

# 100 Trees to be Planted Along Bardstown Road

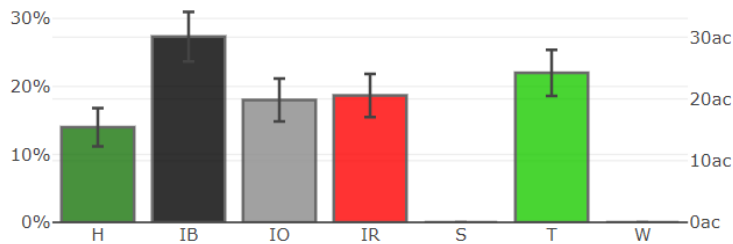
## Louisville Kentucky's Most Iconic Street

*By: Morgan Grubbs with TreesLouisville*

As a tourist if you were to ask any local the best place to go and walk around, the vast majority would answer the same: Bardstown Road. This small stretch of road has been a staple of the “Keep Louisville Weird” mantra that so many Louisvillians are proud of. Lined with quirky shops, eclectic bars, and every type of cuisine one could hope for, it’s no wonder that every weekend is packed with people from all ages and backgrounds. The only thing this iconic road is missing is the tree canopy. Due to the division between the city and state government rights as to who maintains the street and the lack of green spaces, Bardstown Road is majorly lacking trees. Especially when you compare it to the affluent adjacent neighborhoods.

TreesLouisville has been working with both local and state governments to add 100 trees along Bardstown Road in tree wells and privately owned land. By adding an additional 100 trees to this landscape we expect to see a number of benefits to the community and businesses which depend on this street to stay active.

