HEALTH IMPACT ASSESSMENT of the PROPOSED COMPRESSOR STATION, WEYMOUTH, MA

Advisory Committee Meeting #3

August 15, 2018

Agenda

- Welcome and Agenda Overview
- Introductions
- Proposed Pathways
- Overview of Health Data
- Update on Air Quality Monitoring
- Meeting Evaluation and Next Steps

Meeting Objectives

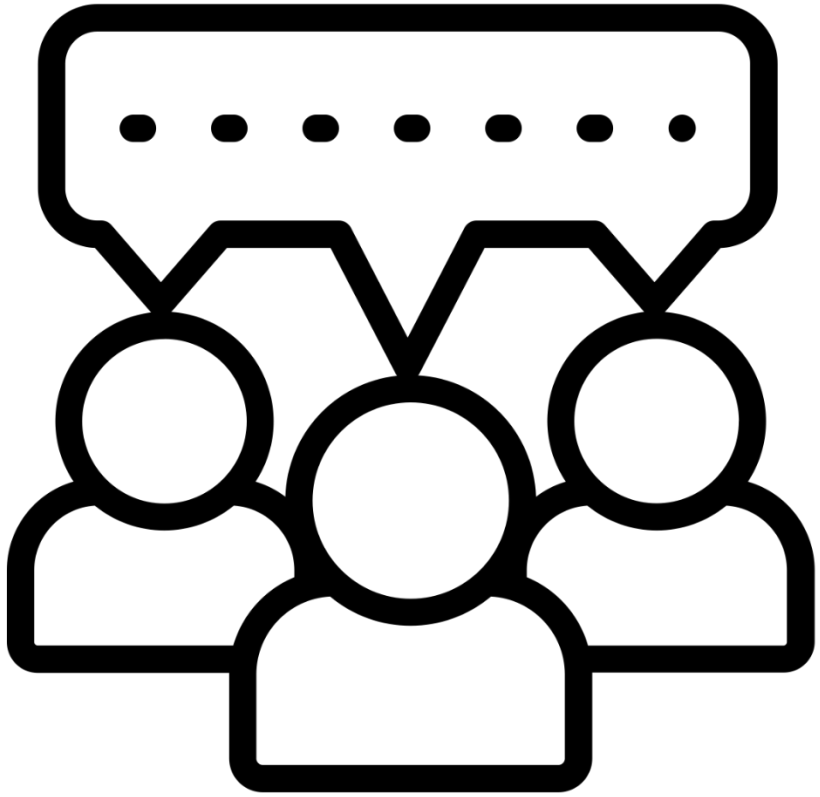
- Understanding of pathway diagrams so that advisors can provide feedback and suggestions on framework of the HIA scope
- Understanding of health data characteristics (e.g., availability, conditions, geography) so that advisors can provide feedback and be prepared for existing conditions element of the HIA assessment step
- Awareness of current status of air quality monitoring so that advisors stay informed about monitoring process and products
- List of outstanding questions and parking lot items

HIA Project Team

- Massachusetts Department of Public Health (MDPH)
- Massachusetts Department of Environmental Protection (MassDEP)
- Metropolitan Area Planning Council (MAPC)

