

Appendix A

Integration of Hazardous Materials Emergency Planning  
with the  
Small Town Planning Process

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# Integration of Hazardous Materials Emergency Planning into the Small-Town Planning Process

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## ABSTRACT

Kansas State University developed a small-town risk-vulnerability model and applied it to 11 small communities in Kansas for validation. A part of this study, extensive interviewing of small-town officials, was undertaken to summarize their views on the model, its use, and its application. At the same time, valuable insight was gained into small-town planning needs in the area of hazardous materials emergency planning. A third phase of this study was to develop guidelines to assist small towns in hazardous materials emergency response planning. It was determined early in the study that these towns were unlikely to have a separate organization or person to accomplish this planning and that for such planning to be workable, it should be integrated with normal small-town planning concepts and functions. Riley County, Kansas (RCK), was used as a model for emergency response planning and its emergency plan was studied and updated. By using what was learned in the RCK plan and in the 11 small-town case studies, a generalized guide to writing a hazardous materials emergency plan for small towns was developed. Small-town hazardous materials emergency response planning needs and responsibilities and the rationale and proper perspective of integrating hazardous materials planning into traditional small-town planning concepts are discussed. A summary of key elements of the guide is given.

In the summer of 1980 a group of researchers from Kansas State University, sponsored by the U.S. Department of Transportation, traveled to 10 small cities in Kansas. These cities included Abilene, Alma, Clay Center, Council Grove, El Dorado, Emporia, Leawood, Mulvane, Rossville, Wamego, and Westmoreland. They range in population from 598 (Westmoreland) to 25,287 (Emporia) and have a variety of types of government and services. Most of the cities have volunteer fire departments. All have paid police departments.

Representatives from these cities were interviewed about various aspects of hazardous materials emergency planning and risk in their cities. Also, at this time a survey of the risks facing the city was conducted for highway, rail, pipeline, and airline. From these data and other information collected about the city the risk index was calculated.

At a later time the cities were revisited and were given results from the earlier survey, which were discussed as to validity and the city's experience with hazardous materials. To some, the data collected quantifying risk was a surprise. For others, it reinforced what they had already suspected or knew. Some put little faith in the data.

Because the counts were 1-day samples, some thought that the sample was too small. Others did not like outsiders pointing out deficiencies in their emergency services and planning. For one city, however, the fact that the study was done by outsiders gave it more validity, and the data collected were used for justification in asking the City Council for additional funding.

#### RURAL AREAS

From these initial contacts many things were learned about emergency response planning, particularly hazardous materials planning in small towns and rural areas. There is no typical small town. Those from urban areas tend to lump all small towns together and think that they are all alike. For this project it was determined that the audience included areas with a population of less than 40,000. In 1970, 49 percent of the population of the United States lived in places with a population of 49,999 or less (1,p.20). Ninety-eight percent of the "places" as defined by the U.S. census have populations of 49,999 or less. Therefore, this model has a potential audience of more than 71 million persons (1).

There are differences in structure and operations of small towns. It is recognized that most small towns do not have full-time staff for emergency or land planning functions, but even without such full-time staff there is much that can be done in small towns.

One of the basic services offered by a small town or rural area is fire protection. This may be in the form of a volunteer or a paid squad. In either case, it is imperative that the squad be trained to handle a variety of situations. Because of advances in science and developments in the chemical industry there are many more chemicals being transported through rural areas than there have been in the past. "Chemical reactions, airtight structures, and plastics represent new problems that require a new level of technical knowledge in a fireman's training" (2,p.15). A survey can be conducted to determine which hazardous materials are stored and are transported through the area. From this information, it is possible to determine the training needed in an emergency. Another facet is the field of prevention. In many rural and volunteer fire departments, prevention is lacking or at least not a major focus of the department. The saying "an ounce of prevention is worth a pound of cure" is certainly true in the field of fire prevention.

