# COMMONWEALTH OF KENTUCKY

## 2017 WASTE TIRE MARKET DEVELOPMENT
## RUBBERIZED ASPHALT GRANT APPLICATION

**PURPOSE**

This grant provides financial assistance to projects that further the goals of the Kentucky Waste Tire Program by promoting development of markets for rubber-modified asphalt using waste tires generated in Kentucky

KENTUCKY DWM DIVISION OF WASTE MANAGEMENT

Energy and Environment Cabinet

Kentucky UNBRIDLED SPIRIT™

**2017 KENTUCKY WASTE TIRE**
**RUBBERIZED ASPHALT GRANT APPLICATION FORM**

## GENERAL INFORMATION

The cabinet is accepting grant proposals for projects that will promote and assess the benefits of the use of recycled Kentucky waste tires in rubber-modified asphalt for chip seal and asphalt overlay projects. **Rubber-modified asphalt** involves amending standard asphalt with crumb rubber derived from recycled waste tires. **Chip seal** is a pavement surface treatment that combines one or more layers of liquid asphalt with one or more layers of fine aggregate, while **asphalt overlay** consists of a new layer of asphalt applied over an existing asphalt surface. The thickness of an overlay for the purposes of this project should not exceed 1.5 inches.

Depending on the application, rubber-modified asphalt has numerous potential benefits including increased skid resistance, increased road life, and noise reduction, in addition to providing a valuable end use for recycled waste tires. The objective of this grant is to determine if rubber-modified asphalt can provide superior performance to standard asphalt in certain applications.

Tire derived crumb rubber is recognized by the Transportation Research Board to improve asphalt. The following is taken from *Chip Seal Best Practices, NCHRP Synthesis 342, National Cooperative Highway Research Program,* Transportation Research Board, AASTHTO, 2005, available at: http://www.trb.org/Publications/Blurbs/155807.aspx

> *"Recognize that both hot asphalt cement and emulsified asphalt binders can be used successfully on high-volume roads. The selection of binders modified by polymers or crumb rubber seems to reinforce success."*

Rubber is also discussed by various agencies to be used in thin overlays to make quieter and longer lasting pavements. The following excerpts are from *Thin Asphalt Concrete Overlays, NCHRP Synthesis 464, National Cooperative Highway Research Program, Transportation Research Board, AASTHTO, 2014.* The publication is available at http://www.trb.org/Publications/Blurbs/171104.aspx

> *"Reduce noise at the tire-pavement interface when fine graded mixtures are used"*
>
> *"The analysis showed that the quietest one-third of the pavements were either OGFC pavements or pavements with crumb rubber included in the mixture"*
>
> *"Louisiana placed its first UTBWC (Ultra Thin Bonded Wearing Course) in 1997… The process, also known as Novachip and Paver-Laid Surface Treatment, uses a special paver that applies a polymer-modified emulsion. The UTBWC layer was placed at 0.75 in. thick, whereas the conventional layers were 3.5 in. thick…Even so, it was determined that the Louisiana DOT would save approximately $3.34/yd2 using the UTBWC. After more than 6 years, the UTBWC was still performing well." (polymer-modified emulsion includes ground tire rubber)*

**2017 KENTUCKY WASTE TIRE**
**RUBBERIZED ASPHALT GRANT APPLICATION FORM**

This grant will fund the installation of **either** chip seal or thin asphalt overlay utilizing rubber-modified asphalt. **Applicants are not eligible for both options and must choose between the Chip Seal or the Asphalt Overlay.** Any county awarded the grant will be required to complete chip seal or overlay of a section of road at least equal in length to the test section, of similar age and condition, and similar in topography, traffic volume and type, using standard asphalt. The road sections should be adjacent to one another, if possible. If there are no roads in the county that meet this specification, then non-contiguous sections may be approved. This grant will provide funding for:

> The purchase and application of 24,000 square yards of material (rubber-modified asphalt and aggregate) to **chip seal** a county road. With a road that has the average lane-width of 10 feet, this amount of material is sufficient to apply one layer of chip seal over approximately four lane-miles, two layers over two lane-miles, or three layers over 1.33 miles. This grant will also fund the typical mobilization cost for in-state or out-of-state contractors.

**-OR-**

> The purchase and application of 12,000 square yards of material (rubber-modified asphalt and aggregate) to add an **asphalt overlay** no greater than 1.5 inches in thickness to a county road. With a road that has the average lane-width of about 10 feet, this amount of material is sufficient to apply an overlay over 1.5 lane-miles. This grant will also fund typical mobilization costs for in-state or out-of-state contractors.

**Grant Conditions:**

1. Project documentation will include a Construction Completion Report and two Progress Reports documenting the condition of the road over five years. Reports will include a narrative description of road conditions, photographs, and any other relevant documentation.

2. Grantees will conduct no additional maintenance or repairs on either section during the five year monitoring period. If at any point repairs are deemed necessary for public safety, the county will contact the cabinet to receive written approval for maintenance over any unsafe sections.

