

2022

Lakes Highway District State of Roads Report



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2022 STATE OF OUR ROADS REPORT

Executive Summary

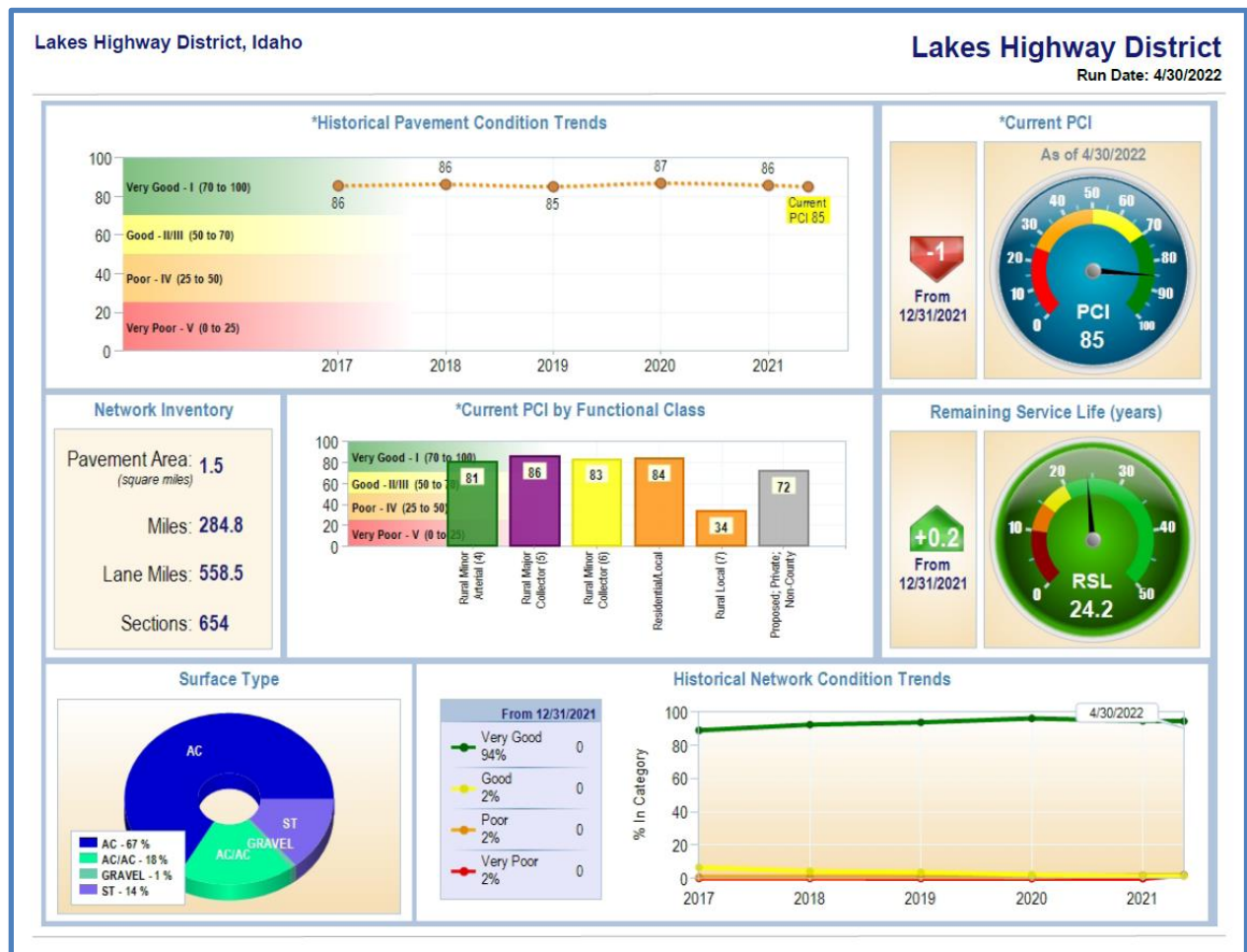
This summary is an update to the District’s previous State of Roads Report in 2012, 2017 and 2019. This in addition to the 2010 Pavement Management Plan. Based on work previously completed Lakes Highway District estimates the following:

Year	Pavement Condition Category (PCI)	Budget Allocation to Road Maintenance		
Goal	Maintain PCI at 2012 levels, 81	Road Maintenance (RM) = \$2,225,000 w/inflation		
2018-19	85	CPI: \$2,225,000 in January of 2012 has same buying power as: \$2,518,437 in August of 2019		
2010-11	N/A	Road Maintenance \$623,451	Reconstruction \$1,572,849	Total = \$2,196,300
2011-12	81	Road Maintenance \$1,327,282	Reconstruction \$828,200	Total = \$2,155,482
2012-13	85	Road Maintenance \$2,400,557	Reconstruction \$86,632	Total = \$2,487,189
2013-14	87	Road Maintenance \$2,083,100	Reconstruction \$214,363	Total = \$2,297,463
2014-15	86	Road Maintenance \$2,057,922	Reconstruction \$139,518	Total = \$2,197,440
2015-16	85	Road Maintenance 2,158,643	Reconstruction \$103,000	Total = \$2,261,643
2016-17	86	Road Maintenance \$2,710,257	Reconstruction \$154,000	Total = \$2,864,257
2017-18	86	Road Maintenance \$2,790,335	Reconstruction \$0	Total = \$2,790,335
2018-19	85	Road Maintenance \$1,431,900 w/\$366,500 chip seal	Reconstruction \$1,309,500	Total = \$2,741,400
2019-20	85	Road Maintenance \$1,559,000 w/\$360,000 chip seal	Reconstruction \$694,000	Total = 2,253,035
2020-21	87	Road Maintenance \$2,391,000 w/\$320,000 chip seal	Reconstruction \$0	Total = \$2,391,000
2021-22	85	Road Maintenance \$1,515,000 w/\$510,000 chip seal	Reconstruction \$1,031,000	Total = \$2,546,000

The table above represents target goals originally set in 2012 in comparison of annual actual Pavement Condition Index (PCI) and actual dollars spent. Previous analysis in 2019 indicated that the average dollars spent on Road Maintenance was approximately \$2,120,000. The 10-yr average from 2012-2020/21 is now approximately \$2,278,000 on road maintenance items including crack sealing, patching, chip sealing and overlaying.

Of importance as it relates to dollars spent in this analysis of the tracked the Pavement Condition Index (PCI), the PCI has remained relatively consistent, but generally higher than the original goal of 81. Ultimately, our roads are being maintained in a better condition than originally planned.

Following is an Executive Performance Summary of the Districts Road Network.

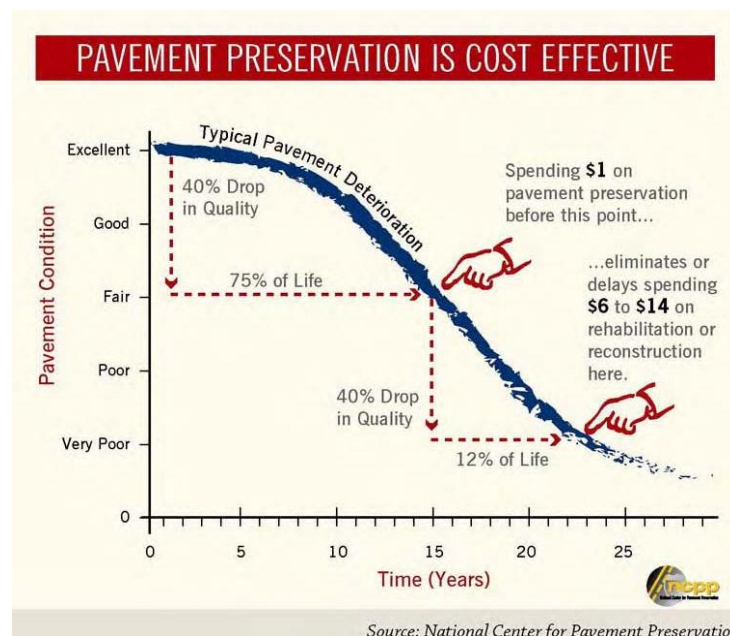


The question to be asked in this Report Update, how will the PCI be affected if the District addresses future needs associated with Future Major Capital Improvement Projects and the inherent need to save for larger projects such as facilities improvements, bridges, and intersection improvements) being considered in the draft Capital Improvement Project List? This without calling upon Foregone Taxes.

