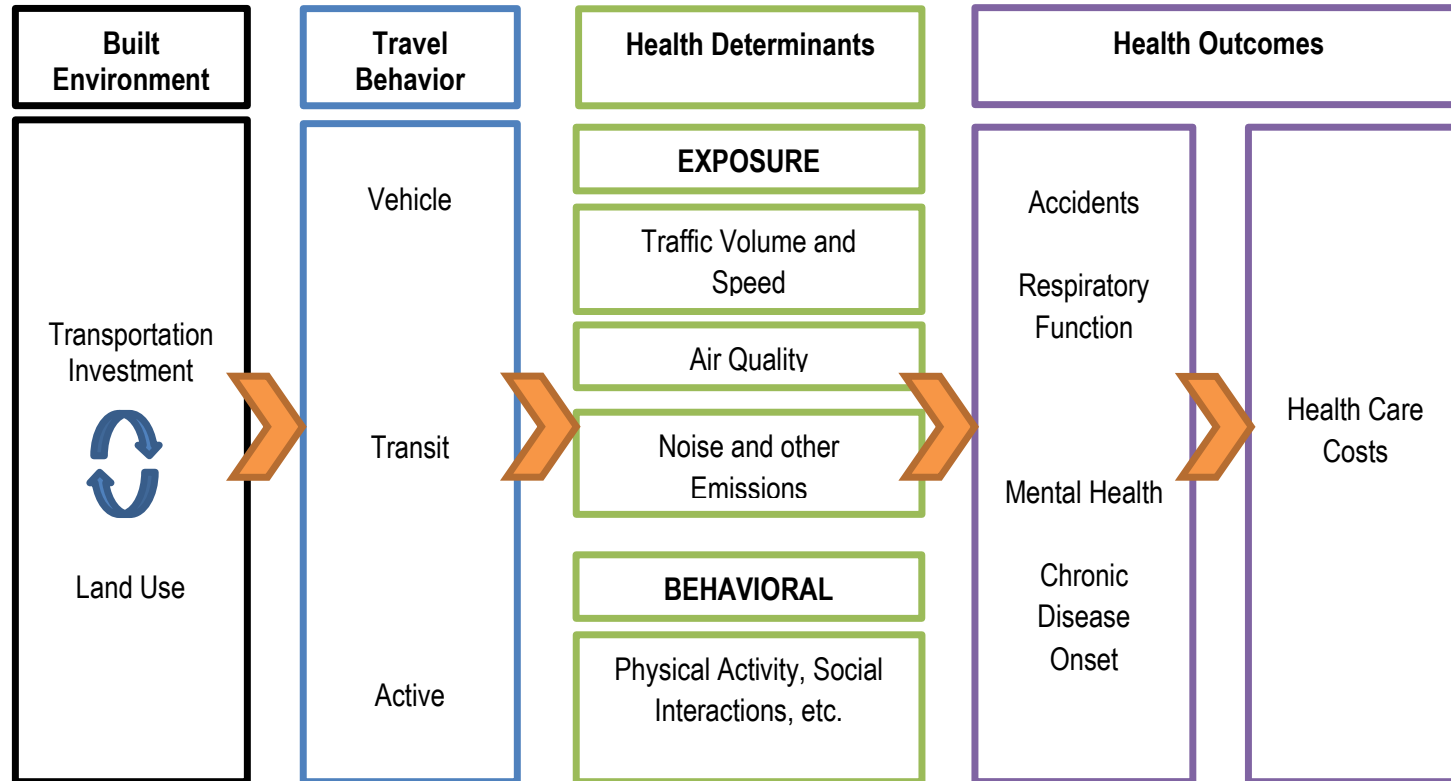




Health Impact Assessment In Transportation: Implications for Climate Change

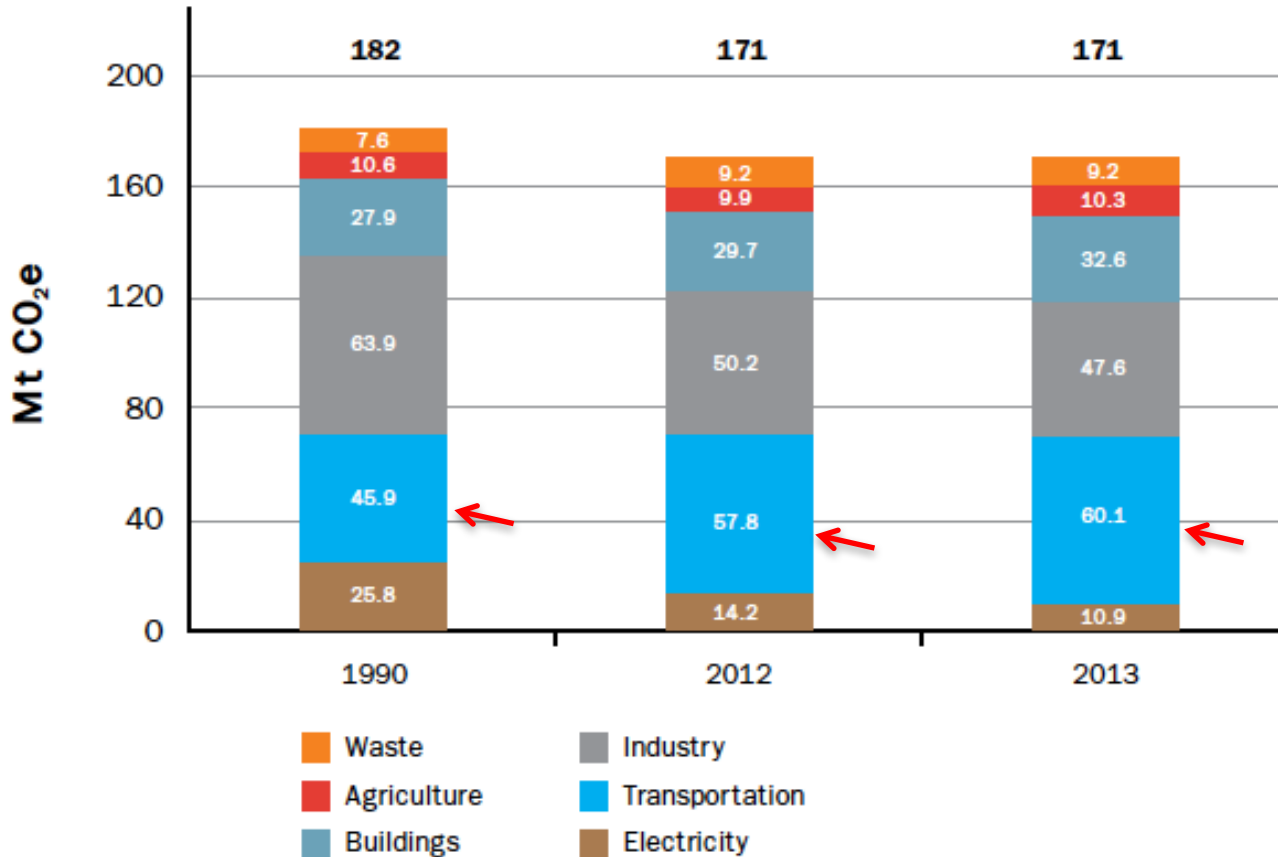
Faiza Waheed, PhD, MEnvSc
HIA Specialist | Environmental Risk Analyst
Intrinsic Corp.

Transportation has broad impacts on human health



Health and Community Design Lab, 2013

Transportation and GHG emissions in Ontario



- 31% increase in GHG emissions due to transportation in Ontario (2013)
- Transportation is Canada's second-largest GHG emission source (24% of total)

Greenhouse Gas Report, 2015. Environmental Commissioner of Ontario.

Health Impact Assessment (HIA)

