



City of Delaware

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2020 Pavement Condition Report

Access Delaware
Let's get there together

Report does not reflect street
resurfacing work to be
completed in 2020

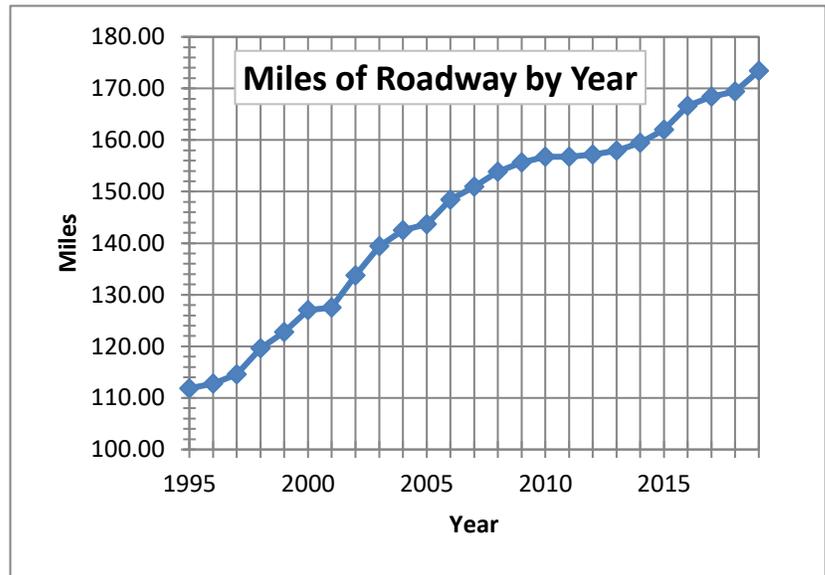
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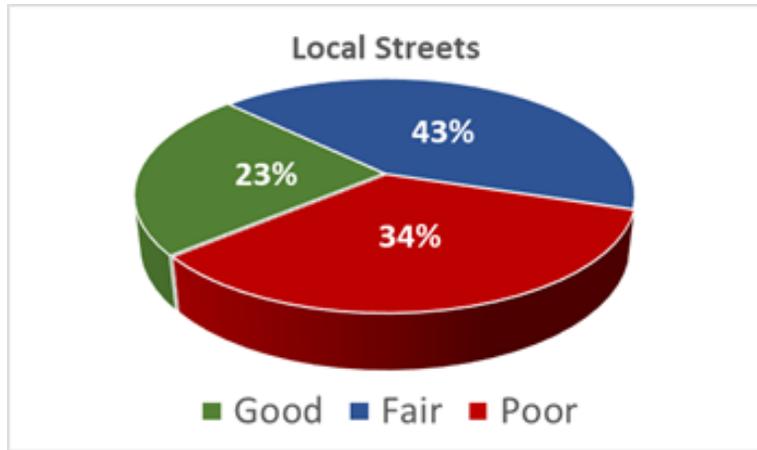
Existing Conditions

The City of Delaware is responsible for maintaining 174 miles of roadway. As Delaware has grown over the past 20 years, so too has the City's network by an average of 2.5 miles per year. (See chart) Delaware's street network is a significant public asset, valued at over \$500 million and used by every one of our 40,000-plus residents in some way. It is one of the most critical assets owned and maintained by the City. To sustain this pavement investment, Delaware must invest an estimated \$3.7 to \$4.9 million on an annual basis, an amount that exceeds the current \$2.2 million in annual expenditure. In addition, the backlog of streets rated as 'Poor' now requires upward of \$20 million to repair. Without both, the overall condition of Delaware's street network will continue to deteriorate.

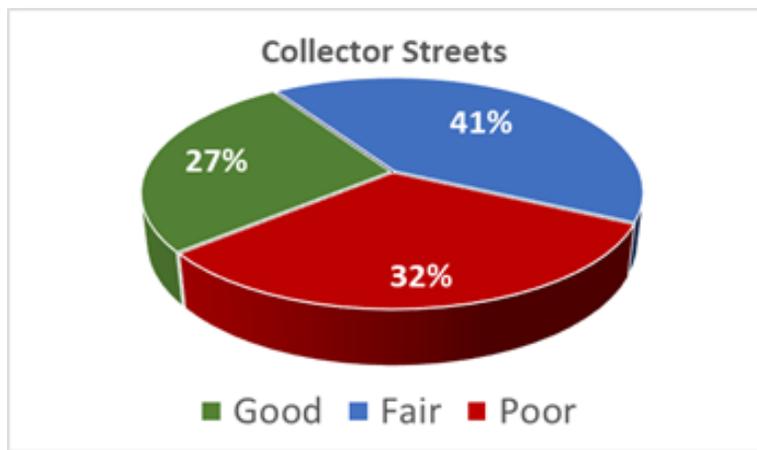
In Delaware, a visual rating system is utilized that assigns pavement condition ratings to pavement sections ranging from "Good", "Fair" and Poor". This method allows for the relatively quick assessment and assignment of pavement condition ratings to all streets within the City's roadway network on an annual basis. Ratings are performed by City staff, trained to identify pavement deficiencies including cracking, rutting, potholes, base failures etc.



