Guidelines for County Engineering Decisions (HR-369)

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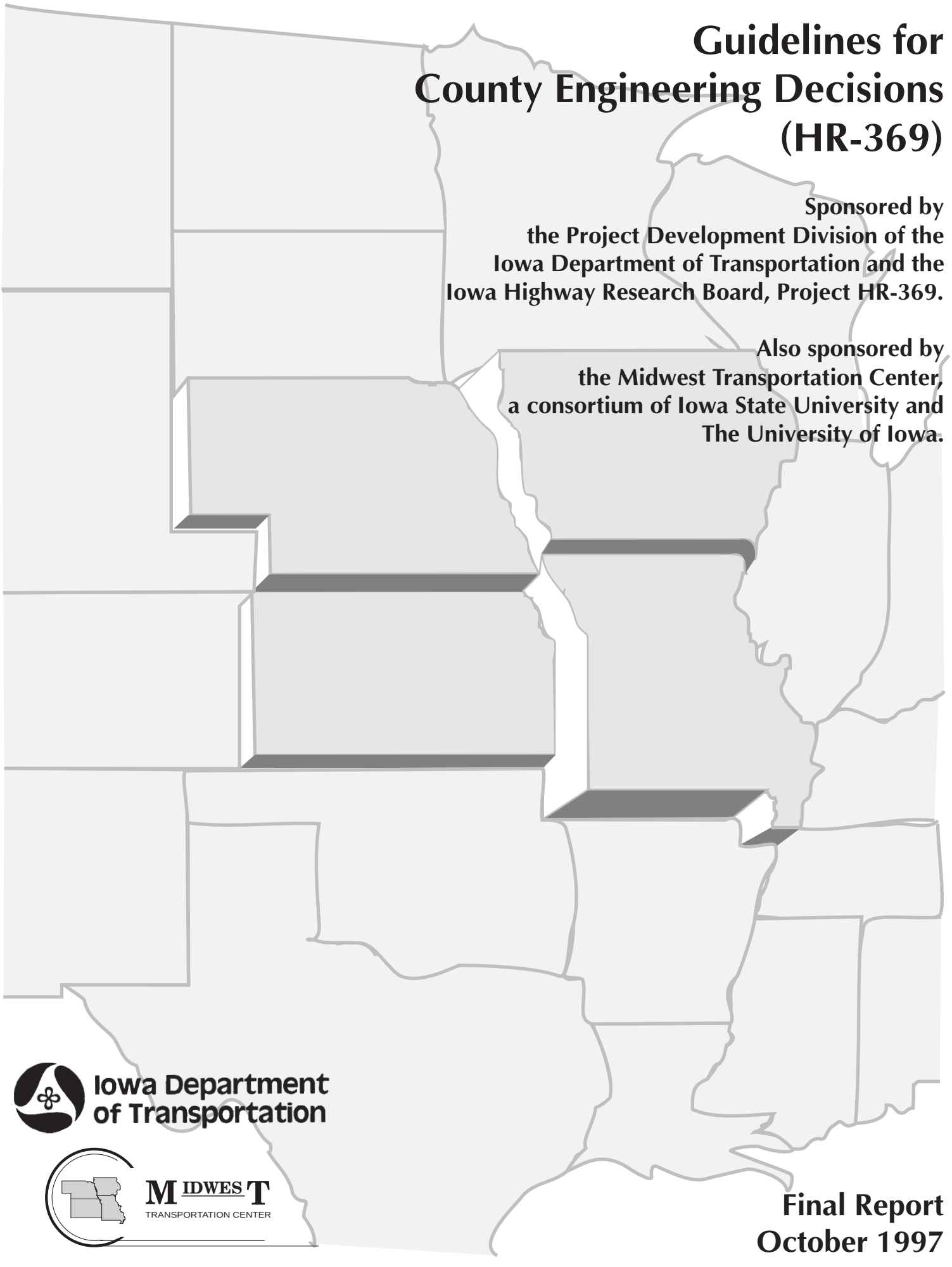

Iowa Department of Transportation

MIDWEST TRANSPORTATION CENTER

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Midwest Transportation Center

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Guidelines for County Engineering Decisions

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Executive Summary/Abstract

There has been a great deal of concern by county engineers and supervisors over constrained budgets, lack of resources and a deteriorating infrastructure, as they affect the secondary road system in Iowa. In addition, public input and/or political pressure have been increasing over the years. This study was initiated to determine the most important issues facing counties and document the way in which various Iowa counties have been addressing those issues.

The list of issues was developed through meetings of county engineers and supervisors in each of the Iowa Department of Transportation (DOT) regions around the state. Questionnaires were sent to all engineers and supervisors statewide asking them how the various issues (e.g. snow and ice removal policies, Level "B" roads, and so on) were handled in their respective counties. The responses were then compiled into this document.

This is a reference document that should promote uniformity among counties by letting them know how other counties are handling various issues. It may assist counties in answering inquiries from constituents, determining policies or procedures, and provide personnel with a reference document.

The subjects selected and used include:

County Policies, Ordinances, Resolutions
Snow and Ice Removal Policy
Dust Control
Privatization of Services
Level "B" Roads
Vacating Roads
Rural Development
Private Entrance Construction and Maintenance
Roadside Management Practices
Right of Way Encroachments and Easements
Personnel Matters, Staff and Organization
Communicating Information to Citizens
Supervisor/Engineer Relations
County Leasing/Purchasing Practices

Level B Roads

Many Iowa counties have Level “B” minimum maintenance roads and they are working well. The choice of the roads to consider for designation as Level “B” should be low volume traffic roads that do not serve a residence or other purpose requiring frequent access. Liability questions arising from Level “B” roads are negligible and very few law suits have been filed. Counties that do not currently have Level “B” roads should consider them.

Counties that do have Level “B” roads should periodically review their policies and the list of roads they have designated for additions or deletions as conditions require.

Snow and Ice Removal Policy

Nearly all counties have adopted the Iowa State Association of Counties (ISAC) Snow and Ice Removal Policy. Those that have not should seriously consider doing so. All counties should review their policies periodically to make them conform with actual practices. There has been good experience with liability issues. Existence of a written policy has in all probability discouraged the filing of law suits in many cases.

Dust Control Policy

Most counties have a dust control policy. The most popular material used is calcium chloride, however, lignin sulfite is also widely used. Cost and effectiveness are major factors in selecting the type of material to use. Permit applications are sometimes made by the property owner and sometimes by the contractor, but in nearly all cases the material is applied by a private contractor.

Most counties apply dust control materials at their own cost when excess traffic is created by construction and/or detours. A few have done so along roads running by rural churches and cemeteries.

Privatizing Services

There are some services that are seldom contracted out to private contractors such as snow removal, equipment maintenance, construction inspection, surveying, and right-of-way (ROW) acquisition. By the same token there are some services that are done by private

contractors most of the time. These include application of dust control materials, road construction, crack sealing, seal coating, and solid waste collection/disposal.

The trend over recent years has been to increase the number of privatized services. Each county should review its policy annually. Those counties which are not currently contracting out for services should consider doing so at least on a trial basis.

Ordinances, Resolutions and Policies

Most counties have ordinances, resolutions, and policies covering critical items such as snow and ice control, traffic control devices, and Level "B" roads. There are, however, several policies that are common past practices which are not a matter of written record. Few counties have policy manuals that are complete and indexed.

It is recommended that each county develop a policy manual that contains all applicable ordinances, resolutions, and policies. Those county engineer offices interviewed that did not have a manual indicated their preference would be to have a written document outlining all policies and procedures.

The following guidelines were suggested to decide whether to enact an ordinance or a resolution. Each was developed from information received from various counties, ISAC and the Iowa DOT.

ORDINANCE	RESOLUTION
Long term	Shorter term
Requires 3 readings	Easier to implement
County wide application	Establishes policy on a particular issue
Perhaps required by	Enforcement is not a concern. Cannot be fined for failure to comply.
Establish law by ordinance	Modify attachments by resolution
Regulate other people's actions	Declares how county will act toward others

Equipment Purchasing and Leasing

Most counties use standard specifications when purchasing equipment. There is sharing and loaning of equipment between counties and also some sharing of equipment with cities. County engineers should consider producing a list of specialized equipment and circulating it to others in the area. This might lead to more opportunities for sharing.

Right-of-Way Encroachments

It is apparent that there are numerous ROW encroachments by adjacent landowners, but most are not serious. It appears they are being handled in a manner commensurate with the severity of the problem. This ranges from ignoring the problem through discussions and letters to the landowner to legal action. Attention should be given to those encroachments that jeopardize safety and those that interfere with drainage and cause extra maintenance.

Utility permits are required before construction. There seems to be considerable variation in the designated location of utility lines.

Entrances

The trend over the last several years has been for counties to exercise more control over the construction of entrances and to require landowners, not the counties, to bear the cost. There has been an effort to reduce the number of entrances and control their locations for safety considerations, particularly on the heavier traveled roads. All counties should require a permit for new entrance construction and the cost should be borne by the party who benefits, the landowner.

Roadside Management

Most counties have their roadside management activities located in the county engineer's office. Even if it is not, there needs to be close coordination.
It was noted that the practice of planting prairie grasses is expanding.

Mowing: There are a few counties that mow the entire ROW on paved roads. Many other counties have abandoned that practice for economic reasons and because many of their constituents prefer a more natural look for roadways. Those that still mow all the ROW should re-evaluate that practice. Mowing the shoulder is a good practice for safety reasons and to

provide a clear roadway for snow to blow away in the winter. It is also necessary to spot mow for weeds.

Ditch Cleaning: Nearly all counties have a policy covering ditch cleaning. Those that do not should adopt one. Each county's practices should conform to the severity and nature of the problem. In any case, the counties should use the dirt as they see fit.

Rural Developments

Most of the counties that have a potential for rural developments have a policy covering requirements. Those counties that do not should adopt one. It is difficult to establish a policy for improvement of roads serving new developments, but counties should have some sort of policy so they are not unexpectedly faced with problems.

County Engineer/Board Relations

Most counties have a regular spot on the board agenda for the engineer. Complaints received by board members are passed on to the engineer's office for handling. Both of these procedures are as they should be.

Personnel and Staffing

Employees in a majority of counties are unionized. There have been relatively few grievances. Negotiation of union contracts are most often done by an outside negotiator, many times with the cooperation of the county engineer, supervisors, or others. Hiring of employees is generally done by the engineer or in a few cases a personnel officer, with the approval or concurrence of the board.

Overall Conclusions and Recommendations

The county engineers and supervisors of Iowa have long shared information and experiences with each other to enhance efficiency, quality and service in the secondary road area. Many times when a new problem emerges, they have worked toward a solution in a group effort. They have all been willing to share their experiences.

This study has illustrated that kind of cooperation and sharing. The group determined the most important problems in the secondary road area, then provided the information on how each

handled those problems. It was discovered that all counties share nearly the same set of problems.

The information in this document should be useful as a reference document on how counties in general have acted regarding their most important issues and will be a guide for each county to review its own policies and procedures.

It is recommend that all county engineers review these subjects with their Boards of Supervisors. It is also recommended that this information be discussed at a series of regional meetings. Since the most important problem list was developed and later discussed at this type of meeting, the cycle would then be completed. There may be some merit to a presentation at a statewide meeting in addition to or instead of the regional meetings.

The Reality of Maintaining Secondary Roads and Bridges in an Era of Increasing Fiscal Constraints and Public Demands

As the year 2000 draws closer — and Iowa's primary commitment to a quality rural infrastructure remains high — it is interesting to note that county transportation officials[1] seem to be continuing their search for solutions to timeless questions and problems[2]. In 1930, for example, an article in Better Roads Magazine reported that county engineering offices were searching for answers to questions asked regarding the financing of secondary roads and bridges. They were also "looking toward completion of the system of federal highways while, at the same time they were faced with decreased maintenance budgets, based on the assumption that hard surface roads would materially reduce their overall costs."[3] Decision makers in 1930 did not, however, adequately predict the actual costs of growth in traffic volume, the increased size and load weight of farm machinery, increased drainage velocity, or the increased responsibilities associated with the addition of more miles of existing roads. Neither the financial nor the political costs of maintenance and rehabilitation of rural roads and bridges was adequately factored into the equation.

