



R508

Dear National Fire Academy Student:

Congratulations on your acceptance into the U.S. Fire Administration's National Fire Academy's (NFA) *Partnering for Fire and Emergency Services Planning* (R508) course. This is a 6-day resident course for all senior fire executives, department representatives/liaisons, interagency/intra-organizational team and committee members and others with organizational planning or training responsibilities. These individuals are encouraged to attend with an interagency and/or community public/private sector planning team partner. This course uses recent disaster case studies, incorporates a systems approach utilizing a four phase model, and supports the use of GIS and data to illustrate the value of collaborative development in interagency/interstate plans. Course elements include capability-based identification designed to allow flexibility within organizational structure, and planning for all-hazard disasters based actual and projected resource requirements. These tools support interagency and interstate all-hazards planning.

In order for the course to be meaningful, you need to do the following seven things before coming to Emmitsburg.

1. Complete the My Community's Comprehensive or Master Plan Activity. Responses will be collected the first day of class.
2. Read the Types of Planning article.
3. Read the selected articles on the Padre Island Bridge Collapse.
4. Read the article on Building Local Capacity for Risk Reduction.
5. Review the Vocabulary List.
6. **Read or listen to the book** *The Tipping Point* and answer the questions in the pre-course reading package. Responses will be collected on the first day of class. (See details below of how to order.)  
*The Tipping Point: How little Things Can Make a Big Difference*. Malcolm Gladwell, 2002. Little Brown & Co, ISBN: 0316346624 This book is available in [Hardcover](#), [Paperback](#), [Audio CD](#), [Audio Cassette](#), and [Audio Download](#)
7. Complete the Excel® Orientation for Pivot Table Users. To access the Excel® Orientation please click on the following link: <http://www.usfa.dhs.gov/ax/staff/heilig/r508/>

It is important to note that this is a 6-day class, and the first day of class will begin on Sunday at Approximately 8 a.m. Subsequent classes will meet daily from 8 a.m. to 5 p.m. with graduation occurring on Friday at 4 p.m. Because of this schedule, you will be provided lodging for Friday night. Evening classes may be required.

End-of-class graduation ceremonies are an important part of the course and you are expected to attend. Please do not make any travel arrangements to leave campus until after you and your classmates graduate.

Increasing numbers of students and instructors are bringing laptop computers to campus. You alone are responsible for the security and maintenance of your equipment. The Academy cannot provide you with computer software, hardware, or technical support to include disks, printers, scanners, etc. You may now bring memory sticks (Thumb Drives) to connect to government computers or networks. There is a limited number of 120 Volt AC outlets in the classrooms. A Student Computer Lab is located in Building D and is available for all students to use. It is open daily with technical support provided in the evenings. This lab uses Windows XP and Office 2007 as the software standard.

Should you need additional information related to course content or requirements, please feel free to contact Ms. Colleen Heilig, Planning and Information Management Curriculum Training Specialist at (301) 447-1613 or email at [colleen.heilig@dhs.gov](mailto:colleen.heilig@dhs.gov)

Sincerely,

A handwritten signature in black ink, appearing to read "Denis Onieal". The signature is written in a cursive style with a large initial "D".

Dr. Denis Onieal, Superintendent  
National Fire Academy  
U.S. Fire Administration

## My Community's Comprehensive or Master Plan

### Purpose

To expose the student to the current comprehensive or master plan used in their own community. The student will meet with a member of the local planning department to find and develop the answers to the following questions.

### Directions

1. Prepare written answers to the following four questions regarding you own communities comprehensive or master plan and the involvement of the emergency service organization that you represent.
  1. Name, title and phone number of the planning department contact.
  2. What has been the extent of the emergency services involvement in past comprehensive or master planning development? What conditions supported or blocked your organizations participation in the past planning efforts?
  3. Is there a “Public Safety” element in the plan? Does it adequately address the concerns that your organization has? (i.e., service levels, response time, etc.) Is there a “Disaster Recovery” element in the plan? What and who does it address?
  4. What does the planning department individual that you met with see as the growth issues in the next five years in your community? Are there going to be gaps that you can now foresee with your agencies ability to provide services in the future?

Your printed responses to the questions will be collected the morning of the first day of class.

## TYPES OF PLANNING

### Definition of Planning

"Planning is a formalized procedure to produce an articulated result, in the form of an integrated system of decisions."

"Planning is required when the future state we desire involves a set of interdependent decisions; that is a system of decisions"

Mintzberg, H. (1994). The Rise and Fall of Strategic Planning. New York, NY: The Free Press.

### Strategic Planning

*Strategic planning* is the formal process of defining the requirements for delivering high payoff results; for identifying what and how to get from our current realities to future ones that add value to society at the Mega level. It is not rigid or lock-step, but rather a self-correcting set of defining requirements and relationships for stating *What Is* in terms of results, and moving ever closer to *What Should Be* results and payoffs. Strategic planning involves formally asking and answering:

1. What profound shifts are or will influence our future?
2. What is our direction and response to these shifts?
3. What are the elements of Mega that we must address? And why?
4. How will we describe our desired *results* in measurable terms?
5. What are the best ways and means to get there?
6. How will we measure progress?
7. How will we measure success?
8. How will we revise as required?

Strategic planning is the formal process for producing plans documenting the results identified by our strategic thinking. Strategic planning develops, creates, and records at minimum the following results to be accomplished:

1. An Ideal Vision for the kind of world we want to help create for tomorrow's child.
2. An organizational mission or purpose.
3. Strategic objectives for achieving high payoff results.
4. Tactical objectives for delivering results.
5. Operational objectives for delivering results.
6. Needs Assessment based priorities levels.
7. Tactics/solutions (methods and means) for delivering internal and external (high payoff) results.

Strategic planning formally documents the results and contributions of strategic thinking, namely the results you, your organization, its customers, suppliers, co-workers, and society want to achieve in the long term (five, ten, twenty, fifty, or more years).

Strategic planning, properly defined and accomplished, provides the basic directions and rationale for determining where an organization should head and provides the specifications against which any organization may best decide what to do and how to do it. It is a process for creating and describing a better future in measurable terms and the selection of the best means to achieve the results desired.

Formal strategic planning calls for an explicit written process for determining the firm's long-range objectives, the generation of alternative strategies for achieving these objectives, the evaluation of these strategies, and a systematic procedure for monitoring results. Each of these steps of the planning process should be accompanied by an explicit procedure for gaining commitment.

**Strategic Planning And Forecasting Fundamentals.** J. Scott Armstrong From Kenneth Albert (ed.), *The Strategic Management Handbook*. New York: McGraw Hill, 1983, pp. 2-1 to 2-32.

"**Applied Strategic Planning** is a continuous and systematic process where the guiding members of an organization make decisions about its future, develop the necessary procedures and operations to achieve that future, and determine how success is to be defined."

**Applied Strategic Planning, An Introduction**, Timothy M. Nolan, Leonard D. Goodstein, Pfeiffer (1992) *Applied Strategic Planning: A Comprehensive Guide*. San Diego, CA: Pfeiffer & Company.

Strategic planning:

- Is oriented towards the future, and focuses on the anticipated future. It looks at how the world could be different 5-10 years from now. It is aimed at creating the organization's future based on what this future is likely to look like.
- Is based on thorough analysis of foreseen or predicted trends and scenarios of the possible alternative futures, as well as the analysis of internal and external data.
- Is flexible and oriented towards the big picture. It aligns an organization with its environment, establishing a *context* for accomplishing goals, and providing a *framework* and *direction* to achieve organization's desired future.
- Creates a framework for achieving competitive advantage by thoroughly analyzing the organization, its internal and external environment, and its potential. This enables organizations to respond to the emerging trends, events, challenges, and opportunities within the framework of its vision and mission, developed through the strategic planning process.
- Is a qualitative, idea driven process. It integrates "soft" data, not always supported quantitatively, such as experiences, intuition, and ideas, involves the organization in the ongoing dialogue, and aims to provide a clear organizational vision and focus.
- "Allows organizations to focus, because it is a process of dynamic, continuous activities of self-analysis" (Doerle, 1991, in Rowley, 1997, p.37).

- Is an ongoing, continuous learning process, an organizational dialogue, which extends beyond attaining a set of predetermined goals. It aims to change the way an organization thinks and operates, and create a learning organization.
- When successful, it influences all areas of operations, becoming a part of the organization's philosophy and culture.

## **Comprehensive Planning**

Comprehensive planning provides the foundation and guidelines for a successful project. During the planning process we clearly define project scope, develop an achievable project plan, assign resources, and design a technical infrastructure.

The Comprehensive Plan is an official public document, created through a public participation process. This document is intended to be a guide in making decisions concerning future land use, extensions of community services and facilities, parks and open space, designation of environmentally sensitive areas, and desirable urban design elements of the City. Also, Comprehensive Plan documents are used as the basis for developing the City's development regulations to ensure consistency between policies and regulations.

A comprehensive plan is a broad statement of community goals and policies that direct the orderly and coordinated physical development of a city into the future. A comprehensive plan anticipates change and provides specific guidance for future legislative and administrative actions. It reflects the results of citizen involvement, technical analysis, and the judgment of decision-makers.

The maps, goals, and policies of the plan provide the basis for the adoption of regulations, programs, and services, which implement the plan. The plan serves as a guideline for designating land uses and infrastructure development as well as developing community services.

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Some states mandate that every municipality adopt a master plan addressing specific subject matters, one of which is land use. Some jurisdictions, such as Oregon and Washington, go further, requiring that the text and zoning map for a city, as well as other development regulations, be consistent with the land use map and policies contained in a separate document entitled "comprehensive plan." In such states, zoning mandates and development decisions cannot be approved unless such consistency is achieved.

In a seminal treatise, Professor Charles Haar likened the comprehensive plan to a "constitution" upon which zoning regulations were to be founded. This philosophy culminated in several states' adopting more stringent land use planning laws. Even in these states, however, there remained the fact that land use plans were not self-executing in protecting natural resources or assuring compatibility of neighboring land uses: the plan's policies and map must first be translated into a set of standards constituting local laws.

## Master Planning

Master planning is a continuous process in which planning and keeping the plans up-to-date lies within the responsibility of the municipality. The Land Use and Building Act ordains rather extensive content requirements for master plans. It also emphasizes the opportunities of the residents and other involved parties to participate and interact in the planning process. Research and surveys on, for example, the development of population and jobs, urban structure, services, and community economy are often inherently related to master planning. The term "Master Planning" arose from the report to Congress, *America Burning: Report of the National Commission on Fire Prevention and Control*. Recommendation Number 10 of that report states: "The Commission recommends that every local fire jurisdiction prepare a master plan designed to meet the community's present and future needs in fire protection, to serve as a basis for program budgeting, and to identify and implement the optimum cost benefit solutions in fire protection." Federal Emergency Management Agency, *The Community and Fire Threat Course Guide*, p. 9

Master planning is a statement of community policy that, to be successful, must involve the community in the decision making process to determine the desired level of fire protection. This process is similar to community disaster planning that we are presently in the process of updating. It is an analytical approach to fire defense planning and should remain as such.

Under classic zoning theory, a community's zoning ordinance must be predicated on a "comprehensive plan" that takes into account existing land use and anticipates future growth and development. Frequently, the comprehensive zoning plan is an outgrowth of master planning. A traditional master plan typically contains a set of policies, frequently organized by "elements." Typical elements included in a master plan are those relating to land use, employment, population dynamics, public facilities and housing. A master plan must be developed through broad-based community involvement. The purpose of master planning is to integrate various public policies in order to create and implement a vision for the future growth and well-being of the community. Consequently, a master plan always encompasses broader objectives than the "comprehensive plan" mandated under zoning laws; conversely, a

comprehensive zoning ordinance is but one by-product or implementation tool for the master plan.

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**Why a Master Plan?** The most important aspect of master planning is to provide a road map for future growth for a site or complex. Many projects trim budget to a bare minimum and sacrifice land usage, hurting or making more expensive future land development. The goal of a Master Plan is to provide reasonable current development while keeping in mind future developments.

What is a Master Plan? A master plan is a conceptual layout for a site. It looks at historically placed buildings, the next phase of growth, and the future growth. It outlines a logical phased growth plan and indicates the maximum potential usage of a site.

How Do You Master Plan? First a topographic survey of the property should be obtained. Next the overall land is analyzed with respect to streets, easements, buffers, zoning, setbacks, flood plains and natural features. The land remaining is the actual usable acreage.



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### **Forecasting**

Forecasts empower people because their use implies that we can modify variables now to alter (or be prepared for) the future. A prediction is an invitation to introduce change into a system. There are several assumptions about forecasting:

1. There is no way to state what the future will be with complete certainty. Regardless of the methods that we use there will always be an element of uncertainty until the forecast horizon has come to pass.
2. There will always be blind spots in forecasts. We cannot, for example, forecast completely new technologies for which there are no existing paradigms.
3. Providing forecasts to policy-makers will help them formulate social policy. The new social policy, in turn, will affect the future, thus changing the accuracy of the forecast. Many scholars have proposed a variety of ways to categorize forecasting methodologies. The following classification is a modification of the schema developed by Gordon over two decades ago:

**Genius forecasting** - This method is based on a combination of intuition, insight, and luck. Psychics and crystal ball readers are the most extreme case of genius forecasting. Their forecasts are based exclusively on intuition. Science fiction writers have sometimes described new technologies with uncanny accuracy.

There are many examples where men and women have been remarkable successful at predicting the future. There are also many examples of wrong forecasts. The weakness in genius forecasting is that its impossible to recognize a good forecast until the forecast has come to pass.

Some psychic individuals are capable of producing consistently accurate forecasts. Mainstream science generally ignores this fact because the implications are simply too difficult to accept. Our current understanding of reality is not adequate to explain this phenomena.

**Trend extrapolation** - These methods examine trends and cycles in historical data, and then use mathematical techniques to extrapolate to the future. The assumption of all these techniques is that the forces responsible for creating the past, will continue to operate in the future. This is often a valid assumption when forecasting short term horizons, but it falls short when creating medium and long term forecasts. The further out we attempt to forecast, the less certain we become of the forecast.

The stability of the environment is the key factor in determining whether trend extrapolation is an appropriate forecasting model. The concept of "*developmental inertia*" embodies the idea that some items are more easily changed than others. Clothing styles is an example of an area that contains little inertia. It is difficult to produce reliable mathematical forecasts for clothing. Energy consumption, on the other hand, contains substantial inertia and mathematical techniques work well. The developmental inertia of new industries or new technology cannot be determined because there is not yet a history of data to draw from.

There are many mathematical models for forecasting trends and cycles. Choosing an appropriate model for a particular forecasting application depends on the historical data. The study of the historical data is called exploratory data analysis. Its purpose is to identify the trends and cycles in the data so that appropriate model can be chosen.

The most common mathematical models involve various forms of *weighted smoothing* methods. Another type of model is known as *decomposition*. This technique mathematically separates the historical data into trend, seasonal and random components. A process known as a "turning point analysis" is used to produce forecasts. *ARIMA* models such as adaptive filtering and Box-Jenkins analysis constitute a third class of mathematical model, while *simple linear regression and curve fitting* is a fourth.

The common feature of these mathematical models is that historical data is the only criteria for producing a forecast. One might think then, that if two people use the same model on the same data that the forecasts will also be the same, but this is not necessarily the case. Mathematical models involve smoothing constants, coefficients and other parameters that must be decided by the forecaster. To a large degree, the choice of these parameters determines the forecast.

**Consensus methods** - Forecasting complex systems often involves seeking expert opinions from more than one person. Each is an expert in his own discipline, and it is through the synthesis of these opinions that a final forecast is obtained.

One method of arriving at a consensus forecast would be to put all the experts in a room and let them "argue it out". This method falls short because the situation is often controlled by those individuals that have the best group interaction and persuasion skills.

A better method is known as the Delphi technique. This method seeks to rectify the problems of face-to-face confrontation in the group, so the responses and respondents remain anonymous.

The classical technique proceeds in well-defined sequence. In the first round, the participants are asked to write their predictions. Their responses are collated and a copy is given to each of the participants. The participants are asked to comment on extreme views and to defend or modify their original opinion based on what the other participants have written. Again, the answers are collated and fed back to the participants. In the final round, participants are asked to reassess their original opinion in view of those presented by other participants.

The Delphi method generally produces a rapid narrowing of opinions. It provides more accurate forecasts than group discussions. Furthermore, a face-to-face discussion following the application of the Delphi method generally degrades accuracy.

**Simulation methods** - Simulation methods involve using analogs to model complex systems. These analogs can take on several forms. A *mechanical analog* might be a wind tunnel for modeling aircraft performance. An equation to predict an economic measure would be a *mathematical analog*. A *metaphorical analog* could involve using the growth of a bacteria colony to describe human population growth. *Game analogs* are used where the interactions of the players are symbolic of social interactions.

