

Roadside vegetation management practices alongside multi-lane, restricted-access interstates and highways across the Commonwealth of Kentucky.

Vegetation alongside major highways and interstates has the potential to provide many benefits to society and for conservation efforts.

These include: pollutant removal, noise reduction, carbon storage and sequestration, and conservation of native plants and animals, providing a barrier to pollutant movement and connectivity across the landscape for plant and animal species.

Vegetation buffers alongside roads have the potential to reduce the concentration of pollutants from vehicle emissions and noise pollution in nearby lands (e.g., ecosystems, crops, streams, neighborhoods, and schools).

Vegetation, especially trees, store and sequester large amounts of carbon, providing an important service to society: carbon dioxide uptake.

Trees adjacent to I-64, I-65, and I-71 in Louisville stored over 40,000 metric tons of carbon and sequestered annually over 2200 metric tons of carbon (Trammell 2010).

Roadside vegetation management practices that promote natural vegetation communities may be extremely important in conserving native plant species, which in turn can provide habitat for other taxa and connect habitats across the landscape, especially in landscapes that are highly altered and/or developed.

Roadside vegetation has the potential to act as a **conservation corridor**, providing habitat connectivity across the landscape. In certain locations where there is a high incidence of documented wildlife crossings, one-time funds could be raised for and spent on building wildlife crossings in these areas of elevated wildlife activity, improving safety for motor vehicle travel, and moving Kentucky to the forefront of roadside management practices and wildlife conservation efforts close to roadways. While collisions with trees alongside roads is a cause of concern for safety on our roadways, most of our recommendations for increased

vegetation would occur in locations with sufficient right-of-way width so that collisions with trees would not occur or pose a potential threat to vehicle travel.

The high cost of vegetation maintenance alongside our roadways in comparison to other states suggests that maintenance costs could be minimized with improvements to our roadside management.

Two roadside vegetation management practices commonly used across Kentucky on our interstates, parkways, and freeways are **mowing and herbicide treatment** for invasive species management.

A reduction in area mowed could provide a greater reduction in the cost of maintaining mowing along interstates, parkways, and freeways in Kentucky.

Eight states have officially adopted Integrated Roadside Vegetation Management (IRVM) programs that address using innovative methods for managing roadside vegetation (Berger 2005). The average area managed adjacent to each mile of interstate, parkway, and freeway is 16 acres. One survey of several states demonstrated that Kentucky has the highest cost of mowing per acre per cut by contractors (\$125; Berger 2005). A few states cut brush and small trees, and of those states Kentucky spent the most on hand-cutting brush and small trees (\$2000 per acre per cut; Berger 2005). According to personal communications with department of transportation employees, many locations along these major roadways are mowed because of previous practices.

The primary management practice for invasive species control alongside interstates and parkways in Kentucky is applying herbicide treatments.

The average cost of applying herbicide from 2007 to 2010 was almost \$370,000 for labor, equipment, and materials (KYTC Open Records 2010). While this maintenance cost is relatively low in comparison to mowing costs in Kentucky, management practices could still be improved to reduce this cost by using other methods for invasive species control.

To develop an effective Integrated Management plan, Kentucky would need to engage a broad range of expertise, including government employees working on roadside vegetation management from the transportation department, professionals managing exotic and native species in vegetation communities in Kentucky, and research scientists studying roadside environments across the Commonwealth.