One conclusion to be drawn is that whether one reads an article on county engineers published in 1930, 1976, or 1997, (s)he can expect to read that for every dollar the county invests in new construction of roads and bridges, it must invest yet another dollar (or more) to meet existing deficiencies. Contrary to popular belief, when new construction was rapidly expanding both the rural and urban transportation network[4], it was not recognized that bridge structures in particular, will not (and have not) last(ed) forever. In 1976, for example, Arthur Elliott, former Bridge Engineer and Editorial Consultant to Better Roads Magazine reminded county engineers of the high cost of their unrealistic expectations. He pointed out that bridges themselves do much to support the belief that once built, they will last forever. Truth be told, they do last far past their normal call of duty, carrying traffic long after they should have collapsed. As Elliott commented,

> many bridges seem to be held together only by black widow spider's webs, rust, and the force of habit. Yet, when a bridge finally collapses under a bloated school bus, the public becomes righteously indignant and seeks a scapegoat who can be blamed for this gross neglect.[5]

Every engineer charged with maintaining rural roads and bridges knows there are problems which will take a lot of money to resolve. It is a Utopian hope, says Elliott, to expect that any sort of orderly or proactive approach will be developed to avoid a catastrophe such as the one presented in

the quotation above.[6] He warned that instead, a panic approach is likely to be crafted in order to solve the problem on a national scale. In fact, Elliott suggests it is likely that federal standards will be set which will look quite rational on a drawing board, but which will be far too costly for most [rural] locations. He notes:

> . . . . the "old bridge" problem the country now faces is clearly sending a message that there is not sufficient money to do the job. Perhaps all we can hope for is to treat each bridge individually. One may need only to be repaired; another may need a new deck; still others will need complete replacement, and those bridges which are truly dilapidated may need to be closed along with the roads which connect with them.[7]

Elliott's words are unceasingly valid in a time when the pivotal challenges facing county engineers and their boards of supervisors present the age old demand for fiscal frugality. The need persists for more than a token replacement and/or rehabilitation program for roads and bridges. The reality is, however, that it will not be possible to adequately resolve all infrastructure problems. With continued commitment to a close working relationship between county engineers and their boards, however — provided county residents are appropriately sensitized to the reasons for fiscal constraints — somewhat lowered levels of service may become acceptable. In part, the key is to minimize county exposure to liability[8] while at the same time making residents aware that all their "wishes" for timely and maximum levels of service may not be met, but that the "needs" of the county road and bridge network as a whole can remain stable.

County residents must also be made aware that it is not only worn out bridges that present problems for county transportation officials. These structures find themselves in the same boat with many of the rural highways to which they are connected, many of which are farm-to-market roads that remain woefully in need of improvement.[9] Then as now, "outside of a possible coat of oil on the surface or conscious decisions to lower levels of service, these roadways have not been improved in width or alignment."[10]

In illustration of the extent of the dilemma facing some Iowa counties, the Des Moines Register prepares an annual report on the condition of Iowa's transportation network. In 1994, it was reported that seven Iowa county bridges in need of repairs carried more than 1,000 vehicles per day. Those involved in inspecting and maintaining the 20,445 bridges under county control in Iowa say they are losing the battle. This deterioration of rural bridges has implications not only for the safety of users, but also for the economic future of farmers dependent upon the bridges for

moving crops and livestock to market.[11] Phillip Baumel, Agricultural Economist for Iowa State University, concurred stating, "Unless something is done, we're just courting disaster."[12]

Problem Statement

The primary objective of this research was to collect information on decisions which county engineers and their supervisors across the state consider to be the most important and/or the most controversial. This information has been compiled and is presented in reference manual format. It has been designed to be used as a concise and convenient reference document. It is proposed that insights may be gained into how county engineers' counterparts in various areas of the state are implementing policies ranging from snow and ice removal and criteria used to designate Level "B" roads, to equipment purchases. The information contained herein is meant to encourage the ready exchange of this type of information across county boundaries.

This document may be important, in part, because county engineers do not often have an opportunity to share decision making procedures with their colleagues in different areas of the state. For many, the only time there is an opportunity to discuss either problems or successes is at the annual Iowa County Engineers conference held in December of each year, or for a few, at the annual National Association of County Engineers (NACE) meeting.

Rationale for Problem Statement

Researchers who conducted this study suggest that if county engineers can become more knowledgeable about the types of decisions being made by their colleagues across the state of Iowa, it may become somewhat more viable for them to take the lead in quantifying maintenance priorities, taking into account the [economic, political, and personnel] costs and benefits of such work.[13] It may, that is, be more likely that recommendations, some of which are controversial, will be more acceptable if board members can clearly see that other counties have successfully been making similar decisions using similar procedures [some implemented successfully over a relatively long period of time].[14] Information shared by county engineers across county boundaries may also make it more viable for county supervisors to concurrently take the lead in quantifying service levels, paralleling the focus of their county engineers, i.e., taking into account the (economic, political, and personnel) costs and benefits of county services.

The leadership skills demanded of transportation decision makers are becoming increasingly subjective, dynamic, and sometimes politically volatile. County engineers and their supervisors agree that each decision made must be carefully considered and fiscally conservative, in part because they are being held increasingly more accountable for their decisions by county residents, nearly all of whom are unaware of the results of research such as the Iowa Department of Transportation's Quadrennial Needs study, which in 1991 yielded evidence that

> none of the jurisdictions in Iowa is expected to have sufficient resources to fund all (transportation) needs. In fact, in order to fund projected 20-year needs, total resources as shown would have to increase by 50%. Federal funding increases are contingent upon federal budget priorities and tied to the uncertainty of new highway legislation. A 50% increase in local city or county funds is highly unlikely, since many Iowa counties have already reached maximum property tax levies, implying that resources will be insufficient to support all needs as identified in this study.[15]

Lowell Richardson, former Director of Local Systems at the Iowa DOT concurs with the results of the DOT study. He comments it is his understanding that Iowa counties will lag farther behind in reaching their infrastructure needs than other jurisdictions. If Richardson's projection is even somewhat accurate, Iowa's counties will continue to struggle to (and sometimes fall short of) maintain(ing) county roads and bridges to the satisfaction of the public.

Decisions made must protect the counties from exposure to liability, while at the same time take into account possible public responses to, in some instances, lowered levels of service. In Iowa, one county engineer insisted, "It's all going to be money driven. It's going to force people on the local level to decide what they're willing to do without. It'll squeeze the system gradually until there's a big enough public outcry to spend more money, or the system will just continue to deteriorate." As the financial resources designated for maintenance and construction projects become more and more inadequate, it will become increasingly difficult for county boards to allocate funds to repair bridge(s) rather than closing them (and possibly closing adjoining road[s] as well).

Coupled with the challenge of setting and maintaining transportation policy, elected officials are already faced with continually increasing mandated expenditures for mental health care, medical coverage, and other social welfare programs. To complicate matters, they are at the same time facing pressures to reduce taxes and expenditures, and to cut back on public employment.

Both county engineers and county supervisors agree that the challenges they face involve competing choices among:

- levels of service demanded (which for some members of the public may consist of "wish lists")
- levels of service which the county can realistically provide (given the reality of fiscal constraints)
- short and long term costs and benefits associated with proactive decisions, e.g., preventive maintenance versus deferred maintenance of Iowa's aging roads and bridges (again with the understanding that what county residents wish levels of service are and realistically what they can be within the existing fiscal realities)
- a recognition that in some instances, new construction projects will need to be initiated, resulting in decisions to lower the priorities of projects some in the county argue are of greater importance.

Methodology

After this research was approved, a meeting of the County Engineers Design Guide and Engineer-Supervisor Relations Committee was called. An advisory committee was formed from persons serving on this committee. Six Iowa county engineers, one from each district within the state, the project's technical monitor from the Iowa Department of Transportation, and six county supervisors were asked to serve in this capacity.

At a meeting held on January 12, 1995 at the Iowa Department of Transportation, the advisory group decided that researchers would be placed on the agenda at the annual district meetings held in 5 of the 6 Transportation Regions in the state to discuss the project's goals. The persons attending these meetings provided feedback and the guidance needed relative to the representation of different regions of the state, counties of different sizes, and the differences in problems or issues confronting counties statewide.

The primary objective of the meetings was to identify the key decisions most likely to cause problems for county engineers and their supervisors. It was hypothesized that many problem area decisions would overlap, i.e., be similarly shared by county engineers and their supervisors across the state. Once the categories of decisions were identified, members of the advisory group assisted researchers in the design of a questionnaire. The final draft of the questionnaire was mailed to all county engineers and all county supervisors in the state of Iowa. The questionnaires

included categories of decisions identified by those representing the counties at the 5 meetings researchers attended.

Some questions required those participating in the study to circle the most appropriate response and others were designed to solicit written comments, particularly those which relate to criteria used for making specific decisions, i.e., the criteria used in determining whether a road qualifies for Level "B" designation.[16] Because responses from supervisors and county engineers from the same counties were nearly identical,[17] researchers concluded that these persons worked closely together filling out the questionnaires. In talking with a few county engineers, this conclusion was affirmed. As such, the analysis of the information collected provides the proper balance and representation by using only the county engineer responses.

The decisions county engineers and their supervisors say they are most often confronted with and which are included in the results section of this manual include the following:

- County practices, policies, ordinances, and resolutions
- Snow and ice removal policy
- Dust control policy
- Privatization of services
- Level "B" roads
- Criteria used in vacating roads
- Rural development
- Private entrance construction and maintenance
- Roadside management practices
- Right-of-way encroachments and easements
- Personnel matters, staff and organization
- Supervisor/engineer relations
- Communicating information to citizens
- County leasing/purchasing practices

County Rule Making Procedures: Policies, Ordinances, Resolutions

Chapter 331 of the Iowa Code defines an "ordinance" as a county law of a general and permanent nature, while "resolutions" are statements of policy or orders for actions to be taken. The following table illustrates the key differences between ordinances and resolutions.

Ordinances	Resolutions
Long term	Shorter term
Requires 3 hearings	Easier to implement
County wide application	Establishes policy of particular issue
May be required by law	Enforcement not a concern. Cannot be fined for failure to comply.
Establish law by ordinance	Modify attachment by resolution
Regulates public's action	Regulates county's actions

Table 1. Primary Distinctions Between County Ordinances and Resolutions

Some ordinances counties have established regulate procedures for snow and ice control measures, traffic control devices, and the criteria used to determine designation of Level "B" roads. Most counties indicated their most important ordinance is snow and ice control. In fact, 58 counties included this policy as one of the top 3 most important and 45 said it was their most important.

The second most important ordinance reported Level "B" roads, with 29 counties stating this was one of 3 top priorities. Another 20 counties ranked Level "B" roads second in importance. Other listed items for which the counties have developed "ordinances" include:

- zoning (which is of particular interest to those counties experiencing population increases due to urban migration)
- rural housing developments
- utility locations
- septic systems
- flood plain management
- obstructions in right of way

Policy Manuals

More than half of the counties responding in this study (N = 45 of a total of 82) reported they currently have a written policy manual which they can consult prior to making decisions. Most indicated, however, that their county's policy manuals do not contain all important items pertaining to their road and bridge policies. Of the 40 counties listing the content of their policy manuals, for example, only 16 included all ordinances, 4 contained all resolutions, and 10 contained all written policies. Only 30 of 82 contained all personnel policies, while 16 contained all safety policies.

There was a difference of opinion as to whether any particular subject important to the county should be covered by an ordinance, a resolution, a policy, by inter-office memo documenting past county practices, or merely by actions which have become custom over extended periods of time, i.e., a number of county practices are not a matter of written record. If there were an accident in the county that demonstrated inconsistencies in county practices, this could become a liability issue.[18]

Resolutions

- Are formalized and must be passed by board members
- Are generally short term and easier to implement than an ordinance
- Establish county policies on particular issues
- Enforcement is not a concern
- Attachments to resolutions are modified by resolution
- Is a formal declaration requiring county action toward residents in the county

While a few counties covered snow and ice removal using resolutions, those listed as most important to the counties were:

- Traffic control signs
- Bridge posting
- Land use
- Entrance construction

Comments on County Ordinances, Resolutions, and Policies

Most persons interviewed for this study, who do not currently have a detailed written manual documenting county policies, expressed a wish to do so, but said there just was not sufficient time to invest in developing a detailed document.

One county engineer interviewed had recently assumed the position when his predecessor retired. Upon that retirement nearly the entire office structure was changed. The new county engineer was adjusting to a new assistant county engineer and a new maintenance superintendent. A detailed written policy manual would have been very useful, he said, not only for teaching his assistants about county policy but also for himself. The county in which he had previously been the county engineer had "done business" much differently than he was now expected to do.

Ordinances, Resolutions, or Policies: Recommendations

Drawing from the few counties that currently have policy manuals that are complete and/or indexed, the following recommendations are offered:

1. A manual would be useful to furnish to new employees (particularly county supervisors or administrative employees) to assist them in gaining familiarity with county practices.

2. A manual would be a helpful reference for county engineers, supervisors, and even seasoned personnel to save time and promote uniformity in decision making.

3. Uniformity would be particularly important as it relates to, (e.g., items including snow and ice removal practices) which if written and followed carefully would insulate the county from exposure to liability.

4. Detailed descriptions of all applicable county ordinances, resolutions, and policies relating to the rural road and bridge network should be included in a manual.

5. A manual should include any memos that may illustrate standard practices that have traditionally been used in the county, but which have not been reduced to formal, written county policies.
    - County engineers should then determine which of those unwritten policies should become ordinances, resolutions, and/or written policies. Criteria to be used in this determination should include county exposure to liability which can arise if county policies are neither written nor standardized.

    - Each of these memos should be dated and signed by the county engineer and by at least one county board member (e.g., the chair of the board of supervisors) so the time frame during which a particular policy has been used is clearly identified. Again, this will help to insulate the county from liability.

