

**CONCRETE BATCH PLANTS  
HOUSTON/HARRIS COUNTY**

**Air Alliance Houston**

**July 20, 2017**



# AIR ALLIANCE HOUSTON

- AAH researches Houston's greatest air pollution challenges in collaboration with universities, regulators, and partner organizations to understand how to improve public health and quality of life.
- AAH offers educational programs to Houston-area youth about air pollution in our region.
- AAH offers tools, information, and resources to every Houstonian who wants to make our city healthier.
- AAH advocates for Houston's fenceline communities, meets with legislators, partners with regulators, and organizes meetings between industry and communities.

# EXAMPLE OF OUR WORK

## Refinery neighbors hope to breathe easier after air pollution study

Light beams, mirrors will be used for first time to collect air quality data

By Matthew Tresaugue | February 13, 2015 | Updated: February 13, 2015 11:15pm

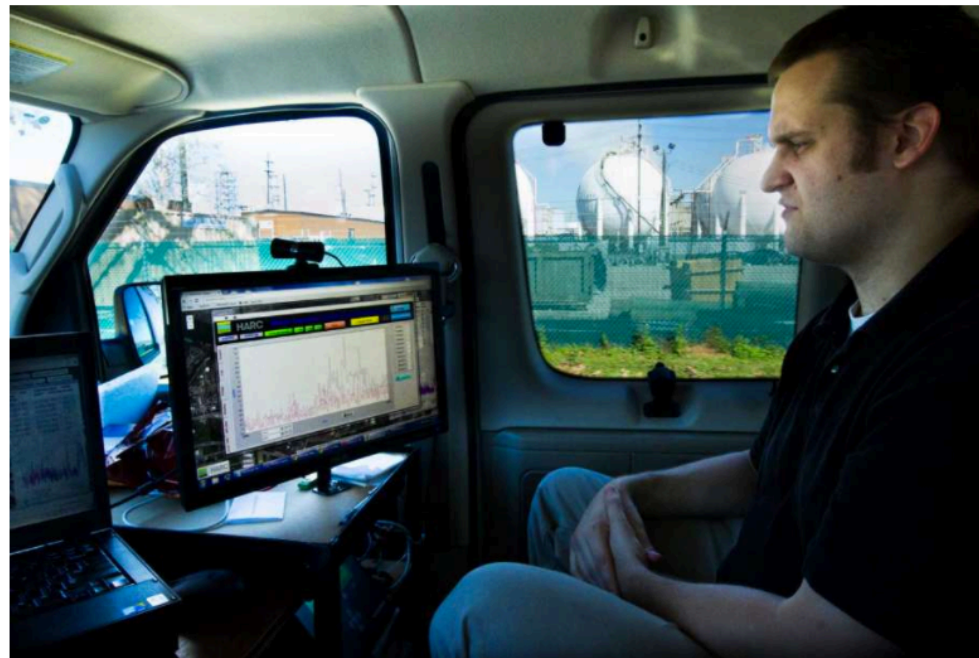


Photo: Marie D. De Jesus, Staff

A research scientist monitors real time concentrations of air pollutants from a mobile lab in the Manchester, Galena Park, and Milby Park neighborhoods of Harris County. ( Marie D. De Jesus / Houston Chronicle )

# CEMENT INDUSTRY

- The cement sector is the **third largest** industrial source of pollution
- Emitting more than **500,000 tons** per year of:
  - Nitrogen oxide (NO<sub>x</sub>)
  - Sulfur dioxide (SO<sub>2</sub>)
  - Carbon monoxide (CO)
- These compounds can cause or contribute to a variety of health problems and adverse environmental impacts

**Source:** U.S. Environmental Protection Agency, Cement Manufacturing Enforcement Initiative, <https://www.epa.gov/enforcement/cement-manufacturing-enforcement-initiative#emissions>

