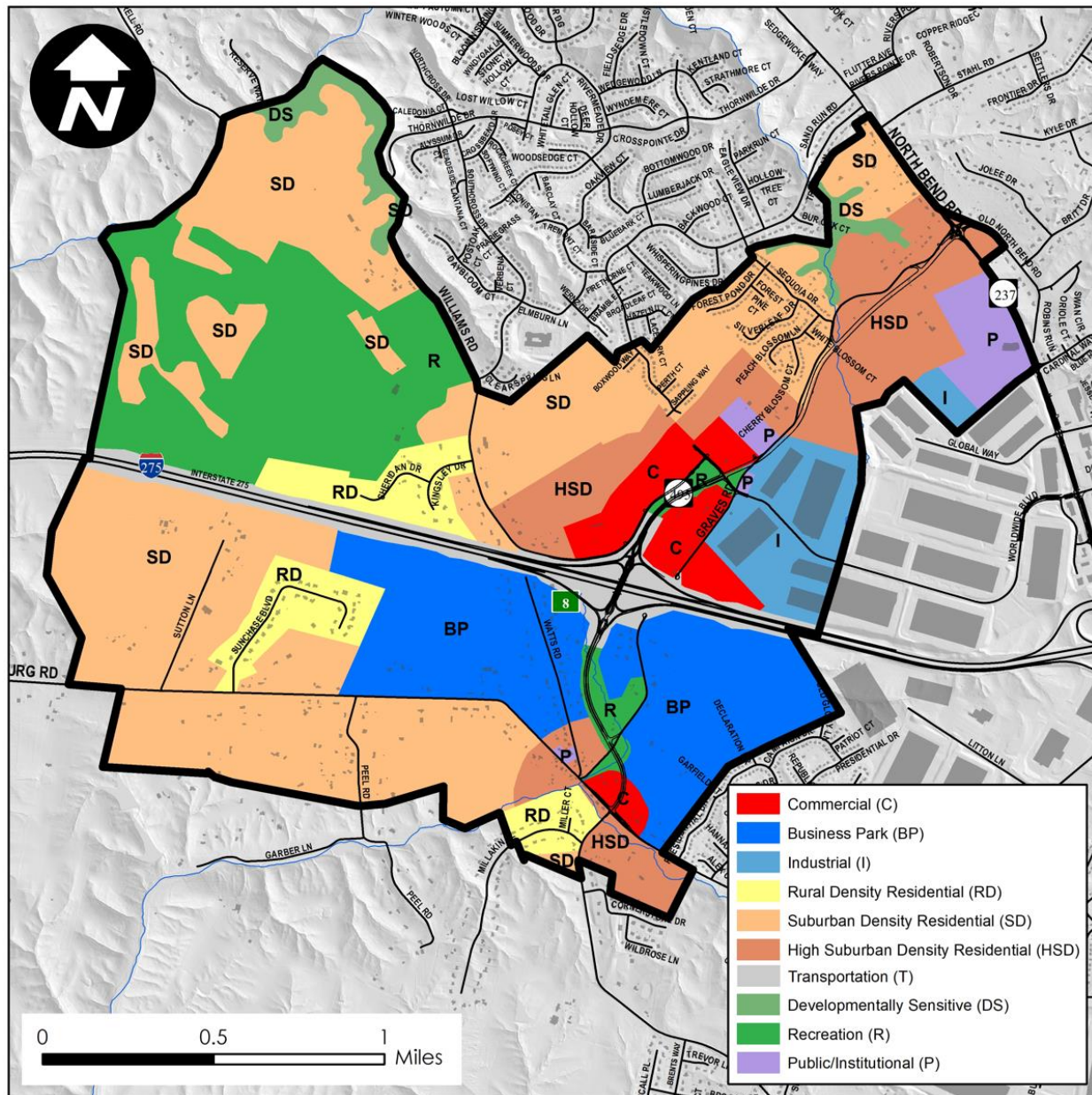


Figure 4.2 - Proposed Future Land Uses

Shifts in acreages of Future Land Uses from the approved Our Boone County - Plan 2040 to those proposed in this plan are shown in the table below (**Figure 4.3**). These changes are being made for various reasons based on updated information on transportation improvements, accessibility to utilities, and adjoining uses. The Future Land Use category that gained the most land area is Suburban Density Residential (SD), which includes single family housing up to 4 units per acre. The increase of 85 acres is primarily the result of changing land uses at the western edge of the Study Area between KY 20 and I-275 from Rural Density Residential (RD), typified by residential uses up to 1 unit per acre, as well as changing High Suburban Density Residential (HSD),

characterized by housing up to 8 units per acre, to Suburban Density Residential (SD). Business Park (BP) also increased (by 105 acres) as a result increasing the amount located along KY 20 west of new Graves Road as well as extending the BP south on the Graves family property east of new Graves Road. The BP use includes a mix of office, research, and light industrial in a campus-like setting. In light of the land consumed for the interchange and its entrance and exit ramps, Transportation (T) increased by 49 acres. The use experiencing the largest decrease (119 acres) in area is Rural Density Residential (RD), primarily in two places. One is along KY 20 at the western edge of the Study Area that was changed to Suburban Density (SD). The other is at the north end of the new Graves Road near the roundabout at North Bend Road where it was changed to Suburban Density (SD) and High Suburban Density (HSD). High Suburban Density (HSD) also experienced a reduction (128 acres) due primarily to the removal of an area at the extreme west end of the Study Area on the south side of I-275.

2040 FUTURE LAND USE	ACREAGE		
	PLAN 2040	PROPOSED	DIFFERENCE
BUSINESS PARK (BP)	244	351	83
COMMERCIAL (C)	87	97	10
INDUSTRIAL (I)	124	115	-9
RURAL DENSITY RESIDENTIAL (RD)	260	141	-119
SUBURBAN DENSITY RESIDENTIAL (SD)	859	944	85
HIGH SUBURBAN DENSITY RESIDENTIAL (HSD)	407	279	-128
RECREATION (R)	340	354	14
TRANSPORTATION (T)	69	118	49
PUBLIC/INSTITUTIONAL (P)	64	57	-7
DEVELOPMENTALLY SENSITIVE (DS)	53	53	0
TOTAL	2,507	2,507	

Figure 4.3 - Difference in Future Land Use acreage

For the purposes of the recommendations section of this plan, the Study Area has been divided into 6 smaller “Focus Areas” based on natural and artificial boundaries and/or obstacles. This section outlines both the recommended Future Land Uses and broad development design concepts for each of the 6 Focus Areas as shown in **Figure 4.4** below.



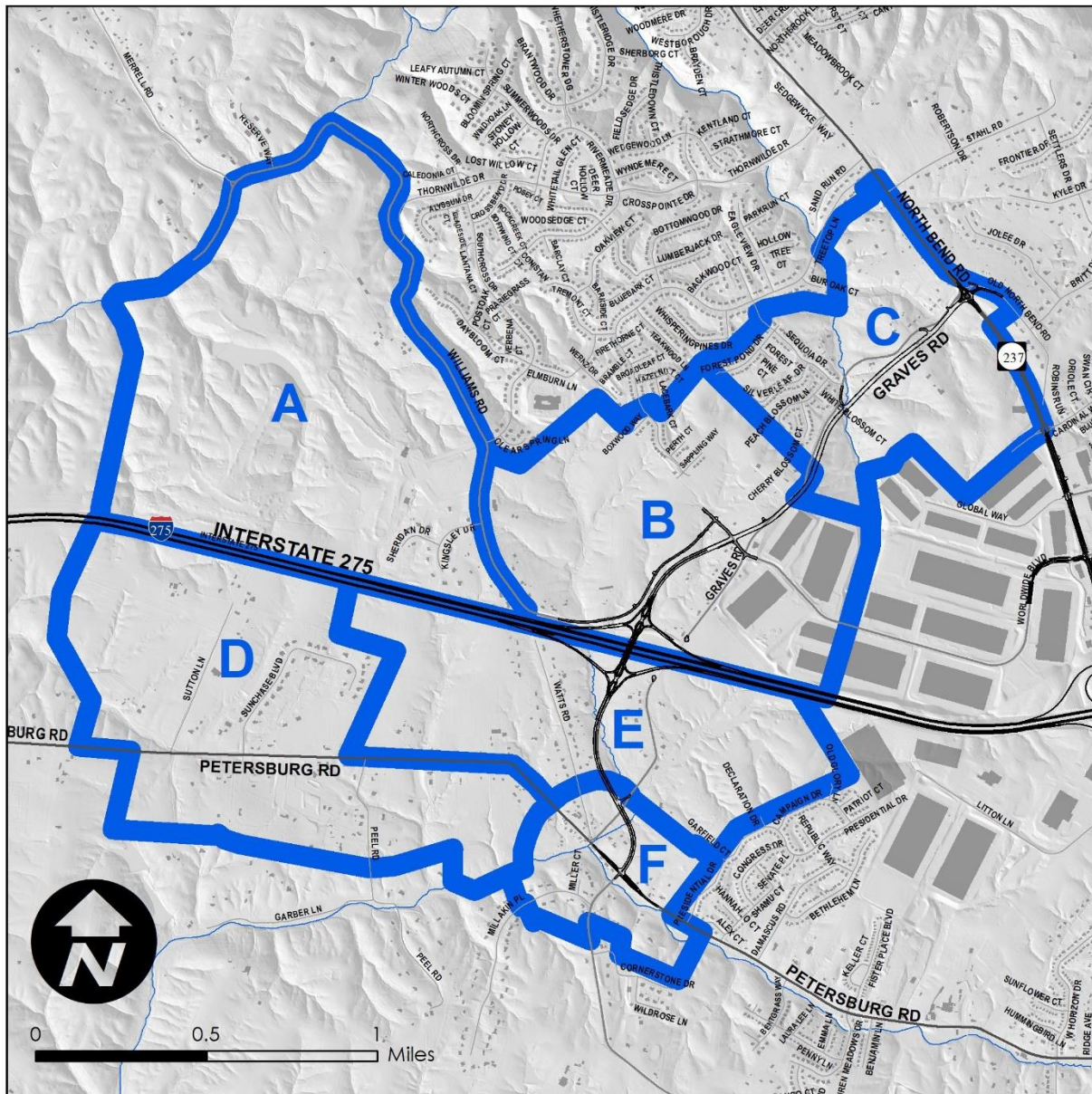
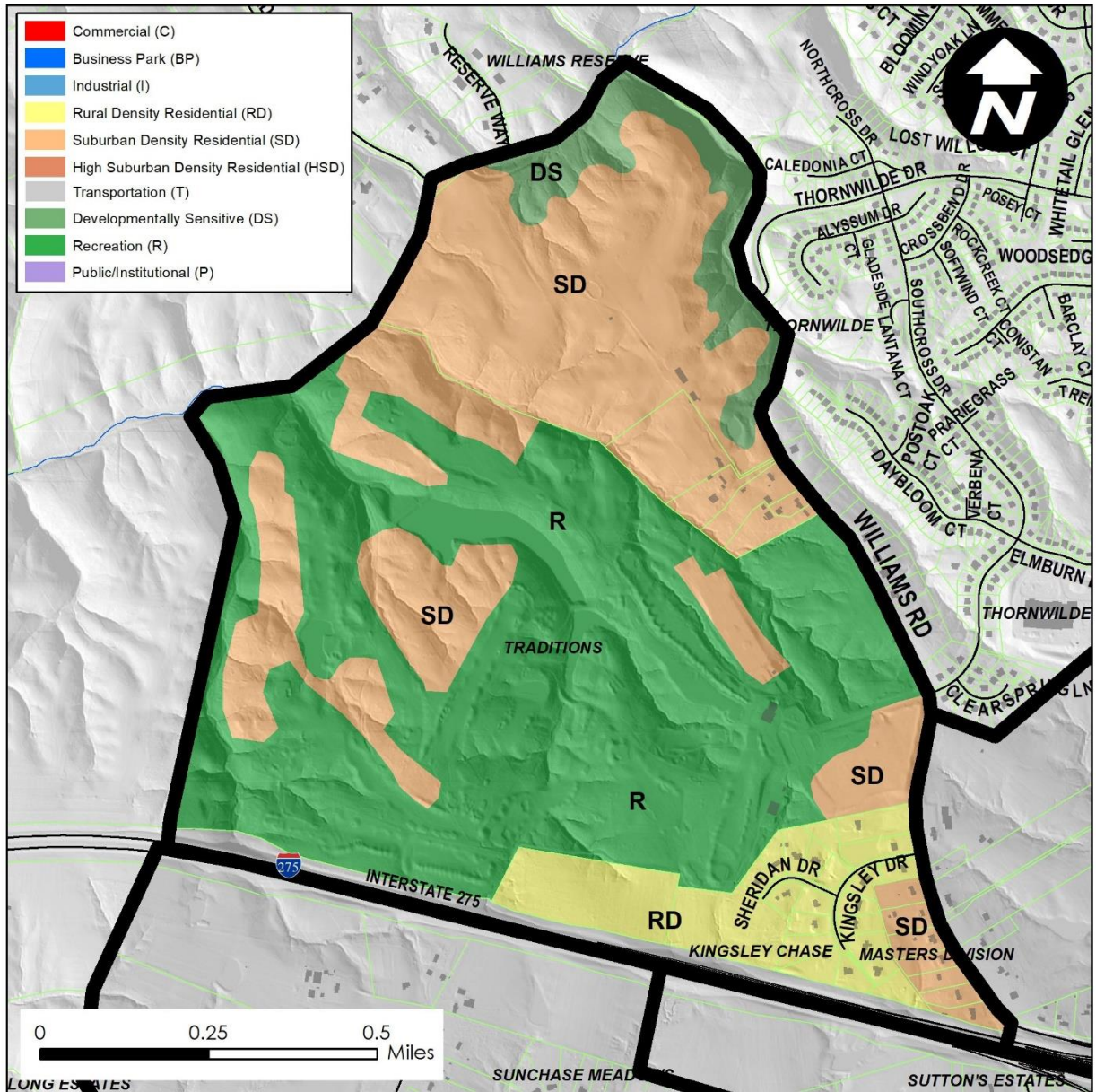


