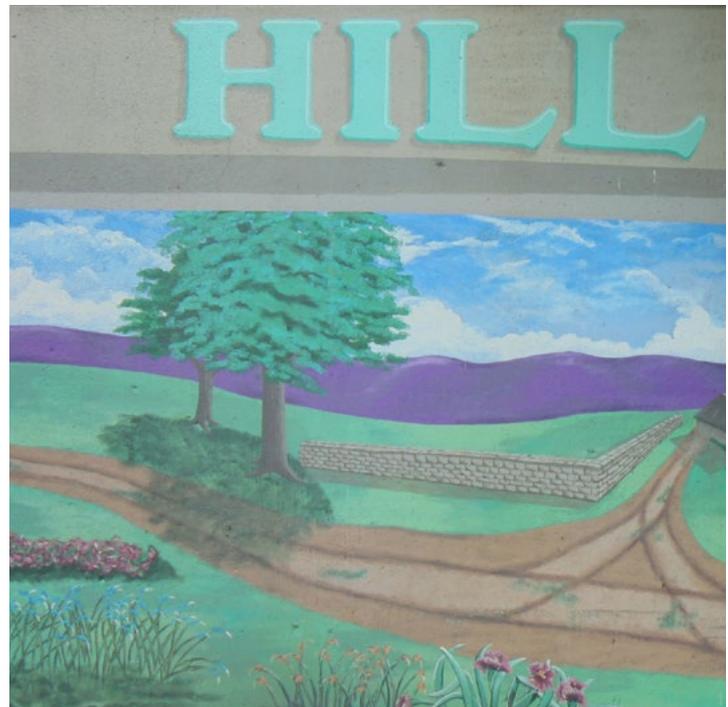


THE VISION:

To develop a multi-modal, complete street, neighborhood friendly road that is safe and efficient for all users.

LEXINGTON ROAD CORRIDOR TRANSPORTATION PLAN

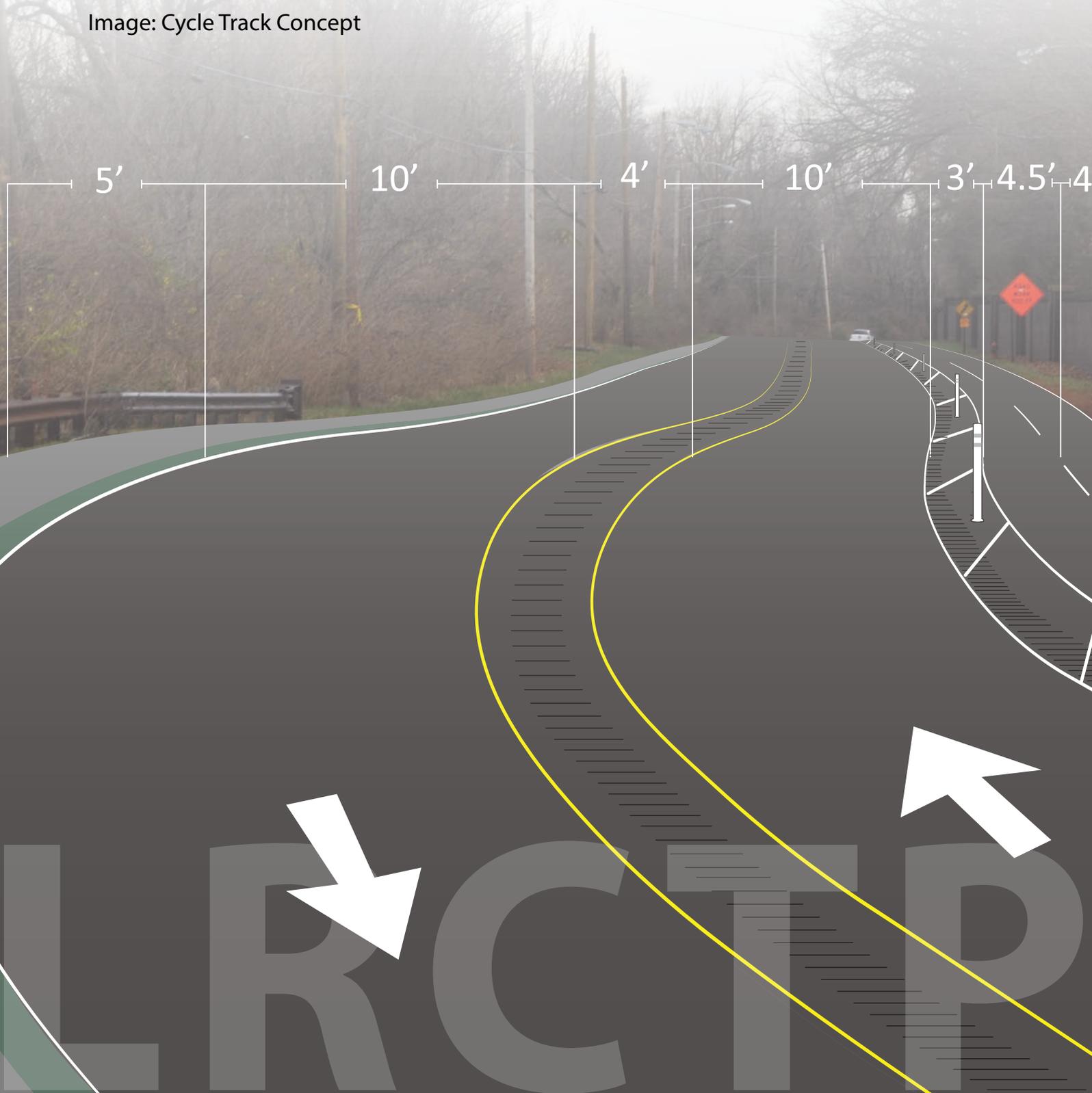
June 2015



the purpose

The purpose of the LRCTP is to assess the current safety and access issues experienced by residents and businesses while considering the potential impact of a series of development proposals and initiatives that will require multi-modal considerations to protect the quality of life, mobility options, and economic development of the corridor.

Image: Cycle Track Concept



Lexington Road Corridor Transportation Plan

FROM BAXTER AVENUE TO
GRINSTEAD DRIVE, INCLUDING LIBERTY
STREET TO WEST CHESTNUT STREET
IRISH HILL NEIGHBORHOOD

JUNE 2015



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1. INTRODUCTION

Louisville Metro undertook a corridor study of Lexington Road through the Irish Hill Neighborhood between September 2014 and April 2015 with the goal of identifying and addressing multi-modal transportation needs in the area. The focus of the study was Lexington Road between Baxter Avenue and Grinstead Drive and Liberty Street between East Chestnut Street and Lexington Road. This Lexington Road Corridor Transportation Plan (LRCTP) documents the results of the intensive planning efforts.

The need for the study was born out of combination of several factors:

Changes in land use along the corridor

The approved, but not yet developed, 300-unit Axis Apartment complex just west of Payne Street will change the character of the area;

Deteriorating infrastructure

The asphalt and drainage in many locations are in poor condition;

Unfitting context

The undivided four-lane, vehicle-centric configuration of the existing roadway and intersections, with various restricted on-street parking, is not fitting for a traditional neighborhood setting; and

Neighborhood Connectivity

The corridor is lacking safe and modern multi-modal—pedestrians, bicyclists, and transit—transportation facilities linking Irish Hill and the surrounding neighborhoods.

Today Lexington Road is a 4-lane, minor arterial that has two travel lanes in each direction and carries approximately 8,600 automobiles per day—with notably heavy volumes during the morning and afternoon peak hours, and notably low volumes during the rest of the day. The road has deteriorating asphalt, drainage problems in certain areas, “unconventional” intersections, no bicycle facilities, restricted on-street parking in various locations, sidewalks (many in poor condition) that extend along only 60% of the corridor, and a railroad viaduct that is an unattractive gateway, at best.

This planning process, documented herein, explored opportunities to improve these conditions along this corridor, based on public input, agency coordination, Metro and neighborhood residents’ vision for re-investment in the area, and accepted transportation planning and engineering practices. The planning process sought near-term, low-cost improvement options as well

as higher cost items that could be implemented over time.

1.1. Purpose and Scope of Study

The purpose of the LRCTP is to assess the current safety and access issues experienced by residents and businesses while considering the potential impact of a series of development proposals and initiatives that will require multi-modal considerations to protect the quality of life, mobility options, and economic development of the corridor.

The vision of the study is to develop a multi-modal, complete street, neighborhood friendly road that is safe and efficient for all users.

The intent of the study is to develop alternative designs and a conceptual plan for safe accommodation of multi-modal users, including pedestrians, cyclists, transit and other vehicles, on the Lexington Road corridor.

The scope and the remainder of this document addresses these major elements:

- Assessment of Existing Conditions.
- Coordination with Louisville Metro agencies with interest in this area (Internal Stakeholders)
- Coordination with businesses, residents, and users of the corridor (External Stakeholders)
- Identify a broad range of possible alternative scenarios to meet the goals of the plan, specifically the needs of the different types of users
- Conduct traffic and operational analyses for the alternatives
- Refine, eliminate, and advance alternative options based on the traffic analyses, public input, costs, and engineering considerations
- Develop enhancement options to improve the sense of place along the corridor, such as streetscapes, and green infrastructure.
- Develop cost estimates for the final set of recommended alternatives.
- Document the planning process and a recommended Master Plan.





1.2. Project Setting and History

PROJECT SETTING

Lexington Road serves as the backbone of the Irish Hill neighborhood. Irish Hill was originally known as Billy Goat Hill due to the numerous goats that grazed the hillside of an area farm. It was later named for nineteenth-century Irish-Catholic immigrants, as Irish Hill. The first subdivision was laid out in 1859 with the rest of the neighborhood being developed in the mid-1860s.

Today Irish Hill includes a mix of historic resources, and more modern land uses such as Masterson Catering, the VolksDoctor, Outfront Media (formally CBS Outdoor), and the development near Grinstead Drive, including the Girl Scouts of Kentuckiana Headquarters.

The majority of the corridor, however, is still represented by the rich historic resources including Distillery Commons, the homes of Irish Hill, and Headliners Music Hall, which has rich history of being a “rehearsal hall” for bands during prohibition, where “medicinal” bourbon was available¹.

Lexington Road bisects Irish Hill and connects it to some of Louisville’s most cherished neighborhoods and communities, including: Butchertown, Clifton, Crescent Hill, Cherokee Park, Cherokee Triangle, Highlands, and Phoenix Hill.

1 <http://headlinerslouisville.com/about/>

Lexington Road was most likely constructed as a farm-to-market road as it connected directly to the aptly named Butchertown at the west terminus. Its four lanes were designed for high volumes roads, but today are not compatible for the traditional neighborhood setting. Furthermore, the confusion of the Lexington Road/Liberty Street Y-intersection has generated a lot of problems for drivers, residents, and pedestrians.

PROJECT HISTORY

The failing condition of the asphalt on Lexington Road warrants attention, and the unsafe configuration of the four-lane undivided roadway and the confusing Y-intersection have generated notable public requests for rethinking this corridor. Additionally, the approval of the 300-unit Axis Apartment complex near Payne Street supports the need for a transportation corridor plan. For these reason the Irish Hill Neighborhood Association requested Louisville Metro to pursue this planning effort, which was also endorsed in the recent Move Louisville Multi-Modal Transportation Plan. Consequently, on May 30, 2014, Louisville Metro advertised for consultant to carry out the planning process for this corridor. On June 20, 2014, Qk4, Inc., a Louisville based engineering and planning firm, was selected.

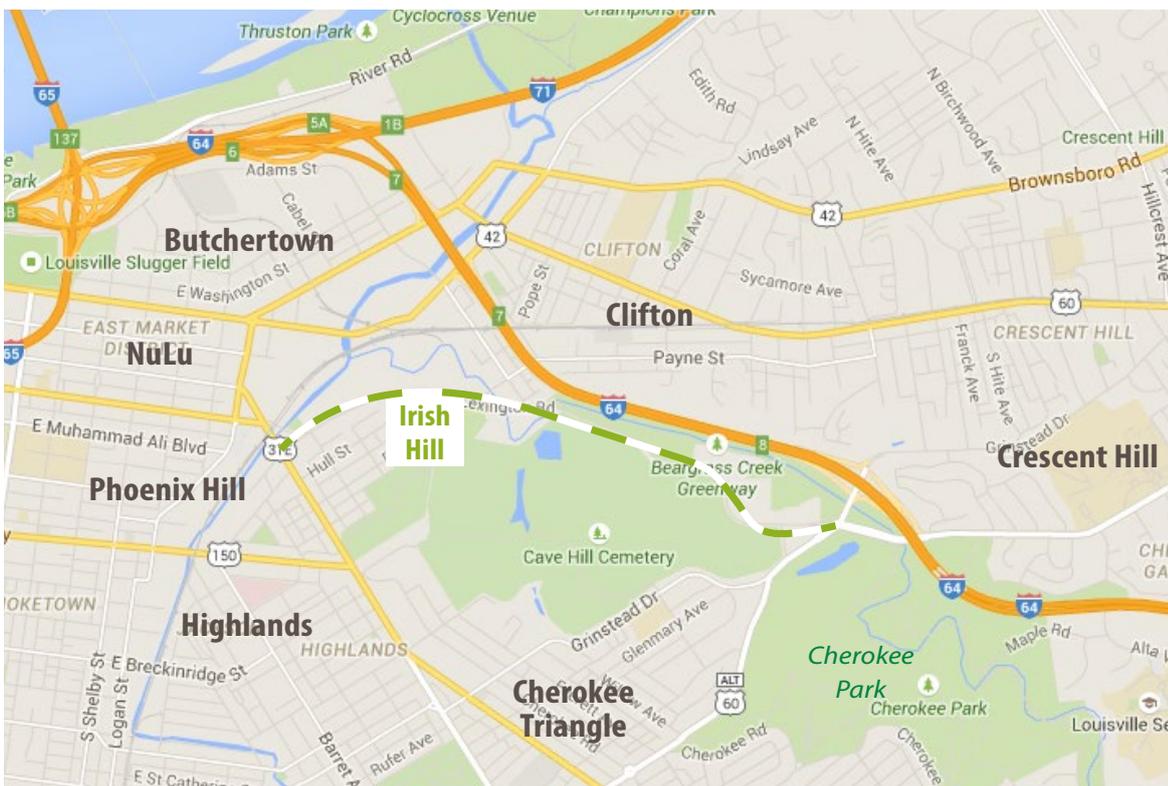


Figure 1: Location Map

1.3. Project Goals

GOAL 1: Create an efficient transportation system serving the corridor that balances regional and local transportation needs.

- Maintain the corridor's ability to accommodate regional travel.
- Provide for safe and convenient access to local land uses.
- Upgrade traffic control systems to more efficiently move people and goods in the corridor.
- Improve local circulation within the study area to reduce demands on Lexington Road.
- Simplify and clarify traffic control, signage, and striping.



