

Smart Growth and Environmental Health

The Massachusetts SmartGrowth/Smart Energy Conference
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Overview

- Introduction to the Bureau of Environmental Health (BEH) at the Massachusetts Department of Public Health (MDPH)
- Why it is important to address environmental health concerns from the start of development projects
- Case studies
 - New Bedford
 - Norwood
- Data and Technical Assistance from MDPH
- Summary

The Bureau of Environmental Health (BEH) has a broad mission of protecting the public from a variety of environmental exposures.

- Those associated with hazardous waste sites, soil contamination, contamination of drinking water supplies, releases to air or surface waters, contaminant uptake in fish
- Those associated with proposed development

Bureau of Environmental Health

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graph TD; A[Bureau of Environmental Health] --- B[Indoor Air Quality *]; A --- C[Community Assessment Program *]; A --- D[Environmental Epidemiology Program *]; A --- E[Environmental Toxicology Program *]; A --- F[Environmental Health Education And Outreach Program]; A --- G[Community Sanitation Program]; A --- H[Childhood Lead Poisoning Prevention Program]; A --- I[Food Protection Program]; A --- J[Radiation Control Program];
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Indoor Air Quality *

Community Assessment Program *

Environmental Epidemiology Program *

Environmental Toxicology Program *

Environmental Health Education And Outreach Program

Community Sanitation Program

Childhood Lead Poisoning Prevention Program

Food Protection Program

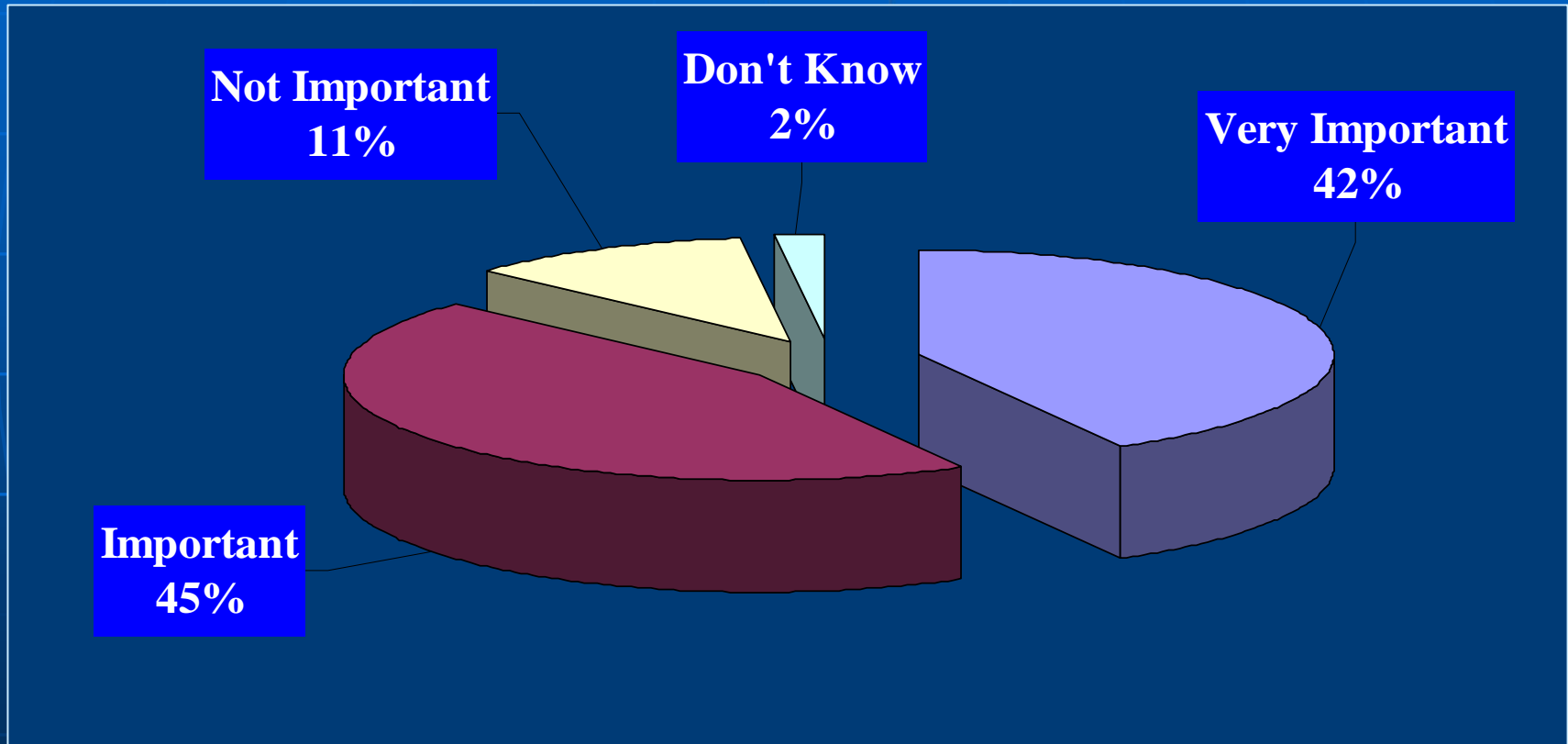
Radiation Control Program

PERCEPTIONS OF RISK

Perception = Reality

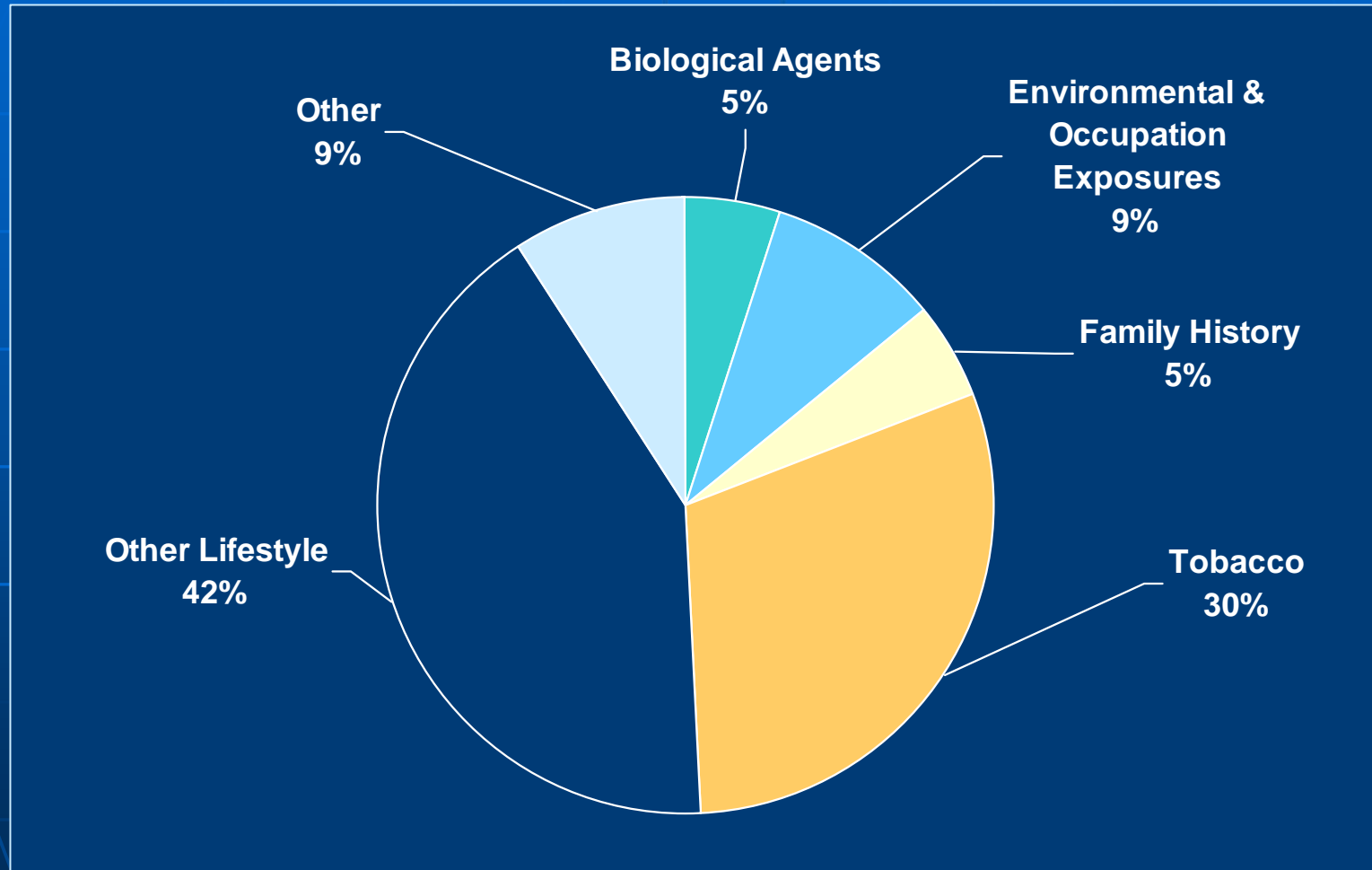
What is perceived as real is real
in its consequences