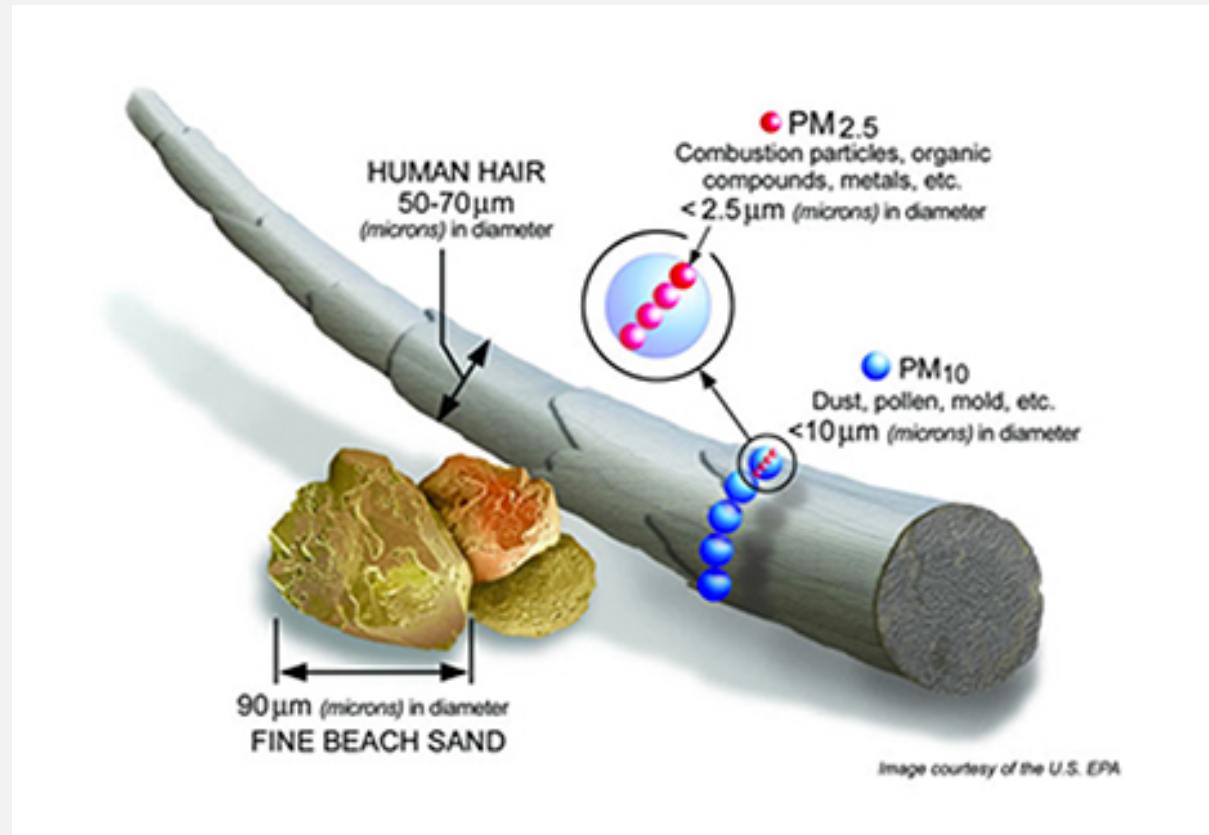
# CONCRETE BATCH PLANTS



- Cement, along with sand, water, aggregate (and other inputs) are used to form concrete at concrete batch plants
- Cement dust contains silica - a known cancer causing compound
- Exposure to particulate matter, that consists primarily of cement dust, is the main pollutant of concern

# PARTICULATE MATTER (FINE DUST)

- PM is a dangerous and widespread air pollutant
- $PM_{10}$  and  $PM_{2.5}$  include inhalable particles that are small enough to penetrate the lungs
- Health effects are well documented for both short term (hours, days) and long term (months, years) PM exposure
- Vulnerable groups with pre-existing health conditions, as well as older adults and children, are particularly vulnerable to the health effects of  $PM_{10}$  and  $PM_{2.5}$