*Mathematical analogs* are of particular importance to futures research. They have been extremely successful in many forecasting applications, especially in the physical sciences. In the social sciences however, their accuracy is somewhat diminished. The extraordinary complexity of social systems makes it difficult to include all the relevant factors in any model. Clarke reminds us of a potential danger in our reliance on mathematical models. As he points out, these techniques often begin with an initial set of assumptions, and if these are incorrect, then the forecasts will reflect and amplify these errors.

Another common mathematical analog involves the use of multivariate statistical techniques. These techniques are used to model complex systems involving relationships between two or more variables. Multiple regression analysis is the most common technique. Unlike trend extrapolation models, which only look at the history of the variable being forecast, multiple regression models look at the relationship between the variable being forecast and two or more other variables.

Multiple regression is the mathematical analog of a systems approach, and it has become the primary forecasting tool of economists and social scientists. The object of multiple regression is to be able to understand how a group of variables (working in unison) affect another variable. The multiple regression problem of *collinearity* mirrors the practical problems of a systems approach. Paradoxically, strong correlations between predictor variables create unstable forecasts, where a slight change in one variable can have dramatic impact on another variable. In a multiple regression (and systems) approach, as the relationships between the components of the system increase, our ability to predict any given component decreases.

*Gaming* analogs are also important to futures research. Gaming involves the creation of an artificial environment or situation. Players (either real people or computer players) are asked to act out an assigned role. The "role" is essentially a set of rules that is used during interactions with other players. While gaming has not yet been proven as a forecasting technique, it does serve two important functions. First, by the act of designing the game, researchers learn to

define the parameters of the system they are studying. Second, it teaches researchers about the relationships between the components of the system.

**Cross-impact matrix method** - Relationships often exist between events and developments that are not revealed by univariate forecasting techniques. The cross-impact matrix method recognizes that the occurrence of an event can, in turn, effect the likelihoods of other events. Probabilities are assigned to reflect the likelihood of an event in the presence and absence of other events. The resultant inter-correlational structure can be used to examine the relationships of the components to each other, and within the overall system. The advantage of this technique is that it forces forecasters and policy-makers to look at the relationships between system components, rather than viewing any variable as working independently of the others.

**Scenario** - The scenario is a narrative forecast that describes a potential course of events. Like the cross-impact matrix method, it recognizes the interrelationships of system components. The scenario describes the impact on the other components and the system as a whole. It is a "script" for defining the particulars of an uncertain future.

Scenarios consider events such as new technology, population shifts, and changing consumer preferences. Scenarios are written as long-term predictions of the future. A most likely scenario is usually written, along with at least one optimistic and one pessimistic scenario. The primary purpose of a scenario is to provoke thinking of decision makers who can then posture themselves for the fulfillment of the scenario(s). The three scenarios force decision makers to ask: 1) Can we survive the pessimistic scenario, 2) Are we happy with the most likely scenario, and 3) Are we ready to take advantage of the optimistic scenario?

**Decision trees** - Decision trees originally evolved as graphical devices to help illustrate the structural relationships between alternative choices. These trees were originally presented as a series of yes/no (dichotomous) choices. As our understanding of feedback loops improved, decision trees became more complex. Their structure became the foundation of computer flow charts.

Computer technology has made it possible create very complex decision trees consisting of many subsystems and feedback loops. Decisions are no longer limited to dichotomies; they now involve assigning probabilities to the likelihood of any particular path.

Decision theory is based on the concept that an *expected value* of a discrete variable can be calculated as the average value for that variable. The expected value is especially useful for decision makers because it represents the most likely value based on the probabilities of the distribution function. The application of Bayes' theorem enables the modification of initial probability estimates, so the decision tree becomes refined as new evidence is introduced. Utility theory is often used in conjunction with decision theory to improve the decision making process. It recognizes that dollar amounts are not the only consideration in the decision process. Other factors, such as risk, are also considered.

## Difficulties in Forecasting Technology

Clarke describes our inability to forecast technological futures as a failure of nerve. When a major technological breakthrough does occur, it takes conviction and courage to accept the implications of the finding. Even when the truth is staring us in the face, we often have difficulty accepting its implications.

Clark refers to this resistance to change as cowardice, however, it may be much deeper. Cognitive dissonance theory in psychology has helped us understand that resistance to change is a natural human characteristic. It is extremely difficult to venture beyond our latitudes of acceptance in forecasting new technologies.

Clarke states that knowledge can sometimes clog the wheels of imagination. He embodied this belief in his self-proclaimed law:

"When a distinguished but elderly scientist states that something is possible, he is almost certainly right. When he states that something is impossible, he is very probably wrong."

Nearly all futurists describe the past as unchangeable, consisting as a collection of knowable facts. We generally perceive the existence of only one past. When two people give conflicting stories of the past, we tend to believe that one of them must be lying or mistaken.

This widely accepted view of the past might not be correct. Historians often interject their own beliefs and biases when they write about the past. Facts become distorted and altered over time. It may be that past is a reflection of our current conceptual reference. In the most extreme viewpoint, the concept of time itself comes into question.

The future, on the other hand, is filled with uncertainty. Facts give way to opinions. As de Jouvenel points out, the facts of the past provide the raw materials from which the mind makes estimates of the future. All forecasts are opinions of the future (some more carefully formulated than others). The act of making a forecast is the expression of an opinion. The future, as described by de Jouvenel, consists of a range of possible future phenomena or events. These *futuribles* are those things that *might* happen.

## Do Forecasts Create the Future

A paradox exists in preparing a forecast. If a forecast results in an adaptive change, then the accuracy of the forecast might be modified by that change. Suppose the forecast is that our business will experience a ten percent drop in sales next month. We adapt by increasing our promotion effort to compensate for the predicted loss. This action, in turn, could affect our sales, thus changing the accuracy of the original forecast.

Many futurists (de Jouvenel, Dublin, Pohl, and others) have expressed the idea that the way we contemplate the future is an expression of our desire to create that future. Physicist Dennis Gabor, discoverer of holography, claimed that the future is invented, not predicted. The

implication is that the future is an expression of our present thoughts. The idea that we create our own reality is not a new concept. It is easy to imagine how thoughts might translate into actions that affect the future.

The phenomena of being able to see the future is known as precognition. Most people believe that (to some degree) they can predict the future. Fortune-tellers, however, believe they can view the future. There is a major difference. We predict the future based on knowledge, intuition and logic. Precognitive persons claim to "see" the future. Knowledge and logic are not involved.

Throughout history, there have been many reports of gifted psychics with precognitive powers. Through some unknown mechanism, these people are able predict things that will happen in the future. If we admit that even a single person in history has possessed this capability, then we must accept the fact that our concept of reality needs dramatic alteration. Time itself may not exist as we currently perceive it. Forecasting may be a method of creating illusions.

Forecasting can, and often does, contribute to the creation of the future, but it is clear that other factors are also operating. A holographic theory would stress the interconnectedness of all elements in the system. At some level, everything contributes to the creation of the future. The degree to which a forecast can shape the future (or our perception of the future) has yet to be determined experimentally and experientially.

Sometimes forecasts become part of a creative process, and sometimes they don't. When two people make mutually exclusive forecasts, both of them cannot be true. At least one forecast is wrong. Does one person's forecast create the future, and the other does not? The mechanisms involved in the construction of the future are not well understood on an individual or social level.

Dublin points out that the "future has become so integral to the fabric of modern consciousness that few people feel compelled to question it...". Because of the power of a prediction to affect the future, he goes on to state that prophesy is usually a self-interest quest for power.

## **The Ethics of Forecasting**

Are predictions of the future a form of propaganda, designed to evoke a particular set of behaviors? Dublin states that the desire for control is implicit in all forecasts. Decisions made today are based on forecasts, which may or may not come to pass. The forecast is a way to control today's decisions.

Dublin is correct. The purpose of forecasting is to control the present. In fact, one of the assumptions of forecasting is that the forecasts will be used by policy-makers to make decisions. It is therefore important to discuss the ethics of forecasting. Since forecasts can and often do take on a creative role, what right do we have to make forecasts that involve other peoples futures?

Nearly everyone would agree that we have the right to create our own future. Goal setting is a form of personal forecasting. It is one way to organize and invent our personal future. Each person has the right to create their own future. On the other hand, a social forecast might alter the course of an entire society. Such power can only be accompanied by equivalent responsibility.

There are no clear rules involving the ethics of forecasting. In *Future Shock*, Toffler discussed the importance of value impact forecasting, the idea that social forecasting must involve physical, cultural and societal values. It is doubtful that forecasters can leave their own personal biases out of the forecasting process. Even the most mathematically rigorous techniques involve judgmental inputs that can dramatically alter the forecast.

Many futurists have pointed out our obligation to create socially desirable futures. Unfortunately, a socially desirable future for one person might be another person's nightmare. For example, modern ecological theory says that we should think of our planet in terms of sustainable futures. The finite supply of natural resources forces us to reconsider the desirability of unlimited growth. An optimistic forecast is that we achieve and maintain an ecologically balanced future. That same forecast, the idea of zero growth, is a catastrophic nightmare for the corporate and financial institutions of the free world. Our Keynesian system of profit depends on continual growth for the well-being of individuals, groups, and institutions.

*Desirable futures* is a subjective concept. It can only be understood relative to other information. The ethics of forecasting certainly involves the obligation to create desirable futures for the person(s) that might be affected by the forecast. If a goal of forecasting is to create desirable futures, then the forecaster must ask the ethical question of "desirable for whom?".

To embrace the idea of liberty is to recognize that each person has the right to create their own future. Forecasters can promote libertarian beliefs by empowering people that might be affected by the forecast. Involving these people in the forecasting process, gives them the power to become co-creators in their futures.

### **Differences Between Forecasting Planning and Strategic Planning**

Note the distinctions between forecasting and planning. Planning provides the strategies, given certain forecasts, whereas forecasting estimates the results, given the plan. Planning relates to given strategy in a possible environment. Forecasting also helps to determine the likelihood of the possible environments. Forecasting methods, as defined here, are explicit procedures for translating information about the environment and the company's proposed strategy into statements about future results. What would be the results if the environment were favorable and we did A? What if it were unfavorable and we did A? What if it were unfavorable and we did B?

One of the major differences between conventional planning and strategic planning is that forecasting tends to be oriented toward looking at problems based on current understanding, or

an inside-out mind set. Strategic planning requires an understanding of the nature of the issue, and then finding of an appropriate response, or an outside-in mind set.

Forecasting is a projection from the present or an extrapolation from the past. Strategic planning builds on anticipated future trends, data, and competitive assumptions. Forecasting tends to be numbers driven. Strategic planning tends to be idea driven, more qualitative; it seeks to provide a clear organizational vision/focus.

## Contingency Planning

Contingency planning involves a predictive response element to an impending emergency by ensuring the availability of financial, human and material resources, and by installing a mechanism for decision-making. All of which play a critical role in shifting the system from a reactive to a proactive emergency management. A contingency plan is meant to help network and coordinate individuals, agencies and organizations to affect a rapid and effective response. Contingency planning ensures the availability of stand-by resources and provides mechanism for rapid decision-making that can shorten disaster response and ultimately save lives.

**Differentiated from other Planning** - Pre-emergency tasks involve developing prevention, mitigation and preparedness plans. These treat general or specific hazards, risk and vulnerability in general terms. When there are specific signals of an impending emergency, however, there is a need for a specific plan to address this particular threat. Such a plan is called a contingency plan. Both contingency planning and operation planning are activities in which objectives are set and strategies to achieve these objectives are delineated. Moreover, contingency planning is done before the emergency event and usually in a state of uncertainty. The planning involves making assumptions and developing scenarios upon which planning is based. Operation planning, on the other hand, is undertaken immediately following the emergency. Contingency planning and operations planning may be seen as parts of a cycle in disaster management. Contingency planning is a stage before the emergency phase. Usually some observable signals provide the impetus for contingency planning. Should the event for which you plan does occur, the assumptions made in the contingency planning are confirmed or adjusted based on the outcome of the emergency rapid assessment. The planning process now changes gear and the contingency planning becomes operation planning after careful assessment of the actual situation. Contingency planning is a prerequisite for rapid and effective emergency response. Without prior contingency planning, much time will be lost in the first days of an emergency. Contingency planning builds organizational capacity and should become a foundation for operation planning and emergency response. Various kinds of contingencies can arise in your area and you can formulate plans for each type of critical event.

How do you know when contingency planning should be initiated? Some early warning signs usually presage an event that requires emergency response. Often it is simply a matter of good knowledge mixed with experience that prompts one to recognize the need to initiate a contingency plan. But even if one is not sure that a calamitous event may indeed occur, it is best to develop a plan. As a rule: **“It is better to plan when it is not needed, than not to have planned when it was necessary”**.

The contingency planning process may be triggered by early warning signs of a potential critical event. These dynamics of early warning signs usually consist of three prevailing factors. Early warning signals are information that serve as indicators valuable for policy analysis to allow the prediction of developing crises and the need to initiate action either to prevent them or contain their effects. Early warning analysis involve the following steps: observe, collate, analyze, disseminate, and react. The task of this kind of analysis should not be the responsibility of one person alone, since accuracy is considerably enhanced through the assimilation of information, experiences and skills from the widest possible range of sources. Among these are: leaders, vulnerable groups, political entities, local population, academic institutions, scientists, scholars, and local associations.

**Principles of Planning** - Contingency planning must not be left to chance. Those involved in contingency planning should take cognizance of the principles of planning:

**Clarity.** Aims must be positive, clear and precise. Plans should be formulated in a way that people can quickly comprehend them. In cases where response plans are to be by people other than those who actually made them, these plans should be easily understood so they will know what has to be done. This is especially crucial when these emergency response procedures have not been practiced regularly.

**Flexibility.** Events will seldom go exactly as anticipated. Planning data and assumptions will never be absolutely accurate. Plans must allow for the unexpected. They should not be rigid nor should they be followed slavishly in implementation. The purpose of contingency plans is to facilitate decision making in the event of an emergency. This can sometimes be achieved by writing in the form of Checklists and Standard Operating Procedures.

**Information.** Good information is fundamental to sound planning and effective response. Facts must be marshalled as comprehensively as possible prior to planning (e.g. DATA BANK) and constantly reviewed. Contingency plans must also include arrangements for collecting, analysing, storing and disseminating information. It is helpful to have standard formats for reports and information storage.

**Continuity.** Wherever possible, adhere to the existing organizational structure. It will be necessary to plan streamlined procedures, but a moment of crisis is the worst possible time to rearrange the whole organization.

**Maximum use of all resources.** During the planning stage, ask yourself, "Who is good at doing what?" Then see how that expertise can be utilized. Stress self-reliance. Make a comprehensive inventory of available resources. Spread workload as widely as possible to involve all parts of the community. Try to avoid allocating unfamiliar responsibilities and assign relief responsibilities that are similar to routine ones. Effective crisis management calls for a collective effort.

**Planning in packets.** In assessing the anticipated impact of a disaster, think in round numbers. Likewise try to organize relief teams with capabilities, e.g. one standard Medical Team treat x victims per day. This process of approximation will make the organization of the response much easier in the event of an emergency.

**Maintainance of reserves.** If your inventory of resources exactly matches the anticipated workload, then you do not have enough. Always create and maintain reserves for the unexpected. The shortfalls identified at the planning stage will help identify the most probable forms of outside assistance that will be required. Collation of resource inventories in plans formulated at the provincial level will enable those at the national level to identify resources that can be sourced from neighboring areas that are unaffected.

**Coordination.** The system for collecting information, making decision and recording action must be clear and known to all. If collective action is to be fully effective, it must be coordinated.

**Practice.** Practice plans to identify and correct weaknesses in them. Practice the people who will have to implement them.

**Evaluation.** An established procedure for post-disaster evaluation of the effectiveness of the operations should be part of any contingency plan. The steps involved in the emergency operations need to be reviewed for their relevance and usefulness in mitigating or preventing the emergency event. As a disaster manager, you need to know whether you and your working partners have done the right thing.

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## **Texas News: Four Killed in Collapse of Padre Island Bridge**

By Lynn Brezosky  
Associated Press  
09/16/01

PORT ISABEL--A group of barges smashed into a pillar of the only bridge leading to popular South Padre Island early Saturday, toppling three 80-foot sections of the bridge and killing at least four people whose vehicles plunged into the water 85 feet below.

Adrian Rivera, spokesman for the Texas Department of Public Safety, said four people were dead and three were hospitalized. An unknown number of people were missing, while 13 were rescued from the Laguna Madre, part of the Intracoastal Waterway shipping route along the Gulf Coast, officials said. Rhonda Fife stood near the four-lane bridge Saturday afternoon and said she had not heard from her 18-year-old daughter, Tiffany, since she went to the island with friends late Friday. "Nobody called, and they always call," said Fife, her voice trembling. Michael Burke, father of two sons who had gone out with Tiffany, anxiously waited with Fife. "I just want to know where my kids are at. I hope they're all right and just can't call me," Burke said.

