HEALTH IMPACT ASSESSMENT

TOOLKIT













Disclaimer

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Introduction

This Toolkit is a companion document for Health Impact Assessment of Transportation and Land Use Planning Activities: Guidebook.

Planning, land use, and transportation decisions have public health consequences. Health Impact Assessment (HIA) is a process that provides a more structured approach for planners and policy-makers to objectively evaluate the potential health-related outcomes of an activity (i.e., a project, plan, or policy) before it is built or implemented. An HIA helps bring public health issues to the attention of decision makers at the planning stage so that solutions can be generated to address public health issues.

Using both quantitative and qualitative information, as well as participatory techniques, HIA provides decision makers with a clear understanding of an initiative's overall potential health consequences. It also helps identify related opportunities to minimize negative health risks while enhancing potential health benefits.

Health Impact Assessment of Transportation and Land Use Planning Activities is organized around a well-tested methodology that follows five general steps. As illustrated in Figure 1, HIA is an iterative process. With new information and stakeholders entering into the process at each step, earlier planning steps may need to be revisited.

In this guidebook, the term activity is used for all the types of projects, plans or policies that an HIA could consider.

Q+A





STEP 1: SCREENING

Screening is used to determine if an HIA is appropriate, required and feasible. Questions at this stage include:

- Are there potential activity impacts, which may ultimately affect health-related outcomes?
- How significant could the activity impacts be?
- Is there a need for more detailed assessment and is HIA the most effective way to do it?



STEP 2: SCOPING

If screening determines a need for further appraisal, scoping determines:

- Which activity impacts and health-related outcomes should be evaluated and how?
- What stakeholders should be involved and how will they participate?
- What level of HIA (desktop, intermediate, comprehensive) is most appropriate?



STEP 3: ASSESSMENT & ANALYSIS

The core of the HIA, this step involves answering a number of important questions, including.

- What baseline information exists on community health and wellbeing?
- What are the community health values and objectives?
- How significant are the potential health-related outcomes?
- How could positive health-related outcomes be leveraged?
- How could negative health-related outcomes be mitigated?



STEP 4: RECOMMENDATIONS & REPORTING

This decision making step involves answering a number of important questions, such as:

- How can HIA recommendations best address assessment and analysis findings?
- Do HIA recommendations support community health objectives and values?
- What other communication tools, beyond writing a final report that documents the process, findings, and recommendations, can be used to help communicate HIA recommendations to stakeholders, decision makers and the general public?



STEP 5: MONITORING & EVALUATION

This follow-up step involves answering these important questions:

- How can HIA implementation be effectively monitored and tracked?
- How can resulting changes to health outcomes due to HIA recommendations be monitored and tracked?
- How can these results best be communicated?

Tools

The following tools are designed to help the HIA Team work through the HIA planning framework in *Health Impact Assessment of Transportation and Land Use Planning Activities: Guidebook.*

While the tools are best used in conjunction with the planning framework, every HIA process will be different and may not require that every tool be used. The tools can also be used to support discrete steps or smaller planning projects (e.g., stakeholder assessment, monitoring and evaluation).

STEP 1: SCREENING

- Tool 1-A HIA Readiness Checklist
- Tool 1-B HIA Screening Checklist

STEP 2: SCOPING

- Tool 2-A Scoping Checklist
- Tool 2-B HIA Team Terms of Reference
- Tool 2-C Activity Impact Influence
 Diagram
- Tool 2-D Influences and Activity Impacts Matrix
- Tool 2-E Health-Related Outcome Plotting
- Tool 2-F Stakeholder Assessment

STEP3: ASSESSMENT & ANALYSIS

- Tool 3-A HIA Matrix Research & Findings
- Tool 3-B HIA Matrix Measures
- Tool 3-C HIA Matrix Baseline Conditions
- Tool 3-D HIA Matrix Health-Related Outcomes

STEP 4: RECOMMENDATIONS & REPORTING

- Tool 4-A: Recommendation Worksheet
- Tool 4-B: Alternatives Evaluation
- Tool 4-C: HIA Report Template

STEP 5: MONITORING & EVALUATION

- Tool 5-A Monitoring Framework
- Tool 5-B Evaluation Framework



Screening determines whether an HIA is appropriate and feasible. It involves a high-level examination of the activity to gauge its potential impacts on the health of a population using informed opinions and evidence already available. The screening step also examines organizational capacity to carry out HIA.

The screening step involves the following three tasks:

- TASK 1.1: Form a core planning team
- TASK 1.2: Identify context and organizational capacity
- TASK 1.3: Review relevant health determinants and potential impacts

Screening is an important first step. Practitioners advise others to screen and carefully choose the activities on which an HIA should be conducted. HIAs, particularly more comprehensive ones, require a significant investment of time, resources, attention, and often social and political capital, so this step will be vital to understanding whether a more detailed HIA is or is not necessary.

A RANGE OF APPROACHES

Screening is a fast step, and should be completed for all levels of HIA. A single individual can complete Step 1: Screening if resources and time are very limited (as opposed to a small team, as recommended in Task 1.1).





Adapted from a tool by Human Impact Partners

TIME REQUIRED: Less than 1 hour

RATIONALE AND COMMENTS: This worksheet can help clarify the goals of HIA, and gain a better understanding of the organizational context within which the HIA will be conducted. The following questions should be **part of a** dialogue about HIA; they are not a test.

PROCEDURE: Work through the questions with individuals and organizations interested in conducting HIA for the particular activity. Not all questions need to be answered if they are not appropriate to the context.

QUESTIONS:

What is the "decision target"?

1. What is the problem your organization is trying to address that involves the use of HIA?

Why is an HIA warranted?

- 2. Describe the goal that your organization would set for the HIA.
- 3. Is there an opportunity to influence decision making based on the results of the HIA?
- 4. Have activity impacts been considered (or will they be considered) in other parts of the decision making process (e.g., through an Environmental Impact Assessment)? Could HIA be done in conjunction with these other processes?
- 5. Are there other reasons why HIA should be conducted (requested by a major player, political reasons, community pressure, designated funding)?