- There should be an index separating subject matter contained in the manual, e.g., safety, personnel, road maintenance, right of way management, and so on so that any item needed can be readily accessed. See Appendix D.

- The index should indicate the date of implementation of each practice, policy, ordinance, and/or resolution within the county. This would be helpful should a county resident or landowner claim the actual county policy differed from the specified county policy written in the handbook and in case a liability issue arises.

- Care should be taken to remove all superseded or outdated documents. Policy manuals which are not periodically reviewed may not contain changes in county practices. This would be particularly confusing for new county engineers, supervisors, or administrators.

- If a policy changes from the way in which it is written in the manual and there is a problem, again, the county may unnecessarily expose itself to liability. An annual review offers a proactive approach to policy changes.

6. A committee comprised of county engineers and county supervisors (e.g., the Design Committee) should be appointed to develop the manual. Researchers have collected a list of policies from some county engineers who were interviewed. The list of those policies and the topic areas identified by this study could offer the beginning of a check list which could be used by most, if not all, counties state wide (See Appendix D for an illustration index of policies, ordinances, and resolutions for Hardin County, Iowa).[19]

Snow and Ice Removal Practices

Of 80 responses to whether the county had adopted a formal snow and ice removal policy, 62 counties reported they had adopted the model policy developed by the Iowa State Association of counties (ISAC) which was developed several years ago by a joint Engineer-Supervisors Committee. It is noted that 12 counties have not adopted the model policy. Of those who have adopted the ISAC policy, 35 have made no revisions since adoption while 26 have made revisions. Most modifications to the policy specified changes in the hours crews would be working. This was done to bring the policy into conformity with the county's actual practice for crew starting and quitting times.

Recommendations: Snow and Ice Removal Practices

- All counties should clearly specify exactly what their snow and ice removal policy is and then adhere strictly to that policy in practice. Only in this way will county exposure to liability be limited.

- All counties should review their policies periodically to ensure conformity with actual practices.[20]

Dust Control

Somewhat more than half (N = 44 of 82) of those responding in this study reported that their counties had adopted dust control policies.[21] The most frequently used material for dust control is calcium chloride. Sixty-two counties reported using this material, while 47 reported using lignin sulfate.

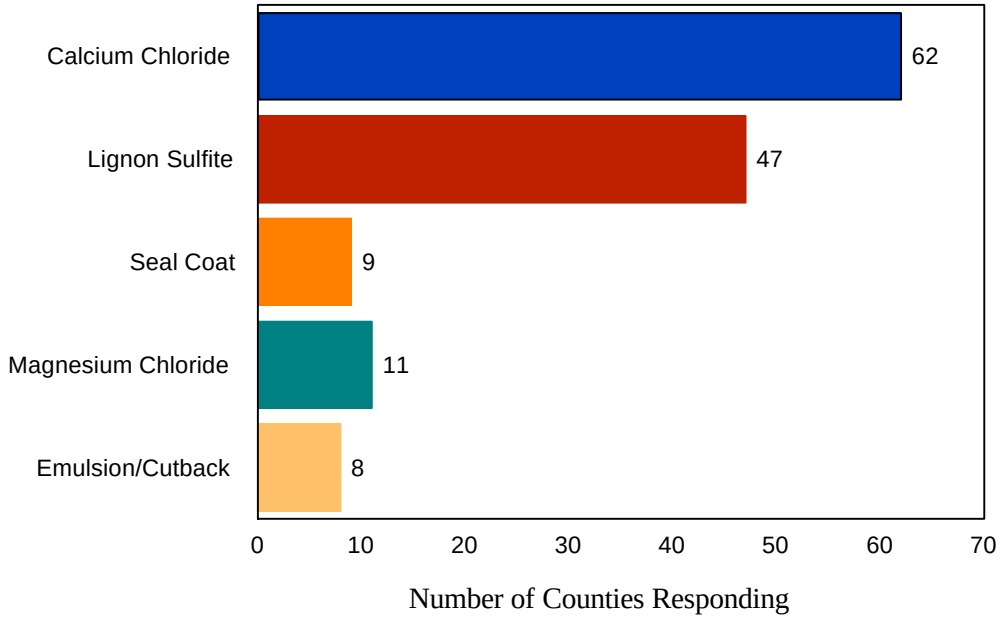

Figure 1. Types of Materials Used for Dust Control

The most important criteria in selecting which type of material to use were cost and effectiveness as would be expected (See Table 2). Overall, availability of dust control materials was not at issue.

	Cost	Effectiveness	Availability
Most Important	22	41	9
Important	36	20	15
Less Important	16	10	34
Not Important	0	0	6
No Response	10	11	18

Number of Counties Responding

Table 2. Criteria Used in Selecting Material for Dust Control

Nearly all counties (N = 76 of 82) reported that private contractors apply dust control materials. The county accepts responsibility for applying materials in only 12 counties, while in 9 counties landowners are responsible for hiring private contractors to apply these materials. In 54 counties, the county selects the private contractor while in 29 counties contractor selection is made by the landowner. Where materials are applied by private contractors, 47 counties report the type of material used is selected by the landowner and the contractor, while 26 counties report the county selects the materials to be used.

Permits for application of dust control materials are required in most counties. Nearly an equal number (N = 40) report that landowners or private contractors (N = 34) apply for the permit. One county reported the application is jointly submitted by the county and the landowner, while 4 counties merely give verbal approval to landowners rather than requiring permit applications. In nearly all cases (N = 63), landowners pay 100% of the cost of dust control. In 3 counties the landowner pays 70 - 75% of the cost. In one county, the county furnishes the labor to apply dust control materials.

Most counties report they will pay 100% of the cost of dust control in certain instances, e.g., in front of rural churches (N=6) and along stretches of road in front of rural cemeteries (N = 2). Most will apply dust control materials in cases where excess traffic volume is created by construction detours (N = 54), by county detours (N = 62) or by detours made necessary by construction on intrastate or interstate highways (N = 24). Only 2 counties reported they do not prepare the road in advance of dust control applications.

Recommendations: Dust Control

- It is recommended that all counties, if they have not already done so, develop a written policy regarding dust control.

Those counties which currently have a number of gravel roads, particularly where those roads connect with several private dwellings (as opposed to large acreage farms) are likely to see an increase in requests for materials designed to control dust. This is an area where public participation is likely to become an increasingly important factor in decisions made by county boards of supervisors.

- Written policies as to who is to assume the cost of dust control will protect both the county engineer and county supervisors from criticism, i.e., if they can point to a county wide policy, they may be able to at least control the "politics" involved in requests for dust control.

Privatization of Services

- Table 3 shows the frequency with which services to counties are contracted out to private contractors. There are some services that are specialized and seldom contracted out to private contractors (See Table 3).

	Never		**50% of time**		**Always**
Snow removal	70	11	0	0	0
Weed control	40	11	8	14	9
Dust control	5	5	4	13	54
Road construction	0	3	13	44	21
Crack sealing	9	9	11	16	37
Pavement patching	14	8	26	25	8
Roadside mowing	6	4	1	0	9
Seal coating	9	9	5	6	44
Equipment maintenance	16	49	7	6	44
Bridge inspection	15	21	9	6	30
Bridge maintenance	13	34	24	7	3
Bridge design Engineering	15	31	19	8	7
Road design Engineering	57	22	4	3	2
Construction inspection	48	19	0	5	0
Surveying	37	25	10	7	2
Hauling granular surfacing	23	23	15	15	1
Solid waste collection & disposal	8	0	4	9	46
ROW acquisition	52	13	7	2	2

Table 3. Frequency of Privatization of Services

When the county assumes complete responsibility for these services, it is able to ensure consistency/uniformity and control for quality so as to ensure prompt service and limit the county's exposure to liability. By the same token, there are services that are provided primarily by private contractors. These include:

- dust control
- road construction
- crack ceiling
- seal coating
- solid waste collection and disposal.

Recommendations: Privatization of Services

The trend over recent years has been to increase the number of privatized services. Each county should review its policy annually. Counties should consider privatizing select services on a trial basis. Most of those shown in Table 3 can be considered candidates for privatization.

Level "B" Roads

Fifty-nine of the 82 counties indicated they have Level B minimum maintenance roads. Many of these counties indicate the designations are working well. One county engineer noted his county would be making recommendations to implement Level B status to a road in the coming year. This may be a situation where residents living in the county (and the general public) need to more clearly understand the fiscal constraints confronting their counties. Perhaps "acceptable" levels of service will need to be redefined over time. This is likely to have a more detrimental effect on people who have been accustomed to higher levels of service within the city limits, and who have recently moved into rural areas, but the fiscal reality is such that some demands for service upgrades and/or even current maintenance levels may need to be re-negotiated.

Results and Comments: Level "B" Roads

A majority of county engineers who participated in this study said that type of surface and number of residences served are the primary criteria used to determine which roads become candidates for Level B designation (See Figure 2). Some county engineers report the high cost of signing, including initial cost, maintenance, and replacement cost (there is a high degree of theft and vandalism of signs on Level "B" roads).[22] Others say until forced to make a change because of additional fiscal constraints, they will continue to maintain roads at current levels because they are apprehensive about exposing the county to legal liability or because landowners deserve better than

Level “B” roads, i.e., since all landowners pay taxes to maintain roads within the county, all landowners should be able to expect the same level of service on roads which they frequently travel to and from their property.[23]

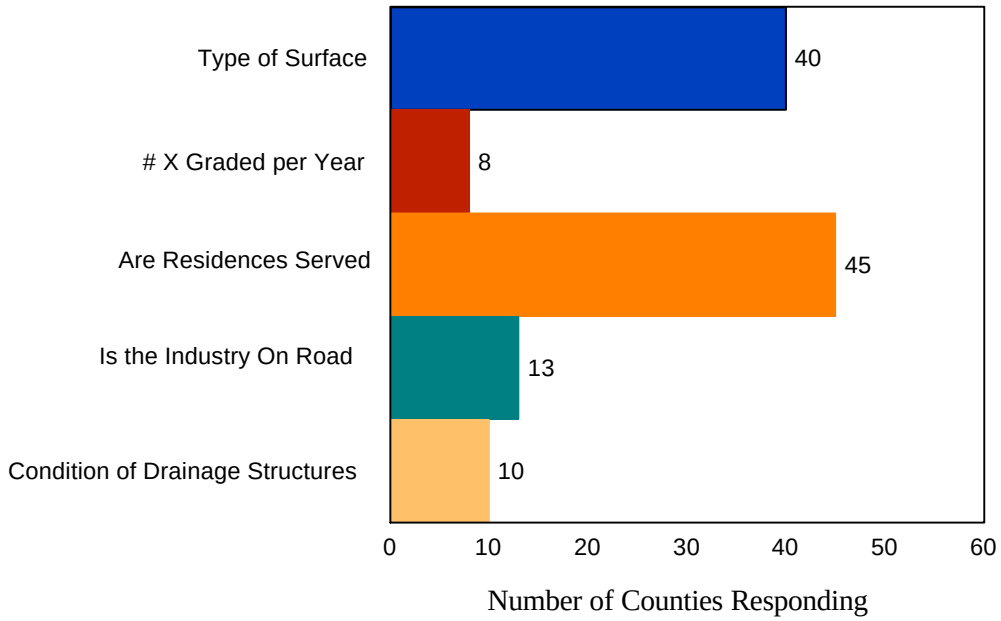

Figure 2. Criteria for Selecting Level B Roads

Recommendations: Level “B” Roads

Based on responses to this study, the questions which should be considered to determine which county roads should be considered for Level “B” designation are as follows:

- Whether the road in question has a low volume of traffic and whether it directly serves a residence or has another purpose requiring frequent access.

- Counties that do not currently have Level “B” roads might reconsider such designations. For example, those counties which find it difficult to maintain some of their gravel roads in the face of increasing budget constraints might use as their primary criterion the frequency of grading the road during a specified time period. Or, if a road is a “field access only” road, it could become a candidate for Level “B” or even Level “C” designation.

- Perhaps most importantly, counties which currently have Level “B” roads should review their policies and the list of roads they have designated for minimum maintenance. There may be additional roads which could receive this designation and others which may need to be upgraded.

- A written policy which specifies criteria for Level “B” roads should provide for periodic review.

Vacating County Roads

County engineers continue to make decisions based upon their knowledge of the infrastructure from an engineering perspective, identifying problems that may not always be readily apparent to the public. As Iowa county officials continue to lose ground in their efforts to maintain aging rural roads and/or bridges, however, county engineers in Iowa echo in a collective voice that, "Few actions will cause angry landowners to storm the courthouse more than a recommendation to close a bridge and the adjoining roads."

Seventy-seven of 82 county engineers (94%) responding in this study indicated they had vacated or made an effort to vacate roads within the past 10 years. Those who had not made this consideration reported their boards were resistant to going through the procedure required to vacate a road or bridge. Other reasons cited included potential money damages which could exceed estimated cost savings if a landowner decided to challenge the vacation. Almost all of those responding to this question (N = 75 of 77) cited landowner request as the primary reason vacation proceedings are initiated. Other reasons included county efforts to save maintenance costs and control of county exposure to liability by closing deteriorating bridges which are too costly to rehabilitate. Still others said roads were closed and vacated when they were no longer needed as a relocation during construction, returning the land to the tax base. (See Figure 3).