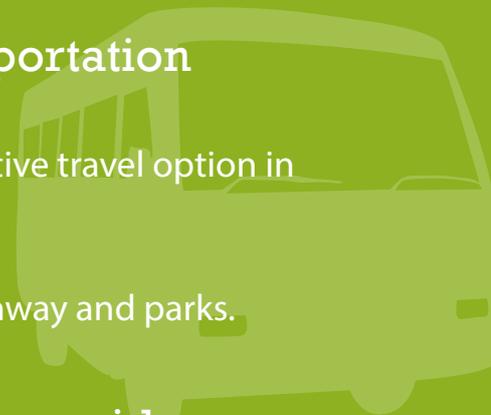
GOAL 2: Improve safety for all users.

- Manage access to the corridor and reduce conflicting turning movements.
- Provide safe and convenient crossing and travel opportunities for pedestrians and bicyclists.
- Reduce and/or better manage recurrent congestion.
- Design to moderate travel speeds.
- Consider all potential users in the planning and design process.



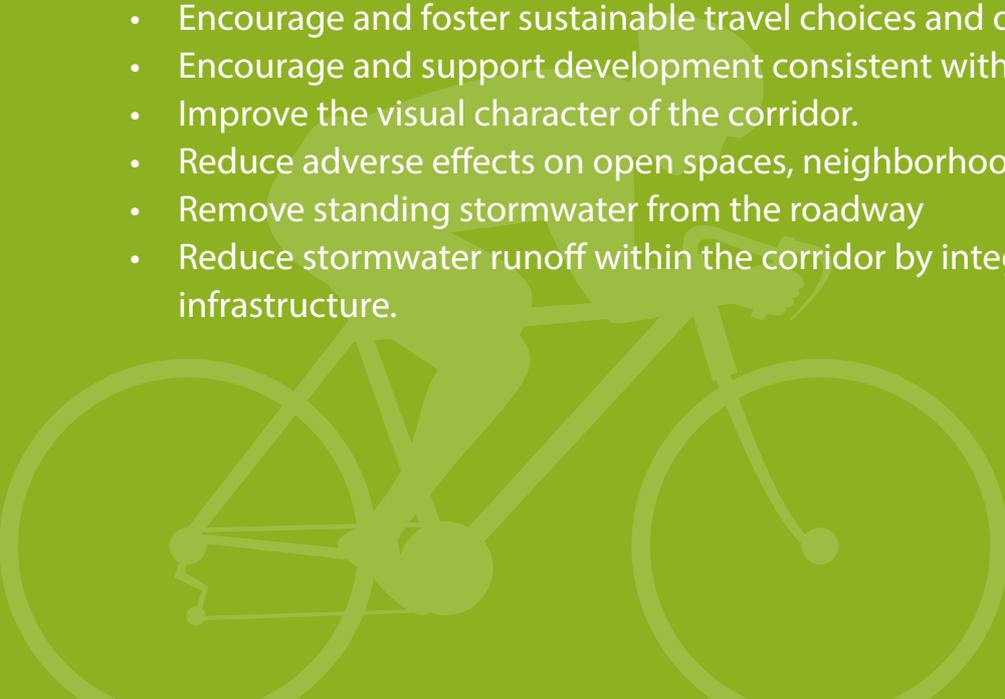
GOAL 3: Provide a range of convenient transportation options.

- Improve public transit service and make it a more competitive travel option in the corridor.
- Provide safe and attractive pedestrian accommodations.
- Provide safe and engaging access to Beargrass Creek Greenway and parks.
- Improve conditions for bicyclists on Lexington Road.



GOAL 4: Enhance the quality of life along the corridor

- Encourage and foster sustainable travel choices and development practices.
- Encourage and support development consistent with local plans.
- Improve the visual character of the corridor.
- Reduce adverse effects on open spaces, neighborhoods and the environment.
- Remove standing stormwater from the roadway
- Reduce stormwater runoff within the corridor by integrating green infrastructure.





2. PLANNING PROCESS

The planning process was multi-faceted, including an on-going assessment of existing conditions, traffic and roadway engineering and alternative analysis, and public and agency involvement. The conditions and analyses were continually evaluated as various alternatives were considered.

Stakeholder involvement included a project web page² that provided updated information and various meetings and opportunities for input throughout the planning process, summarized below:

² <http://louisvilleky.gov/government/advanced-planning/lexington-road-corridor-transportation-plan>

Internal Stakeholder Meeting #1

Project Kickoff Meeting and review of scope, project management plans, goals, and objectives.

August 21, 2014

Fact Finding Meetings

One-on-one meetings on-site with various business and landowners along the corridors.

September 22-26, 2014

Public meeting #1

A meeting with the external stakeholders to initiate the planning process. The presentation included an overview of existing conditions, the goals and objectives, and project scope. Attendees were divided into workgroups and provided input on issues with the corridor and items to be addressed with the planning study. Twenty-five (25) citizens signed in at the meeting. To advertise for this meeting (and subsequent public meeting), fliers were emailed to the database of addresses, including elected officials representing the area and the Irish Hill Neighborhood Association (IHNA).

October 7, 2014

Road Safety Audit

Conducted by various Louisville Metro Staff and IHNA members, to assess safety issues for all users by walking the corridor and completing a Road Safety Audit form.

October 24, 2014

Internal Stakeholder Meeting #2

Review of design concepts for redevelopment of Lexington Road to include bicycle facilities. Consideration of a buffered cycle track concept, in lieu of buffered conventional bike lanes, was a request made during this meeting.

November 7, 2014

Public Meeting #2

A meeting with the external stakeholders to present the initial design concepts, a reconfiguration of the Lexington Road/Liberty Street Y-intersection, on-street parking changes, and either bike lanes or a cycle track to serve the biking needs. Nineteen (19) citizens signed in at the meeting.

November 11, 2014

Internal Stakeholder Meeting #3

Review of refined design concepts, including a refined cycle track concept that would place it on the south side of Lexington Road.

December 5, 2014

Public Meeting #3

A meeting with external stakeholders to present the refined (as compared to those presented and Public Meeting #2) design concepts, and seek public comment. Thirty-two (32) citizens signed in at the meeting.

December 9, 2014

TARC

Review issues and identify solutions to improve transit service in the corridor during this meeting that a perceived disconnect between Routes 17 and 19 near Liberty Street does not actually exist.

December 12, 2014

Metro Traffic Division

Review alternatives concepts in light of the traffic signal and network, including traffic delays, levels of service, and volume vs. capacity (v/c).

December 29, 2014

Irish Hill Neighborhood Association (IHNA)

A meeting with representatives of the IHNA to review and receive input on the alternatives and project objectives.

January 6, 2015

Internal Stakeholder Meeting #4

Review of recommended concepts in preparation for next public meeting and report.

January 9, 2015

Public Meeting #4

The final meeting with external stakeholders was held to present the recommended concepts presented in this planning document. Fifty-seven (57) citizens signed in at the meeting.

January 20, 2015

3. PROJECT AREA AND CORRIDOR

Lexington Road is a Louisville Metro owned road. The two termini—Baxter Avenue (US 31E) and Grinstead Drive (Alt US 60)—are state maintained roads, as is Lexington Road east of Grinstead Drive (Alt US 60).

3.1. Roadway Characteristics

Corridor-Wide Existing Conditions: For the majority of the corridor—with the exceptions being a left-turn lane (LTL) at Grinstead Drive and the complicated Y-intersection at Cooper Street/Liberty Street/Lexington Road—Lexington Road has 42 feet of asphalt from curb to curb, which accommodates two 10-foot-wide travel lanes in each direction, 1-foot-wide gutters, no bicycle facilities, and restricted on-street parking at different locations.

Lexington Road is classified as a “minor arterial” and had a 2014 an average daily traffic (ADT) volume of 10,600 west of Payne Street and 8,800 east of Payne Street. The road serves as a commuter route to/from downtown Louisville, as it parallels I-64, which has access to Grinstead Drive at the eastern termini of the study corridor. As such, it

has notably heavy volumes during the morning and afternoon peak hours. The morning peak period accounts for about 12% of the ADT (87% of which is westbound) and the afternoon peak period accounts for about 15% (79% of which is eastbound) of the ADT. Typical peak periods account for only 10% of the ADT. These higher percentages support the fact that during the non-peak periods the road is notably under capacity.

Along the Cave Hill Cemetery Wall, between Payne Street and Etlely Avenue, the road has deteriorating asphalt and drainage problems that result in safety issues. The brick wall, while historic and iconic in some regards, provides an obstruction to drainage on the south side of the road. During heavy rain and snow events, the water has deteriorated the sub-grade, which results in significant pot-holes and subsidence. This problem could be corrected by rebuilding the asphalt to increase slopes, re-wedging the ditches, and providing new cross drains to move water to the north side. The wall also causes sight distance problems for drivers and bicyclists, by restricting visibility to see around the next curve.

Table 1: Lexington Road Crash Data: 2009-2013

Location	CCRF*	Total Crashes	Fatal Crashes	Injury Crashes	PDO** Crashes	Predominant Crash Types
Baxter Ave. Intersection	1.003	12	0	0	12	3 entering/exiting side entrance; 3 angle; 2 involving car parked on street
Liberty St. Intersection	0.752	8	0	0	8	4 rear-end; 2 sideswipe
Liberty to Payne St.	0.578	27	0	7	20	9 collision with fixed object; 4 rear-end; 4 sideswipe; 4 involving vehicle parked on street
Payne Intersection	2.484	30	0	9	21	12 angle; 10 opposing left turn; 4 sideswipe; 2 rear-end; 2 single vehicle
Payne to Grinstead	0.449	48	0	10	38	8 angle; 4 head-on; 3 rear-end; 15 sideswipe; 16 single vehicle
Grinstead Intersection	0.248	3	0	1	2	2 sideswipe; 1 rear-end

* The Critical Crash Rate (CCRF) >1 is a rate which is statistically greater than the average crash rate for similar roadways, and represents a rate at which crashes could be said to be occurring in a non-random fashion. The formula includes the number of crashes occurring within a roadway section, average daily traffic, and the number of years for which crash data is being examined. Historically, the crash rate has been compared to the Critical Crash Rate for similar types of roadways using a procedure developed at the Kentucky Transportation Center.

**PDO = Property Damage Only. CCRF = Critical Crash Rate Factor.





3.2. Crash Analyses

Corridor Wide. Following is a summary of crash data from the most recent five year period for which comparative data is available (2009-2013) for this portion of Lexington Road:

CRASHES OVERALL

128

27 RESULTED IN ONE OR MORE INJURIES

10

were along the Cave Hill Cemetery Wall section, and four (4) of those were head-on collisions

9

were at the Payne Street Intersection

ZERO
fatal crashes

DURING THIS PERIOD

PREDOMINANT CRASH TYPES

20%

SIDSWIPES

20%

SINGLE-VEHICLE CRASHES (EACH)

16%

ANGLE CRASHES

12%

CRASHES INVOLVING AT LEAST ONE VEHICLE MAKING A LEFT TURN

Intersections and Sections.

@ Baxter Avenue:

twelve (12) crashes have occurred, which meets the test for a significant number of crashes. Three (3) of those crashes involved a vehicle entering from, or exiting to, a side entrance while two other crashes involved a vehicle parked on the street.

@ Liberty Street:

eight (8) crashes; four (4) of those were rear-end crashes while two (2) were sideswipes.

Between Liberty Street and Payne Street:

27 crashes occurred, nine (9) involved collisions with fixed objects, four (4) were rear-end, four (4) were sideswipes, and four (4) involved a vehicle parked on the street.

@ Payne Street:

thirty (30) crashes meet the test for statistical significance. Eighty percent (80%) are either angle, opposing left turn, or rear-end crashes. Ten (10) resulted in one or more injuries. In fact, one third of the injury crashes on Lexington Road occurred at the Payne Street intersection.

Between Payne Street and Grinstead Drive:

forty-eight (48) crashes occurred. Single vehicle (16) and sideswipe (15) crashes constituted nearly 2/3 of this section's crashes. Twenty-one percent (21%) of crashes resulted in one or more injuries. Only three (3) crashes occurred at the intersection with Grinstead Drive, two (2) of those were sideswipes.

3.3. Demographics and Community Setting

Recent Census data provides a "window in time" look at the characteristics of the residents and employees of the Lexington Road Corridor area. Overall, the area is a more urbanized, higher-density population with greater access to employment and services. The following is a quick summary of some of those characteristics for the corridor and the half-mile radius around the corridor:

- **The population density**—greater than the rest of Jefferson County with about 4.4 persons/acre compared to 2.9 persons/acre. While the density is greater, since the 2000 Census count, the area has declined 12% in population (8,101 in 2000; 7,245 in 2010).
- **The average household size**—smaller than Jefferson County's and decreased by 8% over the last decade. Over 80% are households with two or fewer people.

Less than a 1/5th of the households have children under 18.

- **The median age**—similar to the rest of the county—around 38. One out of every three people is between the ages of 25-45.
- **More people rent than own** property (50.8% rent vs. 37.4% own).
- **The corridor provides many opportunities for employment in close proximity**—there are 1,122 businesses located within a half-mile of the corridor with over 8,083 employees.
- **With higher densities and proximity to the large employment cluster in Downtown**—fewer people drive to work alone than the county (71% compared to 81% for Jefferson County). Transit use (7.8%) is more than double the county’s use (3.2%). Nearly 7% of the population chooses to walk or bike to their employment, a rate more than double the rest of Louisville.
- **Approximately 15% of households do not own a vehicle** (compared to the county rate of 10%).
- **The medium household income**—\$36,685, is less than that for Jefferson County (\$46,701).
- **Nearly 1 out of every 5 residents is disabled within the Lexington Road Corridor area.**

Sources: U.S. Census Bureau, 2008-2012 American Community Survey; Census 2000; Census 2010; Dun & Bradstreet, Inc. 2014.

4. ALTERNATIVES

The alternatives analysis was at the heart of the planning study. As standard practice, the first alternative is the “Do-Nothing” option, i.e., simply take no action. In the case of this study, selecting the Do-Nothing Alternative would result in the project goals not being realized: Metro would forego the opportunity to enhanced mobility and, thereby improve the quality of life in the neighborhood and in the greater community of travelers. In addition, because the condition of the asphalt is substandard, this Do-Nothing alternative would require continued and costly maintenance. The vehicle-centric and, at times, unsafe status quo would prevail. For these reasons, the Do-Nothing Alternative is not recommended.

The alternatives analysis presented below is divided into two approaches: corridor-wide and seven (7) corridor sub-areas.