Figure 4.4 - Focus Areas



## Focus Area A

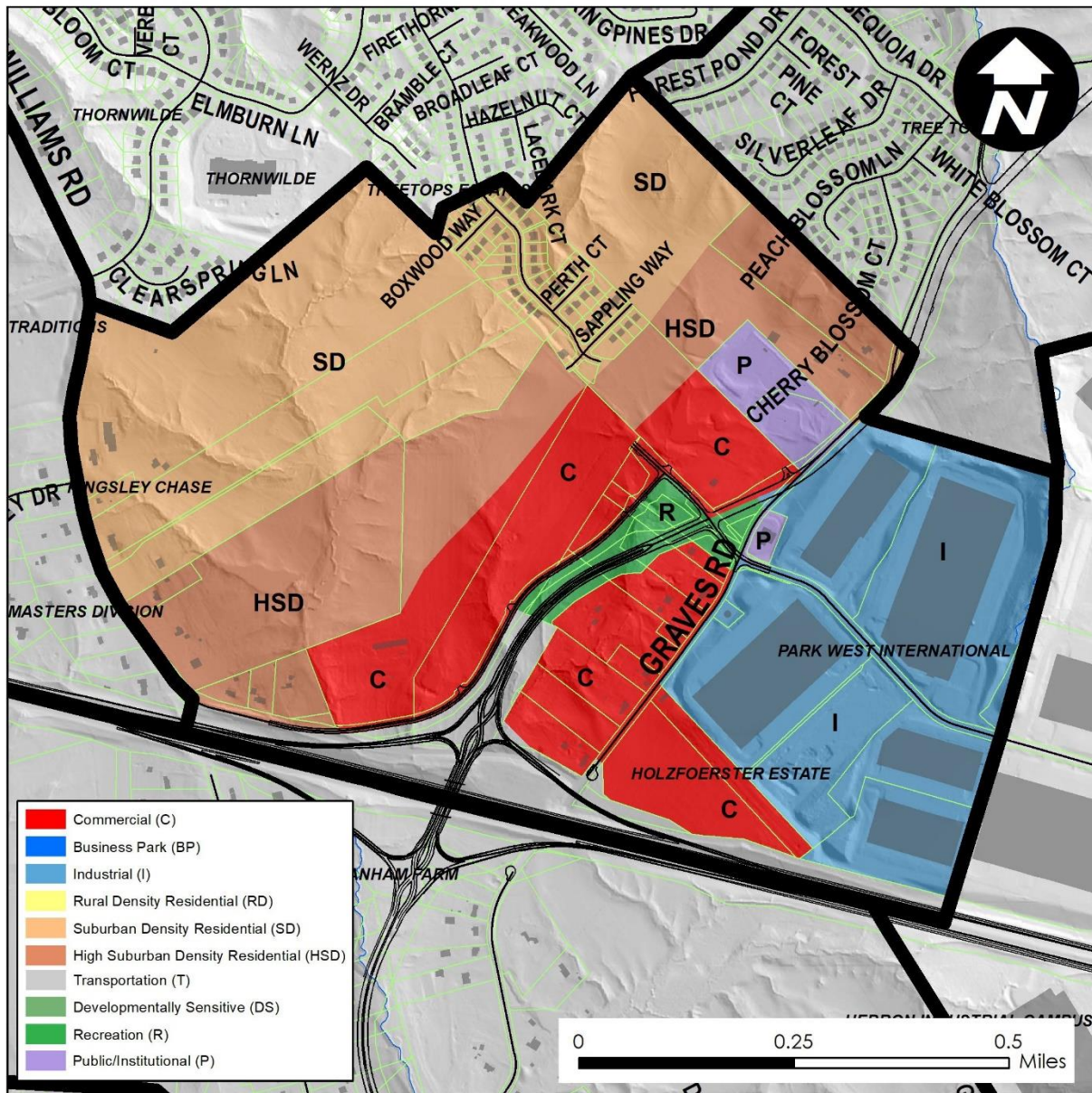


This 674-acre northwestern part of the Study Area consists of land on the southwest side of Williams Road and north of I-275 and includes the existing Kingsley Chase and Traditions subdivisions. The undeveloped land in this area is expected to develop as additional Suburban Density Residential (SR) comparable to Thornwilde on the north side of Williams Road. This includes the residential component of Traditions which will see an addition of 515 single family homes in and around the golf course. There are no significant Future Land Use changes recommended in Focus Area A other than a correction to property on the west end of Kingsley Chase subdivision. Previously, this area was shown as Recreation (R) when it should have been

Rural Density Residential (RD) since it has always been slated as the final phase of Kingsley Chase and was never part of the Traditions property. The key to this area developing are proposed improvements to Williams Road as stated in the Transportation Planning Study - Graves Road which calls for improving/widening the narrow 2-lane between Graves Road and Thornwilde Drive. While a 4-5 lane section as called for in the Transportation Planning Study may not be needed in the immediate future, it is recommended that right-of-way be acquired along Williams Road as development occurs to allow for center turn lanes and the addition of right turn lanes into the future High Suburban Density Residential (HSD) and Suburban Density Residential (SD) developments on the east side of the road. Since these recommendations are based on the eventual full build-out, widening of Williams Road to 4-5 lanes may not be needed for some time, if ever, as full build-out is rarely completely realized.



## Focus Area B



The north side of the I-275/Graves Road Interchange includes 455 acres with undeveloped property primarily west of the new realigned Graves Road (KY 495). This area will have the greatest variety of land uses going forward. The main feature of this Focus Area, upon arrival, should be the grand entranceway greenspace of Recreation (R) Future Land Use that parallels the new Graves Road in the right-of-way for KY 495 and fronts on both Williams Road and old Graves Road. This welcoming park-like feature would serve as a transition from the interstate highway to a more planned environment. The northern terminus of this Recreation designation is at the intersection of KY 495 and Worldwide Boulevard. The Commercial (C) development on the northwest quadrant of the intersection should incorporate some greenspace feature at the

corner to emphasize this endpoint (or node) as the traveler transitions from the green corridor and into the built environment. This Recreation node could also serve as a conduit to facilitate and encourage the movement of pedestrians into and between the Commercial development from the large areas of residential existing to the north as well as that proposed to the west behind the Commercial uses fronting on Williams Road. Obtaining the input and involvement of the Boone County Urban Forest Commission in the design of tree planting projects in this corridor should be encouraged in order to further enhance the aesthetics of the area.

Commercial (C) uses should be located parallel to new Graves Road (KY 495) with the eastern portion accessed by old Graves Road and the western area by Williams Road. The eastern Commercial area along old Graves Road, south of its intersection with Worldwide Boulevard, would be ideal for large hotel use as well as sit down restaurants aimed at serving the inhabitants of the hotel(s) and local residents. This area has high visibility and ease of access from the new interchange with some frontage along I-275. The front facades of buildings on this site should be oriented towards new Graves Road (KY 495) while having its vehicular access off of old Graves Road. Parking lots should be located on the old Graves Road side while preserving the KY 495 frontage for front elevations of the buildings and ample opportunity for open space and/or landscaping for aesthetic and beautification purposes. The area east of old Graves Road consists mostly of existing Park West International warehousing. While the 13-acre triangular area at the southeast end of old Graves Road (between Park West and I-275) is shown as Commercial (C), it could also be developed as industrial use, possibly as part of an expansion of one of the warehouse operations that front on Worldwide Boulevard. In the event that this triangular property is desired to be developed as industrial use, a Zoning Map Amendment must be requested. In addition, access to the property should be from Worldwide Boulevard through Park West International because old Graves Road cannot support heavy truck traffic. However, access from old Graves Road for industrial development can occur if the developer submits a traffic impact study and demonstrates a low volume of truck traffic or if the developer agrees to make improvements to old Graves Road based upon the traffic impact study and approval from the Boone County Fiscal Court.