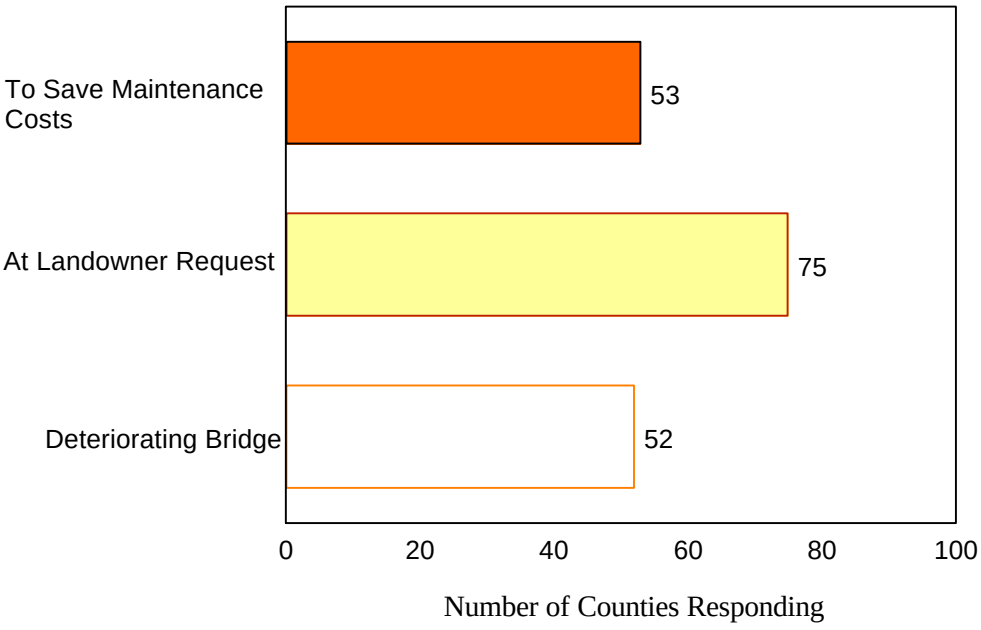

Figure 3. Reasons Counties Initiate Road Vacation Proceedings

Suggested Procedures for Road and/or Bridge Vacations

Most suggestions centered on reaching agreement with landowners prior to making the decision to vacate a road and/or a bridge. Some counties wait for a request from landowners, while others will ask landowners to circulate a petition favoring vacation. Others simply discuss the possibility of vacation with area landowners whose travel mobility patterns might be affected by a vacation. The latter approach is used to avoid conflict with landowners. A few counties have constructed bridges or low water crossings with the understanding that the road will eventually be vacated. In the case of bridges, ownership must be transferred to the landowner. Other counties have developed an agreement with the landowner to obliterate the road grade so the area can be fenced and farmed. In at least one instance, the county purchased the affected land, vacated the road, and resold the property.

Regardless of the concern that property owners and farmers will "storm the courthouse" should a road or bridge be closed, 64 county engineers responding in this study indicated they were satisfied with their current road and bridge vacation policy.

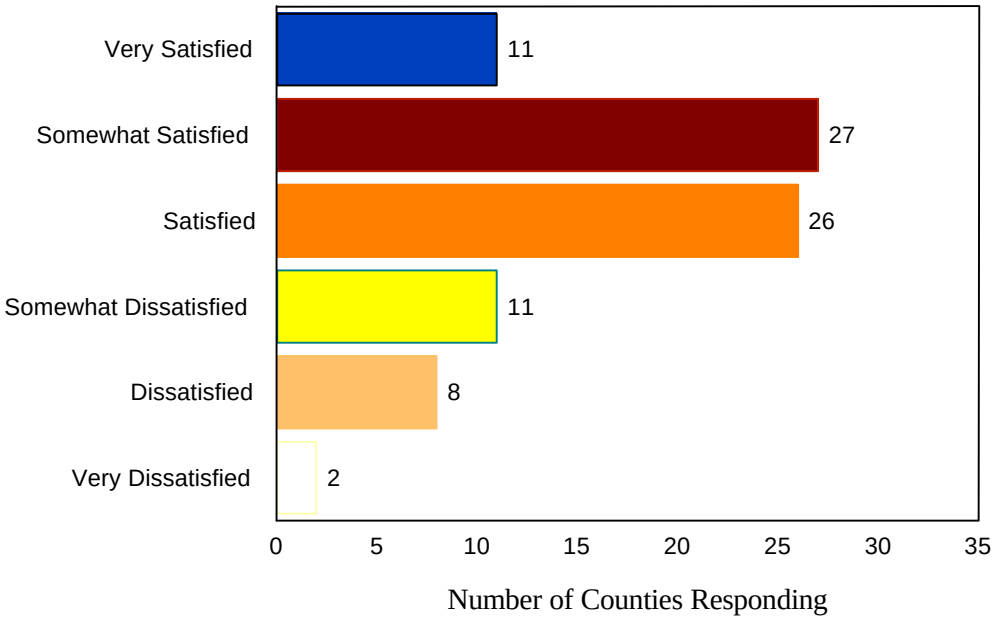

Figure 4. Satisfaction with Road Vacation Policy

Recommendations: Road and Bridge Vacations

A majority of county engineers agreed:

- It is best to wait for the landowner to initiate road vacations unless there is a pressing safety or fiscal reason to proceed.
- It is advisable to discuss both the reasons for and the possibilities of vacations thoroughly with all affected parties prior to initiating any vacation proceedings.
- Because vacations can potentially affect travel mobility patterns of people living in the county, a proactive approach is essential.

Each county should periodically review its inventory of roads to determine whether any should be considered for vacation. This will avoid the possibility that someone who purchased land and has decided to build a residence (or some other use) will require the county to expend funds to upgrade the road.

Rural Developments

In the state of Iowa, 44 of 89 rural counties are continuing to lose population because agriculture continues its century-long drive to produce more with machines rather than with human effort. It might, therefore, appear that the probability the county will see significant activity regarding rural housing developments presents no problem. Notwithstanding the demographics, research suggests a few select counties have become a source of significant growth for rural home building and services industries.

Property owners who have become dissatisfied with urban living are relocating in rural housing developments in several regions in Iowa. This migration has the potential to cause serious fiscal problems for counties, problems which will serve only to magnify the shortfall in funds to provide services to an already overburdened rural infrastructure. A recent article by Kenneth Pins, published in the Des Moines Register on June 1,1997, alerted rural counties to the realization that some counties are seeing construction of $200,000 homes in their jurisdictions. This could likely result in high costs for the county unless county transportation officials are aware that construction of expensive homes may result in requests or demands for the county to upgrade a road which might have been a candidate for vacation.

As Pins commented,

> more than ever, Americans can choose where they want to live. . . . Collectively, rural

> counties have grown 11% since 1990. Retirement counties are up an even heftier 16%. In illustration, Dickenson County, Iowa, has grown 6% since 1990, more than any county in Iowa that is not attached to a metro area. Dickenson County has seen 950 more people move in than leave in the 1990s. Not counting vacationers this means the population increases from a 16,000 base to 80,000 in an average summer week. . . . . Demographers have extolled the rural rebound of the 1990s and there is evidence to support the gain. Three-fourths of the nation's 2,304 non-metro counties are growing, a break from the 1980s, when less than half could muster an increase. More of it is a function of people in rural areas not leaving. There are people who would have had to go to urban areas in the past who, because things are better now, don't have to leave.[24]

This is a case where economic growth and prosperity for individuals may become unacceptably costly for a select number of counties — counties which have already faced the prospect of making unpopular zoning decisions to discourage urban homeowners from relocating to rural areas.

While the most significant changes in the rural landscape are associated primarily with closely related urban areas or recreation attractions, an increase in the number of rural subdivisions in Iowa counties also presents problems, particularly for counties already struggling to maintain current standards of service for the county. Moreover, the consequences for the infrastructure are the same regardless of the reason for rural population increases. As Pins commented, "farming counties across the nation, including Iowa, continue to decline in population."[25] Those counties experiencing population increases, however, may well serve as an obstacle to Iowa county engineers and county supervisors whose goal it is to maintain an overall high quality county infrastructure.

Whether the request to construct private dwellings comes from landowners living in the county, from single owner dwellings, or residents in subdivisions, county engineers identified a number of categories of problems associated with rural housing developments. Those problems will require county engineers and their supervisors to ask and answer a number of questions, some of which are regulated by state statutes and others which may become politically volatile. Granted, only a few counties either currently have or are anticipating the construction of rural residences or developments. For those that have or are addressing this issue, however, the following questions should be addressed.

If a rural development is located on an unimproved road or one that needs further improvements to serve the development, 12 counties assume responsibility for any improvements to the roads serving the development, while 30 said the developer assumes this cost. There were, however, several who remarked they have no clear policy, but resolve each situation individually. For additional discussion of the impact of rural developments, see Appendix C.

A standard for the design of streets is covered by ordinance in 47 out of 82 counties. Thirty counties require concrete pavement and 19 require asphalt. Nineteen require curb and gutter while 11 required granular surfacing. Some counties said road surfaces should be similar to the roads to which the development connects.

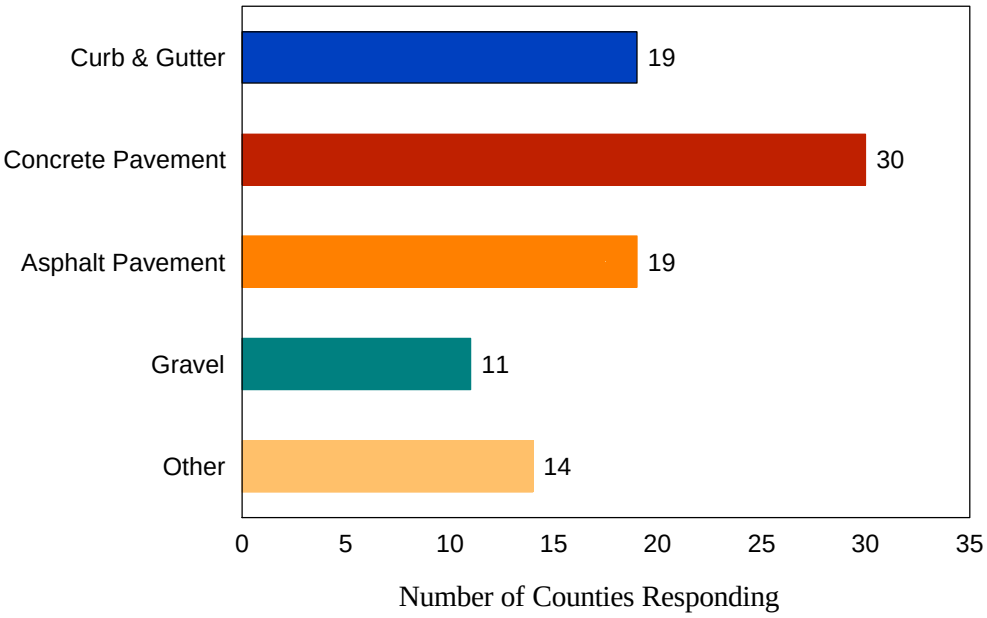

Figure 5. Type of Street Improvements Required by Ordinance

Recommendations: Rural Developments

Questions that counties must address are as follows:

- Whether the county has an ordinance permitting rural housing developments
- Who maintains and pays for required improvements of roads which serve a rural housing development
- Whether minimum standards for street surfaces should be established

If there is no written county ordinance regulating rural housing developments, counties that have a potential for such population increases should seriously consider developing such an ordinance. This is not to suggest counties should arbitrarily ban rural developments. Rather it is to suggest counties need to 1) control where developments will be permitted and 2) how large those developments should be permitted to grow. Size of rural developments is important because it affects traffic volume within the county. As it was pointed out earlier in this document, the number of times a road must be graded within a specified time period is a criterion for Level B designation.

This factor is integrally related to traffic volume which increases with each new private dwelling. Location is important. If a county determines that a road should be designated as Level "B" because a housing development is constructed, that decision would need to be re-evaluated and changed to accommodate rural development residents. This may well present county supervisors with a dilemma because economic growth in the county should be viewed as positive. Yet the actual number of dollars property taxes increase as a result of increasing population rates may not be sufficient to welcome population expansion within the county. If a county considers allowing rural developments, the primary concern will not necessarily be immediate or short term cost, but rather long term costs (or investments) of maintenance, rehabilitation, and possibly reconstruction.

In addition to heavy farm implements there is yet another significant change in rural areas, one of which was addressed by Baumel et al.38 who pointed out that the major change in demands on secondary roads has been the change in lifestyle of rural residents (both farm families and formerly urban dwellers). Forty to fifty years ago, farm families went to town on Saturday night to sell cream and eggs and to purchase groceries. They traveled to town during the week only for special purposes. In fact, Baumel's study noted that less than 50% of the rural traffic in 1993 was farm related. In explanation, he said that many rural residents are currently employed in urban areas and must be able to rely on getting back and forth nearly any time of the day or night.