4.1. Overview of Corridor-Wide Recommendations

Corridor-Wide Alternatives Analysis: The planning process addressed many scenarios for reconfiguring the 42-foot-wide asphalt to accommodate motorized vehicles, bicycles (either buffered bike lanes on both sides of the road or a two-way protected bike lane on one side, commonly called a “cycle track”), on-street parking, safer pedestrian crossings, and improved TARC stop locations. Various combinations and configurations of these elements have been presented to the public and local agencies, and the preliminary plans have been revised several times in the process. Based upon goals and objectives of the plan (Section 1.3), comments received from internal and external stakeholders (Section 2.0), review of existing conditions (Section 3.0), engineering analyses of various alternatives (Section 4.0), the following combination of elements is recommended for advancement toward construction, throughout the corridor:

Corridor-Wide Recommended Alternative:

The general recommendations are summarized below. Detailed descriptions are provided in subsequent sections in this report.

1. **First, rehabilitate the pavement, which will require the following:**
 - Mill and then resurface the asphalt throughout the corridor.
 - Along Cave Hill Cemetery Wall, redesign the asphalt to better remove stormwater from the road by reconfiguring the slope, redefining/wedging the ditches, and installing cross-drains as needed.
 - On Liberty Street between Baxter Avenue and Lexington Road, reconfigure the existing raised median.
2. **Second, re-stripe the new asphalt to accommodate:**
 - One 10-foot-wide travel lane in each direction for motorized vehicles.
 - For bicycles, one of two options (the decision to be made during the Final Design phase):

Option 1:

A two-way protected bike lane (cycle track) on the south side with 2, 4-foot wide bike lanes, and a 3-foot-wide buffer to separate the bike facility from the vehicles. The buffer should include



safety features such as striping, flexible bollards, and rumble strips; or

Option 2:

Two one-way conventional buffered bike lanes, 5 feet wide with a 1-foot-wide striped buffer between it and the motorized vehicle travel lane.

- Re-configured on-street parking to eliminate all restricted (signed and de facto) parking and to establish permanent (24-hour, daily) parking at select locations. Between 2009 and 2013 there were six reported crashes with cars parked on the roadway.
- Left Turn Lanes (LTLs) approaching Payne Street, with a re-timed signal to provide protected left turns. This intersection has a notably high crash rate, including numerous injury crashes that would be expected to be reduced with these improvements.
- A notable reconfiguration of the Lexington/Liberty Y-intersection to include a through travel lane in each direction to/from Liberty Street, a LTL to westbound Lexington Road, and re-defined parking west of Liberty Street. (This would require some new construction for the westbound Lexington Road approach, but it is within Metro-owned property.)
- A two-way left-turn lane (TWLTL) approach to Grinstead Drive, and at the planned Axis Apartments west of Payne Street.
- For improved safety, pedestrian striping for crosswalks at all signalized intersections, unsignalized intersections as appropriate, and a mid-block crosswalk in the 1200 Block near the existing covered TARC stop.
- Convert Liberty Street, between Baxter Avenue and East Chestnut Street from a one-way road to a two-way road. (The asphalt on this street was replaced in 2013, but the two intersections need to be reconfigured to accommodate the new pattern and shorten the crosswalks.)

3. In addition to the resurfaced and reconfigured (through painting) roadway, the following will be needed:

- Sidewalks that are compliant with the American Disabilities Act (ADA) installed/re-constructed throughout the corridor.
- TARC bus stop locations that are safe for users and efficient for buses, based on input from TARC officials.
- Traffic signal timing and, possibly, new signal heads at Grinstead Drive, Payne Street, Baxter Avenue, and Chestnut Street.
- New signs, per MUTCD standards, to guide vehicles and bicycles, especially for new traffic patterns.

4. The following enhancements, which were highly supported by the public, should be implemented:

- “Green Infrastructure” to retain and filter stormwater runoff where possible, especially near the stream crossings and at the reconstructed Lexington Road/Liberty Street Y-intersection (where existing trees in the median on Liberty Street should be replaced). This would be a partnered design and funding effort between MSD and Louisville Metro.
- A revised viaduct under the CSX railroad—i.e., sandblast, paint, and light the viaduct to improve aesthetics and pedestrian safety.
- Street furniture, including benches, landscaping, trash receptacles, and bike racks.
- Wayfinding signage to connect Irish Hill with the surrounding Louisville neighborhoods and destinations.

Each of the above elements would be within existing Metro-owned right-of-way; no new right-of-way would be required.

Rationale for Key Elements

Lane Reconfiguration (From 4 Lanes to 2)

The major change to the corridor for the traveling public and all other users would be the reduction from two travel lanes in each direction to one travel lane in each direction with a center turn lane where warranted. Commonly referred to as a “road diet,” this lane reconfiguration would provide numerous benefits to the community and the traveling public, including on-street parking. The

resulting benefits include an integration of the roadway into surrounding land uses that results in an enhanced quality of life.

Road diets have been implemented across the nation and Kentucky. As a result current transportation planners can benefit from the body of knowledge that identifies best practices and applications regarding how such changes have worked for diverse users. Both the Federal Highway Administration (FHWA) and the Kentucky Transportation Research Center (KTC) have published reports and best practices for implementing road diets. Per both reports, the primary factor for considering a road diet is the average daily traffic (ADT) volumes. For Lexington Road, the ADT ranges from 10,600 west of Payne Street and 8,800 east of Payne Street.

“FHWA advises that roadway with ADT of 20,000 vpd or less may be good candidates for a Road Diet and should be evaluated for feasibility.”³



The KTC report notes:

“Past work recommended [road diet] application for roads with an ADT up to 17,000 vehicles per day (vpd). The current research indicates that such conversions could work for roads with significantly greater volumes, up to 23,000 vpd”⁴



The ADT on Lexington Road (10,600 to 8,800 ADT) is notably *below* the bottom threshold in both reports (19,000 ADT and 23,000 ADT, respectively). Based on these reports, Lexington Road is a perfect candidate for a road diet. Closer to home, KYTC recently implemented two road diets in the vicinity of this study area—Grinstead Drive and Brownsboro Road:

- **Grinstead Drive carries approximately twice as much traffic (14,000 to 19,000 ADT) as Lexington Road.** In 2013, Grinstead Drive was converted from a 4-lane road to a 2-lane road with permanent on-street parking and bicycle facilities. The results have been reduced crashes, improved ingress/egress onto Grinstead Drive, and overall positive feedback and lack of public outcry, from the changes.
- **In 2011 KYTC converted about a 3,000-foot-long section of Brownsboro Road (US 42) from a 4-lane road two 2 travel lanes and a center turn lane.** The results have been **reduced crashes**, improved

ingress/egress onto Brownsboro Road, **better pedestrian service, and calmer traffic.** To be fair, public opposition was strong in the beginning and some still exists, but the data shows improved mobility and safety for all users. As with Grinstead Drive, the traffic volumes on Brownsboro Road are notably higher than those on Lexington Road (9,000 to 21,000 vs. 8,600 ADT, respectively).

These two examples and the documented research support the recommendation that a road diet would be an appropriate and beneficial application for Lexington Road. While drivers could expect nominal travel time delay (seconds), the calming effect would reduce crashes and be beneficial to pedestrians, transit users, and bicyclists. Moreover, the travel time would remain nearly the same for the entire corridor, most of which is governed by the traffic signals at Grinstead Drive, Payne Street, and Baxter Avenue.

Crash Reduction. FHWA’s Road Safety Manual notes the reduction from 4 lanes to 2 lanes is one of several proven safety countermeasures with a crash reduction factor of 30%, on average, and reduced vehicle speed differential. In addition, reducing to one the number of lanes to be crossed would notably improve safety for pedestrians and left-turning vehicles, both entering and leaving Lexington Road.

Multiple Users. A key feature of a road diet is that it allows reclaimed space to be allocated for other uses, such as turn lanes, bus lanes, pedestrian refuge islands, bike lanes, sidewalks, bus shelters, parking or landscaping. The current 4-lane configuration is geared toward serving motorized vehicles, only. The lane reconfiguration would create opportunities to improve safety conditions for pedestrians, bicyclists, and transit users. The lane reconfiguration would also provide opportunities for designated LTLs at key intersections, particularly those noted for congestion during peak-hour traffic.

Protected Bike Lanes (Cycle Track). A buffered cycle track, rather than conventional buffered bike lanes, was presented as the recommended option at the fourth and final public meeting. It is recommended because cycle tracks have been known to attract a wider variety of users than are drawn to conventional bike lanes. Overall, the vision of Louisville Metro is to create facilities to attract and provide opportunities for all citizens to bicycle, no matter their levels of expertise (experts or novices, young or old) or their purpose (commuting or recreation). Active mobility such as is provided through bicycling, as opposed to sedentary mobility provided in motorized

³ http://safety.fhwa.dot.gov/road_diets/info_guide/ch3.cfm

⁴ KTC Guidelines for Road Diet Conversion, November 2011. p. iv.





Figure 2a: Bicycle Lane Example



Figure 2b: Cycle Track Example

vehicles, is a long-promoted means of improving public health.

Across the country cycle tracks have been installed at a rapid rate—per People for Bikes, in the last four years over 201 facilities have been installed in over 70 North American cities. Overall, there has been an average of 75% increase in ridership in the first year of the facility with a reported 96% of users stating they felt safer on the streets because of the protected bike lanes.

When presented on the LRCTP project webpage, a significant amount of support for a cycle track concept was received through on-line comments—75% comments supported the cycle track concept.

The minimal access points along the south side of Lexington Road create a relatively safe and convenient opportunity to implement the cycle track in this corridor. The cycle track would provide some challenges, and require thoughtful signage, signal design, and pavement striping. In addition, an educational component would be needed to explain to bicyclists, the motorists, and others about the facility's function.

Sidewalks. Replacing substandard sidewalks and constructing a new sidewalk along the north side of Lexington Road opposite the Cave Hill Cemetery Wall are elements nearly everyone involved in the planning process agreed were needed. Each should be rebuilt/built to ADA standards. (A sidewalk along the south side of Lexington Road adjacent to Cave Hill Cemetery Wall would be unsafe, and is not recommended.)

Costs. The majority of the estimated project costs relate to replacing the deteriorating asphalt and improving

the poor drainage that leads to frequent stormwater ponding on the road. Because of these substandard conditions, the costs to improve would be incurred even without the project. Therefore, the costs to achieve remaining elements of the recommended alternative are relatively minor (see cost estimates in Table 2, Section 5

LRCTP Implementation).

“A cycle track is an exclusive bike facility that combines the user experience of a separated path with the on-street infrastructure of a conventional bike lane. A cycle track is physically separated from motor traffic and distinct from the sidewalk.”

Source: National Association of City Transportation Officials (NACTO).



Figure 3: Project Corridor - Map of Lexington Road Corridor’s Seven Analysis Areas

4.2. Specific Analysis and Recommendations

The text below presents the existing conditions, the alternatives considered, and the recommendations for Lexington Road Corridor (including Liberty Street) in the following areas, from east to west:

- 1** Area 1 - The Gateway—from Grinstead Drive to west of Etley Avenue
- 2** Area 2 - Cave Hill Cemetery Wall—from west of Etley Avenue to east of Spring Street
- 3** Area 3 - Spring Street and Payne Street intersections
- 4** Area 4 - Distillery Commons/Headliners/Axis—from Payne Street to the 1300 Block
- 5** Area 5 - Irish Hill Residential Area—1300 and 1200 Blocks
- 6** Area 6 - Lexington/Liberty Y-intersection—from Cooper Street to Baxter Avenue
- 7** Area 7 - Liberty Street—from Baxter Avenue to Chestnut Street

1 4.2.1. Area 1: The Gateway—from Grinstead Drive to West of Etley Avenue

Existing Conditions

The Setting: “The Gateway” is how this area is often described, as it provides an entry point, from I-64, not only to Irish Hill, but also to Cherokee Park to the southeast, the Highlands to the south, St. Matthews to the east, and Clifton Heights to the north. Popular restaurants and entertainment venues—Game, and August Moon—are

located in this area, as is a mix of other commercial and office space. During this planning effort, a prominent Louisville developer announced the acquirement of the approximate 3-acre triangle bound by Lexington Road, Grinstead Drive, and Etley Avenue who intends to eventually redevelop the area into a mixed-use complex.

Bicycle Network: The following constitute the bicycle facilities in the area:

- Cherokee Park includes an off-road, asphalt, shared-use path that begins at the southeast quadrant of Grinstead Drive/Lexington Road intersection and extends through the park.
- Beargrass Creek Shared-Use Trail extends west along Beargrass Creek, from a trailhead in the intersection’s northwest quadrant, generally paralleling Lexington Road for 1.2 miles to Spring Street.
- In 2013, Grinstead Drive was resurfaced and restriped from a 4-lane road to 2 lanes with permanent on-street parking and a combination of bike lanes and “sharrows” (share-the-road pavement markings for bikes and cars) for approximately 2 miles.
- East of Grinstead Drive a 550-foot-long bike lane is striped on the approach to Lexington Road. (Both the Begin Bike Lane sign and the End Bike Lane sign are in view concurrently.) No bike facilities are on Lexington Road west of Grinstead Drive.

Pedestrian Facilities: Sidewalks 4 to 5 feet wide are located along sections of Lexington Road, with notable gaps along the north side. The crosswalk on Lexington Road at the Grinstead Drive intersection is 132 feet long and includes a pedestrian island as part of the landscaped median.





Figure 4: Area 1 – from Grinstead Drive to West of Etley Avenue

Vehicle Mobility: Lexington Road includes four lanes, two in each direction. Approximately 26 on-street parking spaces, restricted to the hours of 6:00 PM to 6:00 AM, are provided along the north side of the road, thereby reducing the road to one travel lane during those hours. At Grinstead Drive, Lexington Road has been widened to include one LTL for northbound traffic and a raised landscape median.

Extending north from the north side of Lexington Road is the Metro-owned right-of-way of Beargrass Avenue, which is currently an unimproved (gravel and grass) parcel of land approximately 200 feet long and 35 feet wide. The future use of this parcel has been the subject of much discussion during this planning study. Extending south from the south side of Lexington Road is Etley Avenue, which is 500 feet long and connects Lexington Road and Grinstead Drive. Etley Avenue is used as a cut-through route and an overflow parking area along Cave Hill Cemetery Wall. Evidence of this is the fact that the peak-hour right-turn volume from Lexington Road to Grinstead Drive is nearly zero, and left turns from Grinstead to Lexington westbound are not permitted.

Traffic Volumes: While traffic on Lexington Road in this section is notable at 8,900 ADT, Grinstead Drive carries approximately twice as much traffic (19,000) on a daily basis. The access to and from I-64 is a critical element and governs much of the traffic flow and signal timing. The ADT ramp volumes to/from I-64 are 7,100 on each ramp to and from the east, but only an average of 3,500 on

each to and from the west.

Transit: There is no transit service in Area 1 on Lexington Road.

Alternatives

Throughout the planning process various alternative scenarios for redesigning Lexington Road were considered and vetted with the public and Metro agencies.

