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Controller Rebecca Rhynhart is committed to increasing transparency around city services and the spending associated with those services. Towards this goal, the Controller’s Office is partnering with the Streets Department to release over five years’ worth of data related to Philadelphia's roadways. The data, visualized in an interactive format, provides a recent history of two important aspects of our city’s streets: paving and street defects.

These datasets are interconnected: the total miles of streets repaved each year directly impacts the number of potholes and other street defects that are likely to occur. When viewed together, they provide a glimpse into the health of Philadelphia's roadways, the challenges faced by the Streets Department, and the progress that has been made in recent years.

Paving

The visualization of paving data includes interactive maps showing which streets have been paved since 2013 as well as the agency responsible for repaving duties. It also highlights the total number of miles paved annually since 2013 and the total financial costs associated with that paving.

The data presented here is purely historical, covering the years 2013 to 2018. For the latest information on the Streets Department's repaving efforts for the current calendar year, see the PavePHL interactive tool.

View the interactive visualization [here](http://localhost:8080/#/paving).

Street Defects

Data for nearly 270,000 street defect repairs a­nd 200,000 requests since 2013 can be explored in a dashboard that highlights the monthly trends and geographic distribution of the data. The charts and maps are fully reactive, allowing users to interactively filter and explore data for individual time periods and neighborhoods of the city.

View the interactive visualization here.

**Paving**

## Paving Responsibilities

There are several agencies responsible for the management and maintenance of Philadelphia's streets network, which is composed of nearly 2,800 miles of roadways. Below, we outline these main network types, the agency responsible for paving, and the source of funding for paving-related work.

The majority of the city's roads, about 80 percent, are maintained by the Transportation Division of the Streets Department. A portion of these routes, about 300 miles, are funded through the Federal Aid for Municipalities (FAM) Highway Program, in which 80 percent of funds are provided by the federal government and the City provides the remaining 20 percent. Paving-related work for FAM streets is contracted out by the City to private companies. The remaining set of roads managed by the Streets Department is known as the Local network, and these streets are fully funded through local City funds. There is also about 500 miles of state-maintained highways within Philadelphia's city limits that are paved by the Pennsylvania Department of Transportation (PennDOT).

The three main street networks, Local, FAM, and PennDOT, can be explored interactively in the map below.

[Interactive Map]

## A History of Local + FAM Paving

City funding alone is used to repave the Local network of streets, and a combination of City and federal funding is used to repave streets in the FAM network. Because paving duties for these networks rest entirely with the City, they will be the focus of this section.

According to national standards, the City needs to repave at least 131 miles of roadway annually to maintain healthy streets. In recent years, the City has struggled to meet this goal. Fiscal cuts following the Great Recession in 2008 strained the Streets Department's budgetary resources. A new federal mandate related to the Americans with Disabilities Act (ADA) went into effect in 2010 and further strained resources. The mandate required the installation of new ADA ramps wherever repaving occurs without any additional sources of funding.

As seen in the chart below, the total miles paved for the Local and FAM networks has increased each year since 2013. The most significant increase occurred in 2018 when the addition of a second paving crew in April 2018 enabled a total of 77 miles to be paved, exceeding the Department's 75-mile goal. The Streets Department continues to move closer to 131 annual paving miles and is currently on pace to repave 95 miles during 2019.

A commitment for increased funding and the planned addition of a third paving crew has the Streets Department on track to meets its annual paving goal of 131 miles by Fiscal Year 2023, according the City's latest [Five Year Plan](https://www.phila.gov/media/20190306121321/FY20-24-FYP_FINAL.pdf). In the intervening years, the Department expects that incremental increases in staffing and funding resources will increase the annual paving totals each year by about ten percent.

[Annual Miles Paved Chart]

The interactive map below shows which segments of the Local and FAM networks have been paved during calendar years 2013 to 2018. The segments are colored according to the network type: blue and red for the Local and FAM networks, respectively. Note that this map only presents historical data. For the latest information on the Streets Department's repaving efforts for the current calendar year, see the PavePHL interactive tool.