Conversely, the area of Commercial (C) on the west side of new Graves Road, accessed by Williams Road, should be comprised of more traditional neighborhood commercial uses at a smaller scale and designed to serve the growing residential population to the north and west. Uses could include smaller scale eating and drinking establishments, coffee shops, and locally oriented retail such as active recreation related shops to take advantage of the multi-modal transportation opportunities in the area. This area could also incorporate a more upscale apartment residential development aimed at young professionals who are transitioning towards condominium or home ownership. Great care must be given to how and where such an



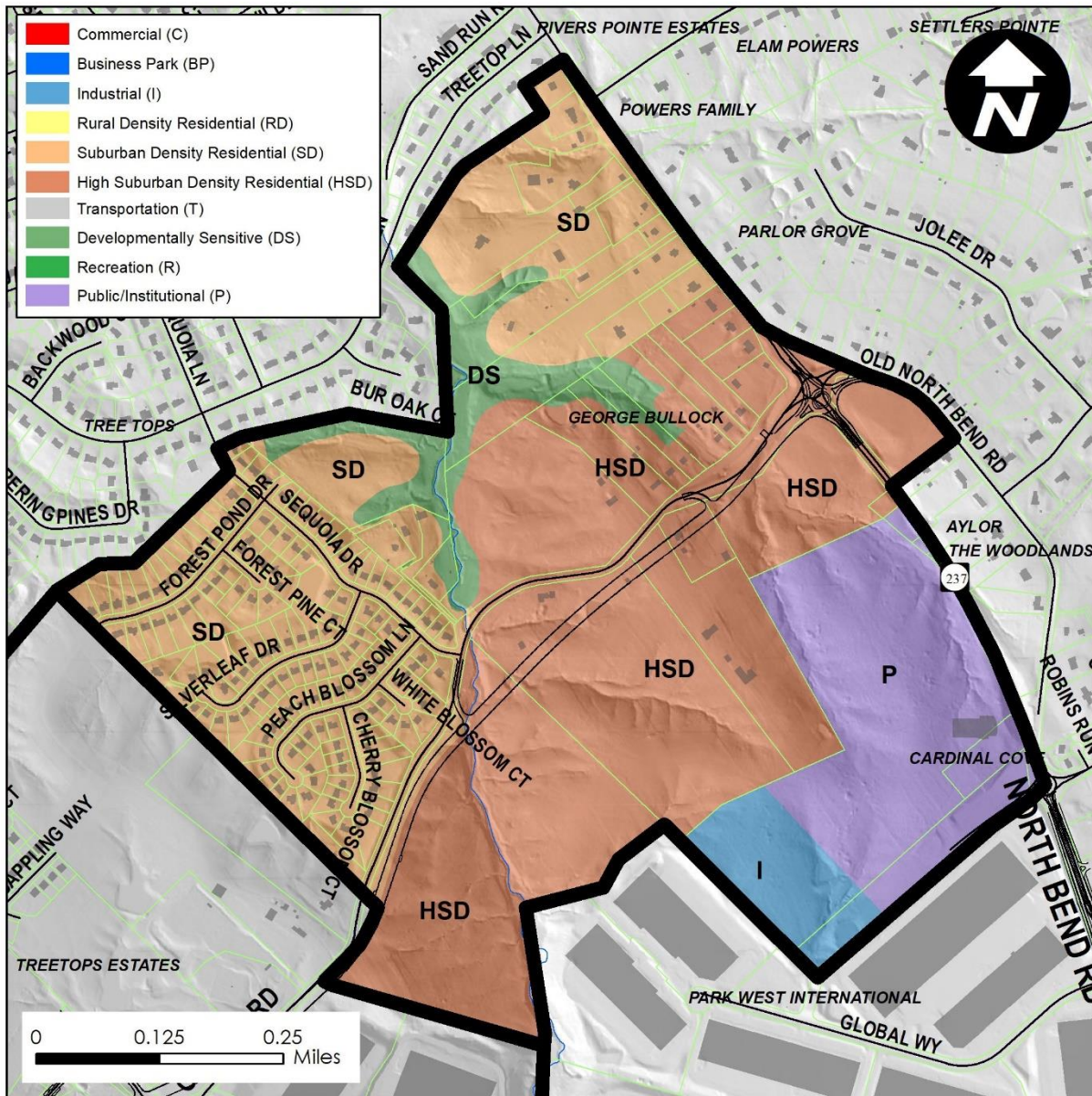
establishment is to be located so that it is not only aesthetically pleasant, but that it also functions with the surrounding commercial uses. Ideally, ground level commercial with apartment dwellings above is recommended. Structures shall be no more than 4 stories in height, with the first floor being Commercial and possibly a basement for parking. As with the Commercial on the east side of new Graves Road, this development shall also present their front elevation towards the new road, in effect, creating an inviting corridor of commercial activity as one enters the area from I-275. The Commercial on both sides of Graves Road should have an emphasis on pedestrian movement, both internally as well as providing access to a potential Recreation park feature at the intersection of KY 495 and Worldwide Boulevard.

Any auto-oriented Commercial uses in the area such as car washes, filling stations, convenient stores, auto parts store, etc. should be limited in number and generally be designed with great care aesthetically so as to not depict the typical designs found elsewhere. A limit of one filling station and convenient store on each side of new Graves Road should be sufficient in serving the needs of the travelers coming through the interchange area. The desire is to not see these Commercial areas develop with the automobile as their primary target, but rather a mix of uses that also encourage pedestrian mobility and shopping opportunities. Auto-oriented uses should be secondary and complimentary to the recommended primary uses.

The areas of High Suburban Density Residential (HSD) should develop either behind, or possibly even in conjunction with Commercial (C) uses on the west side of Graves Road and serve as a transition to the more typical Suburban Density Residential (SD) behind it. Well-designed condominiums and/or townhome development would serve the young, smaller household size professional population just getting into the workforce and provides close living quarters to proposed Business Park (BP) areas planned on the south side of the interchange. Primary access into these High Suburban Density Residential (HSD) developments should be through the Commercial (C) areas fronting on Williams Road.

As mentioned previously, the Transportation Planning Study - Graves Road calls for improving the narrow 2-lane Williams Road to 4-5 lanes in this Focus Area. Since this recommendation is based on a full build-out scenario, widening of Williams Road to 4-5 lanes may not be needed for some time, if ever, as full build-out is rarely completely realized. It is recommended that right-of-way be provided along Williams Road as development occurs to at least provide for the addition of right turn lanes into the future Commercial (C) and High Suburban Density Residential (HSD) developments.

### Focus Area C



The 317-acre northeastern part of the Study Area includes the Graves Road/North Bend Road roundabout, a portion of existing Treetops Subdivision, and the Hebron Branch Library. It is expected to develop primarily as a residential corridor with High Suburban Density (HSD) uses such as condominiums, townhomes, or patio home developments along the newly relocated Graves Road. Areas formerly shown as Rural Density Residential (RD) on the north side of Graves Road are now Suburban Density (SD) and High Suburban Density (HSD) residential in light of the new and improved roadway and access. This area should provide a wide range of housing options for professional workers who are filling jobs in existing office/employment centers in the Hebron

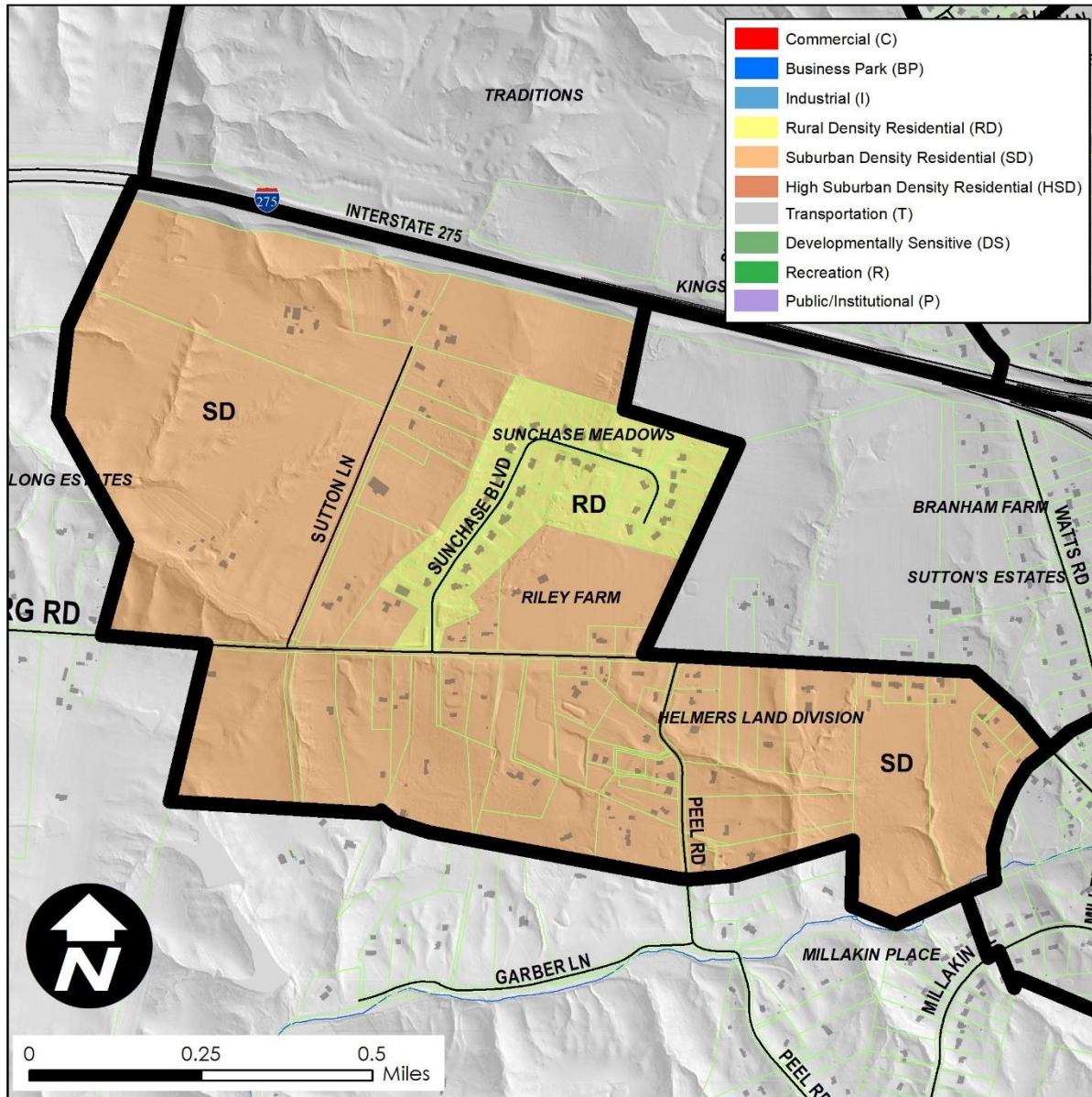
area as well as the proposed Business Park (BP) uses down Graves Road (KY 495) on the south side of I-275. The region of High Suburban Density (HSD) on the southeast side of Graves Road would be the most appropriate location for any multi-family development (up to 12-units per acre) with the new roadway serving as a buffer to the 8-units per acre residential recommended to the northwest of the roadway. The 8-unit per acre residential completes the transition to the typical 4-unit per acre development that has been occurring beyond that. It could also be an ideal location for a senior housing development due to its proximity to medical and professional services in the KY 237 corridor as well as being close to the Transit Authority of Northern Kentucky (TANK) bus service lines in the area.

The Public/Institutional (P) area at the eastern portion of this Focus Area includes the Hebron Branch Library which is planned to serve as a local public campus for outdoor recreation opportunities including walking trails as well as hosting entertainment events and gatherings and will serve the new and existing residential uses in the area.

The unnamed lane on the south side of the Hebron Library in front of the TANK Park and Ride facility could extend to connect with Global Way and allow for more Industrial (I) development on the west side of the swale located on Library property as long as adequate buffering of the use is provided to the north where High Suburban Density (HSD) uses are proposed. Furthermore, a spur off that road could extend northward through the residential property to new Graves Road (KY 495) and better connect the recommended residential developments with the Library site.