The following options were considered but are **not recommended**:

- Permanent on-street parking adjacent to the north curb throughout the area.
- Adjacent to the north curb, a shared-lane scenario of on-street parking from 6:00 PM to 6:00 AM and bicycle facilities (either a two-way or one-way protected bike lane) restricted to the opposite hours—between 6:00 AM and 6:00 PM.
- A permanent two-way protected bike lane on the north side.
- For motorized vehicles, a combination of one 10-foot-wide travel lane eastbound and two 10-foot-wide travel lanes westbound.

In addition to the corridor-wide improvements proposed for the roadway, the following combination of elements comprises the **preferred alternative** for Area 1:

Parking: To achieve a net gain in parking spaces in Area 1 and convert the parking from restricted to permanent.



Figure 5: Area 1 – Option 1, The Gateway at Grinstead Drive, with Cycle Track



Figure 6: Area 1 – Option 2, The Gateway at Grinstead Drive, with Bike Lanes

- Remove all of approximately 26 temporary parking spaces from the north travel lane on Lexington Road and establish permanent parking along both Etley Avenue (approximately 30 spaces) and Beargrass Avenue (approximately 8 spaces). This would require paving the future parking areas, which are now gravel, along both roads and then painting to delineate the parking spaces.
- Establishing approximately 10 permanent on-street parking spots along the north side of the road between Grinstead Drive and the first entrance to Jim Porters. A curb extension would channel traffic into one lane on Lexington, and shorten the crosswalk to approximately 110 feet.

Vehicle Mobility: Establish one 10-foot-wide travel lane for westbound motorized traffic, one for eastbound motorized traffic, and one 10-foot-wide TWLTL that would convert to a northbound LTL at Grinstead Drive. For the westbound lane, a “lane drop,” from two through lanes to one, on Lexington Road approaching Grinstead

would be required. The outside through lane would need to become a right turn lane. As such the current outside bike lane would need to drop and bicycles shift south so they are in a bike lane to continue either west to the cycle track or bike lane or south on Grinstead Drive.

Bicycle Facilities: Provide a new connection from Lexington Road north to the Beargrass Creek Shared-Use Trail along Beargrass Avenue, as part of the programmed MSD Combined Sewer Overflow (CSO) basin, to be north of

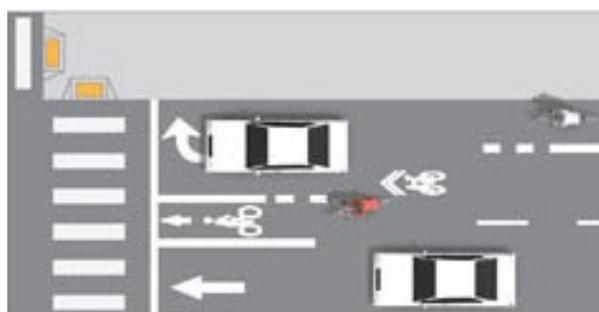


Figure 7: Bicycle lane dropped in advance of the intersection encourages bicyclists to merge across as gaps permit. Shared lane marking may be used to provide additional guidance.



Lexington Road in 2017 and, along the roadway, establish either...

- **Option 1:** A two-way protected bike lane (cycle track) on the south side with two, 4-foot-wide bike lanes, and a 3-foot-wide buffer to separate the bike facility from the motorized vehicles. The buffer should include safety features such as striping and flexible bollards, and appropriate signage for traffic entering or exiting the south side of the road.

Access to the cycle track. First, a right-on-red movement would not be permissible from Lexington Road eastbound to Grinstead Road southbound (which would not be a problem since nearly zero vehicles were counted making that movement during the peak periods).

From the north, cyclists would continue through the intersection in the outside lane and veer right into the cycle track.

From the east, the existing bike lane would need to drop about 300 feet east of Grinstead Drive and, via sharrows, reestablish about 100 feet from the intersection between the outside LTL and the through lane. (The westbound cross section would change from LTL, LTL, Through, Through/Right, Bike to: LTL, LTL, Bike, Through, RTL.) The opposing left turns are governed by a split phased traffic signal; whereas, the left turns do not occur at the same time and thus make this option viable. At the eastbound protected left turn signal, cyclists would veer left with traffic in a dashed bike lane, and then

turn into the cycle track.

From the south, either access the cycle track via Etley Avenue, as the vehicular traffic does, or use the existing crosswalk at Lexington Road. (Left turns for northbound cyclists and vehicles are prohibited.)

- **Option 2:** A couplet of one-way, 5-foot-wide bike lanes with a 1-foot-wide buffer adjacent to the north and south curbs. Access to the westbound lane would be similar to that for the cycle track.

Pedestrian Facilities: The sidewalk network should be completed on the north side. There are several locations where pedestrians must either walk on the road or through grass because there is no sidewalk. These curb cuts should be reconstructed to ADA standards and include detectable warnings and flares on the ramp between the crosswalk and sidewalk.

2 4.2.2. Area 2: Cave Hill Cemetery Wall— from West of Etley Avenue to East of Spring Street

Existing Conditions

The Setting: “The Cave Hill Cemetery Wall” area is bordered on the south side of Lexington Road by the historic brick wall that bounds the northern limits of Cave Hill Cemetery. The wall is about 14 feet high and extends for 4,000 feet uninterrupted, thereby eliminating the need to provide for turn movements south. Along the north side of Lexington Road, there are only two access points—the Woods Apartments (72 units), and the headquarters for the Kentuckiana Girl Scouts of America (GSA) and Waggin’ Tail Kennels. The Middle Fork of

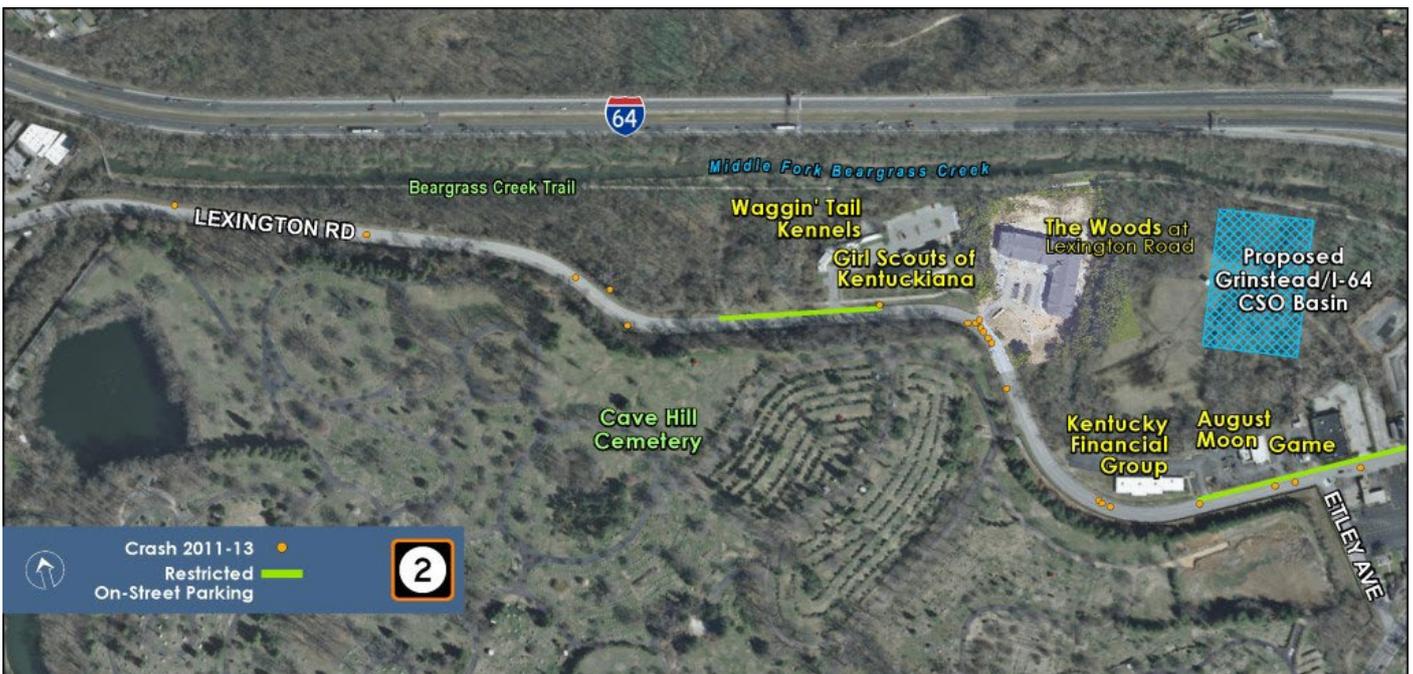


Figure 8: Area 2 – Cave Hill Cemetery Wall – from West of Etley Avenue to East of Spring Street

Beargrass Creek and the Beargrass Creek Shared-Use Trail are generally parallel to and 200 feet north of Lexington Road. Because of the cemetery wall and the topography, no future developments are anticipated in Area 2. Due to the setting, there is little to no lighting along most of the corridor.

Bicycle and Pedestrian Facilities: There are no bike or pedestrian facilities close to Lexington Road, other than the 10-foot-wide sidewalks constructed as part of the development of the Girl Scouts of Americana and the Woods Apartments. Although the Beargrass Creek Multi-Use Trail passes through Area 2, there is no designated access to it in the area.

Vehicle Mobility and Parking: Lexington Road includes four lanes, two in each direction, with no curb or sidewalk (other than the sidewalks noted above). There is signed, restricted on-street parking near the GSA headquarters, but no one has been known to use it, as the GSA and adjacent kennels have parking lots.

Transit: There is no transit service in Area 2.

Drainage: The proximity of the Cave Hill Cemetery Wall creates a barrier to the drainage of stormwater from the road, which contributes to unsafe driving conditions for vehicles and bicyclists as ponding and ice build-up damage the asphalt and subgrade.

Alternatives

In addition to the corridor-wide improvements proposed for the roadway, the following combination of elements comprises the preferred alternative for Area 2:

Parking: Remove the restricted on-street parking near the GSA Headquarters.

Vehicle Mobility: Establish one 10-foot-wide travel lane for each direction, separated by a 4-foot-wide buffer with rumble strips. There is no need for a TWLTL, but an LTL at the GSA Headquarters and the Woods Apartments would be warranted. Continuing east, that lane would convert to a TWLTL to store peak-hour westbound traffic.

Bicycle Facilities: Establish either...

- **Option 1:** One 12-foot-wide, two-way protected bike lane (cycle track) on the south side with two 4-foot-wide bike lanes and a 3-foot-wide buffer to separate the bike facility from the vehicles (Figure 9). The buffer should include safety features such as striping, rumble strips, and flexible bollards. Around curves with poor sight distance (due to the wall), 3-inch-wide rumble strips between the bike lanes would be warranted to minimize the risk of head-on crashes between bicyclists (Figure 9a and 10).
- **Option 2:** A couplet of one-way, 5-foot-wide bike lanes with a 1-foot-wide buffer adjacent to the north and south curbs (Figure 9b).

Pedestrian Facilities: Construct a sidewalk on the north side of Lexington Road, along the exiting edge of pavement. For both pedestrian and bicycle safety, plan for strategic lighting.

Drainage: Improve drainage by rehabilitating the pavement so it flows off the road, wedging ditches as needed, and establishing approximately two new cross drains to remove water from the south (Cave Hill Cemetery Wall) side to the north.



Figure 9a: Area 2 – Cycle Track Option





Figure 9b: Area 2 - Bike Lane Option

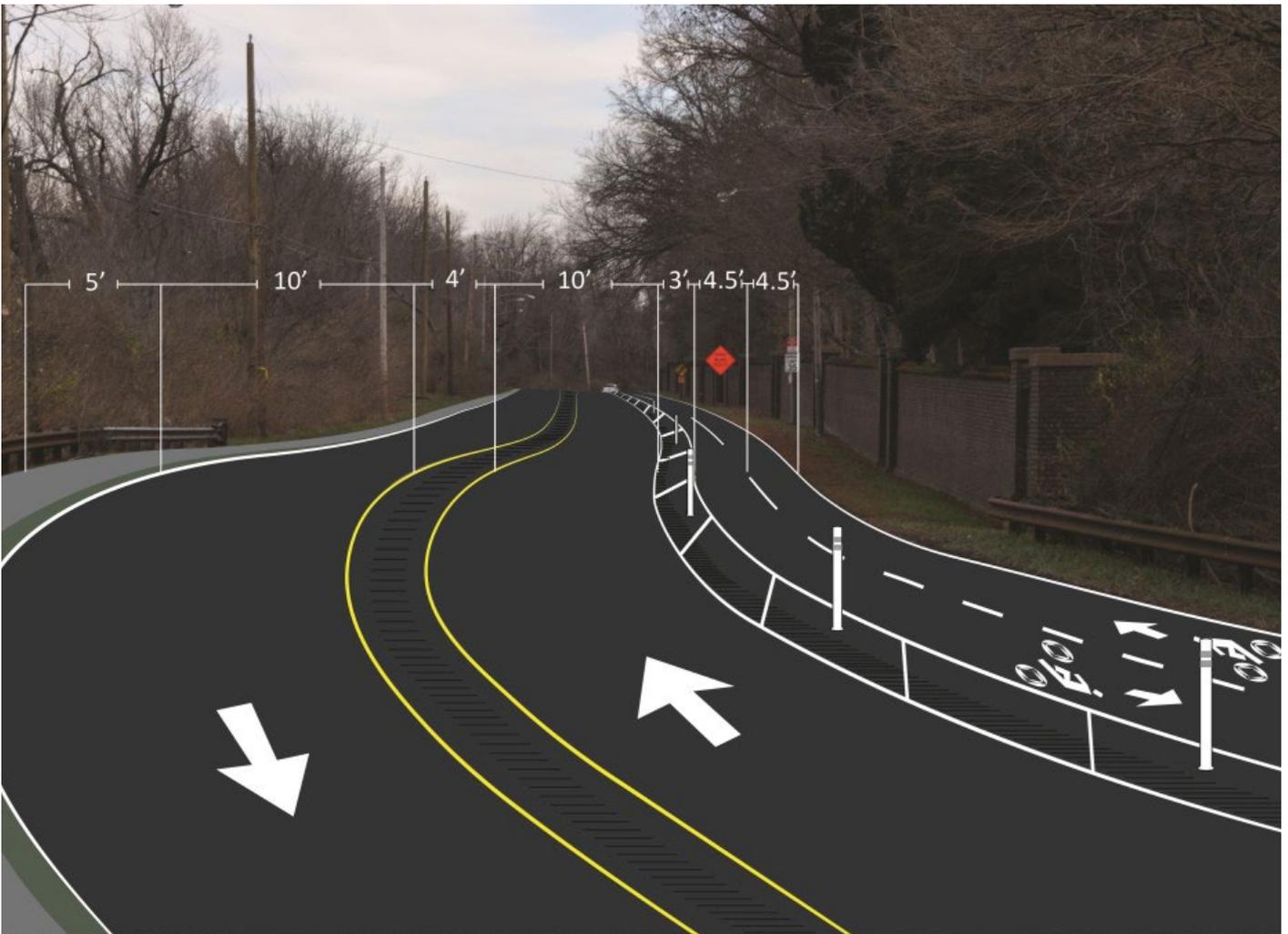


Figure 10: Area 2 – Option 1, Cave Hill Cemetery Wall Reconfiguration with Cycle Track of Spring Street