## HEALTH EFFECTS OF PM

- **According to the EPA, particulate matter poses serious health threats including:**
  - Causing early death (both short-term and long-term exposure)
  - Causing cardiovascular harm (e.g., heart attacks, strokes, heart disease, congestive heart failure)
  - Likely to cause respiratory harm (e.g. worsened asthma, worsened COPD, inflammation)
  - May cause cancer
  - May cause reproductive and developmental harm



# RESIDENTS' CONCERNS

- Dust
- Smoke
- Truck traffic
- Odor
- Noise
- Operating at night
- Concrete spilled on roads
- Flooding
- Property damage



*Dust accumulation on trees on residential property in Minnitex community*

*Source: Air Alliance Houston meetings/communications with residents from the Minnitex, Shamrock Manor, Dyers Forest & East Houston communities*



# RESIDENTS' CONCERNS

- Last year the [City of Houston](#) conducted an investigation of 35 concrete batch plants
- COH discovered over 40 violations including, but not limited to, the lack of use of adequate dust controls and visible emissions leaving property lines

## Opposition solidifies against Houston's concrete batch plants

Operating long hours, facilities can take a toll on working-class areas

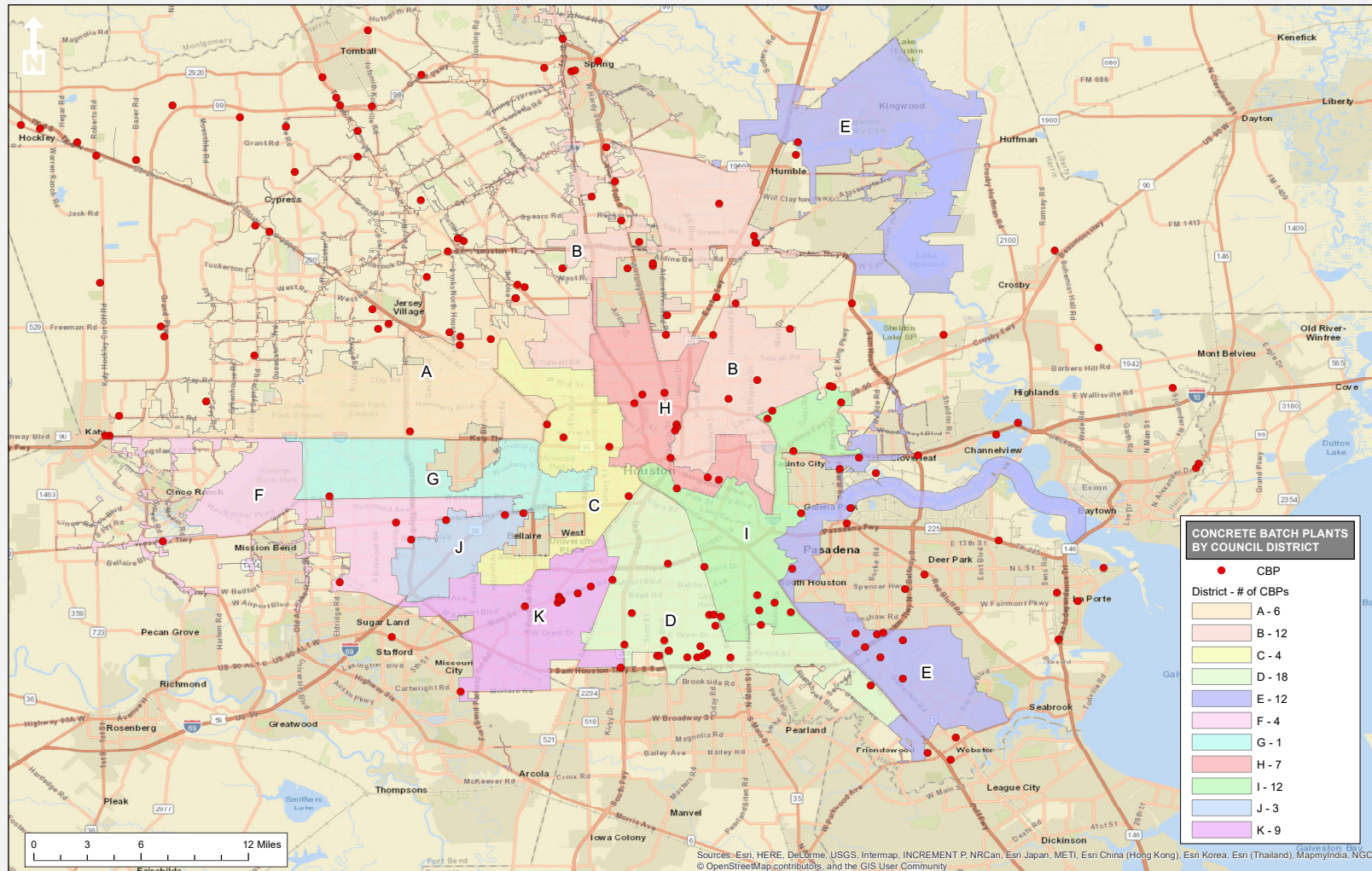
By Kim McGuire | February 11, 2017 | Updated: February 12, 2017 3:02pm



