KY 1447 Westport Road Corridor Study

Hubbards Lane to Chamberlain Lane

February 2020

Table of Contents

1. Introduction 1
1.1 Corridor Setting and History 1
1.2 Purpose and Organization of the Study 3
1.3 Overview of the Planning Process 3
2. Project Corridor 4
2.1 Roadway Characteristics 4
2.2 Traffic Volumes 5
2.3 Speed and Travel Time 8
2.4 Crash Analysis 9
2.5 Bicycle and Pedestrian Facilities 11
2.6 Transit 12
3. Environmental Overview 12
3.1 Natural Environmental Resources 13
3.2 Human Environment 15
4. Recommended Short-Term Improvements 19
4.1 Speed Study 19
4.2 Langdon Drive Signal 19
4.3 KY 1747 Hurstbourne Parkway Turn Lanes 20
4.4 I-265 Sidewalk 22
4.5 I-265 Ramp Cheat 23
4.6 Chamberlain Lane Right Turn Lane 24
5. Other Improvement Options Considered 25
5.1 Just East of I-264 Interchange 26
5.2 Lyndon /Lynn Intersections 27
5.3 Westport Middle School 28
5.4 Japonica Way to Langdon Drive 28
5.5 Goose Creek Road Intersection 30
5.6 Westport Plaza Driveways 31
5.7 Creekside Drive to Springhurst/Freys Hill 32
5.8 Chick-fil-A Access 33
6. Meetings and Coordination 34
6.1 Public Meeting 2017 34
6.2 Public Meeting 2019 34
7. Conclusions 36

Figures

Figure 1: Study Area Map 2
Figure 2: Age of Housing Stock 3
Figure 3: Historic Traffic Volumes along Westport Road 5
Figure 4: Summary of Traffic Operations 7
Figure 5: Peak Hour Travel Speeds 8
Figure 6: Distribution of Crashes by Manner of Collision 9
Figure 7: Crash Density Map 10
Figure 8: TARC Routes and Stops 12
Figure 9: Overview of Natural Environment 14
Figure 10: Karst Potential Map 16
Figure 11: Existing Land Use Map 16
Figure 12: Key Population Demographics 18
Figure 13: Langdon Drive Signal with Consolidated Driveway Access 19
Figure 14: Turn Lanes at KY 1747 Intersection 20
Figure 15: Eastbound Queues at Hurstbourne Pkwy Block Right Turn Lane 21
Figure 16: Reported Crashes in Intersection Vicinity 22
Figure 17: Proposed Sidewalk through I-265 Interchange 22
Figure 18: Illegal Cross-Ramp “Cheat” Move to Bypass Signal 23
Figure 19: Recommended Separation to Eliminate Ramp “Cheat” 24
Figure 20: Recommended Right Turn Lane to Chamberlain Lane 24
Figure 21: Crash History at Chamberlain Lane Intersection 25
Figure 22: Conceptual Sketch of Fenley/Washburn Improvement Option 27
Figure 23: Concept Sketch to Reduce Conflict Points at Dove Creek/Bayberry 30
Figure 24: Sample U-turn Bulb Out 30
Figure 25: Crashes by Severity and Type at Goose Creek Intersection 31
Figure 26: Right Turn Lane to Chick-fil-A 33
Figure 27: Key Coordination Timeline 34
Figure 28: Summary of 2017 Public Input 35
Figure 29: 2019 Ranking of Proposed Short-Term Spot Improvements 36

Tables

Table 1: Movement v/c at Key Intersections 6
Table 2: KIPDA Future Model Projects near Study Area 6
Table 3: Peak Hour Travel Speeds by Segment 8
Table 4: Summary of High CCRF Spots 10
Table 5: Potential Listed Species in Area 15
Table 6: Key Population Demographics 18
Table 7: Performance Measures for Eastbound Westport Rd at Hurstbourne Pkwy Intersection 21
Table 8: Performance Measures for Eastbound Rights at Chamberlain Ln Intersection 24
Table 9: Crash Summary, Japonica to Langdon 28
Table 10: PM Peak Hour Performance Measures at Westport/Springhurst/Freys Hill 32

Appendices

A. 2018 Turning Movement Counts

1. Introduction

Louisville Metro engaged in a study of the Westport Road (KY 1447) corridor in northeastern Jefferson County, between Hubbards Lane and Chamberlain Lane. Covering roughly 6.1 miles, the study limits are illustrated in **Figure 1** on the following page.

The study's purpose is to identify measures to address existing safety and mobility needs along the corridor.

Westport Road Recurring PM Congestion

1.1 Corridor Setting and History

Regionally, the Westport Road corridor stretches from the intersection with Chenoweth Lane (KY 1932) near US 60 in St. Matthews to the intersection with LaGrange Road (KY 146) approaching the Jefferson/Oldham county line. Interchanges with Watterson Expressway (I-264, exit 21) and Gene Snyder Freeway (I-265, exit 32) provide high-mobility connections to interstates serving the larger metro area.

The study corridor crosses two Louisville Metro Council Districts—District 7 in the west and District 17 in the east—and the following municipalities, moving west to east:

- St Matthews
- Woodlawn Park
- Windy Hills
- Graymoor-Devondale
- Lyndon
- Briarwood
- Plantation
- Westwood
- Langdon Place
- Rolling Hills
- Meadow Vale
- Creekside
- Hickory Hill

The region has a long agricultural history, growing from pioneer settlements in the late 1700s along Beargrass, Goose, and Harrods creeks. Introduction of railroad travel through the region improved access, spurring development of the area. By the early 1900s, the interurban electric train linked downtown Louisville east into Oldham County. However, the line suspended passenger service by the 1930s, delaying the residential boom a few more decades. Following WWII, the formerly rural landscape began to develop in earnest, subdivided into numerous modern neighborhoods. The bulk of the existing housing stock dates to the last 60 years, illustrated in **Figure 2** (page 3) for the ten Census tracts containing the study area.

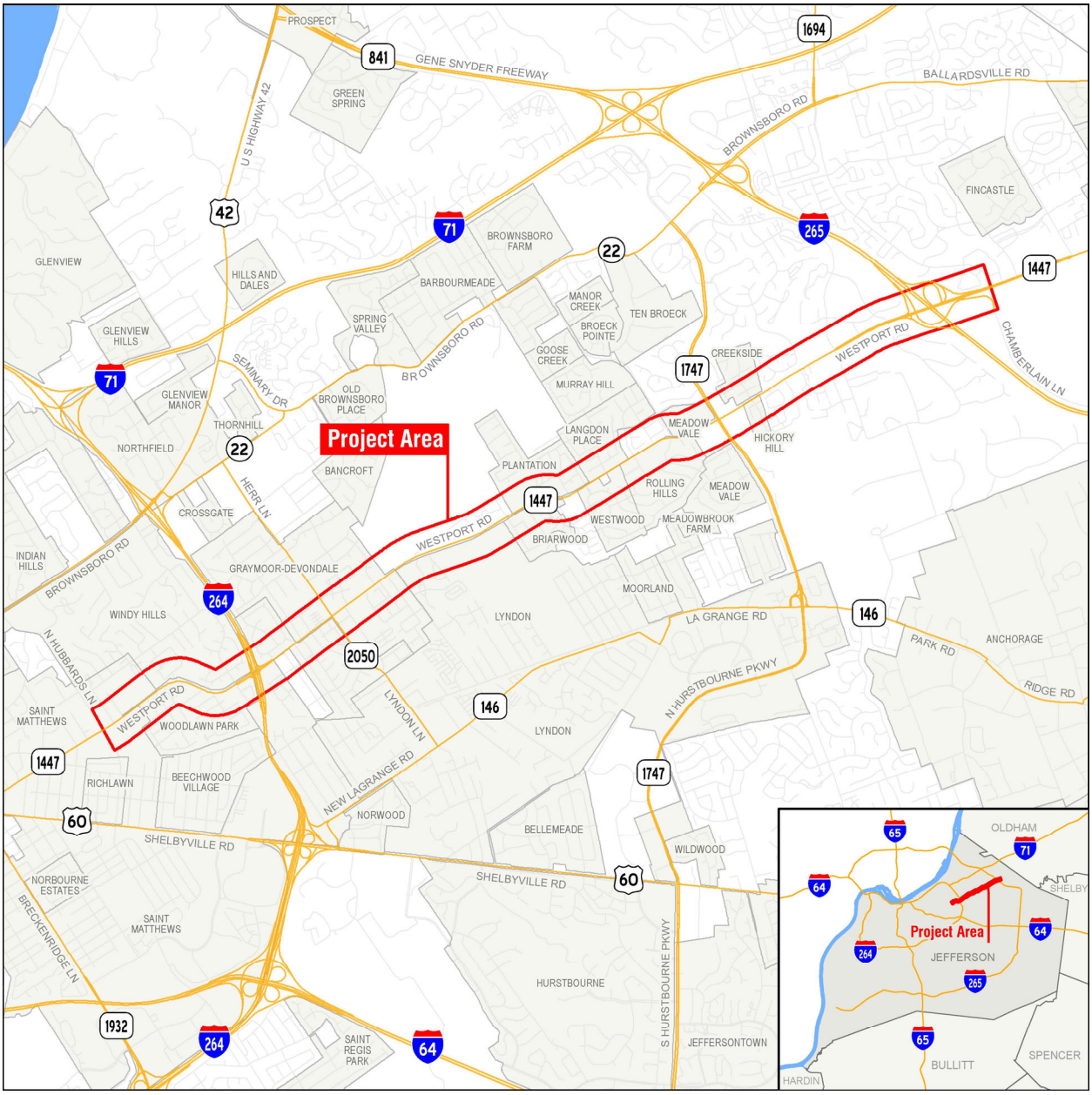
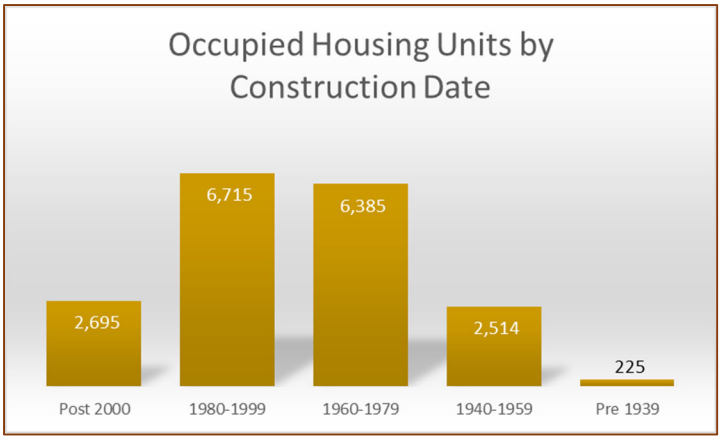


Figure 1: Study Area Map

Today, the corridor is primarily residential, with pockets of commercial and public/institutional land uses interspersed. Major attractions served by the study route are Tom Sawyer State Park and the Ford Motor Plant, along with numerous other schools, churches, and community features discussed in **Section 3.2**.



Source: 2017 American Community Survey 5-year Estimates

Figure 2: Age of Housing Stock

1.2 Purpose and Organization of the Study

The objective of this *Westport Road Corridor Study* is to assess the current congestion and safety issues experienced by pedestrians, bicyclists, transit users, and motorists, developing a series of short-term and long-term improvement concepts to improve safety while meeting corridor users' mobility needs.

The following chapters discuss the study process and findings:

- **Chapter 2** describes existing conditions along the project corridor, including traffic patterns and reported crashes.
- **Chapter 3** describes the environmental setting, which influences the character of the corridor and traffic patterns as well.
- **Chapter 4** discusses short-term improvement concepts recommended for implementation.
- **Chapter 5** documents other concepts considered throughout the study. Some could be implemented as long-term solutions but are likely to face vocal opposition from the community. Others are not feasible from an engineering perspective or would be difficult to implement as a standalone project.
- **Chapter 6** presents public involvement efforts undertaken to date.

1.3 Overview of the Planning Process

The planning process explored opportunities to improve operations along the corridor—day-to-day congestion, recurring safety concerns, bicycle and pedestrian connectivity, etc. Concepts investigated were based on public input, Metro and stakeholder visions for improvements, and accepted transportation planning and engineering best practices. Near-term, low-cost improvement concepts were the focus, to identify implementable solutions. Higher cost items that could be implemented over time were also noted.

The planning process was multi-faceted and includes an on-going assessment of existing conditions, traffic and roadway engineering, analysis of alternatives, and public involvement. The project Team—Louisville Metro Public Works staff, Metro Districts 7 and 17 representatives, KYTC, and consultants from Qk4—continually reviewed conditions along the corridor as improvement strategies were developed, evaluated, and presented to the public.

Focused public engagement opportunities bookended the study: a 2017 public meeting identified the scope of stakeholder concerns while a 2019 public meeting provided a venue to react to proposed improvement concepts. Each is discussed further in **Chapter 6**.

2. Project Corridor

The following subsections describe existing transportation conditions along the project corridor.

2.1 Roadway Characteristics

Throughout the study length, Westport Road provides four 11- to 12-foot wide travel lanes with a two-way left-turn lane (TWLTL) for 75% of its length. It is classified as a principal arterial between I-264 and I-265 and is part of the National Highway System, a subset of roadways important to the nation's economy, defense, and mobility. The speed limit is posted at 45 mph. The route is owned and maintained by the Kentucky Transportation Cabinet (KYTC), who reconstructed the highway in 1999 and 2009. The new interchange with I-264 was construction in 2010.

West to east, the following intersections are signalized:

- Hubbards Lane, milepoint (MP) 0.926
- I-264 westbound ramps, approximately MP 1.9
- I-264 eastbound ramps, approximate MP 2.0
- Washburn Avenue, MP 2.088
- Herr Lane, MP 2.574
- Ormsby Lane, MP 3.039
- Fire Station signal, MP 3.733
- Hermitage Way, MP 4.199
- Goose Creek Road, MP 4.942
- Westport Plaza, approximate MP 5.07
- Hurstbourne Parkway, MP 5.245
- Freys Hill Road/Springhurst Boulevard, 6.029
- Towne Center Drive/Indian Lake Drive, MP 6.386
- Southbound I-265 On-ramp, approximate MP 6.55
- Northbound I-265 Ramps, MP 6.751
- Chamberlain Lane, MP 7.038

The *Westport Road Corridor Small Area Plan* was completed in 2010, examining the vision for the corridor in light of then-recent roadway widening efforts and planned construction of the I-264 interchange. The plan addressed neighborhood identity, visioning, and land use/community form in addition to a mobility element, which recommended a four-lane typical section with a landscaped median and buffer with 12-foot multi-use paths on both sides. The plan states, “operational improvements that are recommended include intersection improvements, roadway improvements, and connectivity improvements. A major focus of operational improvements would be changing the character of Westport Road itself to a more multi-modal, humane cross-section…[including] a new median, landscaping, and dedicated bike/ped facilities.” Twelve intersections between I-264 and KY 1747 are identified that should be evaluated for signalization and pedestrian crosswalks.