## Focus Area D



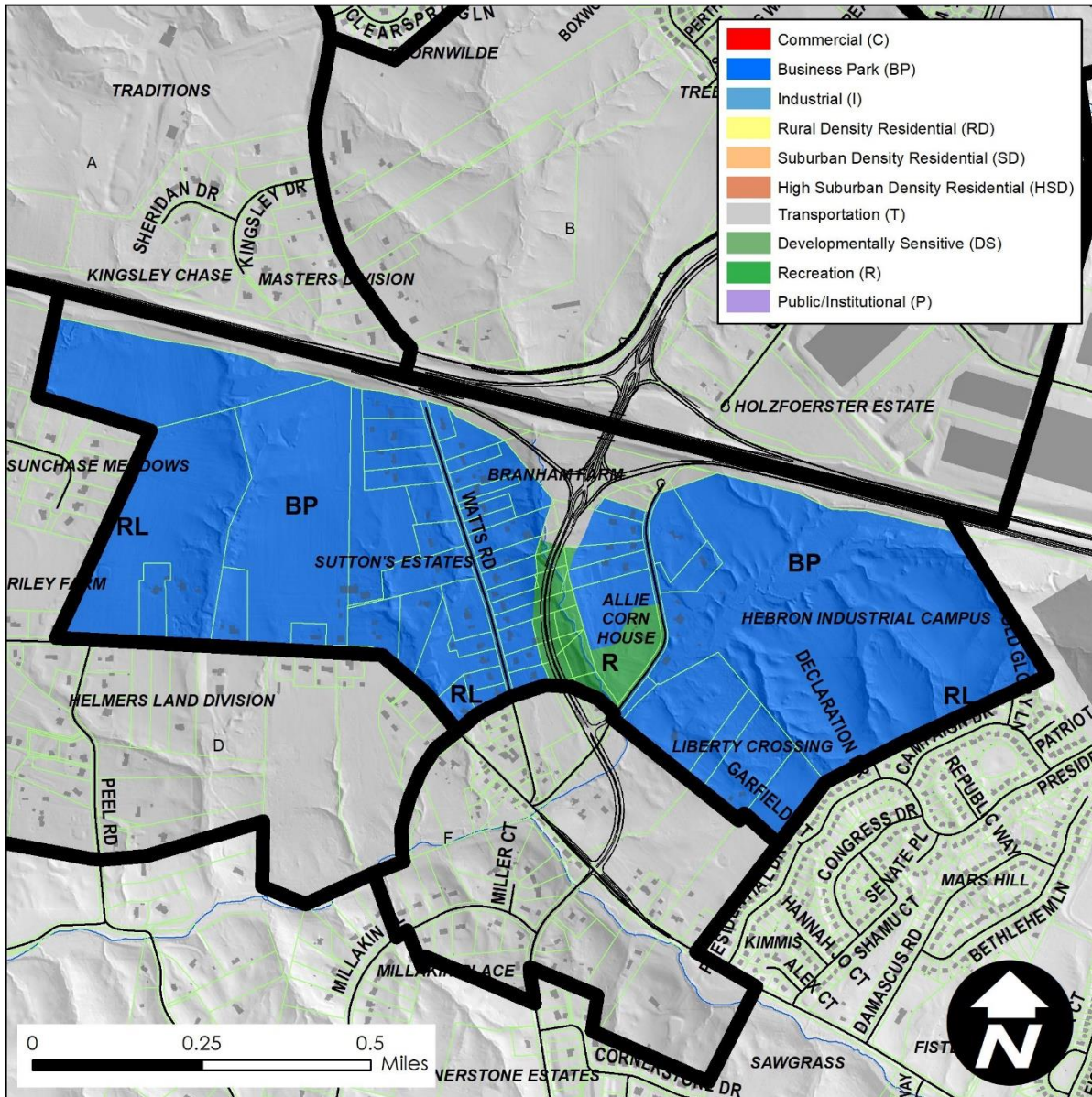
This 545-acre part of the Study Area which extends along KY 20 includes the Sunchase Meadows Subdivision and large-lot residential uses along KY 20. In the years following completion of the new interchange, this area is most likely to develop as Suburban Density Residential (SD). Previously, in anticipation of the long-proposed I-275/Graves Road Interchange in the area, portions of this Focus Area were shown as High Suburban Density Residential (HSD) as well as Business Park (BP). However, now that the exact location of the interchange is known, it was apparent that these more intense uses should be shifted east toward the interchange itself. This shift of the more intense uses provides protection for the existing Sunchase Meadows

Subdivision, although care will still be necessary to ensure that Business Park (BP) development where it still adjoins Sunchase Meadows is properly buffered. With the condition of Petersburg Road (KY 20) taken into consideration, it is more appropriate for this Focus Area to develop in a more typical residential manner, thus the Suburban Density Residential (SD) designation. The timing of this is obviously tied to when sanitary sewer service becomes available to the KY 20 corridor. No change to the Future Land Use designation on the south side of KY 20 is recommended and this land will likely be developed as Suburban Density Residential (SD) as forecasted by previous updates of the Comprehensive Plan.

The primary issue with this portion of the Study Area is how the condition of KY 20/Petersburg Road holds up to the loads of increased traffic in light of the new interchange just to the east. Pressure to develop subdivisions in the area will rise, and close attention must be given to how the traffic volumes are handled before any improvements to the roadway become necessary. The Transportation Planning Study - Graves Road (summarized in Section 3.4) suggests that Petersburg Road eventually be upgraded to a 4-lane roadway when development occurs.



## Focus Area E



The 385-acres south of I-275 on both sides of Graves Road includes the existing Sutton's Estates and Branham Farm subdivisions along Watts Road with large undeveloped properties to the west and east. Like Focus Area B north of the interchange, the strip of public right-of-way parallel with new Graves Road (KY 495) as well as land between the new and old Graves Road alignments can serve as a visually appealing green corridor between Business Park campus uses to the west and east. The National Register listed 1883 Allie Corn House on old Graves Road and the south end of its parcel could be incorporated into this Recreation use.

The residential uses on Watts Road, as well as undeveloped properties to the west between I-275 and Petersburg Road, are shown as Business Park (BP). These residential uses are likely to eventually redevelop as Business Park (BP) although it is hard to predict whether it will occur in the near future or distant future. In the event that property to the west develops in a Business Park manner while there are still residences on Watts Road, great care must be given to ensure proper screening and buffering the residents from these uses. In addition, Watts Road itself must not have shared residential and commercial uses (and traffic) as long as there are still people residing on the road.

On the east side of Graves Road (KY 495), much of the undeveloped Graves family farm is also expected to develop as Business Park (BP). Development of this acreage can be accommodated by the extension of Litton Lane through the property to new Graves Road which will in turn help preserve the condition and functionality of Petersburg Road (KY 20) from KY 237 to Graves Road. Development pressure in this Focus Area is already heavy and much care needs to be given to the type and design of the uses that occur.

As stated in Our Boone County - Plan 2040, the primary goal of the Business Park (BP) classification is to provide “a mix of office warehouse, research, office, and light industrial uses in a park-like, office campus setting with large building setbacks, low floor area ratio, integrated pedestrian and recreation facilities, consistent architectural and signage theme, extensive landscaped areas, including attractive entrance treatment.” The high-visibility nature of this area is why it is so important to achieve this goal. Uses such as large professional office buildings or corporate headquarters, research facilities, advanced training or educational facilities like business or trade schools, would promote this progressive and professional environment that is much needed in Boone County. In addition, these types of uses would provide employment opportunities for the potential residential workforce living in the affluent Hebron area. The larger parcels in the Focus Area should be promoted to become the home to a single user such as a large corporate headquarters that would include not only offices, but also other components such as research and development. Large parcels exist on both sides of New Graves Road and the high visibility and easy access to these large “whole campus” sites would make them prime locations for such a use. With proper marketing and timely utility and road improvements, these properties could become “crown jewels” in the I-275/Graves Road Interchange area.

Commercial and retail-related uses shall be limited with an immediate transition into the office park type uses instead of a strip of commercial uses. In addition, logistics and light industrial uses should also be limited in this Focus Area. The overall professional campus-like feel for this Focus Area is desired versus the continuance of large scale warehousing uses currently occurring to the east and southeast in and around the Greater Cincinnati/Northern Kentucky International Airport

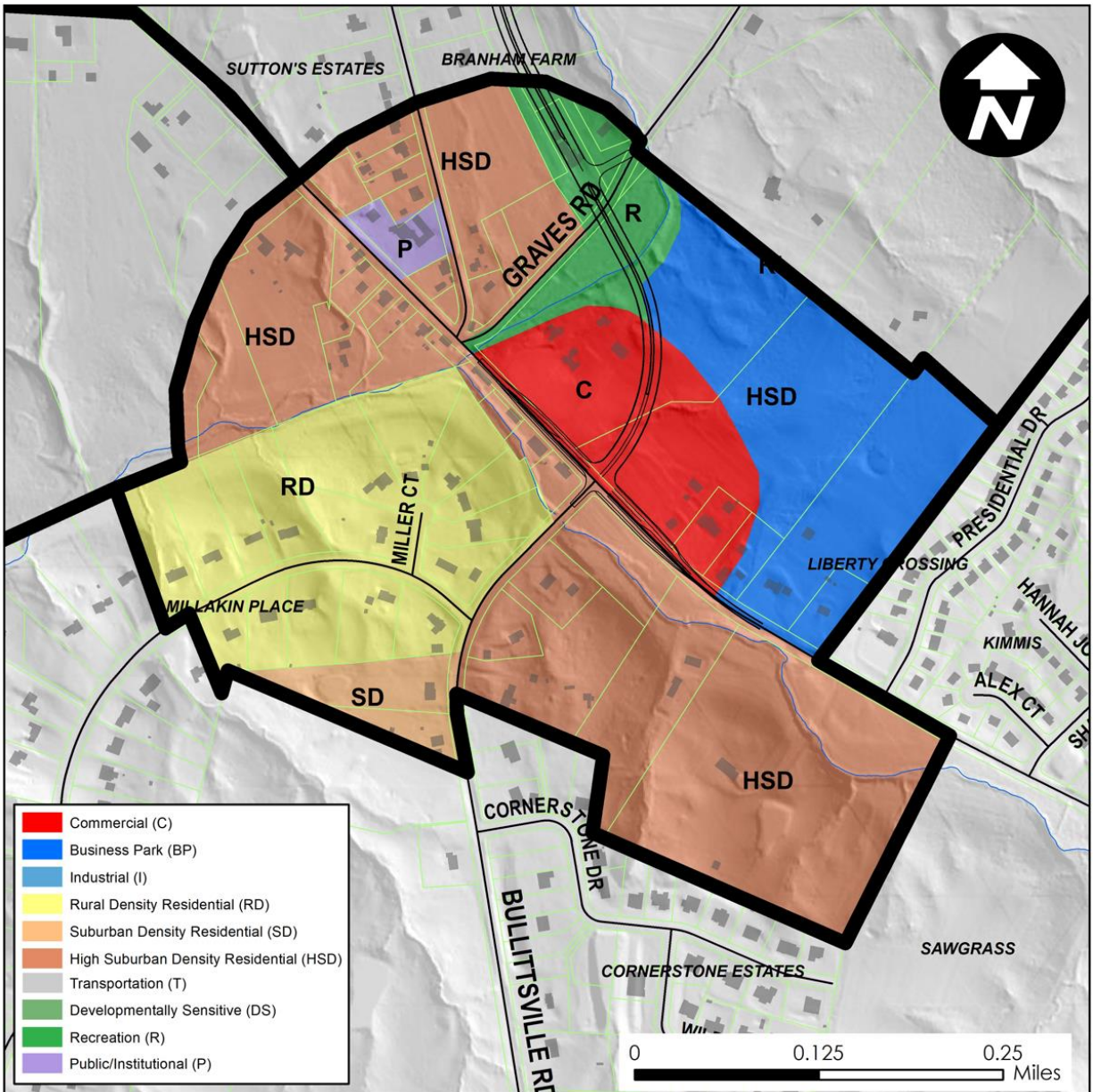
(CVG). By developing with premier research facilities and similar corporate office uses, this portion of the Study Area can also serve as a transition between the warehousing and industrial uses to the southeast and the existing and future residential uses to the west and south.