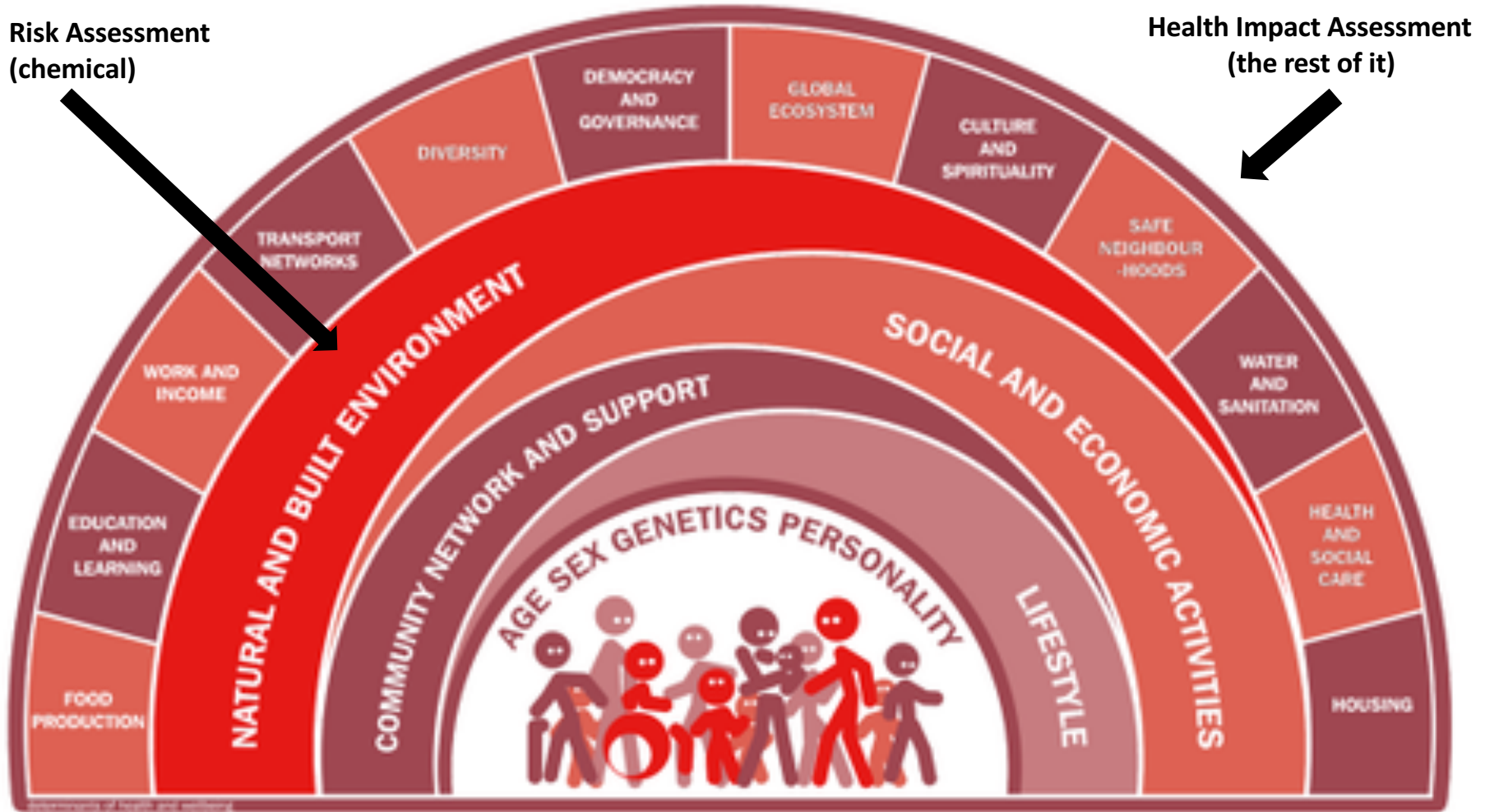
- Currently, major infrastructure projects are assessed by
 - Environmental Impact Assessments (**EIAs**) and Human Health Risk Assessments (**HHRAs**)
 - Typically consider physical impacts on health; impacts due to air pollution, exposure to chemical contaminants, noise pollution
- HIAs are:
 - evidence-based multi-disciplinary assessment
 - evaluate the potential positive or negative impacts that a project, policy, or program could have on public or community health
 - distribution of those effects within the community or population
 - considers broad health issues and determinants

“Health is a state of complete physical, mental and social wellbeing and not merely the absence of disease and infirmity”.

