PITSTOP | AssetWORKS | CITY OF LONG BEACH

City of Long Beach Improves Operational Efficiency with Innovative AI-Driven Fleet Maintenance

Overview

The City of Long Beach, California, a customer of Pitstop and integration partners AssetWorks and Geotab, operates a diverse fleet of vehicles to maintain and support its municipal operations. The fleet includes a mixed vehicle class type, such as gas, CNG, and diesel vehicles, which are utilized by various departments, including public safety, sanitation, public works, and transportation.

This customer case study examines insights from service records and Geotab telematics data from 600+ City of Long Beach fleet vehicles collected over three months. The vehicles generate data such as fault codes and time-series sensor data, all of which were leveraged for generating actionable insights.

Below, read how the City of Long Beach has implemented Pitstop's predictive maintenance dashboard to help monitor and manage their vehicles' maintenance needs. By conducting this analysis, the city aims to find innovative ways to improve efficiency and public safety.

Objectives

The City of Long Beach wanted to further establish itself as a leader in innovation and public safety. With this in mind, the City of Long Beach fleet had three major objectives:

1. **Minimizing downtime and maximizing safety:** Prioritize keeping vehicles operational and upholding the highest safety standards for drivers and the public.

2. **Giving Technicians Superpowers, helping them get their job done faster:** Allocate available maintenance resources efficiently to maintain the fleet in optimal condition.

3. **Projecting annual costs with confidence:** Develop strategies to manage expenses related to vehicle maintenance, repairs, and overall operations.

Pitstop's dashboard predicts and tracks vehicle issues to minimize costly on-the-road breakdowns. It also enhances maintenance efficiency by improving planning and reducing unnecessary shop visits and repairs.

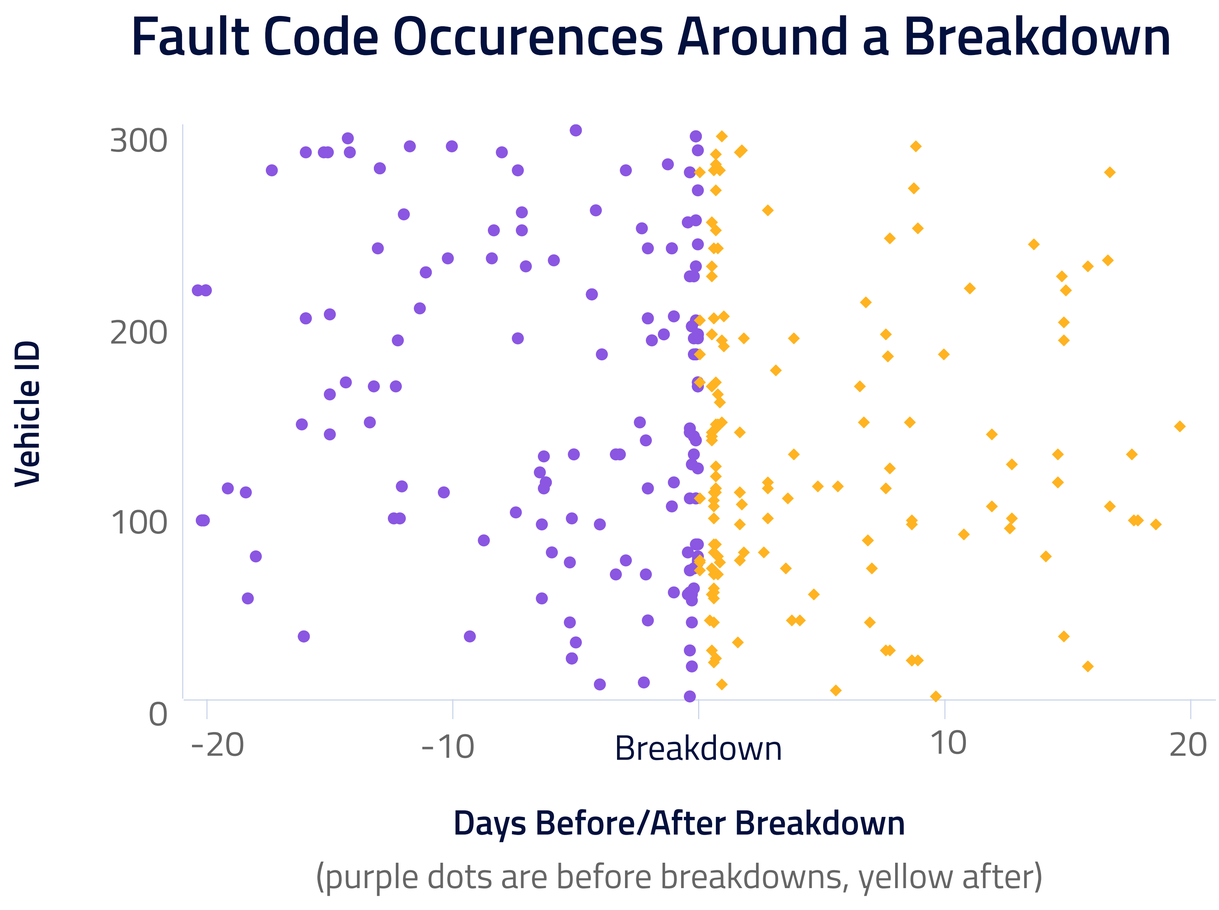
Challenge 1: Reducing Unplanned Service Events