Advisory Committee Member Introductions

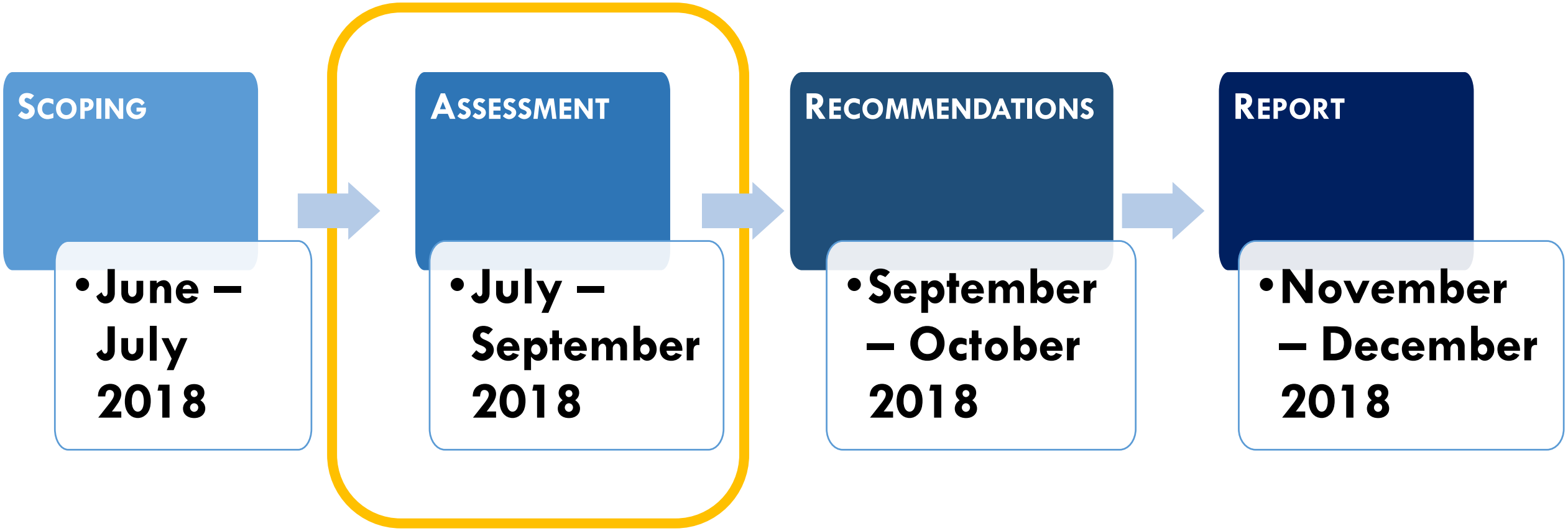
- Name
- Where from/Who Representing
- Icebreaker Question



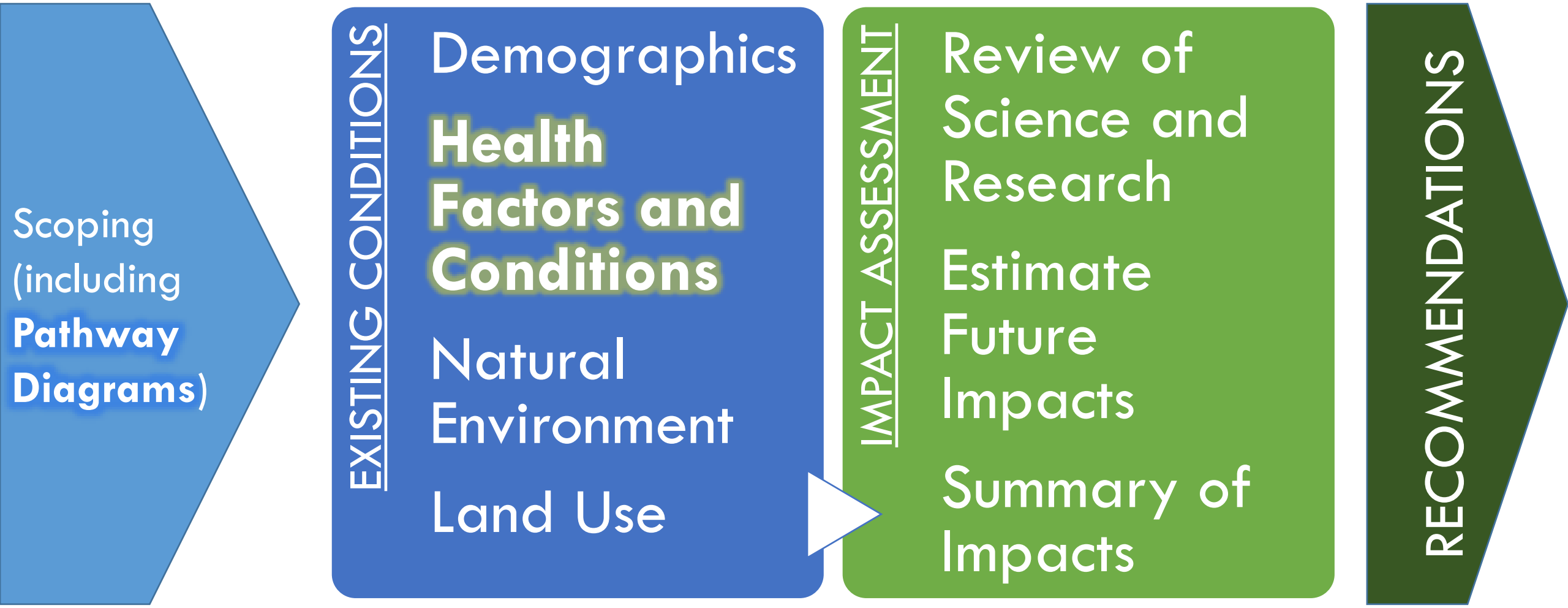
Advisory Committee Roles and Responsibilities

