



PACIFIC INSTITUTE FOR RESEARCH AND EVALUATION

Guide to Strategic Planning of Environmental Prevention Using a Logic Model

DRAFT GUIDE—Do not copy or circulate

WWW.PIRE.ORG

Guide to Strategic Planning of Environmental Prevention Using a Logic Model

Version 1

December, 2011

This reference guide is part of a series of community guides and manuals entitled :

Guides for States and Communities in Support of Environmental Prevention

The guides and manuals provide instructions to assist States in supporting communities in full implementing and evaluating the effects of environmental prevention strategies focused on alcohol, tobacco and other drug problems. The guides in this series include the following:

- Guide to Strategic Planning of Environmental Prevention Using a Logic Model
- Scientific Evidence for Developing a Local Logic Model On Alcohol-Related Motor Vehicle Crashes: *A Reference Guide for Community Environmental Prevention*
- Scientific Evidence for Developing a Local Logic Model On Underage Drinking: *A Reference Guide for Community Environmental Prevention*
- Collecting Data in Support of a Local Strategic Plan Using a Logic Model: *A Guide for States in Support of Environmental Prevention*
- Using Archival Data to Develop Local Alcohol, Tobacco, and Other Drug Problem Indicators: *Reference Guide for Community Environmental Prevention*
- Creating a Local Prevention Data Storage and Retrieval System: *Guide in Support of a Local Management Information System for Environmental Prevention based upon a Logic Model*

Implementation and Operation of a Local Strategic Plan for Environmental Prevention: *Guide in Support of a Logic Model*

Rebecca T. Carina, Consultant



Pacific Institute for Research and Evaluation

11720 Beltsville Drive, Suite 900

Calverton, MD 20705

301-755-2737

www.pire.org

Contents

I. Introduction	4
A. Preparing for a Local Strategic Planning Process using a Logic Model	5
II. The Process of Strategic Planning Using a Logic Model.....	6
Logic Model Template	7
III. Step 1. Selecting the ATOD Outcome and Measure	8
A. Measuring an Outcome	9
IV. Step 2. Identifying Intermediate Variables and Measures	11
A. Monitoring Outcome and the Intermediate Variables.....	14
V. Step 3. Identifying Strategies for Changing Intermediate Variables	15
VI. Step 4. Implementation Planning and Adjustments	18
VII. Appendix: Documenting the Strategic Planning Process	20
Logic Model Template.....	21
Template for Documenting the Strategic Planning Process.....	22
Template for Management Information System.....	23

I. Introduction

Strategic planning using a logic model is an advanced approach to planning for environmental prevention of alcohol, tobacco and other drug problems (ATOD). A logic model places primary emphasis on a chosen outcome, the best available science or evidence and how success is measured.

What is the purpose of planning?
How will we know we are successful?

In addition to placing primary focus on the outcome and its measurement, use of a logic model advances strategic planning by utilizing available scientific evidence about the ATOD problem of concern and the expected outcomes. The scientific evidence provides a realistic picture about the problem - that is, about various aspects or variables involved in the problem and how they fit together and operate in relation to each other. Reliance on the scientific evidence relieves leaders and participants from figuring out how the system works and what actions to take. Leaders and participants can also test their beliefs and experience and increase knowledge based on the scientific evidence.

Third, use of a logic model sets up the capacity to determine the overall effects and the ability to monitor progress and modify actions to increase effects over time. The evaluation of overall effects can be documented and communicated to project participants, state and local leadership, and to the community in general.

Finally, a logic model supports the identification of strategies and necessary actions that can be taken and what effect those actions actually have on the problem or outcome.

In summary, a strategic plan for the environmental prevention using a logic model identifies the ATOD problem to be targeted as the desired outcome for the community, the intermediate variables or factors that must be changed to achieve that outcome, and the strategies necessary to make changes in those variables. The organizing structure that brings all of these together is a logic model. In addition, a plan for implementation is needed to specify tasks, resources and timelines to be taken by the environmental prevention effort using a Gantt chart or other monitoring tool.

Strategic planning using a logic model requires looking beyond one's past experience and beliefs about what works or what one typically is praised for doing. Prevention based on science means going beyond the past. This guide is for states and communities building a logic model as the key ingredient in the process of strategic planning for a community. Several companion guides provide the scientific evidence about ATOD problems and measures to gauge success in environmental and population-based prevention strategies.

A. Preparing for a Local Strategic Planning Process using a Logic Model

There are a number of actions and agreements necessary prior to the beginning of the strategic planning process. These actions might include:

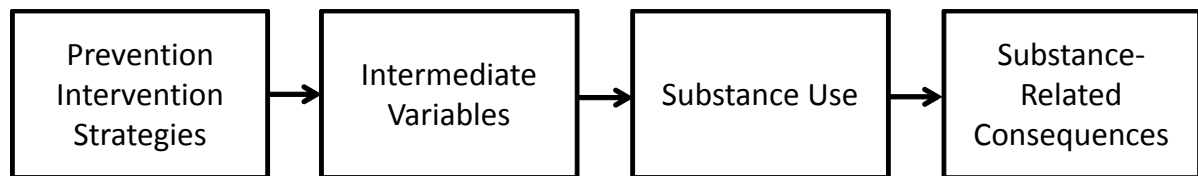
- Provision of training on strategic planning using a logic model to the state substance abuse staff and to members of the local task force, existing projects, and other interested parties to understand the process and commitment.
- Local support and/or approval of undertaking an environmental prevention effort that might include local agencies for substance abuse, public health, juvenile justice, law enforcement, and the city council and/or county commissioners.
- Designation of the oversight and management responsibilities.
- Agreements on participants' roles and responsibilities in undertaking such an effort.
- Technical assistance secured from the State substance abuse agency and consultants.