The demographic composition of rural residents presents a significantly different set of travel patterns than had been developed between the 1940s and the 1980s. Years ago, for example, if weather conditions resulted in bad road conditions, travel was delayed and rural residents "got by" until conditions improved.

In addition to farm related demands on the rural infrastructure, the growth of rural housing developments complicates budget decisions in some areas of the state of Iowa, i.e., increased traffic volume and a need and/or demand for increased levels of service, may, in the future, have increasing relevance for county decisions to:

- convert some rural roads to Level "B", minimum maintenance status
- defer maintenance of roads and bridges
- close designated roads (or bridges) altogether
- maintain designated roads at their current level of service even though residents demand higher levels of service

Construction of Private Entrances for County Residents

The issue as to whether the county has a policy addressing the location of private entrances is important. Equally, if not more important, however, is whether the costs of construction and the costs of maintenance are absorbed by the county or by those requesting construction of the entrance.

- In 28 jurisdictions in Iowa, construction costs are assumed by the county, while the landowner is responsible for those costs in 29 jurisdictions.

The remainder indicated that either the county and the landowner share costs or the decision is made on a case by case basis.

- Nearly all counties responding in this study have policies addressing the construction and maintenance of private entrances (only 3 did not).
- All counties regulate the location of entrances, and a majority (58 out of 80) require permits prior to construction.
- In nearly all instances, the landowner absorbs the cost of culvert pipe if it is needed.
- Only 7 counties indicate they furnish the pipe, one indicating the county paid for 50% and another 75%.
- In 43 counties the land owner pays the entire cost of construction, in 22 counties the cost was absorbed by the county; and in the remaining counties the cost was shared.
- In 30 counties, the county even absorbs the cost of surfacing the entrance.
- Once constructed, 61 out of 80 counties absorb the cost of maintenance of private entrances. All counties reported they construct more than 10 entrances per year

Recommendations: Private Entrances

The trend over the last several years has been for counties to exercise increasing control over the construction of entrances and to require landowners, and not the county, to bear the cost. There had been an effort to reduce the number of entrances and control their locations for safety considerations, particularly on heavier traveled roads. It is recommended that:

- All counties should require a permit for the construction of new entrances and that the cost should be borne by the party who benefits, namely the landowner.

Roadside Management Practices

In 56 counties, roadside management responsibilities are assumed by the office of the county engineer. The remaining 17 counties report responsibilities are being shared by the county engineer and the conservation board or the weed commissioner. In 4 counties, responsibility rests with a roadside biologist, county conservationist, or a separate integrated roadside vegetation management section.

Problems associated with roadside management are listed below in Table 4 in order of severity. A ranking of 1 indicates the worst level of severity and 6 indicates the least level of severity.

Problem	Most Severe 1	2	3	4	5	Least Severe 6
Weeds	17	12	12	16	5	6
Brush	29	17	11	10	2	1
Ditch Erosion	4	11	13	16	16	1
Silt from Field	19	20	17	4	5	4
Foreslope Backslope Erosion	0	3	4	9	19	22
Trash	3	8	12	11	11	20

Table 4. Severity Ranking of Roadside Management Problems

Table 4 illustrates brush, silt from farm fields, and weeds are, respectively, the most severe problems for county engineers. Erosion of ditches, foreslopes, and backslopes and trash remain problematic, but somewhat less so.

Mowing Right Of Way (ROW) on Paved Roads

- 12 counties reported they mow the entire ROW
    - 8 counties mow the entire ROW once a year
    - 3 counties mow the entire ROW twice a year
    - 1 county mows the entire ROW 4 times during the year
- 51 counties report mowing shoulders of roads
    - 7 counties do so only once per year
    - 33 counties mow two to three times per year
    - 11 counties mow 4 times per year

Only one county reported it does not mow shoulders on paved roads.

Mowing of ROW on Granular Surfaced Roads

- 4 counties mow the ROW on granular surfaced roads
- 31 mow foreslopes on this granular surfaced roads
- The number of mowings per year was reported from 1 - 4 but most counties do not have a specific number of times per year for this service. It is done as needed and as time permits.

Spraying Road ROW

- 51 counties spot spray for weeds only
- 5 counties reported they spray the entire ROW
- 15 do not spray at all

Prairie Grasses

- 45 counties have planted prairie grasses in their ROW
- One county (Black Hawk) reported over 200 miles of prairie grass have been planted
- 10 more counties reported 30 or more miles planted

Ditch Cleaning

- 18 counties report they have a regular ditch cleaning program
- 37 counties report they clean ditches upon request of landowners

- Many counties clean ditches as needed, i.e., as requested by patrol operators and maintenance personnel

- One county has a full-time crew working on ditch cleaning

Recommendations: Roadside Management

Most counties have their roadside management activities located in the county engineer's office. If this is not the case, there should nonetheless be close coordination. The practice of planting prairie grasses is expanding.

- *Mowing:* There are a few counties that mow the entire ROW on paved roads. Many other counties have abandoned that practice for economic reasons and because many of their constituents prefer a more natural look to the roadways. Those that still mow all the ROW should re-evaluate that practice. Mowing the shoulder is a good practice for safety reasons and to provide a clear roadway for snow to blow away in the winter. Of course, it is also necessary to spot mow for weeds.

- *Ditch cleaning*: Each county should develop a policy regarding ditch cleaning. Practices should then conform to the severity and nature of the problem. In any case, the counties should use the dirt from the ditches as they see fit.

Right of Way Encroachments

County engineers report considerable problems with encroachments on the road right of way. Farming on the ROW seems to occur most frequently, followed closely by pasturing, parking farm equipment, storing hay, and fence rows extending into the ROW. There was a large number of other items reported including rocks, brush, burn piles, junk, trash, parked cars, buildings, unauthorized construction, tile checks, and landscaping in front of houses.

Table 5 on the following page shows the number of county engineers reporting they were having problems with each of the listed ROW encroachment problems. They were asked to rank each of these items as to the frequency with which the problem occurs in their counties. That frequency is also shown in Table 5.

		Frequency Rating				
		Most				**Least**
	# Prob.	1	2	3	4	5
Farming in the ROW	67	33	17	10	5	3

Grazing in the ROW	59	8	21	19	11	2
Parking Equipment	51	6	8	14	12	13
Storing Hay	49	4	11	8	9	15
Fences in ROW	55	12	10	13	11	7

Table 5. Problems of ROW Encroachment
(Note: Some counties selected more than one category per ranking.)

Actions Taken Regarding ROW Encroachments

When asked what actions their counties normally take when dealing with ROW encroachments, 61 said they send the landowner a letter, 46 said that someone will talk to the landowner, 20 said they will ignore the problem, 6 said they will take legal action, and 4 indicated they will correct the situation themselves.

Right of Way Easements

Nearly all counties (only one did not) require utility companies to obtain a permit before placing utilities in the ROW. Sixteen counties require the company to put up a bond before beginning work, and 13 require a county employee to be present during construction.

Utility Location Requirements

Nearly all the counties (59) said they require the utilities to be placed in a particular location in the ROW. Only 13 said they did not require placement in a particular location. The following table shows the number that require the utility to be placed in each location. A few require location outside the ROW in some instances.

	In Shoulder	In Ditch	In Roadway	On Backslope	Near ROW Line
Underground Electric Lines	11	7	3	5	20
Overhead Electric Lines	0	0	0	0	49
Gas Pipelines	2	12	3	10	21
Telephone Lines	21	2	7	5	12

Rural Water Lines	1	11	1	4	20
Cable Lines	19	4	2	5	11

Table 6. Utility Location Requirements

Compliance by Utility Companies

Forty-four counties report they have had problems with utility companies. Fourteen said they have experienced no problems. The nature of the problems consist of lines not being placed in the proper location or depth, damage to culvert or tile lines, inadequate cleanup, and inadequate traffic control. Not wanting to replace sufficient surfacing material was also mentioned.

Recommendations: Right-of-way Encroachments

It is apparent there are numerous ROW encroachments by adjacent landowners but most are not of a serious nature. It appears they are being handled in a manner commensurate with the severity of the problem. Resolutions range from ignoring the problem, to discussions and letters to the landowner or legal action in some instances. Attention should be given to those encroachments that jeopardize public safety and those that interfere with drainage and cause extra maintenance. Utility permits should be required before construction begins. There seems to be considerable variation in the designated location of utility lines. It would be helpful for a committee of county engineers and utility representatives to develop a uniform, optimum location for each utility type.

Personnel

Unions

Fifty-nine counties reported their employees are unionized. In 49 counties, the union is part of a larger union; 11 are local unions (1 has both). Fifteen counties have no union.

Union contracts are negotiated by an outside negotiator in 44 counties, by the county engineer in 23 counties, and by county supervisors in 18 counties. In many instances, negotiations are carried out by a combination of the parties listed. Some also listed human resources personnel, personnel director, county attorney and others.

Counties have apparently had few grievances in most cases. Only four counties have had more than 10 grievances over the last five years. Four counties had between 6 and 10. Another 15 had between 3 and 5 and the remaining 34 had less than 2.

Who Hires Employees?

In nearly all counties (54) the county engineer hires new employees, in 6 counties the supervisors hire, and 11 counties report both the county engineer and the supervisors share hiring responsibilities. A few counties have a personnel director or employment relations office. In nearly all cases, the engineer does the hiring with approval or concurrence of the board. Table 7 presents a tabulation of the number of road crew employees and the total secondary road employees as reported by the counties. Specialized bridge crews are reported by 44 counties, grading crews by 22 counties and sign crews by 62 counties. Others report they use specialized pavement patching crews in the summer, special crews for culverts, ditch cleaning, tiling, roadside management, backhoe, trucking, and spraying.

The information submitted in response to questions regarding organization of the county into “maintenance districts” and “maintainer areas” was inconclusive. There was perhaps some confusion in differentiating between those two terms.

Table 8 presents a tabulation, by county, of the average number of miles in each maintainer area. The average of those reported is 75 miles which is approximately the size of one township with more than 2/3 of the counties ranging between 65 and 85 miles. One interesting fact was that for two counties the area served in the summer was larger than served in the winter.

Recommendations: Personnel

Employees in a majority of counties are unionized. Negotiation of union contracts is most often carried out by an outside negotiator, many times with the cooperation of the county engineer, supervisors, or others. Hiring of employees is generally done by the engineer or in a few cases a personnel officer, with the approval or concurrence of the board.

County	Road Crew	Total	County	Road Crew	Total	County	Road Crew	Total
Adair	NA	NA	Floyd	25	41	Monona	31	-
Adams	15	18	Franklin	NA	NA	Monroe	17	30
Allamakee	NA	NA	Fremont	NA	NA	Montgomery	14	25

Appanoose	NA	NA	Greene	NA	NA	Muscatine	NA	NA
Audubon	23	36	Grundy	21	26-29	O'Brien	NA	NA
Benton	33	-	Guthrie	NA	NA	Osceola	16	19
Black Hawk	30	41	Hamilton	26	34	Page	25	-
Boone	29	-	Hancock	23	39	Palo Alto	24	37
Bremer	NA	NA	Hardin	NA	NA	Plymouth	26	-
Buchanan	24	29	Harrison	31	38	Pocahontas	20	28
Buena Vista	20	-	Henry	24	-	Polk	NA	NA
Butler	30	-	Howard	22	26.5	Pottawattamie	54	70
Calhoun	NA	NA	Humboldt	NA	NA	Poweshiek	24	40
Carroll	26	33	Ida	14	-	Ringgold	NA	NA
Cass	22	32	Iowa	NA	NA	Sac	17	-
Cedar	NA	NA	Jackson	23	32	Scott	21	32.5
Cerro Gordo	32	42	Jasper	NA	NA	Shelby	24	33
Cherokee	23	-	Jefferson	21	-	Sioux	27	39
Chickasaw	23	36	Johnson	26	43	Story	NA	NA
Clarke	18	26	Jones	25	33	Tama	36	45
Clay	24	34	Keokuk	23	31	Taylor	22	-
Clayton	36	-	Kossuth	NA	NA	Union	21	28
Clinton	31	46	Lee	26	-	Van Buren	15	27
Crawford	NA	NA	Linn	52	73-83	Wapello	22	31
Dallas	28	50	Louisa	16	23	Warren	25	44
Davis	NA	NA	Lucas	17	28	Washington	NA	NA
Decatur	24	-	Lyon	NA	NA	Wayne	NA	NA
Delaware	24	37	Madison	29	-	Webster	40	50
Des Moines	17	27	Mahaska	28	33	Winnebago	22	-
Dickinson	NA	NA	Marion	32	43	Winneshiek	25	-
Dubuque	29	44	Marshall	26	-	Woodbury	NA	NA
Emmet	NA	NA	Mills	22	30	Worth	17	-
Fayette	NA	NA	Mitchell	NA	NA	Wright	30	40