In order to minimize negative impacts of Business Park (BP) uses on existing residential uses in the area (Sunchase Meadows Subdivision, Kimmis Subdivision, Watts Road, etc.), great care and attention must be given to providing proper buffering and screening. In addition, unless Watts Road redevelops and provides access, the main points of entrance to Business Park development to the west will have to be off of Petersburg Road.

The Transportation Planning Study - Graves Road recommends improving that 2-lane portion of Petersburg Road to 5-6 lanes to the point of access to the Business Park (BP) uses. Once again, this recommendation is based on full build-out projections, and since full build-out is rarely fully realized, the widening of Petersburg Road to 5-6 lanes may not be needed. It is recommended that right-of-way be provided from the developments as they occur so that road widening can take place as it is needed based on traffic impact studies performed for the individual developments. The actual site and development plans and subsequent Traffic Impact Studies will demonstrate how much widening will be needed.



### Focus Area F



Focus Area F includes 132 acres around the southern terminus of the realigned Graves Road (KY 495) at the intersection of Petersburg Road and Bullittsville Road in a small community known historically as Bullittsville. The core of this area is best suited for smaller, neighborhood Commercial (C) uses designed to serve the existing subdivisions of Millakin Place, Liberty Crossing, Kimmis, Cornerstone Estates, Sawgrass, and others. A small-town theme should be applied to this area in order to reestablish the core of Bullittsville as a “place” or node that can easily be reached via shared use paths from adjacent subdivisions. Uses in this Commercial (C) node should be smaller in scale compared to larger commercial retail centers and could include unique niche businesses such as art galleries or studios, eating/drinking establishments, small

scale medical offices, hair salons, as well as some professional and office support establishments with very little auto-related uses. A small-scale fuel station and/or convenient store would be appropriate as long as fuel pumps and canopy are located in the side or rear yard and not between the building and the street. As mentioned previously, multi-family mixed uses should be encouraged in this location with commercial on the first floor and residential on the 2nd and 3rd floors.

The green Recreation (R) corridor continuing from the north of the site along Graves Road (KY 495) will encourage and facilitate pedestrian movement between the proposed and existing residential developments in this area, the future Commercial (C) uses, and the historic Allie Corn House site to the north should it become an historic tourist destination. The southern terminus of this green corridor should tie in to the Commercial development at new Graves Road and Petersburg Road.

Currently, the widening of Petersburg Road (KY 20) to 5-6 lanes from Graves Road (KY 495) to North Bend Road (KY 237) appears in the Boone County Transportation Plan (2018) as a “Tier 1” project, meaning highest priority. It is also identified as a recommended project in the 2050 OKI Metropolitan Transportation Plan (2020). However, it does not appear in the Kentucky Transportation Cabinet’s 6-Year Plan list of recommended improvements.



## 4.2 ZONING

In order to achieve the intended goals of the Future Land Use designations of Section 4.1 of this chapter, three (3) new zoning districts are to be added to the Boone County Zoning Regulations. Graves Road Business Park (GR-BP), Graves Road Commercial (GR-C), and Graves Road Residential (GR-R). The boundaries of these new zoning districts are shown on the map below (**Figure 4.1**) and consist of the following areas; GR-BP (410 acres), GR-C (136 acres), and GR-R (290 acres).

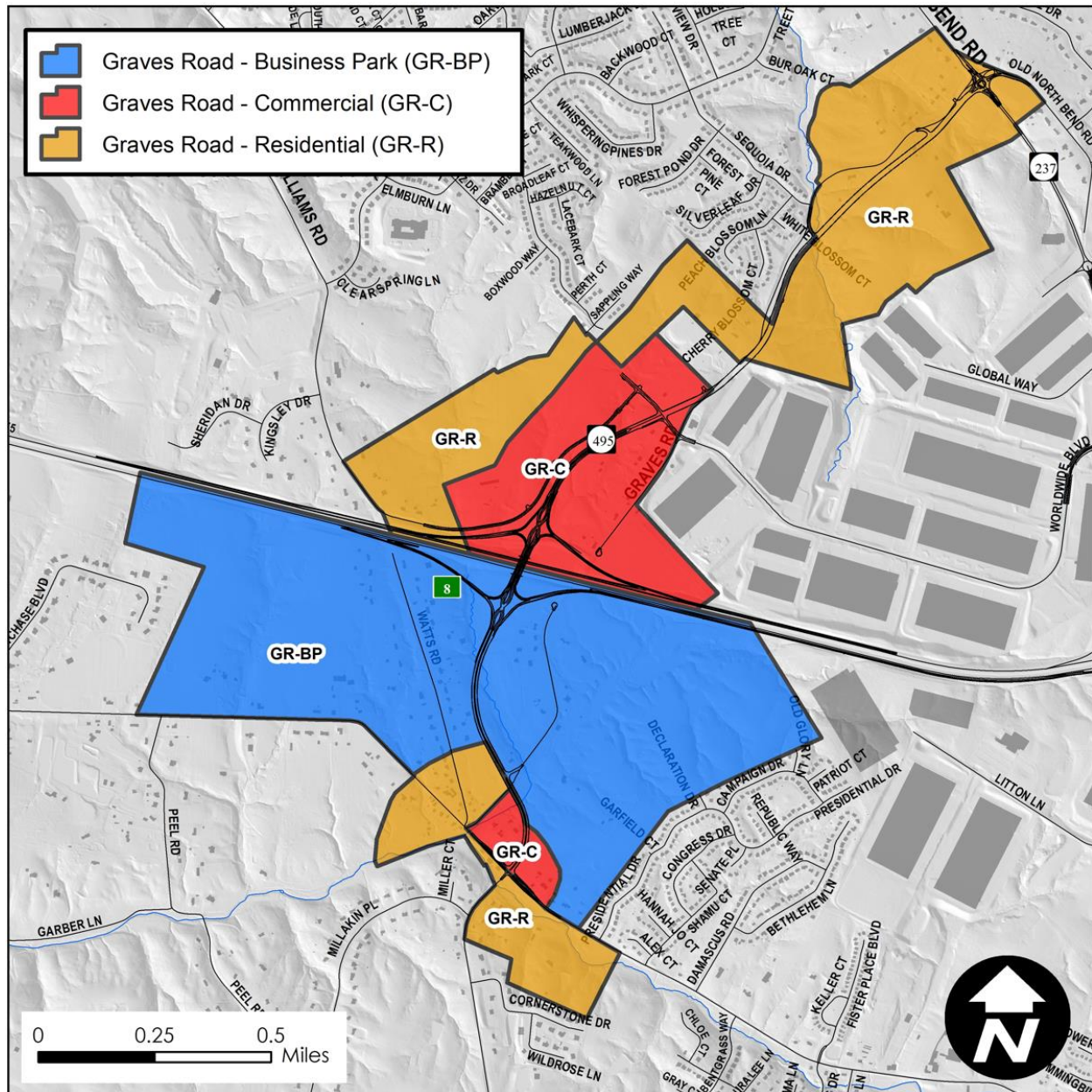


Figure 4.5 - Graves Road Zoning Districts

These districts are where uses will need to be developed in harmony with one another in order for the area to operate and function as a unit. Great care must be taken in ensuring that the developments are in accordance with the descriptions in the relevant Focus Areas in Section 4.1 of this chapter. For the portions of the Study Area where a new Graves Road zoning district is not proposed, existing zoning designations will remain and the Zoning Map Amendment process can be facilitated as currently permitted by KRS 100. Regarding the new zoning districts, general descriptions and permitted uses of the proposed districts are as follows:

**GRAVES ROAD BUSINESS PARK (GR-BP)** - The purpose of this district is to provide for a mixture of professional office, research, business commercial, and light industrial with the idea of supporting the primary function of the area as a professional corporate office center. This district shall be designed, constructed, and managed on an integrated basis with particular attention given to vehicular circulation, parking utilities, stormwater management, building design, signage, and landscaping.

Principally Permitted Uses

*The following uses are permitted:*

1. Professional, governmental, executive, management, computer, business, or administrative offices of private or public entities;
2. Facilities which conduct research, development, or controlled production of high-technology electronic, industrial, or scientific products, or laboratories conducting educational or medical research or testing;
3. Business support services such as the retail sale of office supplies and equipment, as well as employment, information technology, postal, graphic arts, and web page design services **[commercial/retail-related uses combined with any already existing developments, shall not exceed more than 20% of the overall area of the GR-BP district]\*;**
4. Financial services such as banks, savings and loans, credit unions, and title services, but NOT same day loan/check cashing establishments **[financial services uses, combined with any already existing developments, shall not exceed more than 20% of the overall area of the GR-BP district]\*;**
5. Wholesale storage and distribution, manufacturing, and assembly of finished products or parts, including sorting and kitting, warehousing, and sales of such products, but excluding basic industrial processing **[logistics and light-industry uses are limited to a maximum building size of 350,000 sq. ft. and the development area/parcel, combined with any already existing developments, shall not exceed more than 45% of the overall area of the GR-BP district]\*;**
6. Education and training facilities such as business or trade schools;
7. Hotel (including conference/meeting centers as part of the use) **[ hotel uses, combined with any already existing developments, shall not exceed more than 20% of the overall area of the GR-BP district]\*;**
8. Historic sites and structures, monuments, and other exhibits available for public viewing.

**\*NOTE:** . Use percentages shall be calculated as follows:

- 1) The use percentages shall be calculated separately for that portion of the GR-BP district located to the east of the centerline of new Graves Road (KY-495) (currently 202 acres) and that portion to the west of new Graves Road (currently 208 acres);
- 2) At the time of submission, the applicant shall identify the acreage of development for all uses encompassed within the limits of the application.
- 3) The use percentages shall be applied at the time of final approval of a concept plan, site plan, or tenant finish permit.

#### Accessory Uses

*Uses, buildings, and structures customarily incidental and subordinate to any of the permitted uses including:*

1. Customary accessory buildings and uses;
2. On-site daycare;
3. Automatic teller machines;
4. Drive-through facility operated in conjunction with a permitted use;
5. Fences;
6. Parking;
7. Recycling collection containers;
8. Signs.