3. The cabinet will fund only the costs associated with the installation of rubber-modified asphalt section of road, plus any associated testing and documentation performed by the cabinet or a third-party contractor.

4. The cabinet reserves the right to modify the scope of any project or otherwise add conditions to the awarded project grant.

5. Applicants may include only county or urban county governments.

6. The cabinet must approve the rubber-modified asphalt materials, contractor, mobilization costs and pavement specifications prior to the grantee entering into purchase agreements.

7. The applicant must follow state or federal chip seal or thin asphalt overlay specifications, in a manner agreed upon with the cabinet.

8. Applicants are required to use a qualified contractor with prior experience in the installation of rubber-modified asphalt. This grant defines experience as "having performed at least five rubber-modified asphalt projects in the last five years." A contractor may also qualify for this project if a consultant or subcontractor with commensurate experience has been retained to aid in the completion of this project. Contractor shall provide evidence of required commensurate experience.

9. The County will allow access to the finished project for inspection, testing, and placement of signage by the cabinet.

10. The cabinet reserves the right to alter or suspend the grant program to accommodate other programmatic needs or initiatives.

11. Failure to comply with reporting requirements may result in the grantee being required to reimburse the cabinet for all funds received, and ineligibility for future EEC grants.

12. Any change to the proposed project, after the grant is awarded, must be approved by the cabinet in writing before the change is made.

13. If a county or urban county government is out of compliance with its Solid Waste Management Plan, that county or urban county government is ineligible to receive this grant.

14. No contractor, subcontractor, consultant, vendor, or supplier, or any employee or representative thereof, shall be an employee of the applicant.

15. Funding for this grant is dependent upon the availability of funding, not otherwise obligated, in the waste tire trust fund established in KRS 224.50-880. This is a competitive grant and the cabinet expects to receive applications for many more projects than it is able to fund.

**2017 KENTUCKY WASTE TIRE**
**RUBBERIZED ASPHALT GRANT APPLICATION FORM**

## HOW APPLICATIONS WILL BE EVALUATED BY THE CABINET:

First, only complete applications will be considered.

Second, applications will be prioritized by:

1. The most efficient projects that generate the best information for the cost will be a higher priority.

2. Counties that have performed chip seal or thin asphalt overlay projects in the past.

3. The condition of the road that is to be chip sealed or thin asphalt overlaid. The cabinet will not award a grant for a project over a road that has a poor base.

4. Similarity of rubber-modified and standard sections in age, condition, topography, and traffic volume and type.

5. Projects that are geographically distributed across all areas of the state.

6. The cabinet's assessment of the extent to which the proposed project will develop a market for Kentucky waste tires and protect human health, safety, and the environment. Some factors that will be used in this determination are those items outlined in the application, how many grants have previously been awarded in the county; and the project's costs and forecasted benefits.

7. Incomplete applications may not be considered.

## 1. APPLICANT PROFILE

To be eligible for this grant, applicants must meet the following criteria:

1. Have the legal authority to construct and operate the proposed project;

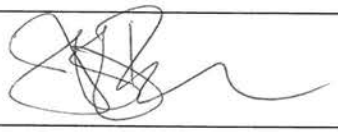
2. Have the ability to complete the project in compliance with the grant conditions.

3. The applicant and the person who will be managing the project shall not have received a final judgment or conviction of a state or federal environmental statute or regulation in the five (5) years before submitting the application and shall not have any outstanding violations of state or federal environmental statutes or regulations.

## 2017 KENTUCKY WASTE TIRE
## RUBBERIZED ASPHALT GRANT APPLICATION FORM

**ALL APPLICANTS MUST ANSWER THE FOLLOWING QUESTIONS OR PROVIDE AN EXPLANATION OF WHY THE ITEMS ARE NOT APPLICABLE TO THE PROPOSED PROJECT. You may attach additional pages as required.**

| | | | |
|---|---|---|---|
| **County/Urban-County Government Name** | **Jefferson County, Louisville Metro** | | |
| **Street Address** | **444 S 5th St** | | |
| **Mailing Address** | **444 S 5th St** | | |
| **City** | Louisville | **Zip** | **40202** |
| **Project Contact** | **Matthew Haines** | | |
| **E-mail Address** | Matthew.haines@louisvilleky.gov | | |
| **Phone** | 502 574 3883 | **Fax** | **502 574 4129** |

| | | | |
|---|---|---|---|
| **Applicant's Name** | **Matthew Haines** | | |
| **Federal Tax ID#** | **32-0049006** | | |
| **Mailing Address** | **444 S. 5th St** | | |
| **City** | Louisville | **Zip** | **40202** |
| **Phone** | 502 574 3883 | **Fax** | **502 574 4129** |
| **E-mail Address** | **Matthew.haines@louisvilleky.gov** | | |
| **Signature of Applicant's Authorizing Official** |  | **Date** | 6/5/17 |
| **Typed or Printed Name of Official** | **Jeffrey Brown** | | |
| **Official Title** | **Assistant Director** | | |