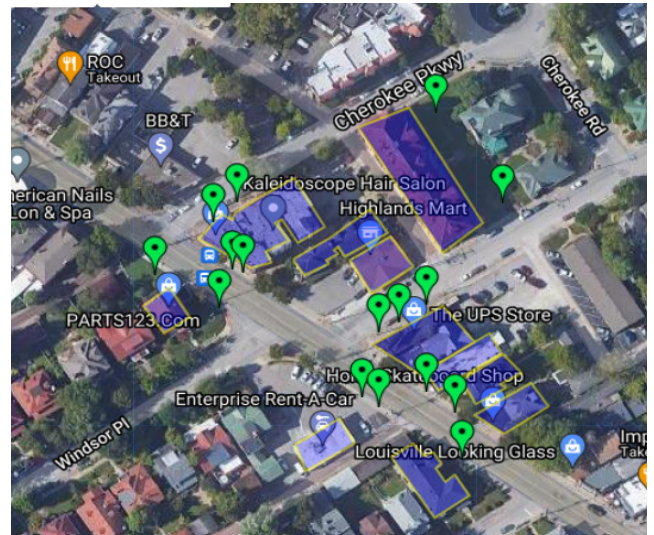
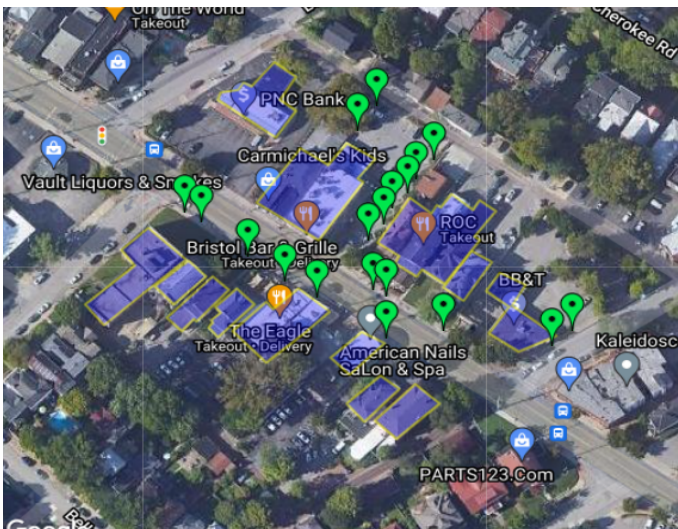
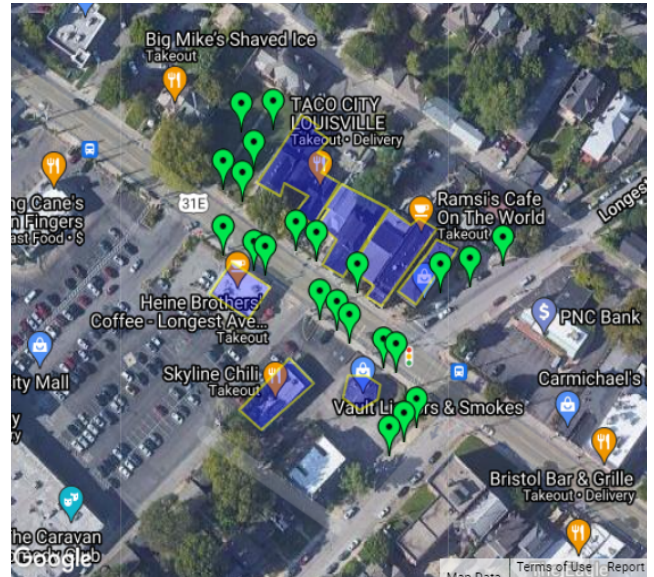
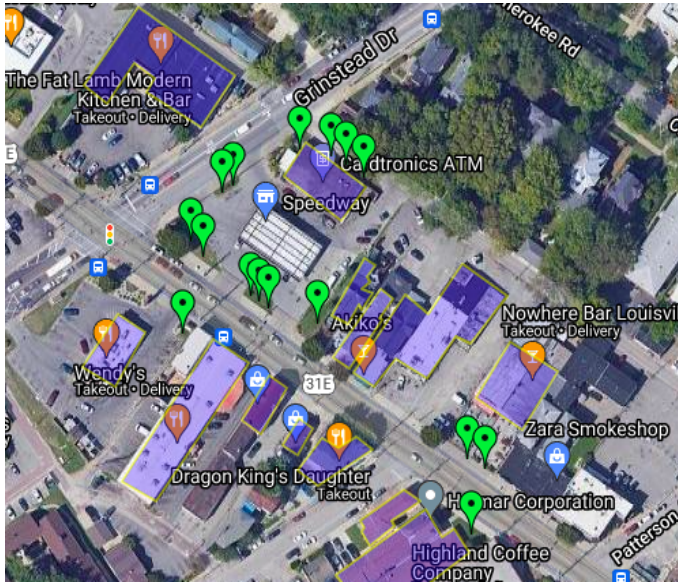
Based on the data collected in iTree-Canopy the current stretch of land which we intend to plant 100 trees is estimated at 64% impervious surfaces, this includes roads, sidewalks, parking lots, & buildings, 22% tree canopy coverage, and 14% grass or manicured lawns.