Pitstop partners with municipalities, such as the City of Long Beach, to provide insightful data analysis that benchmark their fleet performance. The guiding principle here is simple: planned downtime, facilitated by predictive maintenance, is far more cost-effective than unplanned downtime resulting from reactive measures.

Implementing AI-powered predictive maintenance software brings greater transparency into maintenance practices. This ensures fewer unnecessary shop visits and repairs. As we delved into the data, our goal was to distinguish between planned and unplanned events, evaluate their associated costs, and find out whether any signs of these events, such as telematics fault codes, were visible days before the actual service event (i.e., could've been avoided).

Solution 1: Prescriptive Prediction

Pitstop's analysis led to many insightful discoveries. We discovered that the municipal fleet heavily depended on driver-reported issues as one of the primary basis for maintenance actions. This mainly happened because there was a consistent pattern of fault codes showing up before a scheduled maintenance event, which often caused vehicles to be unexpectedly taken in for service. Therefore, catching these issues early on and classifying whether the fault code will cause a breakdown would reduce the number of driver-reported service events.



The simplest way to save money involves the ability to foresee breakdowns that would otherwise occur on the road. By doing so, we can turn what could have been an unexpected incident into a scheduled maintenance event. Pitstop provides predictive and real-time alerts to drivers, fleet managers, and mechanics, determining whether a fault code or prediction can be addressed during the next scheduled PM service or requires immediate attention.

$651,940

Spend in annual tow & road call costs from unexpected breakdowns.

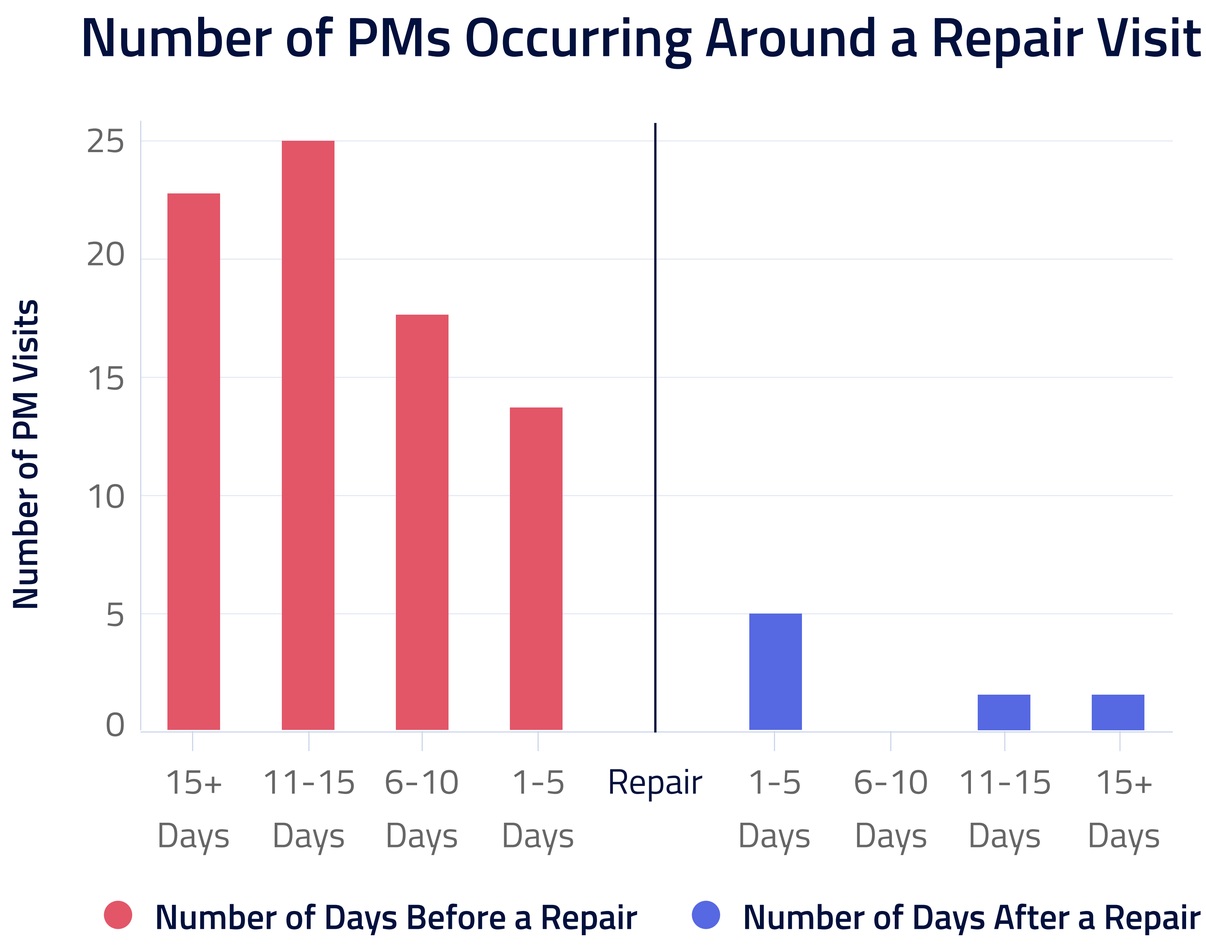
Over the course of the pilot, Pitstop observed a total of **147 Tow or Road Call events**, resulting in an estimated cost of approximately $61,000 (excluding repair expenses). **Per year this amounts to $651,940** in tow & road call costs which starts to add up quickly! Much of this could have been avoided if the predictive analysis had been used to resolve the issues ahead of breakdown.