Photo: Michael Ciaglio, Staff



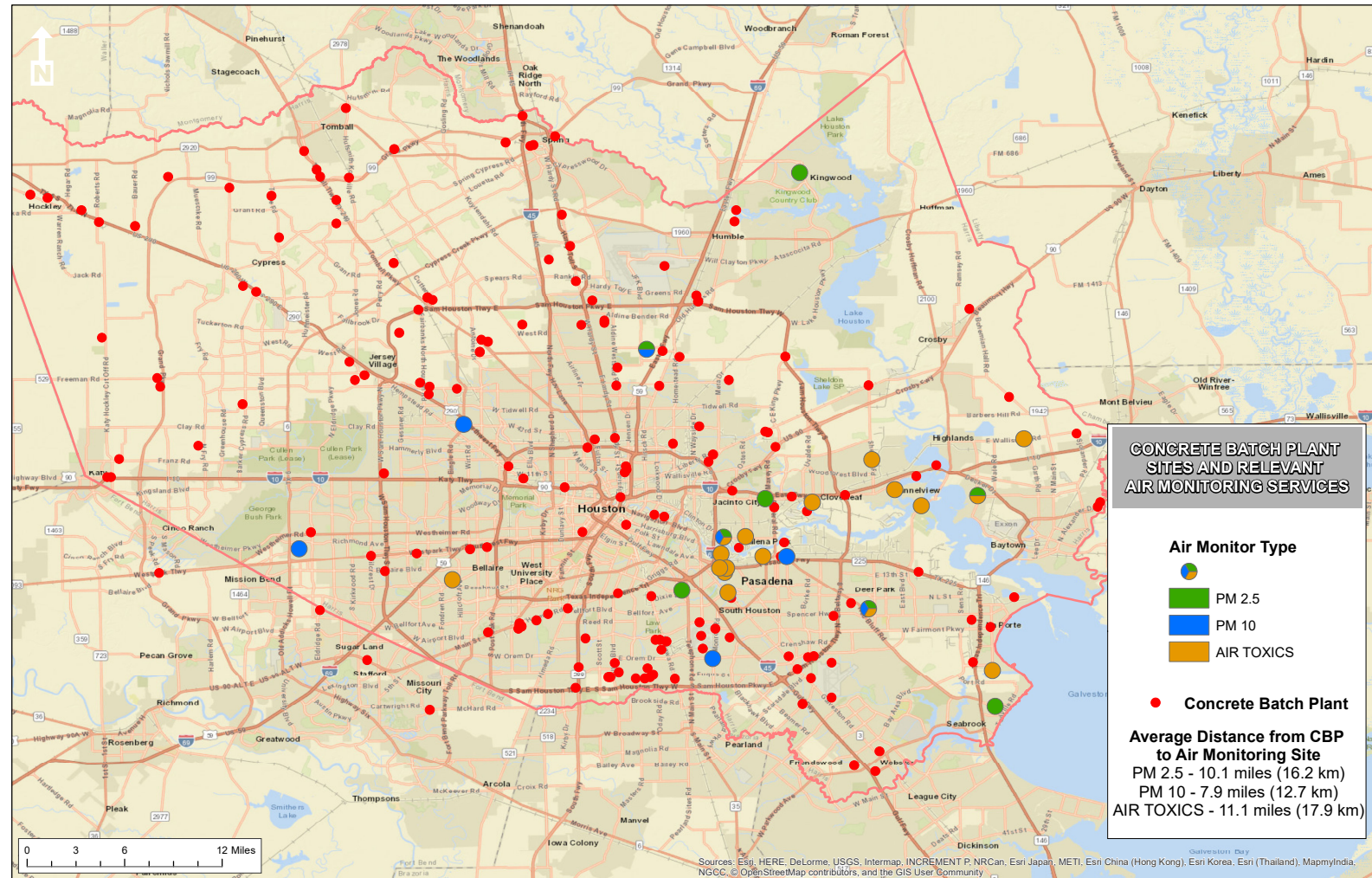
# NUMBER OF CONCRETE BATCH PLANTS BY COUNCIL DISTRICT



