Cars of future will be lighter, fuel-efficient

More fuel efficient. Lighter in weight. Loaded with electronics. Smaller in size.

That's a start.

Because of rapidly-changing technology and an increasing number of external influences, no one can say exactly how that new car you buy in the year 2000 will look.

There are some indications, however, in projections of how the cars being built in the next 10 years or so will shape up—in design, in powerplants, in materials. A composite picture comes from members of the Society of Automotive Engineers, a nonprofit, technical organization with nearly 40,000 individual members in 79 countries, the Automotive Information Council, the Motor Vehicle Manufacturers Association and, yes, the automakers themselves.

Many of the concepts for these vehicles of the future already are on the drawing boards. The final decades of the 20th century should prove exciting and challenging for the people whose job it is to develop the car you'll choose to drive a score or more years from now.

Because of the massive amount of initial engineering design work, testing, and retooling that is necessary (all of which require large capital expenditure), the lead time to bring a new vehicle to the driving public is measured in years.

Brave new world

Many of the new breed of front wheel drive 1981 cars, for example, began to take shape on drawing boards as early as 1974.

This new series of cars, which include the Ford Escort and Lynx, the Chrysler K-cars, and the GM X-cars, are the automotive engineer's response to the realities of a new world. It is estimated that it cost in excess of $3 billion to bring these cars to market.

While consumer preferences and desires once dictated most changes, design today is primarily influenced by four external forces—energy, environment, economics, and government regulation.

Because these forces will continue to dominate the future design of passenger cars, the innovative automotive engineer will lead the way and the stylist will have to conform.

Much engineering emphasis is currently being placed on developing new powerplants—ones that will not only use less fuel, but different types of fuel—and drivetrains with radically different ways of translating combustion into power. Through the end of this century, it is probable that the engines familiar to us today will continue to be our predominant power plants.

V-8 reign ends

Clearly, the reign of the V-8 engine as king of the highway is over and, if it survives in any form at all, it will be in the form of the 8-6-4 variation introduced on some 1981 Cadillacs.

The main reason for these changes is the federal regulation that requires each car company to achieve an average of 27.5 miles per gallon across its full line of 1985-model-year cars. This compares with the 19-miles-per-gallon requirement for 1979 cars.

Still, manufacturers are optimistic they will beat the 1985 standard by at least three miles per gallon.

The cost of revamping facilities and products over the next five years to produce such a fleet average amounts to $60 billion, making fuel efficiency the No. 1 goal for the domestic automakers.

Tomorrow's engines are likely to be 25 to 30 percent smaller than today's standard powerplants and will use superchargers and turbo chargers to boost their modest output.

More sophistication

The future may place more emphasis on diesel engines and more sophisticated electronically-controlled gasoline engines. Some turbines and electric cars also may debut, such as the electric vehicle General Motors is talking about introducing in 1985.

But GM still is seeking a good supply of nickel powder and better lightweight plastics for its batteries, lower fabricating costs for plates and separators, more efficient motor designs, better speed controls and an inexpensive, reliable way to monitor the supply of energy remaining in the storage batteries.