

# Summary of Land Cover Analysis and Equity of Current Stormwater Costs

Lambertville Stormwater Utility Feasibility Study

February 19, 2024

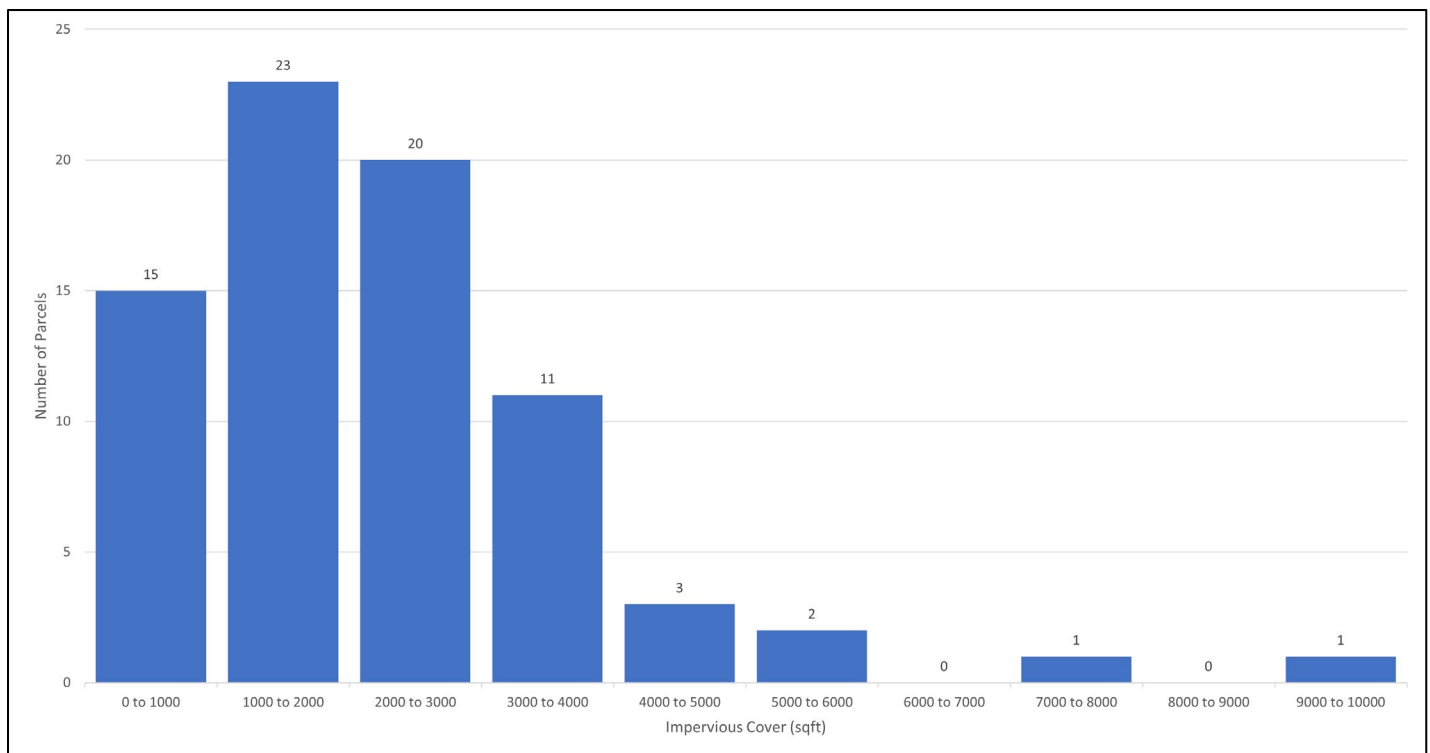
## OVERVIEW

The purpose of this document is to summarize the results of the Land Cover Analysis which was conducted in support of the Lambertville Stormwater Utility Feasibility Study. This document provides a high-level summary with a focus on the overall findings of the analysis. Additional details on the specific methods used to generate the figures and results can be provided as necessary.