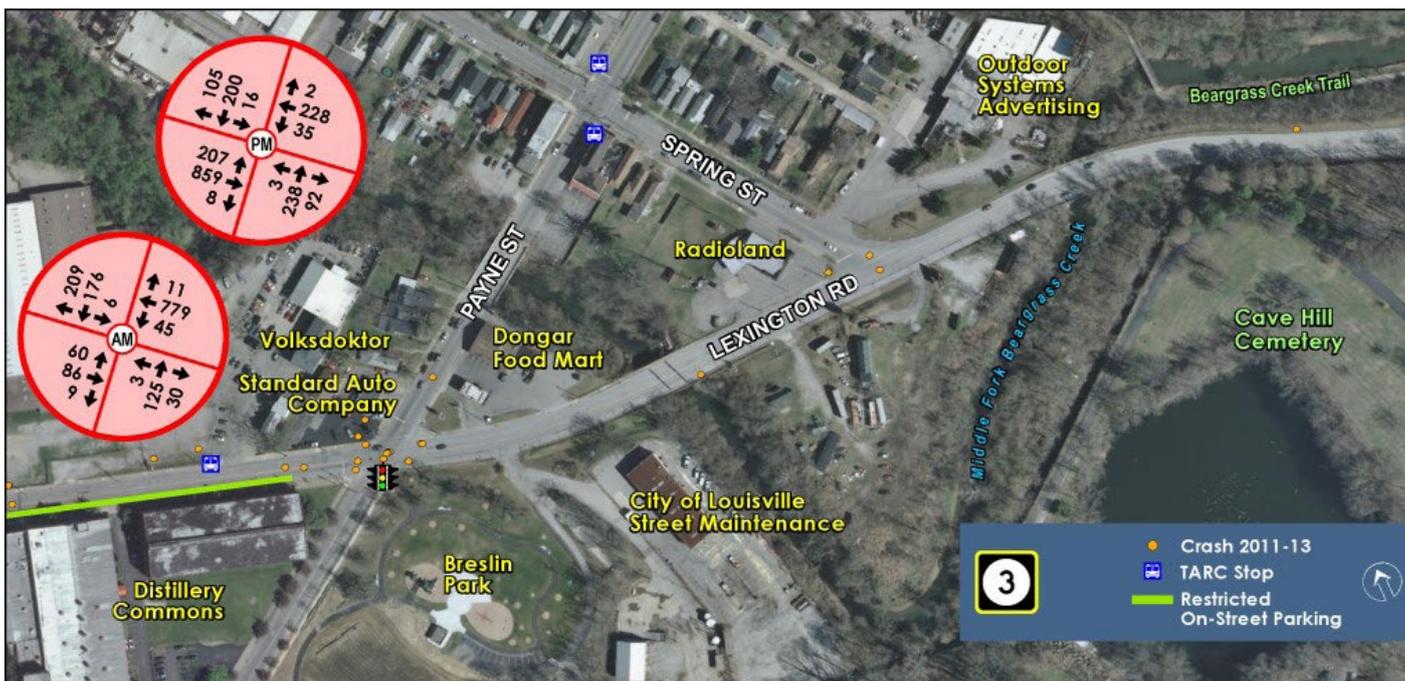


Figure 11: Area 3 – Spring Street and Payne Street Intersections with Lexington Road

3 4.2.3. Area 3: Spring Street and Payne Street Intersections

Existing Conditions

The Setting: Payne Street and Lexington Road is a four-way signalized intersection, while Spring Street T-intersects with Lexington Road, extends north, and then intersects with Payne Street. The 2014 ADT in this short stretch of Lexington Road was 8,700. The mixed land uses adjacent and beyond the intersection generate a substantial amount of vehicular and pedestrian activity. Breslin Park is in the southeast quadrant, Distillery Commons is in the southwest quadrant, Breckenridge Elementary School is south of Distillery Commons, and the Clifton neighborhood is north along Payne Street.

Thirty (30) crashes were recorded at this intersection between 2009 and 2013, with a notably high critical crash rate of 2.5. This is the highest crash area in the corridor. Eighty percent of the crashes were either angle, opposing left turn, or rear-end crashes. One third resulted in one or more injuries. In fact, one third of the injury crashes on Lexington Road occurred at the Payne Street intersection.

Bicycle and Pedestrian Facilities: There are no bicycle facilities near Lexington Road in this area. There are sidewalks on the north side of Lexington Road, but not the south. The conditions of the crosswalks at both the Payne Street and Spring Street intersections with Lexington Road need improvement. Specifically, the wide curb radius in the northeast corner of Payne Street and Lexington makes it challenging to safely cross.

Vehicles Mobility and Traffic: The eastbound PM peak-hour left-turn movement (207 vehicles, as noted in Figure 11) is the major source of congestion at this intersection. This volume must negotiate an opposing 228 vehicle, eastbound-through-traffic volume with no dedicated signal phasing to for left turns onto Payne. There were over a dozen crashes in a three year period at this intersection..

Transit: Transit service via TARC Route #19 goes to and from the north on Payne Street and west on Lexington Road. Transit does not extend south on Payne Street or east on Lexington Road.

Alternatives

In addition to the corridor-wide improvements proposed for the roadway, the following combination of elements comprise the preferred alternative for Area 3:

Vehicle Mobility and Parking: In addition to one 10-foot-wide travel lane in each direction, designated LTLs for both eastbound and westbound traffic at Payne Street are recommended and warranted. The recommendation to provide LTLs has been agreed and recommended to throughout the planning process by internal and external stakeholders, and the public. To provide for the eastbound LTL onto Payne Street, the on-street parking on Lexington Road in front of Distillery Commons will need to be removed for approximately 150 feet west from the stop bar at Payne Street.



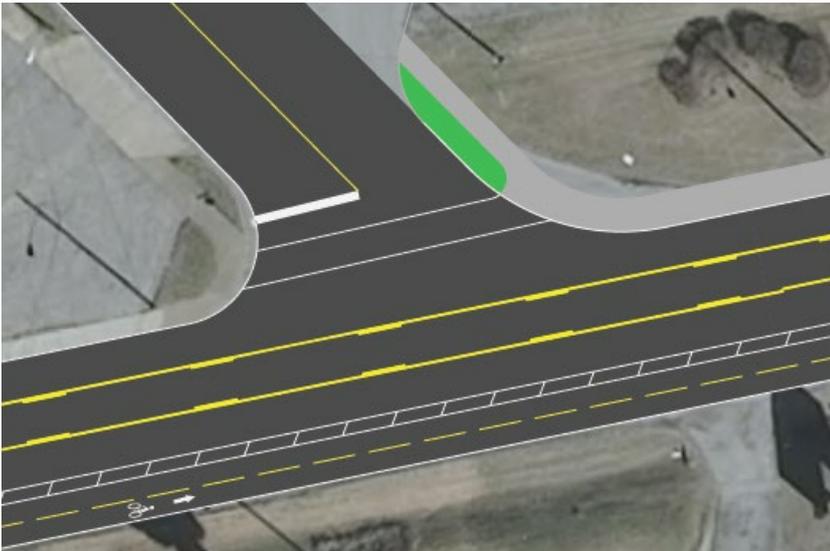


Figure 12: Area 3 – Option 1, Lexington Road/Spring Street Intersection with a Cycle Track



Figure 13: Area 3 – Option 1, Cycle Track on Lexington Road at Payne Street Intersection



Figure 14: Area 3 – Option 2, Bike Lanes on Lexington Road at Payne Street Intersection

Bicycle Facilities: Establish either...

- **Option 1:** A two-way cycle track along the south side of Lexington Road, which, at Payne Street, would require coordination with the traffic signal timing so left turns from westbound Lexington Road do not conflict with the cycle track traffic. Likewise, the cycle track traffic would need to be controlled, possibly through a separate yet coordinated signal system. To allow Lexington Road bicycle traffic to go northbound on Payne Street, bike boxes on the southern leg of Payne Street will be required, as shown in Figure 13.
- **Option 2:** A couplet of one-way, 5-foot-wide bike lanes with a 1-foot-wide buffer adjacent to the north and south curbs, as shown in Figure 14.

Pedestrian Facilities:

- On the north side of Lexington Road, the length of the crosswalk across Spring Street should be shortened by extending the northeast curb, as shown in Figure 10. Between Spring and Payne streets the existing sidewalk should be rebuilt to ADA standards. On the south side, no sidewalk is recommended. Although Breslin Park attracts many pedestrians, a sidewalk along its Lexington Road front is not recommended as it would lead only to the Cave Hill Cemetery Wall area, which is unsafe for pedestrians.
- The crosswalks at Payne Street and Lexington Road should include countdown pedestrian signals and painted crosswalks. In the northwest quadrant, at Donger’s Market, the curb should be extended into the road bed approximately 13 feet, as shown in Figures 13 and 14, to shorten the crosswalk distance and slow right-turn traffic.

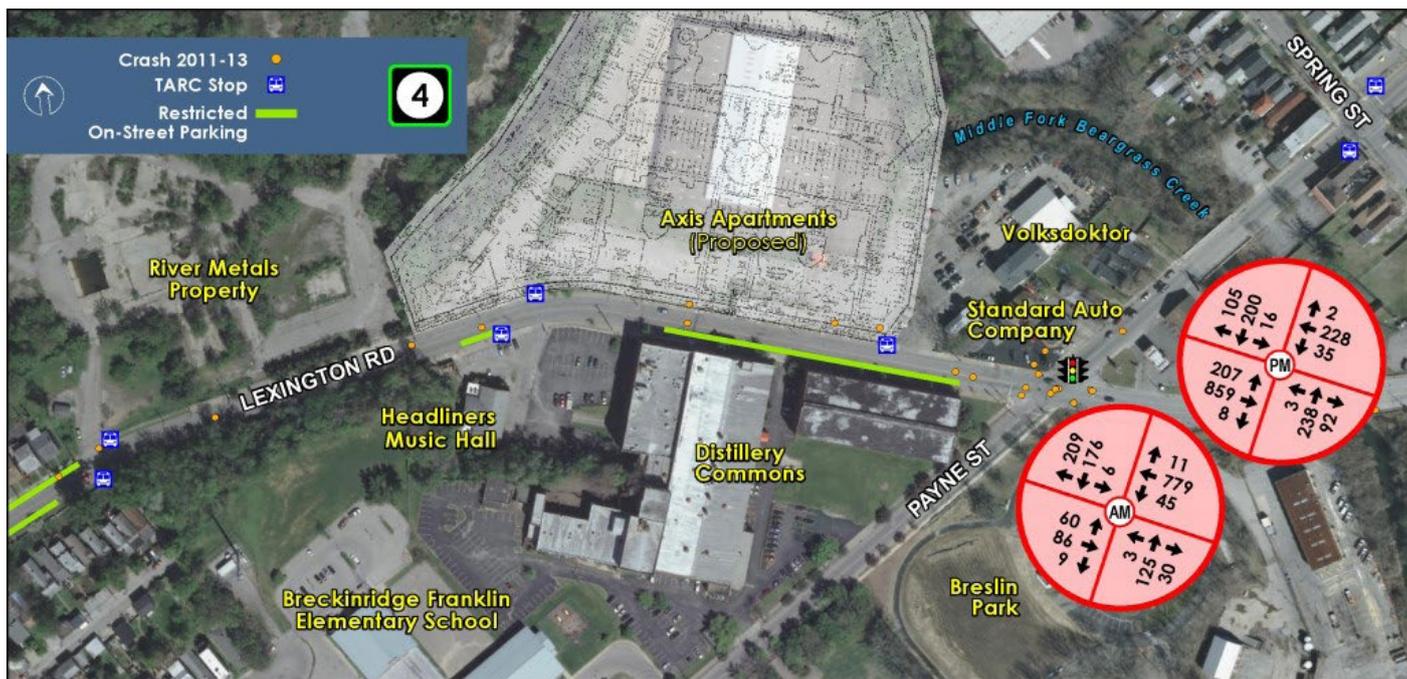


Figure 15: Area 4 – From Payne Street to the 1300 Block of Lexington Road

4.2.4. Area 4: Distillery Commons/ Headliners/Axis Apartments

Existing Conditions

The Setting: The land use is dynamic along this stretch:

- The VolksDoktor has been in business for 25 years and is renowned in Louisville for car maintenance. It is a busy site with numerous in/out trips throughout the business hours.
- Distillery Commons is a mixed-use development in a historic and iconic bourbon distillery warehouse. The complex houses 14 businesses and continues to market for more⁵. The site currently has approximately 225 off-street parking spaces.
- Headliners Music Hall is one of the most acclaimed entertainment venues in Louisville. Parking is very limited with approximately 15 spaces on site. Events are nearly always in the evenings, during off-peak travel times; therefore, patrons use on-street parking between Payne Street and the 1300 Block, although not all of this stretch is signed or permitted for parking. Patrons have also used off-street parking at the abandoned storage facilities across the street; however, that will soon be unavailable as the site has been purchased, rezoned, and approved for the Axis Apartment Building complex.
- Axis Apartment Buildings will replace the abandoned storage facility with approximately 300 high-end apartments, on-site parking, and amenities. While

this development will change the character of the area, and induce vehicle and pedestrian traffic, it was supported by the Irish Hill Neighborhood Association as the type of land use that would enhance the area.

- Adjacent to and west of Axis is the former site of River City Metals, which is currently vacant but zoned for manufacturing use (M3).
- Across from the River City Metals site is the only bit of notable topography—an escarpment approximately 10 feet high and 500 feet long abuts the edge of road, leaving no room for a sidewalk.



Figure 16: Area 4 – View of Distillery Commons Looking West [Source: www.distillerycommons.com]

⁵ <http://distillerycommons.com/>



Bicycle and Pedestrian Facilities: There are no bicycle facilities in this area. Sidewalks exist on the north side of Lexington Road throughout this section, though many are in poor condition. On the south side of the road is a 5-foot-wide sidewalk that extends between Headliners and Payne Street, a distance of about 900 feet.

Vehicle Mobility: The 2014 ADT in this section of Lexington Road was 10,600. During the afternoon peak travel time, eastbound traffic on Lexington Road stacks through this entire stretch due to the traffic signal at Payne Street. Vehicles intending to turn left onto Payne Street at this time often wait through more than one signal cycle before a gap in oncoming (westbound) traffic makes the turning movement possible.

Parking: Non-peak-hour parking is permitted in front of Distillery Commons (19 spots) and Headliners (8 spots).