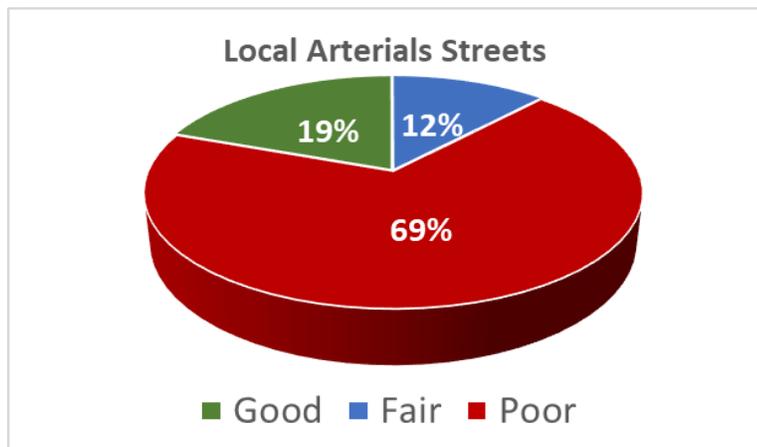
2020 Pavement Condition Ratings by Classification (miles)				
Road Type	Total Miles	GOOD	FAIR	POOR
Alley	9.6	-	-	9.6
Local Streets	88.7	20.2	37.8	30.7
Collectors	46.5	11.2	19.7	15.6
Local Arterials	14.5	3.6	1.8	9.1
US/SR's	14.9	0.4	5.0	9.5
Totals	174.2	35.4	64.3	74.5



Delaware has just under 89 miles of 'Local' streets of which 34% or 30 miles require resurfacing. Based on an anticipated pavement life cycle of 25 to 30 years, the maximum amount in any given year that require resurfacing should be at or below 4 miles with the adequate funding of a sustainable pavement management program.



Delaware has just under 47 miles of 'Collector' streets of which 32% or 16 miles require resurfacing. Based on an anticipated pavement life cycle of 15 to 20 years, the maximum amount in any given year that require resurfacing should be at or below 3 miles with the adequate funding of a sustainable pavement management program.



Delaware has just under 15 miles of 'Local Arterial' streets of which 69% or 9 miles require resurfacing. Based on an anticipated pavement life cycle of 10 to 12 years, the maximum amount in any given year that require resurfacing should be at or below 1.5 miles with the adequate funding of a sustainable pavement management program.

Delaware currently has over 46 miles of combined local and collector streets rated as 'Poor' and that require immediate resurfacing. The local and collector streets largely make up the majority of our residential neighborhoods. It is clear that the growing backlog of pavement repair will continue to increase until a fully funded sustainable pavement management program is in place.

Delaware currently has over 46 miles of combined local and collector streets rated as 'Poor' and that require an estimated \$20 million in resurfacing repair.

At current costs, a mile of local street requires an estimated \$300,000 to resurface, and upwards of \$500,000 if the conditions continue to deteriorate once the pavement's useful life is met. Based on the existing backlog of local and collector streets rated as 'Poor', it will take an infusion of an additional \$20 million to address the paving needs of the neighborhood streets.

Sustainable Pavement Management

A sustainable paving management program includes a combination of pavement preservation and resurfacing treatments that together increase the useful life of the street network while reducing long-term maintenance costs. Pavement deteriorates at varying rates depending on a number of factors including volume of vehicles and large trucks, pavement drainage and surface maintenance. High volume (arterial) roads generally require resurfacing every 10 to 15 years, while less travelled residential streets may last up to 30 years and longer if properly maintained. In general, the top course of asphalt on any particular street will remain in "Good" condition for a longer period if appropriate preservation treatments are applied, thus increasing the pavement's life cycle. To reduce annual maintenance costs, it is recommended that the City introduce a significant amount of preservation effort in its pavement management program – specifically targeting locations within subdivisions. In particular, surface preservations treatments such as mastic sealants and micro-overlays should be implemented to supplement ongoing crack sealing efforts. Adding preservation treatments to the annual resurfacing program, however, is not feasible considering current funding levels.

Pavement preservation increases the useful life of streets while reducing long-term maintenance costs.