Once these activities agreements have been reached, the strategic planning process using a logic model is ready to begin.

II. The Process of Strategic Planning Using a Logic Model

Using a logic model for environmental prevention strategic planning has been found to be the most effective way for a community to design its approach to reducing a community ATOD problem. The logic model enables the use of science to manage, monitor and communicate progress to community members and leadership. Therefore, strategic planning using a logic model provides a community with a comprehensive tool for bringing science into practice.

A logic model is a means to document substance use and related problems, the desired outcome, the set of variables and their relationships that affect consumption, and the strategies to affect the variables. A logic model is shown most often as a diagram or causal model such as the basic one below.



As illustrated, prevention intervention strategies rarely change a problem or desired outcome directly. Rather, intermediate variables interact to produce the outcome. Thus, a logic model first reflects the best scientific evidence about intermediate variables and their relationship to the outcome and/or other key intermediate variables. Strategies are used to affect the intermediate variables through environmental prevention actions for which there is evidence of effectiveness, that is, actually able to affect one or more intermediate variables.

For example, underage drinking has been shown to be related to such intermediate variables as alcohol price, retail availability of alcohol to underage persons, and social availability of alcohol to underage persons. Changes in these intermediate variables through environmental prevention strategies have been shown to lower underage drinking.

In summary, a logic model is a combination of:

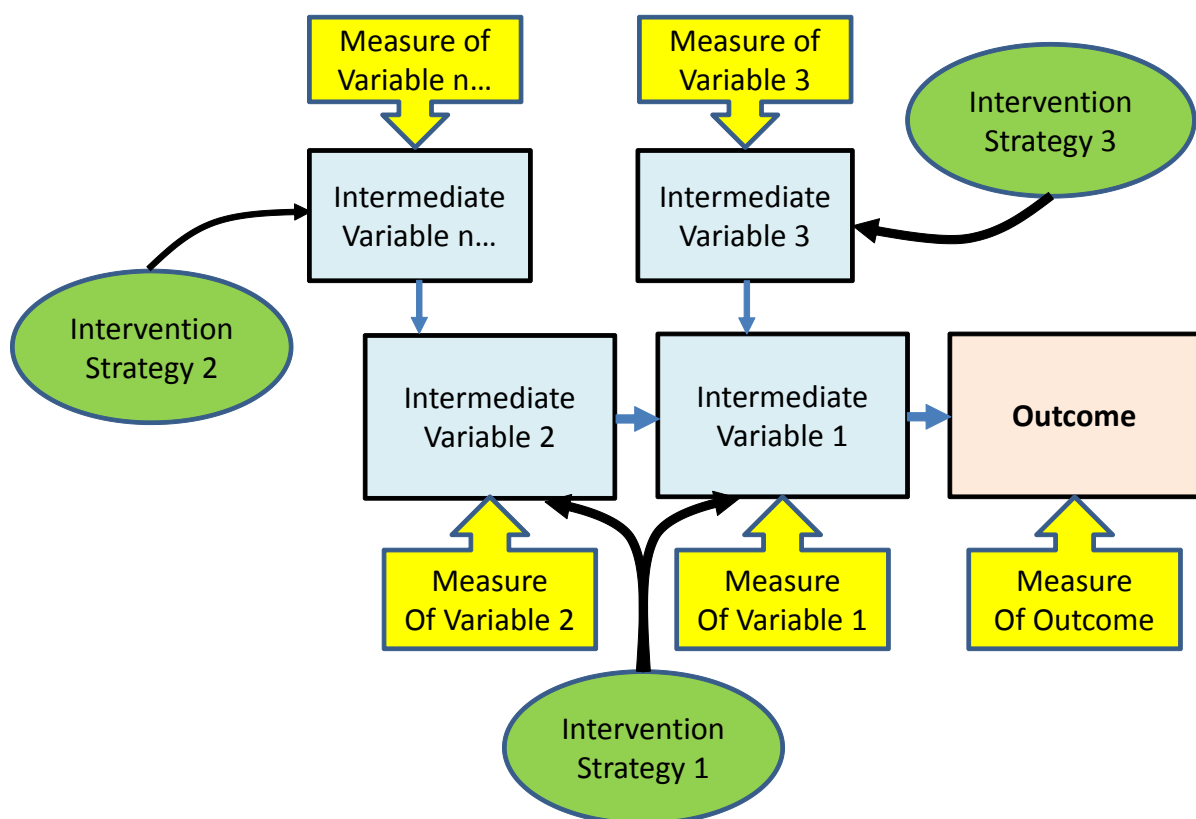
- A causal model that identifies the key intermediate variables that empirically explain a specific problem or outcome based on existing research or theory.
- Specification of the relationships among intermediate variables and to the problem or outcome.
- The environmental prevention strategies which have scientific evidence of effect on the intermediate variables at the population or community-wide level.
- Measures of changes in intermediate variables and the desired outcome.

The steps in the process of strategic planning using a logic model are described in the following chapters. They are:

1. Selecting the outcome and its measure.
2. Identifying key intermediate variables and their measurement.
3. Identifying strategies necessary to change the intermediate variables.

The template of a logic model shown here is designed to assist the community in the strategic planning process. Its use is explained in each of the following steps. This template is available to communities in a format that can be manipulated as needed. Other technology is available as well. In addition, the form shown in the appendix can be used to further document the decisions made during the planning process.