Table 7. Road Crew and Total Number of Secondary Road Employees

County	Miles	County	Miles	County	Miles
Adair	NA	Floyd	90	Monona	70
Adams	100	Franklin	NA	Monroe	80
Allamakee	NA	Fremont	NA	Montgomery	100
Appanoose	85	Greene	NA	Muscatine	NA
Audubon	70-75	Grundy	100	O'Brien	NA
Benton	80	Guthrie	82	Osceola	88
Black Hawk	60	Hamilton	67	Page	120
Boone	47	Hancock	52	Palo Alto	64
Bremer	NA	Hardin	100	Plymouth	75-80
Buchanan	72	Harrison	100	Pocahontas	65W-90S
Buena Vista	85	Henry	90	Polk	NA
Butler	65	Howard	60-65	Pottawattamie	70
Calhoun	NA	Humboldt	NA	Poweshiek	78
Carroll	82	Ida	80	Ringgold	NA
Cass	85	Iowa	NA	Sac	85
Cedar	80	Jackson	65	Scott	55
Cerro Gordo	60	Jasper	NA	Shelby	75
Cherokee	100	Jefferson	100	Sioux	70-80
Chickasaw	88	Johnson	55	Story	NA
Clarke	80	Jones	84	Tama	65
Clay	95	Keokuk	80-90	Taylor	114
Clayton	70-80	Kossuth	NA	Union	80-90
Clinton	68	Lee	80	Van Buren	107
Crawford	NA	Linn	50	Wapello	87
Dallas	70	Louisa	80	Warren	75
Davis	NA	Lucas	85	Washington	NA
Decatur	75	Lyon	NA	Wayne	NA
Delaware	70	Madison	80	Webster	58
Des Moines	60	Mahaska	80	Winnebago	70
Dickinson	NA	Marion	66	Winneshiek	69
Dubuque	85	Marshall	57W-94S	Woodbury	NA
Emmet	80	Mills	75	Worth	81
Fayette	NA	Mitchell	NA	Wright	75

Table 8. Maintainer Area (in miles)

Supervisor/Engineer Relations

Board/Agenda

Fifty-seven counties report the engineer has time on the agenda at each board meeting. Forty-eight report that time is always observed.

Complaint Handling

Forty-five counties report they use work orders to handle complaints and 28 do not. Rarely do board members receive copies of work orders. When a board member receives a complaint it is passed on to the engineer's office in 64 instances. In 15 cases, the citizen is referred to the engineer's office.

Recommendations: Supervisor/Engineer Relations

Most counties have a regular spot on the board agenda for the engineer. Complaints received by board members are passed on to the engineer's office for handling. Both of these procedures are as they should be.

Communicating Information to Citizens of the County

Current Methods

The most common method used by counties to convey information to the public is the newspaper (70 of 82). Twenty-seven report using radio and television. Forty-eight use prepared press releases. Forty-eight have conducted public information meetings and 8 have done special mailings. There are very few (2-4) that have previously tried these methods and then abandoned them. There were also a few counties that plan to use some of these methods in the future. Eight plan to try public meetings and 5 plan mailings.

Satisfaction with Methods of Communicating with the Public

Sixty-eight counties report satisfaction with their present methods of communicating with the public and 14 were not satisfied.

Special Methods

A few counties have had newsletters and two counties are currently considering them. One county reports conducting an annual board meeting in each city within the county. Each of the

county officers attends the meetings. Another county has held informational meetings at 3 locations within the county. Two counties are considering creating a home page on the internet and there was a suggestion of producing a video to be shown on the local cable access station. Presentations at service clubs and other groups were also mentioned as a good means of providing information. Another method is interaction with schools, particularly on Career Days.

Recommendations: Communicating Information to Citizens

It is not surprising that most counties use the newspaper to communicate with the public. That is the medium most readily available and the most interested in publishing the county news. Counties could help themselves significantly by preparing news releases, which offer a way to ensure the facts are correct and presented in a favorable manner.

County newsletters are successful in the few counties that used them, but it seems to become a burden to prepare articles that are fresh and interesting. Perhaps there could be a committee organized (e.g., the ICEA Public Relations Committee) that would write a few general articles to be published in each newsletter. Additional special articles could then be prepared to complete the newsletter. Another suggestion is to have a special "county news" section placed as an insert in the newspaper in general circulation within the county.

County Purchasing/ Leasing Practices Concerning County Equipment

Equipment Specifications

Table 9 illustrates that counties use standard specifications most of the time when purchasing equipment. A few use the Iowa Department of Transportation specifications but most counties use those they developed themselves. Their comments indicate that the specifications were developed by the Iowa DOT and from other counties.

Equipment Leasing

The information received regarding leasing of equipment was inconclusive. Between 1 to 6 counties, however, indicated they lease some of the equipment listed in Table 9.

			Specifications From	
	Yes	No	Iowa DOT	County
Tractors/Mowing Equipment	34	34	2	41
Autos/Pickups	46	22	12	40
Excavators	39	29	2	45
Loaders	43	24	2	49
Bulldozers	37	30	2	41
Road Graders	51	18	2	52
Drag Lines	28	33	2	38

Table 9. Use of Standard Specifications for Purchase

Equipment Sharing

Six counties indicate they share their equipment with other counties and 5 share with cities. It is noted that the numbers as reported may be lower than the true number because several more counties listed equipment they currently share.

In addition to tractors and mowing equipment, automobiles and pickups, excavators, loaders, bulldozers, and road graders are shared as are drag lines, street sweepers, seeders, paving equipment, asphalt rollers, water pumps, distributors, crack filling equipment, scrapers, lowboy trailers, brush chippers and other specialized equipment. In most cases, this equipment is used for special construction or maintenance activities for a short time. There are also many instances where counties regularly loan such equipment on an informal basis. Many times the operator of the equipment goes with it.

Recommendations: County Purchasing and Leasing Practices

Most counties use standard specifications when purchasing equipment. There is sharing and loaning of equipment between counties and also some with cities. County engineers should look into producing a list of specialized equipment and circulating it to others in the area. This might lead to more opportunities for sharing.

Overall Conclusions and Recommendations

The county engineers and supervisors of Iowa have long shared experiences and information with each other to enhance efficiency, quality, and service in the secondary road area. Often when a new problem has emerged, they have worked toward a solution in a group effort. All have been very willing to share their experiences with others. This study has illustrated this kind of cooperation and sharing. Researchers initially determined the most important problems in the secondary road area, then gathered information on how each county handles its problems. This document is a compilation of that information. It has been particularly interesting to note that all counties shared nearly the same problems and that all appear to be solution oriented.

The information in this document is intended to be used as a reference document, to show how counties in general have acted regarding their most important issues. It should serve as a guide for each county not only to review its current policies and procedures, but also as a guide to provide solutions to new problems.

It is, therefore, recommended that all county engineers review these subjects with their boards of supervisors. Information presented in this document can then be discussed at a series of regional meetings. Since the most important problem list was developed and later discussed at this type of meeting, the cycle would then be completed. There may be some merit to a presentation at a statewide meeting in addition to or instead of the regional meetings.

Appendix A

GUIDELINES FOR COUNTY DECISIONS
QUESTIONNAIRE #1

1. Please provide the name of your county:_____

*The following questions (2-9) relate to **Level B roads**:*

2. Are there any Level B roads in your county?
    1. Yes
    2. No (If NO, skip to Question #6)

3. If your county has Level B roads, what are the criteria you use for selecting these roads?
    1. Type of surfacing
    2. Number of times graded each year
    3. Number of residences served by road
    4. If any industry is located on the road
    5. Condition of drainage structures
    6. Other (please specify)_____

4. Is your county Level B policy the standard policy?
    1. Yes
    2. No
    3. Do not know (If DO NOT KNOW, skip to question #6)

5. If your county Level B policy is NOT the standard policy, please list all amendments that your county has made:
    1.
    2.
    3.
    4.

6. If your county does NOT have Level B roads, does your county have a dirt road policy?
    1. Yes
    2. No

7. If you do NOT have any Level B roads in your county, please briefly identify reasons why you do not:
    1.
    2.
    3.
    4.

8. Has your county had any liability issues arise in connection with Level B roads?
    1. Yes
    2. No (If NO, skip to question #10)

9. Please briefly describe the liability issues that have been raised in connection with Level B roads in your county:

The following questions (10-14) relate to decisions your office may have faced regarding ***vacating county roads:***

10. Have you vacated, or attempted to vacate, any roads in your county within the last ten years?

1. Yes (if YES, skip to Question #12)
2. No

11. "The following are reasons why our county has **NOT** vacated any county roads within the last ten years" (please circle all that apply):

1. The office of the county engineer (or secondary roads) does not have adequate staff to go through the road vacation process.
2. The Board of Supervisors does not want to raise the issue.
3. The potential money damages that might be paid those affected by vacating a road outweigh the cost savings.
4. The county does not initiate road vacation proceedings unless all landowners first agree to the vacation.
5. The county does not initiate road vacation unless a request has been made by a citizen.
6. Other; (please specify)_____

12. "The following are reasons why our county initiates road vacation proceedings" (please circle all that apply)

1. The county attempts to vacate low-volume roads in order to save maintenance
o costs.
2. The county vacates roads when requested by affected landowners.
3. The county attempts to vacate low-volume roads that have deteriorating bridges.
4. Other; (please specify)_____

13. What techniques have you used to successfully vacate roads?

14. Overall, are you satisfied with the results of your vacation policies? Circle the appropriate response using the following scale.

VERY SATISFIED					NOT AT ALL SATISFIED
1	2	3	4	5	6

*The following questions (15-19) relate to the **snow removal policy** in your county:*

15. Has your county adopted the ISAC model snow removal policy?
    1 Yes
    2. No
    3. Do not know (If DO NOT KNOW, skip to question #18)

16. If YES to Question #15, has your county made any revisions to the model policy?
    1 Yes
    2. No

17. If YES to question #16, please briefly identify the revisions your county has made and the reason(s) for their adoption:

18. Has your county had any liability issues arise in connection with your snow removal policy or practice?
    1. Yes
    2. No (If NO, skip to question #20)

19. Please briefly describe the liability issues that arose in connection with your county's snow removal policy:

*The following questions (20-30) relate to **dust control** measures taken by your county:*

20. Does your county have a dust control policy?
    1 Yes
    2. No

21. What type of material do you use for the control of dust?
    1. Calcium Chloride
    2. Lignon Sulfite (tree sap)
    3. Seal coat
    4. Magnesium Chloride
    5. Emulsion/cutback
    6. Other; please specify:

22. Please rank in the order of importance the following factors in selecting the material used for dust control (1 being most important, 4 being least important).
    ___Cost
    ___Effectiveness
    ___Availability
    ___Other; please specify:_____

23. Who applies the dust control materials in your county?
    1. County forces
    2. Private contractor
    3. Landowners

24. If dust control materials are applied by a private contractor, who selects the contractor?
    1. Landowner
    2. County

25. If dust control materials are applied by a private contractor, who selects the material?
    1. Landowner/Contractor
    2. County

26. How is the permitting process for dust control handled?
    1. Landowner applies directly to county for permit.
    2. Contractor performing application applies to county on behalf of the landowner
    3. Other; please explain:

27. How are the costs of dust control materials and application divided? Please provide dollar amount or percentages:

    ____ Amount paid by landowner (in $ or %)
    ____ Amount paid by county (in $ or %)

28. Are there any circumstances under which the county pays for the entire cost of dust application?
    1. Yes
    2. No (If NO, skip to Question #30)

29. "Our county pays for the entire cost of dust application in the following circumstances" (please circle all that apply)
    1. In front of rural schools
    2. In front of rural churches
    3. In front of rural cemetaries
    4. On roads where excess traffic is being created by county because of construction hauling.
    5. On roads where excess traffic is being created by a county detour.
    6. On roads where excess traffic is being created by a state detour.
    7. Other; please specify:

30. Does the county prepare the road in advance of application?
    1. Yes
    2. No

*The following questions (31-33) relate to your county's actions regarding the **privatization of services** provided by, or to, the county:*

31. How often are the following services contracted out to private contractors by your county? Use the following scale:

NEVER 50% OF THE TIME ALWAYS
1 2 3 4 5

Snow removal	1	2	3	4	5
Weed control	1	2	3	4	5
Dust control	1	2	3	4	5
Road construction	1	2	3	4	5
Crack sealing	1	2	3	4	5
Pavement patching	1	2	3	4	5
Roadside mowing	1	2	3	4	5
Seal coating	1	2	3	4	5
Equipment maintenance	1	2	3	4	5
Bridge inspection	1	2	3	4	5
Bridge maintenance	1	2	3	4	5
Bridge design engineering	1	2	3	4	5
Road design engineering	1	2	3	4	5
Construction inspection	1	2	3	4	5
Surveying	1	2	3	4	5
Hauling granular surfacing	1	2	3	4	5
Solid waste collection/disposal	1	2	3	4	5
Right-of-way acquisition	1	2	3	4	5

32. Please identify any other services contracted out to private contractors by your county:

33. Are there any services for which you have used private contractors that have not been effective? Please explain:

*The following questions (34-37) concern your county's efforts to **communicate information to the citizens of your county:***

34. In the FIRST COLUMN of the two columns provided below, please circle any of the following methods your county is CURRENTLY USING to provide information to the public.