Who are decision makers?

- 6. Who are the decision makers that you would want to influence with the HIA findings and recommendations?
- 7. Do decision makers already have basic knowledge about health, or will the HIA be "bringing health to the table" for the first time?

When will the decision need to be made?

- 8. How will the HIA timing align with the decision making process?
- 9. How much time would be available for conducting an HIA?

How will the HIA be used?

10. How might the results of the HIA be used to influence the decision making process by any of the stakeholders involved?

Are there adequate resources (information, capacity and financial) to complete an HIA?

- **11**. Is there sufficient information on the project to be able to assess the activity impacts on health determinants?
- 12. What resources are available to carry out HIA? (Within your organization? At external organizations or funders?)



Modified from "HIA, A Practical Guide" (Wales 2012), the NCCHPP Internal Tool, Health Impact Assessment (HIA) Screening Grid and others

TIME REQUIRED: 1 hour or more

RATIONALE AND COMMENTS: This worksheet can help the planning team to understand if there are likely to be activity impacts that warrant further HIA stages. It is based on current levels of understanding. The following questions should be part of a dialogue about HIA; they are not a test.

PROCEDURE:

- Work through the matrix and the following questions with the HIA Team.
- Use the answers to determine whether or not to proceed with HIA.

HEALTH DETERMINANT	NEGATIVE ACTIVITY IMPACTS	POSITIVE ACTIVITY IMPACTS	AFFECTED POPULATION(S)
Is it likely that the activity will impact one	e or more of the determinants of healt	h? How?	
Individual health behaviours (e.g., physical activity, diet)			
Environmental factors (e.g., air quality, water quality, hazards)			
Community factors (e.g., social support, family structure, housing)			
Livelihood factors (e.g., income, employment)			
Access to services (e.g., transportation, health care, education, leisure, social services, access to greenspace)			

Is it likely that negative health-related outcomes will be disproportionately greater for vulnerable groups of the population? Do the activity impacts on health determinants (identified above) support continued analysis in further HIA steps (i.e., because of the potential negative impacts and the degree to which vulnerable groups might be impacted)? □ Yes □ No If no, what are the reasons for not conducting an assessment? Do any additional actions need to be taken as a result of this HIA screening process? □ Yes □ No If yes, please outline (list recommendations and/or mitigation/enhancement here). If a further HIA is required, outline the next steps (e.g., date and time of scoping meeting).

1-B



STEP 2: Scoping

Scoping lays the groundwork for the HIA and generates a roadmap for carrying it out. Effective scoping can help save time, work and resources in future steps by clearly establishing the health impacts to be assessed, identifying the stakeholders to be engaged (and how), and determining the level of effort required (i.e., which HIA approach to take - desktop, intermediate, or comprehensive).

The scoping step involves the following five tasks:

- TASK 2.1: Determine the appropriate level of HIA
- TASK 2.2: Establish the HIA Team
- TASK 2.3: Initial identification of activity impacts and health-related outcomes
- TASK 2.4: Develop a stakeholder engagement plan
- TASK 2.5: Create an HIA workplan

As an iterative process, scoping activities continue through the other HIA steps as new information emerges, new stakeholders become involved, and political and/or planning contexts change.

A RANGE OF APPROACHES

The level of work required for Step 2: Scoping varies depending on the HIA approach chosen in Task 2.1 Determine the appropriate level of HIA.

For desktops HIAs, it is likely that the HIA Team (Task 2.2) will be small, potentially a single person. It is important to identify health impacts and outcomes (Task 2.3) in a desktop HIA, hopefully with a representative from your local Health Authority (e.g., Fraser Health Authority or Vancouver Coastal Health Authority) in an advisory or consultative role helping to review potential health-related outcome and activity impacts. Stakeholder engagement (Task 2.4) will be quite limited in a desktop HIA, except for conversations with health professionals and decision makers as needed. The HIA workplan (Task 2.5) will also be relatively brief and simple.

For intermediate and comprehensive HIAs, a broader range of participants would be involved. More members would be involved on the HIA Team for a comprehensive HIA than an intermediate HIA. The initial analysis of potential health impacts can be completed by the HIA Team in an intermediate HIA, but may require broader stakeholder engagement in a comprehensive HIA. The Stakeholder Engagement Plan will likely include more engagement with key stakeholders and, for comprehensive HIAs, would likely include broader public outreach and engagement (e.g., open houses, town hall meetings, community surveys).

TIME REQUIRED: ½ hour

RATIONALE AND COMMENTS: HIA can vary significantly in scale and scope depending on a variety of factors. This tool will help to determine the scale of analysis required, as well as the other scoping considerations.

Although the scope of HIA is a continuum, this guide describes three approximate levels of analysis. This tool can help determining which of the three levels of analysis to undertake:

- A desktop HIA is primarily a rapid, desk-based exercise that can take between two days to one week. Desktop HIAs are the least detailed approach, but can help build the case for a more comprehensive approach or evaluation, should significant potential health consequences be identified.
- An intermediate HIA can take between one to three months to carry out and typically includes the establishment of a small stakeholder group representing core sectors (e.g., community and social planning, health, engineering). An intermediate HIA is intended be carried out with minimal cost (e.g., staff time, data acquisition, consulting fees) and relatively small stakeholder time commitments, but often relies on readily available data and evidence, and basic qualitative input.
- Comprehensive HIAs are more in-depth and can take several months to complete. They also may require an extensive literature review and the collection of primary data. This type of HIA is better suited to larger, more complex proposals, such as major infrastructure or transportation projects. This tool provides a series of questions that can help the core team determine the level of analysis necessary.

PROCEDURE:

- With the HIA Team, work through the questions on the following page.
- The responses to each question (High, Medium, Low) are subjective and the definitions for each should be discussed with the group.