The selection process for a given year's paving program is generated each winter, in preparation for the paving season that typically runs from the spring to fall. Streets are selected using an adaptation of the [Pavement Condition Index (PCI)](https://en.wikipedia.org/wiki/Pavement_Condition_Index), a standard rating system for evaluating pavement conditions developed by the Army Corps of Engineers. Streets are rated from 0 (failed) to 100 (excellent) during visual inspections for signs of distress and deterioration. Streets with failing PCI scores are prioritized for repaving each year. Condition scores are combined with several other metrics, such as vehicle traffic counts, crash ratios, future utility projects, and funding sources, to produce the final paving list each year. The result of this selection process for the years 2013 to 2018 can be seen in the map below.

[Interactive Map]

## The Paving Process

The paving process is typically a five-week operation involving four main steps:

1. Milling: Private contractors are responsible for grinding off the top layer of asphalt from the surface of the road;
2. Street Adjustments: Utility manholes and castings are prepped and adjusted by contractors prior to the start of paving;
3. Paving: City paving crews apply a sticky, tar-like material, known as tack coat, to the milled road before laying down a new layer of asphalt, and;
4. Line Striping: City crews apply road surface markings to the newly paved roads.

The first two steps typically take about a week, while paving and line striping typically last for about three weeks.

The majority of funding for the Streets paving program comes from the Capital Fund, which manages resources for investing in facilities and infrastructure throughout the city. These funds are used to hire private contractors for the milling and adjustment steps described above and to purchase tack coat and asphalt for the paving step. Supplies for line striping, as well as payroll and overtime costs for paving personnel, are paid out of the General Fund, the City's main operating fund.

During calendar year 2017, the latest year with full data available, Capital Fund costs related to paving totaled $12.9 million while General Fund costs totaled $5.4 million. With over a million square miles of roadway paved, this spending translates to a cost of about $17 per square mile paved. The chart below shows paving-related costs per square mile paved for each year since 2013. The spending figures include both the Capital Fund and General Fund spending areas outlined above.

Notably, spending on ADA ramp upgrades accounted for more than half of the total spending during the 2014 paving program. Starting in 2015, the Streets Department reached an agreement to spend 20 percent of its Capital Budget funds on ramp upgrades. Since ADA ramp upgrades require a bid process for private contractors, the agreement has helped limit fluctuations in budgetary resources from year to year and contributed to the increased number of miles paved in more recent years.

When excluding the cost of ramp upgrades, the cost of paving has fluctuated modestly from year to year, but has typically remained in the range of $15 to $17 per square mile paved since 2013.

[Paving Costs Chart]

**Potholes**

The Streets Department provided the Controller’s Office with data for nearly 200,000 street defect requests and 270,000 repairs that occurred between January 1, 2013 and July 1, 2018. Below, we visualize these datasets with the Pothole Explorer, an interactive dashboard highlighting trends over time and across different neighborhoods of the city. The charts and maps are fully reactive, allowing users to select specific neighborhoods or time periods and have each component of the dashboard update accordingly.

The data includes both the requests for street defect repairs that were received by the Streets Department and the subsequent repairs that were performed. Residents can report street defects by calling 311, 215-686-5560, [filling out an online form](https://www.philadelphiastreets.com/forms/philly_311?form_id=4133), or by using the 311 mobile app.

There is not a one-to-one relationship between requests and repairs, as some street defects are reported multiple times to the Streets Department and others are not reported at all. So, while certain areas of the city tend to report street defects more often than other areas, the repairs performed tend to be more evenly distributed throughout the city.

### **Quick Facts**

* Street defects come in [several different flavors](https://www.philadelphiastreets.com/highways/potholes/). The majority, about 80 percent, are potholes. The remaining amount are classified as cave-ins and utility ditches, which are generally more complicated to fix and can require additional work from a utility company.
* Not all repairs are the responsibility of the Streets Department. For example, defects near trolley lines must be repaired by SEPTA and defects on state-maintained roadways are fixed by PennDOT. These types of requests are automatically forwarded to the correct agency by the Streets Department.
* About 90 percent of reported potholes are repaired within 3 business days.
* Repairs typically peak during January, February, and March, as the freeze and thaw cycle of winter and spring is a significant contributor to the formation of new potholes.
* Weather is the driving factor behind the fluctuations in the number of potholes each year. The overall health of the streets network, affected by the number of miles paved annually, also impacts the number of potholes that occur each year.