#### PROBLEMS FACING RURAL AREAS

In the past many disasters have affected small towns and rural areas. In many cases the resulting damage is devastating to the future of the city. This may be because of the lack of facilities to deal with the emergency and lack of aid from outside the disaster center. Nevertheless, the situation is not entirely hopeless. It is possible to plan for these emergencies but it "is essential that those in local government understand the realities of emergency planning" (3). This includes understanding the limitations of emergency planning and its capabilities.

Another problem faced by small towns and rural areas is funding. Because of limited resources, costs of operating the emergency services must be kept to a minimum. This is often seen most clearly in the volunteer fire departments. It was stressed in talking with city officials that this type of planning is not necessarily expensive. Part of the planning process involves evaluating resources and assigning them where the need is most critical. The risk-vulnerability survey also gave these cities concrete data on which to base their emergency planning. On the basis of the new data, they may be able to convince their governing bodies that spending priorities should be reexamined. Or they may be able to apply for grants from various sources. There are also training programs that are sponsored by the state and federal government that may be free or low in cost.

## REVIEW OF MANUALS

Over and over in the interviews it was brought out that the cities believed that there was a need and wanted to do something about the problem of hazardous materials emergencies but did not know where to start. The need for a manual for writing a plan was strong, and no source seemed to be filling this need. Various manuals had been published, which were gathered and reviewed. Two manuals, one published by the state of Kansas and one by Rockwell International, appeared to be the most significant. The state of Kansas has published Guidelines for Development: Hazardous Material Contingency Plan (4), which was written by the Division of Emergency Preparedness of the Adjutant General's Department. The introduction to these guidelines states (4):

The purpose of this document is to give an example of the items necessary to develop a useful contingency plan for handling hazardous materials incidents/accidents.

This document is basically a fill-in-the-blanks approach to writing a plan. It even goes so far as to state that the word "model" on the cover should be replaced with the name of the local governmental unit; the result would be Hazardous Material Contingency Plan for City/County X.

The deficiency in this guide is that it is too easy to fill in the blanks without really looking at the planning process and the unique needs of the city affected. Although the introduction states that "your plan should reflect the unique capabilities and needs of your own particular community" and the guide gives some direction in writing the plan, the result will probably not reflect the unique needs and capabilities of the city. This is dangerous because in the event of an actual hazardous materials emergency it may not be possible for the plan to operate. The resulting document may be totally useless.

Another guide that was reviewed is Preparing for Environmental Emergencies—A Planning Guide and Checklist, written by Rockwell International (5). This guide uses the opposite approach from that of the Kansas guide. The introduction clearly states that this is not a fill-in-the-blanks model plan. It also states clearly that "your finished plan, by itself, does not assure that you can cope with spills" (5,p.1-2). This approach is much more realistic than that of the Kansas guide and is more likely to result in a plan that is operational. The Rockwell guide revolves around a series of decision points, which (5,p.1-4)

allow the user to decide what parts of this guide he needs or wants to use, as well as clarify and organize his own assignment, goals, and objectives within the planning framework.

A series of questions is posed to guide the writer in producing a plan that is unique to his area's needs. One of the premises of this project was that the guide be usable by officials in small cities and rural areas, many of whom have no formal training in planning. The Rockwell guide appears to be deficient in the amount of guidance that it gives to such officials.

An important factor considered was that the process followed in writing the plan be reproducible by those in small towns and rural areas. Since most existing guides were geared to large cities, they were unsuitable. Rural areas are distinct from urban areas; therefore, the planning process must follow rural planning principles in order to develop a plan specifically for rural areas.

#### PLANNING IN SMALL TOWNS

Just as no two urban areas are the same, there is no typical rural area. But some assumptions can be made about the rural planning process. First, some of the major issues facing rural areas should be reviewed.

Small towns face the same problems as urban areas do—crime and pollution, for example. The difference is in how they each define and respond to these problems. Some of the more general issues facing small towns are "urbanization, in-migration, low income, and governance" (1,p.36). These issues are straining the limited resources of small towns and can be a serious threat to their future.

To combat these problems, adequate planning must be undertaken. The planner must learn about the town's "social structure, local economy, influence patterns, and cultural values and norms" (1,p.36) so that the resultant plan reflects its surroundings.