Source: Concrete batch plant locations from Texas Commission for Environmental Quality, 2017

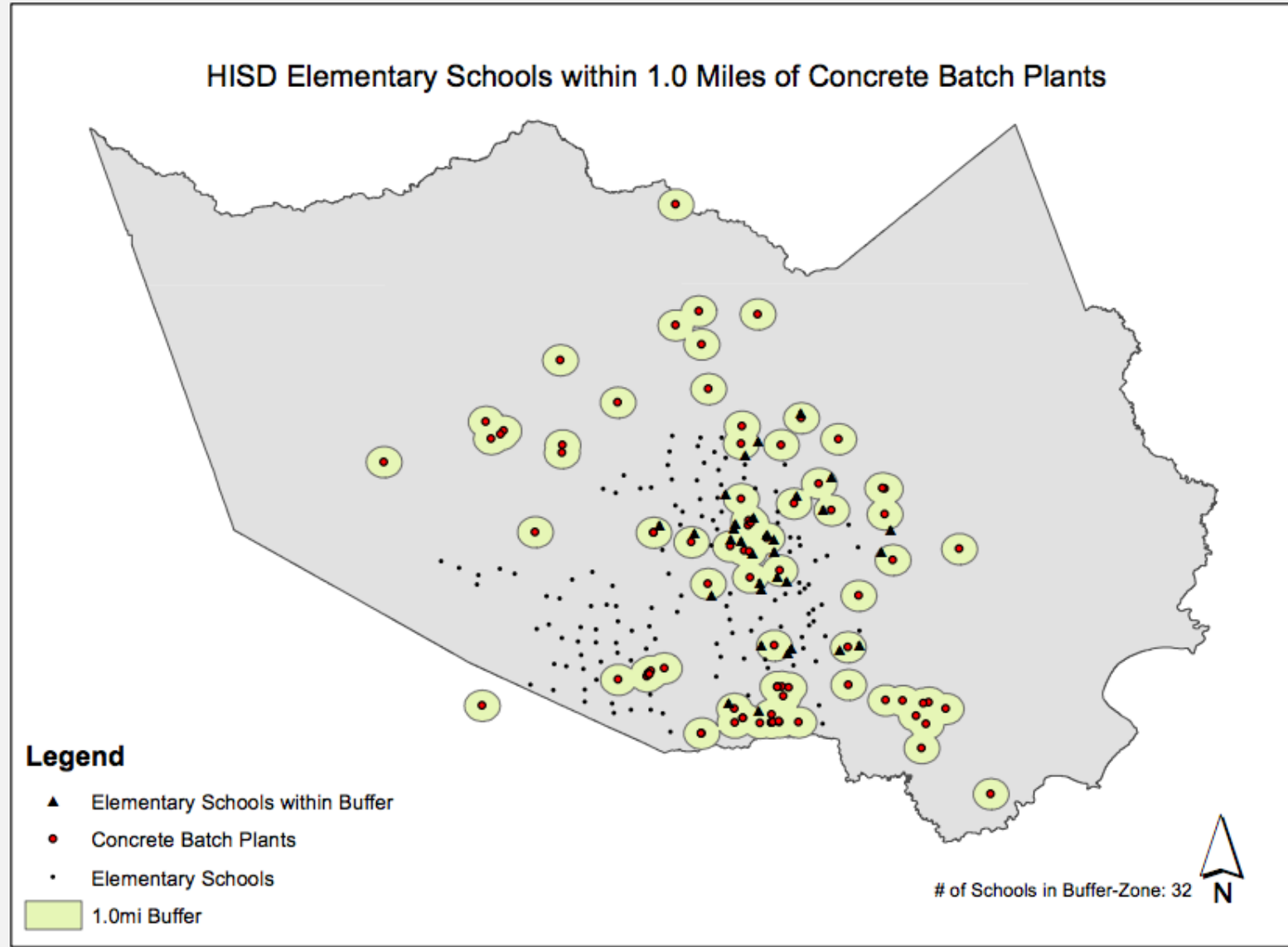


# AIR MONITORING SITES



Source: Concrete batch plant and