Challenge 2: Utilizing Current Shop's Resources to Operate at Full Efficiency

Maintaining a healthy operating fleet includes incorporating preventive maintenance (PM) practices. Yet, challenges often arise when fault codes appear between PMs. Drivers reporting these issues can trigger unplanned repair visits, leading to disruptions in government services and cause a growing maintenance backlog. If these unplanned visits could be predicted, services could be rescheduled and aligned with planned visits, streamlining the maintenance process.

Solution 2: Smart PM - Reduce Repeat Service Visits

Another effective cost-saving strategy is consolidating shop visits, achieved through applying Pitstop's predictive insights. This approach can help to align PM procedures with repair needs or even anticipate future maintenance requirements during a current PM visit. In a span of three months, Pitstop noticed a trend of **22 instances where a second repair visit occurred within five days following a PM visit**.



Extending this, there were 80 cases where a repair visit occurred within 20 days following a PM visit. In turn, this **cost the fleet an additional $40,277 for repeat service visits**. The point of using AI is to make the current PM process as effective as possible. It's not only about predicting future failures, it's about enabling the workforce and fleet processes to make the right decisions at the right time. In this case, make sure high-risk subsystems to the specific asset are thoroughly inspected at the time of PM.

Smart PM evaluates various maintenance tasks, considering the **trade-offs between safety and frequency**, and works to strike a balanced approach. For the sake of efficiency and convenience, the objective is to manage all maintenance tasks within the same PM visit. This streamlined approach not only improves resource utilization but also optimizes the timing of maintenance, enhancing overall fleet performance.

Challenge 3: Minimizing Unnecessary and Rising Maintenance Expenses

Unscheduled maintenance frequently entails extended diagnostics and expedited emergency repairs. These services tend to be more expensive than routine preventive maintenance (PMs). It's also important to factor in the current market's scarcity of parts as well as skilled mechanics, exerting upward pressure on maintenance costs. As demand outweighs supply, the cost of sourcing parts and securing competent labor increases, further contributing to the overall rise in maintenance expenses.

The data indicates a clear correlation between the health of vehicles and the presence of recent fault codes: vehicles without fault codes generally require less expensive services compared to those with codes. In the absence of a fault code, it could be **cost-effective to delay services until the next pre-scheduled PM**, even in instances when drivers report issues. This strategy would apply to roughly 24 percent of cases.

Implementing such a maintenance service triage system would help extend the average time between maintenance tasks, lowering monthly maintenance expenses without significantly elevating the risk. By optimizing this approach, a **balance can be achieved between maintaining vehicle health and controlling costs**.