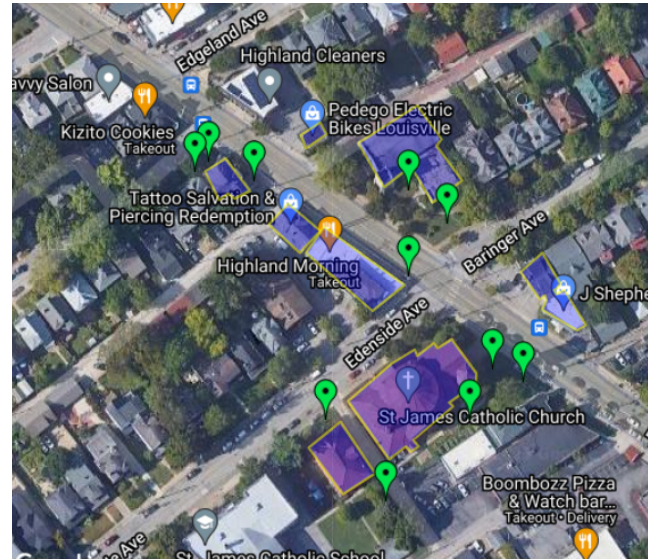
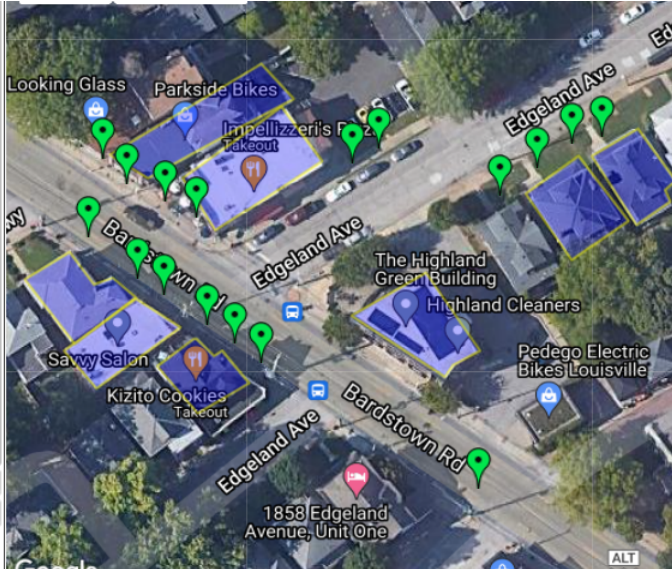
**H= Grass & Lawns IB= Impervious Buildings IO=Impervious Sidewalks & Parking Lots, IR = Impervious Roads T=Tree Canopy**

While these numbers could lead to the question “Is there even enough land for tree plantings?” The simple answer is “yes”. TreesLouisville has been working with funders to complete sidewalk cuts in double wide sidewalk areas and most of the grass lawns seen in the figures below could accommodate 1 if not more trees. Below are the locations for the 100 trees along Bardstown Road.

Maps below go from left to right Map1- Map 6







There will be a number of benefits urban trees provide any city and which these trees will offer specifically to Louisvillians and people who choose to visit this street. The first one is walkability which has been a major concern for local residents. By becoming more walkable, studies have shown that it will likely increase spending in the area. People become less overheated moving up and down the road and are therefore more likely to continue shopping at Louisville's locally owned businesses. Another major benefit is helping combat the Urban Heat Island Effect (UHI). Many folks are often surprised when we inform them that Louisville has the fastest growing UHI in the country! Areas like Bardstown Road and the Central Business District can often be 10 degrees warmer than the more rural and suburban areas, a mere 15 minutes drive away. These trees will keep the impervious surfaces cooler through heat absorption and shading. Lastly, we are aware that urban trees in general provide local habitat, help reduce stress levels, calms traffic, and more.

Through iTree-Design I was able to calculate more specific benefits and how that translates into savings for the community. In these graphs we can see the benefits of these trees 25 years from now.

**Total Projected Benefits (2021-2046) - Over the next 25 years, based on forecasted tree growth, i-Tree Design projects total benefits worth \$3,706:**

- \$290 of storm runoff savings by avoiding 32,484 gallons of stormwater runoff (intercepting 153,108 gallons of rainfall)
- \$400 of air quality improvement savings by absorbing and intercepting pollutants such as ozone, sulfur dioxide, nitrogen dioxide, and particulate matter; reducing energy production needs; and lowering air temperature
- \$1,078 of savings by reducing 46,372 lbs. of atmospheric carbon dioxide through CO<sub>2</sub> sequestration and decreased energy production needs and emissions
- \$1,098 of summer energy savings by direct shading and air cooling effect through evapotranspiration
- \$840 of winter energy savings by slowing down winds and reducing home heat loss

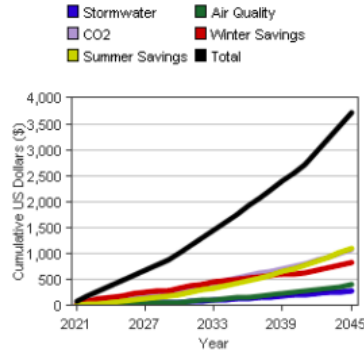


Figure 1. Tree benefit forecast for 25 years

**Correlation with Map 1, 16 Trees**

**Total Projected Benefits (2021-2046) - Over the next 25 years, based on forecasted tree growth, i-Tree Design projects total benefits worth \$7,153:**