## EQUIVALENT RESIDENTIAL UNIT

As part of the study, an evaluation of land cover data based on the potential use of an Equivalent Residential Unit (ERU) rate structure was completed for the City of Lambertville. The ERU rate structure assigns a single billing unit to Single-Family-Residential (SFR) parcels with all other parcels assigned billing units based on their measured impervious area. The median impervious area value of the SFR sample parcels is used to set the billing unit, which shall be used in the formation of a potential stormwater utility. The specific methods and criteria used to delineate impervious coverage were previously detailed in our memo, "Impervious Coverage Data Capture Criteria" on December 18, 2023.

A representative sample of 76 SFR parcels (5%) of the 1,511 SFR parcels in the City of Lambertville were analyzed to establish the median value of impervious cover as a basis for the billing unit for the Non-Single-Family-Residential (NSFR) and Unit Group (UG) parcels. The detailed delineation of impervious cover for each of the 76 parcels resulted in a median value of 2,022 square feet of impervious area. The histogram shown below in *Figure 1* shows the distribution of the measured impervious area among the 76 SFR sampled parcels.



**Figure 1.** Histogram of impervious cover of 76 SFR sample parcels.

## LAND COVER ANALYSIS

In addition to the detailed impervious area delineation of a representative sample of the SFR properties, the remaining NSFR and UG parcels were analyzed to determine the impervious coverage on each parcel. The square footage of impervious cover for each parcel was then divided by the 2,022 square-foot ERU determined through the analysis of the representative SFR sample. Furthermore, financial data including the previous year's annual tax for each parcel was summarized for all the parcels. These calculations provide the necessary factual background information to compare some of the key questions central to the Stormwater Utility Feasibility Study including the following:

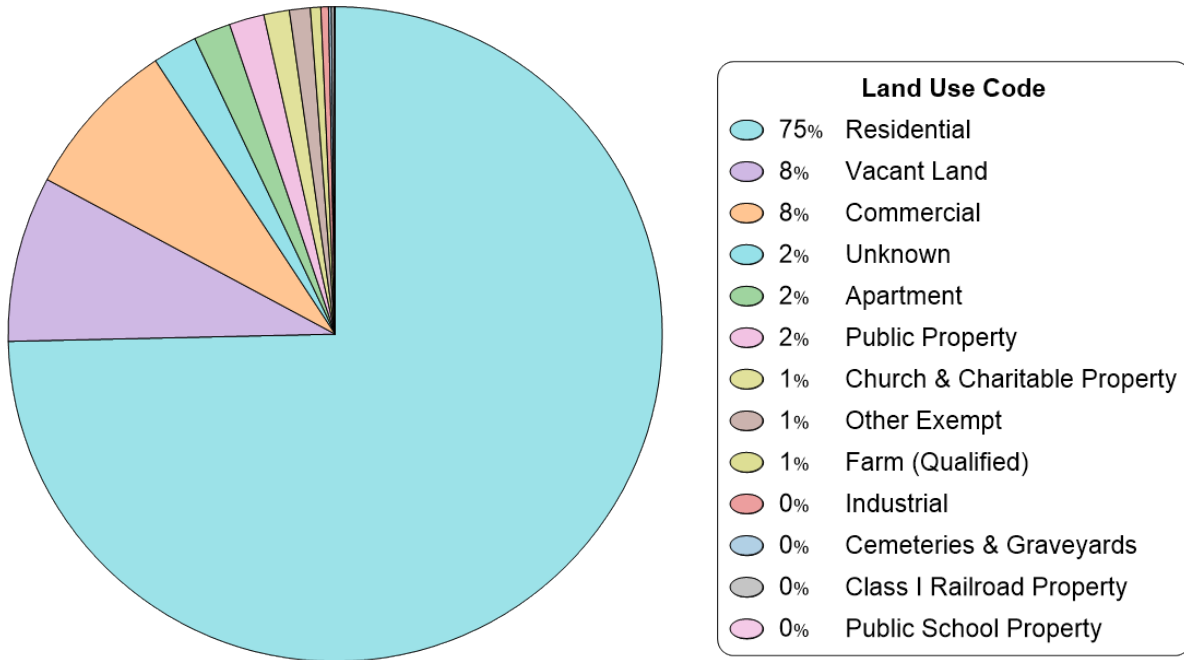
1. Which landowner categories pay more in taxes and fees than would be equitable based on their share of impervious cover, and to what extent?
2. Which landowner categories pay less in taxes and fees than would be equitable based on their share of impervious cover, and to what extent?
3. To what extent would a fee-based stormwater utility shift costs so that a more equitable distribution of costs is achieved?
4. What categories of landowners would most significantly benefit or incur additional costs, and who are the largest landowners in the latter group?