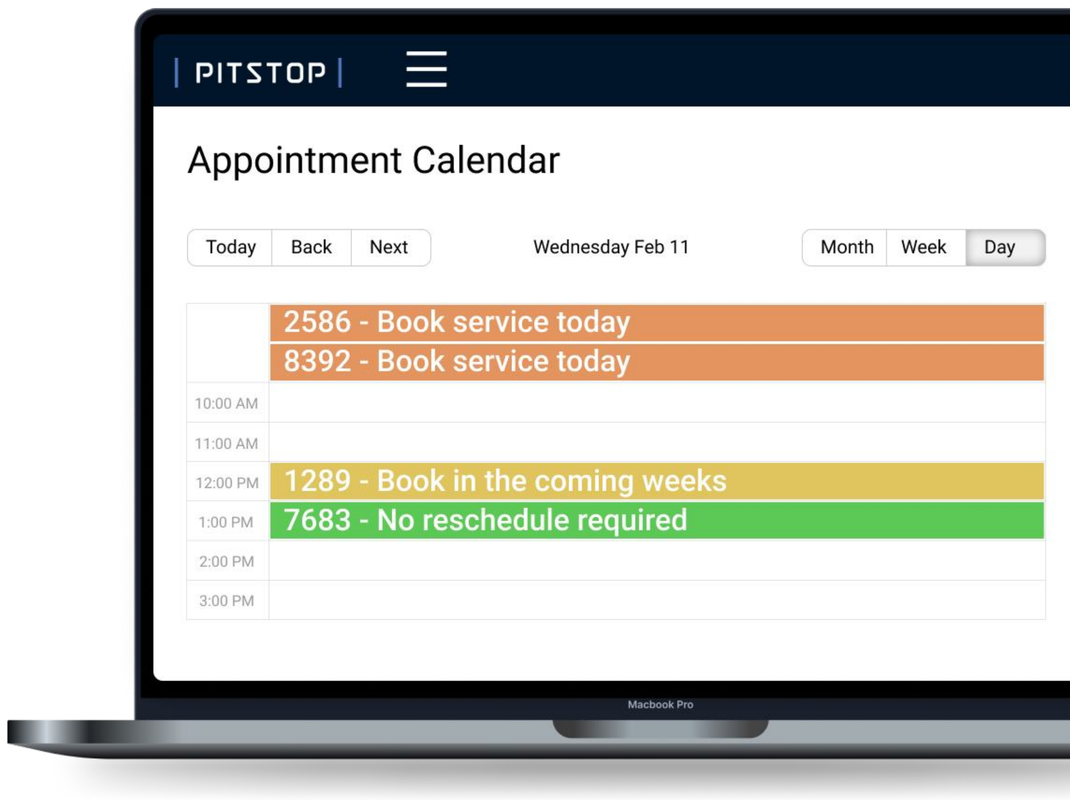
Solution 3: Spreading Out Maintenance Costs

It goes without saying vehicles without recent fault codes are healthier and require less expensive services. Hence, it would be logical to delay services for operator report cases when no fault code is present, a saving mechanism also known as spreading out maintenance costs. This approach applies to approximately 24 percent of the vehicles in the fleet.

Over the three-month period, **941 unplanned service cases cost roughly $1,000 per visit**. By electing not to perform extra services on 24 percent of these visits over the three months, the city could save up to nearly **$78,000 per month**. It's important to note that any declined services would still need to be performed eventually but would be moved to PM visits and spread out over a more extended period. These savings would primarily be derived from spreading out maintenance costs.

This approach carries a **relatively small risk** as it triages healthier vehicles, i.e., with no fault codes. By leveraging predictive analytics and smart PM, Pitstop's solution could provide substantial savings and optimize fleet performance for the City of Long Beach.

> ***The feature identified a report history of any battery issues and a result score history with an easy-to-read graph that demonstrated a two-week failure probability."***
>
> - Patrick M. - Light Line Equipment Mechanic I



Conclusion

This case study highlights the potential of using AI and data analytics for more than just fleet management—it's a call to action for all organizations to embrace these tools for strategic decision-making and operational effectiveness. Adopting a predictive, data-driven approach can not only unlock significant efficiency gains and safety improvements but also provide the City of Long Beach with **$809,500 in cost savings per year**.

Thus, the key takeaway is to see this as an opportunity to reevaluate current systems, challenge the status quo, and explore the transformative power of technology in improving service delivery and cost management.

$809,500

In annual cost savings with Pitstop's predictive maintenance solution.

About Pitstop

Pitstop offers an innovative and comprehensive AI-powered fleet management platform, designed to meet the unique needs of businesses in the industry. By leveraging advanced machine learning algorithms and data analytics, Pitstop provides actionable insights, automates manual tasks, and supports data-driven decision-making. This not only streamlines your fleet's operations but also ensures long-term sustainability and growth.

Pitstop integrates with top telematics and ELD providers, such as Geotab and AssetWorks, to offer fleet managers advanced features like predictive maintenance, optimized work order management, and intelligent maintenance scheduling solutions. By integrating Pitstop's cutting-edge technology into your fleet management strategy, you can stay ahead of the competition, reduce operational costs, and drive your business toward success. It is easy to use, takes 15 minutes to set up, and takes just 24 hours to start seeing your data flowing in.

Contact us here to book a free 30-minute consultation call with our experts!