Logic Model Template



III. Step 1. Selecting the ATOD Outcome and Measure

Step 1 in the strategic planning process using a logic model focuses on identifying the alcohol, tobacco and other drug (ATOD) problems that are of greatest concern to the community. Problems that are first identified in the planning process are those most often recognized and strongly felt through the personal experience of community leaders and members. Thus, person experience helps identify local problems, ATOD harm or events that are undesired or unacceptable. On the other hand, local data about the extent of any problem can be a compliment to personal community experiences and can help establish priorities based upon local severity or frequency of the problems. Thus, selecting a target outcome for environmental prevention is a combination of the best local data and the priorities and concerns of the community about such problems as motor vehicle crashes, violence, death, underage drinking, drug use, addiction, tobacco use, or some other substance related consequence.

Thus, strategic planning begins with the community selecting one outcome that becomes the target of an environmental prevention effort. This one outcome is a specific local ATOD problem that the community chooses to reduce through a targeted environmental prevention effort.

The selection of the first priority enables strategic planning to be focused and increases ability to have real effects. If a second or third ATOD problem is also important, the most effective approach is to create an additional strategic plan using a logic model for each clearly defined ATOD problem.

The selection process may occur through the use of local statistics about ATOD problems, an existing task force, leadership from the local substance abuse agency, and/or input from various groups in the community including political leaders, all of whom have a valid perspective and role. Additionally, state ATOD prevention staff can provide technical support during the entire process.

Remembering that environmental prevention is focused on the entire community population and seeks to make changes in the overall system, the practical process of selecting the desired outcome can be informed with local data about the actual levels of community concerns. Such data is critical in both the selection of an outcome and its measurement and in monitoring and managing the environmental prevention project over time. See the companion guide entitled *Collecting Data in Support of a Local Strategic Plan Using a Logic Model: A Guide for States in Support of Environmental Prevention*.

Examples of ATOD Problems

- Alcohol-related motor vehicle crashes
- Injuries and fatalities
- Underage drinking
- Public Violence and assault
- Domestic violence
- Overdosing on drugs
- Prescription drug abuse
- Tobacco use
- Drinking and driving

As an example, when deciding where to focus an environmental prevention effort, a community might use local data to compare two concerns: (1) the number of fatalities among youth under age 21 due to motor vehicle crashes and (2) the number of all alcohol-related motor vehicle crashes. In this example, if the number of crashes by all ages is significantly greater than the number of fatalities of young people, the community may want to invest its resources on the broader issue. However, if the number of fatalities of young drivers who have been drinking has increased significantly during recent times, that may be the greater concern for the community.

Outcome: Reduce the number of alcohol-related motor vehicle crashes, fatalities and injuries among young people (ages 16-25) who drive after drinking.

Other criteria affecting the choice may be requirements of the source of funding, who will manage the prevention project, or involvement of existing community ATOD projects and/or coalitions as part of the strategic plan and logic model.

Once selected, the outcome must be described both in terms of its rationale and operationally.

- A conceptual definition is a description of the selected outcome that provides the rationale underlying its selection for purposes of communication.
- An operational definition describes the method for measuring changes in the outcome for purposes of evaluation, monitoring and management.

A. Measuring an Outcome

As defined earlier, an outcome is a specific variable (event or level) that is to be changed by environmental prevention effort e.g. high risk drinking over the past 30 days or a consequence of such use (e.g. alcohol-related traffic crashes).

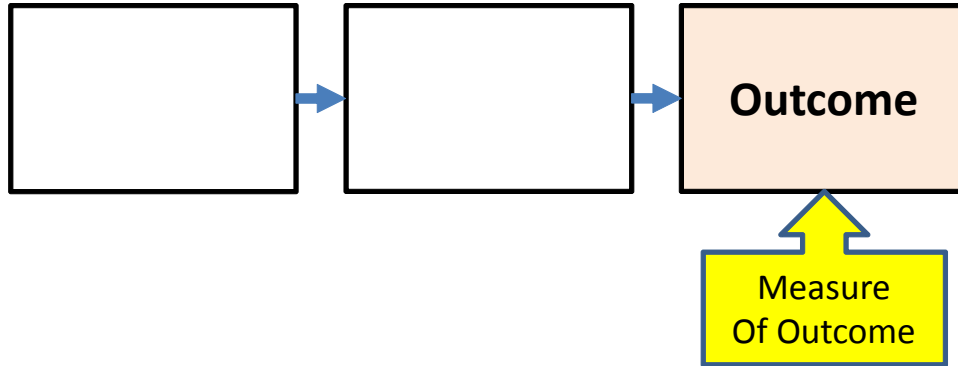
By specifying the measurement of the outcome, the local prevention effort is able to document and evaluate changes over time. Thus, a valid and reliable measure of a prevention targeted outcome is necessary to provide accurate determination of changes in the outcome variable and the ability to attribute any changes to the prevention effort itself, that is, ruling out other explanations or factors. Typically, attribution of effects is based upon a baseline measure prior to prevention implementation and following implementation, i.e., pre and post measures that are traditionally used in experiments. This design has a number of limitations in practical prevention evaluation, so, if possible, longitudinal measures of the outcome are preferable.