- Advise the project team during all phases of the HIA (e.g., scoping the HIA, assessment of health impacts)
- Share expertise and range of experiences and perspectives related to the HIA
- Consultation by phone and email

HIA Timeline



Assessment Step of HIA



Assessment – Impact Characterization

Projected Change	~ No Meaningful Change Predicted	+/- Relatively Balanced Both Positive and Negative Change	+ Positive Change that is predicted to positively impact associated health conditions	- Negative Change that is predicted to negatively impact associated health conditions
Impact on Disparities	Does Not Currently Advance Equity	Advances Equity		
Relative Magnitude of Effect	N/A No impact predicted	Minimal Small relative impact	Some Medium relative impact	Substantial Large relative impact
Breadth of Impact	Low Predicted to impact specific individuals within a neighborhood or community	Medium Predicted to impact specific households or population groups in a neighborhood or community	High Predicted to impact entire neighborhood or community	
Health Effects	Mixed or unclear evidence	Some weak or suggestive evidence; ecological or cross-sectional studies that suggest correlation at least	Medium evidence; several studies of mixed strength (e.g., case controls) suggesting relationship	Strong evidence; A robust body of prospective cohort or other strong study designs that imply causal relationship
Time Frame	<1- 5 years Short Term Impact	>5-10 years Medium Term Impact	>10-20 years Long Term Impact	

Assessment – Impact Table *(Example)*

Health Outcome/ Behavior	Direction	Magnitude	Strength of Evidence	Notes
Physical Activity	↑	++	Strong (area economic conditions; business concentration) Weak (social capital)	43.7% of adults, 79.3% of adolescents, and 77.4% of children report not meeting the recommended number of physical activity minutes per week. Higher concentrations of locally owned businesses may improve the vibrancy of downtown areas,…

↑ = Positive health effect

↓ = Negative health effect

~	+	++	+++
No impact predicted	Small relative impact	Medium relative impact	Large relative impact