The plan goes on to note that "there are very limited connections to the northwest and southeast of Westport Road, making the existing roadways that do make those connections take on major flows of traffic versus spread out, more calm flows that would be possible in a more connected less dendritic system."

2.2 Traffic Volumes

A series of turning movement counts were conducted along the corridor during 2018, summarized in **Appendix A**. Traffic volumes range from 16,600 to 36,000 vehicles per day (vpd), with up to 3,900 vehicles per hour during peak travel periods. Historic traffic counts show steady growth along the corridor inside I-265, as shown in **Figure 3**.

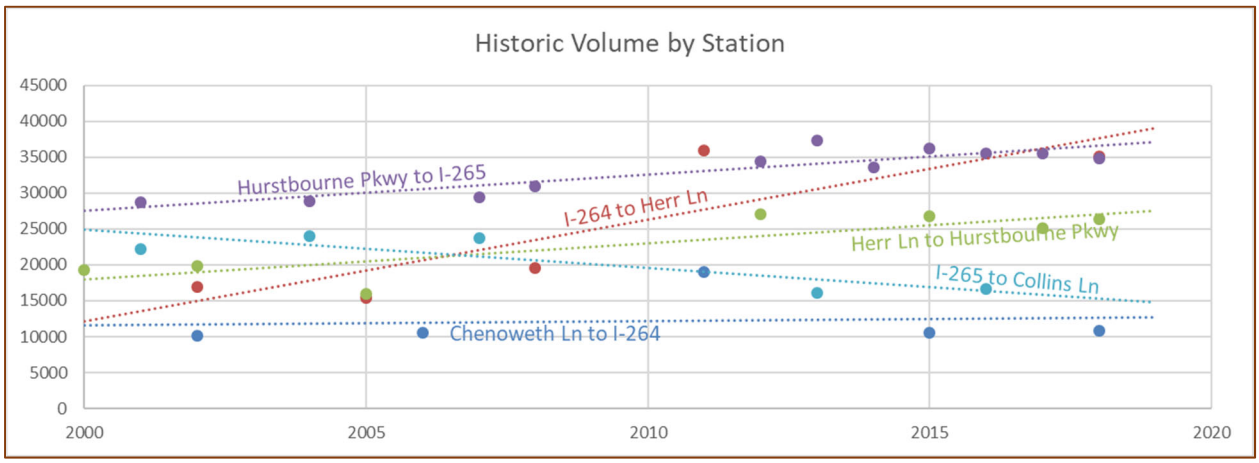


Figure 3: Historic Traffic Volumes along Westport Road

A number of metrics exist to measure traffic operations, such as level of service (LOS), delay, and queue lengths at intersections. LOS is a qualitative measure describing traffic conditions based on speed, travel time, freedom to maneuver, traffic interruptions, comfort, and driver convenience. LOS A is associated with free flow conditions, high freedom to maneuver, and little or no delay. LOS E represents conditions at or near capacity. At LOS F, traffic conditions are oversaturated and beyond capacity, with low travel speeds, little or no freedom to maneuver, and high delays. As a rule of thumb, LOS C or better is desirable in urban areas; however, LOS D is generally acceptable.

Analysts applied methodologies defined in the *Highway Capacity Manual*, sixth edition, to calculate LOS at key intersections along the corridor. LOS results during AM and PM peak hours are presented in **Figure 4** (page 7). Several intersections, particularly in the eastern section of the corridor, operate at LOS D or worse during peak hours.

Another measure of operations, the volume-to-capacity (v/c) ratio compares the traffic volume using a facility to its theoretical capacity over a specific duration, one hour in this instance. A v/c ratio greater than 1.0 indicates a route has exceeded its theoretical capacity; additional lanes may be justified. The v/c ratio is computed for each movement at intersections; results for the existing condition are summarized in **Table 1** with several movements at or exceeding their capacity.

Table 1: Movement v/c at Key Intersections

Intersection	v/c Range AM Peak	v/c Range PM Peak
KY 1447 at Hubbards Lane	0.1-0.7	0.2-0.8
KY 1447 at Washburn Avenue	0.1-1.0	0.2-1.0
KY 1447 at Goose Creek Drive	0.1-0.9	0.4-0.9
KY 1447 at KY 1747	0.1-1.2	0.3-1.1
KY 1447 at Springhurst/Freys Hill	0.1-0.9	0.3-1.2
KY 14747 at Chamberlain Ave	0.1-1.0	0.2-1.1

To anticipate future traffic operations, KIPDA ran its regional travel demand model. KIPDA's model is a multi-county forecasting tool maintained by the metropolitan planning organization, developed with extensive input from regional planners and local officials. The model incorporates existing traffic patterns and anticipated growth trends to estimate future traffic flows on the highway network. Year 2020 and 2040 scenarios were run, projecting minimal growth on the already congested corridor.

- The section from I-264 to Washburn showed negative growth, with traffic volumes decreasing by 3.5% from year 2020 to 2040.
- From Goose Creek to KY 1747 (Hurstbourne Parkway), traffic increased by an estimated 500 vehicles (1.5%) over the 20 year analysis period.
- Approaching I-265 from the west, volumes increased the most, growing at nearly 1% per year. This section of the corridor has movements approaching/exceeding v/c ratios of 1.0, indicating the corridor is already at capacity.

It should be noted that the KIPDA model assumes all the projects listed in its current *Metropolitan Transportation Plan* are in place for the 2040 analysis year. In the vicinity of the Westport Road corridor study area, this includes the projects listed in **Table 2** that likely influence traffic flows using Westport Road by 2040.

Table 2: KIPDA Future Model Projects near Study Area

ID	Description	Year
958	Widen I-265 from Taylorsville Road to I-71	2023
2152	Widen I-71 from I-265 to KY 329 (Crestwood)	2023
443	Widen KY 146 LaGrange Road from Factory Lane to Reamers Road	2024
1922	Reconstruct/Widen I-264 from Westport Rd to I-71	2025
427	Widen KY 146 LaGrange Road from county line to Pryor Avenue	2026
484	Widen Westport Road from Murphy Lane to KY 146 LaGrange Road	2030
1352	Improve access and mobility on US 60 from downtown to Hurstbourne Pkwy	2030
1362	Improve access and mobility on US 60 from Hurstbourne Pkwy to I-265	2030
2114	Widen Herr Lane from Westport Road to Brownsboro Road	2030
2611	Widen I-71 from Zorn Avenue to I-265	2030
480	Widen US 60 from I-264 to Hurstbourne Lane	2035

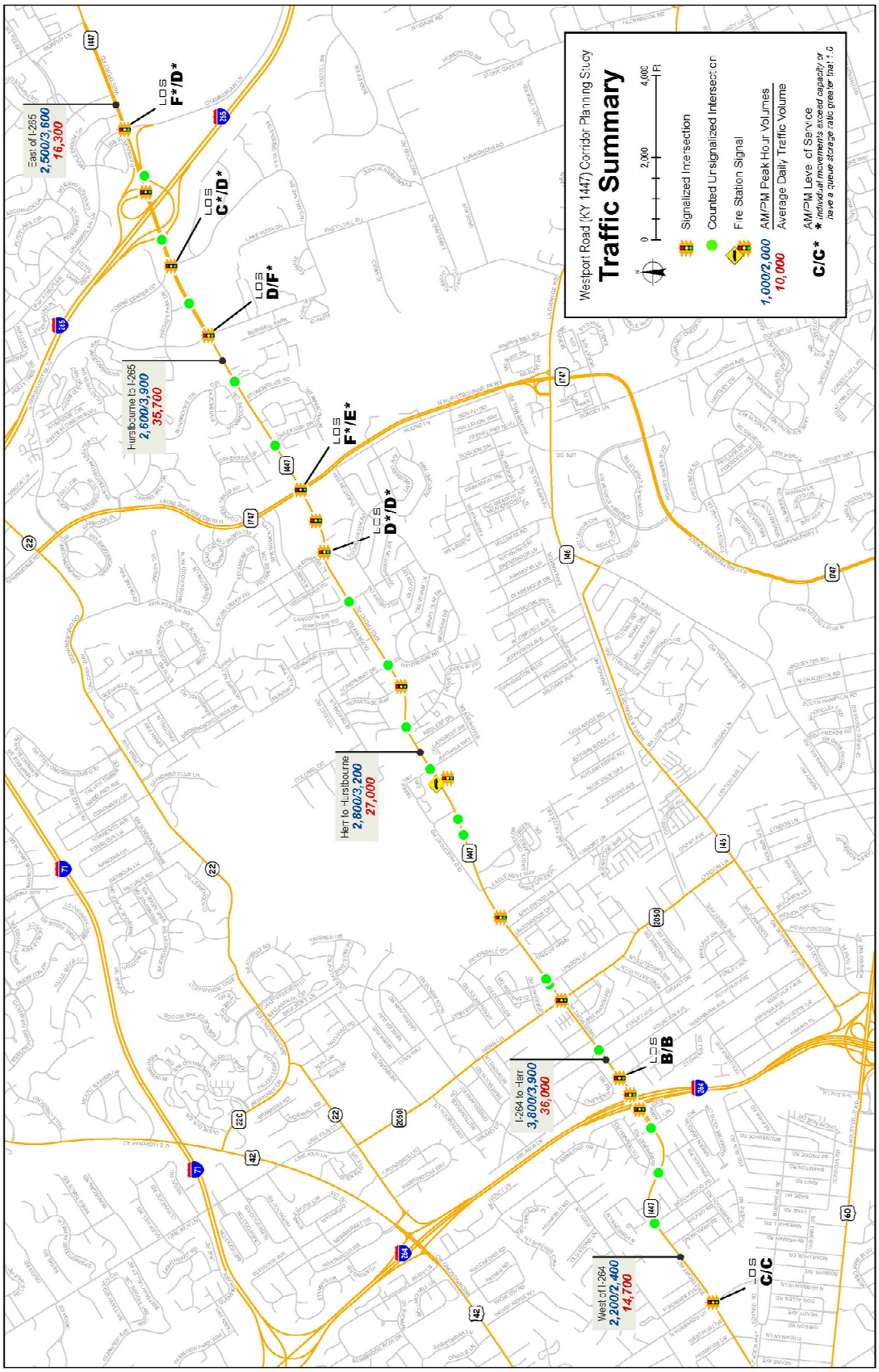


Figure 4: Summary of Traffic Operations

2.3 Speed and Travel Time

Shown in **Figure 5**, peak travel speeds along the corridor are well below the posted 45 mph speed limit. The same data is tabulated in **Table 3.** Average travel speeds in the AM peak are 30 to 31 mph, compared to 27 to 31 mph during the PM peak.

Figure 5: Peak Hour Travel Speeds

Table 3: Peak Hour Travel Speeds by Segment

From	To	AM Peak Speed	PM Peak Speed
Eastbound			
Washburn	Ormsby	33 mph	27 mph
Ormsby	Dove Creek	47 mph	46 mph
Dove Creek	Hurstbourne	23 mph	27 mph
Hurstbourne	Shelburn Park	34 mph	24 mph
Shelburn Park	Chamberlain	21 mph	10 mph
Westbound			
Chamberlain	Shelburn Park	41 mph	16 mph
Shelburn Park	Hurstbourne	28 mph	29 mph
Hurstbourne	Dove Creek	35 mph	34 mph
Dove Creek	Ormsby	35 mph	51 mph
Ormsby	Washburn	12 mph	25 mph

2.4 Crash Analysis

Reported crashes during January 2013—December 2017 were inventoried from Kentucky State Police records. In total, there were 2,189 crashes, including seven fatalities and 454 injury collisions. By type (**Figure 6**), the majority of collisions are rear ends (54%) followed by angle crashes (20%).

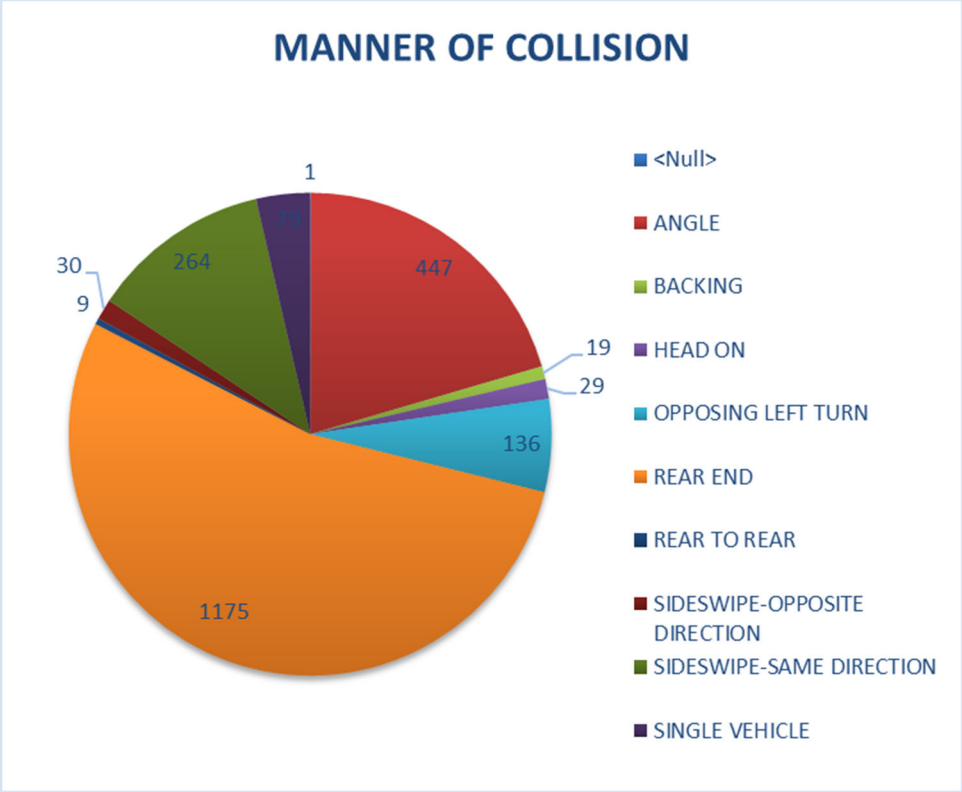


Figure 6: Distribution of Crashes by Manner of Collision

Figure 7 contains a map highlighting the density of crashes along the corridor, calling out locations of fatality, bicycle, and pedestrian crashes.