Outcomes and their measures can include either or both of the following:

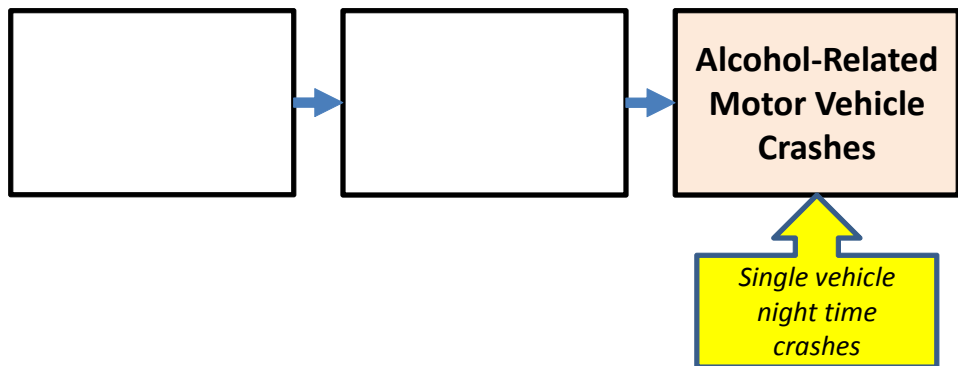
- Consumption and High Risk Use: Patterns of ATOD use including initiation (first use), regular or typical use, and/or high risk use (amount, frequency, and situation/settings of use).
- Social, Health, and Safety Problems Associated with ATOD Use: Outcomes including mortality and morbidity or undesired events for which one or more ATOD substances is

clearly or consistently involved. While specific ATOD use may not be the single cause of a societal problem, it can often be a significant contributor. To use a social, health, or safety outcome as a target of change, there must be scientific evidence supporting a causal link from ATOD use as a contributing factor to the problem. See the guide: *Using Archival Data to Develop Local Alcohol, Tobacco, and Other Drug Problem Indicators: Reference Guide for Community Environmental Prevention* for assistance in identifying alternative means to measure a specific ATOD problem.

At this point in the planning process, the community's logic model will display the outcome and its measure. What do we want to accomplish? How will we know we have been successful?



Consider in this illustration that the community selects total alcohol-involved traffic crashes as its outcome based upon a review of the local data concerning the frequency and level of such crashes, as well as a community agreement that this is a serious and unacceptable problem. Thus, after the first step the community's logic model might look like this:



In this illustration, after reviewing alternative measurements for its target outcome, the community selects “single vehicle night time crashes” as a way to measure the outcome. Of course, other measures may also be selected including “night time injury crashes” or “alcohol-involved crashes based upon police officer reports.”

IV. Step 2. Identifying Intermediate Variables and Measures

The second step in the strategic planning process using a logic model requires identification of the intermediate variables or factors in the community that contribute to or cause the problem. These are the intermediate variables that affect the outcome defined in step 1.

Identification of these intermediate variables is greatly facilitated by use of the companion guides listed inside the front cover of this document that provide summaries of scientific evidence regarding environmental prevention for underage drinking and for alcohol-related motor vehicle crashes. Other guides concerning other ATOD problem are under development. See:

- Scientific Evidence for Developing a Local Logic Model On Alcohol-Related Motor Vehicle Crashes: *A Reference Guide for Community Environmental Prevention*
- Scientific Evidence for Developing a Local Logic Model On Underage Drinking: *A Reference Guide for Community Environmental Prevention*

In identifying the key intermediate variables for the community's logic model, emphasis should be given to intermediate variables that have evidence from published research in scientific journals. These intermediate variables were defined through science as interacting with other key variables and/or directly with the outcome. In other words, intermediate variables are candidates to be increased (e.g. enforcement level of drink/driving, or refusals of sales of alcohol to underage), or decreased (e.g., serving alcohol to intoxicated persons). Making desired changes in such intermediate variables can in turn contribute to reducing the targeted ATOD outcome.

For example, **Drinking** and **Driving after Drinking** are the key intermediate variables that result in the problem **Alcohol-Related Motor Vehicle Crashes**.



If the community's goal is to reduce the number of alcohol-related motor vehicle crashes, the level of at least one of these intermediate variables must be changed. How can this occur? Scientific research has identified other intermediate variables and determined their relationships to each other and overall effectiveness in reducing crashes.

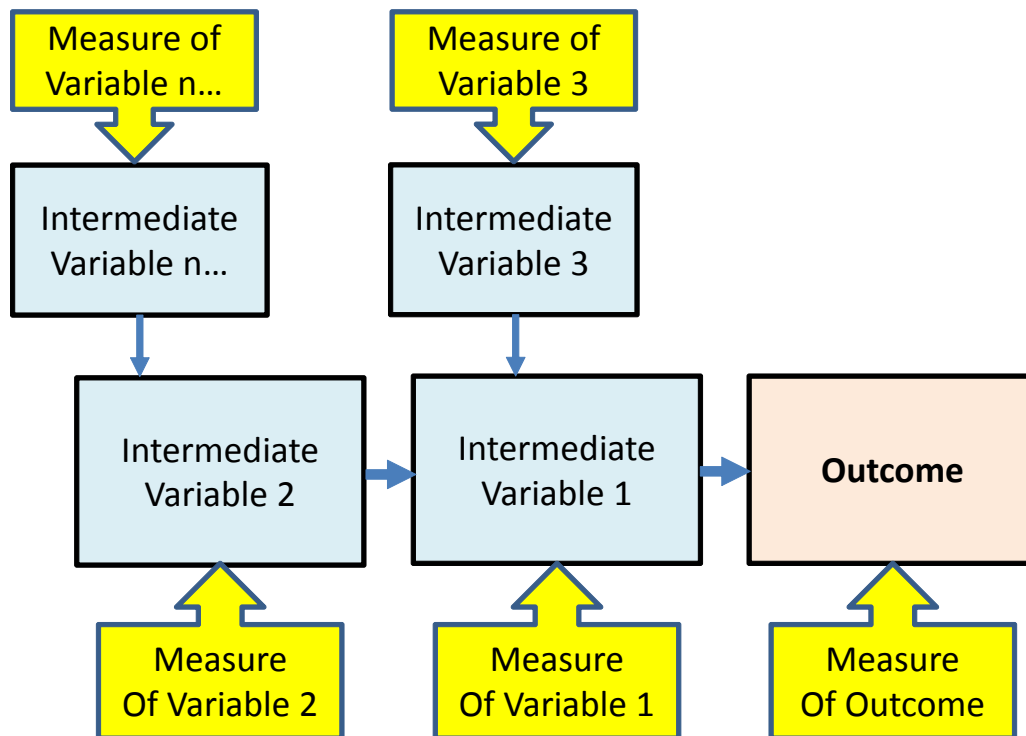


As shown in the figure, key intermediate variables that strongly affect **Drinking** are **Price**, **Alcohol Serving & Sales Practices**, and **Retail Availability**. A community needs information about these variables to determine the current status and significance of these variables locally. What is the availability of alcohol? How can it be obtained? What are the regulations? Are they enforced? If so, how often?