Funding

The following table summarizes the estimated annual pavement maintenance costs for Delaware's street network. The lower cost values assume a robust pavement preservation effort is included in the annual resurfacing efforts. The higher cost figures in the range reflects

increased resurfacing costs associated with poorly maintained streets with shorter life cycles. To reach a sustainable pavement management level, the recommended annual expenditure should fall within the range of total cost shown at the bottom of the table. Currently Delaware is \$1.5 million below the lower limit of recommended annual expenditure.

Sustainable Pavement Management Program Annual Funding Goals				
Classification	Miles	Pavement Life Cycle	Miles Per Year Paved	Annual Cost
Local Streets	88.74	20-30 Yrs.	2.9 to 4.4	\$1.6 - \$2.1 M
Collector Streets	46.57	15-25 Yrs.	1.9 to 3.1	\$1.2 - \$1.6 M
Arterial Streets	14.55	10-15 Yrs.	1.0 to 1.4	\$0.7 - \$1.0 M
US/State Routes	14.96	10 Yrs.	(Managed by ODOT) ⁽¹⁾	\$0.2 M
US23 Expressway	10.33	10 Yrs.	(Managed by ODOT) ⁽²⁾	\$0
Total Projected Annual Expense for Street Paving				\$3.7 - \$4.9 M
(1) US and SR's within the City are paved by ODOT through the Urban Resurfacing Program with 20% Local Contribution (2) US23 is paved by ODOT with 100% State funding				

Annual Resurfacing Program Revenue & Expenditures						
Revenue Source	Expenditures					Rev. 8/17/20
	CDBG ⁽¹⁾	Local Streets	OPWC ⁽²⁾	ODOT URP ⁽³⁾	Construction Admin & Inspection	Total
General Fund Match (Resurfacing)		\$910,000			\$50,000	\$960,000
State Gas Tax & License Fees				\$150,000		\$150,000
Permissive License Fee (Existing \$10) ⁽⁴⁾			\$440,000			\$440,000
Ohio Public Works Commission Grants			\$450,000			\$450,000
County Grant Match Funding			\$150,000			\$150,000
CDBG & RLF (Avg per year)	\$75,000					\$75,000
Totals	\$75,000	\$910,000	\$1,040,000	\$150,000	\$50,000	\$2,225,000
(1) CDBG - Community Development Block Grant Funds directed toward eligible Low-Moderate Income (LMI) Area streets (2) OPWC - Ohio Public Works Commission Funds directed toward eligible higher traffic collector and local arterial streets (3) ODOT URP - Department of Transportation Urban Resurfacing Program Funds directed toward State and US Routes in City (4) Additional \$5 Permissive License Tax approved in '20 dedicated toward roadway safety projects						

Recommended Pavement Management Strategy

A sustainable pavement management program includes appropriate preservation, resurfacing, and reconstruction efforts for each classification of roadway in accordance with industry best practices to maximize the life cycle of the pavement surface. To protect the future of Delaware's \$500 million roadway network investment, the following recommendations are made:

1. Increase annual pavement maintenance expenditure to \$5.0 million to fund a sustainable pavement management program and to address the growing backlog of the resurfacing needs of streets rated as 'Poor'.
2. Allocate up to 30% of annual pavement maintenance funding toward the application of preservation treatments, focusing on the local street network.
3. Establish pavement life-cycle goals as follows:
 - a. Resurface every 25 Years for Local (Residential) Streets
 - b. Resurface every 20 years for collector streets
 - c. Resurface every 15 years for Arterial Streets
4. Continue participation in State Urban Resurfacing Program which provides 80% funding for resurfacing of US36, SR37, US42, and SR521, and 100% of funding for US23. This requires fully addressing required pavement maintenance work including timely completion of all identified pavement base repairs.
5. Increasing annual funding for highway maintenance operations and staffing levels within the Public Work's Street and Traffic Maintenance Divisions to address declining service levels.

Pavement Condition Rating – Visual Evaluation Criteria



GOOD

- “Like new” condition
- Minor crack sealing may be required
- Asphalt binder shows little or no reveal around individual stones
- Maintenance treatments will add little to no value in extending pavement life



FAIR

- Light to moderate cracking
- Open transverse joints or cracks
- Repairs in areas may be required
- Asphalt binder shows minor to moderate reveal around aggregate
- Ideal time to apply preservation treatments to extend pavement life



POOR

- Moderate to heavy amounts of cracking
- Minor to moderate structural deficiencies
- Repairs in areas are required
- Asphalt binder failing/light raveling
- Potholes begin to form
- Preservation treatments no longer extend the pavement life
- Pavement resurfacing is required.