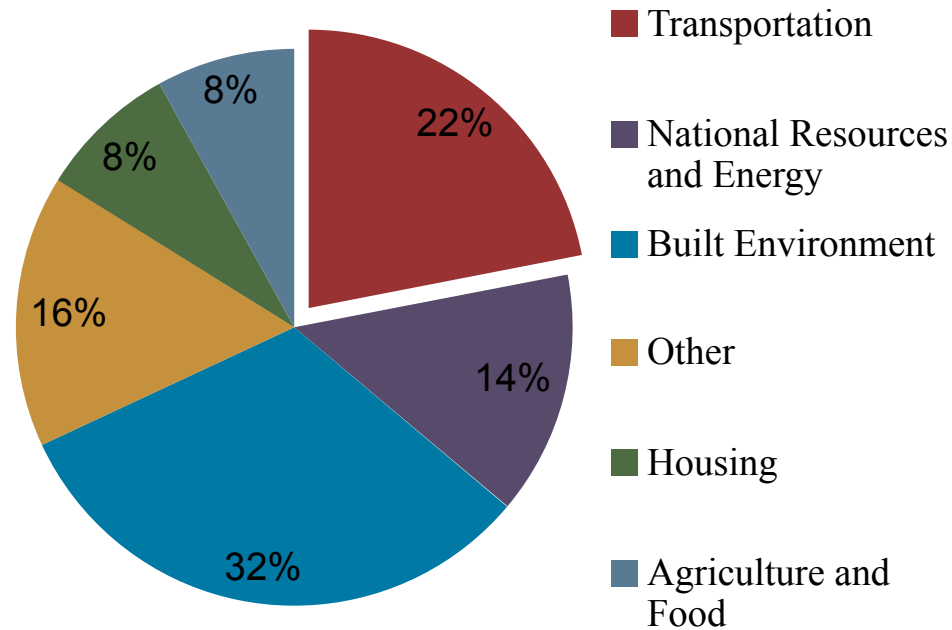
World Health Organization, 1948



The Determinants of Health

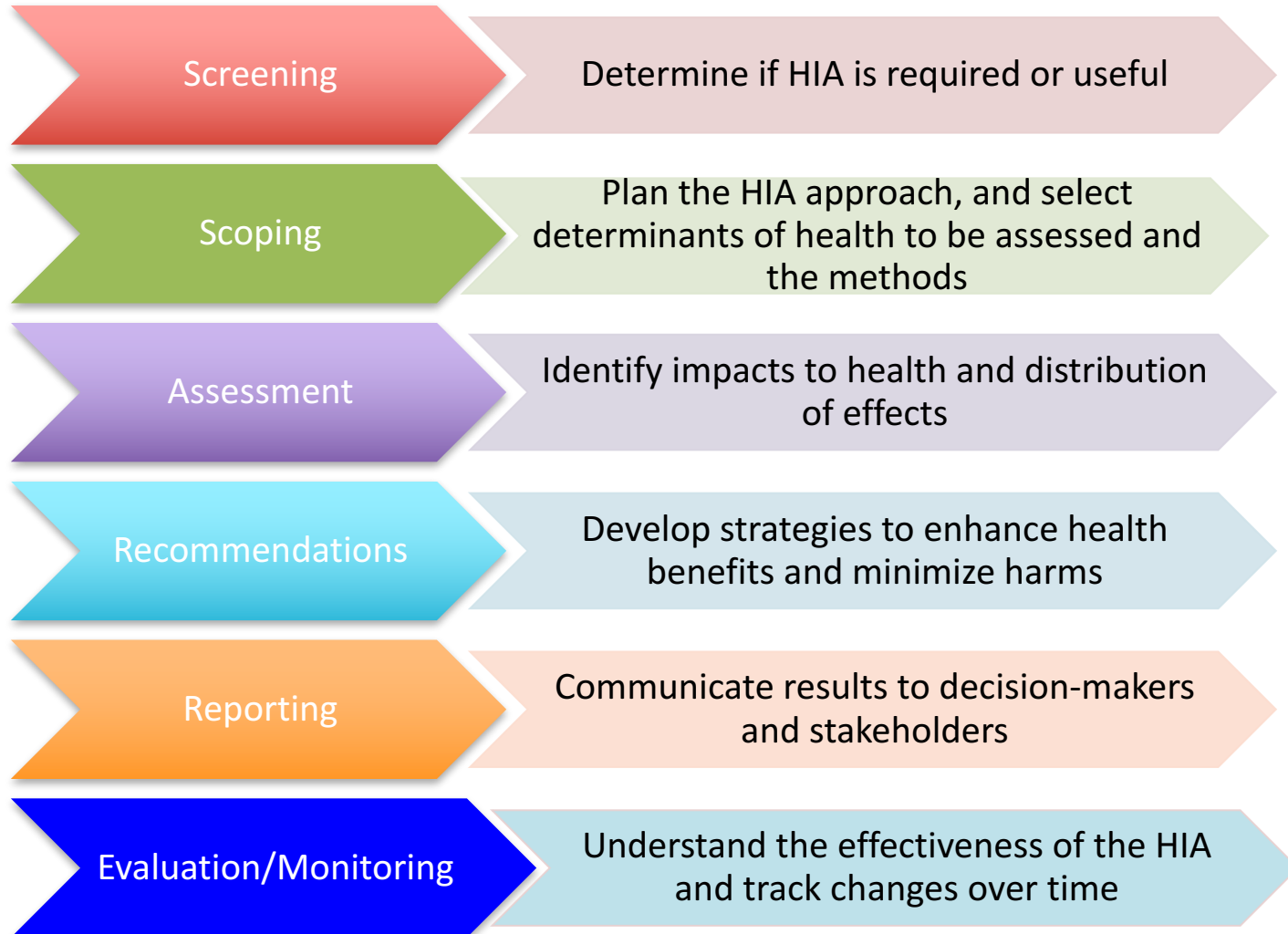