The results of this analysis are summarized in *Table 1*. The table indicates that while residential properties contribute the largest proportion of the annual tax revenue at 79.8%, they only account for 54.4% of the total impervious cover billing units within the City of Lambertville. While residential properties are the dominant category from both perspectives, they account for a comparably smaller percentage of the total billing units. Commercial properties on the other hand, are relatively consistent between the percentage of annual tax revenue and the impervious coverage billing units, at 14.7% and 15.7% respectively. Industrial properties, however, account for a small percentage of annual tax revenue and a larger percentage of billing units, at 1.5% and 6.1% respectively.

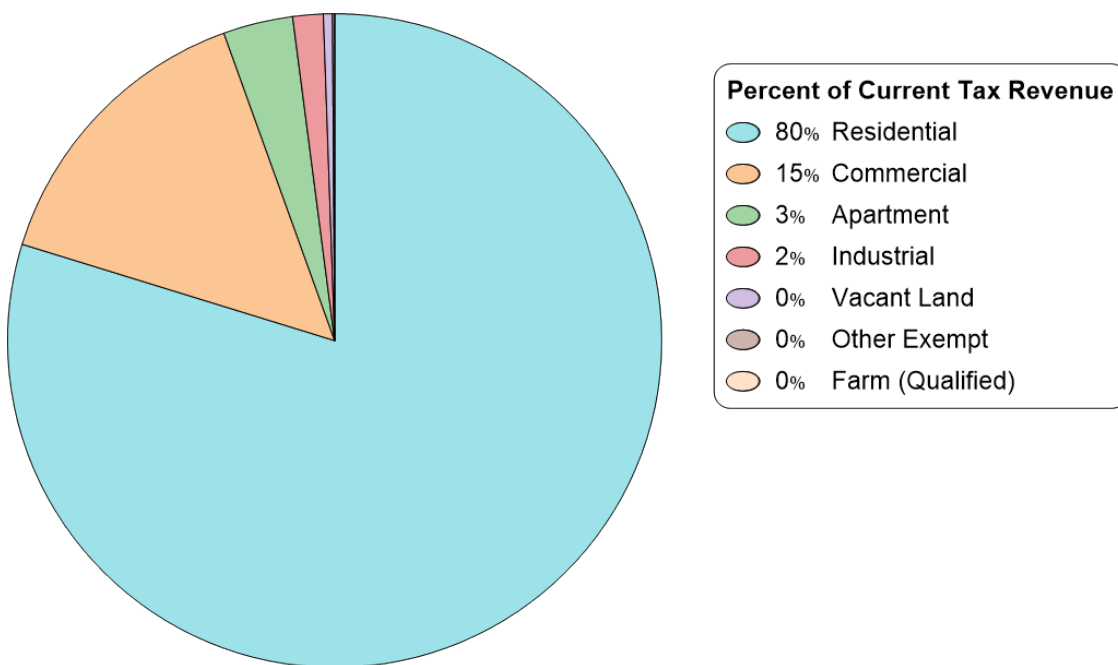
**Table 1.** Summary of Land Cover Analysis.

Description (MOD-IV)	Number of Parcels	Percent of Total Parcels	Percent of Annual Tax	Total Billing Units	Percent of Billing Units
Residential	1,596	74.6%	79.8%	1,664	54.4%
Commercial	169	7.9%	14.7%	481	15.7%
Apartment	39	1.8%	3.4%	81	2.6%
Industrial	8	0.4%	1.5%	186	6.1%
Vacant Land	175	8.2%	0.4%	61	2.0%
Other Exempt	22	1.0%	0.1%	119	3.9%
Farm (Qualified)	11	0.5%	0.0%	12	0.4%
Unknown	47	2.2%	0.0%	30	1.0%
Public School Property	1	0.0%	0.0%	31	1.0%
Other School Property	1	0.0%	0.0%	2	0.1%
Public Property	37	1.7%	0.0%	196	6.4%
Church & Charitable Property	27	1.3%	0.0%	68	2.2%
Cemeteries & Graveyards	3	0.1%	0.0%	18	0.6%
Class I Railroad Property	3	0.1%	0.0%	79	2.6%
Class II Railroad Property	1	0.0%	0.0%	29	0.9%
Public School Property	1	0.0%	0.0%	31	1.0%
Other School Property	1	0.0%	0.0%	2	0.1%