Public's Perception of Health Problems and Disease Related to the Environment



Source: Pew Environmental Health Commission 2000

Contributions to Cancer Deaths



■ Source: Harvard Report on Cancer Prevention, 1996

Case Studies

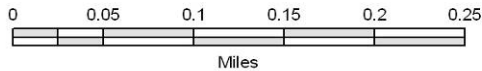
- New Bedford Schools
- Norwood Central Street Property

New Bedford High School, Keith Middle School, and Neighborhood



Geographic data provided by: Office of Geographic and Environmental Information (MassGIS), Commonwealth of Massachusetts Executive Office of Environmental Affairs, and GDT, inc.
Map created by BEH-GIS, 07.13.07, BM.

*New Bedford,
Massachusetts*



Siting of Two Schools

- Historic land use and development decisions made in the early 1970s having widespread ramifications today
- Set in a larger context of the New Bedford Harbor Superfund site and the presence of 2 manufacturing facilities of PCB-containing electrical products in New Bedford from 1940s through 1970s
- New Bedford High School (NBHS)
 - Built in 1970-1971 on former city burning dump

School Property History and Siting Ramifications

- Keith Middle School (KMS)
 - Built in 2004-2006 on former athletic field constructed in the 1960s using fill from NBHS
 - Contamination found pre-construction
 - Required extensive site investigation & remediation, including building design changes (exposure barriers, vapor collection system)
 - Delayed construction and opening
 - Required long-term monitoring and maintenance implementation plan

Siting Ramifications on Current Activities

■ New Bedford High School

- Extensive sampling of indoor air, surfaces, building materials and soil
- Cleaning of entire heating/ventilation system and surface cleaning
- Re-sampling of indoor air and building surfaces
- Closing of some classrooms
- Petition from staff to conduct health investigation

Siting Ramifications on Current Activities

- Petition from neighbors requesting health investigation
- Sampling of soil from nearby residences
- MDPH cancer incidence analysis
- MDPH blood serum PCB testing program

Case Study

Norwood Central Street Property

The Crossings

211 Central Street

Role of BEH in Property Assessment and Development

- Historical land use: tannery and two supermarkets
- Proposed future use: residential (apartment complex with swimming pool)
 - BEH asked by Norwood Department of Health to review health risk assessment conducted on property
 - BEH identified potential health risks through exposure to soil contamination and volatilization of groundwater contaminants