#### Conditional Uses

*The following uses and appropriate accessories are subject to the approval and qualifications of the Board of adjustment and Zoning Appeals provided that the activity is an integral and subordinate function of a permitted use or the activity will not contradict the character of the district and the arrangement of uses, buildings, or structures will be compatible with the organization of permitted and accessory uses to be protected in the district:*

1. Horse related uses, including riding and boarding stables, as defined by KRS 100.111(2)(c).

#### Intensity

The intensity of use in a Graves Road Business Park (GR-BP) district shall not exceed 20,000 square feet of gross floor area per acre of land.

**GRAVES ROAD COMMERCIAL (GR-C)** - The purpose of this district is to provide for and encourage a mix of retail and office as well as some residential uses. It is the goal of this district to provide for commercial uses and activities that support both the local neighborhood residential base as well as serving the business functions proposed in and around the interchange area. Development in this district will be designed to provide for central and convenient access for vehicular, pedestrian, and multi-modal traffic within the district's facilities and shopping spaces.

#### Principally Permitted Uses

*The following uses are permitted:*

1. Professional, governmental, executive, management, computer, business, or administrative offices of private or public entities;
2. Business support services such as the retail sale of office supplies and equipment, as well as employment, information technology, postal, graphic arts, and web page design services;
3. Financial services such as banks, savings and loans, credit unions, and title services, but NOT same day loan/check cashing establishments;
4. Education and training facilities such as business or trade schools;
5. Driving school;
6. Hotel;
7. Retail stores selling general merchandise;
8. Eating and drinking establishments;
9. Grocery store including retail of dairy, meat, fish, fruit, vegetables, baked goods, candy, nuts, and confectionary products;
10. Farmers mart;
11. Laundry and dry cleaning establishments;
12. Day care center;
13. Personal care services such as barber, hair salons, tanning, beauty shops;
14. Recreation centers, health clubs, yoga studios, or martial arts studios;
15. Commercial Recreation Facility such as bowling center, roller skating/ice skating rink, miniature golf course;
16. Motion picture theater (indoor);
17. Medical, dental, or optical clinics;
18. Veterinary animal hospital, clinic, kennel, pet store, or pet grooming facility;
19. Funeral home;
20. Studios for artists, designers, photographers, musicians, and sculptors;
21. Auto parts and accessories store;
22. Gasoline filling station and car wash facility;
23. Convenience store;
24. Historic sites and structures, monument, and other exhibits available for public viewing;
25. Mixed use buildings with the principally permitted uses noted herein on any floors and apartment dwelling units not on the ground floor with a maximum density of 12 units per acre.

#### Accessory Uses

*Uses, buildings, and structures customarily incidental and subordinate to any of the permitted uses including:*

1. Dwelling unit of the property owner, owner-operator, manager, or employee;
2. Automatic teller machines;
3. Customary accessory buildings and uses;
4. Drive-through facility operated in conjunction with a permitted use;
5. Fences;
6. Parking;



7. Recycling collection containers;
8. Signs.

#### Conditional Uses

*The following uses and appropriate accessories are subject to the approval and qualifications of the Board of adjustment and Zoning Appeals provided that the activity is an integral and subordinate function of a permitted use or the activity will not contradict the character of the district and the arrangement of uses, buildings, or structures will be compatible with the organization of permitted and accessory uses to be protected in the district:*

1. Horse related uses, including riding and boarding stables, as defined by KRS 100.111(2)(c).

#### Intensity

The intensity of non-residential uses in a Graves Road Commercial (GR-C) district shall not exceed 15,000 square feet of gross floor area per acre of land. This intensity is derived by using the total square footage of non-residential uses vs. the total acreage of the lot.

**GRAVES ROAD RESIDENTIAL (GR-R)** - The purpose of this district is to provide for a compact, high suburban density residential environment that permits a variety of residential uses and densities and act as an appropriate transition between other districts.

#### Principally Permitted Uses

*The following uses are permitted:*

1. Detached single family dwelling units [minimum lot size of 6,500 sq. ft.];
2. Patio homes in accordance with Section 3159 of the Boone County Zoning Regulations [minimum lot size of 6,500 sq. ft.];
3. Landominiums in accordance with Section 3161 of the Boone County Zoning Regulations;
4. Townhouses in accordance with Section 3161 of the Boone County Zoning Regulations;
5. Duplex dwelling units in accordance with Section 3161 of the Boone County Zoning Regulations [minimum lot size of 8,000 sq. ft.];
6. Apartment dwelling units [maximum intensity of 12 dwelling unit per acre];
7. Farms of tobacco, fiber, cash grain, fruits, tree nuts, vegetables, grassland pastures, or other field crops;
8. Garden plots and other similar forms of communal or organizational farming practices;
9. Aquarium, arboretum, botanical garden, wildlife preserve, and natural exhibition;
10. Historic sites and structures, monument, and other exhibits available for public viewing;
11. Playgrounds, open space parks, hiking areas and trails, bikeway systems, and picnic areas.

### Accessory Uses

*Uses, buildings, and structures customarily incidental and subordinate to any of the permitted uses including:*

1. Accessory dwelling unit;
2. Family day care;
3. Customary accessory buildings and uses;
4. Fences;
5. Parking;
6. Signs.

### Conditional Uses

*The following uses and appropriate accessories are subject to the approval and qualifications of the Board of adjustment and Zoning Appeals provided that the activity is an integral and subordinate function of a permitted use or the activity will not contradict the character of the district and the arrangement of uses, buildings, or structures will be compatible with the organization of permitted and accessory uses to be protected in the district:*

1. Elderly Housing Facility (Site Plan Review required);
2. Nursing home;
3. Church, synagogue, temple, or place of religious assembly for worship (Site Plan Review required);
4. Day care center (Site Plan Review required);
5. Unlighted athletic fields;
6. Horse related uses, including riding and boarding stables, as defined by KRS 100.111(2)(c).

### Intensity

Residential uses in the GR-R district shall have a maximum intensity of 8 dwelling units per acre, except for apartment units which shall have a maximum intensity of 12 dwelling units per acre.

### 4.3 SIGNAGE

This section outlines permitted signage in the Graves Road Special Sign District, which is subject to the Sign Permit procedure in Section 3405 of the Boone County Zoning Regulations. The Graves Road Special Sign District applies to those properties within the Graves Road Zoning Districts (GR-C, GR-BP, and GR-R) as part of the I-275/Graves Road Interchange Study (see figure 4.2). The purpose of the sign district is to promote the mixed-use district envisioned by the Study with high quality construction materials and to follow the recommendations of the Boone County Comprehensive Plan. Regarding signage in developments, Our Boone County - Plan 2040 (Future Land Use, p. 97) states *“the minimal use of signs is encouraged; signage should be adequate to identify a specific development, but should not be used as a means to compete for motorist attention. The objective is to avoid the confusion and/or distraction of motorists, and to avoid the potential negative impacts of signs on the visual appearance of a development or corridor.”*

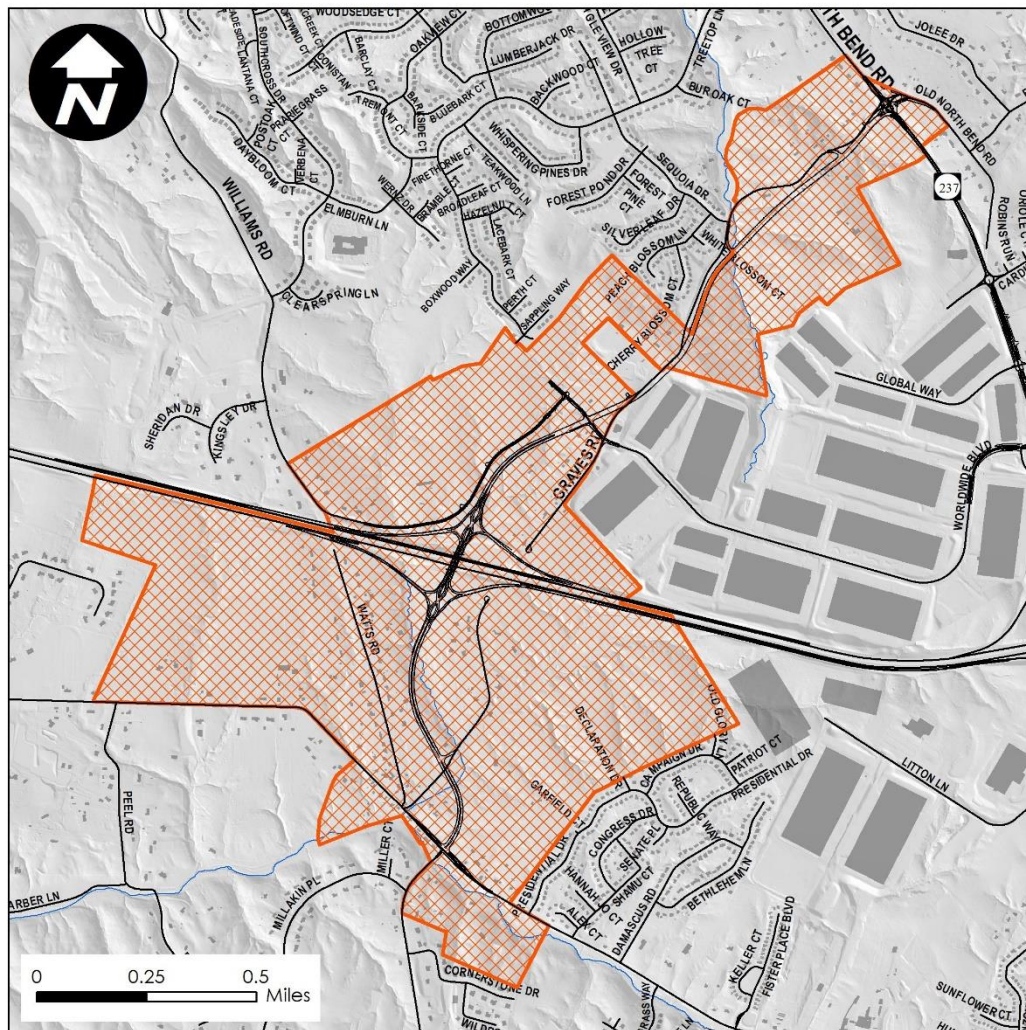


Figure 4.2 - Graves Road Special Sign District

For the purpose of the Graves Road Special Sign District, the following standards shall apply:

1. All sections of Article 34 not otherwise replaced below;
2. Freestanding Signs - A density of one (1) architectural freestanding sign which identifies a shopping center, mixed use commercial, non-residential subdivision, planned development, or single-use non-residential development shall be permitted in accordance with the following standards:
  - a. Road frontage must be 200 feet or greater.
  - b. The sign shall not exceed 20 feet in height.
  - c. The maximum size of the sign shall be no more than one (1) square foot of sign area per lineal foot of road frontage along the street frontage where the sign is to be located. No architectural freestanding sign shall exceed one hundred fifty (150) square feet in area.
  - d. The base of the sign shall be constructed of materials, colors, and design details comparable to one of the principal buildings on site. A second option is for the pole structure(s) to have sculptural or artistic characteristics. A monument sign may be substituted as the permitted freestanding sign. The base of the monument sign shall be constructed with materials, colors, and design details comparable to one of the principal buildings on site. The top of the monument sign shall have an architectural feature or finish, such as a gable, arch, or pediment.
  - e. Manually changeable copy, frequently changing electronically changeable copy, board signs, plexi-faced panels, and similar signs shall not be permitted.
  - f. One (1) electronic message board or electronic display screen used solely to advertise infrequently changing alphanumeric and numeric messages (e.g. - fuel prices, hotel room rates, etc.) shall be permitted on an architectural freestanding or monument sign subject to the following standards:
    - i. Such message boards and screens will be considered a part of a permitted free-standing sign; up to twenty percent (20%) or twenty (20) square feet (whichever is less) of the permitted sign area can be in the form of an electronic message board or electronic display screen.
    - ii. All such message boards and screens shall meet the minimum standards of the Kentucky Transportation Cabinet and any other controlling local, state, or federal agency.
3. Monument Signs - Any parcel or outlot which is accessible from or marketed as part of a shopping center, mixed use commercial, non-residential subdivision, or planned



development (except for the lot where the above referenced architectural free-standing sign is located), shall be permitted a density of one (1) on-premises monument sign for the purpose of identifying the tenant(s) on the lot based on the following standards:

- a. The sign shall not exceed eight (8) feet in height.
  - b. The maximum size of the sign shall be 1 square foot of sign per linear foot of road frontage but not to exceed sixty (60) square feet in area.
  - c. The base and sides of the sign shall use construction materials and design details that match the outlot building.
  - d. The top of the sign shall have an architectural feature or finish, such as a gable, arch, or pediment.
  - e. Plexi-faced cabinets shall not be permitted.
  - f. Manually changeable copy, frequently changing electronically changeable copy, board signs, plexi-faced panels, and similar signs shall not be permitted.
  - g. One (1) electronic message board or electronic display screen used solely to advertise infrequently changing alphanumeric and numeric messages (e.g. - fuel prices, hotel room rates, etc.) shall be permitted on monument sign subject to the following standards:
    - i. Such message boards and screens will be considered a part of a permitted monument sign; up to twenty percent (20%) or twenty (20) square feet (whichever is less) of the permitted sign area can be in the form of an electronic message board or electronic display screen.
    - ii. All such message boards and screens shall meet the minimum standards of the Kentucky Transportation Cabinet and any other controlling local, state, or federal agency.
4. Building Mounted Signs - Sections 3402 and 3413 of the Boone County Zoning Regulations shall be used in determining permitted locations and the amount of building mounted signage. Exceptions to Section 3413 are noted in "Subsection b." below.
- a. The following standards shall apply to building mounted signage in the Graves Road Special Sign District:
    - i. Channel letters, sandblasted redwood, individual pin mounted letters, neon copy, neon or L.E.D. accent bands, fabric awnings, and similar signs as determined by the Zoning Administrator shall be permitted.
    - ii. Manually changeable copy, frequently changing electronically changeable copy, board signs, plexi-faced panels, internally illuminated awnings, firmly structured awnings with an "inflated" or plastic appearance, and similar signs shall not be permitted.

- iii. Building mounted signage shall not be permitted in residential developments. Exceptions are professional name plates, addresses, and building numbers that are six (6) square feet or less.
  - b. Permitted Exceptions to the building mounted signage regulations found in Section 3413 of the Boone County Zoning Regulations are as follows:
    - i. Projecting signs shall be permitted when a main building entrance is in close proximity to a street, private access drive, or shared private development street. Projecting signs will not be treated as one of the three permitted sign areas on a primary or secondary facade but the sign area shall be factored into the total square footage that is permitted on that given facade. The maximum size of a projecting sign shall not be more than 32 square feet in size. Projecting signs shall have a minimum clearance of 10 feet over sidewalks and shall not be permitted to project over vehicular ways or rights-of-way.
    - ii. Restaurants and entertainment uses (limited to night clubs and live performance venues) shall be allowed to have neon or L.E.D. accent banding along cornice lines and main entrances. The accent banding shall not be treated as one of the three permitted sign areas on a primary or secondary facade but the sign area shall be factored into the total square footage that is permitted on a given facade. The neon or L.E.D. banding shall be limited to 2 inches in height.
- 5. Entrance Signs - Section 3410 of the Boone County Zoning Regulations shall be used in determining the location, height, area, and number of entrance signs that are permitted for a residential development. The following standards shall apply to residential entrance signs:
  - a. The base and sides of the sign shall use construction materials and design details that match or correlate to the residential structures on the lot.
  - b. The top of the sign shall have an architectural feature or finish, such as a gable, arch, or pediment.
  - c. Plexi-faced cabinets shall not be permitted.
  - d. Electronically changeable message boards, electronic display screens, and manually changeable reader boards shall not be permitted.

#### 4.4 DEVELOPMENT STANDARDS

The following development standards apply to all development proposals within the three Graves Road Districts (GR-BP, GR-C, GR-R). Deviation from these requirements may be considered by the Zoning Administrator provided the proposal will (1) create an equivalent or superior solution to the requirement in question and (2) not compromise the character of the standards intended by the normal requirement. Variances may be requested per the Board of Adjustment procedures in the Boone County Zoning Regulations. The standards in the currently adopted Boone County Zoning Regulations will be followed for topics not specifically addressed in this Study.

##### Building Setbacks:

##### 1. Front and Corner Side Yards:

- a. 30 feet minimum along new Graves Road (KY 495) adjacent to highway on/off ramps; 15 feet minimum elsewhere on KY 495 and Petersburg Road (KY 20); 10 feet minimum all other street frontages. For residential units, the minimum setback is 20 feet where a parking pad or driveway exists between the building and street or other vehicular way.
- b. 25 feet maximum for outlot or frontage buildings along all streets, except KY 495 and KY 20, when parking is not provided between the building and the street. When parking is provided between an outlot or frontage building and the street, the building shall be set back far enough from the street to provide the required minimum street frontage and building landscaping, one two-way driveway that is double loaded with parking spaces, and a walkway and/or covered arcade across the front of the building.

**Note:** *In instances where the landscape areas required by Article 36 of the Boone County Zoning Regulations are wider than the building setbacks required herein, the required width for such landscape areas shall not exceed the building setback dimensions stated in this Study.*

##### 2. Side and Rear Yards:

- a. 5 feet minimum when adjoining another development site within the Graves Road Special Sign District (Section 4.3). Zero lot line (0 feet minimum) is permissible when the adjoining development along the same property line is also zero lot line.

- b. 10 feet minimum when adjoining a shared private development street/driveway or other main circulation drive. 50 feet minimum when adjoining a residential use or district outside of the three (3) GR Districts.

Height: The maximum permitted building height is 60 feet.

Underground Utilities: All utility lines shall be placed underground. Existing overhead utility lines shall be placed underground when a site develops or redevelops.

Shared Private Development Streets/Driveways: Proposed uses must make every effort to tie in with one another and provide for the internal movement of both vehicles and pedestrians between establishments. Examples of this include the following:

1. Shared private development streets/driveways shall be designed to appear as actual “streets,” even if they are in fact private driveways. Such shared private development streets/driveways serve as interconnections between two or more properties and/or parking areas and a public street(s), or function as a main access into a multi-building or multi-tenant center, and do not immediately serve parking spaces.
2. The design of a shared private development street/driveway shall include raised box curbs, a 10-foot wide shared use path on at least one side (and minimum 4-foot wide integral curb walk on the other side, formal marked crosswalks at intersections, consistent architectural grade street lights, and street frontage landscaping per Section 3620 of the Boone County Zoning Regulations. The integral curb walk’s width may be included in the minimum required width for the street frontage landscaping, and this landscaping shall be credited as the required street frontage or buffer yard plantings per Section 3620 or 3645 as applicable for the adjoining site/lot. Sidewalk connections shall be provided between each adjoining development site and the integral curb walk. The pavement width shall be per the driveway standards in Article 33 of the Boone County Zoning Regulations, and a formal shared access easement shall be recorded. These improvements shall be made as development or redevelopment occurs, including on an incremental site by site basis, unless incremental construction is demonstrated to be unfeasible or unsafe. Shared private development streets/driveways must follow the Manual on Uniform Traffic Control Devices (MUTCD).

Parking: Parking shall follow Article 33 of the Boone County Zoning Regulations, with the following exceptions:



1. Freestanding single user office/commercial buildings - 3 spaces per 1,000 gsf.
2. Office/commercial/eating and drinking establishments in multi-tenant/multi-building developments or freestanding single user buildings with a shared parking agreement with at least one other site (on file in the Boone County Clerk's office):
  - a. 25,000 total gsf or less: 3 spaces per 1,000 gsf of office/commercial floor area plus 1 space per 2 seats for eating and drinking establishments.
  - b. 25,001 to 50,000 total gsf: 3 spaces per 1,000 gsf of office/commercial floor area plus 1 space per 4 seats for eating and drinking establishments.
  - c. 50,001 total gsf and over: 3 spaces per 1,000 gsf.

Landscaping: Landscaping shall be provided in accordance with Article 36 of the Boone County Zoning Regulations with the following exception:

**BUFFER YARD D - 100 FOOT WIDTH**

Landscaping required per 100 linear feet at 100 feet wide:

- 20 Evergreens - Plant List D Planted in a double row spaced 10 feet on center in an equal lateral triangle configuration, AND
- 11 Large Trees - Plant List A, AND
- 40 shrubs - Plant List C

Street Frontage Plazas:

1. In lieu of the street frontage landscaping required by Section 3620 of the Boone County Zoning Regulations, a hardscaped plaza may be substituted for the area immediately between the building and street or shared private development street/driveway, provided there is no parking in this area. The plaza shall be surfaced with decorative pavers, or concrete treated to appear as such, and shall include benches or seats, and a noncommercial focal point such as a sculpture, fountain or other water feature, and/or raised planter(s) with landscaping. Bollards or other decorative obstructions should be used where needed to separate the plaza from vehicular areas. Aside from the focal point, the minimum landscaping required in the plaza is three large canopy trees per 100 linear feet of width. These trees shall be from Plant List A in Article 36 of the Boone County Zoning Regulations and they may be planted within wells. A sidewalk connection shall be provided from the plaza to any adjoining public sidewalk, integral curb walk along a shared private development street/driveway, or an abutting plaza or sidewalk on a neighboring site.

2. The plaza may be used for outdoor seating and serving for eating and drinking establishments. Any portion used for seating/serving area may be enclosed with a maximum 4 foot high architectural grade metal railing which has an open design.

## 4.5 DESIGN REQUIREMENTS

This section outlines the aesthetic or cosmetic design requirements that apply to all commercial and industrial buildings and sites in the Study Area. These guidelines are intended to promote design consistency within the Study Area and structures that are visually interesting, substantive, and adaptable over time. Based on these objectives, standardized corporate franchise/chain style architectural designs shall not be used unless they meet the design requirements set forth and can be reasonably adapted for future users without leaving earlier “trademark” features behind. In situations where corporate architecture is considered appropriate or preferred for specific reasons, deviation from these requirements may be considered by the Zoning Administrator provided the proposal will (1) create an equivalent or superior solution to the requirement in question and (2) not compromise the design character intended by the normal requirement.

### Architectural Design:

#### 1. Building Materials:

- a. Primary exterior wall materials shall be brick, architectural grade Concrete Masonry Units (CMU) tile, stone or concrete with an integral color. EIFS/stucco, architectural grade metals, wood or cement board siding, glass block, and precast concrete area acceptable on trim, detailing, and incidental or secondary wall areas.
- b. Prohibited materials include substandard or synthetic appearing exterior wall materials, such as ribbed, industrial style metal siding, T-111, EIFS systems with visually pronounced joints (not including designed scoring or reveals), plain faced CMU, vinyl siding, or hard board.
- c. Visible roof materials shall be architectural grade dimensional shingles, tiles, slate, copper, or standing seam metal. Other types of decorative roofing will be considered and evaluated on a case-by-case basis.

