

Paradigm Shift Towards Smart and Healthy Cities: Systems Innovation at The Nexus of Transportation, Environment, and Public Health

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Research Brief Series:
The Intersection between
Environmental Policy
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Background

- US expenditures on health are the highest among OECD countries, but the U.S. spent **only 2.3%** of its GDP on infrastructure.
- Infrastructure such as transportation shapes our daily lives.
- Emissions produced by traffic are a major source of air pollution.

Health Findings

- Exposure to traffic emissions significantly increases the odds of heart failure
- Built environment factors, including daily traffic volume, have a significant impact on postpartum depression incidence



Infrastructure Emissions

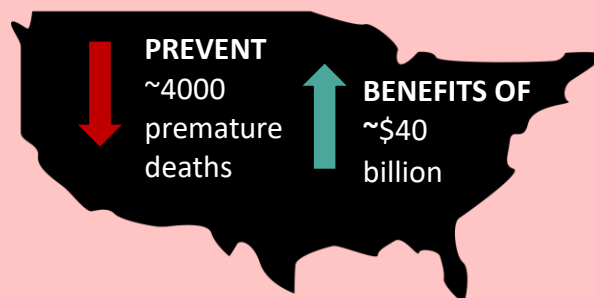


- Local governments can improve ambient air-quality standards via assessment and action plans. As part of this assessment, officials must inventory six pollutants emissions.
- Transportation modeling is one part of this assessment which can be completed using Cornell-developed software.

Emissions Findings

- Models from Cornell-developed software in one city assessing the impact of transforming freight to run by electricity and other clean combustion technologies showed a **reduction in pollution emissions of 50% by 2040.**

When extrapolated to the entire country:



Policy Implications

- **Integrate transportation, the environment, and public health** in economic and infrastructure decisions.
- **Support interdisciplinary education** for those in public health, engineering, and environmental studies.
- **Consider health and environmental costs**, when making infrastructure decisions.