Column 1	Column 2	Column 3	
1	1	1	Newspaper articles
2	2	2	Regular mailings
3	3	3	Press releases
4	4	4	Radio or television/cable access programs
5	5	5	Public informational meetings (meetings not called for the conducting of regular business).
6	6	6	Other; please identify:

35. In the SECOND COLUMN of the previous list, circle any method of providing information to the public that your county has PREVIOUSLY TRIED, but ABANDONED. For each method circled in the second column, please explain below why the county no longer provides information to the public in this manner:

36. In the THIRD COLUMN of the previous list, circle any method of providing information to the public that your county PLANS TO TRY to increase communications with county residents.

37. How satisfied are you with your current method of providing information to the public? Circle the most appropriate response using the following scale.

VERY SATISFIED					NOT AT ALL SATISFIED
1	2	3	4	5	6

*The following questions (38-45) relate to **county policies, laws and rule making**.*

38. Does your county have a written policy manual?
    1 Yes
    2. No (If NO, skip to question #41)

39. "Our county's policy manual contains the following materials:" Please use the following scale:

DOES NOT CONTAIN	CONTAINS SOME, BUT NOT COMPLETE SET	CONTAINS ALL
1	2	3

County Ordinances	1	2	3
County Resolutions	1	2	3
Written County Policies (general)	1	2	3
Personnel Policies	1	2	3
Safety Policies	1	2	3

40. If you responded by circling (2) anywhere in Question #39, please specify how you determine which items to include in your county's policy manual:

41. Please specify any other materials your county policy manual may contain:

42. Please rank what you believe to be the five most important ORDINANCES in your county:

1. _____

2. _____

3. _____

4. _____

5. _____

43. Please rank what you believe to be the five most important RESOLUTIONS in your county:

1. _____

2. _____

3. _____

4. _____

5. _____

44. Please rank what you believe to be the five most important POLICIES in your county:

1. _____

2. _____

3. _____

4. _____

5. _____

45. Please list three criteria your county uses to decide whether to enact a county board action as an ordinance or a resolution:

1. _____

2. _____

3. _____

Appendix B

GUIDELINES FOR COUNTY DECISIONS
QUESTIONNAIRE #2

1. Please provide the name of your county: _____

*The following questions (2-9) relate to **your county's leasing/purchasing practices concerning county equipment:***

2. Does your county use a standard set of equipment specifications when purchasing the following county equipment (1=Yes, 2=No, circle one for each) (If NO TO ALL, skip to Question #4)

Tractors/mowing equipment	1	2
Automobiles/pickups	1	2
Excavators	1	2
Loaders	1	2
Bulldozers	1	2
Road graders	1	2
Drag line	1	2
Other (Please specify):	1	2

3. What was the source of your standard equipment specifications (circle the appropriate response using the following identifiers):

1. Iowa Transportation Center (now Center for Transportation Research and Education)
2. Iowa Department of Transportation
3. Our county developed them ourselves
4. Other (please specify)_____

Tractors/mowing equipment	1	2	3	4
Automobiles/pickups	1	2	3	4
Excavators	1	2	3	4
Loaders	1	2	3	4
Bulldozers	1	2	3	4
Road graders	1	2	3	4
Drag line	1	2	3	4
Other (Please specify):	1	2	3	4

4. Does your county lease any equipment?

1. Yes
2. No (If NO, skip to question #10)

5. Please identify the equipment your county leases/purchases/both (circle the appropriate response in the table using the following identifiers):

1. Purchases only
2. Leases only
3. Both (sometimes purchases, sometimes leases)

Tractors/mowing equipment	1	2	3
Automobiles/pickups	1	2	3
Excavators	1	2	3
Loaders	1	2	3
Bulldozers	1	2	3
Road graders	1	2	3
Drag line	1	2	3
Other (Please specify):	1	2	3

6. Are you currently in an equipment-sharing arrangement with any other counties?

1. Yes
2. No

7. Are you currently in an equipment-sharing arrangement with any other cities?

1. Yes
2. No

(If NO to both Questions 6 and 7, skip to Question #10)

8. Please identify the equipment that you share with the other entity (circle all that apply):

1. Tractors/mowing equipment
2. Automobiles/pickups
3. Excavators
4. Loaders
5. Bulldozers
6. Road graders

9. Please identify any equipment that you share that is not on the above list:

The following questions (10-12) relate to ***right-of-way encroachments:***

10. Does your county experience problems with any of the following right-of-way encroachments (circle all that apply):

1. Farming in the right-of-way
2. Pasturing or grazing in the right-of-way
3. Parking farm equipment in the right-of-way
4. Storing hay in the right-of-way
5. Extending fence rows into the right-of-way
6. Other (please specify)_____

11. Please rank the frequency with which your county encounters these problems ("1" being encountered most frequently, and so on):

____ Farming in the right-of-way
____ Pasturing or grazing in the right-of-way
____ Parking farm equipment in the right-of-way
____ Storing hay in the right-of-way
____ Extending fence rows into the right-of-way
____ Other (please specify)_____

12. What actions will your county normally take when dealing with a right-of-way encroachment (please circle all that apply):

1. We generally ignore right-of-way encroachment problems
2. Someone from the county (road department employee, engineer, supervisor) will talk to the landowner informally
3. The county will send the landowner a letter asking him to correct the situation
4. The county will correct the situation on its own, without contacting the landowner
5. The county will initiate legal action
6. Other (please specify)_____

*The following questions (13-20) relate to **right-of-way easements**:*

13. Does your county require utility companies (telephone, electric, rural water, etc.) to obtain a permit before placing utilities in a right-of-way?

1 Yes
2. No (If NO, skip to Question #15)

14. What is your permit fee?

$____ flat fee **OR**
$____ per linear foot

15. Do you require utility companies to put up a bond or a damage deposit before beginning work?

1 Yes
2. No

16. Is it the county's policy to have a county employee present at the site during construction or installation?

1 Yes
2. No

17. Does your county require placement of utilities in a particular location within the right-of-way?

1 Yes
2. No (If NO, skip to Question #22)

18. "Utilities are required to be placed..." (circle the appropriate response in the table using the following identifiers):

1. In the shoulder
2. In the ditch
3. In the roadway
4. On the backslope
5. As near to the right-of-way line as possible

Underground electric lines	1	2	3	4	5
Overhead electric lines	1	2	3	4	5
Gas pipelines	1	2	3	4	5
Telephone lines	1	2	3	4	5
Rural water lines	1	2	3	4	5
Cable lines	1	2	3	4	5
Other (Please specify):_____	1	2	3	4	5

19. Have you had instances when utility companies have not complied with your county's easement policies?

1 Yes
2. No (If NO, skip to Question #21)

20. Which problems have you encountered with utility companies (circle all that apply):

1. Utility was not placed in proper location
2. Utility was not placed at proper depth
3. Company damaged existing culverts, tiles, etc.
4. Inadequate cleanup
5. Failure to obtain permit before beginning work
6. Inadequate traffic control/warning devices
7. Failure to stay within schedule
8. Others (Please specify):_____

The following questions (21-27) relate to ***the construction and maintenance of private entrances:***

21. Does your county have a policy addressing the construction and maintenance of entrances?

1 Yes
2. No

22. Does your county require a permit before the construction of an entrance can take place?

1 Yes
2. No

23. Who constructs new entrances?

1. County
2. Landowner

24. Does your county regulate the location of entrances?

1 Yes
2. No

25. How are the costs of each of the following elements of entrance construction divided? Please express in dollars or percentages:

COST OF PIPE:
_____Amount paid by landowner
_____ Amount paid by county

COST OF CONSTRUCTION:
_____ Amount paid by landowner
_____ Amount paid by county

COST OF SURFACING:
_____ Amount paid by landowner
_____ Amount paid by county

26. Who is responsible for maintaining the entrance after it is built?

1. County
2. Landowner

27. Approximately how many new entrances are constructed in your county each year (circle one)?

1. 0-2
2. 3-5
3. 6-10
4. More than 10

The following questions (28-35) relate to ***your county's roadside management practices:***

28. Is roadside management the responsibility of the county engineer's office?

1 Yes (If YES, skip to Question #30)
2. No

29. If roadside management is NOT the responsibility of the county engineer, please identify the county department that is responsible for roadside management:

30. Please rank the following roadside management problems experienced in your county in order of severity ("1" being the most serious problem, and so on):

____ Weeds
____ Brush
____ Ditch erosion
____ Silt from fields
____ Foreslope/backslope erosion
____ Trash
____ Other (please specify)_____

31. Please indicate how many times per year your county mows each of the following:

On PAVED ROADS:

Right-of-way:_____
Foreslope:_____
Shoulder:_____
Weed spots:_____

On ROCKED ROADS:

Right-of-way:_____
Foreslope:_____
Shoulder:_____
Weed spots:_____

32. What is your practice for spraying road rights-of-way (circle one):

1. Spray the entire right-of-way
2. Spot spray only
3. We do not spray rights-of-way

33. Approximately how many miles of your rights-of-way have you planted to prairie grasses?

_____miles

34. What is your practice for cleaning ditches (circle one):

1. We have a regular program for cleaning ditches
2. We clean ditches at the request of the landowner
3. Other (please specify)_____

35. How do you dispose of the dirt cleaned from the ditch (circle the county's first preference for disposal):

1. The county makes use of the dirt where needed
2. The closest landowner gets the dirt
3. Other (please specify)_____

*The following questions (36-43) concern **rural developments:***

36. Does your county have an ordinance regulating the design of roads/streets within new subdivision developments?

1. Yes
2. No (If NO, skip to Question #39)

37. What type of street improvements are required by your ordinance (circle all that apply):

1. Curb and gutter
2. Concrete pavement
3. Asphalt pavement
4. Gravel
5. Others (please specify)_____

38. Do you require a minimum right-of-way width?

1. Yes
2. No

39. Who pays for the construction of the streets within new subdivisions?

1. County
2. Developer
3. Both (Please explain how costs are divided)_____

40. Does your county accept these streets/roads into the county system after they are built?

1. Yes
2. No

41. If a subdivision development is proposed to locate on an unimproved road, who pays the cost of upgrading the road?

1. County
2. Developer
3. Both (Please explain how costs are divided)_____

*The following questions (42-48) relate to **supervisor/engineer relations:**.*

42. Does the county engineer have a time on the agenda at every board meeting?

1 Yes
2. No (If NO, skip to question #44)

43. Is the engineer's time on the agenda always observed?

1 Yes
2. No

44. When a complaint is received concerning a secondary road matter, do you use a work order?

1. Yes
2. No (If NO, skip to Question #46)

45. Do Board members receive copies of completed work orders (circle one):

1 Board members receive copies of all completed work orders
2. Board members only receive copies of completed work orders generated by the Board
3. Board members do not receive copies of completed work orders.

46. When a complaint is received by a Board member, what procedure is followed most often (circle one):

1. The Board member generates a work order
2. The Board member passes the complaint on to the engineer's office
3. The Board member refers the citizen to the engineer's office
4. Other (Please specify):_____

*The following questions (47-60) relate to **personnel matters:***

47. Are county employees in your county unionized?
    1. Yes
    2. No (If NO, skip to Question #51)

48. The county employees' union is ...(Circle one)
    1. a local union
    2. part of a larger union

49. Approximately how many grievances have been filed over the last five years?
    1. 0-2
    2. 3-5
    3. 6-10
    4. More than 10

50. Who negotiates the union contract for secondary road department employees?
    1. County engineer
    2. County supervisor(s)
    3. An outside negotiator is hired
    4. Other (Please specify)_____

51. Who has responsibility for hiring secondary road employees?
    1. County engineer
    2. County supervisor(s)
    3. Other (Please specify)_____

52. How many TOTAL miles of secondary roads does your county have?
    _____ miles

53. How many miles of PAVED secondary roads does your county have?
    _____ miles

54. Please provide the number of employees employed in each of the following categories:
    _____ Engineers (P.E.)
    _____ Engineering interns (E.I.T.)
    _____ Office staff
    _____ Technicians
    _____ Road superintendents and foremen
    _____ Road crew employees
    _____ Seasonal employees
    _____ Others (Please specify job titles)_____
    _____ TOTAL IN SECONDARY ROAD DEPARTMENT

55. Do you have any specialized crews (1=Yes, 2=No) (circle one for each):

Bridge crews	1	2
Grading crews	1	2
Sign crews	1	2
Other (Please specify):_____	1	2

56. Is your county organized into maintenance districts?
    1. Yes
    2. No

57. How many maintenance districts does your county have?
    # of districts:_____

58. Is your county organized into maintainer areas?
    1. Yes
    2. No

59. How many maintainer areas does your county have?
    # of areas_____

60. Approximately what is the average number of miles in each maintainer area?
    _____ miles

Appendix C
Illustrations and Analysis of Consequences of Rural Developments

Most counties that have a potential for seeing rural developments constructed within their jurisdictions, already have policies in place covering requirements.