Five vehicles were located in the 50-foot-deep water by early afternoon and divers took pictures of their license plates for identification, said Cameron County Sheriff Conrado Cantu. The sheriff said as many as 10 vehicles could be in the water. Crews had pulled two vehicles out of the water by midafternoon when the piling damaged by the barges toppled into the water. No injuries were reported when the piling fell. The Coast Guard was notified around 2:30 a.m. that the tug Brown Water V and its four barges, loaded with coiled steel and phosphate, had struck the 2.37-mile-long span, the longest bridge in Texas. None of the cargo spilled. The tug operator was questioned and passed a sobriety test, officials said.

The crash dropped two adjacent 80-foot segments of the Queen Isabella Causeway into the channel near the center of the span. Rescue efforts were suspended until this morning after a third 80-foot section of the bridge collapsed about 2 p.m. Saturday, Rivera said. "There's a consensus that we're in the recovery phase, not the rescue phase," Cantu said.

Three people died at the scene and a fourth died at a hospital, authorities said. One victim was identified as Port Isabel Fire Marshal Robert Harris, said Desi Najera, an emergency management coordinator. The three other victims were Stevan Rivas, 22, of Humble who died at the scene; a 52-year-old man, who was pronounced dead at Valley Baptist Medical Center in Harlingen; and a man in his 50s, who died shortly after arrival at Valley Regional Medical Center in Brownsville. A 27-year-old man was reported in guarded condition at Valley Baptist Medical Center. A man and woman, both in their mid-30s, were reported in stable condition at Valley Regional Medical Center.

The state hired two boats to serve as ferries and was considering bringing a state-owned vehicle ferry from Corpus Christi, said Randall Dillard of the Texas Department of Transportation.

Faustino Ramirez was on the bridge when the pillar collapsed. "I don't know. I just ran and heard a roar under my feet. I felt it shake," Ramirez said.

South Padre Island has about 2,000 permanent residents, and island hotels were about 70 percent booked for the weekend. Most tourists on the island came to celebrate Mexico's Diez y Seis de Septiembre independence day. In addition, thousands of volunteers had been expected Saturday to help with island beach cleanup, part of Adopt-A-Beach day, said local home builder Clayton Brashear.

The island is perhaps best known as a Spring Break mecca, when crowds of up to 200,000 students arrive, some staying on the island and others in nearby cities. "The disruption of the service of the causeway comes at a time when ... the demand for tourism services is down," said Jeff Moseley, executive director of the Texas Department of Economic Development. The barges were owned by American Commercial Lines LLC of Jeffersonville, Ind., and were being pushed by a tugboat owned by Brown Water Marine Services, Inc. of Rockport, said American Commercial assistant vice president Jim Adams. They were loaded in Brownsville and destined for Tennessee, Adams said. Officials of Brown Water Marine Service did not return repeated telephone calls from The Associated Press on Saturday.

### **Texas News: Bridge Collapse Effect on Tourism Unclear**

09/16/01

PORT ISABEL (AP)--Only 48 hours after a call to discuss building a second causeway to South Padre Island, the worst-case scenario happens. Barges ram into the Queen Isabella Causeway, which collapses, killing at least two people as cars plunge into the water. The hole knocked into the bridge Saturday cut off the only thoroughfare to the mainland, stranding people on the island. But the timing could have been worse. Two weeks ago, the bridge might have been packed with visitors celebrating Labor Day weekend, the last hurrah for the summer tourism season. The season typically runs from Memorial Day weekend to the start of the school year, as thousands descend to the strip.

"The disruption of the service of the causeway comes at a time when ... the demand for tourism services is also down," said Jeff Moseley, executive director of the Texas Department of Economic Development. The island is perhaps best known as a Spring Break mecca, when crowds of up to 200,000 students arrive, some staying on the island and others in nearby cities. "I think South Padre Island is ... our Caribbean. It's a treasure and it always surprises people that don't know Texas that we have something like our beaches," said Marion Szurek of San Angelo, a member of the Texas Department of Economic Development board.

Cameron County Judge Gilberto Hinojosa said the accident occurred within 48 hours of his discussion with South Padre Island Mayor Ed Cyganiewicz about constructing another link to the island. Impact studies and public hearings also have received public support from state Sen. Eddie Lucio, D-Brownsville, who won \$10 million in Transportation Department funding for

causeway construction during the 2001 legislative session. Meanwhile, however, the impact of the barge accident on the island and its lifeblood, the tourism industry, was unclear. Rooms at island hotels were about 70 percent booked, mainly with Mexican tourists celebrating *Diez y Seis de Septiembre*.

### **Divers find last auto in bridge disaster**

09/21/01

PORT ISABEL (AP) - A Navy dive team equipped with sophisticated equipment joined the search for three people still missing since Saturday morning's collapse of the Queen Isabella Causeway. Three sections of the bridge to South Padre Island collapsed after being struck by barges. Five people are confirmed dead. Five vehicles have been recovered and two remain missing. The 11-member team brings hand-held sonar and metal-detecting magnetometers to what has so far been a futile effort by 14 state police divers and several Texas A&M oceanographers.

"We're bringing the best resources that are there," Department of Public Safety spokesman Adrian Rivera said Thursday as divers returned to the water, "county, state, local, national..."

Lt. Lynn Dixon, leader of the police team, said the probe of underwater concrete and rebar was the most dangerous mission his team has undertaken in its five years. Thursday, the divers worked around the first barge traffic to navigate that section of the Intracoastal Waterway since the accident. The Rio Grande Valley gets about half of its gasoline via the Port of Brownsville south of the causeway. Two empty fuel barges waited to make their way north for reloading at Corpus Christi.

"We're just going to have to work with industry and industry is going to have to work with us," said U.S. Coast Guard Lt. Charles Bright.

The recovery efforts weren't enough for Jackie Paddock, whose 24-year-old daughter Chelsea is missing.

"A 900,000-pound slab of concrete is on my baby," she said from her viewpoint at a bayside restaurant. "This will not be my daughter's final resting point. Do whatever, but get my daughter out of there. It's taking too long."

State troopers and the Texas Parks and Wildlife are joining the Coast Guard in reviewing the circumstances of the collision. Authorities say the barge went off course by about 100 yards about 2:30 a.m. Saturday. Also, Cameron County District Attorney Yolanda de Leon said her office will review the criminal investigation of last weekend's causeway collapse. But she said she will not know whether a grand jury would review the case or charges are warranted until the joint criminal investigation by DPS and TPWD is completed.

A preliminary investigation found the channel was adequately maintained at least 14 feet deep. It also found the operator, a relief captain, was not alcohol-impaired and had not been working an especially long shift, said Coast Guard spokesman Alan Grodecki.

## **Hearing Over Bridge Accident Starts Today – A Barge Hit the Padre Bridge; Eight Killed**

10/9/2001

The U.S. Coast Guard will be in Corpus Christi today to determine what role a tugboat operated by Brown Water Towing I of Rockport played in the collapse of part of the Queen Isabella Causeway last month, officials said. Five crew members aboard Brown Water V, owned by Brown Water Towing I, when the incident took place on Sept. 15 are scheduled to testify at a public administrative hearing beginning at 9 a.m. in the Community Room of Tower II on Carancahua Street. Testimony is expected to last through Friday.

The Brown Water V tugboat was pushing four barges loaded with steel and phosphates around 2 a.m. when it hit the Queen Isabella Causeway, the only road to South Padre Island from the mainland, according to official reports.

The incident resulted in the deaths of eight people, whose cars plunged 85 feet from Texas' longest bridge, officials said. With repairs on the bridge not expected to be completed until December, the deadly bridge collapse also is crippling the economy on South Padre Island, a tourist's paradise.

Will Pierson, an attorney for the tugboat company and Brown Water Marine Service, another Rockport-based company that supplied the tugboat crew, declined comment Monday on the incident and hearing. Similar to a court proceeding, one person will preside over the hearings. If the presiding administrator determines that the boat's captain was at fault, he can revoke his license.

"From a Coast Guard point of view, we're just trying to determine the cause of the accident, what happened, what went wrong and how we can prevent it again," Bob Helton, senior investigating officer for the Coast Guard's Marine Safety Office.

The Coast Guard only calls a hearing for serious accidents resulting in death, he said. "This is more serious, the number of deaths in this particular case. There was a significant and large loss of life," he said. Two tugboat operators will also be called as expert witnesses, and representatives from the National Oceanic Atmospheric Administration and the Army Corps of Engineers may also be called to testify.

### **Expert Witness Says Bridge Collapse Due to Lack of Awareness**

**Captain's lack of knowledge about currents was likely cause of collision, expert says**

10/12/2001

Tugboat Captain David Fowler's lack of knowledge about currents near the Queen Isabella Causeway likely played the biggest role in a Sept. 15 collision that resulted in the deaths of eight motorists, a veteran tugboat captain testified Thursday. Alton Chadwick, who was certified as an expert witness in the Coast Guard hearing into the accident, said Fowler's problems probably began when he entered a curve in the ship channel where unusually strong tidal currents were sweeping in from the southwest.

"He didn't realize how hard the current was running," said Chadwick, a tugboat captain of more than 20 years. "In my opinion anyone who runs in there should know the current."

Fowler said he hit the bottom before losing control and slamming into the causeway's stanchions, causing sections to collapse and motorists to drive into the open hole, according to a tape recording of a Coast Guard interview with Fowler made two days after the accident. During the interview, Fowler, a 44-year-old relief captain employed by Rockport-based Brown Water Towing I, said the current affected his steering.

"I didn't think about it being that strong," Fowler said on the tape. Fowler said he had navigated the ship channel near the bridge three or four times before.

Several witnesses, including the Brown Water V's senior captain, have testified that the currents they saw the night of the accident were the strongest they'd ever seen there. The rarely held fact-finding hearing, held in Corpus Christi and presided over by retired U.S. Coast Guard investigator and legal officer James A. Wilson, will attempt to determine the cause of the accident, whether there was misconduct or incompetence and how to prevent such accidents in the future. Some attorneys have discussed straightening the ship channel to eliminate the s-curve on the approach to the bridge and placing a current meter in the channel to alert mariners of unusually high currents.

Because of the curve, Coast Guard officials have said, buoys lining the channel were moved into shallower water to accommodate the wide turns mariners must make there. Company attorneys have said the curve and the buoys induce mariners into shallow waters and called the curve an accident waiting to happen. An Army Corp of Engineers officer testified Wednesday that environmental restrictions prohibit the building of a straight ship channel at the approach to the bridge.

But charts of the area indicate that the buoys are beyond the edge of the Intracoastal Waterway, which is dredged to 12 feet, deeper than the surrounding area. Coast Guard Chief Warrant Officer Walter Olmsted, who checked the tugboat for safety violations after the accident, said the chart appeared unused and that the ship's senior captain, Rocky Wilson, had difficulty locating it. Fowler also told investigators that the green navigation lights used to guide mariners through the bridge weren't working at the time of the accident. Another tugboat captain testified the lights weren't working the night before the accident. No explanation for the navigational lights has been offered during the hearing, which is scheduled to end today.

### **Year Passes Since Deadly Collapse**

9/15/02

SOUTH PADRE ISLAND--A name is engraved on each of the eight sides of the granite memorial to victims of the Queen Isabella Causeway collapse a year ago. Likewise, the three stone benches, each for someone who somehow survived an 80-foot plunge. They are accompanied by small sayings or pictures. A fireman's hat for Port Isabel Fire Chief Robert Harris. A marlin for Whataburger manager-in-training Gasper Hinojosa. A cell phone for Hector Martinez, praying hands for Julio Mireles. For Chealsea Welch, who grew up in Dumfries and Amarillo, and moved to South Padre Island in 1995, a Madonna and child.

About 2:10 a.m. Sept. 15, 2001, 23-year-old Welch was returning from an evening out on the island with her husband, 53-year-old "Harpoon" Barry Welch, a legend among local surfers for his uncanny ability to master the occasional Gulf Coast swell despite a wooden leg. The headlights on their sport utility vehicle only would have seen the road's slope upward, to the bridge's high point. Only when they were in midair and the lights probed blackness would the couple have realized the bridge was no longer there. Rene Mata, now 28, realized when he felt the front tires go over. A split second sooner, his friend, Robin Leavelle, screamed--"The bridge!"--from the passenger seat. He hit the brakes. "It took forever," he remembers. "It was like in slow motion. You kind of had to brace for the impact. We hit, and everything's pitch black. Couldn't see anything. Couldn't wake her up. Couldn't get the seat belt. I felt something warm running down my head and realized I had a gash on my head." He couldn't get the window. He pushed out. He remembers fishermen and lights and a helicopter. For the next week he would be in a hospital, the time pretty well blacked out.

Only four days after the Sept. 11 terrorist attacks, the first reaction to the gaping hole and subsequent swarm of Coast Guard and law enforcement officers was that terrorists had targeted the Gulf Coast Intracoastal Waterway extending from Florida to Brownsville, an important fuel route. Eventually, it became clear that the Brown Water V towboat pushing three barges of steel coil and one of phosphate had lost control of the chain. The head barge struck a bridge support and the causeway's midsection tumbled into the water below. Eight people died.

For two months, until the bridge reopened Nov. 21 a month ahead of schedule, South Padre Island resembled a ghost town. The economic repercussions reached more than \$50 million, according to Cameron County Judge Gilberto Hinojosa. In the year that has passed, at least two lawsuits attempting to blame the barge company and the subcontracted tow company have been filed. Another, filed jointly by several attorneys representing survivors and families of the deceased, went to mediation last week. Lawyers for Brown Water Marine Services, Inc., the tow's parent company, blame the accident on a marked channel and say the Coast Guard had allowed sand bars to form and buoys to drift. At the Coast Guard's fact-finding hearing a month later, Capt. Rocky Wilson testified that relief Capt. David Fowler tried in vain to warn motorists. "He was firing spotlights at the cars, saying, 'Rocky, I can't get 'em to stop, I can't get 'em to stop!'" The crew made a point of testifying that the causeway's street lights, usually lit "like a Christmas tree," were out. They thought the darkness had something to do with the Sept. 11 attacks. State and local officials later explained that aging lamps and corrosive salt air make it difficult to keep the lights functioning.

Jackie Paddock was among the first on the scene that Saturday morning. There was no way her daughter, Chealsa Welch, would be late to pick up her toddler son, she told no one in particular as dawn broke. A week later she was still at the scene, pacing Beefeater's restaurant where she could look out at the recovery cranes. There would be no closure until they got her daughter out. "You're in shock, then you get mad, then you learn to deal with it," she said. With all the high technology available, she asked, why couldn't there have been some sort of warning system that went off when the bridge broke? "I feel like somehow the tax dollars ... instead of having that big sign that says, 'Watch out for Pelicans' could have said, 'Danger, Bridge Down.'"

### **Captain of Boat in 2001 Crash Sues**

9/14/2004

BROWNSVILLE, Texas (AP) - Three years after a string of loose barges knocked a deadly hole in the bridge to South Padre Island, the man who was at the helm of the tow boat has filed a negligence suit, claiming the tow company and the barge line that chartered the vessel knew it was unseaworthy.

Eight people died in the Sept. 15, 2001, collapse of what is now the Queen Isabella Memorial Causeway, and the resort island's economy was devastated for months. Named in David Fowler's lawsuit, filed late Monday in federal court, are Brown Water Towing, of Rockport, Texas, and American Commercial Barge Line of Jeffersonville, Ind. The suit claims the accident was "due solely to the carelessness, recklessness, and negligence" of the defendants.

According to testimony from Coast Guard hearings held within a month of the collapse, Fowler told Coast Guard officials he hit a sand bar on the edge of the Intercoastal Waterway ship channel and was unable to gain control of the four steel-laden barges he was pushing.

The barges got caught in rapid currents and slammed against a bridge support at about 2 a.m., knocking out two 80-foot sections of roadway. Six cars fell into the hole some 80 feet to the bay below. A third section of road fell the next morning, burying much of the wreckage. Fowler, 47, is suing under the Jones Act, a federal statute protecting the safety of shipping crews. The claim was filed just under the three-year statute of limitations. Sheldon Weisfeld, Fowler's attorney, said his client has been in and out of mental hospitals and only recently found work as a truck driver.

Brown Water attorney Will Pierson said that the company had contributed a lot of money to Fowler's care and was "a little incredulous that he'd turn around and sue us."

Glenn Goodier, attorney for the barge line, said Tuesday he wasn't aware of the lawsuit and could not comment. Fowler was the relief captain with only a few weeks' experience on that particular boat. Coast Guard records showed the accident to be Fowler's second bridge strike and third grounding in 13 months. Coast Guard officials ruled out drug or alcohol use or exhaustion as a cause of the accident. Fowler's lawsuit is the latest of several filed against the vessel operators. Ray Marchan, lead attorney in the lawsuits, contends that the Brown Water V towboat lacked horsepower to control the barges and had a spotty safety record.