**Choose a project:**

**Asphalt Overlay**

**2017 KENTUCKY WASTE TIRE**
**RUBBERIZED ASPHALT GRANT APPLICATION FORM**

## STATUS OF APPLICANT

**A.** Does the applicant have the legal authority to construct and operate the proposed project? Yes

**B.** Does the applicant have the ability to construct the project in compliance with the grant conditions? Yes

**C.** Has the applicant, or the person who will be managing the project for the applicant, received a final judgment or conviction of a state or federal environmental statute or regulation in the five (5) years before submitting the application, **or** have any outstanding violations of state or federal environmental statutes or regulations? No

## 2. PROJECT DESCRIPTION

**As attachment #1, provide the following information.**

- The approximate geographic area, or the community, that will benefit from the project.
- A map indicating the proposed sections of road.
- Representative photos of the proposed sections of road. Provide at least 10 photographs of each proposed section.
- Daily traffic count and description of traffic type for each proposed section.
- Detailed description of the condition of road base for each proposed section.
- Description of prior chip sealing or thin asphalt overlay experience within the county.

## 3. PROMOTION DETAIL

**As attachment #2, provide a plan to inform and educate the surrounding community about the project. You may attach examples of proposed newspaper articles or other media types intended to be used. (Pertinent facts for the suggested release may be found on our website at waste.ky.gov/rla/grants.)**

**2017 KENTUCKY WASTE TIRE**
**RUBBERIZED ASPHALT GRANT APPLICATION FORM**

## 4. MILESTONES

**Please list a description of each key task and its approximate completion date. An example, is provided below. This is only an example. Please adjust the task description in your own grant application to describe the type of project you are proposing.**

***EXAMPLE* Rubberized Asphalt Chip Seal Project *EXAMPLE***

| Task Description | Estimated Completion Date |
|---|---|
| 1. Prep roadway including pot-hole and structural repair | July 1, 2017 |
| 2. Award Contract for rubberized asphalt | August 1, 2017 |
| 3. Contact Newspapers, Television and Radio | August 15, 2017 |
| 4. Project start, standard asphalt section | September 1, 2017 |
| 5. Project start, rubber-modified asphalt section | September 2, 2017 |
| 6. Project complete | September 15, 2017 |
| 7. Receive sampling documentation from contractor | October 15, 2017 |
| 8. Construction Completion Report Due | January 31, 2018 |
| 9. Progress Report #1 | January 31, 2019 |
| 10. Final Progress Report #2 | January 31, 2023 |

**Project Name: Lake Forest Parkway from Shelbyville Rd to Woodlake Dr**

| Task Description | Estimated Completion Date |
|---|---|
| 1. Amend current contract or bid new contract for rubberized asphalt | July 14, 2017 |
| 2. Core roadway to better define structural repair | August 4, 2017 |
| 3. Prepare roadway including pot-hole, structural repairs and updating sidewalk ramp to meet ADA standards | August 18, 2017 |
| 4. Contact Newspaper | August 18, 2017 |
| 5. Project Start milling and standard asphalt section | August 21, 2017 |
| 6. Project Start Rubber-modified asphalt section | August 28, 2017 |
| 7. Project complete | September 1, 2017 |
| 8. Receive sampling documentation from contractor and/or 3rd party inspections | November 3, 2017 |
| 9. Construction Completion Report Due | January 31, 2018 |
| 10. Progress Report #1 | January 31, 2019 |
| 11. Progress Report #2 | January 31, 2023 |
| | |
| | |
| | |

**2017 KENTUCKY WASTE TIRE**
**RUBBERIZED ASPHALT GRANT APPLICATION FORM**

## 6. BUDGET DETAIL

Complete the budget table below. Do not include any long-term maintenance or refurbishment costs.

*EXAMPLE* County Chip Seal Project *EXAMPLE*

| Rubberized Chip Seal | COST |
|---|---|
| **Mobilization** | **No Cost** |
| **Application of rubber-modified asphalt (up to 24,000 square yards for Chip Seal OR up to 10,000 square yards for Overlay not to exceed 1.5 inches in thickness)** | **$7.34 / SY** |
| **Total Grant Request :** | **$73,400.00** |

***NOTE 1: The above listed is anticipated costs using current Louisville Metro Paving Contractor, Hall Contracting. To meet compliance with the Grant specifications, Hall will with consultants at Ingevity to meet rubber modified asphalt specifications.***

***Note 2: Page 2 calls out reimbursement up to 12,000 SY of rubberized asphalt but the above table calls out 10,000 SY. Louisville Metro has assumed 10,000 sy to be the correct reimbursement total. If this is incorrect, please notify us as we can adjust.***

*Grant applicants must submit a complete application with all required documentation. All construction project work must be completed by December 31, 2017.*

## REPORTS

### Construction Completion Report

Grantee must submit by January 31, 2018, a Construction Completion Report consisting of narrative description of project, representative photographs, any test reports, all invoices, proof of payment and a completed budget worksheet.