- Fatality collisions included two pedestrian strikes—both after dark, a rear end collision in rainy conditions, three angle collisions with vehicles turning to/from driveways or cross-streets, and a single vehicle collision. Four of the seven fatalities occurred in 2017.
- Of the six bicycle collisions, three resulted in injuries and three were property damage only (PDO).
- Of the seven pedestrian strikes, two resulted in fatalities and five resulted in injuries. Five of the seven crashes occurred in dark or dusky conditions.

Analysts used a systematic procedure to identify locations along the corridor having high crash rates. The actual number of crashes occurring within a roadway segment is used to calculate the Actual Crash Rate using the roadway length, annualized average daily traffic (ADT), and the number of years for which crash data are being examined. Using an analysis procedure from the Kentucky Transportation Center and referenced in *The Analysis of Traffic Crash Data in Kentucky* (2012-2016), Actual Crash Rates are compared to the Critical Crash Rate for similar types of Kentucky roadways. The Critical Crash Rate is the rate which is statistically greater than

the average crash rate for similar roadways, and represents a rate above which crashes may be occurring in a non-random fashion. This ratio of Actual Crash Rate to the Critical Crash Rate is the Critical Crash Rate Factor (CCRF). A CCRF greater than 1.0 indicates crashes may be occurring more often than can be attributed to random occurrence. This procedure is a screening technique indicating locations where further analysis may be needed. It is neither a definitive statement of nor a measurement of a crash problem.

Blue lines in **Figure 7** highlight the locations of high CCRF spots, each 0.3 miles in length. **Table 4** presents summary information about each high CCRF spot.

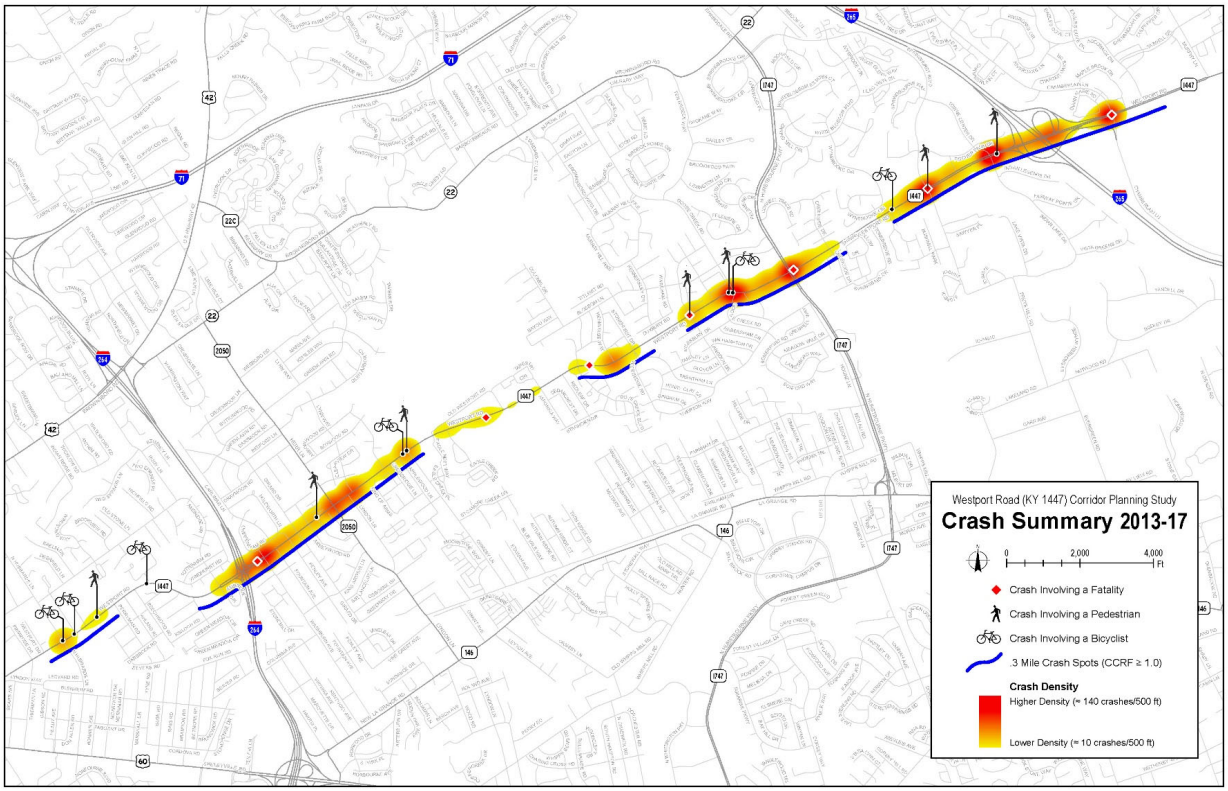


Figure 7: Crash Density Map

Table 4: Summary of High CCRF Spots

Site along Westport Rd	MP	Avg Daily Traffic	Fatal Crashes	Injury Crashes	PDO Crashes	Total Crashes	CCRF
Hubbards Ln to Perryman Rd	0.9-1.2	14,700	0	10	56	66	1.32
Walser Rd to I-264	1.7-2.0	14,700	0	11	89	100	2.00
I-264 to Girard Dr	2.0-2.3	36,000	1	27	171	199	1.84
Girard Dr to Herr Ln	2.3-2.6	36,000	0	23	109	132	1.22
Herr Ln to Devondale Dr	2.6-2.9	27,000	0	18	110	128	1.52
Dove Creek to Stonehurst	4.0-4.3	27,000	1	14	71	86	1.02
Langdon to Goose Creek	4.6-4.9	27,000	1	13	86	100	1.19
Goose Creek to KY 1747	4.9-5.2	27,000	0	26	170	196	2.33
KY 1747 to Creekside	5.2-5.5	35,700	1	14	151	166	1.55

Site along Westport Rd	MP	Avg Daily Traffic	Fatal Crashes	Injury Crashes	PDO Crashes	Total Crashes	CCRF
Graystone Manor to Springhurst/Freys Hill	5.8-6.1	35,700	1	25	167	193	1.80
Springhurst/Freys Hill to Towne Center/Indian Lake	6.1-6.4	35,700	0	16	162	178	1.66
Towne Center/Indian Lake to I-265	6.4-6.7	35,700	0	19	162	181	1.68
I-265 to Chamberlain Ln	6.7-7.0	16,300	0	20	103	123	2.26
East of Chamberlain Ln	7.0-7.3	16,300	1	8	89	98	1.80

2.5 Bicycle and Pedestrian Facilities

Painted bike lanes run along Westport Road for the westernmost section of the corridor, west of Abbeywood Road.

In total, the western 5.1 miles of the 6.1-mile long study route is lined with sidewalks, running along both sides from Hubbards Lane (MP 0.926) to Hermitage Way (MP 4.199) and from Langdon Drive (MP 4.650) to Springhurst Boulevard/Freys Hill Road (MP 6.029). Between, sidewalks tie to adjacent frontage streets to preserve connectivity while minimizing private property impacts. East of Springhurst Boulevard/Freys Hill Road, some large commercial developments provide internal sidewalk networks but there is no overarching pedestrian connectivity.

Most major cross-streets provide painted crosswalks along Westport Road; designated crosswalks across Westport Road exist at Hubbards Lane, Washburn Avenue, Girard Drive, Herr Lane, Ormsby Lane, the Lyndon Fire Station, Hermitage Way, Goose Creek Road, Westport Plaza, Hurstbourne Parkway, Springhurst Boulevard/Freys Hill Road, and Towne Center Drive/Indian Lake Drive. Aside from Girard Drive, all have dedicated pedestrian signals with pushbutton controls.

The 2010 *Westport Road Corridor Small Area Plan* defined a holistic vision of a multi-use corridor:

> "Pedestrian and bicycle improvements, the focus of the study, broke into four categories; the addition of a multi-use path, on-street bike lanes, a greenway, and streetscape improvements. The multi-use path is envisioned to occur in the more flexible potential right-of-way on the north side of Westport Road. The path would serve as a major alternative source of mobility by allowing cyclists to move freely along the length of the corridor only being interrupted at existing intersections. On street bike lanes were seen as a connective system that would serve the surrounding neighborhoods, focusing on calm streets and acting as connecting joints between neighborhoods, Westport Road, LaGrange Road, Hurstbourne Parkway, as well as the Louisville Loop. The approximate 1.25 mile greenway is a conceptual recommendation that would provide the option for cyclists and pedestrians the option of a route that would connect Westport Road to LaGrange Road using state-owned property to the south of Westport Road near Westport Middle School. The greenway would act as a linear park feature and a direct connection for increased mobility options. Streetscape improvements could accompany many of the planned greenway investments where appropriate, but additionally are needed to make more accommodating bike/ped facilities along Herr Lane, Ormsby and Goose Creek. Streetscape improvements would include plantings, sidewalks, lighting, signage and an overall physical branding for the Westport Corridor that could include gateways near I-264 and Hurstbourne Parkway and public art installations.

2.6 Transit

Shown in **Figure 8**, TARC routes 25 and 49X serve the corridor. Route 25 runs crosstown from Shawnee Park to the Ford Plant, operating on 30-45 minute headways during weekday peak hours. Route 49X runs from downtown to Westport Plaza, making one run to/from downtown during both the AM and PM weekday peak hour.

There are 57 TARC stops along the study route, including shelters at Westport Plaza and Hermitage Way.

TARC shelter at Westport Plaza

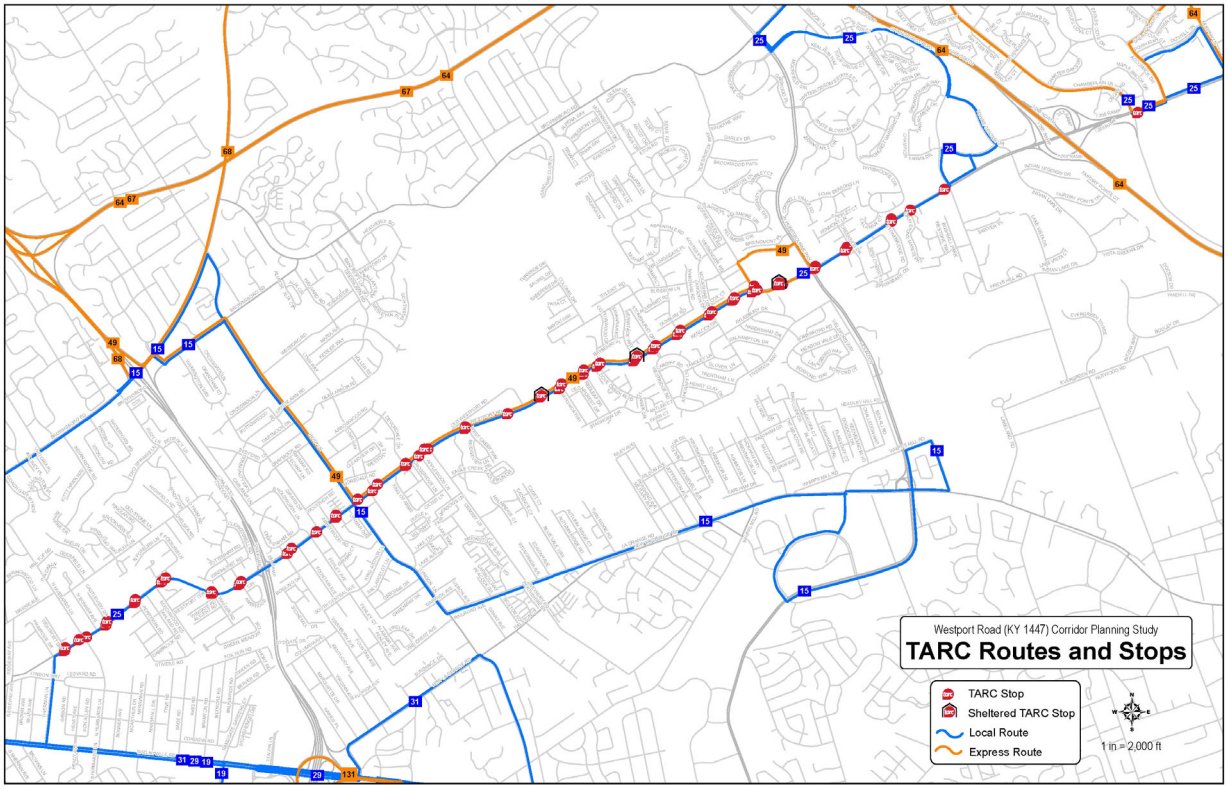


Figure 8: TARC Routes and Stops

3. Environmental Overview

An environmental overview was conducted to identify human and natural environmental resources in the study area. These resources were identified through literature searches, field reviews, and resource agency coordination. If projects advanced from this study receive federal funds, National Environmental Policy Act (NEPA) documentation will be required to address resources, impacts, and mitigation commitments.

The area through which the corridor extends is very heavily developed with residential, commercial, and institutional (schools and churches) land uses (see **Section 3.2**). Overhead and/or buried utilities extend along the entire length of the corridor and include a Louisville Water Company water tank in the southeast quadrant of the I-264/Westport Road interchange.