Lakes Highway District's Pavement Management Program

As we've emphasized in previous reports, Lakes Highway District recognizes the importance of the investment in its road inventory. We believe an investment this important should be carefully preserved and maintained for our constituents. Lakes Highway District's Pavement Management Program does just that.

The Pavement Management Program seeks to balance preservation with replacement of existing surfaces. The most cost-efficient way to correct any pavement surface problem is to address issues when they first appear. That is why funds are targeted at roads rated in fair-to-good condition. Without this preventive maintenance, these roads would quickly deteriorate and be much more costly to fix. The following "pavement deterioration curve," illustrates this point.



Pavement may appear to be in good condition for a long time. However, when it fails, it fails quickly and repair costs increase dramatically. Preventative maintenance, such as crack sealing, chip seals and thin overlays extend the life of our valuable road system. In addition to lowering costs over time, other advantages of our Pavement Management Program include: more predictable funding needs, fewer premature pavement failures, safer road conditions and reduced time spent in traffic due to construction.

In order to understand what is happening to District Roads, staff performs visual distress inspections and ratings each year. Inspections on District Roads are cyclical with half of the Districts Roads inspected each year. The two areas divided for inspection are generally divided by Chilco Road projected east/west. A full inspection cycle is completed every two years.

Inspections of each road are broken down into 1,000 segments. At every 1,000 foot segment interval, 100-feet of road is inspected. This to provide a consistent representative sample of the road and to ensure the same sample area is repetitively inspected from one inspection to the next. Special inspections are added if areas of the road are found to inaccurately represent the segment roadway condition.

Inspections include an analysis and measurement of roadway cracking, rutting, distortions,

patching, weathering and raveling. Staff training and inspection procedures are based on guidance from the National Association of County Engineers, Northwest Pavement Management Association and the Metropolitan Transportation Commission.

Inspection data for each roadway segment is input into the Districts Pavement Management Software, every time the segment is inspected. A review of each inspection is performed to evaluate accuracy of the inspection and calculation of the pavement condition index. Upon completion of the inspection review calculations are made to determine the average PCI for the roadway segment. In general, PCI's are determined by deducting points from 100 (new road) associated with types of distress observed (i.e. alligator cracking deducts min of 10 pts from score).

Based on current visual distress ratings and analysis of those ratings the Districts pavement condition ratings have increased according to the following tables.

PCI	Pavement Condition Category	
100 90 2021 LHD 87	Very Good I	
70 50	Good – non load related II	Good – load related III
25	Poor IV	
0	Very Poor V	

Year	PCI
2012	81
2013	85
2014	87
2015	86
2016	85
2017	86
2018	86
2019	85
2020	85
2021	87
Apr 2022	85

Given the completed distress rating of the District's roads, the resulting average Pavement Condition Index ("PCI") was 87 following the 2021 construction year. Using a 0-100 PCI scale, with 100 being the most favorable, a rating of 87 classifies the District's road network in the lower 'Very Good' condition category (Condition Category I). In comparison to the analysis completed in 2012, the PCI has improved, up from 81, which is attributed to road improvements.

How do we Plan to Meet Our Target PCI – Keep Good Roads Good?

The following table shows multiple funding scenarios using the current base funding budget and how these are expected to impact the Pavement Condition Index (PCI).

Description of Funding Scenario	Base Budget \$	Current Network PCI, yr. 2022	Anticipated Network PCI w/Treatment +5/+10 yrs	Anticipated Network PCI Wo/Treatment +5, +10, +15 yrs
Current Funding Scenario: ~2.8 mil, w/20% PM	2.8 mil	85	84/81	77/67
Scenario #1: \$2.5 mil total Budget w/2.3 mil spent on Preventative Maintenance for 2-yrs. 0% budget growth, 3% Inflation	\$2.5 mil	85	83/81	77/67
Scenario #2: \$2.5 mil total Budget w/2.3 mil spent on Preventative Maintenance for 5-yrs. 0% budget growth, 3% Inflation	\$2.5 mil	85	82/79	77/67
Scenario #3: \$2.5 mil total Budget w/2.3 mil spent on Preventative Maintenance for 10-yrs. 0% budget growth, 3% Inflation	\$2.5 mil	85	82/78	77/67
Scenario #4: \$2.5 mil total Budget w/2.3 mil spent on Preventative Maintenance for 2-yrs. 0% budget growth, 5% Inflation			86/81	77/67