HIAs by Sector

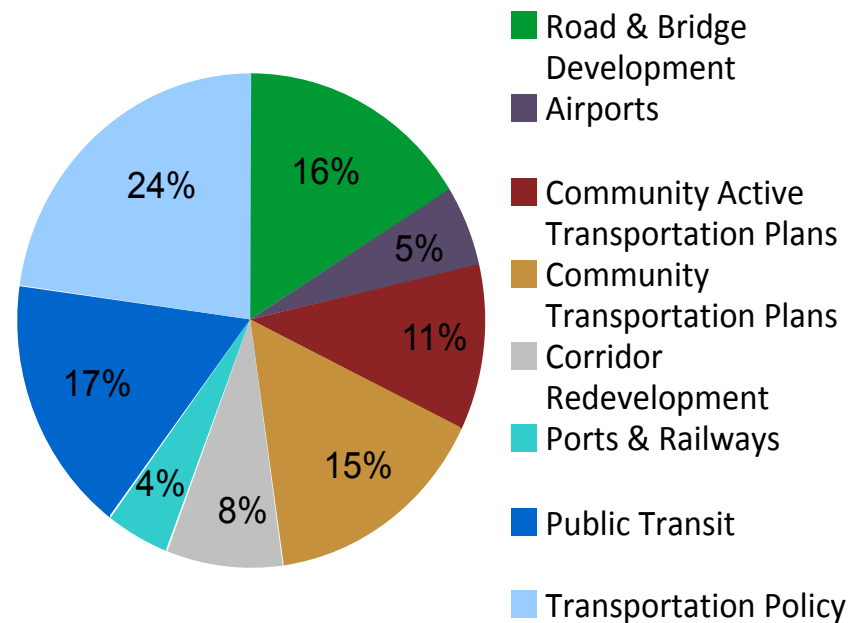


HIAs by sector in the U.S. (Health Impact Project, 2013)