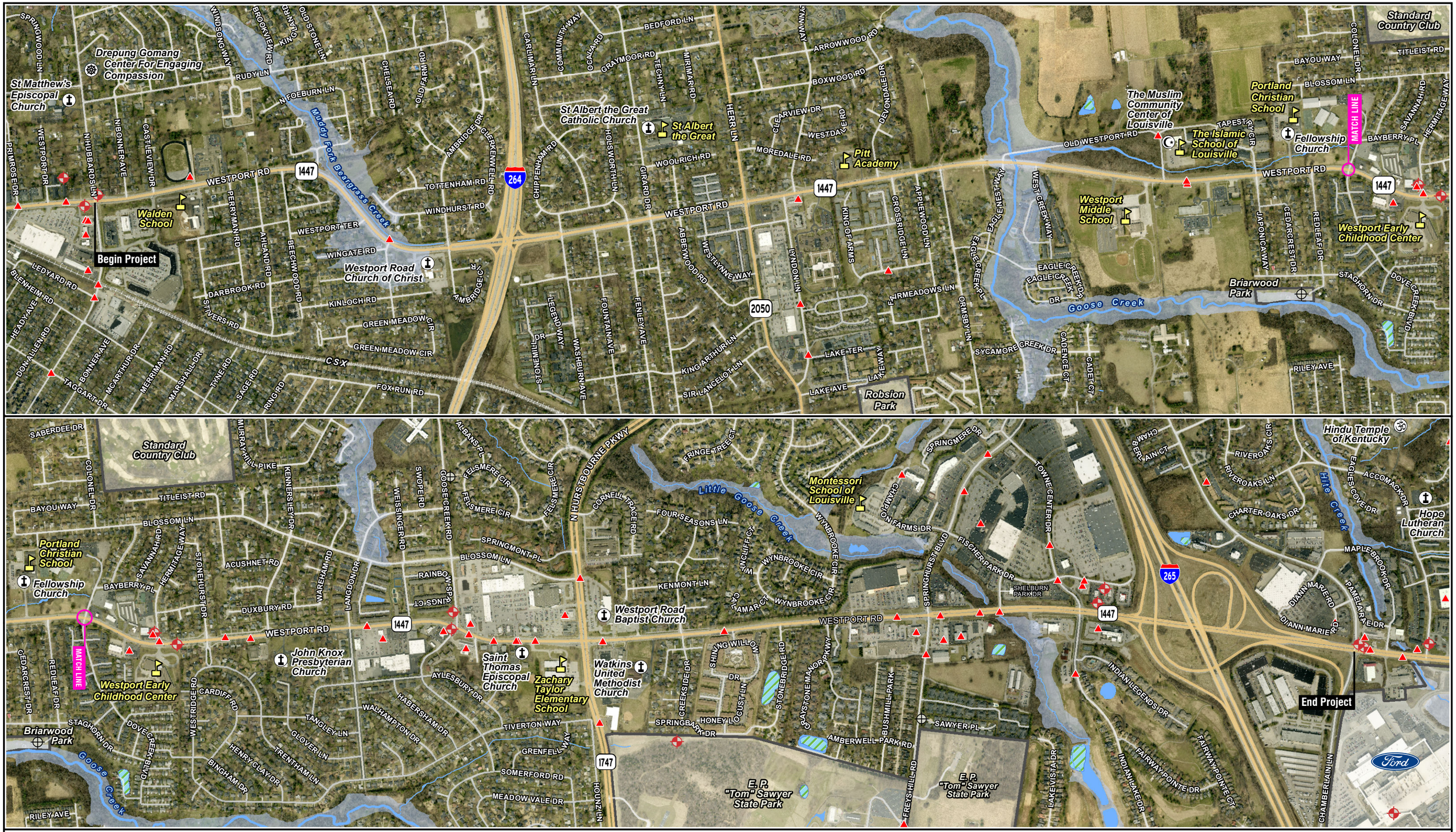
Streams, wetlands, ponds, floodplains, and threatened and endangered species are among the natural resources within the study area.

3.1 Natural Environmental Resources

A review of available mapping identified natural resources potentially occurring in the study area, illustrated on **Figure 9** on the following page. According to the Kentucky Geologic Survey (KGS), three large spring sheds in the study area may be water supply sources and the corridor east of Applewood Lane lies within a designated Source Water Assessment and Protection Program (SWAPP) area. Three streams cross the area; floodplains are associated with each:

- Muddy Fork, an intermittent stream that drains along the north side of Westport Road from Lyndon Lane to Foeburn Lane before daylighting to the northwest.
- Goose Creek, a perennial stream that runs through a culvert beneath the roadway just east of Old Westport Road/Eagle Nest Way.
- Little Goose Creek, a perennial stream that crosses beneath Westport Road between Springhurst Boulevard/Freys Hill Road and Shelburne Park Drive.

Goose Creek Culvert beneath Westport Road



School
Buddhist Temple
Christian Church
Hindu Temple
Mosque
Potential Hazmat/UST (EPA)
Water Well - Monitoring
Water Well - Other
River/Stream
Lake/Pond
National Wetlands Inventory
100 Year Floodplain
Area of Interest

0 1,000 2,000 Ft

Environmental Footprint

Westport Road (KY 1447) Corridor Planning Study
Louisville, Kentucky
Janurary 2020

Known federally threatened and endangered species in the vicinity are listed in **Table 5**. No critical habitats are designated along the corridor.

Table 5: Potential Listed Species in Area

Name	Status	Potential Habitat
Gray Bat, M*yotis grisescens*	Endangered	Caves, wooded stream corridors
Indiana Bat, M*yotis sodalist*	Endangered	Caves, dead trees, wooded stream corridors
Northern Long-eared Bat, *Myotis septentrionalis*	Threatened	Caves, dead trees, wooded stream corridors
Clubshell mussel, *Pleurobema clava*	Endangered	Small streams to large rivers
Fanshell mussel, *Cyprogenia stegaria*	Endangered	Large streams to large rivers
Northern Riffleshell mussel, *Epioblasma torulosa rangiana*	Endangered	Small streams to medium rivers
Orangefoot Pimpleback pearlymussel, *Plethobasus cooperianus*	Endangered	Medium to large rivers
Purple Cat's Paw pearlymussel, *Epioblasma obliquata obliquata*	Endangered	Medium to large rivers
Rabbitsfoot mussel, *Quadrula cylindrical cylindrical*	Threatened	Small to medium streams and some large rivers
Ring Pink mussel, *Obovaria retusa*	Endangered	Medium to large rivers
Rough Pigtoe mussel, *Pleurobema plenum*	Endangered	Large rivers
Sheepnose mussel, *Plethobasus cyphyus*	Endangered	Medium to large rivers
Spectaclecase mussel, *Cumberlandia monodonta*	Endangered	Medium streams to large rivers
Running Buffalo Clover, *Trifolium stoloniferum*	Endangered, Proposed Delisting	Partially shaded, disturbed lawns/fields

Beyond stream corridors, KGS classifies the corridor as having a medium to high karst potential with a cluster of known sinkholes approaching the eastern study limits (**Figure 10**). The area is underlain by limestone and dolomite. A small section of soils near the center of the study area (from Ormsby Lane to Bayberry Place) are classified as prime or statewide important farmlands but the bulk of the urban corridor soils are not.

3.2 Human Environment

The human environment includes built features and the community: land use, population demographics, community features, etc.

Land use along the corridor is a mixture of residential, commercial, and institutional uses, as shown in **Figure 11**. One large undeveloped area remains, roughly bounded by Goose Creek to the west, Westport Road to the south, Plantation and the Standard Country Club to the east, and Brownsboro Road on the north. The northernmost 190 acres of the property are protected by a PACE conservation easement held by the Department of Agriculture.

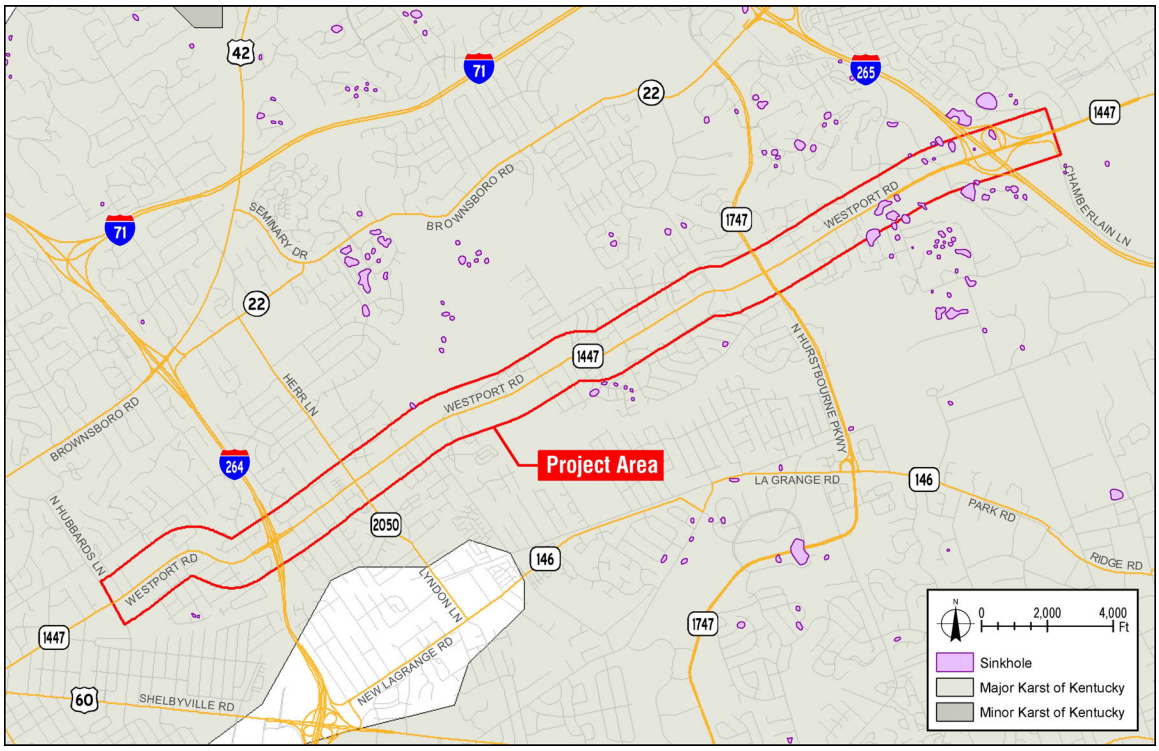


Figure 10: Karst Potential Map

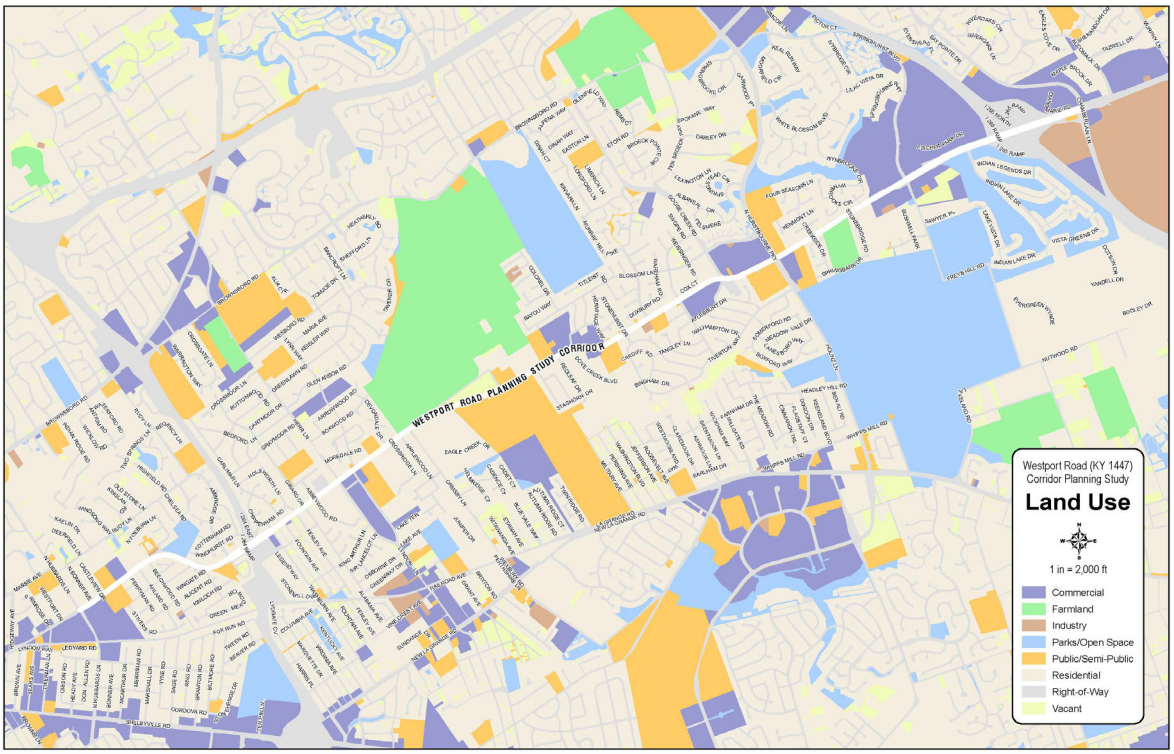


Figure 11: Existing Land Use Map

Numerous schools are located along or adjacent to the corridor: Walden School, Albert the Great School, Pitt Academy, Westport Middle School, the Islamic School of Louisville, Portland Christian School, Westport Early Childhood Center, Zachary Taylor Elementary School, and the Montessori School of Louisville.

Bus traffic relies on Westport Road to access adjacent schools

Additionally, several faith-based venues abut the study corridor: Westport Road Church of Christ, St. Albert the Great Catholic Church, Westport Road Christian Church, the Muslim Community Center of Louisville, Portland Christian, Kingdom Christian Church, John Knox Presbyterian Church, St. Thomas Episcopal Church, Westport Road Baptist Church, and Watkins United Methodist Church. Further, the Episcopal Church Home provides a large senior living facility just east of Lyndon Lane.

All manner of commercial development occupies parcels, large and small, along Westport Road. The largest concentration is Springhurst Towne Center in the northwest quadrant of the Westport Road/I-265 interchange. Other types of businesses along Westport Road include a funeral home; sports clubs/facilities and fitness centers; financial institutions; over 20 restaurants; grocers including Aldi and Kroger; big-box retailers including Home Depot and Walmart; auto dealerships, fuel stations/convenience stores, car rentals, and car leasing services; pharmacies/drug stores; and financial institutions.

E.P. Tom Sawyer State Park and the Ford Truck Plant comprise large attractions approaching the eastern study limits.

- The 539-acre park features a community center, swimming pool, sports venues (soccer, softball, tennis, volleyball, and basketball), trails, picnic shelters, playgrounds, a community garden, dog park, and more.
- The 500-acre Ford assembly plant employs nearly 9,000 employees in its 6 million square foot facility.

Regarding population demographics, **Table 6** summarizes key population metrics along the study corridor, comparing state and county averages to the 20 block groups abutting the study corridor. The data is summarized graphically on **Figure 12**. The block group with the highest minority population concentration matches the county average (27.5%): Block Group 1 in Tract 104.03, generally bounded by Westport Road, I-265, Anchorage, and Freys Hill Road. Two block groups exceed the low-income population concentration for the county (15.0%): Block Group 3 in Tract 100.04 (bounded by I-264, Westport Road, Girard Drive, Greenway Drive, Herr Lane, and the railroad tracks) at 27.7% and Block Group 4 in Tract 100.08 (bounded by Bayberry

Place, Cottonwood Drive, Blossom Lane, Langdon Drive, and Westport Road) at 15.4%. Low-income and minority clusters represent potential environmental justice (EJ) populations, requiring additional analyses and coordination under NEPA if a project advances for implementation with federal funds.

