Future-Focused Roads

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Extending Maintenance and Service Life of Roads with Data and Design

> Presented by Tensar and vialytics

The roads that connect us to our families, vital medical services and the commercial activities of modern society are one of the most important assets a public works

department maintains. However, booms in population growth and heavier loads are causing considerable demands on our roads,

many taking on burdens far greater than they were designed to carry. Further compounding the issue are widespread budget cuts, rising material costs and labor shortages. Unfortunately, road maintenance is usually one of the first targets stricken from the list when budgets get tight. Even though the numbers may work today, delaying maintenance by just a few years can have costly ramifications on future budgets.

How can public works officials possibly keep up with never-ending road repairs when they are working with limited financial and human resources? It's clear that greater efficiencies are needed to ensure roads meet their maximum design life and that maintenance budgets stretch further.

But how?

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Building the Road of the Future

Today's roads are designed to last around 20 years without reconstruction. However, many of them have to be rehabilitated during that timeframe with some requiring multiple rehabilitatoins. According to statistics from the FHWA, traffic has steadily increased by ~20% over the past 25 years. If current trends continue, a

road designed today will most likely take on future traffic loads much greater than it was built to accommodate. How can municipalities design roads to enhance the performance of their roads, extend pavement maintenance and save costs over the long term? Imagine, if you will, the "road of the future."

The road of the future is smart, efficient and extends pavement maintenance intervals for 50%. It only requires rehabilitation every 30 years with reconstruction 50+ years, allowing owners to decrease their backlog, improve their network performance and do it all with minimal change to their current process.

What Are the Keys to Building the Road of the Future?

Smart Designs with Proven Technology

It starts below the ground. Communities around the country are now utilizing proven, cutting-edge technology, including geogrid, to optimize their roadway designs for cost and performance. Depending on the design and the goals of the project, Geogrid technology can be used to increase the load capacity of a road with less investment - or increase overall performance without requiring any additional investment. By increasing performance, roads could last for 50+ years below the asphalt surface before reconstruction is needed – meaning greater time between maintenance intervals.

When the time between maintenance intervals is increased:

- The backlog of projects decreases because your crews can focus on other projects.
- Funds are allocated to other priorities because they are not dedicated to road maintenance
- Safety of your maintenance crews increases when they are not facing hazardous road conditions as often
- And your total lifecycle cost of the road decreases drastically

The Power of Data and Tracking Road Maintenance

Collecting and assessing data through pavement management programs are essential for knowing when to act for timely intervention. It costs up to 10x more to repair pavements once they fall below "fair" conditions so it's far more cost-effective to invest in pavement preservation while they are still in the "good" to "fair" condition range. Having this access to timely, accurate data is essential for making more strategic decisions. However, public works departments are often short-staffed or lack the budget to hire outside consultants to capture the data. Artificial Intelligence (AI) technology is rapidly changing the game by creating faster and more cost-efficient means so that pavement management programs are easily accessible.

When you combine the keys of design and data, it's possible to **save up to 50% on pavement maintenance and 35% on rehabilitation costs over the life of the road.**