- \$292 of storm runoff savings by avoiding 32,653 gallons of stormwater runoff (intercepting 153,906 gallons of rainfall)
- \$450 of air quality improvement savings by absorbing and intercepting pollutants such as ozone, sulfur dioxide, nitrogen dioxide, and particulate matter; reducing energy production needs; and lowering air temperature
- \$2,040 of savings by reducing 87,703 lbs. of atmospheric carbon dioxide through CO<sub>2</sub> sequestration and decreased energy production needs and emissions
- \$1,369 of summer energy savings by direct shading and air cooling effect through evapotranspiration
- \$3,002 of winter energy savings by slowing down winds and reducing home heat loss

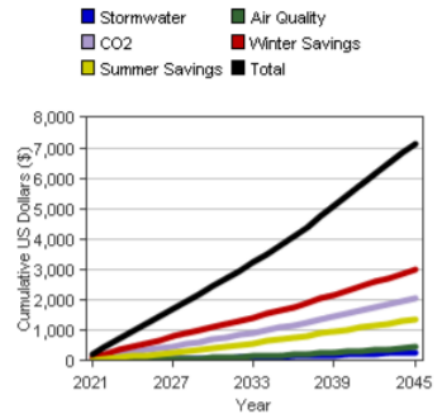


Figure 1. Tree benefit forecast for 25 years

**Correlation with Map 2, 22 Trees**



**Total Projected Benefits (2021-2046) - Over the next 25 years, based on forecasted tree growth, i-Tree Design projects total benefits worth \$4,071:**

- \$176 of storm runoff savings by avoiding 19,732 gallons of stormwater runoff (intercepting 93,004 gallons of rainfall)
- \$288 of air quality improvement savings by absorbing and intercepting pollutants such as ozone, sulfur dioxide, nitrogen dioxide, and particulate matter; reducing energy production needs; and lowering air temperature
- \$1,217 of savings by reducing 52,348 lbs. of atmospheric carbon dioxide through CO<sub>2</sub> sequestration and decreased energy production needs and emissions
- \$1,677 of summer energy savings by direct shading and air cooling effect through evapotranspiration
- \$712 of winter energy savings by slowing down winds and reducing home heat loss

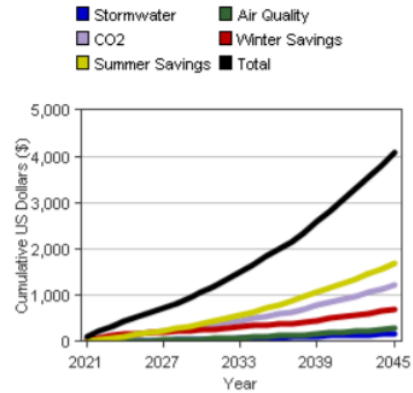


Figure 1. Tree benefit forecast for 25 years

**Correlation with Map 3, 11 Trees**

**Total Projected Benefits (2021-2046) - Over the next 25 years, based on forecasted tree growth, i-Tree Design projects total benefits worth \$13,118:**

- \$385 of storm runoff savings by avoiding 43,072 gallons of stormwater runoff (intercepting 203,010 gallons of rainfall)
- \$727 of air quality improvement savings by absorbing and intercepting pollutants such as ozone, sulfur dioxide, nitrogen dioxide, and particulate matter; reducing energy production needs; and lowering air temperature
- \$3,875 of savings by reducing 166,616 lbs. of atmospheric carbon dioxide through CO<sub>2</sub> sequestration and decreased energy production needs and emissions
- \$2,920 of summer energy savings by direct shading and air cooling effect through evapotranspiration
- \$5,211 of winter energy savings by slowing down winds and reducing home heat loss