### **Coast Guard blames captain for bridge collapse**

HARLINGEN, Texas (AP) - A Coast Guard report says a tow boat captain failed to prepare for a turn leading up to the causeway to South Padre Island, causing the 2001 collapse that killed eight people. But strong currents before dawn on Sept. 15, 2001, were also a factor in the accident, and a shortage of horsepower may have made it more difficult for Capt. David Fowler to keep control of his load, which was a quarter-mile long, the report says.

The Coast Guard will not pursue criminal charges against Fowler. He surrendered his Coast Guard license after the accident and is currently driving trucks. He receives treatment for

depression.

Fowler lost control of a string of four steel-laden barges he was pushing with the Brown Water V tow boat, and heavy currents swept the barges into a bridge support. The impact caused two 80-foot sections of bridge roadway to tumble into the bay. Motorists heading home from the island about 2 a.m. drove blindly into the chasm. It took 10 days for cranes and divers to pull all the bodies from the 350-ton tangle of concrete and rebar. The April 28 report, hand-delivered to families and obtained by The Associated Press on Thursday, was the conclusion of weeks of hearings by the Coast Guard that began about a month after the accident.

"The apparent cause of this casualty was Captain David D. Fowler's failure to exercise reasonable care according to the standards of the ordinary practice of good seamanship," wrote James Wilson, the retired Coast Guard officer who presided over the hearings. Fowler invoked his Fifth Amendment right against self-incrimination and declined to testify at the hearing.

The Queen Isabella Causeway - since renamed the Queen Isabella Memorial Causeway - traverses a shallow bay known as the Laguna Madre. A 12-foot deep channel, part of the Intracoastal Waterway, allows ships to pass to and from the Port of Brownsville. An "S" curve in the waterway leads to a straightaway to the bridge.

Wilson said Fowler should have familiarized himself enough with the tide and current conditions as well as the shape of the channel to be prepared to navigate it. While Wilson did not find current, horsepower, or the way the boats were loaded to be contributing factors, Coast Guard higher-ups disagreed.

"Although Captain Fowler's negligence was the apparent cause, the strong currents and their influence on the tow's misalignment cannot be ignored," the report says.

According to the report, experts agreed there was a "hard running" channel current as well as a strong cross current that affected the tow. The tide was unusually high, and in ordinary conditions the lead barge would have grounded against the bay bottom before hitting the bridge. Heavy loading of the front barges didn't help.

"We can only speculate whether or not the tug and tow could have stopped if the ... Brown Water V had additional horsepower," the report reads. The Coast Guard is now working on proposed regulations that would require a certain level of power for certain cargo weights. Doug Rabe, chief of the investigation division at Coast Guard headquarters, said the report took a long time because of officials' differing opinions.

"Not to say we have great reasons for taking three and a half years to do this, but it was difficult to come to a consensus on all those issues," he said.

Several lawsuits are pending from the collapse, including one that alleges American Commercial Barge Lines, based in Jeffersonville, Ind., hired a tow company that it knew had problems. Plaintiff attorney Ray Marchan said he would show that lack of horsepower is to blame.

"By their own statement they realize that there's more work to be done in determining the horsepower issue," he said.

Sheldon Weisfeld, Fowler's attorney, maintained that the weather, the tides, and the currents were responsible for the accident.

"I think it was a tragic accident and I don't believe that he has any culpability," he said.

Attorneys for the tow and barge companies had not yet received the report and could not comment.



## **BUILDING LOCAL CAPACITY FOR RISK REDUCTION:**

A SUMMARY REPORT ON THE PARTNERS FOR DISASTER RESISTANCE & RESILIENCE OREGON SHOWCASE STATE

**André LeDuc**

*State Coordinator, Partners for Disaster Resistance & Resilience  
Director, Oregon Natural Hazards Workgroup*

October 2005

### **Abstract**

This paper is based upon the success of the *Partners for Disaster Resistance & Resilience: Oregon Showcase State Initiative* (hereafter known as the *Partnership*). Since 2000, the Oregon Natural Hazards Workgroup (ONHW) at the University of Oregon's Community Service Center has been leading the development of the *Partnership* Initiative. The intent was to build a communication and resource network for risk reduction that would empower communities to strive for disaster resilience and sustainability. The *Partnership* fosters communication and collaboration among private and public agencies, empowers communities and organizations to determine needs, helps identify issues and resources, and develops strategies for risk reduction and preparedness. To date, the *Partnership* has built local capacity by providing communities with resources and increased communication and coordination for natural hazards planning. As a result of these planning efforts, Oregon communities submitted 16 project proposals to the Federal Emergency Management Agency's national competitive Pre-Disaster Mitigation program in 2005. Of the proposals submitted, 14 were selected for funding for a total of more than \$14.5 million in federal funding for mitigation projects this year. Additionally, through the *Partnership*, ONHW is leading the largest coordinated and collaborative pre-disaster natural hazard mitigation planning effort in the State. This planning initiative covers more than one-third of the geographic area of Oregon and nearly one-third of its counties.

### **Introduction**

States and jurisdictions throughout the U.S. face many natural hazards that have the potential to cause loss of life, severe disruption to essential human services, and substantial economic and property damage. Disaster events strain the ability of taxpayers and communities to pay for losses, and the ability of governmental and nonprofit relief agencies to respond. Since 1989, the nation has frequently entered periods in which losses from catastrophic natural disasters averaged about \$1 billion per week. Moreover, the dramatic increase in disaster losses is expected to continue (Mileti 1999). Many costs associated with disaster events, including social and economic disruption, are difficult to quantify but have a profound, long-term impact on communities. These events weaken the core of any community—its businesses and its population.

Often, the sole burden of developing and implementing risk reduction strategies (i.e.: mitigation planning, policies, and program implementation) falls on local jurisdictions. Despite the growing recognition of the need for long-term coordination to reduce risk from disasters, many communities continue to experience difficulty in developing and implementing hazard risk reduction plans, policies, and programs. Communities regularly suffer from a lack of technical and funding assistance, as well as insufficient coordination among public, private, and not-for-profit sectors at the regional, statewide, and local levels. Additionally, efforts to change community and individual behavior to better manage risk have proven to be a difficult "sell" to citizens, business owners, and even community decision makers. The effectiveness of risk reduction endeavors is severely limited if these efforts are not well-coordinated and funded..

Research has shown that reducing risk from natural hazards requires integration with land use planning, coordination by government, and more extensive public participation (Burby, 1998, 2002; Mileti, 1999; Platt, 1999). An integrated approach is most effectively achieved through a collaborative planning process that includes a full range of decision makers with a stake in the issues (stakeholders) (Burby, 1998, 2002; Mileti, 1999). These stakeholders include local government staffs, elected officials, business interests, property owners, and interest groups (Burby, 1998). Mileti (1999) notes that it takes more time and money to involve stakeholders, but

the long-term savings compensates this investment because the resulting mitigation options are more acceptable. Similarly, Burby (1998) emphasizes that the involvement of a broad base of stakeholders builds partnerships and constituencies. The Federal Emergency Management Agency' (FEMA) points out that this more collaborative approach "goes well beyond the scope of traditional emergency management and touches areas of planning, development, economics, education, critical care, and cultural facilities." FEMA's how-to guide suggests that operationalizing this depends upon the participation of the entire community (FEMA, 2001).

Partners for Disaster Resistance & Resilience: Oregon Showcase State (hereafter known as the *Partnership*) is based upon the foundational concepts identified in the literature. The *Partnership* engaged a broad range of organizations—from state and local government, nonprofit organizations, and citizens' groups, to private industry. It focused on audiences who have the authority and accountability to make a difference in natural disaster safety and loss reduction. These individuals and organizations ranged from those making household and business decisions to those who affect the sustainability of entire communities and beyond -- such as community planners, local fire marshals, city managers, conservation club members, and builders/contractors. The goal in *Partnership* involvement is for organizations, agencies, and communities to enhance their capacity to reach the goals they have set regarding loss reduction, protection of public safety, corporate citizenship, and community sustainability. This summary report serves both as a reflection on the initial three years as well as a blueprint of the vision for future sustainability of the *Partnership*. Following a brief discussion of Oregon's policy framework and the *Partnership's* history, "Part I – Reflection" outlines general and specific challenges and opportunities that provide the rationale behind the recommended next steps; "Part II" presents the next steps for the *Partnership*.

## **Oregon's Policy Framework and Partnership History**

### **Background**

In 1996-1997 Oregon was hit by devastating floods and landslides caused by heavy rain and melting snow, which caused several fatalities and \$280,000,000 in damage. (IHMT 1996) Following this series of events, Governor John Kitzhaber looked to state agencies to find ways to reduce the state's vulnerability to natural hazards. Kitzhaber specifically called on the state's Department of Land Conservation and Development (DLCD) to review the *Statewide Land Use Planning Goal 7—Areas Subject to Natural Disasters and Hazards*.

*Goal 7* requires Oregon's incorporated cities and counties to inventory natural hazards and adopt "appropriate safeguards" to limit development in hazardous areas. The Community Service Center's Community Planning Workshop (CPW) at the University of Oregon was hired to evaluate the status of *Goal 7* and natural hazards planning in Oregon. The investigation showed that many communities experience difficulties in evaluating development proposals and implementing hazard risk reduction policies. Specifically, the CPW concluded the following:

- Most communities have not considered the cumulative impacts of development in hazardous areas.
- Many communities, particularly rural communities, suffer from a lack of technical resources. CPW identified a need for better technical assistance to local governments, business, and the general public.
- Oregon could benefit enormously from increased coordination among small businesses, government, community-based organizations, and citizens involved in natural hazards inventorying, as well as from development of effective statewide hazard mitigation policies.

In response to these findings, CPW began to work in partnership with government agencies and organizations to develop tools to strengthen the state's risk and loss reduction efforts. The University of Oregon's Community Service Center (CSC) established the Oregon Natural Hazards Workgroup (ONHW) in 2000 specifically to work on identified natural hazards issues in Oregon.

For the past 25 years the CSC, an interdisciplinary organization at the University of Oregon, has provided planning and technical assistance to local and regional entities, to help improve the quality of life in Oregon, and help make Oregon communities more self-reliant, while at the same time affording the highest quality of graduate-level education and professional training. The role of the ONHW is to link the skills, expertise, and innovation of higher education with the natural hazard risk reduction needs of communities and regions in Oregon, thereby providing a service to the state and learning opportunities for students. Through the CSC service-learning model, student participants gain important service and professional experience by helping resolve community and regional natural hazards issues.

In 2000, CPW and ONHW developed *Planning for Natural Hazards: Oregon Technical Resource Guide* for the DLCDC (funded, in-part, by a FEMA HMGP grant). This guide provides tools that Oregon communities can use to plan for, and limit, the effects of threats posed by natural hazards. Development of this guide was a first step in addressing risk reduction and providing education to planners and policy makers in Oregon communities.

### **Formation of the Partnership**

Through its public policy framework, Oregon has made progress toward reducing loss from natural hazards. The state's land use planning laws, building code requirements, emergency preparedness planning, hazards assessment, and other policies and programs have laid the groundwork for loss reduction and provide a sound foundation on which to build. However, efforts to change community and individual behavior toward managing risk are not well coordinated or funded, and tend to be a difficult "sell" to citizens and business owners, thus limiting the effectiveness of disaster safety messages.

Building upon the statewide risk reduction momentum, a group of partners, including the Oregon Department of Geology and Mineral Industries (DOGAMI), Oregon Emergency Management (OEM), SAFECO Insurance Companies and ONHW, expressed interest in becoming the second *Showcase State for Natural Disaster Resistance and Resilience* in the nation, based on a model developed by the Institute for Business & Home Safety (IBHS) and tested in Rhode Island.

On December 12, 2000, the Governor signed an Executive Order making Oregon a *Showcase State*. Oregon partners developed the motto *Disaster Resistant by Design* to reflect the importance of planning in order to reach the goal of disaster resistance and resilience. A key goal of the *Partnership* was to establish disaster safety as a public value among a diverse group of partners. The next flood, earthquake, or wildfire cannot be avoided. However, Oregon is making a comprehensive and concentrated effort to reduce the effects of such natural forces on its economic, social, and environmental stability and sustainability. The *Partnership* is an important step toward statewide disaster resistance and resilience.

The current mission of the *Partnership* is:

*To develop and sustain partnerships that offer a comprehensive, cost-effective approach for states, communities, and organizations to bring together resources – both human and financial – to enhance community disaster safety and risk reduction statewide.*

As part of the State's Interagency Hazard Mitigation Team (IHMT), DOGAMI and OEM continue to play leading roles in terms of state agency interest. Both agencies' missions include identifying natural hazards and reducing public safety risks. SAFECO Insurance Companies and the Insurance Information Service of Oregon and Idaho (IISOI) led private sector interest in minimizing property damage and economic losses and expediting economic recovery after a disaster. The ongoing work at the University of Oregon's Community Service Center further bolstered the *Partnership's* activities. ONHW served as the lead and coordinating body to unite partners in working to increase natural disaster safety and risk reduction statewide. The goal has been to coordinate limited resources to generate activities that could not be accomplished by any one group or organization working alone.

The *Partnership* is organized around a five-year strategic plan developed by ONHW that compartmentalizes the 14 elements of an IBHS Showcase State into five distinct working groups (WG): state hazard planning (WG1); business/economic recovery (WG2); pre-disaster mitigation communities (WG3); public awareness/education/outreach (WG4); and public/private partnerships and incentive programs (WG5). Each working group comprises various agencies and private organizations that work to meet the group's goals.

### **Figure 1: *The Partnership's* Organizational Framework**

In addition to ONHW and working groups, the *Partnership* was guided by the Project Advisory Committee (PAC), which included representatives from various stakeholder groups -- government officials, private sector representatives, and local community members. The PAC met quarterly over the first three years to guide the program.

### **Lessons Learned**

Current events as well as research continue to demonstrate the importance of pre-disaster planning, and the crucial connection between preparing for, responding to, and recovering from disasters. Historically, and nationally, there has been a focus on emergency response and preparedness and limited attention given to holistic risk reduction (e.g.: mitigation and long-term recovery). Implementing and ultimately modifying the IBHS Showcase State model utilized in Rhode Island, has provided Oregon an opportunity to replicate the model in a state where there are dramatically different hazards, geography, politics, and demographics. Oregon's focus on mitigation is part of a paradigm shift highlighting a more holistic and coordinated statewide risk reduction strategy, thereby providing a more cost-effective approach to reducing disaster loss.

The *Partnership* offers a model for increased communication, coordination, and collaboration between diverse partners that can be used to increase the capacity of communities to reduce their risk of loss from natural hazards. At this juncture, there is a need to reflect on the *Partnership's* efforts to extract the lessons learned from the process to best determine its 'next steps', while providing other states with an insight into the process of building a more holistic and coordinated statewide risk reduction strategy. In fact, since 2000 ONHW has been involved in advising other states on how they can use elements of this model to augment their own current natural hazard mitigation work.

### **A Review of the Partnership's four Cs:**

#### **Communication, Coordination, Collaboration, and Capacity Building**

The *Partnership* provides a comprehensive, cost-effective approach for partners to bring together resources – both human and financial – to enhance, develop, and deliver disaster safety and preparedness projects statewide. The *Partnership* fosters communication, coordination, and collaboration among private and public agencies; works with communities and organizations to determine needs, identify issues, and develop resources and 'on the ground projects' to build local capacity for risk reduction.

#### **Communication**

The *Partnership* has exerted tremendous effort to identify and communicate with the many different players in Oregon's risk reduction environment. Our communication efforts were multi-directional between key partners and stakeholders (e.g., state and federal agencies, local jurisdictions, insurance industry, etc.) in addition to being multi-dimensional focusing on various audiences (e.g., planners, elected officials, businesses, home owners) with various objectives (e.g., regulations, business operations, home safety). The purpose of focusing on communication was to bridge the gap between state and community, business and government, science and policy, and theory and practice. Often agencies and individuals operate in isolation and do not know what each other are doing. The first step of bridging the gap was to focus on increasing awareness about natural hazards and resources available to address them. Not until people or organizations are aware can they begin to increase their understanding, make different choices, and utilize the resources available to them, and ultimately change their behavior.

Communication about natural hazards was increased around the state by means of a newsletter that was sent to all elected officials, and the creation of a comprehensive web site about natural

hazards. The *Partnership* found it difficult and very time consuming to form and sustain communication channels with as many different types of organizations/agencies as desired, specifically in the private sector, and to disseminate the overall disaster safety message, though considered important and supported by most partners. The *Partnership* was successful in communicating with the private sector when the message was focused and related to a specific activity or result.