QUESTION	RESPONSE TO THE QUESTION (High, Medium, Low)	GUIDANCE ON THE APPROPRIATE LEVEL OF ANALYSIS (DESKTOP, INTERMEDIATE, COMPREHENSIVE)
 What is the magnitude of the proposed activity? 		The greater the magnitude of the activity, the more comprehensive the analysis should be
2. How significant are the potential health impacts of the project (see <i>Tool 2B</i> and <i>Tool</i> <i>2C</i>)?		The greater the significance of potential health impacts, and the higher the degree of uncertainty, the more comprehensive the analysis should be
3. How critical is the timing of the HIA?		If timing is critically linked to other policy developments and timeframes are short, select a less comprehensive analysis
4. What is the level of political interest in conducting HIA?		The higher the level of political interest, the more comprehensive the analysis should be
5. What is the level of public interest in the project?		The higher the level of public interest, the more comprehensive the analysis should be
 Is there a 'window of opportunity' for the work? 		Consider if there is a window of opportunity (i.e., timeliness, currency, political support). If the window is likely to close, select the less comprehensive analysis
7. What staff resources are available?		The higher the resource level, the more comprehensive the analysis can be
8. Are there funds available for HIA?		The higher the level of funding, the more comprehensive the analysis can be

9. Based on the answers above, which level of HIA (desktop, intermediate, comprehensive) is best suited to the project?

Note: If there is a need for an intermediate or comprehensive analysis but not the corresponding funds, a preliminary analysis can be done to help 'build the case' for more resources to conduct a more comprehensive HIA.

10. What will be the geographic boundaries of the HIA? Keep in mind the borders used in collecting health information that may be relevant (e.g., Local Health Areas [LHAs] aggregate to Health Service Deliver Areas [HSDAs], Health Authorities [HAs]).

тоог **2-А**



TIME REQUIRED: 1 hour

RATIONALE AND COMMENTS: Terms of Reference (ToR) clearly lays out roles and responsibilities of the HIA Team, and should help avoid any potential conflicts that may arise later in the process.

PROCEDURE:

- The core team can use the following template to develop a ToR for the HIA Team, or the HIA Team itself can refine it as needed.
- HIA Team members should sign off on the ToR prior to any work being started.

HIA TEAM TERMS OF R	REFERENCE
Purpose	What is the purpose of the group in three or four bullet points? Example: To guide the HIA process and ensure that health impacts are sufficiently evaluated To provide input from a variety of stakeholder perspectives To report back to broader groups of stakeholders on the process
Chairperson and membership organization	Who will chair the group? Who is responsible for organizing meetings? Are alternates permitted if a member is not able to make a meeting?
Time Frame and Time Commitment	What is the time commitment expected from participants? How long will the group be active? What is the end date? Is it subject to funding? Example: HIA Team meetings will happen once per month, for the 6 month duration of the project. Several hours of additional work per month may be requested (e.g., reviewing draft documents or conducting research).
Roles and Responsibilities	What are HIA Team members expected to do? Example: To show up on time for meetings or send a replacement To review HIA documents and research, and provide feedback within the timeframes requested To participate in group discussions

HIA TEAM TERMS OF R	LEFERENCE
Method of decision making	How are decisions made? Example: Decisions will be made by majority-rule vote.
Resources	Are there any resources the HIA Team can draw on? Examples: City staff; upon availability and subject to approval Other expertise as deemed necessary by committee The group does not have discretionary budget
Communications	What is the communication protocol? With other members? With members' organizations? With the media? With public officials? Examples: Members can communicate back to their constituent communities or organizations on behalf of the planning process Members should not communicate with the media, but should refer media back to the group leader
Approval and contact information	I,, agree to these Terms of Reference and agree to be a part of the HIA Team. I will adhere to the rules in this document and fulfill the responsibilities outlined above. Date: Phone: Email:

TOOL 2-C Activity Impact Influence Diagram

TIME REQUIRED: 1 hour or more if doing a rapid assessment, longer for intermediate or comprehensive assessments.

RATIONALE AND COMMENTS: Influence diagrams show the 'flow' of activity impacts through to their potential influences on health-related outcomes (*both negative and positive*). See the sample influence diagram on the following page (Figure 2).

A valuable local resource that can help with the development of influence diagrams is *Healthy Built Environment Linkages*: A *toolkit for design, planning and health.* Published by the Provincial Health Services Authority (PHSA) in October 2014, the document is available through PHSA's website (www.phsa.ca/our-services/programs-services/population-public-health/healthy-built-environment).

PROCEDURE: This exercise should be conducted with the HIA Team. You may wish to get each HIA Team member to complete the activity on their own first (in a workshop setting), then come together as a group for discussion and the creation of an overall Activity Impact Influence Diagram. This promotes independent thinking. Alternatively, the activity can be done as a group.

Materials required include white paper and markers.

STEPS:

- 1. On a large sheet of blank paper or poster, begin by writing the activity name on the left hand side.
- 2. From the activity name, draw the activity impact influences, or pathways, moving from left to right.
- 3. For each activity impact, draw an arrow showing the likely direction of influence (i.e., up or down). Use a '?' if the influence is unclear.
- 4. Next consider how activity impacts might influence the determinants of health.
 - a. Which of the determinants of health could be negatively or positively impacted by the project? Health determinants include:
 - Natural environment factors (e.g., air quality, water quality, hazards)
 - Built environment factors (e.g., buildings, public spaces, roads, bike lanes)
 - Livelihood factors (e.g., income, employment)
 - Social and community factors (e.g., social support, family structure, access to services)
 - Lifestyle factors (e.g., diet, exercise, alcohol and tobacco use)
 - b. What matters most to the community? Are there particular "hot button" issues that should be considered in the influence diagram from a public relations perspective (even if they are not likely to have major health related impacts)? What are the community values and objectives, and how should these be incorporated into the analysis?
- 4. From the activity impacts on the health determinants, next consider how health-related outcomes might also be influenced. Again, for each influence draw an arrow showing the likely direction of influence (i.e., up or down), or a "?" if it is unknown.
- 5. In the course of developing the influence diagram, it may become apparent that activity impacts have multiple influences on different health-related outcomes. These influences should be noted by drawing arrows between the related elements.