Table 6: Key Population Demographics

Geography	Population	% Minority	% Low Income
Kentucky	4,424,376	12.7%	18.3%
Jefferson County	764,378	27.7%	15.0%
20 Adjacent Block Groups	31,428	18.3%	6.3%

Source: American Community Survey 2017 5-year estimates

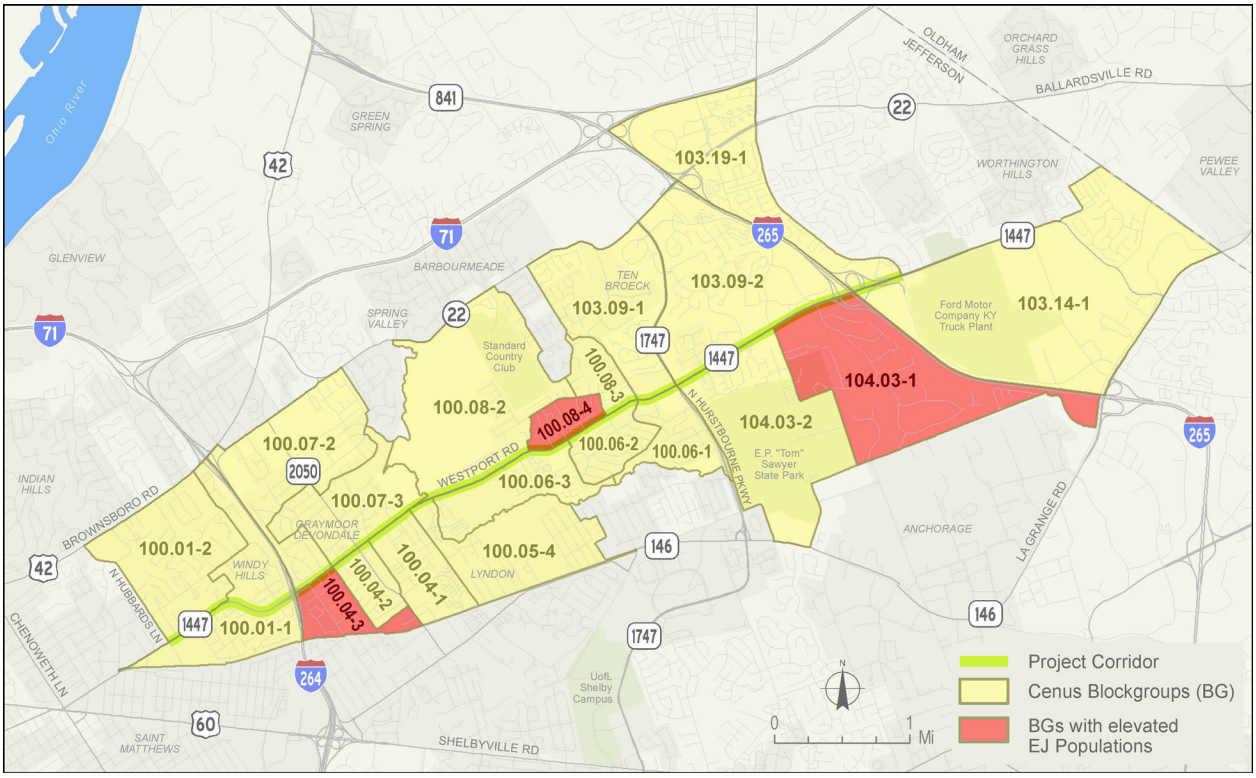


Figure 12: Key Population Demographics

Numerous hazardous materials sites and underground storage tanks (UST) are located along the corridor, summarized in **Figure 9** (page 14). Most represent gas stations and other commercial businesses.

Four historic properties are in the immediate vicinity of the study area: the Edwards-Herr House and Vulcan Rudy House are listed in the National Register of Historic Places (NRHP) and the Palmer-Ball Estate and Frank Fehr House are eligible for listing. All of the properties are north of the road. As the land along the corridor is in a heavily developed urbanized area, there is low potential for archaeological sites to be located. Neither an archival research nor field reconnaissance was conducted to identify prior archaeological surveys completed in the study area, or areas likely to contain archaeology sites.

4. Recommended Short-Term Improvements

Based on the existing conditions analyses, engineering review, and public/stakeholder input (**Section 6**), the following short-term spot improvements are recommended for implementation along the Westport Road Study corridor.

4.1 Speed Study

Based on input received during the 2019 public meeting, Metro Public Works is initiating a speed study to optimize the posted speed limit along the roadway. Adjusting the speed limit would require minimal costs to implement but potentially requires signal timing be adjusted at each intersection, an additional cost.

4.2 Langdon Drive Signal

A new traffic signal is recommended at Langdon Drive, including painted crosswalks and dedicated pedestrian signals with pushbutton controls. Improved access control is recommended at the adjacent Rolling Hills Shopping Center to consolidate conflict points. Improvements are shown graphically in **Figure 13**. Costs to implement the project are estimated at $200,000.

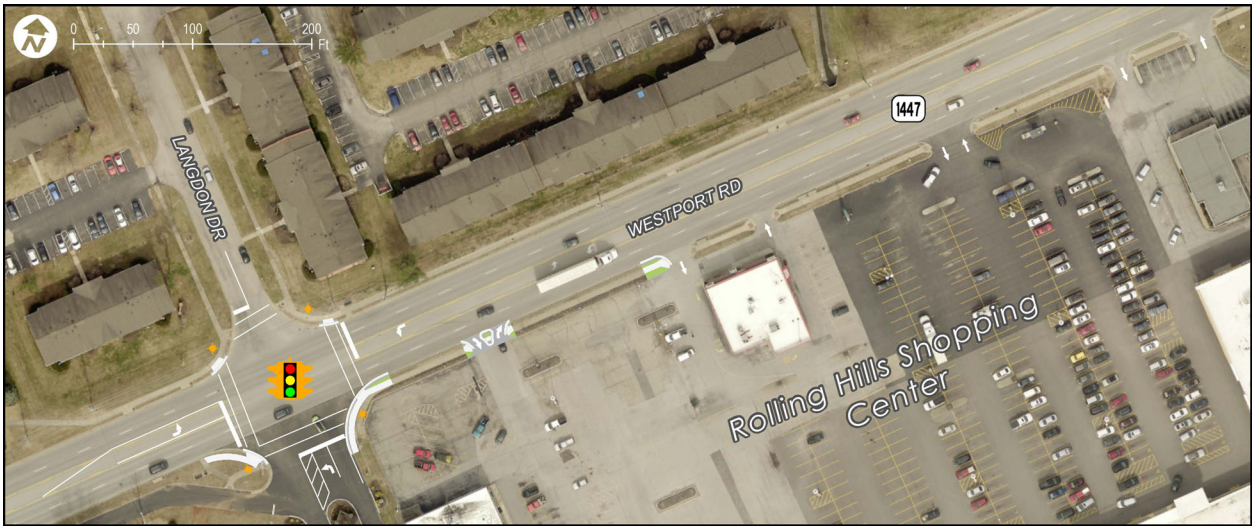


Figure 13: Langdon Drive Signal with Consolidated Driveway Access

HCS analysis based on the current intersection configuration and peak hour volumes shows the minor street approaches exhibit excessive delay. The northbound approach operates at LOS F during the AM peak hour with over 200 seconds of delay per vehicle despite low volumes. During the PM peak hour, both stop-controlled approaches fail, operating at LOS F with 400+ seconds of delay per vehicle.

Based on 2018 traffic counts, the intersection is close to satisfying signal warrant 1B, even without accounting for diversion from adjacent unsignalized streets. To satisfy the signal warrant, at least one minor street approach must carry 70+ vehicles per hour for eight hours a day. Recent turning movement counts at the

intersection show one hour meets the warrant, with seven more hours approaching this threshold (55+ vehicles per hour). It is reasonable to assume some traffic heading to/from adjacent residential streets would shift onto Langdon Drive if signalized, satisfying the metric. However, additional data/analysis is required to validate this argument.

From a safety perspective, numerous crashes occur at this location, which falls within one of the high CCRF spots along the route. Within the 300-foot area of influence surrounding the Langdon Drive intersection itself, there were 38 total crashes during the 5-year analysis period.

- One fatality was reported: a pedestrian strike in the intersection, occurring after dark during October 2013.
- Ten injury collisions were reported: five angle collisions, three rear ends, and two sideswipes.
- The remaining 27 were PDO crashes: 13 rear ends, eight angle/turning collisions, four sideswipes, and two others (parking or backing).

Beyond these crashes, 24 crashes were reported along Westport Road in the remaining 550-feet of interconnected parking lots associated with the Rolling Hills Shopping Center. None resulted in fatalities or injuries. The breakdown by crash type includes 12 rear ends, five angle/turning collisions, four single vehicle crashes, two sideswipes, and one head on collision.

Public surveys during late 2019 showed signalizing Langdon to be the short-term spot improvement selected most often as a priority, discussed further in **Section 6.2**.

4.3 KY 1747 Hurstbourne Parkway Turn Lanes

For the eastbound Westport Road approach to KY 1747 Hurstbourne Parkway, longer turn lanes are recommended to accommodate high traffic volumes. **Figure 14** shows a comparison of the existing and proposed configurations. Costs to implement the project are estimated at $200,000.

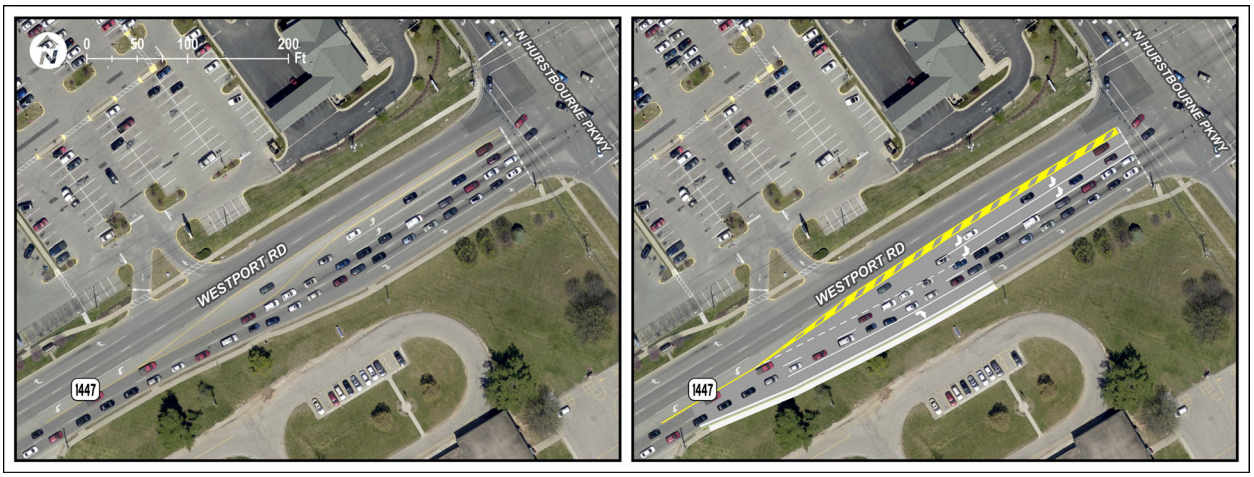


Figure 14: Turn Lanes at KY 1747 Intersection

As shown in **Table 7**, eastbound turn movements at the intersection with Hurstbourne Parkway exhibit high delay and poor LOS, particularly left turn movements. Average queue lengths approach available storage while maximum queue lengths exceed it. A related issue, high thru volumes queue up, blocking the available right turn storage length (**Figure 15**). Extending the right turn bay helps address this issue, making the available storage length more accessible.

The left turn bays face a similar challenge. Updated striping is recommended to extend the left turn bays as well. Public comments during 2019 suggested all turn lanes approaching the intersection be extended.

Table 7: Performance Measures for Eastbound Westport Rd at Hurstbourne Pkwy Intersection

Metric	Eastbound Left		Eastbound Right	
	AM	PM	AM	PM
Volume per hour	48	195	197	219
Level of Service (LOS) by Movement	E	F	D	D
Control Delay, in seconds per vehicle	44.5 sec	84.0 sec	41.3 sec	44.7 sec
Volume-to-Capacity (v/c) by Movement	0.38	0.77	0.38	0.41
Average Queue Length (50th percentile)	27 ft	114 ft	162 ft	188 ft
Max Queue Length (95th percentile)	48 ft	202 ft	267 ft	300 ft

Figure 15: Eastbound Queues at Hurstbourne Pkwy Block Right Turn Lane

From a safety perspective, the Westport Road/Hurstbourne Parkway intersection lies in a high CCRF spot. One fatality occurred at the intersection: an angle collision just west of the intersection during April 2017. The collision occurred around 4:15 PM in dry conditions on a clear day.

Further, four injury collisions (75% angle crashes) were reported within the intersection itself, along with 100 PDO crashes (62% rear ends). Lengthy peak hour queues contribute to a large area of influence associated with the intersection; crashes at upstream driveways and cross-streets were likely influenced by Westport/Hurstbourne intersection traffic. Reported crashes in the vicinity are summarized in **Figure 16**.

Public surveys during late 2019 showed extending the eastbound turn lanes to Hurstbourne Parkway to be the highest priority short-term spot improvement selected, as discussed in **Section 6.2**.