According to Rural and Small Town Planning (6), which is considered a definitive text on small-town planning, there are three phases in the development of an effective rural planning program (6,p.2):

1. Getting to know the people and the place,
2. Picking a problem and solving it quickly and effectively, and
3. Selling planning—move to more traditional planning areas.

In this approach the emphasis is on listening and thus getting to know the priorities and problems of the area. Although this is important in any type of planning process, it is essential in small-town planning because the client population is smaller and thus there should be more personal contact in formulating the plan. The planner will be more visible in a small town and will be closely scrutinized by its citizens, especially because it is likely that there has been no planner in the community before.

One of the largest problems in planning in rural areas is the planner who does not understand the rural area and so approaches it with an urban mindset. Evidence of this is planners who try to use techniques and formulas that are designed and scaled to urban areas. Their approach may be highly technical and complex and may involve techniques that do not take into account the special capabilities and limitations of the client population. For example, a formula that the planner wants to use may require data that are unavailable because of limits of record keeping. Some data are not available for small towns and rural areas that are available for a Standard Metropolitan Statistical Area (SMSA). In this case, a different formula is required or it must be adapted to the available data.

Planning for rural areas has certain inherent problems. One of these is the lack of expertise to deal with rural development issues and a lack of knowledge of emergency planning on the part of local officials. There is also a lack of resources to finance the planning. The third major problem is the "antiplanning" philosophy of many rural elected officials, coupled with an "antiregulation" philosophy (7).

Lee Nellis, a planner for Hot Springs County, Wyoming, states that there are four reasons for rural resistance to planning (8):

1. A strong emphasis on private property rights,
2. Distrust of outside priorities for land use,
3. Inappropriateness of traditional urban planning tools and attitudes, and
4. A feeling that planners have little empathy for rural values.

These are valid criticisms of the planning profession and the planning process. That is why this project strives to overcome these criticisms by developing methods and a manual that can be used by small towns and rural areas.

If the small town is to embrace the planning process, it will expect to see something concrete. This will probably take the form of physical planning such as a land use plan. In a rural area the land use planning process must be sensitive to the needs of the local citizens. Rural planner Nellis states (8):

The traditional future land use/zoning map approach to planning tends to ignore landscape features. It also claims a predictive value no one will accord it where local economy constantly fluctuates in response to distant commodity markets and uncontrollable weather.

The rural planning process must be more sensitive to the environment than urban planning. Rural planning must take into account slope, drainage, exposure, and soil type. The ability of soils to support crops is another important consideration in this time of shrinking farmland.

It has been pointed out (2) that physical planning is not an end in itself but a means for creating an environment that satisfies the social and economic objectives of the community. This must be kept in mind while the planning process is pursued so that the result will be applicable to the area being studied.

Nellis has devised seven principles of rural planning. They are based on one fundamental assumption, that "rural planning will be successful only if it is based firmly in rural values" (8):

1. Be sensitive. Rural planning should be guided by rural values, not by urban values for rural areas.
2. Try to build planning efforts on traditional areas of mutual concern.
3. Demonstrate a strong, positive orientation to local clientele.
4. Use appropriate planning tools.
5. Try to get the local planning board or commission's task clearly defined as providing leadership in planning.
6. Be patient.
7. Finally, keep an eye on the details of plan enforcement and record keeping and on the ultimate quality of local citizen planning efforts.

Although rural and urban areas are similar in some ways, rural planners must be more in tune with the needs of the citizens. Often this is the area's first exposure to planning and so this will set the tone for the future of planning in the rural area.

#### PRINCIPLES USED IN WRITING THE GUIDE

After the information about rural and small-town planning had been reviewed, principles to be used in writing the manual were developed:

1. The manual must be such that its use will not require specialized knowledge or experience.
2. The resulting plan must be tailored to the needs and capabilities of the area represented.



3. The manual must not lead the writer into a false sense of security by allowing him to merely fill in the blanks--this type of plan could be quite dangerous if used in an emergency.