air monitoring locations from Texas Commission for Environmental Quality, 2017

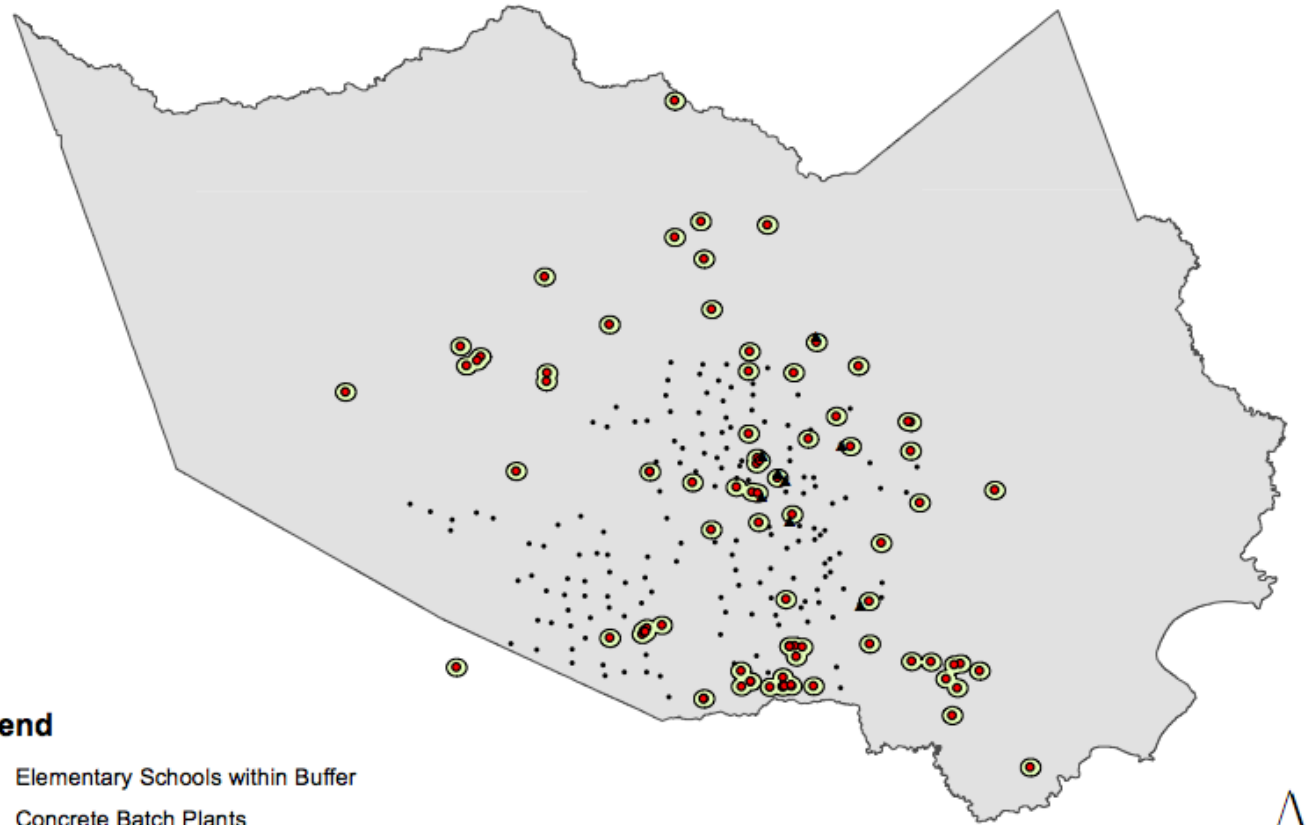
### HISD Elementary Schools within 1.0 Miles of Concrete Batch Plants