MDPH Pre-Development Recommendations

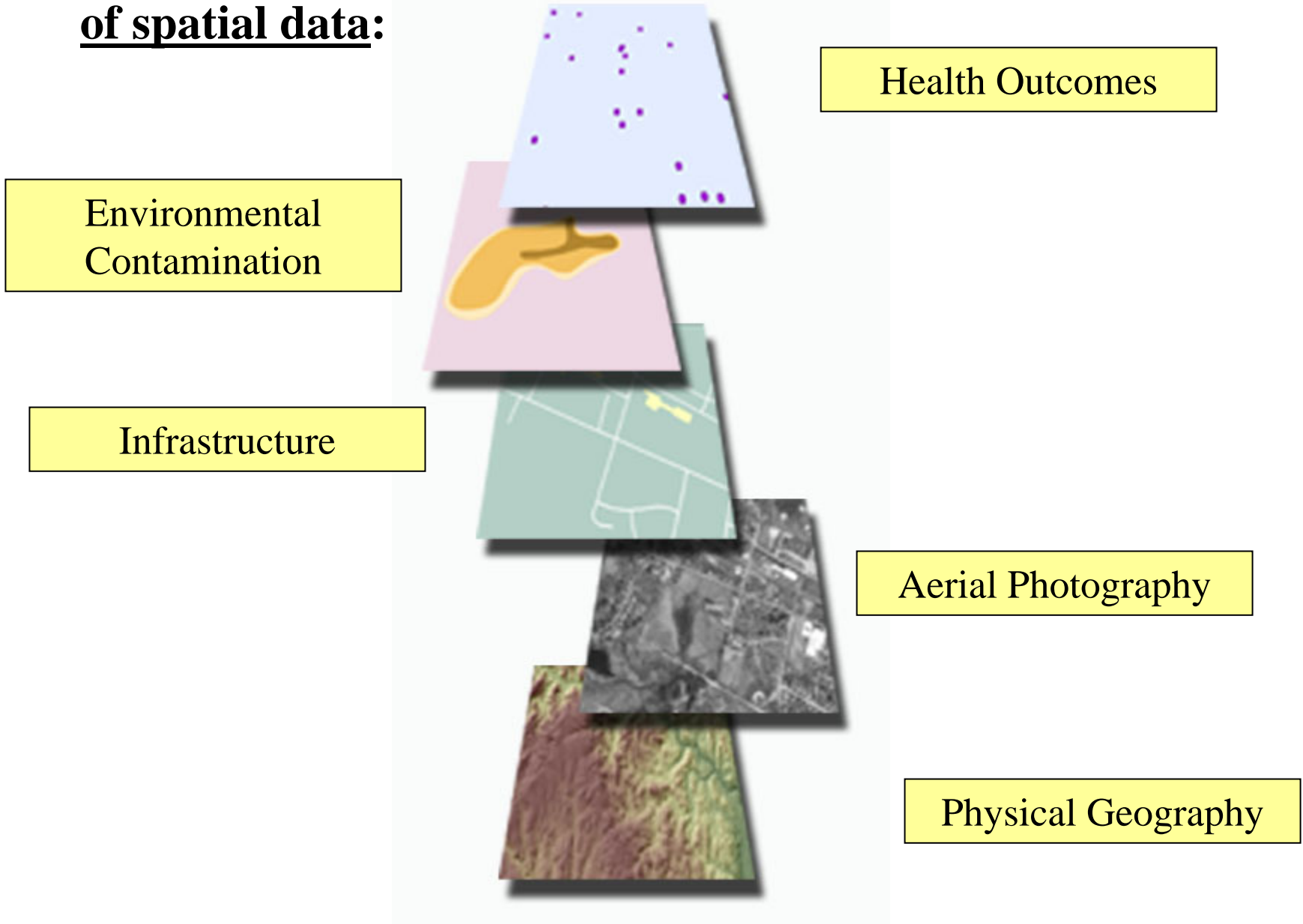
- Implement measures before development to prevent exposures to soil contaminants and volatilization of compounds from underlying shallow groundwater into indoor air
 - Soil sampling and removal
 - Engineered barrier (e.g. cap/pavement)
 - Land use restrictions



Health Outcomes and Pollutants/Sources of Concern

| Health Outcomes of Concern | Examples of Pollutants/ Sources of Concern |
|-----------------------------------|---|
| Pediatric Asthma | VOCs/HAPs, PM, SO ₂ , NO ₂ , Ozone |
| Developmental Disabilities | Mercury, PCBs, Lead |
| Cancer | Air pollution sources, Contaminated drinking water, VOCs/HAPs, Metals |
| Birth defects | Contaminated drinking water, VOCs/HAPs, Metals |

Mapping with GIS enables visualization and integration of spatial data:



MDPH Health Outcome Databases

- Massachusetts Cancer Registry
- Pediatric Asthma Surveillance Data
- Massachusetts Center of Birth Defects Research and Prevention
- MDPH Registry of Vital Records and Statistics
- MDPH Childhood Lead Poisoning Prevention Program

Summary

- Undoubtedly, environmental health questions will come up in most development projects, particularly those that involve brownfield sites
- Proactive response to community concerns can frequently expedite development projects
- Technical assistance and data are available from state and local health departments

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