### Progress Reports

The grantee must submit progress reports, by January 31, 2019 and January 31, 2023. These reports should include:

1. Comments from administrators, project coordinator, officials, and other people knowledgeable about the outcome of the project.

2. Pictures of rubberized-modified asphalt sections and standard asphalt sections.

4. Any available contractor or county test results (Cabinet will do overview testing)

5. Media reports such as newspaper clips.

## Project Reimbursement

Upon completion of the project, a final invoice will be sent to the Division of Waste Management.

Upon receipt, the Division of Waste Management will issue a payment to the selected County covering the approved scope of the rubber-modified asphalt project. The Division of Waste Management will not reimburse for costs over the original projected cost, or for costs associated with any activity other than the purchase and installation of rubber-modified asphalt product in the approved project.

## Signature

The head of the applying entity should sign the grant request. For those projects that require official authorization (such as by the urban county government council or county fiscal court), enclose the minutes of the meeting approving the project.

**ALL REPORTS SHOULD BE SUBMITTED TO THE ADDRESS BELOW**

**SUBMISSION**

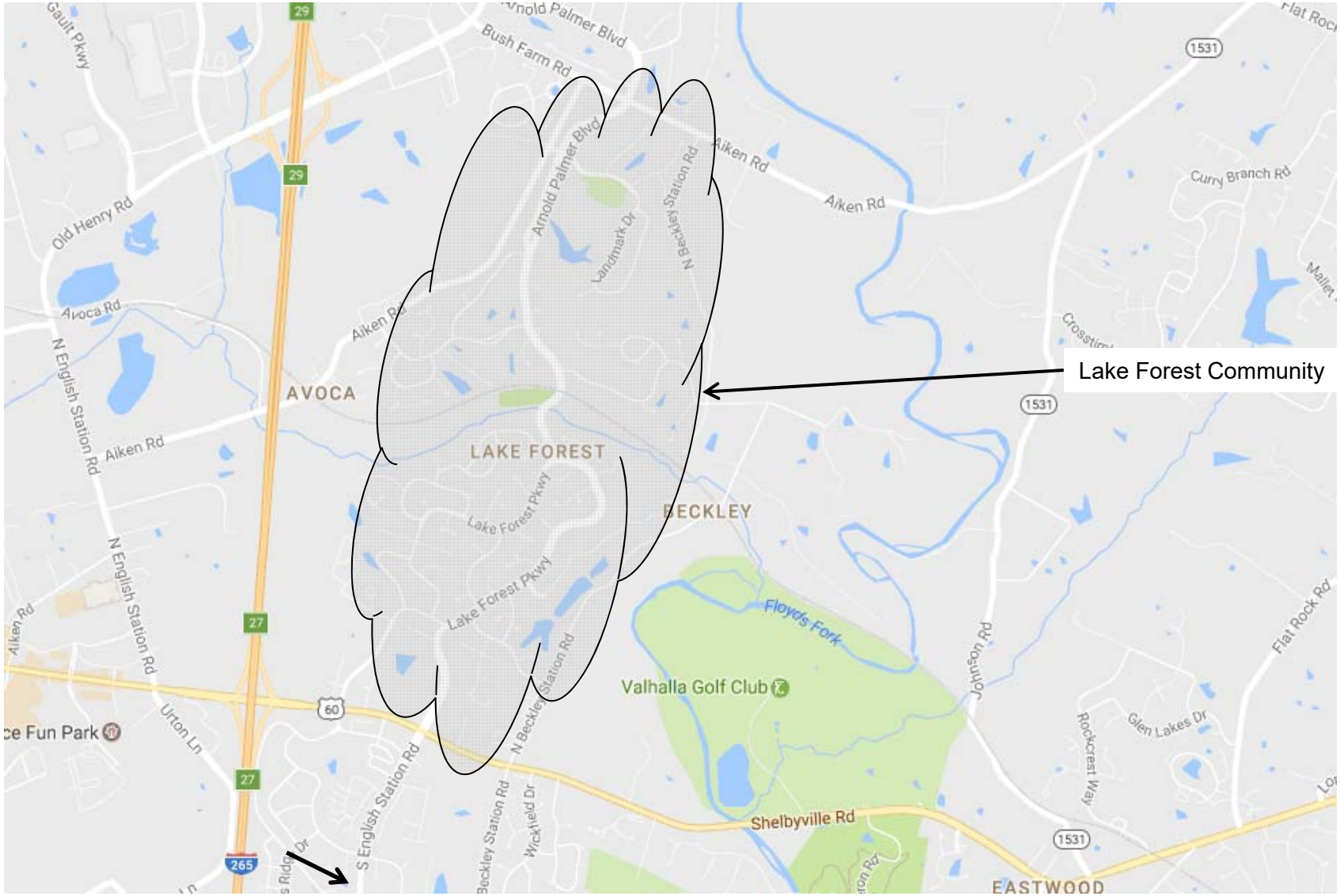
Grant applications must be received **in this office** by close of business (4:30 p.m.) on **June 05, 2017**. No applications will be accepted after June 05, 2017. One completed application and all supporting documentation must be submitted in order for the application to be considered. **Please do not bind or staple the application**. Mail deliver, or email your application to:

**Division of Waste Management**
**ATTN: BJ Bland**
**Recycling and Local Assistance Branch**
**300 Sower BLVD, 2nd Floor**
**Frankfort, KY 40601**
**byron.bland@ky.gov**

**Direct grant questions to Byron "BJ" Bland at 502-782-6556 or byron.bland@ky.gov.**

**Direct technical questions to Mr. George F. Gilbert, P.E. at 502-598-9860**
**George.gilbert60@gmail.com**

Attachment 1

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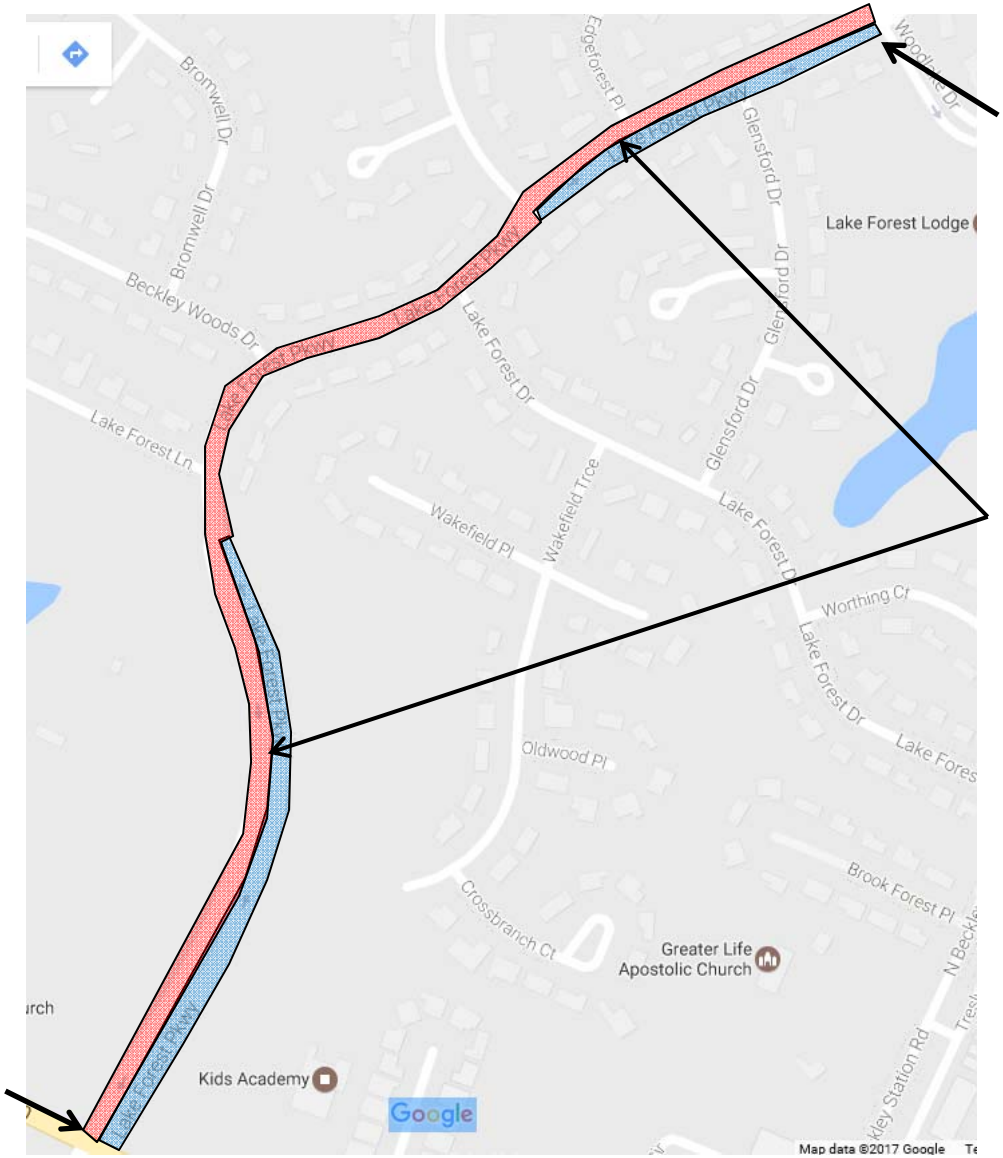
| | | | |
|---|---|---|---|
| Project Manager: XXX | Project No. XXXX | LOUISVILLE JEFFERSON COUNTY | VICINITY MAP |
| Drawn by: XXX | Scale: N.T.S. | 444 S. 5th Street, 4th Floor Louisville, Kentucky 40202 | Lake Forest Community<br>Louisville, KY |
| Checked by: XXX | File Name: | PH. (502) 574-3883 FAX. (502) 574-4129 | Figure 1 |
| Approved by: XXX | Date: 6/5/2017 | | |