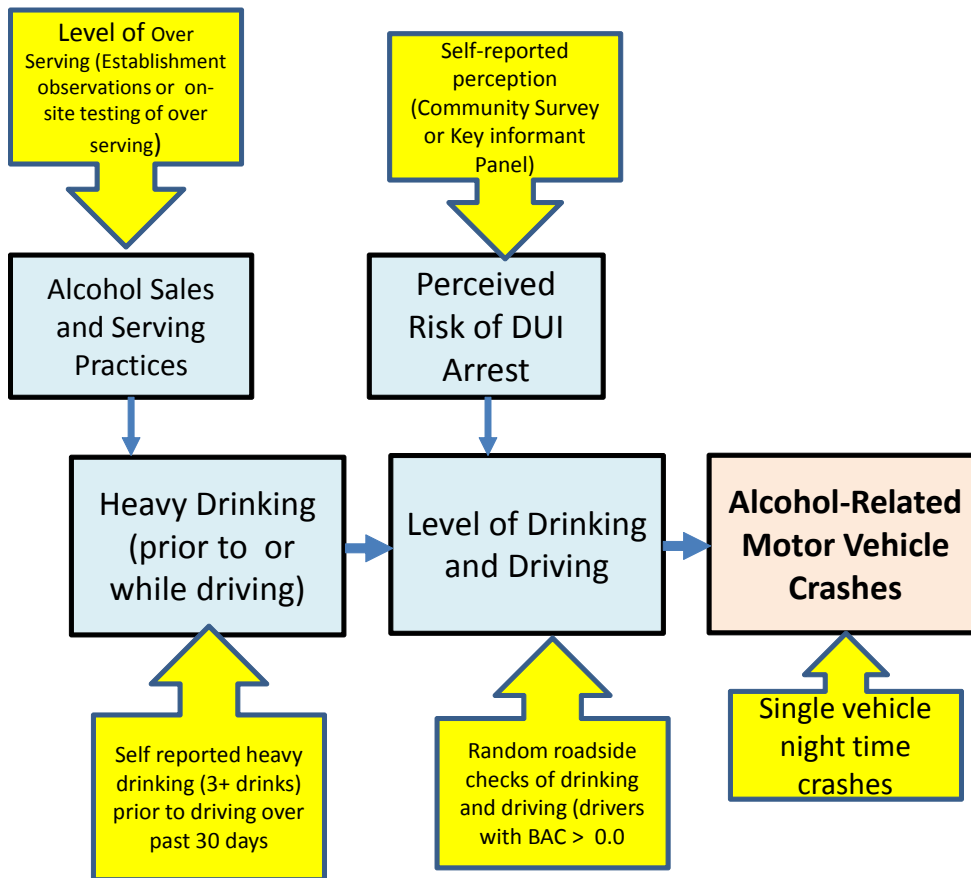
Likewise, science has determined that **Perceived Risk of DUI Arrest** has a strong effect on **Driving after Drinking** and thus on the outcome **Alcohol-Related Motor Vehicle Crashes**.

Local data are essential to establish a baseline at the beginning of an environmental prevention effort and to determine changes and effectiveness. Guidance and relevant suggested measures can be selected from the companion guide entitled *Collecting Data in Support of a Local Strategic Plan Using a Logic Model*.

Completion of this strategic planning step results in the selection of the intermediate variables and their measures that are of particular interest to the community. The template shown below now will contain that information in addition to the outcome and its measure selected in step 1.



Continuing the illustration above, the community's logic model might now show:



Outcome: Reduce alcohol-related motor vehicle crashes among youth	Measure: Single vehicle night time crashes and/or alcohol-involved crashes from police office reports
Intermediate Variable 1: Driving after Drinking	Measure: random roadside checks of drinking and driving drivers with BAC >0.0
Intermediate Variable 2: Heavy Drinking	Measure: Self-reported heavy drinking (3+ drinks) prior to driving over past 30 days.
Intermediate Variable 3: Perceived Risk of DUI Arrest	Measure: Self-reported perception of risk of DUI arrest
Intermediate Variable 4: Alcohol Serving & Sales Practices	Measure: Level of over serving of alcohol in bars and restaurants

Note: arrows link intermediate variables having a documented relationship based on science and the thickness of the arrows would indicate the relative strength of those relationships based on science and effectiveness of changing the outcome. Most of the variables related to either underage drinking or alcohol-related motor vehicle crashes (see causal models in their respective guides) are shown with at least a solid line. A few have a theoretical rationale for inclusion but currently with no empirical research to confirm, so are shown with dotted lines. If there is no evidence of effect on either population-level underage drinking or crashes, or on other key intermediate variables, or

target group variables, then it is indicated by a thin line. This is also true for noting the effect of environmental prevention strategies on intermediate variables as well.

A. Monitoring Outcome and the Intermediate Variables

At this point, although strategic planning is not complete, it is important to consider the need to create a simple means to monitor changes over time in the outcomes and intermediate variables. The essential information (both conceptual and operational definitions or measurements) has been defined in the strategic plan.