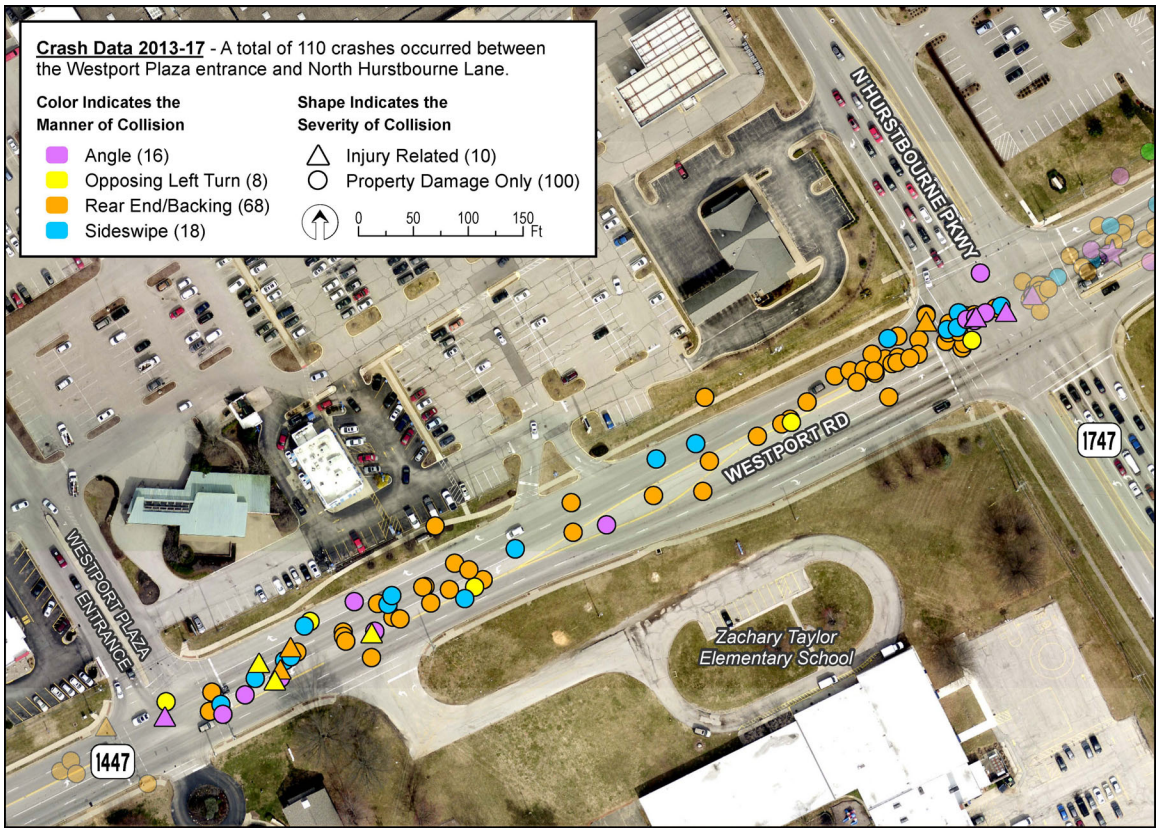


Figure 16: Reported Crashes in Intersection Vicinity

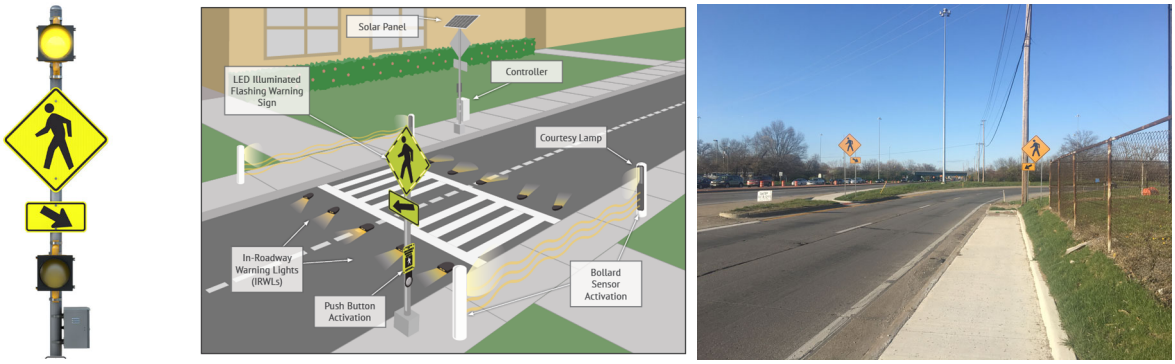
4.4 I-265 Sidewalk

A new sidewalk along Westport Road through the I-265 interchange is recommended, estimated to cost around $350,000. With housing and commercial centers on either side, I-265 forms a barrier to east-west access, especially for pedestrians. **Figure 17** presents a conceptual drawing of the recommendation.

Figure 17: Proposed Sidewalk through I-265 Interchange

This sidewalk is needed to connect the low-income area of Fincastle and Worthington Hills east of I-265 with the extensive jobs and shopping in the Springhurst Towne Center area west of I-265. Consistent pedestrian activity exists today, which has resulted in dirt paths, as people walk through conditions that are less than safe or predictable.

Special care is needed at the two ramp crossings to alert motorists to potential pedestrians, particularly for the on-ramp from the east as ramp traffic tends to be rapidly accelerating through this section. A variety of active and advance warning signage options exist; evolving technologies for safer "smart crosswalk" systems may increase the range of solutions available in the near future.



Active warning signs (left), Smart Crosswalk (center), and Dixie Highway at I-264 (right)

4.5 I-265 Ramp Cheat

The current ramp configuration in the southeast quadrant of the I-265 interchange provides enough pavement to execute an illegal movement from eastbound Westport Road, across the off-ramps to reach southbound Chamberlain Lane, bypassing the signalized intersection (**Figure 18**). Shown in **Figure 19**, the recommended safety measure installs vertical delineators to discourage this movement. Estimated costs are less than $100,000.

Figure 18: Illegal Cross-Ramp "Cheat" Move to Bypass Signal

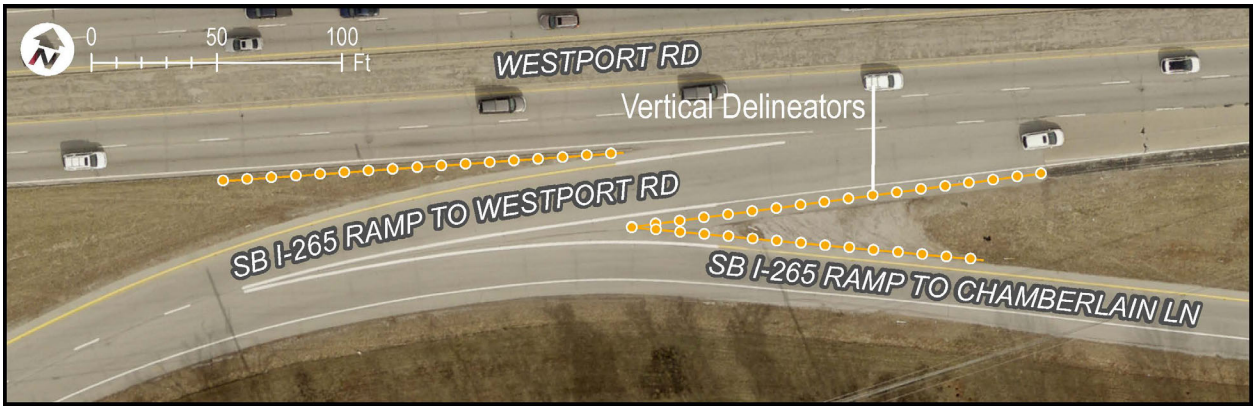


Figure 19: Recommended Separation to Eliminate Ramp "Cheat"

4.6 Chamberlain Lane Right Turn Lane

Shown in **Figure 20**, adding an eastbound right turn lane to Chamberlain Avenue is recommended, replacing the paved shoulder with a full-depth turn lane to improve operations. Construction costs are estimated at $200,000.

Figure 20: Recommended Right Turn Lane to Chamberlain Lane

Key traffic metrics are summarized in **Table 8** for the eastbound right turn movement to Chamberlain. As shown, a substantial amount of traffic makes the right turn movement during each hour, leading to excessive queues particularly during the PM peak. Because the right turning traffic shares a lane with thru movements, the 927 eastbound thru vehicles during the PM peak—and their 600-foot average queue—also inhibit the eastbound right turn movement. The eastbound right v/c during the PM peak is approaching 1.0, suggesting the current lane configuration is almost over capacity. Addition of the right turn lane noticeably improves delay and queue lengths, shown in the right columns of **Table 8**.

Table 8: Performance Measures for Eastbound Rights at Chamberlain Ln Intersection

Metric	Eastbound Right (Existing)		Eastbound Right (Proposed)	
	AM	PM	AM	PM
Volume per hour	122	461	122	461
Level of Service (LOS) by Movement	C	D	B	C
Control Delay, in seconds per vehicle	21.7 sec	54.2 sec	18.4 sec	30.8 sec
Volume-to-Capacity (v/c) by Movement	0.40	0.95	0.17	0.70
Average Queue Length (50th percentile)	142 ft	565 ft	52 ft	281 ft
Max Queue Length (95th percentile)	240 ft	759 ft	94 ft	418 ft

Regarding safety, the eastbound approach to the Chamberlain Lane intersection exhibits a high crash frequency, falling within a high CCRF spot. One fatality occurred at the intersection: a rear end collision during December 2014 in wet conditions. Further, eight injury collisions (57% angle crashes) were reported within the intersection itself, along with 98 PDO crashes (64% rear ends). Lengthy peak hour queues contribute to a large area of influence associated with the intersection; crashes at upstream ramps and cross-streets were likely influenced by Westport/Chamberlain intersection traffic. Reported crashes in the vicinity are summarized in **Figure 21**.

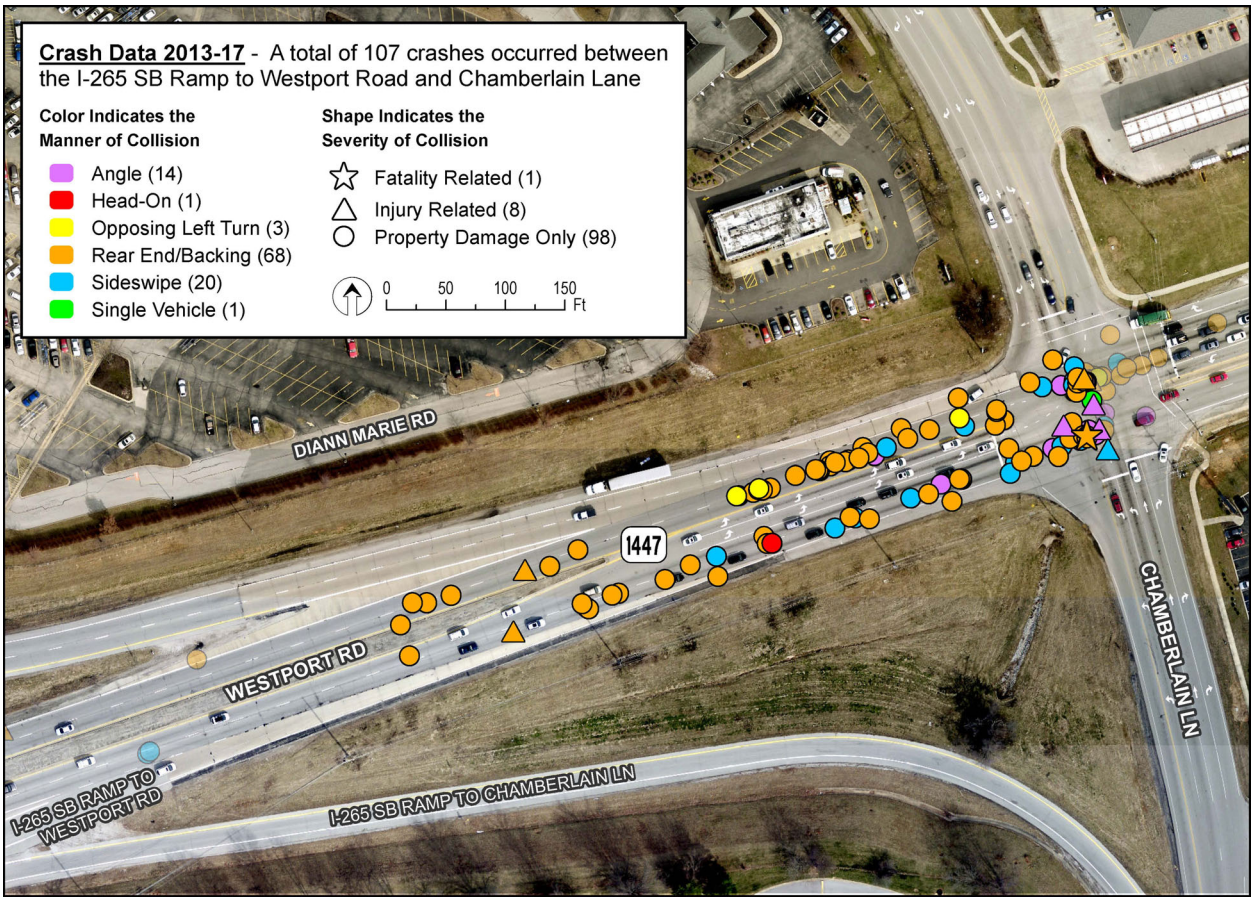


Figure 21: Crash History at Chamberlain Lane Intersection

5. Other Improvement Options Considered

In addition to the short-term improvements recommended in the previous chapter, the project team examined numerous other potential solutions along the corridor. Some could be implemented as long-term solutions but are likely to face opposition from the community. Others are not feasible from an engineering perspective or would be difficult to implement as a standalone project. This chapter provides an overview of these additional improvement concepts considered, organized generally west to east along the route.

Beyond improvements at specific locations, public survey respondents suggested a range of corridor-level improvements for consideration. Although many fall beyond the scope of this study, each is noted below for reference and could be considered for inclusion as part of future any project development efforts:

- Lengthen all turn lanes
- Six-lane Westport Road
- Add noise walls
- Limit new development permits
- Add bike lanes
- Increase enforcement
- Retime signals to improve coordination
- Add painted “do not block intersection” boxes
- Add median islands
- Add lighting for pedestrian safety
- Form corridor association

5.1 Just East of I-264 Interchange

Just east of the I-264 interchange, the first signalized intersection is at Washburn Avenue, approximately 350 feet east of the dual left turn lanes to the southbound on-ramp. With 830 to 1,050 vehicles making the left turn onto the on-ramp during each weekday peak hour, the queue storage provided by the existing 215-foot turn lanes is inadequate, leading to spillback into thru travel lanes. Similarly, there are elevated crash trends in the vicinity: 253 crashes occurred between the I-265 overpass (MP 1.960) and Fenley Avenue (MP 2.248) during the five year analysis period, including one fatality and 52 injury collisions. The area falls within a high crash spot with a 1.8 CCRF. The majority of crashes involve rear end collisions (68%).

A range of improvement strategies were considered to address queuing and crashes in the vicinity:

- Creating a raised median through this section to extend the dual left turn lanes.
- Creating a raised median, extending the dual left turn lanes, and eliminating the traffic signal at Washburn Avenue.
- Creating a raised median, extending the dual left turn lanes, and shifting the traffic signal from Washburn Avenue to Fenley Avenue.

In addition, the No-Build option is also a viable solution.

Neighborhood streets provide good interconnectivity through this area, with South Central Avenue and Chippenham Road providing linkages south and north of Westport Road, respectively. Options above would shift traffic patterns through the neighborhood, routing additional trips onto narrow local streets that would likely necessitate additional infrastructure investments. Restricting left turns would also increase the number of downstream U-turns, already a public concern. **Figure 22** on the following page provides a conceptual sketch of one possible improvement scenario.