For comparison with budget scenarios 1-4, the total budget baseline for analysis of Anticipated Network Pavement Condition (PCI) is \$2.8 million is reflectively of the actual allocation in yr. 2022. From the table above results using this funding scenario show that the PCI is anticipated to range between 84 and 81 in the next 5 to 10 years. Noting a PCI of 81 is the Districts target PCI set in yr. 2010.

The total budget allocation used as a baseline for funding Scenarios 1-4 is \$2.5 million with 81% of this amount being allocated to Preventative Maintenance (PM) type work (ie crack seal, patching, chip seal and thin overlays). The portion of PM equates to approximately \$2,278,000, which is equivalent to the crack sealing, patching, chip seal and contracted overlay work in yr 2022, excluding the Full Depth Reclamation Work on the Spirit Lake Road (Heavy Maintenance). These scenarios may allow for consideration of a short term pause on any major rehabilitation/full depth reclamation projects (ie Spirit Lake Road Prjs) under varying time frames of 2-yrs, 5-yrs and 10-yrs while still meeting the Districts Target PCI set in 2010. The analysis includes spending approximately \$510,000 of chip sealing in each of the scenario analysis years, which is in-line with the Districts current allocation.

Conclusions and Recommendations

The analysis of Budget Scenarios 1-4 in comparison to the current funding scenario show a relatively low decrease in the PCI in the next 5 to 10 years. Ultimately, given the fact that the District's Network Pavement Condition Index is very good, for this reason and those stated in previous reports, the PCI is expected to fluctuate towards the District's original target goal of 81 (network PCI, some roads high, some roads lower).

It's important to note that the District is exceeding its Target PCI without additional tax burdens being placed on its constituency. The condition of our pavement is very good and the Lakes Highway District has not taken a tax increase since 2015. This meaning a typical stretch of asphalt in Lakes Highway District shows minor weathering and will likely only require lower cost maintenance techniques such as chip sealing and overlays, over time to maintain its current PCI. This is also shown in the Budget Scenario Analysis completed in this report.

To continue optimizing the quality of LHD's roads, the District should continue with its on-going program of "keep our good roads in good condition" approach that was adopted in 2010. When considering budgets, the District should at least try to keep up with inflation – maintenance budget growth equal to inflation.

Additional considerations should be regarding area growth. This as traffic loading is the primary cause of pavement distress requiring more expensive forms of treatment. With that said, it's important to also be mindful of the fact that is inevitable, pavements will still gradually become more expensive to maintain over time.

Finally, to answer the question posed at the beginning of this report, "How will the PCI be affected if the District addresses future needs associated with Future Major Capital Improvement Projects and the inherent need to save for larger projects such as facilities improvements, bridges, and intersection improvements being considered in the draft Capital Improvement Project List?" This without calling upon Foregone Taxes." The answer is stated herein based on an analysis of the proposed budget scenarios, associated projected Pavement Condition Index ratings and in comparison, to the District's Original Target PCI set in 2010. Either of the budget scenarios allow for such focus.

In the previously last 2-year budget cycles of 2020-21 and 2021-22, the District Budgeted approximately \$3.1 and \$3.3 million dollars, respectively for work described herein (crack seal, patching, chip seal, overlays and other contracted road work) for an average of \$3.2 million. Continuing with this average, consideration to reallocation of those funds and with the addition of new funding from House Bills 363 and 772 (~\$1.5 million) the District should expect an available budget near approximately \$4.7 million. If the District were to consider one of the budget recommendations described herein to forego heavy maintenance work at a rate of \$2.5 million per year, the District should expect approximately \$2.2 million (4.7-2.5) that could be added to Major Capital improvement Projects.

Budget Scenarios and Network Condition Summary

2023-2027 Capital Improvement Program List