Automotive headlamp technology has progressed tremendously over the past twenty years, rapidly moving beyond sealed beam and halogen headlamp assemblies. The early 2000’s saw the introduction of the first Xenon/HID systems that used pressurized gas to create a brighter and more expansive field of vision for drivers. Such technology was only available as an option on high-end luxury vehicles such as the Mercedes S Class and the BMW 7 Series. LED headlamps provided a means for automakers to further improve visibility for drivers while doing so in a manner that was much more energy efficient for the vehicle. LED has become the technology of choice: it is becoming increasingly common and is no longer restricted to high-end vehicles. 2019 model year vehicles such as the Toyota Corolla, Toyota Camry, and Hyundai Tucson all come standard with LED headlamps.

In addition to advances in illumination, headlamp manufacturers are also continuing to improve the functionality of headlamps to be able to maximize the benefit of improved illumination. This has taken shape in the form of dynamic headlamps that adjust the angle of light to conform to the curvature of the roadway, as well as high beam assist headlamps that automatically turn on the vehicle’s high beams at a certain level of darkness, but switch to low beams in the presence of other vehicles. The Insurance Institute for Highway Safety (IIHS) estimates that 45 percent of all 2018 model vehicles such as the Toyota Corolla, Toyota Camry, and Hyundai Tucson all come standard with LED headlamps.

As a result of the advances in lighting technology and performance, headlamp prices have increased accordingly. The average cost of a replacement headlamp in 2019 YTD is $418.36 and takes into account all part types, including new OEM, remanufactured, recycled, and aftermarket parts. Compare this to 2015's average price of $307.73, and the industry has experienced a 35.95 percent increase in the average price of a headlamp in just four years (Figure 1). This increase is seen even more so if we examine the average headlamp price for current and subsequent model year vehicles which sits at $773 for 2019 YTD compared to $499.20 in 2015, representing a 54.85 percent increase (Figure 2). These OEM trends are
having a downstream effect on other part types as well (Figure 3).

Figure 1: Average Headlamp Price—All Repairable Vehicles, All Part Types Source: Mitchell Data

Figure 2: Average Headlamp Price—Repairable Vehicles, Current and Subsequent Model Year Vehicles Only
Blinded by the Light: The Impact of Advances in Headlamp Technology on Auto Claims
Author: Ryan Mandell

Figure 3: Average Headlamp Price by Part Type—All Repairable Vehicles Source: Mitchell Data
Headlamps account for 2.4 percent of all parts replaced on repairable estimates in 2019 YTD, so the increase in prices that the industry is experiencing is a significant contributor to the rise in repairable severity. The increase in headlamp price alone has contributed an average of $28.55 in severity across all industry-repairable claims. Not surprisingly, the highest priced headlamps in 2019 so far all come from luxury automakers such as Land Rover, Porsche and Jaguar (Figure 4). However, some of the highest percentage increases we are seeing are coming from domestic manufacturers like FCA and GM (Figure 5).

We will likely see the next generation of headlamp technology arrive in North America in the near future if current laws are changed to require dedicated high-beam and low-beam functions. In Europe, automakers like Audi have already implemented headlamp systems that dynamically adapt to not only road curvature and darkness, but also to precipitation and moisture in the air, as well as have the ability to increase brightness only on the roadway while maintaining a standard level of illumination on other vehicles.² The trend towards more advanced lighting systems is bound to continue as smarter systems are critical in the journey toward autonomous driving. The improved visibility created by these new complex headlamps will be instrumental to ensuring that other ADAS sensors and components are able to function at the highest level and provide the greatest degree of safety, especially in a vehicle cockpit devoid of a driver. Staying
up-to-date with changing OEM collision repair procedures is vital to avoiding costly mistakes.

Learn more about the top automotive trends for 2020 and what it means for the collision repair industry.

![Top 10 Highest Average Headlamp Price for Estimates Written in 2019](image)

Figure 4: Top 10 Highest Manufacturer Headlamp Prices for Estimates Written in 2019—Repairable Vehicles, All Part Types Source: Mitchell Data
Figure 5: Top 10 Highest % Change in Average Headlamp Price between 2015-2019—Repairable Vehicles, All Part Types Source: Mitchell Data