In this simple approach a local Management Information System (MIS) is created using a simple spread sheet display on which the measurements of the outcome and each intermediate variable is documented monthly. This process is described in much more detail in the guide, *Collecting Data in Support of a Local Strategic Plan Using a Logic Model: A Guide for States in Support of Environmental Prevention*.

Such a Management Information System is illustrated in the example table below in which measurements of the outcome and intermediate variables are recorded monthly, including noting when there is no data available.

	JAN	FEB	MAR	JUN	JUL	AUG	SEP	NOV	DEC	JAN
Alcohol Involved Crashes: Single Vehicle Nighttime Crashes	34	26	43	58	69	78	53	43	78	25
Level of Drinking and Driving: % of Drivers with BAC > 0.0: (Random roadside checks of drinking and driving)	0.22	None	0.32	None	0.27	0.39	0.18	0.25	0.42	0.23
Perceived Risk of DUI Arrest: Self report perception from community survey or key informant panel (0-10)	3.2	No survey	4.1	2.8	3.8	No survey	6.2	3.8	2.2	3.4
Heavy Drinking: Self-reported heavy drinking (3+ drinks) prior to driving over past 30 days.	0.38	No survey	0.39	0.3	0.29	No survey	0.18	0.36	0.38	0.26
Alcohol Sales and Service Pattern: Level of over serving (establishment observation survey)	High	High	High	High	High	High	Moderate	High	Very high	High

V. Step 3. Identifying Strategies for Changing Intermediate Variables

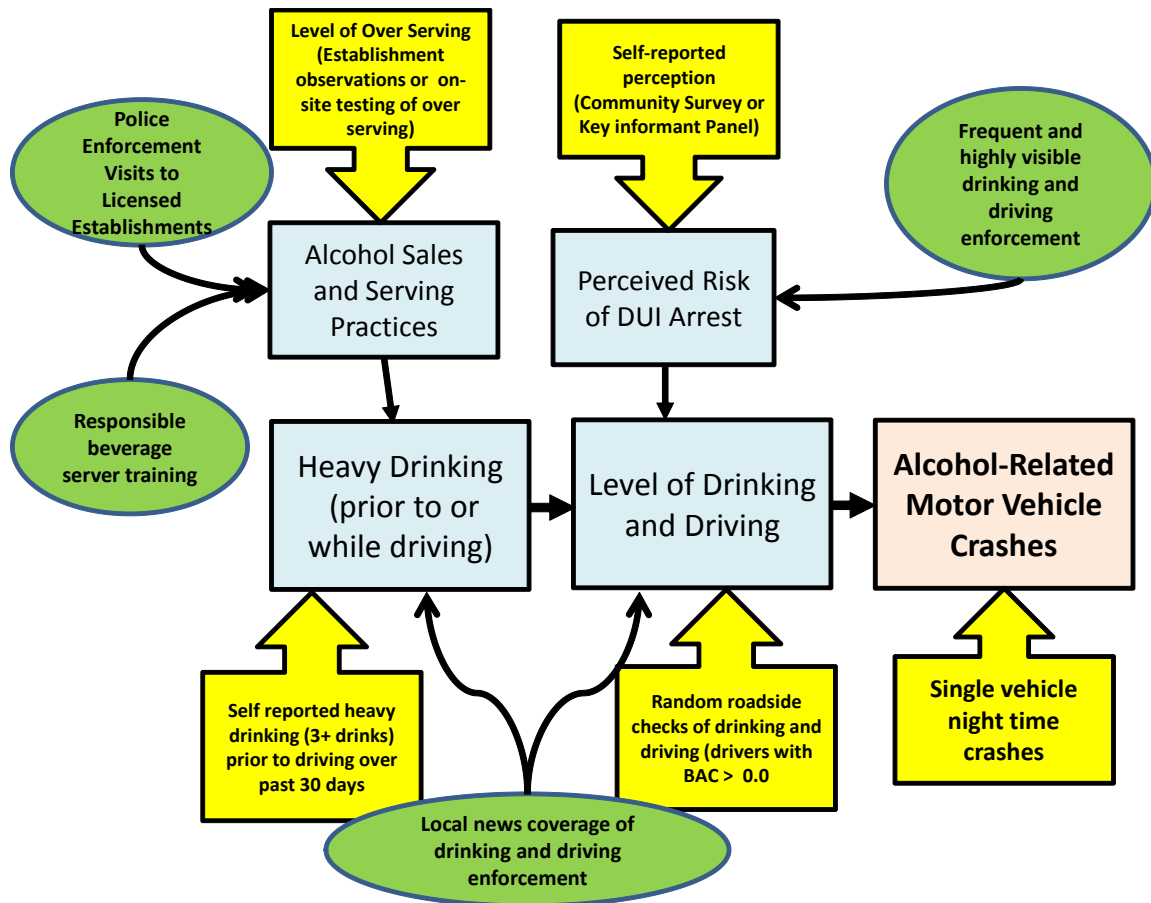
In step 3, the logic model now incorporates the local selection of the preferred strategies based upon the best available scientific evidence and fit to the local situation. Evidence concerning the effectiveness of strategies is also presented in the companion guides addressing alcohol-related motor vehicle crashes and/or underage drinking.

The task is to review the research evidence concerning the various strategies, interventions, policies, programs, and other actions that have been shown capable of affecting each intermediate variable selected by the community in step 2. This step relies on the fact that purposeful changes in an intermediate variable can affect the ATOD problem. There are of course limitations of the research evidence about effects when concerns exist about generalizability to certain situations, populations, or settings or if selection biases exist for the population in which the effects were observed.