- 7 HISD middle schools within 1 mile of CBPs
- 32 HISD elementary schools within 1 mile of CBPs

Source: Concrete batch plant locations from Texas Commission for Environmental Quality, 2017

### HISD Elementary Schools within 0.5 Miles of Concrete Batch Plants



#### Legend

- ▲ Elementary Schools within Buffer
- Concrete Batch Plants
- Elementary Schools
- 0.5mi Buffer

# of Schools in Buffer-Zone: 8



Elementary Schools within  
.5 miles of CBPs:

- Bonner ES
- Burnet ES
- Dogan ES
- Ross ES
- Bruce ES
- Atherton ES
- Marshall ES
- Elmore ES

Source: Concrete batch plant locations from Texas Commission for Environmental Quality, 2017

## Residential Proximity to Environmental Hazards and Adverse Health Outcomes

How living near environmental hazards contributes to poorer health and disproportionate health outcomes is an ongoing concern. We conducted a substantive review and critique of the literature regarding residential proximity to environmental hazards and adverse pregnancy outcomes, childhood cancer, cardiovascular and respiratory illnesses, end-stage renal disease, and diabetes.

Several studies have found that living near hazardous wastes sites, industrial sites, cropland with pesticide applications, highly trafficked roads, nuclear power plants, and gas stations or repair shops is related to an increased risk of adverse health outcomes.

Jean D. Brender, RN, PhD, Juliana A. Maantay, PhD, MUP, and Jayajit Chakraborty, PhD, MS

### CONCERNS ABOUT HEALTH

and environmental hazards transcend the academic, scientific, and regulatory worlds; they are also of compelling interest to the public, who often recognizes a relationship between environmental hazards and health. In a 1999 national telephone survey among US voters,<sup>1</sup> 74% of respondents thought that environmental factors had an important impact on childhood cancer, and 73% thought these factors had an impact on birth defects. More than 50% of respondents felt that air pollution, contaminated drinking water, and toxic waste had a great deal of impact on a person's health. These concerns often

limitations. If the evidence indicates that residential proximity is associated with poorer health outcomes, regulatory agencies may need to factor in nearby populations when siting industrial facilities, municipal waste sites, incinerators, and other potential sources of emissions.