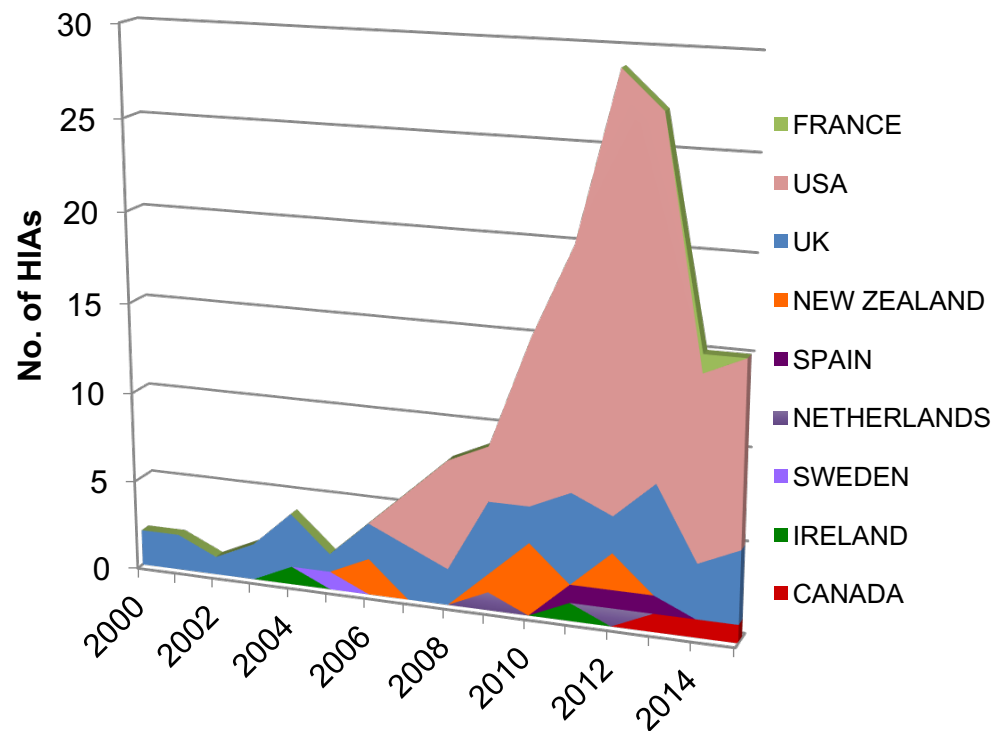
HIA Process



Transportation-Related HIAs: What and Where



International Transportation-related HIAs by sectors (n=158) (Waheed et al., manuscript under revision)



Transportation HIAs by country (Waheed et al., manuscript under revision)

HIA and Climate Change

- Climate change is an issue without boundaries - impacts cut across administrative and geographical borders and be felt by every sector of society
- Responses to climate change will need to employ system approaches that take into account the relationships that cross organizational and sectoral boundaries
- HIA is well-placed to assess impacts to health due to climate change – several frameworks already exist
 - HIA provides a structural approach to identify, evaluate and manage health impacts of climate change that is inclusive of a wide range of stakeholders
 - Climate change will affect decision-making across every government level and sector and the health implications of these decisions can also be addressed with HIA

Transportation GHG emissions >> Climate Change

- Many agencies cite integrated transportation and land use planning as the most promising long term strategy for reducing transportation GHG emissions (US FHWA, 2008)
 - For example, transportation demand management policies to reduce congestion and air pollution can also reduce GHG emissions
- Quantification of GHG emissions will likely be a key component of transportation planning in the future:
 - In order to effectively reduce GHG emissions, planners need to know current and future emissions levels and the potential impacts of various policies and strategies on emissions

Transportation HIAs: Climate Change Vulnerability Assessment

- The people expected to be most vulnerable to climate change (Chalmers, 2009) include:
 - babies, young children and the elderly – particularly vulnerable to both heat and cold related stress;
 - people in lower socio-economic groups are at risk from extreme heat partly because they tend to have higher levels of long-term ill-health;
 - poorly housed or not mobile;
 - living in places at risk (e.g. flood zones, coast); and
 - socially isolated or otherwise unable to adapt to change.

Transportation HIAs: Climate Change

- Does the project or proposal:
 - ❑ contribute to GHG emissions significantly? (information from EA report)
 - ❑ provide a sustainable approach to transport?
 - incorporate elements of Active Transportation
 - ❑ enhance the integration and connectivity of the transportation system, across and between modes, for people and freight?
 - ❑ maintain or enhance biodiversity?
 - ❑ been flood risk assessed?
 - ❑ incorporate sustainable drainage systems to safely deal with surface runoff?
 - ❑ provide incentives to reduce air pollutants and reduce reliance on cars?
 - government contributions and incentives for improved public transport, hybrid cars etc.

Transportation HIAs and CC: Example



HIA FOR PROPOSED EXPANSION TO BILLY BISHOP TORONTO CITY AIRPORT

Table 11: Assessment of Proposal Impacts on Climate Change

Indicators	Measures	Findings	Direction of Impact on Health	Geographic Extent	Potential Risk Reduction Measures
Climate change	Change in contribution to greenhouse gases	<ul style="list-style-type: none"> ■ The future scenario represents a greater number of flights by jets in and out of BBTCA which would increase CO₂ emissions ■ The extent that the jet flights represent new air trips in and out of Toronto or displacement of jet flights from Toronto Pearson Airport is uncertain ■ The extent that the jet flights will displace transport previously taken by rail or bus is expected to be limited, as the jets are proposed to add flights to California, Nevada, Florida and the Caribbean ■ The jets are larger and newer aircraft that are expected to be more fuel efficient than the turboprop aircraft; thus, the jets have a lower impact on climate change on a per seat or per km basis. However, because the jets are larger and travel longer distances, the total contribution to climate change per flight may be higher ■ Overall, some increase in the contribution to climate change is expected based on the Proposal 	Negative	Global	<ul style="list-style-type: none"> ■ Improve aircraft engine efficiency ■ Minimize CO₂ emissions across all BBTCA operations

THANK YOU VERY MUCH!!

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Questions?