Transit: TARC Route #19 travels Lexington Road to/from Payne Street on both weekends and weekdays, averaging 66 trips per day (33 in each direction). There are three signed TARC stops in this section. The Axis Apartment plans call for a TARC pull off stop with curb extensions, per the September 2013 TARC: Transit Design Standards Manual.

Alternatives:

The following combination of elements is the preferred alternative for Area 4:

Parking: To meet the multiple goals for this section of the road—travel lanes, a turn lane, and bicycle facilities—locating on-street parking has been challenging. Fortunately, because the Axis Apartment complex will be dedicating to Louisville Metro approximately 20 feet of right-of-way along the north side of Lexington Road, there will be room for approximately 22 on-street parking spaces—a net gain of about 12 spaces over the existing conditions. Another 14 spaces are recommended along the River City Metal site. All on-street parking would be permanent and not restricted.

Vehicle Mobility: The designated LTL for eastbound Lexington Road to northbound Payne Street would need to transition into a TWLTL for a total length of 900 feet from Payne Street west to near Headliners. The TWLTL is warranted due to projected traffic from the approved Axis Apartments.

(On-Street Parking Would Match Cycle Track Concept)



Figure 17: Area 4 – On-Street Parking at Distillery Commons and Headliners



Figure 18: Area 4 – Option 1, From Payne Street to the 1300 Block, with a Cycle Track



Figure 19: Area 4 – Option 2, From Payne Street to the 1300 Block, with a Bike Lanes

Bicycle Facilities: Establish either...

- **Option 1:** A two-way cycle track along the south side of Lexington Road, as shown in Figure 18.
- **Option 2:** A couplet of one-way, 5-foot-wide bike lanes with a 1-foot-wide buffer adjacent to the travel lane.

Pedestrian Facilities: The existing 5-foot-wide sidewalks on both sides of the road should be replaced to meet ADA compliance. On the south side, extending the sidewalk west along the hill (Figure 20) would close a gap in the network, but it would be costly. Preliminary estimates

indicate a construction cost of \$100,000, which would include cutting back the hill, building a retaining wall, and then building the sidewalk.

A mid-block crossing from the future TARC stop at Axis Apartments to Distillery Commons and Headliners would be a benefit but, would warrant striping, signage and lighting. In this area, the need for a HAWK warning signal⁶ was investigated, but it would not be warranted.

⁶ A HAWK beacon (High-Intensity Activated crossWalk beacon) is a traffic signal used to stop road traffic and allow pedestrians to cross safely. It is officially known as a Pedestrian Hybrid Beacon (PHB).



Figure 20: Area 4 – Sidewalk Constraint on South Side of Lexington Road at 1300 Block



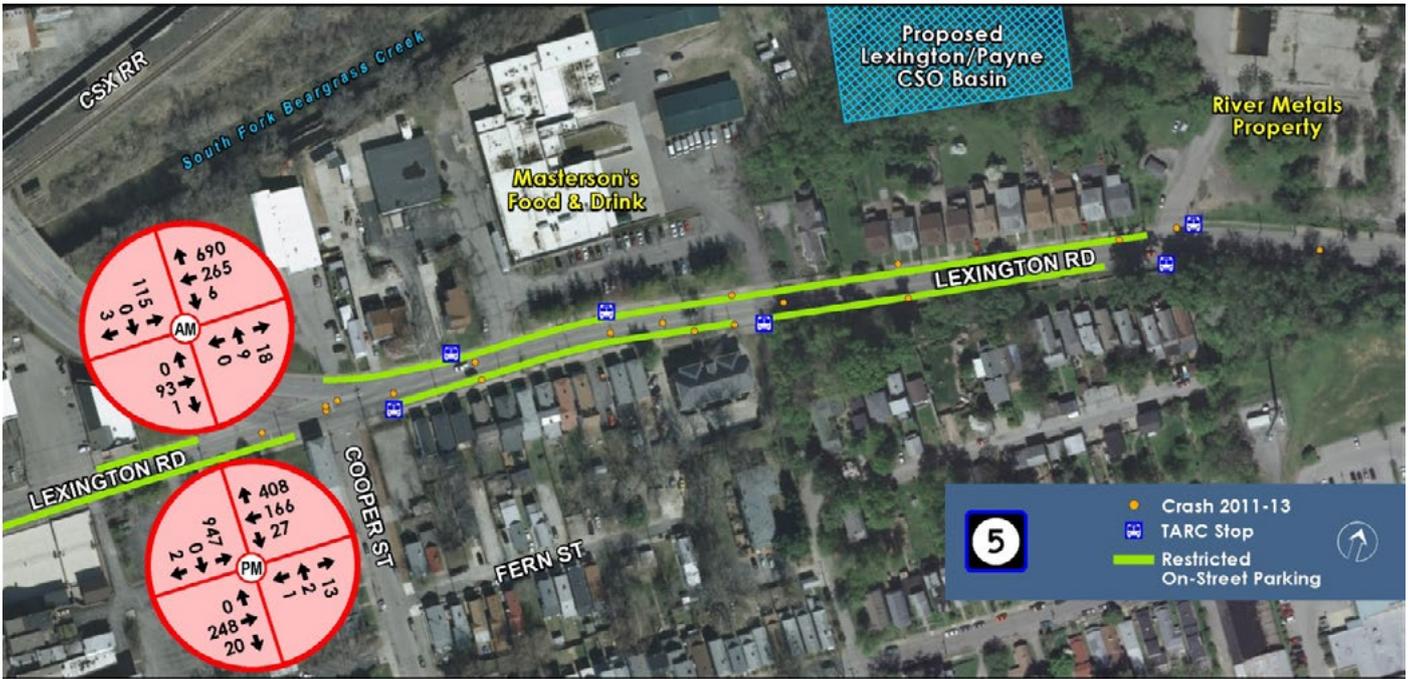


Figure 21: Area 5 – Irish Hill Residential Area—1300 and 1200 Blocks of Lexington Road

5 4.2.5. Area 5: Irish Hill Residential Area—1300 and 1200 Blocks

Existing Conditions

The Setting: Minus the Masterson’s Catering factory, the land use is a traditional historic neighborhood that Irish Hill Park flanks in the northwest section of this corridor.

Bicycle and Pedestrian Facilities:

There are no bicycle facilities in this area. Although in need of repair, a 5-foot-wide sidewalk exists on the north side. On the south side a 5-foot-wide sidewalk is located only within the 1200 Block.

Parking:

Parking is an issue for the residents. There is restricted/non-peak-hour parking in both block; whereas no parking on the outside westbound lane is permitted between 7:00 AM and 9:00 AM and no parking on the eastbound side is permitted between 5:00 PM and 7:00 PM.

Vehicle Mobility: There are two travel lanes in each direction; however, during the non-peak hours, the roadway is reduced to one due to the parking.

Transit: TARC Route #19 travels Lexington Road and makes an average of 66 trips per day (33 in each direction).

There are four signed stops, one of which is a covered bus shelter.

Alternatives

In addition to the corridor-wide improvements proposed for the roadway, the following combination of elements is the preferred alternative for Area 5:



Figure 22: Area 5 – South Side of 1300 Block

Parking, Travel Lanes, and Bicycles: Facilities for these three elements are interdependent. Removing parking is not an option in this area, as many of the residents would have no parking available. Therefore, the recommendation is to establish permanent on-street parking where there is currently restricted parking—

south side of Lexington Road in the 1200 Block and the north side in the 1300 Block. While this would meet the needs of the residents, it requires converting Lexington Road into a 2-lane road. Regarding bicycles, the recommendation is to establish either:

- **Option 1:** A two-way cycle track along the south side, as shown in Figure 23.
- **Option 2:** A couplet of one-way, 5-foot-wide bike lanes with a 1-foot-wide buffer.

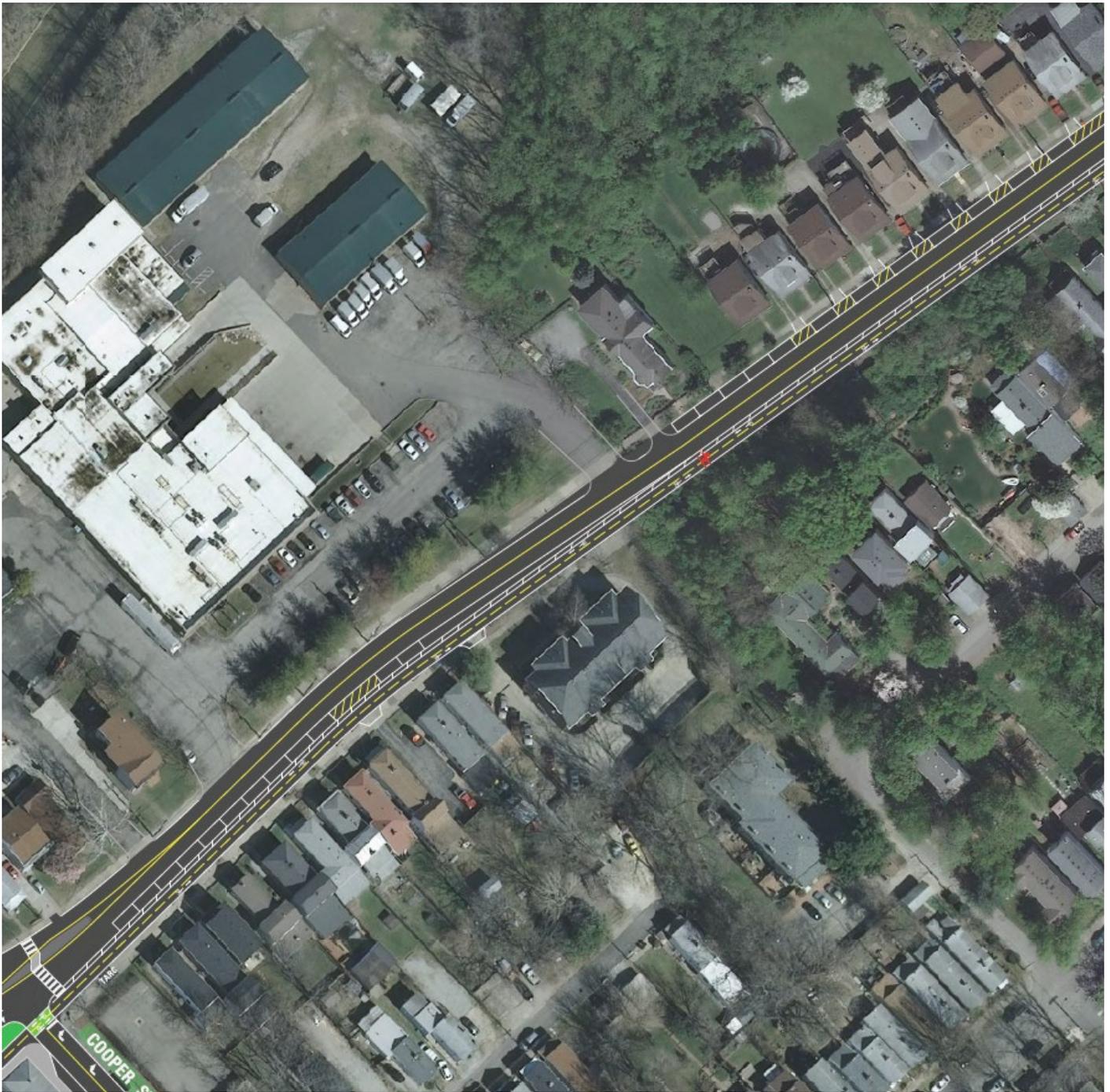


Figure 23: Area 5 – Option 1, 1200 and 1300 Blocks, with a Cycle Track

This decision will influence the location of the parking: If a cycle track, then the parking on the south side would be between the track and the travel lane; and if bike lanes, then the parking on either side would be between the lane and the sidewalk.

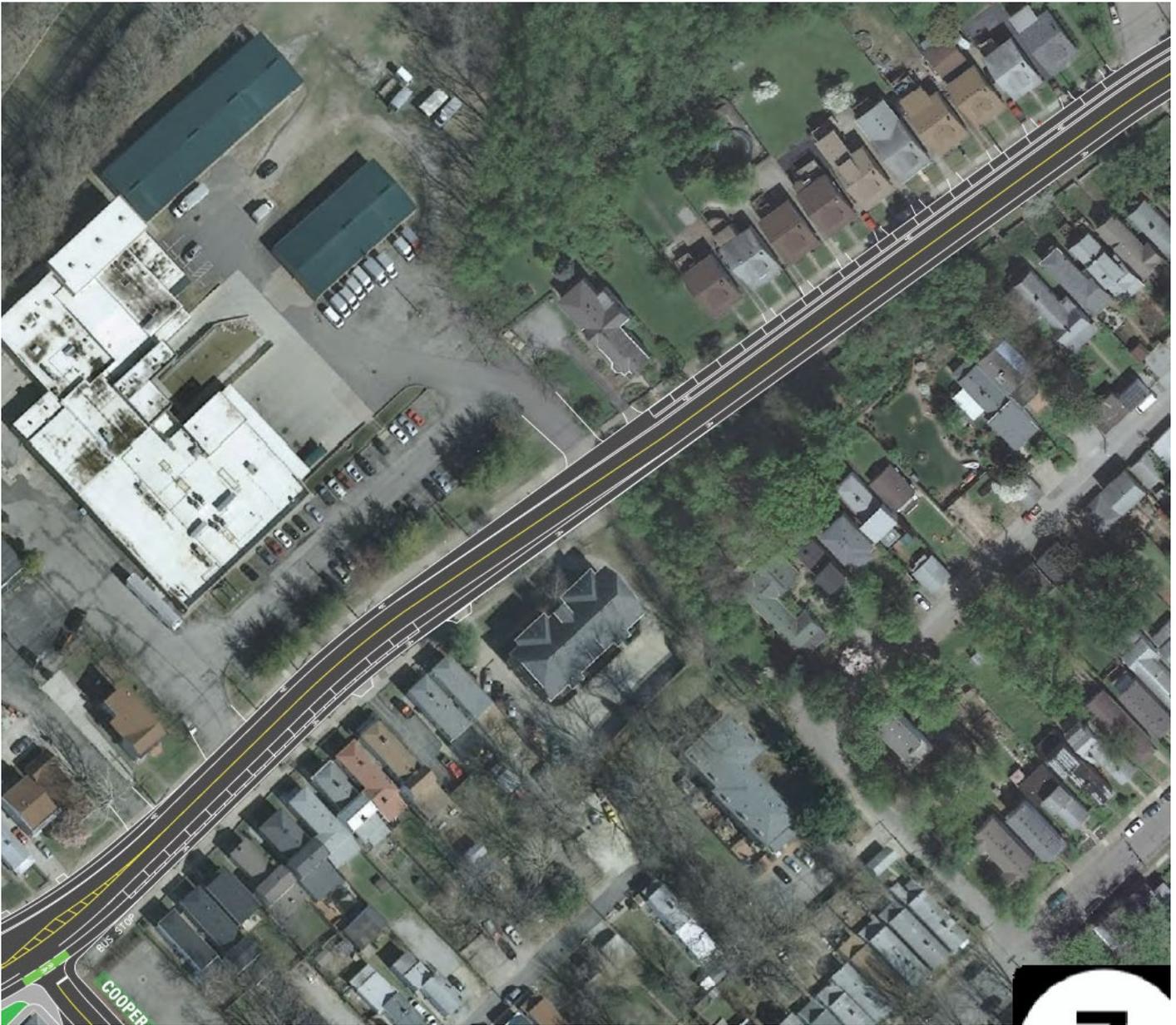


Figure 24 Area 5 – Option 2, 1200 and 1300 Blocks, with Bike Lanes

Pedestrian Facilities: For much of the 1300 Block, the sidewalk is non-existent on the south side, but the ground is suitable for a sidewalk, as can be seen in Figure 22. Thus, from 1338 Lexington Road west approximately 500 feet to the existing sidewalk, a new sidewalk would be warranted to improve pedestrian connectivity to the houses along the south side of the 1300 Block. The existing sidewalks should be upgraded to be ADA-compliant.