LEGEND

Proposed Asphalt Overlay

Proposed Rubber Modified Asphalt Overlay




End project just before intersection at Woodlake Dr

Median separates the roadway at these locations

Start project at Shelbyville Rd after decorative pavers

N

| | | | |
|---|---|---|---|
| Project Manager: XXX | Project No. XXXX | | RUBBER MODIFIED ASPHALT LOCATION PLAN |
| Drawn by: XXX | Scale: N.T.S. | | Lake Forest Parkway<br>Louisville, KY |
| Checked by: XXX | File Name: | | Figure 2 |
| Approved by: XXX | Date: 6/5/2017 | | |

444 S. 5th Street, 4th Floor Louisville, Kentucky 40202
PH. (502) 574-3883 FAX. (502) 574-4129

LEGEND

<# Approximate Photo Location

End project just before intersection at Woodlake Dr

Start project at Shelbyville Rd after decorative pavers

N

| | | | |
|---|---|---|---|
| Project Manager: XXX | Project No. XXXX | PHOTOGRAPH LOCATION MAP | Figure |
| Drawn by: XXX | Scale: N.T.S. | Lake Forest Parkway<br>Louisville, KY | 3 |
| Checked by: XXX | File Name: | | |
| Approved by: XXX | Date: 6/5/2017 | | |

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**Photo #1:** Southbound lane looking south towards Shelbyville Rd