Another communication-related issue is the fact that natural hazards are often not a priority with the majority of the public, state agencies, and businesses. Therefore, it was difficult to find ways to communicate with them. The *Partnership* learned that weaving natural hazard information into existing communication strategies is more successful than developing stand-alone awareness campaigns. For example, The *Partnership* supported a project to give people information when they obtain a building permit about ways they can retrofit their houses to make them less susceptible to earthquake damage.

Since 2000 ONHW, as the coordinating entity, has defined and redefined communication channels within the state and nationally. ONHW continues to utilize the leveraged communication strategy highlighted in the *Partnership's* five-year strategic plan. It is important to note that communication between stakeholders is essential in order to pave the way for coordination. The better agencies and organizations are able to communicate, the better they will be at determining needs, identifying issues, resources, and ultimately developing strategies for holistic risk reduction.

### **Coordination**

While many of the *Partnership's* efforts and projects have been recognized both within the State and nationally, funding coordination continues to be undervalued and challenging. Before the creation of the *Partnership*, one of the most significant needs in the natural hazard risk reduction arena was for a coordinating body to bring together the diverse partners involved in natural hazard risk reduction projects throughout Oregon.

As that coordinating body, ONHW was ultimately responsible for the bulk of *Partnership* activity. These activities included primary responsibility for coordinating the quarterly Project Advisory Committee meetings, the quarterly community training series, public outreach, partnership development, the Oregon Pre-Disaster Mitigation Program, and other activities under each working group.

Because the *Partnership* comprises many different organizations, the coordinator must adapt to the schedules, styles, and agendas of the various players. For example, the ways that private businesses want and need to be involved greatly differ from those of state agencies or communities. Responding to these varied needs while coordinating and managing *Partnership* activities is very demanding. With the broad based funding no longer available for ONHW to continue these coordination efforts, the *Partnership* needs to look critically at the prioritized areas for activity and decide if and how other partner agencies and organizations can be involved to accomplish the long term goals.

### **Collaboration**

Strong collaborative partnerships are necessary to achieve the goals of *The Partnership* and to ultimately reduce risk statewide and in local communities. This collaborative approach can generate activity that could not be as effectively accomplished by any single group/entity working alone. However, maintaining a true collaboration is time-consuming and requires someone to coordinate the various agencies, organizations, and private sector partners. Over the years of the *Partnership*, member agencies were hesitant to establish collaborative efforts, perhaps because of the additional time required, even though the benefits of working together were clear. The *Partnership* experienced the most success with collaboration when specific agencies had to work together to perform a specific task (e.g., product driven) that would directly benefit all agencies involved, such as joining together to write a grant.

We also found that a “champion” - someone who holds the belief that working together is important and is willing to engage in new activities – is vital to collaboration. For example, the *Partnership* collaborated with State Farm and Safeco Insurance companies for two years on multiple projects; however, when the “champion” left, future of this collaborative relationship was in question. At the very least, it requires time and resources to establish a new relationship and build trust with the company. There is a need to institutionalize relationships to make long-term collaborations work. The task of collaboration needs to be written into job descriptions and organization goals and action items. High-level leaders need to work together so that decisions are made efficiently and support is given. Building trust among organizations/agencies is not an easy task – it takes patience, persistence, creativity, and commitment, and these require commitment of staff time and money.

One of the most successful collaborative efforts was as a result of FEMA’s Interim Final Rule 44 CFR Part 201, which requires all states and communities to develop natural hazard mitigation plans. These planning and mitigation requirements are to be accomplished through the Pre-Disaster Mitigation Program (PDM). ONHW worked with the *Partnership*, Oregon Emergency Management (OEM), FEMA and local governments across the state to coordinate *Partnership* activities in a manner consistent with the Pre-Disaster Mitigation Program’s new requirements. This effort yielded numerous successful plans, projects, and risk reduction activities throughout the state.

### **Capacity Building**

Collaboration between the Oregon Pre-Disaster Mitigation Program and the *Partnership* has helped achieve the broad goals of both programs, while increasing community capacity to reduce risk and address the requirements of the new Federal Rule. OEM, ONHW, and the *Partnership* have worked together to establish a collaborative approach to mitigation planning and activities that promote inter-governmental coordination, foster public-private partnerships, and build local capacity to develop risk reduction strategies and activities. This has led to an integrated, cost-effective and systematic approach at all levels of government and the private sector by bringing together resources – both human and financial – to prepare for and minimize natural disaster impacts.

The activities of both programs have provided measurable outcomes that serve to institutionalize disaster protection into long-range policies, procedures, programs, designs, and plans and to take immediate action in reducing costs associated with disasters. Oregon communities have become more disaster-resistant as this undertaking found ways to link various programs and partners with specific community needs. Project progress and successes were assessed through quarterly reporting methods.

Furthermore, the process aims to incorporate economic, environmental, cultural, and historical considerations into natural hazard mitigation planning while adhering to state and federal requirements for community mitigation planning. These requirements include the Disaster Mitigation Act of 2000 (44 CFR 206), Oregon Statewide Land Use Planning Goal 7, and Senate Bill 360, among other federal and state requirements for mitigation planning. As a result of these coordinated planning efforts, Oregon communities submitted 16 project proposals to FEMA’s national competitive Pre-Disaster Mitigation program in 2005. Of the proposals submitted, 14 were selected for funding -- for potential total of more than \$14.5 million in federal funding for mitigation projects this year. Through the *Partnership*, ONHW leads the largest coordinated and collaborative pre-disaster natural hazard mitigation planning effort in the State. This planning initiative covers more than one-third of the geographic area of Oregon and nearly one-third of its counties. The following page provides an activity map for 2004 through 2004.

## **Specific Lessons Learned by Working Groups**

### ***Challenges***

The most difficult aspects of WG1 have been to consistently maintain agency interest and involvement in natural hazard risk reduction efforts under the pressure of shifting priorities and shrinking budgets at partner agencies. Although state agencies recognize the need to plan for natural hazards, it is difficult for them to commit the time and resources (both human and financial) necessary to make this working group more effective and productive. Participants tended to have a myopic vision that limited the creativity and collaboration of the IHMT. They stated that it wasn't in "their job description" to increase mitigation efforts around the state.

### ***Opportunities***

This working group was successful in completing a State Natural Hazard Mitigation Plan that not only met federal criteria but also incorporated key aspects for building local capacity to develop plans and partnership. Thanks to the success of this project, agencies are excited about and committed to pursuing the activities defined in the plan. Oregon Emergency Management (OEM) continues to offer direction and vision to this WG and will be essential to its success. As exemplified by the increased engagement of this working group in the creation of the State Natural Hazard Mitigation Plan, the working group has the opportunity to develop multi-agency, multi-objective, and multi-hazard projects, with specific deliverables, thereby increasing their effectiveness as a working group and a team. Under the *Partnership*, there are new grant opportunities arising for the State to seek. To sustain the *Partnership*, we need to investigate ways for each agency to appropriate \$7,500 per year out of its budget to place in a general fund to support *Partnership* communication, coordination, and collaboration efforts. If this had taken place, there would have been enough money to replace the private start-up grant (PERI funding) and provide much-needed leverage to qualify for federal funding.

## **Working Group 2: Business and Economic Recovery**

WG2 is composed of agencies and organizations that contribute to the business recovery and long-term economic stability of Oregon in dealing with natural hazard events (ONHW 2002).

### ***Challenges***

This working group had a difficult time organizing and completing activities because of difficulties involving and communicating with private partners. Natural hazard mitigation is not a top priority for many businesses because they do not see how it relates to their bottom line. Since few businesses were involved in the *Partnership*, it was difficult to develop a project that would attract more businesses. Some Chamber of Commerce members expressed interest in the *Partnership*, but they did not follow through with participation. The challenge is to make a direct connection to business operations.

### ***Opportunities***

Over the past year, the *Partnership* has experienced an increase in requests for information and involvement from private vendors; however they have not agreed to become partners. A macro/micro approach through PDM planning activities is one strategy that could help find creative ways to involve these firms in promoting the *Partnership* while also promoting their businesses. At the macro level, the *Partnership* should focus on raising the awareness of businesses about the relationship between their bottom lines and natural hazard mitigation. Only when businesses are aware of the risk of natural disasters and the ways they can mitigate their effects will a change in behavior occur. Awareness campaigns could be run through community development corporations and other groups that deal with the economic development of the community.

At the micro level, the *Partnership* could work with a few specific non-profits or businesses in communities that are developing natural hazard mitigation plans to show them how they can reduce risk of damage from natural hazards and thus lower potential costs of recovery. These businesses would become examples for other businesses around the state. This working group

will be more effective as a subset of Working Group #3, because of the need to focus efforts in a specific community.

### **Working Group 3: Pre-Disaster Mitigation Communities**

This Working Group is based on FEMA's Interim Final Rule 44 CFR Part 201, which requires all states and communities to develop natural hazard mitigation plans. These planning and mitigation requirements for states and communities will be accomplished, in part, through the Pre-Disaster Mitigation (PDM) Program. Working Group 3 consists of all those communities participating in the PDM program and developing a natural hazards mitigation plan (ONHW 2002).

#### **Challenges**

The most difficult aspect of WG3 is the amount of resources required to support its high level of activity. Communities need training, technical assistance, and consistent monitoring. Even though they have many resources available to them, some communities start their plan but have a hard time finishing it because other priorities arise that take precedence. For example, communities have a difficult time committing to the training series because of high workloads and limited human resources. They might come for the first training and then do not attend others.

#### **Opportunities**

FEMA's requirement of completing local natural hazard mitigation plans prior to applying for FEMA mitigation project funds is a huge incentive for communities to develop a natural hazard mitigation plan. OEM and ONHW have been extremely successful in obtaining funding to build local capacity in developing natural hazard risk reduction plans. Additionally, as more communities successfully complete the PDM trainings, develop plans, and successfully implement mitigation projects, natural hazard awareness increases in the state. Those communities that have been through the process can become mentors to other communities that are just beginning. This mentorship model is an effective way to build capacity within the state. Increased partnerships between communities and state agencies will be valuable when applying for grants as collaborative effort is critical in obtaining grant funding.

ONHW works with communities to identify and fund local individuals to serve as project leaders for plan development. The goal is to have the local champion or project lead work with the Oregon Natural Hazards Workgroup and a local Community Organizer/or planning group. The Community Organizer is often a resident and/or government employee who has taken proactive mitigation measures in his/her own community and is able to communicate on a peer-to-peer level. In this capacity, the Community Organizer is able to illustrate that *everyone* can and should play a role in the mitigation planning process. For the past two federal fiscal years, ONHW through the *Partnership*, is leading both grant development and implementation of regional coordination of collaborative pre-disaster natural hazard mitigation planning efforts in the State. The 2006 planning initiative covers more than 1/3 of the geographic area of Oregon and nearly 1/3 of the counties, with half the grant funding going to community staff.

### **Working Group 4: Public Awareness, Education, and Outreach**

WG4 is comprised of agencies and organizations that can contribute to public awareness, education, and outreach efforts associated with natural hazard mitigation planning. Specifically, the group works to foster communication between various groups engaged in hazard awareness and outreach. Key activities in this WG are a natural hazards newsletter, an email listserv, and a natural hazards web site (ONHW 2002).

#### **Challenges**

As with most of the working groups, ONHW, the coordinating body of the *Partnership*, has shouldered most of the effort to maintain *Partnership* outreach and education initiatives. Some partner agencies write articles for the newsletter and informally spread the word about the *Partnership*. In addition to the amount of time communication consumes, long term funding of outreach efforts such as the newsletter and awareness campaign will continue to be a challenge.

### **Opportunities**

To streamline outreach activities, the *Partnership* could closely align its outreach efforts with those of the state and other organizations such as OEM and Department of Land Conservation and Development. Partner agencies will need to take a more active role in education and outreach efforts. This working group will be more effective as a subset of WG #1 and #3, because of the need to focus efforts in a specific community.

### **Working Group 5: Public/Private Partnerships & Incentives**

WG5 works to establish new public/private partnerships, further integrate existing partners as well as develop incentive programs for natural hazard risk reduction activities (ONHW 2002).

### **Challenges**

During the three years of the *Partnership*, ONHW was the sole organization working on partnership development, which is very time intensive. Partnership development often consisted of creating new partnerships instead of deepening the involvement of those partnerships already established. It has been extremely difficult and frustrating to develop partnerships with key agencies only to have them dissolve because of personnel turnover. In most cases, partner involvement with the *Partnership* fluctuated depending on how much assistance/benefit the partner received. Incentive programs were very hard to develop because the *Partnership* does not have many private partner organizations that have the flexibility to offer incentives.

### **Opportunities**

Although developing partnerships is difficult and time intensive, every year the number of partners grew. Specific projects with distinct roles for partners will help increase responsibility in the *Partnership* and will give partners tangible tasks and successes.

Incentives are one way to encourage partners to stay involved and complete natural hazard activities. The federal government is likely to continue to offer incentives to those communities that have FEMA-approved plans through allowing them to apply for greater project funding. The *Partnership* should continue to pursue private organizations for help with incentives.

**Table 1: Working Group Challenges, Opportunities and Future Actions**

<b>Working Group</b>	<b>Challenges</b>	<b>Opportunities and Future Actions</b>
1) <i>State Hazard Planning</i>	<ul style="list-style-type: none"><li>• Working on more projects besides the State Natural Hazard Plan</li><li>• Maintaining project momentum with shifting agency priorities</li><li>• Securing state funding for sustaining <i>Partnership</i> coordination and leadership</li></ul>	<ul style="list-style-type: none"><li>• Energy of completing state mitigation plan on time may add to updating key aspects of the plan; develop specific projects with concrete tasks, and create action oriented meetings</li><li>• Oregon Emergency Management (OEM) has continued to be a strong leader of the IHMT; use periodic meetings at OEM and IHMT to look for ways to implement state mitigation plan</li><li>• Investigate ways that each agency could appropriate \$7,500 per year out of their budget to a general fund to support <i>Partnership</i> communication, coordination, and collaboration</li></ul>
2) <i>Business and Economic Recovery</i>	<ul style="list-style-type: none"><li>• Difficulty initiating activity to build momentum and gaining consistent involvement from private businesses</li></ul>	<ul style="list-style-type: none"><li>• Increased requests for information and involvement from private businesses; conduct more partnership meetings with private business groups Include business economic recovery in community mitigation strategies</li></ul>

	<ul style="list-style-type: none"> <li>• Lack of funding to support business economic recovery efforts</li> <li>• Engaging the insurance industry as a key partner</li> </ul>	<ul style="list-style-type: none"> <li>• Develop strategies - develop an awareness campaign that focuses on the financial benefits of planning for natural disasters.</li> </ul>
3) <i>Pre-Disaster Mitigation Community</i>	<ul style="list-style-type: none"> <li>• ONHW dedicated large amounts of time to this working group</li> <li>• Sometimes difficult to maintain interest and attendance throughout the year at the quarterly trainings</li> <li>• Inconsistent funding schedule from FEMA</li> </ul>	<ul style="list-style-type: none"> <li>• Jurisdictions have successfully gone through the quarterly training series and can be called upon to provide feedback and mentor other communities; connect project lead in community who completed mitigation plan with someone new going through the process</li> <li>• As mitigation projects are successfully implemented, the interest in local planning may grow</li> </ul>
4) <i>Public Education, Awareness, and Outreach</i>	<ul style="list-style-type: none"> <li>• ONHW dedicated large amounts of time to this working group</li> <li>• Maintaining funding for the <i>Partnerships in Action</i> newsletter is difficult</li> </ul>	<ul style="list-style-type: none"> <li>• Key state agencies such as OEM and DLCD are helping to support outreach efforts; develop ways that other agencies can help with the task</li> <li>• Streamline outreach efforts by combining with state efforts, bolster on-line and alternative newsletter efforts</li> </ul>
5) <i>Public/Private Partnerships and Incentive Programs</i>	<ul style="list-style-type: none"> <li>• Very time intensive working group; the travel time and cost was substantial</li> <li>• Partnership development often consisted of creating new partnerships instead of further developing existing ones</li> <li>• Extremely difficult and frustrating to further develop partnerships due to turnover of key personnel</li> </ul>	<ul style="list-style-type: none"> <li>• In every year of the <i>Partnership</i> the number of partners grew; hold summit of existing partners to look for ways to increase partnership coordination or to restructure involvement; revisit what each partner brings to the table</li> <li>• Incentives to engage will continue as FEMA continues to reward those who have developed complete plans</li> </ul>

Drawing on lessons learned, the Oregon Natural Hazards Workgroup hopes that *the Partnership* will find sustainable ways to evolve by wisely investing time and resources. This section of the report proposes some of next steps for the *Partnership* during this period of transition.

As the *Partnership* makes structural and programmatic changes, its purpose should remain the same-- to foster communication and collaboration among private and public agencies; work with communities and organizations to determine needs; identify issues and resources (both human and financial); and help develop strategies and build the capacity to address natural hazards and the Disaster Mitigation Act of 2000.