тоог **2-С** FIGURE 2: Tool 2-C Influence Diagram (Building-the-Case example) illustrates a sample influence diagram. It traces activity impacts from a proposed activity to potential health-related outcomes, which includes both positive and negative health-related outcomes.

TOOL

2-C





TOOL 2-D Influences and Activity Impacts Matrix

TIME REQUIRED: 1 hour or more for a desktop HIA, longer for intermediate or comprehensive HIAs.

RATIONALE AND COMMENTS: The results from the influence diagrams (*Tool 2-C*) can be summarized in a simple matrix. *Tool 2-D Influences and Impacts Matrix* will be built upon throughout the HIA process described in this guide. The last column, potential equity considerations, is included to help the core team start thinking about what stakeholders should be involved to ensure equity considerations are included in the HIA during the next task.

A valuable local resource that can help with the development of this matrix is the *Healthy Built Environment Linkages: A toolkit for design, planning and health.* Published by the Provincial Health Services Authority (PHSA) in October 2014, the document is available through PHSA's website (www.phsa.ca/our-services/programs-services/population-public-health/healthy-built-environment).

PROCEDURE: With the HIA Team, fill in the matrix, using the results from *Tool 2-C Activity Impact Influence Diagram* and additional discussion/research. Some potential health-related outcomes will be associated with multiple health determinants and some health determinants will be associated with multiple health-related outcomes. The matrix can be adjusted as necessary, potentially by adding new cells or drawing lines to show connections.

The final column cannot be filled in until after Tool 2-E Health-related Outcome Plotting is completed.

FIGURE 3: HIA MATRIX Tools 2-D Pathways and Activity Impacts Matrix to Tool 5-A HIA Monitoring Framework collectively work to build a matrix showing all health impacts and outcomes. Each tool will add additional information to the matrix.

		TOOL 2-D		тс 3	OL A	TOOL 3-B	то 3-	OL C	то 3-	OL D		TOOL 4-A		то 5-	OL -A
		-	-	1		=	=					=	_	=	=
	-	-	-	lı		=	_	-				_	_	—	=
3		-	-	lı			=					_	_	=	=
	-	_	-	1		=	_	-			_	_	_	=	=
•	-	-	-	-	-	=	_	-		=	_	_	_	=	=

TOOL					
2-D		Influence description/health determinant impacts (from Tool 2-C)	Potential health-related outcomes and direction of change (from Tool 2-C)	Potential equity considerations?	Priority level for further investigation
	HEALTH DETERMINANTS	How could the health determinant be impacted? Would the impact affect health outcomes?	What is the potential health- related outcome? What is the direction of change (positive or negative)?	Would any one group or population be more impacted than other (e.g., youth, seniors, low income residents)?	Complete the column after finishing Tool 2-E
	PHYSICAL ENVIRONMENT (air, water, soil, natural habitats)	Air and noise quality concerns - the transit exchange would increase traffic to the area. Some concerns about exhaust from bus idling. Reduced number of vehicles and associated air pollution in broader region.	Negative. Increase in respiratory and cardiovascular health problems (site level), and cancer for area residents, including new residents in housing portion of development Positive. Decrease in respiratory and cardiovascular health problems (regional).	Possibly low income residents, as new rental apartments to be clustered above transit exchange, possibly increasing exposure to emissions from idling buses and traffic on the nearby arterial road.	MEDIUM
	PHYSICAL ENVIRONMENT (air, water, soil, natural habitats)				
	BUILT ENVIRONMENT (buildings, places, streets, sidewalks)				
	COMMUNITY & SOCIAL FACTORS (services, health care, schools)				
	\$				
	LIVELIHOOD FACTORS (employment, investment, income)				
	LIFESTYLE FACTORS (exercise, diet)				

TIME REQUIRED: ½ hour or more

RATIONALE AND COMMENTS: Now that an initial list of potential health-related outcomes has been identified, the HIA Team can further explore their relative 'threat' level - that is, their significance and likelihood (which will be refined as data are collected in subsequent steps). This activity helps to focus research efforts on the health outcomes that have the highest 'threat' level.

This tool can be useful when engaging with broader stakeholder groups (e.g., public) as it is relatively easy to understand and provides valuable input.

Procedure:

- Plotting threats can be done on a flip chart with sticky notes.
- Probability of the potential health-outcome occurring (from low to high) is noted on the Y-axis, while the magnitude of potential consequences associated with it is noted on the X-axis. The axis should be written on the flip chart.
- The health outcomes identified using the previous tools should be written on sticky notes. These sticky notes can then be placed on the flip chart and moved around until there is agreement on their arrangement with the group you are doing the activity with (HIA Team, other stakeholders, etc.).



MAGNITUDE OF CONSEQUENCE

		TOOL 2-D		. то з	OL -A	TOOL 3-B	то 3-	OL C	то 3-	OL D		TOOL 4-A		то 5	OL A
	-	_	-	-	=	=	_	_	—	=	—	—	_	—	=
	-	-	_		=	=	_	_	_	=	_	_	_	=	=
	-	_	_	I.	=	=	_	-	_	=	_	_	_	_	=
	-	-	_	-	=	=	=	-	=	=	_	_	_	=	=
•	-	-	-	1	=	=	_	-	_	=	_	_	_	—	=

FIGURE 5: HIA MATRIX You are here

FIGURE 4: Tool 2-E Example Health-related Outcome Plotting



TIME REQUIRED: 1-2 hours

RATIONALE AND COMMENTS: For desktop HIA, it is not necessary to engage broader stakeholder groups outside of the core group or HIA Team (which should be representative of a variety of perspectives and expertise).