**Photo #2:** Southbound lane looking north

**Photo #3:** Base failure observed in southbound lane between photos 1 & 2

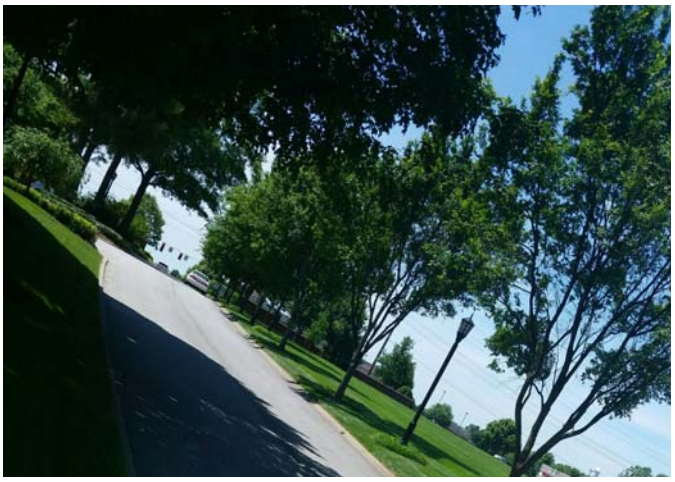


**Photo #4:** Southbound lane looking south

**Photo #5:** Southbound lane looking north

**Photo #6:** Roadway looking north just past south median leading to Shelbyville Rd

**Photo #7:** Looking south just past south median

**Photo #8:** 2-way roadway section looking northeast.

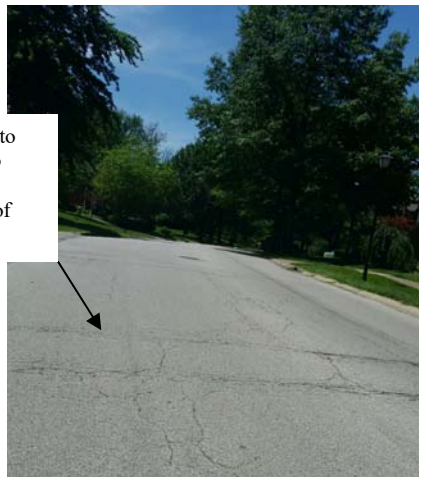



**Photo #9:** 2 way roadway section looking southwest at utility cut

**Photo #10:** 2 way roadway section looking northeast just shy of northern median

**Photo #11:** Northbound lane looking southwest at 407 Lake Forest Pkwy (to be regular asphalt)

**Photo #12:** Northbound lane looking northeast at 407 Lake Forest Pkwy (to be regular asphalt)

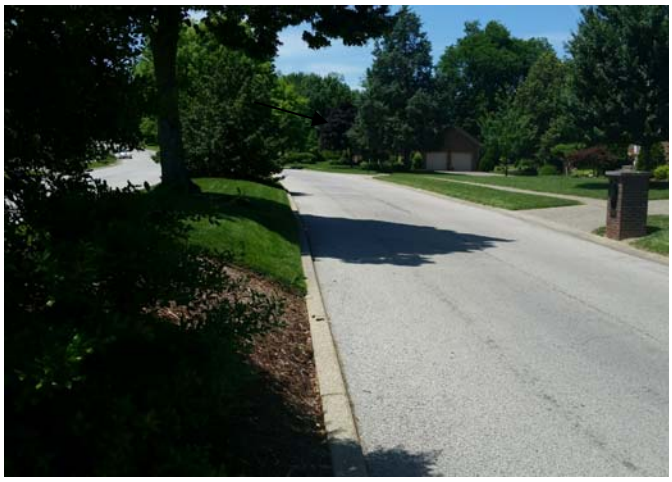


**Photo #13:** Southbound lane looking southwest at 412 Lake Forest Pkwy

**Photo #14:** Southbound lane looking northeast near 506 Lake Forest Pkwy.

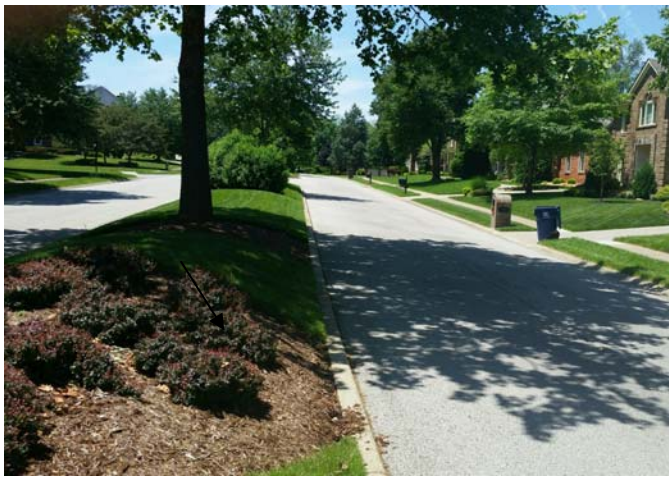
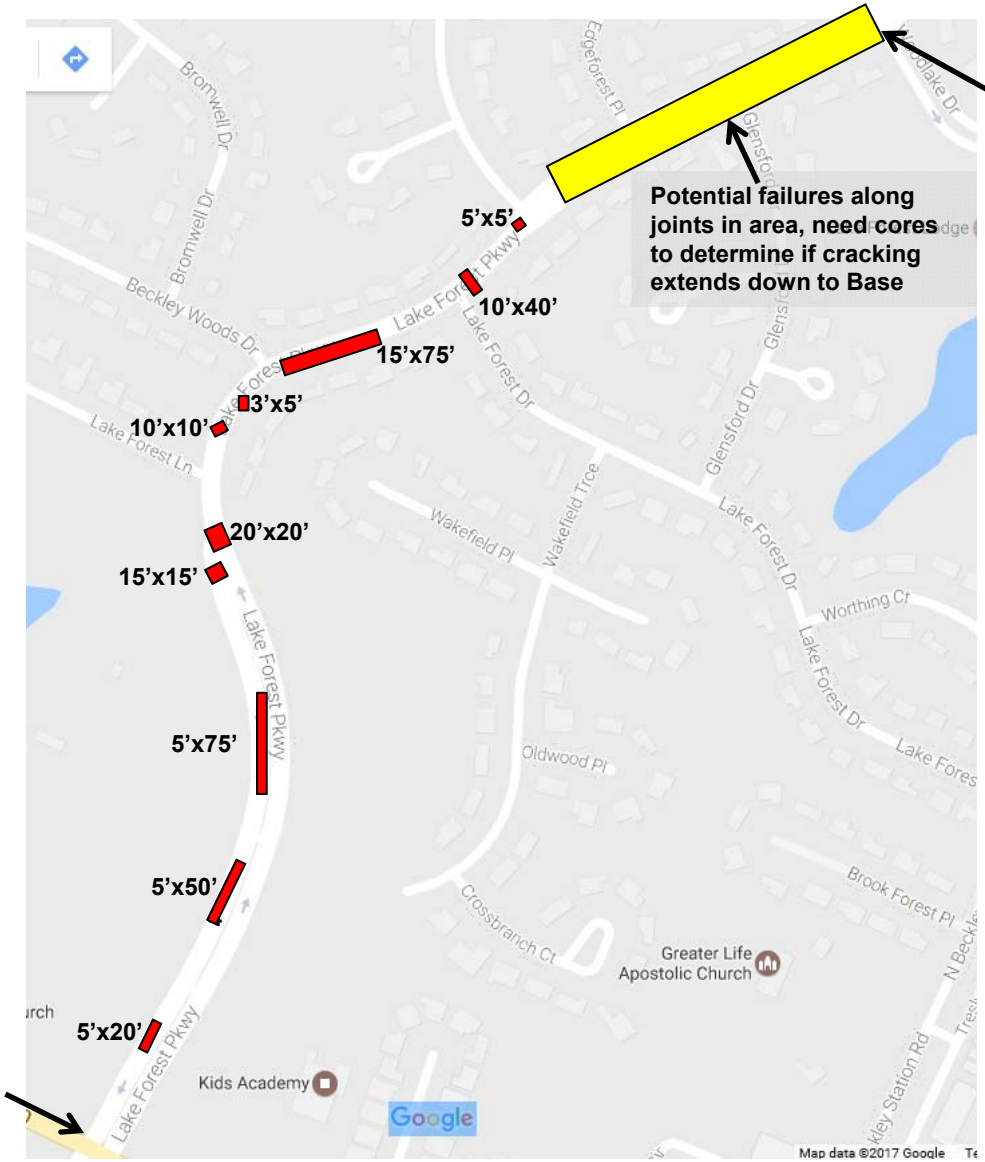