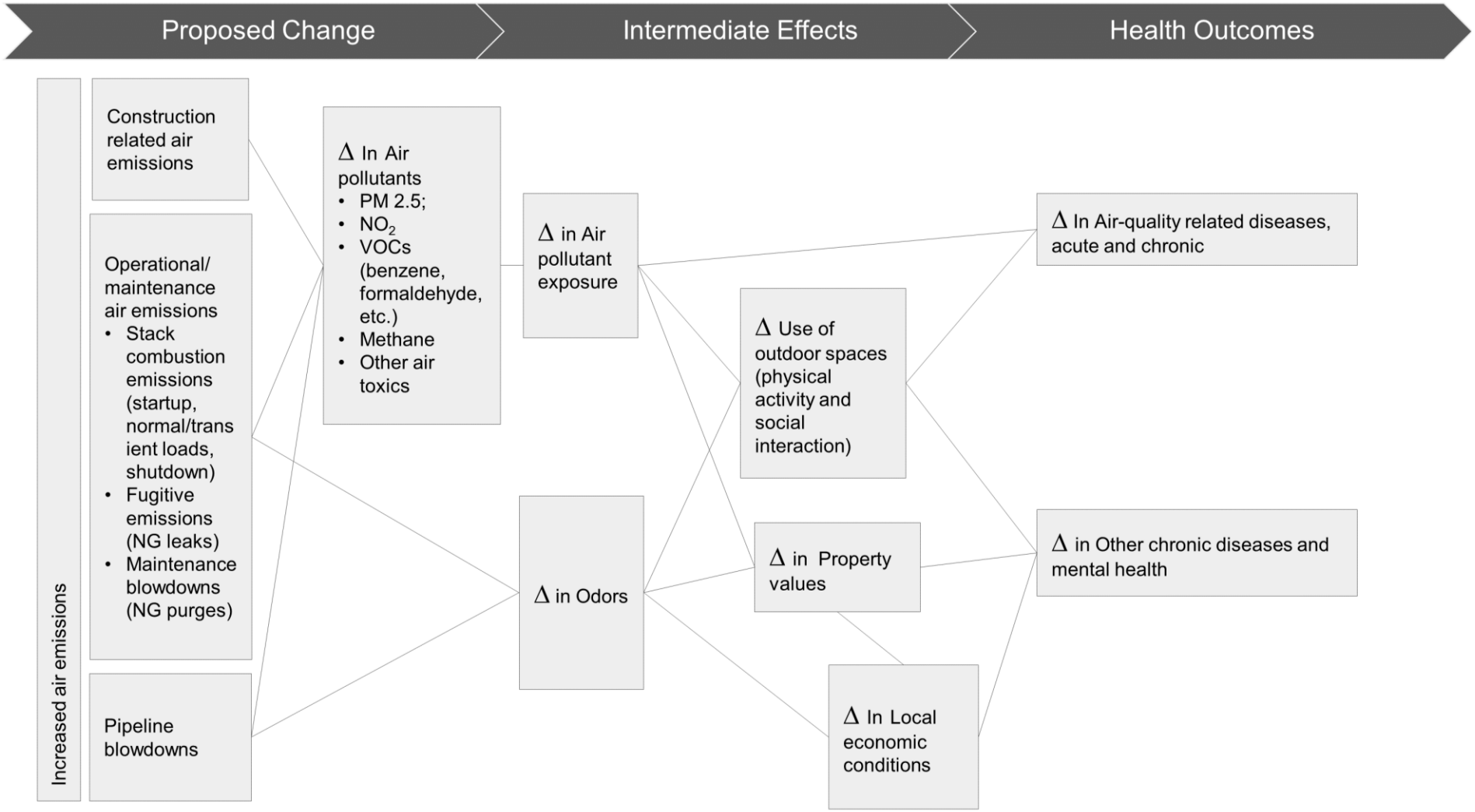
Pathways

Proposed Pathway Diagrams to Assess Impacts

Proposed Pathway Diagrams

- Pathways diagrams developed for the three prioritized themes:
  - Air Quality
  - Noise
  - Land Use and Natural Resources.
- Illustrate how changes associated with the proposed compressor station may affect health determinants and health conditions.
- Possible impacts of the proposed station are represented as deltas (Δ).
- Through the assessment phase of the HIA, the deltas will be updated to use:
  - Up arrows to indicate an increase ($\uparrow$)
  - Down arrows to indicate a decrease ($\downarrow$)

Air Quality



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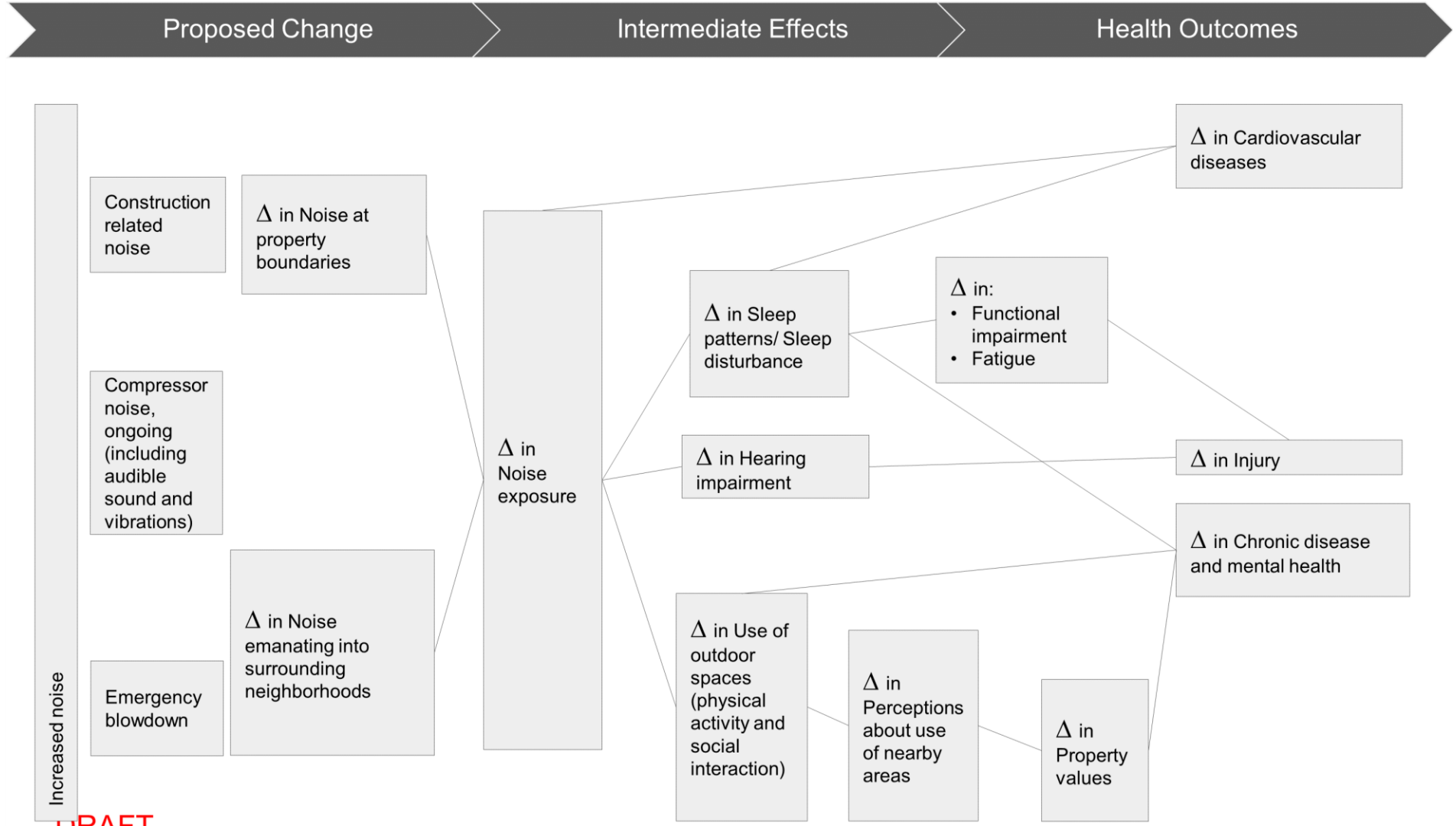
Noise