County engineers will no doubt continue to make decisions based upon their knowledge of the needs of the secondary road network — from an engineering perspective. They are also likely to begin identifying more problems, particularly problems that are not readily apparent, either to the pubic or to the members of their boards of supervisors who, at first pass, may view increases in population as a positive sign of economic growth in their counties.

As county engineers and their supervisors face the prospect of losing ground in their efforts to maintain Iowa's aging rural roads and bridges, it is becoming increasingly necessary for them to provide current and prospective rural residents with information so that all who are (or will be) affected, will understand the dilemma they face. The continuing problem of where the taxes for services will come from remains a dilemma, as counties compete with social service departments, mental health agencies, and other agencies for funds needed to hire personnel which the counties need to retain Iowa's high quality secondary road and bridge network. As William O. Dannhausen noted 25 years ago,

> engineers must provide the citizens they serve with a continuing flow of communication so that they may reach their national and state representatives to convince them that counties, ... are where the action is . . . where the taxes, for services which include their local road . . . . systems are paid and yet to a substantial degree ignored.

If Americans, and in this case, Iowans want to retain the right to choose where they live, county budgets earmarked for transportation purposes must increase. If they do not, then counties are going to be faced with and forced to make zoning decisions that proscribe a property owner's wish to construct that $200,000 home or a developer's desire to construct a 30 home housing development. Few counties have zoning ordinances prohibiting housing developments from being constructed. Forty-seven county engineers responding in this study, however, reported they do have an ordinance regulating the design of streets in rural housing developments. It is the 25 reporting they do not have a current policy on this issue that may need to address this issue (providing the probability exists for construction of either a housing development or a single family dwelling which would force the county to upgrade the road(s) leading to and from that dwelling.

In illustration of the problems presented by rural housing developments, former Story County Engineer Del Jespersen noted a number of years ago that sometimes the decision strategy adopted to respond to citizen demands for increasing service levels on rural roads is predicated upon a "squeaky wheel gets the grease" perspective, even when it is apparent that the decision may be too costly for the county in the long run. A case in point in Story county is presented by insistent demands made by residents in two rural developments north of Ames, Iowa — Prairie Ridge Community and Squaw Valley — for the county to seal coat the North Squaw Valley Road. At the time Jespersen agreed to this, the gravel road surface was not a good candidate for a permanent upgrade but because of extensive construction on the South Squaw Valley Road, the north road was seal coated.[32] This was done with the express understanding that when construction on the South Squaw Valley Road was completed, the North road would revert back to gravel. Once residents from Prairie Ridge Community became accustomed to the higher quality seal coat road, however, they loudly and insistently demanded the road be both retained and maintained.

In response to residents requests for continued service, maintenance was performed on a regular basis. Within a couple of years, the next demand from residents (this time solely from Prairie Ridge Community) was to seal coat a .3 mile stretch of road north, off the Squaw Valley road, leading up to the Prairie Ridge development. This would ensure that Prairie Ridge residents (who already had asphalt applied to the roads within their community) would have high quality roads stretching from the Ames city limits to their homes. It was argued this would also increase the value of homes in the Prairie Ridge settlement.

Again, Jespersen argued this road was not ready for such a surface, also because of severe frost boil problems in the spring each year which frequently made the road virtually impassable for several weeks in the spring. Once again loud and insistent demands emanating from Prairie Ridge residents resulted first in building up the road and then a year later in seal coating it. In effect, subdivision homeowners "got the job done."

Since both the North Squaw Road and the .3 mile stretch of road leading to the housing subdivision were seal coated, each has experienced serious frost boil problems nearly every spring. This in turn has resulted in the need for repeated and sometimes extensive maintenance, such as, filling wide cracks and large potholes, and at one point rehabilitation (i.e., a second seal coating

surface was applied). These expenditures, which were completed to satisfy rural residents, have undoubtedly been much more costly for the county than maintaining a gravel road.

Simply stated, as time passes, there will not be sufficient funds to address the levels of service demanded by all "squeaky wheel" residents, especially those whose "wishes" for service are, fiscally speaking, unrealistic. Granted, not all rural counties are experiencing rapid subdivision development, but for those which are, the problem is expected to intensify, in large part because county engineers will be asked to carve even more money from already strained budgets to prevent more serious problems, ranging from scenes such as the one presented by residents of Prairie Ridge Community to the problems created as increasing numbers of lake home owners are being converted to year round residences. Extolling the virtues of the "rural rebound" appear very positive economically, yet many experts suggest we are just seeing the beginning of a shift in demographics which may be more costly for rural America than it can afford.

Appendix D

Hardin County Policy Manual Index: Bob Haylock, County Engineer for Hardin County, Iowa, provided his county's policy manual which contains the following topics:

- Personal hearing protectors
- Lockout procedure program
- Safety vests
- Fire prevention and what to do in case of a fire
- Employee emergency evacuation plan for bomb, fire, and tornado
- Harassment policy and complaint procedure
- Grievance procedure under Americans with Disabilities Act
- Secondary road policies related to cities and other governmental entities
- Septic tank outlets within right-of-way
- Mailbox policy
- Drainage repairs
- Tile crossing
- Beaver dams in drainage districts
- Level B road maintenance ordinance
- Adopt a roadway program
- Snow and ice maintenance on secondary roads (Resolution #94 - 06)
- Snow and ice maintenance (Ordinance No. 16)
- Construction of new driveways
- Roadway right of way vegetation cutting
- Road obstructions
- Permits for utility line construction
- Disciplinary action policy
- Agreement with public, provisional, and maintenance employees, Local 2003, IBPAT
- Uniform rural address system for residents
- Protective ear wear policy for secondary road workers and conservation personnel
- Statement of safety policy
- Collective bargaining agreement

Maps showing summer motor grader routes, winter motor grader routes, truck wings district, 1 - way plows, and Level B roads

Appendix E

General Comments

County engineers agree that rural transportation officials, more often than their city counterparts, find themselves at the mercy of political strategies designed by county residents to place pressure on county board members. Significant numbers of county supervisors in particular, say their success is often contingent upon their individual and collective abilities of good gamesmanship. While open lines of communication between county engineers and their boards are standard in Iowa, pressures from county residents are expected to increase over time, making it increasingly difficult to meet the demands of everyone. Public demands for service reflect a growing concern for counties, particularly those that currently do not have sufficient funds in their budgets to respond to all requests from the public.

Active home owner's associations and neighborhood or citizen groups are emerging in many rural jurisdictions across the state. Many rural residents, particularly those who have previously lived within urban areas, were accustomed to timely and effective responses to requests for service. Consequently, they tend to share a reduced tolerance for less than desirable roads. Moreover, they are not always rational in their demands for responses to their requests. While public requests tend to be numerous and varied, according to county engineers, dust on gravel roads ranks high as a problem. Realistically, the use of road and bridge funds for political purposes is neither new nor uncommon. The downside of increased public participation in policy making is, however, that board members must remain ever more sensitive to the needs of the electorate if they plan to remain in office.

Increased public involvement in the decision making process may, in one sense, serve to undermine the efforts of county engineers who must continue to use sound engineering principles to sell the most important road and bridge priorities to their boards. County engineers will likely experience a sense of competition with the general public when it comes to making sound recommendations to their board members. Knowledge of the need for uniformity may not eliminate the political issues, but it may offer board members a way to respond to the public in a way that educates it to the fiscal realities counties are facing today.

In summary, a written policy will serve to promote uniformity and consistency in the way all property owners are treated. Moreover, while dust control is not a significant liability issue, it can raise legal issues in some counties which could be avoided if there is a clear understanding among county engineers, county supervisors, and county residents.

Over the years, particularly since the late 1970s, and extending through the farm crisis of the 1980s, the sizes of both farms and farm equipment have increased. As a crop specialist with Iowa State University Extension in Nevada, Iowa, noted, "to survive, farmers had to farm larger tracts of land." To do so efficiently, farmers needed larger equipment. As Tom Blyth, general manager of the Case-IH dealerships in Nevada and Ogden, Iowa, noted, these changes in farming practices (i.e., larger tracts of land demanding larger equipment) have not been without consequences. Blyth noted that ,"It's getting to the point where equipment size is limited only by the size of roads." Story County Engineer, Harold Jensen knows first-hand about the challenges that large farm equipment poses on county roads. In an interview with an Ames Tribune reporter he said:

> the width of the equipment exceeds many of the rural road bridges now, and the weight of the biggest equipment can destroy gravel or blacktop roads, especially during the spring thaw if farmers aren't careful.

Jensen noted that the size of farm equipment has had an effect on the secondary roads and bridges in Story County, Iowa. It is, therefore, logical to assume that because of increased needs for maintenance on roads used by farms with bigger and bigger implements, the cost of maintaining such roads has increased as well.

Jensen went on to say that even though farmers are aware of the size and weight limits of the roads which minimizes problems, one of the problems is that big implements have had a tendency to "knock down the markers on the sides of the bridges," and leave tracks resembling those of a "military tank or crane (instead of round tire tracks)."

Endnotes

[1] E.g., county engineers and county supervisors

[2] William 0. Dannhausen, "A Commitment to Better Local Roads is Needed . . . . Now," Better Roads, p. 6 August 1979.

[3] Ibid.

[4] Note that a majority of the roads and bridges in rural America were constructed following World War II – more than 50 years ago.

[5] Arthur L. Elliott, "Special Report/Exclusive: While Bridges Fall, Politicians Fiddle." Better Roads, P. 20 November 1976.

[6] Elliott bases his prediction on and examination of past responses.

[7] Ibid. While Elliott's predictions are 21 years old, rather than finding his work dated, it remains timely.

[8] Determined by level of service needed to minimize chances of vehicle accidents involving personal injury.

[9] Ibid. See Elliott.

[10] Ibid.

[11] Baumel Study

[12] Ibid.

[13] e.g., adoption of different snow and ice removal policies, dust control policies, benefit of rehabilitation of road surface v cost of deferred maintenance, designating low traffic volume roads as Level B roads even though this may be a controversial and unpopular decision.
[14] Ibid. This is also a recommendation made by researchers in this project.

[15] Quadrennial Needs Study: Report on Highways, Roads, and Streets for Study. Years 1990-2009, Iowa Department of Transportation, P. 16 January 1991.

[16] The questionnaires are included in this reference document in Appendices A and B.

[17] As revealed by a preliminary analysis of the data.

[18] Two counties reported lawsuits which resulted directly from their snow and ice removal policies. Plaintiffs in the lawsuits brought against the county claimed the county had not properly cleared the road at a crossing. In one case, the county's written policy specified that the first priority was to clear paved roads for "one - way" traffic after a snowfall. The county's actual "practice," in contradiction to the specified policy, was to clear paved roads for "two way" traffic prior to clearing other roads in the county. Plaintiffs claimed the actual county practice resulted in a preventable accident, i.e., had the county expended less effort - - clearing paved roads for only one - way traffic - - the road where the accident occurred might have been cleared, thus

preventing an accident. An out of court settlement was made. The county has since revised its policy to conform to its actual practices.

The accident occurring in the other county involved a car which had swerved off a curve on a granular surfaced road that was partially snow covered. This latter case, in Cedar county, went to the Iowa Supreme Court, which ruled that because the county had followed its policy, it was, therefore, not liable for the accident.

[19] The Iowa Department of Transportation, Office of Local Systems has several sample agreements, contracts, and resolutions that will be furnished upon request. (Note: These have not been kept up to date, but could, nonetheless, be used as models).

[20] If, for example, a county makes an informal decision to clear roads at 6:00 AM instead of 7:00 A.M. as specified in a written policy, then the 6:00 A.M. time, even though it is not a written policy, becomes policy. If at some later point in the winter season, the crew does not clear roads until 7:00 A.M., the county will be exposed to liability should there be an accident. Having a "written" policy on snow and ice removal, whether it conforms to the ISAC model policy or a specially developed county policy will, in many instances, discourage filing of lawsuits.

[21] Policies detail materials to be used for dust control, whether a permit is required and who is responsible for application of materials, and who will absorb the cost of application of materials.

[22] Some county engineers pointed out that a Level B designation is "somewhat controversial." It is noted, however, that only three counties reported actual liabilities as a result of Level B roads. Nonetheless, one significant lawsuit could have a disastrous effect on a county's budget. All county engineers must remain sensitive to the "potential" for liability when levels of service decrease within their counties. One county responding in this study reported a double fatality accident at a bridge approach. There had been a washout of the approach to the bridge that had been "filled in," but not completely repaired. The motorist drove around the Level B signs and a "road closed" sign to cross the bridge. In this case, a lawsuit is pending. Another county engineer reported that when the county initiated the process to vacate a Level B road, an adjacent landowner argued this would result in his farm becoming landlocked, i.e., with neither egress nor ingress accessible to him. In this case, the county elected to abandon "vacation" proceedings. Ultimately, the landowner was successful in forcing the county to upgrade the Level B road, which also cost the county.

[23] Comment made by a county engineer participating in this research.

[24] Kenneth Pins, "U.S. population trend: Going rural, "Des Moines Sunday Register, June 1, 1997, 1A.

[25] Ibid.

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