#### WRITING THE HAZARDOUS MATERIALS EMERGENCY PLAN

With these principles in mind, the authors have written Guide to Writing Your Cities' Hazardous Materials Emergency Plan (unpublished). Because of the length of the guide and its level of detail, it is not included here in its entirety. The guide poses a series of questions that will help the writer in preparing his own emergency plan. This is then followed by a suggested outline for the plan and a list of potential groups to be included in the operation of the plan.

The plan will be tailored to the needs of the individual community. This will be accomplished by using input from members of the community. Although it may be necessary to refer to experts for information and possibly contract with someone to do the actual writing, the plan will not be formulated by a team of experts who "know what is best for you." The plan asks questions and it is up to the writer to formulate answers based on his knowledge of the area. If the writer finds many times that adequate information is not available, it may be necessary to bring in some help. Just going through the process (and reviewing it periodically) is an extremely important exercise that in itself has numerous benefits to a community that has never thought through these problems.

#### MAIN TOPICS OF THE GUIDE

The guide contains a set of questions that will lead the writer through the planning process in an orderly and systematic manner. The following questions are the main topics:

1. Why are we writing the plan?
2. Who will write and put the plan together?
3. What area [geographically] will the plan cover?
4. What hazards exist?
5. What are our capabilities?
6. What should be included in the plan?
7. What other plans exist?
8. Who will update the plan?

### Part 1--Why Are We Writing the Plan?

This part will help the writer decide why a hazardous materials emergency plan is being written and the scope of the plan. The reason could be a recent accident or incident or it could be an official mandate from some upper level of government. This could also be part of the overall long-range planning process in the community or it could be part of the ongoing emergency planning process.

### Part 2--Who Will Write and Put the Plan Together?

Part 2 is designed to help decide who will be assigned the task of actually writing the plan or coordinating the writing of the plan by a team of writers. If the person or persons assigned to write the plan have extensive experience, this guide may not be needed. If those assigned to write the plan are inexperienced, further preparation will be needed before beginning.

If a group is to write the plan, it is important that it not get so large that no progress is made. It is also best that one person be designated as being in charge. This would not necessarily be the person who would be in charge in an actual disaster. It may be more effective at this point to have someone in charge who is good at dealing with people and keeping them interested in the task.

If city or county employees are charged with writing the plan, it is important to examine their other work responsibilities. They may see this task as bothersome and not give it the time that it requires.

If a consultant is hired, it is important to be aware of the services contracted for. It is necessary to be sure that the consultant is not using a prepackaged plan that only requires that the name on the front be changed. If a consultant is used, it is recommended that he meet with a group of local citizens who will act as advisors and maintain close contact.

### Part 3--What Area Will the Plan Cover?

The scope of the plan must be outlined and its limits must be set at the beginning so that the task does not constantly expand, because this will make it impossible to finish the project. Conversely, if the geographic limits of the plan are set too narrowly, the plan will not be adequate. The dangers that are faced may be underestimated or valuable resources may be cut out. It is suggested that in a small town or rural area the plan cover the entire county. The county may be the source of many resources and thus a countywide plan may be indicated. It is also obvious that emergencies do not stop at man-made borders such as city limits or county lines. Mutual-aid agreements for bordering cities or counties may become a part of the plan at the time of the writing.

### Part 4--What Hazards Exist?

Part 4 covers the determination of hazards in the affected area. If a hazards analysis has been completed, this should point out what hazards exist and what parts of the planning area could be affected. If no hazards analysis has been completed, one should be done at this point. There are various guides available for doing this. One that is designed for small cities and rural areas is A Community Model for Handling Hazardous Materials Transportation Emergencies (9).

If an incident has prompted the planning effort, the records of the incident should be examined to determine the causes of the incident, which can be translated into potential hazards. This will also give other pertinent information that will be needed later in the planning process.

### Part 5--What Are Our Capabilities?

How to mitigate the effects of a hazardous materials incident is determined in this section. This involves finding out what capabilities exist and what capabilities are missing in the community. The history of previous incidents should be examined to document the types of emergencies that have occurred in the past and thus are likely in the future. As many sources as possible should be contacted, such as newspapers, government reports, weather records, police and sheriff's records, the American Red Cross, and knowledgeable persons and groups in the area. The result may be conflicting information because of different perspectives on the events that transpired. Organizing and summarizing the data will put things in proper historical perspective.