Another challenge for local strategic planning is (1) to be aware of existing programs, policies and activities in the community that reflect one or more of applicable strategies, and (2) to determine possible matches with potential to contribute to the overall success of the environmental prevention effort. Whether the strategies selected are new for the community or currently exist, it is important to determine how they fit within the logic model given the chosen outcome and intermediate variables and their current level or “dosage”.

Continuing the example given in step 2, the local prevention effort after reviewing the available scientific evidence and considering the local situation might select four strategies as shown in the following table and sample logic model.

#	STRATEGY	INTERMEDIATE VARIABLES IMPACTED	MEASURE/DOSAGE?
1	Responsible Beverage Server Training	Alcohol Sales and Serving Practices	Accumulative % of total licensed establishments trained
2	Police Enforcement Visits to Licensed Establishments	Alcohol Sales and Serving Practices	Monthly number of enforcement visits
3	Frequent and Visible DUI enforcement	Perceived risk of DUI Arrest	Number of drinking/driving checkpoints
4	Local news concerning drinking and driving enforcement	Perceived Risk of DUI Arrest & Heavy Drinking (3+ drinks) prior to driving	Count of local news stories about DUI enforcement of local newspapers



At this point, the community logic model includes the essential information to move forward. As provided with the outcome and intermediate variables, the local Management Information System (MIS) can be expanded to monitor strategies (whether existing or new) as shown in the following table.

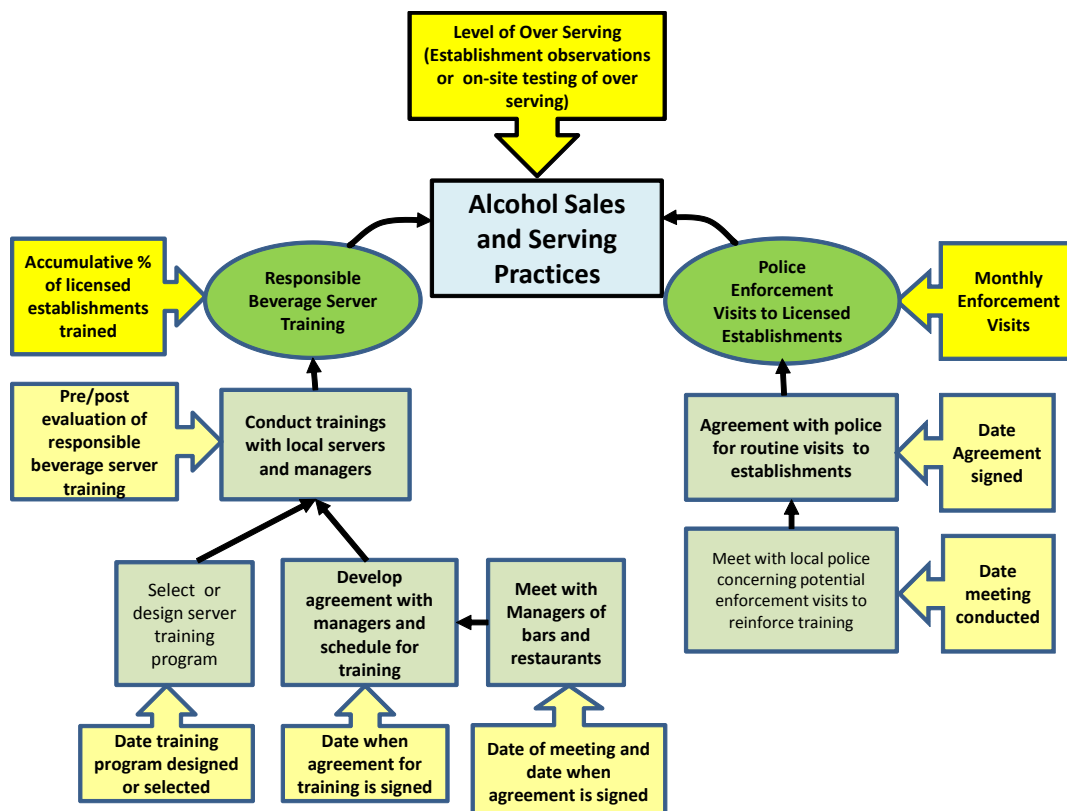
	JAN	FEB	MAR	JUN	JUL	AUG	SEP	NOV	DEC	JAN
Responsible Beverage Server Training: Accumulative % of total licensed establishments trained	0	0	0	0	0.1	0.1	0.2	0.2	0.22	0.22
Police Enforcement Visits to Licensed Establishments: Monthly number of visits	0	0	0	1	0	2	1	4	8	2
Frequent and Visible DUI enforcement: Number of drinking/driving checkpoints	5	6	4	10	12	8	2	12	22	7
Local News Concerning Drinking and Driving Enforcement: Count of local news stories about DUI enforcement of local newspapers	1	2	4	0	6	9	6	4	10	2

VI. Step 4. Implementation Planning and Adjustments

Implementation of the strategic plan comes next by first specifying the details for each identified strategy and measurement including specific tasks, staffing and funding resources, timelines, and approvals needed. This is an involved process that requires identification, scheduling and documentation of all of the necessary actions, steps, and events necessary to implement each strategy. Some tasks will of necessity require the agreement and participation of many local people.

Change brings about its own unexpected elements and each community is different. Therefore, a plan must be a living document that responds to monitoring of results and allows room for management decisions to adjust actions over time and drive the effects of strategies toward the desired outcome.

Continuing the example used in previous steps, planning for a Responsible Beverage Server Training and Police Enforcement as strategies to affect Alcohol Sales and Serving Practices now creates the need for more detailed planning and scheduling, including specific steps, agreements, and actions as show here.