Proposed Change
Intermediate Effects
Health Outcomes
Increased noise
Construction related noise
Compressor noise, ongoing (including audible sound and vibrations)
Emergency blowdown
Δ in Noise at property boundaries
Δ in Noise emanating into surrounding neighborhoods
Δ in Noise exposure
Δ in Sleep patterns/ Sleep disturbance
Δ in Hearing impairment
Δ in Use of outdoor spaces (physical activity and social interaction)
Δ in Perceptions about use of nearby areas
Δ in Property values
Δ in:
• Functional impairment
• Fatigue
Δ in Cardiovascular diseases
Δ in Injury
Δ in Chronic disease and mental health

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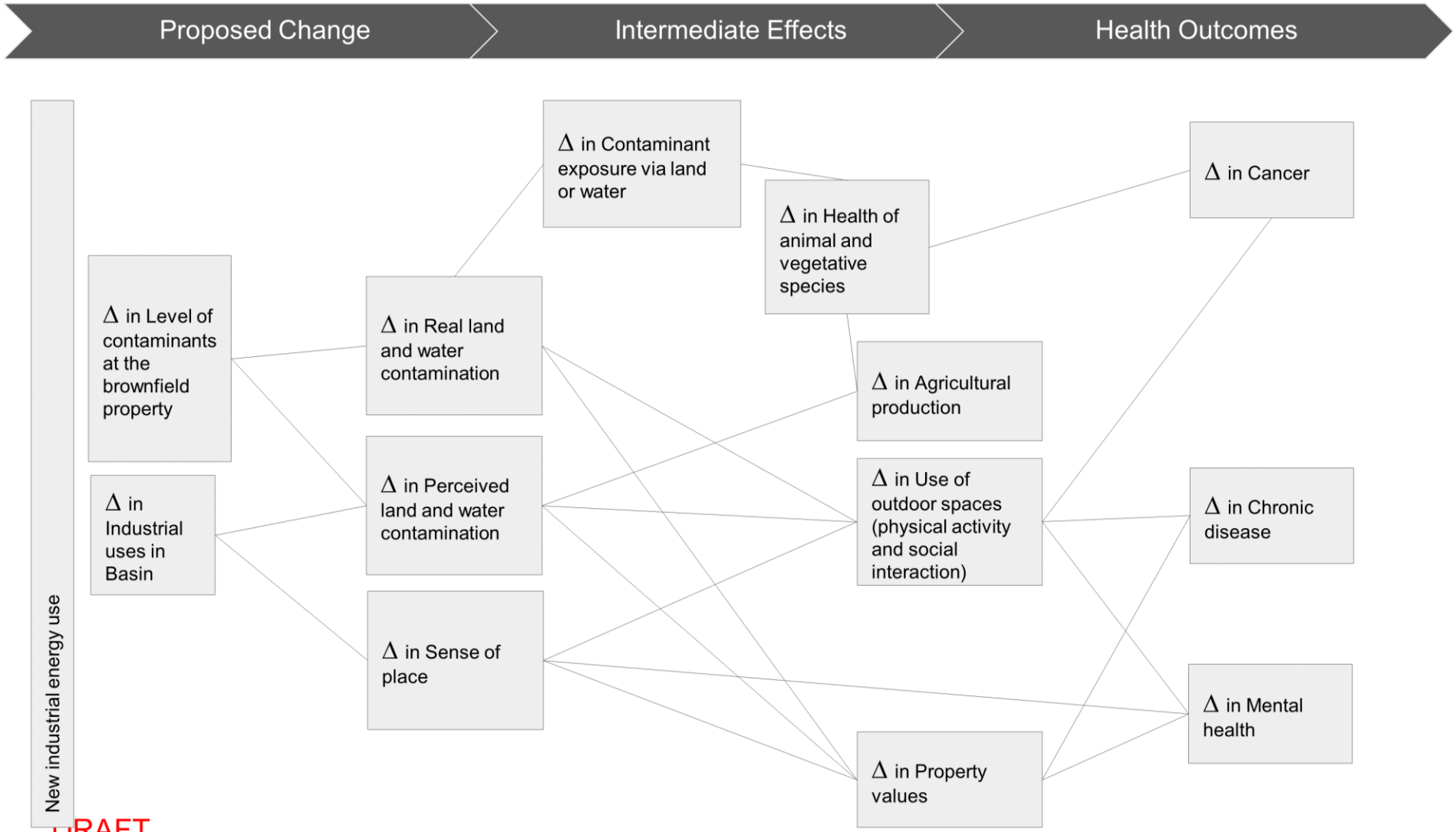
Land Use and Natural Resources



