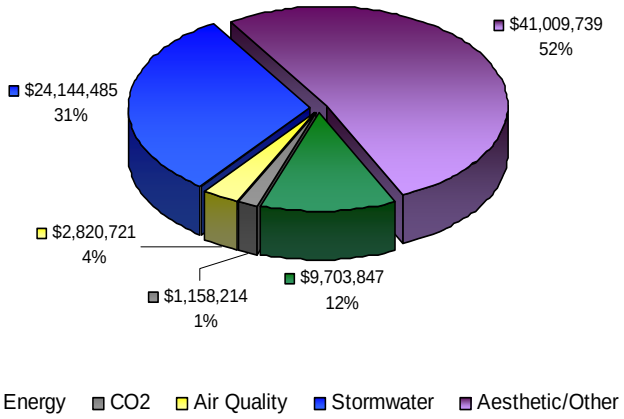
Indiana's Street Tree Benefits Summary

Indiana's street trees provide millions of dollars of tangible benefits to Indiana communities by their presence in the urban environment. Their shade and beauty contribute to the quality of life by softening the hard appearance of gray infrastructure. They provide significant increases in real estate values, create attractive settings for commercial businesses, and improve community neighborhood appeal. Trees decrease energy consumption by providing shade and acting as windbreaks. They reduce water treatment costs and impede soil erosion by slowing the runoff of stormwater. Trees also cool the air temperature, cleanse pollutants from the air, and produce oxygen while absorbing carbon dioxide. Trees are an integral component of the urban environment. Proactively managing and maintaining a street tree population will ultimately maximize the benefits afforded by their aesthetic and ecological functions.

Figure 1. Estimated Statewide Benefits From Indiana's Street Trees



Street trees return a multitude of environmental services and economic benefits to Indiana communities. Of the 23 communities involved in this statewide project, street trees are providing approximately $30 million of functional benefits each year. Applied to all 567 Indiana communities, the annual benefits afforded by street trees is nearly $79 million. Using the project's median benefit value for Indiana's four community types (Towns and Third, Second, and First Class Cities), Figure 1 shows the breakdown in statewide benefits. Tangible, statewide environmental benefits quantified in this project include environmental services that conserve energy ($9.7 million), manage stormwater ($24.1 million), improve air quality ($2.8 million), and sequester carbon dioxide ($1.1 million). Less-tangible, but equally significant, the statewide benefits provided through aesthetics and social benefits and increased property values are estimated at $41 million per year to Indiana communities.

Statewide, street trees provide Indiana approximately $79 million of annual economic and environmental benefits.

Communities in this project represent a broad range of population sizes, demographics, urban forestry expertise, and program budgets. They also represent a broad range of urban tree resource extent and benefits. According to Table 1, the median values of annual benefits are the following:

- Indiana Towns receive an annual benefit of approximately $53,000,
- Third Class Cities receive a median value of approximately $180,000 in benefits per year,
- Second Class Cities receive approximately $775,000 per year, and
- First Class Cities receive approximately $6.6 million in annual benefits.

It may be obvious that the larger the community, the larger the resource (the more trees that community has), and thus, greater benefits are received. However, any size community can work to maximize the benefits afforded by its street tree resource through increased planting and proactive management. These numbers highlight the importance of trees in Indiana cities and towns and serve as a reminder of the worthwhile investment in community forestry programs. Table 1 illustrates the breakdown of benefits for each of the communities involved in this statewide project.

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Table 1. Total Street Tree Resource Annual Benefit Breakdown Per Community Class

Community*	Energy ($)	CO_2 ($)	Air Quality ($)	Stormwater ($)	Aesthetic/ Other ($)	Total ($)	Most Beneficial Species (% of Population)
Towns *(Unclassified)*							
Fort Branch	2,379	294	827	7,997	7,492	18,989	silver maple (17.4)
Newburgh	5,064	816	1,919	19,223	26,120	53,143	Siberian elm (13.5)
Brookville	4,165	520	1,419	13,777	16,842	36,723	sugar maple (30.0)
Upland	24,874	3,859	4,311	36,780	30,962	100,785	silver maple (47.2)
Cedar Lake	79,795	10,497	12,908	99,033	81,640	283,872	white oak (25.1)
Median Total	-	-	-	-	-	**$53,143**	
Third Class Cities *(Population less than 35,000)*							
Washington	17,329	2,343	6,060	59,472	74,026	159,230	silver maple (21.7)
Madison	56,889	7,037	9,874	73,952	52,849	200,601	sugar maple (26.2)
Greendale	1,318	210	479	4,674	7,747	14,428	sugar maple (15.6)
Beech Grove	8,030	1,308	2,825	26,077	46,366	84,606	silver maple (43.2)
Peru	117,102	16,725	20,374	166,161	130,002	450,364	silver maple (42.4)
Kendallville	106,942	14,864	17,416	133,058	120,546	392,826	sugar maple (33.4)
Rushville	9,544	1,337	3,209	31,918	40,094	86,101	silver maple (32.7)
East Chicago	229,073	5,153	42,069	57,863	206,605	540,763	silver maple (35.8)
Median Total	-	-	-	-	-	**$179,916**	
Second Class Cities *(Population 35,000 up to 250,000)*							
Anderson	78,894	12,051	28,164	273,541	344,669	737,319	silver maple (27.6)
Bloomington	56,710	8,473	20,158	178,382	315,342	579,066	red maple (18.1)
Evansville	63,923	9,315	22,341	213,437	253,475	562,491	sugar maple (11.0)
Fort Wayne	1,735,844	228,716	279,642	1,753,736	1,932,828	5,930,764	silver maple (20.6)
Gary	2,551,378	59,189	469,741	643,761	1,960,004	5,684,074	silver maple (48.1)
Lafayette	315,864	41,821	51,113	356,696	337,422	1,102,914	silver maple (26.1)
Mishawaka	337,914	7,997	61,717	85,177	282,048	774,853	silver maple (33.5)
Muncie	78,527	11,811	27,570	266,774	313,597	698,279	silver maple (27.4)
South Bend	1,963,658	46,974	361,937	515,911	1,614,325	4,502,804	silver maple (23.9)
Median Total	-	-	-	-	-	**$774,853**	
First Class Cities *(Population 250,000 and over)*							
Indianapolis	604,779	98,303	218,873	2,044,185	3,642,008	6,608,147	silver maple (16.7)

*Community class designations are according to definitions provided by Indiana Association of Cities and Towns. First, Second, Third Class Cities are based on the municipal populations gathered from the 2000 U.S. Census.

In 2008, Indiana DNR, Division of Forestry, Community and Urban Forestry program commissioned a study to assess the status of the state's urban forest resource via a sample statewide inventory and analysis. The Sample Urban Statewide Inventory project utilized i-Tree's STRATUM application to calculate forest resource structure, function, and value in 23 communities across Indiana. The combination of street tree inventories and STRATUM analyses has provided the state of Indiana with scientifically reliable estimations of economic and environmental benefits street tree populations provide to communities throughout the state. Indiana's street trees are a valuable resource. The estimated amount of street trees in this study return an annual gross benefit of $30 million to SUSI communities and a further estimate of $79 million statewide. The majority of communities in Indiana see a return on their investment spent on management as a result of these benefits.