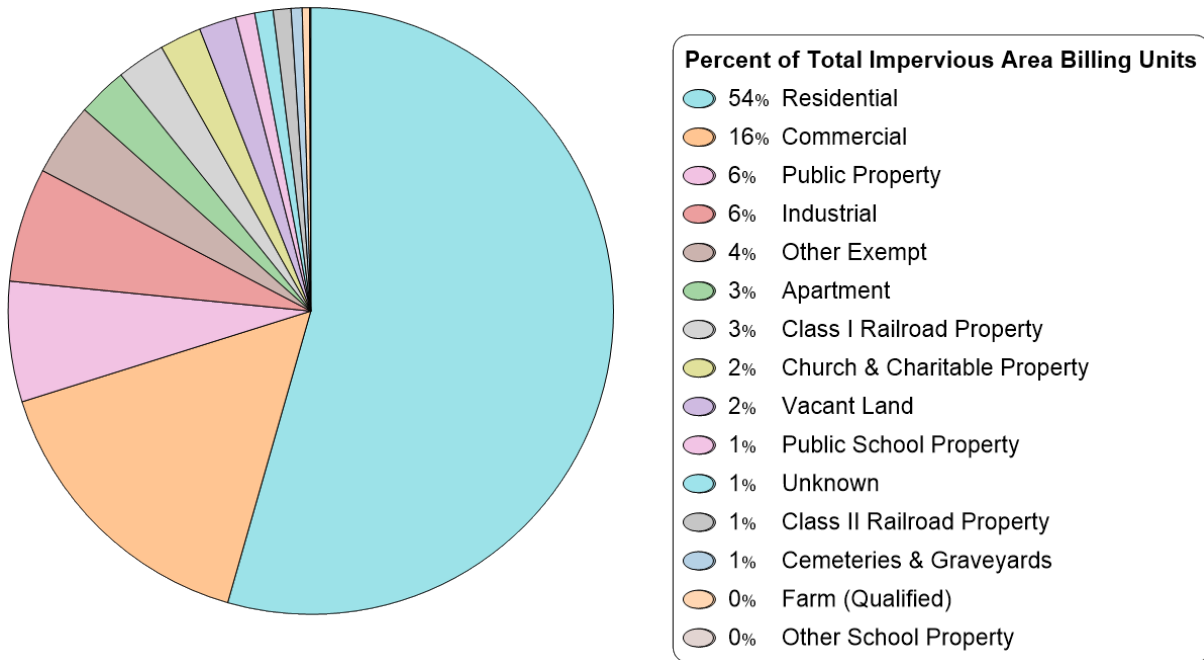
The same results summarized in *Table 1* are graphically displayed in the following three pie charts (*Figure 2*, *Figure 3*, and *Figure 4*). Note that all the land use code descriptions which have a non-zero contribution are displayed in the pie charts. For clarity, the percentages are rounded to the nearest whole-number percentage which in some cases is displayed as zero in the legend.