### **Structure**

The key to the *Partnership's* success is its ability to maintain a global vision of risk reduction, while executing projects with precision. To sustain this ability, the Partnership should consider these structural changes:

**Realign working group architecture to streamline operations:** Instead of continuing with five working groups, consolidate all activity into two working groups – the state working group and the community working group. The State IHMT will continue to guide state-wide activity and a group composed of representatives of professional organizations and communities would take responsibility for the community working group.

**Develop an Advisory Board to oversee Partnership activities:** The Advisory Board would take the place of the Project Advisory Committee (PAC). Whereas the PAC consisted of approximately 20 people, the Advisory Board should consist of 5-7 key players representing the two defined working groups. Under this new structure, ONHW would still operate as the coordinating entity for the partnership, leveraging the ONHW Community Service Learning model to bridge activities and implement collaborative projects.

### **Strengthening the 4 Cs: Coordination, Communication, Collaboration, and Capacity**

A primary role of the *Partnership* is to link the skills, expertise, resources, and innovation of higher education, federal agencies, professional and trade organizations, and state agencies to local risk reduction strategies. Developing these linkages requires **communication, coordination, and collaboration** aimed at building local **capacity**. Following is a list of ways the Partnership can strengthen the 4 Cs.

**Create a stronger communication network with federal partners and programs:** *Partnership* projects offer federal agencies and representatives a direct line to communities through outreach, training programs, and plan and project development. The *Partnership* should work with federal partners such as the U.S. Department of Homeland Security/FEMA, the US Geological Survey (USGS), the National Oceanic and Atmospheric Administration (NOAA), and the U.S Forest Service to develop a communication network.

**Establish a link to national organizations, associations, and professional organizations:** The *Partnership* should create relationships with national organizations and associations to facilitate the sharing of information in both directions – from communities to the national organizations and vice versa. This would allow national organizations to better understand local perspectives on the challenges and opportunities regarding risk reduction, while local communities would gain access to national resources. Potential organization partners include: the National Association of Counties, National League of Cities, the Risk and Insurance Management Society, the Public Risk Management Association, National Emergency Managers Association (NEMA), the American Planning Association (APA), the Association of State Floodplain Managers (ASFPM), the National Firewise Communities USA Program, Small Business Development Centers at the national and regional levels, and the Institute for Business & Home Safety.

**Enhance its relationship with Oregon universities and continue to engage in applied research and service learning:** the *Partnership* should develop relationships with other universities, in Oregon and nationally, to provide a critical link to regional and national university research centers and expertise, and offer professional development opportunities for students and visiting experts. The concept is to coordinate regional activities at existing or established

universities or community/state organizations and to provide a direct link between service learning and risk reduction, using the University of Oregon's Community Service Center (CSC) service learning programs as a model.

### **Community Assistance and Capacity Building**

The *Partnership* should continue to address risk from a local community perspective and the reality that all the pieces of risk reduction, mitigation, and preparedness need to be woven into the local decision-making process and programs. The intent is to offer communities a seamless support network aimed at building their capacity to address risk reduction in a holistic and sustainable fashion. The *Partnership* can accomplish this by linking federal and state agencies, professional organizations, resources, and programs directly to communities, individuals, businesses, and organizations engaged in managing complex local risk issues. Five specific services that the *Partnership* can provide to enhance community assistance and build capacity to reduce risk have been identified. Based on the lessons learned during the first three years of the Partnership, services need to yield tangible deliverables.

### **Regional, State & Community Needs Assessments**

Identify and evaluate community needs and opportunities for resource sharing to encourage and support state and local risk reduction. This includes the identification of social, political, environmental, financial, and other resource barriers and problems that impede incorporation of risk reduction policies, strategies, and programs into existing state and community programs. Assessments will be accomplished by the State's Interagency Hazard Mitigation Team as part of the State's Natural Hazard Plan and/or the Oregon Natural Hazards Workgroup and the University of Oregon.

### **Communication and Coordination**

Place graduate level students in the defined region for one year's work at the Emergency Management offices or other agencies or organizations where they live and work in order to help improve risk reduction capacity statewide. This technical assistance component of the *Partnership* will be based upon the CSC-established Resource Assistance for Rural Environments (RARE) program. Students would assist in the coordination and development of Citizen Corp, Senior Corp, and Americorp programs at the local level.

Continue development and enhancement of the website ([www.OregonShowcase.org](http://www.OregonShowcase.org)) as a regional information and resources clearinghouse relating to natural hazards planning, risk reduction, sustainability, and *Partnership* activities. This will allow partners and other interested parties across the region and the United States to share information and resources over the Internet.

### **Community Plan, Policy, and Program Implementation Support**

Align communities with partners to build local capacity for disaster safety and risk reduction in order to develop a support network among communities and partners.

Give technical support to communities to develop and implement hazard risk reduction plans or policies by providing training programs, workshops, and hands-on assistance to communities.

### **Regional Training, Work Sessions, and Capacity Building**

Implement existing and new training programs that benefit communities, agencies, and partners involved in natural hazard risk reduction. Leverage programs that bring in resources for environmental protection and enhancement, and which also provide hazard mitigation benefits (FEMA, USGS, EDA, Firewise, and related funding programs)

Training programs will improve the interface between scientists, decision makers, and citizens to facilitate informed use of technical resources, scientific information, tools, and products. (Training would utilize numerous resources including the FEMA "How-To series", Firewise, and other resources developed by ONHW and others)

### **Resources Tools and Product Development**

Collaborate with public, academic, and private partners to develop and distribute multidisciplinary tools and products aimed at risk reduction.

Distribute resource manuals and CDs that assist communities in planning and preparing for natural hazards (e.g., *Technical Resource Guide*, *Natural Hazard Risk Reduction Plan Framework*, IBHS' *Open for Business* CD or print version, etc.).

### **Required Resources**

Based upon the success of the current *Partnership* activity in Oregon, we believe a collaborative partnership approach and diversified funding strategy are necessary for the success of the proposed 'next steps concept'. Our hope is to continue to work with our core group of partners to develop grants and contracts to sustain future *Partnership* activities. This group, under the direction of ONHW, has secured more than \$1.8 million dollars in competitive Pre-Disaster Mitigation planning grant funds for seventeen counties under the *Partnership* umbrella. It is our intention to continue to develop a diversified funding strategy for the 'next steps concept' that seeks a financial commitment from a broad group including, but not limited to, FEMA, USGS, BLM, state partners, private foundations, and corporations.

However, maintaining funding for coordination of risk reduction continues to be a challenge. To illustrate this fact, as of October 14, 2005 Congress is proposing to provide \$50 million dollars in nationally competitive grant funds for mitigation in 2006. This represents a \$100 million dollar cut from the previous year and is only .00025% of the projected Gulf Coast response and recovery estimates (\$200 billion), yet research has shown that \$1 dollar in mitigation can yield \$10 in savings. We need to think of the disaster cycle as an equation. Every risk or vulnerability we mitigate today reduces our overall exposure by decreasing the pressure on the response side of the disaster cycle and lowering recovery costs from future events.

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## **Purpose**

To expose the student to a vocabulary list of common terms associated with comprehensive and master planning documents.

## **Directions**

Review the vocabulary list attached as a part of the Pre-Course Assignments.

While memorization is not essential, you should prepare for an activity in class on the first day that will assess your ability to associate these terms with their definitions.

**ACCESSORY DWELLING UNIT (OR APARTMENT):** A secondary dwelling unit established in conjunction with and clearly subordinate to an existing single family detached dwelling unit.

**ADEQUATE PUBLIC FACILITIES (APF):** Facilities and services (including water and sewer systems, fire protection and roads) that are available and have the capacity to serve new development without reducing levels of service below established minimum standards.

**ADT:** Average daily trips; used as a measure of impact on the transportation system.

**AFFORDABLE DWELLING UNITS (ADU):** Sale or rental housing units to serve households with incomes up to 70% of Metropolitan Statistical Area (MSA) median which are required to be included in certain housing developments. In return for provision of this housing, additional development density is granted. Eligible occupancy, sales prices and rents of ADUs are controlled for a certain period of years.

**AFFORDABLE HOUSING:** For purposes of the Policy Plan, housing which is affordable to households with incomes that are 70% or less of the Metropolitan Statistical Area (MSA) median family income. The MSA median family income is determined periodically by the U.S. Department of Housing and Urban Development.

**ASSISTED LIVING:** Assisted living is an industry term for multifamily housing with congregate and personal care services. Assisted living goes by many names, including personal care, residential care, congregate care and in some areas, board and care. The services offered vary widely, but frequently include as core services, meals, housekeeping and transportation and often some assistance with laundry, grooming, medication management and other functions of daily living. Special care units in some facilities care for individuals with cognitive impairment and respiratory assistance needs. Unless an assisted living facility is a component of a continuing care or "life-care" community, it does not offer the health care services of a nursing facility.

**BEST MANAGEMENT PRACTICES (BMPs):** A practice, or combination of practices, that is determined to be the most effective, practicable means of preventing or reducing the amount of pollution generated by non-point sources to a level compatible with water quality goals.

**BETTER SITE DESIGN:** Site and subdivision design techniques that minimize impacts to the natural environment, including topography, hydrology, vegetation, natural habitat, groundwater recharge, and stormwater runoff. Such a design respects these natural systems by employing practices that minimize impacts to these systems both on and off site.

**BREAKWATER:** A fixed or floating structure usually constructed parallel to the shoreline to protect the shoreline from erosion by dissipating wave energy before it reaches the shore. Typically, in order to address erosion over a reach of shoreline, a series of breakwaters are constructed.

**BUFFERING:** That area of open land which serves to mitigate potential conflicts between differing types of land uses. Buffer zones are most commonly employed between different types of uses but, in certain circumstances, it may be appropriate to provide a buffer between high and low density residential uses.

**BULKHEAD:** A vertical structure or partition, placed on a bank or bluff and usually running parallel to the shoreline, for the purpose of retaining upland soils while providing protection of the inland area from wave action. Bulkheads are generally smaller than seawall structures and are designed to retain upland soils while providing protection from minimal wave action.

**CAPITAL EXPANSION FEES:** Fees paid by new development for the impact of that development on public facilities; also known as impact fees or exactions.

**CAPITAL FACILITIES:** Land and structures used by the public including fire stations, parks and schools; also called public facilities.

**CAPITAL IMPROVEMENT PROGRAM (CIP):** The CIP guides the development of public facilities over a five year period. It shows the arrangement of projects in a sequential order based on a schedule of priorities and assigns an estimated cost and anticipated method of funding each project. The Capital Improvement Program provides the financial foundation necessary to implement the Comprehensive Plan and public facilities plans.

**CLUSTER DEVELOPMENT:** Development in which individual lots may be smaller than the average lot authorized by the zoning ordinance. Buildable lots are located on a portion of rather than the entire site so that the residual area may be preserved for recreation or environmental protection.

**COLLECTOR STREET:** A street that provides direct service to and from local areas, routing traffic to the arterial street system. A Collector Street provides the primary means of circulation between adjacent neighborhoods and can serve as a local bus route. The Street provides for

the dual purpose of land access and local traffic movement. Generally, these roadways are not used for through trips.

**COMMUNITY BUSINESS CENTERS (CBC):** The Land Classification System category for Centers that contain retail, office, residential uses, and parks (including Urban Parks and active recreational/cultural facilities) in a community scale, pedestrian oriented setting. These centers typically contain over 1,000,000 sq. ft. of commercial space.

**COMMUNITY INFLUENCE AREA (CIA):** An area designated in an Intergovernmental Agreement within which County development applications will be sent to the adjacent municipality for comment and review.

**COMMUNITY SERVICES:** Retail, office and institutional uses that primarily serve the residents of surrounding neighborhoods. Examples of community services include dry cleaners, grocery stores, hardware stores and travel agencies.

**COMMUTER PARKING LOT:** Facility where commuters may park their vehicles and then travel via carpool, vanpool, bus service, or rail service.

**COMMUTER RAIL STATION:** Facility where passengers may board commuter rail train service. Facility typically includes passenger waiting areas, ticketing and information areas and parking areas.

**CONCURRENCY:** Adequate public facilities are available when the impacts of development occur.

**CONSERVATION:** The restoration, stabilization, management, and wise use of natural and heritage resources for compatible educational, recreational, aesthetic, agricultural and

**COOPERATIVE PLANNING AREA (CPA):** An area beyond a municipality's immediate urban planning area (Urban Growth Area or Growth Management Area) where urban level development is not appropriate within the municipal plan's time frame but where development may have an impact on present and future municipal growth patterns. CPAs will be defined in Intergovernmental Agreements and development standards in these areas will be based on jointly developed plans.

**CULTURAL RESOURCES:** Cultural resources are those sites or structures, including their landscape settings that exemplify the cultural, architectural, economic, social, political, or historic heritage of the County or its communities. A site or structure which is part of the area's cultural heritage; that is, which typifies a particular stage of man's activity in the area. Cultural resources include archeological sites, historic buildings and sites, and undisturbed natural sites that have historic or prehistoric associations including those with paleontological (fossil) specimens.

**CUT THROUGH TRAFFIC:** Traffic that utilizes local streets rather than the arterial roadway network for through movement. Various operational and design techniques may be applied to alleviate this problem.

**dBA:** A measurement unit of noise. The term dBA refers to a measurement of sound pressure on the "decibel" scale weighted to approximately the sensitivity of the human ear to certain frequencies.

**DEDICATION:** The transfer of property rights from private to public ownership. Land so conveyed to the local government may be used for streets, schools, parks, utilities, etc. The governing body must formally accept the dedication for the transaction to be complete.

**DENSITY:** The number of persons or dwelling units per acre.

**DESIGN STANDARD:** A standard contained in a land use regulation which relates to design of a subdivision, site plan or structure; for example, the requirement for 80% open space in a Rural Conservation Development subdivision.

**DEVELOPMENT INTENSITY:** A quantitative measure of non residential and mixed use development, which may include residential components, usually expressed in terms of floor area ratio; the mix and distribution of uses within a given area that determines the impact on public facility systems and transportation facilities.

**DEVELOPMENT RIGHT:** The right to develop property. This right may be purchased or transferred

**EASEMENT:** A grant by a property owner of the use of his or her land by another party for a specific purpose.

**ECOLOGICAL RESOURCES:** Biological species, communities and habitats characterized by high biological productivity, diversity, and/or connectivity, that are valuable because of their scarcity, their uniqueness, their pollutant removal abilities, and/or their aesthetic benefits.

**ECONOMIC DEVELOPMENT:** Activities aimed at job creation, retention and expansion, which strengthen a community's economic base and provide employment opportunities for the population.

**ENHANCED PUBLIC TRANSPORTATION CORRIDOR:** Major public transportation facilities (such as rail transit or high occupancy vehicle lanes) will be provided in these corridors, based upon the results of a comprehensive alternatives analysis. Final facility locations are subject to the completion of the Area Plans and/or other appropriate studies. See the Transportation Plan Map for identification of the corridors.

**ENVIRONMENTAL QUALITY CORRIDORS (EQCs):** An open space system designed to link and preserve natural resource areas and provide passive recreation. The system includes stream valleys, wildlife habitats, and wetlands.

**F.A.R.:** Floor Area Ratio. An expression of the amount of development (typically non residential uses) allowed on a specific parcel of land. F.A.R. is determined by dividing the total square footage of buildings on a site by the amount of site square footage. Thus, a permitted floor area ratio of 3.0 on a 10,000 square feet lot would allow a building whose total floor area is 30,000 square feet.

**FEE-IN-LIEU:** A fee paid instead of making a land dedication, capital improvement or other requirement, and equivalent to that requirement. An example is a fee-in-lieu of a school site dedication as part of a subdivision approval.

**FLOODPLAIN:** Those land areas in and adjacent to streams and watercourses subject to periodic inundation from flood events. For instance, the 100 year flood frequency event has

**GOVERNMENT ASSISTED HOUSING:** Housing constructed and/or managed under programs which limit the amount of rent charged and the eligibility of occupants based on income. These limits are a condition for the provision of financial assistance from federal, state or local sources.

**GROIN:** A shore protection structure built usually perpendicular to shoreline to trap sand moving along the shoreline in order to accrete sand and thus retard erosion of the shore.

**GROUP HOMES:** Homes in which moderate amounts of support services are provided and appropriate for persons with physical, mental, emotional, familial or social difficulties who are somewhat self sufficient but who benefit from living in groups of five to eight persons.

**GROWTH MANAGEMENT:** A system of land use regulations designed to influence the location, timing and character of development, instead of controlling the amount or rate of growth.

**GROWTH MANAGEMENT AREA (GMA):** An area adjacent to a city or town and identified for future urban development according to a community plan.

**GUIDING PRINCIPAL:** A statement of policy or intended direction.

**HAZARDOUS MATERIALS:** Substances that are harmful to human and environmental health and/or safety in relatively small quantities. Such materials include flammable, combustible, corrosive, reactive, and toxic substances as well as any other substance defined as "hazardous" by the state or federal government.

