QUESTIONS FOR TRANSPORTATION PLANNERS

- What is the health impact of increases in regulated regional pollutants due to traffic related pollution?
- What is the health impact of increases in local traffic-related pollutants which are not currently regulated?
Overview of the Health Effects of Regional Air Pollution

USC Children’s Health Study found:


- **INCREASED SCHOOL ABSENCES FROM RESPIRATORY PROBLEMS** – and substantial economic costs – when ozone air pollution is high
Overview of the Health Effects of Regional Air Pollution

USC Children’s Health Study found:


Abnormally Low Lung Function is 5 Times More Likely in a High PM Community

Why Worry About Low Lung Function?

In adults, increases risk of

– Heart disease
– Respiratory disease
– Mortality
Various USC and other studies of adults show:

- INCREASED DEATH FROM HEART ATTACKS AND STROKE when levels of particle pollution rise
  
  (Pope CA, 3rd, Dockery DW. Health effects of fine particulate air pollution: lines that connect. *J Air Waste Manag Assoc* 2006;56(6):709-42)

- HIGHER CARDIOVASCULAR AND RESPIRATORY MORTALITY in cities with higher particle pollution
  

- THICKER ARTERIES in southern Californians living in areas with higher particle pollution
  

- MORE LUNG CANCER in areas with more particle pollution and in workers exposed to diesel exhaust
  
  (Pope, et. Al. *JAMA* 2002;287(9):1132-41)
QUESTIONS FOR TRANSPORTATION PLANNERS

What is the health impact of increases in regulated regional pollutants due to traffic related pollution?

What is the health impact of increases in local traffic-related pollutants which are not currently regulated?
HEALTH IMPACTS AT SCHOOLS AND HOMES NEAR BUSY FREEWAYS
There is more asthma in children living within 150 meters of a major road...

Genetically susceptible children had 900% increase in frequency (lifetime prevalence) of asthma

(Salam MT, et al. Thorax 62:1050-7(2007))
Air Quality is Worse Near a Freeway

Other pollutants are also high near freeway (e.g. NO2, benzene,...)
POPULATION BURDEN OF ASTHMA

- Near-roadway exposure not considered in usual approaches.
- Childhood asthma cases attributable to near-roadway exposure:
  - Riverside 690 cases (6%) and Long Beach 1600 cases (9%)

Perez, et. al. AJPH 2009; 99:S622-8
Summary Nearby Traffic Effects

Studies in U.S. and in Europe show that living near busy roads and freeways – especially with lots of truck traffic – has been linked to:

- Asthma
- Heart attack (and other heart disease)
- Decreased lung function
- Lung cancer
- Low birth weight and preterm birth
- Cardiopulmonary mortality (deaths related to the heart or lungs) – shortened life expectancy
- Neurodevelopment including childhood IQ, autism; obesity

There is increasing health science justification for regulating exposures within at least 500 feet of roadways with heavy traffic
Regulators are beginning to respond…

- California law does not allow the construction of a new school within 500 feet of a freeway
  - But there is no regulation restricting construction of busy roadways near schools or parks
RELEVANCE TO 710 FREEWAY EXPANSION

Today: 42,000 truck trips a day (at Del Amo Blvd)

2035: 93,400 truck trips a day*

*Source: DEIR, 710 by Caltrans, 2012

Why? -- Growth of Ports
QUESTIONS FOR 710 PLANNERS

What will be the health impact of increases in regulated “regional pollutants” at the entrance and exit to tunnel?
– Provision for monitoring?

What will be the health impact of increased local traffic proximity-related pollutants which are not currently regulated?
– Especially ultrafine particles and diesel exhaust

The best evidence available indicates that these exposures will cause disease
QUESTIONS FOR 710 PLANNERS

- What exposures will occur during construction and what are their health effects?
- What will be the exposures to drivers?
- Will the ventilation blow exhaust out the “portals” (exits) or will there be additional ventilation stacks?
- Will there be air filtration?
  - Most tunnels don’t
- What evidence is there that filtration is effective and will be maintained over the life of the tunnel?
  - Again, especially for ultrafine particles and diesel exhaust
“Big Dig” (Boston) Ventilation Building