For intermediate and comprehensive HIA, it is important to conduct broader community engagement with individuals and groups that may be impacted by the activity, including traditionally under-represented groups (e.g., youth, seniors, lower income residents) who may be **particularly vulnerable to potential health impacts**.

Tool 2-F will help identify potential stakeholders, and their level of involvement in the HIA. This tool should be followed by the development of a stakeholder engagement plan.

PROCEDURE:

STEP 1: With the HIA Team, review the results from *Tool 2-D Influences and Activity Impacts Matrix* and discuss which groups might be impacted by each health-related outcome. When developing a list of potential stakeholders, consider individuals and groups:

- That have a stake in the issues (e.g. vulnerable groups, health NGOs)
- That have a formal position (e.g. government agency);
- That have control over relevant resources (e.g. money, expertise); and
- That have the power to promote, hinder or block the HIA process or decision making based on recommendations from the HIA (e.g. lobby groups, politicians, implementing agencies).

Write these potential stakeholders in the matrix on the following page.

STEP 2: For each stakeholder, note in the matrix why they would be interested in participating in the description of interest column (i.e. what would they get out of the process).

STEP 3: For each stakeholder, note in the matrix what they could contribute to the process (e.g. data, staff, resources, funding) in the description of potential contributions column.

STEP 4: For each stakeholder, evaluate their current and potential relevance to the project in the partnership assessment column and note whether their involvement is:

- Essential: process will fail without their involvement,
- Important: process may suffer without it, or
- Minor: nice to have.

The activity can be done individually with participants reporting back to the main group, or by the whole group working together. For larger groups, or to compare individual answers, it can be helpful to use a flipchart.

STAKEHOLDER OR PARTNER	DESCRIPTION OF INTEREST	DESCRIPTION OF POTENTIAL CONTRIBUTION	ASSESSMENT (Essential, Important, Minor)	2-F
Local school's Parent Advisory Committee	Interested in ensuring safe walking and biking routes to the school	 Data collection (via cross walk volunteers) Community support (locally influential group) Local knowledge to help assess potential alternative routes 	Important Exam	mple



In this step, the HIA Team will determine the health impacts of the proposed activity.

The assessment and analysis step involves the following four tasks:

TASK 3.1: Initial analysis TASK 3.2: Identify measures TASK 3.3: Conduct baseline profile TASK 3.4: Assess potential health-related outcomes

As an iterative process, this step will build on the work carried out in previous steps, and may result in additional activity impacts being assessed that were not anticipated in *Step 2: Scoping*.

A RANGE OF APPROACHES

The level of work varies depending on the level of HIA chosen. Although general guidance is provided below, every project will be different so use discretion to determine which tasks are necessary.

Generally speaking, **desktop HIA** will use estimates, expert input and qualitative data in *Step 3* (rather than quantitative data). This step will be primarily conducted as a desk exercise, with limited input from other stakeholders. It is important, however, that one or more persons with knowledge of health should be involved in Step 3. A high level assessment using *Tool 3-A HIA Matrix – Research & Findings* could likely be completed in a single afternoon if the right people are in the room, using qualitative measures like 'high medium low' impacts (described in *Task 3.2*).

Intermediate and comprehensive HIA will work through the tasks in *Step 3* as presented in the guidebook, but tasks will be scaled up or down depending on the HIA approach taken.

In a **comprehensive HIA**, the depth of research in *Task 3.1 Initial analysis* will be greater and there would be more opportunity to use quantitative measures in *Task 3.2 Identify measures*. The research in *Tasks 3.3 Conduct baseline profile* and *3.4 Assess potential health-related outcomes* could include primary research and the entire step would likely include greater stakeholder engagement.



TOOL 3-A HIA Matrix – Research & Findings

TIME REQUIRED: Varies depending on level of HIA.

RATIONALE AND COMMENTS: *Tool 3-A* forms the basis for the following three tools (each of which simply add columns onto the work done in *Tool 3-A*). Because of this, you may wish to set up *Tool 3-A* in an Excel or Word table, to which you can add columns as you proceed through the HIA process.

PROCEDURE: Use *Tool 3-A* with the HIA Team to organize your research questions and findings related to the nature of the relationship between the decision, health determinants, and health-related outcomes.

Begin by writing in the priority health-related outcomes from *Tool 2-D Influences and Activity Impacts Matrix*. Then work through the research questions (third column) for each health-related outcome, assign individuals or groups to conduct the research and record their findings in the final column. The findings will come from expert interviews, literature reviews and empirical evidence.

A valuable local resource that can help with the development of this matrix is the *Healthy Built Environment Linkages: A toolkit for design, planning and health.* Published by the Provincial Health Services Authority (PHSA) in October 2014, the document is available through PHSA's website (www.phsa.ca) on their healthy built environment program page.

When reviewing research, it is important to remember that many relationships between behaviours/contributing factors and health-related outcomes are **associations and linkages**, **not causations**. Research can sometimes be limited, often because of the difficulty and cost to carry out detailed health studies (i.e., randomized controlled experimental trials) on entire populations to determine causation. Before removing an activity impact from further research, evaluate it with a knowledgeable health researcher from your HIA Team, so that good evidence does not get removed from further consideration aside because it is not strictly causal or there is a lack of evidence.

		TOOL 2-D		тооі 2-е		OL	TOOL 3-B	TO 3-	OL C	то 3-	OL D		TOOL 4-A I		то 5	OL -A
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FIGURE 6: HIA MATRIX You are here



TOOL 3-B HIA Matrix – Measures

TIME REQUIRED: Varies depending on level of HIA.

RATIONALE AND COMMENTS: In this task, the HIA Team will determine what health-related outcomes to measure, and how to measure them. This tool builds on the work done in *Tool 3-A HIA Matrix – Research and Findings*.

Step 3.2 in the Guidebook provides guidance on using qualitative and/or quantitative measures, and directs users to sources of data that could be used.

PROCEDURE: With the HIA Team, determine which measure will be used for each health-related outcome. Desktop and intermediate analysis will be more likely to use qualitative measures like High-Medium-Low scales.