Further, the raised median concept could be continued eastward through Girard Drive and Abbeywood Road if a more robust approach to access management is envisioned. West of Graymoor Place Drive, cross-streets have adequate connections to reach a signalized intersection with Westport Road to complete a left turn movement.

Figure 22: Conceptual Sketch of Fenley/Washburn Improvement Option

5.2 Lyndon /Lynn Intersections

Less than 500 feet east of the signalized intersection with Herr Lane, Lyndon Drive provides access to the south, offset from Lynn Way providing access to the north. A gas station with driveway access to both Lyndon Drive and Westport Road opposite Lynn Way introduces additional conflict points. The Graymoor-Devondale city building, which also houses the municipal police force, is in the northwest quadrant of the Lynn Way intersection.

Existing Layout at Lyndon/Lynn Intersections

Crash data shows 89 crashes in five years within 500 feet of the Lyndon Drive/Lynn Way intersections, including no fatalities and 21 injury collisions. Crashes are primarily a combination of angle/turning maneuvers (44%) and rear end collisions (37%). The intersection lies within a high crash spot with a 1.7 CCRF.

The project team considered a number of configurations to better define access points through this section:

- Converting Lynn Way to a right-in/right-out and prohibiting northbound left turns from Lyndon Drive.
- Converting the gas station driveway at Westport Road to a right-in/right-out.
- Converting Lyndon Drive to a right-in/right-out while preserving fully directional access to Lynn Way.

Any future changes at this intersection should be coordinated with the Graymoor-Devondale police department as a key stakeholder.

5.3 Westport Middle School

Eastbound right turn lanes to Westport Middle School were suggested as a low-cost improvement to address safety at the school driveways. During 2013-2017, 29 crashes were reported between West Creek Way and the western school entrance, primarily rear end collisions (62%). Between the two school driveways, an additional 13 crashes were reported, including a fatal angle collision during May 2017. Anecdotal input from stakeholders suggests crashes may be due to secondary factors (e.g. school crossing guard, sun glare, etc.) rather than the roadway itself.

An alternate concept at this location explored combining the adjacent Westport Middle School and KYTC driveways to consolidate access points. Even combined, traffic volumes are unlikely to meeting warrants for signalization.

5.4 Japonica Way to Langdon Drive

Numerous strategies to consolidate conflict points and optimize throughput along Westport Road were examined through the 0.9-mile stretch between Japonic Way and Langdon Drive. **Table 9** summarizes crash trends along this section, which contains one high CCRF spot between Dove Creek and Hermitage. Crashes are concentrated at intersections, particularly the signalized intersection at Hermitage Way, which lies within a curve.

Table 9: Crash Summary, Japonica to Langdon

Location	Total Crashes	Crashes by Type			
	(Fatal/Injury)	Rear End	Angle	Sideswipe	Other
±200 ft of Japonica Way	8 (0/2)	3	3	2	0
Japonica to Dove Creek	7 (0/0)	4	0	1	2 single veh
±200 ft of Dove Creek Way/Bayberry Pl	14 (0/6)	2	8	3	1 head on
Dove Creek to Hermitage	11 (1/1)	5	2	3	1 single veh
±200 ft of Hermitage Way	58 (0/7)	41	10	5	2 single veh
Hermitage Way to Stonehurst Dr	4 (0/0)	3	0	1	0
±200 ft of Stonehurst Drive	14 (0/2)	8	2	3	1 backing
Stonehurst Dr to Langdon Drive*	8 (0/2)	4	2	0	1 head on 1 single veh
TOTALS	**124 (1/20)**	**70**	**27**	**18**	**9**

** Crashes within ±300 ft of Langdon Drive intersection discussed in **Section 4.2**.*

The range of potential improvements considered range from short-term spot improvements at specific intersections up through long-term corridor-scale approaches. A selection of concepts are summarized below.

Additional Signals. During the 2019 public meeting, several survey respondents suggested intersections for signalization: Japonica Way, Redleaf Drive, Dove Creek Way/Bayberry Place, and Kennersley Drive. Analysts examined traffic volumes compared to signal warrant requirements for each location; none exhibited adequate traffic to merit signalization, even assuming diversion from adjacent unsignalized intersections. Further, Japonica Drive is only about 300 feet east of the fire station signal, a further challenge to efficient operations.

Analysts also examined the benefits of eliminating or shifting the existing traffic signal at the Hermitage Way intersection. The signal is not ideally located as it is within a curve of the highway but provides sole access for the Early Childhood Center. Supplemental signal heads could improve visibility and safety as a short-term fix.

Hermitage Way Intersection in Curve

Neighborhood Connectivity.

Several subdivision developments have little to no interconnectivity, requiring trips to return to Westport Road even for short connections that could be addressed by local collector routes.

One such example is along Bingham Drive between Briarwood and Westwood. Even though a paved connector roadway exists, bollards block the connection between neighborhood streets. Specific to Bingham Drive, opening the existing connection would provide residences to the east with access to a signalized intersection with Westport Road—via Goose Creek Road or Langdon Drive (see **Section 4.2**). Installation of a detector-based exit-only connection could still improve connectivity while limiting cut-through traffic concerns.

Example of Limited Neighborhood Connectivity

Although it lies beyond the scope of this study, stronger connectivity requirements between developments could be incorporated into the planning/zoning review process.

Dove Creek/Bayberry. Another small-scale option, the intersection of Dove Creek Way/Bayberry Place could be reconfigured to reduce conflict points. As illustrated in **Table 9** above, the intersection exhibits elevated concentrations of injury collisions and angle/turning crashes. One concept is shown in **Figure 23** that eliminates left turns onto Westport Road but maintains other turn movements. Located in the northeast quadrant of the intersection, Valvoline owns an instant oil change business at this location with driveways to both Bayberry Place and Westport Road, complicating the design.

It should be noted that the concept shown in **Figure 23** met with consistent opposition during the 2019 public meeting; however, most attendees opposed to the reconfiguration openly acknowledged safety concerns with the existing layout, and some noted it took so long to turn left during the peak hour they would find another way.

Figure 23: Concept Sketch to Reduce Conflict Points at Dove Creek/Bayberry

Raised Median. A long-term option considered runs raised median through the 0.9-mile section for improved access management, reducing access points. Left turns to minor cross-streets and driveways would be forced to travel downstream and make a U-turn to access their destinations. Bulb outs to accommodate passenger car U-turns could be added; more substantial property impacts would occur if bulb outs were sized to accommodate truck/bus turns. A representative U-turn bulb out is shown in **Figure 24**.

Figure 24: Sample U-turn Bulb Out

5.5 Goose Creek Road Intersection

The intersection operates at LOS D during either peak hour. While the northbound and southbound Goose Creek Road approaches experience the most delay (LOS E/F), average peak hour queue lengths for the eastbound thru/right movements are 400 to 500 feet long. From a safety perspective, 131 crashes occurred within 300 feet of the intersection during 2013—2017, including 15 injury collisions. By type, crashes are primarily rear ends (38%) and angle/turning (37%). Both approaches fall within high CCRF spots: 1.2 to the west and 2.3 to the east.

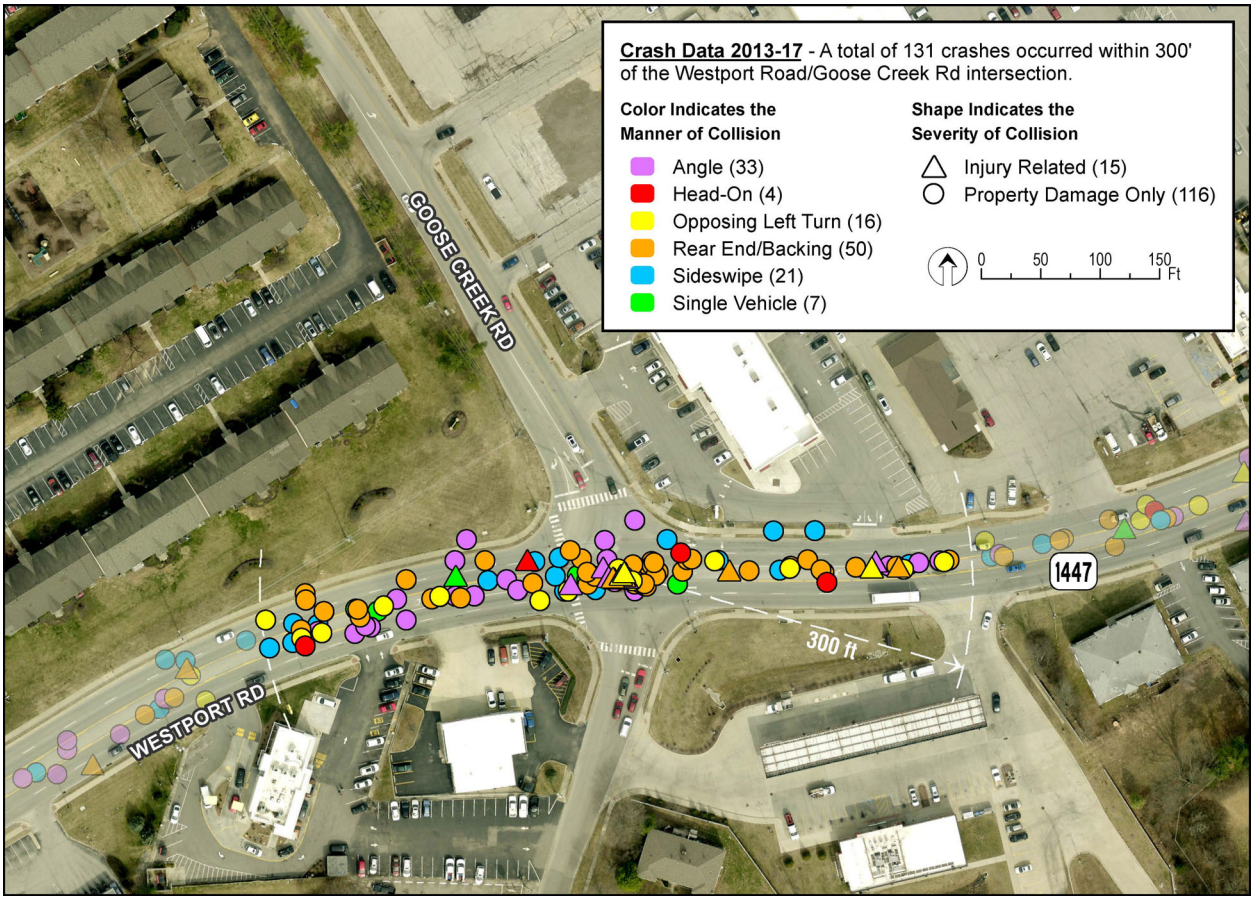


Figure 25: Crashes by Severity and Type at Goose Creek Intersection

The most challenging aspect to improving the signalized intersection at Goose Creek Road is the McDonalds south and west of the intersection. There is no space for an internal circulation loop within the parcel. Its driveways are within 300 feet of the eastbound Westport Road stop bar, limiting the available storage space for eastbound left turns at the Goose Creek intersection. Converting the McDonalds driveways to right-in/right-out configurations could improve traffic flow, increase available storage for eastbound left turns, and reduce the number of conflict points to improve safety.

5.6 Westport Plaza Driveways

Improved access management for the Westport Plaza shopping center and adjacent outlots was explored through a variety of measures. The entire stretch—from the Goose Creek intersection through KY 1747 Hurstbourne Lane—exhibits elevated crash rates: 196 crashes in five years, making it the highest CCRF spot within the study limits (2.3 CCRF). The majority of crashes are rear end collisions. High traffic volumes, closely spaced signals, and lengthy peak hour queues contribute to high crash rates and degraded operations.

Analysts considered adding raised medians to better channelize left turn bays, converting driveways to right-in/right out configurations. Adjusting signal timing plans to accommodate U-turns may increase delay at side streets, particularly for right turn movements.

5.7 Creekside Drive to Springhurst/Freys Hill

The 0.6-mile stretch between Creekside Drive and Springhurst Boulevard/Freys Hill Road is residential in the western section with large commercial developments on both sides of the roadway approaching Springhurst/Freys Hill. During the five year analysis period, 176 crashes were reported, including 1 fatality (a pedestrian strike in March 2015) and 40 injury collisions. Crashes are primarily divided between rear ends (41%) and angle/turning movements (40%). The crash density increases towards the eastern section limits, resulting in a 1.8 CCRF.

The Springhurst Boulevard/Freys Hill Road intersection operates at a LOS D and F during the AM and PM peaks, respectively. During the PM peak (**Table 10**), all movements operate at LOS D or worse; 6 of 11 movements have a v/c ratio greater than 0.9.

Table 10: PM Peak Hour Performance Measures at Westport/Springhurst/Freys Hill

Metric	Eastbound Westport Rd			Westbound Westport Rd		
	Left	Thru	Right	Left	Thru	Right
Volume per hour	293	1,112	152	227	1,090	156
LOS by Movement	F	F	D	F	F	D
Control Delay per vehicle	101.8 sec	87.0 sec	41.5 sec	96.9 sec	127.1 sec	47.8 sec
v/c by Movement	0.95	1.02	0.31	0.92	1.12	0.36
Average Queue Length	492 ft	889 ft	154 ft	366 ft	943 ft	170 ft
Max Queue Length	675 ft	1,155 ft	257 ft	524 ft	1,292 ft	277 ft
Metric	**Northbound Freys Hill Rd**			**Southbound Springhurst Blvd**		
	Left	**Thru**	**Right***	**Left**	**Thru**	**Right**
Volume per hour	148	111	161	250	123	244
LOS by Movement	E	F	-	E	E	F
Control Delay per vehicle	55.1 sec	206.2 sec	-	74.3 sec	59.9 sec	84.6 sec
v/c by Movement	0.48	1.23	-	0.94	0.36	0.85
Average Queue Length	181 ft	576 ft	-	346 ft	150 ft	376 ft
Max Queue Length	294 ft	854 ft	-	501 ft	251 ft	537 ft

** Northbound right turn lane shared with thru movement*

Analysts examined a variety of improvement concepts to improve operations and increase access management, reducing conflict points in this section:

- Installing positive separation (e.g., bollards or median) along the eastbound turn lane approaching the Springhurst/Freys Hill intersection.
- Converting the main entrances (between Home Depot/Half Price Books) to right-in/right-out configurations with positive separation in the median.
- Adding a raised median with openings at Stonebridge Road, Graystone Manor Parkway, and the main shopping center entrances; other driveways/cross-streets become right-in/right-out layouts.
- Adding median islands to discourage use of the two-way left turn lane for through travel.
- Adding/extending turn lanes, particularly for lefts onto Springhurst Boulevard.