**HIGH OCCUPANCY VEHICLE (HOV) FACILITIES:** Roadways or roadway elements that are restricted to use by carpools, vanpools, transit or other High Occupancy Vehicles during certain

time periods. HOV facilities may consist of designated diamond lanes, or exclusive facilities separated from conventional traffic by barriers.

**HISTORIC OVERLAY DISTRICTS:** A zoning tool used to regulate architecture in areas containing heritage resources to ensure compatibility with the resources. Site design, facades, and building materials must be reviewed and approved by an Architectural Review

**HYDROCARBON RUNOFF:** The entrainment and transport by stormwater runoff of petroleum products, such as motor oil, originally deposited onto impervious surfaces by motor vehicles.

**IMPACT:** The potential direct or indirect effects of a proposed development on activities, utilities, traffic, surrounding land uses, the environment and other factors.

**IMPACT FEES:** Same as capital expansion fees (see above).

**INDEPENDENT LIVING FACILITY:** a residential development that is limited to occupancy by elderly persons and/or persons with disabilities. Such a facility shall provide: (a) dwelling units with complete kitchen facilities, (b) supportive services such as meals, personal emergency response systems, recreation and transportation services, and (c) design features, such as wider doorways and hallways, accessible-ready bathrooms and lower light switches.

**INDUSTRIAL AREAS:** The Land Classification System category for areas that are intended to provide suitable locations for industrially related uses. The category does not allow residential uses and generally limits future office uses to those which are ancillary to an area's industrial uses.

**INFILL:** Development on vacant or underused sites within an established development pattern.

**INFRASTRUCTURE:** The network of vital systems that comprises the improvements and publicly funded facilities added to the built environment to support new development and growth. Such systems include transportation, sanitary sewer, communications, stormwater, solid waste disposal, and water treatment and distribution.

**INTERGOVERNMENT AGREEMENT (IGA):** A contractual agreement between the County and another governmental entity. IGAs with municipalities are the County's primary means of achieving coordinated planning for the areas adjacent to town limits. The agreements define appropriate future urban areas (see Growth Management Areas above) and establish standards and procedures for development in these areas. They may also define Cooperative Planning Areas and Community Influence Areas (defined above).

**LAND USE:** A description of how land is used or occupied.

**LAND USE CODE:** A document containing or referencing all of the county's land use regulations, including zoning district provisions and subdivision requirements. The document is also described as the unified Land Use Code because it brings together all the regulations under

a single administrative procedure, with uniform definitions and other common elements to achieve a more understandable, user-friendly regulation.

**LEVEL OF SERVICE:** A qualitative measure of the effect of a number of traffic factors, including speed and travel time, traffic interruptions, freedom to maneuver, safety, driving comfort and convenience, and traffic volume. These factors are used to measure the functioning of a road or intersection with traffic.

**LOCAL STREET:** A street which is primarily intended to provide direct access to properties abutting the roadway and within the immediate vicinity. A Local Street offers the lowest level of mobility and usually does not serve a bus route. Overall operating speeds are low in order to permit frequent stops or turning movements to be made with maximum safety. Service to through traffic movement is deliberately discouraged.

**LOW DENSITY RESIDENTIAL AREAS:** The Land Classification System category for ecologically significant areas of the County currently characterized by low density development within which environmental protection will be achieved primarily by restricting growth to large lot residential development. The rapidly decreasing supply of land in the County, coupled with the loss of natural habitat, plus the vital role that portions of these areas serve in protecting water quality, dictates that development in these areas be minimized.

**LOW INCOME HOUSEHOLDS:** Households with incomes that are less than 50 percent of the Metropolitan Statistical Area (MSA) median household income, adjusted for family size.

**MANUFACTURED HOUSING:** Homes built in a factory to federal standards and inspected by federally certified agencies. These homes are often assembled on site.

**MASTER PLAN:** A document adopted by the Planning Commission to provide policy direction on the physical development of the County.

**MINOR ARTERIAL:** A roadway that carries a mix of local and through traffic. It links Collectors, and sometimes Local Streets, with Principal Arterials. Minor arterials may carry local bus routes, and are designed with greater emphasis on traffic movement than on providing access to abutting land.

**MIXED-USE:** A designation that permits a combination of uses within a single development or district. The development may contain a mix of office buildings, retail establishments, hotels, housing, and related uses.

**MIXED-USE AREA:** A specified area which includes three or more different types of uses within its boundaries. Generally these uses are on separate but interrelated sites.

**MIXED-USE PROJECT:** A development that includes two or more physically integrated uses on one site or within one structure.

**MODE:** A means of travel. Transportation modes include automobile, rail, bus or walking. In some cases, subsections of the above might also be considered modes, as for example, single occupant automobiles, autos with two passengers, and autos with three or more passengers.

**MODERATE INCOME HOUSEHOLDS:** Households with incomes that are between 50 and 80 percent of the Metropolitan Statistical Area (MSA) median household income, adjusted for family size.

**MULTIFAMILY HOUSING:** Structures designed to accommodate several unrelated households. Multifamily residences include garden apartments, mid rise and high rise apartment buildings, and residential condominiums.

**MULTI-MODAL TRANSPORTATION:** A transportation system that includes several types (modes) of conveyances such as automobile, rail, bus, pedestrian and bicycle.

**OPEN SPACE:** Any land which is provided or preserved for (i) park or recreation purposes, (ii) conservation of land or other natural resources, (iii) historic or scenic purposes, (iv) assisting in the shaping of the character, direction, and timing of community development, or (v) wetlands.

**OPEN SPACE EASEMENT:** A legal mechanism whereby a landowner retains ownership of his/her land, but grants some right(s) to the land to a public body, such as the Board of Supervisors. Authorizes public bodies to hold easements and also defines the purpose of open-space easements to include retaining or protecting the property value of natural or open space, assuring the availability of open space for agricultural, forestal, recreational, or open space use; protecting natural resources; maintaining or enhancing air or water quality; or preserving historical, architectural or archeological resources.

**PARATRANSIT:** The family of transportation services which falls between the single occupant automobile and fixed route transit. Examples of paratransit include taxis, carpools, vanpools, minibuses, jitneys, demand responsive bus services, and specialized bus services for the mobility impaired or transportation disadvantaged.

**PERFORMANCE STANDARDS:** Criteria that must be met by development to limit a particular defined impact.

**PRINCIPAL ARTERIAL:** A highway that serves main travel corridors. Significant intra area travel and important intra urban and intercity bus services are served by this class of street. Some access is provided to abutting land, but the primary function of a Principal Arterial roadway is to carry through traffic.

**PUBLIC HOUSING:** Housing owned and operated by a local public housing authority under the federal low rent public housing program administered by the United States Department of Housing and Urban Development. It is occupied predominately by low income households and rents are limited to 30% of adjusted household income. Federal funds are provided for construction/acquisition of public housing units and for capital improvements and major repairs.

**PUBLIC FACILITIES:** Facilities that are required to support the services and functions provided by the County government or public utility companies. Such facilities are essential to support the community and its development and to enhance the overall quality of life. Public facilities include such necessities as water and sewer lines, drainage and stormwater management facilities, and police and fire protection, as well as educational, recreational and cultural services.

**PUBLIC TRANSPORTATION TRANSFER POINT:** Facilities designated on the Transportation Plan Map where transfers between various modes of transportation (e.g., automobile, bus, rail) are expected to occur. Examples include park and ride lots, transit transfer centers, or future Metrorail Station locations. The design, function and exact location of such facilities are contingent upon future studies.

**QUALITY OF LIFE:** The personal perception of the physical, economic and emotional well-being that exists in the community.

**RAIL STATION:** Facility where passengers may board a type of rail service which may be Metrorail, light rail, commuter rail, or some other form of rail passenger service. Facility typically includes passenger waiting, ticketing and information areas. Rail stations also designated as a transit transfer center will not have commuter parking while those also designated as a commuter parking lot will have commuter parking.

**REDEVELOPMENT:** Development activity generally characterized by clearance of existing structures and new construction. The new development may be the same type of land use, or a new type, but it is usually at a higher level of intensity or density than that it replaces.

**REGIONAL STORMWATER MANAGEMENT FACILITIES:** A regional stormwater management facility is defined as a facility that provides detention of stormwater runoff typically for the entire upstream watershed and provides water quality benefits for the entire upstream watershed.

**RESOURCE PROTECTION AREA (RPA):** An area comprised of lands at or near the shoreline or water's edge that have an intrinsic water quality value due to the ecological and biological processes they perform or are sensitive to impacts which may result in significant degradation of the quality of state waters. In their natural condition, these lands provide for the removal, reduction, or assimilation of sediments, nutrients, and potentially harmful or toxic substances from runoff entering the Bay and its tributaries, and minimize the adverse effects of human activities on state waters and aquatic resources.

**REVETMENT:** A man-made slope that is constructed along a shoreline and protected through the placement of erosion-resistant materials, typically separate layers of stone or chunks of concrete (known as "riprap"), sometimes along with filter fabric that is effective in preventing erosion from occurring behind the riprap.

**REVITALIZATION:** The renewal and improvement of older commercial and residential areas through any of a series of actions or programs that encourage and facilitate private and public

investment. This community investment can include (but is not limited to) activities and programs designed to improve neighborhoods; strengthen existing businesses; attract new businesses; encourage quality renovation and new construction; enhance public spaces and pedestrian amenities; ensure safe, efficient and convenient traffic flow; and contribute to the social and economic vitality of the area.

**RIGHT OF WAY:** The area over which a legal right of passage exists; land used for public purposes in association with the construction or provision of public facilities, transportation projects, or other infrastructure.

**SEAWALL:** A vertical structure or partition, usually running parallel to the shoreline, for the purpose of retaining upland soils while providing protection from severe wave action. Seawalls are often concrete structures poured in place.

**SINGLE FAMILY DETACHED DWELLING:** A single family dwelling unit which is entirely surrounded by open space or yards on the same lot.

**SINGLE FAMILY RESIDENTIAL:** Units designed to house one family per unit. Includes detached single family homes as well as townhouses.

**SPECIAL EXCEPTION/SPECIAL PERMIT USES:** Uses, which by their nature, can have an undue impact upon or can be incompatible with other uses. Such uses may be allowed to locate within given designated zoning districts only under special controls and limitations, and regulations.

**SUBURBAN NEIGHBORHOODS:** The Land Classification System category for areas that comprise the majority of land in the County devoted primarily to residential use. In addition to the predominantly residential use, this category includes the community serving retail, service and office uses required by residents, as well as associated institutional and public facility uses such as churches, schools, parks and libraries.

**SUSTAINABLE ECONOMY:** A system which maintains or enhances current economic opportunity and community well-being without compromising the ability of future generations to meet their own needs.

**TAX CREDITS:** A program under Federal IRS regulations (Low Income Housing Tax Credit Program) which provides tax credits in return for investment in housing developments where a portion of the units are subject to rent limits for tenants who meet income eligibility requirements.

**TRANSIT DEMAND MANAGEMENT PROGRAM (TDM):** A plan to alleviate traffic congestion through improved management of vehicle trip demand, often including strategies to reduce single-occupancy vehicles and encouraging travel at times of lower congestion.

**TRANSPORTATION MANAGEMENT ASSOCIATIONS (TMAs):** Groups of employers uniting together to work collectively to manage transportation demand in a particular area.

**TRANSPORTATION SYSTEM MANAGEMENT (TSM) PROGRAMS:** This term is used to describe a full spectrum of actions that may be applied to improve the overall efficiency of the transportation network. TSM programs usually consist of low cost alternatives to major capital expenditures, and may include parking management measures, ridesharing programs, flexible or staggered work hours, transit promotion, or operational improvements to the existing roadway system. TSM includes Transportation Demand Management measures as well as H.O.V. use and other strategies associated with the operation of the street and transit systems.

**URBAN DESIGN:** An aspect of urban or suburban planning that focuses on creating a desirable environment in which to live, work and play. Design analysis includes the relationship between buildings, streets, land use, open space, circulation, height, natural features and human activity. A well designed urban or suburban environment demonstrates the four generally accepted principles of urban design: clearly identifiable function for the area; easily understood order; distinctive identity; and visual appeal.

**URBAN GROWTH AREA:** An area defined for urban development.

**URBAN PLANNING:** The discipline of distributing urban or suburban functions spatially, in terms of activity patterns of people in the physical setting. This includes the physical facilities or improvements to the land which are made to accommodate these activity patterns. Urban or suburban functions addressed in planning are broad, encompassing land use; transportation; housing; open space and recreation; public and human services; and

**WETLANDS:** Any land characterized by wetness for a portion of the growing season. Wetlands are generally delineated on the basis of physical characteristics such as soil properties indicative of wetness, the presence of vegetation with an unusually strong affinity for water, and the presence or evidence of surface wetness. Wetland environments provide water quality improvement benefits and, in most cases, are ecologically valuable.

# Tipping Point

A meme is an idea that behaves like a virus--that moves through a population, taking hold in each person it infects.

I'd like to do is to show people how to start "positive" epidemics of their own. The virtue of an epidemic, after all, is that just a little input is enough to get it started, and it can spread very, very quickly. That makes it something of obvious and enormous interest to everyone from educators trying to reach students, to businesses trying to spread the word about their product, or for that matter to anyone who's trying to create a change with limited resources. Malcolm Gladwell

1. Briefly describe something that could become a “tipping point” in your organization.
2. In their search to find recovery solutions following a disaster, engineers often propose water management projects, developers propose new construction, environmentalists propose open spaces and residents propose a return to normalcy. How can the concept “tipping point” help proponents gain a consensus for a better recovery that includes sustainability and resiliency?
3. How could you use the “tipping point” concept to experience better recoveries in your professional development, organizational effectiveness and community improvement?

# The Tipping Point: How Little Things Can Make a Big Difference

by Malcolm Gladwell, Price: \$8.97

<http://www.amazon.com/Tipping-Point-Little-Things-Difference/dp/0316346624>

In sociology, a tipping point or angle of repose is the event of a previously rare phenomenon becoming rapidly and dramatically more common. The phrase was coined in its sociological use by Morton Grodzins, by analogy with the fact in physics that when a small amount of weight is added to a balanced object, it can cause it to suddenly and completely topple.

The Tipping Point: How Little Things Can Make a Big Difference (ISBN 0-316-31696-2) is a book by Malcolm Gladwell, first published by Little Brown in 2000. Tipping point is a sociological term that refers to the moment when something unique becomes common. The book seeks to explain "social epidemics", or sudden and often chaotic changes from one state to another. For example, he cites the drop in the New York City crime rate in the 1990s. The ability to generate these epidemics is highly-sought in marketing. They are similar, in their mathematical properties, to disease epidemics.

Gladwell identifies three types of people who have the power to produce social epidemics:

**Connectors:** Those with wide social circles. They are the "hubs" of the human social network and responsible for the small world phenomenon.

**Mavens** are knowledgeable people. While most consumers wouldn't know if a product were priced above the market rate by, say, 10 percent, mavens would. Bloggers who detect false claims in the media could also be considered mavens.

**Salesmen** are charismatic people with powerful negotiation skills. They exert "soft" influence rather than forceful power. Their source of influence may be the tendency of others, subconsciously, to imitate them rather than techniques of conscious persuasion.

Other key concepts in The Tipping Point are:

**The Law of the Few.** Those with the skill sets described above have disproportionate influence over the spread of social phenomena, and without their aid, such dissemination is unlikely ever to occur.

**Stickiness:** Ideas or products found attractive or interesting by others will grow exponentially for some time.

**The Power of Context:** Human behavior is strongly influenced by external variables of context. For example, "zero tolerance" efforts to combat minor crimes such as fare-beating and vandalism on the New York subway led to a decline in more violent crimes; the perception of increased vigilance altered the behavior and attitudes of the passengers. Gladwell also describes the bystander effect.

**The Magic Number 150:** The research behind Dunbar's number suggests an individual can only have genuine social relationships with 150 people. Likewise, groups larger than 150 are prone to fragmentation, and it is often best for the group's health that it split. Most extant hunter-gatherer villages, as well as military companies also stay just shy of this number.

**The New Product Cycle:** According to the model of Everett Rogers, there is a bell curve of adaptation to the new phenomenon: first are innovators, then early adopters, early majority, late majority, and laggards. Each category corresponds to one standard deviation worth of width, and the apex of the bell curve is between the early and late majorities. Innovators lie 2 or more standard deviations to the left of the mean, while early adopters are between 1 and 2 standard deviations to the left, and so on. Laggards, the last group to adopt a new fad, lie at least 1 standard deviation to the right of the mean, thus make up about 16 percent of the population.