		TOOL 2-D I		тооі 2-е	. то 3		TOOL 3-B	то 3-	OL C	то 3-	D D		TOOL 4-A		то 5	OL -A
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	-	-	-		lı	=	=	_	=	=	=	=	=	_	=	=
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3-	В

	To be filled in from work done in previous tools	NEW FOR THIS TOOL
HEALTH DETERMINANT	Health linkages and associations Research findings (from Tool 3-A)	Measures
PHYSICAL ENVIRONMENT	 Extensive evidence showing causal association between daily airborne concentrations of fine particulate matter (PM2.5) nitrogen dioxide (NO₂) and respiratory and cardiovascular health problems and death. Numerous studies show an association between traffic density, increased air pollution and effects on respiratory, cardiovascular and reproductive health. Idling diesel fuelled buses emit higher concentrations of diesel particulate matter than when moving. Diesel exhaust is a carcinogen. Noise from transit operations. Elevated sound levels linked to hypertension, coronary heart disease, and sleep disturbance. 	 Ambient concentrations of fine particulate matter (PM2.5) and nitrogen dioxide (NO2) at residences (measured or modeled) Ambient community noise (dBA)
CONTROL OF		
BUILT		
COMMUNITY & SOCIAL FACTORS		
+ LIFESTYLE FACTORS		



TOOL 3-C HIA Matrix – Baseline Conditions

TIME REQUIRED: The level of HIA undertaken will dictate the amount of detail in the baseline profile, and the amount of time it will take. A desktop HIA profile will likely skip this step, or only look at a small number of the most important determinants using readily available data, whereas a comprehensive HIA profile could be a larger research project involving neighborhood specific data.

RATIONALE AND COMMENTS: This tool builds on the work done in *Tool 3-A HIA Matrix – Research and Findings* and *Tool 3-B HIA Matrix - Measures*.

It is important to understand the baseline conditions of health determinants and outcomes, in order to predict activity impacts, and to have a baseline against which to measure changes. An additional benefit of this step is to identify groups that may be particularly vulnerable to activity impacts, and that should be focused on during subsequent steps.

The profile does not need to be exhaustive, and should focus on using available information (e.g., existing BC Stats community profiles, existing municipal community information, Community Health Atlas, etc.).

This tool forms part of an overall baseline assessment. In addition to the specific health-related outcomes examined in the tool, a baseline assessment should include:

- General information and trends on health determinants, including housing, employment status, environmental conditions, socio-economic status, employment and unemployment levels, transportation infrastructure, social support and access to services (including health care services and sport and recreation facilities);
- General population characteristics and any associated demographic trends (size, density, age, gender, income and employment, socio-economic status etc.); and
- Health status of the population likely to be affected by the activity, including at-risk and more vulnerable groups like children, youth, seniors and lower income communities.

PROCEDURE: Use *Tool 3-C* to record baseline conditions for the health-related outcomes that will be examined as part of the HIA.



FIGURE 8: HIA MATRIX You are here

To be filled in	from work done in previous tools	NEW FOR	THIS TOOL	
HEALTH DETERMINANT	Measures (from Tool 3-B)	Baseline Conditions	Data sources, assumptions, etc.	
PHYSICAL ENVIRONMENT	 Ambient concentrations of fine particulate matter (PM2.5) and nitrogen dioxide (NO2) at residences (measured or modeled) Ambient community noise (dBA) 	• Monthly average of 6.4 µg/m³ of PM2.5	 Metro Vancouver City 	aple
PHYSICAL ENVIRONMENT				
BUILT ENVIRONMENT				
COMMUNITY & SOCIAL FACTORS				
LIFESTYLE FACTORS				

TOOL 3-D HIA Matrix - Health-related Outcomes

TIME REQUIRED: Varies depending on level of HIA. A desktop HIA could be completed in a half day through discussions with the HIA Team, relevant external experts, and limited desk research. Intermediate and comprehensive HIAs would include more desk research and stakeholder engagement, and potentially original field research.

RATIONALE AND COMMENTS: Make informed judgments of health-related outcomes based on available information, analysis, expertise and experience. Be cautious with generalizations. Acknowledge assumptions as well as strengths and limitations of data and methods used. Identify data gaps that prevent an adequate or complete assessment of potential outcomes. Describe the **uncertainty** in predictions. Explicitly state assumptions or inferences made in the context of modeling or predictions.

PROCEDURE: Using the measures identified in the previous steps, collect qualitative and quantitative data to understand the potential health-related outcomes from the proposed activity. Use Tool 3-D to record research findings.

Once data have been collected, there is a need to ensure that it is valid, reliable and credible. Data should be reviewed and confirmed by external community and expert stakeholders in intermediate and comprehensive HIAs.

		TOOL 2-D I		тооі 2-е	. то 3	OL -A	TOOL 3-B	то 3-	OL C		DOL D		TOOL 4-A		то 5-	OL -A
—	-	-	-		II.	=	=	=	-	=	=	=	=	=	=	=
(iii) —	-	-	_		-	=	=	=	=	=	=	=	=	=	=	=
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•	-	-	-		-	=	=	=	=	=	=	—	=	=	=	=

FIGURE 9: HIA MATRIX You are here

To be fi	illed in from work done in previous	s tools	NEW FOR THIS TO	OOL
HEALTH DETERMINANT	Measures (from Tool 3-B)	Baseline Conditions (from Tool 3-C)	Health-related outcomes	Data sources, assumptions, etc.
PHYSICAL ENVIRONMENT	 Ambient concentrations of fine particulate matter (PM2.5) and nitrogen dioxide (NO2) at residences (measured or modeled) Ambient community noise (dBA) 	· Monthly average of G.4 µg/m³ of PM2.5	 Potential increase in bus-related emissions at site Potential increase in automobile- related emissions at site Potential elevated exposures for low-income residents and sensitive land uses (daycares and seniors homes) at site Improvement of ambient air quality in broader area 	 Interviews with Fraser Valley Regional District/ Metro Vancouver, BC Transit/ TransLink City
PHYSICAL ENVIRONMENT				
BUILT				
COMMUNITY & SOCIAL FACTORS				
LIFESTYLE FACTORS				



In this step, the HIA Team will develop recommendations to address, mitigate and manage potential activity impacts identified during Step 3. If necessary, the HIA Team will compare alternative recommendations to understand their relative influence on health-related outcomes.