A similar level of detail of steps, actions, and schedules must be prepared for each strategy that is contained in the strategic plan. In this way, the strategic plan becomes more and more complete and operational.

Various other technologies are useful to support this part of the process and in anticipation of ongoing operations. For example, a Gantt chart or other tool is useful for regular monitoring and managing of detailed tasks and progress of implementation as shown here.

#	% DONE	TASK	START DATE	END DATE	ACCOUNTABLE STAFF
1	75%	Meet with local police concerning potential enforcement visits to reinforce training.	April 1, 2012	April 30, 2012	Local SA director and staff
2	15 %	Obtain formal agreement with police for routine visits to establishments	May 1, 2012	May 15, 2012	Local SA agency director
3	25 %	Select or design server training program	April 1, 2012	April 30, 2012	Local SA staff member
4	0 %	Meet with managers of bars and restaurants to discuss the local prevention effort	May 1, 2012	May 31, 2012	Local SA staff member & police
5	0 %	Develop agreement with managers and schedule training	May 1, 2012	May 31, 2012	Local SA staff member
6	0 %	Conduct trainings with local servers and managers of all on-premise restaurants and bars with in the community.	June 1, 2012	June 30, 2012	Local SA staff member & contracted trainer

Management of the environmental prevention effort and the community task force, if designated, reviews the Community Strategic Plan and Logic Model, the Gantt chart or other monitoring tool, and the report from the Management Information System of measures on a regular (weekly or monthly) to keep the effort focused on the desired outcome and identifying potential problems. Adjustments are made as needed.

What began with the specification of an outcome and identification of the intermediate variables key to an effective environmental prevention effort, now becomes more and more specific for local implementation. Therefore, the Community Strategic Plan and Logic Model incorporates the best science, essential measurements in support of a local Management Information System, and the specifics of implementation and monitoring.

VII. Appendix: Documenting the Strategic Planning Process

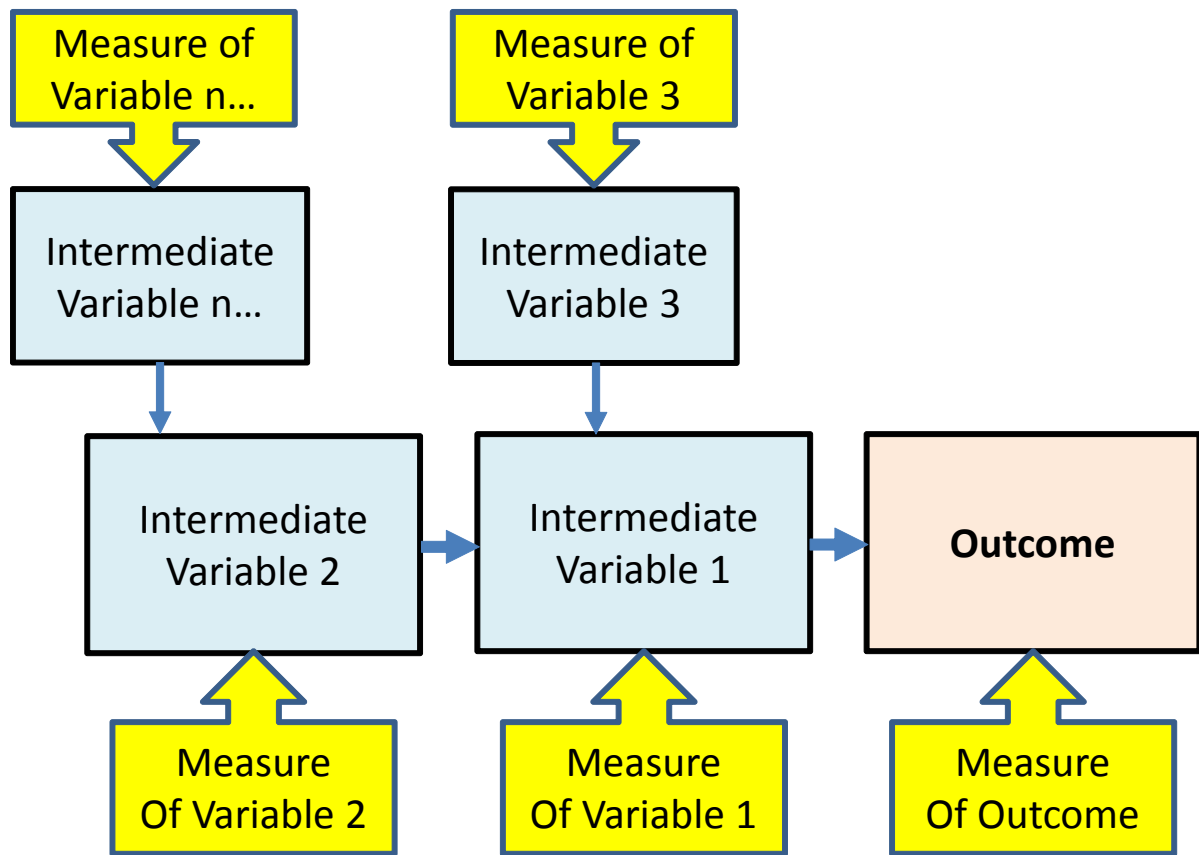
The templates that follow can be used in training and in the actual process of strategic planning using a logic model to record ideas under consideration, and progress made in each step until the logic model is completed.

The logic model template was created in Microsoft PowerPoint 2010. Other software applications are available to document to logic model.

The detailed content template is an Excel file and can be modified as needed locally.

The MIS template is an Excel file and can be modified as needed locally.

Logic Model Template



Template for Documenting the Strategic Planning Process

[Under development]

Template for Management Information System

[Under development]