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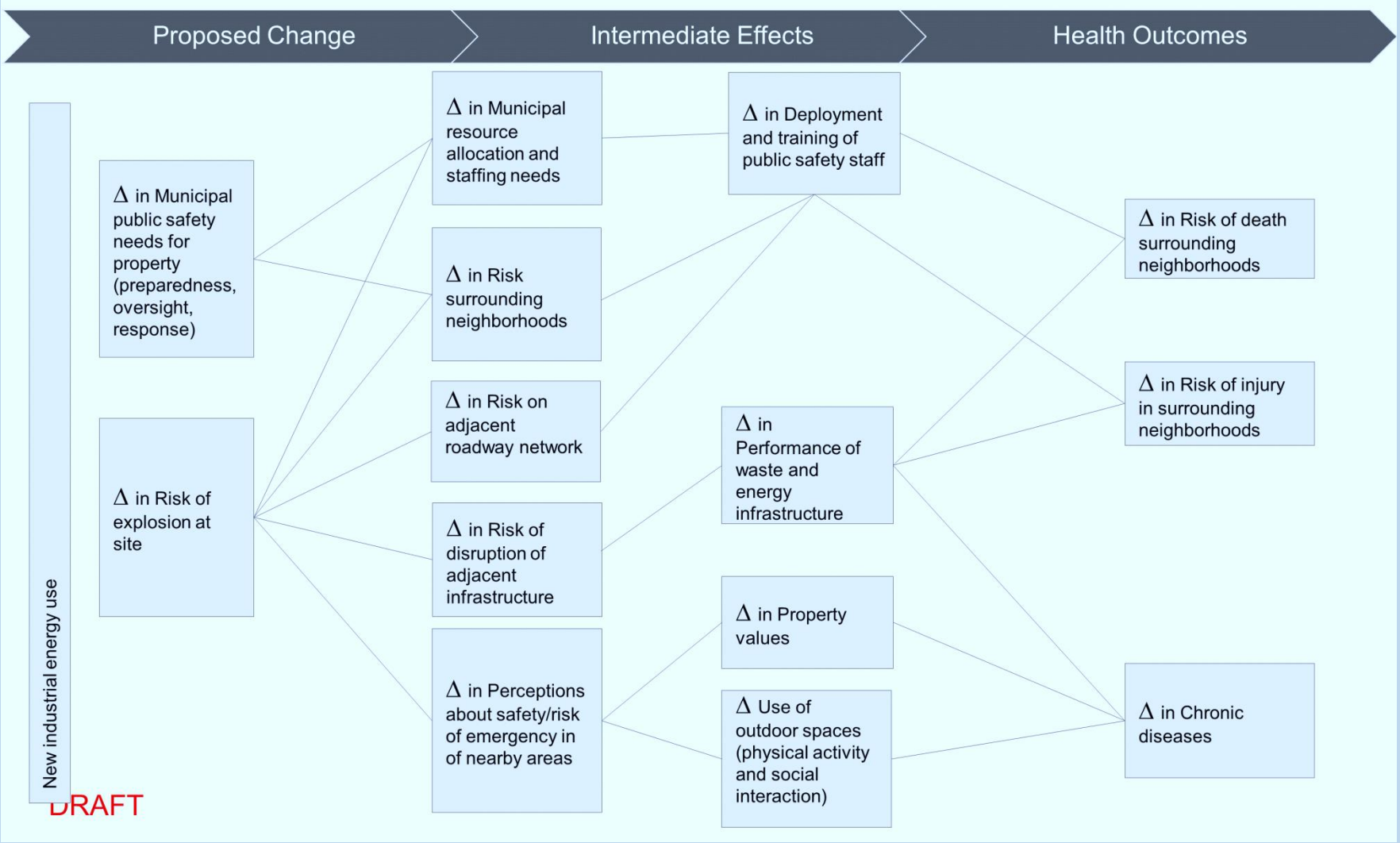
Public Safety