### **1. What is The Tipping Point about?**

It's a book about change. In particular, it's a book that presents a new way of understanding why change so often happens as quickly and as unexpectedly as it does. For example, why did crime drop so dramatically in New York City in the mid-1990's? How does a novel written by an unknown author end up as national bestseller? Why do teens smoke in greater and greater numbers, when every single person in the country knows that cigarettes kill? Why is word-of-mouth so powerful? What makes TV shows like Sesame Street so good at teaching kids how to read? I think the answer to all those questions is the same. It's that ideas and behavior and messages and products sometimes behave just like outbreaks of infectious disease. They are social epidemics. The Tipping Point is an examination of the social epidemics that surround us.

### **2. What does it mean to think about life as an epidemic? Why does thinking in terms of epidemics change the way we view the world?**

Because epidemics behave in a very unusual and counterintuitive way. Think, for a moment, about an epidemic of measles in a kindergarten class. One child brings in the virus. It spreads to every other child in the class in a matter of days. And then, within a week or so, it completely dies out and none of the children will ever get measles again. That's typical behavior for epidemics: they can blow up and then die out really quickly, and even the smallest change -- like one child with a virus -- can get them started. My argument is that it is also the way that change often happens in the rest of the world. Things can happen all at once, and little changes can make a huge difference. That's a little bit counterintuitive. As human beings, we always expect everyday change to happen slowly and steadily, and for there to be some relationship between cause and effect. And when there isn't -- when crime drops dramatically in New York for no apparent reason, or when a movie made on a shoestring budget ends up making hundreds of millions of dollars -- we're surprised. I'm saying, don't be surprised. This is the way social epidemics work.

### **3. Where did you get the idea for the book?**

Before I went to work for The New Yorker, I was a reporter for the Washington Post and I covered the AIDS epidemic. And one of the things that struck me as I learned more and more about HIV was how strange epidemics were. If you talk to the people who study epidemics--epidemiologists--you realize that they have a strikingly different way of looking at the world. They don't share the assumptions the rest of us have about how and why change happens. The word "Tipping Point", for example, comes from the world of epidemiology. It's the name given to that moment in an epidemic when a virus reaches critical mass. It's the boiling point. It's the moment on the graph when the line starts to shoot straight upwards. AIDS tipped in 1982, when it went from a rare disease affecting a few gay men to a worldwide epidemic. Crime in New York City tipped in the mid 1990's, when the murder rate suddenly plummeted. When I heard that phrase for the first time I remember thinking--wow. What if everything has a Tipping Point? Wouldn't it be cool to try and look for Tipping Points in business, or in social policy, or in advertising or in any number of other nonmedical areas?

### **4. Why do you think the epidemic example is so relevant for other kinds of change? Is it just that it's an unusual and interesting way to think about the world?**

No. I think it's much more than that, because once you start to understand this pattern you start to see it everywhere. I'm convinced that ideas and behaviors and new products move through a population very much like a disease does. This isn't just a metaphor, in other words. I'm talking about a very literal analogy. One of the things I explore in the book is that ideas can be contagious in exactly the same way that a virus is. One chapter, for example, deals with the very strange epidemic of teenage suicide in the South Pacific islands of Micronesia. In the 1970's and 1980's, Micronesia had teen suicide rates ten times higher than anywhere else in the world. Teenagers were literally being infected with the suicide bug, and one after another they were killing themselves in exactly the same way under exactly the same circumstances. We like to use words like contagiousness and infectiousness just to apply to the medical realm. But I assure you that after you read about what happened in Micronesia you'll be convinced that behavior can be transmitted from one person to another as easily as the flu or the measles can. In fact, I don't think you have to go to Micronesia to see this pattern in action. Isn't this the explanation for the current epidemic of teen smoking in this country? And what about the rash of mass shootings we're facing at the moment--from Columbine through the Atlanta stockbroker through the neo-Nazi in Los Angeles?

### **5. Are you talking about the idea of memes, that has become so popular in academic circles recently?**

It's very similar. A meme is an idea that behaves like a virus--that moves through a population, taking hold in each person it infects. I must say, though, that I don't much like that term. The thing that bothers me about the discussion of memes is that no one ever tries to define exactly what they are, and what makes a meme so contagious. I mean, you can put a virus under a microscope and point to all the genes on its surface that are responsible for making it so dangerous. So what happens when you look at an infectious idea under a microscope? I have a chapter where I try to do that. I use the example of children's television shows like Sesame Street and the new Nickelodeon program called Blues Clues. Both those are examples of shows that started learning epidemics in preschoolers, that turned kids onto reading and "infected" them with literacy. We sometimes think of Sesame Street as purely the result of the creative genius of people like Jim Henson and Frank Oz. But the truth is that it is carefully and painstakingly engineered, down to the smallest details. There's a wonderful story, in fact, about the particular scientific reason for the creation of Big Bird. It's very funny. But I won't spoil it for you.

### **6. How would you classify *The Tipping Point*? Is it a science book?**

I like to think of it as an intellectual adventure story. It draws from psychology and sociology and epidemiology, and uses examples from the worlds of business and education and fashion and media. If I had to draw an analogy to another book, I'd say it was like Daniel Goleman's *Emotional Intelligence*, in the sense that it takes theories and ideas from the social sciences and shows how they can have real relevance to our lives. There's a whole section of the book devoted to explaining the phenomenon of word of mouth, for example. I think that word of mouth is something created by three very rare and special psychological types, whom I call Connectors, Mavens, and Salesmen. I profile three people who I think embody those types, and then I use the example of Paul Revere and his midnight ride to point out the subtle characteristics of this kind of social epidemic. So just in that chapter there is a little bit of sociology, a little of psychology and a little bit of history, all in aid of explaining a very common but mysterious phenomenon that we deal with every day. I guess what I'm saying is that I'm not sure that this book fits into any one category. That's why I call it an adventure story. I think it will appeal to anyone who wants to understand the world around them in a different way. I think it can give the reader an advantage--a new set of tools. Of course, I also think they'll be in for a very fun ride.

### **7. What do you hope readers will take away from the book?**

One of the things I'd like to do is to show people how to start "positive" epidemics of their own. The virtue of an epidemic, after all, is that just a little input is enough to get it started, and it can spread very, very quickly. That makes it something of obvious and enormous interest to everyone from educators trying to reach students, to businesses trying to spread the word about their product, or for that matter to anyone who's trying to create a change with limited resources. The book has a number of case studies of people who have successfully started epidemics--an advertising agency, for example, and a breast cancer activist. I think they are really fascinating. I also take a pressing social issue, teenage smoking, and break it down and analyze what an epidemic approach to solving that problem would look like. The point is that by the end of the book I think the reader will have a clear idea of what starting an epidemic actually takes. This is not an abstract, academic book. It's very practical. And it's very hopeful. It's brain software.

Beyond that, I think that *The Tipping Point* is a way of making sense of the world, because I'm not sure that the world always makes as much sense to us as we would hope. I spent a great deal of time in the book talking about the way our minds work--and the peculiar and sometimes problematic ways in which our brains process information. Our intuitions, as humans, aren't always very good. Changes that happen really suddenly, on the strength of the most minor of input, can be deeply confusing. People who understand *The Tipping Point*, I think, have a way of decoding the world around them. |

**If you want to read a bit about how word-of-mouth trends get started and grow, you'll like *The Tipping Point: How Little Things Can Make A Big Difference* by Malcolm Gladwell.**

Gladwell says that things spread in popularity due to three factors.

Gladwell says that not all people are equally important in launching a new trend. Rather, there are a few key people called 'connectors' who tend to be very social and outgoing. These connectors have diverse social networks and a significant ability to spread information, trends, and products. Trends and epidemics spread when they are adopted by connectors.

Mavens are another type of people involved in spreading a trend. Mavens are people who like helping people and who take a particular interest in evaluating the quality of products or ideas. Because they are so well-informed about things, mavens are often the first to promote quality products. Mavens might also be the early adopters of trends. Often, Gladwell writes, some maven or connector must modify something to make it more acceptable to the larger population.

With connectors and mavens in place, the next ingredient for a trend to take off is for the message to be memorable or 'sticky.' Some messages don't stick in the minds of those who hear them while other messages do.

The best way to create a 'sticky' message is to test the message. Gladwell discusses children's TV--Sesame Street and a show called Blue's Clues, which were designed from the start to be 'sticky.'

For example, educators tested two skits designed to help children read. Both involved having children read (or see read) the word 'hug.' Each letter was uncovered and the sound it represented made.

Oscar the Grouch wasn't too effective in teaching kids the word. As Oscar read the word, Oscar was waving his hands around and making all sorts of fuss that distracted the children from the task at hand. They weren't concentrating on the word, they were concentrating on Oscar.

Another skit where a more subdued puppet slowly uncovered each letter as he read it proved to be much more effective.

How did Sesame Street producers know whether kids were paying attention to the word? Eye movement photography. The producers strapped little kids into chairs and photographed what part of the television screen they were watching. Gladwell tells us that they were watching Oscar, not the letters. But, with the subdued puppet, the children focused upon the letters.

Gladwell explains that we can only focus upon one thing at a time: "the receptors that process what we see--are clustered in a small region in the very middle of the retina called the fovea."

Gladwell says that eye movement photography is quite important in advertising. He writes: "If you can track where someone's fovea is moving and what they are fixating on... you can tell with extraordinary precision what they are actually looking at and what kind of information they are actually receiving. The people who make television commercials, not surprisingly, are obsessed with eye tracking. If you make a beer commercial with a beautiful model, it would be really important to know whether the average twenty-two-year old male in your target audience fixates only on the model or eventually moves to your can of beer."

So, in case you're wondering why Britney Spears is holding her Pepsi can in some particular location in her Super Bowl ad, now you know! It's based upon the location of the fovea! (How do they direct this stuff? "Hey Britney, move the can a bit lower. It's not quite aligned properly with the fovea." SLAP! Britney slaps the director.)

Do we really want people tracking the movement of our foveas? Remember, this was happening thirty years ago for the nefarious purpose of teaching kids to read. What about today?

We learn some other disturbing things. For example, Cookie Monster was a pitch man for Frito-Lay. If you can't trust the Cookie Monster, who can you trust?

This is what I found deeply disturbing about the attempt to try to create trends and 'social' epidemics. In particular, Gladwell discusses the failure of anti-smoking campaigns targeted to teenagers. Having adults tell teenagers not to smoke in TV commercials didn't work. Go figure!

But, by studying the nature of the mavens and connectors who unintentionally tend to encourage teenagers to smoke, Gladwell suggests that we can aim to prevent smoking from a more powerful position. I don't really like this social engineering. Whose business is it, anyway? Why should taxpayers' money be spent to promote social policies that a small group decides is correct for us? I find this too politically correct and too meddling of individual freedoms.

And, this isn't the first time social engineers felt they knew what was better for the population and adopted such methods of trying to influence social behavior. For example, similar techniques were used in 1933 by the Nazis (read, for example, the academic book, *Backing Hitler: Consent And Coercion In Nazi Germany* by Robert Gellately).

Gladwell's third factor is context. Gladwell argues that the specific context of a situation will have a powerful impact upon whether or not a trend will spread.

## Tipping points

### What were the decisions that made the Ozarks what it is today?

By Karen E. Culp, News-Leader.com | Springfield, Mo.

February 27, 2005

The Ozarks is a long success story filled with engaging subplots. But no single chapter made the region what it is today. Key moments in the Ozarks history — dubbed "tipping points" by journalist Malcolm Gladwell — created an area with a steady economy and strong work ethic.

Ask anyone about such tipping points and you'll get many different answers. Peruse the region's history, and you'll find many examples.

Decades ago, the Frisco Railroad brought people and jobs to the area. When Route 66, the "mother road," swept through Springfield, it brought in national travelers. And Branson's shows and parks have entertained generations of visitors.

"This was a century in the making," said Lisa Rau, spokeswoman for Silver Dollar City.

The Ozark Mountains' abundant natural beauty, its streams, hills and lakes, have long been a draw for both tourists and new residents. But it was the collaboration of the area's leaders that made the region what it is today, said Jan Horton, community leader and lifelong Ozarks resident.

In the 1950s and '60s, a group of local businesspeople made a concerted effort to bring major employers — big factories, such as what is now Solo Cup — to town. These were to be solid, good-paying jobs for locals, and they were for many years. But when those major manufacturers began to leave town, the region had to change. By 1992, Zenith, a major local factory, had moved 5,000 jobs out of Springfield to Mexico. Other plants including Fasco Industries in Ozark also cut their employment rolls during the '90s as manufacturers sought cheaper labor outside the United States. The changes led representatives from City Utilities, the Springfield Area Chamber of Commerce, the Springfield Business and Development Corp. and the city of Springfield to form a partnership in 1991 that would develop two industrial parks.

Those parks would each hold multiple employers and many manufacturing jobs. The handful of giant employers were leaving, those leaders saw, so they had to make sure Springfield's jobs were spread among many smaller employers instead. Today, the east-side Partnership Industrial Center is nearly full, making up for the jobs lost by Zenith's departure.

"Our city has been so forward-thinking about so many things," Horton said.

Anyone who has worked in a convenience store or restaurant in Springfield has heard the question. "How do I find that Bass Pro Shops?"

In 1972, John L. Morris decided to start selling fishing gear out of one of his father's liquor stores. Twelve years later, the company broke ground on what is now its flagship store at Sunshine Street and Campbell Avenue. And out-of-town anglers have been meandering the streets of Springfield ever since, looking for the granddaddy of all outdoor stores. To Springfield's south, Branson was humming along, spurred by the big ideas of the Herschend family, who made Marvel Cave a tourist attraction and then developed Silver Dollar City; the Presley family, whose theater, along with the Baldknobbers, provided early entertainment spots in the city; and the Trimble family, who turned the Shepherd of the Hills into a tourist draw.

In the early 1990s, the nation took notice. A "60 Minutes" television program featured the city, and many point to that moment as one that sparked the development that followed.

"We literally went from 'Ozarks what?' and 'Branson where?' to 'Hello, Time; hello, Newsweek,'" Silver Dollar City's Rau said. But she's quick to caution that the piece wasn't the beginning of Branson's life as a tourist destination.

"It wasn't as though '60 Minutes' came and then, bam, Branson became what it is today," Rau said. "There were plenty of people here long, long before that."

## **New life for downtown**

During the 1980s, developer John Q. Hammons saw it was time for Springfield to have a 20-plus-story building. And in 1986, he built Hammons Tower, the city's tallest building, and the upscale office building quickly filled with high-profile law firms and nationally known accountancy firms.

What the city didn't know at the time was that the shape of the region surrounding the tower would change forever in the late 1990s and early part of the 21st century. In 1998, the city asked its citizens to approve a hotel-room tax increase to fund Jordan Valley Park, a downtown redevelopment project to revitalize the area. And the voters said yes.

In the years since, Jordan Valley Park, an urban park featuring greenspace, an exposition center and a \$32 million baseball stadium have sprouted in the area. Now, Springfield is getting a minor league Cardinals franchise, and the exposition center is bustling with a new event almost every weekend. Just a short distance away, Springfield's downtown has come back to life, after suffering through the 1980s. A group of entrepreneurs saw bistros and bars where vacant structures once loomed.

"The entrepreneurs were the early pioneers downtown," Horton said. Now, downtown boasts restaurants, clubs and shops.

## **'Medical mile'**

A stretch of National Avenue between St. John's Hospital and Cox South hospital has sprouted with specialty clinics and medical offices. Its moniker: "Medical Mile."

The nickname reveals the importance of health care to Springfield's economy. It is the city's major employer, and the health systems here serve a broad section of counties in southwest Missouri and northwest Arkansas.

In 1985, Cox South was built to be a hospital for women and children, said Norb Bagley, chief operating officer for CoxHealth. But the health center's leaders quickly figured out that it needed to be more.

"The population growth in the area has fueled the growth in health care," Bagley said. "It's been a synergistic event, in my mind."

Over the years, a succession of health care centers have cropped up along National Avenue, and "Medical Mile" is now as common in Ozarks parlance as "Glenstone Avenue" or "Sunshine Street."

The rapid rise of the area's Hispanic population has also brought much change to the region. Greene County's Hispanic population grew from 1,775 in 1990 to 4,434 in 2000, a 149.8 percent change.

Barry County, which contains the city of Monett, saw a jump from 152 Hispanics in 1990 to 1,713 in 2000, a 1,027 percent change. In Monett and many other towns across the Ozarks, the new residents have found places to live, work and play, and have brought their rich culture and history to the Ozarks.

Still more tipping points may be quite significant to Ozarkers themselves, though not as apparent to the world outside. Our favorite food spots have grown up nicely, including thriving local eateries Clary's restaurant and Andy's Frozen Custard. Andy's will soon be a part of other towns; the company sold five franchises in 2004, in Missouri, Arkansas and Illinois.

"It's a very down-home, Americana product," owner Andy Kuntz said. "If we can duplicate what we've done here in other areas, the sky's the limit."

Much as it is for the Ozarks.