A mid-block crossing from the existing TARC shelter at Cooper Street would provide a safer pedestrian crossing to the TARC stop and Irish Hill Park, but, in addition to striping, would require signage and lighting.

Transit: Based on input from TARC officials, there are a few TARC mid-block stops that are unsafe, and consequently underused, and should be removed to improve safety for the TARC users.

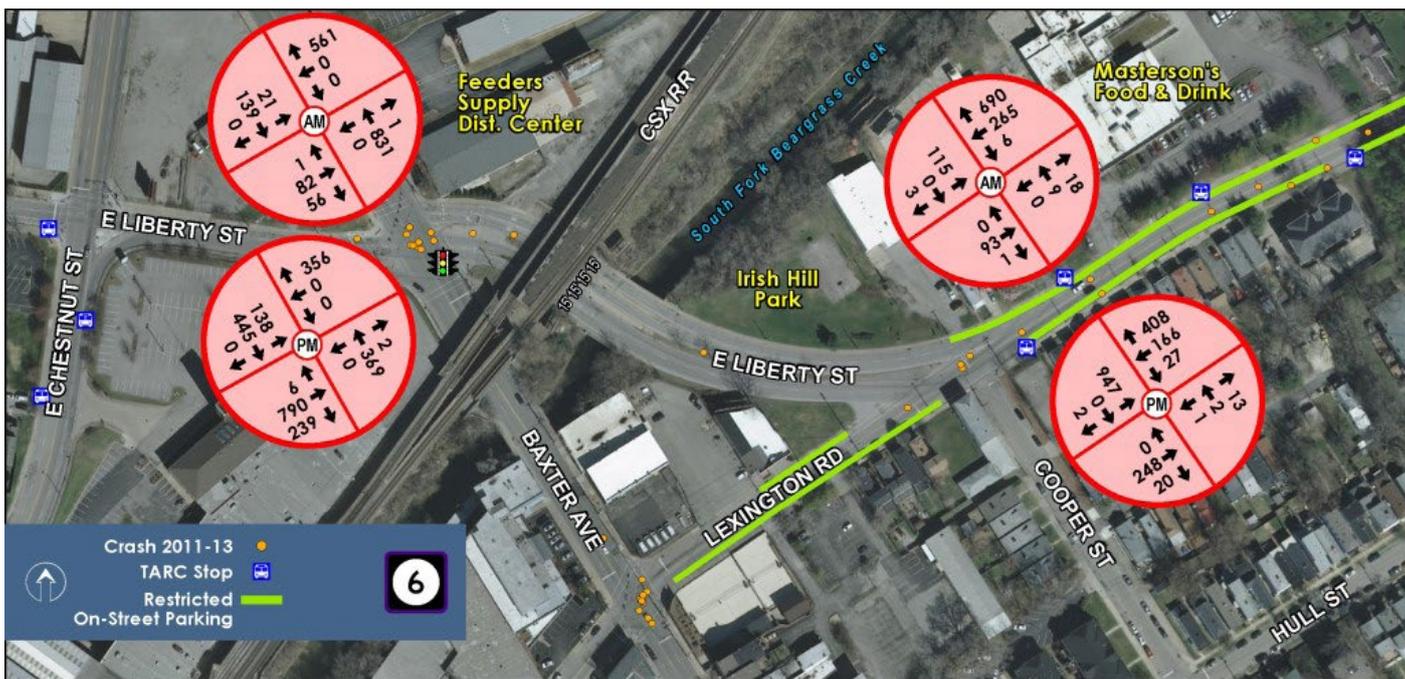


Figure 25: Area 6 - Lexington Road/Liberty Street Y - intersection

6 4.2.6. Area 6: Lexington Road/ Liberty Street Y-intersection—from Cooper Street to Baxter Avenue

Existing Conditions

The Setting: The Lexington Road/Liberty Street Y-intersection is dangerous and confusing. It is one of the most unconventional intersections in Louisville, with the only known hanging stop sign. Closer to Baxter Avenue, the CSX viaduct is an eyesore that is dim and unlit, and can appear to pedestrians as being unsafe.

Parking: The only parking permitted in this area is along the south side Lexington Road past Liberty Street, toward Baxter Avenue. No parking exists through the intersection.

Vehicle Mobility: There are two travel lanes in each direction and a continuous flow to/from Lexington Road to the east and Liberty Street to the northwest. Lexington Road, itself, continues west, but only after stopping and



Figure 26: Area 6 – Liberty Street/CSX Viaduct, and Lexington Road/Liberty Street Y-intersection

going straight, and avoiding free-flow traffic to/from Liberty Street.

Bicycle and Pedestrian Facilities: There are no bicycle facilities in this area. A 5-foot-wide sidewalk exists on the north along Irish Hill Park. Along the south side, however, a sidewalk is absent on Liberty Street between the viaduct and Lexington Road. Under the viaduct, on the south side is a partial sidewalk, which connects to Baxter Avenue but abruptly ends at Liberty Street, as shown in Figure 27.



Figure 27: Area 6 – Partial Sidewalk Under Viaduct

Transit: The covered TARC stop on Lexington Road is just east of this section near Cooper Street. There is no TARC stop in the intersection.



Alternatives

In addition to the proposed corridor-wide improvements proposed for the roadway, the following combination of elements is the **preferred alternative** for Area 6:

Vehicle Mobility: The primary objective of the recommended reconfiguration is to provide safe and predictable travel lanes. The concept illustrated in Figures 28 and 29 would reduce the travel flow to one lane in each direction, with a conventional LTL to continue west on Lexington Road, and a T-intersection for eastbound Lexington Road traffic. To further reduce the conflict points, it is recommended to make the intersection with Cooper Street a right-in/right-out, by constructing a raised concrete median in the center of Lexington Road that would prevent left turns to/from Cooper Street, only. The overall re-design would reduce the conflict points with pedestrians and vehicles, and make the TARC stop safer.

- On Lexington Road to Baxter Avenue, the recommendation is to provide one lane of traffic in each direction and permanent on-street parking on both sides, where possible.

- On Liberty Street to Baxter Avenue, one travel lane to/from Baxter Avenue is needed for the redesign of the Y-intersection to work. For westbound traffic, it is recommended that Lexington Road shift to two lanes just before the viaduct to allow for a dual-right turn onto Baxter Avenue, which matches the current movement.

Bicycle Facilities: As throughout the corridor, there are two options—a cycle track on the south side of Lexington Road or a couplet of bike lanes on both sides, as described below:

- Option 1:** The cycle track would continue straight/east on Lexington Road and end at Baxter Avenue. It would have a notably positive separation from the travel lanes and the intersections, which is an appealing quality, as there would be less opportunity for vehicle/bicycle conflict points. With the cycle track option, a bike lane is recommended on the eastbound outside lane of Liberty Street, under the viaduct.



Figure 28: Area 6 – Option 1, Lexington Road/Liberty Street Y-intersection, with a Cycle Track



Figure 29: Area 6 – Option 2, Lexington Road/Liberty Street Y-intersection, with Bike Lanes

- **Option 2:** A couplet of 5-foot wide one-way bicycle lanes along the outside of each travel lane. These bike lanes would replace the outside travel lane under the viaduct.

Pedestrian Facilities: A 5-foot wide sidewalk along the south side should be constructed, and the connection should be carried through under the viaduct, to connect with the existing sidewalk. The crosswalk shown with the cycle track concept could also be applied to the bike lane concept.

Green Infrastructure: One of the goals of this project is to reduce stormwater runoff by integrating “green infrastructure,” especially near stream crossings. Area 6 provides an optimal location for this enhancement. Green infrastructure typically uses sustainable vegetation to collect and infiltrate stormwater runoff from the roadway before it enters either the ground or surface water. Similar green infrastructure has been implemented around the county and Louisville. The



Figure 30: Area 6 – Green Infrastructure Sample Treatments

Metropolitan Sewer District (MSD) often provides funds for such improvements, and should be partnered with for both design and funding for green infrastructure along this corridor.

Figure 30 are some pictures of similar treatments that could be appropriate for this area.

At present, trees have been planted in the median along Irish Hill Park, north of the viaduct. In the future final design, options to either maintain or replace these trees should be considered. If replaced, coordination with the Louisville Brightside Urban Forester should be made.

Viaduct Gateway: An eyesore, a deterrent a quality sense of place and economic development, and an unsafe area is how the current railroad viaduct over Liberty Street is often described (see Figure 27). On the other hand, it provides a great opportunity to enhance the area through cleaning, painting, and lighting. A few concept are shown below, but it is recommended to hold a contest for locals to suggest a redesign plan, and for Metro to fund the implementation on the selected concept.



Figure 31: Area 6 – Conceptual Rendering of Viaduct Enhancement



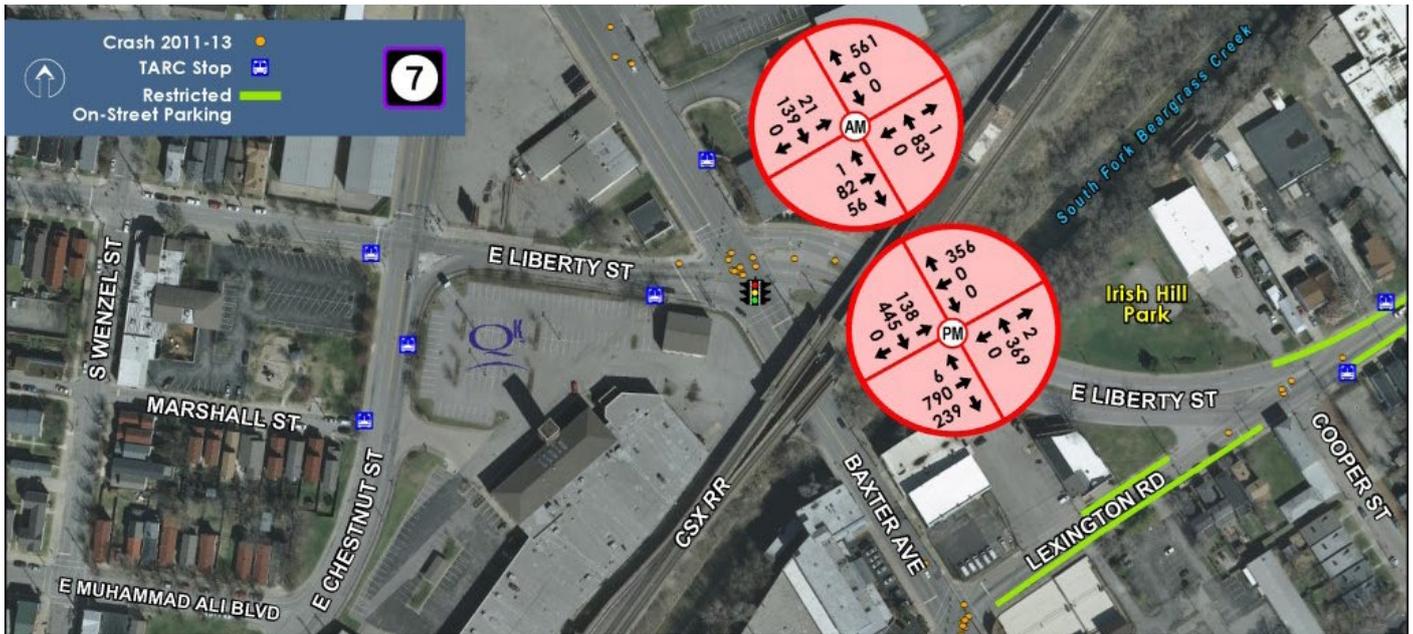


Figure 32: Area 7 – Liberty Street—from Baxter Avenue to Chestnut Street

7 4.2.7. Area 7: Liberty Street—from Baxter Avenue to Chestnut Street

Existing Conditions

The Setting: This stretch of Liberty Street is a 3-lane one-way road, with a 2010 ADT of 4,500. The intersection with East Chestnut Street has a free-flow northbound-to-eastbound movement. The intersection with Baxter Avenue has a right-turn lane separated from the through lanes by a striped wedge-shaped area. The intersection width and road configurations create an inconvenient and somewhat hazardous situation for pedestrians. The roadway was resurfaced in 2013, but no geometric changes were made.



Figure 33: Area 7 – Liberty Street, Looking West

Bicycle and Pedestrian Facilities:

There are no bicycle facilities in this area. There are sidewalks along each road that are 5-to-7-foot-wide.

Parking: No parking exists along this section.

Transit: As illustrated in Figure 32, there are a variety of TARC stops in the area. TARC Routes #17 (Bardstown Road), #19 (Muhammad Ali), and #40 (Taylorsville Road) serve this area⁷.

Alternatives:

To be compatible with the proposed corridor-wide improvements proposed for the roadway, including the change in roadway configuration in Area 6, the following combination of elements is the preferred alternative for Area 7:

⁷ There is no difference between #17 and #40 in this area, but #40 extends much farther east to serve Jeffersontown.

Vehicle Mobility: It is recommended that this section of Liberty Street be converted to a two-way street, with one lane westbound and two eastbound. This will necessitate changes to the two intersections and traffic signals. At East Chestnut Street, remove the free-flow right-turn movement to:

- Shorten the length of the crosswalk to create a more convenient and safe crossing for pedestrians.
- Eliminate conflicts that occur when vehicles try to merge from the free-flow movement to the outside lanes, and when through traffic on Liberty Street tries to merge right to turn onto Baxter Avenue south.

Bicycle Facilities: A bike lane is proposed to be on the south side of Liberty Street between East Chestnut and Baxter Avenue, that would continue east on Lexington Road.

Pedestrian Facilities: At both intersections, the recommended improvements would shorten the crosswalk distance and, therefore, improve service and safety for pedestrians. Countdown pedestrian signals should be installed at each crosswalk.