#### 2. Facade Composition:

- a. Facades shall provide visual interest and scale by using variations in color, horizontal planes, materials, fenestration, patterns, height or similar techniques. Front facades shall be designed to have a defined base, mid-section, and top or cap. This can be accomplished by differentiating the material, finish, and/or color of the wainscot, knee wall, or entire ground floor from the upper portion of the exterior wall. A change in the fenestration pattern between floors may be used for multi-story buildings.

- b. A simplified expression (less detailing, fewer colors, fewer materials, etc) of the front façade design and materials may be used on rear and side facades not abutting an arterial or collector street.
- 3. Roof Forms:
  - a. Pitched roofs and flat roofs with a defined parapet line are permitted. Roof/wall junctures shall employ varied parapet heights, articulated cornices or similar treatments. Mansard roofs and other “stage set” types are not permitted.
- 4. Windows and Entrances:
  - a. Windows and storefront units shall be recessed within their openings (“punched” openings) to create shadow lines and three-dimensional relief. Windows/openings other than storefront type units shall have a vertical height to width orientation. Transoms and main/public entrances which are recessed behind the exterior facade are preferred. For office/commercial buildings, broad storefronts which allow direct visibility into the building interior shall be provided for building frontages along public sidewalks, streets, and private access drives which function as “streets.”
  - b. Snap-in grids or applied mullions are not permitted in windows; only mullions which physically separate window glass into multiple panes shall be used for divided light type windows.
  - c. The main public building entrances for all buildings, except for the individual doorways into in-line multi-tenant spaces or bays, shall be placed along the adjoining public street frontages or private access drives which function as “streets.” Main public entrances shall be emphasized in the facade design by methods such as recessing the entrance behind the exterior facade, providing an over-scaled entrance feature which projects outward from or above the exterior facade, placing the doorway within a three dimensional archway, an awning or roof awning/canopy, and/or a changing the building materials, detailing, or color around the opening.
- 5. Exterior Wall Colors:
  - a. Exterior wall colors shall reflect rich, natural tones such as those in the red, red-brown/terra cotta, brown, clay, beige/tan/blond, mustard, and/or warm gray ranges. Aside from trim, exceptionally dark colors are not permitted on walls. Other colors may be used for trim and detailing.
- 6. Site Furniture:



- a. Site furniture such as benches/seating and outdoor tables, waste receptacles, bollards, and bicycle racks must be architectural grade and the various items selected for any given site must visually correlate to one another as components of an overall design system. Also, site furniture must use neutral or dark colors, and shall not use wood or wood products.
- b. Light fixtures and masts, fences, railings around outdoor seating areas, and street/regulatory signage shall have a black finish (painted, anodized, or vinyl coated).

### Screening:

#### 1. Mechanical Equipment Screening:

- a. All mechanical equipment shall be screened.
- b. Ground mounted equipment shall be screened either with landscaping or enclosed with a structure using the same design palette as the principal building.
- c. Roof mounted equipment shall be screened by a parapet wall (for flat roofed buildings) which is an integral part of the building. Applied, “stage set” style mechanical equipment screens are not permitted. Roof mounted equipment on pitched roofed buildings shall be wholly contained within the roof structure.

#### 2. Loading/Unloading/Service Areas and Trash Enclosures:

- a. Loading/unloading/service and trash storage areas shall be placed in side or rear yards, excluding corner side yards. Such areas shall be enclosed with a screen wall at least 8 feet high using the same design palette as the principal building. Dense landscape hedging of comparable height and that provides year round screening may be considered.
- b. Trash storage areas shall be enclosed per the requirements of Section 3151 of the Boone County Zoning Regulations. The enclosure structure shall employ the same design palette as the principal building.
- c. No outside storage will be permitted in the three Graves Road districts unless sufficiently screened.

#### 3. Additional Site Design Requirements:

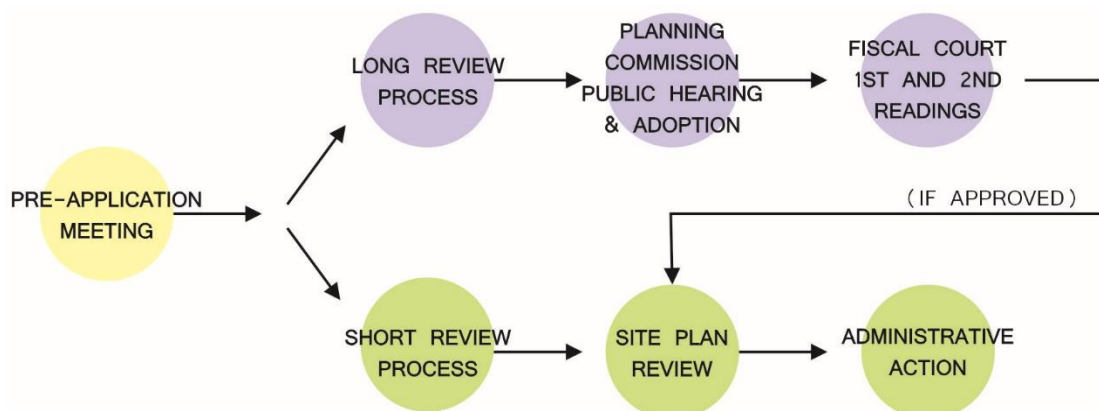
- a. Vertical concrete surfaces such as retaining walls in excess of 30 inches in height and 48 inches in width shall receive an architectural treatment. The architectural treatment shall generally be of the “stacked stone” variety with at least ¾ inch reveal. The architectural treatment shall be surrounded by a 4 inch chamfered smooth border.



## 4.6 REVIEW PROCESS

Two basic review tracks are possible within the Graves Road Zoning Districts. Portions of the Study Area that are outside of the Graves Road Zoning Districts shall follow the standard review procedures outlined in the Boone County Zoning Regulations and Boone County Subdivision Regulations. For the areas within one of the three new Graves Road Zoning Districts, an expedited “Short Review” process is available to encourage new development, new uses, and redevelopment that comply with this Study’s recommendations and Principally Permitted uses as described in the respective Focus Area text in Section 4.1 of this chapter. A “Long Review” process is available for proposals that do not comply with the Study’s recommendations. The two review tracks are as follows:

1. **Short Review Process:** Administrative site plan review and subdivision review as applicable per Article 30 of the Boone County Zoning Regulations and Article 2 of the Boone County Subdivision Regulations upon the Zoning Administrator determining that the Short Review Process Criteria (outlined below) have been fulfilled.
2. **Long Review Process:** If the Zoning Administrator determines that the Short Review Process Criteria (outlined below) has not been fulfilled, prior to the administrative site plan and subdivision review processes, the development proposal must be approved through the Concept Development Plan or Zoning Map Amendment process per Article 3 “Amendment” and/or Article 15 “Planned Development District” of the Boone County Zoning Regulations. Both processes involve a Public Hearing before the Planning Commission, a recommendation by the Planning Commission, and final action by the Boone County Fiscal Court.
  - A. If a Site Plan, pursuant to Article 30, is not submitted within two (2) years from the date of approval of a Concept Development Plan by the legislative body, the Concept Development Plan shall be deemed to have been expired.



### Review Processes Overview:

1. **Pre-Application Meeting:** Applicant meets with staff for a pre-application conference. Applicant presents proposed uses or project to staff and is informed of the I-275/Graves Road Interchange Study requirements;
2. **Zoning Administrator Determination:** Zoning Administrator determines whether the proposal follows the Short Review Process or Long Review Process based upon the submittal information and the criteria listed below. If the Zoning Administrator determines that any of the criteria are not met, then the proposal must follow the Long Review Process. This determination is given in written form and is based upon the criteria outlined below:
  - a. The proposal follows the recommendations in the respective Focus Area description of Section 4.1 (Future Land Use) of this chapter as they relate to the specific site and surrounding vicinity. The objectives outlined in Chapter 1 (Introduction and Purpose) of this Study and the current Boone County Comprehensive Plan may also be consulted in this determination;
  - b. The proposal is included in the list of Principally Permitted uses in Section 4.2 (Zoning) of this chapter. (If a proposal is listed as a Conditional Use, then it must go through the Conditional Use Permit [CUP] process with the Board of Adjustment [BOA]. Compliance and agreement with the I-275/Graves Road Interchange Study must be used as CUP criteria in addition to the general CUP criteria in Article 2 of the Boone County Zoning Regulations);
  - c. The proposal follows all applicable standards and requirements in “Development Standards” (Section 4.4) and “Design Requirements” (Section 4.5) in this chapter. The proposal also follows any applicable provisions in “Traffic Analysis” in Chapter 3 of this Study (Section 3.4);
  - d. The proposal does not present unknown or undue impacts on infrastructure or public services based on the recommendations in the I-275/Graves Road Interchange Study, such as water, sanitary and storm sewer, transportation, public schools, and emergency services.
3. **Short Review Process:** If the determined process is the Short Review Process, then the applicant applies for Major Site Plan or Minor Site Plan review based on Article 30 of the Boone County Zoning Regulations and/or subdivision review. Both of these reviews are conducted by staff;
4. **Long Review Process:** If it is determined that the proposal follow the Long Review Process, then an application shall be submitted through either the Concept Development Plan or Zoning Map Amendment procedure. This includes public notification, a public hearing and a recommendation by the Planning Commission. Final action by Boone County Fiscal Court shall occur based upon the recommendation of the Planning Commission. When the Long Review Process is required, the administrative site plan and



subdivision reviews outlined in Step Three occur after approval of the Concept Development Plan or Zoning Map Amendment application.

#### **4.7 ADOPTION AND IMPLEMENTATION**

The I-275/Graves Road Interchange Study was created to help further define the direction and guidance for this area as mentioned in Our Boone County - Plan 2040 and adopted in June 2019. While this Study does not replace Our Boone County - Plan 2040, it is designed to be a furtherance of the Comprehensive Plan's recommendations that called for a detailed specific plan to be prepared for the anticipated I-275 interchange in the Graves Road area. Upon adoption, the I-275/Graves Road Interchange Study will be used in the review of any requests in the Study Area that come before the Boone County Planning Commission in conjunction with the adopted Our Boone County - Plan 2040. As a result, changes to the Land Use text and Future Land Use map will need to be made during the next update of the Comprehensive Plan. The I-275/Graves Road Interchange Study shall be reevaluated three (3) years after adoption in order to assess development patterns and infrastructure improvements already in place and those planned in the future in order to meet the goals of the Study. In addition, it will also be an opportunity to evaluate the impact of the completion of all the interchange road improvements to determine if any changes in land use or zoning are needed in the Study.

The adoption of this Study will serve as an amendment to the Boone County Zoning Regulations and includes the creation of zoning classifications, district boundaries, uses, descriptions, and other relevant information needed to administer the three (3) newly created zoning districts as shown in **Appendix III** of this Study.

## **APPENDICES**

- I. SUMMARY OF COMMENTS FROM JAN 28, 2020 PUBLIC WORKSHOP
- II. TRANSPORTATION PLANNING STUDY - GRAVES ROAD (TEC ENGINEERING, INC)
- III. PROPOSED TEXT FOR BOONE COUNTY ZONING REGULATIONS