The planning step involves the following three tasks:

 TASK 4.1: Developing high-level HIA recommendations
 TASK 4.2: Conducting alternative analysis (where required)
 TASK 4.3: Project reporting

A RANGE OF APPROACHES

The level of work required for *Step 4: Recommendations and Reporting* varies depending on the level of HIA undertaken. Although general guidance is provided below, every project will be different so use discretion to determine which tasks are necessary.

All levels of HIA can develop recommendations (*Task 4.1*), however, in a **desktop HIA** they would be developed by an individual or small HIA Team, whereas an **intermediate and comprehensive HIA** would engage with stakeholders, public, and experts to develop (*Task 4.1*) and assess (*Task 4.2*) recommendations.

Project reporting (*Task 4.3*) would be limited in a **desktop HIA**, but could include detailed reports and communications materials in an **intermediate** or **comprehensive HIA**.



TOOL 4-A Recommendation Worksheet

TIME REQUIRED: Varies depending on level of HIA. Recommendations for desktop HIA could be completed in several hours through HIA Team discussions. Intermediate and comprehensive HIA should involve a broader range of stakeholder, and take more time researching the 'implementation considerations' in the final column of this tool.

RATIONALE AND COMMENTS: Recommendations provide strategies to manage identified adverse activity impacts to maximize benefits to health-related outcomes.

PROCEDURE: Use *Tool 4*-A to capture potential recommendations. Brainstorm to capture a wide range of ideas without judging their feasibility. Next, narrow the list by considering cost, risk, capacity, and timing of each option, using the final column in the Tool.

FIGURE 10: HIA MATRIX You are here



To be filled in from w	ork done in previous tools	NEW F	OR THIS TOOL		100L
HEALTH DETERMINANT	Desired health-related outcomes	Recommendations to improve health- related outcome	Implementation partners	Implementation considerations (cost, risk, capacity, timing, etc.)	
PHYSICAL ENVIRONMENT	• Ambient fine particulate matter (PM2.5) and nitrogen dioxide (NO2) concentrations below regional air quality objectives at residences	 Reduce parking rates for carpools at parkade No idling policy for buses at the facility Require high efficiency filtration in residential portion of the development 	 Transportation authority, municipality, development partner 	 Requires baseline data and periodic monitoring 	ple
PHYSICAL ENVIRONMENT					
BUILT ENVIRONMENT					
COMMUNITY & SOCIAL FACTORS					
LIFESTYLE FACTORS					

тоог **4-В**

TIME REQUIRED: Varies depending on level of HIA. This type of analysis requires additional time and will likely only be used in intermediate and comprehensive HIAs, or in those cases where there are definitive project, plan or policy alternatives to evaluate.

RATIONALE AND COMMENTS: Use *Tool 4-B* in cases where it is necessary to compare the health related outcomes of two or more recommendations or activities. This tool provides a simple evaluation matrix that illustrates the potential performance of each alternative against each prioritized health-related outcome, using the measures developed in *Tool 3-B HIA Matrix - Measures*.

The additional level of analysis can help identify and make trade-offs between activity alternatives, giving planners, decision makers, and stakeholders more confidence in generating improved alternatives and specific mitigation actions.

Sometimes referred to as a consequence table, a well-constructed evaluation matrix should convey all of the information needed to understand and compare alternatives. It will also help to guide discussions on choosing between them and to identify potential trade-offs and uncertainties between the alternatives under consideration. The evaluation matrix can also help to make discussions between stakeholders and decision makers more transparent and objective, and help ensure that the final selection of alternatives is based on a common understanding of their expected outcomes (i.e. how well each alternative meets each priority health outcome).

PROCEDURE: With the HIA Team, discuss whether or not this comparative evaluation is necessary. If so, record the priority health-related outcomes in column 1, and their measures and baseline conditions in columns 2 and 3.

When using *Tool 4-B*, the cells can be populated with qualitative or quantitative data. In many cases, a qualitative High-Medium-Low scale could be used by the HIA Team to evaluate alternatives, although it is important to create clear definitions for each level (High-Medium-Low).

	MEASURE (Tool 3-B)	BASELINE CONDITIONS (Tool 3-C)	ALTERNATIVE #1	ALTERNATIVE #2
Priority 1 Outcome				
			L – M – H?	L – M – H?
Priority 2 Outcome				
			L – M – H?	L – M – H?
Priority 3 Outcome				
			L – M – H?	L – M – H?
Priority 4 Outcome				
			L – M – H?	L – M – H?





TIME REQUIRED: Varies depending on level of HIA.

RATIONALE AND COMMENTS: Use *Tool 4-C* to communicate the findings of the HIA to stakeholders and decision makers. The HIA Report Template tool provides a model for compiling the findings and recommendations of the HIA process into a report.

The language in the report should be clear, concise, and accessible. Technical analysis should be provided in an appendix. The length of the overall document will vary but should be kept between 40 and 70 pages. Desktop HIAs will typically provide shorter, more limited reports while intermediate and comprehensive HIAs may include detailed reports, analysis, and communication materials.

An executive summary should be provided for purposes of quickly communicating the report's content to decision makers, project managers, and the public at large.