Figure 34: Area 7 – Liberty Street between Baxter Avenue and East Chestnut Street



5. LRCTP IMPLEMENTATION PLAN

Plans are developed to define problems based on data gathered, cast and refine a vision, consider options, engage the public, make recommendations and, finally, develop a strategy that will carry the plan from recommendations to reality. The previous chapters have dealt with the steps including setting project goals, implementing a planning process, data gathering, alternative consideration, and recommendations. The steps for implementing and monitoring the recommendations plan are addressed below.

Step 1 – Design

Step 2 – Public Outreach and Education

Step 3 – Construction

Step 4 – Evaluation of Project Effectiveness

Step 4 – Operations and Maintenance

Step 1 – Design

Construction Plans. The principal task that must occur between the planning and the implementation of this project is developing construction plans contractors will use to prepare their bids and fee proposals. Before the final construction plans for the LRCTP can be readied for submittal to contractors, the following design sub-steps are necessary:

1a. Through coordination among elected officials, and internal and external stakeholders decide which of the two bike path options should be selected—Option 1, a buffered cycle track, or Option 2, conventional/buffered bike lanes—both of which would be “protected bike lanes.” The outcome will affect the development of the signage, striping, and signal plans, and the content of the future public educational plan.

1b. Concurrent with the bike option selection process, finalize the following design elements:

1b.1. **Roadway Design**—including pavement, sidewalks, maintenance of traffic during construction and, possibly, construction phasing depending on funds (see Step 3).

1b.2. **Drainage Design**—including wedging of ditches and providing cross drains.

1b.3. **Green Infrastructure Location and Design**—including stormwater runoff facilities; and planters, trees, and vegetation.

1b.4. **TARC Stop Plans**—including removal and relocation of existing TARC stops.

1b.5. **Enhancement Design**—including wayfinding signage, benches, bike racks, landscaping, lighting, and the rehabilitation of the CSX viaduct.

1c. After the selection of a bike option, finalize the following design elements:

1c.1. **Signal Design**—including phased and protected left turns at Payne Street.

1c.2. **Signage Plan**—including notification signs to inform vehicles, bicyclists, and pedestrians of the new traffic patterns.

1c.3. **Striping Plan**—including strategies for guiding bicycles and vehicles through the intersections.

The end product will include a Plans, Specifications, and Estimates (PS&E) package to be published for bid. The estimated budget for design is \$150,000.

Right-of-Way and Utilities. As a result of the Planning process, it is expected that all construction and reconstruction will occur within Metro-owned right-of-way and no additional land would be acquired for right-of-way purposes. Likewise, no aboveground or underground utilities would need to be relocated or be otherwise affected. Therefore, neither Right-of-Way nor Utility Plans would be warranted. Only the customary coordination with utility companies to inform them of construction plans would occur.

Step 2 – Public Outreach and Education

Following completion of the Design phase and prior to the start of Construction, a public education plan should be developed and implemented. The plan would provide information about the new traffic patterns and could include the following:

- 2a. Deploy temporary, mobile changing message signs just prior to and remain in service several weeks after construction to inform drivers of changes such as designated left-turn lanes and conversion of Liberty Street from a one-way to a two-way road.
- 2b. Distribute educational pamphlets regarding the corridor changes to elected officials, the Metro Police Department, emergency responders, residents, employers, Breckenridge Elementary School, the Irish Hill Neighborhood Association, and other stakeholders.
- 2c. Should Option 1 (the cycle track) remain the recommended course, develop educational material to instruct drivers, bicyclists, and pedestrians on use of and navigation through the cycle track. It is estimated a \$2,000 budget would be sufficient for this effort. The Metro Bicycle and Pedestrian Coordinator would develop and oversee distribution of the plan through the media and other means.
- 2d. Hold a press conference and public ribbon-cutting celebration to announce the progressive move Louisville Metro is making to rethink this road to serve the area's varied mobility needs and context sensitive approach developed in concert with the Irish Hill Neighborhood Association. Highlight as a hallmark of this Project the extensive cooperative effort among the public, government, and a broad range of stakeholders.

Step 3 – Construction

Construction can be advanced as one project, or divided and approached in phases: Phase 1—Roadway, Construction, Phase 2—Sidewalk Construction, and Phase 3—Enhancements.

3a. Phase 1—Roadway Reconstruction

If funding allows, Phase 1 would be constructed at the same time along the entire corridor (minus the section of Liberty Street between Baxter Avenue and East Chestnut Street that was resurfaced in 2013). Phase 1 would include all elements related to reconstruction of the roadway—milling and resurfacing; drainage improvements; and the installation of other green infrastructure features, new signage, striping, lighting, and traffic signals.

If funds do not allow for completion of the project at once, Phase 1 could be subdivided into two phases, with Payne Street serving as the logical terminus for construction of either the eastern or western segments. If this approach would be necessary due to funding constraints, the eastern portion of the corridor is the recommended priority so the drainage problems in Area 2, Cave Hill Cemetery Wall, can be addressed as soon as possible.

As noted below, selection of a bicycle facility type could affect the opportunity to reconstruct the corridor in two phases. If funding does not permit construction along the full length of the corridor at once, then...

Implementation of Option 1, the buffered cycle track, would be problematic because there would be no logical terminus for the track until funds for the remainder of the project become available.

Implementation of Option 2, the conventional buffered bike lanes, would not be adversely affected because Payne Street could be a logical terminus for both the roadway project and the bike lanes. This is one of the primary reasons Option 2 remains a viable option, even though the cycle track is recommended.

Due to the additional traffic signal element at Payne Street and Lexington Road, and needed signage throughout, it is anticipated Option 1, would cost approximately \$40,000 for in construction funds than Option 2.

Because the project would be a notable change to all users, a consideration would be implement the changes with temporary barrels, cones, and signs, and allow drivers to experiment and adjust to the changes before making them permanent. Such a temporary effort should remain for several months, and including a public notice effort.



3b. Phase 2—Sidewalk Construction and Reconstruction

Following are options regarding the sidewalk construction and reconstruction:

- Construction of a new or reconstruction of existing sidewalks could occur at once or as individual projects as funding allows. The overall costs is \$406,000. The cost estimates for separate sections is presented in the table below.
- Construction of a new sidewalk along the north side of Area 2, Cave Hill Cemetery Wall, should be done at the same time as the resurfacing. (A sidewalk should not be constructed on the south side, next to the wall.)
- Realignment and construction of Area 6, the Lexington Road/Liberty Street Y-intersection, should be done as the same time as the road construction, including new sidewalk on the south side to the viaduct.
- Reconstruction of existing sidewalks throughout the rest of the corridor could be independent of the roadway project, with the following recommendations:
 - Area 1, the Gateway
 - The **first priority** should be the construction of sidewalk on the north side between the Woods Apartment and August Moon. Woods Apartments constructed a 10-foot wide sidewalk along the front of their property that terminates at grass.
 - MSD purchased Jim Porters Restaurant in April 2015 as a staging area during the 2017 construction of the nearby Combined Sewer Overflow (CSO) basin. Reconstruction of the sidewalk in this area should be completed after the CSO construction.
 - Area 4, between Payne Street and the 1300 Block – The construction of a new sidewalk along the south side where the hill is adjacent to the road should be the **last priority** as it would be costly (approximately \$80,000 for a 450-foot long section), and least needed.

3c. Phase 3—Enhancements

Each of the enhancements could be implemented separate with independent funds and schedules. It is recommended, however, that any lighting and landscape plans be included in the roadway construction plans.

- The **Wayfinding plans** should undergo coordination with the IHNA and surrounding neighborhood representatives to develop a consensus on style, content, and locations. It is recommended the content be limited to commonly known neighborhoods and major destinations, such as Cherokee Park, Clifton, Highlands, Butchertown, Phoenix Hill, etc., not specific businesses or land uses or parks smaller than Cherokee Park. The goal is to connect visitors, residents, and travelers (bicycle, pedestrians, and drivers) with the community.

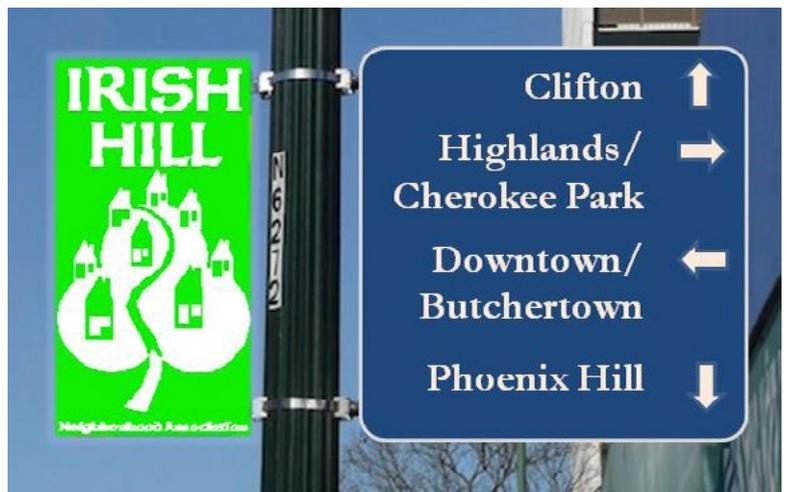


Figure 35: Wayfinding Example Rendering

- Benches, bike racks, trash receptacles, and other such street furniture should be coordinated with Brightside and the IHNA to identify a style and location.
- **CSX Viaduct**—Sandblasting, painting, and lighting of the viaduct can occur at any point, independent of the roadway and sidewalk construction. To assist in identifying a preferred “look” for the viaduct, a public design competition, including public opinion comments on-line and other means, is recommended.

Step 4 – Evaluation of Project Effectiveness

After the first anniversary of the opening of the new roadway, an evaluation of the new facility's effectiveness is recommended. The evaluation should involve collecting and analyzing data obtained from the following:

4a. To provide Metro Transportation Planners with the feedback needed to assess the effectiveness of the mobility changes resulting from the project, the following data from the prior year's should be collected and analyzed:

- crash data;
- updated traffic, bicycle, and pedestrian daily volumes and peak hour turning movement volumes; and,
- auto travel time, delay, volume/capacity (v/c), and LOS throughout the corridor.

4b. A public opinion survey of external stakeholders (e.g., residents, businesses, and users); and feedback from internal stakeholders (e.g., elected officials, TARC, MSD, Metro Planning, Public Works, Police, and other emergency responders).

The post-construction evaluation should be used to make practicable modifications (e.g., adjusted signal timing, new signage, striping, etc.) or renewed educational outreach efforts, if warranted.

Step 5 – Operations and Maintenance

In addition to typical maintenance of the pavement, signage, and traffic signal, frequent maintenance of the following enhancements should be schedule and assigned to the appropriate organization:

5a. Green infrastructure and drainage maintenance,

5b. Landscaping maintenance, especially for the raised median at Grinstead Drive and on Liberty Street near the viaduct.

5c. Signage maintenance—Given the unique nature of the cycle track option, should it be implemented, an inventory of signs for navigating the cycle track should be maintained, and replaced if missing.

The additional \$40,000 for the buffered cycle track is due to the more complex traffic signal configuration at Payne Street, enhanced signage throughout the corridor, and an educational campaign that would be warranted because the cycle track is a new type of facility for the neighborhood and Louisville Metro.





Table 2: Cost Estimates

Step	Description	Coordination by Metro Public Works, with...	Schedule / Costs
STEP 1—DESIGN			\$150,000*
1a	Decide on Option 1, Cycle Track, or Option 2, Bike Lanes	Elected Officials, Internal Stakeholders	Months 1-4
1b	Design Elements Independent of the Bicycle Facilities		
1b.1	Design Pavement Rehabilitation		Months 1-4
1b.2	Design of Drainage Infrastructure	MSD	
1b.3	Design Green Infrastructure	MSD and IHNA	
1b.4	TARC stop plans, including removing unsafe mid-block stops in Areas 4, 5, and 6, and adding a stop on Payne Street north of Lexington Road.	TARC and IHNA	Months 1-4
1b.5	Design Enhancements <ul style="list-style-type: none"> Wayfinding Signage Benches Bike Racks Landscaping Lighting CSX Viaduct 	IHNA IHNA IHNA Brightside and IHNA LG&E CSX	
1b.3	Design Green Infrastructure	MSD and IHNA	
1c	Design Elements Related to the Selected Bicycle Facility		
1c.1	Signal Design	N/A	Months 5-6
1c.2	Signage Plan	N/A	
1c.3	Striping Plan	N/A	
Develop PS&E Package			Month 7
Advertise Project for Construction			Month 8
* The overall Design Phase is anticipated to take approximately 8 months and cost between \$100,000 and \$150,000 depending on how much work will be completed by Metro staff, and how much will be allocated to a design consultant.			
STEP 2 – EDUCATION AND OUTREACH PLAN FOR CYCLE TRACK OPTION			\$2,000
2a	Temporary Signage after construction	Police and first responders	1 week prior to opening, and several weeks following
2b	Educational Pamphlets	Various agencies and stakeholders	1 month prior to opening
2c	Cycle Track Educational Materials	Various user groups	1 month prior to opening
2d	Ribbon Cutting Event	Various organizations and individuals	Opening Day
STEP 3 – CONSTRUCTION			\$1,323,000 (Bike Lanes) — \$1,359,000 (Cycle Track)
3a	Roadway Construction <ul style="list-style-type: none"> Grade and Drainage Pavement Signals & Signing 	IHNA, utility companies, and traveling public	<ul style="list-style-type: none"> \$61,000 \$600,000 \$140,000 – BL \$178,000 – CT
3b	Sidewalk Construction: <ul style="list-style-type: none"> Wayfinding Signage Benches Bike Racks Green Infrastructure Landscaping 	IHNA, utility companies	<ul style="list-style-type: none"> \$74,800 \$63,200 \$78,500 \$143,000 \$46,500 = \$406,000

Table 2: Cost Estimates (continued)

Step	Description	Coordination by Metro Public Works, with...	Schedule / Costs
STEP 4 – EVALUATION			
4a	Collect Current User Data		One year after opening to traffic
4b	Collect Public Feedback	Internal and External Stakeholders	
STEP 5 – OPERATIONS AND MAINTENANCE			
5a	Green Infrastructure and Drainage	MSD	On going
5b	Landscaping – at Grinstead Drive and on Liberty Street	IHNA and Brightside	
5c	Regular signage inventory, especially for the cycle track option	Metro Bicycle and Pedestrian Coordinator	
OVERALL COSTS WITH CONVENTIONAL BUFFERED BIKE LANES:			\$1,480,000
OVERALL COSTS WITH BUFFERED CYCLE TRACK:			\$1,520,000



Lexington Road Corridor Transportation Plan

FROM BAXTER AVENUE TO
GRINSTEAD DRIVE, INCLUDING LIBERTY
STREET TO WEST CHESTNUT STREET
IRISH HILL NEIGHBORHOOD

JUNE 2015



Prepared For:
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*with support from BA Engineers and
GeoMorphics*

*In Cooperation with:
Irish Hill Neighborhood Association*