**Photo #15:** Southbound lane looking southwest near 506 Lake Forest pkwy

**Photo #16:** Northbound Lane Looking northeast to Woodlake Dr (to be regular asphalt)

LEGEND

Approximate Anticipated base failure location

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|---|---|---|---|
| Project Manager: XXX | Project No. XXXX | LOUISVILLE JEFFERSON COUNTY | ANTICIPATED BASE FAILURE REPAIRS |
| Drawn by: XXX | Scale: N.T.S. | | Lake Forest Parkway |
| Checked by: XXX | File Name: | | Louisville, KY |
| Approved by: XXX | Date: 6/5/2017 | | Figure 4 |


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Louisville Metro classifies Lake Forest Parkway as a local roadway that primarily withstands lightweight passenger vehicles with occasional garbage and delivery trucks. Louisville Metro has performed two daily traffic counts on Lake Forest Parkway along the segment from Shelbyville Road to Lake Forest Lane. The daily traffic counts along this section were found to be 5,100 and 4,500 in 2015 and 2016, respectively (Information available on KIPDA website).

Figure 2 shows our current plan for developing test sections for both rubber modified asphalt and regular hot mix asphalt. Let it be known that Louisville Metro is planning to perform additional paving within the Lake Forest subdivision and will meet the grant requirement in paving an equal or exceeding the quantities of rubber-modified asphalt with regular hot mix asphalt. Our current fiscal year ends June 30, 3017 to which we will then determine the additional roadways to pave with hot mix asphalt once we are given our final paving budget for next fiscal year and there is an agreement with the council representative of which roadways to repave.

Louisville Metro's contractors primarily perform thin hot mix asphalt overlays (1.5 inch mill and overlay) when paving. Prior to milling and paving, the roadway is inspected to identify base failures which are then addressed via 4 options currently available in our annual contract. If additional areas are discovered when milling, Louisville Metro will address those as well prior to repaving. Figure 4 shows anticipated structural base failures which will be removed and replaced with a stable base prior to repaving. Louisville Metro plans to core drill several areas within this stretch of roadway to help determine the extent of structure base repair needed, therefore, the areas shown on Figure 4 may change.

Shown Below is current data we have on the section of Lake Forest Parkway to be repaved.

| Road Name | From | To | 2013 PCI | Average Width | Area | Length |
|---|---|---|---|---|---|---|
| LAKE FOREST PKY | SHELBYVILLE RD | LAKE FOREST LN | 54 | 39 | 94740 | 1662.11 |
| LAKE FOREST PKY | LAKE FOREST LN | BECKLEY WOODS DR | 53 | 28 | 8236 | 294.14 |
| LAKE FOREST PKY | BECKLEY WOODS DR | LAKE FOREST DR | 46 | 28 | 13309 | 475.33 |
| LAKE FOREST PKY | LAKE FOREST DR | OAK BRANCH RD | 38 | 28 | 6749 | 241.04 |
| LAKE FOREST PKY | OAK BRANCH RD | EDGEFOREST PL | 40 | 58 | 17448 | 300.83 |
| LAKE FOREST PKY | EDGEFOREST PL | GLENSFORD DR | 47 | 40 | 10476 | 261.91 |
| LAKE FOREST PKY | GLENSFORD DR | WOODLAKE DR | 37 | 40 | 14951 | 373.78 |

Attachment 2

Louisville Metro Plans to inform and educate the surrounding community by the following:

1) Louisville Metro Public Works sends out a weekly news letter called “The Works Week” which is sent to over a thousand different people across the county including elected officials. Elected officials then have the opportunity to send this news letter out along with their weekly letters to constituents.
2) Louisville Metro Public Works will advertise the project on social media by including the tangible benefits including potentially longer lasting asphalt, noise reduction, and recycling waste tires as part of this public information process. By clicking onto the link, we can direct them to further information that the cabinet has available.
3) Hold a public meeting with the Home Owners Association of Lake Forest. This will allow us to inform the individuals who will be directly affected by repaving efforts and get them excited about the tangible benefits listed above. Considering this is one of Louisville’s largest subdivisions, not only would it be a potentially large crowd but there would be an opportunity to gain a lot of feedback of how the rubber asphalt material is performing that we could share in our progress reports.