- Pathway developed as a communication tool for input provided
- Will not be an assessment pathway but intend to note the topic and specific concerns as part of the HIA report

Feedback Session on Pathway Diagrams

Using markers and post it notes, please:

a) Identify what revisions, if any, you suggest to the pathway diagrams.
b) Identify what questions, if any, you have on what is included in the pathway diagrams.

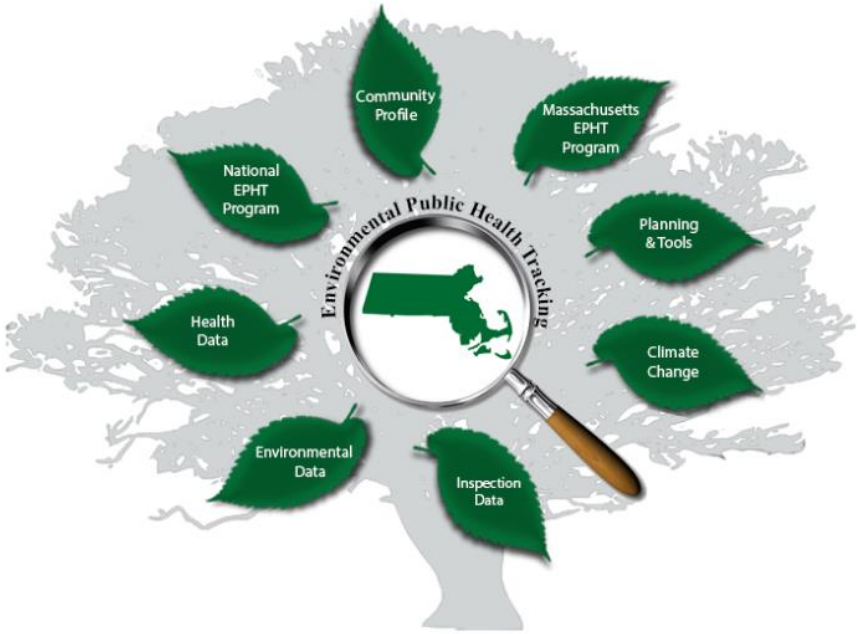
Input will be considered by the project team to update the pathways and clarify the content in the pathways.

Health Data and Context

Sources of Health Information

- Data available to the public
  - Massachusetts Environmental Public Health Tracking (MA EPHT) – www.mass.gov/dph/matracking

- Data available within MDPH
  - Center for Health Information and Analysis
  - Massachusetts Cancer Registry
  - Registry of Vital Records and Statistics
  - Behavioral Risk Factor Surveillance System (BRFSS)



Data Evaluation

- Importance of protecting the privacy of individuals
  - Data suppression rules
  - HIPAA and state regulations
- Appropriate use of statistics and need for a comparison value
  - Statewide data typically used as the reference or comparison population
- Measure of statistical significance and role of natural variability
- Small numbers and stability

Age Adjustment

- In general, disease is associated with age. To control for differences in ages among populations, we calculate age-adjusted rates.
- For example:
  - Prostate cancer is more common among older men.
  - A county containing 10,000 men over the age of 50 would naturally have more prostate cancer diagnoses than a county containing only 2,000 men over 50.
  - In order to accurately compare prostate cancer in these two counties, we must adjust for their different age structures.

Age Adjustment

- Example: Comparing age-adjusted rates for two counties

Cancer Type	County	Count	Age-Adjusted Rate (per 100,000)
Prostate	County 1	48	9.4
Prostate	County 2	65	8.0

- Then: We evaluate whether the two rates are different from a statistical standpoint.

Geography

- Information is available for varying geographic levels depending on the dataset.
  - For example:
    - Hospitalization data is available at the community level
    - Cancer incidence data is available down to the census tract level
    - Reproductive outcome data is available down to the census tract level
    - Pediatric asthma data is available at the school level

Risk Factors

- A risk factor is something that increases your chance of getting a disease. Some risk factors can be avoided while others can't.