### APPROACH

We identified studies of environmental proximity analyses in relation to health through the National Library of Medicine's PubMed, using search terms that combined *proximity to* and adverse pregnancy outcomes (birth defects, fetal death, low birth

effects, for example, precipitating asthma attacks or myocardial infarction in susceptible individuals.

We summarized information from each study regarding target populations, type of study design used, health outcomes included, methods of proximity analyses and exposure assessment, major findings, and limitations. We also examined study results for evidence of racial or economic disparities in health outcomes in relation to residential proximity. In addition to discussing overall findings, we summarized the conclusions of studies that had minimal limitations with respect to exposure assessment and outcome.



## AAH EXISTING WORK ON CONCRETE BATCH PLANTS

- Working with residents to advocate for mitigations to address issues with existing CBPs and providing support throughout the air permitting process
- Plans for preliminary air monitoring in the Minnitex and Dyers North Forest communities
- Development of interactive map to illustrate proximity of CBPs to sensitive land uses (e.g. schools, hospitals, etc.)
- Exploring policy options to address the over concentration of CBPs in communities of color and low-income with various stakeholders
- Ongoing work with local and state elected officials offices

## AAH 4 RECOMMENDATIONS

- Establish a joint task force between the city's health and legal departments to conduct inspections for violations of the TX Clean Air Act
- Work with residents and concrete batch plants to identify and implement mitigations to reduce impact on residents (e.g. dust controls, flooding, etc.)
- Insert language (e.g. criteria) into city land sales contracts that prohibits using the land in a manner that would be hazardous to the health of the community (would need to be defined)
  - For example, one criterion could consider the number of existing facilities in a neighborhood (type, location, proximity to sensitive land uses, health status, etc.)
- Leverage City of Houston resources to conduct research study including air monitoring and evaluation of the potential health impacts on communities where concrete plants are clustered and/or in close proximity to schools

## AAH RECOMMENDATIONS

First, establish a joint task force between the city's health and legal departments (among others) to conduct inspections for violations of the TX Clean Air Act

Why?

Health inspectors are in the community but do not have a direct line to legal; by establishing a joint task force, city legal will quickly learn of "hot spots" and can take appropriate action on nuisances or work with landowners to find common solutions.

## AAH RECOMMENDATIONS

Second, the joint task force would allow the City to work within existing municipal codes (for example, regarding nuisances) by convening residents and concrete batch plant owners to identify and implement mitigation

Why?

City already has authority to address on-going neighborhood concerns. Rather than enforcement (or as a supplement) attempt an agreed upon fix, if possible, utilizing the tools the City is already expanding on some of these issues (health, legal, Mayor's citizen assistance office, etc).

## AAH REQUEST FOR FURTHER REVIEW

Third, insert language (e.g. criteria or restrictive covenants) into city land sales contracts that prohibit using the land in a manner that would be hazardous to the health of the community (would need to be defined)

- For example, an assessment of land for sale in existing residential areas could consider the number of existing facilities in a neighborhood (type, location, proximity to sensitive land uses, health status, etc.) and restrict use to residential
- Another could simply restrict all industrial uses for all future sales

Why?

Placing restrictive covenants like these are routine in residential subdivisions and are a forward looking opportunity to address current neighborhood concerns and better protect public health.

## AAH RECOMMENDATIONS

Finally, leverage City of Houston resources to conduct a research study to evaluate the extent of health impacts on communities where concrete plants are clustered and/or in close proximity to schools

Why?

Air pollution, especially fine dust, has a direct effect on our health – increasing our risk of premature death, heart attacks, strokes, respiratory harm, among other health impacts.

The health effects of air pollution are well documented and we should be using this information to inform our policies.

**We strongly urge the City to take action now by addressing known problems in Houston neighborhoods.**



WE STRONGLY URGE THE CITY OF  
HOUSTON TO TAKE ACTION

Bakeyah Nelson, PhD

Executive Director

Air Alliance Houston

Call AAH at (713) 528-3779