In the case of a small town or rural area, it may be necessary to go outside the immediate area in an emergency to meet the needs of the community. This is not to be considered a weakness but rather a reality. This is the most crucial part of the planning process and so extensive attention must be paid to this section. If the area has deficiencies, these should be recognized and arrangements made to deal with them. Resources from the state or federal level may be needed. It may not be cost-effective to invest in all the equipment needed if the hazards analysis has shown that only a slight hazard exists. It may be more reasonable to set up a process for acquiring these resources only at the time of an emergency.

#### Part 6--What Should Be Included in the Plan?

A list of suggested sections for the hazardous materials emergency plan is given. It is up to the writer to select those sections that are applicable and add other sections that may be relevant. The detailed section plan contains the following:

- Emergency response notification
- Record of changes or amendments
- Letter of promulgation
- Foreward or preface
- Acknowledgments
- Table of contents
- Introduction
- Emergency response operations
  - Notification of spill
  - Initiation of action
    - Establishment of on-scene command post
    - Fire suppression and prevention
    - Public safety
    - Search and rescue
    - Communications
    - Traffic control
    - Evacuation
    - Emergency medical services
    - Weather information
  - Containment and countermeasures (radiological monitoring)
  - Cleanup and disposal
  - Restoration
  - Recovery of damages
    - Pollution of streams and storm sewers
    - Disposal of debris
  - Public information
  - Follow-up
  - Special response operations
- Emergency assistance telephone roster
- Legal authority and responsibility
- Response organization structure and responsibility
- Procedures for changing or updating the plan
- Plan distribution

Spill cleanup techniques  
Cleanup and disposal resources  
Laboratory and consultant resources  
Maps of area affected by the plan  
Technical library  
Hazards analysis  
Documentation of spill events  
Training exercises

This list is not all-inclusive. It should be added to or subtracted from by the writer depending on the needs of the community. The previously conducted hazards analysis will be invaluable in writing the plan because it will guide the writer in including all of the pertinent information.

#### Part 7—What Other Plans Exist?

This plan must interact smoothly with other applicable plans, including state and federal ones. There should be no overlapping or gaps.

#### Part 8—Who Will Update the Plan?

This could be the most important part of the guide. If a good plan is written but not maintained, it is as if the initial planning process was in vain. Updating includes checking phone numbers and personnel at regular intervals and may include drills on a regular basis. It should be the duty of one of the agencies or departments involved in the plan to do the updating as part of their regular duties. If a consultant has written the plan, the problem of updating could be crucial. This task must be assigned to someone who is familiar with the plan and the process used to formulate it.

Appendix A of the guide includes a list of groups that may be included in the plan and the roles that they may play. This is included to give those writing the plan more direction to the task. Again it is stressed that the list should not be copied and considered a finished plan. The lists that are included are to be considered guides or suggestions to maintain the proper direction.

#### **TESTING THE GUIDE**

Since this guide was written it has been presented to various groups from small towns and rural areas. Some have actually used it to write their emergency plan. It is heartening to know that that resultant document is useful to the intended audience. It shows the value of the previous testing and rewriting. The finished document could actually be used in a real emergency.

It has been found most effective for the guide to be used with a training session. A leader meets with local officials or representatives from interested communities. They bring telephone books, maps, and any existing emergency plans from their community. At the session, the leader guides the group through the manual. At the end of the session, which usually lasts 1 day, the representatives have the outline of a hazardous materials emergency plan. They then take it back to their communities for additional work and adoption.

#### CONCLUSIONS

In conclusion, it is believed that this guide takes into account the needs of rural planning and an understanding of the need for hazardous materials emergency planning. The guide can be followed by any group without additional training or a high level of expertise. These two factors meet the requirements for a guide that can be used by the general public. This is an important step in mitigating the effects of hazardous materials transportation emergencies.

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# REQUEST FOR FEEDBACK TO The DOT Program Of University Research

Report No. DOT/OST/P-34/86-041

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