**Figure 2.** Distribution of various Property Class (Land Use) Codes, rounded to the nearest percentage.

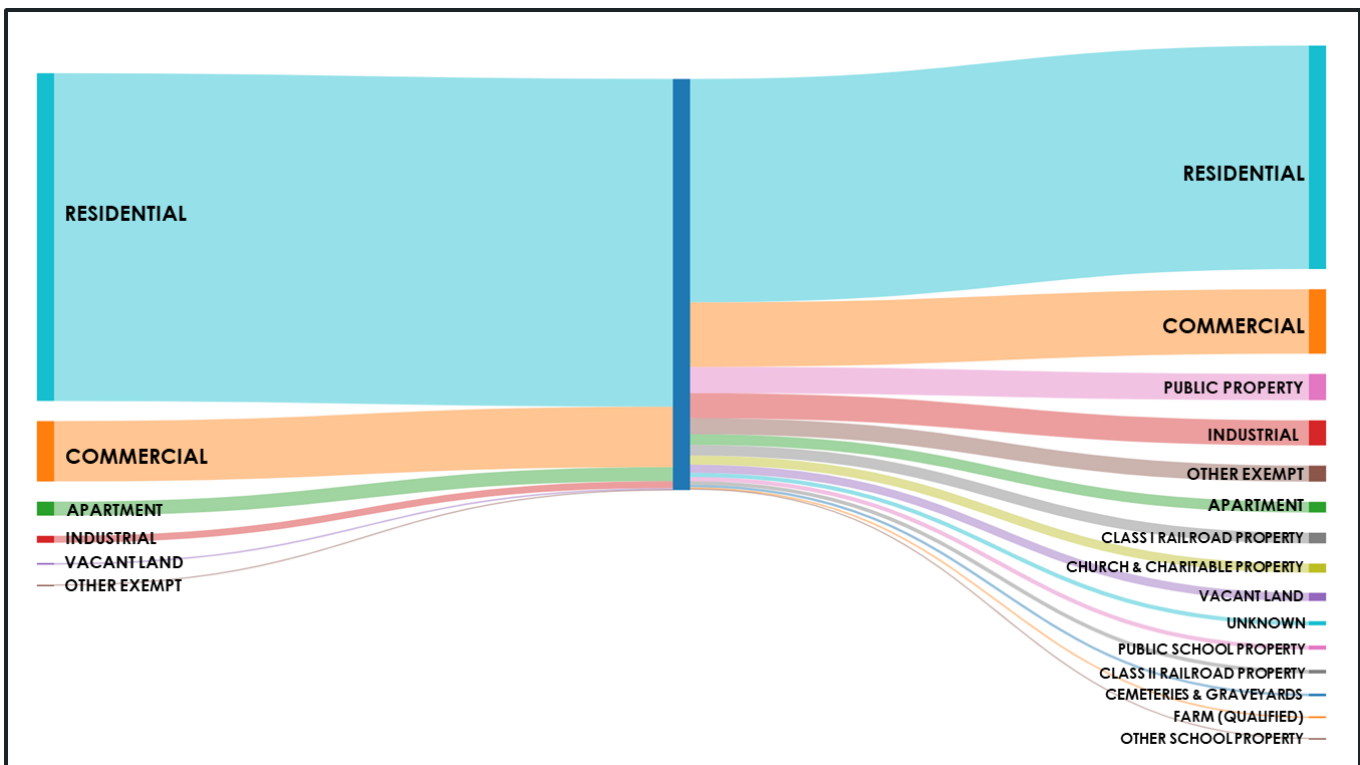


**Figure 3.** Distribution of current City tax revenue contribution, rounded to the nearest percentage.



**Figure 4.** Distribution of billing units among land use codes, rounded to the nearest percentage.

Although potential shifts in contribution of tax revenue relative to impervious cover can be understood through direct review of the data in *Table 1* as well as the various pie charts, *Figure 5* provides a more direct comparison between the current funding contributions for stormwater purposes (left) and the potential contributions should a stormwater utility be implemented (right).



**Figure 5.** Sankey diagram illustrating the current contribution percentages (left) and those under a potential stormwater utility (right) among the various land uses.

The Sankey diagram in *Figure 5* graphically illustrates the potential shifts in relative contributions for stormwater services. The left side of the diagram is the current condition with percentages based on the current tax revenue contributions. The right side of the diagram illustrates the relative contributions under a potential stormwater utility framework. As previously noted, the residential contribution is proportionally lower under a potential stormwater utility while the commercial contribution is essentially unchanged. The difference in the residential contribution from left to right is made up by several much smaller contributions from various property types. This diagram also shows the shift for tax-exempt properties (e.g., Public Property, Church & Charitable Property), which contribute 0.0% in annual tax, to the percentage of billing units that each would contribute under a stormwater utility.