- Adding a bus bay on the westbound side in front of Chipotle to provide a safe space for loading/unloading beyond the main traffic stream.
- Widening Freys Hill Road to provide three northbound lanes with a dedicated left turn lane, a shared through/left turn lane, and a dedicated right turn lane; this results in sizeable utility relocation costs.
- Adding bike lanes was suggested by the public to improve access to Tom Sawyer Park.
- Signalizing Creekside Drive, the entrance to 9910 Sawyer, and/or Graystone Manor Parkway, none of which meet signal warrants based on observed volumes.
- Adjusting signal phasing/timing at Springhurst/Freys Hill as a low-cost measure to improve intersection operations.

Pavement markings through this section of Westport Road were updated during 2019, improving functionality to some degree.

5.8 Chick-fil-A Access

Shown in **Figure 26**, analysts considered better defined access to Chick-fil-A, just west of Springhurst Drive. The concept shown channelizes the access to provide right-in/right-out access with a westbound right turn lane. Over the five year analysis period, 18 crashes were reported with 61% representing rear end collisions.

Figure 26: Right Turn Lane to Chick-fil-A

6. Meetings and Coordination

The study was bookended by a set of public meetings, with numerous project team and stakeholder coordination points throughout the analysis, summarized in

Figure 27: Key Coordination Timeline

6.1 Public Meeting 2017

The first public meeting for the project was held on March 28, 2017 at the Portland Christian School. Many community members attended, expressing concern about high travel speeds and dense development increasing traffic volumes. Attendees were asked to identify their top problems along Westport Road and suggest improvements to address these needs. Comments are summarized in **Figure 28** (next page). Public comments helped defined the scope of this planning effort.

6.2 Public Meeting 2019

Upon completion of the existing conditions inventory described in **Section 2** and development of improvement concepts discussed in **Sections 4** and **5**, the project team convened another public meeting. The meeting was held November 19, 2019 at the Westport Middle School gym and provided an opportunity to update interested community members on the status of the study. In total, 82 individuals attended the evening open house to discuss short-term improvement concepts proposed by the project team.

Public Meeting Attendees

In addition to comments received during the meeting, 277 surveys were completed online to provide additional feedback. When asked to identify the primary transportation concerns along the existing study corridor, 36% of respondents selected congestion, followed by high travel speeds (20%), safety (19%), limited visibility turning at cross-streets or driveways (11%), and in-street bikes and pedestrians (10%).

Figure 28: Summary of 2017 Public Input

People were asked to rank the six short-term spot improvements presented based on importance, where 1 is the most important and 6 is the least. Attendees were also asked to identify additional spot improvements for consideration. Input is summarized in **Figure 29** and **Chapter 5**, respectively.

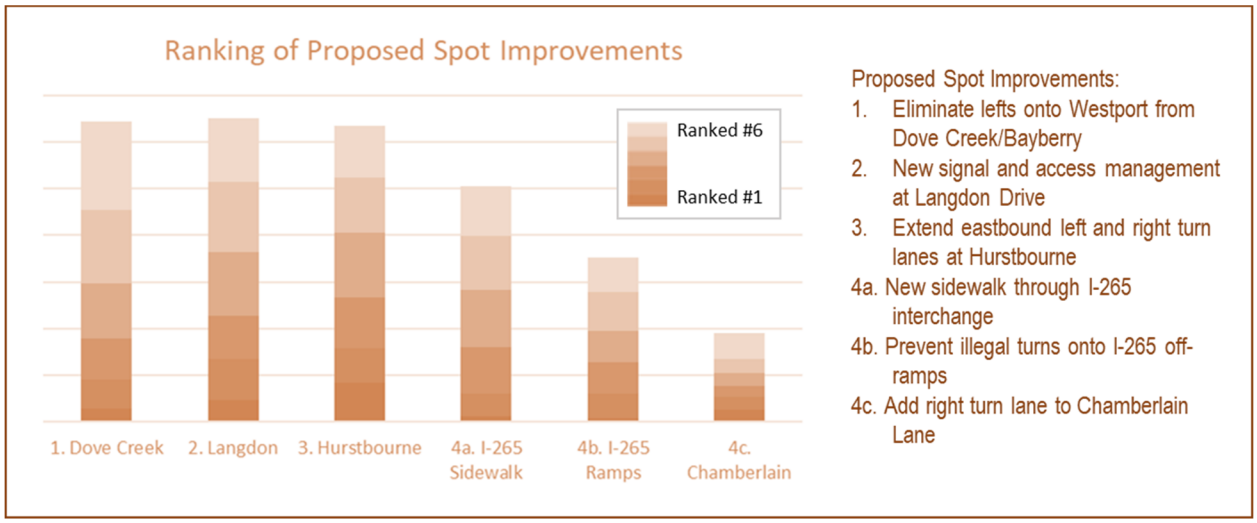


Figure 29: 2019 Ranking of Proposed Short-Term Spot Improvements

7. Conclusions

This *Westport Road Corridor Study* examines 6.1 miles of the existing KY 1447 Westport Road Highway, between Hubbards Lane and Chamberlain Lane, including interchanges with both Watterson Expressway (I-264) and Gene Snyder Freeway (I-265). The objective of the study is to address existing safety and mobility needs for this densely developed residential and commercial area.

The route has a five lane typical section today (two travel lanes per direction plus a TWLTL) with 16 signalized intersections within the study limit. It is a principal arterial route carrying 16,600 to 36,000 vpd. Strong peak hour traffic flows degrade operations, with several intersections operating and LOS E or F during the PM peak hour and lengthy queues. Peak hour travel speeds are well below the posted 45 mph speed limit, averaging 27-31 mph.

Further, the corridor exhibits elevated crash rates; 2,189 crashes were reported along the corridor during 2013—2017, including seven fatalities and 454 injury collisions. In total, six crashes involving bicyclists and seven pedestrian strikes were included in the dataset. Analysis shows 14 spots 0.3 miles in length that exhibit high CCRFs, that is, where crashes are occurring more frequently than can be attributed to random occurrence.

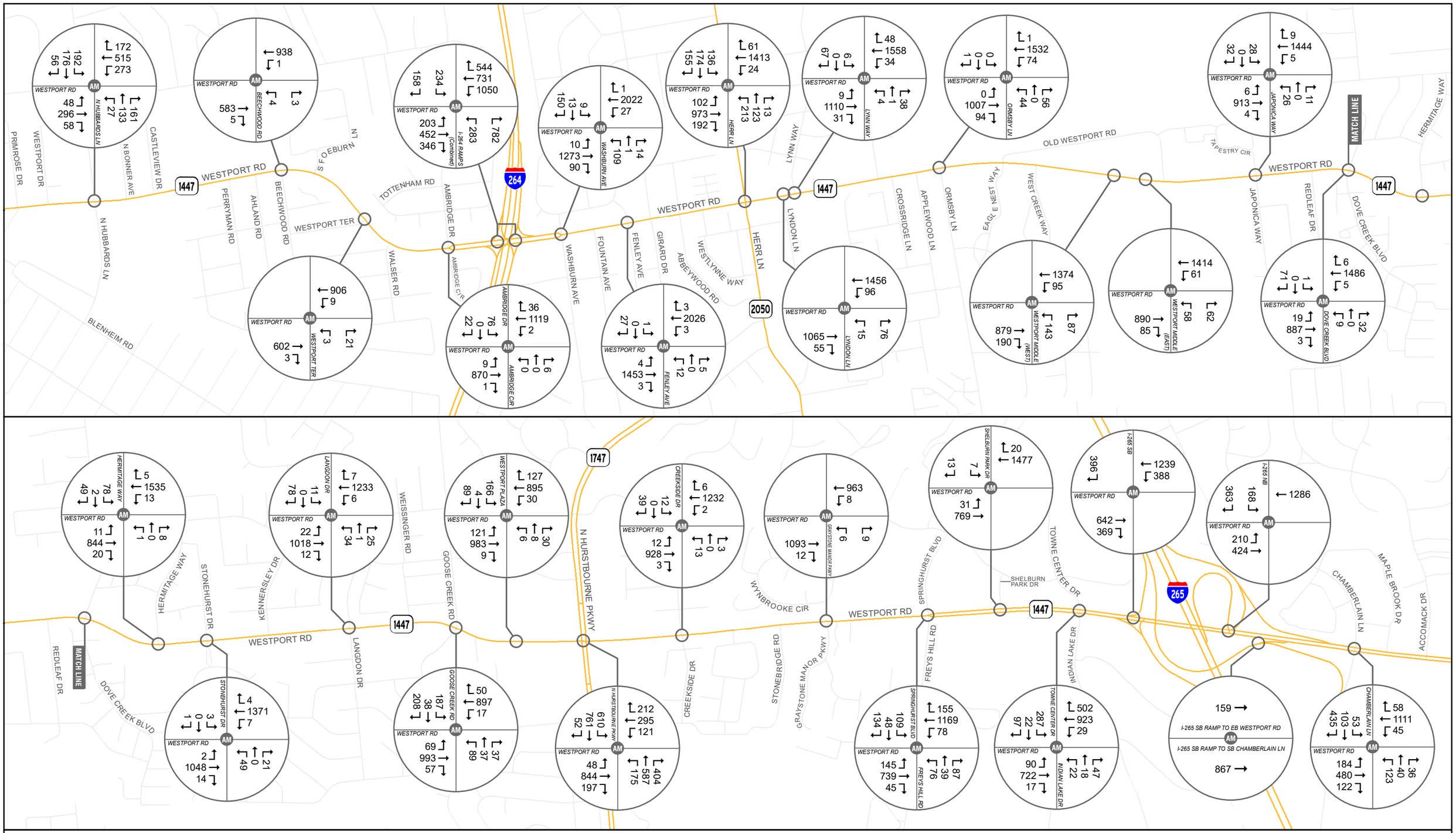
The project team considered traffic patterns, operational performance measures, historic crash trends, and public involvement to develop a set of recommended short-term improvements:

- Conduct speed study for corridor
- Signalize Langdon Drive with improved access control at Rolling Hills shopping center ($200,000)

- Extend eastbound turn lanes at KY 1747 Hurstbourne Parkway intersection ($200,000)
- Construct sidewalk north of Westport Road through I-265 interchange ($350,000)
- Install vertical delineators to prevent illegal cross-ramp cut-through to Chamberlain Lane ($100,000)
- Add eastbound right turn lane to Chamberlain Lane on existing shoulder ($200,000)

In addition, a number of other concepts are documented that were discussed over the course of the planning process. Some could be implemented as long-term solutions but are likely to face vocal opposition from the community. Others are not feasible from an engineering perspective or would be difficult to implement as a standalone project.

Appendix A: 2018 Turning Movement Counts

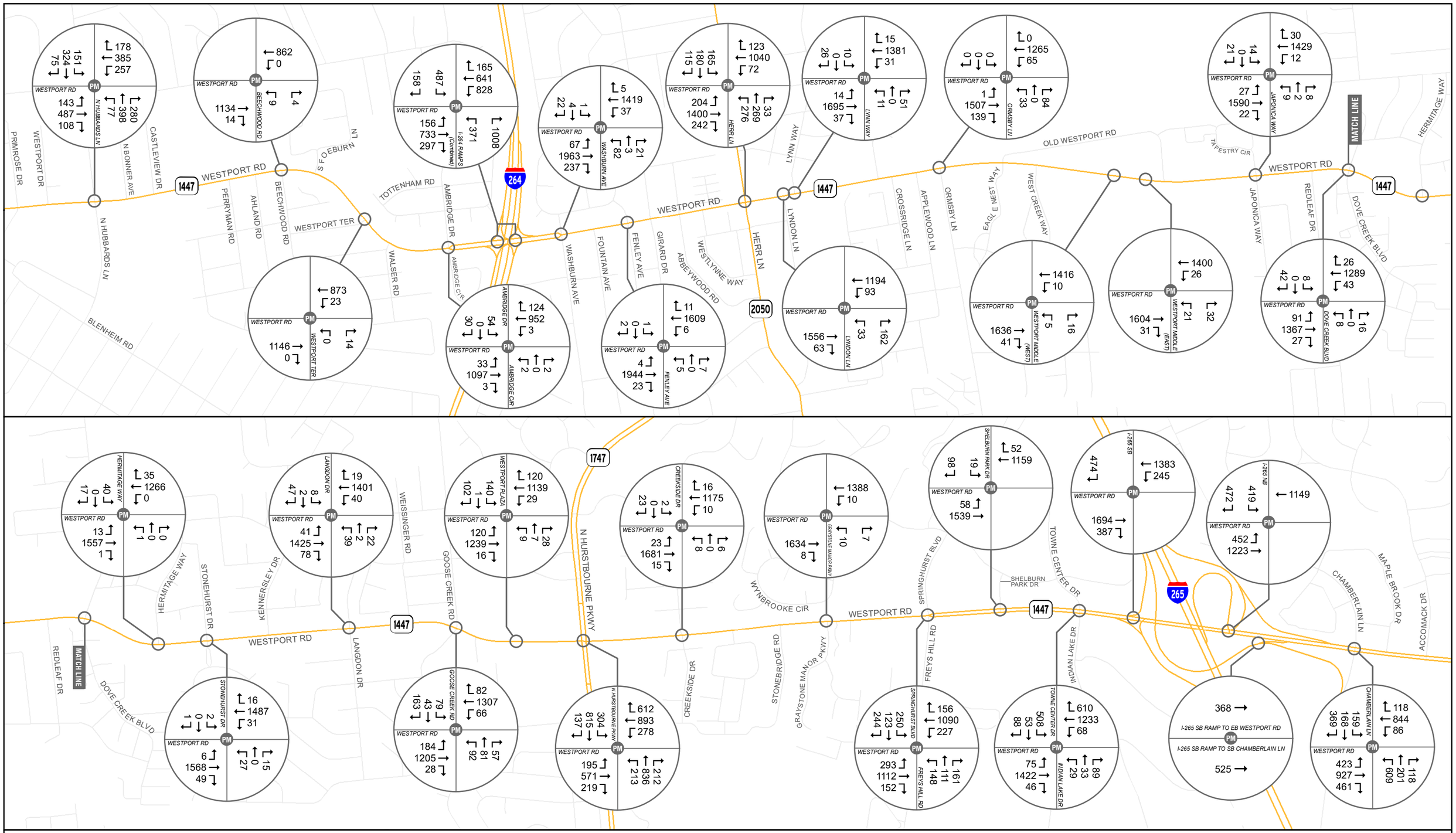


AM Peak Hour

Turning Movement Counts

Westport Road Corridor Planning Study

Louisville, Kentucky



PM Peak Hour

Turning Movement Counts

Westport Road Corridor Planning Study

Louisville, Kentucky