Wayne Michaud, Executive Director, Idle-Free California Inc.
6900 Navarro Court, Citrus Heights, CA 95621
idlefreecalifornia.org • info@idlefreecalifornia.org • 916-209-0224

ESTIMATE OF HEALTH IMPACT, FUEL CONSUMPTION & CO_2 EMISSIONS: LIGHT-DUTY VEHICLE IDLING AT CALIFORNIA SCHOOLS, 2019-2020

At many of California's more than 10,000 schools, passenger (light-duty) vehicle[1] idling can occur during the periods when parents drop off and pick up students. The pick-up (dismissal) period, especially, is a prolonged event as dozens of vehicles arrive prior to official dismissal and wait in line. Idle-Free California has conducted measured studies* in two states (CA and VT) showing that the majority of drivers leave engines on as they wait. **Most of this idling is unnecessary****

Good news: to varying degrees, modern light-duty vehicles (sedans, SUVs, light-duty pickups) are much cleaner than decades ago; furthermore, currently up to 13 percent of these vehicles are seldom idling hybrids or non-idling electrics.
Not so good news: the 87 percent of vehicles that will idle still emit some harmful tailpipe toxins including benzene, carbon monoxide, sulfur dioxide, hydrocarbons, plus diesels emit particulate matter and volatile organic compounds. A line up of these idling vehicles is known as an idling "hot spot", exacerbating these toxins. Older vehicles emit even more of these toxins.

The EPA's Idle-Free Schools Toolkit for a Healthy School Environment sums it up by stating: "*Idling vehicles contribute to air pollution and emit **air toxins**, which are pollutants known or suspected to cause cancer or other serious health effects. Monitoring at schools has shown elevated levels of benzene, formaldehyde, acetaldehyde and other air toxics during the afternoon hour coinciding with parents **picking up their children**. Children's lungs are still developing, and when they are exposed to elevated levels of these pollutants, children have an increased risk of developing asthma, respiratory problems and other adverse health effects. Limiting a vehicle's idling time can dramatically reduce these pollutants and children's exposure to them.*"

Number of public schools, California: 10,588 (CDE 2019-20)

Number of days in school year: 175[2]

Average light-duty vehicle idling fuel consumption per hour: 0.375 gallons[3]

PER SCHOOL – estimated drop-off idling
Average number of vehicles at school drop-off, daily: 100
Number of vehicles idling at drop-off, daily: 67%[4] = 67 vehicles idling
Average time of drop-off idling per vehicle, daily: 1 minute
Fuel consumed during drop-off, 175 days: 73 gallons
CO_2 emissions idling vehicles drop-off, 175 days: 1,465 lbs.

PER SCHOOL – estimated pick-up idling
Average number of vehicles at school pick-up (dismissal), daily: 100
Number of vehicles idling at pick-up, daily: 57%[4] = 57 vehicles idling
Average time of pick-up idling per vehicle, daily: 15 minutes
Fuel consumed during pick-up, 175 days: 935 gallons
CO_2 emissions idling vehicles pick-up, 175 days: 18,703 lbs.

PER SCHOOL – annual estimate
Total fuel consumed drop-off and pick-up, 175 days: 1,008 gallons
Total CO_2 emissions drop-off and pick-up, 175 days: 20,168 lbs. (10 tons)

10,588 SCHOOLS – annual estimate
Total fuel consumed drop-off and pick-up, 175 days: 10,672,704 gallons
Total CO_2 emissions drop-off and pick-up, 175 days: 106,769 tons
Anti-idling education can reduce this impact by 50% or more

*Estimates of number of vehicles at schools, number of vehicles idling at schools, and amount of time spent during drop-off and pick-up (dismissal) are rough but conservative, based on limited studies of light-duty vehicle idling at schools.
**Exceptions for need to operate air conditioning in hot weather, for exceptional needs of other vehicle occupants, and to operate safety equipment such as windshield defrosters

1school bus idling is not addressed as California regulates the idling of these vehicles; compliance is good
2the number of days in the school year idling can be reduced will be somewhat less in inland areas due to higher temperatures in early fall and late spring
3based on average range of light-duty vehicle engine liter sizes of compact vehicles (from 2 liters) to pickup trucks (up to 5 liters)
4takes into account number of seldom idling hybrid and non-idling electric vehicles in CA as of late 2019: 13.4%; however, this figure is expected to be lower for USDs located in moderate- and lower-income areas, such as in parts of California's Central Valley

NOTE: for the 2020-21 school year, Covid-19 is having an impact on the number of days schools will be attended in-person, and number of students attending.