PROCEDURE:

- The core team can use the provided template to structure an HIA Report
- Where appropriate, the core team should use other Tools provided in this guide (such as *Tool 3-D HIA Matrix Health-related Outcomes* or *Tool 4-A Recommendation Worksheet*) to illustrate findings and recommendations of the HIA in the report

SECTION	NOTES
1.0 Executive Summary	 Brief overview and summary of HIA Includes list of phased recommendations
2.0 Background and Context	 Purpose of HIA Context and background of the activity the HIA assessed Community context (i.e., geographic scope of HIA area and baseline community health and wellbeing information) HIA process (i.e., methodology, level of HIA, stakeholders involved)
3.0 Stakeholder Engagement	 Summarize Interviews and stakeholder meetings Note any 'big-picture' themes that are not easily broken down into specific health-related outcomes
4.0 Findings	Summarize the overall findings of the HIA including a summary of the interviews and stakeholder meetings, potential health-related outcomes, and recommendations
4.1 Health-related outcomes and initial recommendations	 Describe potential activity impacts and associated health-related outcomes Health-related outcomes can be grouped in broader health determinant categories (i.e., community and social factors, lifestyle factors, built environment natural environment, etc.) For each potential activity impact and associated health-related outcome, summarize and highlight key HIA findings
5.0 Discussion and Recommendations	
5.1 Discussion	 Summarize key findings of HIA Recognize limitations of HIA
5.2 Recommendations	 Describe recommendations (consider ordering recommendations by phasing) Outline recommendation implementation (who, what, when, how)
6.0 Monitoring and Evaluation	Describe monitoring and evaluation program
References	Literature review, interviews, etc.
Appendices	 Glossary of Terms List of Acronyms Technical reports Contact list (project lead, HIA Team, implementation partners, etc.)



Often overlooked or downplayed, monitoring and evaluation is an important part of the overall HIA process. It is used to track whether or not the recommendations made in Step 4 are having the desired effects on health-related outcomes.

The planning step involves the following two tasks:

- TASK 5.1: Prepare a monitoring program
- TASK 5.2: Evaluate and report results of monitoring

A RANGE OF APPROACHES

Although general guidance is provided below, every project will be different so use discretion to determine which tasks are necessary.

Desktop HIA may not include a monitoring and evaluation component.

An intermediate HIA may include a limited monitoring and evaluation process, while a **comprehensive HIA** would likely include a broad-based monitoring and evaluation process. TOOL 5-A Monitoring Framework

TIME REQUIRED: The time it will take to conducting monitoring activities will depend on the measures chosen in *Step 3*: *Assessment and Analysis* and the frequency that monitoring takes place.

RATIONALE AND COMMENTS: Monitoring programs will help determine what will be monitored, how, when and by whom. It will also identify how this information is shared with the HIA Team and HIA stakeholders, including those stakeholders involved with the implementation of its recommendations.

The health-related outcomes and corresponding measures developed in *Step 4: Recommendations and Reporting* should be used to form the basis of the monitoring framework. Monitoring activities will use *Tool 5-A Monitoring Framework* to track measures over time.

PROCEDURE: Use the template on the following page to track the results from monitoring activities over time.

FIGURE 11:	HIA MATRIX	You are here
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		TOOL 2-D		. то 3		3-B	то 3-	OL C	то 3-	D D		TOOL 4-A			-A
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	To be filled in from work do	ne in previous tools		NEW FOR	THIS TOOL	5-A
HEALTH DETERMINANT	Desired health-related outcomes (from Tool 4-A)	Measures (from Tool 3-B)	Baseline Conditions (from Tool 3-C)	Monitoring Date	Monitoring Date	
PHYSICAL ENVIRONMENT	 Minimized ambient fine particulate matter (PM2.5), ozone (O3) concentrations at roadside 	• Ambient fine particulate matter (PM2.5) nitrogen dioxide (NO2) concentrations at residences	 Monthly average of 6.4 μg/m³ of PM2.5 	• Monthly average of 6.8 µg/m³ of PM2.5	• Monthly average of 6.3 µg/m³ of PM2.5	nple
PHYSICAL ENVIRONMENT						
BUILT ENVIRONMENT						
COMMUNITY & SOCIAL FACTORS						
LIFESTYLE FACTORS						

TOOL 5-B Evaluation Framework

TIME REQUIRED: Varies depending on level of HIA.

RATIONALE AND COMMENTS: Unlike monitoring, evaluation is not a continuous process. Instead, it occurs at strategic points during the implementation process (e.g., with project phases; at the end of the planning period, or several years after the implementation of the plan, project or policy). An evaluation conducted three to five years after the activity has been implemented can provide knowledge about the longer-term results and benefits and help build the case for the value of HIA locally.

Evaluation, like monitoring, should promote learning. The evaluation process is used to determine if HIA recommendations are achieving the desired health-related outcomes, how efficiently and effectively the recommendations are achieving them, and whether or not any of the recommendations need to be revised. Evaluation can re-engage the HIA Team and other stakeholders in the process.

Evaluation results should be communicated to the HIA Team, project stakeholders and, for comprehensive HIA, to the community in general.

PROCEDURE: *Tool 5-B Evaluation Framework* forms part of an overall evaluation strategy. The strategy should include a timeline for evaluation, as well as identification of roles and responsibilities to carry out the evaluation.

To be filler	d in from work dong in provi	aus tools				TOOL
	Moosuros	Pasalina Conditions	Monitoring	NEW FOR THIS TOOL	Actions	J-D
DETERMINANT	(from Tool 3-B)	(from Tool 3-C)	Date	Evaluation Notes	Recommended	
PHYSICAL ENVIRONMENT	 Ambient fine particulate matter (PM2.5) nitrogen dioxide (NO₂) concentrations at residences 	• Monthly average of G.4 µg/m³ of PM2.5	• Monthly average of 6.8 µg/m³ of PM2.5	 µg/m³ increased slightly Potentially due to idling buses, large number of vehicles in the area 	 Enforce anti- idling by-law Designate 'car- pool only' priority parking spots to encourage car- pooling. 	aple
PHYSICAL ENVIRONMENT						
BUILT ENVIRONMENT						
COMMUNITY & SOCIAL FACTORS						
LIFESTYLE FACTORS						



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