- Risk factors can include:
  - Hereditary conditions
  - Lifestyle factors
  - Medical conditions and treatments
  - Infections
  - Environmental exposures

Small Group Discussions

1. Pick a table where you will start:
   Cancer, Cardiovascular & Respiratory Conditions, or Reproductive Outcomes

2. Facilitator will walk through specific health outcome content and how it can be used for existing conditions and impact assessment

3. Note taker will record comments and questions

4. After 15 minutes, rotate to next table (clockwise) for new content and to hear what previous participants have said and asked

Report Back

Ask for:

A. Table facilitators to summarize comments and questions

B. Advisors to reflect on information shared and discussions

Update on Air Quality Monitoring

Air Monitoring by MassDEP

Goal:
Measure existing ambient conditions

Locations selected:

- Potentially impacted by future emissions from site
- Characterize existing sources
- 1 background location

Air Monitoring by MassDEP

- 24-hour VOC Composite Monitoring (completed)
  - Air samples collected at 5 locations
  - 7 different days over 7 weeks
- Mini-station at Weymouth MWRA Pump Station (ongoing)
  - Continuous monitoring of benzene, toluene, ethylbenzene, xylenes
  - Every sixth day monitoring of formaldehyde (24-hour composite)

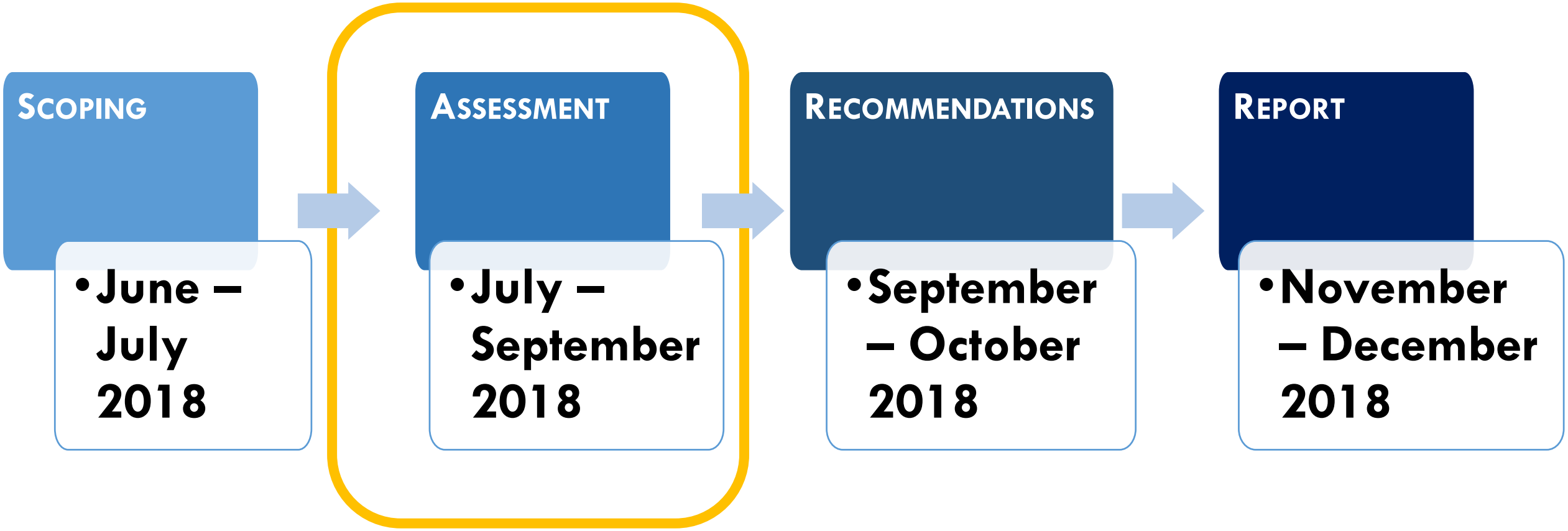
Sources of Air Quality Information

- Available to Public:
  - MassDEP air monitoring website
    https://www.mass.gov/air-monitoring-in-massachusetts
  - Massachusetts air monitoring data
    https://www.epa.gov/outdoor-air-quality-data
  - EPA National Air Toxics Assessment (NATA)
    https://www.epa.gov/national-air-toxics-assessment/new-england-results-2011-national-air-toxics-assessment

Wrap Up and Next Steps

Upcoming meetings, action items, and meeting evaluation

HIA Timeline



Thank you

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Project website: www.foreriverhia.com