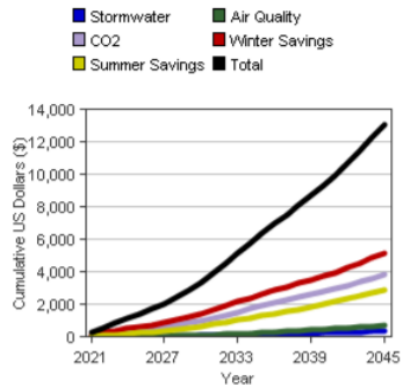


Figure 1. Tree benefit forecast for 25 years

**Correlation with Map 4, 19 trees**

**Total Projected Benefits (2021-2046) - Over the next 25 years, based on forecasted tree growth, i-Tree Design projects total benefits worth \$10,932:**

- \$245 of storm runoff savings by avoiding 27,438 gallons of stormwater runoff (intercepting 129,323 gallons of rainfall)
- \$428 of air quality improvement savings by absorbing and intercepting pollutants such as ozone, sulfur dioxide, nitrogen dioxide, and particulate matter; reducing energy production needs; and lowering air temperature
- \$3,218 of savings by reducing 138,382 lbs. of atmospheric carbon dioxide through CO<sub>2</sub> sequestration and decreased energy production needs and emissions
- \$3,328 of summer energy savings by direct shading and air cooling effect through evapotranspiration
- \$3,713 of winter energy savings by slowing down winds and reducing home heat loss

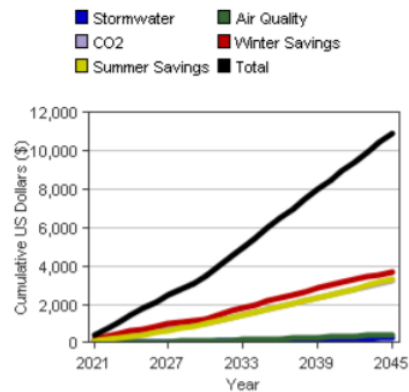


Figure 1. Tree benefit forecast for 25 years

**Correlation with Map 5, 17 Trees**

**Total Projected Benefits (2021-2046) - Over the next 25 years, based on forecasted tree growth, i-Tree Design projects total benefits worth \$7,997:**

- \$332 of storm runoff savings by avoiding 37,121 gallons of stormwater runoff (intercepting 174,962 gallons of rainfall)
- \$610 of air quality improvement savings by absorbing and intercepting pollutants such as ozone, sulfur dioxide, nitrogen dioxide, and particulate matter; reducing energy production needs; and lowering air temperature
- \$2,435 of savings by reducing 104,706 lbs. of atmospheric carbon dioxide through CO<sub>2</sub> sequestration and decreased energy production needs and emissions
- \$2,072 of summer energy savings by direct shading and air cooling effect through evapotranspiration
- \$2,548 of winter energy savings by slowing down winds and reducing home heat loss

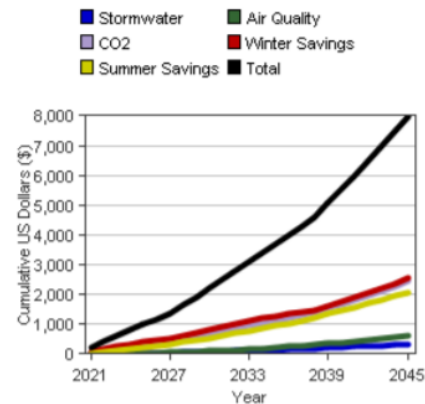


Figure 1. Tree benefit forecast for 25 years

**Correlation with Map 6, 16 Trees**



In conclusion, the monetary benefits of this project over the next 25 years will greatly surpass the initial investment which will be required to make this project work. In total iTree Design predicts that the 100 trees alongside Bardstown Road between Grinstead Drive and Eastern Parkway will save the city of Louisville nearly \$40,000 in 25 years time. This monetary amount is created when you consider the potential harms and money which would be spent should these trees not be here. An example is when the trees reduce the amount of CO<sub>2</sub> in the air, it means creating a cooler space which in turn reduces the health risks that come with a hot city such as health problems, dead/dying landscapes, higher AC bills, etc. So when the trees sequester that carbon and cause residents to use less electricity, they are saving money which would otherwise need to be spent to fix those issues.